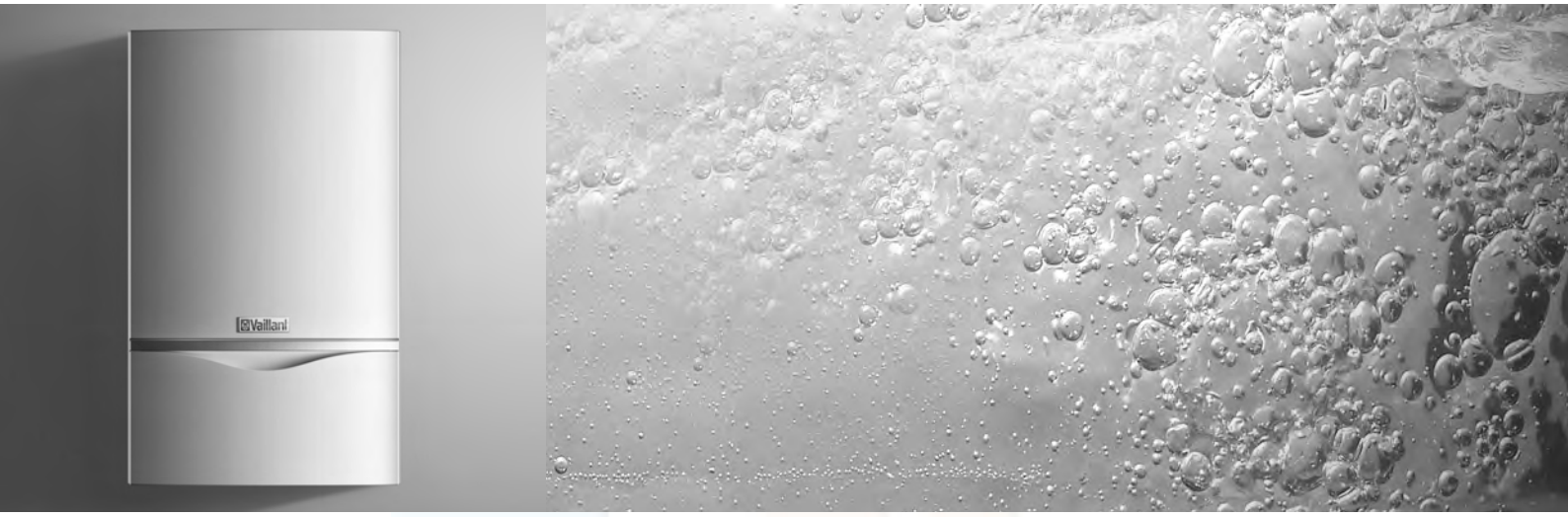
For the installer

Installation and maintenance instructions

ecoTEC exclusive



Gas wall boilers with condensing appliance technology

ecoTEC exclusive 832
ecoTEC exclusive 838

GB

Contents

1 Notes on the documentation

The following information is intended to help you throughout the entire documentation.
Further documents apply in combination with this installation and maintenance manual.
We accept no liability for any damage caused by failure to observe these instructions.

Other applicable documents
For the owner of the system:

Operating manual	no. 838402
Brief operating instructions	no. 838404
Warranty card	no. 0020055745
Assembly manual for flue accessories	no. 834449

1.1 Storage of the documents

Please pass on this operating and installation manual and all other valid documents to the operator of the installation in order for him or her to store it so that it is available whenever it is required.

1.2 Safety instructions and symbols

Please observe the safety instructions in this manual for the installation of the appliance.
The symbols used in the manual are explained below:

Danger!
Immediate danger to life and limb!

Danger!
Risk of death from electric shock!

Danger!
Risk of burns or scalding!

Caution!
Potentially dangerous situation for the product and environment!

Note!
Useful information and instructions.

- Symbol for a necessary task

2 Description of the appliance

2.1 Design

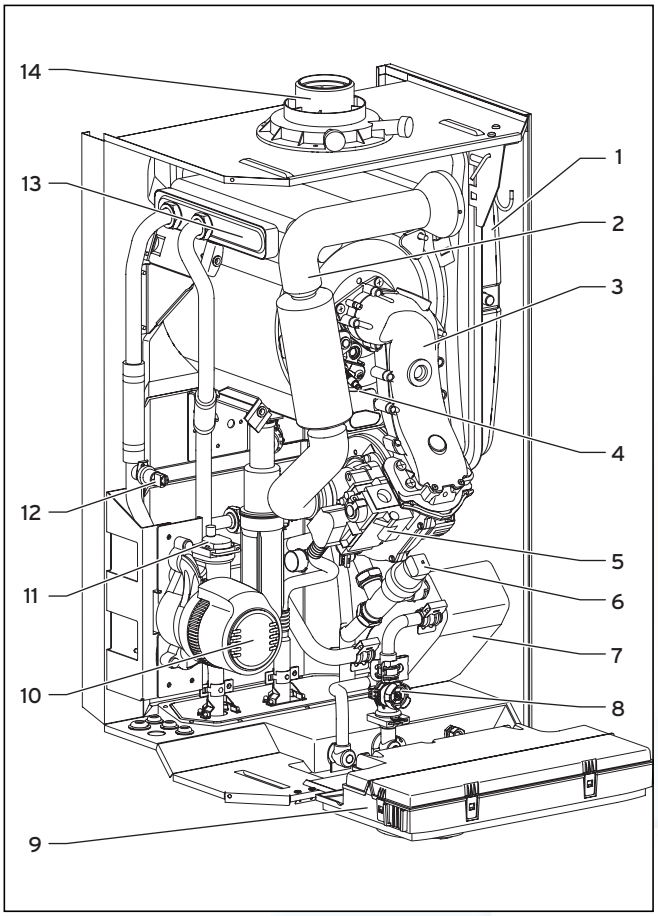


Fig. 2.1 Functional elements of ecoTEC exclusive

Key to Fig. 4.2

1 Expansion vessel
2 Air intake pipe
3 Burner assembly
4 Ignition electrode
5 Gas Valve
6 Diverter valve
7 Hot water heat exchanger
8 Aqua-Sensor
9 Electronics box
10 Pump
11 Auto air vent
12 Pressure sensor
13 Heat exchanger
14 Air / flue gas duct

2.2 CE label

CE labelling shows that the appliances comply with the basic requirements of the following directives:

- Directive **90/396/EEC** of the Commission with revisions "Directive for Harmonisation of Legal Regulations of the Member States for Gas Consumer UNits" (Gas equipment directive)
- Directive **92/42 EEC** of the Commission with revisions "Directive Concerning the Efficiency of New Hot Water Heating Boilers Fired by Liquid or Gaseous Fuels" (Efficiency directive)
- Directive **73/23/EEC** of the Commission with revisions "Directive Concerning Electrical Operating Equipment for Use Within Specific Voltage Limits" (Low voltage directive)
- Directive **89/336/EEC** of the Commission with revisions "Directive Concerning Electromagnetic Compatibility"

The units comply with the prototype described in the EU Prototype Test Approval:
PIN-No. CE-0085BR0308
The units comply with the following standards:

- EN 483
- EN 625
- EN 677
- EN 50165
- EN 55014
- EN 60335-1
- EN 60529
- EN 61000-3-2
- EN 61000-3-3

benchmark™ COLLECTIVE MARK
The mark of quality for domestic heating

Vaillant Ltd. supports the Benchmark Initiative. You will find the Benchmark Logbook on the last page of this instruction manual. It is very important that this document be filled out properly when installing, commissioning and handing-over to the operator of the installation.

2.3 Gas council numbers

Appliance	Gas council numbers
ecoTEC exclusive 832	47 044 37
ecoTEC exclusive 838	47 044 38

Table 2.1 Gas council numbers

2.4 Intended use

The Vaillant ecoTEC exclusive is a state-of-the-art appliance which has been constructed in accordance with recognised safety regulations. Nevertheless, danger to the life and limb of the user or third parties can still occur or the appliance or other material assets be impaired in the event of improper use.
The unit is intended as a heat producer for closed hot-water central heating installations in households. Any other use or extended use is considered to be improper. The manufacturer or supplier is not liable for any resulting damage. The user alone bears the risk. Intended use includes the observance of the operating and installation manual and the adherence to the inspection and maintenance conditions.

2.5 Identification plate

The identification plate the Valliant ecoTEC exclusive is attached at the factory to the bottom of the appliance.

2.6 Type overview

Appliance type	Designated country (designation in accordance with ISO 3166)	Approval category	Type of gas	Nominal heat rating in kW (heating)	Hot water output in kW
832	UK (Great Britain)	II_{2H3P}	Natural gas H G20 Liquid gas propane G31	27	31,4
838	UK (Great Britain)	II_{2H3P}	Natural gas H G20 Liquid gas propane G31	30	37,2

Table 2.2 Type summary

3 Safety instructions and regulations

3.1 Safety instructions

Caution!
To tighten or loosen bolts, only use suitable open-ended spanners (do not use pliers or extensions etc.).
Improper use or unsuitable tools can cause damage, such as gas or water leaks.

3.1.1 Installation and setting

Installation, setting work and maintenance and repairs to the unit may only be carries out by an approved heating engineer.

3.1.2 If you smell gas

If you smell gas, the following safety instructions must be observed:

- Do not actuate any electrical switches in the danger area
- Do not smoke in the danger area
- Do not use a telephone in the danger area
- Close the gas stop cock
- Ventilate the danger area
- Notify your gas supplier or a suitably qualified heating engineer.

3.1.3 Changes to the surroundings of the heating device

No changes must be made to the following objects:

- the heating device
- the gas, air, water and electricity supply pipes
- the exhaust pipe
- the constructional conditions that could affect the operational reliability of the device

3.1.4 Important instructions for propane appliances

Bleeding the liquid gas tank when installing the system: before installing the device, make sure that the gas tank has been bled. The liquid gas supplier is responsible for the proper bleeding of the tank. Ignition problems can be caused if the tank is not bled properly. In such cases, first contact the person in charge of filling the tank.

Affix tank sticker

Affix the enclosed tank sticker (propane quality) on the tank where it is clearly visible or on the bottle cabinet, if possible close to the filler nozzle.

Danger!
Only use propane in accordance with DIN 51622 or EN 437.

3.2 Related documents

The installation of the boiler must be in accordance with the relevant requirements of Gas Safety (Installation and Use) Regulations 1998, Health and Safety Document No. 635 (The Electricity at Work Regulations 1989), BS 7671 (IEE Wiring Regulations) and the Water Supply (Water Fitting) Regulations 1999, or The Water Bylaws 2000 (Scotland). It should also be in accordance with the relevant requirements of the Local Authority, Building Regulations, The Building Regulations (Scotland), The Building Regulations (Northern Ireland) and the relevant recommendations of the following British Standards:
BS 6700: Services supplying water for domestic use within buildings and their curtilages.
BS 6798: Specification for installation of gas fired boilers not exceeding 60 kW input.
BS 6891: Specification for installation of low pressure gas pipework up to 28 mm (R1) in domestic premises (2nd family gas).
BS 7593: Treatment of water in domestic hot water central heating systems. – Institute of Gas Engineers Publication IGE/UP7 Edition 2
BS 5482: Pt. 1 Domestic butane and propane gas burning installations.
IGE/UP1: Soundness testing and purging of industrial and commercial gas installation.
IGE/UP2: Gas installation pipework, boosters and compressors on industrial and commercial premises.
IG/UP/7 Edition 2 „Gas installations in timber framed and light steel framed buildings“
IGE/UP10. Installation of gas appliances in industrial and commercial premises.
BS 6644: Installation of gas fired hot water boilers of rated inputs between 60 kW and 2 MW (2nd and 3rd family gases).

BS 5449: Forced circulation hot water central heating systems for domestic premises. Note: only up to 45 kW.
BS 6880: Low temperature hot water heating systems of output greater than 45 kW.
Part 1 Fundamental and design considerations.
Part 2 Selection of equipment.
Part 3 Installation, commissioning and maintenance.
BS 4814: Specification for: Expansion vessels using an internal diaphragm, for sealed hot water heating systems.
BS 5440: Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases).
Part 1 Specification for installation of flues.
Part 2 Specification for installation and maintenance of ventilation for gas appliances.

European installation directive

Caution!
Installation and maintenance of the unit may only be undertaken by a competent person in accordance with the "Gas Safety (Installation and Use) Regulations 1998".
In IE the installation must comply with the current Version of I.S.813 'Domestic Gas Installations' and the current Building Regulations.
The current ETCI Regulations for the installation of electrical equipment must also be observed.

Caution!
To tighten or loosen bolts, only use suitable open-ended spanners (do not use wrenches or extensions etc.).
Improper use or unsuitable tools can cause damage, (such as gas or water leaks.)

4 Assembly

The Vaillant ecoTEC exclusive is delivered pre-assembled in a package unit.

4.1 Scope of delivery

Check the delivery for completeness and lack of damage (see Fig. 4.1 and Table 4.1).

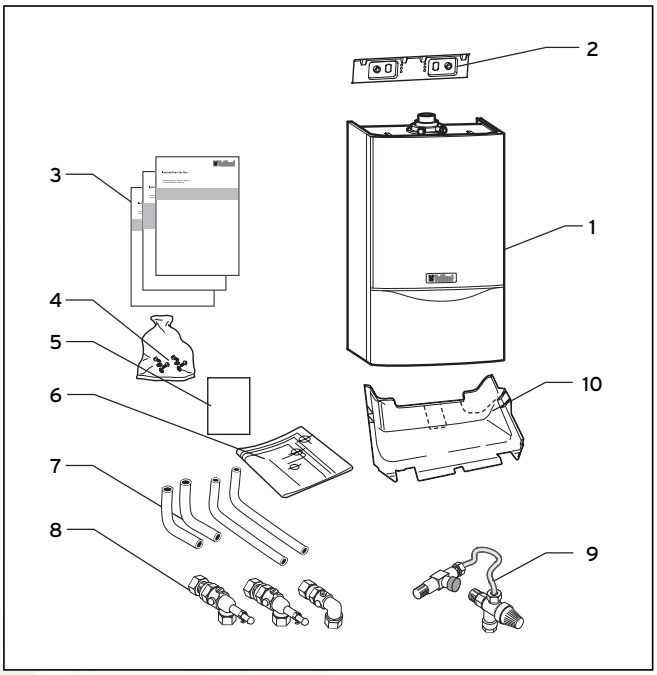


Fig. 4.1 Scope of delivery for ecoTEC exclusive

Item	Quantity	Description
1	1	Boiler
2	1	Hanging bracket
3	3	Installation and Servicing, Users and Flue Installation Instructions
4	1	Installation and connection accessories
5	1	Guarantee Card
6	1	Template
7	4	Copper tails for gas and water pipework
8	3	Flow and return service valve, gas service valve
9	1	Pressure relief valve/double check valve
10	1	Lower cover (packed inside boiler)

Table 4.1 Scope of supply ecoTEC exclusive

4.1.1 Transporting the appliance

Important:
With regards to the Manual Handling Operations, 1992 Regulations, the following lift operation exceeds the recommended weight for a one man lift.

General recommendations when handling
- Clear the route before attempting the lift.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible. Do not twist – reposition feet instead.
- If 2 persons performing lift, ensure co-ordinated movements during lift.
- Avoid upper body/top heavy bending - do not lean forward/sideways.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip.
- Always use assistance if required.

Removal of carton from delivery van
- Recommend 2 person lift or 1 person with use of sack truck.
- If 1 person is performing lift, straddle the load, tilt and place carton into position on truck.
- Recommend secure appliance onto truck with suitable straps.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible.
- If 2 persons performing lift, ensure co-ordinated movements during lift.
- Always use assistance if required.

Carriage of carton from point of delivery to point of installation – ground floor.
- Recommend 2 person lift or 1 person with use of sack truck.
- If 1 person is performing lift, straddle the load, tilt and place carton into position on truck.
- Recommend secure appliance onto truck with suitable straps.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible.
- If 2 persons performing lift, ensure co-ordinated movements during lift.
- Clear the route before attempting the lift.
- If removing boiler from truck straddle the load and tilt forwards to facilitate secure grip.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Do not twist – reposition feet instead.
- Take care to avoid trip hazards, slippery or wet surfaces and when climbing steps and stairs.
- Always use assistance if required.

Carriage of carton from point of delivery to point of installation – first or higher floor, cellar.
- Recommend 2-person lift or 1 person with use of sack truck.
- If 1 person is performing lift, straddle the load, tilt and place carton into position on truck.
- Recommend secure appliance onto truck with suitable straps.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible.
- If 2 persons performing lift, ensure co-ordinated movements during lift.
- Avoid upper body/top heavy bending - do not lean forward/sideways.
- Clear the route before attempting the lift.
- If removing boiler from truck straddle the load and tilt forwards to facilitate secure grip.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Do not twist – reposition feet instead.
- Take care to avoid trip hazards, slippery or wet surfaces and when climbing steps and stairs.
- Always use assistance if required.

Carriage of carton from point of delivery to point of installation – roofspace.
- Recommend 2-person lift.
- Ensure co-ordinated movements during lift.
- Avoid upper body/top heavy bending - do not lean forward/sideways.
- Clear the route before attempting the lift.
- Take care to avoid trip hazards, slippery or wet surfaces and when climbing steps and stairs.
- When transferring appliance into roofspace, recommend 1 person to be in roofspace to receive the appliance and other person to be below to pass up and support appliance.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible.
- Always use assistance if required.
- It is assumed safe access, flooring and adequate lighting are provided in the roof space.
- It is recommended a risk assessment of the roof space area be carried out before moving the appliance into the area to take into account access, stability of flooring, lighting and other factors, and appropriate measures taken.

Unpacking of appliance from carton.
- Recommend 2 persons unpack appliance from carton.
- Always keep working area clear.
- Recommend straps and open carton flaps, then remove items from the top including the polystyrene packing and remove carton by sliding up over the boiler.
- Ensure safe lifting techniques are used – keep back straight – bend using legs.
- Keep load as close to body as possible.

- Always use assistance if required.
- Dispose of packaging in a responsible manner.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip when handling appliance outside packaging.

Positioning of Appliance for Final Installation – no obstructions.

- If appliance weight is over 25 kg always use 2 persons to move where practical.
- Fit bracket securely onto wall before lifting appliance into position.
- Obtain firm grip on front and sides of appliance, lift upwards, ensure stable balance achieved and lift upwards to position in place on bracket.
- Ensure safe lifting techniques are used – keep back straight – bend using legs - when lifting load from floor level.
- Do not twist – reposition feet instead.
- Keep boiler as close as possible to body throughout lift to minimise strain on back.
- Ensure co-ordinated movements to ensure equal spread of weight of load.
- Always use assistance if required.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip when handling appliance.

Positioning of Appliance for Final Installation – above worktop, foreseeable obstructions etc.

- If appliance weight is over 25 kg always use 2 persons to move where practical.
- Fit bracket securely onto wall before lifting appliance into position.
- Obtain firm grip on front and sides of appliance, lift upwards, onto worktop if practicable.
- Ensure stable balance achieved and lift upwards to position in place on bracket.
- If 2 persons positioning onto bracket obtain firm grip at front and sides/base of boiler.
- Ensure coordinated movements during 2 person lifts to ensure equal spread of weight of load.
- Ensure safe lifting techniques are used – keep back straight – bend using legs - when lifting load from floor level.
- Do not twist – reposition feet instead.
- Keep boiler as close as possible to body throughout lift to minimise strain on back.
- Avoid upper body/top heavy bending - do not lean forward/sideways.
- Always use assistance if required.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip when handling appliance.

Positioning of Appliance for Final Installation – within compartment etc. restricting installation.

- If appliance weight is over 25 kg always use 2 persons to move where practical.
- Fit bracket securely onto wall before lifting appliance into position.
- Obtain firm grip on front and sides of appliance, lift upwards, onto worktop if practicable.
- Ensure stable balance achieved and lift upwards to drop into place onto bracket.
- If 2 persons positioning onto bracket obtain firm grip at front and sides/base of boiler.
- Ensure coordinated movements during 2 person lifts to ensure equal spread of weight of load.
- If 1 person positioning onto bracket recommend obtain firm grip supporting base of boiler.
- Ensure safe lifting techniques are used – keep back straight – bend using legs - when lifting load from floor level.
- Do not twist – reposition feet instead.
- Keep boiler as close as possible to body throughout lift to minimise strain on back.
- Always use assistance if required.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip when handling appliance.

Positioning of Appliance for Final Installation – in roof space restricting installation.

- If appliance weight is over 25 kg always use 2 persons to move where practical.
- Obtain firm grip on front and sides of appliance, lift upwards, ensure stable balance achieved and lift upwards to drop into place onto bracket.
- If 2 persons positioning onto bracket obtain firm grip at front and sides/base of boiler.
- Ensure co-ordinated movements during 2 person lifts to ensure equal spread of weight of load.
- If 1 person positioning onto bracket recommend obtain firm grip supporting base of boiler.
- Ensure safe lifting techniques are used - keep back straight – bend using legs - when lifting load from floor level.
- Do not twist – reposition feet instead.
- Keep boiler as close as possible to body throughout lift to minimise strain on back.
- Always use assistance if required.
- Recommend wear suitable cut resistant gloves with good grip to protect against sharp edges and ensure good grip when handling appliance.
- It is recommended a risk assessment of the roof space area be carried out before moving the appliance into the area to take into account access, stability of flooring, lighting and other factors, and appropriate measures taken.

4.2 Dimensioned drawing and dimensions for connection

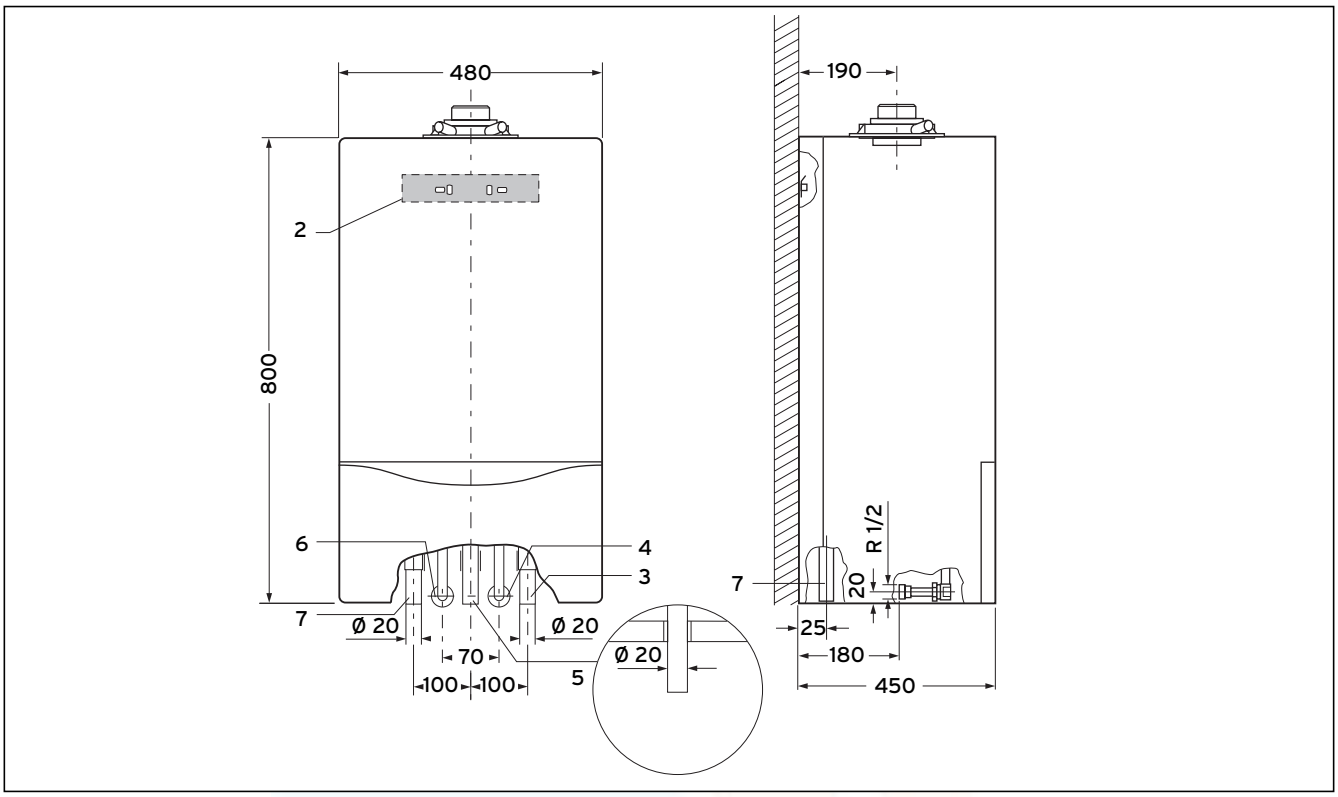


Fig. 4.2 Dimensions for connection (mm)

Key to Fig. 4.2

1 Flue connection
2 Mounting bracket
3 Heating return
4 Cold water connection
5 Gas connection
6 Hot water connection
7 Heating flow

4.3 Installation site

The site of erection of the boiler should allow proper connection of the air/exhaust ducting. In addition, there should be adequate room for maintenance work and air circulation around the boiler. The boiler can be installed in any room, however, in rooms with a bath or a shower, the special requirements of BS 7671 (IEE Regulations), the electro-technical stipulations of the Building Standards (Scotland) Regulations and, in IE, the current issue of IS 813 and the current ETCI Stipulations must especially be observed.

Danger!
Danger of death by electric shock! If a room sealed boiler is installed in a room with a bath or a shower, the electrical switches and the boiler controller, which operate at mains voltage must be mounted in locations where any person in the bath or in the shower cannot reach them

In the event of installation in unusual locations, special provisions may have to be made. Detailed instructions for this can be found in BS 5546 and in BS 6798. The boiler must be installed on a flat vertical wall which is adequately robust to carry the weight of the boiler.
It is possible to mount onto a wall made of flammable material if the regulations of the Local Authority and the legal building stipulations are fulfilled.
In this case however, the unit would have to be mounted in a specially made enclosure. (You can also use an existing cabinet or existing enclosure as long as it can be modified accordingly to suit the new application.)
Further details concerning the fundamental characteristics when modifying existing cabinets or enclosures, including the requirements for ventilation, are described in BS 6798.
If the boiler is to be installed in a half-timbered house, the installation must be undertaken in accordance with the Institute of Gas Engineers Publication "IGE/UP/7 Edition 2 Gas installation in timber framed and light steel framed buildings". Please note the following instructions before choosing where to
install the heater:

Caution!
Do not install the appliance in rooms prone to frost. In rooms with aggressive steam or dust, the appliance must be operated independently of the ventilation!

When choosing the place of installation and while operating the appliance, make sure that the combustion air is free from chemical substances such as e.g. fluorine, chlorine, sulphur, ammonia etc. Sprays, solvents and cleaning agents, paints, adhesives etc. contain these kinds of substances, which - in the worst case scenario - can lead to corrosion, even in the exhaust system, during ambient air dependent operating of the appliance.

Particularly in hairdessing salons, lacquering and finishing workshops, cleaning facilities, etc., the appliance must be operated independently of the ambient air. Otherwise, a separate installation room is required to guarantee that the combustion air supply is free from the above substances.

4.4 Required minimum gaps/assembly clearances

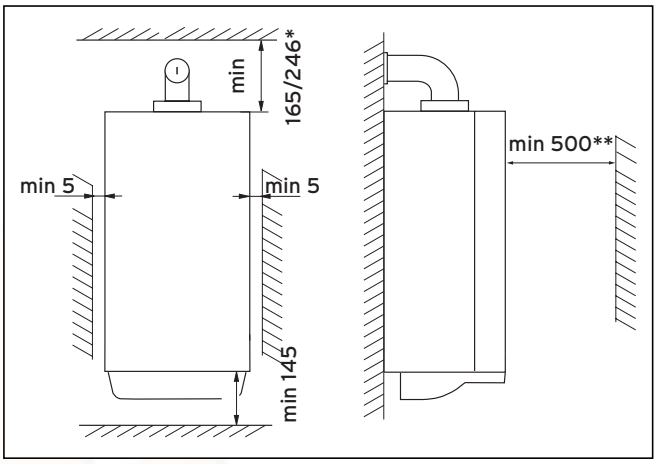


Fig. 4.3 Required minimum gaps/assembly clearances

The boiler must be mounted on a flat, vertical wall surface which is large enough for the boiler including the required minimum space requirement and the space required for assembly (Fig. 4.3). These are shown on the mounting template supplied with the boiler, and are:
- 5 mm on each side of the boiler
- 145 mm underneath the boiler
- 165 mm* above the boiler if using a flue pipe of 100 mm outside diameter
- 246 mm* above the boiler if using a flue pipe of 125 mm outside diameter
- 500 mm** in front of the boiler

Note!
If the boiler is to be installed in a timber framed building, it should be fitted in accordance with "IGE/UP/7 Edition 2 Gas installations in timber framed and light steel framed buildings".

It is not necessary to maintain a clearance between the appliance and combustible materials or components, since, at the rated heating power of the appliance, the temperature here is always lower than the permitted temperature of 85 °C.

4.5 Mounting the appliance

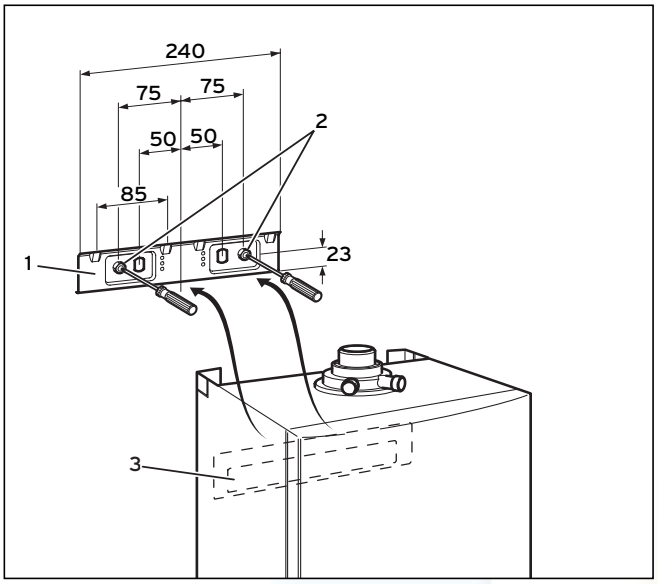


Fig. 4.4 Mounting the appliance

- Fix the hanging bracket (**1**) to the wall using the plugs and screws (**2**) provided with the appliance.
- Hang the top of the appliance (**3**) onto the hanging bracket using the suspension bracket.

4.6 Removing the front case

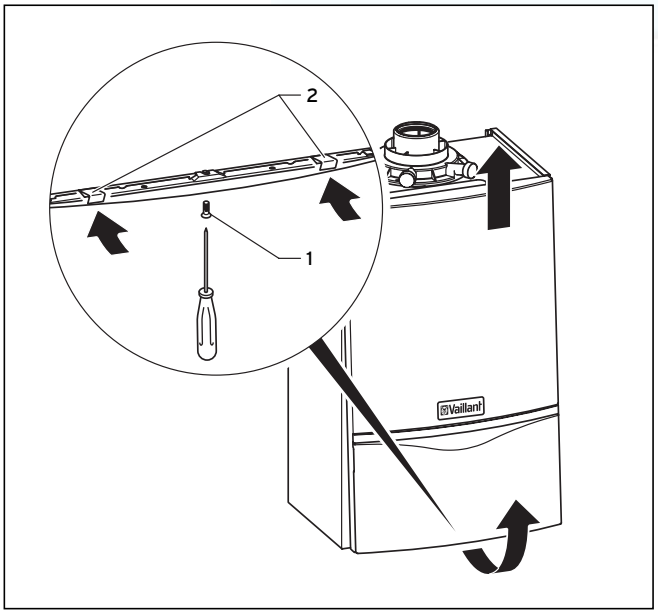


Fig. 4.5 Removing the front case

To disassemble the front housing of the appliance, proceed as follows:

- Release the screw (**1**) on the bottom of the appliance.
- Push both the clamps (**2**) on the bottom of the appliance together so that the front cladding releases.
- Pull the housing forwards at the lower edge and remove the front cladding upwards.

5 Installation

Danger!
The Vaillant ecoTEC exclusive may only be installed by a suitably qualified heating engineer who also assumes the responsibility for installing the appliance properly and fully commissioning the appliance prior to first use, along with demonstrating its correct use to the end user.

5.1 General instructions for heating system

Caution!
Flush the heating system thoroughly before connecting the appliance!
By doing that, residue such as welds, cinder, hemp, putty, rust, rough dust and similar substances are removed from the pipes. Otherwise such substances can be deposited in the appliance and cause damage.

5.2 Gas connection

Danger!
The gas installation may only be established by an authorised engineer. The legal directives and the local regulations for gas supply companies must be observed.

Caution!
Ensure stress-free assembly of the gas pipes to avoid leakages!

Caution!
The gas regulating block may be tested for leakage only with a maximum pressure of 110 mbar! The operating pressure may not exceed 60 mbar. If these pressures are exceeded, the gas fitting may be damaged.

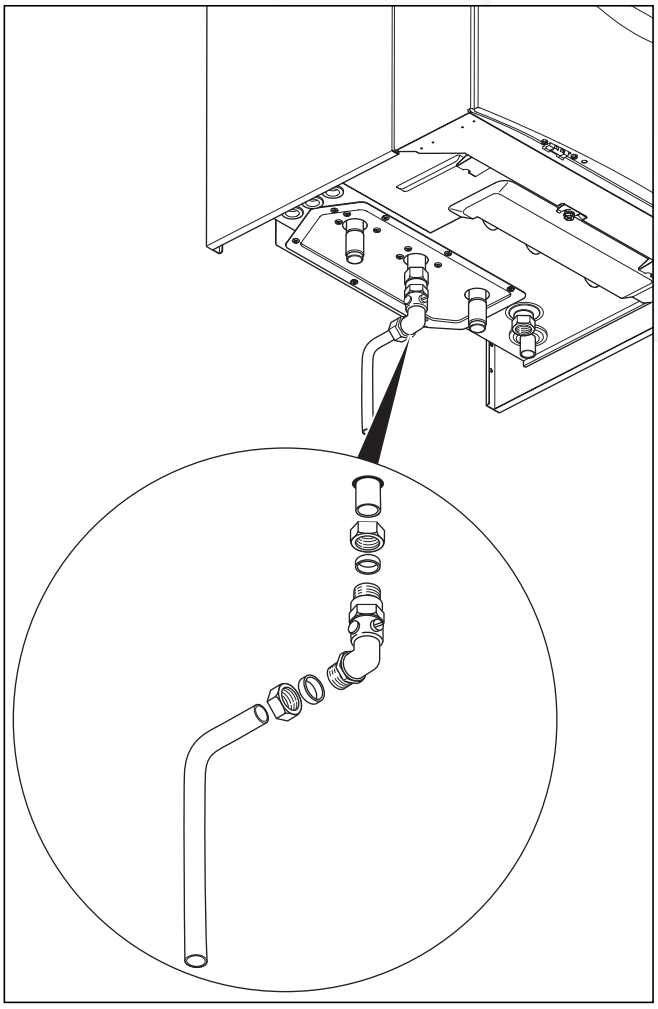


Fig. 5.1 Gas connection

The Vaillant ecoTEC exclusive is supplied for use with natural gas G20 and can only be converted to the use of propane gas G31 by the Vaillant service engineer or a suitably qualified (CORGI registered) installer.

The gas connection is to be via 20 mm Ø steel piping.
The dynamic gas connection pressure must be at least 17-25 mbar for natural gas and 37 mbar for propane gas.

- The gas pipe should first be cleaned by blowing out with compressed air. This prevents damage to the appliance.
- Connect the compression gas service cock and 15 mm copper outlet tail as supplied with the appliance and tighten.
- Connect a gas supply pipe of not less than 15 mm diameter to the copper tail.
- Tighten all connections.
  (Ensure the gas supply pipework is adequately sized such that a 20 mbar gas pressure is available at the boiler inlet at full flow rate).

5.3 Hot water and cold water connections

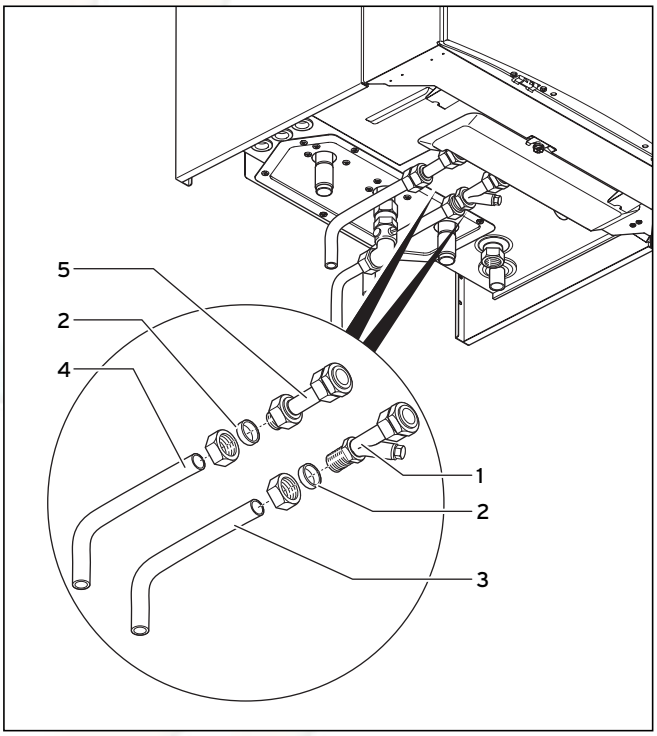


Fig. 5.2 Hot water and cold water connection

Caution!
Mount the hot water and cold water lines so they are tension-free, this prevents leaks!

Flush all foreign matter from the mains supply before connecting to the boiler.

- Connect the cold water service valve (**1**) to the cold inlet water connection of the appliance with the washer provided and tighten.
- Connect a 15 mm cold water inlet copper pipe (**3**) to the cold water service valve (**1**) and tighten.
- Connect a 15 mm hot water outlet pipe (**4**) to the outlet connection (**5**) of the appliance.

The Vaillant ecoTEC exclusive is set in the factory to a nominal water quantity of 11.6 l/min. (38 kW unit) and 9.8 l/min. (32 kW unit).

5.4 Heating connection

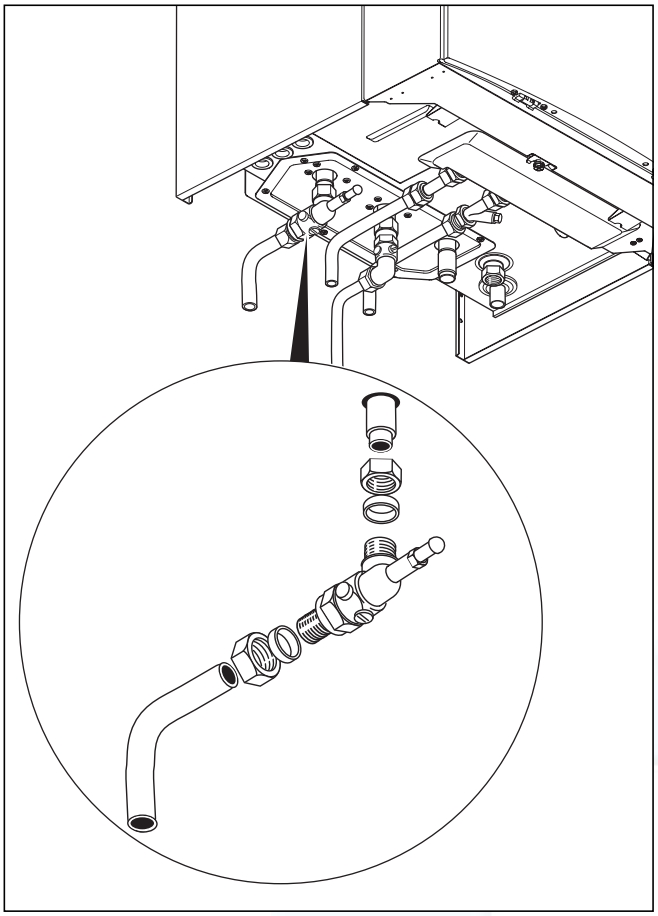


Fig. 5.3 Heating connection

Caution!
Mount the heating lines so they are tension-free, this prevents leaks!

Before connecting the heating circuit to the boiler, all pipework and radiators must be thoroughly flushed to remove any installation debris.

- Connect the central heating flow and return service valves to the appliance.
- Connect the 22 mm copper pipe tails to the service valves as shown in the illustration and tighten the nuts.
- Connect the central heating pipework to the flow and return tails.

Two additional tubes are supplied with the appliance for top connection of the flow and return pipework within the casing.

5.5 Pressure Relief Valve

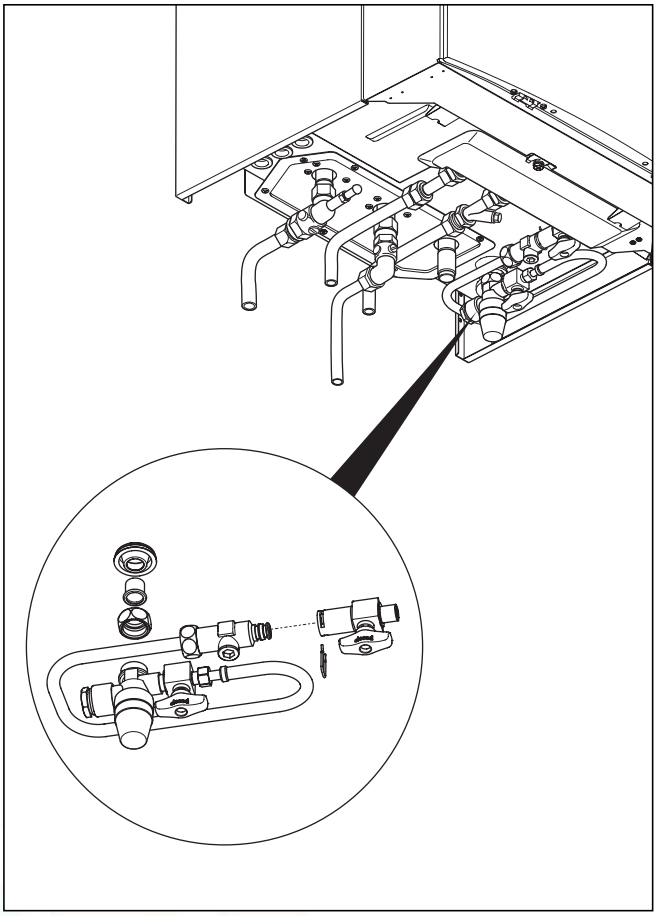


Fig. 5.4 Fitting the pressure relief valve

The pressure relief valve and filling loop connection is provided within the boiler cardboard box and should be assembled as shown below.

- Remove plug from connection.
- Fit and install the complete unit "pressure relief valve, filling valve and flexible connection" to the connection.
- Connect the corrugated hose to the double check valve.
- Connect the discharge pipe to the pressure relief valve.

The discharge pipework should be as short as possible and installed with a continuous fall away from the boiler. The pipe should terminate in a position which ensures that any discharge of water or steam from the valve cannot create a hazard to persons in or about the premises, or cause damage to any electrical components or external wiring,and the point of discharge should be clearly visible.

5.6 Flue pipe

Danger!
Vaillant appliances are only system-certified if genuine Vaillant flue pipes are used. Only use genuine Vaillant flue pipes. Malfunctions can occur if you use other accessories. These may result in damage and injury. You will find a list of genuine flue pipes in the Vaillant installation manual for flue pipes. The CE mark is valid only if the appliance is operated with Vaillant flue pipes.

5.6.1 100 mm standard flue pipe

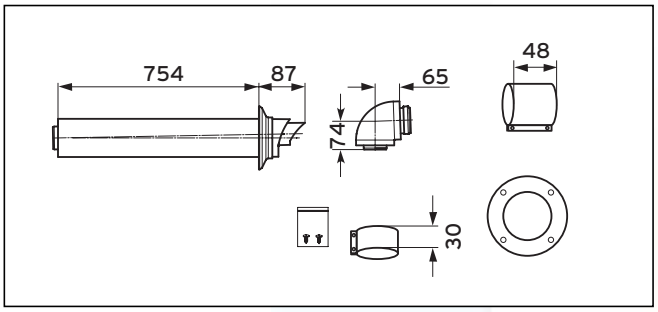


Fig. 5.5 Item No. 303933

A 100 mm standard flue pipe (Item No. 303933) is available. Further information can be obtained from the installation instructions for the flue pipe. Extensions are available to increase this length to a maximum of 8 m. 90° elbows and 45° elbows are also available to increase the flexibility during installation.

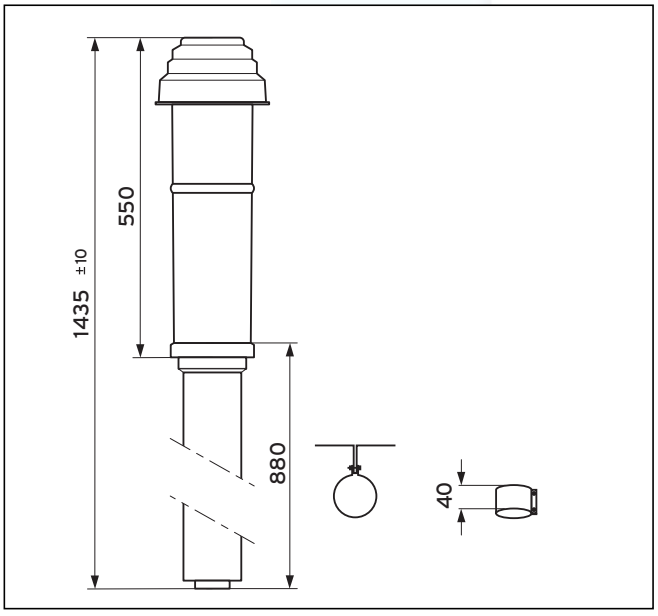


Fig. 5.6 Item No. 303900

5.6.2 Optional 125 mm flue pipe

A concentric flue pipe having an outside diameter of 125 mm is available, which can be extended to a length of up to 21 m. You can also get a vertical system. Further information can be obtained from the installation instructions for the flue pipe.

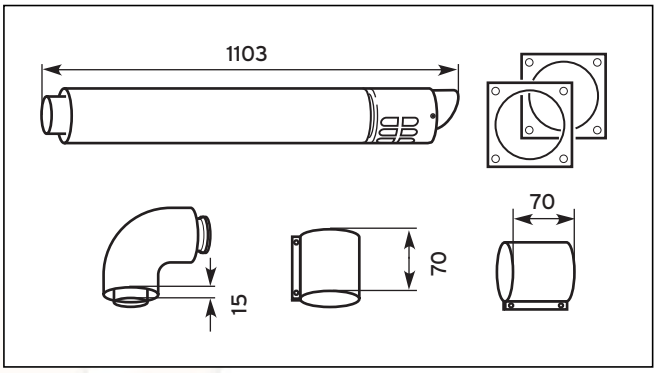


Fig. 5.7 Item No. 303209

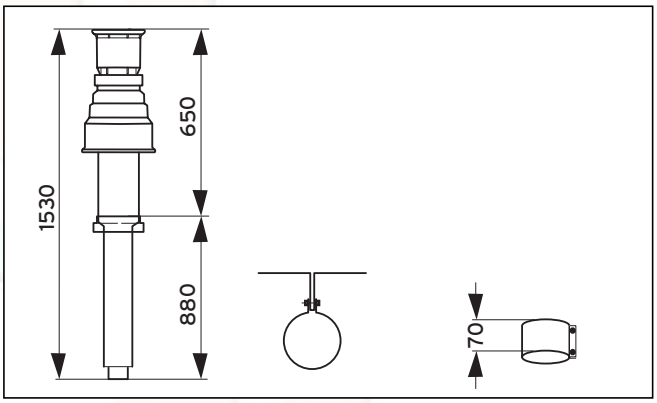


Fig. 5.8 Item No. 303200

5.7 Termination of the flue pipe

The following information applies to both flue pipe systems.

a. The flue terminal must be located in such a position that any flammable substances can be freely dissipated.
b. Water condensation (known as pluming) can also arise at the terminal of the flue pipe. Installation sites where these appearances may cause a problem should be avoided.
c. If the flue terminal is less than 2 m above a balcony, the ground or a flat roof that is accessible by persons, a suitable protection guard should be fitted (manufactured by Tower Flue Components, Tonbridge, TN9 1TB, Model K3, plastic-coated).

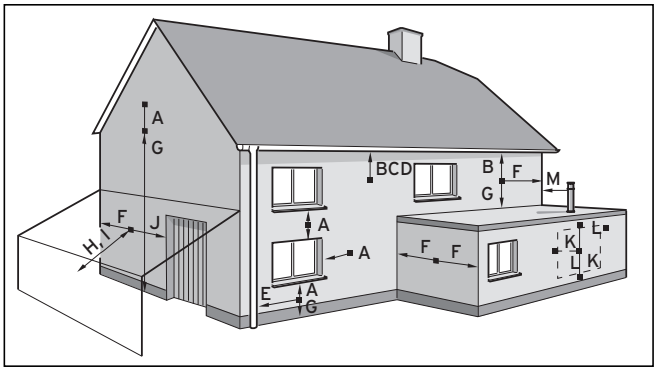


Fig. 5.9 ~~Junction~~ of the flue pipe

Note!
Vertical flue pipes must not terminate within 600 mm of an opening window, an extraction opening or any other ventilation opening.

The flue pipe must be fitted, or screened, in such a way that ignition or damage to sections of the building are avoided.

	Terminal location	mm
A	Directly under or above an opening or the horizontal to an opening, a hollow ventilation tile, an opening window etc.	300
B	Under gullies, down-pipes or drainpipes	75
C	Unter gutters	200
D	Under balconies	200
A	From vertical drainpipes and down-pipes	25
F	From external and internal corners	300
G	Above the ground, a roof or a balcony	300
H	Opposite another surface	600
I	Opposite another termination	1200
J	Next to an opening (e.g. a door, window) within a car-port	1200
K	Vertically away from a terminal on the same wall	1500
L	Horizontally away from a terminal on the same wall	300
M	Distance away from an adjacent vertical flue pipe	500

Table 5.1 Position of the flue terminal in a fan-assisted concentric flue pipe

Note!
In addition, the terminal should not be located closer than 150 mm from a wall-opening provided for e.g. a window.

BS 5440-1: We recommend that the terminal of a fan-assisted flue pipe system be positioned as follows:
a) At least 2 m from an opening in the building directly opposite, and
b)so that the combustion products do not flow out at right angles to a boundry.

1) Dimensions B, C and D:
These dimensions can be reduced to 25 mm without having a negative effect on the output of the boiler. In order to prevent the products and condensation emission from impinging on any bordering surfaces, the terminal should be extended as shown in Fig. 5.10.
2)Dimension F:
This dimension can be reduced to 25 mm without having a negative effect on the output of the boiler. In order to prevent the smoke and condensation emission from impinging on any bordering surfaces, however, a gap of 300 mm is recommended. For IE, recommendations are given in the current issue of the IS 813.

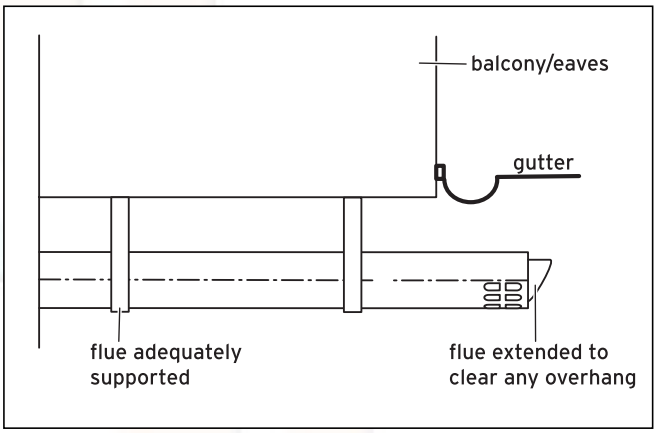


Fig. 5.10 Flue pipe terminating under balconies or gutters

5.8 Air connection

Detailed recommendations concerning air connection are given in BS 5440, Part 2.
A ventilation opening in the room or inner room section where the boiler is installed is not required .

Ventilating a compartment or enclosure

The boilers have a very high energy efficiency. As a result of this, only small heat losses are produced at the casing of the appliance. For this reason, cabinets and enclosures in which the boiler is fitted do not need to have permanent ventilation openings at the top and bottom for cooling.

5.9 Condensate discharge

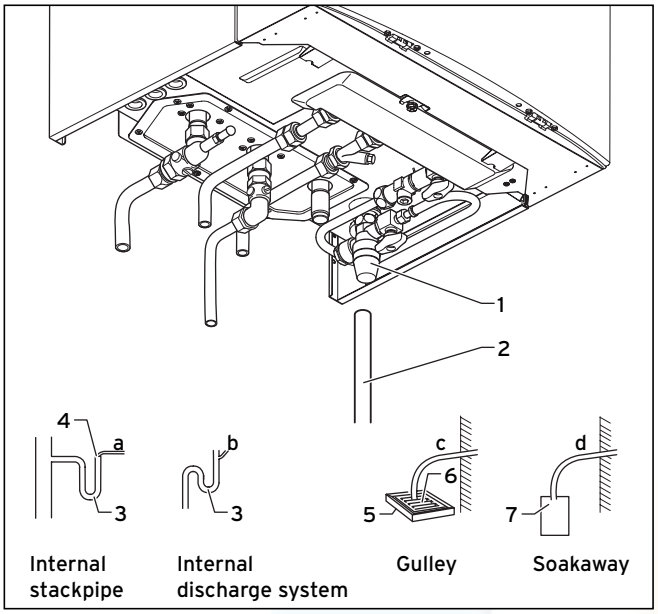


Fig. 5.11 Condensate discharge

The ecoTEC exclusive units are equipped with a normal water condensate collector where the condensate is continuously diverted into the drain pipe.

- Connect the condensate drain (**1**) of the boiler to a condensate drain pipe (**2**) which has a minimum internal diameter of 19 mm (22 mm outside diameter for all external pipes) and which is made from an acid-resistant material (e.g. plastic overflow pipe).

Note!
The drain pipe connected to the condensate drain of the boiler must have a constant gradient (45 mm per metre) and should be installed and terminate within the building to prevent the possibility of freezing up.

The condensate drain pipe should terminate in a suitable location, e.g.:

a) The drain pipe should preferably terminate in the floor of the house in the ventilation duct (at least 450 mm above the duct base). There must be a siphon (**3**) fitted in the line (mounted in the boiler) producing a connection head of at least 75 mm of water. A ventilation valve (4) must be fitted in the drain pipe in front o**f** the siphon. The connection to the ducting should not allow overflow into another drain pipe or allow overflow from another drain pipe into the condensate drain pipe. This can be achieved by keeping a gap between the pipe branches of at least 110 mm, with a duct diameter of 100 mm, and 250 mm with a duct diameter of 150 mm.

b) Connection into the domestic waste water drain pipe (e.g. a sink or washing machine) with an external termination. The condensate drain pipe should have a minimum diameter of 22 mm, without length restriction, and also be fitted with a siphon (**3**) having a connection head of 75 mm (fitted within the boiler already). The connection should be made after the drain siphon if possible. If the installation is only possible in front of the siphon, there must be a ventilation valve between the two siphons. This is normally provided in a drain.

c) Draining into a gully (**5**) under the grid (**6**) and above the water level. The external piping should be kept as short as possible to minimise the frost risk, and should be no longer than 3 m.

d) To the condensate absorption point (drainage ditch) **(7)**. The external pipe should have a maximum length of 3 m.

Further information can be obtained from "BS 6798 Specification for installation of gas-fired boilers of rated input not exceeding 70 kW net". The condense trap (1) must be filled with water as described in the relevant section before the boiler is commissioned.

5.10 Electrical connection

Danger!
The electrical installation may only be undertaken by an authorised engineer.
Risk of fatal electric shock from touching live connections. Always disconnect the power supply first by pulling the plug out of the wall socket. Only after this can the installation be undertaken. Continuous voltage is present on the mains connection terminals L and N, even if the main switch is turned off!

5.10.1 Mains connection

The appliance is fitted with a 1.0 m long connection cable with mains plug. The three-pole mains plug is fitted with a 3.0 A fuse. The connection cable is wired into the appliance in the factory.
Connection to the mains supply shall be made via the fused 3 pin plug to an unswitched shuttered socket, complying to the requirements of BS 1363.

5.10.2 Connection of controllers, accessories and external installation components

The following controllers, accessories and installation components can be connected to the ecoTEC exclusive (see Table 5.2).
The installation should be carried out in accordance with the individual instruction manual. The required connections to the electronic system of the boiler (e.g. for external controllers, external sensors etc.) should be undertaken as follows:

- Remove the front cover of the device, and lower the electronic box forward.
- Unclip the rear cover of the electronic box and hinge the cover upwards.
- Insert the connection lines of the components to be connected through the cable openings (**1**) on the left hand side of the underside of the appliance.

- Then insert the connection lines through the cable openings (**2**) into the electronic box and cut them to length.

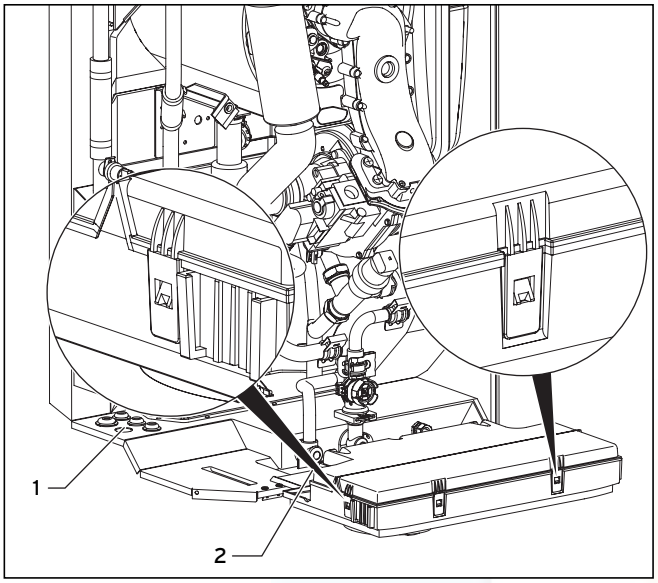


Fig. 5.12 Opening the switchgear box rear wall

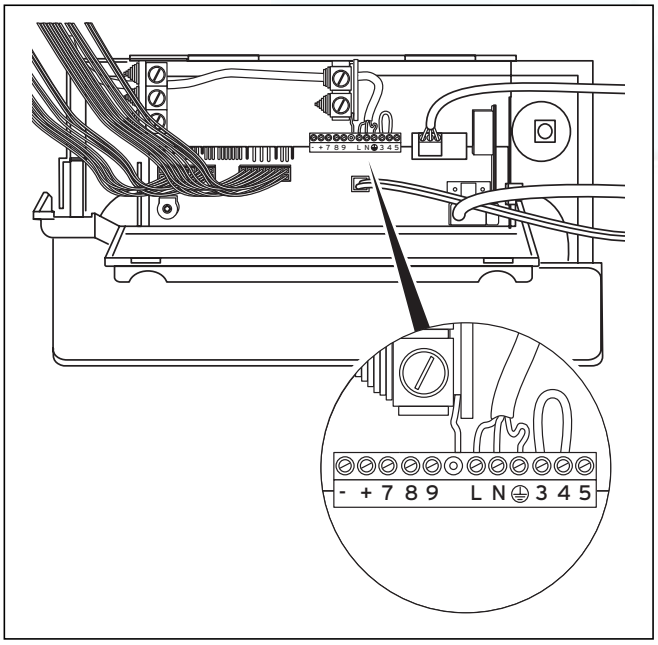


Fig. 5.13 Example for cable routing

- Remove the insulation over a length of 2 - 3 cm and insulate the cores.
- Connect the connection cable in accordance with Table 5.2 and Fig. 5.13 to the relevant screwed terminals in the electronic system.

Caution!
Do not connect mains voltage to the terminals 7, 8, 9! Danger of destroying the electronics!

Note!
There is no provision set in the factory for connection of an installation thermostat for underfloor heating.

Note!
Make sure that the connection cables are securely fastened in to the screw terminals.

5.10.3 External electrical controllers (non eBUS)

The boiler connections 3, 4 and 5 serve for the connection of external controllers, for example a timer and/or a room thermostat. The connections 3 and 4 are connected to each other in the factory. If external controllers are used, this connection must be removed and the controllers must be connected to connections 3 and 4. The connection 5 is an additional neutral line for external neutral lines, for example for the sensor of a room thermostat.

5.10.4 Details for the connection of an external timer to the connection rail

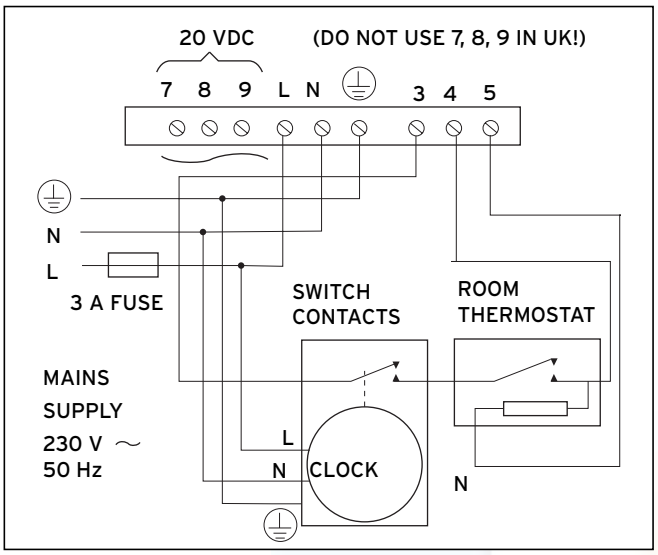


Fig. 5.14 Details for the connection of timers

If it is intended to connect a room thermostat in addition to a timer, the connection between the ON connection of the timer and connection 4 on the boiler must be interrupted by the contacts of the room thermostat (see circuit diagram Fig. 5.14).

5.10.5 Optional plug-in timers by Vaillant

Further details for the connection can be found in the relevant instructions of the accessories. The cover on the connection box should be replaced after all the electrical connections have been made. The cover is secured with two clips.

Controller	Item no.	Connection
VRT 400 (single-circuit weather compensator)	307 409	Installation in electronics box (plug-and-play)
VRT 240 (room thermostat)	307 401	Wall mounting, terminal 3 - 4
VRT 360f (room thermostat)	0020018253	Remote controller, receiver wall mounting
VRT 360 (room thermostat)	307 406	Wall-mounted, 2-wire bus
VRT 40 (room thermostat)	300 662	Wall-mounted, 3-wire connection to terminals 7-8-9
VRT 50 (room thermostat)	0020018265	Wall-mounted, eBus
Telecommunication	**Item no.**	**Connection**
vrnetDIALOG 830	0020003988	GSM/GPRS, wall-mounted or installation in electronics box (plug-and-play)
vrnetDIALOG 840/2	0020003983	Wall-mounted, analogue telephone line up to 16 appliances
vrnetDIALOG 860/2 (Int)	0020003984	Wall-mounted, GSM/GPRS, up to 16 appliances
Accessories	**Item no.**	**Connection**
Accessory module 2 from 7	0020017744	Fitting in the electronics box
vrDIALOG 810	306 743	Visualisation and configuration software

Table 5.2 Controller and accessories

5.10.6 Wiring diagrams

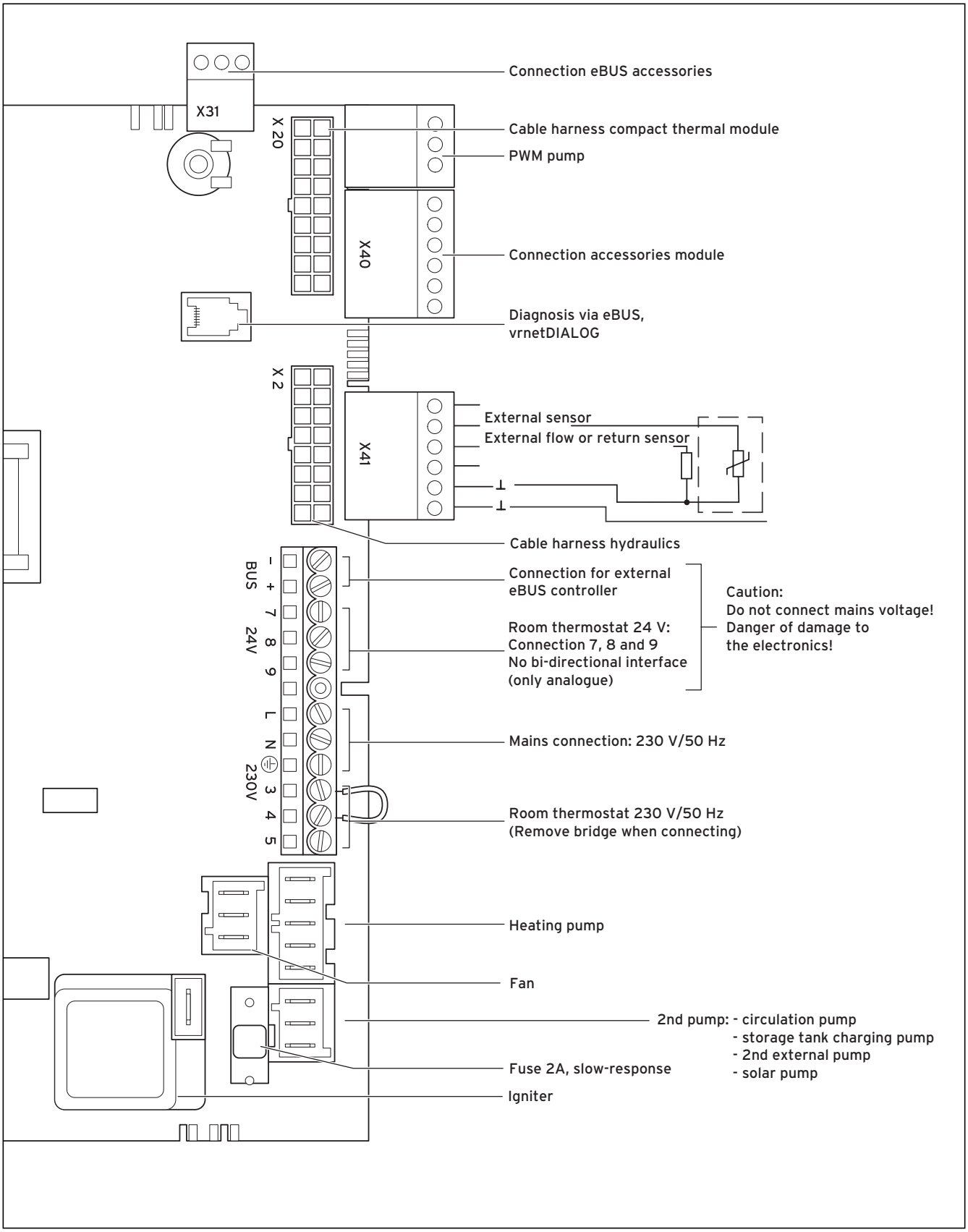


Fig. 5.15 Connection wiring ecoTEC exclusive

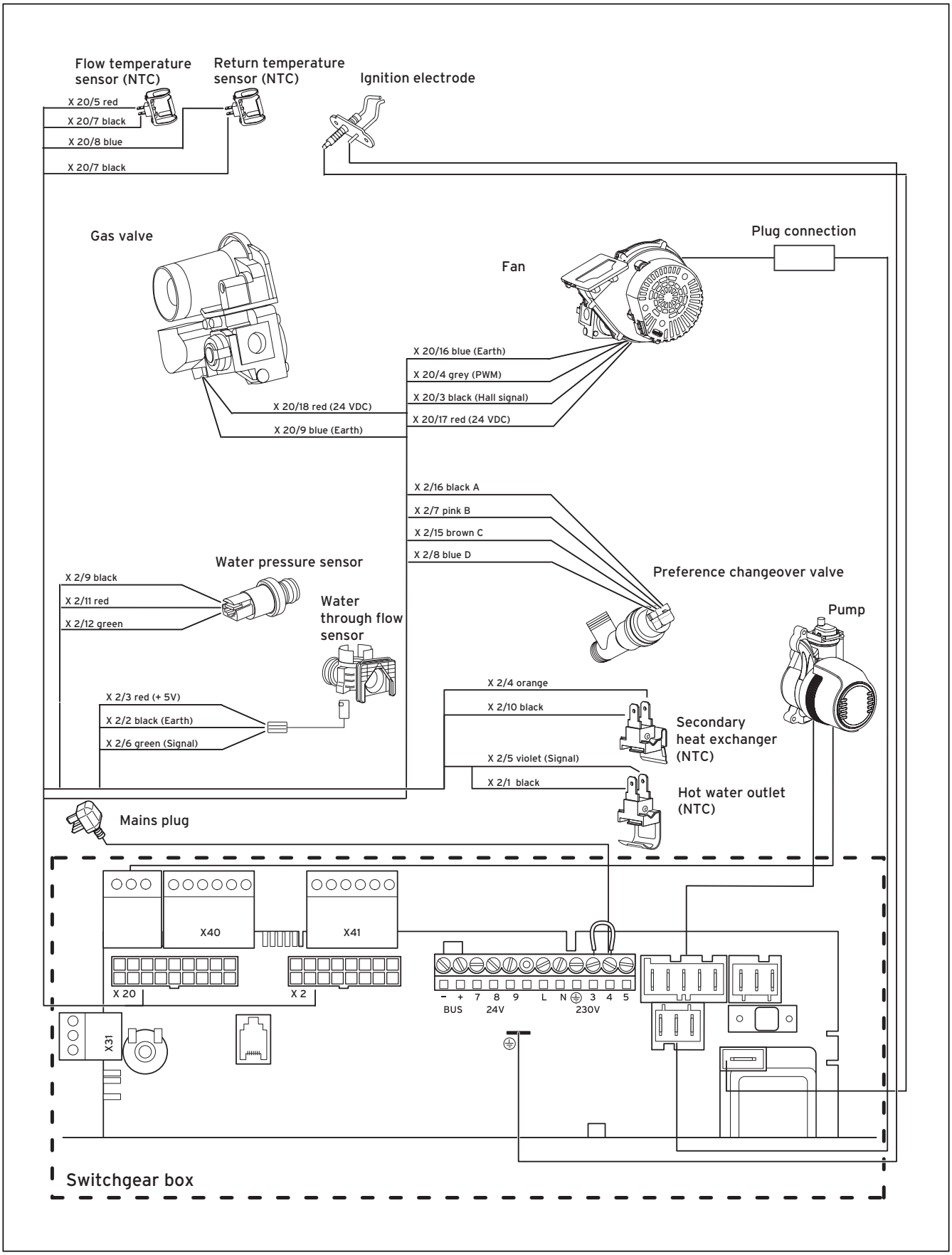


Fig. 5.16 Electronic board layout ecoTEC exclusive

6 Start-up

6.1 Filling the installation

6.1.1 Filling and venting from the heating side

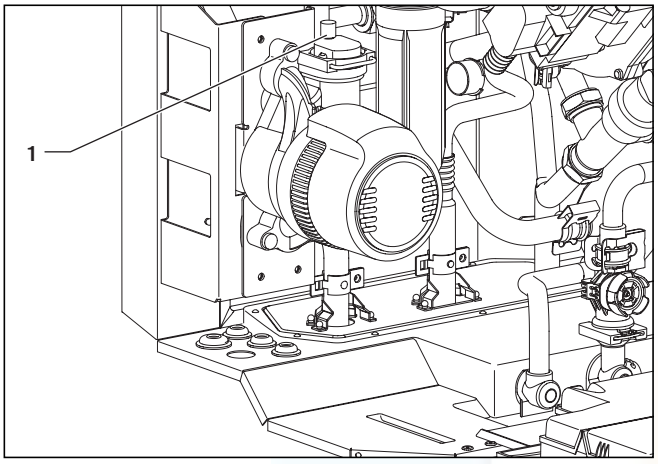


Fig. 6.1 Auto air vent

Key
1 Auto air vent

A water pressure/filling pressure between 1.0 and 2.0 bar is required for proper functioning of the boiler.
If the heating installation operates over several floors, it may be necessary to have higher water levels on the pressure gauge.

- Rotate the cap of the auto air vent (**1**) on the pump a couple of times to loosen it (the appliance is ventilated automatically by the auto air vent during continuous operation).
- Open all radiator valves in the installation.

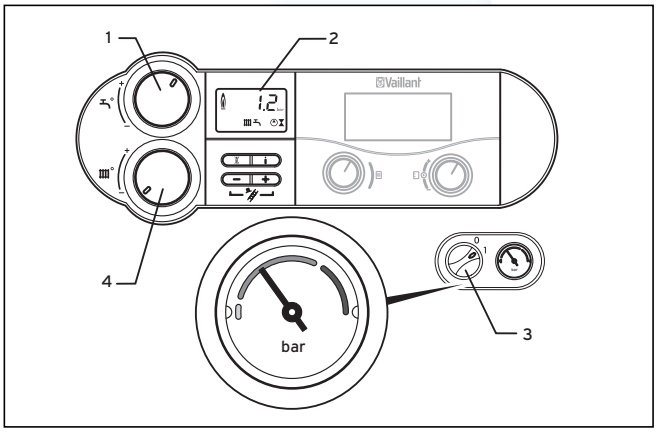


Fig. 6.2 Check the filling pressure of the heating installation

Note!
The ecoTEC units are supplied with a pressure gauge and a digital pressure display (2). Using the pressure gauge you can perform a quick check whether the filling pressure is within the prescribed range or not, even when the unit is switched off. With the unit switched on, you can read off the exact pressure by pushing the minus button „-".

- Turn the rotary knobs (**1**) and (**4**) to the left hand stop and switch the unit on using the main switch (**3**).

Note!
Use the test programme P.6 for filling the heating system: The priority changeover valve moves to the central position, the heating pump is not running and the unit does not go into heating mode, see Chapter 9.2.

Note!
To avoid running the system with too little water and thus to prevent damage, your appliance has a water pressure sensor. This signals the low pressure level if the level falls below 0.6 bar by the water pressure value in the display flashing. If the water pressure falls below 0.3 bar the unit switches off. The error message F.22 appears in the display. Fill the system up with water before you start up the appliance again.

Filling the heating system:

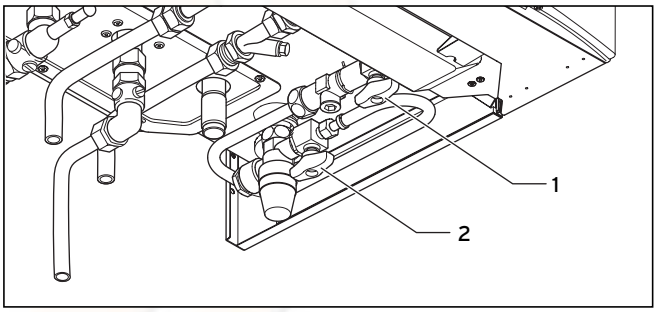


Fig. 6.3 Filling the heating system

Proceed as follows to fill the system:

- Open all radiator valves on the system.
- Ensure that the boiler CH service valves are open.
- Check the flexible filling loop is connected.
- Locate the filling valve handle (**1**) and open.
- Locate the filling valve handle (**2**) and open to allow water to enter the system. Starting with the lowest radiator, open the radiator air release until water (clear of bubbles) is emitted.

- Repeat this at all radiators until the complete system is full, all air locks have been cleared and the boiler pressure gauge reads 1.5 bar. Release any air from the pump by slackening the centre screw. Turn off the filling valve (**2**) and fully close filling valve (**1**).
- The boiler is equipped with an automatic air release valve. To allow this to vent the boiler, the cap on the top must be slackened by 1 –2 turns (This cap must be left slackened during boiler operation to ensure any residual air or system gases are released).
- Check the heating system and boiler connections are sound.

Note!
Use the test programme P.O to vent the boiler and the heating system: The unit does not start in heating mode, the heating pump switches on and off and alternately vents the heating circuit and the hot water circuit, see Chapter 9.2.

6.1.2 First flushing of the system

Note!
The entire heating system must be flushed through completely at least twice: once cold and once hot, in accordance with the following instructions.

- Check if all radiator thermostat valves and both maintenance cocks on the boiler are open.
- Connect a hose to the drain valve which is located at the lowest position in the heating system.
- Open the 1/2" KFE drain cocks and all the vent valves on the radiators so that the water flows quickly and completely out of the heating system and the boiler, in order to remove the contamination caused during the installation out of the heating system before the boiler is started up.
- Close the 1/2" KFE drain cocks.
- Re-fill the heating system with water as described in Section 6.1.1.
- Check that the over-pressure valve in the heating system is functioning correctly by turning the handle on the valve.
- Check the pressure in the heating system and top up with water if necessary.
- Close filling valve 1 and filling valve 2.

6.1.3 Filling and venting from the hot water side

- Open the cold water stop cock on the appliance on the inlet combination.
- Fill the hot water system by opening all the hot water taps until water comes out.
- As soon as water comes out of all the hot water taps, the hot water circuit is filled completely and also vented.

6.1.4 Filling the condense trap

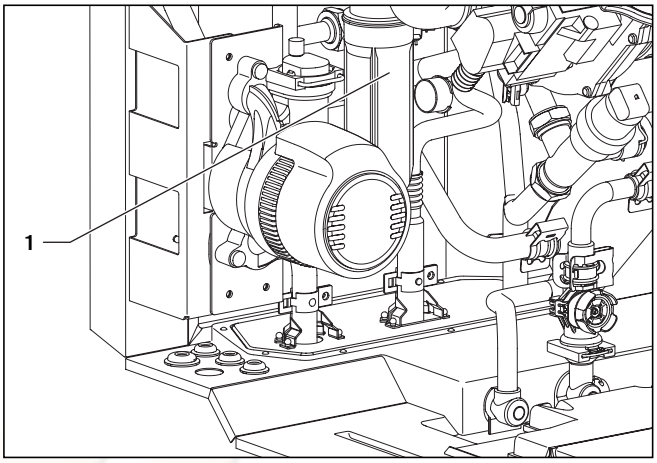


Fig. 6.4 Filling the condense trap

Danger!
If the appliance is started up with an unfilled condense trap, there is a danger of poisoning by exhaust gas emission.

Fill the trap as follows:
- Unscrew the lower section of the trap (**1**) from the condense trap.
- Fill the lower section of the trap (**1**) 3/4 full with water.
- Screw the lower section of the trap back onto the condense trap.

6.2 Checking the gas setting

Caution!
Conversion from natural gas to liquid gas or vice versa may only be undertaken by Vaillant service personnel or a suitably qualified (CORGI registered) installer.

Note!
For all kind of conversions a special Vaillant conversion kit is needed. Further information can be obtained from Vaillant Service Solutions (0870 6060 777).

6.2.1 Checking the connection pressure (gas inlet working pressure)

Proceed as follows to check the connection pressure:
- Remove the front cover from the device.
- Close the gas isolation cock on the unit.

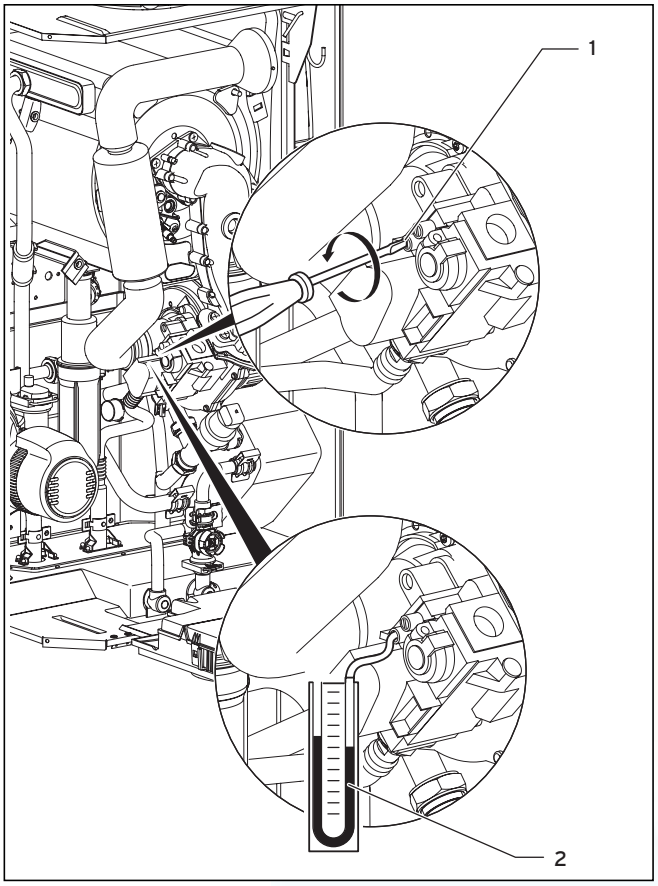


Fig. 6.5 Checking the gas supply pressure

- Release the sealing screw marked "in" (**1**) on the gas fitting.
- Connect a digital pressure manometer or u-gauge manometer (**2**).
- Open the gas isolation cock on the unit.
- Start the appliance up via **P.1** (see Chapter 9.2).
- Measure the connection pressure in comparison with atmospheric pressure.

Natural gas:
If the connection pressure is outside the range 17 to 25 mbar, no adjustment should be undertaken, and the unit must not be started up!

Liquid gas:
If the connection pressure is outside the range 25 to 45 mbar, no adjustment should be undertaken, and the unit must not be started up!

If the connection pressure is within the permissible range, proceed as follows:
- Take the appliance out of operation.
- Close the gas isolation cock on the unit.
- Remove the pressure gauge and screw the sealing screw (**1**) back in again.
- Open the gas isolation cock on the unit.
- Make sure that the sealing screw is not leaking.
- Put the front cover back on and turn on the device.

If the connection pressure is **not** within the permissible range and you cannot resolve the problem, inform the gas supply authority. Proceed as follows:
Take the appliance out of operation.
- Close the gas isolation cock on the unit.
- Remove the pressure gauge and screw the sealing screw (**1**) back in again.
- Make sure that the sealing screw is not leaking.

Put the front casing back on.
Do not start up the appliance!

6.2.2 Checking CO_2 content and setting if necessary (setting the air figure)

- Remove the front cover.
- Activate test programme P.1 (see Chapter 9.2).
- Wait at least 5 minutes until the appliance reaches its operating temperature.

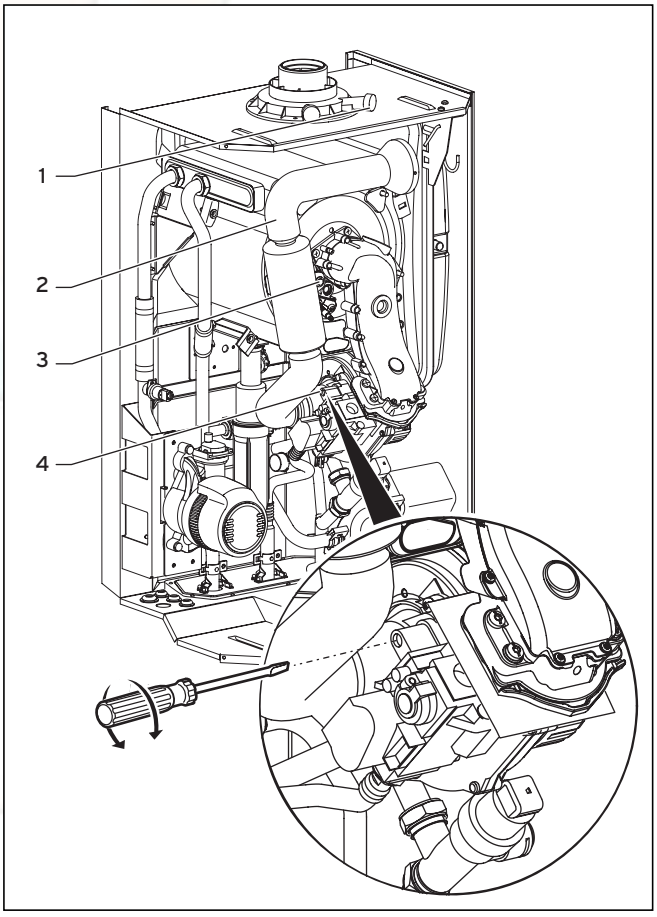


Fig. 6.6 Checking/adjusting the CO_2 content

- Measure the CO_2 content on the flue gas measuring nozzles (**1**). Compare the measured value with the corresponding value in Table. 6.1.
- If the CO_2 content needs to be adjusted, release the screw (3) and hinge the air intake pipe (**2**) through 90° to the front. Do not remove the air intake pipe!
- If necessary, set the corresponding CO_2 content (value with removed appliance front, see Table 6.1) by turning the screw (**4**) in.

- Turning to the left: higher CO_2content,
- Turning to the right: lower CO_2content,

Note!
Natural gas: Adjust only in increments of 1/8 turn and wait approx. 1 minute after each adjustment until the value stabilises.

Note!
Liquid gas: Adjust only in increments of 1/16 turn and wait approx. 1 minute after each adjustment until the value stabilises.

- After completion of the setting process, hinge the air intake pipe back up.
- Check the CO_2content again.
- If necessary, repeat the setting process.
- Press the "**i**" button. The "Full load mode" is turned off. The full load mode is also exited if no button is pushed for 15 minutes.
- Re-secure the air intake pipe with the screw (**3**).
- Put the front casing back on.

Settings	Natural gas H Tolerance	Propane Tolerance	Unit
CO_2 after 5 minutes full load mode with front casing removed	9,0 +/- 1,0	10,0 +/- 0,5	Vol.-%
set for Wobbe-Index W_0	12,4	22,5	kWh/m3

Table 6.1 Factory gas settings

6.3 Checking the equipment function

After installing and checking the gas supply pressure, perform a function check before commissioning the appliance and handing over to the user.

- Commission the appliance in accordance with the instructions in the relevant operating manual.
- Check the gas infeed, exhaust gas installation, boiler and heating installation and the hot water pipes for leaks.
- Check the flue pipe for proper installation.
- Check over-ignition and that the flame on the burner is burning evenly.
- Check the function of the heating (see Chapter 6.3.1) and the hot water preparation (see Chapter 6.3.2)
- Hand the unit over to the user.

The Vaillant ecoTEC exclusive has status codes which indicate the operating condition of the appliance in the display. Functional checks of the hot water and heating operation can be undertaken using these status codes by pushing the button "**i**".

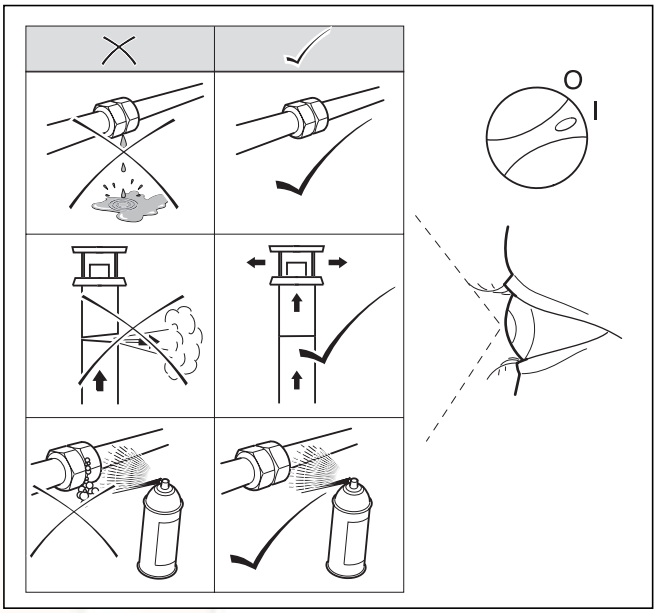


Fig. 6.7 Function check

6.3.1 Heating

- Switch on the appliance.
- Make sure that there is a heat demand for heating (set the room thermostat or the weather-controlled controller to "demand").
- Press "**i**" to activate the status indicator.

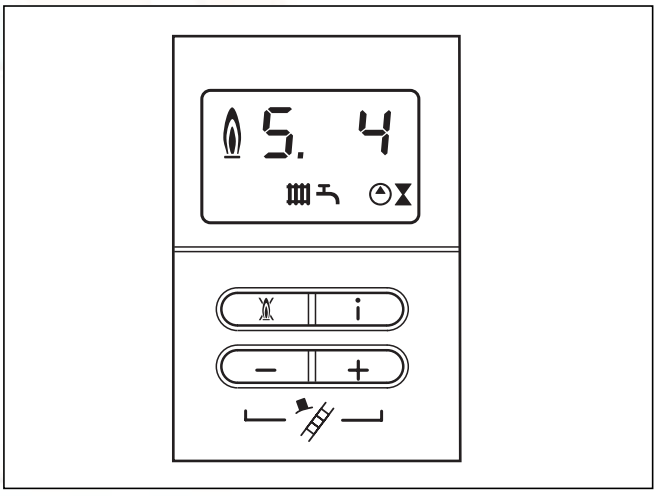


Fig. 6.8 Display during heating mode

As soon as there is a heat demand, the appliance goes through the status displays "**S. 1**" to "**S. 3**", until the appliance is running properly in normal operation and the display "**S. 4**" appears.

6.3.2 Hot water function

- Switch on the appliance.
- Turn on a hot water tap fully.
- Press "**i**" to activate the status indicator.

When the hot water function is working correctly the display shows "**S.14**".

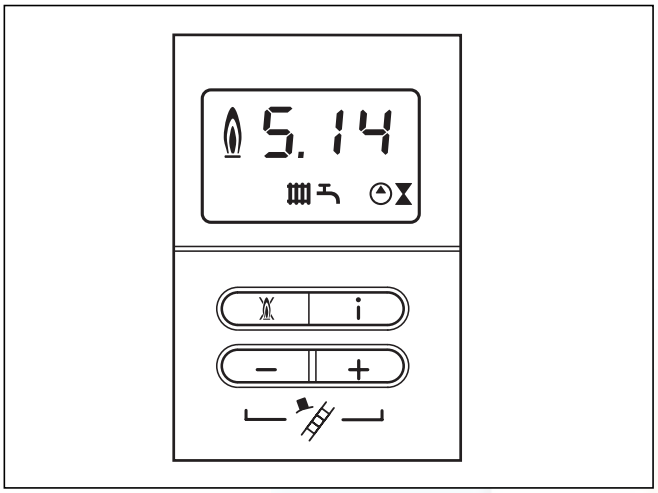


Fig. 6.9 Display during hot water preparation

6.3.3 Subsequent flushing through of the heating system ("hot")

- Allow the appliance to run until both the appliance and the heating system have reached their operating temperature.
- Check the heating system for leaks.
- Connect a hose to the drain valve which is located at the lowest position in the heating system.
- Shut off the appliance, open the drain valve and all vent valves on the radiators and allow the water to flow out of the heating system and the boiler quickly and fully.
- Close the drain valve.
- Re-fill the heating system with water (see Chapter 6.1.1).
- Drain water out of the system until a system pressure of 1.0 bar is reached. (The ideal measured value on the pressure gauge is 0.5 bar plus an extra amount corresponding to the highest point of the system above the boiler. A height of 10 m corresponds to a pressure increase on the pressure gauge of around 1 bar. The pressure must not be less than 1 bar on any installation.)
  If the system is to be protected by an inhibitor, it should be added at this stage in accordance with the manufacturer's instructions.
  Further information can be obtained from Sentinel, Betz Dearborn Ltd., Tel.: 0151 420 9595, or from Fernox, Alpha-Fry technologies, Tel.: 0870 8700362.
- Re-mount the enclosure of the boiler.
- Attach the bottom cover to the boiler by sliding the front edge of the cover into the lip at the bottom front edge of the appliance chassis.
- Carefully push the rear of the bottom cover upwards until the spring retaining clips engage at the side of the appliance. It may be necessary to adapt the bottom cover by removing the easy break sections.

6.4 Handing over the appliance to the owner

- Set the controller for the maximum radiator temperature to the required temperature.
- Set the controller for the maximum hot water temperature to the required temperature.
- Instruct the operator in the safe and efficient operation of the boiler, paying particular attention to the functions of:
  - the ON/OFF switch of the boiler,
  - the controller for the maximum radiator temperature,
  - the controller for the maximum hot water temperature (only on combination boilers),
  - the pressure gauge.
- Make the operator acquainted with the operation of any external controllers.
- Explain to the operator the importance of regular maintenance by a competent heating engineer. It is strongly recommended that a maintenance contract be taken out to ensure regular maintenance. Further information can be obtained from Vaillant Service Solutions (0870 6060 777).
- Enter the operating pressure of the central heating system, the heat feed (in kW) and the temperature difference between the flow and return in the Benchmark gas boiler commissioning checklist.

If the appliance is not installed and commissioned in accordance with manufacturer's instructions this can lead to invalidation of the guarantee (Note: Your legal rights remain unaffected by this.)

- Leave the operating and installation instructions with the operator of the appliance.

Note!
When you have finished the installation, attach the sticker supplied (835593) to the front case of the appliance in the user's language.

Caution!
The front cover should only be removed
- for initial installation access
- for servicing
- for testing
For continuous and safe operation the front cover must be fitted together with a correctly fitted and sealed flue system.

7 Adapting the appliance to the heating system

The ecoTEC exclusive units are fitted with a digital information and analysis system.

7.1 Selection and setting the parameters

In the diagnostic mode, you can change the various parameters required to match the boiler to the heating system.
Table 7.1 shows only those diagnostic points where modifications are possible. All the other diagnostic points are only required for diagnosis and fault rectification (see Chapter 8).

Using the following description you can select the relevant parameters :
- Press the "**i**" and "**+**" buttons simultaneously.

The display shows "**d.0**".

- Scroll to the desired diagnosis number with the "**+**" or "**–**" buttons.
- Press the "**i**" button.

The display shows the relevant diagnosis information.
- If necessary, use the "**+**" or "**–**" keys to change the value (display flashes).
- Save the new value by holding down the "**i**" button for approx. 5 seconds until the display no longer blinks.

You can end the diagnosis mode as follows:
- Press the keys "**i**" and "**+**" simultaneously or do not press any key for about 4 minutes.

The current pressure in the heating system appears in the display again.

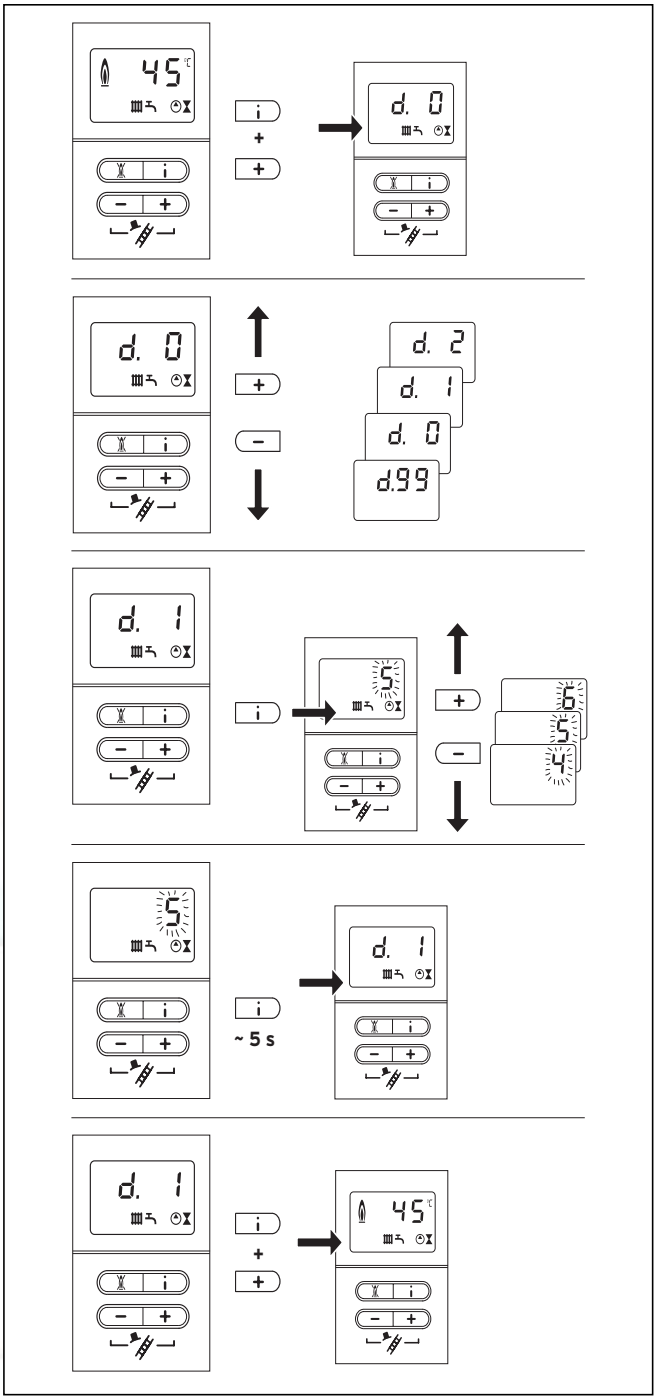


Fig. 7.1. Setting the parameters

7.2 Overview of the settable installation parameters

The following parameters can be set to match the appliance to the heating system and to suit the customers requirements:

Display	Meaning	Adjustable parameters	Default setting	Appliance-specific setting
d.0	Heating partial load ecoTEC exclusive 832 ecoTEC exclusive 838	27 kW 30 kW	22 kW 27 kW	
d.1	Pump overrun time for heating operation (starts after completion of heat demand)	2 - 60 min	5 min	
d.2	Max. blocking time heating at 20°C feed temperature	2 - 60 min	20 min	
d.14	Pump speed target value	Target value internal pump in % - possible settings: Auto, 53, 60, 70, 85, 100 %	Auto	
d.17	Heating flow/return regulation changeover	0 = flow, 1 = return	0	
d.18	Pump mode (return flow)	0 = return, 1 = nonstop, 2 = winter	0	
d.26	Changeover option relay to electronic	1 = circulation pump 2 = Ext. pump (default) 3 = storage charging pump 4 = vapour extraction hood 5 = external throttle 6 = ext. fault signal (without maintenance display)	2	
d.71	Target value max. heating flow temperature	40 to 85 °C	75 °C	
d.84	Maintenance indicator: Number of hours until the next maintenance	0 to 3000h and „-“ (300 corresponds to 3000 h, „-“ = deactivated)	-	

Table 7.1 Adjustable parameters

Note!
You can enter your settings in the end column after setting the appliance-specific parameters.

Note!
The diagnosis points d.17, d.71 and d.84 are located in the 2nd. diagnosis level, see Chapter 9.1.2

7.2.1 Setting the heating partial load

The units are set in the factory to a possible heat load but not yet to the maximum value. Under diagnosis point "**d.0**" you can set a value which corresponds to the required output in the heating system in kW.

7.2.2 Setting the pump overrun time

The pump overrun time for the heating operation is set in the factory to a value of 5 minutes. It can be set under diagnosis point "**1**" within the range two minutes to 60 minutes. Under diagnosis point "**d.18**" you can set the overrun behaviour of the pump to a different mode.
Overrun: After completion of the heat demand the heating pump continues to run for the time set under "**d.1**".
Continuous: The internal heating pump is switched on when the rotary knob for setting the heating feed temperature is not in the left-hand stop position and the heat demand is released by an external controller.
Winter: The internal heating pump is switched on when the rotary knob for setting the heating feed temperature is not in the left-hand stop position.

7.2.3 Setting the maximum flow temperature

The maximum feed temperature for the heating is set in the factory to 75 °C. Under diagnosis point "**d.71**" it can be set to between 40 und 85 °C.

7.2.4 Setting the return temperature control

When connecting underfloor heating or wall heating to the appliance which does not have its own temperature regulation, the temperature regulation mode can be changed from feed temperature regulation (factory setting) to return temperature regulation under diagnosis point "**d.17**".

7.2.5 Setting the burner anti-cycle time

T_{Feed}(target)	Set maximum burner anti-cycle time [min]												
[°C]	1	5	10	15	20	25	30	35	40	45	50	55	60
20	2,0	5,0	10,0	15,0	20,0	25,0	30,0	35,0	40,0	45,0	50,0	55,0	60,0
25	2,0	4,5	9,2	14,0	18,5	23,0	27,5	32,0	36,5	41,0	45,0	50,0	54,5
30	2,0	4,0	8,5	12,5	16,5	20,5	25,0	29,0	33,0	37,0	41,0	45,0	49,5
35	2,0	4,0	7,5	11,0	15,0	18,5	22,0	25,5	29,5	33,0	36,5	40,5	44,0
40	2,0	3,5	6,5	10,0	13,0	16,5	19,5	22,5	26,0	29,0	32,0	35,5	38,5
45	2,0	3,0	6,0	8,5	11,5	14,0	17,0	19,5	22,5	25,0	27,5	30,5	33,0
50	2,0	3,0	5,0	7,5	9,5	12,0	14,0	16,5	18,5	21,0	23,5	25,5	28,0
55	2,0	2,5	4,5	6,0	8,0	10,0	11,5	13,5	15,0	17,0	19,0	20,5	22,5
60	2,0	2,0	3,5	5,0	6,0	7,5	9,0	10,5	11,5	13,0	14,5	15,5	17,0
65	2,0	1,5	2,5	3,5	4,5	5,5	6,5	7,0	8,0	9,0	10,0	11,0	11,5
70	2,0	1,5	2,0	2,5	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5
75	2,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0

Table 7.2 Effective burner anti-cycle time

The burner is electronically locked for a specific time after each time it is switched off ("re-start interlock") to avoid frequent switching on and off of the burner (energy losses).
The burner anti-cycle time is only activated for the heating operation. Hot water operation during a burner anti-cycle time does not affect the timer.
The individual anti-cycle time can be matched to the hydraulic and thermal properties of the heating installation. In the factory the burner anti-cycle time is set to a value of 20 minutes. It can be varied under diagnosis point "**d.02**" within the range 2 minutes to 60 minutes.
The individual effective anti-cycle time is calculated from the momentary target feed temperature and the set maximum burner anti-cycle time.
The timer can be reset or cancelled by actuating the appliance main switch. The remaining burner anti-cycle time left after switching off by the controller in heating operation can be called up under diagnosis point "**d.67**".
The individually effective burner anti-cycle times with respect to the feed temperature and the maximum set burner anti-cycle time can be taken from Table 7.2.

7.2.6 Determination of the maintenance interval/ maintenance display

The electronics of the ecoTEC exclusive allow you to determine the maintenance intervals for the appliance. This function serves to provide a signal that, after a specific, adjustable, number of burner operating hours, the boiler needs to be serviced. The service signal **SEr** is shown in the display of the ecoTEC exclusive alternately with the current pressure after expiry of the set number of burner operating hours. The display also appears on the VRT 360 and 400 (accessories).

Heat demand	Number of persons	Burner operating hours to the next inspection/service (dependent upon the type of appliance)
32 kW	3 - 4 4 - 6	2.800 h 2.900 h
38 kW	4 - 6 4 - 8	3.000 h 3.100 h

Table 7.3 Guide values for operating hours

The operating hours to the next service can be set under diagnosis point "**d.84**". Guide values can be taken from Table 7.3; these values correspond to an approximate operating time for the appliance of one year.
The operating hours can be set in steps of ten from 0 to 3000 h.
If there is no number in the diagnosis point "**d.84**", but there is the symbol "**-**", then the "maintenance display" is not active.

Note!
After the set number of hours have expired, the service interval must be entered in the diagnosis mode again.

7.2.7 Setting the pump output

The ecoTEC exclusive is fitted with a speed controlled pump which sets itself to the hydraulic conditions and the heat demand of the heating system.
Under certain conditions the output of the pump can be set, in five steps to 53, 60, 70, 85 or 100% of the maximum pump output using the diagnosis system. This switches the speed control off.

Caution!
When using an flow header we recommend turning off the speed control and setting the pump output to 100%.

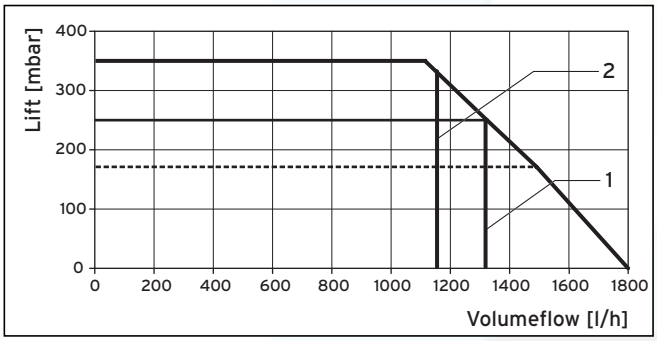


Fig. 7.2 Characteristic pump line for ecoTEC exclusive 832 and 838

Key to Fig. 7.2
1 at 27 kW
2 at 30 kW

7.3 Adjusting the bypass valve

The appliances have a bypass valve.
The pressure can be adjusted between 170 and 350 mbar. Approx. 250 mbar is preset (mid-position). The pressure changes by approx. 10 mbar each time the adjusting screw is rotated. By turning right, the pressure increases and turning left decreases it.

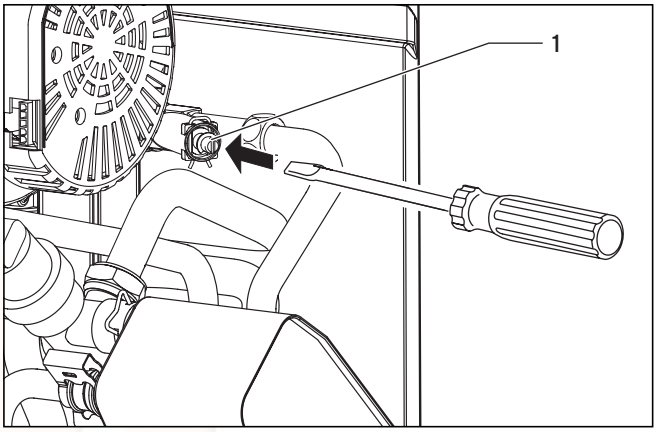


Fig. 7.3. Setting the by-pass valve

- Regulate the pressure using the setting screw (**1**).

Position of the setting screw	Pressure (mbar)	Notes/application
Right-hand stop (turned all the way down)	350	If the radiators do not get properly hot in the works setting
Mid-position (5 turns to the left)	250	Default setting
5 further turns to the left from the mid-position	170	If noises in the radiators or radiator valves are produced

Table 7.4 Setting value for the bypass valve

8 Inspection and maintenance

8.1 Inspection and maintenance intervals

Regular maintenance and service is recommended to ensure permanent safe and efficient operation of the boiler. The frequency of maintenance and service depends upon the individual installation conditions and upon the use the appliance is put to. An inspection must be performed once a year.

Danger!
It is a legal requirement that all maintenance work be only performed by trained personnel (CORGI registered). Inspection and maintenance work which is improperly carried out can lead to injury and material damage.

In order to ensure all the functions of the Vaillant appliance over a long period, only genuine Vaillant spare parts may be used when undertaking maintenance, service and repair work. Any spare parts which might be required are contained in the current Vaillant spare parts catalogues. Further information can be obtained from Vaillant Customer Service Centres.

8.2 General inspection and maintenance instructions

Only genuine Vaillant spare parts may be used for inspections, maintenance and repair work to ensure the perfect long-term working order of all functions of your Vaillant appliance and to prevent the allowed series condition from being changed.
Any spare parts which might be required are listed in the relevant current spare parts catalogues. Information can be obtained from Vaillant Service Solutions (08706060777).

Safety instructions

Note!
If it is necessary to keep the main switch on for certain inspection and maintenance, this is indicated in the description of the maintenance task.

Danger!
The supply terminals of the device are under voltage even if the mains switch is off.

Always perform the following steps prior to maintenance work:
- Switch off the mains switch.
- Disconnect the device from the mains supply by pulling the power plug or de-energising the device by means of a separator with a contact opening of at least 3 mm (e. g. fuses or circuit breakers).
- Close the gas shut-off valve.
- Close the maintenance cocks (if fitted) in the heating flow and return and the cold water inlet valve on the inlet combination.
- Remove the front cover from the device.

Always perform the following steps after performing any maintenance work:
- Open the heating flow and return and the cold water inlet valve.
- Refill the device, if necessary, with hot water up to a pressure of between 1.0 and 2.0 bar and vent the heating system.
- Open the gas shut-off cock.
- Re-connect the appliance to the electrical mains by inserting the plug into the wall plug socket and switch the main switch on.
- Check the appliance for gas and water leaks.
- If necessary, refill and re-vent the heating system.
- Reapply the front cover to the device.
- Check all the functions of the appliance.

8.3 Filling/draining the heating installation

8.3.1 Filling the unit and heating installation

The filling of the appliance and the heating system is described in Section 6.1.

8.3.2 Draining the unit

- Close the maintenance cocks (if fitted) on the appliance.
- Open the drain valves on the maintenance cocks.

8.3.3 Draining the entire installation

- Attach a hose to the filling/draining cock on the system.
- Bring the open end of the hose to an appropriate drain point.
- Check that the maintenance cocks of the boiler are open.
- Open the filling/drain cock.
- Open the bleed valves on the radiators.
  Start at the highest radiator and then work from the top to the bottom.
- When the water has drained out of the heating system, close the bleeding valves on the radiators and close the filling/drain cock again.

8.4 Servicing the compact thermal module

8.4.1 Dismantle compact thermal module

The compact thermal module consists of a speed-controlled fan, the gas fitting, the gas mixer pipe for the fan pre-mix burner and the pre-mix burner itself. These four individual parts form the compact thermal module component.

Danger!
Danger of explosion through gas leakage!
The mixer tube between the gas control unit and burner must not be opened. It can only be guaranteed that this component is gas-tight after it has been inspected at the factory.

Danger!
There is danger of being burned or scalded at the compact thermal module and at all components carrying water. Only carry out work on these components once they have cooled down.

No.	Activity	Column 1 Inspection must be carried out once a year	Column 2 Maintenance
1	Check the air/gas flue system and ensure it is not blocked, damaged and is fitted correctly.	x	
2	Measure the gas rate during operation (see chapter ‚Start-up'). If the gas rate is lower than the minimum gas rate follow the maintenance instructions (column 2).	x	
3	Check combustion by measuring CO and CO_2 values, compare to table 6.1. If the measurement is outside the tolerances follow the maintenance instructions (column 2). If a flue gas analyser is not available check the ignition and burner flame picture through the sight glass, if incomplete combustion is evident perform the maintanance instructions (column 2).	x	
4	Isolate the appliance from the electrical mains supply, close the gas and water service valves.		x
5	Visually inspect the general heat exchanger area for signs of corrosion, sooting or other forms of damage. If damage is evident perform the tasks in the maintenance column 2.	x	
6	Remove the burner module (as described in section 8.4) if maintenance schedule is required from steps 2, 3 or 5 above. Clean the primary heat exchanger. Fit a new burner door seal kit (spareparts no. 0020026401 - observe the assembly instructions enclosed with the seal kit). Refit the burner module and tighten the nuts.		x
7	Check all the appliances electrical connections and make adjustments if necessary.	x	x
8	Check/re-pressurise the expansion vessel as necessary.	x	x
9	Check the appliance generally, check for dirt/dust and clean if necessary.	x	x
10	Check and clean the condense trap and flexible condensate hose.	x	x
11	Open the gas and water service valves, re-establish the electrical supply and turn on the boiler.	x	x
12	Perform a test operation of the appliance including the heating and hot water systems and bleed the system if necessary.	x	x
13	Re-pressurise the appliance/system up to between 1.0 - 2.0 bar (depending on the static height of the system).	x	x
14	Measure the gas rate during operation and ensure it is within the tolerances specified (see chapter ‚Start-up').		x
15	Re-check the combustion by measuring the CO and CO_2 values, (compare to table 6.1). Ensure that the measurement is within the tolerances. If a flue gas analyser is not available check the ignition and burner flame picture visually through the sight glass.		x
16	Check the boiler for leaks of any kind, rectify as necessary.	x	x
17	Complete the gas commissioning checklist (Benchmark).	x	x

Table 8.1 Maintenance steps

Proceed as follows to dismount it:
- Turn the appliance off on the main switch.
- Isolate the unit from the electrical mains.
- Cut off the gas supply to the device.
- Close the maintenance cocks on the appliance.
- Remove the front cover from the device.
- Swing off the electronic box.

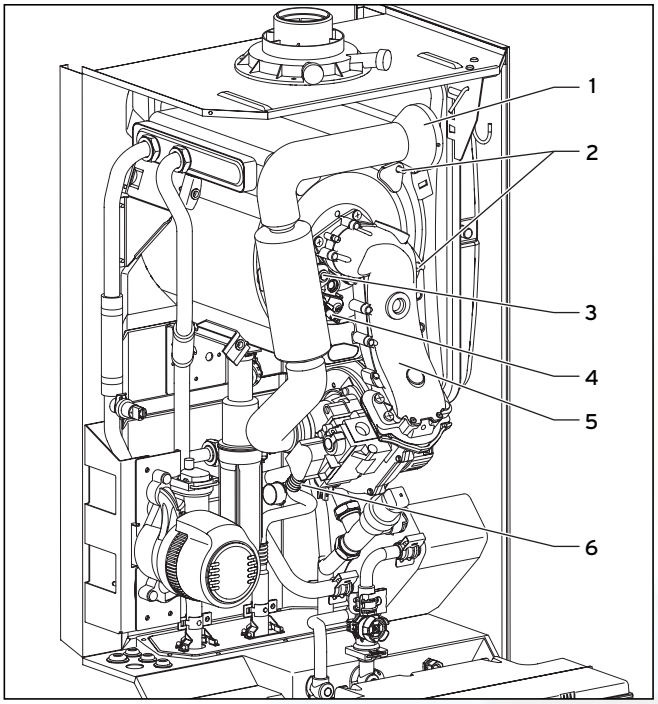


Fig. 8.1 Dismantling compact thermal module

- Remove the screw (**3**) and remove the air inlet pipe (**1**) from the inlet spigot on the gas fitting.
- Separate the gas supply pipe (**6**) on the gas fitting. Secure the gas corrugated pipe against twisting by bracing the pipe on the wrench surface while loosening the union nut.

Caution!
Damage to the gas pipe!
Under no circumstance may the compact thermal module be suspended from the flexible corrugated gas pipe.

- Pull the two plugs of the ignition und grounding lines off the ignition electrode (**4**).
- Only ecoTEC exclusive 832: Pull the cable plug off the fan motor and the cable off the gas fitting.
  Only ecoTEC exclusive 838: Open the mains coupling to the fan.
- Undo the five nuts (**2**).
- Pull the entire compact thermal module (**5**) off the heat exchanger.
- After dismantling the burner and the heat exchanger, check for damage and dust and, if necessary, clean the components as described below.

8.4.2 Clean the heat exchanger

Caution!
Protect the electronics box turned down against sprayed water.

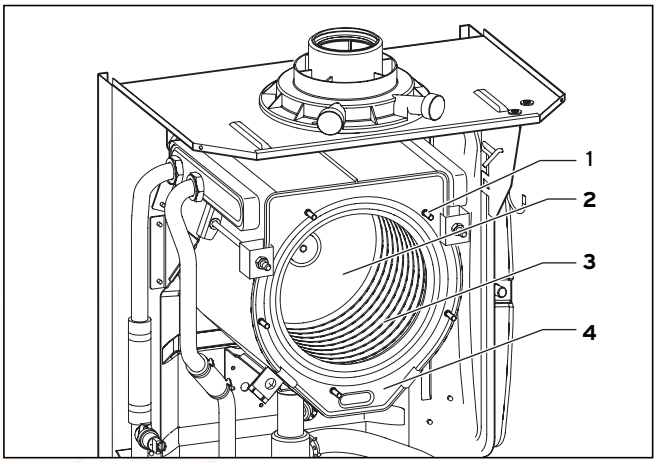


Fig. 8.2 Clean the heat exchanger

- Remove the compact thermal module (see Chapter 8.4.1).
- Clean the pipes (**3**) of the heat exchanger (**4**) using regular vinegar. Flush with water. The water flows out of the heat exchanger through the water condense trap.
- After a soaking time of approx. 20 minutes, flush away the dirt particles that have come loose with a powerful water jet. Avoid pointing the water jet directly at the insulating surface (**2**) on the back of the heat exchanger.

8.4.3 Checking the burner

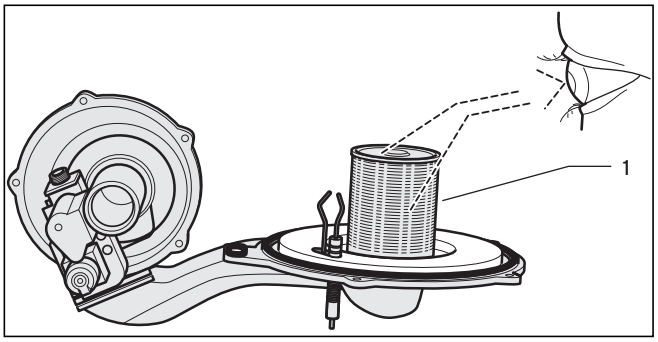


Fig. 8.3 Checking burner

The burner (**1**) is maintenance-free and needs no cleaning.
- Check the burner surface for damage, replace the burner if necessary.
- After checking/replacing the burner, dismantle the compact thermo module as described in Section 8.4.4.

8.4.4 Installing the burner assembly

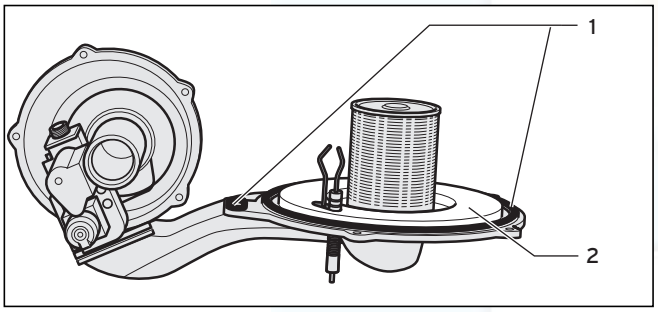


Fig. 8.4 Replacing silicone gaskets

- Insert the new graphite seals (**1**) in the burner flange.

Danger!
The two seals (1 - fig. 8.4) on the burner assembly (must be replaced each time the module is removed (for example during maintenance). The burner flange insulation (2 - fig. 8.4) on the compact thermal module (SP no. 21-0734) may not show any signs of damage; otherwise it must also be replaced.

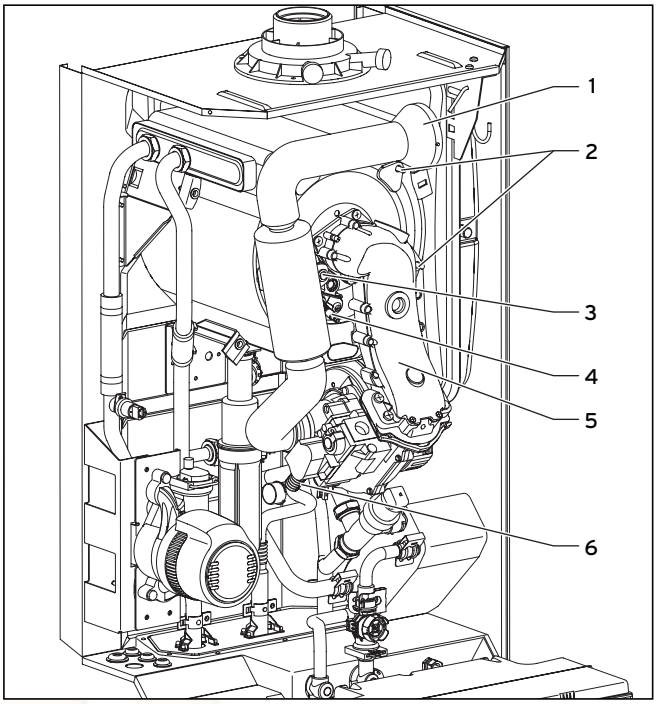


Fig. 8.5 Installing compact thermal module

- Place the entire compact thermal module (**5**) onto the integral condensation heat exchanger.
- Tighten the five nuts (**2**) across the diagonal until the burner door fits closely and uniformly onto the mating surfaces.
- Insert the ignition cable and the earth cable of the ignition electrode (**4**).
- Only ecoTEC exclusive 832: Insert the cables on the fan motor and the cable on the gas fitting.
  Only ecoTEC exclusive 838: Close the mains coupling to the fan.
- Connect the gas supply (**6**) with a new gasket to the gas fitting. Use the spanner flat at the flexible gas line to hold the gas line.

Caution!
Open the gas supply and check the appliance for gas leaks using a leak testing spray. Pay particular attention to the gas fitting (6).

- Check that the blue gasket in the air intake pipe (**1**) is correctly located in the gasket seat.
- Insert the air intake pipe on the suction nozzles and secure the pipe with the retaining screw (**3**).

8.5 Maintaining the secondary heat exchanger

Danger!
All water conducting components present a danger of burning and scalding. Only carry out work on these components once they have cooled down.

Caution!
Protect the electronics box turned down against sprayed water.

Note!
When removing the secondary heat exchanger, protect the opening in the appliance from dirt contamination!

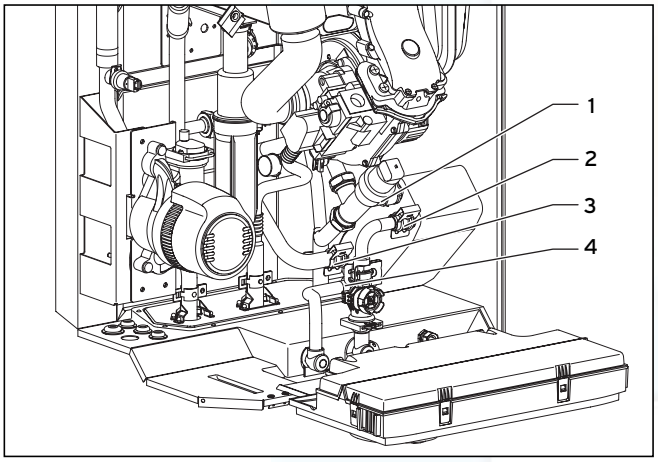


Fig. 8.6 Cleaning the secondary heat exchanger

- Isolate the appliance from the house electricity circuit (see Chapter 8.2) and close the gas supply.
- Close the maintenance cocks -if fitted- and the cold water inlet valve on the inlet combination, and drain the appliance.
- Release the nut (**4**) on the secondary heat exchanger.
- Release the clamp (**1**) on the preference changeover valve.
- Release the clamps (**2**) and (**3**) on the secondary heat exchanger.
- Remove the secondary heat exchanger to the side.
- Flush the secondary heat exchanger thoroughly with clean water.
- When re-assembling, use new O rings and flat seals, the part numbers can be obtained from the parts catalogue.

8.6 Cleaning the condense trap

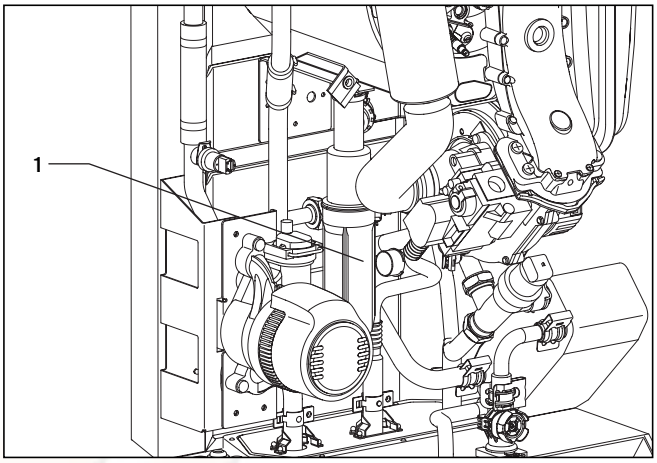


Fig. 8.7 Cleaning the condense trap

Danger!
If the device is operated with empty condense trap, there is risk of poisoning through emitting flue gases.
Therefore, fill the trap with water again after each cleaning operation.

- Unscrew the lower section (**1**) of the water condense trap.
- Clean the bottom of the trap by flushing it out with water.
- Fill the lower section with water until about 10 mm below the upper edge.
- Fasten the lower section onto the condense trap again.

8.7 Checking the expansion vessel

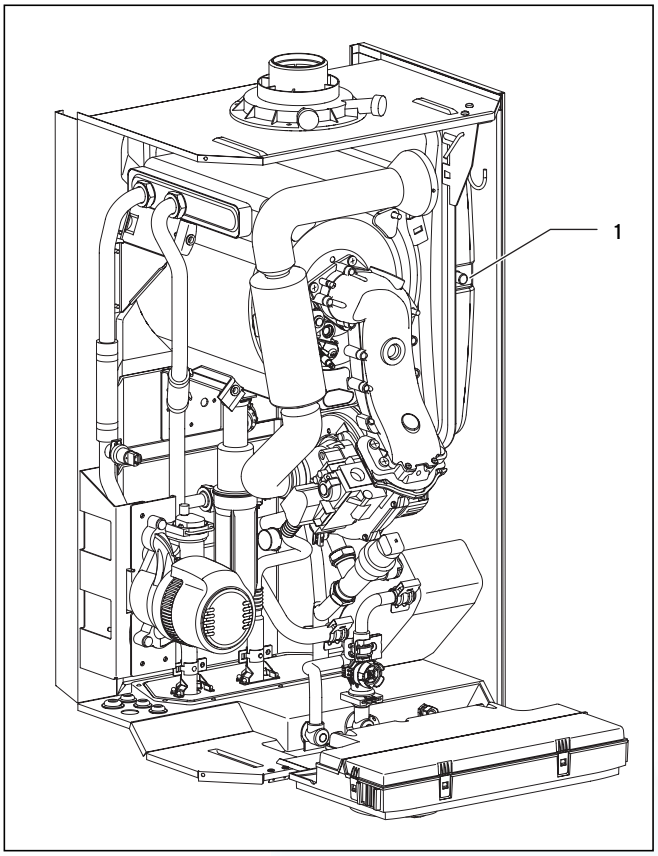


Fig. 8.8 Checking the expansion vessel

Note!
This check need not be performed every year - a check every three years is sufficient.

- The maintenance cocks of the central heating system must be closed.
- Release the pressure from the appliance.
- Remove the valve cover from the filling connection of the expansion vessel.
- Check that the internal pressure in the expansion vessel is between 0.75 and 0.9 bar. If the pressure is less than this, the vessel must be pumped up again using an air pump.
- Refit the valve cover.
- Re-pressurise the boiler and the heating system.

8.8 Checking the gas setting

8.8.1 Checking the connection pressure (gas inlet working pressure)

To check the connection pressure proceed as described in Chapter 6.1.2.

8.8.2 Checking CO_2 content and adjusting if necessary

To check the air figure proceed as described in Chapter 6.2.2.

8.9 Test operation

Always perform the following checks after completing any inspection/maintenance task:

- Commission the appliance in accordance with the instructions in the relevant operating manual.

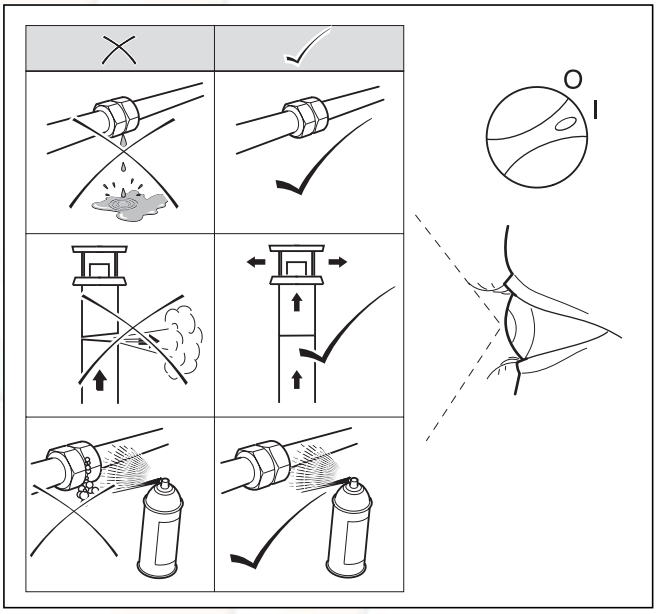


Fig. 8.8 Function check

- Check the appliance for gas and water leaks.
- Check the flue system for leaks and that it is fixed properly.
- Check over-ignition and that the flame on the burner is burning evenly.
- Check the function of the heating (see Chapter 6.3.1) and the hot water preparation (see Chapter 6.3.2)
- Document the inspection/maintenance tasks performed in the form provided in the inspection or maintenance contract.

9 Troubleshooting

Note!
If you wish to contact the Vaillant Service Team, please refer to the error code displayed (F.xx) and the appliance status (S.xx) if possible.

9.1 Diagnostics

9.1.1 Status codes

The status codes that you can see on the display provides information about the current operating condition of the appliance.

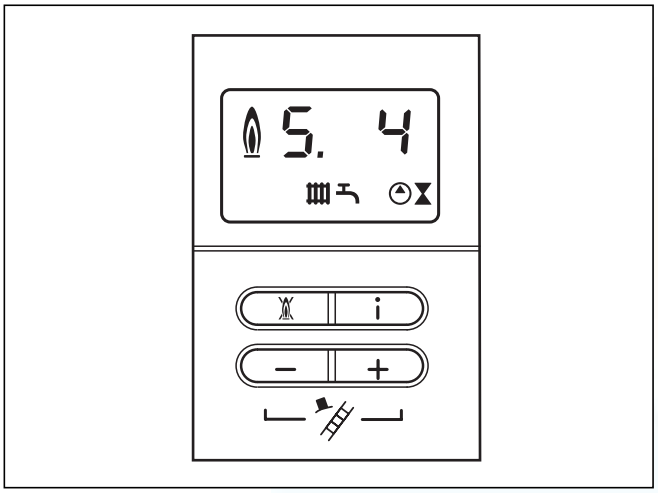


Fig. 9.1 Display of status codes

The display of the status codes can be viewed as follows:
- Press the "**i**" button.
  The display shows the status code, e.g. **S.4** for "Burner mode - Heating".

The display of the status codes can be ended as follows:
- Press the "**i**" button or
- Do not press any button for about 4 minutes.
  The current filling pressure in the heating system appears in the display again.

Display	Meaning
Heating mode	
S.0	No heat required
S.1	Fan start
S.2	Water pump flow
S.3	Ignition
S.4	Burner mode
S.5	Fan and water pump return water
S.6	Fan return flow
S.7	Water pump return water
S.8	Burner lock after heating mode
Hot water function	
S.10	Hot water switch on
S.11	Fan start
S.13	Ignition
S.14	Burner mode
S.15	Fan and water pump return water
S.16	Fan return flow
S.17	Water pump return water
Storage tank charging/heat retention mode	
Page 20	Water pump flow
S.21	Fan start
S.23	Ignition
S.24	Burner mode
S.25	Fan and water pump return water
S.26	Fan return flow
S.27	Water pump return water
S.28	Burner lock after recharging/heat retention (cycle suppression)
Other:	
S.30	Room thermostat blocks heating operation (terminal 3'-4' open)
S.31	Summer mode active or eBUS controller or timer blocks heating operation
S.32	Heat exchanger antifreeze active, as fan speed variation is too high. Appliance is within the waiting time of the operation block function
S.34	Antifrost mode active
S.36	Target value specification of room thermostat < 20 °C , i.e. the external regulator is blocking the heating operation
S.41	Water pressure >2.9bar
S.42	Exhaust gas diverter return signal blocks burner operation (only in connection with accessories) or condensate pump faulty, heat demand is blocked
S.53	Appliance is within the waiting period of the modulation block/operation block function due to water shortage (flow-return spread too large)
S.54	Appliance is within the waiting period of the operation block function due to water shortage (temperature gradient)
S.96	Return sensor test running, heating demands are blocked
S.97	Water pressure sensor test running, heating demands are blocked
S.98	Flow/return sensor test running, heating demands are blocked

Table 9.1 Status codes

9.1.2 Diagnosis codes

In the diagnosis mode, you can change certain parameters or display more information.
The diagnosis information is divided into two diagnosis levels. The 2nd diagnosis level can be reached only after entering a password.

Caution!
The access to the 2nd diagnosis level may only be used by a qualified heating engineer.

1st diagnosis level

- Press the "**i**" and "**+**" buttons simultaneously.

The display shows "**d.0**".

- Scroll to the desired diagnosis point of the 1st diagnosis level using the buttons "**+**" or "**–**". (see Table 9.2).
- Press the "**i**" button.

The display shows the relevant diagnosis information.

- If necessary, use the "**+**" or "**–**" keys to change the value (display flashes).
- Save the new value by holding down the "**i**" button for approx. 5 seconds until the display no longer blinks.

You can end the diagnosis mode as follows:

- Press the "**i**" and "**+**" buttons simultaneously or
- Do not press any button for about 4 minutes.

The current pressure in the heating system appears in the display again.

2nd diagnosis level

- Scroll as described above in the 1st. diagnosis level to diagnosis number **d.97**
- Change the displayed value to **17** (password) and save this value.

You are now in the 2nd diagnosis level in which all information from the 1st diagnosis level (see Table 9.2) and the 2nd diagnosis level (see Table 9.3) is displayed. Scroll and change values and exit diagnosis mode as described in the first diagnosis level.

Note!
If you push the buttons "i" and "+" within 4 minutes of leaving the 2nd diagnosis level, you can directly access the 2nd diagnosis level without having to re-enter the password.

Display	Meaning	Display value/adjustable value
d.0	Heating partial load	adjustable heating partial load in kW
d.1	Water pump return time for heating mode	2 - 60 minutes (factory setting: 5)
d.2	Max. blocking time heating at 20°C feed temperature	2 - 60 minutes (factory setting: 20)
d.3	Measured value for the hot water outlet temperature	in °C
d.4	Measured value for the hot start sensor	in °C
d.5	Feed temperature target value (or return temperature target value, if return flow regulation selected)	in °C, max. of the value set in d.71 limited by an eBUS controller, if fitted)
d.6	Set hot water temperature	35 to 65 °C
d.7	Set hot water retention temperature	40 to 65 °C 15 °C left, then 40 °C up to value set in d.20 (max. 70 °C)
d.9	Feed target temperature from external analogue regulator to terminal 7-8-9/eBus	in °C, minimum from ext. eBus target value and target value terminal 7
d.10	Status internal heating pump	1 = on, 0 = off
d.11	Status external heating pump	1 to 100 = on, 0 = off
d.12	Cylinder charging pump	0 = off, 1 - 100 = on
d.13	Circulation pump	0 = off, 1 - 100 = on
d.15	Pump speed actual value	Actual value internal pump in %
d.16	Room thermostat 24 V_{DC} on terminal 3' and 4'	0 = Room thermostat open (no heat request) 1 = Room thermostat closed (heat request)
d.22	Hot water demand	1 = on, 0 = off
d.23	Summer mode (heating on/off)	1 = heating on, 0 = heating off (summer mode)
d.25	Storage tank charging /hot water charging via eBUS controller released	1 = yes, 0 = no
d.30	Control signal for both gas valves	1 = on, 0 = off
d.33	Fan speed target value	in rpm/10,
d.34	Fan speed actual value	in rpm/10,
d.35	Position of the preference changeover valve	0 = heating; 100 = hot water; 40 = centre position
d.36	Through-flow sensor hot water actual value	in l/min
d.40	Flow temperature	actual value in °C
d.41	Return flow temperature	actual value in °C
d.44	Digitalised ionisation voltage	Display range 0 to 102, >80 no flame, <40 good flame display
d.47	External temperature (with weather-controlled Vaillant controller)	actual value in °C
d.67	Remaining burner locking time	in minutes
d.76	Appliance variant (device specific number)	00 to 99
d.90	Digital regulator status	1 = identified, 0 = unidentified (eBUS Address 10)
d.91	DCF status with connected external probe with DCF77 receiver	0 = no reception, 1 = reception, 2 = synchronised, 3 = valid
d.97	Activation of the 2nd diagnosis level	Password: 17
d.98	Telephone installer	Programmable telephone number
d.99	Language variant	Available languages: 0 = German, 1 = English, 2 = Dutch

Table 9.2 Diagnosis codes in the 1st. diagnosis level

Display	Meaning	Display value/adjustable value
d.14	Pump speed target value	target value internal pump in % - possible settings: 0=Auto, 1=53, 2=60, 3=70, 4=85, 5=100 % (Factory setting: Auto)
d.17	Heating flow/return regulation changeover	0 = flow, 1 = return (factory setting: 0)
d.18	Pump mode (return flow)	0 = overrun 1 = continuous, 2 = winter (Factory setting: 0)
d.26	Changeover option relay to electronic	1 = circulation pump 2 = external pump 3 = storage charging pump 4 = vapour extraction hood 5 = external throttle 6 = external fault signal (without maintenance display)
d.27	Changeover relay 1 on the accessories module	1 = circulation pump (factory setting) 2 = ext. pump 3 = storage charging pump 4 = flue gas flap/extractor hood 5 = external gas valve 6 = external error message
d.28	Changeover relay 2 on the accessories module	1 = circulation pump 2 = ext. pump (factory setting) 3 = storage charging pump 4 = Flue gas flap/extractor hood 5 = External gas valve 6 = External error message
d.50	Offset for minimum fan speed	in rpm/10, adjustment range: 0 to 300
d.51	Offset for maximum fan speed	in rpm/10, adjustment range: -99 to 0
d.58	Activation solar post-heating	setting range: 0 to 3 0 = solar post-heating deactivated (factory setting) 3 = activation drinking water target value min = 60 °C for solar post-heating
d.60	Number of temperature limiting shutdowns	amount
d.61	Number of fuel automatic system faults	number of successful ignitions in the last attempt
d.64	Average ignition time	in seconds
d.65	maximum ignition time	in seconds
d.68	Unsuccessful ignitions at the first attempt	number
d.69	Unsuccessful ignitions at the second attempt	number
d.70	Setting the priority changeover valve position	0 = normal mode (factory setting) 1 = centre position 2 = permanent heating position
d.71	Target value max. heating flow temperature	Adjustment range in °C 40 to 85 (Factory setting: 75)
d.72	Pump overrun time after heat retention function	Adjustment range in sec: 0, 10, 20 to 600 (Factory setting: 80)
d.73	Offset for hot start target value	Setting range: -15 K to +5 K (Factory setting: depending upon variant)
d.80	Operating hours heating	in h[1)]
d.81	Operating hours hot water function	in h[1)]
d.82	Hystereses in heating mode	number/100[1)] (3 equals 300)
d.83	Hystereses in hot water function	number/100[1)] (3 equals 300)
d.84	Maintenance indicator: Number of hours until the next maintenance	setting range: 0 to 3000h and „-“ for deactivated factory setting: „-“ (300 corresponds to 3000h)
d.93	DSN appliance variant setting	setting range: 0 to 99
d.96	Default setting	1 = Resetting adjustable parameters to factory setting

Table 9.3 Diagnosis codes in the 2nd diagnosis level

[1)] In the diagnosis codes 80 to 83 5 digit figure values are stored. When selecting e.g. d.80 only the first two digits of the figure value are displayed (e. g.10). By pressing the „i“ key, the display switches over to the last three figures (e.g. 947). The operating hours counter of the heating in this case would be 10947 h. Pressing the „i“ again causes the display to switch back to the diagnosis point that was called up.

9.1.3 Error codes

The error codes displace all other displays when errors occur.
If many errors occur simultaneously, the relevant error codes are displayed alternately for approx. 2 seconds each.

9.1.4 Error memory

The last ten errors are saved in the appliance error memory.
- Press the "**i**" and "**-**" buttons simultaneously.
- Scroll back in the error memory with the "**+**" button.

You can exit the error memory display as follows:
- Press the "**i**" button or
- Do not press any button for about 4 minutes.

The current heating flow temperature appears in the display again.

Code	Meaning	Cause
F.0	Interruption feed temperature sensor (NTC):	NTC faulty, NTC cable faulty, faulty plug connection on NTC, faulty plug connection on the electronics
F.1	Interruption return temperature sensor (NTC):	NTC faulty, NTC cable faulty, faulty plug connection on NTC, faulty plug connection on the electronics
F.10	Short-circuit in feed temperature sensor	Sensor plug has mass short to the casing, short-circuit in wiring loom, sensor faulty
F.11	Short-circuit in return temperature sensor	Sensor plug has mass short to the casing, short-circuit in wiring loom, sensor faulty
F.13	Short-circuit on heat retention storage tank sensor	Sensor plug has mass short to the casing, short-circuit in wiring loom, sensor faulty
F.20	Safety temperature limiter actuated	Flow probe not connected thermally correct or defective, appliance does not shut down
F.22	Dry fire	Too little water in the appliance, water shortage switch defective, cable to pump or water shortage switch defective, pump blocked or defective, pump output too low
F.23	Water shortage, temperature spread between flow and return probe too large	Pump blocked or defective, pump output too low, flow and return sensor swapped over
F.24	Water shortage, temperature rise too quick	Pump blocked, low output from the pump, air in appliance, system pressure too low
F.25	Interruption in cable harness	Cable harness faulty
F.27	External light:	Gas solenoid valve defective, flame detector defective
F.28	Appliance does not start: Attempts to ignite during start failed	Faults in the gas supply such as: - Gas meter or gas pressure detector defective - Air in gas - Gas flow pressure too low - Main gas cock closed Faults in the gas fitting, wrong gas setting, igniter (ignition transformer, ignition cable, ignition plug) defective, ionisation current stopped (cable, electrode), faulty earthing in appliance, electronics defective
F.29	Flame goes off during operation and subsequent ignition attempts failed	Gas supply temporarily stopped, ignition transformer has spark failure, faulty earthing of appliance
F.32	Speed deviation Fan	Fans blocked, plug not inserted correctly on fan, hall sensor defective, fault in cable harness, electronics defective
F.49	eBUS undervoltage	Short-circuit on eBUS input, eBUS overload or two power supplies with different polarities on the eBUS
F.61	Gas valve control faulty	Short-circuit to mass in cable harness to the gas valves, installation fault on gas valve (short-circuit, mass short in the coils) electronics faulty
F.62	Gas valve shutoff delay defective	Gas fitting leaking, electronics defective
F.63	EEPROM faulty	Electronics defective
F.64	Electronics/sensor fault	Short-circuit in flow or return sensor or electronics defective
F.65	Electronics temperature too high	Electronics too hot due to external effect, electronics defective
F.67	Flame monitor input signal is outside the limits (0 or 5 V)	electronics defective
F.70	No valid appliance variant for display and/or electronics	Spare part case: Display and electronics changed at the same time appliance variant not re-set

Table 9.4 Error codes

Code	Meaning	Cause
F.71	Constant value feed NTC	Feed NTC faulty
F.72	Flow and/or return sensor fault	Flow and/or return sensor is faulty (tolerance too great)
F.73	Signal water pressure sensor in the wrong range (too low)	Line to water pressure sensor is interrupted or has a short-circuit to 0V or water pressure sensor faulty
F.74	Signal water pressure sensor in the wrong range (too high)	Line to water pressure sensor has a short-circuit at 5V/24V or internal fault in water pressure sensor
F.75	No sudden change in pressure was detected on turning on the pump	Water pressure sensor or/and pump defective Too little water in the appliance; check adjustable bypass; Connect expansion vessel in return; Air in the appliance
F.76	Interruption in cable harness	Cable harness faulty
F.77	Condensate pump or return signal from accessory module heating	Condensate pump faulty or return signal from the exhaust gas flap has responded
con	No communication with the printed circuit board	Communication fault between the display and the printed circuit board in the switchgear box

Table 9.4 Error codes (continuation)

9.2 Test programs

Special functions can be triggered in the appliances by activating various test programs.
These programs are given in detail in the Table 9.5.

- The test programmes P.0 to P.6 will be started when "**Power ON**" is turned on and the "**+**" button is pressed for 5 seconds simultaneously. The display shows "**P.0**".
- Press the "**+**" key to start counting the test programme number upwards.
- Press the "**i**" to operate the appliance now and to start the test programme.
- Press "**i**" and "**+**" simultaneously to exit the test programs. You can also exit the test programs by not pressing any button for 15 minutes.

Display	Meaning
P.0	Bleeding test program The heating circuit and the hot water circuit are bled via the automatic bleeding valve (the cap of the automatic bleeding valve must be released).
P.1	Test programme where the appliance is operated in full load after successful ignition.
P.2	Test program where the appliance is operated with minimum gas volume (ignition gas volume) after successful ignition.
P.5	Test function for the safety temperature limiter (STL): The burner is switched on with maximum output, the temperature controller is switched off so that the burner heats until the software STL responds by reaching the STL temperature on the flow or return sensor.
P.6	Filling/draining programme: The preference changeover valve moves to the centre position. The burners and pump are switched off.

Table 9.5 Test programmes

9.3 Resetting parameter to factory settings

Besides the option to reset individual parameters manually to the factory settings specified in Tables 9.2 and 9.3, you can also reset all parameters simultaneously.

- Change the value in the 2nd diagnosis level under diagnosis point "**d.96**" to 1 (see Section 9.1.2).

The parameters of all adjustable diagnosis points now correspond to the factory settings.

10 Replacing components

The tasks listed below in this section may be carried out only by a heating engineer.
- Only use genuine spare parts for repairs.
- Make sure the parts are correctly fitted and that their original position and alignment are retained.

10.1 Safety instructions

Danger!
Each time the components are replaced, comply with the safety instructions below for your own safety and to avoid damage to the appliance.

- Take the appliance out of operation.

Note!
Isolate the appliance from the electrical mains by pulling the plug out of the wall plug socket!

- Close the gas cock in the gas supply pipe, the maintenance cocks and -if fitted-in- the heating flow and return.
- Close the cold water inlet valve on the inlet combination.
- Empty the appliance if you want to replace water-bearing components of the appliance!
- Make sure that no water drips on live components (e.g. electronic box etc.)!
- Use only new gaskets and O-rings!
- After completing the work, check for gas leaks and perform a function check (see Chapter 6)!

10.2 Replacing burner

Danger!
Before replacing the component, comply with the safety instructions in Section 10.1.

- Dismantle the compact thermo module as described in Section 8.4.1.

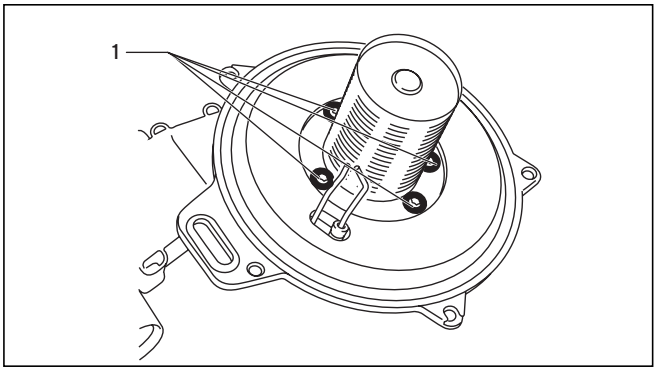


Fig. 10.1 Replacing burner

- Release the 4 screws (**1**) on burner, and remove the burner.
- Mount the new burner with a new gasket. Make sure that the nose on the burner window grips onto the gasket in the groove in the burner.
- Install the compact thermo module as described in Chapter 8.4.4.
- After completing the work, check for gas leaks and perform a function check (see Chapter 6)!

10.3 Replacing fan or gas fittings

Danger!
Before replacing the component, comply with the safety instructions in Section 10.1.

- Disconnect the appliance from the mains as described in Chapter 10.1, and close the gas cock in the gas supply pipe.

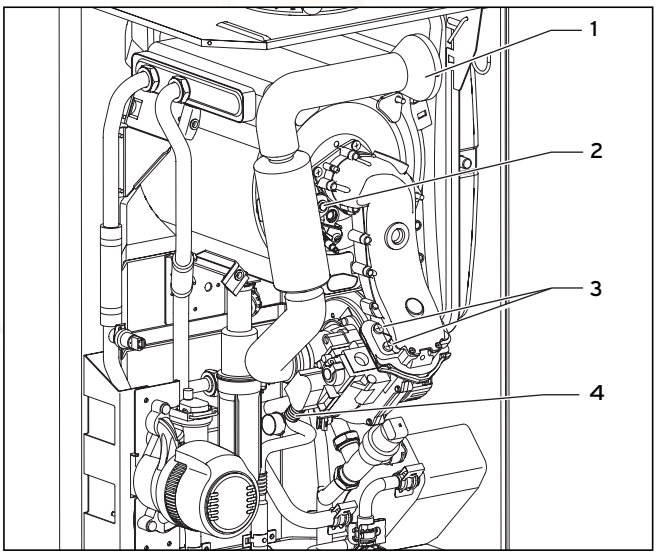


Fig. 10.2 Dismantling fan with gas valve

- Remove the screw (**2**) and remove the air inlet pipe (**1**) from the inlet spigot on the gas fitting.
- Release the gas supply pipe (**4**) on the gas valve.
- Pull out the plug from the gas valve.

- Only ecoTEC exclusive 832: Pull out the plug from the fan printed circuit board.
  Only ecoTEC exclusive 838: Open the coupling of the mains input.
- Release the four screws (**3**) on the compact thermo module .
- Remove the complete "gas fitting/fan" unit.

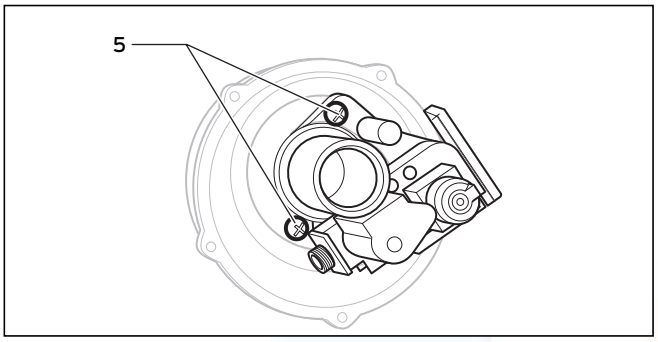


Fig. 10.3 Gas fitting/fan screwed joint

- Release both fixing screws (**5**) on the gas fitting and remove the fan from the gas fitting.
- Replace the defective component.

Caution!
Mount the gas valve and the fan in the same position as before.

- Screw the fan to the gas fitting. Use the new seals.
- Re-install the complete "gas fitting/fan" unit in reverse sequence.
- After completing the work, check for gas leaks and perform a function check (see Chapter 6)!

10.4 Replacing primary heat exchanger

Danger!
Before replacing the component, comply with the safety instructions in Section 10.1.

- Disconnect the appliance from the mains as described in Chapter 10.1, and close the gas cock in the gas supply pipe.
- Close the maintenance cocks - if fitted - in the heating flow and return and drain the appliance.
- Dismantle the compact thermo module as described under 8.4.1.

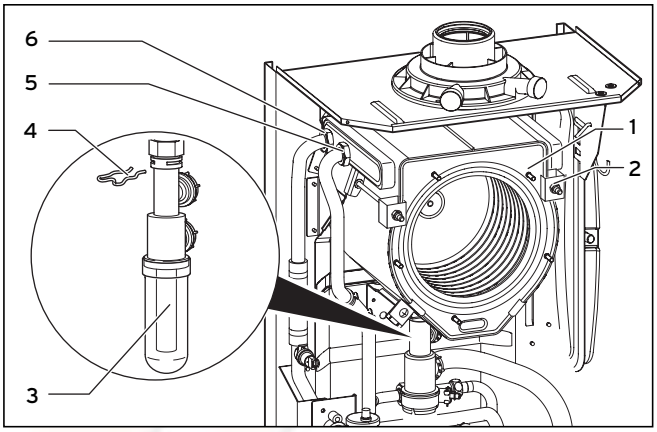


Fig. 10.4 Replacing primary heat exchanger

- Remove the clamps (**4**) on the trap (**3**), release the fittings on the trap and remove the trap from the primary heat exchanger.
- Remove the adaptor nuts of the trap from the primary heat exchanger.
- Release the return connection (**6**) and the feed connection (**5**) on the primary heat exchanger.
- Release the three screws (**2**) on the primary heat exchanger and remove the primary heat exchanger from the appliance.
- Mount the new primary heat exchanger in reverse order and replace the seals.
- Fill and bleed the appliance and if needed, the plant after installing the new primary heat exchanger.
- After completing the work, check for gas and water leaks and perform a function check (see Chapter 6)!

10.5 Replacing electronics and display

Danger!
Before replacing the component, comply with the safety instructions in Section 10.1.

- Comply with the assembly and installation manuals provided with the spare parts.

Replacing display or electronics
If you are replacing only one of the two components, the parameter adjustment functions automatically. On turning on the appliance, the new component takes over the previously set parameters from the components that are not replaced.

Replacing display and electronics
When replacing both components (spare part case), after being turned on, the appliance goes to fault and displays the error message **F.70**.
- In the second diagnosis level, under the diagnosis point "**d.93**" enter the number of appliance variant according to Table 10.1 (see Chapter 9.1.2).

The electronics is now set to the appliance type and the parameters of all adjustable diagnosis points correspond to the factory settings.

Appliance	Number of the appliance variant
ecoTEC exclusive 832	4
ecoTEC exclusive 838	5

Table 10.1 Numbers of the appliance variants

11 Vaillant service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

12 Recycling and disposal

Both your Valliant ecoTEC exclusive and its packaging consist mainly of recyclable raw materials.
The Vaillant ecoTEC exclusive and all accessories and the packaging must not be disposed of in the household waste. Make sure that the old appliance and any accessories and the transport packaging are disposed of in the proper way.

13 Technical data

ecoTEC exclusive	832	838	Unit
Nominal heat output range P at 40/30 °C	11,0 - 29,3	12,1 - 32,4	kW
Nominal heat output range P at 50/30 °C	10,8 - 28,7	11,9 - 31,8	kW
Nominal heat output range P at 60/40 °C	10,5 - 27,9	11,5 - 30,9	kW
Nominal heat output range P at 80/60 °C	10,2 - 27,0	11,2 - 30,0	kW
Hot water output	31,4	37,2	kW
Maximum load in hot water function	32	38	kW
Maximum thermal load on heating-side	27,6	30,6	kW
Minimum thermal load	10,4	11,4	kW
Heating			
Max. flow temperature	90	90	°C
Setting range max. feed temperature (factory setting: 75°C)	40 - 85	40 - 85	°C
Permissible total over-pressure	3	3	bar
Circulation water volume (with reference to ΔT = 20 K)	1161	1290	l/h
Condensate volume approx. (pH value 3,5 - 4,0) at heating operation 50 °C flow/30 °C return	2,8	3,1	l/min
Residual feed head pump (at nominal circulation water volume)	250 (300)	250	mbar
hot water handling			
Least water volume	1,5	1,5	l/min
Water volume (at ΔT = 35 K)	12,9	15,2	l/min
Maximum pressure	10	10	bar
Required connection pressure	0,35	0,35	bar
Hot water discharge temperature range	35 - 65	35 - 65	°C
General			
Gas connection	15	15	mm
Heating connection	22	22	mm
Hot and cold water connection	15	15	mm
Exhaust spigot (parallel adaptor)	60/100	60/100	mm
Designation Venturi	051	051	-
Category	$II_{2H\ 3P}$	$II_{2H\ 3P}$	-
Connection pressure (gas flow pressure) natural gas, G20	20	20	mbar
Connection pressure (gas flow pressure) propane, G31	37	37	mbar
Connection value at 15 °C and 1013 mbar G20 (if necessary with reference to hot water preparation) G31	3,4 2,49	4,0 2,95	m^3/h kg/h
Exhaust gas mass flow min./max.	4,8/14,4	5,3/17,2	g/s
Exhaust gas temperature min./max.	40/78	40/82	°C
Exhaust gas connection approval	C_{13}, C_{33}, C_{43}, C_{53}, C_{83}, B_{23}, B_{33}	C_{13}, C_{33}, C_{43}, C_{53}, C_{83}, B_{23}, B_{33}	-
SEDBUK classification	E = 91.1 / Class „A“	E = 91.1 / Class „A“	-
NOx class	5	5	-
Appliance dimensions - Height - Width - Depth	800 480 450	800 480 450	mm mm mm
Installation weight approx.	44	46	kg
Electrical connection	230/50	230/50	V/Hz
Built-in fuse	1 x 2 A slow-acting	1 x 2 A slow-acting	-
Electrical power consumption min./max.	40/95	40/110	W
Power consumption at rest	5	5	W
Level of protection	IP x4 D	IP x4 D	-
Test marks/registration number	CF 0085 BR 0308	CF 0085 BR 0308	-

Table 13.1 Technical data

BENCHMARK No. | | | | | | |

GAS BOILER COMMISSIONING CHECKLIST

BOILER SERIAL No. _____ **NOTIFICATION No.** _____

CONTROLS *To comply with the Building Regulations, each section must have a tick in one or other of the boxes*

TIME & TEMPERATURE CONTROL TO HEATING	ROOM T/STAT & PROGRAMMER/TIMER	☐	PROGRAMMABLE ROOMSTAT	☐
TIME & TEMPERATURE CONTROL TO HOT WATER	CYLINDER T/STAT & PROGRAMMER/TIMER	☐	COMBI BOILER	☐
HEATING ZONE VALVES	FITTED	☐	NOT REQUIRED	☐
HOT WATER ZONE VALVES	FITTED	☐	NOT REQUIRED	☐
THERMOSTATIC RADIATOR VALVES	FITTED	☐		
AUTOMATIC BYPASS TO SYSTEM	FITTED	☐	NOT REQUIRED	☐

FOR ALL BOILERS CONFIRM THE FOLLOWING

THE SYSTEM HAS BEEN FLUSHED IN ACCORDANCE WITH THE BOILER MANUFACTURER'S INSTRUCTIONS? ☐

THE SYSTEM CLEANER USED

THE INHIBITOR USED

FOR THE CENTRAL HEATING MODE, MEASURE & RECORD

GAS RATE		m^3/hr		ft^3/hr
BURNER OPERATING PRESSURE (IF APPLICABLE)	☐ N/A			mbar
CENTRAL HEATING FLOW TEMPERATURE				°C
CENTRAL HEATING RETURN TEMPERATURE				°C

FOR COMBINATION BOILERS ONLY

HAS A WATER SCALE REDUCER BEEN FITTED? YES ☐ NO ☐

WHAT TYPE OF SCALE REDUCER HAS BEEN FITTED?

FOR THE DOMESTIC HOT WATER MODE, MEASURE & RECORD

GAS RATE		m^3/hr		ft^3/hr
MAXIMUM BURNER OPERATING PRESSURE (IF APPLICABLE)	☐ N/A			mbar
COLD WATER INLET TEMPERATURE				°C
HOT WATER OUTLET TEMPERATURE				°C
WATER FLOW RATE				lts/min

FOR CONDENSING BOILERS ONLY CONFIRM THE FOLLOWING

THE CONDENSATE DRAIN HAS BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS? YES ☐

FOR ALL INSTALLATIONS CONFIRM THE FOLLOWING

THE HEATING AND HOT WATER SYSTEM COMPLIES WITH CURRENT BUILDING REGULATIONS ☐

THE APPLIANCE AND ASSOCIATED EQUIPMENT HAS BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS ☐

IF REQUIRED BY THE MANUFACTURER, HAVE YOU RECORDED A CO/CO_2 RATIO READING? N/A ☐ YES | | CO/CO_2 RATIO

THE OPERATION OF THE APPLIANCE AND SYSTEM CONTROLS HAVE BEEN DEMONSTRATED TO THE CUSTOMER ☐

THE MANUFACTURER'S LITERATURE HAS BEEN LEFT WITH THE CUSTOMER ☐

COMMISSIONING ENG'S NAME PRINT _____ CORGI ID No. _____

SIGN _____ DATE _____

SERVICE INTERVAL RECORD

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

Service Provider. Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the boiler manufacturer's instructions. Always use the manufacturer's specified spare part when replacing all controls

SERVICE 1 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 2 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 3 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 4 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 5 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 6 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 7 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 8 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 9 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 10 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

0020017768_01_GB 08 2007

Vaillant Ltd
Vaillant House ▮ Medway City Estate ▮ Trident Close ▮ Rochester ▮ Kent ME2 4EZ
Telephone 01634 292300 ▮ Fax 01634 290166 ▮ www.vaillant.co.uk ▮ info@vaillant.co.uk

For the owner

Instructions for use

ecoTEC

Wall hung room sealed fan assisted condensing boilers

GB

Contents

Specified use

1 Notes on these instructions

2 Specified use

The Vaillant ecoTEC plus, ecoTEC pro and ecoTEC exclusive models are compact, wall-mounted condensing boilers. ecoTEC plus and pro combination boilers provides both central heating and domestic hot water, with the domestic hot water supplied directly from the boiler. The boiler will operate automatically to provide domestic hot water whenever a hot water tap is opened, and automatically adjusts to meet the demand for both central heating and domestic hot water in the most economical way. ecoTEC system boilers provides central heating and domestic hot water where a separate indirect hot water cylinder is also incorporated to the system.

1 Notes on these instructions

To ensure clarity of information in instructions a new European standard of advice and symbols is being introduced. To ensure compliance with this new standard the following details are included.
The following information is intended to help you throughout the boilers entire instruction pack.
We assume no liability for any damage caused by not following these instructions.

Other instruction supplied with this appliance
For the end user

Short operating instructions (ecoTEC plus and ecoTEC exclusive only)	no. 838404
Warranty card with return envelope	
2 years	no. 809222
1 year	no. 802961

For the installer/service engineer:

Instructions for installation and servicing	
- for ecoTEC plus and pro	no. 839592
- for ecoTEC exclusive	no. 0020017768
Flue installation instructions	no. 834449

The instructions for any accessories and controllers used also apply.
The Benchmark gas boiler commissioning checklist (in the installation manual) should be completed by the installer and/or the commissioning engineer.
If, after reading these instructions, you have any questions on the operation of the boiler, please contact either your installer or Vaillant Technical Department.

1.1 Storage of the documents

Please store this user manual and all related documents so that they are available whenever they are required.
If you move please pass on the documents to the buyer.

1.2 Symbols used in this manual

Please observe the safety instructions in this operating manual for the operation of the appliance.

Danger
Immediate risk of serious injury or death.

Caution
Potentially dangerous situations for the product and environment.

Note
Useful information and instructions.

- Symbol for a necessary task

1.3 CE marking

The purpose of CE marking is to certify that the boiler complies with the requirements of the directives covering gasfired appliances (Council directive 90/396/EEC) and electromagnetic compatibility (Council directive 89/336/EEC). These appliances also comply with the requirements of the directive on operating efficiency (Council directive 92/42/EEC).

benchmark™
COLLECTIVE MARK
The mark of quality for domestic heating

Note!
Vaillant Ltd. support the Benchmark initiative. At the rear of the installation manual you will find the Benchmark gas boiler commissioning checklist. It is very important that this is completed correctly at the time of installation and commissioning.

1.4 Data badge

The type plate of the Vaillant ecoTEC is attached at the factory to the bottom of the appliance.

2 Safety

2.1 Setup and adjustments

Installation and adjustment of the boiler as well as service, maintenance and repair of the boiler may only be carried out by a competent person in accordance with the Gas Safety (Installation and Use) Regulations 1998. (In the U.K. "CORGI". Registered installers undertake the work to a safe and satisfactory standard). If the boiler is installed in a compartment do not obstruct any purpose provided ventilation openings, and do not use the compartment for storage purposes.

2.2 What to do in an emergency

Danger
Smell of gas. Risk of poisoning and explosion due to a malfunction

If you smell gas or suspect a gas leak:
- Do not switch lights on or off.
- Do not use any other electrical switches.
- Do not use a telephone in the hazardous area.
- Do not use naked flames, such as matches or cigarette lighters.
- Do not smoke.
- Turn off the gas supply at the gas meter.
- Open the windows and doors.
- Warn other residents.
- Get out of the house.
- Consult your gas supplier, service agent or other competent person.

2.3 Safety instructions

Always observe the following safety instructions and regulations.

Danger
Inflammable mixtures of gas and air may explode.
Do not use or store explosive or easily flammable substances such as petrol or paint in the same room as the appliance.

Danger
Risk of poisoning and explosion due to a malfunction.
Never put the safety devices out of operation or tamper with them so as to impair their function.

2.4 Modifications in and around the boiler

No modifications may be made to the following items:
- The boiler
- The gas, water and electrical supply
- The flue system

- The safety valve for the heating water
- Any structural changes around the appliance that could affect the operational safety of the boiler.

Caution
Inappropriate modifications can cause damage.
Never tamper with the boiler or other parts of the system.
Never attempt to perform maintenance or repairs yourself.

- Do not damage or remove seals on components. Only authorised engineers or our customer service may removed sealed components.

Danger
Risk of scalding.
The water coming out of the tap can be very hot (ecoTEC combination boiler only).

Caution
Risk of damage.
Do not use sprays, solvents, chlorinated cleaning agents, paint, adhesives or similar substances in the vicinity of the appliance. These substances can cause corrosion, including in the flue system.

Installation and setting

Important
The appliance must be installed and serviced by a competent person as stated in the Gas Safety (Installation and Use) Regulations 1998. In IE, the installation must be in accordance with the current edition of I.S.813 'Domestic Gas Installations', the current Building Regulations and reference should be made to the current ETCI rules for electrical installation.

Caution
The appliance may only be operated with its case properly and permanently closed.
Otherwise, in unfavourable conditions, material damage or even injury or death can result.

Filling pressure of the heating system
Regularly check the filling pressure of the heating system (see 4.3.2).

Leaks (ecoTEC combination boiler only)
If there is a leak in the water pipes between the appliance and the taps, immediately turn off the cold water service valve and have your engineer repair the leak.

Frost protection
Your boiler is equipped with a frost protection function: If the heating water temperature drops below 5 °C when the main switch is ON, then the boiler goes into operation and heats the boiler circuit to approx. 30 °C.

Note
It cannot be guaranteed that water will circulate throughout the entire heating system.

If the boiler is not operated for several hours during very cold weather there is therefore the possibility of the system freezing.
Please ensure that if you are absent during a period of frost the central heating remains in operation and all rooms are kept above freezing point.
It must be remembered, however, that the boiler will be automatically switched off by the built in monitoring devices if certain faults occur, e.g. interruption in the gas or electricity supply or faults in the flue gas system. To overcome this possibility you can drain both the central heating system and boiler.

Note
Frost protection and monitoring devices can only function when the main switch of the unit is set to the "I" position and the boiler is connected to the electrical supply.

3 Instructions on operation

3.1 Factory guarantee

3.1.1 Two year guarantee for ecoTEC plus and ecoTEC exclusive boilers

Vaillant undertakes to rectify any manufacturing defect that occurs within twenty-four months of the installation date.
For the 2nd year of the guarantee to be valid an annual service must be carried out by a CORGI registered installer one year after installation.
The cost of this annual service is not included in the guarantee.

3.1.2 One year guarantee for ecoTEC pro boilers

Vaillant undertakes to rectify any manufacturing defect that occurs within twelve months of the installation date.

3.1.3 Registering with us

Registration is simple. Just complete the Guarantee Registration Card and return to Vaillant within 30 days of installation. Your details will then be automatically registered within the Vaillant scheme.

Note
No receipt will be issued.

3.1.4 Immediate help

If your Vaillant boiler develops a fault your first action should be to contact your installer, as his professional assessment is needed under the terms of our Guarantee. If you are unable to contact your installer, phone Vaillant Service Solutions: 0870 6060 777

3.2 Intended use

Vaillant ecoTEC boilers are state-of-the-art appliances which have been constructed in accordance with recognised safety regulations. Nevertheless, there is a risk of injury or death to the user or others and damage to the appliance or other property in the event of misuse or use for which the appliance is not intended.
The appliances are designed to generate heat for connected hot water central heating systems. Any other use is considered to be use other than intended. The manufacturer/supplier is not liable for any resulting damage. The user alone bears the risk.
Intended use includes the observance of the operating and installation manual and all other applicable documents, as well as adherence to the maintenance and inspection conditions.

Caution
Any incorrect use is forbidden.

3.3 Care

- Clean the exterior your appliance with a damp cloth and a little soap.

Note
Do not use scouring or cleaning agent, which might damage the housing or plastic fittings.

3.4 Recycling and disposal

Both your Vaillant ecoTEC boiler and its packaging consist mainly of recyclable raw materials.

3.4.1 The appliance

Do not dispose of your Vaillant ecoTEC boiler or any of its accessories with household waste. Make sure the old appliance and any existing accessories are disposed of properly.

3.4.2 Packaging

Please leave the disposal of the transport packaging to the expert company which installed the appliance.

Note
Please observe the applicable national legal regulations.

4 Operation

4.1 Overview of controls on ecoTEC plus and ecoTEC exclusive

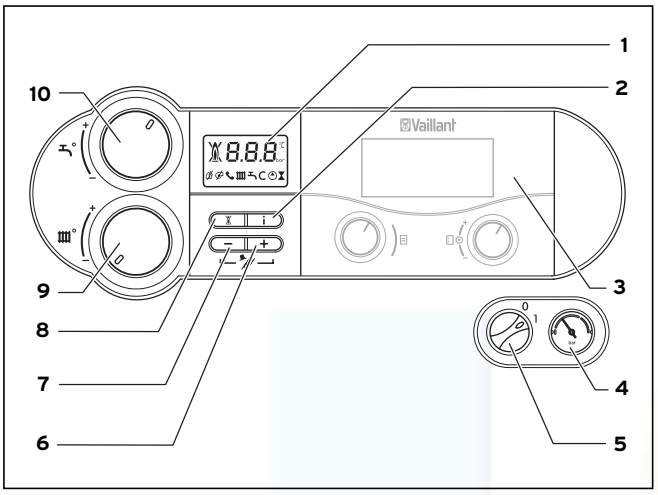


Fig. 4.1 ecoTEC plus and ecoTEC exclusive controls

For access to the controls open the front flap by pulling at the centre of the case strip.

1 Display indicating the current heating flow temperature, the pressure in the heating system, the operating mode or additional information
2 The "i" information button
3 Built in control/timer (if fitted)
4 Pressure gauge displaying the pressure in the heating system
5 Main ON/OFF control
6 "+" button for moving forward in the display
7 "-" button for moving back in the display or for displaying the pressure in the heating system
8 "Reset" button
9 Maximum radiator temperature control
10 Maximum hot water temperature control and warmstart ON/OFF control (ecoTEC plus combination boilers only)

Advanced multifunctional display system

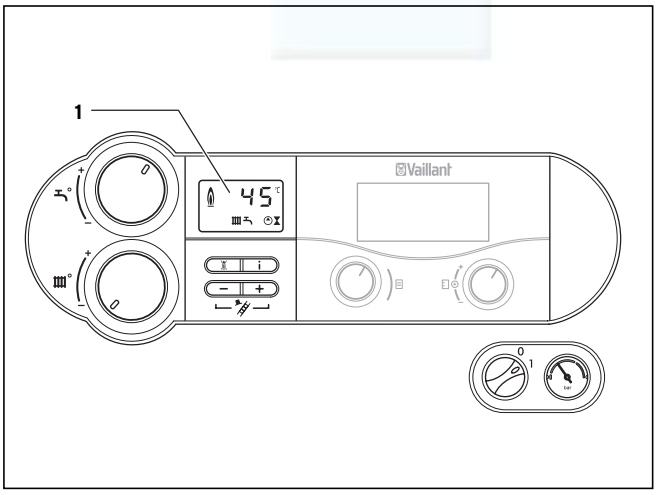


Fig. 4.2 Display on ecoTEC plus and ecoTEC exclusive

The ecoTEC plus and ecoTEC exclusive appliance is fitted with a digital information and analysis system. This system provides information on the operating status of your appliance.
During normal operation, the display (**1**) shows the current heating flow temperature (in this example 45 °C).
In the event of a fault, an error code appears instead of the temperature.
The ecoTEC exclusive display has also cleartext for a direct information
The display also gives the following information:

1 Indication of the current heating system flow temperature or water pressure in the heating system or display of a status or error code

Actual setting of the modulation (only ecoTEC exclusive)

Abcd...
Abcd... Clear text display (only ecoTEC exclusive)

Fan speed malfunction

Fan speed malfunction

As long as this symbol appears in the display, a heating flow temperature and hot water outlet temperature is set by the vrnetDIALOG accessory, which means the appliance uses temperatures other than those set using the controls (9) and (10).
This condition can only be ended:
- using vrnetDIALOG or
- by a change in temperature at controllers (9) or (10) of more than ⧺5 K.

This condition cannot be ended:
- with the "Reset" button (8) or
- by turning the appliance off or on.

Heating mode active
Illuminated: Heating mode
Flashing: Anti cycling mode active

Hot water supply active
(ecoTEC plus combination boilers only)
Illuminated: Hot water demand

(ecoTEC system boilers only)
Illuminated: Heating of an indirect hot water cylinder turned on
Flashing: Heating demand from the hot water cylinder, burner on

Warmstart system active
(ecoTEC plus combination boilers only)
Illuminated: Warmstart turned on
Flashing: Warmstart demand, burner on

Internal pump is running

Gas valve is activated

Flame with cross:
Boiler is at lock out and will display fault code

Flame without cross:
Normal burner operation

4.2 Overview of controls on ecoTEC pro

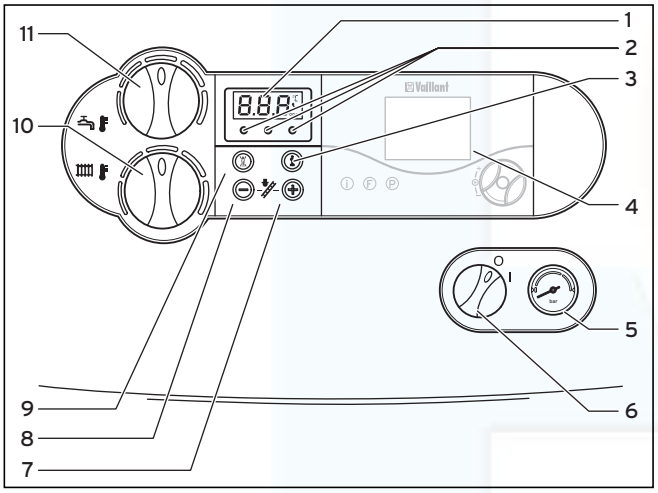


Fig. 4.3 ecoTEC pro controls

1 Display indicating the current heating flow temperature, the pressure in the heating system or additional information
2 Indicator lights to display the current operating mode
3 The "i" information button
4 Built in control/timer (if fitted)
5 Pressure gauge displaying the pressure in the heating system
6 Main ON/OFF control
7 "+" button for moving forward in the display
8 "-" button for moving back in the display or for displaying the pressure in the heating system
9 "Reset" button
10 Maximum radiator temperature control
11 Maximum hot water temperature control and warmstart ON/OFF

Multifunctional display system
ecoTEC pro boiler has a multifunction display (**1**). When the main ON/OFF control is in the "ON" position the display will normally show the system CH flow temperature of water in the boiler circuit (45 °C in the example), which confirms that the boiler is functioning correctly.

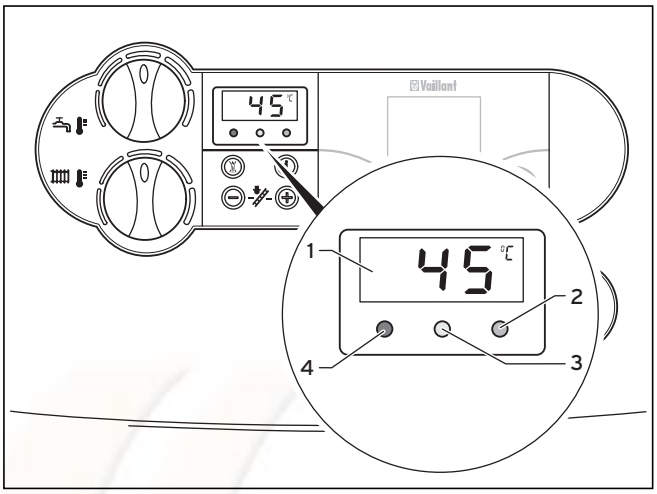


Fig. 4.4 ecoTEC pro indicator lights

1 Display indicating flow temperature or the system pressure or the relevent fault code.
2 Green warmstart indicator
Illuminated = Warmstart switched ON
Not illuminated = Warmstart is switched OFF and there is no demand for hot water
Flashing = There is either a demand for hot water or warmstart
3 Yellow indicator
Illuminated = Main burner ignited
4 Red indicator
Illuminated = Boiler is at lock out and will display fault code

As long as this symbol appears in the display, a heating flow temperature and hot water outlet temperature is set by the vrnetDIALOG accessory, which means the appliance uses temperatures other than those set using the controls (10) and (11).

This condition can only be ended:
- using vrnetDIALOG or
- by a change in temperature at controllers (10) or (11) of more than ±5 K.

This condition cannot be ended:
- with the "Reset" button (9) or
- by turning the appliance off or on.

4.3 Initial checks before turning on
4.3.1 Opening the service valves

ecoTEC plus and pro

Note
If a bottom cover is fitted to the boiler the service valves are behind this cover.

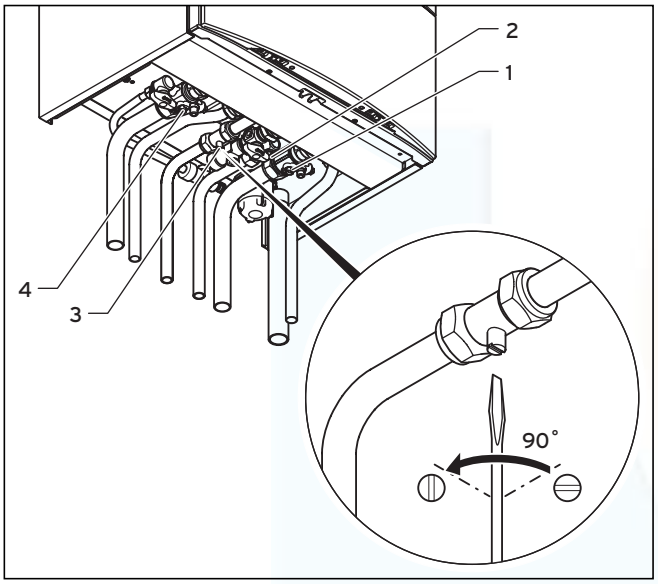


Fig. 4.5 Opening the service valves on ecoTEC plus combination boilers

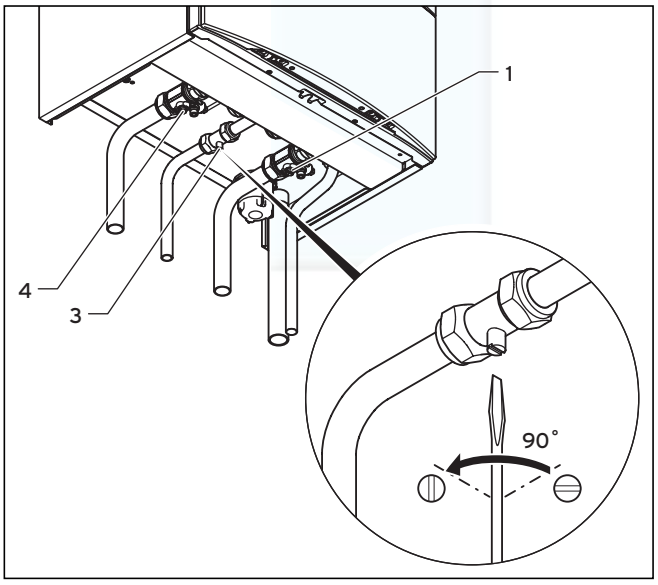


Fig. 4.6.1 Opening the service valves on ecoTEC system boilers

- Ensure that the service valves in the heating flow and return (4 and 1) and the gas service valve (3) are open. The flow, return and gas service valves are open when the screwdriver slot is in the same direction as the pipework.
- On ecoTEC combination boilers only:
  Ensure the cold water service valve (2) is open. This can be checked by opening a hot water tap and ensuring water flows.

Caution
The pressure relief valve is provided for safety reasons and must not be interfered with.

ecoTEC exclusive

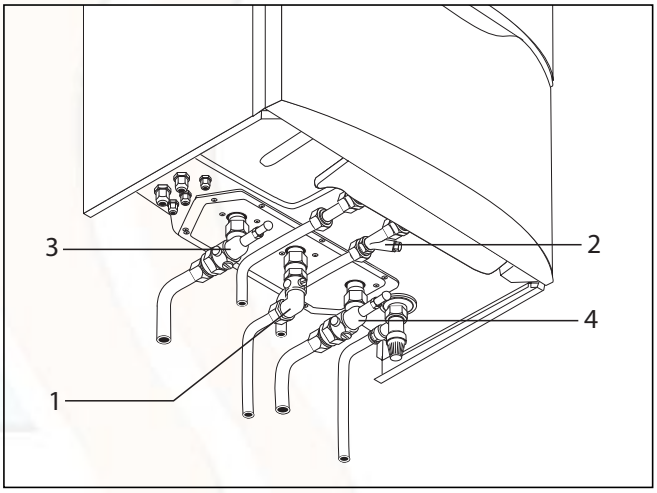


Fig. 4.6.2 Opening the service valves on ecoTEC exclusive

- Ensure the cold water service valve (2) is open. This can be checked by opening a hot water tap and ensuring water flows.
- Ensure that the service valves in the heating flow and return (4 and 3) and the gas service valve (1) are open.

The flow, return and gas service valves are open when the line marking has the same direction as the pipe.

Attention
The pressure relief valve is provided for safety reasons and must not be interfered with.

Note
A bottom cover is fitted to the appliance. The service valves are fitted behind this cover.

4.3.2 Checking the system pressure

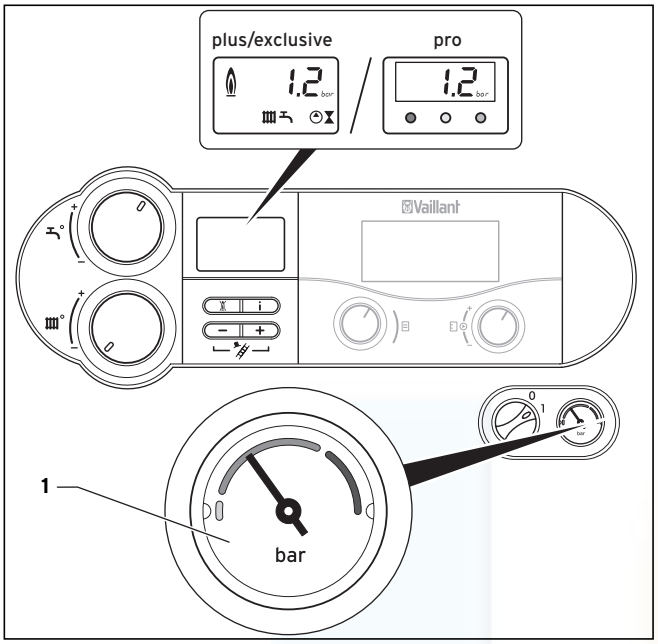


Fig. 4.7 Checking the filling pressure of the heating system

- Check the water pressure of the system using the pressure gauge (1) before putting the boiler into operation. For the heating system to operate properly, the indicator on the pressure gauge must be in the dark grey zone when the system is cold. This is a filling pressure between 1.0 and 2.0 bar. If the indicator is in the light grey area (below 0.8 bar), fill the system up with water before putting the boiler into operation.

Note
The ecoTEC boiler has a pressure gauge and a digital pressure display.
The pressure gauge allows you to quickly check whether the filling pressure is in the correct range, even when the appliance is switched off. When the appliance is in operation, you can see the exact pressure in the display. Activate the pressure display by pressing the "-" button (2). After 5 seconds the display returns to the flow temperature.

Note
Your appliance has a pressure sensor.
If the pressure falls below 0.6 bar the pressure flashes in the display.
If it falls below 0.3 bar the appliance switches off. The error message F.22 appears in the display. The system must be filled with water before you start up the appliance again.

4.4 Turning the boiler ON

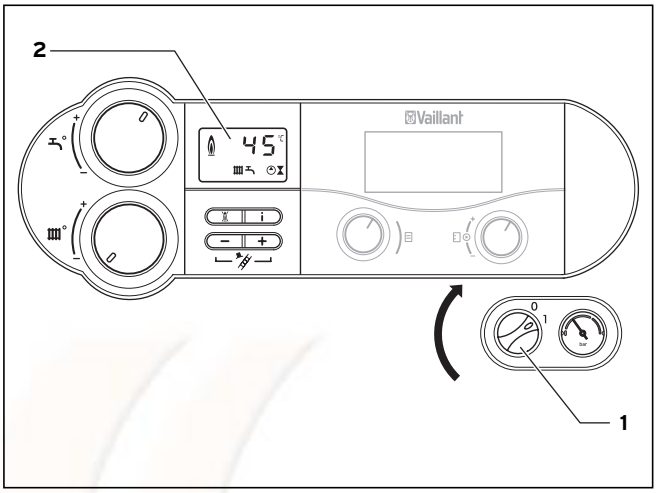


Fig. 4.8 Switching on the appliance (example: ecoTEC plus)

- Use the main ON/OFF control to switch the appliance on.
  I: "ON"
  0: "OFF"

When you switch on the appliance, the current operating status appears in the display (2).
To adjust the appliance according to your requirements, read sections 4.5 and 4.6, which describe the setting options for hot water supply and heating.

Caution
Risk of damage.
The boiler frost protection and monitoring systems are only active when the main ON/OFF control of the appliance is in the "I" position and it is not disconnected from the main power supply.

4.5 Domestic hot water with ecoTEC combination boilers

The boiler must only be used when the heating system contains water (see 4.3.2).

4.5.1 Setting the water temperature

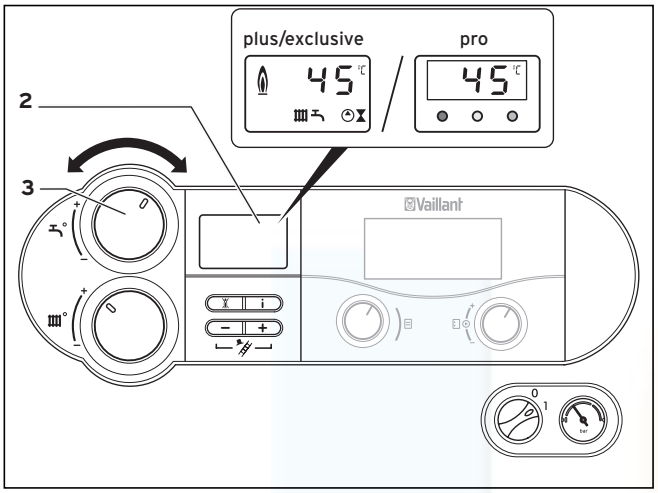


Fig. 4.9 Setting the water temperature

- Switch on the appliance as described in section 4.4.
- The domestic hot water temperature can be adjusted using the hot water temperature control (3).
- Turn the control clockwise to increase the temperature and anti-clockwise to decrease the temperature. This corresponds to:
  - left limit approx. 35 °C
  - right limit max. 65 °C.

Note
This control adjusts the maximum domestic hot water temperature. If adjusting the control upwards appears to have no effect on the temperature, then the boiler is already operating at full output for the selected flow rate.

When you adjust the required temperature, the set value is shown in the display (2).
After five seconds the display returns to standard mode (the current heating flow temperature).

Caution
If you live in a hard water area please do not set the control knob (3) above the mid (12 o'clock) position to prevent excessive scale formation.

4.5.2 Switching the warmstart function on and off

The warmstart system of the ecoTEC combination boilers provides you with hot water at the required temperature immediately. To do this, the hot water heat exchanger of the ecoTEC is kept at a pre-selected temperature level and the boiler will therefore periodically operate to maintain this temperature.

ecoTEC plus and ecoTEC exclusive

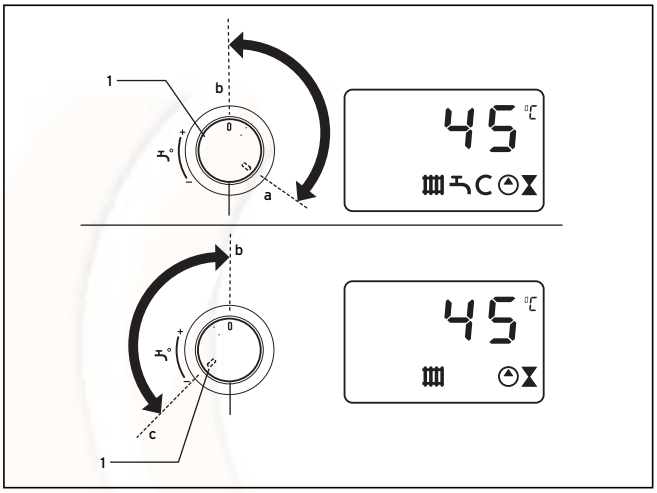


Fig. 4.10 Switching the warmstart system on and off with ecoTEC plus and ecoTEC exclusive

- Activate the warmstart system by briefly turning the knob (**1**) all the way clockwise (position **a**).

Then select the desired hot water outlet temperature again, e.g. setting b (refer to Section 4.5.1). The appliance automatically adapts the hot holding temperature to the set hot water temperature. The tempered water is directly available at the taps; the symbol C flashes in the display.

- Switch off the warmstart system by briefly turning the knob (1) all the way anti-clockwise (position c). The symbol C disappears. Then select the required hot water outlet temperature again, e.g. setting **b**.

ecoTEC pro

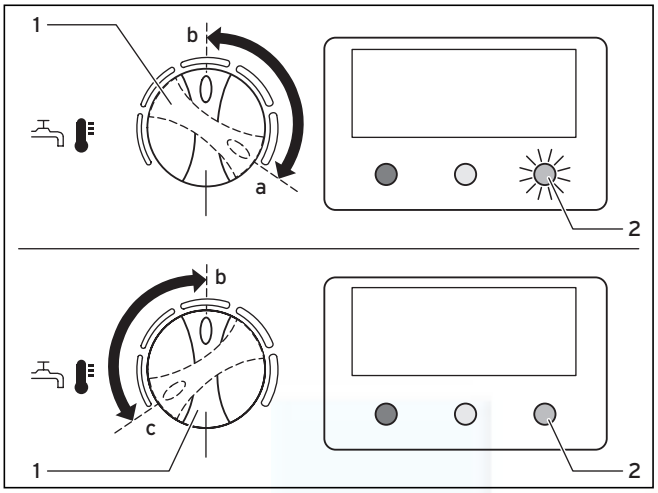


Fig. 4.11 Switching the warmstart system on and off with ecoTEC pro

- Activate the warmstart system by briefly turning the knob (1) all the way clockwise (position a). The green LED (2) lights up.
  Then select the required temperature, e.g. setting b, see 4.5.1.

The water is kept at a constant temperature of 55 °C and is available immediately as you turn on a tap.

- Switch off the warmstart system by briefly turning the knob (1) all the way anti-clockwise (position c). The green LED (2) goes out. Then select the required hot water outlet temperature again, e.g. setting b.

4.5.3 Drawing hot water (ecoTEC combination boilers only)

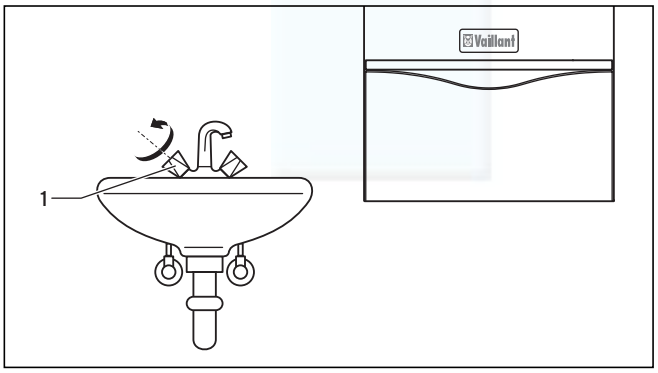


Fig. 4.12 Drawing off hot water (example: ecoTEC plus)

On opening a hot water tap (**1**) at a supply point (basin, shower, bath, etc) the ecoTEC combination boiler will automatically operate to deliver hot water.
On closing the tap the boiler switches OFF (or continues to operate for central heating if required).

4.6 Heating operation

The boiler must only be used when the heating system contains water (see 4.3.2).

4.6.1 Setting the maximum radiator temperature control

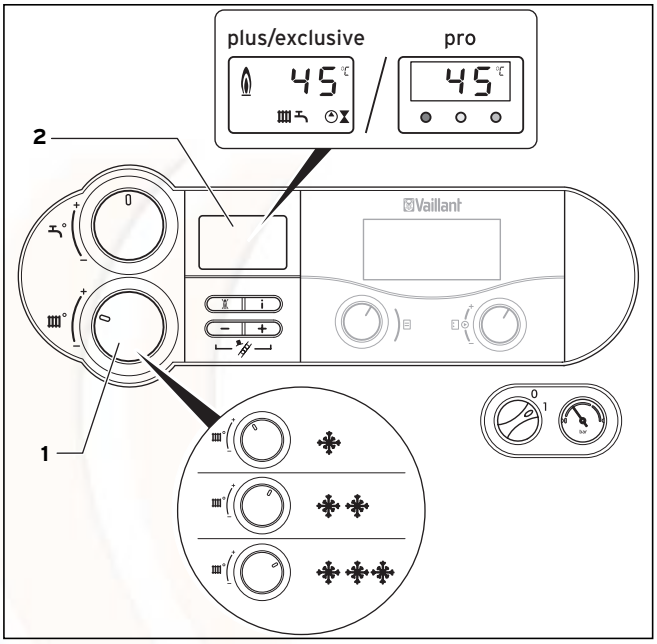


Fig. 4.13 Setting the maximum radiator temperature control

Set the maximum radiator temperature control to the desired setting using the control knob (1).
We recommend the following settings:
- Left setting during spring and autumn,
- Middle setting during mild winter,
- Right setting during cold winter.

When you adjust the temperature, the set value is shown in the display (2). After five seconds the display returns to standard mode (the current heating flow temperature).
Normally you can adjust the knob (1) continuously up to a flow temperature of 75 °C. However, higher temperatures can be set on your appliance, have your engineer make adjustments so that you can operate the heating system at higher flow temperatures.

4.6.2 Switching off heating (summer operation)

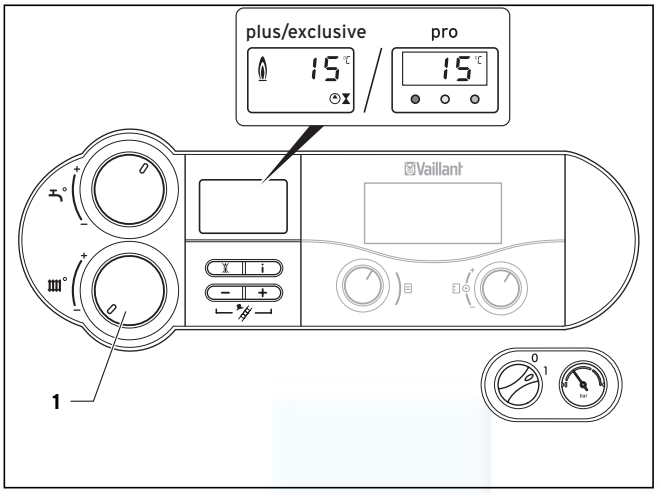


Fig. 4.14 Switching off heating (summer operation)

You can switch off the heating in summer without switching off the hot water supply.

- Turn the knob (**1**) for setting the maximum radiator temperature all the way to the left.

4.6.3 Setting a room- or outside temperature controller

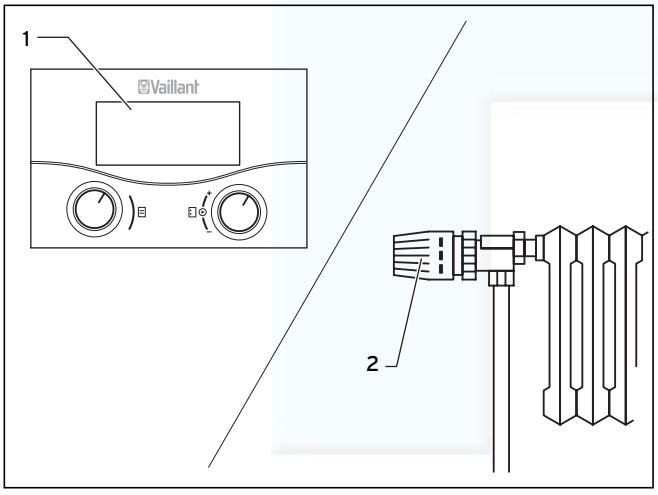


Fig. 4.15 Setting a room- or outside temperature controller

- Set the room thermostat (1) and/or the thermostatic radiator valves (2) according to the instructions supplied with the control(s).

Note
Vaillant offer room thermostat/time control accessories which give accurate and economic room temperature control as well as improved comfort.

The boiler will now operate automatically to provide central heating for the conditions selected on the external controls (ecoTEC combination boilers will also provide domestic hot water on demand).
After the boiler stops operating the pump will continue to operate for a short period to fully disperse the heat from the boiler.

Note
The boiler incorporates an anti-cycling economiser control to prevent energy wasteful ON and OFF operation of the boiler for short periods when in the central heating mode. When turning the room thermostat to a higher setting there may therefore be a short delay before the boiler operates.

4.7 Status displays

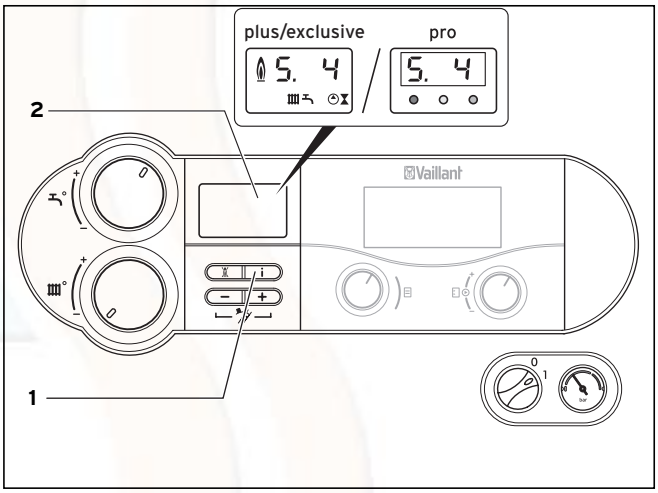


Fig. 4.16 Status displays

The status displays provide information on the operating status of the appliance.

- Press the "**i**" button (**1**) to activate the status displays.

The display (2) then shows the current status code, for example "S. 4" for burner operation. The table below explains the most important status codes.
In switching phases, for example on starting up again after the flame was extinguished, the status message "S." briefly appears.

- Press the "**i**" button (**1**) again to switch the display back to normal mode.

Display	Meaning
	Displays during heating operation
S. 0	No heat required
S. 1	Pump running
S. 3	Ignition sequence (heating operation)
S. 4	Burner ignited
S. 6	Fan and pump overrun
S. 7	Pump overrun
S. 8	Anti-cycling mode (after heating operation)
S.30	Room thermostat 3/4 no heating demand
S.31	Summer mode active
S.34	Frost protection mode
	Displays in hot water operation (ecoTEC combination boilers only)
S.10	Hot water demand
S.14	Burner ignited
	Displays for hot holding operation (ecoTEC combination boilers only)
S.20	Hot holding request
S.24	Hot burner holding operation on
	Displays in cylinder charging mode (ecoTEC system boilers only)
S.20	Cylinder charging request
S.24	Cylinder charging burner on

Table 4.1 Status codes (selection, a complete set of status codes can be found in the installation and servicing manual)

Note
The ecoTEC exclusive display has also cleartext for a direct information

4.8 Troubleshooting

In the unlikely event that a problem occurs with the operation of the ecoTEC boiler, the following points should be checked:

Boiler fails to operate:
- Is the gas supply turned on (see 4.3.1)?
- Is the water supply turned on (ecoTEC combination boilers only, see 4.3.1)?
- Is there enough water in the heating system (see 4.3.2)?
- Is the electrical supply switched ON?
- Is the main ON/OFF control in the "ON" position (switch position "I", see 4.4)?
- Is there an ignition problem (see 4.8.2)?

Hot water operates but no central heating (ecoTEC combination boilers only)
- Is the heating turned ON (see 4.6.1)?
- Are all external heating controls ON (see 4.6.3)?

Caution
Inappropriate modifications can cause damage. If your boiler still does not operate then please consult your installer or Vaillant Service Solutions (0870 6060 777).

4.8.1 Problems due to low system water pressure

The device switches to "Fault" if the water pressure in the heating system is too low. This malfunction is indicated by the fault code "F.22" (dry fire) or "F.23" or "F.24" (lack of water).

You can only start up the appliance again when the heating system is sufficiently filled with water.

4.8.2 Ignition problems

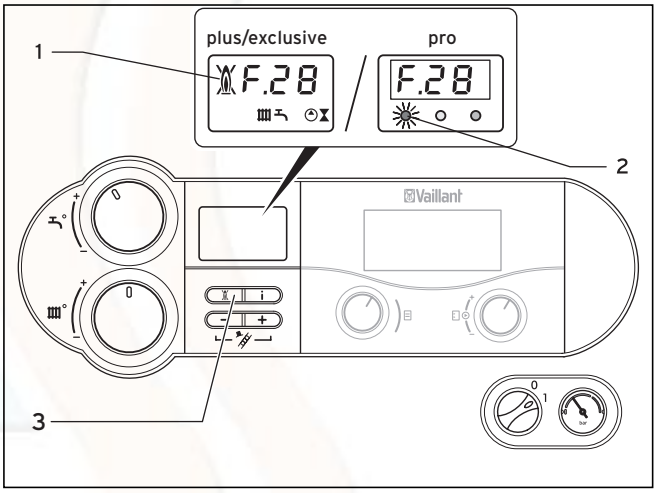


Fig. 4.17 Troubleshooting

If the burner fails to ignite after five attempts, the device does not start up and switches to "Fault". This is indicated by the fault code "F.28" or "F.29" in the display. On ecoTEC plus appliances the display also shows the flame symbol with a cross through it (1). On ecoTEC pro appliances, the red LED (2) also lights up.
Automatic ignition can only take place after you manually reset the fault.
- To reset the fault, press the reset button (3) and hold it down for one second.

Caution
If the boiler still shuts off after three attempts of resetting, please consult your installer or Vaillant Service Solutions.

4.8.3 Flue problems

The appliances are fitted with a fan. If the fan does not work properly, the appliance will switch itself off.
The display shows the symbols and and the fault message "F.32".

Note
If contacting Vaillant Service Solutions please remember to quote the fault code, as this will help to pinpoint the fault.

4.9 Turning off the boiler

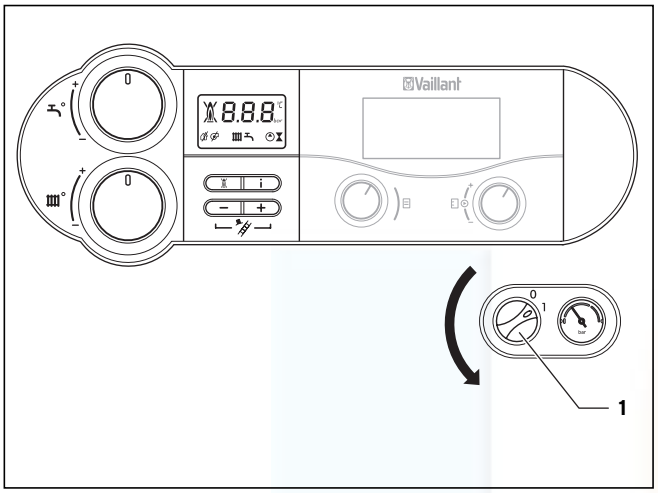


Fig. 4.18 Switching off the appliance

- Turn the main ON/OFF control (**1**) to the „0“ position.

Caution
The boiler frost protection and monitoring systems are only active when the main ON/OFF control of the appliance is in the “I” position and it is not disconnected from the main power supply.

To ensure that these protection devices remain active, switch your boiler on and off using the external controller.

Note
If the appliance is switched off for a long time (for example when you are on holiday) you should also turn off the gas supply, the cold water service valve and the electrical supply.

Note
Do not turn the ecoTEC system boilers OFF if a hot water cylinder is also incorporated in the system unless there is no demand for domestic hot water.

4.10 Frost protection

The frost protection feature only protects the boiler. Any other parts of the system liable to frost damage should be protected accordingly.

Caution
The frost protection and monitoring systems are only active when the main ON/OFF control of the appliance is in the “I” position and it is not disconnected from the main power supply.

Frost protection function
The boiler has a frost protection function.
If the heating flow temperature falls below 5 °C with the main ON/OFF control turned on, the appliance starts up and heats the boiler to 30 °C.

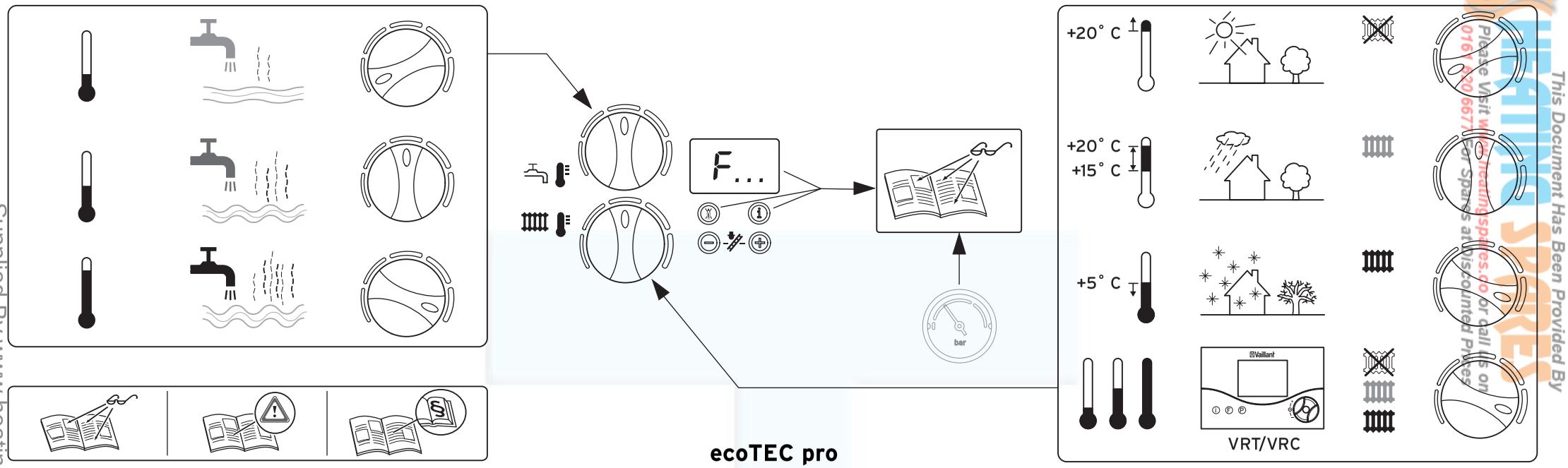
Caution
Parts of the system may freeze.
The frost protection function cannot guarantee that water flows through the entire heating system.

4.11 Maintenance and customer service

Inspection and maintenance
Permanent operational readiness, reliability and a long service life require inspections and maintenance work to be regularly carried out by a heating engineer or Vaillant. For further details please contact Vaillant Service Solutions: (0870 6060777).

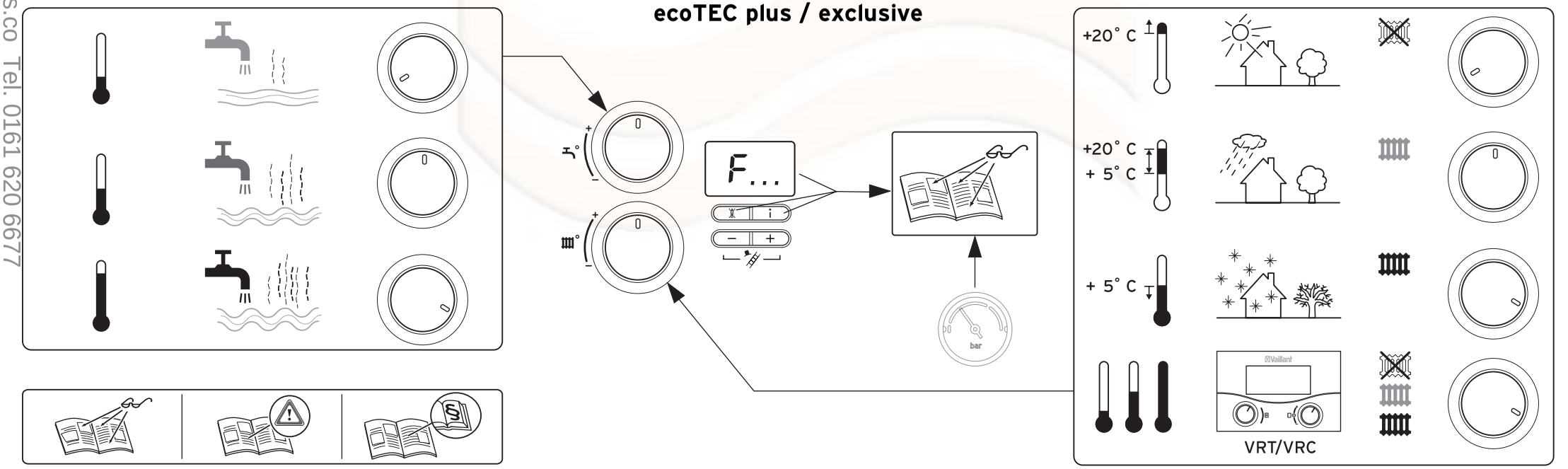
Danger
Risk of injury and damage due to improper handling.
Never attempt to perform maintenance or repairs on the appliance yourself.
Have a specialist heating company do the work.
We recommend signing a service agreement.
The reliability of the appliance can be impaired, resulting in damage to property or personal injury if maintenance work is not carried out.

Regular servicing ensures maximum efficiency and economical operation of your gas boiler.



ecoTEC pro

ecoTEC plus / exclusive



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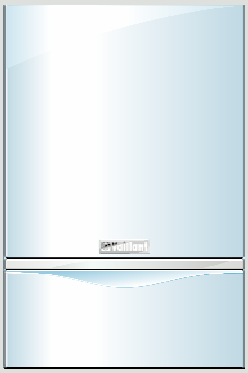
Spare part catalogue

0020037555.02 GB 02/2007



Wall-hung boilers ecoTEC exclusive 832, 838

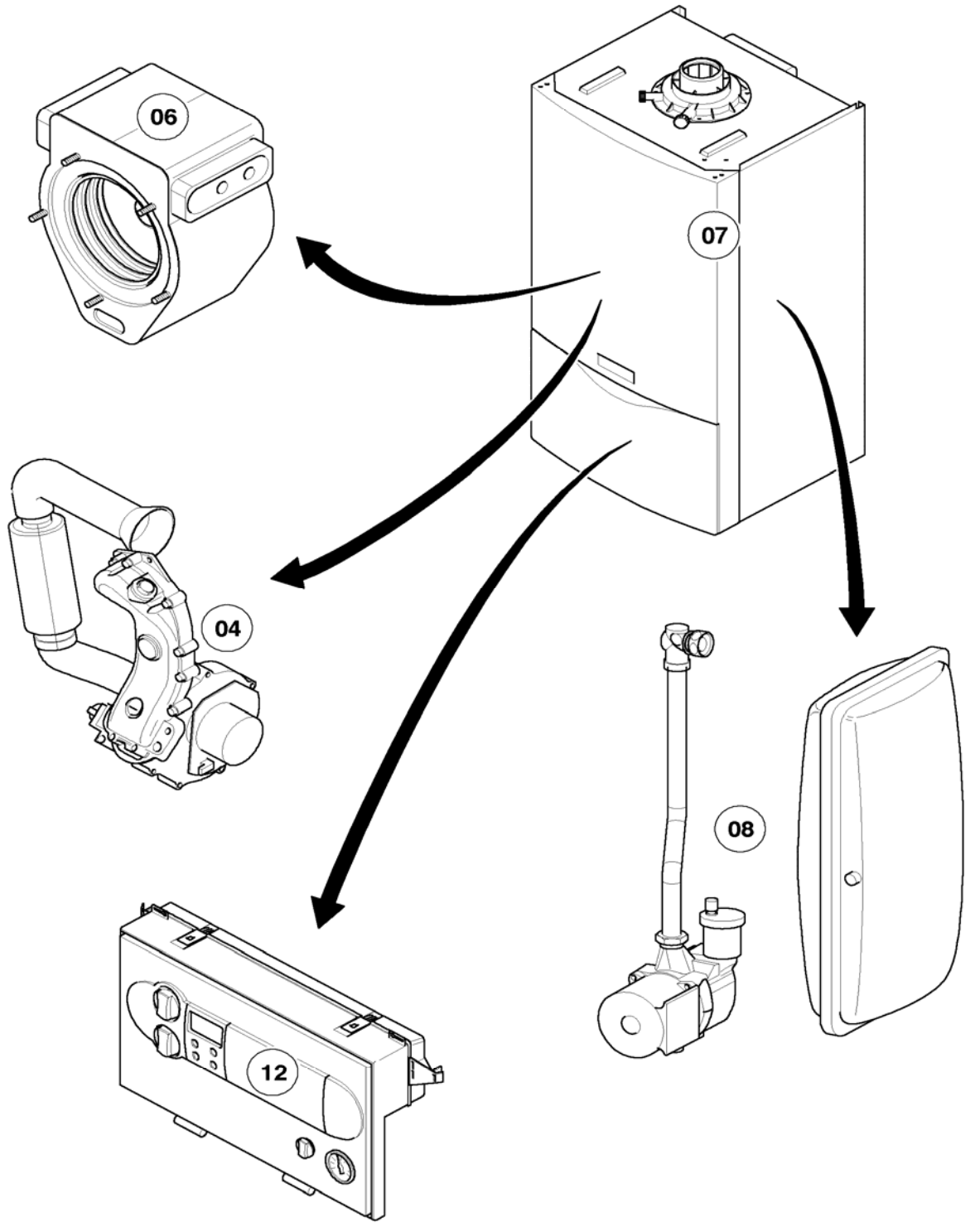
VUW 326/4-7
VUW 386/4-7

Content

In order to maintain the safe and efficient operation of this appliance, only genuine Vaillant spare parts must be used.

General view of sheet

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



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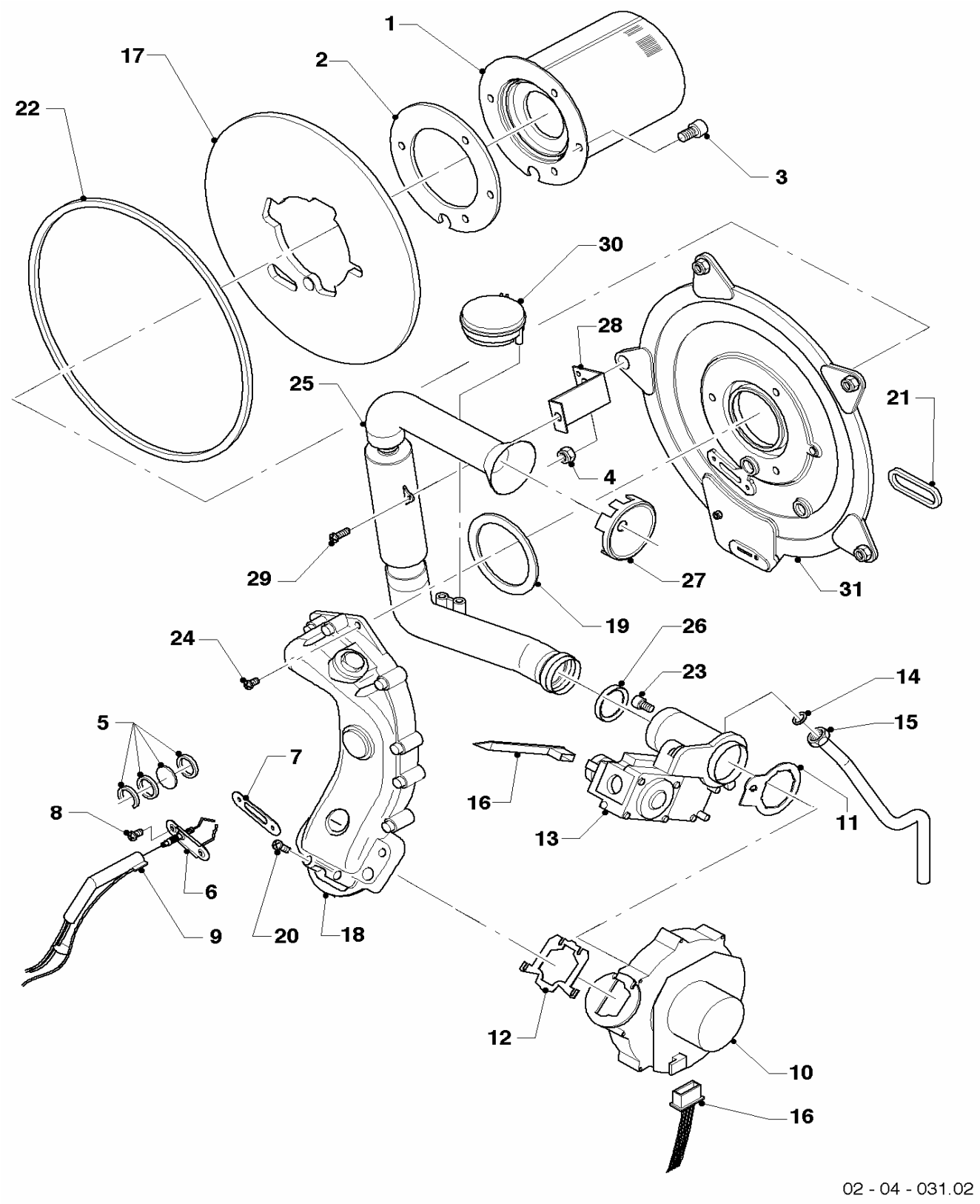
Subject to alteration !
Attention: Please take the gross price from the valid price list !

04 Burner

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



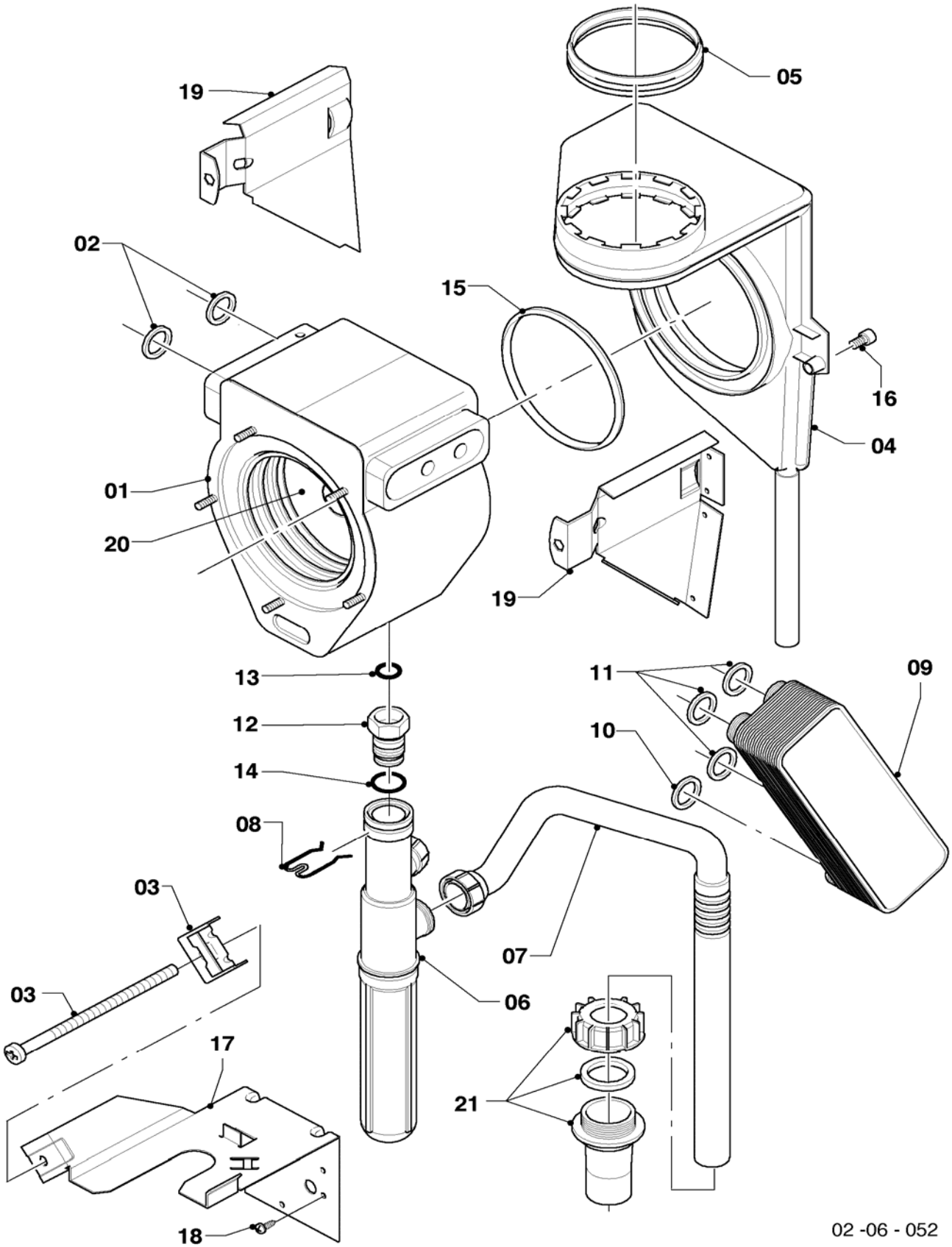
04 Burner

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-04-031	
01	050430	burner	with parts 02, 03
02	981103	sealing ring	
03	105900	screw (set of 10)	
04	0020026537	nut M6 (set of 5)	
05	161245	inspection glass	
06	090709	ignition/monitoring electrode	
07	980961	gasket electrode	
08	118883	pan head screw ISO 7045	
09	091551	ignition wire	
10	190235	fan	VUW 326/4-7, with parts 11, 12, 21, 22
10	190248	fan	VUW 386/4-7, with parts 11, 12, 21, 22
11	981104	packing ring	
12	981045	packing ring set	
13	053500	gas section	with parts 11, 14, 21, 22
14	981142	packing ring (set of 10)	
15	123492	gas connection tube	with part 14
16	0020022746	cable tree	VUW 326/4-7, appliance
16	0020022746	cable tree	VUW 386/4-7, appliance
16	0020028057	cable tree	VUW 386/4-7, appliance/fan
16	0020028058	cable tree	VUW 386/4-7, fan (230V)
17	210734	insulation	with parts 02, 03
18	116688	air gas mixing tube	with parts 12, 19
19	981107	packing ring	
20	105836	cylinder screw (set of 4)	
21	0020038679	sealing gasket	
22	0020038679	sealing gasket	
23	139247	screw	
24	118882	pan head screw	
25	0020021838	air inlet pipe	with part 26
26	981111	packing ring	
27	-	-	not necessary
28	087195	silencer bracket	
29	235756	tapping screw	
30	-	-	not necessary
31	088134	flange	with parts 02, 03, 04, 05, 07, 08, 17, 19, 21, 22, 23

06 Heat exchanger

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



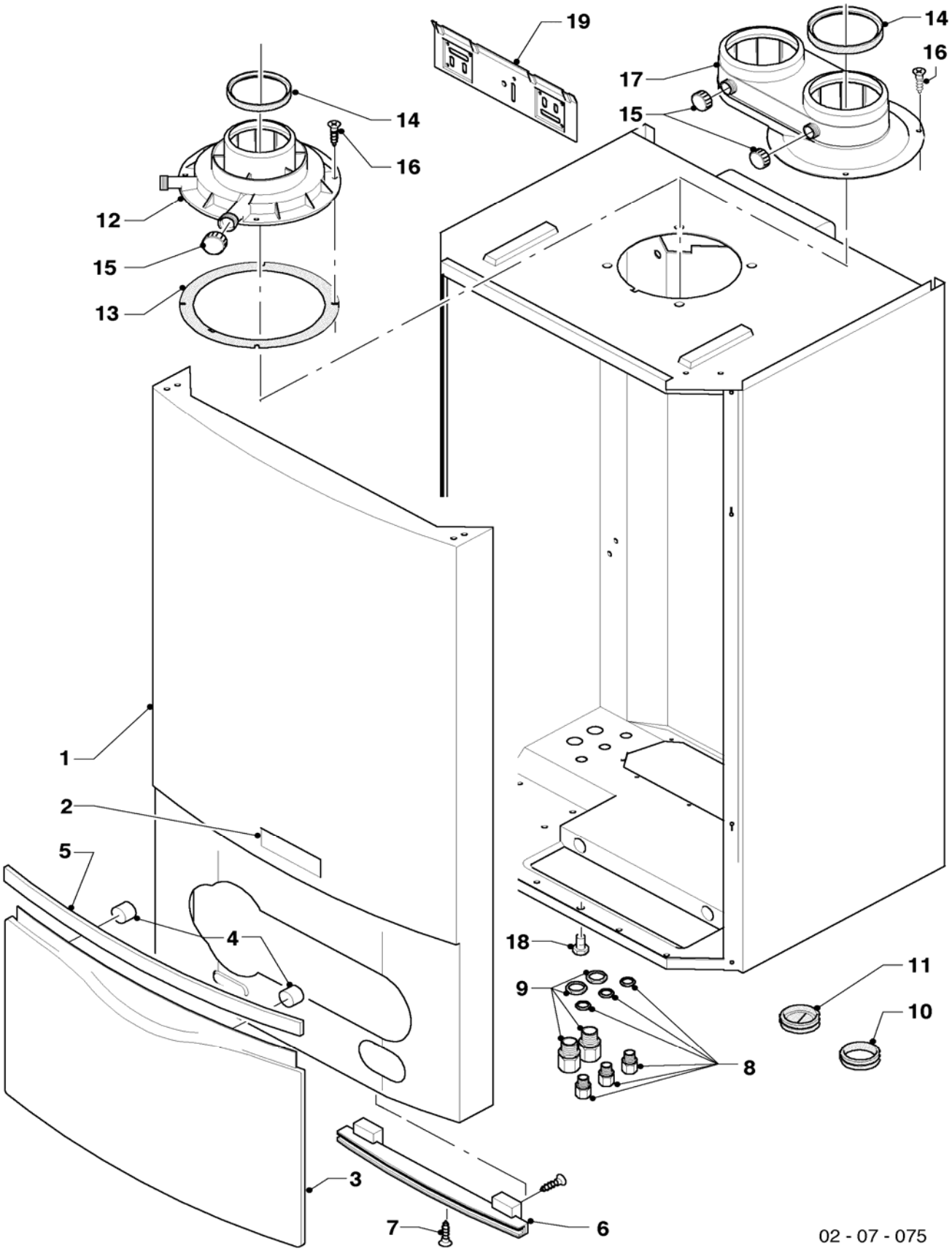
06 Heat exchanger

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-06-052	
01	065119	heat exchanger	with parts 02, 17, 28
02	981140	packing ring (set of 10)	
03	111993	support	
04	076560	flue collector cap	with parts 05, 15
05	981227	packing ring	
06	011511	condensate trap	
07	0020041889	tube	
08	154162	wire clip	
09	065132	heat exchanger DHW (38 plates)	with parts 10, 11
10	981142	packing ring (set of 10)	
11	981163	packing ring (set of 10)	
12	087310	connection piece	with parts 08, 13, 14
13	982409	seal, o-ring	
14	981158	packing ring (set of 10)	
15	981306	packing ring	
16	118885	flat head screw	
17	111995	console	with part 18
18	235740	screw	
19	-	-	not available as spare part
20	210779	insulation	
21	092018	connection piece	

07 Casing parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



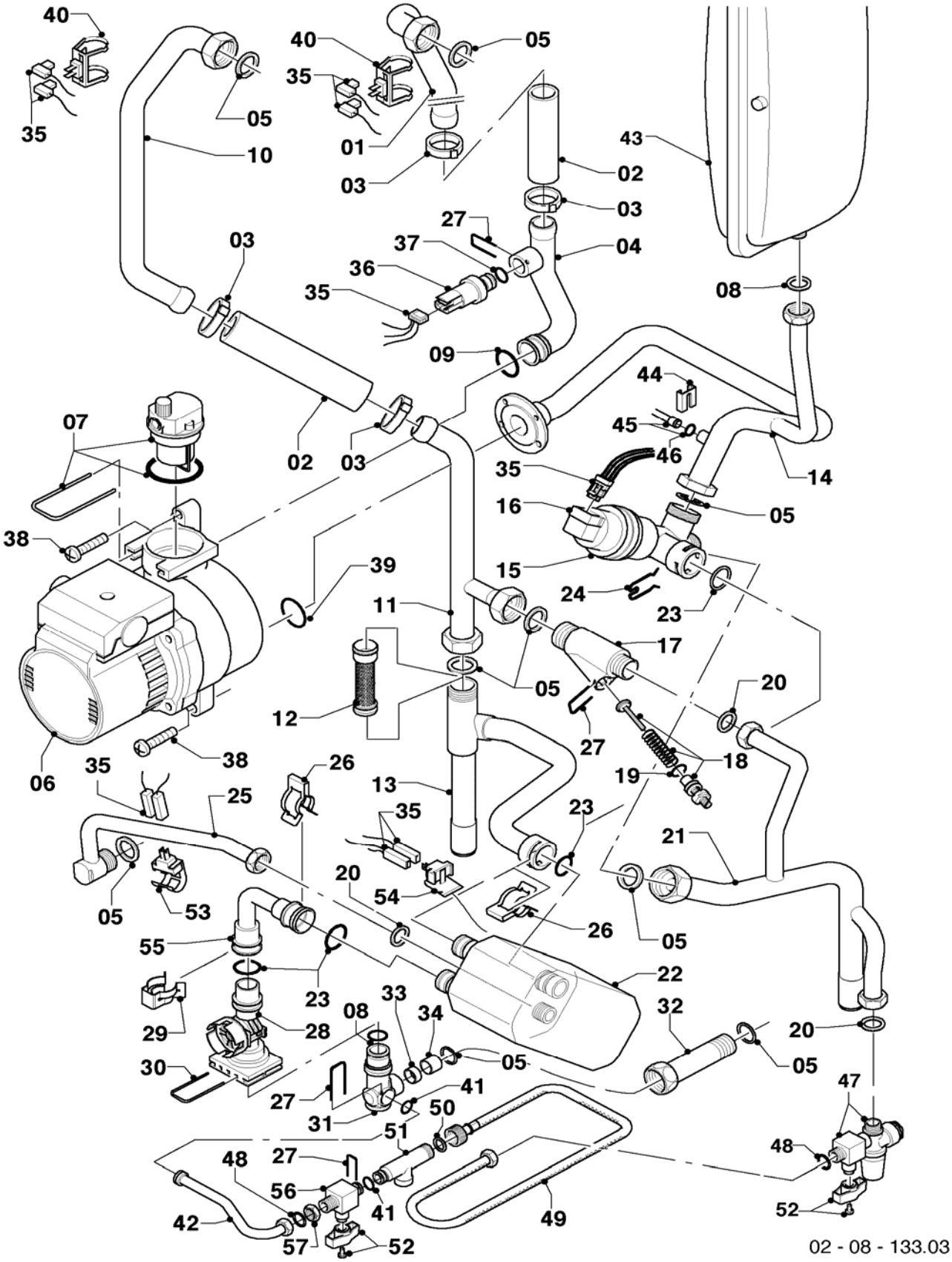
07 Casing parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-07-075	
01	0020022747	casing	with parts 02 - 07
02	118096	badge	
03	0020022748	cover, cpl.	with parts 04, 05, 07
04	-	-	not available as spare part, see pic.-no. 05
05	0020022749	handle	with part 04
06	180944	hinge	with part 07
07	193538	screw (set of 10)	
08	088367	fitting	
09	088368	fitting	
10	201865	cable bushing	
11	980660	seal	
12	077095	flue spigot (60/100)	with parts 13 - 15
13	981232	packing ring	
14	981227	packing ring	
15	147392	cap (set of 5)	
16	500046	screw	
17	-	-	not necessary
18	105839	screw (set of 10)	
19	103892	suspension	

08 Connection parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



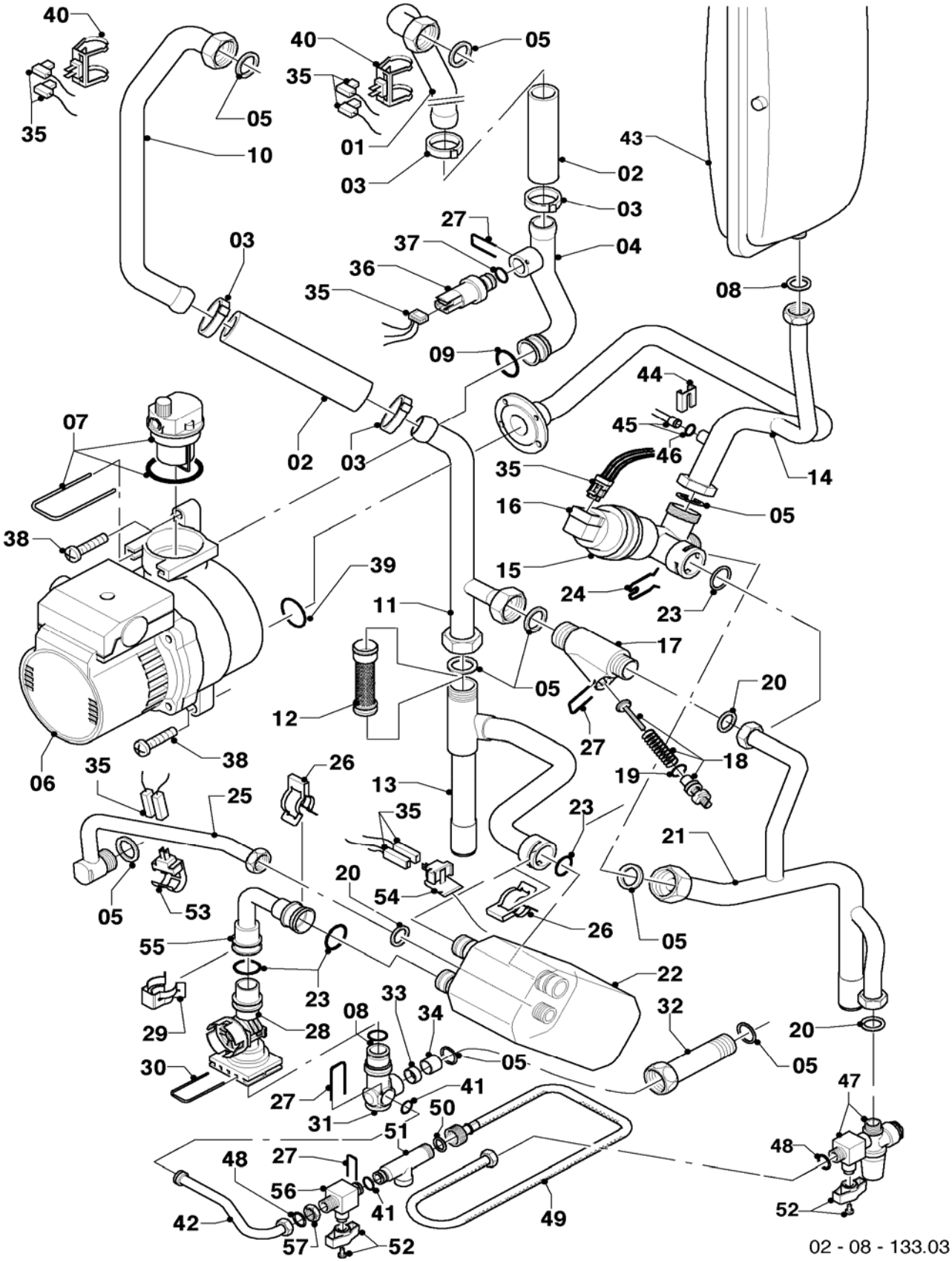
08 Connection parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-08-133	
01	0020021013	tube	with parts 02, 03, 05
02	080387	flexible tube	with part 05 (2 pieces)
03	990187	securing clip	
04	0020021014	tube	with parts 02, 03, 09, 27, 37
05	981140	packing ring (set of 10)	
06	0020028056	pump	with parts 09, 39
07	104521	automatic air vent	
08	981163	packing ring (set of 10)	
09	981151	packing ring (set of 10)	
10	0020021015	tube	with parts 02, 03, 05
11	0020021020	tube	with parts 02, 03, 05
12	074517	filter	
13	0020028053	tube	with parts 05, 23
14	0020028054	tube	with parts 05, 39
15	252457	diverter valve	
16	140429	diverter valve actuator	
17	0020022744	valve, cpl.	with parts 05, 18, 19, 20, 27
18	178980	bypass	
19	981165	packing ring (set of 10)	
20	981142	packing ring (set of 10)	
21	0020028055	tube	with parts 05, 20
22	065132	heat exchanger DHW (38 plates)	with parts 20, 23
23	981163	packing ring (set of 10)	
24	219622	spring clamp (set of 10)	
25	0020021023	tube	with parts 05, 20
26	219636	clip (set of 2)	
27	154150	clip	
28	178988	flow sensor (black)	
29	178966	clip	
30	178992	clip (set of 10)	
31	0020021024	connection	with parts 05, 08, 33, 34, 41, 42
32	022640	connection tube	with part 05
33	0020022743	water quantity limiter	VUW 326/4-7, 9.4 l
33	0020041890	limiter (12.0 l/min)	VUW 386/4-7, 12.0 l
34	074514	filter	
35	0020022746	cable tree	
36	253595	sensor, CH pressure	
37	178993	packing ring (set of 10)	
38	118951	pan head screw	
39	981234	packing ring (set of 10)	
40	193592	NTC sensor (CH flow/CH return)	
41	981154	packing ring (set of 10)	
42	022597	connection tube	with parts 41, 48
43	181051	expansion vessel	
44	085751	pressure gauge clip	
45	180982	pressure gauge	with parts 44, 46
46	981155	packing ring (set of 10)	
47	0020041891	valve	with parts 20, 48, 52
48	981146	packing ring (set of 10)	
49	0020041892	hose	with parts 48, 50

08 Connection parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



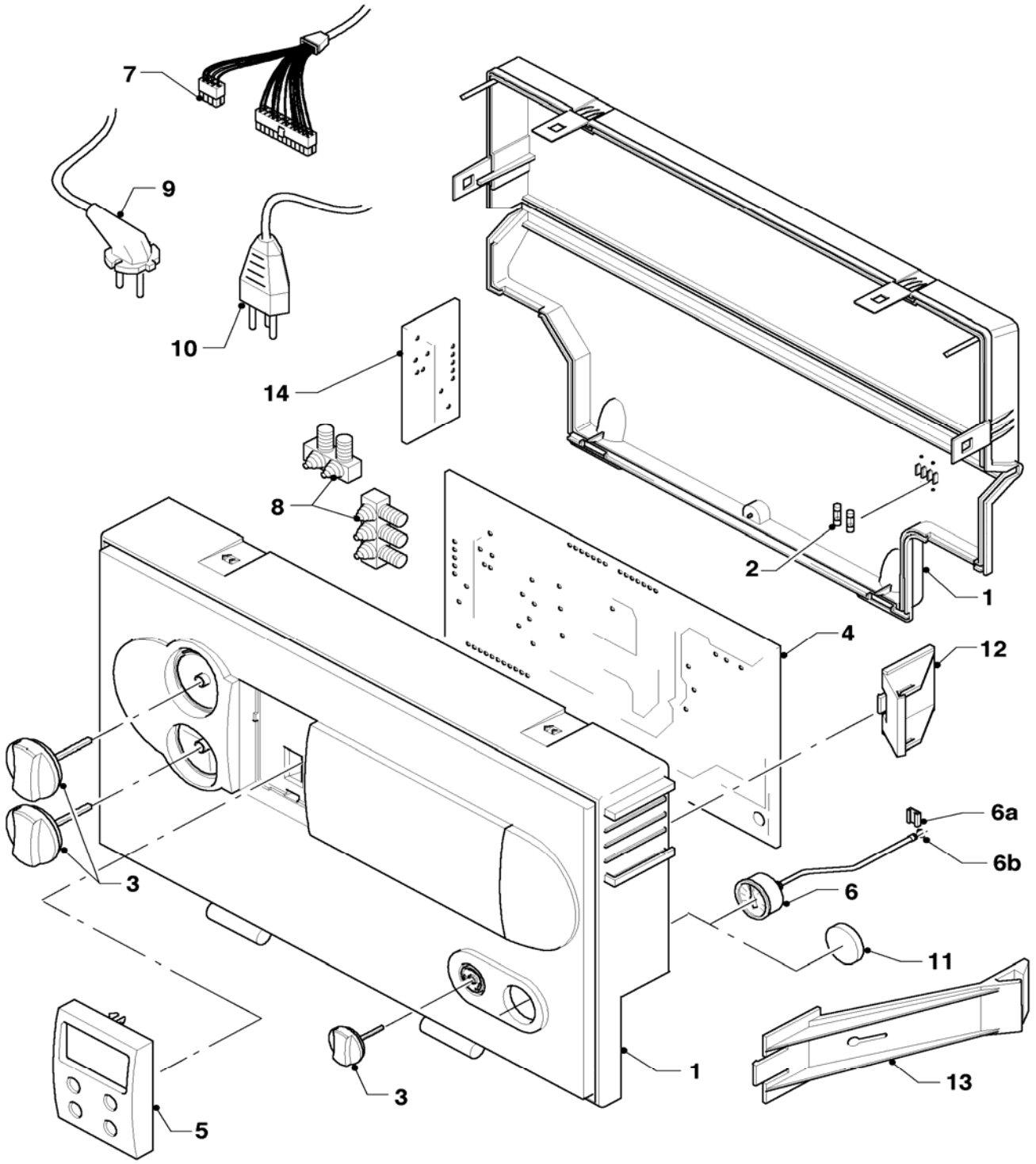
08 Connection parts

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-08-133	
50	981165	packing ring (set of 10)	
51	0020010294	valve	with parts 41, 50
52	0020010292	handle (set of 2)	
53	103429	NTC-sensor (DHW outlet pipe)	
54	103430	NTC-sensor (DHW heat exchanger)	
55	0020021022	tube	with part 23
56	0020041893	valve	with parts 27, 41, 48, 52
57	100004	nut	

12 Control panel

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838



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12 Control panel

VUW 326/4-7, ecoTEC exclusive 832
VUW 386/4-7, ecoTEC exclusive 838

Pos.	Art.-No	Part	Type, note
		02-12-046	
01	0020048919	casing (white, excl.)	with part 03
02	251955	fuse 2.0A T (set of 10)	2.0 AT
03	0020048920	knobs white,excl. (3 knobs)	
04	0020049194	printed circuit	with part 02
05	0020037664	printed circuit (display)	
06	180982	pressure gauge	
06a	085751	pressure gauge clip	
06b	981155	packing ring (set of 10)	
07	0020022746	cable tree	VUW 326/4-7, appliance
07	0020022746	cable tree	VUW 386/4-7, appliance
07	0020028057	cable tree	VUW 386/4-7, appliance/fan
07	0020028058	cable tree	VUW 386/4-7, fan (230V)
08	078533	cable fixation	
09	0020028059	connection cable	
10	-	-	not necessary
11	-	-	not necessary
12	-	-	not necessary
13	0020021026	support	
14	-	-	not necessary

Notes

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