Wall mounted gas condensing boilers

Condens 5000W

ZBR 70-3 | ZBR 100-3

BOSCH

Installation and maintenance instructions

6720813952 (2021/07) AU

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1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings

Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information

This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
–	List entry (second level)

Table 1

1.2 General safety instructions

Instructions for the target group

These installation instructions are intended for gas fitters, plumbers, heating engineers and electricians. All instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including possible loss of life. If you are in any doubt contact the Robert Bosch technical hotline on:
1300 30 70 37 AU or 0800 54 33 52 NZ

- ▶ Read the installation instructions (heat source, heating controller, etc.) before installation.
- ▶ Observe safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Keep a record of all work carried out.

Determined use

The product may only be used in Sealed systems for the heating of central heating water.

Any other use, including use as a pool heater, is considered inappropriate. Any damage that may result is excluded from liability.

System malfunctions caused by third-party equipment

This heat source is designed for operation with our control units.

System malfunctions, malfunctions and defects of system components resulting from the use of third-party equipment are excluded from liability.

Service work required to repair the damage will be invoiced.

If you smell gas

- ▶ TURN OFF THE ECV (EMERGENCY CONTROL VALVE) AT THE METER.
- ▶ DO NOT TURN ELECTRICAL SWITCHES ON OR OFF.
- ▶ DO NOT STRIKE MATCHES OR SMOKE.
- ▶ PUT OUT NAKED FLAMES.
- ▶ OPEN DOORS AND WINDOWS.
- ▶ KEEP PEOPLE AWAY FROM THE AFFECTED AREA.

Danger to life from poisoning by flue gas

There is a danger to life from escaping flue gas.

- ▶ Ensure that flues and gaskets are not damaged.

Risk to life from poisoning by flue gas due to inadequate combustion

There is a risk to life from escaping flue gas. If flues are damaged or leaking, observe the following rules.

- ▶ Close off the fuel supply.
- ▶ Open windows and doors.
- ▶ If necessary, warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Rectify any damage to the flue immediately.
- ▶ Ensure that there is an adequate combustion air supply.
- ▶ Do not cover or reduce the size of ventilation apertures in doors, windows and walls.
- ▶ Ensure that there is an adequate combustion air supply, including for any heat sources, which have been installed at a later date, e.g. if there are extractor fans, kitchen fans or air conditioning units with an air discharge outside.
- ▶ Never operate the product, if there is an insufficient combustion air supply.

Installation, commissioning and maintenance

Installation, commissioning and maintenance may be performed only by an approved contractor.

- ▶ In the case of open flue operation: ensure that the installation location meets the ventilation requirements.
- ▶ Do not repair, manipulate or deactivate safety-relevant components.
- ▶ Only install genuine spare parts.
- ▶ Check for gas tightness after working on gas-carrying components.

Electrical work

Electrical work must only be carried out by qualified electricians.

- ▶ Before starting electrical work:
  - Isolate all poles of the mains voltage and secure against reconnection.
  - Using suitable means, test that the power supply is disconnected.
- ▶ Also see connection diagrams of other system components.

Handover to the user

When handing over, instruct the user how to operate the heating system and inform the user about its operating conditions.

- ▶ Explain how to operate the heating system and draw the user's attention to any safety relevant action.
- ▶ In particular, point out the following:
  - Alterations and repairs must only be carried out by an approved contractor.
  - Safe and environmentally compatible operation requires inspection at least once a year and responsive cleaning and maintenance.
- ▶ Point out the possible consequences (personal injury, including danger to life or material damage) of non-existent or improper inspection, cleaning and maintenance.
- ▶ Point out the dangers of carbon monoxide (CO) and recommend the use of CO detectors.
- ▶ Leave the installation instructions and the operating instructions with the user for safekeeping.

2 Product information

2.1 Documentation

These installation instructions contain important information regarding the safe and proper installation, commissioning and maintenance of the wall mounted gas condensing boiler.

These installation instructions are intended for installers with the requisite knowledge due to training and experience in working with heating systems and gas installations.

2.2 Declaration of Conformity

The design and operation of this product conform to European Directives and the supplementary national requirements. Its conformity is demonstrated by the CE designation.

The Declaration of Conformity can be requested from the manufacturer. You will find the relevant addresses on the back cover of these instructions.

2.3 Appliance types

The appliance types stated may not be available in your country. For more information on availability, contact the manufacturer. You will find the address on the back cover of these instructions.

This document refers to the following appliance types:

- Condens 5000W ZBR 70-3
- Condens 5000W ZBR 100-3

The designation of the wall mounted condensing boiler comprises the following:

- Bosch: manufacturer
- Condens 5000W ZBR-3: product name
- 70 or 100: type name

2.4 Data plate

The data plate is on the top of the wall mounted gas condensing boiler to the left of the flue gas adapter (→ figure 4, [8]). The data plate contains the serial number, gas group classification and approvals.

2.5 Scope of delivery

The wall mounted condensing boiler is supplied ex works ready assembled.

► Check that the delivery is complete and undamaged.

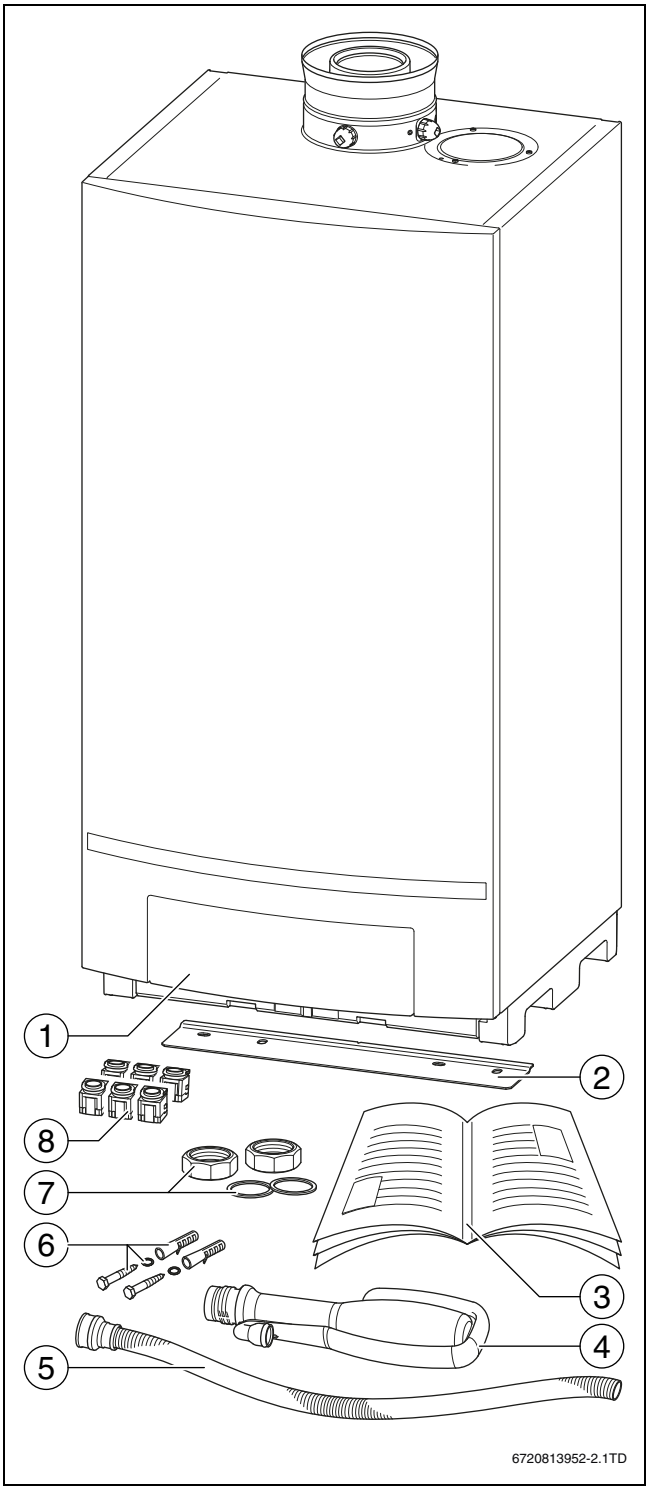


Fig. 1 Scope of delivery

[1] Wall mounted gas condensing boiler
[2] Mounting bracket
[3] Technical documentation
[4] Condensate trap
[5] Condensate hose
[6] Screw, washer, rawl plug (2 ×)
[7] Screw fitting with gasket (2 ×)
[8] Strain relief (6 ×)

2.6 Changing over the gas type

This appliance is only certified for use with Natural Gas in AU/NZ, and is approved for the gas type specified on the data plate. If the wall mounted gas condensing boiler can be converted for another gas type, corresponding information will be provided in the gas data (→ chapter 2.16, page 10).

2.7 Accessories

A wide range of accessories is available for these wall mounted gas condensing boilers.
Please contact the manufacturer for further details. You will find the relevant addresses on the back cover of these instructions.

2.8 Removing the casing

- ▶ Undo locking screws [1.].
- ▶ Pull the 2 click fasteners on the underside of the control panel down [2.].
- ▶ Remove the casing [3.].

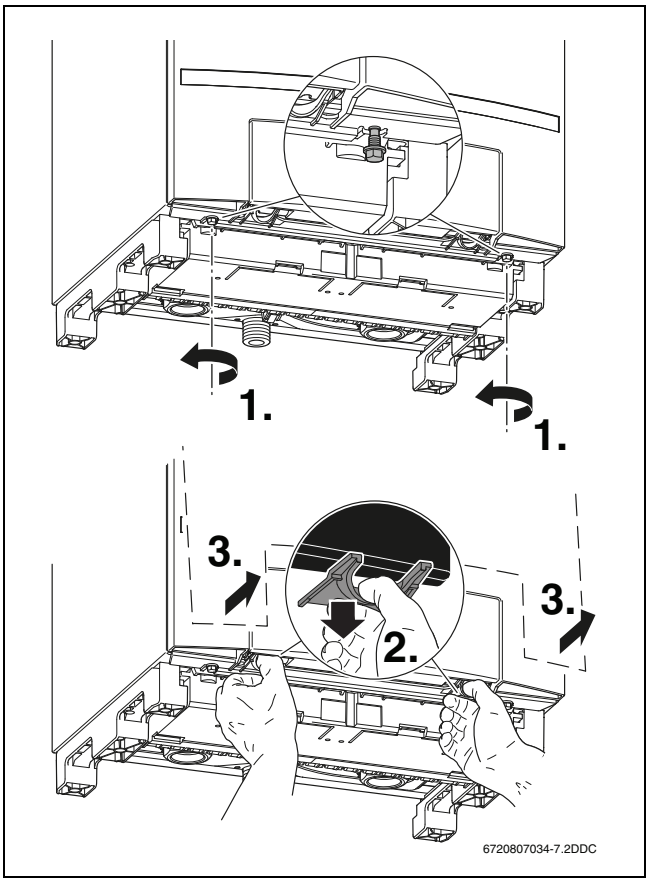


Fig. 2 Casing removal

2.9 Anti-Freeze Protection

NOTICE: System damage.
The central heating system may freeze up during severe frost due to: the failure of the electricity supply, inadequate gas supply or an appliance error.

- ▶ Install the boiler in a frost-free room.
- ▶ Drain off the water from the central heating system if it will be out of operation for an extended period.

The wall mounted gas condensing boiler is equipped with integral frost protection. This means that the wall mounted gas condensing boiler requires no external frost protection system. The frost protection system switches the wall mounted gas condensing boiler off at a boiler temperature of 7 °C and a boiler temperature of 15 °C. The wall mounted gas condensing boiler does not protect the heating system from frost.

2.10 Pump test

The pump starts automatically for 10 seconds every 24 hours if the pump is not in use for prolonged periods. This procedure prevents the pump from seizing.

2.11 Measurements

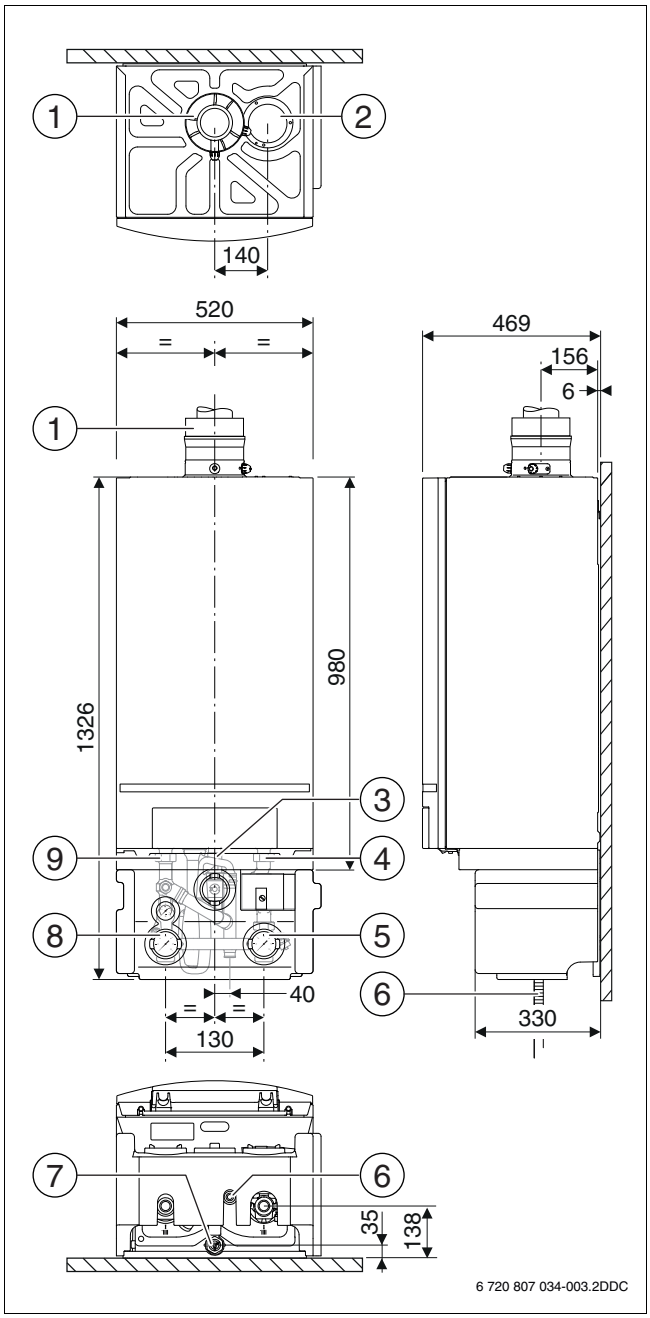


Fig. 3 Dimensions [mm]

[1] Concentric flue adaptor, Ø 100/150 mm coupling end
[2] Ventilation panel
[3] Gas connection for wall mounted gas condensing boiler, R 1" male thread
[4] Heating return, G 1½ " screw fitting with female thread
[5] Connection set for return, G 1½ " male thread with flat seal
[6] Condensate pipe, Ø external diameter 24 mm
[7] Connection set for gas connection, R 1" female thread
[8] Connection set for flow, G 1½ " male thread with flat gasket
[9] Heating flow, G 1½ " screw fitting with female thread

2.12 Product overview

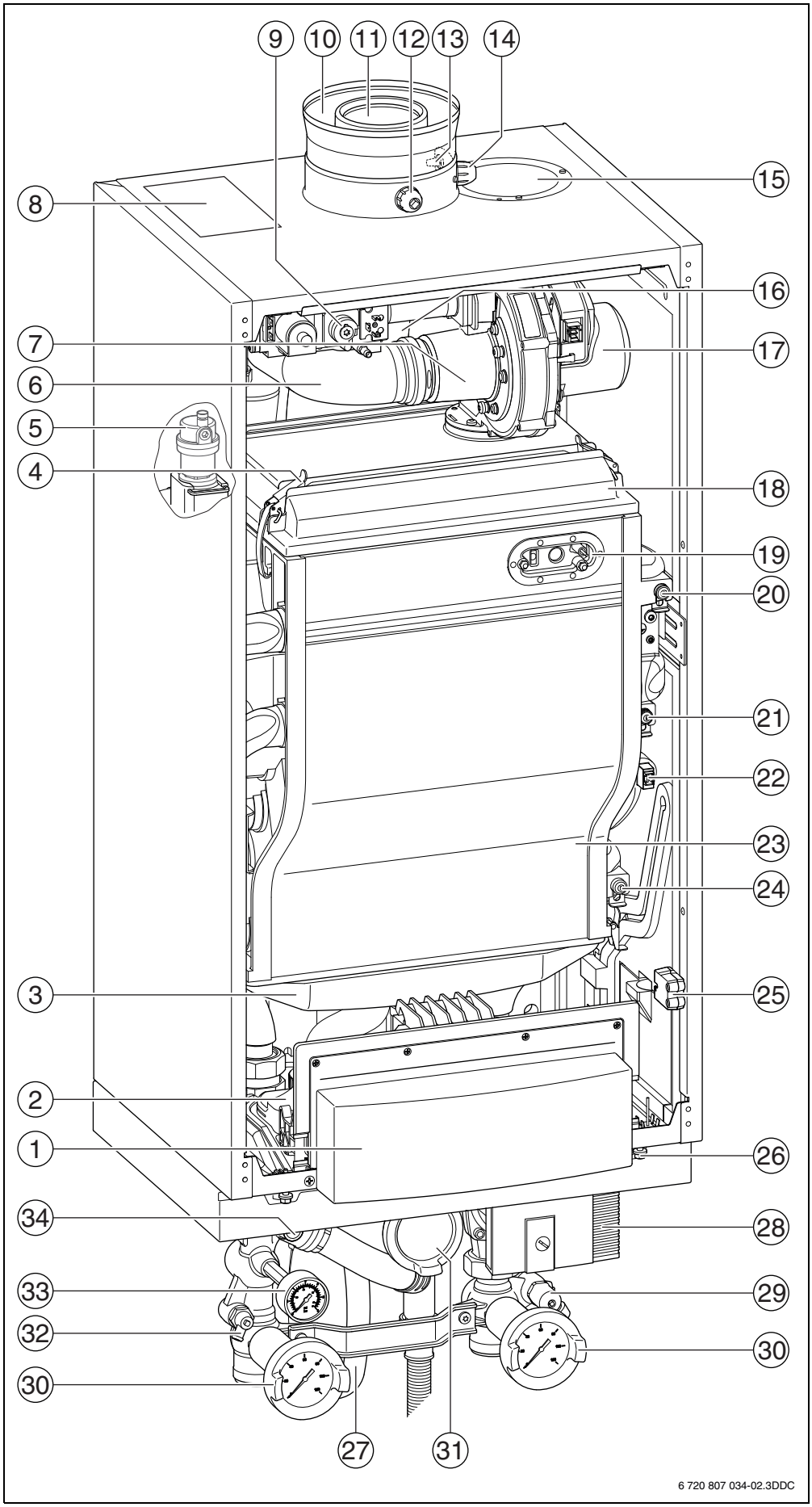


Fig. 4 Condens 5000W ZBR-3 with connection set

Wall mounted gas condensing boiler:

[1] Control panel
[2] Terminal strip
[3] Condensate pan
[4] Quick lock
[5] Auto air vent
[6] Air intake pipe
[7] Venturi nozzle
[8] Data plate
[9] Gas valve
[10] Combustion air connection (concentric)
[11] Flue gas connection
[12] Flue gas testing point
[13] Flue gas temperature sensor
[14] Incoming air testing point
[15] Cap, combustion air connection (parallel)
[16] Flue pipe
[17] Fan
[18] Burner
[19] Ignition device
[20] Flow temperature sensor
[21] Safety temperature sensor
[22] Pressure sensor
[23] Heat Exchanger
[24] Return temperature sensor
[25] Boiler ID module (KIM)
[26] Locking screw
[27] Condensate trap

Connection set (accessories):

[28] Pump
[29] Drain & fill valve (DFV)
[30] Service valve
[31] Gas isolator
[32] Drain cock
[33] Manometer
[34] Pressure Relief Valve

2.13 Wiring diagram

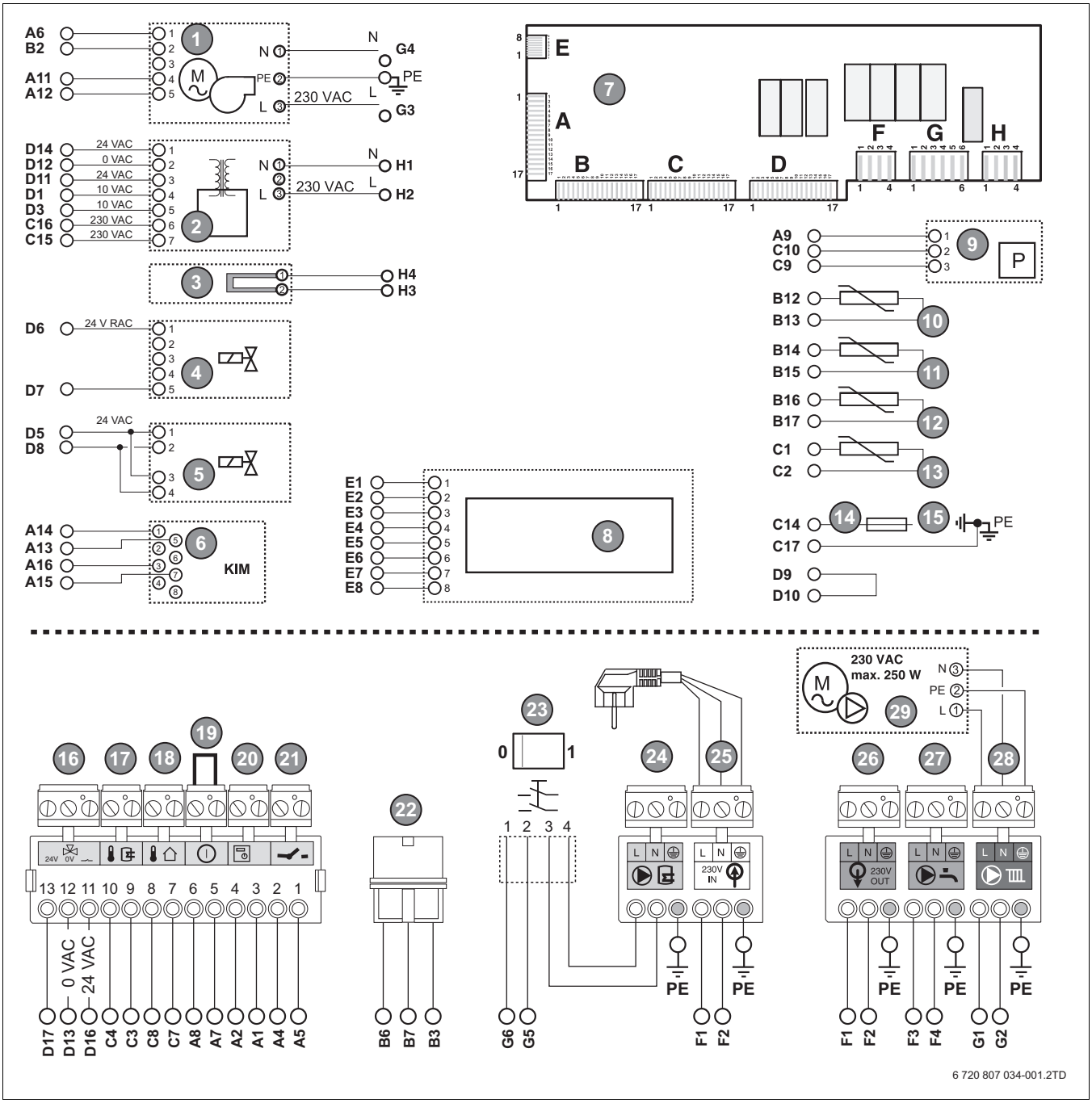


Fig. 5 Wiring diagram

[1] Fan
[2] Reactor
[3] Hot surface igniter
[4] Gas valve type 70
[5] Gas valve type 100
[6] Boiler ID module (KIM)
[7] Burner control unit
[8] Control panel
[9] Pressure sensor
[10] Return temperature sensor
[11] Flue gas temperature sensor (ex works, Switzerland only)
[12] Flow temperature sensor
[13] Safety temperature sensor
[14] Flame sense electrode
[15] Earth
[16] Turquoise - no function
[17] Grey - no function
[18] Blue – outside temperature sensor
[19] Red - external switching contact
[20] Orange - modulating temperature controller
[21] Green - on/off room temperature-dependent controller
[22] Pump control signal PWM
[23] ON/OFF switch
[24] Grey - no function
[25] White - power supply 230 V AC, 50 Hz, mains plug
[26] Orange - power supply of the 1st function module 230 V AC
[27] Purple - no function
[28] Green - pump connection set or external
[29] Pump connection set, external pump 230 V AC, max. 250 W

2.14 Specifications

		Type 70	Type 100
General Information	**Unit**		
Rated output G20 (50/30 °C) [P_n cond]	kW	14.3 – 69.5	20.8 – 99.5
Rated output G20 (80/60 °C) [P_n]	kW	13.0 – 62.6	19.0 – 94.5
Rated input G20 [Q_n (Hi)]	kW	13.3 – 64.3	19.3 – 96.5
Nominal input NG/G20	MJ/hr	257	386
Efficiency G20 (37/30 °C) partial load 30% in accordance with EN 15502	%	107.8	107.9
Efficiency G20 (80/60 °C) full load	%	97.4	97.0
Standby loss in accordance with EN 15502	%	14	9
Seasonal efficiency, heating curve (75/60 °C)	%	106.8	106.7
Seasonal efficiency, heating curve (40/30 °C)	%	109.4	109.5
Pump run-on time	min	5	5
Residual head of fan (p_{max})	Pa	130	220
IP classification [IP rating]		IP X4D (B_{23}, B_{33}: X0D)	
Appliance class in accordance with EN 15502		B_{23}, B_{33}, $C_{13(x)}$, $C_{33(x)}$, $C_{43(x)}$, $C_{53(x)}$, $C_{83(x)}$, $C_{93(x)}$	
Temperature classification in accordance with EN 14471		T120	
Appliance fuse		230 V, 5AF	
Mains voltage, frequency [U]		230 V, 50 Hz	
Electrical power consumption (without a pump connection set), standby / partial load / full load	W	6 / 18 / 82	6 / 25 / 155
Permissible ambient temperature	°C	0 – 40	
Maximum flow temperature [Tmax]	°C	90	
Maximum permissible water pressure of the wall mounted gas condensing boiler [PMS]	bar	4	
Maximum condensate accumulation rate	l/h	7.6	11.0
Connections			
Flue gas connection/concentric air supply	mm	100/150	
Heating flow/return pipe (wall mounted gas condensing boiler)	inch	G 1½	
Gas connection (wall mounted gas condensing boiler)	inch	R 1	
Condensate drain (flexible drain hose)	mm	24	
Emission levels in accordance with EN 13384			
CO_2 content with natural gas G20, partial load/full load	%	8.9 / 9.3	8.9 / 9.3
CO output G20 at full load	ppm	57	100
NO_x emission G20 at full load in accordance with EN 15502 (average)	mg/kWh	27	48
NO_x class		6	
Flue gas mass flow rate at max./min. rated output	g/s	29.8	43.8
Flue gas temperature at 80/60 °C, partial load/full load	°C	57 / 62	57 / 68
Flue gas temperature at 50/30 °C, partial load/full load	°C	34 / 39	34 / 53
Differential pressure gas/air (with partial load)	Pa	-5	
Dimensions and weight			
Height × width × depth	mm	980 x 520 x 465	
Height × width × depth incl. connection set	mm	1300 x 520 x 465	
Weight	kg	70	
Connection set			
Heating flow pipe	inch	G 1½	
Heating return pipe, male thread with flat gasket	inch	G 1½	
Gas line	inch	G 1	
Electrical power consumption WILO Stratos PARA 25/1-8, min./max.	W	8 / 140	

Table 2 Specifications

The information in brackets corresponds to the information on the data plate.

2.15 Product data on energy consumption

The product data on energy consumption can be found in the operating instructions for the user.

2.16 Gas specification

	Unit	Boiler specifications	
		Type 70	Type 100
Gas type		Natural	
Gas/air ratio pressure, @turn down	Pa	-10 to 0	-10 to 0
Appliance inlet pressure Min. / Rated / Max.	kPa	1.13 / 1.25 / 2.75	
Injector size, nominal/measured	mm	NA	8.50
Gas consumption, nominal	Mj/h	257 (G20)	386 (G20)
Gas consumption, @turn down	Mj/h	47.8 (G20)	69.5(G20)

Table 3 Gas specification

2.17 Hydraulic resistances

	Unit	Type 70	Type 100
Required flow rate at ΔT = 20 K	l/h	3000	4300
Max. flow rate at ΔT = 20 K	l/h	5000	
Resistance of wall mounted gas condensing boiler with required flow rate	mbar	170	320

Table 4 Hydraulic resistances

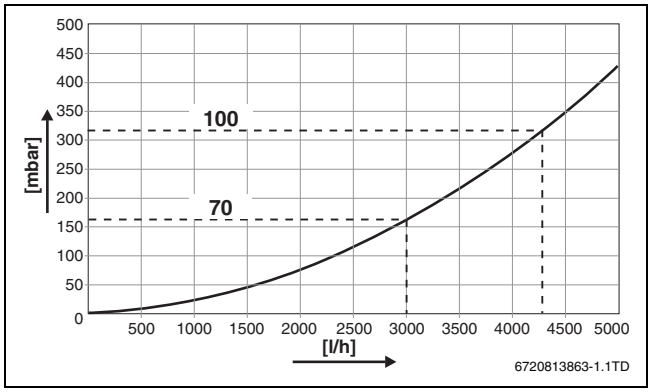


Fig. 6 Resistance graph per type

[l/h] Flow rate
[mbar] Pressure drop

2.18 Residual head

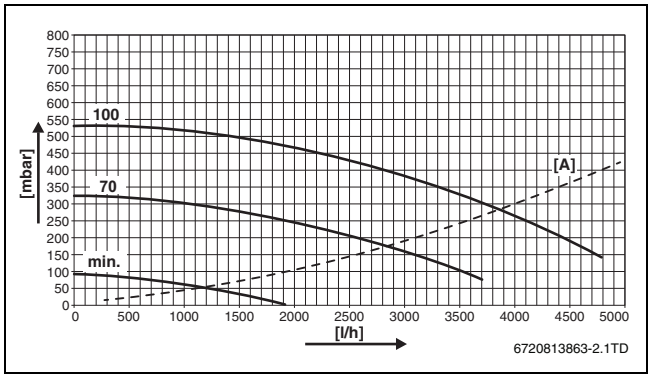


Fig. 7 Residual head per type, with connection set and non-return valve

[A] Resistance of wall mounted gas condensing boiler
[l/h] Flow rate
[mbar] Residual head

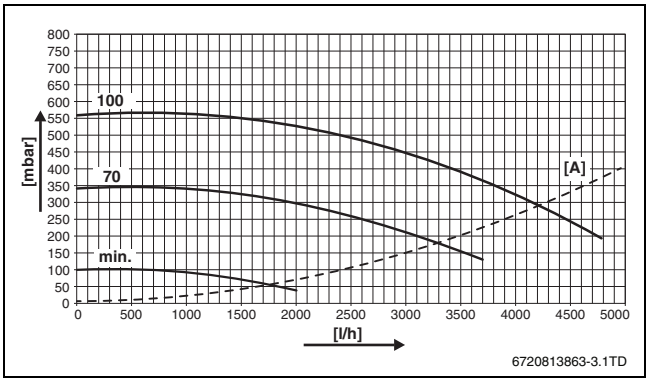


Fig. 8 Residual head per type, with connection set

[A] Resistance of wall mounted gas condensing boiler
[l/h] Flow rate
[mbar] Residual head

3 Regulations

- ▶ Observe all regulations and standards applicable to the system in your country prior to installation and commissioning.
- ▶ Make sure the entire system satisfies the following standards, regulations and directives.

Where no specific instructions is given, reference should be made to the following standards:

- AS 1596 LPG storage and handling.
- AS 1697 Installation and maintenance of steel pipe systems for gas.
- AS 1910 Water supply - float control valves for use in hot and cold water.
- AS 3498 Authorization requirements for plumbing products - water heaters and hot water storage tanks.
- AS 3500 National plumbing and drainage code.
- AS 4032 Water supply - valves for the control of hot water supply temperatures.
- AS 4552 Gas fired water heaters for hot water supply and/or central heating.
- AS 5601 Gas Installations.
- AS/NZS 3000 Electrical Installations.

Number	description
92/42/EEC	Efficiency Directive.
98/83/EC	Directive in relation to the quality of water for human consumption
2004/108/EC	EMC Directive
2006/96/EC	Low-voltage guideline
2009/142/EC	EC Gas Appliances Directive.
DIN 4726/4729	Oxygen diffusion resistance
EN 437	Test gases, test pressures, appliance categories
EN 12828	Heating systems in buildings - planning hot water heating systems
EN 12831	Heating systems in buildings – process for calculating the standard heat energy demand
EN 13384	Flue systems, heat and fault calculation models
EN 50201-1	Boiler for gaseous fuels - Part 1: General requirements and tests
EN 50201-2-1	Boilers for gaseous fuels - Part 2-1: Type C boilers and Type B2, B3 and B5 boilers with a rated heat input no greater than 1000 kW

Table 5 Regulations, standards and guidelines

4 Transport

CAUTION: Physical injury and damage to appliance due to incorrect lifting.
- ▶ At least two people are required to lift the wall mounted gas condensing boiler.
- ▶ Only hold the wall mounted gas condensing boiler at the sides and not at the control panel or flue connection (→ figure 9).

- ▶ Mounting of the wall mounted gas condensing boiler on a hand truck and locking with a fixing strap.
- ▶ Transport the wall mounted gas condensing boiler to the installation location.

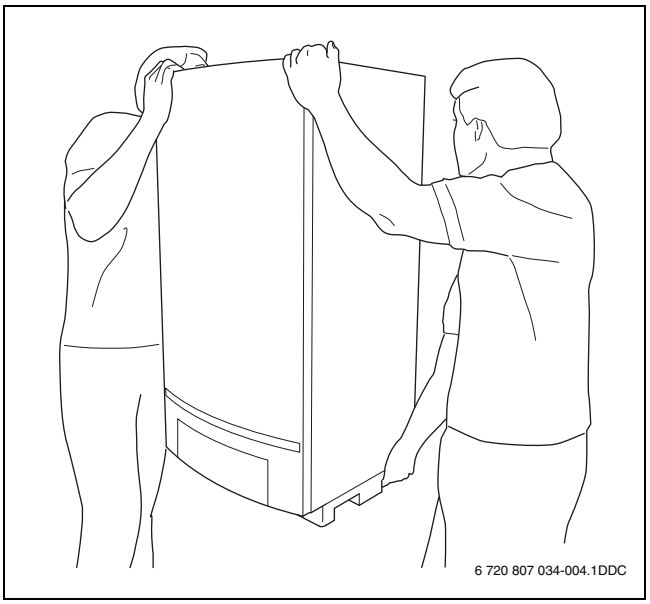


Fig. 9 Lifting and carrying the gas condensing boiler correctly

5 Fitting

WARNING: Gas explosion.
- ▶ Turn off gas valve before working on gas-carrying components.
- ▶ Check for leaks before working on gas-carrying components.

5.1 Important information

If the wall mounted gas condensing boiler is used in heating systems with natural water circulation or open systems (where heating water is in contact with outdoor air):

- ▶ Mount a system separation (a plate heat exchanger for example) between the wall mounted gas condensing boiler and the heating system

If plastic pipes are used in the heating system, with an underfloor heating system for example,

- ▶ use plastic pipes with oxygen diffusion resistance to DIN 4726/4729

-or-

- ▶ Mount a system separation (a plate heat exchanger for example) between the wall mounted gas condensing boiler and the heating system.

5.2 Water quality

Unsuitable or contaminated heating and tap water can lead to faults in the wall mounted gas condensing boiler and can damage the heat exchanger or DHW supply among other things due to sludge formation, corrosion or limescale deposits. Please get in touch with the manufacturer if you require additional information on the water quality. You will find the relevant addresses on the back cover of these instructions.

- ▶ Determine the water volume V_{max} by referring to the “Water quality operator's log”:

If the amount of fill and top-up water is already greater than the calculated water volume V_{max}:

- ▶ Use the water treatment in accordance with “Water quality operator's log”.

If the amount of fill and top-up water is less than the calculated water volume V_{max}:

- ▶ Flush and clean the heating system if necessary.
- ▶ Only use untreated mains water.
- ▶ Do not use any chemical additives (e.g. inhibitors or pH-increasing or reducing agents) other than those approved by Bosch Thermotechnik (→ table 6).

Product	Concentration
Fernox F1	See Fernox product data sheet
Sentinel X100	See Sentinel product data sheet

Table 6 Approved inhibitors by Bosch Thermotechnic

5.3 Unpacking the wall mounted gas condensing boiler

To ensure the connections are not damaged, only remove the styrofoam at the bottom once the wall mounted gas condensing boiler has been hung.

- ▶ Remove packaging and dispose of it.
- ▶ Prevent damage to the connections.
- ▶ Cover the connection for the flue gas/air supply on the top of the wall mounted gas condensing boiler.

5.4 Check gas type

- ▶ Make sure that the gas type to which the wall mounted gas condensing boiler is connected corresponds to the gas type specified on the data plate (→ figure 4, [8]).

5.5 Mounting the wall mounted gas condensing boiler

NOTICE: Damage to appliance due to incorrect lifting.
- ▶ Lift the wall mounted gas condensing boiler with one hand underneath and the other on top of it.

The wall mounted gas condensing boiler may only be hung on the wall or installed on a cascade frame.

Wall-mounted installation

- ▶ Check whether the wall is strong enough to support the weight of the wall mounted gas condensing boiler.
- ▶ Mount a fastening structure if required.
- ▶ Determine the position of the wall mounted gas condensing boiler on the wall.
- ▶ Mark holes using the supplied mounting rail (→ figure 10).

▶ Install the mounting rail on the wall with the assistance of a spirit level.

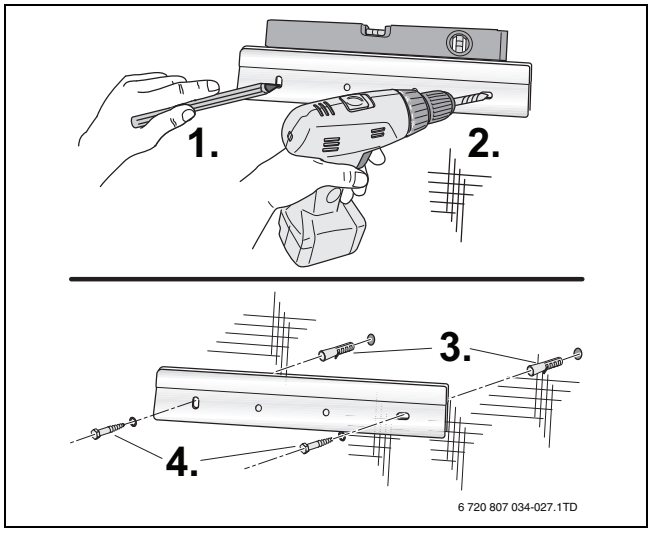


Fig. 10 Installing the mounting rail on the wall

▶ Hook the wall mounted gas condensing boiler into the mounting rail.
▶ Level the wall mounted gas condensing boiler using the set screw [1] and a spirit level.

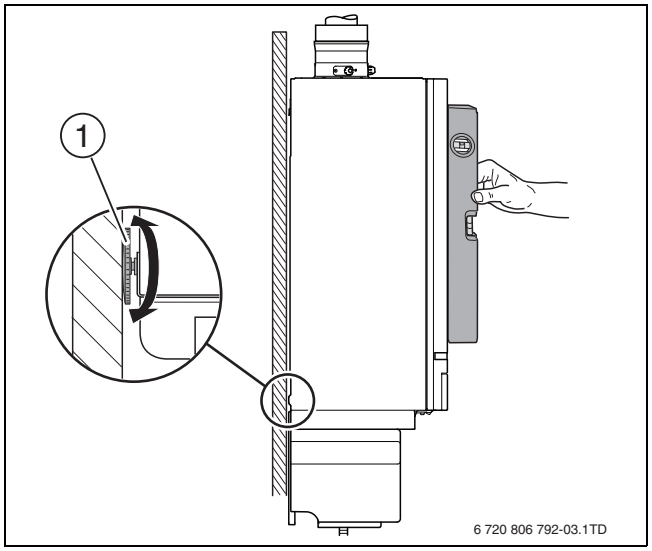


Fig. 11 Aligning the gas condensing boiler

Mounting on a cascade frame

▶ For details on mounting the wall mounted gas condensing boiler in a cascade frame, see the installation instructions for the cascade system.

5.6 CO detector for emergency shutdown of the cascade

For cascades, a CO detector with volt free contact is required that alerts in event of CO escaping, and switches off the heating system.

▶ Observe the installation instructions of the CO detector used.
▶ Connect CO detector to cascade module (→installation instructions of cascade module).
▶ When using products of other manufacturers for controlling the cascade: observe the details of manufacturer for connecting a CO detector.

5.7 Remove the protective caps.

NOTICE: Water damage.
The wall mounted gas condensing boiler may contain water. This can be discharged when the caps are removed.
▶ Keep a bucket and cloth handy.

▶ Take the caps off the connections on the underside of the wall mounted condensing boiler.

5.8 Connecting on the water and gas side

There are ways to connect the wall mounted gas condensing boiler on the water and gas sides:

- Using the connection set (accessory) (→ Chapter 5.9)
- Without using the connection set (→ Chapter 5.10).

5.9 Mounting the connection set (accessory)

NOTICE: Installation damage.
The connection set includes a pressure relief valve.
▶ Check whether the heating system can withstand the operating pressure specified on the pressure relief valve in the connection set.
▶ Replace the pressure relief valve with a pressure relief valve with a lower excess pressure (accessory).

The following components have been incorporated into the connection set:

- Gas isolator
- Service valves
- Manometer
- Thermometer
- Pressure Relief Valve
- Pump
- Drain & fill valve (DFV)

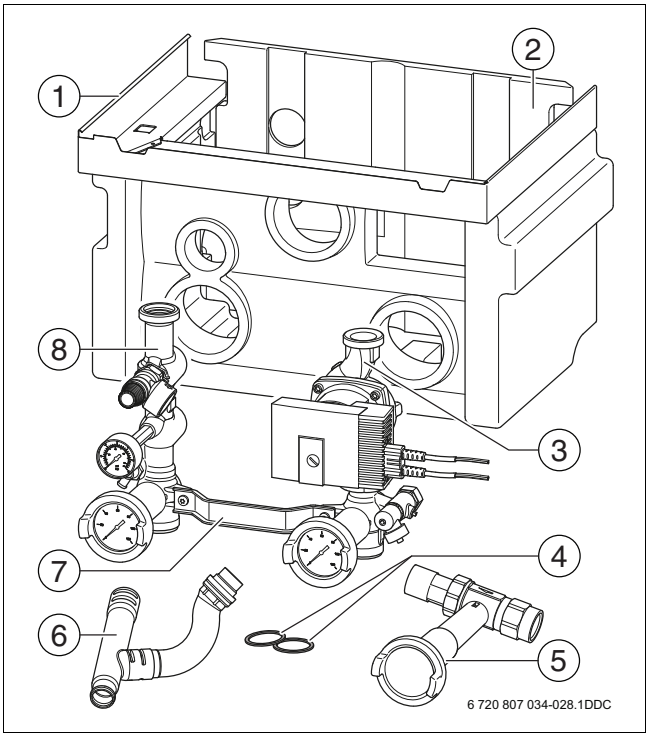


Fig. 12 Connection set scope of delivery

[1] Casing (insulation)
[2] Back panel (insulation)
[3] Return pipe
[4] Flat gasket 1½ " (2 ×)
[5] Gas isolator
[6] T piece
[7] Connection piece
[8] Flow pipe

5.9.1 Installing the gas isolator

Avoid damage to the gas valve with older gas lines.
▶ Install a gas filter to DIN 3368 in the gas line.

▶ Seal the gas connection on the wall mounted gas condensing boiler using an approved sealant [1].
▶ Mount the gas isolator G 1" in the gas line [2].
▶ Connect the gas pipe without stress to the gas isolator.

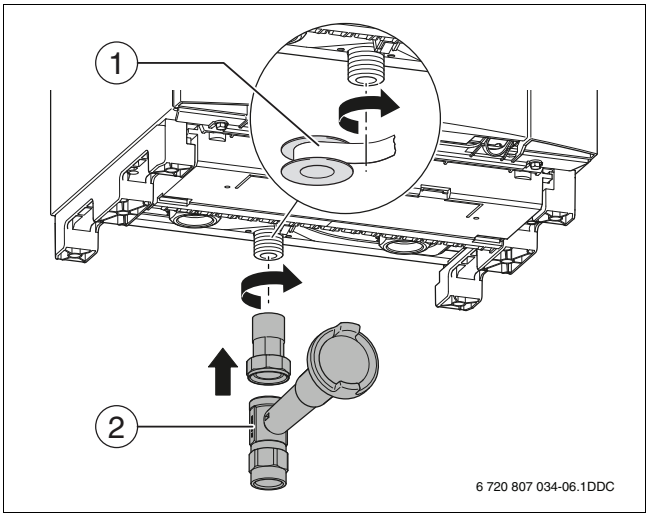


Fig. 13 Installing the gas isolator

[1] Sealing agents
[2] Gas isolator

5.9.2 Mounting the connection set

▶ Attach the screw fitting delivered with the wall mounted gas condensing boiler (→ figure 1, [8]) to the flow and return connection of the wall mounted gas condensing boiler.
▶ Connect the connection set to the flow and return connection of the wall mounted gas condensing boiler.
▶ Use the flat gaskets [1] (included in the scope of delivery) for this.
▶ Connect the flow and return line to the connection set, making sure they are free of stress. The minimum diameter of the supply and return line must be 1½ " (Ø 35 mm).

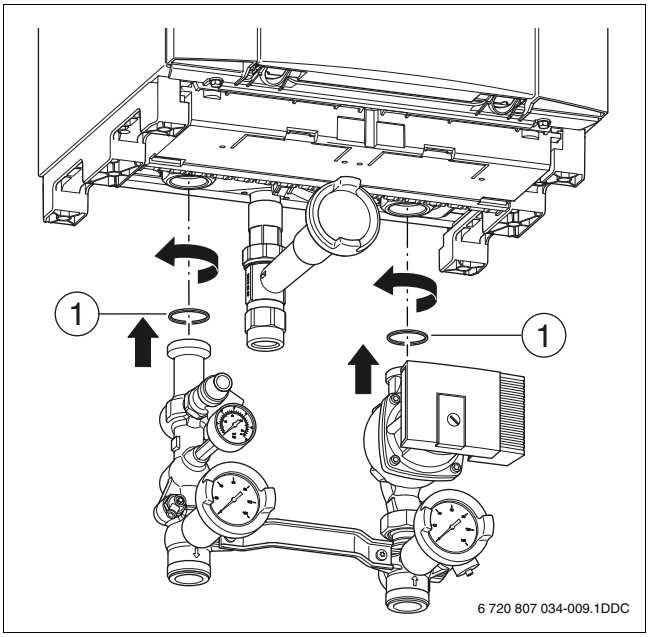


Fig. 14 Mounting the connection set

5.10 Connection of heating pipes (without connection set)

NOTICE: Damage to appliance due to excessive operating pressure.
▶ Mount a pressure relief valve between the wall mounted gas condensing boiler and shut-off valve.

To make maintenance easier:
▶ Mount a service valve in the supply and return line.

▶ Connect the flow and return line to the wall mounted gas condensing boiler, making sure they are free of stress. The minimum diameter of the flow and return line must be 1½ " (Ø 35 mm).

5.10.1 Gas-side connection

▶ Seal the gas connection on the wall mounted gas condensing boiler using an approved sealant [1].
▶ Use a gas isolator [2] with a diameter of at least 1".

▶ Connect the gas pipe without stress to the gas isolator.

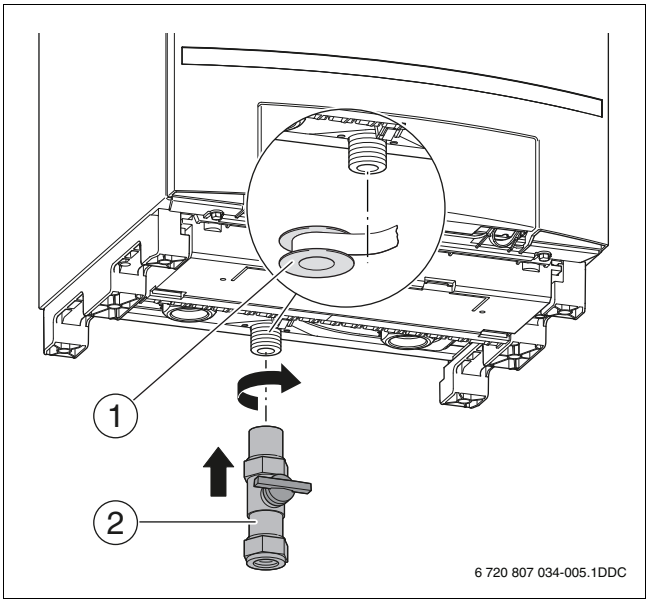


Fig. 15 Installing the gas isolator

[1] Sealing agents
[2] Gas isolator

5.10.2 Mounting the pump

▶ Select a pump based on the technical data (→ tab. 2, page 9).
▶ Take the required flow rate into account (→ tab. 4, page 10).

If a low loss header is not used:

▶ Select a pump that has a residual head of at least 200 mbar with the required flow rate.
▶ Install the pump [6] in the return line [5].

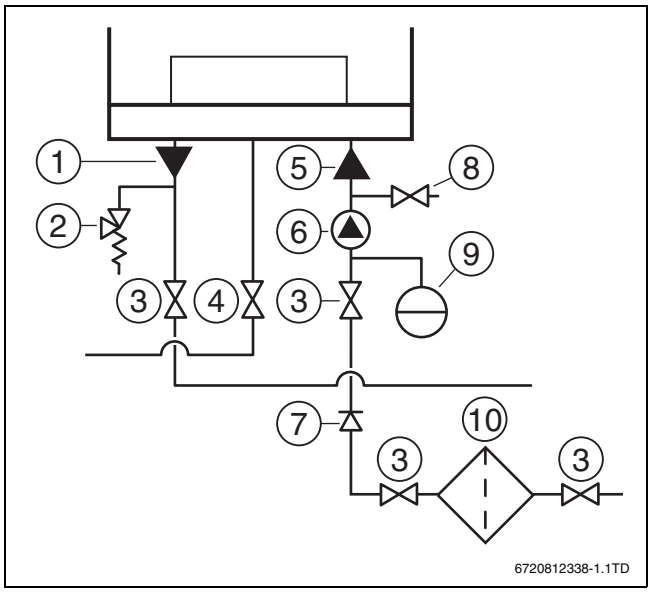


Fig. 16 Connection of the heating water pipework

[1] Flow pipe
[2] Pressure Relief Valve
[3] Service valve
[4] Gas isolator
[5] Return pipe
[6] Pump
[7] Non-return valve
[8] Drain & fill valve (DFV)
[9] Expansion vessel
[10] Dirt trap

5.11 Install the low loss header

If the residual head is insufficient with the required flow rate (→ tab. 4, page 10), a low loss header [1] must be installed.

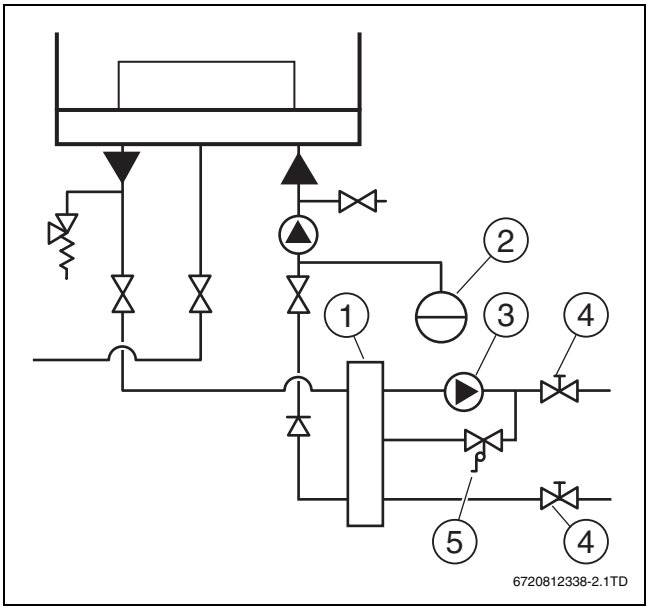


Fig. 17 Installation of the low loss header

[1] low loss header
[2] Expansion vessel
[3] Pump
[4] Service valve
[5] Pressure differential controller

5.12 Installing the siphon

▶ Removing the transport protection.

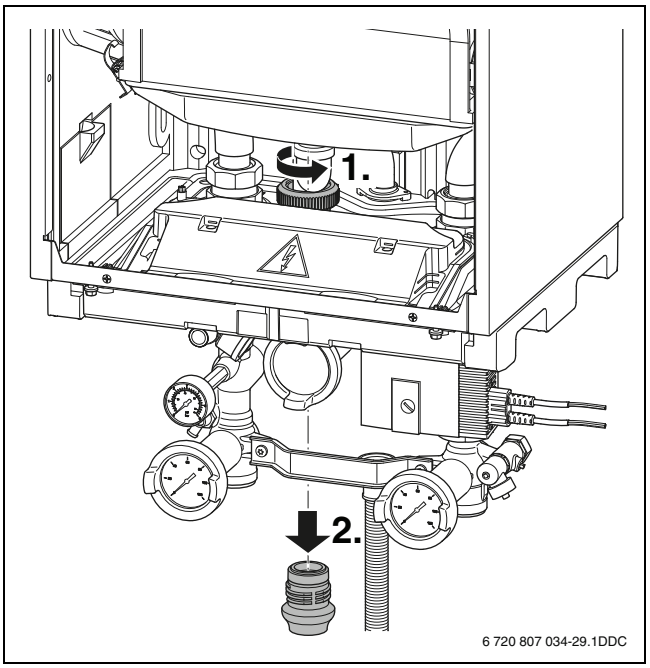


Fig. 18 Remove the transport protection

▶ Fill the condensate trap with water.

▶ Installing the condensate trap.

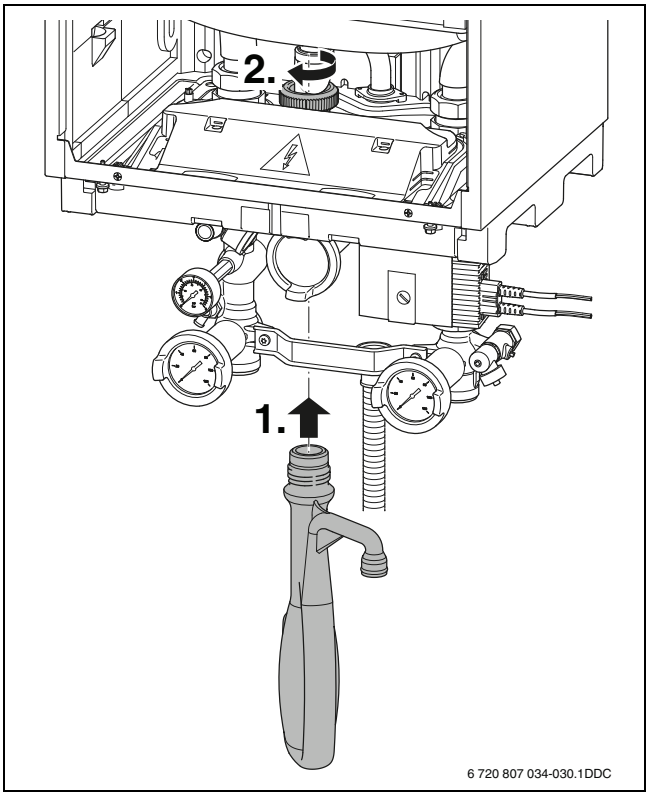


Fig. 19 Installing the condensate trap

With connection set

▶ Install tee [1] between pressure relief valve and siphon.
▶ Mount flexible hose [2].

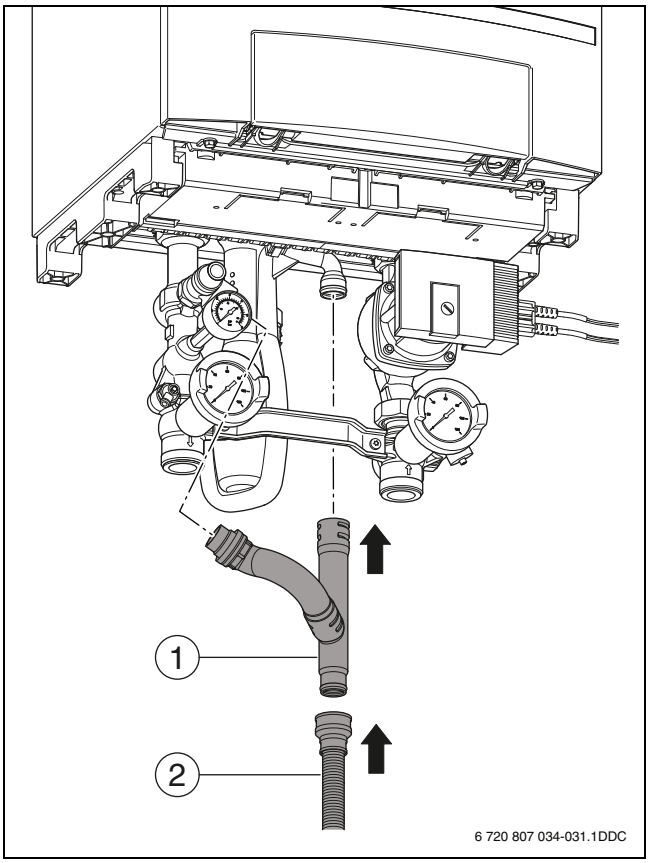


Fig. 20 Mounting the flexible hose

[1] T piece
[2] Flexible hose tube

Without connection set

▶ Connect flexible hose to the siphon.

5.13 Connecting the condensate drain

NOTICE: Boiler damage.
▶ Make sure there is an open connection between the wall mounted gas condensing boiler and condensate discharge pipe.

▶ Use a waste water pipe made of plastic material with a diameter of at least Ø32 mm to remove the condensate.
▶ Install a siphon in the waste water pipe.
▶ Connect horizontal pipe sections with a gradient to the waste water pipe.
The maximum length of the horizontal pipe section in this case is 5 m.
▶ Fill siphon in the waste water pipe.

5.14 Expansion vessel connection

Determine the size and supply pressure of the expansion vessel based on EN 12828.

If the option to connect the expansion vessel to the connection set is used with a cascade installation on the reverse side (TR), a right-angled coupling is required in the front row of the wall mounted gas condensing boilers.

▶ Remove the cap from the connection point [1].
▶ Connect the connection pipe of the expansion vessel to the connection point.

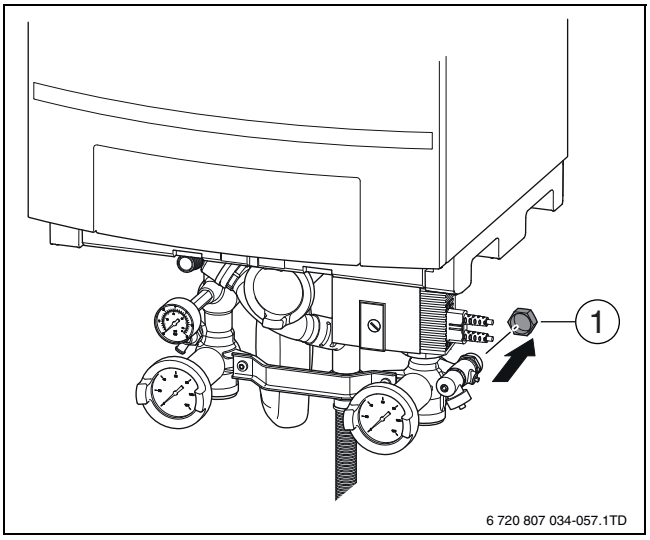


Fig. 21 Expansion vessel connection

5.15 Mounting the back panel insulation

▶ Hook back panel of the connection set into the wall mounted gas condensing boiler.

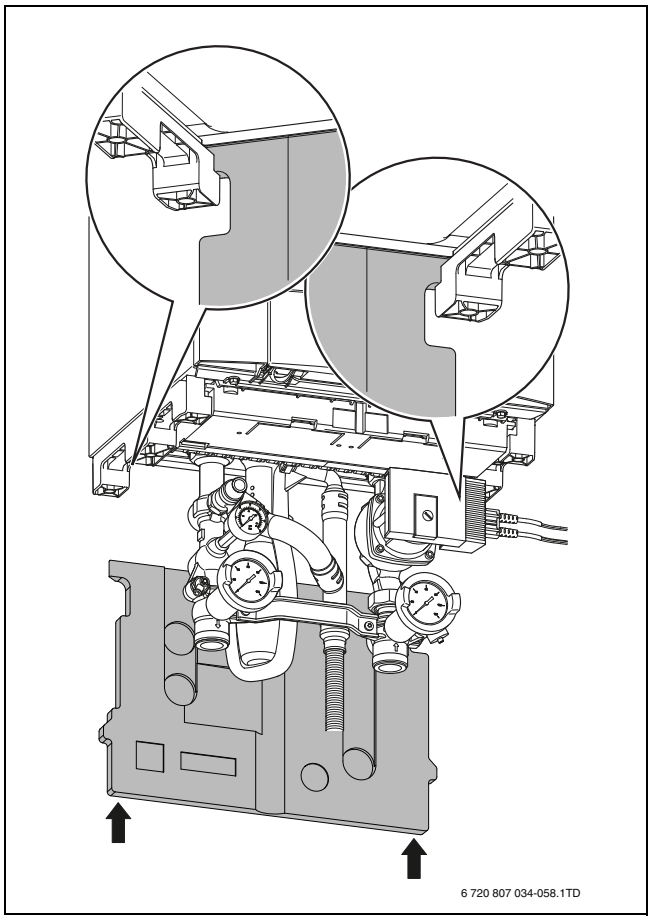


Fig. 22 Mounting the back panel (insulation)

5.16 Connection of air supply and flue system

The flue pipe documentation is included in the scope of delivery of the wall mounted gas condensing boiler.

▶ Read these instructions carefully before the installation.
▶ Connect the air supply and flue gas pipe according to the instructions for this flue gas routing accessory.

The flue gas connection on the top of the device is prepared for installation with a concentric pipe guide Ø 110/160.

You can use the document search on our website to display exhaust gas discharge 110/160 lengths. You will find the Internet address on the back of these instructions.

5.16.1 Flue terminal positions

NOTICE:

▶ Install a fire proof board if installing on combustible surfaces.
▶ The location of the flue terminal must comply with the clearances shown on this page. If you are unsure about clearances not indicated here, in general refer to AS5601 or your local authority. In Western Australia refer to SECWA rules and regulations.
▶ All measurements are the minimum clearances required,
▶ Terminals must be positioned to avoid combustion products entering the building.

The fixing method must be sufficient to hold the weight of the boiler.

▶ Use as a guide only. Refer to AS5601 or local gas fitting rules for specific locations.

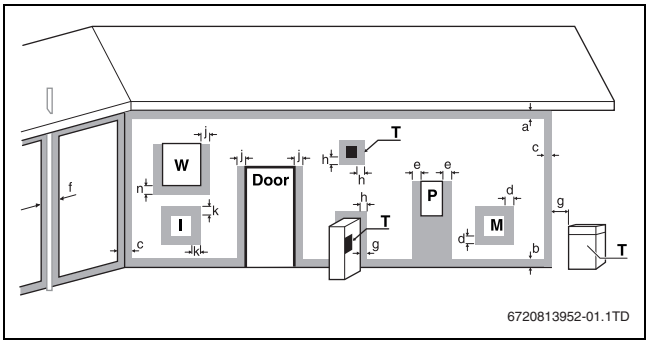


Fig. 23 Flue terminal positions

[I] Mechanic air inlet
[M] Gas meter
[P] Electricity meter or fuse box
[T] Flue terminal
[W] Window
[ ] Shaded area indicates prohibited area

Ref.	Item	Min. clearances [mm]
a	below eaves, balconies and other projections (appliances over 50 Mj/h)	300
b	From the ground, above a balcony or other surface	300
c	From a return wall or external corner	300
d	From a gas meter	1000
e	From an electricity meter or fuse box/breaker panel	500
f	From a drain pipe or soil pipe	75
g	Horizontally from any building structure or obstruction facing a flue terminal	500
h	From any other flue terminal, cowl or combustion air intake	300
j	Horizontally from any opening window, door, non-mechanical air inlet or other opening into a building with the exception of sub-floor ventilation	1500
k	From a mechanical air inlet including a spa blower	1000
n	Vertically below an opening window, non-mechanical air inlet or other opening into a building with the exception of sub-floor ventilation	1500

Table 7 Minimum clearances

6 Electrical connection

▶ When establishing the electrical connections, also observe the documentation and wiring diagram of the accessory being connected (→ chapter 2.13, page 8).

CAUTION: Risk of electric shock
- ▶ Always isolate the wall mounted gas condensing boiler from the power supply before working on the electrical parts.

NOTICE: Short circuit.
- ▶ Only use original cables if they must be replaced.

In order to commission and shut down the wall mounted gas condensing boiler, the mains plug and therefore the socket (230 V AC, 50 Hz) must be accessible at all times. The socket must be earthed (earthing contact).

Use a 2-wire power cable with 0.4 - 0.8 mm² cross-section for all 24 V AC connections on the terminal strip.

6.1 Control principle

The wall mounted gas condensing boiler is suitable for control according to the principles of room temperature-dependent and weather-dependent control.

- In the case of room temperature-dependent control, the user interface in 1 room controls the temperature required within it (room temperature-dependent controller). In order to control the temperature correctly, radiators must be equipped with manual radiator valves or the thermostatically controlled radiator valves must be fully open (→ figure 24).
- With weather-dependent control, the temperature in all rooms is controlled by thermostatically controlled valves mounted on the radiators. The controls can be installed in any location (→ figure 25).

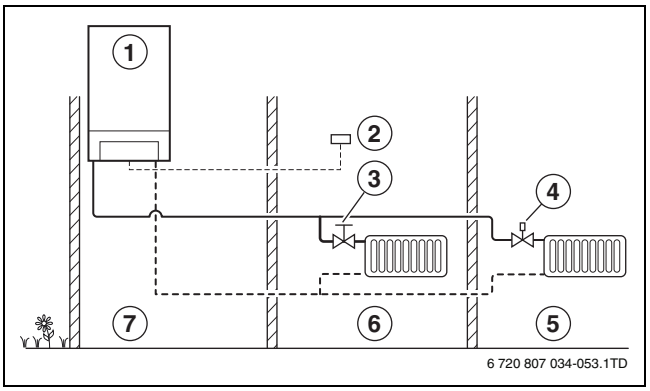


Fig. 24 Control principle of room temperature-dependent control

[1] Wall mounted gas condensing boiler
[2] Room temperature-dependent controller
[3] Radiator valve
[4] Thermostatically controlled radiator valve
[5] Other rooms
[6] Living space
[7] Installation location

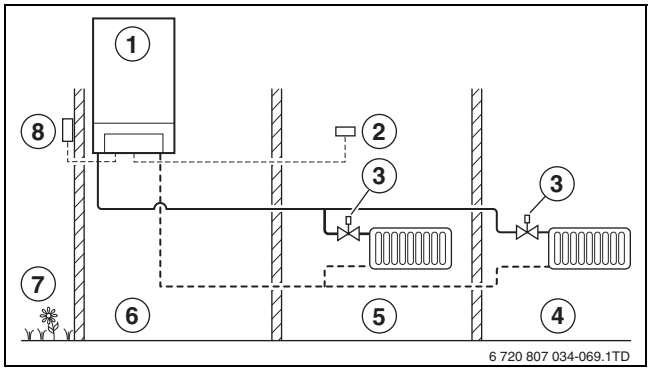


Fig. 25 Principle of weather-compensated control

[1] Wall mounted gas condensing boiler
[2] Room temperature-dependent controller
[3] Thermostatically controlled radiator valve
[4] Other rooms
[5] Living space
[6] Installation location
[7] External
[8] Outdoor temperature sensor

6.2 Connection of the control units

Electrical work must only be carried out by qualified electrical contractors.

The terminal strip is located behind the cover.

- ▶ Unscrew the control panel and hang on the frame.

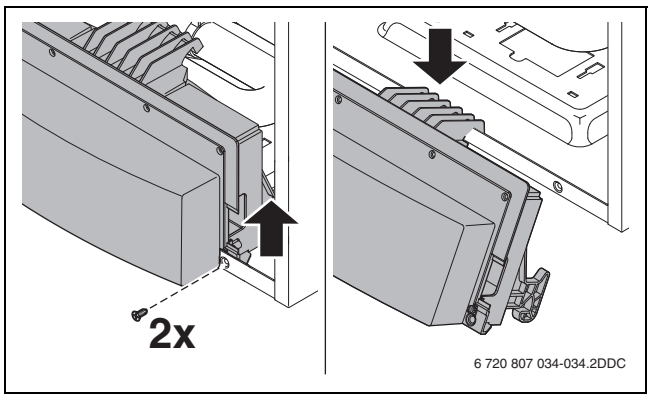


Fig. 26 Mounting the user interface

- ▶ Turn the locks a quarter turn then remove the cover.

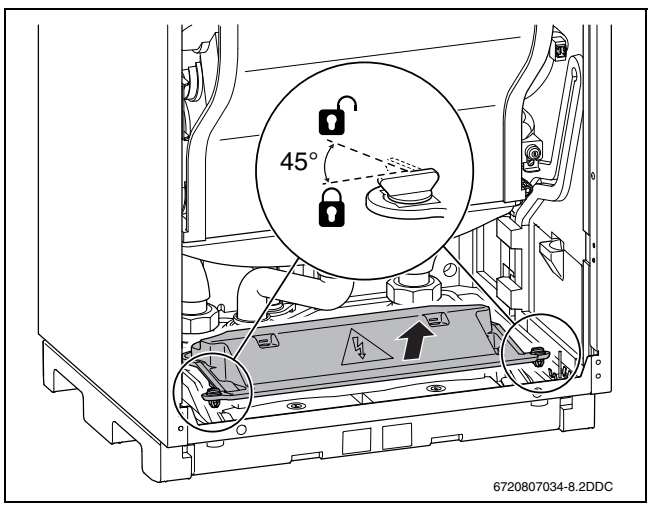


Fig. 27 Removing the cover

▶ Connect the components to the relevant plug.

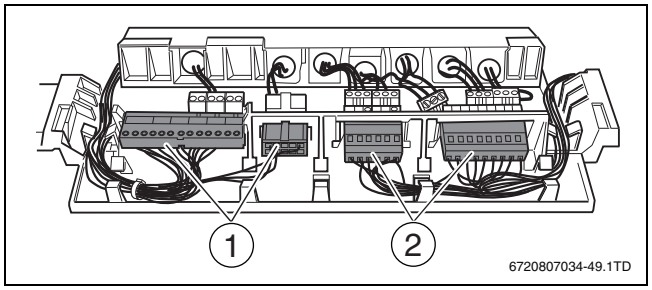


Fig. 28 Terminal strips

[1] 24 V AC terminal strip
[2] 230 V AC terminal strip

6.3 Installation of the strain relief

▶ Always pass the cable to be installed through a supplied strain relief mechanism before attaching it to a mains plug.
▶ Trim the grommet of the strain relief according to the dimension of the cable.
▶ Always pass the cable to be installed through a supplied strain relief mechanism.

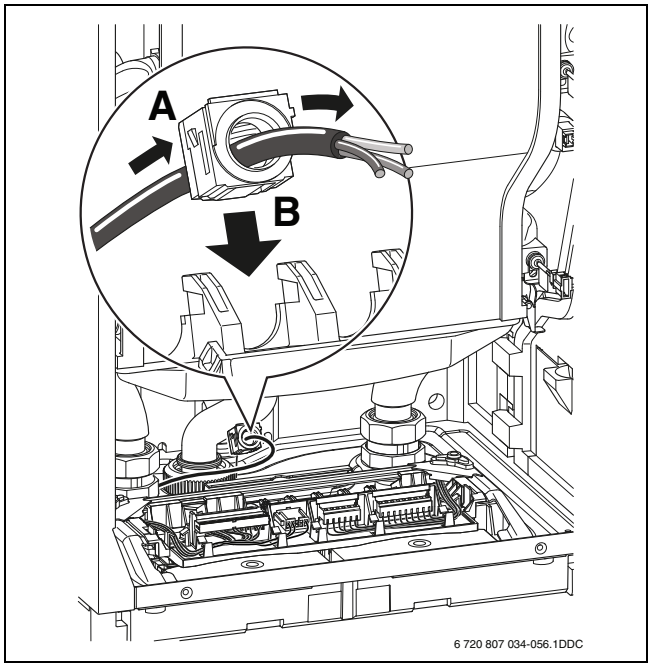


Fig. 29 Cable entry

▶ Fasten the corresponding plug to the cable.
▶ Plug the plug in at the terminal strip.

▶ Tighten the screw of the strain relief.

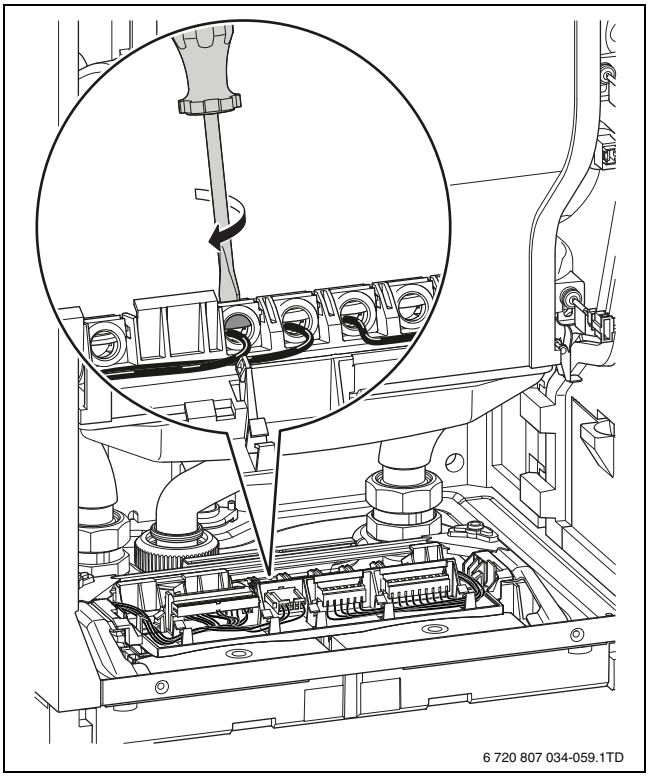


Fig. 30 Tightening the screw

6.4 Connecting the on/off room temperature-dependent control unit

All standard potential-free on/off room temperature-dependent control units without heat acceleration element (anticipation resistor) can be connected.

▶ Connect the on/off room temperature-dependent control unit via the green plug on the terminal strip [1]. The maximum permissible electrical resistance of this cable is 100 Ω.

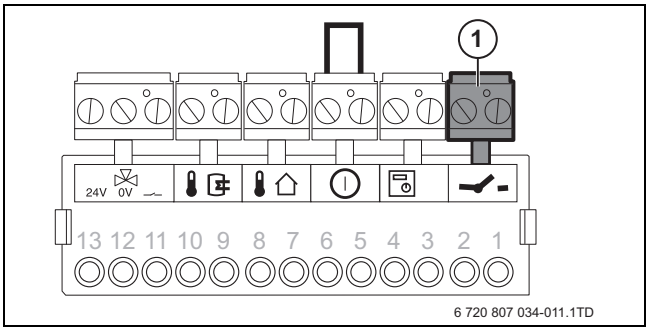


Fig. 31 Connecting the on/off room temperature-dependent control unit

6.5 Connecting the modulating controller

The following modulating controllers can be connected:

- Fx controller
- IGM, IPM

For more information on other controllers and modules that can be used, please consult the manufacturer. You will find the relevant addresses on the back cover of these instructions.

▶ Install the modulating controller as specified in the accompanying instructions.
▶ Connect the modulating controller via the orange plug on the terminal strip [1] (BUS cable).

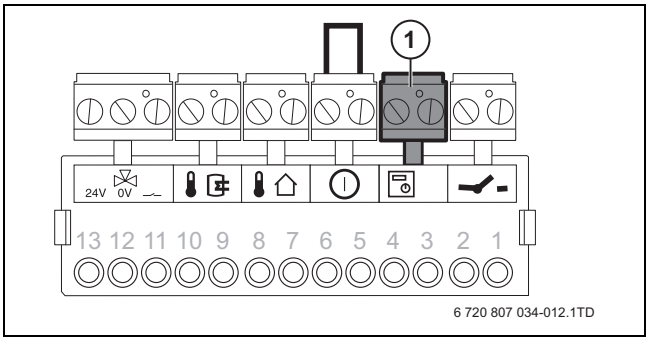


Fig. 32 Connection of the modulating controller

6.6 Connecting an external switching contact

An optional external switching contact can be used (to protect the underfloor heating system from excessive boiler temperatures for example). If the external switching contact opens, the wall mounted gas condensing boiler is switched off and the code “d3” appears in the display of the wall mounted gas condensing boiler.

All standard, potential-free switching contacts can be connected for use as external switching contact

- ▶ Remove the jumper of the red plug [1].
- ▶ Connect the external switching contact via the red plug on the terminal strip [1].

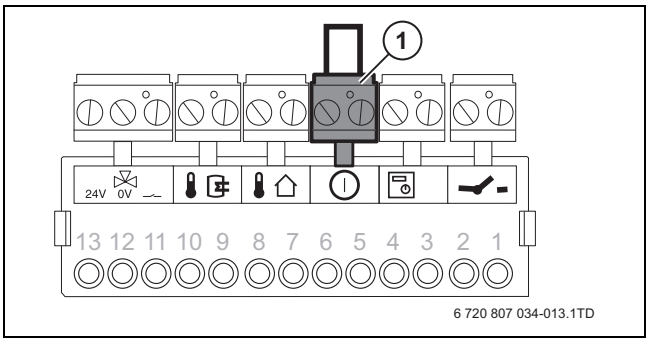


Fig. 33 Connection of an external switching contact

6.7 Connecting an outside temperature sensor (accessory)

Only one outside temperature sensor that can be combined with the connected controller can be used at the wall mounted gas condensing boiler.

- ▶ Connect the outside temperature sensor via the blue plug at the terminal strip [1].

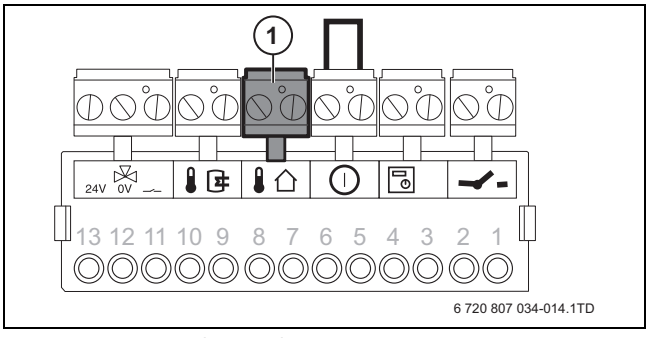


Fig. 34 Connecting the outside temperature sensor

6.8 Connecting a cylinder temperature sensor

Connection is not possible.

6.9 Connecting the 3-way valve

Connection is not possible.

6.10 Connecting the function module (accessory)

For the assembly and combination options of the function modules, refer to the relevant installation instructions for the function modules.

- ▶ Connect the BUS cable to the connection for the modulating controller (→ chapter 6.5).
- ▶ Connect the power supply of the function module to the service distributor [1]. Use the power cable supplied with the function module for this.

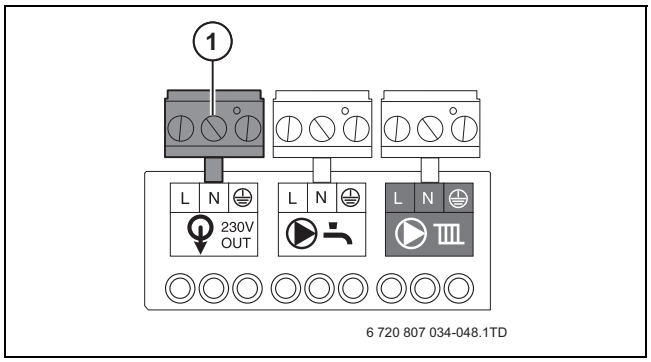


Fig. 35 Connecting the mains voltage

6.11 Connecting the cylinder primary pump

Connection is not possible.

6.12 Connecting the hot water circulation pump

Connection is not possible.

6.13 Connecting the pump

With connection set:

- ▶ Connect the control signal line of the pump to the white plug of the terminal strip [1].
- ▶ Remove the green plug [2] from the terminal strip.
- ▶ Connect the power cable of the pump to the terminal strip [2].
- ▶ Fasten both cables using the strain relief devices mounted beforehand on the cables.

Without connection set:

- ▶ Slide the strain relief (provided) over the power cable of the pump.
- ▶ Connect the power cable of the pump to the green plug of the terminal strip [2].

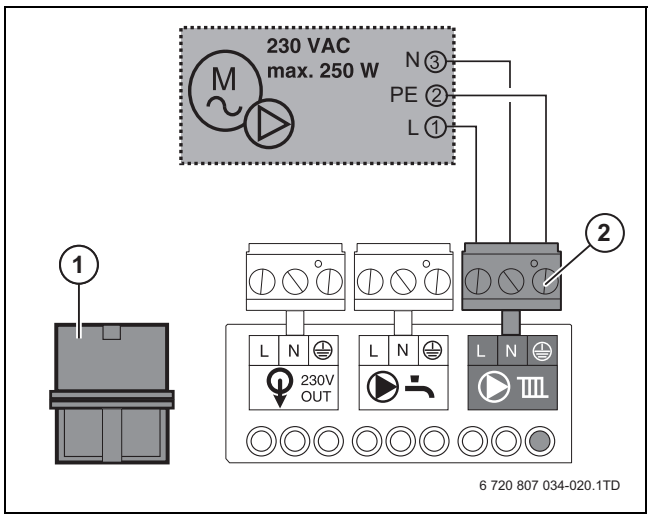


Fig. 36 Connection of pump

6.14 Fit mains plug (if not preassembled)

WARNING: Risk of electric shock.
- ▶ Before carrying out work on electrical components, disconnect the power supply (240 V AC) (fuse, circuit breaker) and secure against unintentional reconnection.

Observe the safety measures according to the relevant regulations and AS/NZS 3000. No other electrical consumer units may be connected to the same power cable.

▶ Fit mains plug to power cable of wall mounted gas condensing boiler.

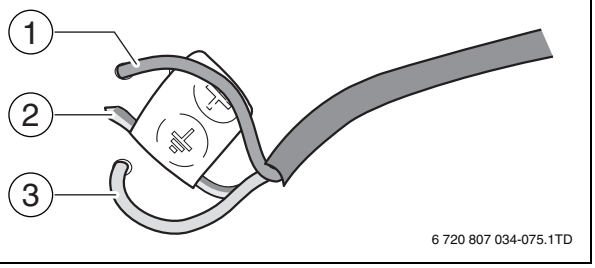


Fig. 37 Fitting the mains plug

[1] Neutral (blue)
[2] Earth (green/yellow)
[3] Phase (brown)

7 Operating the appliance

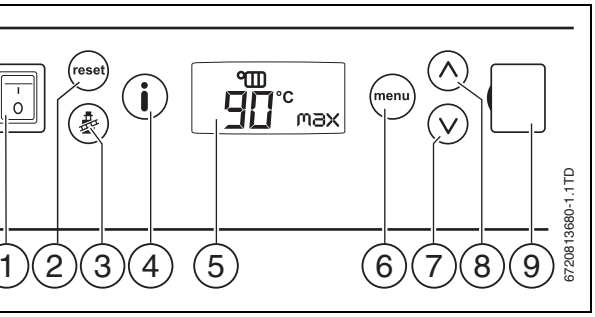


Fig. 38 Control panel

[1] ON/OFF switch
[2] “Reset” key
[3] “Emissions test” key
[4] “Help” key
[5] Display
[6] “Menu” key
[7] “Down” key
[8] “Up” key
[9] Diagnostic plug

The front of the wall mounted gas condensing boiler contains a control panel with the following elements:

ON/OFF switch
The wall mounted gas condensing boiler can be switched on or off via the ON/OFF switch. The power supply is not interrupted.

“reset” key
The wall mounted gas condensing boiler can be restarted via the key in the event of interlocking faults (→ Chapter 12.2 “Reset”).

“chimney sweep” key
The wall mounted gas condensing boiler can be brought into operation via key in order to carry out measurements.

“info” key
The status of the wall mounted gas condensing boiler can be read out via the key.

Display
Display values, settings and codes can be read off the display. If the wall mounted gas condensing boiler is switched on via the mains plug, all symbols appear briefly in the display.

Status display		
Display when the wall mounted gas condensing boiler is switched on (approx. 1 second)		
	20.0	Current flow temperature [°C]
	p2.0	Operating pressure [bar] (display flashes if the operating pressure is too low)
		Flue gas inspector mode (service operation)
		Burner in operation
		ON for central heating
		ON for DHW
		Pump ON
		Outside temperature display
	service	An interlocking fault has occurred or the wall mounted gas condensing boiler requires a service.

Table 8 Display indications in normal mode

“menu” key
To change the settings, you can open the setup menu via the key .

“down” and “up” keys
You can navigate round the various menus via the arrow keys. Press an arrow key to change a setting or value.

Diagnostic plug
An external diagnostic tool can be connected here.

7.1 Information menu

After a few minutes of inactivity, the menu closes automatically and the start screen is displayed.

Information on the status of the wall mounted gas condensing boiler can be read out via the information menu. Proceed as follows:
- ▶ Press key to open the information menu.
- ▶ Navigate round the menu with keys and in order to read out the required data.
- ▶ Press key to close the information menu.

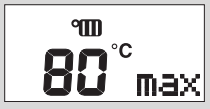
Information menu	
	The text “info” is displayed for 1 second.
	Maximum boiler temperature set [°C] during heating mode and flue gas inspector mode. “OFF” appears in the display when heating mode is switched off.

Table 9 Information menu

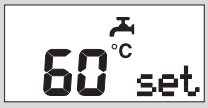
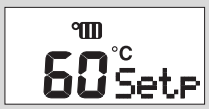
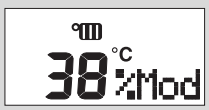
Information menu	
	No information about DHW mode is shown here.
	Display of service code. This information is only displayed if the wall mounted gas condensing boiler requires a service. For a comprehensive overview of the display codes and corresponding explanations see chapter 12.
	Displays an operating code or fault code. For a comprehensive overview of the display codes and corresponding explanations see chapter 12.
	Actual operating pressure [bar].
	Actual boiler temperature [°C].
	Outside temperature [°C]. Only displayed with weather-compensated control.
	Calculated boiler temperature (setpoint) [°C] during heating mode.
	Actual ionisation current [µA].
	Actual burner output [%] during heating mode.
	Actual pump speed [%].

Table 9 Information menu

7.2 Setup menu

The settings of the wall mounted gas condensing boiler can be read out and modified via the setup menu. Proceed as follows:

- ▶ Press key (menu) to open the setup menu.
- ▶ Navigate round the menu with keys ⋀ and ⋁.
- ▶ Press the (menu) key to access a setting. Once the setting flashes it can be modified.
- ▶ Change the setting via the keys ⋀ and ⋁.
- ▶ Press the (menu) key to save the setting. The setting no longer flashes.

The display values shown are the default settings.

Setup menu	
	The text “menu” is displayed for 1 second.
	Heating mode is switched on. Setting: On, Off.
	▶ Set the maximum boiler temperature based on the heating system type. Adjustment range: 30 - 90 °C. Examples of settings: • 40 °C underfloor heating system • 75 - 85 °C radiators • 85 - 90 °C convectors
	▶ Set the maximum output of the heating system. The output is displayed in % when modifying the setting. Adjustment range: 0 - 100%.
	No information about DHW mode is shown here.
	▶ Change the minimum pump speed if required. Adjustment range: 30 % - max. (setting max. parameter). ▶ Increase the minimum pump speed if parts of the heating system do not become hot enough.
	▶ Change the maximum pump speed if required. Adjustment range min. (setting min. parameter): • Type 70 - 65% • Type 100 - 83% ▶ Reduce the maximum pump speed if aggravating flow noises can be heard.
	Run-on time of the pump following expiry of heating mode [Min]. Adjustment range: 1 - 60 min./24 hours.

Table 10 Setup menu

7.3 Flue gas inspector mode

DHW mode is not possible in flue gas inspector mode. Flue gas inspector mode terminates automatically after 30 minutes. Settings that have been changed in flue gas inspector mode are cancelled.

You can put the wall mounted gas condensing boiler into heating mode when in flue gas inspector mode in order to carry out measurements.

- ▶ Make sure that the wall mounted gas condensing boiler can release its heat.
- ▶ Press key (🧹) for 5 seconds to activate flue gas inspector mode. The gas inspector symbol [1] appears in the display. Flue gas inspector mode now remains active with 100% output for 30 minutes.
- ▶ Set the required output (in %) [3] via the keys ⋀ and ⋁.
- ▶ Perform the required measurement.

▶ Hold down ⓘ to switch off the flue gas inspector mode.

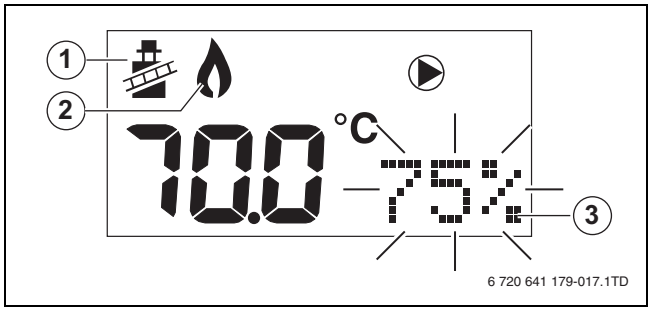


Fig. 39 Display in flue gas inspector mode

7.4 "Fault history" menu

This menu shows the last 3 interlocking fault displays in the form of fault codes.

▶ Hold down ⓘ for 5 seconds to open the "Fault history" menu.
▶ Press ⌃ or ⌄ to display the last 3 fault messages. The fault displays are chronologically identified with "Log1" to "Log3". For further details on the meaning of fault codes see chapter 12).
▶ Press ⓘ to exit the "Fault history" menu and return to the start screen.

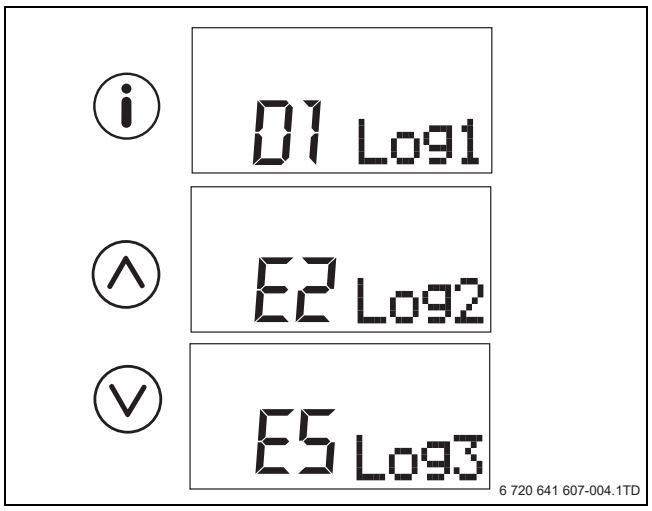


Fig. 40 Fault history

7.5 Key lock

The setup menu can be locked to prevent the settings from being changed by unauthorised personnel. Proceed as follows:

Activation

▶ Press the ⌃ and ⌄ keys simultaneously for 5 seconds,
▶ The word "Lock" is displayed for 5 seconds (→ figure 41). The information menu remains readable.

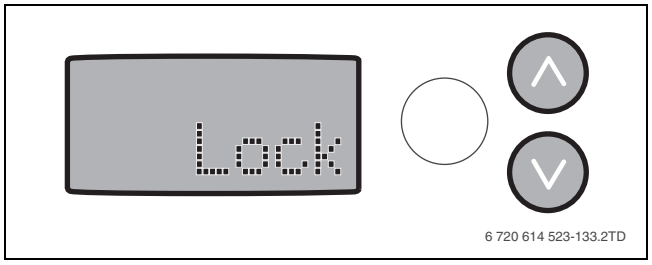


Fig. 41 Display - Lock

Disable

▶ Press the L and Reset keys again simultaneously for 5 seconds to remove the key block; the word "Lock" disappears.

8 Commissioning

WARNING: Gas explosion.
▶ Check for gas tightness after carrying out work on gas-carrying components.

▶ Complete the commissioning report during the commissioning procedure (→ Chapter 8.15, page).

8.1 Filling the heating system

NOTICE: Boiler damage.
▶ Take the water quality into account when filling the heating system (→ Chapter 5.2).

The target charge pressure of the heating system depends (among other things) on the:
▶ location of the wall mounted gas condensing boiler
▶ opening pressure of the safety valve
▶ inlet pressure of the expansion vessel
▶ Take the above points (factors) into account when filling the heating system.

During initial commissioning, the wall mounted gas condensing boiler is brought into operation as soon as the operating pressure exceeds 0.8 bar.
If the pressure drops to below 0.2 bar, the wall mounted gas condensing boiler will not subsequently go into operation.

▶ Open all radiator valves.
▶ Unscrew the cap of the automatic air vent valve (→ Chapter 2.12, figure 4) on the top of the heat exchanger on the left.
▶ Open the service valves (→ Chapter 2.12, figure 4).
▶ Fill the heating system via the DFV.
▶ Fill the heating system to a minimum pressure of 3 bar and close the filling valve.
▶ Bleed radiators.
▶ Fill the heating system again to a minimum pressure of 3 bar.
▶ Insert mains plug into an earthed electrical socket.
▶ Open gas isolation valve.
▶ Bring wall mounted gas condensing boiler into operation.

8.2 Purging the gas line

▶ Vent the gas line.

8.3 Inspecting the flue system

WARNING: flue gas poisoning.
▶ Check for leaks before working on gas-carrying components.

▶ Check whether the wall mounted gas condensing boiler is connected to a flue system as specified in the flue pipe documentation provided.

8.4 Adjusting the output

The output of the wall mounted gas condensing boiler can be adapted to the heat energy demand via the setup menu. Proceed as follows:

▶ Adjusting the output via the setup menu (→ Chapter 7.2). Observe the following table when making the adjustment.

Display	Device type	
[%]	Type 70	Type 100
L20	14.3	20.8
L25	17.8	25.7
L30	21.2	30.6
L35	24.7	35.6
L40	28.1	40.5
L45	31.6	45.4
L50	35.0	50.3
L55	38.5	55.2
L60	41.9	60.2
L65	45.4	65.1
L70	48.8	70.0
L75	52.3	74.9
L80	55.7	79.8
L85	59.2	84.7
L90	62.6	89.7
L95	66.5	94.6
L – –	69.5	99.5

Table 11 Output as a percentage [kW]

8.5 Setting the maximum boiler temperature

- Adjust the maximum set flow temperature in the setup menu (→ Chapter 7.2).

8.6 Adjusting the pump connection set

In order for the heating system to function correctly the pump must be controlled by the burner control unit. To do so, the pump setting must be set to the medium level.

- Set the pump via the red knob on the front to medium level, “Ext. in”.
- Adjust the pump run-on time in the setup menu (→ Chapter 7.2).

8.7 Testing the gas supply pressure

Measure the gas supply pressure when the burner is in operation at full load. Proceed as follows:

- Take the wall mounted gas condensing boiler out of operation.
- Remove the casing.
- Close gas isolation valve.
- Make sure the heating system can release its heat.
- Undo the test nipple for the gas supply pressure [1] by turning it through 2 revolutions.

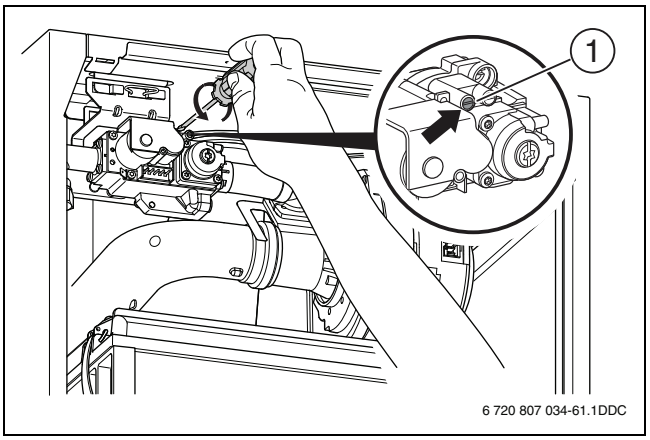


Fig. 42 Open the burner pressure nipple at the type 70

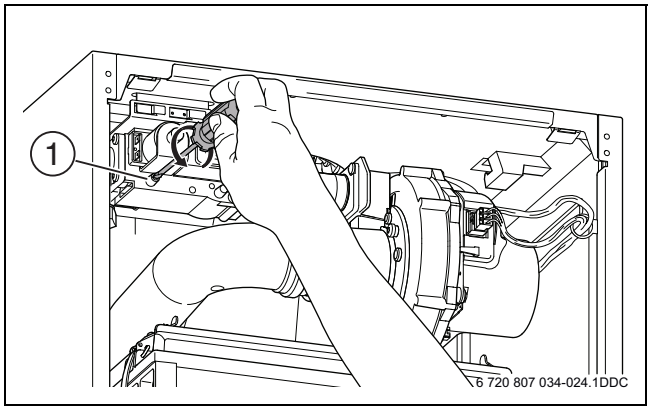


Fig. 43 Open the burner pressure nipple at the type 100

- Set the pressure gauge to “0”.
- Connect test hose to the plus connector of pressure gauge and the test nipple for the gas supply pressure [1].

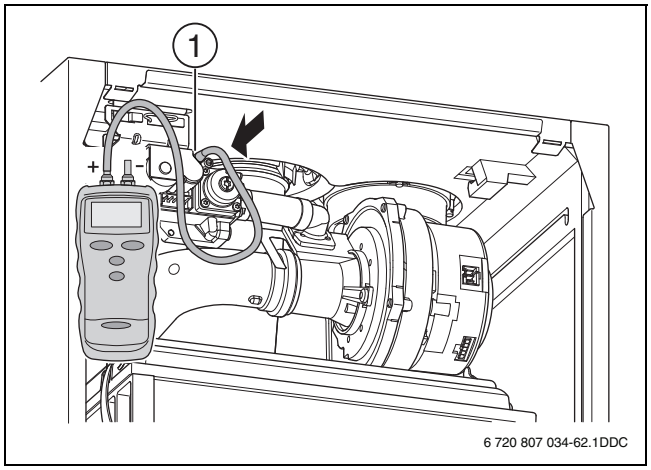


Fig. 44 Connecting the pressure gauge at type 70

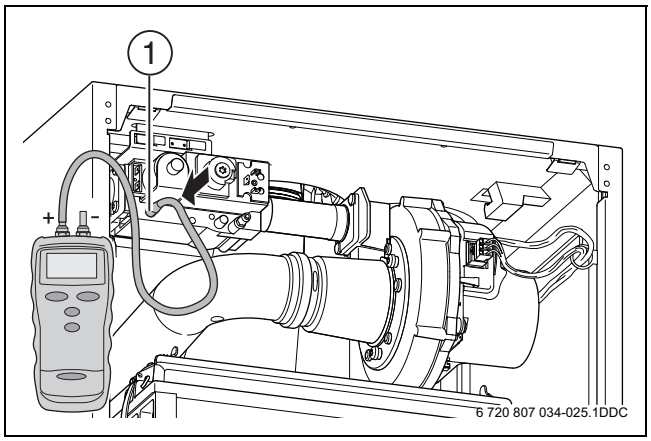


Fig. 45 Connecting the pressure gauge at type 100

- Open gas isolation valve.
- Bring wall mounted gas condensing boiler into operation.
- Make sure that the wall mounted gas condensing boiler can release its heat.
- Start the flue gas inspector mode (→ Chapter 7.3).
- Set the output to 100%.
- Measure the gas supply pressure.
- Enter value in maintenance protocol.
- Check that the measured value is not less than the permissible value (→ tab. 3, page 10).

Never commission the appliance above or below these values. The cause must be established without fail and the fault rectified. If this is not possible, shut off the gas supply and contact the gas supplier.

- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Close gas isolation valve.
- ▶ Remove the pressure gauge.
- ▶ Close test nipple for gas supply pressure.
- ▶ Open gas isolation valve.
- ▶ Bring wall mounted gas condensing boiler into operation.
- ▶ Check gas tightness of wall mounted gas condensing boiler.

8.8 Measure gas/air ratio

NOTICE: Damage to wall mounted gas condensing boiler due to incorrect setting.
The gas valve is exceptionally reliable and therefore requires no adjustment:

- ▶ Only the gas/air ratio may be measured.
- ▶ If the measurement is out of spec, the gas valve must be replaced.

- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Close gas isolation valve.
- ▶ Undo the nozzle pressure test nipple [1] by turning it through 2 revolutions.

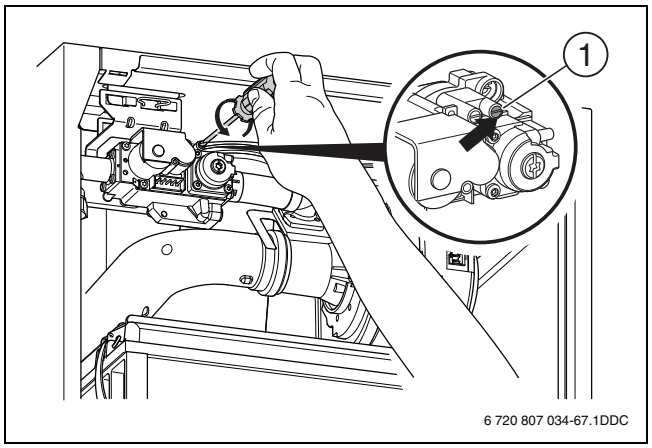


Fig. 46 Open the burner pressure nipple at the type 70

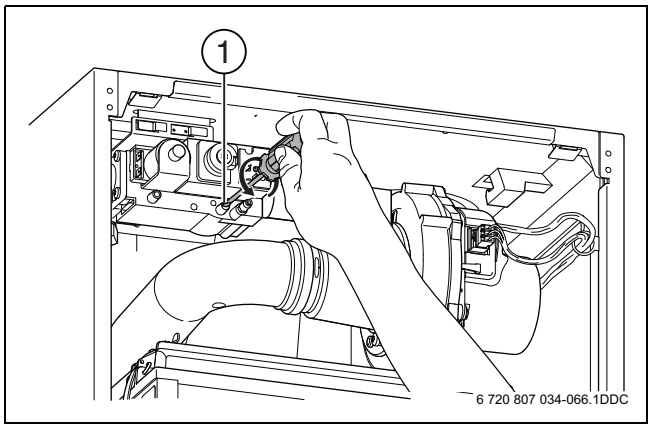


Fig. 47 Open the burner pressure nipple at the type 100

- ▶ Connect pressure gauge.
- ▶ Set pressure gauge to “0”.
  Hold the pressure gauge at the same height when the measurement is in progress.
- ▶ Open gas isolation valve.
- ▶ Bring wall mounted gas condensing boiler into operation.
- ▶ Make sure that the wall mounted gas condensing boiler can release its heat.
- ▶ Start the flue gas inspector mode (→ Chapter 7.3).
- ▶ Set the smallest possible output value (partial load).
- ▶ Measure gas/air ratio

This differential pressure must be between -10 and 0 Pa (-0.10 and 0.00 mbar) with partial load. If not, the gas valve must be replaced.

- ▶ Enter the measurement in the maintenance protocol (→ Chapter 11.15, page 32).
- ▶ Exit flue gas inspector mode.
- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Close gas isolation valve.
- ▶ Remove the pressure gauge.
- ▶ Close test nipple.
- ▶ Open gas isolation valve.
- ▶ Bring wall mounted gas condensing boiler into operation.

8.9 Measure the CO and CO_2 content

Assuming combustion with excess air, the CO content of the flue gas must be less than 400 ppm, or 0.04 % by volume. If the CO content is roughly 400 ppm or higher, the cause, which is most likely to be related to soiling of the burner, a defect in the burner or recirculation of the flue gases, must be found.

- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Remove the cap of the flue gas testing point [1].

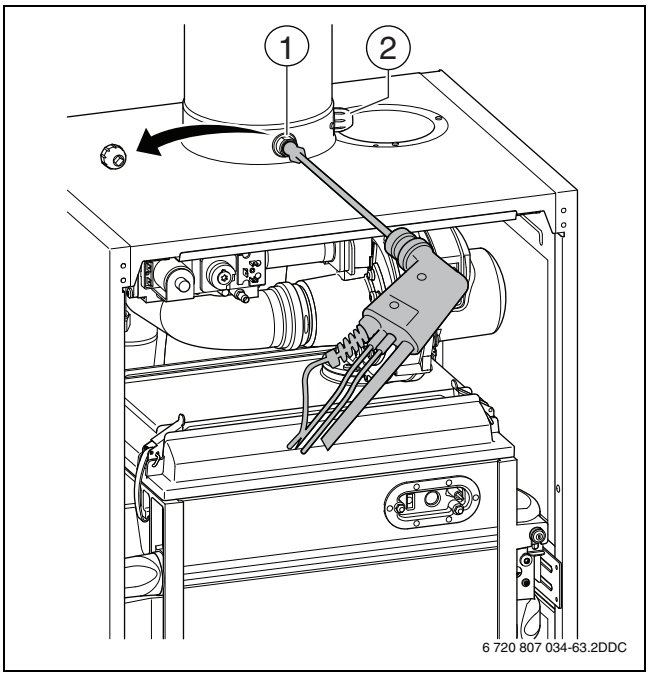


Fig. 48 Removing the cap of the flue gas testing point.

[1] Flue gas testing point
[2] Air supply testing point

- ▶ Connect the flue gas analyser to the test point.
- ▶ Bring wall mounted gas condensing boiler into operation.
- ▶ Make sure that the wall mounted gas condensing boiler can release its heat.
- ▶ Start the flue gas inspector mode (→ Chapter 7.3).
- ▶ Measure the CO content.
- ▶ Establish and eliminate the cause of a possible high CO content.
- ▶ Enter the CO content in the maintenance protocol (→ Chapter 11.15).

- ▶ Set the output to 100%.
- ▶ Measure the CO_2 content.
- ▶ Enter the CO_2 content in the maintenance protocol (→ Chapter 11.15).
- ▶ Set partial load output.
- ▶ Measure the CO_2 content.
- ▶ Enter the CO_2 content in the maintenance protocol (→ Chapter 11.15).
- ▶ Switch off flue gas inspector mode.
- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Remove flue gas analyser.
- ▶ Mount the cap of the flue gas testing point.
- ▶ Bring wall mounted gas condensing boiler into operation.

8.10 Measure ionisation current

- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Pull off the plug of the ionisation cable.
- ▶ Connect the multi-meter on both sides of the plug-in connector (in series).

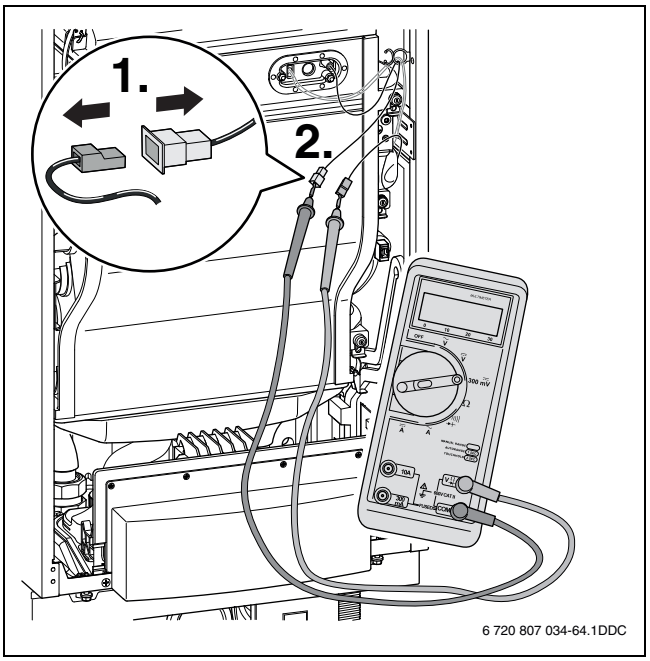


Fig. 49 Connecting the multi-meter

- ▶ Set the measuring range µA at the multi-meter.
- ▶ Bring wall mounted gas condensing boiler into operation.
- ▶ Make sure that the wall mounted gas condensing boiler can release its heat.
- ▶ Start the flue gas inspector mode (→ Chapter 7.3).
- ▶ Set the smallest possible output value (partial load).
- ▶ Measure the ionisation current.

The ionisation current must be at least 3 µA.

- ▶ If the value is lower, check the gas/air ratio and the monitoring electrode.

- ▶ Enter the value in the maintenance protocol (→ Chapter 11.15).
- ▶ Switch off flue gas inspector mode.
- ▶ Take the wall mounted gas condensing boiler out of operation.
- ▶ Remove the multi-meter.
- ▶ Push on the plug of the ionisation cable.
- ▶ Bring wall mounted gas condensing boiler into operation.

8.11 Testing for gas leaks

NOTICE: Damage to wall mounted gas condensing boiler due to short-circuit.

- ▶ When using leak detection spray, cover the plug and cables.

- ▶ Start the flue gas inspector mode (→ Chapter 7.3).
- ▶ As soon as the burner is on, check all gas-carrying components using an approved gas leak detection spray.
- ▶ Check rubber gasket [1] at the ignition unit and the monitoring electrode for tightness.

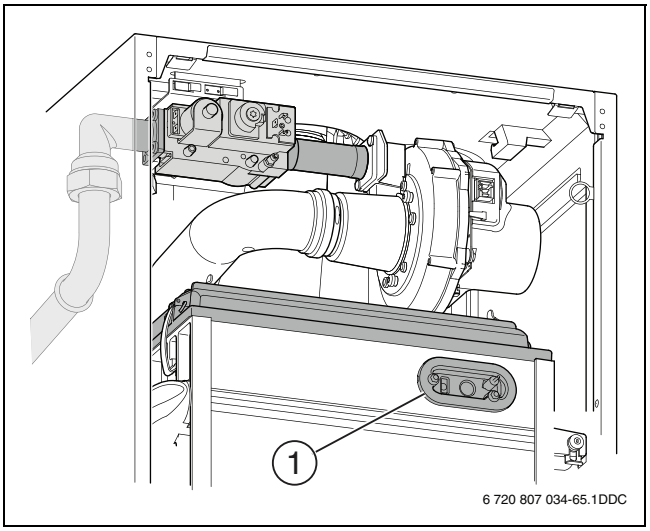


Fig. 50 Inspecting the gas path

- ▶ Determine the cause of a possible leak.
- ▶ Exit flue gas inspector mode.

8.12 Check the operating characteristics of the wall mounted gas condensing boiler

- ▶ Freeze the connected control and check whether the wall mounted gas condensing boiler starts burning after several minutes to support the boiler operation.
- ▶ If applicable: open a DHW tap and check the DHW temperature and DHW volume.

8.13 Final steps

- ▶ Fitting the casing.
- ▶ Complete the commissioning report.

8.14 Inform the user

- ▶ Familiarise the user with the heating system and operation of the wall mounted gas condensing boiler.
- ▶ Explain to the user how the heating system must be filled.
- ▶ Point out to the user that he must not carry out conversions, repairs or maintenance himself.
- ▶ Fill out the commissioning report to confirm commissioning (→ Chapter 8.15).
- ▶ Hand the technical documentation to the user.

8.15 Commissioning report

▶ Sign all completed commissioning work and enter the date.

Commissioning steps		Page	Measured values	Remarks
1.	Filling and venting the heating system. • Expansion vessel pre-charge pressure(observe the installation instructions for the expansion vessel) • Heating system fill pressure	22 8	☐ _____ bar _____ bar	
2.	Check gas type against the data plate.	9	☐	
3.	Vent the gas line.	22	☐	
4.	Check the combustion air/flue gas connection.	22	☐	
5.	Adjusting the wall mounted gas condensing boiler: • Adjust the output • Adjust the flow temperature • Setting pump run-on time	22 23 23	☐ ☐ ☐	
6.	Measure the gas supply pressure.	23	☐	
7.	Measure gas/air ratio	24	☐	
8.	Measure the CO_2 content.	24	☐	
9.	Check the gas tightness.	25	☐	
10.	Check the flue gas tightness.	25	☐	
11.	Check the function of the wall mounted gas condensing boiler.	25	☐	
12.	Fitting the casing.	25	☐	
13.	Instruct the user, hand over technical documentation.	25	☐	
	Confirm professional commissioning:		Company stamp/ signature/date	

Table 12 Commissioning report

9 Shutdown

9.1 Standard shutdown

▶ Take the wall mounted gas condensing boiler out of operation via the ON/OFF switch.
▶ Close gas isolation valve.
▶ Close the service valves.

9.2 Shutting down when there is a risk of frost

If the wall mounted gas condensing boiler stays on:

▶ Set the pump overrun time to 24 hours (→ Chapter 7.2 “Setup menu”).
▶ Make sure that a sufficient flow is possible at all radiators.

If the wall mounted gas condensing boiler is switched off:

▶ Take the wall mounted gas condensing boiler out of operation via the ON/OFF switch.
▶ Close gas isolation valve.
▶ Drain the entire heating system.
▶ If installed, drain the entire potable water system.

10 Environmental protection

Environmental protection is one of the principal policies for Bosch. We regard quality of performance, economy and environmental protection as equal objectives. Environmental protection laws and regulations are strictly adhered to.
To protect the environment, we use the best possible technology and materials taking into account economic points of view.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling.
All packaging materials are environmentally compatible and can be recycled.

Used appliances

Old appliances contain materials that should be recycled. The assemblies are easily separated and the types of plastic are clearly marked. In this way the individual assemblies can be easily sorted and directed to recycling or disposal.

11 Inspection and servicing

To safeguard the efficiency of the wall mounted gas condensing boiler and avoid possible technical problems, the wall mounted gas condensing boiler must be inspected and serviced at least once a year.

WARNING: Gas explosion.
▶ Turn off gas valve before working on gas-carrying components.
▶ Check for leaks before working on gas-carrying components.

WARNING: flue gas poisoning.
▶ Check for leaks before working on gas-carrying components.

CAUTION: Risk of electric shock
▶ When performing measurements and adjustments at the wall mounted gas condensing boiler, never touch the burner control unit, fan or pump. These are 230 V parts.
▶ Always isolate the wall mounted gas condensing boiler from the power supply before working on the electrical parts.

CAUTION: Malfunctioning safety sensors
The function of the safety sensors in the installation room (such as CO, CO2, and gas detectors) must be regularly checked.
▶ Check the function of relevant safety sensors during inspection or maintenance.
▶ You can read about how to perform the check in the instructions for the safety sensor.
▶ Defects at relevant safety sensors must be rectified immediately.

11.1 Important information

You will need the following measuring devices and tools:

• Pressure gauge with a measurement accuracy of 0.01 mbar.

▶ Use only original spare parts.

▶ When carrying out the work, check all removed gaskets for damage, deformation or ageing and replace if necessary.

11.2 Remove the gas-air unit

▶ Remove the mains plug and control signal to the fan.

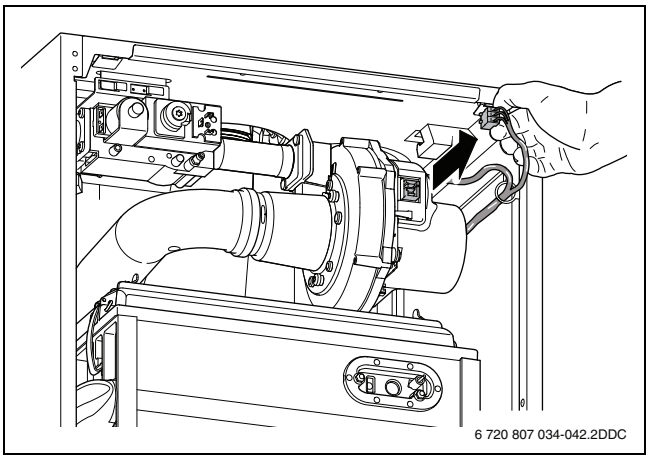


Fig. 51 Removing the mains plug of the fan

▶ Remove the gas supply pipe.

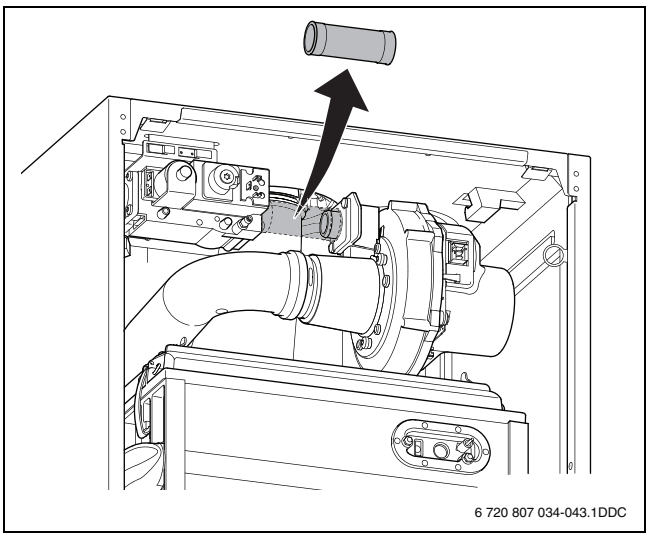


Fig. 52 Removing the gas supply pipe

▶ Remove the air intake pipe from the fan.

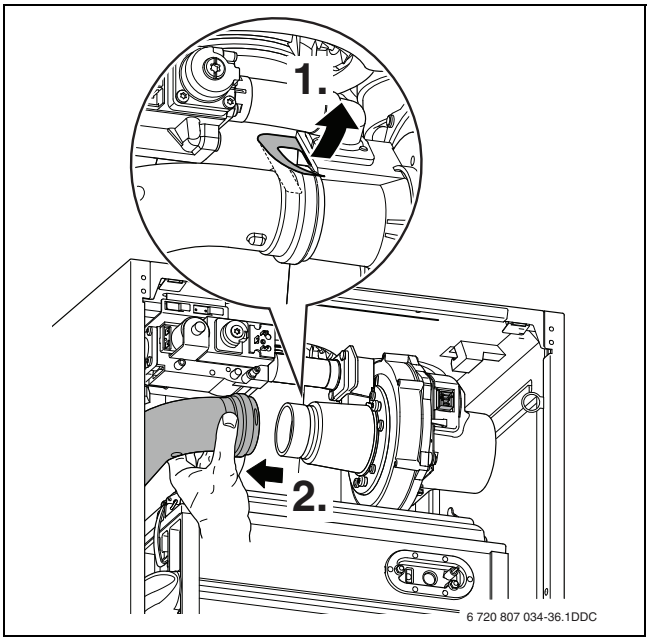


Fig. 53 Detaching the air intake pipe (Detail: Type 70)

▶ 4 Release the snap fasteners of the burner cover.
The snap fasteners are under tension.

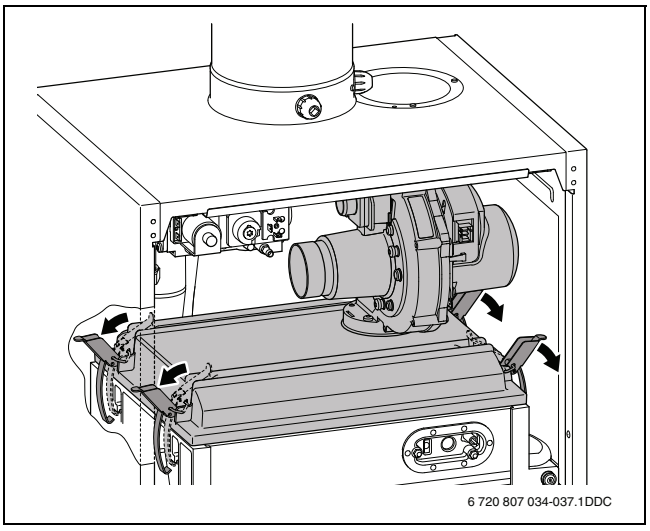


Fig. 54 Opening the snap fasteners

▶ Remove the gas-air unit together with the burner cover.

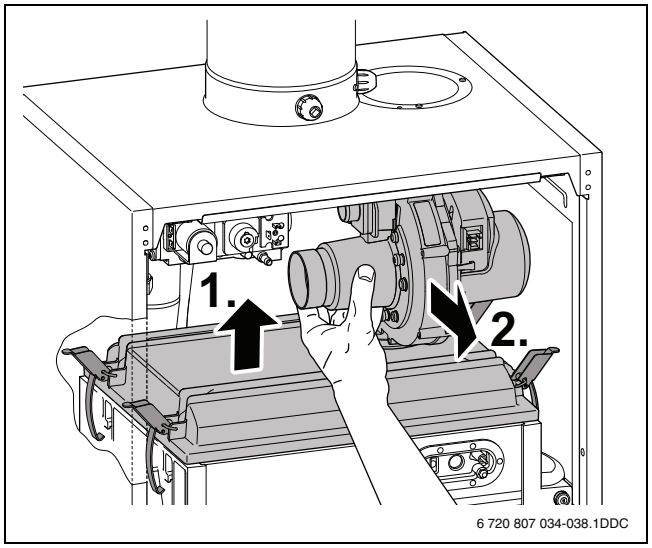


Fig. 55 Remove the gas-air unit together with the burner cover.

11.3 To clean the burner

▶ Remove the burner gasket and replace if necessary.

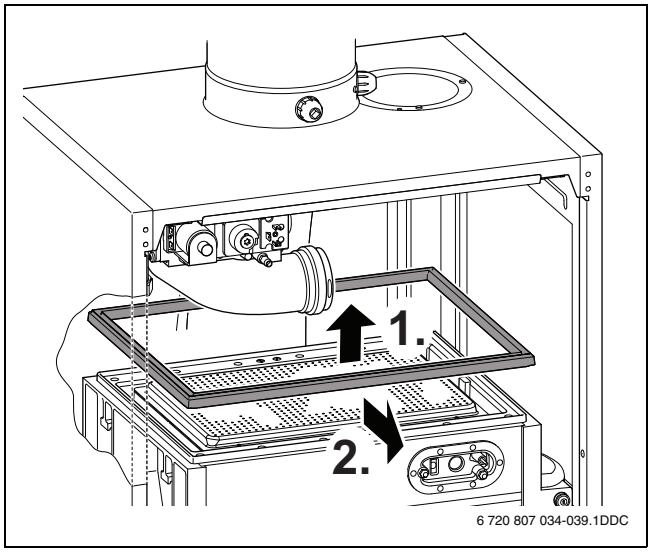


Fig. 56 Removing the burner gasket

▶ Take off the burner.

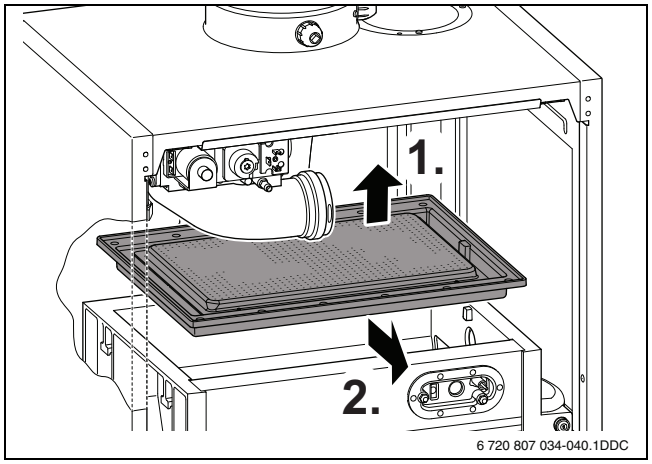


Fig. 57 Removing the burner

▶ Check the burner and gas distributor plate for soiling and cracking.
▶ Clean the burner with compressed air or a soft brush if necessary.

11.4 Cleaning the heat exchanger

NOTICE: Damage to wall mounted gas condensing boiler.
▶ The heat exchanger has been coated. This coating must not be damaged.
▶ Steel brushes, abrasives or similar must therefore not be used when cleaning the various components.

▶ Cover the ignition device.
▶ Clean the heat exchanger.
▶ Rinse the heat exchanger with water if necessary.
▶ In the case of extreme contamination, clean the heat exchanger with TAB2.

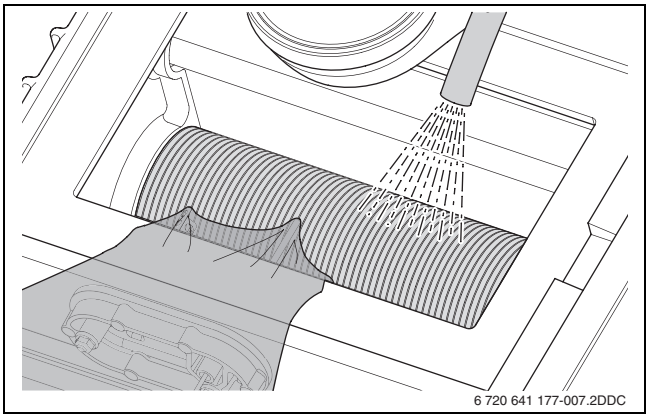


Fig. 58 Cleaning the heat exchanger

11.5 Checking the ignition system

NOTICE: Damage to the hot surface igniter.
The glow ignitor unit is made of breakable material.
▶ Handle with care.

NOTICE: Damage to appliance.
Since the effectiveness of the gaskets in the ignition device is reduced, the wall mounted gas condensing boiler may be damaged.
▶ Replace the gasket (→ figure 60, [3]) and cover plate with gasket (→ figure 60, [4]) every 4 years.

▶ Check the ignition device for wear, damage and soiling.

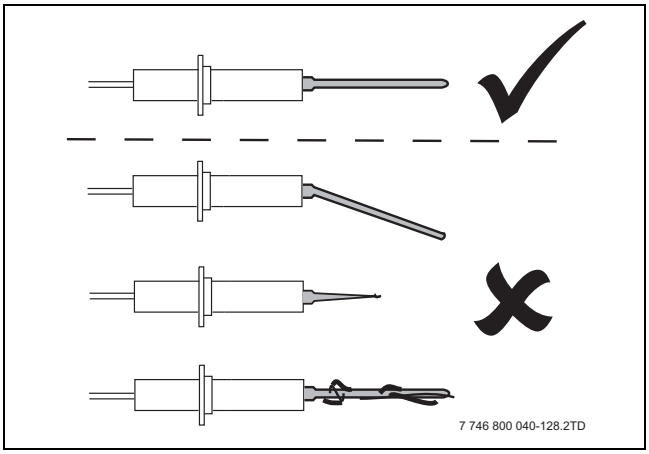


Fig. 59 Checking the monitoring electrode

▶ When replacing the monitoring electrode or glow ignitor unit, fit a new cover plate with gasket [4] and gasket [3].

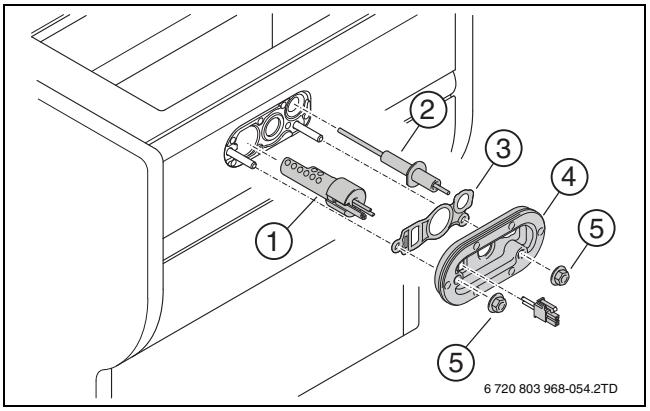


Fig. 60 Replacing the ignition device

[1] Hot surface igniter
[2] Flame sense electrode
[3] Seal
[4] Cover plate with gasket
[5] Nut

▶ Insert the burner [1] with the notch pointing to the right [3].
▶ Align gasket [2] carefully on the burner.

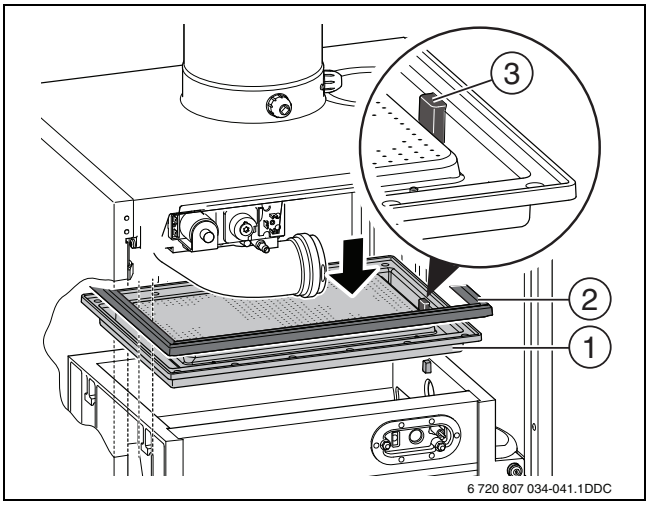


Fig. 61 Inserting the burner with gasket

[1] Burner
[2] Seal
[3] Notching

▶ Reinstall the burner cover with gas-air unit in reverse order.

11.6 Clean condensate trap/siphon

▶ Detach the flexible hose, and also the tee if necessary, from the condensate trap.
▶ Screw the swivel joint [1] completely into the wall mounted gas condensing boiler.
▶ Remove the condensate trap [2].

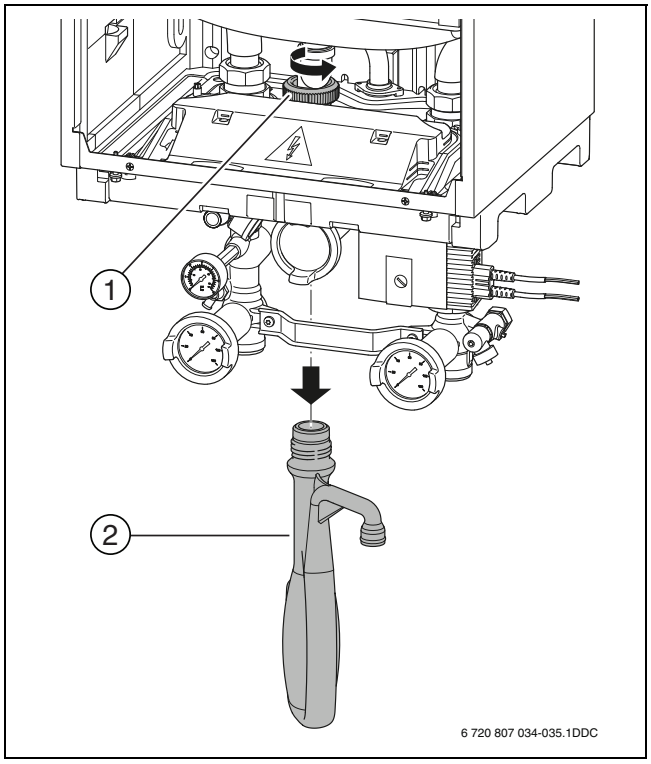


Fig. 62 Removing the condensate trap

[1] Swivel joint
[2] Condensate trap

▶ Flush out condensate trap.
▶ Fill the siphon completely with water.
▶ Reattach the siphon.
▶ Tighten the swivel joint hand-tight.

11.7 Cleaning the condensate pan

If the siphon is soiled, check and clean the condensation catch pan as necessary.

▶ Pull the condensate hose down and turn it towards the rear.

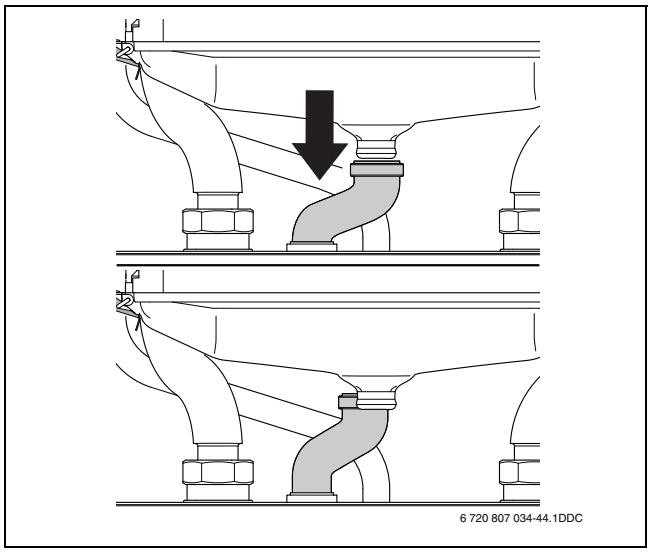


Fig. 63 Remove the condensate hose

▶ 2 Release snap fasteners.

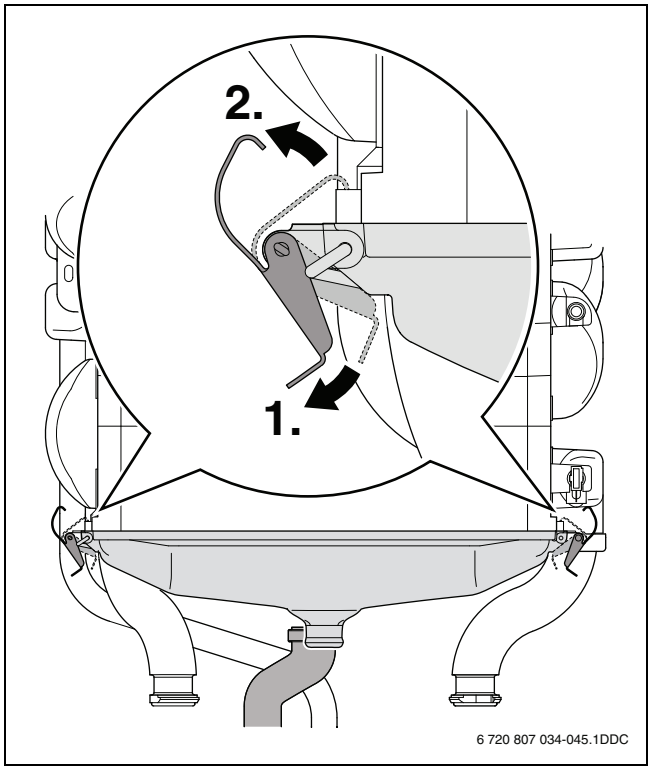


Fig. 64 Opening the snap fasteners of the condensation catch pan

▶ Remove condensate pan.

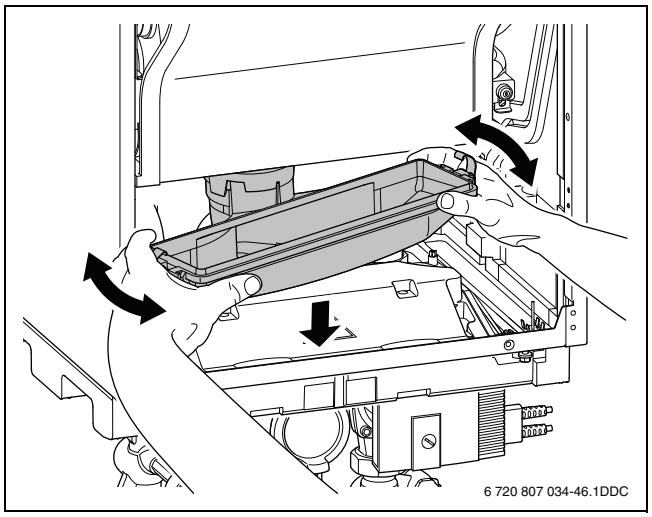


Fig. 65 Removing the condensate pan

▶ Clean the condensation catch pan.
▶ Check the gasket between the condensation catch pan and heat exchanger for damage and replace if necessary.
▶ Place condensation catch pan under the heat exchanger.
▶ Push condensation catch pan completely up to the heat exchanger.
▶ Close the snap fasteners.
▶ Reinsert all components in the reverse order.
▶ Bring wall mounted gas condensing boiler into operation.
▶ Check the various gaskets at the condensation catch pan during operation for flue gas and condensate leaks.

11.8 Testing the gas supply pressure

See chapter 8.7“Testing the gas supply pressure”.

11.9 Measure gas/air ratio

▶ Take the wall mounted gas condensing boiler out of operation.
▶ Close gas isolation valve.
▶ Undo the nozzle pressure test nipple [1] by turning it through 2 revolutions.

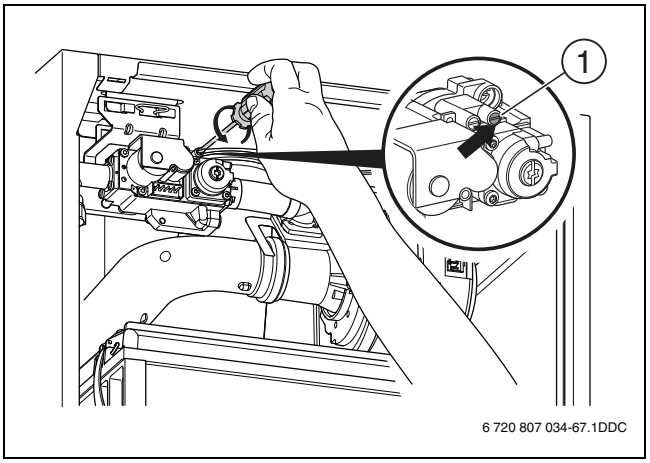


Fig. 66 Opening the burner pressure test nipple at Type 70

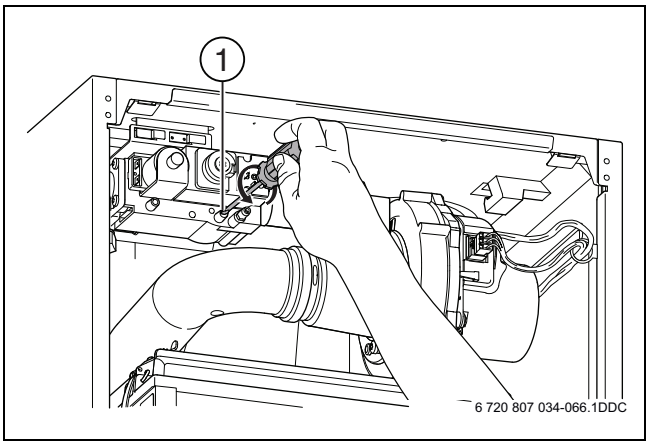


Fig. 67 Opening the burner pressure test nipple at Type 100

▶ Connect pressure gauge.
▶ Set pressure gauge to “0”.
Hold the pressure gauge at the same height when the measurement is in progress.
▶ Open gas isolation valve.
▶ Bring wall mounted gas condensing boiler into operation.
▶ Make sure that the wall mounted gas condensing boiler can release its heat.
▶ Start the flue gas inspector mode (→ Chapter 7.3).
▶ Set the smallest possible output value (partial load).
▶ Measure gas/air ratio

This differential pressure must be between -10 and 0 Pa (-0.10 and 0.00 mbar) with partial load. The nominal differential pressure is -5 Pa (-0.05 mbar).

▶ Remove the cap of the adjusting screw.

▶ Set the gas/air ratio to -5 Pa (-0.05 mbar).

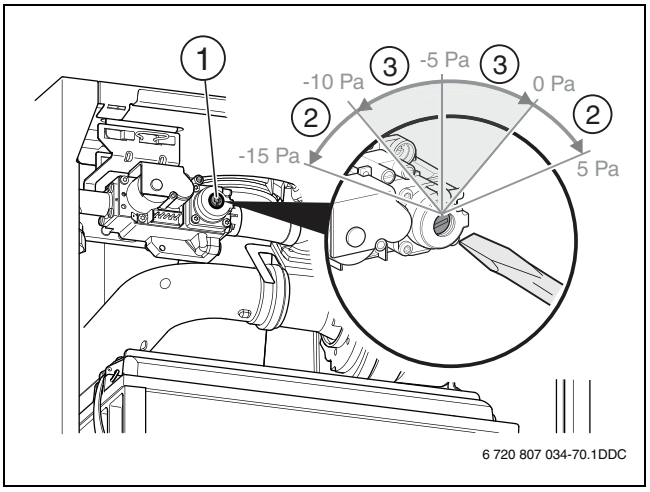


Fig. 68 Setting the gas/air ratio at the Type 70

[1] Cap
[2] Differential pressure incorrect
[3] Differential pressure correct

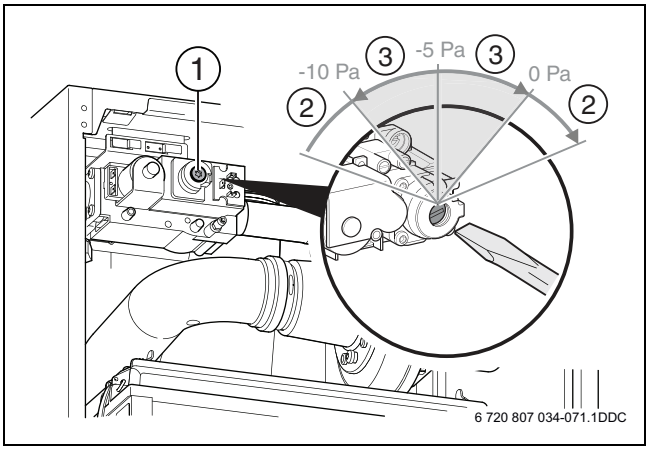


Fig. 69 Setting the gas/air ratio at the Type 100

[1] Cap
[2] Differential pressure incorrect
[3] Differential pressure correct

▶ Enter the measurement in the maintenance protocol (→ Chapter 11.15, page 32).
▶ Switch off flue gas inspector mode.
▶ Take the wall mounted gas condensing boiler out of operation.
▶ Close gas isolation valve.
▶ Remove the pressure gauge.
▶ Close test nipple.
▶ Mount the cap once again on the adjusting screw.
▶ Open gas isolation valve.
▶ Bring wall mounted gas condensing boiler into operation.

11.10 Measure CO/CO_2 content

See chapter 8.9 “Measure the CO and CO2 content”.

11.11 Check flue gas pressure-relief valve

If an overpressure cascade system has been fitted in the wall mounted gas condensing boiler, the flue gas pressure-relief valve must be checked.

▶ Open inspection aperture [1] of flue gas pressure-relief valve.
▶ Check flue gas pressure-relief valve [2] for wear, damage or soiling and replace if necessary.
▶ Close the inspection aperture of the flue gas pressure-relief valve.

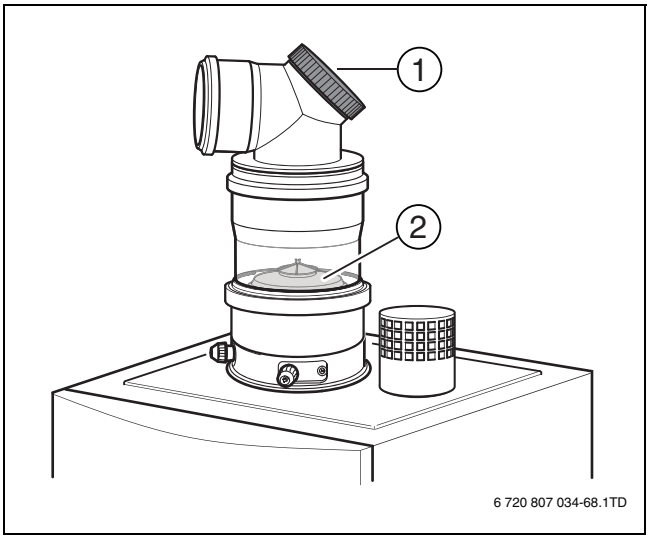


Fig. 70 Checking the flue gas pressure-relief valve

[1] inspection aperture
[2] Flue gas pressure-relief valve

11.12 Measure ionisation current

See chapter 8.10“Measure ionisation current”.

11.13 Testing for gas leaks

See chapter 8.11“Testing for gas leaks”.

11.14 Check for correct operating characteristics.

▶ Check all fittings for leaks.
▶ Check water pressure of wall mounted gas condensing boiler and top up if necessary.
In doing so, take the water quality into account (→ Chapter 5.2).
▶ Check the settings of the wall mounted gas condensing boiler (→ Chapter 7.2“Setup menu”).
▶ Close the casing and tighten the retaining screws.

11.15 Inspection and maintenance reports

	Inspection work	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____
1.	Check the general condition of the heating system.	☐	☐	☐	☐	☐	☐
2.	Carry out a visual inspection and function check of the heating system.	☐	☐	☐	☐	☐	☐
3.	Check the system components in contact with gas and water for the following: • Tightness during operation • visible signs of corrosion • Signs of ageing	☐	☐	☐	☐	☐	☐
4.	Check the burner, ignition and monitoring electrodes.	☐	☐	☐	☐	☐	☐
5.	Measure the gas supply pressure.	_____ mbar	_____ mbar	_____ mbar	_____ mbar	_____ mbar	_____ mbar
6.	Measure gas/air ratio	_____ Pa	_____ Pa	_____ Pa	_____ Pa	_____ Pa	_____ Pa
7.	Carry out a tightness test during operation.	☐	☐	☐	☐	☐	☐
8.	Measure the CO content (flue gas analysis).	_____ ppm	_____ ppm	_____ ppm	_____ ppm	_____ ppm	_____ ppm
9.	Measure the ionisation current.	_____ µA	_____ µA	_____ µA	_____ µA	_____ µA	_____ µA
10.	Check the charge pressure:	☐	☐	☐	☐	☐	☐
	– Check the charge pressure of the gas heating system.	_____ bar	_____ bar	_____ bar	_____ bar	_____ bar	_____ bar
11.	Check the combustion air supply and flue gas routing.	☐	☐	☐	☐	☐	☐
12.	Check that the control is set correctly. ▶ Consult the instruction manual for the control valve.	☐	☐	☐	☐	☐	☐
13.	Final inspection check, take measurements and document measurement and test results.	☐	☐	☐	☐	☐	☐
	Confirm correct inspection Company stamp/signature/date						

Table 13 Inspection and maintenance reports

12 Display codes

Display codes give an indication of the operating condition of the wall mounted gas condensing boiler. Fault codes are either shown in the display directly or can be called up via the information menu. Proceed as follows:

- ▶ Open information menu (→ Chapter 7.1, page 20).
- ▶ Switch to the fault code level in the information menu.
- ▶ Read out the fault code and look up meaning (→ tab. 14).

12.1 Code types in the display

There are 3 types of code:

- – normal operating code
- Blocking fault code
- Interlocking fault code

12.2 Reset

For safety reasons, the wall mounted gas condensing boiler shuts down and locks as soon as a serious fault occurs. The fault code flashes to indicate this. The wall mounted gas condensing boiler must be reset in order to unlock it. Proceed as follows:

- ▶ Press the “reset” key (→ figure 38, [2], page 20), until “rE” appears in the display.

Generally, the wall mounted gas condensing boiler will operate normally again after a reset. However, in some cases the fault is more far-reaching and must first be eliminated.

12.3 Operating and fault codes

Code		Code type	Designation	Remedy
– –	208		The wall mounted gas condensing boiler is in flue gas inspector mode.	
– –	200		The wall mounted gas condensing boiler is in heating mode.	
– –	201		The wall mounted gas condensing boiler is in DHW mode.	
– –	202		The wall mounted gas condensing boiler is waiting. There was a heat energy demand from the on/off or modulating control more frequently than 1x every 10 minutes.	
– –	203		The wall mounted gas condensing boiler is on standby.	
– –	204		The wall mounted gas condensing boiler is waiting. The actual flow temperature is higher than the calculated or selected boiler temperature.	▶ Check the boiler temperature at the wall mounted gas condensing boiler. Increase the above if necessary. ▶ Check the heating curve that has been set once the weather-dependent control has been adjusted. Increase the above if necessary. ▶ Check the wiring and function of the cylinder temperature sensor. Replace the component if necessary.
– –	212		The actual temperature recorded by the flow temperature sensor or the safety sensor is rising too quickly.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the operating characteristics and cabling of the pump and corresponding sensor. Replace the component if necessary.
– –	226		Diagnosis tool was connected.	
– –	260		The flow temperature sensor is not detecting a rise in temperature following a burner start.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the cabling and operating characteristics of the pump and the flow temperature sensor. Replace the component if necessary.
– –	265		The wall mounted gas condensing boiler is waiting. In response to a heat energy demand, the wall mounted gas condensing boiler regularly switches to partial load.	
– –	268		Component test phase.	
– –	270		The wall mounted gas condensing boiler ramps up.	

Table 14 Operating and fault codes

Code		Code type	Designation	Remedy
– –	283		The wall mounted gas condensing boiler is preparing for a burner start. The fan and pump are activated.	
– –	284		The gas valve is switched.	
– –	305		The wall mounted gas condensing boiler waits after DHW operation ends.	
90	235	🔒	The KIM is too new for the burner control unit.	▶ Replace burner control unit with a model on which the most up-to-date version of the software is installed. The software version is specified on the barcode of the burner control unit.
90	360	🔒	The KIM that has been fitted is not compatible with the burner control unit.	▶ Check KIM number. ▶ Fit a KIM with the correct KIM number.
90	361	🔒	The burner control unit that has been fitted is not compatible with the KIM.	▶ Check numbers on the burner control unit. ▶ Fit a KIM with the correct KIM number.
9U	233	🔒	The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
03	317	🔒	Short circuit in the flue gas temperature sensor contacts.	▶ Check the function of the flue gas temperature sensor. Replace if necessary.
b7	257	🔒	The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
C1	264	🔧	No control signal or power supply to the fan during operation.	▶ Check plug and cabling of the fan. ▶ Check the function of the fan, replace the component if necessary.
C4	273	🔧	The wall mounted gas condensing boiler was switched off for 2 minutes at the most because it had been operating continuously for more than 24 hours. This is a safety check.	
C6	215	🔒	The fan speed is too high.	▶ Check plug and cabling of the fan. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the fan. ▶ Check the plug of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
C6	216	🔒	The fan speed is too low.	
C7	214	🔒	The fan does not run during the start phase (0 C).	
C7	217	🔒	The fan speed is irregular when starting up.	
Cr	207	🔧	Water pressure is too low.	▶ Top up heating system with water until a pressure of 2 bar is reached. ▶ Check expansion vessel. ▶ Check heating system for leaks. ▶ Check wiring and function of the pressure sensor.
Cr	266	🔒	Pump test failed.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check function of pump. ▶ Check function and cabling of pressure sensor. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the component.
d1	240	🔒	The contacts of the boiler return temperature sensor have short-circuited.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check plug and cabling of the boiler return temperature sensor. ▶ Check the function of the wall mounted gas condensing boiler by replacing the boiler return temperature sensor.
d1	241	🔒	The contacts of the boiler return temperature sensor have been interrupted.	
d3	232		The external switching contact has opened.	▶ Check the jumper at the connection of the external switching contact. ▶ Check external switching contact.

Table 14 Operating and fault codes

Code		Code type	Designation	Remedy
d 4	2 1 3		The actual temperature recorded by the flow temperature sensor or return temperature sensor is rising too quickly.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check cabling to the pump and corresponding sensors. Replace the component if necessary.
d 4	2 7 1		Actual temperature differential between flow and safety temperature sensor is too high.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the operating characteristics and cabling of the pump and corresponding sensor. Replace the component if necessary.
d 4	2 8 6		The boiler return temperature sensor has detected a return temperature higher than 105 °C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check plug and cabling of the boiler return temperature sensor. ▶ Check the function of the wall mounted gas condensing boiler by replacing the boiler return temperature sensor.
r 2	2 2 2		Short circuit in the flow temperature sensor contacts.	▶ Check the plug of the sensor. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the sensor.
r 2	2 2 3		The flow temperature sensor contacts have been interrupted.	
r 5	2 1 8		The temperature captured by the flow temperature sensor exceeds 105 °C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the operating characteristics of the pump and the flow temperature sensor. Replace the component if necessary.
r 9	2 1 0		The temperature measured by the flue gas thermostat is too high and it is open.	▶ Check the function of the flue gas thermostat. Replace if necessary. ▶ Check the wall mounted gas condensing boiler for soiling. Carry out a service if necessary.
r 9	2 1 9		The safety temperature sensor has captured a temperature in excess of 105°C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the operating characteristics of the pump and the sensor. Replace the component if necessary.
r 9	2 2 0		The contacts for the safety temperature sensor have shorted or the safety temperature sensor has detected a temperature higher than 130 °C.	
r 9	2 2 1		The contacts of the safety temperature sensor have been interrupted.	▶ Check the plug of the sensor. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the sensor.
r 9	2 2 4		The temperature measured by a device thermostat (e.g. maximum or burner thermostat) is too high and it is open.	▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check burner gaskets for flue gas leaks. Replace burner gaskets if necessary. ▶ Check the heat exchanger for soiling. ▶ Check gas/air ratio.
r 9	2 7 6		The temperature captured by the flow temperature sensor exceeds 95 °C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check cabling and function of pump and flow temperature sensor. Replace the component if necessary.

Table 14 Operating and fault codes

Code		Code type	Designation	Remedy
r 9	277		The safety temperature sensor has captured a temperature in excess of 95 °C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the cabling and function of the pump and safety temperature sensor. Replace the component if necessary.
r 9	285		The boiler return temperature sensor has detected a temperature higher than 95 °C.	▶ Check the water pressure of the wall mounted gas condensing boiler and vent the heating system and wall mounted gas condensing boiler. ▶ Check whether it is possible to achieve a sufficient flow via the heating system. ▶ Check the cabling and function of the pump and boiler return temperature sensor. Replace the component if necessary.
r 9	318		The flue gas temperature sensor contacts have been interrupted.	▶ Check the function of the flue gas temperature sensor. Replace if necessary.
r 0	227	+	An insufficient ionisation current was measured following ignition of the burner.	▶ Check the wall mounted gas condensing boiler for soiling. ▶ Check gas supply pressure. ▶ Check gas/air ratio. ▶ Check the plug of the ignition device. ▶ Check ignition and ionisation current. ▶ Check ignition device for damage. Replace the component if necessary.
r 0	229		The ionisation current detected by the system during the burning phase was insufficient.	▶ Check the dynamic gas supply pressure. ▶ Check plug and cabling of the ionisation pin. ▶ Check ignition device for damage and wear. Replace the component if necessary.
r 0	234		The contacts of the gas valve have been interrupted.	▶ Check 24V cabling for poor contacts, breaks and pinching. ▶ If installed: check function of wall mounted gas condensing boiler by connecting the appliance thermostats (e.g. maximum, flue gas or burner thermostat) one by one. Remove the connections after performing the check and replace the relevant appliance thermostats if necessary. ▶ Check cabling and plug of the gas valve. ▶ Check function of the wall mounted gas condensing boiler by replacing the gas valve. ▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
r 0	261		The burner control unit is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
r 0	269		The ignition device has been activated for too long.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
F 0	237		The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
F 0	238			
F 0	239		The burner control unit or the KIM is faulty.	▶ Check 24V cabling for poor contacts, breaks and pinching. If installed: check function of wall mounted gas condensing boiler by connecting the appliance thermostats (e.g. maximum, flue gas or burner thermostat) one by one. Remove the connections after performing the check and replace the relevant appliance thermostats if necessary. ▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.

Table 14 Operating and fault codes

Code		Code type	Designation	Remedy
F 0	242	🔒	The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
F 0	243			
F 0	244			
F 0	245			
F 0	246			
F 0	247			
F 0	248			
F 0	249			
F 0	250			
F 0	251			
F 0	252			
F 0	253			
F 0	255			
F 0	259			
F 0	263			
F 0	267			
F 0	272			
F 0	278	🔒	The sensor test has failed.	▶ Check cabling and plug of the sensor. ▶ Check the operating characteristics of the sensor. Replace the component if necessary.
F 0	279		The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
F 0	280	🔒	The burner control unit is faulty.	
F 0	287		The burner control unit or the KIM is faulty.	
F 0	290	⏲	The burner control unit or the KIM is faulty.	
F 7	228	🔒	An ionisation current was measured before the burner started.	▶ Check the plug of the ionisation pin for damage and wear. ▶ Check ignition device for damage and wear. Replace the component if necessary.
F 7	328	⏲	A brief power failure has occurred.	▶ Check whether the fault may have been caused by the presence of a power unit, a wind turbine or other equipment that could cause an interruption. ▶ Check the electrical installation.
F 0	306	🔒	An ionisation current was measured after the burner went out.	▶ Inspect the ionizing part of the ignition device. Replace the component if necessary. ▶ Check whether the gas/air ratio upstream and downstream of the burner phase remains the same. ▶ Check whether voltage is present at the gas valve once the burner phase has expired. ▶ Check the operating characteristics of the appliance by replacing the burner control unit.
F d	231	🔒	The mains voltage was interrupted during an interlocking fault.	▶ Reset the wall mounted gas condensing boiler.
r C	256	🔒	The burner control unit or the KIM is faulty.	▶ Check plug and wiring of the burner control unit. ▶ Check the operating characteristics of the wall mounted gas condensing boiler by replacing the burner control unit.
r H	258			
H 0 7			The actual water pressure is too low. This limits the performance in heating mode as well as DHW mode.	▶ Vent the heating system and wall mounted gas condensing boiler. ▶ Refill the heating system.
H s r			The wall mounted gas condensing boiler is reset.	
s r			The wall mounted gas condensing boiler is reset.	

Table 14 Operating and fault codes

Notes

Notes

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