

Installation instructions

for heating engineers

VIESSMANN

Vitodens 333

Type WS3A, 6.6 to 26.0 kW

Compact gas fired condensing boiler
natural gas and LPG version



VITODENS 333



Safety instructions



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

Safety instructions explained



Important information

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

Note

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

Safety regulations

Installation, initial start-up, inspection, maintenance and repairs must be carried out by a competent person (heating engineer/installation contractor).

Observe all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE or all locally applicable standards.

See also the "safety instructions" in the "Vitotec Technical Guide" folder.

Before working on the equipment/heating system, isolate the mains electrical supply (e.g. by removing a separate mains fuse or by means of a mains electrical isolator) and safeguard against unauthorised reconnection.

Close the main gas shut-off valve and safeguard against unauthorised reopening.

Electrical assemblies provided on site must be type-approved.

Work on gas equipment

This must only be carried out by an approved gas fitter.

Observe all commissioning work specified for gas installations to TRGI or TRF and all local regulations.

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Product information

Vitodens 333, Type WS3A

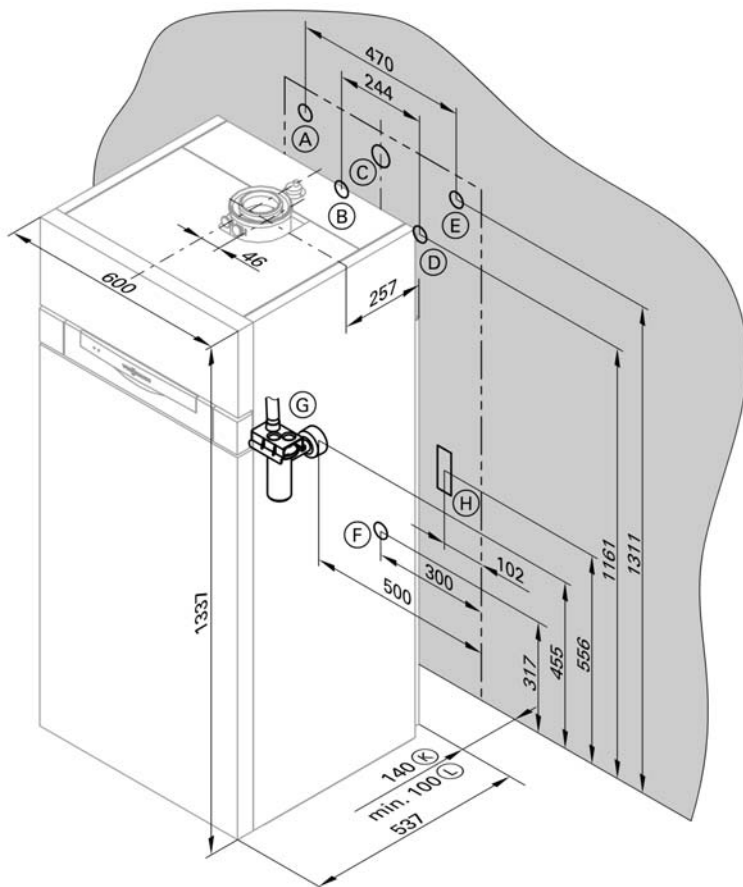
Set up for operation with natural gas E.

The natural gas E version can be converted to natural gas LL or LPG P using a conversion kit.

Preparations for boiler installation



On-site preparations when using a connection set (accessory), see the installation instructions of the connection set.



- Ⓐ Cold water G $\frac{3}{4}$ "
- Ⓑ Heating flow G $\frac{3}{4}$ "
- Ⓒ Gas connection G $\frac{3}{4}$ "
- Ⓓ Heating return G $\frac{3}{4}$ "
- Ⓔ DHW G $\frac{3}{4}$ "
- Ⓕ DHW circulation G1"

- Ⓖ Drain outlet kit (accessory)
- Ⓗ Cable arrangement area
- Ⓚ Wall clearance with connection set (accessory)
- Ⓛ Wall clearance with on-site connection

Preparations for boiler installation (cont.)

1. Prepare the primary connections. Thoroughly flush the heating system.

Note

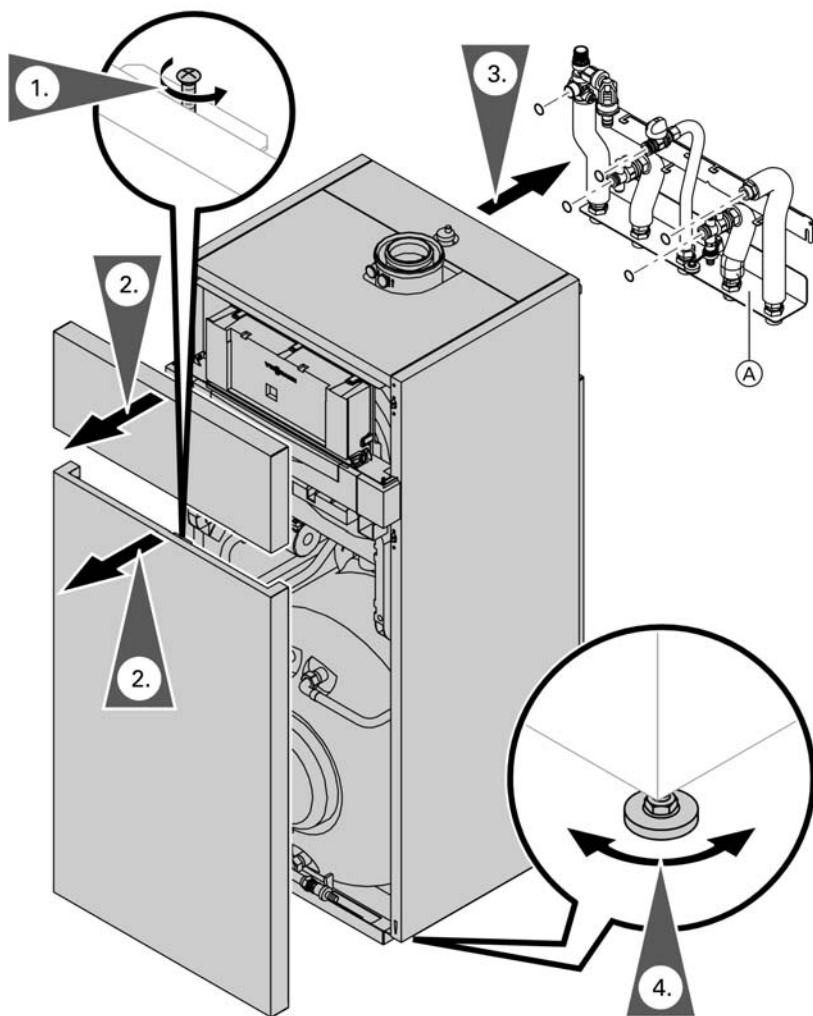
Should an on-site diaphragm expansion vessel be required, install this into the heating return. If no connection set (accessory) is used, install the on-site fill tap into the heating return.

2. Prepare the secondary connections. Install the safety assembly (accessory or on-site provision) to DIN 1988 [or local regulations] into the cold water supply line.
3. Equip the DHW circulation pipe with circulation pump, check valve and time switch.
4. Connect the condensate drain with a pipe vent to the public sewer.
5. Prepare the gas connection according to TRGI or TRF or all local regulations.
6. Prepare the electrical connections.
 - Mains cable: NYM-J 3 x 1.5 mm², fuse max. 16 A, 230 V~, 50 Hz.
 - Accessory cables: NYM with the required number of conductors for the external connections.
 - All cables in area "Ⓜ" should protrude 2 000 mm from the wall.

Installing the boiler and making all connections

Note

Connect the condensate drain and drain lines from the safety valves with a slope and a pipe vent to the public sewer.



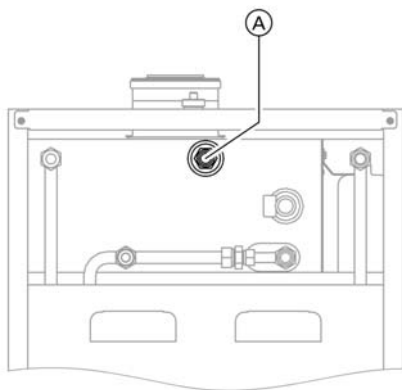
Flue gas connection

Connect the balanced flue pipe.



Flue gas system installation instructions.

Gas connection



Ⓐ Gas connection



Conversion to other gas types:

Conversion kit installation instructions

Information regarding operation with LPG

We recommend the installation of an external safety solenoid valve when installing the boiler in rooms below ground level.

1. Carry out a leak test.



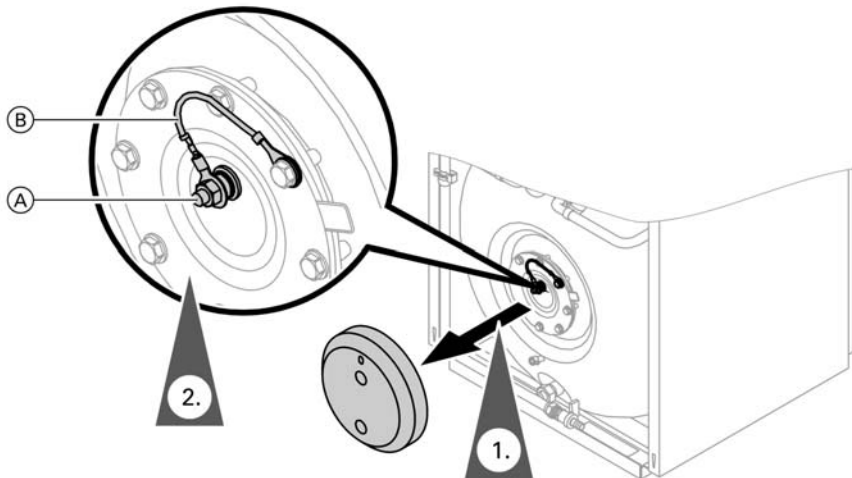
Important information

Excessive test pressure leads to damage to the boiler and gas train.

Max. test pressure 150 mbar. If a higher pressure is required for leak tests, separate the boiler and the gas train from the mains gas supply (undo fittings).

2. Purge the gas supply pipe.

Checking anode connection



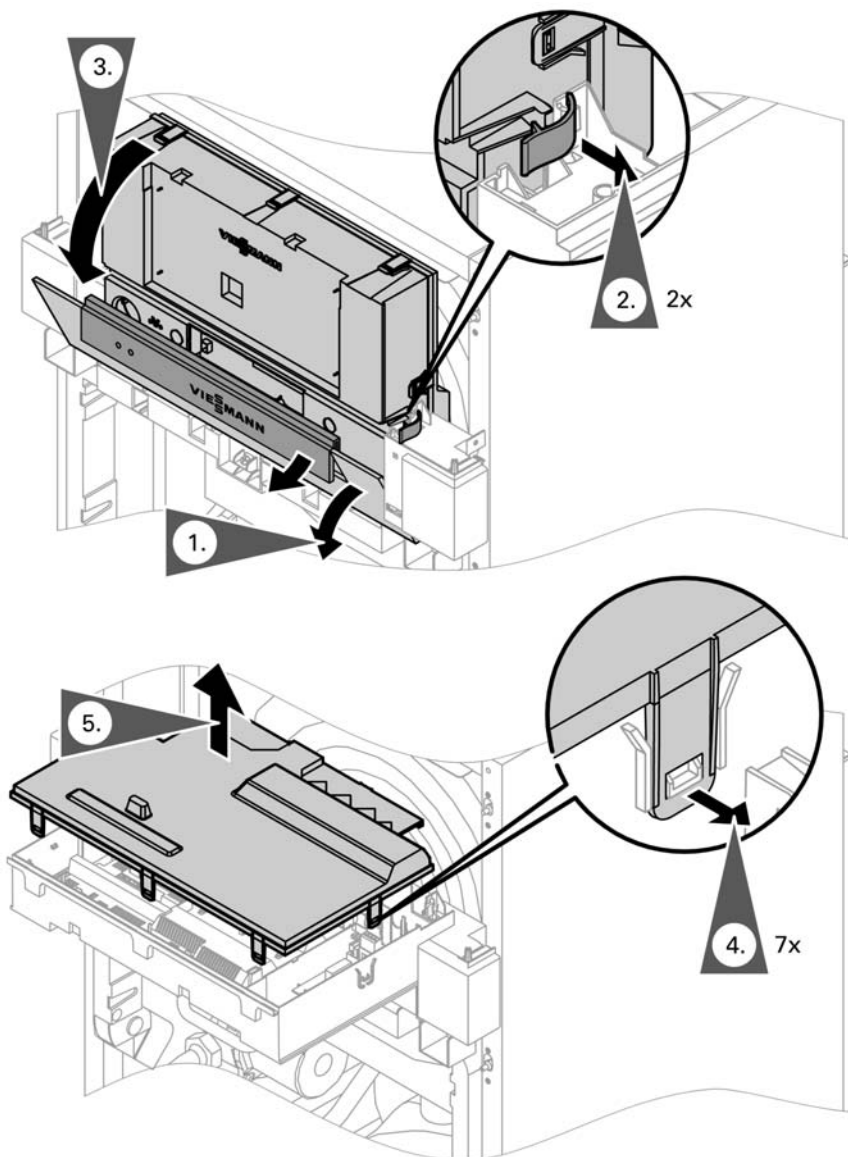
Ⓐ Magnesium anode

Ⓑ Earth cable

1. Remove the flange lid cover.

2. Check whether the earth cable is connected on the magnesium anode.

Opening the control unit housing

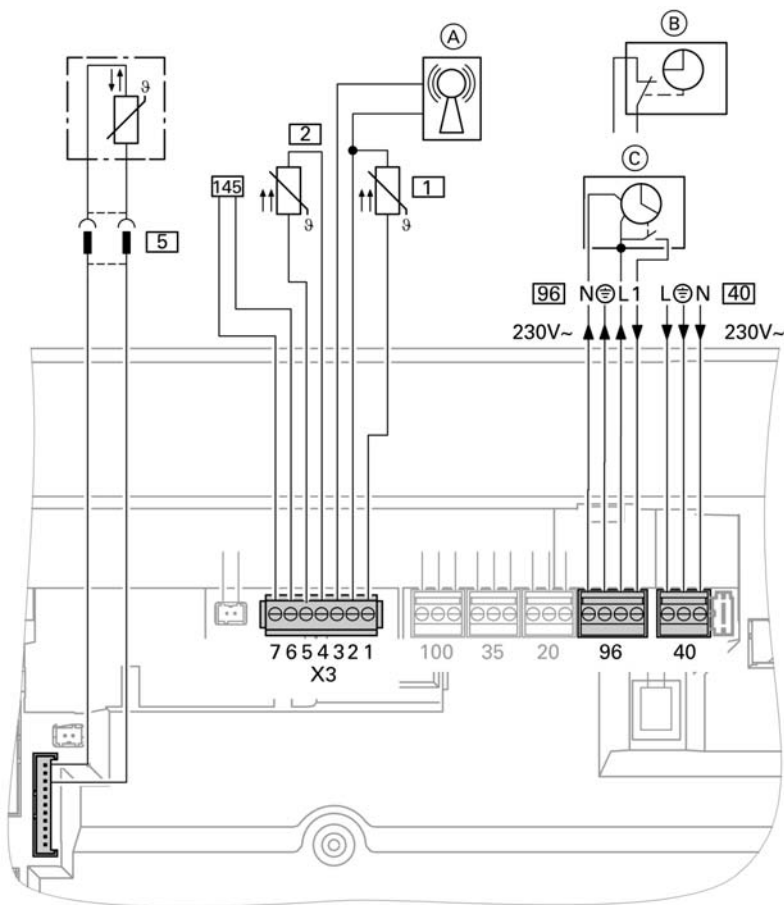


Electrical connections



Notes regarding the connection of accessories

For details of accessories, also observe the separate installation instructions provided.



(A) Radio clock connection

(B) Vitotrol 100 UTD (only for control units operating with a constant temperature)

(C) Vitotrol 100 UTA (only for control units operating with a constant temperature)

Electrical connections (cont.)

Plug 230 V~

- 40** Power supply
- Never interchange cores "L1" and "N".
 - Install an isolator in the mains supply line which simultaneously separates all non-earthed conductors from the mains with at least 3 mm contact separation.
 - Max. fuse rating 16 A.
- 96** ■ Mains supply - accessories (230 V ~ 50 Hz). Where the boiler is installed in a bathroom or shower room, the mains supply of accessories outside the wet area must not be connected to the control unit. The power supply connection for accessories can be made immediately at the control unit, if the boiler is installed outside damp areas. This connection is directly controlled with the system ON/OFF switch (max. 3 A).
- Vitotrol 100 UTA
 - Vitotrol 100 UTD

Low voltage plug

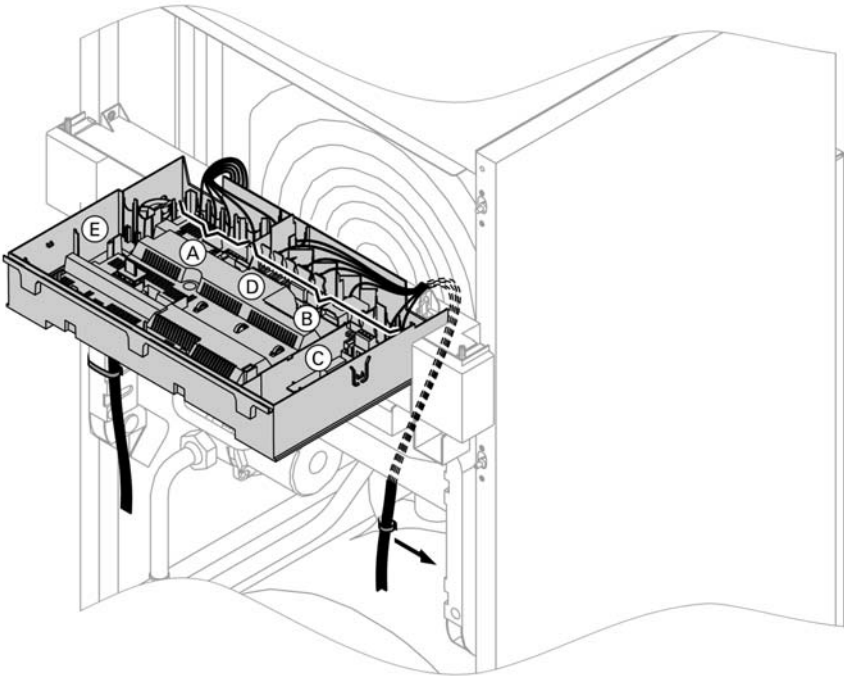
- 1** Outside temperature sensor (only for weather-compensated mode)
- Installation
- North or northwestern wall, 2 to 2.5 m above ground level. In multi-storey buildings, in the upper half of the second floor
 - Not above windows, doors or ventilation outlets
 - Not immediately below balcony or gutter
 - Do not render over
 - Two core cable with a maximum length of 35 m and a cross-section of 1.5 mm²
- 2** Flow temperature sensor for low loss header (accessories)
- 5** DHW cylinder temperature sensor (fitted in the delivered condition)
- 145** KM BUS user (accessory)
- Vitotrol 200 or 300 remote control
 - Vitocom 100
 - Extension kit for one heating circuit with mixer
 - Vitosolic
 - External extension

Routing connecting cables



Important information

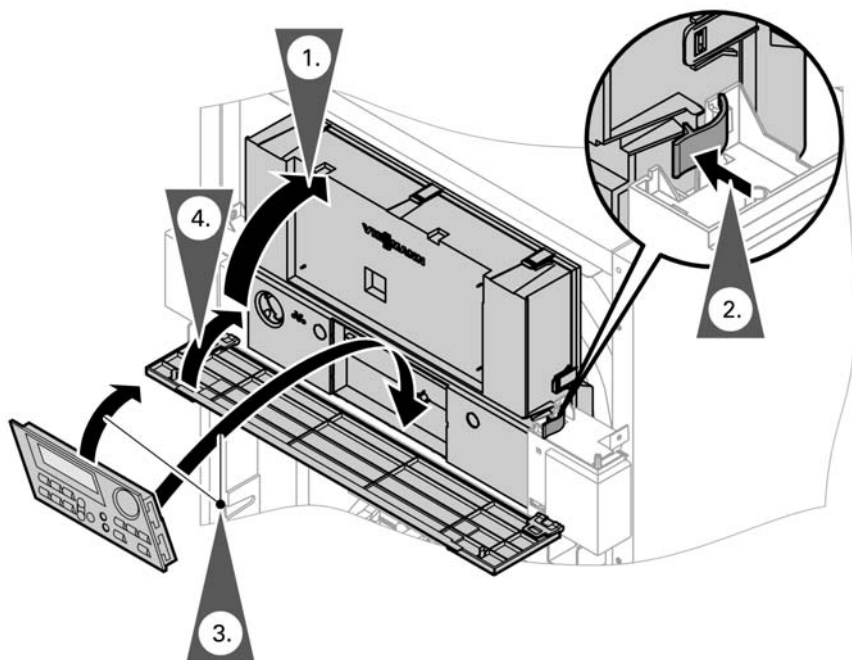
Connecting cables are damaged if they touch hot components. When routing and securing connecting cables on site, ensure that the maximum permissible cable temperatures are not exceeded.



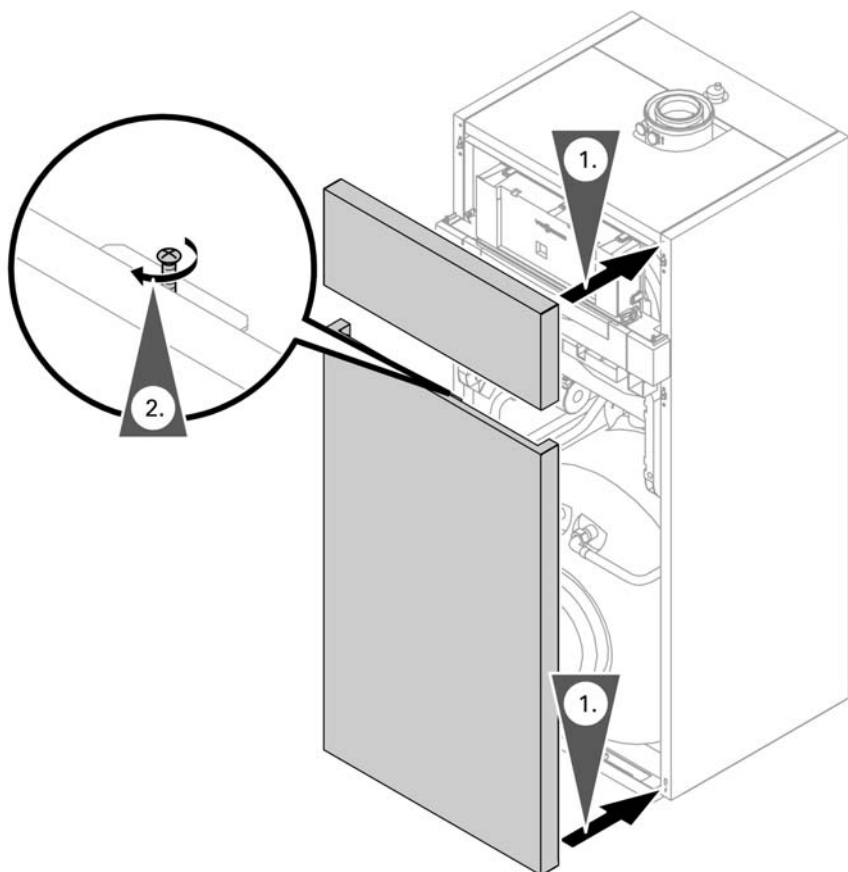
- Ⓐ Low voltage connections
- Ⓑ 230 V connections
- Ⓒ Internal extension

- Ⓓ Main PCB
- Ⓔ Communications module

Closing control unit housing and inserting user interface



Front panel installation



Commissioning and adjustments



For commissioning and adjustment, see service instructions.

Subject to technical modifications

5862 566 GB

Viessmann Limited
Hortonwood 30, Telford, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
www.viessmann.co.uk



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Service instructions

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See applicability on the last page



VITODENS 333



Safety instructions



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Safety instructions explained



Danger

This symbol warns against the risk of injury.



Important information

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

Note

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

Warranty

All warranty rights are void if these service instructions are not observed.

Target group

These service instructions are exclusively designed for qualified personnel.

Work on gas equipment must only be carried out by a registered gas fitter.

Electrical work 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 during service work:

- all legal instructions regarding the prevention of accidents,
- the TRGI, TRF and special regulations, e.g. those of the BDH,
- all legal instructions regarding environmental protection,
- the Code of Practice by relevant trade associations and all local regulations.

If you notice a smell of gas



Danger

Escaping gas can cause explosions which may lead to serious injury.

- Do not smoke. Prevent naked flames and sparks. Never switch electrical lights or equipment.
- Open windows and doors.
- Close the gas shut-off valve.
- Remove all personnel from the danger zone.
- Observe the safety regulations of your local gas supplier which can be found on the gas meter.
- Notify your heating contractor from outside the building.

Safety instructions (cont.)

If you smell flue gas



Danger

Flue gas may lead to life-threatening poisoning.

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

Repair work

It is not permitted to carry out repairs on parts that fulfil a safety function. Use only original Viessmann spare parts, or equivalent parts that have been approved by Viessmann.

Service work on the heating system

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

Ancillary components, spare and wearing parts



Important information

Components which are not tested with the heating system, the installation of non-approved spare parts and unauthorised conversion may lead to damage to the heating system, which may affect their function and limit our warranty. For conversions or replacements, use only original parts from Viessmann or those spare parts which are approved by Viessmann.

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Steps - initial start-up, inspection and maintenance

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Steps - initial start-up, inspection and maintenanc . . . (cont.)

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Further details regarding the individual steps

Filling the heating system

1. Check the charge pressure of the diaphragm expansion vessel.
2. Close the gas shut-off valve.
- 3.
4. If the control unit had already been switched ON before filling began:
Start the control unit and in code 1, set coding address 2F:2.
The diverter valve will then be in its central position.



Important information

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 with water.
- Only use fill water of potable quality.
- Soften fill water harder than 20 cdH (3.58 mmol/l). For suitable means of water softening, see the Vitoset pricelist.
- An anti-freeze additive suitable for heating systems can be mixed with the fill water.

Note

To call up code 1 and for setting the coding address, see page 39.

Whilst filling is in progress, the display shows bF (constant temperature control unit) or Filling (weather-compensated control unit).

Continue filling the system.

Fill the heating system at the fill valve in the heating return (on the connection set or on site).
(minimum system pressure > 0.8 bar).

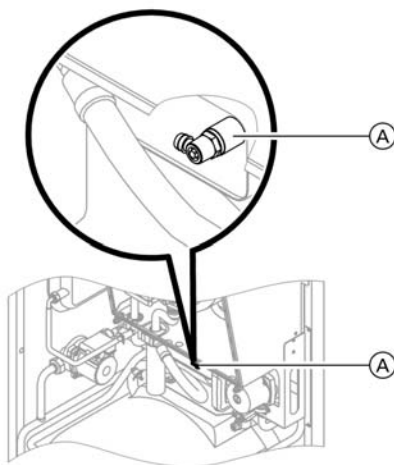
Note

The diverter valve actuator will be in the central position, and the system will be completely filled, if the control unit has not been switched ON before the system was filled.

5. Close the boiler fill & drain valve.
6. Set coding address 2F:0.

Further details regarding the individual steps (cont.)

Venting the boiler



1. Close the shut-off valves on the heating water side.
2. Connect the drain hose on valve (A) with a drain outlet.
3. Open valve (A) and fill valve in the heating return, and vent at mains pressure, until no sound of escaping air can be heard anymore.
4. Close valve (A) and fill valve in the heating return, and open the primary shut-off valves.

Venting the heating system

1. Close the gas shut-off valve and start the control unit.
2. Activate the venting program via coding address 2F:1.

Note

To call up code 1 and for setting the coding address, see page 39.

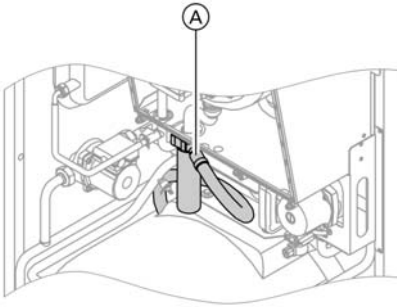
For function and sequence of the venting program, see page 104.

Whilst venting is in progress, the display shows EL (constant temperature control unit) or Venting (weather-compensated control unit).

3. Check the system pressure.

Further details regarding the individual steps (cont.)

Filling the siphon with water



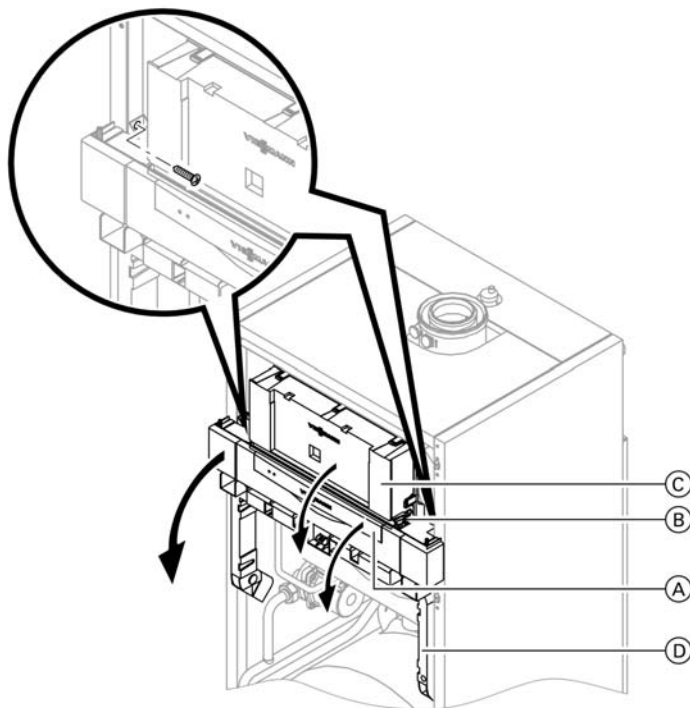
1. Remove the retaining clip and siphon **A**.
2. Fill the siphon with water.
3. Fit siphon **A** and secure with the retaining clip.

Language selection (if required) - only for the weather-compensated control units

1. Press **i**.
2. Select the required language with **⊖**.
3. Confirm with **OK**.

Further details regarding the individual steps (cont.)

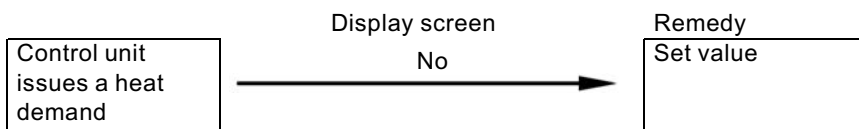
Pivot the control unit down to carry out commissioning and maintenance work

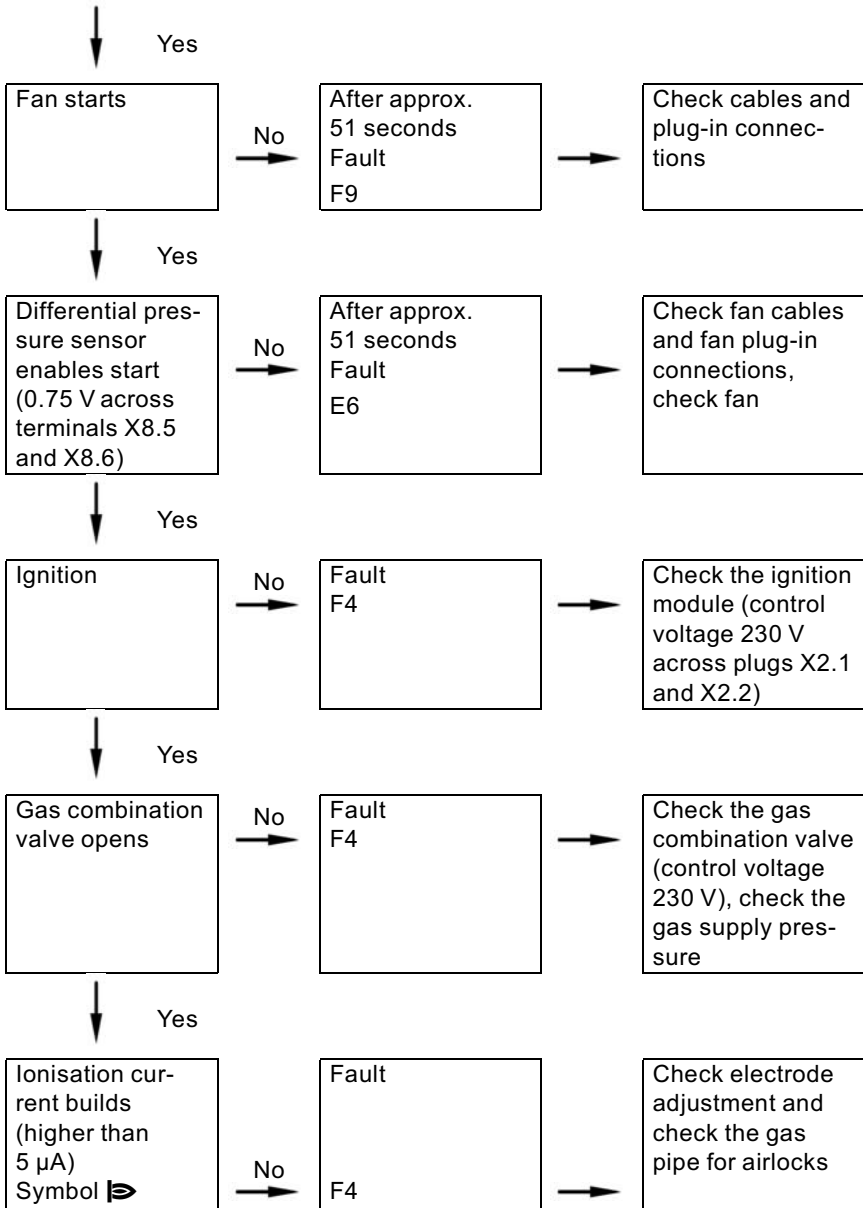


1. Open flap (A).
2. Release the side closures (B) and pivot control unit (C) forward.
3. Release the side screws and pivot control unit (C) down with its retaining frame (D).

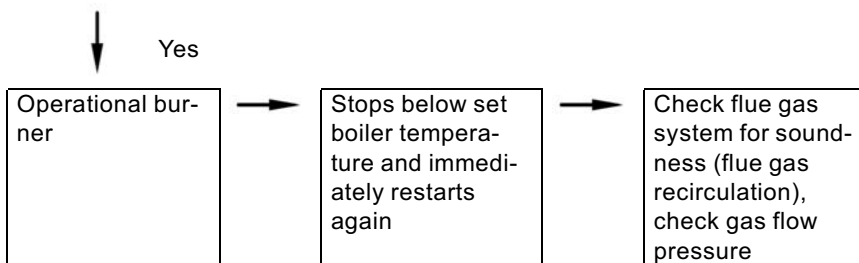
Function sequence and possible faults

For further details regarding faults, see page 74.



Further details regarding the individual steps (cont.)

Further details regarding the individual steps (cont.)



Checking the gas type

1. Enquire about the gas type and Wobbe index (W_o) from your local mains gas or LPG supplier.

Note

In the as delivered condition, Vitodens 333 is set up for natural gas E.

The boiler can be operated in the Wobbe index range 12.0 to 16.1 kWh/m³ (43.2 to 58.0 MJ/m³).

2. Compare the gas category (gas type) and gas group with the details on the burner label.

3. If these details do not match the fuel provided, the burner must be converted according to the details provided by the mains gas or the LPG supplier.



See separate conversion kit installation instructions.

After conversion to

■ Natural gas LL

The boiler can be operated in the Wobbe index range 10.0 to 13.1 kWh/m³ (36.0 to 47.2 MJ/m³).

■ LPG P

The boiler can be operated in the Wobbe index range 21.4 to 22.5 kWh/m³ (76.9 to 81.0 MJ/m³).

4. Set the gas type via coding address 1E at the control unit.

Note

To call up code 1 and for setting the coding address, see page 39.

Further details regarding the individual steps (cont.)

5. Record the gas type in the commissioning/service report on page 120.

Checking static and supply pressure



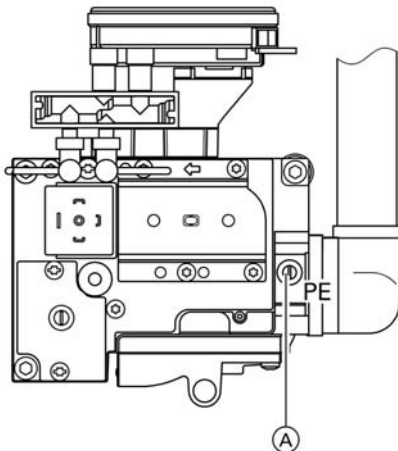
Danger

Higher CO emissions can lead to poisoning.

Measure the CO value before and after any work on gas equipment to prevent any health hazards and to ensure the perfect operational condition of the system.


Operation with LPG

Flush the LPG tank twice during commissioning/replacement. Thoroughly vent the tank and gas lines after flushing.



1. Close the gas shut-off valve.
2. Release the screw inside test nipple PE (A) on the gas combination valve, but do not remove, and connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the static pressure; it should be a max. of 57.5 mbar. Record the actual value in the service report.
5. Start up boiler.

Note

During commissioning, the boiler can enter a fault state because of airlocks in the gas pipe. After approx. 5 seconds, press  to reset the burner.



Further details regarding the individual steps (cont.)

6. Check the supply (flow) pressure; it should be
- 20 mbar for natural gas,
 - 50 mbar for LPG.

Note

Use suitable test equipment with a resolution of at least 0.1 mbar to measure the supply pressure.

Record the actual value in the service report.

Take the action shown in the table.

Supply (flow) pressure for natural gas	Supply (flow) pressure for LPG	Remedy
below 17.4 mbar	below 42.5 mbar	Do not start up. Notify your mains gas or LPG supplier.
17.4 to 57.5 mbar	42.5 to 57.5 mbar	Start up boiler.
in excess of 57.5 mbar	in excess of 57.5 mbar	Install a separate gas governor downstream of the system and regulate the pressure to 20 mbar for natural gas, or 50 mbar for LPG. Notify your mains gas or LPG supplier.

7. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge, and close test nipple (A) with the screw.
8. Open the gas shut-off valve and start the boiler.



Danger

Gas escaping from the test nipple leads to a risk of explosion.
Check test nipple (A) for soundness.

Further details regarding the individual steps (cont.)

Checking the CO₂ settings

Vitodens 333 is set up in the factory for natural gas E, and can be converted to natural gas LL or LPG P using a conversion kit.

During commissioning or maintenance, check the CO₂ level at the boiler adaptor.

Note

The MatriX burner for Vitodens 333 is preset for the entire gas group. Therefore, the burner requires no further setting or adjustment.

Subject to the Wobbe index, the CO₂ content fluctuates between

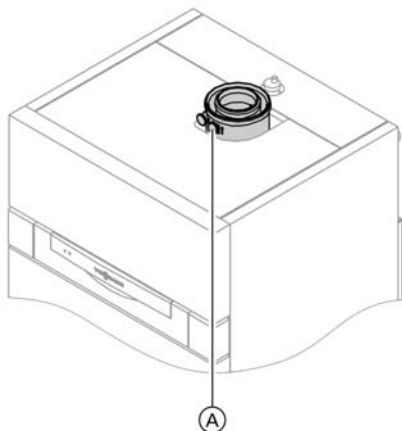
- 6.6 to 10.0 % for natural gas E
- 7.0 to 10.0 % for natural gas LL and
- 8.5 to 10.5 % for LPG P.

Compare the actual CO₂ value with the above CO₂ value ranges for the individual gas groups (check the gas group with your mains gas or LPG supplier).

If the actual CO₂ value deviates by more than 1 % for natural gas or 0.5 % for LPG, proceed as follows:



- Check whether the correct gas restrictor has been installed.
- Check the balanced flue system for soundness, see page 18.

Further details regarding the individual steps (cont.)






1. Connect a flue gas analyser at the flue gas aperture (A) on the boiler adaptor.
2. Open the gas shut-off valve, commission the boiler and create a heat demand.
3. Select the lower rated output.

Constant temperature control unit:


- Press both keys  and  simultaneously until the display shows 1.

Weather-compensated control unit:


- Press both keys  and  simultaneously until the display shows Relay test.
- With  in the display, select Basic load.

4. Check the CO₂ content. Should the actual value deviate by more than 1 % from the above range, implement steps from page 15 (possibly replace the burner).
5. Enter actual values into the service report.
6. Set the upper rated output.


Constant temperature control unit:

- With  in the display, select 2.

Weather-compensated control unit:

- With  in the display, select Full load.







Further details regarding the individual steps (cont.)

7. Check the CO₂ content. Should the actual value deviate by more than 1 % from the above range, implement steps from page 15 (possibly replace the burner).
8. After testing, press .
9. Enter actual values into the service report.

Setting the max. output

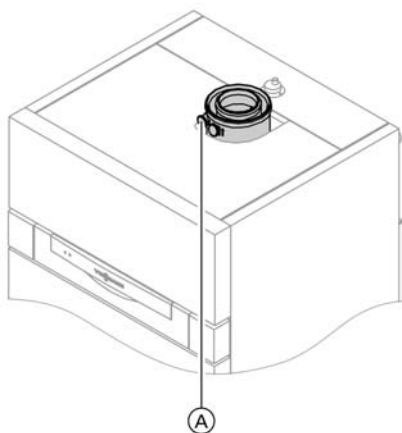
Note

*The max. output can be limited for **heating operation**. You can limit the output via the modulation range. The control pressure acts as standard value for setting the required output.*

1. Start up boiler.
2. Press both  and  simultaneously until 100 flashes on the display, (equals 100 % of the rated output) and  appears. On weather-compensated control units, the display additionally shows Max. output.
3. With / select the required value in % of rated output as max. output.
4. Confirm the set value with .
5. Record the settings for max. output on the additional type plate included with the technical documentation. Affix the type plate next to the original type plate on top of the boiler.

Further details regarding the individual steps (cont.)

Checking the balanced flue system for soundness (annular gap check)



Ⓐ Combustion air aperture

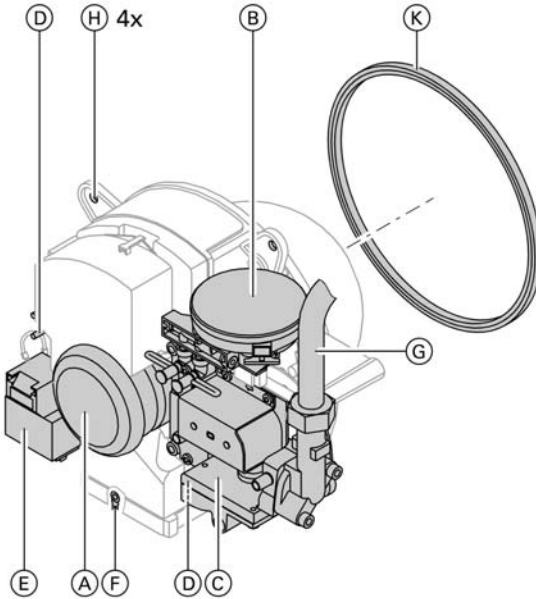
For balanced flue systems tested together with the gas fired wall mounted boiler, some Federal States (e.g. Northrhine-Westphalia) waive the requirement for a soundness test (overpressure test) during commissioning by the flue gas inspector. For such cases we recommend that your heating contractor carries out a simple soundness test during the initial start-up of your system. For this, it would be sufficient to check the CO₂ concentration in the combustion air at the annular gap in the balanced flue pipe.

The flue pipe is deemed to be sound, if the CO₂ concentration of the combustion air is no higher than 0.2 % or the O₂ concentration is at least 20.6 %.

If actual CO₂ values are higher or O₂ values are lower, carry out a pressure test on the flue pipe at a static pressure of 200 Pa.

Further details regarding the individual steps (cont.)

Removing the burner and checking the burner gasket (replace gasket every two years)



1. Switch OFF the control unit ON/OFF switch and the mains electrical supply.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pull electrical cables off fan motor (A), differential pressure sensor (B), gas valve (C), ionisation electrode (D), ignition unit (E) and earth (F).
4. Release gas connection pipe (G) fixing screws and fittings.

5. Release four nuts (H) and remove the burner.



Important information

Prevent damage to the wire mesh.

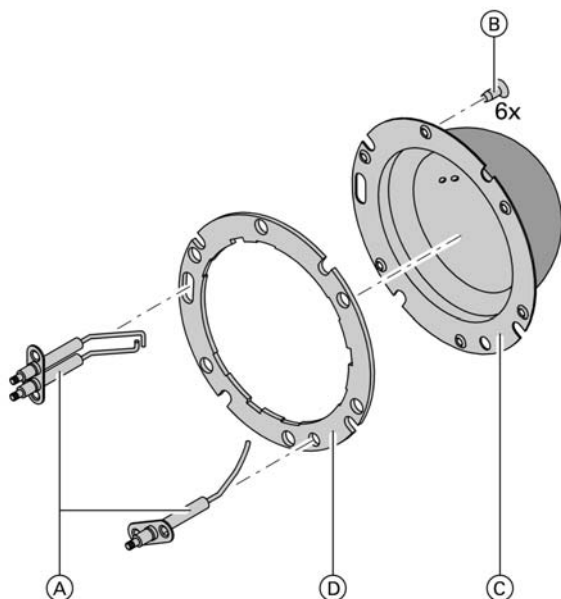
Never rest the burner on the gauze assembly.

6. Check the burner gasket (K) for damage.
Generally, replace the burner gasket **every two years**.

Further details regarding the individual steps (cont.)

Checking the burner gauze assembly

Replace the burner gauze assembly if the wire mesh is damaged.



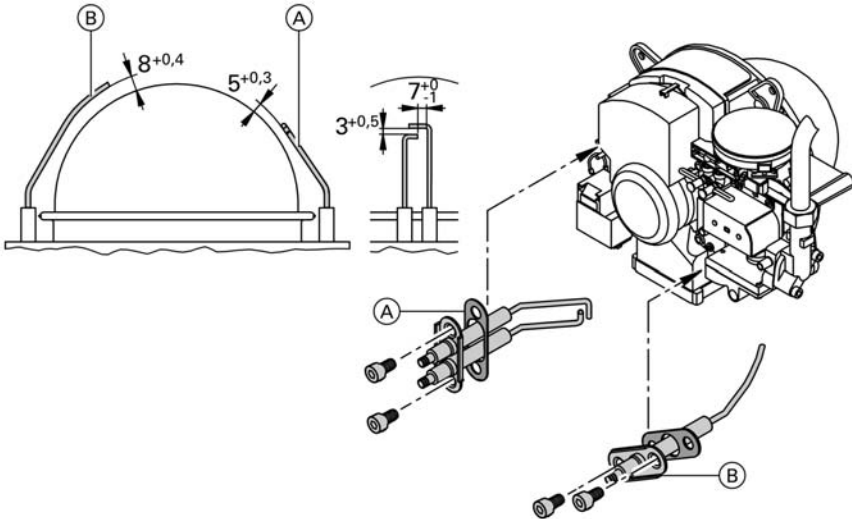
1. Remove electrodes (A).
2. Remove thermal insulation ring (B).
3. Release the six Torx screws (C) and remove the burner gauze assembly (D).
4. Remove the old gauze assembly gasket (E).
5. Insert a new burner gauze assembly with a new gasket, and secure with six Torx screws.
6. Refit a new thermal insulation ring (B).

Note

Torque: 3.5 Nm

Further details regarding the individual steps (cont.)

Checking and adjusting the ignition and ionisation electrodes



(A) Ignition electrodes

(B) Ionisation electrode

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

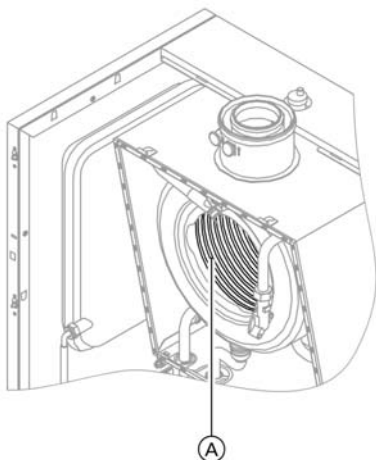


Important information

Wire mesh
do not damage.

Further details regarding the individual steps (cont.)

Cleaning the combustion chamber/Cleaning the heating surfaces and installing the burner



1. If required, clean combustion chamber and heating surfaces **(A)** with a brush or flush with water.

! **Important information**
Scratches on parts which are in contact with flue gases, can lead to corrosion. Only use plastic brushes and NOT wire brushes.

Apply a solvent-/potassium-free cleaning agent if residues remain:

- Remove soot deposits with alkaline cleaning agents with additional surfactants (e.g. Fauch 600).
- Remove coatings and surface discolouration (yellow-brown) with slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E).
- Thoroughly flush with water.

Note

*Fauch 600 and Antox 75 E are supplied by
Hebro Chemie GmbH
Rostocker Straße 40
D 41199 Mönchengladbach
(CH): Intec Bassersdorf AG
Grindelstrasse 12
Postfach
CH-8303 Bassersdorf*

2. Install the burner and torque nuts diagonally with 4 Nm.
3. Secure the gas supply pipe with a new gasket.

Further details regarding the individual steps (cont.)

4. Check the gas connections for soundness.

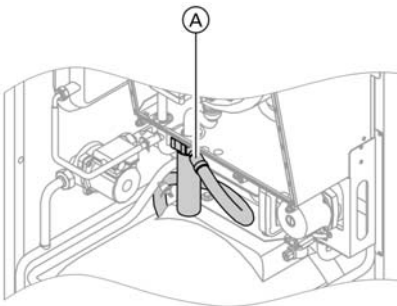


Danger

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

5. Connect the electrical cables/leads to each corresponding component.

Checking the condensate drain and cleaning the siphon



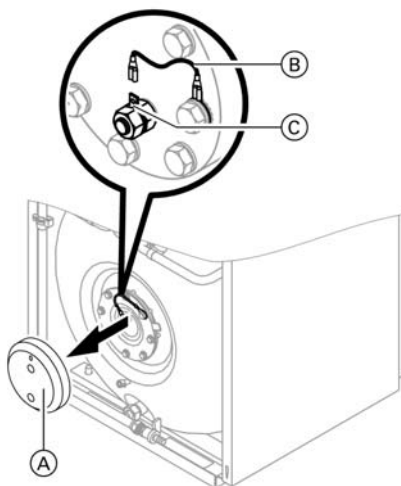
1. Check at siphon (A), that the condensate can freely drain.
2. Remove the retaining clip and the siphon.
3. Clean the siphon.
4. Fit the siphon and secure with the retaining clip.

Testing anode earth current with an anode test device

Note

We recommend that the magnesium anode function is checked annually. This function check can be made without interrupting operation, by measuring the earth current with an anode test device.

Further details regarding the individual steps (cont.)

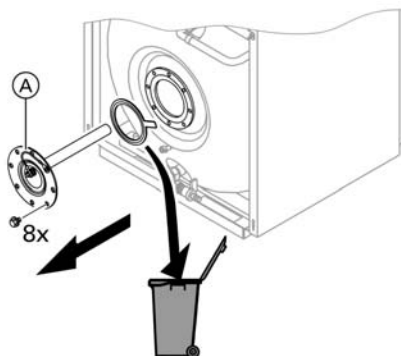


1. Remove cover (A).
2. Pull earth cable (B) from connecting tab (C).
3. Connect the test equipment (up to 5 mA) in series between connecting tab (C) and earth cable (B).
 - The anode is OK if the indicated current is >0.3 mA.
 - Visually inspect the anode, if the current measures < 0.3 mA or if there is no current at all (see page).

Cleaning the DHW cylinder

Note

DIN 1988 requires a visual inspection and (if necessary) cleaning every two years after the cylinder has been taken into use and thereafter according to requirements.



1. Drain the DHW cylinder.
2. Remove flange lid (A).
3. Disconnect the DHW cylinder from the pipework to prevent cleaning agents and contaminants entering the pipe system.
4. Remove loose deposits with a high pressure cleaner.



Important information

For cleaning the inside, only use plastic cleaning utensils.

5692 548 GB

Further details regarding the individual steps (cont.)

5. Remove hard deposits that cannot be removed by a high pressure cleaner, with a chemical cleaning agent.

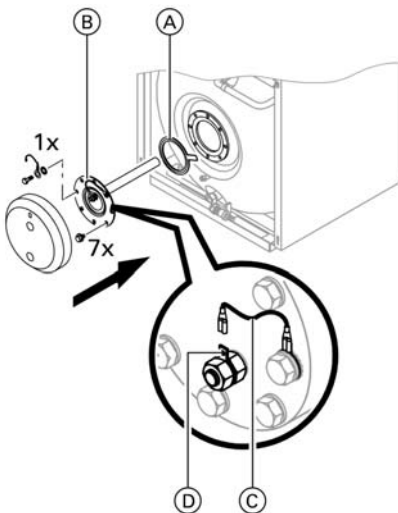
! **Important information**
Never use hydrochloric cleaning agents.

6. Thoroughly flush the DHW cylinder after cleaning.

Checking and replacing the magnesium anode (if required)

Check the magnesium anode. We recommend you change the magnesium anode if it has been reduced down to 10 to 15mm Ø.

Taking the DHW cylinder back into use



1. Reconnect the DHW cylinder to the pipework.
2. Insert new gasket (A) underneath the flange lid (B).
3. Fit flange lid (B) and tighten the screws with a maximum torque of 25 Nm.
4. Push earth cable (C) onto connecting tab (D).
5. Fill the DHW cylinder with potable water.

Further details regarding the individual steps (cont.)

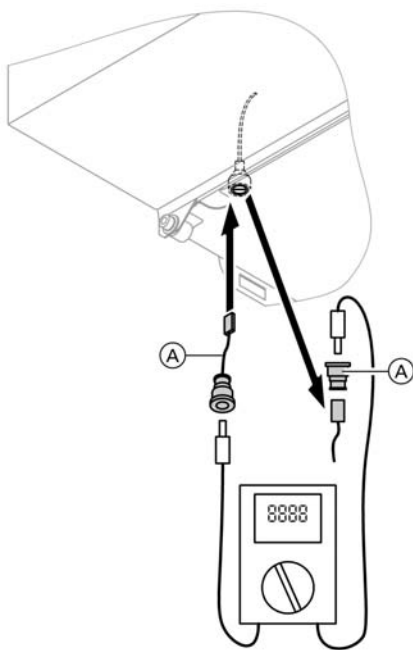
Checking all gas equipment for soundness at operating pressure



Danger

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

Checking the ionisation current



(A) Adaptor line (available as accessory)

1. Pull the line off and connect test equipment (adaptor line available as accessory).

2. Set the upper rated output.

Constant temperature control unit:

- Press and simultaneously for at least 2 seconds.
- With / in the display, select 2.

Weather-compensated control unit:

- Press and simultaneously for at least 2 seconds.
- With / in the display, select Full load.

Note

The minimum ionisation current should be at least 4 μ A as soon as the flame is established (approx. 2-3 seconds after opening the gas combination valve).

3. If the ionisation current is < 4 μ A
 - Check the electrode gap, see page 21.
 - Check the control unit power supply.

Further details regarding the individual steps (cont.)

4. After testing, press **OK**.
5. Record the actual value in the service report.

Matching the control unit to the heating system

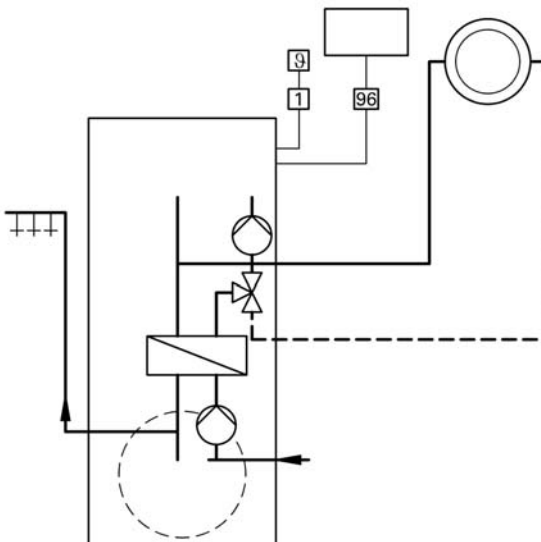
Note

The control unit must be matched to the system equipment. Various system components are automatically recognised by the control unit, and codes are automatically set.

- For selection of an appropriate design, see the following diagrams.
- For coding steps, see page 39.

System design 1

With one heating circuit without mixer A1



- 1** Outside temperature sensor (only for weather-compensated control units)
or

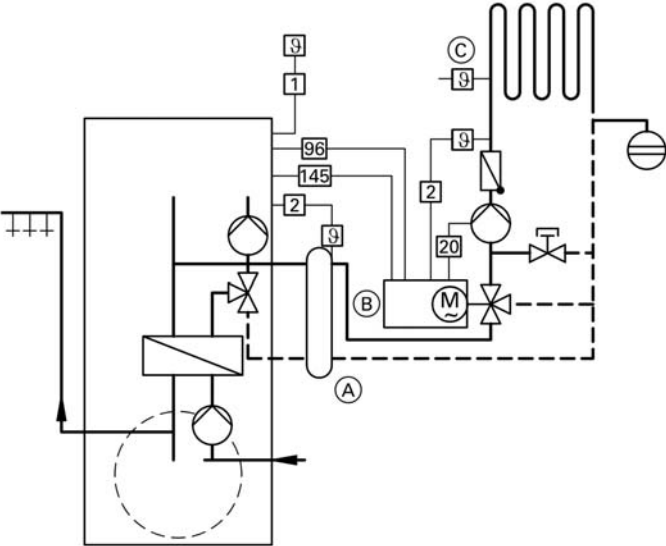
- 96** Vitotrol 100 (only for constant temperature control units)

Further details regarding the individual steps (cont.)

Required coding	Address
Operation with natural gas (as delivered condition) or	1E:0
Operation with LPG	1E:1

System design 2

With one heating circuit with mixer M2 and low loss header



- | | | | |
|-----|------------------------------|-----|---|
| 1 | Outside temperature sensor | (A) | Low loss header |
| 2 | Flow temperature sensor | (B) | Extension kit for one heating circuit with mixer |
| 20 | Heating circuit pump | (C) | Maximum temperature controller (underfloor heating) |
| 96 | Mains supply (extension kit) | | |
| 145 | KM BUS | | |

Required coding	Address
One heating circuit with mixer and DHW cylinder	00:4
Operation with natural gas (as delivered condition) or	1E:0

Further details regarding the individual steps (cont.)

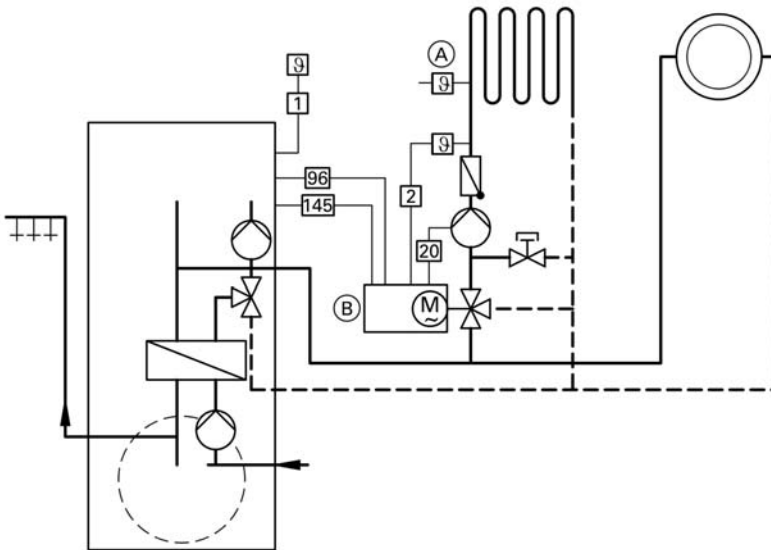
Required coding	Address
Operation with LPG	1E:1

System design 3

With one heating circuit without mixer A1 and one heating circuit with mixer M2

Note

The volume flow of the heating circuit without mixer must be at least 30 % greater than the volume flow of the heating circuit with mixer.



- 1 Outside temperature sensor
- 2 Flow temperature sensor
- 20 Heating circuit pump
- 96 Mains supply (extension kit)
- 145 KM BUS

- Ⓐ Maximum temperature controller (underfloor heating)
- Ⓑ Extension kit for one heating circuit with mixer

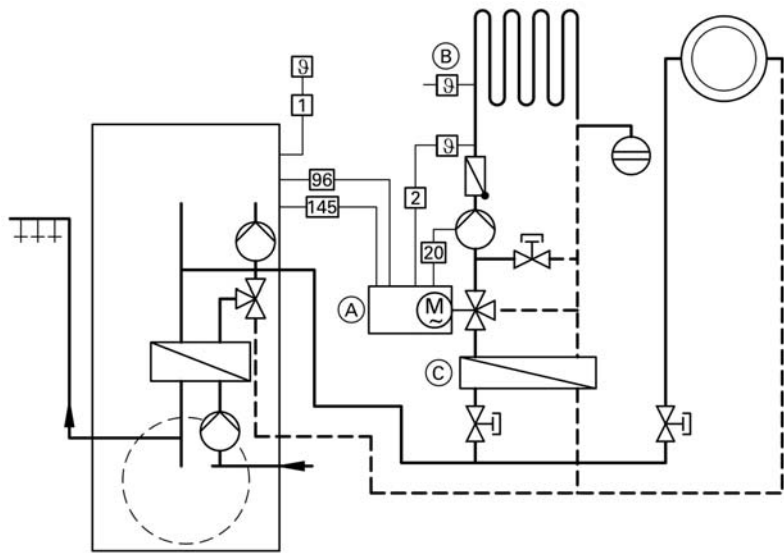
Required coding	Address
Operation with natural gas (as delivered condition) or	1E:0

Further details regarding the individual steps (cont.)

Required coding	Address
Operation with LPG	1E:1

System design 4

With one heating circuit without mixer A1 and one heating circuit with mixer M2 with system separation



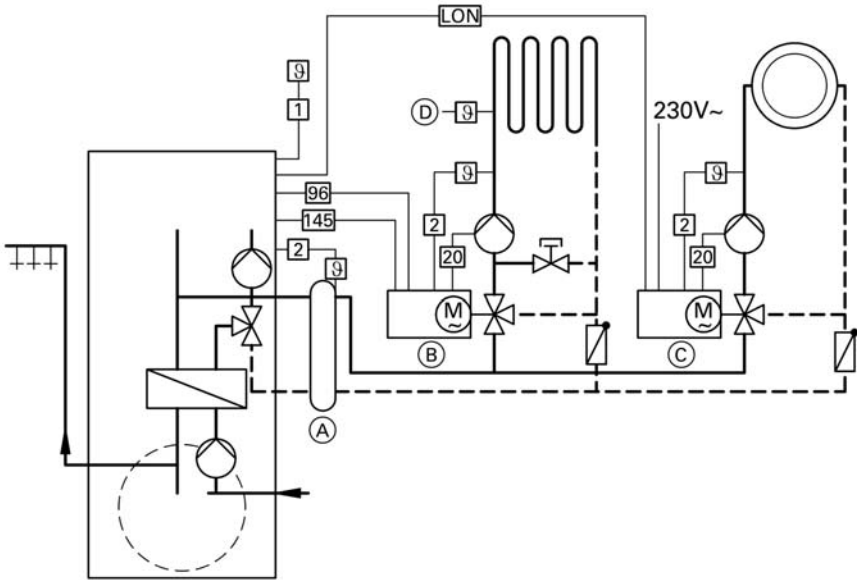
- | | | | |
|-----|------------------------------|-----|---|
| 1 | Outside temperature sensor | (A) | Extension kit for one heating circuit with mixer |
| 2 | Flow temperature sensor | (B) | Maximum temperature controller (underfloor heating) |
| 20 | Heating circuit pump | (C) | Heat exchanger for system separation |
| 96 | Mains supply (extension kit) | | |
| 145 | KM BUS | | |

Required coding	Address
Operation with natural gas (as delivered condition) or Operation with LPG	1E:0 1E:1

Further details regarding the individual steps (cont.)

System design 5

With one heating circuit with mixer M2 (with extension kit), one heating circuit with mixer (with Vitotronic 050) and low loss header



- 1 Outside temperature sensor
- 2 Flow temperature sensor
- 20 Heating circuit pump
- 96 Mains supply (extension kit)
- 145 KM BUS
- (A) Low loss header

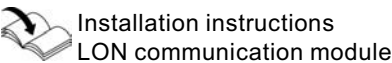
- (B) Extension kit for one heating circuit with mixer
- (C) Vitotronic 050
- (D) Maximum temperature controller (underfloor heating)

Required coding	Address
One heating circuit with mixer and DHW cylinder	00:4
Operation with natural gas (as delivered condition)	1E:0
or	
Operation with LPG	1E:1

Further details regarding the individual steps (cont.)

Connecting the control unit to the LON system (only for weather-compensated control units)

The LON communication module (accessory) must be plugged in.



Note




Data transfer via the LON system can take 2 to 3 minutes.

Setting up LON user numbers

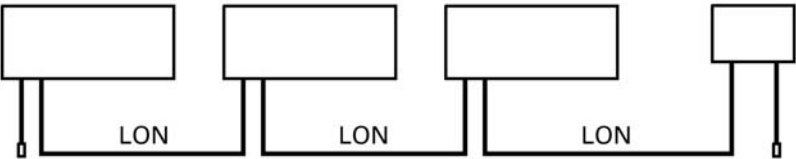
Adjust the user number via coding address 77 (see below). In a LON system, the same number **cannot** be allocated twice.

Updating the LON user list.

Only possible, if all users are connected, and the control unit is encoded as fault manager (code 79:1).

1. Press  and  simultaneously for approx. 2 seconds. User check has been initiated (see page 33).
2. Press . The user list is updated after approx. 2 minutes. User check completed.

Single boiler system with Vitotronic 050 and Vitocom 300



Boiler control unit	Vitotronic 050	Vitotronic 050	Vitocom
User no. 1 Code 77: 1	User no. 10 Code 77: 10	User no. 11 Set code 77: 11	User no. 99
Control unit is fault manager *1 Code 79: 1	Control unit is not fault manager *1 Code 79: 0	Control unit is not fault manager *1 Code 79: 0	Control unit is fault manager

1In each heating system, **only one Vitotronic may be encoded as fault manager.*

Further details regarding the individual steps (cont.)

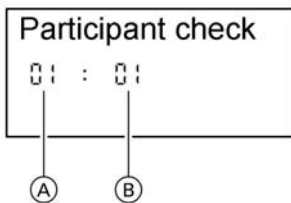
Boiler control unit	Vitotronic 050	Vitotronic 050	Vitocom
Sent time via LON Code 7b: 1	Time received via LON Set code 81: 3	Time received via LON Set code 81: 3	Time received via LON
Transmit outside temperature via LON Set code 97: 2	Outside temperature is received via LON Set code 97: 1	Outside temperature is received via LON Set code 97: 1	—

Implementing a user check (in conjunction with the LON system)

The communication with the system devices connected to the fault manager is tested with a user check.

Preconditions:



- The control unit must be encoded as fault manager (code 79:1).
- The LON user number must be encoded in all control units (see page 32).
- The fault manager LON user list must be up to date (see page 32).



- Ⓐ Consecutive list number
Ⓑ User number

1. Press and simultaneously for approx. 2 seconds. User check initiated.
2. Select the required user with and .
3. Activate checking with .
Check flashes until its completion. The display and all key illuminations of the selected user flash for approx. 60 seconds.
 - **Check OK** flashes during communication between both devices.
 - **Check not OK** flashes if there is no communication between both devices. Check LON connection.
4. For checking further users, proceed as for items 2 and 3.

Further details regarding the individual steps (cont.)

5. Press  and  simultaneously for approx. 1 second. User check completed.

Adjusting heating curves (only for weather-compensated control units)

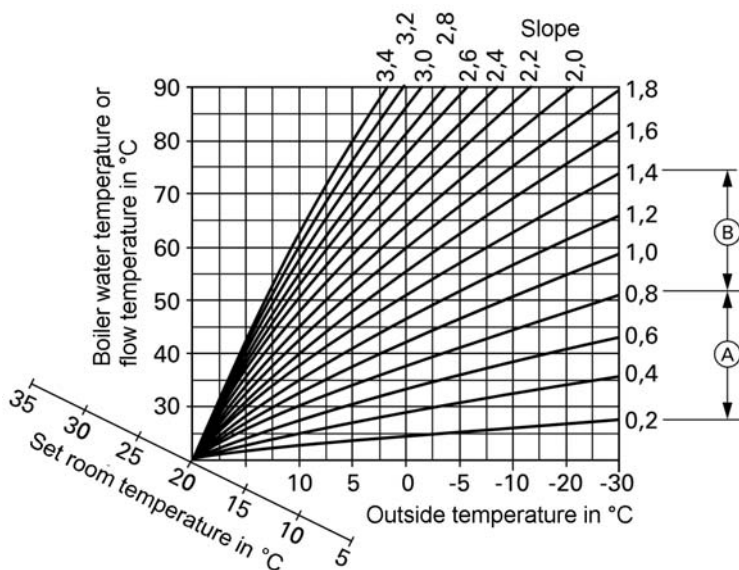
The heating curves illustrate the relationship between the outside temperature and the boiler water or the flow temperature. To put it simply: The lower the outside temperature, the higher the boiler water or flow temperature. The room temperature, again, depends on the boiler water or the flow temperature.

Settings in the delivered condition:

- Slope = 1.4
- Level = 0

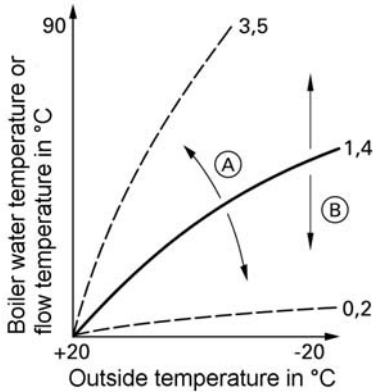
Generally, the slope of the heating curve lies

- in the range of (A) for underfloor heating systems,
- in the range of (B) for low temperature heating systems (according to the Energy Savings Order [Germany]).



Further details regarding the individual steps (cont.)

Changing slope and level



- Ⓐ Changing the slope
- Ⓑ Changing the level

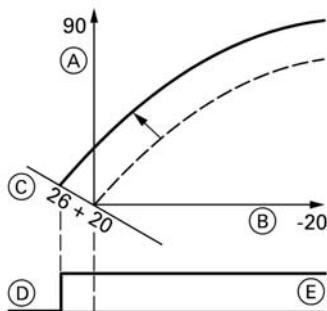
1. Modify the slope in code 1 with coding address d3 (see page 39).
Adjustable value 2 to 35 (equals slope 0.2 to 3.5).
2. Modify the slope in code 1 with coding address d4 (see page 39).
Value adjustable from -13 to +40 K.

Adjusting the set room temperature

Standard room temperature:

1. For two heating circuits – select heating circuit:
 - Press \oplus .
 - 1 \blacksquare flashes on the display.
 - Select heating circuit A1 (heating circuit without mixer):
Press \odot .
 - Select heating circuit M2 (heating circuit with mixer):
 - Press \oplus .
 - 2 \blacksquare flashes on the display.
 - Press \odot .

Further details regarding the individual steps (cont.)



2. Adjust the set day temperature with rotary selector ☼.

The value will be automatically adopted after approx. 2 seconds. Accordingly, the heating curve is adjusted along set room temperature axis ③, which results in modified start/shutdown characteristics of the heating circuit pumps, if the heating circuit pump logic is activated.

Example 1: Modifying the standard room temperature from 20 °C to 26 °C

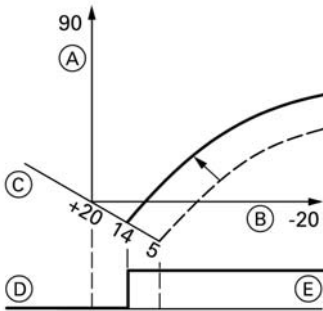
- ① Boiler water or flow temperature in °C
- ② Outside temperature in °C
- ③ Set room temperature in °C
- ④ Heating circuit pump OFF
- ⑤ Heating circuit pump ON


Reduced room temperature:

1. For two heating circuits – select heating circuit:
 - Press (+).
 - 1 III flashes on the display.
 - Select heating circuit A1 (heating circuit without mixer):
Press (OK).
 - Select heating circuit M2 (heating circuit with mixer):
 - Press (+).
 - 2 III flashes on the display.
 - Press (OK).



Further details regarding the individual steps (cont.)



2. Call up the set night temperature with .
3. Change this value with \oplus and \ominus .
4. Confirm the set value with $\textcircled{\text{OK}}$.

Example 2: Modifying the reduced room temperature from 5 °C to 14 °C

- (A) Boiler water or flow temperature in °C
- (B) Outside temperature in °C
- (C) Set room temperature in °C
- (D) Heating circuit pump OFF
- (E) Heating circuit pump ON

Instructing the system user

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

Scanning and resetting the maintenance display

The red fault indicator flashes when the limits set via coding address 21 and 23 have been reached. As regards the operating interface display:

- for constant temperature control units, the hours run (subject to setting) or the given time interval and the clock symbol will flash
- for weather-compensated control units "Maintenance" flashes.

Note

Set code 24:1 and then code 24:0, if maintenance is implemented before maintenance is displayed; the set maintenance parameters for hours run and interval are then reset to 0.



Further details regarding the individual steps (cont.)

1. Press **i**.

Maintenance scan is activated.

2. Scan maintenance messages with **+** or **-**.

3. Press **OK**, for weather-compensated control units also confirm the display "Acknowledge: Yes" with **OK**.

"Maintenance" is cancelled from the display, and the red fault indicator continues to flash.

Note

*An acknowledged maintenance message can be redisplayed by pressing **OK** (approx. 3 seconds).*

After maintenance has been carried out

1. Reset code 24:1 to 24:0.
The red fault indicator is extinguished.

Note





If coding address 24 is not reset, a new "Maintenance" message will be displayed on Monday at 07:00 h.

2. If required:

- Press **i**.
- Reset burner hours run, burner starts and consumption (see page 69).
- Press **i**.

Code 1

Call up code 1

1. Press  and  simultaneously for approx. 2 seconds.
2. Select the required coding address with \oplus or \ominus ; the address flashes. Confirm with \otimes ; the value flashes.
3. Change this value with \oplus and \ominus ; confirm with \otimes . The display briefly shows "adopted", then the address flashes again. Select additional addresses (if required) with \oplus or \ominus .
4. Press  and  simultaneously for approx. 1 second. Coding is terminated.

Note

Codes are displayed in plain text on weather-compensated control units. Codes, which are not relevant because of the equipment level of your heating system or because of settings of other codes, will not be displayed.

Summary

Codes

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
System design			
00 :2	System design 1: 1 heating circuit without mixer A1, with DHW heating	00 :4	System design 2, 5: 1 mixer circuit M2, with DHW heating
		00 :6	System design 3, 4: 1 heating circuit without mixer A1, 1 mixer circuit M2 with DHW heating
Max. boiler temp.			
06:...	Maximum limit of the boiler water temperature, defaulted by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler

Code 1 (cont.)












Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Gas type			
1E:0	Operation with natural gas	1E:1	Operation with LPG
Venting/filling			
2F:0	Ventilation program/filling program inactive	2F:1	Venting program active
		2F:2	Filling program active
User no.			
77:1	LON user number	77:2 to 77:99	LON user number, adjustable from 1 to 99: 1-4 = boiler 5 = cascade 10 - ... = Vitotronic 050 99 = Vitocom Note <i>Allocate each number only once.</i>
Summer econ. A1			
A5:5	*1With heating circuit pump logic function	A5:0	Without heating circuit pump logic function
Summer econ. M2			
A5:5	*1With heating circuit pump logic function	A5:0	Without heating circuit pump logic function
Min. flow temp. A1			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C
Min. flow temp. M2			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C
Max. flow temp. A1			
C6:75	*1Electronic maximum flow temperature limit at 75 °C	C6:1 to C6:127	Maximum limit adjustable from 1 to 127 °C

*1Only for weather-compensated control unit.

Code 1 (cont.)



Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Max. flow. temp. M2			
C6:75	*1Electronic maximum flow temperature limit at 75 °C	C6:1 to C6:127	Maximum limit adjustable from 1 to 127 °C
Slope A1			
d3:14	*1Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 34)
Slope M2			
d3:14	*1Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 34)
Level A1			
d4:0	*1Heating curve level = 0	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 34)
Level M2			
d4:0	*1Heating curve level = 0	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 34)

Code 2**Calling up code 2**



1. Press  and  simultaneously for approx. 2 seconds; confirm with .
2. Select the required coding address with  or ; the address flashes. Confirm with ; the value flashes.
3. Change this value with  and ; confirm with . The display briefly shows "adopted", then the address flashes again. Select additional addresses (if required) with  or .



Code 2 (cont.)

4. Press  and  simultaneously for approx. 1 second.
Coding is terminated.

Overall summary

The coding addresses are grouped in accordance with the following **function ranges**. The respective function range is displayed.
Scroll through the ranges in the following sequence with  or .

Function range	Coding addresses
System design	00
Boiler/burner	06 to 54
DHW	56 to 73
General	76 to 9F
Boiler circuit (heating circuit A1 without mixer)	A0 to F7
Mixer circuit (heating circuit M2 with mixer)	A0 to F7

Note

Codes, which are not relevant because of the equipment level of your heating system or because of settings of other codes, will not be displayed.
For heating systems with one heating circuit without mixer and one heating circuit with mixer, initially the possible coding addresses A0 to F7 are scrolled for the heating circuit without mixer A1, then those for the heating circuit with mixer M2.

Code 2 (cont.)**Codes**

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
System design			
00 :2	System design 1: 1 heating circuit without mixer A1, with DHW heating	00 :4	System design 2, 5: 1 mixer circuit M2, with DHW heating
		00 :6	System design 3, 4: 1 heating circuit without mixer A1, 1 mixer circuit M2 with DHW heating
Boiler/burner			
06:...	Maximum limit of the boiler water temperature, defaulted by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler
1E:0	Operation with natural gas	1E:1	Operation with LPG
21:0	No maintenance indication Burner	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10000 hours (each step represents 100 hours)
23:0	No time interval for burner maintenance	23:1 to 23:24	Time interval adjustable from 1 to 24 months
24:0	No "Maintenance" display	24:1	"Maintenance" display (the address is automatically set and must be manually reset after maintenance has been completed)



Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
25:0	*1No recognition of outside temperature sensor or remote monitoring (only in ①)	25:1	Recognition of outside temperature sensor and fault monitoring
28:0	No burner interval ignition	28:1	The burner is forced ON once every 24 hours
2E:0	Without external extension	2E:1	Including external extension (automatic adjustment on connection)
2F:0	Ventilation program/filling program inactive	2F:1	Venting program active
		2F:2	Filling program active
30:1	Internal variable speed circulation pump (automatic adjustment)	30:0	Internal circulation pump without variable speed (e.g. temporarily for service)
31:65	Set speed of the internal circulation pump when operated as boiler circuit pump 65 %, defaulted by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
32:0	Influence signal External lockout on circulation pumps: All pumps are controlled	32:1 to 32:15	Influence signal External lockout on circulation pumps: see the following table

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder loading pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF

*1Only for constant temperature control units.

Code 2 (cont.)

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder loading pump
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Boiler/burner			
34:0	Influence signal External demand on circulation pumps: All pumps are controlled	34:1 to 34:23	Influence signal External demand on circulation pumps: see the following table

Code 2 (cont.)

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder loading pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF
16	ON	Control funct.	Control funct.	Control funct.
17	ON	Control funct.	Control funct.	OFF
18	ON	Control funct.	OFF	Control funct.
19	ON	Control funct.	OFF	OFF
20	ON	OFF	Control funct.	Control funct.

Code 2 (cont.)

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder loading pump
21	ON	OFF	Control funct.	OFF
22	ON	OFF	OFF	Control funct.
23	ON	OFF	OFF	OFF

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
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Boiler/burner

52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic adjustment upon recognition)
53:3	Function connection ²⁸ of the internal extension: Cylinder loading pump (fixed speed)		
54:0	Without solar control unit	54:1	With Vitosolic 100
		54:2	With Vitosolic 200 (automatic adjustment on recognition)

Domestic hot water

56:0	DHW temperature adjustable from 10 to 60 °C	56:1	DHW temperature adjustable from 10 to above 60 °C (subject to boiler coding card) Observe the max. permissible DHW temperature
58:0	Without auxiliary function for DHW loading	58:1 to 58:95	Input of a 2nd set DHW value; adjustable from 1 to 95 °C (observe coding address 56)

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
59:0	DHW cylinder loading: Starting point -2.5 K Stopping point +2.5 K	59:1 to 59:10	Starting point adjustable from 1 to 10 K below the set value
60:10	During DHW loading, the boiler water tem- perature is a maximum of 20 K higher than the set DHW temperature	60:5 to 60:25	The difference between the boiler water tempera- ture and the set DHW temperature is adjustable from 10 to 50 K
62:2	Circulation pump with 2 minutes run-on time	62:0	Circulation pump without run-on
		62:1 to 62:15	Run-on time adjustable from 1 to 15 minutes
63:0	*1 Without auxiliary func- tion for DHW loading	63:1	Additional function: 1 x daily
		63:2 to 63:14	Every 2 to every 14 days
		63:15	2 x daily
65:...	Information regarding the type of diverter valve (not adjustable)	65:0	Without diverter valve
		65:1	Diverter valve by Viess- mann
		65:2	Diverter valve by Wilo
		65:3	Diverter valve by Grund- fos
6C:100	Set speed internal DHW loading pump 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6F:100	Max. output during DHW loading 100 %, defaulted by the boiler coding card	6F:0 to 6F:100	Max. output during DHW loading adjustable from 0 to 100 %



*1 Only for constant temperature control units.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
71:0	*1DHW circulation pump: According to DHW time program: ON (Vitolrol 300 enables separate switching times)	71:1	OFF during DHW loading to set value 1
		71:2	ON during DHW loading to set value 1
72:0	*1DHW circulation pump: According to DHW time program: ON	72:1	OFF during DHW loading to second set value
		72:2	ON during DHW loading to second set value
73:0	*1DHW circulation pump: According to DHW time program: ON	73:1 to 73:6	During the time program 1x/h ON for 5 minutes up to 6x/h ON for 5 minutes
		73:7	Constantly ON
General			
76:0	*1Without LON communication module	76:1	With LON communication module; automatic recognition
77 :1	*1LON user number	77 :2 to 77 :99	LON user number, adjustable from 1 to 99: 1-4 = boiler 5 = cascade 10 - ... = Vitotronic 050 99 = Vitocom Note <i>Allocate each number only once.</i>
79:1	*1Control unit is fault manager	79:0	Control unit is not fault manager
7b:1	*1Send time to LON	7b:0	Do not send time to LON



Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
7F:1	*1Detached house	7F:0	Multi-occupancy house Separate adjustment for holiday program and time program for DHW loading, as option
80:1	With 5 seconds time delay for fault message; message will be issued, if a fault persists for at least 5 seconds	80:0	Without time delay
		80:2 to 80:199	Time delay adjustable from 10 to 995; 1 step = 5 s
81:1	Automatic change between summer and winter	81:0	Manual summer/winter changeover
		81:2	The application of the radio clock module will be recognised automatically
		81:3	Accept time via LON
88 :0	Temperature display in °Celsius	88 :1	Temperature display in Fahrenheit
8A:175	Do not adjust		
90:128	Time constant for calculating adjusted outside temperature 21.3 h	90:0 to 90:199	Quick (low values) or slow (high values) matching of flow temperature subject to set value if the outside temperature changes; 1 step = 10 min.



*1Only for weather-compensated control unit.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
91:0	*1No external operating mode changeover via external extension	91:1	External heating program changeover applies to heating circuit without mixer
		91:2	External heating program changeover applies to heating circuit with mixer
		91:3	External heating program changeover applies to heating circuit without mixer and heating circuit with mixer
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface; automatic recognition
97:0	*1The outside temperature of the sensor connected to the control unit is utilised internally	97:1	Outside temperature is adopted by the LON BUS
		97:2	The outside temperature of the sensor connected to the control unit will be utilised internally and transmitted via LON BUS to any connected Vitotronic 050.
98:1	Viessmann system numbers (in conjunction with monitoring of several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5
9b:0	No minimum set boiler water temperature in case of external demand	9b:1 to 9b:127	Set temperature adjustable from 1 to 127 °C



Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
9C:20	*1Monitoring LON users When there is no response from a user, values defaulted inside the control unit continue to be used for a further 20 minutes. Only then will a fault message be triggered.	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 minutes
9F:8	*1Differential temperature 8 K; only in conjunction with a mixer circuit	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K
Boiler circuit, mixer circuit			
A0:0	*1Without remote control	A0:1	With Vitotrol 200 (automatic recognition)
		A0:2	With Vitotrol 300 (automatic recognition)

*1Only for weather-compensated control unit.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
A3:2	<p>Outside temperature below 1 °C: Heating circuit pump ON Outside temperature above 3 °C: Heating circuit pump OFF</p> <p>Note <i>When selecting a value below 1 °C there will be a risk of pipes outside the thermal insulation envelope of the house freezing-up. The standby mode, in particular, should be observed, e.g. during holidays.</i></p>	A3:-9 to A3:15	Heating circuit pump ON/ OFF (see the following table)

Parameters Address A3:...	Heating circuit pump	
	ON at	OFF at
-9	-10 °C	-8 °C
-8	-9 °C	-7 °C
-7	-8 °C	-6 °C
-6	-7 °C	-5 °C
-5	-6 °C	-4 °C
-4	-5 °C	-3 °C
-3	-4 °C	-2 °C
-2	-3 °C	-1 °C
-1	-2 °C	0 °C
0	-1 °C	1 °C
1	0 °C	2 °C
2	1 °C	3 °C
to	to	
15	14 °C	16 °C

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Boiler circuit, mixer circuit			
A4:0	*1With frost protection	A4:1	No frost protection, adjustment only possible if code "A3 : -9" is selected. Note <i>When selecting a value below 1 °C there will be a risk of pipes outside the thermal insulation envelope of the house freezing-up. The standby mode, in particular, should be observed, e.g. during holidays.</i>
A5:5	*1With heating circuit pump logic function (economy circuit): Heating circuit pump OFF, if the outside temperature (AT) is 1 K higher than the set room temperature (RT _{Set}) AT > RT _{Set} + 1 K	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump OFF, if (see the following table)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump OFF, if
1	AT > RT _{Set} + 5 K
2	AT > RT _{Set} + 4 K
3	AT > RT _{Set} + 3 K
4	AT > RT _{Set} + 2 K
5	AT > RT _{Set} + 1 K
6	AT > RT _{Set}

*1Only for weather-compensated control unit.



Code 2 (cont.)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump OFF, if
7 to 15	AT > RT _{Set} - 1 K AT > RT _{Set} - 9 K

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Boiler circuit, mixer circuit			
A6:36	*1Extended economy circuit inactive	A6:5 to A6:35	Extended economy cir- cuit active, i.e. the burner and heating circuit pump will be switched OFF, and the mixer will be closed at a variable value, which is adjustable between 5 and 35 °C plus 1 °C. This value is based on the adjusted outside tem- perature, comprising the actual outside tempera- ture and a time constant, which takes the cooling down of an average building into considera- tion.



Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
A7:0	*1Without mixer economy function	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also OFF, if the mixer was closed for longer than 20 minutes. Heating pump ON, ■ if the mixer changes to control mode or ■ after cylinder loading (for 20 minutes) or ■ if there is a risk of frost
A8:1	*1Heating circuit M2 (mixer circuit) creates a demand for the internal circulation pump	A8:0	Heating circuit M2 (mixer circuit) creates no demand for the internal circulation pump
A9:7	*1With pump idle period: Heating circuit pump OFF in case of set value modification (by changing the operating mode or changing the set room temperature)	A9:0	*1Without pump idle period
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15



*1Only for weather-compensated control unit.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
b0:0	*1With remote control: Heating mode/reduced mode: Weather-compensated*2	b0:1	Heating mode: Weather-compensated Reduced mode: With room temperature hook-up
		b0:2	Heating mode: With room temperature hook-up Reduced mode: Weather-compensated
		b0:3	Heating mode/reduced mode: With room temperature hook-up
b2:8	With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded: Room influence factor 8*2	b2:0	Without room influence
		b2:1 to b2:64	Room influence factor adjustable from 1 to 64
b5:0	*1With remote control: Without room temperature-dependent heating circuit pump logic function *2	b5:1 to b5:8	Heating circuit pump logic function - see the following table

Parameter address b5:...	With heating circuit pump logic function: Heating circuit pump OFF, if
1:	active $RT_{Actual} > RT_{Set} + 5\text{ K}$; passive $RT_{Actual} < RT_{Set} + 4\text{ K}$
2:	active $RT_{Actual} > RT_{Set} + 4\text{ K}$; passive $RT_{Actual} < RT_{Set} + 3\text{ K}$
3:	active $RT_{Actual} > RT_{Set} + 3\text{ K}$; passive $RT_{Actual} < RT_{Set} + 2\text{ K}$
4:	active $RT_{Actual} > RT_{Set} + 2\text{ K}$; passive $RT_{Actual} < RT_{Set} + 1\text{ K}$
5:	active $RT_{Actual} > RT_{Set} + 1\text{ K}$; passive $RT_{Actual} < RT_{Set}$
6:	active $RT_{Actual} > RT_{Set}$; passive $RT_{Actual} < RT_{Set} - 1\text{ K}$

*1Only for weather-compensated control unit.

*2Change the coding for the heating circuit without mixer A1 or for mixer circuit M2, if the remote control unit affects that heating circuit.



Code 2 (cont.)

Parameter address b5:...	With heating circuit pump logic function: Heating circuit pump OFF, if
7:	active $RT_{Actual} > RT_{Set} - 1 \text{ K}$; passive $RT_{Actual} < RT_{Set} - 2 \text{ K}$
8:	active $RT_{Actual} > RT_{Set} - 2 \text{ K}$; passive $RT_{Actual} < RT_{Set} - 3 \text{ K}$

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
Boiler circuit, mixer circuit			
C5:20	*1Electronic minimum flow temperature limit in standard mode 20 °C	C5:1 to C5:127	Minimum temperature limit in standard mode adjustable from 1 to 127 °C
C6:74	*1Electronic maximum flow temperature limit 74 °C	C6:0 to C6:127	Maximum limit adjustable from 1 to 127 °C
d3:14	*1Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 34)
d4:0	*1Heating curve level = 0	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 34)
d5:0	*1The external operating mode changeover changes the heating program to "Constant operation with reduced room temperature"	d5:1	The external operating mode changeover changes the heating program to "Constant operation with standard room temperature"
E1:1	*1With remote control: Set day value is adjustable at the remote control unit from 10 to 30 °C	E1:0	Set day value adjustable from 3 to 23 °C
		E1:2	Set day value adjustable from 17 to 37 °C
E2:50	*1With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded:	E2:0 to E2:49	Display correction – 5 K or Display correction – 0.1 K
		E2:51 to	Display correction +0.1 K or

*1Only for weather-compensated control unit.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
	No display correction of the actual room temperature	E2:99	Display correction +4.9 K
E5:0	*2Without variable speed circuit pump	E5:1	With variable speed circuit pump; automatic recognition
E6:65	*2Max. speed of the variable speed pump = 65 % of max. speed in standard mode	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 % of max. speed
E7:30	*2Min. speed of the variable speed pump = 30 % of max. speed	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of max. speed
E8:1	*2Min. speed subject to the setting in coding address "E9"	E8:0	Speed subject to the setting in coding address "E7"
E9:45	*2Speed of the variable speed pump = 45 % of max. speed in reduced mode	E9:0 to E9:100	Speed adjustable from 0 to 100 % of max. speed

Mixer circuit

F1:0	Screed function inactive (only for weather-compensated control units)	F1:1 to F1:5	<p>Screed drying function adjustable in accordance with five optional temperature time profiles (see page 105)</p> <p>Note <i>Observe the screed drying supplier's instructions.</i></p> <p>Observe DIN 4725-2 or local regulations. The report to be provided by the heating contractor</p>
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*2Only for weather-compensated control unit.

Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
			<p>must contain the following heat-up details:</p> <ul style="list-style-type: none"> ■ Heat-up data with respective flow temperatures ■ Max. flow temperature achieved ■ Operating condition and outside temperature during handover <p>The function continues after power failure or after the control unit has been switched OFF. The heating program "III 🔌" will be started, after the screed-drying function has been completed or if the address is manually set to 0.</p>
		F1:6 to F1:15	Constant flow temperature 20 °C
F2:8	*3Time limit for party operation 8 hours or external operating mode changeover via push button*4	F2:0	No time limit for party mode
		F2:1 to F2:12	Time limit adjustable from 1 to 12 hours *4*4
F5:12	*5*5Run-on time of the internal circulation pump in heating mode	F5:0	No run-on time of the internal circulation pump
		F5:1 to F5:20	Run-on time of the internal circulation pump adjustable from 1 to

*3Only for weather-compensated control unit.







*4In heating program "III 🔌", the party mode ends **automatically** when changing over to operation with standard room temperature.

*5Only for constant temperature control units.




























Code 2 (cont.)

Coding in the as delivered condition Address: value	Function mode	Coding change Address: value	Possible change
			20 minutes
F6:0	*6*6In the "DHW only" operating mode, the internal circulation pump is permanently OFF	F6:1 to F6:24	In the "DHW only" operating mode, the internal circulation pump will be started 1 to 24 times per day for 10 minutes respectively.
		F6:25	In the "DHW only" operating mode, the internal circulation pump is permanently ON
F7:0	*6*6Internal circulation pump is permanently OFF in operating mode "Standby mode"	F7:1 to F7:24	In "Standby mode", the internal circulation pump will be started 1 to 24 times per day for 10 minutes respectively.
		F7:25	*6*6Internal circulation pump is permanently ON in operating mode "Standby mode"

Resetting the coding to the as delivered condition



1. Press  and  simultaneously for approx. 2 seconds.
2. Press .
 "Basic setting? Yes" with .
 With  or , you can select
 "Basic setting? Yes" or "Basic setting? No".



Service level summary


Function	Key combination	Exit	Page
Temperatures, boiler coding card and brief scans	Press  and  simultaneously for approx. 2 seconds	Press  .	63
Relay test	Press  and  simultaneously for approx. 2 seconds	Press  .	67
Max. output (heating mode)	Press  and  simultaneously for approx. 2 seconds	Press  .	17
Operating condition	Press  .	Press  .	69
Maintenance scan	 (if "Maintenance" flashes)	Press  .	37
Adjusting the display contrast	Press  and  simultaneously; display darkens	–	–
	Press  and  simultaneously; display becomes lighter	–	–
Error history	Press  and  simultaneously for approx. 2 seconds	–	–
User check (in conjunction with LON system)	Press  and  simultaneously for approx. 2 seconds	–	–
Emissions test function "A/B"	Press  and  simultaneously for approx. 2 seconds	–	–
Coding level 1	Press  and  simultaneously for approx. 2 seconds	–	–
Plain text display			
Coding level 2	Press  and  simultaneously for approx. 2 seconds	–	–
Numerical display			

Temperatures, boiler coding card and brief scans

Weather-compensated control unit


1. Press  and  simultaneously for approx. 2 seconds.

2. Select the required scan with  and .







3. Press .

The following values can be scanned, subject to the actual equipment level:

- Slope A1 – Level A1
- Slope M2 – Level M2
- Adj. outside temp.
- Actual outside temp.
- Set boiler temp.
- Actual boiler temp.
- Set DHW temp.
- Actual DHW temp.
- Actual DHW outlet temp.
- Set DHW outlet temp.
- Set flow temp.
- Actual flow temp.
- Set mixed flow temp.
- Actual mixed flow temp.
- Boiler coding card
- Brief scan 1 to Brief scan 8

The adjusted outside temperature can be reset to the current outside temperature with .

- Heating circuit with mixer
- Heating circuit with mixer
- Low loss header
- Low loss header

	Display screen					
Brief scan						
Boiler coding card	N/A	N/A	X	X	X	X
1	Software version Control unit		Version Boiler (EEPROM)		Version Burner control unit (EEPROM)	



Temperatures, boiler coding card and brief scans (cont.)

	Display screen					
Brief scan	8	8	8	8	8	8
2	System design 1 to 6 Display in accordance with the relevant design		Display KM BUS users	Max. demand temperature		
3	N/A	Software version Pro-gram-ming unit	Software version Mixer exten-sion kit	Software version Solar control unit	Software version LON system	Software version Ext. exten-sion
4	Software version Burner control unit		Type Burner control unit		Boiler type	
5	0: No ext. demand or operating mode change-over 1: Ext. demand or operating mode change-over present	0: No ext. blocking 1: Ext. blocking present	N/A	External hook-up 0 to 10 V Display in %		
6	Number of LON users		Software version Third party control-ler	Max. output Display in %		



Temperatures, boiler coding card and brief scans (cont.)

	Display screen					
Brief scan						
			Heating circuit 1 (boiler circuit A1)		Heating circuit 2 (mixer circuit M2)	
7	N/A	N/A	Remote control 0: excl. 1: Vito-trol 200 2: Vito-trol 300	Software version Remote control	Remote control 0: excl. 1: Vito-trol 200 2: Vito-trol 300	Software version Remote control
	Internal circulation pump		Heating circuit pump boiler circuit A1		Heating circuit pump mixer circuit M2	
8	Variable speed pump 0: excl. 1: Wilo 2: Grun-dfos	Software version variable speed pump	Variable speed pump 0: excl. 1: Wilo 2: Grun-dfos	Software version variable speed pump	Variable speed pump 0: excl. 1: Wilo 2: Grun-dfos	Software version variable speed pump

Constant temperature control units

1. Press and simultaneously for approx. 2 seconds.
Scanning is active.
 2. Select the required scan with and .
 3. Press .
- Scanning is completed.

Temperatures, boiler coding card and brief scans (cont.)

	Display screen				
Brief scan	8	8	8	8	8
0		System design, display in accordance with the design	Software version Control unit		Software version Operating interface
1	Software version Solar panel	Software version Burner control unit		Software version ext. extension	Software version Cascade module
E	0: No ext. demand or operating mode change-over 1: Ext. demand or operating mode change-over present	0: No ext. blocking 1: Ext. blocking present	External hook-up 0 to 10 V Display in %		
3			Set boiler temperature at the boiler temperature sensor		
A			Highest demand temperature		
4		Burner control unit type		Boiler type	
5			Set cylinder temperature at the cylinder temperature sensor (current value)		
b			Max. output in %		
C		Boiler coding card (hexa-decimal)			
c		Version Equipment (EEPROM)		Version Burner control unit (EEPROM)	








Temperatures, boiler coding card and brief scans (cont.)

	Display screen				
Brief scan	8	8	8	8 8	8
d				Variable speed pump 0: excl. 1: Wilo 2: Grundfos	Software version variable speed pump

Testing outputs (relay test)

Weather-compensated control unit

1. Press  and  simultaneously for approx. 2 seconds.
Relay test is activated.
2. Select the relay outputs with  and .
3. Press .
Relay test is completed.

Subject to the actual equipment level, the following relay outputs can be controlled:





Display	Explanations
Basic load	Burner modulation lower output
Full load	Burner modulation upper output
Heating valve	Diverter valve set to heating mode
Valve central pos.	Changeover valve in central position (fill)
DHW valve	Diverter valve set to DHW mode
Int. pump ON	Int. pump/output 20 ON
Close mixer	Mixer extension
Open mixer	Mixer extension
Heating circ. pump M2 ON	Mixer extension
Output int.	Internal extension
Heating circ. pump A1 ON	Ext. extension
Cylinder loading pump ON	Ext. extension
DHW circ. pump ON	Ext. extension
Central fault display ON	Ext. extension




Testing outputs (relay test) (cont.)


Display	Explanations
Solar pump ON	Vitosolic

Constant temperature control units

1. Press  and  simultaneously for approx. 2 seconds.
Relay test is activated.
2. Select the relay outputs with  and .

3. Press .
Relay test is completed.

Subject to the actual equipment level, the following relay outputs can be controlled:

Display	Explanations
1	Burner modulation lower output
2	Burner modulation upper output
3	Diverter valve set to heating mode
4	Valve in central position
5	Valve set to DHW mode
6	Internal pump / output 20 ON
10	Output  internal extension
11	Heating circuit pump A1 external extension
12	Cylinder loading pump external extension
13	DHW circulation pump external extension
14	Central fault external extension

Scanning operating conditions and sensors

Weather-compensated control unit


1. For two heating circuits – select heating circuit:
 ■ Press **+**.
 1 **||||** flashes on the display.
 ■ Select heating circuit A1 (heating circuit without mixer):
 Press **OK**.
 ■ Select heating circuit M2 (heating circuit with mixer):
 – Press **+**.
 – 2 **||||** flashes on the display.
 – Press **OK**.
2. Press **i**.
3. Select the required operating condition scan with **+** or **-**.
4. Press **i**.

Heating circuits A1 and M2





Operating condition display (subject to system equipment level)	Explanations
User no.	Encoded user no. in the LON system
Holiday program	Display only if a holiday program has been set up
Date of departure	Date
Date of return	Date
Outside temperature, ... °C	Actual value
Boiler temperature, ... °C	Actual value
Flow temperature, ... °C	Actual value (only for heating circuit M2)
Standard room temperature, ... °C	Set value
Room temperature, ... °C	Actual value
Ext. set room temp., ... °C	If external hook-up
DHW temperature, ... °C	Actual DHW temperature
Solar DHW temp., ... °C	Actual value
Collector temperature, ... °C	Actual value
Mixed flow temp., ... °C	Actual value, only with low loss header
Burner, ...h* ¹	Hours run
Burner starts, ... * ¹ * ¹	Actual value
Solar energy	Display in kW/h
Time	

^{*1}Reset hours run and burner starts after maintenance has been completed. You can reset the hours run to 0 by pressing **+**.

Scanning operating conditions and sensors (cont.)

Operating condition display (subject to system equipment level)	Explanations
Date	
Burner OFF or ON	
Int. pump OFF or ON	Output 20
Int. output OFF or ON	Internal extension
Heating pump OFF or ON	External extension or extension kit for one heating circuit with mixer installed
Cylinder loading pump OFF or ON	Display only if the external extension is installed
DHW circulation pump OFF or ON	Display only if the external extension is installed
Central fault display OFF or ON	Display only if the external extension is installed
Mixer, mixer open or mixer close	Display only if the extension kit for one heating circuit with mixer is installed
Solar pump OFF or ON	Display only if Vitosolic is installed
Solar pump ...h	Hours run
Various languages	Each language can be selected as permanent display language with  .

Constant temperature control units

1. Press .
3. Press .
2. Select the required operating condition scan with  or .

Operating condition display (subject to system equipment level)	Explanations
1 15 °C/°F*1	Outside temperature sensor - actual value (only if an outside temperature sensor is connected)
3 65 °C/°F*1	Boiler temperature sensor - actual value
5 50 °C/°F*1	Cylinder temperature sensor - actual value
5□ 45 °C/°F*1	Solar - actual DHW temperature
6 70 °C/°F*1	Actual value - collector sensor
263572 h	Burner hours run

*1Display in °F if the relevant code has been selected and with the fourth display digit.



Scanning operating conditions and sensors (cont.)

Operating condition display (subject to system equipment level)		Explanations
030529		Burner starts
001417	h	Hours run - solar circuit pump
002850		Solar energy in kW/h

Call up fault history of fault codes

The last 10 faults are saved and may be called up.



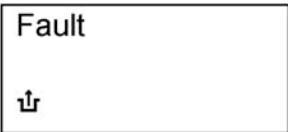
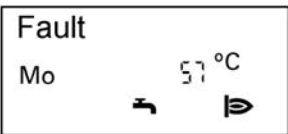
- 1. Press and simultaneously for approx. 2 seconds.
- 2. Call up the individual fault codes with or .

Order in which fault codes occur	Fault code
1	Latest fault code
.	.
.	.
.	.
10	10. last fault code

All saved fault codes can be deleted with .

- 3. Press .

Call up current fault codes

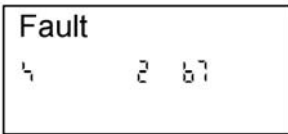
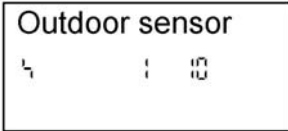


Red fault indicator flashes for all faults.
Fault flashes in the programming unit display when a fault message is issued.

A fault in the burner control unit causes the display to flash .

Call up current fault codes (cont.)

Control unit faults



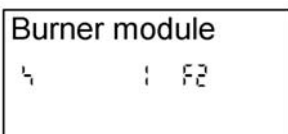
1. Find current fault with \textcircled{i} .

2. Select additional fault codes with $\textcircled{+}$ and $\textcircled{-}$.

3. Acknowledge fault

The fault can be acknowledged with \textcircled{OK} . The fault message in the display will be hidden, but red fault indicator \textcircled{A} continues to flash. A new fault message will be shown in the display if an acknowledged fault is not removed by 07:00 h the following day.

Fault on the burner control unit



1. Find current fault with \textcircled{i} .

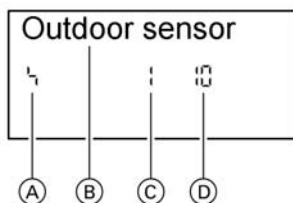
2. Select additional fault codes with $\textcircled{+}$ and $\textcircled{-}$.

3. Acknowledge fault

The fault can be acknowledged with \textcircled{OK} . The fault message in the display will be hidden, but red fault indicator \textcircled{A} continues to flash. A new fault message will be shown in the display if an acknowledged fault is not removed by 07:00 h the following day.

Call up current fault codes (cont.)

Fault display design



- (A) Fault symbol
- (B) Plain text fault display (only for weather-compensated control units)
- (C) Fault number
- (D) Fault code

1. Calling up acknowledged fault messages

Press **OK** for approx. 3 seconds.
The fault will then be displayed.

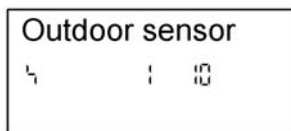
4. **↑** in the display indicates that the burner control unit is locked out.
After the fault has been removed, acknowledge by pressing reset **↑**.

Fault display in plain text

- Burner control unit
- Outside temperature sensor
- Flow sensor
- Boiler sensor
- Mixed flow sensor
- DHW cylinder sensor
- Flue gas sensor
- DHW outlet sensor
- Room temperature sensor
- Collector sensor
- Solar DHW sensor
- Remote control

2. Select the acknowledged fault with **+** or **-**.

Checking and acknowledging faults



Weather-compensated control unit

Red fault indicator **↑** flashes for all faults.

A fault message code flashes in the programming unit display when a fault message is issued.



Any fault codes present may be called up with **+** or **-**.

Checking and acknowledging faults (cont.)






Constant temperature control units

Note

The fault can be acknowledged with . The fault message in the display will be hidden, but the red fault indicator  continues to flash. A new fault message will be displayed if an acknowledged fault is not removed by the following morning.

Calling up acknowledged fault messages

Press  for approx. 2 seconds; select the acknowledged fault with  or .

Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
0F	X	X	Control mode	Maintenance	Carry out maintenance. Set code 24:0 after maintenance.
10	X	X	Controls according to 0 °C outside temperature	Outside temperature sensor shorted out	Check the outside temperature sensor (see page 84)
18	X	X		Outside temperature sensor lead break	
20	X	X	Controls without flow temperature sensor (low loss header)	System flow temperature sensor shorted out	Check the low loss header sensor (see page 85).
28	X	X		System flow temperature sensor lead break	

Checking and acknowledging faults (cont.)

Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
30	X	X	Burner blocked	Boiler temperature sensor shorted out	Check the boiler temperature sensor (see page 85)
38	X	X		Boiler temperature sensor lead break	
40		X	Mixer closes	Heating circuit M2 flow temperature sensor shorted out	Check the flow temperature sensor
48		X		Heating circuit M2 flow temperature sensor lead break	
50	X	X	No DHW heating	Cylinder temperature sensor/comfort sensor/loading sensor shorted out	Check sensors (see page 85)
58	X	X		Cylinder temperature sensor/comfort sensor/loading sensor lead break	
51	X	X	No DHW heating	Cylinder temperature sensor 2/outlet sensor shorted out	Check sensors (see page 85)
59	X	X		Cylinder temperature sensor 2/outlet sensor lead break	
92	X	X	Control mode	Solar: Collector temperature sensor shorted out	Check sensor
9A	X	X		Collector temperature sensor lead break	
93	X	X	Control mode	Solar: Sensor S3 shorted out	Check sensor
9B	X	X		Sensor S3 lead break	
94	X	X	Control mode	Solar: Cylinder temperature sensor shorted out	Check sensor

Checking and acknowledging faults (cont.)

Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
9C	X	X		Cylinder temperature sensor lead break	
9F	X	X	Control mode	Solar control unit error message	See solar control unit service instructions
A7		X	Control mode	Faulty operating interface	Replace operating interface
b0	X	X	Burner blocked	Flue gas temperature sensor short circuit	Check the flue gas temperature sensor (see page 87)
b8	X	X		Flue gas temperature sensor break	
b1	X	X	Control mode	Communication fault – programming unit (internal)	Check connections and replace the programming unit, if necessary
b4	X	X	Emissions test mode	Internal error analog converter	Replace control unit
b5	X	X	Control mode	Internal error	Replace control unit
b7	X	X	Burner blocked	Boiler coding card missing, faulty or incorrect card inserted	Plug in the boiler coding card or replace, if faulty
bA		X	Mixer M2 continues to move	Communication fault - extension kit for mixer circuit M2	Check the extension kit connections and coding. Start the extension kit.

Checking and acknowledging faults (cont.)




Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
bC		X	Control mode without remote control	Communication fault - Vitotrol remote control heating circuit A1	Check connections, cable, coding address A0 and the remote control DIP switches
bd		X	Control mode without remote control	Communication fault - Vitotrol remote control heating circuit M2	
bE		X	Control mode	Vitotrol remote control incorrectly encoded	Check the DIP switch settings of the remote control
bF		X	Control mode	Incorrect LON communication module	Replace the LON communication module
C2	X	X	Control mode	Communication fault - solar control unit	Check connections and coding address 54.
C5	X	X	Control mode, max. pump speed	Communication error - variable speed internal pump	Check coding address 30 settings; check the heating circuit pump DIP switch settings.






Checking and acknowledging faults (cont.)

Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
C6		X	Control mode, max. pump speed	Communication fault - variable speed heating circuit pump, heating circuit M2	Check coding address E5 settings; check the heating circuit pump DIP switch settings
C7	X	X	Control mode, max. pump speed	Communication fault - variable speed heating circuit pump, heating circuit A1	Check coding address E5 settings; check the heating circuit pump DIP switch settings
Cd	X	X	Control mode	Communication fault Vitocom 100 (KM BUS)	Check the Vitocom 100 and connections
CE	X	X	Control mode	Communication error - ext. extension	Check connections and coding address 2E settings.
CF		X	Control mode	Communications fault - LON communication module	Replace the LON communication module
dA		X	Control mode without room influence	Room temperature sensor heating circuit A1 shorted out	Check the room temperature sensor - heating circuit A1
db		X		Heating circuit M2 room temperature sensor shorted out	Check the room temperature sensor - heating circuit M2

Checking and acknowledging faults (cont.)





Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
dd		X		Room temperature sensor heating circuit A1 lead break	Check the room temperature sensor - heating circuit A1
dE		X		Heating circuit M2 room temperature sensor lead break	Check the room temperature sensor - heating circuit M2
E4	X	X	Burner blocked	Fault - supply voltage	Replace control unit
E5	X	X	Burner blocked	Internal error	Check the ionisation electrode and leads. Check flue gas system for soundness. Press  .
E6	X	X	Burner in fault state	Flue gas/air supply system blocked	Check the flue gas/air supply system. Check the differential pressure sensor. Press  .
F0	X	X	Burner blocked	Internal error	Replace control unit
F1	X	X	Burner in fault state	Flue gas temperature limiter has responded	Check the heating system water level. Vent the heating system. Press reset  no sooner than after 20 minutes.

Checking and acknowledging faults (cont.)

Fault code in the display	Const.	Weat-h. comp.	System characteristics	Cause	Remedy
F2	X	X	Burner in fault state	Temperature limiter has responded	Check the heating system water level. Check the circulation pump. Vent the heating system. Check the temperature limiter and leads. Press  .
F3	X	X	Burner in fault state	The flame signal is already present at burner start	Check the ionisation electrode and leads. Press  .
F4	X	X	Burner in fault state	No flame signal is present	Check the ionisation electrode and leads, measure the ionisation current, check the gas pressure, check the gas combination valve, ignition, ignition module, ignition electrodes and the condensate drain. Press  .



Checking and acknowledging faults (cont.)

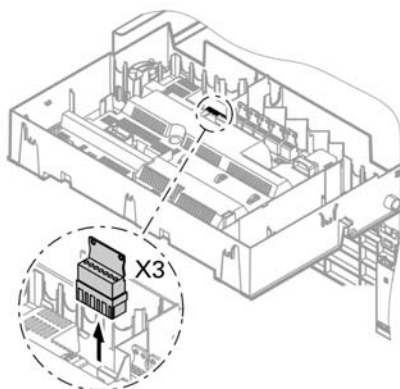
Fault code in the display	Const.	Weat-h. comp.	System character-istics	Cause	Remedy
F7	X	X	Burner blocked	Differential pres-sure sensor faulty	Check the dif-ferential pres-sure sensor and lead.
F8	X	X	Burner in fault state	Fuel valve closes too late	Check gas combination valve. Check both control paths. Press  .
F9	X	X	Burner in fault state	Fan speed too low at burner start	Check the fan, check the fan cables and supply, check the fan control. Press  .
FA	X	X	Burner in fault state	Fan speed too high at burner start	Check the fan, check the fan cables, check the fan control. Press  .
Fd	X	X	Burner blocked	Burner control unit fault	Check the ignition elec-trodes and leads. Check whether a strong inter-ference (EMC) field exists near the equip-ment. Press  . If the fault is not removed, replace the control unit.

Checking and acknowledging faults (cont.)

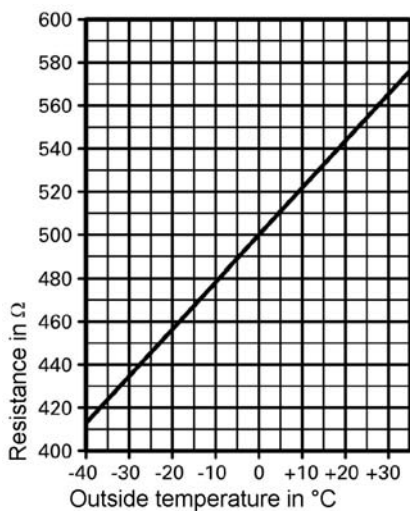
Fault code in the display	Const.	Weat-h. comp.	System character-istics	Cause	Remedy
FE	X	X	Burner blocked	Strong interference (EMC) field nearby; alternatively boiler coding card or main PCB faulty	Remove EMC interference. If the equipment will not restart, check the boiler coding card and replace, or replace the control unit.
FF	X	X	Burner blocked	Internal error	Remove EMC interference. If the equipment will not restart, check the boiler coding card and replace, or replace the control unit.

Repairs

Checking the outside temperature sensor (weather-compensated control unit)



1. Pull plug X3 from the control unit.



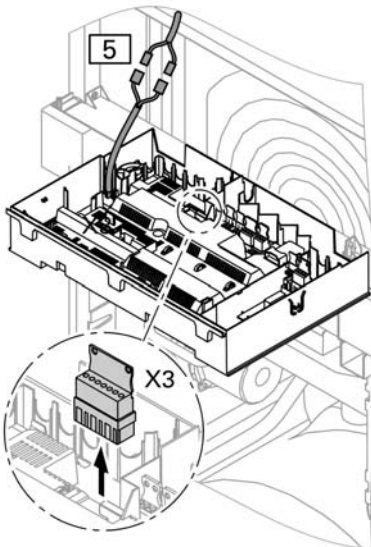
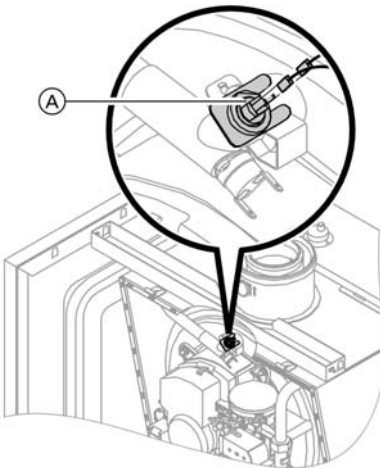
2. Test the resistance of the outside temperature sensor across terminals X3.1 and X3.2 on the pulled plug and compare with the curve.

3. Where actual values strongly deviate from the curve values, disconnect the wires at the sensor and repeat test directly at the sensor.

4. Depending on the result, replace cable or outside temperature sensor.

Repairs (cont.)

Check the boiler temperature sensor, cylinder temperature sensor or the flow temperature sensor for low loss header

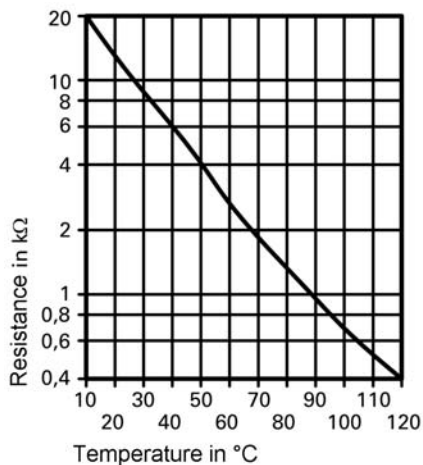


1. Boiler temperature sensor: Pull the leads from boiler temperature sensor **A** and measure the resistance.

Cylinder temperature sensor: Pull the plug **5** from the cable harness on the control unit and measure the resistance.

Flow temperature sensor: Pull plug **X3** from the control unit and measure the resistance across terminals **X3.4** and **X3.5**.

Repairs (cont.)



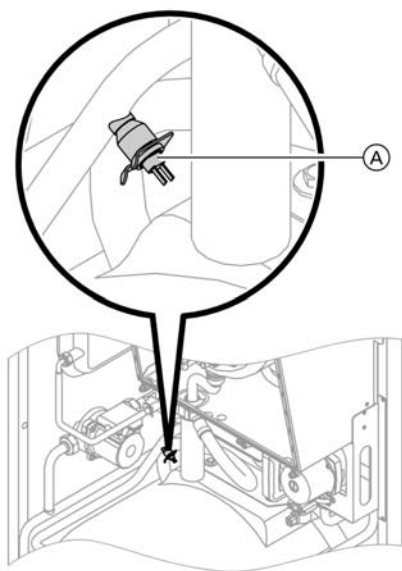
2. Check the sensor resistance and compare actual values with the curve.
3. Replace the sensor in case of severe deviation.



Danger

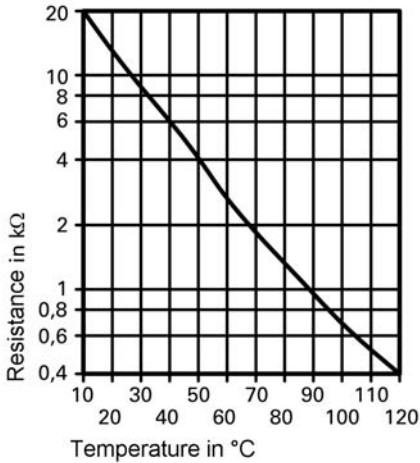
The boiler temperature sensor is immersed in the heating water (risk of scalding). Drain the boiler before replacing the sensor.

Checking loading temperature sensor



1. Pull the cables off loading temperature sensor (A).
2. Check the sensor resistance and compare actual values with the curve.

Repairs (cont.)




3. Replace the sensor in case of severe deviation.



Danger

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

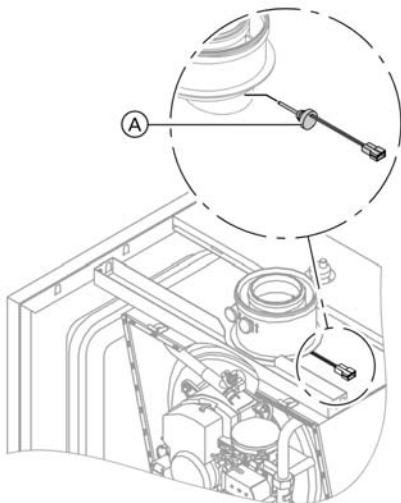
Checking the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. The lockout can be reset no sooner than after 20 minutes by pressing reset .

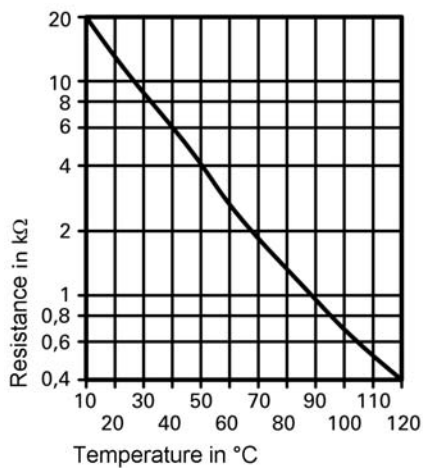
Note

The equipment will also be locked out again for 20 minutes if the mains power supply is switched OFF.

Repairs (cont.)



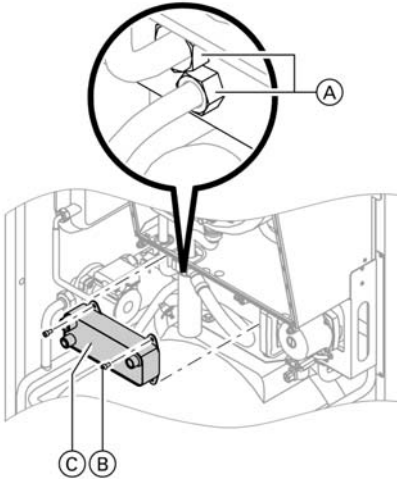
1. Pull the leads from the flue gas temperature sensor (A) .
2. Check the sensor resistance and compare actual values with the curve.



3. Replace the sensor in case of severe deviation.

Repairs (cont.)

Checking plate heat exchanger



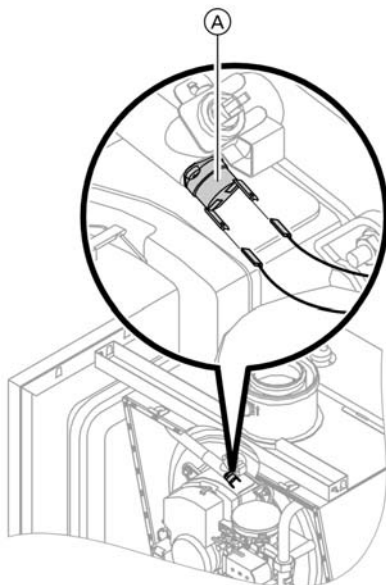
1. Shut off and drain the boiler on the primary and the secondary side.
2. Release the side closures and pivot the control unit forward.
3. Remove the siphon.
4. Release fittings (A), screws (B) and pull plate heat exchanger (C) forward.
5. Check the secondary side for scaling and, if necessary, replace the plate heat exchanger.
6. Check the primary connections for contamination and, if necessary, replace the plate heat exchanger.
7. Install in reverse order using new gaskets. Lubricate the new gaskets/seals.

Note


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

Repairs (cont.)

Checking the thermocouple



If the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 90 °C:

- Pull the leads from thermocouple (A).
- Check the continuity of the thermocouple with a multimeter.
- Remove the faulty thermocouple.
- Install a new thermocouple.
- After commissioning, press reset button  on the control unit.

Checking and replacing pressure differential sensor

Check the sensor in case of fault messages concerning the differential pressure sensor:

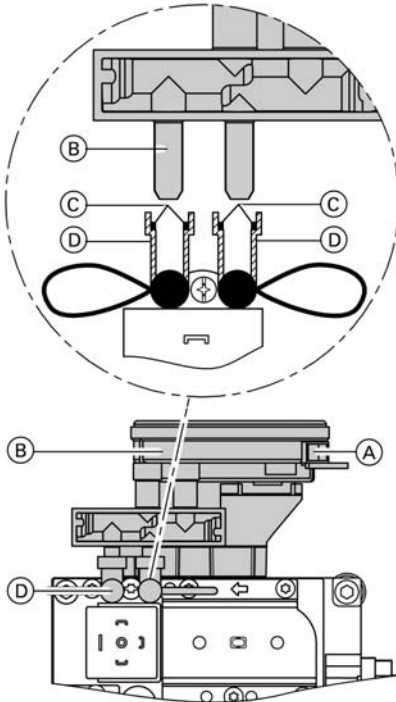
- *correct installation*
- *electrical connection*
- *correct position of the O-rings inside the adaptor*
- *are the test nipples closed with plugs?*

Replace the sensor if fault messages persist.

Repairs (cont.)

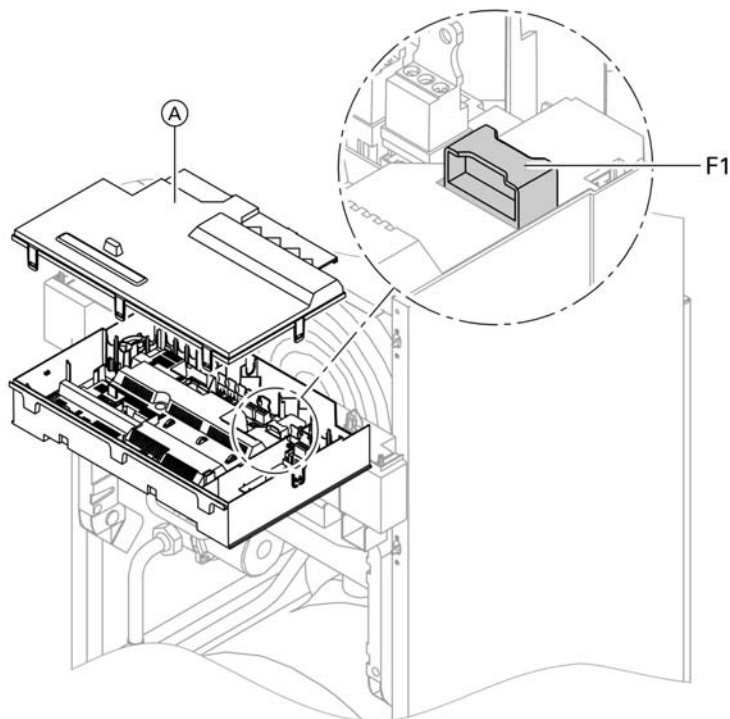
Checking O-rings:

1. Pull off the electrical plug (A).
2. Remove sensor (B) by pulling it upwards.
3. Ensure that both O-rings (C) are properly inserted into aperture adaptor retainers (D).
4. Insert the sensor with connection nipples into the gas combination valve adaptor and push in until it clicks into place.
5. Reconnect the electrical plug-in connector on the sensor.



Repairs (cont.)

Checking the fuse

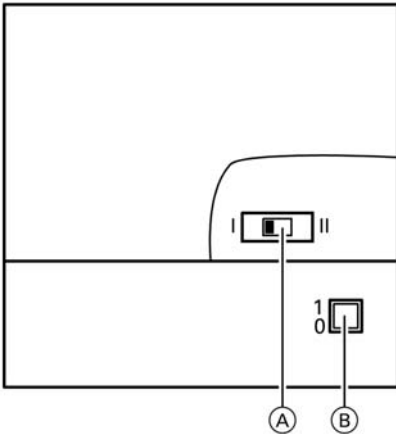


1. Switch OFF the mains power.
2. Release the lateral closures and pivot the control unit down.
3. Remove cover (A).
4. Check fuse F1.

Repairs (cont.)

Extension kit for heating circuit with mixer

Checking the rotational direction of the mixer motor



- Ⓐ Rotational direction switch
- Ⓑ ON/OFF switch ①

1. Switch OFF the motor and restart it at the main ON/OFF switch. The device will carry out the following self-test:
 - Mixer close (150 seconds)
 - Pump ON (10 seconds)
 - Mixer open (10 seconds)
 - Mixer close (10 seconds)
 Then standard control mode recommences.
2. Note the rotational direction of the mixer motor during the self-test. Then set the mixer manually to the open position.

Note

The flow temperature sensor must now sense a higher temperature. If the temperature falls, either the motor is turning in the wrong direction or the mixer set is incorrectly fitted.



Mixer installation instructions

3. Adjust the rotational direction of the mixer motor (if required).
 - Switch position I for heating return from the l.h. side (as delivered condition).
 - Switch position II for heating return from the r.h. side.


Repairs (cont.)

Checking Vitotronic 050 (accessory)

Vitotronic 050 is connected with the control unit via the LON system. To test the connection, implement a user check on the boiler control unit (see page 33).

Constant temperature control unit

Heating mode

The set boiler water temperature will be maintained in the Central heating and DHW heating  program, when a demand is raised by the room temperature-dependent clock thermostat. If no demand is received, the boiler water temperature will be held at the defaulted frost protection temperature. The burner control unit limits the boiler water temperature: through the control thermostat to 74 °C, and through the electronic temperature limiter to 82 °C. The temperature limiter in the safety chain locks out the burner control unit at a boiler water temperature of 100 °C.

Heating the DHW loading cylinder from cold

The heating circuit pump is switched ON, and the three-way diverter valve will be activated, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

Then,

- at a boiler water temperature \geq than the set DHW temperature, the DHW loading pump is switched ON.
- at a boiler water temperature \leq than the DHW set temperature, the burner is switched ON and, after the required boiler water temperature has been reached, the DHW loading pump is switched ON.

The cylinder is then loaded up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder temperature sensor and at the loading temperature sensor. The DHW loading pump and the three-way diverter valve remain ON after loading for a further 30 seconds.

Reheating when DHW is drawn off

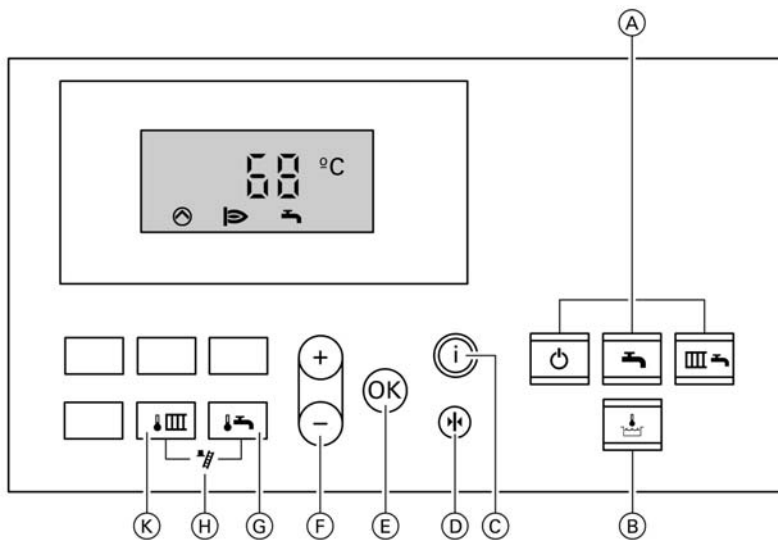
When DHW is drawn off, cold water enters at the bottom of the cylinder. The heating circuit pump is switched ON, and the three-way diverter valve is activated, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

Then,

- at a boiler water temperature \geq than the set DHW temperature, the DHW loading pump is switched ON.
- at a boiler water temperature \leq than the DHW set temperature, the burner is switched ON and, after the required boiler water temperature has been reached, the DHW loading pump is switched ON.

The DHW is regulated to the set temperature via the loading temperature sensor. The cylinder continues to be heated up after the draw off process has ceased, until the set DHW temperature has been reached at the cylinder temperature sensor. The DHW loading pump and the three-way diverter valve remain ON for a further 30 seconds.

Constant temperature control unit (cont.)



- | | |
|--------------------------------|----------------------------|
| Ⓐ Heating programs | Ⓕ Setting values |
| Ⓑ Comfort mode | Ⓖ DHW temperature |
| Ⓒ Information | Ⓗ Emissions test function |
| Ⓓ Basic settings | Ⓚ Boiler water temperature |
| Ⓔ Confirmation/acknowledgement | |

Weather-compensated control unit

Heating mode

The control unit determines a set boiler water temperature subject to outside temperature or room temperature (if a room temperature-dependent remote control is connected) and the slope/level of the heating curve. The determined set boiler water temperature is then transferred to the burner control unit. From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and controls the burner accordingly. The burner control unit limits the boiler water temperature: through the control thermostat to 74 °C and through the electronic temperature limiter to 82 °C. The thermocouple in the safety chain locks out the burner control unit at a boiler water temperature of 100 °C.

Heating the DHW loading cylinder from cold

The heating circuit pump is switched ON, and the three-way diverter valve will be activated, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

Then,

- at a boiler water temperature \geq than the set DHW temperature, the DHW loading pump is switched ON.
- at a boiler water temperature \leq than the DHW set temperature, the burner is switched ON and, after the required boiler water temperature has been reached, the DHW loading pump is switched ON.

The cylinder is then loaded up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder temperature sensor and at the loading temperature sensor. The DHW loading pump and the three-way diverter valve remain ON after loading for a further 30 seconds.

Reheating when DHW is drawn off

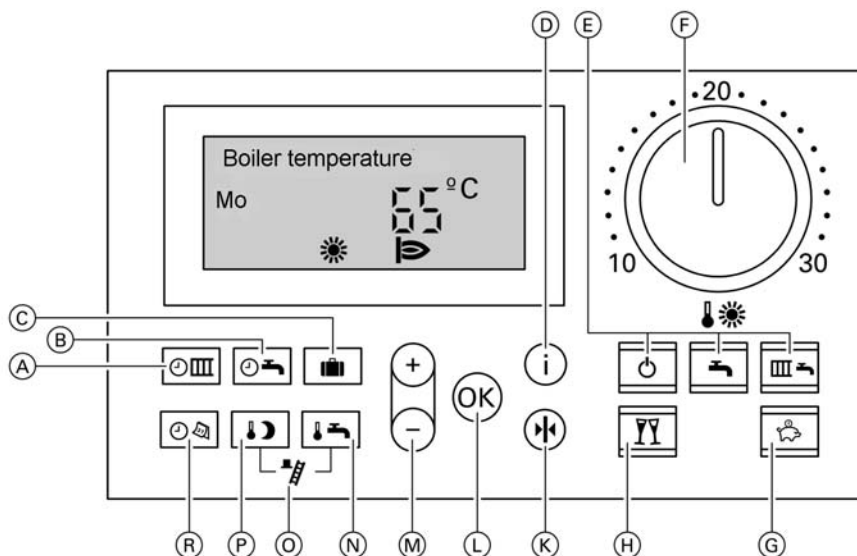
When DHW is drawn off, cold water enters at the bottom of the cylinder. The heating circuit pump is switched ON, and the three-way diverter valve is activated, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

Then,

- at a boiler water temperature \geq than the set DHW temperature, the DHW loading pump is switched ON.
- at a boiler water temperature \leq than the DHW set temperature, the burner is switched ON and, after the required boiler water temperature has been reached, the DHW loading pump is switched ON.

The DHW is regulated to the set temperature via the loading temperature sensor. The cylinder continues to be heated up after the draw off process has ceased, until the set DHW temperature has been reached at the cylinder temperature sensor. The DHW loading pump and the three-way diverter valve remain ON for a further 30 seconds.

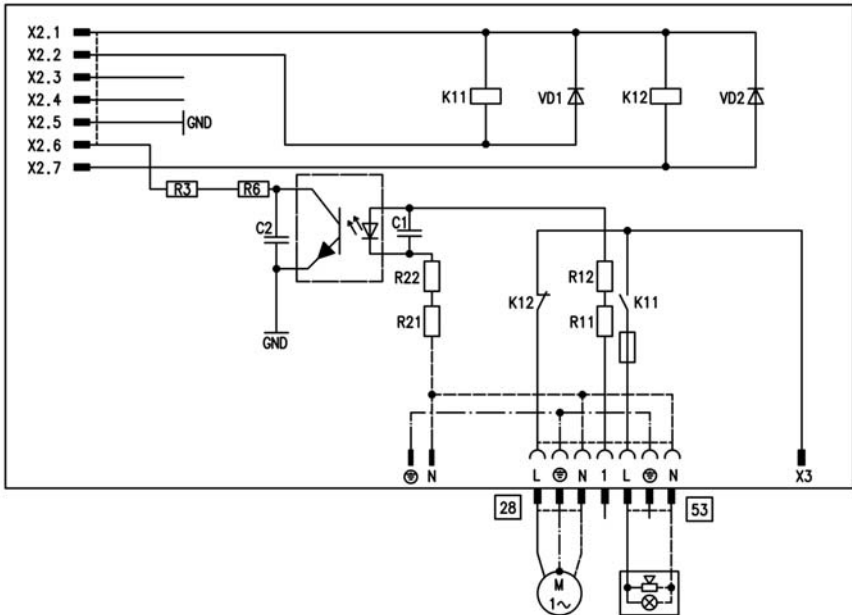
Weather-compensated control unit (cont.)



- | | |
|---|--------------------------------|
| Ⓐ Heating circuit time program | ⓓ Information |
| Ⓑ DHW time program and DHW circulation (if connected to the control unit) | ⓔ Heating programs |
| Ⓒ Holiday program | ⓕ Standard room temperature |
| Ⓓ Information | ⓖ Economy mode |
| Ⓔ Heating programs | |
| Ⓕ Standard room temperature | |
| Ⓖ Economy mode | |
| | ⓓ Party mode |
| | ⓕ Basic settings |
| | ⓖ Confirmation/acknowledgement |
| | ⓗ Setting values |
| | ⓙ DHW temperature |
| | ⓚ Emissions test function |
| | ⓛ Reduced room temperature |
| | ⓜ Date/time |

Internal extension H1

Internal extension H1

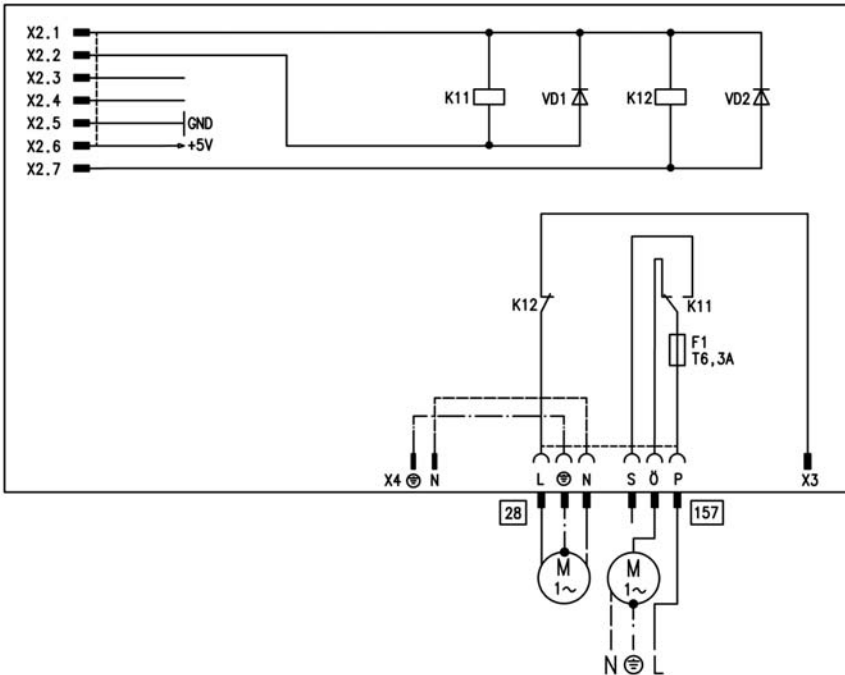


The internal extension is integrated into the control unit housing. The cylinder loading pump is connected to the relay output [28].

An external safety valve can be connected to connection [53].

Extensions for external connections (accessory)

Internal extension H2

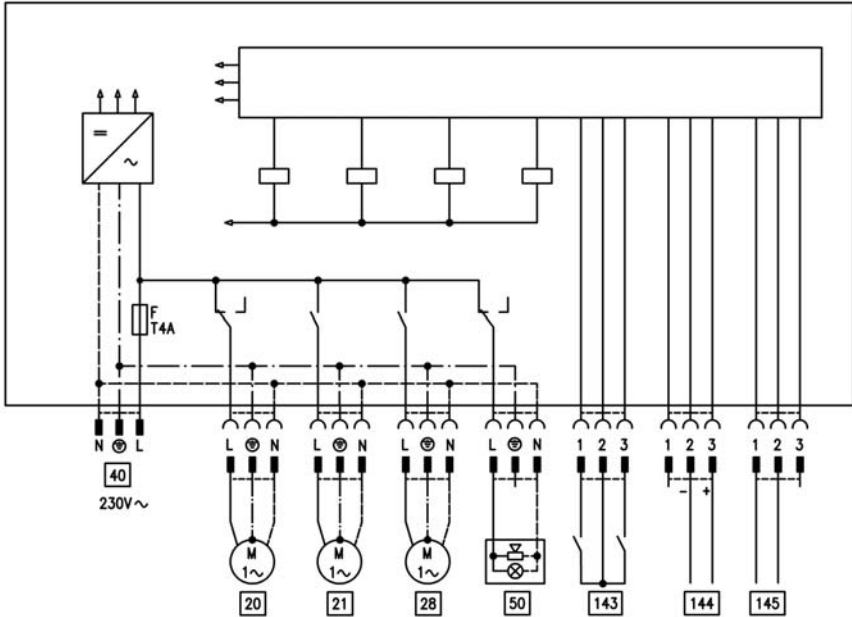


The internal extension is integrated into the control unit housing. The cylinder loading pump is connected to relay output **28**.

Set coding address 53 to 3.
An interlock for extractors can be connected to connection **157**.

Extensions for external connections (accessory) (cont.)

External extension H1



The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed via this extension:

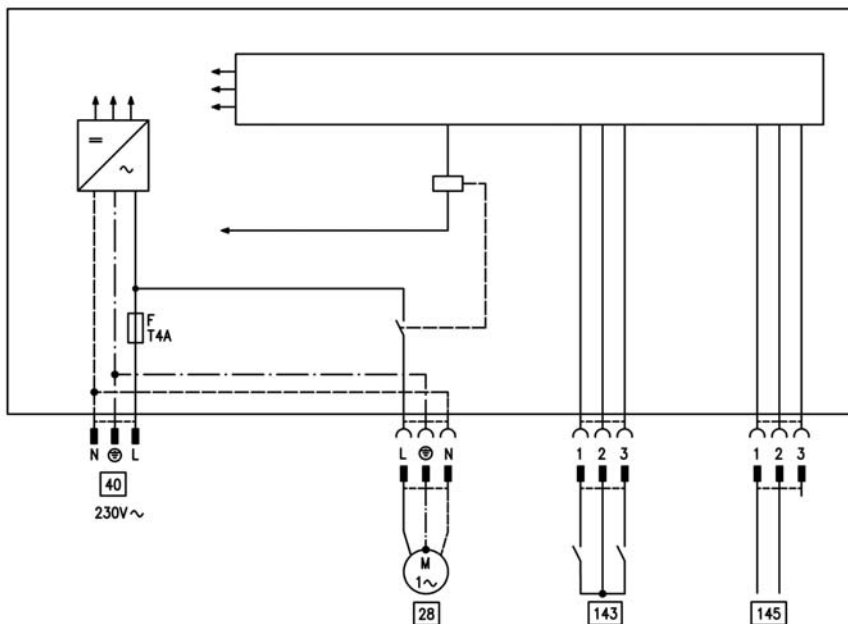
- 20** Heating circuit pump for heating circuit without mixer
- 28** DHW circulation pump
- 40** Power supply
- 50** Central fault message

- 143** ■ External blocking (terminals 2 - 3)
- External demand (terminals 1 - 2)
- External operating mode changeover (terminals 1 - 2)
- 144** External set value 0 to 10 V
- 145** KM BUS

The allocation of function External changeover of operating mode is selected via coding address 91.

Extensions for external connections (accessory) (cont.)

External extension H2



The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed via this extension:

- 28 DHW circulation pump
- 40 Power supply

- 143 ■ External blocking (terminals 2 - 3)
- External demand (terminals 1 - 2)
- External operating mode changeover (terminals 1 - 2)

145 KM BUS

The allocation of function External changeover of operating mode is selected via coding address 91.

Control functions

External operating mode changeover

The function External operating mode changeover is connected via input 143 of the external extension. With coding address 91 you can select, for which heating circuit the changeover of operating mode should apply:

Coding	Changeover of operating mode applies to:
91:0	No changeover
91:1	Heating circuit without mixer (A1)
91:2	Heating circuit with mixer (M2)
91:3	Heating circuit without mixer and heating circuit with mixer

With coding address d5, you can select in which direction the changeover should be made, for each heating circuit:

Coding	Changeover of operating mode applies to:
d5:0	Changeover towards Constantly reduced or Constant standby mode (subject to the selected set value)
d5:1	Changeover towards Constant heating mode

You can select the duration of the operating mode changeover with coding address "F2".

Coding	Changeover of operating mode applies to:
F2:0	No changeover of operating mode
F2:1 to F2:12	Duration of the operating mode changeover 1 to 12 hours

Control functions (cont.)

The changeover of operating mode remains active as long as the contact remains closed, but no less than the default duration selected with coding address F2.

External blocking

The function External blocking is connected via input **143** of the external extension.

In coding address 32 you can select the influence the signal Ext. blocking should have on the connected circulation pumps.

External demands

The function External demands is connected via input **143** of the external extension.
In coding address 34 you can select the influence the signal Ext. demands should have on the connected circulation pumps.

In coding address 9b, you can select the minimum set boiler water temperature in case of external demand.

Venting program

Note

Close the gas shut-off valve when operating the venting program.

During the venting program, the circulation pump will be alternately switched ON and OFF for 30 seconds respectively over a period of 20 minutes.

The diverter valve is alternately switched for a certain period towards heating and DHW operation. The burner is switched OFF during the venting program.

The venting program is activated via coding address 2F:1. The program is automatically deactivated after 20 minutes, and the coding address is set to 0.

Control functions (cont.)

Filling program

Note

Close the gas shut-off valve when operating the filling program.

In the delivered condition, the diverter valve is set to its central position, enabling the system to be filled completely. After starting the control unit, the diverter valve no longer goes into its central position.

The diverter valve can be moved into its central position via coding address 2F:2. The system can be filled completely, if the control unit is switched OFF in this position.

Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, the diverter valve is moved into its central position via coding address 2F:2, and the pump is started. The burner shuts down if this function is activated via coding address 2F. The program is automatically deactivated after 20 minutes, and the coding address is set to 0.

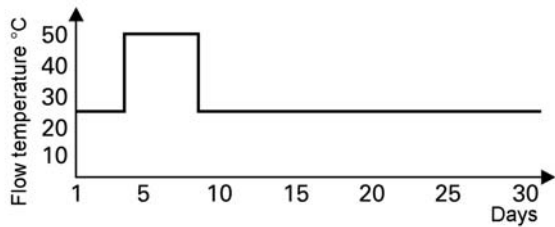
Screed function

The screed drying functions enables the drying of a freshly laid screed. For this, always observe the instructions issued by the screed manufacturer.

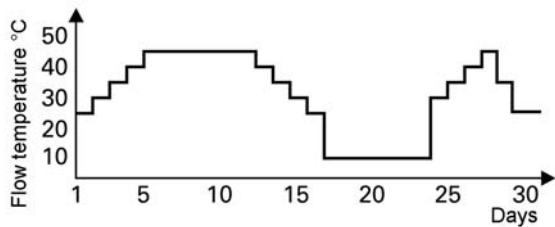
Various temperature profiles are available for selection.

Control functions (cont.)

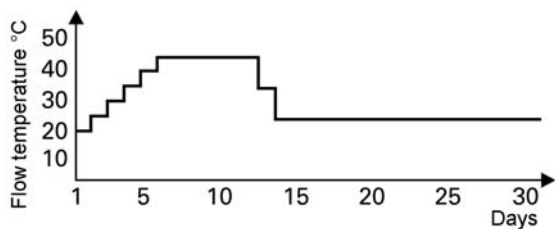
Temperature profile: Diagram 1 (DIN 4725 part 4) code F1:1



Temperature profile: Diagram 2 code F1:2

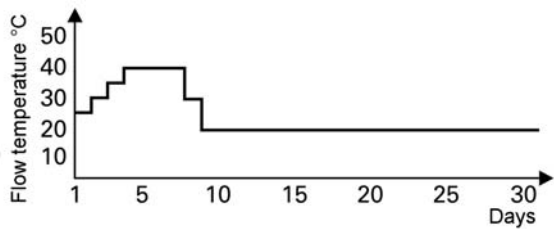


Temperature profile: Diagram 3 code F1:3

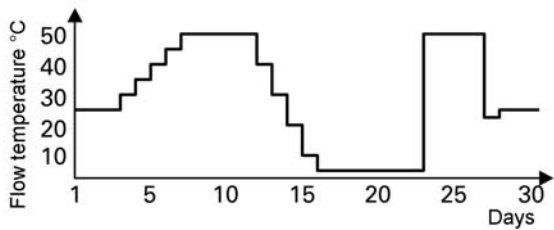


Control functions (cont.)

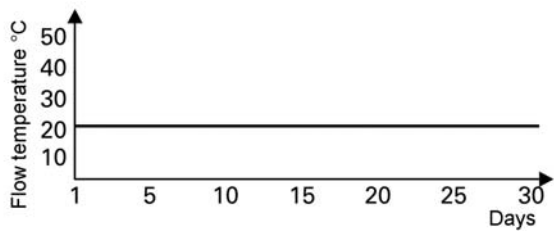
Temperature profile: Diagram 4 code F1:4



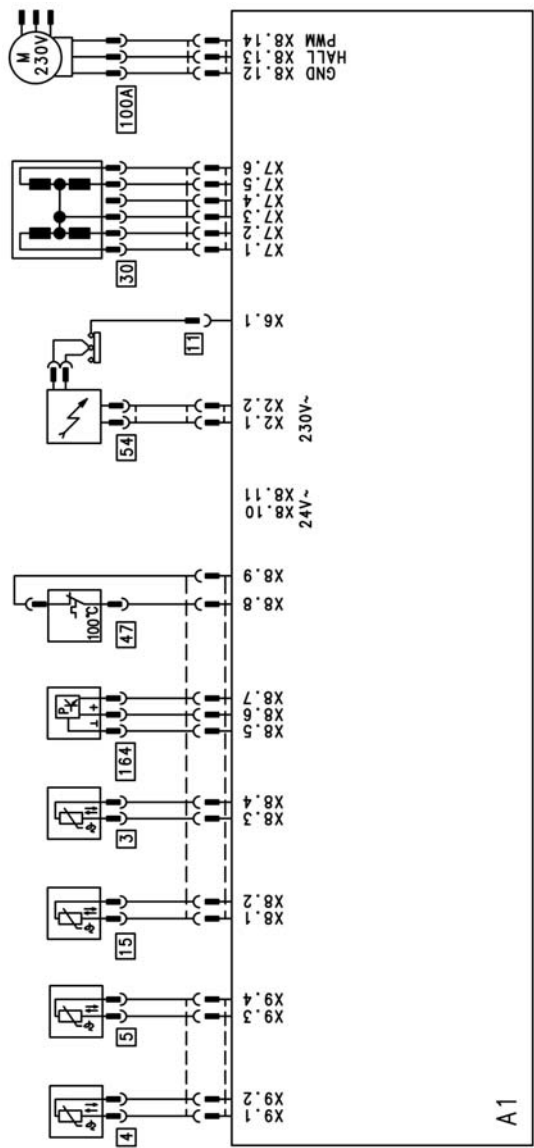
Temperature profile: Diagram 5 code F1:5



Temperature profile: Factory settings code F1:6 to F1:15



Connection and wiring diagrams – internal connections

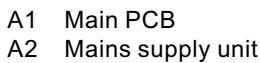


A1 Main PCB
3 Boiler temperature sensor

4 Cylinder temperature sensor
5 Loading temperature sensor

Connection and wiring diagrams – internal connectio . . . (cont.)

11	Ionisation electrode	54	Ignition unit
15	Flue gas temperature sensor	100	Fan motor
30	Step motor for diverter valve	164	Air pressure sensor
47	Thermocouple		



5692 548 GB

Connection and wiring diagrams – external connectio . . . (cont.)

A5	Operating interface	5	Cylinder temperature sensor
A6	Coding card	20	Internal circulation pump
A7	Connection adaptor	28	Loading pump
A8	LON communication module	35	Gas solenoid valve
A9	Internal extension H1 or H2	40	Power supply
S1	ON/OFF switch	96	Mains power supply - accessories and Vitotrol 100
S2	Reset button		
1	Outside temperature sensor	100	Fan motor
2	Flow temperature sensor low loss header	111	Gas governor
		145	KM BUS

Parts lists

Spare parts information

Quote the type and serial no. (see type plate) and the item no. of the required part (as per this parts list).

Obtain standard parts from your local supplier.

001 Heat exchanger connection pipe with gaskets	036 Plate heat exchanger
002 Flow pipework	037 Gasket set - plate heat exchanger
003 DHW connecting pipe	040 Grommets (set)
004 DHW connecting pipe	051 Burner (with items 050, 052 to 064)
005 Cylinder connecting pipe	052 Ignition unit
006 Return connecting pipe	055 Burner gauze assembly
007 Gas connection flange	056 Radial fan
008 Stratification loading cylinder	057 Pressure transmitter
009 Siphon	058 Gas train
010 Condensate hose	059 Conversion kit for natural gas E (gas restrictor)
011 Heat exchanger siphon connection	060 Conversion kit for natural gas LL (gas restrictor)
012 Heat exchanger	061 Conversion kit for LPG P (gas restrictor)
013 Cap plate (with item 014)	064 Burner gauze assembly gasket
014 Profiled gasket	100 Vitodens control unit
015 Clip nut	101 Rear cover
016 Interlocking connector	102 Locking clips (10 pieces)
017 Boiler adaptor	103 Support
018 Plug	104 Pivot arm
019 Air inlet gasket Ø 125	105 Hinge pins (10 pieces)
020 Lip seal Ø 80	106 Damper
021 Boiler connection grommets	107 Pressure gauge retainer
022 Connection line - diaphragm expansion vessel	108 Clip (10 pieces)
023 Diaphragm expansion vessel	109 Hinge (10 pieces)
024 Pressure gauge and fem. connection	110 Boiler coding card
025 Quick-acting air vent valve	111 Fuse 6.2 A s (10 pieces)
026 Overflow valve	112 Operating interface for constant temperature operation
027 Safety valve	113 Operating interface for weather-compensated operation
028 Air vent valve G $\frac{3}{8}$ "	122 LON module
029 Linear step motor	123 PCB adaptor - LON module
030 Non-return valve	151 Outside temperature sensor
031 Ball valve R $\frac{1}{2}$ " with handle	152 Cylinder temperature sensor
033 Flat seal set	
034 Set of plug connector retainers	
035 Safety spring	

Parts lists (cont.)

153 Flue gas temperature sensor
 154 Thermocouple
 155 Temperature sensor
 200 Side panel
 201 Front top panel
 202 Rear panel, top
 203 Front panel, top
 204 Front panel, bottom
 205 Tie-bar
 206 Adjustable foot
 300 Circulation pump motor
 301 Circulation pump motor
 352 Gasket
 354 Anode flange with gasket
 355 Thermal insulation – flange

Wear parts

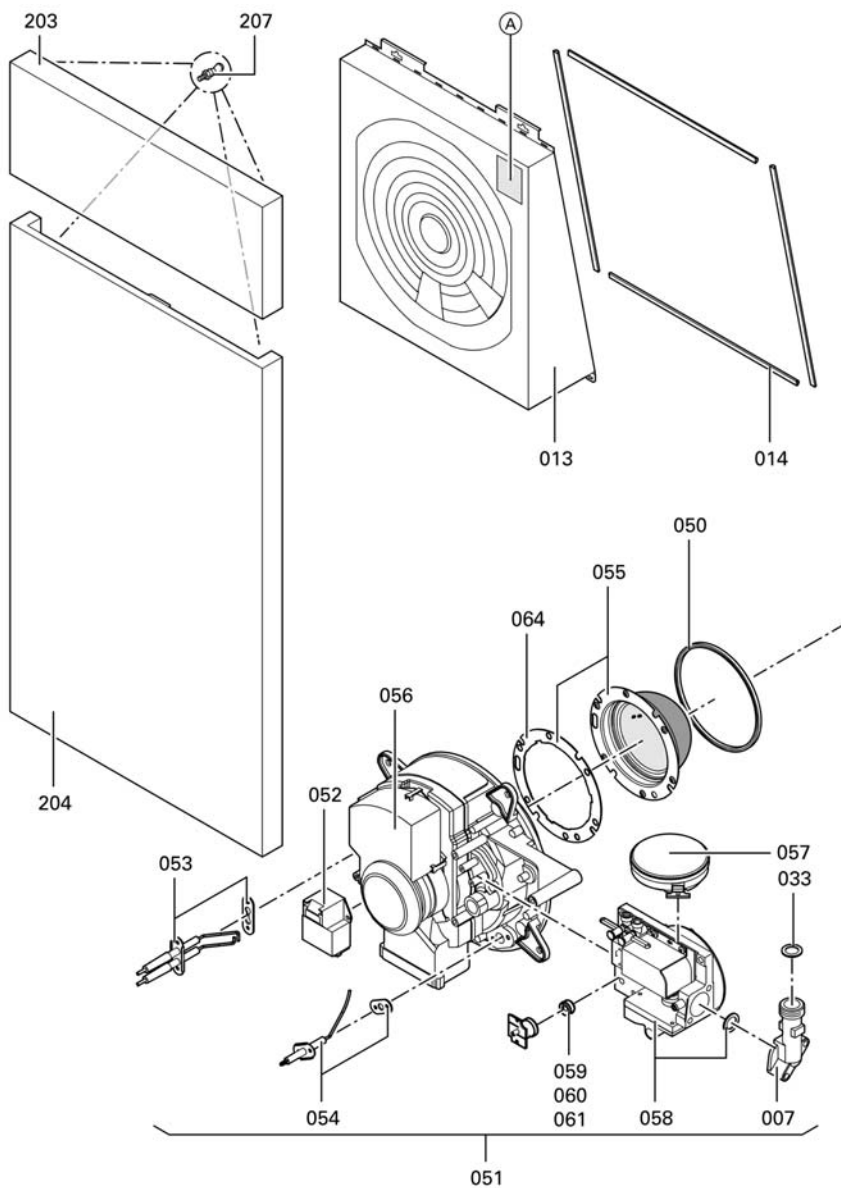
050 Burner gasket
 053 Ignition electrode with gasket
 054 Ionisation electrode with gasket
 353 Magnesium anode $\varnothing = 26 \times 280/250$

Parts not shown

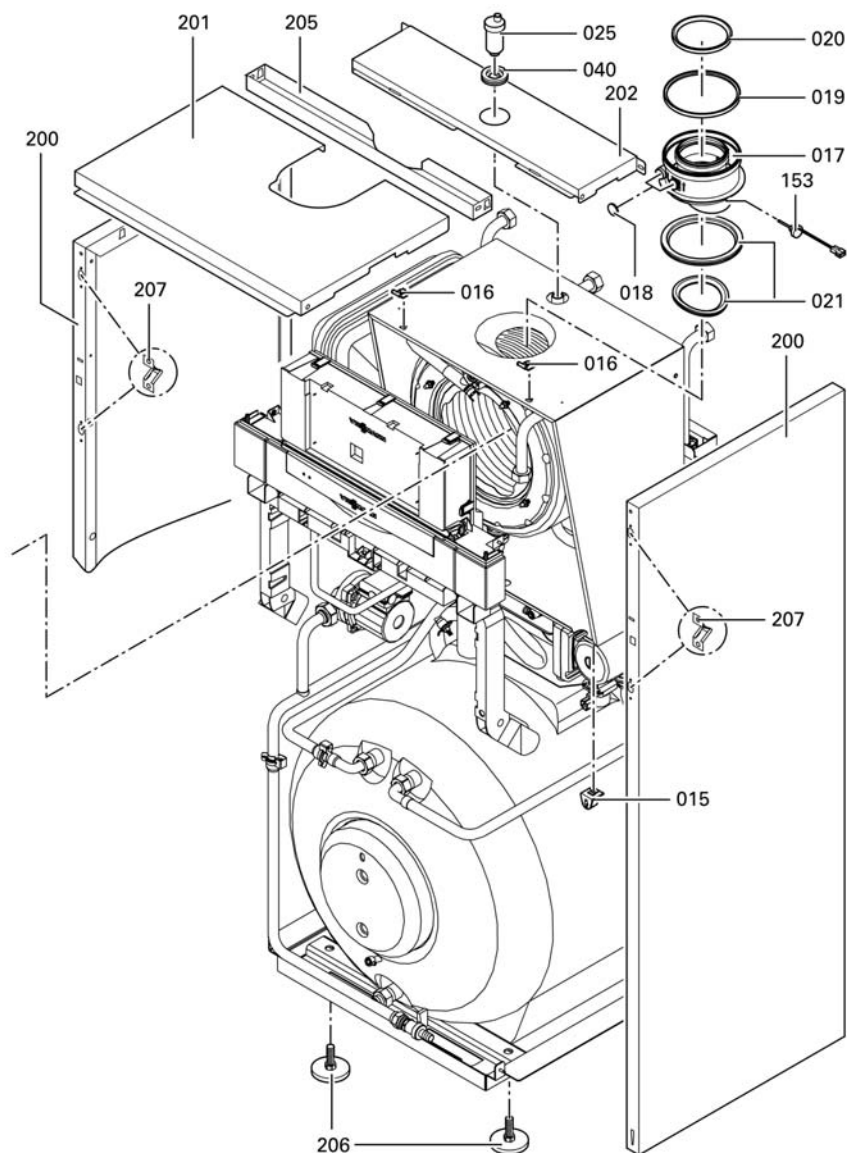
032 Gasket set - plug-in connector
 038 Special grease

039 Heat conducting paste
 062 Burner maintenance set
 063 Set of small burner parts
 115 Adaptor - ionisation current test cable
 116 Cable harness X8/X9
 117 Cable harness 100/35/34 (auxiliary earth)
 118 Step motor connecting cable
 119 Cable harness ionisation/KM BUS (internal)
 120 Internal ionisation lead
 207 Fastenings
 208 Touch-up paint stick, Vitowhite
 209 Touch-up spray paint, Vitowhite
 350 Seal washer
 351 Strain relief
 400 Operating instructions for constant temperature operation
 401 Operating instructions for weather-compensated operation
 403 Installation instructions
 404 Service instructions
 Ⓐ Type plate

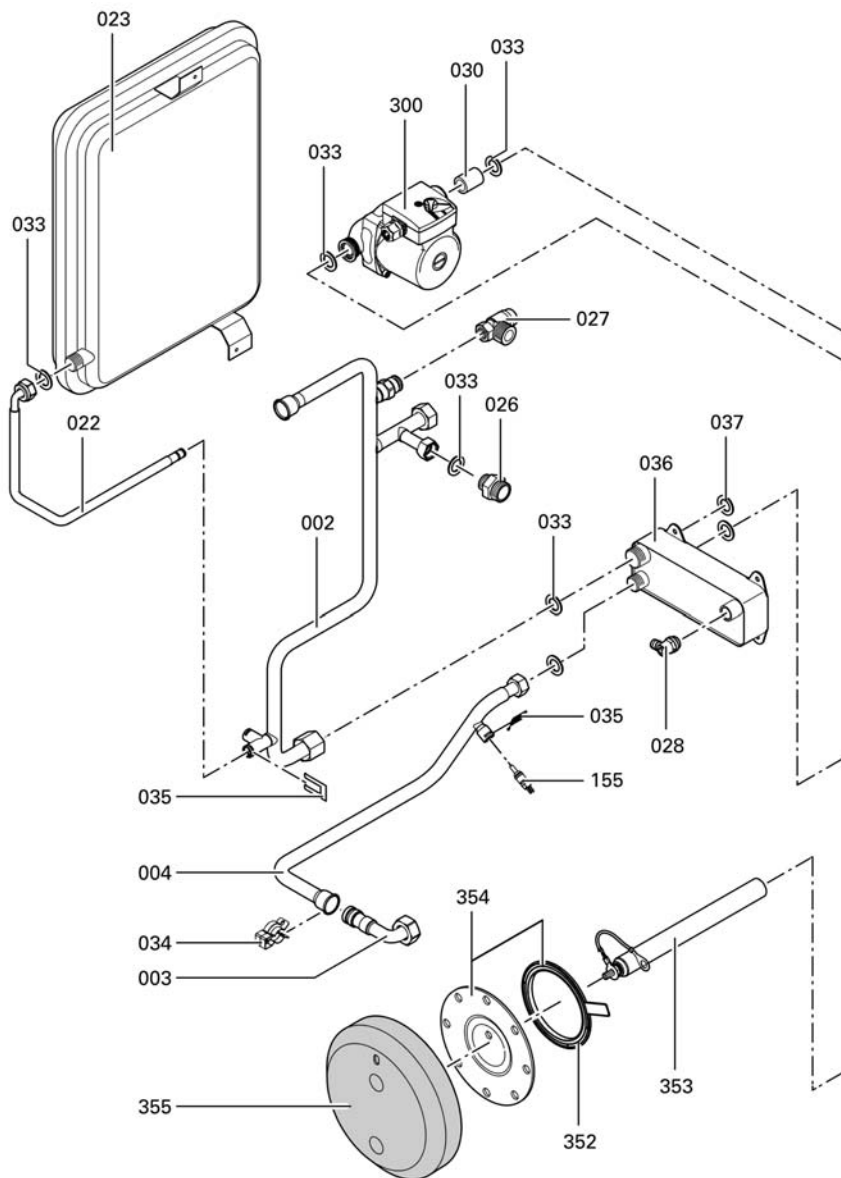
Parts lists (cont.)



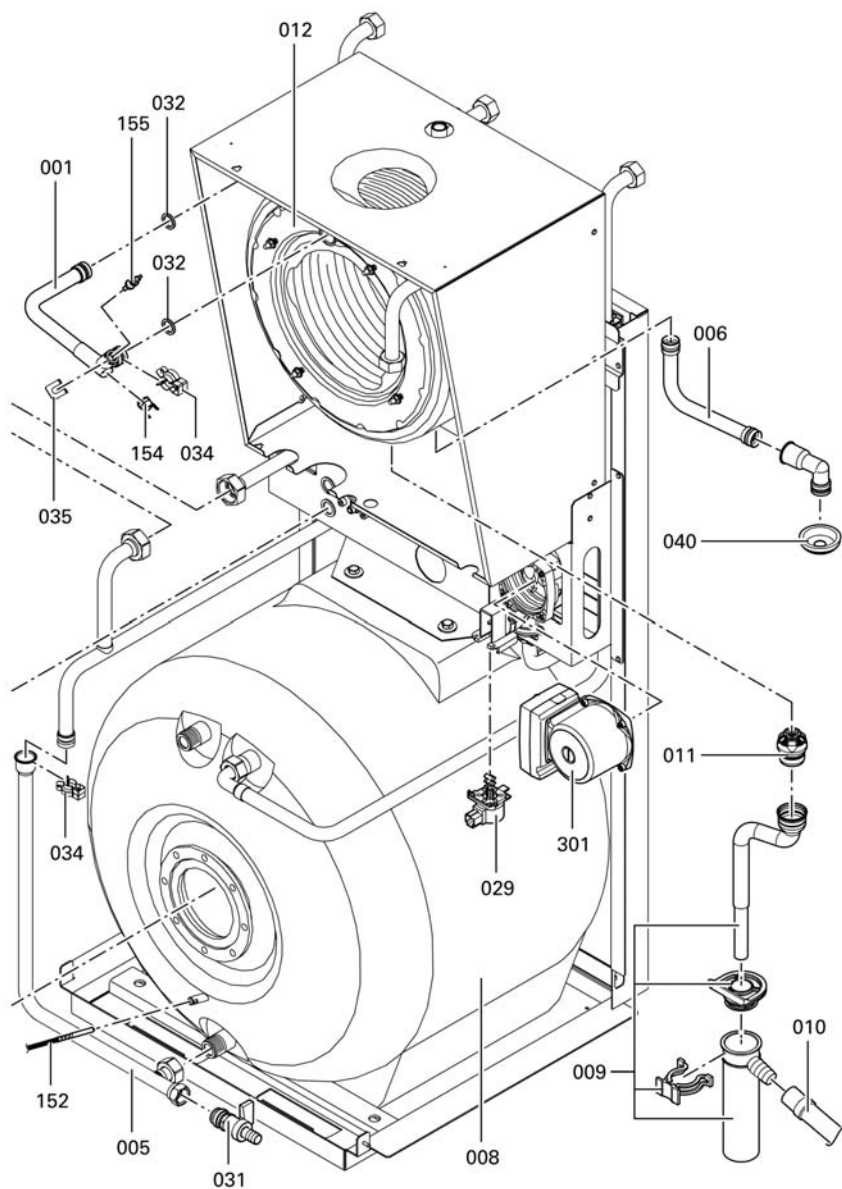
Parts lists (cont.)



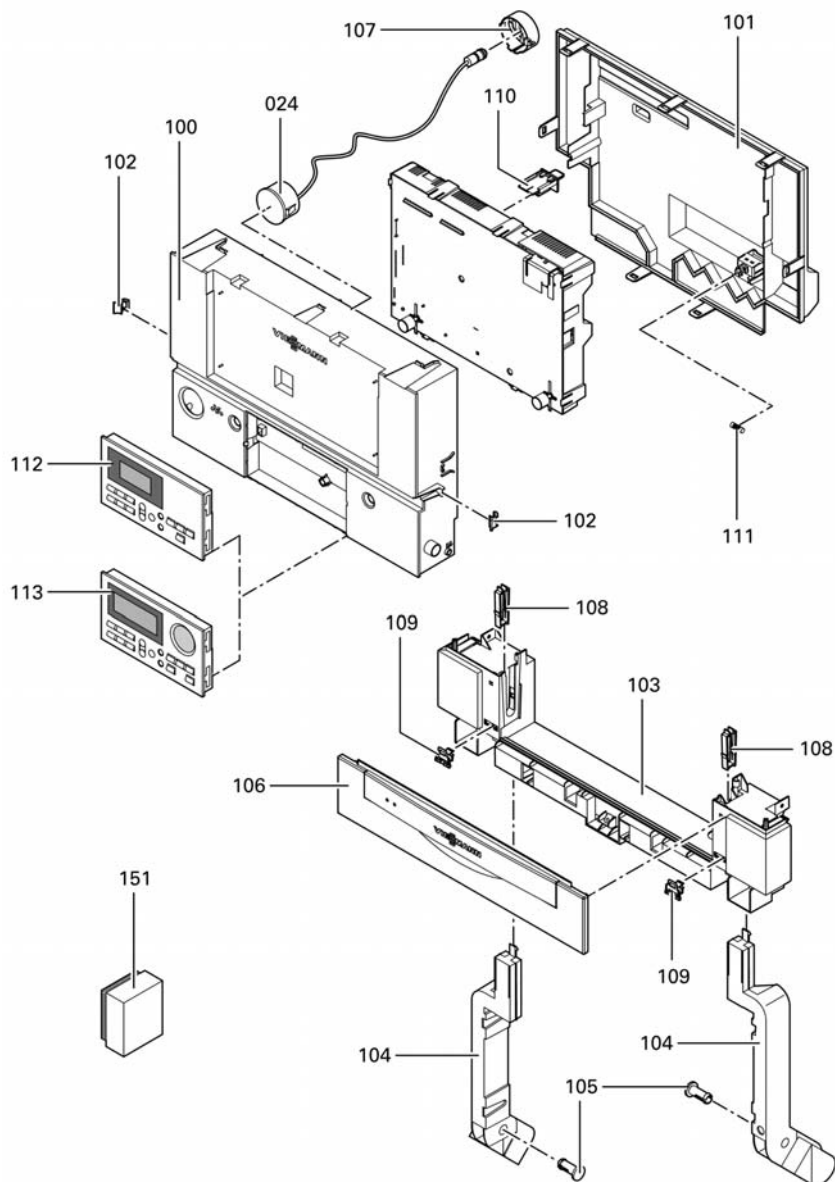
Parts lists (cont.)



Parts lists (cont.)



Parts lists (cont.)



Parts lists (cont.)

Commissioning/service reports

Setting and test values	Date: By:	Set value	Initial start-up
Static pressure	mbar	max. 57.5 mbar	
Supply pressure (flow pressure)			
<input type="checkbox"/> for natural gas E	mbar	17.4 to 57.5 mbar	
<input type="checkbox"/> for natural gas LL	mbar	17.4 to 57.5 mbar	
<input type="checkbox"/> for LPG	mbar	42.5 to 57.5 mbar	
Tick gas type			
Carbon dioxide content CO ₂			
■ at lower rated output	% by vol.		
■ at upper rated output	% by vol.		
Oxygen content O ₂			
■ at lower rated output	% by vol.		
■ at upper rated output	% by vol.		
Carbon monoxide content CO			
■ at lower rated output	ppm		
■ at upper rated output	ppm		
Ionisation current	µA	min. 5 µA	

Commissioning/service reports (cont.)

[illegible]

Commissioning/service reports (cont.)

Setting and test values	Date: By:	Set value	Maintenance/ service
Static pressure	<i>mbar</i>	max. 57.5 mbar	
Supply pressure (flow pressure)			
<input type="checkbox"/> for natural gas E	<i>mbar</i>	17.4 to 57.5 mbar	
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4 to 57.5 mbar	
<input type="checkbox"/> for LPG	<i>mbar</i>	42.5 to 57.5 mbar	
<i>Tick gas type</i>			
Carbon dioxide content CO₂			
■ at lower rated output	<i>% by vol.</i>		
■ at upper rated output	<i>% by vol.</i>		
Oxygen content O₂			
■ at lower rated output	<i>% by vol.</i>		
■ at upper rated output	<i>% by vol.</i>		
Carbon monoxide content CO			
■ at lower rated output	<i>ppm</i>		
■ at upper rated output	<i>ppm</i>		
Ionisation current	<i>µA</i>	min. 5 µA	

Commissioning/service reports (cont.)

[illegible]

Commissioning/service reports (cont.)

Setting and test values	Date: By:	Set value	Maintenance/ service
Static pressure	<i>mbar</i>	max. 57.5 mbar	
Supply pressure (flow pressure)			
<input type="checkbox"/> for natural gas E	<i>mbar</i>	17.4 to 57.5 mbar	
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4 to 57.5 mbar	
<input type="checkbox"/> for LPG	<i>mbar</i>	42.5 to 57.5 mbar	
<i>Tick gas type</i>			
Carbon dioxide content CO₂			
■ at lower rated output	<i>% by vol.</i>		
■ at upper rated output	<i>% by vol.</i>		
Oxygen content O₂			
■ at lower rated output	<i>% by vol.</i>		
■ at upper rated output	<i>% by vol.</i>		
Carbon monoxide content CO			
■ at lower rated output	<i>ppm</i>		
■ at upper rated output	<i>ppm</i>		
Ionisation current	<i>µA</i>	min. 5 µA	

Commissioning/service reports (cont.)

[illegible]

Specification

Specification

Rated voltage:	230 V~	Electronic temperature limiter setting:	82 °C
Rated frequency:	50 Hz	Temperature limiter setting:	100 °C (fixed)
Rated current :	6.3 A~	Mains fuse:	Max. 16 A
Safety class:	I		
Protection level:	IP X 4 D to EN 60529		
Permissible ambient temperature		Power consumption	
■ in operation:	0 to +40 °C	■ Circulation pump:	Max. 115 W
■ during storage and transport:	-20 to +65 °C	■ Burner:	Max. 60 W
		■ Control unit:	Max. 10 VA

Gas fired boiler, category II 2ELL3P

Rated output Tv/Tr 50/30 °C		kW	6.6 to 26
Rated output range		kW	6.3 to 24.7
Connection values *1			
Relative to the max. load			
with natural gas E	with H _{uB}		
	9.45 kWh/m ³	m ³ /h	2.65
natural gas LL	34.02 MJ/m ³		
	8.13 kWh/m ³	m ³ /h	3.08
LPG	29.25 MJ/m ³		
	12.79 kWh/m ³	m ³ /h	1.94
Product ID			CE-0085 BO 0338

Product characteristics (to EnEV [Germany])

Rated output range		kW	6.6 to 26
Efficiency μ for			
■ 100 % of rated output		%	96.3
■ 30 % of rated output		%	107.4
Standby loss $q_{B,70}^{*2}$		%	0.7
Power consumption *2 for			
■ 100 % of rated output		W	207
■ 30 % of rated output		W	69

*1 The supply values are only for reference (e.g. in the gas contract application) or to estimate the supplementary volumetric settings. Because of factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar.

*2 Max. limit to EnEV

Declaration of conformity

Declaration of conformity for Vitodens 333

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, declare as sole responsible body, that the product

Vitodens 333

conforms to the following standards:

DIN 4702-6
DIN 4753
EN 297
EN 483
EN 625
EN 677
EN 50 165
EN 60 335
EN 61 000-3-2
EN 61 000-3-3

This product is designated in accordance with the following directives:

90/396/EEC
89/336/EEC
73/23/EEC
92/42/EEC
97/23/EC

as follows:
CE-0085

EC Declaration of conformity by an authorised body according to EMVG article 10.2 Certificate number: E9 02 08 1730.

This product complies with the requirements of the Efficiency Directive (92/42/EEC) for:

Condensing boilers

The product characteristics determined as system values for the product **Vitodens 333 as part of EC type testing according to the Efficiency Directive** (see specification table), can be utilised to assess the energy consumption of heating and ventilation equipment to DIN V 4701-10 which is specified by the EnEV [Germany].

Allendorf, 14.01.04

Viessmann Werk GmbH&Co KG



pp. Manfred Sommer

Manufacturer's certificate according to the 1st BImSchV [Germany]

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, confirm that the following product meets the NO_x limits specified by 1st BImSchV Paragraph 7 (2) [Germany]:

Vitodens 333

Allendorf, 14.01.04

Viessmann Werk GmbH&Co KG

A handwritten signature in black ink, appearing to read 'M. Sommer', is written over a horizontal line.

pp. Manfred Sommer

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Applicability

Compact gas fired condensing boiler

Type WS3A

6.6 to 26 kW

from serial no.

7177 362 3 00001

Viessmann Limited
Hortonwood 30, Telford, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
www.viessmann.co.uk

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