Installation and service instructions

for contractors

Vitodens 242-F
Type B2UA, 3.2 to 26 kW
Gas condensing/solar storage combi boiler
Gas council no.
41-819-18; 41-819-19
Natural gas and LPG version

For applicability, see the last page

VITODENS 242-F

5773 238 GB 4/2013

Please keep safe.

Safety instructions

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

Safety instructions explained

Danger
This symbol warns against the risk of injury.

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

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

Target group

These instructions are exclusively intended for qualified contractors.
- Work on gas installations must only be carried out by a registered gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system:
- Statutory regulations regarding the prevention of accidents
- Statutory regulations regarding environmental protection
- Codes of practice of the relevant trade associations
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
- Gas Safety (Installation & Use) Regulations
  – the appropriate Building Regulation either the Building regulations, the Building Regulation (Scotland), Building Regulations (Northern Ireland),
  – the Water Fittings Regulation or Water Bylaws in Scotland,
  – the current I.E.E. Wiring Regulations.

If you smell gas

Danger
Escaping gas can lead to explosions which may result in serious injury.
- Do not smoke. Prevent naked flames and sparks. Do not switch lights or electrical appliances on or off.
- Close the gas shut-off valve.
- Open windows and doors.
- Evacuate any people from the danger zone.
- Notify your gas or electricity supply utility from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

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Safety instructions (cont.)

If you smell flue gas

Danger
Flue gas can lead to life-threatening poisoning.
- Shut down the heating system.
- Ventilate the installation site.
- Close all doors in the living space.

Flue systems and combustion air

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

Danger
Life-threatening poisoning caused by carbon monoxide in the flue gas occurs as a result of leaking or blocked flue systems or an insufficient supply of combustion air.
Ensure the flue system is in proper working order. It must not be possible to close apertures for interconnected combustion air supply.

Extractors

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

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

Working on the system

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

Please note
Electronic assemblies can be damaged by electrostatic discharge.
Prior to commencing any work, touch earthed objects, such as heating or water pipes to discharge static loads.

Repair work

Please note
Repairing components that fulfil a safety function can compromise the safe operation of your system.
Defective components must be replaced with genuine Viessmann spare parts.

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Safety instructions (cont.)

Auxiliary components, spare and wearing parts

!

Please note
Spare and wearing parts that have not been tested together with the system can compromise its function. Installing non-authorised components and making non-approved modifications or conversions can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts supplied or approved by Viessmann.

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Product information

Vitodens 242-F, type B2UA

Preset for operation with natural gas E and natural gas LL.
For conversion to LPG P (without conversion kit), see page 53.

In principle the Vitodens 242-F may only be delivered to countries listed on the type plate. For deliveries to alternative countries, an approved contractor must arrange individual approval on his own initiative and in accordance with the law of the country in question.

Intended use

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

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

Commercial or industrial usage for a purpose other than heating the building or DHW does not comply with regulations.

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

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

Preparing the installation

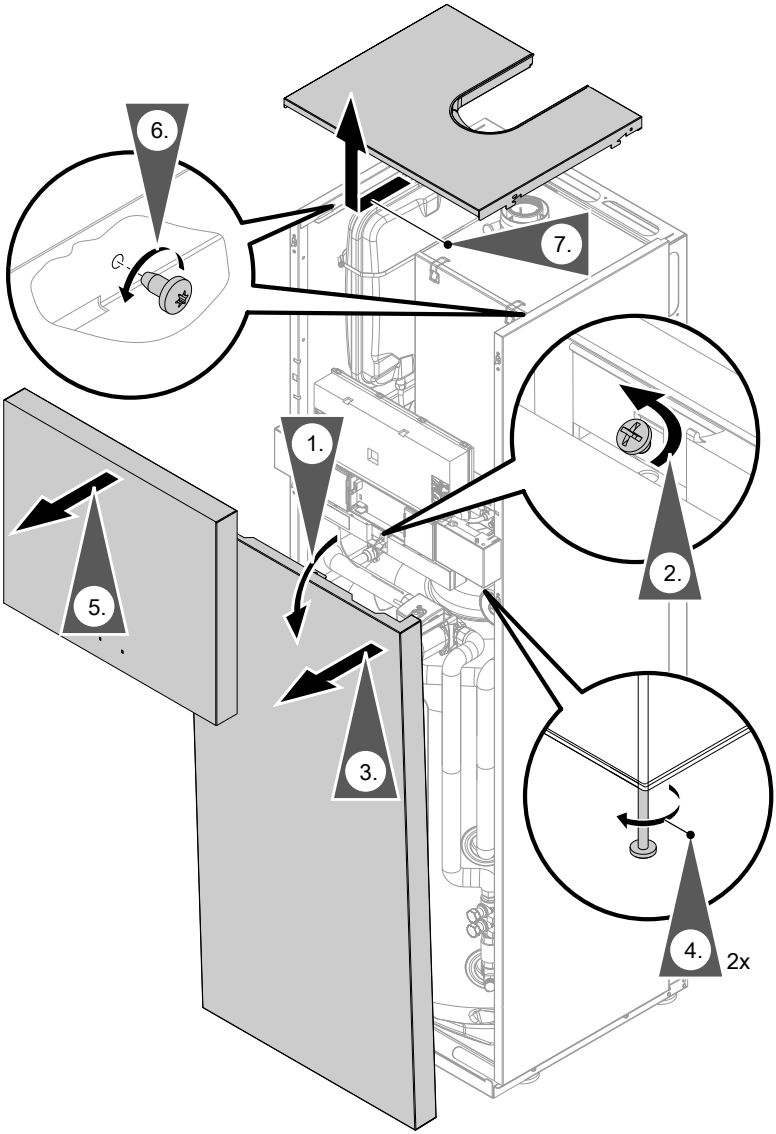
Handling

If possible, leave the boiler on the pallet during handling.
If space constraints make it necessary, the boiler can be split for handling.

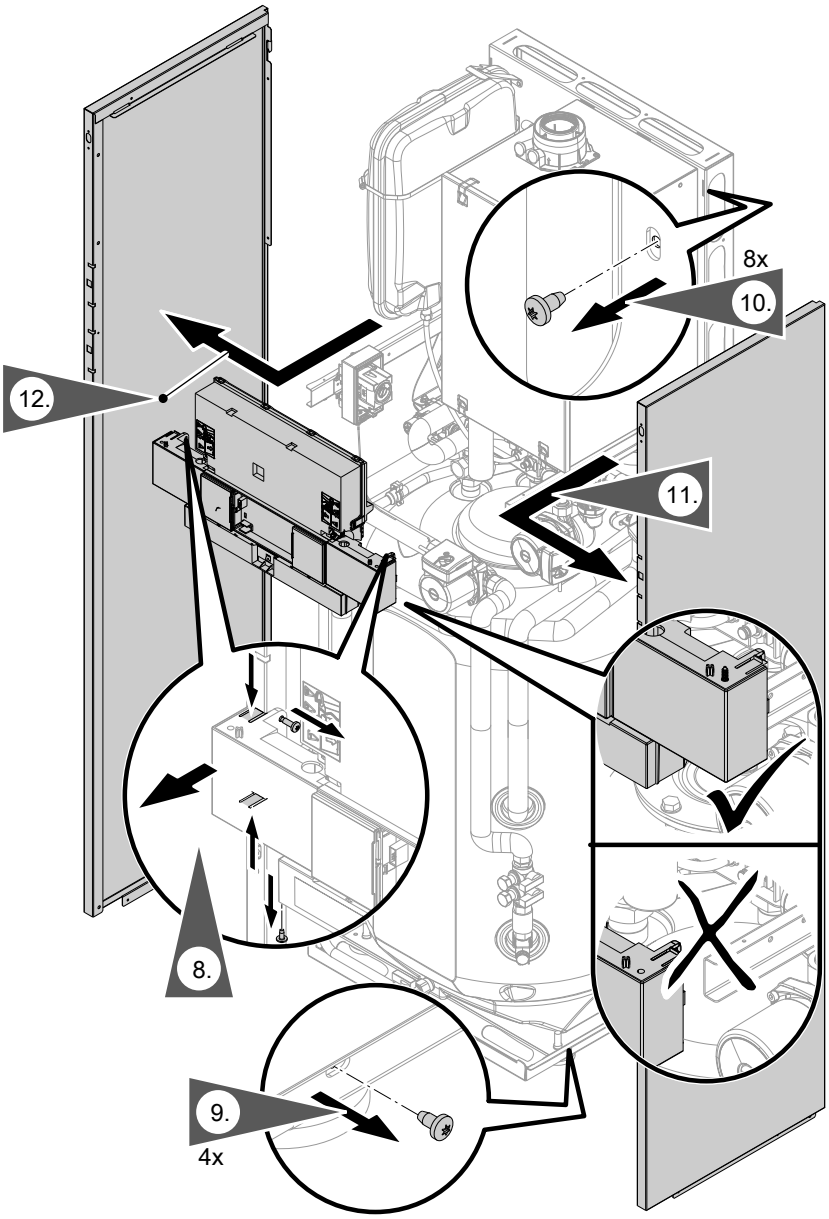
Please note
Prevent damage to the appliance during handling.
Never set the boiler down on its front or sides, or apply any load to these surfaces.

Preparing the installation (cont.)

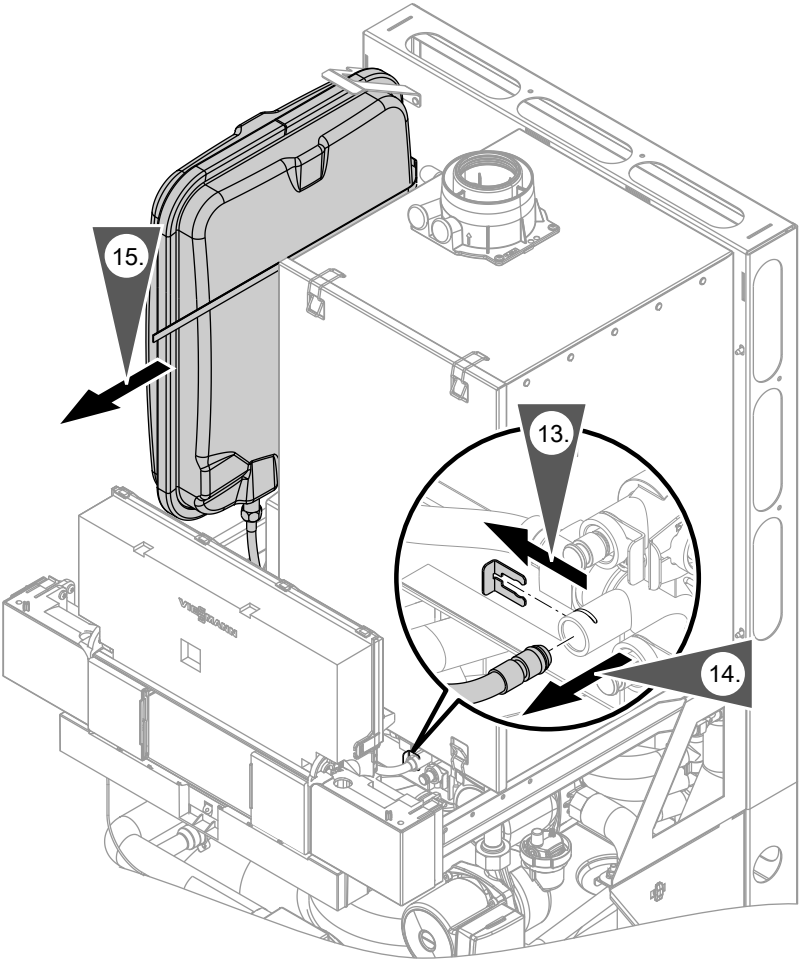
Dividing the boiler into sections



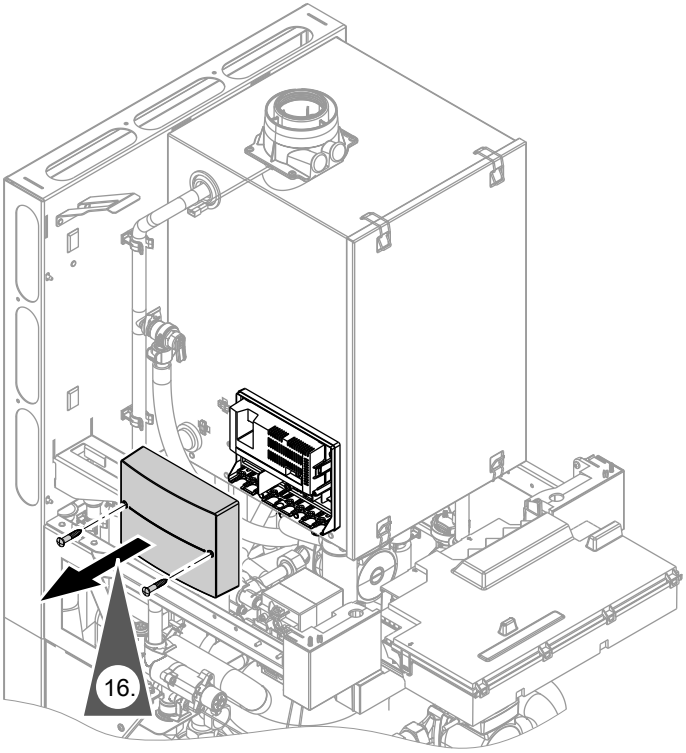
Preparing the installation (cont.)



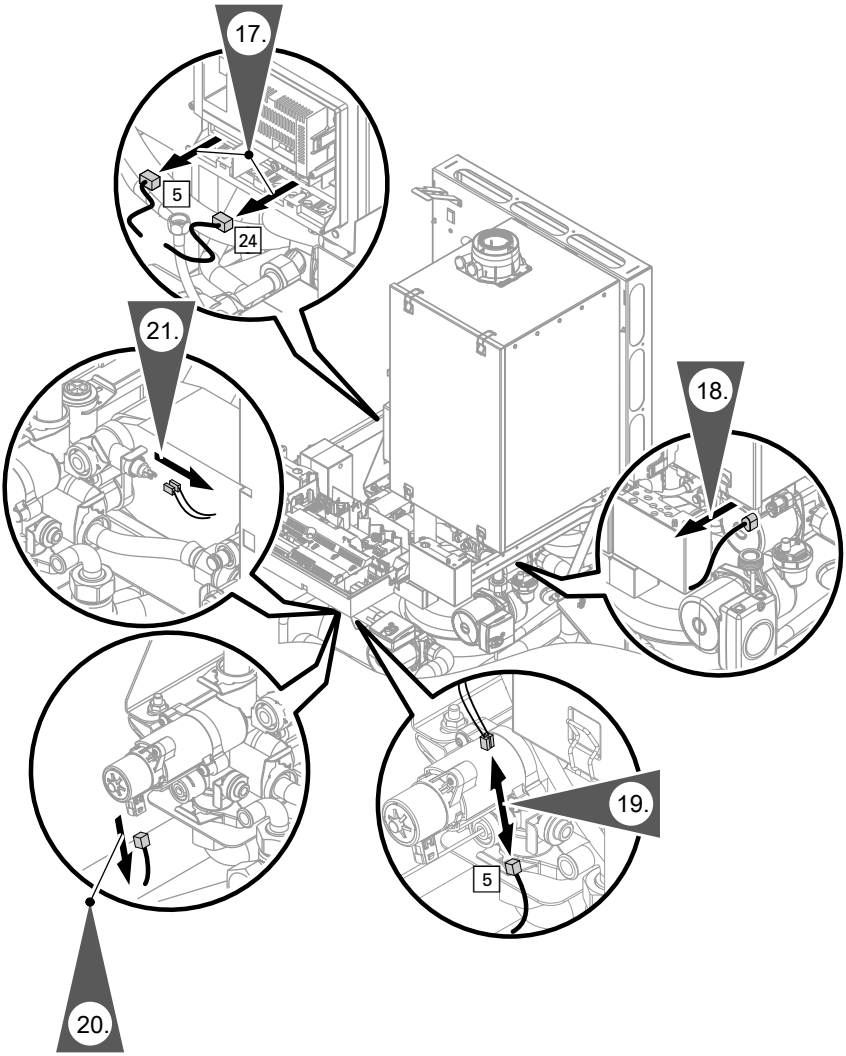
Preparing the installation (cont.)



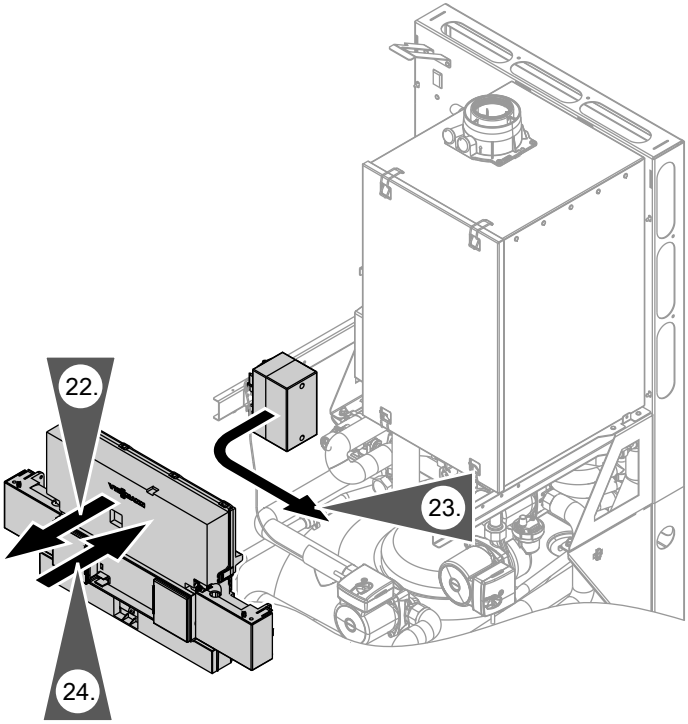
Preparing the installation (cont.)



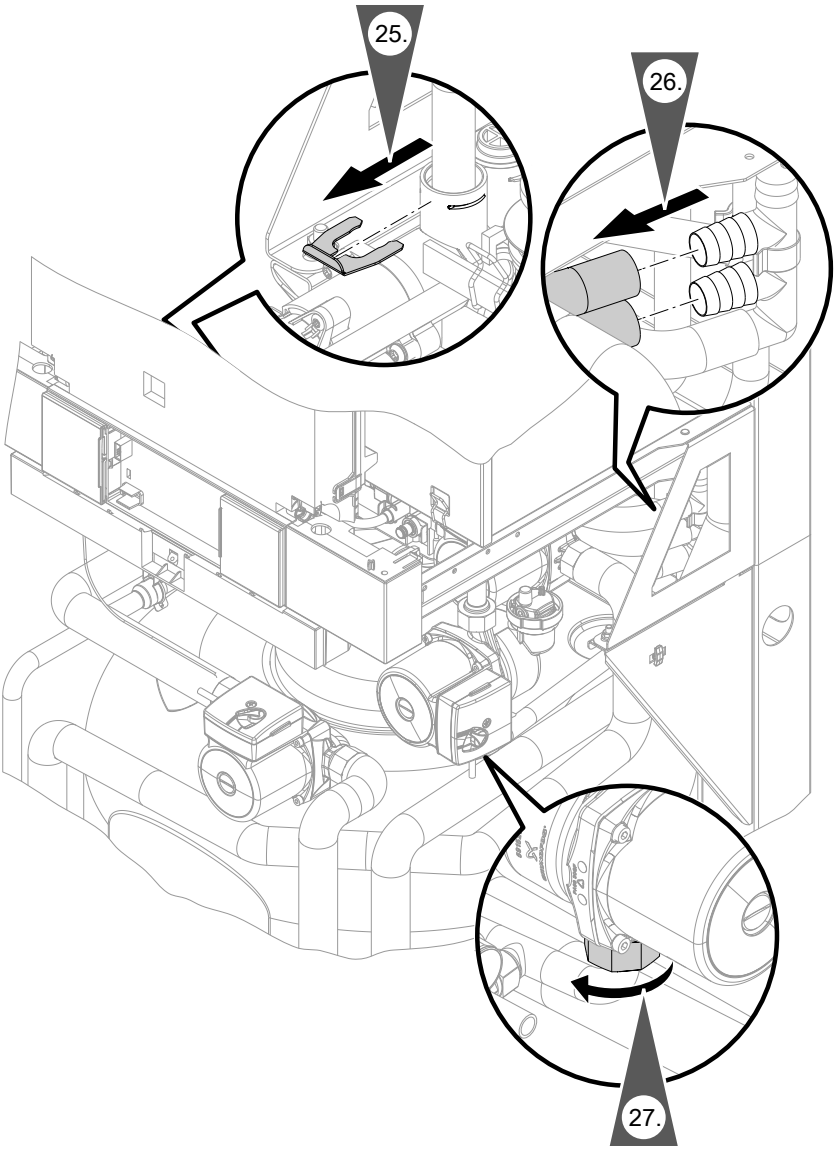
Preparing the installation (cont.)



Preparing the installation (cont.)



Preparing the installation (cont.)



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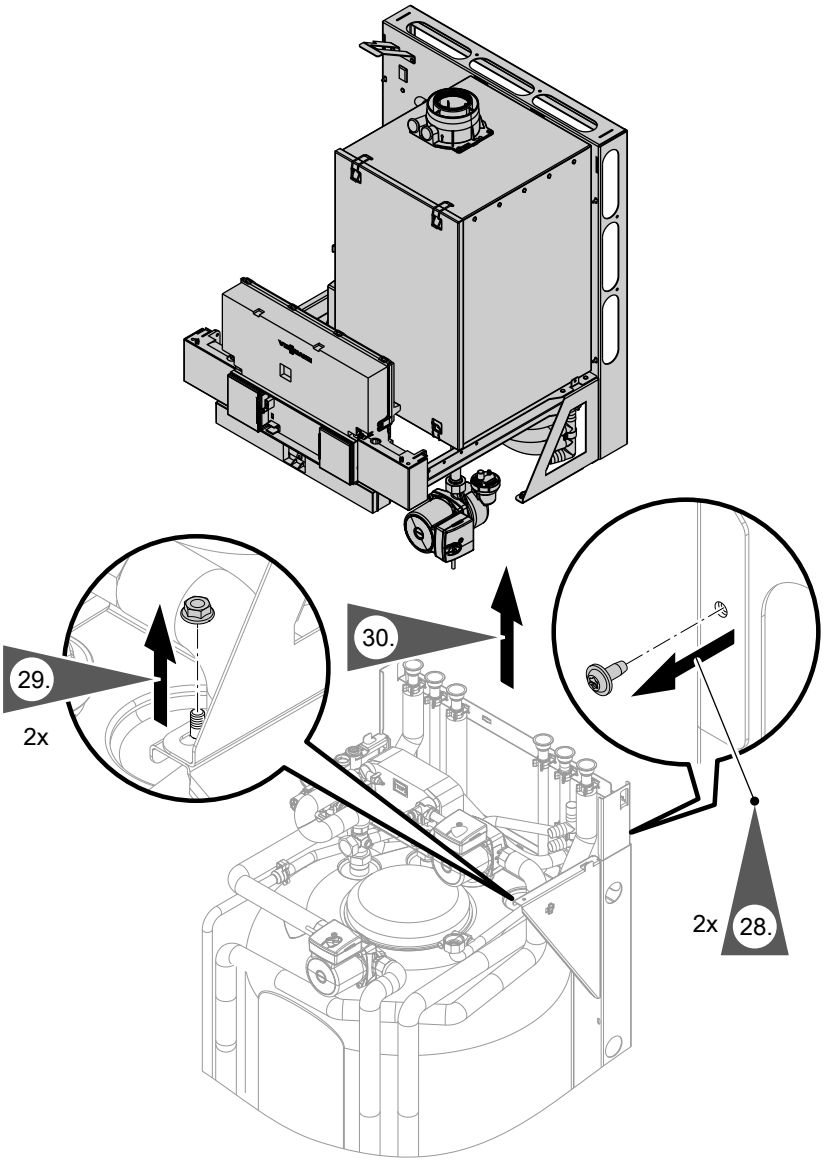
Preparing the installation (cont.)



Preparing the installation (cont.)

Siting

Required room height: at least 2100 mm

Preparing for boiler installation

Use a connection set, available as an accessory, to make the connection on the gas and water sides.

Fitting accessories
Fit all accessories that are installed at the back of the boiler (e.g. connection sets).

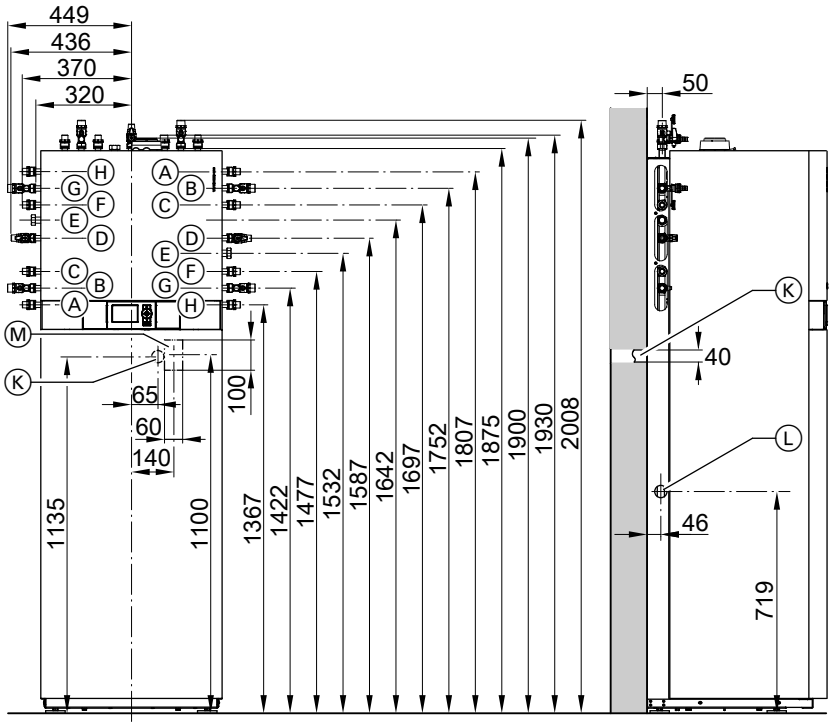
! **Please note**
Avoid device damage.
Connect all pipework free of load and torque stress.

Preparing the connections on site:

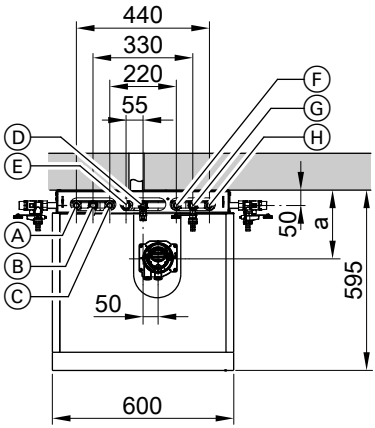

Connection set installation instructions.

Preparing the installation (cont.)

The following overview shows sample connection sets for installation on finished walls, with connection to the top or side.



Preparing the installation (cont.)



Ⓐ Solar return R¾
Ⓑ Heating flow R¾
Ⓒ DHW R½
Ⓓ Gas connection R½
Ⓔ DHW circulation R½ (separate accessory)
Ⓕ Cold water R½
Ⓖ Heating return R¾
Ⓗ Solar flow R¾
Ⓚ Condensate drain facing backwards into the wall
Ⓛ Condensate drain to the side
Ⓜ Wiring area

Rated heating output range	3.2 to 19 kW	6.5 to 26 kW
a (mm)	201	224

Note
All height dimensions have a tolerance of +15 mm due to the adjustable feet.

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

Note
Should an additional expansion vessel be required on site, connect this vessel in the heating return.

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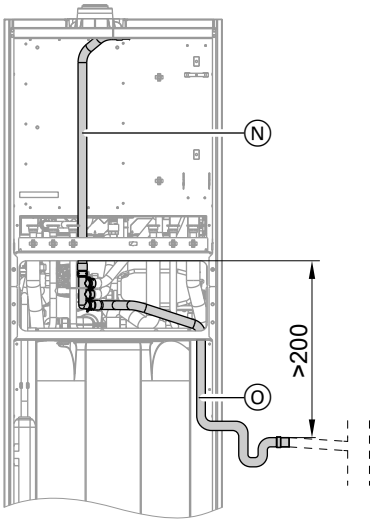
Preparing the installation (cont.)



Ⓝ Drain for DHW safety valve and/or siphon air vent valve
Ⓞ Condensate drain hose

2. Prepare the connections on the DHW side. Install the safety assembly (accessory or on-site provision) in the cold water line in accordance with DIN 1988 and EN 806 (see page 20).
Recommendation:
Install the safety valve above the DHW cylinder to protect it against contamination, scaling and high temperatures.

3. Prepare the solar connections.

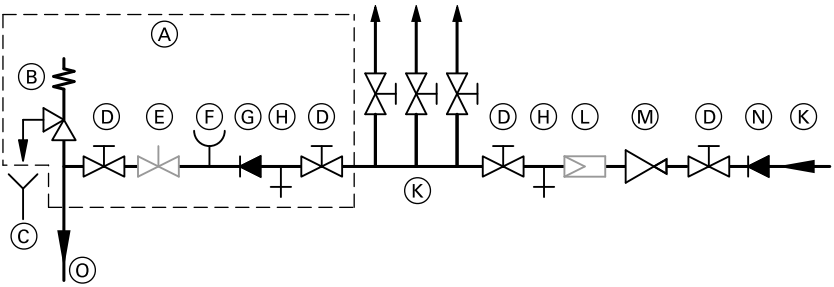
4. Prepare the condensate connection to the on-site drain line or siphon:
- Drain towards the back: See dimensions for condensate hose Ⓞ and position Ⓚ in the diagram on page 17.
- Drain towards the side aperture: See position Ⓛ in diagram on page 17.

5. Prepare the gas connection according to TRGI or TRF [or local regulations].

6. Prepare the electrical connections.
- Power cable: NYM-J 3 x 1.5 mm^2, max. fuse rating 16 A, 230 V/50 Hz.
- Accessory cables: NYM with the required number of cores for the external connections.
- Allow all cables in area Ⓜ in the diagram on page 18 to protrude 2000 mm from the wall.

Preparing the installation (cont.)

Safety assembly in accordance with DIN 1988 and EN 806 to the cold water connection



Ⓐ Safety assembly (accessory for the connection sets on unfinished walls)
Ⓑ Safety valve
Ⓒ Visible discharge pipe outlet point
Ⓓ Shut-off valve
Ⓔ Flow regulating valve (installation recommended)
Ⓕ Pressure gauge connection
Ⓖ Non-return valve
Ⓗ Drain
Ⓚ Cold water
Ⓛ Drinking water filter
Ⓜ Pressure reducer to DIN 1988-2, Dec. 1988 issue
Ⓝ Non-return valve/pipe separator
Ⓞ Cold water connection at connection set (accessories)

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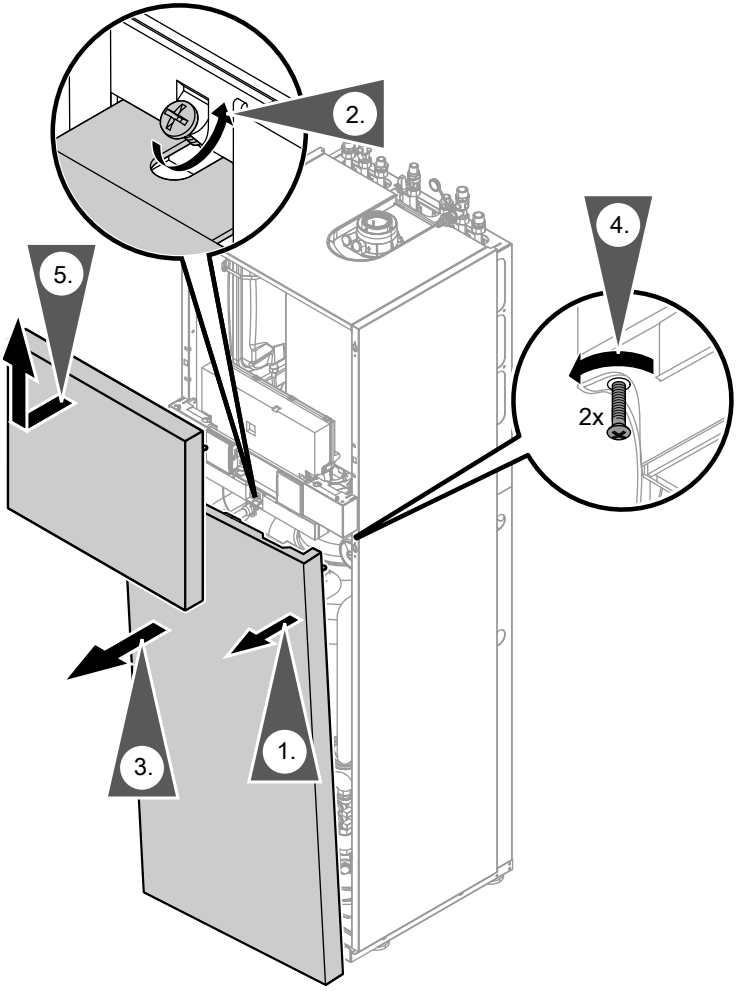
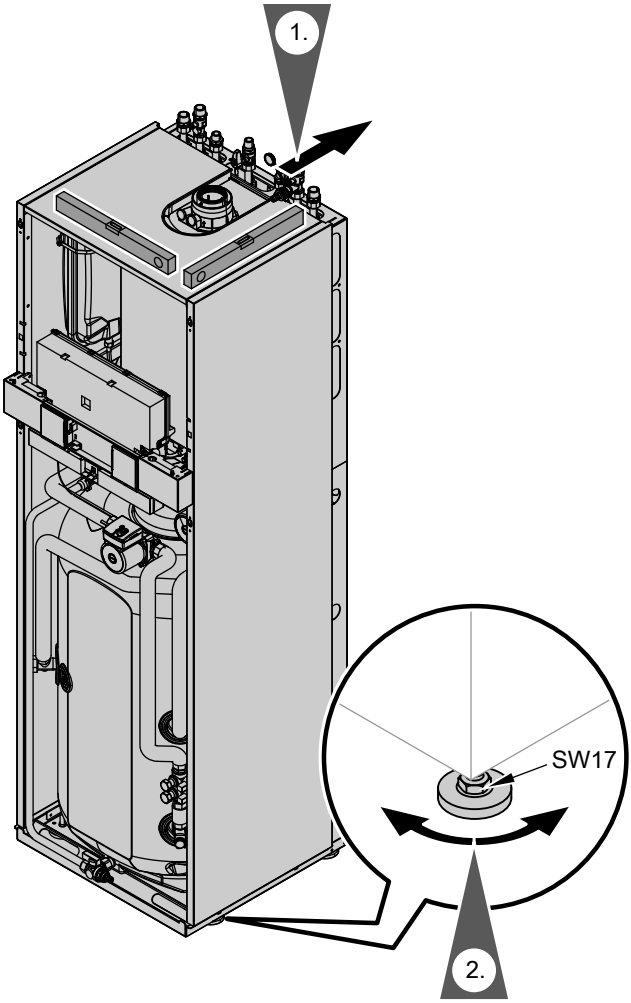
Installing the boiler

Removing the front panels



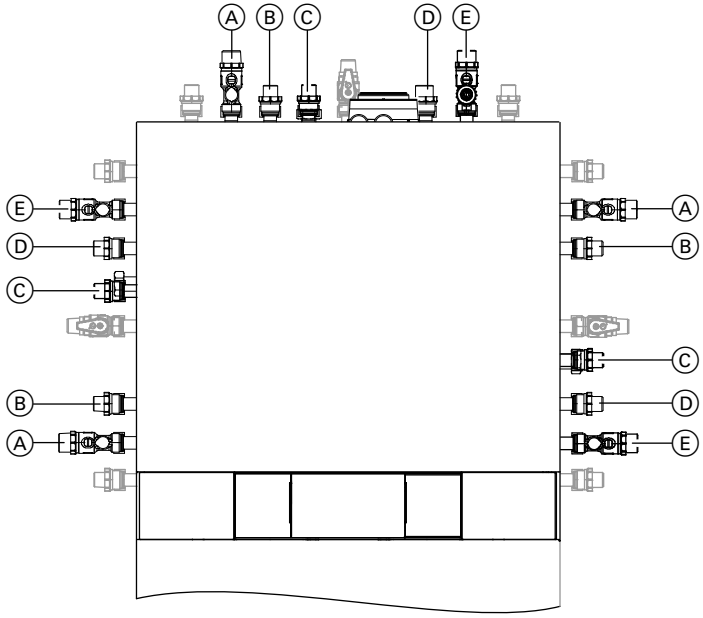
Installing the boiler (cont.)

Siting and levelling the boiler



Installing the boiler (cont.)

Connections on the heating water and the DHW side

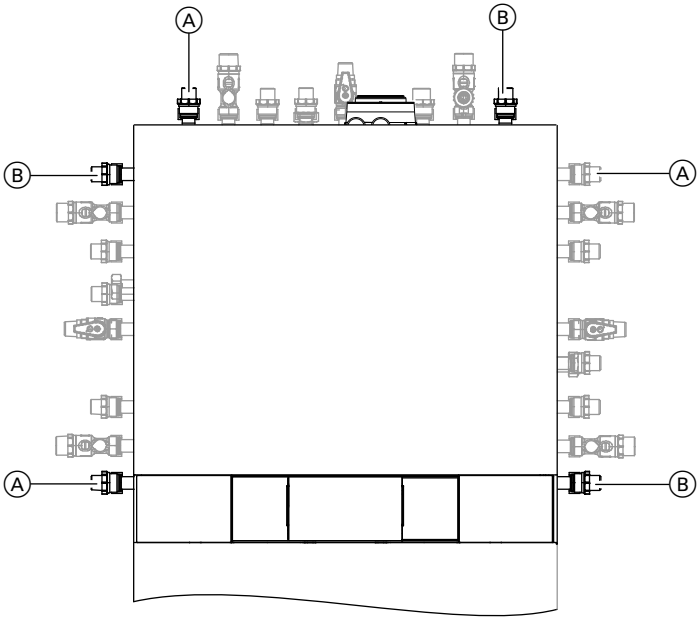


Shown with connection sets for finished walls (accessories)

Ⓐ Heating flow R¾
Ⓑ DHW R½
Ⓒ DHW circulation R½ (separate accessory)
Ⓓ Cold water R½
Ⓔ Heating return R¾

Installing the boiler (cont.)

Connections on the solar side



Shown with connection sets for finished walls (accessories)

Ⓐ Solar return R¾ or Ø 22 mm, smooth pipe

Ⓑ Solar flow R¾ or Ø 22 mm, smooth pipe

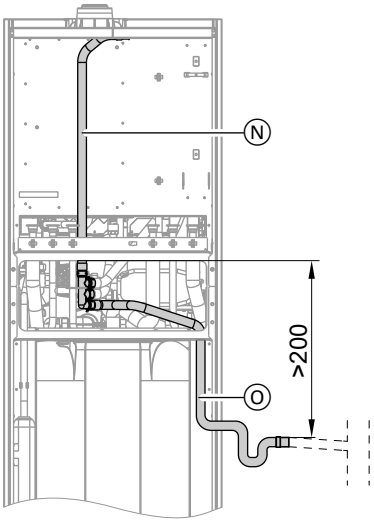
Note

- *The following components are installed inside the appliance at the factory:*
- *Circulation pump for the solar circuit.*
- *Expansion vessel in the solar return.*
- *Safety valve on the solar side.*

Install the pressure gauge for the solar circuit on site.

Installing the boiler (cont.)

Condensate connection



1. If a DHW safety valve is connected, connect hose Ⓝ to the safety valve drain.

Note
*If no DHW safety valve is connected, do **not** change the position of hose Ⓝ (serves as a vent).*

2. Route condensate hose Ⓞ to the back (drain in wall Ⓚ) or to side aperture Ⓛ (see page 16).

Note
Pull the condensate hose far enough out of the boiler that no unnecessary bends are created inside the boiler.

3. Route condensate hose Ⓜ as a U-bend and connect with a constant fall and a pipe vent to the public sewage system or to a neutralising system. If necessary, connect to an on-site siphon. Ensure this connection is secure. GB only:

- The condensate pipe is connected with the discharge pipe of the safety valve. The condensate hose supplied meets the temperature requirements that are part of the CE certification.
- We recommend connecting the condensate pipe internally to the domestic waste water system, either directly or via a tundish.
- If the condensate pipe is routed outside the building, use a pipe with min. ∅ 30 mm and protect this pipe from frost. Avoid long external pipelines.

Please note
Frozen condensate pipes can result in faults and damage to the boiler.
Always insulate condensate pipes against frost.

- Observe local building regulations.

Observe the local waste water regulations.

Note
Fill the siphon with water before commissioning.

Installing the boiler (cont.)

Flue gas connection

Note

- *The labels "System certificate" and "Skoberne GmbH flue system" enclosed with the technical documentation may only be used in conjunction with the Viessmann flue system made by Skoberne.*
- *During installation and positioning of the flue system, observe Part L and BS 5440 building regulations. (GB only)*

Connecting the balanced flue
Flue system installation instructions

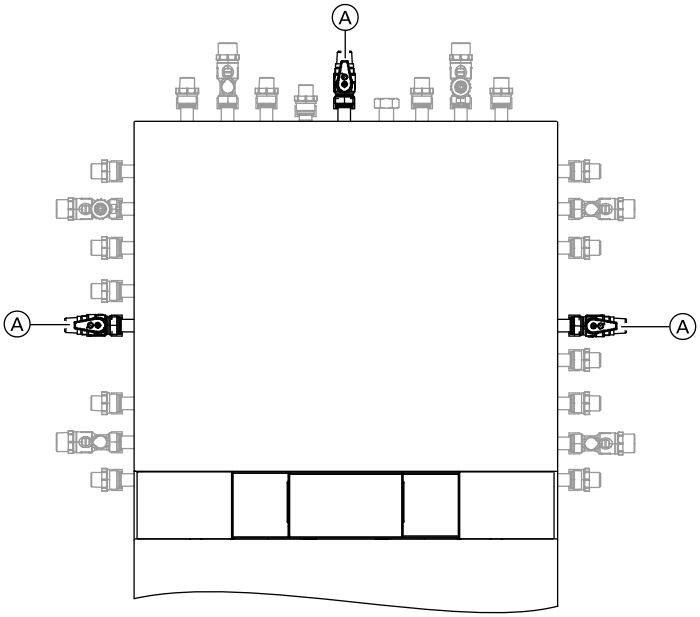
Do not carry out **commissioning** until the following conditions are met:

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

Danger
Leaking or blocked flue systems or an insufficient supply of combustion air cause life threatening poisoning due to carbon monoxide in the flue gas.
Ensure the flue system functions correctly. Apertures for combustion air supply must not be able to be closed off.

Installing the boiler (cont.)

Gas connection



Shown with connection sets for finished walls (accessories)

Ⓐ Gas connection R½

Information on operation with LPG
We recommend the installation of an external safety solenoid valve when installing the boiler in rooms below ground level.

1. Secure gas shut-off valve to gas connection Ⓐ.
2. Carry out a tightness test.

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

Installing the boiler (cont.)

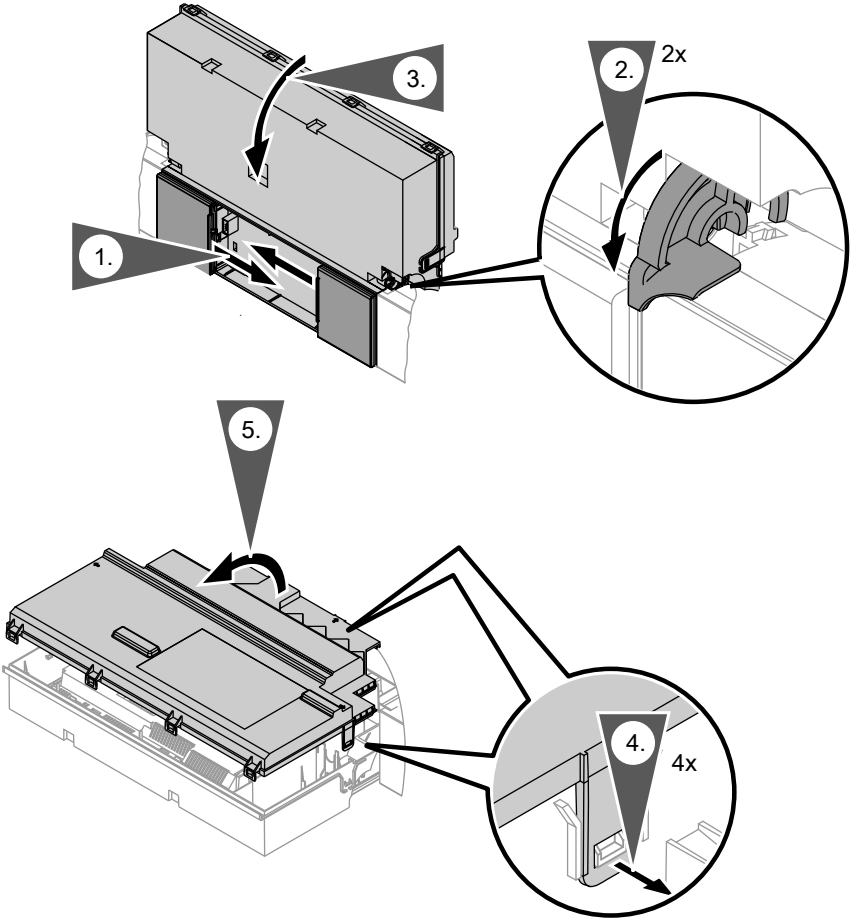
!

Please note
Excessive test pressure may damage the boiler and the gas valve.
Max. test pressure 150 mbar (15 kPa). Where higher pressure is required for tightness tests, disconnect the boiler and the gas valves from the gas supply pipe (undo the fitting).

3. Vent the gas line.

For conversion to a different gas type see page 53

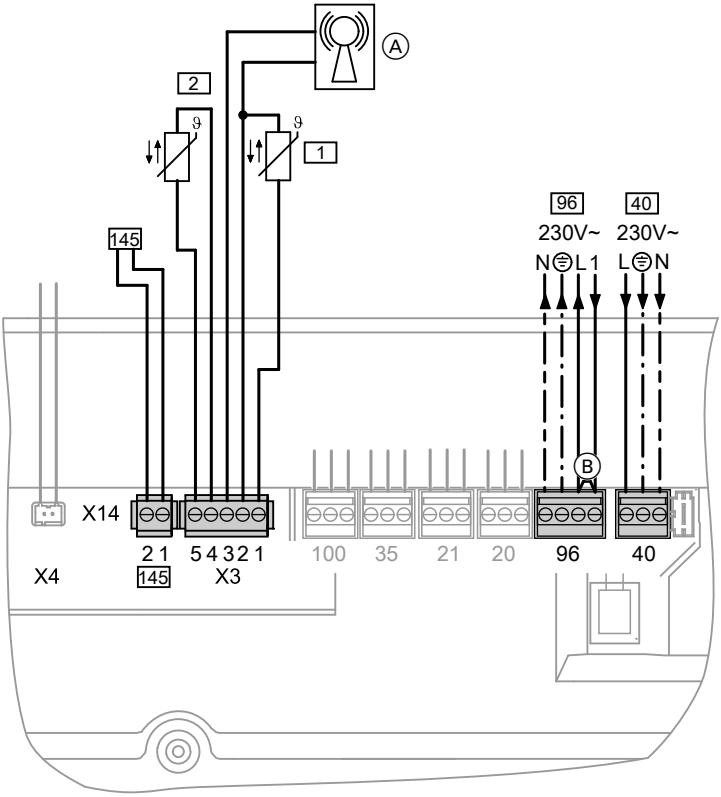
Opening the control unit casing



Electrical connections

Please note
Electronic assemblies can be damaged by electrostatic discharge.

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



Ⓐ Radio clock receiver

Ⓑ Jumper

Connections to 230 V~ plug

40 Power supply

96 ■ Power supply for accessories
■ External demand/blocking

Connections to LV plug

X3 Plug X3 can be removed to facilitate installation.
- 1 Outside temperature sensor
- 2 Flow temperature sensor for low loss header (accessories)
- Ⓐ Radio clock receiver

145 KM BUS subscriber (accessories)

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Electrical connections (cont.)

To connect several accessories, see page 35.

- Vitotrol 200A or 300A remote control
- Vitocom 100, type GSM
- Extension kit for one heating circuit with mixer
- Extension AM1
- EA1 extension
- Wireless base station
- KM BUS distributor

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

Outside temperature sensor 1

For fitting the wireless outside temperature sensor (wireless accessory):

Wireless base station installation and service instructions

Fitting location for outside temperature sensor

- North or north-western wall, 2 to 2.5 m above ground level; in multi storey buildings, in the upper half of the second floor
- Not above windows, doors or vents
- Not immediately below balconies or gutters
- Never render over

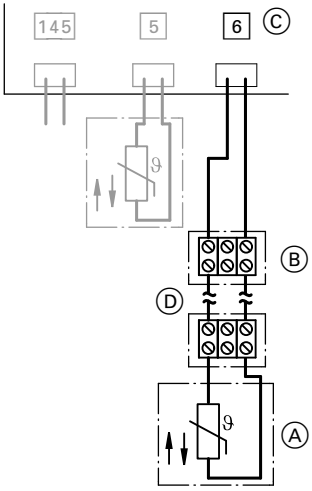
Outside temperature sensor connection

2-core lead, length max. 35 m with a cross-section of 1.5 mm^2

Connecting the collector temperature sensor

Note
Solar control module Ⓒ is secured to the l.h. side of the air box.

Electrical connections (cont.)



Connect collector temperature sensor Ⓐ to terminal box Ⓑ with the prefitted lead of SM1 solar control module Ⓒ. On-site extension cable Ⓓ: 2-core, cross-section of 1.5 mm^2.

Note
Cylinder temperature sensor 5 is connected at the factory.

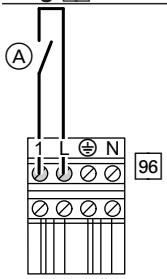
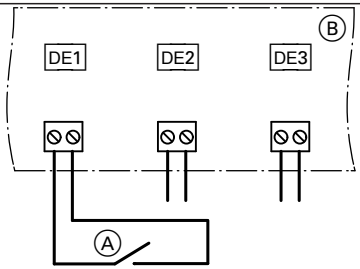
External demand via switching contact

Connection options:
- Extension EA1 (accessory, see separate installation instructions).
- Plug 96.

Burner operation is load-dependent if the contact is closed. The boiler water is heated to the value set in coding address "9b" in group **"General"/1**. The boiler water temperature is limited by this set value and the electronic maximum limit (coding address "06" in group **"Boiler"/2**).

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free** and comply with the requirements of safety category II.

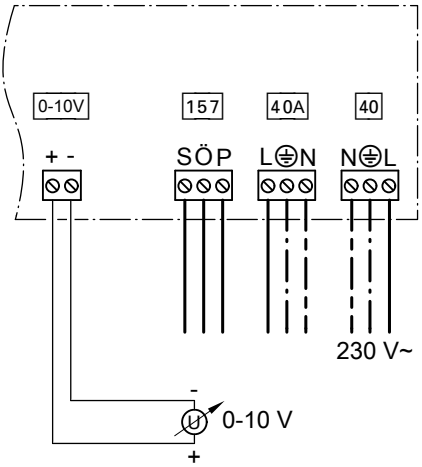
Electrical connections (cont.)

Plug 96	Extension EA1
	
Ⓐ Floating contact (when connecting, remove jumper across L and 1)	Ⓐ Floating contact Ⓑ Extension EA1
Codes ■ "4b:1" in group **"General"/1**. ■ Effect of the function on the relevant heating circuit pump: Coding address "d7" in group **"Heating circuit"** (only with weather-compensated control units). ■ Effect of the function on the circulation pump for cylinder heating (if installed): Coding address "5F" in group **"DHW"/3**.	**Codes** ■ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) in group **"General"/1** to 2. ■ Effect of the function on the relevant heating circuit pump: Coding address "d7" in group **"Heating circuit"** (only with weather-compensated control units). ■ Effect of the function on the circulation pump for cylinder heating (if installed): Coding address "5F" in group **"DHW"/3**.

External demand via 0 – 10 V input

Connection at 0 – 10 V input to **extension EA1**.
Ensure DC separation between the earth conductor and the negative pole of the on-site voltage source.

Electrical connections (cont.)



0 – 1 V ≙ No default set boiler water temperature
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C

External blocking via switching contact

Connection options:
- Plug 96.
- Extension EA1 (accessory, see separate installation instructions).

The burner is switched off if this contact is closed. The heating circuit pump and (if installed) the circulation pump for cylinder heating are switched according to the set code (see following table "Codes").

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free** and comply with the requirements of safety category II.

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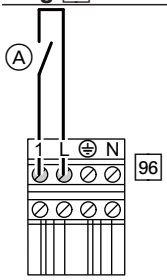
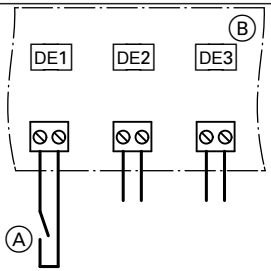
Electrical connections (cont.)

Plug 96	Extension EA1
	
Ⓐ Floating contact (when connecting, remove jumper across L and 1)	Ⓐ Floating contact Ⓑ Extension EA1
Codes ■ "4b:2" in group **"General"/1** ■ Effect of the function on the heating circuit pump: Coding address "d6" in group **"Heating circuit"** (only with weather-compensated control units). ■ Effect of the function on the circulation pump for cylinder heating (if installed): Coding address "5E" in group **"DHW"/3**.	**Codes** ■ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) in group **"General"/1** to 3 or 4. ■ Effect of the function on the heating circuit pump: Coding address "d6" in group **"Heating circuit"** (only with weather-compensated control units). ■ Effect of the function on the circulation pump for cylinder heating (if installed): Coding address "5E" in group **"DHW"/3**.

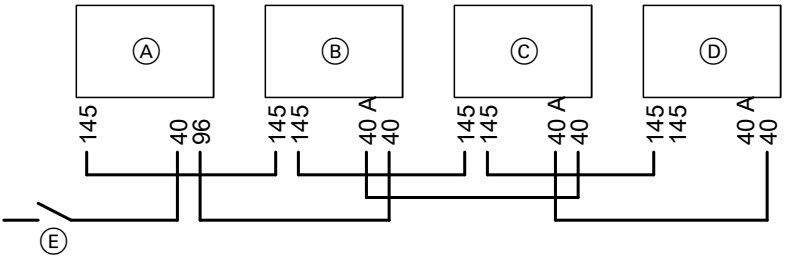
Power supply for accessories at plug 96 (230 V~)

Where the boiler is installed in a wet area, the power supply connection for accessories must not be made at the control unit. If the boiler is installed outside wet areas, then the power supply connection for accessories can be made directly at the control unit. This connection is switched directly with the ON/OFF switch of the control unit.

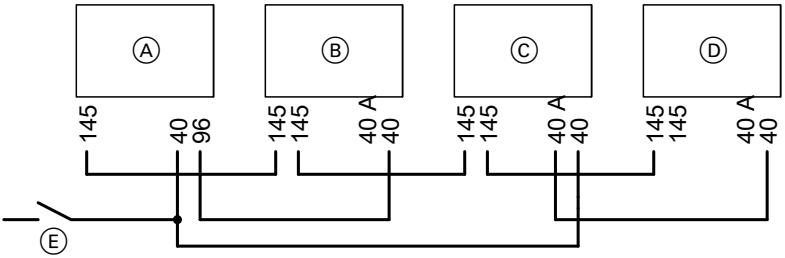
If the total system current exceeds 6 A, connect one or more extensions via an ON/OFF switch directly to the mains supply (see next chapter).

Electrical connections (cont.)

Power supply to all accessories via heat source control unit



Some accessories with direct power supply



Ⓐ Heat source control unit
Ⓑ Extension kit for heating circuit with mixer M2
Ⓒ Extension kit for heating circuit with mixer M3
Ⓓ Extensions AM1 or EA1
Ⓔ ON/OFF switch

The output concerned should only be used to control an on-site relay if the current flowing to the connected working parts (e.g. circulation pumps) is higher than the safety level of the relevant accessory.

Accessories	Internal fuse protection
Extension kit for heating circuit with mixer	2 A
Extension AM1	4 A
Extension EA1	2 A

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Electrical connections (cont.)

Power supply 40

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

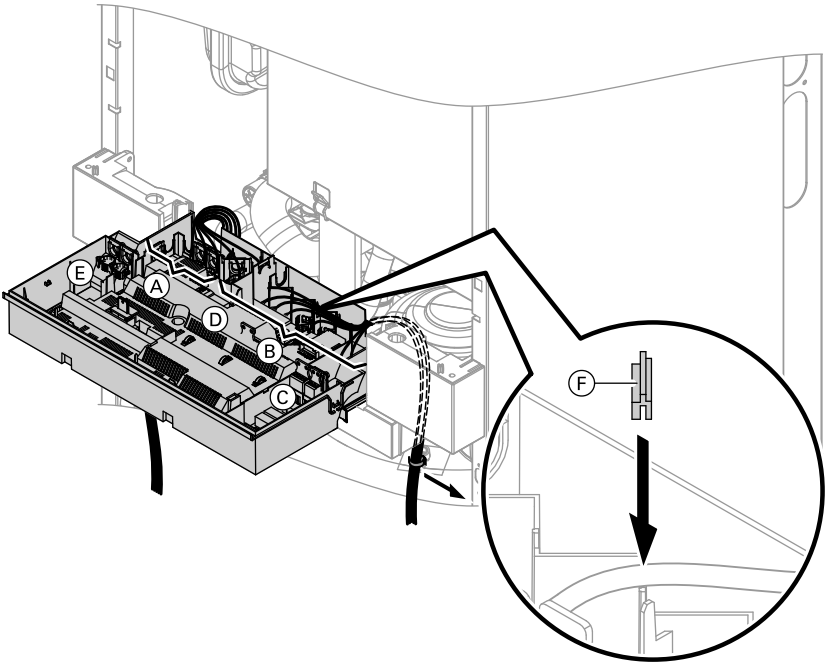
- Remove existing wires from plug 40.
- Install an isolator in the power cable which simultaneously separates all non-earthed conductors from the mains with contact separation of at least 3 mm.
  In addition, we recommend the installation of an AC/DC-sensitive RCD (RCD class B) for DC (fault) currents that can be created by energy efficient equipment.
- Max. fuse rating 16 A.

Electrical connections (cont.)

Routing the connecting cables

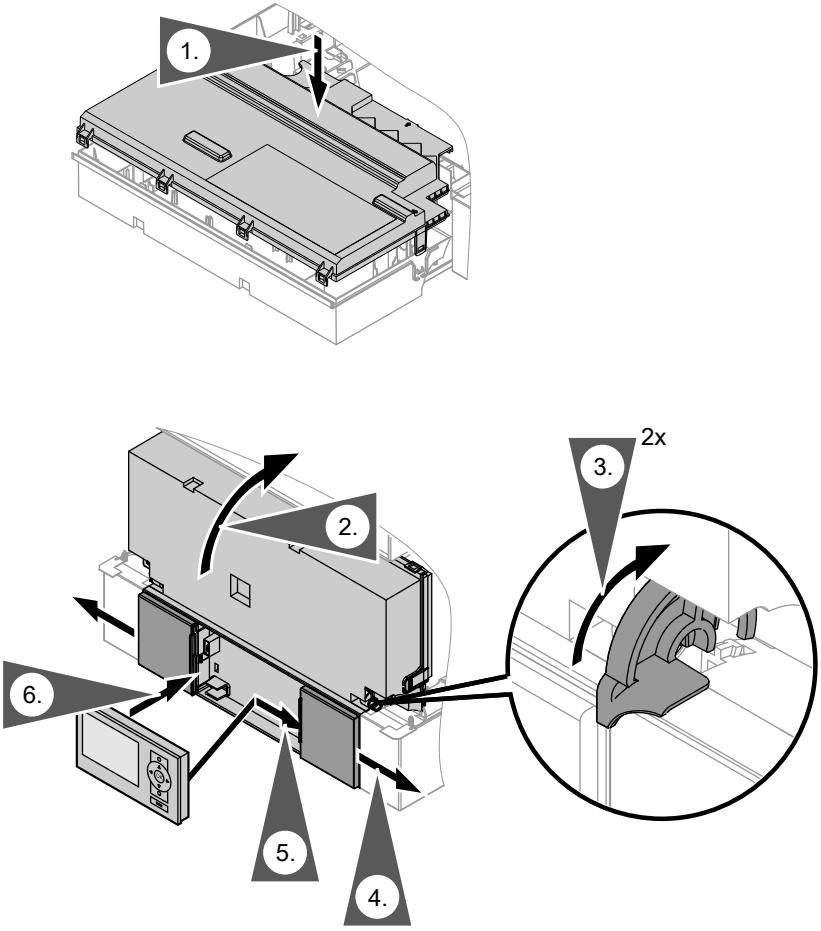
! **Please note**
Connecting cables will be damaged if they touch hot components.

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



Ⓐ LV connections
Ⓑ 230 V connections
Ⓒ Internal extension
Ⓓ Main PCB
Ⓔ Communication module (accessories)
Ⓕ Cable grommet for power cable

Closing the control unit casing



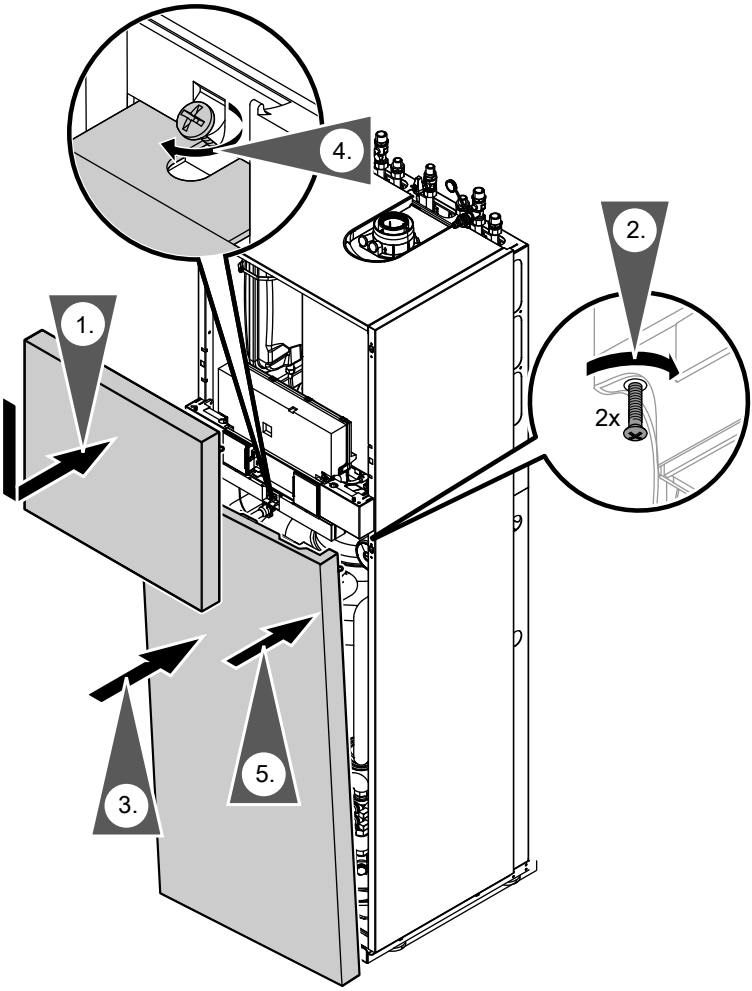
Closing the control unit casing (cont.)

Insert programming unit (packed separately) into the control unit support.

Note
The programming unit can also be inserted into a wall mounting base (accessories) near the boiler.


Wall mounting base installation instructions

Fitting the front panels



Steps - commissioning, inspection and maintenance

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

Commissioning steps	Inspection steps	Maintenance steps		Page
	•	•	**1. Removing the front panels**	45
•			**2. Checking the power supply**	
•			**3. Filling the heating system**	45
•			**4. Filling the cylinder on the DHW side**	47
•			**5. Switching on the power supply and ON/OFF switch**	
•			**6. Changing the language**	47
•			**7. Setting the time and date**	47
•			**8. Note on automatic testing of the flue gas temperature sensor**	48
•			**9. Venting the boiler**	48
•			**10. Venting the heating system**	49
•			**11. Filling the siphon with water**	50
•			**12. Filling the solar circuit**	51
•	•	•	**13. Checking all connections on the heating water side and DHW side for leaks**	
•			**14. Designating the heating circuits**	52
•		•	**15. Checking the gas type**	52
•			**16. Gas type conversion (only for operation with LPG)**	53
•	•	•	**17. Checking the static and supply pressure**	53
•	•	•	**18. Function sequence and possible faults**	55
•			**19. Setting the max. heating output**	57
•		•	**20. Tightness test, balanced flue system (annular gap check)**	58
		•	**21. Burner removal**	59
	•	•	**22. Checking the burner gasket and burner gauze assembly**	60

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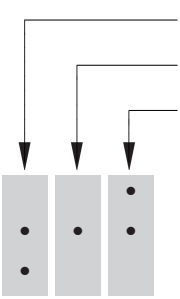
Steps - commissioning, inspection and maintenance

Commissioning steps	Inspection steps	Maintenance steps		Page
		•	**23. Checking and adjusting the ignition and ionisation electrodes**	61
		•	**24. Cleaning the heating surfaces**	61
	•	•	**25. Checking the condensate drain and cleaning the siphon**	62
	•	•	**26. Installing the burner**	63
		•	**27. Checking the neutralising system (if installed)**	
•			**28. Checking the anode connection**	64
		•	**29. Testing the anode earth current with an anode tester**	65
		•	**30. Draining the boiler on the DHW side**	66
		•	**31. Cleaning the primary store**	67
		•	**32. Checking and replacing the magnesium anode (if required)**	68
		•	**33. Re-assembling and filling the primary store**	68
	•	•	**34. Checking the diaphragm expansion vessel and system pressure**	69
		•	**35. Checking the pre-charge pressure and the DHW expansion vessel (if installed)**	70
•	•	•	**36. Checking the function of safety valves**	
•	•	•	**37. Checking firm seating of electrical connections**	
•	•	•	**38. Checking all gas equipment for tightness at operating pressure**	70
•		•	**39. Checking the combustion quality**	71
•	•	•	**40. Checking the flue system for unrestricted flow and tightness**	
•	•	•	**41. Checking the external LPG safety valve (if installed)**	
•			**42. Matching the control unit to the heating system**	72
•			**43. Adjusting the heating curves**	78
•			**44. Connecting the control unit to the LON**	81

Steps - commissioning, inspection and… (cont.)



Page

Further details regarding the individual steps

Removing the front panels

See page 21.

Filling the heating system

Fill water

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

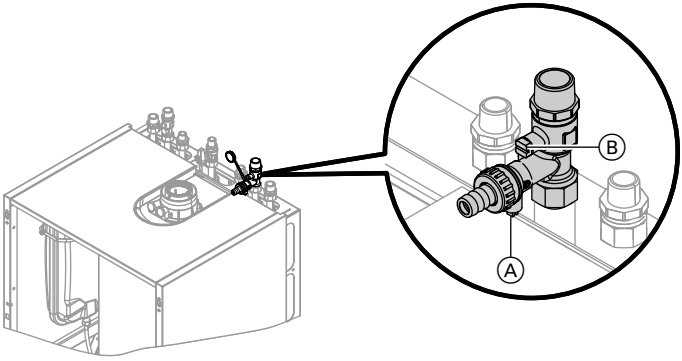
- Flush the heating system thoroughly before filling.
- Only use fill water of potable quality.
- An antifreeze additive suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.
- Fill and top-up water with a water hardness in excess of the following values must be softened, e.g. with a small softening system for heating water.

Total permissible hardness of the fill and top-up water

Total heating output	Specific system volume (Conversion rate 1 mol/m³ = 100 ppm)		
kW	**< 20 l/kW**	**≥ 20 l/kW to < 50 l/kW**	**≥ 50 l/kW**
≤ 50	≤ 3.0 mol/m³	≤ 2.0 mol/m³	< 0.02 mol/m³
> 50 to ≤ 200	≤ 2.0 mol/m³	≤ 1.5 mol/m³	< 0.02 mol/m³
> 200 to ≤ 600	≤ 1.5 mol/m³	≤ 0.02 mol/m³	< 0.02 mol/m³
> 600	< 0.02 mol/m³	< 0.02 mol/m³	< 0.02 mol/m³

Conversion rate 1 mol/m3 = 100ppm

Further details regarding the individual steps (cont.)



Shown with connection set for finished walls (accessories)

1. Check the pre-charge pressure of the diaphragm expansion vessel. See page 69.

2. Close the gas shut-off valve.

3. Open shut-off valves Ⓑ on the heating water side.

4. Fill the heating system via boiler drain & fill valve Ⓐ in the heating return (depending on the connection set either on the side or above the boiler).

   - Minimum system pressure > 1.0 bar (0.1 MPa).
   - Permissible operating pressure 3.0 bar (0.3 MPa).

   Note
   If the control unit has not been switched on prior to filling the system, then the servomotor of the diverter valve will still be in its central position, and the system will be completely filled.

5. If the control unit had already been switched on before filling began: Switch control unit ON and activate fill program (see next chapter).

   Note
   If the control unit has not been switched on prior to filling the system, then the servomotor of the diverter valve will still be in its central position, and the system will be completely filled.

6. Close boiler drain & fill valve Ⓐ.

Activating the filling function

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Filling"**
   Filling function is enabled.
4. Ending filling function:
   Press **OK** or ⮌.

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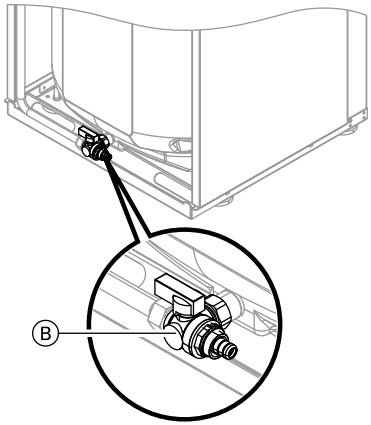
Further details regarding the individual steps (cont.)

Filling the cylinder on the DHW side



1. Lever on valve Ⓑ must be in the "left" position.
2. Open on-site DHW supply and a DHW draw-off point.
3. Once air stops coming out of the DHW draw-off point, the DHW cylinder is completely filled.

Changing the language

At the commissioning stage, the display is in German (factory setting).

Extended menu:
1. ☰
2. **"Einstellungen"**
3. **"Sprache"**
4. Select the required language with ▲/▼.

Sprache	
Deutsch	DE ☑
Bulgarski	BG ☐
Cesky	CZ ☐
Dansk	DK ☐
Wählen mit	▲▼

Setting the time and date

The time and date need to be reset during commissioning or after a prolonged time out of use.

Extended menu:
1. ☰
2. **"Settings"**
3. **"Time / Date"**
4. Set current time and date.

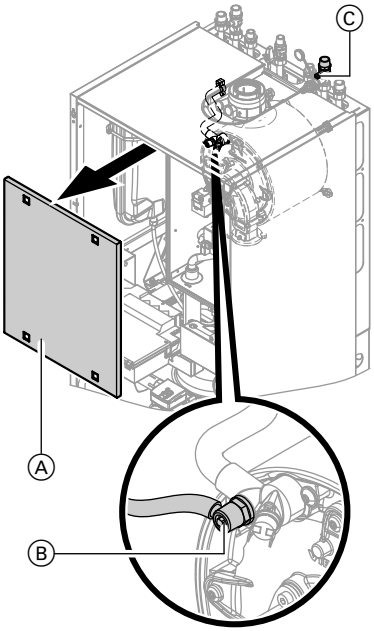
Further details regarding the individual steps (cont.)

Note on automatic testing of the flue gas temperature sensor

As soon as the time and date have been set, the control unit automatically checks the function of the flue gas temperature sensor.
The display shows: **"Flue gas temp sensor test"** and **"Active"**.

Note
If the flue gas temperature sensor is incorrectly positioned, commissioning will be cancelled and fault message A3 will be shown (see page 145).

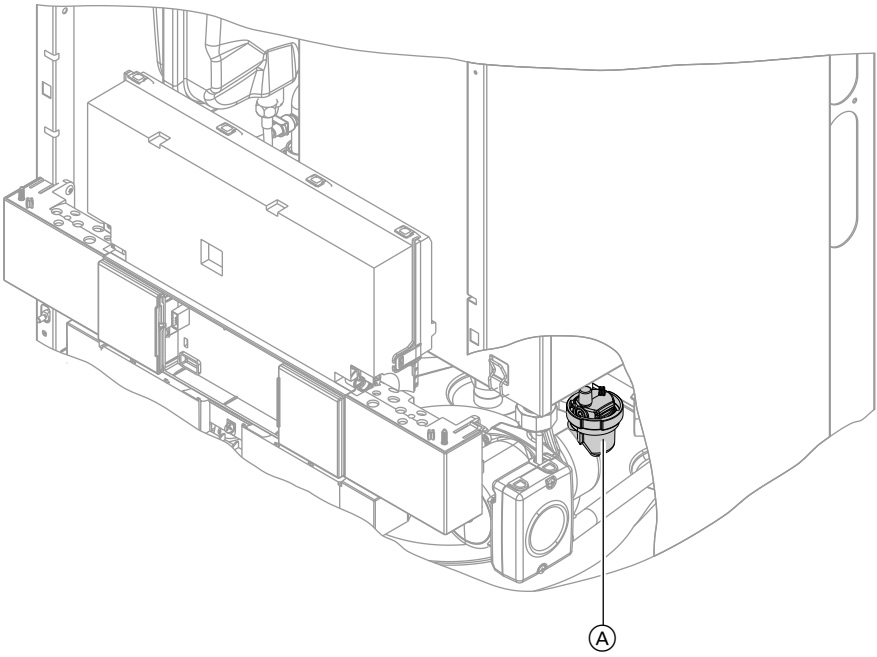
Venting the boiler



1. Close the shut-off valves on the heating water side.
2. Remove cover panel Ⓐ.
3. Push the drain hose onto air vent valve Ⓑ and connect to a drain.
4. Open air vent valve Ⓑ and fill valve Ⓒ in the heating return and vent using mains pressure (flush) until no more air noise can be heard.
5. First close air vent valve Ⓑ.
6. When the required operating pressure has built up, close fill valve Ⓒ. Open the shut-off valves on the heating water side.
7. Remove drain hose from air vent valve Ⓑ and retain.

Further details regarding the individual steps (cont.)

Venting the heating system



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

2. Check whether the air vent screw in quick-action air vent valve Ⓐ of the heating circuit pump is open.

3. Activate venting program (see next chapter).

Note
For function and sequence of the venting program, see page 162.

4. Check the system pressure.

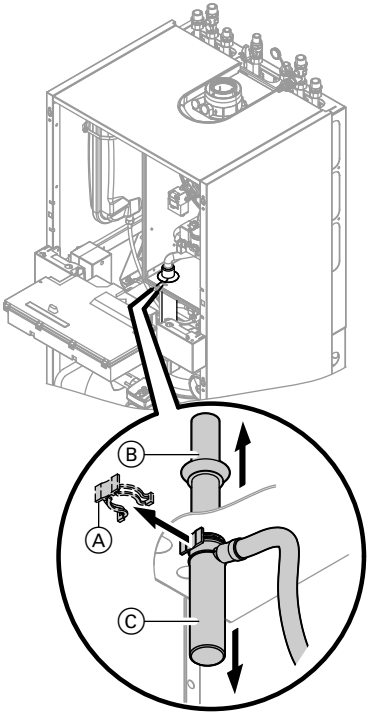
5. Open the gas shut-off valve.

Activating the venting function

Service menu
1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Venting"**
   Venting function is enabled.
4. Ending venting function:
   Press **OK** or ⮌.

Further details regarding the individual steps (cont.)

Filling the siphon with water



1. Pivot control unit forward.
2. Remove retaining clip Ⓐ.
3. Pull filler pipe Ⓑ upwards.
4. Remove trap Ⓒ downwards.
5. Fill siphon with water and refit.
6. Check that the condensate pipe is connected correctly to the siphon and heat exchanger.

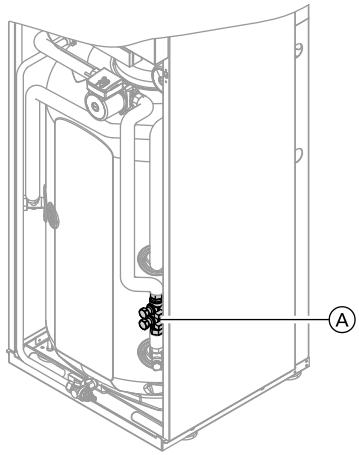
   Note
   Route the drain hose without any bends and with a constant fall.

7. Refit cover panel.
8. Secure control unit back into the operating position.

Further details regarding the individual steps (cont.)

Filling the solar circuit

Solar thermal system installation and service instructions



Ⓐ Solar circuit fill valve

Please note
Overheated collector areas and overheated heat transfer medium can cause burns/scalding and equipment damage.
When working on the collector and the solar circuit, protect the collector area against solar irradiation.

1. Thoroughly flush the on-site pipework.
2. Fill solar circuit with "Tyfocor LS" via fill valve Ⓐ.
   - Minimum system pressure: 1.7 bar (0.17 MPa)
   - Permissible operating pressure: 6 bar (0.6 MPa)

   Please note
   To prevent appliance damage, only use "Tyfocor LS". Never fill with water.
3. Close ball valve in fill valve Ⓐ.
4. Open the air vent valve at the solar collector.
5. Start the solar circuit pump via the actuator test (see page 123).
6. Let the solar circuit pump run until the solar circuit is fully vented. If the system pressure is below 1.7 bar (0.17 MPa), add more "Tyfocor LS".
7. Close the air vent valve at the solar collector.
8. Check system pressure. If the system pressure is below 1.7 bar (0.17 MPa), add more "Tyfocor LS".

Further details regarding the individual steps (cont.)

Designating the heating circuits

In the delivered condition, the heating circuits are designated **"Heating circuit 1"**, **"Heating circuit 2"** and **"Heating circuit 3"** (if installed).
If the system user prefers, the heating circuits can be designated differently to suit the specific system.

Enter names for heating circuits:
Operating instructions

Checking the gas type

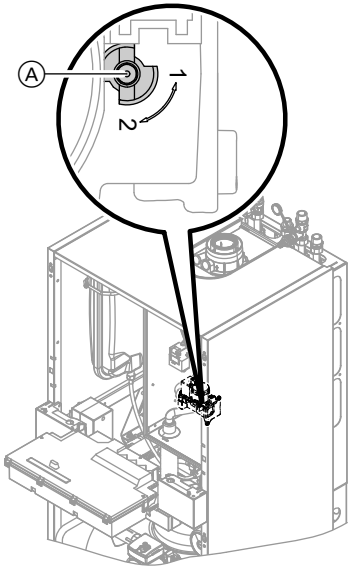
The boiler is equipped with an electronic combustion controller that adjusts the burner for optimum combustion in accordance with the prevailing gas quality.

- For operation with natural gas no adjustment is therefore required across the entire Wobbe index range. The boiler can be operated in the Wobbe index range 9.5 to 15.2 kWh/m^3 (34.2 to 54.7 MJ/m^3).
- For operation with LPG the burner must be converted (see "Gas type conversion" on page 53).

1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. For operation with LPG, convert the burner (see page 53).
3. Record the gas type in the report on page 193.

Further details regarding the individual steps (cont.)

Gas type conversion (only for operation with LPG)



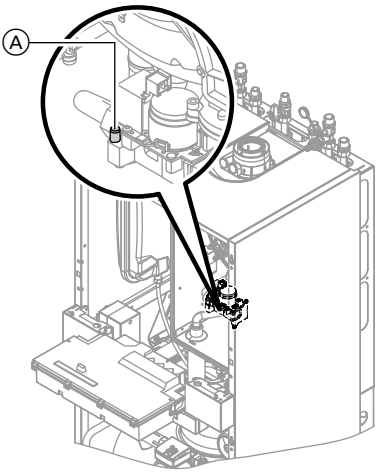
1. Set adjusting screw Ⓐ on the gas train to "2".
2. Turn on ON/OFF switch ⏻.
3. Select the gas type in coding address "82":
   - Call up code 2
   - **"General"**
   - Select coding address "11" and value "9". Confirm with **OK**. The display shows "11:0".
   - Select coding address "82" and value "1" (LPG operation). Confirm with **OK**.
   - Select coding address "11" and value ≠ "9". Confirm with **OK**. The display shows "11:0".
   - End service functions.
4. Open the gas shut-off valve.
5. Affix label "G31" (supplied with the technical documentation) adjacent to the type plate on the cover panel.

Checking the static and supply pressure

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

Operation with LPG
Flush the LPG tank twice during commissioning or replacement. Vent the tank and gas connection line thoroughly after flushing.

Further details regarding the individual steps (cont.)



1. Close the gas shut-off valve.

2. Loosen the screw inside test connector "PE" Ⓐ at the gas train but do not remove it; then connect the pressure gauge.

3. Open the gas shut-off valve.

4. Check the static pressure and record the actual value in the report on page 193.
   Set value: max. 57.5 mbar (5.75 kPa).

5. Start the boiler.

   Note
   During commissioning, the boiler can enter a fault state (fault EE is displayed) because of air in the gas line. After approx. 5 s, press reset button ***R*** *(see operating instructions) to reset the burner.*

6. Check the supply (flow) pressure.

   Set value:
   - Natural gas: 20 mbar (2.0 kPa)
   - LPG: 50 mbar (5.0 kPa)

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

7. Record the actual value in the report on page 193.
   Take action as shown in the following table.

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

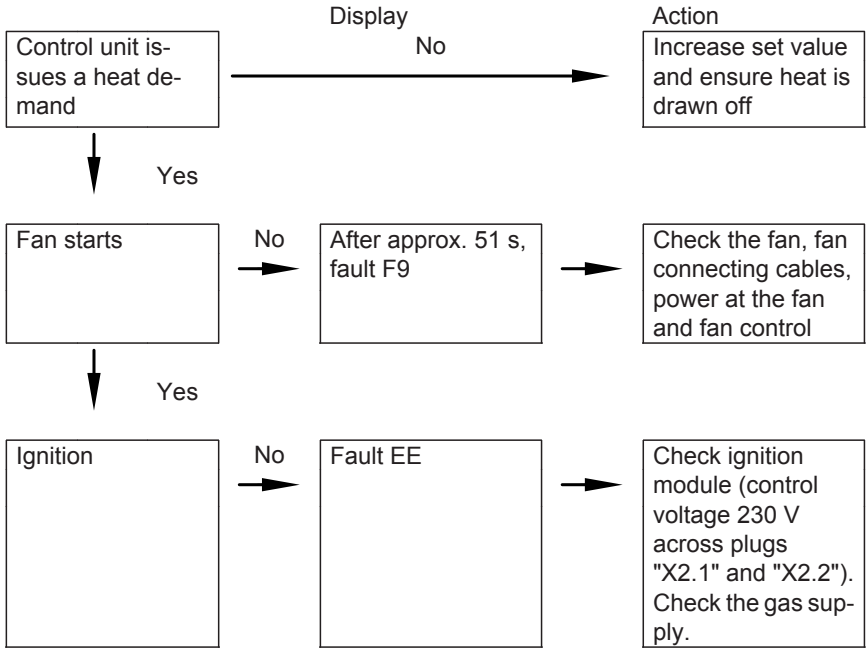
9. Open the gas shut-off valve and start the appliance.

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

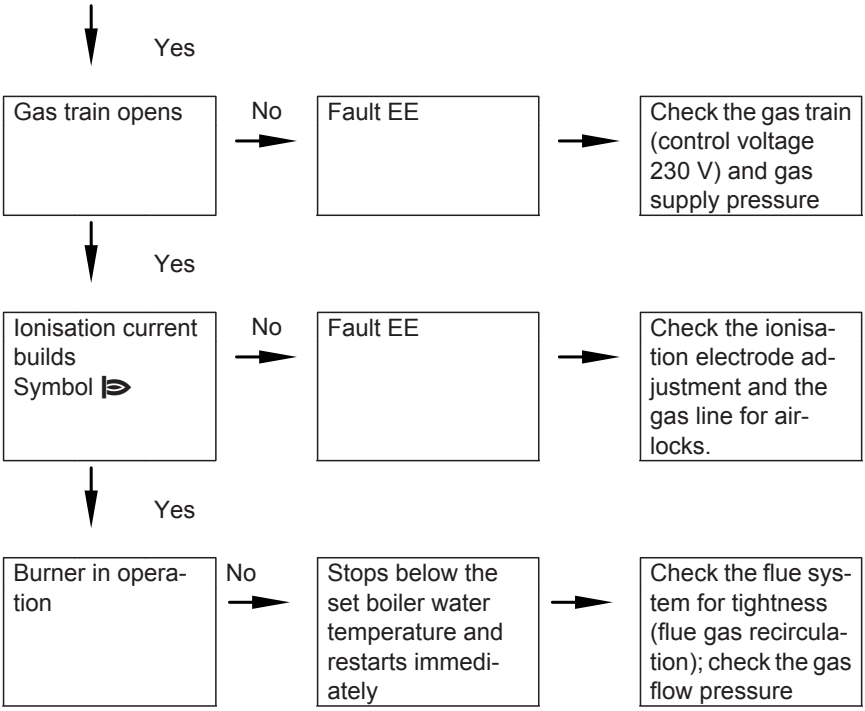
Further details regarding the individual steps (cont.)

Supply pressure (flow pressure)		Action
For natural gas	**For LPG**	
Below 17.4 mbar (1.74 kPa)	Below 42.5 mbar (4.25 kPa)	Do not start the boiler. Notify your gas supply utility or LPG supplier.
17.4 to 25 mbar (1.74 to 2.5 kPa)	42.5 to 57.5 mbar (4.25 to 5.75 kPa)	Start the boiler.
Above 25 mbar (2.5 kPa)	Above 57.5 mbar (5.75 kPa)	Install a separate gas pressure governor upstream of the system and regulate the pre-charge pressure to 20 mbar (2.0 kPa) for natural gas or 50 mbar (5.0 kPa) for LPG. Notify your gas supply utility or LPG supplier.

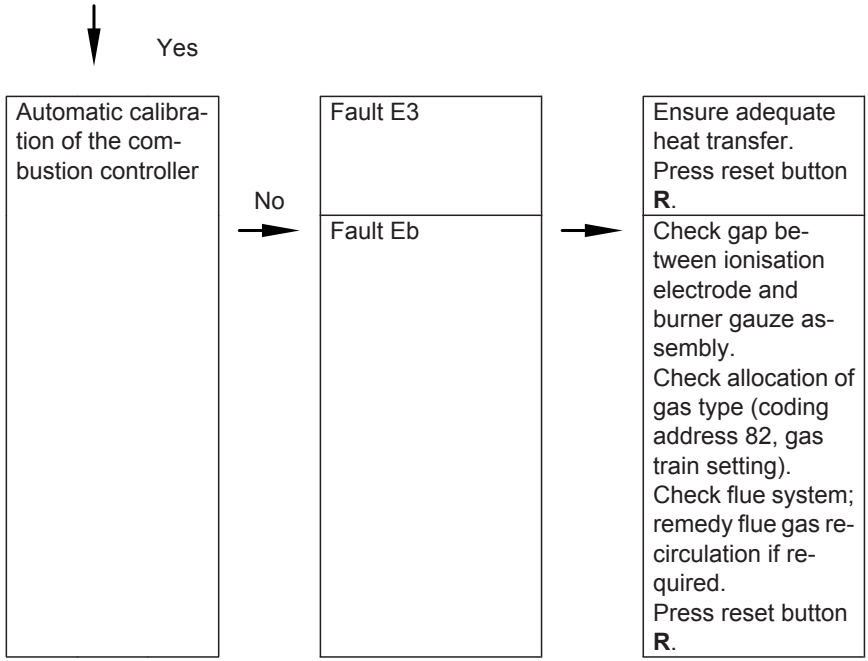
Function sequence and possible faults



Further details regarding the individual steps (cont.)



Further details regarding the individual steps (cont.)



For further details regarding faults, see page 124.

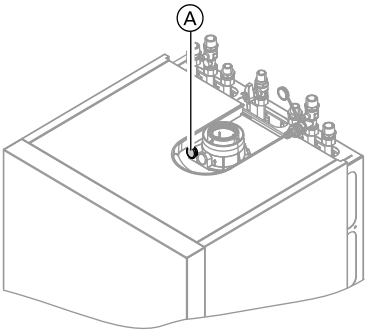
Setting the max. heating output

The maximum output for **heating operation** can be limited. The limit is set via the modulation range. The max. adjustable output is limited upwards by the boiler coding card.

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Max. output"**
4. **"Change?"** Select **"Yes"**.
   A value is shown on the display (e.g. **"85"**). In the delivered condition, this value represents 100 % of rated heating output.
5. Set the required value.

Further details regarding the individual steps (cont.)

Tightness test, balanced flue system (annular gap check)



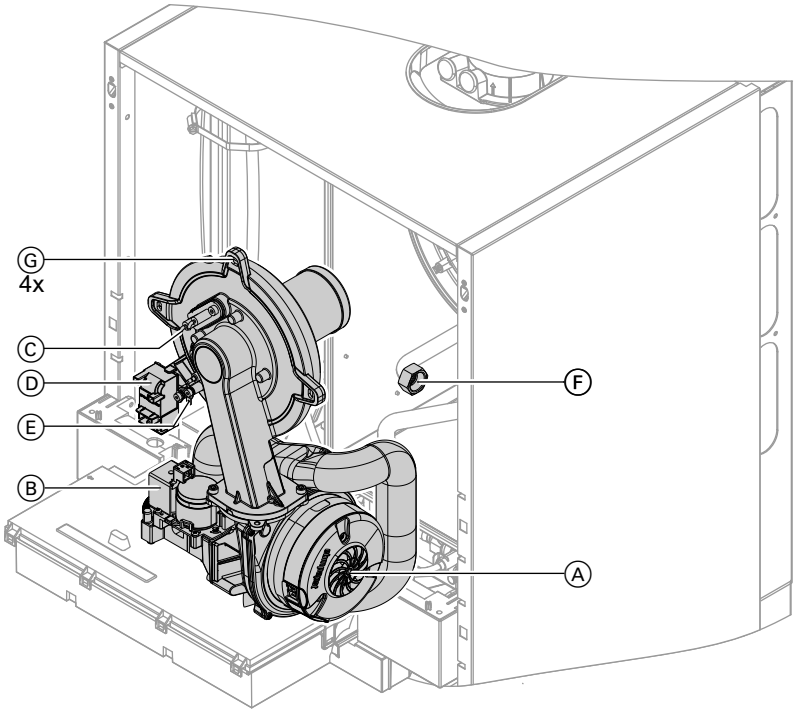
Ⓐ Combustion air aperture (ventilation air)

For balanced flue systems tested together with the wall mounted gas fired boiler, the requirement for a tightness test during commissioning by the flue gas inspector is not applicable.

We recommend that your heating engineer carries out a simple leak/tightness test during the commissioning of your system. For this, it would be sufficient to check the CO_2 or O_2 concentration in the combustion air at the annular gap of the balanced flue pipe.
The flue pipe is deemed to be gas-tight if the CO_2 concentration in the combustion air is no higher than 0.2 % or the O_2 concentration is at least 20.6 %.
If actual CO_2 values are higher or O_2 values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

Further details regarding the individual steps (cont.)

Burner removal



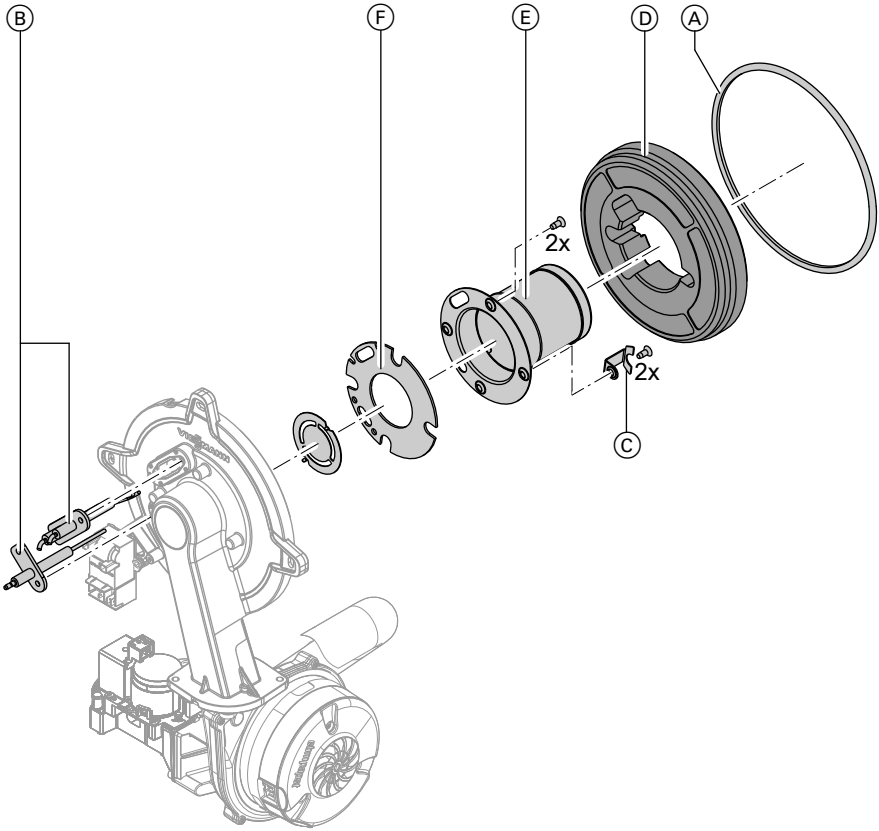
1. Switch OFF the power supply and the ON/OFF switch at the control unit.
2. Close the gas shut-off valve and safeguard against reopening.
3. Remove cables from fan motor Ⓐ, gas train Ⓑ, ignition and ionisation electrode Ⓒ, ignition unit Ⓓ and earth tab Ⓔ.
4. Undo gas supply pipe fitting Ⓕ.
5. Undo four screws Ⓖ and remove the burner.

Please note
Prevent damage to the burner.
Never rest the burner on the burner gauze assembly.

Further details regarding the individual steps (cont.)

Checking the burner gasket and burner gauze assembly

Check burner gasket Ⓐ and burner gauze assembly Ⓔ for possible damage and replace if required.



1. Remove electrodes Ⓑ.
2. Undo two retaining clips Ⓒ on thermal insulation ring Ⓓ and then remove thermal insulation ring Ⓓ.
3. Undo two Torx screws and remove burner gauze assembly Ⓔ with gasket Ⓕ.
4. Insert new burner gauze assembly Ⓔ with new gasket Ⓕ and secure. Torque: 5.0 Nm.

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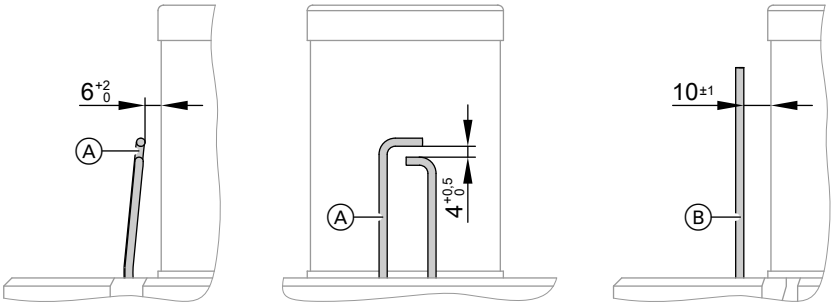
Further details regarding the individual steps (cont.)

5. Fit thermal insulation ring Ⓓ.

6. Fit electrodes Ⓑ.
Torque: 4.5 Nm.

Checking and adjusting the ignition and ionisation electrodes



Ⓐ Ignition electrodes

Ⓑ Ionisation electrode

1. Check the electrodes for wear and contamination.

2. Clean the electrodes with a small brush (not with a wire brush) or sandpaper.

3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace the electrodes together with new gaskets and adjust them as required. Tighten the electrode fixing screws with 4.5 Nm.

Cleaning the heating surfaces

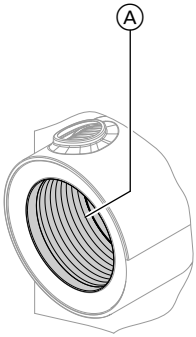
!

Please note
There should be no scratches or other damage on the heat exchanger surface that comes into contact with hot gases. This could lead to corrosion damage.

Never use brushes to clean the heating surfaces.
Brushing can cause existing deposits to get stuck in the coil gaps.

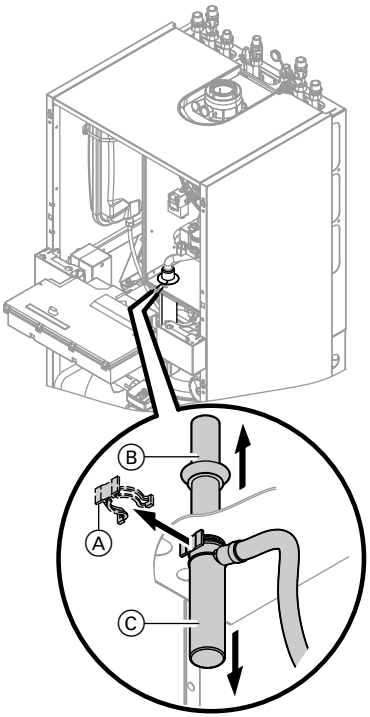
Note
Discolouration of the heat exchanger surface is a normal sign of usage. It has no impact on the function and service life of the heat exchanger.
The use of chemical cleaning agents is not necessary.

Further details regarding the individual steps (cont.)



1. Use a vacuum cleaner to remove deposits from heating surfaces Ⓐ of the heat exchanger.
2. If required, rinse heating surfaces Ⓐ with water.
3. Check condensate drain and clean siphon. See the following chapter.

Checking the condensate drain and cleaning the siphon



Flue gas cascade:
Clean the siphon in the flue gas header as well.

1. Check at the siphon that the condensate can drain freely.
2. Remove retaining clip Ⓐ.
3. Pull filler pipe Ⓑ upwards.
4. Remove trap Ⓒ downwards.
5. Remove the condensate hose from trap Ⓒ.
6. Clean the siphon.
7. Fill siphon with water and reassemble with retaining clip Ⓐ.

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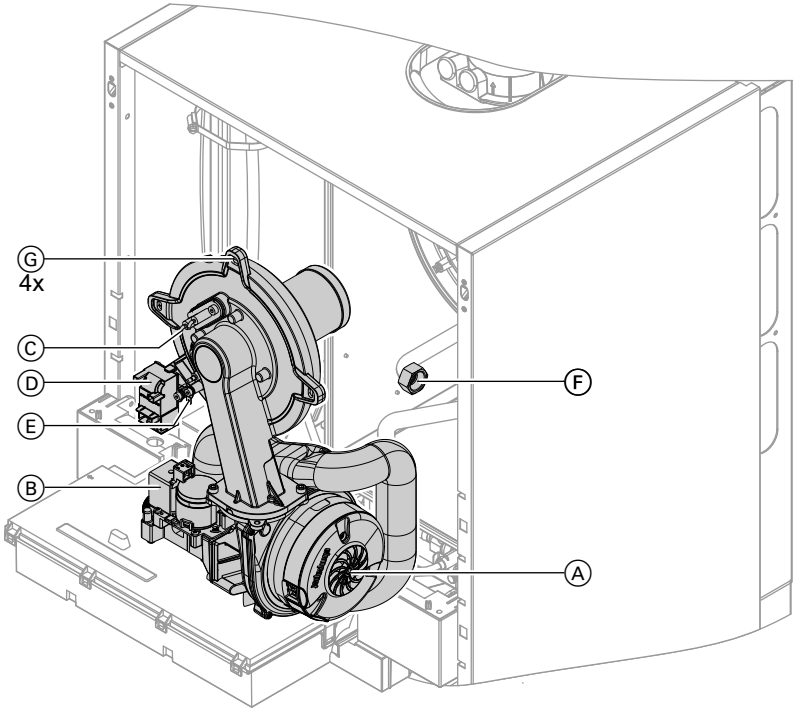
Further details regarding the individual steps (cont.)

8. Check that the condensate pipe is connected correctly to the siphon and heat exchanger.

Note
Route the drain hose without any bends and with a constant fall.

Installing the burner



1. Install the burner and tighten screws Ⓖ diagonally with 8.5 Nm.

2. Fit gas supply pipe Ⓕ with a new gasket.

3. Check the gas connections for tightness.

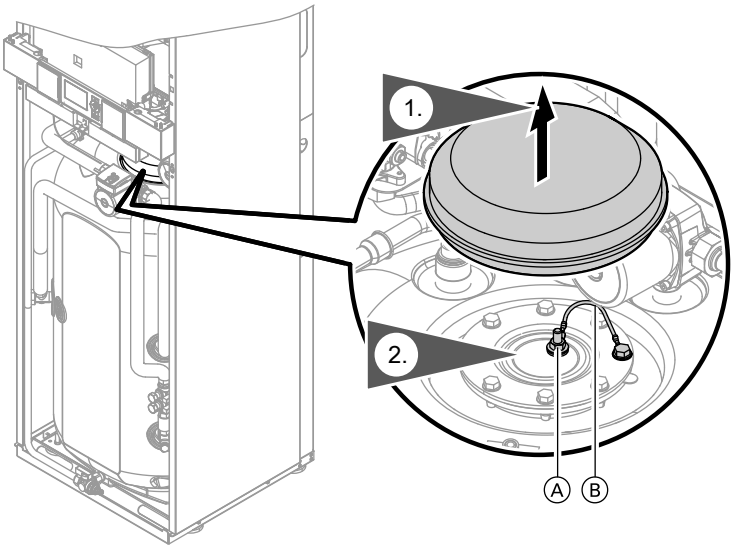
Danger
Escaping gas leads to a risk of explosion.
Check all fittings for gas tightness.

Further details regarding the individual steps (cont.)

4. Connect cables from fan motor Ⓐ, gas train Ⓑ, ionisation electrode Ⓒ, ignition unit Ⓓ and earth tab Ⓔ.

Checking the anode connection

Check that the earth cable is connected to the magnesium anode.



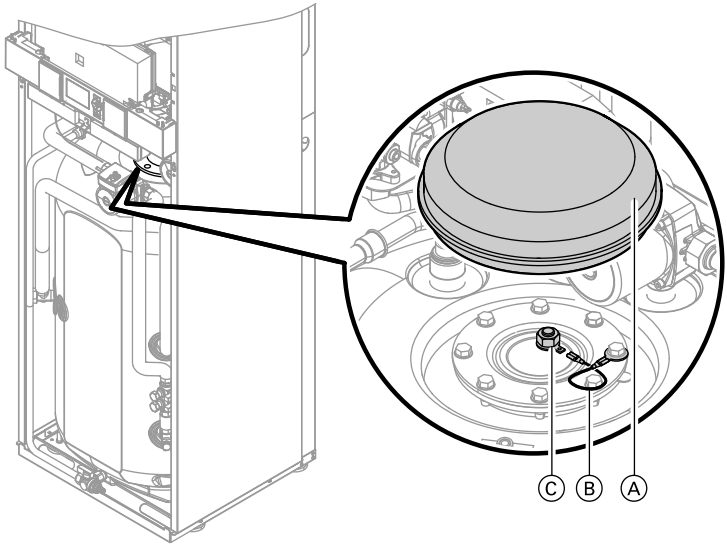
Ⓐ Magnesium anode

Ⓑ Earth cable

Further details regarding the individual steps (cont.)

Testing the anode earth current with an anode tester

Note
We recommend that the magnesium anode function is checked annually. This function test can be carried out without interrupting operation, by measuring the earth current with an anode tester.



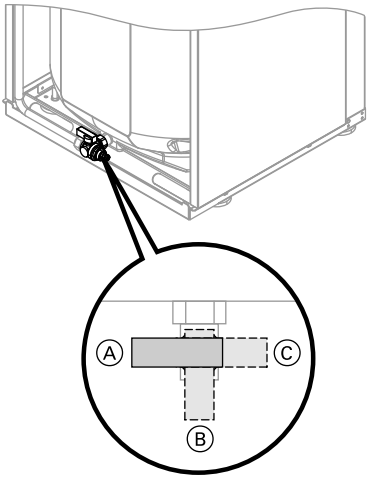
1. Remove cover Ⓐ.

2. Remove earth cable Ⓑ from tab Ⓒ.

3. Connect tester (up to 5 mA) in series between tab Ⓒ and earth cable Ⓑ.
- If the current measures > 0.3 mA the anode is OK.
- If the current measures < 0.3 mA or if there is no current at all, inspect the anode visually (see page 68).

Further details regarding the individual steps (cont.)

Draining the boiler on the DHW side



1. Connect hose to drain valve and route into a suitable container or drain outlet.

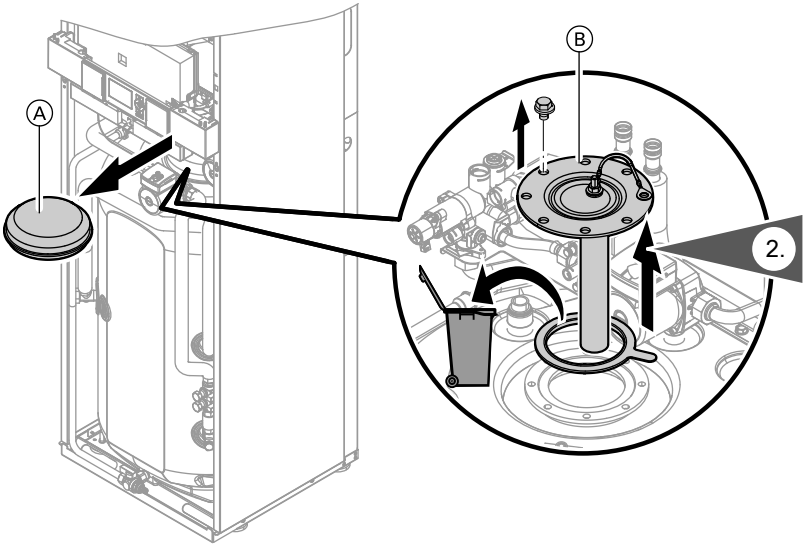
   Note
   Ensure adequate ventilation in the DHW pipework.

2. Turn drain valve from lever position Ⓐ to lever position Ⓑ or Ⓒ as required.
   - Lever position Ⓑ: To drain the heating system but **not** the cylinder via the cold water connection.
   - Lever position Ⓒ: To drain the heating system **and** the cylinder via the hot water connection. Cold water connection remains filled.

Further details regarding the individual steps (cont.)

Cleaning the primary store

Note
According to EN 806, a visual inspection and (if necessary) cleaning must be carried out no later than two years after commissioning and thereafter as required.



1. Drain the primary store.
2. Remove flange cover Ⓐ.
3. Disconnect the primary store from the pipework to prevent contamination from entering the pipe system.
4. Remove loose deposits with a high pressure cleaner.

Please note
When cleaning the inside, only use plastic cleaning utensils.

Further details regarding the individual steps (cont.)

5. Use a chemical cleaning agent to remove hard deposits that cannot be removed by a high pressure cleaner.

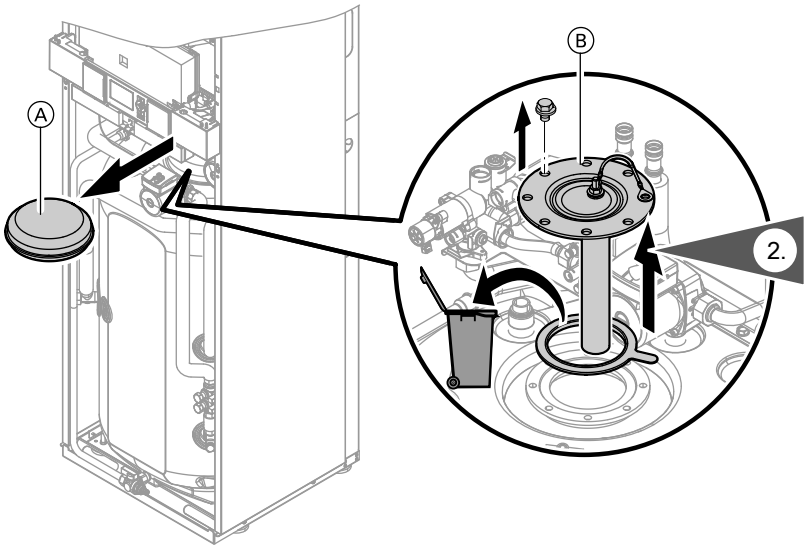
   Please note
   Never use hydrochloric acid based cleaning agents.

6. Thoroughly flush the primary store after cleaning.

Checking and replacing the magnesium anode (if required)

Check the magnesium anode. If the anode has degraded to between 10 and 15 mm Ø, we recommend replacing the magnesium anode.

Re-assembling and filling the primary store

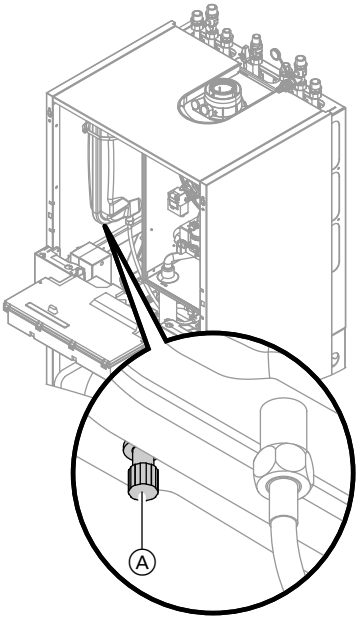


1. Reconnect the primary store to the pipework.
2. Insert new gasket Ⓐ underneath flange cover Ⓑ.

Further details regarding the individual steps (cont.)

3. Fit flange cover Ⓑ and tighten eight screws Ⓓ with a maximum torque of 25 Nm.
4. Push earth cable Ⓒ onto the tab.
5. Fit cover Ⓔ.
6. Fill the primary store with potable water.

Checking the diaphragm expansion vessel and system pressure



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

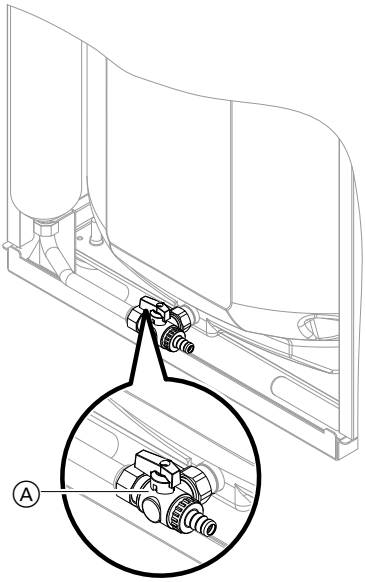
Check whether the installed diaphragm expansion vessel is adequate for the system water volume. (GB only)

Note
Carry out this test on a cold system.

1. Drain the system until the pressure gauge shows "0".
2. If the diaphragm expansion vessel pre-charge pressure is lower than the static system pressure: Top up with nitrogen at connection Ⓐ until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the static system pressure.
3. Top up with water until the charge pressure of the cooled system is 0.1 to 0.2 bar (10 to 20 kPa) higher than the pre-charge pressure of the diaphragm expansion vessel.
   Permiss. operating pressure: 3 bar (300 kPa).

Further details regarding the individual steps (cont.)

Checking the pre-charge pressure and the DHW expansion vessel (if installed)



1. Check the static pressure of the DHW line downstream of the pressure reducer and adjust if required. Set value: max. 3.0 bar (0.3 MPa).
2. Close the on-site shut-off valve in the cold water line.
3. Turn operating lever of valve Ⓐ to the "front" position.
4. Check the pre-charge pressure of the DHW expansion vessel and adjust if required. Set value: Static pressure minus 0.2 bar (0.02 MPa).
5. Turn operating lever of valve Ⓐ back to the "left" position and open the on-site shut-off valve in the cold water line.

Checking all gas equipment for tightness at operating pressure

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

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

Further details regarding the individual steps (cont.)

Checking the combustion quality

The electronic combustion controller automatically ensures optimum combustion quality. During commissioning/ maintenance, only the combustion values need to be checked. For this, measure the CO content and the CO_2 or O_2 content. For a description of the electronic combustion controller functions, see page 168.

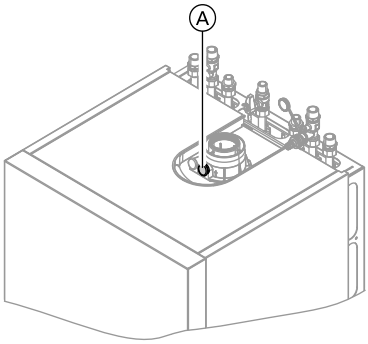
Note
Operate the appliance with uncontaminated combustion air to prevent operating faults and damage.

CO content
- The CO content must be < 1000 ppm for all gas types.

CO_2 or O_2 content
- The CO_2 content must be within the following limits for upper and lower heating output respectively:
  – 7.5 to 9.5 % for natural gas E and LL
  – 8.8 to 11.1 % for LPG P
- For all gas types, the O_2 content must be between 4.0 and 7.6 %.

If the actual CO_2 or O_2 values lie outside their respective ranges, proceed as follows:
- Check the balanced flue system for tightness, see page 58.
- Check the ionisation electrode and connecting cable, see page 61.

Note
During commissioning, the combustion controller carries out an automatic calibration. Only test the emissions approx. 30 s after the burner has started.



1. Connect a flue gas analyser at flue gas port Ⓐ on the boiler flue connection.
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Set the lower heating output (see page 72).
4. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement steps on page 71.
5. Enter the actual values into the report.
6. Set the upper heating output (see page 72).

Further details regarding the individual steps (cont.)

7. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement steps on page 71.

8. After testing, press **OK**.

9. Enter the actual values into the report.

Select higher/lower heating output

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Actuator test"**
3. Select the lower heating output: Select **"Base load OFF"**. Then **"Base load ON"** appears and the burner operates at its lower heating output.
4. Select the upper heating output: Select **"Full load OFF"**. Then **"Full load ON"** appears and the burner operates at its upper heating output.
5. Ending output selection: Press ⮌.

Matching the control unit to the heating system

The control unit must be adjusted subject to the system equipment level.
- To do this, select the relevant system scheme (see the following diagrams).
- Set the codes in conjunction with the accessories fitted.

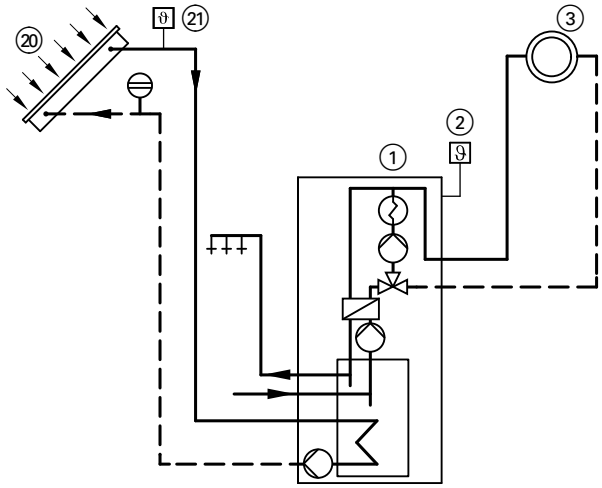

Accessories installation and service instructions

Note
Various system components are automatically recognised by the control unit and the codes are automatically adjusted.
For individual coding steps, see page 85.

Further details regarding the individual steps (cont.)

System version 1

One heating circuit without mixer A1



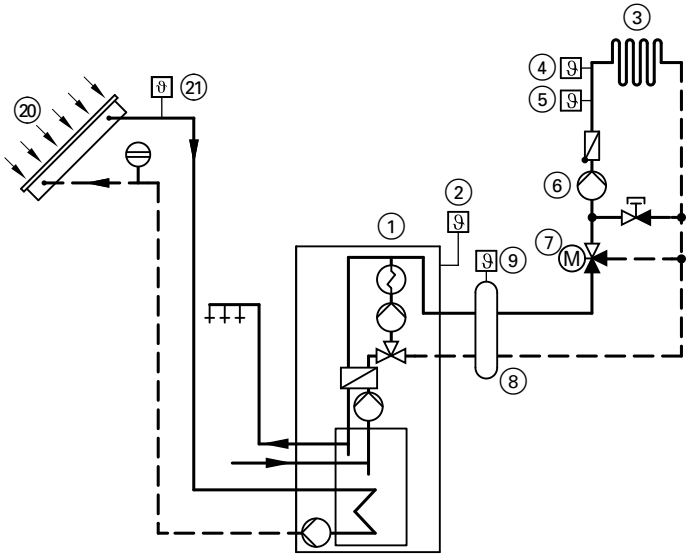
① Vitodens 242-F
② Outside temperature sensor
③ Heating circuit without mixer A1
⑳ Solar collectors
㉑ Collector temperature sensor

Function/system components	Code	
	Adjust	Group
Operation with LPG	82:1	**"General"**
System **with** DHW circulation pump: DHW circulation pump connected at internal extension H1 or H2	—	—

Further details regarding the individual steps (cont.)

System version 2

One heating circuit with mixer M2 and a low loss header



① Vitodens 242-F
② Outside temperature sensor
③ Heating circuit with mixer M2
④ Temperature limiter to restrict the maximum temperature of underfloor heating systems
⑤ Flow temperature sensor M2
⑥ Heating circuit pump M2
⑦ Extension kit for one heating circuit with mixer M2
⑧ Low loss header
⑨ Flow temperature sensor, low loss header
⑳ Solar collectors
㉑ Collector temperature sensor

Function/system components	Code	
	Adjust	Group
Operation with LPG	82:1	**"General"**
System with **only** one heating circuit with mixer, with extension kit for mixer with DHW heating	00:4	**"General"**
System **with** DHW circulation pump: DHW circulation pump connected at internal extension H1 or H2	—	—
System **with** low loss header	04:0	**"Boiler"**

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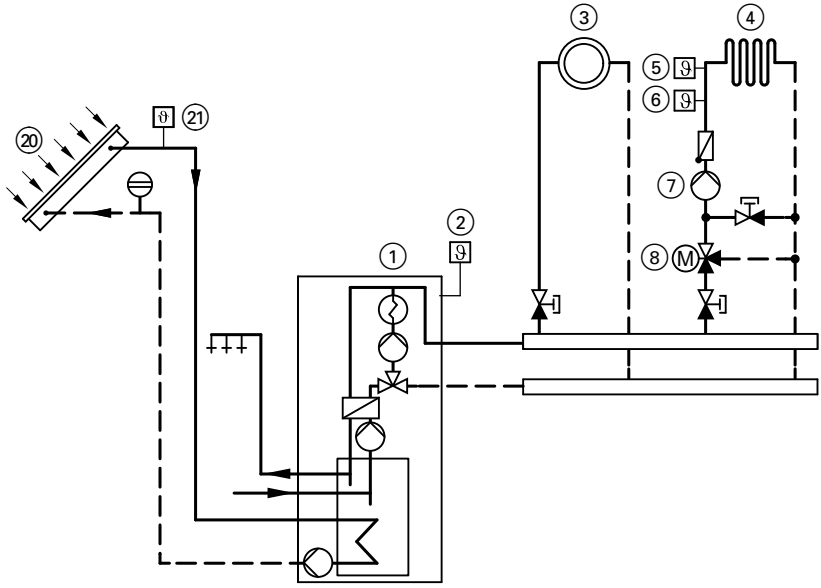
Further details regarding the individual steps (cont.)

System version 3

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



① Vitodens 242-F
② Outside temperature sensor
③ Heating circuit without mixer A1
④ Heating circuit with mixer M2
⑤ Temperature limiter to restrict the maximum temperature of underfloor heating systems
⑥ Flow temperature sensor M2
⑦ Heating circuit pump M2
⑧ Extension kit for one heating circuit with mixer M2
⑳ Solar collectors
㉑ Collector temperature sensor

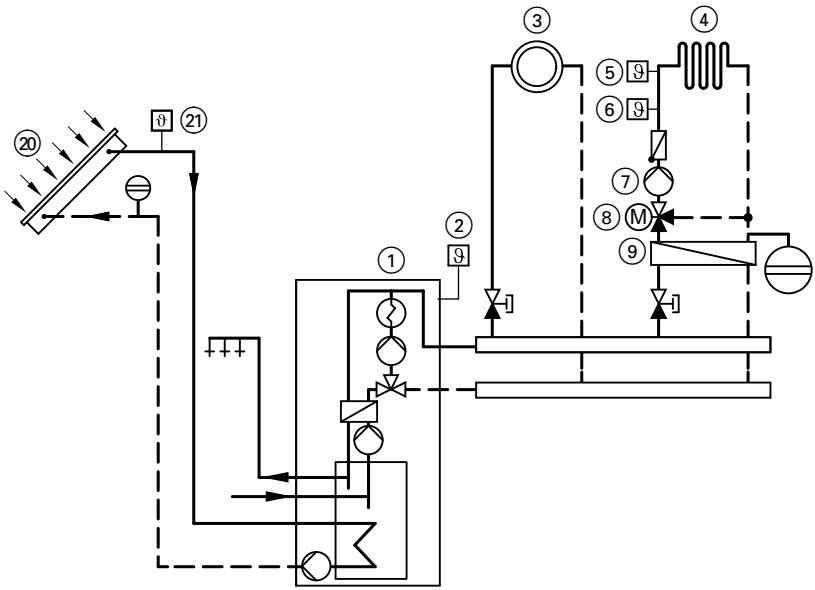
Note
The flow rate of the heating circuit without mixer must be at least 30 % greater than the flow rate of the heating circuit with mixer.

Further details regarding the individual steps (cont.)

Function/system components	Code	
	Adjust	Group
Operation with LPG	82:1	**"General"**
System with **only** one heating circuit with mixer, with extension kit for mixer with DHW heating	00:4	**"General"**
System **with** DHW circulation pump: DHW circulation pump connected at internal extension H1 or H2	—	—

System version 4

One heating circuit without mixer A1, one heating circuit with mixer M2 and system separation



① Vitodens 242-F
② Outside temperature sensor
③ Heating circuit without mixer A1
④ Heating circuit with mixer M2
⑤ Temperature limiter to restrict the maximum temperature of underfloor heating systems
⑥ Flow temperature sensor M2
⑦ Heating circuit pump M2
⑧ Extension kit for one heating circuit with mixer M2
⑨ Heat exchanger for system separation
⑳ Solar collectors

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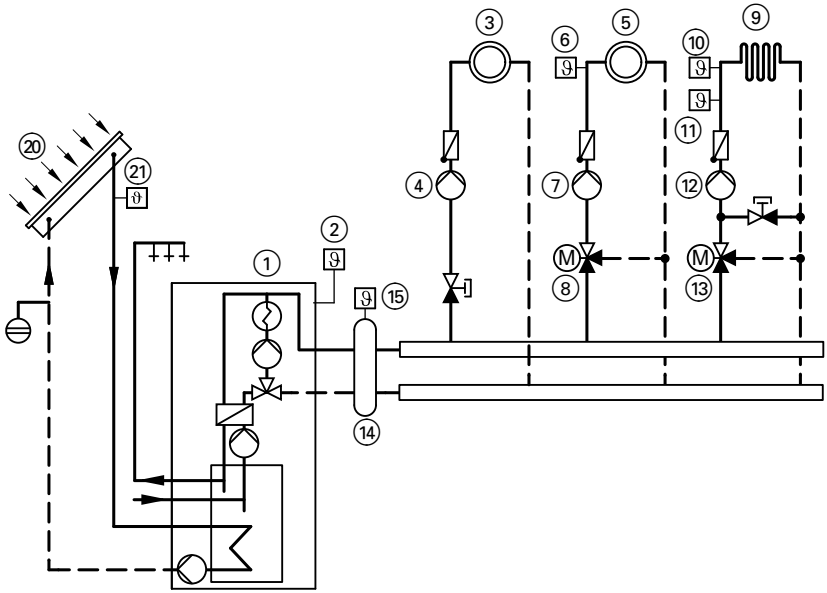
Further details regarding the individual steps (cont.)

㉑ Collector temperature sensor

Function/system components	Code	
	Adjust	Group
Operation with LPG	82:1	**"General"**
System with **only** one heating circuit with mixer, with extension kit for mixer with DHW heating	00:4	**"General"**
System **with** DHW circulation pump: DHW circulation pump connected at internal extension H1 or H2	—	—

System version 5

One heating circuit without mixer A1, one heating circuit with mixer M2 (with extension kit), one heating circuit with mixer M3 (with extension kit) and low loss header (with/without DHW heating)



① Vitodens 242-F
② Outside temperature sensor
③ Heating circuit without mixer A1 (heating circuit 1)
④ Heating circuit pump A1
⑤ Heating circuit with mixer M2 (heating circuit 2)
⑥ Flow temperature sensor M2

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Further details regarding the individual steps (cont.)

⑦ Heating circuit pump M2
⑧ Extension kit for one heating circuit with mixer M2
⑨ Heating circuit with mixer M3 (heating circuit 3)
⑩ Temperature limiter to restrict the maximum temperature of underfloor heating systems
⑪ Flow temperature sensor M3
⑫ Heating circuit pump M3
⑬ Extension kit for one heating circuit with mixer M3
⑭ Low loss header
⑮ Flow temperature sensor, low loss header
⑳ Solar collectors
㉑ Collector temperature sensor

Function/system components	Code	
	Adjust	Group
Operation with LPG	82:1	**"General"**
System with **only** two heating circuits with mixer, with extension kit for mixer (without unregulated heating circuit) with DHW heating	00:8	**"General"**
System **without** DHW circulation pump: Heating circuit pump A1 connected at internal extension H1 or H2	53:2	—
System **with** DHW circulation pump: Heating circuit pump A1 connected at extension AM1, terminal A1	—	—
DHW circulation pump connected at extension AM1, terminal A2	—	—
or DHW circulation pump connected at internal extension H1 or H2	—	—
System with low loss header	04:0	**"Boiler"**

Adjusting the heating curves

The heating curves illustrate the relationship between the outside temperature and the boiler water or flow temperature.
To put it simply, the lower the outside temperature, the higher the boiler water or flow temperature.
The boiler water or flow temperature in turn affects the room temperature.

Settings in the delivered condition:
- Slope = 1.4
- Level = 0

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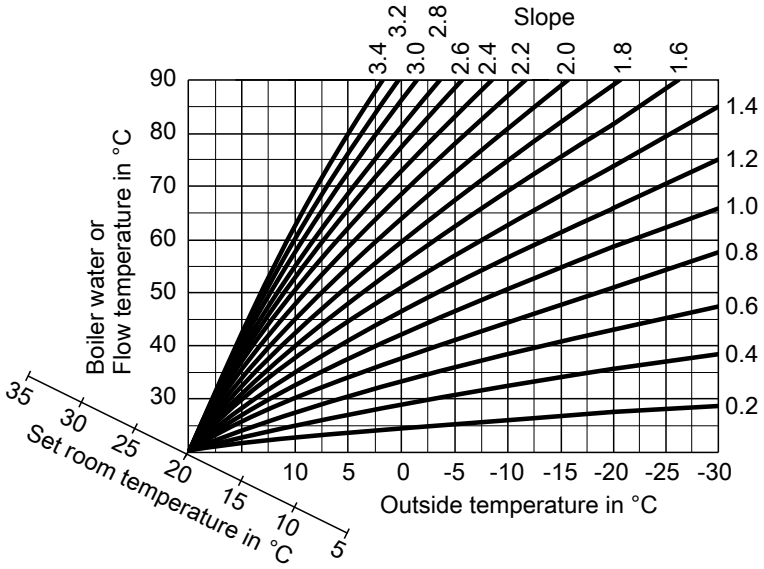
Further details regarding the individual steps (cont.)

Note
If the heating system includes heating circuits with mixers, then the flow temperature of the heating circuit without mixer is higher by a selected differential (8 K in the delivered condition) than the flow temperature of the heating circuits with mixers.

*The differential temperature is adjustable via coding address "9F" in the **"General"** group.*



Slope setting ranges:
- Underfloor heating systems: 0.2 to 0.8
- Low temperature heating systems: 0.8 to 1.6

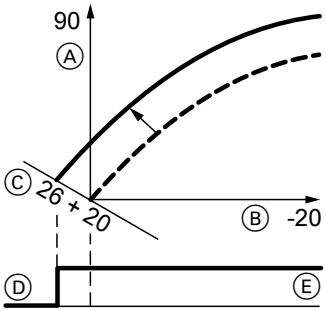
Selecting the set room temperature

Individually adjustable for each heating circuit.

The heating curve is offset along the axis of the set room temperature. With the heating circuit pump logic function enabled, the curve modifies the starting and stopping characteristics of the heating circuit pump.

Further details regarding the individual steps (cont.)

Standard set room temperature



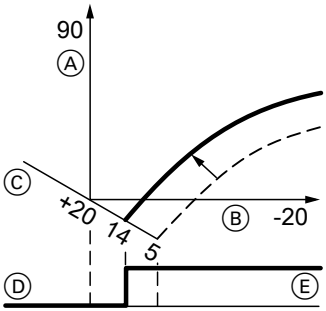
Example 1: Adjustment of the standard set room temperature from 20 to 26 °C

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

Changing the standard set room temperature

Operating instructions

Reduced set room temperature



Example 2: Adjustment of the reduced set room temperature from 5 °C to 14 °C

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

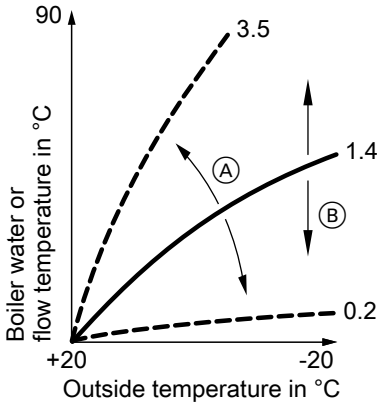
Changing the reduced set room temperature

Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit.

Further details regarding the individual steps (cont.)



Extended menu:
1. ☰
2. **"Heating"**
3. Select heating circuit.
4. **"Heating curve"**
5. **"Slope"** or **"Level"**
6. Select heating curve according to the system requirements.

Ⓐ Changing the slope
Ⓑ Changing the level (vertical parallel offset of the heating curve)

Connecting the control unit to the LON

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

Installation instructions LON communication module

Note
The data transfer via LON can take several minutes.

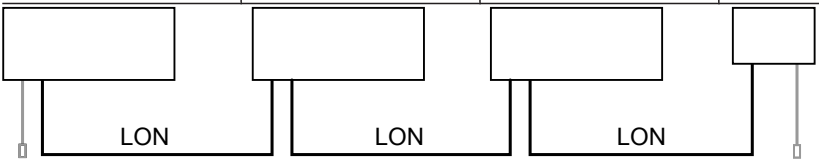
Single boiler system with Vitotronic 200-H and Vitocom 200 (example)

Set the LON subscriber numbers and further functions via code 2 (see the following table).

Note
*In the same LON system, the same subscriber number must **not** be allocated twice.*
***Only one Vitotronic** may be programmed as fault manager.*

Further details regarding the individual steps (cont.)

All coding addresses in the table are listed in the "General" group.

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
			
Subscriber no. 1, Code "77:1".	Subscriber no. 10, Code "77:10".	Subscriber no. 11, **Set** code "77:11".	Subscriber no. 99.
Control unit is fault manager, Code "79:1".	Control unit is not fault manager, Code "79:0".	Control unit is not fault manager, Code "79:0".	Device is fault manager.
Control unit transmits the time, Code "7b:1".	Control unit receives the time, **Set** code "81:3".	Control unit receives the time, **Set** code "81:3".	Device receives the time.
Control unit transmits outside temperature, **Set** code "97:2".	Control unit receives outside temperature, **Set** code "97:1".	Control unit receives outside temperature, **Set** code "97:1".	—
Viessmann system number, Code "98:1".	Viessmann system number, Code "98:1".	Viessmann system number, Code "98:1".	—
LON subscriber fault monitoring, Code "9C:20".	LON subscriber fault monitoring, Code "9C:20".	LON subscriber fault monitoring, Code "9C:20".	—

Carrying out a LON subscriber check

The subscriber check is used to test communication with the system devices connected to the fault manager.

Preconditions:
- The control unit must be programmed as **fault manager** (code "79:1" in the **"General"** group).
- The LON subscriber number must be programmed in all control units.
- The LON subscriber list in the fault manager must be up to date.

Service menu:
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Subscriber check"**
4. Select subscriber (e.g. subscriber 10).
5. Start the subscriber check with **"OK"**.

Further details regarding the individual steps (cont.)

- Successfully tested subscribers are designated with **"OK"**.
- Unsuccessfully tested subscribers are designated with **"Not OK"**.

Note
To carry out a new subscriber check, create a new subscriber list with ***"Delete list?"*** *(subscriber list is updated).*

Note
During the subscriber check, the display for the relevant subscriber shows the subscriber no. and ***"Wink"*** *for approx. 1 min.*

Scanning and resetting the "Service" display

After the limits specified in coding addresses "21" and "23" in the **"Boiler"** group have been reached, the red fault indicator flashes and **"Service"** and "🔧" appear on the programming unit display.

Acknowledging and resetting service

Press **OK** to acknowledge a service message.

Note
An acknowledged service message that was not reset reappears the following Monday.

After a service has been carried out (resetting service)

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Service reset"**

Note
The selected service parameters for hours run and interval restart at 0.

Fitting the cover panel and front panels

- Fit the cover panel; see position Ⓐ in diagram on page 48.
- Fit the front panels; see page 41.

Further details regarding the individual steps (cont.)

Instructing the system user

The system installer should hand the operating instructions to the system user and instruct the user in operating the system.
This includes all components installed as accessories, e.g. remote control units. In addition, the system installer must make the user aware of the required maintenance work.

Calling up coding level 1

- On control units for weather-compensated operation codes are displayed as plain text.
- Codes that have not been assigned a function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:
  The heating circuit without mixer is labelled **"Heating circuit 1"** and the heating circuits with mixer are labelled **"Heating circuit 2"** or **"Heating circuit 3"**.
  If the heating circuits were individually named, the selected name and **"HC1"**, **"HC2"** or **"HC3"** appears instead.

1. Press **OK** and ☰ simultaneously for approx. 4 s.

2. **"Coding level 1"**

3. Select the required coding address group:
   - **"General"**
   - **"Boiler"**
   - **"DHW"**
   - **"Solar"**
   - **"Heating circuit 1/2/3"**
   - **"All codes std device"**
     In this group, all coding addresses from coding level 1 (except coding addresses from the **"Solar"** group) are displayed in ascending order.

4. Select coding address.

5. Select value according to the following tables and confirm with **OK**.

6. **If you want to reset all codes to their delivered condition:**
   Select **"Standard setting"** in **"Coding level 1"**.

   Note
   This also resets codes at coding level 2.

"General"

Select group **"General"** (see page 85).

"General" (cont.)

Coding

Coding in the delivered condition		Possible change	
System design			
00:2	One heating circuit without mixer A1 (heating circuit 1)	00:4 to 00:10	For system schemes, see the following table:

Value address 00: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1) (code is set automatically)
4	One heating circuit with mixer M2 (heating circuit 2)
6	One heating circuit without mixer A1 (heating circuit 1) One heating circuit with mixer M2 (heating circuit 2) (code is set automatically)
8	One heating circuit with mixer M2 (heating circuit 2) One heating circuit with mixer M3 (heating circuit 3)
10	One heating circuit without mixer A1 (heating circuit 1) Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3) (code is set automatically)

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"General" (cont.)

Coding in the delivered condition		Possible change	
Internal circulation pump function			
51:0	Internal circulation pump always starts when there is a heat demand	51:1	System with low loss header: When there is a heat demand, the internal circulation pump is only started if the burner is operational. Circulation pump is switched off on expiry of run-on time.
		51:2	System with heating water buffer cylinder: When there is a heat demand, the internal circulation pump is only started if the burner is operational. Circulation pump is switched off on expiry of run-on time.
Subscriber no.			
77:1	LON subscriber number	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
Detached house/apartment building			
7F:1	Detached house	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately

"General" (cont.)

Coding in the delivered condition		Possible change	
Lock out controls			
8F:0	Operation enabled in standard menu and extended menu. ***Note*** *The respective code is only activated when you exit the service menu.*	8F:1	Operation blocked in standard menu **and** extended menu. Emissions test mode can be enabled.
		8F:2	Operation enabled in standard menu and blocked in extended menu. Emissions test mode can be enabled.
Set flow temperature for external demand			
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set value adjustable from 0 to 127 °C (limited by boiler-specific parameters)

"Boiler"

Select group **"Boiler"** (see page 85).

Coding

Coding in the delivered condition		Possible change	
Burner service in 100 hours			
21:0	No service interval (hours run) selected	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10 000 h. One adjusting step ≙ 100 h
Service interval in months			
23:0	No interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months

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"Boiler" (cont.)

Coding in the delivered condition		Possible change	
Service status			
24:0	**"Service"** not shown on display	24:1	**"Service"** is shown on display (the address is automatically set and must be manually reset after the service)
Filling/Venting			
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled

"DHW"

Select group **"DHW"** (see page 85).

Coding

Coding in the delivered condition		Possible change	
Set DHW temperature reheating suppression			
67:40	For solar DHW heating: Set DHW temperature 40 °C. DHW reheating is suppressed above the selected set temperature. (DHW heating by the boiler only if solar energy is not sufficient).	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters). Observe the setting of coding address "56".
Enable DHW circulation pump			
73:0	DHW circulation pump: "ON" according to time program	73:1 to 73:6	During the time program "ON" from once per hour for 5 min to "ON" 6 times per hour for 5 min
		73:7	Constantly "ON"

"Solar"

Select group **"Solar"** (see page 85).

"Solar" (cont.)

Coding

Coding in the delivered condition		Possible change	
Speed control solar circuit pump			
02:1	Solar circuit pump (multi stage) is speed-controlled with wave packet control.	02:0	Solar circuit pump (multi stage) is not speed-controlled.
		02:2	Do not adjust
Cylinder maximum temperature			
08:60	Set DHW temperature (maximum cylinder temperature) 60 °C.	08:10 to 08:90	Set DHW temperature adjustable from 10 to 90 °C.
Stagnation time reduction			
0A:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	The flow rate of the solar circuit at the maximum pump speed is set to 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min. 1 step ≙ 0.1 l/min.

"Heating circuit ..."

Select group **"Heating circuit ..."** (see page 85).

"Heating circuit ..." (cont.)

Coding

Coding in the delivered condition		Possible change	
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump "OFF" when 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"; see following table

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
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	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1\ K$ to $AT > RT_{set} - 9\ K$

Coding in the delivered condition		Possible change	
Extended economy function adjusted outside temperature			
A6:36	Extended economy mode **disabled**	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump stop and the mixer is closed at a variable value, adjustable between 5 and 35 °C plus 1 °C. The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant which takes into account the cooling down of an average building.

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
Extended economy function mixer			
A7:0	Only for heating circuit with mixer: Without mixer economy function	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ■ If the mixer has been closed for longer than 20 min. Heating circuit pump "ON": ■ If the mixer changes to control function ■ If there is a risk of frost
Pump idle time, transition reduced mode			
A9:7	With pump idle time: Heating circuit pump "OFF" if set value is modified by changing the operating mode or changing the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. 1 = short idle time 15 = long idle time
Weather-compensated/room temperature hook-up			
b0:0	Only for heating circuit with mixer and remote control: Heating mode/reduced mode: Weather-compensated	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

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
Economy function room temperature			
b5:0	Only for heating circuit with mixer and remote control: Without room temperature-dependent heating circuit pump logic function	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"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the delivered condition		Possible change	
Min. flow temperature heating circuit			
C5:20	Electronic minimum flow temperature limit 20 °C (only in operation with standard room temperature)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
Max. flow temperature heating circuit			
C6:74	Electronic maximum flow temperature limit set to 74 °C	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters)

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
Heating program - changeover			
d5:0	With external operating program changeover (observe setting for coding addresses "3A", "3b" and "3C" in the **"General"** group). Operating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the setting of the set reduced room temperature).	d5:1	The operating program switches to "Constant operation with standard room temperature".
Ext. heating program changeover to heating circuit			
d8:0	With extension EA1: No operating program changeover.	d8:1	Operating program changeover via input DE1.
		d8:2	Operating program changeover via input DE2.
		d8:3	Operating program changeover via input DE3.
Max. pump speed in standard mode			
E6:...	Only for heating systems without a heating circuit with mixer: Maximum speed of the internal variable speed heating circuit pump in % of the max. speed in standard mode. Value is specified by boiler-specific parameters (only for weather-compensated control units).	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
Min. pump speed			
E7:30	Only for heating systems without a heating circuit with mixer: Minimum speed of the internal variable speed heating circuit pump: 30 % of the max. speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of the maximum speed
Screed function			
F1:0	Screed drying disabled.	F1:1 to F1:6	Only for heating circuit with mixer: 6 different temperature/time profiles can be selected for screed drying (see page 163)
		F1:15	Constant flow temperature 20 °C
Party mode time limit			
F2:8	Time limit for party mode or external operating program changeover via button: 8 h [*1] ***Note*** *Observe settings of coding addresses "3A", "3b" and "3C" in group* ***"General"****, as well as "d5" and "d8" in group* ***"Heating circuit..."****.*	F2:0	No time limit.[*1]
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*1]

[*1] *In the "Heating and DHW" program, party mode ends* ***automatically*** *when the system changes over to operation with standard room temperature.*

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
Start temperature raising			
F8:–5	Temperature limit for terminating reduced mode –5 °C, see example on page 165. Observe the setting of coding address "A3".	F8:+10 to F8:–60	Temperature limit adjustable from +10 to –60 °C
		F8:–61	Function disabled
End temperature raising			
F9:–14	Temperature limit for raising the set reduced room temperature –14 °C, see example on page 165.	F9:+10 to F9:–60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to –60 °C
Set flow temperature increase			
FA:20	Raising the set boiler water or flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 166.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Duration set flow temperature increase			
Fb:60	Duration of the set boiler water or flow temperature rise (see coding address "FA") 60 min. See example on page 166.	Fb:0 to Fb:300	Duration adjustable from 0 to 300 min.

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Calling up coding level 2

- **All** codes are accessible in coding level 2.
- Codes that have not been assigned a function due to the heating system equipment level or the setting of other codes are not displayed.
- The heating circuit without mixer is labelled **"Heating circuit 1"** and the heating circuits with mixer are labelled **"Heating circuit 2"** or **"Heating circuit 3"**.
  If the heating circuits were individually named, the selected name and **"HC1"**, **"HC2"** or **"HC3"** appears instead.

1. Press **OK** and ☰ simultaneously for approx. 4 s.

2. Press **OK** and ⮌ simultaneously for approx. 4 s.

3. **"Coding level 2"**

4. Select the required coding address group:
   - **"General"**
   - **"Boiler"**
   - **"DHW"**
   - **"Solar"**
   - **"Heating circuit 1/2/3"**
   - **"All codes std device"**
     In this group, all coding addresses from coding level 1 (except coding addresses from the **"Solar"** group) are displayed in ascending order.

5. Select coding address.

6. Select value according to the following tables and confirm with **OK**.

7. **If you want to reset all codes to their delivered condition:**
   Select **"Standard setting"** in **"Coding level 2"**.

   Note
   This also resets codes at coding level 1.

"General"

Select group **"General"** (see page 97).

"General" (cont.)

Coding

Coding in the delivered condition		Possible change	
00:2	One heating circuit without mixer A1 (heating circuit 1)	00:4 to 00:10	For system schemes, see the following table:

Value address 00: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1) (code is set automatically)
4	One heating circuit with mixer M2 (heating circuit 2)
6	One heating circuit without mixer A1 (heating circuit 1) One heating circuit with mixer M2 (heating circuit 2) (code is set automatically)
8	One heating circuit with mixer M2 (heating circuit 2) One heating circuit with mixer M3 (heating circuit 3)
10	One heating circuit without mixer A1 (heating circuit 1) Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3) (code is set automatically)

Coding in the delivered condition		Possible change	
11:≠9	No access to the coding addresses for the combustion controller parameters	11:9	Access open to the coding addresses for the combustion controller parameters
2A:0	Without wireless outside temperature sensor	2A:1	With wireless outside temperature sensor (automatic recognition)
		2A:2	Wireless outside temperature sensor not used
2d:0	Do not adjust		
32:0	Without extension AM1	32:1	With extension AM1 (automatic recognition)
33:1	Function output A1 at extension AM1: Heating circuit pump	33:0	DHW circulation pump
		33:2	Circulation pump for cylinder heating
34:0	Function output A2 at extension AM1: DHW circulation pump	34:1	Heating circuit pump
		34:2	Circulation pump for cylinder heating

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"General" (cont.)

Coding in the delivered condition		Possible change	
35:0	Without extension EA1	35:1	With extension EA1 (automatic recognition)
36:0	Function output 157 at extension EA1: Fault message	36:1	Feed pump
		36:2	DHW circulation pump
3A:0	Function input DE1 at extension EA1: No function	3A:1	Operating program changeover
		3A:2	External demand with set flow temperature. Set value setting: Coding address "9b" in this group. Internal circulation pump function: Coding address "3F" in this group.
		3A:3	External blocking. Internal circulation pump function: Coding address "3E" in this group.
		3A:4	External blocking with fault message input. Internal circulation pump function: Coding address "3E" in this group.
		3A:5	Fault message input
		3A:6	Brief operation, DHW circulation pump (pushbutton function). DHW circulation pump runtime adjustment: Coding address "3d" in this group
3b:0	Function input DE2 at extension EA1: No function	3b:1	Operating program changeover
		3b:2	External demand with set flow temperature. Set value setting: Coding address "9b" in this group. Internal circulation pump function: Coding address "3F" in this group.
		3b:3	Function input DE2: External blocking.

"General" (cont.)

Coding in the delivered condition		Possible change	
			Internal circulation pump function: Coding address "3E" in this group.
		3b:4	Function input DE2: External blocking with fault message input Internal circulation pump function: Coding address 3E
		3b:5	Function input DE2: Fault message input
		3b:6	Function input DE2: Brief operation, DHW circulation pump (pushbutton function). DHW circulation pump runtime adjustment: Coding address 3d
3C:0	Function input DE3 at extension EA1: No function	3C:1	Operating program changeover
		3C:2	External demand with set flow temperature. Set value setting: Coding address "9b" in this group. Internal circulation pump function: Coding address "3F" in this group.
		3C:3	External blocking. Internal circulation pump function: Coding address "3E" in this group.
		3C:4	External blocking with fault message input Internal circulation pump function: Coding address "3E" in this group.
		3C:5	Fault message input
		3C:6	Brief operation, DHW circulation pump (pushbutton function).

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"General" (cont.)

Coding in the delivered condition		Possible change	
			DHW circulation pump runtime adjustment: Coding address "3d" in this group
3d:5	DHW circulation pump runtime for brief operation: 5 min	3d:1 to 3d:60	DHW circulation pump runtime adjustable from 1 to 60 min
3E:0	At signal "External blocking" internal circulation pump stays in control mode	3E:1	At signal "External blocking" internal circulation pump stops
		3E:2	At signal "External blocking" internal circulation pump starts
3F:0	At signal "External demand" internal circulation pump stays in control mode	3F:1	At signal "External demand" internal circulation pump stops
		3F:2	At signal "External demand" internal circulation pump starts
4b:0	Function input [96]: No function	4b:1	External demand
		4b:2	External blocking
51:0	Internal circulation pump always starts when there is a heat demand	51:1	System with low loss header: When there is a heat demand, the internal circulation pump is only started if the burner is operational. Circulation pump is switched off on expiry of run-on time.
		51:2	System with heating water buffer cylinder: When there is a heat demand, the internal circulation pump is only started if the burner is operational. Circulation pump is switched off on expiry of run-on time.
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)

"General" (cont.)

Coding in the delivered condition		Possible change	
53:1	Function connection [28] of the internal extension: DHW circulation pump	53:0	Central fault message
		53:2	External heating circuit pump (heating circuit 1)
		53:3	External circulation pump for cylinder heating
54:3	Do not adjust		
6E:50	No display correction for outside temperature.	6E:0 to 6E:49	Display correction –5 K to Display correction –0.1 K
		6E:51 to 6E:99	Display correction +0.1 K to Display correction +4.9 K
76:0	Without LON communication module	76:1	With LON communication module (automatic recognition)
77:1	LON subscriber number	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
79:1	With LON communication module: Control unit is fault manager (only for weather-compensated control units)	79:0	Control unit is not fault manager
7b:1	With LON communication module: Control unit transmits the time (only for weather-compensated control units)	7b:0	Does not transmit time
7F:1	Detached house	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately
80:6	A fault message is displayed if a fault is active for at least 30s	80:0	Immediate fault message

"General" (cont.)

Coding in the delivered condition		Possible change	
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 s. 1 step ≙ 5 s
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover
		81:2	Use of the radio clock receiver (automatic recognition)
		81:3	With LON communication module: The control unit receives the time
82:0	Operation with natural gas	82:1	Operation with LPG (only adjustable if coding address "11:9" has been set)
86:...	Do not adjust		
87:...	Do not adjust		
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Do not adjust		
8F:0	Operation enabled in standard menu and extended menu. ***Note*** *The respective code is only activated when you exit the service menu.*	8F:1	Operation blocked in standard menu **and** extended menu. Emissions test mode can be enabled.
		8F:2	Operation enabled in standard menu and blocked in extended menu. Emissions test mode can be enabled.
90:128	Time constant for calculating adjusted outside temperature 21.3 h	90:1 to 90:199	Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes. 1 step ≙ 10 min

"General" (cont.)

Coding in the delivered condition		Possible change	
94:0	Without OpenTherm extension	94:1	With OpenTherm extension (automatic recognition)
95:0	Without communication interface Vitocom 100, type GSM	95:1	With Vitocom 100 communication interface (automatic recognition)
97:0	With LON communication module: The outside temperature of the sensor connected to the control unit is utilised internally	97:1	Control unit receives outside temperature
		97:2	The control unit transmits the outside temperature to the Vitotronic 200-H
98:1	With LON communication module: Viessmann system number (in conjunction with monitoring several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5
99:0	Do not adjust		
9A:0	Do not adjust		
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters)
9C:20	With LON communication module: Monitoring LON subscribers If there is no response from a subscriber for 20 min, the values specified inside the control unit are used. Only then will a fault message be issued (only for weather-compensated control units)	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min
9F:8	Only for heating circuit with mixer:	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K

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"General" (cont.)

Coding in the delivered condition		Possible change	
	Differential temperature 8 K (only for weather-compensated control units)		

"Boiler"

Select group **"Boiler"** (see page 97).

Coding

Coding in the delivered condition		Possible change	
04:1	Minimum burner pause time subject to the boiler load (specified by boiler coding card)	04:0	Systems with low loss header: Pause time set permanently (specified by boiler coding card)
06:...	Maximum limit of the boiler water temperature, defaulted in °C by the boiler coding card	06:20 to 06:127	Maximum limit adjustable within the ranges specified by the boiler
0d:0	Do not adjust		
0E:0	Do not adjust		
13:1	Do not adjust		
14:1	Do not adjust		
15:1	Do not adjust		
21:0	No service interval (hours run) selected	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10 000 h. One adjusting step ≙ 100 h
23:0	No interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months

"Boiler" (cont.)

Coding in the delivered condition		Possible change	
24:0	**"Service"** not shown on display	24:1	**"Service"** is shown on display (the address is automatically set and must be manually reset after the service)
28:0	No burner interval ignition	28:1 to 28:24	Time interval adjustable from 1 h to 24 h. The burner is force-started for 30 s at a time (only when operating with LPG).
2E:0	Do not adjust		
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled
30:1	Internal circulation pump with variable speed (automatic adjustment)	30:0	Internal circulation pump without variable speed (e.g. temporarily for service)
31:...	Set speed of the internal circulation pump when operated as boiler circuit pump, in %, specified by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
38:0	Status burner control unit: Operational (no fault)	38:≠0	Status burner control unit: Error

"DHW"

Select group **"DHW"** (see page 97).

Coding

Coding in the delivered condition		Possible change	
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C

"DHW" (cont.)

Coding in the delivered condition		**Possible change**	
			Note *Max. value subject to boiler coding card.* *Observe the max. permissible DHW temperature.*
57:0	Do not adjust		
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 10 to 60 °C (observe coding addresses "56" and "63" in this group)
5E:0	Do not adjust		
5F:0	Do not adjust		
65:...	Do not adjust (Information on the type of diverter valve, specified by the boiler coding card)		
67:40	For solar DHW heating: Set DHW temperature 40 °C. DHW reheating is suppressed above the selected set temperature. (DHW heating by the boiler only if solar energy is not sufficient).	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters). Observe the setting of coding address "56".
6C:100	Set speed of internal circulation pump during DHW heating 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6F:...	Max. heating output for DHW heating in %, specified by the boiler coding card	6F:0 to 6F:100	Max. heating output for DHW heating adjustable from min. heating output to 100 %
71:0	DHW circulation pump: "ON" according to time program	71:1	"OFF" during DHW heating to set value 1
		71:2	"ON" during DHW heating to set value 1
72:0	DHW circulation pump: "ON" according to time program	72:1	"OFF" during DHW heating to set value 2
		72:2	"ON" during DHW heating to set value 2

"DHW" (cont.)

Coding in the delivered condition		Possible change	
73:0	DHW circulation pump: "ON" according to time program	73:1 to 73:6	During the time program "ON" from once per hour for 5 min to "ON" 6 times per hour for 5 min
		73:7	Constantly "ON"

"Solar"

Select group **"Solar"** (see page 97).

Coding

Coding in the delivered condition		Possible change	
00:8	Start temperature differential for solar circuit pump 8 K.	00:2 to 00:30	Start temperature differential adjustable from 2 to 30 K.
01:4	Stop temperature differential for solar circuit pump 4 K.	01:1 to 01:29	Stop temperature differential adjustable from 1 to 29 K.
02:2	Solar circuit pump is speed-controlled with PWM control.	02:0	Solar circuit pump is not speed-controlled (e.g. temporarily for service).
		02:1	Do not adjust
03:10	Temperature differential for the start of speed control 10 K.	03:5 to 03:20	Temperature differential adjustable from 5 to 20 K.
04:4	Controller amplification of the speed control 4 %/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10 %/K.
05:10	Minimum speed of the solar circuit pump 10 % of the maximum speed.	05:2 to 05:100	Min. speed of the solar circuit pump is adjustable from 2 to 100 %.
06:75	Maximum speed of the solar circuit pump 75 % of the maximum possible speed.	06:1 to 06:100	Max. speed of the solar circuit pump is adjustable from 1 to 100 %.

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"Solar" (cont.)

Coding in the delivered condition		Possible change	
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	Set DHW temperature (maximum cylinder temperature) 60 °C.	08:10 to 08:90	Set DHW temperature adjustable from 10 to 90 °C.
09:130	Maximum collector temperature (to protect the system components) 130 °C.	09:20 to 09:200	Maximum collector temperature adjustable from 20 to 200 °C.
0A:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
0b:0	Frost protection function for solar circuit switched off.	0b:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Flow rate monitoring active. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	Flow rate monitoring switched off.
0d:1	Night DHW circulation monitoring active. Situations with an unwanted flow rate in the solar circuit (e.g. at night) are detected and reported to the heat source control unit.	0d:0	Night DHW circulation monitoring switched off

"Solar" (cont.)

Coding in the delivered condition		Possible change	
0E:1	Solar yield calculated in conjunction with Viessmann heat transfer medium.	0E:2	Solar yield calculated in conjunction with water as heat transfer medium. Do not adjust
		0E:0	No heat statement
0F:70	The flow rate of the solar circuit at the maximum pump speed is set to 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min. 1 step ≙ 0.1 l/min.
10:0	Target temperature control switched off (coding address "11").	10:1	Target temperature control switched on
11:50	Target temperature control switched on (code "10:1"): Set solar cylinder temperature 50 °C. Temperature at which the solar heated water is to be stratified into the DHW cylinder.	11:10 to 11:90	Set cylinder temperature adjustable from 10 to 90 °C.
12:10	Minimum collector temperature (minimum start temperature for the solar circuit pump) 10 °C.	12:0	Minimum limit disabled
		12:1 to 12:90	Minimum collector temperature adjustable from 1 to 90 °C.

"Heating circuit ..."

Select group **"Heating circuit ..."** (see page 97).

Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control	A0:1	With Vitotrol 200A/200 RF (automatic recognition)
		A0:2	With Vitotrol 300A/300 RF or Vitocomfort (automatic recognition)

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"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
A1:0	All possible settings at the remote control can be accessed	A1:1	Only party mode can be set at the remote control (only for Vitotrol 200)
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF"	A3:–9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

! **Please note**
If a value below 1 °C is selected, there is a risk that pipes outside the thermal envelope of the house could freeze up.
Standby mode in particular should be taken into consideration, e.g. during holidays.

Parameter Address A3:...	Heating circuit pump "ON"	"OFF"
–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 to 15	+1 °C to +14 °C	+3 °C to +16 °C

Coding in the delivered condition		Possible change	
A4:0	With frost protection	A4:1	No frost protection; this setting is only possible if code "A3:–9" has been selected.

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
			! **Please note** "Important" to observe for coding address "A3".
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump "OFF" when 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"; see following table

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
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	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1\ K$ $AT > RT_{set} - 9\ K$

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"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
A6:36	Extended economy mode **disabled**	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump stop and the mixer is closed at a variable value, adjustable between 5 and 35 °C plus 1 °C. The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant which takes into account the cooling down of an average building.
A7:0	Only for heating circuit with mixer: Without mixer economy function	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ■ If the mixer has been closed for longer than 20 min. Heating circuit pump "ON": ■ If the mixer changes to control function ■ If there is a risk of frost
A8:1	Heating circuit with mixer creates a demand for the internal circulation pump	A8:0	Heating circuit with mixer creates no demand for the internal circulation pump
A9:7	With pump idle time: Heating circuit pump "OFF" if set value is modified by changing the operating mode or changing the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. 1 = short idle time 15 = long idle time
b0:0	Only for heating circuit with mixer and remote control:	b0:1	Heating mode: Weather-compensated Reduced mode: With room temperature hook-up

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
	Heating mode/reduced mode: Weather-compensated	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	Only for heating circuit with mixer and remote control, and operation with room temperature hook-up must be programmed for the heating circuit: Room influence factor 8	b2:0	Without room influence
		b2:1 to b2:64	Room influence factor adjustable from 1 to 64. The higher the value, the greater the room influence.
b5:0	Only for heating circuit with mixer and remote control: Without room temperature-dependent heating circuit pump logic function	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"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C (only in operation with standard room temperature)	C5:1 to	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
		C5:127	
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters)
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 78)
d4:0	Heating curve level = 0	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 78)
d5:0	With external operating program changeover (observe setting for coding addresses "3A", "3b" and "3C" in the **"General"** group). Operating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the setting of the set reduced room temperature).	d5:1	The operating program switches to "Constant operation with standard room temperature".
d6:0	At signal "External blocking" heating circuit pump stays in control mode	d6:1	At signal "External blocking" heating circuit pump stops (subject to coding addresses "3A", "3b" and "3C")
		d6:2	At signal "External blocking" heating circuit pump starts (subject to coding addresses "3A", "3b" and "3C")
d7:0	At signal "External demand" heating circuit pump stays in control mode	d7:1	At signal "External demand" heating circuit pump stops (subject to coding addresses "3A", "3b" and "3C")

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
		d7:2	At signal "External demand" heating circuit pump starts (subject to coding addresses "3A", "3b" and "3C")
d8:0	With extension EA1: No operating program changeover.	d8:1	Operating program changeover via input DE1.
		d8:2	Operating program changeover via input DE2.
		d8:3	Operating program changeover via input DE3.
E1:1	Do not adjust		
E2:50	With remote control: No display correction for the actual room temperature (only for weather-compensated control units)	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
E5:0	Do not adjust		
E6:...	Only for heating systems without a heating circuit with mixer: Maximum speed of the internal variable speed heating circuit pump in % of the max. speed in standard mode. Value is specified by boiler-specific parameters (only for weather-compensated control units).	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %
E7:30	Only for heating systems without a heating circuit with mixer: Minimum speed of the internal variable speed heating circuit pump: 30 % of the max. speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of the maximum speed

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"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
E8:1	Only for heating systems without a heating circuit with mixer: Minimum speed of the internal variable speed heating circuit pump in operation with reduced room temperature subject to the setting in coding address "E9" (only for weather-compensated control units)	E8:0	Speed subject to the setting in coding address "E7"
E9:45	Only for heating systems without a heating circuit with mixer: Speed of the internal variable speed heating circuit pump: 45 % of the max. speed during operation with reduced room temperature (only for weather-compensated control units)	E9:0 to E9:100	Speed adjustable from 0 to 100 % of the maximum speed during operation with reduced room temperature
F1:0	Screed drying disabled.	F1:1 to F1:6	Only for heating circuit with mixer: 6 different temperature/time profiles can be selected for screed drying (see page 163)
		F1:15	Constant flow temperature 20 °C
F2:8	Time limit for party mode or external operating program changeover via button: 8 h [*1]	F2:0	No time limit.[*1]
		F2:1 to	Time limit adjustable from 1 to 12 h[*1]

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[*1] *In the "Heating and DHW" program, party mode ends **automatically** when the system changes over to operation with standard room temperature.*

"Heating circuit ..." (cont.)

Coding in the delivered condition		Possible change	
	Note *Observe settings of coding addresses "3A", "3b" and "3C" in group* ***"General"****, and "d5" and "d8" in group* ***"Heating circuit..."****.*	F2:12	
F8:–5	Temperature limit for terminating reduced mode –5 °C, see example on page 165. Observe the setting of coding address "A3".	F8:+10 to F8:–60	Temperature limit adjustable from +10 to –60 °C
		F8:–61	Function disabled
F9:–14	Temperature limit for raising the set reduced room temperature –14 °C, see example on page 165.	F9:+10 to F9:–60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to –60 °C
FA:20	Raising the set boiler water or flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 166.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Fb:60	Duration of the set boiler water or flow temperature rise (see coding address "FA") 60 min. See example on page 166.	Fb:0 to Fb:300	Duration adjustable from 0 to 300 min.

Service menu

Calling up the service menu

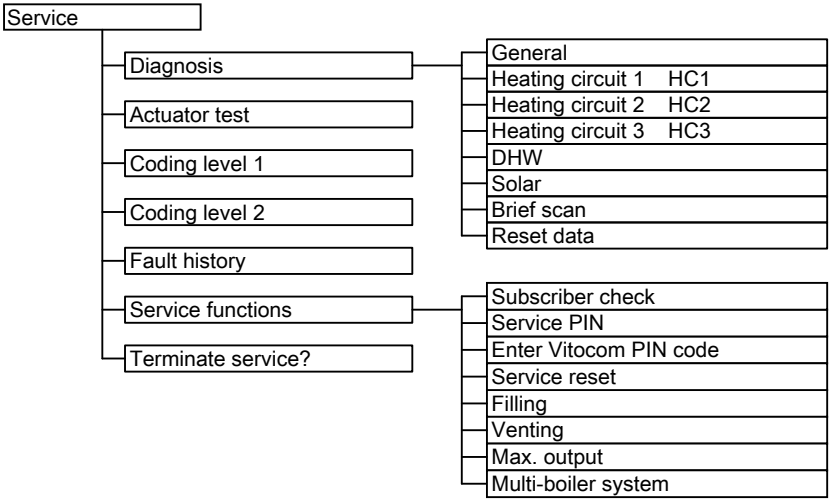
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select required menu. See following diagram.

Exiting the service menu

1. Select **"Terminate service?"**.
2. Select **"Yes"**.
3. Confirm with **OK**.

Note
The system exits the service level automatically after 30 min.

Service menu overview



Note
*Do **not** adjust menu item **"Multi-boiler system"**.*
This menu point changes the control unit to a constant temperature control unit in a multi-boiler system.

Diagnosis

Calling up operating data

Operating data can be scanned in six areas. See **"Diagnosis"** in the service menu overview.
Operating data on heating circuits with mixers and solar can only be called up if the components are installed in the system.
For further information on operating data, see chapter "Brief scan".

Note
"- - -" *appears on the display if a sensor that has been scanned is faulty.*

Calling up operating data

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. Select required group, e.g. **"General"**

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0.
The value "Adjusted outside temp" is reset to the actual value.

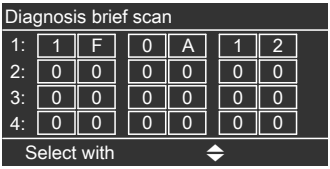
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Reset data"**
4. Select required value (e.g. **"Burner starts"**) or **"All details"**

Brief scan

In the brief scan, you can scan temperatures, software versions and connected components, for example.

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Brief scan"**
4. Press **OK**.
   The display shows 9 lines with 6 fields each.

Diagnosis (cont.)



For an explanation of the relevant values in the individual lines and fields, see the following table:

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	System scheme 01 to 10		Software version, control unit		Software version, programming unit	
2:	0	0	Appliance version		Device identification ZE-ID	
3:	0		Number of KM BUS subscribers		Software version, SM1 solar control module	
4:	Software version, burner control unit		Type Burner control unit		Burner control unit version	
5:	Internal details for calibration			0	Software version, extension AM1	Software version, extension EA1
6:	0	0	0	0	0	0
7:	LON Subnet address/system number		LON Node address		0	
8:	LON SBVT configuration	LON Software version communication coprocessor	LON Neuron chip software version		Number of LON subscribers	

Diagnosis (cont.)

Line (brief scan)	Field					
	1	2	3	4	5	6
9:	**Heating circuit A1 (without mixer)**		**Heating circuit M2 (with mixer)**		**Heating circuit M3 (with mixer)**	
	Remote control 0: none 1: Vitotrol 200A/ 200 RF 2: Vitotrol 300A/ 300 RF or Vitocomfort	Software version, remote control	Remote control 0: none 1: Vitotrol 200A/ 200 RF 2: Vitotrol 300A/ 300 RF or Vitocomfort	Software version, remote control	Remote control 0: none 1: Vitotrol 200A/ 200 RF 2: Vitotrol 300A/ 300 RF or Vitocomfort	Software version, remote control
10: (only for KM BUS circulation pumps)	**Internal circulation pump**		**Heating circuit pump, heating circuit M2**		**Heating circuit pump, heating circuit M3**	
	Variable speed pump 0: none 1: Wilo 2: Grundfos	Software version, variable speed pump 0: no variable speed pump	Variable speed pump 0: none 1: Wilo 2: Grundfos	Software version, variable speed pump 0: no variable speed pump	Variable speed pump 0: none 1: Wilo 2: Grundfos	Software version, variable speed pump 0: no variable speed pump
11:	0	0	Software version, mixer extension heating circuit M2 0: No mixer extension	0	Software version, mixer extension heating circuit M3 0: No mixer extension	0

Checking outputs (actuator test)

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Actuator test"**

The following relay outputs can be controlled subject to system design:

Display		Explanation
All actuators	OFF	All actuators are off
Base load	ON	Burner operates at minimum output; internal pump starts
Full load	ON	Burner operates at maximum output; internal pump starts
Output, internal	ON	Internal output [20] active (internal circulation pump)
Output 21/28	ON	Internal output [21] enabled (cylinder primary pump)
Valve	Heating	Diverter valve set to heating mode
Valve	Centre	Diverter valve in central position (filling/draining)
Valve	DHW	Diverter valve set to DHW mode
Heating circ pump HC2	ON	Heating circuit pump output enabled (extension to heating circuit with mixer)
Mixer HC2	Open	"Mixer open" output enabled (extension to heating circuit with mixer)
Mixer HC2	Close	"Mixer close" output enabled (extension to heating circuit with mixer)
Heating circ pump HC3	ON	Heating circuit pump output enabled (extension to heating circuit with mixer)
Mixer HC3	Open	"Mixer open" output enabled (extension to heating circuit with mixer)
Mixer HC3	Close	"Mixer close" output enabled (extension to heating circuit with mixer)
Outp. int. exten. H1	ON	Output at internal extension enabled
AM1 output 1	ON	Output A1 at extension AM1 enabled
AM1 output 2	ON	Output A2 at extension AM1 enabled
EA1 output 1	ON	Contact P - S at plug [157] of extension EA1 closed
Solar circuit pump	ON	Solar circuit pump output [24] on solar control module SM1 active
Solar circ pmp min	ON	Solar circuit pump output at solar control module SM1 switched to minimum speed
Solar circ pmp max	ON	Solar circuit pump output at solar control module SM1 switched to maximum speed
SM1 output 22	ON	Output [22] on solar control module SM1 enabled (if installed)

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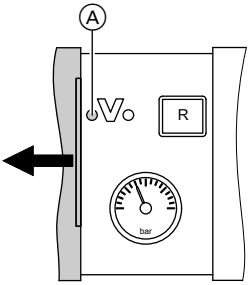
Fault display

In the event of a fault, red fault indicator Ⓐ flashes. **"⚠"** flashes on the display and **"Fault"** is shown.



The fault code is displayed with **OK**.
For some faults, the type of fault is also displayed in plain text.
For an explanation of the fault code, see the following pages.

Acknowledging a fault

Follow the instructions on the display.

Note

- *The fault message is transferred to the standard menu.*
- *A fault message facility, if connected, will be switched off.*
- *If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.*

Calling up acknowledged faults

Select **"Fault"** in the standard menu.
The current faults will be displayed in a list.

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including resolved ones) are saved and can be scanned.
Faults are sorted by date.

Service menu:
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Fault history"**
3. **"Display?"**

Deleting fault history

Service menu:
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Fault history"**
3. **"Delete?"**

Fault codes

Displayed fault code	System characteristics	Cause	Measures
0F	Control mode	Service "0F" is only displayed in the fault history	Service required ***Note*** *After servicing, select code "24:0".*
10	Controls as if the outside temperature were 0 °C	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 139)
18	Controls as if the outside temperature were 0 °C	Lead break, outside temperature sensor	Check outside temperature sensor (see page 139)
19	Controls as if the outside temperature were 0 °C	Communication error, wireless outside temperature sensor	Check wireless connection (place wireless outside temperature sensor close to the wireless base station). Log off outside temperature sensor then log on again. Replace if required (see "Wireless base station" installation and service instructions).
20	Regulates without flow temperature sensor (low loss header)	Short circuit, system flow temperature sensor	Check low loss header sensor (see page 140)
28	Regulates without flow temperature sensor (low loss header)	Lead break, system flow temperature sensor	Check low loss header sensor (see page 140) If no low loss header sensor is connected, set code 52:0
30	Burner blocked	Short circuit, boiler water temperature sensor	Check boiler water temperature sensor (see page 140)
38	Burner blocked	Lead break, boiler water temperature sensor	Check boiler water temperature sensor (see page 140)

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
40	Mixer closes	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor
44	Mixer closes	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor
48	Mixer closes	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor
4C	Mixer closes	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor
50	No DHW heating	Short circuit, cylinder temperature sensor	Check cylinder temperature sensor (see page 140)
51	No DHW heating	Short circuit, outlet temperature sensor	Check the outlet temperature sensor (see page 140)
58	No DHW heating	Lead break, cylinder temperature sensor	Check cylinder temperature sensor (see page 140)
59	No DHW heating	Lead break, outlet temperature sensor	Check the outlet temperature sensor (see page 140)
92	No solar DHW heating.	Short circuit, collector temperature sensor; temperature sensor [6] connection on the solar control module.	Check collector temperature sensor (see page 140)

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
94	No solar DHW heating.	Short circuit, cylinder temperature sensor; temperature sensor [5] connection on the solar control module.	Check cylinder temperature sensor (see page 140)
9A	No solar DHW heating.	Lead break, collector temperature sensor; temperature sensor [6] connection on the solar control module.	Check collector temperature sensor (see page 140)
9C	No solar DHW heating.	Lead break, cylinder temperature sensor; temperature sensor [5] connection on the solar control module.	Check cylinder temperature sensor (see page 140)
9E	Control mode	No flow rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message (see separate installation and service instructions).
9F	Control mode	Solar control module fault	Replace solar control module
A2	Emergency mode where system pressure is too low	System pressure too low	Top up with water

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
A4	Control mode	Max. system pressure exceeded	Check system pressure. Check the function and sizing of the expansion vessel. Vent the heating system. Coding address "0E" is set to "1" to document the fault. Must be manually reset to "0" after troubleshooting.
A7	Control mode as per delivered condition	Programming unit faulty	Replace programming unit
A8	Burner blocked The venting program is started automatically (see page 85)	Air lock in the internal circulation pump or minimum flow rate not achieved	Vent the system if the fault message continues to be displayed
A9	If a heating circuit with mixer is connected, the burner operates at its lower heating output. If only one heating circuit without mixer is connected, the burner is blocked.	Internal circulation pump blocked	Check the circulation pump
b0	Burner blocked	Short circuit, flue gas temperature sensor	Check flue gas temperature sensor
b1	Control mode as per delivered condition	Communication error, programming unit	Check connections and replace programming unit if required
b4	Controls as if the outside temperature were 0 °C	Internal fault	Replace the control unit
b5	Control mode as per delivered condition	Internal fault	Replace the control unit
b7	Burner blocked	Boiler coding card faulty	Plug in or replace boiler coding card

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
b8	Burner blocked	Lead break, flue gas temperature sensor	Check flue gas temperature sensor
bA	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 2 (with mixer)	Check the extension kit connections and coding
bb	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 3 (with mixer)	Check the extension kit connections and coding
bC	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 1 (without mixer)	Check connections, cable and coding address "A0" in group **"Heating circuit"**, and check remote control configuration (see page 168). For wireless remote controls: Check connections, place remote control unit close to the boiler.
bd	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 2 (with mixer)	Check connections, cable and coding address "A0" in group **"Heating circuit"**, and check remote control configuration (see page 168). For wireless remote controls: Check connections, place remote control unit close to the boiler.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
bE	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 3 (with mixer)	Check connections, cable and coding address "A0" in group **"Heating circuit"**, and check remote control configuration (see page 168). For wireless remote controls: Check connections, place remote control unit close to the boiler.
bF	Control mode	Incorrect LON communication module	Replace LON communication module
C1	Control mode	Communication error, extension EA1	Check connections Without extension EA1: Set code "5b:0" in the **"General"** group.
C2	Control mode	Communication error, solar control module	Check solar control module
C3	Control mode	Communication error, extension AM1	Check connections Without extension AM1: Set code "32:0" in the **"General"** group.
C4	Control mode	Communication error, OpenTherm extension	Check OpenTherm extension
C5	Control mode, max. pump speed	Communication error, variable speed internal pump	Check coding address setting "30" in group **"Boiler"/2**
Cd	Control mode	Communication error, Vitocom 100	Check connections and Vitocom 100 (see separate installation and service instructions). Without Vitocom 100: Set code "95:0" in the **"General"** group.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
CF	Control mode No communication via LON.	Communication error, LON communication module	Check LON communication module and replace if required. If no LON communication module is installed, set code "76:0" in the **"General"** group.
d6	Control mode	Input DE1 reports a fault at extension EA1	Remove fault at appliance concerned
d7	Control mode	Input DE2 at extension EA1 reports a fault	Remove fault at appliance concerned
d8	Control mode	Input DE3 at extension EA1 reports a fault	Remove fault at appliance concerned
dA	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor, heating circuit 1
db	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor, heating circuit 2
dC	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor, heating circuit 3
dd	Control mode without room influence	Lead break, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor for heating circuit 1 and remote control configuration (see page 168)
dE	Control mode without room influence	Lead break, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor for heating circuit 2 and remote control configuration (see page 168)
dF	Control mode without room influence	Lead break, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor for heating circuit 3 and remote control configuration (see page 168)

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
E1	Burner in a fault state	Ionisation current too high during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 61). In open flue operation, prevent high incidence of dust in the combustion air. Press reset button **R**.
E3	Burner in a fault state	Heat transfer too low during calibration. Temperature limiter has shut down.	Ensure adequate heat transfer. Press reset button **R**.
E4	Burner blocked	Fault, 24 V supply voltage	Replace control unit.
E5	Burner blocked	Fault, flame amplifier	Replace control unit.
E6	Burner blocked	System pressure too low	Top up with water.
E7	Burner in a fault state	Ionisation current too low during calibration	Check ionisation electrode: ■ Distance to burner gauze assembly (see page 61) ■ Contamination of electrode ■ Connecting lead and plug-in connections Check flue system; remedy flue gas recirculation if required. Press reset button **R**.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
E8	Burner in a fault state	The ionisation current lies outside the permissible range	Check gas supply (gas pressure and gas flow switch), gas train and connecting lead. Check allocation of gas type (see page 52). Check ionisation electrode: ■ Distance to burner gauze assembly (see page 61) ■ Contamination of electrode Press reset button **R**.
EA	Burner in a fault state	Ionisation current outside permissible range during calibration (deviation from previous level too great)	Check flue system; remedy flue gas recirculation if required. In open flue operation, prevent high incidence of dust in the combustion air. Press reset button **R**. Following several unsuccessful reset attempts, replace the boiler coding card and press reset button **R**.
Eb	Burner in a fault state	Repeated flame loss during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 61). Check allocation of gas type (see page 52). Check flue system; remedy flue gas recirculation if required. Press reset button **R**.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
EC	Burner in a fault state	Parameter fault during calibration	Press reset button **R** or Replace boiler coding card and press reset button **R**.
Ed	Burner in a fault state	Internal fault	Replace control unit.
EE	Burner in a fault state	Flame signal is not present or too weak at burner start.	Check gas supply (gas pressure and gas flow switch). Check gas train. Check ionisation electrode and connecting cable. Check ignition: ■ Connecting leads to ignition module and ignition electrode ■ Ignition electrode gap and contamination (see page 61). Check condensate drain. Press reset button **R**.
EF	Burner in a fault state	Flame is lost immediately after it has formed (during the safety time).	Check gas supply (gas pressure and gas flow switch). Check balanced flue system for flue gas recirculation. Check ionisation electrode (replace if necessary): ■ Distance to burner gauze assembly (see page 61) ■ Contamination of electrode Press reset button **R**.

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Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
F0	Burner blocked	Internal fault	Replace control unit.
F1	Burner in a fault state	Flue gas temperature limiter has responded.	Check heating system fill level. Vent the system. Press reset button **R** after flue system has cooled down.
F2	Burner in a fault state	Temperature limiter has responded.	Check heating system fill level. Check circulation pump. Vent the system. Check temperature limiter and connecting cables. Press reset button **R**.
F3	Burner in a fault state	Flame signal is already present at burner start.	Check ionisation electrode and connecting cable. Press reset button **R**.
F7	Burner blocked	Short circuit or lead break, water pressure sensor	Check the water pressure sensor and the connecting cable.
F8	Burner in a fault state	Fuel valve closes too late.	Check gas train. Check both control paths. Press reset button **R**.
F9	Burner in a fault state	Fan speed too low during burner start	Check fan, fan connecting cables and power supply; check fan control. Press reset button **R**.
FA	Burner in a fault state	Fan not in idle state	Check fan, fan connecting cables and fan control. Press reset button **R**.
FC	Burner in a fault state	Gas train faulty, faulty modulation valve control or flue gas path blocked	Check gas train. Check flue system. Press reset button **R**.
Fd	Burner in a fault state and additional fault b7 is displayed	Boiler coding card is missing	Insert the boiler coding card. Press reset button **R**. Replace control unit if fault persists.

Fault codes (cont.)

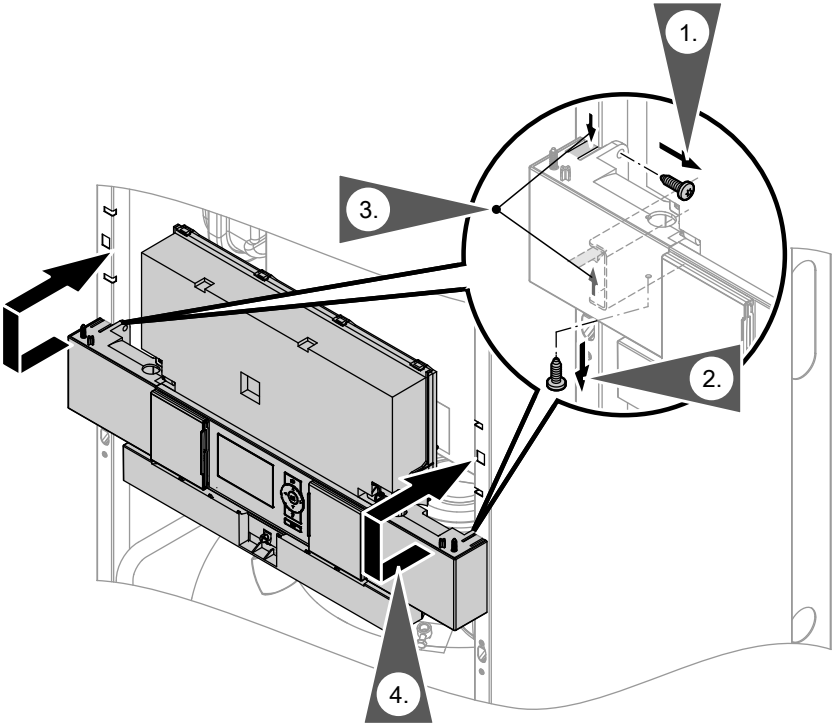
Displayed fault code	System characteristics	Cause	Measures
Fd	Burner in a fault state	Fault, burner control unit	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance. Press reset button **R**. Replace control unit if fault persists.
FE	Burner blocked or in a fault state	Boiler coding card or main PCB faulty, or incorrect boiler coding card	Press reset button **R**. If the fault persists, check the boiler coding card and replace boiler coding card or control unit if necessary.
FF	Burner blocked or in a fault state	Internal fault or reset button **R** blocked	Start the appliance again. Replace the control unit if the appliance will not restart.

Note
If subscriber faults occur, ***"Subscriber fault ..."*** *is displayed.*

Repair

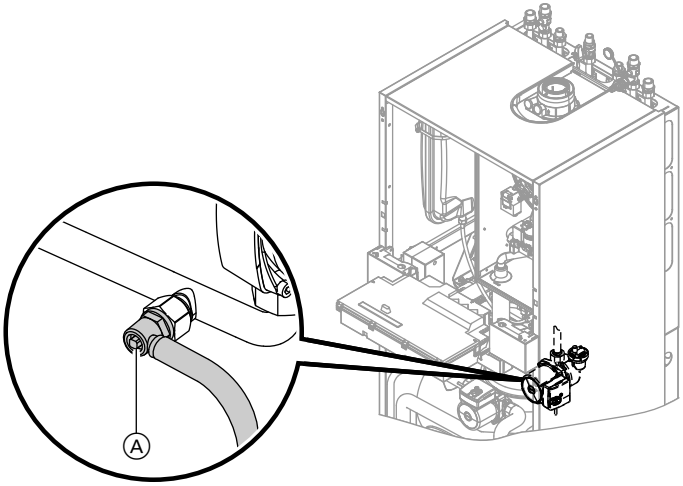
Putting the control unit in maintenance position

If required for commissioning and servicing, the control unit can be put in a different position.



Repair (cont.)

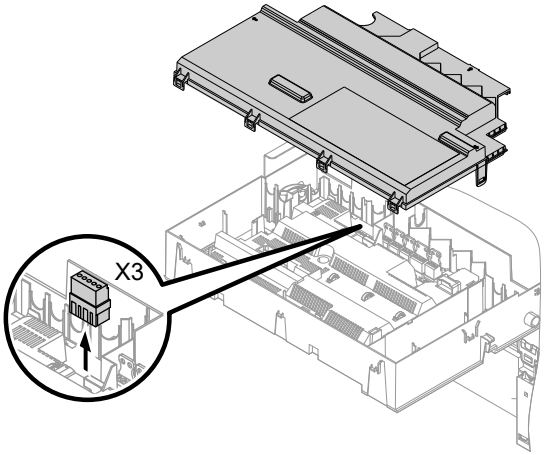
Draining the boiler on the heating water side

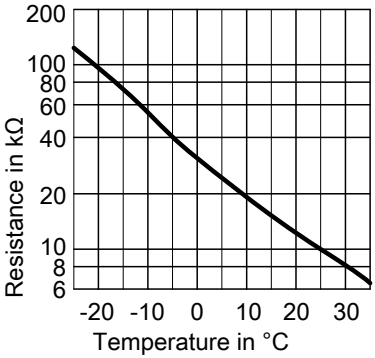


1. Close the shut-off valves on the heating water side.
2. Route hose at drain valve Ⓐ into a suitable container or drain outlet.
3. Open drain valve Ⓐ and drain the boiler as much as required.

Repair (cont.)

Checking the outside temperature sensor





Sensor type: NTC 10 kΩ

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 disconnected plug and compare it with the curve.
3. Where actual values deviate severely from the curve values, disconnect the wires at the sensor and repeat the test on the sensor itself.
4. Depending on the result, replace the lead or the outside temperature sensor.

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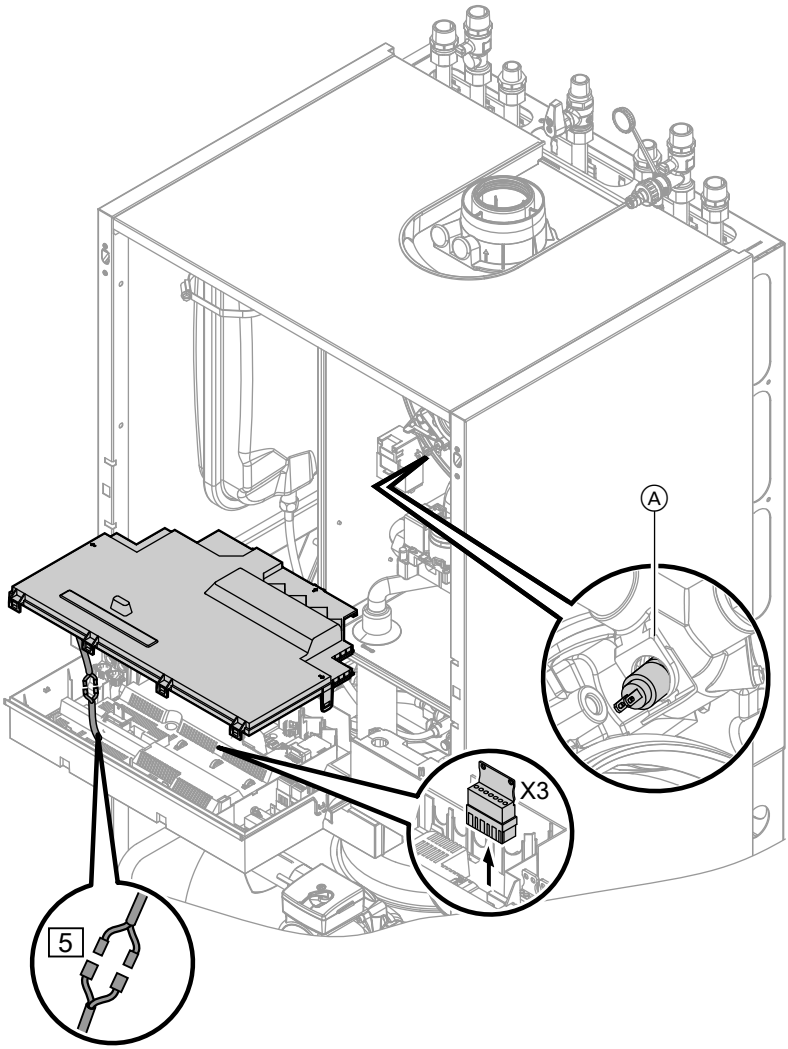
Repair (cont.)

Checking the boiler temperature sensor, cylinder temperature sensor or low loss header flow temperature sensor



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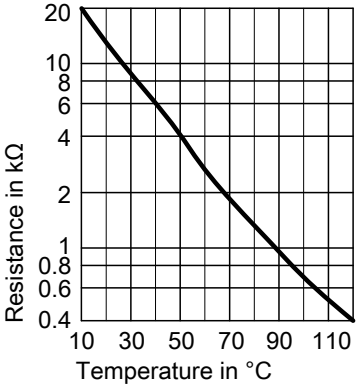
Repair (cont.)



Sensor type: NTC 10 kΩ

1. ■ **Boiler water temperature sensor**
   Pull the leads from boiler water temperature sensor Ⓐ and check the resistance.
   ■ **Cylinder temperature sensor**
   Pull plug [5] from the cable harness at the control unit and check the resistance.
   ■ **Flow temperature sensor**
   Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5".

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

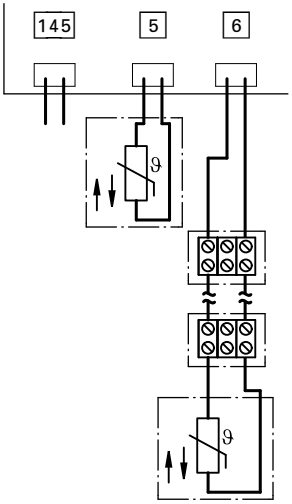
3. In the case of severe deviation, replace the sensor.

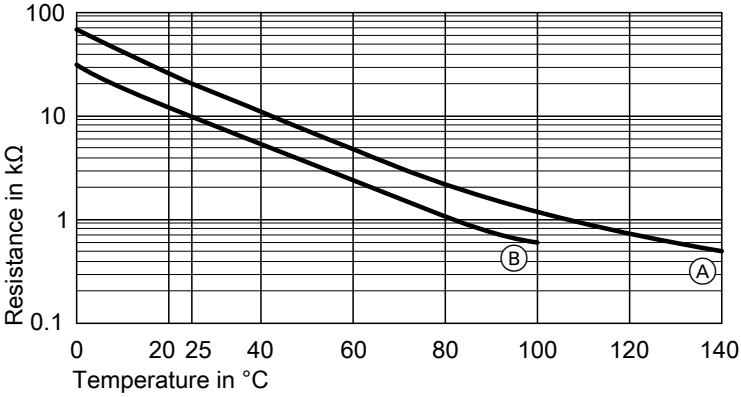
Danger
The boiler water temperature sensor is immersed in the heating water (risk of scalding).
Drain the boiler on the heating water side before replacing the sensor.

Checking the collector temperature sensor or cylinder temperature sensor on the solar control module

The solar control module is attached to the l.h. side of the air box.

Repair (cont.)





Ⓐ Collector temperature sensor (sensor type: NTC 20 kΩ)

Ⓑ Cylinder temperature sensor (sensor type: NTC 10 kΩ)

1. ■ **Cylinder temperature sensor**
   Remove plug [5] from solar control module Ⓐ and check the resistance.
   ■ **Collector temperature sensor**
   Disconnect the lead from terminal box Ⓑ and check the resistance.
2. Compare the sensor resistance with the curve.
3. In the case of severe deviation, replace the sensor.

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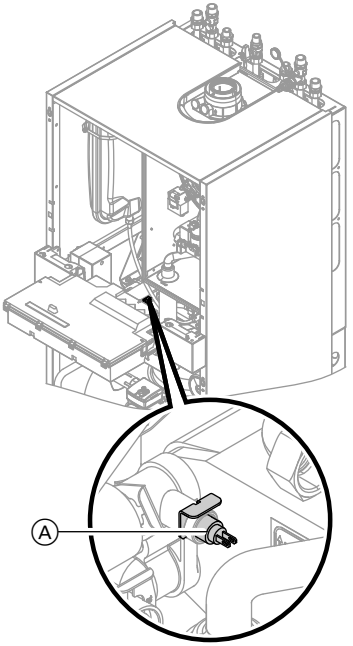
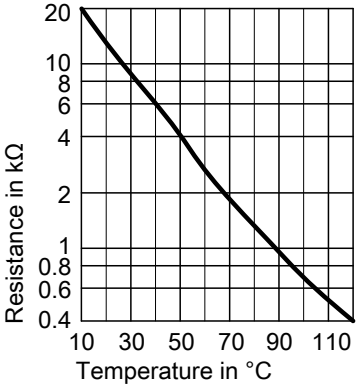
Repair (cont.)

Checking the outlet temperature sensor



1. Pull leads from outlet temperature sensor Ⓐ.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, replace the sensor.

Danger
The outlet temperature sensor is immersed in the DHW (risk of scalding).
Drain the DHW side of the boiler before replacing the sensor.



Sensor type: NTC 10 kΩ

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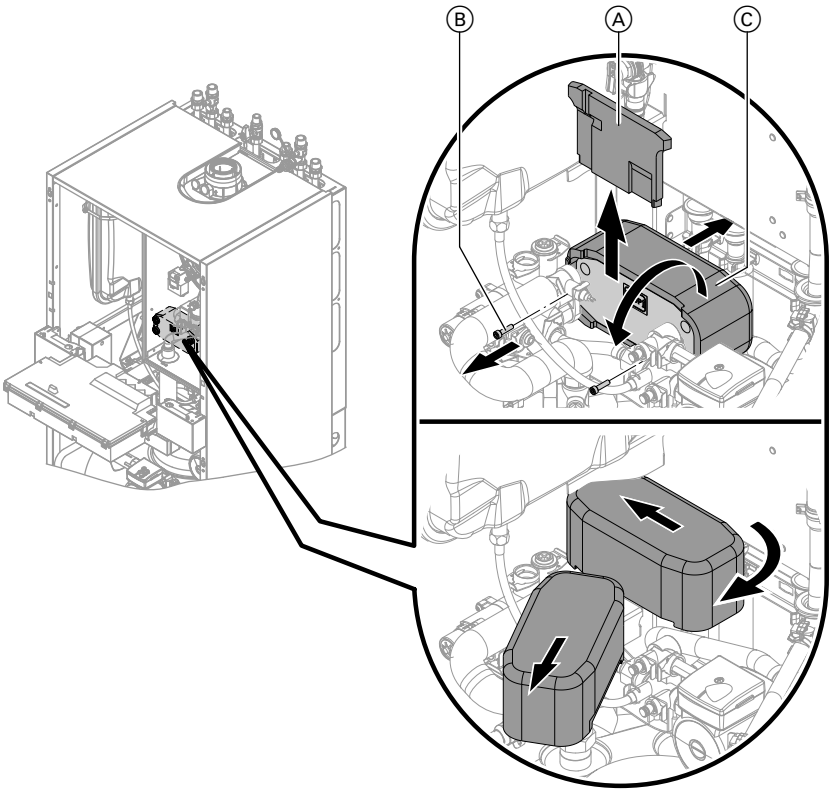
Repair (cont.)

Checking the plate heat exchanger

Note
Drain the boiler on its heating water and DHW side.

During disassembly and once removed, small amounts of water may escape from the plate heat exchanger.



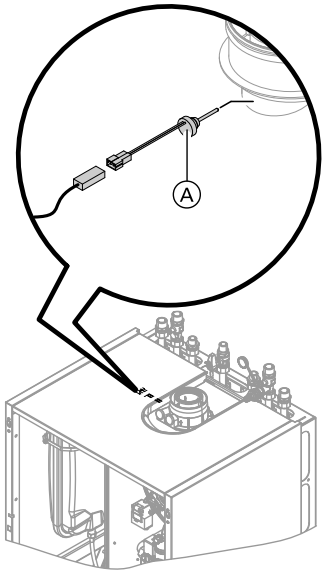
1. Shut off and drain the boiler on the heating water and DHW sides.
2. Release the side closures and pivot the control unit forward.
3. Remove the siphon (see page 50).
4. Push thermal insulation panel Ⓐ upwards and remove.
5. Undo two screws Ⓑ and remove plate heat exchanger Ⓒ with insulation through the front.

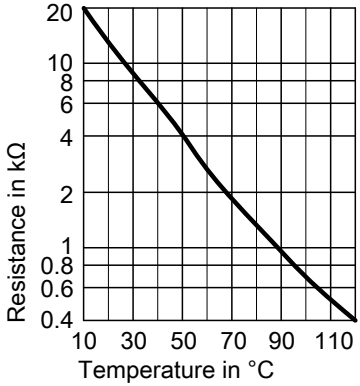
Repair (cont.)

6. Check the connections on the heating water and DHW side for contamination and scaling; if required, replace the plate heat exchanger.
7. Install in reverse order using new gaskets.

Checking the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. Reset the interlock after the flue system has cooled down by pressing reset button **R**.





Sensor type: NTC 10 kΩ

1. Pull leads from flue gas temperature sensor Ⓐ.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, replace the sensor.

Fault "A3" during commissioning

During commissioning, the control unit checks whether the flue gas temperature sensor is correctly positioned.
If the flue gas temperature sensor is not positioned correctly, commissioning is cancelled and fault message A3 is displayed.

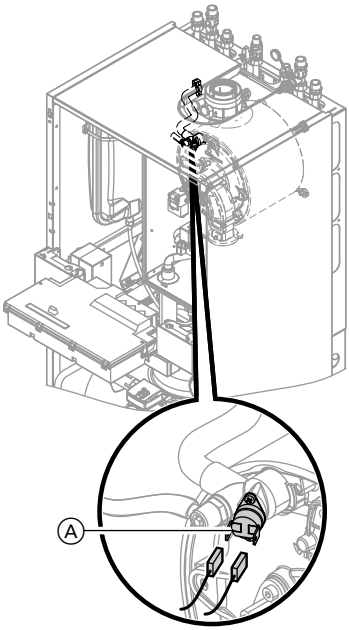
1. Check whether the flue gas temperature sensor is correctly inserted. See previous diagram.

Repair (cont.)

2. If necessary, correct the position of the flue gas temperature sensor or replace faulty flue gas temperature sensor.
3. Press reset button **R** and repeat commissioning.
   The check is repeated until it is completed successfully.

Checking the temperature limiter

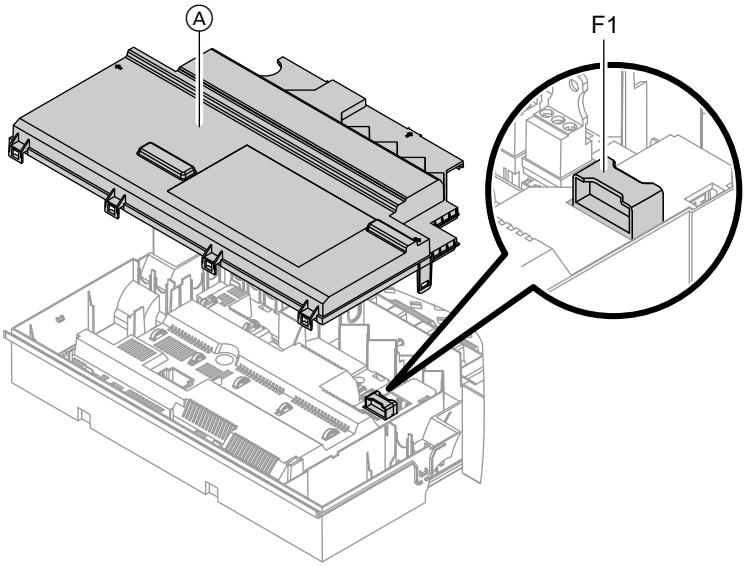
If the burner control unit cannot be reset after a fault shutdown although the boiler water temperature is below approx. 75 °C, check the following:



1. Pull the leads from temperature limiter Ⓐ.
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Coat the replacement temperature limiter with heat conducting paste and install it.
5. After commissioning, press reset button **R** on the control unit.

Repair (cont.)

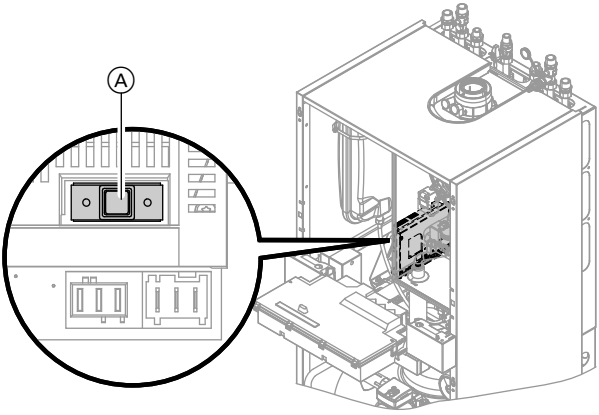
Checking the fuse



1. Switch off the power.
2. Release the side closures and pivot the control unit down.
3. Remove cover Ⓐ.
4. Check fuse F1 (see connection and wiring diagram).

Repair (cont.)

Checking the solar control module fuse



1. Switch off the power.
2. Check fuse Ⓐ in the solar control module (see connection and wiring diagram).

Extension kit, mixer

Checking the setting of rotary selector S1

The rotary selector on the PCB of the extension kit defines the assignment to the relevant heating circuit.

Heating circuit	Rotary selector S1 setting
Heating circuit with mixer M2 (Heating circuit 2)	2 
Heating circuit with mixer M3 (Heating circuit 3)	4 

Checking the rotational direction of the mixer motor

After being switched on, the boiler implements a self-test. During this, the mixer is opened and closed again.

Note
The mixer motor can also be started via the actuator test (see chapter "Checking outputs").

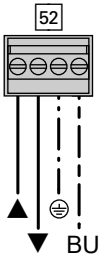
Repair (cont.)

Note the rotational direction of the mixer motor during its self-test.
Then set the mixer manually to "Open" again.

Note
The flow temperature sensor must now capture a higher temperature. If the temperature drops, either the motor is turning in the wrong direction or the mixer insert is incorrectly fitted.

Mixer installation instructions

Changing the rotational direction of the mixer motor (if required)



1. Remove the upper casing cover of the extension kit.

   Danger
   An electric shock can be life-threatening.
   Before opening the boiler, disconnect from the mains voltage, e.g. at the fuse or the mains isolator.

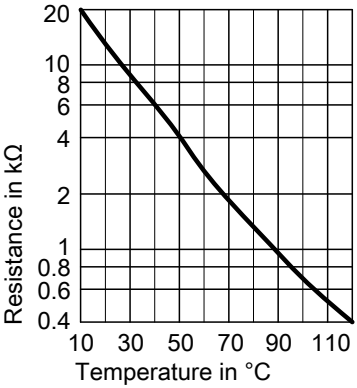
2. At plug 52, swap the cores at terminals "▲" and "▼".

3. Refit the casing cover.

Repair (cont.)

Check flow temperature sensor

Pressure drop curve



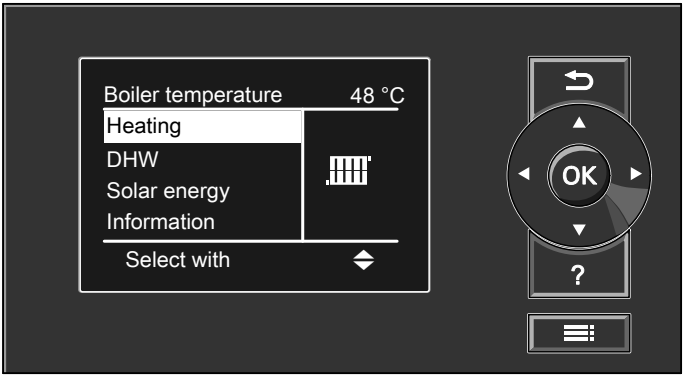
Sensor type: NTC 10 kΩ

1. Disconnect plug [2] (flow temperature sensor).
2. Check the sensor resistance and compare it with the curve.
   Replace the sensor in the case of severe deviation.

Checking the Vitotronic 200-H (accessory)

The Vitotronic 200-H is connected to the control unit via the LON cable. To test the connection, carry out a subscriber check at the boiler control unit (see page 82).

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 to the slope/level of the heating curve.
The determined set boiler water temperature is transferred to the burner control unit. From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and regulates the burner accordingly.

The electronic temperature limiter inside the burner control unit limits the boiler water temperature.

Heating the DHW primary store from cold

The heating circuit pump is switched ON and the 3-way diverter valve will be changed over, if the cylinder temperature sensor captures a temperature lower than the defaulted set value.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

Control unit (cont.)

The primary store is heated up to the set DHW temperature. Heating stops when the specified temperature has been reached at the cylinder temperature sensor.

After heating has ended, the cylinder primary pump and the 3-way diverter valve remain on for a further 30 s.

Reheating when DHW is drawn off

When DHW is drawn off, cold water enters at the bottom of the primary store.
The heating circuit pump is switched ON and the 3-way diverter valve is changed over, if the cylinder temperature sensor recognises a temperature lower than the set value.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

DHW is regulated to the set temperature via the outlet temperature sensor.
The primary store continues to be heated up after the draw off process has terminated, until the set DHW temperature has been reached at the cylinder temperature sensor.
The cylinder primary pump and the 3-way diverter valve remain on for a further 30 s.

DHW heating via solar collectors

If a temperature differential is measured between the collector temperature sensor and the cylinder temperature sensor of the solar control module, which is greater than the start temperature differential set in the control unit, the solar circuit pump is started and the DHW cylinder is heated.

The pump is stopped if the temperature falls below the stop temperature differential between the collector temperature sensor and the cylinder temperature sensor of the solar control module.
The solar circuit pump is stopped if the set maximum temperature or the temperature set at the temperature limiter is reached.

Control unit (cont.)

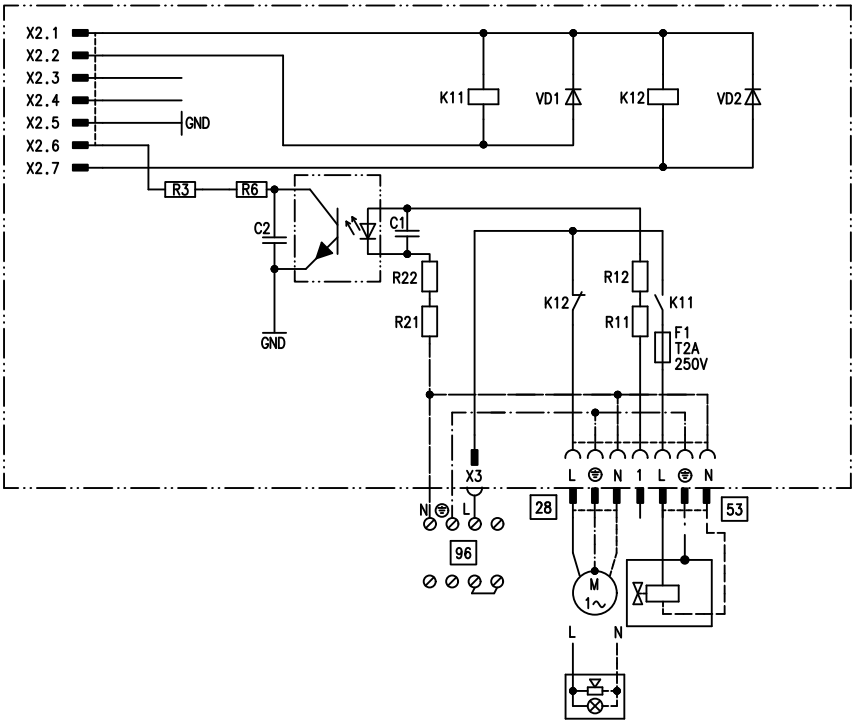
Boosting DHW heating

This function is activated by specifying a second set DHW temperature via coding address 58 in group **"DHW"** and activating the fourth DHW phase for DHW heating.

Heating is boosted during the periods selected in this time phase.

Internal extensions (accessories)

Internal extension H1



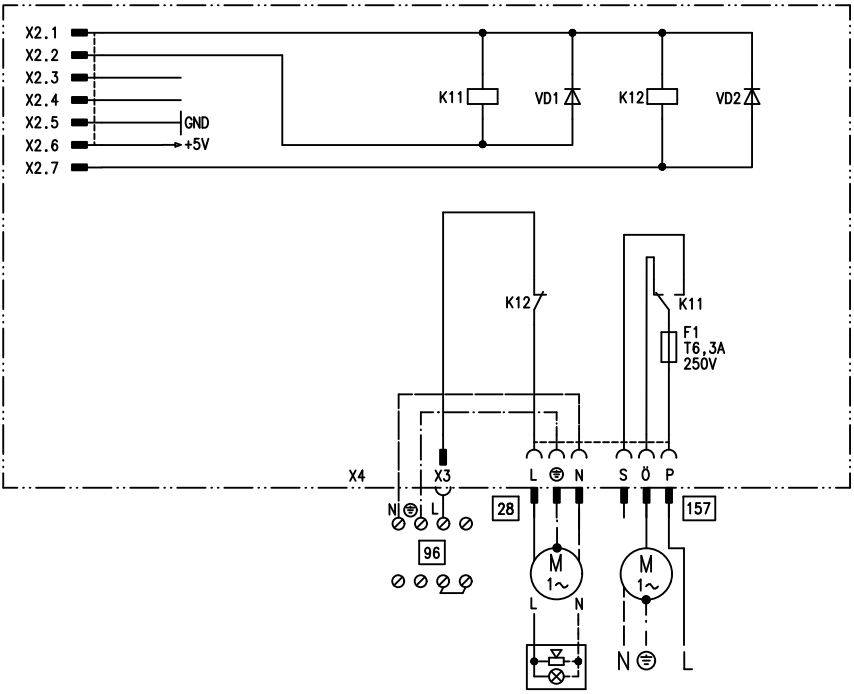
Internal extensions (accessories) (cont.)

The internal extension is integrated into the control unit casing. The following alternative functions can be connected to relay output 28. The function is assigned via coding address "53" in group **"General"**:

- Central fault message (code "53:0")
- DHW circulation pump (code "53:1") (only for weather-compensated operation)
- Heating circuit pump for heating circuit without mixer (code "53:2")
- Circulation pump for cylinder heating (code "53:3")

An external gas isolation valve can be connected to connection 53.

Internal extension H2



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Internal extensions (accessories) (cont.)

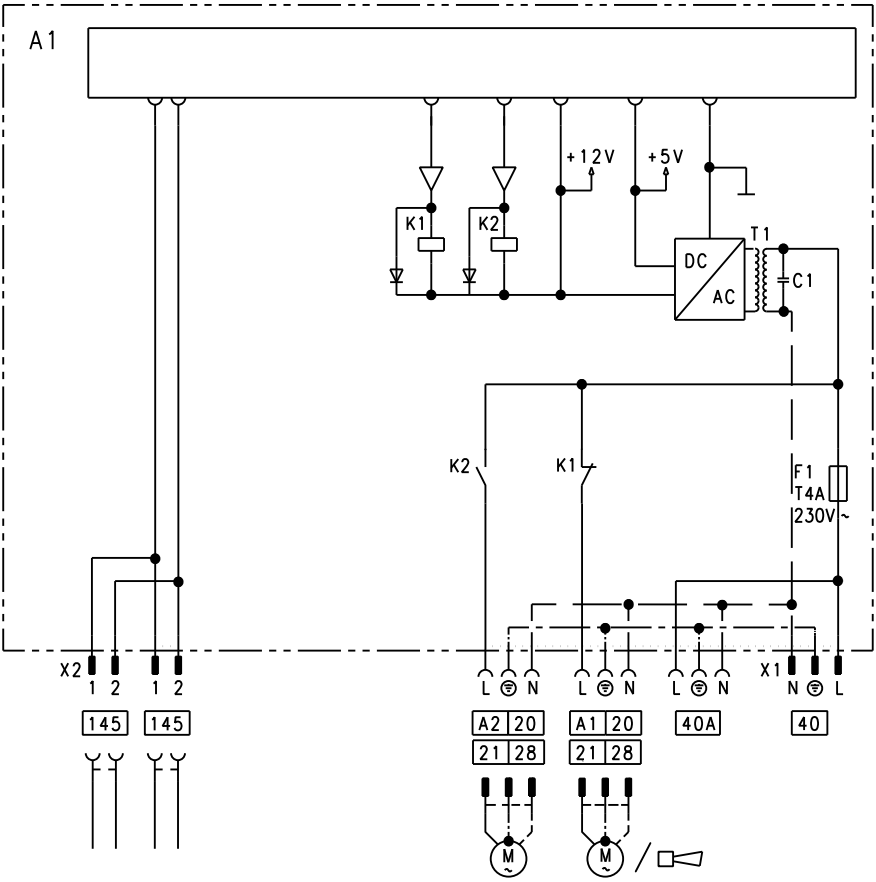
The internal extension is integrated into the control unit casing. The following alternative functions can be connected to relay output 28. The function is assigned via coding address "53" in group **"General"**:

- Central fault message (code "53:0")
- DHW circulation pump (code "53:1") (only for weather-compensated operation)
- Heating circuit pump for heating circuit without mixer (code "53:2")
- Circulation pump for cylinder heating (code 53:3)

An extractor fan can be switched off via connection 157 when the burner starts.

External extensions (accessories)

Extension AM1



A1 Circulation pump
A2 Circulation pump
40 Power supply
40 A Power supply for additional accessories
145 KM BUS

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External extensions (accessories) (cont.)

Functions

One of the following circulation pumps can be connected to each of the connections A1 and A2:

- Heating circuit pump for the heating circuit without mixer
- Circulation pump for cylinder heating
- DHW circulation pump

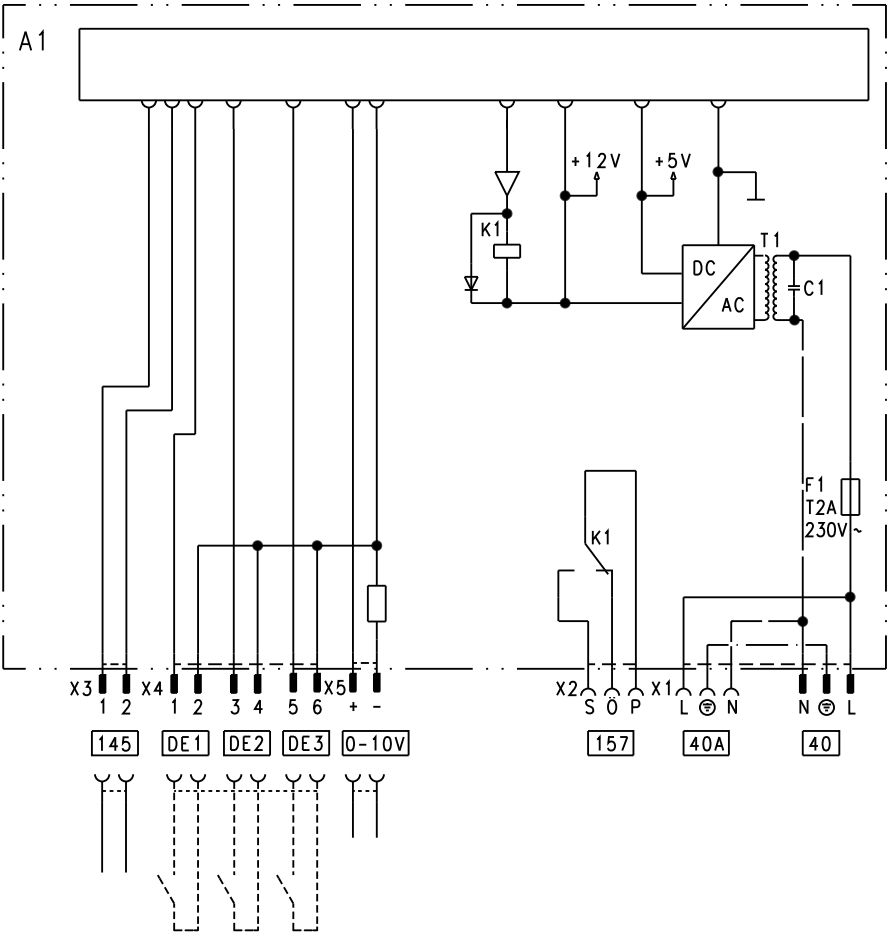
Select the output functions by means of the codes on the boiler control unit.

Function assignment

Function	Code ("General" group)	
	Output A1	**Output A2**
DHW circulation pump 28	33:0	34:0 (delivered condition)
Heating circuit pump 20	33:1 (delivered condition)	34:1
Circulation pump for cylinder heating 21	33:2	34:2

External extensions (accessories) (cont.)

Extension EA1



A1	PCB	40 A	Power supply for additional accessories
F1	Fuse/MCB		
DE1	Digital input 1	157	Central fault message/feed pump/DHW circulation pump (potential-free)
DE2	Digital input 2		
DE3	Digital input 3		
0 – 10 V	0 – 10 V input	145	KM BUS
40	Power supply		

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External extensions (accessories) (cont.)

Digital data inputs DE1 to DE3

The following functions can be connected alternatively:
- External operating program changeover for each heating circuit
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW circulation pump

External contacts must be floating.
When connecting external contacts, observe the requirements of safety category II, i.e. 8.0 mm air and creep path or 2.0 mm insulation thickness to 'live' parts.

Input function assignment

Select the input functions by means of codes in the **"General"** group at the boiler control unit:
- DE1: Coding address 3A
- DE2: Coding address 3b
- DE3: Coding address 3C

Assigning the operating program changeover function to the heating circuits

Assign the operating program changeover function for the relevant heating circuit via coding address d8 in group **"Heating circuit"** at the boiler control unit:
- Changeover via input DE1: Code d8:1
- Changeover via input DE2: Code d8:2
- Changeover via input DE3: Code d8:3

The effect of the operating program changeover is selected via coding address d5 in the **"Heating circuit"** group.
The duration of the changeover is set via coding address F2 in the **"Heating circuit"** group.

Effect of the external blocking function on the pumps

The effect on the internal circulation pump is selected in coding address 3E in the **"General"** group.
The effect on the respective heating circuit pump is selected in coding address d6 in the **"Heating circuit"** group.
The effect on a circulation pump for cylinder heating is selected in coding address 5E in the **"DHW"** group.

Effect of the external demand function on the pumps

The effect on the internal circulation pump is selected in coding address 3F in the **"General"** group.
The effect on the respective heating circuit pump is selected in coding address d7 in the **"Heating circuit"** group.
The effect on a circulation pump for cylinder heating is selected in coding address 5F in the **"DHW"** group.

DHW circulation pump runtime for brief operation

The DHW circulation pump is started by closing the contact at DE1, DE2 or DE3 by means of a pushbutton. The runtime is adjusted via coding address "3d" in the **"General"** group.

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External extensions (accessories) (cont.)

Analogue input 0 – 10 V

The 0 – 10 V hook-up provides an additional set boiler water temperature:
0 – 1 V is taken as "no default for set boiler water temperature".
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
Ensure DC separation between the earth conductor and the negative pole of the on-site voltage source.

Output 157

The following functions can be connected to output 157:
- Feed pump to substation
  or
- DHW circulation pump
  or
- Fault message facility

Function assignment

Select the function of output 157 via coding address "36" in the **"General"** group at the boiler control unit.

Control functions

External heating program changeover

The "External heating program changeover" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following coding addresses in the **"General"** group:

Heating program - changeover	Code
Input DE1	3A:1
Input DE2	3b:1
Input DE3	3C:1

Assign the operating program changeover function for the relevant heating circuit via coding address "d8" in group **"Heating circuit"** at the boiler control unit:

Heating program - changeover	Code
Changeover via input DE1	d8:1
Changeover via input DE2	d8:2
Changeover via input DE3	d8:3

Control functions (cont.)

You can select which direction the heating program changeover takes in coding address "d5" in the **"Heating circuit"** group:

Heating program - changeover	Code
Changeover towards "Permanently reduced" or "Permanent standby" mode (subject to the selected set value)	d5:0
Changeover towards "Constant heating mode"	d5:1

The duration of the heating program changeover is set via coding address "F2" in the **"Heating circuit"** group:

Heating program - changeover	Code
No operating program changeover	F2:0
Duration of the operating program changeover 1 to 12 hours	F2:1 to F2:12

The operating program changeover stays enabled for as long as the contact remains closed, but at least as long as the duration selected in coding address "F2".

External blocking

The "External blocking" and "External blocking and fault message input" functions are connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following coding addresses in the **"General"** group:

External blocking	Code
Input DE1	3A:3
Input DE2	3b:3
Input DE3	3C:3

Control functions (cont.)

External blocking and fault message input	Code
Input DE1	3A:4
Input DE2	3b:4
Input DE3	3C:4

The effect on the internal circulation pump is selected in coding address "3E" in group **"General"**.

The effect on the relevant heating circuit pump is selected in coding address "d6" in group **"Heating circuit"**.

External demand

The "External demand" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following coding addresses in the **"General"** group:

External demand	Code
Input DE1	3A:2
Input DE2	3b:2
Input DE3	3C:2

The effect on the internal circulation pump is selected in coding address "3F" in group **"General"**.
The effect on the relevant heating circuit pump is selected in coding address "d7" in group **"Heating circuit"**.

The minimum set boiler water temperature in case of external demand is selected in coding address "9b" in group **"General"**.

Venting program

During the venting program, the circulation pump will be alternately switched on and off for 30 s at a time over a period of 20 min.
For a certain period, the diverter valve is alternately set towards heating and DHW heating. The burner is switched off during the venting program.

Activate venting program: See "Venting the heating system".

Control functions (cont.)

Fill program

In the delivered condition, the diverter valve is set to its central position, enabling the system to be filled completely. After the control unit has been switched on, the diverter valve no longer goes into its central position.
Afterwards, the diverter valve can be moved via the fill function into the central position (see "Filling the heating system"). In this position, the control unit can be switched off, and the system can be filled completely.

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 in the fill program to its central position and the pump starts.
When the function is enabled, the burner shuts down. The program is automatically disabled after 20 min.

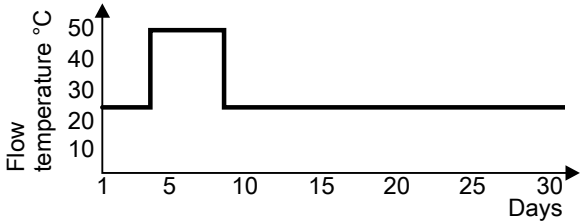
Screed drying

When activating screed drying, observe the information provided by the screed manufacturer.
When the screed drying function is activated, the heating circuit pump in the heating circuit with mixer is switched on and the flow temperature is held in accordance with the selected profile. On completion (30 days), the heating circuit with mixer is regulated automatically via the set parameters.
Observe EN 1264. The report to be provided by the heating contractor must contain the following heat-up details:

- Heat-up data with respective flow temperatures
- Max. flow temperature achieved
- Operating state and outside temperature during handover

The various temperature profiles can be set via coding address "F1" in the **"Heating circuit"** group.
The function continues after power failure or after the control unit has been switched off. "Heating and DHW" is started when screed drying is finished or if code "F1:0" is set manually.

Temperature profile 1: (EN 1264-4) code "F1:1"



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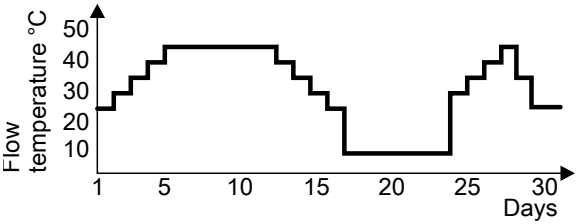
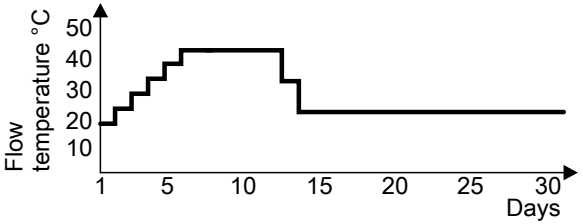
Control functions (cont.)

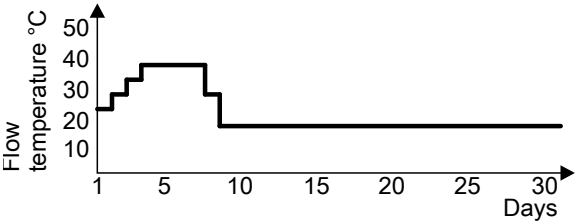
Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"



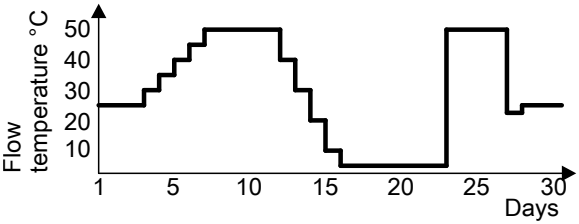
Temperature profile 3: Code "F1:3"



Temperature profile 4: Code "F1:4"

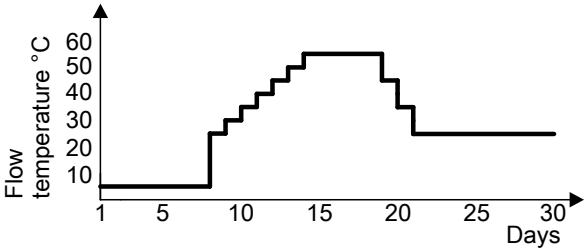


Temperature profile 5: Code "F1:5"

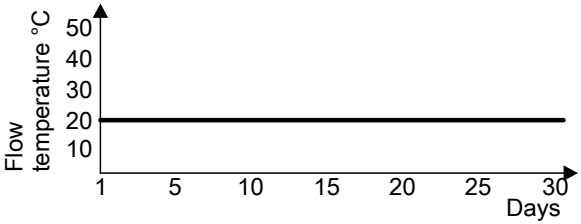


Control functions (cont.)

Temperature profile 6: Code "F1:6"



Temperature profile 7: Code "F1:15"



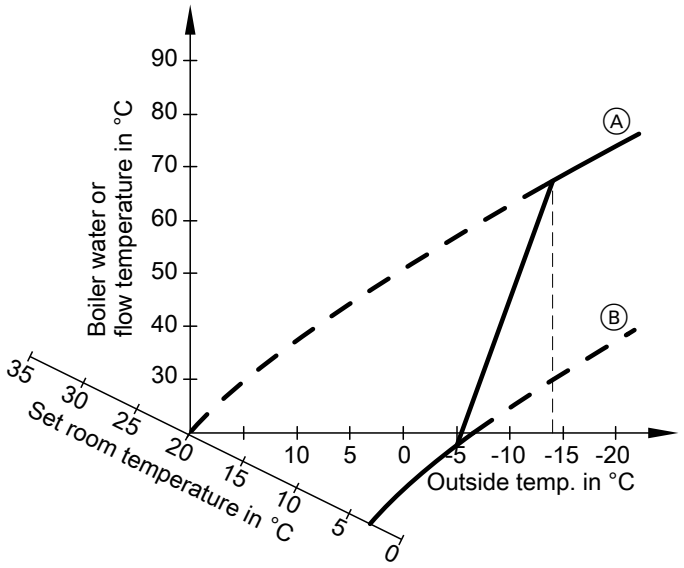
Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.

The outside temperature limits for the start and end of temperature raising can be set in coding addresses "F8" and "F9" in the **"Heating circuit"** group.

Control functions (cont.)

Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature can be automatically increased.

The value and duration of the additional increase in the set boiler water or flow temperature can be set in coding addresses "FA" and "Fb" in the **"Heating circuit"** group.

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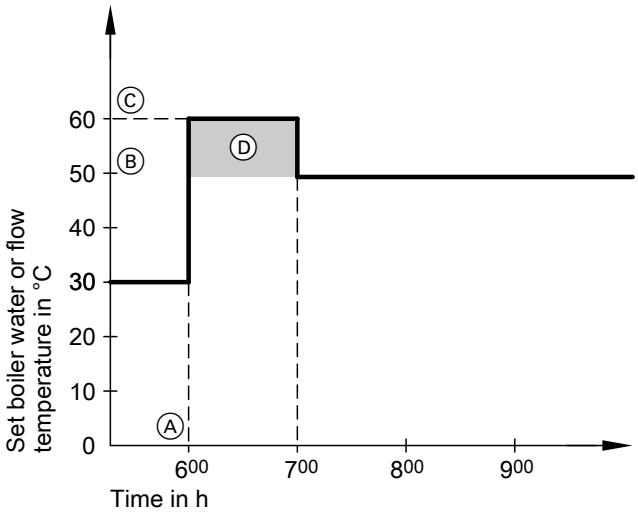
Control functions (cont.)

Example using the settings in the delivered condition



Ⓐ Start of operation with standard room temperature

Ⓑ Set boiler water or flow temperature in accordance with the selected heating curve

Ⓒ Set boiler water or flow temperature in accordance with coding address "FA":
50 °C + 20 % = 60 °C

Ⓓ Duration of operation with raised set boiler water or flow temperature in accordance with coding address "Fb":
60 min

Allocating heating circuits to the remote control

The heating circuit allocation must be configured when commissioning the Vitotrol.

Heating circuit	Vitotrol configuration	
	200A/200 RF	300A/300 RF
The remote control affects the heating circuit without mixer A1	H 1	HC 1
The remote control affects the heating circuit with mixer M2	H 2	HC 2
The remote control affects the heating circuit with mixer M3	H 3	HC 3

Note
One heating circuit can be assigned to the Vitotrol 200A/200 RF.
Up to three heating circuits can be assigned to the Vitotrol 300A/300 RF.
Up to 2 remote controls may be connected to the control unit.
If the heating circuit allocation is later cancelled, reset coding address A0 for this heating circuit to 0 (fault message bC, bd, bE).

Electronic combustion control unit

The electronic combustion controller utilises the physical correlation between the level of the ionisation current and the air ratio λ. The maximum ionisation current is achieved at an air ratio of 1 for all gas qualities.
The ionisation signal is evaluated by the combustion controller and the air ratio is adjusted to a value between λ=1.24 and 1.44. This range provides for an optimum combustion quality. Thereafter, the electronic gas valve regulates the required gas volume subject to the prevailing gas quality.

To check the combustion quality, the CO_2 content or the O_2 content of the flue gas is measured. The prevailing air ratio is determined with the measured values. The relationship between the CO_2 or O_2 content and air ratio λ is illustrated in the following table.

Electronic combustion control unit (cont.)

Air ratio λ– CO_2/O_2 content

Air ratio λ	O_2 content (%)	CO_2 content (%) for natural gas E	CO_2 content (%) for natural gas LL	CO_2 content (%) for LPG P
1.20	3.8	9.6	9.2	11.3
1.24	4.4	9.2	9.1	10.9
1.27	4.9	9.0	8.9	10.6
1.30	5.3	8.7	8.6	10.3
1.34	**5.7**	**8.5**	**8.4**	**10.0**
1.37	6.1	8.3	8.2	9.8
1.40	6.5	8.1	8.0	9.6
1.44	6.9	7.8	7.7	9.3
1.48	7.3	7.6	7.5	9.0

For optimum combustion control, the system regularly carries out an automatic self-calibration; also after a power failure (shutdown). For this, the combustion is briefly regulated to max. ionisation current (corresponding to air ratio λ=1). Automatic calibration is carried out shortly after the burner start and lasts approx. 5 s. During calibration, higher than normal CO emissions may occur briefly.

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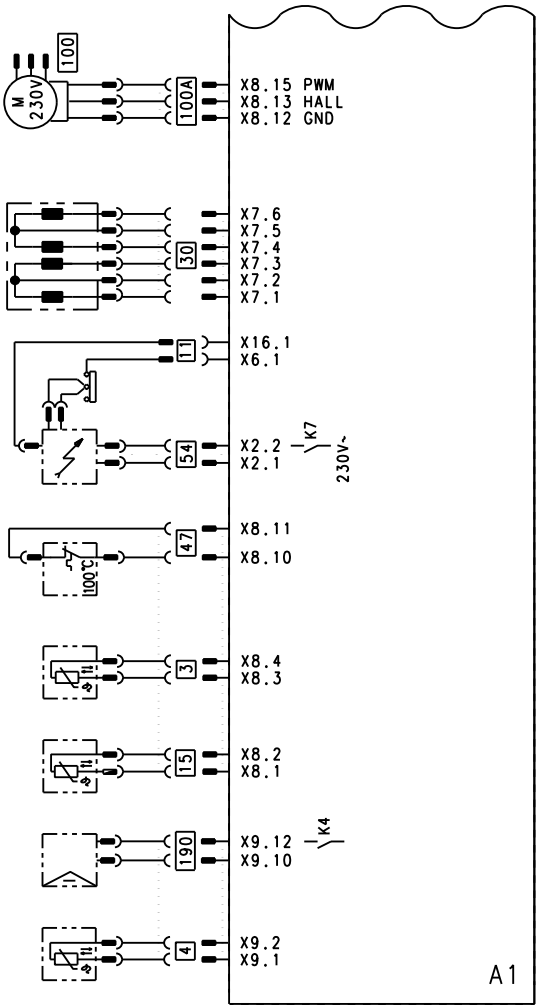
Internal connection diagram



A1	Main PCB	30	Stepper motor for diverter valve
X...	Electrical interfaces	47	Thermal circuit breaker
3	Boiler water temperature sensor	54	Ignition unit
4	Outlet temperature sensor	100	Fan motor
11	Ionisation electrode	100A	Fan motor control
15	Flue gas temperature sensor	190	Modulation coil

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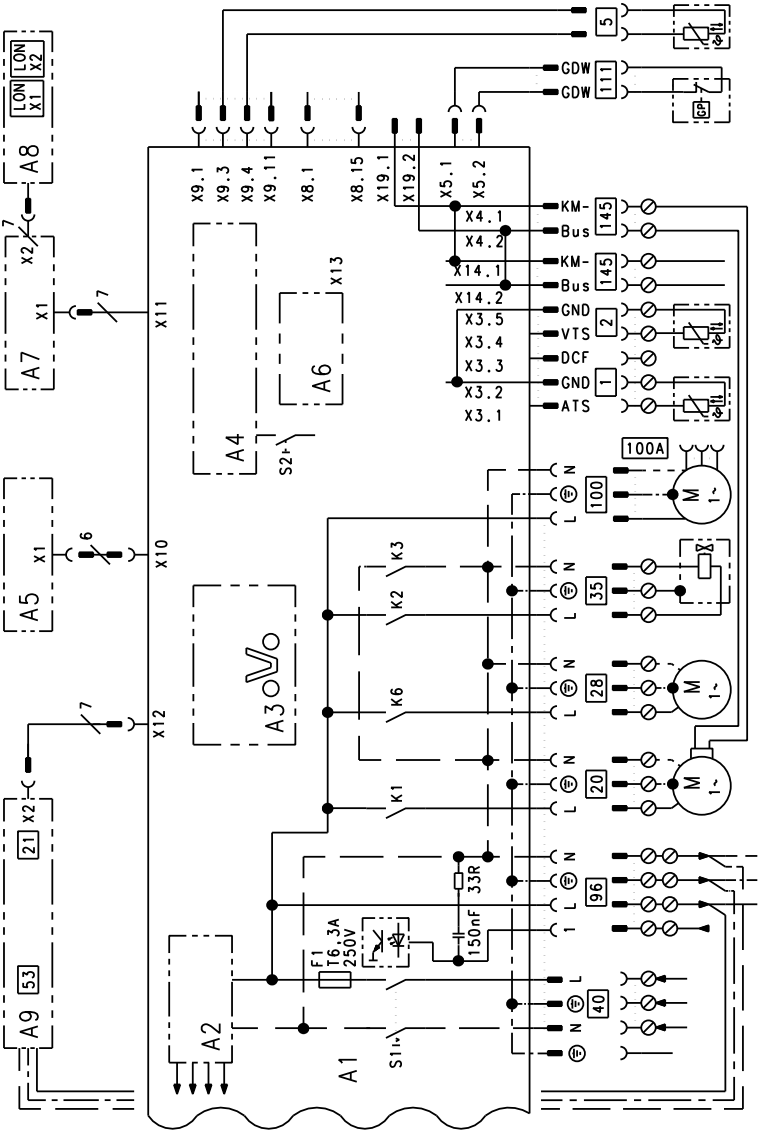
External connection diagram



A1	Main PCB	A4	Burner control unit
A2	Power supply unit	A5	Programming unit
A3	Optolink	A6	Coding card

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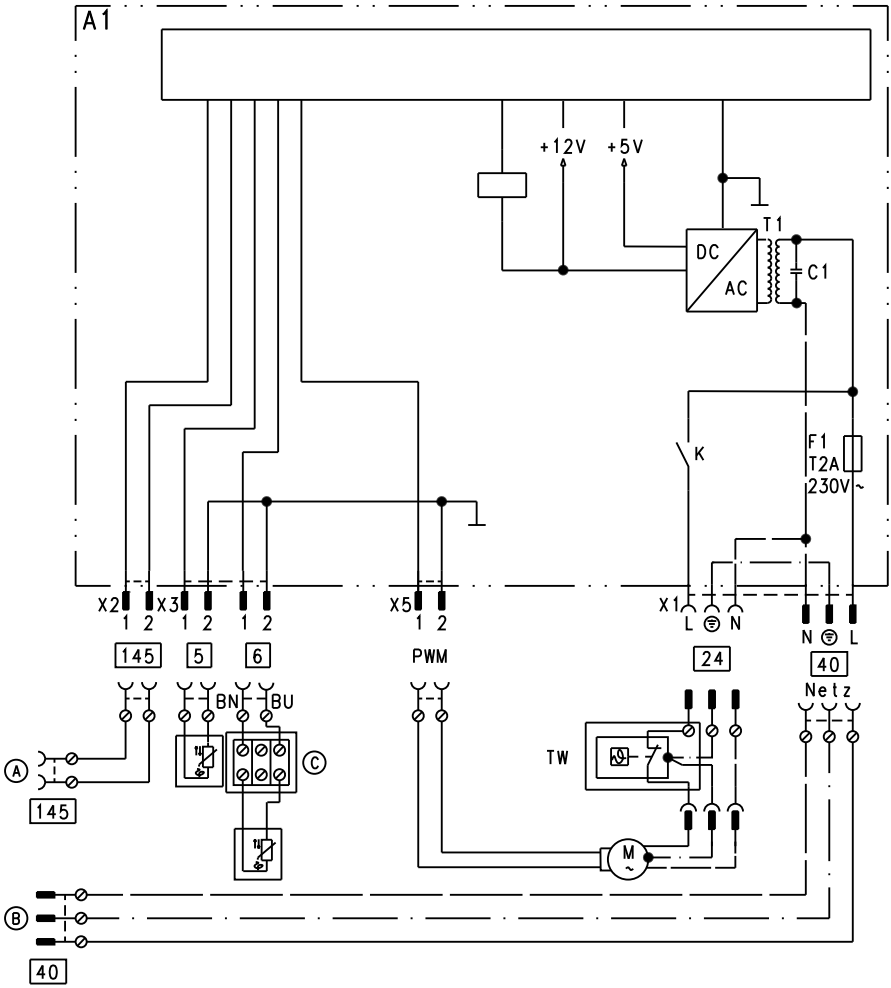
External connection diagram (cont.)

A7	Connection adaptor
A8	LON communication module (accessories)
A9	Internal extension H1 or H2 (accessories)
S1	ON/OFF switch
S2	Reset button
X...	Electrical interfaces
1	Outside temperature sensor
2	Flow temperature sensor, low loss header
5	Cylinder temperature sensor (plug on the cable harness)
20	Internal circulation pump
28	Cylinder primary pump
35	Gas solenoid valve
40	Power supply
96	Power supply for SM1 solar control module, accessories and Vitotrol 100
100	Fan motor
100A	Fan motor control
111	Gas pressure switch
145	KM BUS

Connection diagram, solar control module



A1	Main PCB	5	Cylinder temperature sensor
PWM	Speed control solar circuit pump	6	Collector temperature sensor
X...	Electrical interfaces	24	Solar circuit pump
Ⓐ	KM BUS from the control unit	40	Power supply
Ⓑ	Power supply from the control unit	145	KM BUS
Ⓒ	Terminal box, collector temperature sensor		

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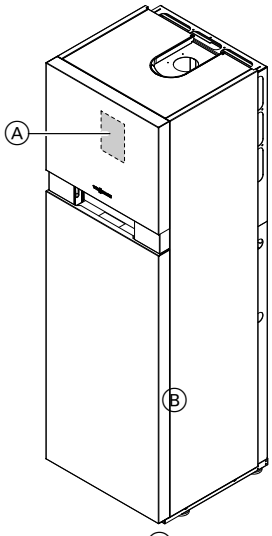
Ordering individual parts

The following information is required:

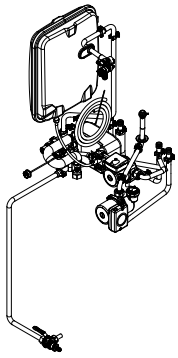
- Serial no. (see type plate Ⓐ)
- Assembly (from this parts list)
- Position number of the individual part within the assembly (from this parts list)

Standard parts are available from your local dealer.

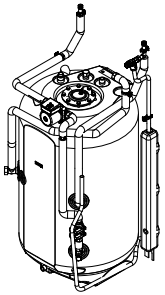
Overview of the assemblies



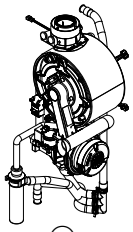
B



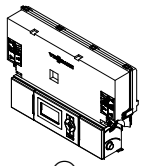
C



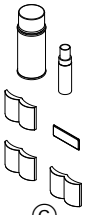
D



E



F



G

Ⓐ Type plate
Ⓑ Casing assembly
Ⓒ Hydraulic assembly with hydraulic block
Ⓓ Primary store assembly

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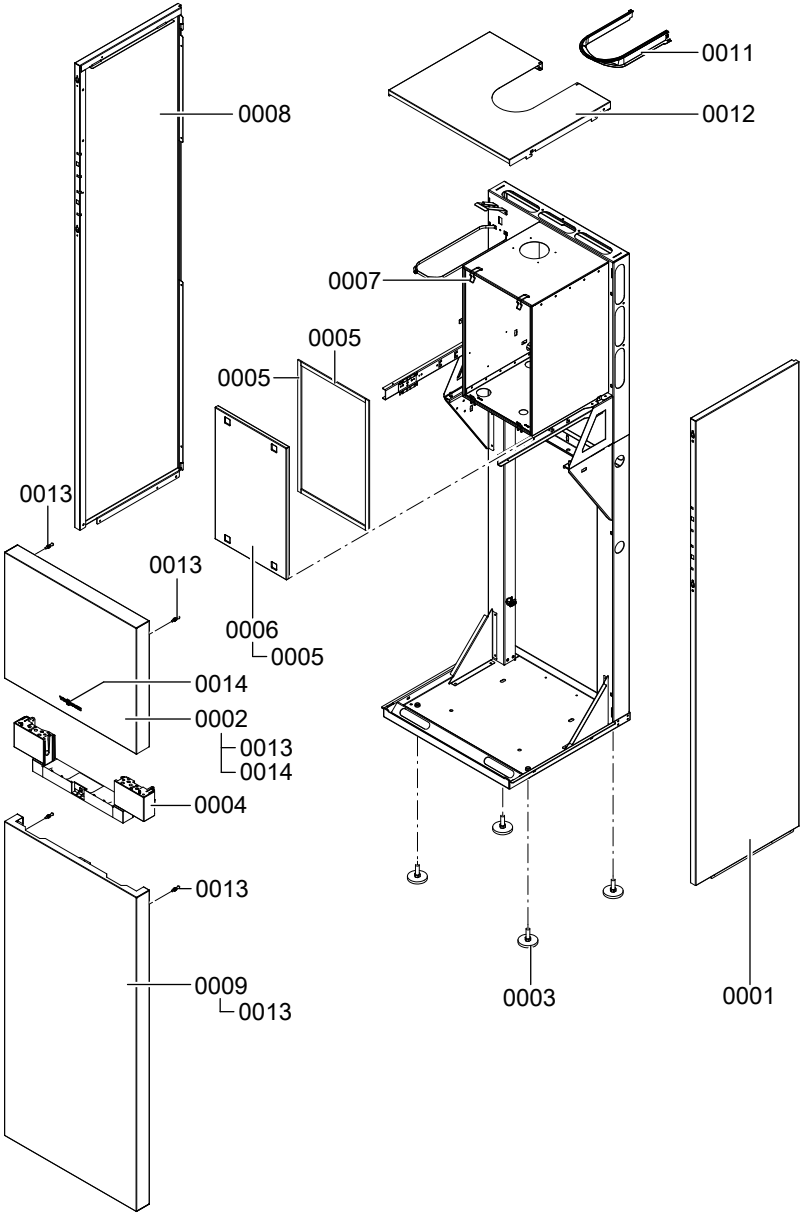
Overview of the assemblies (cont.)

Ⓔ Heat cell assembly with MatriX cylinder burner
Ⓕ Control unit assembly
Ⓖ Miscellaneous

Casing

0001 Side panel, right
0002 Front panel, top
0003 Adjustable foot
0004 Control unit support
0005 Profiled seal
0006 Cover panel with profiled seal
0007 Toggle fastener (4 pce)
0008 Side panel, left
0009 Front panel, bottom
0010 Retaining clip
0011 Top panel insert
0012 Top panel
0013 Location stud fixings (2 pce)
0014 Logo

Casing (cont.)



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Hydraulics

0001 Hydraulic block
0002 Set of plug-in connector retainers (2 pce)
0003 Diaphragm grommet (5 pce)
0004 Diaphragm grommet (5 pce)
0005 Clip Ø 8 (5 pce)
0006 Clip Ø 10 (5 pce)
0007 Clip Ø 15 (5 pce)
0008 Clip Ø 18 (5 pce)
0009 Air vent valve G3/8
0010 Spring clip (5 pce)
0011 Connection pipe HR
0012 Pipe clip Ø 18 / 1.5
0013 Fascia
- 13-19 kW Ø 4.0 (white)
- 26 kW Ø 5.5 (dark grey)

0014 Pipe clip Ø 18
0015 Union nut G1
0016 Sleeve
0017 Heating water flow connection pipe
0018 DHW connection pipe
0019 Connection pipe, cold water, cylinder (130 l)
0020 Expansion vessel connection line G 3/8
0021 Cold water hydraulic connection
0022 Pump motor
0023 CIL casing
0024 Cartridge non-return valve
0025 Shut-off valve, cold water, cylinder
0026 Round sealing ring 8 x 2 (5 pce)
0027 Connection line, DHW charging
0028 Shut-off valve, DHW cylinder
0029 Flow pipe
0030 Expansion vessel
0031 Connection pipe, cold water
0032 Heating water return connection pipework
0033 Thermal circuit breaker
0034 Hose 10 x 1.5 x 1500
0035 Pressure gauge
0036 Safety valve
0037 Connection pipe, heating water flow, heat cell
0038 Air vent valve
0039 Circulation pump motor
0040 CIAO casing
0041 Gasket A 17 x 24 x 2 (5 pce)
0042 Gasket 23 x 30 x 2, green (5 pce)
0043 Temperature sensor
0044 Gasket A 16 x 24 x 2 (5 pce)
0045 Cap G 3/4 SW 30
0046 Gasket A 10 x 15 x 1.5 (5 pce)
0047 O-ring 17.86 x 2.62 (5 pce)
0048 O-ring 14.3 x 2.4 (5 pce)
0049 Spring clip DN 25 (5 pce)
0050 Plug
0051 Gasket A 23 x 30 x 2, orange (5 pce)

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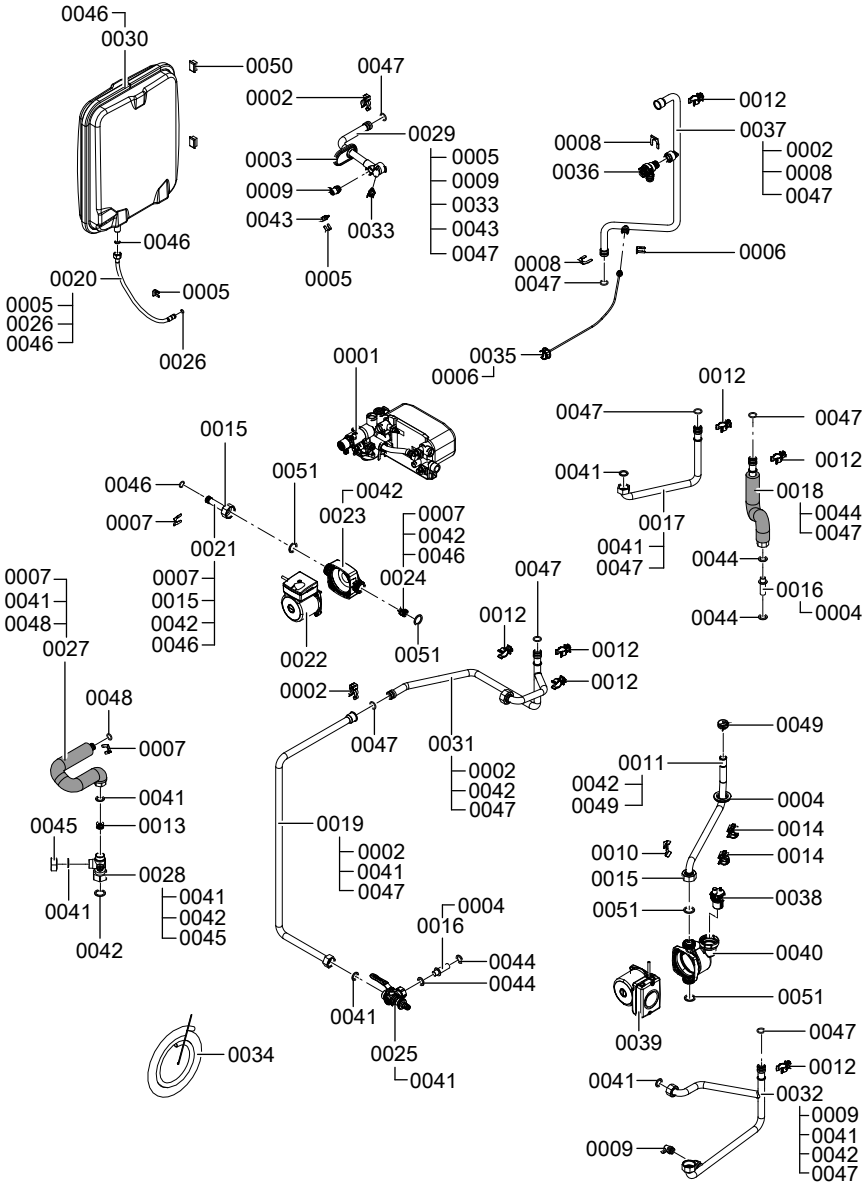
Hydraulics (cont.)



Service

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Hydraulics (cont.)

Hydraulic block

0001 Return unit
0002 Profiled gasket
0003 Plug Ø 8/Ø 10
0004 Clip Ø 8 (5 pce)
0005 Clip Ø 10 (5 pce)
0006 Clip Ø 18 (5 pce)
0007 Hydraulic retaining bracket
0008 Plate heat exchanger insulation board
0009 Plate heat exchanger insulation shell
0010 Overflow pipe
0011 Flow unit
0012 Valve insert
0013 Overflow valve
0014 O-ring 17.86 x 2.62 (5 pce)
0015 Gasket A 17 x 24 x 2 (5 pce)
0016 O-ring 9.6 x 2.4 (5 pce)
0017 Temperature sensor
0018 Plate heat exchanger

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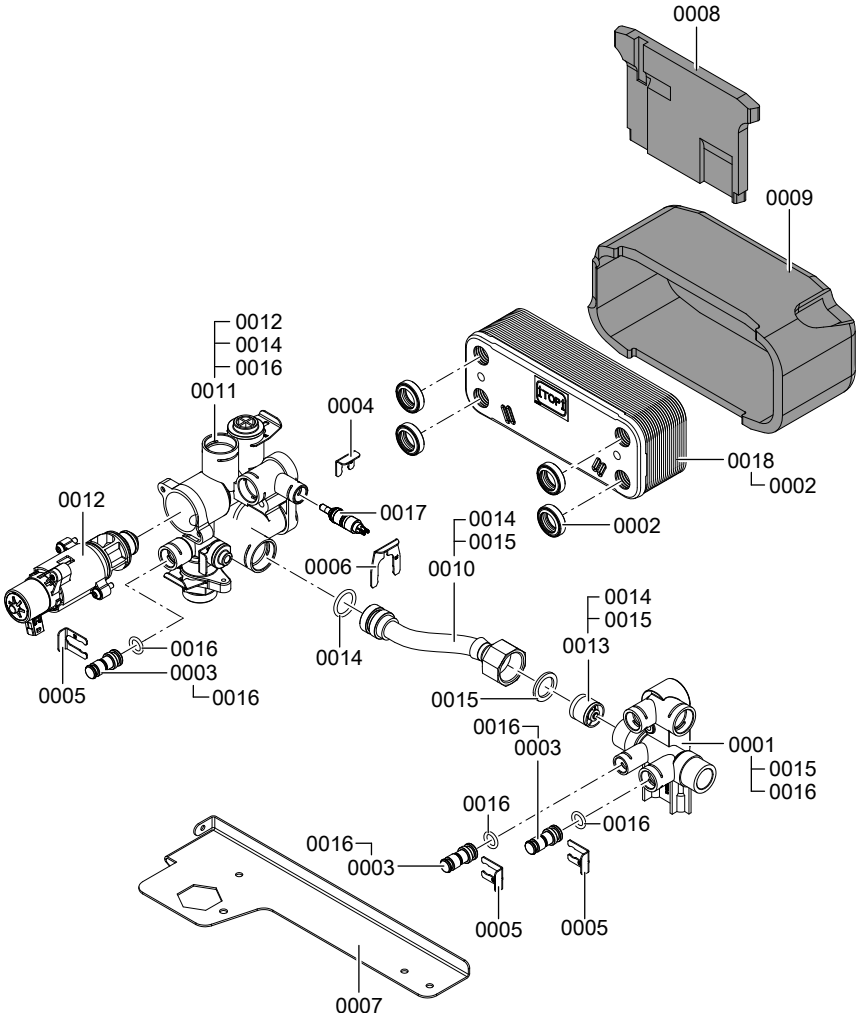
Hydraulics (cont.)



Cylinder module

0001 Primary store
0002 Pipe clip Ø 18
0003 Sleeve G 1
0004 Pipe clip Ø 18 / 1.5
0005 Drip pan
0006 Hose 12 x 3 l = 1300

Cylinder module (cont.)

0007 Sensor well with clamp G 1/2 l = 150
0008 Non-return valve with body 1 (fem.) x 1 (male)
0009 Filling facility for solar heat transfer medium
0010 Circulation pump
0011 Spring clip DN 19 (5 pce)
0012 Connection pipe, solar return
0013 Shut-off valve, DHW primary store
0014 Solar connection elbow
0015 Connection piece, solar filling device
0016 Drain pipe, solar safety valve
0017 O-ring 17.86 x 2.62 (5 pce)
0018 Pipe connector
0019 Connection pipe, solar flow
0020 Connection pipe, central draw-off
0021 Connection pipe, solar circuit pump
0022 Gasket A 11.5 x 18.5 x 2 (5 pce)
0023 Gasket A 17 x 24 x 2 (5 pce)
0024 Gasket 23 x 30 x 2 (5 pce)
0025 Gasket A 23 x 30 x 2 (5 pce)
0026 Cap G 3/4
0027 Gasket 17 x 24 x 2 (5 pce)
0028 Solar safety valve

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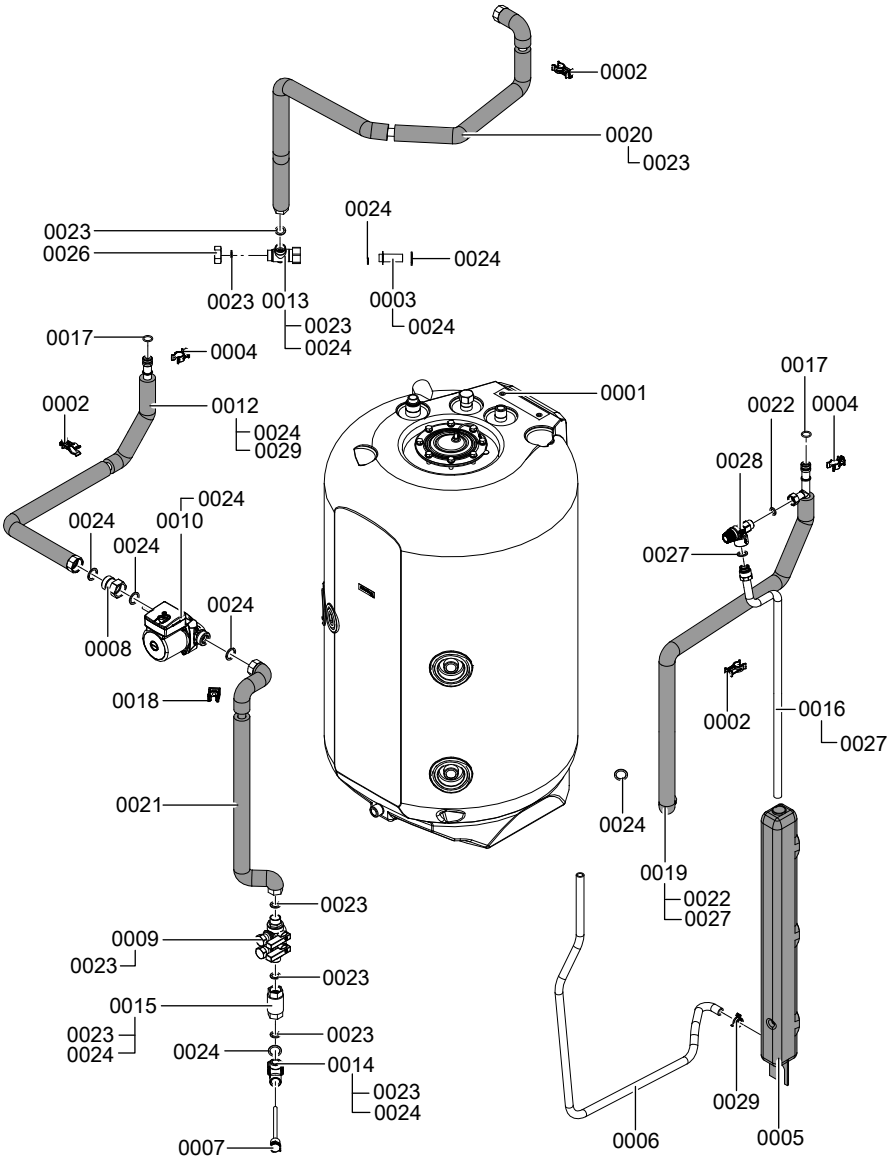
Cylinder module (cont.)

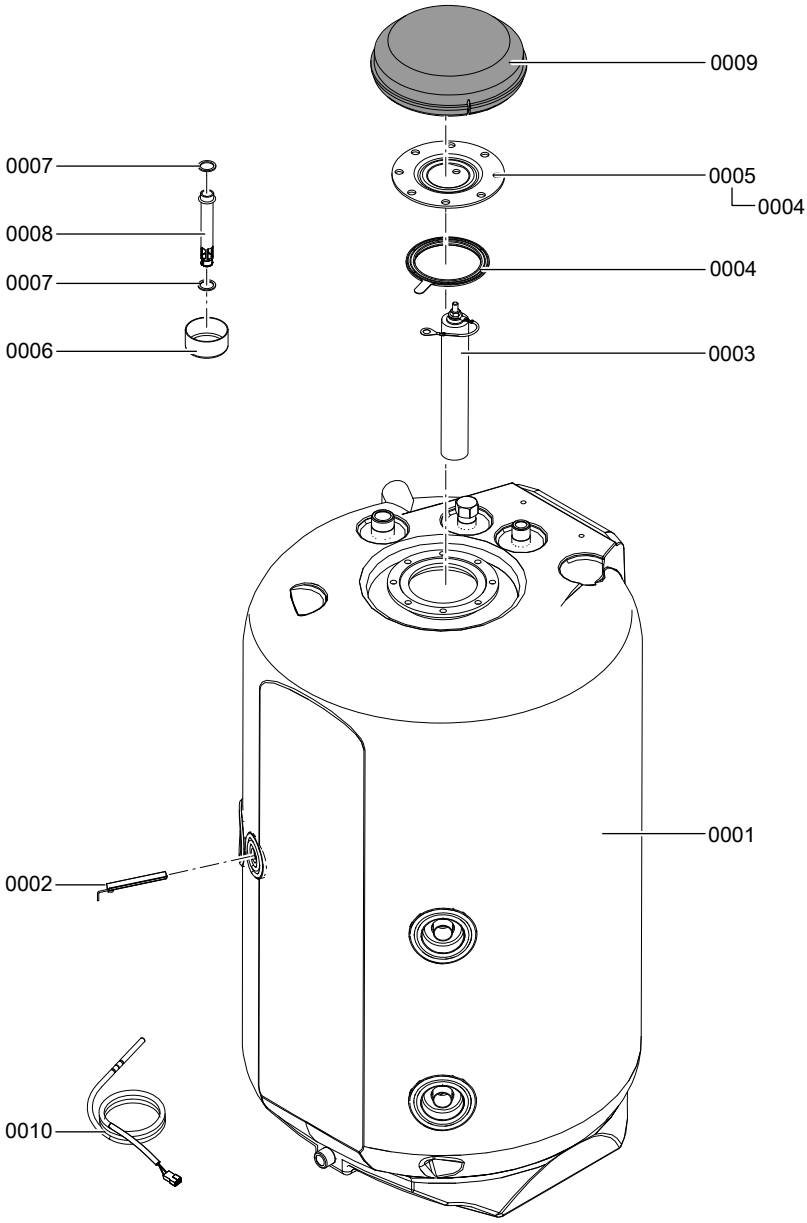


Cylinder module (cont.)

Primary store

0001 Primary store
0002 Sensor retainer
0003 Magnesium anode
0004 Gasket
0005 Flange with gasket
0006 Cover
0007 Gasket 23 x 30 x 2 (5 pce)
0008 Sleeve
0009 Flange insulation
0010 Cylinder temperature sensor NTC 10kΩ

Cylinder module (cont.)



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Heat cell

0001 MatriX cylinder burner
0002 Heat exchanger
0003 Thermal insulation block
0004 Flue gasket
0005 Flue gas temperature sensor
0006 Boiler flue connection
0007 Boiler flue connection plug
0008 Gasket DN 60
0009 Spring clip DN 25 (5 pce)
0010 Condensate collector
0011 Profile hose, heating return
0012 Pipe clip Ø 18 / 1.5
0013 Gas pipe
0014 Diaphragm grommet (5 pce)
0015 Gasket A 17 x 24 x 2 (5 pce)
0016 Condensate hose
0017 O-rings 35.4 x 3.59 (5 pce)
0018 Condensate hose
0019 Condensate hose
0020 Condensate hose
0021 Spring clip, condensate drain
0022 Siphon
0023 O-ring 63 x 2.62 (5 pce)
0024 Heating water return connection elbow

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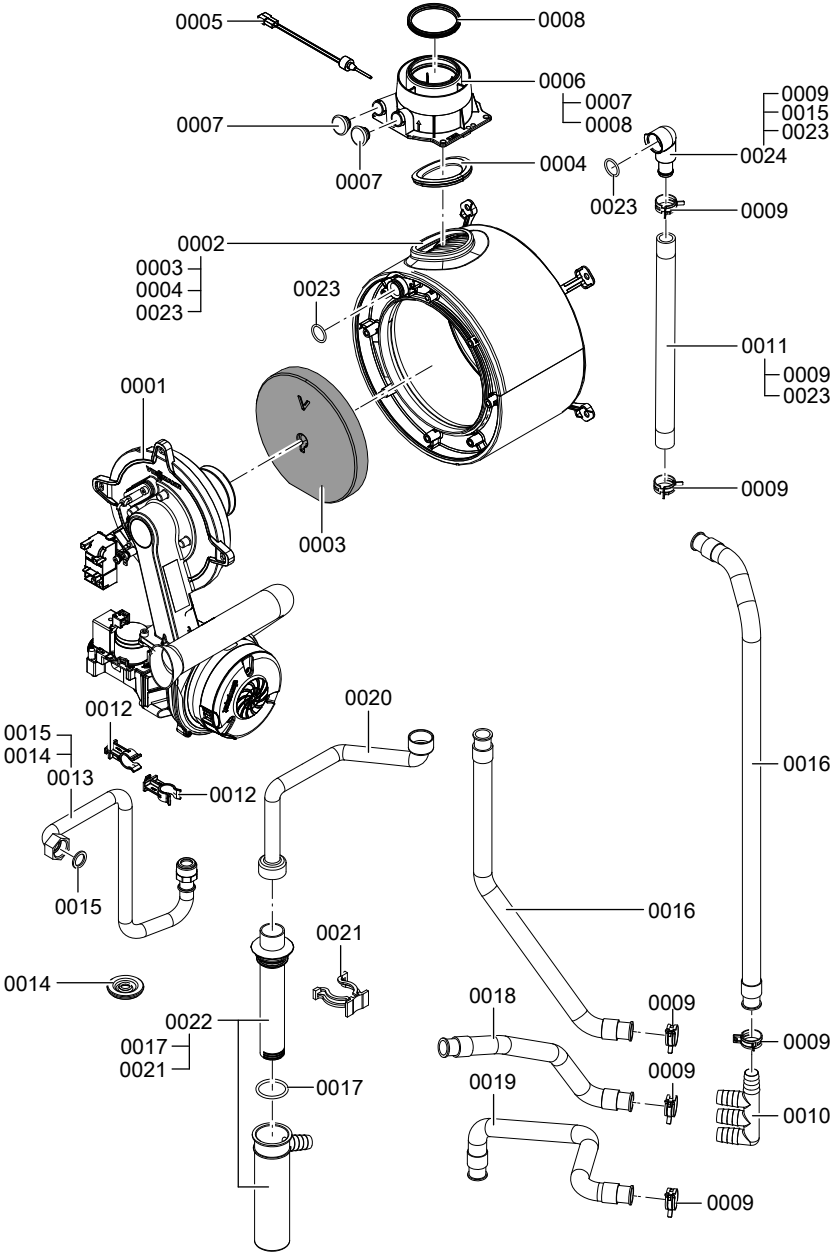
Heat cell (cont.)



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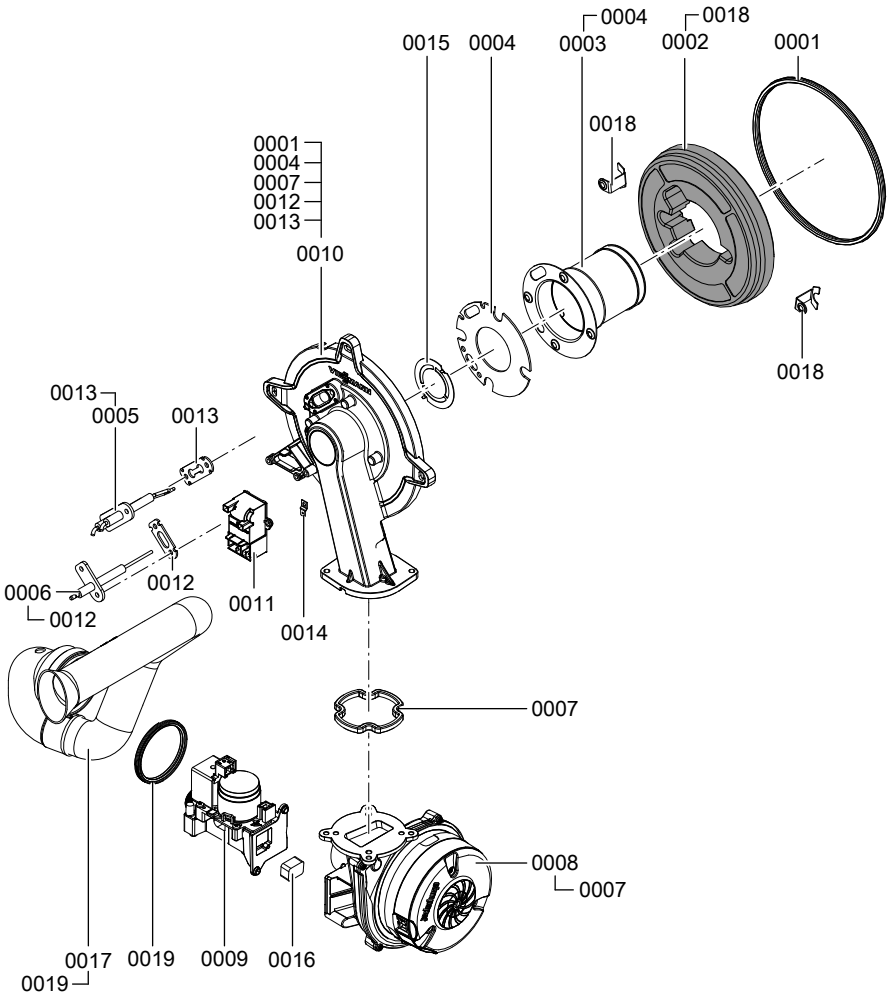
Heat cell (cont.)

MatriX cylinder burner

0001 Burner gasket (wearing part)
0002 Thermal insulation ring
0003 Cylinder burner gauze assembly
0004 Gasket, burner gauze assembly
0005 Ignition electrode (wearing part)
0006 Ionisation electrode (wearing part)
0007 Gasket, burner door flange (wearing part)
0008 Radial fan
0009 Gas train
0010 Burner door
0011 Ignition unit
0012 Gasket, ionisation electrode (5 pce)
0013 Gasket, ignition electrode (5 pce)
0014 Blade terminal (10 pce)
0015 Mixture restrictor
0016 Gas nozzle
- 13 kW/19 kW: 02 yellow
- 26 kW: 04 grey

0017 Venturi extension
0018 Mounting plate, thermal insulation ring (2 pce)
0019 Gasket DN 65

Heat cell (cont.)



Control unit

0001 Control unit
0002 Control unit casing back panel
0003 Coding card
0004 Fuse 6.3 A (slow) (10 pce)
0005 Fuse holder
0007 Programming unit for weather-compensated mode
0008 LON module

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Control unit (cont.)

0009 PCB adaptor
0010 Cable harness X8/X9/ionisation
0011 Cable harness 100/35/54/PE
0012 Power cable, stepper motor
0013 Mating plug (set)
0014 Cable fixing
0015 Locking bolts, left and right
0017 Wireless outside temperature sensor
0018 Outside temperature sensor (hardwired)
0019 KM BUS cable 145
0020 Internal extension H1
0021 Internal extension H2
0022 Connecting cable, cylinder primary pump
0023 Power cable
0024 Adaptor lead, collector temperature sensor

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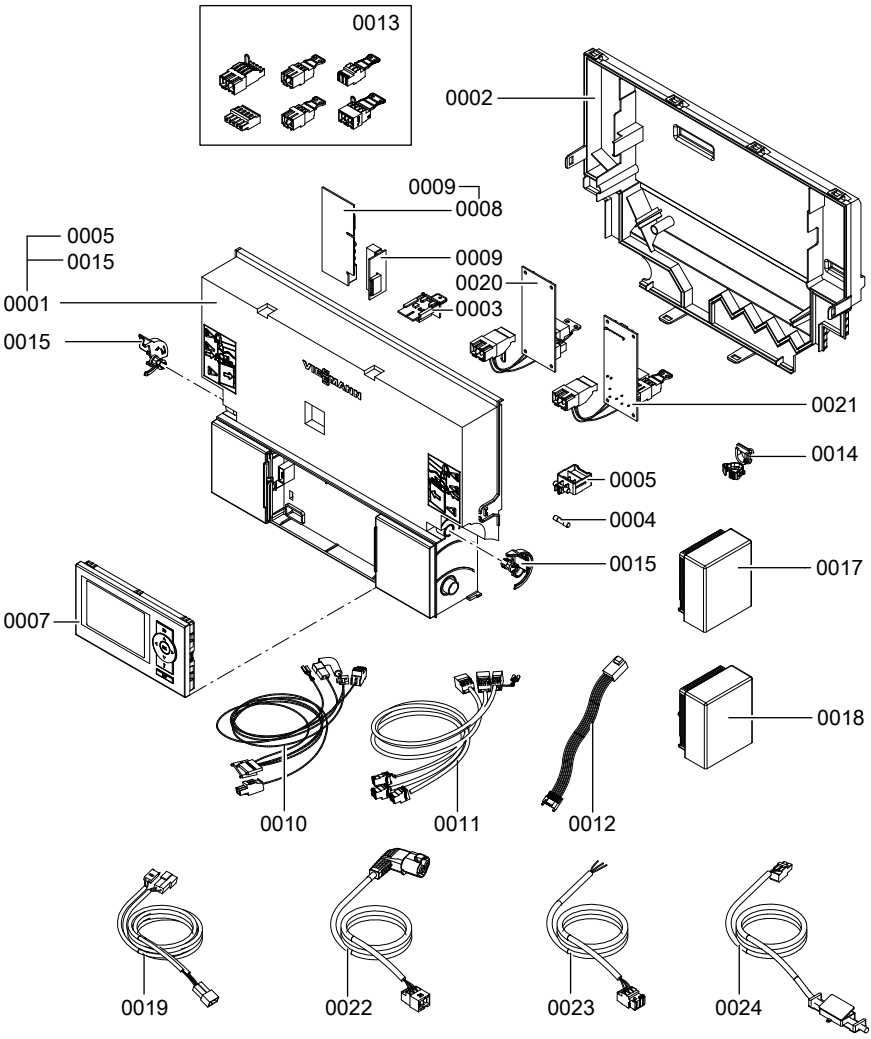
Control unit (cont.)

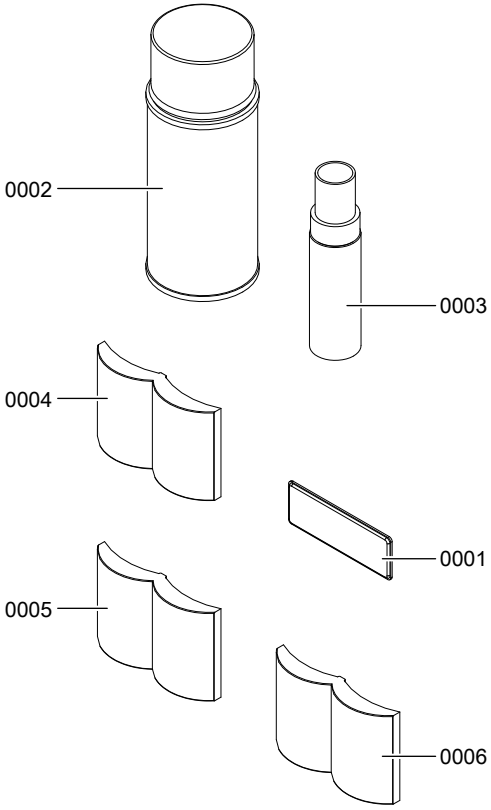


Miscellaneous

0001 Special grease
0002 Spray paint, Vitowhite
0003 Touch-up paint stick, Vitowhite
0004 Installation and service instructions

Miscellaneous (cont.)

0005 Operating instructions for constant temperature mode
0006 Operating instructions for weather-compensated mode



Commissioning/service reports

Settings and actual values		Set value	Commissioning	Maintenance/ Service
	Date Signature			
Static pressure	*mbar* *kPa*	≤ 57.5 ≤ 5.75		
Supply pressure (flow pressure)				
☐ for natural gas E	*mbar* *kPa*	17.4-25 1.74-2.5		
☐ for natural gas LL	*mbar* *kPa*	17.4-25 1.74-2.5		
☐ for LPG	*mbar* *kPa*	42.5-57.5 4.25-5.75		
Tick gas type				
Carbon dioxide content CO_2				
For natural gas				
■ At lower heating output	*% by vol.*	7.5-9.5		
■ At upper heating output	*% by vol.*	7.5-9.5		
For LPG				
■ At lower heating output	*% by vol.*	8.8-11.1		
■ At upper heating output	*% by vol.*	8.8-11.1		
Oxygen content O_2				
■ At lower heating output	*% by vol.*	4.0-7.6		
■ At upper heating output	*% by vol.*	4.0-7.6		
Carbon monoxide content CO				
■ At lower heating output	*ppm*	< 1000		
■ At upper heating output	*ppm*	< 1000		

Specification

Rated voltage	230 V	Electronic temperature limiter setting	82 °C
Rated frequency	50 Hz		
Rated current	6 A	Temperature limiter setting	100 °C (fixed)
Safety category	I		
IP rating	IP X 4 D to EN 60529	Backup fuse (power supply)	Max. 16 A

Permissible ambient temperature
- During operation 0 to +40 °C
- During storage and transport –20 to +65 °C

Rated heating output range				
at T_V/T_R 50/30 °C	**kW**	**3.2 (4.8)*2 - 13**	**3.2 (4.8)*2 - 19**	**5.2 (8.8)*2 - 26**
at T_V/T_R 80/60 °C	**kW**	**2.9 (4.3)*2 - 11.8**	**2.9 (4.3)*2 - 17.2**	**4.7 (8.0)*2 - 23.7**
for DHW heating	kW	2.9 (4.3)*2 - 17.2	2.9 (4.3)*2 - 17.2	4.7 (8.0)*2 - 29.3
Rated heat input range				
	kW	3.1 (4.5)*2 - 17.9	3.1 (4.5)*2 - 17.9	4.9 (8.3)*2 - 30.5
Power consumption				
In the delivered condition	W	39	53	68
Maximum	W	157	160	209
Supply values relative to the max. load				
Natural gas E	m^3/h	1.89	1.89	3.23
Natural gas LL	m^3/h	2.20	2.20	3.75
LPG P	kg/h	1.40	1.40	2.38
Product ID		CE-0085CN0050		

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

*2 *Only when operating with LPG P*

Declaration of conformity

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, declare as sole responsible body that the product **Vitodens 242-F**, **type B2UA**, complies with the following standards:

DIN 4753
EN 483
EN 625
EN 677
EN 806
EN 12897
EN 55 014
EN 60 335-1
EN 60 335-2-102
EN 61 000-3-2
EN 61 000-3-3

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

97/23/EC
92/42/EEC
2004/108/EC
2006/95/EC
2009/142/EC

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

Allendorf, 01 January 2013

Viessmann Werke GmbH&Co KG

Authorised signatory Manfred Sommer

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

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm that the product **Vitodens 242-F**, **type B2UA**, complies with the NO_x limits specified by the 1st BImSchV Paragraph 6 [Germany].

Allendorf, 01 January 2013

Viessmann Werke GmbH&Co KG

Authorised signatory Manfred Sommer

Keyword index

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Keyword index (cont.)

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Applicability

Serial No.:
7519083 7513244 7513245

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5773 238 GB Subject to technical modifications.