

Vitocrossal 100

Type CI1, 80 to 318 kW

Type CI1 twin boiler, 240 to 636 kW

Gas condensing boiler with MatriX cylinder burner

Open flue and **room sealed** operation

For applicability, see the last page



VITOCROSSAL 100



Safety instructions



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

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

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

Note

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

Target group

These instructions are exclusively intended for qualified contractors.

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

Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
 - Ⓐ ÖNORM, EN, ÖVGW G K Guidelines, ÖVGW-TRF and ÖVE
 - ⒸH SEV, SUVA, SVGW, SVTI, SWKI, VKF and EKAS guideline 1942: LPG, part 2

Safety instructions for working on the system

Working on the system

- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.
- Isolate the system from the power supply, e.g. by removing the separate fuse or by means of a mains isolator, and check that it is no longer live.
- Safeguard the system against reconnection.
- Wear suitable personal protective equipment when carrying out any work.



Danger

Hot surfaces can cause burns.

- Before maintenance and service work, switch OFF the appliance and let it cool down.
- Never touch hot surfaces on the boiler, burner, flue system or pipework.



Please note

Electronic assemblies can be damaged by electrostatic discharge.

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

Repair work



Please note

Repairing components that fulfil a safety function can compromise the safe operation of the system.

Replace faulty components only with genuine Viessmann spare parts.

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.

Safety instructions for operating the system

If you smell gas



Danger

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

- Do not smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances on or off.
- Close the gas shut-off valve.
- Open windows and doors.
- Evacuate any people from the danger zone.
- Notify your gas or electricity supply utility from outside the building.
- Have the power supply to the building shut off from a safe place (outside the building).

If you smell flue gas



Danger

Flue gas can lead to life threatening poisoning.

- Shut down the heating system.
- Ventilate the installation site.
- Close doors to living spaces to prevent flue gases from spreading.

What to do if water escapes from the appliance



Danger

If water escapes from the appliance there is a risk of electrocution.

Switch OFF the heating system at the external isolator (e.g. fuse box, domestic distribution board).



Danger

If water escapes from the appliance there is a risk of scalding.

Never touch hot heating water.

Condensate



Danger

Contact with condensate can be harmful to health.

Never let condensate touch your skin or eyes and do not swallow it.

Flue systems and combustion air

Ensure that flue systems are clear and cannot be sealed, for instance due to accumulation of condensate or other causes. Ensure an adequate supply of combustion air.

Inform system users that subsequent modifications to the building characteristics are not permissible (e.g. cable/pipework routing, cladding or partitions).



Danger

Leaking or blocked flue systems, or an inadequate supply of combustion air can cause life threatening poisoning from carbon monoxide in the flue gas.

Ensure the flue system is in good working order. Vents for supplying combustion air must be non-closable.

Extractors

Operating appliances that extract air to the outside (extractor hoods, extractors, air conditioning units, etc.) can create negative pressure. If the boiler is operated at the same time, this can lead to 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 an adequate supply of combustion air.

1. Information	Symbols	6
	Intended use	6
	Information for twin boilers	7
2. Commissioning, inspection, maintenance	Steps – commissioning, inspection and maintenance	8
3. Code 1	Calling up coding level 1	33
	General/Group "1"	34
	Boiler/Group "2"	35
	DHW/Group "3"	36
	Solar/Group "4"	36
	Heating circuit 1, heating circuit 2, heating circuit 3/Group "5"	37
4. Code 2	Calling up coding level 2	41
	General/Group "1"	41
	Boiler/Group "2"	46
	DHW/Group "3"	47
	Solar/Group "4"	49
	Heating circuit 1, heating circuit 2, heating circuit 3/Group "5"	53
5. Diagnosis and service scans	Service level, weather-compensated control unit	59
	Diagnosis, weather-compensated control unit	59
	■ Calling up operating data	59
	■ Brief scan	60
	■ Testing outputs (relay test)	61
	Service level, constant temperature control unit	61
	Diagnosis, constant temperature control unit	61
	■ Testing outputs (relay test)	63
6. Troubleshooting	Fault display	64
	■ Weather-compensated control unit	64
	■ Constant temperature control unit	64
	Fault codes	65
7. Maintenance	Checking the outside temperature sensor	77
	Checking the cylinder temperature sensor	78
	Checking the boiler water temperature sensor	78
	Checking the flue gas temperature sensor	79
	Checking the fuse	80
	Mixer extension kit	81
	Checking the Vitotronic 200-H (accessories)	82
8. Parts lists	Overview of assemblies	83
	Thermal insulation assembly	84
	Twin boiler thermal insulation assembly	86
	Boiler assembly, boilers up to 160 kW	88
	Boiler assembly, boilers from 200 to 318 kW	90
	Burner assembly, burners up to 80 kW	92
	Burner assembly, burners 120/160 kW	94
	Burner assembly, burners 200 to 318 kW	96
	Programming unit assembly	98
	Control unit assembly	100
	Miscellaneous	102
9. Function description	Weather-compensated control unit	103
	■ Heating mode	103
	■ DHW heating	103
	■ Boosting DHW heating	103
	Internal extensions	104







Index (cont.)

	■ Internal H1 extension	104
	■ Internal H2 extension	105
	External extension (accessories)	106
	■ AM1 extension	106
	■ EA1 extension	107
	Control functions	108
	■ External operating program changeover	108
	■ External blocking	109
	■ External demand	110
	■ Screed drying	110
	■ Raising the reduced room temperature	112
	■ Reducing the heat-up time	113
	Assigning heating circuits to the remote control	114
	Electronic combustion control unit	115
10. Connection and wiring diagram	Connection and wiring diagram	116
	■ Up to 80 kW	119
	■ 120 to 318 kW	120
	■ Main PCB up to 80 kW	122
	■ Main PCB 120 to 160 kW	123
	■ Main PCB 240 to 318 kW	124
	External connection diagram	125
11. Water quality	Requirements	126
12. Commissioning/service reports	128
	Settings and test values	128
13. Specification	Vitocrossal 100 specification	130
	MatriX cylinder burner specification	132
14. Shutdown and disposal	Final decommissioning and disposal	133
15. Certificates	Declaration of conformity	134
	Manufacturer's certificate according to the 1st BImSchV [Germany]	135
16. Keyword index	136

Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	<ul style="list-style-type: none"> Component must audibly click into place. or Acoustic signal
	<ul style="list-style-type: none"> Fit new component. or In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do not dispose of component in domestic waste.

The steps in connection with commissioning, inspection and maintenance are found in the "Commissioning, inspection and maintenance" section and identified as follows:

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

Intended use

The appliance is intended solely for installation and operation 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 heating up heating water that is of potable water quality.

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

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

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

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

Information for twin boilers

The tasks for commissioning, inspection and servicing are depicted on a single boiler. For twin boilers, the work must be carried out on both boilers. For this reason, the illustrations may differ partly.



Steps – commissioning, inspection and maintenance

	Commissioning steps	Inspection steps	Maintenance steps		Page
•				1. Filling the heating system and checking the supply of ventilation air.....	9
•				2. Checking the power supply	
•				3. Changing the language (if required).....	9
•	•			4. Setting the time and date (if required).....	10
•				5. Naming heating circuits.....	10
•	•			6. Checking the gas type.....	10
•	•	•		7. Removing the front panel.....	11
•	•	•		8. Function sequence and possible faults.....	11
•	•	•		9. Testing the static and supply pressure.....	12
•				10. Setting the maximum heating output.....	13
	•	•		11. Checking the combustion chamber pressure limiter.....	14
	•	•		12. Removing the burner and checking the burner gasket.....	15
	•	•		13. Checking the burner gauze assembly and thermal insulation block.....	18
	•	•		14. Checking and adjusting the ignition and ionisation electrodes.....	21
	•	•		15. Cleaning the combustion chamber and heating surfaces.....	21
	•	•		16. Cleaning the condensate drain system.....	22
	•	•		17. Cleaning the neutralising system (if installed).....	23
	•	•		18. Checking the condensate drain and neutralising system (if installed) for obstructions and leaks.....	24
	•	•		19. Checking the gaskets and thermal insulation sections on the boiler side.....	25
	•	•		20. Checking the expansion vessel and system pressure.....	25
•	•	•		21. Checking the water quality.....	25
	•	•		22. Checking the mixer for ease of operation and leaks.....	26
•	•	•		23. Checking all connections on the heating water and DHW sides for leaks	
•	•	•		24. Checking the safety valve function	
	•	•		25. Installing the burner.....	26
•	•	•		26. Checking the firm seating of electrical connections	
•	•	•		27. Checking all gas equipment for tightness at operating pressure.....	26
•	•	•		28. Checking the combustion quality.....	26
	•	•		29. Checking the ventilation air apertures in the installation room (only for open flue operation)	
•	•	•		30. Checking the external LPG safety valve (if installed)	
•				31. Matching the control unit to the heating system.....	28
•				32. Adjusting heating curves.....	28
•				33. Connecting the control unit to the LON.....	29
	•			34. Calling up and resetting the "Service" display.....	31
•	•	•		35. Mounting the front panel.....	31
•				36. Instructing the system user.....	32



Filling the heating system and checking the supply of ventilation air



Please note

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

Only use suitable fill water.

- Flush the heating system thoroughly before filling.
- For water quality requirements, see page 126.
- Only use fill water of potable water quality.
- Fill water must be softened in accordance with the requirements of VDI 2035, e.g. with a small softening system for heating water. See water quality requirements on page 128.



Vitaset pricelist

- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability, as damage to gaskets or diaphragms and noise during heating operation may otherwise occur.

Viessmann accepts no liability for any resulting damage or consequential losses.

1. Check whether the ventilation air supply is unrestricted.
2. Check the pre-charge pressure of the expansion vessel when the system is still cold.

Note

If the pre-charge pressure of the expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the static system pressure. The static pressure corresponds to the static head.

3. Open any installed check valves.
4. Fill the heating system with water and vent until the charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the pre-charge pressure of the expansion vessel.
Permiss. operating pressure: 6 bar (0.6 MPa)
Minimum operating pressure: 0.5 bar (50 kPa)

Note

The minimum operating pressure is essential for safe operation.

5. Record the fill volume, water hardness and pH value in the table on page 128.

Note

Observe section "Water quality requirements" on page 126.

6. Return the check valves to their operating position.



Checking the power supply



Changing the language (if required)

Only for weather-compensated control units

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 <input checked="" type="checkbox"/>
Bulgarski	BG <input type="checkbox"/>
Cesky	CZ <input type="checkbox"/>
Dansk	DK <input type="checkbox"/>
Wählen mit	

Fig. 1




Setting the time and date (if required)

Only for weather-compensated control units

The time and date need to be reset during commissioning or after a prolonged time out of use (approx. 18 days).

Extended menu:

1. 
2. "Settings"
3. "Time / Date"
4. Set current time and date.

Note

When time and date have been set, the control unit automatically checks the function of the flue gas temperature sensor. The display shows: "Test, flue gas temp. sensor" and "Active".



Naming heating circuits

Only for weather-compensated control units

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.

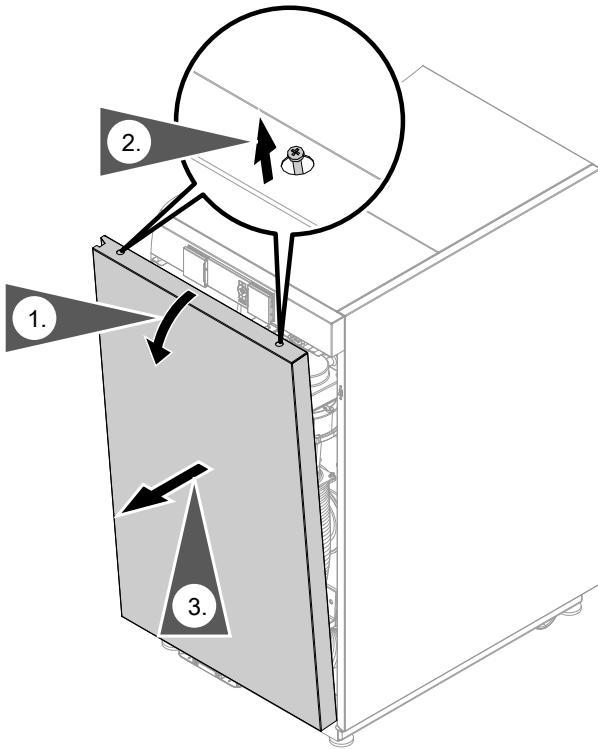
- For operation with natural gas, no adjustment is therefore required across the entire Wobbe index range.

The boiler can be operated within the Wobbe index range 9.5 to 15.2 kWh/m³ (34.2 to 54.7 MJ/m³).

1. Check with your gas supply utility regarding the gas type and Wobbe index.
2. Record the gas type in the report on page 128.



Removing the front panel

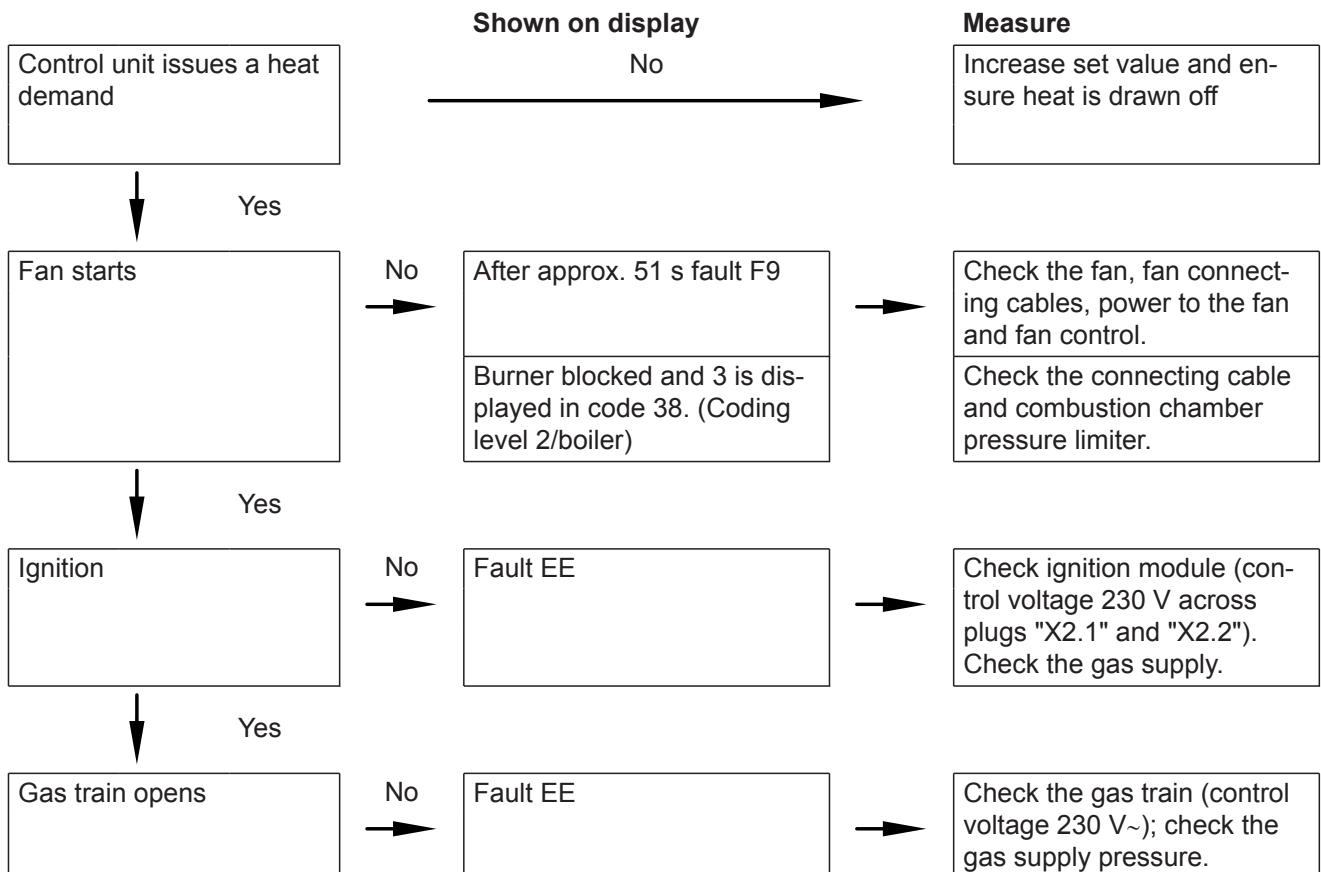


1. Tip the front panel forward slightly at the top.
2. Undo the locking screws until the front panel can be removed.

Fig. 2

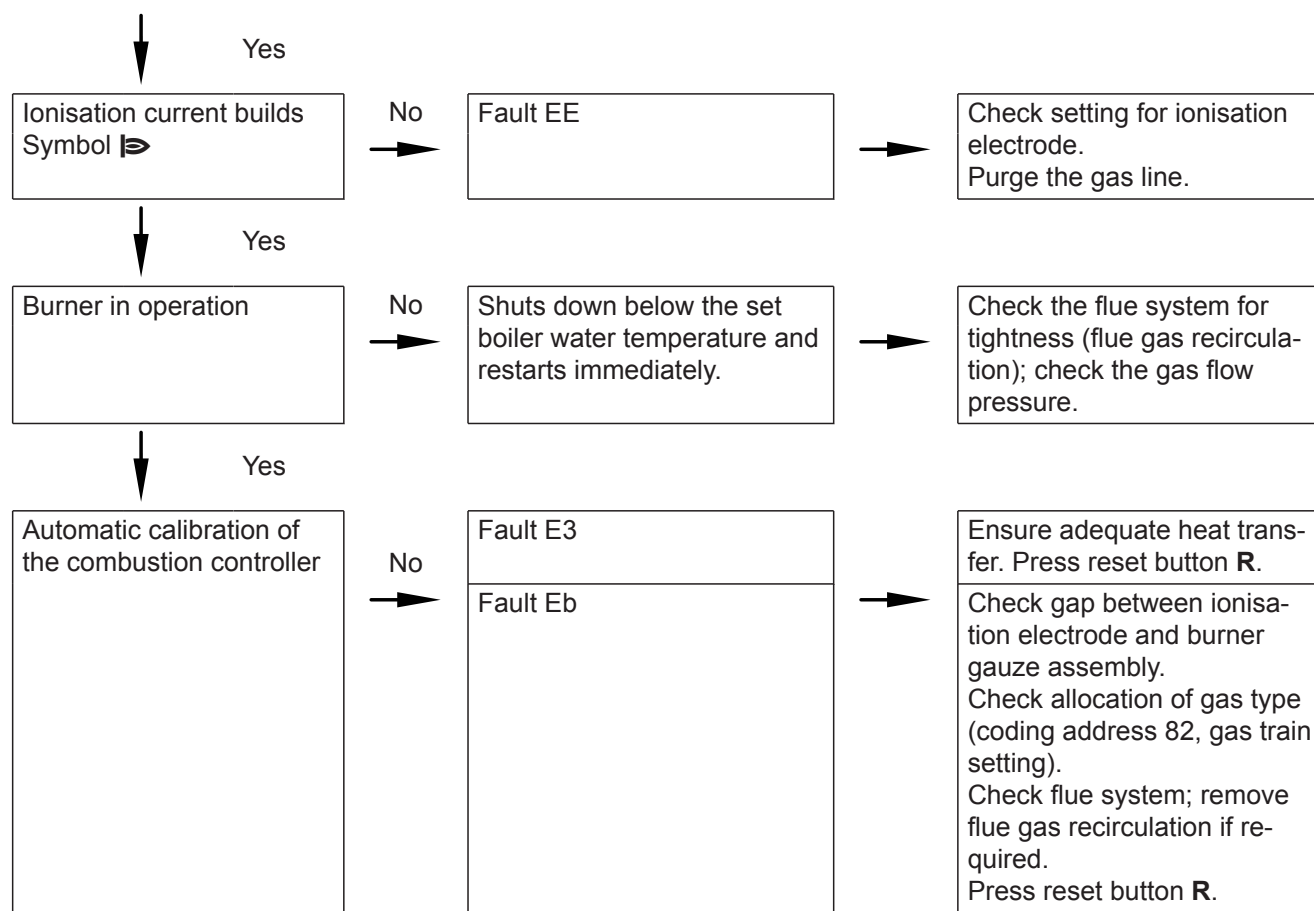


Function sequence and possible faults





Function sequence and possible faults (cont.)



For further details regarding faults, see page 64.



Testing the static and supply pressure



Danger

CO formation can have serious health implications.
Always carry out a CO test before and after work on gas appliances.

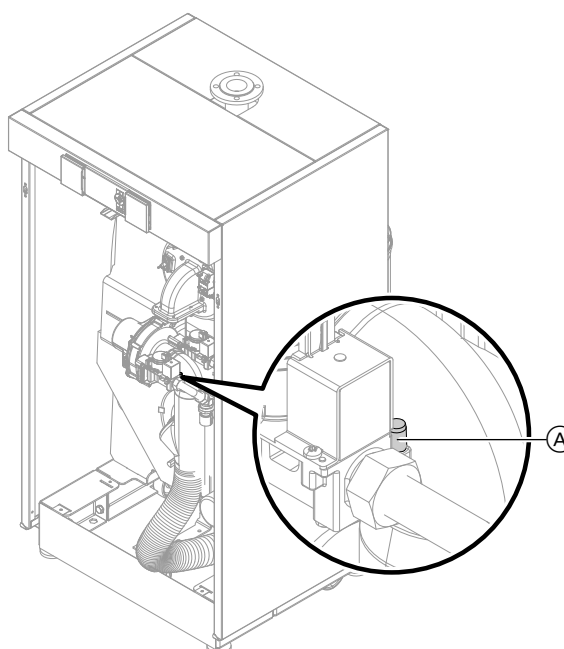


Fig. 3 Up to 80 kW



Testing the static and supply pressure (cont.)

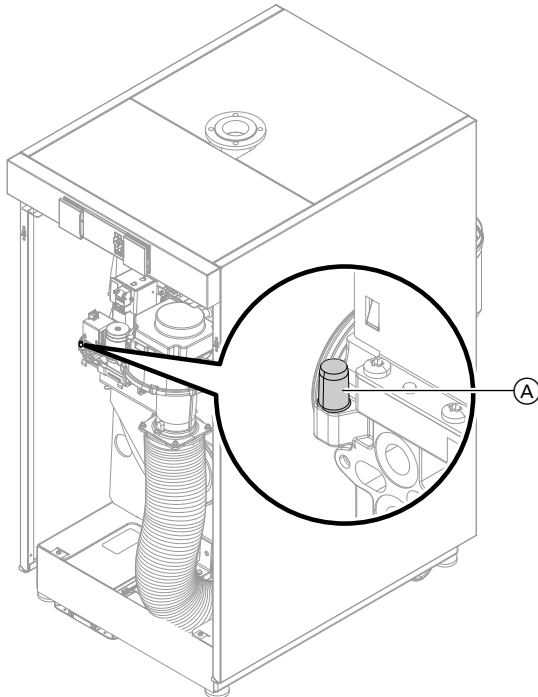


Fig. 4 From 120 kW

1. Close the gas shut-off valve.
2. Release screw (A) inside test connector "PE" on the gas train, but do not remove it. Connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the static pressure. Record the actual value in the report on page 128.
Set value: Max. 30 mbar (3 kPa)
5. Start the boiler.

Note

During commissioning, the appliance can enter a fault state because of airlocks in the gas line. After approx. 5 s, press reset button **R** to reset the burner.

6. Check the supply (flow) pressure.
Set value: 20/25 mbar (2/2.5 kPa)

Note

Use a suitable measuring device with a resolution of at least 0.1 mbar (10 Pa) to check the supply pressure.

7. Record the actual value in the report on page 128. Implement measures as indicated in the table below.
8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test connector (A) with the screw.
9. Open the gas shut-off valve and start the appliance.



Danger

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

Supply pressure (flow pressure)	Measures
Below 17 mbar (1.7 kPa)	Do not commission the boiler. Notify your gas supply utility or LPG supplier.
17 to 25 mbar (1.7 to 2.5 kPa)	Start the boiler.
Above 25 mbar (2.5 kPa)	Connect the separate gas pressure governor upstream of the system and set the pre-charge pressure to 20 mbar (2 kPa). Notify your gas supply utility.



Setting the maximum heating output

A limit can be set on the maximum heating output for **heating mode**. The limit is set via the modulation range. The upper limit of the max. adjustable heating output is set by the coding card.



Setting the maximum heating output (cont.)

Weather-compensated control unit

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 is 100 % of the rated heating output.
5. Set the required value.

Constant temperature control unit

Service menu

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. Select **"③"** using **▶**. Confirm with **OK**.
The display shows **"FL"** and **"ON"** flashes.
3. Confirm with **OK**.
4. The display shows the set heating output (e.g. **"85"**) and **"▶"**. In the delivered condition, this value is 100 % of the rated heating output.
5. Set the required value. Confirm with **OK**.



Checking the combustion chamber pressure limiter

The combustion chamber pressure limiter responds in the event of deflagration, blocks the burner and prevents flue gas escaping if the flue system is damaged.

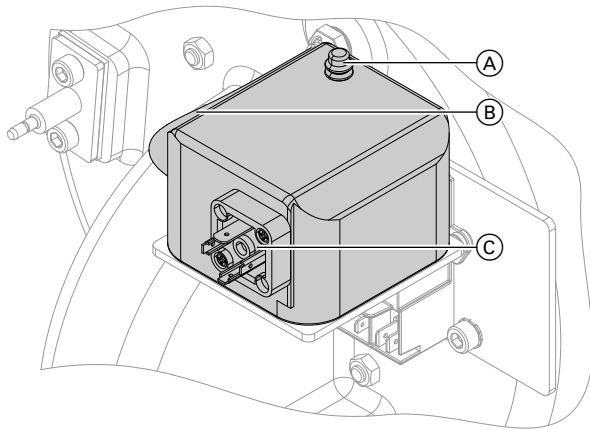


Fig. 5

- (A) Reset button
- (B) Connection hose
- (C) Plug-in connection

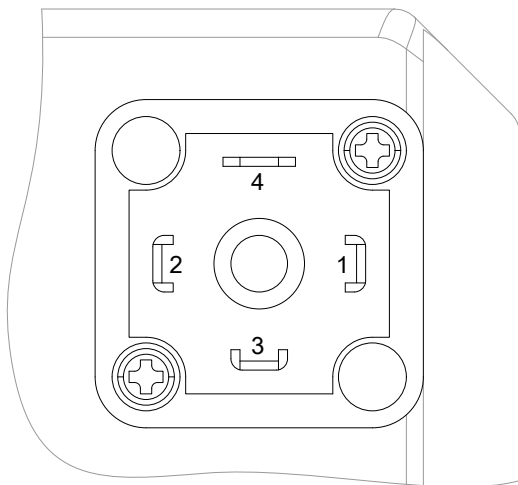


Fig. 6

- Check connection hose (B) is seated correctly and is undamaged; replace if necessary.
- Check whether the combustion chamber pressure limiter has responded:
Measure the resistance across terminals 1 and 3. If the resistance is $> 0 \Omega$, the pressure limiter has responded.

If the combustion chamber pressure limiter has responded, check the following components and replace if necessary:

- Electrodes
- Burner gauze assembly
- Ignition transformer and ignition cables
- Check the flue system for damage and leaks.
Check the combustion chamber pressure limiter is working properly using a pressure tester. Switching point 100 ± 10 mbar. If the value measured differs from this, replace the combustion chamber pressure limiter.



Please note

Incorrect installation or installing damaged burner components can result in deflagration.

- Check the combustion chamber pressure limiter is working properly.
- Check the burner components are undamaged and correctly installed.



Danger

Faulty components and deflagration can cause potentially fatal poisoning due to the escape of carbon monoxide in the flue gas.

Observe the maintenance instructions.



Removing the burner and checking the burner gasket

Burners 80 kW

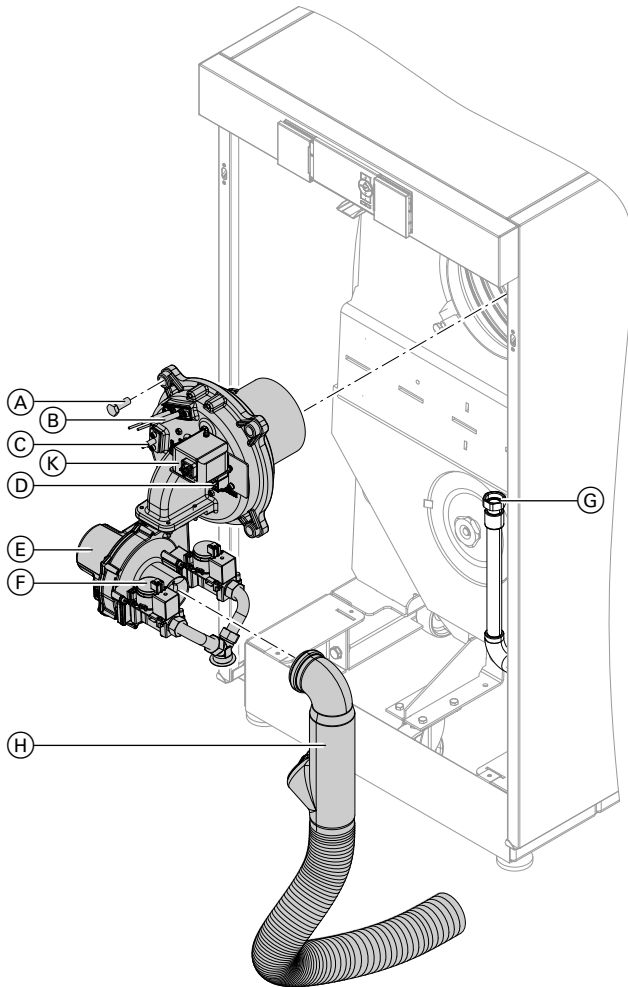


Fig. 7 80 kW

- (A) Burner fixings, 4 screws
- (B) Ignition electrode
- (C) Ionisation electrode
- (D) Ignition transformer
- (E) Fan motor

- (F) Gas train
- (G) Gas supply pipe
- (H) Ventilation air hose, only for room sealed operation.
- (K) Combustion chamber pressure limiter

Note

Burner weight 10 kg

1. Switch OFF the mains isolator or the power supply, and safeguard against unauthorised reconnection.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pull cables from fan motor, gas train and ionisation electrode.
4. Undo gas supply pipe fitting. Pull off ventilation air hose.

5. Undo 4 screws. Remove the burner.



Please note

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.
Never touch the mesh of the burner gauze assembly. Place the burner on a suitable surface.

6. Check the burner door gasket for damage and replace if required.



Burners 120 to 160 kW

Burners for 120 to 160 kW boilers and 240 to 320 kW twin boilers

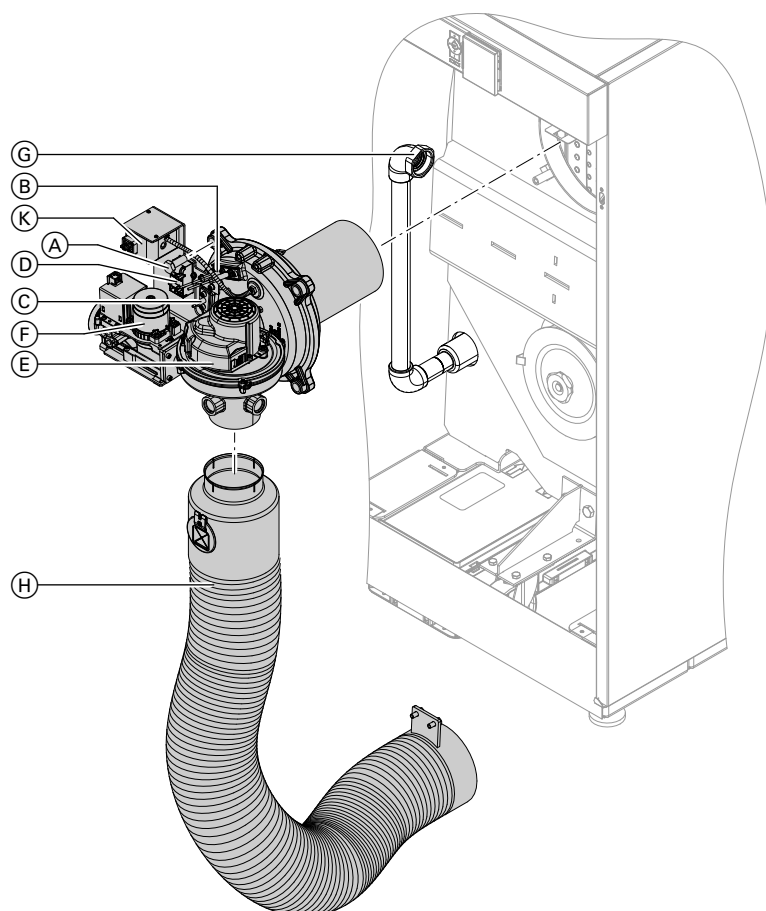


Fig. 8

- (A) Burner fixings, 4 screws
- (B) Ignition electrode
- (C) Ionisation electrode
- (D) Ignition transformer
- (E) Fan motor

- (F) Gas train
- (G) Gas supply pipe
- (H) Ventilation air hose, only for room sealed operation.
- (K) Combustion chamber pressure limiter

Note

Burner weight 11 kg

1. Switch OFF the mains isolator or the power supply, and safeguard against unauthorised reconnection.
2. Close the gas shut-off valve and safeguard against reopening.
3. Remove cables from fan motor, gas train and ionisation electrode.
4. Undo gas supply pipe fitting. Pull off ventilation air hose.

5. Undo 4 screws. Remove the burner.



Please note

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.
Never touch the mesh of the burner gauze assembly. Place the burner on a suitable surface.

6. Check the burner door gasket for damage and replace if required.



Removing the burner and checking the burner... (cont.)

Burners from 200 kW

Burners for 200 to 318 kW boilers and 400 to 636 kW twin boilers

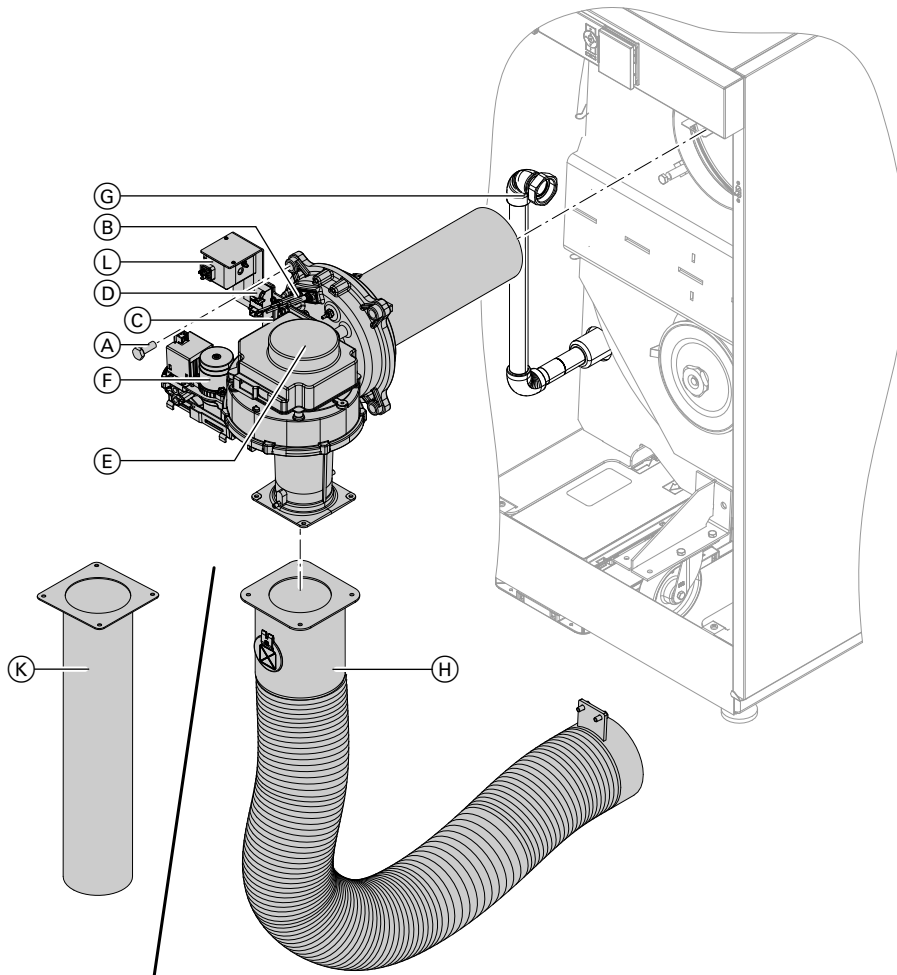


Fig. 9

- (A) Burner fixings, 4 screws
- (B) Ignition electrode
- (C) Ionisation electrode
- (D) Ignition transformer
- (E) Fan motor
- (F) Gas train

- (G) Gas supply pipe
- (H) Ventilation air hose, only for room sealed operation.
- (K) Venturi extension, only for open flue operation with burners from 200 kW
- (L) Combustion chamber pressure limiter

Note

Burner weight 15 kg

1. Switch OFF the mains isolator or the power supply, and safeguard against unauthorised reconnection.
2. Close the gas shut-off valve and safeguard against reopening.
3. Remove cables from fan motor, gas train and ionisation electrode.
4. Undo gas supply pipe fitting. Pull off ventilation air hose.

5. Undo 4 screws. Remove the burner.



Please note

Damage to the burner gauze assembly will impair the burner function. Do not damage the mesh. Never touch the mesh of the burner gauze assembly. Place the burner on a suitable surface.

6. Check the burner door gasket for damage and replace if required.

[illegible]

(A) Ignition and ionisation electrodes
 (B) Burner gauze assembly gasket
 (C) Insulation mat
 (D) Burner door gasket

- (E) Thermal insulation block
 (F) Burner gauze assembly
 (G) Fan

1. Remove electrodes.
2. Undo 4 nuts. Remove burner gauze assembly and insulating parts.

!

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.
Never touch the mesh of the burner gauze assembly. Place the burner horizontally onto a suitable surface.

- ### Note

Observe the positioning aid on the thermal insulation block.

- 5792 925 GB



Checking the burner gauze assembly and thermal... (cont.)

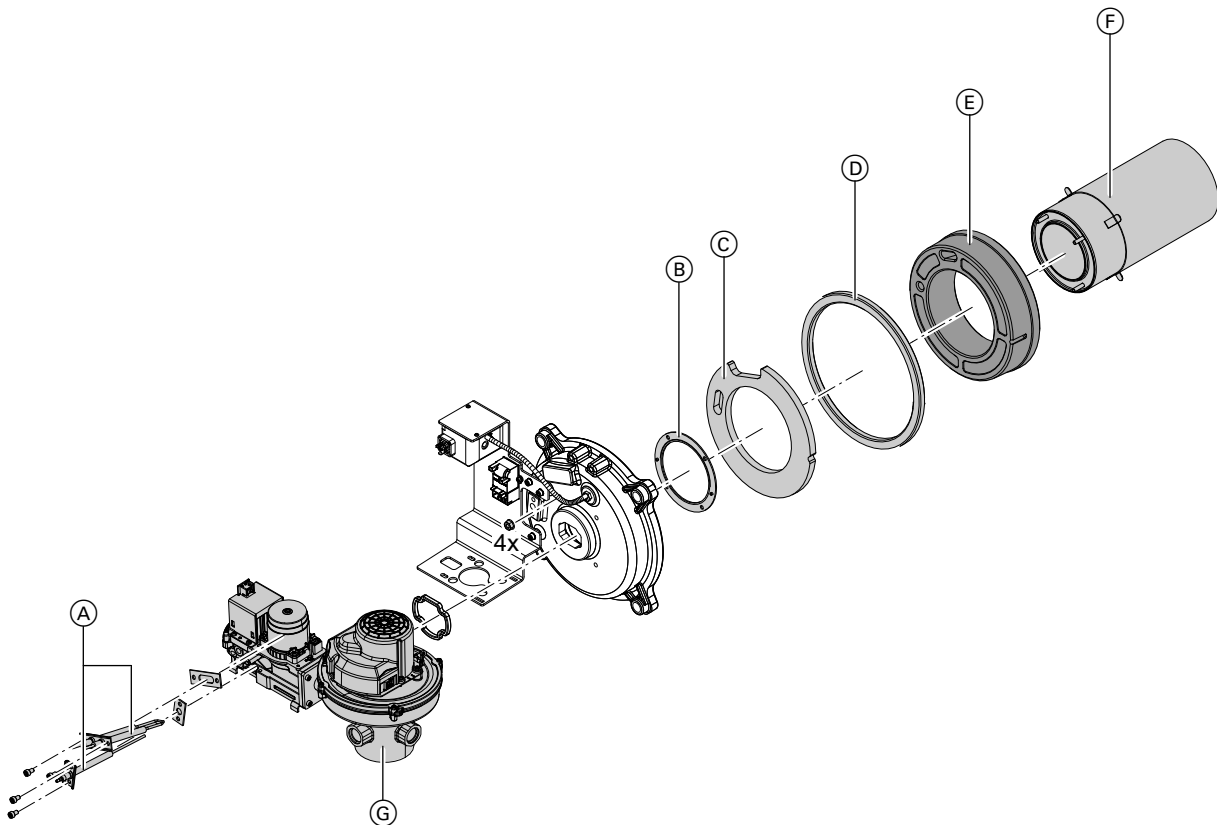


Fig. 11 120 to 160 kW

- (A) Ignition and ionisation electrodes
- (B) Burner gauze assembly gasket
- (C) Insulation mat
- (D) Burner door gasket

- (E) Thermal insulation block
- (F) Burner gauze assembly
- (G) Fan

1. Remove electrodes.

2. Undo 4 nuts. Remove burner gauze assembly and insulating parts.



Please note

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.
Never touch the mesh of the burner gauze assembly. Place the burner horizontally onto a suitable surface.



3. Replace any damaged components. Use new gaskets.

4. Reassemble in reverse order. Observe torque values, see table on page 21.

Note

Observe the positioning aid on the thermal insulation block.

Check the burner gauze assembly for damage. In the event of damage, replace the burner gauze assembly.

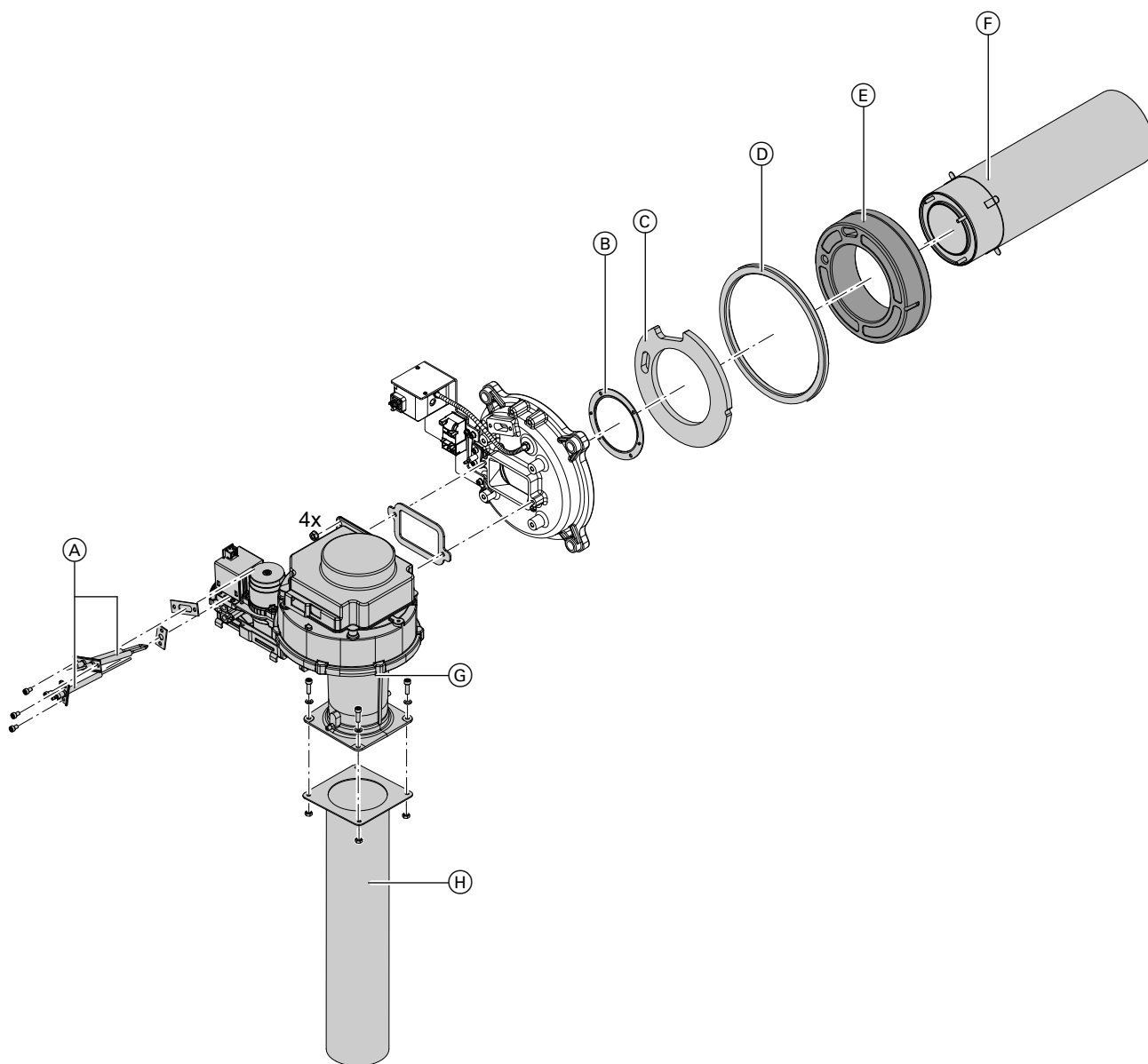


Fig. 12 200 to 318 kW

- (A) Ignition and ionisation electrodes
- (B) Burner gauze assembly gasket
- (C) Insulation mat
- (D) Burner door gasket

- (E) Thermal insulation block
- (F) Burner gauze assembly
- (G) Fan
- (H) Venturi extension, only for open flue operation

1. Remove electrodes.



Checking the burner gauze assembly and thermal... (cont.)

- Undo 4 nuts. Remove burner gauze assembly and insulating parts.



Please note

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.
Never touch the mesh of the burner gauze assembly. Place the burner horizontally onto a suitable surface.

- Replace any damaged components. Use new gas-kets.

Note

Observe the positioning aid on the thermal insulation block.

- Reassemble in reverse order. Observe torque values.

Torque in Nm

kW	Up to 80	120/160	From 200
Electrodes	4	4	4
Ignition transformer	1.5	1.5	1.5
Fan	5	3	6
Gas train	3	3	3
Burner gauze assembly	5	5	5



Checking and adjusting the ignition and ionisation electrodes

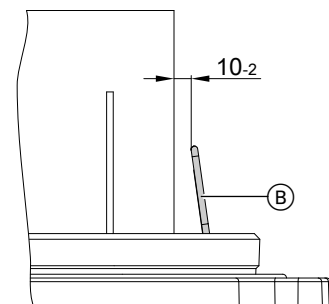
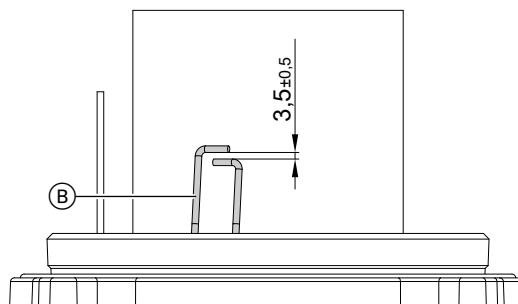
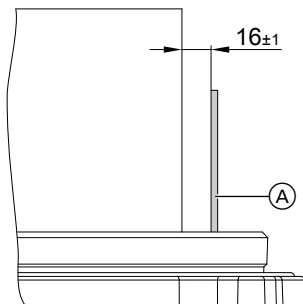


Fig. 13

- (A) Ionisation electrode
(B) Ignition electrodes

- Check the electrodes for wear and contamination.
- Clean the electrodes with a small brush (not a wire brush) or cleaning fleece.
- Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace and align the electrodes together with new gas-kets. Tighten the electrode fixing screws with a torque of 4 Nm.



Please note

Damage to the burner gauze assembly will impair the burner function.
Do not damage the mesh.



Cleaning the combustion chamber and heating surfaces



Please note

Contact with unalloyed iron and scratches on parts in contact with flue gases can lead to corrosion.
Only use plastic brushes, no wire brushes or sharp objects.



Danger

Loose residues and residual cleaning agents can lead to injury.
Wear goggles, protective gloves and protective clothing.



Cleaning the combustion chamber and heating... (cont.)

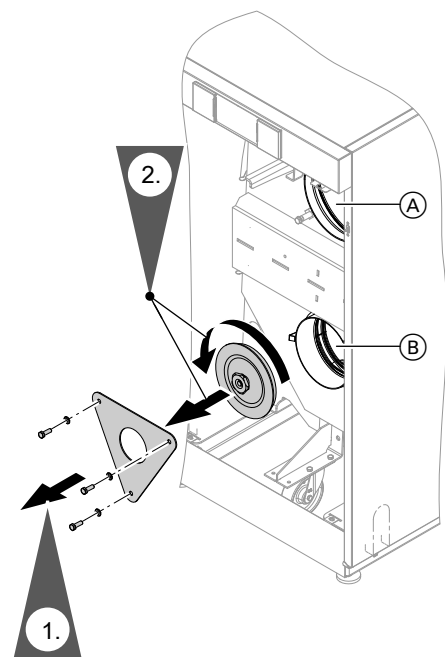


Fig. 14

- (A) Burner aperture
- (B) Combustion chamber

1. Undo 3 screws. Remove locking bracket.
2. Unscrew the inspection cover and remove.
3. Clean the combustion chamber and heating surfaces.
 - For normal cleaning, flush the heating surfaces thoroughly with a jet of water.
 - For stubborn residues, surface stains or soot deposits, cleaning agents can be used. For this, observe the following:
 - Only use solvent-free cleaning agents. Ensure that no cleaning agent gets between the boiler body and the thermal insulation.
 - Remove soot deposits with alkaline cleaning agents with surfactant additive.
 - Remove coatings and surface discolouration (yellow-brown) with slightly acidic, chloride-free cleaning agents based on phosphoric acid.
4. Remove loosened deposits from the boiler. Flush the heating surfaces thoroughly with a jet of water.



Cleaning agent manufacturer's instructions

5. **Assemble in reverse order:**
Position inspection cover, turn clockwise as far as it will go by hand.
6. Position the locking bracket. Apply thread-locking fluid to the screws. Wind the screws in by hand as far as they will go, then tighten by 1 turn.



Danger

Leaks can result in poisoning through escaping flue gas.
Check the inspection cover is seated correctly.



Cleaning the condensate drain system

The condensate drain system comprises

- Condensate drain
- Trap
- Neutralising system
- All hoses or pipes running between these parts

Note

Clean the inside of the condensate drain system at least annually.



Cleaning the condensate drain system (cont.)

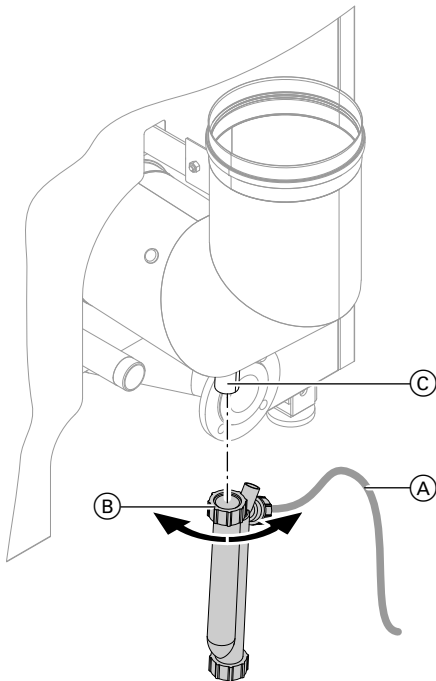


Fig. 15

1. Undo union nut (B) of the trap. Remove the trap.
2. Clean the inside of inlet connector (C) with a brush.
3. Clean all parts of the trap.
4. Assemble trap, fill with water and refit to inlet connector.



Danger

Flue gas escaping from the trap can cause potentially fatal carbon monoxide poisoning. The trap must always be filled with water.



Cleaning the neutralising system (if installed)

Separate the neutralising system (if installed) from the boiler for cleaning/maintenance.

Single boiler

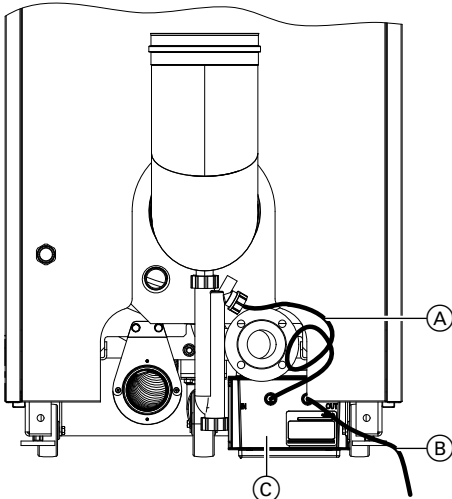


Fig. 16

- (A) Drain hose from trap to neutralising system
- (B) Drain hose from neutralising system to drainage system
- (C) Neutralising system

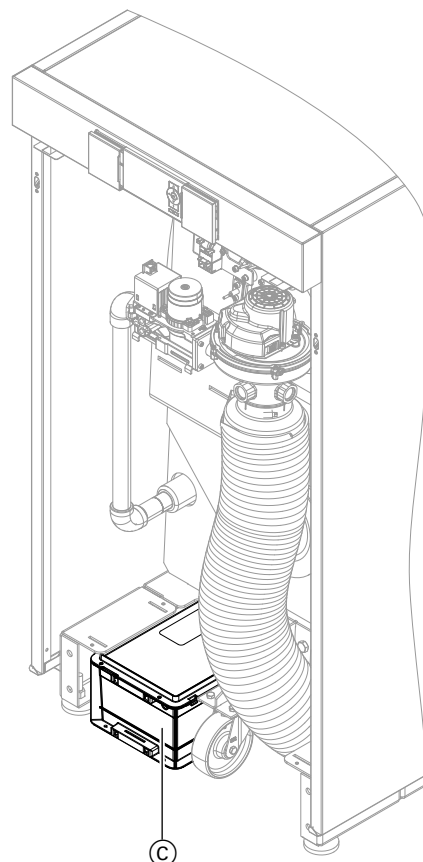



Fig. 17

1. Undo drain hoses.



Cleaning the neutralising system (if installed) (cont.)

2. Pull the neutralising system out from under the boiler, from the front.
To remove front panel, see page 11.
3.  "Neutralising system" installation and service instructions

Note

With twin boilers, the neutralising system is positioned behind the boiler.

Twin boiler

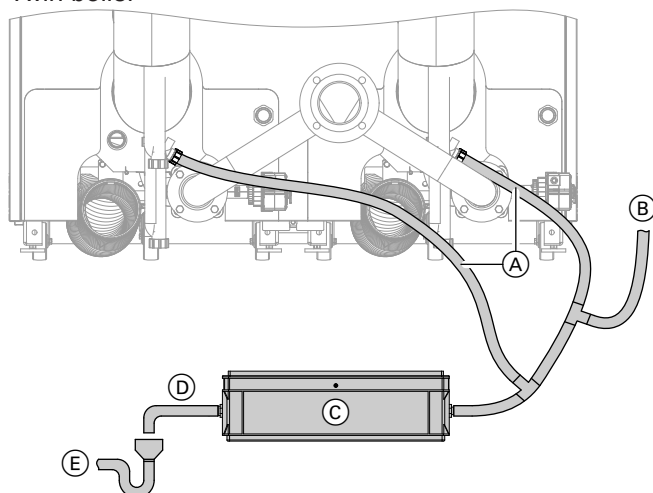


Fig. 18

- (A) Drain hose from trap to neutralising system
- (B) Drain hose from flue gas header to neutralising system
- (C) Neutralising system
- (D) Drain hose from neutralising system to drainage system (E)



Checking the condensate drain and neutralising system (if installed) for obstructions and leaks

Fill the combustion chamber with water.

Note

The water must flow from the condensate drain pipe without backing up.

If necessary, clean the condensate drain pipe again.



Checking the gaskets and thermal insulation sections on the boiler side

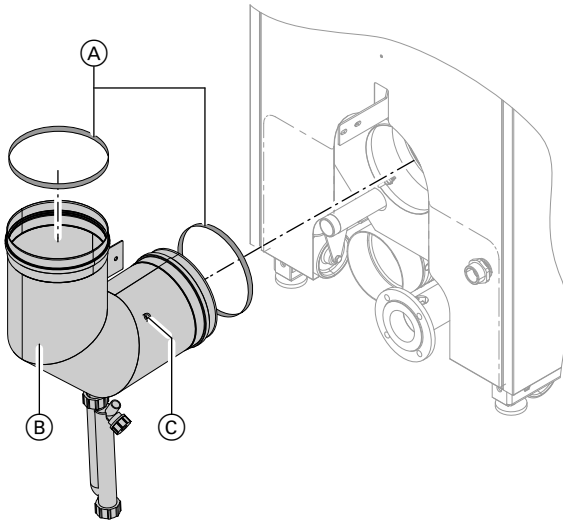


Fig. 19

1. Check gaskets (A) on boiler flue connection (B) for leaks.

Note

In full load operation, the gaskets can be checked with an inspection mirror. If required, remove the thermal insulation components. Traces of condensate on the outside of the boiler flue connection are also a sign of leaks.

Note

Before removing the boiler flue connection, disconnect plug at flue gas temperature sensor (C).

2. Check the fittings on the heating water side for leaks and replace the seals/gaskets if required.



Danger

There is a risk of injury when working on pressurised components.
The connections on the heating water side must only be opened after the boiler has been depressurised.
Only drain the boiler with a suction pump when the boiler air vent valve is open.

3. Check the boiler thermal insulation for good fit and correct if required or replace if it is damaged.

Reassemble if the boiler flue connection was removed:

1. Push the boiler flue connection onto the flue outlet as far as it will go.
2. Secure with two M 8 screws; torque 18 Nm.
3. Push plug onto flue gas temperature sensor (C).



Checking the expansion vessel and system pressure

Note

Check when system is cold.

1. Drain the system or close the cap valve on the expansion vessel. Reduce pressure until the pressure gauge shows "0".
2. If the pre-charge pressure of the expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher.

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 expansion vessel.
Permiss. operating pressure: 6 bar (0.6 MPa)
Minimum operating pressure: 0.5 bar (50 kPa)

Note

The minimum operating pressure is essential for safe operation. It can be ensured with a minimum pressure switch (one per system for multi boiler systems).



Checking the water quality

Enter the amount of top-up water and the total hardness of the feed and boiler water into the table in the appendix (page 128).

For water quality requirements, see page 126.

The total hardness of the feed and top-up water must not exceed the standard values specified by VDI 2035 (see page 126).

The pH value should be between 8.2 and 10.0.



Checking the mixer for ease of operation and leaks

1. Remove the motorised lever from the mixer handle.
2. Check the mixer for ease of operation.
3. Check the mixer for leaks. In the event of a leak, replace the O-rings.
4. Click the motorised lever into place.



Checking all connections on the heating water and DHW sides for leaks



Checking the safety valve function



Installing the burner

Refit the burner in reverse order to the removal.

- Burners up to 80 kW see page 15.
- Burners 120 to 160 kW see page 16.
- Burners from 200 kW see page 17.

Insert the burner. Secure screws by hand. Tighten screws diagonally, torque 10 Nm.



Checking the firm seating of electrical connections



Checking all gas equipment for tightness at operating pressure



Danger

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

Note

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



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, check the CO₂ or O₂ content. For a description of the electronic combustion controller functions, see page 115.

Note

To prevent operating faults and damage, operate the appliance with uncontaminated combustion air.

CO₂ or O₂ content

- The CO₂ content must be within the following limits for the lower and upper heating output respectively:
 - 7.7 to 9.2 % for natural gas E and LL
- The O₂ content must be between 4.4 and 6.9 % for all gas types.

If the actual CO₂ or O₂ values lie outside their respective ranges, proceed as follows:

- Check the ionisation electrode and connecting cable; see page 21.

Note

During commissioning, the combustion controller carries out an automatic calibration. Allow approx. 30 s after the burner has started before testing the emissions.



Checking the combustion quality (cont.)

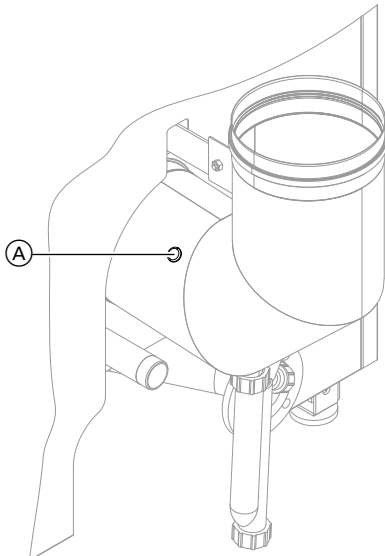


Fig. 20

1. Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Adjust the lower heating output.
4. Check the lower heating output.
5. Check the CO₂ content. If the actual value deviates from the aforementioned ranges by more than 1 %, check the ionisation electrode and connecting cable. See section "CO₂ or O₂ content".
6. Enter the actual value into the report.
7. Set the upper heating output (see page 27).
8. Check the CO₂ content. If the actual value deviates from the aforementioned ranges by more than 1 %, check the ionisation electrode and connecting cable. See section "CO₂ or O₂ content".
9. After testing, press **OK**.
10. Enter the actual value into the report.

Select higher/lower heating output

Weather-compensated control unit

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 **↩**.

Constant temperature control unit

Service menu

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. Select **"⌂"** with **▶** and confirm with **OK**.
The display shows **"I"** and **"ON"** flashes.
3. Select the lower heating output:
Press **OK**, **"ON"** will be displayed constantly.
4. Select the upper heating output:
Press **↩**.
5. Select **"2"** with **▶**; **"ON"** flashes.
6. Press **OK**, **"ON"** will be displayed constantly.
7. Ending output selection:
Press **↩**.



Checking the ventilation air apertures in the installation room (only for open flue operation)



Checking the external LPG safety valve (if installed)



Matching the control unit to the heating system

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

- For individual coding steps, see page 33.



Adjusting heating curves

Only for weather-compensated control units

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

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.

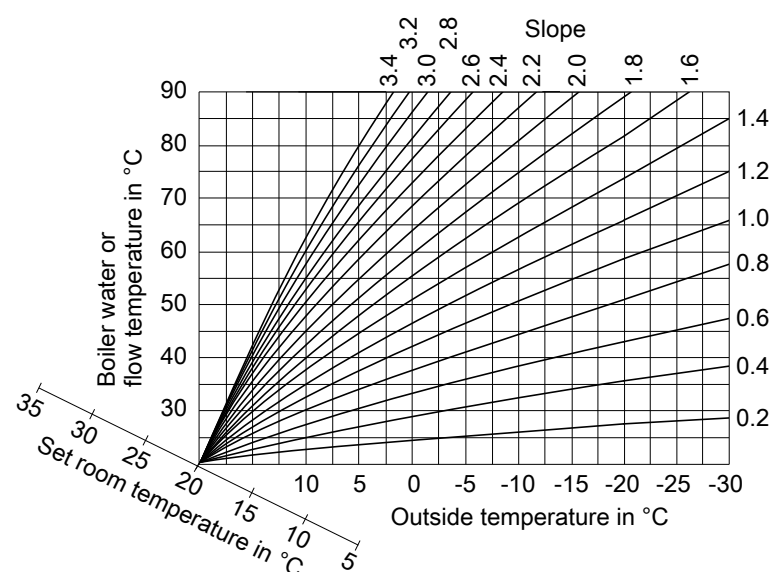


Fig. 21

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.



Adjusting heating curves (cont.)

Standard set room temperature

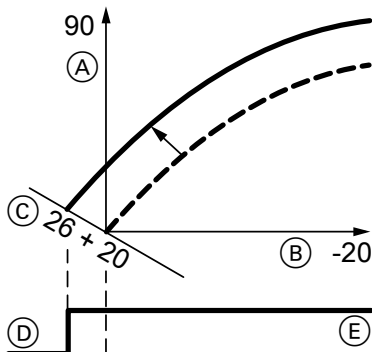
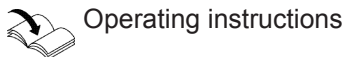


Fig. 22 Example 1: Adjustment of the standard set room temperature from 20 to 26 °C

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

Changing the standard set room temperature



Reduced set room temperature

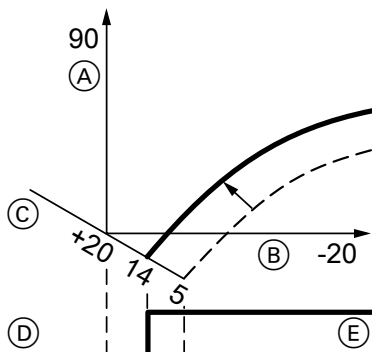
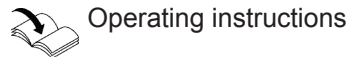


Fig. 23 Example 2: Adjustment of the reduced set room temperature from 5 °C to 14 °C

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

Changing the reduced set room temperature



Changing the slope and level

Individually adjustable for each heating circuit.

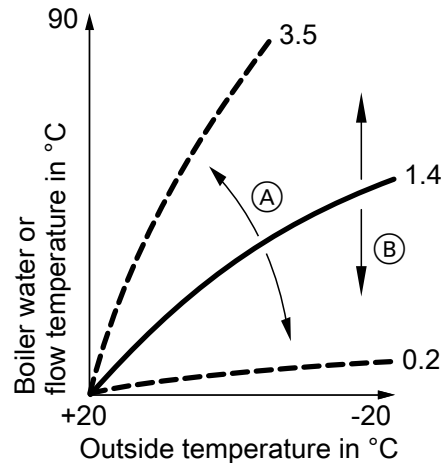


Fig. 24

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

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.



Connecting the control unit to the LON

The LON communication module must be plugged in.

Note

Data transfer via LON can take several minutes.

Example: Single boiler system with Vitotronic 200-H

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

**Note**

The same subscriber number must **not** be allocated twice within the LON.

Only one Vitotronic may be programmed as fault manager.

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

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H
Subscriber no. 1 Code "77:1"	Subscriber no. 10 Code "77:10"	Subscriber no. 11 Set code "77:11".
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"
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".
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.

Requirements:

- 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"**.

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

Note

To perform another subscriber check:
Create a new subscriber list with **"Delete list?"** (subscriber list is updated).

Note

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



Calling up and resetting the "Service" display

The red fault indicator flashes when the limits set in coding addresses "21" and "23" have been reached. (Coding address in group **"Boiler"** (weather-compensated control unit) or group 2 (constant temperature control unit).)

Weather-compensated control unit

Constant temperature control unit

Display

"Service" and "🔧"

The specified hours run or the specified interval with calendar symbol "📅" (subject to setting) and "🔧"

Acknowledging a service

Press **OK**.
Service the appliance.

Press **OK**.
Service the appliance.

Note

An acknowledged service message that was not reset appears again the following Monday.

Note

An acknowledged service message that was not reset appears again after 7 days.

After the service has been carried out: Reset the codes

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

Reset code "24:1" in group 2 to "24:0".

Note

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

Note

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



Mounting the front panel

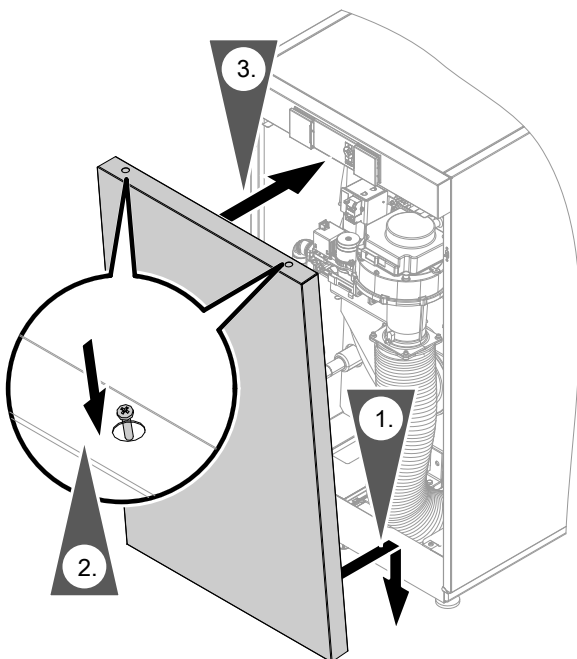


Fig. 25

1. Position the front panel in the lower rim but do not quite close it yet.
2. Secure with 2 screws.



Instructing the system user

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



Calling up coding level 1

- On weather-compensated control units, codes are displayed as plain text.
- Codes that are not assigned 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 designated **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** or **"Heating circuit 3"**. If the heating circuits were given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

Weather-compensated control unit

The codes are divided into groups

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

Call up code 1

Service menu:

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. **"Coding level 1"**
3. Select group of required coding address.
4. Select coding address.
5. Select value according to the following tables and confirm with **OK**.

Resetting all codes to their delivered condition

Select **"Standard setting"**.

Note

This also resets codes at coding level 2.

Constant temperature control unit

- 1: **"General"**
- 2: **"Boiler"**
- 3: **"DHW"**
- 4: **"Solar"**
- 5: **"Heating circuit 1"**
- 6: **"All codes std device"**
In this group, all coding addresses are displayed in ascending order.
- 7: **"Standard setting"**

Service menu:

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. Select **"①"** with **▶** for coding level 1 and confirm with **OK**.
3. **"I"** flashes on the display for the coding addresses in group 1.
4. Select the group of the required coding address with **▲/▼** and confirm with **OK**.
5. Select coding address with **▲/▼**.
6. Set value according to the following tables with **▲/▼** and confirm with **OK**.

Select **"7"** with **▶** and confirm with **OK**.
When **"H"** flashes, confirm with **OK**.

Note

This also resets codes at coding level 2.

General/Group "1"

Coding

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

Value, address 00: ...	Description
2	1 heating circuit without mixer A1 (heating circuit 1), with DHW heating (code is set automatically)
3	1 heating circuit with mixer M2 (heating circuit 2), without DHW heating
4	1 heating circuit with mixer M2 (heating circuit 2), with DHW heating
5	1 heating circuit without mixer A1 (heating circuit 1) and 1 heating circuit with mixer M2 (heating circuit 2), without DHW heating (code is set automatically)
6	1 heating circuit without mixer A1 (heating circuit 1) and 1 heating circuit with mixer M2 (heating circuit 2), with DHW heating (code is set automatically)
7	1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), without DHW heating
8	1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), with DHW heating
9	1 heating circuit without mixer A1 (heating circuit 1), 1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), without DHW heating (code is set automatically)
10	1 heating circuit without mixer A1 (heating circuit 1), 1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), with DHW heating (code is set automatically)



System examples

Coding in the delivered condition		Possible change	
Code 1			
77:1	LON subscriber number, if LON communication module is installed	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 = Boiler 2 - 9 = Do not adjust 10 - 90 = Vitotronic 200-H Note <i>Allocate each number only once.</i>
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/Group "1" (cont.)

Coding in the delivered condition		Possible change	
Lock out controls			
8F:0	Operation enabled in standard menu and extended menu.	8F:1	Operation is blocked in standard menu and extended menu. Emissions test mode can be activated.
	Note <i>The relevant code is only enabled when you exit the service menu.</i>	8F:2	Operation is enabled in standard menu, but blocked in extended menu. Emissions test mode can be activated.
Set flow temperature for external demand			
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)

Boiler/Group "2"

For weather-compensated control units, select **"Boiler"** (see page 33).

For constant temperature control units, select Group **"2"** (see page 33).

Coding

Coding in the delivered condition		Possible change	
Single/multi-boiler system			
01:1	Single boiler system (only for constant temperature control units)	01:2	Multi boiler system with Vitotronic 300-K
Boiler number			
07:1	Boiler number in multi boiler systems (only for constant temperature control units)	07:2 to 07:4	Boiler number 2 to 4 in multi boiler systems
Burner service in 100 hours			
21:0	No service interval set (in hours run)	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 step ≙ 100 h
Service interval in months			
23:0	No time set for burner service interval	23:1 to 23:24	Interval adjustable from 1 to 24 months
Service status			
24:0	"Service" not shown on the display	24:1	"Service" shown on the display. The address is set automatically and must be reset manually after a service.
Filling/venting			
2F:0	Venting program/filling program inactive	2F:1	Venting program active
		2F:2	Filling program active

DHW/Group "3"**Coding**

Coding in the delivered condition		Possible change	
Set DHW temperature reheating suppression			
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature. (Boiler only starts as backup if the rise in the cylinder temperature is too low.)	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)
Enable DHW circulation pump			
73:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control units)	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

Solar/Group "4"**Note**

The solar group is only displayed if a solar control module, type SM1, is connected.

Coding

Coding in the delivered condition		Possible change	
Speed control solar circuit pump			
02:...	Data dependent on the software version of solar control module SM1	02:0	Solar circuit pump is not speed-controlled
		02:1	With wave packet control function Never adjust
		02:2	Solar circuit pump is speed-controlled with PWM control
Maximum cylinder 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 not active.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	Solar circuit flow rate at the maximum pump speed 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min, 1 step \triangleq 0.1 l/min.

Solar/Group "4" (cont.)

Coding in the delivered condition		Possible change	
Extended solar control functions			
20:0	No extended control function enabled	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor
		20:8	Solar heating via external heat exchanger with additional temperature sensor
		20:9	Solar heating of 2 DHW cylinders

Heating circuit 1, heating circuit 2, heating circuit 3/Group "5"

For weather-compensated control units, select **"Heating circuit..."** (see page 33).

For constant temperature control units, select Group **"5"** (see page 33).

Coding

Coding in the delivered condition		Possible change	
Priority DHW heating			
A2:2	Cylinder priority applicable to heating circuit pump and mixer	A2:0	Without cylinder priority applicable to heating circuit pump and mixer
		A2:1	Cylinder priority only applicable to mixer
		A2:3 to A2:15	Reduced priority applicable to mixer: The heating circuit receives a reduced amount of energy.

Economy function outside temperature

A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) $OT > RT_{set} + 1\text{ K}$ (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF" (see the following table)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$OT > RT_{set} + 5\text{ K}$
2	$OT > RT_{set} + 4\text{ K}$
3	$OT > RT_{set} + 3\text{ K}$
4	$OT > RT_{set} + 2\text{ K}$
5	$OT > RT_{set} + 1\text{ K}$

Heating circuit 1, heating circuit 2, heating... (cont.)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
6	$OT > RT_{set}$
7	$OT > RT_{set} - 1\text{ K}$
to	
15	$OT > RT_{set} - 9\text{ K}$

Coding in the delivered condition	Possible change
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Extended economy function adjusted outside temperature

A6:36	Extended economy mode disabled (only for weather-compensated control units)	A6:5 to A6:35	Extended economy mode enabled: The burner and heating circuit pump are switched off at a variable value, adjustable from 5 to 35 °C plus 1 °C. Mixer will be closed. The basis for this is the adjusted outside temperature. This is composed of the actual outside temperature and a time constant that takes account of the way an average building cools down.
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Extended economy function mixer

A7:0	Without mixer economy function (only for weather-compensated control units and heating circuit with mixer.)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": <ul style="list-style-type: none"> ▪ If the mixer has been trying to close for longer than 20 min. Heating circuit pump "ON": <ul style="list-style-type: none"> ▪ If the mixer changes to control function ▪ If there is a risk of frost
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Pump idle time, transition reduced mode

A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered through a change in operating mode or through a change in the set room temperature (only for weather-compensated control units)	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. The higher the value, the longer the pump idle time

Weather-compensated/room temperature hook-up

B0:0	With remote control: Heating mode/reduced mode: Weather-compensated (only for weather-compensated control units). Change code only for the heating circuit with mixer.	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

Economy function room temperature

B5:0	With remote control: No room temperature-dependent heating circuit pump logic function (only for weather-compensated control units). Change code only for the heating circuit with mixer.	B5:1 to B5:8	For heating circuit pump logic function, see the following table:
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Heating circuit 1, heating circuit 2, heating... (cont.)

Parameter address b5:...	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RT_{\text{actual}} > RT_{\text{set}} + 5 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} + 4 \text{ K}$
2	$RT_{\text{actual}} > RT_{\text{set}} + 4 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} + 3 \text{ K}$
3	$RT_{\text{actual}} > RT_{\text{set}} + 3 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} + 2 \text{ K}$
4	$RT_{\text{actual}} > RT_{\text{set}} + 2 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} + 1 \text{ K}$
5	$RT_{\text{actual}} > RT_{\text{set}} + 1 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}}$
6	$RT_{\text{actual}} > RT_{\text{set}}$	$RT_{\text{actual}} < RT_{\text{set}} - 1 \text{ K}$
7	$RT_{\text{actual}} > RT_{\text{set}} - 1 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} - 2 \text{ K}$
8	$RT_{\text{actual}} > RT_{\text{set}} - 2 \text{ K}$	$RT_{\text{actual}} < RT_{\text{set}} - 3 \text{ K}$

Coding in the delivered condition	Possible change
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Min. flow temperature heating circuit

C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
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Max. flow temperature heating circuit

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)
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Heating program changeover

D5:0	The external operating program changeover switches the operating program to "Constant operation with reduced room temperature" or "Standby mode" (only for weather-compensated control units)	D5:1	The external operating program changeover switches to "Constant operation with standard room temperature" (subject to coding addresses 3A, 3b and 3C)
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Ext. operating program changeover to heating circuit

D8:0	No operating program changeover via EA1 extension	D8:1	Operating program changeover via input DE1 at EA1 extension
		D8:2	Operating program changeover via input DE2 at EA1 extension
		D8:3	Operating program changeover via input DE3 at EA1 extension

Max. pump speed in standard mode

E6:...	Maximum speed of the 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 %
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Min. pump speed

E7:30	Minimum speed of the 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 maximum speed
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Screed drying

F1:0	Screed drying disabled (only for weather-compensated control units).	F1:1 to F1:6	Screed drying can be set in accordance with 6 adjustable temperature/time profiles.
		F1:15	Constant flow temperature 20 °C

Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
Party mode time limit			
F2:8	Time limit for party mode or external operating program changeover via pushbutton: 8 h (only for weather-compensated control units)* ¹	F2:0	No time limit for party mode* ¹
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h* ¹
Pump control in "Only DHW"			
F6:25	In "Only DHW" mode, the heating circuit pump is constantly on (only for constant temperature control units)	F6:0	In "Only DHW" mode, the heating circuit pump is permanently off.
		F6:1 to F6:24	In "Only DHW" mode, the heating circuit pump is started 1 to 24 times per day for 10 min each time.
Pump control in "Standby mode"			
F7:25	In "Standby mode", the heating circuit pump is constantly on (only for constant temperature control units)	F7:0	In "Standby mode", the heating circuit pump is constantly off
		F7:1 to F7:24	In "Standby mode", the heating circuit pump is started 1 to 24 times per day for 10 min each time.
Start temperature raising			
F8:-5	Temperature limit for terminating reduced mode -5 °C. Observe setting for coding address "A3". (only for weather-compensated control units)	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 reduced set room temperature -14 °C. (only for weather-compensated control units)	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	Increasing the set boiler water temperature or set flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature (only for weather-compensated control units).	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Duration set flow temperature increase			
Fb:60	Duration for increasing the set boiler water or flow temperature (see coding address "FA") 60 min (only for weather-compensated control units).	Fb:0 to Fb:240	Duration adjustable from 0 to 240 min

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

Calling up coding level 2

- All codes are accessible in coding level 2.
- Codes that are not assigned due to the heating system equipment level or the setting of other codes are not displayed.
- The heating circuit without mixer is designated **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** or **"Heating circuit 3"**. If the heating circuits were given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

Weather-compensated control unit	Constant temperature control unit
The codes are divided into groups <ul style="list-style-type: none"> ■ "General" ■ "Boiler" ■ "DHW" ■ "Solar" ■ "Heating circuit 1/2/3" ■ "All codes std device" In this group, all coding addresses (except the coding addresses from the "Solar" group) are displayed in ascending order. ■ "Standard setting" 	<ul style="list-style-type: none"> 1: "General" 2: "Boiler" 3: "DHW" 4: "Solar" 5: "Heating circuit 1" 6: "All codes std device" In this group, all coding addresses are displayed in ascending order. 7: "Standard setting"
Call up code 2 Service menu: 1. Press OK and ≡ simultaneously for approx. 4 s. 2. Press OK and ↶ simultaneously for approx. 4 s. 3. "Coding level 2" 4. Select group of required coding address. 5. Select coding address. 6. Select value according to the following tables and confirm with OK .	Service menu: 1. Press OK and ≡ simultaneously for approx. 4 s. 2. Press OK and ↶ simultaneously for approx. 4 s. 3. Select "②" with ▶ for coding level 2 and confirm with OK . 4. "I" flashes on the display for the coding addresses in group 1. 5. Select the group of the required coding address with ▲/▼ and confirm with OK . 6. Select coding address with ▲/▼ . 7. Set value according to the following tables with ▲/▼ and confirm with OK .
Resetting all codes to their delivered condition Select "Standard setting" . Note <i>This also resets codes at coding level 1.</i>	Select "7" with ▶ and confirm with OK . When "H" flashes, confirm with OK . Note <i>This also resets codes at coding level 1.</i>

General/Group "1"

Coding

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

General/Group "1" (cont.)

Value, address 00: ...	Description
2	1 heating circuit without mixer A1 (heating circuit 1), with DHW heating (code is set automatically)
3	1 heating circuit with mixer M2 (heating circuit 2), without DHW heating
4	1 heating circuit with mixer M2 (heating circuit 2), with DHW heating
5	1 heating circuit without mixer A1 (heating circuit 1) and 1 heating circuit with mixer M2 (heating circuit 2), without DHW heating (code is set automatically)
6	1 heating circuit without mixer A1 (heating circuit 1) and 1 heating circuit with mixer M2 (heating circuit 2), with DHW heating (code is set automatically)
7	1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), without DHW heating
8	1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), with DHW heating
9	1 heating circuit without mixer A1 (heating circuit 1), 1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), without DHW heating (code is set automatically)
10	1 heating circuit without mixer A1 (heating circuit 1), 1 heating circuit with mixer M2 (heating circuit 2) and 1 heating circuit with mixer M3 (heating circuit 3), with DHW heating (code is set automatically)



System examples

Coding in the delivered condition		Possible change	
11:...	No access to the coding addresses for the parameters of the combustion controller	11:9	Access to the coding addresses for the parameters of the combustion controller open
25:0	Do not adjust (only for constant temperature mode).		
2A:0	Without wireless outside temperature sensor	2A:1	With wireless outside temperature sensor (automatic recognition)
		2A:2	No wireless outside temperature sensor used.
2D:0	Never adjust.		
32:0	Without AM1 extension	32:1	With AM1 extension (automatic recognition)
33:1	Function of output A1 at AM1 extension: Heating circuit pump	33:0	Function of output A1: DHW circulation pump
		33:2	Function of output A1: Circulation pump for cylinder heating
34:0	Function of output A2 at AM1 extension: DHW circulation pump	34:1	Function of output A2: Heating circuit pump
		34:2	Function of output A2: Circulation pump for cylinder heating
35:0	Without EA1 extension	35:1	With EA1 extension (automatic recognition)
36:0	Function of output 157 at EA1 extension: Fault message	36:1	Function of output 157 : Feed pump
		36:2	Function of output 157 : DHW circulation pump
39:2	Function of output 21 : Circulation pump for cylinder heating	39:0	Function of output 21 : DHW circulation pump

General/Group "1" (cont.)

Coding in the delivered condition		Possible change	
		39:1	Function of output 21 : Heating circuit pump
3A:0	Function of input DE1 at EA1 extension: Not assigned	3A:1	Function of input DE1: Operating program changeover
		3A:2	Function of input DE1: External demand with set flow temperature Setting of set flow temperature for external demand: Code 9b Function, circulation pump for cylinder heating: Coding address 5F Function, heating circuit pumps: Coding address D7
		3A:3	Function of input DE1: External blocking Function, circulation pump for cylinder heating: Coding address 5E Function, heating circuit pumps: Coding address D6
		3A:4	Function of input DE1: External blocking with fault message input Function, circulation pump for cylinder heating: Coding address 5E Function, heating circuit pumps: Coding address D6
		3A:5	Function of input DE1: Fault message input
		3A:6	Function of input DE1: Brief operation of DHW circulation pump (push-button function). Setting of DHW circulation pump runtime: Coding address 3d
3B:0	Function of input DE2 at EA1 extension: Not assigned	3B:1	Function of input DE2: Operating program changeover
		3B:2	Function of input DE2: External demand with set flow temperature Setting of set flow temperature for external demand: Code 9b Function, circulation pump for cylinder heating: Coding address 5F Function, heating circuit pumps: Coding address D7
		3B:3	Function of input DE2: External blocking Function, circulation pump for cylinder heating: Coding address 5F Function, heating circuit pumps: Coding address D7
		3B:4	Function of input DE2: External blocking with fault message input Function, circulation pump for cylinder heating: Coding address 5E Function, heating circuit pumps: Coding address D6
		3B:5	Function of input DE2: Fault message input

General/Group "1" (cont.)

Coding in the delivered condition		Possible change	
		3B:6	Function of input DE2: Brief operation of DHW circulation pump (push-button function). Setting of DHW circulation pump runtime: Coding address 3d
3C:0	Function of input DE3 at EA1 extension: Not assigned	3C:1	Function of input DE3: Operating program changeover
		3C:2	Function of input DE3: External demand with set flow temperature Setting of set flow temperature for external demand: Code 9b Function, circulation pump for cylinder heating: Coding address 5F Function, heating circuit pumps: Coding address D7
		3C:3	Function of input DE3: External blocking Function, circulation pump for cylinder heating: Coding address 5F Function, heating circuit pumps: Coding address D7
		3C:4	Function of input DE3: External blocking with fault message input Function, circulation pump for cylinder heating: Coding address 5E Function, heating circuit pumps: Coding address D6
		3C:5	Function of input DE3: Fault message input
		3C:6	Function of input DE3: Brief operation of DHW circulation pump (push-button function). Setting of DHW circulation pump runtime: Coding address 3d
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
4B:0	Function, input 96, room temperature controller (Vitotrol 100, only for constant temperature control units)	4B:1	Demand externally.
		4B:2	Block externally.
51:0	Only if low loss header sensor is connected: Boiler circuit pump (output 20) always runs.	51:1	Do not adjust.
		51:2	When there is demand, the boiler circuit pump only starts if the burner is operational. Note <i>The boiler circuit pump runs on after the burner has stopped.</i>
52:0	Without low loss header sensor	52:1	With low loss header sensor (automatic recognition)
53:0	Function, connection A1 at internal H1 extension: Central fault message		

General/Group "1" (cont.)

Coding in the delivered condition		Possible change	
54:0	Without solar thermal system	54:1	With Vitosolic 100 (automatic recognition)
		54:2	With Vitosolic 200 (automatic recognition)
		54:4	With solar control module SM1 with auxiliary function, e.g. central heating backup (automatic recognition)
6E:50	No correction of measured outside temperature (only for weather-compensated control units)	6E:0 to 6E:100	Outside temperature correction in 0.1 K steps 0 to 49 = -5 K to -0.1 K 51 to 100 = 0.1 K to 5 K
76:0	Without LON communication module	76:1	With LON communication module (automatic recognition)
77:1	LON subscriber number, if LON communication module is installed	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 - 9 = Never adjust 10 - 90 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom Note <i>Allocate each number only once.</i>
79:1	With LON communication module: Control unit is fault manager.	79:0	Control unit is not fault manager.
7B:1	With LON communication module: Control unit transmits the time.	7B:0	No time transmission.
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately
80:6	A fault message is issued if the fault lasts for at least 30 s.	80:0	Immediate fault message
		80:2 to 80:199	Minimum fault duration until fault message occurs, adjustable from 10 s to 995 s; 1 step \pm 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: 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:	Never adjust.		
87:	Never adjust.		
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Never adjust		
8F:0	All controls active	8F:1	All controls disabled Operation blocked in standard menu and in extended menu, emissions test mode can be activated.

General/Group "1" (cont.)

Coding in the delivered condition		Possible change	
	Note <i>The relevant code is only activated when you exit the service menu.</i>	8F:2	Only standard settings can be controlled. Operation enabled in standard menu but blocked in extended menu, emissions test mode can be activated.
90:128	Time constant for calculating adjusted outside temperature 21.3 h (only for weather-compensated control units)	90:1 to 90:199	Subject to the set value, the flow temperature is adjusted quickly (lower values) or slowly (higher values) when the outside temperature changes. 1 step \triangleq 10 min
94:0	Never adjust.		
95:0	Never adjust.		
97:0	With LON communication module: The outside temperature of the sensor connected to the control unit is used internally.	97:1	Control unit receives outside temperature.
		97:2	The control unit transmits the outside temperature to the LON subscribers.
98:1	Viessmann system number (in conjunction with monitoring of several systems via Vitocom 300)	98:1 to 98:5	System no. adjustable from 1 to 5
99:0	Never adjust.		
9A:0	Never 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	Monitoring LON subscribers. If there is no response from a subscriber for 20 min, the values specified in the control unit are used. Only then will a fault message be issued.	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min
9F:8	Differential temperature 8 K, only in conjunction with heating circuit with mixer	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K

Boiler/Group "2"**Coding**

Coding in the delivered condition		Possible change	
01:1	Single boiler system (only for constant temperature control units)	01:2	Multi boiler system with Vitotronic 300-K
04:1	Minimum burner pause time subject to the boiler load (specified by coding card)	04:0	Minimum burner pause time set permanently (specified by coding card)
06:...	Maximum limit of boiler water temperature, specified in °C by coding card	06:20 to 06:127	Maximum limit of boiler water temperature within the ranges specified by the boiler

Boiler/Group "2" (cont.)

Coding in the delivered condition		Possible change	
07:1	Boiler number in multi boiler systems (only for constant temperature control units)	07:2 to 07:4	Boiler number 2 to 4 in multi boiler systems
08:...	Maximum burner heating output in kW, in multi boiler systems	08:0 to 08:199	Maximum burner heating output adjustable in 1 kW increments, from 0 to 199 kW (limited by boiler-specific parameters)
0D:0	Never adjust.		
0E:0	Never adjust.		
13:1	Never adjust.		
14:1	Never adjust.		
15:1	Never adjust.		
21:0	No service interval set (in hours run)	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 \pm 100 h
23:0	No time set for burner service interval	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	"Service" not shown on the display	24:1	"Service" is shown on the display (address is automatically set and must be manually reset after a service has been carried out)
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	Never adjust.		
2F:0	Never adjust.		
30:3	Boiler circuit pump speed-controlled via 0 - 10 V interface	30:0	<ul style="list-style-type: none"> Connection of multi stage boiler circuit pump Operation with low loss header (single or multi boiler system)
		30:1	Boiler circuit pump speed-controlled
		30:2	Boiler circuit pump speed-controlled with flow rate
38:0	Burner control unit status: Operational (no fault)	38:≠0	Burner control unit status: Fault

DHW/Group "3"**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/Group "3" (cont.)

Coding in the delivered condition		Possible change	
			Note Maximum value subject to coding card Observe the maximum permissible DHW temperature.
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")
59:0	Cylinder heating: Start point -2.5 K Stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value
5E:0	Circulation pump for cylinder heating remains in control mode at "External blocking" signal.	5E:1	Circulation pump for cylinder heating stops at "External blocking" signal.
		5E:2	Circulation pump for cylinder heating starts at "External blocking" signal.
5F:0	Circulation pump for cylinder heating remains in control mode at "External demand" signal.	5F:1	Circulation pump for cylinder heating stops at "External demand" signal.
		5F:2	Circulation pump for cylinder heating starts at "External demand" signal.
60:20	During DHW heating, the set boiler water temperature is max. 20 K higher than the set DHW temperature.	60:5 to 60:25	The differential between the set boiler water temperature and the set DHW temperature is adjustable from 5 to 25 K
62:2	Circulation pump for cylinder heating with 2 min run-on time after cylinder heating	62:0	Circulation pump for cylinder heating without run-on
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min
63:0	Without auxiliary function for DHW heating (only for constant temperature control units)	63:1	Auxiliary function: 1 x daily
		63:2 to 63:14	Every 2 days to every 14 days
		63:15	2 x daily
65:0	Without diverter valve		
67:40	For solar DHW heating: Set DHW temperature 40 °C. Above the selected set temperature reheating is suppressed.	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)
6F:...	Max. heating output for DHW heating in %, specified by 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 (only for weather-compensated control units)	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 (only for weather-compensated control units)	72:1	"OFF" during DHW heating to set value 2
		72:2	"ON" during DHW heating to set value 2

DHW/Group "3" (cont.)

Coding in the delivered condition		Possible change	
73:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control units)	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

Solar/Group "4"**Note**

The solar group is only displayed if a solar control module, type SM1, is connected.

Coding

Coding in the delivered condition		Possible change	
Not allocated to any function mode			
00:8	The solar circuit pump starts if the collector temperature exceeds the actual cylinder temperature by 8 K.	00:2 to 00:30	The differential between the actual cylinder temperature and the start point for the solar circuit pump is adjustable from 2 to 30 K.
01:4	The solar circuit pump is switched off if the differential between the collector temperature and the actual cylinder temperature is less than 4 K.	01:1 to 01:29	The differential between the actual cylinder temperature and the stop point for the solar circuit pump is adjustable from 1 to 29 K.
02:...	Data dependent on the software version of solar control module SM1	02:0	Solar circuit pump not speed-controlled
		02:1	With wave packet control function Never adjust
		02:2	Solar circuit pump speed-controlled with PWM control
03:10	The temperature differential between the collector temperature and actual cylinder temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between collector temperature and actual cylinder temperature is adjustable from 5 to 20 K.
04:4	Controller amplification of speed control 4 %/K	04:1 to 04:10	Controller amplification adjustable from 1 to 10 %/K
05:10	Min. speed of the solar circuit pump 10 % of max. speed	05:2 to 05:100	Min. speed of solar circuit pump adjustable from 2 to 100 %.
06:75	Max. speed of the solar circuit pump 75 % of max. possible speed	06:2 to 06:100	Max. speed of solar circuit pump adjustable from 2 to 100 %.
07:0	Interval function of solar circuit pump switched off	07:1	Interval function of solar circuit pump switched on To capture the collector temperature more accurately, the solar circuit pump periodically starts for a short duration.
08:60	The solar circuit pump is stopped if the actual cylinder temperature reaches 60 °C (maximum cylinder temperature).	08:10 to 08:90	The maximum cylinder temperature is adjustable from 10 to 90 °C.

Solar/Group "4" (cont.)

Coding in the delivered condition		Possible change	
09:130	The solar circuit pump is stopped if the collector temperature reaches 130 °C (maximum collector temperature to protect the system components)	09:20 to 09:200	The temperature is adjustable from 20 to 200 °C.
0A:5	To protect the system components and heat transfer medium, the speed of the solar circuit pump is reduced if the differential between the actual cylinder temperature and the set cylinder temperature is less than 5 K.	0A:0 to 0A:40	The differential between the set cylinder temperature and the start point for reducing the stagnation time is adjustable from 0 to 40 K.
0B:0	Collector frost protection function switched off	0B:1	Collector frost protection function switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on No flow rate detected in the collector circuit or flow rate too low.	0C:0	Delta T monitoring switched off
0D:1	Night-time DHW circulation monitoring switched on Unintentional flow rate in the collector circuit is captured (e.g. at night).	0D:0	Night-time DHW circulation monitoring switched off
0E:1	Calculation of solar yield with Viessmann heat transfer medium	0E:2	Calculation of solar yield with water as heat transfer medium (do not select as operation is only possible with Viessmann heat transfer medium)
		0E:0	Calculation of solar yield switched off
0F:70	The flow rate in the collector circuit at the maximum pump speed is set to 7 l/min.	0F:1 to 0F:255	Flow rate in the collector circuit adjustable from 0.1 to 25.5 l/min
10:0	Target temperature control switched off (see coding address 11)	10:1	Target temperature control switched on
11:50	Set solar cylinder temperature 50 °C <ul style="list-style-type: none"> Target temperature control switched on (code 10:1): Temperature at which the solar heated water is to be stratified into the DHW cylinder. Extended control functions set to heat two DHW cylinders (code 20:9): When the actual temperature of the DHW cylinder reaches the set cylinder temperature, heating is switched over to the 2nd DHW cylinder. 	11:10 to 11:90	The set solar cylinder temperature is adjustable from 10 to 90 °C.

Solar/Group "4" (cont.)

Coding in the delivered condition		Possible change	
12:20	Minimum collector temperature 20 °C The solar circuit pump is only started when the set minimum collector temperature is exceeded at the collector temperature sensor.	12:0	Minimum collector temperature function switched off
		12:1 to 12:90	The minimum collector temperature is adjustable from 1 to 90 °C.
20:0	No extended control function enabled	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2
		20:3	Differential temperature control 2 and auxiliary function
		20:4	Differential temperature control 2 for central heating backup
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor
		20:8	Solar heating via external heat exchanger with additional temperature sensor
22:8	Start temperature differential for central heating backup: 8 K Switching output [22] is switched on if the temperature at sensor [7] has exceeded the temperature at sensor [10] by the selected value.	20:9	Solar heating of 2 DHW cylinders
		22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 2 to 30 K.
23:4	Stop temperature differential for central heating backup: 4 K Switching output [22] is switched off if the temperature at sensor [7] undershoots the stop point. The stop point is the sum of the temperature at sensor [10] and the value selected as stop temperature differential.	23:2 to 23:30	Stop temperature differential for central heating backup is adjustable from 1 to 29 K.

Solar/Group "4" (cont.)

Coding in the delivered condition		Possible change	
24:40	<p>Start temperature for the thermostat function 40 °C.</p> <p>Start temperature for thermostat function ≤ stop temperature for thermostat function:</p> <p>Thermostat function e.g. for re-heating. Switching output [22] is switched on if the temperature at sensor [7] undershoots the start temperature for the thermostat function.</p> <p>Start temperature for thermostat function > stop temperature for thermostat function:</p> <p>Thermostat function e.g. for utilising excess heat. Switching output [22] is switched on if the temperature at sensor [7] exceeds the start temperature for the thermostat function.</p>	24:0 to 24:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
25:50	<p>Stop temperature for the thermostat function 50 °C.</p> <p>Start temperature for thermostat function ≤ stop temperature for thermostat function:</p> <p>Thermostat function e.g. for re-heating. Switching output [22] is switched off if the temperature at sensor [7] exceeds the start temperature for the thermostat function.</p> <p>Start temperature for thermostat function > stop temperature for thermostat function:</p> <p>Thermostat function e.g. for utilising excess heat. Switching output [22] is switched off if the temperature at sensor [7] undershoots the start temperature for the thermostat function.</p>	25:0 to 25:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
26:1	<p>Priority for DHW cylinder 1 – with cyclical heating</p> <p>Only when setting code 20:9.</p>	26:0	Priority for DHW cylinder 1 – without cyclical heating
		26:2	Priority for DHW cylinder 2 – without cyclical heating
		26:3	Priority for DHW cylinder 2 – with cyclical heating
		26:4	Cyclical heating without priority for either DHW cylinder

Solar/Group "4" (cont.)

Coding in the delivered condition		Possible change	
27:15	Cyclical heating time 15 min. If the DHW cylinder with priority has been heated up, the DHW cylinder without priority is heated for a maximum duration equal to the set cyclical heating time.	27:5 to 27:60	Cyclical heating time is adjustable from 5 to 60 min.
28:3	Cyclical pause time 3 min. After the set cyclical heating time for the DHW cylinder without priority has expired, the rise in collector temperature is captured during the cyclical pause time.	28:1 to 28:60	Cyclical pause time adjustable from 1 to 60 min.

Heating circuit 1, heating circuit 2, heating circuit 3/Group "5"**Coding**

Coding in the delivered condition		Possible change	
A0:0	Without remote control (only for weather-compensated control units)	A0:1	With Vitotrol 200-A/200-RF (automatic recognition).
		A0:2	With Vitotrol 300-A/300-RF or Vitocomfort 200 (automatic recognition).
A1:0	All settings that can be made at the remote control can be executed (only for weather-compensated control units).	A1:1	Only party mode can be set at the remote control. (Only on Vitotrol 200-A.)
A2:2	Cylinder priority control for heating circuit pump	A2:0	Without cylinder priority for heating circuit pump
		A2:1	Cylinder priority applies only to mixers. The mixer is closed during cylinder heating. The heating circuit pump is running.
		A2:3 to A2:15	Modulating priority for mixers. The heating circuit receives a reduced amount of heat.
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**

With settings below 1 °C there is a risk that pipes outside the thermal envelope of the building could freeze up.
Standby mode in particular must 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

Heating circuit 1, heating circuit 2, heating... (cont.)

Parameter address A3:...	Heating circuit pump	
	"ON"	"OFF"
-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 (only for weather-compensated control units)	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been set. Note <i>"Important", observe for code "A3".</i>
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) (only for weather-compensated control units) $OT > RT_{set} + 1\text{ K}$	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF" (see the following table)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$OT > RT_{set} + 5\text{ K}$
2	$OT > RT_{set} + 4\text{ K}$
3	$OT > RT_{set} + 3\text{ K}$
4	$OT > RT_{set} + 2\text{ K}$
5	$OT > RT_{set} + 1\text{ K}$
6	$OT > RT_{set}$
7 to 15	$OT > RT_{set} - 1\text{ K}$ $OT > RT_{set} - 9\text{ K}$

Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
A6:36	Extended economy mode disabled (only for weather-compensated control units)	A6:5 to A6:35	Extended economy mode active: Meaning the burner and heating circuit pump are switched off at a variable value, adjustable from 5 to 35 °C plus 1 °C. Mixer will be closed. The basis for this is the adjusted outside temperature. This is composed of the actual outside temperature and a time constant that takes account of the way an average building cools down.
A7:0	Without mixer economy function (only for heating circuit with mixer) (only for weather-compensated control units)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": <ul style="list-style-type: none"> ▪ If the mixer has been trying to close for longer than 20 min. Heating circuit pump "On": <ul style="list-style-type: none"> ▪ If the mixer changes to control function ▪ If there is a risk of frost
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered through a change in operating mode or through a change in the set room temperature (only for weather-compensated control units)	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15
B0:0	With remote control: Heating mode/reduced mode: Weather-compensated (only change the code for the heating circuit with mixer) (only for weather-compensated control units)	B0:1	Heating mode: Weather-compensated Reduced mode: With room temperature hook-up
		B0:2	Heating mode: With room temperature hook-up Reduced mode: Weather-compensated
		B0:3	Heating mode/reduced mode: With room temperature hook-up
B2:8	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed: Room influence factor 8 (only change the code for the heating circuit with mixer) (only for weather-compensated control units)	B2:0	Without room influence
		B2:1 to B2:64	Room influence factor adjustable from 1 to 64
B5:0	With remote control: No room temperature-dependent heating circuit pump logic function (only change the code for the heating circuit with mixer) (only for weather-compensated control units)	B5:1 to B5:8	For heating circuit pump logic function, see the following table:

Heating circuit 1, heating circuit 2, heating... (cont.)

Parameter address b5:...	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5\text{ K}$	$RT_{actual} < RT_{set} + 4\text{ K}$
2	$RT_{actual} > RT_{set} + 4\text{ K}$	$RT_{actual} < RT_{set} + 3\text{ K}$
3	$RT_{actual} > RT_{set} + 3\text{ K}$	$RT_{actual} < RT_{set} + 2\text{ K}$
4	$RT_{actual} > RT_{set} + 2\text{ K}$	$RT_{actual} < RT_{set} + 1\text{ K}$
5	$RT_{actual} > RT_{set} + 1\text{ K}$	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1\text{ K}$
7	$RT_{actual} > RT_{set} - 1\text{ K}$	$RT_{actual} < RT_{set} - 2\text{ K}$
8	$RT_{actual} > RT_{set} - 2\text{ K}$	$RT_{actual} < RT_{set} - 3\text{ K}$

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
C6:74	Electronic maximum flow temperature limit 90 °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 (only for weather-compensated control units)	D3:2 to D3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 28)
D4:0	Heating curve level = 0 (only for weather-compensated control units)	D4:–13 to D4:40	Heating curve level adjustable from –13 to 40 (see page 28)
D5:0	External operating program changeover switches the operating program to "Constant operation at reduced room temperature" or "Standby mode". (only for weather-compensated control units)	D5:1	The external operating program changeover switches to "Constant operation at standard room temperature" (subject to coding address 3A, 3b and 3C)
D6:0	Heating circuit pump remains in control mode at "External blocking" signal.	D6:1	Heating circuit pump stops at "External blocking" signal (subject to coding addresses 3A, 3b and 3C)
		D6:2	Heating circuit pump starts at "External blocking" signal (subject to coding addresses 3A, 3b and 3C)
D7:0	Heating circuit pump remains in control mode at "External demand" signal.	D7:1	Heating circuit pump stops at "External demand" signal (subject to coding addresses 3A, 3b and 3C)
		D7:2	Heating circuit pump starts at "External demand" signal (subject to coding addresses 3A, 3b and 3C)
D8:0	No operating program changeover via EA1 extension (only for weather-compensated control units)	D8:1	Operating program changeover via input DE1 at EA1 extension
		D8:2	Operating program changeover via input DE2 at EA1 extension
		D8:3	Operating program changeover via input DE3 at EA1 extension
E1:1	Never adjust.		
E2:50	With remote control: No display correction of the actual room temperature	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K

Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
E5:...	Never adjust.		
E6:...	Maximum speed of the variable speed heating circuit pump in % of the max. speed in standard mode. This 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	Minimum speed of the variable speed heating circuit pump: 30 % of max. speed. (only for weather-compensated control units)	E7:0 to E7:100	Maximum speed adjustable from 0 to 100 %
F1:0	Screed drying not active. (only for weather-compensated control units)	F1:1 to F1:6	Screed drying can be set in accordance with 6 adjustable temperature/time profiles.
		F1:15	Constant flow temperature 20 °C
F2:8	Time limit for party mode or external operating mode changeover via pushbutton: 8 h (only for weather-compensated control units)	F2:0	No time limit for party mode
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h
F5:12	Run-on time of the boiler circuit pump in heating mode: 12 min (only for constant temperature control units)	F5:0	No boiler circuit pump run-on time
		F5:1 to F5:20	Run-on time of the boiler circuit pump adjustable from 1 to 20 min
F6:25	In "Only DHW" mode, the boiler circuit pump is constantly on (only for constant temperature control units)	F6:0	In "Only DHW" mode, the boiler circuit pump is constantly off
		F6:1 to F6:24	In "Only DHW" mode, the boiler circuit pump is started 1 to 24 times per day for 10 min each time.
F7:25	In "Standby mode", the boiler circuit pump is constantly on (only for constant temperature control units)	F7:0	In "Standby mode", the boiler circuit pump is constantly off
		F7:1 to F7:24	In "Standby mode", the boiler circuit pump is started 1 to 24 times per day for 10 min each time.
F8:-5	Temperature limit for terminating reduced mode -5 °C (only for weather-compensated control units) Observe setting for 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 reduced set room temperature -14 °C (only for weather-compensated control units)	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

Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
FA:20	Increasing the set boiler water temperature or set flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature (only for weather-compensated control units)	FA:0 to FA:50	Temperature increase adjustable from 0 to 50 %
FB:30	Duration for increasing the set boiler water or flow temperature (see coding address "FA") 60 min (only for weather-compensated control units)	FB:0 to FB:150	Duration adjustable from 0 to 300 min 1 step \pm 2 min

Service level, weather-compensated control unit

Calling up the service menu

Service menu:

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

Service menu:

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

Leaving the service level

Note

The system exits the service level automatically after 30 min.

Overview of service menu for weather-compensated mode

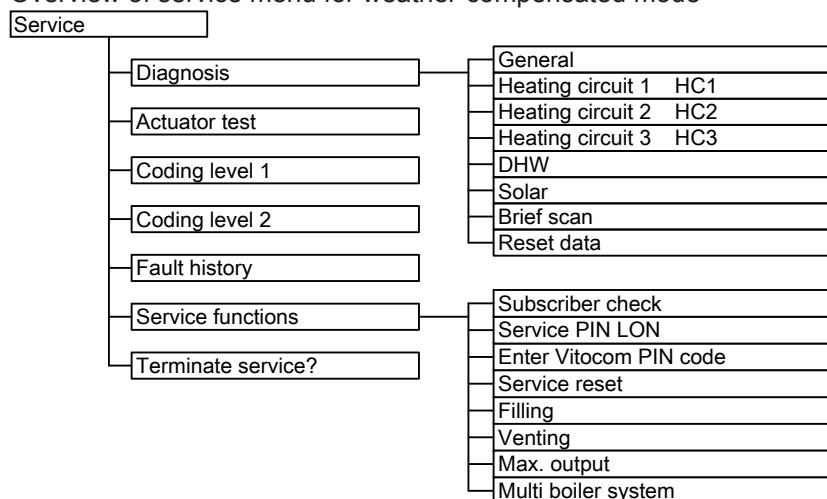


Fig. 26

Note

Do **not** adjust the **"Multi boiler system"** menu point.
The menu point turns a weather-compensated control unit into a constant temperature control unit.

Diagnosis, weather-compensated control unit

Calling up operating data

Operating data can be called up in 6 areas. See **"Diagnosis"** in the service menu overview.

Operating data on heating circuits with mixer or solar thermal systems can only be called up if such components are installed in the system.

For further information on operating data, see chapter "Brief scan".

Note

If a scanned sensor is faulty, **"- - -"** appears on the display.

Calling up operating data

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. **"Diagnosis"**

3. Select the 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"**.

Diagnosis, weather-compensated control unit (cont.)**Brief scan**

In the brief scan, you can call up 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 rows with 6 fields each.



Diagnosis Brief scan					
1:	1	F	0	A	1 2
2:	0	0	0	0	0 0
3:	0	0	0	0	0 0
4:	0	0	0	0	0 0
Select with 					

Fig. 27

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

Row (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		Appliance ID CU-ID	
3:	0	0	Number of KM-BUS subscribers		Software version, solar control module SM1	
4:	Software version Burner control unit		Type Burner control unit		Version, burner control unit	
5:	Internal details for calibration			0	Software version, AM1 extension	Software version, EA1 extension 0 = No EA1
6:	0	0	0	0	0	0
7:	LON Subnet address/system number		LON Node address		0	0
8:	LON SBVT configuration	LON Software version, communication coprocessor	LON Neuron chip software version		Number of LON subscribers	
9:	Heating circuit A1/HC1 Remote control 0: None 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort		Heating circuit M2/HC2 Remote control 0: None 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort		Heating circuit M3/HC3 Remote control 0: None 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort	
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

Diagnosis, weather-compensated control unit (cont.)**Testing outputs (relay test)**


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

The following relay outputs can be controlled subject to the system equipment level:


Shown on display		Explanation
All actuators	OFF	All actuators are off.
Base load	ON	Burner operated at minimum output; circulation pump is started.
Full load	ON	Burner operated at maximum output; circulation pump is started.
Output, internal	ON	Output 20 active (boiler circuit pump)
Output 21/28	ON	Output 21 active (circulation pump for cylinder heating)
Htg circ pump HC2	ON	Output for heating circuit pump enabled (extension heating circuit with mixer)
Mixer HC2	Open	Output for "Mixer open" enabled (extension heating circuit with mixer)
Mixer HC2	Close	Output for "Mixer close" enabled (extension heating circuit with mixer)
Htg circ pump HC3	ON	Output for heating circuit pump enabled (extension heating circuit with mixer)
Mixer HC3	Open	Output for "Mixer open" enabled (extension heating circuit with mixer)
Mixer HC3	Close	Output for "Mixer close" enabled (extension heating circuit with mixer)
Outp. int. exten. H1	ON	Output at internal extension enabled
AM1 output 1	ON	Output A1 at AM1 extension active
AM1 output 2	ON	Output A2 at AM1 extension active
EA1 output 1	ON	Contact P - S at plug 157 of EA1 extension 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 on solar control module SM1 switched to minimum speed
Solar circ pmp max	ON	Solar circuit pump output on solar control module SM1 switched to maximum speed
SM1 output 22	ON	Output 22 on solar control module SM1 active

Service level, constant temperature control unit**Calling up the service menu**

Service menu:

1. Press **OK** and  simultaneously for approx. 4 s.
"P" flashes on the display.
2. Select required function. See following pages.




Service menu:

1. Select **"Serv"** 7 with .
2. Confirm with **OK**.
"OFF" flashes.
3. Confirm with **OK**.

Note







The system exits the service level automatically after 30 min.

Leaving the service level**Diagnosis, constant temperature control unit**







1. Press **OK** and  simultaneously for approx. 4 s.
"P" flashes on the display.
2. Confirm with **OK**.
3. Select the required scan with /. For example, "b" for "Max. output" (see following table):
4. Confirm selected scan with **OK**.

Diagnosis, constant temperature control unit (cont.)





For explanations of individual scans, see the following table:

Brief scan		Shown on display			
					
0		System scheme 1 to 2	Software version Control unit		Software version Programming unit
1			Adjusted outside temperature		
3			Set boiler water temperature		
4			Common demand temperature		
5			Set cylinder temperature		
6		Number of KM-BUS subscribers		Number of LON subscribers	
7	SNVT configuration 0: Auto 1: Tool	Software version Communication coprocessor		Software version LON communication module	
8		Subnet address/system number		Node address	
9		Burner control unit type		Appliance type	
A			Max. heating output in %		
b		Coding card (hexadecimal)			
C		Version Appliance		Version Burner control unit	
d				0	0
E ①	Software version Solar control module, type SM1	Software version Burner control unit			Software version LON cascade communication module
F ①	Code 53 setting	Internal details for calibration			
	AM1 extension				
F ②	Software version	Output A1 configuration (value corresponds to code 33 setting)	Output A1 switching state 0: OFF 1: ON	Output A2 configuration (value corresponds to code 34 setting)	Output A2 switching state 0: OFF 1: ON
	EA1 extension				
F ③	Output 157 configuration (value corresponds to setting of code 36 in Group 1 "General")	Output 157 switching state 0: OFF 1: ON	Input DE1 switching state 0: Open 1: Closed	Input DE2 switching state 0: Open 1: Closed	Input DE3 switching state 0: Open 1: Closed
F ④	Software version		External hook-up 0 - 10 V Display in %		
	Solar control module SM1				
F ⑤	Stagnation time of the solar thermal system in h				
F ⑥	Night-time DHW circulation, solar thermal system (number)				
F ⑦	Differential temperature monitoring				






Diagnosis, constant temperature control unit (cont.)

Brief scan	Shown on display				
					
F ⑧				Solar central heating backup 0: Disabled 1: Enabled	Output 22 switching state 0: OFF 1: ON
OpenTherm extension (if installed)					
F ⑨	Software version	DHW heating status	External hook-up 0 - 10 V Display in %		

Testing outputs (relay test)

- Press **OK** and  simultaneously for approx. 4 s. "P" flashes on the display.
- Select "P" with  and confirm with **OK**.
- Select required actuator (output) with / (see following table):
- Confirm selected actuator with **OK**.
The display shows the number for the activated actuator and "**ON**".

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

Shown on display	Explanation
0	All actuators are off.
1	Burner operated at minimum output; circulation pump is started.
2	Burner operated at maximum output; circulation pump is started.
3	Output  active (boiler circuit pump)
10	Internal extension output active
15	Solar circuit pump output  on solar control module SM1 active
16	Solar circuit pump output on solar control module SM1 switched to minimum speed
17	Solar circuit pump output on solar control module SM1 switched to maximum speed
18	Output  on solar control module SM1 active
19	Contact P - S at plug  of EA1 extension closed
20	Output A1 at AM1 extension active
21	Output A2 at AM1 extension active
22	Output  active (circulation pump for cylinder heating)

Fault display

Weather-compensated control unit

In the event of a fault, red fault indicator (A) flashes. "△" flashes on the display and "Fault" is shown.

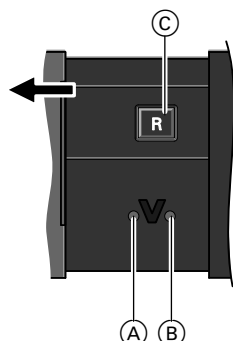


Fig. 28

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

Acknowledging a fault

Follow the instructions on the display.

Note

- The fault message is transferred to the standard menu.
- Any fault message facility connected will be switched off.
- If an acknowledged fault is not remedied, the fault message will be redisplayed the following day and the fault message facility restarted.

Constant temperature control unit

In the event of a fault, red fault indicator (A) flashes. The 2-digit fault code and (subject to the type of fault) "△" or "▽" flash on the programming unit display.

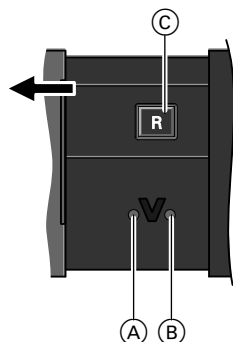


Fig. 29

Other current faults can be displayed with ▲/▼. For an explanation of the fault codes, see the following pages.

Calling up acknowledged faults

In the standard menu, select "**Fault**". Current faults will be listed.

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

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. "Fault history"
3. "Display?"

Deleting the fault history

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. "Fault history"
3. "Delete?"



Fig. 30 Example: Fault message "50"

Acknowledge a fault

Press **OK**. The default display reappears on the display screen.

Any fault message facility connected will be switched off.

If an acknowledged fault is not remedied, the fault message will be redisplayed the following day and the fault message facility restarted.





Fault display (cont.)

Calling up acknowledged faults


Hold down **OK** for approx. 4 s.
The 10 most recent faults (including those remedied) are saved and can be called up.

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

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press **OK** and  simultaneously for approx. 4 s.
2. Select "". Enable fault history with **OK**.
3. Select fault messages with /.


Deleting the fault history

While the list is displayed, press **OK** until  flashes.
Confirm with **OK**.

Fault codes

Faults without fault display

Fault	Cause of fault	Measure
Burner blocked; 3 is displayed in code 38 (code 2/boiler)	Combustion chamber pressure limiter has responded or connecting cable to the combustion chamber pressure limiter is broken.	Check combustion chamber pressure limiter, connection hose, burner and flue system; see page 14 Reset the combustion chamber pressure limiter.

Fault code displayed	System characteristics	Cause	Measures
10	Regulates as if the outside temperature were 0 °C.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 77).
18	Regulates as if the outside temperature were 0 °C.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 77).
19	Regulates as if the outside temperature were 0 °C.	Communication interruption, wireless outside temperature sensor	Check wireless connection (place wireless outside temperature sensor close to the wireless base station). Forget outside temperature sensor, then pair again.  Wireless base station installation and service instructions Replace wireless outside temperature sensor.
20	Regulates without flow temperature sensor (low loss header)	Short circuit, system flow temperature sensor	Check the low loss header sensor
28	Regulates without flow temperature sensor (low loss header)	Lead break, system flow temperature sensor	Check the low loss header sensor 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 78)
38	Burner blocked	Lead break, boiler water temperature sensor	Check boiler water temperature sensor (see page 78)
40	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
44	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor.
48	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor.
4C	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor.
50	No DHW heating	Short circuit, cylinder temperature sensor	Check sensors (see page 78).
58	No DHW heating	Lead break, cylinder temperature sensor	Check sensors (see page 78).
90	Control mode	Short circuit, temperature sensor 7	Check sensor 7 on solar control module.
91	Control mode	Short circuit, temperature sensor 10	Check sensor 10 on solar control module.
92	No solar DHW heating	Short circuit, collector temperature sensor	Check temperature sensor 6 on solar control module or sensor on the Vitosolic.
93	Control mode	Short circuit, cylinder temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic 100.
94	No solar DHW heating	Short circuit, cylinder temperature sensor	Check temperature sensor 5 on solar control module or sensor on the Vitosolic.
98	Control mode	Lead break, temperature sensor 7	Check sensor 7 on solar control module.
99	Control mode	Lead break, temperature sensor 10	Check sensor 10 on solar control module.
9A	No solar DHW heating	Lead break, collector temperature sensor	Check temperature sensor 6 on solar control module or sensor on the Vitosolic.
9B	Control mode	Lead break, cylinder temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic 100.
9C	No solar DHW heating	Lead break, cylinder temperature sensor	Check temperature sensor 5 on solar control module or sensor on the Vitosolic.
9E	Control mode	No or inadequate flow rate in collector circuit, or temperature limiter has responded.	Check solar circuit pump and solar circuit. Acknowledge fault message.
9F	Control mode	Solar control module or Vitosolic fault	Replace solar control module or Vitosolic.
A3	Burner blocked.	Flue gas temperature sensor incorrectly positioned.	Fit flue gas temperature sensor correctly. See page 79.
A4	Control mode	Max. system pressure exceeded	Check system pressure: Max. 3 bar (0.3 MPa) Check the function and sizing of the diaphragm expansion vessel. Vent the heating system.
A7	Control mode as per delivered condition	Programming unit faulty	Replace the programming unit.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
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; replace programming unit if necessary.
B5	Control mode as per delivered condition	Internal fault	Replace control unit.
B7	Burner blocked	Fault, coding card	Plug in coding card or replace if faulty.
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 extension kit connections and code.
BB	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 3 (with mixer)	Check extension kit connections and code.
BC	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 1 (without mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BD	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 2 (with mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BE	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 3 (with mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BF	Control mode	Incorrect LON communication module	Replace LON communication module.
C1	Control mode	Communication error, EA1 extension	Check connections.
C2	Control mode	Communication error, solar control module or Vitosolic	Check solar control module or Vitosolic.
C3	Control mode	Communication error, AM1	Check connections.
CF	Control mode	Communication error, LON communication module	Replace LON communication module.
D6	Control mode	Input DE1 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
D7	Control mode	Input DE2 at EA1 extension reports a fault.	Remedy fault at appliance concerned.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
D8	Control mode	Input DE3 at EA1 extension reports a fault.	Remedy 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 the remote control settings.
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 the remote control settings.
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 the remote control settings.
E0	Control mode	External LON subscriber error	Check connections and LON subscribers.
E1	Burner in a fault state	Ionisation current too high during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 21). In open flue operation, prevent high levels 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	24 V power supply fault	Replace control unit.
E5	Burner blocked	Flame amplifier fault	Replace control unit.
E7	Burner in a fault state	Ionisation current too low during calibration	Check ionisation electrode for the following: <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode Connecting cable and plug-in connections Check flue system; remove flue gas recirculation if required. Press reset button R .


Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
E8	Burner in a fault state	Ionisation current lies outside the permissible range	<p>Check gas supply (gas pressure and gas flow switch), gas train and connecting cable.</p> <p>Check ionisation electrode for the following:</p> <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode <p>Press reset button R.</p>
EA	Burner in a fault state	Ionisation current not within permissible range during calibration (excessive deviation from previous level)	<p>Check flue system; remove flue gas recirculation if required. In open flue operation, prevent high levels of dust in the combustion air.</p> <p>Press reset button R.</p> <p>Following several unsuccessful reset attempts, replace the coding card and press reset button R.</p>
EB	Burner in a fault state	Repeated flame loss during calibration	<p>Check gap between ionisation electrode and burner gauze assembly (see page 21).</p> <p>Check flue system; remove flue gas recirculation if required.</p> <p>Press reset button R.</p>
EC	Burner in a fault state	Parameter error during calibration	<p>Press reset button R.</p> <p>or</p> <p>Replace coding card and then press reset button R.</p>
ED	Burner in a fault state	Internal fault	Replace control unit.
EE	Burner in a fault state	Flame signal is not present or insufficient at burner start.	<p>Check gas supply (gas pressure and gas flow switch).</p> <p>Check gas train.</p> <p>Check ionisation electrode and connecting cable.</p> <p>Check ignition:</p> <ul style="list-style-type: none"> Connecting cables to ignition module and ignition electrode Ignition electrode gap and contamination (see page 21). <p>Check condensate drain.</p> <p>Press reset button R.</p>

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
EF	Burner in a fault state	Flame is lost immediately after it has built (during safety time).	<p>Check gas supply (gas pressure and gas flow switch). Check balanced flue system for flue gas recirculation.</p> <p>Check ionisation electrode (replace if required):</p> <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode <p>Press reset button R.</p>
F0	Burner blocked	Internal fault	Replace control unit.
F1	Burner in a fault state	Flue gas temperature limiter has responded.	<p>Check heating system fill level. Vent the system. Press reset button R after flue system has cooled down.</p>
F2	Burner in a fault state	Temperature limiter has responded.	<p>Check heating system fill level. Check circulation pump. Vent the system. Check temperature limiter and connecting cables. Press reset button R.</p>
F3	Burner in a fault state	Flame signal is already present at burner start.	<p>Check ionisation electrode and connecting cable. Press reset button R.</p>
F6	Burner in a fault state	Temperature values of the boiler water temperature sensors vary too widely from one another.	Replace the boiler water temperature sensors.
F9	Burner in a fault state	Fan speed too low during burner start	<p>Check the fan. Check the fan connecting cables. Check the fan power supply. Check the fan control. Press reset button R.</p>
FA	Burner in a fault state	Fan idle state not reached	<p>Check the fan. Check the fan connecting cables. Check the fan control. Press reset button R.</p>
FC	Burner in a fault state	Gas train faulty, modulation valve control faulty or flue gas path blocked	<p>Check gas train. Check flue system. Press reset button R.</p>
FD	Burner in a fault state and additional fault b7 is displayed.	Coding card missing.	<p>Insert coding card. Press reset button R. Replace control unit if fault persists.</p>
FD	Burner in a fault state	Burner control unit fault	<p>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.</p>

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
FE	Burner blocked or in a fault state	Coding card or main PCB faulty, or incorrect coding card	Press reset button R . If fault persists, check the coding card and replace coding card or control unit if necessary.
FF	Burner blocked or in a fault state	Internal fault or reset button R blocked.	Restart the appliance. Replace the control unit if the appliance will not restart.
10	Regulates as if the outside temperature were 0 °C.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 77).
18	Regulates as if the outside temperature were 0 °C.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 77).
19	Regulates as if the outside temperature were 0 °C.	Communication interruption, wireless outside temperature sensor	<p>Check wireless connection (place wireless outside temperature sensor close to the wireless base station). Forget outside temperature sensor, then pair again.</p> <p> Wireless base station installation and service instructions</p> <p>Replace wireless outside temperature sensor.</p>
20	Regulates without flow temperature sensor (low loss header)	Short circuit, system flow temperature sensor	Check the low loss header sensor
28	Regulates without flow temperature sensor (low loss header)	Lead break, system flow temperature sensor	Check the low loss header sensor. 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 78)
38	Burner blocked	Lead break, boiler water temperature sensor	Check boiler water temperature sensor (see page 78)
40	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor.
44	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor.
48	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor.
4C	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor.
50	No DHW heating	Short circuit, cylinder temperature sensor	Check sensors (see page 78).
58	No DHW heating	Lead break, cylinder temperature sensor	Check sensors (see page 78).
90	Control mode	Short circuit, temperature sensor 7	Check sensor 7 on solar control module.
91	Control mode	Short circuit, temperature sensor 10	Check sensor 10 on solar control module.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
92	No solar DHW heating	Short circuit, collector temperature sensor	Check temperature sensor [6] on solar control module or sensor on the Vitosolic.
93	Control mode	Short circuit, cylinder temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic 100.
94	No solar DHW heating	Short circuit, cylinder temperature sensor	Check temperature sensor [5] on solar control module or sensor on the Vitosolic.
98	Control mode	Lead break, temperature sensor [7]	Check sensor [7] on solar control module.
99	Control mode	Lead break, temperature sensor [10]	Check sensor [10] on solar control module.
9A	No solar DHW heating	Lead break, collector temperature sensor	Check temperature sensor [6] on solar control module or sensor on the Vitosolic.
9B	Control mode	Lead break, cylinder temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic 100.
9C	No solar DHW heating	Lead break, cylinder temperature sensor	Check temperature sensor [5] on solar control module or sensor on the Vitosolic.
9E	Control mode	No or inadequate flow rate in collector circuit, or temperature limiter has responded.	Check solar circuit pump and solar circuit. Acknowledge fault message.
9F	Control mode	Solar control module or Vitosolic fault	Replace solar control module or Vitosolic.
A3	Burner blocked.	Flue gas temperature sensor incorrectly positioned.	Fit flue gas temperature sensor correctly. See page 79
A4	Control mode	Max. system pressure exceeded	Check system pressure: Max. 3 bar (0.3 MPa) Check the function and sizing of the diaphragm expansion vessel. Vent the heating system.
A7	Control mode as per delivered condition	Programming unit faulty	Replace the programming unit.
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; replace programming unit if necessary.
B5	Control mode as per delivered condition	Internal fault	Replace control unit.
B7	Burner blocked	Fault, coding card	Plug in coding card or replace if faulty.
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 extension kit connections and code.
BB	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 3 (with mixer)	Check extension kit connections and code.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
BC	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 1 (without mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BD	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 2 (with mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BE	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 3 (with mixer)	Check connections, cable and coding address "A0" in the "Heating circuit" group and the remote control settings. For wireless remote control units: Check connection; place remote control close to the boiler.
BF	Control mode	Incorrect LON communication module	Replace LON communication module.
C1	Control mode	Communication error, EA1 extension	Check connections.
C2	Control mode	Communication error, solar control module or Vitosolic	Check solar control module or Vitosolic.
C3	Control mode	Communication error, AM1	Check connections.
CF	Control mode	Communication error, LON communication module	Replace LON communication module.
D6	Control mode	Input DE1 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
D7	Control mode	Input DE2 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
D8	Control mode	Input DE3 at EA1 extension reports a fault.	Remedy 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 the remote control settings.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
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 the remote control settings.
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 the remote control settings.
E0	Control mode	External LON subscriber error	Check connections and LON subscribers.
E1	Burner in a fault state	Ionisation current too high during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 21). In open flue operation, prevent high levels 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	24 V power supply fault	Replace control unit.
E5	Burner blocked	Flame amplifier fault	Replace control unit.
E7	Burner in a fault state	Ionisation current too low during calibration	Check ionisation electrode for the following: <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode Connecting cable and plug-in connections Check flue system; remove flue gas recirculation if required. Press reset button R .
E8	Burner in a fault state	Ionisation current lies outside the permissible range	Check gas supply (gas pressure and gas flow switch), gas train and connecting cable. Check ionisation electrode for the following: <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode Press reset button R .
EA	Burner in a fault state	Ionisation current not within permissible range during calibration (excessive deviation from previous level)	Check flue system; remove flue gas recirculation if required. In open flue operation, prevent high levels of dust in the combustion air. Press reset button R . Following several unsuccessful reset attempts, replace the coding card and press reset button R .

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
EB	Burner in a fault state	Repeated flame loss during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 21). Check flue system; remove flue gas recirculation if required. Press reset button R .
EC	Burner in a fault state	Parameter error during calibration	Press reset button R . or Replace coding card and then 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 insufficient at burner start.	Check gas supply (gas pressure and gas flow switch). Check gas train. Check ionisation electrode and connecting cable. Check ignition: <ul style="list-style-type: none"> Connecting cables to ignition module and ignition electrode Ignition electrode gap and contamination (see page 21). Check condensate drain. Press reset button R .
EF	Burner in a fault state	Flame is lost immediately after it has built (during safety time).	Check gas supply (gas pressure and gas flow switch). Check balanced flue system for flue gas recirculation. Check ionisation electrode (replace if required): <ul style="list-style-type: none"> Distance to burner gauze assembly (see page 21) Contamination on electrode Press reset button R .
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 .
F6	Burner in a fault state	Temperature values of the boiler water temperature sensors vary too widely from one another.	Replace boiler water temperature sensors

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
F9	Burner in a fault state	Fan speed too low during burner start	Check the fan. Check the fan connecting cables. Check the fan power supply. Check the fan control. Press reset button R .
FA	Burner in a fault state	Fan idle state not reached	Check the fan. Check the fan connecting cables. Check the fan control. Press reset button R .
FC	Burner in a fault state	Gas train faulty, modulation valve control faulty 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.	Coding card missing.	Insert coding card. Press reset button R . Replace control unit if fault persists.
FD	Burner in a fault state	Burner control unit fault	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	Coding card or main PCB faulty, or incorrect coding card	Press reset button R . If fault persists, check the coding card and replace coding card or control unit if necessary.
FF	Burner blocked or in a fault state	Internal fault or reset button R blocked.	Restart the appliance. Replace the control unit if the appliance will not restart.

Checking the outside temperature sensor

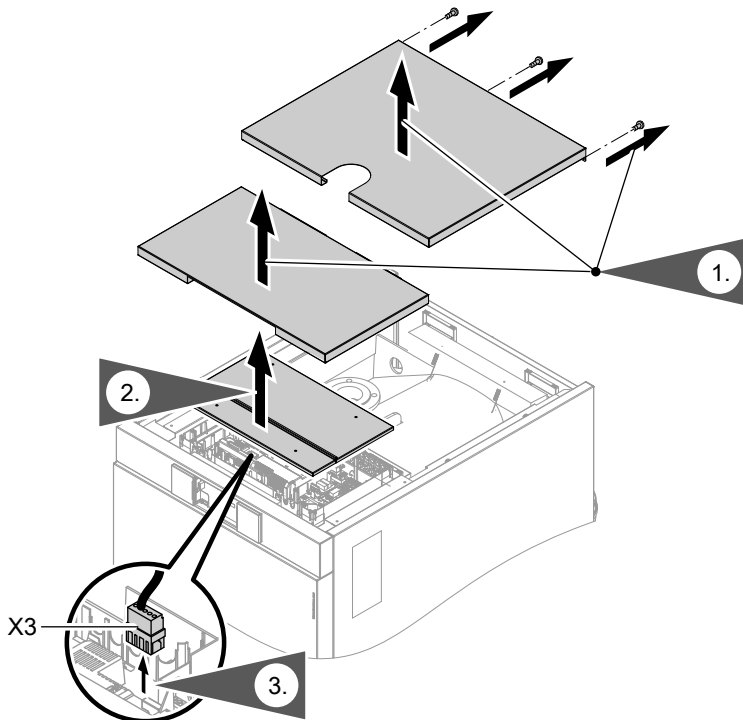
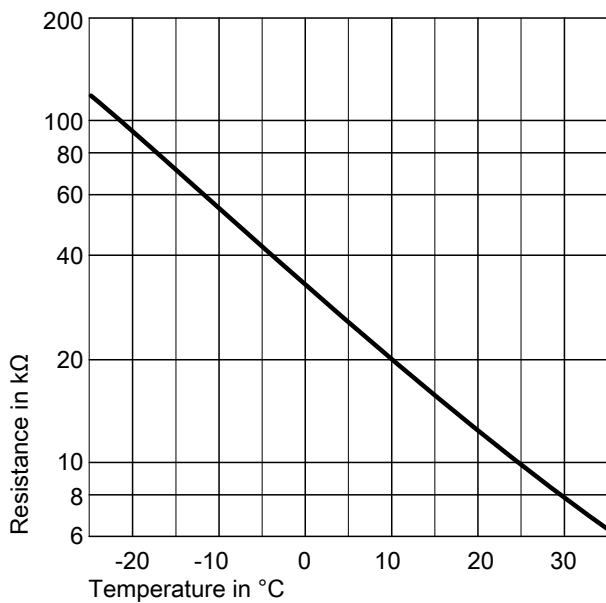


Fig. 31

Fig. 32 Sensor type: NTC 10 $k\Omega$

3. Disconnect plug "X3" from the control unit.
4. Measure the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug. Compare with the curve.
5. If the results are very different from the curve, disconnect the wires from the sensor. Repeat the test directly on the sensor.
6. Depending on the result, replace the lead or the outside temperature sensor.

Checking the cylinder temperature sensor

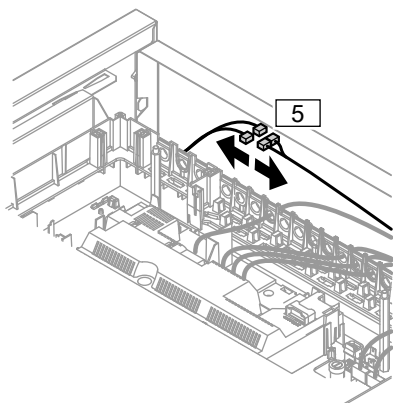


Fig. 33

- Cylinder temperature sensor**
Pull out plug 5. Measure the resistance.
- Check sensor resistance and compare it to the curve.

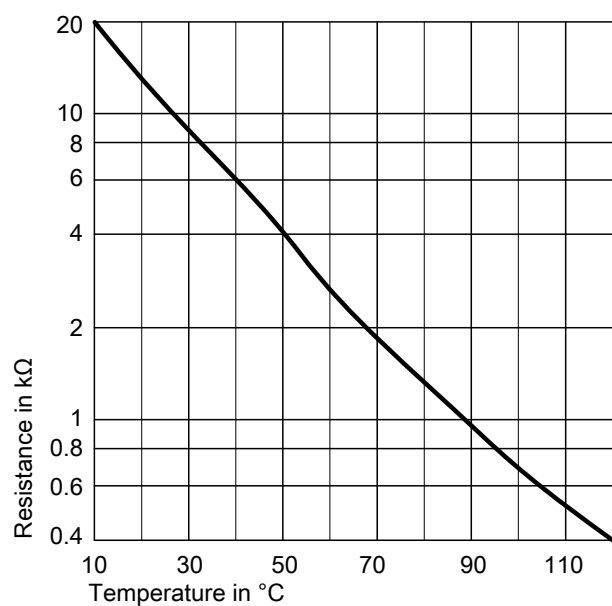


Fig. 34 Sensor type: NTC 10 kΩ

- In the event of severe deviation replace the sensor.

Checking the boiler water temperature sensor

Note

The boiler water temperature sensor is a dual sensor.

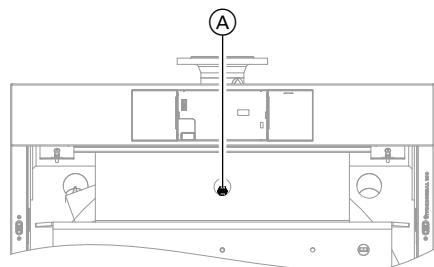


Fig. 35

- Boiler water temperature sensor**
Pull plug and measure the resistance.

Checking the boiler water temperature sensor (cont.)

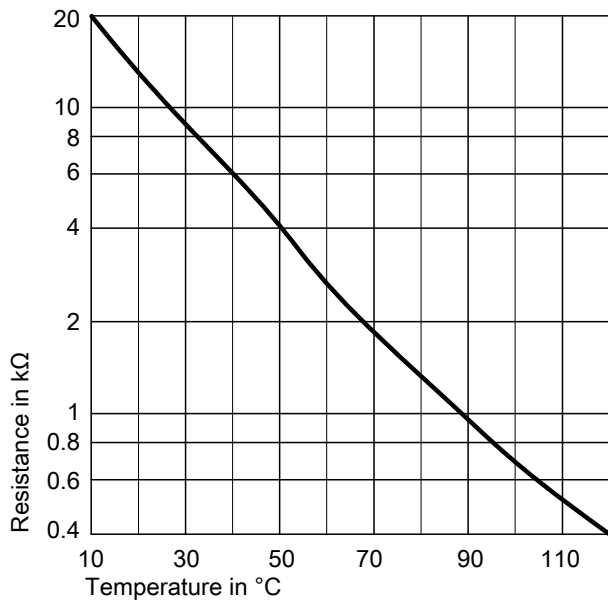


Fig. 36 Sensor type: NTC 10 kΩ

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

Checking the flue gas temperature sensor

Note

The boiler water temperature sensor is a dual sensor.

The flue gas temperature sensor locks out the boiler if the permissible flue gas temperature is exceeded. After the flue system has cooled down, press reset button **R** to cancel the lock.

Checking the flue gas temperature sensor (cont.)

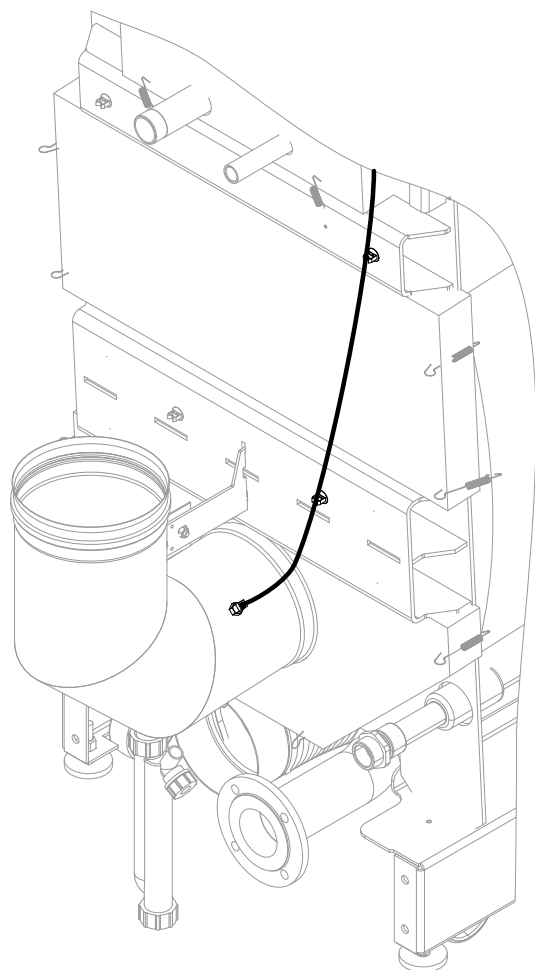


Fig. 37

1. Disconnect the leads from the flue gas temperature sensor.

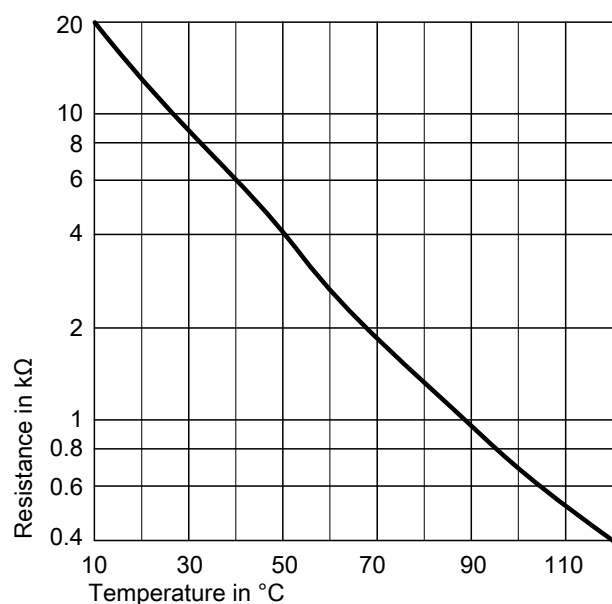


Fig. 38 Sensor type: NTC 10 kΩ

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

Checking the fuse

Note

Switch OFF the power supply.

Checking the fuse (cont.)

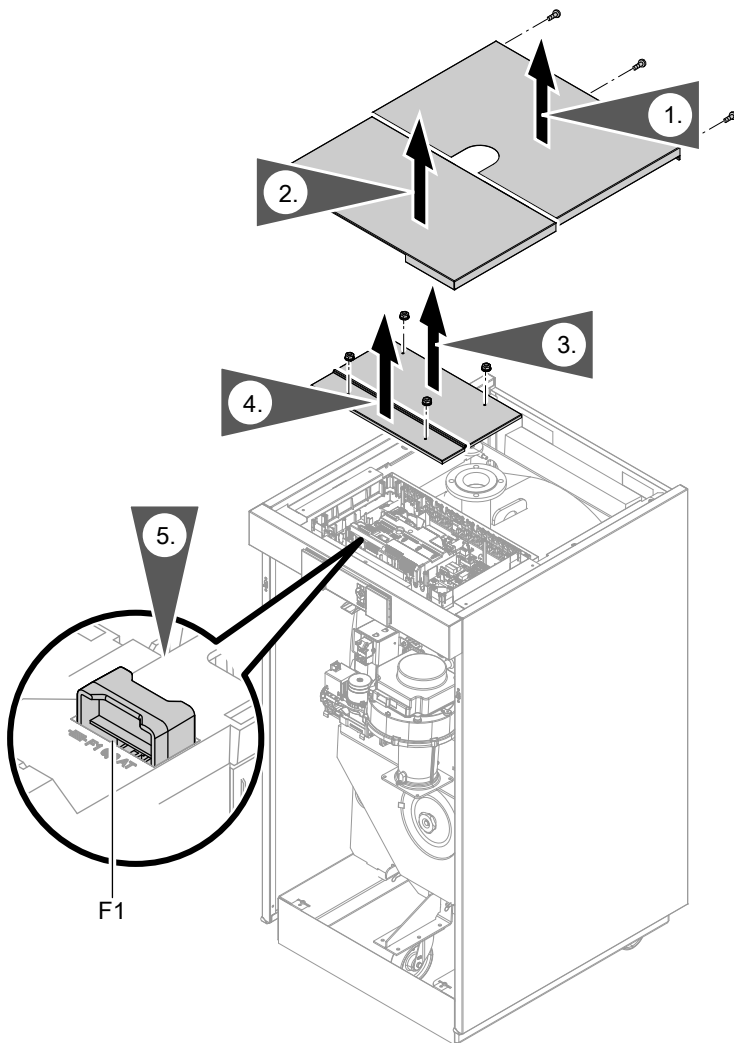




Fig. 39

5. Check fuse F1 (see connection diagram, page 116)

Mixer extension kit

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").

Observe the rotational direction of the mixer motor during its self-test.

Then manually set the mixer back to "Open".

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

Mixer extension kit (cont.)

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

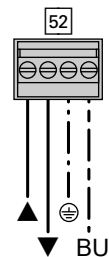


Fig. 40

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



Danger

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

2. At plug 52, swap the cores at terminals "▲" and "▼".
3. Refit the casing cover.

Check flow temperature sensor

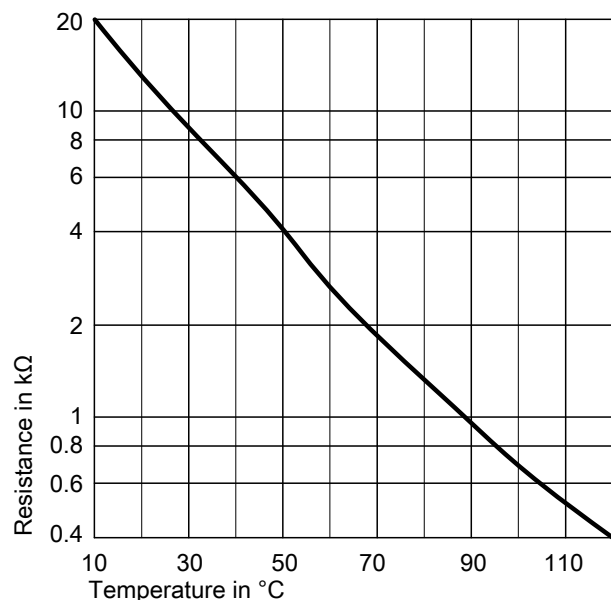


Fig. 41 Sensor type: NTC 10 kΩ

1. Disconnect plug 2 (flow temperature sensor).
2. Check the sensor resistance and compare it to the curve. In the event of severe deviation replace the sensor.

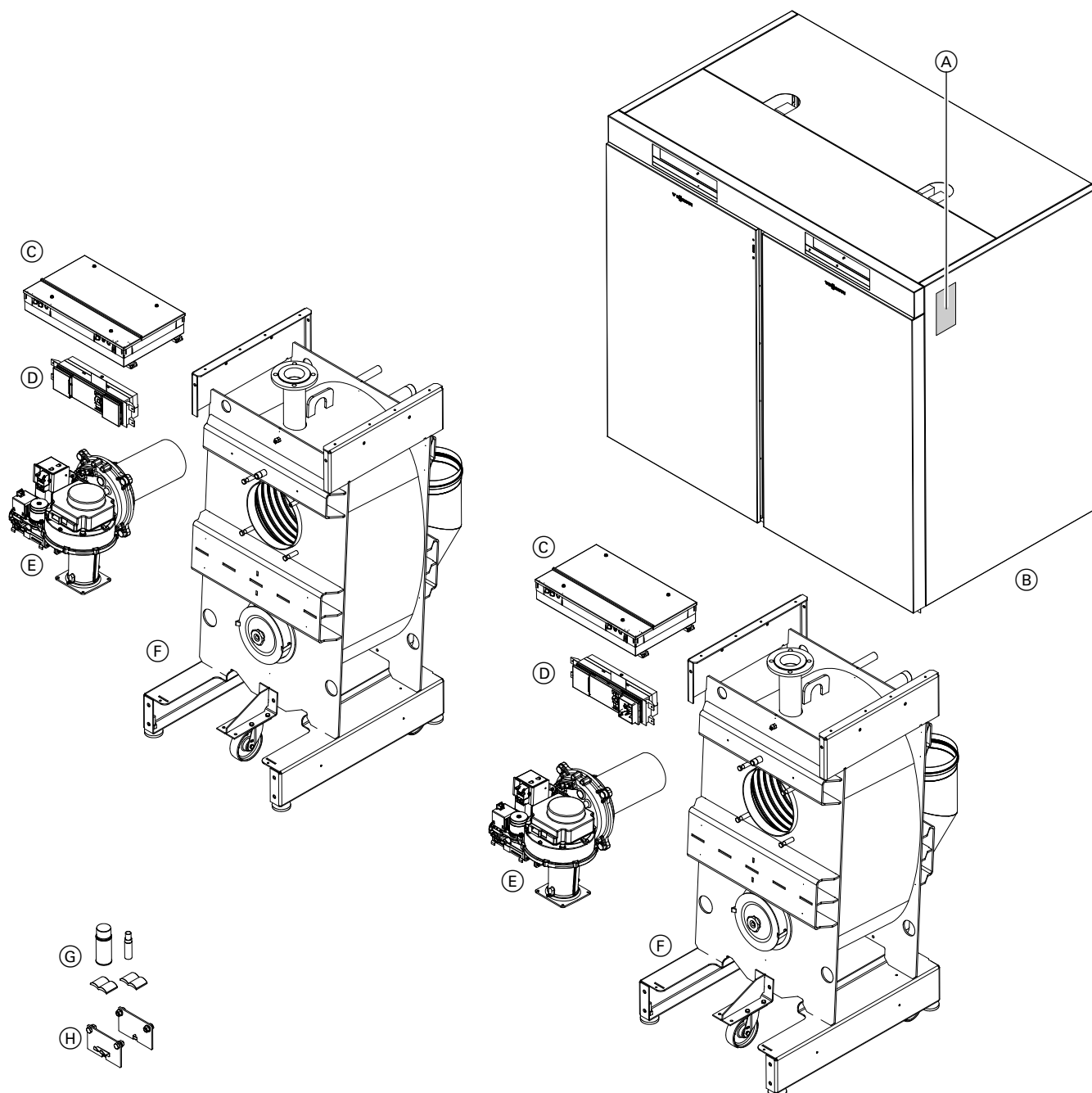
Checking the Vitotronic 200-H (accessories)

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 from page 29).

Overview of assemblies

The following details are required when ordering:

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



- (A) Type plate
- (B) Thermal insulation assembly
- (C) Control unit assembly
- (D) Programming unit assembly
- (E) Burner assembly
- (F) Boiler assembly
- (G) Miscellaneous
- (H) Boiler fixings, twin boilers only

Thermal insulation assembly

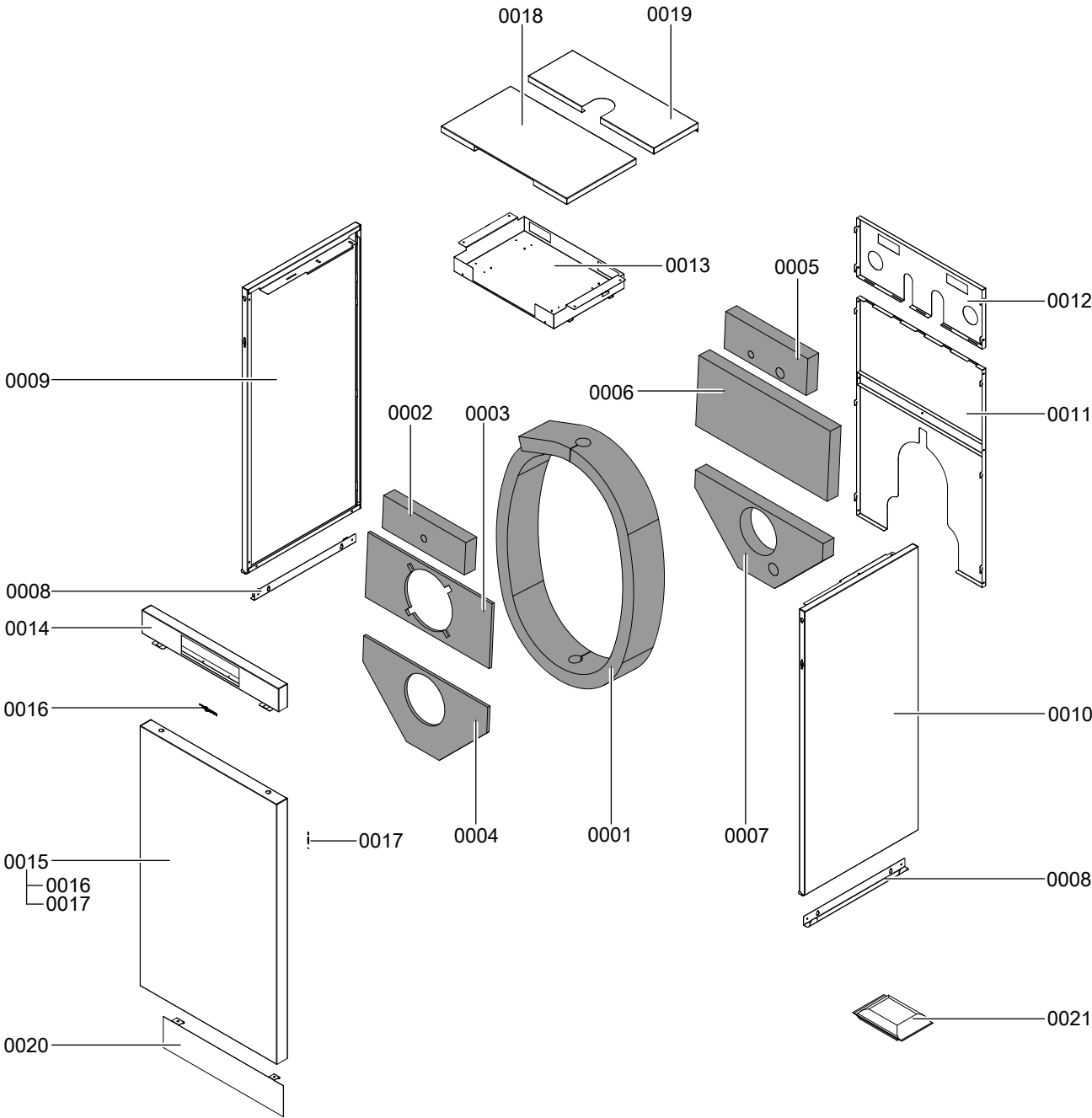
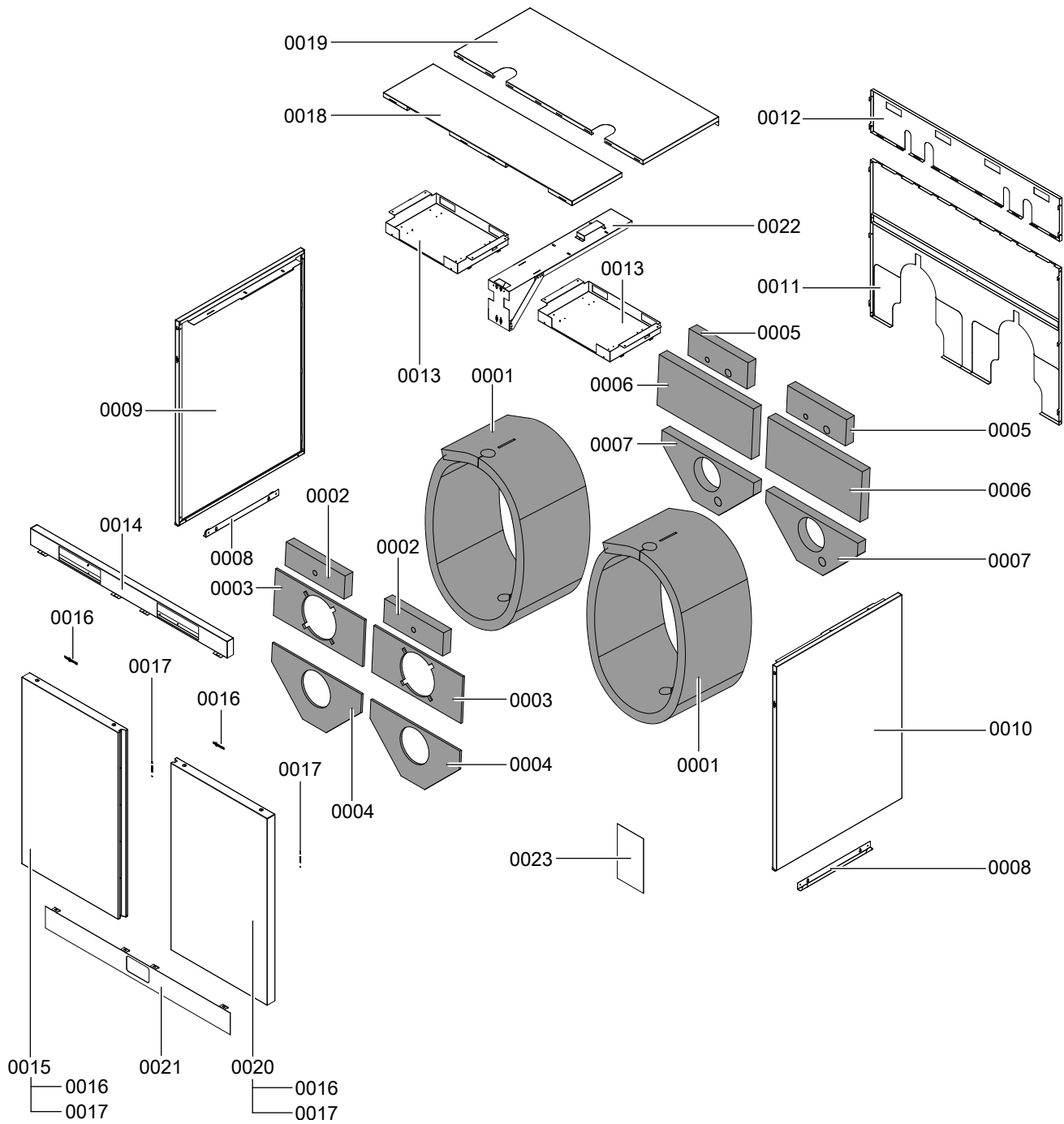


Fig. 42

Thermal insulation assembly (cont.)

Pos.	Part
0001	Thermal insulation jacket
0002	Thermal insulation mat, top front
0003	Thermal insulation mat, centre front
0004	Thermal insulation mat, bottom front
0005	Thermal insulation mat, top back
0006	Thermal insulation mat, centre back
0007	Thermal insulation mat, bottom back
0008	Fixing rail
0009	Side panel, left
0010	Side panel, right
0011	Back panel, bottom
0012	Back panel, top
0013	Shield panel
0014	Control panel
0015	Front panel
0016	Viessmann logo
0017	Vitocrossal 100 logo
0018	Top panel, front
0019	Top panel, back
0020	Front cover
0021	Fixings

Twin boiler thermal insulation assembly



Twin boiler thermal insulation assembly (cont.)

Pos.	Part
0001	Thermal insulation jacket
0002	Thermal insulation mat, top front
0003	Thermal insulation mat, centre front
0004	Thermal insulation mat, bottom front
0005	Thermal insulation mat, top back
0006	Thermal insulation mat, centre back
0007	Thermal insulation mat, bottom back
0008	Fixing rail
0009	Side panel, left
0010	Side panel, right
0011	Twin boiler back panel, bottom
0012	Twin boiler back panel, top
0013	Shield panel
0014	Control panel
0015	Twin boiler front panel, left
0016	Viessmann logo
0017	Vitocrossal 100 logo
0018	Twin boiler top panel, front
0019	Twin boiler top panel, back
0020	Twin boiler front panel, right
0021	Twin boiler front cover
0022	Tie-bar
0023	Cascade fixing elements

Boiler assembly, boilers up to 160 kW

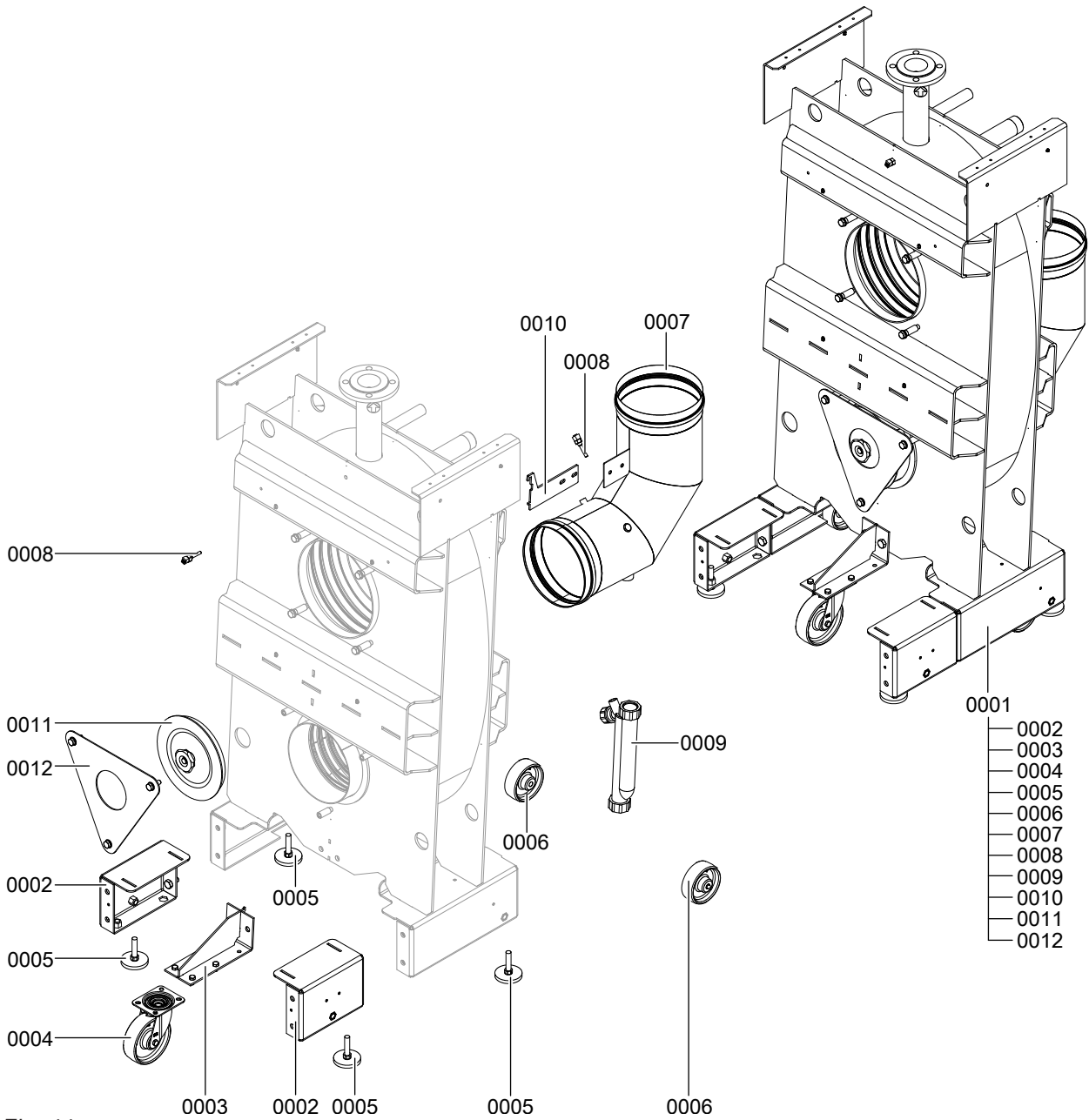
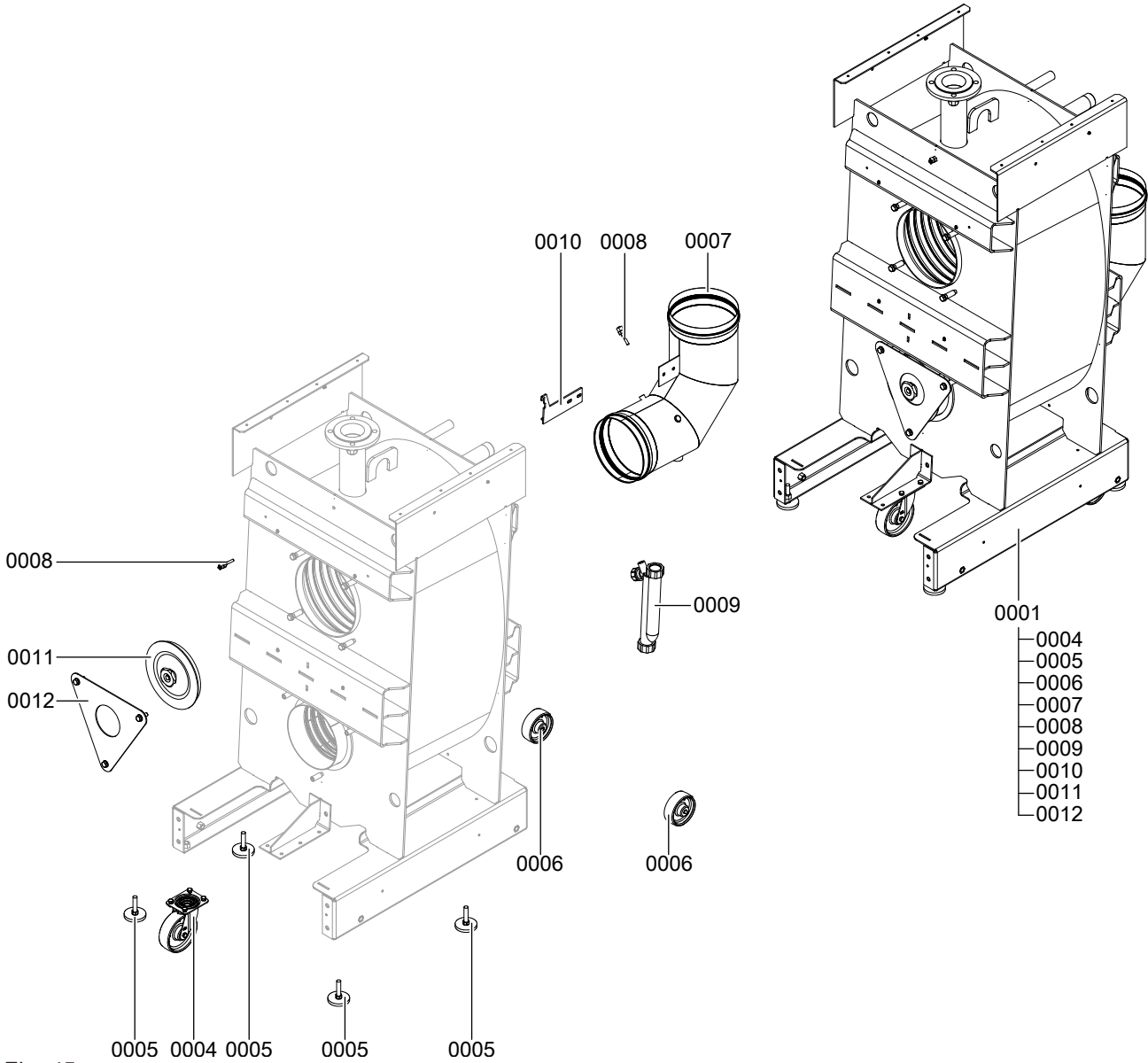


Fig. 44

Boiler assembly, boilers up to 160 kW (cont.)

Pos.	Part
0001	Boiler
0002	Base rail
0003	Mounting bracket
0004	Swivel castor
0005	Adjustable foot
0006	Wheel
0007	Boiler flue connection
0008	NTC temperature sensor
0009	Trap
0010	Retaining bracket
0011	Cover with pressure seal
0012	Locking bracket

Boiler assembly, boilers from 200 to 318 kW



Boiler assembly, boilers from 200 to 318 kW (cont.)

Pos.	Part
0001	Boiler
0004	Swivel castor
0005	Adjustable foot
0006	Wheel
0007	Boiler flue connection
0008	NTC temperature sensor
0009	Trap
0010	Retaining bracket
0011	Cover with pressure seal
0012	Locking bracket

Burner assembly, burners up to 80 kW

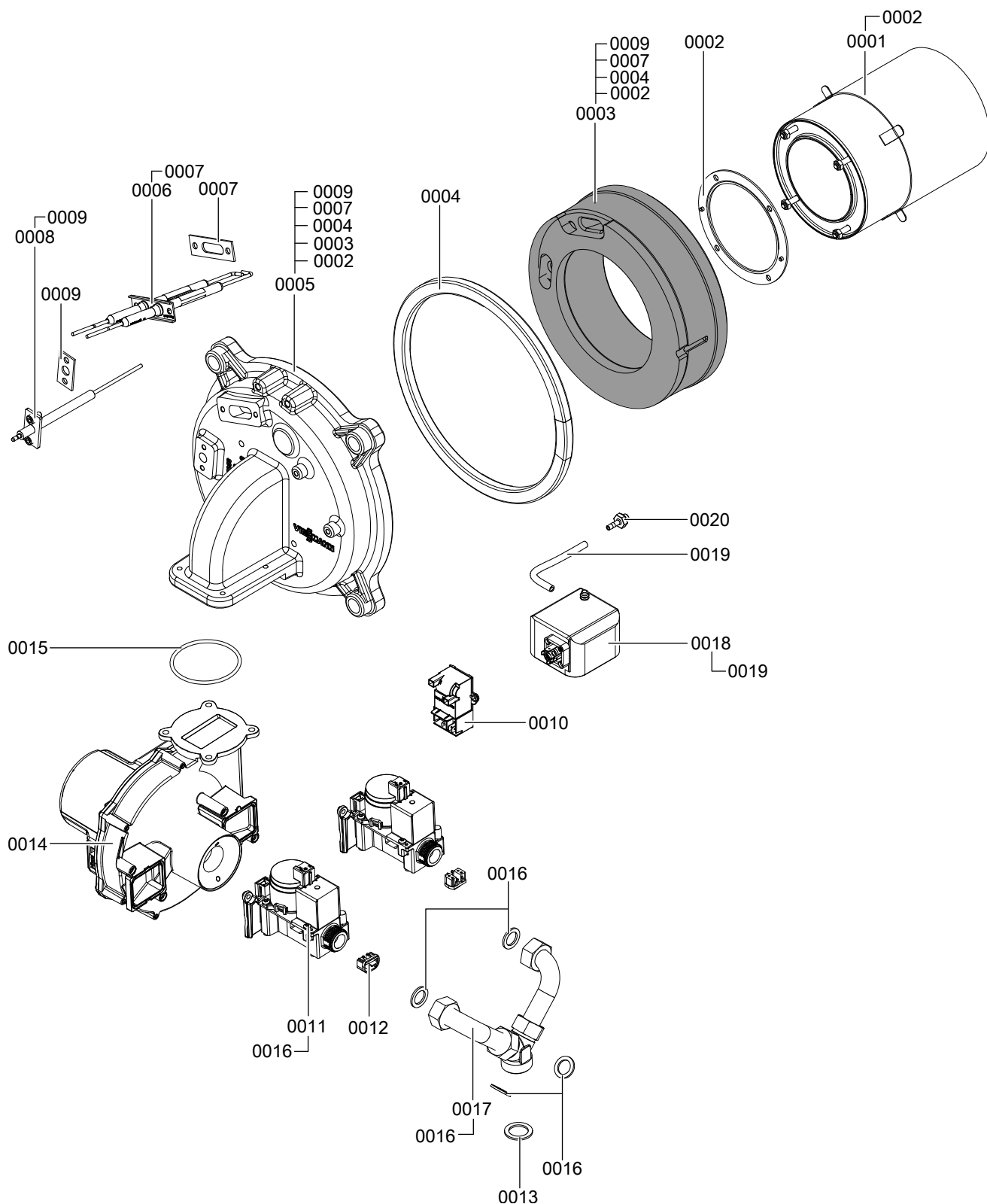


Fig. 46

Burner assembly, burners up to 80 kW (cont.)

Pos.	Part
0001	Burner gauze assembly VC100
0002	Gasket, burner gauze assembly
0003	Thermal insulation components
0004	Boiler door gasket
0005	Boiler door
0006	Ignition electrode block including ignition cable
0007	Electrode block gasket
0008	Ionisation electrode
0009	Ionisation electrode gasket
0010	Ignition unit
0011	Gas train
0012	Gas nozzle 06 black
0013	Gasket A 21 x 30 x 2 (5 pce)
0014	Radial fan
0015	O-ring
0016	Gasket set A 16 x 24 x 2 (5 pce)
0017	Gas distributor
0018	Combustion chamber pressure limiter
0019	Combustion chamber pressure limiter connection hose
0020	Hose nozzle with gasket

Burner assembly, burners 120/160 kW

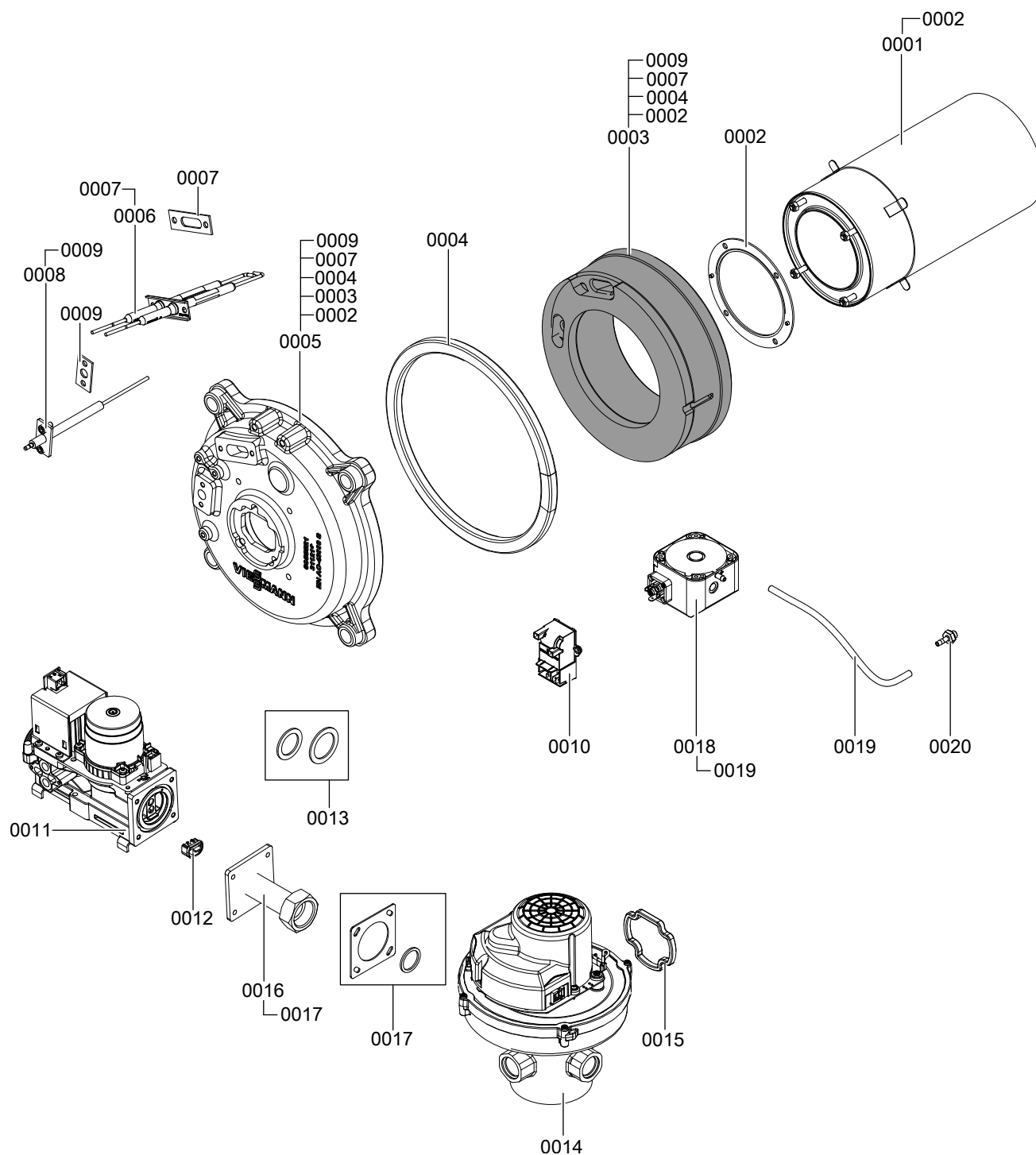


Fig. 47

Burner assembly, burners 120/160 kW (cont.)

Pos.	Part
0001	Burner gauze assembly VC100
0002	Gasket, burner gauze assembly
0003	Thermal insulation components
0004	Boiler door gasket
0005	Boiler door
0006	Ignition electrode block with ignition cable
0007	Electrode block gasket
0008	Ionisation electrode
0009	Ionisation electrode gasket
0010	Ignition unit
0011	Gas train CES25
0012	Gas nozzle 02 natural, 120/160kW CES25
0013	Gasket set
0014	Gas fan
0015	Gasket, burner door flange
0016	Connection pipe
0017	Gasket, connecting flange
0018	Combustion chamber pressure limiter
0019	Combustion chamber pressure limiter connection hose
0020	Hose nozzle with gasket

Burner assembly, burners 200 to 318 kW

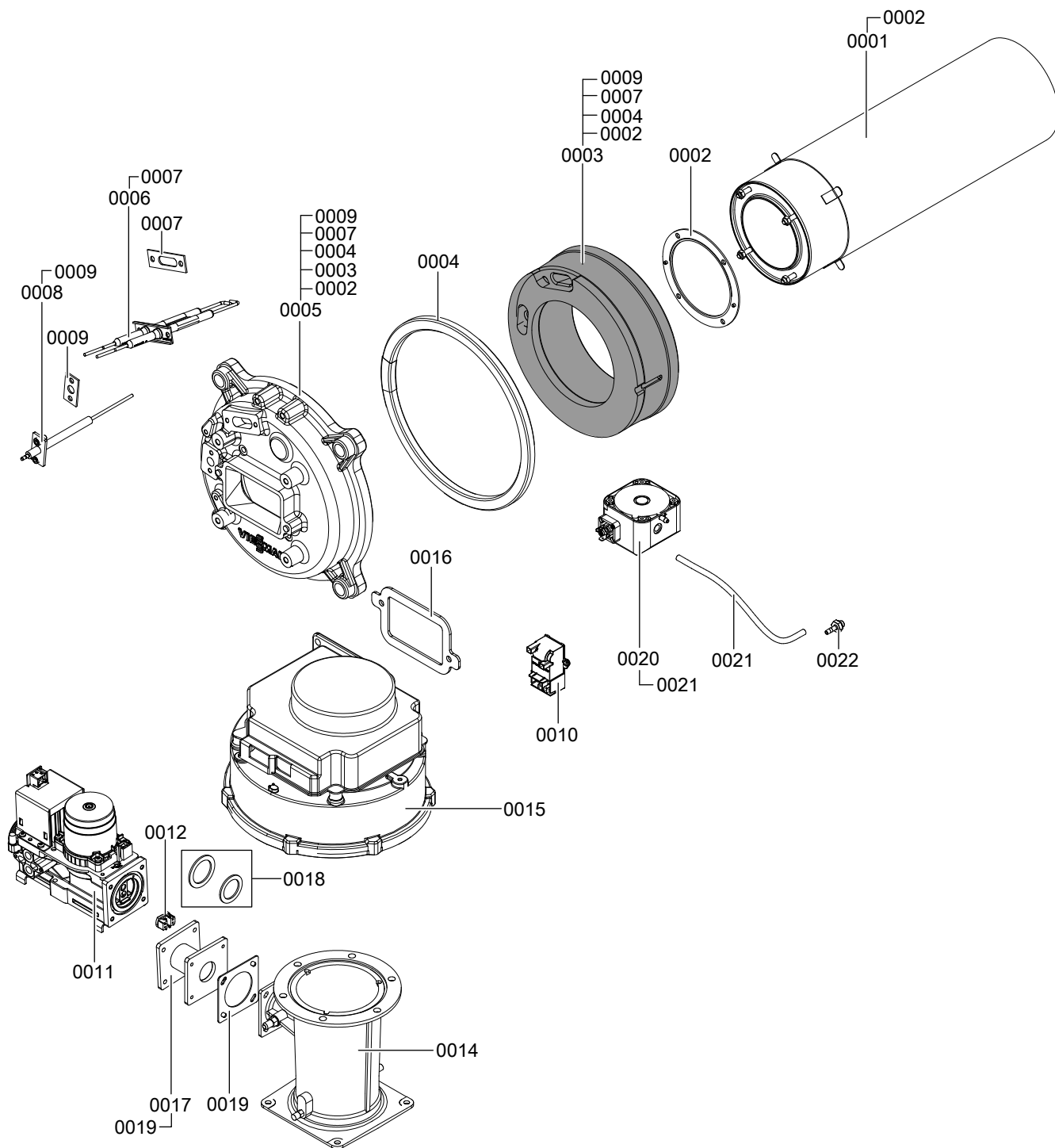


Fig. 48

Burner assembly, burners 200 to 318 kW (cont.)

Pos.	Part
0001	Burner gauze assembly VC100
0002	Gasket, burner gauze assembly
0003	Thermal insulation components
0004	Boiler door gasket
0005	Boiler door
0006	Ignition electrode block including ignition cable
0007	Electrode block gasket
0008	Ionisation electrode
0009	Ionisation electrode gasket
0010	Ignition unit
0011	Gas train
0012	Gas nozzle
0014	Venturi mixing pipe VMU400
0015	Gas fan
0016	Gasket
0017	Connecting flange
0018	Gasket set
0019	Gasket, connecting flange
0020	Combustion chamber pressure limiter
0021	Combustion chamber pressure limiter connection hose
0022	Hose nozzle with gasket

Programming unit assembly

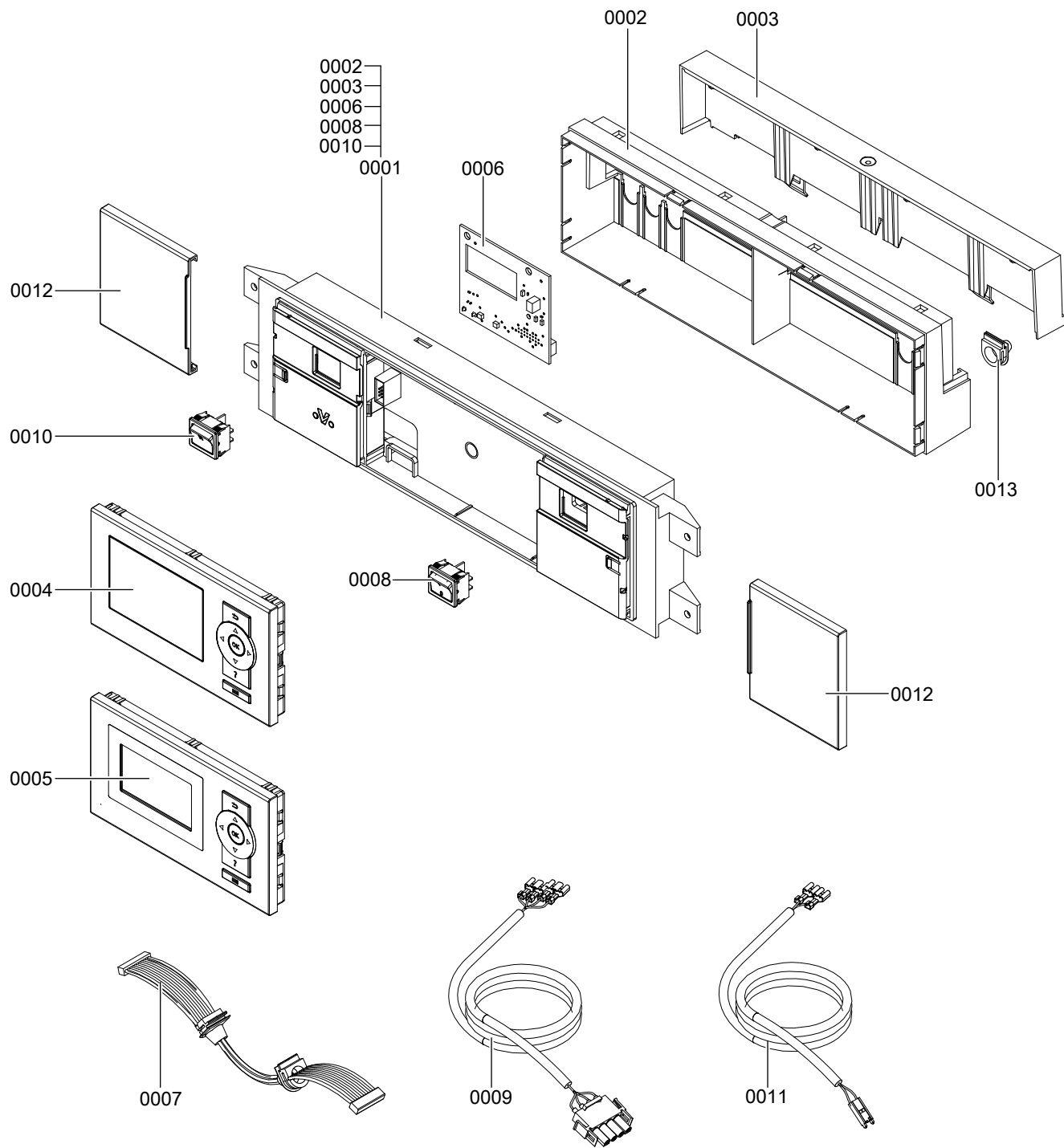


Fig. 49

Programming unit assembly (cont.)

Pos.	Part
0001	Programming module
0002	Programming unit cover
0003	Cover panel, programming unit cover
0004	Vitotronic 100 HO1B
0005	Vitotronic 100
0006	PCB SA168 A10
0007	Ribbon cable with cable grommets
0008	Toggle switch OFF 2-pole
0009	Power cable, internal
0010	Reset button
0011	Reset button cable
0012	Slider, left and right
0013	Cable grommets (10 pce)

Control unit assembly

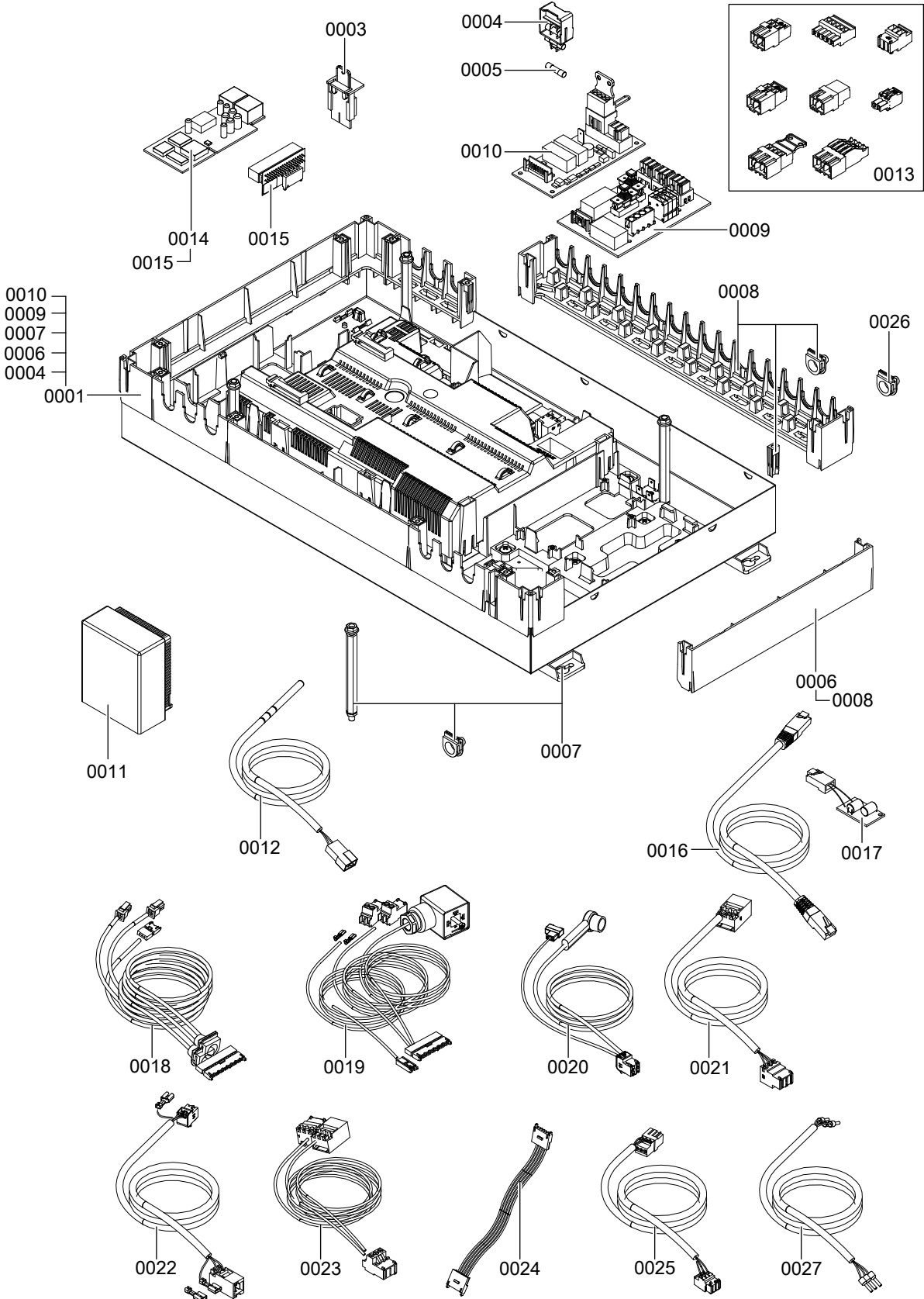


Fig. 50

Control unit assembly (cont.)

0001	Control unit VBC144-A10
0003	Coding card
0004	Fuse holder
0005	Fuse, 6.3 A (slow)/250 V (10 pce)
0006	Control unit side sections (set)
0007	Small parts (feet, screws, grommets)
0008	Side section with cable entry
0009	PCB SA169-A10
0010	Internal H1 extension
0011	Outside temperature sensor NTC
0012	Cylinder temperature sensor NTC
0013	Mating plug
0014	LON communication module
0015	PCB adaptor
0016	LON cable
0017	LON terminator (2 pce)
0018	Cable harness X8
0019	Cable harness X9 (modulation coil(s) and combustion chamber pressure limiter)
0020	Ionisation cable harness
0021	Fan connecting cable
0022	Ignition transformer connecting cable 54
0023	Gas valve connecting cable 35
0024	Cable harness, connection extension X7
0025	Power cable plug 40/40A
0026	Strain relief fittings (10 pce)
0027	Power cable

Miscellaneous

Parts not shown

Pos.	Part
0002	Touch-up spray paint, Vitosilver, 150 ml can
0003	Touch-up paint stick, Vitosilver
0004	Installation instructions
0005	Service instructions

Weather-compensated control unit

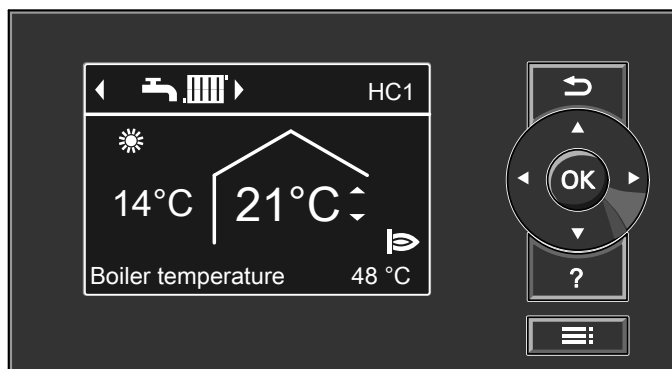


Fig. 51

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.

DHW heating

The burner and the circulation pump for cylinder heating are started if the cylinder temperature during the cylinder enable time lies 2.5 K below the set cylinder temperature.

In the delivered condition, the set boiler water temperature is 20 K higher than the set cylinder temperature (adjustable via coding address "60"). If the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K, the burner shuts down and the circulation pump run-on time begins.

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 H1 extension

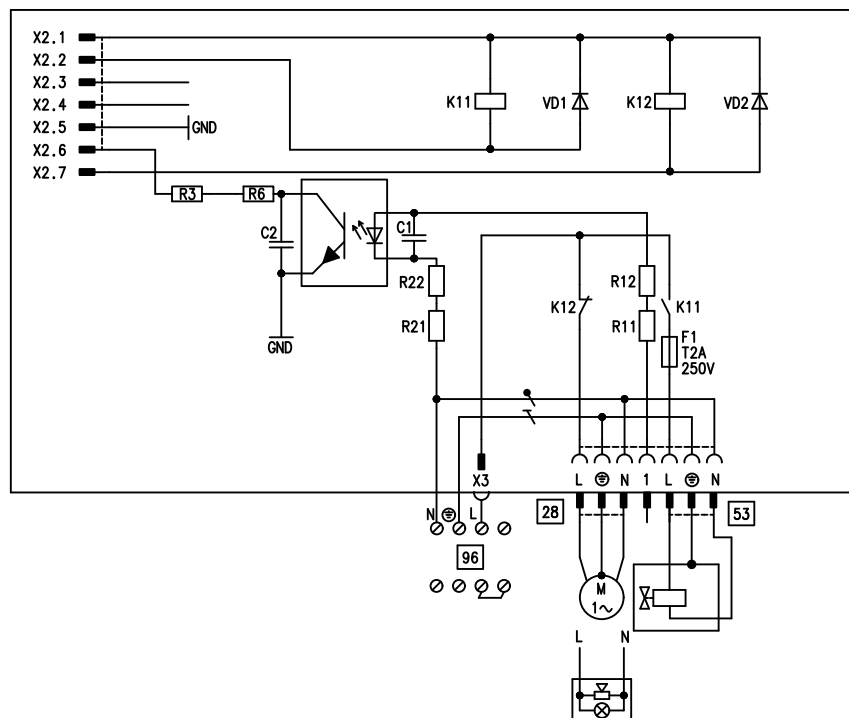


Fig. 52

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

- Central fault message (code "53:0")
 - DHW circulation pump (code "53:1") (only for weather-compensated operation)
- Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.

An external safety valve can be linked to connection **53**.

96 Power supply for accessories and Vitotrol 100

Internal H2 extension



- Central fault message (code "53:0")
- DHW circulation pump (code "53:1") (only for weather-compensated operation)

Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.

96 Power supply for accessories and Vitotrol 100

The schematic diagram illustrates a power supply and control system. At the top, a horizontal bar represents the main power supply rails. Below this, a control circuit is shown, including two relays (K1 and K2) with their respective coils and normally closed interlocking contacts. The circuit also features a +12V and +5V DC supply section, a DC/AC converter block, a transformer (T1), and a filter capacitor (C1). The main power distribution section includes a 40A circuit breaker (F1) and a 230V AC supply. The system is controlled by two relays (K1 and K2) which manage the power to two three-phase motors (M). The diagram also shows terminal blocks (X1, X2) and various electrical components like fuses and switches.

A1 Circulation pump
A2 Circulation pump
40 Power supply

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 extension (accessories) (cont.)

EA1 extension

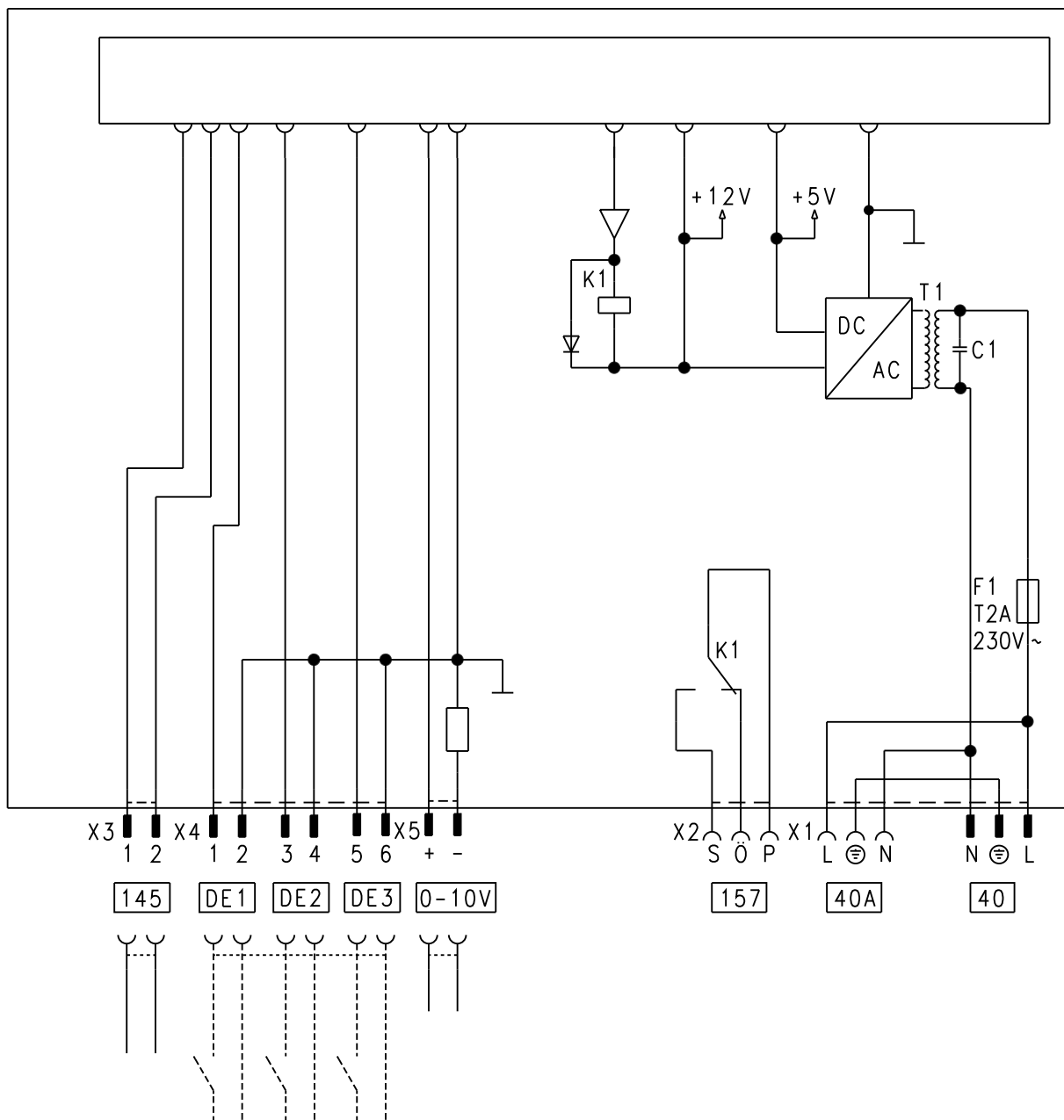


Fig. 55

DE1 Digital input 1
 DE2 Digital input 2
 DE3 Digital input 3
 0 - 10 V 0 - 10 V input
 40 Power supply

40 A Power supply for additional accessories
 157 Central fault message/feed pump/DHW circulation pump (potential-free)
 145 KM-BUS

Digital data inputs DE1 to DE3

The following functions can alternatively be connected:

- External operating program changeover for one heating circuit each
- 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

The hooked-up contacts must correspond to safety category II.

External extension (accessories) (cont.)

Input function assignment

The functions of the inputs are selected via the codes on the boiler control unit:

- DE1: Code 3A
- DE2: Code 3b
- DE3: Code 3C

Assigning the operating program changeover function to the heating circuits

Assign the heating program changeover function for the respective heating circuit via code d8 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

Select the effect of the heating program changeover via code d5.
Set the duration of the changeover via code F2.

Effect of the external blocking function on the pumps

The effect on the relevant heating circuit pump is selected with code d6.
The effect on a circulation pump for cylinder heating is selected with code 5E.

Effect of the external demand function on the pumps

The effect on the relevant heating circuit pump is selected with code d7.

The effect on a circulation pump for cylinder heating is selected with code 5F.

DHW circulation pump runtime for brief operation

The runtime is set in code 3d.

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 specification for set boiler water temperature".

1 V \triangleq Set value 10 °C

10 V \triangleq Set value 100 °C

Output 157

The following functions can be connected to output 157:

- Feed pump to substation
or
- DHW circulation pump
or
- Fault message facility

Information on DHW circulation pumps

Connect DHW circulation pumps with standalone functions directly to the 230 V~ supply.

Function assignment

The function of output 157 is selected at the boiler control unit via code 36.

Control functions

External operating program changeover

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

The function is selected via the following codes:

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

The heating program changeover function for the respective heating circuit is assigned at the boiler control unit via code d8:

Control functions (cont.)

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

You can select which direction the operating program changeover takes in coding address "d5":

Operating program changeover	Code
Changeover towards "Permanently reduced" or "Permanent standby mode" (according to the selected set value)	d5:0
Changeover towards "Continuous heating mode"	d5:1

The duration of the operating program changeover can be adjusted in coding address "F2":

Operating program changeover	Code
No operating program changeover	F2:0
Duration of the operating program changeover 1 to 12 h	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

When the contact is closed, the burner is switched off. The heating circuit pump and (if installed) circulation pump for cylinder heating are switched according to the set codes.

The external connection is switched via a floating contact.

Connection options:

- Plug 96
- EA1 extension (accessories)

Plug 96

- The function is selected via code "4b:2" in the "**General**"/1 group.
- The effect on the circulation pump for cylinder heating is selected with code "5E" "**DHW**"/3.
- The effect on the relevant heating circuit pump is selected with code "d6" "**Heating circuit**".

EA1 extension

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

The function is selected via the following codes:

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

External demand

When the contact is closed, burner operation is load-dependent. The boiler water is heated to the set value selected in coding address "9b" in the **"General"/1** group. The boiler water temperature is limited by this set value and by the electronic maximum limit (coding address "06" in the **"Boiler"/2** group). The external connection is switched via a floating contact.

Connection options:

- Plug [96](#)
- EA1 extension (accessories)

Plug [96](#)

- The function is selected via code 4b:1 in the **"General"/1** group.
- The effect on the circulation pump for cylinder heating is selected with code 5F in the **"DHW"/3** group.
- The effect on the relevant heating circuit pump is selected with code "d7" in the **"Heating circuit"** group.

EA1 extension

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

The function is selected via the following codes:

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

- The effect on the circulation pump for cylinder heating is selected with code 5F in the **"DHW"/3** group.
- The effect on the relevant heating circuit pump is selected with code "d7" in the **"Heating circuit"** group.
- The minimum set boiler water temperature for external demand is selected in coding address "9b".

Screed drying

The screed drying function enables screeds to be dried. For this, observe the screed manufacturer's instructions.

When screed drying is activated, the heating circuit pump of the mixer circuit is switched on and the flow temperature is held in accordance with the selected profile. After completion (30 days), the mixer circuit will automatically be regulated via the set parameters again.

Observe EN 1264. The report to be provided by the heating contractor must contain the following details regarding heat-up:

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

The various temperature profiles are adjustable via coding address "F1".

The function continues after a power failure or after the control unit has been switched off. "Heating and DHW" is started if screed drying is finished or if code "F1:0" is set manually.

Control functions (cont.)

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

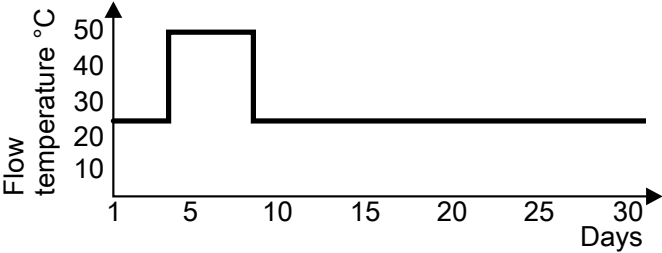


Fig. 56

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

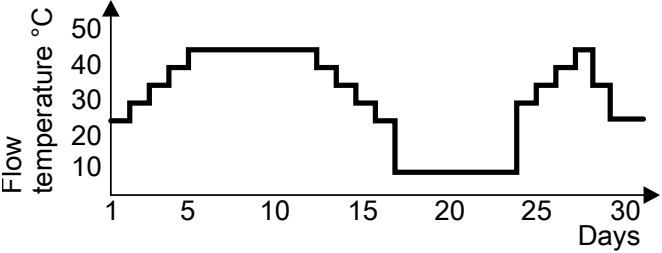


Fig. 57

Temperature profile 3: Code "F1:3"

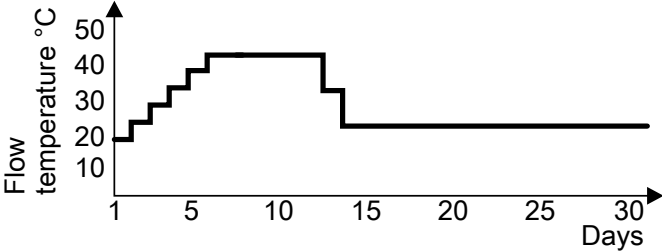


Fig. 58

Temperature profile 4: Code "F1:4"

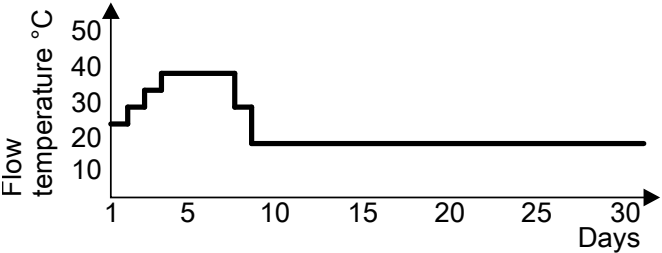


Fig. 59

Temperature profile 5: Code "F1:5"

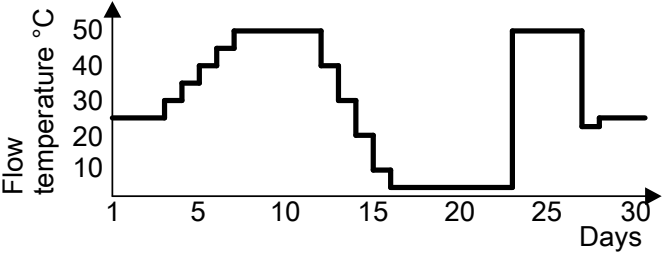


Fig. 60

Temperature profile 6: Code "F1:6"

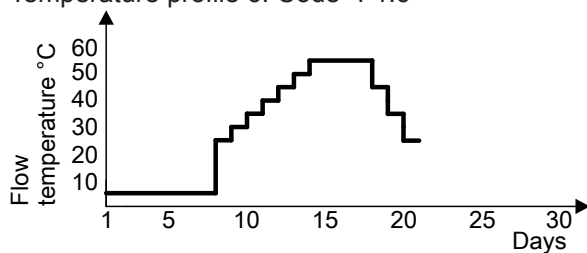


Fig. 61

Temperature profile 7: Code "F1:15"

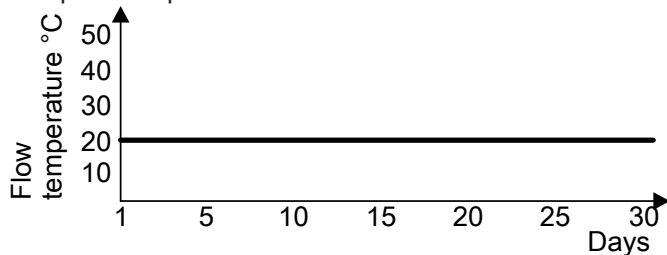


Fig. 62

Raising the reduced room temperature

During operation at 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, and no higher than the standard set room temperature.

The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9".

Control functions (cont.)

Example using the settings in the delivered condition

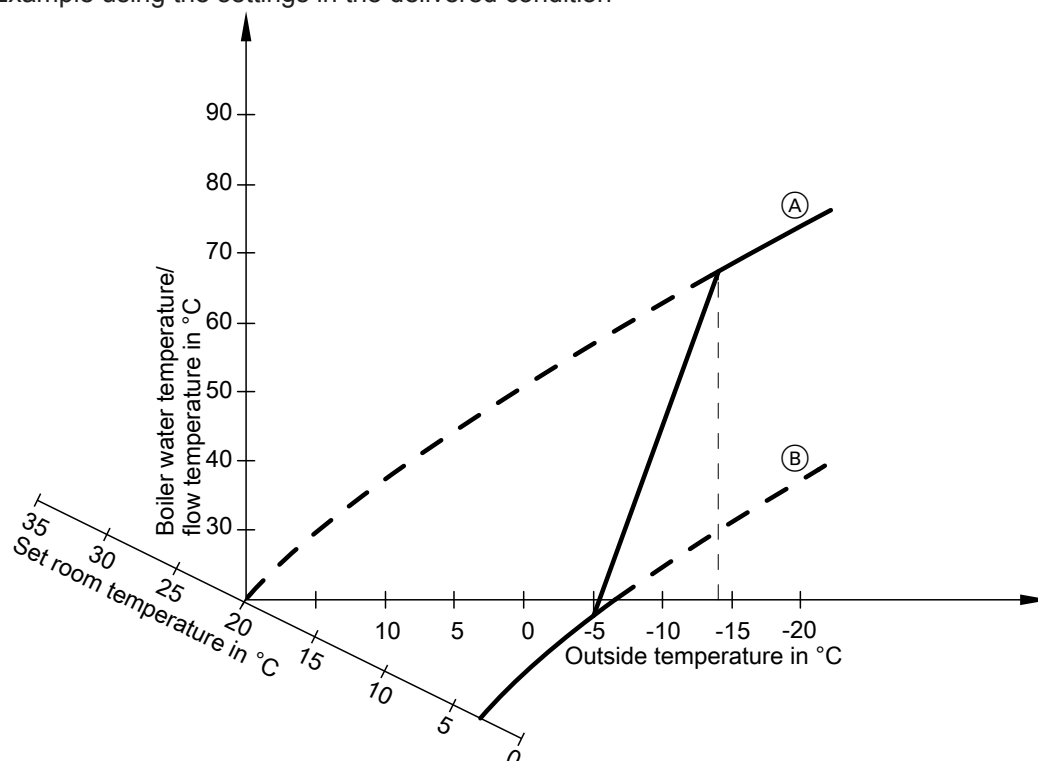


Fig. 63

- Ⓐ Heating curve for operation at standard room temperature
- Ⓑ Heating curve for operation at 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 is raised in accordance with the selected heating curve. The boiler water or flow temperature increase can be automatically raised.

The value and duration of the additional increase of the set boiler water or flow temperature is selected in coding addresses "FA" and "Fb".

Control functions (cont.)

Example using the settings in the delivered condition

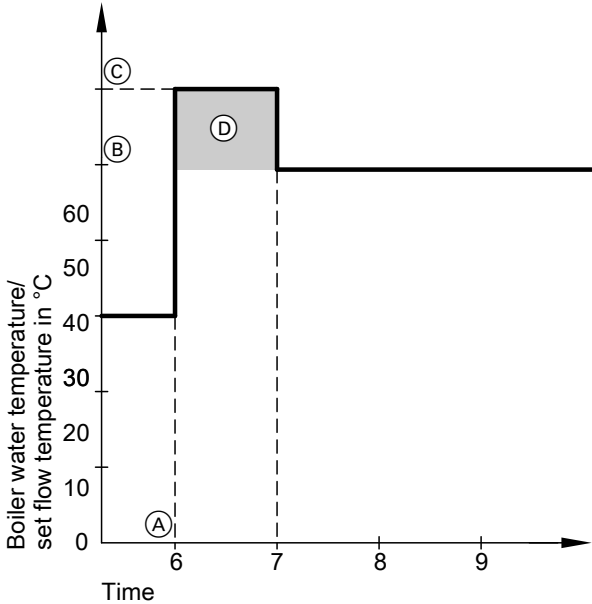


Fig. 64

- (A) Start of operation at standard room temperature
- (B) Set boiler water or flow temperature in accordance with the selected heating curve
- (C) Set boiler water or flow temperature in accordance with coding address "FA":
 $50\text{ °C} + 20\text{ \%} = 60\text{ °C}$
- (D) Duration of operation with raised set boiler water or flow temperature in accordance with coding address "Fb":
60 min

Assigning heating circuits to the remote control

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

Heating circuit	Vitotrol configuration	
	200-A/200-RF	300-A/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

- 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 control units can be connected to the control unit.
- If the assignment of a heating circuit 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. The air ratio is regulated to a value between $\lambda=1.24$ to 1.44. This range provides for an optimum combustion quality. Thereafter, the electronic gas train 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 using the actual values. The correlation between CO_2 or O_2 content and air ratio λ is shown in the following table.

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
1.20	3.8	9.6	9.2
1.24	4.4	9.2	9.1
1.27	4.9	9.0	8.9
1.30	5.3	8.7	8.6
1.34	5.7	8.5	8.4
1.37	6.1	8.3	8.2
1.40	6.5	8.1	8.0
1.44	6.9	7.8	7.7
1.48	7.3	7.6	7.5

To achieve optimum combustion control, the system regularly carries out an automatic self-calibration; also after power failures (shutdown). For this, the combustion is briefly regulated to maximum ionisation current (corresponding to air ratio $\lambda=1$). Self-calibration takes place shortly after the burner start and lasts for about 5 s. During calibration, higher than normal CO emissions may occur briefly.

Connection and wiring diagram

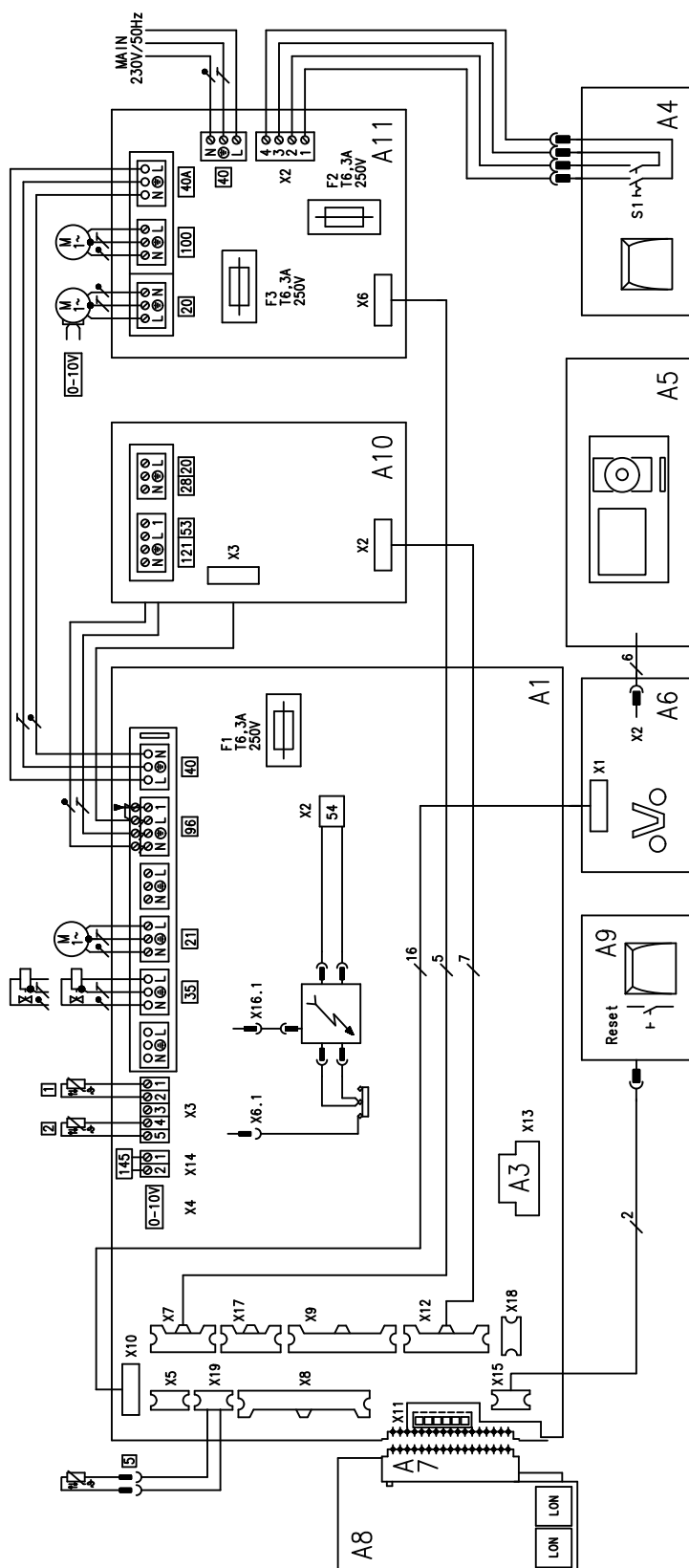


Fig. 65

- 1 Outside temperature sensor
- 2 Flow temperature sensor for low loss header (accessories)
- 5 Cylinder temperature sensor
- 20 Boiler circuit pump or butterfly valve with return spring

- 21 Circulation pump, either:
 - Circulation pump for cylinder heating
 - External heating circuit pump
 - DHW circulation pump
- Code 39

Connection and wiring diagram (cont.)

- | | |
|---|---|
| <p>28 Relay output, either:</p> <ul style="list-style-type: none"> ■ Central fault message ■ Circulation pump for cylinder heating ■ External heating circuit pump ■ DHW circulation pump <p>Code 53</p> <p>35 Gas train</p> <p>53 Flue gas damper (accessories)</p> <p>145 KM-BUS subscriber (accessories)</p> <ul style="list-style-type: none"> ■ Vitotrol 200-A or 300-A remote control unit ■ Mixer extension kit ■ Solar control module, type SM1 ■ EA1 extension ■ Wireless base station ■ AM1 extension | <p>100 Fan motor</p> <p>0-10 V</p> <p>A1 Main PCB</p> <p>A3 Coding card</p> <p>A4 ON/OFF switch</p> <p>A5 Programming unit</p> <p>A6 Connection adaptor with Optolink</p> <p>A7 Connection adaptor</p> <p>A8 LON communication module (accessories)</p> <p>A9 Reset</p> <p>A10 Connection extension</p> <p>A11 Output extension</p> |
|---|---|

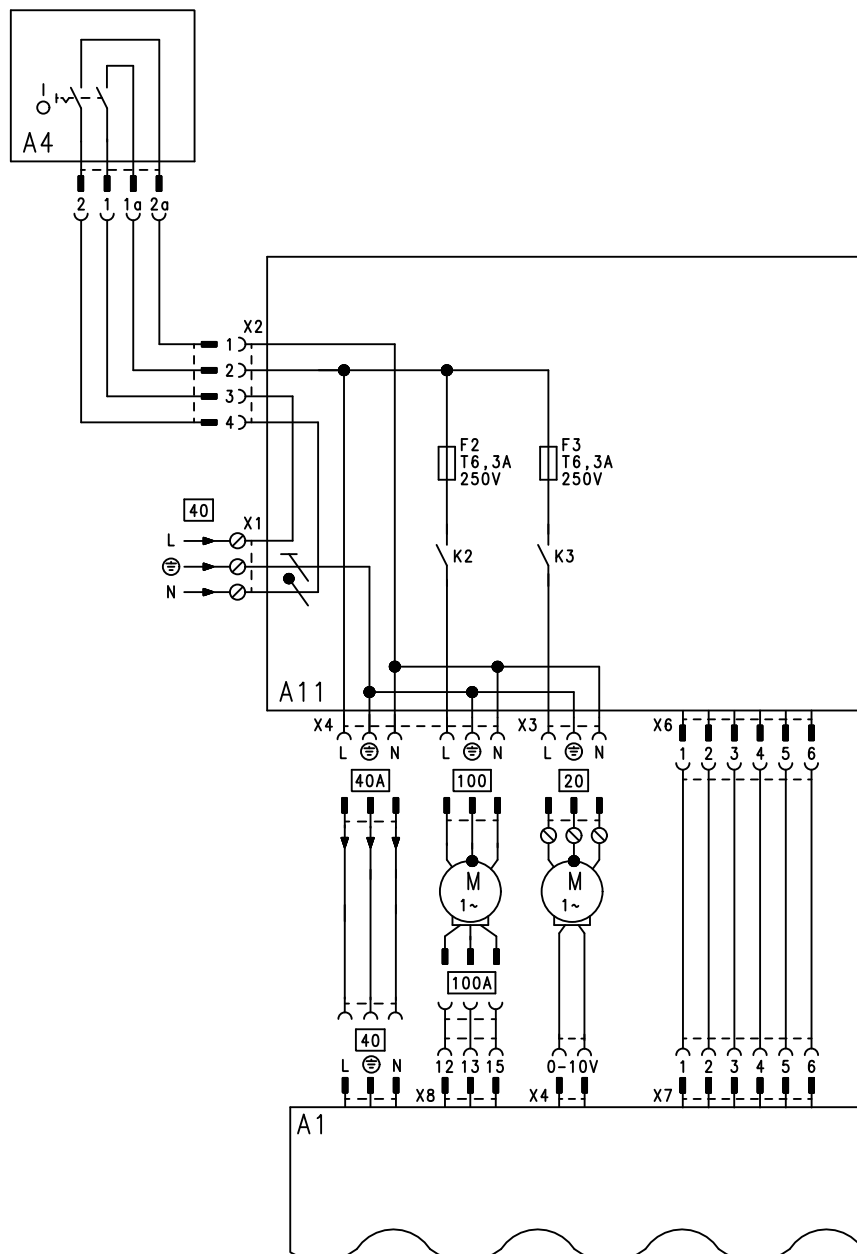


Fig. 66

A1 Main PCB

A11 Output extension SA 169

A4 ON/OFF switch

- 20 Boiler circuit pump or butterfly valve with return spring
- 40 Power supply
- 100 Fan motor

Connection and wiring diagram (cont.)

Up to 80 kW

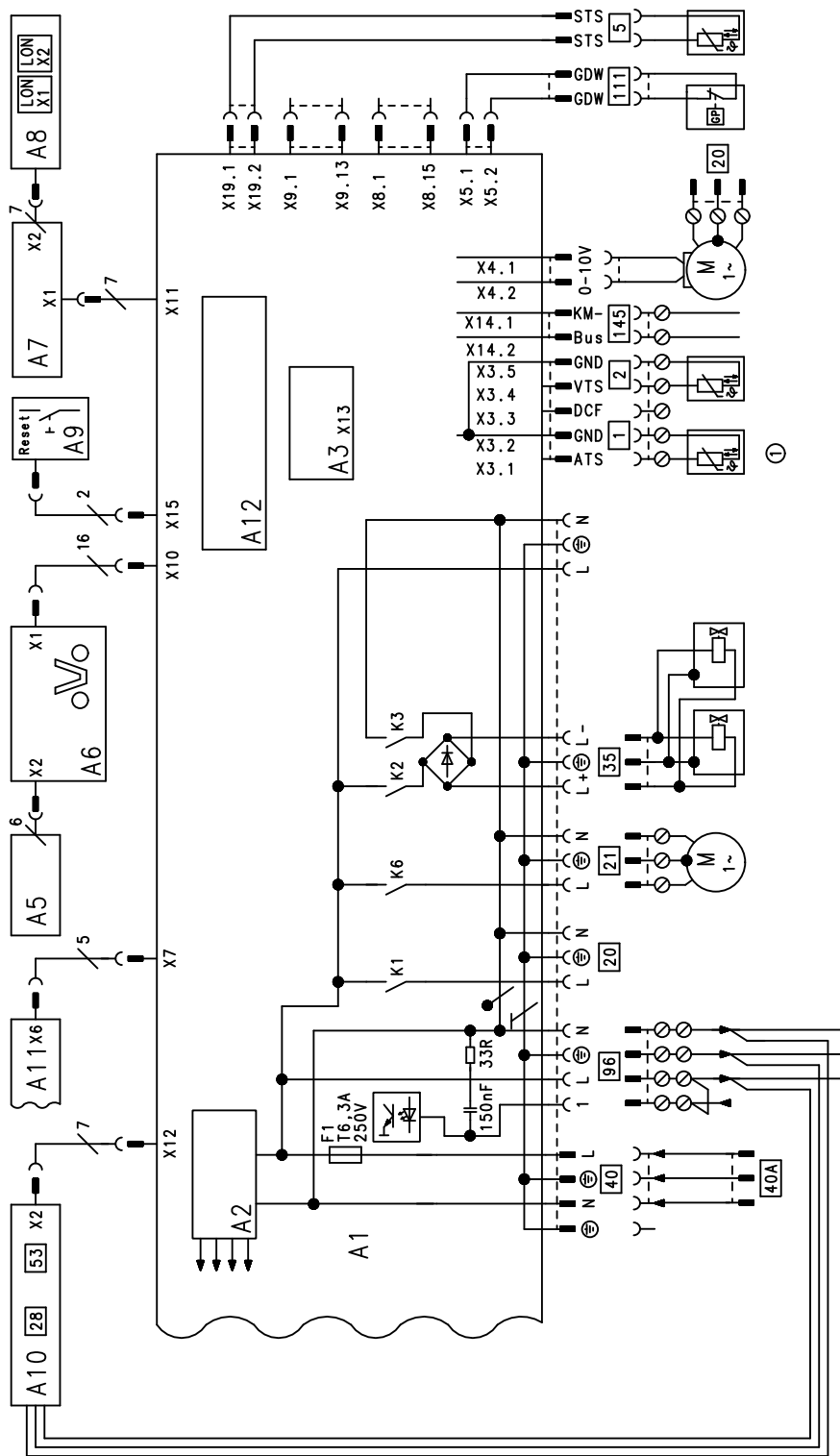


Fig. 67

120 to 318 kW

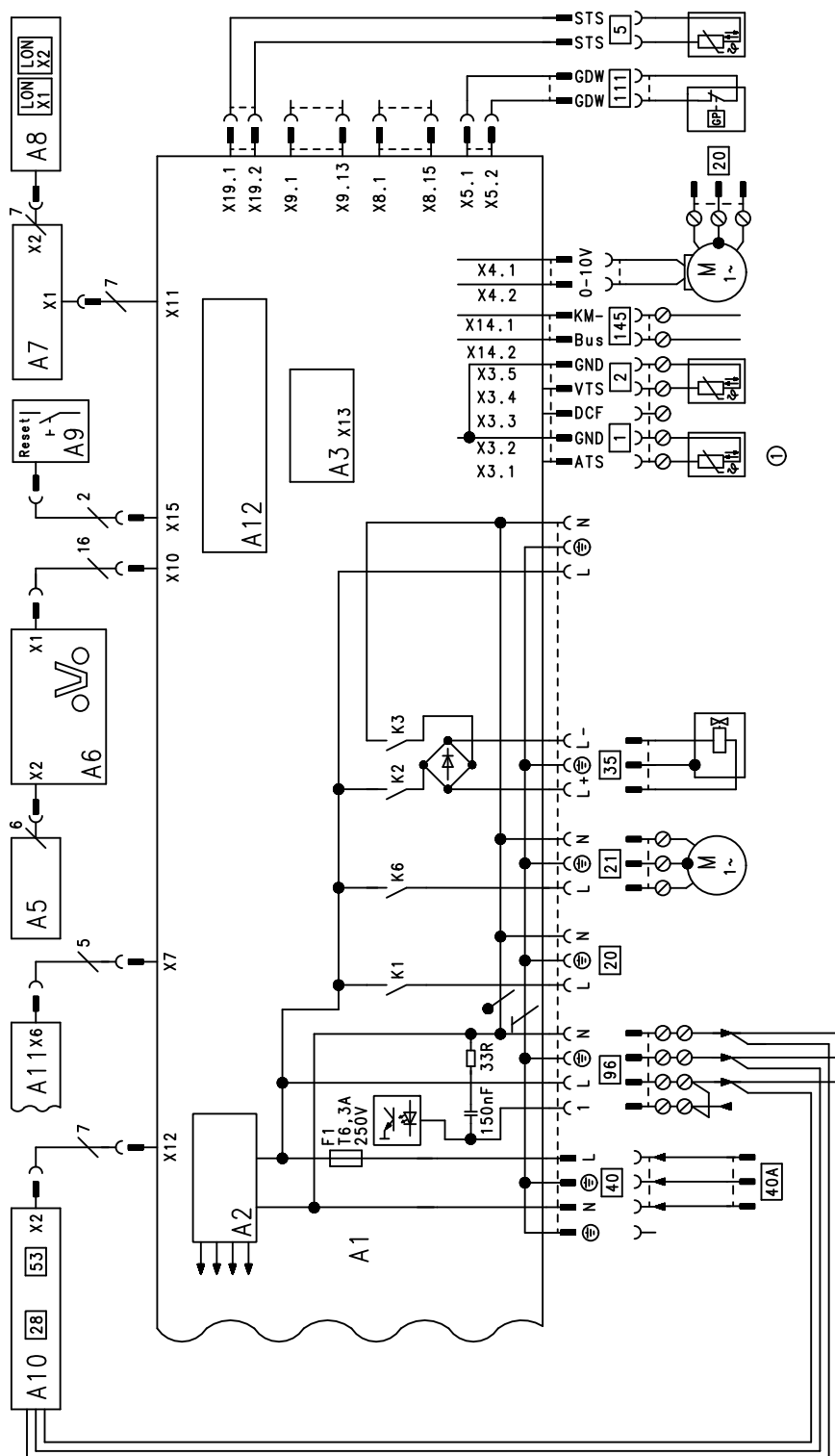


Fig. 68

- | | |
|---|---|
| <p>1 Outside temperature sensor, only with weather-compensated system</p> <p>2 Flow temperature sensor</p> <p>5 Cylinder temperature sensor</p> <p>20 Boiler circuit pump or butterfly valve with return spring</p> | <p>21 Circulation pump, either:</p> <ul style="list-style-type: none"> ■ Circulation pump for cylinder heating ■ External heating circuit pump ■ DHW circulation pump <p>Code 39</p> |
|---|---|

Connection and wiring diagram (cont.)

- | | |
|---|---|
| <p>28 Relay output, either:</p> <ul style="list-style-type: none"> ■ Central fault message ■ Circulation pump for cylinder heating ■ External heating circuit pump ■ DHW circulation pump <p>Code 53</p> <p>35 Gas train</p> <p>40 Power supply</p> <p>53 Flue gas damper</p> <p>96 Power supply for accessories and Vitotrol 100</p> <p>111 Gas pressure switch</p> <p>145 KM-BUS subscriber (accessories)</p> <ul style="list-style-type: none"> ■ Vitotrol 200-A or 300-A remote control ■ Vitocom 100, type GSM ■ Mixer extension kit ■ Solar control module, type SM1 ■ EA1 extension ■ Wireless base station ■ AM1 extension | <p>A1 Main PCB</p> <p>A2 Switching mode power supply in main PCB</p> <p>A3 Coding card</p> <p>A4 ON/OFF switch</p> <p>A5 Programming unit</p> <p>A6 Connection adaptor with Optolink</p> <p>A7 Connection adaptor</p> <p>A8 LON communication module (accessories)</p> <p>A9 Reset</p> <p>A10 Connection extension SA 100</p> <p>A11 Output extension</p> |
|---|---|

Main PCB up to 80 kW

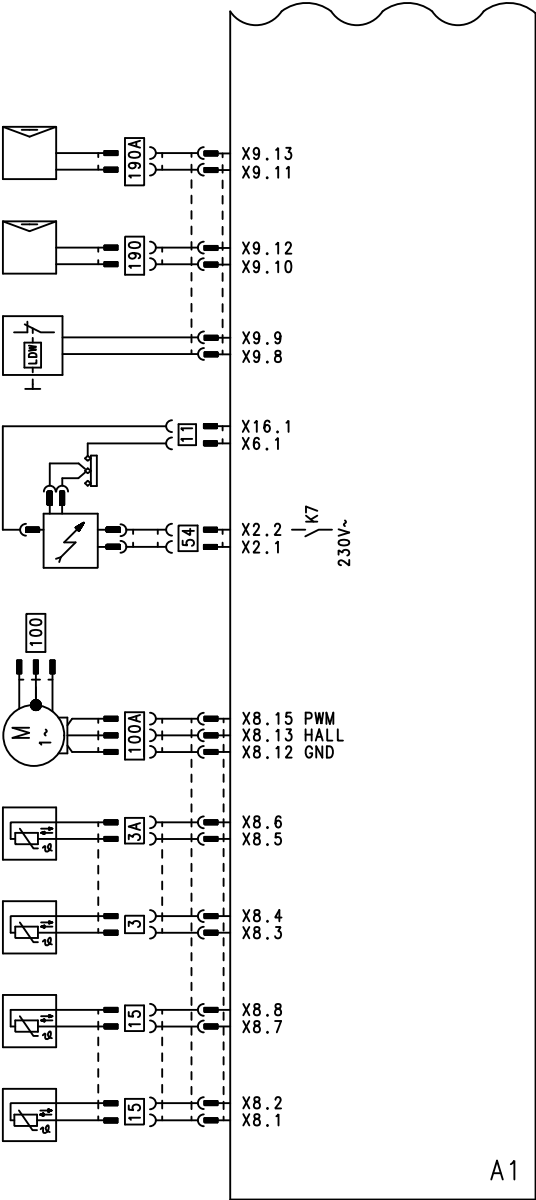


Fig. 69

- | | | | |
|-----------------|---------------------------------|---------------------|-------------------------------------|
| <div>3/3A</div> | Boiler water temperature sensor | <div>100</div> | Fan motor |
| <div>11</div> | Ionisation electrode | <div>100A</div> | Fan motor control |
| <div>15</div> | Flue gas temperature sensor | <div>190/190A</div> | Modulation coil |
| <div>54</div> | Ignition unit | X9.8/9 | Combustion chamber pressure limiter |

Connection and wiring diagram (cont.)

Main PCB 120 to 160 kW

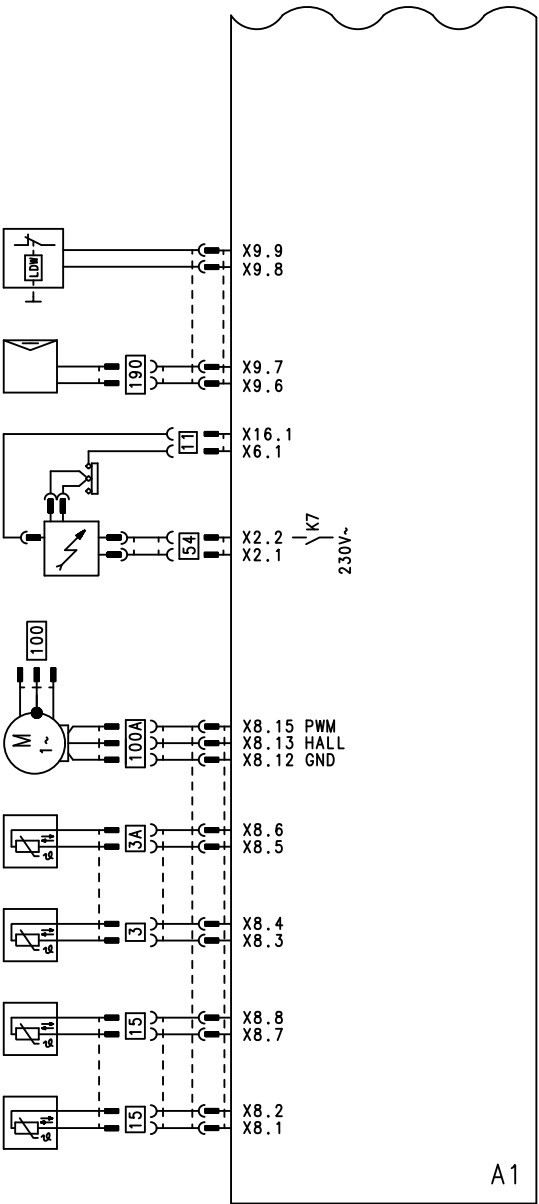


Fig. 70

- | | | | |
|------|---------------------------------|--------|-------------------------------------|
| 3/3A | Boiler water temperature sensor | 100 | Fan motor |
| 11 | Ionisation electrode | 100A | Fan motor control |
| 15 | Flue gas temperature sensor | 190 | Modulation coil |
| 54 | Ignition unit | X9.8/9 | Combustion chamber pressure limiter |

Main PCB 240 to 318 kW

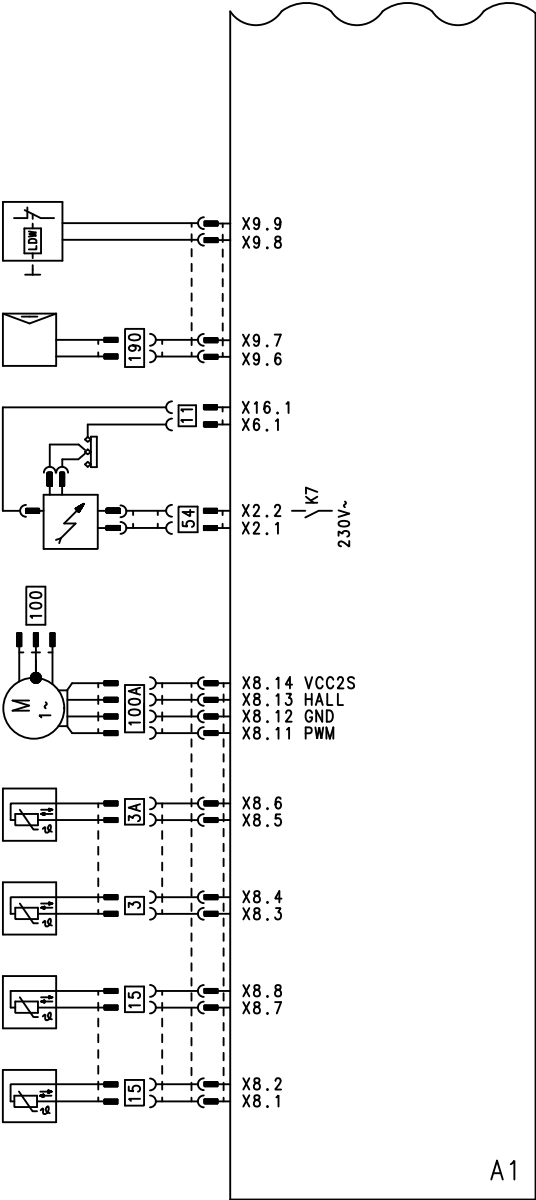


Fig. 71

- | | |
|---|---|
| <div>3/3A</div> Boiler water temperature sensor | <div>100</div> Fan motor |
| <div>11</div> Ionisation electrode | <div>100A</div> Fan motor control |
| <div>15</div> Flue gas temperature sensor | <div>190</div> Modulation coil |
| <div>54</div> Ignition unit | X9.8/9Combustion chamber pressure limiter |

External connection diagram

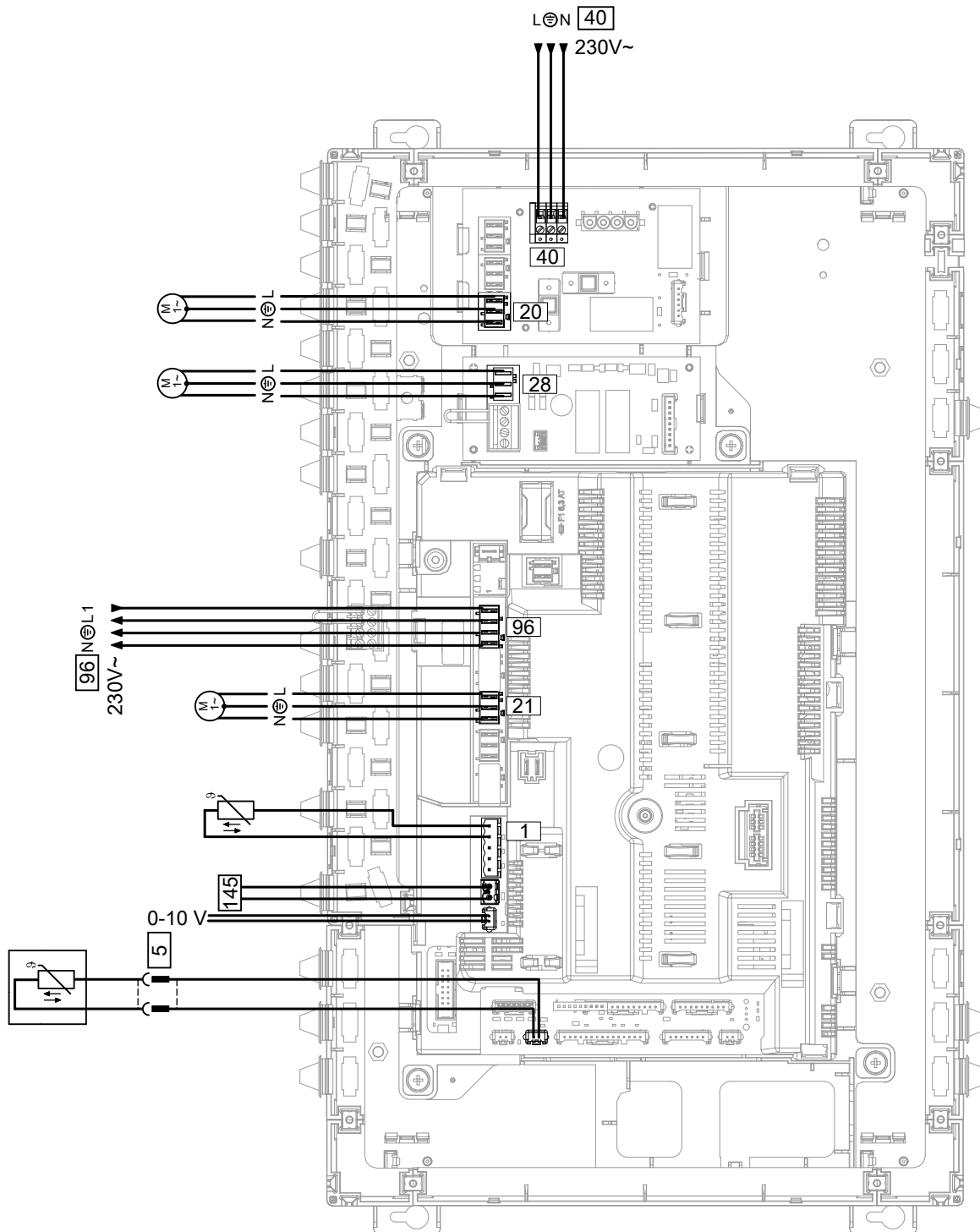


Fig. 72

Plug 230 V~

- [20] Boiler circuit pump or butterfly valve with return spring (only with multi boiler system)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~
- [21] Circulation pump for cylinder heating (B)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~
- [28] DHW circulation pump (accessories)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~
- [40] Power supply, on output extension SA 169

Requirements

Water quality requirements

Note

Observing the following requirements is necessary to safeguard your warranty rights.

The warranty excludes damage due to corrosion and scaling.

Prevention of damage due to scaling

Prevent excessive scale build-up (calcium carbonate) on the heating surfaces. For heating systems with operating temperatures up to 100 °C, VDI Guideline 2035 Part 1 "Prevention of damage in water heating installations - Scale formation in domestic hot water supply installations and water heating installations" applies together with the following standard values. See the explanations in the original text of the Guideline.

Total heating output kW	Total alkaline earths mol/m ³	Total hardness °dH
≤ 50	≤ 3.0	≤ 16.8
> 50 to ≤ 200	≤ 2.0	≤ 11.2
> 200 to ≤ 600	≤ 1.5	≤ 8.4
> 600	< 0.02	< 0.11

The standard values assume the following:

- The total volume of fill and top-up water will not exceed three times the water content of the heating system during its service life.
- The specific system volume is less than 20 l/kW heating output. In multi boiler systems, apply the output of the smallest boiler.
- All measures to prevent corrosion on the water side in accordance with VDI 2035 Part 2 have been implemented.

Soften the fill and top-up water in heating systems operating under the following conditions:

- The total of alkaline earths in the fill and top-up water exceeds the standard value.
- Higher fill and top-up water volumes are expected.
- The specific system volume is greater than 20 l/kW heating output. In multi boiler systems, apply the output of the smallest boiler.
- In systems > 50 kW, install a water meter to capture the amount of fill and top-up water. Enter the volume of fill water and the water hardness into the boiler maintenance checklists.
- For systems with a specific system volume greater than 20 l/kW heating output, apply the requirements of the next higher category of total heating output (in accordance with the table). In multi boiler systems, apply the output of the smallest boiler. In the case of severe overshoot (> 50 l/kW), soften the water down to a total of alkaline earths of ≤ 0.02 mol/m³.

Operating information:

- During expansion or repair work, only drain the pipe-work sections necessary.
- Check, clean and activate filters, dirt traps and other blow-down or separating facilities in the heating water circuit frequently after commissioning and in new installations. Thereafter check and maintain these facilities as required, depending on the type of water treatment applied (e.g. water softening).
- **No further** steps are required during commissioning if you fill the heating system **with fully softened water**.
If the heating system is charged, **not with fully softened water**, but with water that meets the requirements in the above table, **also observe the following during commissioning**:
 - Commission the system step by step with a high heating water flow rate, starting with the lowest boiler output. This prevents localised concentration of limescale deposits on the boiler heating surfaces.
 - In multi boiler systems, start all boilers simultaneously to prevent the entire limescale deposit settling in the heat exchanger of just one boiler.
 - Where water treatment is required, treat even the first fill of the heating system prior to commissioning. This also applies to any subsequent filling, e.g. when adding top-up water or after a repair, or for any system expansion.

The build-up of limescale deposits on the heating surfaces will be minimised if these instructions are followed.

Failure to observe the requirements of VDI Guideline 2035 can result in damaging limescale deposits. In such cases, the service life of the installed boilers will, most often, already have been reduced. Removing the limescale deposits is one option for restoring operational viability.

Requirements (cont.)

This measure must be carried out by a qualified contractor. Inspect the heating system for possible damage prior to returning it into use. It is essential that incorrect operating parameters are corrected to prevent renewed excessive scaling.

Further details can be found in VDI Guideline 2035-2 and EN 14868.

Prevention of damage due to corrosion on the water side

The corrosion resistance of ferrous materials on the heating water side of heating systems and heat generators depends on the absence of oxygen in the heating water. The oxygen introduced into the heating system with the first fill and subsequent top-ups reacts with the system materials without causing damage.

The characteristic blackening of the water after a certain time in operation indicates that there is no more free oxygen present. In accordance with the technical rules and in particular VDI Guideline 2035-2, we recommend that the heating system is designed and operated so that a constant ingress of oxygen into the heating water is prevented.

During operation, oxygen can enter due to:

- Open vented expansion vessels with flow through
- Negative pressure in the system
- Permeable components

Correctly sized sealed unvented systems operating at the correct pressure, e.g. systems with expansion vessel, offer good protection against the ingress of air-borne oxygen. Under all operating conditions and at all points in the heating system, including the intake side of the pump, the pressure must be higher than atmospheric pressure. Check the pre-charge pressure of the expansion vessel at least during the annual service.

Avoid the use of permeable components, e.g. permeable plastic pipes in underfloor heating systems. Provide system separation if such components are nevertheless used. This system separation must separate the water flowing through the plastic pipes from other heating circuits, e.g. from the boiler, by the provision of a corrosion resistant heat exchanger.

No further anti-corrosion measures are required for sealed unvented hot water heating systems, subject to the above points being observed. However, take additional precautions where there is a risk of oxygen ingress, for example by adding oxygen binder sodium sulphite (5 to 10 mg/l into the excess). The pH value of the heating water should be between 8.2 and 9.5. Different conditions apply to systems that contain aluminium components.

Where chemicals are used as part of the corrosion protection, we recommend that the manufacturer of the chemicals issues a certificate of suitability of the additives with regard to the boiler materials and the materials of other components. Please refer questions regarding water treatment to an appropriate contractor.

Settings and test values

5792 925 GB

Settings and test values (cont.)

Settings and test values	Set value	Commissioning	Maintenance/ service
Carbon monoxide content CO			
▪ At lower heating output <i>ppm</i>	< 60		
▪ At upper heating output <i>ppm</i>	< 100		

Specification

Vitocrossal 100 specification

Rated voltage	230 V
Rated frequency	50 Hz
Protection class	I
Permissible ambient temperature	
▪ Operation	0 to +40 °C
▪ Storage and transport	-20 to +65 °C
Backup fuse (power supply)	max. 16 A

Rated heating output range								
TF/TR = 50/30	kW	16 - 80	32 - 120	32 - 160	48 - 200	48 - 240	64 - 280	64 - 318
TF/TR = 80/60	kW	15 - 74	29 - 110	29 - 146	44 - 184	44 - 220	58 - 258	58 - 291
Rated heat input	kW	76	113	151	189	226	264	300
Product ID		CE-0085CR0391						
Permiss. operating temperature	°C	95						
Permiss. flow temperature (= safety temperature)	°C	110						
Max. permiss. operating pressure	bar	6						
	MPa	0.6						
Min. permiss. operating pressure	bar	0.5						
	MPa	0.05						
Test pressure	bar	7.8						
	MPa	0.78						
Boiler body dimensions								
Length/handling dimension ^{*2}	mm	660/450	780/570	780/570	900	900	1010	1010
Width	mm	680	680	680	680	680	680	680
Height	mm	1459	1459	1459	1459	1459	1459	1459
Overall dimensions without boiler flue connection								
Length g	mm	745	875	875	980	980	1090	1090
Width c	mm	750	750	750	750	750	750	750
Height a	mm	1500	1500	1500	1500	1500	1500	1500
Foundation dimensions								
Length	mm	750	850	850	1000	1000	1100	1100
Width	mm	800	800	800	800	800	800	800
Height	mm	100	100	100	100	100	100	100
Weight								
Overall unit weight	kg	238	295	295	340	340	385	385
Packed unit	kg	288	345	345	390	390	435	435
Boiler body	kg	183	230	230	265	265	300	300
Boiler body with transport pallet	kg	210	260	260	295	295	330	330
Burner	kg	10	11	11	15	15	15	15
Water capacity	l	65	103	103	145	145	180	180

^{*2} With unassembled base rail

Vitocrossal 100 specification (cont.)

Rated heating output range								
TF/TR = 50/30	kW	16 - 80	32 - 120	32 - 160	48 - 200	48 - 240	64 - 280	64 - 318
TF/TR = 80/60	kW	15 - 74	29 - 110	29 - 146	44 - 184	44 - 220	58 - 258	58 - 291
Connections								
Boiler flow	PN 6 DN	50	50	50	65	65	65	65
Boiler return	PN 6 DN	50	50	50	65	65	65	65
Safety connection	R	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Drain	R	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Trap with condensate drain	mm	20	20	20	20	20	20	20
Flue gas parameters^{*3}								
Temperature (at a return temperature of 30 °C)								
▪ At rated heating output	°C	45	45	45	45	45	45	45
▪ At partial load	°C	35	35	35	35	35	35	35
Temperature (at a return temperature of 60 °C)		65	65	65	65	65	65	65
Mass flow rate (for natural gas)								
▪ At rated heating output	kg/h	120	180	240	300	360	420	477
▪ At partial load	kg/h	36	54	72	90	108	126	143
Flue gas connection	DN	200	200	200	200	200	200	200
Draught at	mbar	0.7	0.7	0.7	0.7	0.7	0.7	0.7
flue outlet	Pa	70	70	70	70	70	70	70
Product parameters according to EnEV								
Standard seasonal efficiency [to DIN]								
For heating system temperature 40/30 °C	%	Up to 98 (Hs) [gross cv] / 109 (Hi) [net cv]						
For heating system temperature 75/60 °C	%	Up to 96 (Hs) [gross cv] / 106 (Hi) [net cv]						
Standby loss qB,70	%	0.6	0.5	0.3	0.6	0.6	0.6	0.6
NOx		NOx class 6, < 56 mg/kWh						

Twin boiler specification

Rated heating output	kW	240	320	400	480	560	636
Twin boiler comprises 2 boilers, each with	kW	120	160	200	240	280	318
Overall dimensions without boiler flue connection							
Length	mm	875	875	980	980	1090	1090
Width	mm	1500	1500	1500	1500	1500	1500
Height	mm	1500	1500	1500	1500	1500	1500
Total weight	kg	590	590	680	680	770	770
Water capacity	l	206	206	290	290	360	360

^{*3} Values for calculating the size of the flue system to EN 13384, based on 10 % CO₂ for natural gas

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The details for partial load refer to an output of 30 % of the rated heating output. If the partial load differs (subject to burner operating mode), calculate the flue gas mass flow rate accordingly.

MatriX cylinder burner specification

Rated boiler heating output T_F/T_R 50/30 °C	kW	80	120	160	200	240	280	318
Twin boiler			240	320	400	480	560	636
Burner heating output, lower/ upper output*⁴	kW	15.1/ 75.5	30.2/ 113.2	30.2/ 150.9	45.3/ 188.7	45.3/ 226.4	60/ 264.2	60/300
Burner type		CI1 75/ 80 kW	CI1 120/ 160 kW	CI1 120/ 160 kW	CI1 200/ 240 kW	CI1 200/ 240 kW	CI1 280/ 318 kW	CI1 280/ 318 kW
Product ID		See boiler						
Voltage	V	230						
Frequency	Hz	50						
Power consumption								
At upper heating output	W	140.5	130	268	171	279	260	393
At lower heating output	W	19.5	28	28	29	29	26.5	26.5
Type		Modulating						
Dimensions								
Width a	mm	463	426	426	463	463	463	463
Length b	mm	442	481	481	655	655	731	731
Height c	mm	400	273	273	356	356	356	356
Weight Burner with combination valve	kg	10	11	11	15	15	15	15
Gas supply pressure G20/G25	mbar	20/25						
	kPa	2/2.5						
Gas connection	R	1	1½	1½	1½	1½	1½	1½
Supply values relative to the max. load with								
▪ Natural gas E (G20) Partial load/ Full load	m³/h	1.6/ 7.99	3.19/ 11.98	3.19/ 15.97	4.79/ 19.97	4.79/ 23.56	6.35/ 27.95	6.35/ 31.75
▪ Natural gas LL (G25) Partial load/ Full load	m³/h	1.86/ 9.28	3.71/ 13.92	3.71/ 18.57	5.57/ 23.21	5.57/ 27.85	7.38/ 32.49	7.38/ 36.9

*⁴ Corresponds to the rated heat input of the boiler.

Final decommissioning and disposal

Viessmann products can be recycled. Components and substances from the system are not part of ordinary household waste.

For decommissioning the system, isolate the system from the power supply and allow components to cool down where appropriate.

All components must be disposed of correctly.

Declaration of conformity

Vitocrossal 100, type CI1

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the provisions of the following directives and regulations:

92/42/EEC	Efficiency Directive
2014/30/EU	EMC Directive
2014/35/EU	Low Voltage Directive
2009/142/EC ^{*5}	Gas Appliances Directive
2016/426/EU ^{*6}	Gas appliance regulation
2009/125/EC	Ecodesign Directive
2011/65/EU	ROHS II
2010/30/EU	Energy Labelling Framework Directive
811/2013 ^{*7}	EU Regulation "Energy Efficiency Label"
813/2013	EU Regulation "Energy Efficiency Requirements"

Applied standards:

EN 298: 2012
 EN 15502-1: 2012+A1: 2015
 EN 15502-2-1: 2012
 EN 15502-2-2: 2014
 EN 55014-1: 2006 + A1: 2009 + A2: 2011
 EN 60335-1: 2012 + AC: 2014
 EN 60335-2-102: 2016
 EN 60730-1: 2016
 EN 60730-2-5: 2015
 EN 60730-2-9: 2010
 EN 61000-3-2: 2014
 EN 61000-3-3: 2013
 EN 62233: 2008 + AC: 2008

In accordance with the listed directives, this product is designated with **CE-0085**.

Allendorf, 2 January 2017

Viessmann Werke GmbH & Co. KG



Authorised signatory Manfred Sommer

^{*5} Valid until 20/04/2018

^{*6} Applicable from 21/04/2018

^{*7} Vitocrossal 100, type CI1, 75 kW

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

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, confirm that the product **Vitocrossal 100** complies with the NO_x limits specified by the 1st BImSchV paragraph 6 [Germany].

Allendorf, 2 January 2017

Viessmann Werke GmbH & Co. KG



Authorised signatory Manfred Sommer

Keyword index

- A**
Acknowledging a fault display..... 64
- B**
Boiler
– Parts..... 88, 90
Boiler flue connection..... 25
Boiler water requirements..... 126
Boiler water temperature sensor..... 78
Boosting DHW heating..... 103
Brief scans..... 60
Burner
– Installation..... 26
– Removal..... 15
Burner gauze assembly, checking..... 18
– Burners 200 to 318 kW..... 20
– Burners up to 120 to 160 kW..... 19
– Burners up to 80 kW..... 18
- C**
Coding level 1
– Boiler..... 35
– Calling up..... 33
– DHW..... 36
– General..... 34
– Group 1..... 34
– Group 2..... 35
– Group 3..... 36
– Group 4..... 36
– Group 5..... 37
– Heating circuit 1 to 3..... 37
– Solar..... 36
Coding level 2
– Boiler..... 46
– Calling up..... 41
– DHW..... 47
– General..... 41
– Group 1..... 41
– Group 2..... 46
– Group 3..... 47
– Group 4..... 49
– Group 5..... 53
– Heating circuit..... 53
– Solar..... 49
Combustion chamber, cleaning..... 21
Combustion chamber pressure limiter..... 14
Combustion controller..... 115
Combustion quality, checking..... 26
Condensate drain..... 22
Condensate drain system..... 22
Connection diagram..... 116
– External..... 125
Constant temperature control unit
– Calling up operating data..... 61
– Service menu..... 61
Control unit
– Connection to LON..... 29
– Matching..... 28
– Parts..... 100
Control unit for constant temperature
– Relay test..... 63
Control unit for weather-compensated operation
– Calling up operating data..... 59
– Relay test..... 61
– Service menu..... 59
Cylinder temperature sensor..... 78
- D**
Date, setting..... 10
Disposal..... 133
- E**
Electronic combustion controller..... 115
Expansion vessel..... 25
Extension
– AM1..... 106
– EA1..... 107
– Internal H1..... 104
– Internal H2..... 105
Extension kit for heating circuit with mixer 81
External blocking..... 109
External demand..... 110
- F**
Fault codes..... 65
Fault history..... 64
Fault manager..... 30
Fault memory..... 64, 65
Fault message call-up..... 64, 65
Faults..... 64
Fill and top-up water..... 25
Fill water..... 9
Flue gas temperature sensor..... 79
Flue gas test port..... 27
Front panel
– Mounting..... 31
– Removal..... 11
Function descriptions..... 103
Function sequence..... 11
Function testing..... 61, 63
Fuse..... 80
- G**
Gaskets, checking..... 25
Gas supply pressure..... 13
Gas train 13
Gas type..... 10
- H**
Heating circuit assignment..... 114
Heating curve..... 28
Heating curve level..... 29
Heating curve slope..... 29
Heating output setting..... 13
Heating surfaces, cleaning..... 21
Heat-up time..... 113

Keyword index (cont.)

- I**
 Ignition electrodes..... 21
 Inspection cover..... 22
 Inspection cover locking bracket..... 22
 Intended use..... 6
 Ionisation electrode..... 21
- L**
 Language, changing..... 9
 LON..... 29
 – Fault monitoring..... 30
 – Subscriber check..... 30
 – Subscriber number setting..... 29
 LON communication module..... 29
- M**
 Manufacturer's certificate 135
 Mixer, checking..... 26
 Mixer open/closed..... 81
- N**
 Naming heating circuits..... 10
 Neutralising system..... 22, 24
 – Cleaning..... 23
- O**
 Operating conditions
 – Constant temperature control unit..... 61
 – Control unit for weather-compensated operation.... 59
 Operating program changeover..... 108
 Ordering parts..... 83
 Outside temperature sensor..... 77
- P**
 Parts
 – Boiler..... 88
 – Boilers 200 - 318 kW..... 90
 – Burners 120/160 kW..... 94
 – Burners 200 - 318 kW..... 96
 – Burners 80 kW..... 92
 – Control unit..... 100
 – Miscellaneous..... 102
 – Thermal insulation..... 84
 Power supply
 – Checking..... 9
- R**
 Reduced room temperature
 – Raising..... 112
 Reduced set room temperature..... 29
- Reducing heat-up output..... 112
 Reducing heat-up time..... 113
 Relay test..... 61, 63
 Remote control..... 114
 Removing a fault display..... 64
 Report..... 128
 – Fill and top-up water..... 128
 – Settings/test values..... 128
 Rotational direction, mixer motor
 – Changing..... 82
 – Checking..... 81
- S**
 Screed drying..... 110
 Service level call-up..... 59, 61
 Service menu
 – Constant temperature control unit..... 61
 – Control unit for weather-compensated operation.... 59
 Service menu call-up..... 59, 61
 Service scans..... 31
 Set room temperature selection..... 28
 Shutdown..... 133
 Small softening system..... 9
 Specification..... 130
 Standard set room temperature..... 29
 Static pressure..... 12, 13
 Supply pressure..... 12
 Symbols..... 6
 System filling..... 9
 System pressure..... 25
- T**
 Thermal insulation
 – Parts..... 84
 Time, setting..... 10
 Total boiler water hardness..... 25
 Trap..... 22
- V**
 Vitotronic 200-H..... 82
- W**
 Water quality
 – Checking..... 25
 Water quality, requirements..... 126
 Wiring diagram..... 116





Applicability

Serial No.:

7449003	7449004	7571788	7571789
7571790	7571791	7571792	7571793
7571794	7571795	7571796	7571797
7571798	7571799	7571800	7571801
7648963	7649298	7649303	7649304
7649305	7649306		

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