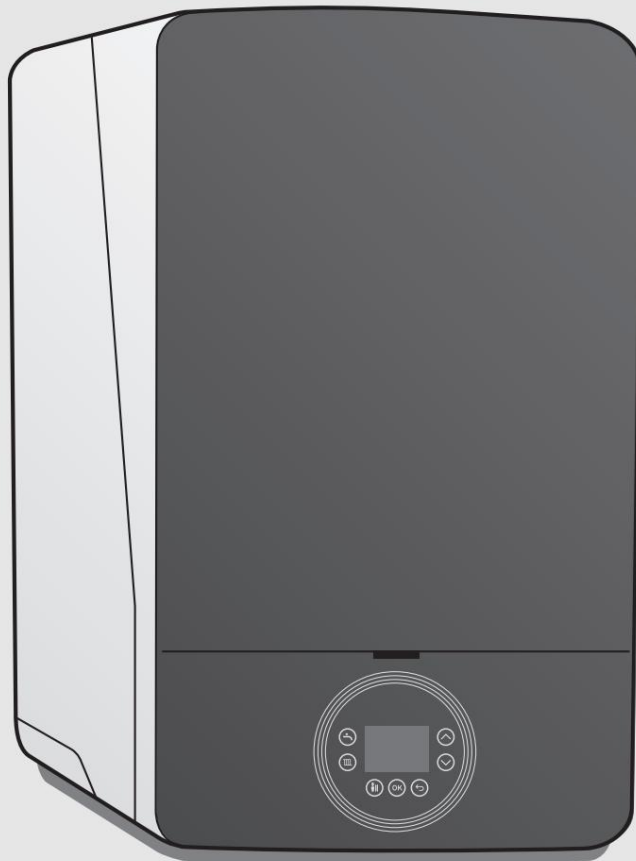


Gas condensing boiler

Cerapur 9000i

GC9000iW



Installation and maintenance manual

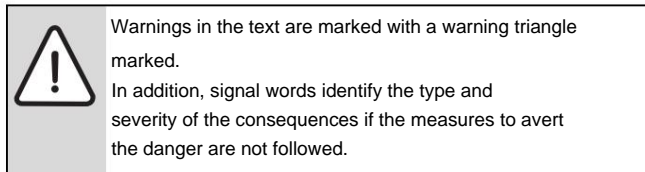
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1 Explanation of symbols and safety instructions

1.1 Explanation of symbols

Warnings



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

- **NOTICE** means that property damage can occur.
- **CAUTION** means that minor to moderate personal injury that can occur.
- **WARNING** means that serious to life-threatening personal injuries can occur.
- **DANGER** means that serious to life-threatening injuries will occur.

Important information



Important information that does not pose a risk to people or property is marked with the adjacent symbol.

More symbols

icon	meaning
↪	action step
↪	Cross-reference to another place in the document
·	Enumeration/list entry
·	Enumeration/list entry (2nd level)

Tab. 1

1.2 General safety instructions

Notes for the target group

These installation instructions are intended for specialists in gas and water installations, heating and electrical engineering. The instructions in all manuals must be followed. Non-compliance can result in property damage and personal injury up to and including death.

- ↪ Installation instructions (heat generator, heating controller, etc.) read the installation.
- ↪ Observe the safety and warning notices.
- ↪ Observe national and regional regulations, technical rules and guidelines.
- ↪ Document work that has been carried out.

Intended Use

The product may only be used to heat heating water and to prepare hot water in closed hot water heating systems.

Any other use is improper. Any resulting damage is excluded from liability.

What to do if you smell gas

There is a risk of explosion if gas escapes. If you smell gas, observe the following rules of conduct.

- ↪ Avoid flames or sparks:
 - No smoking, no lighters and no matches.
 - Do not operate any electrical switches, do not pull any plugs.
 - Do not make phone calls or ring the bell.

- ↪ Shut off the gas supply at the main shut-off device or at the gas meter ren.
 - ↪ Open windows and doors.
 - ↪ Warn all residents and leave the building.
 - ↪ Prevent third parties from entering the building. ↪
- Outside the building: call the fire brigade, the police and the gas supply company.

Danger to life from poisoning with exhaust gases

Escaping exhaust gas is life-threatening.

- ↪ Do not modify exhaust-carrying parts.
- ↪ Make sure that the flue gas pipes and seals are not damaged are.

Danger to life from poisoning with exhaust gases if combustion is insufficient

Escaping exhaust gas is life-threatening. Observe the following rules of conduct in the event of damaged or leaking exhaust gas lines or if you smell exhaust gas.

- ↪ Close the fuel supply.
- ↪ Open windows and doors.
- ↪ If necessary, warn all residents and leave the building.
- ↪ Prevent third parties from entering the building.
- ↪ Eliminate any damage to the exhaust pipe immediately.
- ↪ Ensure combustion air supply.
- ↪ Do not close or reduce ventilation openings in doors, windows and walls.

- ↪ Ensure a sufficient supply of combustion air, even with heat generators that are retrofitted, e.g. B. in exhaust air fans such as kitchen fans and air conditioners with exhaust air duct to the outside.

- ↪ If the supply of combustion air is insufficient, do not operate the product.

Installation, commissioning and maintenance

Installation, commissioning and maintenance may only be carried out by an authorized specialist company.

- ↪ Never close the safety valves.
- ↪ Check gas tightness or oil tightness after working on gas-carrying or oil-carrying parts.
- ↪ For open flue operation: Ensure that the installation room meets the ventilation requirements.
- ↪ Only install original spare parts.

electrical work

Electrical work may only be carried out by specialists in electrical installations ren.

- ↪ Before electrical work:
 - De-energize the mains voltage (all poles) and secure it against being switched on again.
 - Determine that there is no voltage.
- ↪ Also observe the connection diagrams for other system components.

handover to the operator

During the handover, instruct the operator in the operation and the operating conditions of the heating system.

- ↪ Explain the operation - paying special attention to all safety-related take actions.
- ↪ Point out that modifications or repairs may only be carried out by an approved specialist company.
- ↪ Point out the need for inspection and maintenance for safe and environmentally compatible operation.
- ↪ Hand over the installation and operating instructions to the operator for safekeeping.

2 Product Information

The installation and maintenance instructions are aimed at specialists who - due to their professional training and experience - have knowledge of how to work with heating systems and gas installations.

2.1 Documentation

These installation instructions contain important information for safe and professional installation, commissioning and maintenance of the device.

2.2 EC Declaration of Conformity

In terms of construction and operational behavior, this product corresponds to the European directives as well as the additional national requirements. Conformity has been verified with the CE marking its.

The declaration of conformity can be requested from the manufacturer. The address details are on the back of this document.

It meets the requirements for devices in terms of the Energy Saving Ordinance.

According to § 7, paragraph 2.1 of the ordinances for the revision of the first and amendment of the fourth ordinance for the implementation of the Federal Immission Control Act, the nitrogen oxide content in the exhaust gas determined under test conditions according to DIN 4702, Part 8, March 1990 edition, is below 80 mg/kWh.

The device is tested according to EN 677.

2.3 Device Types

This document refers to the following device types:

device type	Land	item number
GC9000iW 20 E 23	DE/AT/LU	7736700607
GC9000iW 30 E 23	DE/AT/LU	7736700609
GC9000iW 20 H 23	DE/AT/LU	7736700611
GC9000iW 30 H 23	DE/AT/LU	7736700613
GC9000iW 40 H 23	DE/AT/LU	7736700615
GC9000iW 50 H 23	DE/AT/LU	7736700617
GC9000iW 20 EB 23	DE/AT/LU	7736700601
GC9000iW 30 EB 23	DE/AT/LU	7736700602

Tab. 2 Type overview

The designation of the device consists of the following parts:

- GC9000iW: Typnamen
- 20, 30, 40 or 50: heat output in kW
- E: with 3-way valve and pump
- H: normal, heating only
- B: Black device color
- 23: Gasart

2.4 nameplate

The nameplate contains performance information, approval data and the serial number of the product. You can find the position of the type plate in the product overview.

Registration Dates	
Prod.-ID-Nr.	CE0085 CQ0240
Land:	Device category (gas type):
Germany DE	I12ELL 3B/P
Austria AT	I12H 3P
Luxembourg LU	I12E 3B/P
Installation type	B23p, B33, C13(x), C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)

Tab. 3 Approval data

2.5 scope of delivery

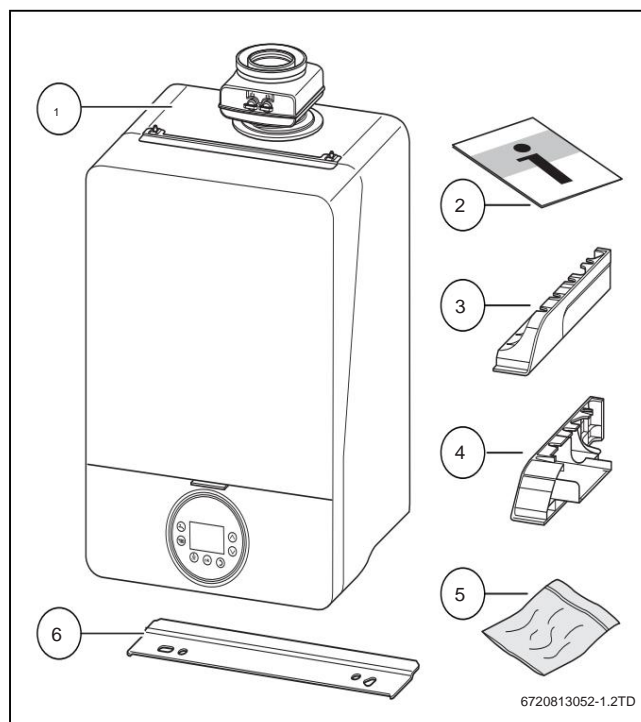
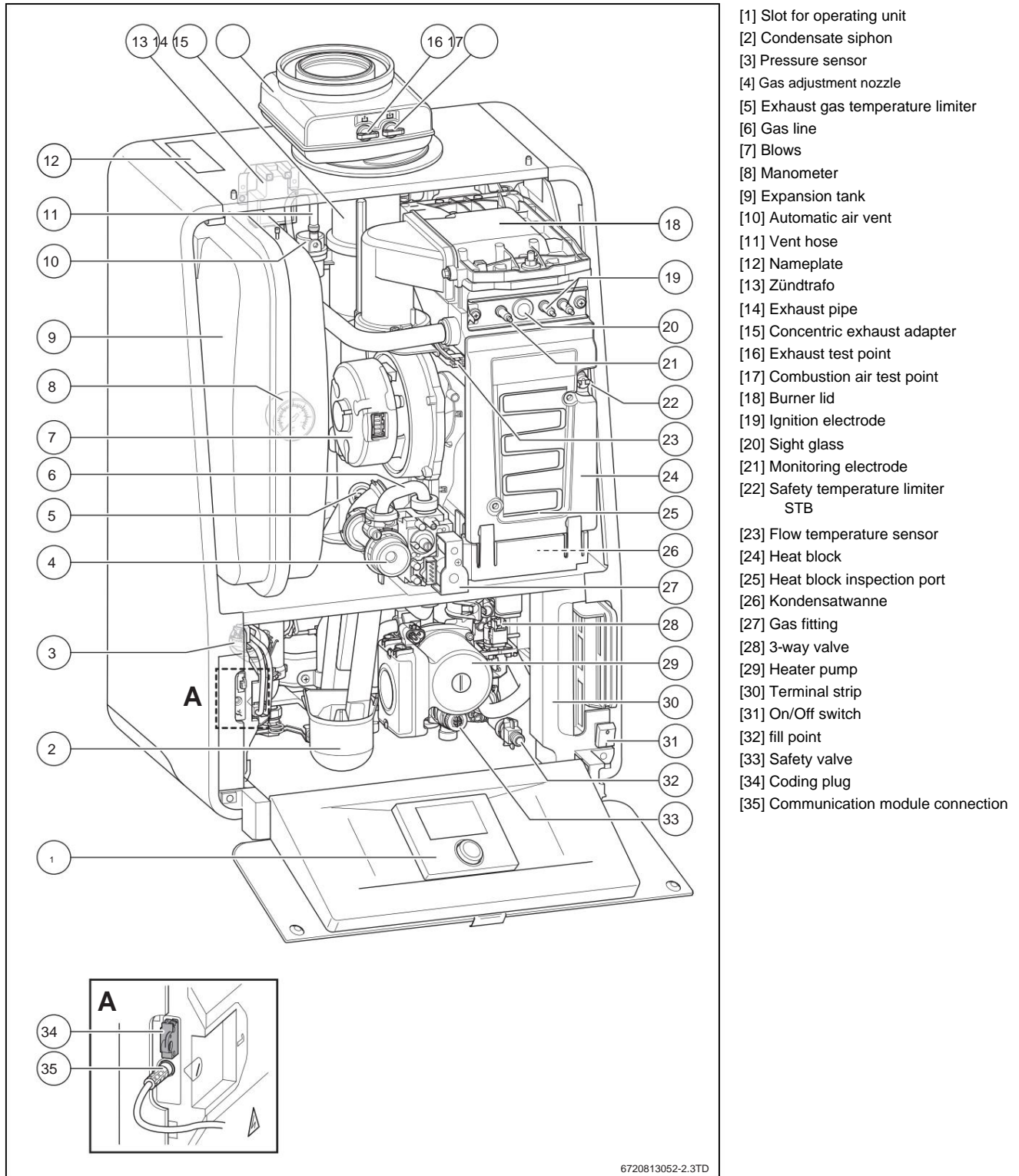


Figure 1 GC9000iW 20/30/40/50 H or GC9000iW 20/30 E (B)

- [1] device
- [2] Technical documentation
- [3] Side panels on the right
- [4] Side panels on the left
- [5] Screw, washer, dowel for wall bracket (2 x) and seal
- [6] Suspension rail

2.6 Product overview

2.6.1 GC9000iW 20/30 E(B)



Picture 2 GC9000iW 20/30 E (B)

2.7 Product overview

2.7.1 GC9000iW 20/30/40/50 H

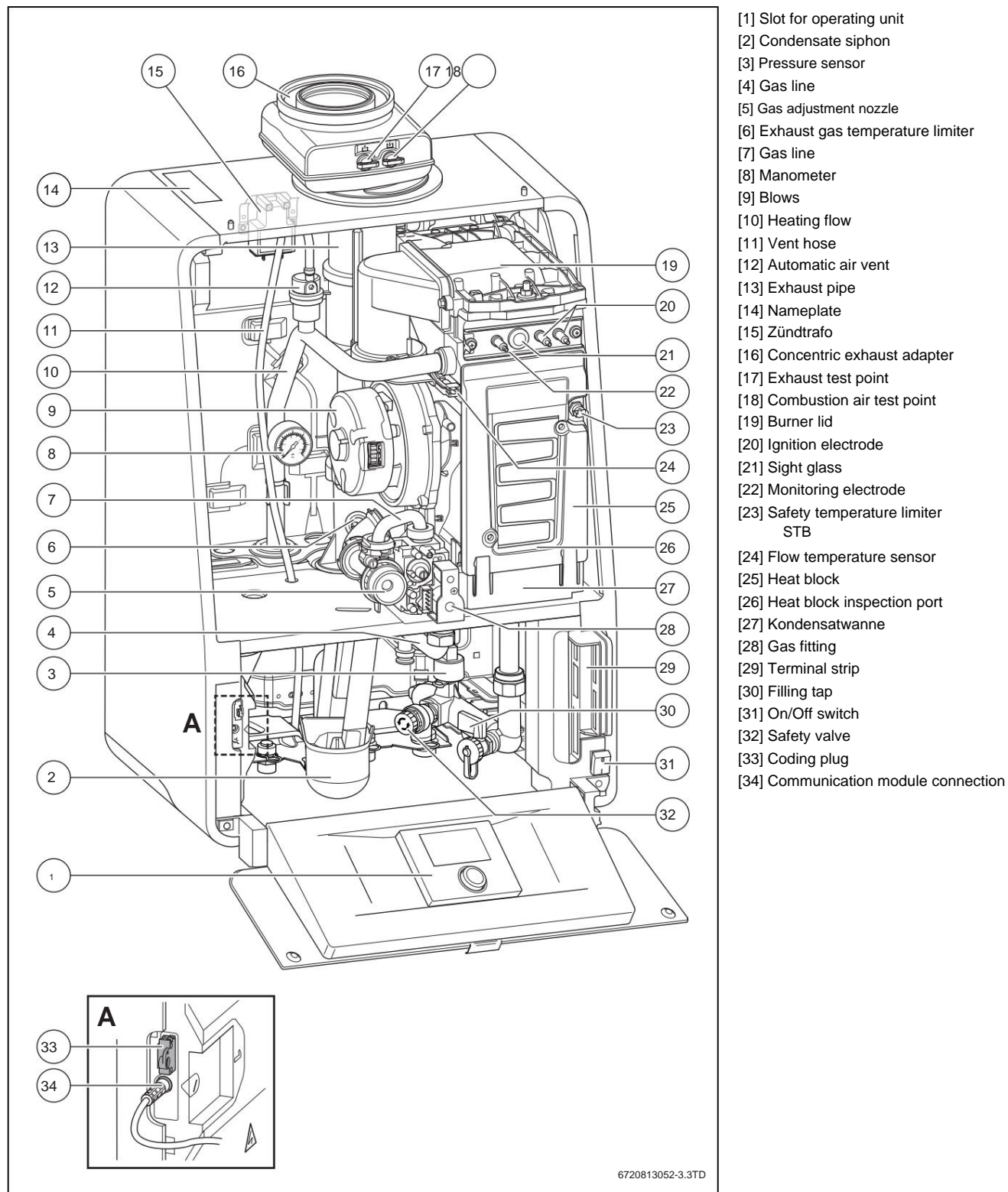


Figure 3 GC9000iW 20/30/40/50 H

2.8 Frost protection function



NOTICE: System damage .

In severe frost, the heating system can freeze due to: mains voltage failure, insufficient gas supply or a fault in the system.

• Start up the heating system in a frost-free room place.

• If the heating system is to be shut down for a longer period of time, it must first be drained.

The device is equipped with an integrated frost protection function. This means that no external frost protection system is required for the unit. The frost protection system switches the device on at a boiler temperature of 7 °C and off at a boiler temperature of 15 °C. The heating system is not protected from frost by the device.

2.9 Pump test (all)

If the pump is not in operation for a longer period of time, the pump is automatically activated for 10 seconds every 24 hours. This procedure will prevent the pump from seizing.

2.10 Accessories

Various accessories are available for these devices.

Contact the manufacturer for more information. The address details are on the back of this document.

2.11 Dimensions

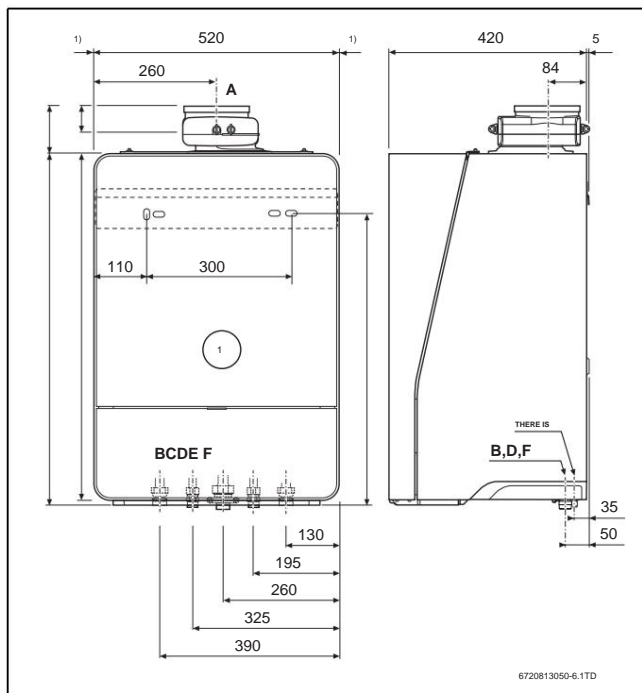


Figure 4 Type E - dimensions and connections [mm]

1) Service dimensions built into the cabinet can be 0 mm.

[1] GC9000iW 20/30 E(B)

[A] Concentric flue gas adapter, Ø 80/125 mm

[B] Heater Flow - 3/4" Union Nut

[C] Accumulator advance - 1/2" union nut

[D] Gas connection – G 1 1/2" union nut

[E] Accumulator return - 1/2" swivel nut

[F] Heater Return - 3/4" Union Nut

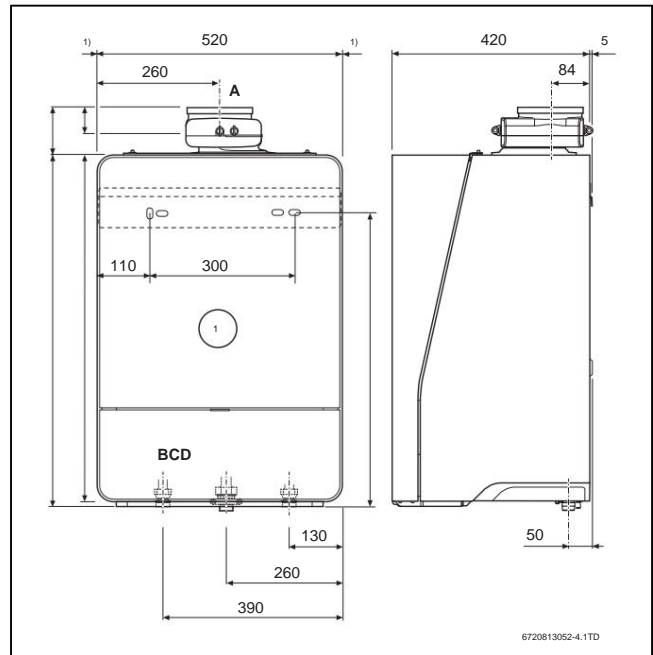


Figure 5 Type H - dimensions and connections [mm]

1) Service dimensions built into the cabinet can be 0 mm.

[1] GC9000iW 20/30/40/50 H

[A] Concentric flue gas adapter, Ø 80/125 mm

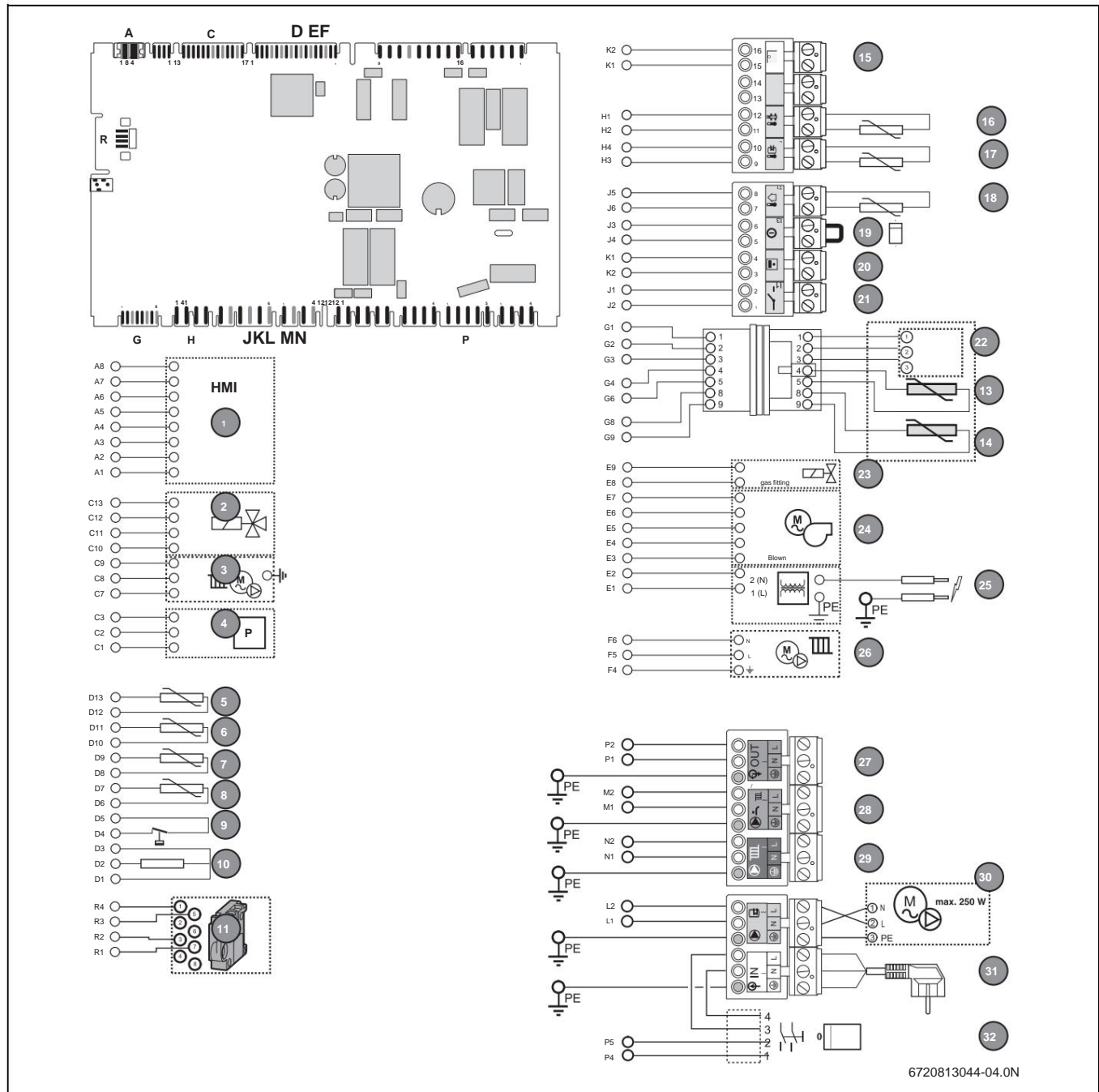
[B] Heater Flow - 3/4" Union Nut

[C] Gas connection, G1 / 1" union nut (20 and 30 kW) or

G1 1/2" union nut (40 and 50 kW)

[D] Heating return – 3/4" union nut or G 1" union nut (40 and 50 kW)

2.12 Connection Diagram



Picture 6 circuit board

- [1] HMI BC30
- [2] 3-way valve heat block
- [3] Heater pump
- [4] Pressure sensor
- [5] Hot water temperature sensor
- [6] Return temperature sensor
- [7] Safety temperature sensor
- [8] Flow temperature sensor
- [9] Safety temperature limiter [10] Monitoring electrode
- [11] Coding plug
- [13] Cylinder temperature sensor 1
- [13] Cylinder temperature sensor 2
- [14] Hot water temperature sensor
- [15] EMS Bus
- [16] Low loss header temperature sensor
- [17] DHW tank temperature sensor
- [18] Outside temperature sensor
- [19] External switching contact, potential-free
- [20] EMS Powerbus
- [21] Dry Contact/ Heat Request
- [22] Terminal strip for storage tank sensor
- [23] Gas fitting
- [24] Blows
- [25] Ignition device
- [26] Internal heating pump
- [27] Mains 230V
- [28] Circulation pump
- [29] External heating pump
- [30] Cylinder charging pump / external 3-way valve 230 V
- [31] Power supply 230 V AC
- [32] On/Off switch

2.13 Specifications

2.13.1 Device Data

	Unit	Cerapur GC9000iW					
		20 E 23	30 and 23	20 H 23	30 H 23	40 H 23	50 H 23
Min. heat load for natural gas LL/E Max. heat load	kW	2,7	3	2,7	3	5,1	6,3
for natural gas LL/E Nominal heat output (Pn) 80/60	kW	19,3	30,2	19,3	30,2	40,8	48,9
°C for natural gas LL/E Nominal heat output (Pn) 50/30 °C for	kW	18,6	29,2	18,6	29,2	40	47,9
natural gas LL/E Maximum hot water output for natural gas LL /E	kW	20	31	20	31	41	49,9
Maximum output boiler efficiency (Pn max) - 80/60 °C Maximum	kW	19,3	30,2	19,3	30,2	40,8	48,9
output boiler efficiency (Pn max) - 50/30 °C heating circuit	%	98,1	98	98,1	98	97	97,4
	%	103,6	102,6	103,6	102,6	102,5	102
Maximum flow temperature	°C	82					
Residual head at $\dot{y}T = 20K$	mbar	220	130	220	150	na	na
Resistance at $\dot{y}T = 20K$	mbar	na	na	na	na	300	450
maximum operating pressure device	bar	3					
water content		1,37	1,37	1,37	1,37	1,37	1,51
hot water							
Minimum connection pressure hot water	bar	1					
Maximum connection pressure hot water	bar	10					
Maximum hot water temperature	°C	60					
pipe connections							
connection gas		G 1			G1½		
Connection heating water		¾ union nut					
Connection condensate	mm	Ø 30					
Emission values according to EN 13384							
maximum amount of condensate for natural gas LL/E, 40/30 °C	l/h	2	3	2	3	4	5
Exhaust mass flow at full load	g/s	8,8	13,4	8,8	13,4	17,1	21,6
Exhaust gas temperature 80/60 °C, full load	°C	60	69	60	69	74	71
Exhaust gas temperature 40/30 °C, full load	°C	44	52	44	52	48	50
Exhaust gas temperature 40/30 °C, partial load	°C	31	31	31	31	30	30
CO2/O2 content, full load, natural gas LL/E	%	9,5 / 4,0 9,5 / 4,0		9,5 / 4,0 9,5 / 4,0		9,5 / 4,0	
CO2/O2 content, full load, propane	%	10,8 / 4,6 10,8 / 4,6		10,8 / 4,6 10,8 / 4,6		10,8 / 4,6	
CO2/O2 content, part load, natural gas LL/E	%	8,6 / 5,5 8,6 / 5,5		8,6 / 5,5 8,6 / 5,5		8,6 / 5,5	
CO2/O2 content, part load, propane free	%	10,2 / 5,5 10,2 / 5,5		10,2 / 5,5 10,2 / 5,5		10,2 / 5,5	
fan discharge, standard exhaust systems free fan discharge, long exhaust	Well	59 (801))	148	59 (801))	148	155	142
systems 60/100	Well	59 (1401))	--	(1401))	--	--	--
exhaust connection							
Exhaust gas value group for LAS Ø		G61, with gas type conversion set G62 (overpressure)					
exhaust system, room air-dependent Ø	mm	80					
exhaust system, room air-independent	mm	80/125 concentric					
electrical data							
supply voltage, frequency	IN	230/50 Hz					
electrical protection class		IP X4D (X0D; B23; B33)					
electric power consumption	In	56	124	56	124	78	156
setting values							
Nominal connection pressure for natural gas LL (range)	mbar	20 (17 - 25)					
Nominal connection pressure for natural gas E (range)	mbar	20 (18 - 25)					
Nominal connection pressure for propane	mbar	50 (42,5 - 57,5)					
Device dimensions and weight							
height x width x depth	mm	735 x 520 x 425					
weight	kg	48		42		47	
Condensate							
Max. amount of condensate (TR = 30 °C) pH	l/h	2	3,1	2	3,1	4,1	5
value approx.		4,5 - 8,5					

Tab. 4 Technical data

1) See Chapter 2.15.1 "Coding plug numbers for heaters", page 10.

2.14 Product Data on Energy Consumption

The product data on energy consumption can be found in the user manual for the operator.

2.15 Gas Data

gas consumption

Gasart	Unit	Maximum gas consumption					
		20 E	30 E	20 H	30 H	40 H	50 H
Natural gas E, H,	m ³ /h	2,04	3,2	2,04	3,2	4,32	5,18
Es Natural gas LL, L, Ei	m ³ /h	2,38	3,72	2,38	3,72	5,02	6,02
Propan 3P	m ³ /h	0,79	1,23	0,79	1,23	1,66	1,99
Butane 3B/P	m ³ /h	0,60	0,94	0,60	0,94	1,27	1,52

Tab. 5 Gas consumption

gas connection pressures

Gasart	My. [mbar]	Max. [mbar]
Natural gas	20	30
2L Natural	18	25
gas 2LL Natural	17	25
gas 2E, 2H	42,5	57,5
Propane 3P	42,5	57,5

Propane 3B/P Tab. 6 Gas connection pressures

natural gas

Land	Nominal gas pressure [mbar]	Gas category	Gas family	Basic setting [mbar]
OF	20	2ELL	2E, G20	20
OF	20	2ELL	2LL, G25	20
AT, BA, BG, BY, CH, CZ, DK, EE, ES, GB, GR, HR, IE, IT, KZ, LT, LV, NO, PT, RO, RU, SE, SI, SK, UA	20	2H	2H, G20	20
FR	20/25	2Es	2Es, G20	20
FR	20/26	2Ei	2Ei, G20 conversion required	
BE	20/25	2E	2Es, G20	20
LU, PL	20	2E	2E, G20	20
HU	25	2H	2H, G20	25
NL	25	2L	2L, G25	25

Tab. 7 Natural gas

Propane

Land	gas nominal pressure [mbar]	Gas Category	Gas family	conversion required
DK	30	3P	G31	and
BE, FR, GB, GR, IE, IT, MD, PL, PT, RO, TR	37	3P	G31	and
AT, BY, DE, EE, HR, HU, KZ, LT, LU, LV, RS, RU, SI, UA	50	3P	G31	and
NL	30, 50	3P	G31	conversion not possible
CH, CZ, ES, SK	37, 50	3P	G31	and

Tab. 8 Propan

Bhutan

Land	Nominal gas pressure [mbar]	Gas category	Gas family	conversion required
OF	37, 50	3B	G30	and

Tab. 9 Butan

2.15.1 Coding plug numbers heater



For the flue gas accessories 60/100, the maximum pipe lengths can be extended using a different coding plug. For more information, see the relevant flue gas accessory installation instructions.

device type	coding plug			
	Standard exhaust systems		Longing exhaust systems	
	Natural Gas	Propane	Natural Gas	Propane
GC9000iW 20 E(B)	1440	1441	1540	1541
GC9000iW 20 H	1444	1445	1542	1543

Tab. 10 Coding plug numbers for heater

2.16 Residual head

The residual head generated by the internal heating pump is shown in the diagrams below with the respective upper and lower limit values. The remaining delivery height depends on the setting in the control unit and on the device type. Setting 0: Modulation between the maximum and minimum characteristic proportional to the device power ($p = \text{power-controlled}$). When using a low loss header, the setting 0 must be selected. With the other settings, the pressure is constant. See the legend below the diagram

men.

Legend for figures 7 and 8:

A = maximale Modulation

B = minimale Modulation

mbar = Residual height

kg/h = flow rate

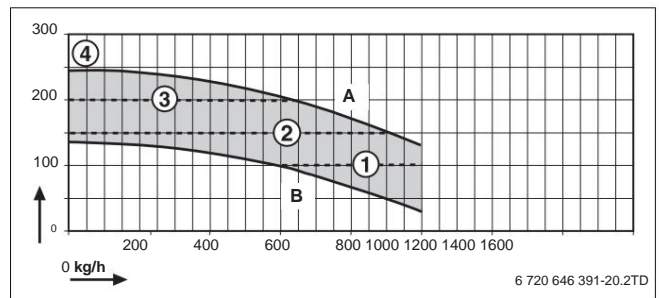


Figure 7 Residual head of GC9000iW 20

[1] 100 mbar

[2] 150 mbar

[3] 200 mbar

[4] 250 mbar maximum

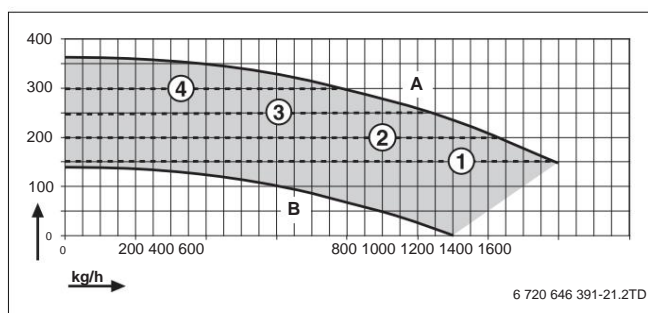


Figure 8 Residual head for GC9000iW 30

- [1] 150 mbar
- [2] 200 mbar
- [3] 250 mbar
- [4] 300 mbar

2.17 Resistance diagram for temperature sensors

The diagrams show whether there is a match between the temperature and the resistance value.

- De-energize the heating system before each measurement.
- Dismantle the connection terminal of the temperature sensor.
- Measure the resistance at the cable end of the temperature sensor.
- Measure the temperature of the temperature sensor.

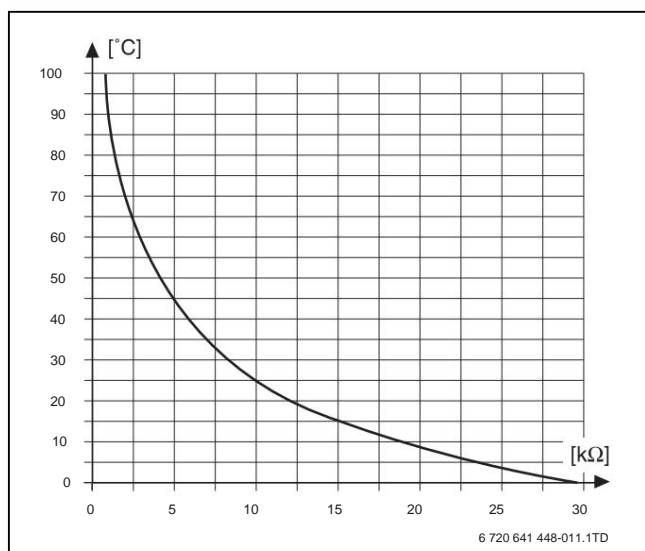


Figure 9 Resistance characteristic temperature sensor (except for the outdoor temperature sensor)

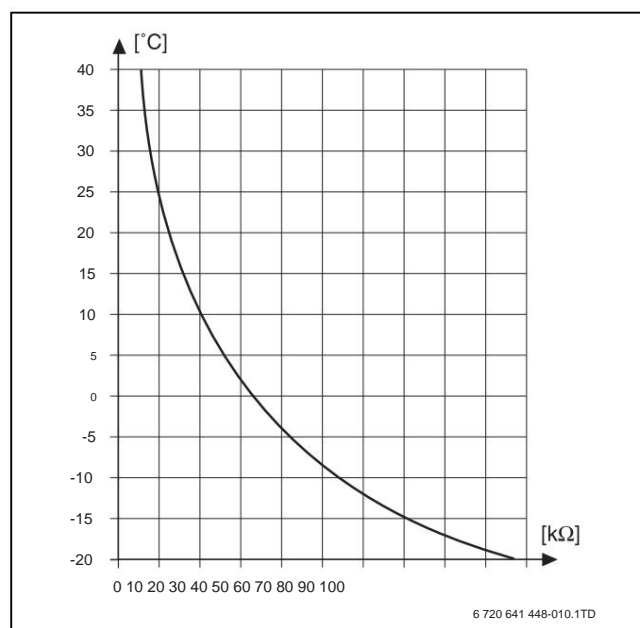


Figure 10 Resistance curve for outside temperature sensor

2.18 Condensate composition

Fabric	value [mg/l]
Ammonium	1,2
Blei	• 0,01
Cadmium	• 0,001
Chrom	• 0,005
Halocarbon	• 0,002
hydrocarbon	0,015
copper	0,028
Nickel	0,15
mercury	• 0,0001
Sulfate	1
Zink	• 0,015
Zinn	• 0,01
Vanadium	• 0,001

Tab. 11 Condensate composition

3 regulations

3.1 Standards, regulations and guidelines

For correct installation and operation of the product, observe all applicable national and regional regulations, technical rules and guidelines.

Document 6720807972 contains information on applicable regulations. You can find the document number at www.junkers.com/
Enter documentation to view or download the document.

3.2 Authorization and information requirements

If necessary:

- Installation of the device must be reported to and approved by the responsible gas supply company.
- Apply for regional permits for the flue gas system and the condensate connection to the public sewage system.
- Inform the waste water authority before beginning assembly.

3.3 validity of the regulations

Changed regulations or supplements are also valid at the time of installation and must be complied with.

4 Transport



CAUTION: Personal injury and equipment damage from unproper lifting.

- At least 2 people are required to lift the device necessary.
- Only touch the device on the sides and not on the be control panel or on the exhaust pipe connection (• fig. 11).

• Attaching the device to a sack truck and locking it with a strap.

• Transport the device to the installation site.

4.1 Unpack the device

• Remove and dispose of packaging material.



Only remove the styrofoam floor after the device has been hung up. As long as the device is not hanging, the device can be safely placed on the floor.

This protects the connections from damage and/or dirt.

• Cover the concentric flue gas adapter on the top of the device cken.

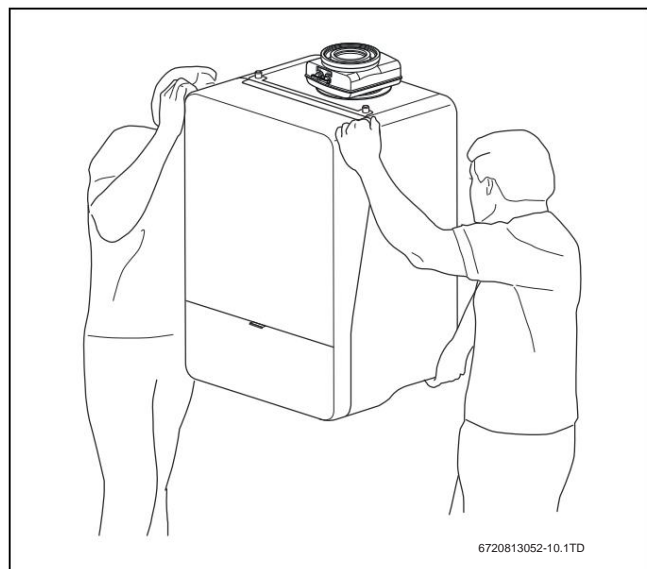


Figure 11 Proper lifting and carrying of the device

5 Installation



WARNING: Explosion hazard.

- Work on gas-carrying parts only by authorized persons have it carried out by a specialist.
- Before working on gas-carrying parts: Close the gas tap.
- Replace used seals with new seals put.
- After working on gas-carrying parts: tight perform a health check.



Installation, gas, exhaust gas and electrical connections and commissioning of the system must be carried out by an approved specialist company.

5.1 fill and top-up water

The water quality of the fill and top-up water is a key factor in increasing the economy, functional reliability, service life and operational readiness of a heating system.



NOTICE: Damage to the heat exchanger or fault in the heat generator or the hot water supply due to unsuitable water!

Unsuitable or dirty water can lead to sludge formation, corrosion or calcification.

- Flush the heating system before filling.
- Only use the heating system with drinking water to fill.
- Do not use well or ground water.
- Treat fill and top-up water according to the specifications in the following section.

water treatment

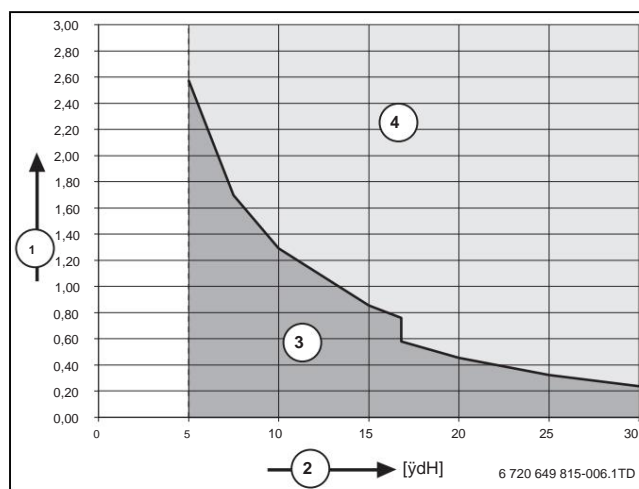


Figure 12 Requirements for fill and top-up water devices < 50 kW

- [1] Maximum possible water volume over the service life of the heat generator in m³
- [2] Total hardness in ° dH
- [3] Use of untreated tap water in accordance with the TVO Drinking Water Ordinance.
- [4] Use fully desalinated fill and top-up water with a conductivity of • 10 jS/cm.

The approved measure for water treatment is the full desalination of the fill and top-up water with a conductivity of • 10 microsie mens/cm (• 10 jS/cm). Instead of water treatment, a system separation can also be provided directly behind the heat generator using a heat exchanger.

Further information on water treatment can be obtained from the manufacturer. The contact details can be found on the back of these instructions.

antifreeze



The electronically available document 6720841872 contains a list of approved antifreeze.

You can use the document search on our website to display them. You can find the address on the back of this manual.



NOTE: Damage to the heat exchanger or fault in the heat generator or the hot water supply due to unsuitable antifreeze!

Unsuitable or dirty water can lead to sludge formation, corrosion or calcification.

- Only use anti-freeze agents approved by us the.
- Only use antifreeze according to the manufacturer's specifications antifreeze agent, e.g. B. clearly the minimum concentration.
- Take into account the antifreeze manufacturer's specifications for regular checks and corrective measures.

heating water additives

Heating water additives, e.g. B. anti-corrosion agents are only required if there is constant oxygen entry, which cannot be prevented by other measures. Before using it, find out from the manufacturer of the heating water additive whether it is suitable for the heat generator and all other materials in the heating system.



NOTE: Damage to the heat exchanger or fault in the heat generator or the hot water supply due to unsuitable heating water additives!

Unsuitable heating water additives (inhibitors or anti-corrosion agents) can damage the heat generator and the heating system.

- Only use anti-corrosion agents if the manufacturer of the heating water additive has certified its suitability for the heat generator made of aluminum and for all other materials in the heating system.
- Only use the heating water additive in accordance with the manufacturer's instructions for the heating water additive.
- Observe the specifications of the manufacturer of the heating water additive for regular checks and corrective measures.



Sealants in the heating water can lead to deposits in the heating block. We therefore advise against using them.

5.2 mount the device



CAUTION: Device damage due to damage.

- Do not lift the device by the flap of the control panel or the flue gas adapter.



NOTICE: Damage to the device due to incorrect lifting.

- Do not hold the heater by the control panel or flue gas adapter, but with one hand on the underside and the other hand on the top of the heater device.



The device may only be hung on the wall or mounted on a mounting profile. Resonance can occur with lighter wall constructions.

- Check the load-bearing capacity of the wall for mounting the device. The wall must be able to support the device.
- Make a stronger construction if necessary.
- Determine the mounting position (• Chapter 2.11 "Dimensions", page 7).

- Mark the drill holes using a wall bracket and a spirit level [1].

- Drill holes according to the anchor size [2].

- Insert the dowels supplied into the drill holes [3].

- Mount the wall bracket horizontally using the 2 screws supplied [4].

- Have two people lift the device at the top and bottom and hang the device in the wall bracket.

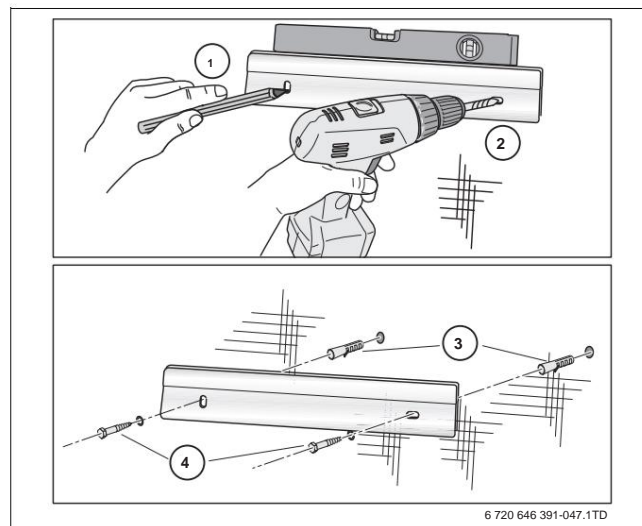


Fig. 13 Mount the wall bracket

5.3 connect pipes



If necessary, the shipping bracket [1] can be removed for easier assembly.

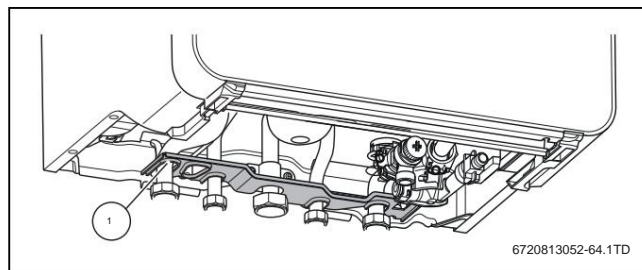


Figure 14 Removing the shipping bracket

5.3.1 Mount the gas line

- Seal the gas connection on the device with an approved sealant.
- Mount the gas tap R ¼ " [1] in the gas line.

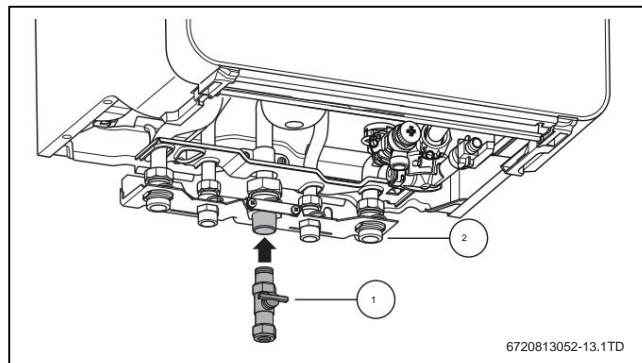


Fig. 15 Make the gas connection

[1] Gas tap R ¼ " (accessories)

[2] Connection plate (accessories)

- Connect the gas line to the gas connection free of tension.

5.3.2 Open the panel

device

- ÿ Fold down the control panel [1].
- ÿ Loosen the fastening screws [2].
- ÿ Tilt the underside of the paneling of the device forward.
- ÿ Lift the paneling slightly on the underside and remove [3].

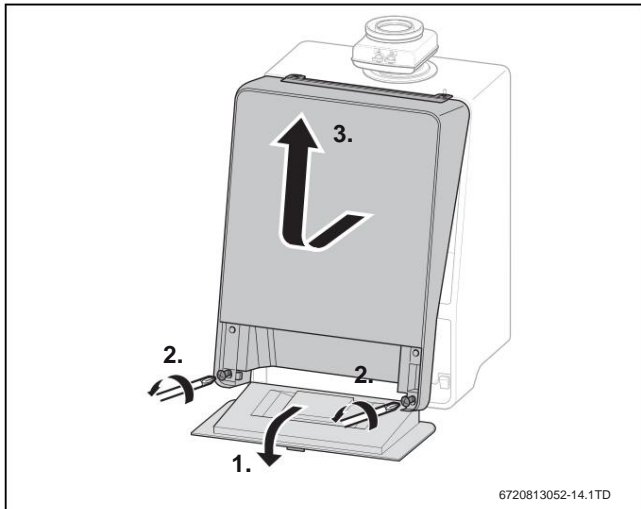


Fig. 16 Dismantling the casing of the device

5.3.3 Connecting the heating water pipe connections



To protect the entire system, we recommend installing a dirt filter in the return pipe. If the device is connected to an older heating system, installation is absolutely necessary.

- ÿ Install a maintenance tap for filter cleaning immediately before and after the dirt filter.

A bypass in the heating system is not required.

- ÿ Recommendation: Install a service cock [2, 3] (heating circuit connection accessory) for maintenance and repairs in the flow and return.

ÿ Mount the flow pipe with the inserted rubber seal without tension on the connection for the heating flow [2].

ÿ Mount the return pipe with the inserted rubber seal to the connection for the heating return [3] free of stress.

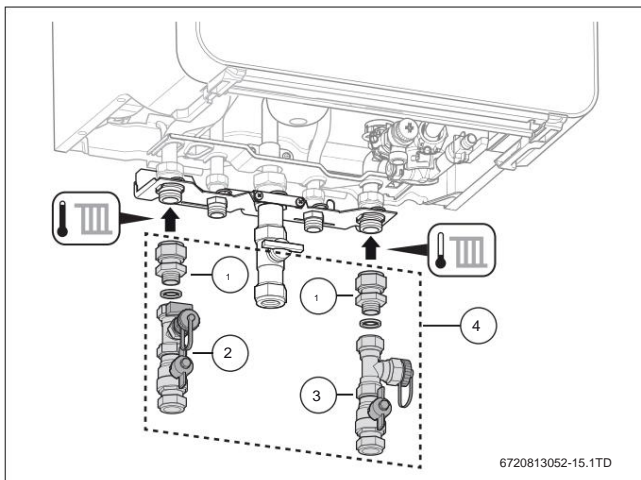


Fig. 17 Connection of the heating water pipes to the device

- [1] Compression fitting \varnothing 28 mm to R 1"
- [2] Maintenance tap (heating flow)
- [3] Maintenance tap (heating return)
- [4] Heating circuit connection set with fill and drain valve (accessories)

5.3.4 Checking the size of the expansion vessel (15 l heating expansion vessel accessory)

The following diagram enables a rough estimate to be made as to whether the 15 l heating expansion vessel is sufficient or whether a different or additional expansion vessel is required (not for underfloor heating).

The following key data was taken into account for the characteristic curves shown:

- 1% water seal in the expansion tank or 20% of the nominal volume in the expansion tank
- Working pressure difference of the safety valve of 0.5 bar, according to DIN 3320
- The admission pressure of the expansion vessel corresponds to the static system height above the heater.
- maximum operating pressure: 3 bar

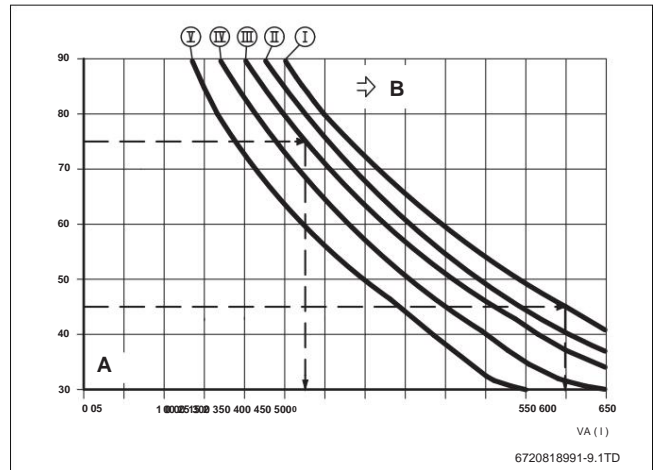


Fig. 18 Characteristic curves of the expansion tank, Heating expansion tank 15 l

- [I] Inlet pressure 0.5 bar
- [II] Inlet pressure 0.75 bar (basic setting)
- [III] Inlet pressure 1.0 bar
- [IV] Inlet pressure 1.2 bar
- [V] Inlet pressure 1.3 bar

[A] Working range of the expansion tank

[B] Additional expansion tank required

[TV] Flow temperature

[VA] System capacity in liters

ÿ In the border area: Determine the exact vessel size according to DIN EN 12828.

ÿ If the intersection is to the right of the curve: install an additional expansion tank.

5.3.5 Connection of the safety valve

It is not necessary to install an on-site overflow valve, since an overflow valve is already installed in the device.

5.3.6 Heating water circulation

A bypass in the heating system is not required.

5.3.7 Connecting an external hot water tank

For a unit with an internal 3-way valve



NOTE: Boiler damage.

There must be no non-return valves in the connection lines of the hot water storage tank.

- ÿ If available: non-return valve from the app remove the connection line of the hot water tank baby

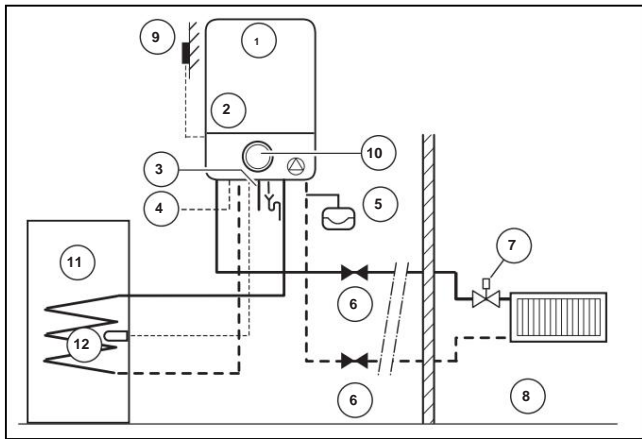


Fig. 19 Application example with outdoor temperature-dependent control and hot water tank

- [1] device
- [2] Safety valve
- [3] Gas
- [4] Power supply 230 V
- [5] Expansion tank
- [6] Maintenance cock
- [7] Thermostatventil
- [8] Rooms
- [9] Outside temperature sensor
- [10] Controller, outside temperature compensated
- [11] Hot water tank
- [12] Hot water tank temperature sensor

For a device without an internal 3-way valve

In this case, an external 3-way valve [2] can be used.

The 3-way valve must be connected on site as follows: • AB: flow • A: storage tank flow • B: heating system flow.

The device is equipped with a built-in storage priority control as standard. • Connect the 3-way valve [2] and cylinder temperature sensor [1] (accessories) to the device • Chapter 6.2.12, page 17 and connection diagram, Chapter 2.12, page 8.

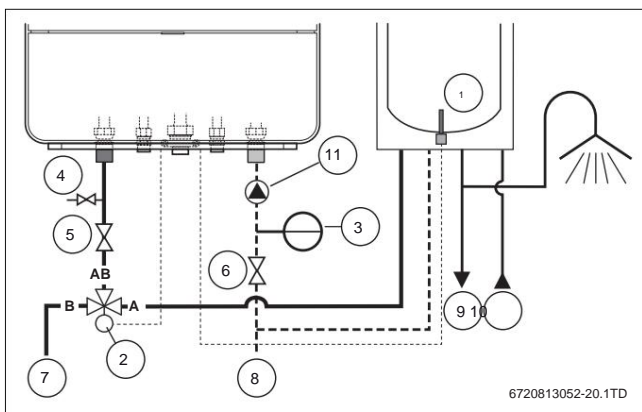


Fig. 20 Mount external 3-way valve

- [1] Storage tank temperature sensor
- [2] 3-way valve (if no internal 3-way valve is present)
- [3] Expansion tank [4] Fill and drain cock
- [5] Maintenance tap (heating flow)
- [6] Service tap (heating return)
- [7] advance
- [8] rewind

- [9] Hot water [10] Cold water [11] Heating pump, max. 250 W (230 V AC) (if no internal heating pump is available)

5.3.8 Installing the condensate siphon

The condensate siphon (accessory no. 432) drains escaping water and condensate.

- Create derivation from corrosion-resistant materials (ATV-A 251).
- Mount the drain directly to a DN 40 connection.
- Lay hoses with an incline.

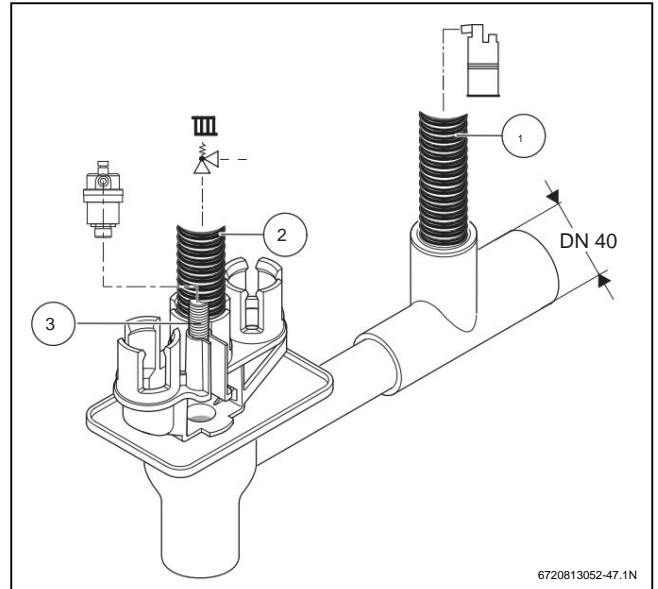


Fig. 21 Condensate hose and hose from the safety valve and Install breather

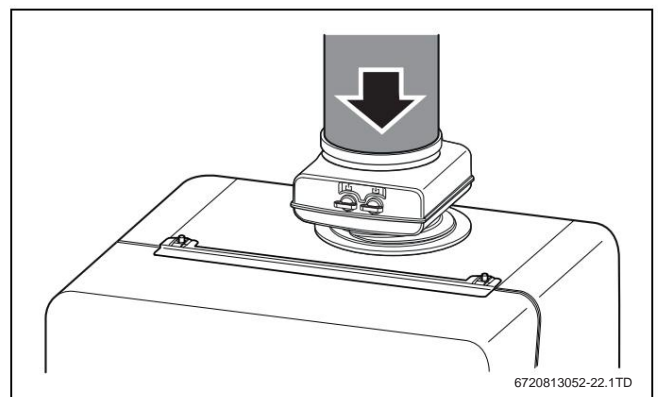
- [1] Condensate hose
- [2] Hose from the safety valve (heating circuit)
- [3] Hose from automatic air vent

5.4 Establishing the flue gas connection

- Push the flue gas line into the sleeve as far as it will go.



For more information, see the relevant flue gas accessory installation instructions.



picture 22

6 Electrical connection

6.1 General remark



WARNING: Electrocutation .

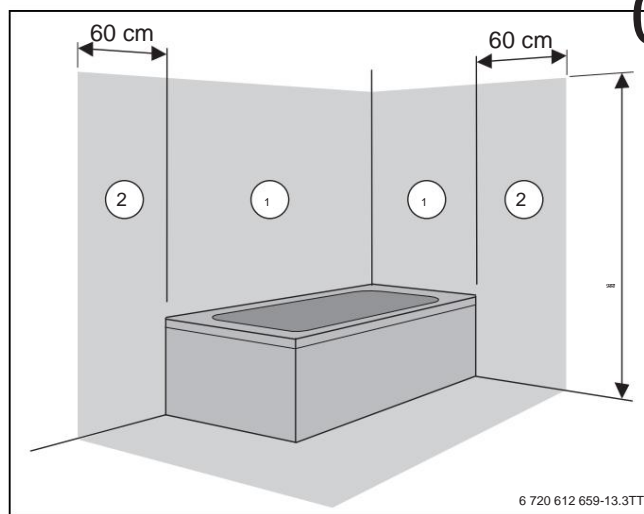
ÿ Before working on the electrical part, interrupt the power supply (230 V AC) (fuse, circuit breaker) and secure it against being switched on again unintentionally.

All regulation, control and safety components of the device are wired and tested ready for operation.

In rooms with a bathtub or shower, the device may only be connected via an earth leakage circuit breaker.

No other consumers may be connected to the connection cable.

ÿ In protected area 1, route the cable vertically upwards.



picture 23

[Protected area 1], directly above the bath tub

[Protected area 2], 60 cm radius around bathtub/shower

fuse

The device's fuse is located on the circuit board on the left, marked green.



The spare fuse is located on the inside of the cover.

6.2 Connect accessories



Allow for extra space to mount the side panels.

The terminal strips are colored and coded with symbols.

ÿ When connecting the accessories, also the connection diagram (ÿ Chapter 2.12, page 8) and observe the installation instructions for the product.



WARNING: Electrocutation .

Positions 1-5 are 230 volt connections.

ÿ If the mains plug is plugged into the socket, ensure that terminals 1 – 5 are live (230 V).

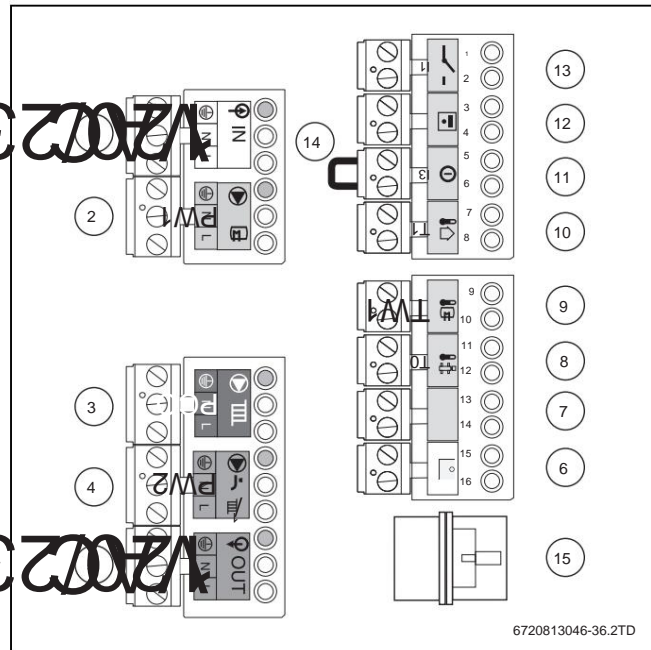


Figure 24 Terminal strips

- [1] > Mains connection 230V, (white)
- [2] : **PW1, cylinder loading pump** 230 V or external 3-Directional valve 230 V (grey)
- [3] < **PCO**, external heating pump 230 V (green). The external heating pump 230 V/ max. 250 W is connected to the terminal strip.
- [4] ; **PW2**, circulation pump 230 V purple or switchable external heating pump (purple)
- [5] = Module mains connection 230 V AC, for external modules (switched on/off via switch) (orange)
- [6] ? **BUS**, room temperature-controlled controller and EMS-BUS (white)
- [7] Free
- [8] 9 **T0, low loss header** temperature sensor (green)
- [9] 8 **TW1**, hot water temperature sensor (grey)
- [10] 7 **T1**, outside temperature sensor (blue)
- [11] 6 **I3**, external switching contact potential-free for e.g. B. Underfloor heating (red, remove jumper).
- [12] ? **BUS**, room temperature-dependent controller and EMS-BUS (orange)
- [13] 4 **I1**, potential-free on/off room temperature controller or potential-free heat request via switching contact (blue)
- [14] Bridge
- [15] Free

6.2.1 Connect on/off room temperature controller (potential-free) eat

Observe country-specific regulations.

ÿ Connect the on/off room temperature controller to the connection terminal (ÿ Fig. 24, [13]) (accessories).

6.2.2 Connect controller (external).



It is not possible to connect to the terminal connection ? and connect a temperature controller to the "potential-free heat request" terminal connection (4).

ÿ Controller on connection terminal? (ÿ Fig. 24, [6]). Use a 2-core power cable from 0.4 to 0.75 mm² here.

ÿ If there is no communication with the external controller or external modules, check the polarity of the EMS BUS line.

6.2.3 Connecting the function module

The following modulating controllers can be connected:

- Systemregler CR 400, CW400, CW800
- Rules CR 100, CW 100
- CR 10 remote control
- Mixer module MM 100, MM200
- Solar module MS 100, MS 200
- Internet gateway MBLANi (can be ordered free of charge)
- Cascade module MC 400
- External device module IGM



Contact the manufacturer for more information on other controllers and modules that can be used. The address details are on the back of this document.

• Observe the instructions for the respective product.

• For the assembly and combinability of the function modules, observe the relevant installation instructions for the function modules.



When installing the function module in the device, the cover of the module box can only be installed again after an opening has been exposed in the intermediate strut is.

6.2.4 Connection of several function modules

• Use the EMS bus connection of the first module for the second module. To do this, use the cable supplied with the module.

• Use the 230 V AC mains cable connection of the first module for the second module. To do this, use the cable supplied with the module.



The EMS bus connector can be labeled either "RC", "BUS" or "EMS".

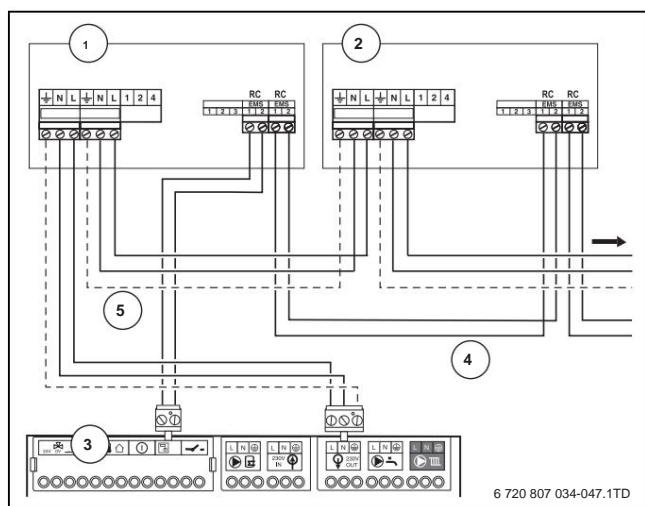


Figure 25 Connection of several function modules

- [1] Function module 1 (installed in the device)
- [2] Function module 2 (external)
- [3] Connection terminals GC9000IW
- [4] EMS BUS connection cable to the following function module
- [5] Mains cable to the following functional module

6.2.5 Connect temperature monitor TB1 of the flow of an underfloor heating



NOTE: Series connection.

• If several external safety devices such as e.g. B. TB1 and condensate pump are connected, they must be connected in series.

For heating systems with only underfloor heating and direct hydraulic connection to the device.

When the temperature monitor responds, heating and hot water operation are interrupted.

• Remove bridge (• Fig. 24, [14]) on connection terminal 6 .

• Connect temperature monitor.

6.2.6 Connection of outside temperature sensor

The outside temperature sensor for the control system is connected to the device.

• Connect the outside temperature sensor to terminal block **7T1** (• Fig. 24, [10]).

6.2.7 Storage tank temperature sensor connection

• Cylinder temperature sensor on connection terminal **8TW1** (• Fig. 24, [9]).

6.2.8 230 V connections (general)



The 230 V connections can be used for electrical accessories in the heating systems. Each port has a maximum allowable power consumption of 250 W. The maximum permissible power consumption of modules and pumps is 500 watts.

• Planning documentation and installation instructions of the controller.

6.2.9 Connect external heating pump

The heating pump is always in operation during heating operation (parallel to the pump installed in the device).

• Heating pump on connection terminal **<PCO** (• Fig. 24, [3]) connect.

6.2.10 Connect circulation pump

The circulation pump can be controlled by the control system.



A switchable heating circuit pump can also be connected instead of a circulation pump. This pump is switched off when hot water is being prepared via the internal 3-way valve and the unit's internal pump.

• Connect the circulation pump to connection terminal ;PW2 (• Fig. 24, [4]).

6.2.11 Storage tank charging pump connection

• Pull off the plug on the internal 3-way valve.

• Connect the storage tank loading pump/external 3-way valve (230 V) to terminal block :PW1 (• Fig. 24, [2]).

6.2.12 External 3-way valve connection

• Pull off the plug on the internal 3-way valve (if present).

• External 3-way valve at connection terminal :PW1 (• Fig. 24, [2]).

7 Installation

7.1 Fill the heating system

- ÿ Open all maintenance cocks.
- ÿ Open all radiator valves.
- ÿ Close all fill and drain cocks.
- ÿ Open the main shut-off valve of the water line.
- ÿ Open a hot water tap.
- ÿ Wait until the water is free of air.
- ÿ Close the hot water tap.
- ÿ Fill the heating system until the operating pressure is 2 bar.
- ÿ Bleed the heating system.
- ÿ Check whether the cap of the automatic or the hose is not kinked, the air vent in the device is open at least one turn.
- ÿ Check the operating pressure again.



Before commissioning, the heating system must be filled, otherwise the pump can run dry.

7.2 turn on a device

- ÿ Insert the mains plug into a socket and switch on the device.

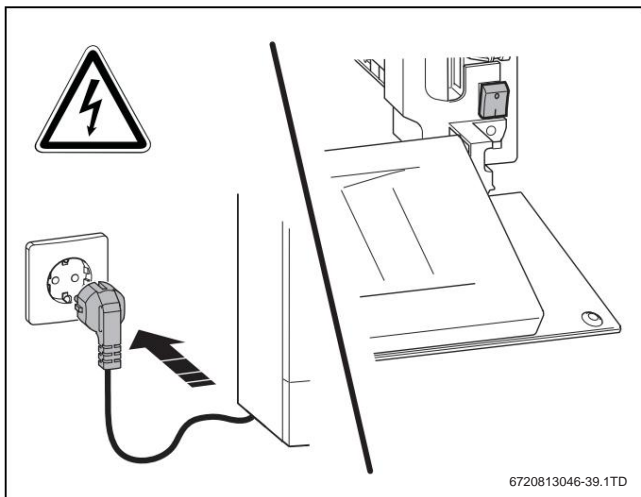


Fig. 26 Switch on the mains voltage

7.3 siphon filling operation

The siphon filling mode is activated automatically, manually by the installer on the device or on the controller. The siphon filling operation is activated on the device through the service menu under **> SETTINGS > SPECIAL FUNCT. > SI PHONE FILL PROG.** activated.

Access to the menu is disabled while the siphon fill mode is active **WARM WATER**, to the **HEATING** menu and to the **service** menu .

The siphon filling mode is activated in the following cases:

- The device is switched on with the on/off switch.
- The burner has not been in operation for 28 days.

The next time there is a demand for heating or hot water, the device is kept at a low heat output for 15 minutes. The siphon filling mode remains effective until 15 minutes have been reached at low heat output.

During the siphon filling program, the standard **display shows SIPHON FILLING MODE**.

When the chimney sweep mode is called up, the siphon filling mode is interrupted.

7.4 Checking, testing and measuring

For devices without hot water operation

- ÿ Dismantle the plug of the internal 3-way valve and switch off hot water operation.

7.4.1 Check gas connection pressure

Measure the supply pressure while the burner is in operation at full load, for this:

- ÿ Shut down the device.
- ÿ Close the gas tap.
- ÿ Remove paneling.
- ÿ Ensure that the heating system can give off its heat.
- ÿ Turn the screw plug of the measuring socket [1] by 2 turns solve.
- ÿ Set the pressure gauge [3] to "0".
- ÿ Connect the measuring hose [2] to the plus connection of the manometer [3] and to the measuring socket for the gas connection pressure [1].

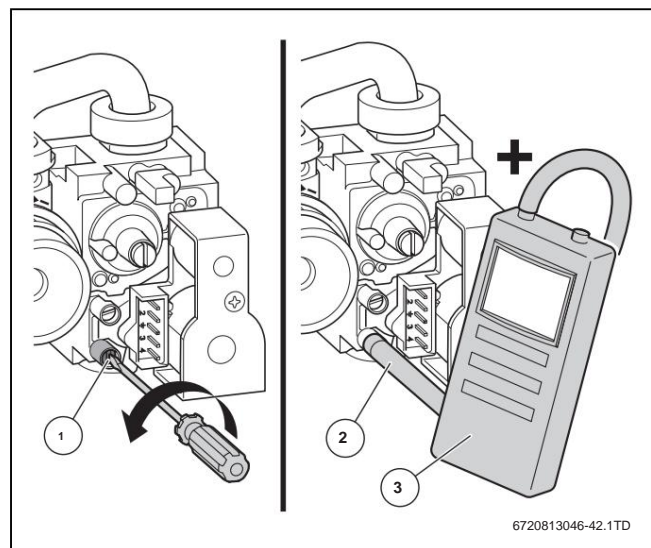


Fig. 27 Measure the gas connection pressure

[1] Measuring point for the gas connection pressure

[2] Measuring hose

[3] Manometer

- ÿ Open the gas tap.
- ÿ Put the device into operation.
- ÿ Activate chimney sweep mode (ÿ Chapter 8.3, page 24).
- ÿ Measure the gas connection pressure during chimney sweep operation and enter it in the commissioning report (ÿ Chapter 7.8, page 21).

Check the required gas connection pressure according to the table.

Gasart	nominal pressure	Permissible pressure range at
	[mbar]	maximum nominal heat output [mbar]
natural gas H (23), Natural gas L/LL (21)	20	17 - 25
LPG (Propane)	37, 50	42,5 - 57,5
LPG (Bhutan)	37, 50	42,5 - 57,5

Tab. 12 Gas connection pressure



Commissioning may not take place below or above these values. Determine the cause and rectify the fault. If this is not possible, shut off the gas supply and consult the responsible gas supply company.

- ÿ End the chimney sweep mode by pressing the **c** button .
- ÿ Close the gas tap.
- ÿ Pull the measuring hose off the measuring socket.
- ÿ Screw the locking screw tight again.



WARNING: Risk of explosion from flammable gases.

- ÿ Check the test sockets used for leaks.
- ÿ Observe country-specific standards and regulations ten.

7.4.2 Gas adaptation

The gas-air ratio may only be set via a CO₂ or O₂ measurement at maximum rated heat output and minimum rated heat output using an electronic measuring device.

natural gas

- Appliances in natural gas group 2E (2H) are set to the Wobbe index ex works 15 kWh/ m³ and 20 mbar connection pressure set and sealed.
- If a device that is factory-set to natural gas H is operated with natural gas L, a CO₂ or O₂ setting is required and the sticker supplied must be affixed to the device in a visible position.
- The devices operated with natural gas meet the requirements of the Hanover subsidy program and the environmental label for gas condensing boilers.

Liquefied petroleum gas (LPG)



WARNING: Escaping gas can cause an explosion.

- ÿ Only allow work on gas-carrying parts to be carried out by an authorized specialist.
- ÿ Before working on gas-carrying parts: Close the gas tap.
- ÿ Replace used seals with new seals put.
- ÿ After working on gas-carrying parts: tight perform a health check.

ÿ Exchange coding plug

- Devices for liquid gas are set to a connection pressure of 50 mbar.
- If the devices are converted to LPG, the Wir The degree of efficiency is reduced by a few percent compared to devices that are set to LL or E natural gas.

Install the gas type conversion set according to the enclosed installation instructions and after each conversion: set the gas/air ratio.

7.4.3 Set the gas-air ratio



WARNING: Risk of explosion from flammable gases.

- ÿ Check the test sockets used for leaks!
- ÿ Observe country-specific standards and regulations ten.

ÿ Shut down the device.

ÿ Remove paneling.



Scale for rough setting for gas type conversion:

- ÿ L = natural gas L, natural gas LL
- ÿ H = natural gas E, natural gas H
- ÿ LPG = liquid gas

After changing the gas type, turn the adjusting nozzle [3] to the set gas type.

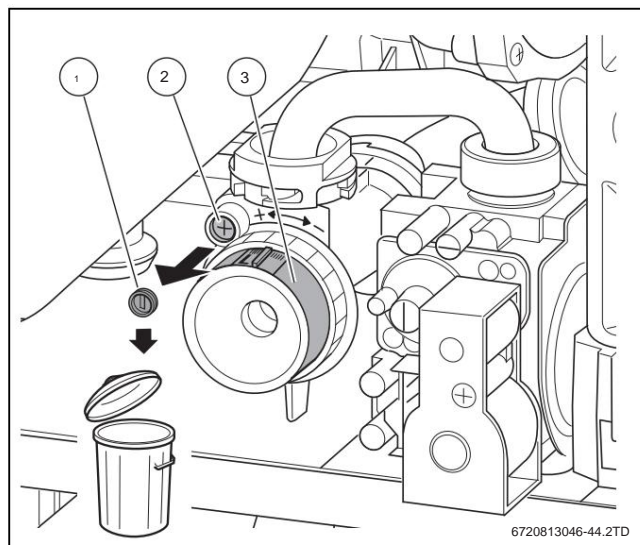


Figure 28 Remove the seal

- [1] Lead
- [2] screw
- [3] Adjustment nozzle

- ÿ Remove seal.
- ÿ Loosen the screw.
- ÿ Set the adjustment nozzle according to the desired gas type.
- ÿ Switch on the device.
- ÿ Remove the plug on the flue gas measuring socket.
- ÿ Slide the flue gas probe into the flue gas measuring socket.
- ÿ Seal the measuring point.

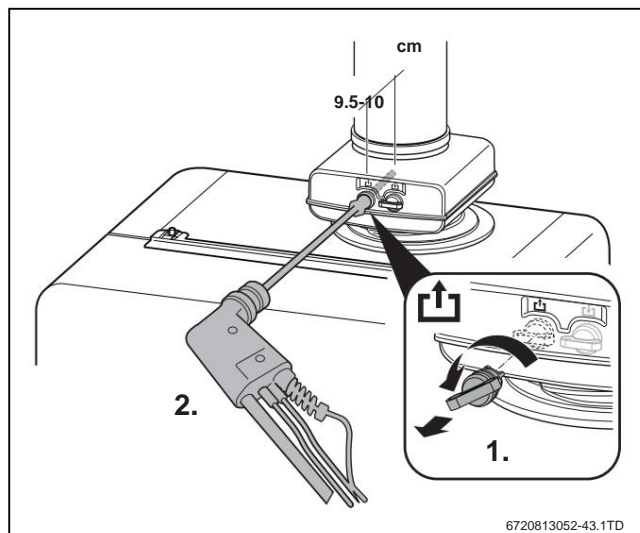


Fig. 29 Measuring the CO/CO₂ content

- ÿ To ensure heat dissipation: Open the radiator valves.
- ÿ Press button **c** until after 5 seconds **CHIMNEY SWEEP.** and **POWER MAX. 100%** (= maximum nominal heat output) is displayed. After a short time, the burner will start up.
- ÿ Measure the CO₂ or O₂ value.
- ÿ CO₂ value or O₂ value for the maximum nominal heat output according to Check Table 13 and adjust if necessary.
- ÿ To increase the CO₂ value, turn the adjustment nozzle to the left.
- ÿ To reduce the CO₂ value, turn the adjustment nozzle to the right.

Gasart	maximum nominal value meileistung		minimal nominal value meileistung	
	CO ₂	O ₂	CO ₂	O ₂
Natural gas E, natural	9,5%	4,0%	8,6%	5,5%
gas LL LPG (propane) ¹⁾	10,8%	4,6%	10,2%	5,5%
LPG (butane)	11,9%	3,2%	11,2%	4,3%

Tab. 13 CO₂ and O₂ values

1) Standard value for liquid gas for stationary containers with a capacity of up to 15,000 l.

ÿ Press the h or g arrow button to select the minimum nominal heat output.

The display shows **POWER MIN. (low load)** on.

ÿ Measure the CO₂ or O₂ value.

Measure CO, the value must be less than 250 ppm.

ÿ Remove the seal on the adjusting screw of the gas fitting and
or Set O₂ value for minimum nominal heat output.

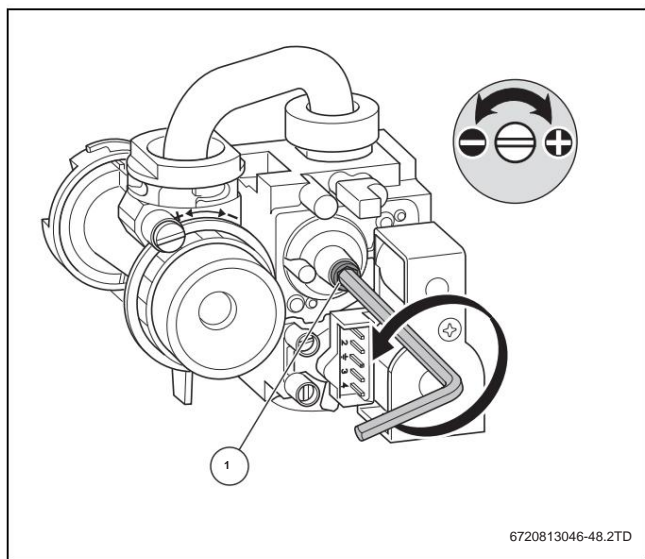


Figure 30 Remove the seal

[1] Lead

ÿ Check the setting again at maximum nominal heat output and minimum nominal heat output and adjust if necessary.

ÿ Tighten the screw on the adjustment nozzle.

ÿ Seal the gas fitting and adjustment nozzle.

ÿ Press the chimney sweep button or the back button.

The device returns to normal operation.

ÿ Enter the CO₂ or O₂ values in the commissioning report.

ÿ Remove the flue gas probe from the flue gas measuring socket and plug assemble.

7.5 change settings

7.5.1 Set overpressure operation

In order to ensure correct functioning in overpressure operation of max. 25Pa or max. 70Pa, the minimum nominal heat output must be increased (at 25Pa all devices at full load, 1 device at partial load, at 70Pa all devices at full load).

The minimum nominal heat output can be increased to the minimum partial load via the settings menu.

Proceed as follows:

ÿ Set the heat output via the settings menu (ÿ >**SETTINGS**
> **LIMIT VALUES**> **MIN. UNIT POWER**) (ÿ Chapter 8.4, page 24).

Observe the table below.

device type	Min. part load % no overpressure operation	Min. part load % overpressure operation
GC9000iW 20 E 23	14%	23%
GC9000iW 30 E 23	10%	15%
GC9000iW 40 H 23	13%	16%
GC9000iW 50 H 23	13%	17%

Tab. 14 Set min. partial load overpressure operation

7.5.2 Thermal disinfection hot water



WARNING: due to legionella formation.

ÿ For protection against the formation of legionella, reference is made to the DVGW worksheet W551 (ÿ Chapter 3, page 11).

The thermal disinfection temperature is set on the control unit between 60 °C and 80 °C.

The basic setting is 60 °C.

7.6 functional tests

ÿ During commissioning and the annual inspection, all regulation, control and safety devices must be checked for their function and, if adjustment is possible, for their correct setting.

ÿ Check the gas and water side for leaks.

7.7 Final work

To assemble the casing of the device and the hot water tank, reassemble all the parts in reverse order.

ÿ After completing the work described below, fill out the commissioning report (ÿ Chapter 7.8).

7.8 Commissioning report for the device

Customer/plant operator:	
Name first Name	Street, No.
Telephone / Fax	ZIP / City
attachment creator:	
Order number:	
Device type:	(Fill out a separate report for each device!)
Serial number:	
Date of commissioning:	
ÿ Single device ÿ Cascade, number of devices:	
installation room:	ÿ Cellar ÿ Attic ÿ other:
	Ventilation openings: Number:, Size about. cm ²
Exhaust system:	ÿ double pipe system ÿ LAS ÿ shaft ÿ Separate pipe routing
	ÿ Plastic ÿ Aluminum ÿ Stainless steel
	Total length: approx..... m Arc 87°: pieces Arc 15 - 45 °: pieces
	Checking the tightness of the exhaust pipe with counter flow: ÿ yes ÿ no
	CO2 content in the combustion air at maximum nominal heat output: %
	O2 content in the combustion air at maximum nominal heat output: %
Remarks on negative or positive pressure operation:	
Gas setting and flue gas measurement:	
Set gas type:	
Gas connection pressure: mbar	Gas connection idle pressure: mbar
Set maximum nominal heat output: kW	Set minimum nominal heat output: kW
Gas flow rate at maximum Nominal heat output: l/min	Gas flow rate at minimum Nominal heat output: l/min
Calorific value HiB: kWh/ m ³	calorific value HiB: kWh / m ³
CO2 at maximum nominal heat output: %	CO2 at minimum nominal heat output: %
O2 at maximum nominal heat output: %	O2 at minimum nominal heat output: %
CO at maximum nominal heat output: ppm	CO at minimum nominal heat output: ppm
Exhaust gas temperature at maximum Nominal heat output: °C	Exhaust gas temperature at minimum Nominal heat output: °C
Measured maximum flow temperature: °C	Measured minimum flow temperature: °C
System hydraulics:	
ÿ Low loss header, type:	ÿ Additional expansion vessel
ÿ Heating pump:	Size/form:
	Is there an automatic air vent? ÿ yes ÿ no
ÿ Hot water storage tank/type/number/heating surface output:	
ÿ System hydraulics checked, comments:	

Tab. 15

Changed service functions:	
Read out the changed service functions and enter values here.	
ÿ Completed and attached the "Settings in the service menu" sticker.	
Heating control:	
ÿ Outside temperature dependent control	ÿ Room temperature dependent control
ÿ Remote control x pieces, heating circuit(s) coding:	
ÿ Room temperature-dependent control x pieces, heating circuit(s) coding:	
ÿ Module x pieces, heating circuit(s) coding:	
Miscellaneous:	
ÿ Heating control set, comments:	
ÿ Changed settings of the heating control are documented in the operating/installation instructions for the controller	
The following work was carried out:	
ÿ Electrical connections checked, comments:	
ÿ Condensate siphon filled	ÿ Combustion air/flue gas measurement carried out
ÿ Functional test carried out	ÿ Gas and water-side leak test carried out
Commissioning includes checking the setting values, the optical leak test on the device and the functional check of the device and the control. The system manufacturer carries out an inspection of the heating system.	
If minor assembly errors are found in Junkers components during commissioning, Junkers is generally willing to rectify these assembly errors after approval by the customer. An assumption of liability for the assembly services is not associated with this.	
The above system has been tested to the extent specified above. The documents were handed over to the operator. He was with the	
	Familiarized with the safety instructions and the operation of the above heater including accessories. The need for regular maintenance of the above heating system was pointed out.
Name of the service technician	Date, signature of the operator
	Paste measurement report here:
Date, signature of the system creator	

Tab. 15

8 service



Only active status icons are visible.

In a heating system with several devices (cascade system), the settings on the control panel must be made individually for each device.

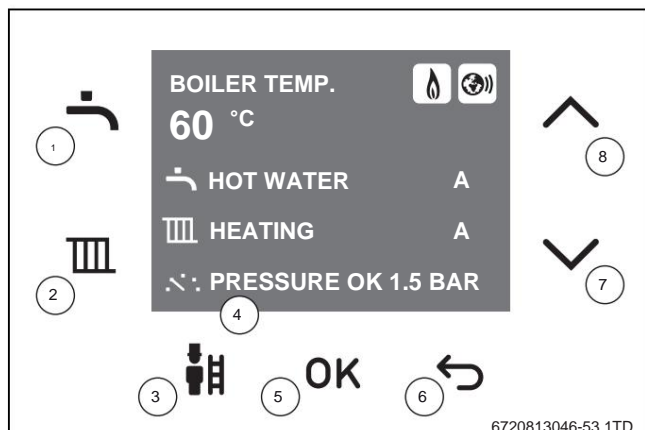


Figure 31 Control panel

- [1] Hot water button
- [2] Heating button
- [3] Chimney sweep button
- [4] Display
- [5] Taste OK
- [6] Back button
- [7] Arrow **h** (Down) button
- [8] Arrow **g** (Up) button

Language

selection When switching on for the first time, a language selection must be confirmed with **b**.

The device is equipped with a control panel on the front with the following elements:

Hot water button *

The temperature of the hot water can be set as desired with the hot water button.

button heating (

The maximum boiler temperature can be set with the heating button.

Chimney sweep button c

With the chimney sweep button, the device can be put into operation to carry out measurements, long button press.

Display

Display values, display settings and display codes can be read from the display.

Taste b

With the **b** key you can:

- A menu to be selected
- A fixed value to be confirmed

back button d

With the Back button you can:

- Taking a step back in a menu
- A change can be canceled

button arrow ed

The **h** and **g** arrow keys can be used to navigate through menus and content or to change selected element values.

8.1 Hot water temperature menu

Device settings can be read out and changed via the hot water temperature menu.

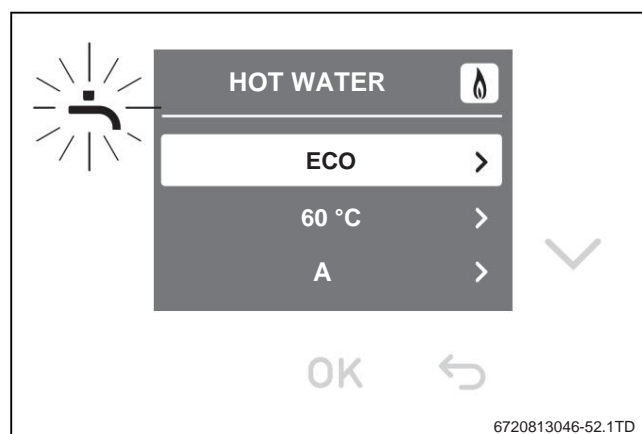


Figure 32 Hot water temperature menu

ÿ To open the hot water temperature menu, press the * to press.

ÿ Navigate through the menu with the **h** and **g** arrow keys .

ÿ Use the **b** button to select the appropriate value.

ÿ Use the **h** and **g** arrow keys to change the corresponding values.

ÿ Confirm the corresponding value with the **b** button.

Display	designation
ECO / COMFORT	ECO reduces comfort, longer waiting time, but low gas consumption. COMFORT high level of comfort, short waiting time, less economical gas consumption.
60 °C	Setting the temperature.
ON/OFF	Turn on-off water heating when Warm water operation is switched on, the frost protection of the hot water supply is switched off.

Tab. 16 Settings menu

8.2 Boiler temperature menu

Device settings can be read out and changed via the boiler temperature menu.

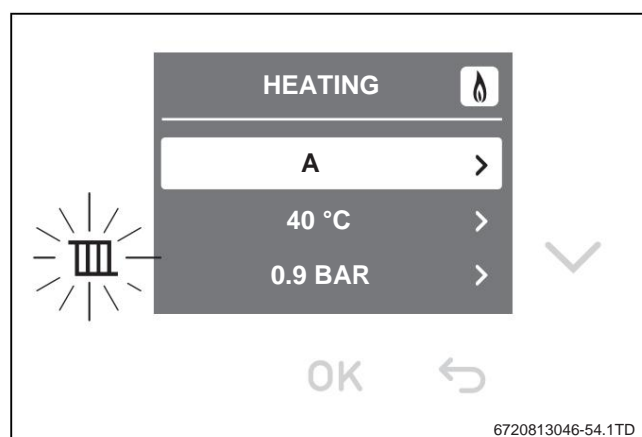


Figure 33 Boiler temperature menu

ÿ To open the boiler temperature menu, press the (button.

ÿ Navigate through the menu with the **h** and **g** arrow keys .

ÿ Use the **b** button to select the appropriate value.

ÿ Use the **h** and **g** arrow keys to change the corresponding values.

ÿ Confirm the corresponding value with the **b** button.

Display	designation
ON / OFF switch on-off.	
40°C	Setting the temperature.
0.9 BAR	Current operating pressure.

Tab. 17 Settings menu

8.3 chimney sweep operation



Hot water operation is not possible during chimney sweep mode. The chimney sweep mode is automatically switched off after 30 minutes. Settings that have been changed during the chimney sweep operation are then cancelled.

With the chimney sweep mode, the device can be switched to heating mode to carry out measurements.

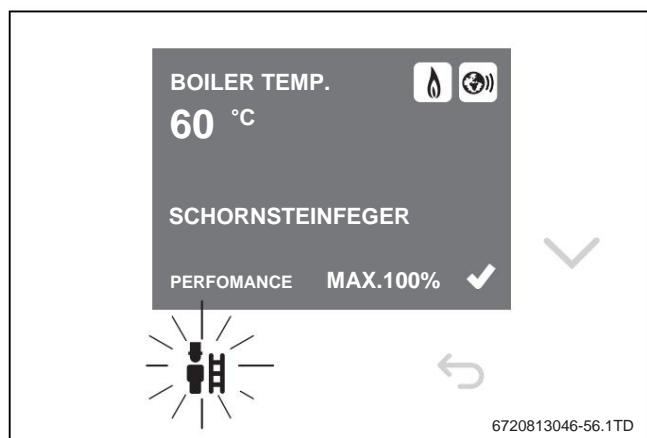


Fig. 34 Chimney sweep operation menu

- ÿ Ensure that the device can dissipate its heat.
- ÿ Activate the chimney sweep mode by pressing the **c** button for 5 seconds.

The chimney sweep operation now remains active for 30 minutes at 100% heat output.

- ÿ Set the heat output (in %) using the arrow **h** or **g** button .
- ÿ Carry out the desired measurement.
- ÿ To switch off the chimney sweep mode, press the **c** button.

8.3.1 Manual operation/emergency operation



The device may only be operated manually for a few days. Manual operation is also emergency operation without heat demand by a temperature controller. In manual operation, the device remains in operation with the set boiler output.

- ÿ Activation of emergency mode by pressing button **c** for 8 seconds.
- ÿ Set the target temperature using the arrow **h** or **g** button .

- ÿ To switch off manual mode/emergency mode, press the **c** button to press.

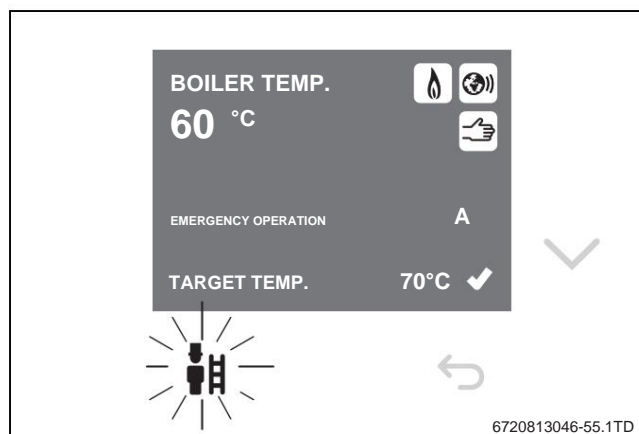


Figure 35 Emergency operation menu

8.4 Settings menu

Device settings can be read out and changed via the settings menu.

- ÿ Simultaneously press the * and (buttons for 3 seconds to open the settings menu.
- ÿ Navigate through the menu with the **h** and **g** arrow keys .
- ÿ Use the **b** button to select the appropriate values.

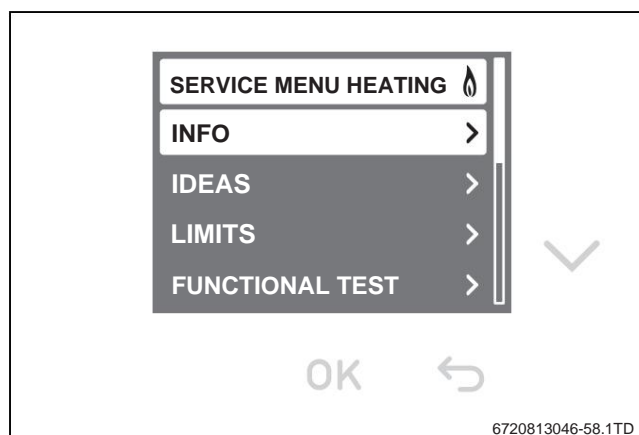


Figure 36 Settings menu

8.4.1 Infomenü



After a few minutes of inactivity, the menu will automatically close and the home screen will appear.

Data about the status of the device can be read out in the info menu. Proceed as follows:

- ÿ Use the **h** and **g** arrow keys to navigate through the menu with Info above:
 - Measured boiler temperature [°C]
 - Measured water pressure of the device [bar]
 - Operation or fault code

8.5 Idle state of the display

If there is no fault or maintenance request, the display goes to sleep after 2 minutes. ÿ To exit idle status, press the **b** button .

9 decommissioning



CAUTION: System damage due to frost.

The heating system can freeze in the event of a power failure, switching off the supply voltage, faulty gas supply, boiler malfunction, etc. freeze after a long time.

Ensure that the heating system is in constant operation (especially if there is a risk of frost).

Shut down the heating system using the device (operation in the device). When the control unit is shut down, the burner is also switched off automatically. Open the flap for operation in the device. Set the on/off switch of the device to "0". Close the main shut-off device or the gas tap under the device.

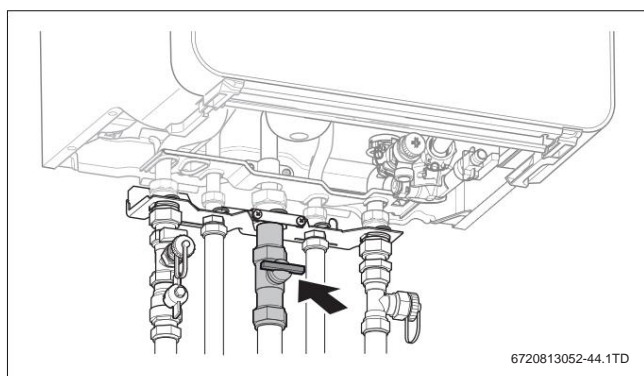


Fig. 37 Gas tap closed

If the heating system is taken out of service for a longer period of time when there is a risk of frost, it must be drained.

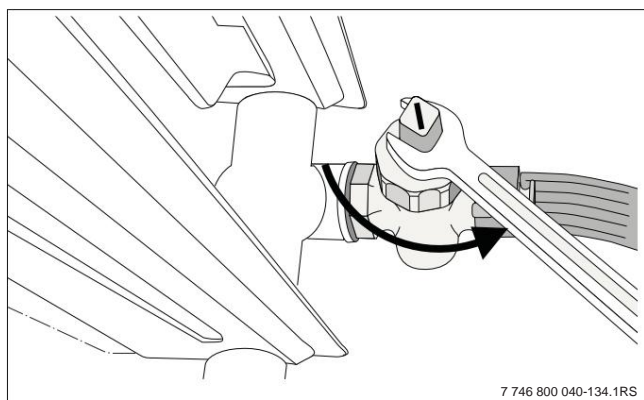


Fig. 38 Draining the heating system if there is a risk of

frost. Drain the heating water at the lowest point of the heating system at the drain valve or at the radiator. The automatic air vent at the highest point of the heating system must be open.

10 Settings in the service menu

10.1 Operation of the service menu

Open the **service** menu

Simultaneously press the * and (buttons until the Service menu appears.

Close the **service** menu

Press the * or (key.

-or-

Press the back button repeatedly until the standard display appears.

Navigating **through the menu**

To mark a menu or a menu item, press the **h** or **g** arrow button. Press button **b**.

The menu or menu item is displayed. To switch to the higher menu level, press the Back button to press.

Change setting values

Select the menu item with the **b** button. To select the desired value, use the arrow **h** or **g** button to press.

Press button **b**.

The new value is saved. The display changes to the higher-level menu.

Leaving the menu item without saving values Press the Back button.

The new value is saved. The display changes to the higher-level menu.

10.2 Servicemenü

INFO

- OPERATING STATUS •
- LAST FAULT • CURRENT
- FAULT • HEAT
- GENERATOR

- MAX./NOM. LEIST.
- MAX. HEAT POWER.
- WATER PRESSURE
- FLOW TEMP. TARGET
- FLAME CURRENT
- ACTUAL
- TEMPERATURE - RETURN TEMP.
- OUTDOOR TEMP.
- PUMP MODULE.
- BURNER PERFORMANCE
- BRENNERSTARTS
- OPERATING HOURS
- HYDR. SOFT TEMP.
- MIXER TEMP.
- PUFFERSP. TEMP.

- HOT WATER

- MAX. WW PERFORMANCE
- DHW FLOW
- AUSTRITTSTEMP.
- DHW SET TEMP.
- WW-ISTTEMP.

- SYSTEM

- VERS. CONTROL UNIT
- VER. CONTROL UNIT
- CODING ST. NUMBER
- CODING ST. VERSION

IDEAS

- HEATING

- MAX. HEATING CAPACITY
- LOCK TIME
- TAKTSPERRE TEMP.

- HYDRAULICS

- HOT WATER SP.
- HK1 KONFIG KESSEL
- PUMP IN PW2
- HYDR. SOFT

- PUMP BOILER
- PUMP
 - PUMP MAP
 - PUMP SWITCH TYPE
 - MIN. PERFORMANCE
 - MAX. PERFORMANCE
 - PUMP LOCK TIME
 - PUMP FOLLOW-UP
- HOT WATER
 - MAX. WW PERFORMANCE
 - THERM. DESINF.
 - CIRCULATION P.
 - FREQUENCY CIRC.
- SPECIAL FUNCT.
 - VENTILATION FUNC.
 - SIPHONFÜLLPROG.
 - 3WV IN CENTER POS.
 - CALIBRATION

LIMITS

- MAX. HEAT POWER.
- MAX. WW PERFORMANCE
- MAX. FLOW TEMP.

- MAX. WW-TEMP.
- MIN. DEVICE PERFORMANCE

FUNCTIONAL TEST

- ENABLE TESTS
 - IGNITION
 - BLOWN
 - PUMP
 - 3-WAY VALVE
 - IONISATIONSSOZILL.
 - 3-WAY MIXING VALVE.

EMERGENCY OPERATION**RESET**

- BASIC SETTINGS.

ADVERTISEMENT

- LANGUAGE
- DISPLAY
 - TURN OFF AFTER
 - BRIGHTNESS
 - CONTRAST
- KEY ILLUMINATION.

10.2.1 INFO

menu item	Settings/setting range	Remark/Restriction
OPERATING CONDITION	-	ÿ Table 28, page 40
LAST FAULT HEAT	-	ÿ Table 28, page 40
GENERATOR		
MAX./NOM. LEIST.	-	
MAX. HEAT POWER.	-	Info: Set value in > SETTINGS > HEATING > MAX. HEATING CAPACITY
WATER PRESSURE	-	Info: Current operating pressure in bar
FLOW TEMP. TARGET	-	Info: Flow temperature setting (ÿ Chapter 8.2, page 23)
FLAME STREAM	-	Info: current ionization current ÿA
THIS TEMPERATURE	-	Info: Current flow temperature in °C
RETURN TEMP.	-	Info: Current return temperature in °C
OUTDOOR TEMP.	-	Info: current outside temperature in °C
PUMP MODULE.	-	
BURNER PERFORMANCE	-	Info: current burner output in %
BRENNERSTARTS	-	
OPERATING HOURS	-	
HYDR. SOFT TEMP.	-	Info: Current temperature at the low loss header in °C
HOT WATER		
MAX DHW POWER	-	Info: Set value in > SETTINGS > HOT WATER SER > MAX. WW PERFORMANCE
DHW FLOW	-	Info: Current hot water flow in l/min
AUSTRITTSTEMP	-	
DHW SET TEMP.	-	Info: Set value for the hot water temperature (ÿ Chapter 8.2, page 23)
WW-ISTTEMP.	-	Info: Current hot water temperature in °C

Table 18 INFO menu

menu item	Settings/setting range	Remark/Restriction
SYSTEM		
VERSE. CONTROL UNIT	-	
VER. CONTROL UNIT	<ul style="list-style-type: none"> • NL • NF 	
CODED NUMBER	-	
CODED VERSION.	-	

Table 18 INFO menu

10.2.2 SETTINGS

menu item	Settings/setting range	Remark/Restriction
HEATING		
MAX. HEATING CAPACITY	<ul style="list-style-type: none"> • Setting range: ÿ Settings in: >LIMIT VALUES > MIN. EQUIPMENT. and >LIMITS > MAX. HEAT POWER. 	<p>Maximum released heat output [kW].</p> <p>For natural gas appliances:</p> <ul style="list-style-type: none"> ÿ Measure the gas flow rate. ÿ Compare the measurement result with the gas data tables (ÿ page 10). ÿ Correct deviations.
LOCK TIME	• 3 ... 10 ... 60 minutes	<p>The time interval defines the minimum waiting time between switching the burner on and switching it on again.</p> <p>When connecting a heating controller with a 2-wire BUS, the heating controller optimizes this setting.</p>
TAKTSPERRE TEMP.	• -2 ... -6 ... -30 Kelvin	<p>Difference between the current flow temperature and the set flow temperature until the burner is switched on ners.</p> <p>When connecting a heating controller with a 2-wire BUS, the heating controller optimizes this setting.</p>
HYDRAULICS		
PUMP IN PW2	<ul style="list-style-type: none"> • CIRCULATION PUMP • EXT. HEATING PUMP BEHIND HYDR. SOFT 	
HYDR. SOFT	<ul style="list-style-type: none"> • NO • KESSEL • MODULE 	
PUMP BOILER	<ul style="list-style-type: none"> • NO • JA 	
PUMP		
PUMP MAP	<ul style="list-style-type: none"> • POWER-BASED: Pump power proportional to the heat output (ÿ>SETTINGS > PUMP > MIN. POWER and > SETTINGS > PUMP > MAX. QUIET TUNG) • DELTA-P CONTROLLED 1: constant pressure • DELTA-P CONTROLLED 2: constant pressure • DELTA-P CONTROLLED 3: constant pressure • DELTA-P CONTROLLED 4: constant pressure • DELTA-P CONTROLLED 5: constant pressure • DELTA-P CONTROLLED 6: constant pressure 	ÿ In order to save energy and to keep any flow noises low, set a low pump characteristic (residual head ÿ Page 10).

Tab. 19 SETTINGS menu

menu item	Settings/setting range • ENERGY	Remark/Restriction
PUMP SWITCH MODE	SAVING: Intelligent heating pump switch-off for heating systems with outside temperature-compensated controllers. The heating pump is only switched on when required. • HEAT DEMAND: The flow temperature controller switches the heating pump on.	
MIN PERFORMANCE	ÿ 10 ... 100 %	Pump performance at minimum heat output Only available with pump map 0 (ÿ > SETTINGS > PUMP > PUMP MAP).
MAX. PERFORMANCE	ÿ 10 ... 74 ... 100 % (depending on performance)	Pump performance at maximum heat output Only available with pump map 0 (ÿ > SETTINGS > PUMP > PUMP MAP).
PUMP FOLLOW-UP	ÿ 0 ... 3 ... 60 minutes ÿ 24 hours	The pump run-on time begins at the end of the heat request from the heating controller.
HOT WATER		
MAX. WW PERFORMANCE	Setting range: ÿSettings in: > LIMITS > MIN. EQUIPMENT. and > LIMITS > MAX. WW PERFORMANCE	Maximum released hot water output [kW] For natural gas appliances: ÿ Measure the gas flow rate. ÿ Compare the measurement result with the gas data tables (ÿ page 10). ÿ Correct deviations.
THERM. DISINF. (only station wagon)	• OFF • ON DURING HOT WATER DRAWING	If too much water is drawn off, the required temperature may not be reached. ÿ Only remove enough water to reach the hot water temperature of 70 °C. ÿ Perform thermal disinfection (ÿ Chapter 7.5.2, page 20).
THERM. DISINF. (storage devices only)	• START NOW?	This service function activates the heating of the storage tank to 75 °C. • Perform thermal disinfection (ÿ Chapter 7.5.2, page 20). The activated thermal disinfection is not shown in the display. After the water has been kept at 75 °C for 35 minutes, thermal disinfection ends automatically.
CIRCULATION P.	• OFF • A	circulation pump.
FREQUENCY CIRC.	• 1 x 3 MINUTES/H • 2 x 3 MINUTES/H • 3 x 3 MINUTES/H • 4 x 3 MINUTES/H • 5 x 3 MINUTES/H • 6 x 3 MINUTES/H • CONTINUOUS	Number of pump starts of the circulation pump per hour (duration 3 minutes each). Only available when the circulation pump is activated (ÿ > SETTINGS > HOT WATER > CIRCULATION SP.).
SPECIAL FEATURES		
VENTILATION FUNC.	• OFF: Power off • AUTO: Always on • OFF: Turned on once	After maintenance, the ventilation function can be switched on. During the venting, VENTING OPERATION appears in the information area of the standard display.

Tab. 19 SETTINGS menu

Menu item	Settings/setting range • OFF:	Remark/Restriction
SIPHON FILL PROG.	Switched off (only allowed during maintenance) • ON: Power on	The siphon filling program is activated in the following cases: • The device is switched on with the on/off switch. • The burner has not been in operation for 28 days. • The operating mode is switched from summer to winter mode. The next time there is a demand for heat for heating or storage operation, the device is kept at a low heat output for 15 minutes. The siphon filling program remains active until 15 minutes have been reached at a low heat output. While the siphon filling program is running, the info area of the standard display shows SIPHON FILLING OPERATION
3WV IN CENTER POS.	• NO: Disabled • YES: Enabled	The function ensures that the system is completely drained and the engine can be easily removed. The 3-way valve remains in the middle position for about 15 minutes on.

Tab. 19 SETTINGS menu

10.2.3 LIMITS

menu item	Settings/setting range	Comments/restrictions
MAX. HEATING CAPACITY	• "Minimum nominal heat output" ... " maximum heat output "	Upper limit of the maximum heat output. Limits the Ein le nominal Setting range for the maximum heating output (\ddot{y} > SETTINGS > HEATING > MAX. HEATING OUTPUT).
MAX. WW PERFORMANCE	• " Maximum nominal heat output hot water "	Upper limit of the maximum hot water output. Limits the setting range for the maximum hot water output (\ddot{y} > SETTINGS > HOT WATER > MAX. DHW OUTPUT).
MAX. FLOW TEMP.	• 30 ... 82 ... 88°C	Upper limit of the maximum heat output. Limits the setting range for the maximum heating output (\ddot{y} > SETTINGS > HEATING > MAX. HEATING OUTPUT).
MIN DEVICE PERFORMANCE	• " Minimum rated heat output " ... "Maximum rated heat output"	Minimum nominal heat output (heating and hot water) Limits the setting range for the minimum heat output and the minimum hot water output (\ddot{y} > SETTINGS > HEATING > MAX. HEATING OUTPUT and > SETTINGS > WARM WATER > MAX. DHW OUTPUT).

Tab. 20 LIMIT VALUES menu

10.2.4 FUNCTIONAL TEST

menu item	Settings/setting range	Remark/Restriction
ENABLE TESTS		
IGNITION	• OFF • A	Permanent ignition. Checking the ignition by permanent ignition without gas supply. \ddot{y} To avoid damage to the ignition transformer: leave the function switched on for a maximum of 2 minutes.
BLOW	Permanent fan run • OFF • A	Permanent fan run. Blower running without gas supply or ignition.
PUMP	• OFF • A	Permanent pump operation (internal and external pumps).
3-WAY VALVE	• HEATING • HOT WATER	Permanent position of the 3-way valve.
IONISATIONSOSZILL.	• OFF • A	Voltage range between 153 and 187 Vac

Tab. 21 FUNCTION TEST menu

10.2.5 EMERGENCY OPERATION

menu item	Settings/setting range	Remark/Restriction
EMERGENCY OPERATION	<ul style="list-style-type: none"> • OFF • A 	

Tab. 22 EMERGENCY OPERATION menu

10.2.6 RESET

menu item	Settings/setting range	Remark/Restriction
HEAT GENERATOR	• UNLOCK?	
BASIC SETTINGS	• RESTORE?	

Tab. 23 RESET menu

10.2.7 DISPLAY

menu item	Settings/setting range	Remark/Restriction
LANGUAGE	<ul style="list-style-type: none"> • GERMAN • FRENCH • ITALIAN 	
DISPLAY		
TURN OFF AFTER	• 1 ... 2 ... 20 minutes	
BRIGHTNESS	• 20 ... 50... 100 %	
CONTRAST	• 30 ... 50... 70 %	
TURN OFF AFTER	• 30 ... 50... 100 %	

Tab. 24 DISPLAY menu

11 Environmental Protection/Disposal

Environmental protection is a corporate principle at Junkers. The quality of the products, economy and environmental protection are goals of equal importance to us. Environmental protection laws and regulations are strictly observed.

To protect the environment, we use the best possible technology and materials, taking economic aspects into account.

Packaging

When it comes to packaging, we participate in the country-specific recycling systems that ensure optimal recycling.


All packaging materials used are environmentally friendly and recyclable.

legacy device

Old devices contain recyclable materials that must be recycled. The assemblies are easy to separate and the plastics are marked. The various assemblies can thus be sorted and sent for recycling or disposal.


12 Inspection and Maintenance

12.1 Safety instructions for inspection and maintenance




DANGER: Danger to life from electric shock.
Touching live parts can lead to electric shock.

• Before working on the electrical part, interrupt the power supply (230 V AC) (fuse, circuit breaker) and secure it against being switched on again unintentionally.



DANGER: Danger to life from escaping exhaust gas.
Escaping exhaust gas can lead to poisoning.


• Carry out a leak test after working on exhaust-carrying parts.



DANGER: Risk of explosion from escaping gas.
Escaping gas can cause an explosion.

• Close the gas tap before working on gas-carrying Split.


• Carry out a leak test.



DANGER: Risk of scalding from hot water.
Hot water can cause severe scalding.

• Inform residents of the risk of scalding.

• Thermal disinfection outside the normal Carry out operating times.



CAUTION: Device damage due to escaping water to be.

Escaping water can damage the control unit.

• Cover the control unit before working on water-carrying parts.

**NOTE:** Notes for the target audience.

Inspection and maintenance may only be carried out by an authorized specialist company. The manufacturer's maintenance instructions must be observed. Non-observance can result in property damage and personal injury up to and including death.

ÿ Inform the operator of the consequences of inadequate or missing inspection and maintenance.

ÿ Inspect the heating system at least once a year and carry out any necessary maintenance and cleaning work.

ÿ Eliminate any defects immediately.

ÿ Check the heating block at least every 2 years and, clean if necessary. We recommend an annual check.

ÿ Only use original spare parts (see spare parts catalogue).

ÿ Removed seals and O-rings with new parts substitute.

**NOTE:** Tools for inspection and maintenance.

• The following measuring devices are required:

- Electronic flue gas meter for CO₂, O₂, CO and flue gas temperature
- Pressure gauge 0 - 30 mbar (resolution at least 0.1 mbar)

ÿ Use thermal paste 8719918658.

ÿ Use approved greases:

- For parts in contact with water: Unisilikon L 641 (8709918413)
- Screw connections: HFt 1 v 5 (8709918010).

**After inspection/maintenance**

ÿ Retighten all loosened screw connections.

ÿ Put the device back into operation (ÿ page 18).

ÿ Check the separation points for leaks.

ÿ Check the gas/air ratio.

12.2 Calling up the last saved fault

You can find an overview of the faults starting on page 36.

ÿ The last fault saved can be viewed in the service menu under > **INFO** > **LAST FAULT** can be called up.

12.3 Check electrodes**WARNING:** Risk of explosion from flammable gases.

ÿ Close the gas tap before working on gas-carrying parts.

ÿ Carry out a leak test after working on gas leading parts.

**NOTICE:** Damage to the seal.

If the cover plate is not tightly seated, the seal can burn.

ÿ Check the cover plate for leaks.

ÿ Remove the electrode set with the seal and check the electrodes for dirt and clean or replace if necessary.



We recommend replacing the seal every 4 years.

ÿ Reassemble the electrode set.

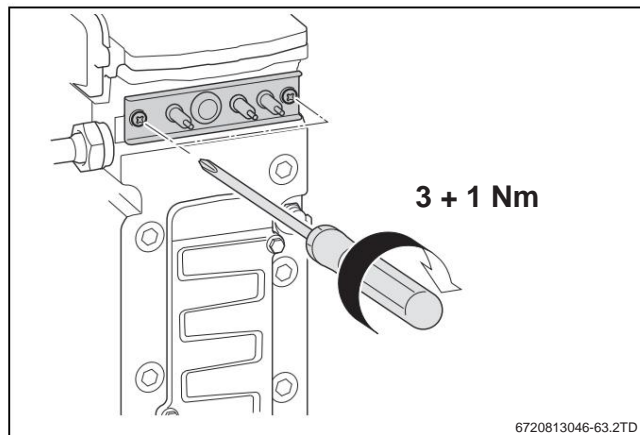


Fig. 39 Mount the electrode set

ÿ Check the electrode set for leaks.

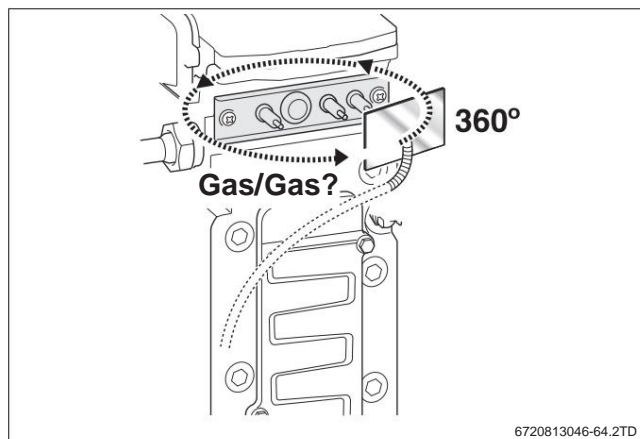


Figure 40 Leak test

12.4 Check the burner and non-return valve in the mixer

check device ÿ

Remove burner cap with mixing device.

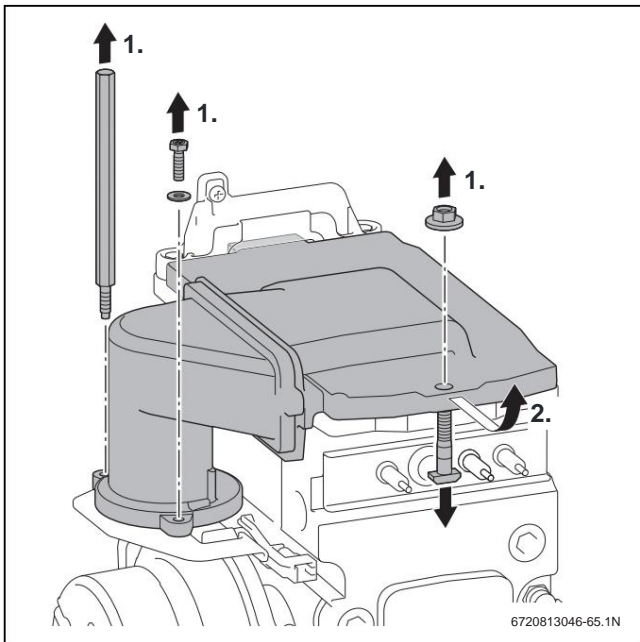


Fig. 41 Remove burner cap

ÿ Remove burner and clean parts.

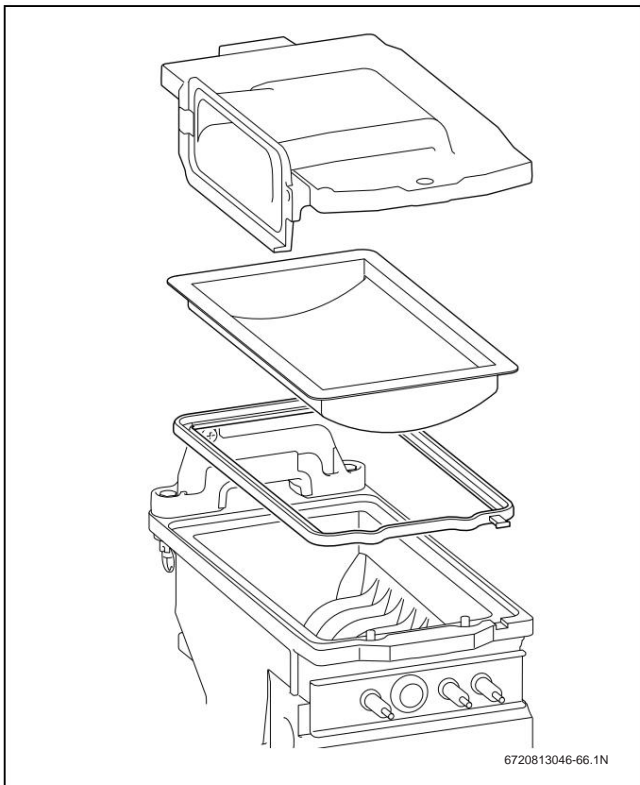
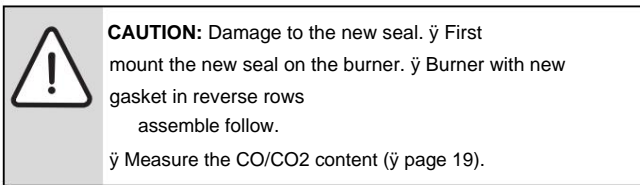


Fig. 42 Remove the burner

ÿ Remove the check valve. ÿ

Check the non-return valve for dirt and cracks.

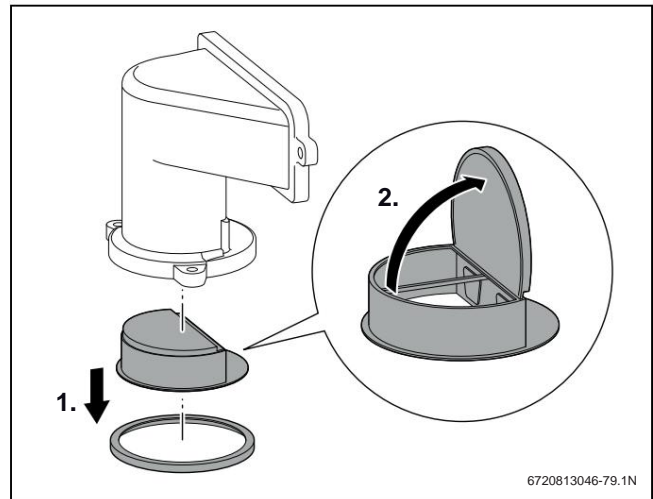


Fig. 43 Non-return valve in the mixing device

Final work:

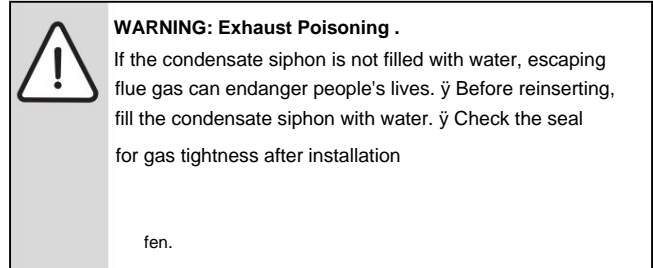
ÿ Install non-return valve. ÿ Install burner. ÿ Install burner cap with mixing device. ÿ Check the gas/air ratio.

12.5 Visual inspection for general signs of corrosion gen

ÿ All gas and water-carrying pipes for signs of corrosion check.

ÿ Replace any corroded pipes. ÿ Also visually inspect the burner, heating block, siphon, automatic air vent and all couplings in the device.

12.6 Clean and fill condensate siphon



ÿ Unlock condensate siphon [1]. ÿ Push the condensate siphon forwards. ÿ Take out the condensate siphon downwards. ÿ Check the opening to the heating block for continuity. ÿ Remove and clean the siphon cover. ÿ Check the condensate hose and clean if necessary.

ÿ Fill the condensate siphon with approx. ¼ l of water and reassemble [2].

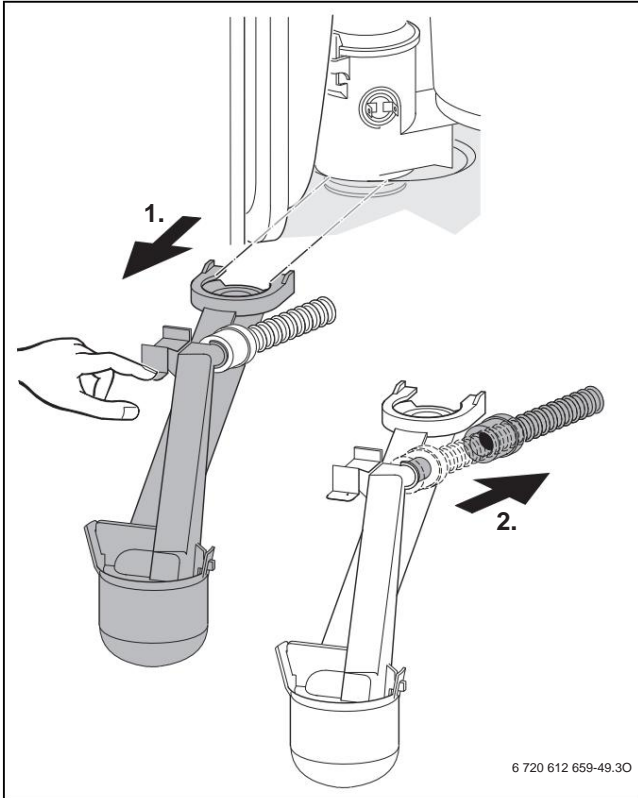


Figure 44 Condensate siphon

12.7 Check the combustion air flue gas connection



WARNING: Risk of explosion from flammable gases.

ÿ Check all connections for correct assembly fen.

Check the following points:

- Has the prescribed air/exhaust system been used?
- Have the implementation regulations contained in the relevant installation instructions for the flue gas system been complied with?

12.8 Carry out functional test

While the device is in operation, activate and check the heat request for heating and hot water on the device controls (operating unit).

- ÿ Open the gas tap.
- ÿ After inspection and maintenance, check whether the device is on works flawlessly.
- ÿ Set the maximum boiler temperature to the required temperature (ÿ Chapter 8.2).
- ÿ Set the hot water target temperature to the desired temperature place.
- ÿ Enter and check the heat request via the control unit, whether the device starts heating mode.

12.9 Check and clean heating block



CAUTION: System damage due to short circuit.

ÿ No water on the ignition electrode, the monitoring electrode or other electrical components.



NOTICE: System damage due to incorrect cleaning.

ÿ No steel brush required for mechanical cleaning to use.

ÿ Clean the heating block if it is extremely dirty gen.



Use a flashlight and mirror when inspecting the heat block.

ÿ Remove the cap from the pressure gauge and connect the pressure gauge eat.

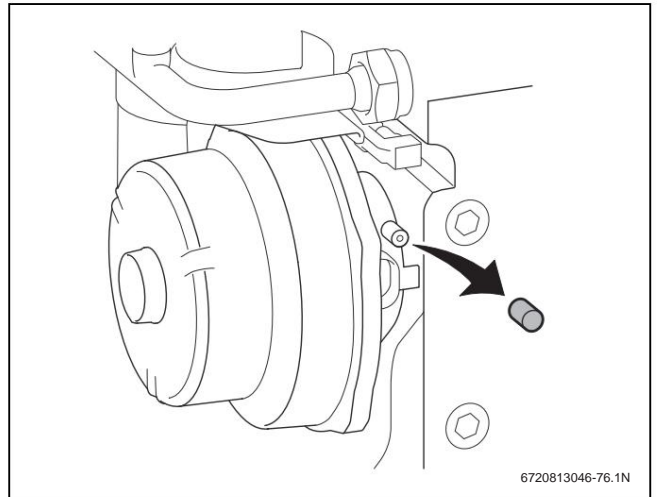


Fig. 45 Measuring socket on the mixing device

ÿ Control pressure at maximum nominal heat output at the mixing device check direction.

ÿ Clean the heating block if the measurement result is as follows:

device type	control pressure
GC9000iW 20 E(B) 23	<4,5 mbar
GC9000iW 30 E(B) 23	<10,4 mbar
GC9000iW 40 H 23	<5,5 mbar
GC9000iW 50 H 23	<6,4 mbar

Tab. 25 Check control pressure

If mechanical cleaning is required:

To clean the heating block, use Junkers burner seals, cleaning brush set and cleaning knife, which are available as spare parts.

ÿ Remove the cover of the test opening.

- ÿ Use the cleaning knife to cut the heating block from bottom to top clean.

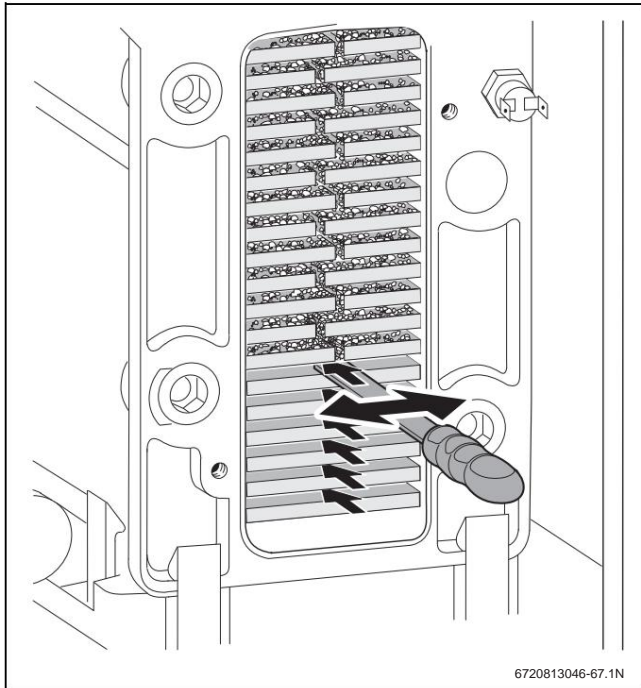


Figure 46 cleaning knife

- ÿ Use the brush to clean the heating block from top to bottom.

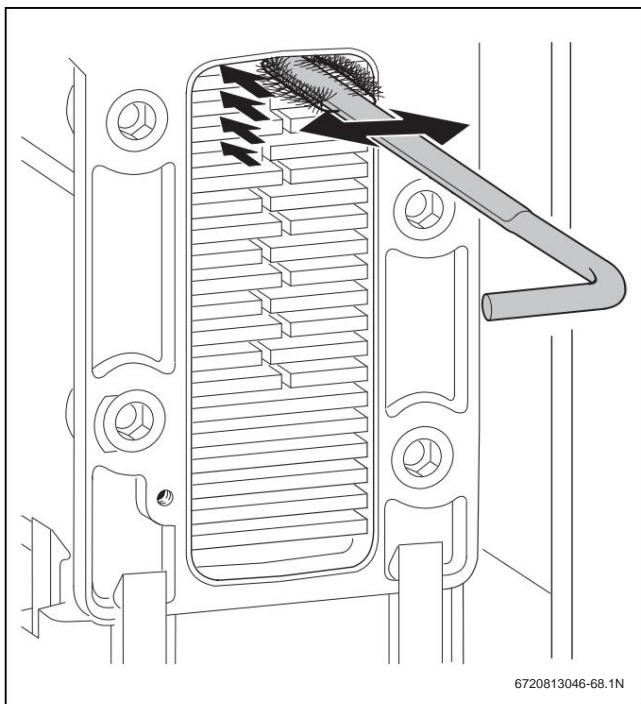
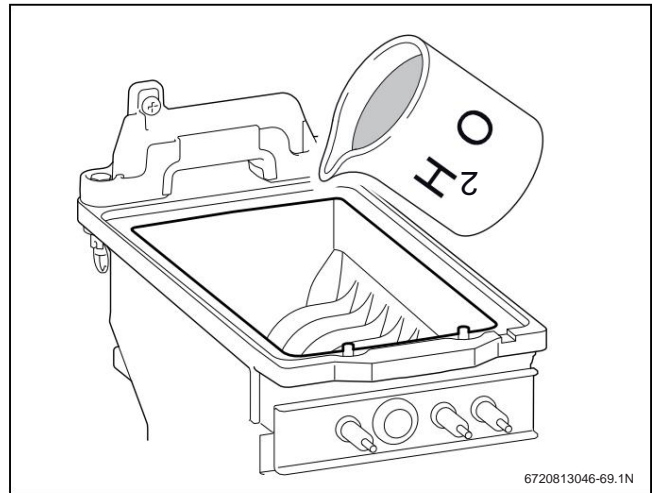


Fig. 47 Clean the heating block with a brush

- ÿ Remove the burner (ÿ Chapter 12.4).

- ÿ Rinse the heating block from above.



Picture 48 Flushing

- ÿ Clean the condensate pan (with the brush turned upside down).

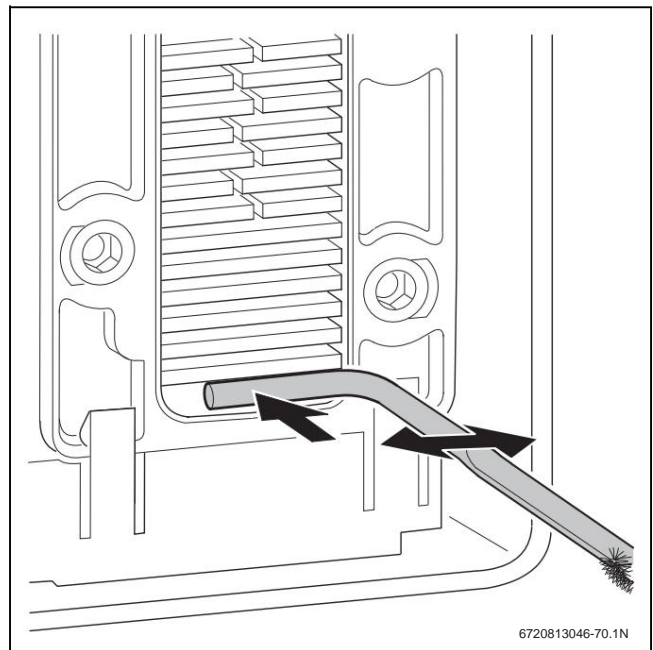


Fig. 49 Clean the condensate pan

- ÿ Rinse the heating block from above.
- ÿ Close the cleaning opening again with a new seal and the Tighten the screws with approx. 5 Nm.
- ÿ Set the gas/air ratio (ÿ chapter 7.4.3).

12.10 Check 3-way valve



Do not push the measuring pins of the multimeter too deeply into the connectors to avoid damage.

- ÿ Check whether during operation code „- -“ there is 24 VAC voltage on plug contacts "1" and "4".
- ÿ Set hot water operation to "Off" via the Settings menu len.
- ÿ Check whether during operation code „- -“ there is 24 VAC voltage on plug contacts "2" and "3".

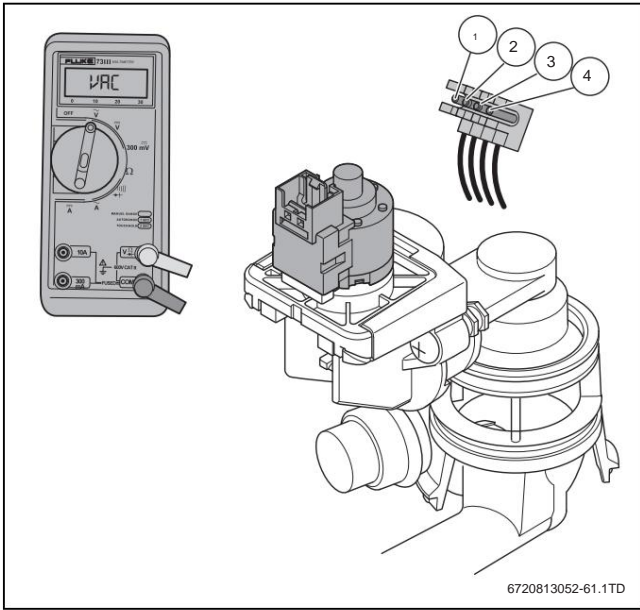


Fig. 50 3-way valve

12.11 Final inspection

- After completing the maintenance, open the maintenance cocks.
- Bleed the system if necessary.
- Check the operating pressure and top up the heating water if necessary.
- Open the gas tap.
- Set the on/off switch of the device to "1".
- Check for leaks when the device is in operation and heating for heat requirements (ÿ Chapter 7.4).
- Fill out the inspection and maintenance log (ÿ Chapter 12.12).

12.12 Checklist for inspection and maintenance

Datum							
1	Call up the last fault stored in the control unit.						
2	Visually inspect the air/exhaust duct.						
3	Check gas connection pressure.	mbar					
4	Gas-air ratio for min./max. Check nominal heat output.	min. % max. %					
5	Check the gas and water side for leaks.						
6	Check electrodes.						
7	Check burner.						
8	Check heat block.						
9	Check ionization current.						
10	Check the non-return valve in the mixing device.						
11	Clean condensate siphon.						
12	Check strainer in cold water pipe.						
13	Pre-pressure of the expansion tank for the Check the static height of the heating system.	bar					
14	Check the operating pressure of the heating system.	bar					
15	Check electrical wiring for damage.						
16	Check settings of the heating controller.						
17	Check the set service functions according to the "Settings in the service menu" sticker.						

Tab. 26 Inspection and maintenance log

13 Operating and fault displays

13.1 Operating displays

Operating displays (fault class O)

Operating displays signal operating states in normal operation.

Operating displays can be called up in the service menu under **> INFO >**

OPERATING STATUS. The menu item **OPERATING STATUS** displays the fault code and a description of the operating display.

13.2 Fault Indications

In the event of a fault, the text **FAULT PRESENT** appears in the **standard display**.

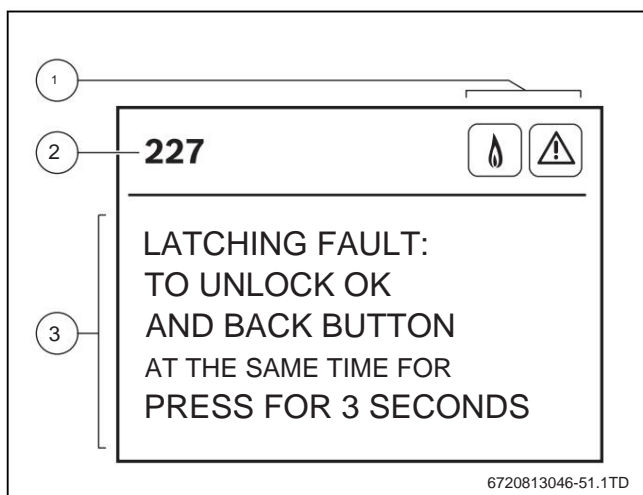


Figure 51 Fault menu

[1] Status-Symbole

[2] Error code

[3] Description

13.3 Table of operating and fault displays

Stö rungs Code	Stö rungs class	description	elimination
2 0 0	O	The device is in heating mode.	
2 0 1	O	The device is in the hot water supply drove.	
2 0 2	O	Waiting phase of the device. Heat request from RC controller or an ON/OFF thermostat occurs at intervals of less than 10 minutes.	
2 0 3	O	Ready for operation: No heat demand	
2 0 4	O	Waiting phase of the device. The measured Flow temperature is higher than the calculated or set heating water temperature there.	<ul style="list-style-type: none"> • Check the heating water temperature set on the device. heating water temperature, if applicable raise. • In the case of outdoor temperature-compensated control, the set heating curve in the room check the thermostat. If necessary, change the heating curve. • Check the wiring and function of the storage tank temperature sensor. component if necessary To deceive.
2 0 7	B	The operating pressure is too low, less than 0.2 bar.	<ul style="list-style-type: none"> • Fill the heating system up to 2 bar. • Check expansion tank. • Check the heating system for leaks. • Check the wiring and operation of the pressure sensor. Replace component if necessary.
2 0 8	O	The device is in the chimney operation or service operation.	

Tab. 27 Operating and fault displays

Non-blocking Interference (Interference Class R)

In the case of non-blocking faults, the heating system remains in operation.

The operation of the menus is not interrupted by a non-blocking interference. When the menu is exited, the fault display is shown instead of the standard display.

ÿ To exit the fault display, press button **b**.

The display changes to the standard display.

If the fault persists, the fault display will be displayed again after 2 minutes.

Blocking interference (interference class B)

Blocking faults lead to a time-limited shutdown of the heating system. The heating system restarts automatically as soon as the blocking fault is no longer present.

In the event of a blocking fault, operation of the menus is interrupted and the fault display is shown.

ÿ To exit the fault display, press button **b**.

If the fault persists, the fault display will be displayed again after 2 minutes.

Interlocking faults (fault class V)

Interlocking faults result in the heating system being switched off, which only restarts after a reset.

In the event of a locking fault, operation of the menus is interrupted and the fault display is shown.

ÿ To exit the fault display, press button **b**.

-or-

ÿ To reset the locking fault and exit the fault display, press button **b** and button **d** at the same time.

The device is operational again.

If the fault persists, the fault display will be displayed again after 2 minutes.

Stö rungs Code	Stö rungs class	description	elimination
2 1 4	V	The blower is switched off during the security time off.	<ul style="list-style-type: none"> • Check fan wiring and plug connections. • Check the unit's performance by replacing the fan. • Check plug connections of the automatic burner. • Replace the automatic burner and check the operating behavior of the device.
2 1 5	V	The fan is running too fast.	<ul style="list-style-type: none"> • Check exhaust system, clean or repair if necessary.
2 1 6	V	The fan runs too slowly.	<ul style="list-style-type: none"> • Check fan cable with plug, replace if necessary. • Check fan for dirt and blockage, replace if necessary.
2 1 7	V	The fan runs irregularly during the start-up phase.	<ul style="list-style-type: none"> • Check fan wiring and plug connections. • Check the unit's performance by replacing the fan. • Check plug connections of the automatic burner. • Replace the automatic burner and check the operating behavior of the device.
2 2 4	B IN	Heat block temperature limiter or Exhaust gas temperature limiter has triggered.	<p>If the blocking fault persists for a long time, the blocking fault becomes an interlocking fault.</p> <ul style="list-style-type: none"> • Check the heat block temperature limiter and connection cable for interruptions, exchange if necessary. • Check exhaust gas temperature limiter and connection cable for interruptions, replace if necessary. To deceive. • Check the operating pressure of the heating system. • In the service menu under SETTINGS > SPECIAL FUNCT. > VENTILATION FUNC. the Switch on venting and vent the device. • Set the pump performance or pump map correctly and to maximum performance adjust direction. • In the service menu under FUNCTIONAL TEST > ACTIVATE TESTS > PUMP the Hei Set the supply pump to continuous operation. • Turn on the heating pump, replace if necessary. • Check the water side of the heating block and replace if necessary.
2 2 7	B IN	Insufficient flame formation (ionization current) during burner ignition attempt.	<ul style="list-style-type: none"> • Check the device for dirt. • Check the dynamic gas pressure. • Check the gas/air ratio. • Check plug connections of the ignition device. • Check ignition and ionization current. • Check ignition device for damage. Replace component if necessary.
2 2 8	V	flame formation (ionization current). Brennerstart.	<ul style="list-style-type: none"> • Check the plug connection of the monitoring electrode. • Check the ignition device for damage and wear. Replace component if necessary s.
2 2 9	B	Insufficient flame formation (ionization current) during burner operation.	<ul style="list-style-type: none"> • Check the dynamic gas pressure. • Check the wiring and plug connection of the monitoring electrode. • Check the ignition device for damage and wear. Replace component if necessary s.
2 3 1	B	Interruption of the mains voltage while • restarting the device (reset). a locking fault.	
2 3 2	B	The external switching contact is open.	<ul style="list-style-type: none"> • Check the jumper on the connection of the external switching contact. • Check external switching contact.
2 3 3	V	Coding plug not recognized.	<ul style="list-style-type: none"> • Plug in coding plug correctly, replace if necessary.
2 3 5	V	Wrong coding plug (KIM)	<ul style="list-style-type: none"> • Check coding plug (KIM).
2 3 7	V	Automatic burner or KIM is defective.	<ul style="list-style-type: none"> • Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 3 8	V	Automatic burner or KIM is defective.	<ul style="list-style-type: none"> • Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 3 9	V	Automatic burner or KIM is defective.	<ul style="list-style-type: none"> • Replace coding plug. • Replace control unit.

Tab. 27 Operating and fault displays

Stö rungs Code	Stö rungs class	description	elimination
2 4 0	V	Automatic burner or KIM is defective.	• Check wiring and plug connection of burner control unit.
2 4 1			• Replace the automatic burner and check the operating behavior of the device.
2 4 2			
2 4 3			
2 4 4			
2 4 5			
2 4 6			
2 4 7			
2 4 8			
2 4 9			
2 5 0			
2 5 1			
2 5 2			
2 5 3			
2 5 4			
2 5 5			
2 5 6			
2 5 7			
2 5 8			
2 5 9			
2 6 1	V	Automatic burner is defective.	• Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 6 2	V	Automatic burner or KIM is defective.	• Check wiring and plug connection of burner control unit.
2 6 3			• Replace the automatic burner and check the operating behavior of the device.
2 6 4	B	Blows failed.	• Check fan wiring and plug connections. • Check fan for dirt and blockage, replace if necessary.
2 6 5	O	On/off operation: The heat requirement is lower than the minimum heat output.	
2 6 8	O	Component test: The device is in test mode.	
2 6 9		Ignition device has been activated for too long.	• Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 7 0	O	The device is booting up.	
2 7 2	V	Automatic burner or KIM is defective.	• Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 7 3	B	The burner and blower were 24 Hours of operation without interruption and are taken out of service for a short time for security checks.	
2 8 0	V	Automatic burner is defective.	• Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
2 8 1	B	The heating pump does not generate any pressure.	• Check the operating pressure of the heating system. • Open maintenance cocks. • Turn on the heating pump, replace if necessary.
2 8 2	O	No speed feedback from the heater pump.	• Check wiring and function of heating pump. Replace component if necessary.
2 8 3	O	Brennerstart	
2 8 4	O	First safety time: The gas fitting is opened.	
2 9 0	B	Automatic burner or KIM is defective.	• Check wiring and plug connection of burner control unit. • Replace the automatic burner and check the operating behavior of the device.
3 0 5	O	The time interval for water heating has not yet been reached.	

Tab. 27 Operating and fault displays

Stö rungs Code	Stö rungs class	description	elimination
3 0 6	V	Flame formation (ionization current) after the burner has been switched off.	<ul style="list-style-type: none"> • Clean the heat block on the inside around the ignition device. • Check the ionization part of the ignition device. Replace component if necessary. • Check whether the gas/air ratio is maintained even after the burner has been switched off is. • Check whether the gas train remains open even after the burner has been switched off is. • Replace the automatic burner and check the operating behavior of the device.
3 0 7	O	The heating pump in the device does not turn.	<ul style="list-style-type: none"> • Replace the heating pump and check the operating behavior of the device.
3 2 3	B	BUS communication interrupted.	<ul style="list-style-type: none"> • Check the BUS subscriber connection cable and replace if necessary.
3 2 8	B	There was a brief interruption in the mains voltage.	<ul style="list-style-type: none"> • Check the transformer cabling (if present). • Replace the transformer and check the operating behavior of the device. • Check whether the fault could have been the result of the presence of a generator set, wind turbine or other equipment that can cause an interruption. • Check electrical installation.
3 4 1	B	The temperature measured by the flow temperature sensor or the return temperature sensor is rising too quickly.	<ul style="list-style-type: none"> • Check the water pressure of the device and bleed the heating system and device. • Check whether there is sufficient flow through the heating system. • Check the performance and wiring of the pump and the relevant sensors fen. Replace component if necessary.
3 4 2	B	The temperature measured by the flow temperature sensor is rising too quickly.	<ul style="list-style-type: none"> • Check the water pressure of the device and bleed the heating system and device. • Check whether there is sufficient flow through the heating system. • Check the performance and wiring of the pump and the relevant sensors fen. Replace component if necessary.
3 5 0	B	Flow temperature sensor defective (short circuit).	<p>If the blocking fault persists for a long time, the blocking fault becomes an interlocking fault.</p> <ul style="list-style-type: none"> • Check temperature sensor and connection cable for short circuits, replace if necessary.
3 5 1	B	Flow temperature sensor defective (interruption).	<p>If the blocking fault persists for a long time, the blocking fault becomes an interlocking fault.</p> <ul style="list-style-type: none"> • Check temperature sensor and connection cable for breaks, replace if necessary.
3 5 6	B	Mains voltage lower than allowed.	<ul style="list-style-type: none"> • Check whether the fault could have been the result of the presence of a generator set, wind turbine or other equipment that can cause an interruption. • Check electrical installation.
3 5 7	O	vent operation.	
3 5 8	O	Blocking protection for 3-way valve.	
3 6 0	V	The attached KIM does not correspond to the automatic burner.	<ul style="list-style-type: none"> • Check KIM number. • Attaching the KIM with the correct KIM number.
3 6 1	V	The attached automatic burner does not correspond to the KIM.	<ul style="list-style-type: none"> • Check the numbers on the automatic burner. • Attaching the KIM with the correct KIM number.
3 6 4	IN	Gas valve does not close correctly.	<ul style="list-style-type: none"> • Check the wiring and plug connection of the gas valve.
3 6 5	IN		<ul style="list-style-type: none"> • Replace the gas valve and check the operating behavior of the device.
3 9 0	V	Burner automat reads an incorrect value im WHO.	<ul style="list-style-type: none"> • Replace KIM and check device performance.
1 0 1 1	R	DHW temperature sensor defective. Function is probably taken over by the software of the device.	<ul style="list-style-type: none"> • Disconnect the cable from the temperature sensor. • Check temperature sensor, replace if necessary. • Check connection cable for interruption or short circuit, replace if necessary.
1 0 1 2	R	Storage tank temperature sensor defective. Function is probably taken over by the software of the device.	<ul style="list-style-type: none"> • Disconnect the cable from the temperature sensor. • Check temperature sensor, replace if necessary. • Check connection cable for interruption or short circuit, replace if necessary.
1 0 1 9	R	Incorrect pump type detected.	<ul style="list-style-type: none"> • Set the pump map correctly. • Check plug connections and wiring harness for contact. • Replace the pump and check the performance of the device.

Tab. 27 Operating and fault displays

Störungs Code	Störungs class	description	elimination
1 0 2 2	R	Cylinder temperature sensor defective or contact problems.	<ul style="list-style-type: none"> • Check the storage tank temperature displayed for plausibility. • Check plug connections and wiring harness for contact. • Reset basic settings.
1 0 2 3	R	Set maintenance time has been exceeded. • Carry out Maintenance Required.	• Carry out maintenance on the device.

Tab. 27 Operating and fault displays

13.4 Failures Not Displayed

description	elimination
combustion noise too loud; humming noises	<ul style="list-style-type: none"> • Check gas type. • Check gas connection pressure. • Check exhaust system, clean or repair if necessary. • Check the gas/air ratio and correct if necessary. • Check the gas valve and replace if necessary.
flow noise	• Set the pump output or pump map correctly and to maximum output to adjust.
Heating takes too long.	• Set the pump output or pump map correctly and to maximum output to adjust.
exhaust gas values not in order; CO content too high.	<ul style="list-style-type: none"> • Check gas type. • Check gas connection pressure. • Check exhaust system, clean or repair if necessary. • Check the gas/air ratio and correct if necessary. • Check the gas valve and replace if necessary
Ignition too hard, too bad.	<ul style="list-style-type: none"> • Switch on the permanent ignition in the service menu under FUNCTION TEST > ACTIVATE TESTS > IGNITION and check the ignition transformer for misfires, replace if necessary. • Check gas type. • Check gas connection pressure. • Check mains connection. • Check electrodes with cable, replace if necessary. • Check exhaust system, clean or repair if necessary. • Check the gas/air ratio and correct if necessary. • With natural gas: Check the external gas flow monitor and replace if necessary. • Check burner, replace if necessary. • Check the gas valve and replace if necessary.
Hot water has bad smell or dark color.	<ul style="list-style-type: none"> • Carry out thermal disinfection of the hot water circuit. • Replace protective anode.
Hot water outlet temperature is not reached.	<ul style="list-style-type: none"> • Check turbine, replace if necessary. • Check the gas/air ratio and correct if necessary.
Hot water quantity is not reached.	• Check plate heat exchanger.
No function, the display remains dark.	<ul style="list-style-type: none"> • Check electrical wiring for damage. • Replace defective cables. • Check fuse, replace if necessary.

Tab. 28 Faults not displayed

13.4.1 More information

For more information contact the manufacturer.

notes

notes

notes



6720813052

Contact us...

GERMANY

Bosch Thermotechnik GmbH
Junkers Germany
PO Box 1309
D-73243 Wernau

Care of skilled trades

Phone (0 18 06) 337 335 ¹
Fax (0 18 03) 337 336 ²
Junkers.Handwerk@de.bosch.com

Technical advice/spare parts advice

Phone (0 18 06) 337 330 ¹

Customer Service Acceptance

(24 hour service)
Phone (0 18 06) 337 337 ¹
Fax (0 18 03) 337 339 ²
Junkers.kundendienstauftrag@de.bosch.com

training acceptance

Phone (0 18 06) 003 250 2 ¹
Fax (0 18 03) 337 336
Junkers.Schulungsannahme@de.bosch.com

Junkers extranet access

www.junkers.com

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AUSTRIA

Robert Bosch AG
Thermotechnology division
Göllnergasse 15 -17
A-1030 Vienna

Phone (01) 797 220
www.junkers.at

Customer Service Acceptance

verkauf.junkers@at.bosch.com

SWITZERLAND

distribution

Tobler Haustechnik AG
Steinackerstraße 10
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