

Installation and service instructions

for contractors

VIESSMANN

Vitodens 100-W

Type **WB1C**, 7.4 to 35.0 kW

Wall mounted gas condensing boiler

Natural gas and LPG version

For applicability, see the last page



VITODENS 100-W



Safety instructions



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

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

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

Note

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

Target group

These instructions are exclusively designed for qualified personnel.

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

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations,

- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards,
- Gas Safety (Installation & Use) Regulations
 - the appropriate Building Regulation either the Building regulations, the Building Regulation (Scotland), Building Regulations (Northern Ireland),
 - the Water Fittings Regulation or Water Bylaws in Scotland,
 - the current I.E.E. Wiring Regulations.

If you smell gas



Danger

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

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

Safety instructions (cont.)

If you smell flue gas



Danger

Flue gas can lead to life-threatening poisoning.

- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors leading to the living space.

Working on the system

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



Please note

Electronic modules can be damaged by electro-static discharges.

Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components which fulfil a safety function can compromise the safe operation of your heating system.

Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts



Please note

Spare and wearing parts which have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications/conversion can compromise safety and may invalidate our warranty. For replacements, use only original spare parts from Viessmann or those which are approved by Viessmann.

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Preparing for installation

Product information

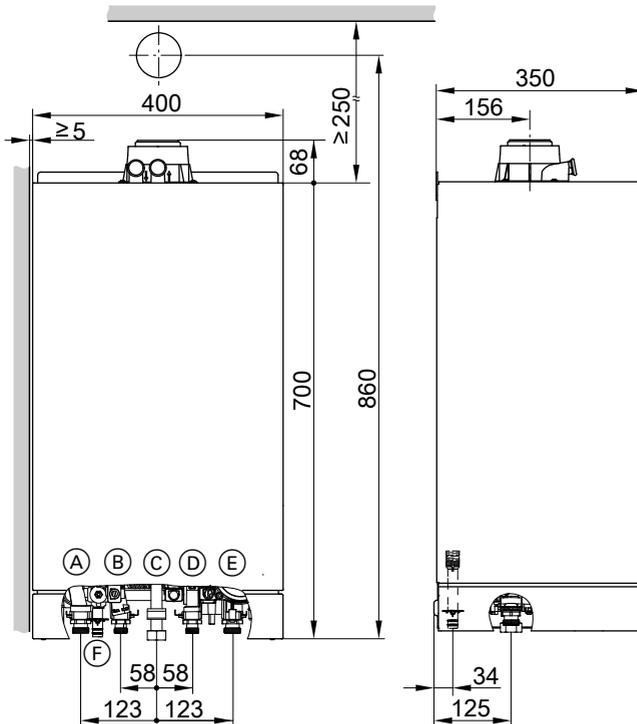
Vitodens 100-W, WB1C

Preset for operation with natural gas.

Preparing for installation

Preparing for the boiler installation

Dimensions and connections



- (A) Heating flow
- (B) Gas condensing boiler:
Cylinder flow
Gas condensing combi boiler:
DHW

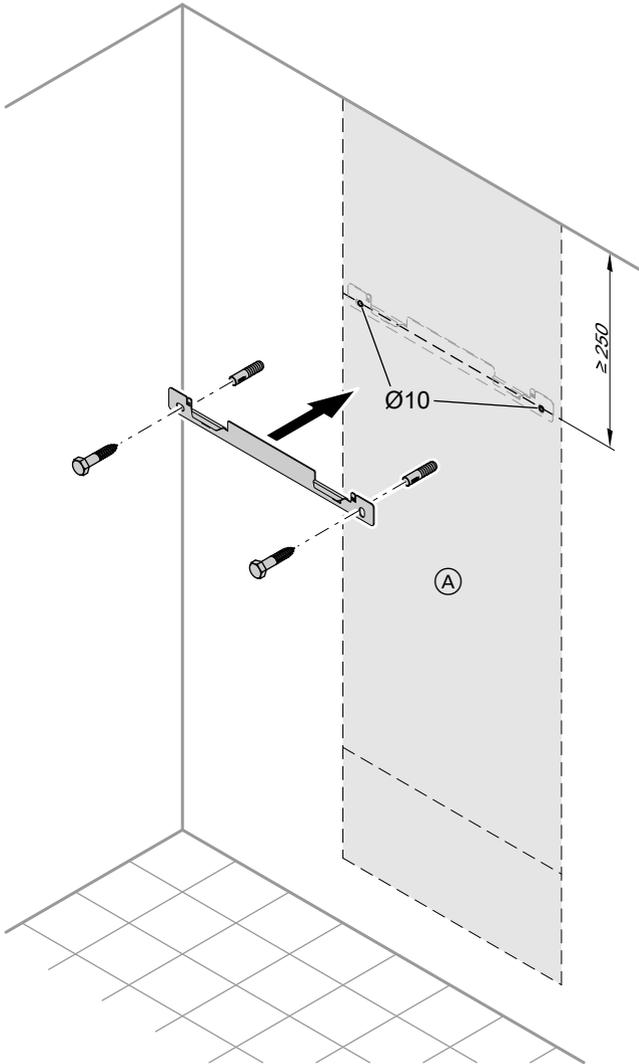
- (C) Gas connection
- (D) Gas condensing boiler:
Cylinder return
Gas condensing combi boiler:
Cold water

Preparing for installation (cont.)

- Ⓔ Heating return
- Ⓕ Condensate drain/safety valve
drain: Plastic hose \varnothing 22 mm

Preparing for installation (cont.)

Fitting the wall mounting bracket



Ⓐ Installation template Vitodens

Preparing for installation (cont.)

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

Fit installation aid or mounting frame



Installation aid or mounting frame installation instructions

Preparing the connections



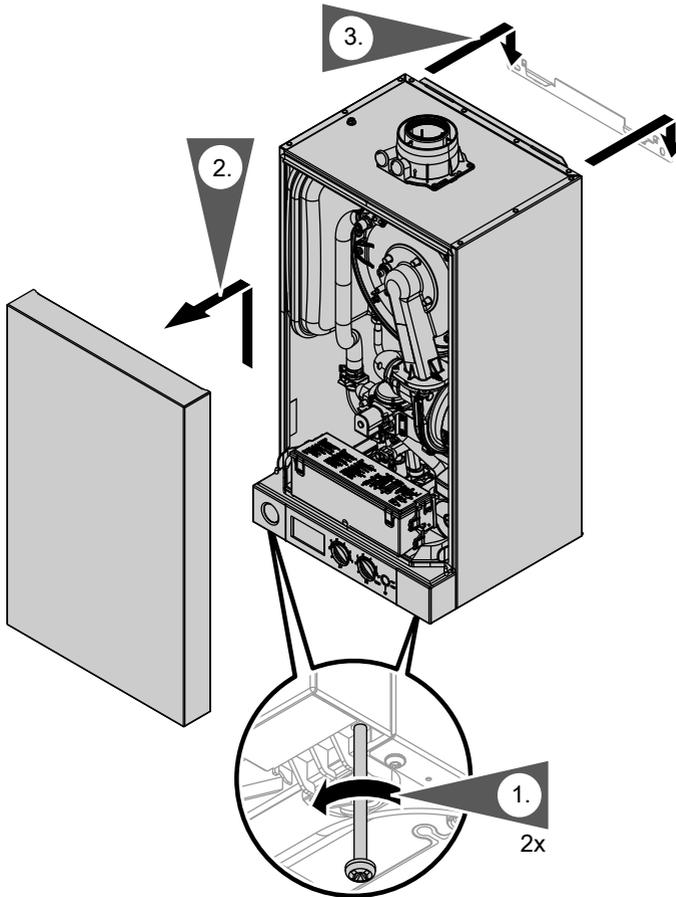
Please note

To prevent equipment damage, install all pipework free of load and torque stresses.

1. Prepare the water connections. Flush the heating system.
2. Prepare gas connection.
3. Prepare the electrical connections.
 - Power cable NYM-J 3 x 1.5 mm².
 - Accessory cables:
NYM-O 2-core min. 0.5 mm².

Fitting the boiler and assembling connections

Removing the front panel and mounting the boiler



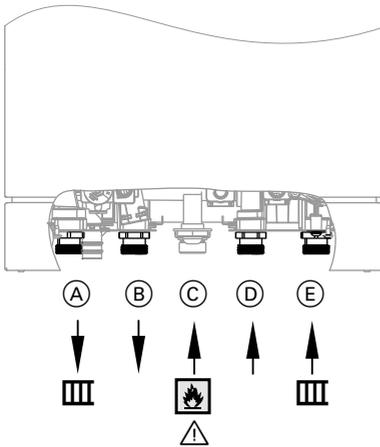
1. Release screws at the bottom of the boiler; do not remove completely.
2. Remove front panel.
3. Hook the boiler into the wall mounting bracket.

Installing connections on the water side



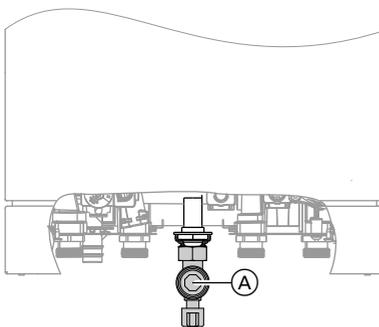
For fittings on the heating water side and DHW side, see separate installation instructions.

Fitting the boiler and assembling connections (cont.)



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

Gas connection



1. Connect gas shut-off valve to connection (A).



Fitting the boiler and assembling connections (cont.)

2. Carry out a tightness test.

Note

For the tightness test, use only suitable and approved leak detecting agents (EN 14291) and devices.

Leak detecting agents with unsuitable contents (e.g. nitrites, sulphides) can lead to material damage.

Remove residues of the leak detecting agent after testing.



Please note

Excessive test pressure may damage the boiler and the gas valve.

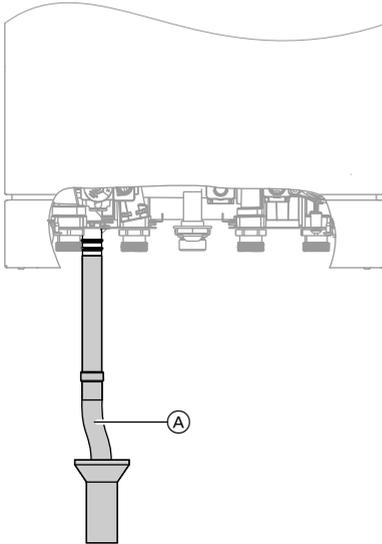
Max. test pressure 150 mbar.

Where higher pressure is required for tightness tests, separate the boiler and the gas valves from the gas supply pipe (undo the fitting).

3. Vent the gas line.

Fitting the boiler and assembling connections (cont.)

Connection, safety valve and condensate drain

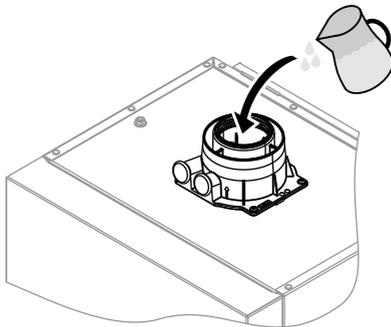


Connect condensate drain pipe (A) with a constant fall and a pipe vent to the public sewage system. Observe the local waste water regulations.

Note

Fill the siphon with water before commissioning.

Filling the siphon with water



Fill a minimum of 0.3 l of water into the flue gas connection.



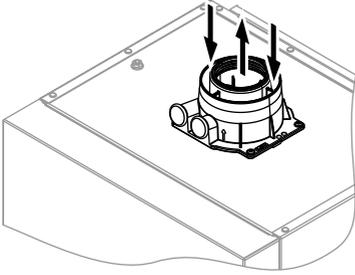
Please note

At commissioning, flue gas may be emitted from the condensate drain.

Fill the siphon with water before commissioning.

Fitting the boiler and assembling connections (cont.)

Balanced flue connection

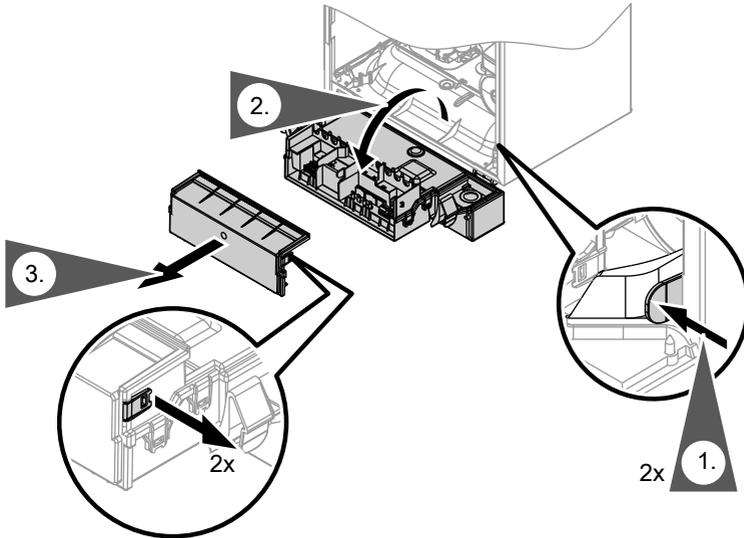


Connect the balanced flue.



Flue system installation instructions.

Opening the control unit



Opening the control unit (cont.)



Please note

Electronic assemblies can be damaged by electrostatic discharge.

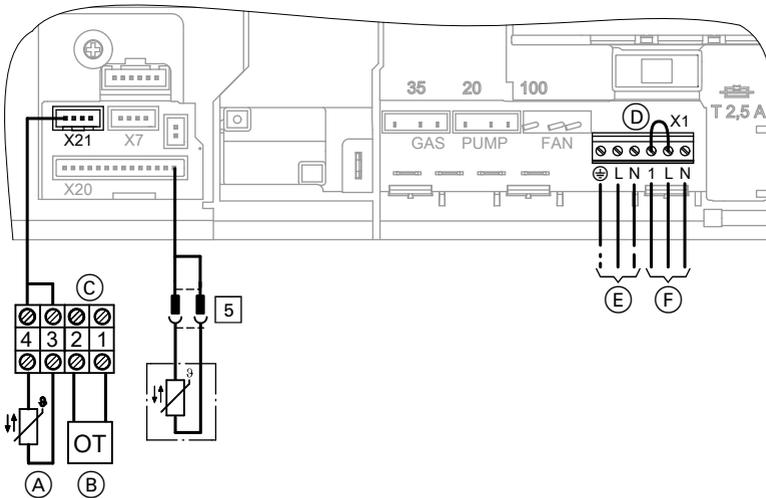
Before beginning work, touch earthed objects, such as heating or water pipes, to discharge static loads.

Electrical connections



Information about connecting accessories

For this connection, observe the separate installation instructions provided with the accessories.



Electrical connections (cont.)

- 5 Gas condensing boilers only: Cylinder temperature sensor (plug on the cable harness outside the control unit) or connect the control box (supplied with the system boiler) if a 230V 2-port valve and cylinder stat are used in a 4-pipe installation (see separate installation instructions)

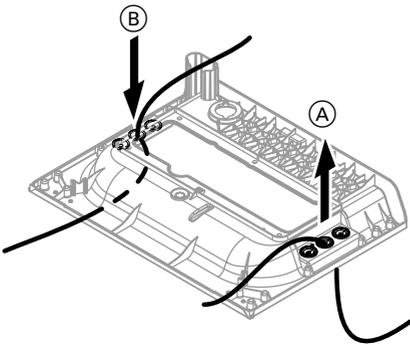
Note

Gas condensing boiler without DHW cylinder:

For operation without a DHW cylinder, set rotary selector "🔌🔌" to "0".

- (A) Only for weather-compensated mode:

Cable entry



- (A) Power cable, remote control connecting cable
(B) LV leads (sensor leads)

Outside temperature sensor (accessory)

- (B) Open Therm device
Remove jumper (D) when making this connection.
(C) Connecting cable (accessory)
(D) Jumper
(E) Power supply (230 V, 50 Hz). See page 17.
(F) Vitotrol 100
Remove jumper (D) when making this connection.



Separate installation instructions

Electrical connections (cont.)

Outside temperature sensor (accessory)

1. Plug the power cable supplied with the outside temperature sensor into slot "X21".
2. Connect the outside temperature sensor to terminals 3 and 4.

Power supply

Regulations and Directives



Danger

Incorrectly executed electrical installations can lead to injury from electrical current and result in equipment damage.

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

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

Install an isolator in the power supply line that simultaneously isolates all non-earthed conductors from the mains with at least 3 mm contact separation.

We additionally recommend installing an AC/DC-sensitive RCD (RCD class B ) for DC (fault) currents that can occur with energy efficient equipment. Protect the power cable with max. 16 A.



Danger

Incorrect wire termination can cause severe injury and damage the appliance.

Take care **not** to interchange wires "L1" and "N".



Danger

The absence of component earthing in the system can lead to serious injury from electrical current if an electrical fault occurs. Connect the appliance and pipework to the equipotential bonding of the building in question.

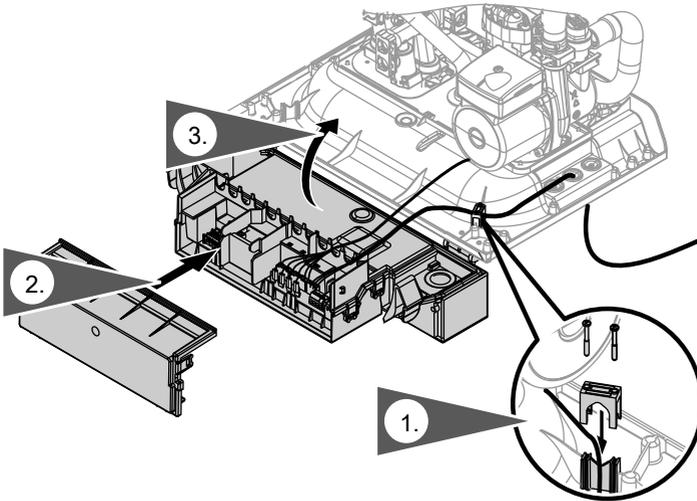
Electrical connections (cont.)

Routing connecting cables and closing control unit



Please note

Power cables will be damaged if they touch hot components. When routing and securing power cables on site, ensure that the maximum permissible temperatures for these cables are not exceeded.



Steps - commissioning, inspection and maintenance

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

				Page
			Commissioning steps	
			Inspection steps	
			Maintenance steps	
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•	•	•	2. Venting the boiler by flushing	22
•	•	•	3. Changing to operation with LPG	22
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•	•	•	17. Checking gas equipment for tightness at operating pressure	34
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•			19. Instructing the system user	35

Further details regarding the individual steps

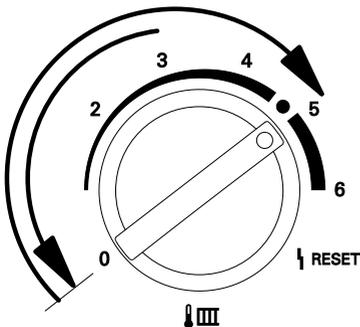
Filling the heating system



Please note

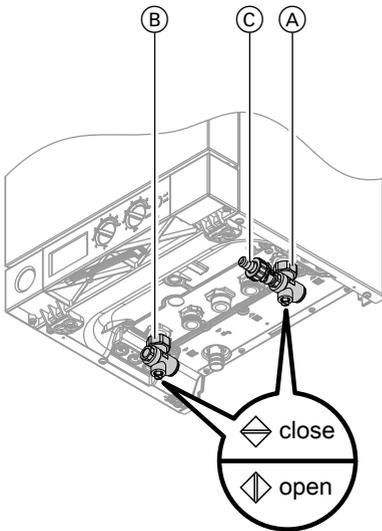
Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.

- Thoroughly flush the entire heating system prior to filling it with water.
- Only use fill water of potable quality.
- Soften fill water harder than 16.8 °dH (3.0 mmol/l).
- An antifreeze suitable for heating systems can be added to the fill water.



1. Close the gas shut-off valve.
2. Switch ON the power supply.
3. Turn rotary selector "" anticlockwise for less than 2 s and then clockwise back to the control range on the right.
"SERV", "" and "" appear on the display. Filling function is enabled.
This function will end automatically after 20 min or after ON/OFF switch has been turned OFF.

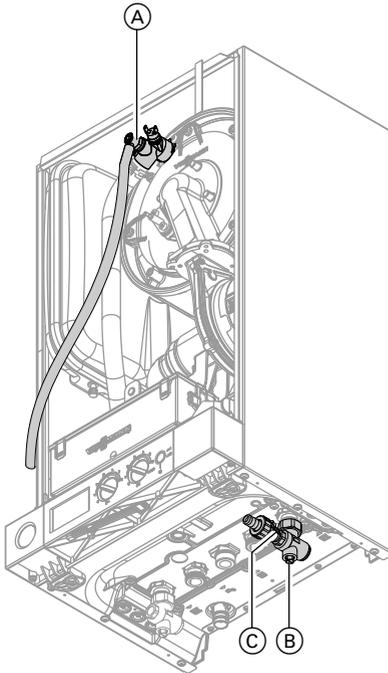
Further details regarding the individual steps (cont.)



4. Open shut-off valves (A) and (if installed) (B).
5. Connect fill hose to valve (C) and open valve (C).
6. Fill heating system. (Minimum system pressure > 0.8 bar).
7. Close valve (C).

Further details regarding the individual steps (cont.)

Venting the boiler by flushing



1. Connect the drain hose on shut-off valve (A) to a drain.
2. Close shut-off valve (B).
3. Open valves (A) and (C) and flush at mains pressure, until no sound of escaping air can be heard.
4. First shut off valve (A) and then valve (C).
5. Operating pressure ≥ 0.8 bar; adjust with valve (C).
6. Open shut-off valve (B).
7. Disconnect drain hose and put to one side.

Changing to operation with LPG

In the delivered condition, the boiler is set up for operation with natural gas. For operation with LPG, the gas nozzle must be changed and the gas type converted in the control unit.



Separate installation instructions.

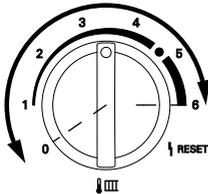
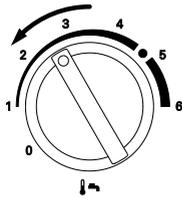
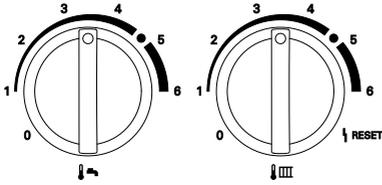
Changing from LPG to natural gas - see page 52.

Matching the burner output to the flue system

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

1. Turn ON/OFF switch ON.

Further details regarding the individual steps (cont.)



2. Simultaneously turn rotary selectors "🔥" and "🔧" to their central positions.
"SERV" appears on the display.
3. Refer to the following table for the correction factor required for the connected flue system.
4. Within 2 s, turn rotary selector "🔧" to the top left range.
"🔧", "🔥", and "🔧" appear on the display and the set correction factor flashes.
In the delivered condition, factor 0 has been set.
5. Within 15 s, set rotary selector "🔧" to the required correction factor.
6. The set correction factor is saved when the value stops flashing, and the control unit returns to standard mode.

Correction factor		1	2	3	4	5	6
Flue system	Rated heating output (kW)	Max. run length (m)					
Open flue operation \varnothing 60 mm	19	4	10	16	22	—	—
	26/30	2	8	13.5	18.5	22	25
	35	5	12	18	23	—	—
Balanced flue operation \varnothing 60/100 mm coaxial	19	2	6	10	13	16	19
	26/30	1	4	7	10	12	13.5
	35	3	6	9	12	14	17
Balanced flue operation \varnothing 60/60 mm parallel	19	4	10	16	22	27	32
	26/30	2	8	13.5	18.5	22	25
	35	5	12	18	23	—	—

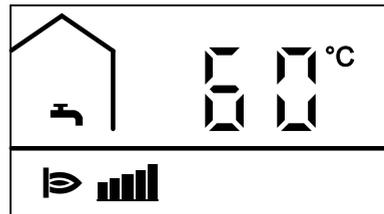
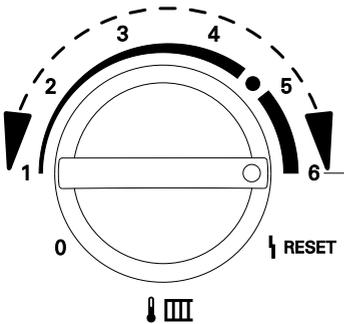
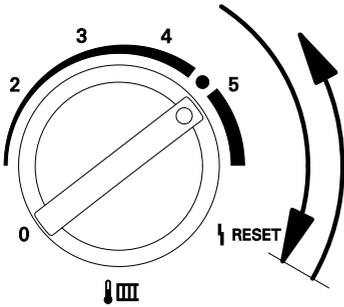
Further details regarding the individual steps (cont.)

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

Reducing the max. heating output

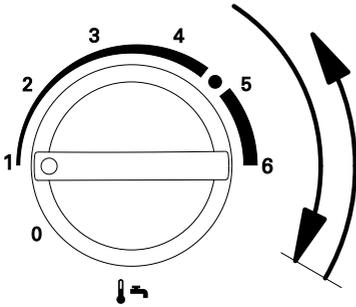
The max. heating output can be reduced according to the system requirements.

1. Turn ON/OFF switch ON.
2. Turn rotary selector "🌡️📊" fully clockwise for less than 2 s and then back to the control range on the right. "SERV" and "👁️" appear on the display.
3. Select the required max. heating output with rotary selector "🌡️📊". Bars for the selected heating output flash on the display.



- Position 1 (1 bar) = lower heating output.
- Position 6 (5 bars) = upper heating output.

Further details regarding the individual steps (cont.)

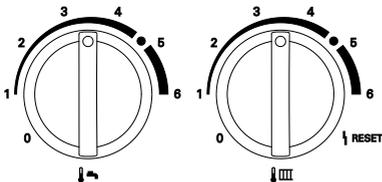


4. Test selected heating output by measuring the gas throughput.
5. Transfer selected heating output: Turn rotary selector "🔥🔧" fully clockwise for less than 2 s and then back to the control range on the right. During the transfer, "--. --" appears on the display.
6. Shut down the boiler.

Matching the circulation pump to the heating system

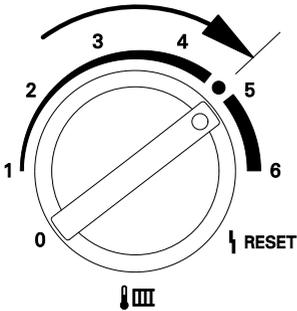
Only for gas condensing combi boilers:

In the delivered condition, the circulation pump in heating mode is set to stage 1. If necessary to suit the heating system, the circulation pump can be adjusted to stage 2.

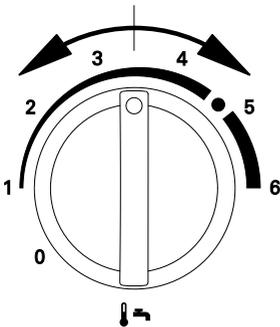


1. Turn ON/OFF switch ON.
2. Simultaneously turn rotary selectors "🔥🔧" and "🔥🔧" to their central positions. "SERV" appears on the display.

Further details regarding the individual steps (cont.)



3. Within 2 s, turn rotary selector "🌡️" to the top right range. "🌡️" appears on the display and the set value flashes.

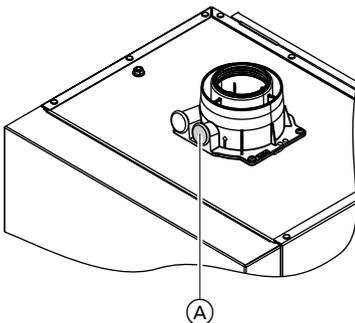


4. Adjust the control unit to stage 1 or 2 by turning rotary selector "🌡️". The display shows:
 - "1" for operation with stage 1
 - or
 - "2" for operation with stage 2
5. The set operating mode is saved when the value stops flashing, and the control unit returns to standard mode.

Checking the CO₂ 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 (A) on the boiler flue connection.

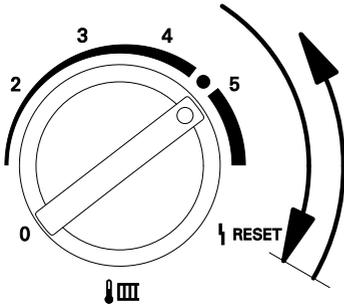
Further details regarding the individual steps (cont.)

2. Start the boiler and check for leaks.

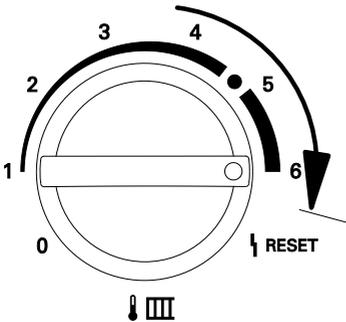


Danger

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

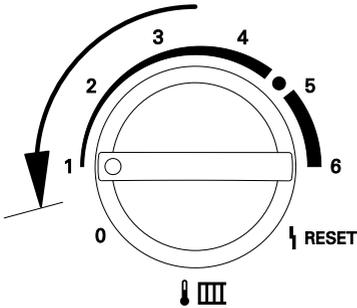


3. Turn rotary selector "🌡️ IIII" fully clockwise for less than 2 s and then back to the control range on the right.
The display shows "SERV", "➡️" and the boiler water temperature is displayed.



4. Adjust the upper output:
Turn rotary selector "🌡️ IIII" to the control range on the right until the display shows 5 bars for the upper output.
5. Test the CO₂ content for upper output.
The CO₂ content must be between 7.0 and 10.5 %.

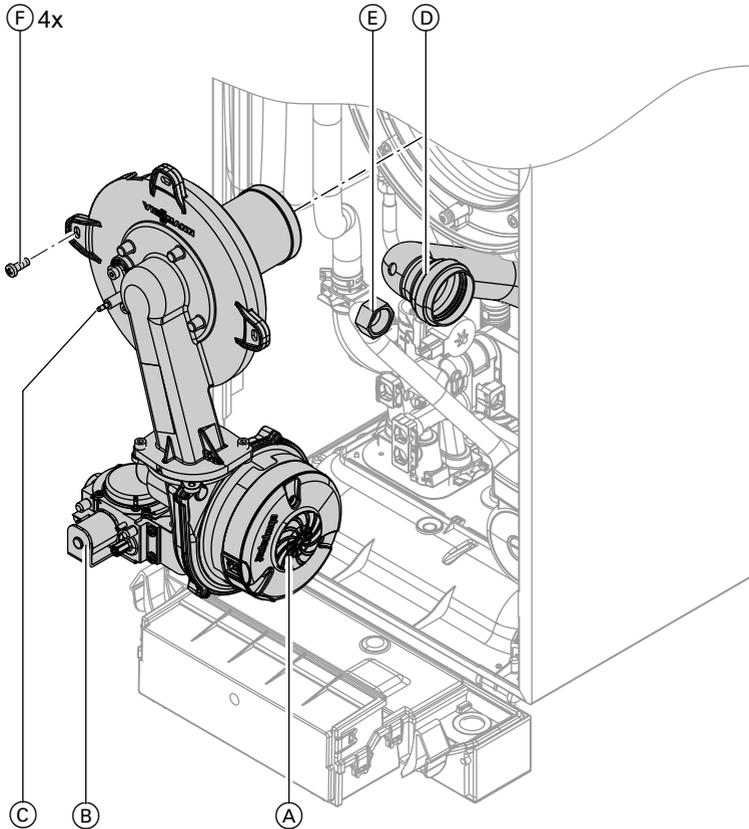
Further details regarding the individual steps (cont.)



6. Adjust the lower output:
Turn rotary selector "🌡️📊" to the control range on the left until the display shows 1 bar for the lower output.
7. Test the CO₂ content for lower output.
The CO₂ content must be between 0.3 and 0.9 % below the value for the upper output.
8. ■ If the CO₂ content is within the given range, continue with point 10.
■ If the CO₂ content is **outside** the given range, check the balanced flue system for tightness and rectify any leaks.
Replace gas train if required.
9. Test the CO₂ content for upper and lower output again.
10. Shut the boiler down, remove flue gas analyser and close flue gas port (A).
11. Return rotary selectors "🌡️📊" and "📊🌡️" to their original positions.

Further details regarding the individual steps (cont.)

Burner removal



1. Switch the power OFF.
2. Shut off the gas supply.
3. Pull out power cables from fan motor (A), gas valve (B) and electrodes (C).
4. Pull the venturi extension (D) from the fan.
5. Release gas supply pipe fitting (E).
6. Undo four screws (F) and remove the burner.



Please note

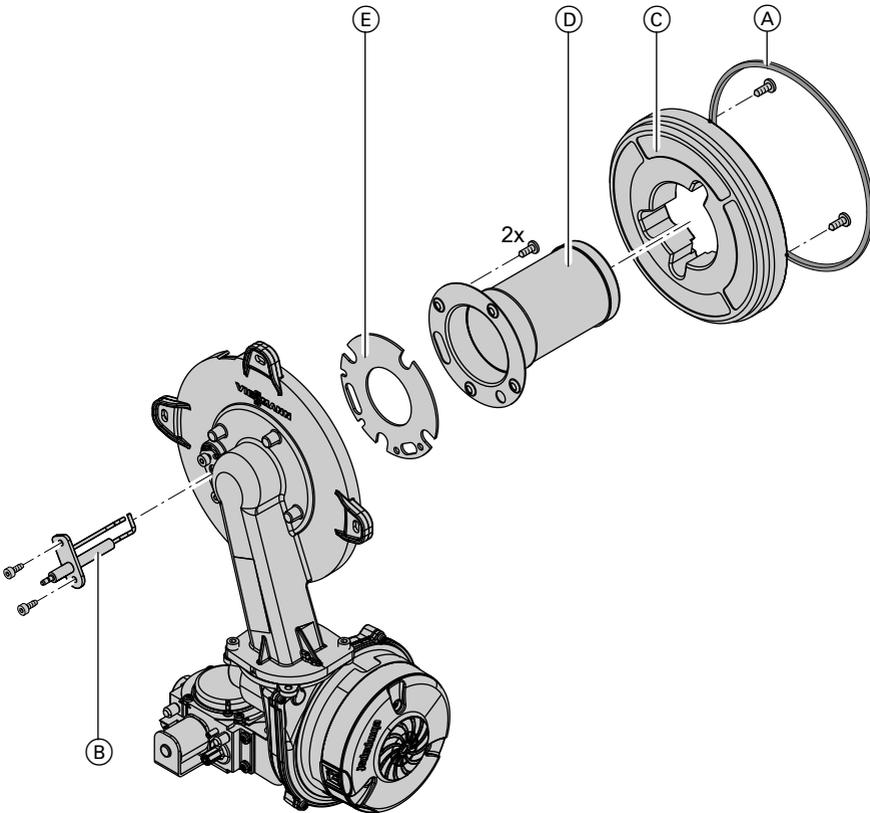
To prevent any damage, never rest the burner on the burner gauze assembly.

Further details regarding the individual steps (cont.)

Checking the burner gasket and burner gauze assembly

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

Replace the burner gauze assembly if it is damaged.



1. Remove electrode (B).
2. Undo the two Torx screws and remove thermal insulating ring (C).
3. Undo the two Torx screws and remove burner gauze assembly (D) with its gasket (E).
4. Insert and secure a new burner gauze assembly (D) with a new gas-gasket (E).
Fixing screw torque: 3.5 Nm.
5. Refit thermal insulation ring (C).
Fixing screw torque: 3.5 Nm.

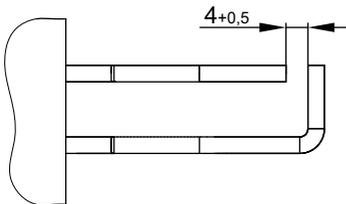
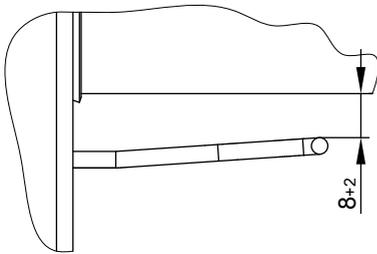
Further details regarding the individual steps (cont.)

6. Refit the electrode (B).

Fixing screw torque: 4.5 Nm.

Checking and adjusting electrodes

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



Cleaning the heat exchanger

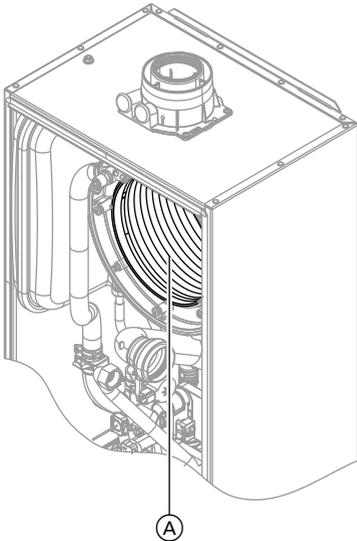


Please note

Scratches on parts that are in contact with flue gas can lead to corrosion.

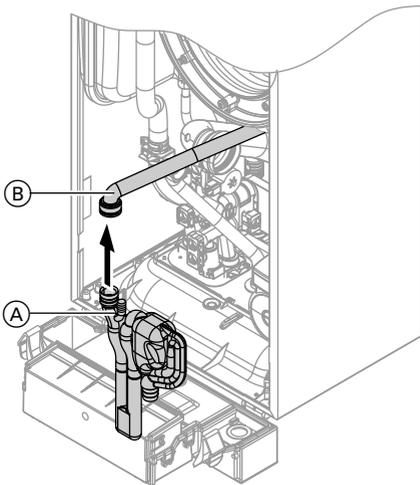
Never use brushes to clean the heat exchanger.

Further details regarding the individual steps (cont.)



1. Use a vacuum cleaner to remove residues from heat exchanger (A) inside the combustion chamber.
2. If required, spray slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E) onto heat exchanger (A) and let the solution soak in for approx. 20 min.
3. Thoroughly flush heat exchanger (A) with water.

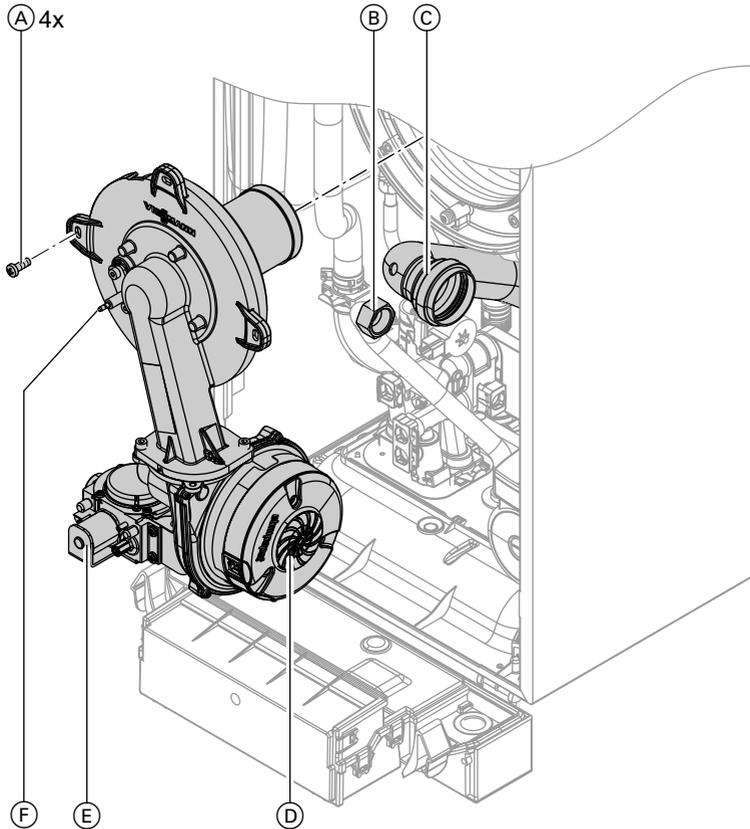
Checking the condensate drain and cleaning the siphon



1. Pull siphon (A) upwards out of the drain connection.
2. Detach supply hose (B) from siphon (A).
3. Clean siphon (A).
4. Reconnect supply hose (B).
5. Refit siphon (A) to the drain connection.
6. Fill siphon (A) with water by pouring about 0.3 l of water into the combustion chamber.
7. Check that condensate can drain freely and that the connections are tight.

Further details regarding the individual steps (cont.)

Burner installation



1. Install the burner and torque screws (A) diagonally with 8.5 Nm.
2. Insert new gasket and tighten the fittings on gas supply pipe (B)
3. Plug the venturi extension (C) into the fan.
4. Replace electrical cables from fan motor (D), gas valve (E) and ignition unit (F).
5. Reopen gas supply and switch on power supply.

Further details regarding the individual steps (cont.)

6. Check the gas connections for tightness.



Danger

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



Please note

The use of leak detecting spray can result in incorrect functions.
Leak detecting spray must not reach electrical contacts or seal diaphragm openings on the gas valve.

Checking the diaphragm expansion vessel and system pressure

Note

Carry out this test on a cold system.

1. Drain the system, or close the cap valve on the diaphragm expansion vessel and reduce the pressure, until the pressure gauge indicates "0".
2. If the pre-charge pressure of the diaphragm expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is raised by 0.1 to 0.2 bar.
3. Top up with water until the filling pressure of the cooled system is min. 1.0 bar and 0.1 to 0.2 bar higher than the pre-charge pressure of the expansion vessel.
Permiss. operating pressure: 3 bar

Checking gas equipment for tightness at operating pressure



Danger

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

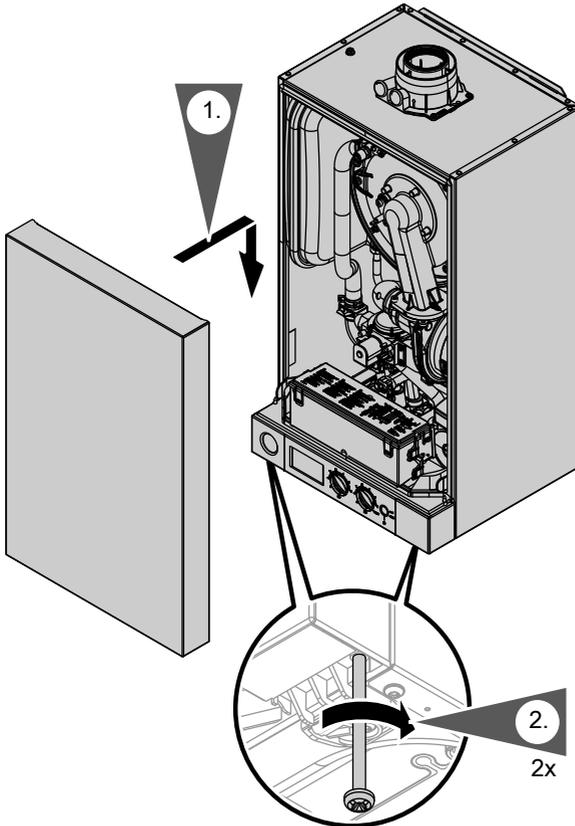


Please note

The use of leak detecting spray can result in incorrect functions.
Leak detecting spray must not reach electrical contacts or seal diaphragm openings on the gas valve.

Further details regarding the individual steps (cont.)

Fitting the front panel



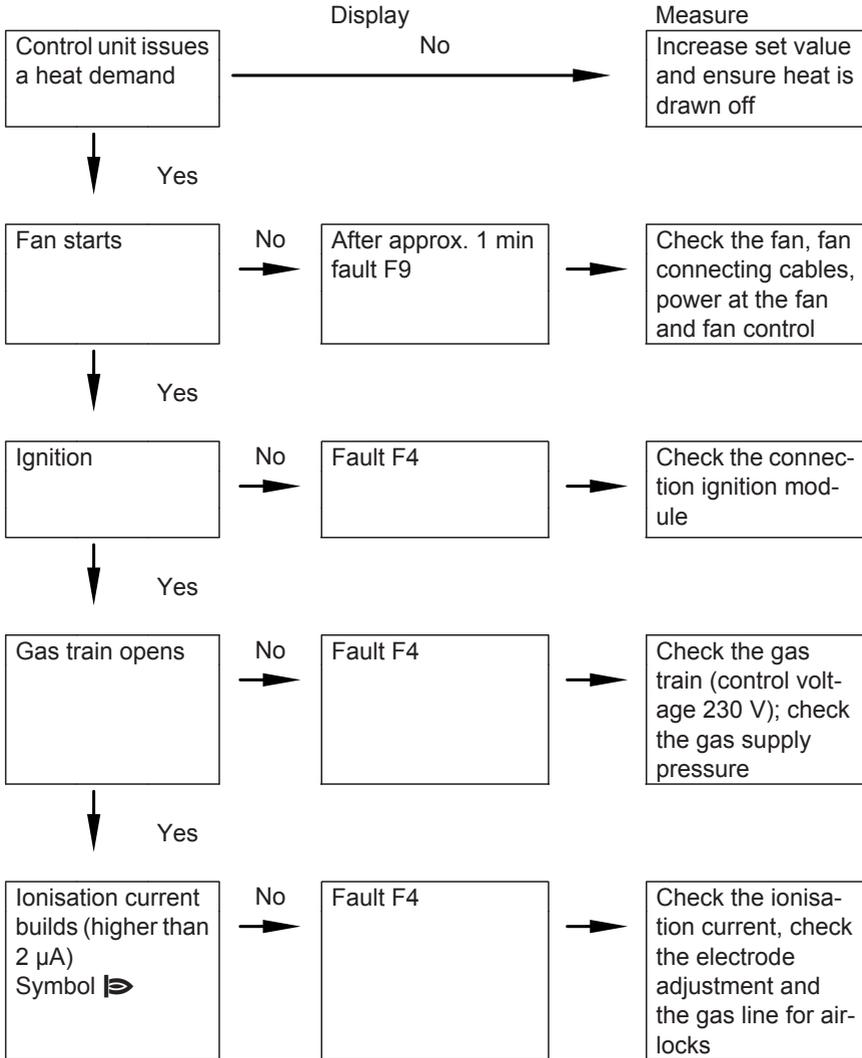
1. Hook the front panel into place.

2. Tighten screws at the bottom.

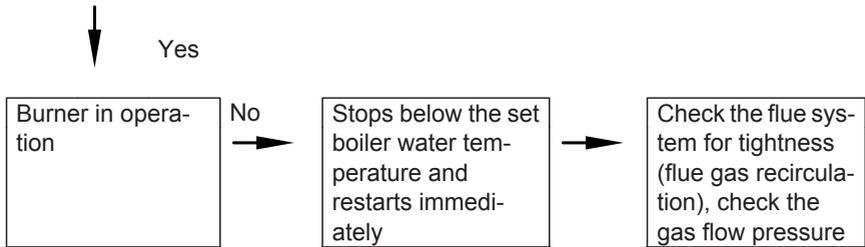
Instructing the system user

The system installer must hand the operating instructions to the system user and instruct the user in the operation of the system.

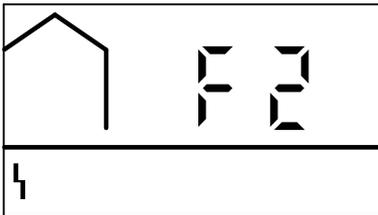
Function sequence and possible faults



Function sequence and possible faults (cont.)



Fault messages on the display



Faults are indicated by a flashing fault code with fault symbol "F" on the display. For fault code explanations see the following table.

Displayed fault code	System characteristics	Cause	Measures
10	Constant mode	Short circuit, outside temperature sensor	Check the outside temperature sensor and lead (see page 41).
18	Constant mode	Lead break, outside temperature sensor	Check the outside temperature sensor and lead (see page 41).
30	Burner blocked	Short circuit, boiler water temperature sensor	Check the boiler water temperature sensor (see page 43).
38	Burner blocked	Lead break, boiler water temperature sensor	Check the boiler water temperature sensor (see page 43).
50	No DHW heating	Short circuit, cylinder temperature sensor	Check the sensor (see page 44).

Fault messages on the display (cont.)

Displayed fault code	System characteristics	Cause	Measures
51	No DHW heating	Short circuit, outlet temperature sensor	Check the sensor (see page 47).
52	Burner blocked	Short circuit, flow sensor	Check connections and lead; replace sensor if required.
58	No DHW heating	Lead break, cylinder temperature sensor	Check the sensor (see page 44).
59	No DHW heating	Lead break, outlet temperature sensor	Check the sensor (see page 47).
5A	Burner blocked	Lead break, flow sensor	Check connections and lead; replace sensor if required.
A9	Control mode without Open Therm device	Communication fault Open Therm device	Check connections and lead; replace Open Therm device if required.
b0	Burner blocked	Short circuit, flue gas temperature sensor	Check the sensor (see page 48).
b8	Burner blocked	Lead break, flue gas temperature sensor	Check the sensor (see page 48).
E3	Burner in a fault state	Fault in safety chain	Check the temperature limiter and connecting leads (see page 45). Check the control unit, and replace if required.
E5	Burner blocked	Internal fault	Check the ionisation electrode and cables. Press "Reset" (see page 40).
F0	Burner blocked	Internal fault	Replace control unit.
F1	Burner in a fault state	Max. flue gas temperature exceeded	Check heating system fill level. Check circulation pump. Vent the system. Press "Reset" (see page 40).

Fault messages on the display (cont.)

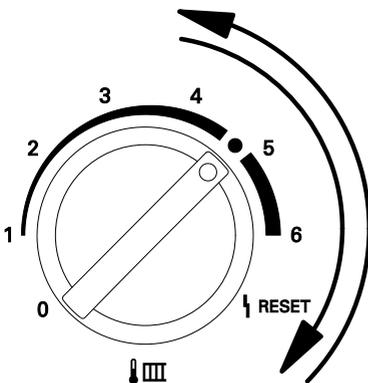
Displayed fault code	System characteristics	Cause	Measures
F2	Burner in a fault state	The temperature limiter has responded	Check heating system fill level. Check circulation pump. Vent the system. Check the temperature limiter and connecting leads (see page 45). Press "Reset" (see page 40).
F3	Burner in a fault state	Flame signal is already present at burner start	Check ionisation electrode and connecting cable. Press "Reset" (see page 40).
F4	Burner in a fault state	No flame signal is present	Check the ionisation electrode and leads, check the gas pressure, check the gas train, ignition, ignition module and condensate drain. Press "Reset" (see page 40).
F8	Burner in a fault state	Fuel valve closes too late	Check gas train. Check both control paths. Press "Reset" (see page 40).
F9	Burner in a fault state	Fan speed too low during burner start	Check fan, fan connecting cables and power supply; check fan control. Press "Reset" (see page 40).
FA	Burner in a fault state	Fan not at standstill	Check fan, fan connecting cables and fan control. Press "Reset" (see page 40).
FC	Burner blocked	Electrical fan control (control unit) faulty	Check fan connecting cable; if required, replace or replace control unit.



Fault messages on the display (cont.)

Displayed fault code	System characteristics	Cause	Measures
Fd	Burner blocked	Fault, combustion controller	<p>Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance.</p> <p>Press "Reset" (see page 40). Replace control unit if fault persists.</p>
FF	Burner blocked	Fault, combustion controller	<p>Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance.</p> <p>Press "Reset" (see page 40). Replace control unit if fault persists.</p>

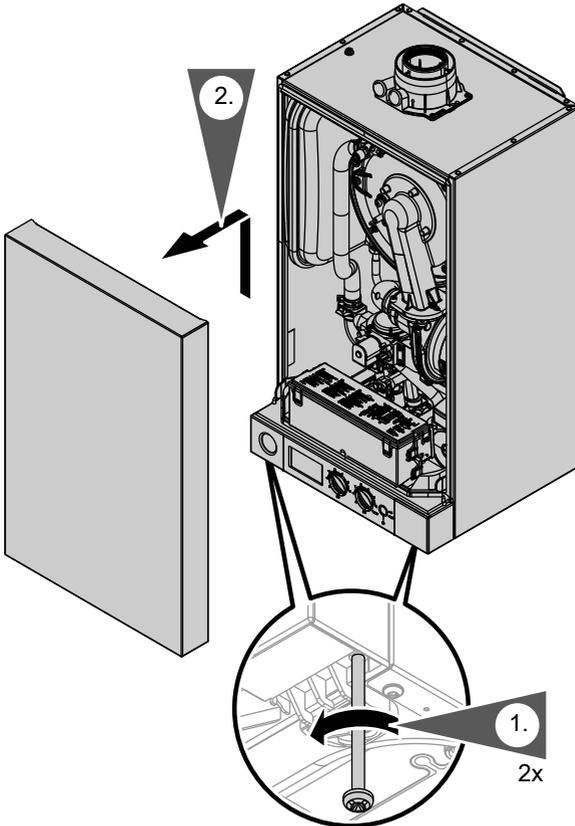
Press reset



Turn rotary selector "🔥" less than 2 s to "⏏ RESET", then back to the control range.

Repairs

Removing the front panel

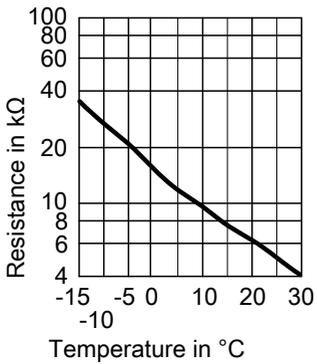
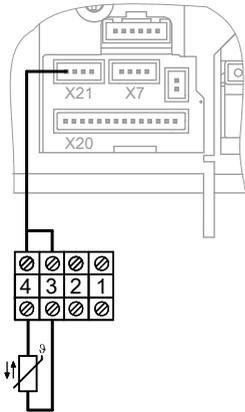


1. Release screws at the bottom of the boiler; do not remove completely.
2. Remove front panel.

Outside temperature sensor

1. Open the control unit casing. See page 14.

Repairs (cont.)



2. Disconnect cables from outside temperature sensor.

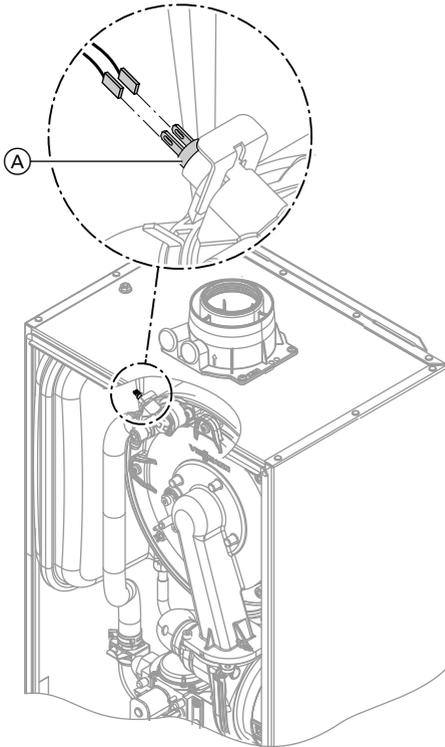
3. Check the sensor resistance and compare it with the curve.

4. Replace the sensor in the case of severe deviation.

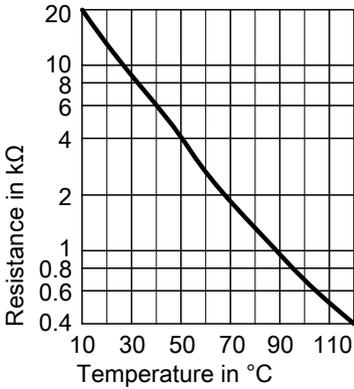
Repairs (cont.)

Boiler water temperature sensor

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



Repairs (cont.)



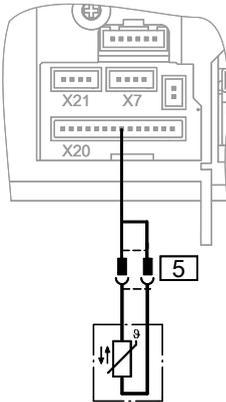
2. Check the sensor resistance and compare it with the curve.
3. In case of severe deviation, drain boiler on the heating water side and replace the sensor.



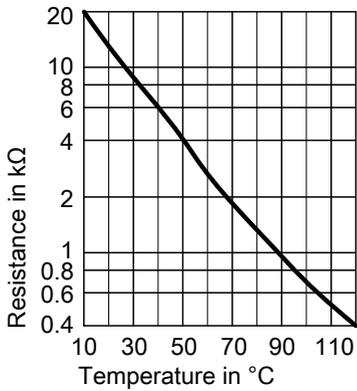
Danger

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

Checking cylinder temperature sensor (gas condensing boiler)



1. Remove plugs **5** from the cable harness and check the resistance.

Repairs (cont.)

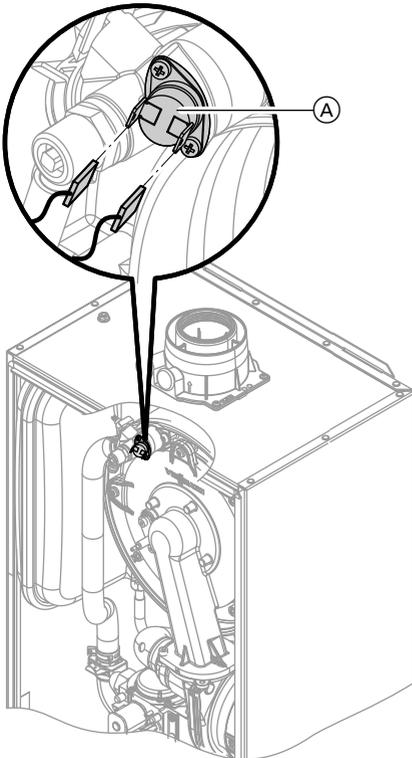
2. Compare the sensor resistance with the curve.
3. Replace the sensor in the case of severe deviation.

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.



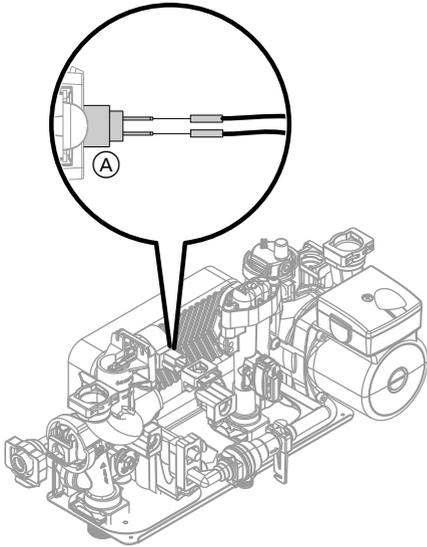
Repairs (cont.)



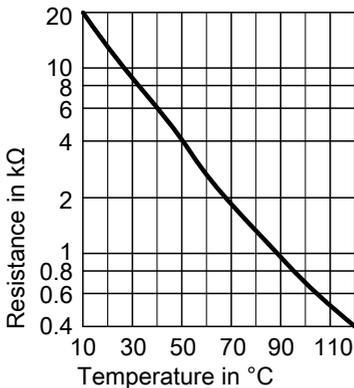
1. Pull the leads from temperature limiter (A).
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Install a new temperature limiter.
5. Press "Reset" at the control unit (see page 40).

Repairs (cont.)

Checking the outlet temperature sensor (gas condensing combi boiler)



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



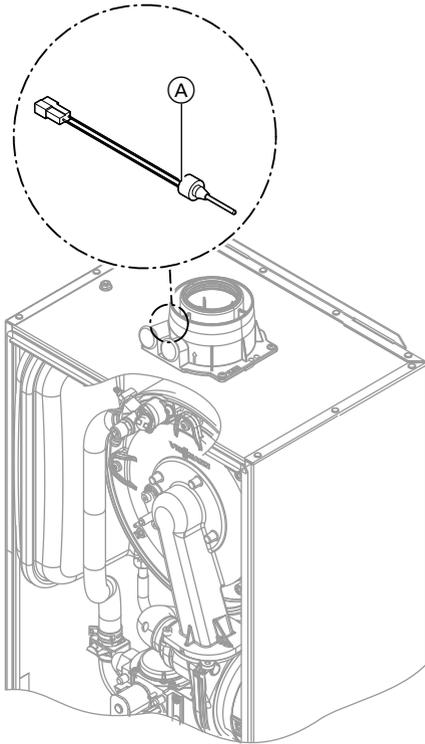
3. Replace the sensor in the case of severe deviation.

Note

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

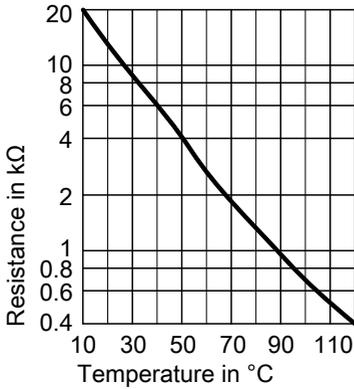
Repairs (cont.)

Check flue gas temperature sensor



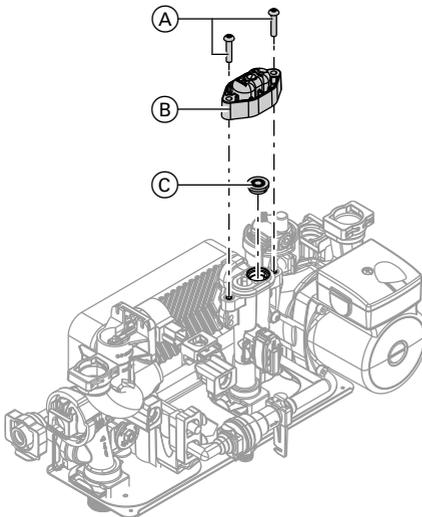
1. Pull out the leads from flue gas temperature sensor (A).
2. Check the sensor resistance and compare it with the curve.

Repairs (cont.)



3. Replace the sensor in the case of severe deviation.

Replacing flow limiter (gas condensing combi boiler)

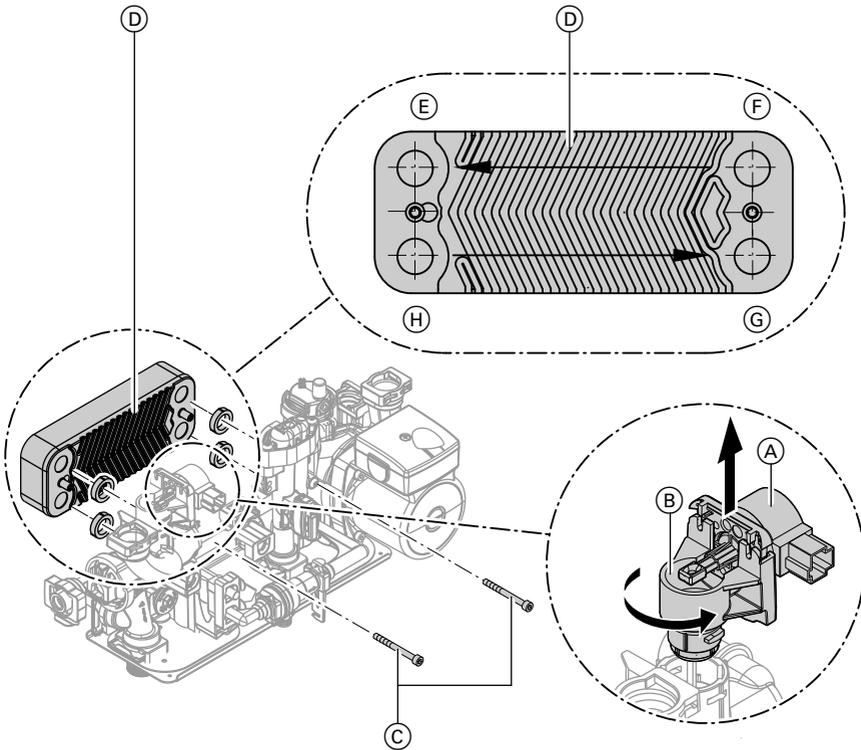


1. Drain the boiler from the DHW side.
2. Pivot the control unit downwards.
3. Undo screws (A).
4. Remove the cap (B).
5. Remove faulty flow limiter (C).
6. Select new flow limiter (C) corresponding to boiler serial no. (see type plate) and the following table.
7. Insert new flow limiter (C).
8. Fit new cap (B) provided.

Serial no. (Type plate)	Flow rate l/min	Colour
7441748	12	red
7441749	14	brown

Repairs (cont.)

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



- (E) Heating water flow
- (F) Heating water return

- (G) Cold water
- (H) DHW

1. Shut off and drain the boiler on the heating water and the DHW side.
2. Flip down control unit.
3. Push the three-way valve drive (A) slightly upwards.
4. Turn the three-way valve (B) with drive (A) 1/8 anticlockwise and remove.

Repairs (cont.)

- Remove two screws (C) from the plate heat exchanger and remove plate heat exchanger (D) with gaskets.

Note

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

- Check the DHW side for scaling and if required clean or replace the plate heat exchanger.

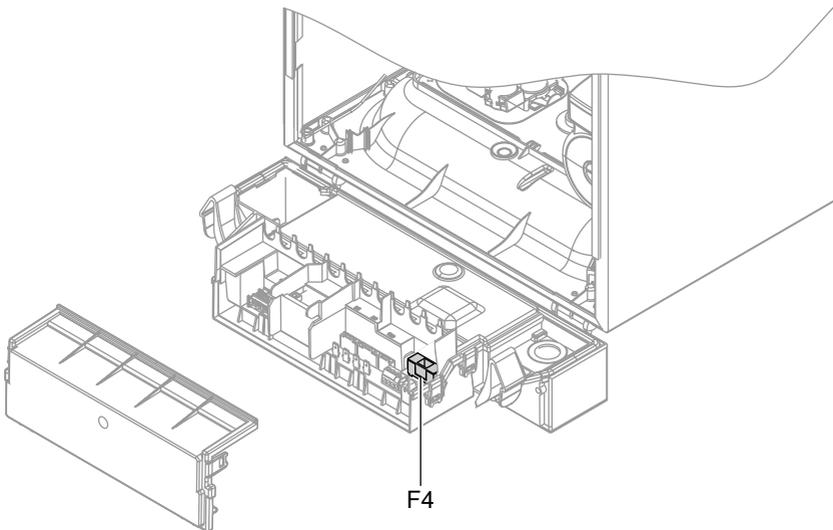
- Check the heating water side for contamination and if required clean or replace the plate heat exchanger.

- Install in reverse order with new gaskets.

Note

Ensure that fixing holes and gaskets are aligned. Install the plate heat exchanger with the correct orientation.

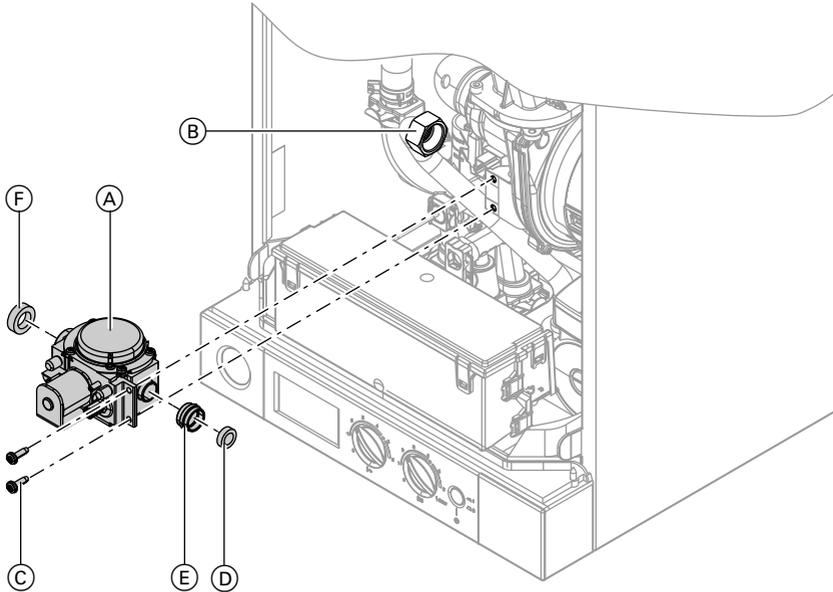
Checking the fuse



- Switch the power OFF.
- Open control unit casing (see page 14).
- Check fuse F4.

Converting from LPG to natural gas

Removing gas restrictor



1. Pull out power cable from gas train (A).
2. Undo union nut (B).
3. Undo both screws (C) and remove gas train (A).
4. Remove gas restrictor (D) from gas train (A).
5. Fit gas train (A) with new gaskets (E) and (F).
Fixing screw torque (C): 3 Nm.
Union nut torque (B): 30 Nm.
6. Remove or void gas type sticker on the top of the boiler (next to the type plate).
7. Start the boiler and check for leaks.

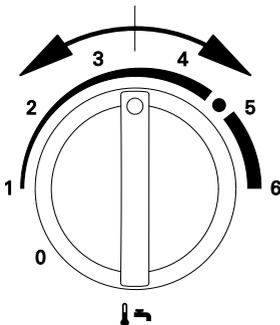
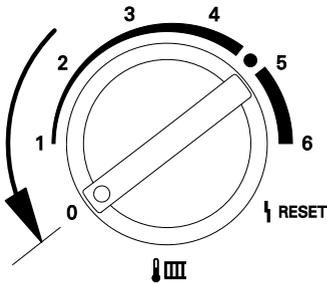
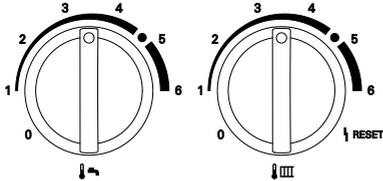


Danger

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

Converting from LPG to natural gas (cont.)

Converting the gas type at the control unit



1. Turn ON/OFF switch ON.
2. Simultaneously turn rotary selectors "🔥" and "🔥 III" to their central positions.
"SERV" appears on the display.
3. Turn rotary selector "🔥 III" fully anti-clockwise within 2 s.
"🔥" and the set value flash on the display.
4. Adjust the control unit to natural gas or LPG by turning the rotary selector "🔥".
The display shows:
 - "0" for operation with natural gas
or
 - "1" for operation with LPG.
5. The set operating mode is saved when the value stops flashing, and the control unit returns to standard mode.

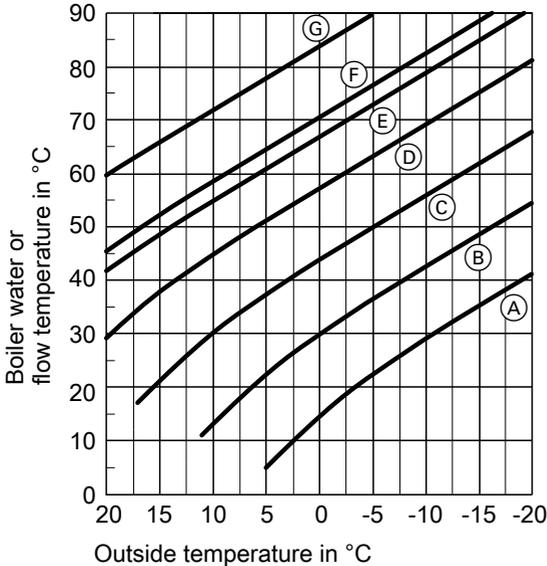
Checking the CO₂ content

See page 26.

Functions and operating conditions in weather-compensated mode

In weather-compensated mode, the boiler water temperature is regulated subject to the outside temperature.

Heating curve of weather-compensated control unit



Rotary selector setting "🌡️ III"

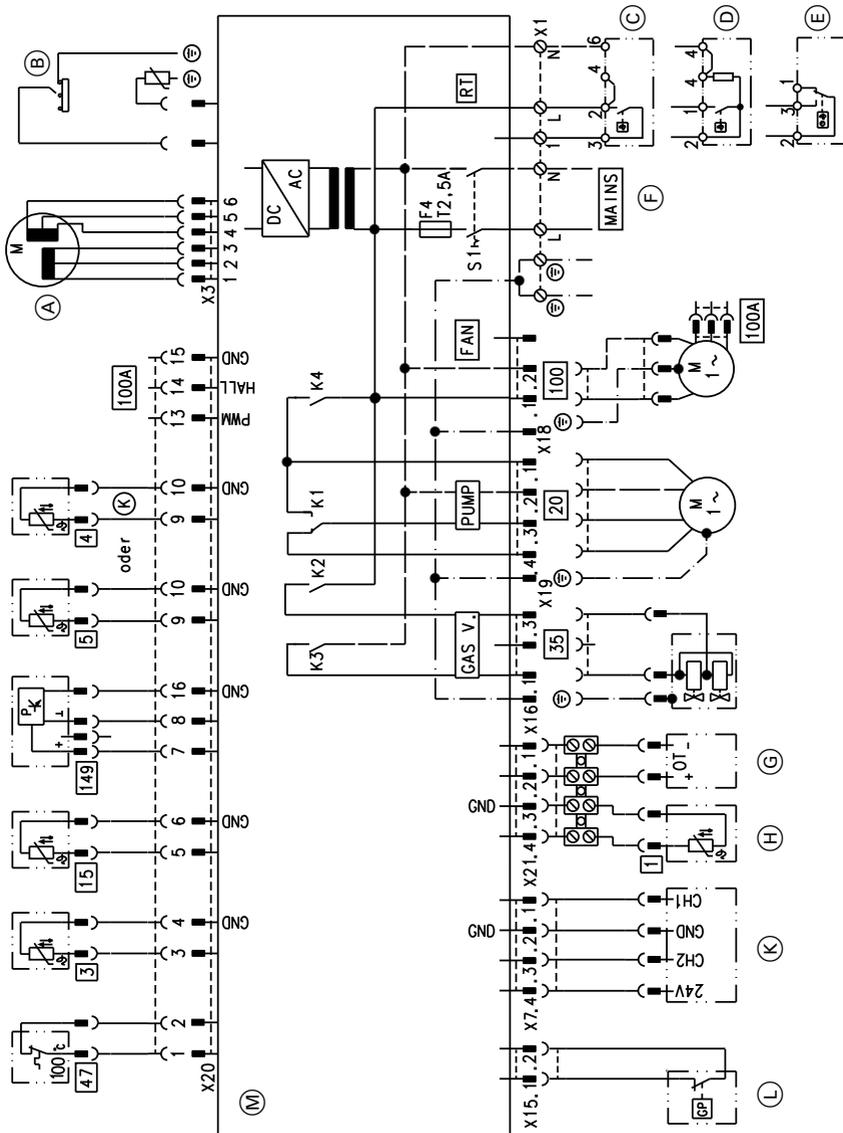
- Ⓐ = 1
- Ⓑ = 2
- Ⓒ = 3
- Ⓓ = 4
- Ⓔ = Delivered condition
- Ⓕ = 5
- Ⓖ = 6

Frost protection function is enabled at outside temperatures of $< 5\text{ }^{\circ}\text{C}$. The burner is switched ON and the boiler water temperature is held at $20\text{ }^{\circ}\text{C}$.

Frost protection function

Frost protection function is only possible when an outside temperature sensor is connected.

Connection and wiring diagram



- (A) Stepper motor diverter valve
- (B) Ignition/ionisation
- (C) Vitotrol 100, type UTA

- (D) Vitotrol 100, type RT
- (E) Vitotrol 100, type UTDB
- (F) Mains input 230V/50Hz

5603 938 GB

Service

Connection and wiring diagram (cont.)

Ⓒ	Remote control (accessory)	5	Cylinder temperature sensor (gas condensing boiler)
Ⓗ	Outside temperature sensor (accessory)	15	Flue gas temperature sensor
Ⓚ	Time switch (accessory)	20	Circulation pump 230V~
Ⓛ	Gas pressure limiter (accessory)	35	Gas solenoid valve
Ⓜ	PCB inside the control unit	47	Temperature limiter
X ...	Electrical interface	100	Fan motor 230V~
3	Boiler water temperature sensor	100A	Fan control
4	Outlet temperature sensor (gas condensing combi boiler)	149	Flow sensor

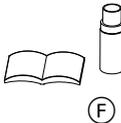
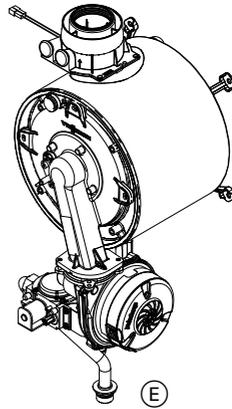
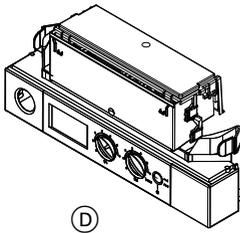
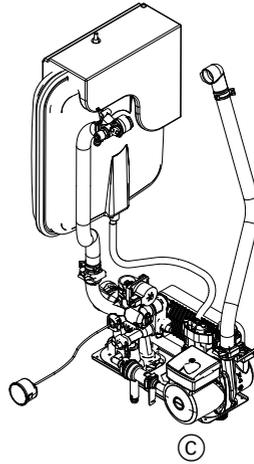
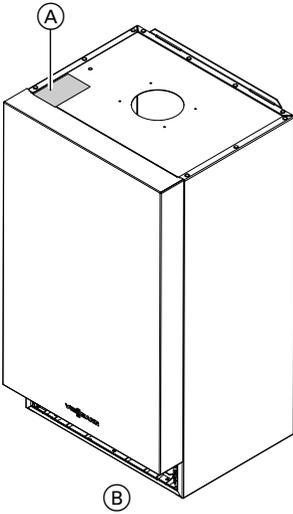
Ordering parts

The following information is required:

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

Obtain commercially available parts from your local supplier.

Overview of the assemblies

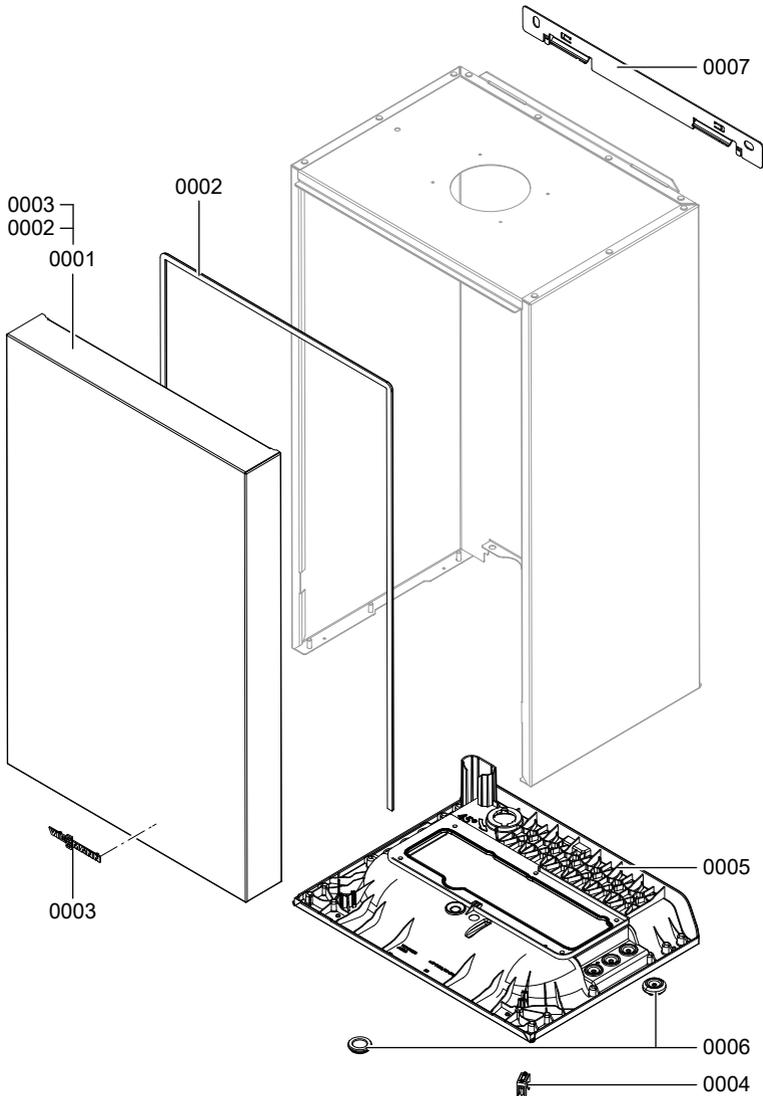


- (A) Type plate
- (B) Sheet metal parts assembly
- (C) Vitodens hydraulic assembly

- (D) VBC LCV control unit assembly
- (E) Heat cell assembly
- (F) Miscellaneous assembly

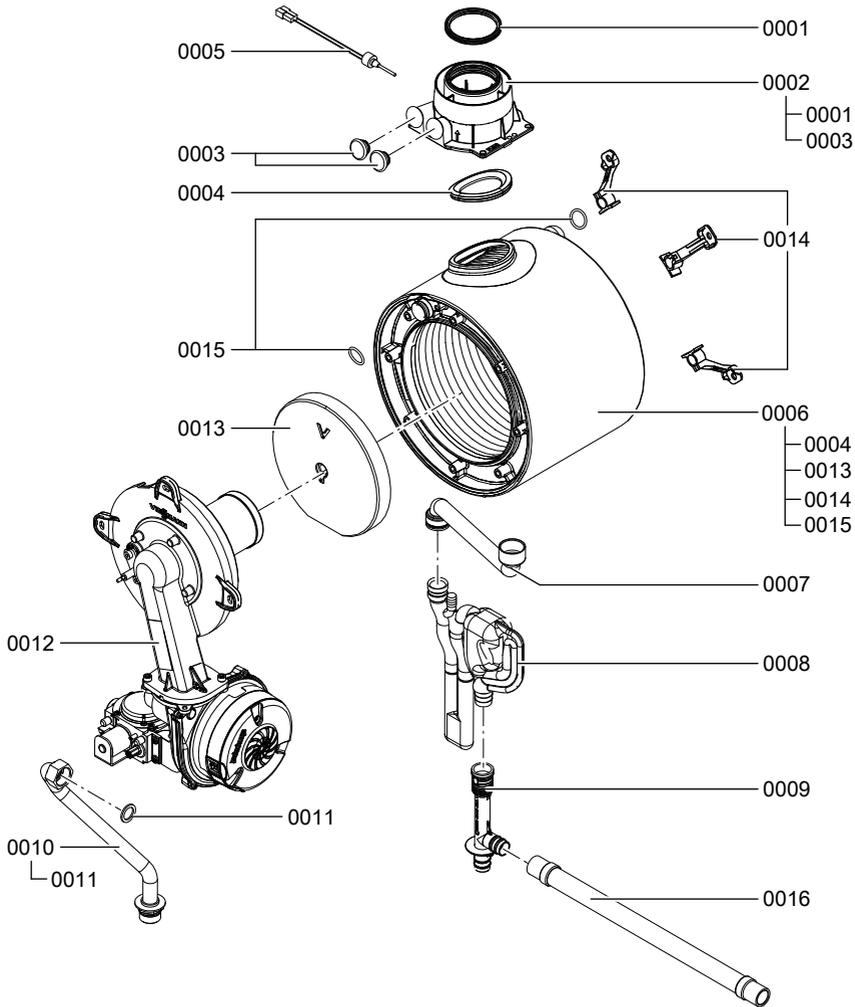
Sheet metal parts assembly

- 0001 Front panel
- 0002 Profiled seal
- 0003 Logo
- 0004 Strain relief upper part
- 0005 Air box floor
- 0006 Diaphragm grommets (set)
- 0007 Wall mounting bracket



Heat cell assembly

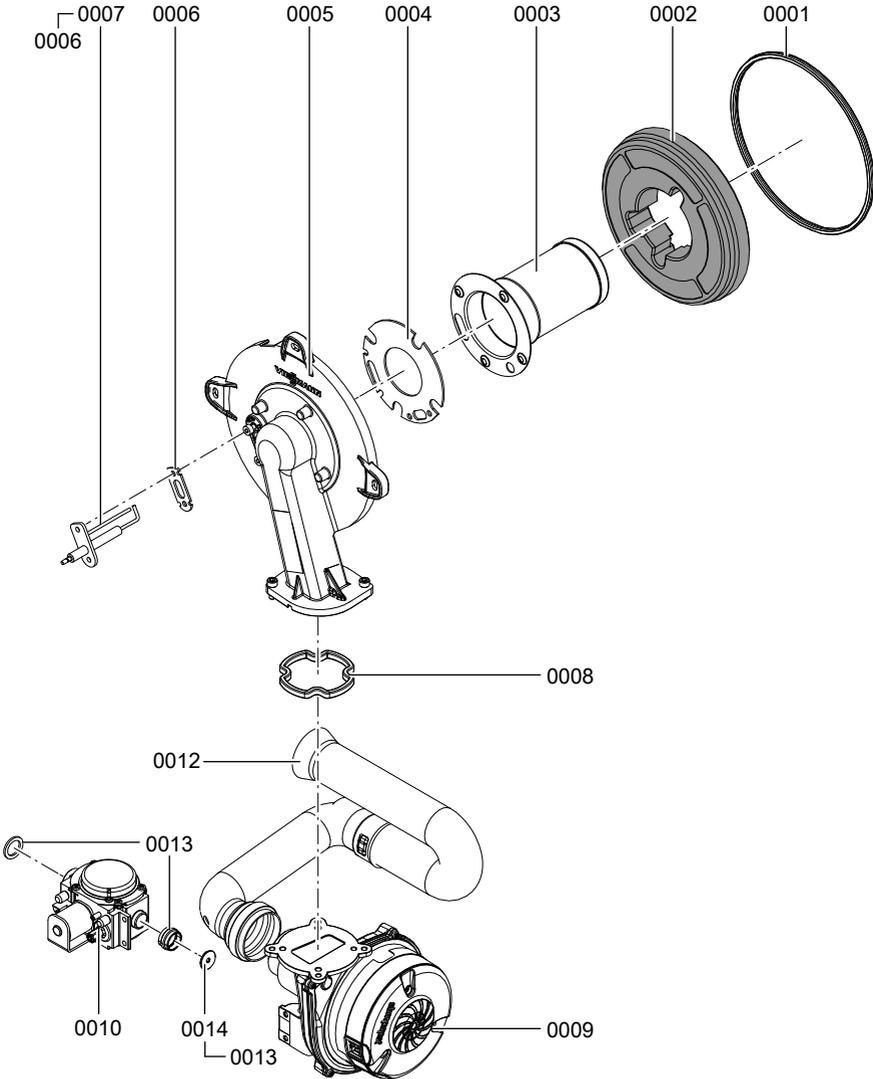
- | | | | |
|------|-----------------------------|------|-------------------------------|
| 0001 | Gasket DN 60 | 0009 | Tee |
| 0002 | Boiler flue connection | 0010 | Gas pipe |
| 0003 | Boiler flue connection plug | 0011 | Gasket 17 x 24 x 2 (set) |
| 0004 | Flue gas gasket | 0012 | Burner |
| 0005 | Flue gas temperature sensor | 0013 | Thermal insulation block |
| 0006 | Heat exchanger | 0014 | Heat exchanger mounting (set) |
| 0007 | Condensate hose | 0015 | O-ring gasket set 20.6 x 2.6 |
| 0008 | Siphon | 0016 | Condensate hose 400 mm long |



Burner assembly

0001	Burner gasket	0008	Burner door flange gasket
0002	Insulation ring	0009	Radial fan
0003	Cylinder burner gauze assembly	0010	Gas valve
0004	Burner gauze assembly gasket	0012	Venturi extension
0005	Burner door	0013	Gasket A 17 x 24 x 2 (set)
0006	Ionisation electrode gasket	0014	Conversion kit G31
0007	Ignition and ionisation electrode		

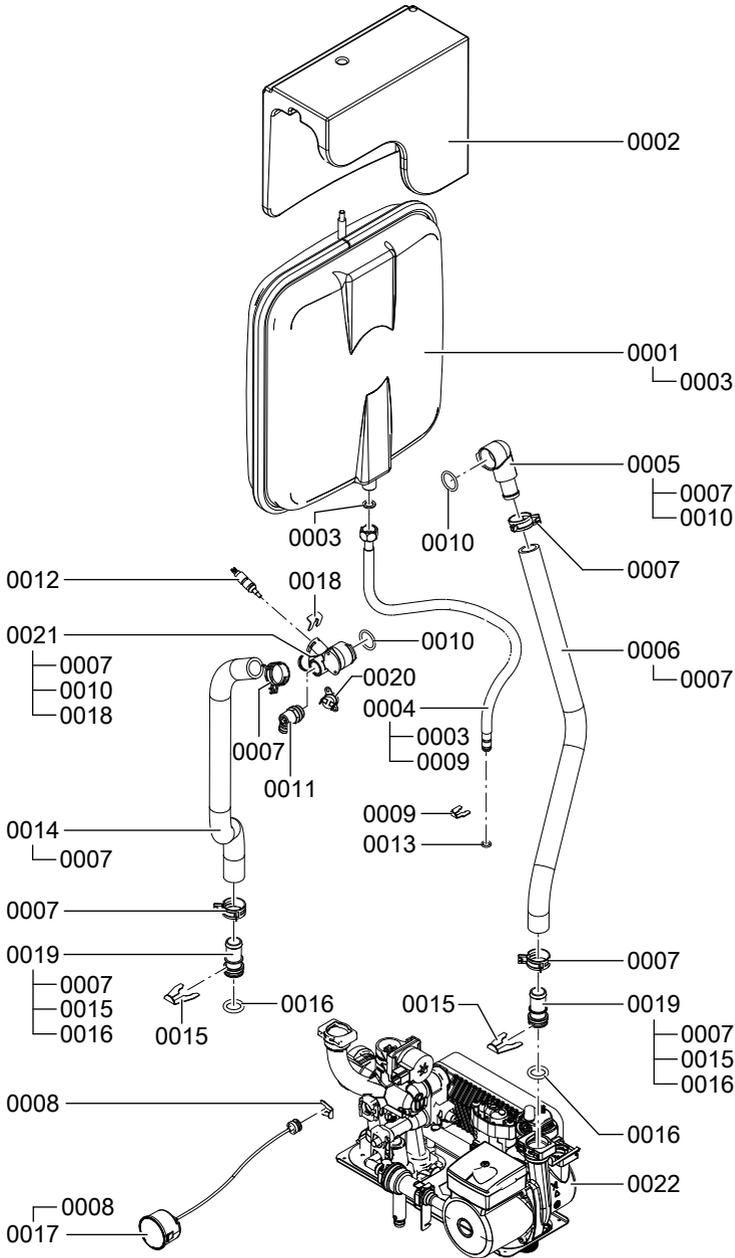
Burner assembly (cont.)



Vitodens hydraulic assembly

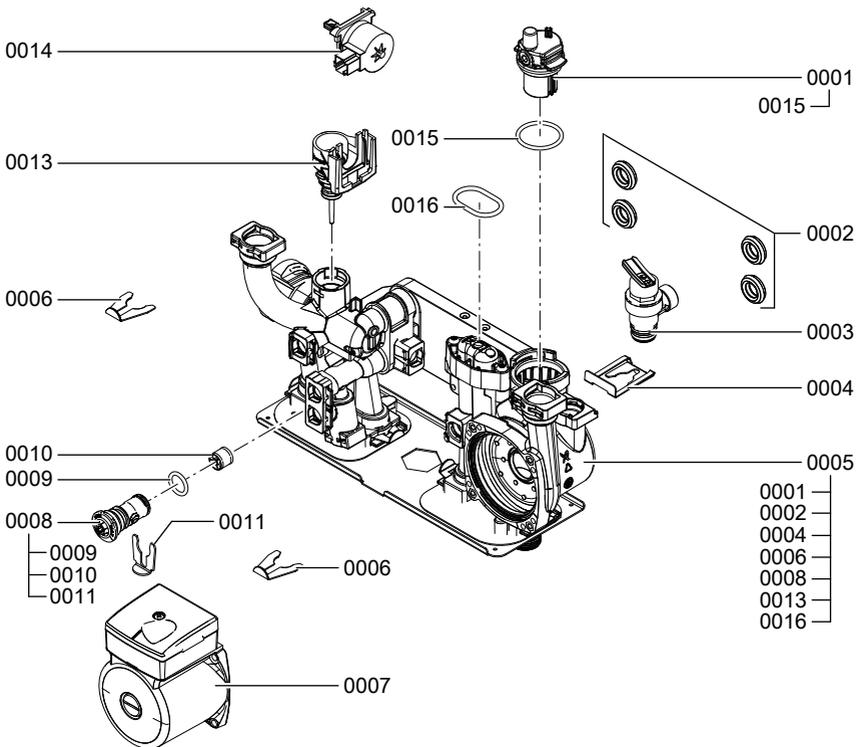
0001	Diaphragm expansion vessel	0011	Air vent valve G $\frac{3}{8}$
0002	Diaphragm expansion vessel cap	0012	Temperature sensor
0003	Gasket A 10 x 15 x 1.5 (set)	0013	Round sealing ring 8 x 2
0004	Connection pipe; diaphragm expansion vessel	0014	Moulded hose heating water flow
0005	Heating water return connection elbow	0015	Clip Ø 18 (5 pce)
0006	Moulded hose heating water return	0016	O-ring 17 x 4 (5 pce)
0007	Hose clip DN 25	0017	Pressure gauge
0008	Clip Ø 10 (5 pce)	0018	Clip Ø 8 (5 pce)
0009	Clip Ø 8 (5 pce)	0019	Hose connector adaptor
0010	O-ring gasket set 20.6 x 2.6	0020	Thermal circuit breaker
		0021	Heating water flow connection elbow
		0022	Hydraulics

Vitodens hydraulic assembly (cont.)



System boiler hydraulic assembly

- | | | | |
|------|---------------------------|------|-----------------------|
| 0001 | Air vent valve | 0009 | O-ring 16 x 3 (5 pce) |
| 0002 | Gasket set PWT | 0010 | Check valve |
| 0003 | Safety valve | 0011 | Clip Ø 16 (5 pce) |
| 0004 | Safety valve clip (5 pce) | 0013 | Stepper motor adaptor |
| 0005 | Hydraulics | 0014 | Linear stepper motor |
| 0006 | Clip Ø 18 (5 pce) | 0015 | O-ring 34 x 3 (5 pce) |
| 0007 | Pump motor | 0016 | Oval cap seal (5 pce) |
| 0008 | Bypass cartridge | | |



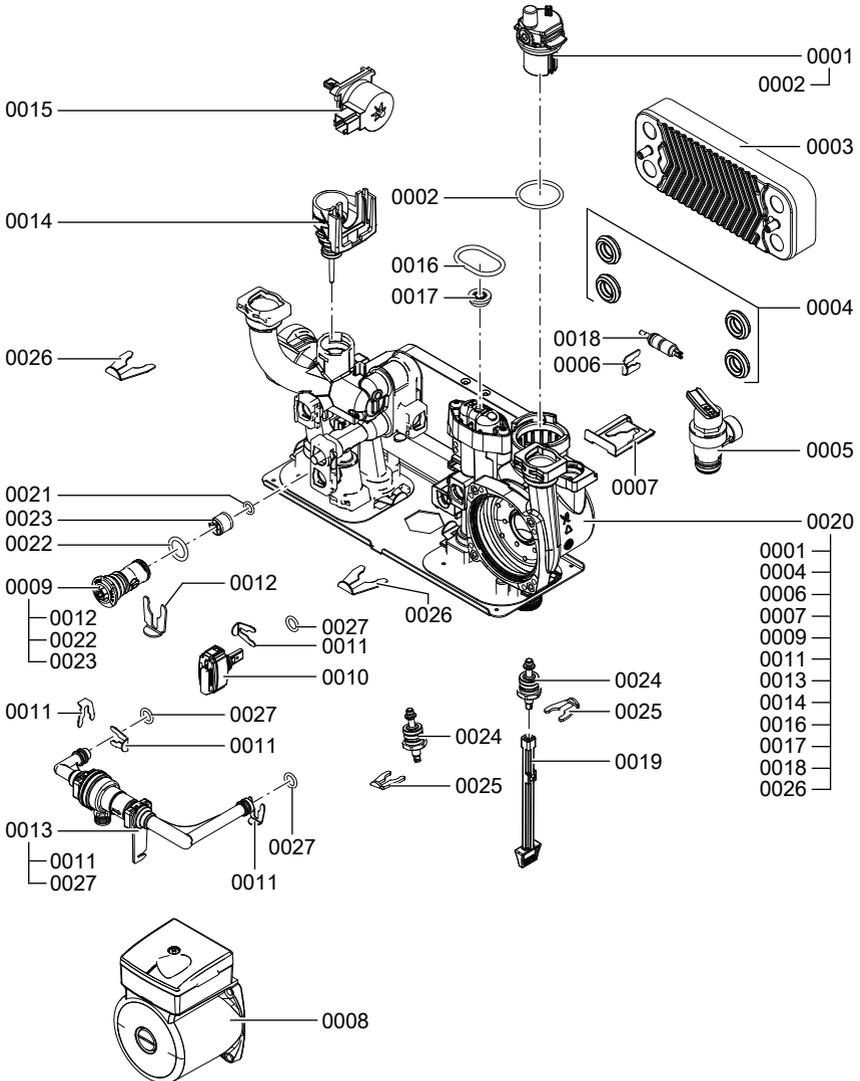
Combi hydraulic assembly

- | | | | |
|------|----------------------------------|------|---------------------------|
| 0001 | Air vent valve | 0005 | Safety valve |
| 0002 | O-ring 34 x 3 (5 pce) | 0006 | Clip Ø 8 (5 pce) |
| 0003 | Plate heat exchanger | 0007 | Safety valve clip (5 pce) |
| 0004 | Gasket set, plate heat exchanger | 0008 | Pump motor |

Combi hydraulic assembly (cont.)

0009	Bypass cartridge	0019	Top-up tap key
0010	Flow sensor	0020	Hydraulics
0011	Clip Ø 10 (5 pce)	0021	Round sealing ring 8 x 2 (5 pce)
0012	Clip Ø 16 (5 pce)	0022	O-ring 16 x 3 (5 pce)
0013	Shut-off valve	0023	Check valve
0014	Stepper motor adaptor	0024	Top-up tap
0015	Linear stepper motor	0025	Clip Ø 13.5 (5 pce)
0016	Oval cap seal (5 pce)	0026	Clip Ø 18 (5 pce)
0017	Water volume controller	0027	O-ring 9.6 x 2.4 (5 pce)
0018	Temperature sensor		

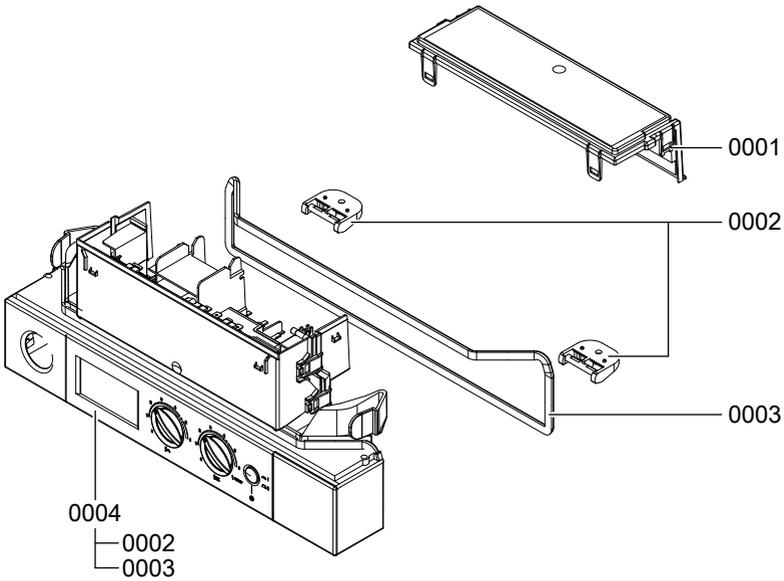
Combi hydraulic assembly (cont.)



VBC LCV control unit assembly

0001 Cover, wiring chamber
0002 Clip hinge

0003 Profiled seal
0004 Control unit

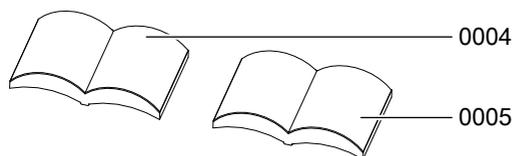
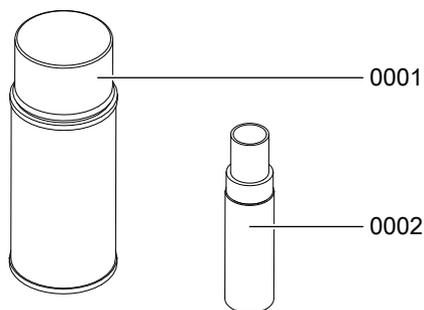


Miscellaneous assembly

0001 Spray paint, Vitowhite
0002 Touch-up paint stick, Vitowhite
0003 Special grease

0004 Operating instructions
0005 Installation and service instructions

Miscellaneous assembly (cont.)



Specification

Specification

Rated voltage:	230 V~	Temperature limiter setting:	100 °C (fixed)
Rated frequency:	50 Hz	Backup fuse (power supply):	max. 16 A
Rated current:	2.0 A~		
Safety category:	I		
IP rating:	IP X4 to EN 60529		

Permissible ambient temperature

- during operation: 0 to+40 °C
- during storage and transport: -20 to+65 °C

Gas boiler, category II_{2H3P}

Rated heating output range in heating mode				
T _V /T _R 50/30 °C	kW	7.4 – 19	7.4 – 26	8.8 – 35
T _V /T _R 80/60 °C	kW	6.7 – 17.3	6.7 – 23.7	8.0 – 31.9
Rated heating output range for DHW heating	kW	—	6.7 – 23.7	8.0 – 35.0
Rated heat input range	kW	6.9 – 17.8	6.9 – 24.3	8.2 – 32.7
Connection values ^{*1}				
relative to the max. load with:				
- Natural gas E	m ³ /h	1.9	2.6	3.5
- LPG P	kg/h	1.4	1.9	2.6
Power consumption (max.)				
- Gas condensing boiler	W	102	107	154
- Gas condensing combi boiler	W	—	119	158
Gas condensing combi boiler (DHW heating)				
Permiss. operating pressure	bar	—	10	10
Rated water volume at ΔT 30 K (to EN 13203)	l/min	—	11.3	15.2
Set flow rate (max.)	l/min	—	12.0	14.0
Product ID	CE-0085BT0029			

*1 The connection values are only for documentation purposes (e.g. in the gas contract application) or to estimate a supplementary volumetric settings check. Due to the factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar.

Declaration of conformity

Declaration of Conformity for the Vitodens 100-W

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, confirm as sole responsible body that the product **Vitodens 100-W** complies with the following standards:

EN 297	EN 55 014-2
EN 483	EN 60 335-1
EN 625	EN 60 332-2-102
EN 677	EN 61 000-3-2
EN 806	EN 61 000-3-3
EN 12 897	EN 62 223
EN 55 014-1	

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

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

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

Allendorf, 1 March 2011

Viessmann Werke GmbH&Co KG



pp. Manfred Sommer

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Applicability

These service instructions apply for appliances with the following serial numbers (see type plate):

7441736

7441737

7441739

7441745

7441748

7441749

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5603 938 GB Subject to technical modifications.



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