Installation and service instructions





Vitodens 100-W
Type B1HG, B1KG, 3.2 to 32 kW
Type B1HG-M, B1KG-M (for multiple connection), 5.7 to 32 kW
Wall mounted gas condensing boiler
Natural gas and LPG version

Gas Council No.

- B1HG: 41-819-51, 41-819-48, 41-819-49, 41-819-50
- B1KG: 47-819-50, 47-819-51, 47-819-52



Vitodens 100-W



6227873 GB 3/2025 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
- Relevant country-specific safety regulations

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.

Safety instructions (cont.)



Danger

Hot surfaces and fluids can lead to burns or scalding.

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

Please note

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

Repair work

Please note

Repairing components that fulfil a safety function can compromise the safe operation of the system. Faulty components must be replaced with original spare parts from the manufacturer.

Auxiliary components, spare and wearing parts

Please note

Auxiliary components, spare parts 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 installation and replacements, use only original parts from the manufacturer or components approved by the manufacturer.

Safety instructions (cont.)

Safety instructions for operating the system

If you smell gas



Danger

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

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

If you smell flue gas



Danger

Flue gas can lead to life threatening poisoning.

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

What to do if water escapes from the appliance



Danger

If water escapes from the appliance there is a risk of electrocution. Switch OFF the heating system at the external isolator (e.g. fuse box, domestic distribution board).



Danger

If water escapes from the appliance there is a risk of scalding. Never touch hot heating water.

Condensate



Danger

Contact with condensate can be harmful to health.

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

Flue systems and combustion air

Ensure that flue systems are clear and cannot be sealed, for instance due to accumulation of condensate or other external causes.

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-sealable.

Extractors

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

Safety instructions (cont.)



Danger

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

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Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

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Gas	Cou	ıncil	NΩ

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41-819-48	
41-819-49	
41-819-50	
47-819-50	
47-819-51	
47-819-52	
	41-819-48 41-819-49 41-819-50 47-819-50 47-819-51

Туре	Gas Council Number:
Vitodens 100-W, B1KG, 26 kW Combi	47-819-50
Vitodens 100-W, B1KG, 30 kW Combi	47-819-51
Vitodens 100-W, B1KG, 35 kW Combi	47-819-52

Symbols

	T
Symbol	Meaning
	Reference to other document containing further information
1.	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
\triangle	Warning of personal injury
!	Warning of material losses and environ- mental pollution
4	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.
X	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
O	Steps required during commissioning
Q	Not required during commissioning
©	Steps required during inspection
	Not required during inspection
مر	Steps required during maintenance
8	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 CECS215-2017 and the associated installation, service and operating instructions. It is only designed for heating up heating water that is of potable water quality.

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

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

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

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

Product information

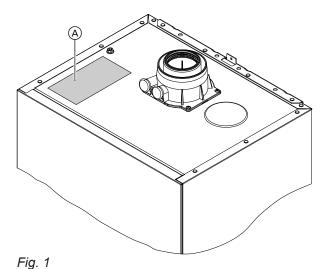
Vitodens 100-W, type B1HG, B1KG

Wall mounted gas condensing boiler with Inox-Radial heat exchanger and the following integrated components:

- Modulating MatriX-Plus burner for natural gas and LPG
- Hydraulics with 3-way diverter valve and variable speed high efficiency circulation pump
- Type B1KG: Plate heat exchanger for DHW heating
- Weather-compensated or constant temperature control unit
- Internal diaphragm expansion vessel:(8 I capacity)

The selected gas category in the delivered condition and the associated nominal gas pressure are given on the boiler type plate. The type plate also shows the other gas types and pressures with which the boiler can be operated. A conversion within the stated natural gas groups is not required. For conversion to LPG (without conversion kit), see "Commissioning, inspection and maintenance".

Type plate



(A) Type plate with QR code for appliance registration

The type plate of the heat generator contains extensive product information and an appliance-specific **QR code with the marking "i"** for direct access to product-specific information and product registration on the internet.

The QR code contains the credentials for the registration and product information portal, and the 16-digit serial number.

Note

A further label with the QR code is enclosed with the heat generator.

Stick the label in the installation and service instructions so it can be easily found again for later use.

The gas condensing system boiler may generally only be delivered to the countries listed on the type plate. For deliveries to other countries, approved contractors must arrange individual approval on their own initiative and in accordance with the law of the country in question.

System examples

System examples with hydraulic and electrical connection diagrams and function descriptions are available to help setting up the heating system.

Detailed information regarding system examples: www.viessmann-schemes.com

Maintenance parts and spare parts

You can identify and order maintenance parts and spare parts directly online.

Maintenance parts and spare parts (cont.)

Viessmann Partnershop

Login:

shop.viessmann-climatesolutions.com



Viessmann spare part app

Web application

www.viessmann.com/etapp



ViParts app







Preparing for installation

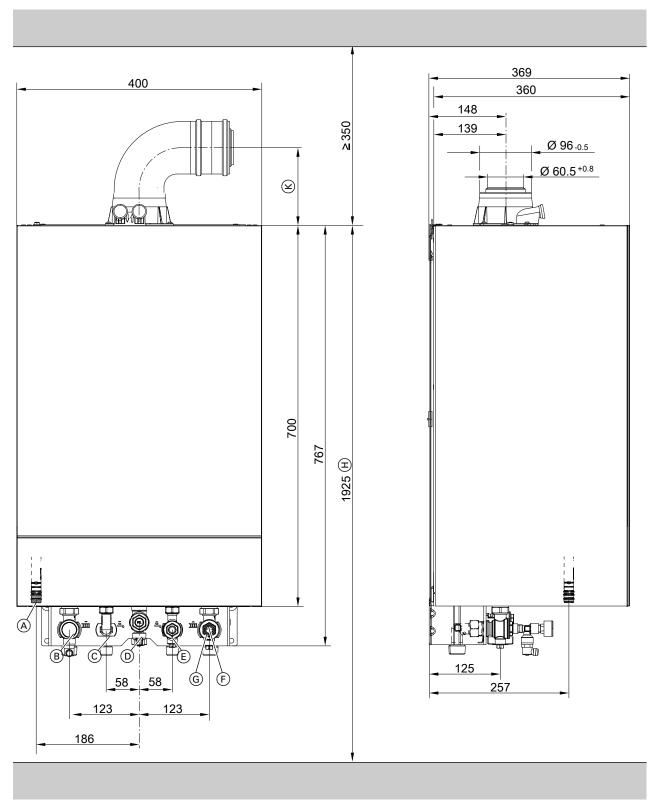


Fig. 2 Illustration shows a gas condensing combi boiler

- (A) Condensate drain
- B Heating flow
- © DHW (gas condensing combi boiler) Cylinder flow (gas condensing system boiler)
- © Cold water (gas condensing combi boiler) Cylinder return (gas condensing system boiler)
- F Heating return
- **G** Filling/draining

Preparing for installation

Preparing for installation (cont.)

- (H) Dimension for siting with DHW cylinder below the boiler
- © Dimension: 161 mm for external wall connection, Order nos. 7441467, 7411961 Dimension: 131 mm – for external wall connection,

Order no. 7946886 (with reduced flue bend)

Note

The boiler (IP rating IP X4) is approved for installation in wet rooms in safety zone 1. Exposure to jets of water must be prevented.

For open flue operation, the boiler may only be operated with a splash cover.

1. Subject to order: Fit supplied pre-plumbing jig, mounting frame or wall mounting bracket in the relevant installation location.



Installation instructions for pre-plumbing jig or mounting frame

Note

Check the condition of the wall where the boiler is to be installed. For the suitability of the supplied rawl plugs for various building materials, see manufacturer's instructions: Fischer Spreizdübel SX 10 x 80

For other construction materials, use fixing materials with sufficient load bearing capacity.

2. Prepare the water connections to the valves/fittings of the mounting bracket.

Thoroughly flush the heating system.

Please note

To prevent damage to the appliance, connect all pipework so that it is free of load and torque stress.

Note

If an on-site expansion vessel also has to be installed: Install this expansion vessel in the cylinder return, as the 3-way diverter valve is located in the heating flow.

Not possible with type B1KG

Note

An additional ball valve can be fitted in the DHW pipe when installing a combi boiler in a basement to facilitate maintenance work.

- **3.** Prepare the gas connection according to TRGI or TRF [or local regulations].
- **4.** Prepare the electrical connections.
 - The appliance is delivered fitted with a power cable (approx. 2 m long).

Note

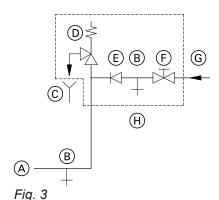
Connect the power cable to the electricity supply using a fixed connection.

- Power supply: 230 V, 50 Hz, fuse rating max 16 A
- Accessory cables: 0.75 mm² flexible PVC cable with required number of cores for external connections

Preparing for installation (cont.)

Connection on the DHW side for gas condensing combi boiler

Cold water installation



- A Cold water connection of boiler
- (B) Drain outlet

- © Visible discharge pipe outlet point
- D Safety valve
- Non-return valve
- F Shut-off valve
- G Cold water
- (H) Safety assembly

Safety assembly $\widehat{\mathbb{H}}$ is included in the standard delivery and requires installing.

Only use a non-return valve or a combined shut-off and non-return valve in conjunction with a safety valve. If the safety valve is used, the cold water shut-off valve on the boiler must not be shut off.

Remove the toggle on the cold water shut-off valve (if installed) to prevent it being shut off manually.

Removing the boiler from the packaging

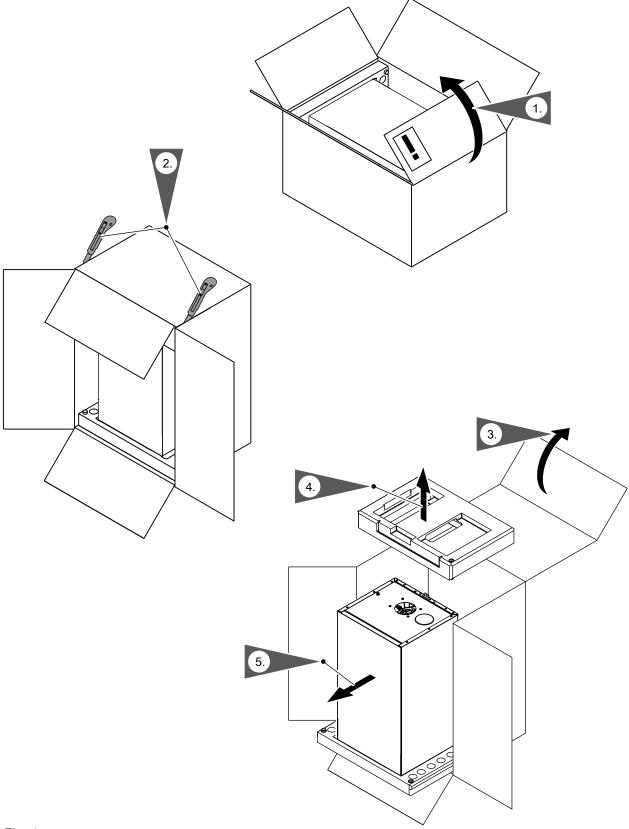


Fig. 4

Removing the front panel

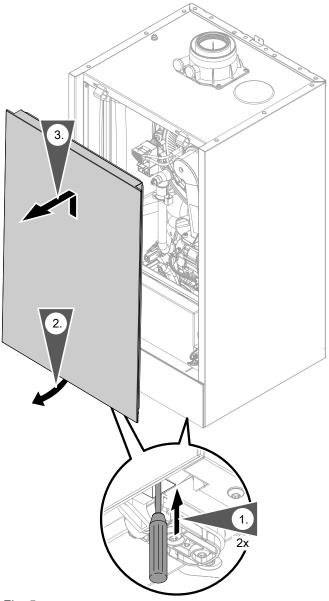


Fig. 5

- **1.** Unlock the front panel on the underside (push in), using a screwdriver or similar tool.
- **2.** Swivel the front panel forwards slightly and lift away upwards.

Mounting the boiler on the pre-plumbing jig or mounting frame

Note

Various installation components can be found in a separate pack. Keep the installation components safe, as they will be required for later installation.

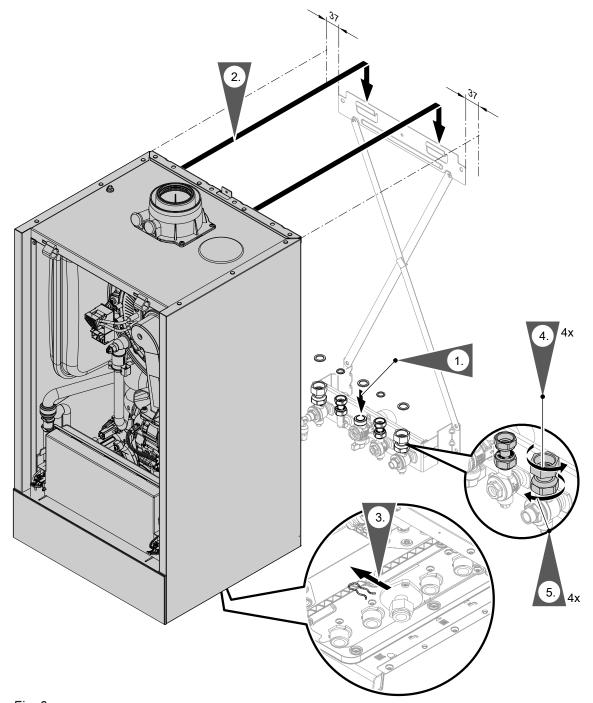


Fig. 6

Note

The diagram shows installation on a pre-plumbing jig for a gas condensing combi boiler.

The boiler can be installed on the following accessories:

- Pre-plumbing jig
- Mounting frame
- Plumbing wall mounting frame

1. Replace gaskets.

Internal gasket diameter:

- Gas connection Ø 18.5 mm
- Connections on the heating water side Ø 17.0 mm

Note

Gasket for gas connection is attached to the gas shut-off valve.

2. Suspend the appliance from the wall mounting bracket.

Note

After mounting, ensure correct seating.

3. Note

Only remove the locking clip under the gas pipe union nut once the appliance has been installed. Locking clip is no longer required.

4. Tighten union nuts so that they form a tight seal. Tighten the union nuts as tightly as necessary and ensure that the components are undamaged and are functioning correctly throughout service life. Observe torque settings if a torque wrench is available.

Check for gas tightness to BSI 6891.

Torque settings:

- Union nuts G ¾: 30 Nm
- Union nuts G ½: 24 Nm

When carrying out any work on gas connection fittings, hold with a suitable tool. Never transfer any forces to the internal components.

5. Tighten locking ring fittings so that they form a tight seal:

1 turn beyond finger-tight

Fitting the boiler to the wall mounting bracket

Note

Various installation components can be found in a separate pack. Keep the installation components safe, as they will be required for later installation.

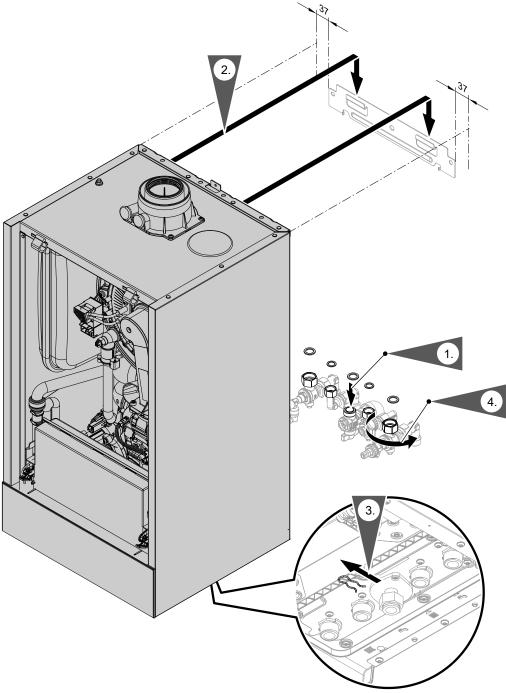


Fig. 7

1. Replace gaskets. Fit valves and gas shut-off valve.

Internal gasket diameter:

- Gas connection Ø 18.5 mm
- Connections on the heating water side Ø 17.0 mm

Note

Gasket for gas connection is attached to the gas shut-off valve.

2. Suspend the appliance from the wall mounting bracket.

3. Note

Only remove the locking clip under the gas pipe union nut once the appliance has been installed. Locking clip is no longer required.

4. Tighten union nuts so that they form a tight seal. Tighten the union nuts as tightly as necessary and ensure that the components are undamaged and are functioning correctly throughout service life. Observe torque settings if a torque wrench is available.

Check for gas tightness to BSI 6891.

Torque settings:

- Union nuts G ¾: 30 Nm
- Union nuts G ½: 24 Nm

When carrying out any work on gas connection fittings, hold with a suitable tool. Never transfer any forces to the internal components.

Connecting on the heating water and DHW sides

If the connections have not been fitted previously, make the connections on the heating water and DHW sides.

Gas condensing system boiler

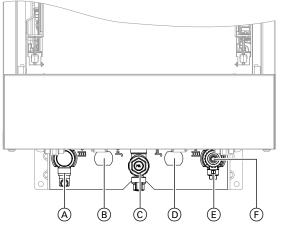


Fig. 8 Specifications for threads in conjunction with connection accessories

- (A) Heating flow R 3/4 (male thread)
- B Cylinder flow G 3/4 (male thread)
- © Gas connection R 3/4 (male thread)
- (D) Cylinder return **G** 3/4 (male thread)
- (E) Heating return R 3/4 (male thread)
- (F) Filling/draining

Connection on the heating water side of the DHW cylinder:

The required intermediate pieces (Rp ¾, female thread) on the cylinder flow and return are part of the connection set for the DHW cylinder.

If no DHW cylinder is being connected, seal off the connections with caps.

Gas condensing combi boiler

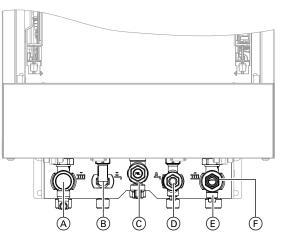


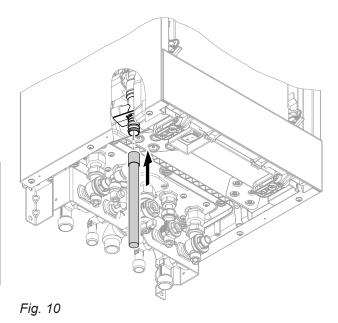
Fig. 9 Specifications for threads in conjunction with connection accessories

- A Heating flow R ¾ (male thread)
- B DHW R ½ (male thread)
- © Gas connection R ¾ (male thread)
- D Cold water R ½ (male thread)
- E Heating return R ¾ (male thread)
- Filling/draining

Scald protection

DHW temperatures of over 60 °C can occur with gas condensing combi boilers. As a result, scald protection should be installed on site in the DHW pipe.

Connecting the condensate drain



1. Push the supplied drain hose on to the drain connector.

Drain hose: Ø 19 x 800 mm

Connect the drain hose with a constant fall and a pipe vent to the drain network or a neutralising system.

Note

Route the onward drain line inside the building as far as possible.

If the onward drain line is routed outside the building:

- Use a min. Ø 30 mm line.
- Protect the line from frost.
- Keep the line as short as possible.

Please note

The drain hose is used to route away any hot water discharged from the safety valve. Lay and secure the drain hose in a way that prevents any risk of scalding.

Note

Observe local waste water regulations.

Filling the trap with water

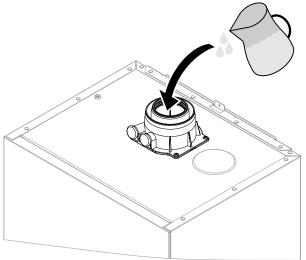


Fig. 11

Note

If there is a risk of frost, only fill the trap just before commissioning.

Pour at least 0.3 I of water into the flue gas connection.

Please note

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

Always fill the trap with water before commissioning.

Connecting the balanced flue pipe

Note

The labels "System certificate" and "Skoberne GmbH or Groppalli flue system" enclosed with the technical documentation may only be used in conjunction with the Viessmann flue system made by Skoberne or Groppalli.



Connecting the balanced flue pipe Flue system installation instructions

Connecting several gas condensing boilers to a shared flue system

If several gas condensing boilers are connected to a shared flue system at positive pressure using routing type C_{10} , C_{11} , C_{13} or C_{14} :

For each boiler, install one back draught safety device (accessories) in the flue gas connection and one in the mixing shaft of the burner.

Note

Not all appliance types are approved for "multiple connection".

Please order appliances that are suitable for this; see pricelist.

Note

In appliances for "multiple connection", a special back draught safety device is installed in the mixing shaft of the burner, downstream of the fan.

A further back draught safety device is installed in the flue system.

Installing the back draught safety devices:



Installation instructions for back draught safety device

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

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

Note

In open flue operation, install a rodent guard grille on the supply air aperture.

- Applicable regulations on installing and commissioning flue systems have been followed.
- Visual inspection of the flue gas connection.

Note

The use of lubricant prevents the gasket from shifting when the flue pipe is installed.

When using a straight flue pipe, check that the inner ventilation air pipe is correctly fitted.

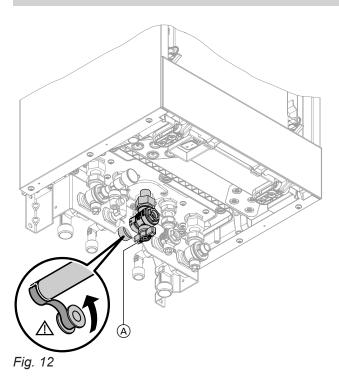


Danger

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 is in good working order. Vents for interconnected combustion air supply must be non-closable in open flue operation. Prevent condensate drainage via a wind protector.

Connecting the gas line



When carrying out any work on gas connection fittings, counterhold with a suitable tool. Never transfer any forces to the internal components.

Information on operation with LPG

Install an external safety solenoid valve if the boiler is installed below ground level.

An EM-EA1 extension (accessories) is required to connect the safety solenoid valve.

2. Check for leaks.



Danger

Escaping gas leads to a risk of explosion. Check all connections on the gas side (also inside the appliance) for tightness.

Note

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

Remove residues of the leak detection agent after testing.

Please note

Excessive test pressure will damage the boiler and gas solenoid valve.

Max. test pressure 150 mbar (15 kPa). If a higher pressure is required for leak tests, disconnect the boiler and the gas solenoid valve from the main supply pipe (undo the fitting).

3. Purge the gas line.

Gas installation to BS 6891:2005

It is the gas installer's responsibility to size the gas installation lines in accordance with BS 6891:2005. If it is determined that the operating pressure falls below the minimum outlet level for the measuring device of 19 mbar: Check and ensure that the gas pressure is sufficient for correct and safe operation.

Taking into account a pressure drop from the installation lines of no more than 1 mbar, it can be assumed that a permissible minimum pressure of 18 mbar is present at the appliance's gas connection (reference BS 6400-1 Section 6.2, Pressure absorption).

Connecting the gas line (cont.)

The external gas tap may reduce operating pressure further if measured at its test point. The pressure drop is relative to the heat input of the boiler (kW).

Observe minimum gas pressure at the gas fitting in accordance with the table – see page 46

Electrical connections

Opening the wiring chamber

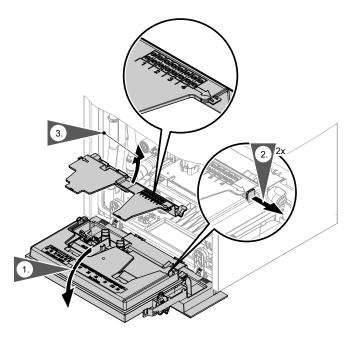


Fig. 13

Please note

Electronic assemblies can be damaged by electrostatic discharge.

Before beginning work, touch an earthed object, e.g. a heating or water pipe, to discharge any static.

Layout of the electrical connections

Note

For further information on the connections, see the following chapters.

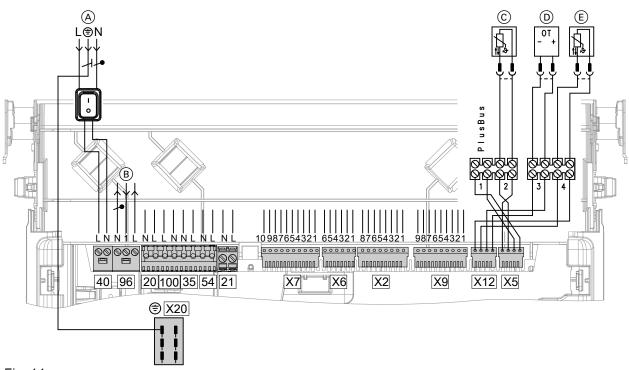


Fig. 14

Connections to 230 V~ plugs

- A Power supply 40
- Configurable floating input 96, 230 V
 230 V output
 230 V room thermostat connection
- 20 Heating circuit pump
- 100 Fan motor
- 35 Gas solenoid valve
- [54] Ignition unit/ionisation
- 21 No function assigned

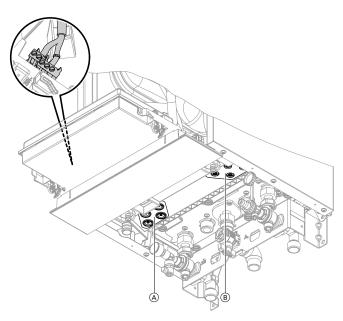
- © Cylinder temperature sensor (system boiler)
- D Remote control (OpenTherm device)
- (E) Outside temperature sensor
- X20 Equipotential bonding (earth conductor)



Note on connecting accessories

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

On-site connections on the HBMU heat management unit



- Open diaphragm grommets as required. Thread through only one cable at a time without a plug.
 Ensure diaphragm grommets are airtight. If required, remove plug from cable. After threading the cable through, re-fit the plug to the wire ferrules.
- For cables without strain relief bushings, provide strain relief in the wiring chamber in the form of cable ties.

Fig. 15

- (A) Diaphragm grommets for 230 V cables
- B Diaphragm grommets, extra low voltage (ELV)

Connecting the outside temperature sensor

Fitting location for outside temperature sensor

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

Outside temperature sensor connection

See overview of electrical connections, page 28. 2-core lead, length up to 35 m with a cross-section of 1.5 mm²

Connecting low loss header sensor 9

The low loss header sensor is connected to the EM-P1 or EM-M1/MX extension (accessories) (ADIO electronics module).



Installation instructions for the EM-P1 or EM-M1/MX extension

Connecting the cylinder temperature sensor

Connect cylinder temperature sensor to terminals ©. See page 28.

Connecting the DHW circulation pump (only type B1HG)

Note

Connect DHW circulation pumps to EM-P1 extension.
Configuration via software tool.
Connect DHW circulation numbs with standalone func

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

Specification

Rated current	1 A
Rated voltage	230 V ~

Connecting the floating switching contact

Connection at plug 96

One of the following functions can be connected:

- "0" No function or room thermostat
- "2" DHW circulation pump external demand (pushbutton function, pump runs for 5 min). Not for type 111-W
- "4" External demand
- "5" External blocking or alternatively connection for external heating circuit hook-up (if no more than one heating circuit hook-up is configured on commissioning. If more than one heating circuit hook-up is required, connect to EM-EA1 accessory.)

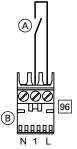


Fig. 16

- A Floating switching contact
- B Plug 96

Notes on connecting PlusBus subscribers

As a maximum, the following PlusBus subscribers can be connected to the control unit (terminal 1):

- 1 EM-M1 or EM- MX extensions
- 1 Vitotrol 200-E
- 1 EM-EA1 extension
- 1 EM-S1 extension
- 1 EM-P1 extension

Accessories mains connection, connect plug to external power supply

Connect one or more extensions via an ON/OFF switch directly to the mains supply (see next chapter).

Assigning functions in the commissioning assistant

See commissioning assistant in "Commissioning".

Note

The number of PlusBus subscribers is limited: Max. one Vitotrol 200-E plus a maximum of 3 additional extensions, e.g. EM-M1 or EM-EA1.

Example: 1 x Vitotrol 200-E + 1 x EM-M1 + 1 x EM-EA1

If no Vitotrol 200-E is connected, 4 extensions can be connected.

The max. total length of the PlusBus lead is 50 m. With an unscreened lead, 2-core, 0.34 mm².

Accessories with direct mains connection

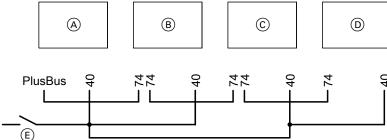


Fig. 17

- (A) HBMU heat management unit heat generator
- (B) Mixer extension kit
- © EM-EA1 extension and/or EM-S1 extension
- D EM-P1 extension

Note

PlusBus system length max. 50 m for 0.34 mm² cable cross-section and unshielded cable.

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

Note

Use addressing for S1 rotary selector. See also the information in chapter "Notes on connecting PlusBus subscribers".

Accessories	Internal fuse protection	
EM-M1, EM-MX mixer extension kit	2 A	
EM-EA1 extension	2 A	
EM-S1 extension (not for type 111)	2 A	

- (E) External ON/OFF switch
- Mains input
- PlusBus



Danger

Incorrect wiring can lead to serious injury from electrical current and result in appliance dam-

- Route extra low voltage (ELV) leads < 42 V separately from cables > 42 V/230 V~.
- Strip as little of the insulation as possible, directly before the terminals, and bundle close to the corresponding terminals.
- Secure cables/leads with cable ties.

Power supply 40



Danger

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

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

- IEC 60364-4-41
- IEEE Wiring Regulation; BS 7671:2018
- Connection conditions of the local grid operator
- 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 also recommend installing a pulse current-sensi
 - tive RCD (RCD class A \times).
- Connect the power cable to the electricity supply using a fixed connection.
- If the power supply to the appliance is connected with a flexible power cable, ensure that the live conductors are pulled taut before the earth conductor in the event of strain relief failure. The length of the earth conductor wire will depend on the design.
- Max. fuse rating 16 A.



Danger

The absence of system component earthing can lead to serious injury from electric current if an electrical fault occurs.

The appliance and pipework must be connected to the equipotential bonding of the building.

Routing connecting cables/leads

Please note

If closures or diaphragm grommets are damaged, splashproofing is no longer ensured.

Never open or damage closures or unused diaphragm grommets on the underside of the appliance. Seal cable entries with fitted diaphragm grommets.

Bundle cables using the supplied cable clips.

Route extra low voltage (ELV) leads < 42 V separately from cables > 42 V/230 V~.

Secure the cable clips on the underside using the supplied screws.

Do not route cables/leads over sharp edges and lying against the casing (sound transmission).

Please note

If connecting cables/leads come into contact with hot components, they will be damaged.

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

Fig. 18

WiFi operational reliability and system requirements

WiFi router system requirement

WiFi router with activated WiFi: The WiFi router must be protected by a sufficiently secure WPA2 password.

Note

- The WPA2 password is a sequence of 8 to 63 characters.
- Upper and lower case letters, numbers and special characters in ASCII are permitted.

The WiFi router must always have the latest firmware update.

Do not use unencrypted connections between the heat generator and the WiFi router.

 Internet connection with high availability:
 "Flat rate" (flat rate tariff without restriction on time or data volume) Set the WiFi frequency to 2.4 GHz.

WiFi operational reliability and system... (cont.)

- Dynamic IP addressing (DHCP, delivered condition) in the network (WiFi):
 - Have this checked on site by an IT expert **prior** to commissioning. Arrange for set up if required.
- Set routing and security parameters in the IP network (LAN).

Note

Length of password and permitted special characters depend on the respective router.

Enable the following ports for direct outgoing connections:

- Port 80
- Port 123
- Port 443
- Port 8883

Have this checked on site by an IT expert **prior** to commissioning. Arrange for enabling if required.

Wireless signal range of WiFi connection

The range of wireless signals may be reduced by walls, ceilings and interior fixtures. The following circumstances will reduce the strength of the wireless signal and can disrupt reception:

- On their way between transmitter and receiver, wireless signals are damped, e.g. by air or when penetrating walls.
- Wireless signals are reflected by metallic objects, e.g. reinforcements embedded in walls, metal foil of thermal insulation and thermal glazing with metallised thermal vapour deposit.
- Wireless signals are isolated by service ducts and lift shafts.
- Wireless signals are disrupted by devices that also operate with high frequency signals. Distance to such appliances: Min. 2 m.

Examples of devices with high frequency signals:

- Computers
- Audio and video systems
- Devices with active WiFi connection
- Electronic transformers
- Pre-ballasts

Install the heat generator as close as possible to the WiFi router to ensure a good WiFi connection. The signal strength can be displayed on the programming unit: See operating instructions.

Note

The WiFi signal strength can be increased with commercially available WiFi repeaters.

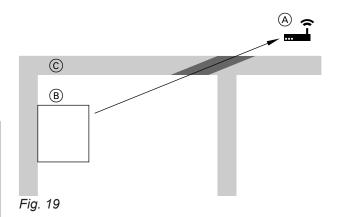
Angle of penetration

The reception quality remains best if radio signals hit the walls vertically.

Depending on the angle of penetration, the effective wall thickness changes and so does the extent to which the electromagnetic waves are damped.

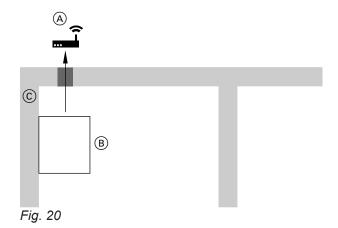
WiFi operational reliability and system... (cont.)

Flat (unfavourable) angle of penetration



- A WiFi router
- B Heat generator
- © Wall

Ideal angle of penetration



- (A) WiFi router
- B Heat generator
- © Wall

Closing the wiring chamber

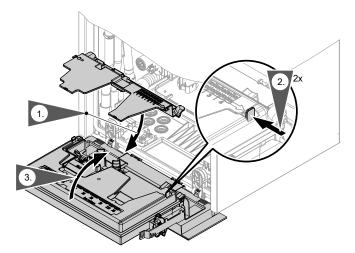


Fig. 21

Fitting the front panel

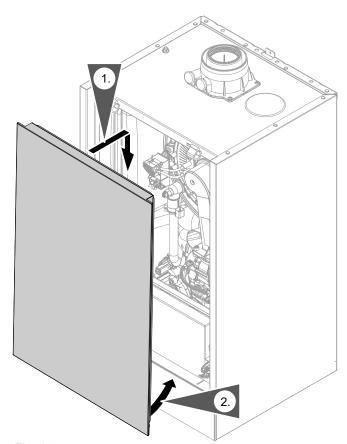


Fig. 22



Steps - commissioning, inspection and maintenance

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			-
			-
V	V	V	
*	_	₡.	

Commissioning steps Inspection steps

Maintenance steps

Page



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Commissioning the system

Please note

Only start the appliance with a fully filled trap.
Check that the trap has been filled with water.

Commissioning via commissioning assistant

- 1. Open the gas shut-off valve.
- 2. If the appliance has not been switched on yet:
 - 1. Turn on the ON/OFF switch.
 - 2. AP and appear on the display.
 - 3. Press menu button **≡** for 4 s to start the commissioning assistant.

If the appliance has already been switched on, you can call up the commissioning assistant yourself:

- 1. and **OK** simultaneously for approx. 4 s.
- 2. Use \(\shi \sqrt{v} \) to select "b.5". Confirm with "OK". \(Note \)

AP and **令** appear on the display. Confirm with **OK** to start the connection with the software tool: See chapter

"Commissioning via software tool".

3. for 4 s to start the commissioning assistant.

3. For further steps, see the commissioning assistant in the following overview.

Commissioning via software tool

Note

Apps for commissioning and service are available for iOS and Android devices.



- 1. Open the gas shut-off valve.
- AP and appear on the display.
 Press OK and enter the password for the heat generator to carry out commissioning with the software tool
- 3. Select ON. Confirm with OK.
- 4. Follow the instructions in the software tool.













Commissioning assistant sequence	Explanations and references
Commissioning	
"C.1" Date (day, month, year) "C.2"	
Time (hours, minutes)	
"C.3" Autom. summer/winter-time changeover	ON = on OFF = off
"C.4" Operating mode	1 - Constant mode with time program 4 - Weather-compensated 13 - Constant mode with optional room thermostat 14 - OpenTherm 15 - Individual room control 16 - Individual room control with modulation Note Operating modes 15 and 16 can only be set via the software tool. If operating mode 15 or 16 is set, low power radio cannot be switched off!
"C.5" Filling program	ON = on OFF = off Note It is possible to interrupt or end the process while a rotating rectangle alternating with the current system pressure is displayed; to do so, press for 3 s.
"C.6" Venting program	ON = on OFF = off Note It is possible to interrupt or end the process while a rotating rectangle alternating with the current system pressure is displayed; to do so, press for 3 s.
"Adv" commissioning	"End" appears after "C.6". If this is confirmed with OK, the Advanced Setup is skipped and the flue gas temperature sensor test starts. If the up arrow button is pressed (continue) while "End" is shown, "Adv" appears on the display. If this is confirmed with OK, the Advanced Setup starts with "C.7".
"C.7" ⁻¹ Gas type	2 - Natural gas 3 - LPG
"C.8"*2*1 Flue system	1 - Open flue 60 mm, rigid 2 - Room sealed 60/100 mm, rigid 3 - Open flue 80 mm, rigid 4 - Room sealed 80/125 mm, rigid 5 - Flexible 60 mm (room sealed or open flue) max. 10 m 6 - Flexible 80 mm (room sealed or open flue) max. 15 m



This setting is not required for appliances with multiple flue connection "M".

The gas type is preset to natural gas; the flue system and flue pipe length are automatically set correctly via the integral mass flow correction.

*2 C5/C6 cannot be selected via the software tool







Commissioning assistant	Evaluations and references
Commissioning assistant sequence	Explanations and references
"C.9"*2*1	Given in full metres (round up if necessary)
Flue length	
	Note
	An additional length of 1 m must be factored in for every flue bend.
"C.10"	1 - 1 direct heating circuit without low loss header
System scheme (de-	2 - 1 direct heating circuit with low loss header
pending on appliance	3 - 1 direct heating circuit without low loss header with DHW cylinder
type, not all schemes possible)	4 - 1 direct heating circuit with low loss header and DHW cylinder upstream of low loss header
possible)	5 - 1 direct heating circuit + 1 heating circuit with mixer and low loss header +
	DHW cylinder
	6 - 1 direct heating circuit with low loss header + DHW cylinder upstream of low loss header + solar DHW cylinder
	7 - 1 direct heating circuit + 1 heating circuit with mixer and low loss header +
	DHW cylinder upstream of low loss header + solar DHW cylinder
	8 - 1 direct heating circuit + 1 heating circuit with mixer and low loss header
	9 - 1 heating circuit with mixer and low loss header + DHW cylinder upstream of low loss header
	10 - 1 direct heating circuit without low loss header + DHW cylinder + solar
	DHW cylinder
	Note
	System schemes 11 - 18 and the DHW circulation pump can be set via the soft-
	ware tool.
	11 - 1 heating circuit with mixer without low loss header
	12 - 1 heating circuit with mixer with low loss header
	13 - 1 heating circuit with mixer without low loss header + DHW cylinder
	14 - 1 direct heating circuit + 1 heating circuit with mixer without low loss head-
	er + DHW cylinder 15 - 1 heating circuit with mixer with low loss header + DHW cylinder + solar
	DHW cylinder
	16 - 1 heating circuit with mixer without low loss header + DHW cylinder + solar
	DHW cylinder
	17 - 1 direct heating circuit + 1 heating circuit with mixer without low loss head-
	er + DHW cylinder + solar DHW cylinder 18 - 1 direct heating circuit + 1 heating circuit with mixer without low loss head-
	er
	Note
	If a DHW circulation pump has been configured via the software tool, it is
	shown with a "C" after the system scheme number.
"C.11"	Note
External heating circuit hook-up	Only for weather-compensated mode
Tiook up	0 - No external heating circuit hook-up
	1 - External heating circuit hook-up HC1
	2 - External heating circuit hook-up HC2
	3 - External heating circuit hook-up HC1 and HC2 (EM-EA1 extension (DIO) re-
	quired)

^{*2} C5/C6 cannot be selected via the software tool







^{*1} This setting is not required for appliances with multiple flue connection "M".

The gas type is preset to natural gas; the flue system and flue pipe length are automatically set correctly via the integral mass flow correction.







Commissioning assistent	Evalenctions and references
Commissioning assistant	Explanations and references
sequence	
"C.12"	0 - No function
EM-EA1 (DIO) function	4 - External set flow temperature 0–10 V
	5 - External default output
Note	8 - 230 V fault message input and fault message output (without system block-
If "C.11" is set to 3, then	ing)
no setting is required at	9 - External LPG valve
"C.12".	10 - External extractor (e.g. cooker hood)
	11 - Operating mode changeover
	14 - 24 V fault message input and system blocking (e.g. condensate removal
	pump).
	17 - 230 V fault message input and system blocking.
	18 - External demand (digital) 19 - External blocking
	<u> </u>
"C.13"	0 - No function
Plug 96 function	2 - External demand DHW circulation pump
	4 - External demand
	5 - External blocking
	If only one HC was configured with external hook-up, the setting for plug 96 is
	automatically applied for this. No selection or other function is then possible.
"C.14"	Off - not installed
Remote control	ON - Vitotrol 200-E with subscriber number 1 installed (all installed heating circuits can be controlled via the Vitotrol 200-E)
	After the final setting (C.14) has been completed, "End" appears on the dis-
	play. Confirm with "OK".
	When commissioning starts, the flue gas temperature sensor test begins and
	"Fst" is shown on the display.
Maintenance	
Interval in burner hours run until next maintenance	Can be adjusted via the software tool (notification also via software tool)
Interval until the next main-	Can be adjusted via the software tool (notification also via software tool)
tenance	Can be despeted that are continued tool (notined and the continued tool)
The system carries out a rest	tart.

Automatic flue gas temperature sensor check

The display shows: "Err"

If the flue gas temperature sensor is not positioned correctly, fault message 416 appears.

For further details regarding the flue gas temperature sensor test, see "Repairs".

If fault message 416 appears, reposition the flue gas temperature sensor in the flue gas connection. Check for leaks on the flue gas side.

Note

The burner remains locked out until the test has been passed.

When the fault has been remedied, turn the ON/OFF switch off and back on again.

Switching WiFi on/off

The appliance is equipped with an integrated (2.4 GHz) WiFi communication module with extended type plate.

This WiFi communication module supports commissioning, maintenance and servicing with "ViGuide"/"ViGuide app" as well as operation via the "ViCare app".



Three labels with the access details required for establishing the connection are attached at the factory to the front of the programming unit. The access code is marked with a "WiFi symbol" •.

Remove these 3 labels. Apply the labels in the following positions:

- For commissioning, affix a label to the place marked on the type plate.
- Affix a label in the space provided in the operating instructions.
- For later use, affix a label here:

 Fig. 23		

Switch on the WiFi connection. Establish a connection to the router:

- Information on WiFi: See chapter "WiFi operational reliability and system requirements".
- Establishing an internet connectionOperating instructions

Note

If **"E10"** is displayed, the connection to the home network could not be established. Check the router and the network password.

If **"E12"** is displayed, the connection to the server could not be established. Re-establish the connection at a later time.

Note

If the communication module is to be switched on or off, press \checkmark and **OK** simultaneously for 4 s.

Q^o



Filling the heating system

According to EN 1717, 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 fill with water of potable quality.
- Fill water with a hardness above 300 ppm must be softened.
- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.

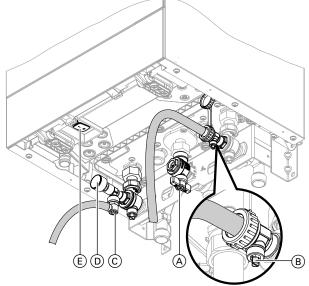


Fig. 24

- 1. Check the pre-charge pressure of the expansion vessel.
- **2.** Close gas shut-off valve (A).
- **3.** Activate the filling function (see commissioning assistant or following chapter).













Filling the heating system (cont.)

4. Fill the heating system at boiler drain & fill valve (B) in the heating return (on the connection set or on site). Minimum system pressure > 1.0 bar (0.1 MPa). Check the system pressure at pressure gauge D. The indicator must be in the green band. If necessary, open the on-site air vent valves.

Note

Ensure that the safety valve does not respond when you are filling the system. If the flow rate through the safety valve becomes too high, water may enter the air box.

5. Fit hose to air vent valve ©. Route the hose into a suitable container or drain outlet.

- 6. Close the shut-off valves on the heating water side.
- Open air vent valve © and fill valve B in the heating return. Vent (flush) under mains pressure until no more air noise is audible.
- 8. Close air vent valve © and boiler drain & fill valve (B).

Check the system pressure at pressure gauge ①. The indicator must be in the green band.

9. Open the shut-off valves on the heating water side.







Activating the filling function

If the filling function is to be activated after commissioning.

Tap the following buttons:

- 1. = and **OK** simultaneously for approx. 4 s, then release.
- 2. Use \(\scalestrict{\scalestrict} \sqrt{\scalestrict} \) to select "b.5" for the commissioning assistant.
- 3. OK
- 4. The display shows "AP". Press for 4 s.

- **5.** Use **★**/**★** to select **"C.1"** for the filling function.
- 6. OK
- ✓/ to select "ON" for filling.
- 8. OK

The filling function is activated. The display shows a rotating rectangle.

The filling function ends automatically after 20 min or press = for 4 s.









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



There is a risk of electric shock from escaping heating water or DHW.

When commissioning and after carrying out maintenance work, check all water side connections for leaks.

Please note

- Leaking hydraulic connections lead to appliance damage.
- Check the internal and on-site hydraulic connections for leaks.
- In the event of leaks, switch off the appliance immediately. Drain the heating water. Check the seating of seal rings. Always replace displaced seal rings.





Venting the heating system

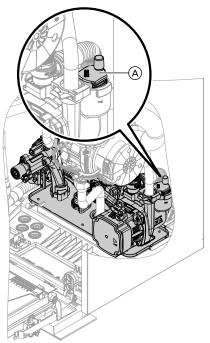


Fig. 25

- 1. Check whether the air vent screw in quick-action air vent valve (A) of the heating circuit pump is open.
- 2. Close the gas shut-off valve and switch the appliance ON.
- 3. Activate the venting program (see commissioning assistant or following chapter).
- **4.** Adjust the system pressure. The display shows the system pressure.

- 5. Disconnect the supply hose from the boiler drain & fill valve.
- 6. Open the gas shut-off valve.

Note

Leave the quick-action air vent valve open once the venting program has finished.

Activating the venting function

If the venting function is to be activated after commissioning.

Tap the following buttons:

- 1. = and **OK** simultaneously for approx. 4 s, then release.
- 2. Use \(\scalest{\scalest} \) to select "b.5" for the commissioning assistant.
- 3. OK
- 4. The display shows "AP". Press for 4 s.

- **5.** Use **★**/**★** to select **"C.2"** for venting.
- 6. OK
- 7. \to select "ON" to switch on venting.

The venting function is activated. The display shows a rotating rectangle.

The venting function ends automatically after 20 min or press for 4 s.







Checking the gas type

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

- For operation with natural gas, no adjustment is therefore required across the entire Wobbe index range. The boiler can be operated within the Wobbe index range 9.5 to 15.2 kWh/m³ (34.2 to 54.7 MJ/m³).
- For operation with LPG, the gas type needs to be changed on the control unit (see following chapter).
- Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
- 2. Record the gas type in the service report.



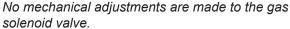




Converting the gas type for operation with LPG

- To change the gas type on the control unit, see "Commissioning the system with the commissioning assistant"
 - sion-
- **2.** Affix label "G31" (supplied with the technical documentation) adjacent to the type plate on the cover panel.

No m









Removing the front panel

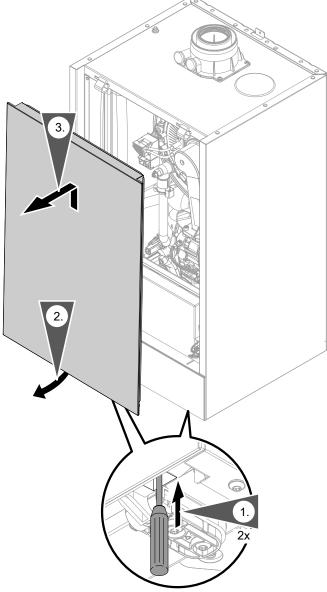


Danger

Contact with live components can lead to serious injury from electric current. Some components on PCBs remain live even after the power supply has been switched off.

- Never touch the wiring chambers (control unit and power supply connections).
- When working on the appliance, isolate the system from the power supply, e.g. at a separate MCB/fuse or a mains isolator. Check the system is no longer live and safeguard against reconnection.
- Prior to working on the appliance, wait at least 4 min until the voltage has completely dropped out.

Removing the front panel (cont.)







Checking the static pressure and supply pressure



Danger

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

Gas installation to BS 6891:2005

It is the gas installer's responsibility to size the gas installation lines in accordance with BS 6891:2005. If it is determined that the operating pressure falls below the minimum outlet level for the measuring device of 19 mbar: Check and ensure that the gas pressure is sufficient for correct and safe operation.

Taking into account a pressure drop from the installation lines of no more than 1 mbar, it can be assumed that a permissible minimum pressure of 18 mbar is present at the appliance's gas connection (reference BS 6400-1 Section 6.2, Pressure absorption). The external gas tap may reduce operating pressure further if measured at its test point. The pressure drop is relative to the heat input of the boiler (kW). Observe the minimum gas pressure at the gas solenoid valve in accordance with the table, see page 46

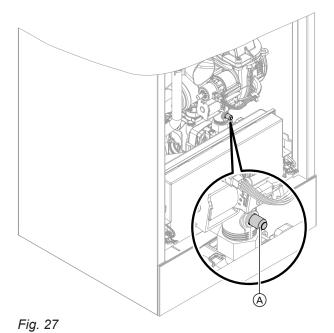
Operation with LPG

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





Checking the static pressure and supply pressure (cont.)



- 1. Turn off the ON/OFF switch.
- 2. Close the gas shut-off valve.
- **3.** Undo screw (A) inside test connector on the gas solenoid valve, but do not remove it. Connect the pressure gauge.
- 4. Open the gas shut-off valve.
- Measure the static pressure and record it in the report: Max. 57.5 mbar (5.75 kPa).
- **6.** Turn on the ON/OFF switch and start the boiler.

Note

During commissioning, the appliance can enter a fault state if there are airlocks in the gas line. Reset the appliance after approx. 5 s (see operating instructions).

7. Measure the supply (flow) pressure. For set values, see the following table.

Note

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

- **8.** Record the measured value in the report. Implement measures as indicated in the table below.
- **9.** Shut down the boiler. Close the gas shut-off valve. Remove the pressure gauge. Close test connector (A) with the screw.
- Open the gas shut-off valve and start the appliance.



Danger

Gas escaping from the test connector leads to a risk of explosion.

Check gas tightness at test connector (A).

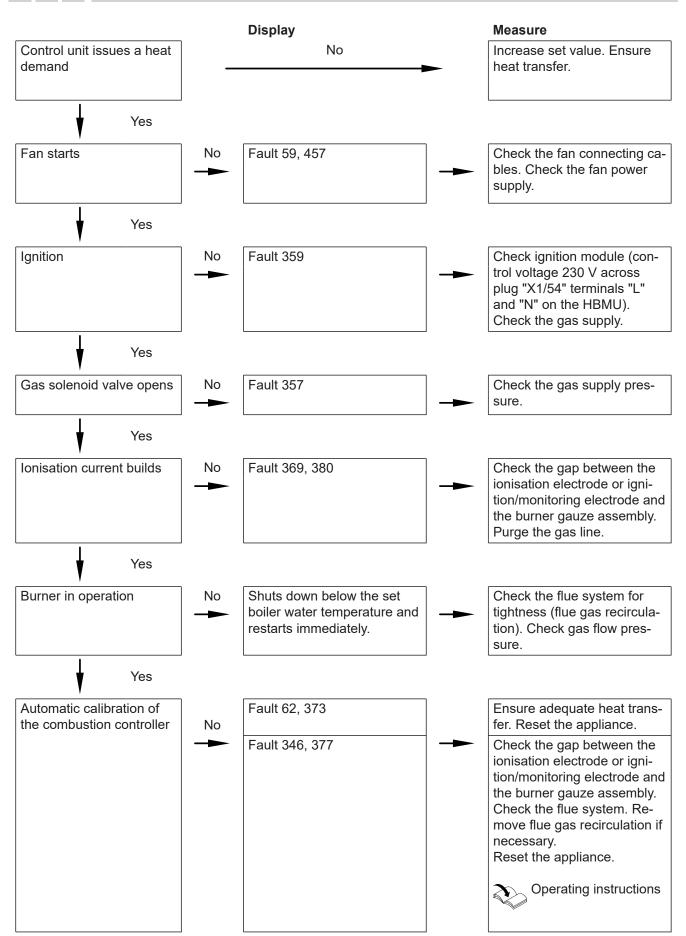
11. Fit front panel (see installation sequence).

Supply pressure (flow pressure)		Measures
For natural gas	For LPG	
< 13 mbar (1.3 kPa)	< 25 mbar (2.5 kPa)	Do not start the boiler. Notify the gas supply utility or LPG supplier.
13 to 25 mbar (1.3 to 2.5 kPa)	25 to 57.5 mbar (2.5 to 5.75 kPa)	Start the boiler.
> 25 mbar (2.5 kPa)	> 57.5 mbar (5.75 kPa)	Install a separate gas pressure governor upstream of the system. Set the pre-charge pressure to 20 mbar (2.0 kPa) for natural gas and 50 mbar (5.0 kPa) for LPG. Notify the gas supply utility or LPG supplier.





Function sequence and possible faults













Function sequence and possible faults (cont.)

For further details regarding faults, see "Troubleshooting".





Setting the maximum heating output

A limit can be set on the maximum heating output for **heating mode**. The limit is set via the modulation range.

B1HG-11

The max. heating output is **not** adjustable.

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.
- Use \(\shi \) to select "b.2" for system configuration.

- 3. OK
- **4.** Use **★**/**★** to select "7" for max. heating output.
- 5. OK
- 6. Use ✓/✓ to set the required value in % of rated heating output. Factory setting 100 %.
- 7. OK



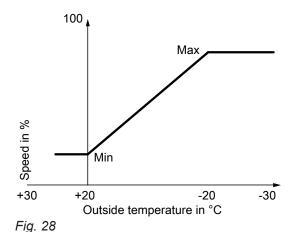




Adjusting pump rate of integral circulation pump

Operation of the integral circulation pump as heating circuit pump for heating circuit 1

The pump speed and consequently the pump rate are controlled subject to the outside temperature and the switching times for heating mode or reduced mode. The max. speed for heating mode can be matched to the existing heating system at the control unit.



Setting (%) in system configuration. See page.

• In the delivered condition, the minimum pump rate and the maximum pump rate are set to the following values:

Rated heating output in kW	Speed settings in the de- livered condition in %		
	Min. pump rate	Max. pump rate	
11	40	65	
19	40	70	
25	40	80	
32	40	100	

- In the following system conditions, the internal circulation pump is operated at a constant speed:
 - Low loss header or heating water buffer cylinder and heating circuits with mixer
 - Constant mode





Adjusting pump rate of integral circulation pump (cont.)

Residual heads of the integral circulation pump 11, 19, 25 kW

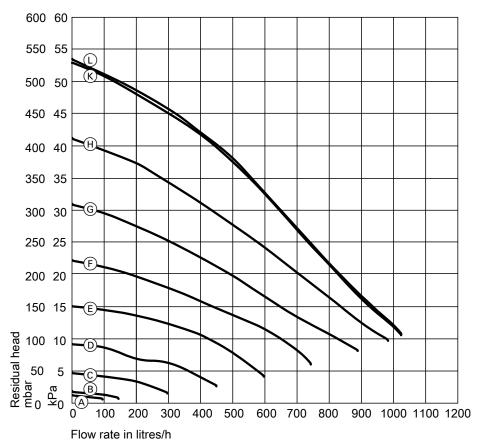


Fig. 29

Curve	Pump rate of circulation pump
A	0 %
B	10 %
©	20 %
D	30 %
E	40 %
F	50 %
G	60 %
\bigoplus	70 %
K	80 %
L	90 %







Adjusting pump rate of integral circulation pump (cont.)

Residual heads of the integral circulation pump 32 kW

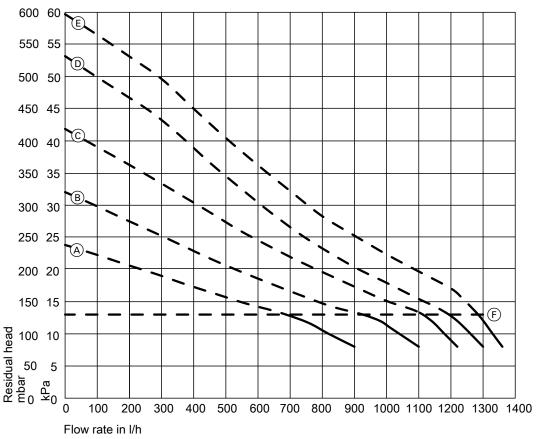


Fig. 30

(F) Upper operational limit

Curve	Pump rate of circulation pump
A	60 %
B	70 %
C	80 %
D	90 %
E	100 %





Activating screed drying

Screed drying

Six different temperature profiles can be set for screed drying:

Default temperature profiles adjustable in **"System configuration"**.

For further details, see "Function description".

Note

Screed drying applies to all connected heating circuits simultaneously. DHW heating is not possible during screed drying.





Leak test on balanced flue system (annular gap check)

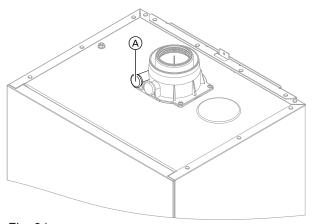


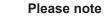
Fig. 31

A Combustion air aperture

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

In this case, we recommend that a simple tightness test is carried out during system commissioning. For this, 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 greater or O_2 values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.



If the test port is not sealed, combustion air is drawn in from the room.

After the tightness test, re-seal the test port with the plug.





Burner adjustment when connecting multiple flues to a shared flue system

Note

Only make this adjustment on appliances suitable for multiple connection.

For suitable appliances, see the pricelist.

When connecting several

gas condensing system boilers to a shared flue system:

For multiple connection, in the **commissioning assistant** use **"C.4"**, **"C.5"** and **"C.6"** to match the burner setting to the flue system. See page 37.

System conditions:

- Shared flue in shaft Ø 100 mm
- Balanced flue connection pipe from boiler to shaft, Ø 80/125 mm
- Minimum shaft cross-section
 - Square: 175 x 175 mm
 - Round: Ø 195 mm
- Height between floors min. 2.5 m
- Max. 6 boilers with the same rated heating output connected to the flue system













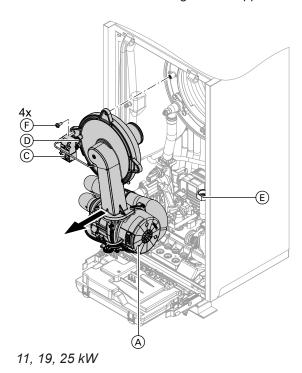
Removing the burner



Danger

Contact with live components can lead to serious injury from electric current. Some components on PCBs remain live even after the power supply has been switched off.

- **Do not touch** the wiring chambers (control unit and mains connections).
- When working on the appliance, isolate the system from the power supply, e.g. at a separate fuse or a main switch. Check the system is no longer live and safeguard against reconnection.
- Before working on the appliance, wait at least4 min until the voltage has dropped out.



4x F D C B

32 kW

- 1. Turn off the ON/OFF switch.
- **2.** Close the gas shut-off valve and safeguard against reopening.
- 3. Disconnect cables and leads from:
 - Fan motor (A) (2 plugs)
 - Ionisation electrode ®
 - Ignition unit ⓒ
 - Earth D

- **4.** Undo gas supply pipe fitting **E**).
- **5.** Undo 4 screws (F) and remove the burner.

Note

Cover gas connection E so that no small parts can fall into it.







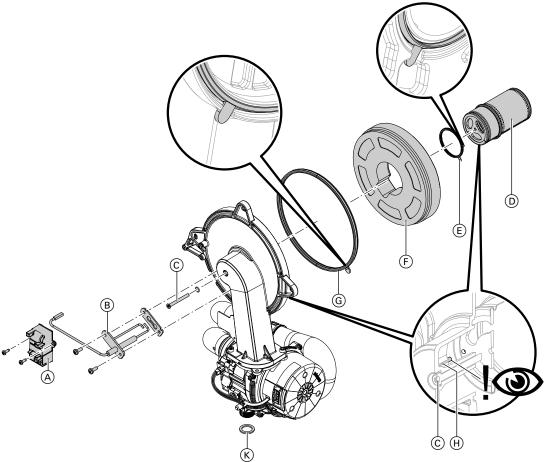


Fig. 32 11, 19, 25 kW





Checking the burner gasket and burner gauze... (cont.)

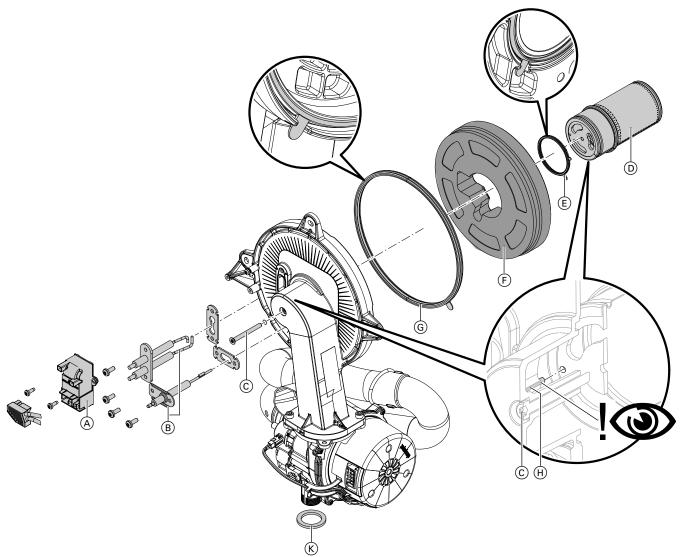


Fig. 33 32 kW

Check burner gauze assembly ①, electrodes ③, thermal insulation ring ⑤ and gasket ⑤ for damage. Only remove and replace components if they are damaged or worn.

Note

If replacing the burner gauze assembly, also replace the gauze assembly gasket and the fixing screw.

- **1.** Disconnect the plug with ignition electrode cables from ignition unit (A).
- 2. Remove electrodes B.
- **3.** Undo Torx screw ©. Hold onto burner gauze assembly © when undoing the screw.
- **4.** Remove burner gauze assembly ① with gasket ② and thermal insulation ring ⑤. Check components for damage.

- **5.** Install new burner gasket ©. Ensure the correct installation position. Align the tab as per the diagram.
- **6.** Insert thermal insulation ring (F) and burner gauze assembly (D) with gasket (E). Ensure the correct installation position. Align the tab as per the diagram.





Checking the burner gasket and burner gauze... (cont.)

- 7. Align the hole in burner gauze assembly \bigcirc with burner door pin \bigcirc .
 - Please note

Incorrect positioning of the burner gauze assembly on the burner door will cause damage to the burner door.

Insert the burner door pin into the hole in the burner gauze assembly. See chapter "Installing the burner gauze assembly", page.

Secure burner gauze assembly D and gasket E with Torx screw C.

Tighten screws as much as necessary and ensure that the components are undamaged and function correctly throughout their service life.

Observe torque settings if a torque wrench is available.

Torque: 3.0 Nm.

- **8.** Check thermal insulation ring (F) for firm seating.
- **9.** Fit electrodes (B). Check clearances; see following chapter.

Tighten screws as much as necessary and ensure that the components are undamaged and function correctly throughout their service life.

Observe torque settings if a torque wrench is available.

Torque: 4.5 Nm.

10. Fit the gas connection with new gasket (K). See chapter "Installing the burner".

Installing the burner gauze assembly

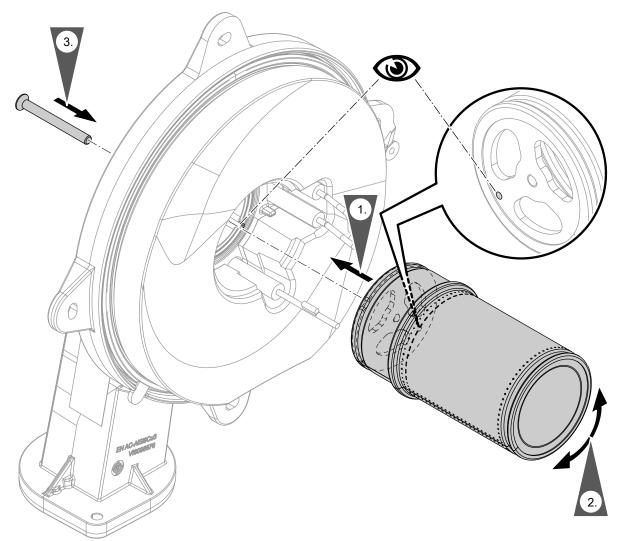


Fig. 34



Checking the burner gasket and burner gauze... (cont.)

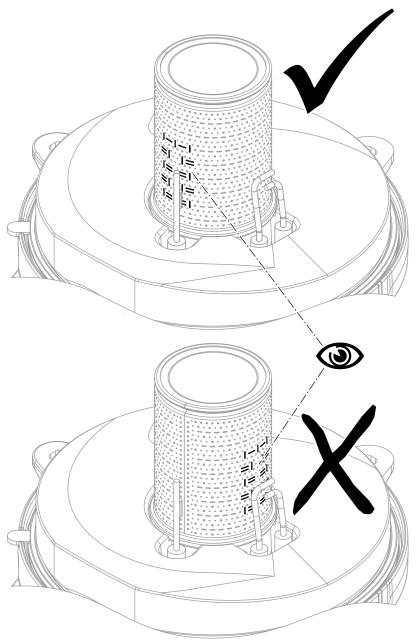


Fig. 35





Checking and adjusting the ignition and ionisation electrodes

Burners 11, 19, 25 kW

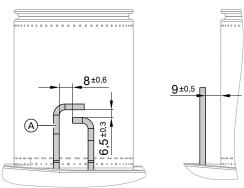


Fig. 36

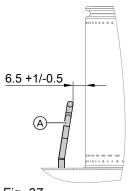
- A Ignition/monitoring electrode
- **1.** Check the ignition/monitoring electrode for wear and dirt.
- **2.** Clean the ignition/monitoring electrode with a small brush (not a wire brush) or sandpaper.
- Check the electrode gaps. If the gaps are not as specified or the ignition/monitoring electrode is damaged, replace the electrodes and gaskets and adjust them as required.

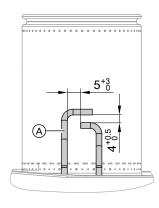
Tighten screws as much as necessary and ensure that the components are undamaged and function correctly throughout their service life.

Observe torque settings if a torque wrench is available.

Tighten the fixing screws for the ignition/monitoring electrode to a torque of 4.5 Nm.

Burner 32 kW





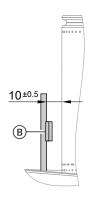


Fig. 37

- A Ignition electrode
- **B** Ionisation electrode
- 1. Check the electrodes for wear and contamination.
- **2.** Clean the electrodes with a small brush (not a wire brush) or sandpaper.













Checking and adjusting the ignition and... (cont.)

Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace the electrodes and gaskets and adjust them as required.

Tighten screws as much as necessary and ensure that the components are undamaged and function correctly throughout their service life.

Observe torque settings if a torque wrench is available.

Tighten the electrode fixing screws to a torque of 4.5 Nm.



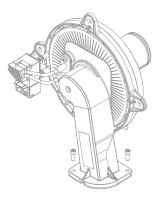




Checking the back draught safety devices

Only for multiple connections to a flue system or multi boiler systems with a flue gas cascade.

Back draught safety device in the mixing shaft of the burner



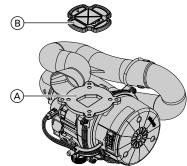


Fig. 38

- **1.** Undo 2 screws and remove fan (A).
- 2. Remove back draught safety device (B).
- **3.** Check the damper and gasket for dirt and damage. Replace if necessary.

4. Refit back draught safety device (B).

Note

Observe correct installation position.

5. Refit fan (A) and secure with 2 screws. Tighten screws as tightly as necessary and ensure that the components are undamaged and are functioning correctly throughout service life.

Observe torque settings if a torque wrench is available.

Torque: 4.0 Nm

Back draught safety device in the flue gas connection

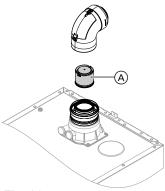


Fig. 39

1. Remove the balanced flue system.

Note

If the balanced flue system cannot be removed, clean and check the back draught safety device via the inspection cover.

2. Check back draught safety device (A) for dirt, ease of movement and function.





Checking the back draught safety devices (cont.)

3. Refit the balanced flue system.

4. Pour a small amount of water through the inspection port to ensure the back draught safety device is working.





Cleaning the heating surfaces

Please note

Scratches to the surface of the heat exchanger that comes into contact with hot gas can result in corrosion damage. Brushing can cause deposits to become lodged in the gaps between the coils.

Never use brushes to clean the heating surfaces.

Please note

Prevent damage due to cleaning water. Cover electronic components with suitable watertight material.

Note

Discolouration on the heat exchanger surface is a normal sign of use. It has no bearing on the function and service life of the heat exchanger.

The use of chemical cleaning agents is not required.

- Use a vacuum cleaner to remove combustion residues from heating surface (A) of the heat exchanger.
- 2. Flush heating surface (A) with water.
- **3.** Check condensate drain. Clean the trap: See the following chapter.
- Check the thermal insulation block (if installed) in the heat exchanger for damage; replace if necessary.





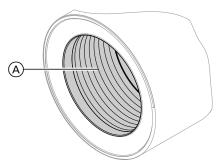


Fig. 40





Checking the condensate drain and cleaning the trap

Please note

Prevent damage due to condensate. Cover electronic components with suitable watertight material.



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

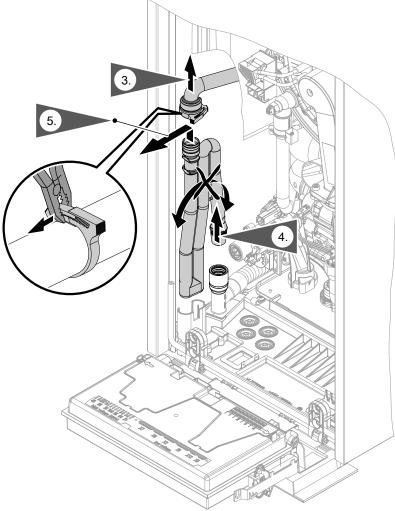


Fig. 41

- **1.** Pivot the HBMU heat management unit forwards.
- **2.** Cover electronic components with suitable water-tight material.
- **3.** Undo the hose clip. Remove the black supply hose.
- 4. Pull trap upwards out of the drain hose.
- **5.** Hold trap as straight as possible and remove. Ensure that no condensate runs out.
- 6. Clean the trap.
- 7. Fill the trap with water and refit it on the drain hose.
 - Please note
 - If the trap is not filled with water, flue gas can escape.
 - Only start the appliance when the trap has been filled.
 - Check that the trap is seated correctly.

Multi boiler system:

Clean the trap in the flue gas collector as well.

8. Reconnect the supply hose and secure in place with the hose clip.

Danger

Risk of electric shock from escaping condensate.

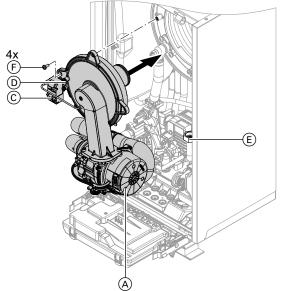
Check the connections for leaks and check that the trap is seated correctly.

Note

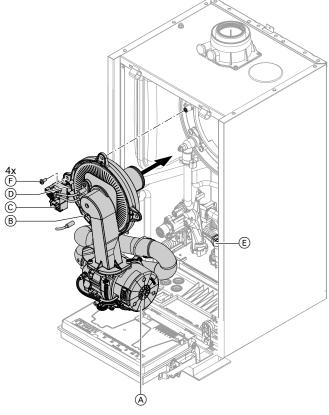
Route the drain hose without any bends and with a constant fall.



Installing the burner



Burners 11, 19, 25 kW



Burner 32 kW

- Insert the burner. Tighten screws (F) diagonally.
 Tighten screws as tightly as necessary and ensure
 that the components are undamaged and are functioning correctly throughout service life.
 - Observe torque settings if a torque wrench is available.

Torque: 6.5 Nm

2. Fit gas connection pipe (E) with a new gasket.

Tighten screws as tightly as necessary and ensure that the components are undamaged and are functioning correctly throughout service life.

Observe torque settings if a torque wrench is available.

Check for gas tightness to BSI 6891.

Torque: 30 Nm

3. Check the gas connections for leaks.



Danger

Escaping gas leads to a risk of explosion. Check all fittings for gas tightness. In the case of wall mounted appliances, also check the gas shut-off valve fitting on the underside.

- 4. Connect the cables/leads:
 - Fan motor (A) (2 plugs)
 - Ionisation electrode (B)
 - Ignition unit ©
 - Earth ①





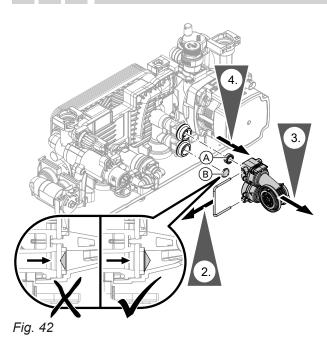


Checking the neutralising system (if installed)





Checking the flow limiter (only for gas condensing combi boiler)



- 1. Drain the boiler on the DHW side.
- 2. Remove the spring clip.
- 3. Remove the DHW flow sensor.
- **4.** Check flow limiter (A) and filter strainer (B). Replace if scaled or damaged.

Note

- Install filter strainer (B) with the cone pointing in the direction of flow.
- Filter strainer (B) is installed in appliances only as shown in the figure on the right:

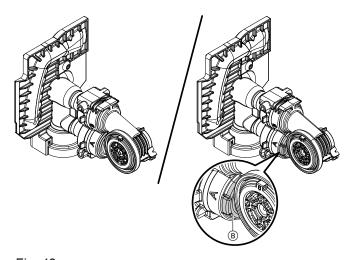


Fig. 43

5. Mount DHW flow sensor with new gaskets.



Danger

Risk of electric shock from escaping heating water or DHW

Check all water side connections for tightness.

Flow limiter

1 low minutes			
Appliance type	Flow rate	Colour	
	l/min		
B1KG-26 (GB)	10	Light blue	
B1KG-30 (GB)	12	Red	
B1KG-35 (GB)	14	Pink	





Checking the expansion vessel and system pressure

Note

The expansion vessel can lose some of its charge pressure over time. When the boiler heats up, the pressure rises to 2 or 3 bar (0.2 or 0.3 MPa). The safety valve may also respond and discharge the excess pressure.

Therefore check the expansion vessel pre-charge pressure annually.

Check whether the installed expansion vessel is adequate for the system water volume.

Carry out this test on a cold system.

1. Drain the system until "0" is shown on the display.

Note

For pressure indicator on the home screen, repeatedly until the pressure gauge symbol appears.

2. If the pre-charge pressure of the expansion vessel is lower than the static system pressure: Top up with nitrogen at the valve of the diaphragm expansion vessel until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the static system pressure.

3. Top up with water until the charge pressure of the cooled system is at least 1.0 bar (0.1 MPa), and is 0.1 to 0.2 bar (10 to 20 kPa) higher than the precharge pressure of the expansion vessel. Permiss. operating pressure: 3 bar (0.3 MPa)

Note

The expansion vessel is supplied from the factory with a pre-charge pressure of 0.7 bar.

Do not allow the pre-charge pressure to fall below this value (boiling noises). This also applies to single floor heating systems or attic heating centres (no static pressure).

Top up with water until the charge pressure is 0.1 to 0.2 bar above the pre-charge pressure.













Checking the electrical connections for firm seating



Danger

Contact with live components can lead to serious injury from electric current. Some components on PCBs remain live even after the power supply has been switched off.

- Never touch the wiring chambers (control unit and power supply connections).
- When working on the appliance, isolate the system from the power supply, e.g. at a separate MCB/fuse or a mains isolator. Check the system is no longer live and safeguard against reconnection.
- Prior to working on the appliance, wait at least 4 min until the voltage has completely dropped out.





Checking all gas equipment for leaks at operating pressure



Dangei

Escaping gas leads to a risk of explosion. Check gas equipment (including inside the appliance) for leaks.







Checking all gas equipment for leaks at... (cont.)

Note

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







See page 35.







Checking the combustion quality

The electronic combustion controller automatically ensures optimum combustion quality. During commissioning/maintenance, only the combustion values need to be checked. To do this, test the CO content and CO_2 or O_2 content, and record these in the report on page 141.

Note

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

Permissible CO content

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

Permissible CO₂ or O₂ content

Operation with natural gas

Rated heating out- put (kW)	CO ₂ content (%)		O ₂ content (%)	
	Upper heating output	Lower heating output	Upper heating output	Lower heating output
11	7.5 to 10.5	7.5 to 10.5	2.1 to 7.6	2.1 to 7.6
19	7.5 to 10.5	7.5 to 10.5	2.1 to 7.6	2.1 to 7.6
25	7.3 to 10.0	7.5 to 10.5	3.1 to 7.9	2.1 to 7.6
32	7.3 to 10.0	7.3 to 10.5	3.1 to 7.9	2.1 to 7.9

Operation with LPG

CO₂ content: 8.4 to 11.8 %
 O₂ content: 3.1 to 8.1 %

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

- Check the balanced flue system for leaks; see page 51.
- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable: See page 57.

Note

During commissioning, the combustion controller carries out an automatic calibration. Allow approx. 50 s after the burner has started before testing the emissions.





Checking the combustion quality (cont.)

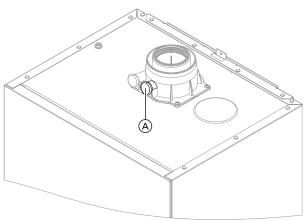


Fig. 44

- **1.** Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.
- **2.** Open the gas shut-off valve. Start the boiler. Create a heat demand.
- **3.** Adjust the lower heating output. See the following chapter.
- **4.** Check the CO₂ content. If the actual value deviates from the permissible ranges, implement steps listed above.
- **5.** Enter the actual value into the report.

- **6.** Adjust the upper heating output. See the following chapter.
- 7. Check the CO₂ content. If the actual value deviates from the permissible ranges by more than 1 %, implement steps listed above.
- 8. Enter the actual value into the report.
- 9. Re-seal test port (A).



Danger

Escaping flue gas can damage your health. Check test port A for leaks.

Regulating to the upper/lower heating output

Note

Ensure adequate heat transfer.

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.

- 3. OK
- 4. Use **∧**/**∨** to set the value.

"OF" - off

"1" - Min. heating output

"2" - Max. heating output

5. OK

Burner is operating with correspondingly adjusted heating output.





Checking the flue system for unrestricted flow and leaks





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.



Accessory installation instructions

Set the parameters according to the accessories fitted:





Adjusting the heating curves

Tap the following buttons:

- 1. ≡
- 2. Use ✓/✓ to select "P.3" for heating curve.
- 3. OK
- 4. Use ✓ to select "HC1" for "heating circuit 1" or "HC2" for "heating circuit 2".

- 5. OK
- 6. Use ✓/✓to set the slope.
- 7. OK
- 8. Use \(\shi \) to set the level.
- 9. OK to confirm







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.

DHW hygiene

For optimum DHW hygiene, avoid DHW temperatures that are < 50 °C. For larger systems and systems with low water exchange, the temperature should not drop below < 60 °C.

Inform the system user what DHW temperatures should be set and the risks associated with having a raised outlet temperature at the draw-off points.





Calling up parameters

Note

The display and setting of some parameters is dependent on:

- Heat generator
- Connected accessories and the functions associated with them

Tap the following buttons:

- 1. **≡** and **OK** simultaneously for approx. 4 s, then release.
- Use ✓ to select "b.2" for system configuration.

- 3. OK
- **4.** Use **★**/**★** to select the parameter for adjustment. See tables below.
- 5. OK
- **6.** ✓/✓ for the required value.
- 7. OK

Note

Further parameters can be called up via the software tool.

Parameter value

Note

Parameter values in **bold** are factory settings.

1 Set flow temperature for external demand

Parameter 528.0

Setting		Explanations
		Set flow temperature for external demand
	70	Set flow temperature in the delivered condition 70 °C
	20 to 82	Set flow temperature adjustable from 20 to 82 °C in 1 °C increments

2 Primary pump operating mode

Parameter 1240.0

Setting		Explanations
	7	"Automatic" Switched on regardless of current temperature level Switched off in reduced mode (in conjunction with constant operation with time program) or if there is no demand via the room thermostat.

System configuration (parameters)

Parameter value (cont.)

3 Scald protection

Parameter 503.0

Setting		Explanations
		The adjustable DHW temperature is limited to a maximum value.
Out	0	Scald protection OFF
		Danger Risk of injury due to increased DHW temperature. Inform the system user of the risk from the raised outlet temperature at the draw-off points.
In	1	Scald protection on (max. DHW temperature 60 °C)
		Note Even with the scald protection switched on, higher outlet temperatures may occur at the draw-off points in the following cases: While the appliance is being calibrated

4 Max. speed of speed-controlled primary/heating circuit pump in standard mode, heating circuit 1 Parameter 1102.1

Setting		Explanations
		Maximum speed of the internal circulation pump in heating mode with standard room temperature Delivered condition specified by settings specific to the heat generator
	0 to 100	Maximum speed adjustable from 0 to 100 %

5 Screed drying

Parameter 897.0

Setting		Explanations
Not active	0	Screed drying can be set in accordance with selecta- ble temperature/time profiles. For individual profile curves, see chapter "Function description".
Temperature profile A	2	
Temperature profile B	3	
Temperature profile C	4	
Temperature profile D	5	
Temperature profile E	6	
Temperature profile F	7	

Note

With the combi boiler (type B1KG), DHW heating is not possible during screed drying. With the system boiler (type B1HG with diverter valve) or storage combi boiler (types B1LG, B1TG, B1SG), DHW heating is suspended after 30 minutes for an hour (parameter 1087.1) in order to run the screed drying program.

Parameter value (cont.)

6 Minimum heating output

Parameter 1503.0

Setting		Explanations
		A limit can be set on the minimum heating output for heating mode.
		Delivered condition specified by settings specific to the appliance
	0 to 100	Adjustable from 0 to 100 %

7 Maximum heating output

Parameter 596.0

Setting		Explanations
		A limit can be set on the maximum heating output for heating mode.
	100	Heating output in the delivered condition 100 %
	0 to 100	Adjustable from 0 to 100 % (setting range limited by boiler-specific parameters)

8 Maximum flow temperature limit, heating circuit 1

Parameter 1192.1

Setting		Explanations
		Maximum flow temperature limit for the heating circuit
82 °C	82	Maximum limit in the delivered condition 82 °C
	20 to 82	Setting range limited by heat generator-specific parameters

9 Operating mode, heating circuit 1

Parameter 933.6

Setting		Explanations
		Only adjust if there is just a single heating circuit in the system.
	4	Weather-compensated without room temperature influence
	7	Weather-compensated with room temperature influence: See also parameter 933.7; parameter 2426.7 is then automatically activated.

10 "Room influence factor, heating circuit 1"

Parameter 933.7

Setting		Explanations
		The higher the value, the greater the influence of the room temperature on the flow temperature of the heating circuit (heating curve). Operation with room temperature hook-up must be set for the heating circuit. Only change the value for systems with one heating circuit. For a sample calculation, see chapter "Heating curve" in the "Function description"
8	8	Maximum limit in the delivered condition
	0 to 64	Setting range

Parameter value (cont.)

11 Maximum flow temperature limit, heating circuit 2

Parameter 1193.1

Setting		Explanations
		Maximum flow temperature limit for the heating circuit
82 °C	82	Maximum limit in the delivered condition 82 °C
	20 to 82	Setting range limited by heat generator-specific parameters

12 Operating mode heating circuit 2

Parameter 934.6

Setting		Explanations
Weather-compensated without room temperature hook-up	4	Heating mode: Weather-compensated without room temperature influence
Weather-compensated with room temperature hook-up	7	Weather-compensated with room temperature influence See parameter 934.7; parameter 2427.2 is then automatically activated.

13 Room influence factor, heating circuit 2

Parameter 934.7

Setting		Explanations
		The higher the value, the greater the influence of the room temperature on the flow temperature of the heating circuit (heating curve). Operation "with room temperature hook-up" must be set for the heating circuit. Only change the value for the heating circuit with mixer. For a sample calculation, see chapter "Heating curve" in the "Function description"
	8	Maximum limit in the delivered condition
	0 to 64	Setting range

14 OpenTherm configuration

Parameter 2483.0

Setting		Explanations
		Note This setting depends on the OpenTherm device in order to correctly control DHW heating.
	0	The heat generator ignores DHW demands via the OpenTherm interface (terminal 3)
	1	The heat generator follows DHW demands via the OpenTherm interface (terminal 3)

Further settings

Only possible via "ViGuide". Parameters are marked with \blacksquare .

Parameter value (cont.)



424.3 Set flow temperature increase, heating circuit 1

Set flow temperature increased when changing from operation at reduced room temperature to operation at standard room temperature or comfort room temperature, heating circuit 1. See chapter "Function description"

Value	Meaning
0	Delivered condition increase 0 K
0 to 20	Temperature increase adjustable from 0 to 20 K



424.4 Duration for set flow temperature increase of heating circuit 1

Duration for set flow temperature increase, heating circuit 1 See chapter "Function description"

Value	Meaning
60	Delivered condition 60 min
0 to 120	Temperature increase adjustable from 0 to 120 min

426.3 Set flow temperature increase, heating circuit 2

Set flow temperature increased when changing from operation at reduced room temperature to operation at standard room temperature or comfort room temperature, heating circuit 2. See chapter "Function description"

Value	Meaning
0	Delivered condition increase 0 K
0 to 20	Temperature increase adjustable from 0 to 20 K

426.4 Duration for set flow temperature increase of heating circuit 2

Duration for set flow temperature increase, heating circuit 2 See chapter "Function description"

Value	Meaning
60	Delivered condition 60 min
0 to 120	Temperature increase adjustable from 0 to 120 min

497.0 Operating mode of DHW circulation pump

DHW circulation pump

Value	Meaning
0	The DHW circulation pump runs continuously within the time program during the set time phases.
4	The DHW circulation pump operates with the cycles set in 497.3.



497.1 DHW circulation pump for hygiene function

Operation of the DHW circulation pump while the function for increased DHW hygiene is active.

System configuration (parameters)

Parameter value (cont.)

Value	Meaning
0	The DHW circulation pump runs in accordance with the set time program, irrespective of the increased DHW hygiene function.
1	The DHW circulation pump is switched on every time the increased DHW hygiene function is activated, irrespective of the time program for the DHW circulation pump. With this setting, the pipework can also be integrated into the increased DHW hygiene function.

Note

The respective operating status of the DHW circulation pump depends on the setting of parameters **497.0** to **497.3** and on the respective operating status of the system.



Danger

There is a risk of scalding at DHW temperatures above 60 °C.

- Limit the temperature in the DHW flow to 60 °C by means of a mixer assembly, e.g. an automatic thermostatic mixing valve (DHW cylinder accessory).
- Switch on scald protection: Via the HMI programming unit or parameter 503.0

497.2 DHW circulation pump for DHW heating

The DHW circulation pump is operated during cylinder heating.

Value	Meaning
0	The DHW circulation pump is switched off during cylinder heating.
	The DHW circulation pump runs in accordance with the setting in 497.0 , including during cylinder heating.

Note

The respective operating status of the DHW circulation pump depends on the setting of parameters **497.0** to **497.3** and on the respective operating status of the system.

Example:

- Parameter **497.0** set to **0**.
- Parameter **497.2** set to **0**.
- A time phase is active in the time program for the DHW circulation pump.
- Cylinder heating is active.

The DHW circulation pump is operating in accordance with setting 497.0.

ë

497.3 Number of cycles DHW circulation pump

Within the time phase, the DHW circulation pump is switched on cyclically for 5 min at a time.

Value	Meaning
0	1 cycle per h
1	2 cycles per h
2	3 cycles per h
3	4 cycles per h
4	5 cycles per h
5	6 cycles per h



Setting of the UTC time zone in which the appliance is located.

Parameter value (cont.)

Note

Only active if 1504.0 has been set to 2.

Value	Meaning
2	The factory setting is UTC +1 h
-24 to +24	Time difference adjustable from –12 h to +12 h in 0.5 h increments

522.3 Interval until next maintenance

Interval until the next maintenance

Value	Meaning
0	No interval selected
1	3 months
2	6 months
3	12 months
4	18 months
5	24 months

□ 534.0 Circulation pump run-on

Circulation pump run-on after cylinder heating

Value	Meaning
120	Delivered condition 120 s run-on
0 to 900	Run-on time adjustable from 0 to 900 s in 60 s increments (the run-on time is rounded down to full minutes)
	Note To avoid damaging the appliance, do not set the run-on time to < 120 s.

597.0 Limit, max. heating output for DHW heating

A limit can be set on the maximum heating output for DHW heating.

Note

The setting range and minimum value depend on the boiler.

Value	Meaning
100	Heating output in the delivered condition 100 %
up to 100	Adjustable from to 100 %

896.0 Display correction for outside temperature

To compensate for systematic measuring faults, a correction value (offset) can be set for the outside temperature

The correction value can be positive or negative. The correction value is added to the current outside temperature measurement.

System configuration (parameters)

Parameter value (cont.)

Value	Meaning
0	No correction
-10 to +10	Correction adjustable from –10 to +10 K

912.0 Automatic summer/wintertime changeover

Value	Meaning
0	No automatic summer/wintertime changeover
1	Automatic summer/wintertime changeover active

912.1 Earliest day of changeover from winter to summertime

Value	Meaning
25	Changeover from 02:00 to 03:00 occurs on the Sunday after or on this set date.
1 to 31	Day of changeover adjustable from 1st to 31st of the month

912.2 Month of changeover from winter to summertime

Value	Meaning
3	Month of changeover: March
1 to 12	Month of changeover adjustable from January to December

912.3 Earliest day of changeover from summer to wintertime

Value	Meaning
25	Changeover from 03:00 to 02:00 occurs on the Sunday after or on this set date.
1 to 31	Day of changeover adjustable from 1st to 31st of the month

912.4 Month of changeover from summer to wintertime

Value	Meaning
10	Month of changeover: October
1 to 12	Month of changeover adjustable from January to December

933.3 DHW heating priority, heating circuit 1

Priority of DHW heating over the heating circuit.

To reduce the heat-up time, room heating can be interrupted during DHW heating. For this purpose, the heating circuit pump for heating circuit 1 is switched off.

Value	Meaning
0	Without priority: Simultaneous room heating and DHW heating possible (only if the DHW cylinder is installed downstream of the low loss header).
1	With priority: No room heating during DHW heating Heating circuit pump for heating circuit 1 is switched off for the duration of DHW heating.

Parameter value (cont.)



934.3 DHW heating priority, heating circuit 2

Priority of DHW heating over the heating circuit.

To reduce the heat-up time, room heating can be interrupted during DHW heating. For this purpose, the heating circuit pump for heating circuit 2 is switched off.

Value	Meaning
0	Without priority: Simultaneous room heating and DHW heating possible (only if the DHW cylinder is installed downstream of the low loss header).
1	With priority: No room heating during DHW heating Heating circuit pump for heating circuit 2 is switched off for the duration of DHW heating.



934.5 Differential temperature, heating circuit 2

The flow temperature of the heat generator is higher than the flow temperature of the heating circuit with mixer by an adjustable differential temperature. See chapter "Function description".

Value	Meaning
8	Differential temperature in delivered condition 8 K.
0 to 20	Differential temperature adjustable from 0 to 20 K

950.0 Flow rate, solar circuit at max. pump speed

Flow rate required for calculating the solar yield.

Value	Meaning
7	Flow rate 7 l/min
0.1 to 25.5	Flow rate adjustable from 0.1 to 25.5 l/min 1 step ≙ 0.1 l/min



1085.0 Cylinder heating: Set start point

The set value specifies at what temperature below the current set cylinder temperature DHW heating will start.

Value	Meaning
25	Start point 2.5 K below the set cylinder temperature
10 to 100	Adjustable start points: 10: 1.0 K 100: 10.0 K Note Stop point 2.5 K above the set cylinder temperature



1087.0 Max. duration, DHW heating

DHW heating stops after expiry of the set duration, irrespective of whether the set cylinder temperature has been reached.

System configuration (parameters)

Parameter value (cont.)

Note

Not adjustable on gas condensing combi boilers!

Note

The next DHW heating period starts after expiry of duration 1087.1 at the earliest.

Value	Meaning
240	Factory setting 240 min
0	No time limit for DHW heating
1 to 240	Duration of DHW heating adjustable from 1 to 240 min in 1 min increments

1087.1 Min. delay until next time DHW is heated

The next DHW heating period starts at the earliest after expiry of the delay set here. In each case this delay starts after DHW heating has ended.

Note

Function becomes effective when the set "Max. duration, DHW heating" (1087.0) is exceeded. Cannot be set on gas condensing combi boilers

Value	Meaning
60	Delivered condition, delay of 60 min
1 to 90	Delay adjustable from 1 to 90 min in 1 min increments



■ 1098.4 Gas volume correction factor

Value is provided on the gas supplier's bill. Used for energy consumption data.

Value	Meaning
1.0000	
0.7000 to 1.0000	Gas volume correction factor adjustable from 0.7000 to 1.0000 in increments of 0.0001.



1098.5 Calorific value

Value is provided on the gas supplier's bill. Used for energy consumption data.

Value	Meaning
10	Standard for natural gas. Data in kWh/m³ If gas type is switched to LPG, the standard value switches to 10.45
5 to 40	Calorific value adjustable from 5 to 40 kWh/m³ in increments of 0.0001



1100.2 Set speed of the primary circuit pump in heating mode

Set speed of primary circuit pump

- In heating mode
- With external demand
- With demand in conjunction with a low loss header

Parameter value (cont.)

Value	Meaning
	Delivered condition specified by settings specific to the appliance
	Setting range depends on the appliance

1101.2 Set speed of the primary circuit pump for DHW heating

Set speed of the internal circulation pump when operated as a circulation pump for cylinder heating

Value	Meaning
	Delivered condition specified by settings specific to the appliance
	Setting range depends on the appliance.

1102.0 Min. speed of the variable speed primary circuit/heating circuit pump in standard mode, heating circuit 1

Minimum speed of the internal circulation pump in heating mode with standard room temperature

Value	Meaning
	Delivered condition specified by settings specific to the heat generator Setting range depends on the appliance.

1125.0 Maximum cylinder temperature for solar DHW heating

Maximum set cylinder temperature for solar DHW heating



Danger

High DHW temperatures can cause scalding.

- Use on-site measures if required. For example, install automatic thermostatic mixing valves in the DHW
- Inform the system operator.
- Mix with cold water at the draw-off points.

Value	Explanations
60	Max. set cylinder temperature 60 °C
10 to 90	Max. set cylinder temperature adjustable from 10 to 90 °C



1126.0 Minimum collector temperature

Minimum collector temperature for starting the solar circuit pump

Value	Meaning
10	Minimum start temperature 10 °C
0	Minimum temperature limit disabled
1 to 90	Minimum start temperature adjustable from 1 to 90 °C



1126.1 Maximum collector temperature

If the maximum collector temperature is exceeded, the solar circuit pump is shut down to protect the system components (emergency collector shutdown).

System configuration (parameters)

Parameter value (cont.)

Value	Meaning
130	Stop temperature 130 °C
20 to 200	Stop temperature adjustable from 20 to 200 °C

1127.0 Frost protection function for solar circuit

Frost protection function for the solar circuit

Value	Meaning
0	Off - not active
1	On - active Not required for Viessmann heat transfer medium

all 1136.2 Heat transfer medium solar circuit

Setting the heat transfer medium for calculating the solar yield

Value	Meaning
0	Water as a heat transfer medium
1	Viessmann heat transfer medium

1139.0 Outside temperature limit for cancelling reduced set room temperature

Temperature limit for cancelling set reduced room temperature

Value	Meaning
-5	Temperature limit in the delivered condition –5 °C
_61 to +10	Temperature limit adjustable from –61 to +10 °C in 1 °C increments

1139.1 Outside temperature limit for raising the reduced set room temperature to the standard set room temperature

Temperature limit for raising the set reduced room temperature to the standard set room temperature (see "Function description")

Value	Meaning
-14	Temperature limit in the delivered condition –14 °C
-60 to +10	Temperature limit adjustable from –60 to +10 °C in 1 °C increments

1192.0 Minimum flow temperature limit, heating circuit 1

Limiting of set flow temperature for heating operation via heating circuit 1

Value	Meaning
20	Min flow temperature 20 °C
5 to 82	Setting range limited by parameters, depending on appliance version

1193.0 Minimum flow temperature limit, heating circuit 2

Limiting of set flow temperature for heating operation via heating circuit 2

Parameter value (cont.)

Value	Meaning
20	Min flow temperature 20 °C
5 to 82	Setting range limited by parameters, depending on appliance version

1394.0 Set DHW temperature for reheating suppression

Set cylinder temperature for reheating suppression

Above the selected set cylinder temperature, reheating suppression is active.

Value	Meaning
40	Reheating suppression from set cylinder temperature of 40 °C
0 to 95	Set cylinder temperature adjustable from 0 to 95 °C



1395.1 Heating limit: Economy function, outside temperature, heating circuit 1

The heating limit influences the start and stop behaviour of the heating circuit pump (economy control)

- If the outside temperature is 1 K greater than the selected value, the heating circuit pump switches off.
- If the outside temperature is 1 K smaller than the selected value, the heating circuit pump switches on.

Value	Meaning
25	Heating limit at outside temperature 25 °C
10 to 35	Heating limit adjustable from 10 to 35 °C



🗐 1396.1 Heating limit: Economy function, outside temperature, heating circuit 2

The heating limit influences the start and stop behaviour of the heating circuit pump (economy control)

- If the outside temperature is 1 K greater than the selected value, the heating circuit pump switches off.
- If the outside temperature is 1 K smaller than the selected value, the heating circuit pump switches on.

Value	Meaning
25	Heating limit at outside temperature 25 °C
10 to 35	Heating limit adjustable from 10 to 35 °C



1411.0 Clear maintenance messages

Clear maintenance messages if maintenance has been performed.

Value	Meaning
0	Maintenance messages are active (if present).
1	Clear maintenance messages once.



1492.0 Start temperature differential, solar circuit pump

Start temperature differential between actual cylinder temperature and actual collector temperature

Value	Meaning
8	Start temperature differential 8 K
2 to 30	Start temperature differential adjustable from 2 to 30 K

System configuration (parameters)

Parameter value (cont.)



1492.1 Stop temperature differential, solar circuit pump

Stop temperature differential between actual cylinder temperature and actual collector temperature

Value	Meaning	
4	Stop temperature differential 4 K	
1 to 29	Stop temperature differential adjustable from 1 to 29 K	



1504.0 Source for date and time

Selection of source for date and time

The setting depends on the heat generator and accessories.

Setting: Local

Value	Meaning	
0	Factory setting: The date and time are adopted from the control unit.	
2	Internet protocol (see parameter "508.0")	



■ 1505.0 Stagnation time reduction

Hysteresis for set cylinder temperature

To protect system components and heat transfer medium, the solar circuit pump speed is reduced at the same time.

Value	Explanations	
5	Temperature differential 5 K	
0	Stagnation time reduction not active	
1 to 40	Temperature differential adjustable from 1 to 40 K	



1606.0 Minimum burner pause time

The minimum burner pause time can be set subject to boiler load.

Value	Meaning	
0	Fixed setting for minimum burner pause time	
1	Delivered condition, integral method (see parameter 1606.4)	



1606.4 Burner integral threshold

Only effective if parameter 1606.0 is set to 1.

Value	Meaning
50	Factory setting 50 K x min
5 to 255	Adjustable from 5 to 255 K x min The higher the value, the later the burner switches off.

Parameter value (cont.)

[III] 1667.0 Pump switch-on, heating circuit pump 1 in standby mode

Setting		Explanations
		Operating mode, heating circuit pump 1
	0	In "Standby mode" = permanently switched off
	1 to 24	In "Standby mode" = switched on 1–24 times a day (in constant mode for 10 min each time; in weather-compensated mode for 50 min each time)

☐ 1668.0 Pump switch-on, heating circuit pump 2 in standby mode

Setting		Explanations
	0 1 to 24	Operating mode, heating circuit pump 2 In "Standby mode" = permanently switched off In "Standby mode" = switched on 1–24 times a day (in constant mode for 10 min each time; in weather-compensated mode for 50 min each time)

1719.0 Interval function solar circuit pump

For capturing the collector temperature, the collector circuit pump is cyclically switched on briefly.

Value	Meaning
0	Not active
1	Active

2426.1 Weather-compensated heating circuit pump logic for heating circuit 1 (only for weather-compensated control units).

Setting	Explanations
	If the outside temperature is above the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched off. If the outside temperature is below the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched on.

2426.2 Room temperature-dependent heating circuit pump logic on/off for heating circuit 1

Only for weather-compensated control unit with room temperature hook-up!

Only activate this function for the heating circuit with mixer or if there is only one direct heating circuit in the system.

Value	Meaning
0	Off
1	On

Parameter value (cont.)

2426.3 Room temperature-dependent heating circuit pump logic for heating circuit 1 (only for weather-compensated control units with room temperature hook-up).

Setting	Explanations
Only activate this function for the heating circuit with mixer or if there is only one direct heating circuit in the system.	If the actual room temperature is above the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched off. If the actual room temperature is below the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched on.

2427.1 Weather-compensated heating circuit pump logic for heating circuit 2 (only for weather-compensated control units).

Setting	Explanations
	If the outside temperature is above the threshold value (the selected set room temperature plus the hysteresis in K), the heating circuit pump is switched off. If the outside temperature is below the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched on.

2427.2 Room temperature-dependent heating circuit pump logic on/off for heating circuit 2

Only for weather-compensated control unit with room temperature hook-up!

Only activate this function for the heating circuit with mixer or if there is only one direct heating circuit in the system.

Value	Meaning
0	Off
1	On

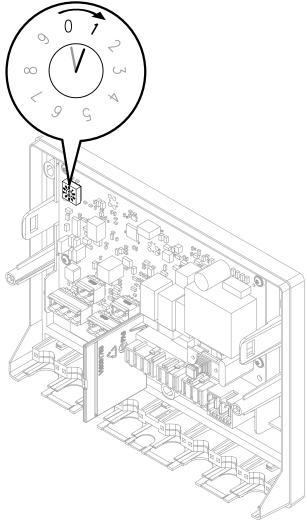
2427.3 Room temperature-dependent heating circuit pump logic for heating circuit 2 (only for weather-compensated control units with room temperature hook-up).

Setting	Explanations
Only activate this function for the heating circuit with mixer or if there is only one direct heating circuit in the system.	If the actual room temperature is above the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched off. If the actual room temperature is below the threshold value (selected set room temperature plus hysteresis in K), the heating circuit pump is switched on.

Subscriber numbers of connected extensions

All extensions connected to the heat generator (except the SDIO/SM1A electronics module) must have a subscriber number. The subscriber number is set on rotary switch S1 at each extension.

Observe maximum number of PlusBus subscribers, see note in chapter "Connection".



Rotary switch S1 settings:

- EM-S1 extension (system with solar collectors): 0
- EM-EA1 extension (max. 1 extensions in one system)

Note

On the EM-EA1 extension, select 1 if the "External heating circuit hook-up" function is being set for more than one heating circuit.

- EM-P1 extension
 - If no heating circuits with mixer are available in the system: 1
 - If heating circuits with mixer (EM-M1 or EM-MX extensions) are present in the system: Always set subscriber number for EM-P1 extension to the consecutive number after EM-M1 or EM-MX extensions.
- EM-M1 or EM-MX extensions
 - Heating circuit 2 with mixer: Rotary switch on extension kit to 1

Note

EM-EA1 extensions may have the same subscriber number as the EM-P1, EM-M1 or EM-MX extensions. The following table shows an **example** of how a system may be equipped.

Fig. 45

Function	Electronics mod- ule	Extension	Setting Rotary switch S1
System with solar collectors	ADIO	EM-S1	0
Heating circuit 2 with mixer	ADIO	EM-M1/EM-MX	1
Heating circuit 1 without mixer or DHW circulation pump (circulation pump downstream of low loss header)	ADIO	EM-P1	2
Function extensions (e.g.): Fault message input Fault message output Operating mode changeover External heating circuit hook-up (for more than one heating circuit)	DIO	EM-EA1	1

System configuration (parameters)

Subscriber numbers of connected extensions (cont.)

Note

A maximum of one Vitotrol 200-E can be connected Solar module not compatible with all appliance versions

Service menu

Calling up the service menu

Tap the following buttons:

- 1.

 ightharpoonup and OK simultaneously for approx. 4 s, then release.

 ightharpoonup and output approx. 4 s, then release.

 ightharpoonup and output approx. 4 s, then release.
- Select the required menu section (e.g. "b.1" Connect with software tool).

Note

Not all menu areas will be available, depending on the system equipment level.

Service menu overview

Service Er Active messages b.1 Connect with software tool b.2 System configuration b.3 Diagnostics d.1 Outside temperature d.2 Heat generator flow temperature d.3 Primary circuit pump speed % d.4 Flue gas temperature d.5 Burner hours run d.6 Burner output d.7 3-way valve position 0 = Heating 1 = Middle position (if installed) 2 = DHWd.8 Serial number of heat generator d.9 Heating circuit 1 flow temperature d.10 Heating circuit 2 flow temperature d.11 DHW temperature b.4 Message history b.5 Commissioning assistant b.6 Start upper/lower heating output for trade fair mode b.7 Configure the maintenance interval

Note

Tap "=" to return to the service menu.

Exiting the service menu

Tap the following buttons:

"and "OK" simultaneously for 4 s.

b.8 Reset the maintenance interval

Note

The system exits the service menu automatically after 30 min.

Diagnosis

Checking operating data

Operating data can be checked in various areas. See "Diagnosis" in the service menu overview.

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

Note

If a called up sensor is faulty, "---" appears on the display.

Calling up operating data

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.
- 2. Use ✓/✓ to select "b.3" for diagnostics.
- 3. OK

4. Use \(\shi \stacksquare \tau \) to select the required entry.

Note

Use \to view "d.8" serial number of heat generator in sections.

5. OK

b.7

Configuring the maintenance interval

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.
- 2. Use **★**/**★** to select **"b.7"** for configuring the maintenance interval.
- **4.** Use **∧**/**∨** to set the required value:
 - 0 = OFF
 - 1 = 3 months
 - 2 = 6 months
 - 3 = 12 months
 - 4 = 18 months
 - 5 = 24 months
- 5. OK

3. OK

b.8

Reset service interval

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.
- 2. Use ✓/✓ to select "b.8" for resetting the maintenance interval.
- 3. OK
- - "YES"
- 5. OK

Fault display on the programming unit

The display shows "A" in the event of a fault.

Note

If a central fault message facility is connected, this is switched on.

Calling up fault messages

Tap the following buttons:

- 1. and **OK** simultaneously for approx. 4 s, then release.
- 3. OK
- 4. \times to select fault entry "E.1, E.2...".
- 5. OK
- 6. Fault code is displayed.

Acknowledging the fault display

Calling up the fault in the **"Er"** menu automatically acknowledges the fault display.

Calling up acknowledged fault messages

Tap the following buttons:

- "≡"

- 3. OK
- 4. \to call up fault entry "E.1 to E.5".
- 5. OK
- **6.** ✓∕✓ to display the fault code.

Reading out fault messages from the fault memory (message history)

The 5 most recent faults (including those remedied) are saved and can be called up. Faults are sorted by date.

Tap the following buttons:

- and OK simultaneously for approx. 4 s, then release.
- 2. for "b.4" message history
- 3. OK
- 5. OK
- 7. OK

Overview of electronics modules

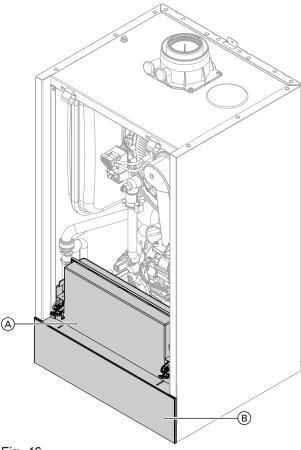


Fig. 46

- A HBMU heat management unit
- B HMI programming unit with TCU communication module

Resetting the burner 69

The display shows [] and \triangle flashes. The burner is locked due to a fault. Reset the burner:

Note

The burner fault display can be closed by pressing for 4 s. The fault can be opened later by tapping simultaneously.

A reset is only possible after the burner has cooled down.

Tap the following buttons:

- 1. to display the fault number.
- A and imultaneously for approx. 4 s.
 A rotating bar appears on the display. The reset process has started.
 If the fault no longer exists, the home screen will appear.

Fault messages

Note

For diagnostics and troubleshooting, see chapter "Repairs".

Fault messages dependent on appliance equipment level

7

System characteristics

No DHW heating

Cause

Lead break, cylinder temperature sensor

Measures

- Check the settings for DHW in the commissioning assistant. Correct if necessary.
- Check the cylinder temperature sensor (terminal 2).
- Measure the voltage at the sensor input on the HBMU heat management unit. Set value: 3.3 V == with sensor disconnected.

Replace faulty component if necessary.

8

System characteristics

No DHW heating

Cause

Short circuit, cylinder temperature sensor

Measures

Check the cylinder temperature sensor (terminal 2). Replace faulty component if required.

11

System characteristics

No solar DHW heating or central heating backup

Cause

Lead break, collector temperature sensor

Measures

- Check collector temperature sensor.
- Measure voltage at sensor input on electronics module (ADIO). Set value: 3.3 V- with sensor disconnec-

12

System characteristics

No solar DHW heating

Cause

Short circuit, collector temperature sensor

Measures

- Check collector temperature sensor.
- Measure voltage at sensor input on electronics module (ADIO). Set value: 3.3 V- with sensor disconnected.

13

System characteristics

Controls as if the outside temperature were 0 °C

Cause

Fault messages (cont.)

Measures

- Check operating mode setting in commissioning assistant and remedy if necessary.
- Check outside temperature sensor and connection to sensor (terminal 4).
- Measure the voltage at the sensor input on the HBMU heat management unit. Set value: 3.3 V== with sensor disconnected.

Replace faulty component if required.

14

System characteristics

Regulates as if the outside temperature were 0 °C.

Cause

Short circuit, outside temperature sensor

Measures

Check outside temperature sensor and connection to sensor (terminal 4). Replace faulty components if necessary.

15

System characteristics

No solar DHW heating

Cause

Lead break, solar cylinder temperature sensor (bottom)

Measures

Check cylinder temperature sensor.

Measure voltage at sensor input on ADIO electronics module. Set value: 3.3 V— with sensor disconnected.

16

System characteristics

No solar DHW heating

Cause

Short circuit, solar cylinder temperature sensor (bottom)

Measures

Check cylinder temperature sensor.

Measure voltage at sensor input on ADIO electronics module. Set value: 3.3 V— with sensor disconnected.

29

System characteristics

Regulates without flow temperature sensor for low loss header.

Cause

Lead break, low loss header sensor

Measures

- Check commissioning assistant setting, low loss header.
- Check flow temperature sensor, low loss header.
- Measure voltage at sensor input on electronics module. Set value: 3.3 V= with sensor disconnected.

30

System characteristics

Regulates without flow temperature sensor for low loss header.

Cause

Short circuit, low loss header sensor

Measures

Check flow temperature sensor, low loss header.

Measure voltage at sensor input on electronics module. Set value: 3.3 V== with sensor disconnected

49

System characteristics

Burner in a fault state

Cause

Lead break, flue gas temperature sensor

Measures

Check flue gas temperature sensor. Reset the appliance.

50

System characteristics

Burner in a fault state

Cause

Short circuit, flue gas temperature sensor

Measures

Check flue gas temperature sensor. Reset the appliance.

57

System characteristics

Normal operation without room influence

Cause

Lead break, room temperature sensor

Measures

- Check commissioning setting of remote control.
- Check plug and cable of external room temperature sensor, heating circuit.
- If no external room temperature sensor installed, replace Vitotrol programming unit.

58

System characteristics

Normal operation without room influence

Cause

Short circuit, room temperature sensor

Measures

Check plug and cable of external room temperature sensor, heating circuit.

If no external room temperature sensor installed, replace Vitotrol programming unit.

59

System characteristics

Burner locked out, boiler circuit pump off. No central heating, no DHW heating.

Cause

Undervoltage, HBMU heat management unit

Fault messages (cont.)

Measures

Check mains voltage.

If voltage is correct and the fault occurs repeatedly, replace the fan unit.

62

System characteristics

Burner in a fault state

Cause

High limit safety cut-out has responded.

Measures

- Check heating system fill level.
- Check pre-charge pressure in diaphragm expansion vessel. Adjust to required system pressure.

- Check whether flow rate is sufficient (circulation pump).
- Check function of 3-way diverter valve. Vent the system.

Reset the appliance.

63

System characteristics

Burner in a fault state

Cause

Flue gas temperature limiter has responded.

Measures

- Check heating system fill level.
- Check pre-charge pressure in diaphragm expansion vessel. Adjust to required system pressure.

- Check whether flow rate is sufficient (circulation pump).
- Check function of 3-way diverter valve.

Vent the system.

Reset the appliance once the flue system has cooled down.

64

System characteristics

Normal operation; burner restarts.

Cause

Flame loss during stabilisation or operating phase

Measures

- Check gas supply (gas pressure and gas flow switch).
- Check balanced flue system for flue gas recirculation.

- Check the ionisation electrode or ignition/monitoring electrode (replace if necessary).
- Check the distance of the electrode to the burner gauze assembly and its contamination level.

65

System characteristics

Burner in a fault state

Cause

Flame signal not present or insufficient at burner start

Measures

- Check gas supply (gas pressure and gas flow switch).
- Check gas solenoid valve.
- Check the system for condensate backup; check the condensate drain.

Note

Prevent water damage.

Detach fan unit before removing the burner. Check the ionisation electrode or ignition/monitoring electrode and the connecting cable. Check the ignition. Connecting cables to ignition module and ignition electrode. Ignition electrode for distance and contamination: See also chapter "Checking and adjusting the ignition and ionisation electrodes". Check whether the ceramic of the ignition electrode is broken. Reset the appliance.

67

System characteristics

Burner in a fault state

Cause

Ionisation current lies outside the permissible range

Measures

Check gas supply (gas pressure and gas flow switch), check gas solenoid valve and inlet strainer.

Check the ionisation electrode or ignition/monitoring electrode:

- Distance to burner gauze assembly.
- Check electrode/burner gauze assembly for contamination.

If specified measures don't help, replace fan unit. Reset the appliance.

68

System characteristics

Burner in a fault state

Cause

Flame signal is already present at burner start.

Measures

Close the gas shut-off valve. Remove connecting cable of the ionisation electrode. Reset the appliance. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

69

System characteristics

Burner in a fault state

Cause

Ionisation current lies outside the permissible range

Measures

Check the ionisation electrode or ignition/monitoring electrode:

- Check whether the thermal insulation ring is touching the electrode ceramic.
- Check gas solenoid valve: In the service menu under "b.6", set the burner output to the lower heating output for approx. 4 min. If the fault occurs, replace the HBMU heat management unit. See chapter "Replacing the HBMU heat management unit".
- In the service menu under "b.6", switch the burner output from the lower to the upper heating output. If this fault occurs during modulation, check the intake screen for contamination. Replace the fan unit if necessary.

Fault messages (cont.)

70

System characteristics

Burner in a fault state

Cause

HBMU heat management unit internal fault

Measures

Replacing the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

71

System characteristics

Burner in a fault state

Cause

Fan speed too low

Measures

- Check fan for blockage.
- Check setting for gas type and flue system. Reset the appliance.

72

System characteristics

Burner in a fault state

Cause

Fan idle state not reached

Measures

- Reset the appliance.
- If the fault occurs repeatedly, replace the fan unit.

73

System characteristics

Burner in a fault state

Cause

Internal communication error

Measures

Reset the appliance.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

74

System characteristics

Burner locked out.

Internal circulation pump off. No central heating and no DHW heating.

Cause

System pressure too low

Measures

Top up with water.

Vent the system.

If the fault occurs repeatedly:

- Check system pressure sensor with external pressure gauge.
- Check diaphragm expansion vessel pre-charge pressure.
- Check settings for set system pressure and range.

75

System characteristics

System in a fault state

Cause

No flow rate

Measures

Top up with water.

Vent the system.

If the fault occurs repeatedly:

- Check/open the BDF valves.
- Check/replace the flow sensor (if installed).
- Check/replace the circulation pump.

77

System characteristics

Burner in a fault state

Cause

HBMU heat management unit data memory

Measures

Reset the appliance. Reset the parameters of the heat management unit.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

78

System characteristics

Normal operation

Cause

No communication between heat management unit and programming unit

Measures

Check cables and plug-in connections between central control unit and programming unit.

Check that the cables are correctly routed and posi-

tioned.

87

System characteristics

Burner locked out. Internal pump off. No central heating and no DHW heating.

Cause

System pressure too high

Measures

Check the system pressure and correct if necessary. Check pre-charge pressure of diaphragm expansion vessel. Check whether BDF valves are open. Check the system pressure sensor with an external pressure gauge.

89

System characteristics

No central heating and no DHW heating

Cause

Internal circulation pump blocked.

Measures

Check circulation pump. Replace if necessary.

Fault messages (cont.)

91

System characteristics

Function of affected extension in emergency mode

Cause

DIO electronics module communication error

Measures

Check connections to DIO electronics module and connection to HBMU heat management unit.

92

System characteristics

Function of the relevant electronics module in emergency mode

Cause

ADIO electronics module communication error

Measures

- Check setting in the commissioning assistant and correct if required.
- Check connections and leads to the ADIO electronics module.
- Check PlusBus voltage level (24 to 28 V).
- Check subscriber number on rotary switch S1 and correct if required.

95

System characteristics

Burner not operational

Cause

OpenTherm remote control not connected

Measures

- Check connection to the OpenTherm remote control.
- If OpenTherm is not required, set C.7 in the commissioning assistant to a value not equal to 14.

100

System characteristics

Electronics modules connected to PlusBus not functioning

Cause

PlusBus voltage error

Measures

Check whether the PlusBus power supply on the HBMU heat management unit is OK: Remove all connected PlusBus components and reconnect one by

Check that no more than 1 Vitotrol 200-E is connected to the HBMU.

Check whether there is a short circuit at the PlusBus cable.

102

System characteristics

No internet connection

Cause

Error with communication module

Measures

Check cables and plug-in connections between heat management unit and communication module.

103

System characteristics

Normal operation

Cause

Internal communication error, programming unit

Measures

Check cables and plug-in connections between heat management unit and HMI programming unit.

104

System characteristics

Depending on configuration of EM-EA1 extension (DIO electronics module)

Cause

External fault message input active

Measures

Check connected external device.

142

System characteristics

Burner in a fault state

Cause

Communication restriction on CAN bus.

Measures

Check the fan unit for correct function. For this, check the stepper motor of the fan unit (reference run with mains ON).

If the fault persists, check the plug-in connections and cables of the CAN bus.

Check further CAN bus subscribers. If fault occurs repeatedly, replace fan unit.

161

System characteristics

Burner in a fault state

Cause

HBMU heat management unit data memory access fault

Measures

Reset the appliance.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

162

System characteristics

Burner in a fault state

Cause

Undervoltage, HBMU heat management unit

Measures

Reset the appliance.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

Fault messages (cont.)

163

System characteristics

Burner in a fault state

Cause

Checksum error, data memory access, HBMU heat management unit

Measures

Reset the appliance.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

176

System characteristics

Burner in a fault state

Cause

Condensate backup in the heat cell

Measures

Remove condensate backup.

Replace the thermal insulation ring, thermal insulation block, electrodes and burner gauze assembly.

Note

Remove the fan unit before opening the burner. Protect the PCB from water damage.

182

System characteristics

No DHW heating

Cause

Short circuit, outlet temperature sensor (if installed)

Measures

Check outlet temperature sensor (plug X7, cores 3 and 4). Measure sensor input on HBMU heat management unit. Set value: 3.3 V— with sensor disconnected.

183

System characteristics

No DHW heating

Cause

Lead break, outlet temperature sensor (if installed)

Measures

Check outlet temperature sensor (plug X7, cores 3 and 4).

184

System characteristics

Burner in a fault state

Cause

Short circuit, flow temperature sensor/high limit safety cut-out

Measures

Check the flow temperature sensor/high limit safety cut-out.

Check sensor lead. Replace faulty component if required.

Reset the appliance.

185

System characteristics

Burner in a fault state

Cause

Lead break, flow temperature sensor/high limit safety cut-out

Measures

Check the flow temperature sensor/high limit safety cut-out. Replace faulty component if required. Reset the appliance.

299

System characteristics

Date/time wrong

Cause

Real-time clock fault

345

System characteristics

Burner locked out, automatic enabling after appliance cooldown. Independent restart

Cause

Temperature limiter has responded.

Measures

- Ensure adequate heat transfer.
- Check heating system fill level.

Measures

Check the date and time; amend if necessary.

- Check pre-charge pressure in diaphragm expansion vessel. Adjust to required system pressure.
- Check whether flow rate is sufficient (circulation pump).
- Check function of 3-way diverter valve. Vent the system

If the fault occurs during DHW heating: Check DHW cylinder or plate heat exchanger for contamination and scaling.

346

System characteristics

Burner in a fault state

Cause

Ionisation current calibration error

Measures

- Check the gas supply pressure.
- Check gas solenoid valve strainer on the inlet side for contamination.

- Check the ionisation electrode or ignition/monitoring electrode for dirt.
- Check flue system. Remove flue gas recirculation if required.
- Check the condensate drain (condensate blockage). Reset the appliance.

Fault messages (cont.)

347

System characteristics

Burner in a fault state

Cause

Flue gas recirculation

Measures

- Check the flue system for leaks; remedy if necessary.
- Check the flue system for flue gas back pressure, e.g. caused by an insufficient fall in the flue system, constrictions or blockages. Rectify if necessary.
 Reset the appliance.

348

System characteristics

Burner in a fault state

Cause

Gas modulation valve

Measures

If several heat generators are connected to a common flue system: Check whether "Multiple connections" is set in the commissioning assistant.

Check the flue system for unrestricted flow.

If fault remains, replace gas fan unit.

349

System characteristics

Burner in a fault state

Cause

Air mass flow rate in fan unit is not detected correctly.

Measures

- Check for dust contamination in the supply air.
- Check burner gauze assembly for contamination. Reset the appliance. If the fault occurs repeatedly, replace the gas fan unit.

350, 351

System characteristics

Burner in a fault state

Cause

Ionisation current lies outside the permissible range

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

352

System characteristics

Burner in a fault state

Cause

Combustion CO limit exceeded

Measures

Check entire flue gas path for the following:

- Leaks
- Flue gas back pressure caused by water pocket (if flue system fall is insufficient).

- Constrictions
- Blockages

Repair flue system if necessary. Reset the appliance.

353

System characteristics

Shutdown with restart if demand exists

Cause

Insufficient gas supply, burner output reduced

Measures

Check the gas supply.

Optically check input-side screen in the gas solenoid valve for contamination.

Reset the appliance.

354

System characteristics

Burner in a fault state

Cause

Gas modulation valve tolerance outside permissible range

Measures

Replace gas fan unit.

355

System characteristics

Burner in a fault state.

Cause

Condensate backed up or analogue signal reference check: Flame signal is already present at burner start. Function of ignition transformer.

Measures

If condensate is backed up: Replace the thermal insulation ring, thermal insulation block, electrodes and burner gauze assembly.

Note

Remove the fan unit before opening the burner. Protect the PCB from water damage.

Replace the HBMU heat management unit. Check ignition transformer and ignition cable. Replace if necessary.

357

System characteristics

Burner in a fault state

Cause

Insufficient gas supply

Measures

- Check that the main gas valve and the gas shut-off valve are open.
- Test static gas pressure and gas flow pressure.

Check that on-site gas line and gas flow switch are correctly sized.

Note

If the building pressure regulator has a leak, you may notice rising pressure when the burner is idle. When the system is restarted, the gas flow switch may trip.

- If the static pressure does not drop, check the cable to the fan unit. Check that the coil resistance at the fuel valve is approx. 4 kΩ.
- Check the ignition electrode for damaged insulation. Reset the appliance.

Fault messages (cont.)

359

System characteristics

Burner in a fault state

Cause

No ignition spark

Measures

- Check whether the ignition electrode insulation is damaged.
- Check for a voltage of 230 V~ at the ignition module during the ignition phase. If not, replace the HBMU heat management unit.

- If 230 V~ is present at the ignition module but there is still a fault, replace the ignition module.
- Check connection cables and leads from ignition module and ignition electrode.

Reset the appliance.

361

System characteristics

Burner in a fault state

Cause

Flame signal is not present or insufficient at burner start.

Measures

Check the ionisation electrode or ignition/monitoring electrode and the connecting cable. Check plug-in connections for loose contacts.

Note

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney).

Reset the appliance.

364

System characteristics

Burner in a fault state

Cause

System fault

Measures

Fault 364 always occurs in conjunction with one of the following faults:

- **67**
- **348**
- **349**

If fault 364 persists, replace the HBMU.

365

System characteristics

Burner in a fault state

Cause

Feedback from gas valve relay contact implausible (relay contact is "welded up").

Measures

Replace the HBMU heat management unit.

366, 367

System characteristics

Burner in a fault state

Cause

Gas valve electricity supply does not turn off.

Measures

Replacing the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

368

System characteristics

Burner locked out

Cause

Gas pressure switch fault. Forced ventilation time expired.

Measures

- Check gas supply (gas pressure).
- If installed: Check gas pressure switch for correct function. If necessary, disconnect the gas pressure switch and check whether the burner starts.

369

System characteristics

Burner in a fault state

Cause

Flame is lost immediately after flame formation (during safety time)

Measures

Check gas supply (gas pressure and gas flow switch).

Check balanced flue system for flue gas recirculation.

Check the ionisation electrode or ignition/monitoring electrode:

- Clearance to burner gauze assembly.
- Contamination on electrode.

Reset the appliance.

370

System characteristics

Burner in a fault state.

Cause

Fuel valve or modulation valve will not close.

Measures

Reset the appliance.

If the fault recurs, replace the HBMU heat management unit.

371

System characteristics

Burner in a fault state

Cause

Fan speed too low

Measures

Check the fan.

Check the fan connecting cables. Check the fan power supply. Reset the appliance.

Fault messages (cont.)

372

System characteristics

Burner in a fault state

Cause

Repeated flame loss during calibration

Measures

- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable.
- Check plug-in connections for loose contacts.
- Check flue system. Remove flue gas recirculation if required.
- Check system for condensate backup.
- Visually inspect gas solenoid valve inlet and strainer on the inlet side for contamination.

Note

To prevent water damage, detach fan unit before removing the burner. Deposits on the electrodes indicate foreign bodies in the combustion air.

Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney). If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

Reset the appliance.

373

System characteristics

Burner in a fault state

Cause

Heat transfer too low during calibration Temperature limiter has shut down.

Measures

- Ensure adequate heat transfer.
- Check circulation pump for faults, scale or blockages.
- Check function of 3-way diverter valve. Vent the system.
- Check function of flow sensor.
 Reset the appliance.

374

System characteristics

Burner restarts.

Cause

Preparation for calibration of ionisation current: Stabilisation conditions for pre-calibration not met.

Measures

- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable.
- Check plug-in connections for loose contacts.
- Check flue system; remove flue gas recirculation if necessary.

- Check system for condensate backup.
- Visually inspect gas solenoid valve inlet and inlet strainer for contamination.

Note

To prevent water damage, detach fan unit before removing the burner.

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney). If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

Reset the appliance.

375

System characteristics

Burner restarts.

Cause

Performing ionisation current calibration: Calibration not performed.

Minimum value or termination criterion not reached.

Measures

- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable.
- Check plug-in connections for loose contacts.
- Check flue system; remove flue gas recirculation if necessary.
- Check system for condensate backup.
- Visually inspect gas solenoid valve inlet and inlet strainer for contamination.

Note

To prevent water damage, detach fan unit before removing the burner.

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney). If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

Reset the appliance.

376

System characteristics

Burner restarts.

Cause

Ionisation current differential compared to previous value not plausible

Measures

- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable.
- Check plug-in connections for loose contacts.
- Check flue system; remove flue gas recirculation if necessary.

- Check system for condensate backup.
- Visually inspect gas solenoid valve inlet and inlet strainer for contamination.

Note

To prevent water damage, detach fan unit before removing the burner.

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney). If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

Reset the appliance.

377

System characteristics

Burner in a fault state

Cause

Post-processing of ionisation current calibration: Stabilisation conditions for post-calibration not met.

Measures

Check gas type setting. If the fault occurs repeatedly, replace the HBMU heat management unit. See chapter "Replacing the HBMU heat management unit". Reset the appliance.

378

System characteristics

Burner in a fault state

Cause

Flame loss during stabilisation or operating phase

Measures

- Check gas supply (gas pressure and gas flow switch).
- Check flue gas recirculation.
- Check for dirt on the ionisation electrode or ignition/ monitoring electrode and the burner gauze assembly.

Fault messages (cont.)

Reset the appliance.

379

System characteristics

Burner in a fault state

Cause

Flame signal not present or insufficient

Measures

- Check the connecting cable of the ionisation electrode or ignition/monitoring electrode for damage and firm seating.
- Check the ionisation electrode or ignition/monitoring electrode; replace if necessary.

Reset the appliance.

380

System characteristics

Burner in a fault state

Cause

Flame is lost immediately after flame formation (during safety time)

Measures

Check gas supply (gas pressure and gas flow switch).

Check balanced flue system for flue gas recirculation.

Check the ionisation electrode or ignition/monitoring electrode and the burner gauze assembly:

- Distance to burner gauze assembly.
- Contamination on electrode.

Reset the appliance.

381

System characteristics

Burner in a fault state

Cause

Flame loss during operating phase

Measures

Check gas supply (gas pressure and gas flow switch).

Check balanced flue system for flue gas recirculation.

Check the ionisation electrode or ignition/monitoring electrode and the burner gauze assembly:

- Clearance to burner gauze assembly.
- Contamination on electrode.

Reset the appliance.

382

System characteristics

Burner in a fault state

Cause

Fault counter has exceeded limit.

Measures

Reset the appliance. Work through fault analysis using fault history.

383, 384

System characteristics

Burner in a fault state

Cause

Possible contamination of gas line

Measures

- Reset the appliance.
- Check gas line for contamination.
- Check the gas supply pressure.
- Replace gas fan if required.

385

System characteristics

Burner in a fault state

Cause

Short circuit, signal 1, ionisation current HBMU heat management unit faulty.

Measures

Check the ionisation electrode or ignition/monitoring electrode for an earth fault. If the fault persists, replace the HBMU heat management unit. Reset the appliance.

386

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty.

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

387

System characteristics

Burner in a fault state

Cause

Earth fault, ionisation current. HBMU heat management unit faulty.

Measures

Check the ionisation electrode or ignition/monitoring electrode and the connecting cable. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

388

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty.

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

395

System characteristics

Burner in a fault state

Cause

Earth fault at ignition electrode, HBMU heat management unit faulty.

Fault messages (cont.)

Measures

Check ignition electrode for earth fault. If the fault persists, replace the HBMU heat management unit.

Reset the appliance.

396

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty.

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

399

System characteristics

Burner in a fault state

Cause

Earth fault at ionisation electrode or ignition/monitoring electrode, HBMU heat management unit faulty.

Measures

Check the ionisation electrode or ignition/monitoring electrode for an earth fault. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

400

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty.

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".
Reset the appliance.

401

System characteristics

Burner in a fault state

Cause

Earth fault at ionisation electrode or ignition/monitoring electrode, HBMU heat management unit faulty

Measures

Check the ionisation electrode or ignition/monitoring electrode for an earth fault. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

402

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

Fault messages (cont.)

403

System characteristics

Burner in a fault state

Cause

Earth fault at ionisation electrode or ignition/monitoring electrode, HBMU heat management unit faulty

Measures

Check the ionisation electrode or ignition/monitoring electrode for an earth fault. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

404

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

405

System characteristics

Burner in a fault state

Cause

Earth fault at ionisation electrode or ignition/monitoring electrode, HBMU heat management unit faulty

Measures

Check the ionisation electrode or ignition/monitoring electrode for an earth fault. If the fault persists, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

406, 408, 410

System characteristics

Burner in a fault state

Cause

HBMU heat management unit faulty

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

416

System characteristics

Burner locked out

Cause

Measures

Fit flue gas temperature sensor correctly. See "Repairs".

Carry out mains reset after fault has been remedied.

Flue gas temperature sensor incorrectly positioned

417, 418

System characteristics

Cause

Burner in a fault state

HBMU heat management unit faulty

Fault messages (cont.)

Measures

Reset the appliance.

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

425

System characteristics

System in control mode, calculation out of operation. Calculation values can be viewed via software tool.

Measures

Set the time.

Cause

Time synchronisation failed.

446

System characteristics

Burner in a fault state

Cause

Deviation, heat generator flow temperature sensor/ high limit safety cut-out

Measures

Check the flow temperature sensor/high limit safety cut-out.

Check plug-in connection and lead to sensor. Reset the appliance.

447, 448

System characteristics

Burner in a fault state

Cause

Deviation, ionisation voltage/ionisation current signal.

Measures

Replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit". Reset the appliance.

449, 451, 452

System characteristics

Burner in a fault state

Cause

Error in scheduled program run monitoring

Measures

Reset the appliance. If this occurs repeatedly, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

453

System characteristics

Burner in a fault state

Cause

Synchronisation error, sequence

Measures

Reset the appliance. If this occurs repeatedly, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

Fault messages (cont.)

454

System characteristics

Burner in a fault state

Cause

Incorrect parameter set of HBMU heat management unit.

455, 456

System characteristics

Burner in a fault state

Cause

Error in program run monitoring

457

System characteristics

Burner in a fault state

Cause

Fan sluggish or blocked.

458

System characteristics

Burner in a fault state

Cause

Faulty reset sequence

461

System characteristics

Burner in a fault state

Cause

Flue gas damper fault

462

System characteristics

Burner in a fault state

Measures

Flash correct HBMU heat management unit parameter

Measures

Reset the appliance. If this occurs repeatedly, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

Measures

Reset the appliance.

Check fan for sluggishness. In the case of severe contamination or grinding noises, replace fan unit.

Measures

Check connecting cable between HBMU heat management unit and HMI programming unit.

Reset the appliance.

Measures

Check flue gas damper.

Cause

Feedback input of the external gas safety valve causes the burner start to be aborted.

Fault messages (cont.)

Measures

Check the external gas safety valve and connection

463

System characteristics

Burner in a fault state

Cause

Contaminated combustion air, flue gas recirculation

Measures

Check flue system for contamination and flue gas recirculation. Clean flue system if required. Reset the burner.

Note

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney).

If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

Reset the appliance.

464

System characteristics

Burner in a fault state

Cause

lonisation current too low during calibration. Differential compared to previous value not plausible.

Measures

- Check the ionisation electrode or ignition/monitoring electrode and the connecting cable. Check plug-in connections for loose contacts.
- Check whether there is a lot of dust in the ventilation air (e.g. from construction work).
- Check flue system. Remove flue gas recirculation if required.
- Check system for condensate backup. Reset the appliance.

Note

To prevent water damage, detach fan unit before removing the burner.

If the fault is constant, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

Note

Deposits on the electrodes indicate foreign bodies in the combustion air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney).

If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

467

System characteristics

Burner in a fault state

Cause

Gas supply insufficient during calibration. Contaminated or insufficiently sized gas line.

Measures

- Test static gas pressure and gas flow pressure.
- Check that on-site gas line and gas flow switch are correctly sized.
- Visually inspect gas solenoid valve inlet and strainer on the inlet side for contamination.

Reset the appliance.

Note

Contamination, for example from a brazed gas line, can block up the gas solenoid valve strainer on the inlet side.

Fault messages (cont.)

468

System characteristics

Burner in a fault state

Cause

Ionisation current too high during calibration

Measures

Check the gap between the ionisation electrode or ignition/monitoring electrode and the burner gauze assembly.

Check whether there is a lot of dust in the ventilation air (e.g. from construction work).

Reset the appliance.

Note

Deposits on the electrodes indicate foreign bodies in the ventilation air. Check the installation room and flue system for causes of the deposits, e.g. laundry detergents, cleaning agents, toiletries, deposits in the ventilation air supply (chimney).

If the burner gauze assembly and ionisation electrode or ignition/monitoring electrode have been replaced, also clean the fan unit, gas/air channel and Venturi extension.

471

System characteristics

No heat demand.

Cause

System pressure sensor not available, lead break or short circuit.

Measures

- Check system pressure sensor (plug 163).
- Check lead and plug-in connection.
- Check whether the supply voltage to the sensor is 5 V.....

474

System characteristics

Burner in a fault state

Cause

Error in scheduled program run monitoring

Measures

Reset the appliance.

If the fault re-occurs, replace the HBMU heat management unit: See chapter "Replacing the HBMU heat management unit".

477

System characteristics

Limited solar thermal system functionality. No solar yield.

Cause

Fault, differential temperature monitoring, solar, collector/cylinder, difference outside tolerance.

Air in the solar circuit. Sensor not positioned correctly. Pump faulty.

Fault messages (cont.)

Measures

- Check the following:
 - No flow or low flow rate in the solar circuit.
 - There may be air in the solar circuit.
 - Dirt in the system.
 - Check whether the flow rates are set correctly.
 - Check the system pressure.
 - Check the function of any check valves installed.
 - Check the function and nominal speed of the circulation pump and check it for dirt. Check any high limit safety cut-out limiter (STB) that may be installed.
 - Check the connections and plug-in connection of the TS1 cylinder temperature sensor 5 and TS2 collector temperature sensor 6 on the ADIO (EM-S1) for correct seating, contact corrosion and mechanical damage.
 - Check resistance R of both sensors (TS1 NTC 10 k Ω / TS2 NTC 20 k Ω) on the disconnected plug. If necessary, replace the temperature sensors.

Note

To measure the collector temperature more accurately, the solar circuit pump can be periodically started for a short duration. If necessary, activate the interval function of the solar circuit pump.

517

System characteristics

Normal operation, remote control not functioning

Cause

Lead break, PlusBus cable, incorrect appliance address set, remote control faulty

Measures

- Check setting in the commissioning assistant and correct as necessary.
- Check remote control cable.
- Check remote control subscriber number. Replace faulty remote control if applicable.

527, 528

System characteristics

Burner in a fault state

Cause

Incorrect HBMU heat management unit parameter set

Measures

Overwrite (flash) the HBMU heat management unit with the correct parameter set.

540

System characteristics

Burner in a fault state

Cause

Condensate backup in the heat cell

Measures

- Check system for condensate backup.
- Check the condensate drain and trap.
- If necessary, replace the thermal insulation ring, thermal insulation block, electrodes and burner gauze assembly.

Note

To prevent water damage, detach fan unit before removing the burner.

Fault messages (cont.)

Reset the appliance.

544

System characteristics

Emergency function operating mode is activated for heating circuit 2:

Mixer closes. Heating circuit pump is operational.

Cause

Lead break, flow temperature sensor, heating circuit 2 with mixer.

Incorrect setting during commissioning.

Measures

Check flow temperature sensor, mixer 2. Measure voltage at sensor input on electronics module. Set value: 3.3 V= with sensor disconnected. Check setting in the commissioning assistant and correct if required.

Checking setting of ADIO rotary switch.

545

System characteristics

Emergency function operating mode is activated for heating circuit 2:

Mixer closes. Heating circuit pump is operational.

Cause

Short circuit, flow temperature sensor, heating circuit 2 with mixer.

Measures

Check flow temperature sensor, mixer 2.

Measure voltage at sensor input on electronics module. Set value: 3.3 V= with sensor disconnected

574

System characteristics

Normal operation without room influence.

Cause

Room temperature sensor, heating circuit 1 not available.

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

575

System characteristics

Normal operation without room influence

Cause

Lead break, room temperature sensor, heating circuit 1.

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

576

System characteristics

Normal operation without room influence

Cause

Short circuit, room temperature sensor, heating circuit 1.

Fault messages (cont.)

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

577

System characteristics

Normal operation without room influence

Cause

Room temperature sensor, heating circuit 2 not available

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

578

System characteristics

Normal operation without room influence

Cause

Lead break, room temperature sensor, heating circuit 2

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

579

System characteristics

Normal operation without room influence

Cause

Short circuit, room temperature sensor, heating circuit 1.

Measures

Check external room temperature sensor for heating circuit or room temperature sensor on remote control unit.

682

System characteristics

Burner in a fault state

Cause

Air mass flow rate sensor not available

683

System characteristics

Burner in a fault state

Measures

Check air mass flow rate sensor.

Cause

Air mass flow rate sensor faulty

Fault messages (cont.)

Measures

Check air mass flow rate sensor.

684

System characteristics

Measures

Burner in a fault state

Check back draught safety device.

Cause

Back draught safety device faulty

694

System characteristics

Measures

Burner in a fault state

Check the plug-in connection and cable to the sensor. Check sensor. Replace sensor if necessary. Reset the appliance.

Cause

Signal comparison, deviation, flue gas high limit safety cut-out

738

System characteristics

Measures

Normal operation

Set C.7 in the commissioning assistant to a value of 14.

Cause

OpenTherm remote control connected but not configured

766

System characteristics

Measures

Reduced burner output.

Clean the heat cell. Perform maintenance.

Cause

Flue gas temperature too high.

767

System characteristics

Measures

Burner output reduced to a minimum.

Clean the heat cell. Perform maintenance.

Cause

Flue gas temperature too high.

Fault messages (cont.)

799

System characteristics

No DHW heating, no central heating

Cause

Central heating circuit pump reports an electrical fault.

No flow rate.

Measures

Perform a power reset.

If this occurs repeatedly, replace the heating circuit pump.

979

System characteristics

Constant heat demand. Set room temperature is exceeded.

Cause

Both inputs – plug 96 and OpenTherm – are occupied and reporting a heat demand.

Measures

Note

Only one input can be used. Either plug 96 or Open-Therm.

Remove external devices or wire jumper from one of the inputs.

980

System characteristics

No DHW heating

Cause

Minimum flow rate not achieved before the start of DHW heating:

- Shut-off or too much constriction
- Scaling or sludge
- Incorrect hydraulic configuration
- Circulation pump faulty, air in the heating circuit
- System pressure unstable or too low

Measures

- Check that all cylinder shut-off devices are fully open.
- Check the set hydraulic scheme and correct if necessary.
- Ensure that the system is fully vented. If necessary, run the entire venting program of the heating circuit again (select via service menu).

- Ensure that all quick-action air vent valves on the appliance side are permanently open.
- Check the quick-action air vent valves for leaks and replace if necessary
- Check the set system pressure (this fault is more likely if the system pressure is too low).
- Check the quick-action air vent valves for leaks and replace if necessary.
- Check the circulation pump and replace if necessary.

Note

If fault 980 occurs, DHW heating is blocked for the period of time specified in parameter 1087.0. Heating operation remains available during this period. Once the period of time set in parameter 1087.0 has elapsed, DHW heating is enabled again. The DHW heating blocking time can be terminated by carrying out a mains reset of the appliance. Switch the appliance off and on again at the appliance switch. For further information, see chapter "Function description".

981

System characteristics

No DHW heating

Cause

Minimum flow rate not achieved during DHW heating:

- Shut-off or too much constriction
- Scaling, sludge
- Incorrect hydraulic configuration
- Faulty circulation pump, air in the heating circuit
- Unstable or excessively low system pressure

Fault messages (cont.)

Measures

- Check that all cylinder shut-off devices are fully open.
- Check the set hydraulic scheme and correct if necessary.
- Ensure that the system is fully vented. If necessary, run the entire venting program of the heating circuit again (select via service menu).
- Ensure that all quick-action air vent valves on the appliance side are permanently open.
- Check the quick-action air vent valves for leaks and replace if necessary.

- Check the set system pressure (this fault is more likely if the system pressure is too low).
- Check the circulation pump and replace if necessary.

Note

If fault 981 occurs, DHW heating is blocked for the period of time specified in parameter 1087.0. Heating operation remains available during this period. Once the period of time set in parameter 1087.0 has elapsed, DHW heating is enabled again. The DHW heating blocking time can be terminated by carrying out a mains reset of the appliance. Switch the appliance off and on again at the appliance switch. For further information, see chapter "Function description"

982

System characteristics

No central heating, no DHW heating

Cause

Circulation pump heating circuit 1 running dry.

Measures

Check the DEV; check the circulation pump.

Status messages

The following messages can be displayed using the "ViGuide" software tool:

Message on the display	Meaning
S.9	Fan pre-purge for heating mode
S.29	Standard mode for heating
S.36	Comfort mode for DHW draw-off
S.60	Summer mode active (outside temperature economy function)
S.74	Heating suppression, heating
S.75	DHW circulation pump active
S.94	No demand, external hook-up, heating circuit 1
S.95	No demand, external hook-up, heating circuit 2
S.96	No demand, external hook-up, heating circuit 3
S.154	Due to insufficient heat transfer in heating system, burner operation not required

Repairs

Please note

Residual water will escape when the boiler or one of the following components is fitted or removed:

- Water-filled pipework
- Heat exchanger
- Circulation pumps
- Plate heat exchanger
- Components fitted in the heating water or DHW circuit.

Water ingress can result in damage to other components.

Protect the following components against ingress of water:

- Control unit components (especially in the service position)
- Electrical components
- Plug-in connections
- Cables and leads

Shutting down the boiler

- 1. Turn off the power supply at the ON/OFF switch.
- 2. Shut off the gas supply.

- 3. If the boiler needs to be removed:
 - 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.
 - Disconnect the balanced flue system.
 - Drain the boiler on the heating water and DHW sides.
 - Disconnect the on-site cables/leads.

Repairs (cont.)

Removing the boiler from the pre-plumbing jig or mounting frame

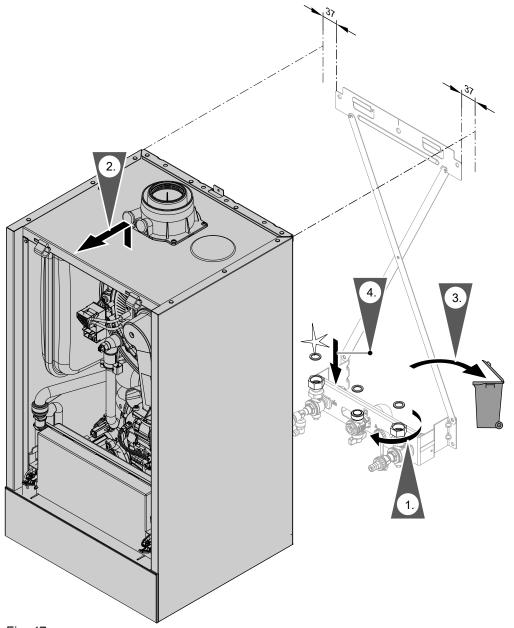


Fig. 47

Note

Use new gaskets and, if required, new locking ring connections when assembling.

Internal gasket diameter:

- Gas connection Ø 18.5 mm
- Connections on the heating water side Ø 17.0 mm

Gaskets and locking ring connections are available as spare parts (if required).

Note

When carrying out any work on gas connection fittings, hold with a suitable tool. Never transfer any forces to the internal components.



Danger

Escaping gas leads to a risk of explosion. Check all connections on the gas side (also inside the appliance) for tightness.

Status/checking/diagnosing the internal circulation pump

The internal circulation pump is fitted with two status LEDs.

Repairs (cont.)

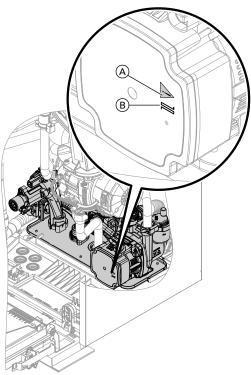


Fig. 48

- B LED constant green:
 No communication (pump is running without external control from the boiler controller).
- B LED flashing green:
 Pump is running with external control (PWM signal)
 from the boiler controller
- A LED constant red: Pump failure

Note

The pump is controlled by a PWM signal. A lead break in the data line will not generate a fault message. The pump is operating at 100 % of its maximum output.

Repairs (cont.)

Checking the temperature sensors

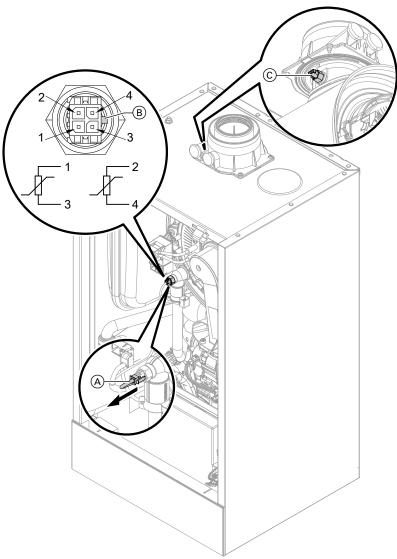


Fig. 49

Heat generator circuit flow temperature sensor (dual sensor)

- **1.** Check the leads and plugs of flow temperature sensors (A).
- **2.** Disconnect the leads from flow temperature sensors (A).
- **3.** Check the sensor resistance. Note position of guide lug (B).
 - Sensor 1: Connections 1 and 3
 - Sensor 2: Connections 2 and 4

Compare the resistances with the value for the current temperature from the following diagram. In the event of severe deviation (> 10 %), replace the dual sensor.



Danger

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



Danger

Risk of electric shock from escaping heating water.

Check the dual sensor for leaks.

Repairs (cont.)

Cylinder temperature sensor/outlet temperature sensor

- 1. Check lead and plug of the cylinder temperature sensor or outlet temperature sensor.
- 2. Disconnect wires of sensor plug.
- Check the sensor resistance. Compare the resistance with the value for the current temperature from the following diagram.
 In the event of severe deviation (> 10 %), replace the sensor.

Low loss header sensor

- 1. Check lead and plug of temperature sensor 9 on the ADIO electronics module (mixer extension kit).
- 2. Disconnect wires of sensor plug.
- 3. Check the sensor resistance. Compare the resistance with the value for the current temperature from the following diagram.
 In the event of severe deviation (> 10 %), replace the sensor.

Outside temperature sensor

- Check the lead and plug of the outside temperature sensor.
- 2. Disconnect wires 7 and 8 from terminal 4.
- 3. Check the sensor resistance. Compare the resistance with the value for the current temperature from the following diagram. If the results are very different from the curve (> 10 %), disconnect the wires from the sensor. Repeat the test directly on the sensor. Check the on-site lead. 2-core lead, length up to 35 m with a cross-section of 1.5 mm² Depending on the test result, replace the lead or the outside temperature sensor.

Flue gas temperature sensor

- 1. Check the lead and plug of flue gas temperature sensor ©.
- **2.** Disconnect leads, flue gas temperature sensor ©.
- 3. Rotate sensor (anti-clockwise) by ¼ turn to remove it (bayonet fitting).
- 4. Check the sensor resistance. Compare the resistance with the value for the currently recorded temperature from the following diagram. In the event of severe deviation (> 10 %), replace the sensor.
- 5. Rotate sensor (clockwise) by 1/4 turn to install it.



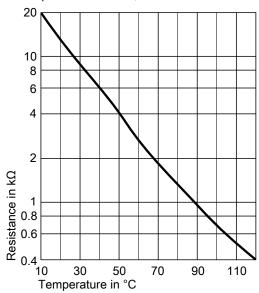
Danger

Escaping flue gas can cause poisoning. When restarting, check for leaks on the flue gas side.

- **6.** Reconnect leads, flue gas temperature sensor ©.
- 7. If the permissible flue gas temperature has been exceeded, the flue gas temperature sensor locks out the appliance. Reset the burner on the programming unit once the flue system has cooled down.

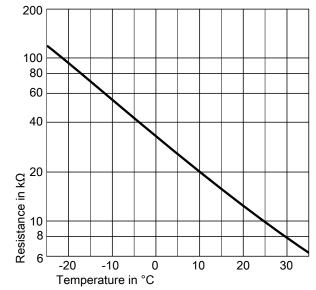
Repairs (cont.)

- Flue gas temperature sensor
- Flow temperature sensor
- Cylinder temperature sensor
- Outlet temperature sensor
- Temperature sensor, low loss header



Sensor type: NTC 10 $k\Omega$

Outside temperature sensor



Sensor type: NTC 10 $k\Omega$

Fault during commissioning (fault message 416)

During commissioning, the control unit checks for correct placement of the flue gas temperature sensor. If fault message 416 is displayed:

- Check whether the flue gas temperature sensor is correctly installed (bayonet fitting). See previous diagram.
- **2.** If required, correct the position of the flue gas temperature sensor.
- Check the flue gas temperature sensor resistance. See previous chapter. Replace faulty flue gas temperature sensor if required.

- 4. Turn off the ON/OFF switch.
- **5.** Turn the ON/OFF switch back on. Restart the commissioning assistant.
- 6. Check for leaks on the flue gas side.

Note

If fault message 416 continues to be displayed although the flue gas temperature sensor is correctly positioned: Initial commissioning may result in burner faults, e.g. caused by air in the gas line. Eliminate the fault and reset the appliance.

Check temperature sensors at EM-S1 extension (ADIO electronics module) or at SDIO/SM1A electronics module



Check temperature sensors: Installation and service instructions of relevant accessory.

Repairs (cont.)

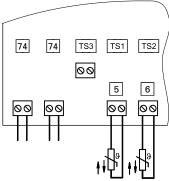


Fig. 50

Check cylinder temperature sensor

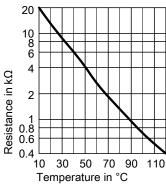


Fig. 51 Sensor type: NTC 10 $k\Omega$

- **1.** Disconnect plug TS1 5 from the electronics module. Measure the resistance.
- **3.** In the event of severe deviation (> 10 %), replace the sensor.
- 2. Compare the sensor resistance to the curve.

Check collector temperature sensor

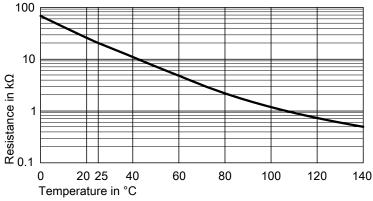


Fig. 52 Sensor type: NTC 20 $k\Omega$

- **1.** Disconnect plug TS2 6 from the electronics module. Measure the resistance.
- **3.** In the event of severe deviation (> 10 %), replace the sensor.
- **2.** Compare the sensor resistance to the curve.

Repairs (cont.)

Replacing the HBMU heat management unit

Note

If replacing the HBMU heat management unit, "ViGuide" must be used.



See spare part installation instructions and internet address: www.viguide.info

Replacing the power cable

When replacing the power cable, only use the power cable available as a spare part from the manufacturer.

Replacing the HMI connecting cable

Please note

Incorrect routing of the cable can lead to heat damage and impairment of the EMC properties. For positioning and securing of the cable (fixing point of the cable tie) see connecting cable installation instructions.

Checking the plate heat exchanger

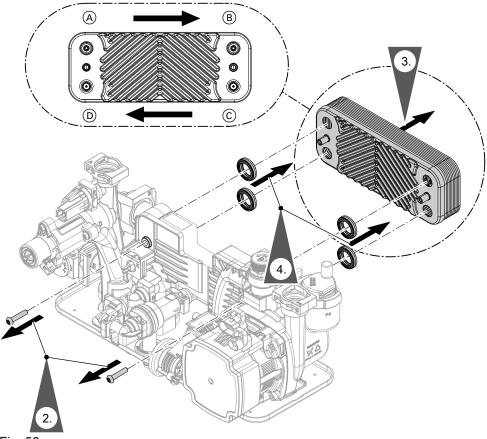
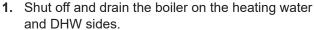


Fig. 53

- A Heating water flow
- **B** Heating water return

2. Undo screws.

- © Cold water
- D DHW





Repairs (cont.)

3. Remove plate heat exchanger.

Note

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

- 4. Remove gaskets and dispose of them.
- Check connections on the DHW side for scaling. Clean or replace the plate heat exchanger as required.
- **6.** Check connections on the heating water side for contamination. Clean or replace the plate heat exchanger as required.

Install plate heat exchanger in reverse order using new gaskets.

Tighten screws as tightly as necessary and ensure that the components are undamaged and are functioning correctly throughout service life.

Observe torque settings if a torque wrench is available.

Torque for screws 3.2 Nm ± 0.2

Note

During installation, ensure the connections are positioned and the gaskets seated correctly.



Dangei

Risk of electric shock from escaping heating water or DHW.

Check all water side connections for tightness.

Removing the hydraulic unit

If components of the hydraulic unit have to be replaced.



Danger

Risk of electric shock from escaping heating water or DHW

After installation, check all connections on the water side for leaks.

Repairs (cont.)

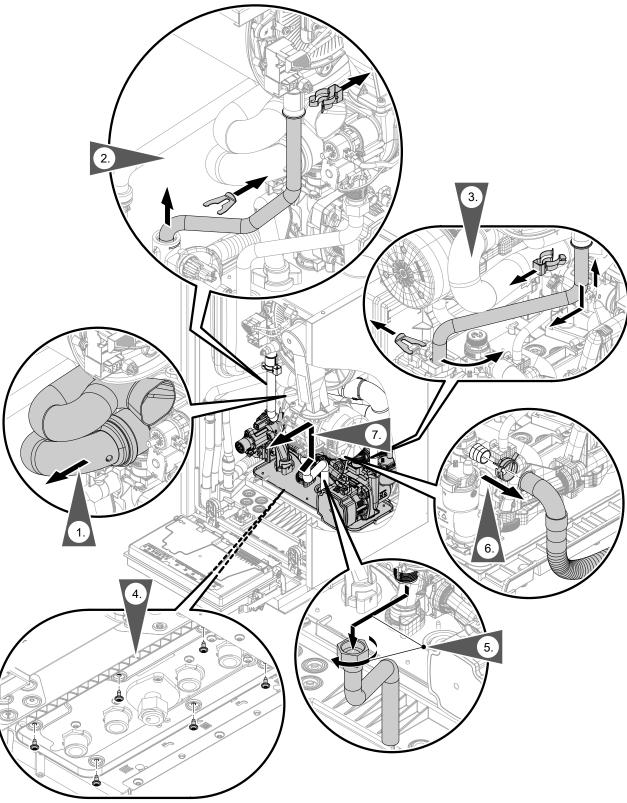


Fig. 54

Repairs (cont.)

Checking the fuse

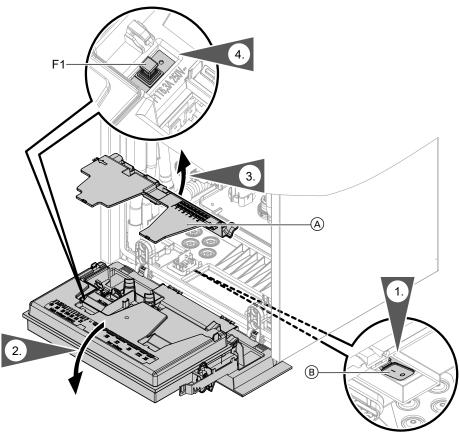


Fig. 55

- 1. Switch ON/OFF switch ® OFF.
- 2. Pivot the HBMU heat management unit down.
- **3.** Remove cover (A).

4. Check fuse F1 (see connection and wiring diagram).



Danger

Incorrect or improperly fitted fuses can lead to an increased risk of fire.

- Insert fuses without using any force. Position fuses correctly.
- Only use structurally identical types with the specified response characteristics.

Appliance functions

Heating mode

■ Weather-compensated operation:

The rooms are heated in accordance with the room temperature and time program settings.

The control unit determines a set flow temperature for the heat generator, subject to the outside temperature, the room temperature and the slope/level of the heating curve.

Room temperature-dependent operation (constant operation with room thermostat):

System with one heating circuit without mixer. The rooms are heated in accordance with the settings of the room temperature controller/room thermostat (accessories).

If the room temperature controller/room thermostat issues a demand, the standard set flow temperature is maintained. If there is no demand present, the reduced set flow temperature is maintained.

■ Constant operation without room thermostat:

The rooms are heated according to the time program settings.

In the time phases at standard room temperature, the standard set flow temperature or the set comfort flow temperature is maintained. Outside the set time phases, the reduced set flow temperature is maintained.

OpenTherm:

Rooms are heated in accordance with the settings of the room temperature controller/room thermostat (accessories). The OpenTherm controller specifies the flow temperature for the heat generator.

Flow rate monitoring for DHW heating

Additional information on fault 980:

The internal flow rate of the appliance is monitored before any DHW heating takes place.

If the required threshold value is not exceeded within a specified period of time, the burner is not enabled for DHW heating and DHW heating is interrupted as a result

Instead, the internal diverter valve returns to the heating position for a period of 5 minutes. Heating operation is enabled for this period. After 5 minutes, a second attempt at DHW heating is made.

If the required threshold value is still not achieved in the second attempt, DHW heating is interrupted and the diverter valve again returns to the heating position for 5 minutes.

A total of 4 DHW heating attempts are made. If the required threshold value is not reached during these 4 attempts (approx. duration 20 minutes), fault 980 is output. If fault 980 occurs, DHW heating is blocked for the period of time set in parameter 1087.0. Heating operation remains available during this period. Once the period of time set in parameter 1087.0 has elapsed, DHW heating is enabled again. The DHW heating blocking time can be terminated by carrying out a mains reset of the appliance. Switch the appliance off and on again at the appliance switch.

Additional information on fault 981:

The internal flow rate of the appliance is monitored during DHW heating.

If the flow rate drops below a defined threshold, DHW heating is interrupted.

The internal diverter valve returns to the heating position for a period of 5 minutes. Heating operation is enabled for this period. After 5 minutes, a second attempt at DHW heating is made.

If the flow rate also drops below the threshold value in the second attempt, DHW heating is interrupted and the diverter valve again returns to the heating position for 5 minutes.

A total of 4 DHW heating attempts are made. If the flow rate drops below the threshold value in all 4 attempts, fault 981 is output. If fault 981 occurs, DHW heating is blocked for the period of time set in parameter 1087.0. Heating operation remains available during this period. Once the period of time set in parameter 1087.0 has elapsed, DHW heating is enabled again. The DHW heating blocking time can be terminated by carrying out a mains reset of the appliance. Switch the appliance off and on again at the appliance switch.

Venting program

During the venting program, the circulation pump will be alternately switched on and off for 30 s over a period of 20 min.

The 3-way diverter valve alternates between central heating and DHW heating for a certain period of time. The burner is switched off during the venting program.



Activate venting program: See chapter "Commissioning, inspection and maintenance".

Appliance functions (cont.)

Filling program

In the delivered condition, the 3-way diverter valve is set to its central position, so the system can be filled completely. After the control unit has been switched on, the 3-way diverter valve no longer goes into its central position.

If the system is to be filled with the control unit switched on, the 3-way diverter valve is moved to its central position in the filling program and the pump is started.



Activate filling program: See chapter "Commissioning, inspection and maintenance".

In this position, the control unit can be switched off and the system can be filled completely. When the function is enabled, the burner shuts down. The program automatically becomes inactive after 20 min.

Heating curve

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 must be in order to reach the set room temperature.

Factory settings:

- Slope = 1
- Level = 3

Note

If heating circuits with mixer are present in the heating system: The flow temperature of the heat generator is one differential temperature higher than the flow temperature for the heating circuits with mixer. Differential temperature in delivered condition set to 8 K.

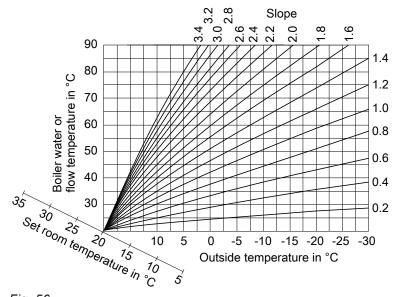


Fig. 56

Slope setting ranges:

- Underfloor heating systems: 0.2 to 0.8
- Low temperature heating systems: 0.8 to 1.6

Set room temperature

Standard room temperature or comfort room temperature

Individually adjustable for each heating circuit. The heating curve is offset along the set room temperature axis. The start and stop points of the heating circuit pumps depend on the Heating limit, outside temperature for heating circuit... setting.

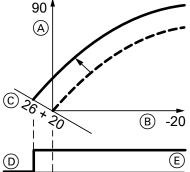


Fig. 57 Example 1: Changing the set room temperature from 20 to 26 °C

- (A) Flow temperature in °C
- B Outside temperature in °C

Appliance functions (cont.)

- © Set room temperature in °C
- (D) Heating circuit pump "OFF"
- (E) Heating circuit pump "ON"

Changing the set room temperature



Operating instructions

Reduced room temperature

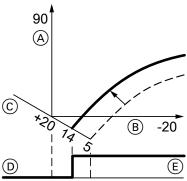


Fig. 58 Example 2: Changing the reduced set room temperature from 5 °C to 14 °C

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

Changing the reduced set room temperature



Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit

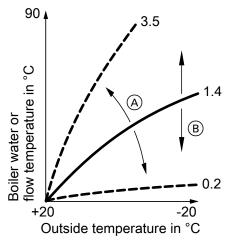


Fig. 59

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

Screed drying

When enabling screed drying, observe the information provided by the screed manufacturer.

When the screed drying function is activated, the heating circuit pumps of **all** heating circuits are switched on and the flow temperature is maintained in accordance with the selected profile. After completion (30 days), the heating circuits with mixer are automatically controlled with the set parameters.

Screed drying is adjusted in the system configuration:

- 0 = Off
- 2 = Temperature profile A
- 3 = Temperature profile B
- ..
- 7 = Temperature profile F

Note

During screed drying, DHW heating is not available.

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 set flow temperatures
- Max. flow temperature achieved.
- Operating state and outside temperature at handover

Note

Temperature profile F ends after 21 days.

The function continues after a power failure or after the control unit has been switched off. When screed drying has completed or been manually switched off, the system is controlled in accordance with the selected parameters.

Screed drying (cont.)

Parameter "Screed drying":

Temperature profile A (EN 1264-4)

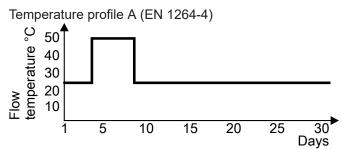


Fig. 60

Temperature profile B (ZV parquet and flooring technology)

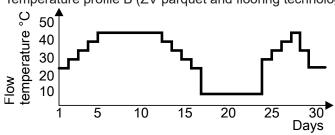


Fig. 61

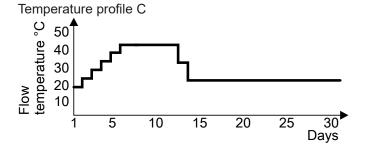


Fig. 62

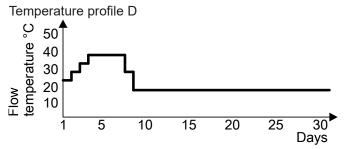


Fig. 63

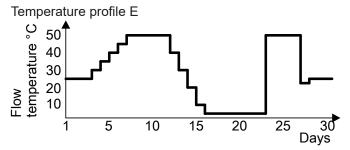


Fig. 64

Screed drying (cont.)

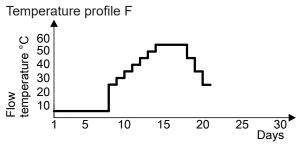


Fig. 65 Ends after 21 days.

DHW heating (system boilers only)

The burner, the circulation pump and the 3-way diverter valve are started or changed over if the cylinder temperature lies 2.5 K below the set cylinder temperature.

In the delivered condition, the set boiler water temperature is 20 K higher than the set cylinder temperature. If the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K, the burner shuts down and circulation pump run-on begins (only with separate DHW cylinder).



Danger

Risk of injury due to increased DHW temperature.

Inform the system user of the risk from the raised outlet temperature at the draw-off points.

- Gas condensing system boiler:
 If the set DHW temperature is set to over 60 °C
- Gas condensing combi boiler:
 If there are several draw-off events in quick succession or several appliance calibration processes

External heating circuit hook-up (if installed)

Note

Only in conjunction with weather-compensated operation.

■ Function:

- If the external demand is active (plug 96 or digital input on EM-EA1 (DIO) electronics module closed), the heating circuit is supplied with heat.
- If the external demand is inactive (contact open), heat supply to the heating circuit ends (regardless of the current set room temperature or the switching time).



Please note

There is no frost protection for the connected heating circuits.

Connection:

- If only one heating circuit is hooked up, use connection at plug 96: See page 30.
- If multiple heating circuits are hooked up, connect all contacts to EM-EA1 extension (DIO electronics module) with the subscriber number. 1 (rotary switch = 1).



See EM-EA1 extension installation instructions

Note

Perform the hook-up with subscriber number "1".

Function description

Valve and pump kick

To prevent circulation pumps and valves from getting stuck or jammed (e.g. inactive heating system in summer), all pumps and valves connected to the control unit are automatically switched on or switched over for 10 seconds after **90 hours** of idle time:

- Mixer pumps
- Internal pumps / boiler circuit pumps
- DHW circulation pumps
- Loading pumps

- Solar circuit pumps
- Mixer valves
- Diverter valves

Note

On appliances with a 3/2-way diverter valve, the valve is automatically moved to the centre position and back to the original position after 25 hours of standstill.

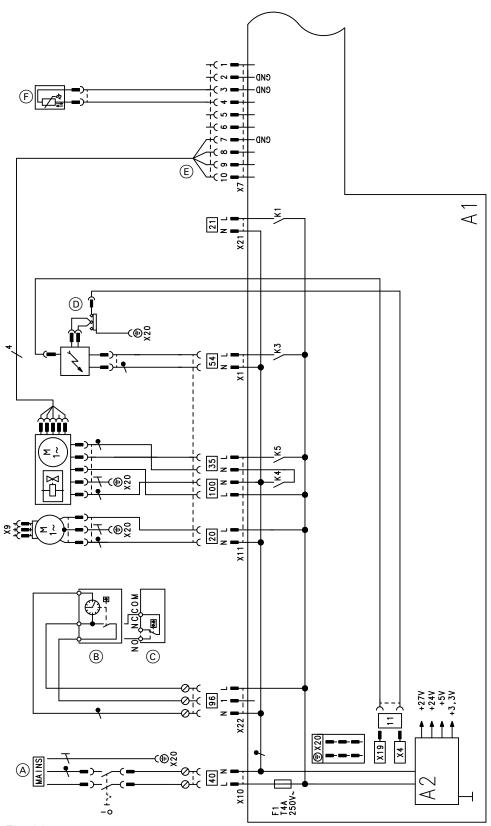


Fig. 66

- A1 HBMU heat management unit
- X... Electrical interfaces
- A2 Power supply unit
- A Power supply 40
- B Vitotrol 100, type UTA
- © Vitotrol 100, type UTDB
- D Ignition unit/ionisation 54

- F Outlet temperature sensor (combi boiler only)
- 35 Gas solenoid valve
- 100 Fan motor
- E Fan motor control
- Floating switching contact, 230 V connection accessories, see page 30.



Connection and wiring diagram

HBMU heat management unit (cont.)

- Heating circuit pump No function 20

HBMU heat management unit (cont.)

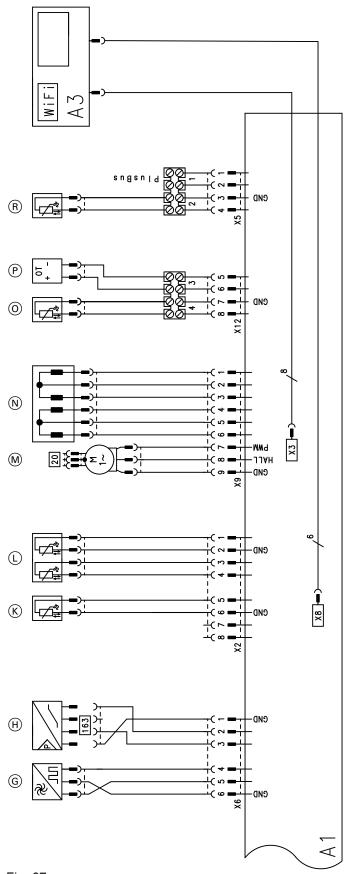


Fig. 67

- A1 HBMU heat management unit
- A3 Programming unit with communication module
- X... Electrical interfaces
- G Flow sensor (combi boiler only)

- (H) Water pressure sensor
- K Flue gas temperature sensor
- Boiler water temperature sensor
- M Circulation pump (PWM)



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Connection and wiring diagram

HBMU heat management unit (cont.)

- N Diverter valve stepper motorO Outside temperature sensor

- Remote control (OpenTherm device)
- Cylinder temperature sensor (system boiler only)

Commissioning/service reports

Report

Settings and test values		Set value	Commission-ing	Maintenance/ service	Maintenance/ service
Date					
Signature					
Static pressure	mbar kPa	≤ 57.5 ≤ 5.75			
Supply pressure (flow pressure)					
For natural gas	mbar kPa	See table "Supply			
For LPG	mbar kPa	pressure" (Commis- sioning)			
☐ Enter gas type					
Carbon dioxide content CO ₂ With natural gas					
At lower heating output	% by vol.	See "Check- ing the com-			
At upper heating output	% by vol.	bustion qual- ity" (Com-			
For LPG		mission-			
At lower heating output	% by vol.	_ ing)			
At upper heating output	% by vol.				
Oxygen content O ₂					
At lower heating output	% by vol.				
 At upper heating output 	% by vol.				
Carbon monoxide content					
At lower heating output	ppm	< 1000			
At upper heating output	ppm	< 1000			

Specification

Gas condensing system boiler

Use with single connection

Gas boiler, type B and C, catego	ry II _{2N3P}				
Туре	B1HG				
Rated heating output range (to EN 15502)					
$T_F/T_R = 50/30 ^{\circ}C$					
Natural gas	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$					
Natural gas	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
Rated heating output for DHW heating					
Natural gas	kW	2.9 to 17.5	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 17.5	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
Rated heat input (Qn)					
Natural gas	kW	3.0 to 10.3	3.0 to 17.8	3.0 to 23.4	3.0 to 29.9
LPG	kW	3.0 to 10.3	3.0 to 17.8	3.0 to 23.4	3.0 to 29.9
Rated heat input for DHW heating (Qnw)					
Natural gas	kW	3.0 to 17.8	3.0 to 17.8	3.0 to 23.4	3.0 to 29.9
LPG	kW	3.0 to 17.8	3.0 to 17.8	3.0 to 23.4	3.0 to 29.9
Product ID		CE-0085DL0217			
IP rating to EN 60529		IPX4 to EN 60529			
NO _x		6	6	6	6
Gas supply pressure					
Natural gas	mbar kPa	20 2	20 2	20 2	20 2
LPG	mbar kPa	50 5	50 5	50 5	50 5
Max. permiss. gas supply pressure*3					
Natural gas	mbar kPa	13 to 25.0 1.3 to 2.5			
LPG	mbar kPa	25 to 57.5 2.5 to 5.75			
Sound power level (according to EN ISO 15036-1)					
 At partial load 	dB(A)	31.9	31.9	31.9	31.9
At rated heating output (DHW heating)	dB(A)	42.3	42.3	46.1	48.4
Power consumption (in the delivered condition)	W	40	48	67	113

^{*3} If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

Specification (cont.)

Use with single connection

Gas boiler, type B and C, categor	y II _{2N3P}					
Туре			B1	HG		
Rated heating output range (to EN 15502)						
$T_F/T_R = 50/30 ^{\circ}C$						
Natural gas	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0	
LPG	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0	
$T_F/T_R = 80/60 ^{\circ}C$						
Natural gas	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3	
LPG	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3	
Rated voltage	V		23	30		
Rated frequency	Hz		5	0		
Appliance fuse protection	Α		4.	.0		
Backup fuse (power supply)	Α		1	6		
Communication module (integral)						
WiFi frequency band	MHz		2400 to	2483.5		
Max. transmission power	dBm		2	0		
Low power radio frequency band	MHz		2400 to	2483.5		
Max. transmission power	dBm		10			
Supply voltage	V 		2	4		
Power consumption	W		4	1		
Electronic temperature limiter setting (TN)	°C	91				
Electronic temperature cut-out setting	°C	110				
Electronic flue gas temperature limiter setting	°C	110				
Permissible ambient temperature						
During operation		Frost-free, dry and heated rooms				
During storage and transport	°C	–5 to +60				
Weight						
Excl. heating water and packaging	kg	32	32	32	32	
Incl. heating water	kg	37.6	37.6	37.6	37.6	
Water capacity (excl. diaphragm expansion vessel)	I	3.0	3.0	3.0	3.0	
Max. flow temperature	°C	82	82	82	82	
Max. flow rate (limit for the use of hydraulic separation)	l/h	See residual head graph				
Nominal circulating water volume	l/h	434	752	988	1259	
At $T_F/T_R = 80/60 ^{\circ}C$						
Diaphragm expansion vessel			_		_	
Capacity	1	8	8	8	8	
Pre-charge pressure	bar kPa	0.75 0.75 0.75 0.75 75 75 75 75 75 75 75 75 75 75 75 75 7				



Specification (cont.)

Use with single connection

Gas boiler, type B and C, category II_{2N3P}

Туре	B1HG				
Rated heating output range (to EN 15502)					
$T_F/T_R = 50/30 ^{\circ}C$					
Natural gas	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
$T_{F}/T_{R} = 80/60 ^{\circ}C$					
Natural gas	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
Permiss. operating pressure	bar MPa	3 0.3	3 0.3	3 0.3	3 0.3
Connections (with connection accessories)					
Boiler flow and return	R	3/4	3/4	3/4	3/4
Cold water and DHW	G	1/2	1/2	1/2	1/2
Dimensions					
Length	mm	360	360	360	360
Width	mm	400	400	400	400
Height	mm	700	700	700	700
Gas connection	R	3/4	3/4	3/4	3/4
Supply values Relative to the max. load and 1013 mbar/15 °C					
With gas	2/1	1.88	1.88	2.48	3.16
Natural gas E	m ³ /h				
Natural gas LL	m ³ /h	2.19	2.19	2.88	3.68
LPG	kg/h	1.38	1.38	1.82	2.32
Flue gas parameters Temperature (at a return temperature of 30 °C)					
 At rated heating output 	°C	39	41	46	59
At partial load	°C	38	38	38	38
Temperature (at a return temperature of 60 °C, for DHW heating)	°C	64	65	67	72
Flue gas superheating temperature	°C	120	120	120	120
Mass flow rate (for DHW heating)					
Natural gas					
 At maximum heating output 	kg/h	31.7	31.7	41.6	54.9
 At partial load 	kg/h	5.6	5.6	5.6	5.6
LPG					
 At maximum heating output 	kg/h	30.1	30.1	41.0	53.9
At partial load	kg/h	5.1	5.1	5.1	5.1
Available draught	Pa	116	116	168	323
	mbar	1.16	1.16	1.68	3.23
Available draught For type B _{23P}	Pa	232	527	698	635

Use with single connection

Gas boiler, type B and C, catego	ry II _{2N3P}				
Туре			B1	HG	
Rated heating output range (to EN 15502)					
$T_F/T_R = 50/30 ^{\circ}C$					
Natural gas	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 11.0	3.2 to 19.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$					
Natural gas	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 10.1	2.9 to 17.5	2.9 to 23.0	2.9 to 29.3
Max. amount of condensate to DWA-A 251	l/h	2.5	2.5	3.3	4.2
Condensate connection (hose nozzle)	Ø mm	20 to 24	20 to 24	20 to 24	20 to 24
Flue gas connection	Ø mm	60	60	60	60
Ventilation air connection	Ø mm	100	100	100	100
Standard seasonal efficiency [to DIN] at					
$T_F/T_R = 40/30 ^{\circ}C$	%	Up to 98 (H _s) [gross cv]			
Energy efficiency class		Α	А	А	А
Seasonal space heating energy efficiency η_{S}	%	93	93	94	94

Note

With appliances for use in multiple connection (vertical) and cascades (horizontal), the specifications in the table "Use with single connection" apply, with the exception of the following specifications; see table "Use with multiple connection".

Use with multiple connection

Gas boiler, type B and C, category II _{2N3P}					
Туре		B1HG-M			
Rated heating output range (to EN 15502)					
$T_F/T_R = 50/30 ^{\circ}C$					
Natural gas	kW	5.7 to 11.0	5.7 to 19.0	5.7 to 25.0	5.7 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$					
Natural gas	kW	5.2 to 10.1	5.2 to 17.5	5.2 to 23.0	5.2 to 29.3
Rated heating output for DHW heating					
Natural gas	kW	5.2 to 17.5	5.2 to 17.5	5.2 to 23.0	5.2 to 29.3
Rated heat input (Qn)					
Natural gas	kW	5.3 to 10.3	5.3 to 17.8	5.3 to 23.4	5.3 to 29.9
Rated heat input for DHW heating (Qnw)					
Natural gas	kW	5.3 to 17.8	5.3 to 17.8	5.3 to 23.4	5.3 to 29.9



Use with multiple connection

Gas boiler, type B and C, category II _{2N3P}					
Туре			B1H	IG-M	
Rated heating output range (to EN 15502)					
$T_F/T_R = 50/30 ^{\circ}C$					
Natural gas	kW	5.7 to 11.0	5.7 to 19.0	5.7 to 25.0	5.7 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$					
Natural gas	kW	5.2 to 10.1	5.2 to 17.5	5.2 to 23.0	5.2 to 29.3
Mass flow rate (for DHW heating)					
Natural gas					
At maximum heating output	kg/h	31.7	31.7	41.6	54.9
At partial load	kg/h	9.8	9.8	9.8	9.8
Available draught for type C ₍₁₀₎ (at header system interface)	Pa	25	25	25	25
Maximum permissible pressure differential between flue gas outlet and air inlet for $C_{(10)}$	Pa	-200	-200	-200	-200

Note

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

Gas condensing combi boiler

Use with single connection

Gas boiler, type B and C, category II_{2N3P}				
Туре		B1KG-26	B1KG-30	B1KG-35
Rated heating output range (to EN 15502))			
$T_F/T_R = 50/30 ^{\circ}C$				
Natural gas	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$				
Natural gas	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
Rated heating output for DHW heating				
Natural gas	kW	2.9 to 26	2.9 to 30	2.9 to 35
LPG	kW	2.9 to 26	2.9 to 30	2.9 to 35
Rated heat input (Qn)				
Natural gas	kW	3.0 to 23.4	3.0 to 23.4	3.0 to 29.9
LPG	kW	3.0 to 23.4	3.0 to 23.4	3.0 to 29.9

Use wi	th sin	gle co	nnection
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Gas boiler, type B and C, category II_{2N3P}				
Туре		B1KG-26	B1KG-30	B1KG-35
Rated heating output range (to EN 15502)		<u>'</u>	'	
$T_{F}/T_{R} = 50/30 ^{\circ}C$				
Natural gas	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$				
Natural gas	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
Rated heat input for DHW heating (Qnw)				
Natural gas	kW	3.0 to 26.5	3.0 to 30.6	3.0 to 35.3
LPG	kW	3.0 to 26.5	3.0 to 30.6	3.0 to 35.3
Product ID			CE-0085DL0217	
IP rating to EN 60529			IPX4 to EN 60529	
Gas supply pressure				
Natural gas	mbar	20	20	20
	kPa	2	2	2
LPG	mbar kPa	50 5	50 5	50 5
Max. permiss. gas supply pressure ^{*4}				
Natural gas	mbar kPa	25.0 2.5	25.0 2.5	25.0 2.5
LPG	mbar kPa	57.5 5.75	57.5 5.75	57.5 5.75
Sound power level (according to EN ISO 15036-1)		·		
At partial load	dB(A)	31.9	31.9	31.9
At rated heating output (DHW heating)	dB(A)	49.1	50	50.4
Power consumption (in the delivered condition)	W	45	64	110
Rated voltage	V		230	
Rated frequency	Hz		50	
Appliance fuse protection	Α		4	
Backup fuse (power supply)	Α		16	
Communication module (integral)				
WiFi frequency band	MHz		2400 to 2483.5	
Max. transmission power	dBm		20	
Low power radio frequency band	MHz		2400 to 2483.5	
Max. transmission power	dBm		10	
Supply voltage	V 		24	
Power consumption	W		4	

^{*4} If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.



Use with	single	connection

-	B1KG-26	B1KG-30	B1KG-35
kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
°C		91	
°C		110	
°C		110	
	Frost	-free, dry and heated r	ooms
°C		–5 to +60	
kg	35	35	35
kg	41	41	41
I	3.0	3.0	3.0
°C	82	82	82
l/h	S	ee residual head grapl	าร
l/h	752	988	1259
1	8	8	8
bar kPa	0.75 75	0.75 75	0.75 75
bar MPa	3 0.3	3 0.3	0.3
R	3/4	3/4	3/2
G	1/2	1/2	1/2
mm	360	360	360
mm			400
mm			700
R	3/4	3/4	3/4
	kW kW °C °C °C kg kg I °C I/h I/h I/h R G mm mm	kW 3.2 to 25.0 kW 2.9 to 23.0 cC °C cC Frostant cC Kg 41 l 3.0 cC 82 l/h Section 1 l/h 752 l 8 bar 0.75 kPa 75 bar 3 MPa 0.3 R 3/4 G 1/2 mm 360 mm 400 mm 400 mm 700	kW 3.2 to 25.0 3.2 to 25.0 kW 2.9 to 23.0 2.9 to 23.0 kW 2.9 to 23.0 2.9 to 23.0 °C 110 °C 110 °C Frost-free, dry and heated row and he

Use with single connection

Gas boiler, type B and C, category II _{2N3P}				
Туре		B1KG-26	B1KG-30	B1KG-35
Rated heating output range (to EN 15502)			1	
$T_F/T_R = 50/30 ^{\circ}C$				
Natural gas	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$				
Natural gas	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
Standby instantaneous water heater				
DHW and cold water connections	G	1/2	1/2	1/2
Permiss. operating pressure (DHW side)	bar MPa	10	10 1	10 1
Minimum pressure, cold water connection	bar MPa	1.0 0.1	1.0 0.1	1.0 0.1
Outlet temperature, adjustable	°C	30 to 60	30 to 60	30 to 60
Continuous DHW output	kW	26.3	30.0	34.4
Spec. water flow rate (D) At $\Delta T = 30 \text{ K}$ (as per EN 13203-1)	l/min	13.26	15.59	17.04
Supply values Relative to the max. load and 1013 mbar/15 °C				
Natural gas E	m³/h	2.89	3.35	3.69
Natural gas LL	m³/h	3.36	3.90	4.29
LPG	kg/h	2.12	2.46	2.71
Flue gas parameters		·		
Temperature (at a return temperature of 30 °C)				
 At rated heating output 	°C	41	46	59
At partial load	°C	38	38	38
Temperature (at a return temperature of 60 °C, for DHW heating)	°C	65	67	72
Flue gas superheating temperature	°C	120	120	120
Mass flow rate (for DHW heating)		<u>'</u>	,	
Natural gas				
 At maximum heating output 	kg/h	49.3	57.3	62.1
At partial load	kg/h	5.6	5.6	5.6
LPG				
At maximum heating output	kg/h	30.1	41	53.9
At partial load	kg/h	3.9	3.9	3.9
Available draught	Pa	334	340	474
	mbar	3.34	3.40	4.74
Available draught For type B _{23P}	Pa	527	698	635



Use with single connection

Gas boiler, type B and C, category II_{2N3P}				
Туре		B1KG-26	B1KG-30	B1KG-35
Rated heating output range (to EN 15502)				
$T_F/T_R = 50/30 \text{ °C}$				
Natural gas	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
LPG	kW	3.2 to 25.0	3.2 to 25.0	3.2 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$				
Natural gas	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
LPG	kW	2.9 to 23.0	2.9 to 23.0	2.9 to 29.3
Max. amount of condensate to DWA-A 251	l/h	3.7	4.3	4.9
Condensate connection (hose nozzle)	Ø mm	20 to 24	20 to 24	20 to 24
Flue gas connection	Ø mm	60	60	60
Ventilation air connection	Ø mm	100	100	100
Standard seasonal efficiency [to DIN] at				
$T_F/T_R = 40/30 ^{\circ}C$	%	l	Jp to 98 (H_s) [gross cv]	
Energy efficiency class		А	А	Α
Seasonal space heating energy efficiency η_{S}	%	93	94	94

Note

With appliances for use in multiple connection (vertical) and cascades (horizontal), the specifications in the table "Use with single connection" apply, with the exception of the following specifications; see table "Use with multiple connection":

Use with multiple connection

Gas boiler, type B and C, category II _{2N3P}				
Туре		B1KG-26-M	B1KG-30-M	B1KG-35-M
Rated heating output range (to EN 15502)				
$T_F/T_R = 50/30 ^{\circ}C$				
Natural gas	kW	5.7 to 25.0	5.7 to 25.0	5.7 to 32.0
$T_F/T_R = 80/60 ^{\circ}C$				
Natural gas	kW	5.2 to 23.0	5.2 to 23.0	5.2 to 29.3
Rated heating output for DHW heating				
Natural gas	kW	5.2 to 26	5.2 to 30	5.2 to 35
Rated heat input (Qn)				_
Natural gas	kW	5.3 to 23.4	5.3 to 23.4	5.3 to 29.9
Rated heat input for DHW heating (Qnw)				
Natural gas	kW	5.3 to 26.5	5.3 to 30.6	5.3 to 35.3
Mass flow rate (for DHW heating) Natural gas				
 At maximum heating output 	kg/h	49.3	57.3	62.1
At partial load	kg/h	9.8	9.8	9.8
Available draught for type $C_{(10)}$ (at header system interface)	Pa	25	25	25
Maximum permissible pressure differential between flue gas outlet and air inlet for ${\rm C_{(10)}}^{*5}$	Pa	-200	-200	-200

Note

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

Flue system types

Available in the following countries	Flue system types
AE, AM, AT, AZ, BA, BG, BY, CH, CY, CZ, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, KG, KZ, LT, LV, MD, ME, MT, NL, NO, PL, PT, RO, RS, RU, SE, SK, TR, UA, UZ	$\begin{array}{c} B_{23},B_{23P},B_{33},C_{13},C_{33},C_{53},C_{63},C_{83},C_{83P},C_{93}\\ (C_{43},C_{43P},C_{(10)3},C_{(11)3},C_{(13)3},C_{(14)3}^{*6}) \end{array}$
AU, BE, NZ	$\begin{array}{c} B_{23},B_{23P},B_{33},C_{13},C_{33},C_{53},C_{83},C_{83P},C_{93}\\ (C_{43},C_{43P},C_{(10)3},C_{(11)3},C_{(13)3},C_{(14)3}^{*6}) \end{array}$
DE, LU, SI	$\begin{array}{c} B_{23},B_{23P},B_{33},C_{13X},C_{33X},C_{53X},C_{63X},C_{83X},C_{93X}\\ (C_{43},C_{43P},C_{(10)3},C_{(11)3},C_{(13)3},C_{(14)3}^{*6}) \end{array}$
CN	C13

^{*5} Appliances for multiple connection, type B1HG-M (for multiple connection)

^{*6} Only for specifically marked appliances.

Specification

(cont.)

Gas categories

Available in the following countries	Gas categories
AE,AM, AT, DK, EE, KG, LV, LU, LT, RO, RU, SE AZ, BA, BG, BY, CH, CZ, ES, FI, GB, GR, HR, IE, IS, KZ, IT, MD, ME, NO, PT, RS, SI, SK, TR, UZ HU, MT, UA	II_{2N3P}/II_{2H3P}
BE	I _{2N}
DE, FR	II_{2N3P}
CY	I _{3P}
NL	II _{2EK3P}
PL	II _{2N3P} /II _{2ELw3P}
CN	12T
AU, NZ	NG/ULPG/I _{2H}

The gas condensing boiler is suitable for operation with a hydrogen blend of up to 20 % by vol.

Electronic combustion control unit

The electronic combustion controller utilises the physical correlation between the level of the ionisation current and the air ratio λ . The maximum ionisation current is achieved at an air ratio of 1 for all gas qualities. The ionisation signal is evaluated by the combustion controller. The air ratio is regulated to a value that is between λ = 1.2 and 1.5. This range provides for an optimum combustion quality. Thereafter, the electronic gas train regulates the required gas volume subject to the prevailing gas quality.

To check the combustion quality, the CO_2 content or the O_2 content of the flue gas is measured. The prevailing air ratio is determined using the actual values.

To achieve optimum combustion control, the system regularly carries out an automatic self-calibration; also after power failures (shutdown). For this, the combustion is briefly regulated to maximum ionisation current (corresponding to air ratio λ =1). Self-calibration takes place shortly after the burner starts. The process lasts approx. 20 s during which higher than normal CO emissions may occur briefly.

Final decommissioning and disposal

This product can be recycled. Components and fluids from the system do not belong in ordinary domestic waste.

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

All components must be disposed of correctly.

Ordering individual parts for accessories

Please affix accessory labels with part numbers here. Please specify the relevant part no. when ordering individual parts.					

Declaration of conformity

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

We, Viessmann Climate Solutions SE, D-35108 Allendorf, confirm that the product Vitodens 100-W complies with the NO_x limits specified by the 1st BlmSchV § paragraph 6.

Allendorf, 1 November 2021

Viessmann Climate Solutions SE

Authorised signatory Uwe Engel

Senior Vice President Engineering & Technology

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