

Installation and service instructions

for contractors

VIESSMANN

Vitodens 100-W

Type WB1B, 7.9 to 35.0 kW

Wall mounted gas condensing boiler

Natural gas and LPG version

Gas Council No.: 41-819-21; 41-819-22; 41-819-23; 41-819-24;
41-819-25



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.

Note

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



Please note

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

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
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
 - Ⓐ ÖNORM, EN, ÖVGW G K directives, ÖVGW-TRF and ÖVE
 - Ⓒ SEV, SUVA, SVGW, SVTI, SWKI, VKF and EKAS guideline 1942: LPG, part 2

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.

Avoid continuous condensate disposal with a wind protector.

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).

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.

**Danger**

The simultaneous operation of the boiler and appliances that exhausts 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.

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.

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Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	■ Component must audibly click into place. - or ■ Acoustic signal
	■ Fit new component. - or ■ In conjunction with 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.

Intended use

The appliance is intended solely for installation and operation in open vented and sealed unvented heating systems that comply with EN 12828, with due attention paid to the associated installation, service and operating instructions. It is only designed for 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).

Product information

Vitodens 100-W, type WB1B

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

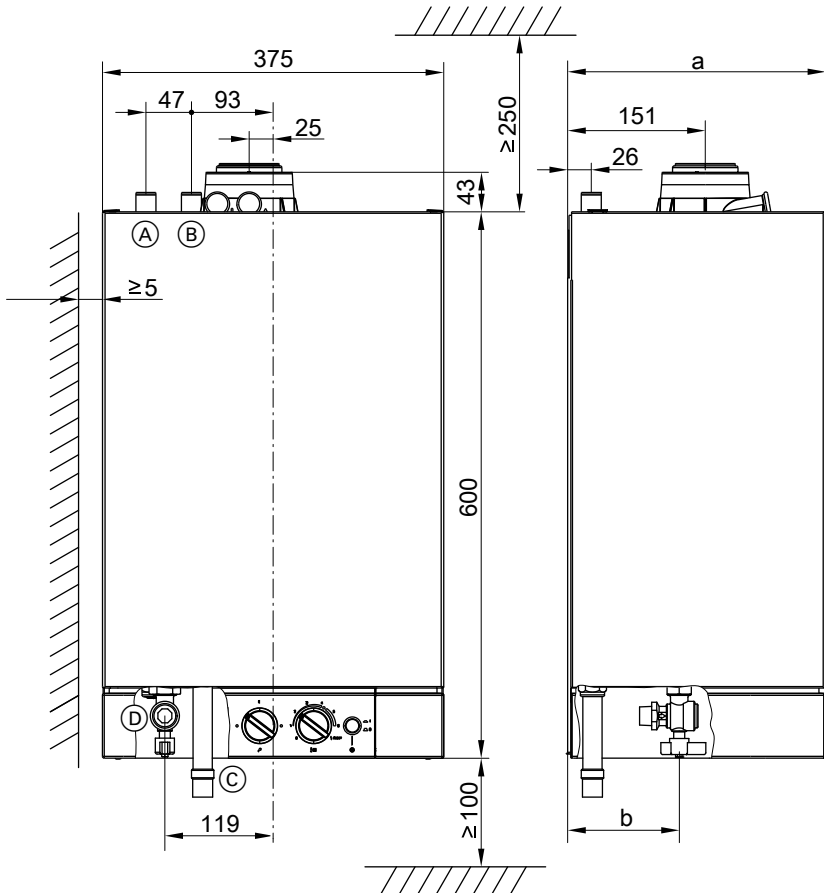
Conversion for other countries

The Vitodens 100-W 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.

Preparing for installation

Preparing for boiler installation

Dimensions and connections



- (A) Heating flow $\varnothing$ 22 mm
- (B) Heating return $\varnothing$ 22 mm
- (C) Condensate drain: Plastic hose $\varnothing$ 22 mm

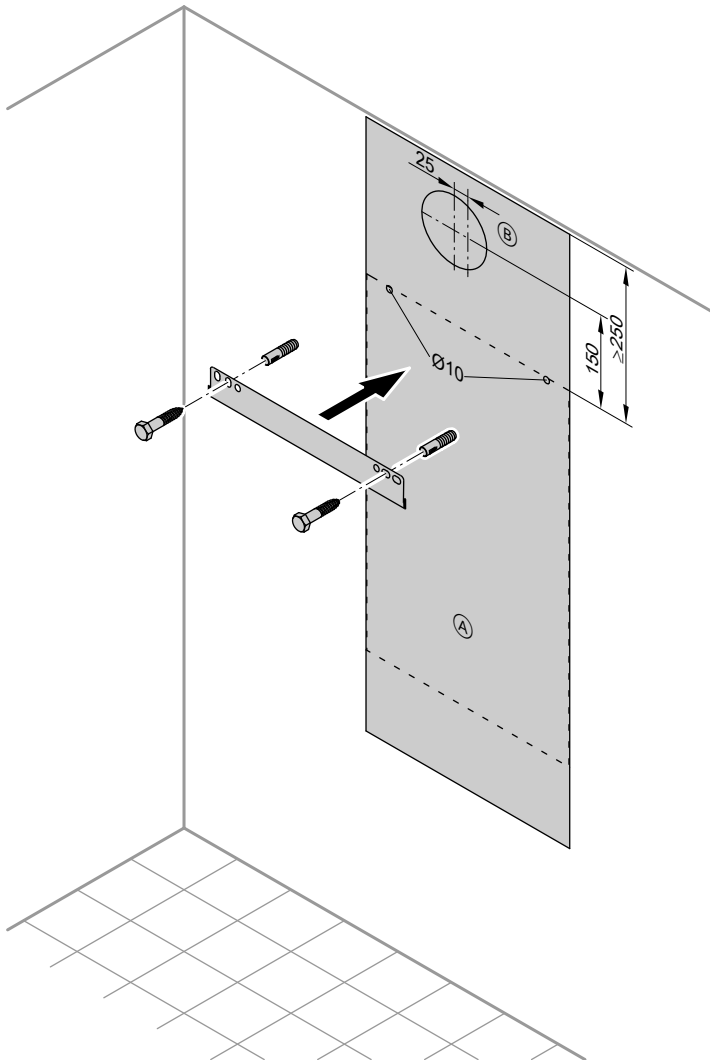
- (D) Gas connection R $\frac{1}{2}$

Preparing for installation (cont.)

Rated heating output range	kW	7.9 - 13	7.9 - 16	7.9 - 19	7.9 - 26	11.0 - 35
a	mm	285	285	285	285	340
b	mm	123	123	123	123	171

Preparing for installation (cont.)

Fitting the wall mounting bracket



(A) Vitodens installation template

(B) Opening for the balanced flue pipe

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 rawl plugs supplied.
The rawl plugs are suitable for the following materials:
 - Concrete
 - Vertically perforated bricks
 - Hollow concrete breeze blocks
 - Hollow brick and concrete ceilings
 - Perforated sand lime bricks
 - Solid sand lime bricks
 - Natural stone with dense structure
 - Porous concrete
 - Solid gypsum panels
 - Solid concrete breeze blocks
 - Solid bricks
4. Fit the wall mounting bracket with the screws supplied.

Preparing the connections



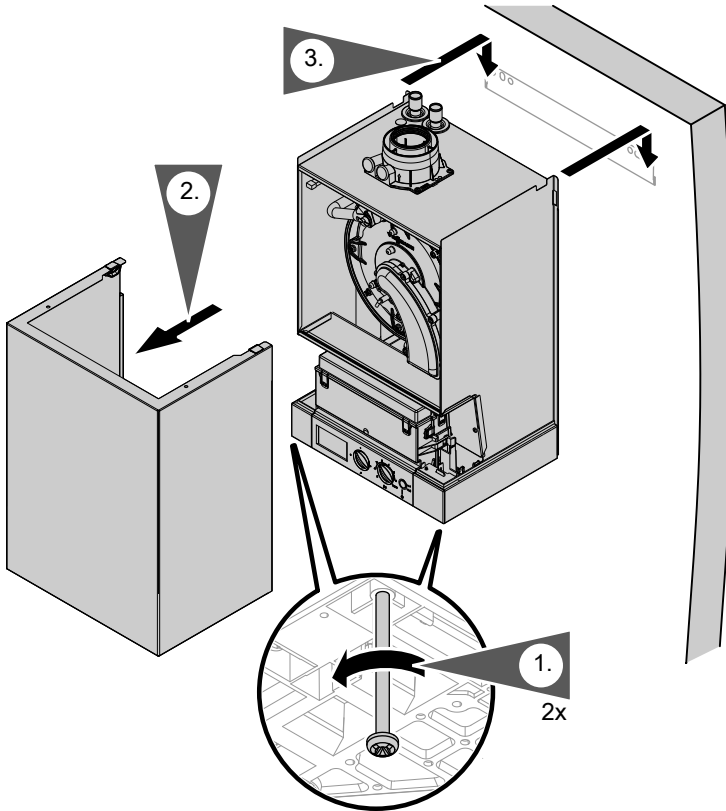
Please note

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.
Observe applicable IEEE standards.
 - A 1.5 m power cable is fitted in the delivered condition.
 - A 1.5 m connecting cable for the circulation pump is provided separately.
 - Cables for accessories:
NYM-O 2-core min. 0.5 mm².

Mounting the boiler and making connections

Removing the front panel and mounting the boiler



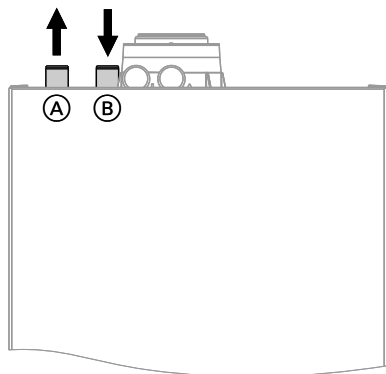
1. Undo the screws on the underside of the boiler; do not remove them completely.
2. Remove front panel.
3. Hook the boiler into the wall mounting bracket.

Note

Align the boiler vertically and horizontally on all 3 axes.

Mounting the boiler and making connections (cont.)

Fitting the connections on the water side

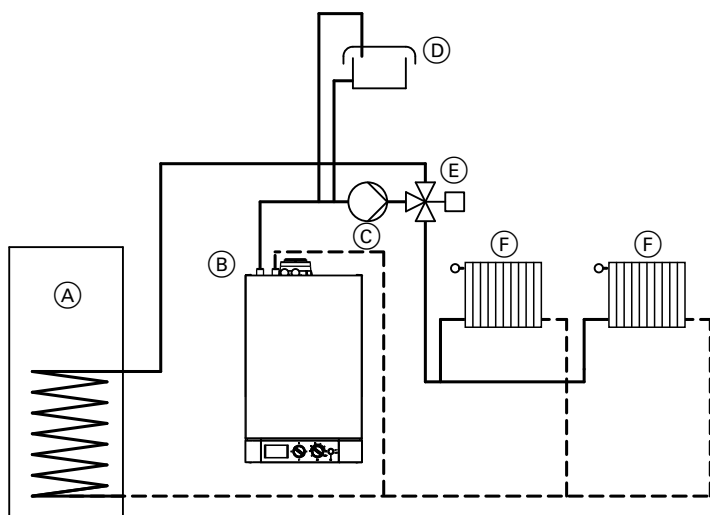


Note

Install a shut-off valve and drain & fill valve on site in the heating water return.

- (A) Heating water flow
- (B) Heating water return

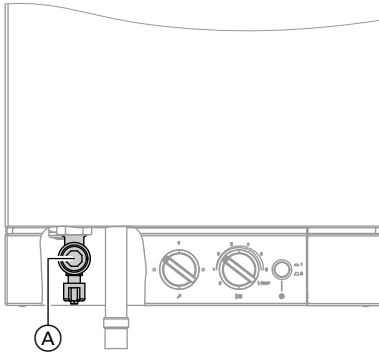
Y-plan system



- | | |
|----------------------|-----------------------------|
| (A) Cylinder | (D) Feed and expansion tank |
| (B) Vitodens 100-W | (E) 3-way diverter valve |
| (C) Circulation pump | (F) Radiators |

Mounting the boiler and making connections (cont.)

Gas connection



1. Connect the gas shut-off valve to connection (A).
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 leak detection agent residues after testing.



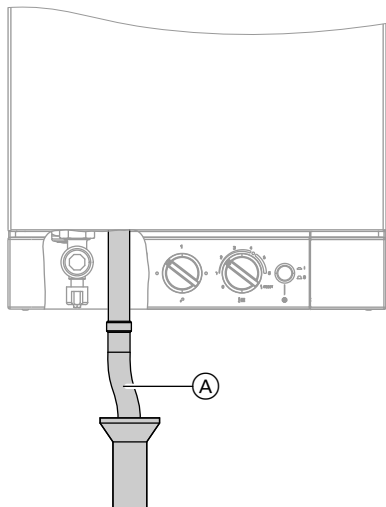
Please note

Excessive test pressure will damage the boiler and the gas train.
Max. test pressure 150 mbar. 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.)

Condensate connection



1. Pull condensate pipe (A) out of the appliance far enough to prevent unnecessary bends inside the appliance. Ensure that the trap is properly connected.
2. Connect condensate pipe (A) to the public sewage system with a constant fall and a pipe vent. Observe local waste water regulations.

Note

- Connect condensate pipe (A) with a pipe vent to the domestic waste water system, routing it inside the building as far as possible.
- If the condensate pipe is routed outside the building, use a pipe with min. $\varnothing$ 30 mm and protect it from frost. Avoid long external pipe runs.



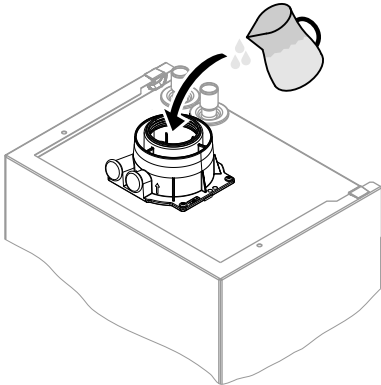
Please note

A frozen condensate pipe can result in faults and damage to the boiler.
Always protect condensate pipes against frost.

- Observe local building regulations.

Mounting the boiler and making connections (cont.)

Filling the condensate connection trap with water



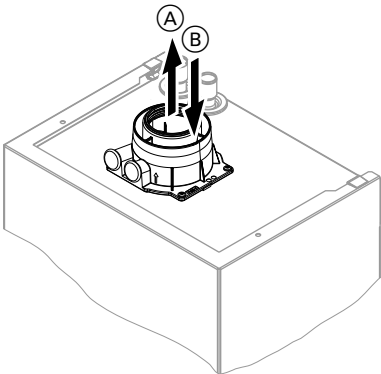
Please note

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

Therefore fill the trap with water before commissioning.

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

Balanced flue connection



- (A) Flue gas
- (B) Supply air

Connect the balanced flue pipe.
During installation and positioning of the flue system, observe Building Regulations Part L and BS 5440.



Flue system installation instructions



Please note

When using the Viessmann flue system, please read the instructions.

The flue system must be free to expand and contract. Therefore no screws are required unless these are specifically mentioned in the instructions.

The flue system must be supported in accordance with the flue instructions. Different manufacturers have different joining systems.

Do not mix pipes, fittings or joining systems from different manufacturers.

Mounting the boiler and making connections (cont.)

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

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



Danger

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

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

Prevent condensate drainage via a wind protector.

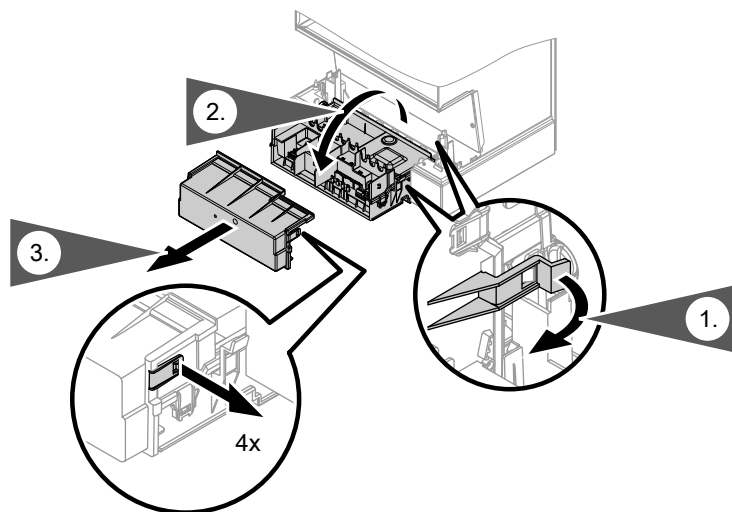
Opening the control unit enclosure



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.

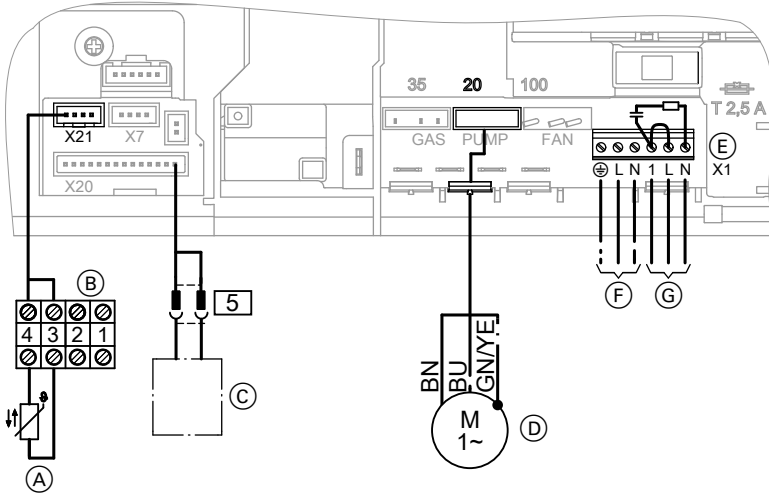


Electrical connections



Information on connecting accessories

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



- (A) Only for weather-compensated mode:
Outside temperature sensor (accessories).
- (B) Connecting cable (accessories).
- (C) Cylinder demand terminal box (accessories; see separate installation instructions).
- (D) Circulation pump connecting cable (supplied).

- (F) Power supply (230 V, 50 Hz).



Danger

Incorrect core allocation can result in serious injury and damage to the appliance. Never interchange cores "L1" and "N".

The power supply must be from a fused spur with a 2-pole isolator switch, fitted with a 3 A fuse.

Note

If the circulation pump is not connected to the control unit, connect an external frost stat.

- (E) Jumper (1 - L).

Electrical connections (cont.)

Wire the power supply with a neutral conductor. Connect water pipes to the earth bonding of the building in question.

G Connections for external 230 V controls:

- Vitotrol 100 (room temperature controller)



Separate installation instructions

- On-site room temperature controller
- Input for Y-plan or S-plan heating systems

Remove jumper **E** (1 - L) when connecting a 230 V control, leaving the capacitor in place.

Take power for external controls from "L" and "N". The switched live to start the boiler goes into "1". Please note that if there are two circuits connected, e.g. heating and hot water, you cannot use a plug-in timer or programmable room thermostat receiver. Two channel switching must be external to the boiler.

The only exception is if weather compensation is also fitted.

Power supply

Regulations and directives



Danger

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

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

- VDE regulations
- Connection requirements specified by your local power supply utility

Install an isolator in the power cable which simultaneously isolates all non-earthed conductors from the mains with contact separation of at least 3 mm.

We also recommend the installation of an AC/DC-sensitive RCD (RCD class B ) for DC (fault) currents that can occur with energy efficient equipment. Protect the power cable with a fuse/MCB of up to 16 A.



Danger

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



Danger

The absence of system component earthing can lead to serious injury from electric current if an electrical fault occurs. The appliance and pipework must be connected to the equipotential bonding of the building.

Electrical connections (cont.)

Outside temperature sensor (accessories)

1. Fit the 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, length up to 35 m with a cross-section of 1.5 mm²
2. Plug the connecting cable supplied with the outside temperature sensor into slot "X21".
3. Connect the outside temperature sensor to terminals 3 and 4 (see page 19).

Electrical connections (cont.)

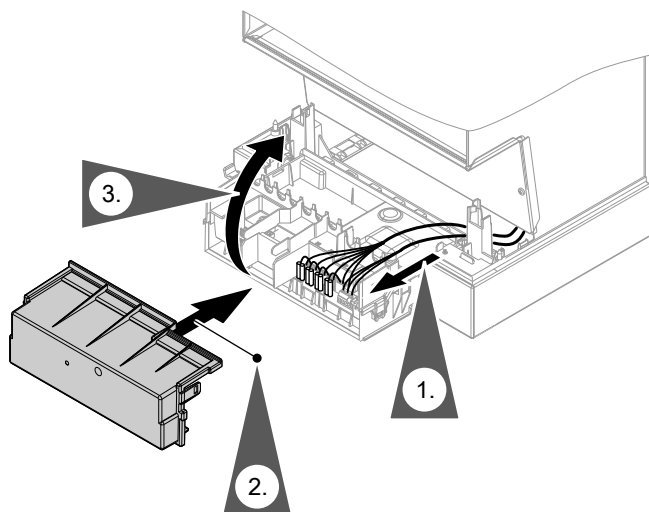
Routing connecting cables and closing the control unit enclosure



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.



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..... 24
•	•	•	•	2. Venting the boiler..... 25
•	•	•	•	3. Converting to operation with LPG..... 26
•	•	•	•	4. Checking the static pressure and supply pressure.... 26
•	•	•	•	5. Checking the CO ₂ or O ₂ content..... 28
	•	•	•	6. Removing the burner 30
	•	•	•	7. Checking the burner gasket and burner gauze assembly..... 31
	•	•	•	8. Checking and adjusting the electrode..... 32
	•	•	•	9. Cleaning the heat exchanger..... 33
	•	•	•	10. Checking the condensate drain and cleaning the trap..... 34
	•	•	•	11. Installing the burner 35
•	•	•	•	12. Checking all connections on the heating water and DHW sides for leaks
•	•	•	•	13. Checking the flue system for unrestricted flow and tightness
•	•	•	•	14. Checking the firm seating of electrical connections
•	•	•	•	15. Checking all gas equipment for tightness at operating pressure 36
	•	•	•	16. Fitting the front panel..... 37
•				17. Instructing the system user..... 37

Further details regarding the individual steps

Filling the heating system



Please note

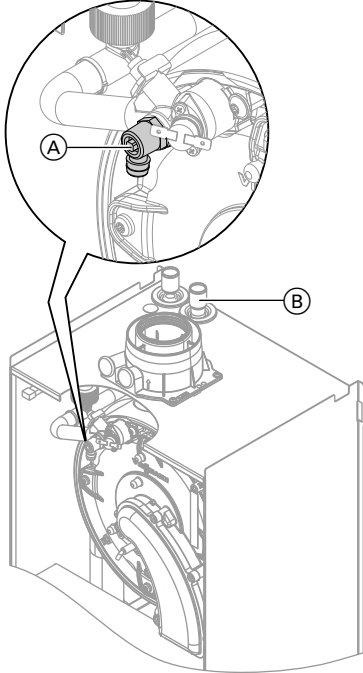
Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.

- Flush the heating system thoroughly before filling.
- Only fill with water of potable quality.
- Soften fill water harder than 300 ppm.
- Special antifreeze suitable for heating systems can be added to the fill water.

Fill and vent the heating system.

Further details regarding the individual steps (cont.)

Venting the boiler



1. Close shut-off valve in heating water return.
2. Remove cover panel.
3. Connect the drain hose on air vent valve (A) to a drain.
4. Open air vent valve (A) and on-site fill valve in heating water return (B). Vent (flush) under mains pressure until no more air noise can be heard.

Note

If the heating system has not been completely vented, the heating water flow rate can be too low. This can lead to the burner being switched off by internal safety equipment before the specified set boiler water temperature is achieved.

5. First close air vent valve (A) and then fill valve in heating water return (B).
6.
 - Sealed unvented heating system: Adjust operating pressure to ≥ 0.8 bar with fill valve (B).
 - Open vented heating system: The static head must be at least 0.2 bar.
7. Open shut-off valve in heating water return.

Further details regarding the individual steps (cont.)

Converting to operation with LPG

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



Separate installation instructions

For conversion from LPG to natural gas, see page 50.

Checking the static pressure and supply pressure

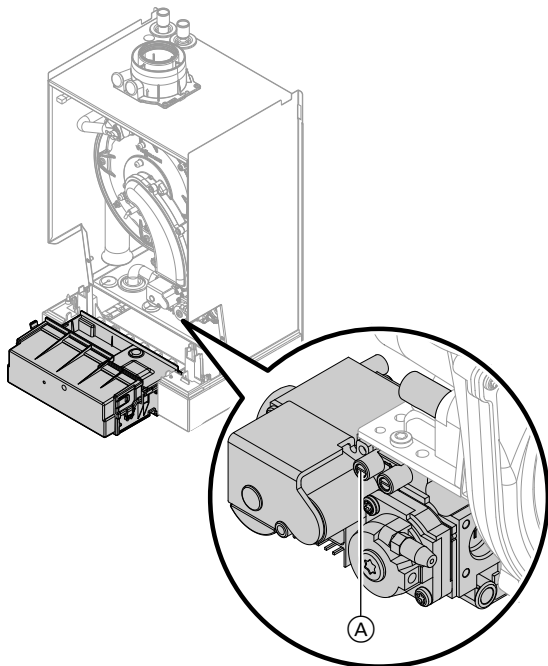


Danger

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.

Operation with LPG

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



Further details regarding the individual steps (cont.)

1. Close the gas shut-off valve.
2. Undo screw in test connector (A) on the gas train, but do not remove it. Connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the static pressure.
Set value: max. 57.5 mbar
5. Start the boiler.
7. Take measures as described in the table below.
8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and tighten the screw in test connector (A).
9. Open the gas shut-off valve and start the appliance.

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.*

6. Check the supply (flow) pressure.

Set value:

- Natural gas: 20 mbar
- LPG: 37 mbar

Note

Use a suitable measuring device with a resolution of at least 0.1 mbar to check the supply pressure.

**Danger**

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

Note

The maximum pressure drop between the gas shut-off valve and test connector (A) at the gas train is 0.5 mbar.

Supply pressure (flow pressure)		Steps
For natural gas	For LPG	
Below 17.4 mbar	Below 25 mbar	Do not commission the boiler. Notify the gas supply utility or LPG supplier.
17.4 to 25 mbar	25 to 47 mbar	Start the boiler.
Above 25 mbar	Above 47 mbar	Install a separate gas pressure governor upstream of the system and regulate the pre-charge pressure to 20 mbar for natural gas or 37 mbar for LPG. Notify your gas supply utility or LPG supplier.

Further details regarding the individual steps (cont.)

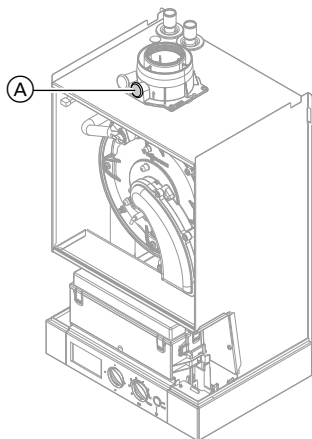
Checking the CO₂ or O₂ content

The Vitodens 100-W is factory-set for natural gas. During commissioning or maintenance, the CO₂ and CO have to be measured at the boiler flue adaptor test port to check the flue integrity. Subject to the Wobbe index, the CO₂ content fluctuates between 7.4 % and 10.5 %. A CO level of up to 500 ppm during start-up is acceptable. We recommend measuring the O₂, as the value is unmistakable regarding lambda (air/gas). The O₂ content fluctuates between 7.5 % and 3.2 %. The CO/CO₂ ratio has to be less than 0.004.

If the actual CO₂ or O₂ and CO values deviate from the stated range, check the balanced flue systems for leaks. If the flue installation is OK, change the gas valve.

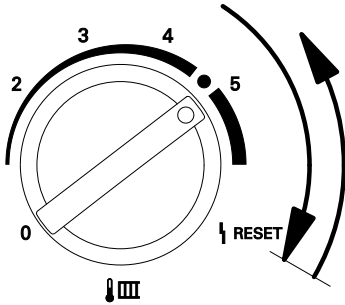
Note

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

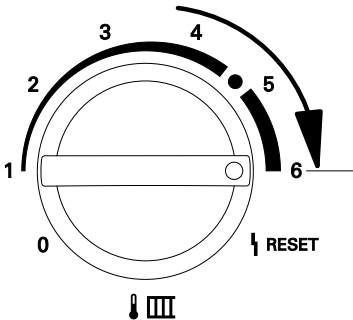


1. Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.
2. Start the boiler.

Further details regarding the individual steps (cont.)

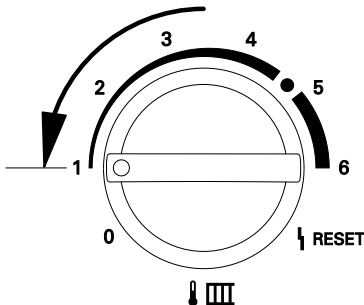


3. Turn rotary selector "🌡️ III" clockwise for less than 2 s and then anti-clockwise back to the control range on the right.
The display shows **"SERV"** and the boiler water temperature is shown.



4. Adjust the upper output:
Turn rotary selector "🌡️ III" to the control range on the right.
The display shows 5 bars for upper output.

5. Measure the CO₂ content for upper output.
The CO₂ content must be between 7.4 and 10.5 %.



6. Adjust the lower output:
Turn rotary selector "🌡️ III" to the control range on the left.
The display shows 1 bar for lower output.
7. Test the CO₂ content for lower output.
The CO₂ content must be between 7.4 and 10.5 %.

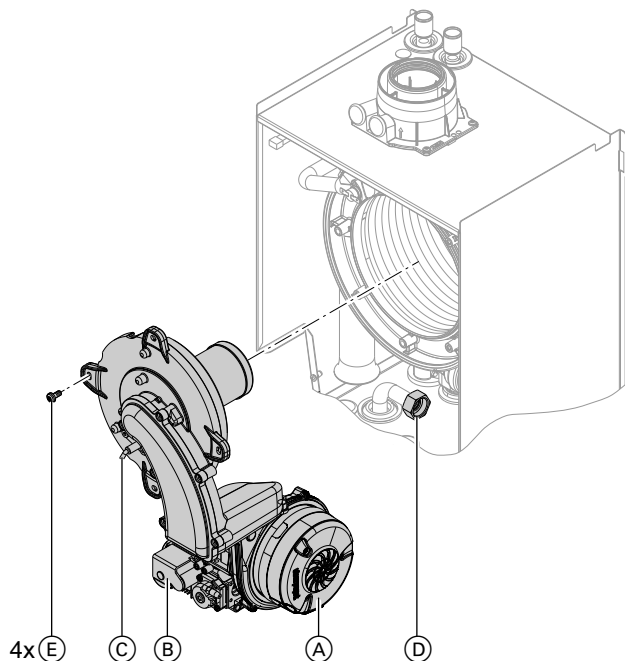
8. If the CO₂ content is **not** within the given range, check the flue gas/ventilation air system for tightness. Remedy any leaks.



Further details regarding the individual steps (cont.)

9. Shut the boiler down, remove flue gas analyser and close flue gas port (A).

Removing the burner



1. Switch off the power supply.
2. Shut off the gas supply.
3. Disconnect the power cables from fan motor (A) and gas train (B).
4. Open control unit enclosure (see page 18) and disconnect the cable to ignition electrode (C).
5. Disconnect the venturi extension from fan (A).
6. Undo gas supply pipe fitting (D).
7. Undo 4 screws (E) and remove the burner.



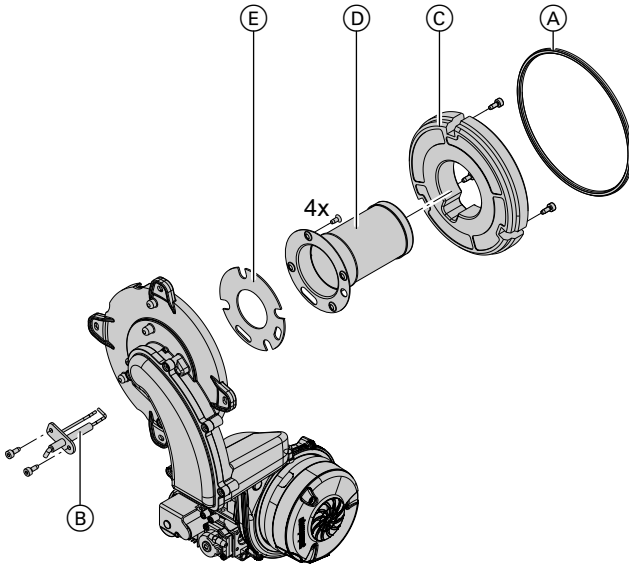
Please note

To prevent 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) and burner gauze assembly (D) for damage and replace if necessary.



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



Please note

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

Further details regarding the individual steps (cont.)

5. Mount thermal insulation ring (C).



Please note

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

6. Fit electrode (B).



Please note

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

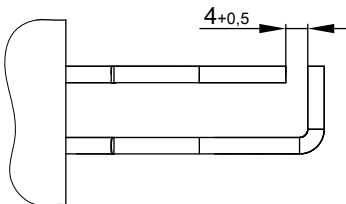
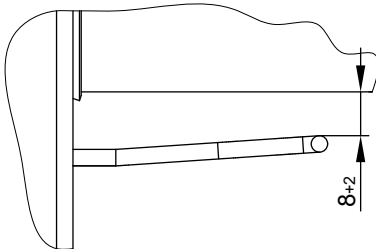
Checking and adjusting the electrode

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.



Please note

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



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

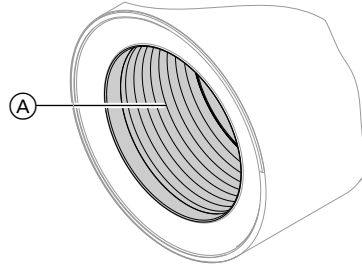
Prevent damage due to cleaning water.

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.

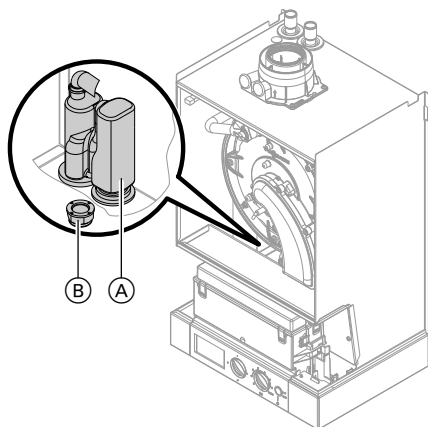
The use of chemical cleaning agents is not required.



1. Use a vacuum cleaner to remove combustion residues from heating surface (A) of the heat exchanger.
2. Flush heating surface (A) 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.

Further details regarding the individual steps (cont.)

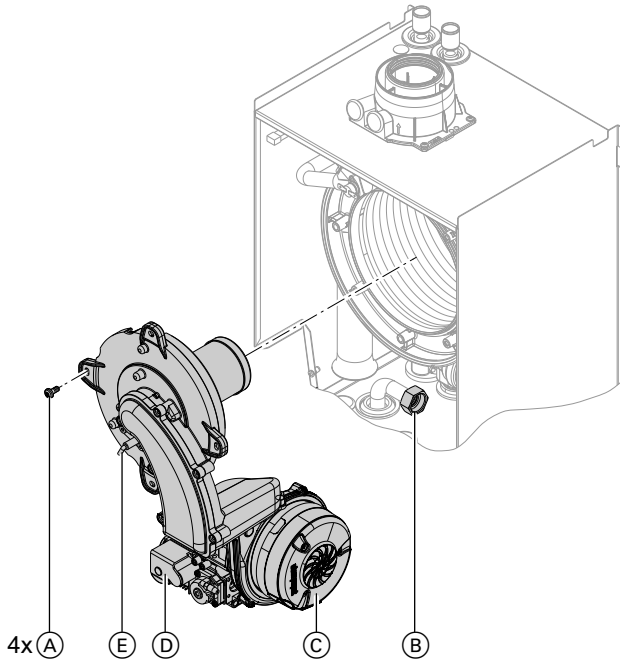
Checking the condensate drain and cleaning the trap



1. Check at trap (A) that the condensate can drain freely.
2. Place an appropriate drip pan below trap (A).
3. Remove locking cap (B) and drain the content of trap (A) into the drip pan.
4. Replace locking cap (B) with gasket.
5. Fill trap (A) with water. For this, pour approx. 0.3 l of water into the combustion chamber.

Further details regarding the individual steps (cont.)

Installing the burner



1. Fit the burner and tighten 4 screws (A) diagonally.
2. Insert new gasket and tighten the fittings on gas supply pipe (B) (Torque approx. 30 Nm).
3. Plug the venturi extension into fan (C).
4. Attach electrical cables from fan motor (C) and gas train (D).
5. Plug ignition electrode cable (E) into the control unit and close the control unit enclosure.
6. Reopen the gas supply and switch on the power supply.



Please note

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

Further details regarding the individual steps (cont.)

7. Check the gas connections for tightness.



Danger

Escaping gas leads to a risk of explosion.

Check the fitting for gas tightness.

Checking all gas equipment for tightness at operating pressure



Danger

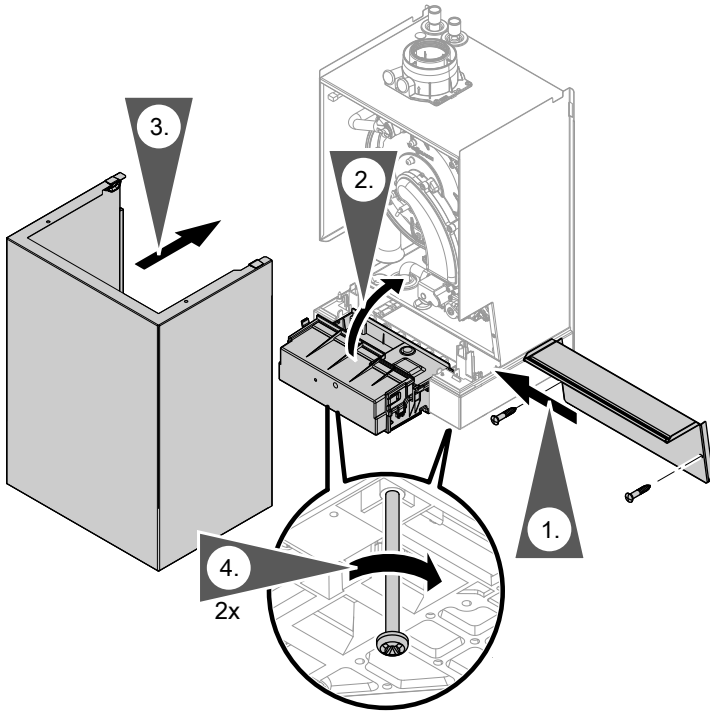
Escaping gas leads to a risk of explosion.

Check all gas equipment for tightness.

Note

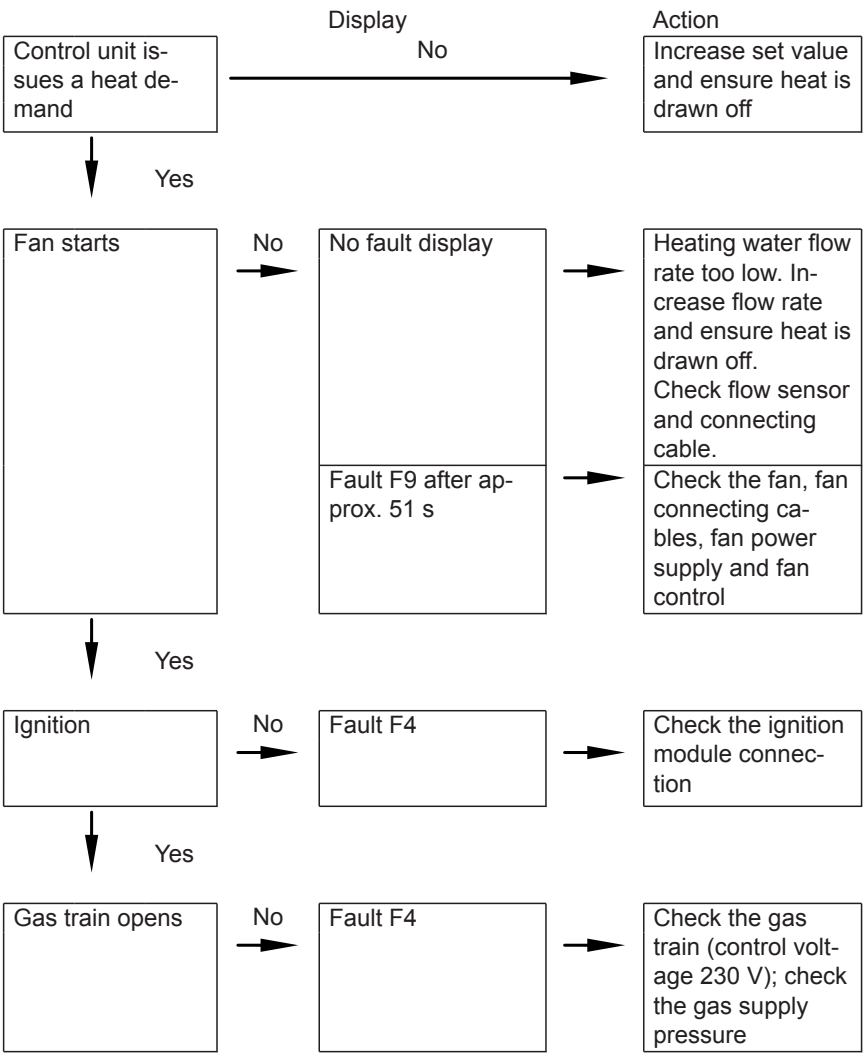
Only use suitable and approved leak detection agents (EN 14291) and devices for the tightness test. Leak detection agents with unsuitable constituents (e.g. nitrides, sulphides) can cause material damage.

Remove leak detection agent residues after testing.

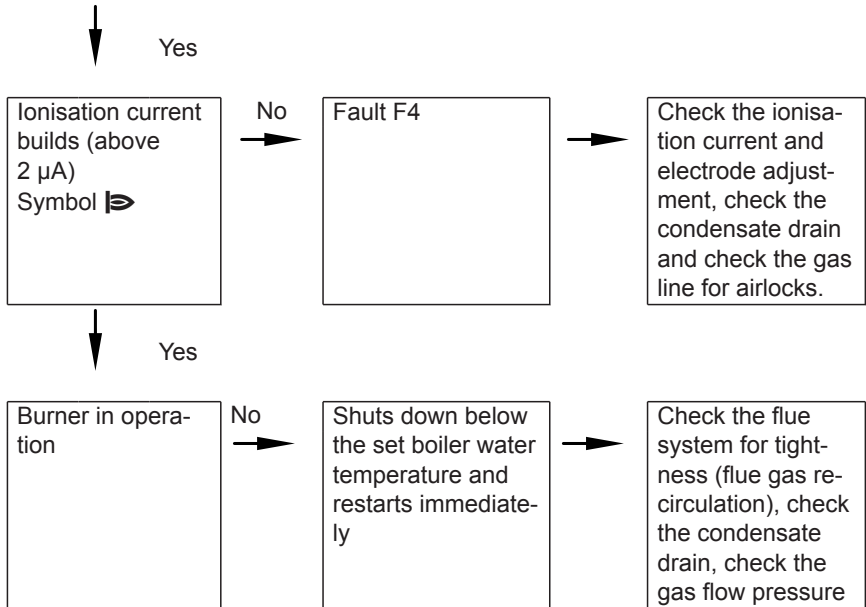
Further details regarding the individual steps (cont.)**Fitting the front panel****Instructing the system user**

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

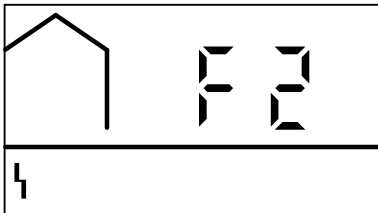
Function sequence and possible faults



Function sequence and possible faults (cont.)



Fault display



Faults are indicated on the display by a flashing fault message with fault symbol "I".

For fault message explanations see the following table.

- Flashing fault symbol "I": To reset, press "I RESET" (see page 43) after the fault has been remedied
- Constantly displayed fault symbol "I": Automatic reset after the fault has been remedied

Fault display (cont.)

Fault code displayed	System characteristics	Cause	Measures
10	Continuous operation	Short circuit, outside temperature sensor	Check the outside temperature sensor and lead (see page 45).
18	Continuous operation	Lead break, outside temperature sensor	Check the outside temperature sensor and lead (see page 45).
30	Burner blocked	Short circuit, boiler water temperature sensor	Check the boiler water temperature sensor (see page 46).
38	Burner blocked	Lead break, boiler water temperature sensor	Check the boiler water temperature sensor (see page 46).
50	No DHW heating	Cylinder demand terminal box fault	Check terminal box connections and replace the terminal box if required.
58	No DHW heating	Cylinder demand terminal box fault	Check terminal box connections and replace the terminal box if required.
60	Burner blocked	Short circuit, return temperature sensor	Check the return temperature sensor (see page 46).
68	Burner blocked	Lead break, return temperature sensor	Check the return temperature sensor (see page 46).
A9	Control mode without OpenTherm device	Communication error, OpenTherm device	Check connections and lead; replace OpenTherm device if required.
b0	Burner blocked	Short circuit, flue gas temperature sensor	Check the sensor (see page 47).
b8	Burner blocked	Lead break, flue gas temperature sensor	Check the sensor (see page 47).
E5	Burner blocked	Internal fault	Check the ionisation electrode and connecting cables. Press "Reset" (see page 43).
F0	Burner blocked	Internal fault	Replace control unit.

Fault display (cont.)

Fault code displayed	System characteristics	Cause	Measures
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 43).
F2	Burner in a fault state	Temperature limiter has responded.	Check heating system fill level. Check circulation pump. Vent the system. Check temperature limiter and connecting cables. Press "Reset" (see page 43).
F3	Burner in a fault state	Flame signal is already present at burner start.	Check ionisation electrode and connecting cable. Press "Reset" (see page 43).
F4	Burner in a fault state	No flame signal.	Check ignition/ionisation electrodes and connecting cables, gas pressure, gas train, ignition, ignition module and condensate drain. Press "Reset" (see page 43).
F8	Burner in a fault state	Fuel valve closes too late.	Check gas train. Check both control paths. Press "Reset" (see page 43).
F9	Burner in a fault state	Fan speed too low during burner start	Check fan, fan connecting cables and power supply to fan; check fan control. Press "Reset" (see page 43).

Fault display (cont.)

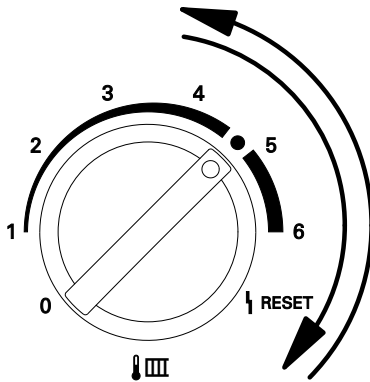
Fault code displayed	System characteristics	Cause	Measures
FA	Burner in a fault state	Fan idle state not reached	Check fan, fan connecting cables and fan control. Press "Reset" (see page 43).
FC	Burner blocked	Electrical fan control (control unit) faulty	Check fan connecting cables; if required, replace or replace control unit.
Fd	Burner blocked	Burner control unit fault	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance. Press "Reset" (see page 43). Replace control unit if fault persists.
FF	Burner blocked	Burner control unit fault	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance. Press "Reset" (see page 43). Replace control unit if fault persists.

Fault display (cont.)

Initiating a reset

Note

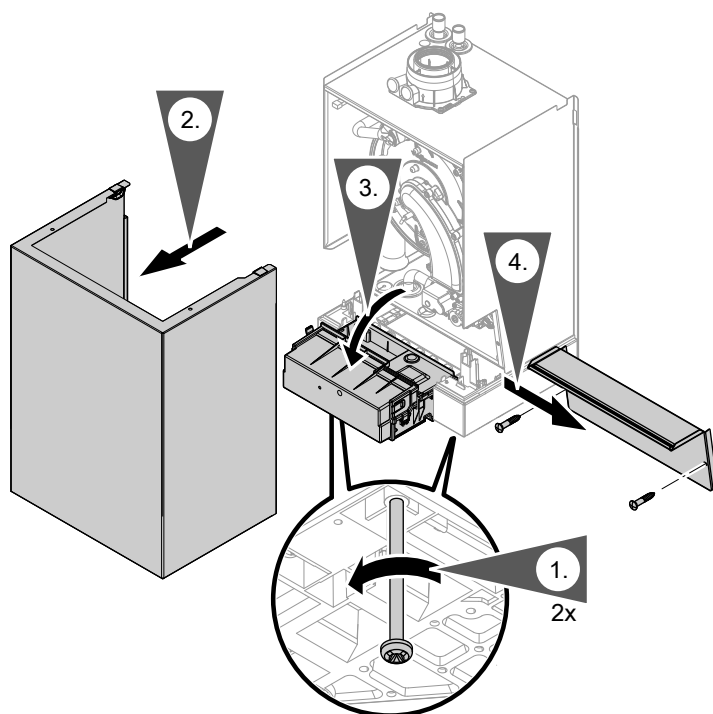
Only press **RESET** if fault symbol "I" is **flashing**.



Turn rotary selector "III" to "I RESET" for between 1 s and 2 s, then back to the control range.

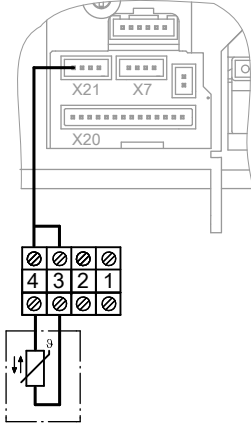
Repairs

Removing the front panel and pivoting the control unit downwards

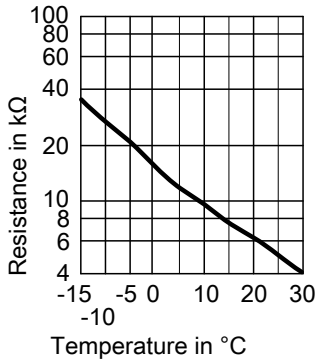


Repairs (cont.)

Outside temperature sensor



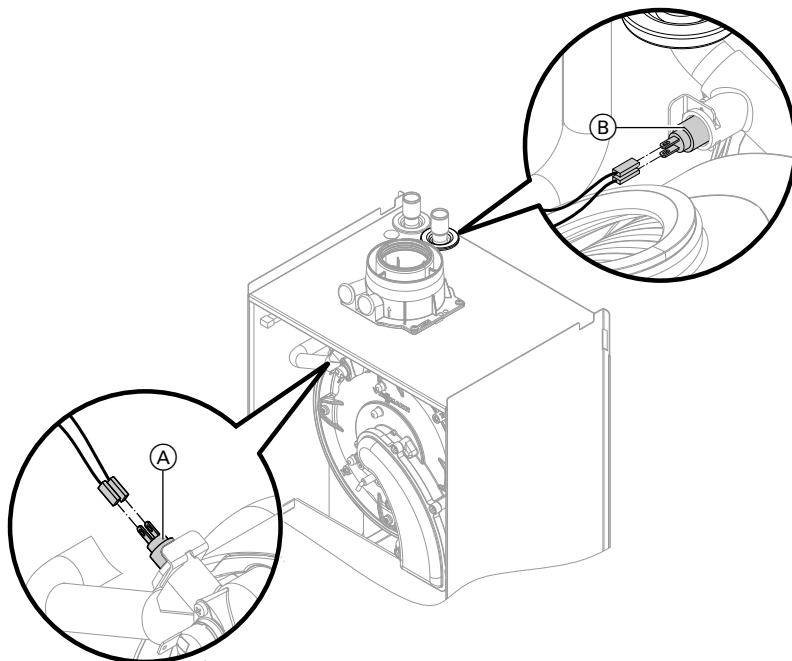
1. Open the control unit enclosure.
See page 18.
2. Disconnect leads from outside temperature sensor.



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

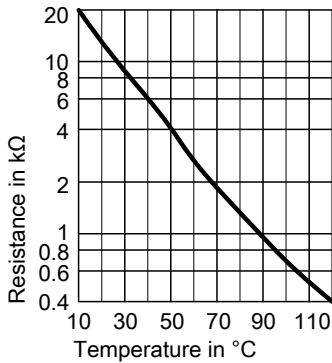
Repairs (cont.)

Checking the boiler water temperature sensor and return temperature sensor



1. Disconnect the leads from boiler water temperature sensor (A) or return temperature sensor (B) and check the resistance.

Repairs (cont.)



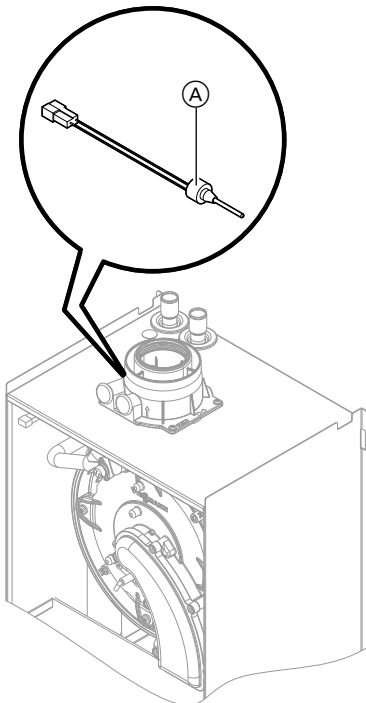
2. Check sensor resistance and compare it to the curve.
3. In the case of severe deviation, drain the boiler on the heating water side and replace the sensor.



Danger

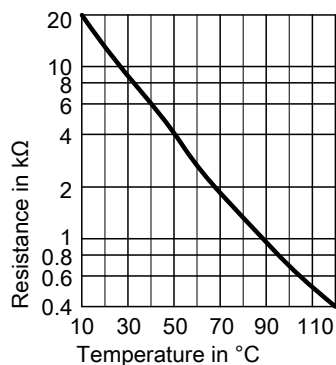
The boiler water temperature sensor is directly immersed in the heating water (risk of scalding). Drain the boiler before replacing the sensor.

Checking the flue gas temperature sensor



1. Disconnect the leads from flue gas temperature sensor (A) and check the resistance.

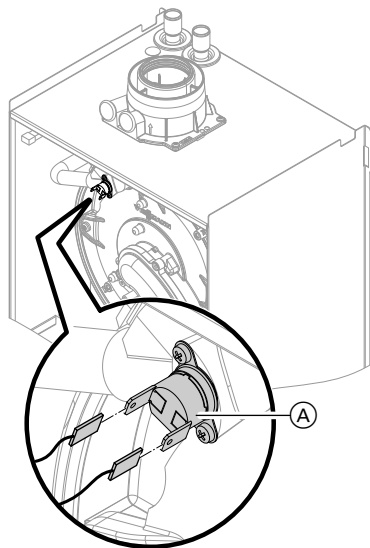
Repairs (cont.)



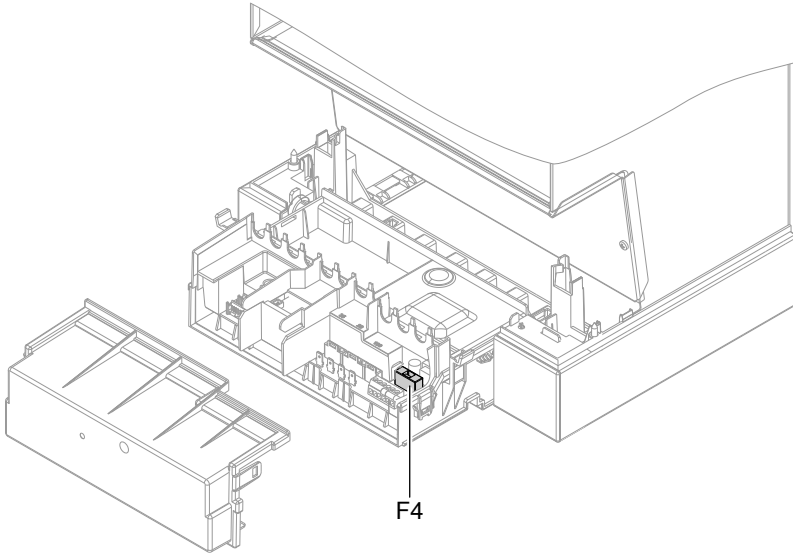
2. Check sensor resistance and compare it to the curve.
3. In the event of severe deviation replace the sensor.

Checking the temperature limiter

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



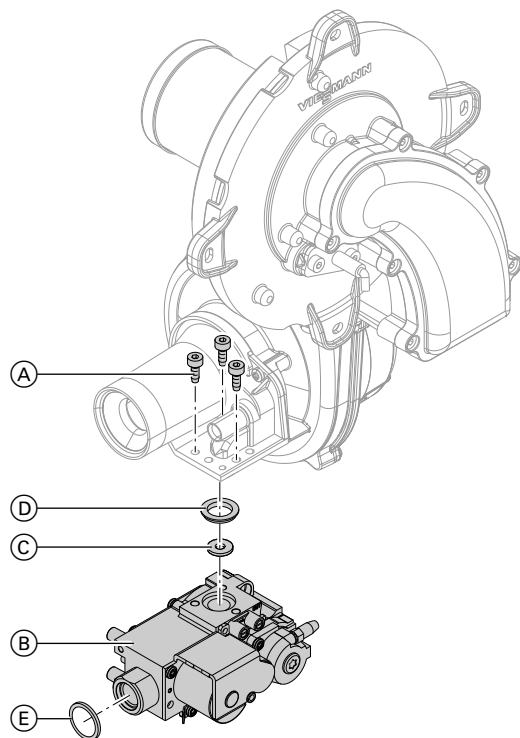
1. Disconnect the leads from temperature limiter (A).
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove faulty temperature limiter.
4. Install a new temperature limiter.
5. Reset by pressing "Reset" on the control unit (see page 43).

Repairs (cont.)**Checking the fuse**

1. Switch off the power supply.
2. Open the control unit enclosure (see page 18).
3. Check fuse F4.

Changing from LPG to natural gas

Replacing the gas restrictor



1. Remove the burner (see page 30).
2. Undo 3 screws (A) and remove gas train (B).
3. Remove gas restrictor (C) (if fitted) from gas train (B). Insert new gas restrictor (C) in gas train (B).
4. Mount gas train (B) with new gasket (D).



Please note

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

Changing from LPG to natural gas (cont.)

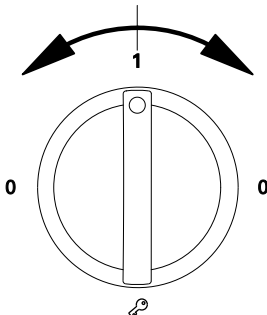
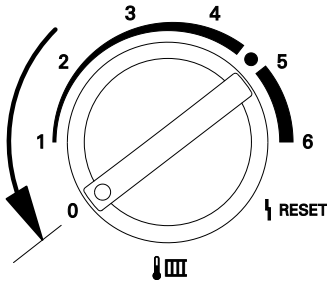
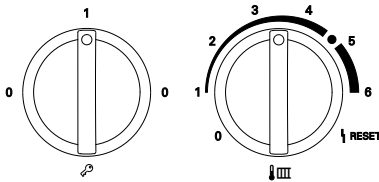
5. Refit the burner with a new gasket
(E) and tighten the union nuts.



Please note

Tighten the union nuts sufficiently to ensure the components do not suffer damage and will function correctly.

Changing the gas type at the control unit



1. Turn on the ON/OFF switch.
2. Turn both rotary selectors "🔑" and "🔥" simultaneously into their respective central positions. "SERV" appears on the display.
3. Turn rotary selector "🔥" fully anti-clockwise within 2 s. The display shows "🔥" and the set value flashes.
4. Change the control unit to natural gas or LPG by turning rotary selector "🔑".
The display shows:
 - "0" for operation with natural gas or
 - "1" for operation with LPG



Changing from LPG to natural gas (cont.)

5. Do **not** adjust the rotary selectors for at least 15 s. The set operating mode is then saved and the control unit returns to standard mode.
6. Turn the ON/OFF switch off and on again. The selected gas type is now enabled

Checking the CO₂ content

See page 28.

Functions and operating conditions in weather-compensated mode

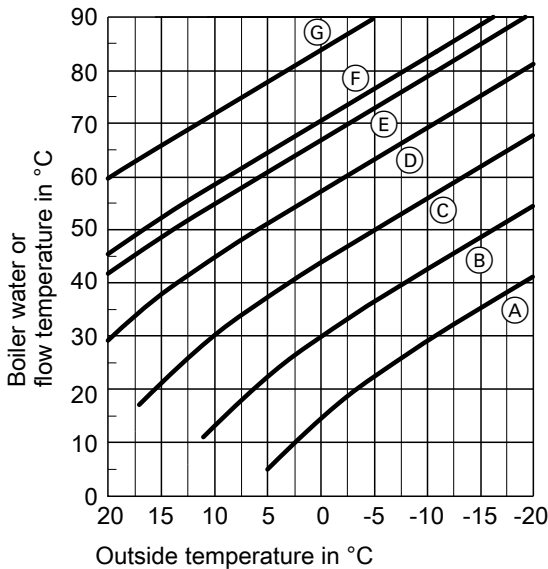
In weather-compensated mode, the boiler water temperature is regulated subject to the outside temperature.

Note

Y-plan and S-plan systems cannot be operated in weather-compensated mode.

For further information, see separate installation instructions for the cylinder demand terminal box (accessories).

Heating curve for weather-compensated control



Setting of rotary selector "🌡️📊"

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

Frost protection function

The frost protection function requires an outside temperature sensor to be connected.

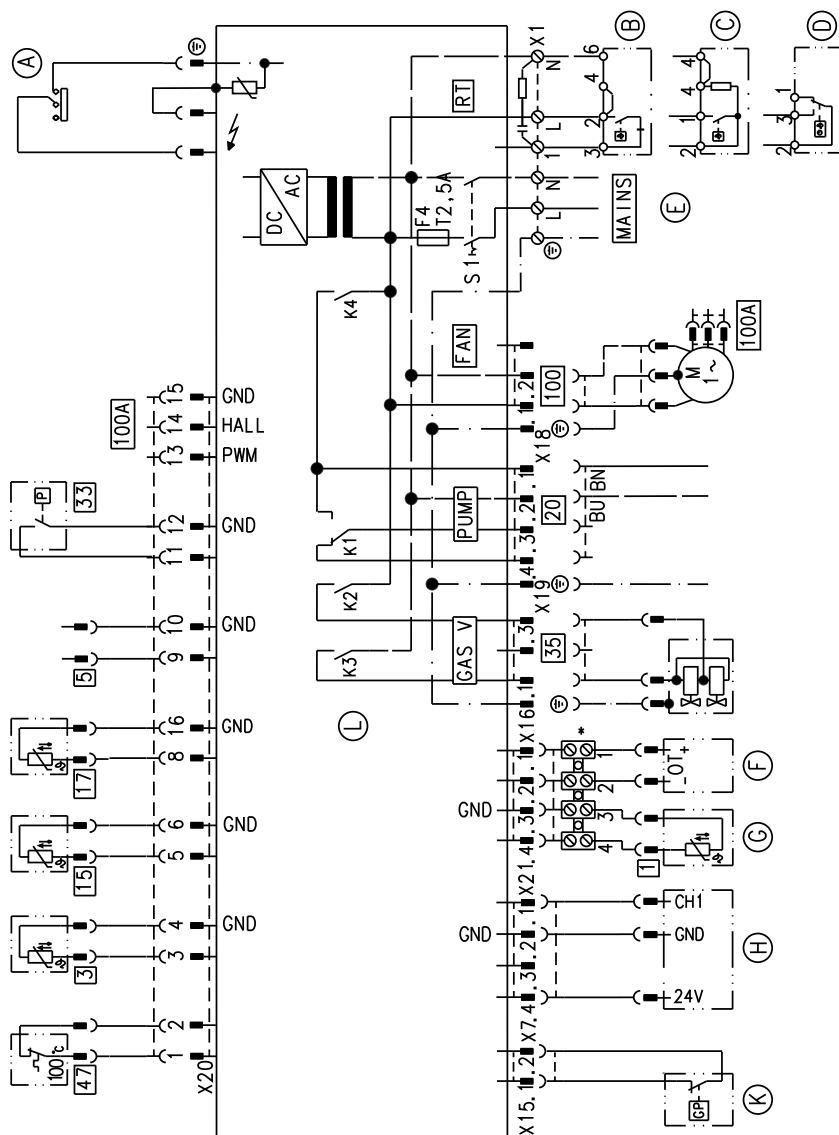
The frost protection function is active at outside temperatures of $< 5^{\circ}\text{C}$. The burner starts and the boiler water temperature is held at 20°C .

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

Note

The frost protection function is only enabled if the circulation pump is connected to the boiler control unit. Otherwise install an external frost stat.

Connection and wiring diagram



(A) Ignition/ionisation



Connection and wiring diagram (cont.)

Ⓑ	Vitotrol 100, type UTA or on-site room temperature controller (switched 230 V input)	Ⓚ	Gas pressure switch (accessories)
Ⓒ	Vitotrol 100, type RT or on-site room temperature controller (switched 230 V input)	Ⓛ	PCB inside the control unit
Ⓓ	Vitotrol 100, type UTD or on-site room temperature controller (switched 230 V input)	X ...	Electrical interface
Ⓔ	Power supply 230 V/50 Hz	3	Boiler water temperature sensor
Ⓕ	OpenTherm connection (remote control, if installed) Max. cable length 30 m	5	Cylinder demand terminal box (accessories)
Ⓖ	Outside temperature sensor (accessories)	15	Flue gas temperature sensor
Ⓗ	Time switch (accessories)	17	Return temperature sensor
		20	Circulation pump
		33	Flow switch
		35	Gas solenoid valve
		47	Temperature limiter
		100	Fan motor 230 V~
		100A	Fan control

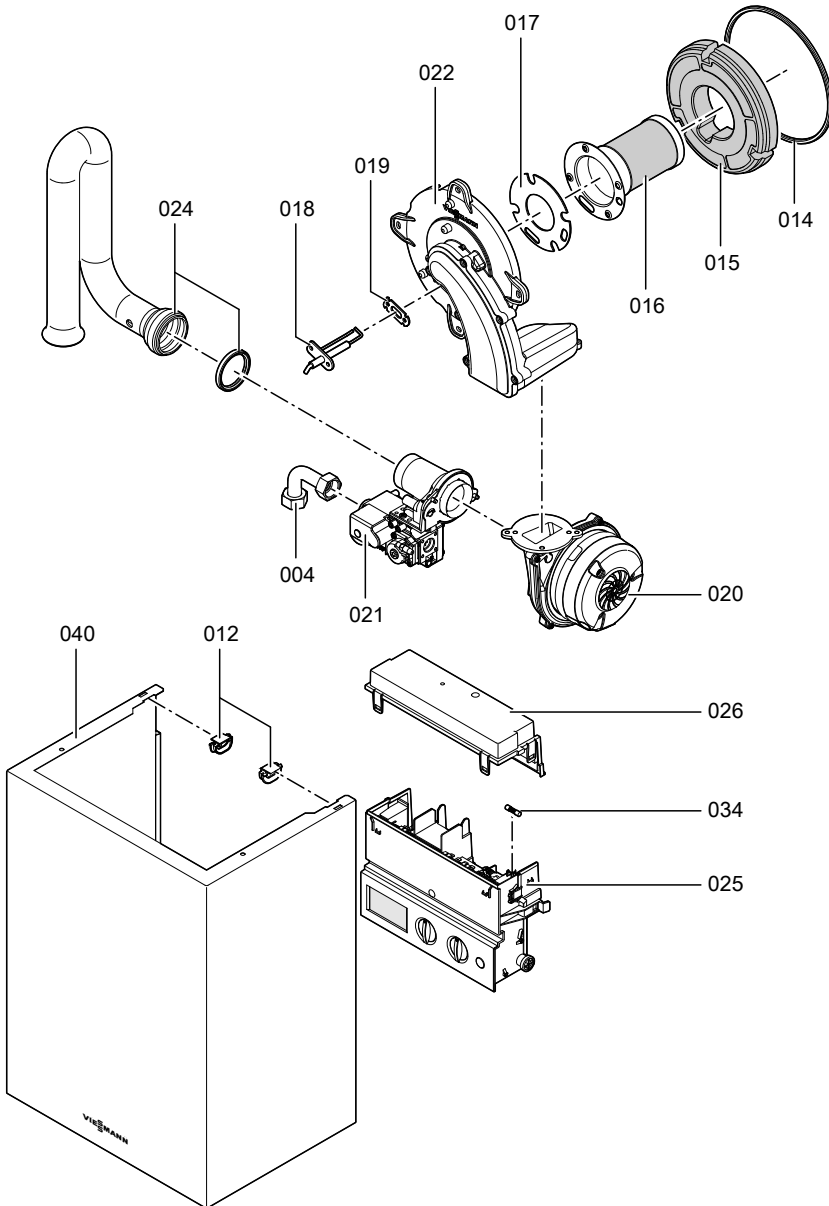
Parts lists

When ordering spare parts:

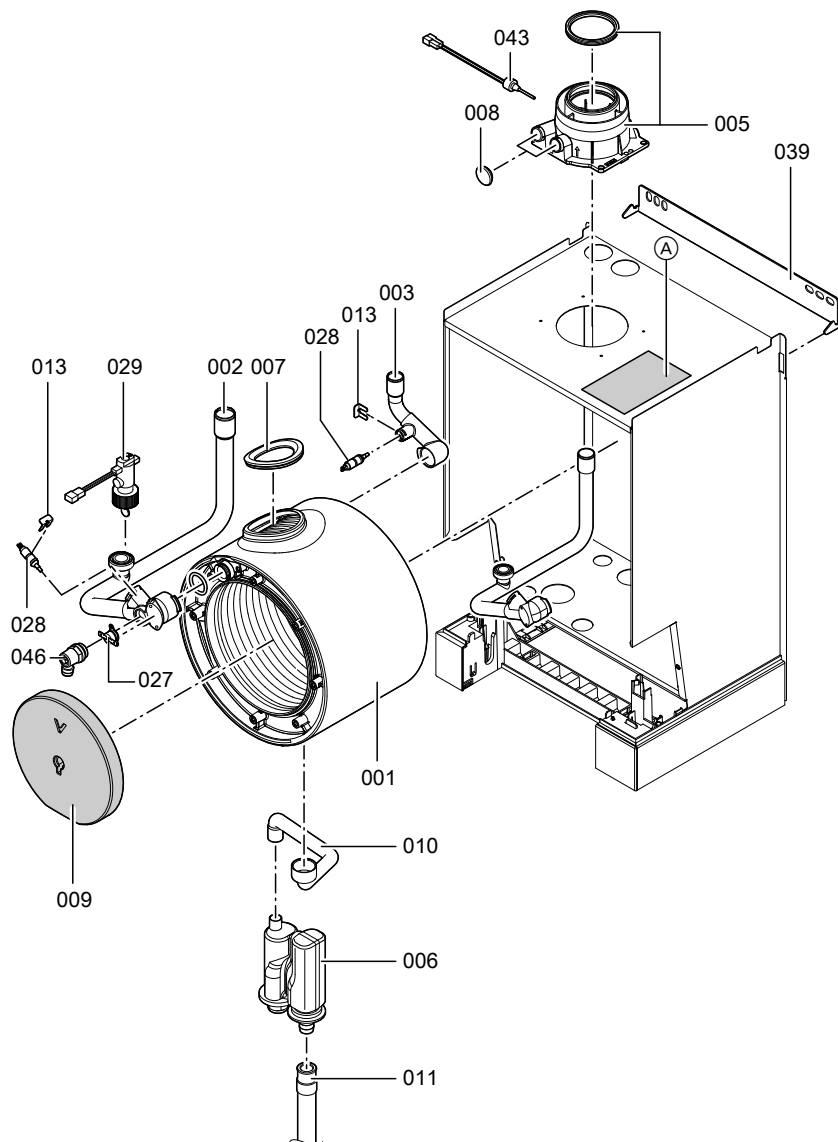
Quote the part and serial numbers (see type plate) and the position numbers of the required part (as per this parts list).

Standard parts are available from your local supplier.

Parts lists (cont.)



Parts lists (cont.)



- 001 Heat exchanger
 002 Connection pipe, heating water flow

- 003 Connection pipe, heating water return
 004 Gas supply pipe

Parts lists (cont.)

- | | |
|--|---|
| 005 Boiler flue connection with gasket | 039 Wall mounting bracket |
| 006 Trap | 040 Front panel |
| 007 Flue gasket | 043 Flue gas temperature sensor |
| 008 Plug for boiler flue connection | 046 Air vent valve |
| 009 Thermal insulation block | |
| 010 Condensate pipe | Wearing parts |
| 011 Condensate hose | 018 Ignition and ionisation electrodes |
| 012 Fixing clips | |
| 013 Clip $\varnothing$ 8 (5 pce) | Parts not shown |
| 014 Burner gasket | 023 Conversion kit G 31 |
| 015 Thermal insulation ring | 030 Gas solenoid valve cable harness |
| 016 Burner gauze assembly | 35 |
| 017 Burner gauze assembly gasket | 031 Fan cable harness 100 |
| 018 Ignition and ionisation electrodes | 032 Cable harness X20 |
| 019 Ignition and ionisation electrode | 033 Connecting cable, auxiliary earth |
| gasket (5 pce) | 035 Cable fixing |
| 020 Fan | 036 Touch-up spray paint, white |
| 021 Gas train | 037 Touch-up paint stick, white |
| 022 Burner door | 038 Special grease |
| 024 Venturi extension | 041 Installation and service instructions |
| 025 Control unit | |
| 026 Cover, wiring chamber | 042 Operating instructions |
| 027 Thermal circuit breaker | 044 Power cable |
| 028 Boiler water temperature sensor | 045 Circulation pump connecting cable |
| 029 Flow control switch | Ⓐ Type plate |
| 034 Fuse 2.5 A (slow) (10 pce) | |

Specification

Rated heating output range						
T _F /T _R 50/30 °C	kW	7.9 - 13	7.9 - 16	7.9 - 19	7.9 - 26	11 - 35
(Pcond(50/30))						
T _F /T _R 80/60 °C	kW	7.2 - 11.9	7.2 - 14.6	7.2 - 17.3	7.2 - 23.7	10 - 31.9
(Pn(80/60))						
Rated heating input range	kW	7.4 - 12.2	7.4 - 15.0	7.4 - 17.8	7.4 - 24.3	10.3 - 32.7
Supply values						
Relative to the max. load with natural gas H						
	m³/h	1.3	1.6	1.9	2.6	3.5
LPG P	kg/h	0.9	1.1	1.4	1.9	2.6
Min. static head (open vented systems)	bar	0.1	0.1	0.1	0.1	0.1
Min. flow rate (heating water)	l/h	200	200	200	200	200
Rated voltage	V	230				
Rated frequency	Hz	50				
Rated current	A	2.0				
Backup fuse (max.)	A	16				
Power consumption (max.)	W	45	50	55	60	65
Weight without front panel (installation)	kg	24	24	24	24	32
Flue gas mass flow rate G20	kg/h	12.4 - 20.4	12.4 - 25.1	12.4 - 29.8	12.4 - 40.7	17.2 - 54.8
Flue gas mass flow rate G31	kg/h	11.5 - 18.9	11.5 - 23.3	11.5 - 27.6	11.5 - 37.7	16.0 - 50.7
CO2 content	%	7.4 - 10.5				
CO2 content at rated heating output	%	9.1				
Permissible ambient temperature						
- during operation	°C	0 to +40				
- during storage and transport	°C	-20 to +65				
Nominal flue gas temperature	°C	70				

Specification (cont.)

Rated heating output range						
T _F /T _R 50/30 °C (Pcond(50/30))	kW	7.9 - 13	7.9 - 16	7.9 - 19	7.9 - 26	11 - 35
T _F /T _R 80/60 °C (Pn(80/60))	kW	7.2 - 11.9	7.2 - 14.6	7.2 - 17.3	7.2 - 23.7	10 - 31.9
Flue gas super-heating temp.	°C	110				
Minimum flue gas temperature	°C	35				
IP rating	IP X4 to EN 60529 (only for room sealed operation)					
Protection class	I					
Temperature limiter setting	°C	100 (fixed)				
Product ID	CE-0085 BT 0029					

Note

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

Declaration of conformity

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the European directives and supplementary national requirements in terms of its design and operational characteristics.

Conformity has been verified with the CE designation. Using the serial number, the full Declaration of Conformity can be found on the following website:

www.viessmann.co.uk/eu-conformity

Manufacturer's declaration

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

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5368662 Subject to technical modifications.