Installation and service instructions

for contractors

Vitosorp 200-F
Type D2RA, 1.8 to 16.7 kW
Gas adsorption heating appliance
Natural gas and LPG version

For applicability, see the last page

VITOSORP 200-F

5678 044 GB 09/2016

Please keep safe.

Safety instructions

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

Safety instructions explained

Danger
This symbol warns against the risk of injury.

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

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

Target group

These instructions are exclusively intended for qualified contractors.
- Work on gas installations 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
  - (A) ÖNORM, EN, ÖVGW-TR Gas, ÖVGW-TRF and ÖVE
  - (CH) 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.

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).

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Safety instructions (cont.)

What to do 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 power distribution).

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

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

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Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

DE: Use the disposal system organised by Viessmann.
AT: Use the ARA statutory disposal system (Altstoff Recycling Austria AG, licence number 5766).
CH: Packaging waste is disposed of by the HVAC contractor.

Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	▪ Component must audibly click into place. or ▪ Acoustic signal
	▪ Fit new component. or ▪ In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do **not** dispose of component in domestic waste.

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.

Intended use (cont.)

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

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

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

Product information

The Vitosorp 200-F, type D2RA is a hybrid appliance consisting of a condensing module and a sorption module.

A plate heat exchanger and safety valve provide integral system separation for the heating circuit and process circuit.

Condensing module

Wall mounted gas condensing boiler with Inox-Radial heat exchanger and the following integral components:
- Modulating, fan-assisted MatriX cylinder burner with Lambda Pro Control for natural gas and LPG to DVGW Code of Practice G260 [Germany]
- High efficiency circulation pump for the heating circuit
- Vitotronic 200 control unit for gas condensing boiler with sorption function and weather-compensated mode, with outside temperature sensor and LON communication module

Preset for operation with natural gas E and natural gas LL.
For conversion to LPG P (without conversion kit), see page 46.
The Vitosorp 200-F, type D2RA may only be supplied to those countries specified on the type plate. For deliveries to other countries, approved contractors must arrange individual approval on their own initiative and in accordance with the law of the country in question.

Sorption module

Integral components:
- Vacuum tight sorber with zeolite-coated stainless steel heat exchangers
- High performance film evaporator
- Evaporator pump and demineralised water
- High efficiency circulation pump for the primary circuit
- Control valve
- Process control unit
- Process circuit expansion vessel

An alternating adsorption and desorption process (sorption cycle) moisturises and subsequently dries the zeolite heat exchanger inside the vacuum-tight sorption module.

Both geothermal energy and solar thermal can be used as the natural heat source (primary source).

Geothermal energy as natural heat source

By means of a connected geothermal probe, the sorption module can use this process to provide energy from the ground at a higher temperature level suitable for heating.

Solar thermal as natural heat source

The sorption module draws the energy for the adsorption process from a combi cylinder or primary thermal store heated by solar collectors.

Accessories required (order separately)

Installation on finished walls
- Connection set for installation on finished walls, for upward connection
  or
- Connection set with pre-mounting bracket for installation on finished walls, for upward connection
  or
- Connection set for installation on finished walls, for connection to the left or right
  or
- Connection set with pre-mounting bracket for installation on finished walls, for connection to the left or right

Product information (cont.)

For solar thermal systems:
- Solar pack with collectors and combi cylinder
  or
- Solar thermal cylinder pack for retrofitting to an existing solar thermal system

For geothermal heat:
- Accessories for primary circuit (e.g. brine circuit pressure switch, brine manifold for geothermal collector, etc.)

Installation preparations

Transportation

Please note
Tilting at a steep angle will damage the sorption module of the gas adsorption heating appliance. It is **essential** that the maximum tilting angle is not exceeded during transportation. See the following table.
Never use a sack truck to transport the appliance into a building.
We recommend using the transport handles with loops or the transport aid (accessories).

Please note
Impact, compression and tensile loads can cause damage to the outside panels of the appliance.
Never apply loads/weight to the top, front or side panels of the appliance.

Note
The front and side panels can be removed for easier handling (see Fig. 3, page 15).

Transportation	Tilt indicators	Action
Delivery (tilt indicators on the packaging)	40° (not triggered)	We recommend commissioning the appliance within 48 h.
	60° to 70°	Do not commission; inform sales consultant.
Handling (tilt indicators inside the appliance)	40°	We recommend commissioning the appliance within 48 h.
	60°	Commission the appliance within 48 h.
	70° (triggered)	Do not commission; inform sales consultant.

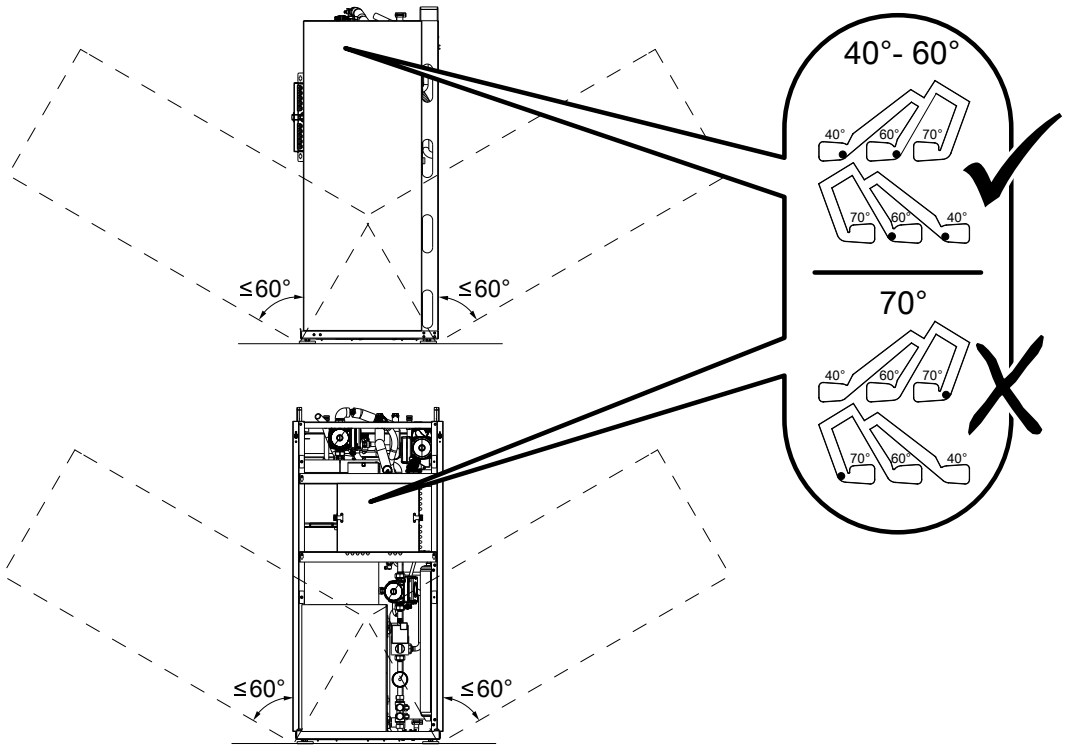

Fig. 1 Handling

Installation room requirements

Please note
Unfavourable ambient conditions can lead to malfunctions and appliance damage.
- The installation location must be dry and free from the risk of frost.
- Ensure ambient temperatures between 0 and 35 °C.

Danger
Dust, gases and vapours can be damaging to health and trigger explosions.
Avoid dust, gases and vapours in the installation room.

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Installation preparations (cont.)

! **Please note**
Overloading the floor can result in damage to the building structure.
Observe the permissible floor load. Take the total weight of the appliance into account.

- Align the appliance horizontally.
  If the adjustable feet are used to compensate for an uneven floor (max. 30 mm), the pressure load on the feet must be distributed evenly.
- Required room height: Min. 2.20 m
- Clearance for maintenance work: 700 mm in front of the appliance

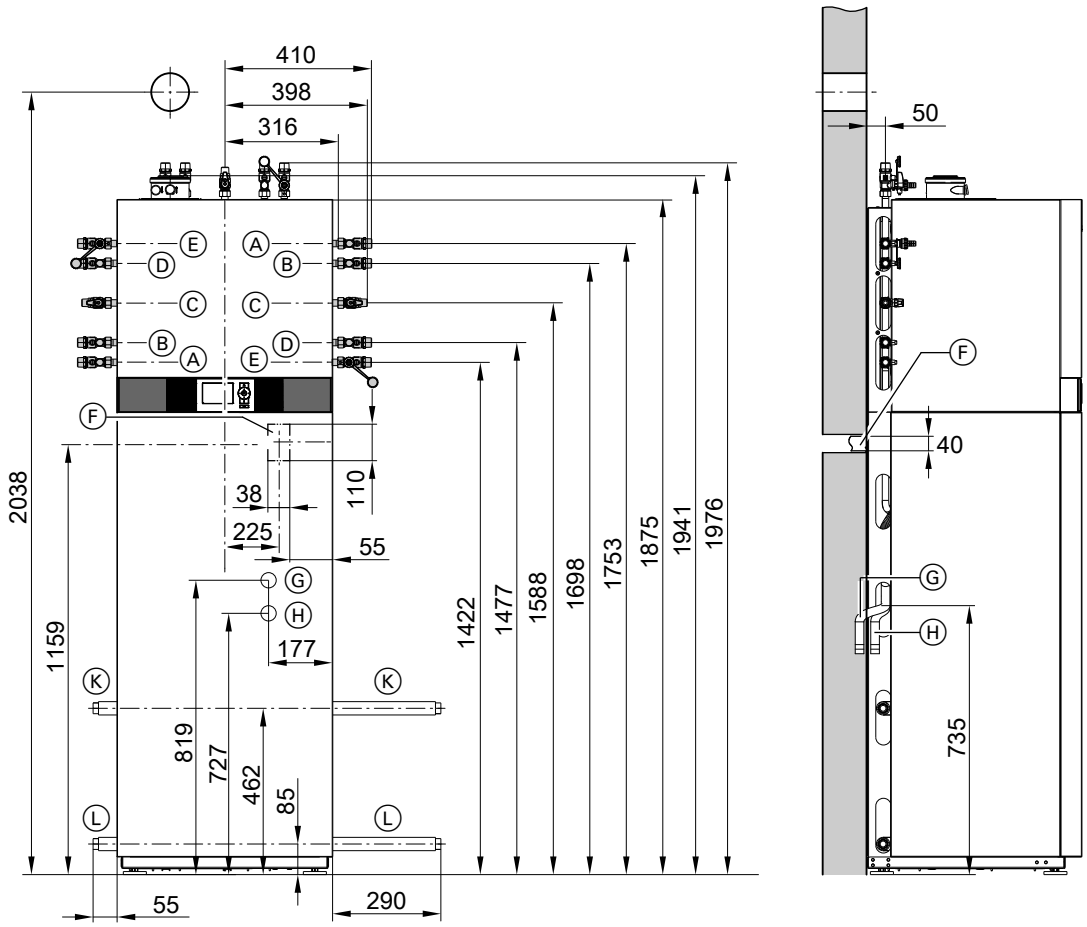
Preparations for installing the appliance

A connection set, available as an accessory, **must** be used to make the connection on the gas and water sides.


Preparing connections on site:
Connection set installation instructions

- The following overview shows sample connection sets for installation on finished walls, with connection to the top or side.
- Supplied pipe sections for the primary circuit can be installed either to the left or to the right.

Installation preparations (cont.)



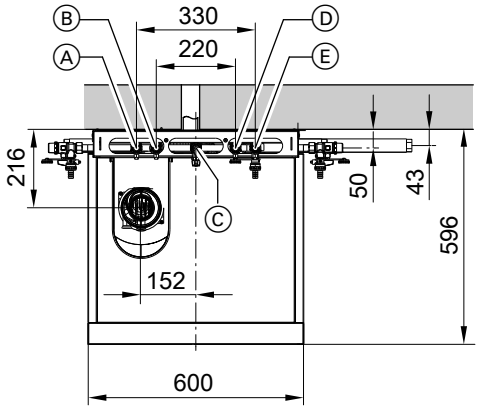


Fig. 2

Ⓐ Heating flow R ¾
Ⓑ DHW cylinder flow R ¾
Ⓒ Gas connection R ½
Ⓓ DHW cylinder return R ¾
Ⓔ Heating return R ¾
Ⓕ Wiring area
Ⓖ Condensate hose to the rear and into the wall, to the left or to the right
Ⓗ Safety valve discharge pipe to the rear and into the wall, to the left or to the right
Ⓚ Primary circuit flow (natural heat source inlet) G ¾
Ⓛ Primary circuit return (natural heat source outlet) G ¾

Note
All height dimensions have a tolerance of +30 mm due to the adjustable feet.

Installation preparations (cont.)

Preparing connections on the primary side

Natural heat source		
Geothermal energy – brine heat transfer medium	**Geothermal energy – water heat transfer medium**	**Solar thermal**
▪ We recommend that you use the brine connection set (accessories). ▪ Equip the primary circuit with an expansion vessel and safety valve (in accordance with DIN 4757 and technical guides). ▪ If prescribed by the relevant authorities, equip the primary circuit with a pressure switch or frost stat. ! **Please note** The heat transfer medium can corrode zinc-plated pipes. The components used must be resistant to the heat transfer medium. ***Note*** ▪ *The expansion vessel must be approved to DIN 4807. Diaphragms of the expansion vessel and safety valve must be suitable for the heat transfer medium.* ▪ *Discharge and drain pipes must terminate in a container that can hold the maximum possible expansion volume of the heat transfer medium.* ▪ *The primary pump is integrated in the appliance.*	▪ We recommend that you use the brine connection set (accessories). ▪ Equip the primary circuit with an expansion vessel and safety valve (in accordance with DIN 4757 and technical guides). ▪ Route the primary circuit such that it is protected from frost. ▪ If prescribed by the relevant authorities, equip the primary circuit with a frost stat. ***Note*** ▪ *The expansion vessel must be approved to DIN 4807.* ▪ *The primary pump is integrated in the appliance.*	**With a combi cylinder:** ▪ In conjunction with Vitocell 340-M for simultaneous DHW heating, the brine connection set (accessories) is not required. ▪ We recommend installing shut-off valves in the primary circuit, so that the combi cylinder need not be drained completely when replacing components. Observe mixing valve installation instructions. ***Note*** ▪ *If the Vitosorp is used for DHW heating, the primary circuit is protected by means of the heating circuit expansion vessel and safety valve. The primary circuit does not need a separate expansion vessel or safety valve.* ▪ *The primary pump is integrated in the appliance.* **With a dual mode DHW cylinder and a primary thermal store:** ▪ Both the dual mode DHW cylinder and the primary thermal store are heated with the help of the solar collectors. A diverter valve is required for changeover between the two cylinders. This is included in the "solar thermal cylinder pack" (accessories). ***Note*** *Install safety equipment (expansion vessel and safety valve), pressure gauge and drain & fill valves in the Vitosorp primary circuit.*

Installation preparations (cont.)

Preparing connections on the secondary side

- Thoroughly flush the heating system.
- Equip the heating system with an expansion vessel (in accordance with EN 13831).
  Note
  - *The expansion vessel must be approved to EN 13831.*
  - *Position the expansion vessel in such a way that it is **always** connected to the Vitosorp. Even when thermostatic valves are closed and irrespective of the setting of the 3-way diverter valve.*
  - *The diverter valve is integrated in the return on the Vitosorp.*
- With underfloor heating circuits, install a temperature limiter to restrict the maximum temperature of underfloor heating systems.

Preparing the condensate connection

Prepare the condensate hose and safety valve discharge pipe for the on-site drain line or siphon:
See positions Ⓖ and Ⓗ in Fig. 2, page 12.
The connection can be made to the rear into the wall, to the left or to the right.

Preparing the flue gas connection

Prepare a coaxial 60/100 flue gas connection for the system.

Preparing the gas connection

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

Preparing the electrical connections

- Flexible power cable: 3 x 1.5 mm^2, max. fuse rating 16 A, 230 V/50 Hz
- For accessories:
  Cables with the required number of cores for external connections
  Prepare an on-site distribution box.
- All cables in area Ⓕ should protrude 1400 mm from the wall (see Fig. 2, page 12)

Danger
Incorrect core assignment can lead to serious injury from electrical current and result in appliance damage.
Never interchange cores "L" and "N".

Danger
Incorrectly executed electrical installations can result in injuries from electrical current and damage to the appliance.
Route LV leads < 42 V separately from cables > 42 V/230 V~/400 V~.

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- IEC 60364-4-41
- VDE regulations
- Technical connection requirements specified by the local power supply utility

Isolators for non-earthed conductors

- Install an isolator in the power cable to provide omnipolar separation from the mains for all active conductors, corresponding to overvoltage category III (3 mm) for complete isolation. The isolator must be fitted in the permanent electrical installation, in line with installation requirements.
- We additionally recommend installing an AC/DC-sensitive RCD, type B ⏦ ⎓, for DC (fault) currents that can occur with energy efficient equipment.

Siting the appliance

Removing the side panels

Note
The front and side panels can be removed for easier handling.

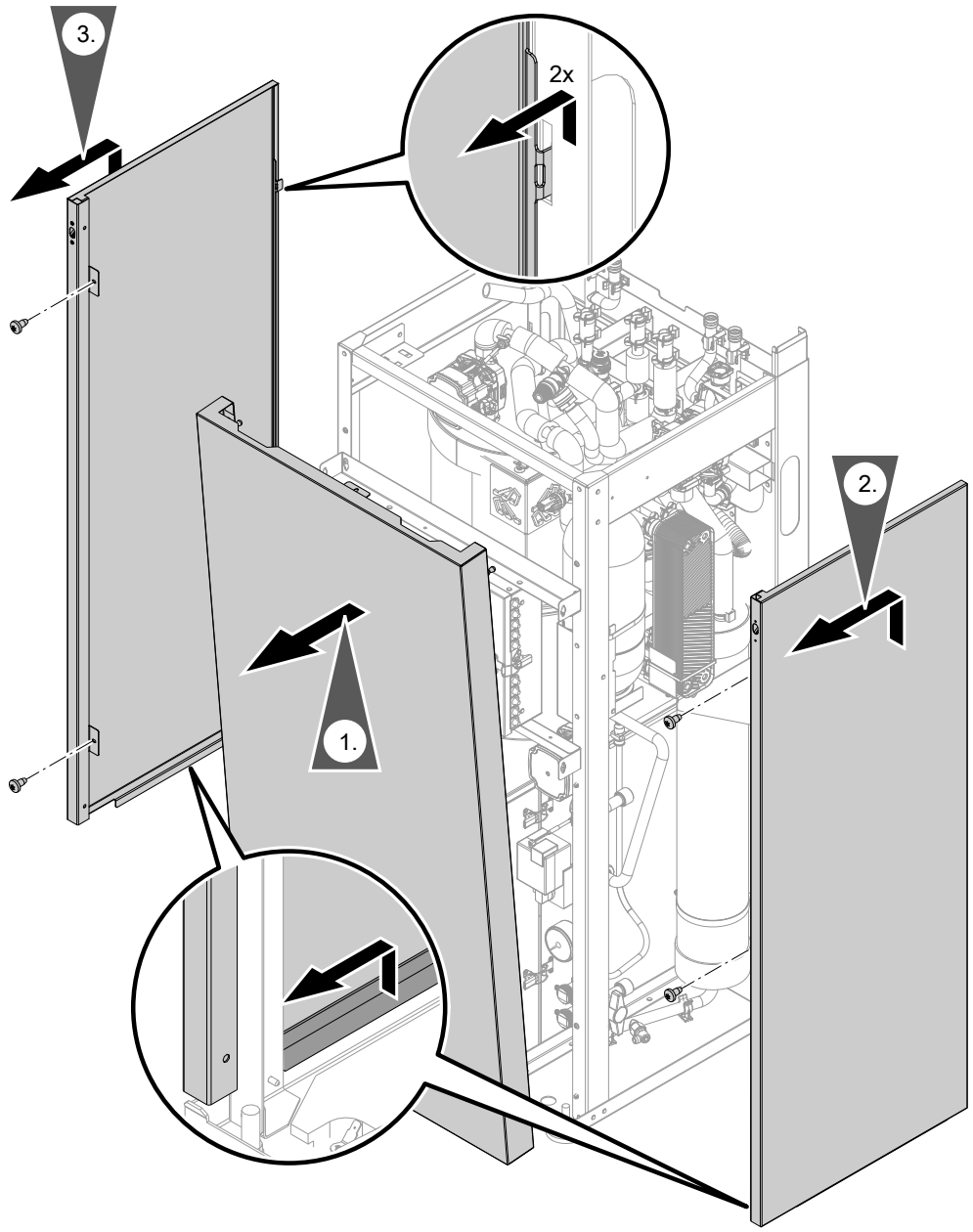


Fig. 3

Siting the appliance (cont.)

Fitting the condensing module on the sorption module

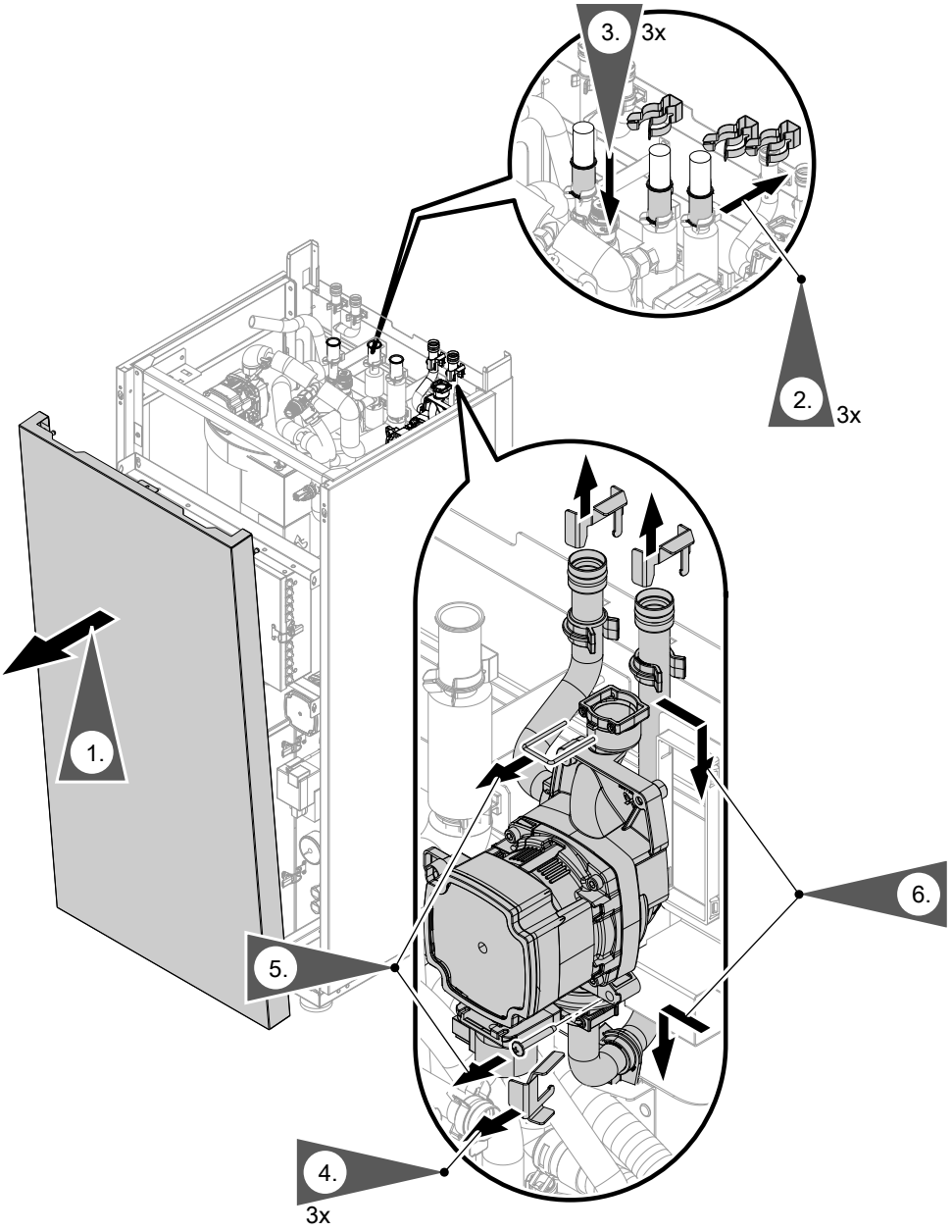


Fig. 4

Siting the appliance (cont.)

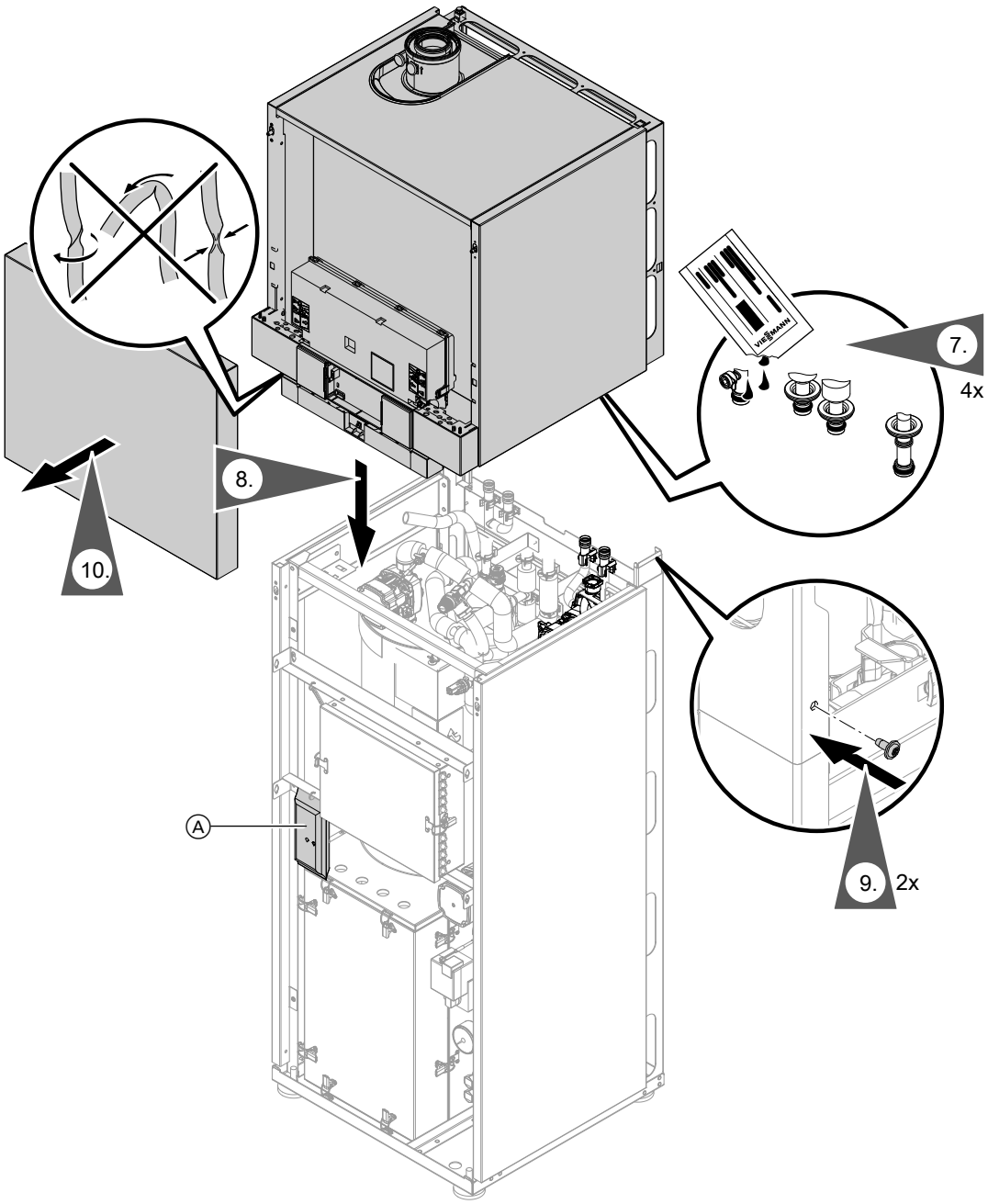


Fig. 5

Ⓐ Special grease for step 7 and screws for step 8 are included in the standard delivery

7. Lubricate the O-rings with the special grease supplied.

10. Open the Vitotronic control unit: see page 26.

Siting the appliance (cont.)

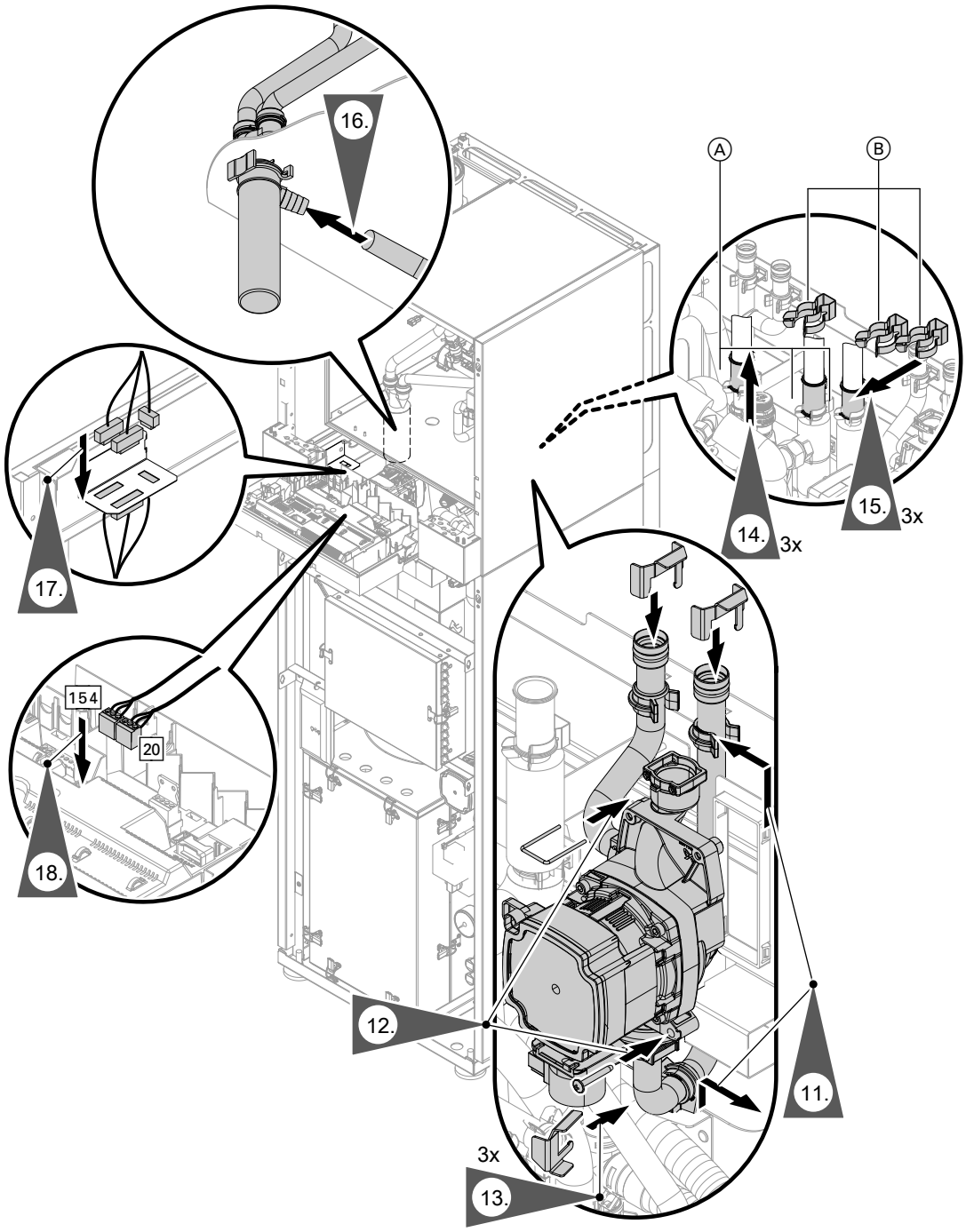


Fig. 6

14. Push slide couplings Ⓐ up far enough to enable fastening clips Ⓑ to be fitted correctly.
Fitting slide couplings Ⓐ incorrectly can cause water to escape and can damage the appliance.

Connections on the primary side

! **Please note**
Mechanically strained hydraulic connections lead to leaks and appliance damage.
Connect on-site lines so that they are free of load and torque stress.

Connecting supplied pipe sections to the sorption module

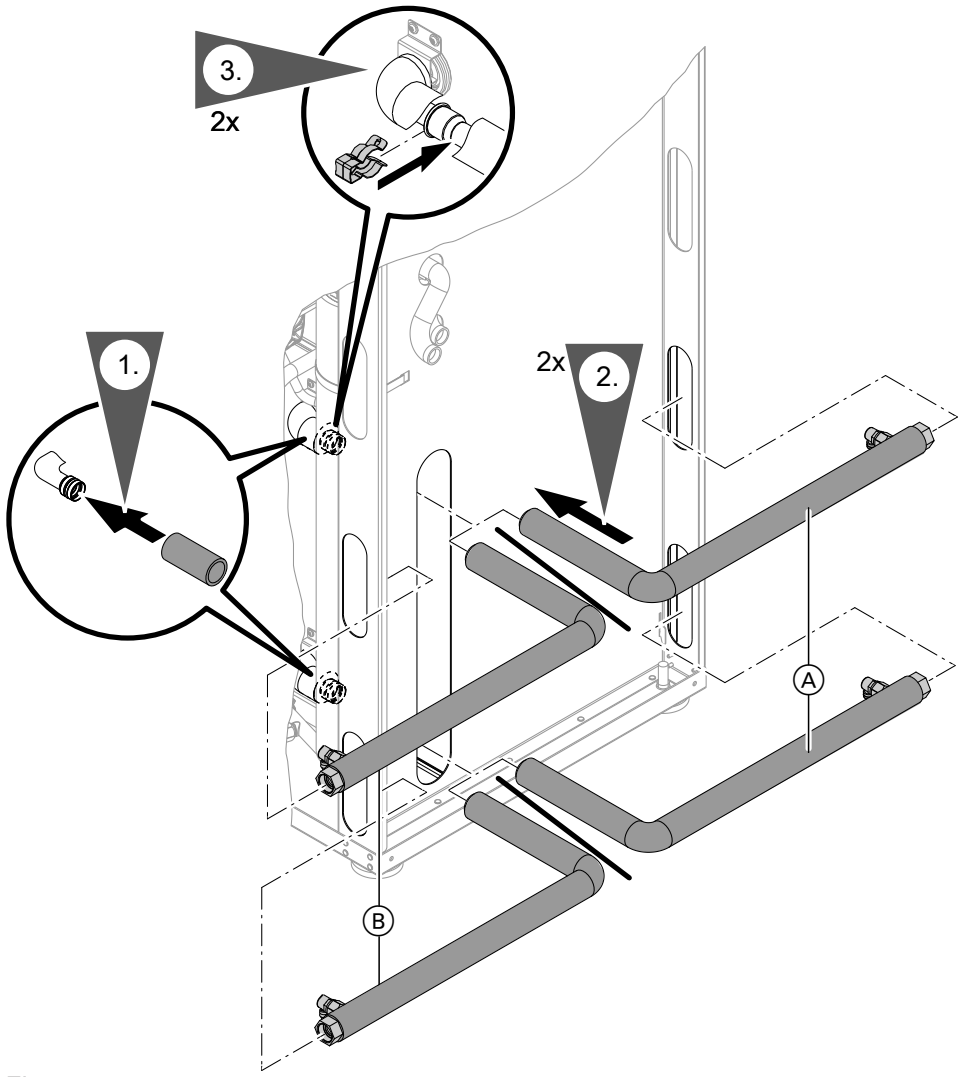


Fig. 7

Ⓐ Primary side connections to the left (viewed from front)
Ⓑ Primary side connections to the right (viewed from front)

Natural heat source	
Geothermal energy	**Solar thermal**
▪ Ensure adequate thermal and anti-vibration insulation of all pipes routed through walls. ▪ Insulate all pipes inside the building to prevent heat and vapour diffusion. ▪ We recommend that you use the brine connection set (accessories).	▪ Ensure adequate thermal and anti-vibration insulation of all pipes routed through walls. ▪ Thermally insulate all pipes inside the building. ▪ Fit a thermostatic mixing valve: Mixing valve installation instructions

Connections on the secondary side

! **Please note**
Mechanically strained hydraulic connections lead to leaks and appliance damage.
Connect on-site lines so that they are free of load and torque stress.

For connections on the cylinder side, the intermediate pieces of the connection set (accessories) must be replaced. Use the intermediate pieces and ball valves supplied for the DHW cylinder flow and return.

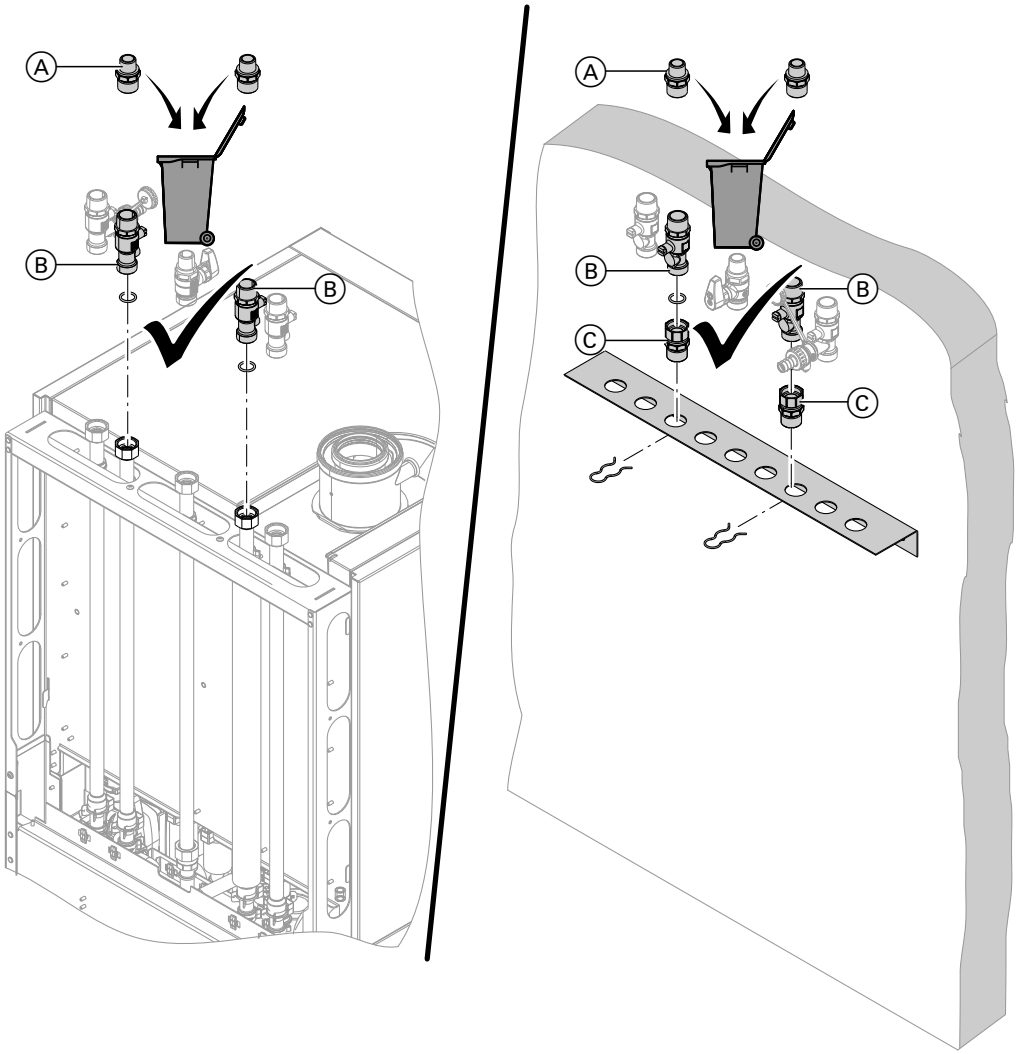


Fig. 8

Ⓐ Intermediate piece from connection set (not required)
Ⓑ Ball valve supplied for connections on the cylinder side
Ⓒ Intermediate piece R ¾ x G ¾ for connections on the cylinder side

Depending on the connection set, the connections on the secondary side can be fitted to the top, left or right. In the following diagram, the connections on the secondary side are depicted with connection sets.

Connections on the secondary side (cont.)

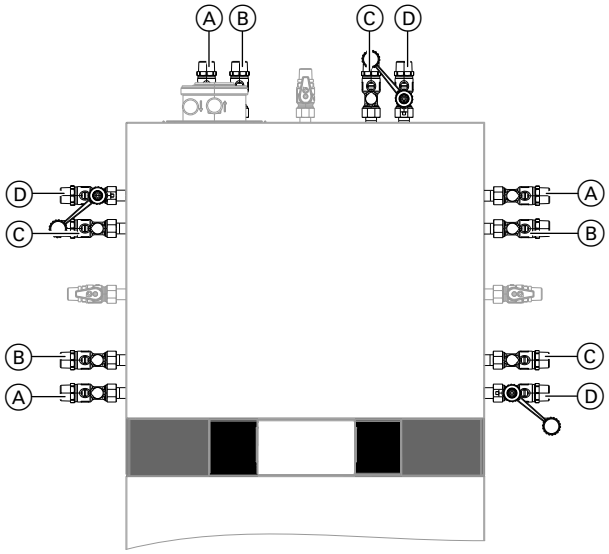


Fig. 9

Ⓐ Heating flow R ¾
Ⓑ DHW cylinder flow R ¾
Ⓒ DHW cylinder return R ¾
Ⓓ Heating return R ¾

Condensate connection

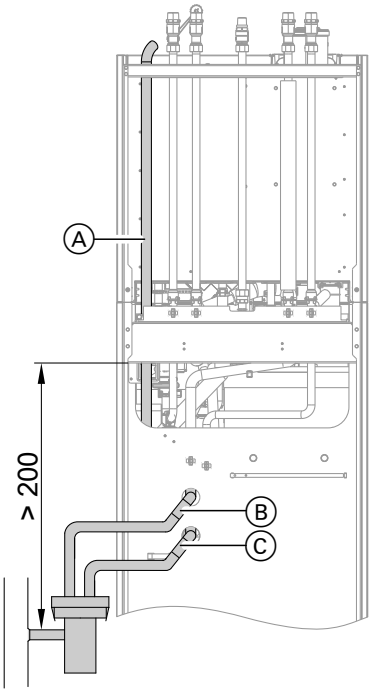


Fig. 10

1. Route vent hose Ⓐ upwards. Secure vent hose to the bracket with a cable tie.

2. Route condensate hose Ⓑ and safety valve discharge pipe Ⓒ to the rear to the wall, or to the left or right to the side aperture.

Note
Pull condensate hose and safety valve discharge pipe far enough out of the appliance to prevent unnecessary bends inside the appliance.

3. Connect condensate hose and safety valve discharge pipe to drain outlet set with integral siphon (accessories).
Or
Connect condensate hose and safety valve discharge pipe to an on-site siphon. Ensure that the siphon is connected securely.

Note
Connect the condensate pipe with a constant fall to the public sewage system with an additional pipe vent, or to a neutralising system.

Condensate connection (cont.)

- The condensate hose and safety valve discharge pipe are separate pipes. The pipes meet the temperature requirements for CE certification.
- We recommend connecting the condensate hose and the safety valve discharge pipe internally via a common drain pipe to the domestic waste water system, either directly or via a tundish.
- If the common drain pipe is routed outside the building, use a pipe with at least ∅ 30 mm and protect this pipe from frost. Avoid long external pipe runs.

  Please note
  If the condensate hose, safety valve discharge pipe or common drain pipe freezes, this can result in faults and damage to the appliance. Always protect all drain/condensate pipes against frost.
- Observe local building regulations.

Observe local waste water regulations.

Note
Fill the trap with water before commissioning.

Aligning the appliance

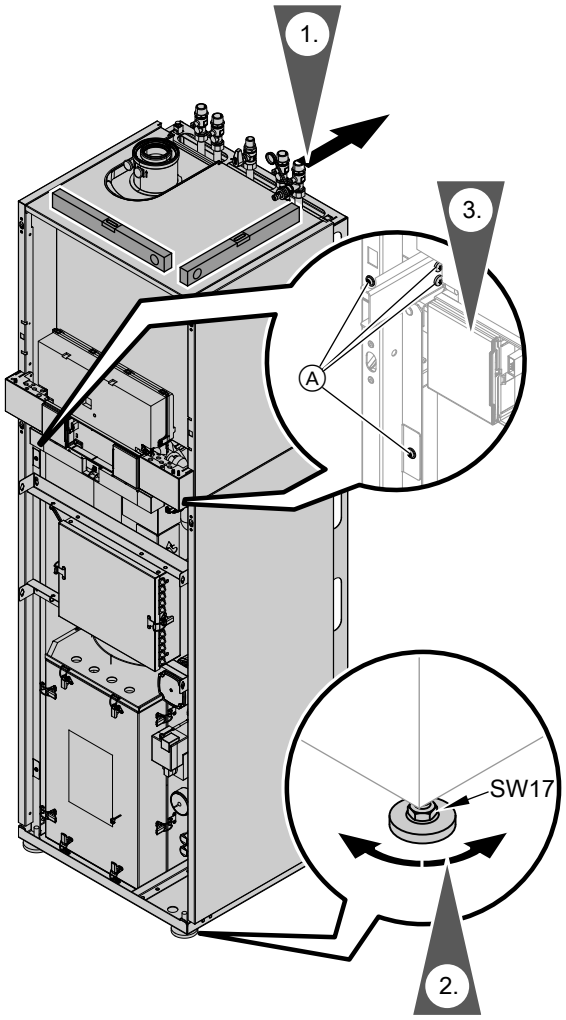


Fig. 11

3. Bring the Vitotronic control unit into the maintenance position (see Fig. 53, page 102) and align the side panels using screws Ⓐ.

Flue gas connection

Note
- *The "system certification" and "Skoberne GmbH flue system" labels are enclosed with the technical documentation. These labels may be used only in conjunction with the Viessmann flue system made by Skoberne.*
- *During installation and positioning of the flue system, observe Building Regulations Part L and BS 5440 [GB only].*

Connecting the balanced flue pipe
Flue system installation instructions

Do not carry out **commissioning** until the following conditions are met:
- Free passage through the flue gas pipes.
- Flue system with positive pressure is gas-tight.
- Apertures for ensuring sufficient combustion air supply are open and cannot be closed off.
- Applicable regulations on installing and commissioning flue systems have been followed.

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

Gas connection

Please note
Mechanically strained connections lead to leaks and appliance damage.
Connect on-site lines so that they are free of load and torque stress.

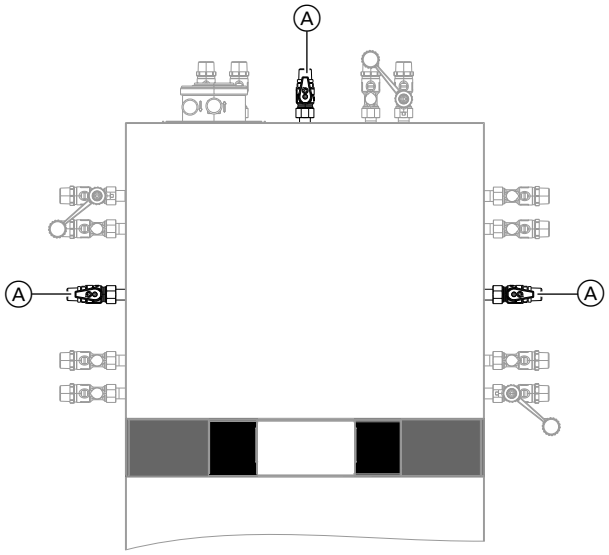


Fig. 12

Ⓐ Gas connection R ½

Information on operation with LPG
We recommend that you fit an external safety solenoid valve when installing the appliance in rooms below ground level.

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

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

   Please note
   Excessive test pressure will damage the appliance and the gas train.
   Max. test pressure: 150 mbar (15 kPa).
   If a higher pressure is required for tightness tests, disconnect the appliance and gas train from the main supply pipe (undo the fitting).
3. Purge the gas line.

For conversion to a different gas type, see page 46.

Electrical connections

Danger
Damaged wiring insulation can lead to serious injury from electrical current and result in appliance damage.
Route cables so that they cannot come into contact with very hot, vibrating or sharp-edged components.

Danger
Incorrect wiring can lead to serious injury from electrical current and result in appliance damage.
Take the following measures to prevent wires drifting into the adjacent voltage area:
- Route LV leads < 42 V separately from cables > 42 V/230 V~/400 V~ and secure with cable ties.
- Only strip the minimum of insulation from cables, as close to the terminals as possible, and bundle them close to the corresponding terminals.
- Secure cables with cable ties.

Danger
The absence of system component earthing can lead to serious injury from electrical current and component damage in the event of an electrical fault.
The appliance and pipework must be connected to the equipotential bonding of the building.

Connection to the process control unit

One of the following components must be connected to plug 42:

Natural heat source		
Geothermal energy – brine heat transfer medium	**Geothermal energy – water heat transfer medium**	**Solar thermal**
▪ Primary circuit pressure switch and/or primary circuit frost stat **or** ▪ Jumper supplied	▪ Primary circuit frost stat **or** ▪ Jumper supplied	▪ Jumper supplied

Connecting a primary circuit pressure switch and/or frost stat

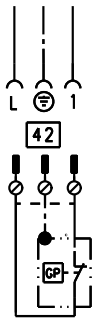


Fig. 13

Note
If multiple limiters need to be installed, connect them in series.

Connecting the jumper supplied

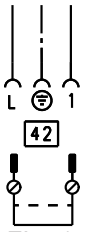


Fig. 14

Electrical connections (cont.)

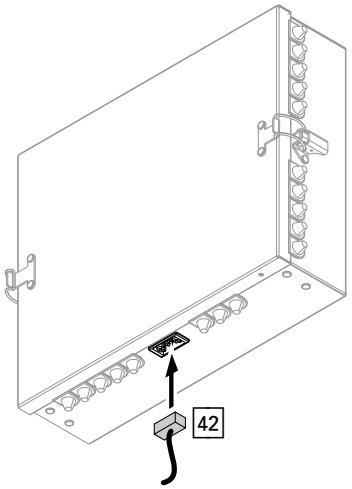


Fig. 15

Solar thermal system in conjunction with combi cylinder and primary thermal store

Note
In conjunction with a separate primary thermal store (e.g.Vitocell 140-E), a 3-way diverter valve (accessories) must be connected to solar module SM1 (accessories).

Electrical connections (cont.)

Opening the Vitotronic control unit

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

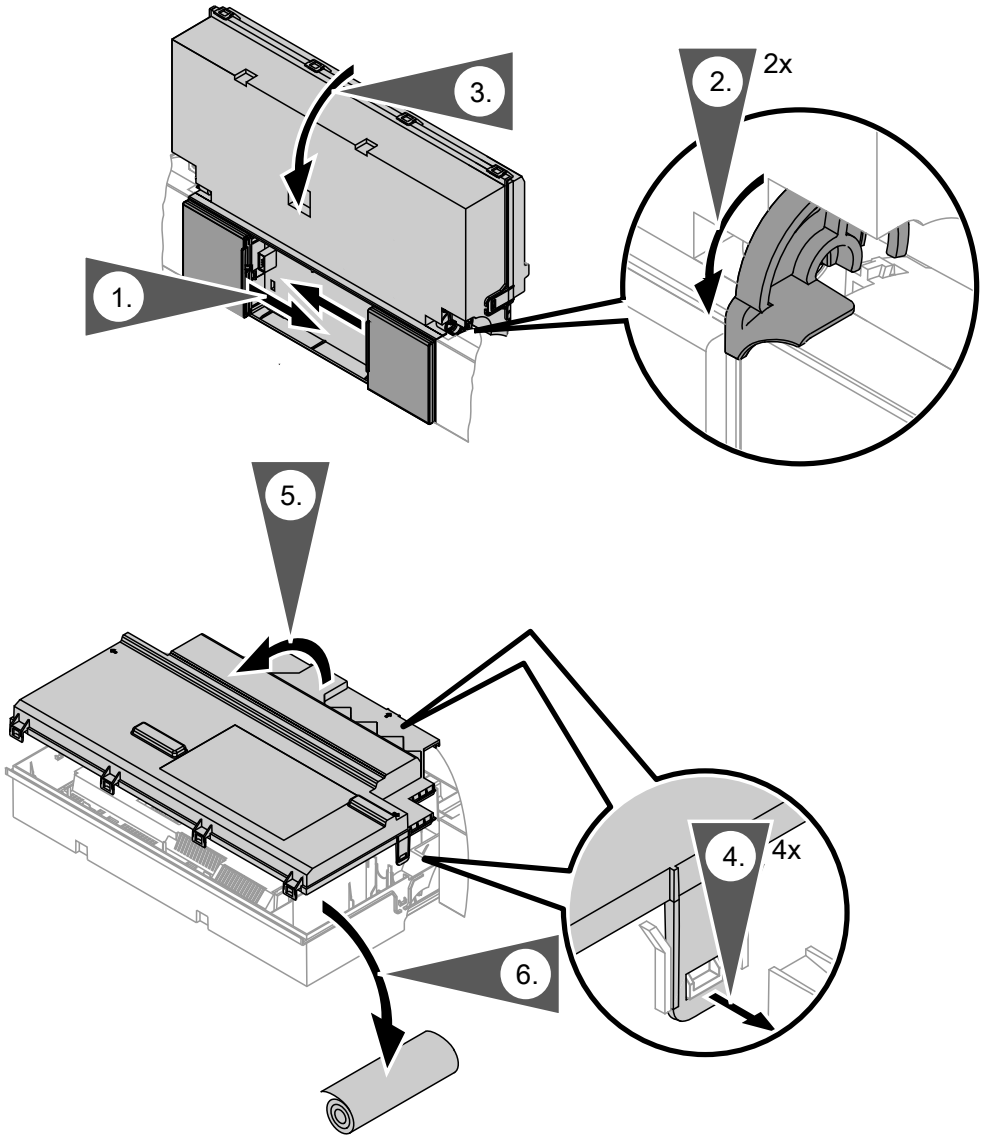


Fig. 16

6. Remove the additional type plate and, in consultation with the system user, attach it to the outside of the appliance in a position visible to the flue gas inspector.

Electrical connections (cont.)

Routing flexible cables to the wiring chamber of the Vitotronic control unit

Cables:

- Required cable length inside the appliance plus distance to wall:
  1400 mm
- Height of wall outlet:
  1160 mm

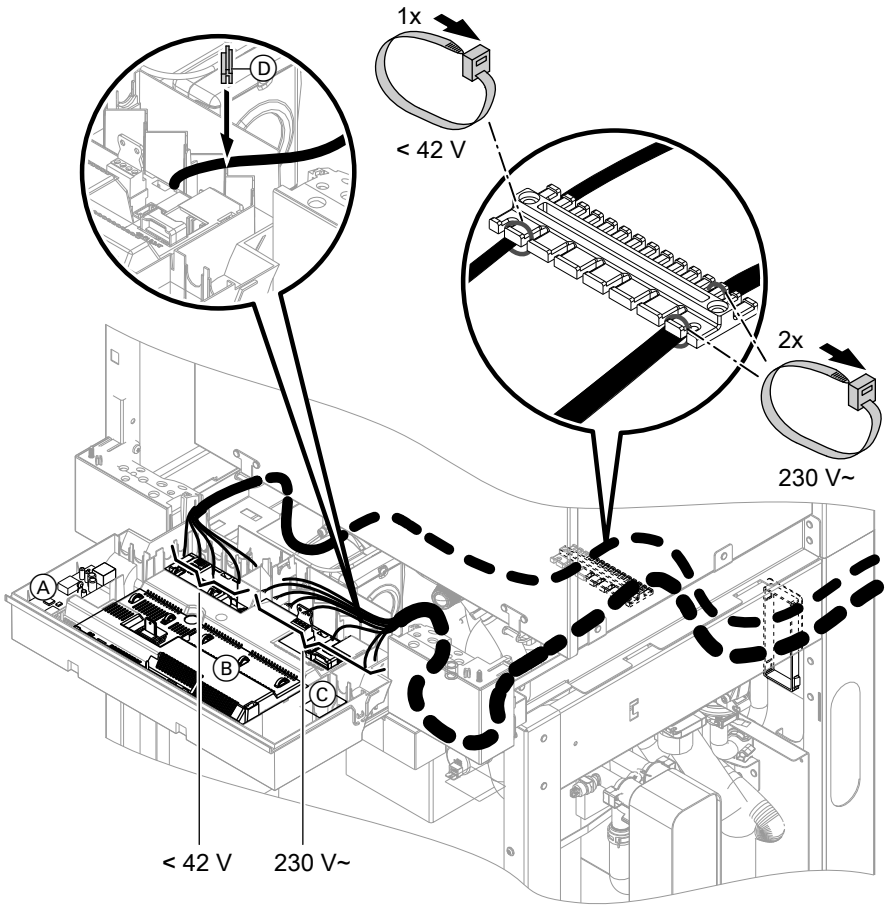


Fig. 17

Ⓐ LON communication module
Ⓑ Main PCB
Ⓒ Internal extension (accessories)
Ⓓ Cable grommet for power cable
Remove the existing cable grommet when using cables with a larger cross-section (up to ∅ 14 mm). Secure the cable with fitted cable grommet Ⓓ (white).

Electrical connections (cont.)

Overview of electrical connections in the Vitotronic control unit

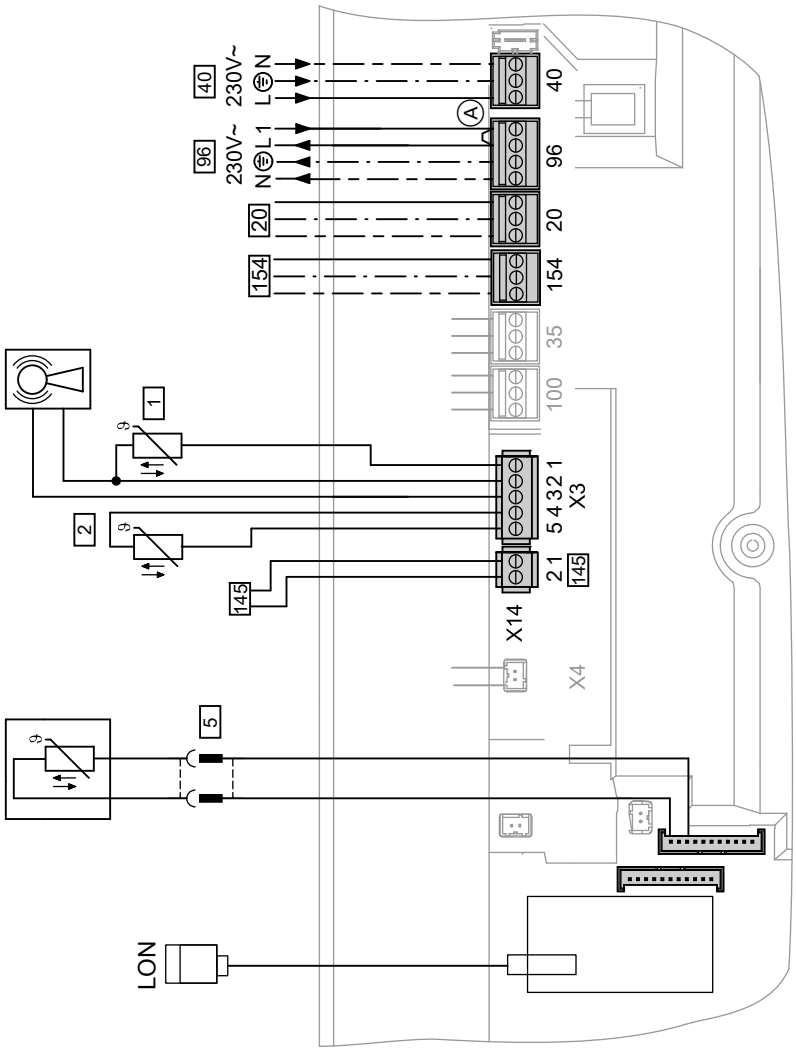


Fig. 18

Ⓐ Jumper

Connections to 230 V~ plugs

20 Secondary pump (see page 18)

40 Power supply

96
- Power supply for accessories
- External demand/blocking

154 Connecting cable to process control unit (see page 18)

Connections to LV plugs

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

5 Cylinder temperature sensor (plug in the cable harness)

145 KM-BUS subscriber (accessories)
To connect several accessories, see page 31
- Vitotrol 200-A or Vitotrol 300-A remote control
- Vitocom 100, type GSM
- Mixer extension kit
- AM1 extension
- EA1 extension
- Solar control module SM1
- Wireless base station
- KM-BUS distributor

LON
- Vitocom 100, type LAN 1
- Vitocom 200

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

Electrical connections (cont.)

Outside temperature sensor 1

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

Wireless base station installation and service instructions

Fitting location for outside temperature sensor

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

Outside temperature sensor connection

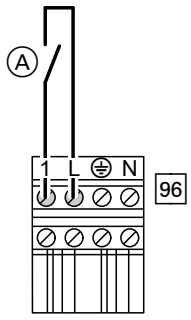
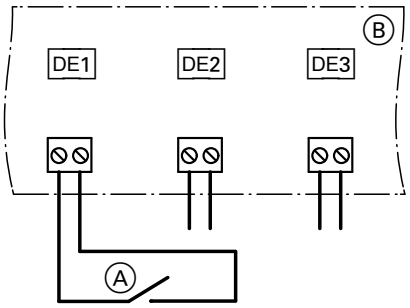
2-core lead, length max. 35 m with a cross-section of 1.5 mm^2

External demand via switching contact

Connection options:
- EA1 extension (accessories, see separate installation instructions).
- Plug 96.

When the contact is closed, the secondary circuit flow temperature is heated to the set flow temperature (coding address "9b" in the **"General"** group). The secondary circuit flow temperature is limited by this set flow temperature and the electronic maximum limit (coding address "06" in the **"Boiler"** group).

Please note
Live contacts lead to short circuits or phase failure.
The external connection **must be potential-free** and meet the requirements of protection class II.

Plug 96	EA1 extension
Connection	
	
Ⓐ Floating contact (when connecting, remove jumper between L and 1)	Ⓐ Floating contact Ⓑ EA1 extension
Codes	
▪ "4b:1" in the **"General"** group ▪ Effect of the function on the relevant heating circuit group: Coding address "d7" in the **"Heating circuit"** group ▪ Effect of the function on the circulation pump for cylinder heating: Coding address "5F" in the **"DHW"** group	▪ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) to 2 in the **"General"** group. ▪ Effect of the function on the relevant heating circuit group: Coding address "d7" in the **"Heating circuit"** group ▪ Effect of the function on the circulation pump for cylinder heating: Coding address "5F" in the **"DHW"** group

External demand via 0 – 10 V input

Connection at 0 – 10 V input at **EA1 extension**.

Electrical connections (cont.)

Ensure DC separation between the earth conductor and the negative pole of the on-site power source.

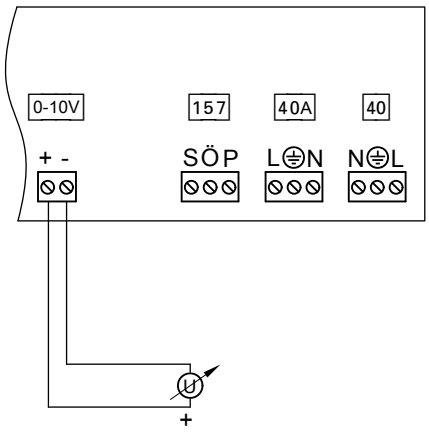


Fig. 19

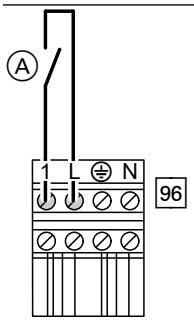
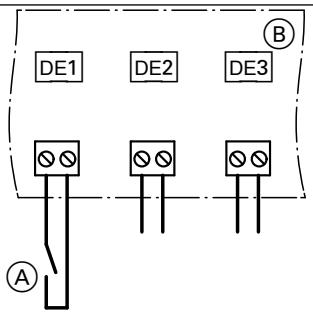
0 to 1 V	No specification for set boiler water temperature
1 V	Set value 10 °C
10 V	Set value 100 °C

External blocking via switching contact

Connection options:
- Plug 96.
- EA1 extension (accessories, see separate installation instructions).

When the contact is closed, the secondary circuit is no longer supplied with heat. The heating circuit pumps and (if installed) circulation pump for cylinder heating are switched according to the set codes (see the following table).

Please note
Live contacts lead to short circuits or phase failure.
The external connection **must be potential-free** and meet the requirements of protection class II.

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

Electrical connections (cont.)

Connecting accessories to the mains at plug 96 (230 V~) in the Vitotronic control unit

Where the boiler is sited in a wet room, accessories outside the wet area must not be connected to the power supply at the control unit. If the appliance is sited outside any wet rooms, the mains connection for the accessories can be made directly at the control unit. This connection is switched directly with the ON/OFF switch of the control unit.

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

Power supply and KM BUS connection of accessories

Power supply to all accessories via heat source control unit

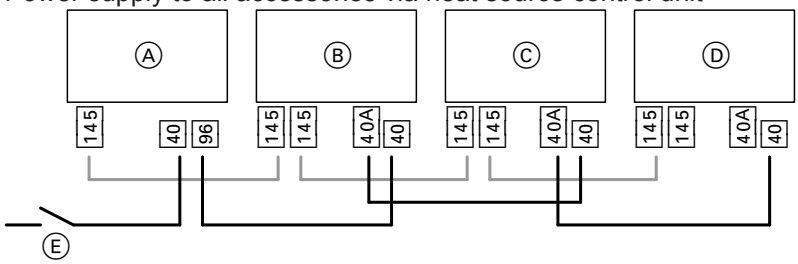


Fig. 20

Some accessories with direct power supply

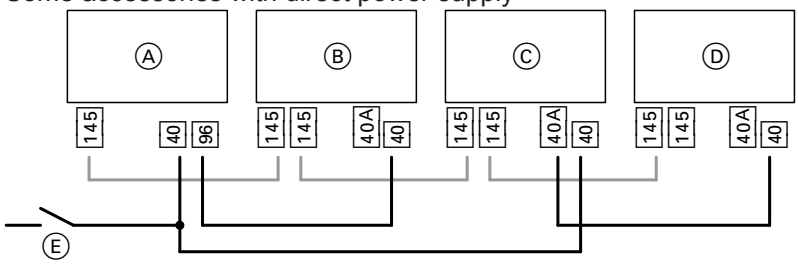


Fig. 21

Ⓐ Heat source control unit
Ⓑ Extension kit for heating circuit with mixer M2
Ⓒ Extension kit for heating circuit with mixer M3
Ⓓ AM1 extension, EA1 extension and/or solar control module, type SM1

Ⓔ ON/OFF switch
40 Mains input
40A Power outlet
96 Control unit power outlet
145 KM BUS connection

If the current flowing to the connected working parts (e.g. circulation pumps) is higher than the fuse rating of the respective accessory: Only use the output concerned to control an on-site relay.

Accessories	Internal fuse protection
Extension kit for heating circuit with mixer	2 A
AM1 extension	4 A
EA1 extension	2 A
Solar control module, type SM1	2 A

Electrical connections (cont.)

Power supply 40

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

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- IEC 60364-4-41
- VDE regulations
- Connection requirements specified by your local power supply utility

- Install an isolator in the power cable to provide omnipolar separation from the mains for all active conductors, corresponding to overvoltage category III (3 mm) for full isolation. This isolator must be fitted in the permanent electrical installation, in line with the installation requirements.
  In addition, we recommend installing an AC/DC-sensitive RCD (RCD class B ⏦ ⎓) for DC (fault) currents that can occur with energy efficient equipment.
- Max. fuse rating 16 A.

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

Connecting Vitocom (accessories) to LON

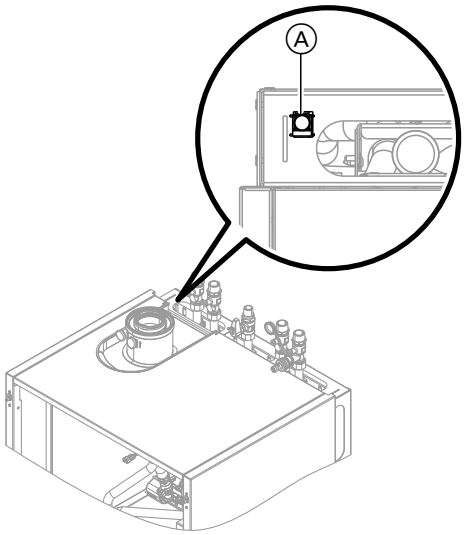


Fig. 22

Ⓐ RJ 45 LON coupling for connecting the Vitocom

Note
LON coupling Ⓐ can be mounted below or to the left or right of the apertures on the sides, depending on how the connection set is fitted.

Vitocom connection:
"Vitocom" installation instructions

Electrical connections (cont.)

Closing the Vitotronic control unit and inserting the programming unit

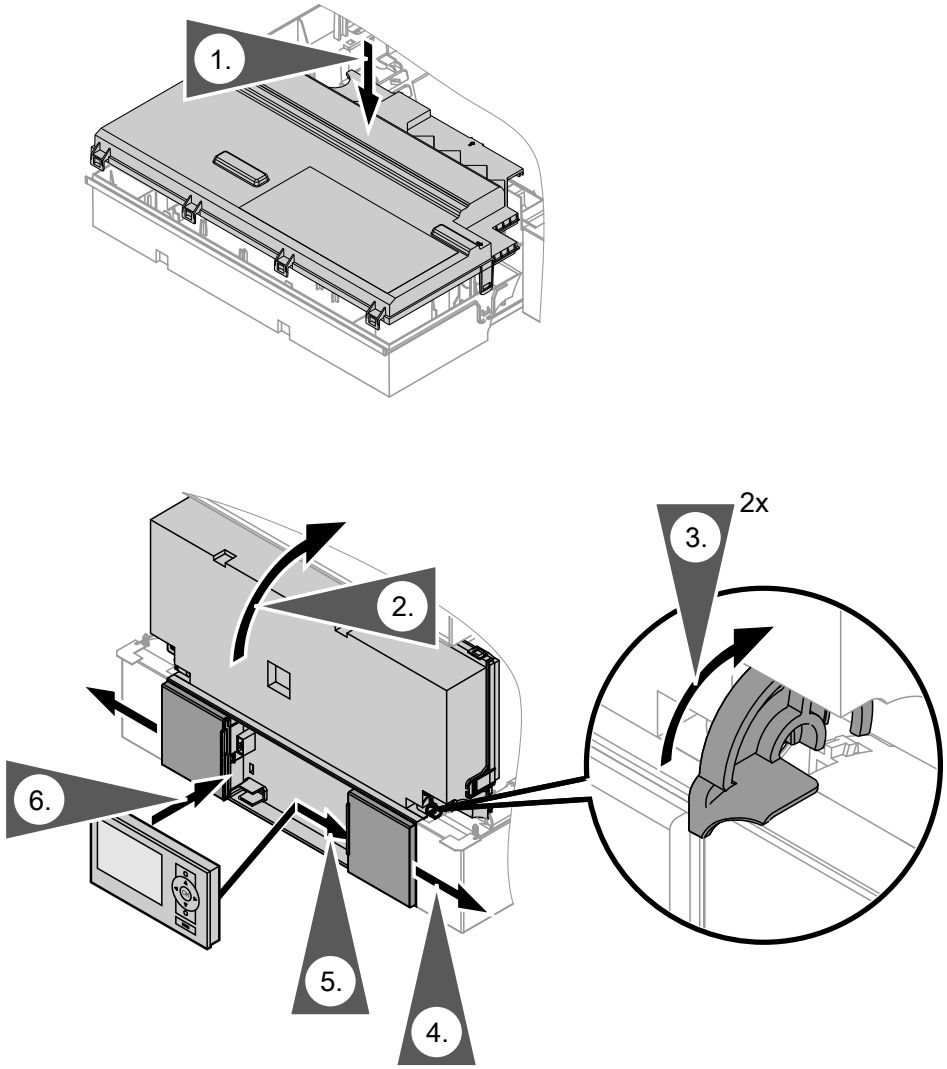


Fig. 23

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

Wall mounting base installation instructions

Note
The programming unit can also be inserted into a wall mounting base (accessories) close to the appliance.

Fitting the front panels

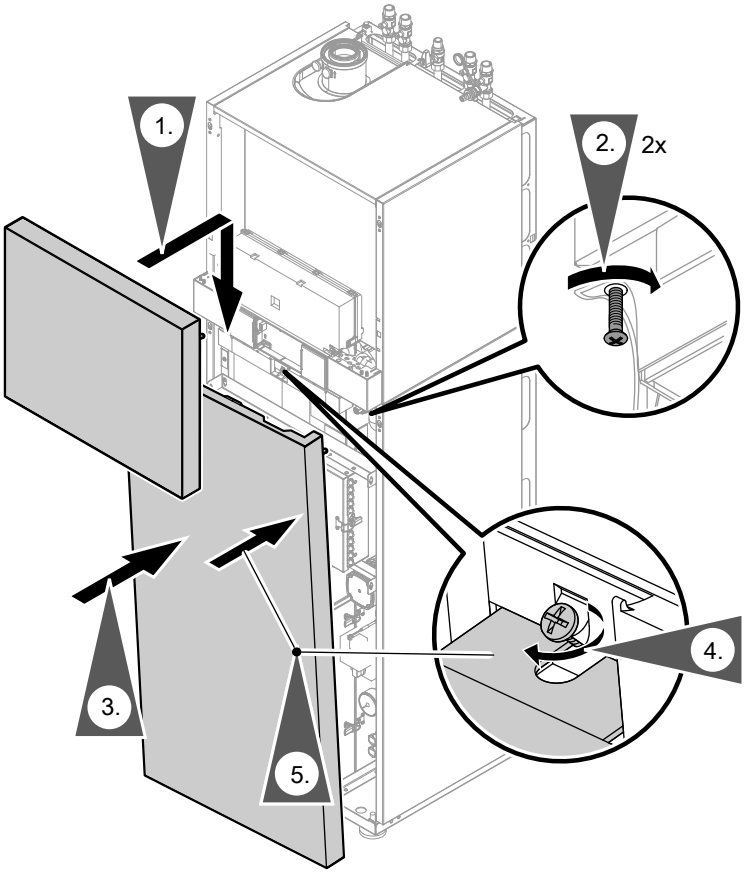
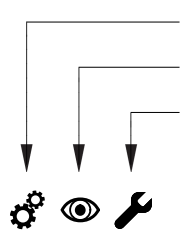


Fig. 24

Steps - commissioning, inspection and maintenance



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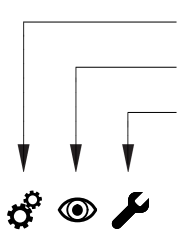
Steps - commissioning, inspection and… (cont.)



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Removing the front panels

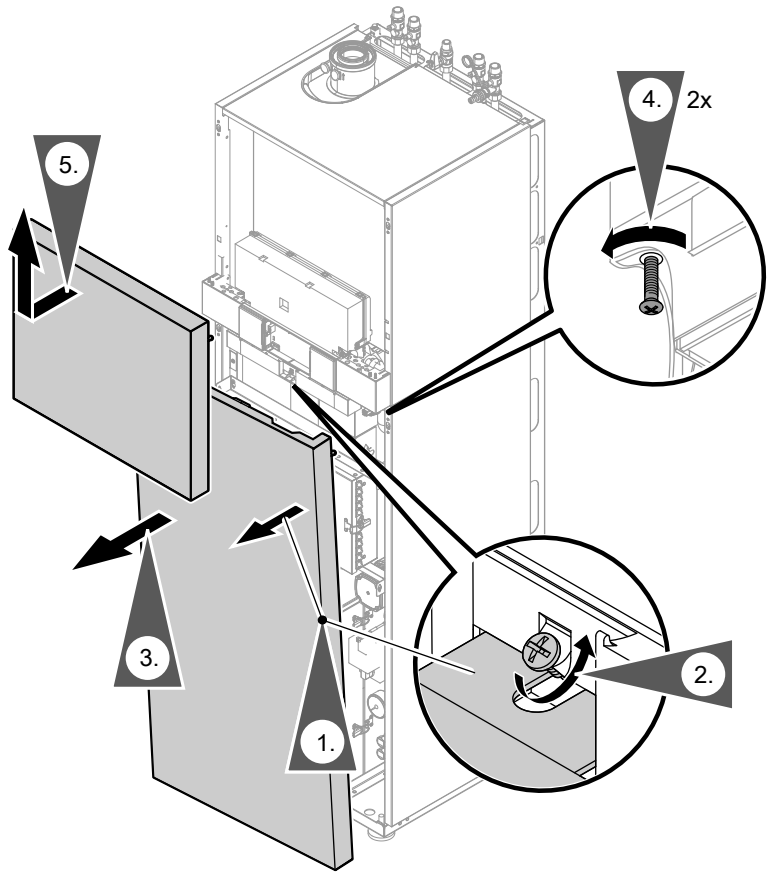

Fig. 25

Checking the power supply

Filling and venting the primary circuit

With geothermal energy as the natural heat source, we recommend that you use the brine connection set (accessories).

Filling and venting the primary circuit (cont.)

Natural heat source		
Geothermal energy – brine heat transfer medium	**Geothermal energy – water heat transfer medium**	**Solar thermal**
1. Check the pre-charge pressure of the on-site expansion vessel. 2. Charge the primary circuit with Viessmann heat transfer medium and vent. Operating pressure: 0.8 to 3.0 bar (0.08 to 0.3 MPa) ***Note*** *The system must be protected against frost down to –15 °C. Viessmann heat transfer medium is a ready-mixed ethylene glycol-based medium, for frost protection down to –15 °C, containing inhibitors for corrosion protection.* 3. Check the connections for possible leaks. Replace faulty or displaced gaskets.	***Note*** *If the routing is frost-free (deeper than 1.4 m), then water may be used as the heat transfer medium.* 1. Check the pre-charge pressure of the on-site expansion vessel. 2. Fill the primary circuit with water and vent. Operating pressure: 0.8 to 3.0 bar (0.08 to 0.3 MPa) 3. Check the connections for possible leaks. Replace faulty or displaced gaskets.	***With a combi cylinder:*** *In the case of solar thermal as the natural heat source in conjunction with a Vitocell 340-M combi cylinder for simultaneous DHW heating, the primary circuit is filled together with the secondary circuit.* *During filling, the primary circuit must be vented at the appropriate air vent valve.* **With a dual mode DHW cylinder and a primary thermal store:** 1. Check the pre-charge pressure of the on-site expansion vessel. 2. Fill the primary circuit with water and vent. Operating pressure: 0.8 to 3.0 bar (0.08 to 0.3 MPa) 3. Check the connections for possible leaks. Replace faulty or displaced gaskets.

Note
After *the primary circuit has been filled, code "14:2"* ***must*** *be set (****"Process"*** *group) for commissioning the adsorption function.*

Filling the trap with water

Danger
Flue gas escaping from the siphon can cause potentially fatal carbon monoxide poisoning. Always fill the siphon with water **before** commissioning.

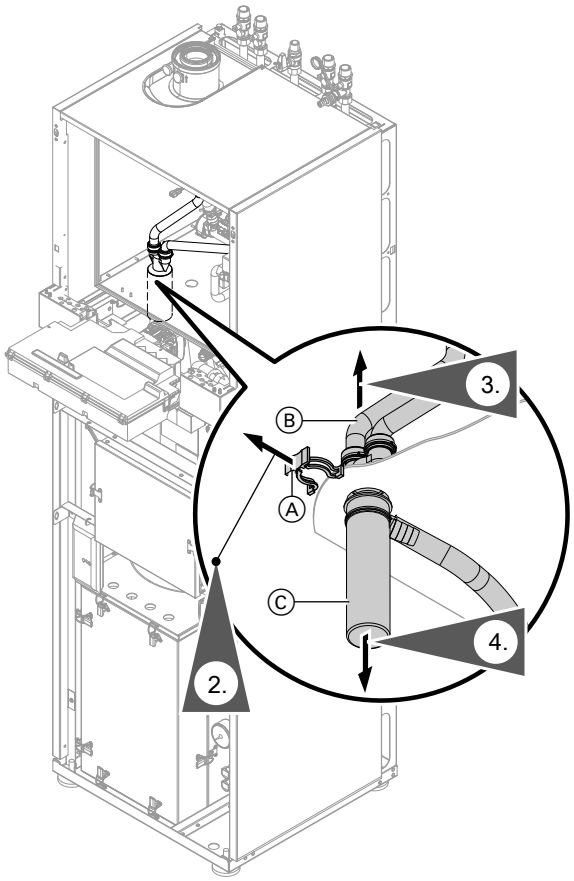

Fig. 26

Ⓐ Retaining clip
Ⓑ Filler pipe
Ⓒ Lute

1. Pivot control unit forwards and remove cover panel.
5. Fill trap with water and refit.
6. Check that the condensate hoses are connected correctly to the siphon and heat exchangers.

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

7. Remount the cover panel.
8. Secure the control unit back in the operating position.

Switching on the power supply and the ON/OFF switch

Commissioning assistant

The commissioning assistant starts automatically when the ON/OFF switch is turned on and must run once.

Note
The diagram shows the commissioning assistant sequence. See the following chapter for a description of the steps.

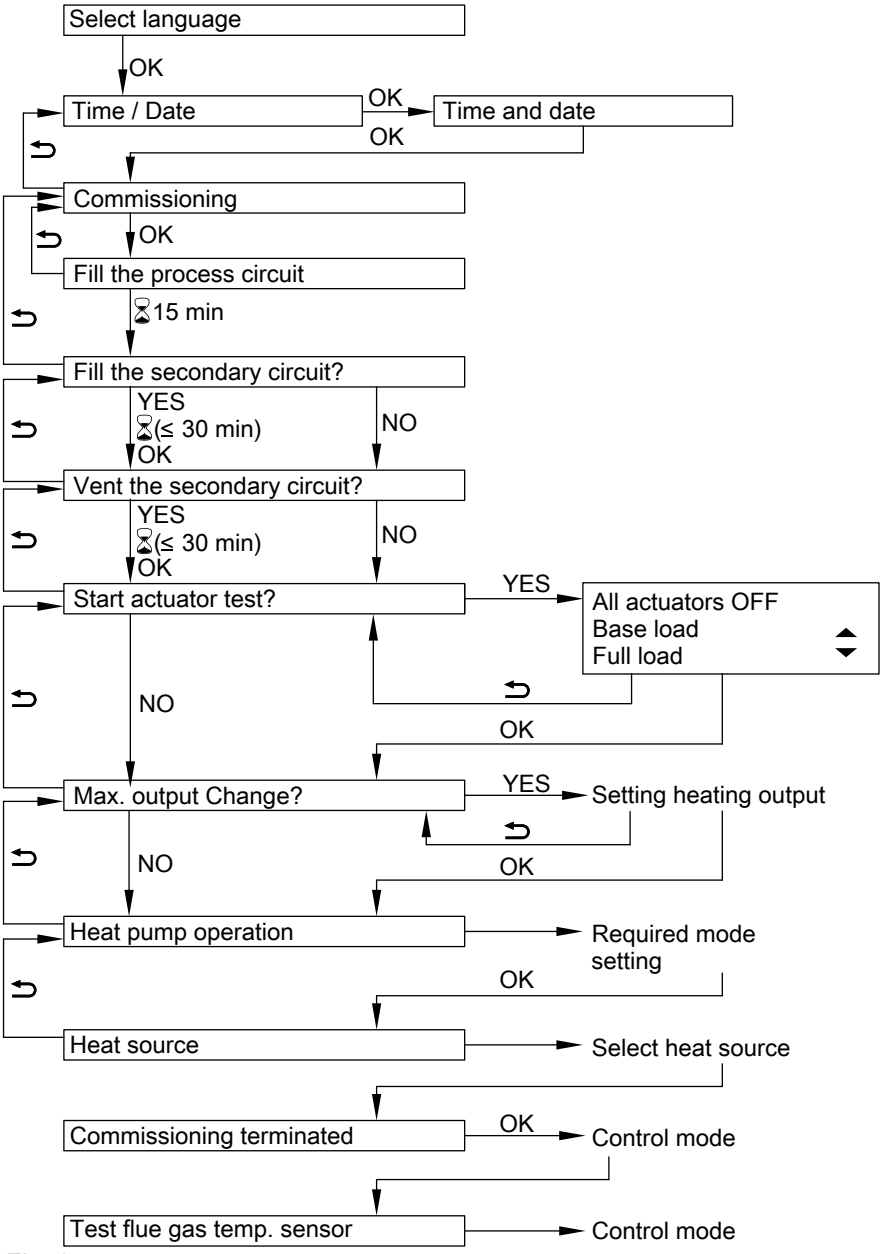

Fig. 27

Changing the language

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

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

5678 044 GB

Changing the language (cont.)

Fig. 28

Setting the time and date

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.

Filling and venting the process circuit

Note
The system is equipped with hydraulic system separation. The on-site secondary circuit and the process circuit must each be filled separately.

Fill water

Please note
Unsuitable fill water increases the level of deposits and corrosion and may lead to appliance damage.
- Flush the heating system thoroughly before filling.
- Only use fill water of potable water quality.
- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.
- Fill and top-up water with a hardness of over 3.0 mol/m^3 (16.8 °dH) must be softened, e.g. with a small softening system for heating water.

Filling and venting the process circuit (cont.)

Filling the process circuit

Note
A separate expansion vessel is installed in the appliance for the process circuit.

Before filling the process circuit:
- *Check the pre-charge pressure of the internal expansion vessel (see page 57).*
  Charge pressure: 1.7$^{\pm 0.25}$ bar (170$^{\pm 25}$ kPa).
- *Thoroughly flush the process circuit.*
  The Viessmann filling station can be used for flushing.

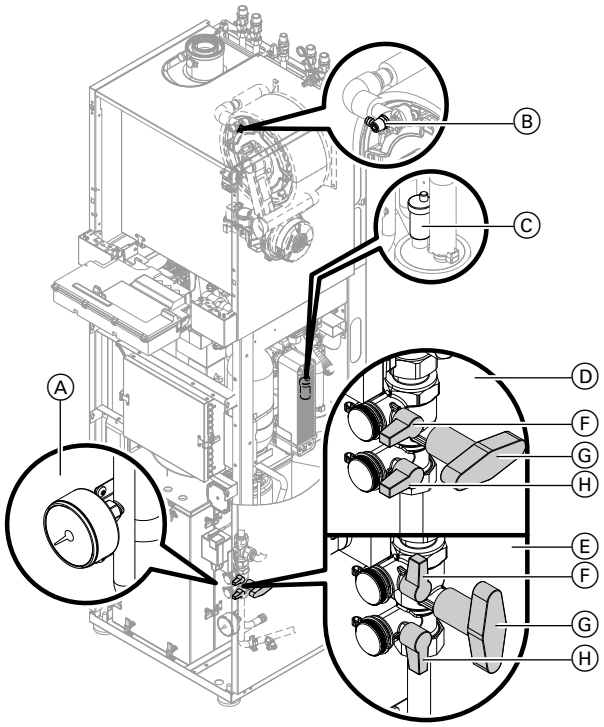

Fig. 29

Ⓐ Pressure gauge
Ⓑ Air vent valve
Ⓒ Quick-action air vent valve
Ⓓ Drain & fill valves in the "filling" position:
  Ⓕ Upper drain & fill valve open
  Ⓖ Centre shut-off valve closed
  Ⓗ Lower drain & fill valve open
Ⓔ Drain & fill valves in the "operating" position:
  Ⓕ Upper drain & fill valve closed
  Ⓖ Centre shut-off valve open
  Ⓗ Lower drain & fill valve closed

1. Close the gas shut-off valve and switch the control unit ON.
2. Check whether the air vent screw in quick-action air vent valve Ⓒ of the process circuit is open.
3. Connect the fill hose to upper drain & fill valve Ⓕ.
4. Connect one end of the drain hose to lower drain & fill valve Ⓗ and the other end to a drain outlet.
5. Set drain & fill valves to "filling" position Ⓓ.
6. Open the water tap.
7. Activate the filling and venting program (see next chapter or confirm with **OK** when running the commissioning assistant).
8. When the filling and venting program is finished, close **lower** drain & fill valve Ⓗ.
9. As soon as the required operating pressure has built up at pressure gauge Ⓐ, close **upper** drain & fill valve Ⓕ and the water tap.
   Operating pressure: 2.8 to 3.0 bar (0.28 to 0.3 MPa).

   Note
   The safety valve opens at an operating pressure of 4.0 bar (0.4 MPa).
   Take into account the increased volume and pressure caused by the heating up of the fill water during operation.
10. Open centre shut-off valve Ⓖ. Drain & fill valves are in position Ⓔ, "operation".
11. **Close** the **air vent screw** at quick-action air vent valve Ⓒ.
12. Open the gas shut-off valve.

Note
During the early weeks of operation, air dissolved in the fill water can escape, making it necessary to top up the system.
Do not flush the process circuit when topping up, as otherwise air dissolved in the water would be introduced again.
1. *Vent the fill hose and connect it to upper drain & fill valve Ⓕ.*
2. *Connect the vent hose to air vent valve Ⓑ and open the air vent valve.*
3. *Release accumulated air (but not water). Close air vent valve Ⓑ again.*
4. ***Only** open **upper** drain & fill valve Ⓕ ("filling" position Ⓓ) and top up the process circuit.*
5. *As soon as the operating pressure has built up at pressure gauge Ⓐ, close upper drain & fill valve Ⓕ and the water tap.*

Filling and venting the process circuit (cont.)

Enabling the filling and venting program for the process circuit

Note
An operating pressure of at least 2.0 bar (0.2 MPa) must be available before starting the filling and venting program.

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min.
3. **"Fill the process circuit"**
   Filling and venting program starts.
4. End the filling and venting program:
   Press **OK** or ⮌.

Filling the secondary circuit

Note
The system is equipped with hydraulic system separation. The on-site secondary circuit and the process circuit must each be filled separately.

Fill water

According to EN 1717 with DIN 1988-100, as a heat transfer medium for DHW heating, the heating water must meet fluid category ≤ 3. This requirement is met if water of potable quality is used as heating water. For example, if additives are used, the additive manufacturer must specify which category the treated heating water comes under.

Please note
Unsuitable fill water increases the level of deposits and corrosion and may lead to appliance damage.
- Flush the heating system thoroughly before filling.
- Only use fill water of potable water quality.
- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.
- Fill and top-up water with a water hardness in excess of the following values must be softened, e.g. with a small softening system for heating water.

Total permissible hardness of the fill and top-up water

Total heating output	Specific system volume		
kW	< 20 l/kW	≥ 20 l/kW to < 50 l/kW	≥ 50 l/kW
≤ 50	≤ 3.0 mol/m³ (16.8 °dH)	≤ 2.0 mol/m³ (11.2 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 50 to ≤ 200	≤ 2.0 mol/m³ (11.2 °dH)	≤ 1.5 mol/m³ (8.4 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 200 to ≤ 600	≤ 1.5 mol/m³ (8.4 °dH)	≤ 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 600	< 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)

Danger
Escaping heating water and hot steam can cause serious injury and damage the heating system.
Open flush & vent valves only when the heating system is cold.

Filling the secondary circuit (cont.)

Filling the secondary circuit

Illustration showing connection sets (accessories).

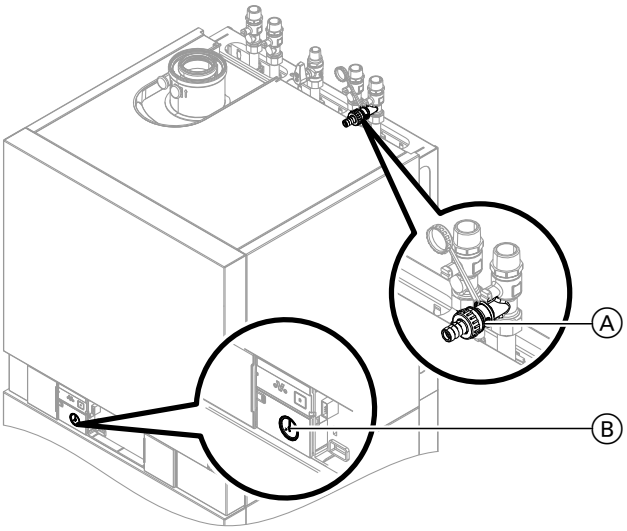

Fig. 30

1. Check the pre-charge pressure of the on-site expansion vessel and adjust if required.

2. Close the gas shut-off valve.

3. Open the shut-off valves (poss. on site) on the heating water side.

4. Fill the heating system at drain & fill valve Ⓐ in the heating return, either on the side or top of the appliance depending on the connection set.
   Check the pressure at pressure gauge Ⓑ.
   - Minimum system pressure 0.8 bar (0.08 MPa).
   - Max. permissible operating pressure 3.0 bar (0.3 MPa).
     Note
     The safety valve opens at an operating pressure of 4.0 bar (0.4 MPa).
     Take into account the increased volume and pressure caused by heating of the fill water during operation.

   Note
   During commissioning (commissioning assistant), the servomotor of the diverter valve is in a central position. The system is filled completely.

5. If the control unit was already on before filling (e.g. on subsequent filling):
   Switch control unit ON and enable filling program for secondary circuit (see next chapter).

6. Close drain & fill valve Ⓐ.

Enabling the filling function for the secondary circuit

Note
A pressure of at least 2 bar (0.2 MPa) must be present in the process circuit before the filling function can be started.

Service menu
1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min
3. **"Fill the secondary circuit"**
   Filling function is enabled.
4. End the filling function:
   Press **OK** or ⮌.

Venting the secondary circuit

⚠ **Danger**
Escaping heating water and hot steam can cause serious injury and damage the heating system.
Open flush & vent valves only when the heating system is cold.

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Venting the secondary circuit (cont.)

Venting the secondary circuit

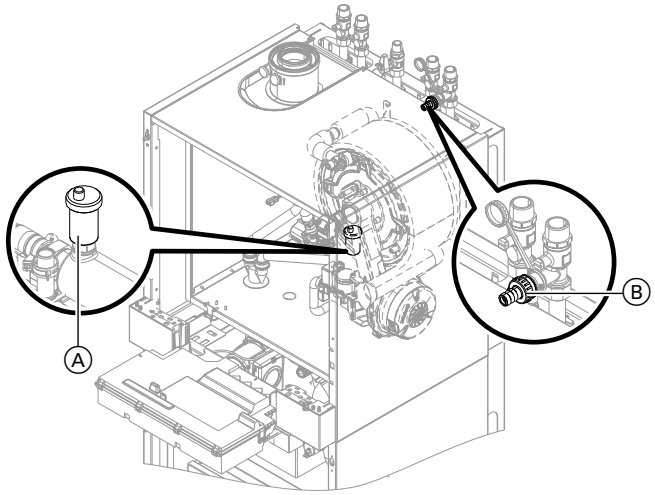


Fig. 31

1. Close the gas shut-off valve and switch the control unit ON.
2. Check whether the air vent screw in quick-action air vent valve Ⓐ of the secondary circuit is open.
3. Open flush & vent valve Ⓑ.
4. Activate the venting program (see next chapter).

   Note
   For function and sequence of the venting program, see page 145.
5. Close flush & vent valve Ⓑ.
6. Check the system pressure.
7. Open the gas shut-off valve.

Note
If flow noises or faults occur during operation, the heating system can be vented again by means of the filling and venting program.

Enabling the venting function for the secondary circuit

Note
A pressure of at least 2 bar (0.2 MPa) must be present in the process circuit before the venting function can be started.

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min
3. **"Vent the secondary circuit"**
   Venting function is enabled.
4. End the venting function:
   Press **OK** or ⮌.

Setting the maximum heating output

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

Note
A system pressure of at least 2 bar (0.2 MPa) must be present in the process circuit before the max. heating output can be set.

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min.
3. **"Max. output"**
4. **"Change?"** Select **"Yes"**.
   A value is shown on the display (e.g. **"65"**). In the delivered condition, this value represents 100 % of rated heating output.
5. Set the required value.

Checking all connections on the heating and cylinder sides for leaks

Naming the heating circuits

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

Enter names for heating circuits:
Operating instructions

Checking the gas type

The appliance 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 appliance can be operated in a Wobbe index range of 9.5 to 15.2 kWh/m³ (34.2 to 54.7 MJ/m³).
- For operation with LPG, the burner must be converted (see "Gas type conversion" on page 46).

1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. For operation with LPG, convert the burner (see page 46).
3. Record the gas type in the report on page 155.

Converting the gas type (only for operation with LPG)

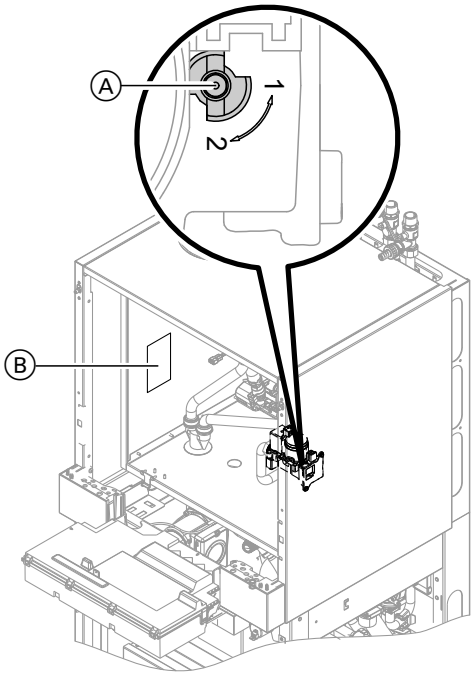


Fig. 32

1. Set adjusting screw Ⓐ on the gas train to "2".
2. Turn the ON/OFF switch ⏻ on.
3. Select the gas type in coding address "82":
   - Calling up code 2
   - **"General"**
   - Select coding address "11" and set value "9". Confirm with **OK**. The display shows "11:0".
     Note
     Setting the code to "11:9" results in the process circuit being cooled. This can take approx. 20 min. Only then is coding address "82" visible.
   - Select coding address "82" and set value "1" (operation with LPG). Confirm with **OK**.
   - Select coding address "11" and set value "8". Confirm with **OK**. The display shows "11:0".
   - End service functions.
4. Open the gas shut-off valve.
5. Affix label "G31" (enclosed with the technical documentation) next to type plate Ⓑ.

Information on automatic testing of the flue gas temperature sensor

When the first heat demand is received after the commissioning assistant has been closed, the control unit automatically checks the function of the flue gas temperature sensor.
The display shows: **"Test flue gas temp. sensor"** and **"Active"**.

Note
If the flue gas temperature sensor is positioned incorrectly (see page 103), commissioning is cancelled and fault message A3 is displayed (see page 108).

Testing the static and supply pressure

Danger
CO formation as a result of incorrect burner adjustment can have serious health implications. Always carry out a CO test before and after work on gas appliances.

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

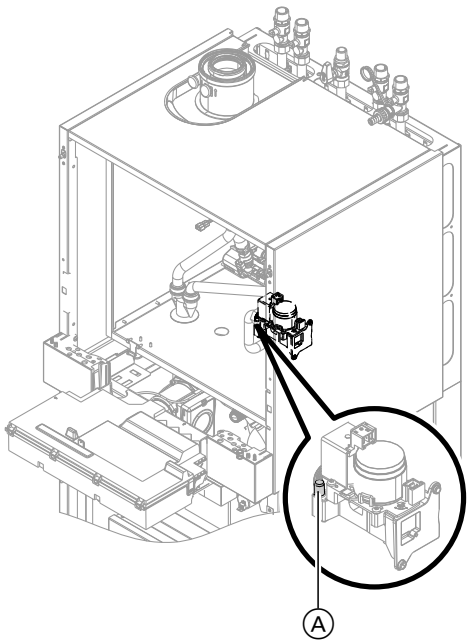


Fig. 33

1. Close the gas shut-off valve.

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

3. Open the gas shut-off valve.

4. Check the static pressure and record the actual value in the report on page 155.
   Set value: max. 57.5 mbar (5.75 kPa).

5. Commission the appliance.

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

6. Check the supply (flow) pressure.

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

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

7. Record the actual value in the report on page 155. Implement measures as indicated in the table below.

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

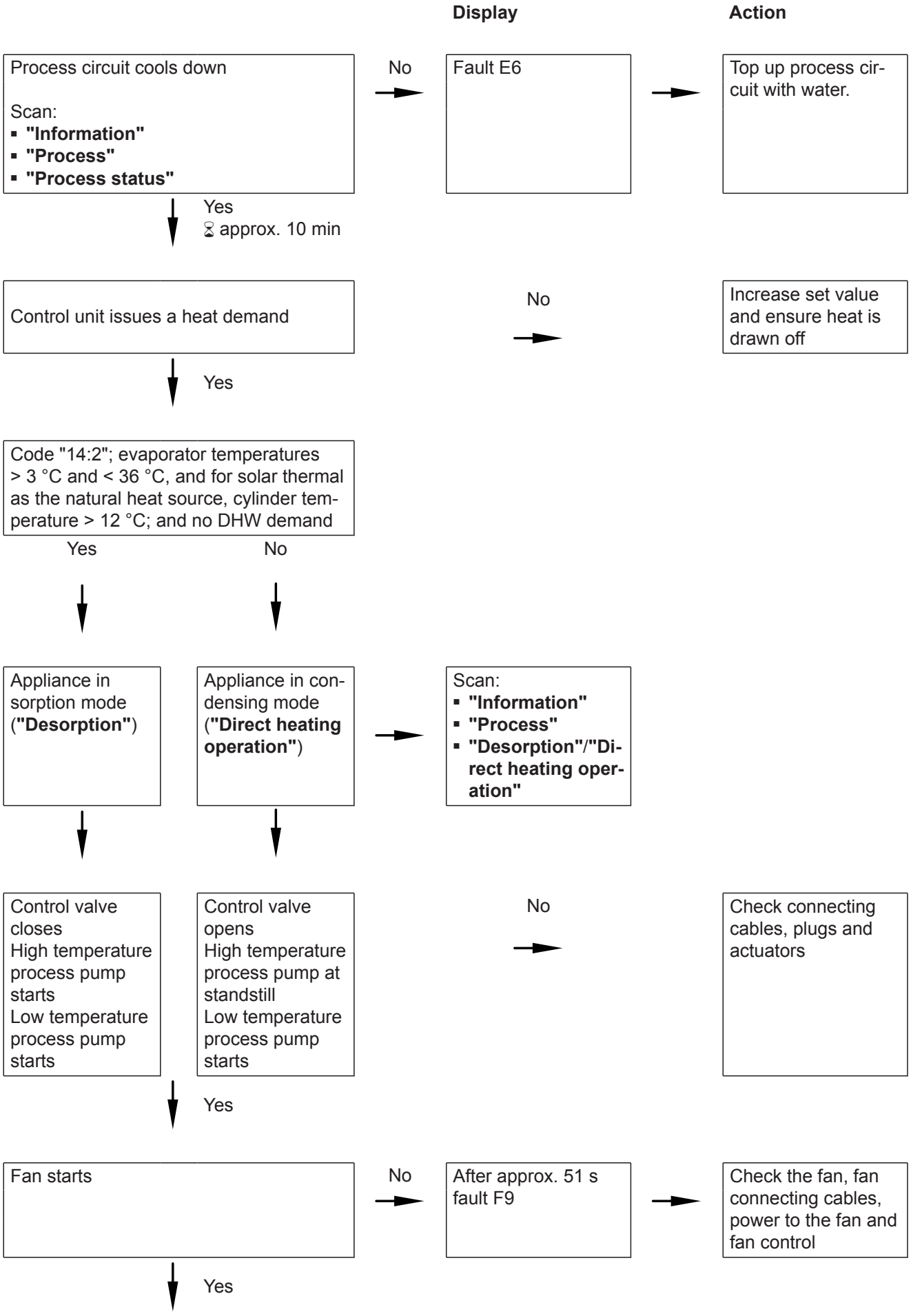
9. Open the gas shut-off valve and start the appliance.

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

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

Supply pressure (flow pressure)		Steps
For natural gas	**For LPG**	
Below 17.0 mbar (1.7 kPa)	Below 25.0 mbar (2.5 kPa)	Do not commission the boiler. Notify your gas supply utility or LPG supplier.
17.0 to 30.0 mbar (1.7 to 3.0 kPa)	25.0 to 57.5 mbar (2.5 to 5.75 kPa)	Commission the appliance.
Above 30.0 mbar (3.0 kPa)	Above 57.5 mbar (5.75 kPa)	Connect a separate gas pressure governor upstream of the system and regulate the pre-charge pressure to 20 mbar (2.0 kPa) for natural gas or 50 mbar (5.0 kPa) for LPG. Notify your gas supply utility or LPG supplier.

Function sequence and possible faults



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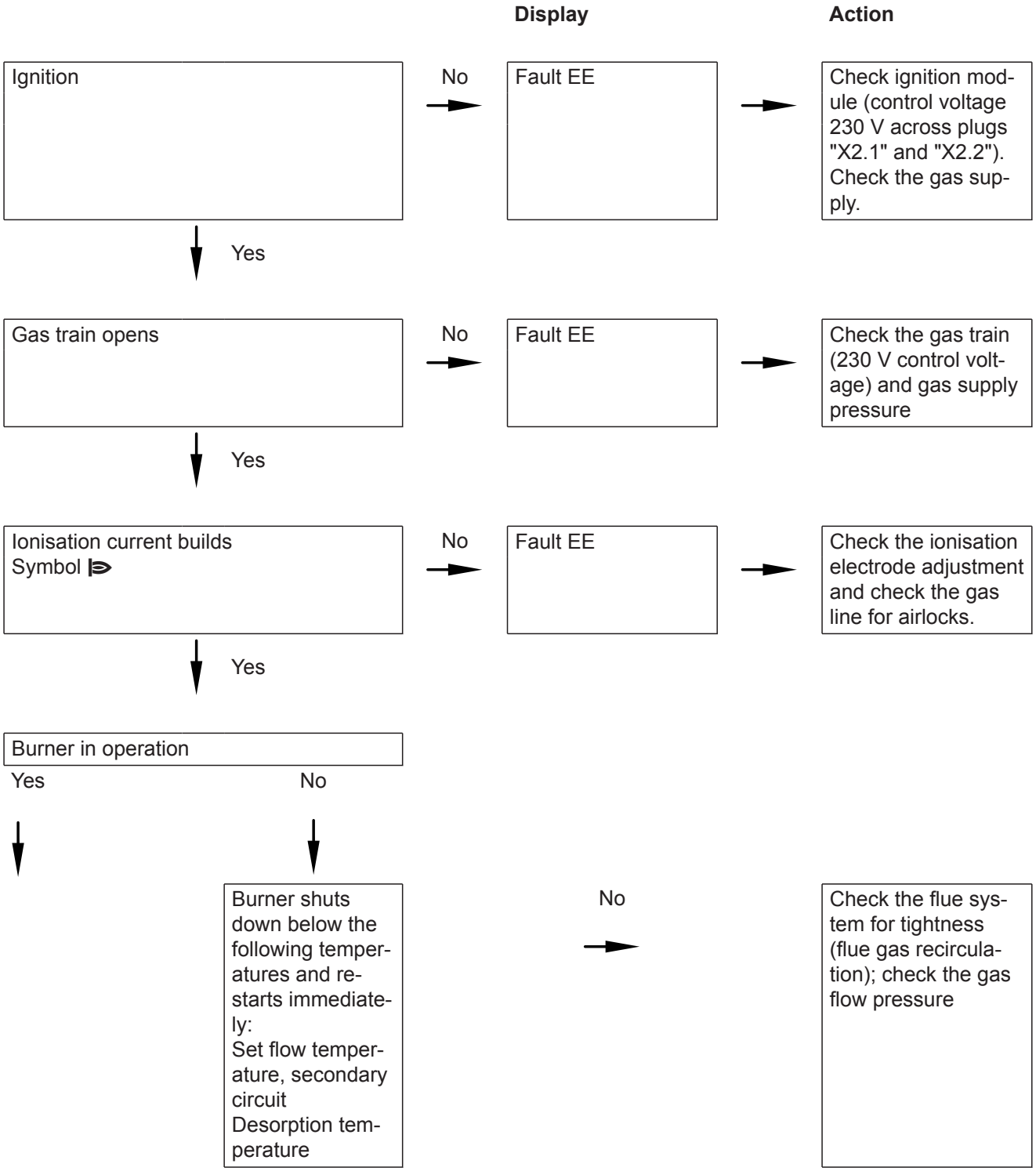
Function sequence and possible faults (cont.)



Function sequence and possible faults (cont.)

		Display	Action
Automatic calibration of the combustion controller	No →	Fault E3	→ Ensure adequate heat transfer. Press reset button **R**.
		Fault Eb	→ Check gap between ionisation electrode and burner gauze assembly. Check allocation of gas type (coding address 82, gas train setting). Check flue system; remove flue gas recirculation if required. Press reset button **R**.

For further details regarding faults, see page 91.

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

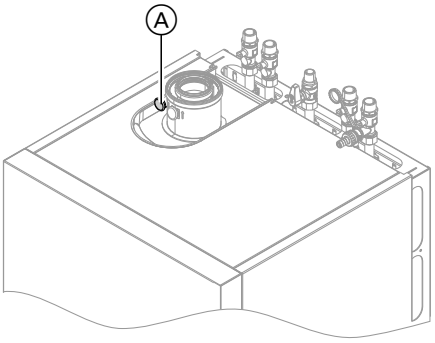


Fig. 34

Ⓐ Combustion air aperture (ventilation air)

For balanced flue systems tested together with the heat source, there is no requirement for a tightness test (overpressure test) during commissioning by the flue gas inspector.

In this case, we recommend that your heating contractor carries out a simple tightness test during the commissioning of your system. For this it would be sufficient to check the CO_2 or O_2 concentration in the combustion air at the annular gap of the balanced flue pipe.
If the CO_2 concentration is less than 0.2 % or the O_2 concentration is greater than 20.6 %, the flue pipe is deemed to be sufficiently gas tight.
If actual CO_2 values are higher or actual O_2 values are lower, a pressure test with a static pressure of 200 Pa will need to be carried out on the flue pipe.

Replacing the desiccant bag

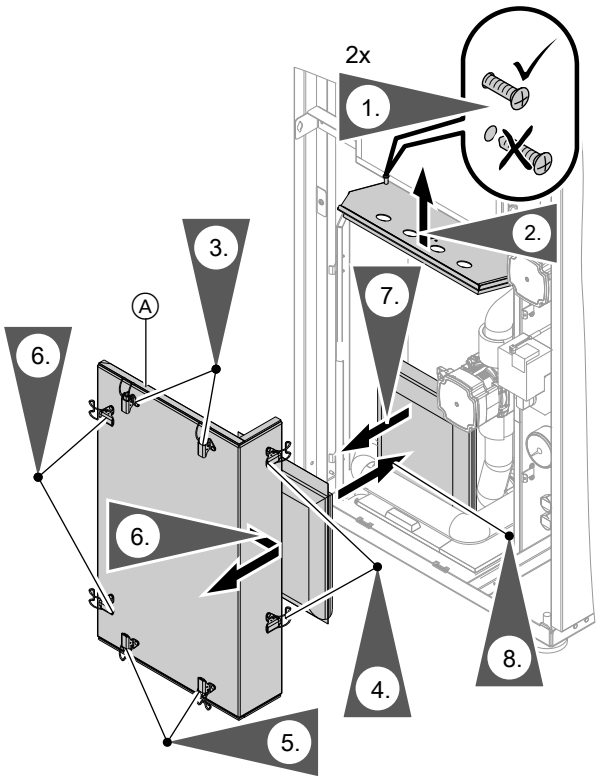


Fig. 35

The colder components of the sorption module are separated from the ambient air by cover panels. The moisture present in the ambient air cannot condense on the cold components.

Inside the sealed section, there is a desiccant bag that absorbs moisture from the enclosed air.

- Replace the desiccant bag at every service, at least once a year.
- Operate the appliance only with the desiccant bag and cover panels in place.

Please note
Any damage to sealing tape Ⓐ means the evaporator unit is not tightly sealed which will lead to corrosion of the components within it.

- Remove the sorption module cover panel only for service purposes and do so carefully.
- Before fitting the cover panel, check complete length of sealing tape Ⓐ for damage and replace if required.
- Fit the cover panel carefully, ensuring a perfect fit.

Removing the burner

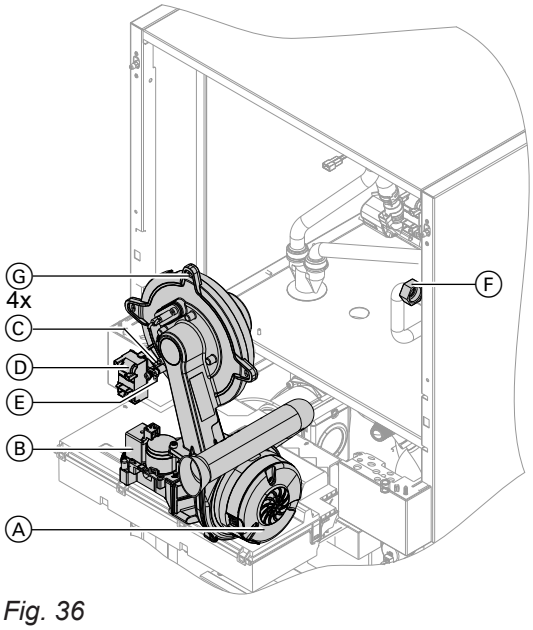


Fig. 36

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

Please note
Damage to the burner gauze assembly can lead to burner malfunction.
Never rest the burner on the burner gauze assembly.

Checking the burner gasket and burner gauze assembly

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

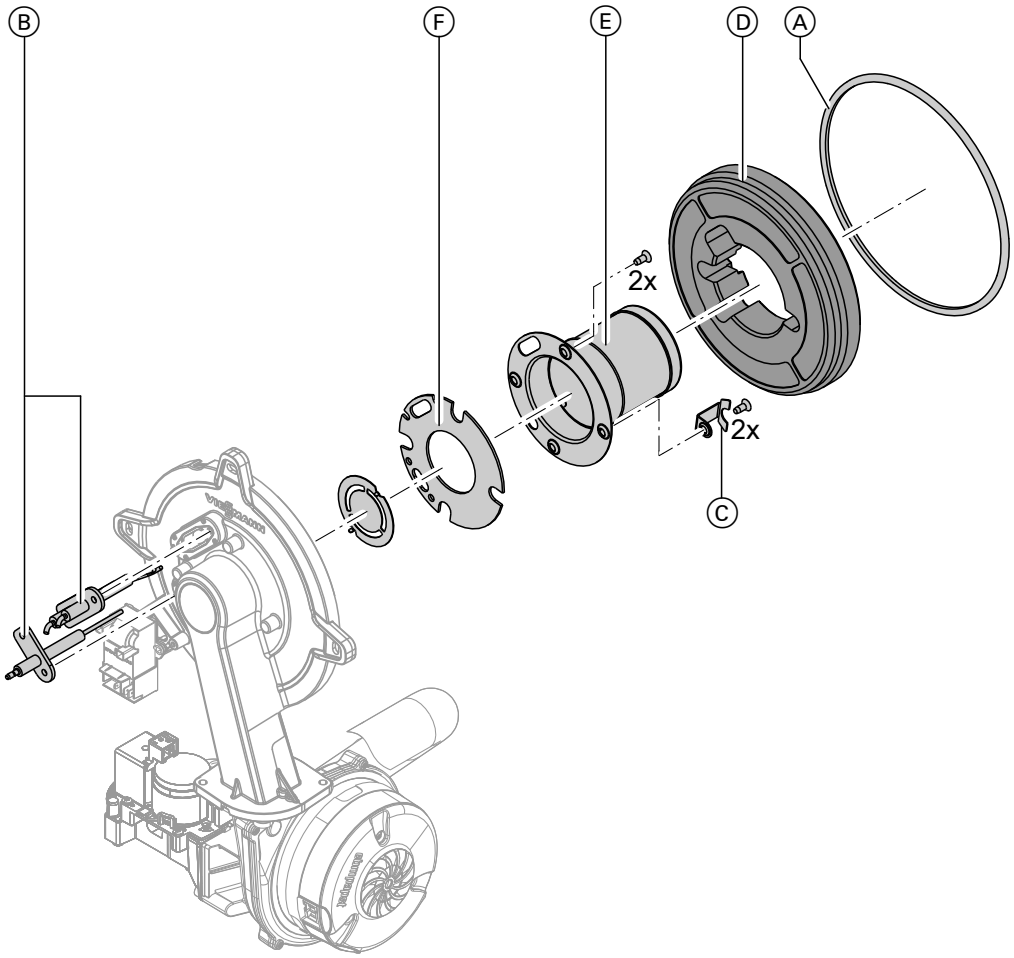


Fig. 37

1. Remove electrodes Ⓑ.
2. Undo 2 retaining clips Ⓒ on thermal insulation ring Ⓓ and then remove thermal insulation ring Ⓓ.
3. Undo 2 Torx screws and remove burner gauze assembly Ⓔ with gasket Ⓕ.
4. Insert new burner gauze assembly Ⓔ with new gasket Ⓕ and secure.
   Torque: 5.0 Nm.
5. Fit thermal insulation ring Ⓓ.
6. Fit electrodes Ⓑ.
   Torque: 4.5 Nm.

Checking and adjusting the ignition and ionisation electrodes

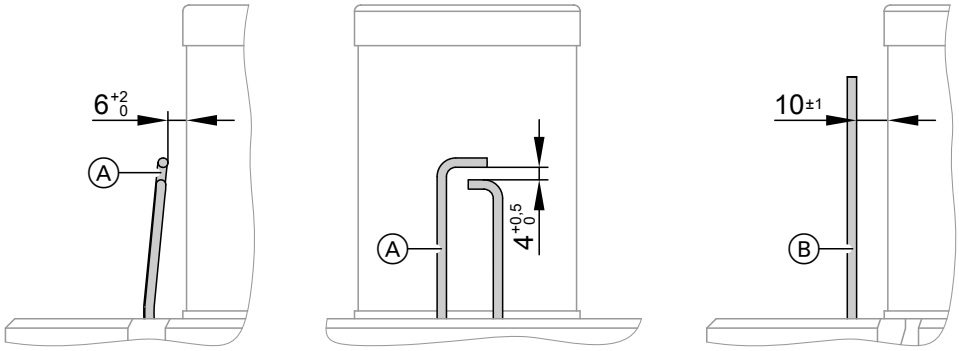


Fig. 38

Ⓐ Ignition electrodes
Ⓑ Ionisation electrode

1. Check the electrodes for wear and contamination.
2. Clean the electrodes with a small brush (not with a wire brush) or sandpaper.
3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace the electrodes together with new gaskets and adjust them as required. Tighten the electrode fixing screws with 4.5 Nm.

Cleaning the heat exchanger heating surfaces

To safeguard the 10 year guarantee for the heat exchanger, we recommend annual cleaning of both heat exchangers (see "General Terms & Conditions" and "Maintenance Checklist").
The flue gas heat exchanger is usually significantly cleaner than the burner heat exchanger. Consequently, the flue gas heat exchanger will need cleaning only to the extent required by the contamination level of the heating surfaces.

! **Please note**
Scratches and other damage to the surfaces of the heat exchanger that comes into contact with hot gas can result in corrosion damage.
Never use brushes to clean the heating surfaces.
Brushing can cause deposits to become lodged in the gaps between the coils.

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

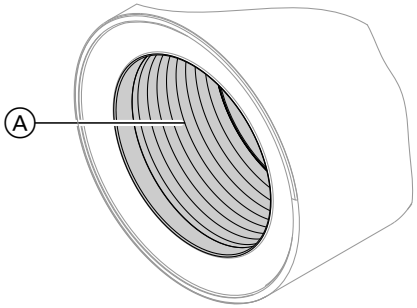


Fig. 39

1. Use a vacuum cleaner to remove residues from heating surfaces Ⓐ inside the heat exchanger.
2. If required, flush heating surfaces Ⓐ with water.
3. Check condensate drain and clean trap. See the following chapter.

Removing the flue gas heat exchanger

Checking the heating surface contamination level
Steps 4 to 6 are not required for visual inspection. The hydraulic lines can remain connected.
Carefully pull the flue gas heat exchanger forwards.

Removing the flue gas heat exchanger
Drain the secondary circuit before removing the flue gas heat exchanger.

Cleaning the heat exchanger heating surfaces (cont.)

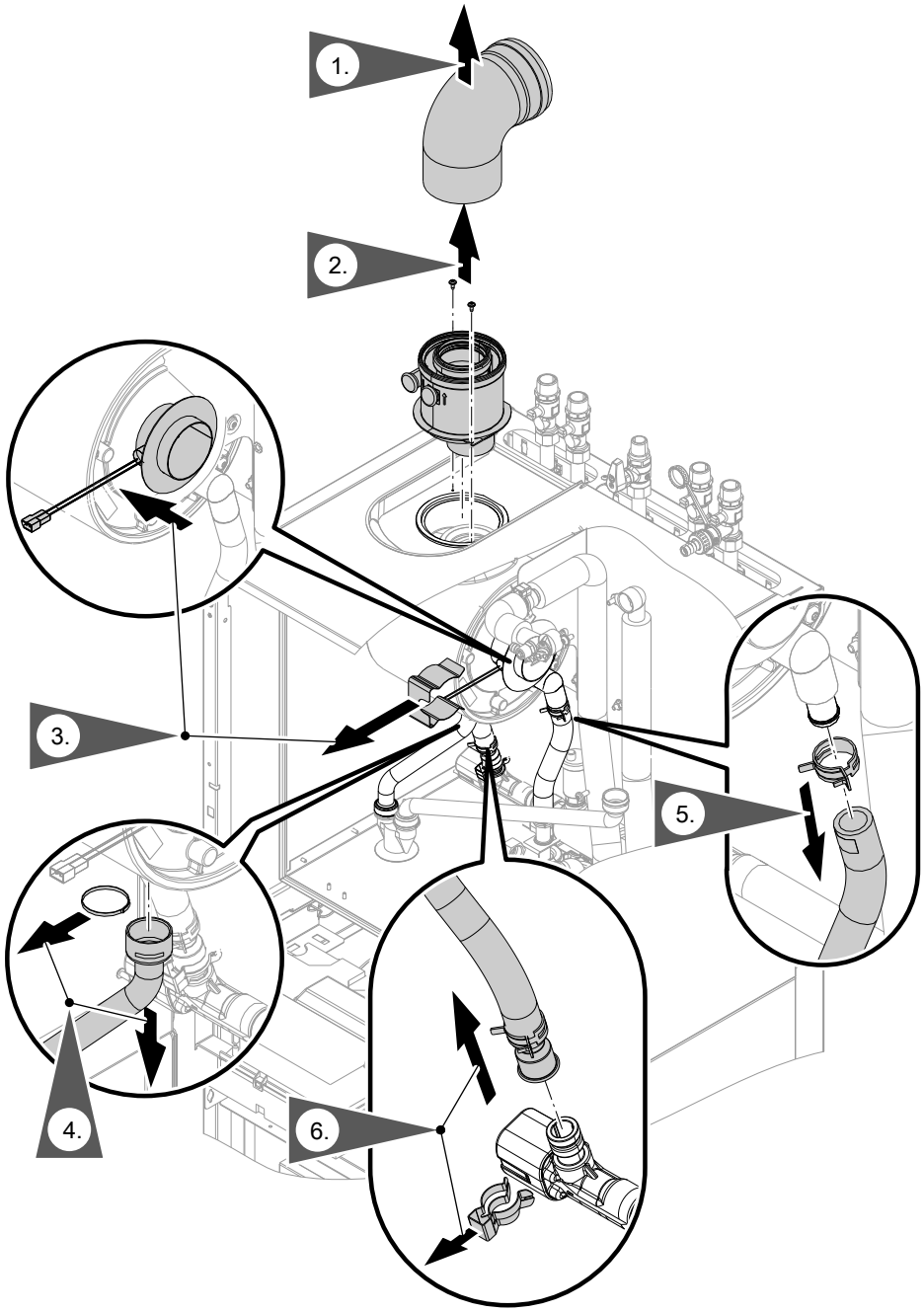


Fig. 40

Cleaning the heat exchanger heating surfaces (cont.)

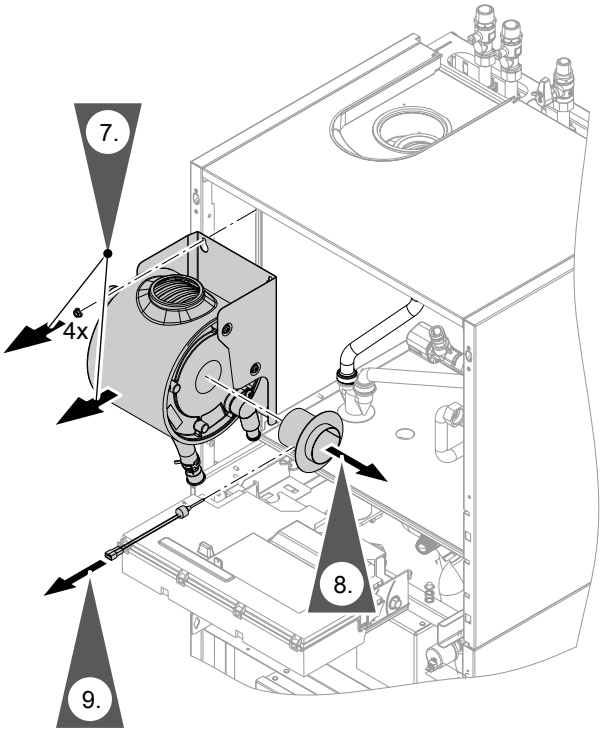


Fig. 41

10. Clean the heating surfaces of the flue gas heat exchanger.

11. Reinstall the flue gas heat exchanger in reverse order. At the same time, ensure that the flue gas temperature sensor is pointing forwards.
Torque for nuts: 5 Nm

Checking the condensate drain and cleaning the trap

Danger
Contact with condensate can be harmful to health.
Never let condensate touch your skin or eyes and do not swallow it.
Wear personal protective equipment.

Checking the condensate drain and cleaning the… (cont.)

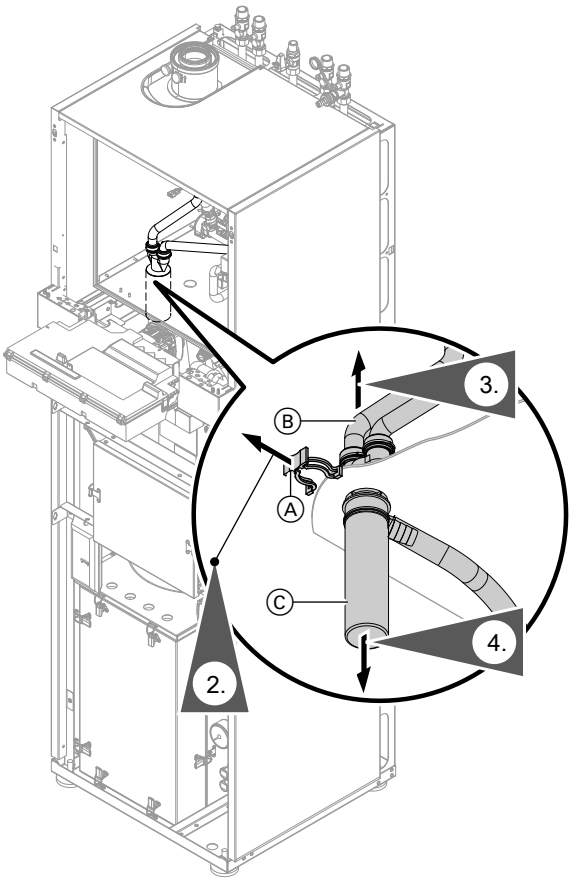


Fig. 42

Ⓑ Filler pipe

1. Check at the trap that the condensate can drain freely.

5. Remove the condensate hoses from lute Ⓒ.

6. Clean the trap.

7. Fill siphon with water and reassemble with retaining clip Ⓐ.

8. Check that the condensate hoses are connected correctly to the siphon and heat exchangers.

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

Installing the burner

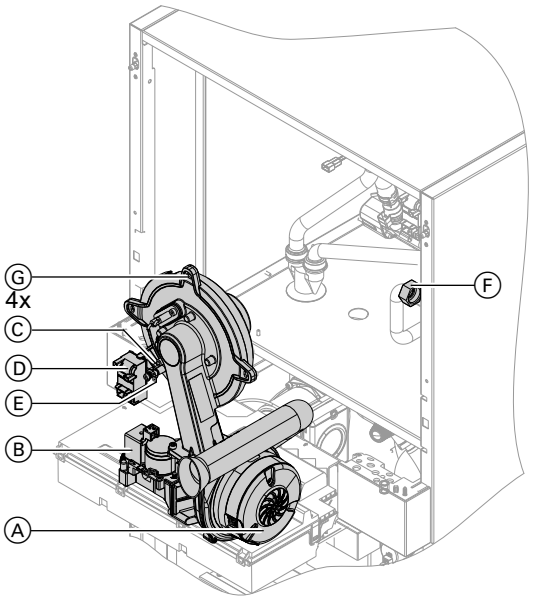


Fig. 43

1. Insert the burner and tighten screws Ⓖ crosswise. Torque: 8.5 Nm

2. Fit gas supply pipe Ⓕ with a new gasket. Torque: 30 Nm

3. Check gas connections for tightness.

   ⚠ **Danger**
   Escaping gas leads to a risk of explosion. Check the fitting for gas tightness.

4. Connect the electrical cables/leads:
   - Fan motor Ⓐ
   - Ionisation electrode Ⓒ
   - Gas train Ⓑ
   - Ignition unit Ⓓ
   - Earth Ⓔ

Checking the neutralising system (if installed)

Checking the expansion vessel and process circuit pressure

Note
Carry out this test on a cold system.

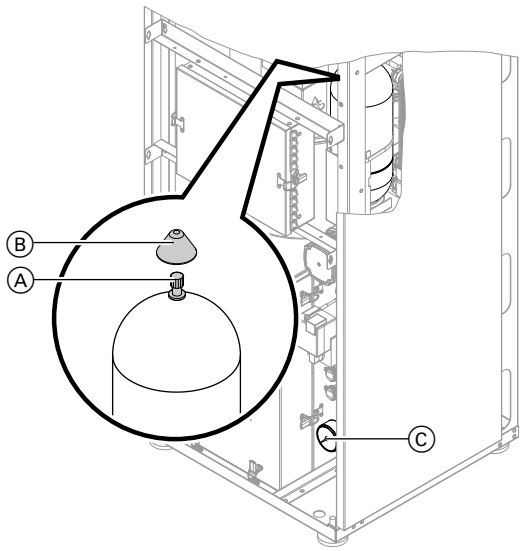


Fig. 44

1. Remove cap Ⓑ from the expansion vessel. Drain the process circuit until pressure gauge Ⓒ indicates "0".
2. Top up with nitrogen at connection Ⓐ until the pre-charge pressure is $1.7^{\pm 0.25}$ bar ($170^{\pm 25}$ kPa).
3. Fill the process circuit with suitable water and purge; see page 41.
   Operating pressure: 2.8 to 3.0 bar (0.28 to 0.3 MPa).

   Note
   - *Observe the safety valve tolerance of ±10 %.*
   - *Take into account the increased volume and pressure caused by heating of the fill water during operation.*

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 leak detection agent residues 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, measure the CO content and the CO_2 or O_2 content. For a description of the electronic combustion controller functions, see page 149.

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

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

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

Checking the combustion quality (cont.)

If the actual CO_2 or O_2 values lie outside their respective ranges, proceed as follows:
- Check the balanced flue system for tightness; see page 50.
- Check the ionisation electrode and connecting cable; see page 53.

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

1. Connect a flue gas analyser at flue gas port Ⓐ on the boiler flue connection.

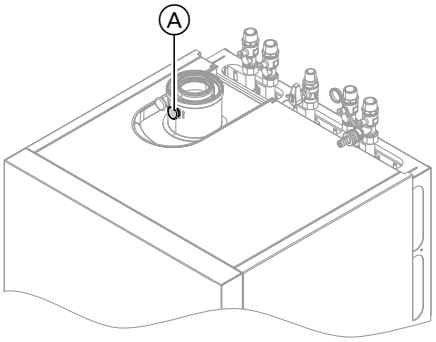


Fig. 45

2. Open the gas shut-off valve, start the appliance and create a heat demand.
3. Select the lower heating output (see following chapter).
4. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement steps detailed on page 58.
5. Enter the actual value into the report.
6. Select the upper heating output (see following chapter).
7. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement steps detailed on page 58.
8. After testing, press **OK**.
9. Enter the actual value into the report.

Selecting the upper/lower heating output

Service menu
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min
3. **"Actuator test"**
4. Select the lower heating output:
   Select **"Base load OFF"**. Then **"Base load ON"** appears and the burner operates at its lower heating output.
5. Select the upper heating output:
   Select **"Full load OFF"**. Then **"Full load ON"** appears and the burner operates at its upper heating output.
6. End output selection:
   Press ⮌.

Checking the flue system for unrestricted flow and tightness

Checking the flue gas routing

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.

- To do this, select the applicable system scheme.
  "System examples"
- Set the codes according to the accessories fitted:
  Accessories installation and service instructions

Note

Various system components are recognised automatically by the control unit and the relevant codes are set automatically.
For individual coding steps, see page 63.

Adjusting heating curves

The heating curves represent the relationship between the outside temperature and the flow temperature.
Simplified: the lower the outside temperature, the higher the flow temperature
The flow temperature in turn affects the room temperature.

Settings in the delivered condition:

- Slope = 0.8
- Level = 0

Note

If the heating system includes heating circuits with mixer, then the flow temperature of the heating circuit without mixer is higher by a selected differential (4 K in the delivered condition) than the flow temperature of the heating circuits with mixer.
The differential temperature is adjustable via coding address "9F" in the ***"General"*** *group.*

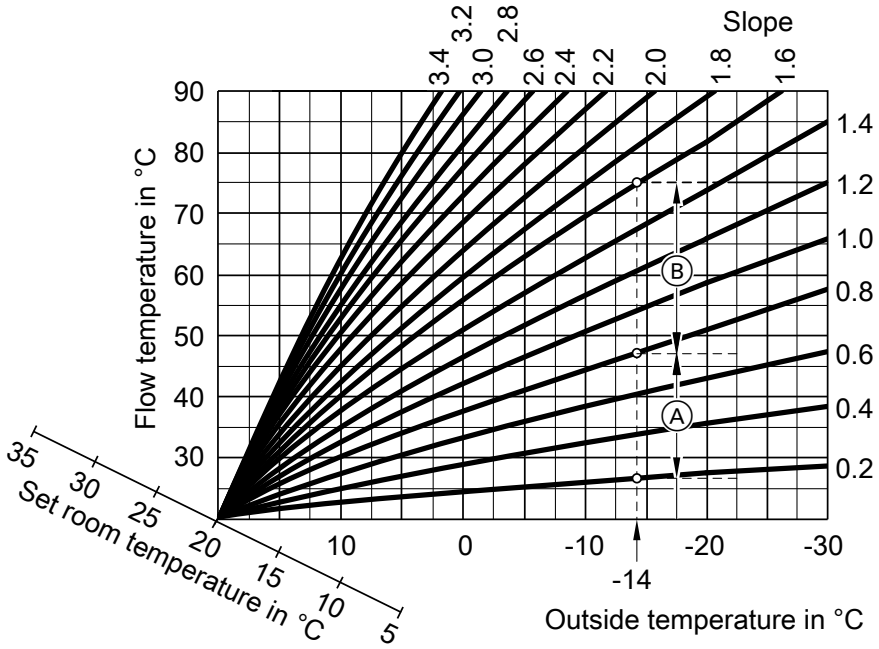


Fig. 46

Slope setting ranges:
Ⓐ Underfloor heating system: 0.2 to 0.8
Ⓑ Low temperature heating system: 0.8 to 1.6

Setting the set room temperature

Individually adjustable for each heating circuit.
The heating curve is offset along the set room temperature axis. With the heating circuit pump logic function enabled, the curve modifies the start and stop characteristics of the heating circuit pump.

Adjusting heating curves (cont.)

Standard set room temperature

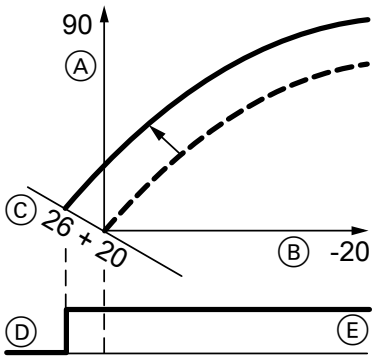


Fig. 47 Example 1: Adjusting the standard set room temperature from 20 to 26 °C

Ⓐ Flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Changing the standard set room temperature

Operating instructions

Reduced set room temperature

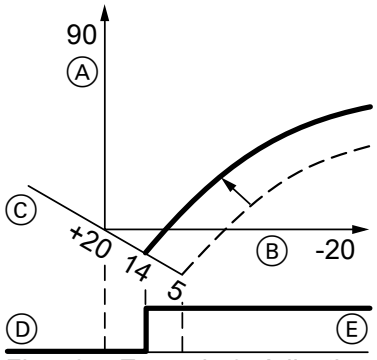


Fig. 48 Example 2: Adjusting the reduced set room temperature from 5 °C to 14 °C

Ⓐ Flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Changing the reduced set room temperature

Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit

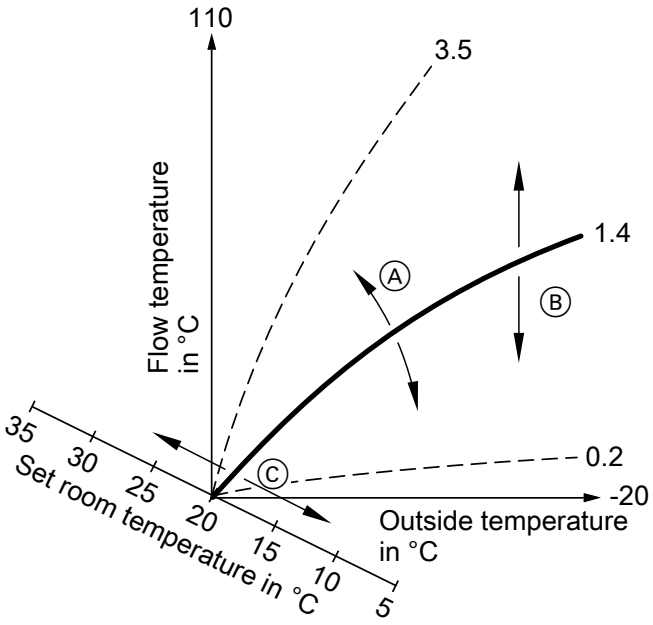


Fig. 49

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

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

Connecting the control unit to LON

The LON communication module must be plugged in (if installed as an accessory, see the LON communication module installation instructions).

Note
The data transfer via LON can take several minutes.

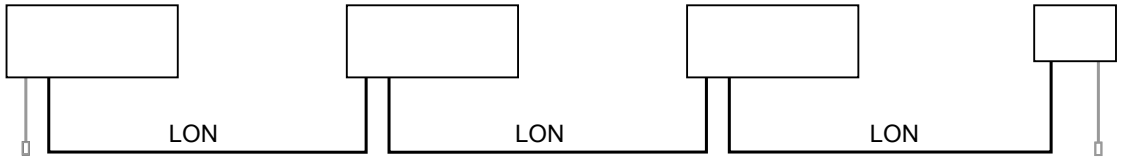
Example: Single boiler system with Vitotronic 200-H and Vitocom 200

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

Connecting the control unit to LON (cont.)

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	Vitocom
			
Subscriber no. 1 Code "77:1"	Subscriber no. 10 Code "77:10"	Subscriber no. 11 **Set** code "77:11".	Subscriber no. 99
Control unit is fault manager. Code "79:1"	Control unit is not fault manager. Code "79:0"	Control unit is not fault manager. Code "79:0"	Device is fault manager.
Control unit transmits the time. Code "7b:1"	Control unit receives the time. **Set** code "81:3".	Control unit receives the time. **Set** code "81:3".	Device receives the time.
Control unit sends 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 tested subscribers are designated with **"OK"**.
- Unsuccessfully tested 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.*

Scanning and resetting the "Service" display

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

Acknowledging and resetting service

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

Scanning and resetting the "Service" display (cont.)

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

After a service has been carried out (resetting service)

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

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

Fitting the cover panel and front panels

- Fit the cover panel; see position Ⓐ in the diagram on page 42.
- Mount the front panels; see page 34.

Instructing the system user

The system installer should hand the operating instructions to the system user and instruct the user in operating the system.
This includes all components installed as accessories, e.g. remote control units. In addition, the system installer must make the user aware of the required maintenance work.
The system installer must attach the additional type plate to the outside of the appliance in a position visible to the flue gas inspector. See page 26.
The attachment point must be agreed beforehand with the system user.

Calling up coding level 1

- Codes are displayed as plain text.
- Codes that have no function, either due to the system equipment level or due to the setting of other codes, are not displayed.
- Heating systems with 1 heating circuit without mixer and 1 or 2 heating circuits with mixer:
  In the following, the heating circuit without mixer is referred to as **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** and **"Heating circuit 3"**.
  If the heating circuits have been given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

The codes are divided into groups:
- **"General"**
- **"Boiler"**
- **"Process"**
- **"DHW"**
- **"Solar"**
- **"Heating circuit ..."**
- **"All codes std device"**
  In this group, all coding addresses from coding level 1 are displayed in ascending order.
  Note
  *The coding addresses in the **"Solar"** and **"Process"** groups are not shown.*
- **"Standard setting"**

Service menu:
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Coding level 1"**
3. ▲/▼ for the group of the required coding address
4. ▲/▼ for the required coding address
5. ▲/▼ for the required value in line with the tables below

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

Resetting all codes to their delivered condition (reset)

Select **"Standard setting"** in coding level 1.

Note
This also resets codes at coding level 2.

Codes for sorption mode and natural heat source in the "Process" group:
A reset causes sorption mode to be deactivated (code "14:0") and the natural heat source selection (code "1A:0") to be reset. The codes must be re-entered.

"General"

Select **"General"** (see page 63).

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

"General" (cont.)

Value, address 00: ...	Description
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)

Coding in the delivered condition		Possible change	
Subscriber no.			
77:1	LON subscriber number	77:2 to 77:99	LON subscriber number adjustable from 1 to 99: 1 = heat source 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom ***Note*** *Allocate each number **only** once.*
Detached house/apartment building			
7F:1	Detached house	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately
Lock out controls			
8F:0	Operation enabled in standard menu and extended menu. ***Note*** *The relevant code is only enabled when you exit the service menu.*	8F:1	Operation locked out in standard menu **and** extended menu. Emissions test mode can be enabled.
		8F:2	Operation enabled in standard menu, but locked out in extended menu. Emissions test mode can be enabled.
Set flow temperature for external demand			
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by appliance-specific parameters)

"Boiler"

Select **"Boiler"** (see page 63).

Coding

Coding in the delivered condition		Possible change	
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	Time 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 coding address is set automatically and must be reset manually after a service.
Filling/Venting			
2F:0	Secondary circuit: Venting program/filling program not active	2F:1	Venting program active
		2F:2	Filling program active

"Process"

Select **"Process"** (see page 63).

Coding

Coding in the delivered condition		Possible change	
Enable sorption operation			
14:0	Only condensing operation enabled	14:1	Only sorption operation enabled
		14:2	Condensing operation and sorption operation enabled
Heat source			
1A:1	Solar thermal	1A:0	Geothermal probe

"DHW"

Select **"DHW"** (see page 63).

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. The heat generator starts as backup if the rise in the cylinder temperature is insufficient.	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by appliance-specific parameters)
Enable DHW circulation pump			
73:0	DHW circulation pump: "ON" according to time program	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"

Select **"Solar"** (see page 63).

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 ≙ 0.1 l/min.

"Solar" (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"

Select **"Heating circuit ..."** (see page 63).

Coding

Coding in the delivered condition		Possible change	
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump is "OFF" when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) $OT > RT_{set} + 1\ K$	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: heating circuit pump "OFF" (see the following table)

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

"Heating circuit" (cont.)

Coding in the delivered condition		Possible change	
Extended economy function adjusted outside temperature			
A6:36	Extended economy mode **not** active	A6:5 to A6:35	Extended economy mode active, i.e. the burner and heating circuit pump are switched off at a variable value, adjustable from 5 to 35 °C plus 1 °C. Mixer is being 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.
Extended economy function mixer			
A7:0	Without mixer economy function (only for heating circuit with mixer)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ▪ If the mixer has been trying to close for longer than 20 min. Heating circuit pump "ON": ▪ If the mixer changes to control function ▪ If there is a risk of frost
Pump idle time, transition reduced mode			
A9:7	With pump idle time: heating circuit pump "OFF" if set value is modified by changing the operating mode or changing the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15: 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 change the code 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. Change code only for the heating circuit with mixer.	b5:1 to b5:8	For heating circuit pump logic function, see the following table:

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

"Heating circuit" (cont.)

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

Coding in the delivered condition		Possible change	
Min. flow temperature heating circuit			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by appliance-specific parameters)
Max. flow temperature heating circuit			
C6:74	Electronic maximum flow temperature limit set to 74 °C	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by appliance-specific parameters)
Heating program changeover			
d5:0	External operating program changeover switches the operating program to "Constant operation at reduced room temperature" or "Standby mode"	d5:1	The external operating program changeover switches to "Constant operation at standard room temperature" (subject to coding address 3A, 3b and 3C)
Ext. heating 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:...	Only for heating systems without a heating circuit with mixer: Maximum speed of the variable speed secondary pump as a % of the max. speed in standard mode. Value is determined by appliance-specific parameters.	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %
Min. pump speed			
E7:50	Only for heating systems without a heating circuit with mixer: Minimum speed of the variable speed secondary pump: 50 % of the max. speed	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of maximum speed
Screed drying			
F1:0	Screed drying not active	F1:1 to F1:6	Screed drying adjustable with choice of 6 temperature/time profiles (see page 145)
		F1:15	Constant flow temperature 20 °C

"Heating circuit" (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[*1]	F2:0	No time limit for party mode[*1]
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*1]
Start temperature raising			
F8:–5	Temperature limit for terminating reduced mode –5 °C; see example on page 147. Observe setting for coding address "A3".	F8:+10 to F8:–60	Temperature limit adjustable from +10 to –60 °C
		F8:–61	Function disabled
End temperature raising			
F9:–14	Temperature limit for raising the reduced set room temperature –14 °C; see example on page 147.	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	Set flow temperature increased by 20 % when changing from operation at reduced room temperature to operation at standard room temperature. See example on page 147.	FA:0 to FA:50	Temperature increase adjustable from 0 to 50 %
Duration set flow temperature increase			
Fb:60	Duration of the increased set flow temperature (see coding address "FA") is 60 min. See example on page 147.	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

- At coding level 2, all codes are accessible, including the codes at coding level 1.
- Codes that have no function, either due to the system equipment level or due to the setting of other codes, are not displayed.
- Heating systems with 1 heating circuit without mixer and 1 or 2 heating circuits with mixer:
  In the following, the heating circuit without mixer is referred to as **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** and **"Heating circuit 3"**.
  If the heating circuits have been given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.
- For code groups, see page 63.

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. ▲/▼ for the group of the required coding address
5. ▲/▼ for the required coding address
6. ▲/▼ for the required value in line with the tables below

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

Resetting all codes to their delivered condition (reset)

Select **"Standard setting"** in coding level 2.

Note
This also resets codes at coding level 1.

Codes for sorption mode and natural heat source in the "Process" group:
A reset causes sorption mode to be deactivated (code "14:0") and the natural heat source selection (code "1A:0") to be reset. The codes must be re-entered.

"General"

Select **"General"** (see page 71).

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:

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

"General" (cont.)

Value, address 00: ...	Description
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)

Coding in the delivered condition		Possible change	
11:0	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 ***Note*** *Setting the code to "11:9" results in the process circuit being cooled. This can take approx. 20 min. Only then is coding address "82" visible.*
2A:0	Without wireless outside temperature sensor	2A:1	With wireless outside temperature sensor (automatic recognition)
		2A:2	Wireless outside temperature sensor not used
2d:1	Never adjust		
32:0	Without AM1 extension	32:1	With AM1 extension (automatic recognition)
33:1	Function of output A1 at AM1 extension: external heating circuit pump (A1/HC1)	33:0	Function of output A1: DHW circulation pump
		33:2	Function of output A1: external circulation pump for cylinder heating
34:0	Function of output A2 at AM1 extension: DHW circulation pump	34:1	Function of output A2: external heating circuit pump (A1/HC1)
		34:2	Function of output A2: external 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
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 Set flow temperature setting: coding address 9b Internal circulation pump function: coding address 3F
		3A:3	Function of input DE1: external blocking Internal circulation pump function: coding address 3E
		3A:4	Function of input DE1: external blocking with fault message input

"General" (cont.)

Coding in the delivered condition		Possible change	
			Internal circulation pump function: coding address 3E
		3A:5	Function of input DE1: fault message input
		3A:6	Function of input DE1: brief operation of the DHW circulation pump (pushbutton function). DHW circulation pump runtime setting: 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 Set flow temperature setting: coding address 9b Internal circulation pump function: coding address 3F
		3b:3	Function of input DE2: external blocking Internal circulation pump function: coding address 3E
		3b:4	Function of input DE2: external blocking with fault message input Internal circulation pump function: coding address 3E
		3b:5	Function of input DE2: fault message input
		3b:6	Function of input DE2: brief operation of the DHW circulation pump (pushbutton function). DHW circulation pump runtime setting: 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 Set flow temperature setting: coding address 9b Internal circulation pump function: coding address 3F
		3C:3	Function of input DE3: external blocking Internal circulation pump function: coding address 3E
		3C:4	Function of input DE3: external blocking with fault message input Internal circulation pump function: coding address 3E
		3C:5	Function of input DE3: fault message input
		3C:6	Function of input DE3: brief operation of the DHW circulation pump (pushbutton function).

"General" (cont.)

Coding in the delivered condition		Possible change	
			DHW circulation pump runtime setting: coding address 3d
3d:5	DHW circulation pump runtime for brief operation: 5 min	3d:1 to 3d:60	Runtime of DHW circulation pump adjustable from 1 to 60 min
3E:0	Secondary pump stays in control mode at "External blocking" signal.	3E:1	Secondary pump stops at "External blocking" signal.
		3E:2	Secondary pump starts at "External blocking" signal.
3F:0	Secondary pump stays in control mode at "External demand" signal.	3F:1	Secondary pump stops at "External demand" signal.
		3F:2	Secondary pump starts at "External demand" signal.
4b:0	No function	4b:1	External demand
		4b:2	External blocking
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)
53:1	Function of terminal 28 of internal extension: DHW circulation pump	53:0	Function of terminal 28: central fault
		53:2	Function of terminal 28: external heating circuit pump (A1/HC1)
		53:3	Function of terminal 28: external circulation pump for cylinder heating
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 (automatic recognition)
6E:50	No display correction for outside temperature	6E:0 to 6E:49	Display correction –5 K to –0.1 K
		6E:51 to 6E:100	Display correction +0.1 K to +5 K
76:1	With LON communication module (automatic recognition)	76:0	Without LON communication module
77:1	LON subscriber number	77:2 to 77:99	LON subscriber number adjustable from 1 to 99: 1 = heat source 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom ***Note*** *Allocate each number **only** once.*
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	7F:0	Apartment building

"General" (cont.)

Coding in the delivered condition		Possible change	
			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 issued, adjustable from 10 s to 995 s (1 step ≙ 5 s)
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover
		81:2	Use of the radio clock receiver (automatic recognition)
		81:3	With LON communication module: 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.
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
		8F:2	Only standard settings can be controlled
90:128	Time constant for calculating the adjusted outside temperature 21.3 h	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 ≙ 10 min)
94:0	Without OpenTherm extension	94:1	With OpenTherm extension (automatic recognition)
95:0	Without Vitocom 100 type GSM2 communication interface	95:1	With Vitocom 100, type GSM2 communication interface (automatic recognition)
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 subscriber e.g. Vitotronic 200-H.
98:1	Viessmann system number. In conjunction with monitoring several systems via Vitocom 300.	98:1 to 98:5	System number adjustable from 1 to 5
99:0	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 appliance-specific parameters)
9C:20	LON subscriber monitoring	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min

"General" (cont.)

Coding in the delivered condition		Possible change	
	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.		
9F:4	The secondary circuit flow temperature is 4 K higher than the flow temperature in the heating circuit with mixer.	9F:0 to 9F:40	Differential adjustable from 0 to 40 K

"Boiler"

Select **"Boiler"** (see page 71).

Coding

Coding in the delivered condition		Possible change	
0E:0	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 step ≙ 100 h
23:0	No time set for burner service interval	23:1 to 23:24	Time interval adjustable from 1 to 24 months
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.
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	Secondary circuit: Venting program/filling program not active	2F:1	Venting program active
		2F:2	Filling program active
30:1	Variable speed secondary pump (automatic adjustment)	30:0	Secondary pump without variable speed control (e.g. temporarily for service)
31:...	Set speed of the secondary pump when operated as boiler circuit pump in %, specified by the coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
38:0	Burner control unit status: operational (no fault)	38:1, 2, 3, ...	Burner control unit status: fault

"Process"

Select **"Process"** (see page 71).

"Process" (cont.)

Coding

Coding in the delivered condition		Possible change	
00:24	Never adjust		
01:16	Never adjust		
02:195	Never adjust		
03:125	Never adjust		
04:0	Never adjust		
05:230	Never adjust		
06:172	Never adjust		
07:50	Never adjust		
08:60	Never adjust		
09:14	Never adjust		
0A:4	Never adjust		
0B:20	Never adjust		
0C:20	Never adjust		
0D:200	Never adjust		
0E:80	Never adjust		
0F:40	Never adjust		
10:20	Never adjust		
11:108	Never adjust		
12:6	For natural heat source geothermal energy via geothermal probe, see code 1A. Evaporator inlet temperature below which sorption operation is no longer practical and the appliance switches to pure condensing operation. 6 ≙ 3 °C	12:0 to 12:254	Evaporator inlet temperature adjustable from 0 to 127 °C in steps of 0.5 °C
13:24	For natural heat source solar thermal, see code 1A. Temperature at the solar cylinder sensor, below which sorption operation is no longer practical and the appliance switches to pure condensing operation. 24 ≙ 12 °C	13:0 to 13:254	Solar cylinder inlet temperature adjustable from 0 to 127 °C in steps of 0.5 °C
14:0	Only condensing operation enabled	14:1	Only sorption operation enabled
		14:2	Mixed mode enabled (condensing and sorption operation)
15:100	Never adjust		
16:0	Automatic sensor calibration is enabled.	16:1	Sensor calibration is started manually. Code is reset automatically to "16:0".
17:50	Never adjust		
18:5	Never adjust		
19:5	Never adjust		
1A:1	Natural heat source solar thermal	1A:0	Natural heat source geothermal energy via geothermal probe
1B:0	Only adjustable if heat source is solar thermal.	1B:1	Sensor 7 at solar control module, type SM1, is used for heat source temperature.

"Process" (cont.)

Coding in the delivered condition		Possible change	
	Cylinder temperature sensor at solar control module, type SM1, is used for heat source temperature.	1B:2	Sensor 10 at solar control module, type SM1, is used for heat source temperature.
1C:0	Never adjust		
1D:40	Never adjust		

"DHW"

Select **"DHW"** (see page 71).

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 ***Note*** *Maximum value dependent on 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 over 60 °C (observe coding address "56")
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
5b:0	DHW cylinder connected directly to the boiler	5b:1	DHW cylinder connected downstream of the low loss header
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 secondary circuit flow temperature is max. 20 K higher than the set DHW temperature.	60:5 to 60:25	The differential between flow temperature and set DHW temperature is adjustable from 5 to 25 K
62:2	Circulation pump with 2 min run-on time after cylinder heating	62:0	No circulation pump run-on
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min
65:...	Information on the type of diverter valve (never adjust; specified by the coding card)		

"DHW" (cont.)

Coding in the delivered condition		Possible change	
67:40	For solar DHW heating: set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature. The heat generator starts as backup if the rise in the cylinder temperature is insufficient.	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by appliance-specific parameters)
6C:100	Set speed of secondary pump for DHW heating 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6F:...	Max. heating output for DHW heating in %, specified by coding card	6F:0 to 6F:100	Max. heating output for DHW heating adjustable from min. heating output to 100 %
71:0	DHW circulation pump: "ON" according to time program	71:1	"OFF" during DHW heating to set value 1
		71:2	"ON" during DHW heating to set value 1
72:0	DHW circulation pump: "ON" according to time program	72:1	"OFF" during DHW heating to set value 2
		72:2	"ON" during DHW heating to set value 2
73:0	DHW circulation pump: "ON" according to time program	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"

Select **"Solar"** (see page 71).

Note
*The **"Solar"** group is only displayed if a solar control module, type SM1, is connected.*

Coding

Coding in the delivered condition		Possible change	
00:8	Start temperature differential for solar circuit pump 8 K	00:2 to 00:30	Start temperature differential adjustable from 2 to 30 K
01:4	Stop temperature differential for solar circuit pump 4 K	01:1 to 01:29	Stop temperature differential adjustable from 1 to 29 K
02:0	Solar circuit pump not speed-controlled	02:1	Solar circuit pump speed-controlled with wave packet control
		02:2	Solar circuit pump speed-controlled with PWM control
03:10	Temperature differential for the start of speed control 10 K	03:5 to 03:20	Temperature differential adjustable from 5 to 20 K
04:4	Controller amplification of 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	Minimum speed of the solar circuit pump adjustable from 2 to 100 %

"Solar" (cont.)

Coding in the delivered condition		Possible change	
		05:100	
06:75	Max. speed of the solar circuit pump 75 % of max. possible speed	06:1 to 06:100	Max. speed of solar circuit pump adjustable from 1 to 100 %.
07:0	Interval function of solar circuit pump switched off	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump periodically starts for a short duration.
08:60	Set DHW temperature (maximum cylinder temperature) 60 °C	08:10 to 08:90	Set DHW temperature adjustable from 10 to 90 °C
09:130	Maximum collector temperature (to protect system components) 130 °C	09:20 to 09:200	Temperature adjustable from 20 to 200 °C
0A:5	Temperature differential for stagnation time reduction 5 K. Reduction in the speed of the solar circuit pump to protect system components and heat transfer medium.	0A:0	Stagnation time reduction not active
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K
0b:0	Frost protection function for solar circuit switched off	0b:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on. No flow rate captured in the solar 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 solar circuit (e.g. at night) is captured.	0d:0	Night-time DHW circulation monitoring switched off
0E:1	Heat statement in conjunction with Viessmann heat transfer medium	0E:2	Never adjust
		0E:0	No heat statement
0F:70	Solar circuit flow rate at maximum pump speed 7 l/min	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min 1 step ≙ 0.1 l/min
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on
11:50	Set solar DHW temperature 50 °C ▪ Target temperature control switched on (code "10:1"): temperature at which the solar heated water is to be stratified into the DHW cylinder. ▪ If code "20:9" (heating of 2 DHW cylinders) is set: When the set DHW temperature is achieved in one DHW cylinder, the 2nd DHW cylinder is heated.	11:10 to 11:90	The set solar DHW temperature is adjustable from 10 to 90 °C.
12:10	Minimum collector temperature (minimum start temperature for the solar circuit pump) 10 °C	12:0	No minimum limit enabled
		12:1 to 12:90	Minimum collector temperature adjustable from 1 to 90 °C

"Solar" (cont.)

Coding in the delivered condition		Possible change	
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
22:8	Start temperature differential for central heating backup 8 K (code "20:4" must be set)	22:2 to 22:30	Start temperature differential adjustable from 2 to 30 K
23:4	Stop temperature differential for central heating backup 4 K (code "20:4" must be set).	23:2 to 23:30	Stop temperature differential adjustable from 1 to 29 K
24:40	Start temperature for thermostat function 40 °C (code "20:5" or "20:6" must be set).	24:0 to 24:100	Start temperature for thermostat function adjustable from 0 to 100 K
25:50	Stop temperature for thermostat function 50 °C (code "20:5" or "20:6" must be set).	25:0 to 25:100	Stop temperature for thermostat function adjustable from 0 to 100 K
26:1	Priority for DHW cylinder 1 **with** cyclical heating (code "20:9" must be set).	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 of the DHW cylinders
27:15	Cyclical heating time 15 min. Once the DHW cylinder with priority has 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"

Select **"Heating circuit ..."** (see page 71).

Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control	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 available on the remote control can be carried out.	A1:1	Only party mode can be set at the remote control (only for Vitotrol 200)
A3:2	Outside temperature below 1 °C: secondary pump and heating circuit pump "ON" Outside temperature above 3 °C: heating circuit pump "OFF"	A3:–9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

Please note
If a value below 1 °C is selected, pipes outside the thermal envelope of the building could freeze up. Use settings below 1 °C only if pipes are equipped with appropriate thermal insulation.

Parameter address A3:...	Heating circuit pump "ON"	"OFF"
–9	–10 °C	–8 °C
–8	–9 °C	–7 °C
–7	–8 °C	–6 °C
–6	–7 °C	–5 °C
–5	–6 °C	–4 °C
–4	–5 °C	–3 °C
–3	–4 °C	–2 °C
–2	–3 °C	–1 °C
–1	–2 °C	0 °C
0	–1 °C	1 °C
1	0 °C	2 °C
2 to 15	1 °C to 14 °C	3 °C to 16 °C

Coding in the delivered condition		Possible change	
A4:0	With frost protection	A4:1	No frost protection. Adjustment only possible if code "A3:–9" has been set. ***Note*** *"Important": Observe for code "A3"*
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump is "OFF" when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set})	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)

"Heating circuit" (cont.)

Coding in the delivered condition		Possible change	
	OT > RT_{set} + 1 K		

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

Coding in the delivered condition		Possible change	
A6:36	Extended economy mode **not** active	A6:5 to A6:35	Extended economy mode enabled, i.e. the burner and heating circuit pump are switched off at a variable value, adjustable from 5 to 35 °C plus 1 °C. Mixer is being 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)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ▪ If the mixer has been trying to close for longer than 20 min. Heating circuit pump "ON": ▪ If the mixer changes to control function ▪ If there is a risk of frost
A8:1	Heating circuit with mixer creates demand for secondary pump.	A8:0	Heating circuit with mixer creates no demand for secondary pump.
A9:7	With pump idle time: heating circuit pump "OFF" if set value is modified by changing the operating mode or changing the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15: the higher the value, the longer the pump idle time.
b0:0	With remote control: heating mode/reduced mode: weather-compensated (only change the code 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

"Heating circuit" (cont.)

Coding in the delivered condition		Possible change	
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)	b2:0	Without room influence
		b2:1 to b2:64	Room influence factor adjustable from 1 to 64. The higher the value, the greater the room influence.
b5:0	With remote control: no room temperature-dependent heating circuit pump logic function (change code only for heating circuit with mixer)	b5:1 to b5:8	For heating circuit pump logic function, see the following table:

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

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by appliance-specific parameters)
C6:74	Electronic maximum flow temperature limit set to 74 °C	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by appliance-specific parameters)
d3:8	Heating curve slope = 0.8	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 59)
d4:0	Heating curve level = 0	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 59)
d5:0	External operating program changeover switches the operating program to "Constant operation at reduced room temperature" or "Standby mode"	d5:1	The external operating program changeover switches to "Constant operation at standard room temperature" (subject to coding addresses "3A", "3b" and "3C")
d6:0	Heating circuit pump stays 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 stays 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")

"Heating circuit" (cont.)

Coding in the delivered condition		Possible change	
		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	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 –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to +4.9 K
E5:0	Never adjust		
E6:...	Only for heating systems without a heating circuit with mixer: Maximum speed of the variable speed secondary pump as a % of the max. speed in standard mode. Value is determined by appliance-specific parameters.	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %
E7:50	Only for heating systems without a heating circuit with mixer: Minimum speed of the variable speed secondary pump: 50 % of the max. speed	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of maximum speed
E8:1	Only for heating systems without a heating circuit with mixer: Minimum speed of the variable speed secondary pump during operation at reduced room temperature, corresponding to setting in coding address "E9"	E8:0	Speed corresponding to setting in coding address "E7"
E9:45	Only for heating systems without a heating circuit with mixer: Speed of the variable speed secondary pump: 45 % of the maximum speed during operation at reduced room temperature	E9:0 to E9:100	Speed adjustable from 0 to 100 % of the max. speed during operation at reduced room temperature
F1:0	Screed drying not active	F1:1 to F1:6	Screed drying adjustable with choice of 6 temperature/time profiles (see page 145)
		F1:15	Constant flow temperature 20 °C
F2:8	Time limit for party mode or external operating program changeover via pushbutton: 8 h [*1]	F2:0	No time limit for party mode[*1]
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*1]

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

"Heating circuit" (cont.)

Coding in the delivered condition		Possible change	
F8:–5	Temperature limit for terminating reduced mode –5 °C; see example on page 147. 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; see example on page 147.	F9:+10 to F9:–60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to –60 °C
FA:20	Set flow temperature increased by 20 % when changing from operation at reduced room temperature to operation at standard room temperature. See example on page 147.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Fb:60	Duration of the increased set flow temperature (see coding address "FA") is 60 min. See example on page 147.	Fb:0 to Fb:240	Duration adjustable from 0 to 240 min

Calling up the service level

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

Service menu overview

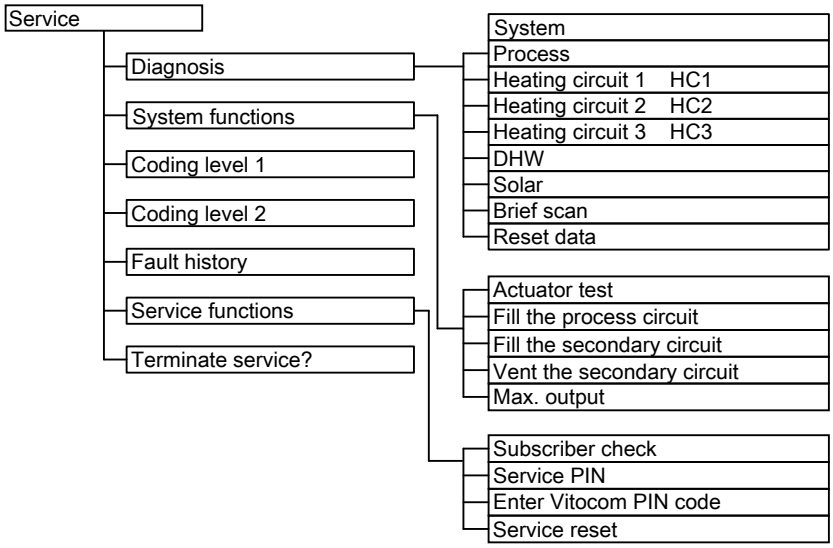


Fig. 50

Leaving the service level

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

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

Diagnosis

Calling up operating data

- Operating data can be called up in various 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 regarding operating data, see chapter "Brief scan"

Calling up operating data

Service menu:
1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. Select the required group, e.g. **"DHW"**.

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

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.

Service menu:
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 (cont.)

Brief scan

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

Service menu:
1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Brief scan"**
4. Press **OK**.
   The display shows 11 rows with 6 fields each.

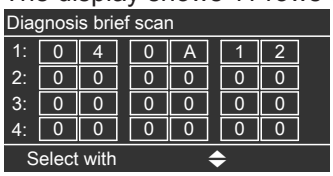


Fig. 51

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				Software version, AM1 extension	Software version, EA1 extension
6:	0	0	0	0	Software version, process control unit	
7:	LON Subnet address/system number		LON Node address		0	0
8:	LON SBVT configuration	LON Software version, communication coprocessor	LON Software version, neuron chip		Number of LON subscribers	
9:	**Heating circuit A1/HC1**		**Heating circuit M2/HC2**		**Heating circuit M3/HC3**	
	Remote control 0: Without 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort	Software version, remote control	Remote control 0: Without 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort	Software version, remote control	Remote control 0: Without 1: Vitotrol 200-A/ 200-RF 2: Vitotrol 300-A/ 300-RF or Vitocomfort	Software version, remote control

Diagnosis (cont.)

Row (brief scan)	Field					
	1	2	3	4	5	6
10:	**Secondary pump**					
	Variable speed pump 0: Without 1: Wilo 2: Grundfos 3: Ascoli	Software version, variable speed pump 0: No variable speed pump	0	0	0	0
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

Testing outputs (relay test)

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"System functions"**
   Service mode is being prepared, which can take approx. 10 min
3. **"Actuator test"**

Note
A pressure of at least 2 bar (0.2 MPa) must be present in the process circuit before the ***"System functions"*** *can be called up.*

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

Display		Explanation
All actuators	OFF	All actuators are off
Base load	ON	Burner operates at min. output. Secondary pump is on.
Full load	ON	Burner operates at max. output. Secondary pump is on.
Output, internal	ON	Internal output [20] (secondary pump) enabled
Valve	Heating	3-way diverter valve set to heating mode
Valve	Centre	3-way diverter valve in central position (filling/draining)
Valve	DHW	3-way diverter valve set to DHW 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 enabled
AM1 output 2	ON	Output A2 at AM1 extension enabled
EA1 output 1	ON	Contact P - S at plug [157] of EA1 extension closed

Testing outputs (relay test) (cont.)

Display		Explanation
Solar circuit pump	ON	Solar circuit pump output [24] on solar control module SM1 enabled
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 enabled
Evaporator pump	ON	Internal output PR 170 evaporator pump enabled
Process pump LT	ON	Internal output PR 25 low temperature process pump enabled
Process pump HT	ON	Internal output PR 172 high temperature process pump enabled
Primary pump	ON	Internal output PR 26 primary pump enabled
Control valve	ON	Control valve set to condensation heat (lever horizontal)

Fault display

In the event of a fault, the red fault display flashes at the control unit. **"Fault"** is displayed and ⚠ flashes. The fault code is displayed with **OK**.

Note
If a central fault message facility is connected, this is started.

For an explanation of the fault code, see chapter "Fault codes".
For some faults, the type of fault is also displayed in plain text.

Acknowledging a fault message

Follow the instructions on the display.

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

Calling up acknowledged fault messages

Extended menu:
1. ☰
2. **"Fault"**

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.

Note
The list can be deleted.

Service menu:
Press **OK** and ☰ simultaneously for approx. 4 s.

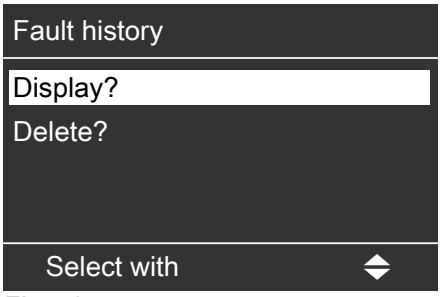


Fig. 52

Fault codes

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 107)
18	Regulates as if the outside temperature were 0 °C.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 107)

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
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. Log off outside temperature sensor then log on again. "Wireless base station" installation and service instructions Replace wireless outside temperature sensor.
1d	Flow rate not being monitored.	No communication with flow rate sensor	Check cables/leads and plugs.
1E	Flow rate not being monitored.	Flow sensor faulty	Replace flow sensor.
1F	Flow rate not being monitored.	Flow sensor faulty	Replace flow sensor.
20	Regulates without flow temperature sensor for low loss header.	Short circuit, flow temperature sensor for low loss header	Check flow temperature sensor for low loss header (see page 107)
28	Regulates without flow temperature sensor for low loss header.	Lead break, flow temperature sensor for low loss header	Check flow temperature sensor for low loss header (see page 107) If no flow temperature sensor for low loss header is connected, set code 52:0.
30	Burner blocked	Short circuit, secondary circuit flow temperature sensor	Check secondary circuit flow temperature sensor (see page 107)
38	Burner blocked	Lead break, secondary circuit flow temperature sensor	Check secondary circuit flow temperature sensor (see page 107)
40	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor (see page 107)
44	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor (see page 107)
48	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor (see page 107)
49	Mixer is being closed.	Incorrect code set for extension for mixer, heating circuit 2	Check and adjust code.
4C	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor (see page 107)
4d	Mixer is being closed.	Incorrect code set for extension for mixer, heating circuit 3	Check and adjust code.
50	No DHW heating by the heat source	Short circuit, cylinder temperature sensor	Check cylinder temperature sensor (see page 107)

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
58	No DHW heating by the heat source	Lead break, cylinder temperature sensor	Check cylinder temperature sensor (see page 107)
60	No heating operation and no DHW heating	Process circuit cannot transfer any heat and overheats.	Check control valve and low temperature process pump.
61	No heating operation and no DHW heating	Burner blocked	▪ Check gas pressure switch or CO limiter. ▪ If secondary circuit flow temperature > 80 °C: – Check secondary pump. – Ensure adequate heat transfer.
62	No sorption operation; heating operation and DHW heating only in condensing mode	Maximum primary circuit temperature exceeded	▪ Allow primary circuit to cool down ▪ Check evaporator inlet temperature sensor ▪ If natural energy source is solar thermal: check mixing valve ▪ Inform Viessmann Technical Service if necessary
63	No heating operation and no DHW heating	Max. desorption time exceeded	Check burner and control valve. Inform Viessmann Technical Service if necessary.
64	No sorption operation; heating operation and DHW heating only in condensing mode	Sensor calibration failed.	Check temperature sensors in process flow, process return and sorber outlet, and replace if necessary. After the fault has been acknowledged, sensor calibration starts automatically. If the fault recurs, inform Viessmann Technical Service.
65	Control mode	Plate heat exchanger contaminated/scaled up	Check plate heat exchanger and replace if necessary.
66	No heating operation and no DHW heating	Communication error, process control unit	Check connecting cable to Vitotronic control unit and replace process control unit if necessary.
67	No sorption operation; heating operation and DHW heating only in condensing mode	Max. adsorption time exceeded	Check control valve and low temperature process pump. Start sensor calibration manually (code "16:1"). Check temperature sensors in process flow, process return and sorber outlet, and replace if necessary.
68	No sorption operation; heating operation and DHW heating only in condensing mode	Solar cylinder temperature sensor fault	Check setting for code 1B in the "Process" group. Replace solar cylinder temperature sensor.
69	No sorption operation; heating operation and DHW heating only in condensing mode	Primary pump fault	▪ Check pressure switch and temperature limiter in primary circuit. ▪ Check primary pump cable and replace primary pump if necessary. ▪ Check the component is correctly connected at plug 42 (pressure switch, frost stat or jumper).

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
6A	No sorption operation; heating operation and DHW heating only in condensing mode	Fault in evaporator circuit sensors 12 and 13	▪ Check for air in the primary circuit and vent if required. ▪ Check evaporator circuit sensors 12 and 13; replace if required.
6b	No sorption operation; heating operation and DHW heating only in condensing mode	Evaporator temperature too low	If natural heat source is geothermal energy via geothermal probe: ▪ Ground temperature too low. No action required If natural heat source is solar thermal: ▪ Check mixing valve
6C	No heating operation and no DHW heating	Low temperature process pump fault	Check low temperature process pump cable and replace low temperature process pump if necessary.
6D	No heating operation and no DHW heating	High temperature process pump fault	Check high temperature process pump cable and replace high temperature process pump if necessary.
6E	No heating operation and no DHW heating	Control valve fault	Check control valve cable, motor and ball valve, and replace if necessary.
70	No sorption operation; heating operation and DHW heating only in condensing mode	Short circuit, evaporator inlet temperature sensor	Replace evaporator inlet temperature sensor (for location, see page 103)
71	No sorption operation; heating operation and DHW heating only in condensing mode	Lead break, evaporator inlet temperature sensor	Replace evaporator inlet temperature sensor (for location, see page 103)
72	No sorption operation; heating operation and DHW heating only in condensing mode	Short circuit, evaporator outlet temperature sensor	Replace evaporator outlet temperature sensor (for location, see page 103)
73	No sorption operation; heating operation and DHW heating only in condensing mode	Lead break, evaporator outlet temperature sensor	Replace evaporator outlet temperature sensor (for location, see page 103)
74	No heating operation and no DHW heating	Short circuit, heat exchanger temperature sensor	Replace heat exchanger temperature sensor.
75	No heating operation and no DHW heating	Lead break, heat exchanger temperature sensor	Replace heat exchanger temperature sensor.
76	No sorption operation; heating operation and DHW heating only in condensing mode	Short circuit, sorber outlet temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).
77	No sorption operation; heating operation and DHW heating only in condensing mode	Lead break, sorber outlet temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
78	No heating operation and no DHW heating	Short circuit, process circuit flow temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).
79	No heating operation and no DHW heating	Lead break, process circuit flow temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).
7A	No heating operation and no DHW heating	Short circuit, process circuit return temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).
7B	No heating operation and no DHW heating	Lead break, process circuit return temperature sensor	Replace sorber outlet temperature sensor, plus process circuit flow and return temperature sensors. Start sensor calibration manually (code "16:1" in the **"Process"** group).
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 and, if natural heat source is solar thermal, no sorption operation	Short circuit, collector temperature sensor	Check temperature sensor [6] on the solar control module or temperature 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 and, if natural heat source is solar thermal, no sorption operation	Short circuit, cylinder temperature sensor	Check temperature sensor [5] on the solar control module or temperature sensor on the Vitosolic.
98	Control mode	Lead break, temperature sensor [7]	Check temperature sensor [7] on the solar control module.
99	Control mode	Lead break, temperature sensor [10]	Check sensor [10] on solar control module.
9A	No solar DHW heating and, if natural heat source is solar thermal, no sorption operation	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 and, if natural heat source is solar thermal, no sorption operation	Lead break, cylinder temperature sensor	Check temperature sensor [5] on the solar control module or temperature sensor on the Vitosolic.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
9E	Control mode	No flow rate in solar circuit or flow rate too low, 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 107).
A7	Control mode with incorrect time	Programming unit faulty	Replace the programming unit.
A8	Burner blocked. The venting program is started automatically (see page 43)	Air in the secondary pump or minimum flow rate not achieved	Vent the secondary circuit if the fault message continues to be displayed.
A9	If a heating circuit with mixer is connected, the burner operates at its lower heating output. If only one heating circuit without mixer is connected, the burner is blocked.	Secondary pump blocked	Check secondary pump.
b0	Burner blocked	Short circuit, flue gas temperature sensor	Check flue gas temperature sensor.
b1	Control mode as per delivered condition	Communication error, programming unit	Check connections; 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, coding address "A0" in the **"Heating circuit"** group and remote control settings (see page 148). With wireless remote controls: check connection; place remote control close to the heat source.
bd	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 2 (with mixer)	Check connections, cable, coding address "A0" in the **"Heating circuit"** group and remote control settings (see page 148). With wireless remote controls: check connection; place remote control close to the heat source.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
bE	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 3 (with mixer)	Check connections, cable, coding address "A0" in the **"Heating circuit"** group and remote control settings (see page 148). With wireless remote controls: check connection; place remote control close to the heat source.
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 extension	Check connections.
C4	Control mode	Communication error, OpenTherm extension	Check OpenTherm extension.
C5	Control mode, max. pump speed	Communication error, variable speed secondary pump	Check setting of coding address "30" in the **"Boiler"** group.
Cd	Control mode	Communication error, Vitocom 100 (KM-BUS)	Check connections, Vitocom 100, type GSM2 and coding address "95" in the **"General"** group.
CF	Control mode	Communication error, LON communication module	Check whether the LON communication module is correctly inserted. 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. External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/ 300-A/300-RF
db	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor, heating circuit 2. External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/300-A/300-RF
dC	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor, heating circuit 3. External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/300-A/300-RF

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
dd	Control mode without room influence	Lead break, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor, heating circuit 1 and remote control settings (see page 148) External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/300-A/300-RF
dE	Control mode without room influence	Lead break, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor, heating circuit 2 and remote control settings (see page 148) External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/300-A/300-RF
dF	Control mode without room influence	Lead break, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor, heating circuit 3 and remote control settings (see page 148) External room temperature sensor for Vitotrol 300-A or integrated sensor for Vitotrol 200-A/200-RF/300-A/300-RF
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 52). In open flue operation, prevent high levels of dust in the combustion air. Press reset button **R**.
E2	Burner in a fault state	No calibration as flow rate too low	Ensure adequate heat transfer. 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.
E6	Burner blocked	Pressure in process circuit too low	Top up with water; see page 41. Check process circuit for tightness. If the fault recurs, inform Viessmann Technical Service.
E7	Burner in a fault state	Ionisation current too low during calibration	Check ionisation electrode: ▪ Distance to burner gauze assembly (see page 52) ▪ Electrode contamination ▪ 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	Check gas supply (gas pressure and gas flow switch), gas train and connecting cable. Check assignment of gas type (see page 46). Check ionisation electrode: ▪ Distance to burner gauze assembly (see page 52) ▪ Electrode contamination 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**.
Eb	Burner in a fault state	Repeated flame loss during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 52). Check assignment of gas type (see page 46). 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 press reset button **R**.
Ed	Burner in a fault state	Internal fault	Replace control unit.
EE	Burner in a fault state	Flame signal at burner start not present or insufficient.	Check gas supply (gas pressure and gas flow switch). Check gas train. Check ionisation electrode and connecting lead. Check ignition: ▪ Connecting cables to ignition module and ignition electrode ▪ Ignition electrode gap and contamination (see page 53) Check condensate drain. Press reset button **R**.

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).	Check gas supply (gas pressure and gas flow switch). Check balanced flue system for flue gas recirculation. Check ionisation electrode (replace if required): ▪ Distance to burner gauze assembly (see page 52) ▪ Electrode contamination 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 fill level in secondary circuit. 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 secondary circuit temperature limiter and connecting cables. Check high limit safety cut-out and connecting cables, and reset if necessary. Press reset button **R**.
F3	Burner in a fault state	Flame signal is already present at burner start.	Check ionisation electrode and connecting lead. Press reset button **R**.
F7	Burner blocked	Short circuit or lead break, water pressure sensor	Check the water pressure sensor and lead.
F8	Burner in a fault state	Fuel valve closes too late.	Check gas train. Check both control paths. Press reset button **R**.
F9	Burner in a fault state	Fan speed too low during burner start	Check fan, fan connecting cables and power supply to fan; check fan control. Press reset button **R**.
FA	Burner in a fault state	Fan idle state not reached	Check fan, fan connecting cables and fan control. Press reset button **R**.
FC	Burner in a fault state	▪ Gas train faulty ▪ Faulty fan control ▪ Faulty modulation valve control ▪ 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.

Fault codes (cont.)

Fault code displayed	System characteristics	Cause	Measures
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 the fault persists, check the coding card and replace coding card or control unit.
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.

Regeneration process

Note
A regular, internal regeneration process takes place in the appliance.

- *Only switch the appliance off for a **maximum of 1 week**.*
- *Select standby mode when switching off for longer periods.*

Bringing the Vitotronic and process control units into maintenance position

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

Vitotronic control unit

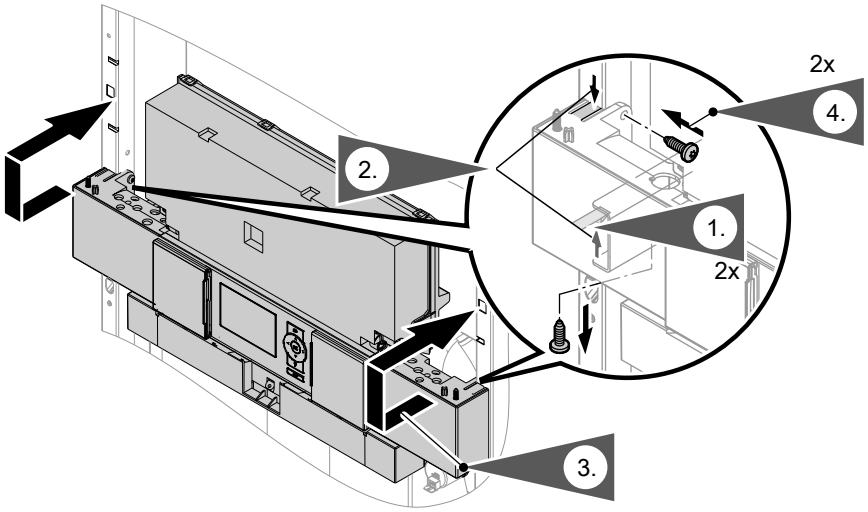


Fig. 53

Process control unit

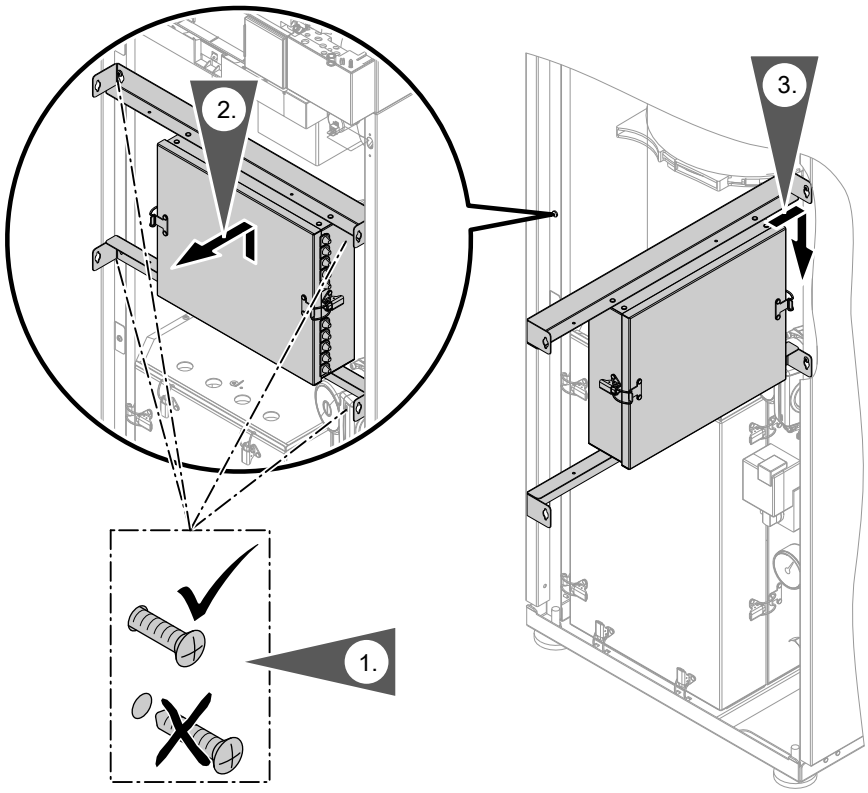


Fig. 54

Overview of internal components

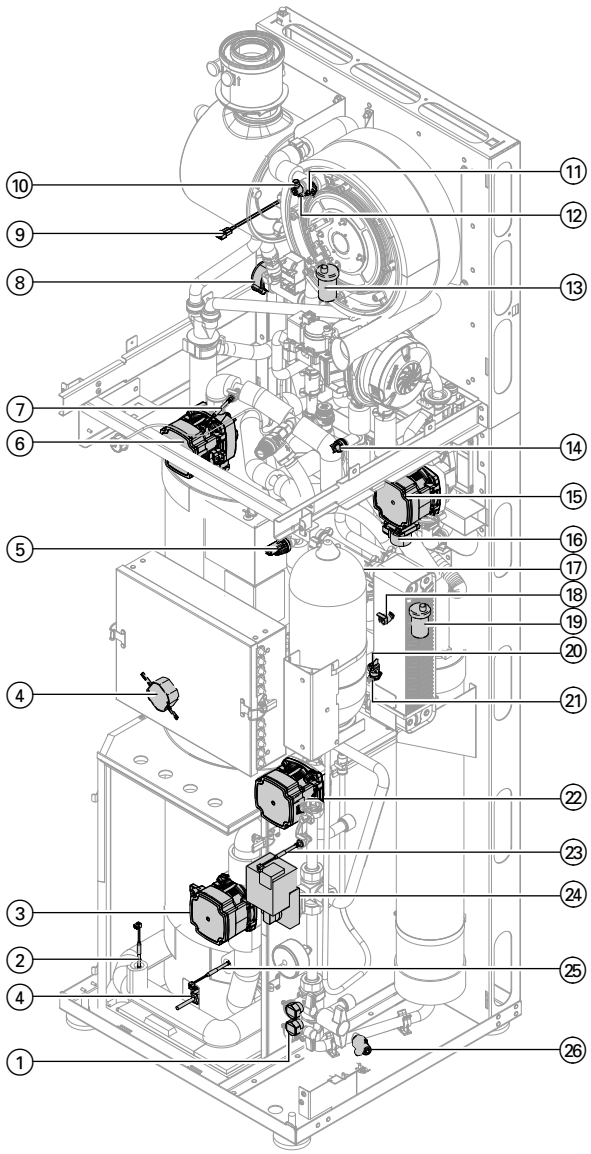


Fig. 55

① Fill & flush valve for process circuit
② Evaporator outlet temperature sensor (13)
③ Primary pump (26)
④ Evaporator pump power supply unit (170) (installation position dependent on appliance generation)
⑤ Pressure sensor (163)
⑥ High temperature process pump (172)
⑦ Sorber outlet temperature sensor (TSA)
⑧ Flow rate sensor with return temperature sensor, secondary circuit
⑨ Flue gas temperature sensor (15)
⑩ Process circuit air vent valve
⑪ High limit safety cut-out (47)
⑫ Heat exchanger temperature sensor (3)
⑬ Secondary circuit quick-action air vent valve
⑭ Check valve
⑮ Secondary pump (20)
⑯ 3-way diverter valve
⑰ Process circuit return temperature sensor (TPRL)
⑱ Temperature limiter with flow temperature sensor, secondary circuit (19)
⑲ Process circuit quick-action air vent valve
⑳ Secondary circuit temperature limiter
㉑ Secondary circuit drain valve
㉒ Low temperature process pump (25)
㉓ Process circuit flow temperature sensor (TPVL)
㉔ Control valve
㉕ Evaporator inlet temperature sensor (12)
㉖ Process circuit drain valve

Draining the heating water side of the heating system

Draining the secondary circuit

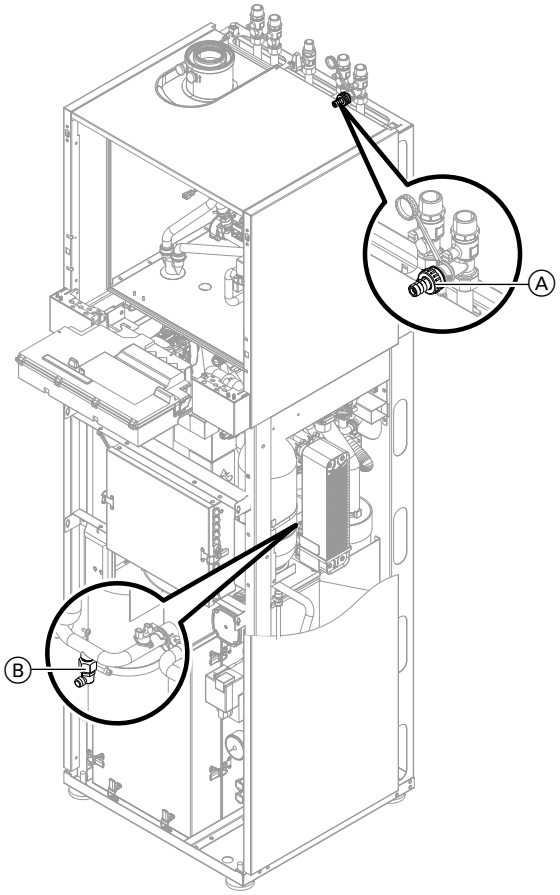


Fig. 56

1. Close the shut-off valves on the heating water side.
2. Connect hose to drain & fill valves Ⓐ and Ⓑ and route into a suitable container or drain outlet.
3. To move the diverter valve into its central position, start the filling program for the secondary circuit. As soon as the diverter valve is in its central position, switch OFF the control unit.
   (To start the filling program, see page 43.)
4. Open drain & fill valves Ⓐ and Ⓑ, and drain the secondary circuit as much as required.
5. Close drain & fill valves Ⓐ and Ⓑ. Fit protective cap onto drain & fill valve Ⓐ.

Draining the heating water side of the heating… (cont.)

Draining the process circuit

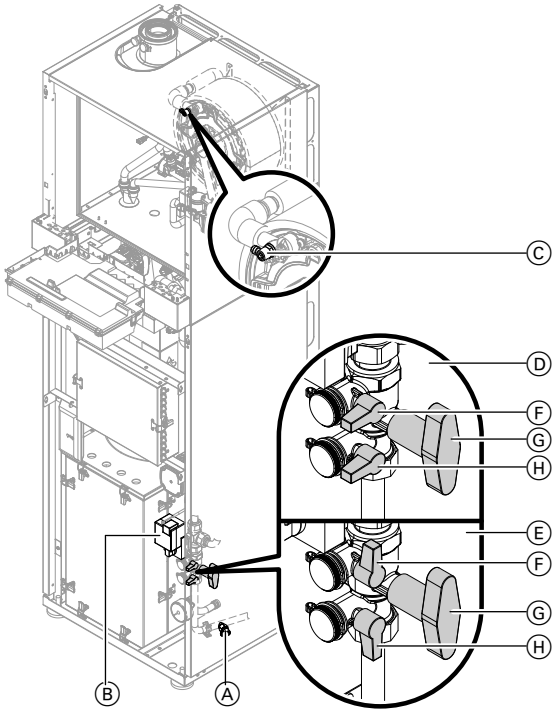


Fig. 57

Ⓐ Flush & drain valve
Ⓑ Control valve
Ⓒ Air vent valve
Ⓓ Drain & fill valves in the "drain" position:
  Ⓕ Upper drain & fill valve open
  Ⓖ Centre shut-off valve open
  Ⓗ Lower drain & fill valve open
Ⓔ Drain & fill valves in the "operating" position:
  Ⓕ Upper drain & fill valve closed
  Ⓖ Centre shut-off valve open
  Ⓗ Lower drain & fill valve closed

1. Select standby mode.
   As soon as the **"Process status"** switches to **"Standby"**, turn off the ON/OFF switch.
   The process status scan can be found in the **"Diagnosis"** menu under **"Process"**.

2. Connect hoses to all valves Ⓐ, Ⓒ, Ⓕ, Ⓗ and route into suitable container or drain outlet.

3. Open all valves Ⓐ, Ⓒ, Ⓕ, Ⓗ (position Ⓓ: "drain") and drain process circuit as much as required.

4. Move control valve Ⓑ manually to the other end-stop in order to drain all lines.

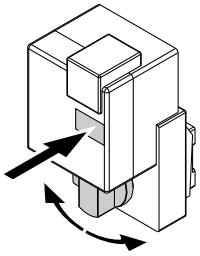


Fig. 58

5. Close flush & drain valve Ⓐ and air vent valve Ⓒ.

6. Close drain & fill valves Ⓕ and Ⓗ (position Ⓔ: "operation") and fit protective caps.

Setting the control valve motor position

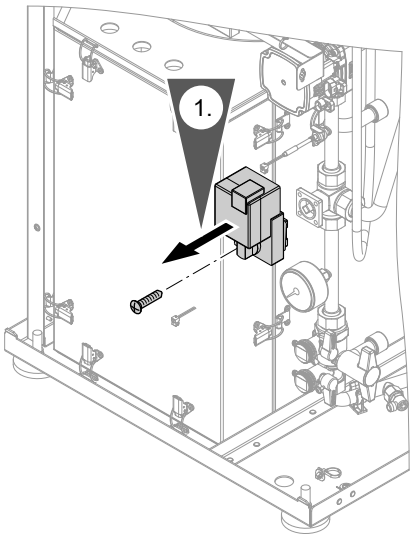


Fig. 59

1. Undo the screw and remove the rotary selector with drive motor.

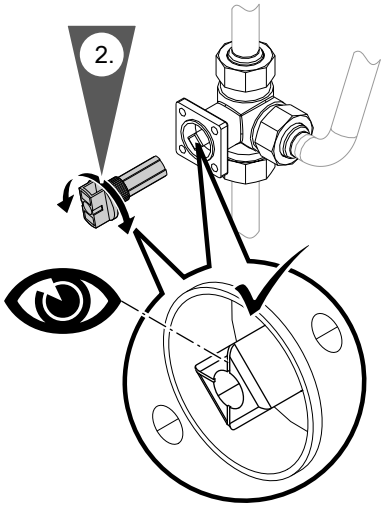


Fig. 60

2. Pull the rotary selector off the drive motor and insert it into the control valve. Turn the control valve to the left as far as it will go.

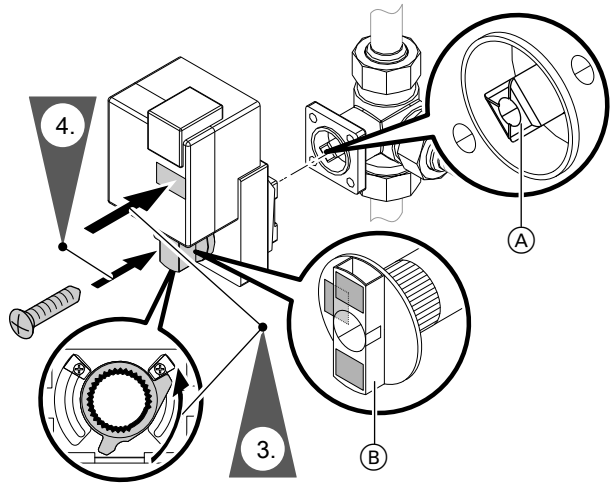


Fig. 61

3. Re-insert the drive motor and rotary selector, note the position of the rotary selector when doing so. The markings of valve shaft Ⓐ and motor shaft Ⓑ must be corresponding.

Note
Take care not to twist or tilt the toothed metal disc, otherwise the thread of the screw will not grip.

4. Re-secure the drive motor and rotary selector with the screw.

Checking the temperature sensors

For connecting temperature sensors to the Vitotronic control unit and the process control unit, see from page 151.
For the installation position of the temperature sensors in the appliance, see diagram on page 103.

Temperature sensors NTC 10 kΩ

1. Pull the leads from the relevant temperature sensor.
2. Check the temperature sensor resistance and compare it with the curve on page 108.
3. In the event of severe deviation, replace the temperature sensor.
4. **Flue gas temperature sensor**
   The flue gas temperature sensor locks out the appliance when the permissible flue gas temperature is exceeded. Cancel the lock after the flue system has cooled down: Press reset button **R**.

Pt500A temperature sensors

1. Replace temperature sensors if a corresponding fault message shown.
2. Start manual calibration of the temperature sensors with code "16:1".

Temperature sensor overview

Sensor	Control unit	Test element
▪ Outside temperature sensor ([1] or X3.1/X3.2) ▪ Secondary circuit flow temperature sensor ([19]) ▪ Cylinder temperature sensor ([5]) ▪ Flue gas temperature sensor ([15]) ▪ Flow temperature sensor, low loss header ([2])	Vitotronic control unit	NTC 10 kΩ
▪ Evaporator inlet temperature sensor ([12]) ▪ Evaporator outlet temperature sensor ([13]) ▪ "Burner heat exchanger" temperature sensor ([3])	Process control unit	NTC 10 kΩ
▪ Room temperature sensors	Remote control	NTC 10 kΩ
▪ Sorber outlet temperature sensor (TSA) ▪ Process circuit flow temperature sensor (TPVL) ▪ Process circuit return temperature sensor (TPRL)	Process control unit	Pt500

Cylinder temperature sensor

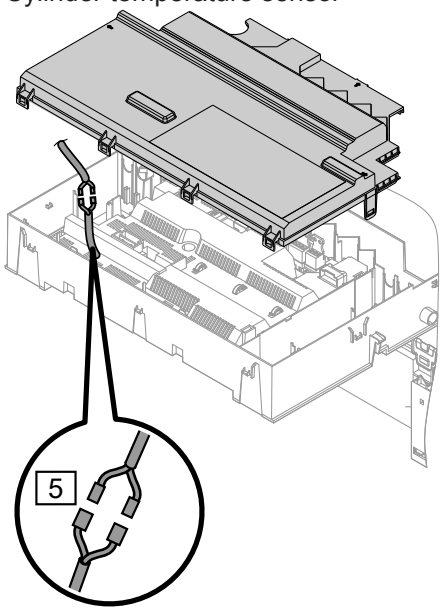


Fig. 62

Outside temperature sensor

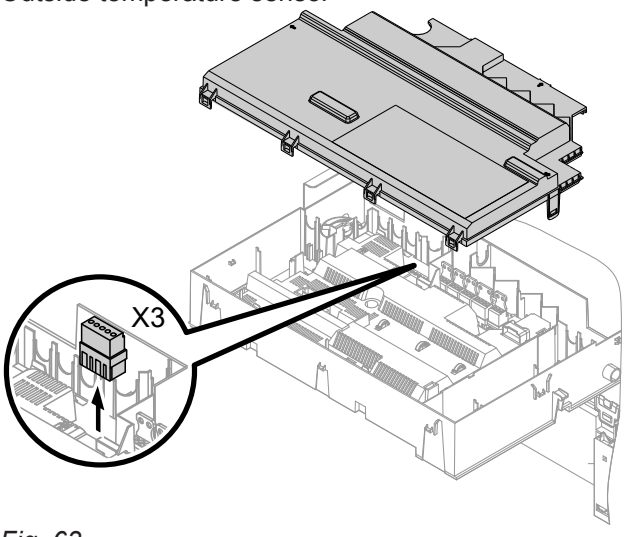


Fig. 63

Checking the temperature sensors (cont.)

Curves for Viessmann NTC 10 kΩ

Outside temperature sensor

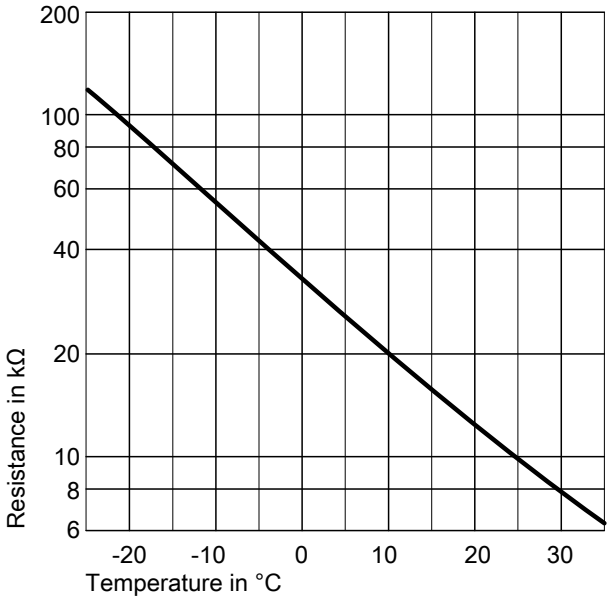


Fig. 64

Further sensors

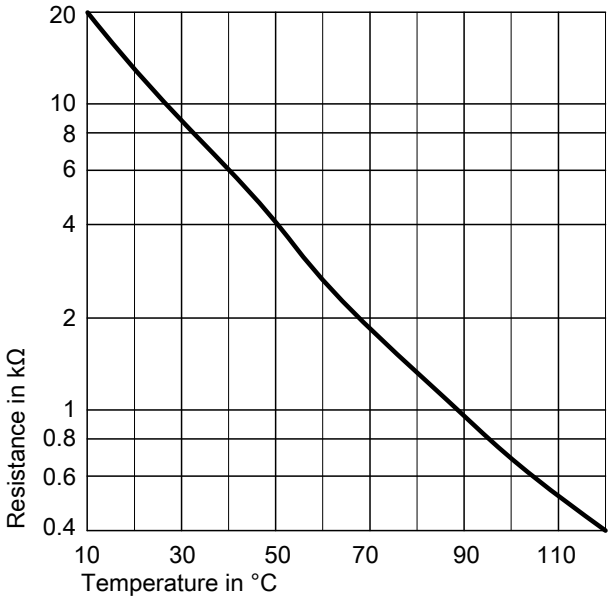


Fig. 65

Fault "A3" on first heat demand after commissioning

When the first heat demand is received, the control unit checks whether the flue gas temperature sensor is correctly positioned.
If the flue gas temperature sensor is positioned incorrectly (see page 103), commissioning is cancelled and fault message A3 is displayed.

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

Checking the pressure sensor

For the installation position of the pressure sensor in the appliance, see diagram on page 103.
See the **"Process"** menu, under **"Diagnosis"**, to call up a value for the **"System pressure"**. The system pressure is determined from the displayed value and the following graph.

Note
*The pressure differential produced by the pumps affects the **"System pressure"**. Only read off the **"System pressure"** with the pumps switched off.*

Checking the pressure sensor (cont.)

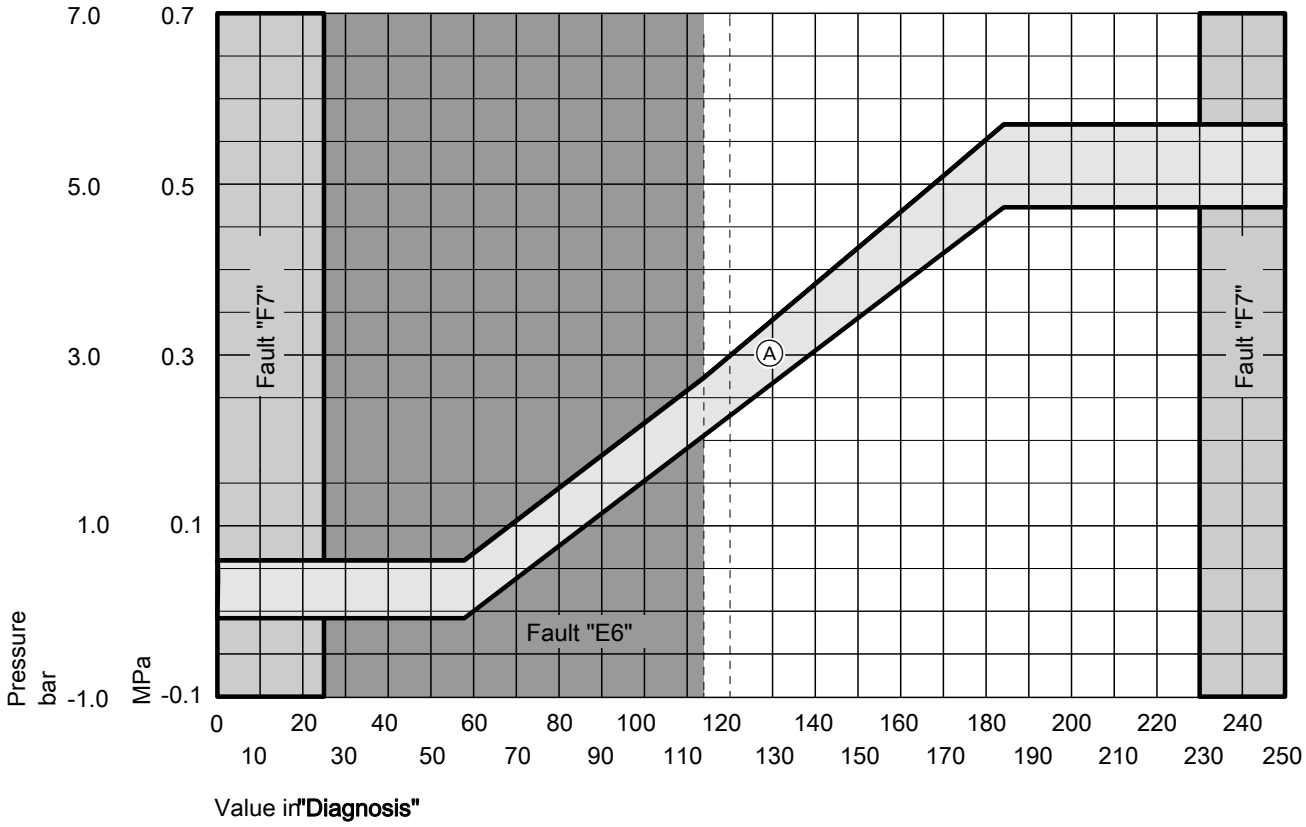


Fig. 66

Ⓐ Permissible range

Checking the secondary circuit temperature limiter

For the installation position in the appliance, see diagram on page 103.
If the burner control unit cannot be reset after a fault shutdown, even though the secondary circuit flow temperature is below approx. 75 °C, check the following:

1. Pull the leads from the temperature limiter.
2. Check continuity of the temperature limiter with a multimeter.
3. Remove faulty temperature limiter.
4. Coat the new temperature limiter with heat conducting paste and install it.
5. After commissioning, press reset button **R** on the Vitotronic control unit.
6. **If the fault persists:**
   Check high limit safety cut-out.

Checking the high limit safety cut-out

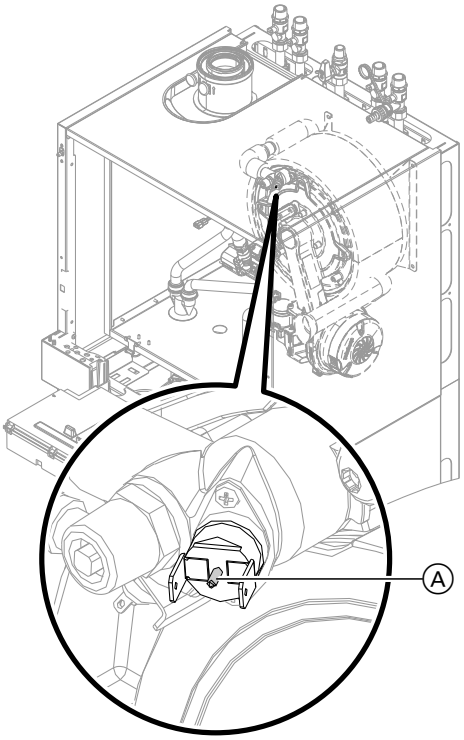


Fig. 67

1. Let the appliance cool down until the temperature falls below the switching point (95 °C).
2. Press pin Ⓐ on the high limit safety cut-out to reset it.
3. Press reset button **R** on the Vitotronic control unit.

If the fault recurs:

1. Pull the leads from the high limit safety cut-out.
2. Check the continuity of the high limit safety cut-out with a multimeter.
3. Remove the faulty high limit safety cut-out.
4. Apply heat conducting paste to the replacement high limit safety cut-out and install it.
5. After commissioning, press reset button **R** on the Vitotronic control unit.

Checking the fuses

A fuse F1 is located in the Vitotronic control unit and in the process control unit:

- Vitotronic control unit:
  6.3 A (slow), 250 V~
  Max. power loss ≤ 2.5 W
- Process control unit:
  3.15 A (slow), 250 V~
  Max. power loss ≤ 1.4 W

Vitotronic control unit

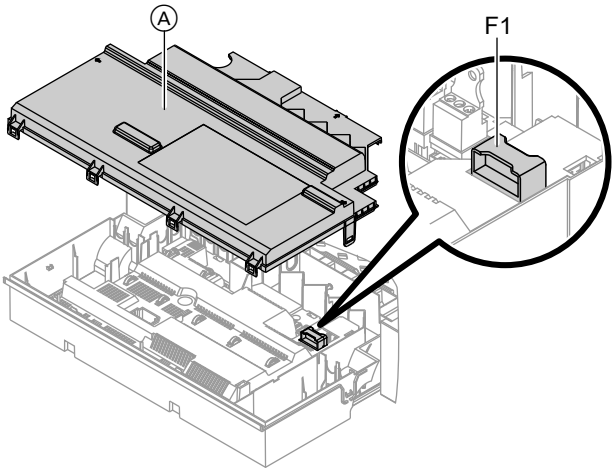


Fig. 68

Process control unit

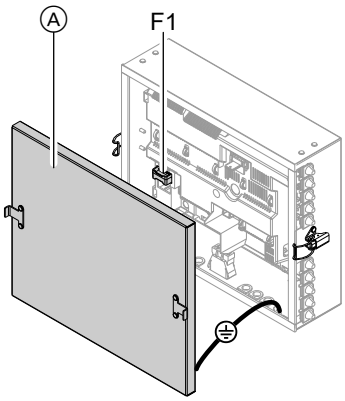


Fig. 69

1. Switch off the power supply.
2. Release the side closures and pivot the Vitotronic control unit down.
3. Remove cover Ⓐ from the Vitotronic control unit or process control unit.
4. Check fuse F1.

Checking the plate heat exchanger

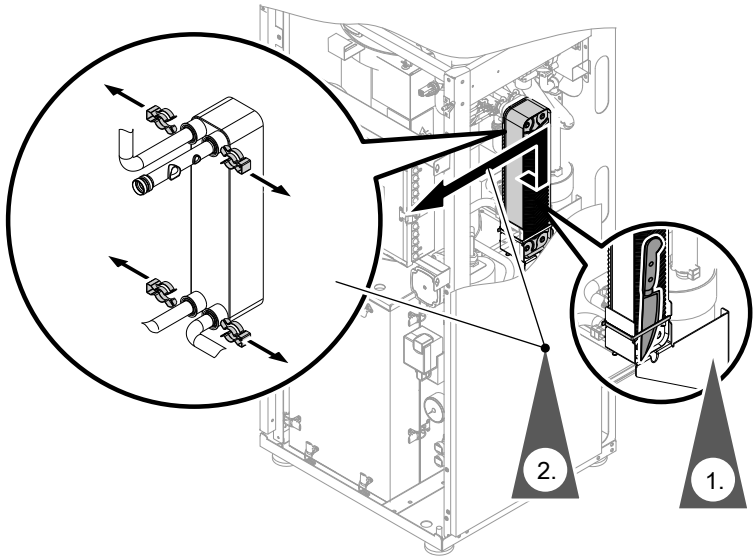


Fig. 70

Drain the heating water side of the heating system (secondary circuit and process circuit, see page 104).

1. Cut through the cable ties.
2. Release 4 clips and pull the plate heat exchanger from the pipes.

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

3. Check all 4 connections for contamination and scaling. Replace plate heat exchanger if required.
4. Install in reverse order using new gaskets.
5. Fill and vent the heating system (see pages 41 and 44).

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 appliance performs 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 to "OPEN".

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

Mixer installation instructions

Mixer extension kit (cont.)

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

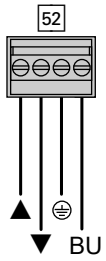


Fig. 71

1. Remove the top 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.

Checking the Vitotronic 200-H (accessories)

The Vitotronic 200-H is connected to the control unit via the LON cable. To test the connection, conduct a subscriber check at the heat source control unit (see page 60).

Checking the Vitotronic 200-H (accessories) (cont.)

Assembly overview

The following details are required when ordering parts:
- Serial no. (see type plate Ⓐ)
- Assembly (from this parts list)
- Position number of the individual part within the assembly (from this parts list)

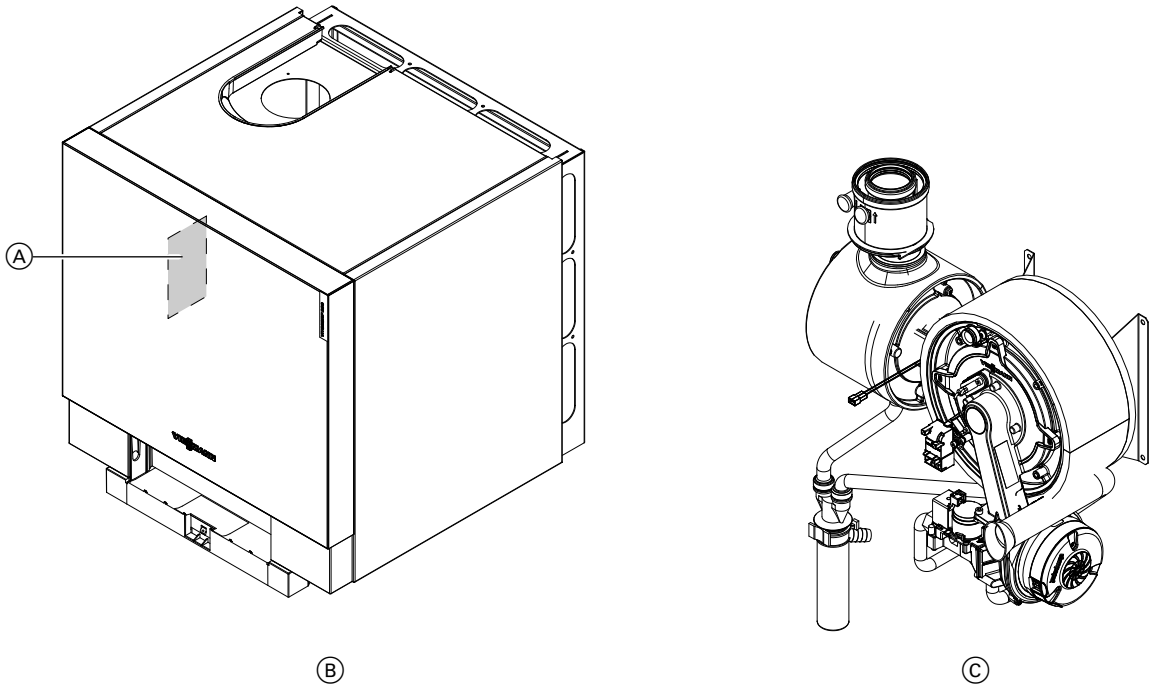


Fig. 72

Ⓐ Type plate
Ⓑ Heat cell casing assembly
Ⓒ Heat cell assembly with burner
Ⓓ Heat cell hydraulic assembly
Ⓔ Control unit assembly

Assembly overview (cont.)

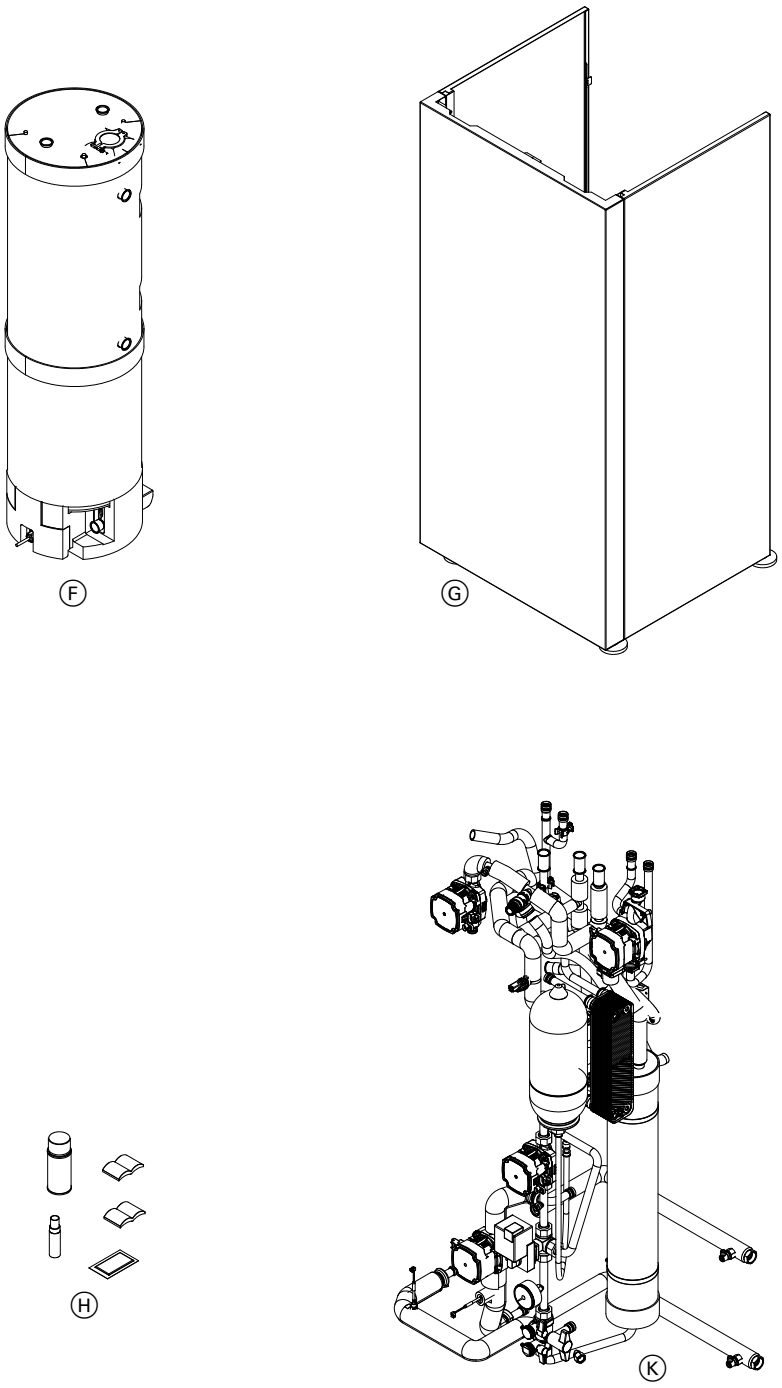


Fig. 73

Ⓕ Sorption module assembly
Ⓖ Sorption module casing assembly
Ⓗ Sorption module hydraulic assembly
Ⓚ Miscellaneous assembly

Heat cell casing

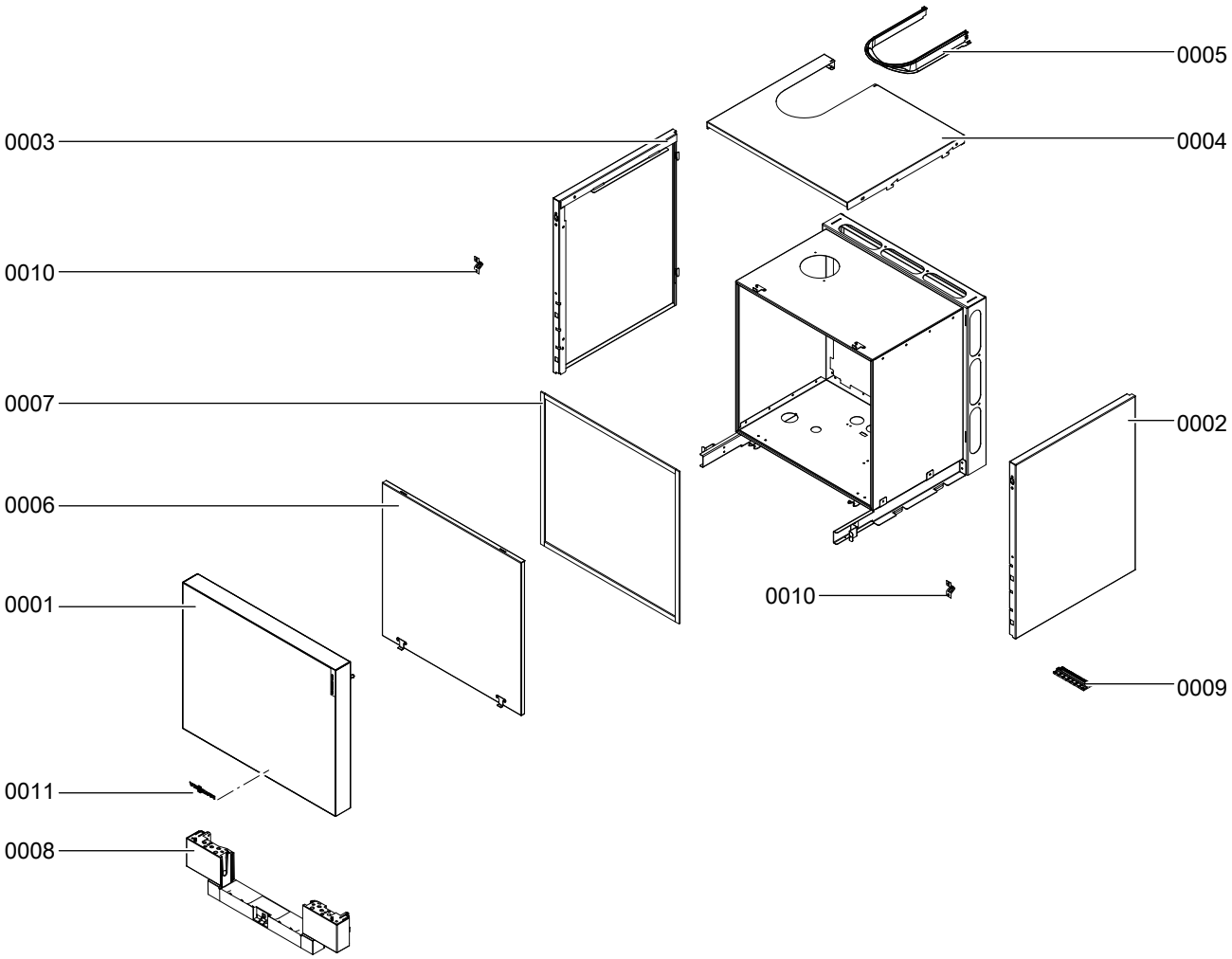


Fig. 74

Heat cell casing (cont.)

Pos.	Part
0001	Front panel, top
0002	Side panel, top right
0003	Side panel, top left
0004	Top panel
0005	Top panel insert
0006	Cover panel
0007	Profile gasket, length 520 mm
0008	Control unit support
0009	Strain relief
0010	Location stud
0011	Viessmann logo

Heat cell

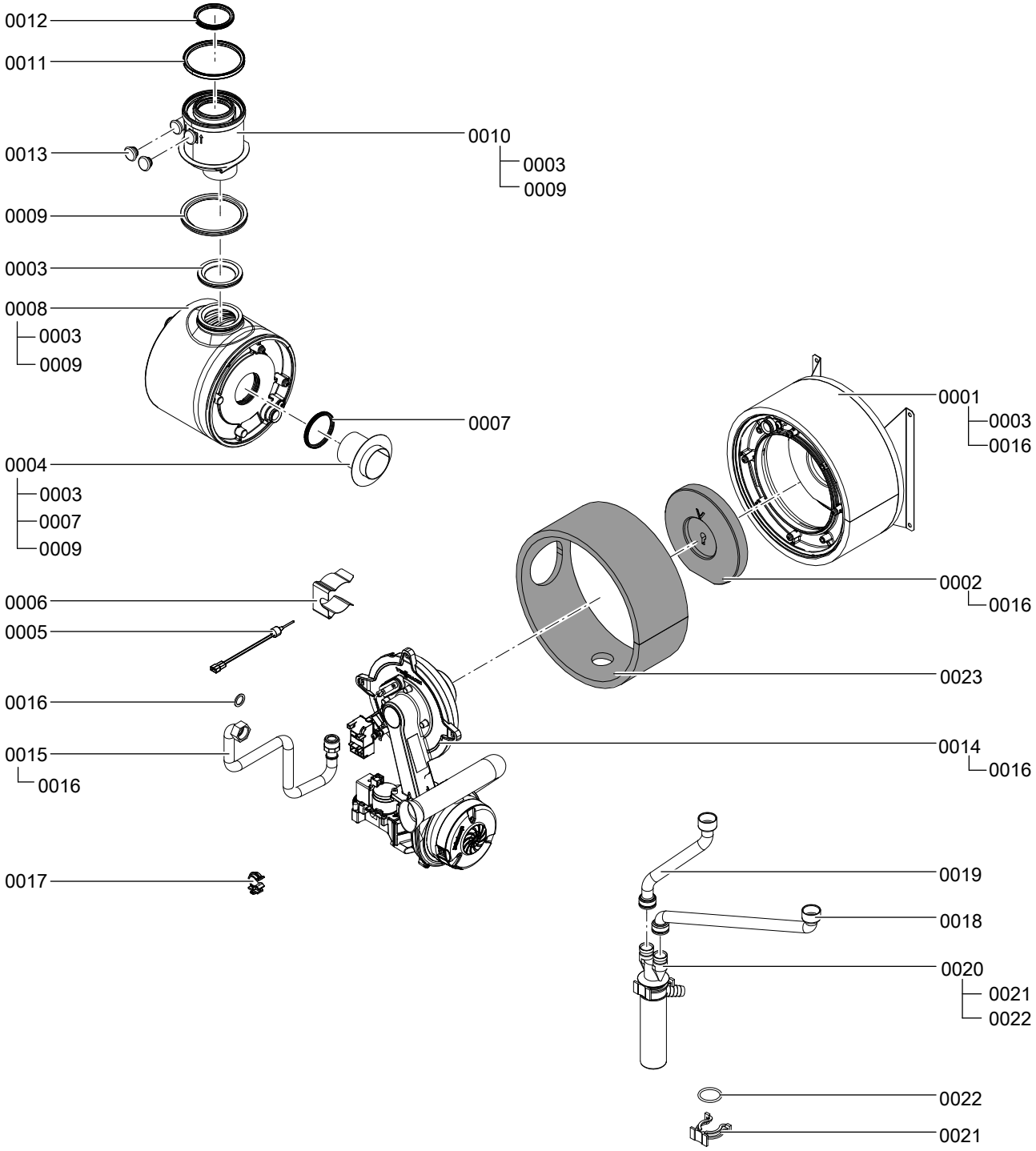


Fig. 75

Heat cell (cont.)

Pos.	Part
0001	Burner heat exchanger
0002	Thermal insulation block
0003	Flue gasket
0004	Flue pipe
0005	Flue gas temperature sensor
0006	Flue pipe retaining clip
0007	Gasket DN 60
0008	Exhaust gas heat exchanger
0009	Diaphragm grommet DN 100
0010	Boiler flue connection
0011	Ventilation air gasket ∅ 100
0012	System lip seal DN 60
0013	Plug for boiler flue connection
0014	MatriX cylinder burner
0015	Gas supply pipe
0016	Gasket A 17 x 24 x 2 (5 pce)
0017	Clip ∅ 18
0018	"Burner heat exchanger" condensate hose
0019	Flue gas heat exchanger condensate hose
0020	Trap
0021	Spring clip, condensate drain
0022	O-rings 35.4 x 3.59 (5 pce)
0023	Jacket insulation

Burner

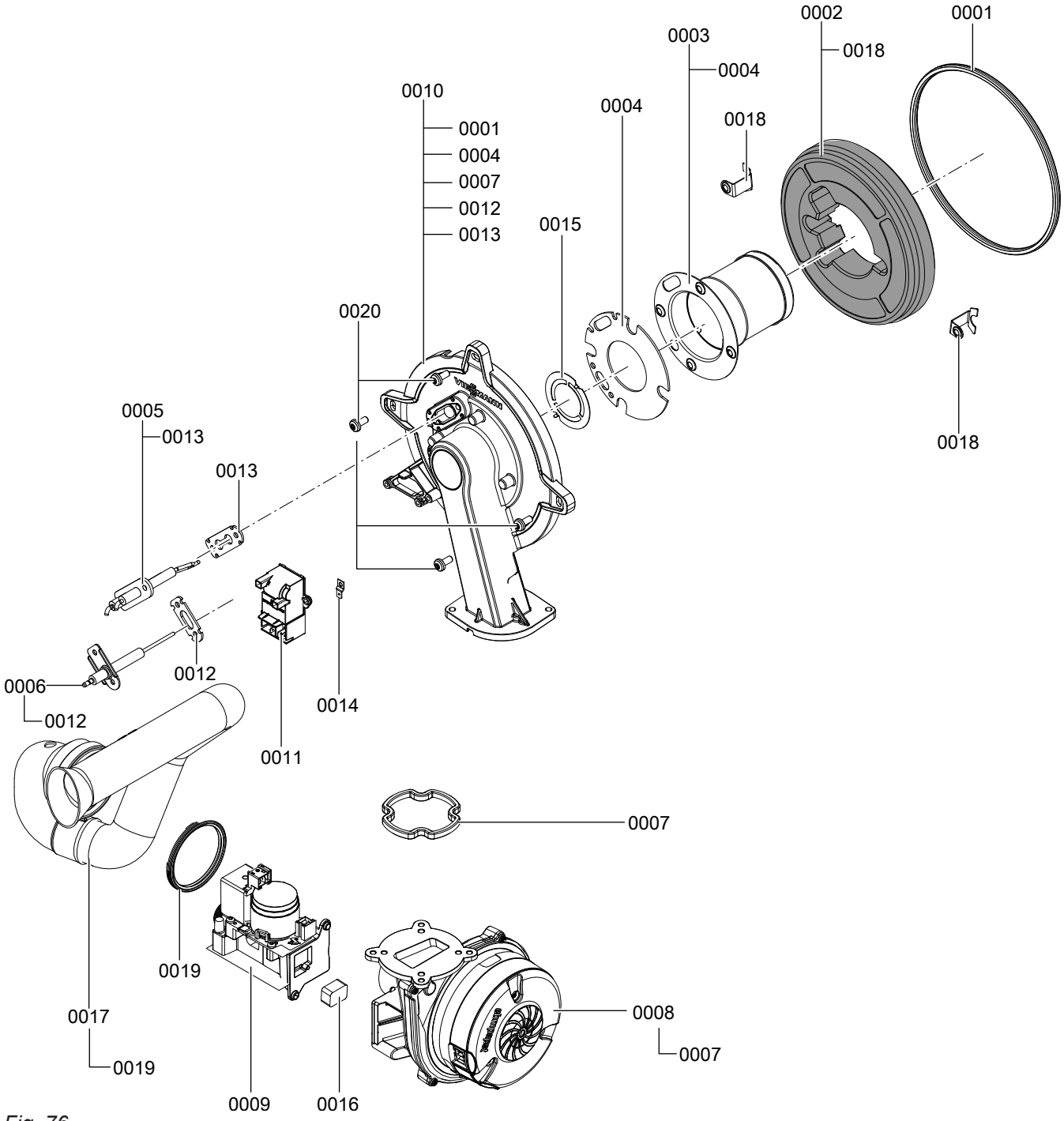


Fig. 76

Burner (cont.)

Pos.	Part
0001	Burner gasket ∅ 187 *(wearing part)*
0002	Thermal insulation ring
0003	Cylinder burner gauze assembly
0004	Gasket, burner gauze assembly
0005	Ignition electrode *(wearing part)*
0006	Ionisation electrode *(wearing part)*
0007	Gasket, burner door flange *(wearing part)*
0008	Radial fan
0009	Gas train
0010	Burner door
0011	Ignition unit
0012	Gasket, ionisation electrode (5 pce)
0013	Gasket, ignition electrode (5 pce)
0014	Flat pin plug (10 pce)
0015	Mixture restrictor
0016	Gas nozzle
0017	Venturi extension
0018	Retaining bracket, thermal insulation ring (2 pce)
0019	Gasket DN 65
0020	Burner door screws

Heat cell hydraulics

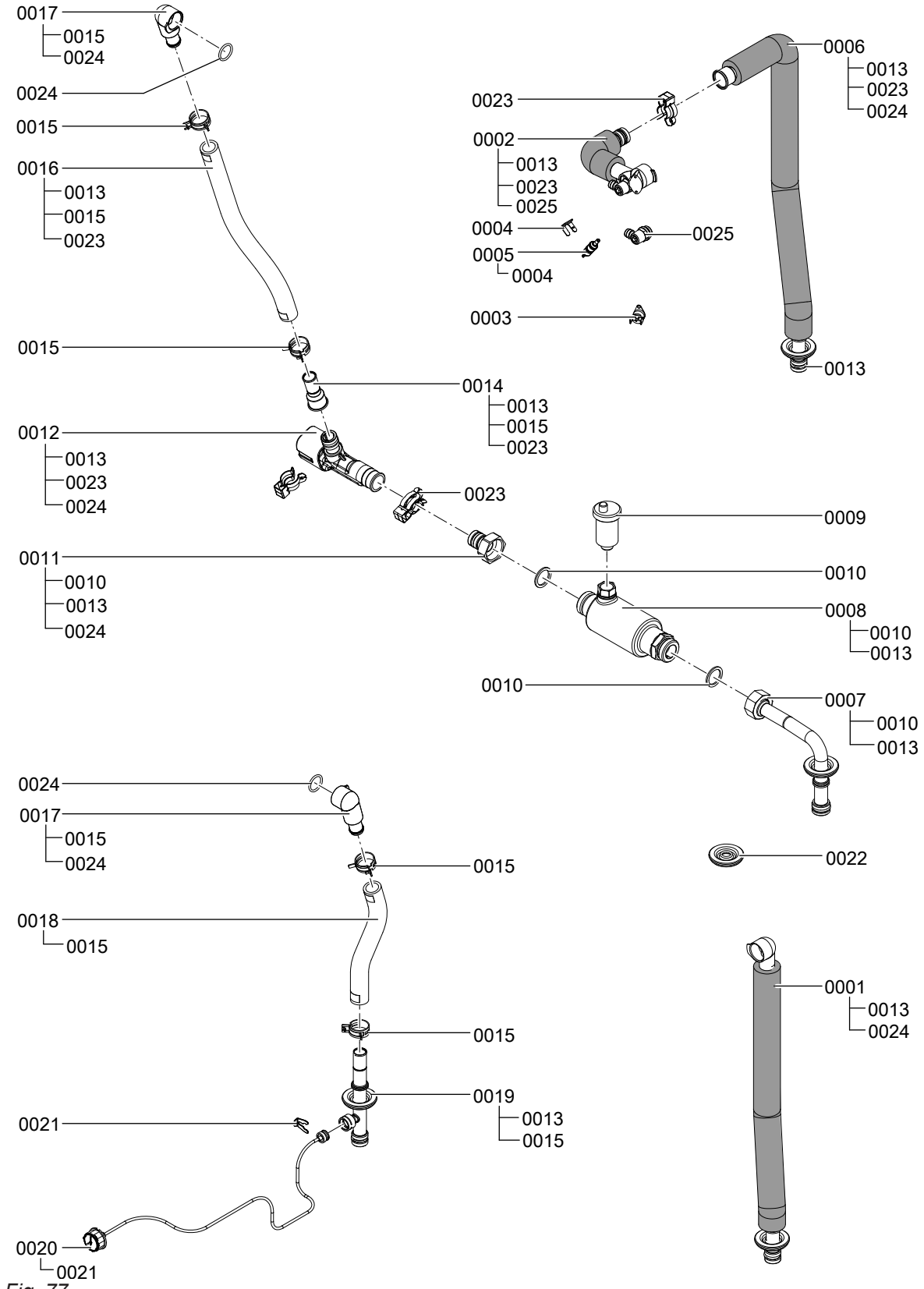


Fig. 77

Heat cell hydraulics (cont.)

Pos.	Part
0001	Connection pipe "high temperature process pump/burner heat exchanger"
0002	Connection pipe "burner heat exchanger"
0003	High limit temperature cut-out device
0004	Clip ∅ 8
0005	Heat exchanger temperature sensor –30 °C to +125 °C
0006	Connection pipe "burner heat exchanger/sorber"
0007	Connection pipe "secondary pump/air vent valve"
0008	Air trap with gaskets
0009	Quick-action air vent valve G 3/8, 6 bar (0.6 MPa), 95 °C
0010	Gasket 23 x 30 x 2 (5 pce)
0011	Female push-fit connector
0012	Flow sensor
0013	O-ring 17.86 x 2.62 (5 pce)
0014	Adaptor for moulded hose
0015	Spring clip DN 25 (5 pce)
0016	Moulded return hose for "burner heat exchanger"
0017	Connection elbow
0018	Moulded flow hose for "burner heat exchanger"
0019	Flow connection pipe
0020	Pressure gauge 0 to 4 bar (0 to 0.4 MPa)
0021	Clip ∅ 10 (5 pce)
0022	Diaphragm grommet (5 pce)
0023	Pipe clip (2 pce)
0024	O-ring 20.63 x 2.62 (5 pce)
0025	Air vent valve G ⅜

Control unit

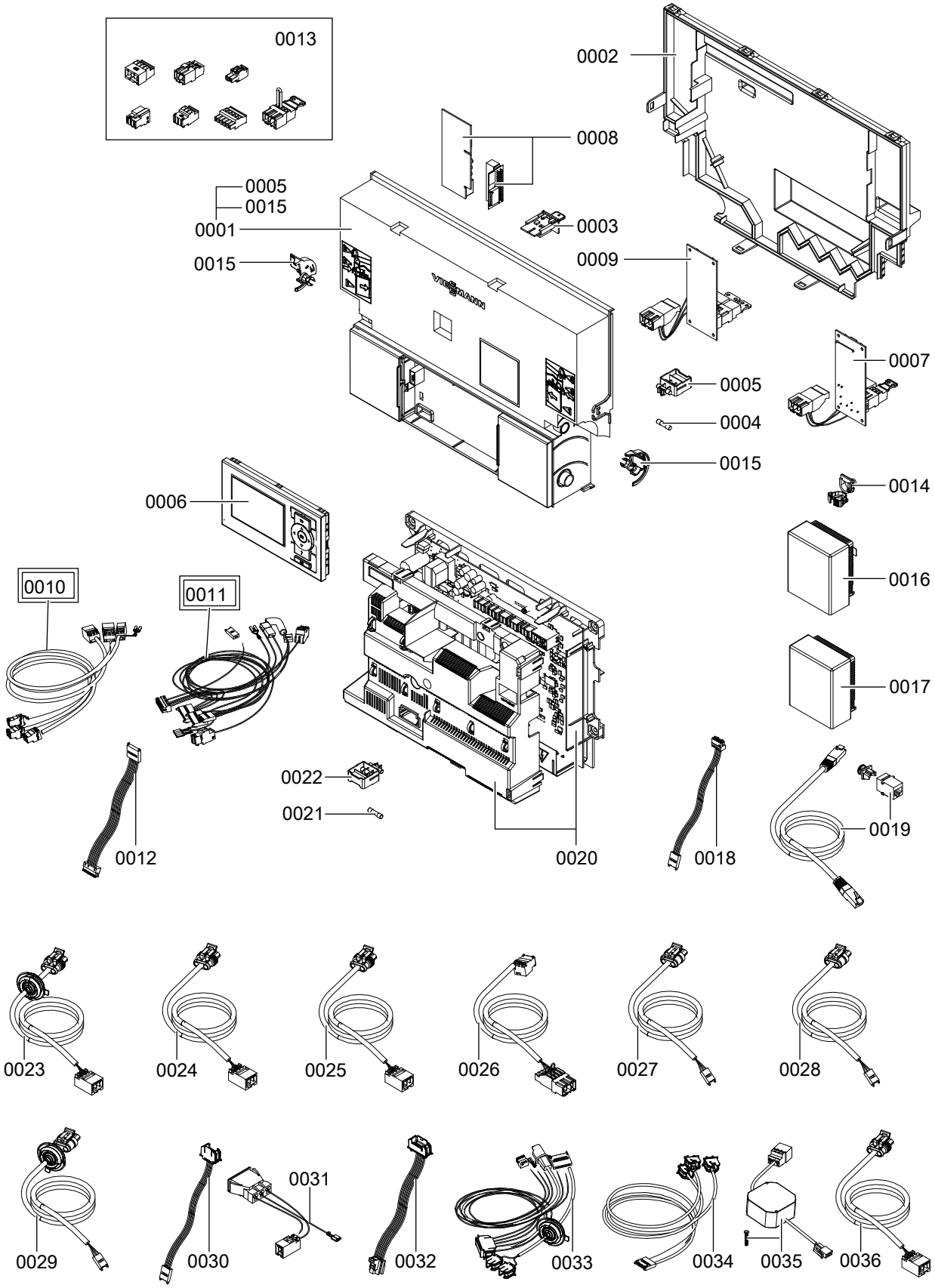


Fig. 78

Control unit (cont.)

Pos.	Part
0001	Control unit
0002	Back panel, control unit enclosure
0003	Coding card
0004	Fuse 6.3 A (slow), 250 V (10 pce)
0005	Fuse holder 6.3 A (slow)
0006	Programming unit
0007	Internal H2 extension
0008	LON communication module with PCB adaptor
0009	Internal H1 extension
0010	Cable harness 100/35/54/PE
0011	Vitosorp cable harness
0012	Power cable, stepper motor 2
0013	Mating plugs (set)
0014	Cable ties (10 pce)
0015	Locking bolts, left and right
0016	Outside temperature sensor (hardwired)
0017	Wireless outside temperature sensor
0018	X15-2 communication cable
0019	LAN cable
0020	Process control unit
0021	Fuse 3.15 A (slow), 250 V (10 pce)
0022	Fuse holder 3.15 A (slow)
0023	Connecting cable, primary pump 26
0024	Connecting cable, "low temperature process pump" 25
0025	Connecting cable, "high temperature process pump" 172
0026	Connecting cable 40A
0027	Connecting cable, PWM signal "high temperature process pump" X4
0028	Connecting cable, PWM signal "low temperature process pump" X3
0029	Connecting cable, PWM signal, primary pump X2
0030	X15-1 communication cable
0031	Cable harness, external pressure switch
0032	Power cable, stepper motor 1
0033	Cable harness, sensors, sorber
0034	Cable harness, sensors
0035	Power supply unit
0036	Connecting cable "heating circuit pump" 20

Sorption module

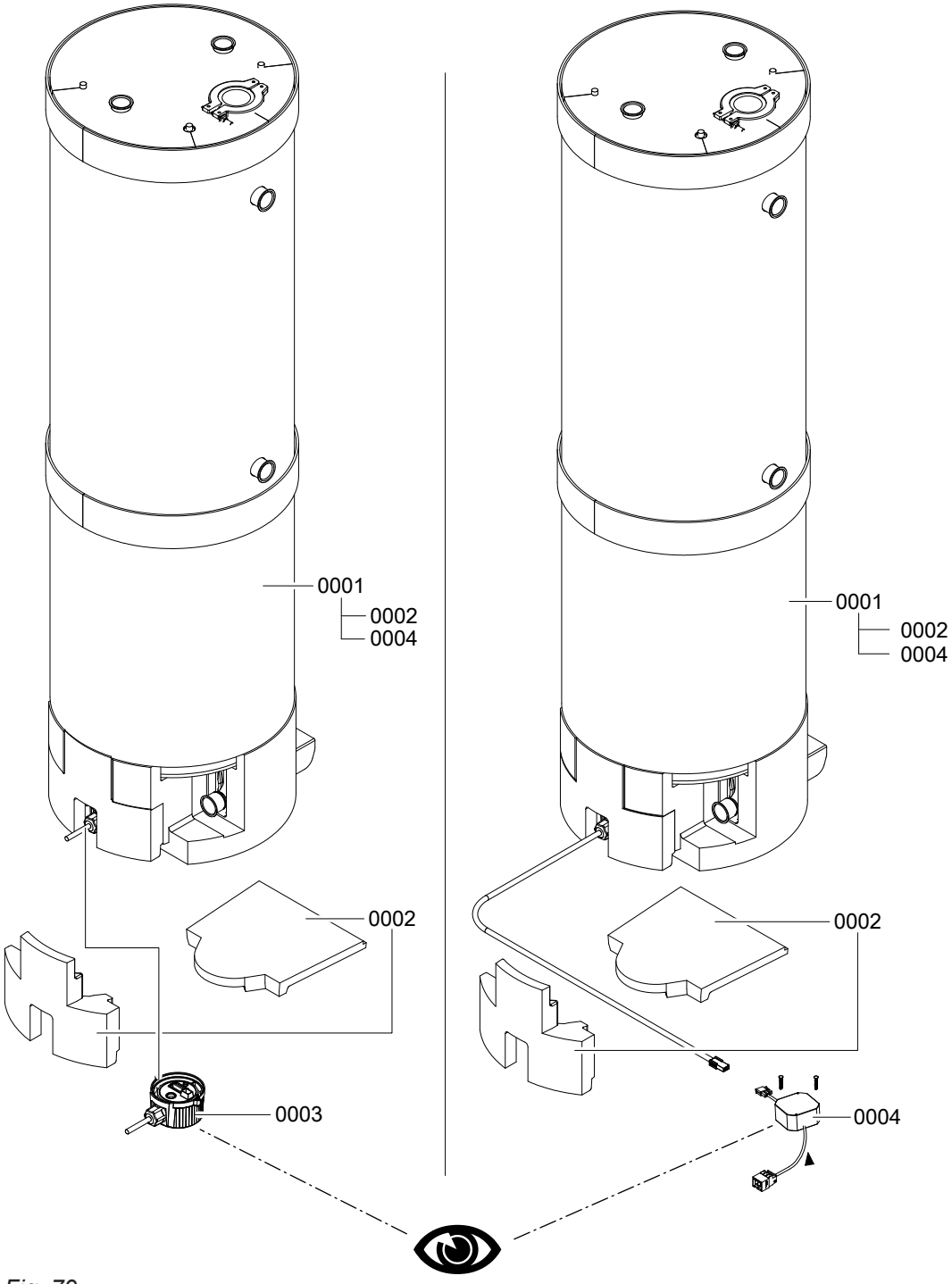


Fig. 79

Sorption module (cont.)

Pos.	Part
0001	Sorption module
0002	Insulating parts
0003	Evaporator pump power supply unit integrated into sorption module
0004	Evaporator pump power supply unit on process control unit

Sorption module casing

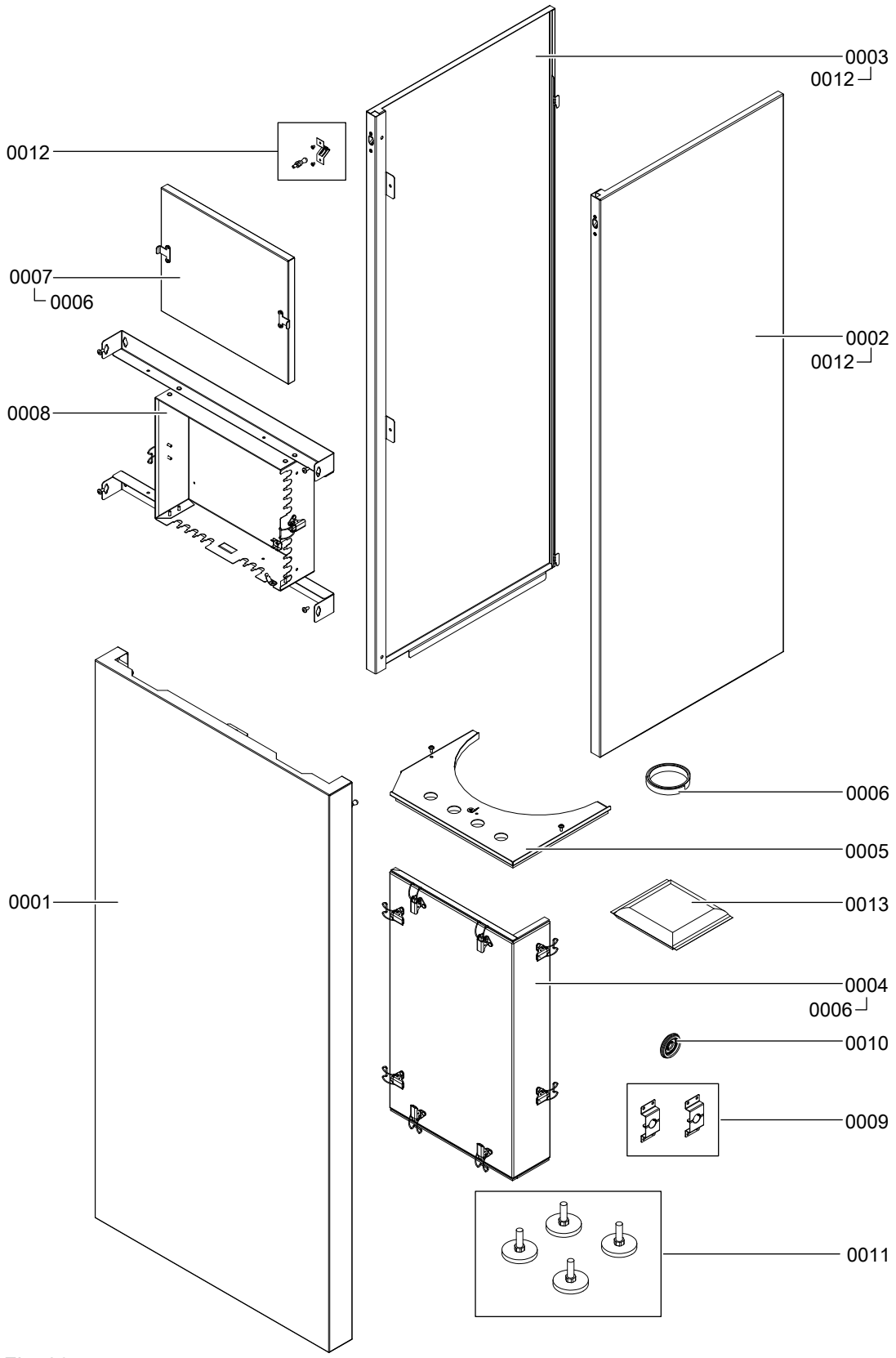


Fig. 80

Sorption module casing (cont.)

Pos.	Part
0001	Front panel, bottom
0002	Side panel, bottom right
0003	Side panel, bottom left
0004	Front cover panel
0005	Top cover panel
0006	Sealing tape 12 x 3
0007	Process control unit cover
0008	Process control unit enclosure with rails
0009	Retaining bracket (2 pce)
0010	Diaphragm grommet
0011	Adjustable foot (4 pce)
0012	Location stud
0013	Desiccant bag (wearing part)

Sorption module hydraulics

Process circuit

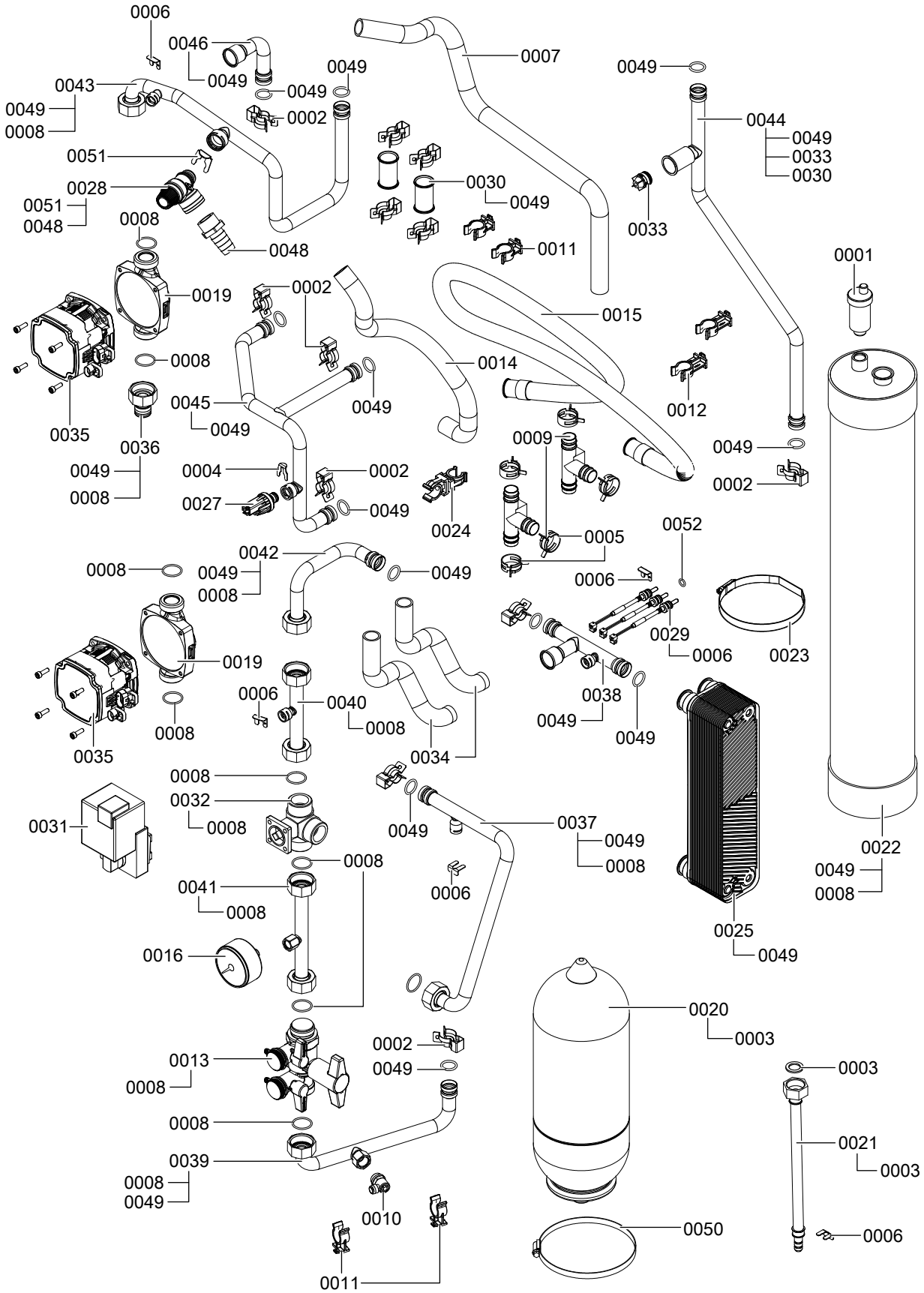


Fig. 81

Sorption module hydraulics (cont.)

Pos.	Part
0001	Quick-action air vent valve G 3/8
0002	Pipe clips (2 pce)
0003	Gaskets 16 x 24 x 2 (5 pce)
0004	Clip ∅ 10
0005	Spring clip DN 25 (5 pce)
0006	Clip ∅ 8 (5 pce)
0007	Hose, safety valve 19 x 600
0008	O-ring 24 x 2 (5 pce)
0009	Tee, condensate ∅ 19
0010	Air vent valve G 3/8
0011	Clip ∅ 18/1.5
0012	Clip ∅ 18
0013	Filling device
0014	Condensate hose 19 x 500
0015	Condensate hose 19 x 1100
0016	Pressure gauge
0019	Circulation pump casing
0020	Expansion vessel 4 l
0021	Connection line, expansion vessel
0022	Buffer
0023	Hose clip ∅ 120 - 130
0024	Pipe connector
0025	Plate heat exchanger
0027	Pressure sensor
0028	Safety valve 4 bar (0.4 MPa)
0029	Temperature sensor Pt500
0030	Slider sleeve
0031	Servomotor and control valve cable
0032	Control valve
0033	Non-return valve
0034	Condensate hose
0035	PWM circulation pump motor
0036	Female push-fit connector
0037	Connection pipe "sorber/control valve"
0038	Connection pipe "plate heat exchanger/sorber"
0039	Connection pipe, buffer
0040	Connection pipe "control valve/low temperature process pump"
0041	Connection pipe "control valve"
0042	Connection pipe "plate heat exchanger/low temperature process pump"
0043	Connection pipe "high temperature process pump/burner heat exchanger"
0044	Connection pipe "burner heat exchanger/buffer"
0045	Connection pipe, sorber
0046	Connection pipe "sorber/buffer"
0048	Hose nozzle R 3/4
0049	O-ring 17.86 x 2.62 (5 pce)

Sorption module hydraulics (cont.)

Pos.	Part
0050	Hose clip ∅ 140 - 160
0051	Clip ∅ 16 (5 pce)
0052	Seal ring 8 x 2 (5 pce)

Sorption module hydraulics (cont.)

Sorption module hydraulics (cont.)

Primary and secondary circuit

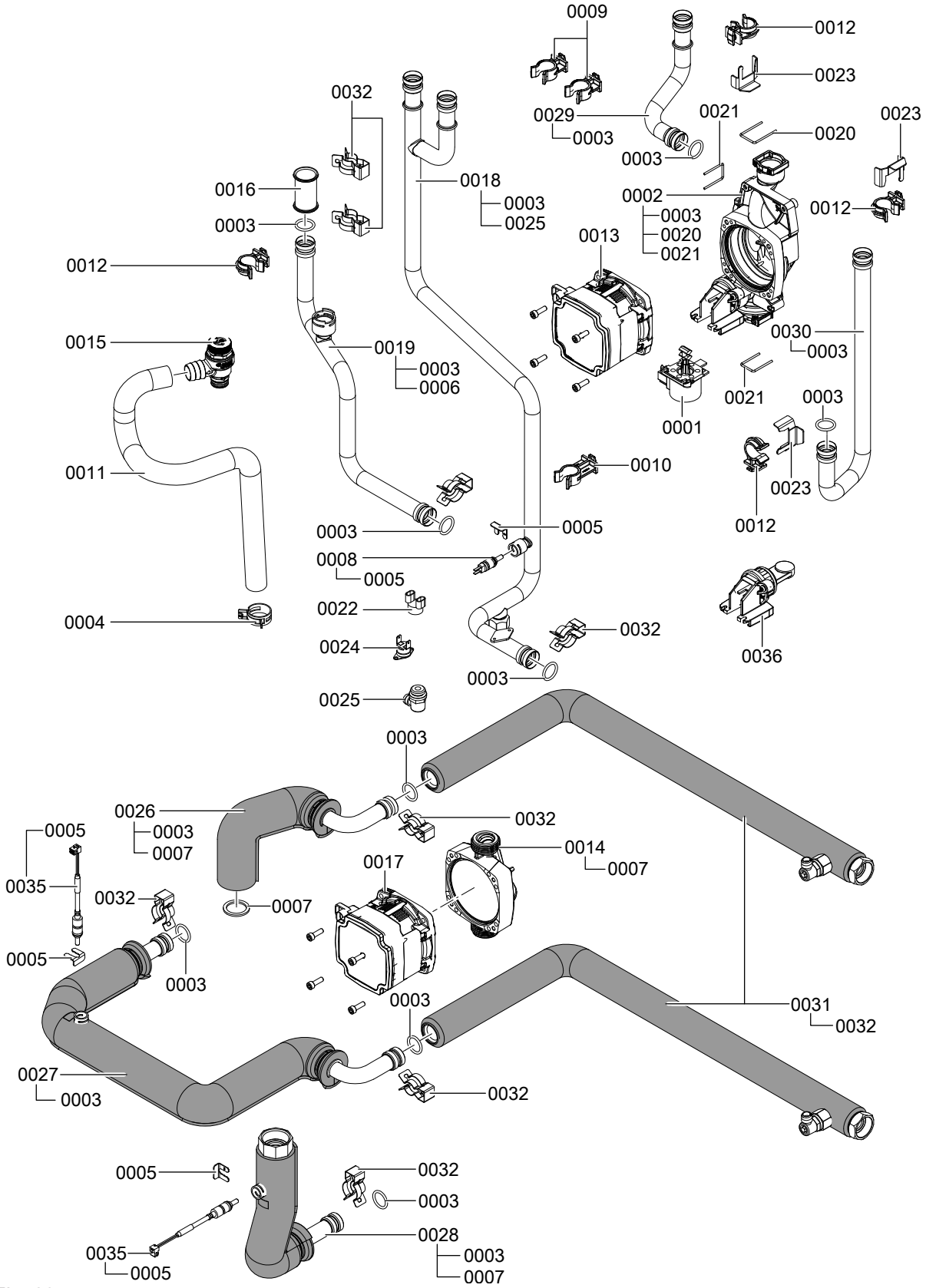


Fig. 82

Sorption module hydraulics (cont.)

Pos.	Part
0001	Linear stepper motor
0002	Return unit
0003	O-ring 17.86 x 2.62 (5 pce)
0004	Spring clip DN 25 (5 pce)
0005	Clip ∅ 8 (5 pce)
0006	Clip ∅ 18 (5 pce)
0007	Gasket 23 x 30 x 1.5 (5 pce)
0008	Temperature sensor –30 °C to +125 °C
0009	Clip ∅ 18/1.5
0010	Clip ∅ 18
0011	Safety valve condensate hose 19 x 500
0012	Clip ∅ 18
0013	Circulation pump motor
0014	PWM circulation pump motor casing
0015	Safety valve 3 bar (0.3 MPa), ∅ 19.9 x ∅ 21.7
0016	Slider sleeve
0017	PWM circulation pump motor
0018	Connection pipe "plate heat exchanger/secondary flow"
0019	Connection pipe "plate heat exchanger/flue gas heat exchanger"
0020	Retaining pin ∅ 22 (5 pce)
0021	Retaining pin ∅ 18 (5 pce)
0022	Protective cap, thermal circuit breaker
0023	Spring clip (5 pce)
0024	Secondary circuit temperature limiter
0025	Air vent valve G 3/8
0026	Connection pipe, primary pump
0027	Connection pipe, evaporator outlet
0028	Connection pipe, evaporator inlet
0029	Connection pipe "diverter valve/DHW cylinder return"
0030	Connection pipe "diverter valve/secondary circuit return"
0031	Connection pipes, primary circuit
0032	Pipe clips (2 pce)
0035	Evaporator temperature sensor NTC 10 kΩ
0036	Adaptor for stepper motor

Miscellaneous

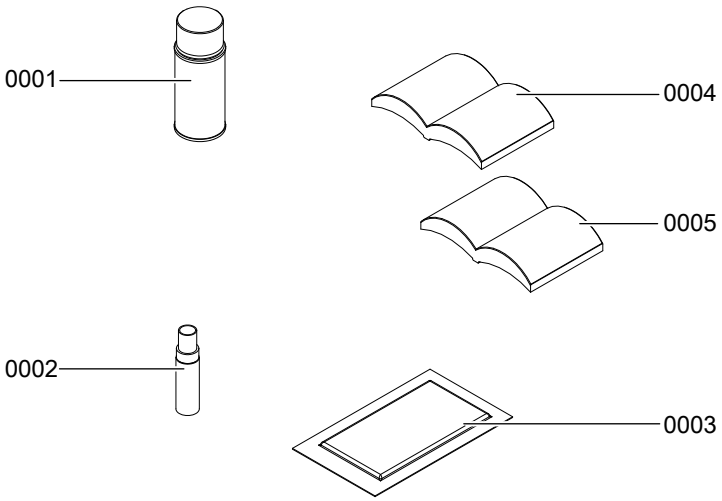


Fig. 83

Miscellaneous (cont.)

Pos.	Part
0001	Touch-up spray paint, Vitosilver
0002	Touch-up paint stick, Vitosilver
0003	Special grease
0004	Installation and service instructions
0005	Operating instructions

Control unit

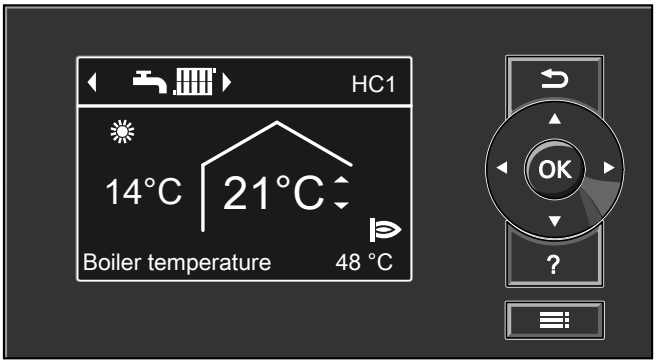


Fig. 84

Note
A regular, internal regeneration process takes place in the appliance.

- *Only switch the appliance off for a **maximum of 1 week**.*
- *Select standby mode when switching off for longer periods.*

Functional principle in sorption mode

The cyclical, physical process of adsorption and desorption in the sorber (sorption cycle) runs in a hermetically sealed and maintenance-free sorption module. To ensure that the water acting as refrigerant can absorb environmental heat even at low temperatures, the sorption module is vacuum-tight and has been evacuated.
The zeolite in the sorber stores water (adsorption) and releases it again (desorption). The heat released in this process is used for central heating and DHW heating.
Through the additional introduction of environmental heat (primary circuit), the efficiency of the appliance can be increased by up to 40 % compared with pure condensing operation.

Desorption phase

The zeolite in the sorber is saturated with water (refrigerant). Using heat supplied from gas combustion, the sorber is heated and the water (refrigerant) is expelled (desorbed) from the zeolite in the form of vapour.
The condenser is arranged around the sorber and the secondary circuit return flows through it. This cools down the water vapour expelled from the zeolite and the water condenses. The condensed water flows to the evaporator.
The condensation heat is transferred to the secondary circuit, as is the heat recovered from gas combustion in the flue gas heat exchanger.
The burner is switched off at the end of the desorption phase.

Adsorption phase

Now the process circuit return flows through the sorber. This cools the sorber and heat is transferred to the secondary circuit.
The condensed water is pumped to a level above the evaporator pipe coils by the evaporator pump. This causes water to trickle onto the evaporator pipe coils. The evaporator pipe coils are part of the primary circuit and transfer the heat absorbed from the environment to the water. The water evaporates.
The rising water vapour is bound (adsorbed) by the zeolite in the sorber. The adsorption heat generated in this process is transferred to the secondary circuit.

Operating modes

The gas adsorption heating appliance can be used in condensing mode, sorption mode or mixed mode (coding address "14" in the **"Process"** group).

- Condensing mode (delivered condition):
  The heat for the secondary circuit is generated exclusively by gas combustion.
- Sorption mode:
  The heat for the secondary circuit is generated exclusively by the sorption cycle (adsorption/desorption).
- Mixed mode (condensing and sorption operation):
  The heat for the secondary circuit is generated primarily by the sorption cycle (adsorption/desorption). If heat demand increases, the burner also starts. Condensing operation and sorption operation are possible both in parallel and separately.

Control unit (cont.)

Heating mode

The Vitotronic control unit determines a set flow temperature depending on the outside temperature or room temperature (if a room temperature-dependent remote control is connected) and the slope/level of the heating curve.
The process control unit determines a heat demand from the set flow temperature in the Vitotronic control unit, the actual flow temperature and the flow rate. The system keeps this heat demand at a constant average over time.

This heat demand determines both the actual set flow temperature and the operating mode within mixed mode:
- If more heat is required than is currently being supplied, the system switches firstly into mixed mode and then, if necessary, into condensing mode.
- If the supplied heat is sufficient, the system remains in or reverts to sorption mode.
- If more heat than required is supplied, the appliance switches off.
  If the heat demand is so high that a sorption cycle can be completed, the appliance switches on.

DHW heating

Irrespective of the selected operating mode, the set flow temperature is increased automatically to 80 °C when there is a heat demand for DHW heating.

If the set flow temperature cannot be achieved with a sorption cycle, reheating takes place in condensing mode.

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.

Cooling the process circuit

If the temperature distribution in the appliance is in an undefined state, the process circuit is cooled down automatically to achieve a temperature level that is balanced and as low as possible.
The secondary pump starts so that heat can be transferred to the secondary circuit. The low temperature process pump starts and the control valve regulates to a set flow temperature 5 K higher than the actual return temperature.
If the evaporator temperature is higher than 3 °C, both the primary pump and the evaporator pump start. This balances out the temperatures in the sorption module. After approx. 10 min, the temperatures in the process flow, process return and sorber outlet will have converged to within approx. 3 K.

This procedure starts in the following cases:
- After running the commissioning assistant
- When the appliance is switched on
- At the start of the emissions test mode
- On calling up the **"System functions"** (actuator test, filling, venting, etc.)
- On activation of the combustion controller parameters (changing of code "11" in the **"General"** group)
- When the burner control unit is reset
- On acknowledgement of fault messages from the process control unit or burner control unit
- On ending service mode
- Before and after sensor calibration

Internal extensions (accessories)

Internal H1 extension

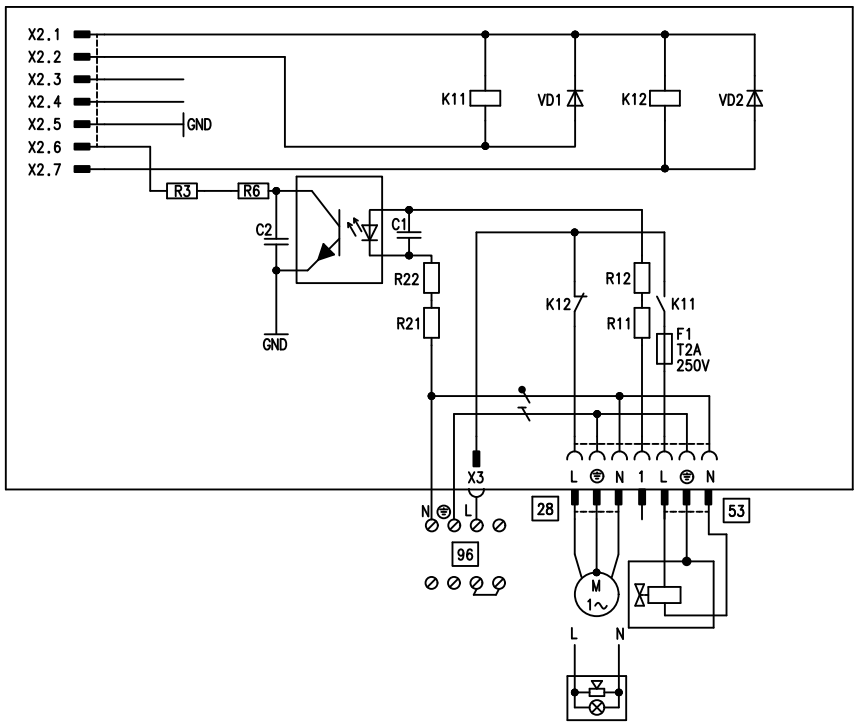


Fig. 85

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")
- Heating circuit pump for heating circuit without mixer (code "53:2")
- Circulation pump for cylinder heating (code "53:3")

An external safety valve can be linked to connection 53.

Internal H2 extension

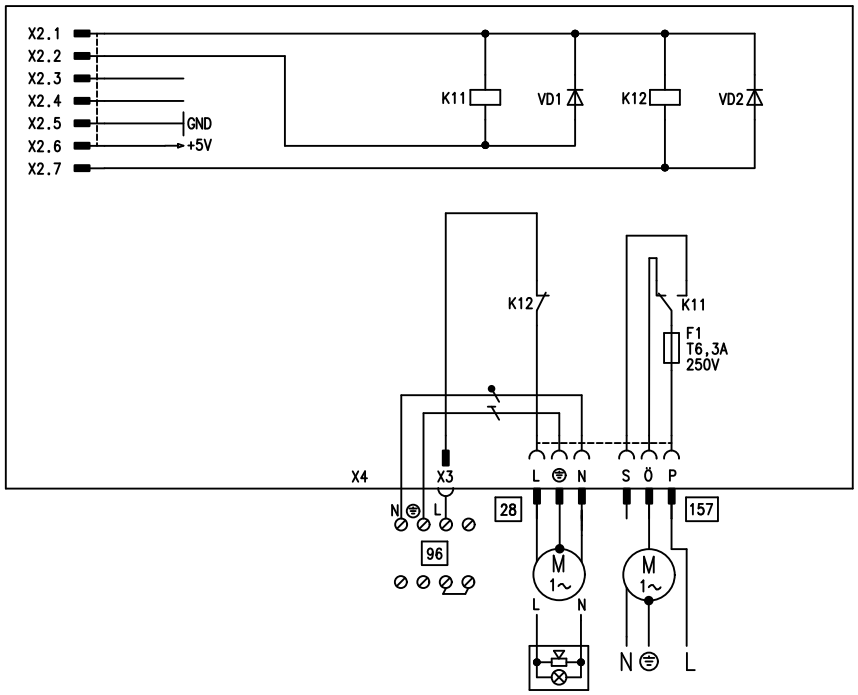


Fig. 86

Internal extensions (accessories) (cont.)

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")
- Heating circuit pump for heating circuit without mixer (code "53:2")
- Circulation pump for cylinder heating (code "53:3")

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

External extensions (accessories)

AM1 extension

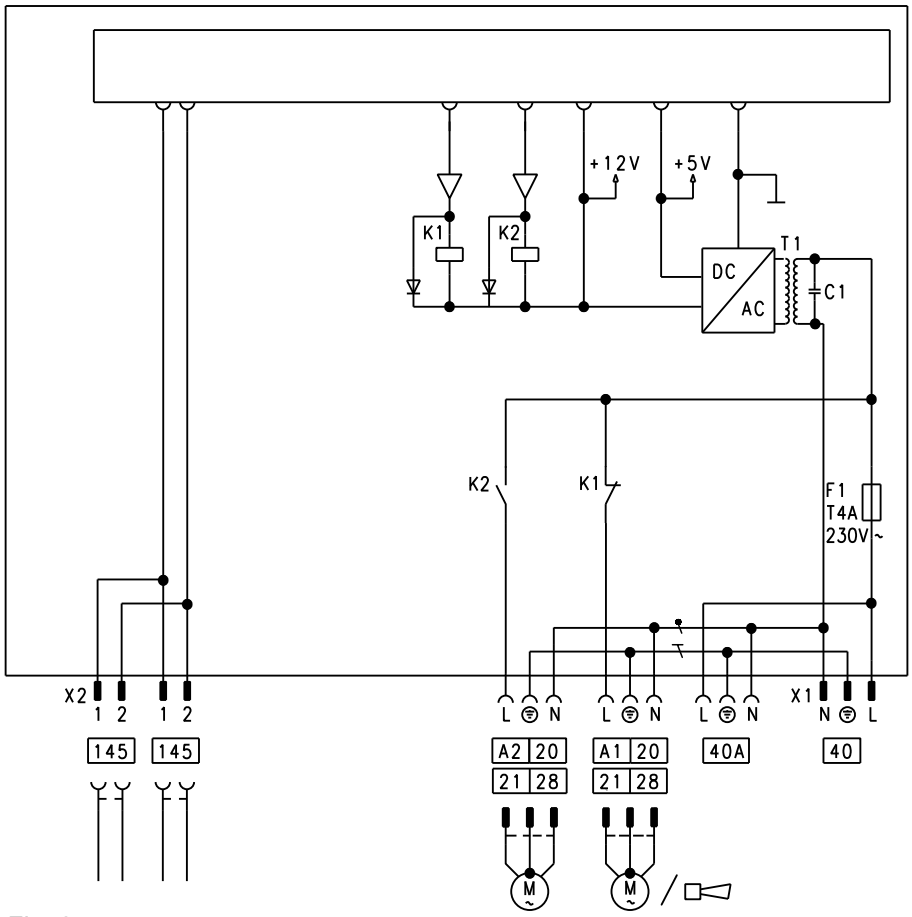


Fig. 87

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

Functions

One of the following circulation pumps can be connected to each of the connections A1 and A2:
- Heating circuit pump for heating circuit without mixer
- Circulation pump for cylinder heating
- DHW circulation pump

Select the output functions via codes in the heat generator control unit.

External extensions (accessories) (cont.)

Function assignment

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

EA1 extension

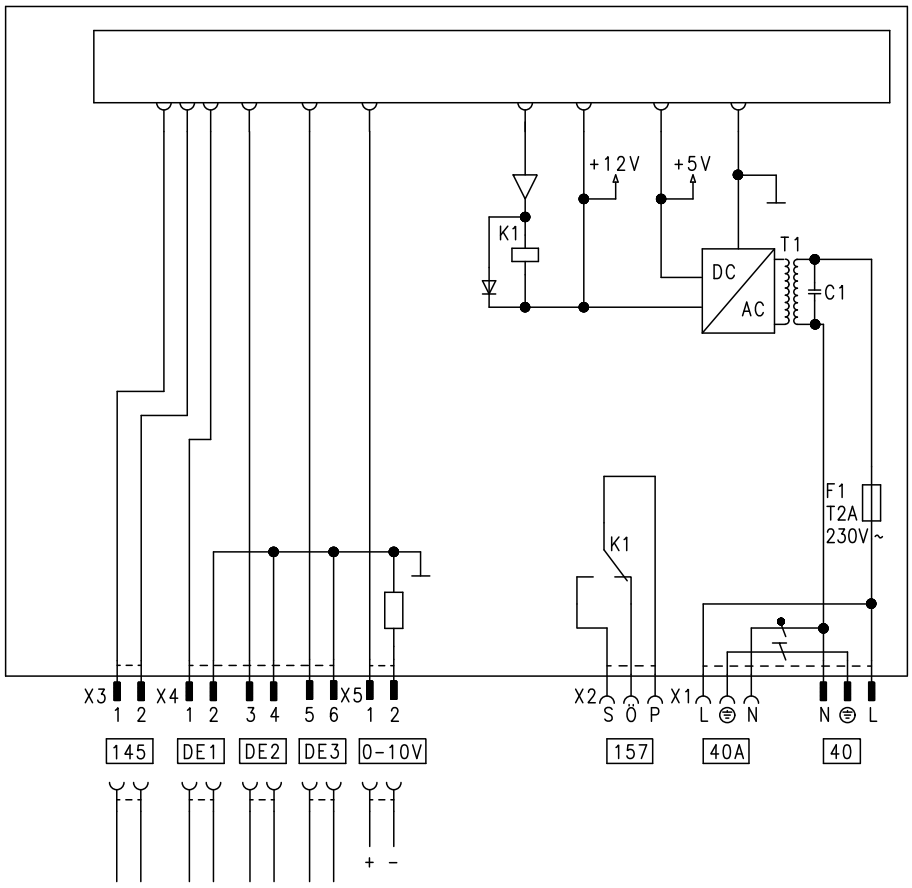


Fig. 88

F1 MCB/fuse
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 each heating circuit
- External blocking
- External blocking with fault message input
- External demand with minimum flow temperature
- Fault message input
- Brief operation of the DHW circulation pump

External contacts must be potential-free. When connecting, observe the requirements of protection class II, i.e. 8.0 mm air and creep path and 2.0 mm insulation thickness to live parts.

Input function assignment

Select the input functions via codes in the **"General"** group in the heat generator control unit:
- DE1: Coding address 3A
- DE2: Coding address 3b
- DE3: Coding address 3C

5678 044 GB

External extensions (accessories) (cont.)

Assigning the operating program changeover function to the heating circuits

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

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

Effect of the "External blocking" function on the pumps

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

Effect of the "External demand" function on the pumps

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

DHW circulation pump runtime for brief operation

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

Analogue input 0 – 10 V

The 0 – 10 V hook-up provides an additional set flow temperature:

0 to 1 V	Interpreted as "no default value for set flow temperature".
1 V	Set value 10 °C
10 V	Set value 100 °C

Ensure galvanic separation between the earth conductor and the negative pole of the on-site power source.

Output 157

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

Function assignment

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

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 coding addresses in the **"General"** group:

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

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

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

The direction of the operating program changeover can be selected in coding address "d5" in the **"Heating circuit"** group:

Control functions (cont.)

Heating 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 is set in coding address "F2" in the **"Heating circuit"** group:

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

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 coding addresses in the **"General"** group:

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

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

The effect on the secondary pump is selected in coding address "3E" in the **"General"** group.
The effect on the relevant heating circuit pump is selected in coding address "d6" in the **"Heating circuit"** group.

External demand

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 coding addresses in the **"General"** group:

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

The effect on the secondary pump is selected in coding address "3F" in the **"General"** group.
The effect on the relevant heating circuit pump is selected in coding address "d7" in the **"Heating circuit"** group.
The minimum set flow temperature for external demand is selected in coding address "9b" in the **"General"** group.

Process circuit filling and venting program

The process circuit is separated from the secondary circuit by means of a plate heat exchanger, and must be filled and vented separately.
The manner of flow through the process circuit differs depending on the control valve setting.

To fill and completely vent the process circuit, the low temperature process pump, control valve and high temperature process pump are activated every 90 s in the process circuit filling and venting program for approx. 15 min. During the program, the process circuit must be flushed via the fill valve (see page 42).

Filling program for the secondary circuit

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

Afterwards, the diverter valve can be moved into the central position via the filling function (see "Filling the heating system"). In this position, the control unit can be switched off and the system can be filled completely.

Control functions (cont.)

Filling the secondary circuit with the Vitotronic control unit switched on

If the system is to be filled with the control unit switched on, the diverter valve is moved in the filling program to its central position and the pump is started.

When the function is enabled, the burner shuts down. The program is automatically disabled after approx. 30 min.

Venting program for the secondary circuit

During the venting program, the circulation pump is alternately switched on and off for 30 s at a time over a period of approx. 30 min.
The diverter valve alternates between heating and DHW heating for a given time. The burner is switched off during the venting program.

To activate the venting program: see "Venting the heating system".

Screed drying

When enabling screed drying, observe the information provided by the screed manufacturer.
When screed drying is enabled, the heating circuit pump for the heating circuit with mixer starts and the flow temperature is maintained in accordance with the selected profile. On completion (30 days), the heating circuit with mixer is regulated automatically according to the set parameters.
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

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

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

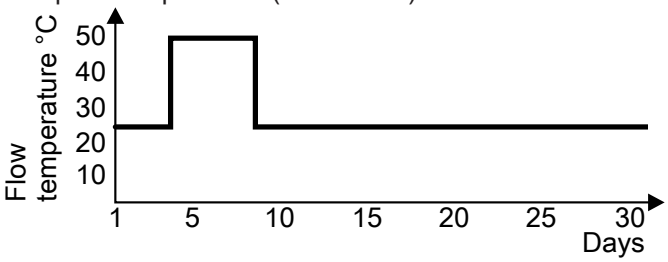


Fig. 89

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

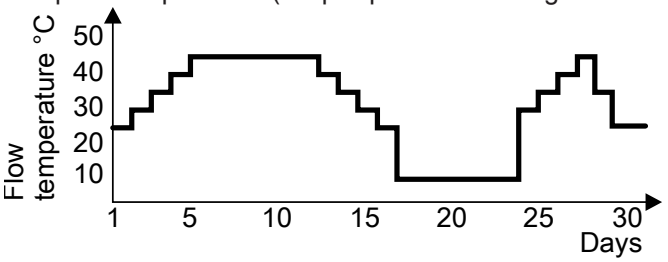


Fig. 90

Control functions (cont.)

Temperature profile 3: code "F1:3"

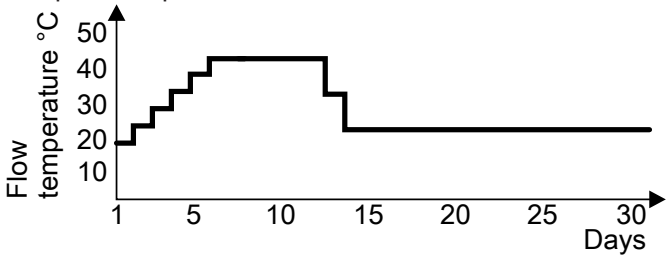


Fig. 91

Temperature profile 4: code "F1:4"

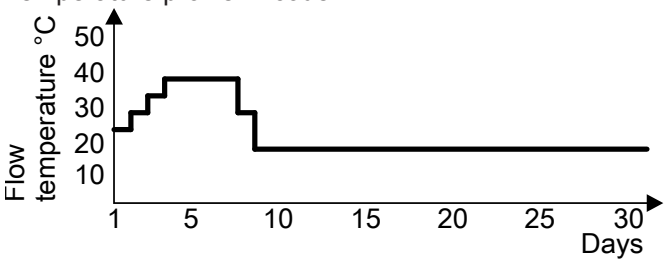


Fig. 92

Temperature profile 5: code "F1:5"

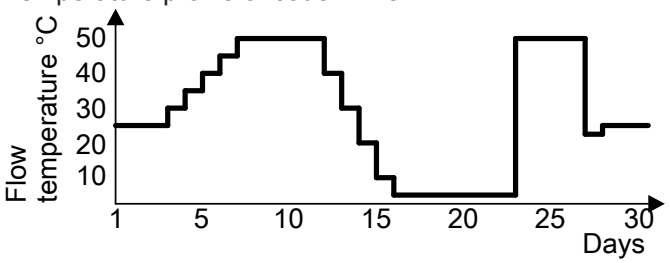


Fig. 93

Temperature profile 6: code "F1:6"

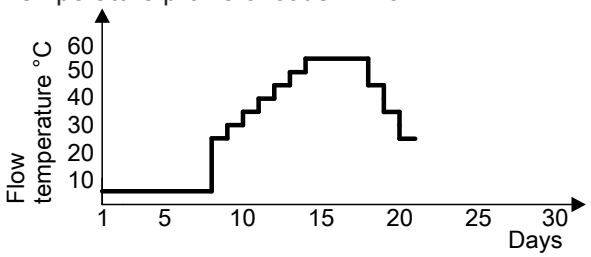


Fig. 94

Temperature profile 7: code "F1:15"

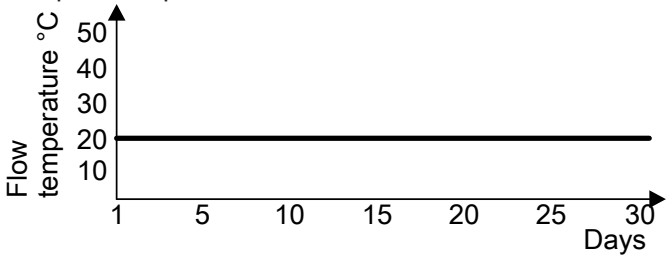


Fig. 95

Control functions (cont.)

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 temperature raising can be set in coding addresses "F8" and "F9" in the **"Heating circuit"** group.

Example

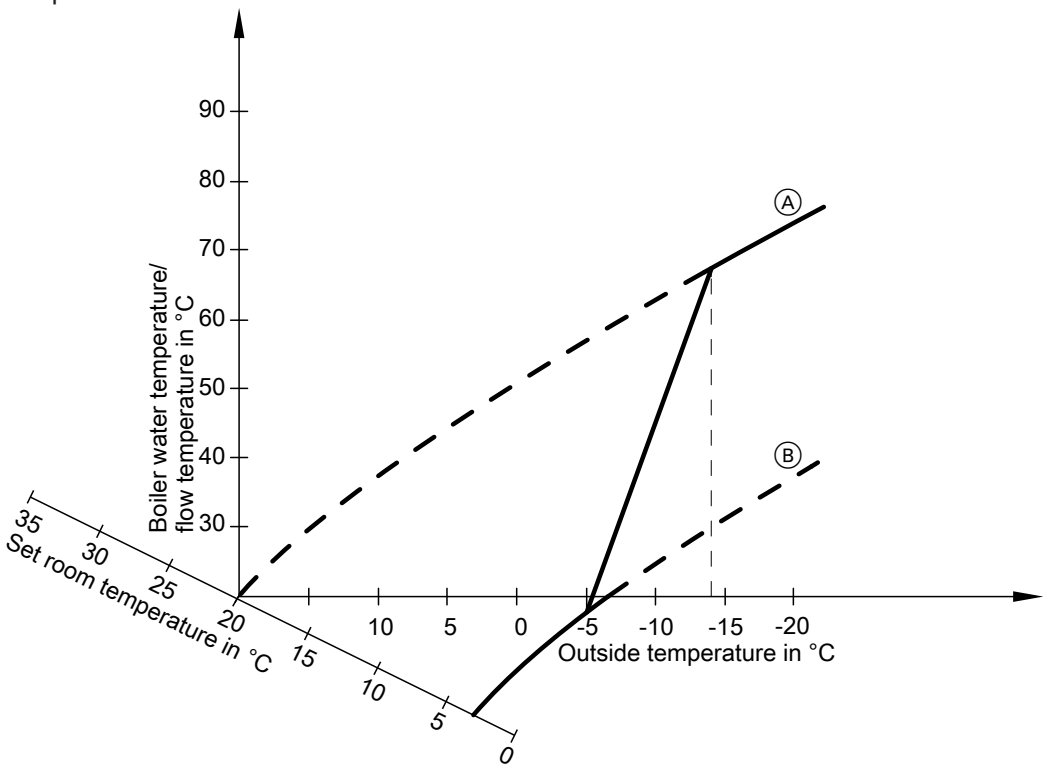


Fig. 96

Ⓐ 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 at reduced room temperature to operation at standard room temperature, the flow temperature will be raised in accordance with the selected heating curve. The flow temperature increase can be raised automatically.

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

Control functions (cont.)

Example using the settings in the delivered condition

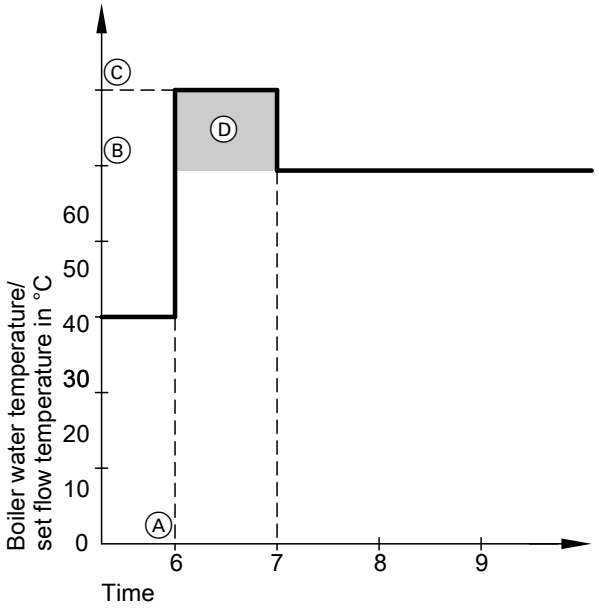


Fig. 97

Ⓐ Start of operation at standard room temperature
Ⓑ Set flow temperature in accordance with the set heating curve
Ⓒ Set flow temperature in accordance with coding address "FA":
50 °C + 20 % = 60 °C
Ⓓ Duration of operation at raised set 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).

Entering Vitocom 100 PIN code via Vitotronic

If a Vitocom 100 (accessories) is connected to the heat source, the PIN code can be entered via the Vitotronic control unit.

1. Press **OK** and ☰: simultaneously for approx. 4 s.
"Service functions"

2. **"Enter Vitocom PIN code"**

Entering Vitocom 100 PIN code via Vitotronic (cont.)

3. **OK**

4. Press ▲/▼ to enter the PIN digits one by one.
   Press ▶/◀ to move to the next position.

5. Confirm with **OK**.

Further information:


Vitocom 100 installation and service instructions

Hydronic balancing

During hydronic balancing using "service case hydronic balancing with Vitosoft 300", **"Hydraulic balancing active"** appears on the display.
While the function is enabled, it is not possible to operate the Vitotronic control unit of the heat generator.

The heat generator is unavailable for heating operation or other functions during hydronic balancing. The burner does not start.

Electronic combustion control unit

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

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

Air ratio λ– CO_2/O_2 content

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

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

Process control unit/Vitotronic control unit

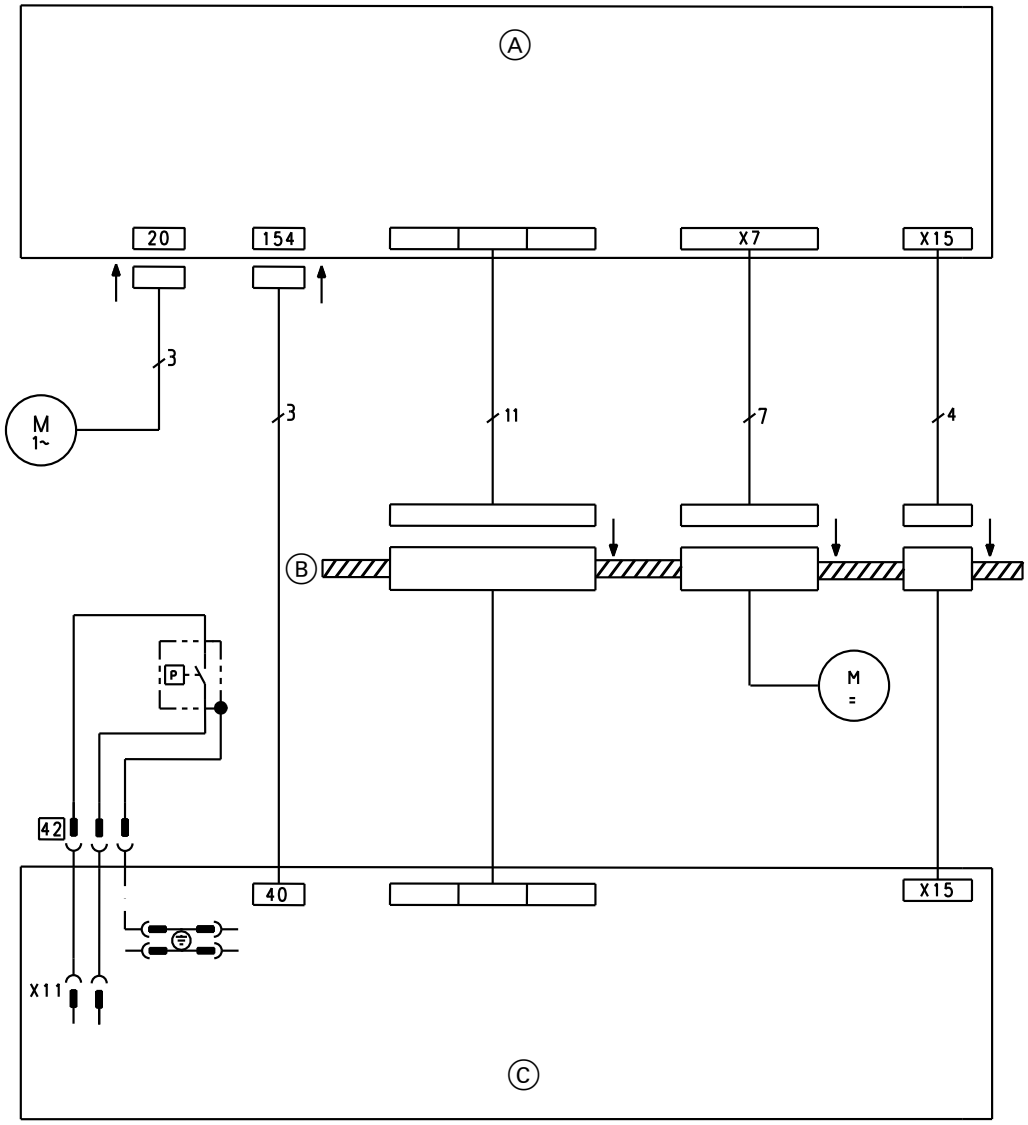


Fig. 98

Ⓐ Vitotronic control unit
Ⓑ Retaining bracket for plugs
Ⓒ Process controller
20 Secondary pump
40 Power supply via Vitotronic control unit
42 Pressure switch, frost stat or jumper
154 Process control unit power supply
X7 Diverter valve, stepper motor
X11 Pressure switch, frost stat or jumper
X15 Data transfer connecting cable

Process control unit connection scheme

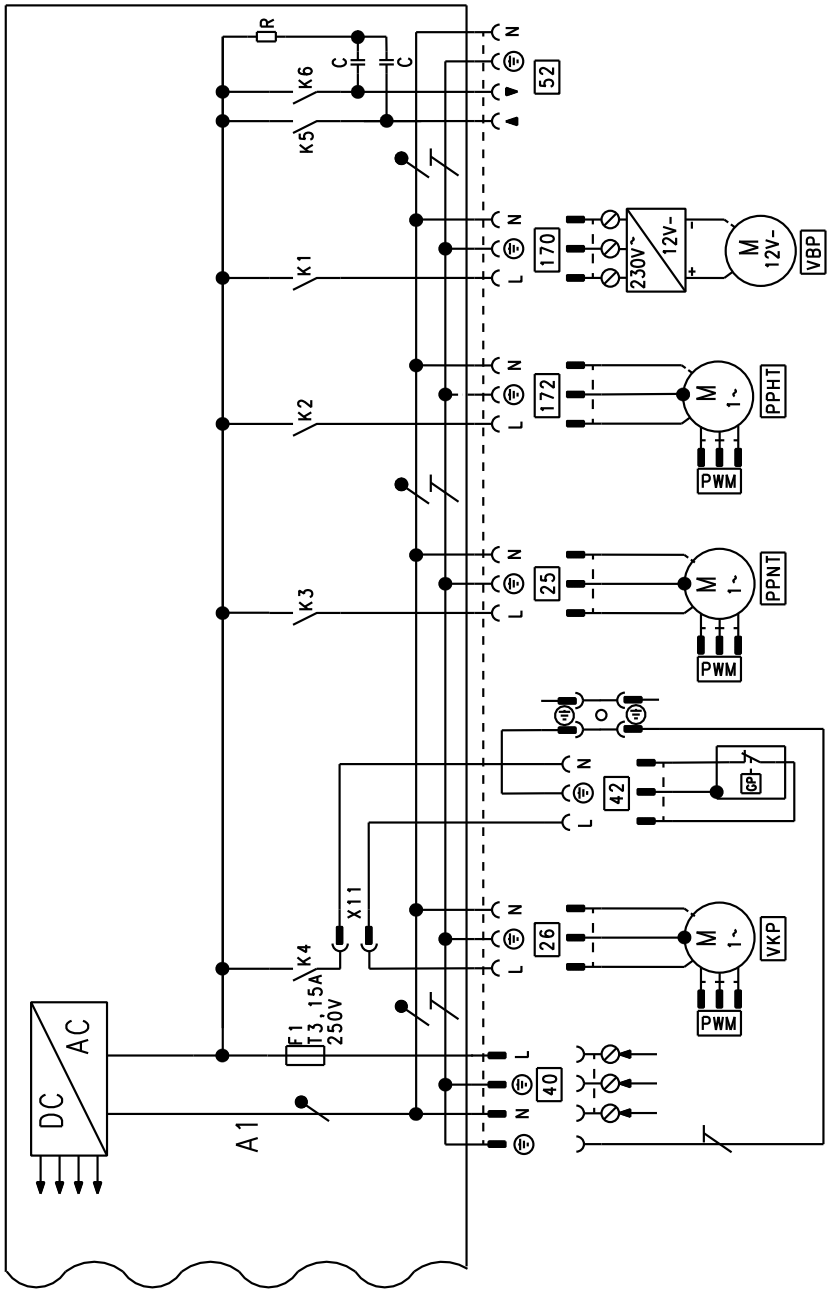


Fig. 99

A1 Process control unit PCB
F1 Fuse 3.15 A (slow), 250 V~
K... Relay
X... Electrical interfaces
25 Low temperature process pump with PWM signal
26 Primary pump with PWM signal
40 Power supply via Vitotronic control unit
42 Pressure switch and/or frost stat or jumper
170 Evaporator pump
172 High temperature process pump with PWM signal

Process control unit connection scheme (cont.)

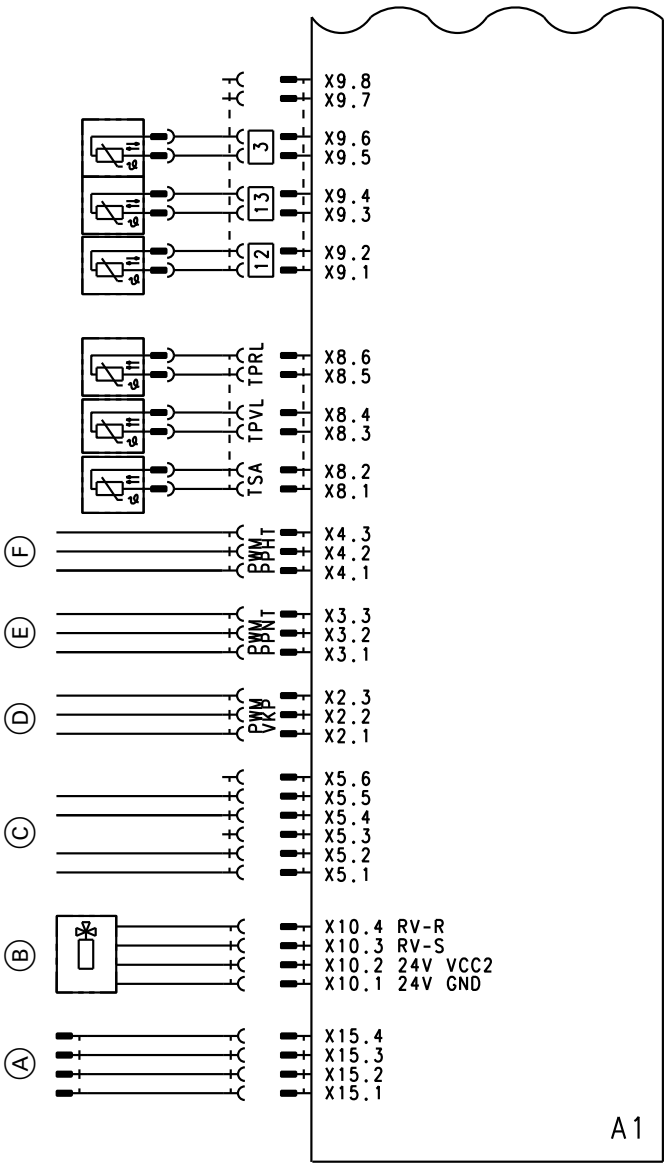


Fig. 100

Ⓐ To Vitotronic control unit
Ⓑ Control valve
Ⓒ PC interface
Ⓓ PWM signal for primary pump
Ⓔ PWM signal for low temperature process pump
Ⓕ PWM signal for high temperature process pump

TSA Sorber outlet temperature sensor
TPVL Process flow temperature sensor
TPRL Process return temperature sensor
3 "Burner heat exchanger" temperature sensor
12 Evaporator inlet temperature sensor
13 Evaporator outlet temperature sensor

Vitotronic control unit connection scheme

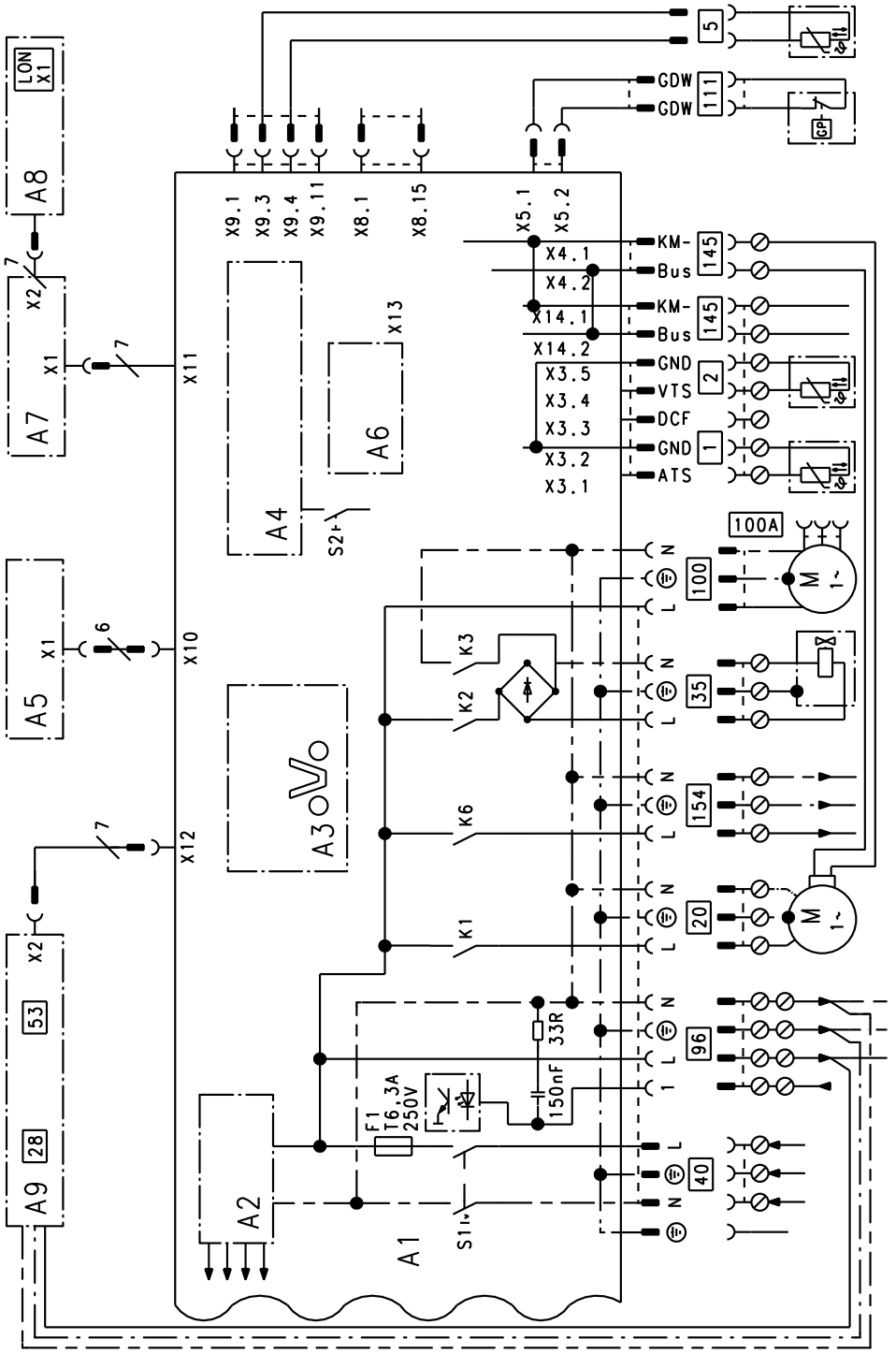


Fig. 101

A1	Main PCB	1	Outside temperature sensor
A2	Switching mode power supply	2	Flow temperature sensor, low loss header
A3	Optolink	5	Cylinder temperature sensor
A4	Burner control unit		Plug on the cable harness
A5	Programming unit	20	Secondary pump
A6	Coding card	28	DHW circulation pump
A7	Connection adaptor		or
A8	LON communication module		External heating circuit pump
A9	Internal H1 extension (accessories)	35	Gas solenoid valve
LON	LON interface (RJ 45 plug)	40	Power supply
S1	ON/OFF switch	53	External safety solenoid valve (LPG)
S2	Reset button	96	Power supply for accessories
X ...	Electrical interfaces	100	Fan motor

Vitotronic control unit connection scheme (cont.)

100A Fan motor control
111 Gas pressure switch
145 KM-BUS
154 Process control unit power supply

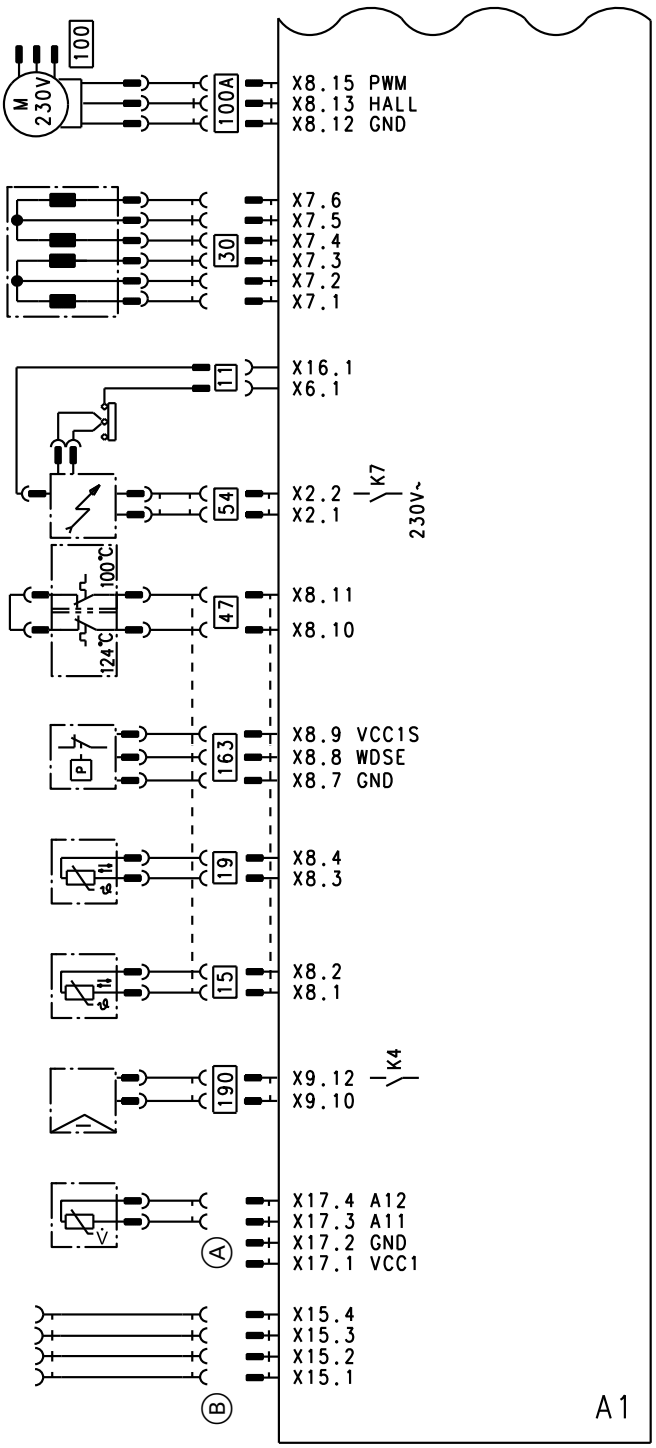


Fig. 102

Ⓐ Secondary circuit flow sensor
Ⓑ Process control unit communication
X ... Electrical interfaces
11 Ignition and ionisation
15 Flue gas temperature sensor
19 Secondary circuit flow temperature sensor
30 Stepper motor, 3-way diverter valve
47 Thermal circuit breaker for secondary circuit temperature limiter and high limit safety cut-out
54 Ignition transformer
100 Fan motor
100A Fan motor control
163 Water pressure sensor
190 Modulation coil

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(cont.)

Settings and test values		Set value	Commissioning	Maintenance/ service
	Date **Signature**			
Static pressure	*mbar* *kPa*	≤ 57.5 ≤ 5.75		
Supply pressure (flow pressure)				
☐ for natural gas E	*mbar* *kPa*	17-25 1.70-2.5		
☐ for natural gas LL	*mbar* *kPa*	17-25 1.70-2.5		
☐ for LPG	*mbar* *kPa*	42.5-57.5 4.25-5.75		
Tick gas type				
Carbon dioxide content CO_2 For natural gas				
▪ At lower heating output	*% by vol.*	7.5-9.5		
▪ At upper heating output	*% by vol.*	7.5-9.5		
For LPG				
▪ At lower heating output	*% by vol.*	8.8-11.1		
▪ At upper heating output	*% by vol.*	8.8-11.1		
Oxygen content O_2				
▪ At lower heating output	*% by vol.*	4.0-7.6		
▪ At upper heating output	*% by vol.*	4.0-7.6		
Carbon monoxide content CO				
▪ At lower heating output	*ppm*	< 1000		
▪ At upper heating output	*ppm*	< 1000		

Desiccant bag replaced during maintenance/service					
Date **Signature**					

Specification

Gas boiler, type B and C, category II_{2N3P}			
Rated heating output range (data according to VDI 4650 Part 2)			
T_F/T_R 35/28 °C	**kW**	**1.8 to 11.0**	**1.8 to 16.7**
T_F/T_R 55/45 °C	**kW**	**1.8 to 10.3**	**1.8 to 15.0**
Max. rated heating output for DHW heating	kW	15.1	15.1
Max. rated heat input	kW	15.1	15.1
Product ID		CE-0085CO0146	
IP rating		IP X4 to EN 60529	
Gas supply pressure			
▪ Natural gas	mbar	20	20
	kPa	2	2
▪ LPG	mbar	50	50
	kPa	5	5
Max. permissible gas supply pressure			
▪ Natural gas	mbar	25.0	25.0
	kPa	2.5	2.5
▪ LPG	mbar	57.5	57.5
	kPa	5.75	5.75
Rated voltage	V	230	230
Rated frequency	Hz	50	50
Max. power consumption	A	6.3	6.3
Protection class		I	I
Permissible ambient temperature			
▪ Operation	°C	+5 to +35	+5 to +35
▪ Storage and transport	°C	-20 to +65	-20 to +65
Electronic temperature limiter setting	°C	88	88
Temperature limiter setting	°C	100 (fixed)	100 (fixed)
Max. backup fuse (power supply)	A	16	16
Power consumption (average)	W	130	130
Weight			
▪ Total weight (incl. casing)	kg	169	169
▪ Condensing module	kg	50	50
▪ Sorption module	kg	119	119
Process circuit capacity	l	9.6	9.6
Primary circuit capacity	l	2.7	2.7
Max. flow rate (at 1.2 m residual head) (Limit for the use of hydraulic separation)	l/h	1200	1200
Nominal circulating water volume			
▪ At T_F/T_R = 35/28 °C	l/h	1230	1840
▪ At T_F/T_R = 55/45 °C	l/h	860	1290
Operating pressure			
▪ Heating circuit	bar	2.8 to 3	2.8 to 3
	MPa	0.28 to 0.3	0.28 to 0.3
▪ Brine circuit	bar	2.8 to 3	2.8 to 3
	MPa	0.28 to 0.3	0.28 to 0.3

Specification (cont.)

Gas boiler, type B and C, category II_{2N3P}			
Rated heating output range (data according to VDI 4650 Part 2)			
T_F/T_R 35/28 °C	**kW**	**1.8 to 11.0**	**1.8 to 16.7**
T_F/T_R 55/45 °C	**kW**	**1.8 to 10.3**	**1.8 to 15.0**
Geothermal energy as natural heat source			
Design cooling capacity for pipework	kW	2.0	2.0
Design cooling capacity for geothermal probe	kW	1.25	1.25
Design temperature	°C	4	4
Design spread	K	2	2
Primary circuit flow rate (operated with Tyfocor)	l/h	883	883
Primary circuit flow rate (operation with water)	l/h	866	866
Connections (with connection accessories)			
Boiler flow and return	R	¾	¾
Brine flow and return	G	¾	¾
Cylinder flow and return	R	¾	¾
Dimensions			
Length	mm	596	596
Width	mm	600	600
Height	mm	1875	1875
Minimum installation room height	mm	2200	2200
Gas connection (with connection accessories)	R	½	½
Supply values relative to the max. load			
▪ Natural gas E	m^3/h	1.60	1.60
▪ Natural gas LL	m^3/h	1.86	1.86
▪ LPG P	kg/h	1.18	1.18
Flue gas parameters			
Flue gas category to G 636		G_{61}	G_{61}
Temperature (at 30 °C return temperature)			
▪ At rated heating output	°C	30	30
▪ At partial load	°C	30	30
Temperature (at 60 °C return temperature)	°C	60	60
Mass flow rate			
Natural gas			
▪ At max. heat input	kg/h	27.1	27.1
▪ At partial load	kg/h	5.4	5.4
LPG			
▪ At max. heat input	kg/h	25.7	25.7
▪ At partial load	kg/h	5.1	5.1
Available draught	Pa	160	160
	mbar	1.6	1.6
Max. condensate volume according to DWA-A 251	l/h	2.1	2.1
Condensate connection (hose nozzle)	Ø mm	20 to 24	20 to 24
Flue gas connection	Ø mm	60	60
Ventilation air connection	Ø mm	100	100
Max. sound power level	dB(A)	45.7	45.7
Energy efficiency class		A^+	A^+

Specification (cont.)

Note regarding the gas supply pressure
If the gas supply pressure is higher than the maximum permitted value, install a separate gas pressure governor upstream of the system.

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

Note regarding flue gas parameters
Calculation values for sizing the flue system to EN 13384. Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

- *The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.*
- *The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with max. permissible operating temperatures.*

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

Vitosorp 200-F, type D2RA including the Vitotronic 200, type HO1D

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:

2009/142/EC	Gas Appliances Directive
2009/125/EC	Ecodesign Directive
2014/35/EU	Low Voltage Directive
2014/30/EU	EMC Directive
2010/30/EU	Energy Labelling Framework Directive
811/2013	EU Regulation "Energy Efficiency Label"
813/2013	EU Regulation "Energy Efficiency Requirements"

Applied standards:

EN 15502-1:2012
EN 15502-2-1:2012
EN 55014-1:2011
EN 55014-2:2008
EN 60335-1:2014
EN 60335-2-102:2010
EN 61000-3-2:2009
EN 61000-3-3:2008
EN 62233:2008
DVGW G 5120 (P):2012

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

Allendorf, 10 May 2016

Viessmann Werke GmbH & Co. KG

Authorised signatory Manfred Sommer

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

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the product **Vitosorp 200-F, type D2RA, including the Vitotronic 200 control unit, type HO1D**, complies with the NO_x limits required by the 1st BImSchV Paragraph 6 [Germany].

Allendorf, 10 May 2016

Viessmann Werke GmbH & Co. KG

Authorised signatory Manfred Sommer

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Applicability

Serial No.:

7369815	7521758	7546528	7549259

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