

# Installation and service instructions

for contractors

# VIESMANN

## Vitodens 050-W

Type BPJD, 6.5 to 35.0 kW

Wall mounted gas condensing boiler

For natural gas and LPG

Gas Council Number: 47 819 31, 47 819 32

*For applicability, see the last page*



## VITODENS 050-W



## Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

### Safety instructions explained



#### **Danger**

This symbol warns against the risk of injury.



#### **Please note**

This symbol warns against the risk of material losses and environmental pollution.

### Note

Details identified by the word "Note" contain additional information.

### Target group

These instructions are exclusively intended for authorised contractors.

- Work on gas installations must only be carried out by a registered gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

### Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection

- Codes of practice of the relevant trade associations
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
  - Ⓐ ÖNORM, EN, ÖVGW-TR Gas, ÖVGW-TRF and ÖVE
  - ⒸH SEV, SUVA, SVGW, SVTI, SWKI, VKF and EKAS guideline 1942: LPG, part 2

### Safety instructions for working on the system

#### Working on the system

- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.
- Isolate the system from the power supply, e.g. by removing the separate fuse or by means of a mains isolator, and check that it is no longer 'live'.
- Safeguard the system against reconnection.



#### **Danger**

Hot surfaces can cause burns.

- Before maintenance and service work, switch OFF the appliance and let it cool down.
- Never touch hot surfaces on the boiler, burner, flue system or pipework.

## Safety instructions (cont.)



### Please note

Electronic assemblies can be damaged by electrostatic discharge.

Prior to commencing work, touch earthed objects such as heating or water pipes to discharge static loads.

### Repair work



### Please note

Repairing components that fulfil a safety function can compromise the safe operation of the system.

Replace faulty components only with genuine Viessmann spare parts.

### Auxiliary components, spare and wearing parts



### Please note

Spare and wearing parts that have not been tested together with the system can compromise its function. Installing non-authorised components and making non-approved modifications or conversions can compromise safety and may invalidate our warranty.

For replacements, use only original spare parts supplied or approved by Viessmann.

### Safety instructions for operating the system

#### If you smell gas



#### Danger

Escaping gas can lead to explosions which may result in serious injury.

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances on or off.
- Close the gas shut-off valve.
- Open windows and doors.
- Evacuate any people from the danger zone.
- Notify your gas or electricity supply utility from outside the building.
- Have the power supply to the building shut off from a safe place (outside the building).

#### If you smell flue gas



#### Danger

Flue gas can lead to life threatening poisoning.

- Shut down the heating system.
- Ventilate the installation site.
- Close doors to living spaces to prevent flue gases from spreading.

## Safety instructions (cont.)

### What to do if water escapes from the appliance



#### **Danger**

When water escapes from the appliance there is a risk of electrocution.

Switch off the heating system by means of an external isolator (for example fuse box, domestic power distribution).



#### **Danger**

The simultaneous operation of the boiler and appliances that extract air to the outside can result in life threatening poisoning due to reverse flow of the flue gas.

Fit an interlock circuit or take suitable steps to ensure an adequate supply of combustion air.

### Flue systems and combustion air

Ensure that flue systems are clear and cannot be sealed, for instance due to accumulation of condensate or other causes. Ensure an adequate supply of combustion air.

Instruct system users that subsequent modifications to the building characteristics are not permissible (e.g. cable/pipe-work routing, cladding or partitions).



#### **Danger**

Leaking or blocked flue systems, or an inadequate supply of combustion air can cause life threatening poisoning from carbon monoxide in the flue gas.

Ensure the flue system is in good working order. Apertures for supplying combustion air must be non-closable.

### Extractors

Operating appliances that extract air to the outside (cooker hoods, extractors, air conditioning units, etc.) can create negative pressure. If the boiler is operated at the same time, this can lead to reverse flow of the flue gas.

## Index

### Installation instructions

#### Information

Symbols.....	7
Intended use.....	8
Product information.....	8
Disposal of packaging.....	10

<b>Preparing for installation.....</b>	<b>11</b>
--	-----------

#### Installation sequence

Mounting the boiler and making the connections.....	15
Opening the programming unit.....	20
Electrical connections.....	21

### Service instructions

#### Commissioning, inspection, maintenance

Steps - commissioning, inspection and maintenance.....	24
Further details regarding the individual steps.....	25

#### Troubleshooting

Function sequence and possible faults.....	47
Fault display.....	48
Repairs.....	53

#### Gas type conversion

Converting from LPG to natural gas.....	63
---	----

#### Control unit

Functions and operating conditions in weather-compensated mode.....	65
---	----

#### Designs

Connection and wiring diagrams.....	67
-------------------------------------	----

#### Parts lists

Ordering parts.....	72
Overview of assemblies.....	73
Casing assembly.....	74
Heat cell assembly.....	75
Burner assembly.....	77
Hydraulic assembly.....	79
Grundfos hydraulic assembly.....	81
Control unit assembly.....	83

**Index** (cont.)

Miscellaneous assembly..... 85










**Specification**..... 86

**Certificates**

Declaration of conformity..... 87

**Keyword index**..... 88

## Symbols

Sym- bol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	<ul style="list-style-type: none"> <li>■ Component must audibly click into place.</li> <li>or</li> <li>■ Acoustic signal</li> </ul>
	<ul style="list-style-type: none"> <li>■ Fit new component.</li> <li>or</li> <li>■ In conjunction with a tool: Clean the surface.</li> </ul>
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do <b>not</b> dispose of component in domestic waste.

## Intended use

The appliance is only intended to be installed and operated in sealed unvented heating systems that comply with EN 12828, with due attention paid to the associated installation, service and operating instructions. It is only designed for the heating of water that is of potable water quality.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed).

## Product information

### Vitodens 050-W, type BP JD

Preset for operation with natural gas. Conversion to LPG P requires a gas conversion kit.

#### Gas Council No.

- 29 kW combi: 47 819 31
- 35 kW combi: 47 819 32

#### Conversion for other countries

The Vitodens 050-W must only be delivered to the countries specified on the type plate. For deliveries to alternative countries, an approved contractor must arrange individual approval on his/her own initiative and in accordance with the law of the country in question.

#### Product description

The Vitodens 050-W is available as a gas condensing combi boiler with integral plate heat exchanger for DHW heating. For the connection of heating circuits and DHW line, see page 14 onwards. The Vitodens 050-W is set up for operation with a constant boiler water temperature.

The appliance is equipped with a sealed unvented hydraulic system with 2 connections for heating flow and return and 2 connections for DHW heating.



## Product information (cont.)

The following components are integrated into the hydraulic system:

- Circulation pump
- 3-way diverter valve
- Safety valve
- Diaphragm expansion vessel
- Plate heat exchanger for DHW heating

### Connecting accessories

A time switch (accessories) can be connected to the control unit with a low voltage supply.

### Siting

Suitable siting locations include:

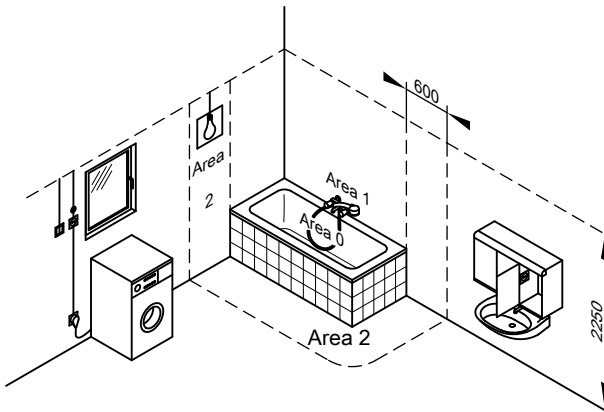
- Recreational rooms and other living spaces
- Ancillary rooms without own ventilation

- Cupboards (open at the top)
- Recesses without compulsory clearance towards combustible materials
- Attic rooms (pitched attics and long panes) where the balanced flue pipe can be routed directly through the roof

Since the flue pipe connection for room-sealed operation is surrounded by combustion air (coaxial pipe), no clearances towards combustible materials need be maintained. For further details, see the technical guide on flue systems for the Vitodens.

The installation area must be safe from the risk of frost.

### Operation of the Vitodens 050-W in wet rooms



The Vitodens is approved for installation in wet rooms (e.g. bathroom or shower rooms) (protection IP X4 D, splash-proof).

## Product information (cont.)

When installing the Vitodens in wet areas, observe the safety zones and minimum wall clearances according to VDE 0100 [or local regulations] (see also "Electrical safety zone"). The Vitodens may be installed **in safety zone 1** if hosed water (e.g. from massage showers) is prevented.

Electrical equipment in rooms containing a bathtub or a shower must be installed in such a way that users cannot be exposed to dangerous body currents.

VDE 0100 specifies that cables supplying permanently installed consumers in zones 1 and 2 should only be run vertically and routed into the equipment from the back.

## Disposal of packaging

Please dispose of waste packaging in line with statutory regulations.



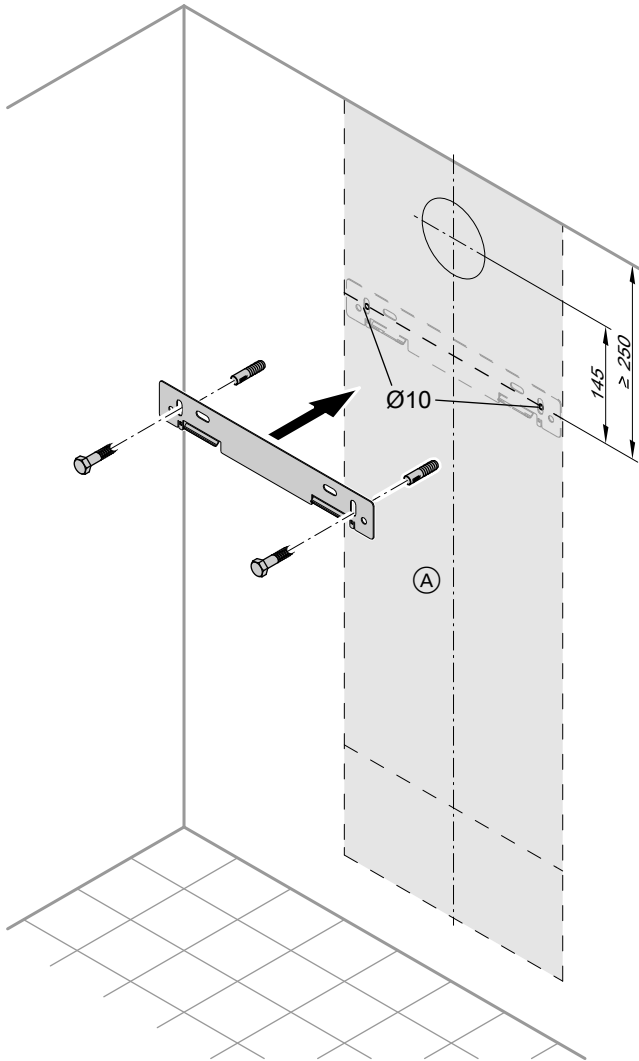
## Preparing for installation (cont.)

### Minimum clearances

Maintain a clearance of 700 mm in front of the Vitodens for maintenance purposes. Maintenance clearances to the l.h. or r.h. side of the Vitodens are **not** required.

## Preparing for installation (cont.)

### Fitting the wall mounting bracket



(A) Vitodens installation template

1. Position the supplied installation template on the wall.
2. Mark out the rawl plug holes.



## Preparing for installation (cont.)

3. Drill  $\varnothing$  10 mm holes and insert the rawl plugs supplied.
4. Fit wall mounting bracket with screws supplied.

### Fitting the pre-plumbing jig or mounting frame



Pre-plumbing jig or mounting frame installation instructions

### Preparing the connections



#### Please note

To prevent appliance damage, connect all pipework free of load and torque stress.

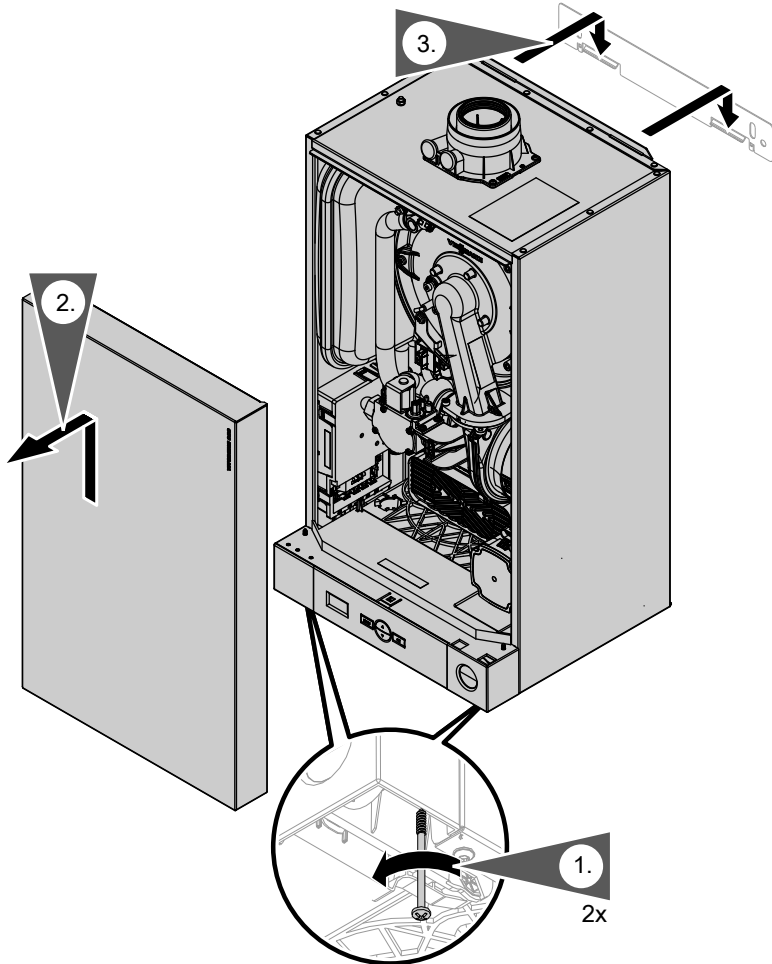
1. Prepare the water connections. Flush the heating system.
2. Prepare the gas connection.
3. Prepare the electrical connections.
  - The appliance is delivered fitted with a 1.5 m long power cable:  
NYM-J 3 x 1.5 mm<sup>2</sup>
  - Accessory cables:  
NYM-O 2-core min. 0.5 mm<sup>2</sup> or  
2-core cable for LV

### Installation in a cupboard

Any cupboard enclosing the appliance must be designed and constructed specifically for this purpose. An existing cupboard or closet may be used, provided it is modified accordingly. BS 7698:2000 gives details of the essential design features for cupboards and closets, including airing cupboards. The Vitodens range does not require the cupboard to be ventilated.

## Mounting the boiler and making the connections

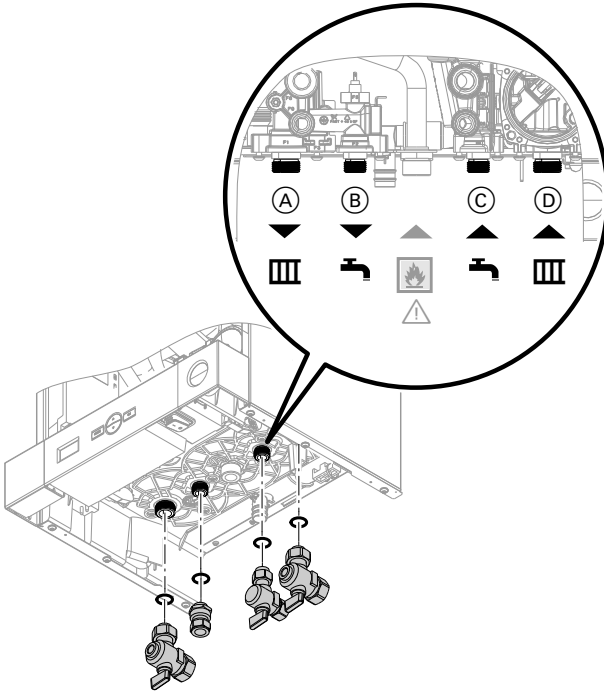
### Removing the front panel and mounting the boiler



1. Undo the screws at the bottom of the boiler; do not remove completely.
2. Remove the front panel.
3. Hook the boiler onto the wall mounting bracket.

## Mounting the boiler and making the connections (cont.)

### Making the connections on the water side



- Ⓐ Heating flow G  $\frac{3}{4}$
- Ⓑ DHW G  $\frac{1}{2}$

- Ⓒ Cold water G  $\frac{1}{2}$
- Ⓓ Heating return G  $\frac{3}{4}$

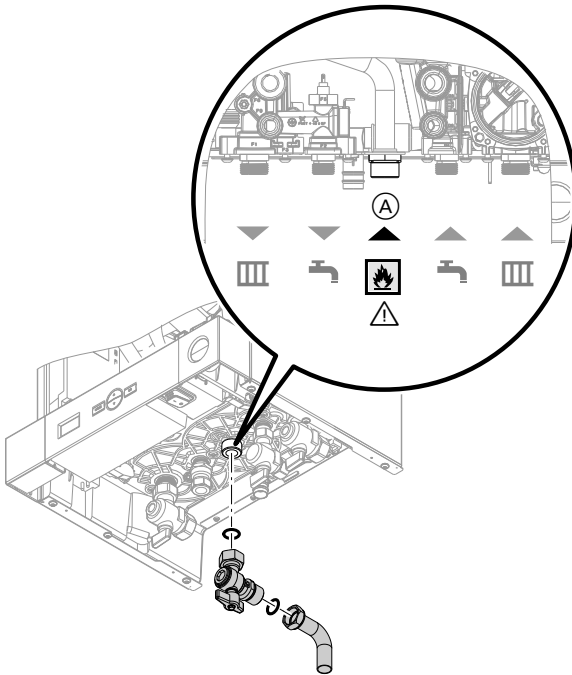
1. Mount fittings with gaskets.

2. Install filling equipment on site.  
The filling equipment must meet the Fittings Directive G24.2a.



## Mounting the boiler and making the connections (cont.)

### Gas connection



1. Mount gas shut-off valve with bend to connection (A).
2. Connect gas supply to connection (A).
3. Carry out a tightness test.

#### Note

Only use suitable and approved leak detection agents (EN 14291) and devices for the tightness test. Leak detection agents with unsuitable constituents (e.g. nitrides, sulphides) can cause material damage. Remove leak detection agent residues after testing.



## Mounting the boiler and making the connections (cont.)



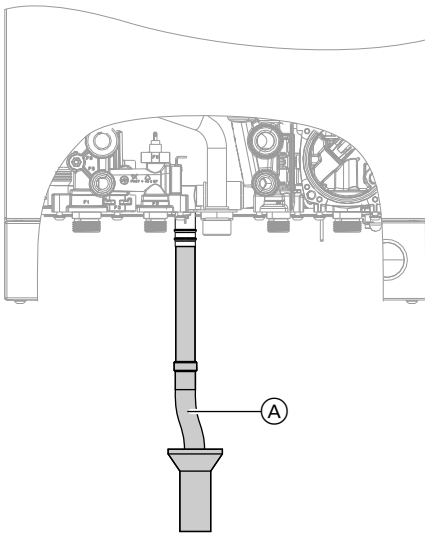
### Please note

Excessive test pressure will damage the boiler and the gas train.

Max. test pressure 150 mbar (15 kPa). If a higher pressure is required for tightness tests, disconnect the boiler and the gas train from the main supply pipe (undo the fitting).

### 4. Purge the gas line.

## Connecting the safety valve and condensate drain



- The condensate pipe is connected to the discharge pipe of the safety valve. The supplied condensate hose meets the temperature requirements for CE certification.
- We recommend connecting the condensate pipe to the internal domestic waste water system, either directly or via a tundish.

- If the condensate pipe is routed outside the building, use a pipe with at least  $\varnothing$  30 mm and protect this pipe from frost. Avoid long external pipe runs. Install a tundish.



### Please note

A frozen condensate pipe can result in faults and damage to the boiler.

Always protect condensate pipes against frost.

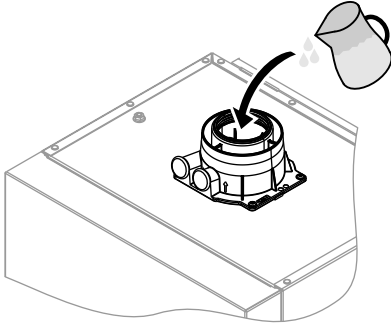
- Observe local building regulations. Connect condensate pipe (A) to the public sewage system with a constant fall and a pipe vent. Observe the local waste water regulations.

### Note

*Fill the siphon with water before commissioning.*

## Mounting the boiler and making the connections (cont.)

### Filling the siphon with water



Pour at least 0.3 l of water into the flue outlet.

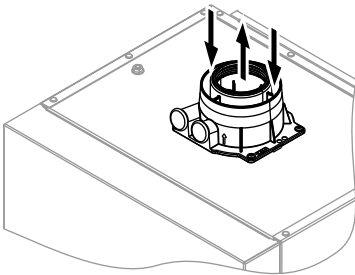


#### Please note

During commissioning, flue gas may escape from the condensate drain.

Always fill the siphon with water before commissioning.

### Balanced flue connection



Connect the balanced flue pipe. During installation and positioning of the flue system, observe Part J of building regulations and BS 5440.



Flue system installation instructions

### Connecting several Vitodens 050-W to a shared flue system

Adjust the burner setting of each connected boiler to match the flue system. See page 31.

Do not carry out **commissioning** until the following conditions are met:

- Free passage through the flue gas pipes.
- Flue system with positive pressure is gas-tight.
- Apertures for ensuring sufficient combustion air supply are open and cannot be closed off.
- Applicable regulations on installing and commissioning flue systems have been followed.

## Mounting the boiler and making the connections (cont.)



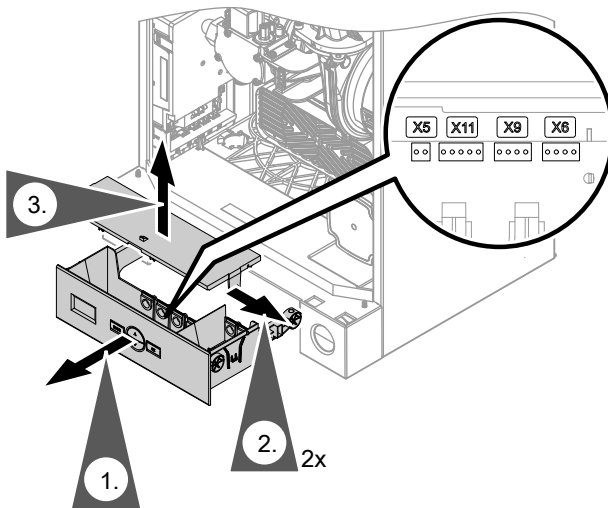
### Danger

Leaking or blocked flue systems or an insufficient supply of combustion air cause life threatening poisoning due to carbon monoxide in the flue gas.

Ensure the flue system functions correctly. Apertures for combustion air supply must not be able to be closed off.

## Opening the programming unit

Only required if a wireless receiver or time switch (accessories) is to be connected.

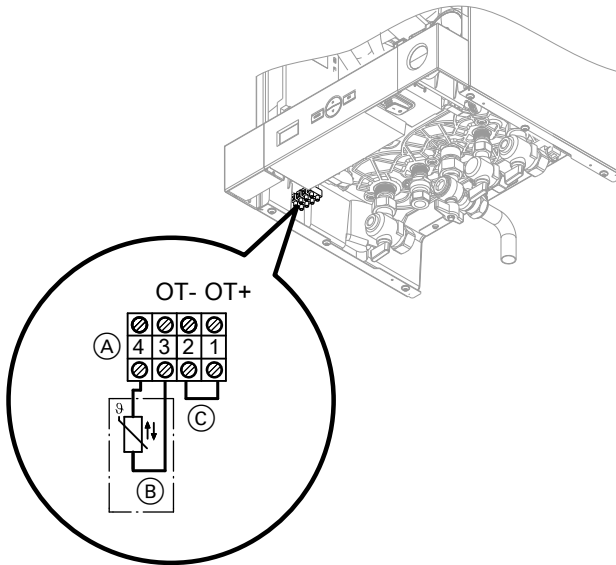


### Please note

Electronic assemblies can be damaged by electrostatic discharge.

Prior to commencing work, touch earthed objects such as heating or water pipes, to discharge static loads.

## Electrical connections



- (A) Terminals on underside of appliance
  - (B) Outside temperature sensor
  - (C) Vitotrol 100 or on-site room temperature controller with LV switching contact and low transition resistance
- Remove jumper when connecting.



Separate installation instructions



### Information on connecting accessories

When connecting accessories observe the separate installation instructions provided with them.

## Electrical connections (cont.)

### Outside temperature sensor (accessories)

1. Fit outside temperature sensor.

Installation site:

- North or north-westerly wall, 2 to 2.5 m above ground level; in multi storey buildings, in the upper half of the 2nd floor
- Not above windows, doors or vents
- Not immediately below balconies or gutters
- Never render over
- Connection:  
2-core lead, length up to 35 m with a cross-section of 1.5 mm<sup>2</sup>

2. Connect the outside temperature sensor across terminals 3 and 4 (underside of appliance).

### Power supply

Connect the power cable to the building mains.

#### Regulations and Directives



**Danger**

Incorrectly executed electrical installations can result in injuries from electrical current and in appliance damage.

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:

- IEC 60364-4-41
- VDE regulations
- Connection requirements specified by your local power supply utility

Install an isolator in the power cable to provide omnipolar separation from the mains for all active conductors, corresponding to overvoltage category III (3 mm) for full isolation. This isolator must be fitted in the permanent electrical installation, in line with the installation requirements.

Protect the power cable with an external 3 A fuse to BS 1362.



**Danger**

Incorrect core allocation can result in serious injury and damage to the appliance. Take care **not** to interchange wires "L1" and "N".

## Electrical connections (cont.)



### **Danger**

The absence of component earthing can lead to serious injury from electric current if an electrical fault occurs.

The appliance and pipework must be connected to the equipotential bonding of the building.

## Routing the connecting cables



### **Please note**

Connecting cables will be damaged if they touch hot components.

When routing and securing cables/leads on site, ensure that the maximum permissible temperature for these cables/leads is not exceeded.

## Steps - commissioning, inspection and maintenance

For further information regarding the individual steps, see the page indicated

				Page
			Commissioning steps	
			Inspection steps	
			Maintenance steps	
•	•	•	1. Filling the heating system.....	25
•	•	•	2. Converting to operation with LPG.....	27
•	•	•	3. Checking the static and supply pressure.....	27
•			4. Reducing the max. heating output.....	29
•			5. Matching the burner output to the flue system.....	30
•			6. Burner adjustment when connecting multiple flues to a flue system.....	31
•			7. Checking the CO <sub>2</sub> content.....	35
	•	•	8. Burner removal .....	38
	•	•	9. Checking the burner gasket and burner gauze assembly.....	38
	•	•	10. Checking and adjusting the electrode.....	40
	•	•	11. Cleaning the heat exchanger.....	41
	•	•	12. Checking the condensate drain and cleaning the siphon.....	42
	•	•	13. Installing the burner .....	43
	•	•	14. Checking the diaphragm expansion vessel and system pressure.....	44
•	•	•	15. Checking all connections on the heating water side and DHW side for leaks	
•	•	•	16. Checking firm seating of electrical connections	
•	•	•	17. Checking all gas equipment for tightness at operating pressure .....	44
	•	•	18. Fitting the front panel.....	45
•			19. Instructing the system user.....	46



## Further details regarding the individual steps

### Filling the heating system



#### Please note

Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.

- Flush the heating system thoroughly before filling.
- Only fill with water of potable quality.

- Fill water with a hardness above 300 ppm must be softened.
- Antifreeze suitable for heating systems can be added to the fill water.

1. Close the gas shut-off valve.
2. Switch ON the power supply and ON/OFF switch (A).
3. Activate the filling function.
  1. Press MODE and ▲ simultaneously and hold for approx. 3 s. "SERV" is displayed and "0" flashes.
  2. Use ▲/▼ to set "I"
  3. OK to confirm.  
The filling function is enabled.

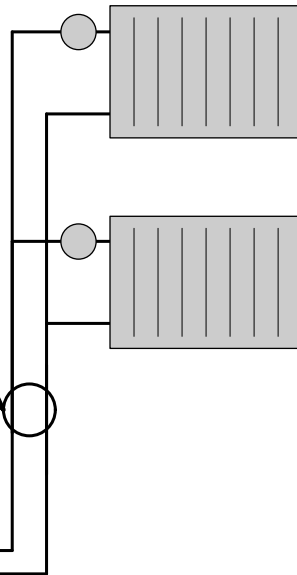
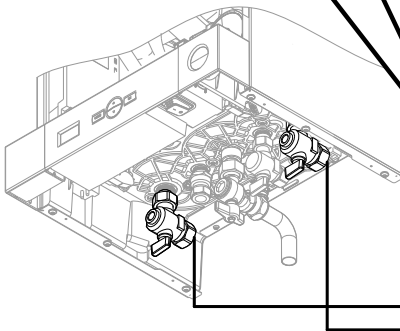
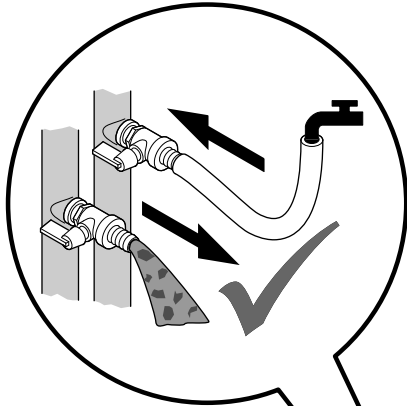
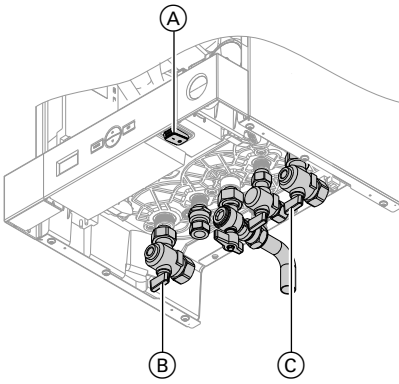
#### Note

*This function terminates automatically after 30 min or when the ON/OFF switch is switched off.*



**Further details regarding the individual steps (cont.)**

4. Open shut-off valves (B) and (C).



## Further details regarding the individual steps (cont.)

5. Fill and vent the heating system using the on-site valve. System pressure 0.8 to 1.2 bar (0.08 to 0.1 MPa). The system can be filled using a separate filling point fitted at a convenient position on the heating circuit. The connection must be removed when filling is complete. Where local Water Authority regulations do not allow temporary connection, a sealed system filler pump with break tank must be used. The heating system will not be filled automatically from the domestic hot water side. Alternative methods for filling sealed systems are given in BS 5449.

## Converting to operation with LPG

In the delivered condition, the boiler is set up for operation with natural gas. For operation with LPG, change the gas nozzle and switch to the correct gas type in the control unit.



Separate installation instructions

Conversion from LPG to natural gas, see page 63.

## Checking the static and supply pressure



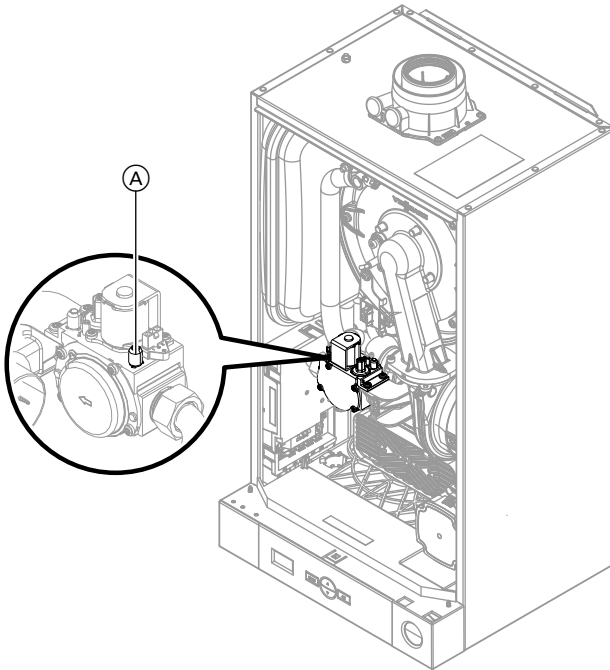
### Danger

CO formation as a result of incorrect burner adjustment can have serious health implications. Carry out a CO test before and after work on gas appliances.

### Operation with LPG

*Purge the LPG tank twice during commissioning or replacement. Vent the tank and gas connection line thoroughly after purging.*

**Further details regarding the individual steps** (cont.)



Gas train viewed from behind

1. Close the gas shut-off valve.
2. Undo screw (A) inside test connector "IN" on the gas train, but do not remove it. Connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the static pressure.  
Set value: max. 57.5 mbar  
(5.75 kPa)
5. Start the boiler.

**Note**  
*During commissioning, the boiler can enter a fault state because of airlocks in the gas line. After approx. 5 s, press **Reset** to reset the burner (see page 51).*

## Further details regarding the individual steps (cont.)

### 6. Check the supply (flow) pressure.

Set value:

- Natural gas: 20 mbar (2.0 kPa)
- LPG: 37 mbar (3.7 kPa)

#### Note

Use a suitable measuring instrument with a resolution of at least 0.1 mbar (0.01 kPa) to check the supply pressure.

### 7. Proceed as indicated in the following table.

Supply pressure (flow pressure)		Procedure
For natural gas	For LPG	
below 17.4 mbar (1.74 kPa)	below 25 mbar (2.5 kPa)	Do not commission the boiler. Notify your gas supply utility or LPG supplier.
17.4 to 25 mbar (1.74 to 2.5 kPa)	25 to 47 mbar (2.5 to 4.7 kPa)	Start the boiler.
above 25 mbar (2.5 kPa)	above 47 mbar (4.7 kPa)	Install a separate gas pressure governor upstream of the system and regulate the flow pressure to 20 mbar (2.0 kPa) for natural gas or 37 mbar (3.7 kPa) for LPG. Notify your gas supply utility or LPG supplier.

### 8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and tighten screw in test connector (A).

### 9. Open the gas shut-off valve and start the appliance.



#### Danger

Gas escaping from the test connector leads to a risk of explosion.

Check gas tightness at test connector (A).

## Reducing the max. heating output

The maximum heating output can be reduced in 25 % increments according to system requirements.

1. Press MODE and ▲ simultaneously for 3 s.  
"SERV" is displayed and "I" flashes.

2. Use ▲/▼ to select "2" and confirm with OK.

"00" flashes on the display (corresponds to 100 % burner output).

3. Use ▲/▼ to select the required burner output and confirm with OK.



## Further details regarding the individual steps (cont.)

4. Press MODE and ▲ simultaneously for 3 s.  
Service mode is terminated. Service mode also terminates automatically after 30 min.
5. Start the boiler.
6. Check the selected burner output by measuring the gas throughput at a high heating output.

## Matching the burner output to the flue system

To match the burner output to the system's flue pipe length, a correction factor can be set.

### Note

Observe max. flue pipe lengths in the pricelist. If the max. flue pipe lengths in the pricelist are exceeded, a calculated performance verification is required.

1. Press MODE and ▲ simultaneously for 3 s.  
"SERV" is displayed and "I" flashes.
2. Use ▲/▼ to select "3" and confirm with OK.  
"0" flashes on the display.
3. Look up the required correction factor relevant to the length of the flue in the tables below.
4. Use ▲/▼ to set the required correction factor and confirm with OK.
5. Press MODE and ▲ simultaneously for 3 s.  
Service mode is terminated. Service mode also terminates automatically after 30 min.

### Open flue operation $\varnothing$ 60 mm

Correction factor	0	1	2	3	4	5	6
Rated heating output (kW)	Flue length (m)						
24	≤ 8	> 8 ≤ 15	Do not adjust				
33	≤ 8	> 8 ≤ 14	> 14 ≤ 19	> 19 ≤ 25	Do not adjust		

## Further details regarding the individual steps (cont.)

### Room sealed operation $\varnothing$ 60 mm coaxial

Correction factor	0	1	2	3	4	5	6
Rated heating output (kW)	Flue length (m)						
24	$\leq 4$	$> 4 \leq 8$	$> 8 \leq 12$	$> 12 \leq 15$	Do not adjust		
33	$\leq 4$	$> 4 \leq 7$	$> 7 \leq 11$	$> 11 \leq 20$	Do not adjust		

## Burner adjustment when connecting multiple flues to a flue system

When connecting several Vitodens 050-W to a shared flue system:

Adjust the burner setting of each connected boiler by a correction factor to match the flue system.

System conditions:

- Shared flue in shaft  $\varnothing$  100 mm
- Balanced flue connection pipe from boiler to shaft  $\varnothing$  80/125 mm
- Minimum shaft cross-section
  - Square 175 x 175 mm
  - Round  $\varnothing$  195 mm
- Height between floors min. 2.5 m
- Max. 4 boilers with the same rated heating output connected to the flue system

1. Press MODE and  $\blacktriangle$  simultaneously for 3 s.  
"SERV" is displayed and "I" flashes.

2. Use  $\blacktriangle/\blacktriangledown$  to select "4" and confirm with OK.  
"0" flashes on the display.
3. Look up the required correction factor relevant to the flue system requirements in the tables below.
4. Use  $\blacktriangle/\blacktriangledown$  to set the required correction factor and confirm with OK.
5. Press MODE and  $\blacktriangle$  simultaneously for 3 s.  
Service mode is terminated. Service mode also terminates automatically after 30 min.

**Further details regarding the individual steps (cont.)**

**One boiler per floor**

**Rated heating output 24 kW**

Number of boilers	2	3	4
Correction factor (setting value)	Flue length a (m)		
0			
1	≤ 21		
2	> 21 ≤ 25	≤ 19	≤ 13
3	–	> 19 ≤ 25	> 13 ≤ 17
4	–	–	> 17 ≤ 21
5	–	–	–
6	–	–	–

**Rated heating output 33 kW**

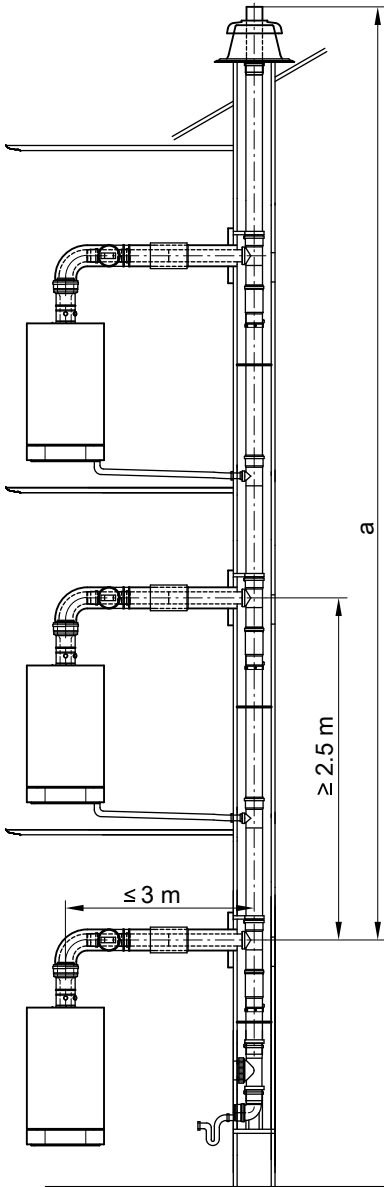
Number of boilers	2	3	4
Correction factor (setting value)	Flue length a (m)		
0			
1	≤ 12		
2	> 12 ≤ 25	≤ 17	
3	–	≤ 16	
4	–	> 16 ≤ 20	≤ 14
5	–	> 20 ≤ 25	> 14 ≤ 16
6	–	–	> 16 ≤ 18

**Note**

*The correction factor changes the modulating range of the boiler.*



**Further details regarding the individual steps (cont.)**



5675 991 GB

**Further details regarding the individual steps** (cont.)**Two boilers per floor****Rated heating output 24 kW**

Number of boilers	2	4
Correction factor (setting value)	Flue length a (m)	
0		
1	≤15	≤5
2	–	> 5 ≤ 9
3	–	> 9 ≤ 14
4	–	> 14 ≤ 15
5	–	–
6	–	–

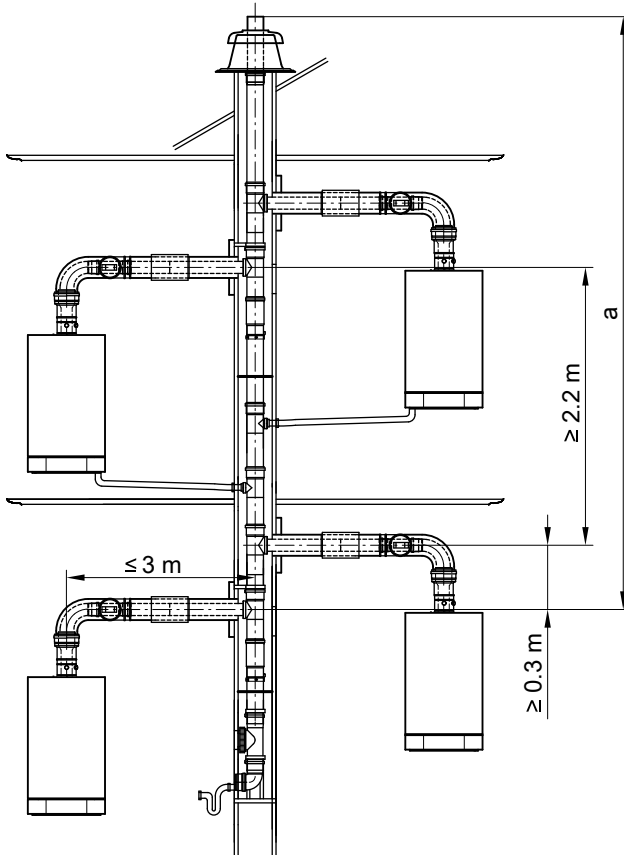
**Rated heating output 33 kW**

Number of boilers	2	4
Correction factor (setting value)	Flue length a (m)	
0		
1	≤ 9	
2	> 9 ≤ 15	≤ 6
3	–	> 6 ≤ 8
4	–	> 8 ≤ 10
5	–	> 10 ≤ 13
6	–	> 13 ≤ 15

**Note**

*The correction factor changes the modulating range of the boiler.*

## Further details regarding the individual steps (cont.)



### Checking the CO<sub>2</sub> content

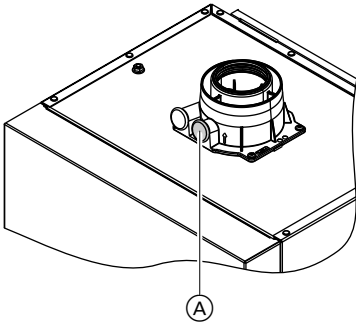
The Vitodens 050-W is factory-set for natural gas. During commissioning or maintenance, the CO<sub>2</sub> and CO have to be measured at the boiler flue adaptor test port to check the flue integrity. Subject to the Wobbe index, the CO<sub>2</sub> content fluctuates between 7.5 % and 10.5 %. A CO level of up to 500 ppm during start-up is acceptable.

We recommend measuring O<sub>2</sub> as the value is unmistakable regarding lambda (air/gas). The O<sub>2</sub> content fluctuates between 7.5 % and 2.2 %. The CO/CO<sub>2</sub> ratio has to be less than 0.004. If the actual CO<sub>2</sub> or O<sub>2</sub> and CO values deviate from the stated range, check the balanced flue systems for leaks. If flue installation is OK, change the gas valve.

## Further details regarding the individual steps (cont.)

### Note

Operate the appliance with uncontaminated combustion air to prevent operating faults and damage.



1. Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.
2. Start the boiler and check for leaks.



### Danger

Escaping gas leads to a risk of explosion.  
Check all gas equipment for tightness.

3. To check the CO<sub>2</sub> content the burner output can be set manually.
  1. Press MODE.
  2. ▲/▼ until "SERV" is displayed.
  3. OK to confirm.  
"OFF" appears on the display.
  4. Use ▲/▼ to select the burner output:

Value shown	Display	Burner output
—	20	20 %
--	40	40 %
---	60	60 %
----	80	80 %
-----	00	100 %

5. Confirm your settings with OK.

### Note

This function terminates automatically after 30 min, alternatively use ▲/▼ to set the burner output to "OFF" after checking.

## Further details regarding the individual steps (cont.)

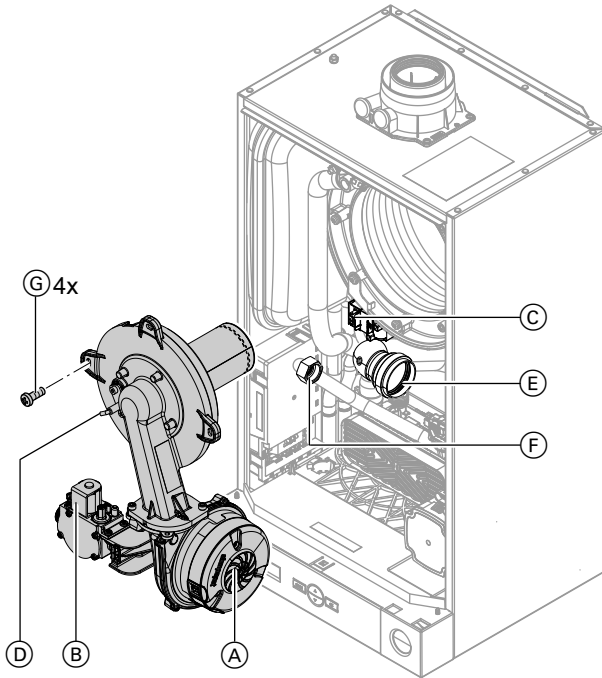
4. Set the higher heating output and check the CO<sub>2</sub> content.  
Subject to gas type, the CO<sub>2</sub> content must be within the following range.  
See table.

Gas type	CO <sub>2</sub> content in %
E or H (G20)	7.5 – 10.5
P (G31)	10.0 – 12.0

5. Set the lower heating output and check the CO<sub>2</sub> content.  
The CO<sub>2</sub> content must be between 0.3 and 0.9 % below the value for the upper heating output.
6. ■ If the CO<sub>2</sub> content is within the given range, continue with point 8.  
■ If the CO<sub>2</sub> content lies **outside** the given range, check the flue gas/ventilation air system for tightness; remedy any leaks.  
Replace gas train if required.
7. Re-check the CO<sub>2</sub> content for the upper and lower heating output.
8. Shut down the boiler, remove the flue gas analyser and close flue gas test port (A).

## Further details regarding the individual steps (cont.)

### Burner removal



1. Switch ON/OFF switch to OFF.
2. Shut off the gas supply.
3. Pull the power cables from fan motor (A), gas train (B), ignition unit (C) and electrodes (D).
4. Pull venturi extension (E) from the fan.
5. Undo the fitting from gas supply pipe (F).
6. Undo 4 screws (G) and remove the burner.



#### **Please note**

Prevent damage.

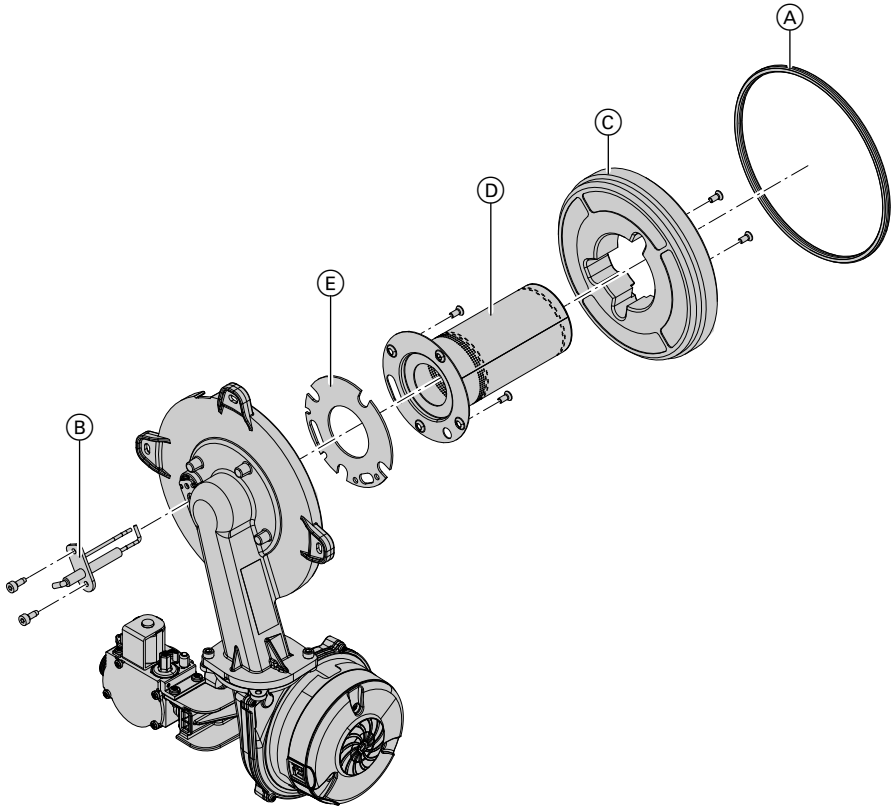
Never rest the burner on the burner gauze assembly.

### Checking the burner gasket and burner gauze assembly

Check burner gasket (A) for damage and replace if required.

Replace the burner gauze assembly if it is damaged.

**Further details regarding the individual steps (cont.)**



1. Remove electrode (B).
2. Undo the 2 Torx screws and remove thermal insulation ring (C).
3. Undo the 2 Torx screws and remove burner gauze assembly (D) with gasket (E).
4. Insert and secure new burner gauze assembly (D) with new gasket (E).



**Please note**

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.



## Further details regarding the individual steps (cont.)

### 5. Mount thermal insulation ring (C).



**Please note**

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.

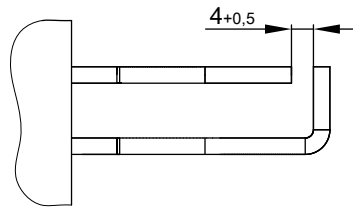
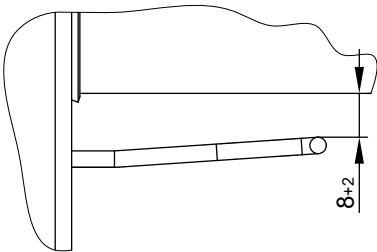
### 6. Fit electrode (B).



**Please note**

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.

## Checking and adjusting the electrode



2. Clean the electrode with a small brush (not with a wire brush) or emery paper.
3. Check the electrode gaps. If the gaps are not as specified or the electrode is damaged, replace electrode and gasket and realign the electrode. Tighten the fixing screws for the electrode.



**Please note**

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.

1. Check the electrode for wear and contamination.



## Further details regarding the individual steps (cont.)

### Cleaning the heat exchanger



#### Please note

Do not damage the surfaces of the heat exchanger that come into contact with hot gas. This can lead to corrosion damage.

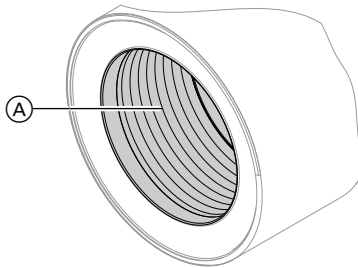
**Never use brushes to clean the heat exchanger.**

Brushing can cause deposits to become lodged in the gaps between the coils.

#### Note

*Discolouration on the heat exchanger surface is a normal sign of use. It has no bearing on the function and service life of the heat exchanger.*

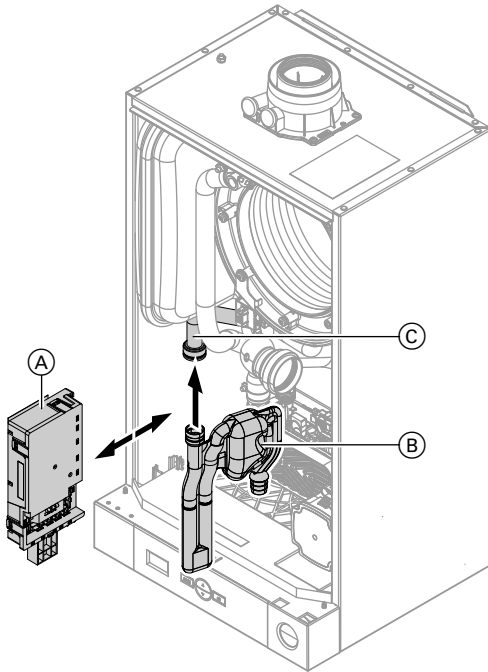
*The use of chemical cleaning agents is not required.*



1. Use a vacuum cleaner to remove combustion residues from heating surface (A) of the heat exchanger.
2. Flush heating surface (A) with water.
3. Check condensate drain and clean siphon. See the following chapter.
4. Flush the heating surface again with water (the siphon is also filled with water in the process).

## Further details regarding the individual steps (cont.)

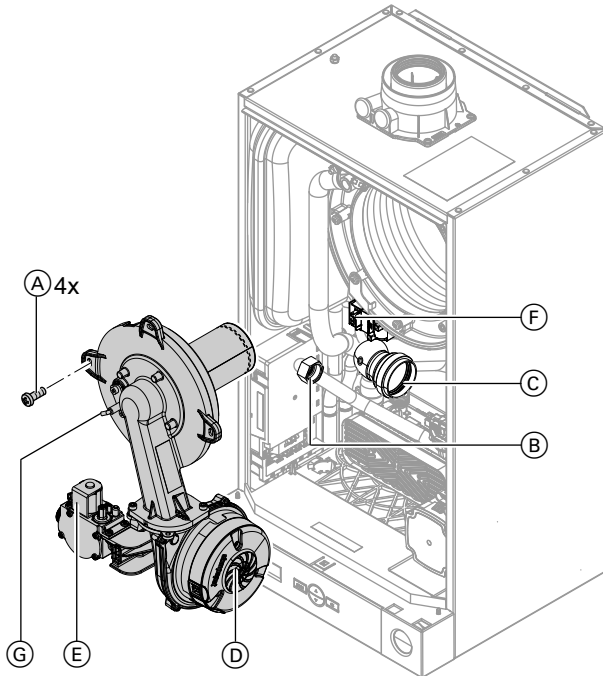
### Checking the condensate drain and cleaning the siphon



1. Unclip burner control unit (A) and remove. Protect against escaping condensate.
2. Pull siphon (B) upwards out of the drain connection.
3. Remove supply hose (C) from siphon (B).
4. Clean siphon (B).
5. Refit supply hose (C).
6. Refit siphon (B) to the drain connection.
7. Install burner control unit (A). Check plugs for correct seating.
8. Fill siphon (B) with water. For this, pour approx. 0.3 l of water into the combustion chamber.
9. Check that condensate can drain freely and that the connections are tight.

## Further details regarding the individual steps (cont.)

### Installing the burner



1. Fit burner and tighten 4 screws (A) diagonally.
2. Insert new gasket and tighten the fitting on gas supply pipe (B).
3. Plug venturi extension (C) into the fan.
4. Install the power cables of fan motor (D), gas train (E), ignition unit (F) and electrodes (G).
5. Reopen gas supply and switch on power supply.



#### Please note

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.

## Further details regarding the individual steps (cont.)

6. Check the gas connections for leaks.



### Danger

Escaping gas leads to a risk of explosion.  
Check the fitting for gas tightness.



### Please note

The use of leak detection spray can result in faulty operation.  
Leak detection spray must not come into contact with electrical contacts or seal the diaphragm opening on the gas valve.

## Checking the diaphragm expansion vessel and system pressure

### Note

*The expansion vessel can lose some of its charge pressure after some time in use. When the boiler heats up, the pressure gauge will indicate a higher pressure of 2 or 3 bar (0.2 or 0.3 MPa). The safety valve can respond and discharge excess pressure.*

*For this reason, check the expansion vessel pre-charge pressure annually.*

Check whether the installed expansion vessel is adequate for the system water volume (GB only).

Carry out this test on a cold system.

1. Drain the system until the pressure gauge shows "0".  
Alternatively, close the cap valve on the expansion vessel and reduce the pressure until the pressure gauge indicates "0".

2. If the pre-charge pressure of the expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the static system pressure.
3. Top up with water until the charge pressure of the cooled system is at least 1.0 bar (0.1 MPa), and is 0.1 to 0.2 bar (10 to 20 kPa) higher than the pre-charge pressure of the expansion vessel.  
Permiss. operating pressure: 3 bar (0.3 MPa)

## Checking all gas equipment for tightness at operating pressure



### Danger

Escaping gas leads to a risk of explosion.  
Check all gas equipment for tightness.



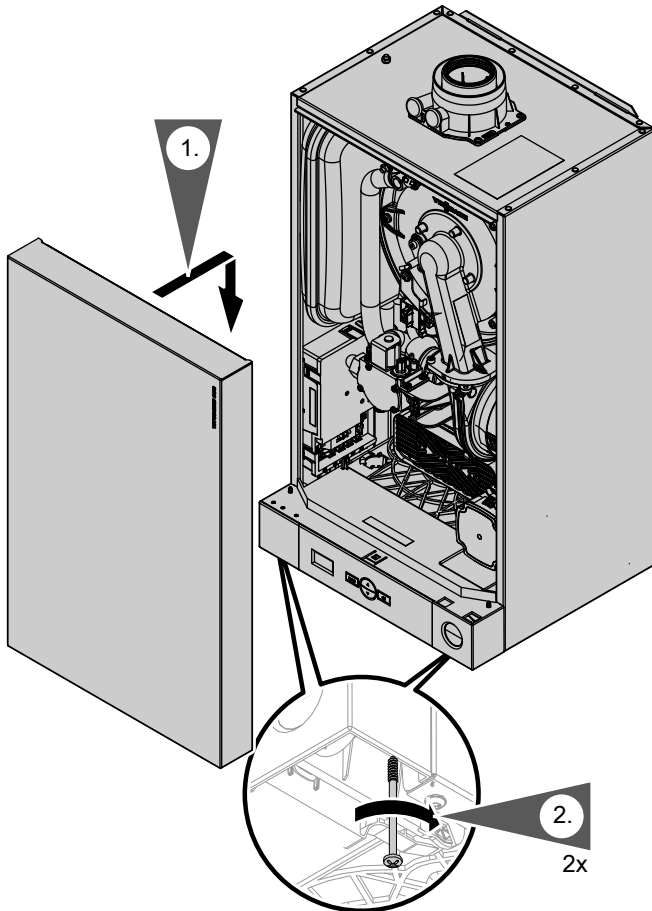
### Please note

The use of leak detection spray can result in faulty operation.

**Further details regarding the individual steps (cont.)**

Leak detection spray must not come into contact with electrical contacts or seal the diaphragm opening on the gas valve.

**Fitting the front panel**



1. Hook the front panel into place.

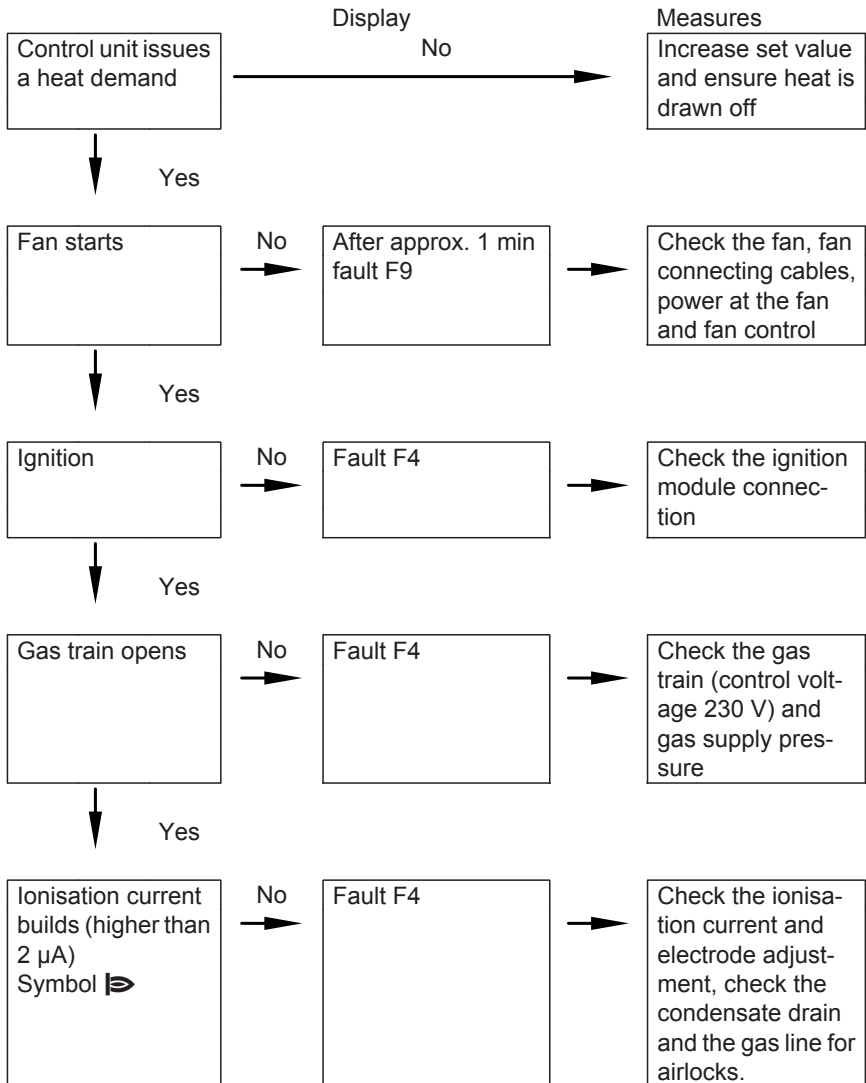
2. Tighten screws on the underside.

## **Further details regarding the individual steps (cont.)**

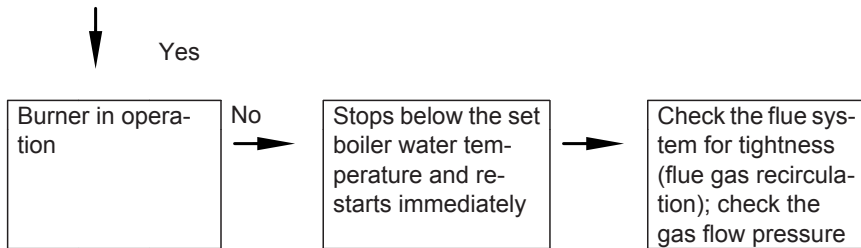
### **Instructing the system user**

The system installer should hand the operating instructions to the system user and instruct the user in operating the system.

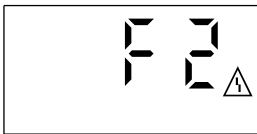
## Function sequence and possible faults



## Function sequence and possible faults (cont.)



## Fault display



Example

### Display

- Faults with lower priority:  
Fault code (e.g. "51") is displayed permanently and fault symbol "△" flashes
- Faults with higher priority:  
Fault code (e.g. "F2") flashes and fault symbol "△" flashes

For an explanation of the fault codes, see the following table.

Displayed fault code	System characteristics	Cause	Measures
10	Constant mode	Short circuit, outside temperature sensor	Check the outside temperature sensor and lead (see page 54).
18	Constant mode	Lead break, outside temperature sensor	Check the outside temperature sensor and lead (see page 54).
30	Burner blocked	Short circuit, boiler water temperature sensor	Check boiler water temperature sensor (see page 55).
38	Burner blocked	Lead break, boiler water temperature sensor	Check boiler water temperature sensor (see page 55).
51	No DHW heating	Short circuit, outlet temperature sensor	Check sensor (see page 57).



**Fault display (cont.)**

<b>Displayed fault code</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
52	Burner blocked	Short circuit, flow sensor	Check connections and lead; replace sensor if required.
59	No DHW heating	Lead break, outlet temperature sensor	Check sensor (see page 57).
5A	Burner blocked	Lead break, flow sensor	Check connections and lead; replace sensor if required.
A9	Control mode without OpenTherm influence	Communication error, OpenTherm device	Check connections and lead; replace OpenTherm if required.
b0	Burner blocked	Short circuit, flue gas temperature sensor	Check sensor (see page 58).
b8	Burner blocked	Lead break, flue gas temperature sensor	Check sensor (see page 58).
E3	Burner in a fault state	Fault in safety chain	Check the temperature limiter and connecting cables (see page 56).
E5	Burner blocked	Internal fault	Check the ionisation electrode and connecting cables.
F0	Burner blocked	Internal fault	Replace control unit.
F1	Burner in a fault state	Max. flue gas temperature exceeded	Check heating system fill level. Check circulation pump. Vent the system.
F2	Burner in a fault state	Temperature limiter has responded	Check heating system fill level. Check circulation pump. Vent the system. Check the temperature limiter and connecting cables (see page 56). Press "Reset" (see page 51).



**Fault display** (cont.)

<b>Displayed fault code</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
F3	Burner in a fault state	Flame signal is already present at burner start	Check ionisation electrode and connecting cable. Press "Reset" (see page 51).
F4	Burner in a fault state	No flame signal detected	Check the ignition/ionisation electrode and connecting cables, check the gas pressure, check the gas train, ignition, ignition module and condensate drain. Press "Reset" (see page 51).
F8	Burner in a fault state	Fuel valve closes too late	Check gas train. Check both control paths. Press "Reset" (see page 51).
F9	Burner in a fault state	Fan speed too low during burner start	Check fan, fan connecting cables and power supply; check fan control. Press "Reset" (see page 51).
FA	Burner in a fault state	Fan idle state not reached	Check fan, fan connecting cables and power supply; check fan control. Press "Reset" (see page 51).
FC	Burner blocked	Electrical fan control (control unit) faulty	Check fan connecting cable; replace if required, or replace control unit.

**Fault display (cont.)**

Displayed fault code	System characteristics	Cause	Measures
Fd	Burner blocked	Fault, burner control unit	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance.  Press "Reset" (see page 51). Replace control unit if fault persists.
FF	Burner blocked	Fault, burner control unit	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance.  Press "Reset" (see page 51). Replace control unit if fault persists.
—△	Burner blocked	Communication error between burner control unit and programming unit	Check connecting cable. Press "Reset" (see page 51). Replace burner control unit or programming unit if the fault persists.

**Reset (reset burner control unit)**

Press **MODE** and **OK** simultaneously.

— is displayed.

"△" extinguishes and the default display is shown if the fault has been removed.

Alternatively further faults will be displayed.

**Scanning the programming unit software version**

Press **MODE** and **▼** simultaneously.

(cont.)



### **Please note**

Residual water will escape when the boiler or one of the following components is fitted or removed:

- Water-filled pipework
- Circulation pumps
- Plate heat exchanger
- Components fitted in the heating water or DHW circuit

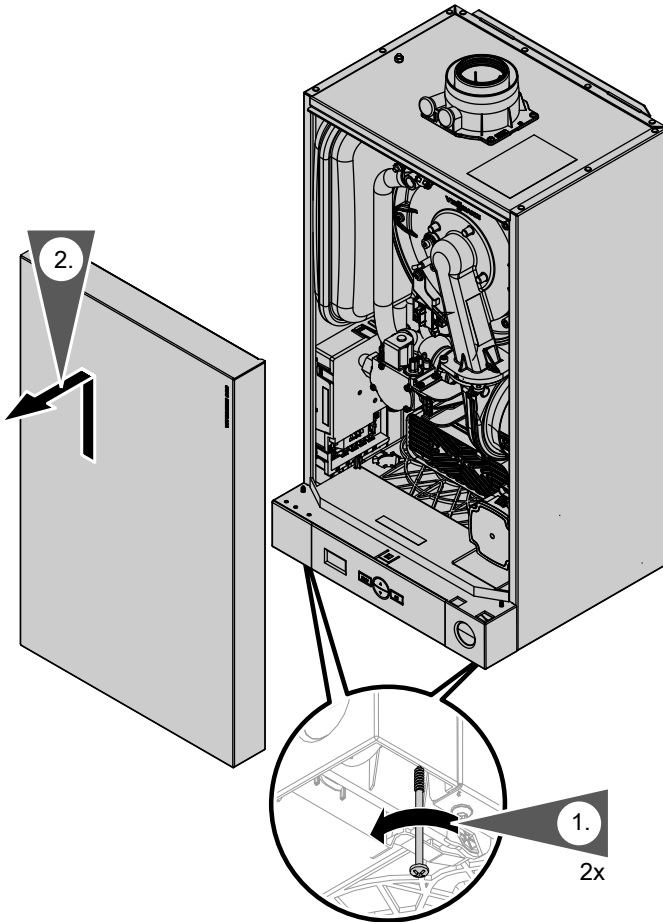
Water ingress can result in damage to other components.

Protect the following components against ingress of water:

- Control unit (in particular in the service position)
- Electrical components
- Plug-in connections
- Cables and leads

Repairs

Removing the front panel

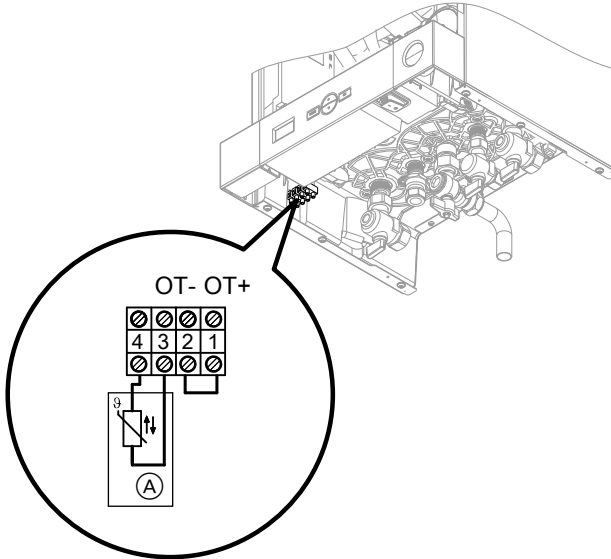


1. Undo screws at the bottom of the boiler; do not remove completely.

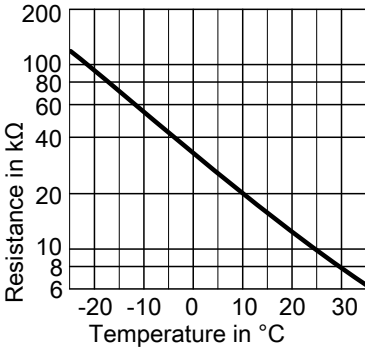
2. Remove the front panel.

## Repairs (cont.)

### Outside temperature sensor



1. Disconnect leads from outside temperature sensor (A).

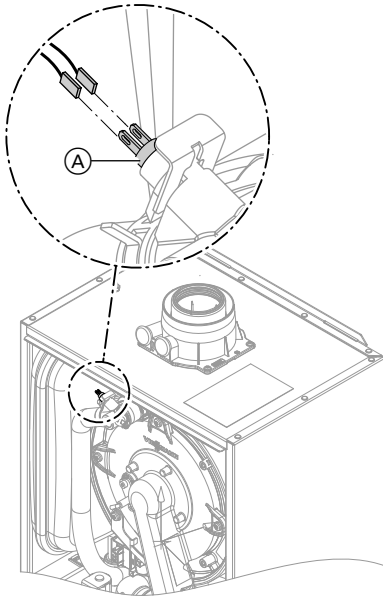


Sensor type: NTC 10 kΩ

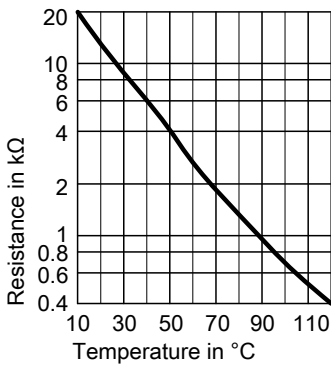
2. Check the sensor resistance and compare it with the curve.
3. In the event of severe deviation replace the sensor.

**Repairs** (cont.)

**Boiler water temperature sensor**



1. Pull the leads from boiler water temperature sensor (A) and check the resistance.



Sensor type: NTC 10 kΩ

2. Check the sensor resistance and compare it with the curve.



## Repairs (cont.)

3. In the case of severe deviation, drain the boiler on the heating water side and replace the sensor.

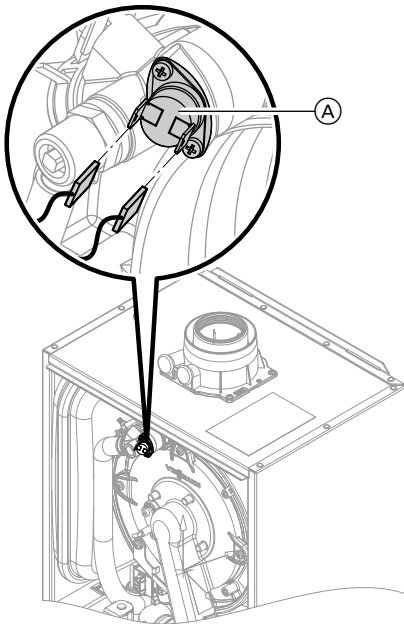


### Danger

The boiler water temperature sensor is in direct contact with the heating water (risk of scalding).

Drain the boiler before replacing the sensor.

## Checking the temperature limiter



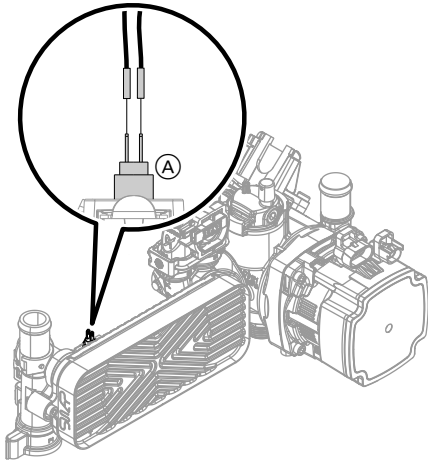
If the burner control unit cannot be reset after a fault shutdown although the boiler water temperature is below approx. 95 °C, check the temperature limiter.

1. Pull the leads from temperature limiter (A).
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Install a new temperature limiter.
5. Reset by pressing "Reset" on the control unit to (see page 51).

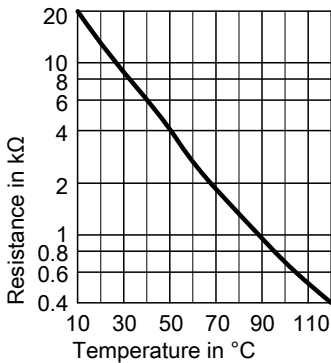


**Repairs** (cont.)

**Checking the outlet temperature sensor**



1. Pull leads from outlet temperature sensor (A).
2. Check the sensor resistance and compare it with the curve.



Sensor type: NTC 10 kΩ

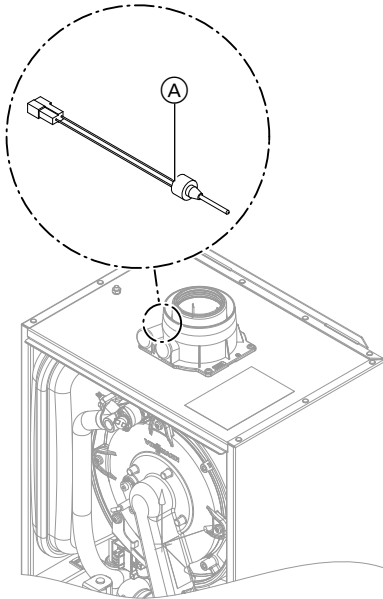
3. In the event of severe deviation replace the sensor.

**Note**

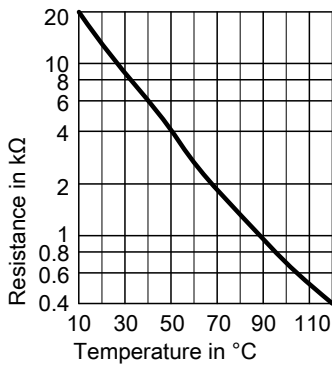
*Water may leak out when replacing the outlet temperature sensor. Shut off the cold water supply. Drain the DHW line and the plate heat exchanger (on the DHW side).*

## Repairs (cont.)

### Check flue gas temperature sensor



1. Pull leads from flue gas temperature sensor (A).
2. Check the sensor resistance and compare it with the curve.

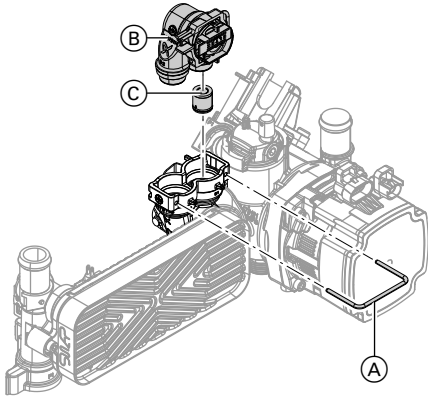


Sensor type: NTC 10 kΩ

3. In the event of severe deviation replace the sensor.

## Repairs (cont.)

### Replacing the flow limiter



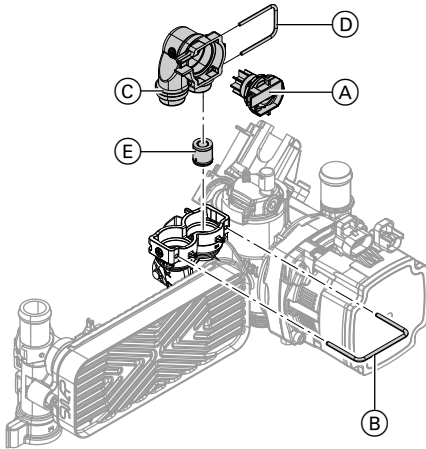
1. Drain the boiler on the DHW side.
2. Pull off spring clip (A).
3. Remove flow sensor (B).
4. Remove faulty flow limiter (C).
5. Check fitted strainer for dirt/contamination. Clean strainer if required.
6. Select a new flow limiter (C) from the following table.

Serial no. (type plate)	Flow rate l/min	Colour
7537906	10	light blue
7537947	14	light pink

7. Insert new flow limiter (C).
8. Mount flow sensor (B) with new gas-gaskets.

## Repairs (cont.)

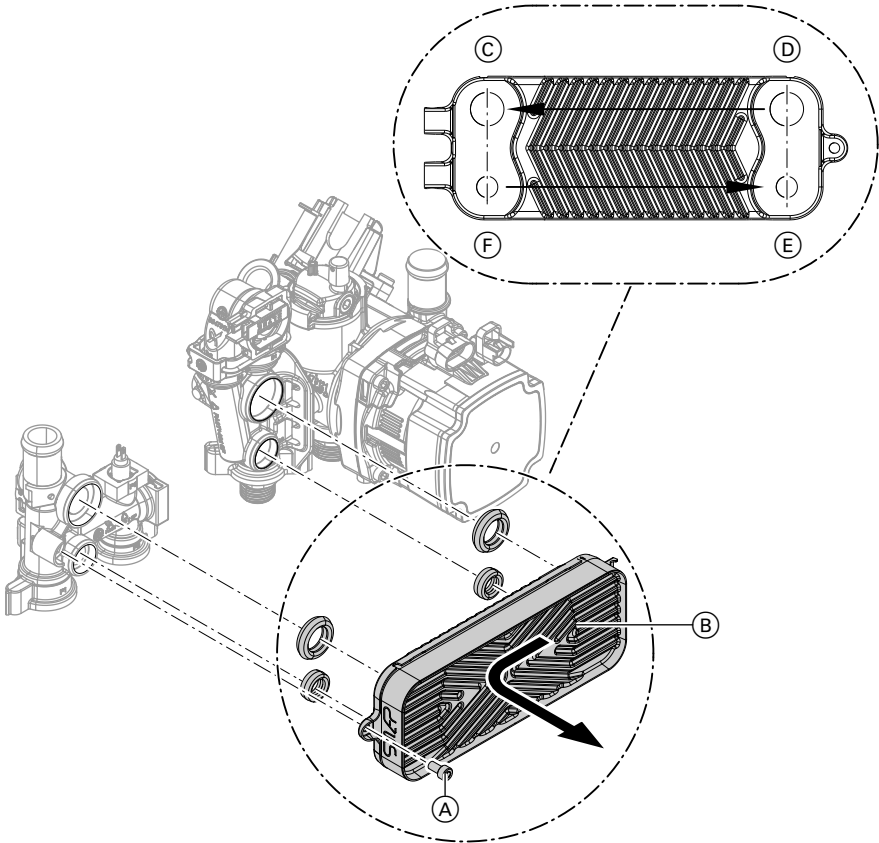
### Replacing the flow sensor



1. Drain the boiler on the DHW side.
2. Pull the leads off faulty flow sensor (A).
3. Pull off spring clip (B).
4. Remove enclosure (C) with flow sensor (A).
5. Pull off spring clip (D) and remove faulty flow sensor (A).
6. Select new flow limiter (E) from the table on page 59.
7. Insert new flow limiter (E).
8. Fit new flow sensor (A) with new gaskets in enclosure (C). Insert spring clip (D).
9. Insert spring clip (B).
10. Attach leads.

Repairs (cont.)

Checking or replacing the plate heat exchanger



- Ⓒ Heating water return
- Ⓓ Heating water flow

- Ⓔ DHW
- Ⓕ Cold water

1. Shut off and drain the boiler on the heating water and the DHW side.
2. Undo screw Ⓐ on the plate heat exchanger and remove plate heat exchanger Ⓑ with gaskets.

**Note**

*During and after removal, small amounts of water may trickle from the plate heat exchanger.*

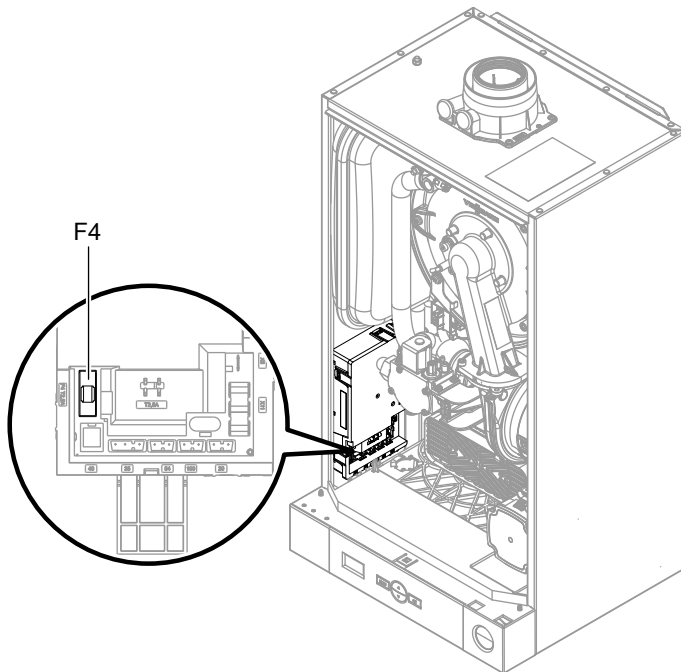
## Repairs (cont.)

3. Check the connections on the DHW side for scaling; clean or replace the plate heat exchanger if required.
4. Check the connections on the heating water side for contamination; clean or replace the plate heat exchanger if required.
5. Install in reverse order using new gaskets.

### Note

*During installation, ensure the fixing holes are aligned and the gaskets are seated correctly. Mount the plate heat exchanger with the correct orientation.*

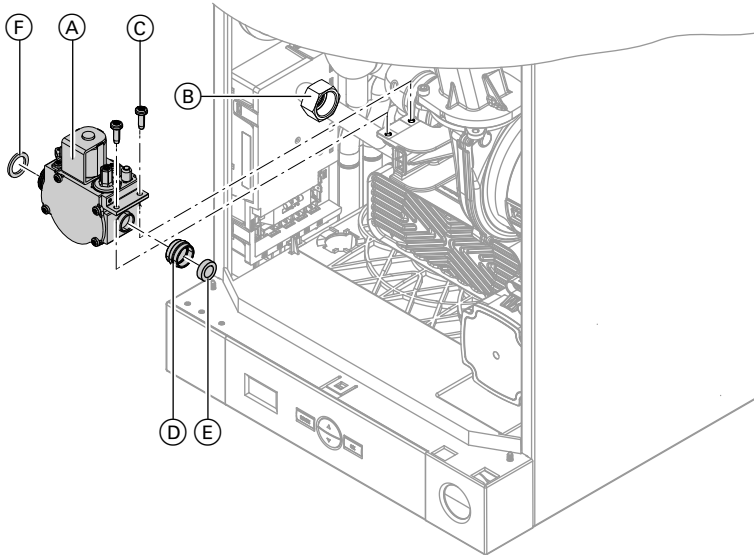
## Checking the fuse



1. Switch off the power supply.
2. Open the control unit enclosure.
3. Check fuse F4.

## Converting from LPG to natural gas

### Removing the gas restrictor



1. Pull cable from gas train (A).
2. Undo union nut (B) and remove gas gasket.
3. Undo 2 screws (C) and remove gas train (A).
4. Remove gasket (D) from gas train (A).
5. Remove gas restrictor (E) from gasket (D).
6. Insert gasket (D) in gas train (A).
7. Mount gas train (A) with new gas gasket (F).
8. Remove or void gas type sticker on the top of the boiler (next to the type plate).



#### Please note

Tighten screws just enough to ensure the components do not suffer damage and will function correctly.

## Converting from LPG to natural gas (cont.)

9. Start the boiler and check for leaks.



### **Danger**

Escaping gas leads to a risk of explosion.  
Check all gas equipment for tightness.



### **Please note**

The use of leak detection spray can result in faulty operation.

Leak detection spray must not come into contact with electrical contacts or seal the diaphragm opening on the gas valve.

## Changing the gas type at the control unit

1. Switch ON the ON/OFF switch.
2. Press MODE and ▲ simultaneously for 3 s.  
"SERV" is displayed and "I" flashes.
3. Use ▲/▼ to select "5" and confirm with OK.  
"1" flashes on the display.
4. Use ▲/▼ to select "0" and confirm with OK.  
The burner has been switched to operation with natural gas.
5. Press MODE and ▲ simultaneously for 3 s.  
Service mode is terminated. Service mode also terminates automatically after 30 min.
6. Switch the ON/OFF switch OFF and ON again.  
The selected gas type is now enabled.

## Checking the CO<sub>2</sub> content

See page 35.



## Functions and operating conditions in weather-compensated mode

If an outside temperature sensor is connected to the control unit, the boiler water temperature is regulated subject to the outside temperature.

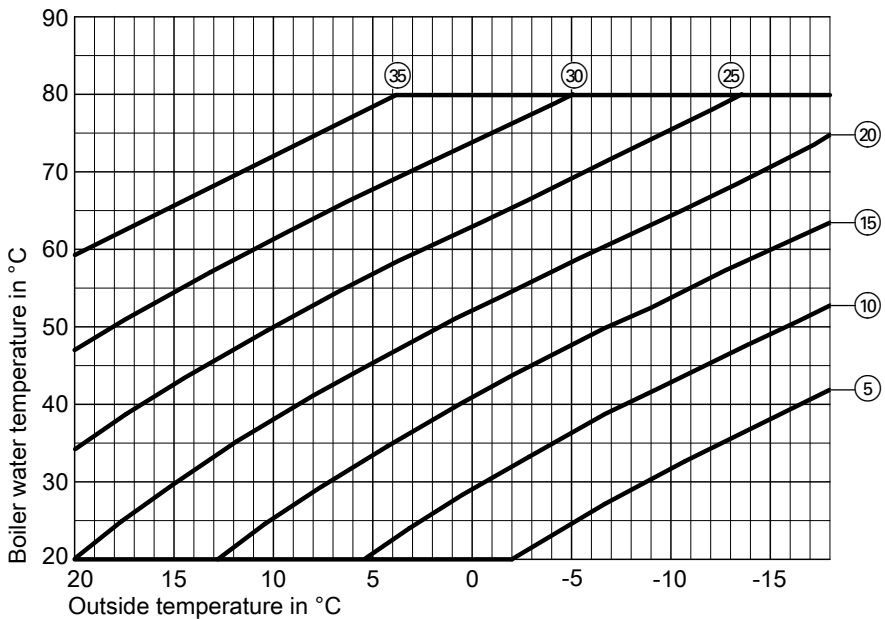
In line with the selected heating curve, a boiler water temperature is set for the current outside temperature.

The heating curve is set at the control unit as a code. In the delivered condition, the heating curve with code 20 is set.



Operating instructions

### Heating curve for weather-compensated operation



- (X) Code for selected heating curve  
The setting can be made in increments of 5 - 35.

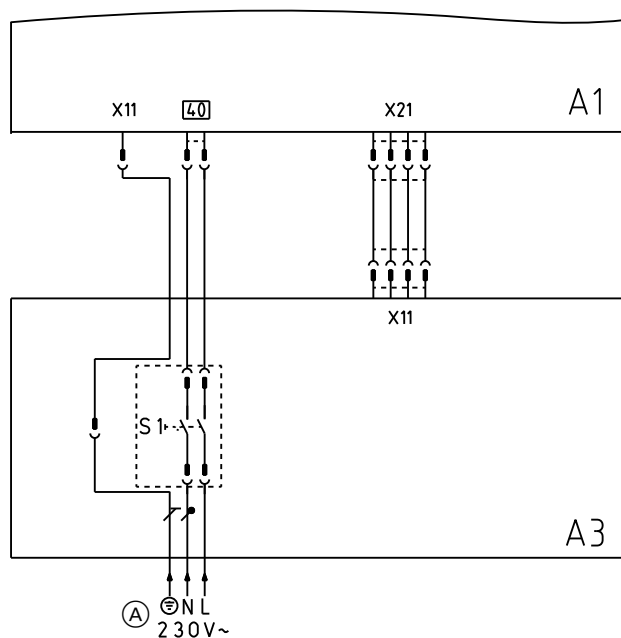
## Functions and operating conditions in... (cont.)

### Frost protection function

The frost protection function requires an outside temperature sensor to be connected. The frost protection function becomes active at outside temperatures of  $< 5\text{ }^{\circ}\text{C}$ . The burner starts and the boiler water temperature is held at  $20\text{ }^{\circ}\text{C}$ .

## Connection and wiring diagrams

### Overview

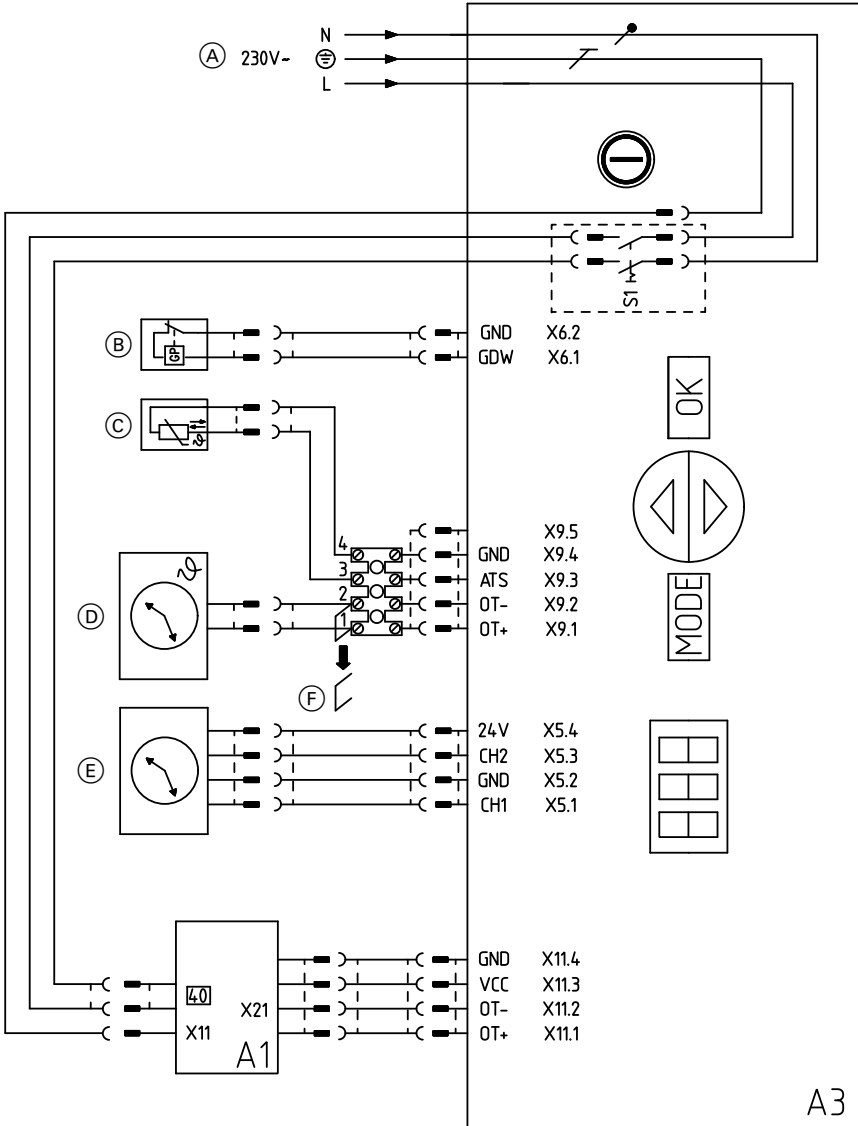


- Ⓐ Power supply
- A1 Main PCB in control unit enclosure on side panel

- A3 Programming unit
- S1 ON/OFF switch
- X ... Electrical interface

Connection and wiring diagrams (cont.)

Programming unit



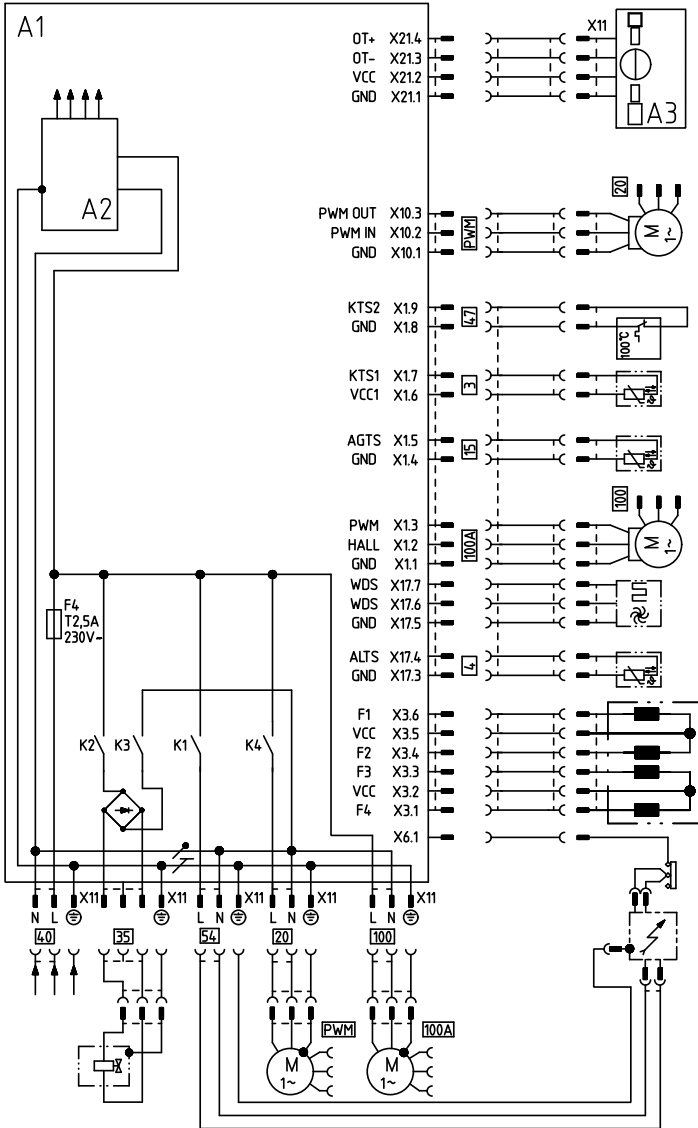
(A) Power supply

**Connection and wiring diagrams** (cont.)

- Ⓑ Gas pressure switch (accessories)
  - Ⓒ Outside temperature sensor (accessories)
  - Ⓓ Room temperature controller (accessories)
  - Ⓔ Time switch or wireless receiver (accessories)
  - Ⓕ Jumper, remove when connecting room temperature controller
- A1 Main PCB
  - A3 Programming unit
  - S1 ON/OFF switch
  - X ... Electrical interface

Connection and wiring diagrams (cont.)

Control unit



(A) Programming unit connection

(B) Flow sensor

## Connection and wiring diagrams (cont.)

Ⓒ	Diverter valve stepper motor	15	Flue gas temperature sensor
Ⓓ	Ionisation electrode	20	Circulation pump 230 V~
A1	Main PCB	35	Gas solenoid valve
A2	Power supply unit	40	Power supply
A3	Programming unit	47	Temperature limiter
PWM	Circulation pump switching	54	Ignition
X ...	Electrical interface	100	Fan motor 230 V~
3	Boiler water temperature sensor	100A	Fan control
4	Outlet temperature sensor		

## Ordering parts

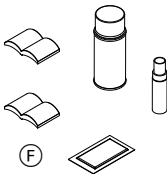
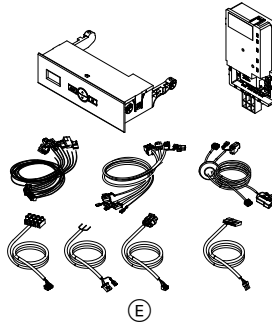
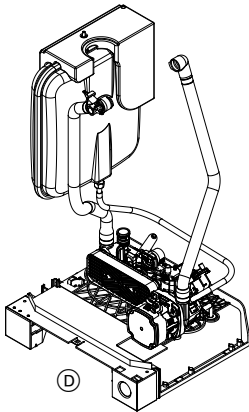
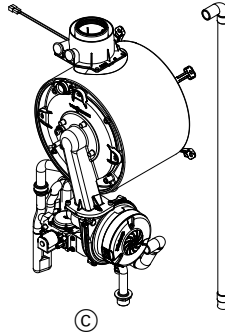
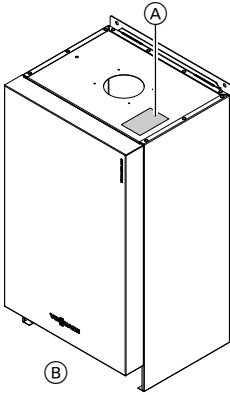
**The following information is required:**

- Serial no. (see type plate (A))
- Assembly (from this parts list)
- Position number of the individual part within the assembly (from this parts list)

Standard parts are available from your local supplier.



Overview of assemblies



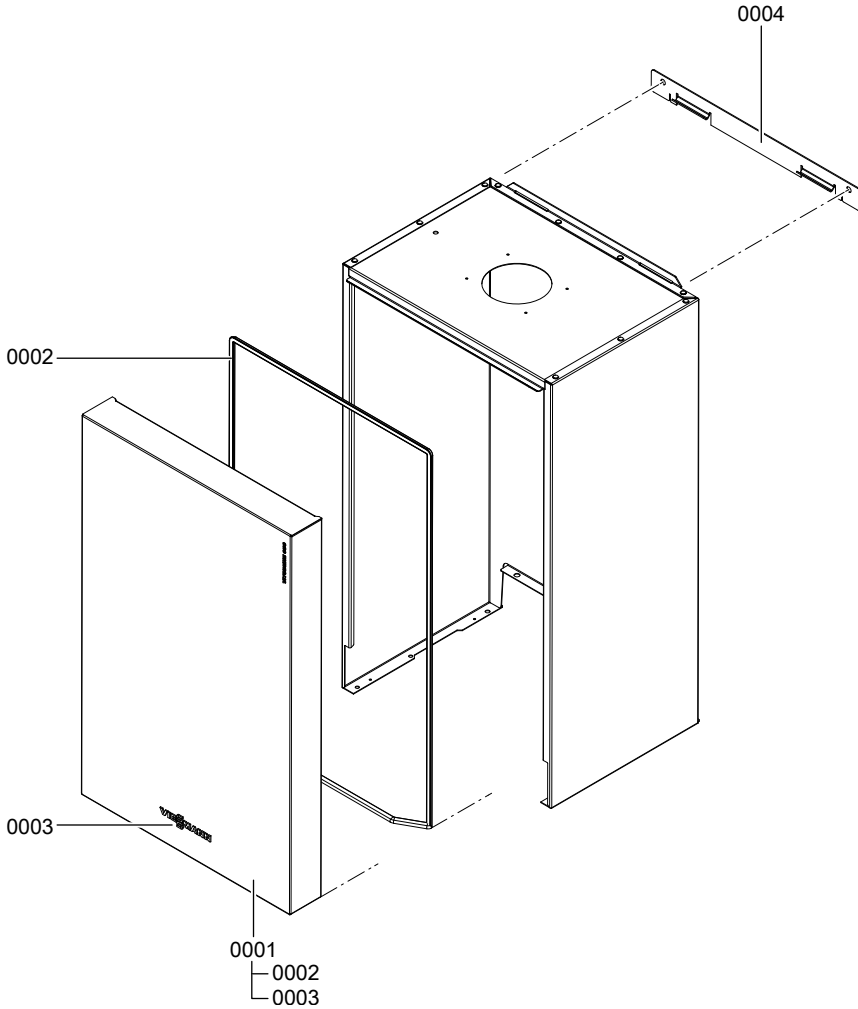
- (A) Type plate
- (B) Casing assembly
- (C) Heat cell assembly

- (D) Hydraulic assembly
- (E) Control unit assembly
- (F) Miscellaneous assembly

5075 991 GB

## Casing assembly

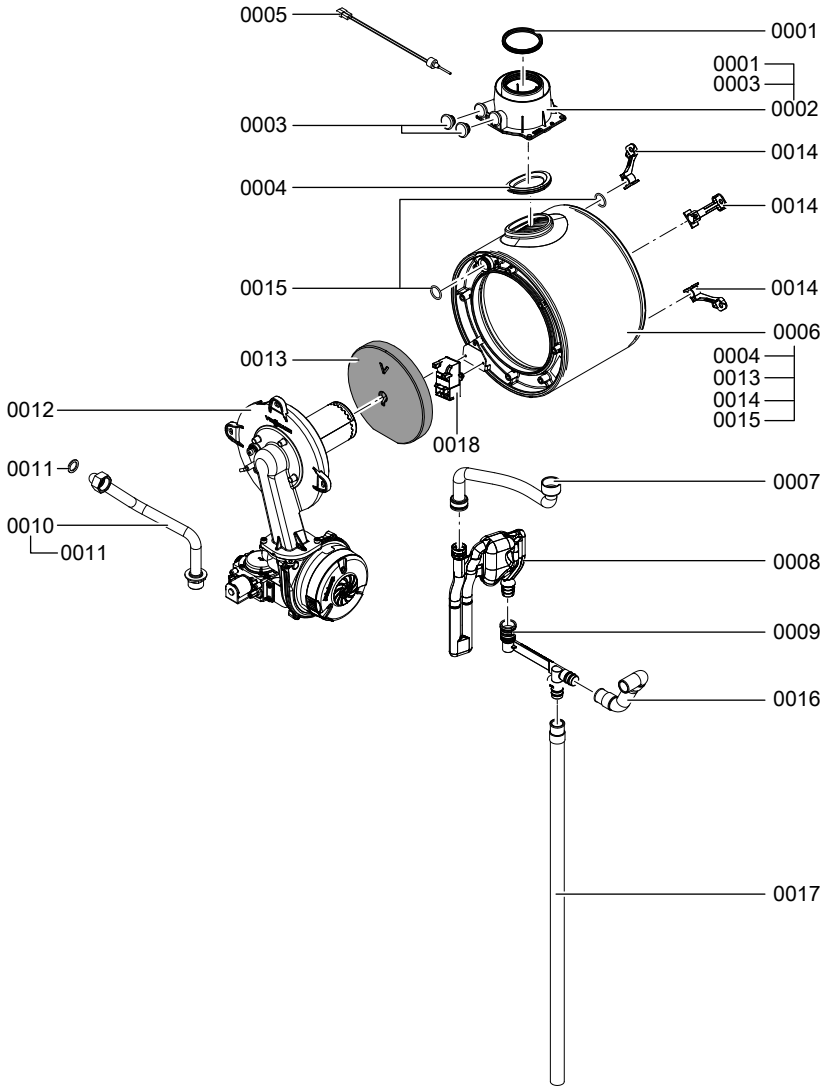
Pos.	Part
0001	Front panel
0002	Profiled seal
0003	Viessmann logo
0004	Wall mounting bracket



## Heat cell assembly

Pos.	Part
0001	Gasket DN 60
0002	Boiler flue connection
0003	Boiler flue connection plug
0004	Flue gasket
0005	Flue gas temperature sensor
0006	Heat exchanger
0007	Condensate hose
0008	Splash siphon
0009	Tee connector $\varnothing$ 19
0010	Gas connection
0011	Gasket A 17 x 24 x 2 (5 pce)
0012	Burner
0013	Thermal insulation block
0014	Heat exchanger mounting (set)
0015	O-ring 20.63 x 2.62 (5 pce)
0016	Corrugated hose 19 x 155 with ferrule/bend
0017	Corrugated hose 19 x 500 with ferrule
0018	Ignition transformer

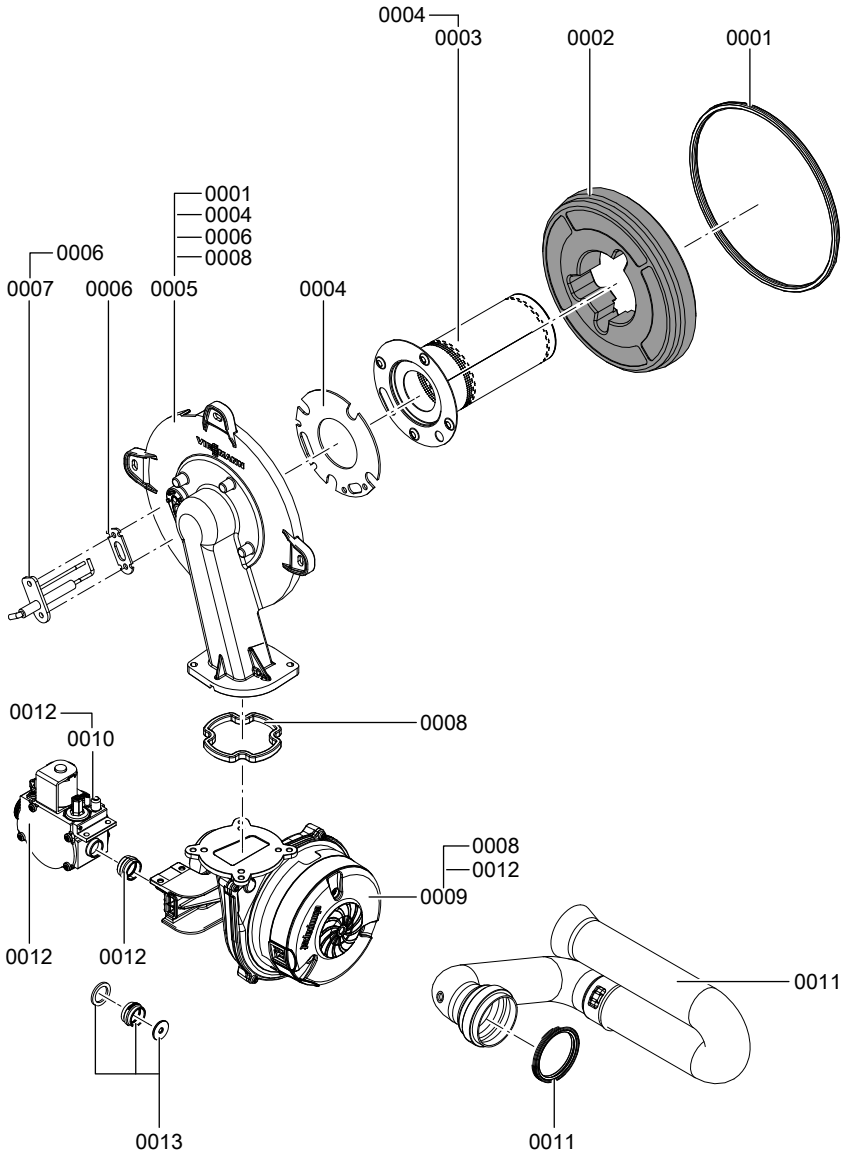
## Heat cell assembly (cont.)



## Burner assembly

Pos.	Part
0001	Burner gasket $\varnothing$ 187
0002	Thermal insulation ring
0003	Cylinder burner gauze assembly
0004	Burner gauze assembly gasket
0005	Burner door
0006	Gasket, ionisation electrode (5 pce)
0007	Ignition/ionisation electrode
0008	Burner door flange gasket
0009	Radial fan NRG 118
0010	Gas valve GB-ND 055 E01
0011	Venturi extension
0012	Gasket set G20/G31
0013	Conversion kit G20/G31

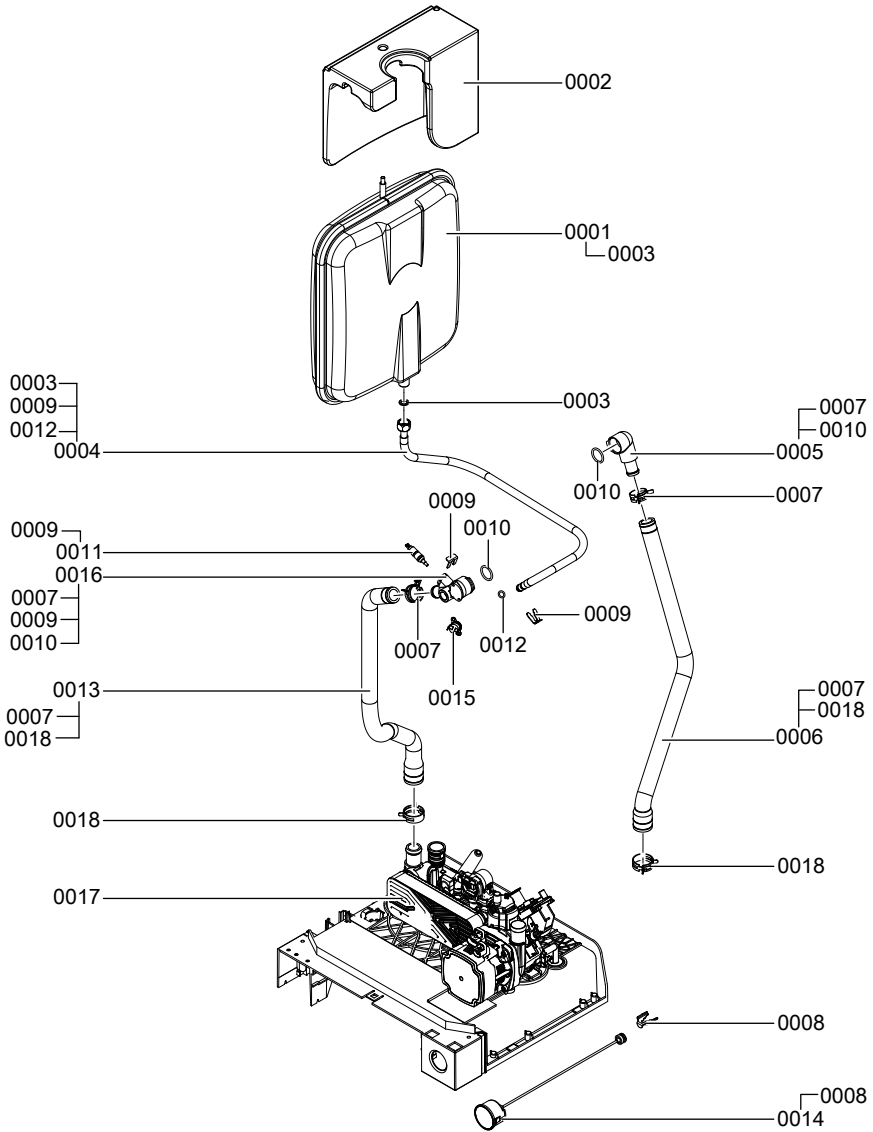
**Burner assembly (cont.)**



## Hydraulic assembly

Pos.	Part
0001	Diaphragm expansion vessel CRI 8
0002	Diaphragm expansion vessel padding profile
0003	Gasket A 10 x 15 x 1.5 (5 pce)
0004	DEV connection line G 3/8
0005	Connection elbow HR brass
0006	Profile hose HR
0007	Spring clip DN 25 (5 pce)
0008	Clip $\varnothing$ 10 (5 pce)
0009	Clip $\varnothing$ 8
0010	O-ring 20.63 x 2.62 (5 pce)
0011	Temperature sensor
0012	Circular seal washer 8 x 2 (5 pce)
0013	Profile hose HF
0014	Pressure gauge
0015	Thermal circuit breaker
0016	Connection elbow HF
0017	Grundfos hydraulics
0018	Spring clip DN 30

## Hydraulic assembly (cont.)





## Grundfos hydraulic assembly

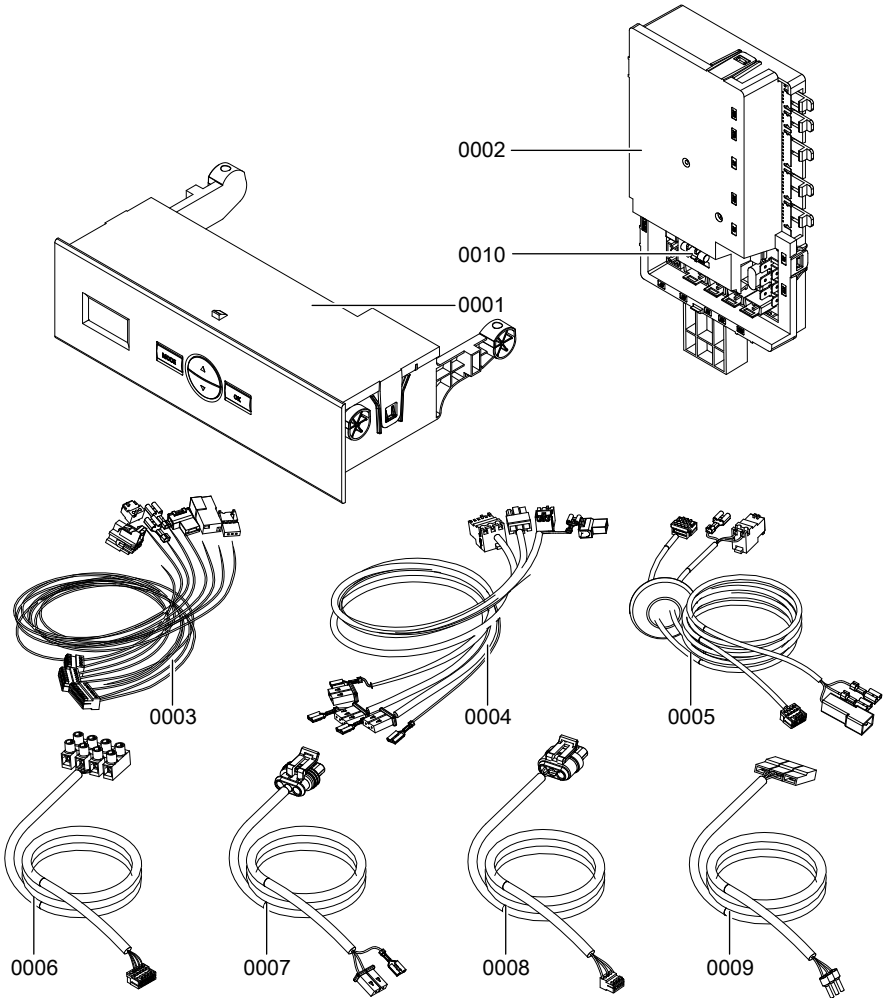
Pos.	Part
0001	Flow casing EU1
0002	Temperature sensor
0003	Expansion tank
0004	O-ring 19.8 x 3.6 (5 pce)
0005	O-ring 16 x 3 (5 pce)
0006	Clip $\varnothing$ 8 narrow (5 pce)
0008	Plate heat exchanger
0009	Circulation pump motor
0010	Return casing
0011	Flow limiter
0012	Stepper motor
0015	Air vent valve
0018	Flow sensor
0019	Clip $\varnothing$ 8
0020	Clip $\varnothing$ 16
0022	Connection elbow
0023	Air box floor
0025	Dummy adaptor, time switch
0028	Gasket set, plate heat exchanger
0030	Tee connector $\varnothing$ 19



## Control unit assembly

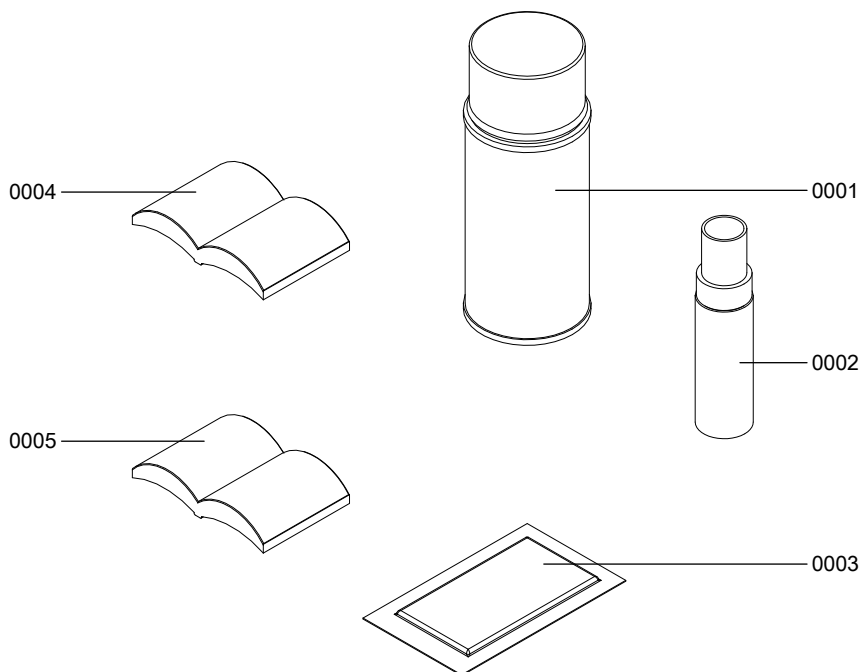
<b>Pos.</b>	<b>Part</b>
0001	Programming unit
0002	Burner control unit
0003	Cable harness X1/X17/stepper motor
0004	Cable harness 100/35/54/ion
0005	Cable harness, connecting cable X21/GFA/programming unit
0006	Outside temperature sensor lead
0007	Connecting cable, heating circuit pump 20
0008	PWM BUS cable
0009	Power cable
0010	Fuse 2.5 A (slow) 250 V

**Control unit assembly (cont.)**



**Miscellaneous assembly**

Pos.	Part
0001	Touch-up spray paint, Vitowhite, 150 ml can
0002	Touch-up paint stick, Vitowhite
0003	Special grease
0004	Operating instructions
0005	Installation and service instructions



## Specification

### Specification

Rated voltage:	230 V~	Temperature limiter setting:	100 °C (fixed)
Rated frequency:	50 Hz	Backup fuse (power supply):	3 A
Rated current:	2.0 A~		
Safety category:	I		
IP rating:	IP X4D to EN 60529		

Permissible ambient temperature

- During operation: -5 to +40 °C
- During storage and transport: -35 to +65 °C

### Gas boiler, category II<sub>2H3P</sub>

<b>Rated heating output range in heating mode</b>			
<b>T<sub>F</sub>/T<sub>R</sub> 50/30 °C</b>	<b>kW</b>	<b>6.5 – 24</b>	<b>8.8 – 33</b>
<b>T<sub>F</sub>/T<sub>R</sub> 80/60 °C</b>	<b>kW</b>	<b>5.9 – 21.9</b>	<b>8.0 – 30.1</b>
<b>Rated heating output range for DHW heating</b>	<b>kW</b>	<b>5.9 – 29</b>	<b>8.0 – 35</b>
<b>Rated heating input range</b>	<b>kW</b>	<b>6.1 – 22.4</b>	<b>8.2 – 30.9</b>
<b>Connection values<sup>*1</sup></b>			
Relative to the max. load with:			
- Natural gas H	m <sup>3</sup> /h	2.37	3.28
- LPG P	kg/h	1.71	2.36
<b>Power consumption (max.)</b>	<b>W</b>	<b>118</b>	<b>142</b>
<b>DHW heating</b>			
Permiss. operating pressure	bar	10	10
	MPa	1.0	1.0
Min. operating pressure, cold water	bar	1	1
	MPa	0.1	0.1
Nominal water flow rate at ΔT 30 K (to EN 13203)	l/min	13.8	16.7
Set flow rate (max.)	l/min	10	14
Min. flow rate	l/min	2.1	2.1
<b>Product ID</b>		<b>CE-0085CP0029</b>	

<sup>\*1</sup> The connection values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

## Declaration of conformity

### Declaration of Conformity for the Vitodens 050-W

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, confirm as sole responsible body that the product **Vitodens 050-W** complies with the following standards:

EN 297	EN 55 014-2
EN 483	EN 60 335-1
EN 625	EN 60 335-2-102
EN 677	EN 61 000-3-2
EN 806	EN 61 000-3-3
EN 12 897	EN 62 233
EN 55 014-1	

In accordance with the following Directives, this product is designated **CE-0085**:

92/42/EEC	2006/95/EC
2004/108/EC	2009/142/EC

This product complies with the requirements of the Efficiency Directive (92/42/EEC) for **condensing boilers**.

Allendorf, 01 February 2015

Viessmann Werke GmbH & Co KG



Authorised signatory Manfred Sommer

## Keyword index

### B

Boiler water temperature sensor .....	55
Burner gasket.....	38
Burner gauze assembly.....	38
Burner installation.....	43
Burner removal.....	38

### C

Combustion chamber cleaning.....	41
Commissioning.....	25
Condensate.....	18
Condensate drain.....	18, 42
Connection diagram.....	67
– Control unit.....	70
– Programming unit.....	68
Connections.....	16

### D

Declaration of Conformity.....	87
--------------------------------	----

### E

Electrical connections.....	21
-----------------------------	----

### F

Fault code.....	48
Fault display.....	48
Filling function.....	25
Flow limiter.....	59
Flow sensor.....	60
Flue gas temperature sensor.....	58
Flue pipe.....	19
Frost limit.....	66
Frost protection.....	66
Function sequence.....	47
Fuse.....	62

### G

Gas connection.....	17
Gas supply pressure.....	29
Gas train .....	28
Gas type conversion.....	63
– LPG.....	27
– Natural gas.....	63

### H

Heat exchanger cleaning.....	41
Heating curve.....	65
Heating output reduction.....	29

### I

Ignition.....	40
Ignition electrode.....	40
Ionisation electrode.....	40

### M

Max. heating output.....	29
Multiple flue system connection.....	31

### O

Outlet temperature sensor.....	57
Output adjustment	
– Multiple connection.....	31
Output matching to flue system.....	30
Outside temperature sensor.....	22, 54

### P

Plate heat exchanger.....	61
Power supply.....	22
Programming unit opening.....	20

### R

Reset.....	51
------------	----

### S

Safety chain .....	56
Safety valve.....	18
Siphon.....	19, 42
Software version.....	51
Specification .....	86
Static pressure.....	28
Supply pressure.....	27
System filling.....	25, 27
System pressure.....	27

### T

Temperature limiter.....	56
Troubleshooting.....	53



**Keyword index** (cont.)**V**

Ventilation air pipe.....19

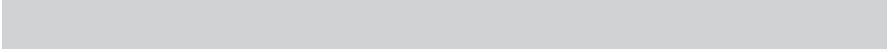
**W**

Wall mounting.....13

Water side connections.....16

Weather-compensated mode.....65





## Applicability

**These service instructions relate to appliances with the following serial numbers (see type plate):**

7202938

7202939

Viessmann Werke GmbH&Co KG  
D-35107 Allendorf  
Telephone: +49 6452 70-0  
Fax: +49 6452 70-2780  
[www.viessmann.com](http://www.viessmann.com)

Viessmann Limited  
Hortonwood 30, Telford  
Shropshire, TF1 7YP, GB  
Telephone: +44 1952 675000  
Fax: +44 1952 675040  
E-mail: [info-uk@viessmann.com](mailto:info-uk@viessmann.com)

5675 991 GB Subject to technical modifications.