



Installation and operating instructions

Wall mounted gas condensing boiler

CGB wall mounted gas condensing boiler

CGB-75
CGB-100



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1.1 Other applicable documents

- Technical information
- Maintenance instructions
- System and operator's log

The instructions for all accessory modules and other accessories also apply where relevant.

1.2 Safekeeping of these documents

The system user or operator should ensure the safekeeping of all instruction manuals and documents.

- ▶ Hand over these installation instructions as well as all other applicable manuals to the system user or operator.

1.3 Instructing the system user

- Instruct the system user to take out an inspection and maintenance contract with an approved contractor.
- Inform the system user that the annual inspection and maintenance may only be performed by an approved contractor.
- Inform the system user that repair work may only be performed by an approved contractor.
- Inform the system user that only original spare parts may be used.
- Inform the system user that no technical changes may be made to the boiler or control unit.
- Inform the system user that they are responsible for the safety, environmental compatibility and energy quality of the heating system (German Immission Control Act/ Energy Saving Ordinance) [Germany].
- Inform the system user that these instructions and the other applicable documents must be kept in a safe place.
- Instruct the system user how to operate the heating system.

1.4 Applicability of these instructions

These installation instructions apply to CGB-75/100 gas condensing boilers.

1.5 Acceptance

Within four weeks of commissioning of the burner the operator must notify the local flue gas inspector accordingly. According to the Bundes-KÜO (German Federal Sweeping and Inspection Act), tests and inspections are only required every 3 years [Germany].

1.6 Recycling and disposal

- Old equipment may only be disconnected from the gas and electricity supply by a qualified contractor.
- Always dispose of materials according to environmental, recycling and waste management standards.
- Old appliances, wearing parts, defective components and environmentally hazardous liquids and oils must be disposed of or recycled according to applicable waste disposal regulations without harming the environment.
They must not be disposed of as household waste.
- Dispose of packaging made of cardboard, recyclable plastics and synthetic filler materials in an environmentally compatible manner through appropriate recycling systems or a recycling centre.
- Please observe the applicable national and local regulations.

Authorised personnel should read these instructions before any installation, commissioning or service work. Comply with the specifications in this document. Failure to observe these installation instructions voids any warranty claim against WOLF.

In some countries, the relevant gas supply company must be notified of the installation of a gas boiler and must give their approval. Please note that regional permits may be required for the flue gas system and connecting the condensate drain to the public sewer. Before starting installation work, the local flue gas inspector and waste water authority must be informed.

The gas condensing boiler must only be installed, commissioned and serviced by qualified and trained personnel. In accordance with VDE 0105 Part 1, work on electrical components (e.g. control unit) may only be carried out by qualified electricians.

VDE/ÖVE regulations [Germany/Austria] and those of your local power supply utility company are applicable to electrical installation work.

Only operate the gas condensing boiler within the output range, which is stated in the technical documentation supplied by WOLF. Intended use of the boiler includes exclusive use for hot water heating systems in accordance with DIN EN 12828.

Never remove, bypass or otherwise disable any safety or monitoring equipment. Only operate the appliance if it is in perfect technical condition.

Any faults or damage which impact or might impact safety must be remedied immediately by a qualified contractor. Only replace faulty components and equipment with original WOLF spare parts.

Symbols

The following warning symbols are used in these instructions. These relate to personal safety and operational reliability.



Instructions that must be followed precisely in order to prevent risk and injury to persons.



Instructions that must be followed precisely in order to prevent risk and injury to persons from live electrical components.

Note Indicates technical instructions that must be observed to prevent damage to the boiler and malfunctions.



Danger: if you smell gas

- Close the gas valve.
- Open the windows.
- Do not operate any electrical switches.
- Extinguish naked flames.
- From an external location, telephone the gas supply utility company and an approved contractor.



Danger from "live" electrical components

Never touch electrical components or contacts when the ON/OFF switch is in the ON position. There is a danger of electrocution, resulting in a risk to health or death. The main terminals are 'live', even when the ON/OFF switch is in the OFF position.



Danger: if you smell flue gas

- Switch OFF the appliance.
- Open windows and doors.
- Notify an approved contractor.



Risk of scalding

Boilers may contain hot water. Hot water can cause severe scalding. Before working on parts which are in contact with water, allow the appliance to cool to below 40 °C, shut off all valves and, if necessary, drain the appliance.



Risk of burns

Boiler components may be extremely hot. Hot components can cause burns. Before working on the opened up appliance, allow it to cool below 40 °C or wear suitable gloves.



Risks from pressurised water

Boilers are subject to high water pressure. Water pressure can cause severe injuries. Before working on parts which are in contact with water, allow the appliance to cool to below 40 °C, shut off all valves and, if necessary, drain the appliance.

Note:

Sensors can be in contact with water and therefore exposed to pressure.

Working on the system

- Close the gas shut-off valve and secure it against unintentional reopening.
- Isolate the system from the power supply (e.g. by removing a separate mains fuse or by means of a main switch or a heating emergency stop switch) and check to ensure there is no voltage.
- Safeguard the system against reconnection.

Inspection and service

- Ensure the correct operation of the gas boiler by having a contractor carry out inspections at least once a year and maintenance/repair when required.
- (DVGW - TRGI 2008 - G600).
We recommend arranging a suitable maintenance contract.
- The operator is responsible for the safety, environmental compatibility and energy quality of the heating system (German Immission Control Act/Energy Saving Ordinance) [Germany].
- Use only genuine WOLF spare parts.

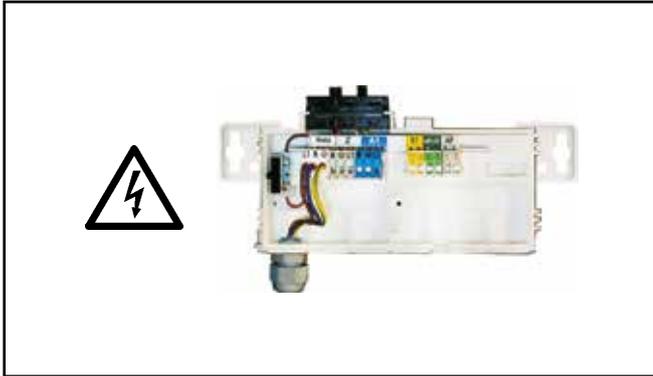


Fig.: Terminal box: Danger from electrical voltage

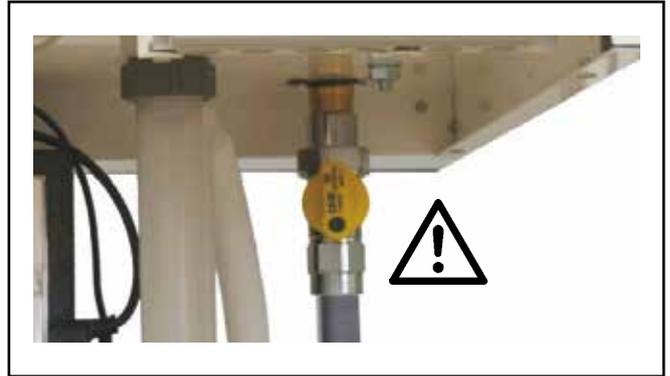


Fig.: Gas connection
Escaping gas may cause poisoning or an explosion



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

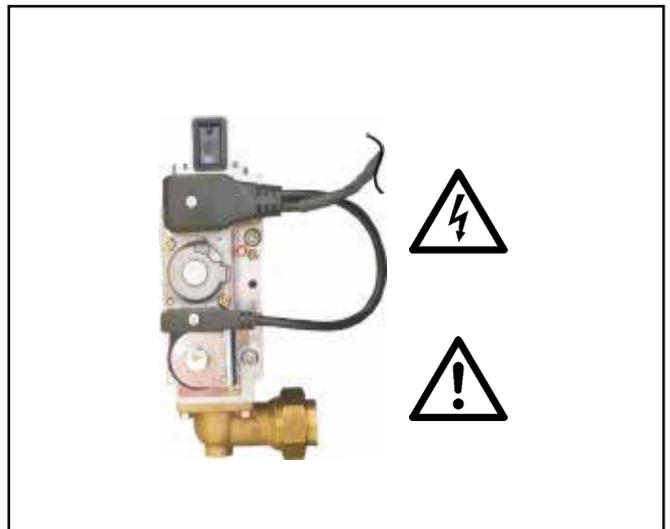


Fig.: Gas combination valve
Danger from electrical voltage
Escaping gas may cause poisoning or an explosion

3. Standards and regulations

Observe all standards and guidelines applicable to the installation and operation of this heating system in your country.

Observe the information on the boiler type plate.

The following local regulations must be complied with during installation and operation of the heating system:

- Siting conditions
- Ventilation and extract air facilities and connection to a chimney
- Electrical connection to the power supply
- Technical regulations of the gas supply utility company regarding the connection of the gas appliance to the local gas mains
- Regulations and standards regarding the safety equipment of the water heating system
- DHW installation

The following general regulations, rules and guidelines must be observed for installation in particular:

- EN 806 Drinking water supply systems
- (DIN) EN 1717 Protection against pollution of potable water in water installations
- EN 12831 Heating systems in buildings – Method for calculation of the design heat load
- (DIN) EN 12828 Heating systems in buildings - Design of water-based heating systems
- (DIN) EN 13384 Chimneys – Thermal and fluid dynamic calculation methods
- (DIN) EN 50156-1 (VDE 0116 Part 1) Electrical equipment in combustion systems
- VDE 0470/EN 60529 Degrees of protection provided by enclosures (IP rating)
- VDI 2035 Prevention of damage in hot water heating systems
 - Scale formation (Sheet 1)
 - Corrosion by water (Sheet 2)
 - Corrosion by flue gases (Sheet 3)

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)!



We accept no liability for losses caused by technical modifications made to the control unit or the control system components. Improper use may cause a risk to life and limb or damage to the appliance or other property.

Gas condensing boiler CGB-...

Gas condensing boiler to DIN EN 437 / DIN EN 13203-1 / DIN EN 15502-1 / DIN EN 15502-2-1 / DIN EN 60335-1 / DIN EN 60335-2-102 / DIN EN 62233 / DIN EN 61000-3-2 / DIN EN 61000-3-3 / DIN EN 55014-1, as well as 92/42/EWG (Efficiency Directive) / 2016/426/EU (Gas Appliances Directive) / 2014/30/EU (EMC Directive) / 2014/35/EU (Low Voltage Directive) / 2009/125/EG (ErP Directive) / 2011/65/EU (RoHS-Richtlinie) / Regulation (EU) 811/2013 / Regulation (EU) 813/2013, with electronic ignition and electronic flue gas temperature monitoring, for low temperature heating and DHW heating in heating systems with flow temperatures up to 90°C and 3 bar permissible operating pressure in accordance with DIN EN 12828. This WOLF gas condensing boiler is also approved for installation in garages.



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 the installation and maintenance instructions before installing the boiler. Also take into consideration all technical information.



When operating the boiler with LPG use only propane according to DIN 51 622, otherwise faults may arise when starting and operating the gas condensing boiler, which may lead to damage to the appliance and personal injury. A poorly vented LPG tank can lead to problems with ignition. In such a case, contact the company that fills the LPG tank.



The adjustable cylinder water temperature can exceed 60°C. For short term operation above 60 °C the boiler must be monitored in order to prevent scalding. For continuous operation, appropriate precautions should be taken to prevent draw-off temperatures above 60 °C, e.g. thermostatic valves.



Fig.: Wolf gas condensing boiler

To protect against scaling, the DHW temperature should be set to max. 50°C if the total water hardness is 15 °dH (2.5 mol/m³) or above. Without an accessory regulator, this corresponds to a maximum hot water rotary selector setting of 6. With a total hardness of 20 °dH or higher, use of a water treatment facility in the cold water supply line when heating DHW is necessary in order to extend the maintenance intervals.

Failure to take such precautions will result in premature scaling of the appliance and a reduction in the convenient availability of domestic hot water. The contractor responsible should always check the local conditions.



ON/OFF switch
ON/OFF

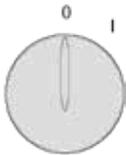
Reset
button

DHW tempera-
ture selector

Thermometer

Illuminated ring

Heating water
temperature
selector



ON/OFF switch

The condensing boiler is OFF in position 0.

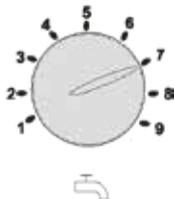


Reset

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

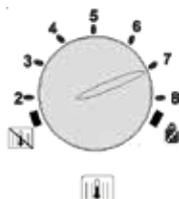
Illuminated ring for status display

Display	Meaning
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** (positions 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 . In other words, the boiler will then operate 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**

The 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 into position .

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.

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 Trap with hose
- 1 Maintenance tools

Accessories

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

- Balanced flue accessories (see technical 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

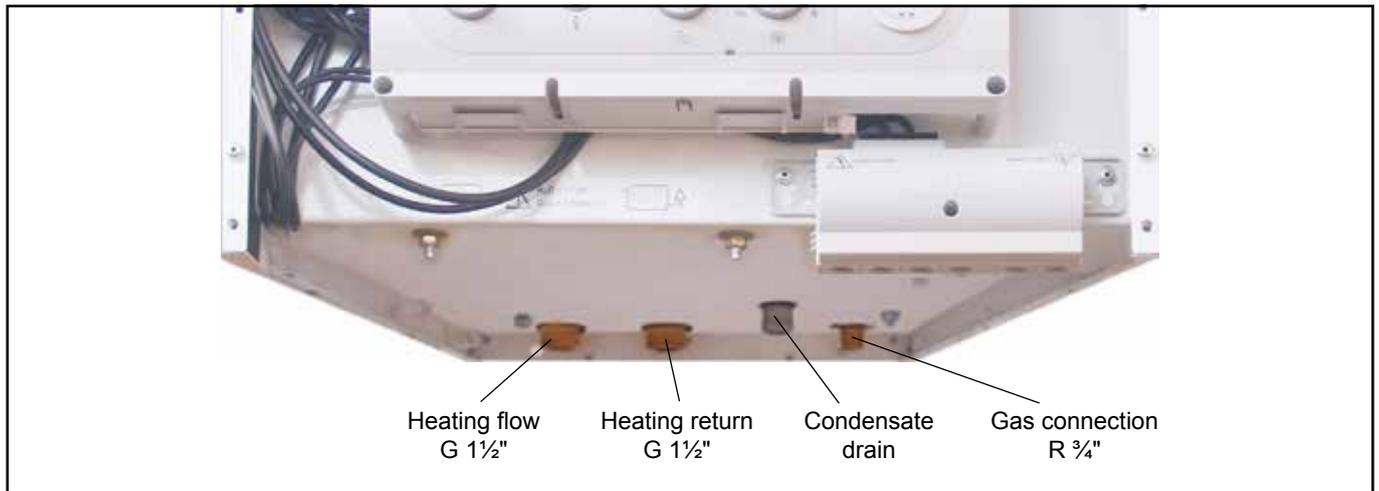


Fig.: Connections with heating circuit connection set (accessory)

Heating circuit pump assembly (accessory)

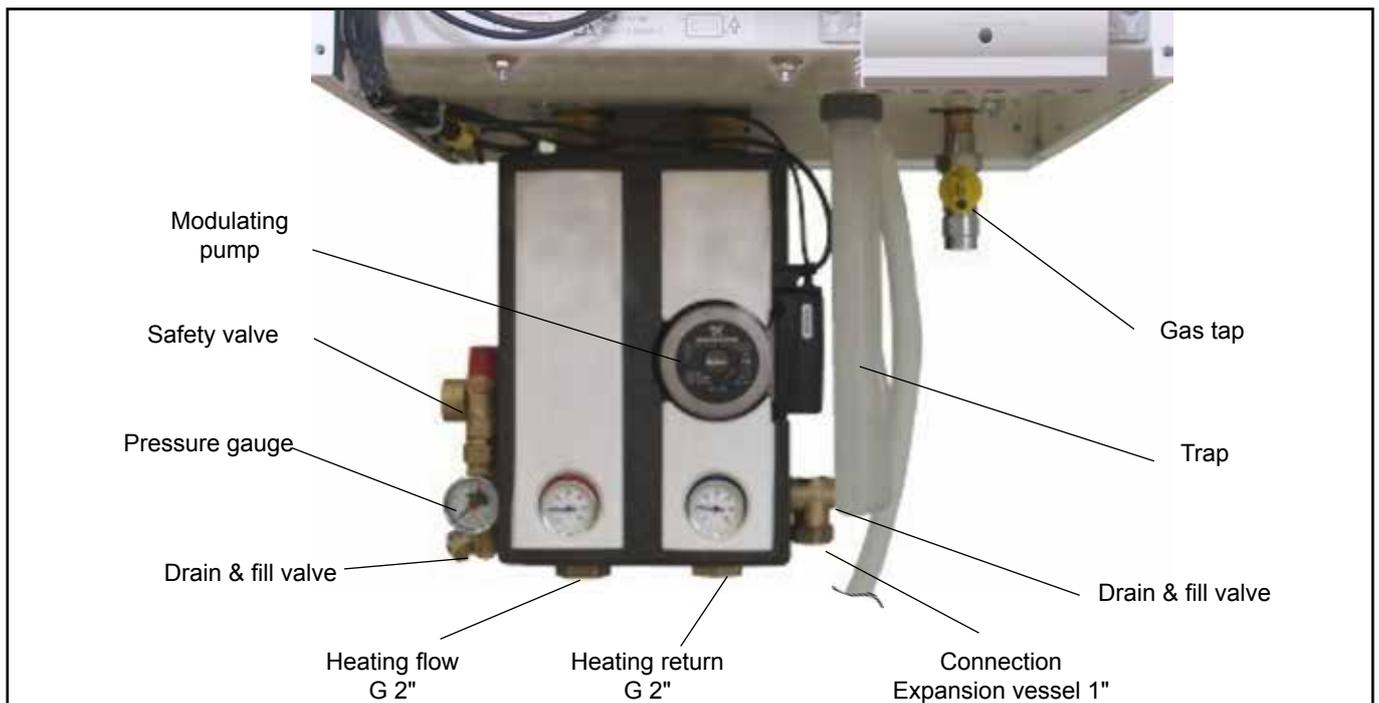
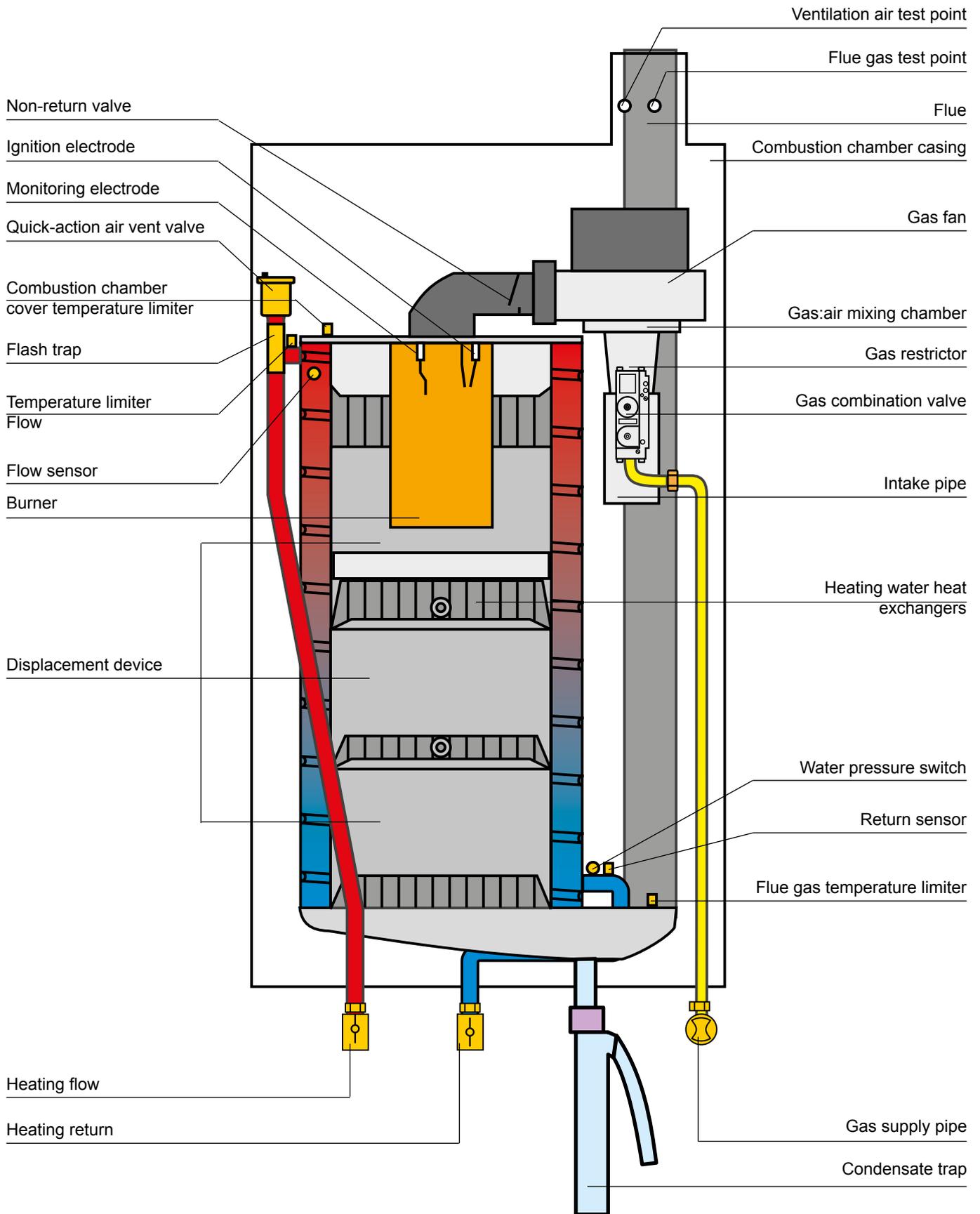


Fig.: Pump assembly (accessory)

6. Layout

CGB-75 / CGB-100



General information

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 (trap). The drain must be able to be easily inspected.



The boiler may be installed only in rooms that are protected from frost.

The temperature in the installation room must be between 0°C and 40°C.

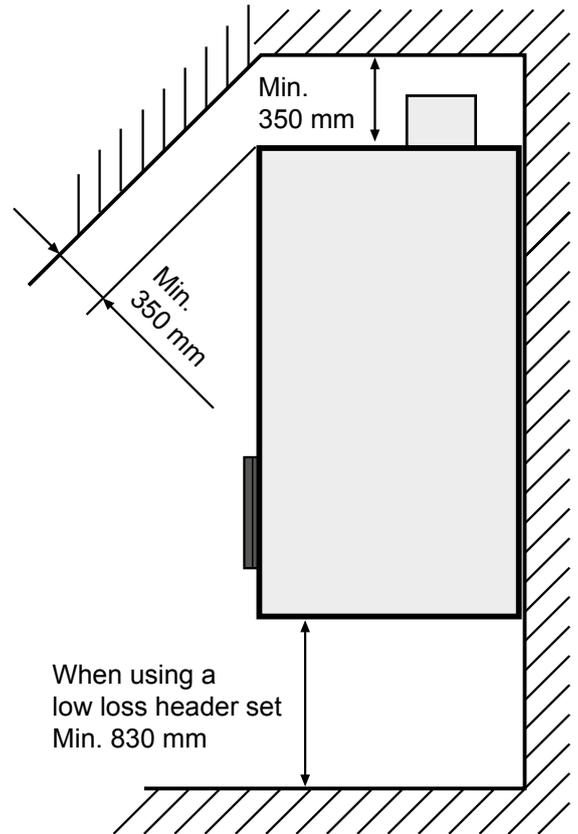


Clearance between the boiler and combustible materials or components is not required, as temperatures will not exceed 85°C at the rated boiler heating output. However, explosive or readily flammable materials must not be used in the installation room as this would create a risk of fire or explosion.

Note

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

First determine where the appliance is to be installed. For this, take into account the flue gas connection, lateral clearances towards walls and the ceiling, and any existing connections for gas, heating, DHW and electrics.



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

Sound insulation: Under certain critical installation conditions (e.g. installation on a drywall), additional measures may be necessary to soundproof the boiler. In such conditions, use anti-vibration rawl 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.



After completing servicing, close the front casing again and fasten the screws tightly. There is a risk of carbon monoxide poisoning if the flue system is faulty.



Fig.: Undoing screws

Securing the appliance with the suspension bracket



During installation of the gas condensing boiler, ensure that all fixings are strong enough to carry its weight. Also take into account the condition of the wall, as an escape of gas or water might result in a risk of explosion and flooding.

Initially, determine the location for the installation of the gas condensing boiler.

For this, take into account the flue gas connection, lateral clearances towards walls and the ceiling, and any existing connections for gas, heating, DHW and electrics.

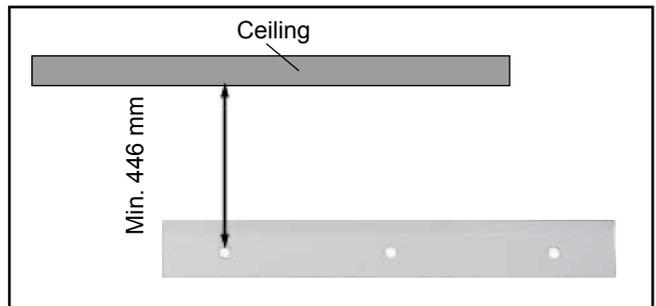
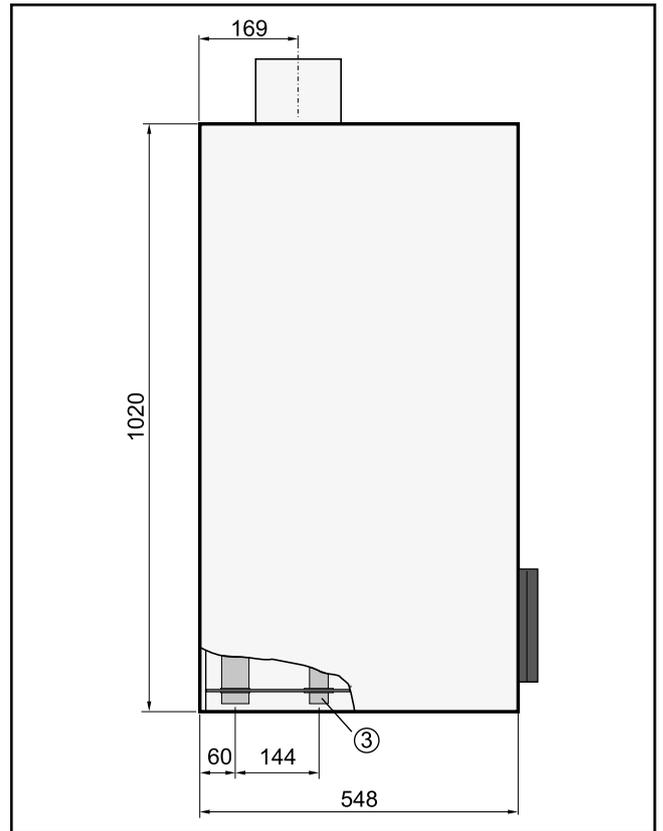
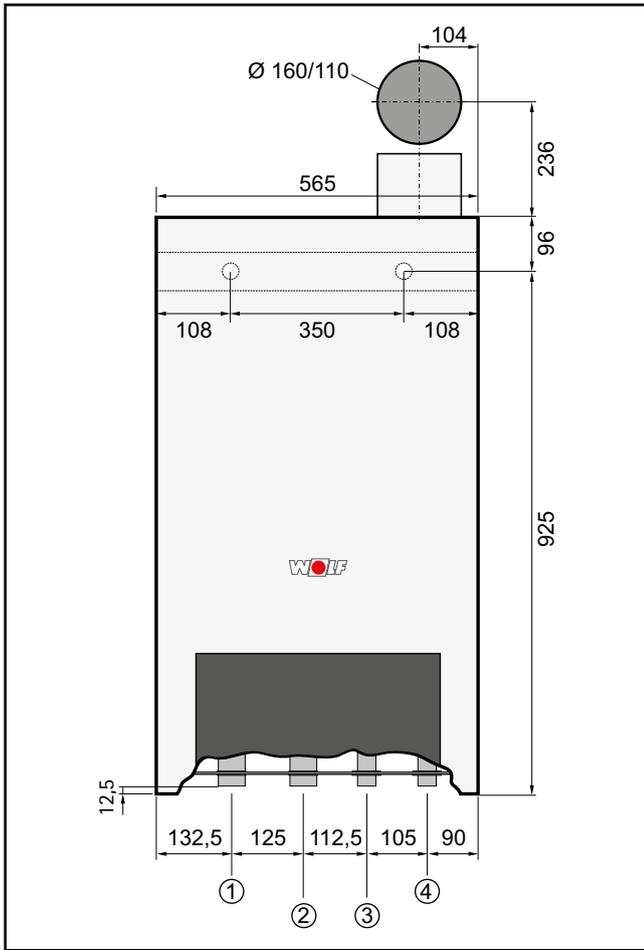


Fig.: Drill holes for suspension bracket

- 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.
- Hook the gas condensing boiler with the mounting stays into the mounting bracket.

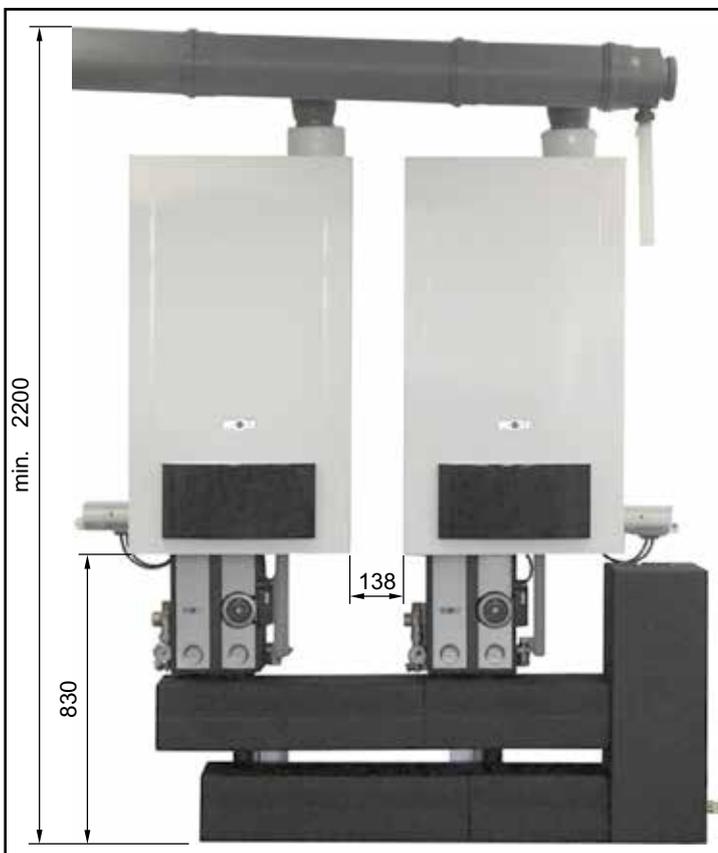


Fig.: Mounting brace on the condensing boiler



- 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.

Note:

Provide a drain & fill valve at the lowest point in the system.



Fig.: Heating circuit connection set (accessory)

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). The expansion vessel must be sized sufficiently, in accordance with DIN 4807.



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.

This does not include butterfly 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 discharge pipe 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.



Fig.: Pump assembly (accessory)

Note:

Provide a drain & fill valve at the lowest point in the system.

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 risk of damage to the boiler resulting from water leaks, poor heat transfer or corrosion.

- Before connecting the gas condensing boiler, flush the heating system to remove residues such as welding pearls, hemp, putty, sludge sediments, etc. from the pipework
- Install a strainer/dirt trap in the return line and service the strainer/dirt trap at regular intervals, see WOLF accessories (500µm = 0.5mm)
- The automatic air vent valve for the appliance must be opened during operation
- The max. flow rate of 100 l/min (6000 l/h) must not be exceeded
- Drinking water or desalinated domestic drinking water should be used as fill water and top-up water. The hardness of the system water must be less than 2 dH. The fill and top-up water qualities for the specific system can be found in the chapter "Technical information for water treatment".
- If an ingress of oxygen cannot be ruled out, a system separation is advisable
- The heating water pH value must be between 8.2 and 8.5
- In general, fill and top-up water must be desalinated; softening by means of a single stage de-ioniser is not permissible. For this, the permissible methods and limits should be obtained from the chapter "Technical information for water treatment" (NOTE the limit values are specific to the system).
- Inhibitors and antifreeze are not permissible.
- A system log must be kept (see Technical information for water treatment)

After correct filling of the system, the system must be heated up to the maximum level and then the total hardness and pH value must be measured again and adjusted as necessary. These values must be checked and adjusted again after 6-8 weeks.

Additional requirements for operation without a low loss header

- Systems with only one CGB-75/100
- Sludge separator in the boiler return of the CGB-75/100
- Desalination of the heating water to 2 - 3 °dH
- Control of cylinder charging only via the MM module (configurations 1 and 10)
- Cylinder charging pump at least DN 25 with at least 6 m head
- The max. flow temperature must be adjusted with parameter HG08 to 75 °C



The technical information for water treatment must be observed, otherwise system damage due to water leaks may occur.

The manufacturer does not assume liability for any damage to the heat exchanger caused by oxygen diffusion in the heating water. In the event of oxygen penetrating the system, we recommend a system separation through the interconnection of a heat exchanger.

Information from VDI 2035

The way in which commissioning in particular is carried out can have a strong influence on scaling. 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.



carry out a leak test on the piping: 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 (100 l/min).

For a specific system volume of >50 l/kW, adjust the total hardness to 2-3°dH using a desalination process.

Condensate drain connection

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

Note: Fill the trap with water prior to commissioning.

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



Fig.: Trap



The trap must be filled with water prior to commissioning. Operating the appliance with an empty trap presents a risk of poisoning or asphyxiation due to the escape of flue gases. Undo the trap, remove and fill until water runs out of the drain hole on the side. Refit the trap 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).



Fig.: 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



Only a licensed gas fitter may route the gas pipe and make the gas connections. 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 gas pipes and connections for leaks according to TRGI. Only foaming leak detection sprays which are approved by the DVGW 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 if there is a fire. Size the gas supply pipe in accordance with DVGW-TRGI regulations [Germany].



Gas fittings on the appliance may only be pressure-tested to a maximum of 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.

- Prior to installation, ensure that the boiler corresponds to the local gas type. The factory settings for the particular type of gas can be obtained from the following table.



Fig.: Straight-through gas ball valve (accessory)

Natural gas E/H:

Ws = 11.4 -15.2 kWh/m³= 40.9-54.7 MJ/m³

Natural gas LL:¹⁾

Ws = 9.5 -12.1 kWh/m³= 34.1-43.6 MJ/m³

LPG P: ²⁾

Ws = 20.2 -21.3 kWh/m³= 72.9-76.8 MJ/m³

Table: Factory setting according to gas type

¹⁾ Not applicable for Austria/Switzerland

²⁾ Does not apply to Switzerland

Note

For concentric air/flues (balanced flue systems), use only original Wolf components. Observe the technical information regarding ventilation air supply / flue systems prior to installing the flue or making the balanced flue connection.

As regulations in the individual German Federal States differ, we recommend consulting the relevant authorities and local flue gas inspector prior to installation.

Note

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

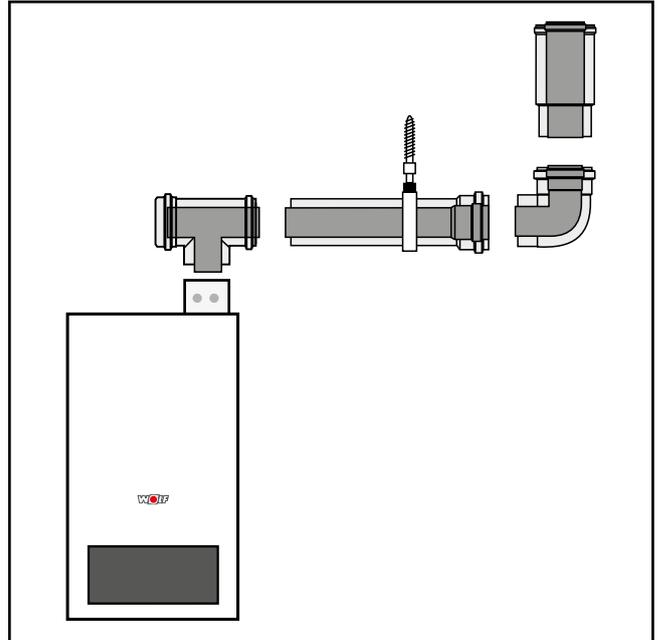


Fig.: Example: balanced flue



At low outside temperatures, the water vapour contained in the flue gas may condense and freeze on the air/flue gas routing system. Prevent falling ice through on-site measures, e.g. the installation of a suitable snow guard.

General information



The installation may be carried out only by an approved electrical contractor. Observe VDE regulations [Germany] and all local regulations of your power supply utility.



For installation in Austria: The ÖVE regulations and requirements and those of your local power supply utility must be observed.

An omnipolar isolator with at least 3 mm contact separation must be integrated in the power cable upstream of the appliance. A connection box must also be installed on site.



Never route sensor leads alongside 230 V cables.



Danger through 'live' electrical components.

Please note: Turn 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. There is a danger of electrocution, resulting in a risk to health or death.

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



During servicing and installation work, isolate the entire system from the power supply across all poles, otherwise there will be a risk of electrocution.

Terminal box

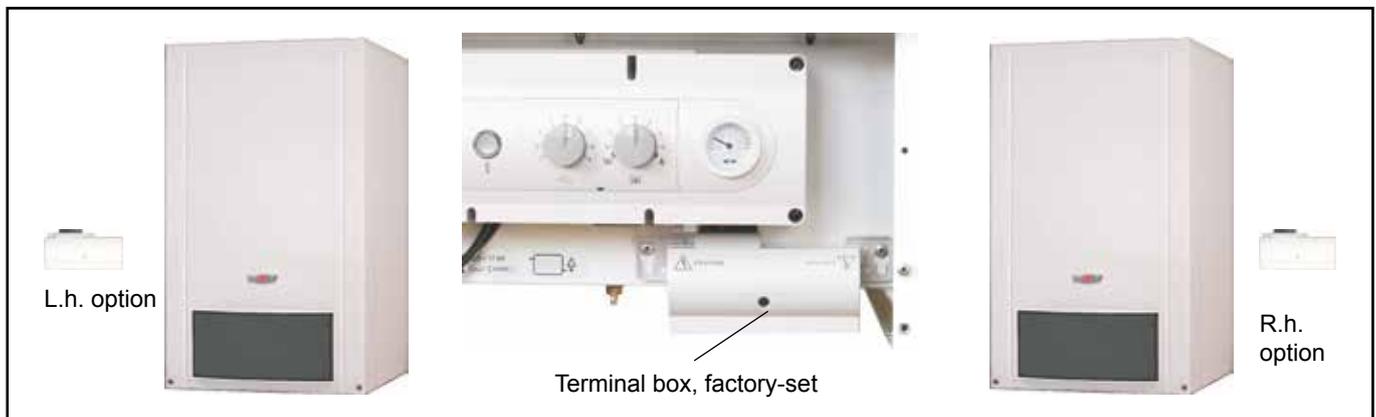
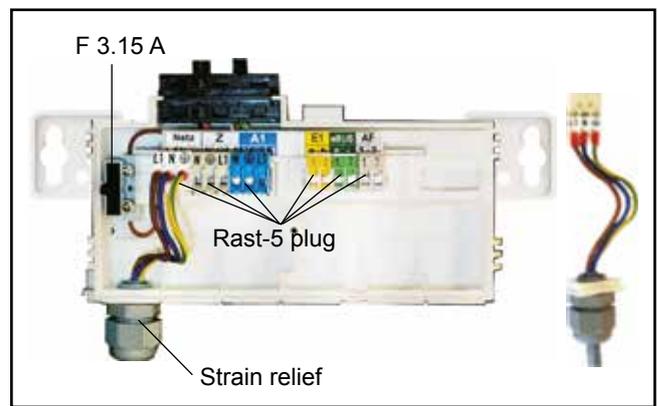
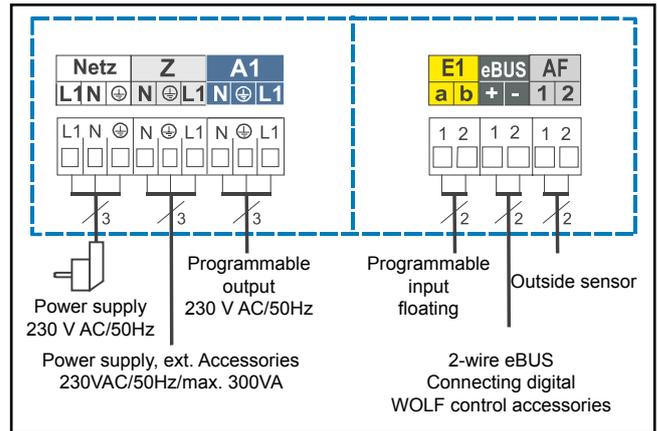
The control and safety devices are fully wired and tested.

230 V mains connection

In the case of a permanent connection, provide the power supply via a mains isolator (e.g. heating system emergency stop button), which ensures at least 3 mm contact separation for all poles. Flexible power cable, at least 3x1.0 mm². No other consumers may be connected to the cable. In rooms with a bathtub or shower, the appliance may only be connected via an RCD.

Installation information – electrical connection

Isolate the system from the power supply before opening.
 Check that the appliance is isolated from the power supply
 Swivel the control unit to one 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.
 Screw the strain relief into the holes provided.
 Strip approx. 70 mm off the power cable insulation.
 Push the cable through the strain relief and tighten the strain relief.
 Clamp the appropriate cores to the Rast5 plug.
 Push the inserts back into the terminal box casing.
 Push the Rast-5 plugs back into the correct positions.



Changing the fuse



Isolate the condensing boiler from the power supply prior to changing a fuse. The ON/OFF switch on the appliance does not provide isolation from the power supply. **Danger through 'live' electrical components. Never touch electrical components or contacts if the condensing boiler has not been isolated from the power supply. Danger to life!**

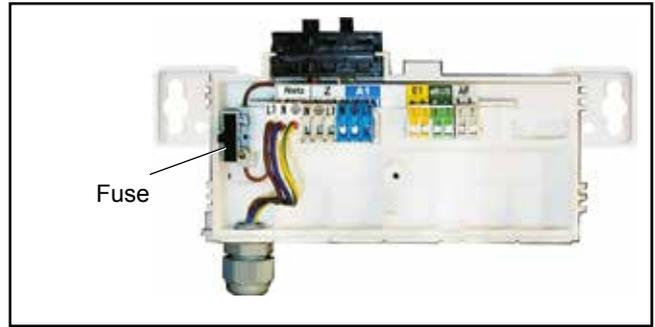


Fig.: Terminal box cover open

Cylinder sensor connection

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

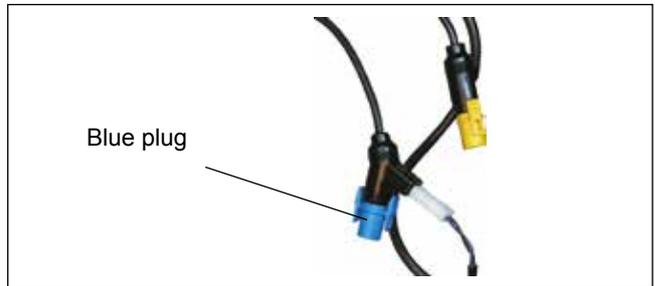


Fig.: Blue plug for cylinder sensor connection

Connection of an 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.

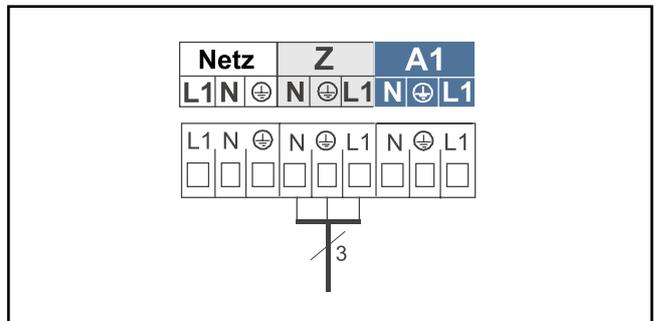


Fig.: Connection, heating circuit pump

Output connection 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 next page.

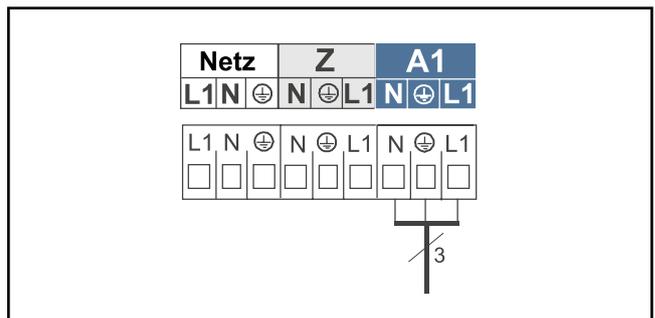
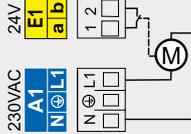


Fig.: Connecting output A1

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

Code	Meaning
0	No function Output A1 is not controlled
1	DHW circulation pump 100% Output A1 is activated by control accessories (timed) if DHW has been enabled. Output A1 is constantly switched if 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 switched 4 minutes after a fault.
5	Flame detector Output A1 is switched after a flame has been detected
6	Cylinder charging pump (factory setting for A1) Output A1 is activated during cylinder heating.
7	<p>Ventilation damper Output A1 is switched first prior to each burner start. The burner will, however, only be enabled after input E1 has been closed.</p> <p> Important: Input E1 must also always be programmed as "Ventilation damper"!</p> <p>The feedback to input E1 must be by means of a floating contact (24V). Otherwise, use an on-site relay for potential separation.</p> 
8	External ventilation Output A1 is switched inverse to the gas combination valve. Switching off external ventilation (e.g. extractor fan) during burner operation is only required if the appliance is operated in open flue mode.
9	External LPG valve ¹⁾ 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.

¹⁾According to DVFG-TRF 2012 chapter 9.2, an additional on-site LPG valve is not required if it has been ensured that no potentially hazardous quantity of gas can escape from the appliance. CGB condensing boilers fulfil this requirement.

Connecting low voltage devices

Note When installing the appliance in places where there is a risk of increased electromagnetic interference, it is advisable to fit screened sensor leads and eBUS cables. The cable shield should be connected at one end to the PE potential in the control unit.

Connection, input E1 (24 V), potential-free

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.

Note No external voltage may be connected to input E1, as this could destroy the component.

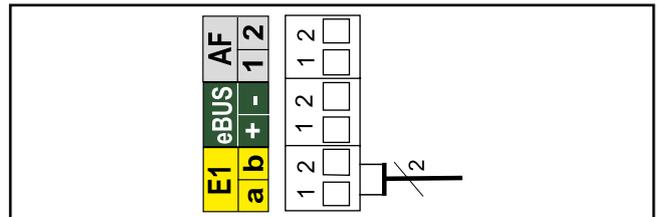


Fig.: Connection, room thermostat

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

Code	Meaning
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. When the contact is open, the burner is blocked both for DHW and heating, as well as for emissions tests and frost protection.
3	Not assigned
4	Flow switch Optional connection for an additional water flow switch. input E1 must be closed within 12 seconds after the pump has been switched. Where this is not the case, the burner will be switched OFF, and fault 41 will be displayed.
5	Ventilation air damper monitoring See parameters for output A1, no. 7. Supply air damper
8	Burner block (BOB) Operation without burner Closed contact, burner blocked Heating circuit pump and cylinder charging pump operate 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 controllers from the Wolf range of accessories may be connected. 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.

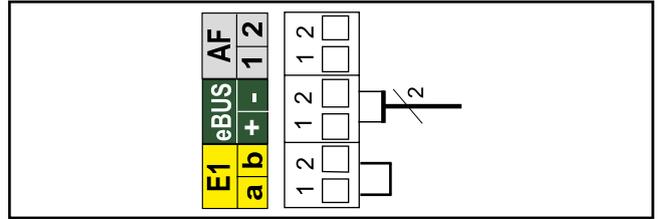


Fig.: Connecting digital Wolf control accessories (eBUS interface)

Connecting the outside 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.

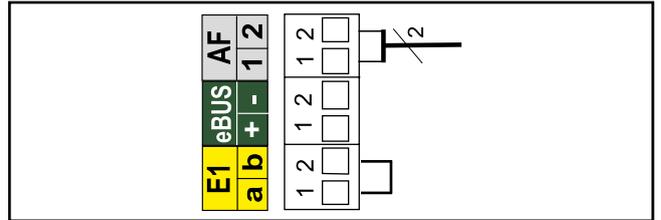


Fig.: Connecting the outside sensor

13. Filling the system

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

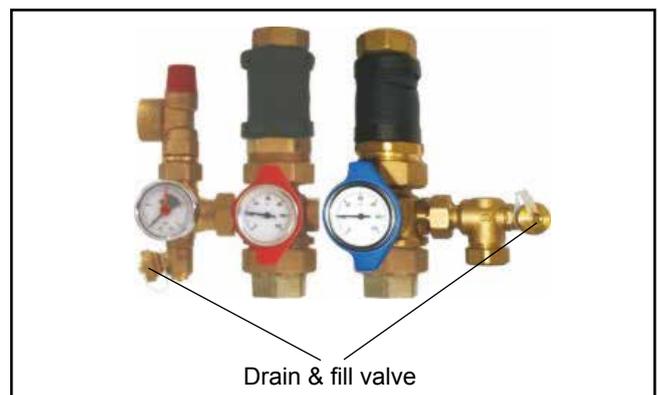
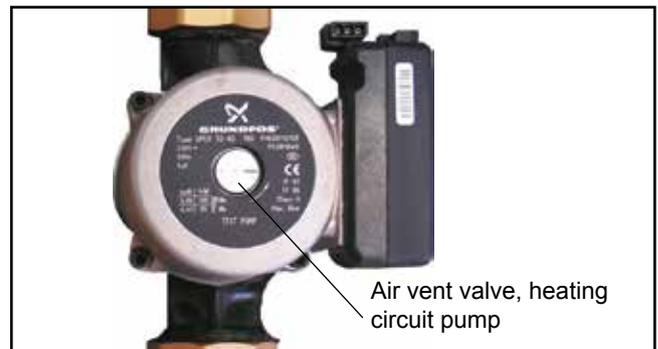
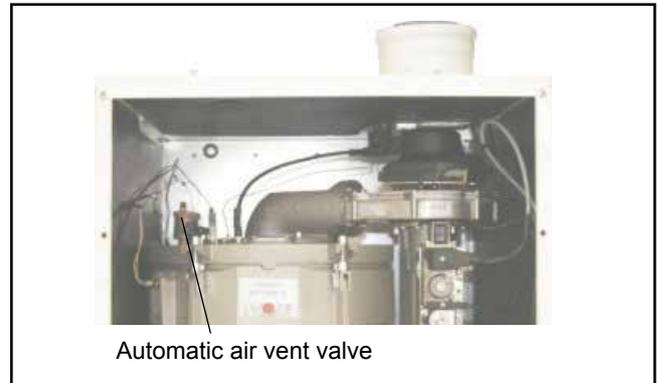
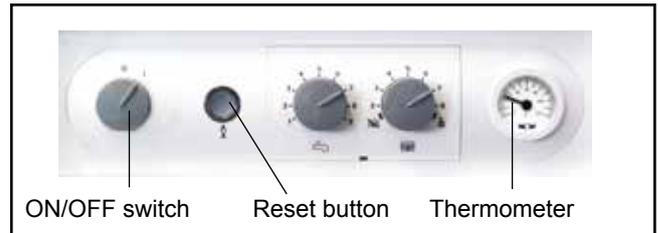
Note Before connecting the gas condensing boiler, flush the heating system to remove residues such as welding pearls, hemp, putty, etc. from the pipework. Check the dirt filter.

- The gas tap must be shut
- The locking cap on the quick-acting air vent valve should not be unscrewed
- Open all radiator valves
- Open the return valves, and the heat exchanger will then be gradually filled with water from below
- With the entire heating system and boiler in a cold condition, slowly fill the system via the inspection/BDF valve on the return until approx. 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 indicator ring for status display constantly green)
- Vent the pump; to do 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
- Top up with water (technical information) if the system pressure falls below 1.5 bar
- Open the gas ball valve
- Press reset.

Note:

- In continuous 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 the trap with water and fit it to the boiler



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

As delivered, the gas condensing boilers CGB-75/CGB-100 are equipped for operation with natural gas E/H (G20). For operation with natural gas LL (G25), the gas restrictor must be replaced. The necessary gas restrictor with the code number "1260" for operation with natural gas LL (G25) is included in the scope of delivery and is attached to the gas pipe for use.



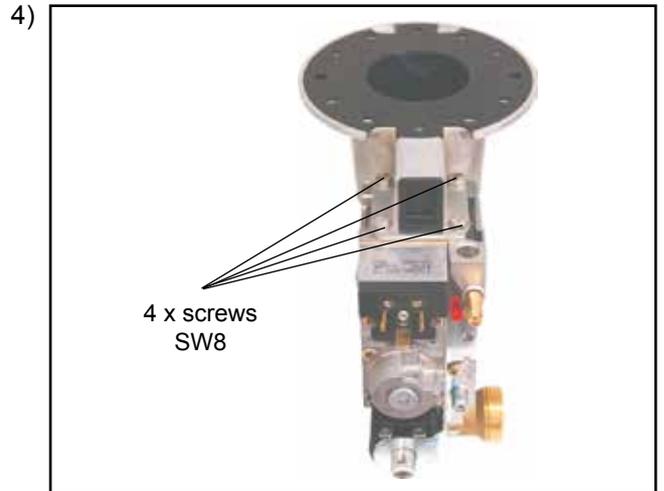
Unplug the connector ①② (first unscrew the Phillips head screws)



Undo gas connection at the gas combination valve



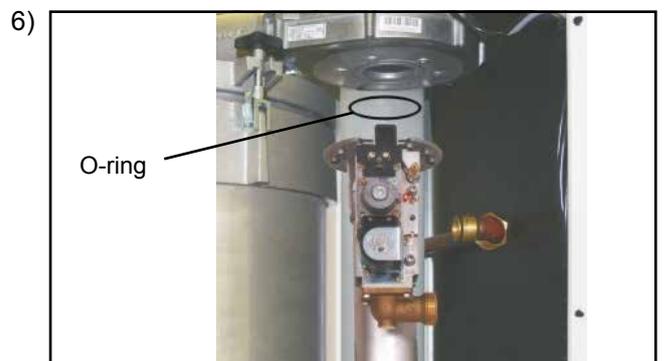
Unscrew the mixing chamber from the fan (three Allen screws 5 mm), and remove air inlet pipe if necessary



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



Remove integral gas restrictor and replace with the gas restrictor for the new gas type (in accordance with the table on page 25).



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.

Re-assemble in reverse order.

Note: During the conversion from LPG to natural gas, the gas combination valve and the flue gas orifice plate (see page 24/25) must be removed prior to assembly.

15. Conversion to LPG P (G31) (if necessary)



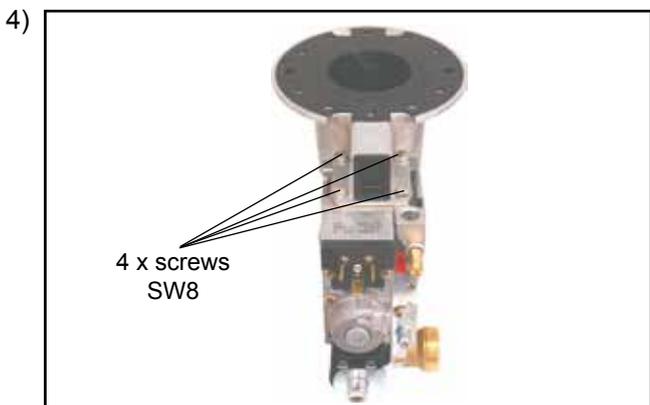
1) Unplug the connector ①② (first unscrew the Phillips head screws)



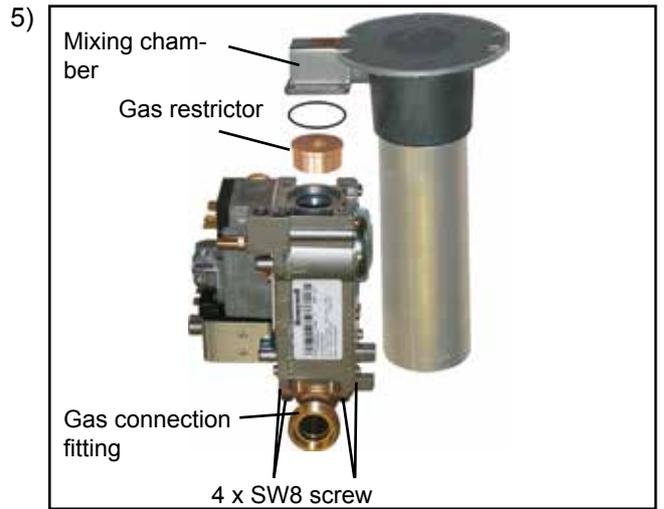
2) Undo gas connection at the gas combination valve



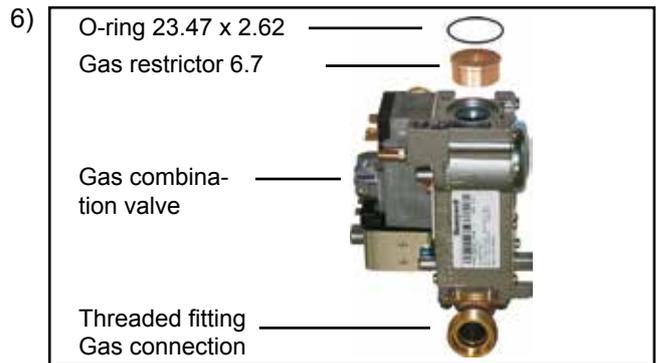
3) Unscrew the mixing chamber from the fan (three Allen screws 5 mm), and remove air inlet pipe if necessary



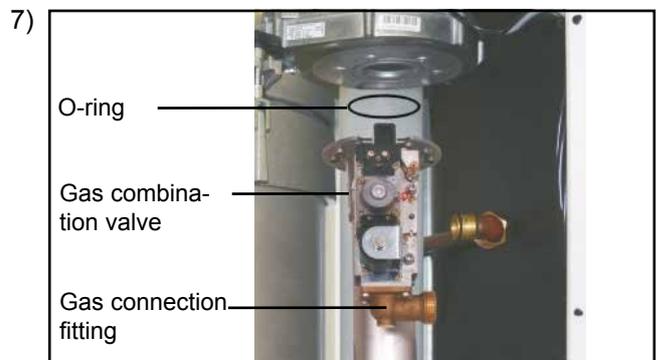
4) Undo the gas combination valve from the mixing chamber for gas/air (four SW8 screws).



5) Remove the four SW8 screws at the gas connection fitting and remove the fitting from the gas combination valve. Remove the gas combination valve and gas restrictor. Place the protective labels at the valve inlet and valve outlet of the new gas combination valve at the apertures of the removed valve.



6) Screw the gas connection fitting with O-ring 26 x 4 to the new LPG gas combination valve. Insert the new 6.7 gas restrictor into the gas combination valve. Use screws to secure the gas combination valve with O-ring 23.4 x 2.6 to the mixing chamber.

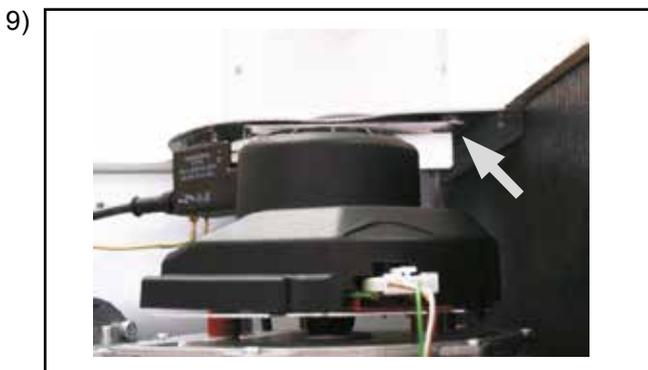


7) Push the O-ring, lubricated with silicone grease, into the packing groove of the fan and fit the mixing chamber with the gas combination valve to the burner fan. Tighten gas connection fitting to gas supply line.

Note: During the conversion from natural gas to LPG, a flue gas orifice plate must also be installed in the condensate pan as follows. During conversion from LPG to natural gas, the flue gas orifice plate must be removed.
This installation step is carried out prior to the installation of the mixing chamber and full assembly.



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



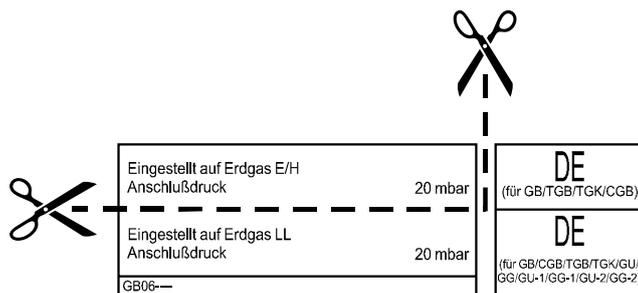
9) Slide the balanced flue locking mechanism in the direction of the arrow. Pull the flue pipe up out of the condensate pan.



10) Place the flue gas orifice plate \varnothing 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.

11) 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

CE 0085		DE/AT/LU	
Brennwert Kombi-Wasserheizer		Typ CGB-100	
Bestimmungsland DE	AT	LU	
Kategorie II 2 ELL3/P	II 2H3P	II 2 ELL3/P	
Art B33, C13x, C33x, C43x	C13x, C33x	B33, C13x, C33x	
	C63x	C43x, C63x	
Eingestellt auf B/P Anschlußwert 1,6/2,0 kg/h		Anschlußdruck 50 mbar	
Herstellnummer			
Eingestellt auf Erdgas E/H Anschlußdruck		20 mbar	
Warmwasser		18,5-94 kW	
Heizen		19,5-94 kW	
Leistungsbereich			
Heizen 50/30°C		19 - 98,8 kW	
Heizen 80/60°C		18 - 91,5 kW	
Max. Vorlauftemperatur		90 °C	

Fig.: 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 natural gas E/H (G20)	ID 1000*
Conversion to natural gas LL** (G25)	ID 1260*
Conversion to LPG P*** (G31)	ID 6.7*
Conversion from LPG P (G31) to natural gas E/H (G20)	ID 1000*
Conversion from LPG P (G31) to natural gas LL** (G25)	ID 1260*

* ID imprinted on gas restrictor

** Natural gas LL and E are not applicable for Austria / Switzerland

*** LPG not applicable for Switzerland

Checking the gas supply pressure (gas flow pressure)



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



Fig.: 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 line
- Connect the differential pressure meter or U-tube manometer to the test nipple ① at "+", with "-" against atmosphere
- Switch the ON/OFF switch to ON
- After starting the appliance, check the supply pressure on the differential pressure meter

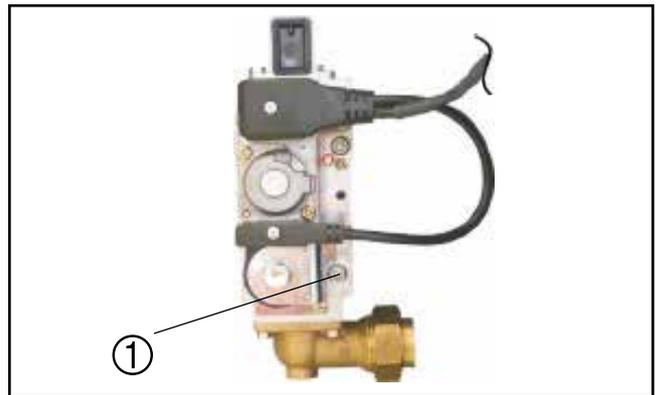


Fig.: Checking the gas supply pressure

Note

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.

Note

LPG:

If the supply pressure (flow pressure) is outside the 43 to 57 mbar range, adjustments must not be carried out and the boiler must not be started. There is a risk of faulty boiler functions.



Fig.: Shut-off systems

- Switch OFF ON/OFF switch; close the gas shut-off valve
- Remove the differential pressure tester and **re-seal the test nipple with plug ①.**
- Open the gas shut-off valve
- Check that the test nipple is gas-tight
- Complete the enclosed notice and affix it to the inside of the casing
- Close the appliance again



There is a danger of gas escaping, leading to a risk of explosion, asphyxiation or poisoning unless all of the screws are tightened.



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

Note

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

- Check that all flue gas accessories have been correctly installed
- Open the shut-off valves in the flow and return
- Open the gas shut-off valve
- Switch on the system ON/OFF switch on the control unit
- Check the ignition and the regular flame structure of the burner
- The illuminated ring shows a yellow colour, if the boiler starts correctly
- Check the condensate drain
- Familiarise customers with the operation of the boiler with reference to the operating instructions and advise them of the required water treatment for fill and top-up water
- Complete the commissioning report and hand over the instructions to the customer.

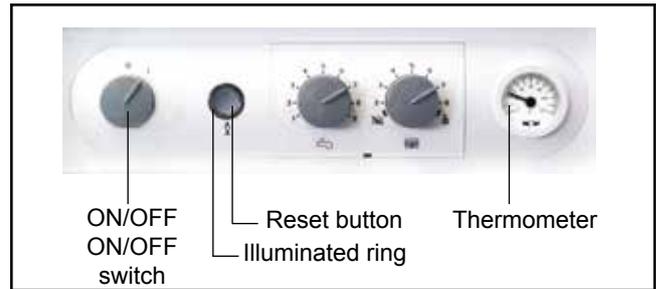


Fig.: Control unit overview

Energy savings

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

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.

BUS address setting:

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.

Bus address	Rotary selector position DHW	Illuminated ring display
1	1	flashing red
2	2	flashing yellow
3	3	flashing yellow/red
4	4	flashing yellow/green
5	5	flashing green/red
0	6	flashing green (factory setting)

Note Modifications must only be carried out by a recognised heating contractor or by Wolf customer service.



To prevent damage to the heating system, cancel night reduction if outside temperatures fall below -12 °C. If this requirement is not observed, ice may form on the flue outlet which may cause injury or material losses.

Note 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.

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.

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

1	2	Parameter	Unit	Factory setting	min	Max.
GB01	HG01	Burner switching differential	K	8	5	30
	HG02	Low fan speed Minimum fan speed in %	%	CGB-75: 30 CGB-100: 25	30 25	100 100
	HG03	Top fan speed WW Maximum fan speed for DHW in %	%	CGB-75: 90 CGB-100: 90	30 25	100 100
GB04	HG04	Top fan speed HZ Maximum fan speed for heating in %	%	CGB-75: 90 CGB-100: 90	30 25	100 100
GB05	A09	Frost protection, outside temperature Pump ON with connected outside temperature sensor and insufficient temperature	°C	2	-10	10
GB06	HG06	Pump mode 0 -> Pump ON in winter mode 1 -> Pumpe 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 applies to heating mode	min	7	1	30
	HG10	eBUS address heat source BUS address		0	0	5
	HG 11	DHW quick start, temperature of the plate heat exchanger in summer mode (only applicable for 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 charging pump	0	9
GB15	HG15	Cylinder hysteresis Switching differential during cylinder re-charging		5	1	30
	HG21	Minimum boiler water temperature T-boiler min.	°C	20	20	90

WOLF 20. 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 heat load. Modulating the pump reduces the power consumption.

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 unit.

The settings in column 1 apply to control accessories ART, AWT

The settings in column 2 apply to Wolf control systems with BM programming unit

1	2	Parameter	Unit	Factory setting	min	Max.
GB16	HG16	Minimum heating circuit pump rate	%	20	20	100
GB 17	HG17	Heating circuit pump output, maximum This parameter must be set at least 5% higher than the parameter Minimum heating circuit pump output	%	100	20	100

Note

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	Troubleshooting
Individual radiators do not heat up properly.	Create hydronic 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 is 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 E/H/LL and LPG. Natural gas LL is not applicable for Austria / Switzerland. LNG is not applicable for Switzerland.

CGB-75

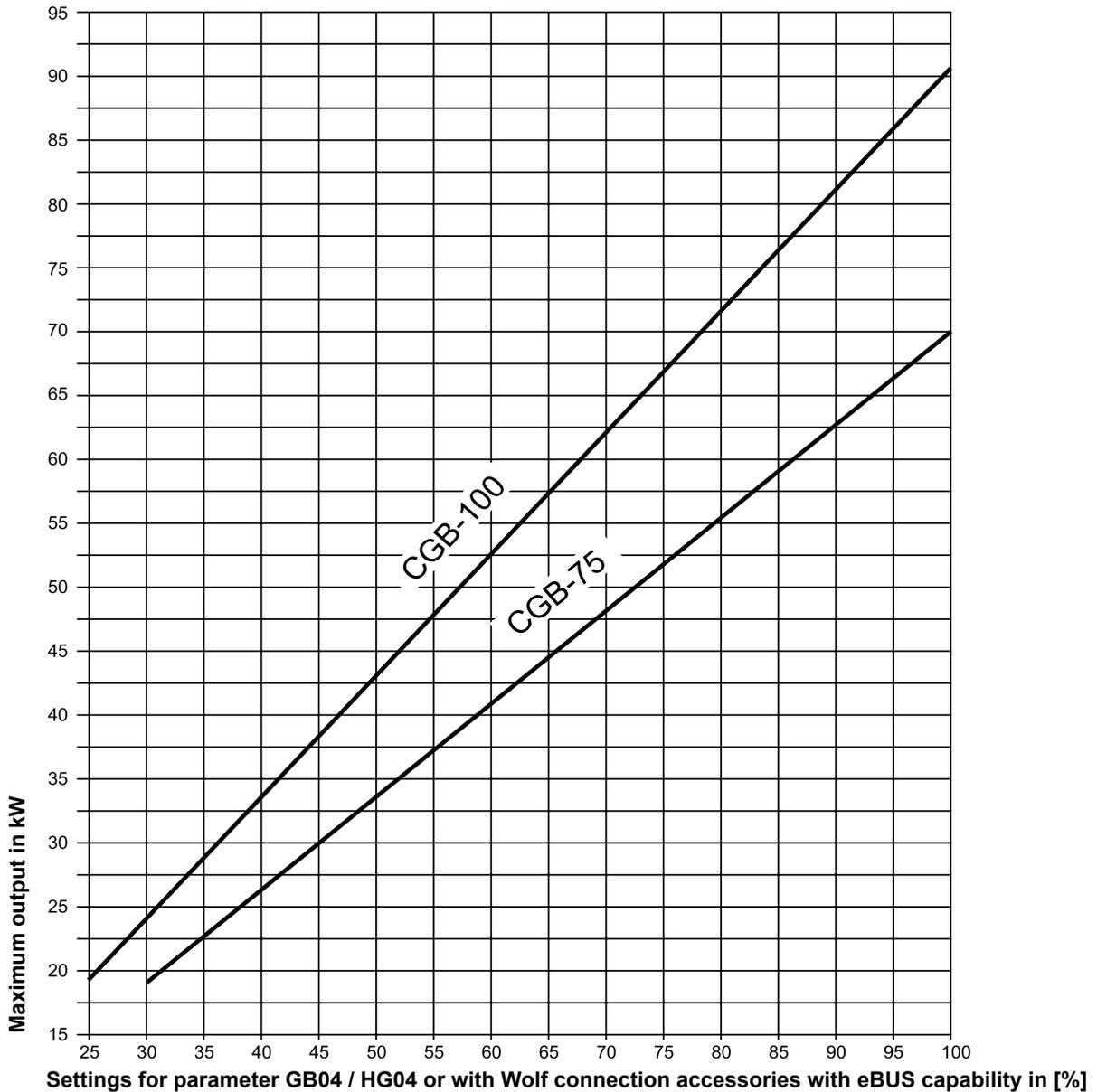
Heating output (kW)	18	22	25	29	33	37	40	44	48	51	55	59	63	66	70
Display value (%)	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

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 settings

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



Test the combustion parameters with the boiler closed!

Testing the intake 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)
- Measure the temperature and CO₂.

In the case of a concentric balanced flue, the flue is not gas-tight if the CO₂ content is > 0.2 %. The leak must be rectified.

- After the test has been completed, switch the boiler off, remove the test probe and close the test port. Ensure the screws are tightly secured.

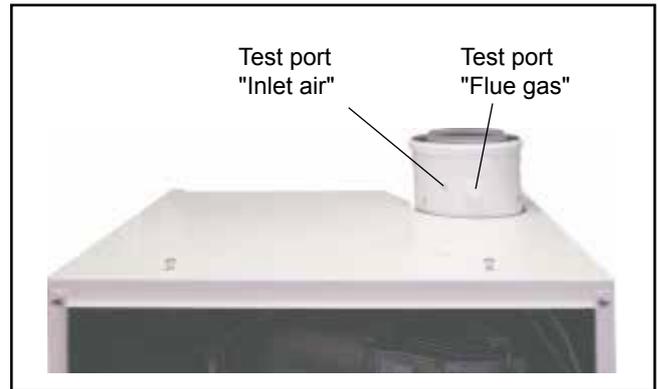


Fig.: Test ports

Testing the flue gas parameters



When the test port is open, flue gas can escape into the installation room. There is 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
- Measure the flue gas values
- After the test has been completed, remove the test probe and close the test port again. Ensure the screws are tightly secured.

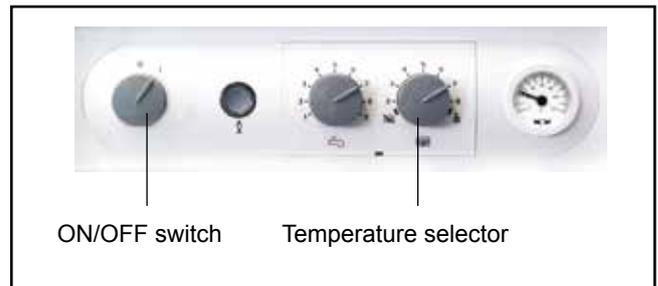


Fig.: Control unit overview

Setting the gas/air mixture

Note

Carry out the adjustments in the order described below. The gas combination valve has been set at the factory to the gas type specified 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) CO₂ setting for 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 CO₂ test instrument 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 CO₂ content at full load, and compare the actual values with those in the table below.
- Correct the CO₂ adjustment as required using the gas flow adjusting screw on the gas combination valve in accordance with the table.



After completing servicing, close the front casing again and fasten the screws tightly. There is a risk of carbon monoxide poisoning if the flue system is faulty.



Fig.: Undoing screws

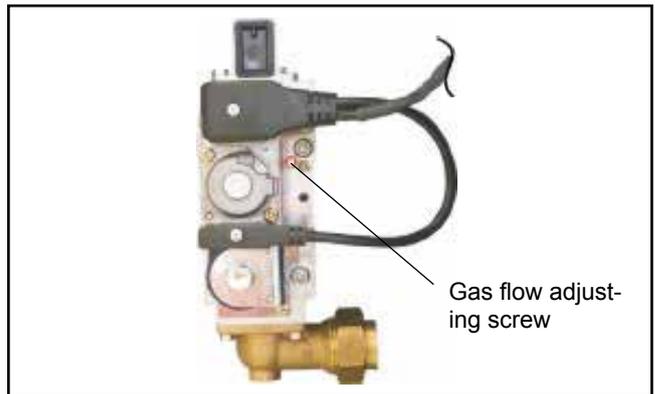


Fig.: Gas combination valve

- Turn clockwise - lowers CO₂ content
- Turn anti-clockwise - raises CO₂ content

Appliance open at upper load	
Natural gas E/H/LL 8.6% ± 0.2%	LNG P 10.1% ± 0.2%

- Terminate the emissions test mode by returning the temperature selector to its original position.

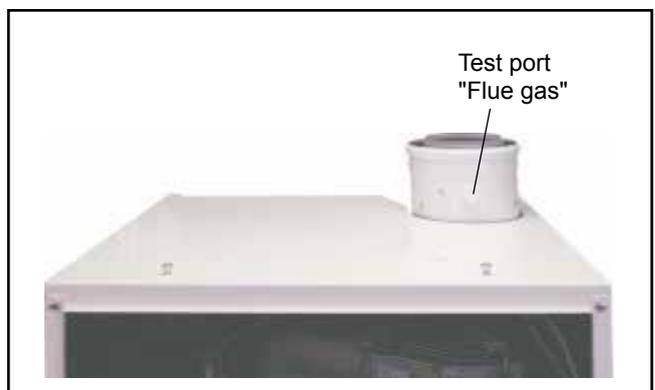


Fig.: Emission test with open appliance

B) CO₂ setting for 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 CO₂ content approx. 20 s after the burner start with the CO₂ tester, by fine adjusting the zero point adjusting screw with Torx in accordance with the table. Make this adjustment within 180 s of the burner start. If necessary, repeat the start phase for the setting procedure by pressing the reset button.
- During this adjustment, there must be no DHW operation!

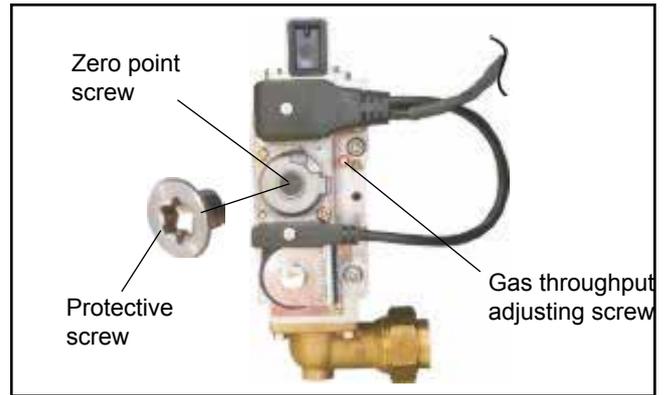


Fig.: Gas combination valve

- **Clockwise rotation – higher CO₂ content increased!**
- **Anti-clockwise rotation – lower CO₂ content reduced!**

Appliance open at lower load	
Natural gas E/H/LL 8.5% ± 0.2%	LNG P 9.7% ± 0.2%

- Retighten the protective screw.

C) Checking the CO₂ setting

- After completing the work, refit the casing cover and check the CO₂ values with the appliance closed.



Observe the CO emissions whilst making CO₂ settings. The gas combination valve is incorrectly adjusted if the CO value is > 300 ppm when the CO₂ 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 if the CO₂ values correspond to those in the adjacent table.

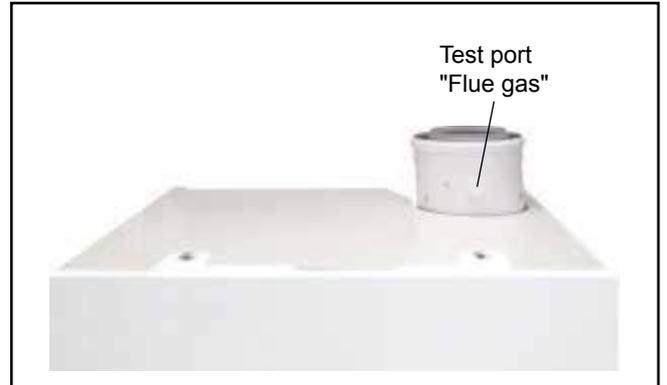


Fig.: Emission test with closed appliance

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 tightness.

Appliance closed at upper load	
Natural gas E/H/LL 8.8% ± 0.5%	LNG P 10.3% ± 0.5%

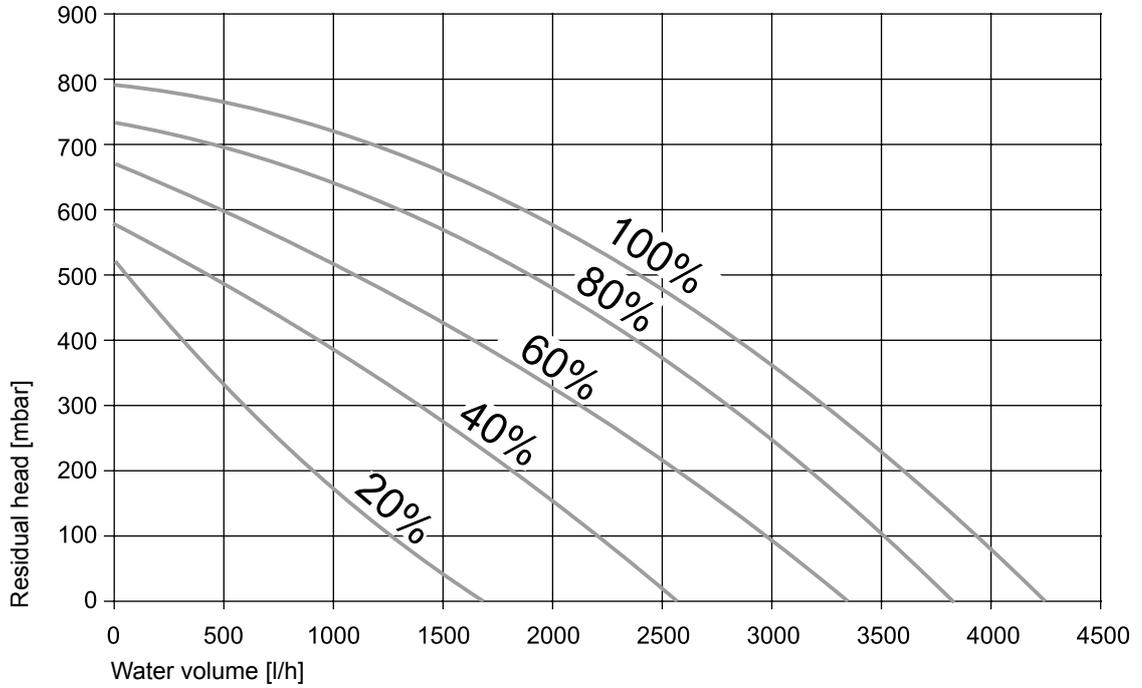
Appliance closed at lower load	
Natural gas E/H/LL 8.7% ± 0.5%	LNG P 9.9% ± 0.5%

Commissioning steps	Test values or confirmation
1.) Gas type	<div style="display: flex; justify-content: space-between;"> <div style="width: 80%;"> Natural gas E/H Natural gas LL LNG Wobbe Index Operational calorific value _____ </div> <div style="width: 15%; text-align: right;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> kWh/m³ kWh/m³ </div> </div>
2.) Gas supply pressure checked?	<input type="checkbox"/>
3.) Gas tightness test carried out?	<input type="checkbox"/>
4.) Air/flue system checked?	<input type="checkbox"/>
5.) Water connections checked for tightness?	<input type="checkbox"/>
6.) Filling the trap	<input type="checkbox"/>
7.) Boiler and system vented?	<input type="checkbox"/>
8.) System pressure 1.5 - 2.5 bar?	<input type="checkbox"/>
9.) System flushed?	<input type="checkbox"/>
10.) Water treatment carried out according to "Technical information for water treatment". pH value set _____ pH value total hardness set _____ °dH	<input type="checkbox"/>
11.) No chemical additives (inhibitors; antifreeze) added?	<input type="checkbox"/>
12.) Gas type and heating output entered on label?	<input type="checkbox"/>
13.) Function test carried out?	<input type="checkbox"/>
14.) Flue gas test: Flue gas temperature gross _____ t _A (°C) Inlet air temperature _____ t _L (°C) Flue gas temperature net _____ (t _A -t _L) Carbon dioxide content (CO ₂) or oxygen content (O ₂) _____ (°C) Carbon monoxide content (CO) _____ % _____ ppm	<input type="checkbox"/>
15.) Casing fitted?	<input type="checkbox"/>
16.) System user instructed; documentation handed over?	<input type="checkbox"/>
17.) Commissioning confirmed?	_____ <input type="checkbox"/>

Residual head of the heating circuit pump (accessory)

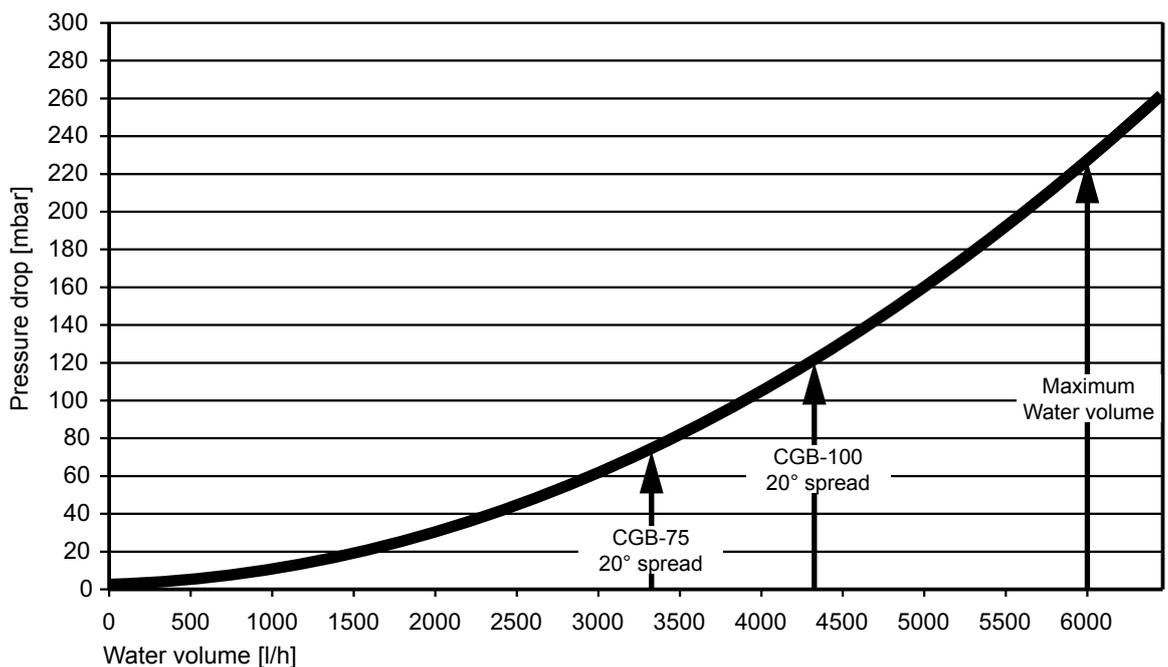
The pump modulates subject to burner load. The residual head can be obtained from the diagrams.

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

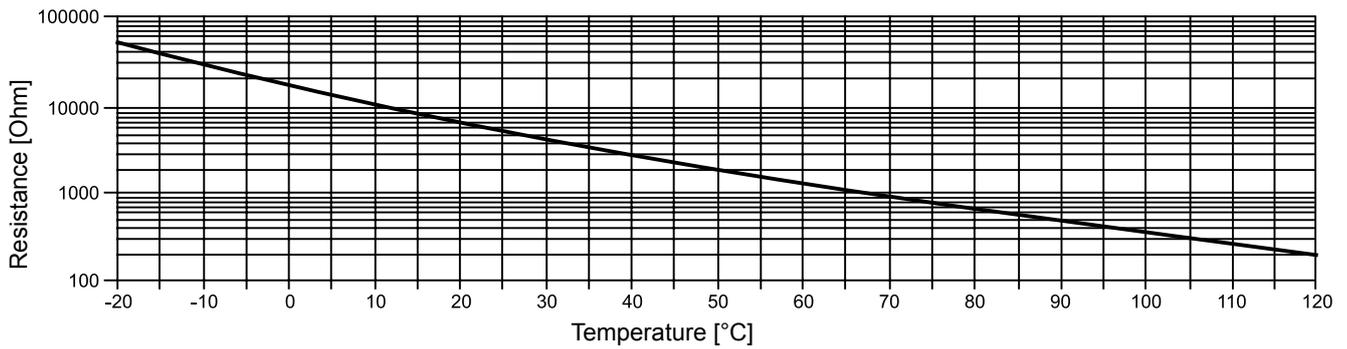


Hydraulic pressure drop in the boiler excluding pump

CGB-75/100 pressure drop



Sensor resistances



Temperature/resistance

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 protective function is **integrated into the CGB-75/100**. This prevents stresses in the material by limiting the maximum temperature differential between flow and return. The output is restricted at 28 K and above. 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 exchangers and cylinders).

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

Device	Type ¹⁾	Operating mode		Can be connected to				
		Open flue	Balanced flue	chimney moisture resistant	Balanced flue chimney	Air/flue gas routing	Certified balanced flue	Moisture resistant flue
CGB-75/100	B23, B33, C13x ³⁾ , 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 installation room (open flue gas combustion equipment).
- 3) In Switzerland, observe the G1 gas guidelines!
For type C, combustion air is drawn through a sealed system from the outside (room sealed combustion equipment).

The system must be thoroughly cleaned / flushed before commissioning and a sludge filter/dirt trap (<5 µm) e.g. Wolf accessory installed in the return line. This must be in close proximity to the boiler.

The fill and top-up water must only be treated with a desalination process. The "Water treatment diagram" and the "Maximum permissible total hardness" table shows the degree to which water treatment is required. The system water must not fall below a total hardness of 2°dH, which corresponds to conductivity of ≈ 60 µS/cm. The max. permissible total hardness and the corresponding max. conductivity are system-specific and must be calculated (see also "Maximum permissible total hardness" table). The desalinated water (conductivity <=30 µS/cm) must not be mixed with untreated DHW. The addition of chemicals or de-scaling using single stage ion exchangers is not permissible, as system damage with associated water leaks may occur.

We recommend regular emptying of the sludge filter and keeping of a system log.

Permissible methods:

- Desalination using mixed-bed cartridges. These are multi stage ion exchangers. We recommend, for example, using e.g. Grünbeck or Judo cartridges for the first fill, and later as and when required.
- Desalination via reverse osmosis
- Topping up with distilled water

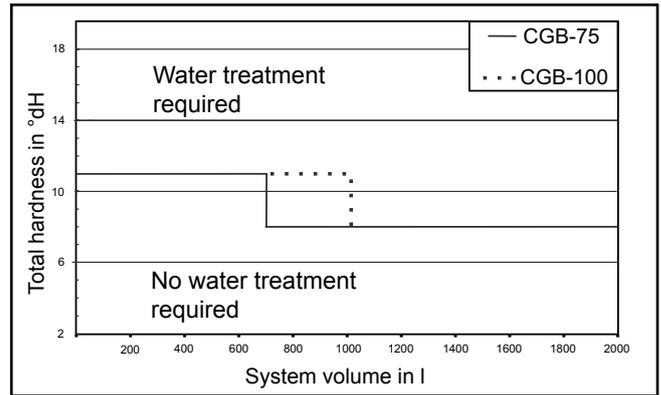


Figure: Water treatment

Treatment of heating water in accordance with VDI 2035:

We recommend a heating water pH value of between 8.2 and 8.5, also in mixed installations with various materials.

Request a water analysis from the water supply utility. This must verify that the total hardness is sufficiently low.

For a specific system volume $V_{A,specific} \geq 10 \text{ l/kW}$ the next smaller limit must be used, for $V_{A,specific} \geq 20 \text{ l/kW}$ the next-but-one limit and for $V_{A,specific} \geq 40 \text{ l/kW}$ the smallest value from the following table must be used.

For a specific system volume of >50 l/kW, adjust the total hardness to 2-3°dH using a desalination process. This corresponds to conductivity of 60 - 100 µS/cm.

If the boiler is integrated in the system without a low loss header, adjust the total hardness to 2 - 3°dH (Conductivity = 60 - 100 µS/cm).

Heating water quality requirement relating to the entire heating system

Limits in relation to the specific system volume V_A ($V_A = \text{System volume} / \text{maximum rated heating power}^1$) Total hardness conversion: $1 \text{ mol/m}^3 = 5.6 \text{ °dH} = 10 \text{ °fH}$										
Total heating output	$V_A \leq 20 \text{ l/kW}$	$V_A > 20 \text{ l/kW and } < 50 \text{ l/kW}$		$V_A \geq 50 \text{ l/kW}$						
		Total hardness/ total alkaline earths	Conductivity ²⁾ at 25°C	Total hardness/ total alkaline earths	Conductivity ²⁾ at 25°C	Total hardness/ total alkaline earths	Conductivity ²⁾ at 25°C			
[kW]	[°dH] [mol/m ³]	C [µS/cm]	[°dH] [mol/m ³]	C [µS/cm]	[°dH] [mol/m ³]	C [µS/cm]				
1 ≤ 50	≤ 16.8 ≤ 3.0	< 800	≤ 11.2 ≤ 2	< 800	≤ 0.11 ³⁾ ≤ 0.02	< 800				
2 50-200	≤ 11.2 ≤ 2	< 100	≤ 8.4 ≤ 1.5	< 100	≤ 0.11 ³⁾ ≤ 0.02	< 100				
3 200-600	≤ 8.4 ≤ 1.5		≤ 0.11 ³⁾ ≤ 0.02							
4 ≤ 600	≤ 0.11 ³⁾ ≤ 0.02		≤ 0.11 ³⁾ ≤ 0.02							

The total amount of fill and top-up water over the life cycle of the boiler must not exceed three times the nominal volume of the heating system.

¹⁾ In systems with multiple boilers, the max. rated heating output of the smallest boiler must be used in accordance with VDI 2035
²⁾ High salinity < 800 µS/cm
 Low salinity < 100 µS/cm
³⁾ < 0.11°dH recommended standard; permissible up to limit of < 1°dH

Table 1

Gradual increase in the demand for the specific System volume ($V_S = \text{system volume} / \text{lowest individual output}$) and total heating output.

The total amount of fill water over the life cycle of the appliance must not exceed three times the nominal volume of the heating system.

Please note: The total hardness must not fall below 2°dH.

Example:

System with a 170 kW boiler;
 system volume $V_{\text{System}} = 4000 \text{ l}$;
 $V_{A, \text{ specific}} = 4000 \text{ l} / 170 \text{ kW} = 23.5 \text{ l/kW}$

This is greater than 10 l/kW, therefore stage 3 must be selected instead of stage 2. The fill and top-up water must be in the range of **2 to 8.4 °dH**.

If the total hardness of the untreated drinking water is too high, some of the fill and top-up water must be desalinated.
 A% desalinated water should be added:

$$A = 100\% - [(C_{\text{max}} - 0.1 \text{ °dH}) / (C_{\text{DHW}} - 0.1 \text{ °dH})] \times 100\%$$

C_{max} maximum permissible total hardness in °dH
 $C_{\text{Drinking water}}$ total hardness of the untreated drinking water in °dH

We recommend allowing for the expected top-up water during the first fill. Untreated drinking water can then be added later.

$$V_{\text{Treatment}} = A \times (V_{\text{System}} + V_{\text{Top-up}})$$

In large systems in stage 4, the top-up water should not be taken into account during the first fill.

$$V_{\text{Treatment}} = A \times (V_{\text{System}})$$

Example:

System output = 170 kW;
 system volume $V_{\text{System}} = 4000 \text{ l}$;
 Volume of top-up water
 $V_{\text{Top-up}} = 1000 \text{ l}$
 Total hardness of drinking water $C_{\text{DHW}} = 18.5 \text{ °dH}$;
 Maximum permissible total hardness $C_{\text{max}} = 8.4 \text{ °dH}$

System output = 170 kW;
 system volume $V_{\text{System}} = 4.000 \text{ l}$;
 Volume of top-up water $V_{\text{Top-up}} = 1000 \text{ l}$

$$V_{A \text{ spec}} = 4000 \text{ l} / 170 \text{ kW} = 23.53 \text{ l/kW}$$

Total hardness of drinking water $C_{\text{DHW}} = 18.5 \text{ °dH}$;
 Maximum permissible total hardness $C_{\text{max}} = 8.4 \text{ °dH}$

Proportion of filling water to be treated:

$$A = 100\% - [(8.4 - 0.1) / (18.5 - 0.1)] \times 100\% = 54.9\%$$

54.9 % of the filling and top-up water must be desalinated.

$$V_{\text{Treatment}} = 54.9\% \times (4.000 \text{ l} + 1.000 \text{ l}) = 2.746 \text{ l}$$

When filling the system, 2,745 l of desalinated water must be added. The system can then be topped up to V max with drinking water.

When topping up, it is important to check regularly that the permissible total hardness is not exceeded.

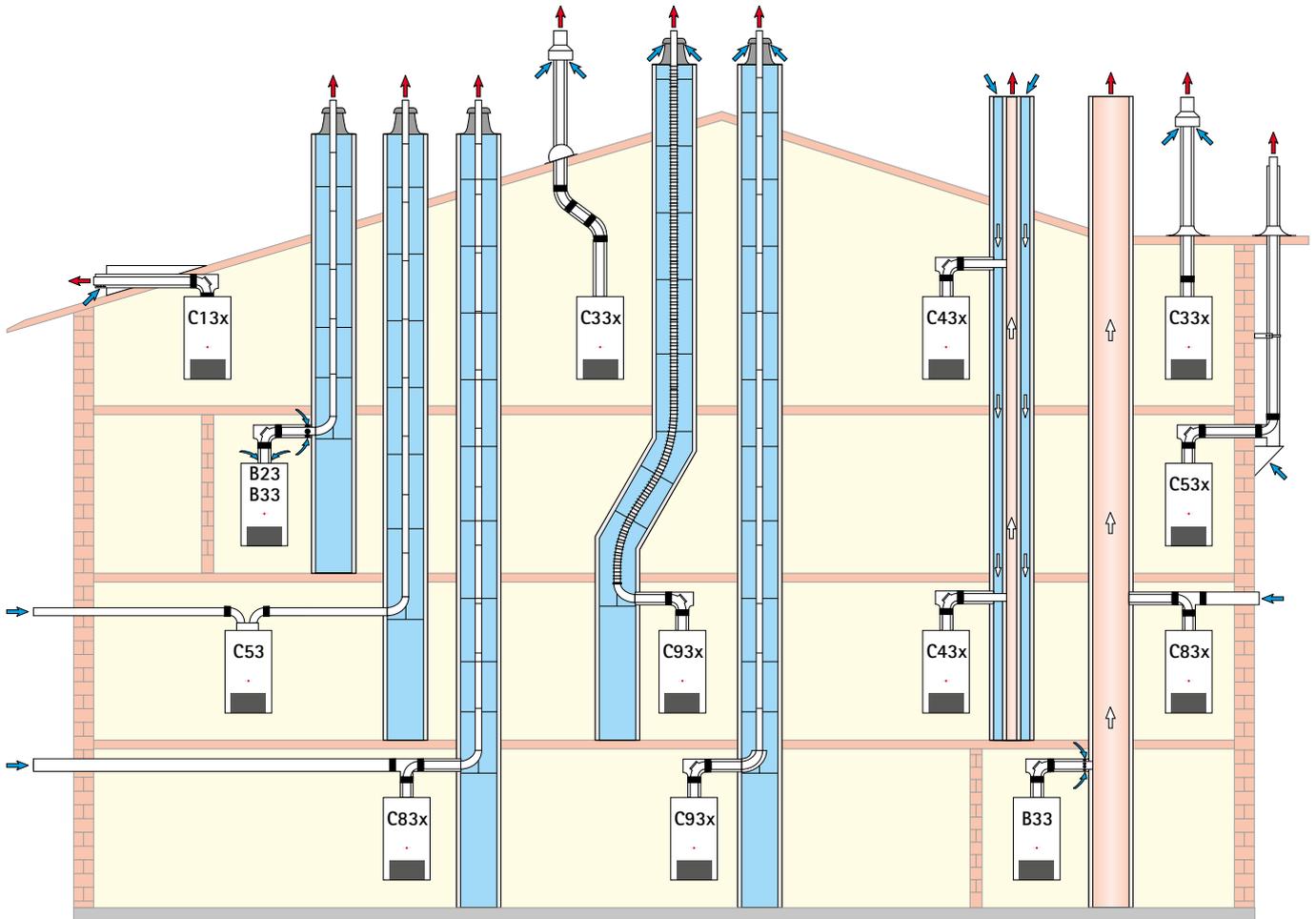
Engineering				
Location				
Boiler output	Q _{K1} Q _{K2} Q _{K3} Q _{K4}		kW kW kW kW	
Lowest boiler output	Q _{Bmin}		kW	Lowest boiler output for the system
System output	Q _{B,tot}		kW	Q _{B,tot} = Q _{B1} + Q _{B2} + Q _{B3} + Q _{B4}
System volume	V _{system}		l	
Maximum expected top-up water volume	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 _{Kminimum} greater/ less than 10 l/kW
Permissible total hardness	C _{max}		°dH	Maximum permissible total hardness according to table
Proportion of desalinated potable water	A		%	A = 100% - [(C _{max} - 0.1 °dH) / (C _{drinking water} - 0.1 °dH)] x 100%
Fill water to be treated	V _{treatment}		l	V _{Treatment} = A x V _{max} or V _{Treatment} = A x V _{System} at stage 4

Commissioning: Fill and top-up water volumes							
Commissioning by							
Meter reading before first fill Z _{old} in l							
Date	Explanation	Abbreviation	Meter reading Z _{new} in l	Water volume V = Z _{new} - Z _{old} in l	Total hardness in °dHl	pH value of system water after heating and sufficient flushing	Signature
	Desalinated fill water	V _{Treatment}			0.1		
	Untreated fill water	V _{Untreated}					
	top-up water	V _{Top-up,1}					
	top-up water	V _{Top-up,2}					
	top-up water	V _{Top-up,3}					
	top-up water	V _{Top-up,4}					
	top-up water	V _{Top-up,5}					
	top-up water	V _{Top-up,6}					
	top-up water	V _{Top-up,7}					
	top-up water	V _{Top-up,8}					
	top-up water	V _{Top-up,9}					
	top-up water	V _{Top-up,10}					

Check:

Water volume V > V_{max} ? Yes No

If the water volume V is greater than V_{max}, it must be topped up with desalinated water (Conductivity <=30 µS/cm) (see Technical information for water treatment)

Air/flue gas routing

Air/flue gas routing

Design variants		Maximum length ¹⁾ [m]	
		CGB-75	CGB-100
B23	Flue in a duct and combustion air directly via the boiler (open flue) DN 110	50	47
B33	Flue in a duct with horizontal concentric connection pipe (open flue) DN 110 DN110/160 ²⁾	47 50	35 50
B33	Connection to a moisture-resistant flue chimney with horizontal concentric connection pipe (open flue)	Calculation to EN 13384 (balanced flue manufacturer)	
C13x	Horizontal concentric roof outlet through a pitched roof, (room sealed - on-site dormer) DN110/160	16	13
C33x	Vertical concentric roof outlet through a pitched roof or flat roof (room sealed) DN110/160	15	12
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 (room sealed)	Calculation to EN 13384 (balanced flue manufacturer)	
C53	Connection to the flue in a duct and ventilation air line through an external wall (room sealed) DN 110 DN110/160 ²⁾	50 50	40 50
C53x	Connection to a flue on an external wall (room sealed/balanced flue) DN 110	50	38
C83x	Connection to the flue in a duct and ventilation air through an external wall (room sealed) DN 110 DN110/160 ²⁾	50 50	40 50
C83x	Concentric connection to a moisture-resistant chimney and combustion air through an external wall (room sealed)	Calculation to EN 13384 (balanced flue manufacturer)	
C93x	Vertical flue for installation in a duct rigid/flexible with horizontal concentric connection line DN 110 DN110/160 ²⁾	21 29	21 33

¹⁾ Available fan draught: CGB-75 12-145 Pa, CGB-100 12-200 Pa
(The maximum length corresponds to the total length from the appliance to the flue terminal)

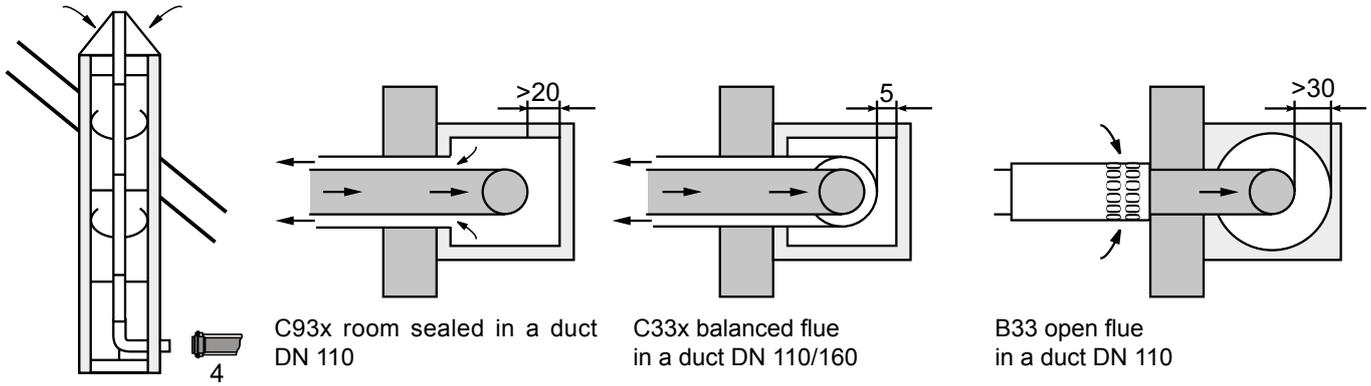
²⁾ Expansion in the duct from DN 110 to DN 160

Note: Systems C 33x and C 83x are also suitable for installation in garages.

Where necessary, adapt the installation examples to the relevant building regulations and requirements in 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 room sealed operation

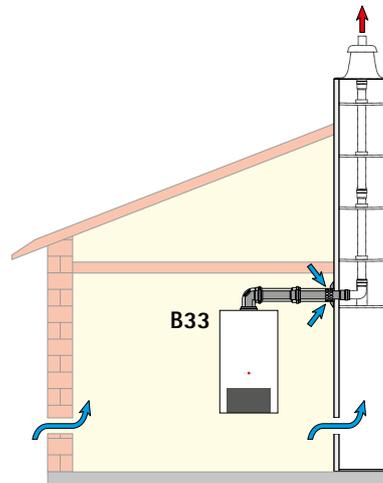


C93x room sealed
System DN 110/160
horizontal and DN 110
vertical

Air/flue gas routing, rigid in a shaft

Min. duct sizes

	Circular Ø	Rectangular □
DN 110	190 mm	170 mm
DN160	250 mm	230 mm



General information

For reasons of operational safety, use only original Wolf components for balanced flues and standard flues.

Where necessary, adapt the installation examples to the relevant building regulations and requirements in your country/region. Discuss any questions relating to the installation of inspection covers and vents with the local flue gas inspector.



At low outside temperatures, the water vapour contained in the flue gas may condense and freeze on the air/flue gas routing system. This ice may fall from the roof causing injuries or material losses. Prevent falling ice with suitable measures, e.g. installation of a suitable snow guard.



If the balanced flue crosses different floors, route the pipes outside the boiler room inside a duct with a fire resistance of at least 90 min., and in living space of low height 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 is required for the ceiling, the pipes for combustion air supply and flue gas must be equipped with a casing in the area between the top edge of the ceiling and the roof skin. The casing must provide the same fire resistance as the ceiling and must be made from non-combustible materials. There is a risk of fire spreading if these requirements are not observed.



If fire resistance is not required for the ceiling, route the ducts 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 not observed.

No clearance is required between the concentric balanced flue and combustible materials or components, as temperatures above 85°C will not occur at the rated heating output.

If only a standard flue is installed, maintain the clearances specified by DVGW/TRGI 2008 [or local regulations].



A balanced flue without a duct must not be routed through other installation rooms, as there is a risk of fire spreading and mechanical protection is not ensured.

Note

Combustion air must not be drawn from chimneys previously used to carry flue gases from oil or solid fuel boilers.



Outside the duct, secure the balanced flue or standard flue with spacer clips. These must be placed at a minimum of 50 cm from the appliance connection and upstream/downstream of diversions, to prevent the pipe joints being pulled apart. Failure to observe this creates the risk of poisoning caused by escaping flue gas. Furthermore, damage to the appliance 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.

Note The appliance will restart operation when the rest button is pressed. It is important to find out why the appliance deactivated before resetting the boiler. Resetting the boiler when the flue gas temperature is too high can destroy the flue gas system.

Connection to the air/flue gas routing system

It must be possible to inspect the entire cross-section of the flues. Therefore, install an appropriate cleaning and/or inspection port inside the boiler room; agree suitable arrangements with the local flue gas inspector.

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



Install the air/flue gas routing system with a slope of at least 3° (6 cm/m) towards the gas condensing boiler. Install spacer clips to secure in place (see installation examples). In the worst case scenario, a lesser slope of the air/flue gas routing system may lead to corrosion or operating faults.

Note Always bevel or deburr cut flues to ensure gas-tight installation of pipe joints. Ensure that gaskets are fitted correctly. Remove all contamination prior to installation. – never fit damaged parts.

For boilers with a rated heating output above 50 kW, a clearance of at least 1.0 m between the flue outlet and the roof surface is required.

Calculating the balanced flue length

The calculated length of the air/flue gas routing system or standard flue is derived from the straight pipe length and the length of any pipe bends. In this calculation, a 87° 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

2x 45° bends = 2x 1 m

$L = 1.5 \text{ m} + 1 \times 2 \text{ m} + 2 \times 1 \text{ m}$

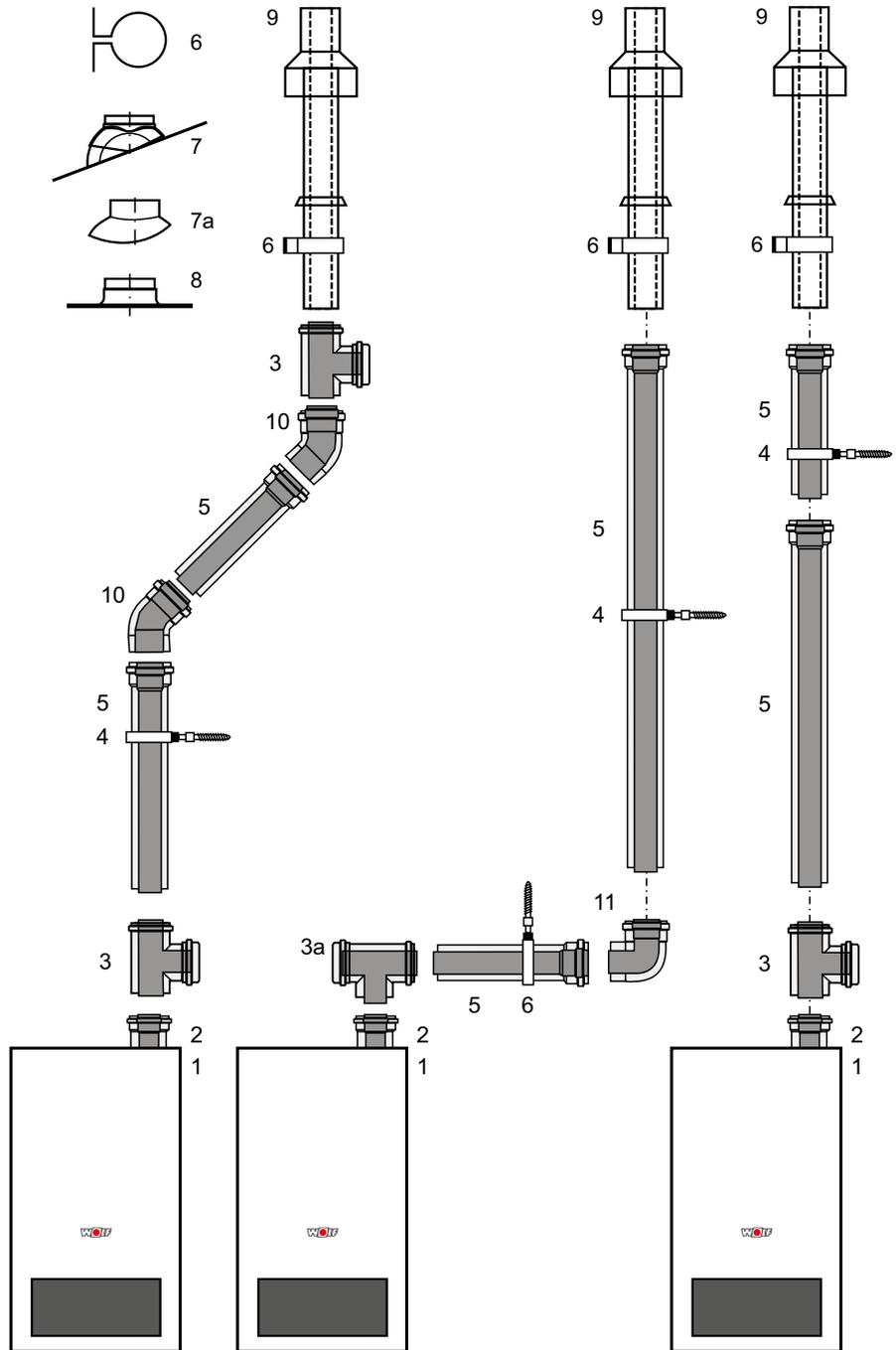
L = 5.5 m

Component	Length to be allowed for
87° bend	2m
45° bend	1m
87° tee with inspection port	2m
Straight pipe	Corresponding to length

Table: Pipe length calculation

Balanced flue route, vertical and concentric (examples)

- 1 Gas condensing boiler
- 2 Gas condensing boiler connections DN110/160
- 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" adapter 20-50°
- 8 Flat roof collar
- 9 Balanced flue routing vertical
(roof outlet)
for flat or pitched roof
L=2000 mm
- 10 Bend 45° DN 110/160
- 11 Bend 87° DN 110/160
- 12 87° bend for duct installation
DN 110/160
- 13 External wall support bend F87°
with smooth ends on both side 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 plate 160
- 17 Balanced flue routing horizontal
incl. cowl
- 18 Connection to 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

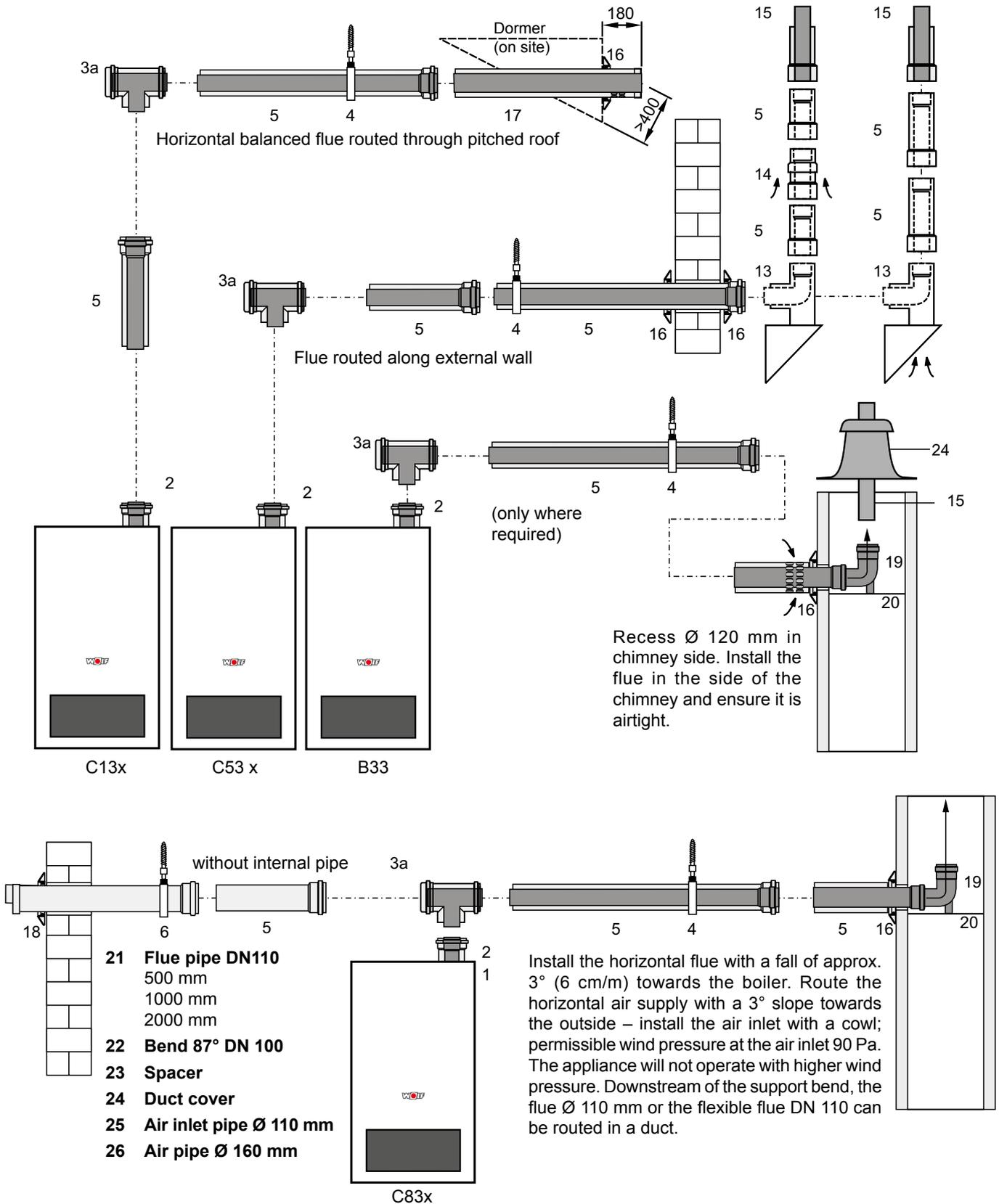


Type C33x: Gas condensing boiler with combustion air and flue gas routed vertically via the roof.

Notes: Lubricate the pipe ends and gaskets for easier installation.
Check the required inspection piece (3), (3a) (Part No.: 2651329) with your local flue gas inspector prior to installation.

Ventilation air aperture for room sealed operation according to TRGI 150 cm² or 2 x 75 cm².

Concentric balanced flue, horizontal C13x, C83x and B33 and flue on an external wall C53x (examples)



Ventilation air aperture for **room** sealed operation according to TRGI 150 cm² or 2 x 75 cm².

Eccentric balanced flue C53, B23

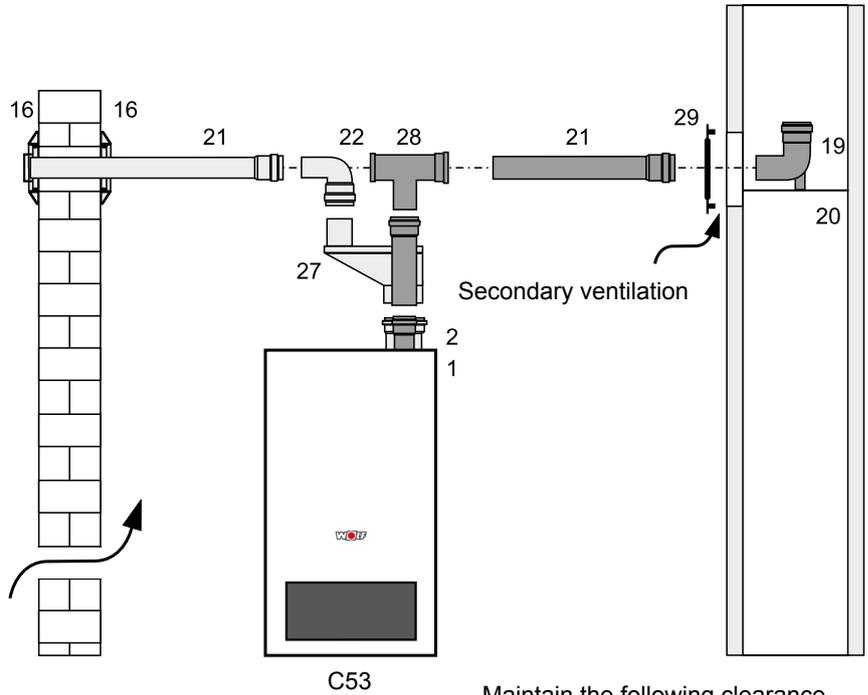
Install the balanced flue distributor 110/110 mm eccentrically (26) for a separate balanced flue.

When connecting a balanced flue certified according 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 fall 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.

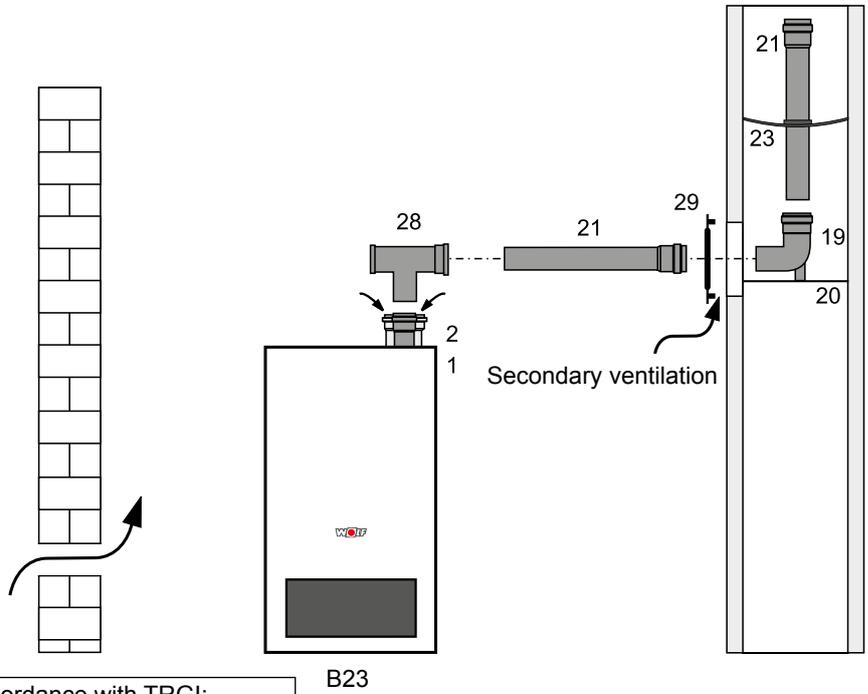
- 1 Gas condensing boiler
- 2 Gas condensing boiler connections DN110/160
- 19 Support bend DN 110
- 20 Support rail
- 21 Flue pipe DN110
500 mm
1000 mm
2000 mm
- 22 Bend 87° DN 110
- 23 Spacer
- 24 Duct cover
- 27 Balanced flue distributor 110/110 mm
- 28 Tee 87° with inspection aperture DN 110
- 29 Ventilation bezel Ø 110



Ventilation air aperture for **room** sealed operation according to TRGI 150 cm² or 2 x 75 cm².

Maintain the following clearance between the internal shaft wall and the flue:
For round ducts: 3 cm
for square ducts: 2 cm

Ventilation air in open flue operation in accordance with TRGI:	
75kW	200cm ²
100kW	250cm ²
180kW	350cm ²
200kW	450cm ²



Supplementary installation information

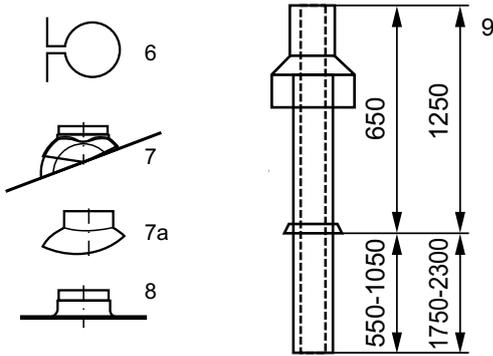
Flat roof: Affix the ceiling outlet approx. Ø 170 mm (8) deep into the roof cover.

Pitched roof: At (7, 7a), observe the installation instructions on the cowl regarding roof pitches.

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

Install the roof outlet only in its original condition.

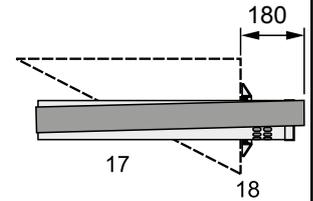
Modifications are not permissible.



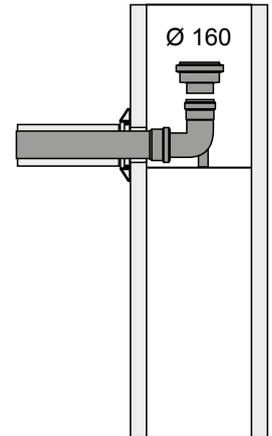
If an inspection port is required for the balanced flue, insert a balanced flue with inspection port (3) (allow a length of 200 mm).

Install all horizontal balanced flues with $> 3^\circ$ fall (6 cm/m) towards the boiler. Any condensate must be returned to the appliance.

Install the centring triangles near the end of the pipe.



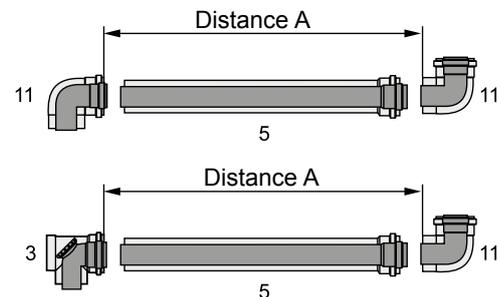
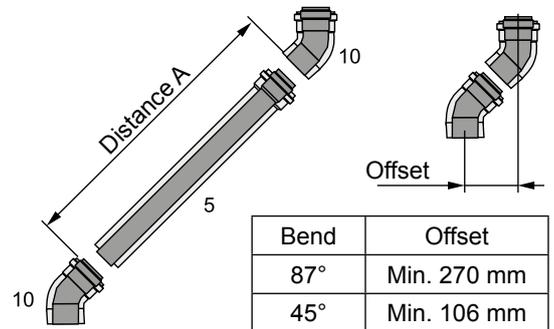
If required, a flue pipe expansion piece in a duct from DN 110 to DN 160 can be fitted at the support bend.



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



Inspection piece (3)



Determine distance A. Length of balanced flue (5) must always be approx. 100 mm longer than distance A. Always trim the flue on the smooth side, never on the female connection side.

Chamfer the flue with a file after trimming.

Notes: Lubricate all balanced flue joints prior to installation, e.g. with a soapy solution, or coat lightly with suitable grease (Part. No. 2651329).

According to TRGI:

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

Chimneys and flue systems must be certified for combustion equipment in accordance with local Building Regulations (CE / DIBT certification). Dimensioning is carried out using the calculation tables according to the flue gas category. In addition to the boiler connection bend or tee piece, up to two 87°/90° diversions may be installed. Approval is required for positive pressure operation.

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** 87° bends may be installed.

The balanced flue chimney must be certified [in Germany] by the DIBT - Deutsches Institut für Bautechnik and must also be approved for condensing operation with positive pressure.

Connection to moisture-resistant flue gas chimney or a flue gas 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** 87° bends may be installed.

The flue gas chimney must be certified by DIBT [Germany] and must be approved for condensing operation.

If necessary, obtain the connection piece from the chimney manufacturer.

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

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

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

In addition to the boiler connection bend, up to two 87° diversions may be installed into the horizontal flue.

For this option, observe the regulations concerning ventilation for boiler rooms acc. to DVGW-TRGI.

Connection to moisture-resistant flue, type C53, C83x, for room sealed operation

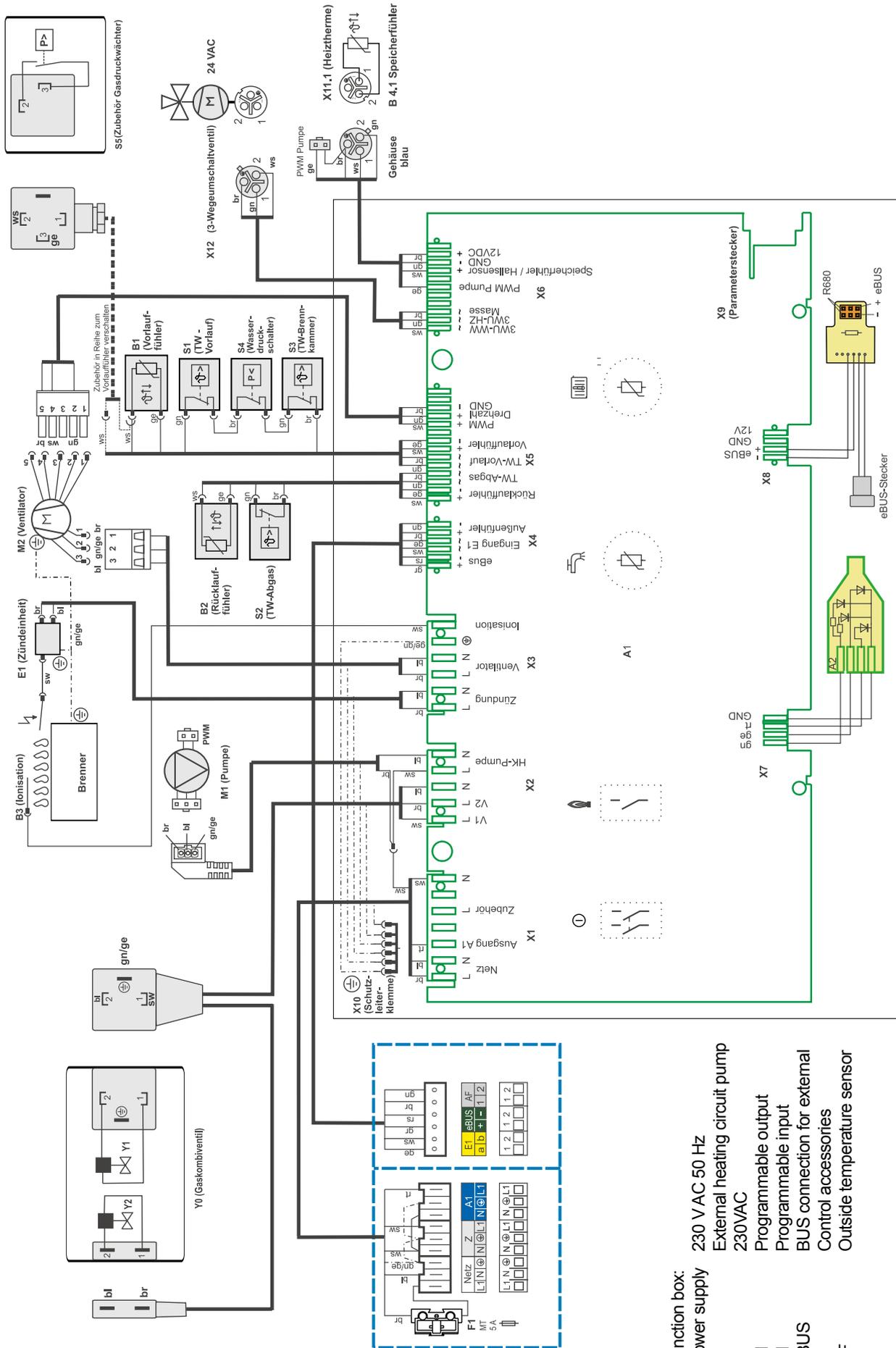
The straight, horizontal flue must not be longer than 3 m. For horizontal air supply pipes, a maximum length of 3 m is recommended. Observe the special requirements for flues that are not surrounded by combustion air acc. to DVGW-TRGI 2008 and all locally applicable combustion regulations.

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 designed for use with Wolf gas condensing boilers. If using third party equipment that is only DIBT or CE certified, the installer is responsible for the correct sizing and correct function of the system. 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 third party equipment that is only DIBT/CE certified 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** 87°/90° bends may be installed.

If the combustion air is drawn from the duct, the duct must be free from contamination.



Type		CGB-75	CGB-100
Rated heating output at 80/60°C	kW	70.1	91.9 ²⁾
Rated heating 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
Air / flue gas 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:			
Germany		II ₂ ELL3P	II ₂ ELL3P
Austria		II ₂ H3P	II ₂ H3P
Switzerland		I ₂ H	I ₂ H
Gas supply details:			
Natural gas E/H (Hi = 9.5 kWh/m ³ = 34.2 MJ/m ³)	m ³ /h	7.77	10.03
Natural gas LL (Hi = 8.6 kWh/m ³ = 31.0 MJ/m ³) ¹⁾	m ³ /h	8.6	11.11
LPG P (Hi = 12.8 kWh/kg = 46.1 MJ/kg) ²⁾	kg/h	5.76	7.44
Gas supply pressure:			
Natural gas	mbar	20	20
LPG	mbar	50	50
Flow temperature, factory setting	°C	80	80
Maximum flow temperature	°C	90	90
Max. overall pressure, heating	bar	6	6
Water capacity of heating water heat exchanger	litres	10	10
DHW temperature range (adjustable)	°C	15-65	15-65
Heating water pressure drop with 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 category to DVGW G 635		G52	G52
NOx class		6	6
Electrical connection	V~/Hz	230/50	230/50
Integral fuse (medium time lag)	A	3.15	3.15
Power consumption	W	75	130
IP rating		IPX 4D	IPX 4D
Total weight (empty)	kg	93	93
Amount of condensate at 40/30 °C	l/h	7.1	9.8
Condensate pH value		approx. 4	approx. 4
CE designation		0085BR0164	
ÖVGW quality symbol [Austria]		G 2.775	

¹⁾ Not applicable for Austria/Switzerland

²⁾ Not applicable for Switzerland

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 combustion chamber cover STB water pressure too low	The flow temperature has exceeded the limit for the TBV shutdown temperature, or the heat exchanger is extremely dirty, or the waterpressure switch switches off at a pressure < 1.0 bar	Check system pressure; check heating circuit pump; vent the system; press reset; clean the heat exchanger; check the TB combustion chamber; increase system pressure; check dirt filter
4	No flame established	No flame builds during burner start.	Check gas supply line, opening gas tap if necessary; check ignition electrode and ignition cable press reset button
5	Flame failure during operation	Flame failure within 15 s following flame detection	Check CO2 values, check ionisation electrode and cable press reset button
6	DHW excess temperature	The flow/return temperature has exceeded the limit of the TW shutdown temperature	Check system pressure. Vent the system. Set the pump to stage 2 or 3.
7	TBA excess temperature Excess pressure in the flue system	The flue gas temperature has exceeded the limit for the TBA shutdown temperature or the flue system is blocked, or the ventilation air is blocked.	Clean the heat exchanger Check the flue system Check the ventilation air
11	Flame pretence	A flame is detected before the burner starts	Press reset button.
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 the cable 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	Outside temperature sensor faulty	The outside temperature sensor or cable is faulty	Check cable Check outside temperature sensor
16	Return sensor faulty	The return temperature sensor or lead is faulty	Check cable 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 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 gas combination valve
24	Gas fan fault	The gas fan does not reach the required pre-purging speed	Check the supply cable to the gas fan and check the gas fan. Press reset button.
25	Gas fan fault	The gas fan does not reach the ignition speed	Check the supply cable to the gas fan and check the gas fan. Press reset button.
26	Gas fan fault	The gas fan does not stop.	Check the supply cable to the gas fan and check the gas fan. Press reset button.
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 controller PCB.
31	CRC error, burner	The EEPROM record "Burner" is invalid.	Switch the power supply off and on. If unsuccessful replace the controller PCB.
32	Fault in 24 V AC supply	24 V AC supply outside the permissible range (e.g. short circuit)	Check the gas fan.
33	CRC error, default values	The EEPROM record "Master reset" is invalid	Replace control unit PCB
34	CRC fault, BCC	Boiler coding card fault	Replace boiler coding card
35	BCC missing	Boiler coding card was removed	Fit the correct boiler coding card
36	CRC fault, BCC	Boiler coding card fault	Replace boiler coding card
37	Incorrect BCC	The boiler coding card is incompatible with the control unit PCB	Fit the correct boiler coding card

Fault code	Fault	Cause	Remedy
38	BCC no. invalid	Boiler coding card fault	Replace boiler coding card
39	BCC system error	Boiler coding card fault	Replace boiler coding card
41	Flow monitoring	Return temperature > Flow + 25 K	Vent the heating system, check the system pressure. Check heating circuit pump.
43	Burner starts > 20 per hour	Heat exchanger flow rate too low or for cascades, the measurement point of the manifold temperature may be unsuitable, or the output demand of the cylinder charging may be too low.	Check flow rate The manifold sensor must record the common flow 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 fluctuation.	The trap is blocked, or the flue system is blocked, or severe storm	Clean trap, check flue system, check ventilation air, check monitoring electrode
61	Ionisation current fails	Poor gas quality, monitoring electrode faulty, or severe storm	Check monitoring electrode and cable
	LED constantly red	Ionisation cable short circuit or ionisation electrode earthed (casing).	Check ionisation cable and position of electrode to burner. Press reset button.

Product datasheet to (EU) Regulation No. 811/2013



Product group: CGB-75/100

Supplier's name or trademark			Wolf GmbH
Supplier's model name			CGB-75
Seasonal central heating efficiency class			A
Rated heating output	P_{rated}	kW	70
Seasonal central heating efficiency	η_s	%	93
Annual central heating energy consumption	Q_{HE}	kWh	39183
Interior sound power level	L_{WA}	dB	50
All special precautions to be taken for assembly, installation or maintenance			See installation instructions

Type			CGB-75	CGB-100
Condensing boiler	(Yes/No)		Yes	Yes
Low temperature boiler (**)	(Yes/No)		No	No
B11 boiler	(Yes/No)		No	No
Space heater with CHP	(Yes/No)		No	No
If yes, with booster heater	(Yes/No)		-	-
Combi heating appliance	(Yes/No)		No	No
Information	Symbol	Unit		
Rated heating output	P_{rated}	kW	70	92
Usable heat at rated heating output and high temperature operation (*)	P_4	kW	70.1	91.9
Usable heat at 30% of rated heating output and low temperature operation (**)	P_1	kW	21.0	27.6
Auxiliary power consumption at full load	e_{lmax}	kW	0.075	0.109
Auxiliary power consumption at partial load	e_{lmin}	kW	0.025	0.028
Auxiliary power consumption in standby	P_{SB}	kW	0.003	0.003
Seasonal central heating efficiency	η_s	%	93	93
Efficiency at rated heating output and high temperature operation (*)	η_4	%	88.2	88.0
Efficiency at 30% of rated heating output and low temperature operation (**)	η_1	%	97.4	97.4
Heat loss on standby	P_{stby}	kW	0.086	0.085
Energy consumption of ignition flame	P_{ing}	kW	0.000	0.000
Nitrogen oxide emission	NO_x	mg/kWh	20	24
Contact	Wolf GmbH, Industriestrasse 1, 84048 Mainburg, Germany			

(*) High temperature operation means a return temperature of 60°C at the boiler inlet and a flow temperature of 80°C at the boiler outlet.

(**) Low temperature operation means a return temperature (at the boiler inlet) of 30°C for condensing boilers, 37°C for low temperature boilers and 50°C for other heating appliances.

EU declaration of conformity

(to ISO/IEC 17050-1)

Number: 3062555
Issued by: **Wolf GmbH**
Address: Industriestrasse 1, D-84048 Mainburg
Product: Gas condensing boiler
CGB-75
CGB-100

The product described above conforms to the requirements specified in the following documents:

§6, 1. BImSchV, 26.01.2010
DIN EN 437 : 2009 (EN 437 : 2003 + A1 : 2009)
DIN EN 13203-1 : 2015 (EN 13203-1 : 2015)
DIN EN 15502-2-1 : 2013 (EN 15502-2-1 : 2012)
DIN EN 15502-1 : 2015 (EN 15502-1 + A1 : 2015)
DIN EN 60335-1 : 2012 / AC 2014 (EN 60335-1 : 2012 / AC 2014)
DIN EN 60335-2-102 : 2016 (EN 60335-2-102 : 2016)
DIN EN 62233 : 2009 (EN 62233 : 2008)
DIN EN 61000-3-2 : 2015 (EN 61000-3-2 : 2014)
DIN EN 61000-3-3 : 2014 (EN 61000-3-3 : 2013)
DIN EN 55014-1 : 2012 (EN 55014-1 : 2006 + A1 : 2009 + A2 : 2011)

In accordance with the following Directives:

92/42/EEC (Efficiency Directive)
2016/426/EU (Gas Appliances Directive)
2014/30/EU (EMC Directive)
2014/35/EU (Low Voltage Directive)
2009/125/EC (ErP Directive)
2011/65/EU (RoHS Directive)
EU Regulation 811/2013
Regulation (EU) 813/2013

this product is identified as follows:



This declaration of conformity is issued under the sole responsibility of the manufacturer.

Mainburg, 01/08/2017


Gerdewan Jacobs
Technical Director


Jörn Friedrichs
Head of Development

WOLF GMBH

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