# Installation and service instructions

**for contractors**

**Vitodens 100**

6.5 to 35.0 kW
Wall mounted gas condensing boiler
Natural gas version

***For applicability, see the last page***

# VITODENS 100


5837148 HK 11/2018

**Please keep safe.**

# 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 qualified contractors.

- Work on gas installations may only be carried out by a registered gas fitter.
- Work on electrical equipment may 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
- Relevant country-specific safety regulations

## Safety instructions (cont.)

### 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.
- Wear suitable personal protective equipment when carrying out any work.

**Danger**
Hot surfaces and fluids can lead to burns or scalding.
- 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.

**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 (cont.)

### Safety instructions for operating the system

#### If you smell gas

**Danger**
Escaping gas can lead to explosions which may result in serious injury.
- Do not 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.

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

**Danger**
If water escapes from the appliance there is a risk of electrocution.
Switch OFF the heating system at the external isolator (e.g. fuse box, domestic distribution board).

**Danger**
If water escapes from the appliance there is a risk of scalding.
Never touch hot heating water.

#### Condensate

**Danger**
Contact with condensate can be harmful to health.
Never let condensate touch your skin or eyes and do not swallow it.

#### Flue systems and combustion air

Ensure that flue systems are clear and cannot be sealed, for instance due to accumulation of condensate or other external causes.
Ensure an adequate supply of combustion air.
Inform system users that subsequent modifications to the building characteristics are not permissible (e.g. cable/pipework routing, cladding or partitions).

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## Safety instructions (cont.)

**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. Vents for supplying combustion air must be non-sealable.

**Extractors**

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

**Danger**
The simultaneous operation of the boiler and appliances that extract air to the outside can result in life threatening poisoning due to a reverse flow of flue gas.
Fit an interlock circuit or take suitable steps to ensure an adequate supply of combustion air.

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## Service instructions

### Warning notices



### Information



## Installation instructions



### Installation sequence



## Service instructions

### Commissioning, inspection, maintenance



### Parameter



### Diagnostics



### Troubleshooting



### Control unit



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## Index (cont.)



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## Warning notices according to GB25034-2010

Warning against incorrect use:

- A faulty installation can lead to injury and material losses.
- The appliance must be installed in accordance with the instructions and applicable legal regulations.
- Only engineers or persons approved by the manufacturer may repair the appliance or replace parts of it.
- To ensure the safety of the product, only original accessories can be used.
- The original flue pipe must be used. Flue pipes of any other type must not be used. The concentric flue pipe must not be replaced by a single flue pipe.
- If it is necessary to replace the gas governor or controls, please contact the manufacturer.
- Do not purchase any equipment modified by dealers; only purchase the manufacturer's original product. This is the only way to ensure the safety of the appliance.
- When installing the appliance, install a shut-off valve in the gas supply line.
- Do not install the appliance near electrical equipment with a strong electromagnetic field, such as an electromagnetic oven or microwave.
- Do not remove any sealed parts from the appliance.
- Do not use caustic cleaning agents to clean the appliance.
- The appliance must not be installed in bedrooms, living rooms or bathrooms.
- Ensure that the appliance is not operated by children or other persons who do not use it. Ensure that children do not play with the appliance.
- The overheating safety valve and the hot water drain valve may only be operated by specialists or competent persons.
- Do not install the appliance in closed rooms.
- After maintenance or inspection of the appliance, the results must be noted on the appliance by the maintenance or inspection engineer.
- The power supply to the room must be earthed.
  The switch connected to the appliance must not be located in a room with a bath or shower.
  The closure and the closure seal must be checked.
- Explain the frost protection measures for the appliance to the user. The user can add antifreeze to the heating water circuit if the appliance is not operated for a long period in winter. Otherwise the appliance or pipes can be damaged by freezing.

## Frost protection

! **Please note**
Frost protection is only guaranteed with a reliable power supply, gas supply and sufficient heating water content.

Following installation or repairs, switch ON the power supply (MCB/fuse, mains isolator) and the control unit ON/OFF switch. Open the gas shut-off valve to ensure frost protection.

## Intended use

The appliance is only intended to be installed and operated in sealed unvented heating systems that comply with EN 12828 and CECS 215, with due attention paid to the associated installation, service and operating instructions. It is only designed for heating up heating 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).

## Notes on siting, installation and operation

- Installation, maintenance and service must be carried out by an authorised contractor.
- The boiler installation must meet the following local requirements:
  - Safety conditions for the gas supply
  - Guidelines for water supply and waste water disposal
  - Construction guidelines
- The surface temperatures of the boiler and flue system do not necessitate any safety clearances for fire protection.
- After installation, the heating contractor should mark the position of the flue system and instruct the system user about operation and the safety regulations.
- The appliance power cable and leads may only be replaced by an authorised contractor or a specialist authorised by the contractor.
- To ensure trouble-free and efficient operation, the heating system should be checked and serviced once a year by an authorised contractor.

## Symbols

| Symbol | Meaning |
|---|---|
|  | Reference to another document containing further information |
|  | Step in a diagram:<br>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. |
|  | ■ Component must audibly click into place.<br>or<br>■ Acoustic signal |
|  | ■ Fit new component.<br>or<br>■ Using a tool: Clean the surface. |
|  | Dispose of component correctly. |
|  | Dispose of component at a suitable collection point. Do **not** dispose of component in domestic waste. |

The sequences of steps for commissioning, inspection and maintenance are summarised in the section "Commissioning, inspection and maintenance" and are identified as follows:

| Symbol | Meaning |
|---|---|
|  | Steps required during commissioning |
|  | Not required during commissioning |
|  | Steps required during inspection |
|  | Not required during inspection |
|  | Steps required during maintenance |
|  | Not required during maintenance |

# Preparing for installation

## Product information

**Vitodens 100**

Preset for operation with natural gas. The Vitodens 100 may only be delivered to countries listed on the type plate. For deliveries to other countries, approved contractors must arrange individual approval on their own initiative and in accordance with the law of the country in question.

**Product description**

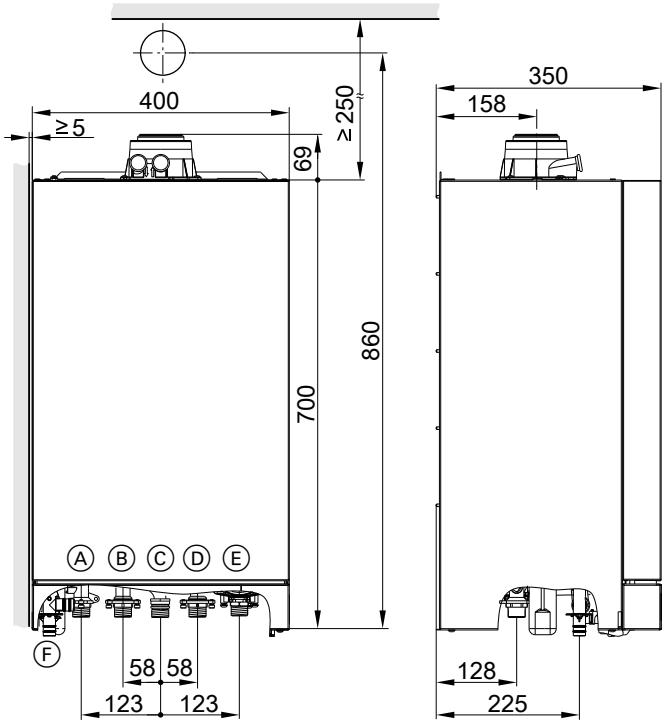
The Vitodens 100 is supplied as a gas condensing boiler for connection to a DHW cylinder, or as a gas condensing combi boiler with an integral instantaneous water heater for DHW heating.

The boiler is equipped with a hydraulic system with the following components:
- Circulation pump
- 3-way diverter valve
- Safety valve
- Diaphragm expansion vessel
- Plate heat exchanger (gas condensing combi boiler)
- Connections for heating water flow and return
- Connections for cylinder flow and return (gas condensing system boiler)
- Connections for cold water and DHW (gas condensing combi boiler)

In the delivered condition, the Vitodens 100 CC is set up for operation with a constant boiler water temperature. By connecting an outside temperature sensor, available as an accessory, the boiler can be operated in weather-compensated mode. In this case, a room temperature controller should always be connected as well. This prevents heat being generated unnecessarily, for example at night, due to the lower outside temperatures.
If a Viessmann DHW cylinder is connected, the request for cylinder heating is made via a cylinder temperature sensor. The cylinder temperature sensor is connected to the control unit.

## Preparing for installation (cont.)

### Dimensions and connections




Ⓐ Heating flow G ¾
Ⓑ Gas condensing system boiler: Cylinder flow G ¾
Gas condensing combi boiler: DHW G ½
Ⓒ Gas connection G ¾
Ⓓ Gas condensing system boiler: Cylinder return G ¾
Gas condensing combi boiler: Cold water G ½
Ⓔ Heating return G ¾
Ⓕ Condensate drain/safety valve drain: Plastic hose ∅ 22 mm

## Preparing for installation (cont.)

## Preparing for boiler installation

### Preparing the connections

! **Please note**
To prevent appliance damage, connect all pipework free of load and torque stress.

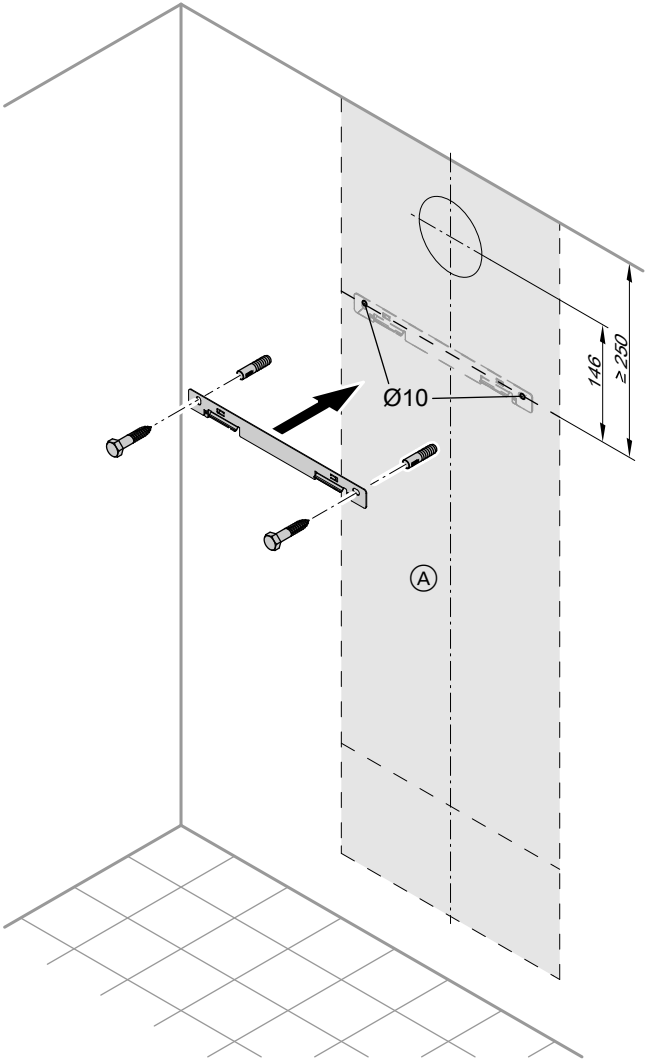
1. Prepare the water connections.
   Flush the heating system.

2. Prepare the gas connection.

3. Prepare the electrical connections.
   - The appliance is delivered fitted with a 1.3 m long (outside the boiler) power cable NYM-J 3 x 1.5 $mm^2$ with plug.
   - Cables for accessories: NYM-O 2-core min. 0.5 $mm^2$ or 2-core LV lead.

## Mounting the boiler and making connections

### Fitting the wall mounting bracket



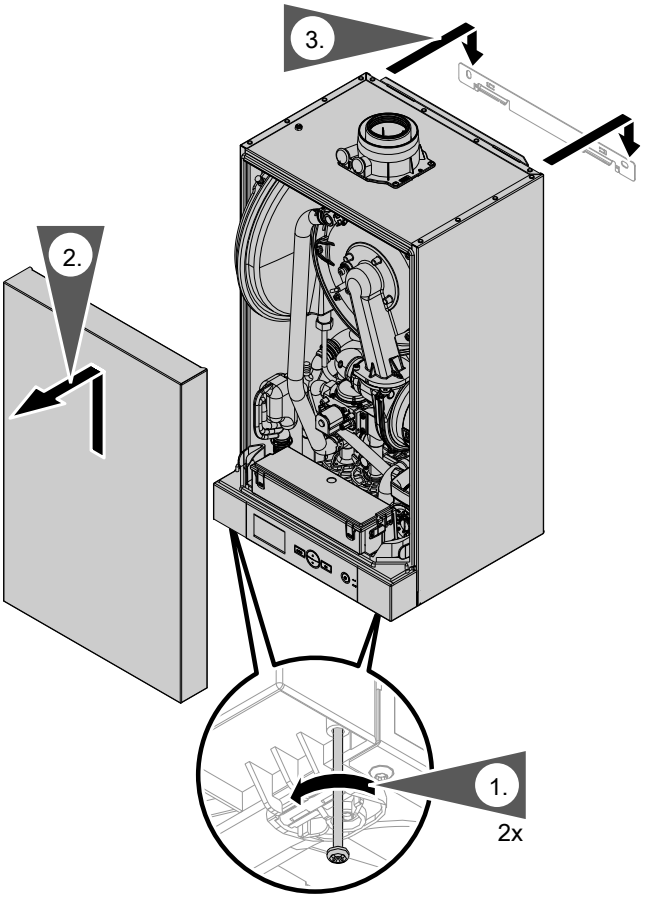

Ⓐ Vitodens installation template

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

1. Position the supplied installation template on the wall.
2. Mark out the rawl plug holes.
3. Drill ∅ 10 mm holes and insert the rawl plugs supplied.
4. Fit the wall mounting bracket with the screws supplied.

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

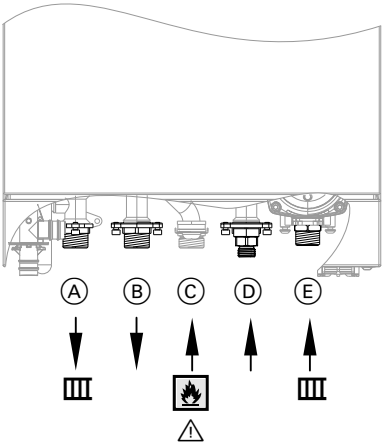
### Removing the front panel and mounting the boiler




1. Undo the screws on the underside of the boiler; do not remove them completely.
2. Remove front panel.
3. Hook the boiler into the wall mounting bracket.

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

### Fitting connections on water side




Ⓐ Heating flow
Ⓑ Gas condensing system boiler: Cylinder flow
Gas condensing combi boiler: DHW
Ⓒ Gas connection
Ⓓ Gas condensing system boiler: Cylinder return
Gas condensing combi boiler: Cold water
Ⓔ Heating return

**Fitting the connection set**

Connection set installation instructions



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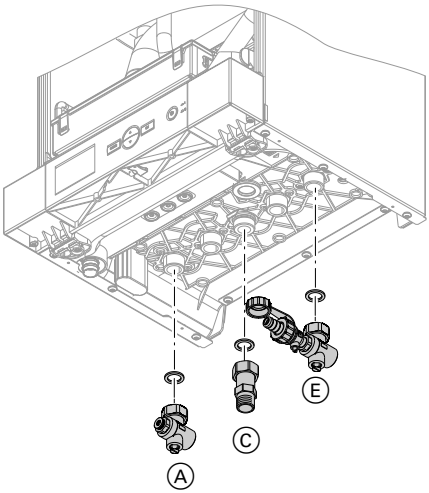
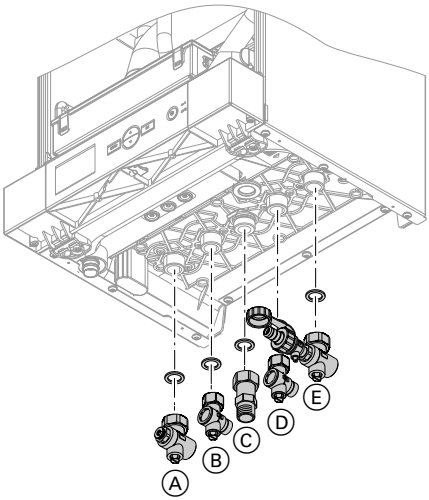
## Mounting the boiler and making connections (cont.)

**Connection set for gas condensing boiler (accessories)**



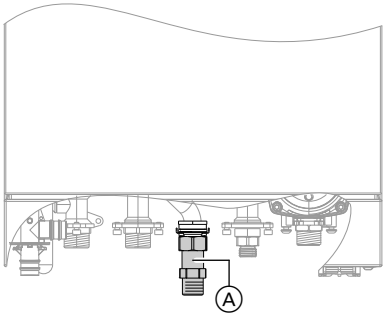

**Connection set for gas condensing combi boiler (accessories)**






## Gas connection

- Gas supply pressure: 15 - 30 mbar (1.5 - 3.0 kPa)
- Set value: 20 mbar (2.0 kPa)




1. Connect the gas shut-off valve (on-site) to adaptor Ⓐ.

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

2. Carry out a tightness test.

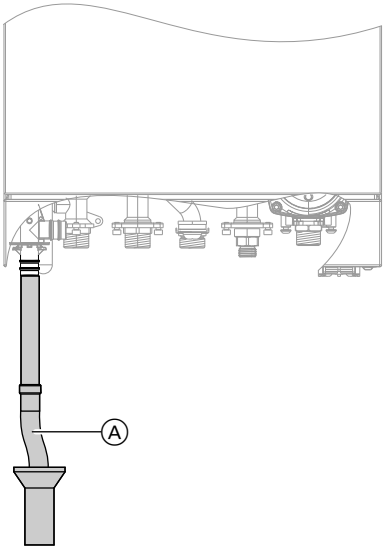
   ***Note***
   *Only use suitable and approved leak detection agents (EN 14291) and devices for the tightness test. Leak detection agents with unsuitable constituents (e.g. nitrides, sulphides) can cause material damage.*
   *Remove residues of the leak detection agent after testing.*

   **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.

3. Purge the gas line.

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

### Connecting the safety valve and condensate drain

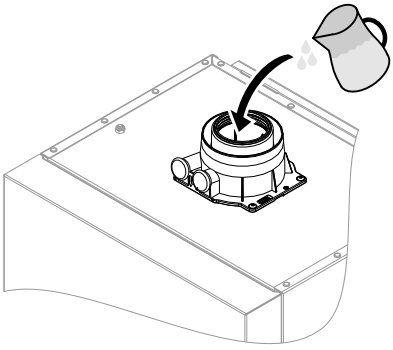



Connect condensate pipe Ⓐ to the public sewage system with a constant fall and a pipe vent.

Treating and draining off condensate:
- A neutralising system is available as an accessory on request.
- Do not drain condensate that has not been neutralised through pipes made from steel or other metallic materials.
- Do not close off the condensate pipe or change its position.
- Observe local rules and waste water regulations for draining off condensate.

***Note***
*Fill the trap with water before commissioning.*

### Filling the trap with water

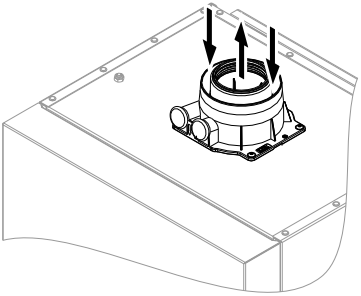


Pour at least 0.3 l of water into the flue gas connection.

**Please note**
During commissioning, flue gas may escape from the condensate drain.
Always fill the trap with water before commissioning.

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

## Balanced flue connection



### General installation information

***Note***

- *The boiler may only be operated with a balanced flue system of ∅ 60/100 mm.*
- *The balanced flue system must be **at least 1 m** long, incl. 90° bend.*

**!** **Please note**
If a single flue pipe is used, the boiler has no protection against splashing water.
Only connect a concentric balanced flue pipe or balanced flue bend of ∅ 60/100 mm to the boiler.

### Design

Prior to installation, check that the maximum possible pipe length of 5 m will not be exceeded.

### Flue gas temperature protection

The flue pipes are approved for flue gas temperatures up to 120 °C.

The shutdown threshold of the integral flue gas temperature sensor is 110 °C maximum, so that the maximum permissible flue gas temperature cannot be exceeded. This shutdown threshold cannot be changed.

### Installation information

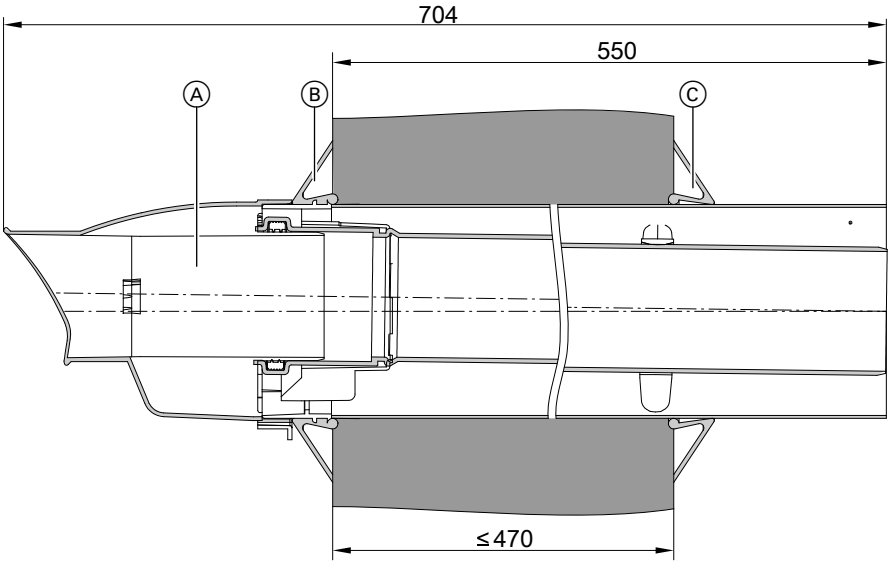
- Keep flue gas routes short and with the fewest number of bends possible.
- Check whether the gaskets in all female connections are correctly seated.
- Use only the special gaskets supplied with the boiler.
- Plug-in female connections in the flue must always point in the flow direction.
- Only use the components supplied with the PPs flue system.
- Push the pipes into each other with a slight twisting motion.
- Balanced flue pipes can be trimmed in their assembled state.

### Certification of the balanced flue system

The balanced flue system is CE designated and approved (see Vitodens flue systems technical guide).

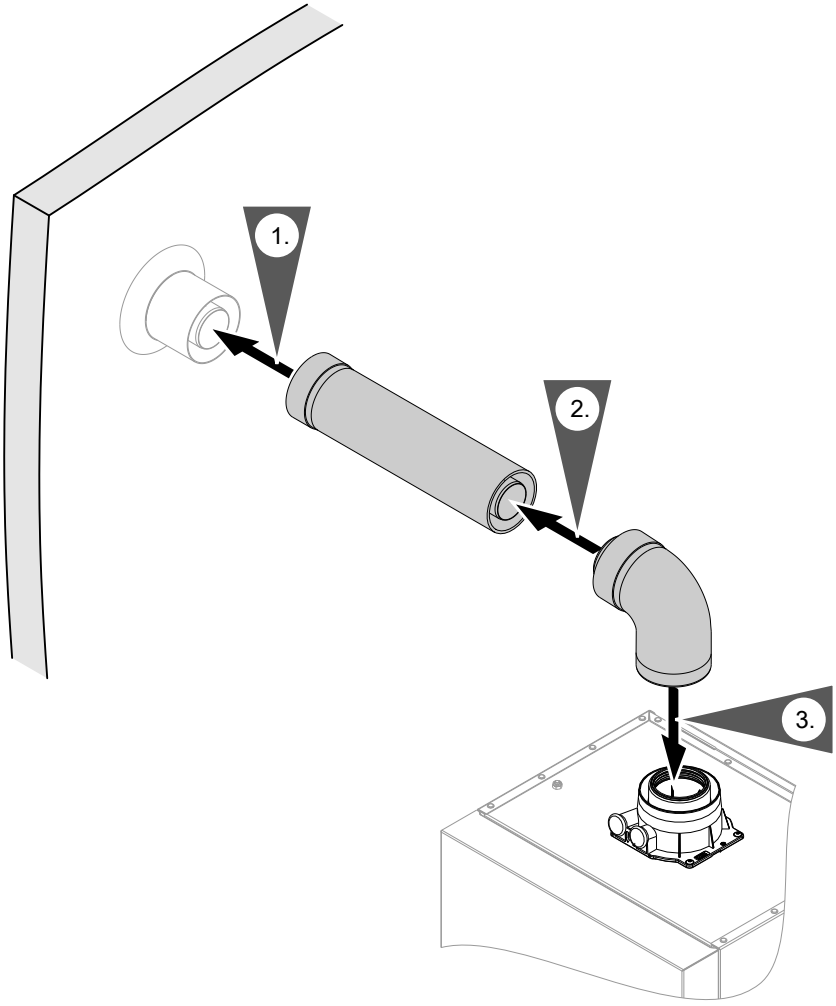
## Mounting the boiler and making connections (cont.)

### Installing a flue system for external wall connection




1. Create a wall opening with a min. diameter of 105 mm.
2. Push external wall connection Ⓐ with wall bezel Ⓑ into the wall opening.
3. Secure wall bezel Ⓒ internally.
4. If the external wall connection terminates near public roads up to a height of 2 m above ground level, fit a protective grille.

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




**5.** Connect the balanced flue connection pipe from the inside and route with a fall of min. 3° (approx. 50 mm/m) towards the boiler in order to prevent condensate escaping to the outside.

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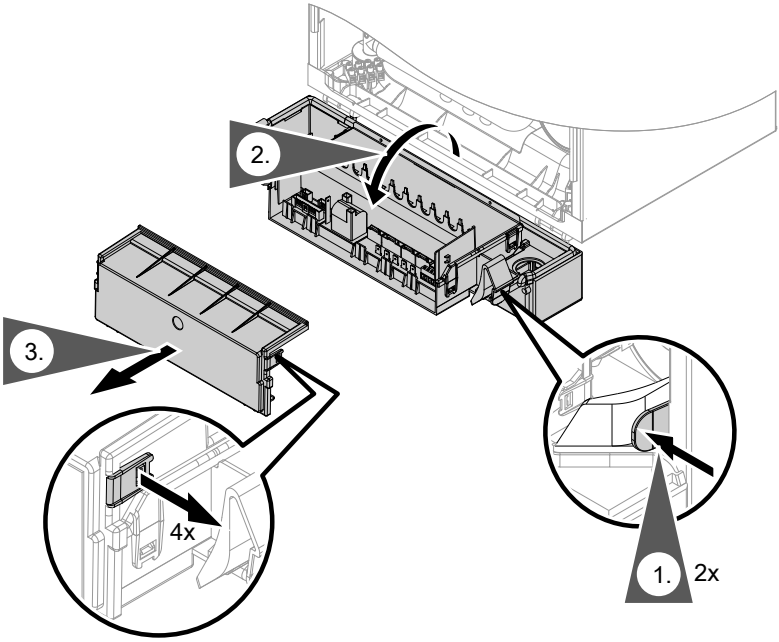
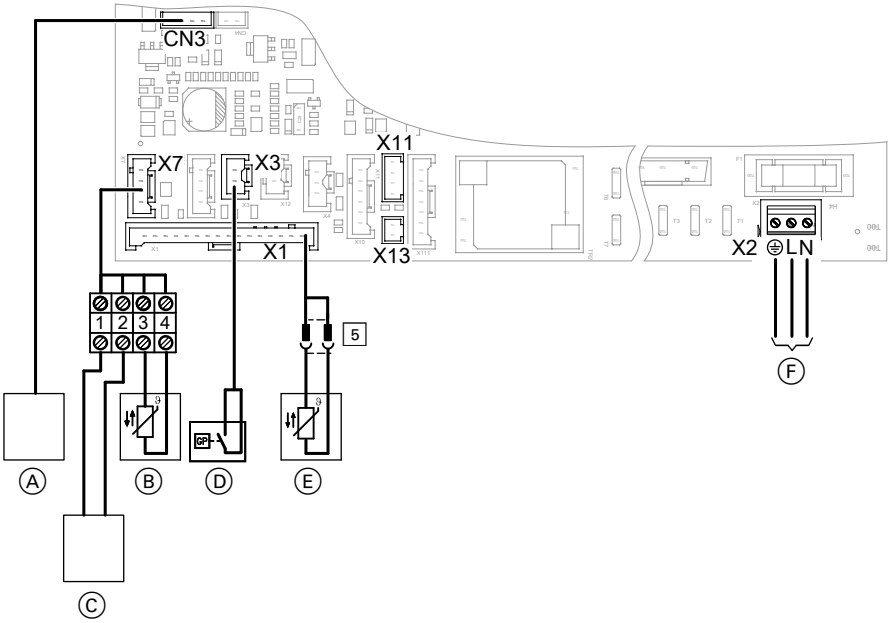
## Opening the control unit enclosure




**Please note**
Electronic assemblies can be damaged by electrostatic discharge.

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

## Electrical connections




CN3 Ext. extension AUX 900101 Ⓐ (accessories)

X1 Cylinder temperature sensor Ⓔ (only for gas system boilers)

X2 Power supply Ⓕ (230 V, 50 Hz)
A power cable with plug is connected in the delivered condition.

X3 Gas pressure switch Ⓓ (accessories)

X7 Connecting cable (accessories) with
- Ⓑ Room/outside temperature sensor (accessories part no. 7554227)
  or
- Ⓒ OpenTherm room temperature controller (accessories, e.g. Vitotrol 100 OT and Vitotrol 100 UTDB)

X11 WLAN module (internet inside)

X13 Power supply WLAN module (internet inside)

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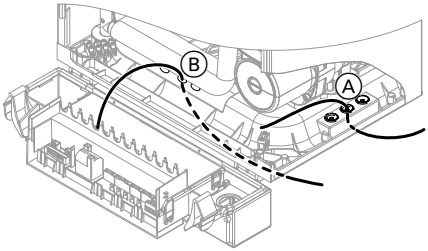
## Electrical connections (cont.)

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

### Cable entry




Ⓐ Room temperature controller connecting cable
Ⓑ LV leads (sensor leads)

### Outside temperature sensor or room temperature sensor (accessories)

**1.** Fit the temperature sensor.

Outside temperature sensor installation location:
- North or north-westerly wall, 2 to 2.5 m above ground level. In multi storey buildings, in the upper half of the second floor
- Not above windows, doors or vents
- Not immediately below balconies or gutters
- Never render over
- Connection:
  2-core lead for low voltage, length up to 35 m

**2.** Plug the connecting cable supplied into slot "X7".

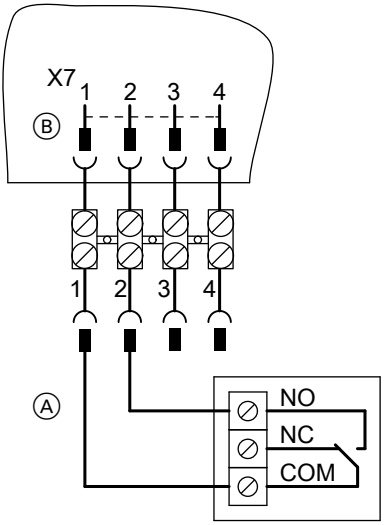
**3.** Connect the temperature sensor to terminals 3 and 4 (see page 26).

**4.** Set the function of the sensor at the control unit during commissioning (see page 41).

***Note***
*For function description see page 81.*

## Electrical connections (cont.)

### Connection Vitotrol 100, type UTDB



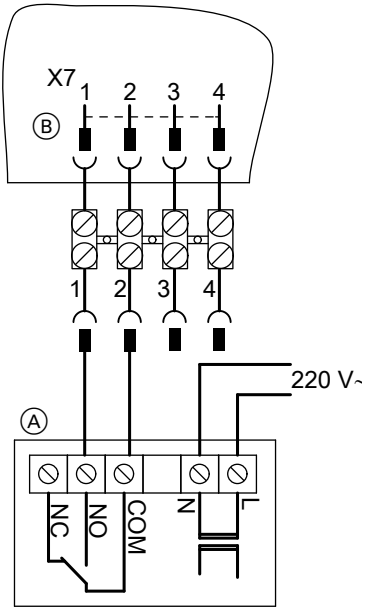

***Note***
*Observe parameter "P07", see page 58.*

Recommended connecting cable
- 2-core cable for low voltage

Ⓐ Vitotrol 100, type UTDB
Ⓑ Terminals on the control unit

## Electrical connections (cont.)

### Connection Vitotrol 100, type UTDB-RF



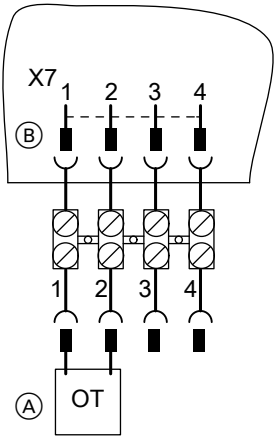

***Note***
*Observe parameter "P08", see page 59.*

Recommended connecting cable
- 2-core cable for low voltage

Ⓐ Vitotrol 100, type UTDB-RF
Ⓑ Terminals on the control unit

## Electrical connections (cont.)

### Connection OpenTherm accessories




***Note***
*Observe parameter "P07", see page 58.*

Recommended connecting cable
- 2-core cable for low voltage

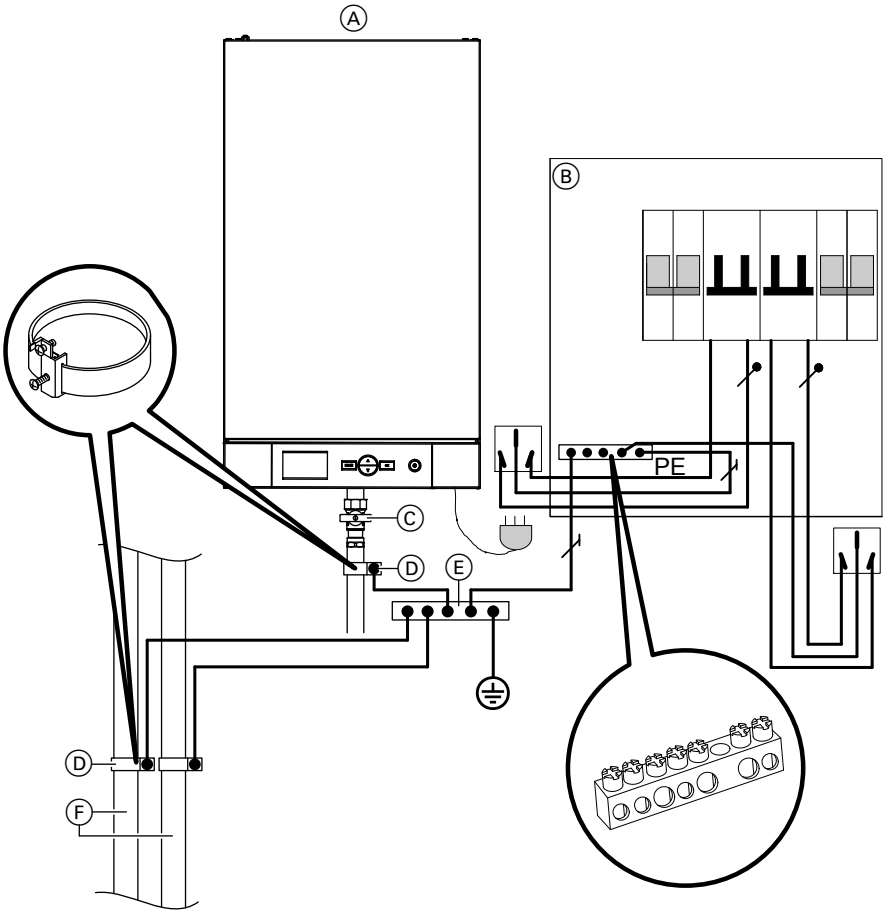
Ⓐ OpenTherm accessories
Ⓑ Terminals on the control unit

### Connecting system to equipotential bonding of the building

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

The appliance and pipework (especially the gas line) must be connected to the equipotential bonding of the building.

## Electrical connections (cont.)




Ⓐ Boiler
Ⓑ Domestic distribution box
Ⓒ Gas line
Ⓓ Earthing clip
Ⓔ Equipotential bonding bar
Ⓕ Metal pipes

Cross-section of earth cables and earth conductors: 2.5 $mm^2$ to 6 $mm^2$

## Electrical connections (cont.)

## Power supply

**Regulations and directives**

**Danger**
Incorrectly executed electrical installations can result in injuries from electrical current and damage to the appliance.

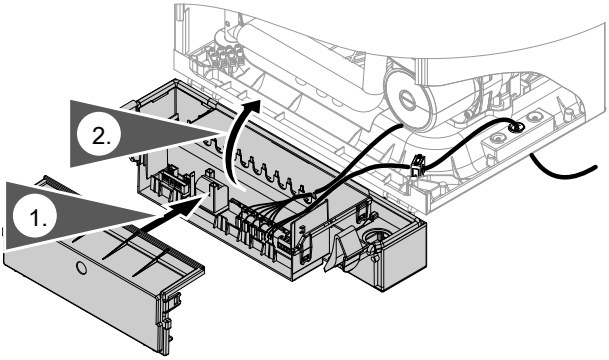
Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- National regulations:
  GB13955-2005
  GB50096-2011
  GB50575-2010
- Connection requirements specified by your local power supply utility

Power supply to boiler:
- Protect with a fuse/MCB of up to 16 A.
- Install residual current device (RCD).
- Fit a secure earth connection.
- Install in a securely mounted junction box.

## Routing cables/leads and closing the control unit enclosure

**Please note**
Connecting cables/leads will be damaged if they touch hot components.

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

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## Steps - commissioning, inspection and maintenance

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

| Commissioning steps | Inspection steps | Maintenance steps | | Page |
|---|---|---|---|---|
| • | • | • | **1. Filling the heating system** | 35 |
| • | | | **2. Setting the time and date** | 40 |
| • | | | **3. Making the settings for operation with outside temperature sensor or room temperature sensor** | 41 |
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| | • | • | **15. Installing the burner** | 51 |
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| • | • | • | **17. Checking all connections on the heating water and DHW sides for leaks** | |
| • | • | • | **18. Checking the flue system for unrestricted flow and leaks** | |
| • | • | • | **19. Checking the electrical connections for firm seating** | |
| • | • | • | **20. Checking gas equipment for leaks at operating pressure** | 53 |

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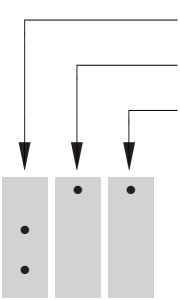
## Steps - commissioning, inspection and… (cont.)



Commissioning steps

Inspection steps

Maintenance steps



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## Further details regarding the individual steps

### Filling the heating system

**Fill water**

**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 use water of potable water quality. The total concentration of calcium $Ca_{2+}$ and magnesium $Mg_{2+}$ in the fill water must not exceed **450 mg/l**.
- In areas with water hardness > 450 mg/l a water softening system must be installed.
- Small softening systems for heating water are available from Viessmann.
- The pH value of the fill water should be between 6.5 and 8.5.
- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.
- When using a means of water treatment, always use products from the following manufacturers:
  - Fernox (www.fernox.com)
  - Scalemaster (www. scalemaster.co.uk)
  - Calmag (www.calmagltd.com)
  - Sentinel (www.sentinel-solutions.net)

1. Check the pre-charge pressure of the diaphragm expansion vessel (see page 52).

2. Close the gas shut-off valve.

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

**3.** Turn ON the system ON/OFF switch on the control unit.

If the system pressure is too low, the pressure will be shown on the main display after a short time:
- Display **"06"** flashing: System pressure < 0.03 MPa – top up with water
- Pressure display **"0.03"** - **"0.08 MPa"** flashing: Top up with water

**4.** Display of current system pressure during the filling process:
- System pressure < 0.08 MPa: System pressure between 0.03 and 0.08 MPa: Pressure is automatically shown on the display. System pressure > 0.1 MPa: Pressure is displayed for a further minute. (Pressing **OK** prematurely deactivates the pressure display.)
- System pressure > 0.08 MPa: Use ▲/▼ to select **"IF00"** to activate the pressure display.


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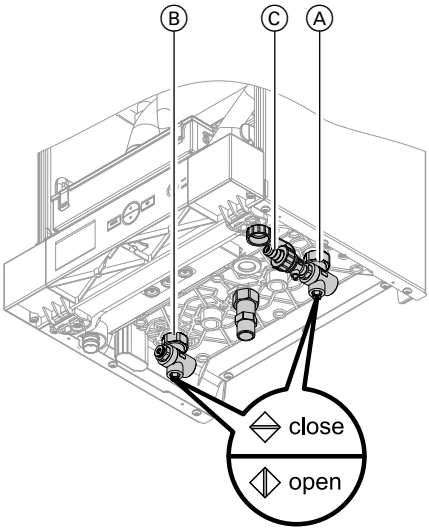
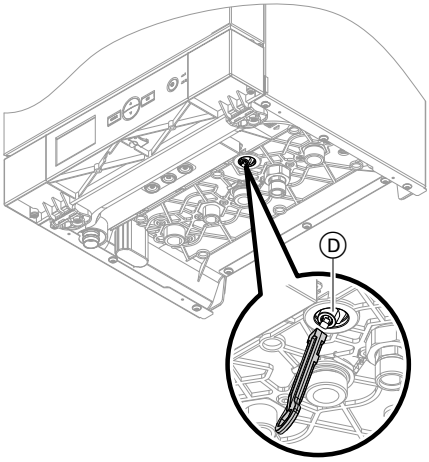
## Further details regarding the individual steps (cont.)




**5.** Open shut-off valves Ⓐ and Ⓑ (if fitted).




**6.** Fill the heating system:
- Gas condensing system boiler: Via fill valve Ⓒ in the connection set (if supplied) or via on-site fill valve.
- Gas condensing combi boiler: Via fill valve Ⓒ in the connection set (if supplied) or alternatively via fill valve Ⓓ on the underside of the boiler.

**Minimum system pressure > 0.08 MPa**.
Enter the measured value in the enclosed "Guarantee card".

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

7. **Please note**
   If the system pressure falls below 0.08 MPa, the circulation pump will suffer damage.
   In the event of a pressure drop immediately top up the water.
   Ensure a **minimum system pressure of > 0.08 MPa** during the filling and venting process.

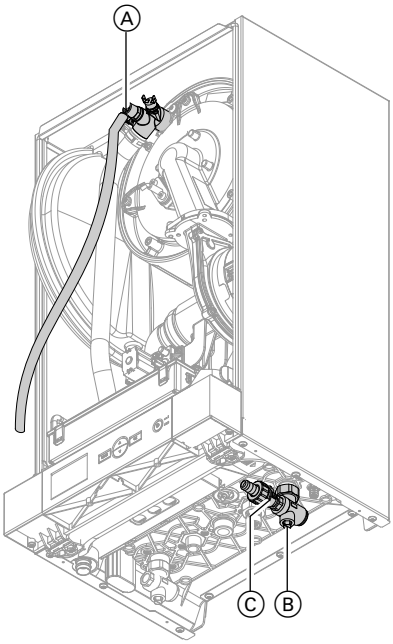
8. For activating the filling and venting function, see next chapter.

9. After the system has been fully charged and vented, turn OFF the ON/OFF switch at the control unit. The function will also terminate automatically after 30 min.

10. Close the fill valve.

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

### Venting the boiler by flushing




1. Connect the drain hose fitted at shut-off valve Ⓐ to a drain connection.
2. Close shut-off valve Ⓑ.
3. Open valves Ⓐ and Ⓒ and flush at mains pressure until no sound of escaping air can be heard.
4. First close valve Ⓐ and after that valve Ⓒ.
5. Adjust the operating pressure ≥ 0.8 bar (80 kPa) with valve Ⓒ.
6. Open shut-off valve Ⓑ.
7. Disconnect drain hose and keep safe.

### Activating the filling and venting function

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** is displayed.
   - 🔧 flashes.
   - **"PL:1"** is shown on the additional display.
2. Press **MODE**.
3. Use ▲/▼ to select **"P02"**.
4. **OK** to confirm
5. Use ▲ to select **"On"**.
6. **OK** to confirm
7. Press **MODE** to exit the menu.



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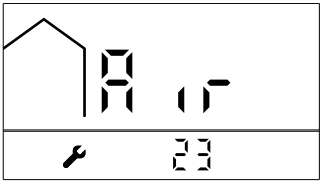
## Further details regarding the individual steps (cont.)

Filling and venting function is active:

- **"Air"**, and the remaining time in minutes for the process are displayed.



- The circulation pump runs continuously.
- The 3-way valve is switched to its central position. This ensures the entire heating system is filled.
- The burner is switched off.

## Setting the time and date

1. Hold down **MODE** and ▼ simultaneously for approx. 5 s.
   **"SEt"** and ◷ flash.
2. Press **MODE**.
3. Use ▲/▼ to select 12 or 24 hour mode.
4. **OK** to confirm
5. Use ▲/▼ to select the current hour.
6. **OK** to confirm
7. Use ▲/▼ to select the current minute.
8. **OK** to confirm
9. Use ▲/▼ to select the current day of the week.
   Meaning: **d.1** = Monday ... **d.7** = Sunday
10. **OK** to confirm
11. Use ▲/▼ to select the current month.
12. **OK** to confirm
13. Use ▲/▼ to select the current day.
14. **OK** to confirm
15. Use ▲/▼ to select the current year.
16. **OK** to confirm
    The default display appears.

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

### Making the settings for operation with outside temperature sensor or room temperature sensor

If an outside temperature sensor or room temperature sensor has been connected to the control unit:
Set the function at the control unit.

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** and 🔧 flash
   - **"PL:1"** is shown on the additional display
   - $^{1}$ is shown in the upper display area
2. Press **MODE**.
3. Use ▲/▼ to select **"P10"**.
4. **OK** to confirm
5. Use ▲/▼ to select access code **2** for parameter level 2.
6. **OK** to confirm
   - **"PL:2"** is shown on the additional display
   - $_{2}$ is shown in the upper display area
7. **MODE** to confirm
8. Use ▲/▼ to select **"P14"**.
9. **OK** to confirm
10. Use ▲/▼ to select the function.
    - Outside temperature sensor: **"OTC"**
    - Room temperature sensor: **"RTC"**
11. **OK** to confirm
12. **MODE** to exit the parameter level.

### Activating/deactivating WLAN module

**Connect control unit to WLAN**

If the system user wishes to access the heating system with a mobile device, activate the integrated WLAN module.

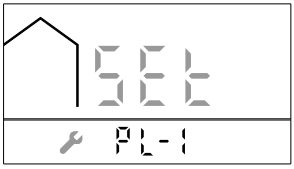
**Activate WLAN module via key combination**

Press and hold **MODE**, ▲ and **OK** at the same time for at least 5 seconds until **"ON"** or **"OFF"** appears on the display. Release the buttons and the change will be accepted.

**Activate WLAN module via menu**

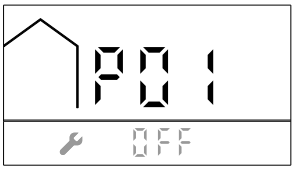
**Press the following buttons:**

1. Press and hold **MODE** and ▲ at the same time for at least 5 seconds until the following display appears:



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

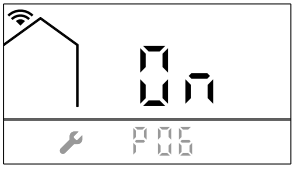
2. Press **MODE** within 5 seconds until the following display appears:




3. ▲ until **P06** is displayed.

4. **OK** to confirm

5. ▲/▼ for ON.
Symbol ᯤ is displayed.




6. **OK** to confirm

7. **MODE**, to exit the settings mode.

**Fault messages during activation**
(ᯤ and ᛋ flashing)
- **H01**: Internal error
- **H02**: Internal error
- **H03**: Excess temperature WLAN module

**Connecting the heating system to WLAN and the Viessmann server**

Register the heating system on the Viessmann server via the relevant app.

Display shows:
- The message **"COnn"** is displayed while the connection is being established
- If the WLAN module fails to register on the router, **"FAIL"** is displayed.
- When the WLAN module registers successfully on the router, **"PASS"** is displayed.
- If the WLAN module is active in access point mode, **"AP"** is displayed.

**Faults during operation**

ᯤ and ᛋ flash and **"FAC"** is displayed: Connection fault between WLAN module and control unit.
If faults occur when connecting to the internet, ᯤ and ᛒ flash together.

For more information, see messages in the app.

## Making the settings for operation with external extension

If an external extension has been connected to the control unit:
Set the function at the control unit.

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.

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

- **"SEt"** and flash
- **"PL:1"** is shown on the additional display
- 1 is shown in the upper display area

2. Press **MODE**.
3. Use ▲/▼ to select **"P10"**.
4. **OK** to confirm
5. Use ▲/▼ to select access code **2** for parameter level 2.
6. **OK** to confirm
   - **"PL:2"** is shown on the additional display
   - 2 is shown in the upper display area
7. **MODE** to confirm
8. Use ▲/▼ to select **"P27"**.
9. **OK** to confirm
10. Use ▲/▼ to select **"On"**.
11. **OK** to confirm
12. **MODE** to exit the parameter level.

- If communication between the control unit and the extension is working, flash simultaneously.
- If communication between the control unit and the extension is faulty, flash alternately. Fault **"CC"** is shown.
  Repeat the steps and set value **"OFF"** in **"P27"**. Then repeat the steps once more and select value **"On"** again.

The functions of the external extension are set in **"P40"** to **"P49"**.

Installation and service instructions
External extension

## Switching off DHW heating

If the boiler is to be operated without DHW heating (conventional gas boiler): Switch off the function at the control unit.

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** and flash
   - **"PL:1"** is shown on the additional display
   - 1 is shown in the upper display area
2. Press **MODE**.
3. Use ▲/▼ to select **"P10"**.
4. **OK** to confirm
5. Use ▲/▼ to select access code **2** for parameter level 2.
6. **OK** to confirm
   - **"PL:2"** is shown on the additional display
   - 2 is shown in the upper display area
7. **MODE** to confirm

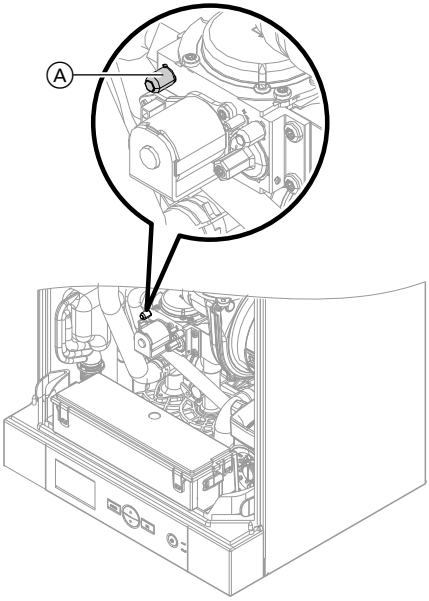
## Further details regarding the individual steps (cont.)

8. Use ▲/▼ to select **"P13"**.
9. **OK** to confirm
10. Use ▲/▼ to select **"On"**.
11. **OK** to confirm
12. **MODE** to exit the parameter level. DHW heating and all functions associated with it are deactivated.

***Note***
*If DHW heating is to be activated again, set value **"OFF"**.*

## Checking the static pressure and supply pressure

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




1. Close the gas shut-off valve.
2. Undo screw Ⓐ 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. 30 mbar (3.0 kPa)
5. Start the boiler.

   ***Note***
   *During commissioning, the appliance can enter a fault state because of airlocks in the gas line. After approx. 5 s, press RESET to reset the burner:*
   *Press **MODE** and **OK** simultaneously and hold until flashes.*
6. Check the supply (flow) pressure.
   Set value: 20 mbar (2.0 kPa)

   ***Note***
   *Use a suitable measuring device with a resolution of at least 0.1 mbar (0.01 kPa) to check the supply pressure.*
7. Implement measures as indicated in the table below.

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

8. Shut down the boiler and close the gas shut-off valve. Remove the pressure gauge and seal test connector Ⓐ with screw.

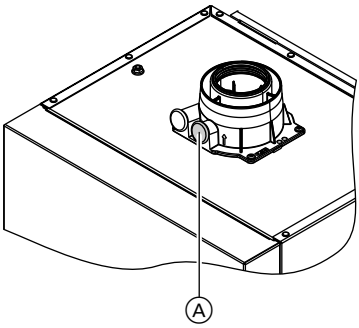
9. Open the gas shut-off valve and start the appliance.

**Danger**
Gas escaping from the test connector leads to a risk of explosion.
Check gas tightness at test connector Ⓐ.

| Supply pressure (flow pressure) | Measures |
|---|---|
| Below 15 mbar (1.5 kPa) | Do not commission the appliance, and notify the gas supply utility. |
| 15 to 30 mbar (1.5 - 3.0 kPa) | Start the boiler. |
| Above 30 mbar (3.0 kPa) | Connect the separate gas pressure governor upstream of the system and set the pre-charge pressure to 20 mbar (2.0 kPa). Notify the gas supply utility. |

## Checking the $CO_2$ content

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



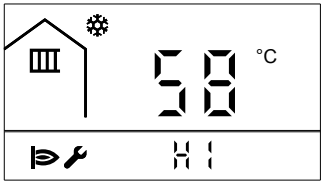

1. Connect a flue gas analyser at flue gas port Ⓐ on the flue bend.

2. Start the boiler and check all gas equipment for leaks.

**Danger**
Escaping gas leads to a risk of explosion.
Check gas equipment for leaks.

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

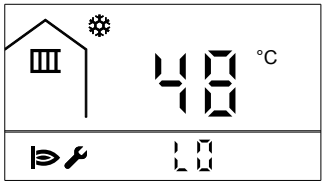
**3. Setting the upper heating output**
Ensure heat is being drawn off by the heating system.
1. Press **MODE** and ▲ simultaneously and hold for approx. 5 s
   - **"SEt"** is displayed
   - 🔧 flashes
   - **"PL:1"** is shown on the additional display
2. Press **MODE**
   **"P01"** is shown on the additional display
3. **OK** to confirm
4. Use ▲ to select **"ON"**
5. **OK** to confirm
6. Press **MODE**
   **"LO"** is shown on the additional display
7. Use ▲/▼to select **"HI"**
   The burner now operates at the upper heating output




***Note***
*Operation with the upper or lower rated heating output is automatically reset after approx. 30 min, or press **MODE** and **OK** simultaneously and hold until 🔧 flashes.*

**4.** Measure the $CO_2$ content for the upper heating output.
The $CO_2$ content must be between 7.0 and 10.5 %.

**5. Select the lower heating output:**
Use ▲/▼ to switch directly between the upper and lower heating output.
**"LO"** and 🔧 are displayed.




**6.** Measure the $CO_2$ content for the lower heating output.
The $CO_2$ content must be between 0.3 and 0.9 % below the value of the upper heating output.

**7.**
- If the $CO_2$ content is within the indicated range, continue with point 9.
- If the $CO_2$ content is **not** within the indicated range, check the balanced flue system for tightness; remedy any leaks.
  Replace the gas train if required.

**8.** Measure the $CO_2$ content for the upper and lower heating output again.

**9.** Shut down the boiler, remove the flue gas analyser and close flue gas test port Ⓐ.

**Danger**
Flue gas can lead to life threatening poisoning.
It is essential to close the port again with the plug.

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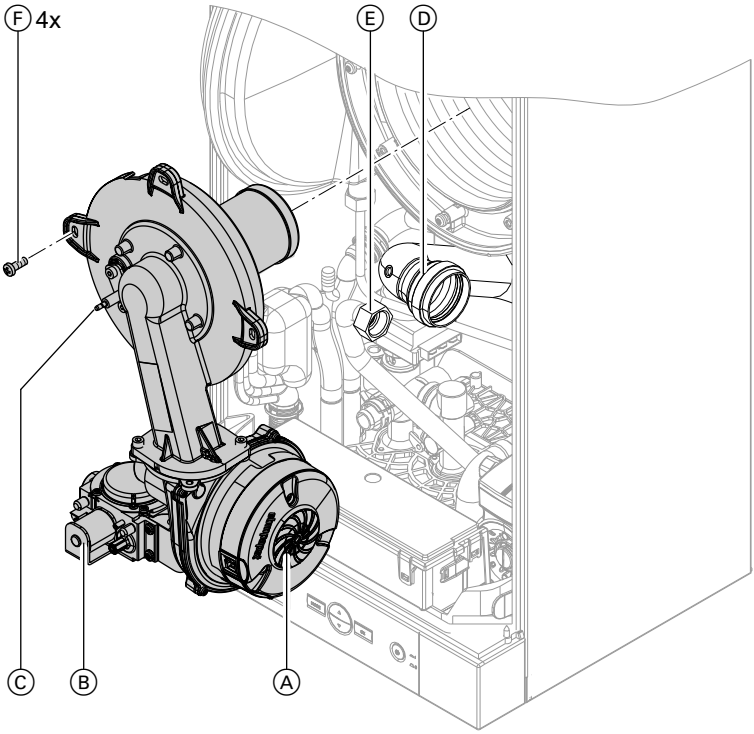
## Further details regarding the individual steps (cont.)

### Limiting the maximum heating output

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** and 🔧 flash.
   - **"PL:1"** is shown on the additional display.
2. Press **MODE**.
3. Use ▲/▼ to select **"P03"**.
4. **OK** to confirm
5. Use ▲/▼ to set the max. heating output in % of the upper rated heating output.
   Setting range 40 to 100 %
6. **OK** to confirm
7. **MODE** to exit the parameter level.

### Removing the burner




1. Switch OFF the power supply.
2. Shut off the gas supply.

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

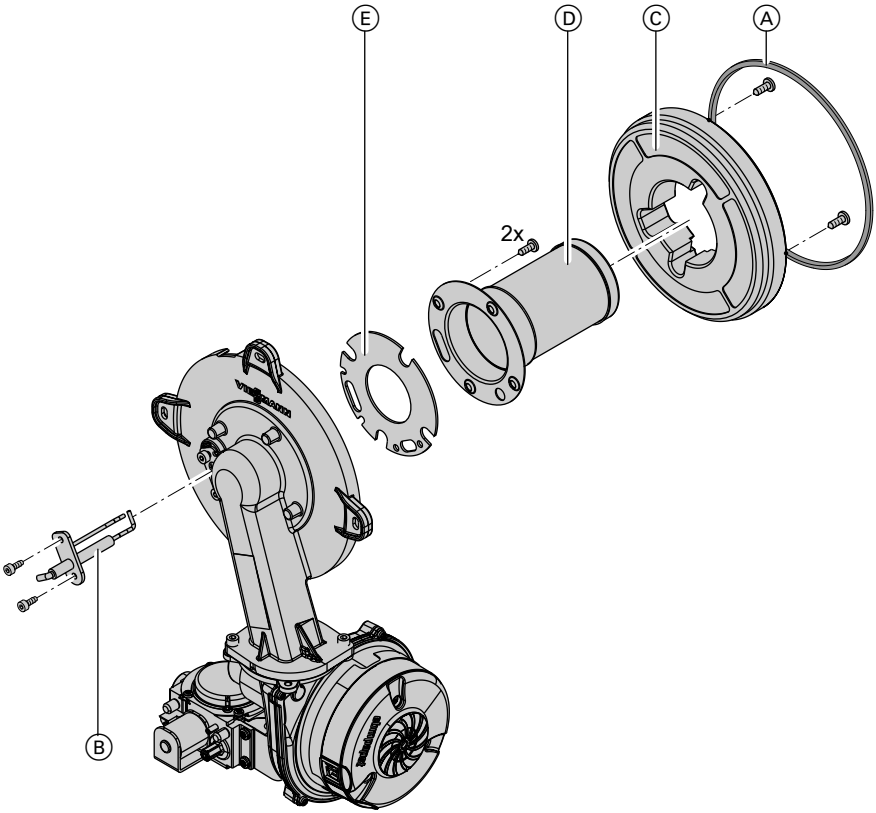
3. Disconnect the cables from fan motor Ⓐ, gas train Ⓑ and electrodes Ⓒ.
4. Disconnect Venturi extension Ⓓ from the fan.
5. Undo gas supply pipe fitting Ⓔ.
6. Undo 4 screws Ⓕ and remove the burner.

**Please note**
To prevent damage, never rest the burner on the burner gauze assembly.

## Checking the burner gasket and burner gauze assembly

Check burner gasket Ⓐ for damage and replace if necessary.

Replace the burner gauze assembly if it is damaged.

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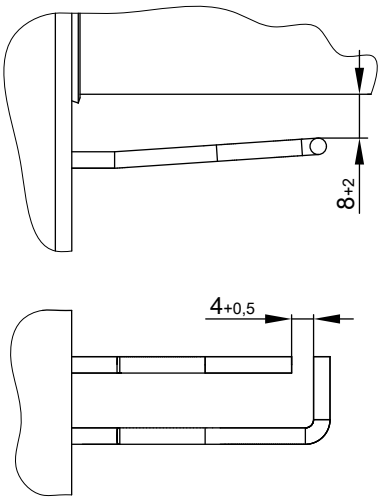
## Further details regarding the individual steps (cont.)

1. Remove electrode Ⓑ.
2. Undo 2 Torx screws and remove thermal insulation ring Ⓒ.
3. Undo 2 Torx screws and remove burner gauze assembly Ⓓ with gasket Ⓔ.
4. Insert and secure new burner gauze assembly Ⓓ with new gasket Ⓔ.
   Torque for fixing screws: 3.5 Nm
5. Mount thermal insulation ring Ⓒ.
   Torque for fixing screws: 3.5 Nm
6. Fit electrode Ⓑ.
   Torque for fixing screws: 4.5 Nm

## Checking and adjusting the electrode




1. Check the electrode for wear and contamination.
2. Clean the electrode with a small brush (not a wire brush) or emery paper.
3. Check the electrode gaps. If the gaps are not as specified or the electrode is damaged, replace the electrode and gasket and align. Tighten the electrode fixing screws to a torque of 4.5 Nm.

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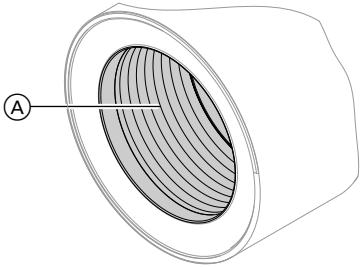
## Further details regarding the individual steps (cont.)

### Cleaning the heat exchanger

**Please note**
Scratches to the surfaces of the heat exchanger that come into contact with hot gas can result in corrosion damage. Brushing can cause deposits to become lodged in the gaps between the coils.
**Never use brushes to clean the heating surfaces.**

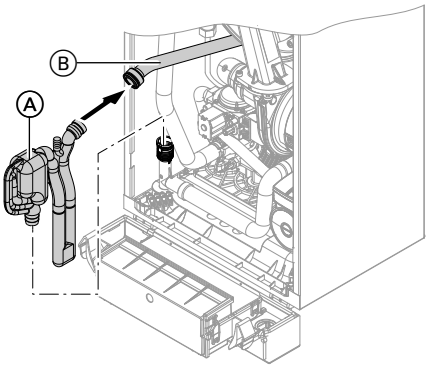
**Please note**
Prevent damage due to cleaning water.
Cover the control unit with suitable watertight material.

***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 Ⓐ of the heat exchanger.
2. Flush heating surface Ⓐ with water.
3. Check condensate drain. Clean the trap: See the following chapter.
4. Flush the heating surface again with water. This will also fill the trap with water.

### Condensate drain check and trap cleaning




1. Pull trap Ⓐ upwards out of the drain connection.
2. Remove supply hose Ⓑ from trap Ⓐ.
3. Clean trap Ⓐ.
4. Refit supply hose Ⓑ.
5. Refit trap Ⓐ to the drain connection.

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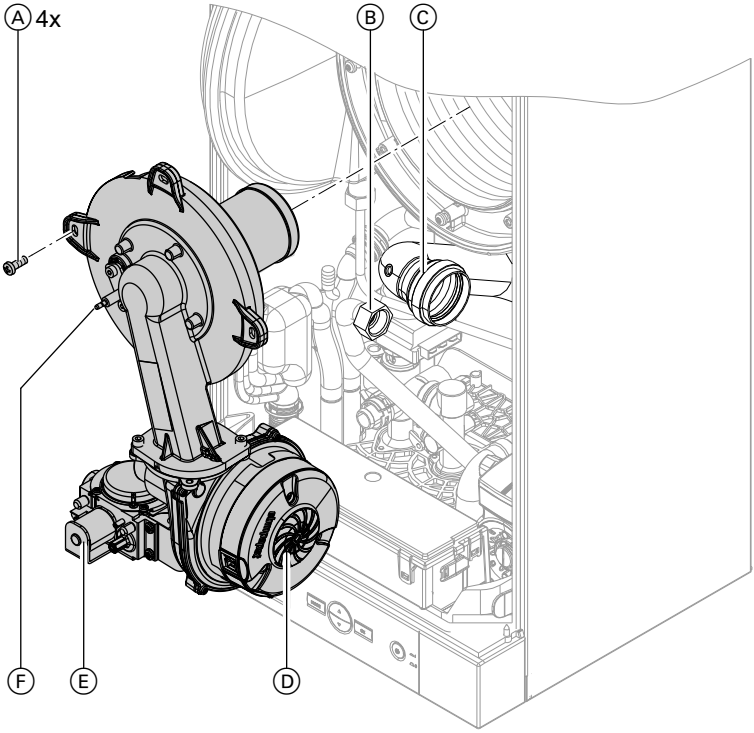
## Further details regarding the individual steps (cont.)

6. Fill trap Ⓐ with water. For this, pour approx. 0.3 l of water into the combustion chamber.

7. Check that condensate can drain freely and that the connections are tight.

### Installing the burner




1. Fit the burner and diagonally tighten 4 screws Ⓐ to a torque of 8.5 Nm.

2. Insert new gasket. Secure the fitting of gas supply pipe Ⓑ.

3. Refit Venturi extension Ⓒ to the fan.

4. Fit the cables to fan motor Ⓓ, gas train Ⓔ and ignition unit Ⓕ.

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

5. Re-establish gas supply. Switch ON the power supply.

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 block the diaphragm opening on the gas valve.

## Checking the diaphragm expansion vessel and system pressure

Carry out this test on a cold system.

1. Switch ON the control unit. Close the gas shut-off valve.

2. Use ▲/▼ to select **"IF00"**
The main display shows the current pressure in MPa.

3. Drain the system or close the cap valve on the expansion vessel and reduce the pressure until 0 MPa is shown.

4. 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 0.01 to 0.02 MPa higher than the static system pressure.

5. Top up with water (see page 35) until the charge pressure of the cooled system is at least 0.08 MPa, and is 0.01 to 0.02 MPa higher than the pre-charge pressure of the expansion vessel.
Permiss. operating pressure:
(0.3 MPa)

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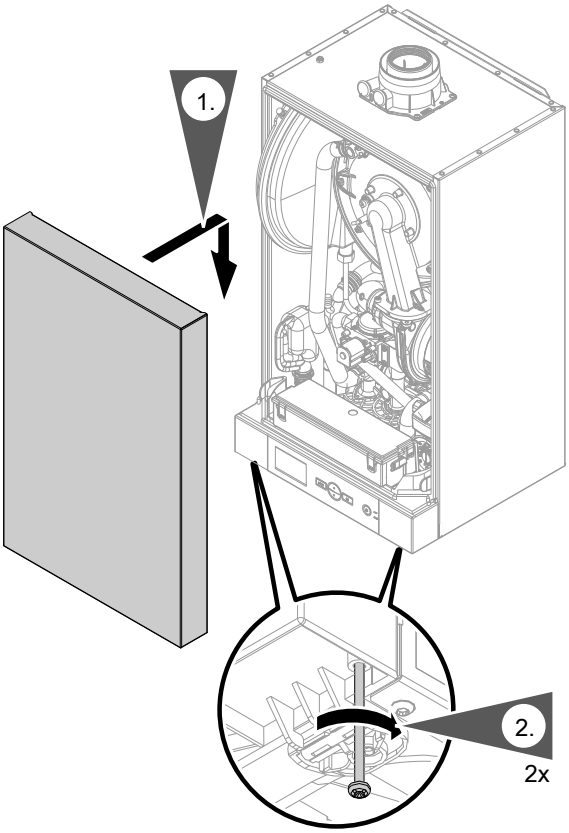
## Further details regarding the individual steps (cont.)

### Checking gas equipment for leaks at operating pressure

**Danger**
Escaping gas leads to a risk of explosion.
Check gas equipment for leaks.

**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 block the diaphragm opening on the gas valve.

### Mounting the front panel




**1.** Hook the front panel into place.

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

**2.** Tighten screws on the underside of the boiler.

### Instructing the system user

- Instruct the system user about operation and the safety regulations.
- Hand over the operating instructions to the system user.
- After installation the installer must identify the flue system and provide the operator with the safety instructions required for the correct and safe use of the system.

## Main parameter level

**Calling up the main parameter level:**

1. Press **MODE** to select the required settings.

2. Use ▲/▼ to select the required value.
   - Use **OK** to confirm and exit the menu.
   - Or
   - Press **MODE** to confirm and to change to the next setting.

***Note***
*The settings shown depend on the equipment level of the heating system.*

**Set DHW temperature**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| **Flashing** | **constant** | | |
| | | Temperature in °C | |

**Set heating water temperature**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| **Flashing** | **constant** | | |
| | | Temperature in °C | |

**Set room temperature**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| **Flashing** | **constant** | | |
| | | Temperature in °C | |

**Heating curve**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| **Flashing** | **constant** | | |
| | | Heating curve **"1"** to **"6"** or **"dEF"** for factory setting | |

**Time program, switching DHW heating on/off**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| **Flashing** | **constant** | | |
| **p** | | **"SEt"** | **"On"** or **"OFF"** |



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## Main parameter level (cont.)

**Time program, switching central heating mode on/off**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  <br>  <br>**p** |  | **"SEt"** | **"On"**<br>or<br>**"OFF"** |

**Time program, set heating water temperature**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  <br>  <br>**p** |  | Temperature in °C | **"L:1"** and **I** for stage 1<br>or<br>**"L:2"** and next to it **II** for stage 2 |

**Time program, set room temperature for operation with room temperature sensor**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  <br>  <br>**p**<br> |  | Temperature in °C | |

**Time program, heating curve for operation with outside temperature sensor**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  <br>  <br>**p**<br>  |  | Heating curve **"1"** to **"6"** or **"dEF"** for factory setting | |

**Winter mode**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  | | **"SEt"** | |

**Summer mode**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
|  | | **"SEt"** | |

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## Main parameter level (cont.)

**Standby mode**

| Symbols | | Main display | Additional display |
|---|---|---|---|
| Flashing | constant | | |
| ⏻ | | "SEt" | |

## Parameter level 1

**Calling up parameter level 1:**

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** and 🔧 flash.
   - **"PL:1"** is shown on the additional display.
   - [1] is shown in the upper display area
2. Press **MODE**.
   - **"P01"** is shown on the main display.
   - 🔧 is shown and does not flash.
3. Use ▲/▼ to select the parameter.
4. **OK** to confirm

**Emissions test mode**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| "P01" | **"OFF"** Test mode switched off<br>**"On"** Test mode switched on<br>With test mode switched on, use ▲/▼ to change between upper and lower heating output. | With test mode switched on:<br>■ Temperature in °C | With test mode switched on:<br>**"LO"** For lower heating output<br>**"HI"** For upper heating output |

**Filling and venting function**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| "P02" | **"OFF"** Function switched off<br>**"On"** Function switched on | With test mode switched on:<br>■ **"Air"** | With test mode switched on:<br>■ Remaining time in min |

## Parameter level 1 (cont.)

**Limiting the maximum heating output**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P03"** | Max. heating output in % of the upper rated heating output.<br>Setting range 40 to 100 % | Heating output in % | |

**Activating WLAN module**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P06"** | **"OFF"** WLAN module switched off<br>**"On"** WLAN module switched on | When **"ON"**, the symbol appears:  | |

**Activate OpenTherm/WiFi access**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P07"** | **0** OpenTherm basic function (delivered condition). Adjustment recommended.<br>Simple room thermostat activated (boiler on/off).<br>Read only WiFi.<br>1 OpenTherm basic function.<br>Simple room thermostat activated (boiler on/off).<br>Read and write WiFi.<br>2 OpenTherm fully activated.<br>Read only WiFi.<br>3 OpenTherm fully activated.<br>Read and write WiFi. | | |

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## Parameter level 1 (cont.)

***Note***
*OpenTherm basic function: Room thermostat works only as a "remote control (on/off)". All time programs and temperature settings of the room thermostat are deactivated. Time programs can be set via the boiler control unit operating menu or the app.*

*OpenTherm fully activated: The OpenTherm room thermostat functions as master, all relevant functions (time programs, temperature settings) on the programming unit of the boiler control unit and via the app are **deactivated**! If the WiFi module is activated via parameter P06, "writing" is activated automatically.*

**Vitotrol 100, type UTDB-RF2**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P08"** | 0 Without Vitotrol 100, type UTDB-RF2<br>1 With Vitotrol 100, type UTDB-RF2 | | |

**Maintenance reminder**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P09"** | Deactivate/activate | | |

**Access to parameter level 2**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P10"** | Access code setting for parameter level 2 | Access code | |

## Parameter level 2

1. Hold down **MODE** and ▲ simultaneously for approx. 5 s.
   - **"SEt"** and 🔧 flash
   - **"PL:1"** is shown on the additional display
   - 1 is shown in the upper display area
2. Press **MODE**.
3. Use ▲/▼ to select **"P10"**.
4. **OK** to confirm
5. Use ▲/▼ to select access code **2** for parameter level 2.
6. **OK** to confirm
   - **"PL:2"** is shown on the additional display
   - 2 is shown in the upper display area
7. **MODE** to confirm
8. Use ▲/▼ to select the parameter.

## Parameter level 2 (cont.)

9. **OK** to confirm

**Switching DHW heating on/off**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P13"** | **"ON"** DHW heating switched off<br>**"OFF"** DHW heating switched on | | |

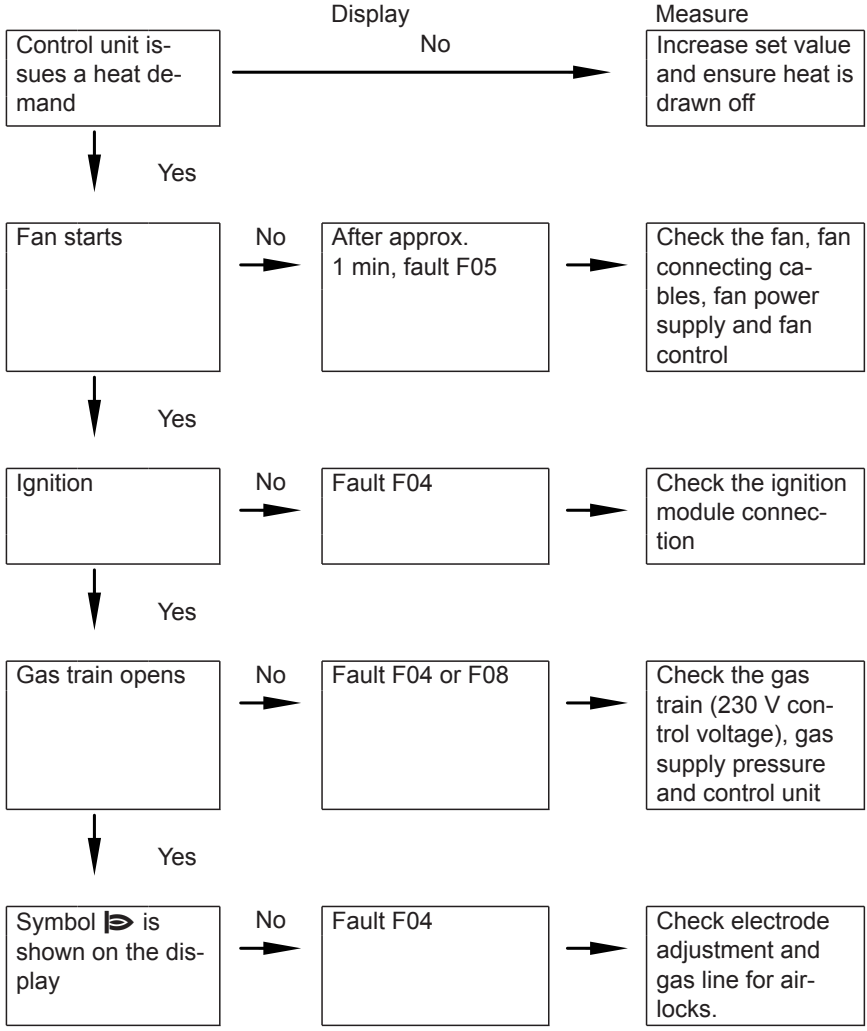
**External temperature sensor (room temperature sensor/outside temperature sensor)**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P14"** | **"OFF"** without temperature sensor<br>**"OTC"** with outside temperature sensor<br>**"RTC"** with room temperature sensor | | |

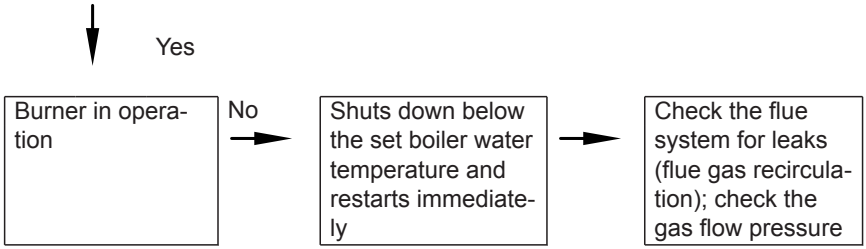
**External extension**

| Parameter | Possible change | Main display | Additional display |
|---|---|---|---|
| **"P27"** | **"OFF"** without external extension<br>**"On"** with external extension | | |
| **"P40"** to **"P49"** | See installation and service instructions for the external extension | | |

## Function sequence and possible faults



## Function sequence and possible faults (cont.)




### Resetting the appliance

Press **MODE** and **OK** simultaneously and hold until ↳ flashes (reset).

## Overview of checks

| Display | Area |
|---|---|
| IF | Status checks (current/set values), see page 62 |
| Ct | Meter checks, see page 64 |
| AL | Fault history (10 most recent fault messages)<br>For the meaning of the fault messages, see "Fault display" from page 66 |

Time program for DHW heating and heating mode, see operating instructions.
The submenu for DHW heating is only displayed when a hot water time is set.

- Use ▲/▼ to select the required check.
  - The selected check is shown on the additional display.
  - The value to be checked is shown on the main display.
- Press **MODE** to select the required areas.

## Status checks

| Check | Display | Symbols | |
|---|---|---|---|
| | | Flashing | Constant |
| Current system pressure | **"IF00"** | | **MPa** |
| Actual heating water temperature | **"IF01"** | | **°C** |

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## Status checks (cont.)

| Check | Display | Symbols | |
|---|---|---|---|
| | | Flashing | Constant |
| Set heating water temperature | **"IF02"** | | °C |
| Set maximum heating output | **"IF03"** | | % |
| Actual DHW temperature | **"IF04"** | | °C |
| Set DHW temperature | **"IF05"** | | °C |
| DHW flow rate | **"IF06"** | | |
| Actual collector temperature (only in conjunction with external extension) | **"IF07"** | | °C |
| Actual cylinder temperature, bottom (only in conjunction with external extension) | **"IF08"** | | °C 1 |
| Actual cylinder temperature, top (only in conjunction with external extension) | **"IF09"** | | °C 2 |
| Current outside temperature (for operation with outside temperature sensor) | **"IF10"** | | °C |
| Current room temperature (for operation with room temperature sensor) | **"IF10"** | | °C |
| Set heating curve (for operation with outside temperature sensor) | **"IF11"** | | |
| Set room temperature (for operation with room temperature sensor) | **"IF11"** | | °C |
| Burner status | **"IF12"** | | |
| Fan speed | **"IF13"** | | |
| Current burner output | **"IF14"** | | % |
| --- | **"IF15"** | | |
| Gas solenoid valve position (**"On"** or **"OFF"**) | **"IF16"** | | |
| Fan status (**"On"** or **"OFF"**) | **"IF17"** | | |
| Circulation pump status (**"On"** or **"OFF"**) | **"IF18"** | | |
| 3-way diverter valve setting (heating mode, DHW or middle setting) | **"IF19"** | | |
| --- | **"IF20"** | | |

## Status checks (cont.)

| Check | Display | Symbols | |
|---|---|---|---|
| | | Flashing | Constant |
| Cylinder type | **"IF21"** | | |
| OpenTherm/WLAN access (**"On"** or **"OFF"**) | **"IF22"** | | |

## Meter checks

The display is split into 3 blocks.

Display **"Ct01"**: **"002"**
Display **"Ct02"**: **"540"**

**Example:**
Burner hours run: 2540 h

| Check | Display | Symbols | |
|---|---|---|---|
| | | Flashing | Constant |
| Control unit hours run (in thousands) | **"Ct01"** |   **I** | |
| Control unit hours run (in units) | **"Ct02"** |   **0** | |
| Burner hours run (in thousands) | **"Ct03"** |   **I** | |
| Burner hours run (in units) | **"Ct04"** |   **0** | |
| Ignition attempts (in millions) | **"Ct05"** |  **II** | |
| Ignition attempts (in thousands) | **"Ct06"** |  **I** | |
| Ignition attempts (in units) | **"Ct07"** |  **0** | |
| Heat demands for drinking water, demands for DHW (in millions) | **"Ct08"** |  **II** | |
| Heat demands for drinking water, demands for DHW (in thousands) | **"Ct09"** |  **I** | |
| Heat demands for drinking water, demands for DHW (in units) | **"Ct10"** |  **0** | |

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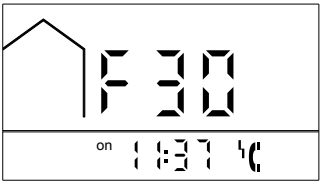
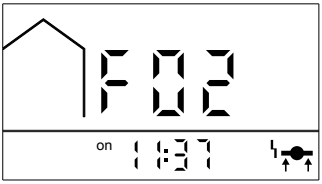
## **Meter checks** (cont.)

| Check | Display | Symbols | |
|---|---|---|---|
| | | Flashing | Constant |
| Heat demands, heating mode (in millions) | **"Ct11"** | **II** | |
| Heat demands, heating mode (in thousands) | **"Ct12"** | **I** | |
| Heat demands, heating mode (in units) | **"Ct13"** | **0** | |
| Faults (in thousands) | **"Ct14"** | **I** | |
| Faults (in units) | **"Ct15"** | **0** | |

## Fault display




Faults are indicated by a flashing fault code (e.g. **"F30"**) and fault symbol or .




| Displayed fault code | System characteristics | Cause | Measures |
|---|---|---|---|
| 06 | Burner locked out | System pressure too low | Check the system pressure. If required, top up heating water (see page 35). |
| 0A | Burner locked out | Gas supply pressure too low | Check the gas pressure and gas pressure switch (if installed) |
| 0C | Standby | Mains voltage too low | Wait until the mains voltage returns to the normal range. |
| CC | Function at the external extension faulty | Communication between control unit and external extension interrupted | Check connecting cable between control unit and external extension |
| F02 | Burner in a fault state | Temperature limiter has responded | Check heating system fill level. Check circulation pump. Vent the system. Press MODE and OK simultaneously and hold until flashes (reset). |

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## Fault display (cont.)

| Displayed fault code | System characteristics | Cause | Measures |
|---|---|---|---|
| F03 | Burner in a fault state | Flame signal is already present at burner start | Check ionisation electrode and connecting cable.<br>Turn the ON/OFF switch off and back on again, or perform a reset – see F02. |
| F04 | Burner in a fault state | Flame signal is not present | Check the ignition/ionisation electrodes and connecting cable, check the gas pressure, check the gas train, check the ignition and ignition module.<br>Turn the ON/OFF switch off and back on again, or perform a reset – see F02. |
| F05 | Burner in a fault state | Fan does not start when burner starts | Check the fan motor and connecting cables<br>Turn the ON/OFF switch off and back on again, or perform a reset – see F02. |
| F07 | Burner locked out | Lead break, water pressure sensor | Check the water pressure sensor<br>Turn the ON/OFF switch ⏻ off and back on again (or reset, see F02). |
| F08 | Burner in a fault state | Gas solenoid valve relay blocked | Check relay, gas solenoid valve and connecting lead<br>Turn the ON/OFF switch off and back on again, or perform a reset – see F02. |
| F10 | Continuous operation | Short circuit, outside temperature sensor or room temperature sensor | Check the sensor (see page 72). |

## Fault display (cont.)

| Displayed fault code | System characteristics | Cause | Measures |
|---|---|---|---|
| F18 | Continuous operation | Lead break, outside temperature sensor or room temperature sensor | Check the sensor (see page 72). |
| F30 | Burner locked out | Short circuit, boiler water temperature sensor | Check the boiler water temperature sensor (see page 73). |
| F38 | Burner locked out | Lead break, boiler water temperature sensor | Check the boiler water temperature sensor (see page 73). |
| F51 | No DHW heating | Short circuit, cylinder temperature sensor (gas condensing system boiler) or outlet temperature sensor (gas condensing combi boiler) | Check the sensor (see page 74). |
| F59 | No DHW heating | Lead break, cylinder temperature sensor (gas condensing system boiler) or outlet temperature sensor (gas condensing combi boiler) | Check the sensor (see page 74). |
| F6F | WLAN connection interrupted | Communication between control unit and WLAN module interrupted | Check connecting cable between control unit and WLAN module.<br>Check setting of parameter P06 and P07. |
| F70 | Function at the external extension faulty | Short circuit, collector temperature sensor S1 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |

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## Fault display (cont.)

| Displayed fault code | System characteristics | Cause | Measures |
|---|---|---|---|
| F78 | Function at the external extension faulty | Lead break, collector temperature sensor S1 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |
| F80 | Function at the external extension faulty | Short circuit, lower cylinder temperature sensor S2 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |
| F88 | Function at the external extension faulty | Lead break, lower cylinder temperature sensor S2 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |
| F90 | Function at the external extension faulty | Short circuit, upper cylinder temperature sensor S3 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |
| F98 | Function at the external extension faulty | Lead break, upper cylinder temperature sensor S3 at the external extension | Checking the sensor<br>  Installation and service instructions for external extension |
| Fb0 | Burner locked out | Short circuit, flue gas temperature sensor | Check flue gas temperature sensor (see page 77). |

## Fault display (cont.)

| Displayed fault code | System characteristics | Cause | Measures |
|---|---|---|---|
| Fb8 | Burner locked out | Lead break, flue gas temperature sensor | Check flue gas temperature sensor (see page 77). |
| FF1 | Burner locked out | Flue gas temperature too high | Check heating system fill level. Check circulation pump. Vent the system. Check flue system. Turn the ON/OFF switch off and back on again, or perform a reset – see F02. |

## Repairs

**Please note**
Residual water will escape when the boiler or one of the following components is fitted or removed:
- Water-filled pipework
- Heat exchanger
- 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

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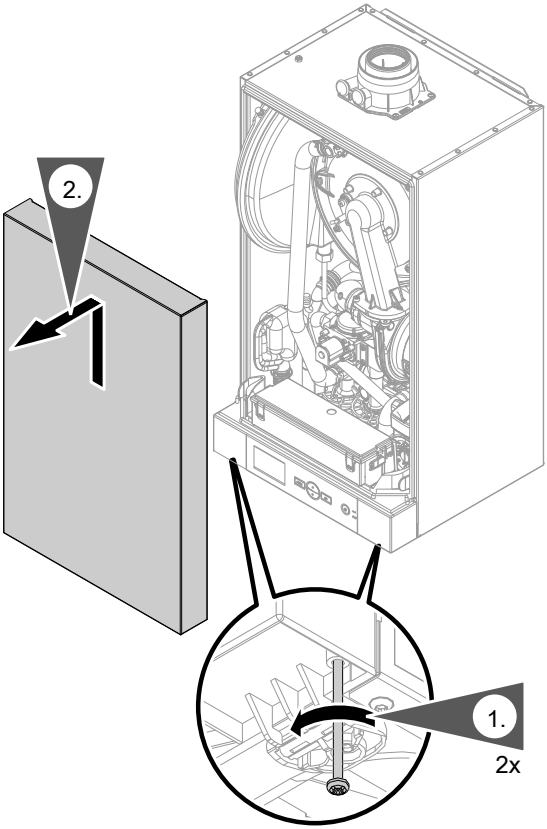
## **Repairs** (cont.)

### Removing the front panel

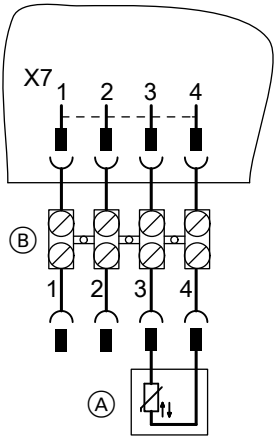



**1.** Undo the screws on the underside of the boiler. Do not remove.

**2.** Remove front panel.

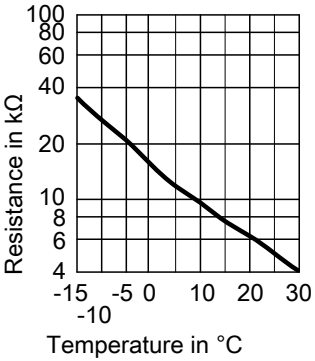
## Repairs (cont.)

### Outside temperature sensor or room temperature sensor




Ⓐ Outside temperature sensor or room temperature sensor
Ⓑ Terminals on control unit enclosure

1. Open the control unit enclosure. See page 25.
2. Disconnect leads from outside temperature sensor.
3. Check the sensor resistance and compare it to the curve.
4. In the event of severe deviation replace the sensor.

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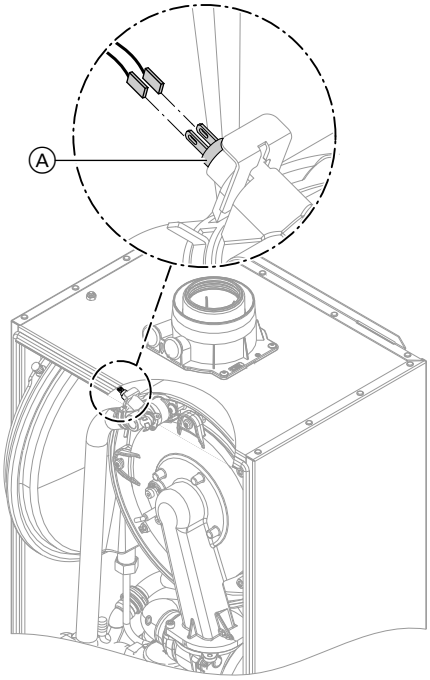
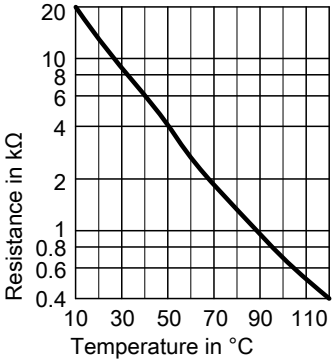
## Repairs (cont.)

### Boiler water temperature sensor




1. Disconnect leads from boiler water temperature sensor Ⓐ [3] and check the resistance.



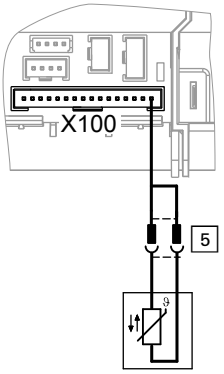

2. Check the sensor resistance and compare it to the curve.

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

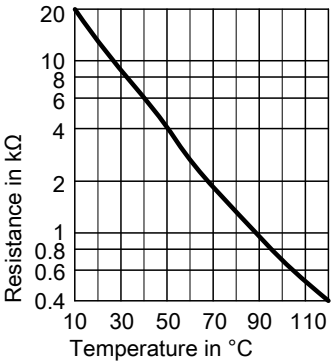
**Danger**
The sensor is immersed in the heating water (risk of scalding).
Drain the boiler before replacing the sensor.

## Repairs (cont.)

### Checking the cylinder temperature sensor (gas condensing system boiler)




1. Disconnect plug [5] from the cable harness and check the resistance.

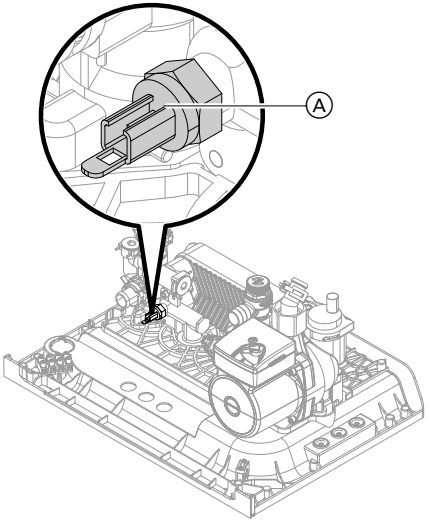



2. Compare the sensor resistance to the curve.

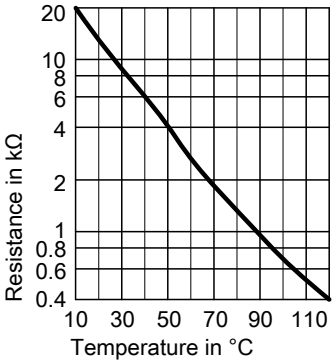
3. In the event of severe deviation replace the sensor.

## Repairs (cont.)

### Checking the outlet temperature sensor (gas condensing combi boiler)




1. Disconnect leads from outlet temperature sensor Ⓐ [4].
2. Check the sensor resistance and compare it to the curve.

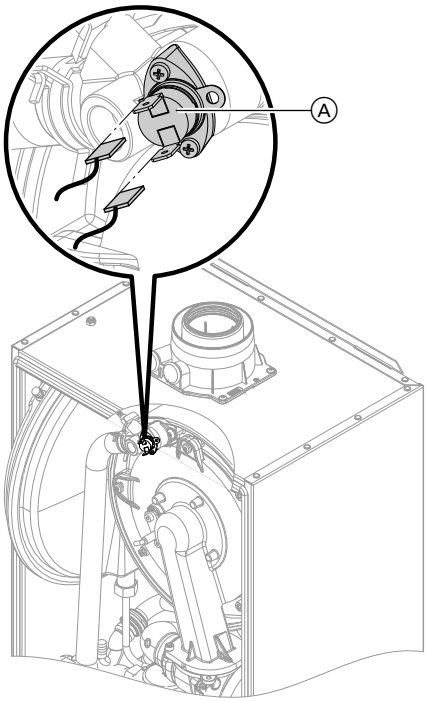



3. In the event of severe deviation replace the sensor.
   - Shut off the cold water supply.
   - Drain the DHW line and the plate heat exchanger (on the DHW side).

## **Repairs** (cont.)

### 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. Disconnect the leads from temperature limiter Ⓐ.
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove faulty temperature limiter.
4. Install a new temperature limiter.
5. Press **MODE** and **OK** simultaneously and hold until ⚙ flashes (reset).

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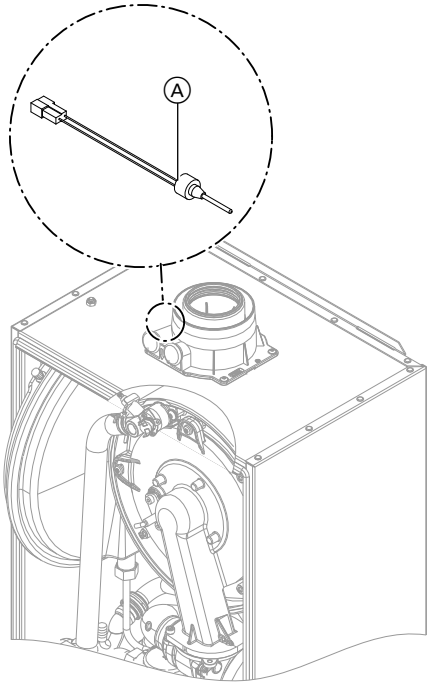
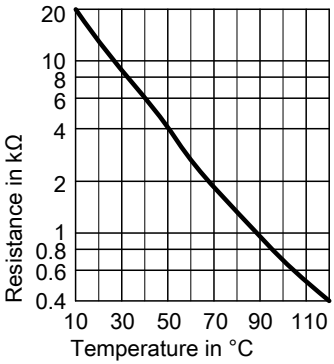
**Repairs** (cont.)

## Checking the flue gas temperature sensor




1. Disconnect the leads from flue gas temperature sensor Ⓐ [15].
2. Check the sensor resistance and compare it to the curve.




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



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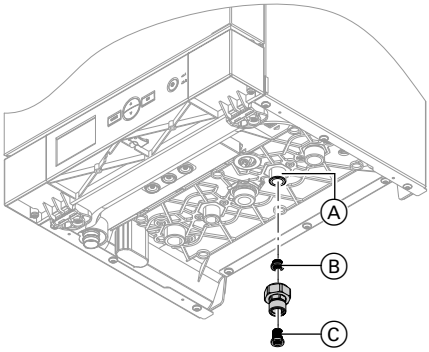
## Repairs (cont.)

### Replace flow limiter and clean filter (gas condensing combi boiler)




1. Drain the boiler on the DHW side.
2. Undo the fitting on the cold water inlet Ⓐ.
3. Remove faulty flow limiter Ⓑ.
4. Select new flow limiter Ⓑ according to the boiler serial no. (see type plate) and the following table.
5. Insert new flow limiter Ⓑ.
6. Remove filter Ⓒ, clean and re-fit.
7. Secure the fitting on the cold water inlet Ⓐ.

| Serial no. (type plate) | Flow rate l/min | Colour |
|---|---|---|
| 7538975 | 10 | Blue |
| 7538977 | 14 | Pink |

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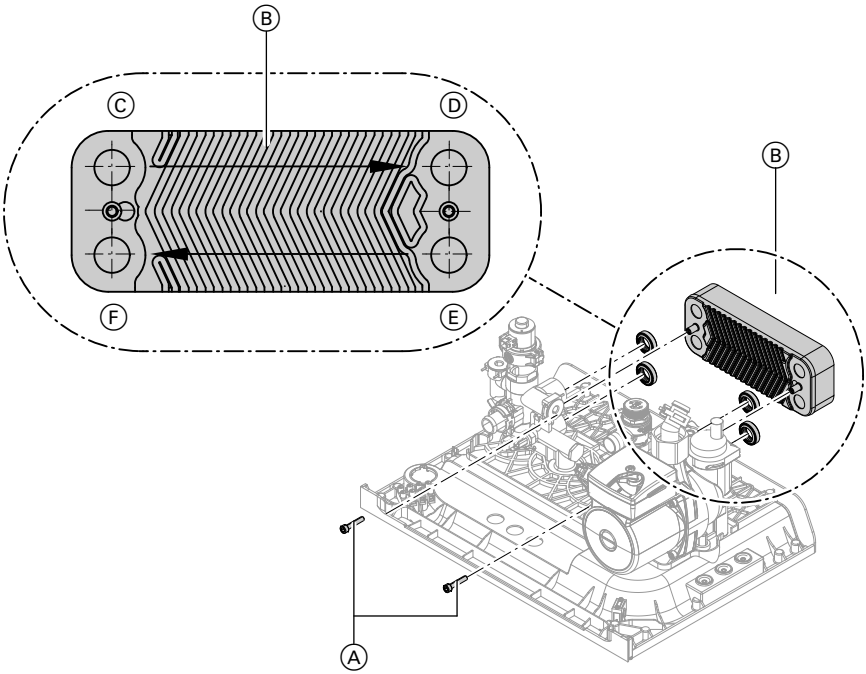
## Repairs (cont.)

### Checking or replacing the plate heat exchanger (gas condensing combi boiler)




Ⓒ Heating water flow
Ⓓ Heating water return
Ⓔ Cold water
Ⓕ DHW

**1.** Shut off and drain the boiler on the heating water and DHW sides.

**2.** Pivot the control unit downwards.

**3.** Undo 2 screws Ⓐ on 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.)

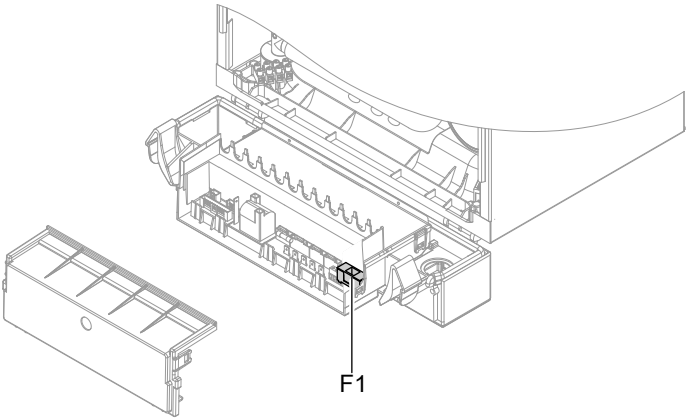
4. Check the connections on the DHW side for scaling; clean or replace the plate heat exchanger if required.

5. Check the connections on the heating water side for contamination; clean or replace the plate heat exchanger if required.

6. Install in reverse order using new gaskets.

   ***Note***
   *During installation, ensure the fixing holes are aligned and the gaskets are seated correctly. Fit the plate heat exchanger the right way round.*

## Checking the fuse




1. Switch OFF the power supply.

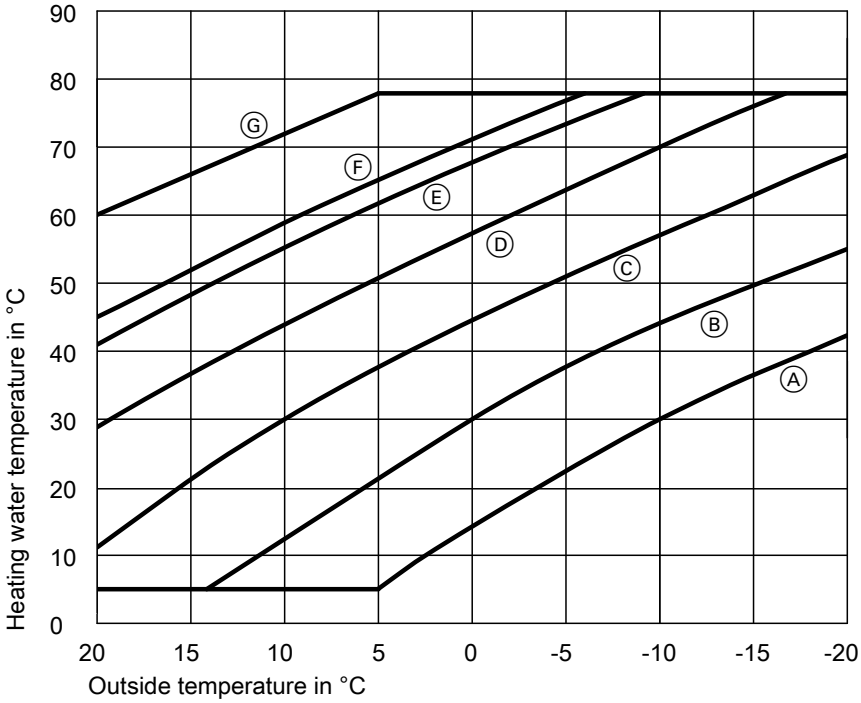
2. Open the control unit enclosure (see page 25).

3. Check fuse F1.

## Weather-compensated operation

In weather-compensated mode (with connected outside temperature sensor), the boiler water temperature is regulated according to the outside temperature.

**Heating curve for weather-compensated operation**




Heating curve settings:
Ⓐ = 1
Ⓑ = 2
Ⓒ = 3
Ⓓ = 4
Ⓔ = delivered condition
Ⓕ = 5
Ⓖ = 6

For heating curve setting, see page 55.



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## Weather-compensated operation (cont.)

### Frost protection function

The boiler must be switched on to ensure frost protection.

**Boiler frost protection**

**Frost protection without outside temperature sensor**

If the boiler water temperature falls below 8 °C, the internal circulation pump switches on until the boiler water temperature reaches 12 °C. The 3-way diverter valve is in the central heating position. If the boiler water temperature falls below 5 °C, the burner also switches on until the boiler water temperature reaches 28 °C.

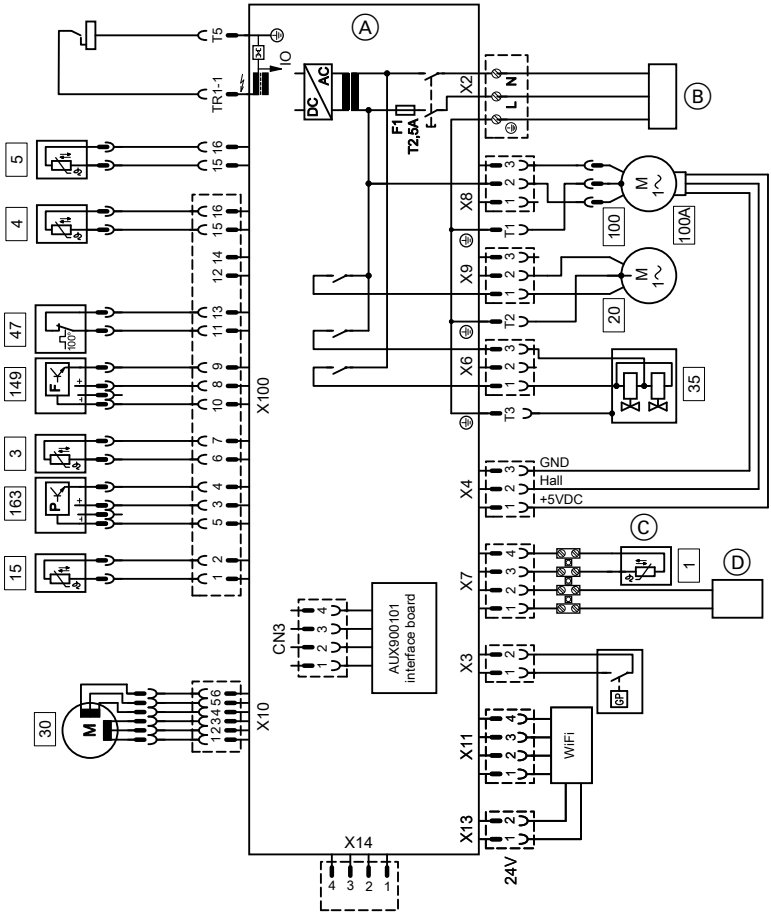
**Frost protection with connected outside temperature sensor**

If the outside temperature falls below 1 °C, the internal circulation pump switches on. The 3-way diverter valve is in the central heating position. If the outside temperature exceeds 3 °C, the internal circulation pump runs on for a fixed time. If the boiler water temperature falls below 5 °C, the burner also switches on until the boiler water temperature reaches 28 °C.

**DHW cylinder frost protection**

If the cylinder temperature falls below 5 °C, the frost protection function is enabled. The burner remains on until the cylinder temperature reaches 7.5 °C.

## Connection and wiring diagram




| | |
|---|---|
| (A) | PCB inside the control unit |
| (B) | Power supply |
| CN3 | External extension AUX 900101 |
| X3 | Gas pressure switch (accessories) |
| X6 | Gas train |
| X7 | (C) Outside temperature sensor or room temperature sensor [1] (accessories)<br>or<br>(D) Room temperature controller (OpenTherm accessories) |
| X8 | Fan |
| X9 | Internal circulation pump |
| X11 | WLAN module |

## Connection and wiring diagram (cont.)

| | |
|---|---|
| X13 | Power supply WLAN module (24 V) |
| T5/TR1-1 | Ignition/ionisation |
| 3 | Boiler water temperature sensor |
| 4 | Outlet temperature sensor (gas condensing combi boiler) |
| 5 | Cylinder temperature sensor (gas condensing system boiler) |
| 15 | Flue gas temperature sensor |
| 20 | Circulation pump 230 V~ |
| 30 | Motor, diverter valve |
| 35 | Gas solenoid valve |
| 47 | Temperature limiter |
| 100 A | Fan control |
| 149 | Flow sensor |
| 163 | Water pressure sensor |

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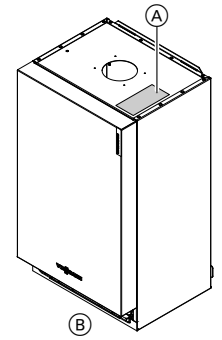
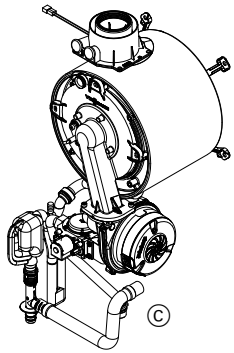
## Ordering parts

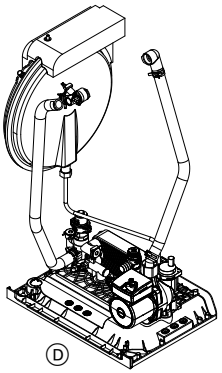
**The following information is required:**

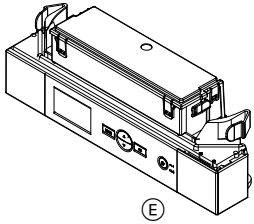
- Serial no. (see type plate Ⓐ)
- Assembly (from this parts list)
- Position number of the individual part within the assembly (from this parts list)

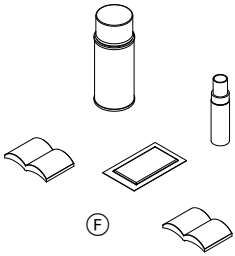
## Overview of assemblies




Ⓐ Type plate
Ⓑ Casing assembly
Ⓒ Heat cell assembly
Ⓓ Hydraulic assembly
Ⓔ Control unit assembly
Ⓕ Miscellaneous assembly

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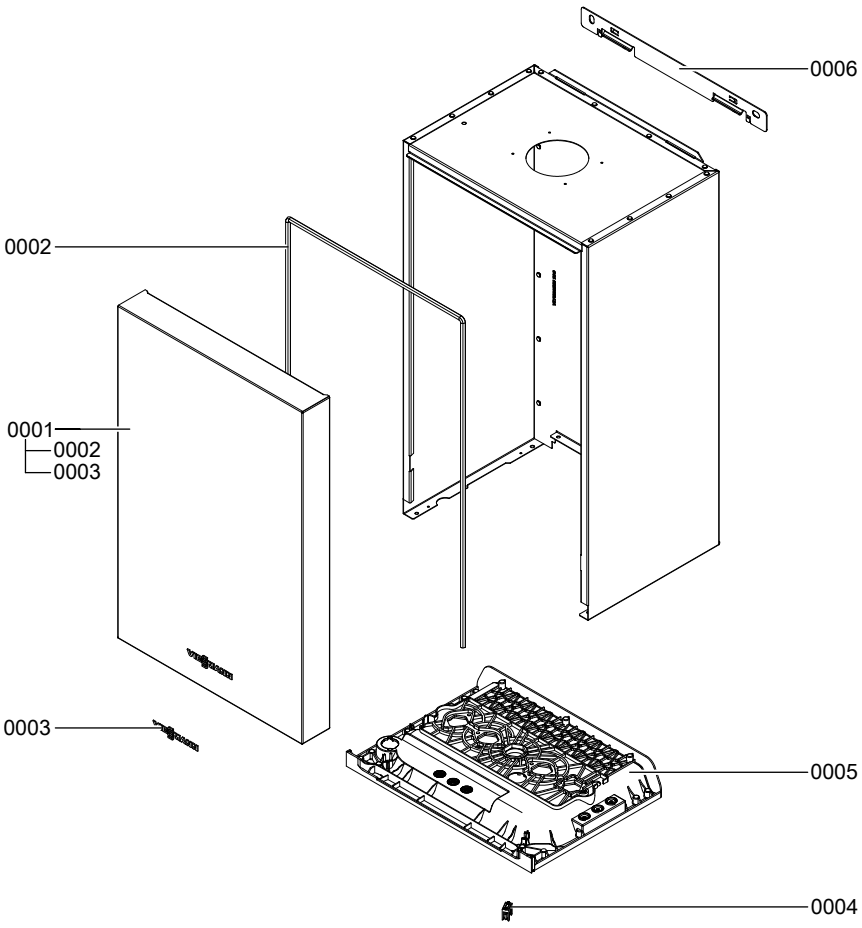
## Casing assembly



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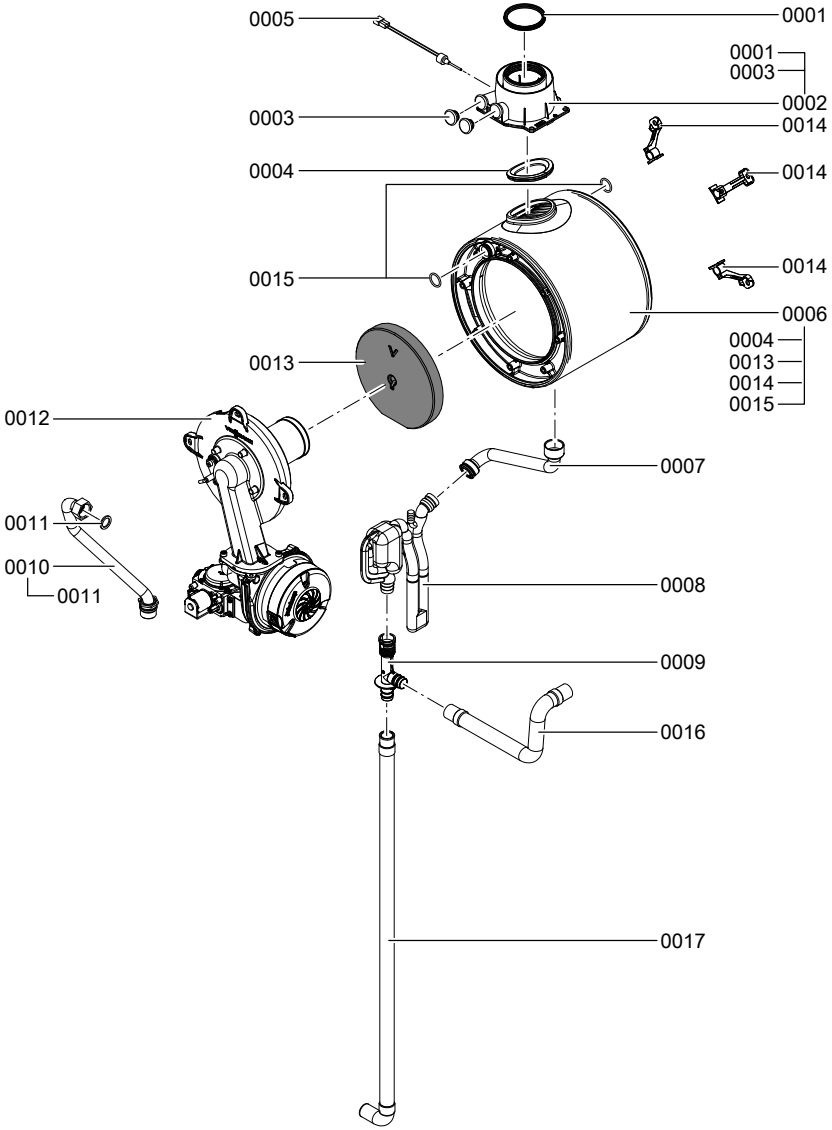
## Casing assembly (cont.)

| Pos. | Part |
|---|---|
| 0001 | Front panel |
| 0002 | Profiled seal |
| 0003 | Viessmann logo |
| 0004 | Strain relief, upper part |
| 0005 | Air box floor |
| 0006 | Wall mounting bracket |

## Heat cell assembly

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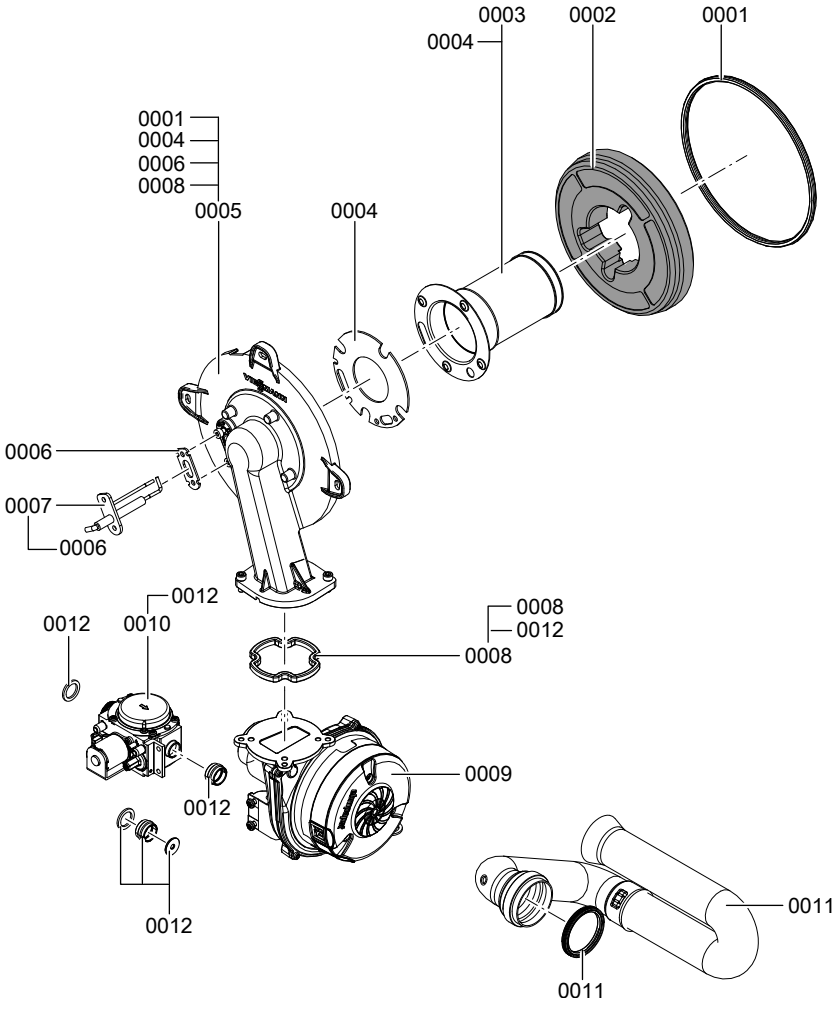
## Heat cell assembly (cont.)

| 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 trap |
| 0009 | Tee connector |
| 0010 | Gas connection |
| 0011 | Gasket A 17 x 24 x 2 (5 pce) |
| 0012 | Burner (see burner assembly) |
| 0013 | Thermal insulation block |
| 0014 | Heat exchanger mounting bracket (set) |
| 0015 | O-ring 20.63 x 2.62 (5 pce) |
| 0016 | Condensate hose 400 |
| 0017 | Corrugated hose 19 x 800 with ferrule/bend |

## Burner assembly



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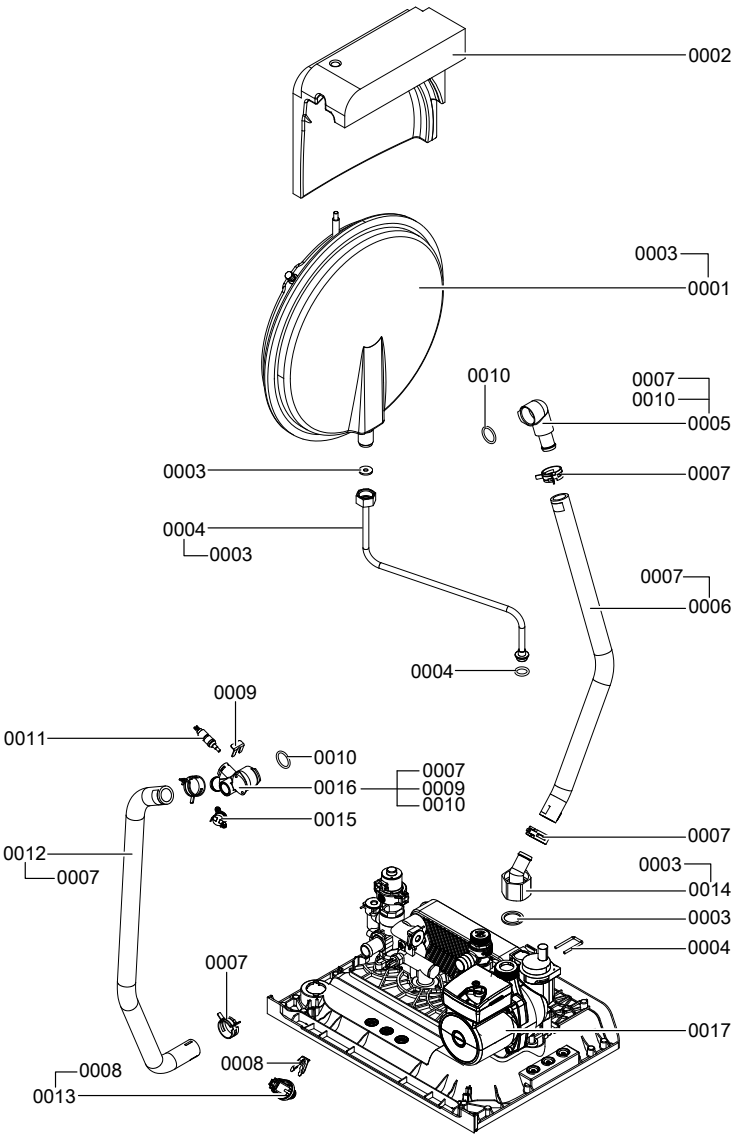
## **Burner assembly** (cont.)

| Pos. | Part |
|---|---|
| 0001 | Burner gasket ∅ 187 (wearing part) |
| 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 (wearing part) |
| 0008 | Gasket, burner door flange (wearing part) |
| 0009 | Radial fan NRG 118 |
| 0010 | Gas valve |
| 0011 | Venturi extension (wearing part) |
| 0012 | Gasket set |

## Hydraulic assembly



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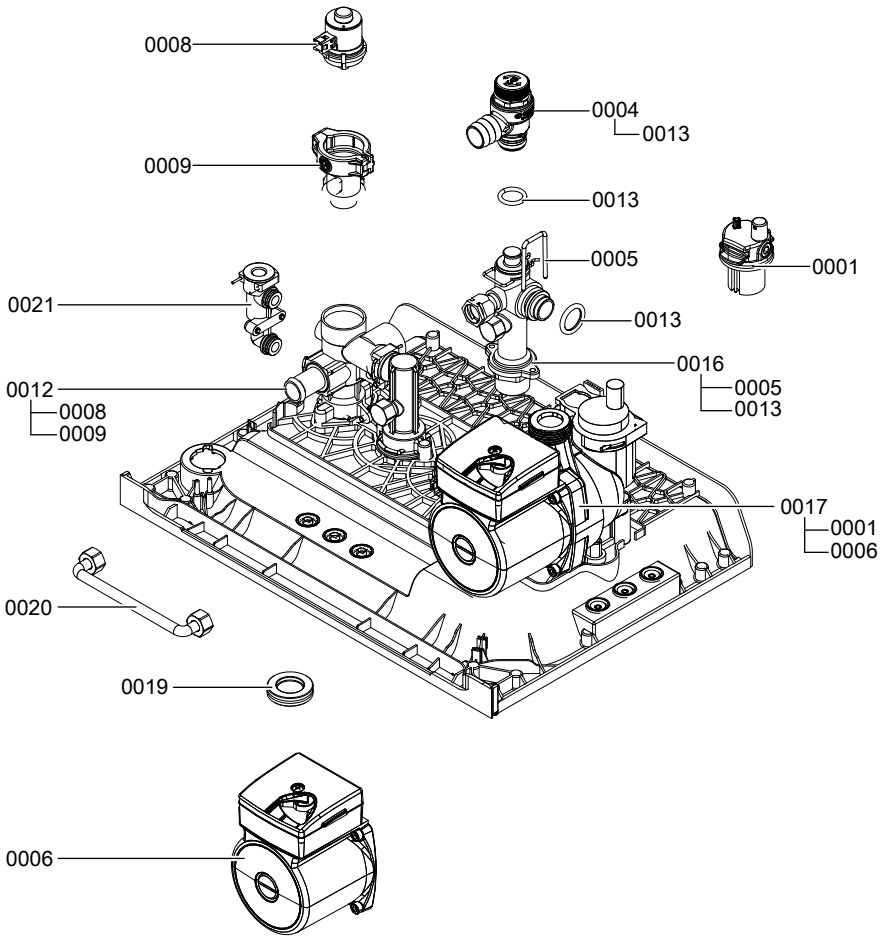
## Hydraulic assembly (cont.)

| Pos. | Part |
|---|---|
| 0001 | Diaphragm expansion vessel |
| 0002 | Padding profile, diaphragm expansion vessel |
| 0003 | Gaskets (set) |
| 0004 | Connection line, diaphragm expansion vessel G 1/2 |
| 0005 | Connection elbow HR (heating return) |
| 0006 | Profile hose HR (heating return) |
| 0007 | Spring clip DN 25 (5 pce) |
| 0008 | Clip ∅ 10 (5 pce) |
| 0009 | Clip ∅ 8 (5 pce) |
| 0010 | O-ring 20.63 x 2.62 (5 pce) |
| 0011 | Temperature sensor |
| 0012 | Profile hose HV (heating flow) |
| 0013 | Pressure sensor |
| 0014 | Pump hose connection adaptor |
| 0015 | Thermal circuit breaker |
| 0016 | Connection elbow HV (heating flow) |
| 0017 | Hydraulics (see hydraulic assembly, system or combi boiler) |

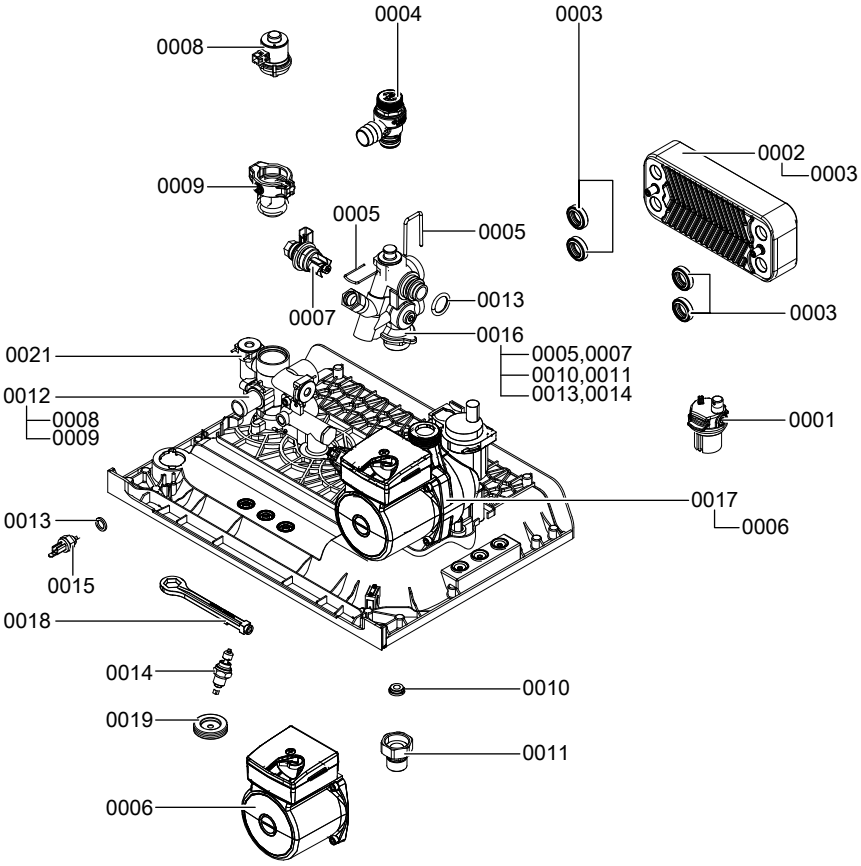
## Hydraulic assembly, system boiler



## Hydraulic assembly, system boiler (cont.)

| Pos. | Part |
|---|---|
| 0001 | Quick-action air vent valve |
| 0004 | Safety valve 3 bar |
| 0005 | Fuse elements (set) |
| 0006 | Pump motor |
| 0008 | Stepper motor |
| 0009 | Cartridge, stepper motor |
| 0012 | Heating flow |
| 0013 | Gaskets (set) |
| 0016 | Return unit, system boiler |
| 0017 | Circulation pump |
| 0019 | Diaphragm grommet |
| 0020 | Overflow line |
| 0021 | Bypass valve |

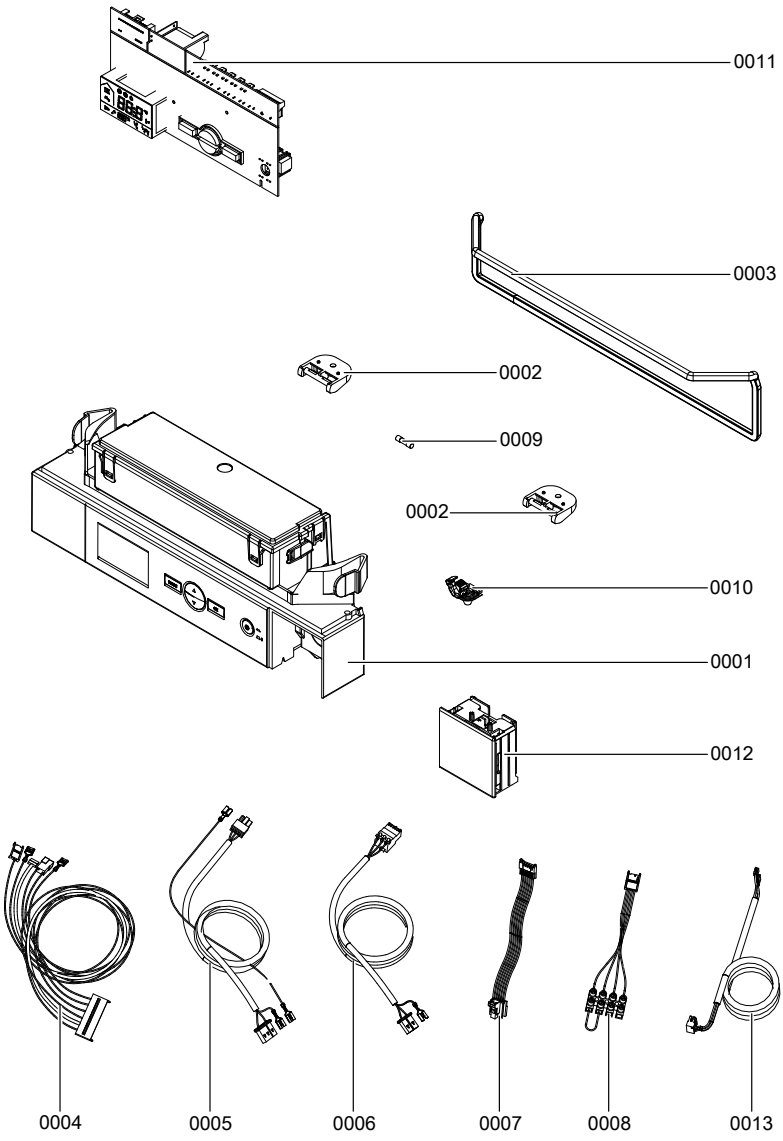
## Hydraulic assembly, combi boiler



## Hydraulic assembly, combi boiler (cont.)

| Pos. | Part |
|---|---|
| 0001 | Quick-action air vent valve |
| 0002 | Plate heat exchanger |
| 0003 | Profiled gasket (4 pce) |
| 0004 | Safety valve 3 bar |
| 0005 | Fuse elements (set) |
| 0006 | Pump motor |
| 0007 | Flow switch (set) |
| 0008 | Stepper motor |
| 0009 | Cartridge, stepper motor |
| 0010 | Flow limiter |
| 0011 | DHW supply adaptor with filter |
| 0012 | Flow unit, combi boiler |
| 0013 | Gaskets (set) |
| 0014 | Fill valve |
| 0015 | Temperature sensor |
| 0016 | Return unit |
| 0017 | Circulation pump |
| 0018 | Size 15 filling key |
| 0019 | Diaphragm grommet |
| 0020 | Bypass valve |

## Control unit assembly

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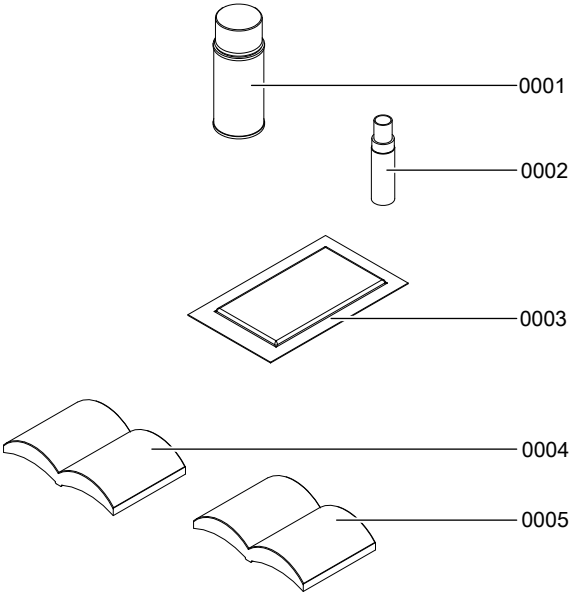
## Control unit assembly (cont.)

| Pos. | Part |
|---|---|
| 0001 | VBC LCV control unit |
| 0002 | Clip hinge |
| 0003 | Profiled seal |
| 0004 | Cable harness X1/100 |
| 0005 | Connecting cable, gas valve |
| 0006 | Fan connecting cable 100 |
| 0007 | Power cable, stepper motor |
| 0008 | Connecting cable X7 |
| 0009 | Fuse, 2.5 A (slow), 250 V (10 pce) |
| 0010 | Cable tie (10 pce) |
| 0011 | Vitodens 100 PCB |
| 0012 | WLAN module |
| 0013 | WLAN module connecting cable |

## Miscellaneous assembly




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

## Specification

**Gas condensing system boiler**

| **Type** | | **LN1GBQ 18-CC** | **LN1GBQ 24-CC** | **LN1GBQ 33-CC** |
|---|---|---|---|---|
| **Rated heat input (heating mode)** | **kW** | **6.1 – 17.8** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heat input (DHW heating)** | **kW** | **6.1 – 17.8** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heating output** in heating mode ($T_F/T_R$ 50/30 °C) | kW | 6.5 – 19 | 6.5 – 26 | 8.8 – 35 |
| **Rated heating output** during DHW heating ($T_F/T_R$ 80/60 °C) | kW | 5.9 – 17.3 | 5.9 – 23.7 | 8.0 – 31.9 |
| **Sound power level** | | | | |
| At full load (100 %) | dB (A) | < 49 | < 49 | < 49 |
| At partial load (30 %) | dB (A) | < 37 | < 37 | < 40 |
| **Efficiency** | | | | |
| At full load (100 %) | | | | |
| ■ $T_F/T_R$ 80/60 °C | % | 99.0 | 99.5 | 98.0 |
| ■ $T_F/T_R$ 50/30 °C | % | 106.5 | 107.0 | 106.9 |
| At partial load (30 %) $T_F/T_R$ 50/30 °C | % | 105.9 | 106.5 | 105.6 |
| **Gas throughput** relative to max. heating output Natural gas 12T | $m^3/h$ | 1.9 | 2.6 | 3.5 |
| **Gas supply pressure** Natural gas 12T | Pa | 2000 | 2000 | 2000 |
| **NOx class** | | 5 | 5 | 5 |
| **Power consumption** | | | | |
| Max. | W | 81 | 113 | 141 |
| Without circulation pump | W | 20 | 30 | 42 |
| **Boiler water capacity** | l | 2.8 | 2.8 | 3.4 |
| **Diaphragm expansion vessel** | | | | |
| Capacity | l | 6 | 6 | 6 |
| Pre-charge pressure | MPa | 0.1 | 0.1 | 0.1 |
| **Permiss. operating pressure** (heating water side) | | | | |
| Min. | MPa | 0.08 | 0.08 | 0.08 |
| Max. | MPa | 0.3 | 0.3 | 0.3 |
| **Heating water temperature** | | | | |
| Min. | °C | 20 | 20 | 20 |
| Max. | °C | 80 | 80 | 80 |
| **DHW temperature** | | | | |
| Min. | °C | 30 | 30 | 30 |
| Max. | °C | 60 | 60 | 60 |

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## Specification (cont.)

| Type | | LN1GBQ 18-CC | LN1GBQ 24-CC | LN1GBQ 33-CC |
|---|---|---|---|---|
| **Rated heat input (heating mode)** | **kW** | **6.1 – 17.8** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heat input (DHW heating)** | **kW** | **6.1 – 17.8** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Flue gas parameters** | | | | |
| Flue gas temperature at 30 °C heating water return temperature | °C | 45 | 45 | 45 |
| Flue gas temperature at 60 °C heating water return temperature | °C | 68 | 68 | 70 |
| Flue gas mass flow rate at max. heating output | $m^3/h$ | 30.1 | 41.1 | 56.9 |
| Flue gas mass flow rate at min. heating output | $m^3/h$ | 14.6 | 14.6 | 17.6 |
| **Balanced flue connection** | ∅ mm | 60/100 | 60/100 | 60/100 |
| **Rated voltage** | V~ | 220 | 220 | 220 |
| **Rated frequency** | Hz | 50 | 50 | 50 |
| **Rated current** | A~ | 2.0 | 2.0 | 2.0 |
| **IP rating** | | IPX4D | IPX4D | IPX4D |
| **Protection class** | | I | I | I |
| **Internal fuse** | A | 2.5 | 2.5 | 2.5 |
| **Permissible ambient temperature** | | | | |
| ■ During operation | °C | 0 to +40 °C | 0 to +40 °C | 0 to +40 °C |
| ■ During storage and transport | °C | -20 to +65 °C | -20 to +65 °C | -20 to +65 °C |
| **Dimensions** | | | | |
| Height | mm | 700 | 700 | 700 |
| Width | mm | 400 | 400 | 400 |
| Depth | mm | 350 | 350 | 350 |
| **Weight** | kg | 34 | 34 | 36 |

**Gas condensing combi boiler**

| Type | | LL1GBQ24-CC | LL1GBQ33-CC |
|---|---|---|---|
| **Rated heat input (heating mode)** | **kW** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heat input (DHW heating)** | **kW** | **6.1 – 30.5** | **8.2 – 36.5** |
| **Rated heating output** in heating mode ($T_F/T_R$ 50/30 °C) | kW | 6.5 – 26 | 8.8 – 35 |
| **Rated heating output** during DHW heating ($T_F/T_R$ 80/60 °C) | kW | 5.9 – 29.3 | 8.0 – 35.0 |

## Specification (cont.)

| Type | | LL1GBQ24-CC | LL1GBQ33-CC |
|---|---|---|---|
| **Rated heat input (heating mode)** | **kW** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heat input (DHW heating)** | **kW** | **6.1 – 30.5** | **8.2 – 36.5** |
| **Sound power level** | | | |
| At full load (100 %) | dB (A) | < 50 | < 51 |
| At partial load (30 %) | dB (A) | < 37 | < 40 |
| **Efficiency** | | | |
| At full load (100 %) | | | |
| ■ $T_F/T_R$ 80/60 °C | % | 99.5 | 97.6 |
| ■ $T_F/T_R$ 50/30 °C | % | 106.7 | 105.9 |
| At partial load (30 %) $T_F/T_R$ 50/30 °C | % | 105.8 | 105.6 |
| **Gas throughput** relative to max. heating output<br>Natural gas 12T | $m^3/h$ | 2.6 | 3.5 |
| **Gas supply pressure**<br>Natural gas 12T | Pa | 2000 | 2000 |
| **NOx class** | | 5 | 5 |
| **Power consumption** | | | |
| Max. | W | 124 | 150 |
| Without circulation pump | W | 41 | 51 |
| **Boiler water capacity** | l | 2.9 | 3.6 |
| **Diaphragm expansion vessel** | | | |
| Capacity | l | 6 | 6 |
| Pre-charge pressure | MPa | 0.1 | 0.1 |
| **Permiss. operating pressure** (heating water side) | | | |
| Min. | MPa | 0.08 | 0.08 |
| Max. | MPa | 0.3 | 0.3 |
| **Heating water temperature** | | | |
| Min. | °C | 20 | 20 |
| Max. | °C | 80 | 80 |
| **Operating pressure** (on the DHW side) | | | |
| Min. | MPa | 0.1 | 0.1 |
| Max. | MPa | 1.0 | 1.0 |
| **Nominal water flow rate** for DHW heating (ΔT = 30 K) | l/min | 12.4 | 17.0 |
| **DHW temperature** | | | |
| Min. | °C | 30 | 30 |
| Max. | °C | 57 | 57 |
| **Flue gas parameters** | | | |

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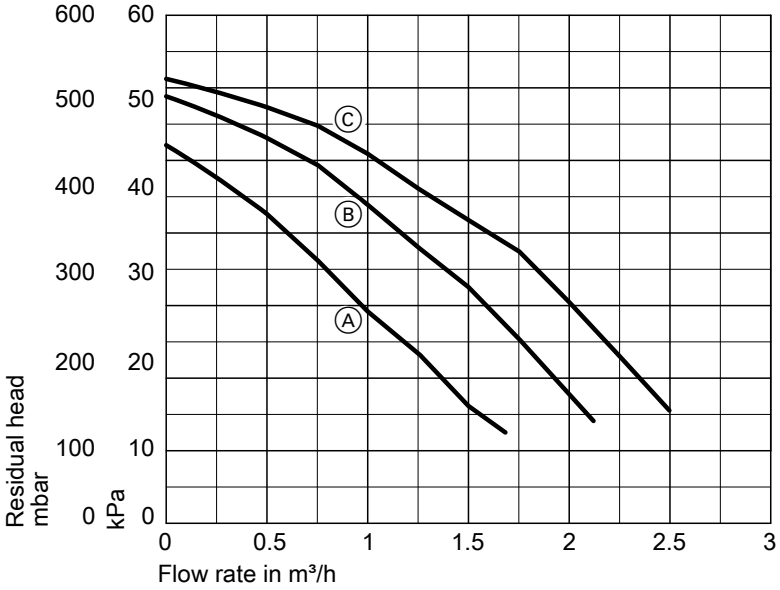
## Specification (cont.)

| Type | | LL1GBQ24-CC | LL1GBQ33-CC |
|---|---|---|---|
| **Rated heat input (heating mode)** | **kW** | **6.1 – 24.3** | **8.2 – 32.7** |
| **Rated heat input (DHW heating)** | **kW** | **6.1 – 30.5** | **8.2 – 36.5** |
| Flue gas temperature at 30 °C heating water return temperature | °C | 45 | 45 |
| Flue gas temperature at 60 °C heating water return temperature | °C | 68 | 70 |
| Flue gas mass flow rate at max. heating output | $m^3/h$ | 41.1 | 56.9 |
| Flue gas mass flow rate at min. heating output | $m^3/h$ | 14.6 | 17.6 |
| **Balanced flue connection** | ∅ mm | 60/100 | 60/100 |
| **Rated voltage** | V~ | 220 | 220 |
| **Rated frequency** | Hz | 50 | 50 |
| **Rated current** | A~ | 2.0 | 2.0 |
| **IP rating** | | IPX4D | IPX4D |
| **Protection class** | | I | I |
| **Internal fuse** | A | 2.5 | 2.5 |
| **Permissible ambient temperature** | | | |
| ■ During operation | °C | 0 to +40 °C | 0 to +40 °C |
| ■ During storage and transport | °C | -20 to +65 °C | -20 to +65 °C |
| **Dimensions** | | | |
| Height | mm | 700 | 700 |
| Width | mm | 400 | 400 |
| Depth | mm | 350 | 350 |
| **Weight** | kg | 35 | 38 |

## Specification (cont.)

### Residual head of the integral circulation pump

**UPS 15-50 (rated heating output 19 kW)**




Ⓐ Stage 1
Ⓑ Stage 2
Ⓒ Stage 3

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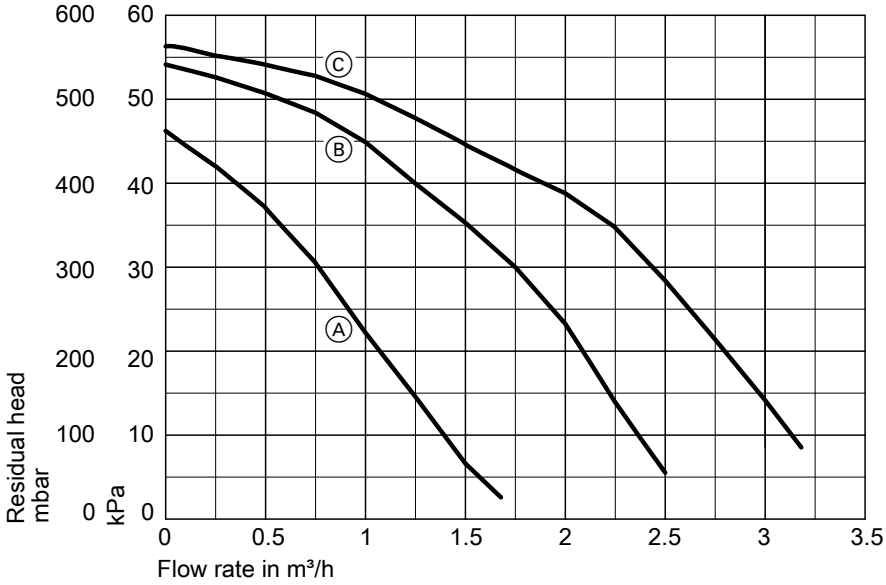
## Specification (cont.)

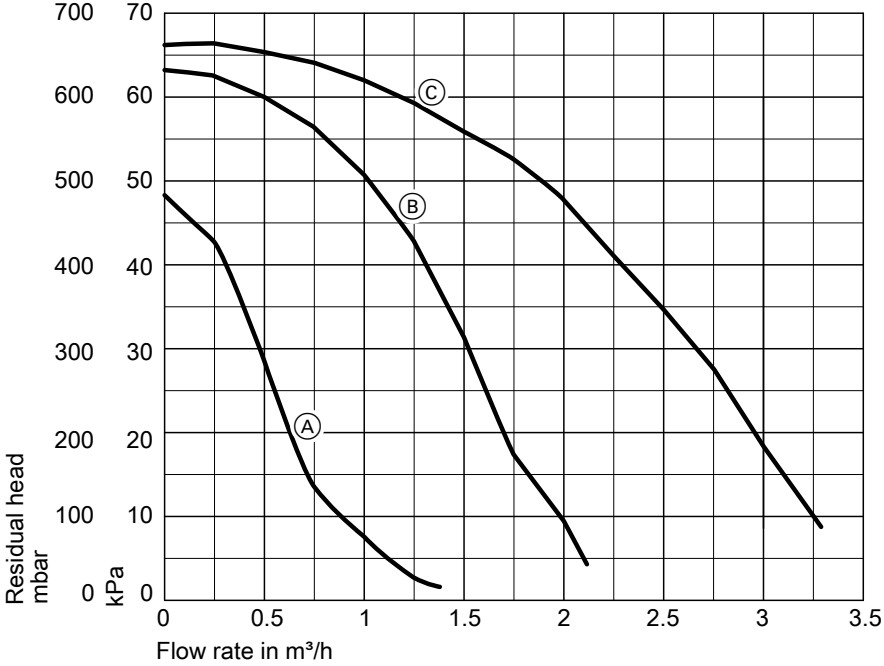
**UPS 15-60 (rated heating output 26 kW)**




Ⓐ Stage 1
Ⓑ Stage 2
Ⓒ Stage 3

## Specification (cont.)

**UPS 15-70 (rated heating output 35 kW)**




Ⓐ Stage 1
Ⓑ Stage 2
Ⓒ Stage 3

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## Manufacturer's declaration for Vitodens 100 CC

We, Viessmann Heating Technology Dachang Co., Ltd., declare as sole responsible body, that the product **Vitodens 100 CC** complies with the following standards:

GB25034-2010
CECS215:2006
CJ/T395-2012

This product meets the requirements of the efficiency standard GB20665-2015 and is classified as an energy saving product.

Dachang, 1 January 2017

Viessmann Heating Technology
Dachang Co., Ltd.

Arndt Fingerhut

# Keyword index



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## Keyword index (cont.)



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## Applicability

**Serial No.:**

| | | | |
|---|---|---|---|
| 7637257 | 7637258 | 7637259 | 7637260 |
| 7637261 | 7639524 | 7639525 | 7639526 |
| 7639527 | 7639528 | | |


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