Assembly and operating instructions

Gas condensing boiler

CGB-75 **Wall mounted gas boiler**
CGB-100 **Wall mounted gas boiler**

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The following symbols are used in conjunction with these important instructions concerning personal safety, as well as operational reliability.

"Safety instructions" are instructions with which you must comply exactly, to prevent risks and injuries to individuals and material losses.

Danger through 'live' electrical components!
NB: Switch OFF the ON/OFF switch before removing the casing.

Never touch electrical components or contacts when the ON/OFF switch is in the ON position! This results in a risk of electrocution that may lead to injury or death.

The main supply terminals are 'live' even when the ON/OFF switch is in the OFF position.

NB **"Note" indicates technical instructions that you must observe to prevent material losses and boiler malfunctions.**

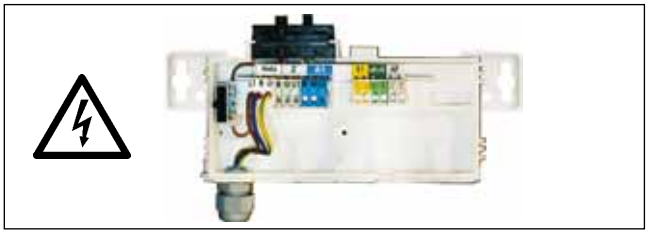


Figure: Terminal box - danger from electrical voltage

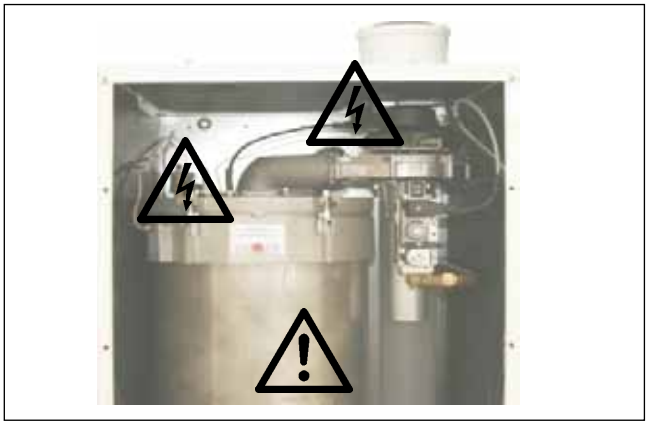


Figure: Ignition transformer, high voltage ignition electrode, heat exchanger
Danger from electrical voltage
Risk of burning from hot components

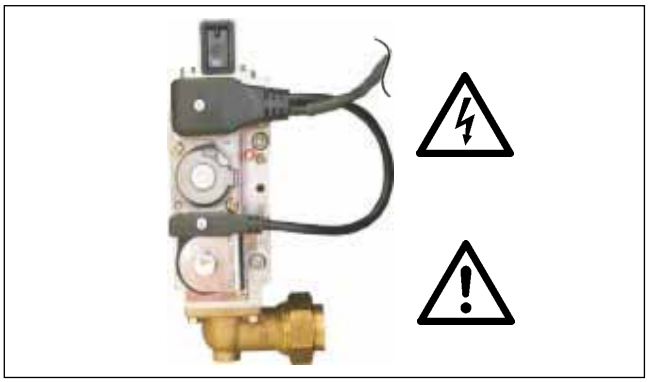


Figure: Gas combination valve
Danger from electrical voltage
Escaping gas may cause poisoning or an explosion

General notes

Maintenance work must only be carried out by a qualified heating contractor.
Regular maintenance and the exclusive use of original Wolf spare parts are necessary preconditions for trouble-free operation and a long service life.
We therefore recommend you arrange a maintenance contract with a local heating contractor.

Seal the front casing tightly with screws after completing the service. There is a risk of carbon monoxide poisoning if the flue system is faulty.

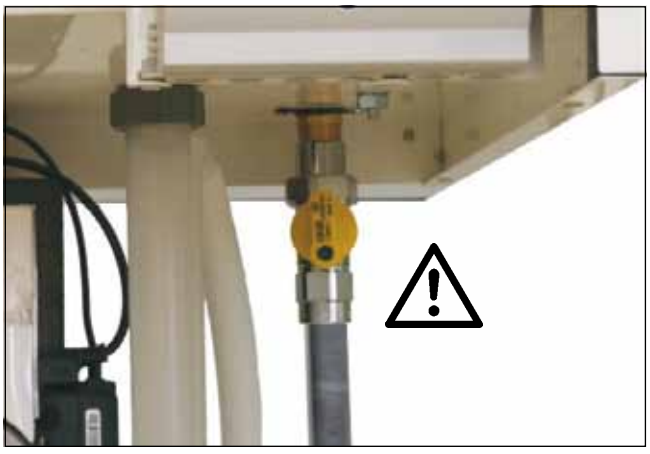


Figure: Gas connection
Escaping gas may cause poisoning or an explosion

Obtain the permission of your mains gas supplier and flue gas inspector prior to the installation of Wolf gas fired boilers [where appropriate].

Wolf gas fired boilers must only be installed by a recognised heating contractor. This heating contractor will also be responsible for the correct installation and commissioning of the heating system.

The following regulations, rules and guidelines must be observed during installation:

- VDE 0722 / EN50165 Electrical equipment of heat generators with non-electrical heating systems
- DIN EN 12828 Heating systems in buildings, designing hot water heating systems
- EN 60335-1 Safety of electrical equipment for domestic use and similar purposes
- VDE 0470 / EN 60529 Protection through housings

⚠ Any damage or loss resulting from technical modifications to the control unit or to the control components are excluded from our liability.
Incorrect use can lead to a risk to life and limb or to a risk of material losses.

Note: Please read these instructions carefully before the installation and keep them in a safe place. Please also note the technical information in the appendix.

⚠ **Only use propane compliant with local regulations, otherwise faults may arise through the starting characteristics and operation of the gas condensing boiler; this in turn may lead to boiler damage and risk of injury. Poorly vented LPG tanks can lead to ignition problems. In such cases, contact your local LPG supplier.**

Requirements

The installation of the boiler must be in accordance with the relevant requirements of Gas Safety (Installation and Use) Regulations 1998, Health and Safety Document No. 635 (The Electricity at Work Regulations 1989), BS 7671 (IEE Wiring Regulations) and the Water Supply (Water Fitting) Regulations 1999, or The Water Bylaws 2000 (Scotland). It should also be in accordance with the relevant requirements of the Local Authority, Building Regulations, including amendments to the Approved Documents Part L and J 2002, The Building Regulations (Scotland), The Building Regulations (Northern Ireland) and the relevant recommendations of the following British Standards:

BS 5440: Flues and ventilation of gas fired boilers not exceeding 70 kW net:
- Part 1: Flues
- Part 2: Ventilation

BS 5449: Specification for forced circulation hot water for domestic premises.
BS 5546: Specification for forced circulation hot water for domestic premises.
BS 6700: Services supplying water for domestic use within buildings and their curtilages.
BS 6798: Specification for installation of gas fired boilers not exceeding 60 kW input.
BS 6891: Specification for installation of low pressure gas pipework up to 28 mm (R1") in domestic premises (2nd family gas).
BS 7593: Treatment of water in domestic hot water central heating systems.

Institute of Gas Engineers Publication IGE/UP/7/1998:
"Guide for gas installations in timber framed housing"

Important: The appliance must be installed and serviced by a competent person as stated in the Gas Safety (Installation and Use) Regulations 1998. In IE, the installation must be in accordance with the current edition of I.S,813 "Domestic Gas Installations", the current Building Regulations and reference should be made to the current ECI rules for electrical installation.

When tightening or loosening threaded connections always use suitable open-ended spanners (not pipe wrench, or extensions, etc.). Incorrect use and/or unsuitable tools can lead to damage (e.g. gas or water leaks)!

⚠ **Any damage or loss resulting from technical modifications to the control unit or to the control components are excluded from our liability.
Incorrect use can lead to a risk to life and limb or to a risk of material losses.**

Note: Please read these instructions carefully before the installation and keep them in a safe place. Please also note the technical information in the appendix.

Gas condensing boiler CGB-...

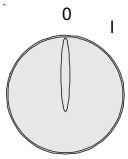
Gas condensing boiler in accordance with EN 297 / EN 437 / EN 483 / EN 677 / EN 625/pr EN 13203 and EU Directive 90/396/EEC (Gas Consumer Equipment), 92/42/EEC (Efficiency guideline), 2006/95/EU (Low Voltage Directive) and 2004/108/EU (EMC Directive), with electronic ignition and electronic flue gas temperature monitoring, for low temperature heating and DHW production in heating systems with flow temperatures up to 95 °C and 6 bar permissible operating pressure in accordance with EN 12 828. The Wolf gas condensing boiler is also approved for installation in garages.

Figure: Wolf gas condensing boiler

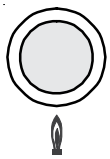
Open flue gas condensing boilers must only be installed in a room which complies with the appropriate ventilation requirements. Otherwise there is a risk of asphyxiation or poisoning. Read these installation and maintenance instructions before installing the boiler. Also take the technical engineering information into consideration.

Exclusively propane in accordance with DIN 51 622 is to be used for operation with LPG, as otherwise there is a danger of malfunctions occurring with regard to the start-up behaviour and the operation of the wall mounted gas boiler, whereby there is a danger of damage to the appliance and personal injuries.
A poorly vented LPG tank may lead to ignition problems. In this case consult the LPG tank filling company.

To protect against limescale formation, the hot water temperature may be set to maximally 50 °C from a total hardness of 15 °dH (2.5 mol/m³). This corresponds to a maximum hot water rotary knob setting of 6 without accessory regulator. From a total hardness of more than 20 °dH the use of water treatment in the cold water supply pipe is always required for the heating of potable water in order to extend the maintenance intervals.
Neglecting this can lead to premature formation of limescale in the appliance and to limited hot water comfort. The local conditions should always be checked by the responsible tradesman.



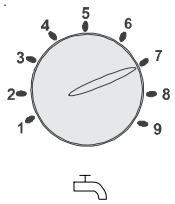
ON/OFF **switch**
The condensing boiler is OFF in position 0.



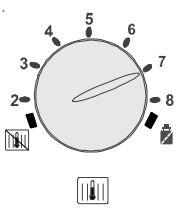
Reset
A fault is reset by pressing the reset button which will also restart the system.
Pressing the reset button reactivates the system, if there was no fault.

Illuminated signal ring as status indicator

Display	Explanation
Flashing green	Standby (power supply ON; no heat demand)
Constant green light	Heat demand: Pump running; burner OFF
Flashing yellow	Emissions test mode
Constant yellow light	Burner ON; flame steady
Flashing red	Fault



DHW temperature selection.
When gas condensing boilers are combined with a DHW cylinder, setting 1-9 corresponds to a cylinder temperature of 15-65 °C. The DHW temperature selector setting becomes ineffective when the system is combined with a digital room thermostat or a weather-compensated controller. The temperature will then be selected at the controller (accessory).



Heating water temperature selection.
Settings 2-8 correspond, when factory-set, to a heating water temperature of 20-80 °C. The heating water thermostat setting becomes ineffective when the system is combined with a digital room thermostat or a weather-compensated controller.

Setting

Winter mode (settings 2 to 8)
In winter mode, the boiler heats to the temperature selected at the heating water temperature controller. According to the pump operating mode, the circulation pump operates constantly (factory setting) or only in parallel with the burner activation / run-on period.

Summer mode
Winter mode is disabled by rotating the heating water temperature selector into position . The boiler then operates in summer mode. Summer mode (heating OFF) means only DHW heating. Frost protection for the heating system and pump anti-seizing protection, however, remain enabled.

Emissions test mode
Emissions test mode is activated by rotating the heating water temperature selector into position . The illuminated signal ring flashes yellow. After the emissions test mode has been activated, the boiler will heat with the selected maximum heating output. Any previous cycle block will be cancelled. The emissions test mode terminates after 15 minutes or when the maximum flow temperature has been exceeded. To reactivate, turn the heating water temperature selector anti-clockwise and then back to .

Anti-seizing pump protection

In summer mode, the circulation pump operates for approx. 30 seconds after a maximum idle period of 24 hours.

Note:

The number of times the condensing boiler can be started in heating mode is limited electronically. This limit can be bypassed by pressing the reset button. Then, the boiler starts immediately, as soon as there is a heating demand.

As delivered condition
Gas condensing boiler

The standard delivery includes:

1 Gas condensing boiler ready to connect with the casing fitted
1 Mounting bracket for mounting on the wall, with installation accessories
1 Installation instructions
1 Operating instructions
1 Maintenance instructions
1 Siphon with hose
1 Maintenance tool

Accessories

The following accessories are required for installation of the gas condensing centre:

- Balanced flue accessories (see design information)
- Room temperature-dependent or weather-compensated control
- Condensate drain outlet with hose retainer
- Gas ball valve with fire protection
- Fitting assembly for heating flow, heating return and integral safety assembly
- Pump assembly with variable speed pump and integral safety assembly
- Low loss header set for one or two appliances in a cascade
- Dirt filter in the heating return

Boiler connections

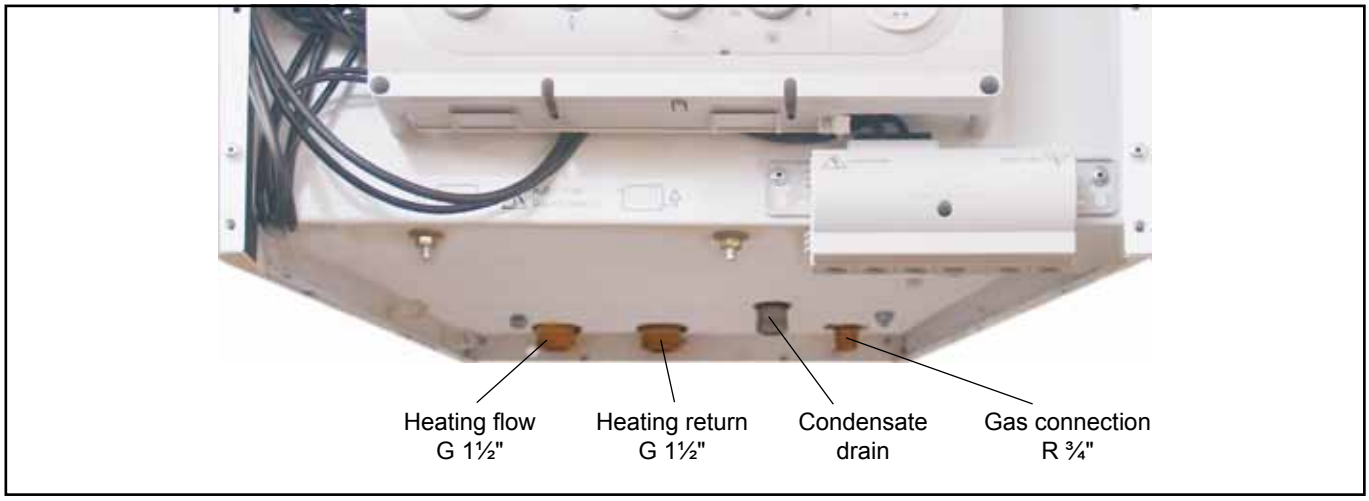


Figure: Connections with heating circuit connection set (accessory)

Heating circuit pump assembly (accessory)

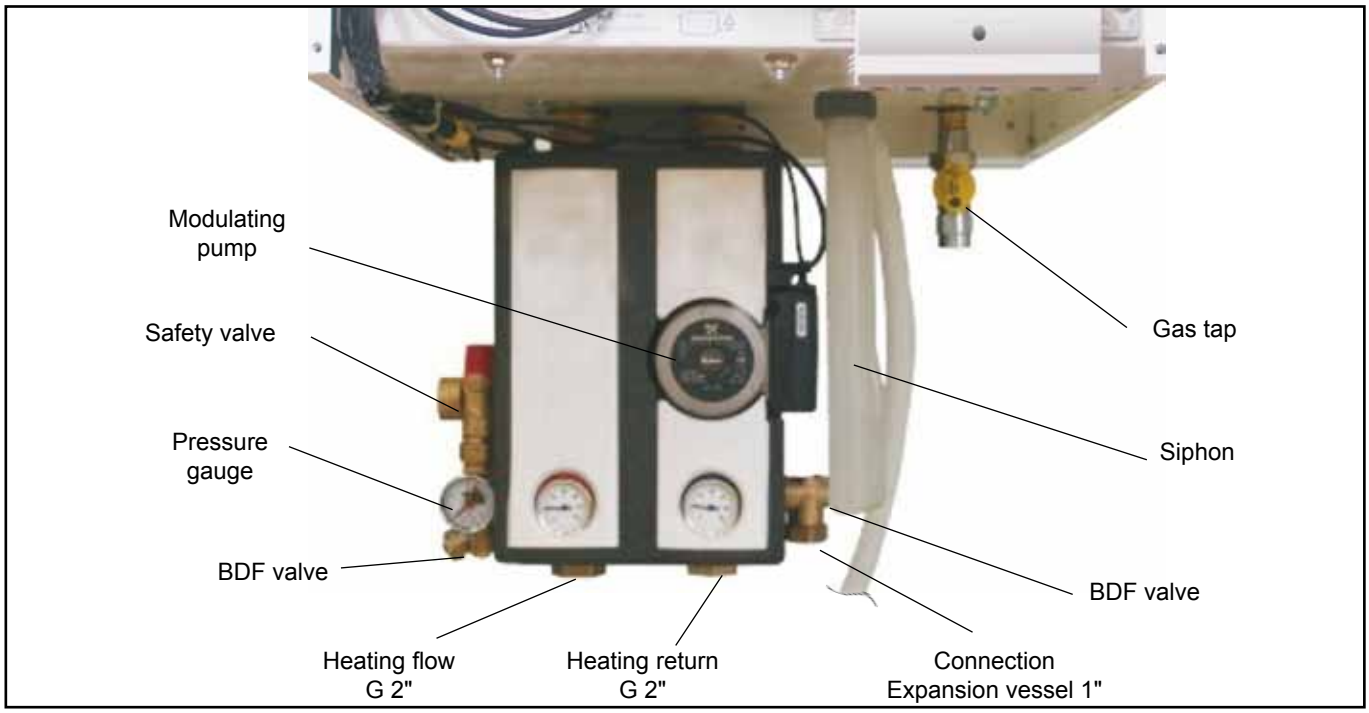
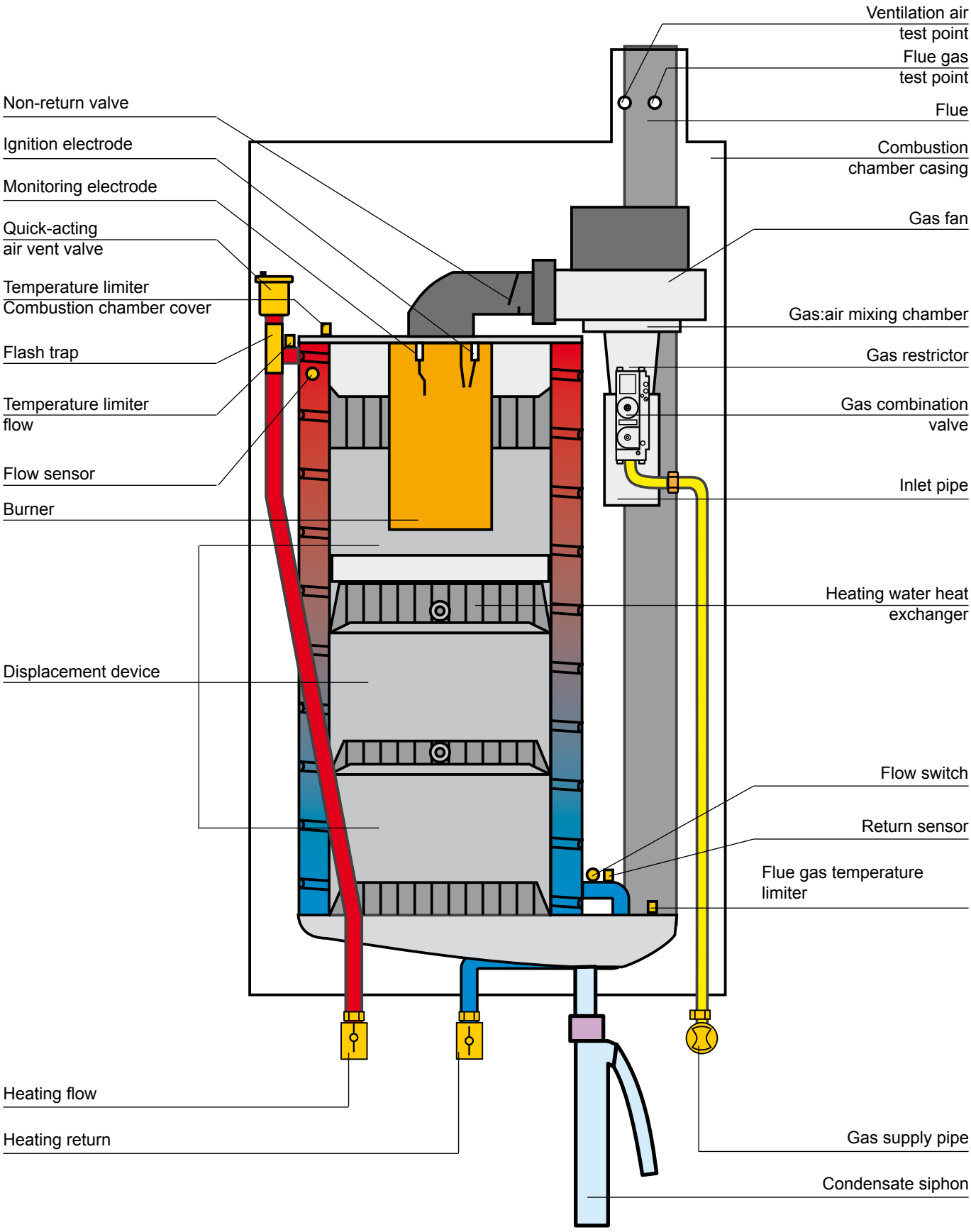


Figure: Pump assembly (accessory)

Layout

CGB-75 / CGB-100

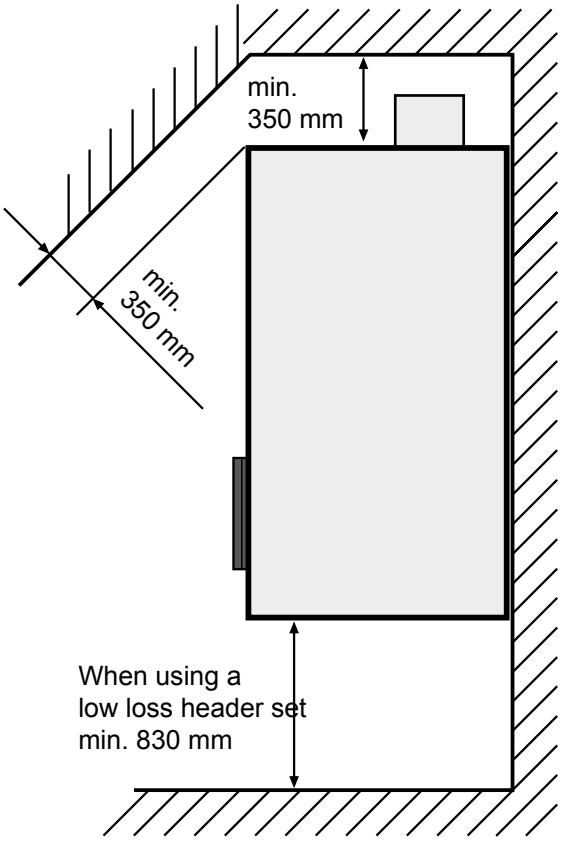


General notes

Electrical connection must be made on site.

Please maintain the 350 mm clearance to the ceiling to enable inspection and maintenance work on the boiler to be carried out, otherwise the necessary inspection and function tests on components cannot be ensured during maintenance. The drain hoses must be secured with the retainer above the drain outlet (siphon). The drain must be able to be inspected.

The appliance may only be installed in rooms that are safe from the risk of frost.



Clearance between the boiler and combustible materials or components is not required, as temperatures are limited to 85 °C at the rated boiler output. However, explosive and easily combustible materials must not be used in the boiler room; these would create a risk of fire or explosion.

NB **During boiler installation, ensure that no contaminants (e.g. drilling swarf) enter the gas boiler, otherwise faults may develop.**

The installation room and the combustion air supplied to the appliance must be free from chemicals, e.g. fluoride and chlorine or sulphur. Such materials are contained in sprays, paints, adhesives, solvents and cleaning agents. Under the most unfavourable conditions, these may lead to corrosion, even in the flue gas system.

First determine where the appliance is to be installed.
In your deliberations, consider the flue gas outlet, the lateral clearances towards walls and ceilings and any existing connections for gas, central heating, DHW and electrics.

Sound insulation: Under certain critical installation conditions (e.g. installation on a drywall), additional measures may be necessary to soundproof the boiler. In this case use soundproof plugs and, if necessary, rubber mounts or insulation strips.

Opening the casing cover

We recommend you remove the casing cover during the installation.
Release the casing cover with the l.h. and r.h. screw. Release the bottom of the casing cover and unhook at the top.

Seal the front casing tightly with screws after completing the service. There is a risk of carbon monoxide poisoning if the flue system is faulty.

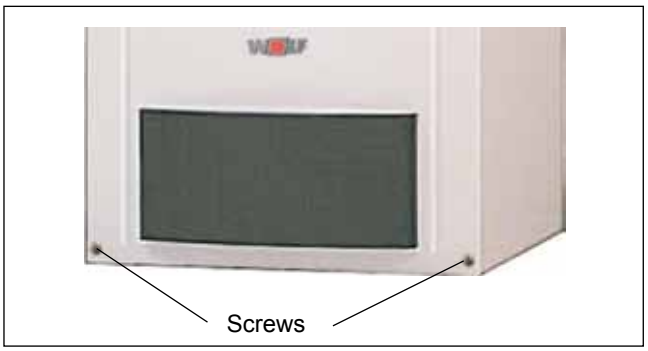


Figure: Undoing screws

Mounting the boiler with a mounting bracket

During installation of the gas condensing boiler, ensure that all fixings are strong enough to carry its weight. Also consider the wall consistency, otherwise gas or water may escape which could lead to explosions and flooding.

Initially, determine the location for the installation of the gas condensing boiler.
In your deliberations, consider the flue gas outlet, the lateral clearances towards walls and ceilings and any existing connections for gas, central heating, DHW and electrics.

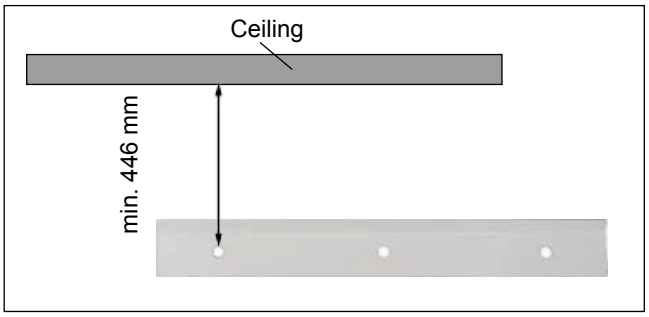
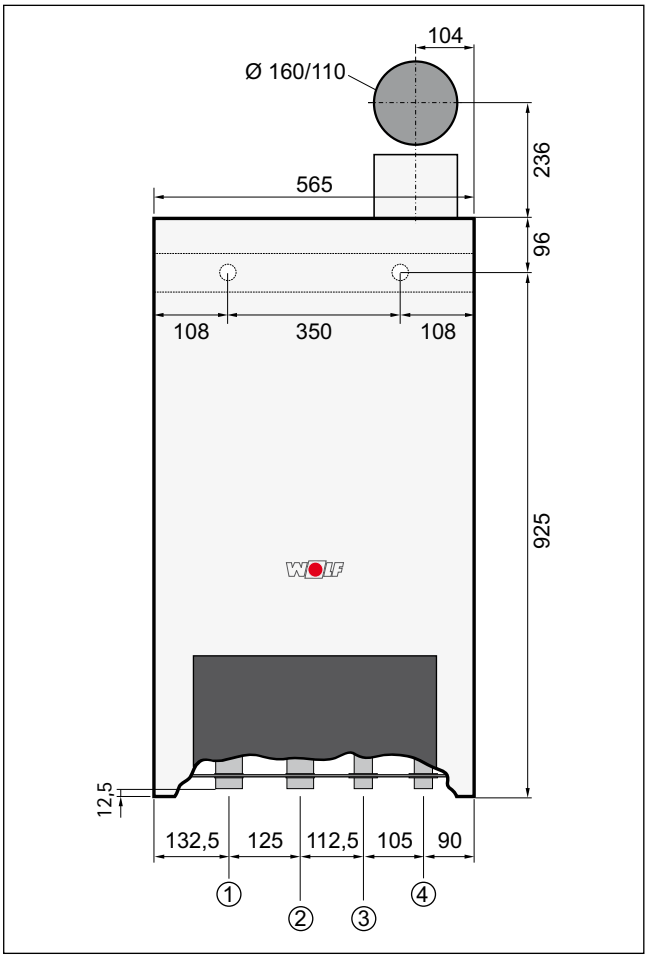
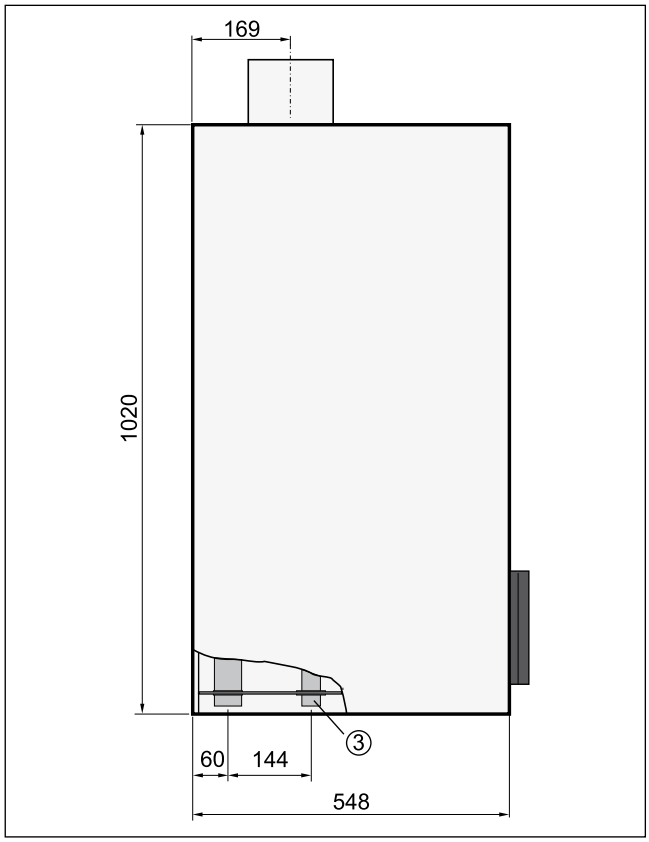


Figure: Fixing holes for mounting bracket

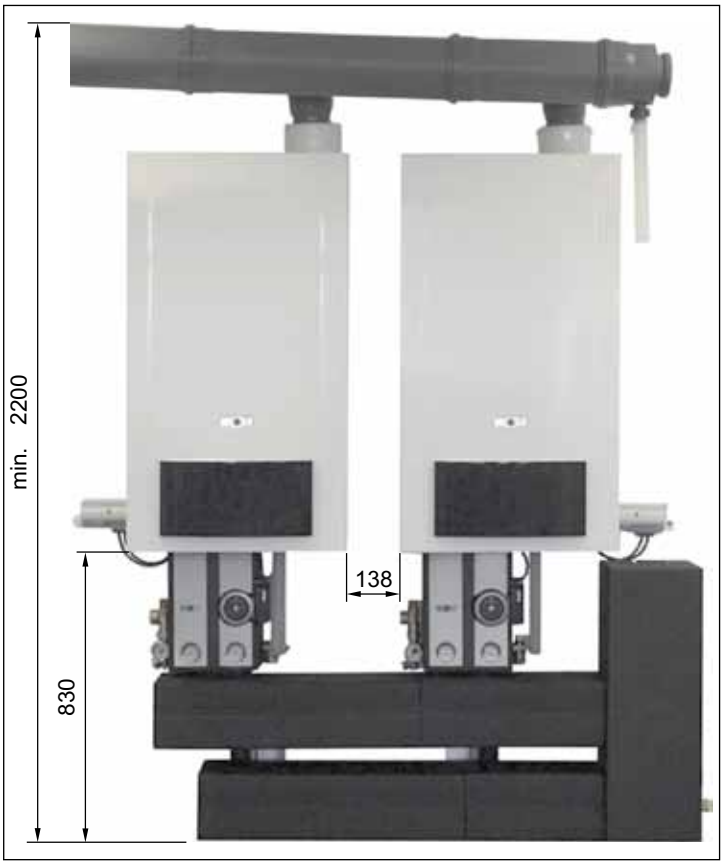
- Mark the holes to be drilled for the mounting bracket, taking into consideration the minimum clearances.
- Insert the rawl plugs and fit the mounting bracket with the coach bolts and washers supplied.
- Hang the gas condensing boiler with the mounting stays into the mounting bracket.

Figure: Mounting brace on the condensing boiler





① Heating flow
② Heating return
③ Condensate drain
④ Gas connection



Overpressure cascade DN 160 with low loss header set

Heating circuit connection set

We recommend you connect the heating system with the aid of a heating circuit connection set.
Connection set comprising: Connection to the appliance with flat gasket, connection to heating flow/return with ball valves 1" female thread.

Figure: Heating circuit connection set (accessory)

Note:

Provide a BDF valve at the lowest system point.

Safety equipment

The CGB-75 and CGB-100 have not been fitted with an expansion vessel at the factory. This must be fitted externally (available from the Wolf accessories range). Ensure the expansion vessel is correctly sized.

There must be no shut-off valve between the expansion vessel and the condensing boiler, otherwise the pressure build-up would permanently damage the boiler during heating. There is a risk of system components rupturing, giving rise to a risk of scalding.

Exceptions are cap valves upstream of the expansion vessel. The pump or fitting assembly includes a 3 bar safety valve (6 bar safety valve is available as an accessory). Route the blow-off line into a drain funnel. The minimum system pressure is 1.0 bar. The boilers are approved exclusively for sealed systems of up to 6 bar. The maximum flow temperature is factory-set to 80 °C and may be adjusted to 90 °C if required.

Figure: Pump assembly (accessory)

Note:
Provide a BDF valve at the lowest system point.

Safety equipment

The minimum system pressure is 1.0 bar.
The gas condensing boiler is approved exclusively for sealed systems of up to 6 bar. The maximum flow temperature is factory-set to 80 °C and may be adjusted to 90 °C if required. Generally, the flow temperature is 80 °C for DHW operation.

Heating water

General requirements

There is a danger of damage to the wall-mounted boiler leading to the escape of water, poorer heat transmission or corrosion.

- The heating system is to be flushed through before the connection of the wall mounted gas condensing boiler in order to remove residues from the pipework such as welding sputter, hemp, putty, sludge deposits etc.
- Installation of a sieve/dirt trap in the return and regular maintenance of the sieve / dirt trap; see Wolf accessories (5 µm).
- The automatic vent of the appliance must be open during operation
- The max. air volume of 100 l/min (6000 l/h) may not be exceeded
- Potable water or saline-free potable water is to be used as filling and supplementary water. The hardness of the system water may not fall below 2 °dH. The system-specific filling and supplementary water qualities are to be taken from the section 'Water treatment planning notes'.
- A hydraulic separator must be provided for if the entry of oxygen cannot be excluded
- The pH value of the heating water must lie between 8.2 and 8.5
- In general, filling and supplementary water must be submitted to a desalization; softening via a single-stage ion exchanger is not permissible. The permissible methods and limit values are to be taken from the section entitled 'Water treatment planning notes' (ATTENTION: the limit values are plant-specific)
- Inhibitors and anti-freeze are not approved.
- A system logbook is to be maintained; see 'Water treatment planning notes'

After proper filling of the system the system must be heated to the maximum and the total hardness and pH value measured again or adjusted. These values must be checked again and adjusted after 6-8 weeks.

Additional requirements for operation <u>without</u> low-loss header

- Systems with only one CGB-75/100
- Sludge separator in the appliance return of the CGB-75/100
- Desalization of the heating water to 2 - 3 °dH
- Control of the calorifier charging only via the MM module (configurations 1 and 10)
- Charging pump at least DN 25 with a lifting height of at least 6 m
- The max. inlet temperature must be set to 75 °C with the parameter HG08

The water treatment planning notes must be observed, as otherwise damage to the system may occur leading to the escape of water.

The manufacturer cannot accept any liability for damage to the heat exchanger resulting from oxygen diffusion into the heating water. In the case that oxygen can penetrate into the system, we recommend a hydraulic separator by installing an intermediate heat exchanger.

Note from VDI 2035
Limescale formation can be influenced above all through the type and method of commissioning. Heat up the system at the lowest power with an even and sufficient flow rate. In the case of multi-boiler systems it is recommended to put all boilers into operation at the same time so that the total amount of lime cannot concentrate on the heat transfer surface of an individual boiler.

Information on scaling

Scaling can be strongly influenced particularly through the method of commissioning. Heat the system at the lowest output with an even and adequate throughput. For multi-boiler systems it is recommended to commission all boilers simultaneously to prevent the overall amount of lime concentrating on the heat exchanger surface of an individual boiler.

Before commissioning, all hydraulic pipes must undergo a tightness test:
Test pressure on heating water side max. 8 bar. Prior to testing, close the shut-off valves in the heating circuit for the appliance, because otherwise, the safety valve (accessory) opens at 3 bar. The appliance has already been tested at the factory for tightness at 6 bar.
If the appliance is not watertight, there is a risk of leaks and resulting material losses.

The maximum flow rate must not exceed 6000 l/h (100l/min).

With a specific system volume of >50 l/KW the total degree of hardness must be adjusted to 2-3 °dH using a desalting process.

Condensate drain connection

Connect the siphon supplied to the connector on the combustion chamber pan.

Please note: The siphon must be filled with water prior to commissioning.

If condensate is directly routed to the public sewer, ensure ventilation, so that the public sewer cannot affect the condensing boiler.

Figure: Siphon

There is a risk of poisoning through flue gases being expelled if the appliance is operated with an empty siphon. Therefore, fill the siphon with water prior to commissioning. Undo the siphon, remove and fill until water runs out of the drain hole on the side. Refit the siphon and ensure the gasket seals tightly.

The condensate must only be routed through pipes that are resistant.
Observe the relevant instructions if you install a neutralising system (accessory).

Figure: Neutralising system (accessory)

Condensate pump

When using a condensate pump, the alarm output can be connected at connection E1. Set the boiler parameter HG13 to "2".
The alarm output switches the appliance OFF if condensate cannot be pumped out correctly.

Gas connection

Routing the gas pipe as well as making the gas connections must only be carried out by a licensed gas fitter. Close the gas ball valve on the condensing boiler to pressure test the gas pipe.
Remove all residues from the heating pipework and the gas pipe prior to connecting the condensing boiler, particularly in older systems. Prior to commissioning, test all pipe and gas connections for leaks in accordance with local regulations. Only approved foaming leak detection sprays should be used.
Inappropriate installation or using unsuitable components or assemblies may lead to gas escaping, which results in a risk of poisoning and explosion.

Install a gas ball valve with fire protection in the gas supply line upstream of the Wolf condensing boiler. Otherwise explosions may occur during a fire. Size the gas supply line in accordance with details laid down in local regulations.

Gas fittings on the gas burner may be pressure tested to 150 mbar. Higher pressure may damage the gas train, resulting in a risk of explosion, asphyxiation or poisoning.
Close the gas ball valve on the gas condensing centre to pressure test the gas pipe.

Mount the gas ball valve in an easily accessible place.

Figure: Straight-through gas ball valve (accessory)

- Prior to installation, ensure that the boiler corresponds to the gas type available. See the following table for factory settings subject to type of gas.

LPG P: [2)]	Ws = 20.2 -21.3 kWh/m³= 72.9-76.8 MJ/m³

Table: Factory settings subject to type of gas

NB

For flues and concentric balanced flue systems, use only original Wolf components.
Please observe the technical information regarding balanced flue systems prior to installing the flue or the balanced flue connection.

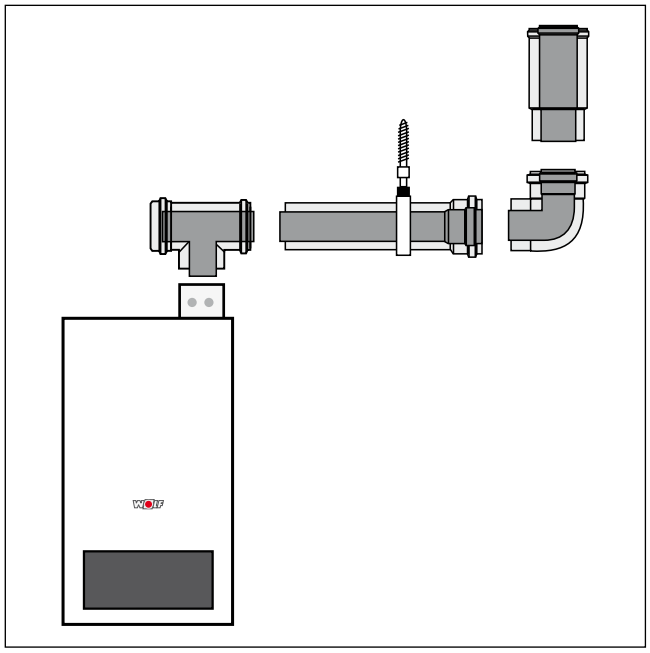


Figure: Example: Balanced flue system

NB

The flue gas test ports must remain accessible for your local flue gas inspector, even after fitting the ceiling bezels.

With low outside temperatures, the water vapour contained in the flue gas may condense and freeze on the balanced flue. Prevent ice from falling through on-site measures, e.g. the installation of a snow catcher grille.

Electrical connection

General notes

The installation must be carried out by a licensed electrical contractor. Observe electrical regulations and those of the local power supply utility.

The power supply terminals are 'live' even when the ON/OFF switch has been switched OFF.

Terminal box

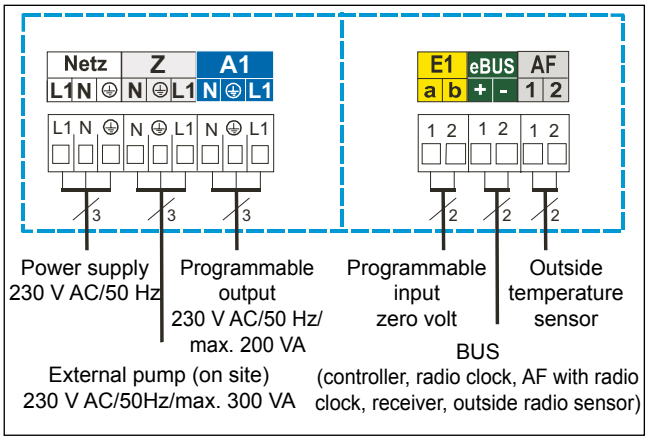
The control, regulating and safety equipment are fully wired and tested.

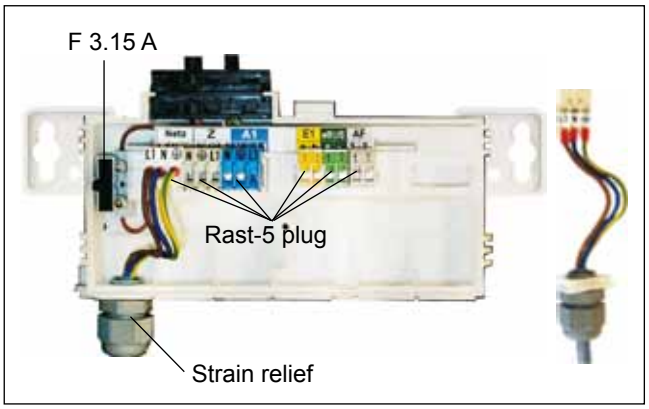
Combi boiler power supply

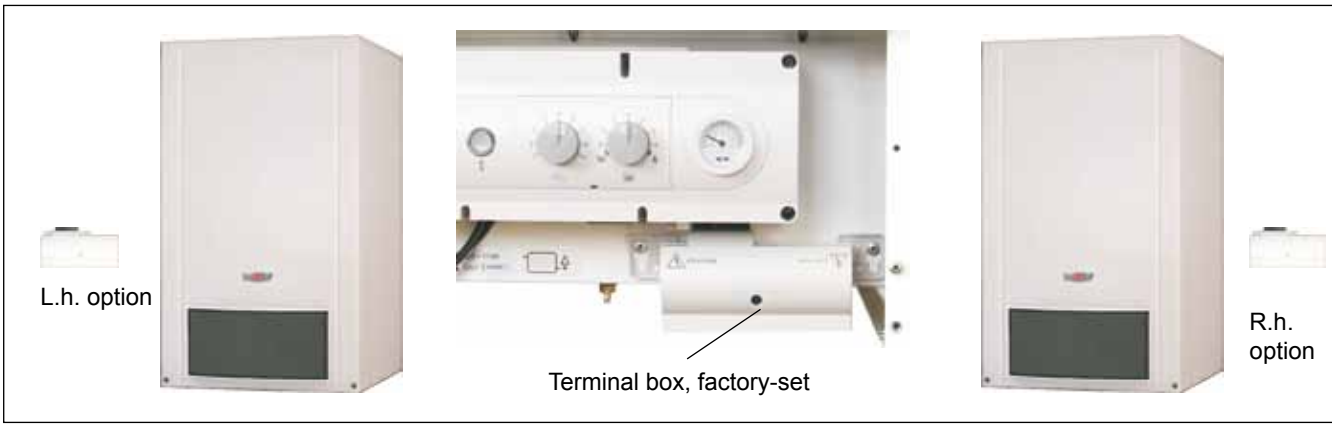
In the case of a permanent connection, provide the power supply via a mains isolator (e.g. fuse, heating system emergency stop), which ensures at least 3 mm contact separation for all poles. Power cable, flexible, 3x1.0 mm² or rigid, max. 3x1.5 mm².

Installation information, electrical connection

Isolate the system from the power supply before opening the casing.
Pivot the control unit to the side.
Unclip the terminal box from the holder.
The terminal box can be mounted on the wall to the right or left of the boiler.
Open the terminal box.
Insert the strain relief into the holes provided.
Strip approx. 70 mm off the power cable insulation.
Push the cable through the strain relief and secure the strain relief.
Terminate the appropriate cores at the Rast-5 plug.
Push the inserts back into the terminal box casing.
Push the Rast-5 plugs back into the correct positions.







Changing a fuse

Isolate the condensing boiler from the power supply prior to changing a fuse. The ON/OFF switch on the boiler does not provide separation from the power supply.
Danger through 'live' electrical components. Never touch electrical components or contacts as long as the condensing boiler has not been isolated from the power supply. Danger of death.

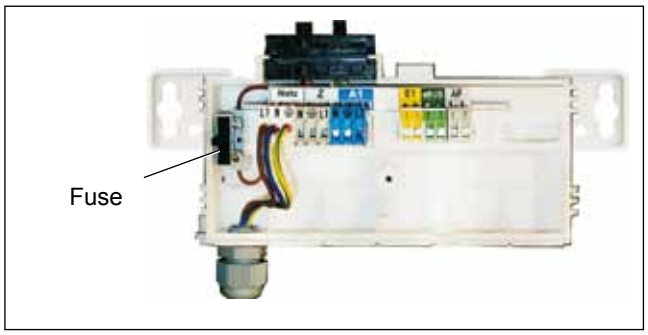


Figure: Terminal box cover open

DHW cylinder sensor connection

- When a cylinder is to be connected, the blue socket of the cylinder sensor must be connected to the blue plug of the control unit.
- Observe the cylinder installation instructions.

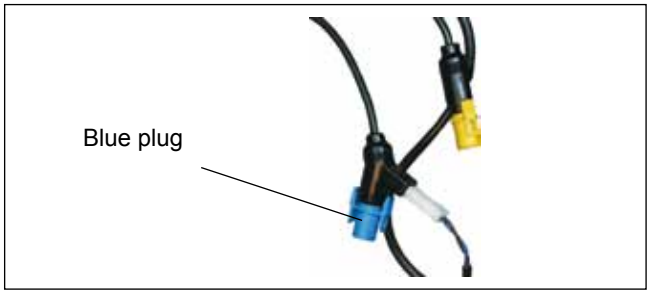


Figure: Blue plug, cylinder sensor connection

Connection, external heating circuit pump (on site) (230 V AC max. 300 VA)

Insert the cable glands into the terminal box. Insert and secure the connecting cable through the cable gland.
Connect the pump 230 V AC to terminals L1 and N and ⏚ .
The pump is activated when there is demand in heating, DHW or frost protection mode.

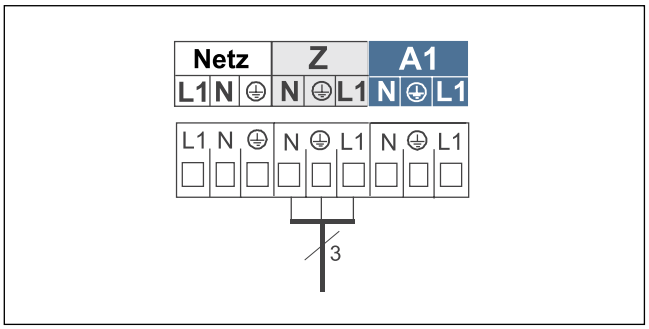


Figure: Connection, heating circuit pump

Connection output A1 (230 V AC; 200 VA)

Insert the cable glands into the terminal box. Insert and secure the connecting cable through the cable gland. Connect the connecting cable to terminals L1, N and ⏚.
The parameters for output A1 are described in the table on the following page.

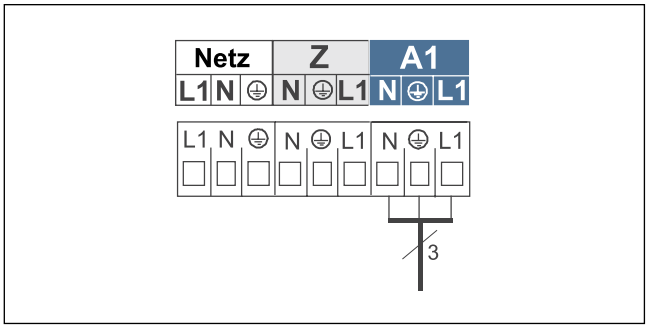
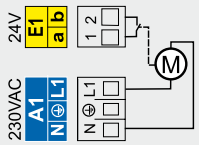


Figure: Connection output A1

Electrical connection

The functions of output A1 can be scanned and adjusted with Wolf control accessories with eBUS capability.
The following functions can be allocated to output A1:

Code	Explanation
0	**No function** Output A1 is not activated
1	**DHW circulation pump 100%** Output A1 is activated by control accessories (timed) if DHW has been enabled. Output A1 is constantly activated when no accessory controller is installed.
2	**DHW circulation pump 50%** Output A1 is activated in cycles by control accessories (timed) if DHW has been enabled. 5 minutes ON and 5 minutes OFF. Output A1 is constantly cycled in 5 minute intervals when no accessory controller is installed.
3	**DHW circulation pump 20%** Output A1 is activated in cycles by control accessories (timed) if DHW has been enabled. 2 minutes ON and 8 minutes OFF. Output A1 cycles constantly when no accessory controller is installed.
4	**Alarm output** Output A1 is activated 4 minutes after a fault.
5	**Flame detector** Output A1 is activated after a flame has been recognised.
6	**Cylinder primary pump (factory setting for A1)** Output A1 is activated during cylinder heating.
7	**Ventilation air damper** Output A1 is activated before each burner start. The burner will, however, only be enabled after input E1 has been closed. **Important: In any case, input E1 must also be programmed as "Ventilation air damper"!**  For the feedback to input E1 use a zero volt contact (24 V). Otherwise, use an on-site relay for potential separation.
8	**External ventilation** Output A1 is activated inverted to the gas combination valve. Switching off external ventilation equipment (e.g. extractor fan) during burner operation is only required if the boiler is operated as an open flue system.
9	**External LPG valve** Output A1 is activated in parallel to the gas combination valve.
10	**External pump** Output A1 switches synchronously with the heating circuit pump (HKP); used for example with system separation.

Connection, input E1 (24 V), zero volt

Connect the cable for input 1 at terminals E1 in accordance with the wiring diagram; first remove the jumper between a and b from the respective terminals.

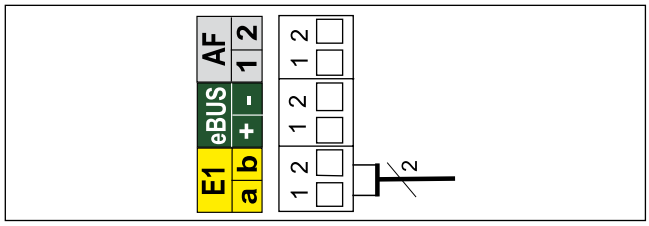


Figure: Connection, room thermostat

The functions of input E1 can be scanned and adjusted with Wolf control accessories with eBUS capability. The following functions can be allocated to input E1:

Code	Explanation
0	**No function** Input E1 is not taken into consideration by the control unit
1	**Room thermostat (factory setting)** With open input E1, heating operation will be blocked (summer mode), independent of any digital Wolf control accessories.
2	**Maximum thermostat, system pressure switch or condensate lifting system** Connection option for a maximum thermostat, system pressure switch or condensate lifting system. To enable the burner, input E1 must be closed. As long as the contact is open, the burner will remain blocked for DHW and central heating, incl. emissions test mode and frost protection.
3	**N / A**
4	**Flow limiter** Connection option for an additional water flow limiter. After pump activation, input E1 must be closed within 12 seconds. Where this is not the case, the burner will be switched OFF, and fault 41 will be displayed.
5	**Monitoring the ventilation air damper** See parameters of output A1, no. 7. Ventilation air damper
8	**Burner block (BOB)** Operation without burner Closed contact, burner blocked Heating circuit pump and cylinder primary pump run in standard mode In emissions test mode and frost protection the burner is enabled Open contact enables the burner again

Connection, digital Wolf control accessories (e.g. BM, MM, KM, SM1, SM2)

Only connect control units from the Wolf accessory range. Each accessory is supplied with its own connection diagram. Use a two-core cable (cross-section > 0.5 mm²) as the connecting cable between the control unit accessory and the condensing boiler.

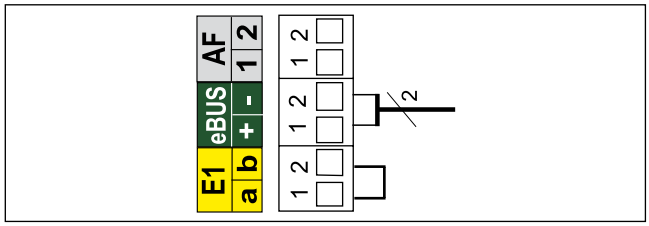


Figure: Digital Wolf control accessories connection (eBUS interface)

Connection, outside temperature sensor

The outside temperature sensor for digital control accessory may be connected to the terminal strip of the boiler connection AF, or the terminal strip of the control accessory.

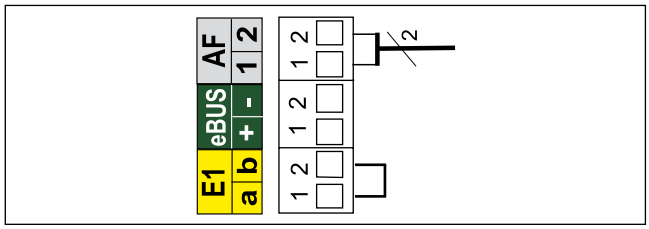


Figure: Connection, outside temperature sensor

Filling the system

Fill the system and vent it properly to safeguard the perfect functioning of the condensing boiler.

NB **Before connecting the gas condensing boiler, flush the heating system to remove residues such as welding pearls, hemp, putty, etc. from the pipework. Check the dirt filter.**

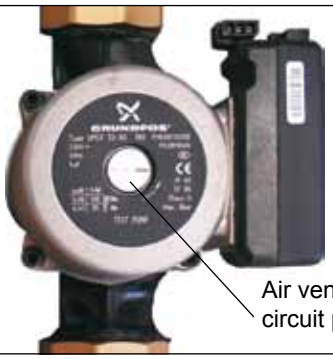
- The gas tap must be closed
- The locking cap on the quick-acting air vent valve should not be undone
- Open all radiator valves
- Open the return valves, and the heat exchanger will then be filled steadily with water from below
- With the entire heating system and boiler in a cold condition, slowly fill the system via the inspection/BDF valve at the return until 2 bar pressure is indicated
- Open the flow valves on the condensing boiler
- Fill the heating system to 2 bar pressure. In operation, the pressure gauge (on site) must indicate between 1.5 and 2.5 bar
- Check the entire system for water leaks
- Open the air vent valve
- Start the condensing boiler, set the heating water temperature selector to position "2" (pump running, illuminated signal ring (status display) constantly green)
- Vent the pump; for this, briefly open and then retighten the air vent screw
- Vent the heating circuit completely, switching the condensing boiler ON for 5 seconds and OFF for 5 seconds at the ON/OFF switch, five times in succession
- When the system pressure drops below 1.5 bar, top up the water
- If the system pressure drops below 1.5 bar, top up with supplementary water (planning documents)

- Open the gas ball valve
- Press the reset button

Note:
- In constant mode, the heating circuit is automatically vented via the air vent valve.
- At a system pressure below 1.0 bar, the boiler will enter a fault state

- Fill siphon with water and fit it to the boiler


Automatic air vent valve


Air vent valve, heating circuit pump


BDF valve


Siphon

Conversion to natural gas E/LL (G20/G25) (if necessary)

The gas condensing boilers CGB-75/CGB-100 are equipped as part of the standard delivery for operation with natural gas H (G20). For operation with LPG (G31), the gas restrictor must be replaced.

1)

Unplug the connector ① ② (first undo Phillips head screws)

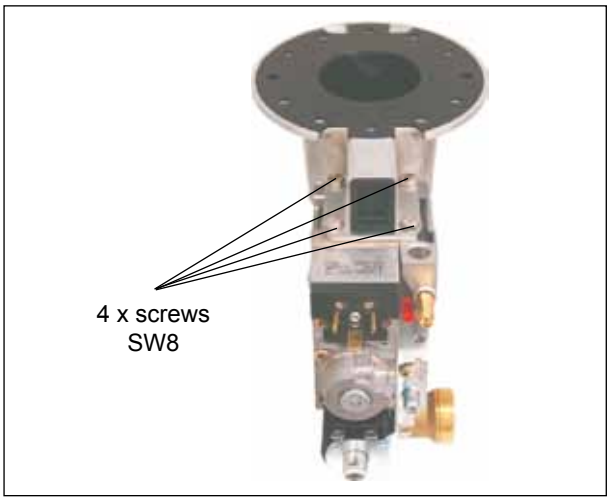
2)

Undo gas connection at the gas combination valve

3)

Undo the mixing chamber from the ventilator (three Allen screws 5 mm), and remove air inlet pipe where necessary

4)

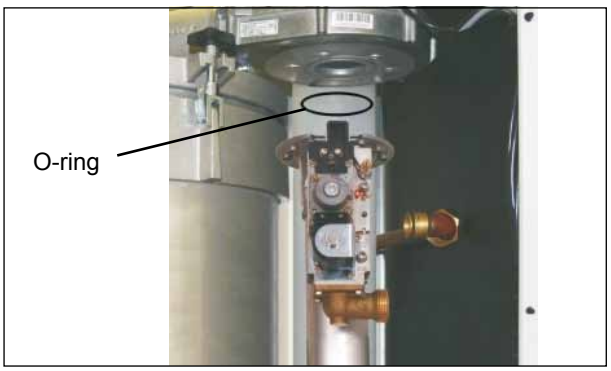


Undo the gas combination valve from the mixing chamber for gas/air (four SW8 screws).

5)

Remove the built-in gas restrictor and replace it by a gas restrictor designed for the new type of gas (according to the table on page 25).

6)



After assembly of the gas restrictor, gas combination valve and air inlet pipe, push the O-ring lubricated with silicone grease into the packing groove of the fan and refit the mixing chamber.

Reassemble in reverse order.

Note: if you are converting from LPG to natural gas, the gas combination valve and the flue gas orifice plate must be removed before assembly (see pages 24/25).

Conversion to liquefied petroleum gas P (G31) (if necessary)

1)

Pull out the plug ①② (undo the cross-head screws first)

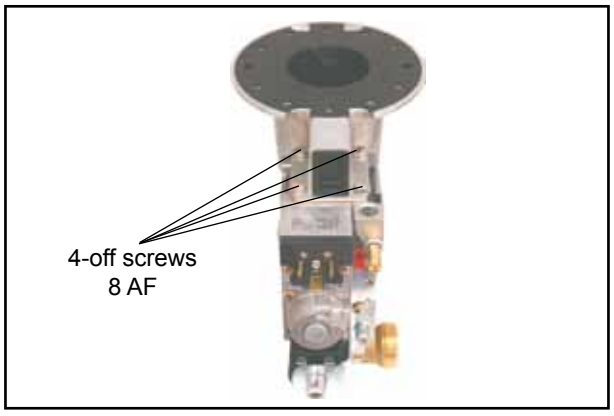
2)

Undo the threaded gas connection on the gas combination valve

3)

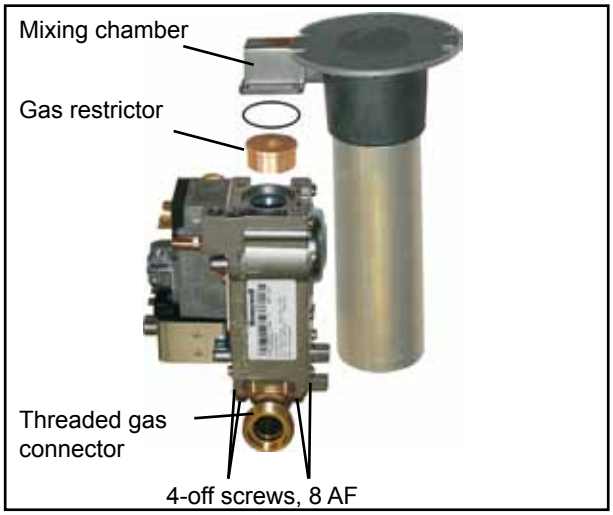
Unscrew the mixing chamber from the fan (3-off hex socket head screws, 5 mm); pull off the air inlet pipe if necessary

4)



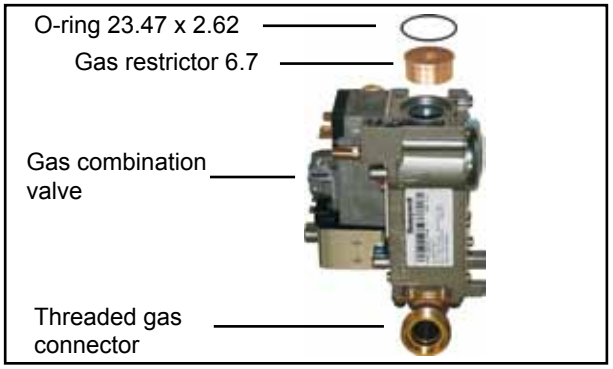
Unscrew the gas combination valve from the mixing chamber for gas/air (4 screws, 8 AF).

5)



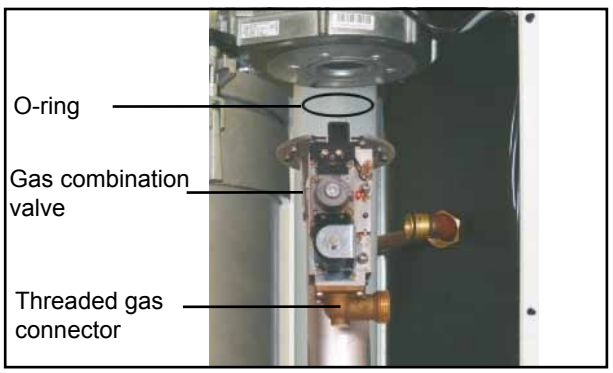
Remove the four 8 AF screws from the threaded gas connector and remove the threaded connector from the gas combination valve.
Remove the gas combination valve and the gas restrictor.
Attach the protective labels on the inlet and outlet of the new gas combination valve to the openings of the removed valve.

6)



Screw the threaded gas connector with O-ring 26 x 4 onto the new gas combination valve for LPG.
Insert the new gas restrictor with the ID 6.7 into the gas combination valve.
Screw the gas combination valve with O-ring 23.4 x 2.6 onto the mixing chamber.

7)



Adhere the O-ring in the sealing groove of the fan with silicone grease and mount the mixing chamber with gas combination valve on the burner fan.
Tightly screw the threaded gas connector to the gas supply pipe.

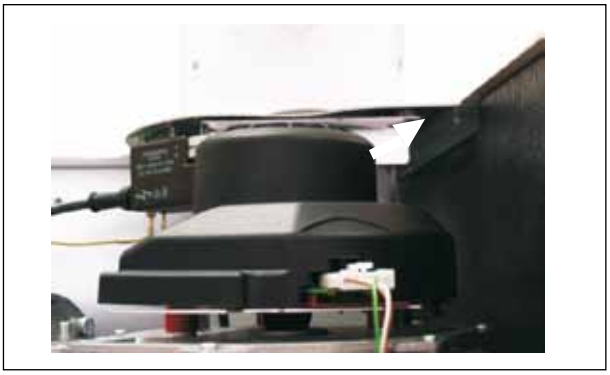
Conversion to other gas types (if required)

Note: When converting from natural gas to LPG, an flue gas orifice plate must additionally be installed in the condensate pan as follows. When converting from LPG to natural gas the flue gas restrictor must be removed.
This assembly step takes place before the installation of the mixer chamber and the complete assembly.

7)

After removing the upper casing cover, undo the self-tapping screw at the balanced flue locking mechanism.

8)



Slide the balanced flue locking mechanism in the direction of the arrow. Pull the flue pipe up out of the condensate pan.

9)

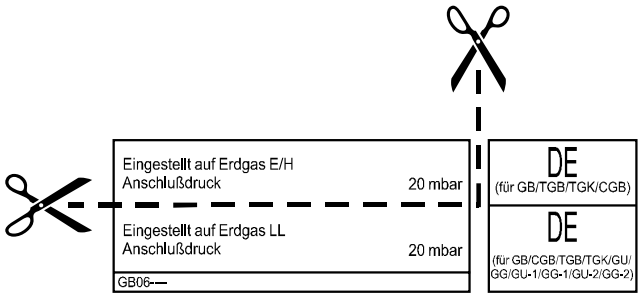
Flue gas orifice plate

Place the flue gas orifice plate Ø 53 mm into the condensate pan and insert the flue pipe again.

Note: During conversion from LPG to natural gas, the flue gas orifice plate must be removed. Fit the mixing chamber as described under point 6). Re-assemble in reverse order.

10) Updating the type plate

Cut out the relevant lines from the type plate supplied and affix them over the relevant lines on the appliance type plate.



Conversion type plate

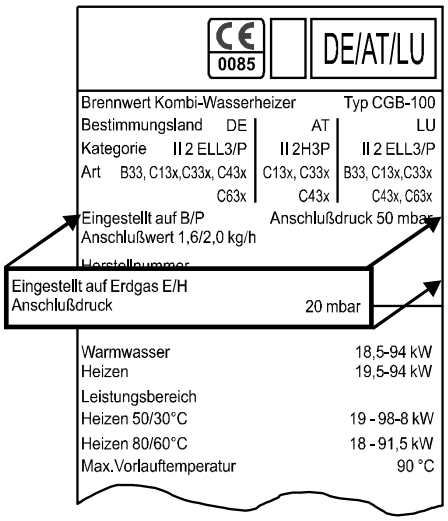


Figure: Updating the type plate

Conversion sets for CGB-75/100 for conversion to other gas types: (Please state the corresponding part number when ordering)

Conversion to LPG P (G31)	Part no. 86 12 714	ID 740*

* ID imprinted on gas restrictor

Checking the gas supply pressure (Gas supply pressure)

Work on gas components must only be performed by a licenced gas fitter. Work which is carried out incorrectly may lead to gas escaping, resulting in a risk of explosion, asphyxiation or poisoning.

Figure: Undoing screws

- The condensing boiler must be switched OFF; open the gas shut-off valve

  Release the casing cover with the l.h. and r.h. screw. Release the bottom of the casing cover and unhook at the top
- Release the plug at test nipple ① and vent the gas supply pipe
- Connect the differential pressure meter or U-tube manometer to the test nipple ① at "+", with "-" against atmosphere
- Switch ON the ON/OFF switch
- After starting the boiler, check the supply pressure at the differential pressure meter.

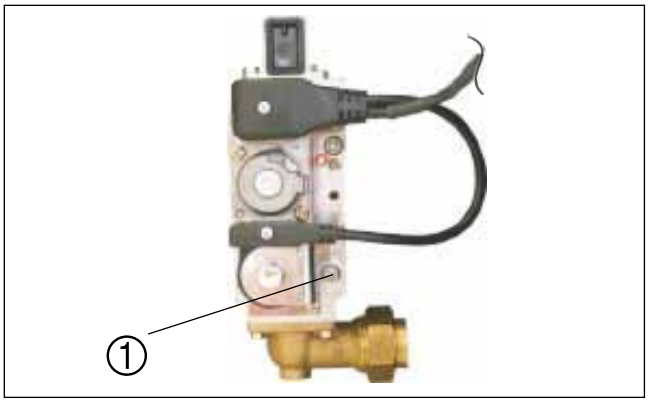


Figure: Checking the gas supply pressure

NB **Natural gas:**
If the supply pressure (flow pressure) is outside the 18 to 25 mbar range, adjustments must not be carried out and the boiler must not be started. There is a risk of faulty boiler functions.

NB **LPG:**
If the supply pressure (flow pressure) is outside the 25 to 45 mbar range (supply pressure 37 mbar) or 43 to 57 mbar range (supply pressure 50 mbar), adjustments must not be carried out and the boiler must not be started. There is a risk of faulty boiler functions.

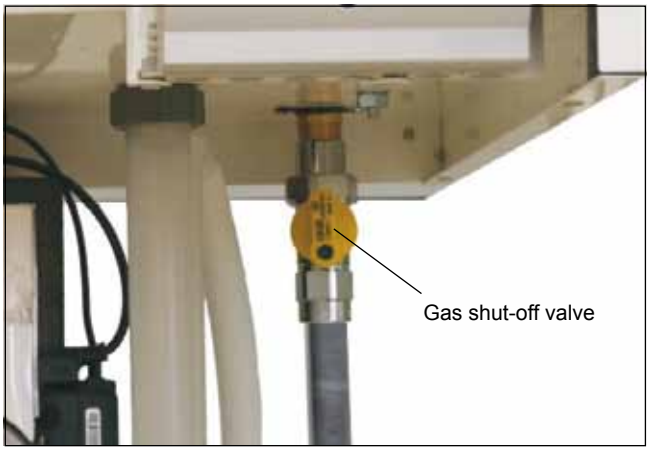


Figure: Shut-off valves

- Switch OFF ON/OFF switch; close the gas shut-off valve
- Remove the differential pressure meter and

  re-seal the test nipple with plug ①
- Open the gas shut-off valve
- Check the test nipple for gas-tightness
- Complete the enclosed notice and affix to the inside of the casing
- Close the boiler again

If any screws are not tightened, there is a danger of gas escaping, leading to a risk of explosion, asphyxiation or poisoning.

Commissioning / BUS address adjustment

Only qualified personnel must carry out the commissioning and initial start-up of the boiler as well as instruct the user.

NB

- **Check the boiler and system for leaks; Normal operating pressure when system is cold 1.5 - 2.0 bar; prevent water leaks**
- **Check location and seating of fitted parts**
- **Check all connections and component unions for leaks**
- **If tightness cannot be ensured then there is a risk of water damage**

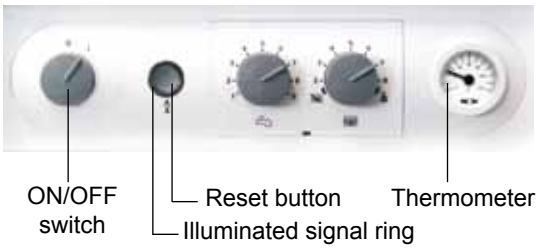


Figure: Control unit overview

Saving energy

- **Instruct the customer about energy saving options.**
- **Refer your customer to section "Information regarding energy efficient operation" in the operating instructions.**

- Check the correct assembly of the flue gas accessories
- Open the feed and return shut-off valves
- Open the gas shut-off valve
- Turn the operating switch of the controller on
- Check the over-ignition and regularity of the flame of the main burner
- If the wall-mounted boiler goes properly into operation, the illuminated ring for the status indication lights up yellow
- Check the condensate drain
- Familiarise customers with the operation of the appliance using the operating manual and refer to possibly necessary water treatment for the filling and supplementary water
- Complete the commissioning protocol and hand over the manuals to the customer

BUS address setting:
When operating several boilers (number of boilers >1) in conjunction with a cascade module, set the BUS address of each boiler in accordance with the table below.
Hold down the reset button; after 5 seconds, the corresponding flashing code will be displayed (see table). Select the corresponding address with the DHW temperature rotary selector; then release the reset button again.

Boiler	**BUS address**	**Rotary selector position DHW**	**Illuminated signal ring indication**
Single boiler	0	6	flashing green (factory setting)
Boiler cascade			
Boiler 1	1	1	flashing red
Boiler 2	2	2	flashing yellow
Boiler 3	3	3	flashing yellow/red
Boiler 4	4	4	flashing yellow/green
Boiler 4	5	5	green/flashing red

Displaying / modifying control parameters

NB **Modifications must only the carried out by a recognised heating contractor or by Wolf customer service.**

NB **Incorrect operation can lead to system faults. Please note when adjusting parameter GB05 / A09 (frost protection / outside temperature), that frost protection is no longer safeguarded if you set temperatures lower than 0 °C. This can lead to heating system damage.**

⚠ **To prevent damage to the heating system, cancel night setback when outside temperatures fall below -12 °C. If this rule is not observed, ice may build up on the flue outlet which may cause injury or material losses.**

You can find the output data for the boiler on the type plate.

The control parameters can be modified or displayed via control accessories with eBUS capability. For procedures, check the operating instructions of the relevant accessories.

Column 1 settings apply to control accessories ART, AWT
Column 2 settings apply to Wolf control system with BM programming module

1	2	Parameter	Unit	Factory setting	min.	max.
GB01	HG01	**Burner switching differential**	K	8	5	30
	HG02	**Low end fan speed** Minimum fan speed in %	%	CGB-75:30 CGB-100:25	30 25	100 100
	HG03	**High end fan speed WW** Maximum fan speed for DHW in %	%	CGB-75:100 CGB-100:100	30 25	100 100
GB04	HG04	**High end fan speed HZ** Maximum fan speed for heating in %	%	CGB-75:100 CGB-100:100	30 25	100 100
GB05	A09	**Frost protection, outside temperature** With connected outside temperature sensor and insufficient temperature pump ON	°C	2	-10	10
GB06	HG06	**Pump operating mode** 0 -> Pump ON in winter mode 1 -> Pump ON during burner operation		0	0	1
GB07	HG07	**Boiler circuit pumps run-on time** Heating circuit pump run-on time in minutes in heating mode	min.	1	0	30
GB08	HG08 or HG22	**Maximum limit, boiler circuit TV-max** Applicable to heating operation	°C	80	40	90
GB09	HG09	**Burner cycle block** Applicable to heating operation	min.	7	1	30
	HG10	**eBUS address** Heat source BUS address		0	0	5
	HG11	**DHW quick start** Temperature of the plate heat exchanger in summer mode (only applicable to combi boilers)	°C	10	10	60
	HG12	**Gas type** Not supported		0	0	1
GB13	HG13	**Programmable input E1** Various functions can be allocated to input E1. See chapter "Connection input E1"		1 Room thermostat	0	5
GB14	HG14	**Programmable output A1** Output A1 (230 V AC) Various functions can be allocated to output A1. See chapter "Connection output A1"		6 Cylinder primary pump	0	9
GB15	HG15	**Cylinder hysteresis** Switching differential during cylinder re-heating		5	1	30
	HG21	**Minimum boiler water temperature TK-min**	°C	20	20	90

Adjusting the modulating pump (accessory)

In heating mode:
The heating circuit pump (accessory) modulates in proportion to the burner output. This means at maximum burner output, the pump operates at the maximum pump speed for heating mode. At minimum burner output, the pump operates at the minimum pump speed for heating mode. In other words, the burner output and pump speed are regulated subject to the required heating load. The power consumption is reduced by the pump modulation.

In DHW mode:
The heating circuit pump will not modulate, but operates constantly at the selected pump speed.

In standby mode:
The heating circuit pump will not modulate, but operates constantly at the selected pump speed.
Standby mode 20%

Setting limits:
The speed limits for heating mode can be changed with the BM programming module.

The settings in column 1 apply to control accessories ART, AWT
The settings in column 2 apply to Wolf control systems with programming module BM

1	2	Parameter	Unit	Factory setting	min.	max.
GB16	HG16	**Pump rate HK, minimum**	%	20	20	100
GB17	HG17	**Heating circuit pump output, maximum** This parameter must be set at least 5% higher than the parameter Heating circuit pump output, minimum	%	100	20	100

NB **For the minimum pump speed for heating mode, only settings in accordance with this table are permissible. Otherwise, there is a risk that the pump will not start.**
In addition, the "Max. pump speed for heating mode" must be at least 5% higher than the "Minimum pump speed for heating mode", otherwise the pump would run at 100%.

Solution:

Problem	Solution
Individual radiators are not getting properly warm.	Create hydraulic balancing, i.e. reduce the flow rate of hotter radiators
In the spring and autumn (average outside temperature), the required room temperature is not achieved.	Increase the set room temperature at the controller e.g. from 20 °C to 25 °C
When the outside temperature is extremely low, the selected room temperature is not achieved.	Select a steeper heating curve at the controller e.g. from 1.0 to 1.2

CGB-75/100

Output setting (parameter GB04 or HG04)

The output setting can be modified with Wolf control accessories with eBUS capability.

The heating output will be determined by the gas fan speed. By reducing the gas fan speed in accordance with the table, the maximum output will be matched at 80/60 °C to natural gas H and LPG.

CGB-75

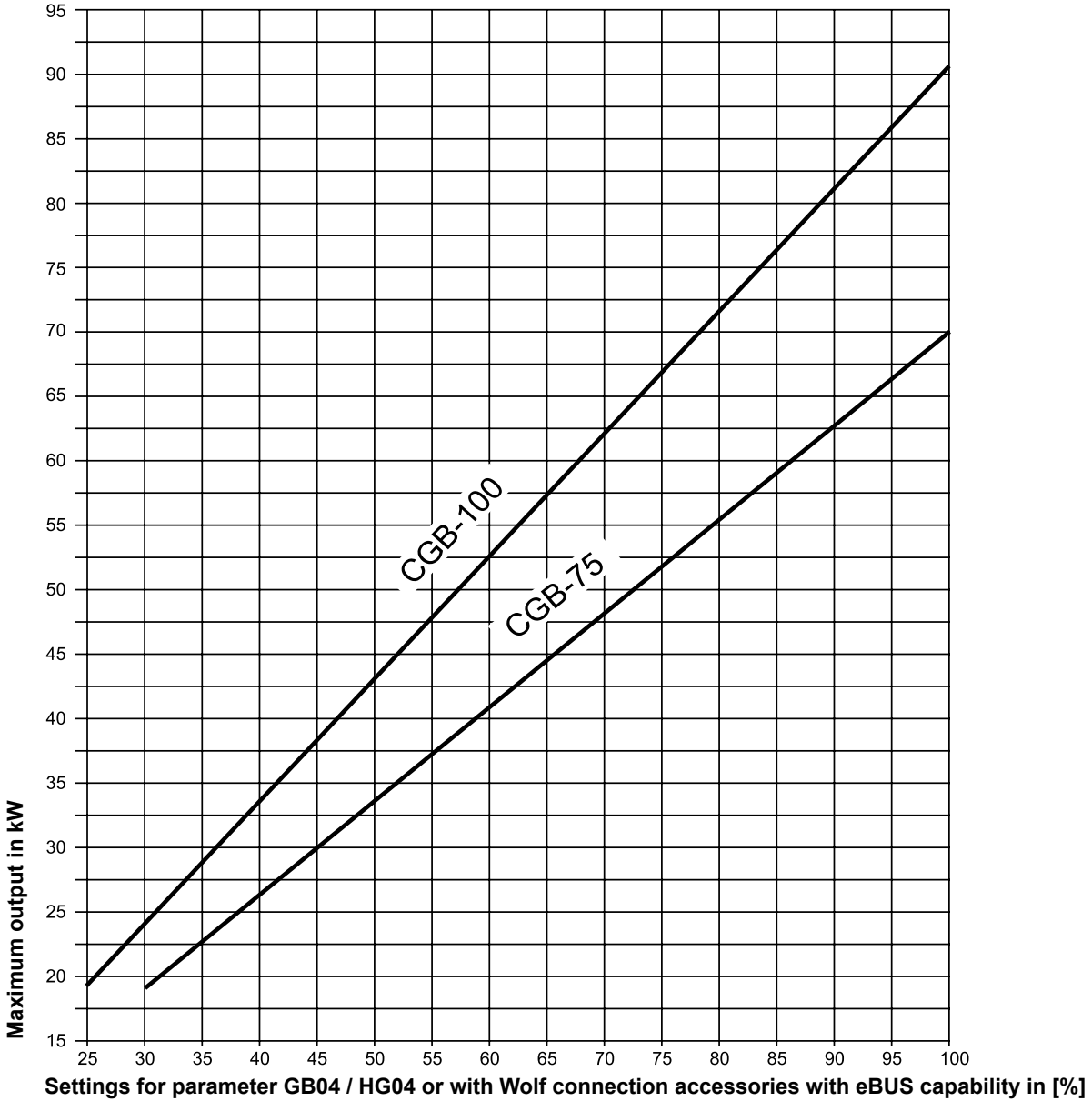
Heating output	(kW)	18	22	25	29	33	37	40	44	48	51	55	59	63	66	70
Display value	(%)	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

CGB-100

Heating output	(kW)	18	23	28	34	39	44	49	55	60	65	70	75	81	86	91
Display value	(%)	25	30	36	41	46	52	57	63	68	73	79	84	89	95	100

Table: Output setting

Limiting the maximum output relative to a flow/return temperature of 80/60 °C



Testing the combustion parameters

Test the combustion parameters with the boiler closed!

Testing the combustion air

- Remove the screw from the l.h. test port
- Open the gas shut-off valve
- Insert the test probe
- Start the gas condensing boiler and turn the heating water temperature selector to the emissions test symbol (illuminated ring of the status display flashes yellow)
- Test the temperature and CO_2

  The balanced flue is not gas tight if the CO_2 content is > 0.2%; rectify the leak
- After the test has been completed, switch the boiler OFF, remove the test probe and close the test port. Ensure the screws are seated firmly.

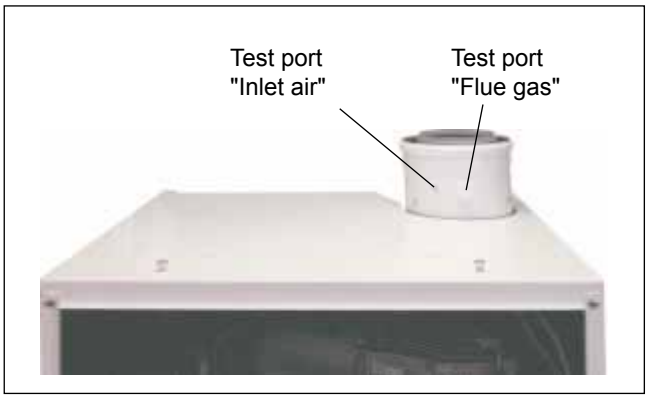


Figure: Test ports

Testing the flue gas parameters

Flue gas can escape into the installation room, if the test port is left open. This results in a risk of asphyxiation.

- Remove the screw from the r.h. test port
- Open the gas shut-off valve
- Start the gas condensing centre and turn the temperature selector to the emissions test symbol (illuminated ring of the status display flashes yellow)
- Insert the test probe
- Test the flue gas values
- After the test has been completed, remove the test probe and close the test port. Ensure the screws are seated firmly.

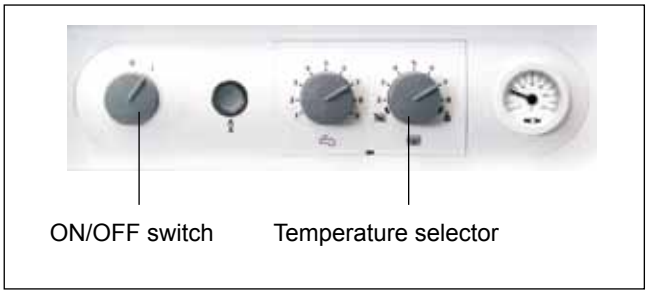


Figure: Control unit overview

Adjusting the gas:air connection

NB **Carry out the adjustments in the following sequence: At the factory, the gas combination valve has been adjusted for the gas type stated on the type plate. Only adjust the gas combination valve after the system has been changed to a different gas type or when servicing.**

If too little heat is drawn off, open some radiator valves.

A) CO_2 adjustment at the upper load (emissions test mode)

Release the casing cover with the l.h. and r.h. screw. Release the bottom of the casing cover and unhook at the top

- Remove the screw from the l.h. "Flue gas" test port
- Insert the test probe of the CO_2 tester into the "Flue gas" test port (approx. 120 mm)
- Turn the temperature selector to "Emissions test"

  (illuminated signal ring as status indicator flashes yellow.)
- Ensure that the boiler is not limited electronically
- Check the CO_2 content at full load, and compare the actual values with those in the table below
- Correct the CO_2 adjustment (if required) using the gas flow adjusting screw on the gas combination valve in accordance with the table

Figure: Undoing screws

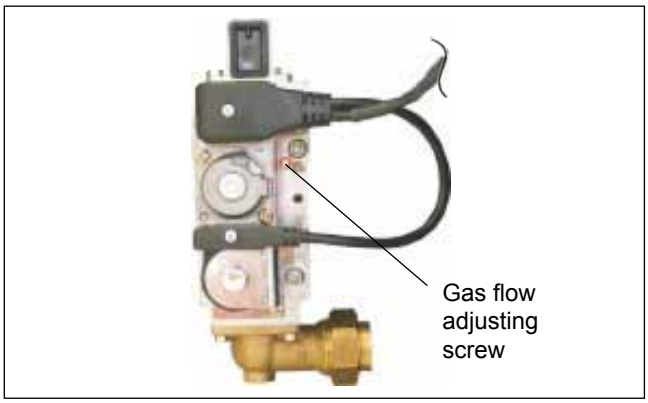


Figure: Gas combination valve

Seal the front casing tightly with screws after completing the service. There is a risk of carbon monoxide poisoning if the flue system is faulty.

- **turn clockwise - lowers CO_2 content**
- **turn anti-clockwise - raises CO_2 content**

Appliance open at **upper** load	
Natural gas H 8.6% ± 0.2%	LPG P 10.1% ± 0.2%

- Terminate the emissions test mode by turning the temperature selector back into its original position.

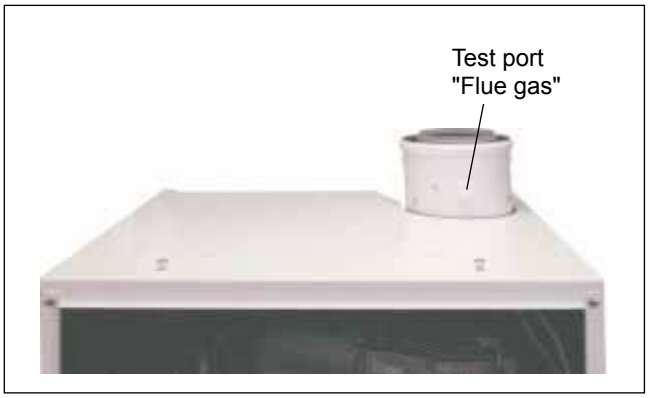


Figure: Flue gas test with an open boiler

B) CO_2 adjustment at the lower load (soft start)

- Remove the protective screw over the zero point adjusting screw with a Torx screwdriver
- Restart the condensing boiler by pressing the "Reset button"
- Check and correct (if required) the CO_2 content approx. 20 s after the burner start with the CO_2 tester, by fine adjusting the zero point adjusting screw with Torx in accordance with the table. This adjustment must be made within 180 s after the burner start. If necessary, press the "Reset button" to repeat the start phase for the adjustment.
- During this adjustment, there must be no DHW operation!

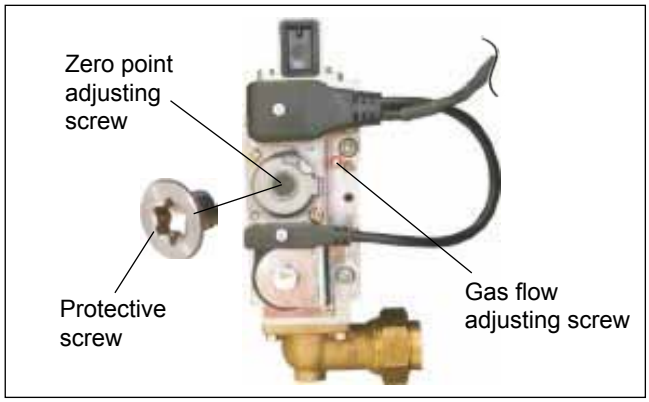


Figure: Gas combination valve

- turn clockwise - higher CO_2 content
- turn anti-clockwise - lower CO_2 content

Appliance open at **lower** load	
Natural gas H 8.5% ± 0.2%	LPG P 9.7% ± 0.2%

- Retighten the protective screw.

C) Checking the CO_2 adjustment

- After completing the work, refit the casing cover and check the CO_2 value with the boiler closed.

Observe the CO emissions whilst making CO_2 adjustments. The gas combination valve is incorrectly adjusted if the CO value is > 300 ppm when the CO_2 value is correct. Take the following steps:

- Fully insert the zero point adjusting screw
- Open the zero point adjusting screw 1½ revolutions
- Repeat the adjusting process from section A)
- The condensing boiler is correctly adjusted when the CO_2 values correspond to those in the adjacent table.

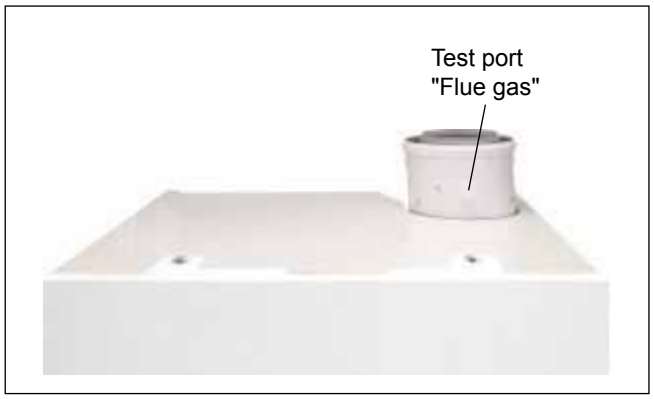


Figure: Flue gas test with a closed boiler

D) Completing the adjustments

- Shut down the boiler and close the test ports and hose connection nipples again. Check the gas supply line and hydraulics for leaks.

Appliance closed at **upper** load	
Natural gas H 8.8% ± 0.5%	LPG P 10.3% ± 0.5%

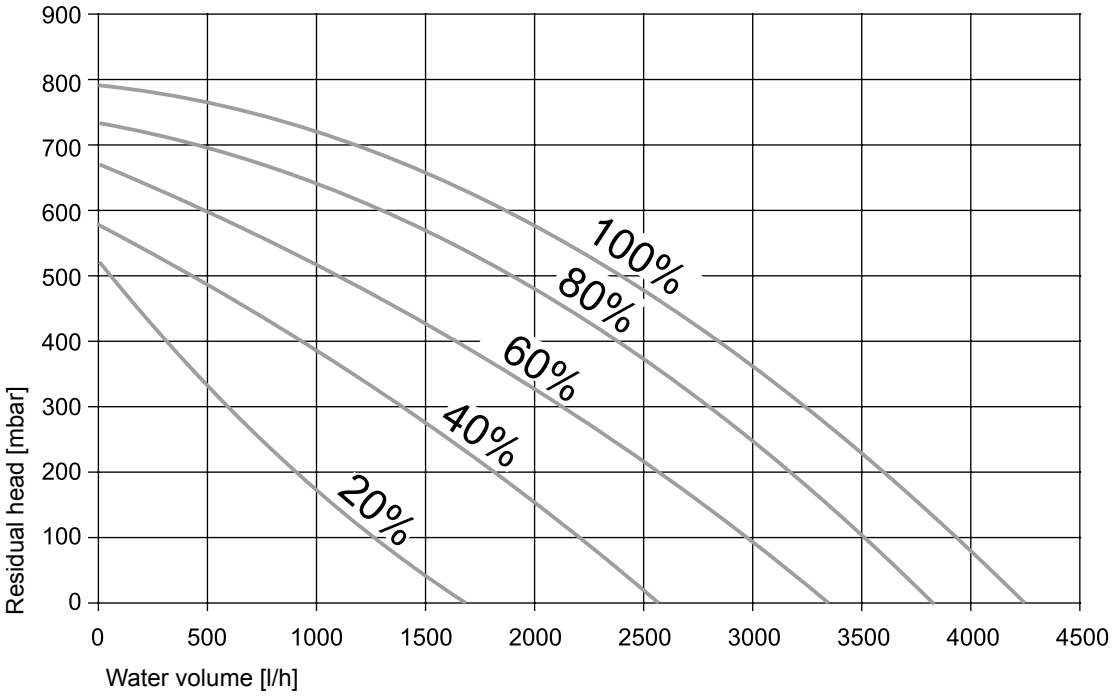
Appliance closed at **lower** load	
Natural gas H 8.7% ± 0.5%	LPG P 9.9% ± 0.5%

Commissioning report

Commissioning steps	Test value or confirmation
1.) Gas type	Natural gas H ☐ LPG ☐ Wobbe index _____ kWh/m³ Net calorific value _____ kWh/m³
2.) Gas supply pressure checked?	☐
3.) Gas leak test carried out?	☐
4.) Balanced flue system checked?	☐
5.) Water connections checked for leaks?	☐
6.) Fill the siphon	☐
7.) Boiler and system vented?	☐
8.) System pressure 1.5 - 2.5 bar?	☐
9.) System flushed?	☐
10.) Water treatment carried out according to the 'Water treatment planning notes'. pH value adjusted Total hardness value adjusted	☐ _____ pH value _____ °dH
11.) No chemical additives (inhibitors; antifreeze) added?	☐
12.) Entered gas type and output onto label?	☐
13.) Function test carried out?	☐
14.) Flue gas test: Flue gas temperature gross Inlet air temperature Flue gas temperature net Carbon dioxide content (CO_2) or oxygen content (O_2) Carbon monoxide content (CO)	 _____ t_A (°C) _____ t_L (°C) _____ (t_A-t_L) (°C) _____ % _____ ppm
15.) Casing fitted?	☐
16.) System user trained, documentation handed over?	☐
17.) Confirm commissioning?	_____ ☐

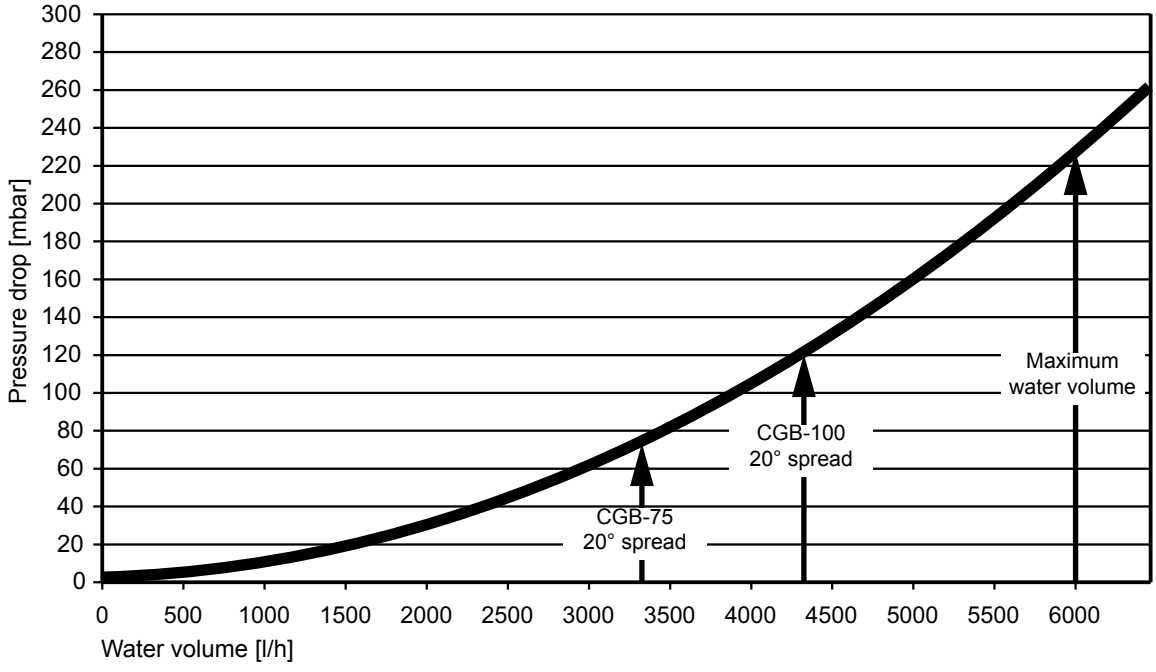
Residual head of the heating circuit pump (accessory)
The pump modulates subject to burner load. See diagrams for residual height.

CGB-75/100 residual head with pump assembly (accessory)

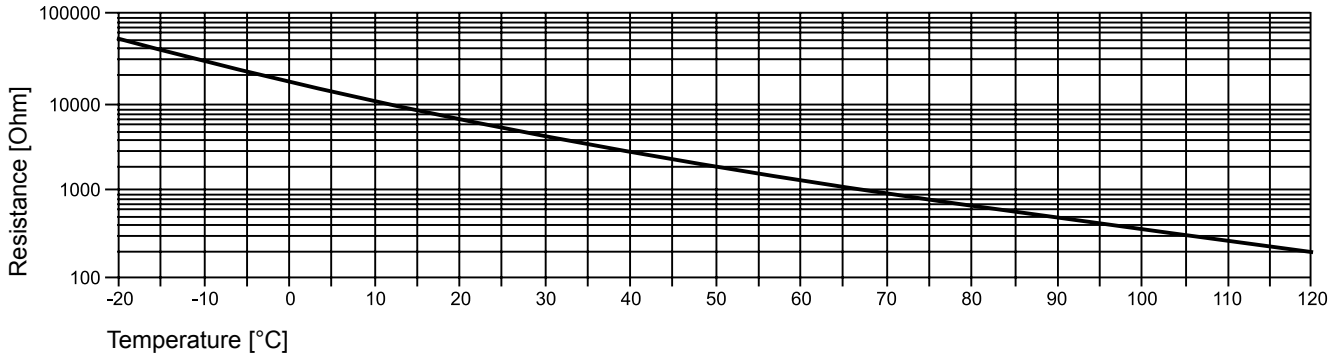


Hydraulic pressure drop in the boiler excluding pump

CGB-75/100 pressure drop



Sensor resistances



Temperature/pressure drop

0 °C	16325	15 °C	7857	30 °C	4028	60 °C	1244
5 °C	12697	20 °C	6247	40 °C	2662	70 °C	876
10 °C	9952	25 °C	5000	50 °C	1800	80 °C	628

Max. spread

A **heat exchanger protection function** is integrated into the CGB-75/100. This prevents stresses in the material by limiting the maximum temperature differential between the flow and return. As of 28 K, the output is reduced. If 38 K is nevertheless reached, the burner shuts down briefly without a fault message. This characteristic must be taken into account when selecting the components (e.g. pumps, heat exchanger and cylinder).

Max. flow rate

Excessive flow velocities may lead to erosion.
Maximum flow rate at Q_{max}: CGB-75/100 6000 l/h (100 l/min)

Connection types

Boiler	Type [1]	Operating mode		Can be connected to				
		Open flue	Balanced flue	Moisture resistant chimney	Balanced flue chimney	Balanced flue	Certified balanced flue	Moisture-resistant flue
CGB-75/100	B23, B33, C13x, C33x, C43x, C53, C53x, C63, C83x, C93x	X	X	B33, C53, C83x	C43x	C13x[2], C33x, C53x	C63x	B23, C53x, C83x, C93x

Category: Germany II_{2ELL3P}, Austria II_{2H3P}, Switzerland I_{2H}

[1] Mark "x" indicates that all components of the flue are surrounded by combustion air and meet higher requirements for gas tightness.

[2] For type B23, B33 the combustion air is drawn from the boiler room (open flue combustion equipment).

For type C, the combustion air is drawn through a sealed system from the outside (balanced flue combustion equipment).

Before commissioning, the system must be thoroughly cleaned / flushed through and a sludge filter (5 µm), e.g. Wolf accessories, installed in the return and in direct proximity to the boiler.
The filling and supplementary water may be treated only by means of a desalting procedure. The degree to which water treatment is necessary can be taken from the 'Water treatment diagram' and the 'Maximum permissible total hardness table'. The total degree of hardness of the system water may not fall below 2 °dH; this corresponds to a conductance of ≈ 60 µS/cm. The max. permissible total degree of hardness and the corresponding max. conductance are system-specific and must be calculated (see also the 'Table maximum permissible total hardness'). To this end the saline-free water (conductance <= 30 µS/cm) must be mixed with untreated potable water. The addition of chemical agents as well as lime elimination via single-stage ion exchangers is not permissible, since otherwise device damage can occur leading to the escape of water.
We recommend regular emptying of the sludge filter and the maintenance of a system logbook.

Permissible methods:
- Deionisation via mixed-bed cartridges. These are multi-stage ion exchangers. We recommend cartridges from the Grünbeck or Judo companies for the initial filling and later if required.
- Deionisation by reverse osmosis
- Topping up with distilled water

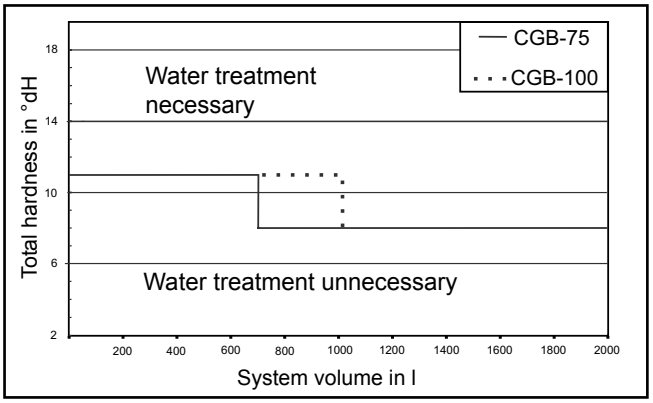


Diagram: water treatment

Treatment of the heating water based on VDI 2035:
We recommend a pH value of between 8.2 and 8.5 for the heating water also in the case of combined installations of different materials.
A water analysis must be requested from the water supply company in order to check whether the total hardness is low enough.
With a specific system volume $V_{sys,specific}$ >= 10 l/KW the next smaller value from the following table must be applied, with $V_{sys,specific}$ >= 20 l/KW the next-but-one smaller value and with $V_{sys,specific}$ >= 40 l/KW the smallest value.
With a specific system volume of >50 l/KW the total degree of hardness must be adjusted to 2-3 °dH using a desalting process. This corresponds to a conductance of 60 - 100 µS/cm.
If the boiler is integrated into the system without a low-loss header, the total hardness must be adjusted to 2 - 3 °dH (conductance = 60 - 100 µS/cm).

Limit values in relation to the specific system volume V_{Sys} (V_{sys} = system volume / lowest individual power setting) Conversion of total hardness: 1 mol/m³ = 5.6 °dH

	Total heating power	V_{sys} ≤ 10 l/kW			V_{sys} > 10 l/kW and < 40 l/kW			V_{sys} ≥ 40 l/kW		
		Total hardness / total alkaline earths		Conduct-ance	Total hardness / total alkaline earths		Conduct-ance	Total hardness / total alkaline earths		Conduct-ance
	[kW]	[°dH]	[mol/m³]	Cond. [µS/cm]	[°dH]	[mol/m³]	Cond. [µS/cm]	[°dH]	[mol/m³]	Cond. [µS/cm]
1*	< 50	2 - 16,8*	0,36 - 3,0*	60 - 500	2 - 11,2	0,36 - 2,0	60 - 300	2 - 3	0,36 - 0,54	60 -100
2	50-200	2 - 11,2	0,36 - 2,0	60 - 300	2 - 8,4	0,36 - 1,5	60 - 200	2 - 3	0,36 - 0,54	60 -100
3	200-600	2 - 8,4	0,36 - 1,5	60 - 200	2 - 3	0,36 - 0,54	60 -100	2 - 3	0,36 - 0,54	60 -100
4	>600	2 - 3	0,36 - 0,54	60 -100	2 - 3	0,36 - 0,54	60 -100	2 - 3	0,36 - 0,54	60 -100

*) for circulating water heaters (<0.3 l/KW) and systems with electrical heating elements

Gradual tightening of the specifications due to the specific system volume
(V_{sys} = system volume / lowest individual power setting) and the total heating power

The total filling quantity of water over the lifetime of the appliance may not exceed three times the nominal volume of the heating system.

Warning: the total hardness may not fall below 2 °dH

Example:
System with a 170 KW boiler;
System volume V_{system}= 4000 l
$V_{sys, specific}$ = 4000 l / 170 KW = 23.5 l/KW

This is larger than 10 l/KW, hence stage 3 must be selected instead of stage 2. The filling and supplementary water must lie within the range of **2 to 8.4 °dH**

If the total hardness of the untreated potable water is too high, part of the filling and supplementary water must be desalted:
A % saline-free water must be added:

$A = 100\% – [(C_{max} – 0.1\ °dH) / (C_{pot.\ water} – 0.1\ °dH)] \times 100\%$

C_{max}	Maximum permissible total hardness in °dH
$C_{pot.\ water}$	Total hardness of the untreated potable water in °dH

We recommend that you include the supplementary water expected for the initial filling in the calculation. Untreated potable water can then be used for topping up later.

$$V_{treated} = A \times (V_{system} + V_{supplement})$$

In the case of large systems in stage 4 the supplementary water may not be included in the calculation for the initial filling.

$$V_{treated} = A \times (V_{system})$$

Example:
System power = 170 KW;
System volume V_{system} = 4000 l;
Volume of the supplementary water
$V_{supplement}$ = 1000 l
Total hardness of the potable water $C_{pot.\ water}$ = 18.5 °dH;
Maximum permissible total hardness C_{max} = 8.4°dH

System power = 170 KW;
System volume V_{system} = 4000 l;
Volume of the supplementary water $V_{supplement}$ = 1000 l

$V_{sys, specific}$ = 4000 l / 170 KW = 23.53 l/KW

Total hardness of the potable water $C_{pot.\ water}$ = 18.5 °dH;
Maximum permissible total hardness C_{max} = 8.4°dH

Proportion of the filling water to be treated:
A = 100% - [(8.4 - 0.1) / (18.5 – 0.1)] x 100% = 54.9%

54.9% of the filling and supplementary water must be desalted.

$V_{treated}$ = 54.9% x (4000 l + 1000 l) = 2746 l

When filling the system, 2,745 l deionised water must be filled. Subsequently, the system can be topped up to Vmax with potable water.

When topping up it must be checked regularly that the maximum permissible total hardness is not exceeded.

Planning				
Location				
Boiler output	Q_{B1} Q_{B2} Q_{B3} Q_{B4}		kW kW kW kW	
Lowest boiler output	Q_{Bmin}		kW	Lowest boiler output for the system
System output	$Q_{B,tot}$		kW	$Q_{B,tot} = Q_{B1} + Q_{B2} + Q_{B3} + Q_{B4}$
System volume	V_{system}		l	
Maximum expected top-up water volume	V_{top-up}		l	Total volume expected during the system service life
Fill and top-up water volume	V_{max}		l	$V_{max} = V_{system} + V_{top-up}$
Total hardness of the potable water	C_{DHW}		°dH	e.g. from an analysis of the water supply
Checking the specific system volume	$V_{A, specific}$		l/kW	$V_{A, specific} = V_{system} / Q_{Bminimum}$ greater/less than 10 l/kW
Permissible total hardness	C_{max}		°dH	Maximum permissible total hardness according to the table
Proportion of desalinated potable water	A		%	$A = 100\% – [(C_{max} – 0.1\ °dH) / (C_{DHW} – 0.1\ °dH)] \times 100\%$
Fill water to be treated	$V_{treatment}$		l	$V_{treatment} = A \times V_{max}$ or $V_{treatment} = A \times V_{system\ at\ stage\ 4}$

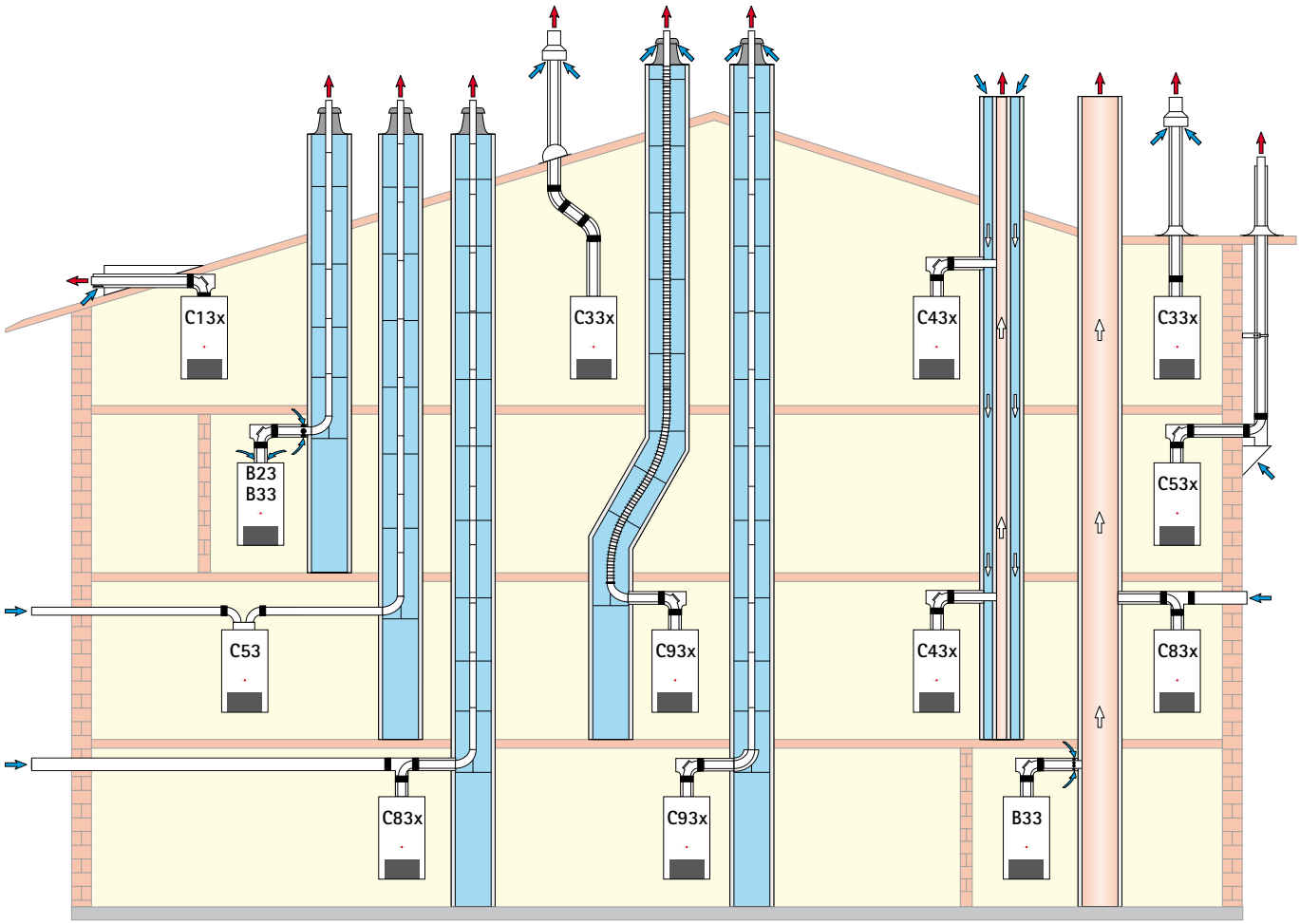
Commissioning: filling and supplementary water							
Name of commissioning company							
Meter reading before initial filling, Z_{old} in l							
Date	Explanation	Abbreviation	Meter reading Z_{new} in l	Quantity of water $V = Z_{new} - Z_{old}$ in l	Total hardness in °dH	pH value of system water after heating process and sufficient flushing	Signature
	Desalted filling water	$V_{treated}$			0,1		
	Untreated filling water	$V_{untreated}$					
	Supplementary water	$V_{supplement,1}$					
	Supplementary water	$V_{supplement,2}$					
	Supplementary water	$V_{supplement,3}$					
	Supplementary water	$V_{supplement,4}$					
	Supplementary water	$V_{supplement,5}$					
	Supplementary water	$V_{supplement,6}$					
	Supplementary water	$V_{supplement,7}$					
	Supplementary water	$V_{supplement,8}$					
	Supplementary water	$V_{supplement,9}$					
	Supplementary water	$V_{supplement,10}$					

Testing:

Water volume V > **V_{max}?** ☐ **Yes** ☐ **No**

If the water volume V is greater than **V_{max}**, top up with desalinated water.

Balanced flue routing



Balanced flue routing

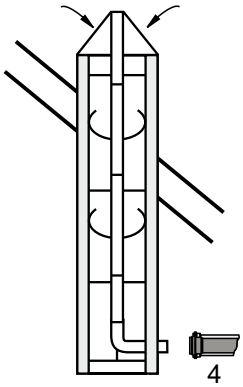
Versions			Maximum length [1] [m]	
			CGB-75	CGB-100
B23	Flue in a duct and combustion air directly via the boiler (open flue)	DN 110 DN 110/160 [2]	23 50	23 50
B23	Two-boiler cascade flue in a duct and combustion air directly via the boiler (open flue)	DN 110	45	23
B33	Flue in a duct with horizontal concentric connection pipe (open flue)	DN 110 DN 110/160 [2]	23 50	23 50
B33	Connection to a moisture-resistant flue chimney with horizontal concentric connection pipe (open flue)		Calculation according to EN 13384 (balanced flue manufacturer)	
C13x	Horizontal concentric roof outlet through a pitched roof, (balanced flue - on-site dormer)	DN 110/160	14	14
C33x	Vertical concentric roof outlet through a pitched roof or flat roof (balanced flue)	DN 110/160	14	14
C43x	Connection to a moisture-resistant balanced flue chimney (LAS flue) Maximum pipe length from the centre of the boiler bend to the connector 2 m (balanced flue)		Calculation according to EN 13384 (balanced flue manufacturer)	
C53	Connection to the flue in a duct and ventilation air line through an external wall (balanced flue)	DN 110 DN 110/160 [2]	23 50	23 50
C53x	Connection to a flue on an external wall (balanced flue)	DN 110	15	15
C83x	Connection to the flue in a duct and ventilation air through an external wall (balanced flue)	DN 110 DN 110/160 [2]	23 50	23 50
C83x	Concentric connection to a moisture-resistant flue gas chimney and combustion air through an external wall (balanced flue)		Calculation according to EN 13384 (balanced flue manufacturer)	
C93x	Vertical flue for installation in a duct, rigid/flexible with horizontal concentric connection line	DN 110 DN 110/160 [2]	14 45	14 39

[1] Available fan draught: CGB-75 145 Pa, CGB-100 200 Pa
(The maximum length corresponds to the total length from the appliance to the flue terminal)
[2] Expansion in the duct from DN 110 to DN 160

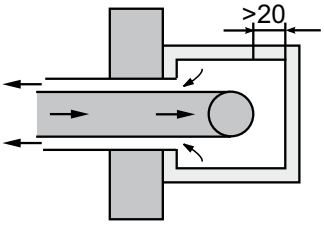
Note: Systems C33x and C83x are also suitable for installation in garages.
Where necessary, adapt the installation examples to the relevant Building Regulations and requirements of your country/region. Discuss any questions relating to the installation of inspection covers and ventilation apertures with your local flue gas inspector.
The length dimensions for a concentric balanced flue and flues relate exclusively to original Wolf components.

Minimum duct sizes

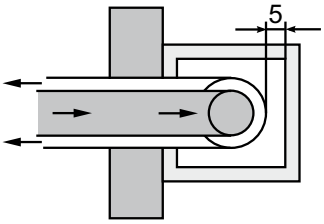
applicable to open flue and balanced flue operation



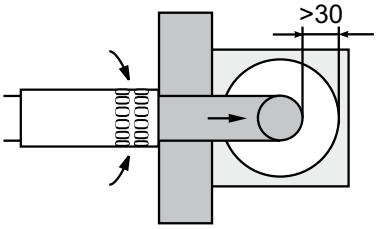
C93 x balanced flue
System DN 110/160
horizontal and DN 110
vertical



C93x balanced flue in a duct DN 110



C33x balanced flue in a duct DN 110/160

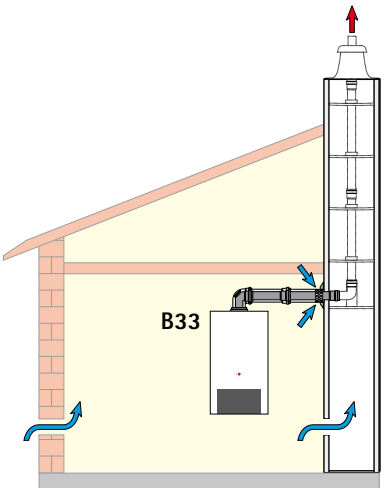


B33 open flue in a duct DN 110

Balanced flue, rigid in a duct

Min. duct sizes

	Round Ø	Square
DN 110	**190 mm**	**170 mm**
DN 160	**250 mm**	**230 mm**



General notes

Particularly for safety reasons, use only original Wolf components for concentric balanced flues and for conventional flues.

Where necessary, adapt the installation examples to the relevant Building Regulations and requirements of your country/region. Discuss any questions relating to the installation of inspection covers and ventilation apertures with your local flue gas inspector.

At low outside temperatures, the water vapour contained in the flue gas may condense and freeze on the balanced flue. This ice may fall from the roof causing injuries or material losses. Prevent ice from falling through on-site measures, e.g. the installation of a snow catcher grille.

If the balanced flue crosses different floors, route the pipes outside the installation room inside a duct with a fire resistance of at least 90 min., and in low residential buildings with a resistance of at least 30 min. Fire may spread if these instructions are not observed.

Gas condensing boilers with a balanced flue outlet above the roof may only be installed in attics, or in rooms where the ceiling also forms the roof, or where only the roof construction is located above the ceiling.

The following applies to gas boilers with a balanced flue above the roof, where only the roof structure lies above the ceiling:

If fire resistance <u>is</u> required for the ceiling, the pipes for combustion air supply and flue gas expulsion running between the top edge of the ceiling and the roof skin must be run inside a liner that provides the same fire resistance and is constructed from non-combustible materials. There is a risk of fire spreading if these requirements are ignored.

If fire resistance is <u>not</u> required, route the pipes for combustion air supply and flue gas expulsion between the top edge of the ceiling and the roof skin inside a duct made from non-combustible, rigid materials or inside a protective metal pipe (mechanical protection). There is a risk of fire spreading if these requirements are ignored.

A clearance between the concentric balanced flue and combustible materials or components is not required, as no temperatures higher than 85 °C will occur at the rated output.
If only a flue is installed, maintain the clearances in accordance with local regulations.

Balanced flues without ducts must not be routed through other installation rooms, as there is a risk of fire spreading, and mechanical protection is not ensured.

NB **The combustion air must not be drawn from chimneys that used to carry flue gases from oil or solid fuel boilers.**

Secure the balanced flue or flue outside ducts with spacer brackets with a minimum clearance of 50 cm from the flue outlet or upstream/ downstream of diverters to prevent the pipe joints being pulled apart. If this is not observed, there is a danger of poisoning caused by escaping flue gas. Furthermore, equipment damage may result.

Flue gas temperature limiter

The electronic flue gas temperature limiter switches the oil condensing boiler off when the flue gas temperature exceeds 110 °C.

The boiler restarts when the reset button is pressed.

Connection to the balanced flue

The unobstructed cross-section of flues must be able to be inspected. Therefore, install an inspection and/or test aperture inside the boiler room; agree suitable arrangements with your local flue gas inspector.

Flue connections are created using couplings and gaskets. Always arrange couplings against the direction of the condensate flow.

The balanced flue should be installed with a slope of at least 3° (6 cm/m) to the gas condensing boiler. Install spacer clamps to secure the location (see installation example). In the worst case scenario, a lesser slope of the balanced flue may lead to corrosion or operating faults.

NB

Generally bevel or deburr trimmed flues to ensure a gas tight installation of pipe joints. Ensure that gaskets are correctly fitted. Remove all contamination prior to installation - never fit faulty parts.

Between the flue terminal and the roof surface, as of a rated output of 50 kW, there must be a clearance of at least 1.0 m.

Calculating the balanced flue length

The calculated length of the balanced flue system or the flue is derived from the straight pipe length and the length of the pipe bends. In this calculation, a 90° bend or a 87° tee is calculated as being 2 m and a 45° bend as being 1 m.

Example:
Length of straight balanced flue 1.5 m

Inspection tee 87° = 2 m

2 x 45° bends = 2 x 1 m

L = 1.5 m + 1 x 2 m + 2 x 1 m

L = 5.5 m

Component	Calculated length
87° bend	2 m
45° bend	1 m
Tee 87° with inspection aperture	2 m
Straight pipe	Subject to length

Table: Pipe length calculation

Balanced flue route, vertical and concentric (examples)

1 **Gas condensing boiler**

2 **Gas condensing boiler connection** DN 110/160

3 **Inspection piece**

3a **Inspection piece, 87° tee**

4 **Pipe clip DN 160**

5 **Balanced flue DN 110/160**
500 mm
1000 mm
2000 mm

6 **Mounting bracket DN 160** for roof outlet

7 **Universal tile for pitched roof 25-45°**

7a **"Klöber" adaptor 20-50°**

8 **Flat roof collar**

9 **Balanced flue routing, vertical (roof outlet)** for flat or pitched roof
L=2000 mm

10 **45° bend DN 110/160**

11 **87° bend DN 110/160**

12 **87° bend for duct installation DN 110/160**

13 **Wall support bend F87° with smooth ends on both sides of the air pipe DN 110/160**

14 **Air inlet, external wall F DN 110/160**

15 **PP wall outlet, external wall F**

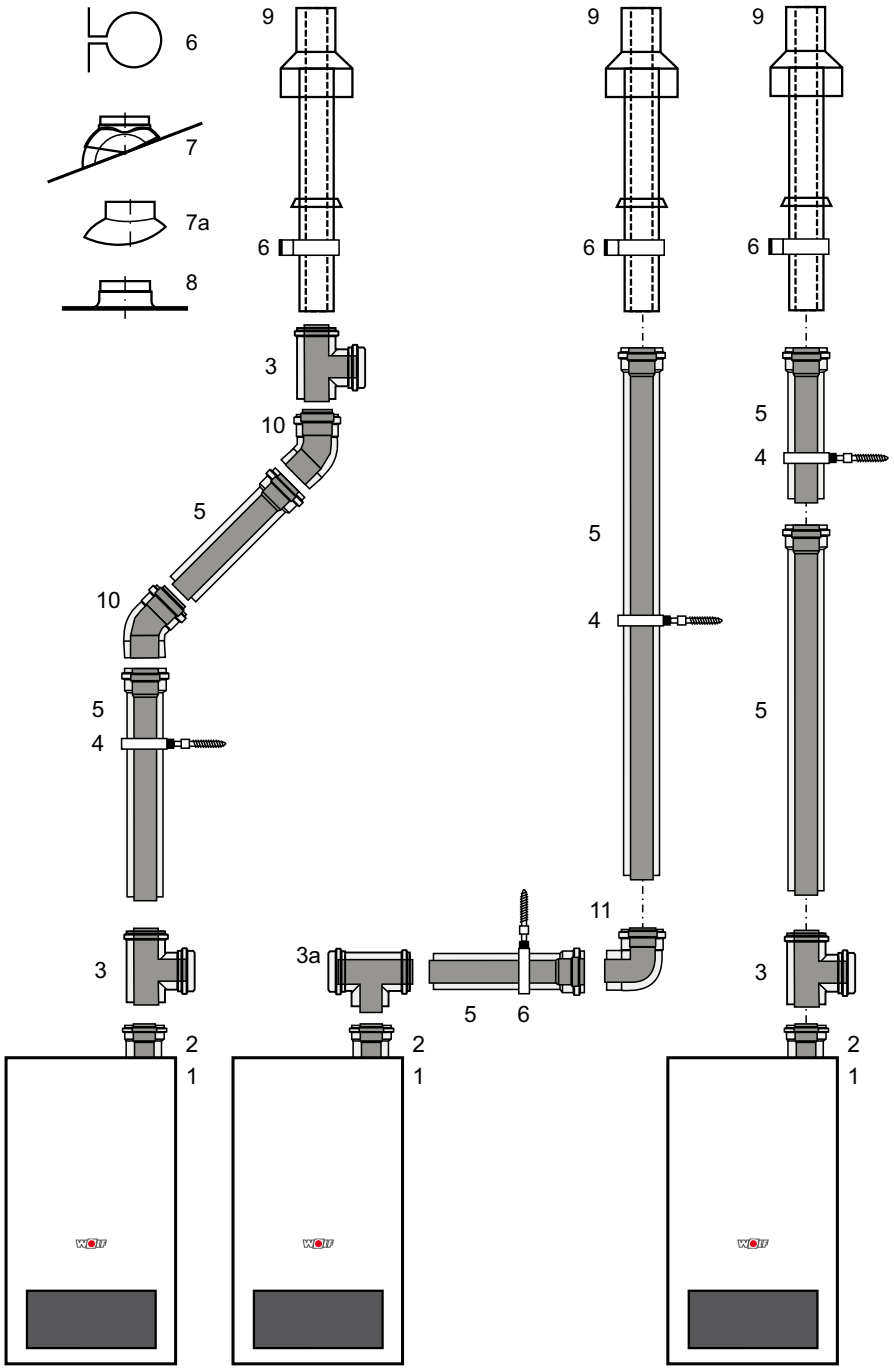
16 **Wall bezel 160**

17 **Balanced flue routing, horizontal** with cowl

18 **Connection to a flue gas chimney B33,** length 250 mm with air apertures

19 **Support bend 87°**, DN 110 for connection to a flue in a duct

20 **Support rail**

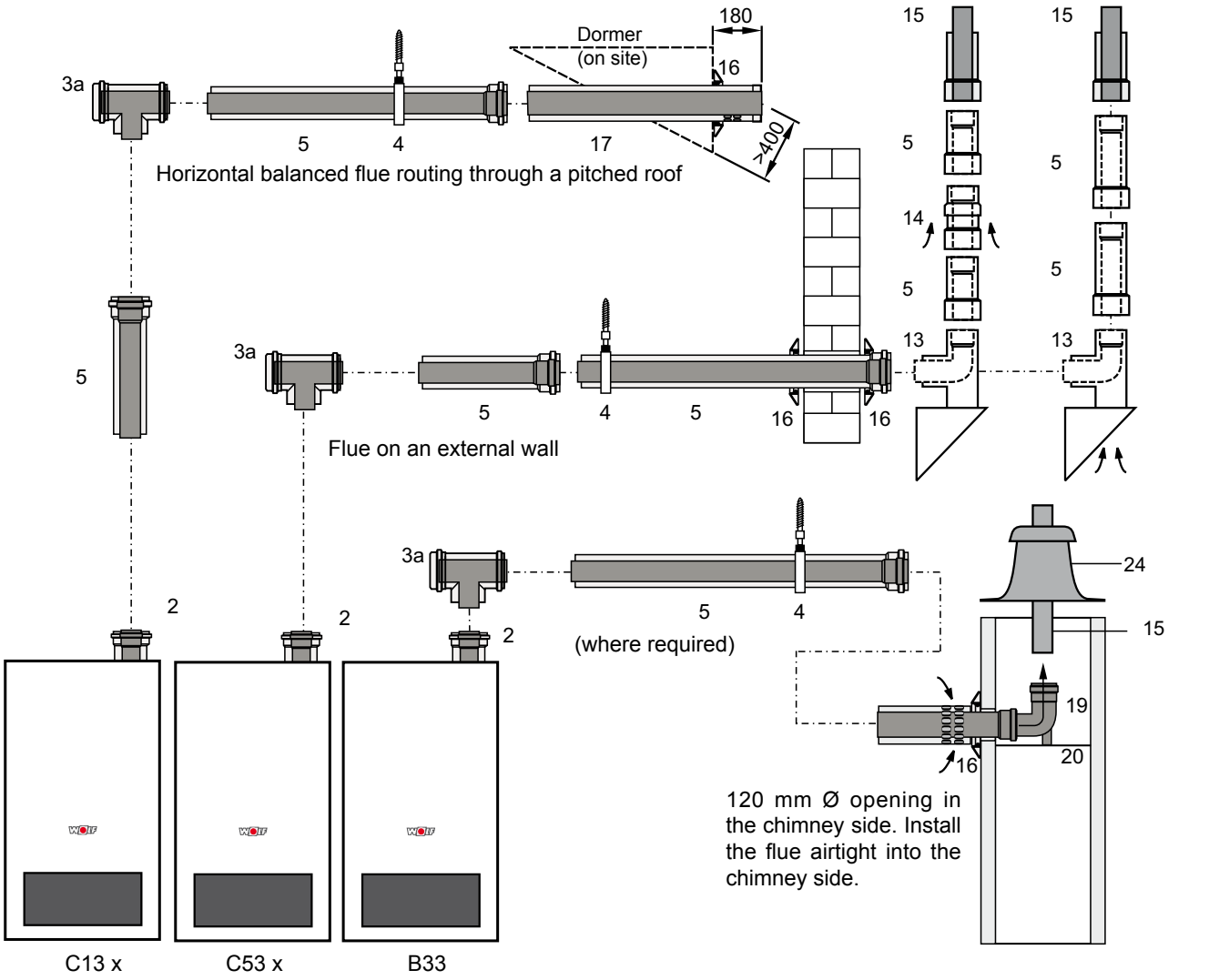


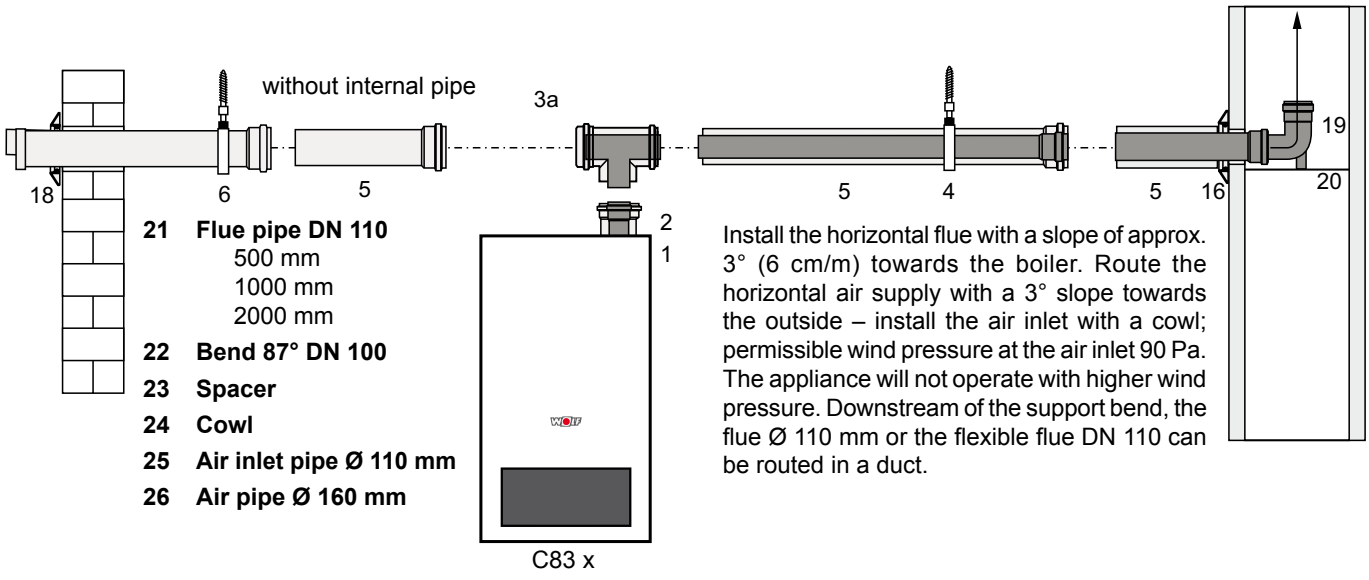
Art C33x: Gas condensing boiler with combustion air and flue gas routed vertically via the roof.

Please note: Lubricate the pipe ends and gaskets for easier installation.
Check the required inspection piece (3) (mat. no.: 2651329) with your local flue gas inspector prior to installation.

Ventilation air aperture for balanced flue operation in accordance with local regulations 150 cm² or 2 x 75 cm².

Horizontal concentric balanced flue C13x, C83x and B33 and flue on an external wall C53x (examples)





21 Flue pipe DN 110
500 mm
1000 mm
2000 mm

22 Bend 87° DN 100

23 Spacer

24 Cowl

25 Air inlet pipe Ø 110 mm

26 Air pipe Ø 160 mm

Install the horizontal flue with a slope of approx. 3° (6 cm/m) towards the boiler. Route the horizontal air supply with a 3° slope towards the outside – install the air inlet with a cowl; permissible wind pressure at the air inlet 90 Pa. The appliance will not operate with higher wind pressure. Downstream of the support bend, the flue Ø 110 mm or the flexible flue DN 110 can be routed in a duct.

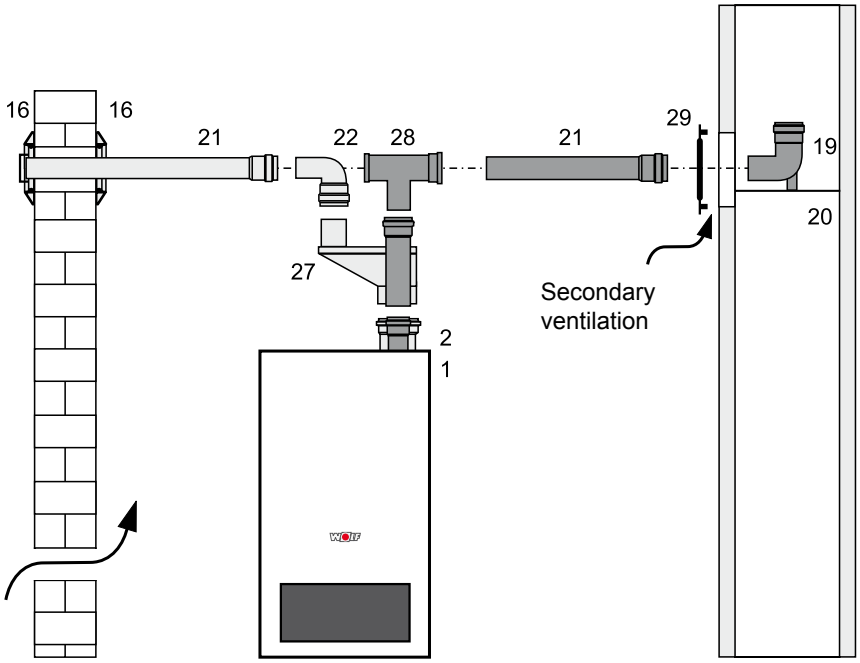
Ventilation air aperture in **balanced** flue operation
150 cm² or 2 x 75 cm².

Eccentric balanced flue C53, B23

Install the balanced flue distributor 110/110 mm eccentrically (26) for a separate balanced flue.
When connecting a balanced flue certified acc. to Building Regulations, observe the permit of the relevant body.

Downstream of the support bend (19), the flue can be routed in DN 110 inside the duct.

Install the horizontal flue with a slope of approx. 3° (6 cm/m) towards the boiler. Route the horizontal air supply with a 3° slope towards the outside – install the air inlet with a cowl; permissible wind pressure at the air inlet 90 Pa. The appliance will not operate with higher wind pressure.



C53

Maintain the following clearance between the internal duct wall and the flue:
for circular ducts: 3 cm
for rectangular ducts: 2 cm

1 Gas condensing boiler

2 Gas condensing boiler connection
DN 110/160

19 Support bend DN 110

20 Support rail

21 Flue pipe DN 110
500 mm
1000 mm
2000 mm

22 Bend 87° DN 110

23 Spacer

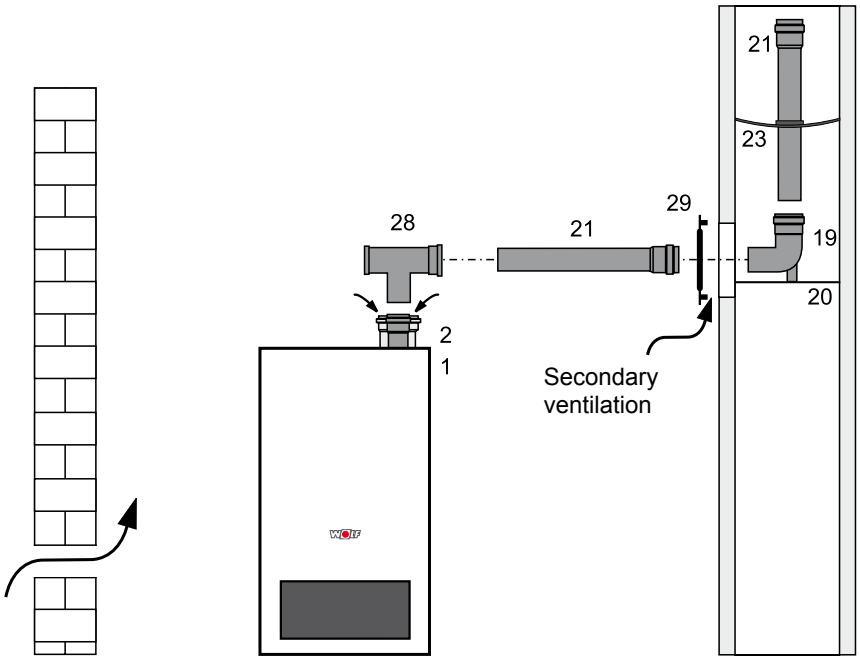
24 Cowl

27 Balanced flue distributor
110/110 mm

28 Tee 87° with inspection aperture DN 110

29 Ventilation bezel Ø 110

Ventilation air aperture in **balanced** flue operation in accordance with local regulations 150 cm² or 2 x 75 cm².



B23

Ventilation air in **open** flue operation in accordance with the local regulations:

75 kW	200 m²
100 kW	250 m²
180 kW	350 m²
200 kW	450 m²

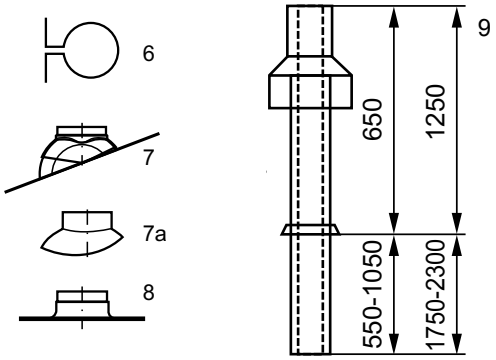
Supplementary installation notes

Flat roof: Affix the ceiling outlet approx. Ø 170 mm (8) deep into the roof cover.
Pitched roof: At (7, 7a), observe the installation instructions on the cowl regarding roof pitches.

Insert the roof outlet (9) from above through the roof and secure vertically with (6) to a rafter or brickwork.

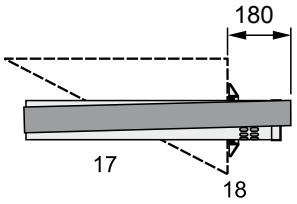
Install the roof outlet only in its original condition.

Modifications are not permissible.

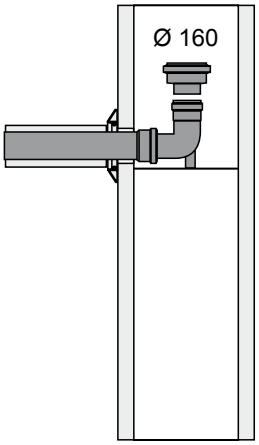


If an inspection aperture is required for the balanced flue, insert a balanced flue with inspection aperture (3) (200 mm length).

Install all horizontal balanced flues with > 3° slope (6 cm/m) towards the boiler. Any condensate must be returned to the boiler.
Install the centring triangles near the end of the pipe.

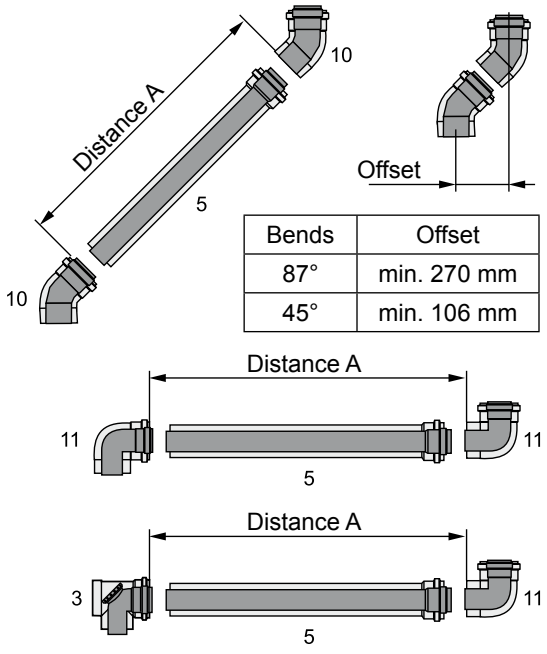


If required, a flue pipe expansion piece in a duct from DN 110 to DN 160 can be fitted at the support bend.



To check the balanced flue, undo and remove the cover of the inspection piece (3).

Inspection piece (3)



Bends	Offset
87°	min. 270 mm
45°	min. 106 mm

Determine distance A. Length of balanced flue (5) always approx. 100 mm longer than distance A. Always trim the flue on the smooth side, never on the coupling side.
Chamfer the flue after trimming.

Please note: Lubricate all balanced flue joints prior to installation, e.g. with a soapy solution, or coat lightly with suitable grease (mat. no. 2651329).

The following applies in accordance with local regulations:

Connection to a moisture-resistant balanced flue chimney (LAS), flue gas chimney or flue gas system

Chimneys and flue gas systems must be certified for combustion equipment in accordance with local Building Regulations (CE certification). Sizing via calculation tables subject to flue gas category. In addition to the boiler connection bend or tee piece, up to two 90° diversions may be installed. Operation with positive pressure may require an appropriate permit.

Connection to a moisture-resistant balanced flue chimney type C43x

Straight balanced flues may be up to **2.0 m long, when installing the system in a balanced flue chimney.** In addition to the boiler connection bend, up to **two** 90° diverters may be installed.

The balanced flue chimney (LAS) must be inspected by the relevant authority and approved for pressurised condensing operation.

Connection to a moisture-resistant flue gas chimney or a flue system type B33 for open flue operation

Straight balanced flues must be **no longer than 2 m** when connecting the system to a flue gas chimney. In addition to the boiler connection bend, up to **two** 90° diverters may be installed.

The flue gas chimney must be inspected by the relevant authority and must be approved for condensing operation.

If necessary, the flue outlet should be obtained from the chimney manufacturer.

The air vents to the boiler room must be free from obstruction.

Connection to a moisture-resistant flue type B23 for open flue operation

The straight, horizontal flue must not be longer than 3 m.

In addition to the boiler connection bend, up to two 90° diversions may be installed into the horizontal flue.

For this version, observe the ventilation requirements for boiler rooms acc. to local regulations.

Connection to a moisture-resistant flue type C53, C83x for balanced flue operation

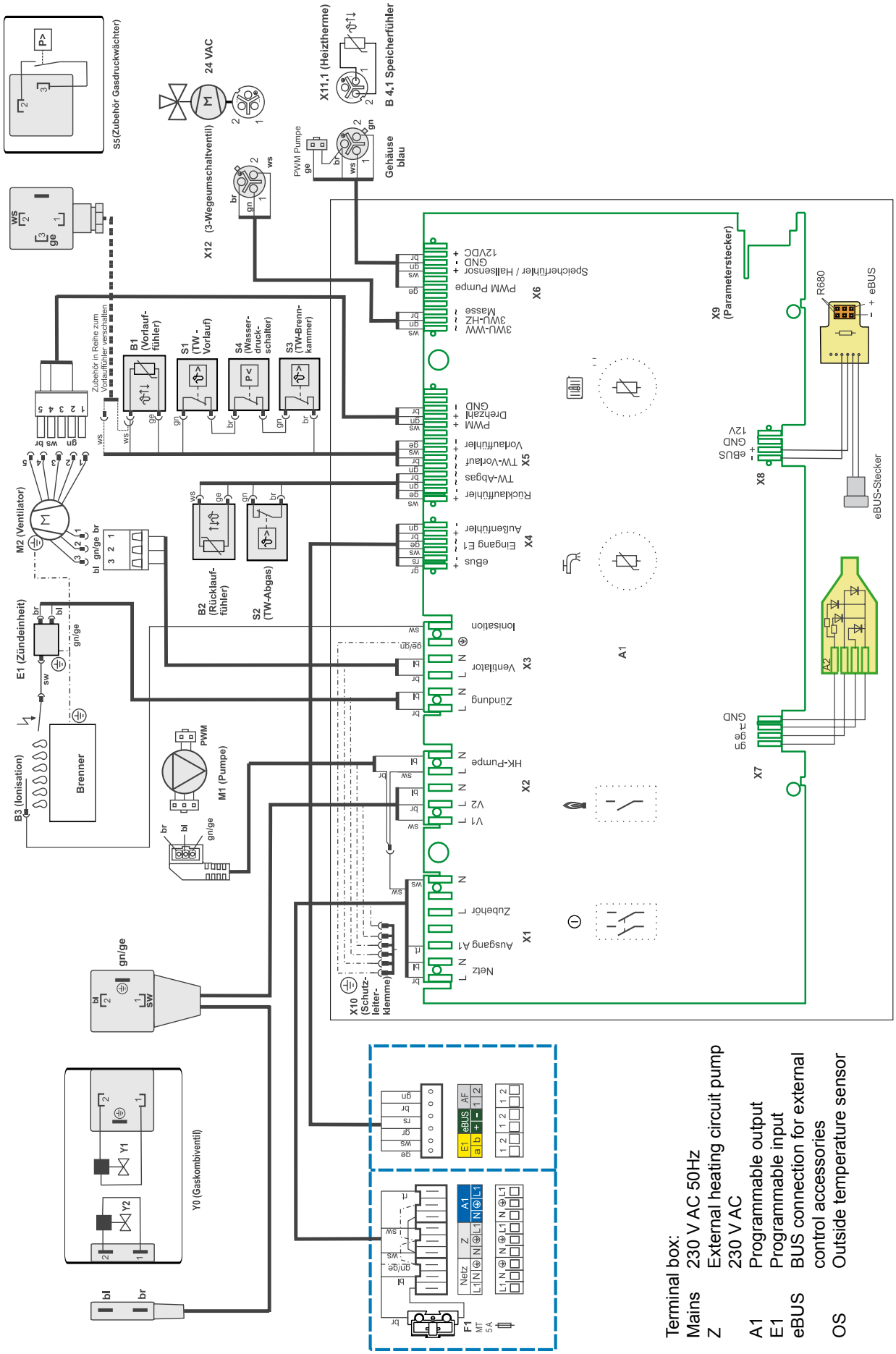
The straight, horizontal flue must not be longer than 3 m. For horizontal air supply pipes, a maximum length of 3 m is recommended. Observe special requirements for flues that are not surrounded by combustion air acc. to local regulations or all locally applicable combustion orders.

Connection to a combustion air and flue system type C63x that is not tested together with the gas combustion equipment

Original Wolf components are designed for long-term use, are designated with the DVGW quality seal and are matched for use with Wolf gas condensing boilers. When using CE-designated third party equipment, the installer is responsible for the correct sizing and perfect function of such systems. Faults, material losses and injuries resulting from incorrect pipe lengths, excessive pressure drop, premature wear with escaping flue gas and condensate or incorrect function, e.g. through components working themselves loose, are excluded from our warranty if non-CE-approved third party equipment is used. Straight balanced flues must be **no longer than 2 m, when connecting the system to a combustion air supply and a separate flue.**

In addition to the boiler connection bend, up to **two** 90° diverters may be installed.

The chimney must be free from contamination if the combustion air is drawn from the chimney.


S5(Zubehör Gasdruckwächter)
24 VAC
X12 (3-Wegeumschaltventil)
X11.1 (Heizthermie)
B 4,1 Speicherfühler
Gehäuse blau
PWM Pumpe
B1 (Vorlauf-fühler)
S1 (TW - Vorlauf)
S4 (Wasser-druck-schalter)
S3 (TW-Brenn-kammer)
Zubehör in Reihe zum Vorlauffühler verschalten
M2 (Ventilator)
E1 (Zündeinheit)
B3 (Ionisation)
Brenner
M1 (Pumpe)
B2 (Rücklauf-fühler)
S2 (TW-Abgas)
Y0 (Gaskombiventil)
X10 (Schutz-leiter-klemme)
X6
X5
X4
X3
X2
X1
A1
A2
X9 (Parameterstecker)
X8
X7
R680
eBUS-Stecker
Terminal box:
Mains 230 V AC 50Hz
Z External heating circuit pump 230 V AC
A1 Programmable output
E1 Programmable input
eBUS BUS connection for external control accessories
OS Outside temperature sensor

Type		CGB-75	CGB-100
Rated output at 80/60 °C	kW	70.1	91.9 [2)]
Rated output at 50/30 °C	kW	75.8	98.8
Rated heat input	kW	71.5	94
Lowest output (modulating at 80/60)	kW	18.2	18.2
Lowest output (modulating at 50/30)	kW	19.6	19.6
Lowest heat input (modulating)	kW	18.5	18.5
External diameter, heating flow	G	1½"	1½"
External diameter, heating return	G	1½"	1½"
Drain outlet (condensate)		1"	1"
Gas connection	R	¾"	¾"
Balanced flue connection	mm	110/160	110/160
Appliance dimensions HxWxD	mm	1020x565x548	1020x565x548
Balanced flue routing	type	B23, B33, C13, C13x C33, C33x C43, C43x C53, C53x C63, C63x C83, C83x C93, C93x	B23, B33, C13, C13x C33, C33x C43, C43x C53, C53x C63, C63x C83, C83x C93, C93x
Gas category:		II_{2H3P}	II_{2H3P}
Gas supply details:			
Natural gas H (Hi = 9.5 kWh/m³ = 34.2 MJ/m³)	m³/h	7.77	10.03
LPG P (Hi = 12.8 kWh/kg = 46.1 MJ/kg)	kg/h	5.76	7.44
Gas supply pressure:			
Natural gas	mbar	20	20
LPG	mbar	37/50	37/50
Flow temperature, factory setting	°C	80	80
Maximum flow temperature	°C	90	90
Max. overall pressure, heating	bar	6	6
Heating water heat exchanger water content	l	10	10
DHW temperature range (adjustable)	°C	15-65	15-65
Heating water pressure drop at 20 K spread	mbar	70	120
Rated output:			
Flue gas mass flow rate	g/s	33.7	43.5
Flue gas temperature 50/30 - 80/60	°C	48-72	53-78
Available gas fan draught	Pa	145	200
Lowest heat input:			
Flue gas mass flow rate	g/s	8.9	8.9
Flue gas temperature 50/30 - 80/60	°C	36-60	36-60
Available gas fan draught	Pa	12	12
Flue gas group according to DVGW G 635		G52	G52
NOx category		5	5
Electrical connection	V~/Hz	230/50	230/50
Integral fuse (medium slow)	A	3.15	3.15
Power consumption	W	75	130
Protection		IPX 4D	IPX 4D
Total weight (dry)	kg	92	92
Condensate volume at 40/30 °C	l/h	7.1	9.8
Condensate pH value		approx. 4	approx. 4
CE ID		0085BR0164	
ÖVGW quality symbol		G 2,775"	

Troubleshooting

Any faults will be displayed as fault codes by Wolf controllers with eBUS capability. To these faults, cause and remedy may be allocated using the following table. This table is designed to allow your local heating contractor to trace the fault more easily.

Fault code	Fault	Cause	Remedy
1	TBV excess temperature Water pressure too low Combustion chamber cover safety temperature limiter	The flow temperature has exceeded the limit for the TBV shutdown temperature, or the heat exchanger is extremely dirty, or the water pressure switch switches off at a pressure < 1.0 bar	Check system pressure; check heating circuit pump; vent the system; press reset button; clean heat exchanger; check TB combustion chamber; increase system pressure; check dirt filter
4	No flame established	No flame established during burner start	Check gas supply line, open gas tap if necessary Check ignition electrode and ignition cable Press reset button
5	Flame failure during operation	Flame failure within 15 s after flame recognition	Check CO_2 values Check ionisation electrode and cable Press reset button
6	TW excess temperature	The flow/return temperature has exceeded the limit for the TW shutdown temperature	Check the system pressure. Vent the system Set the pump to stage 2 or 3
7	TBA excess temperature Overpressure in the flue gas system	The flue gas temperature has exceeded the limit for the TBA shutdown temperature Flue gas system is blocked Ventilation air is blocked	Clean the heat exchanger Check the flue gas system Check the ventilation air
11	Flame pretence	A flame is recognised before the burner starts	Press reset
12	Faulty flow sensor Gas pressure too low	The sensor for the flow temperature or the cable is faulty, or the gas pressure < than the selected value at the gas governor (only displayed after 15 min)	Check lead Check flow sensor Check gas pressure Check gas governor (accessory)
14	Cylinder sensor faulty	DHW temperature sensor or lead faulty	Check sensor and lead
15	Faulty outside temperature sensor	The outside temperature sensor or lead is faulty	Check lead Check outside temperature sensor
16	Return sensor faulty	The return temperature sensor or lead is faulty	Check lead Check return sensor
20	Fault, gas valve "1"	A flame is recognised for 15 seconds after burner operation, even though gas valve 1 has received a shutdown command	Replace the gas combination valve
21	Fault, gas valve "2"	A flame is recognised for 15 seconds after burner operation, even though gas valve 2 has received a shutdown command	Replace the gas combination valve
24	Gas fan fault	The gas fan does not reach the required pre-purging speed	Check the gas fan supply cable and the gas fan. Press reset
25	Gas fan fault	The gas fan does not reach the ignition speed	Check the gas fan supply cable and the gas fan. Press reset
26	Gas fan fault	The gas fan does not stop	Check the gas fan supply cable and the gas fan. Press reset
30	CRC fault, gas condensing boiler	The EEPROM record "Gas condensing boiler" is invalid	Switch the power supply OFF and ON If unsuccessful, replace the control unit PCB
31	CRC fault burner	The EEPROM record "Burner" is invalid	Switch the power supply OFF and ON If unsuccessful, replace the control unit PCB
32	Fault in 24 V AC supply	24 V AC supply outside the permissible range (e.g. short circuit)	Check gas fan
33	CRC fault, default values	The EEPROM record "Master reset" is invalid	Replace the control unit PCB

Fault code	Fault	Cause	Remedy
34	CRC fault, BCC	Faulty boiler coding card	Replace boiler coding card
35	BCC missing	Boiler coding card was removed	Fit the correct boiler coding card
36	CRC fault, BCC	Faulty boiler coding card	Replace boiler coding card
37	Incorrect BCC	The boiler coding card is incompatible with the control unit PCB	Fit the correct boiler coding card
38	BCC no. invalid	Faulty boiler coding card	Replace boiler coding card
39	BCC system error	Faulty boiler coding card	Replace boiler coding card
41	Flow monitoring	Return temperature > Flow + 25 K	Vent heating system, check system pressure Check heating circuit pump
43	Burner starts > 20 per hour	Flow rate through the heat exchanger too low or, in case of cascade, measuring point of the header temperature unsuitable, or power consumption of the calorifier charging too low.	Check the flow rate Header sensor must measure the common feed temperature of the cascade.
50	Activation of boiler coding card	The boiler coding card must be enabled	Press reset 2 x
52	Activation of boiler coding card	The boiler coding card must be enabled	Press reset 2 x
60	Ionisation current fluctuates	The siphon is blocked, or the flue gas system is blocked, severe storm	Clean siphon, check flue gas system, check ventilation air, check monitoring electrode
61	Ionisation current fails	Poor gas quality, monitoring electrode faulty, severe storm	Check monitoring electrode and cable
	LED constantly red	Ionisation cable shorted out or ionisation electrode earthed (casing)	Check ionisation cable and position of electrode to burner. Press reset

Product fiche according to Regulation (EU) no. 811/2013

Product group: CGB-75/100

Supplier's name or trade mark			Wolf GmbH
Supplier's model identifier			CGB-75
Seasonal space heating energy efficiency class			A
Rated heat output	P_{rated}	kW	70
Seasonal space heating energy efficiency	η_s	%	93
Annual energy consumption for space heating	Q_{HE}	kWh	39183
Sound power level, indoors	L_{WA}	dB	50
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction

Technical parameters according to EU regulation no. 813/2013

Type			CGB-75	CGB-100
Condensing boiler	[yes/no]		yes	yes
Low temperature boiler (**)	[yes/no]		no	no
B11 boiler	[yes/no]		no	no
Cogeneration space heater	[yes/no]		no	no
If yes, equipped with a supplementary heater	[yes/no]		-	-
Combination heater	[yes/no]		no	no
Item	**Symbol**	**Unit**		
Rated heat output	P_{rated}	kW	70	92
Useful heat output at rated heat output and high-temperature regime (*)	P_4	kW	70,1	91,9
Useful heat output at 30% of rated heat output and low-temperature regime (**)	P_1	kW	21,0	27,6
Auxiliary electricity consumption at full load	elmax	kW	0,075	0,109
Auxiliary electricity consumption at part load	elmin	kW	0,025	0,028
Auxiliary electricity consumption in standby mode	P_{SB}	kW	0,003	0,003
Seasonal space heating energy efficiency	n_s	%	93	93
Useful efficiency at rated heat output and high-temperature regime (*)	n_4	%	88,2	88,0
Useful efficiency at 30% of rated heat output and low-temperature regime (**)	n_1	%	97,4	97,4
Standby heat loss	P_{stby}	kW	0,086	0,085
Ignition burner power consumption	P_{ing}	kW	0,000	0,000
Emissions of nitrogen oxides	NO_x	mg/kWh	20	24
Contact details			Wolf GmbH, Industriestraße 1, D-84048 Mainburg	

(*) High-temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.
(**) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet).

DECLARATION OF CONFORMITY

(according to ISO/IEC 17050-1)

Number:	3062555
Drawn up by:	**Wolf GmbH**
Address:	Industriestraße 1, D-84048 Mainburg
Product:	Gas condensing boiler CGB-75/100

The product described above conforms with the requirements of the following documents:

Article 6, 1st BImSchV, 26/1/2010
BS EN 297, 01/2005
BS EN 437, 09/2009
BS EN 483, 06/2000
BS EN 677, 08/1998
BS EN 625, 10/1995
BS EN 60335-1, 02/2003
BS EN 50165, 2001
BS EN 55014-1, 06/2007

In accordance with the regulations contained in the following directives

90/396/EEC (gas appliance directive)
2004/108//EC (EMC directive)
2006/95/EC (Low-voltage directive)
2009/125/EG (ErP directive)
2011/65/EU (RoHS directive)

the product is marked as follows:

CE
0085

Mainburg, 15.07.2015

Gerdewan Jacobs
Technical Director

p.p. Klaus Grabmaier
Product Approvals