



# Installation instructions

## Gas fired condensing boilers

<b>CGB-11</b>	<b>Boiler</b>
<b>CGB-20</b>	<b>Boiler</b>
<b>CGB-K-20</b>	<b>Combi boiler</b>
<b>CGB-24</b>	<b>Boiler</b>
<b>CGB-K-24</b>	<b>Combi boiler</b>



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



„Safety instructions“ are instructions with which you must comply exactly, to prevent injury and material losses.



Danger through ,live‘ electrical components. Please note: Switch OFF the ON/OFF switch before removing the casing.

Never touch electrical components or contacts when the ON/OFF switch is in the ON position. This brings a risk of electrocution, which may result in injury or death.

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

**NB**

This indicates technical instructions which you must observe to prevent material losses and boiler malfunctions.

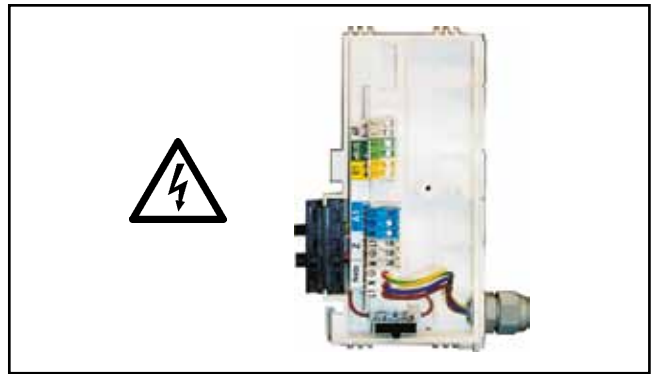


Fig.: Terminal box:  
Danger from electric power

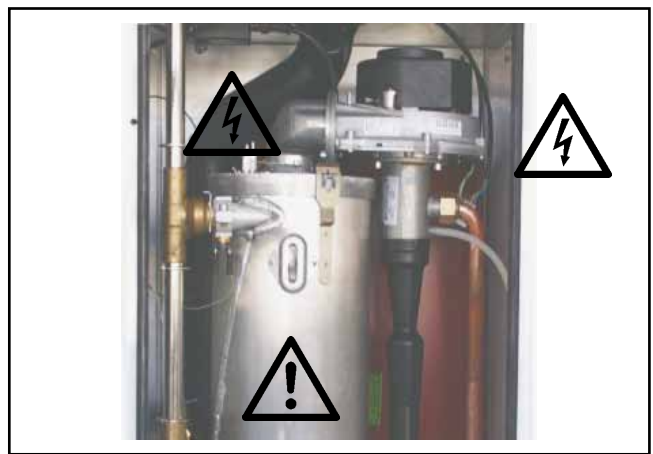


Fig.: Ignition transformer, high voltage ignition electrode, combustion chamber  
Risk through ,live‘ electrical components, risk of burning through hot components

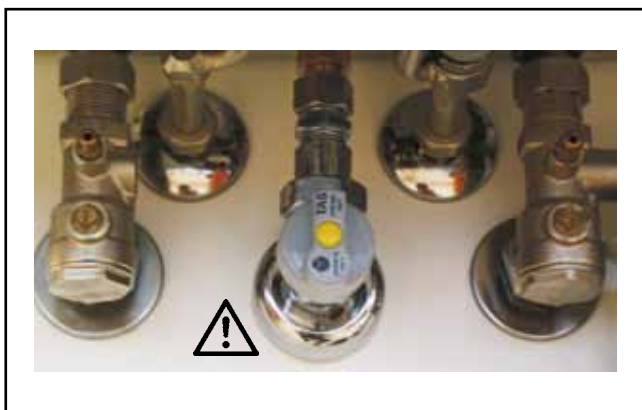


Fig.: Gas connection: Escaping gas may cause poisoning or the risk of explosion

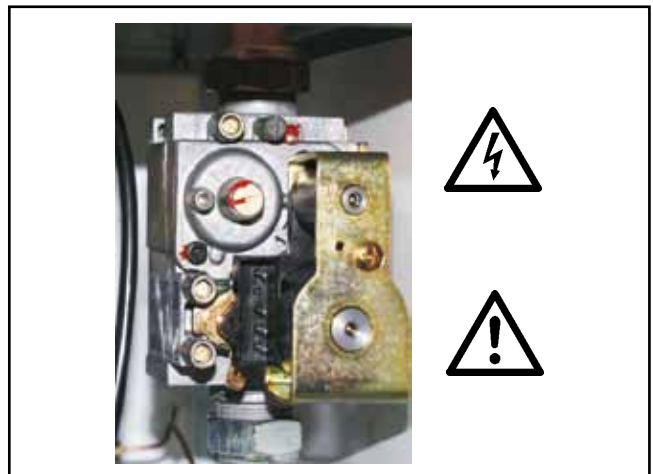


Fig.: Gas combination valve  
Danger from electric power  
Escaping gas may cause poisoning or the risk of explosion

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

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

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

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



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

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

## 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 gas hot water supplies 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 (2<sup>nd</sup> 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)!

**Gas fired condensing boiler CGB-...**

Gas fired condensing boilers according to DIN EN 297 / DIN 3368 T5,T6,T7,T8 / DIN EN 437 / DIN EN 483 (draft)/ DIN EN 677 (draft) / DIN EN 625 and Gas Appliance Directive 90/396/EEC (Gas Consumer Equipment), 92/42/EEC (Boiler Efficiency Directive), 2006/95/EG (Low Voltage Directive), and 89/336/EEC (EMC Directive), with electronic ignition and electronic flue gas temperature monitoring, for low temperature heating and DHW production in heating systems with flow temperatures up to 95 °C and 3 bar design pressure according to DIN EN 12828 part 3.

The Wolf gas fired boiler is also approved for installation in garages.



**Open flue gas fired condensing boilers must only be installed in a room which complies with the appropriate ventilation requirements. Otherwise there is a risk of asphyxiation and poisoning. Read these installation and maintenance instructions before installing the boiler. Also take the Technical Guide into consideration. Poorly vented LPG tanks can lead to ignition problems. In such cases, contact your local LPG supplier.**



**To save energy and protect against scaling if the total hardness is greater than 2.5 mol/m<sup>3</sup>, the DHW temperature may be set to a maximum of 50 °C.**

**If the total hardness is greater than 3.58 mol/m<sup>3</sup>, we recommend using a water treatment facility in the cold water supply line for DHW heating, to prolong the maintenance interval (descaling DHW heat exchanger).**



Fig.: Wolf gas fired condensing boiler



ON/OFF switch

Reset button

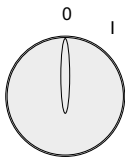
DHW temperature selector

Thermometer

Illuminated ring

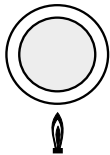
Heating water temperature selector

Pressure gauge



### ON/OFF switch

The gas fired boiler is OFF in position 0.

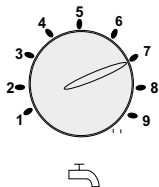


### Reset

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

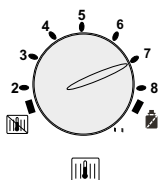
### Illuminated ring as status indicator

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



### DHW temperature selector

When gas fired condensing boilers are combined with a DHW cylinder, setting 1 - 9 corresponds to a cylinder temperature of 15 - 65 °C. The setting on the DHW thermostat becomes ineffective when the system is used in conjunction with a digital room thermostat or a weather-compensated controller. The temperature will then be selected at the controller (accessories). With combi boilers, setting 1 - 9 corresponds to a DHW temperature of 40 - 60 °C.




### Heating water temperature selector

The factory setting range 2 - 8 corresponds to a heating water temperature of 20 - 75 °C. The setting on the heating water thermostat becomes ineffective when the system is used in conjunction with a digital room thermostat or a weather-compensated controller.



**Setting****Winter mode** (position 2 to 8)

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

**Summer mode**

Winter mode is deactivated by rotating the heating water temperature selector into position . In other words, the equipment will then operate in summer mode. Summer mode (central heating OFF) means = only DHW heating. Frost protection for the central heating system and pump anti-seizing protection are, however, assured.

**Emissions test mode**

The emissions test mode is activated by rotating the heating water temperature selector into position . The illuminated ring flashes yellow. After the emissions test mode has been activated, the boiler will heat to 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. For a renewed activation, turn the heating water temperature selector anti-clockwise and then back into position .

**Thermomanometer**

The current heating water temperature is displayed in the top half. The water pressure in the heating system is displayed in the lower half. In normal use, the water pressure should be between 2.0-2.5 bar.

**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 gas boiler can be started in heating mode is limited electronically. This limit can be bypassed by pressing the reset button. Then, the equipment starts immediately, as soon as a heating demand is present.

### CGB

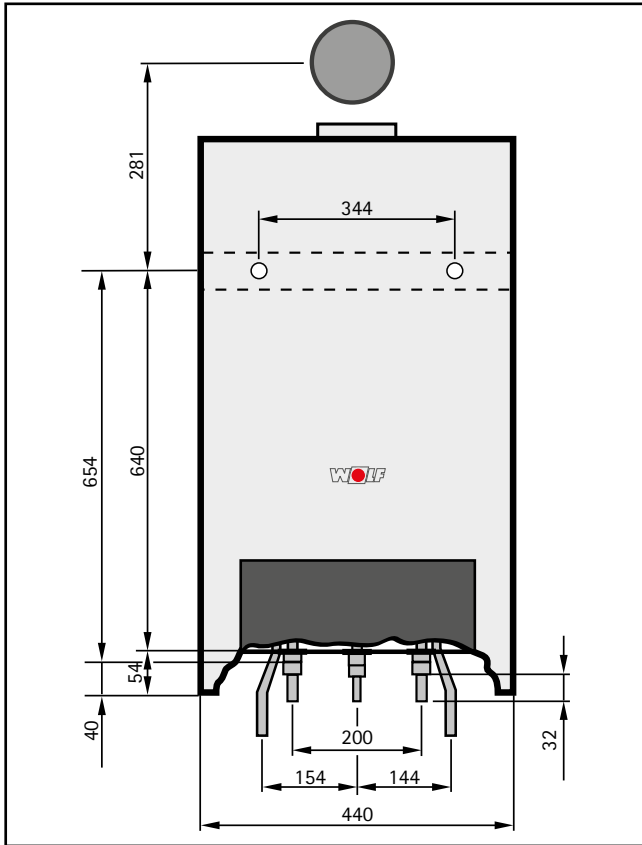


Fig.: Dimensions

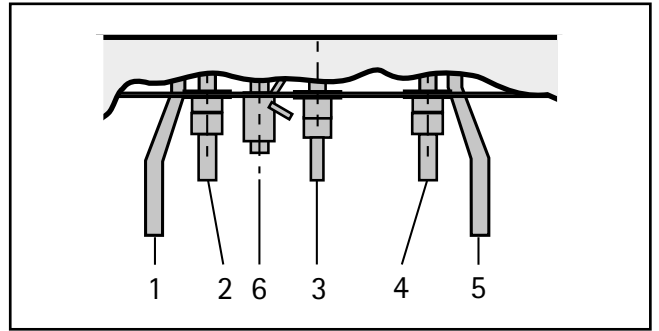


Fig.: Connections

- DHW flow
- Heating flow
- Heating return
- Heating return
- DHW return
- Condensate drain

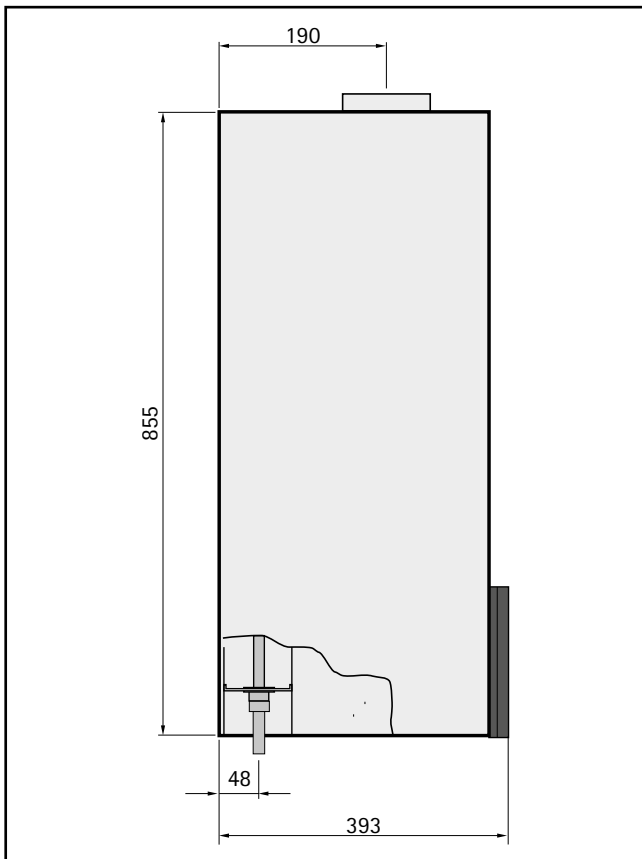


Fig.: Dimensions

### CGB combined with CSW-120

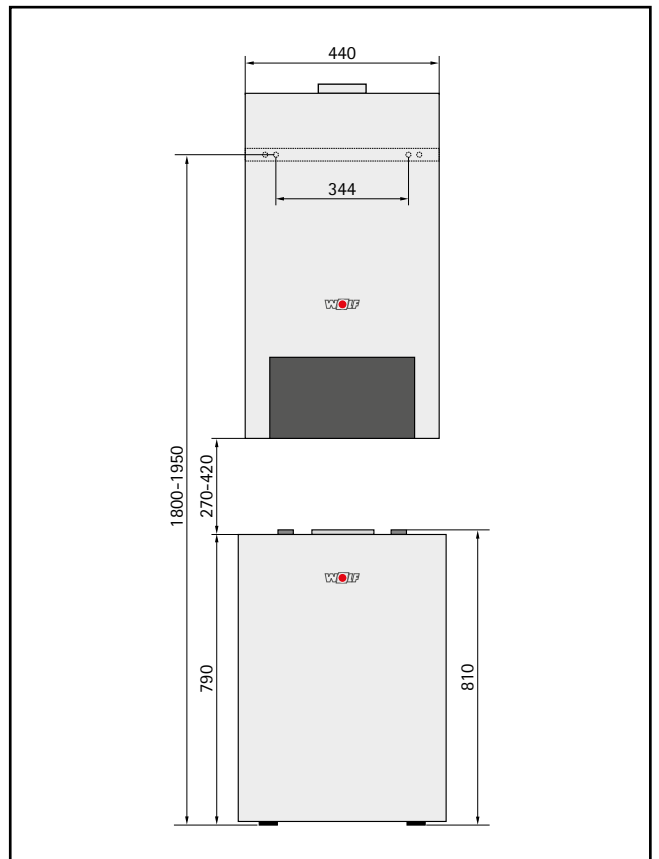


Fig.: Dimensions



### CGB-K

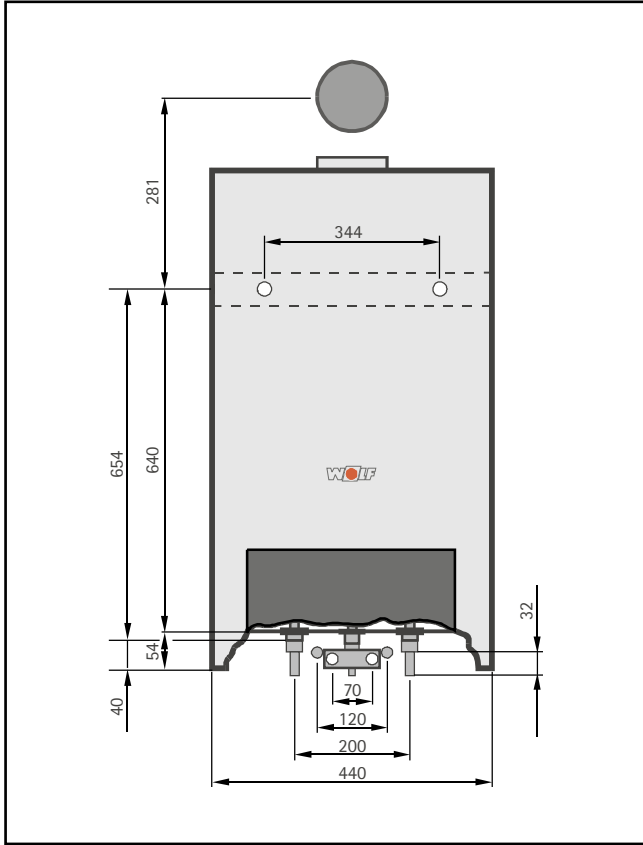


Fig.: Dimensions

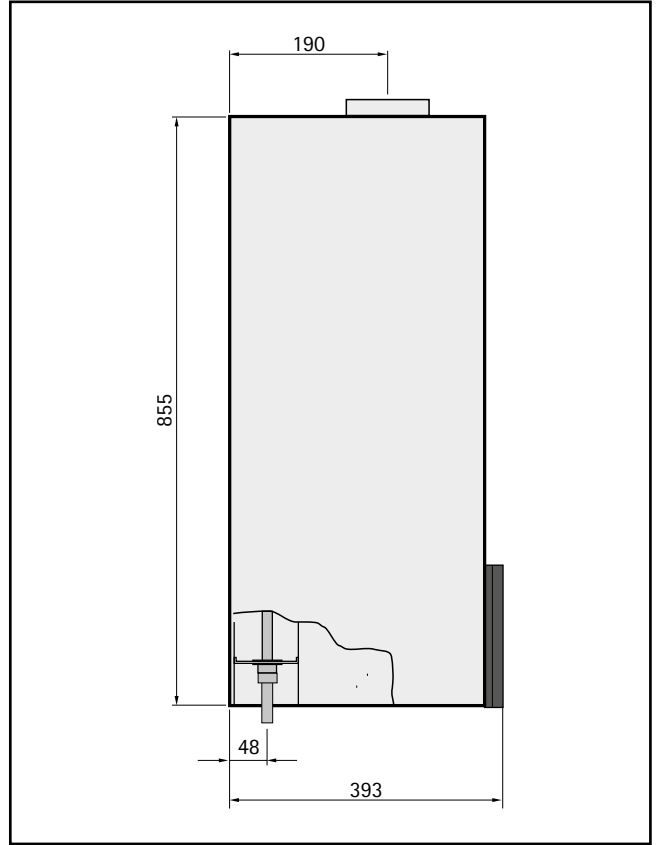
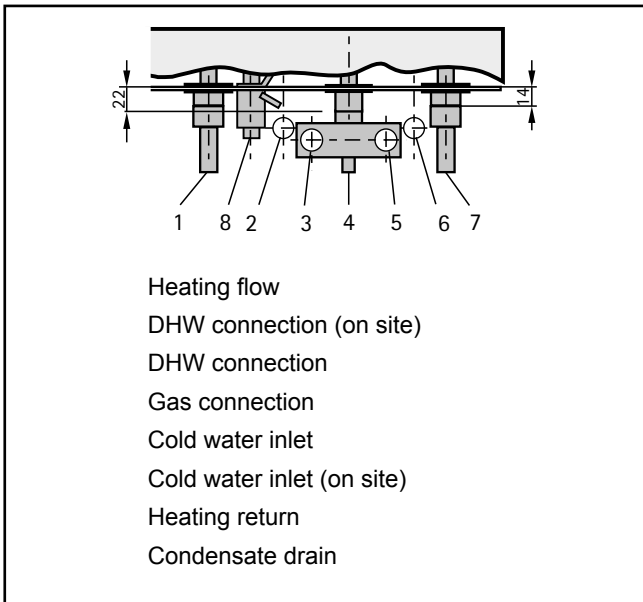


Fig.: Dimensions



- 1 Heating flow
- 2 DHW connection (on site)
- 3 DHW connection
- 4 Gas connection
- 5 Cold water inlet
- 6 Cold water inlet (on site)
- 7 Heating return
- 8 Condensate drain

Fig.: Connections

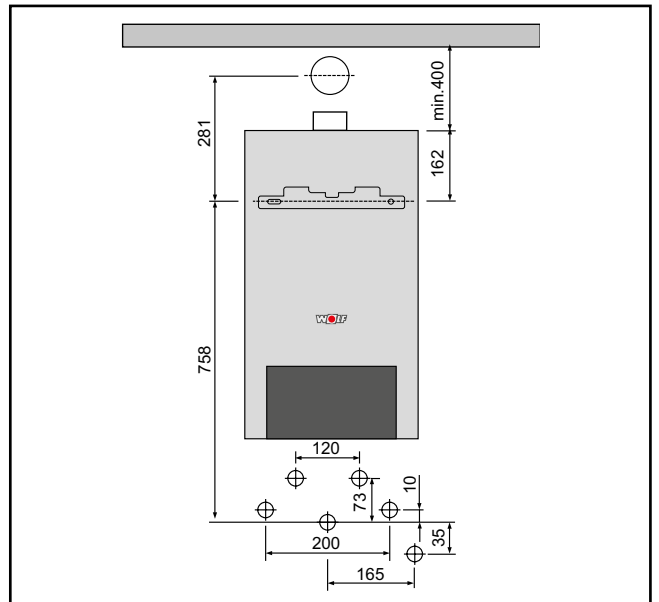
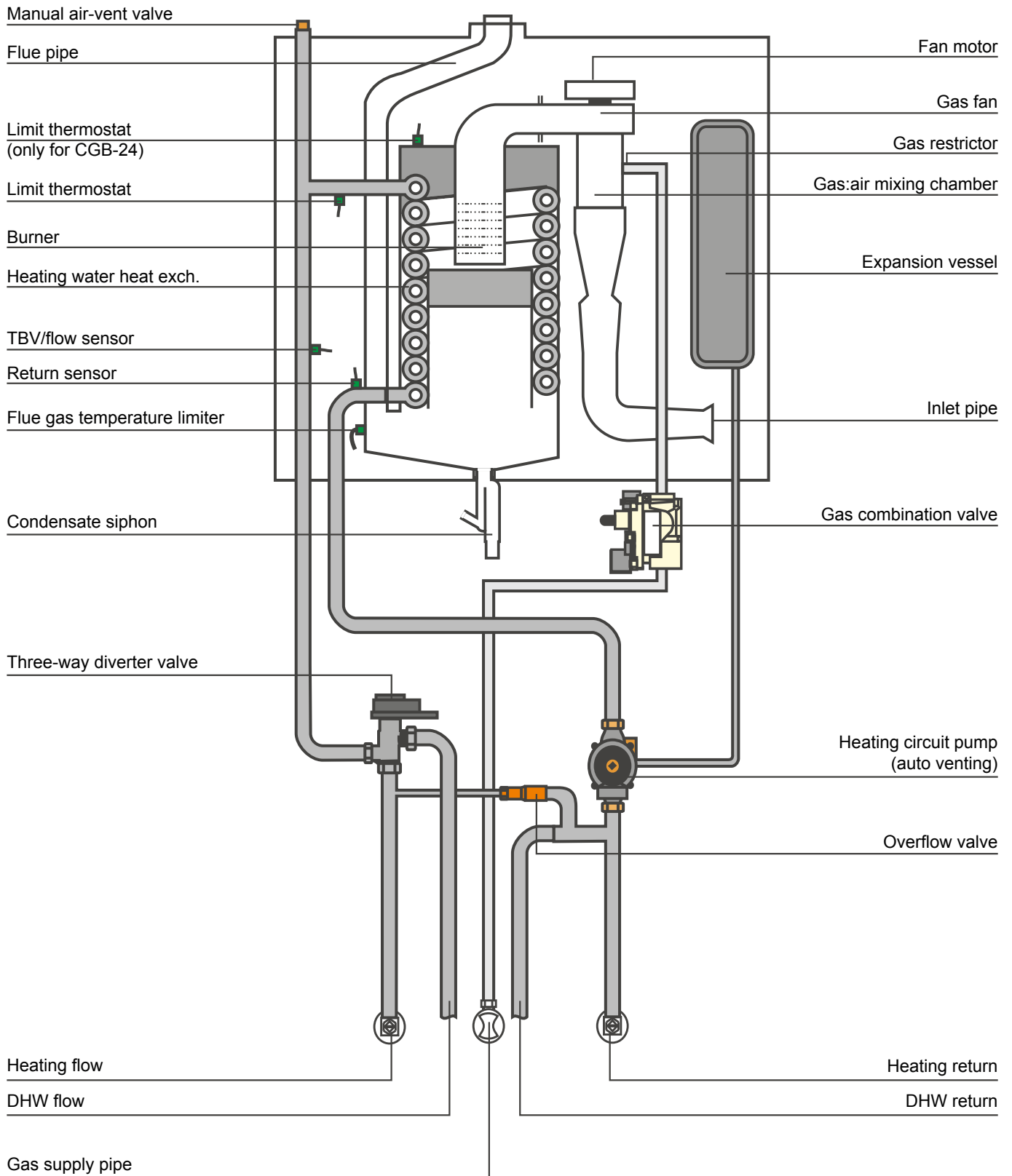
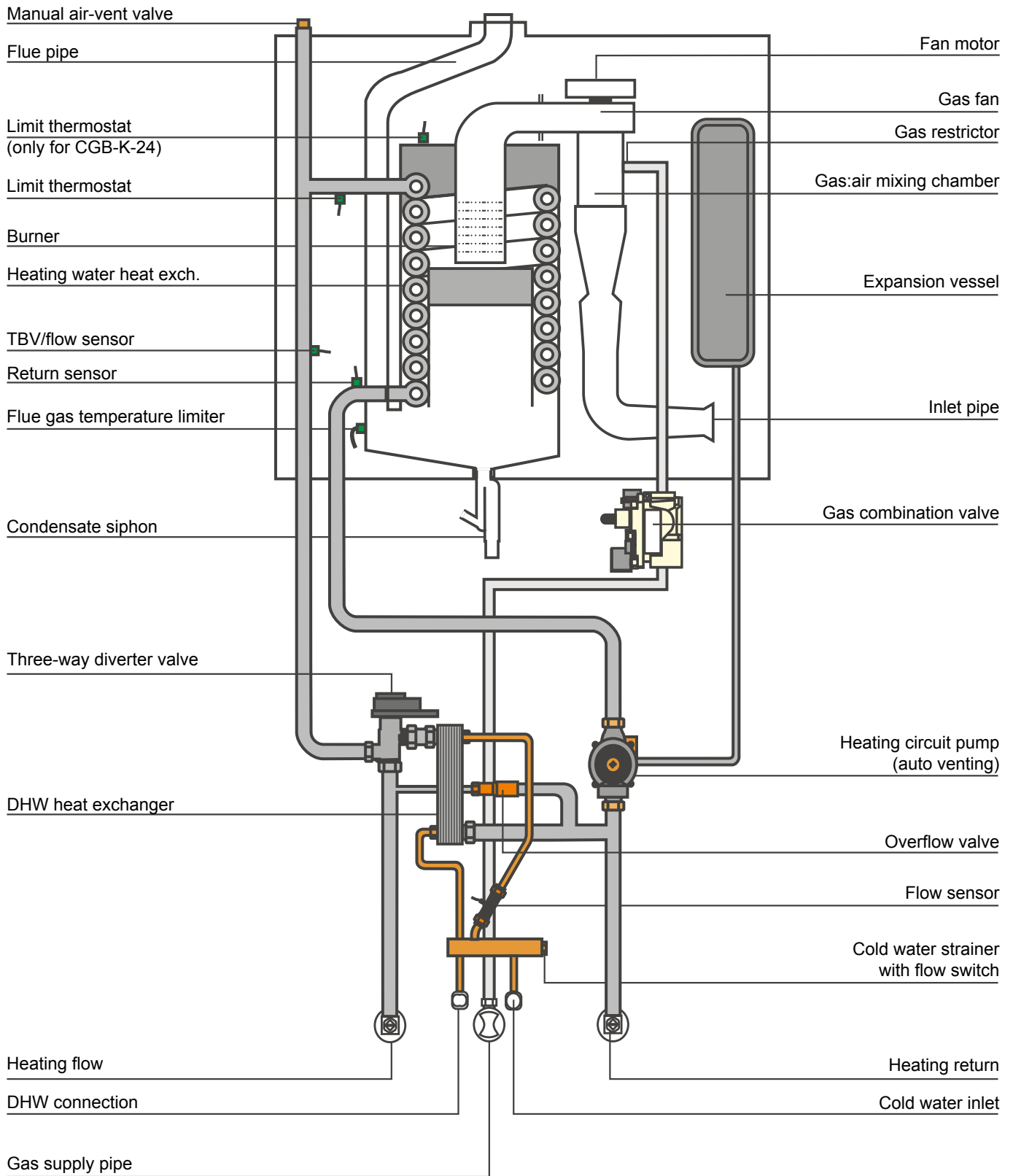


Fig.: Dimensions

### CGB



### CGB-K



**General notes**

The CG... gas condensing centre for mounting on the wall is delivered fully assembled with a power cable for the socket.

A clearance of 40 mm to the side and 400 mm to the ceiling is recommended to enable inspection and maintenance work to be carried out on the appliance, otherwise adequate inspection and function tests on components cannot be ensured during maintenance. The drain hoses must be secured with the fixing plate above the drain outlet (siphon). The drain should be able to be inspected



**The gas fired boiler may only be installed in rooms which are protected from frost.**

Furthermore, all gas boiler components must be freely accessible from the front, and flue gas measurements must be able to be taken. If minimum dimensions and accessibility are not maintained/given, Wolf may require accessibility to be provided during a service visit.

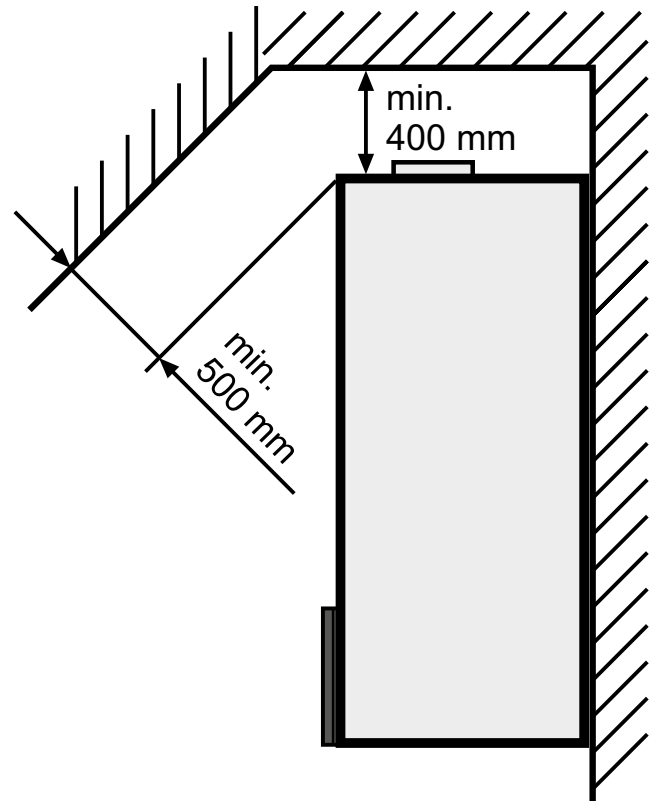


**Clearance between the boiler and combustible materials or components is not required, as temperatures are limited to 85 °C at the rated boiler output. However, explosive and easily combustible materials must not be used in the boiler room; these would create a risk of fire or explosion.**

**NB**

**During the boiler installation, ensure that no contaminants (e.g. drilling swarf) enter the gas fired boiler, otherwise faults may result. Use the enclosed polystyrene cover.**

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



**The installation room and the combustion air supplied to the appliance must be free from chemicals, e.g. fluoride and chlorine or sulphur. Such materials are contained in sprays, paints, adhesives, solvents and cleaning agents. These may cause corrosion, even in the flue system.**



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

## Opening the casing lid

We recommend you remove the casing lid during installation.  
 Pivot the control unit lid down.  
 Unlock the casing lid with the l.h. and r.h. rotating bolts.  
 Release the lower part of the casing lid and unhook at the top.

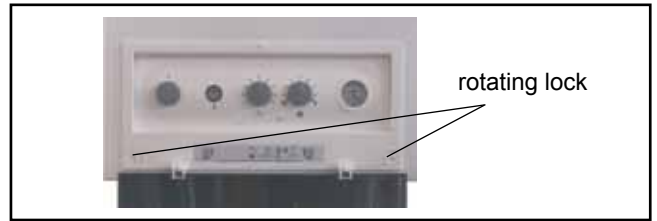


Fig.: Open the rotating locks

## Mounting the boiler with a mounting bracket



During the boiler installation ensure that the fixing components are sufficiently strong to carry its weight. Also consider the wall consistency, otherwise gas or water may escape which would result in a risk of explosions and flooding.

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

An installation template is provided with the boiler to mark out the fixing holes and connections.  
 Align the template vertically and mark out the fixing holes.  
 Maintain the minimum clearances towards walls and ceilings required for maintenance.

- Mark the holes to be drilled  $\varnothing 12$  for the mounting bracket bearing minimum clearances in mind.
- Insert the rawl plugs and secure the mounting bracket with the screws provided.
- Hang the boiler with the mounting brace into the mounting bracket.

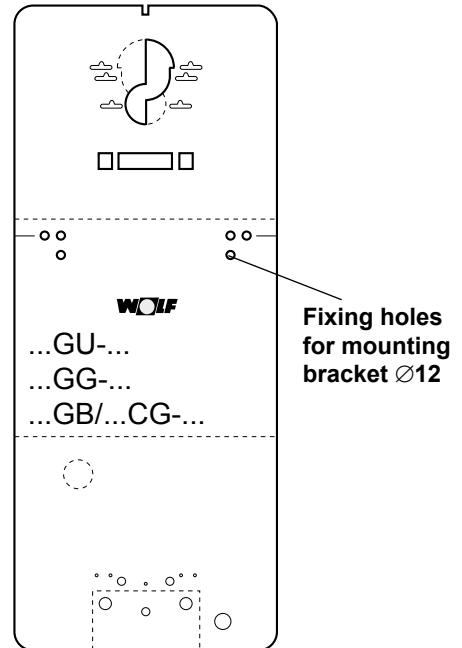


Fig.: Installation template

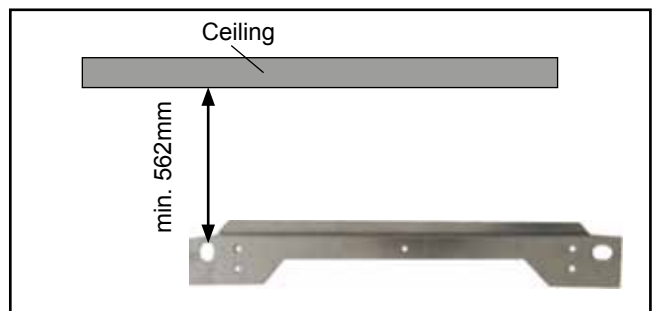


Fig.: Fixing holes for mounting bracket

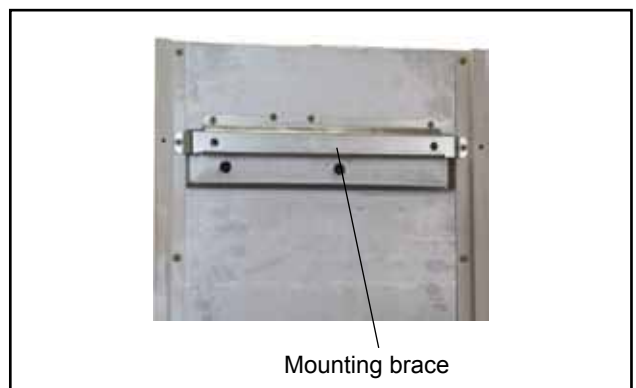


Fig.: Mounting brace on the boiler

**Supply line – subsurface version**

You may determine the connections for cold water and DHW, for the central heating and gas supply pipe and safety valve drain using the subsurface installation template, if these services are laid under the surface.

Route the supply lines for gas, central heating and DHW underneath the surface in accordance with the enclosed installation template.

You may determine the connections for cold water and DHW, for the central heating and gas supply pipe(s) and safety valve drain using the panel for unfinished walls (accessories), if these services are laid under the surface.

Solder the elbows of the panel for unfinished walls to the supply lines. (Each of the elbows can be turned 360° for easy connection of the supply lines from any direction).

Fit the installation accessories.

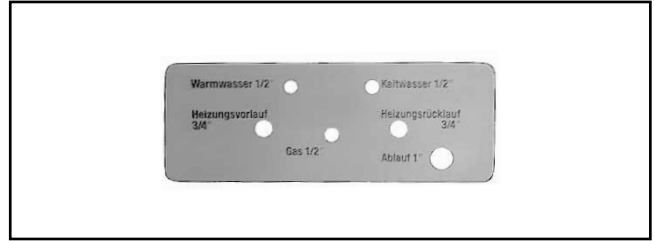


Fig.: Subsurface installation template



Fig.: Panel for mounting on unfinished walls (accessories) for: CGB-K, CGB with FSW-120



Fig.: Panel for mounting on unfinished walls (accessories)

**Supply line – surface mounted version**

You may determine the connections for cold water and DHW, for the central heating and gas supply pipe(s) and safety valve drain using the panel for finished walls (accessories), if these services are routed above the surface.

Fit the installation accessories for the gas fired combi boiler and connect the supply lines as surface mounted version.



Fig.: Connection panel for surface mounted version (accessories) for: Gas fired boilers CGB



Fig.: Connection panel for surface mounted version (accessories) for: Gas fired combi boilers CGB-K

## Heating circuit

We recommend the installation of a maintenance valve into the central heating flow and return – angled version for installations below the surface, straight version for surface mounting.

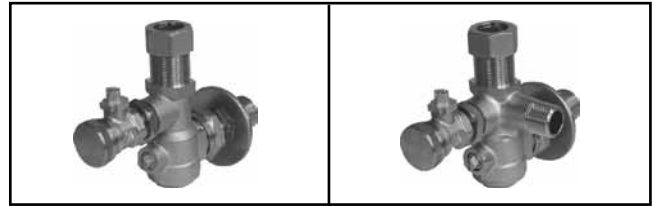


Fig.: Maintenance valve, angled version (accessories)

Fig.: Maintenance valve with safety valve connection, angled version (accessories)

## Notes:

Provide a fill and drain valve at the lowest system point. The heating circuit pump speed can be adjusted and can, therefore, be matched to various system requirements. Install an external overflow valve if flow noises still occur.

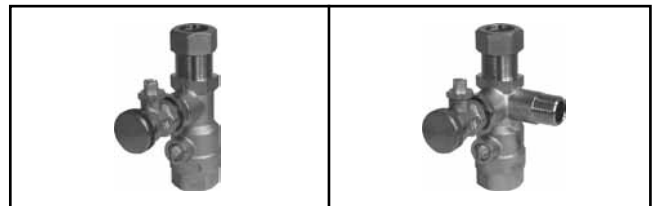


Fig.: Maintenance valve, straight version (accessories)

Fig.: Maintenance valve with safety valve connection, straight version (accessories)

## Heating circuit safety valve

Install a safety valve with marking „H“, max. 3 bar.



Fig.: Heating circuit safety valve (accessories)

## Cold water and DHW connection

We recommend the installation of a maintenance valve into the cold water supply. A tested and certified pressure reducer must be installed, if the cold water supply pressure is above the maximum operating pressure of 10 bar.

Provide a centralised pressure reducer, if mixer taps are used.

Observe the regulations of your local water supply company when connecting cold water and DHW.

Your guarantee rights may be affected if the installation does not comply with the illustration shown.

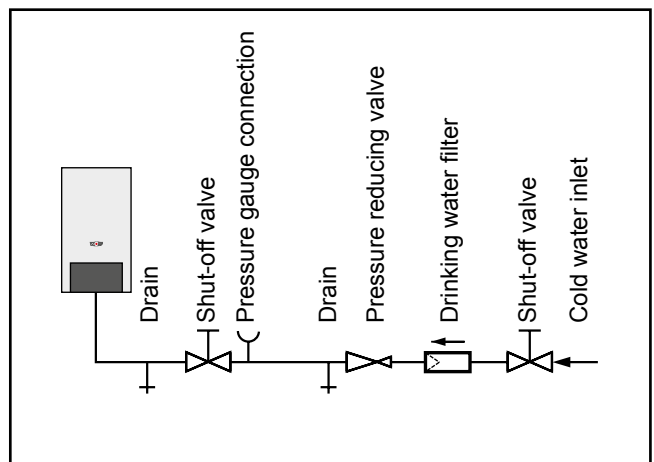


Fig.: Cold water supply acc. to DIN 1988

## Condensate connection

First pivot the control unit cover down. Undo the r.h. and l.h. screw as shown in the figure; unhook the casing cover at the top and remove. Push the tab on the control unit casing inwards and remove the casing. Connect the supplied sealed siphon to the connector on the condensate pan.

The condensate may be routed into the siphon below the safety valve, if neutralisation is not required.

Connect the supplied sealed siphon to the connector on the condensate sump.

The condensate may be routed into the siphon below the safety valve, if neutralisation is not required.

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

Observe the enclosed instructions if you install a neutralising system (accessories).

The Code of Practice M251 prescribes no neutralising system for boilers up to 200 kW.

If a neutralising system is used, the national regulations regarding the disposal of residues from such systems apply.



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

## Information regarding scaling from the VDI 2035:

Scaling can be strongly influenced particularly through the method of commissioning. If the system is heated up with a low output, or slowly in stages, the possibility can arise that the lime not only settles in the hottest spots, but is also distributed evenly across the entire system, even forming sludge deposits. For multiboiler 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. If appropriate, start with the screed drying program. The ÖNORM H5195-1 specifies that a hardness level of 17° dH is not exceeded.

## Connection of a Wolf DHW cylinder

If a DHW cylinder is connected to the gas fired boiler, replace the pipe bends in the central heating flow with a three-way diverter valve from the Wolf accessory range, and remove the dummy plug from the junction of the heating return. A detailed description is included with the connection set (accessories).

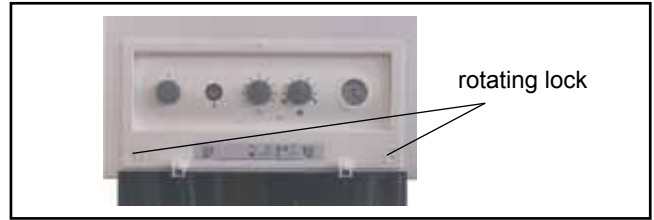


Fig.: Open the rotating locks

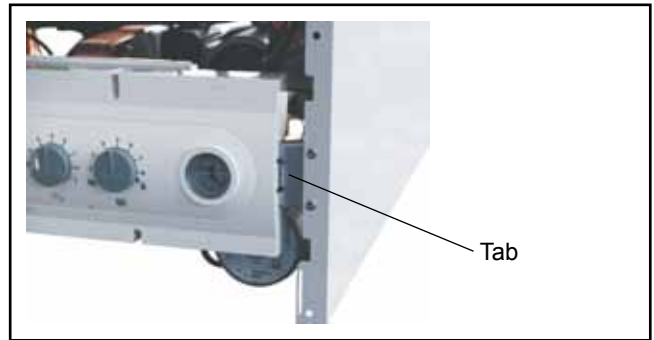


Fig.: Push in the tab

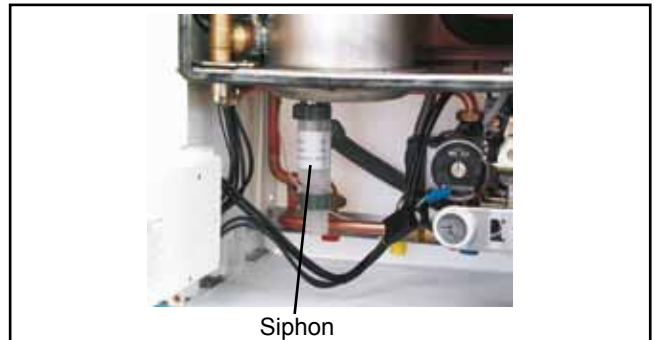


Fig.: Siphon



If the boiler is operated with an empty siphon there is a danger of poisoning by evading flue gas. Therefore fill siphon with water prior to commissioning. Unscrew, remove and fill up siphon until water evades from lateral connection. Fit siphon again and take care for proper position of the gasket.

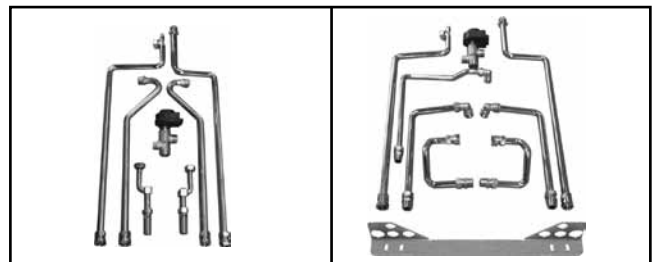


Fig.: Connection set for Wolf cylinder CSW-120 subsurface installation (accessories)

Fig.: Connection set for Wolf cylinder CSW-120 surface installation (accessories)



**Connection of a 200 litre Wolf DHW cylinder or third party cylinder**

Connect the DHW flow and return with a three-way diverter valve or the return of the gas fired boiler. Use a DHW sensor from the Wolf accessory range when connecting a DHW cylinder made by third parties. A detailed description is included with the connection set (accessories).



Fig.: Connection set for Wolf cylinder, 200 l, solar buffer SEM or third party cylinder (accessories)

**Gas connection**

Laying the gas pipe as well as gas connections must only be carried out by a licensed gas fitter. Close the gas shut-off valve on the gas fired boiler to pressure test the gas pipe.

Clean all residues from the heating pipework and the gas pipe prior to connecting the boiler, particularly in older systems.

Prior to commissioning, test all pipe and other gas connections for soundness.

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 shut-off valve with fire protection in the gas supply line upstream of the Wolf gas fired boiler. Otherwise explosions may occur during a fire. Size the gas supply line in accordance with current regulations.



Fig.: Gas shut-off valve straight version (accessories)



Fig.: Gas shut-off valve angled version (accessories)



**Gas fittings on the gas burner may be pressure tested to 150 mbar. Higher pressure may damage the gas burner fitting, resulting in a risk of explosion, asphyxiation or poisoning.**

**Close the gas shut-off valve on the gas fired boiler to pressure test the gas pipe.**



**Mount the gas ball valve in an easily accessible place.**

**NB** For concentric air/flue pipes (balanced flue systems), use only original Wolf components. Please observe the technical information regarding balanced flue systems prior to installing the flue pipe or the ventilation air connection.

Different countries have different regulations. We would therefore recommend you contact the appropriate authorities to check local requirements.

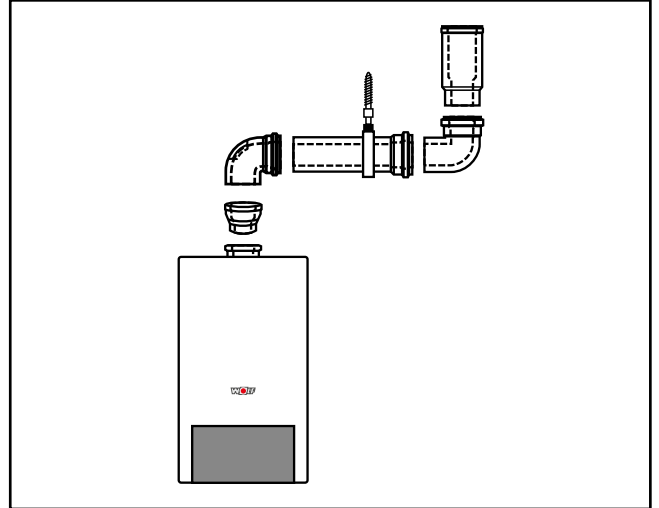


Fig.: Example: Balanced flue system

In tight spaces, CO<sub>2</sub> value and flue gas temperature can be tested immediately downstream of the boiler at a connection adaptor with inspection piece (80/125 system) or alternatively at an inspection piece with connector (60/100 system).

**NB** The flue gas test ports must remain accessible to the relevant authorities, even after fitting the ceiling bezels.

### General notes



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



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

### Terminal box

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

You only need to connect the power supply and the external accessories.

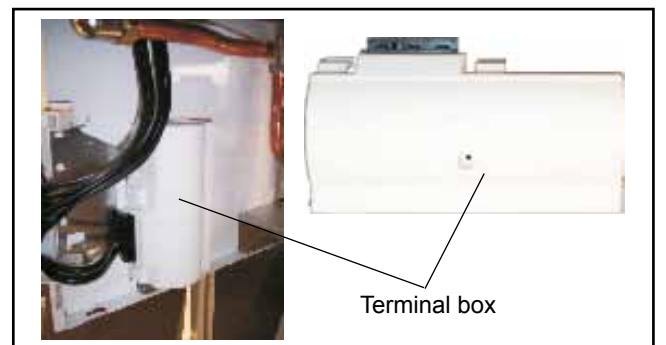
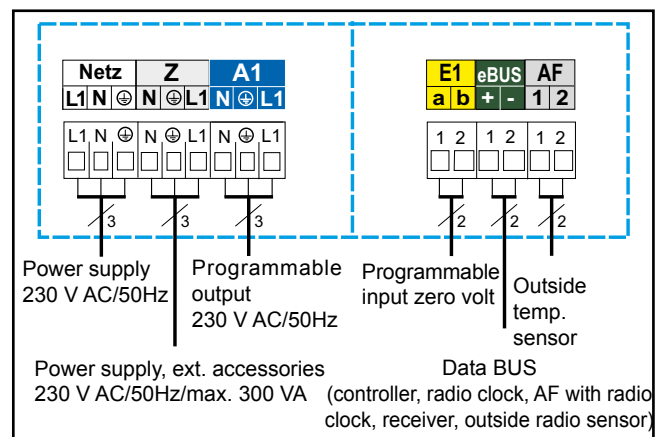
#### Mains electrical connection

Connect the power supply permanently or with a safety plug (no plug connection in protective areas 1 and 2, i.e. near a bath or shower).

Provide the power supply via a mains isolator (e.g. fuse, heating system emergency stop), which ensures at least 3 mm contact separation for all poles.

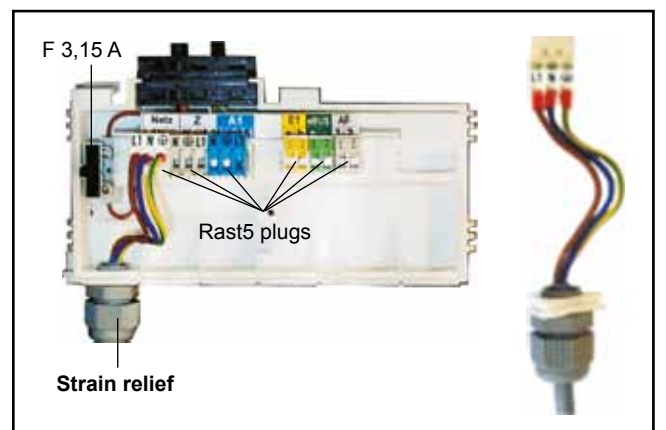
Flexible connecting cable, 3 x 1.0 mm<sup>2</sup> or solid cable, max. 3 x 1.5 mm<sup>2</sup>.

The plug must be accessible when using a power supply cable with safety plug. Flexible power supply cable 3 x 1.0 mm<sup>2</sup>.



### Installation information, power supply

- Isolate the system from the power supply before opening the casing.
- Pivot the control unit to the side.
- Open the terminal box.
- Insert the strain relief into the holes provided.
- Strip approx. 70 mm off the power supply cable insulation.
- Push the cable through the strain relief and secure the strain relief.
- Pull the Rast5 plugs.
- Terminate the appropriate cores at the Rast5 plugs.
- Push the inserts back into the terminal box casing.
- Push the Rast5 plugs back into their correct positions.



### Changing a fuse



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

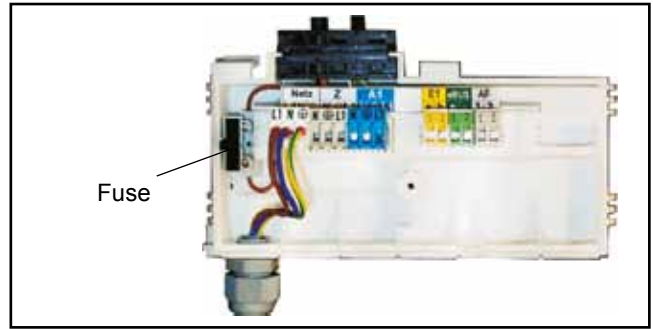


Fig.: Pivot the control unit forward; terminal box cover open

### DHW sensor connection

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

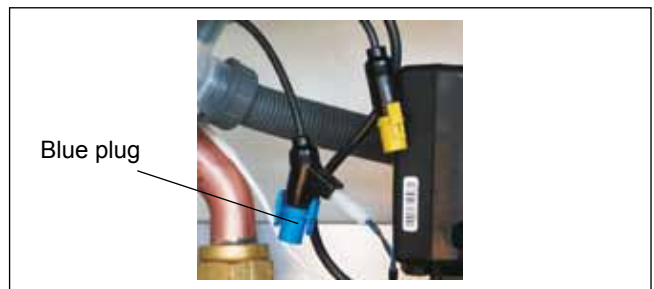


Fig.: Blue plug, cylinder sensor connection

### Connection DHW circulation pump/ external accessories (230 V AC)

Insert the cable glands into the terminal box. Insert and secure the cable through the cable gland.

Connect the DHW circulation pump 230 V AC, which is part of the Wolf accessory range, to terminals L1, N and .

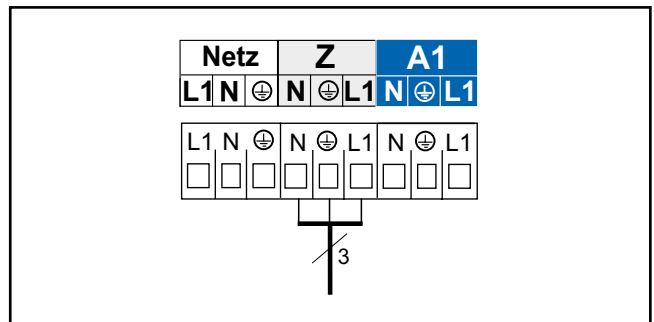


Fig.: Connection DHW circulation pump/external accessories

### Connection output A1 (230 V AC; 200 VA)

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

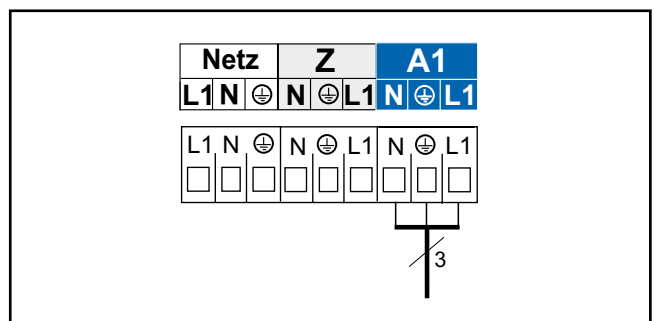


Fig.: Connection output A1

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

Code	Explanation
0	<b>N/A</b> No activation of output A1
1	<b>DHW circulation pump 100%</b> Controller (e.g. BM) activate output A1 when DHW is enabled. Output A1 is constantly activated when no controller is installed.
2	<b>DHW circulation pump 50%</b> Controller (e.g. BM) cycles output A1, when DHW is enabled. 5 minutes ON and 5 minutes OFF. Output A1 is cycled constantly in 5 minute intervals when no controller is installed.
3	<b>DHW circulation pump 20%</b> Controller (e.g. BM) cycles output A1, when DHW is enabled. 2 minutes ON and 8 minutes OFF. Output A1 is cycled constantly when no controller is installed.
4	<b>Alarm output</b> Output A1 is activated after a fault and expiry of 4 minutes.
5	<b>Flame transmitter</b> Output A1 is activated after a flame has been recognised.
6	<b>Cylinder primary pump</b> (only for central heating boilers) (factory setting for A1) Output A1 is activated when the cylinder is heated up.
7	<p><b>Ventilation damper</b> Output A1 is activated before each burner start. The burner will, however, only be enabled after input E1 has been closed.</p> <div style="display: flex; align-items: center;"> <p>Important: In any case, input E1 must also be programmed as „Ventilation damper“!</p> </div> <p>The feedback to input E1 must be made with a zero volt contact (24V). Otherwise, use an on-site relay for potential separation.</p> <div style="text-align: right; margin-top: 10px;"> </div>
8	<b>External ventilation</b> Output A1 is activated inverted to the gas combination valve. Switching off external ventilation equipment (e.g. extractor fan) during burner operation is only required, if the boiler is operated as open flue system.
9	<b>External LPG valve</b> Output A1 is activated in parallel to the gas combination valve.
10	<b>External pump</b> Output A1 switches synchronously with the heating circuit pump (HKP). Use with, for example, system separation.

### Connection input E1 (24 V)

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.

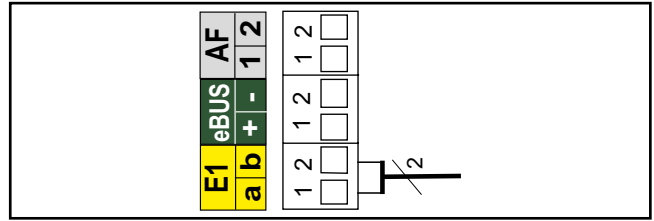


Fig.: Connection of room thermostat

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

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

### Digital Wolf controller connection (KM, SM1, SM2, MM und BM)

Only connect control units from the Wolf accessory range. Each accessory is supplied with its own connection diagram. Use a 2-core cable (cross-section > 0.5mm<sup>2</sup>) as connection between the control unit and the gas fired boiler.

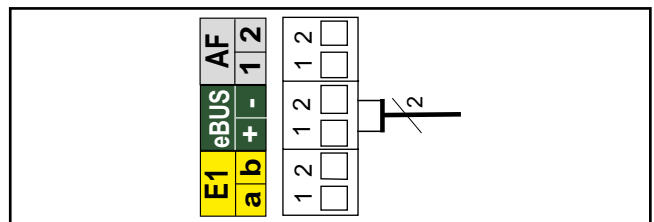


Fig.: Digital Wolf controller connection (eBUS interface)

### Connection of outside temperature sensor

The outside temperature sensor may be connected to the terminal strip of the boiler connection AF, or the terminal strip of the BM.

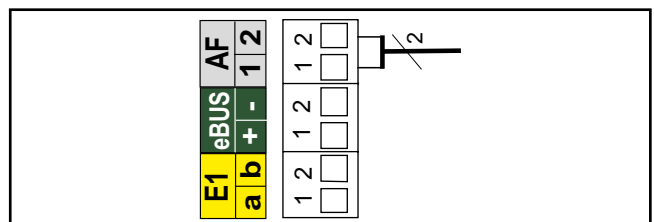


Fig.: Connection of outside temperature sensor

Fill the system and vent it properly, to safeguard the perfect function of the gas fired condensing boiler.

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

- With the boiler in a cold condition, fill the heating system slowly via the return, until 1.5 bar pressure is indicated. Inhibitors are not permissible.
- Check the entire system for water leaks.
- Fill the condensate siphon with water.
- Close the gas tap.
- Open the manual air vent valve.
- Open the cap of the automatic air-vent valve (on the heating circuit pump) by one revolution, but do not remove the cap.
- Open all radiator valves. Open all flow and return valves on the gas fired condensing boiler.
- Fill the system to 1.5 bar pressure. In operation, the pressure gauge must indicate between 1.5 and 2.5 bar.
- Start the gas fired condensing boiler, set the heating water temperature selector into position „2“ (pump running, illuminated ring (status display) constantly green).
- Vent the pump; for this, briefly open and then retighten the air vent screw.
- Vent the heating circuit; for this, switch the condensing boiler several times ON and OFF.
- Top up with water when the system pressure drops severely.

**NB** Close the manual air vent valve.

- Open the gas shut-off valve.
- Press the reset button.

**Note:** In constant operation, the heating circuit will be automatically vented via the heating circuit pump.

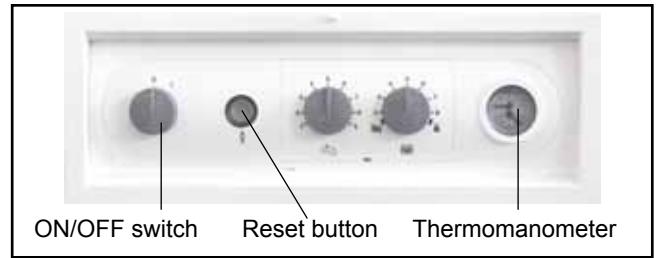


Fig.: Control unit overview



Fig.: Manual air vent valve



Fig.: Automatic air vent valve on the heating circuit pump



The initial start-up and operation of the boiler as well as the user instruction must only be carried out by a qualified contractor.

**Natural gas H 15.0:**

$$W_s = 11.4 - 15.2 \text{ kWh/m}^3 = 40.9 - 54.7 \text{ MJ/m}^3$$

**LPG P**

$$W_s = 20.2 - 24.3 \text{ kWh/m}^3 = 72.9 - 87.3 \text{ MJ/m}^3$$

Table: Wobbe index subject to type of gas

- Prior to installation, ensure that the boiler matches the type of available gas. See the following table for permissible Wobbe index subject to gas type.

**- Check the boiler and system for leaks. Prevent water leaks.**

- Check location and seating of the installation.
- Check all connections and component joints for tightness.



If tightness cannot be ensured then there is a risk of water damage

- Check that all flue gas accessories have been correctly installed.
- Open the shut-off valves on flow and return.
- Open the gas shut-off valve.

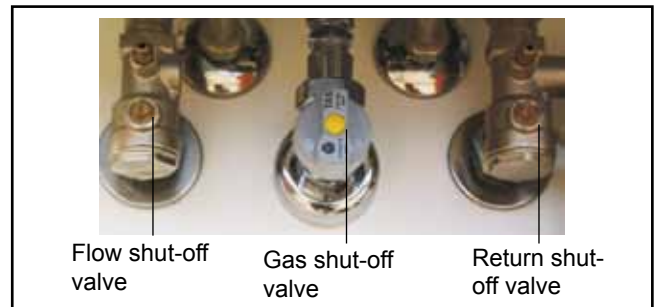


Fig.: Shut-off valves

- Switch ON the system ON/OFF switch on the control unit.
- Ignite and check the regular flame structure of the main burner.
- If the system water pressure falls below 1.5 bar, top up with water until a pressure of 1.5 to max. 2.5 bar has been achieved.

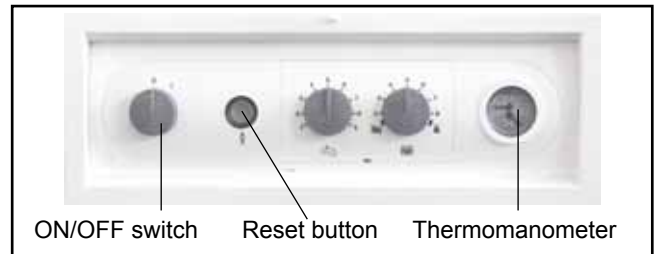


Fig.: Control unit overview



- The illuminated ring shows a green colour, if the boiler starts correctly.
- Instruct the customer in the operation of the boiler. Complete the commissioning report and hand over the instructions to the customer.

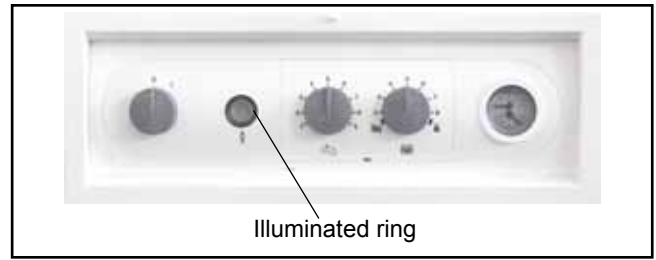


Fig.: Control unit overview

### Saving energy

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

### Setting the BUS address (only for MM with SCOM interface or cascade)

When operating several boilers (number of boilers >1) in conjunction with a cascade module, set the eBUS 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. Release the reset button again.

BUS address	DHW rotary selector position	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)

## Checking the gas supply pressure



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

- Switch OFF the gas fired boiler. Open the gas shut-off valve.
- Pivot the control unit lid down. Unlock the casing lid with the l.h. and r.h. rotating locks. Release the lower part of the casing lid and unhook at the top.
- To pivot the control unit, push in the tab on the r.h. side of the thermomanometer using a screwdriver.
- Pivot the control unit out.
- Release the plug at test nipple and vent the gas supply pipe.
- Connect the differential pressure meter to „+“ at test port . Connect „-“ against atmosphere
- Switch ON the ON/OFF switch.
- After starting the boiler, check the supply pressure at the differential pressure gauge.

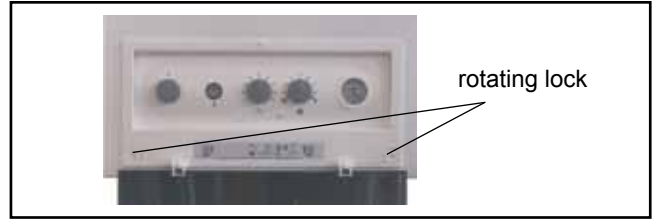


Fig.: Open the rotating locks

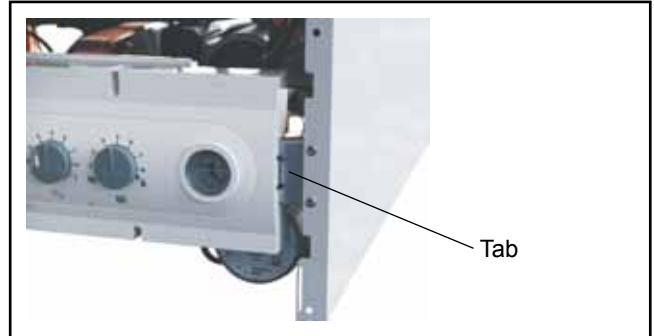


Fig.: Push in the tab



Fig.: Check the gas supply pressure

NB

### Natural gas:

If the supply pressure lies outside the 18 to 25 mbar range, adjustments must not be carried out and the boiler must not be taken into use.

NB

### LPG:

If the supply pressure lies outside the 25 to 45 mbar range, adjustments must not be carried out and the boiler must not be taken into use.

## Filling the siphon

- Remove the siphon.
- Fill the siphon with water.
- Install the siphon.

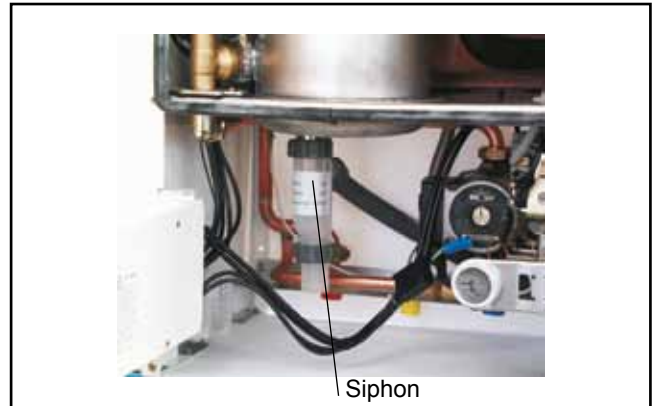


Fig.: Siphon

## Checking the gas supply pressure

- Switch OFF the ON/OFF switch. Close the gas shut-off valve.
- **Remove the differential pressure gauge, and reseal the test port with its plug .**
- Open the gas shut-off valve.
- Check the test nipple for gas leaks.
- Complete the enclosed notice and affix to the inside of the casing.
- Close the boiler.

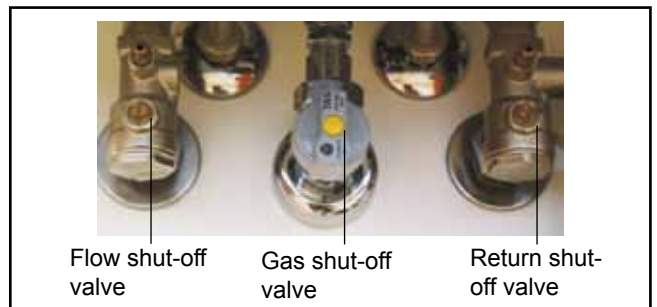


Fig.: Shut-off valves

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

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

**NB** Incorrect operation can lead to system faults. Please note when using parameter GB 05 or A09 (frost protection/outside temperature), that frost protection is not safeguarded if you set temperatures lower than 0 °C. This can lead to heating system damage.

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

Settings of column 1 are suitable for control accessories ART and AWT.

Settings of column 2 are suitable for Wolf control systems with BM (programming unit)

1	2	Parameter	Unit	Factory setting	min	max
GB01	HG01	Flow temperature hysteresis	K	8	5	30
	HG02	Lower fan speed Min. fan speed in %	%	CGB-11: 27 CGB-20: 27 CGB-24: 30	27	100
	HG03	Upper fan speed DHW Max. fan speed in % for DHW	%	CGB-11: 100 CGB-20: 100 CGB-24: 98	27	100
GB04	HG04	Upper fan speed central heating Maximum fan speed in % for central heating	%	CGB-11: 70 CGB-20: 82 CGB-24: 82	27	100
GB05	A09	Frost protection outside temperature With connected outside temperature sensor and insufficient temperature pump ON	°C	2	-10	10
GB06	HG06	Heating circuit pump mode 0 → Pump ON in winter mode 1 → Pump ON when the burner is ON		0	0	1
GB07	HG07	Heating circuit pump run-on time Heating circuit pump run-on time in heating mode in min. Heating circuit pump run-on time in heating mode in min.	min	1	0	30
GB08	HG08 or HG22	Maximum set flow temperature Applies to heating mode	°C	80	40	90
GB09	HG09	Cycle block applies to heating mode	min	7	1	30
	HG10	e Bus address Bus address of boiler (display only)		0	0	5
	HG11	DHW quick start-up Temperature of plate heat exchanger in summer mode (suitable for combi-boilers only)	°C	10	10	60
	HG12	Gas type not assisted		0	0	1
GB13	HG13	Input E1 Input E1 (24 V) Various functions can be allocated to input E1. See chapter „Connection input E1“		1 Roomther- mostat	0	5
GB14	HG14	Output A1 (230VAC) Various functions can be allocated to output A1. See chapter „Connection output A1“		6 Cylinder pri- mary pump	0	9
GB15	HG15	DHW cylinder hysteresis Switching differential for cylinder reheating		5	1	30
GB16	HG16	Minimum pump speed, heating mode	%	CGB-11: 27 CGB-20: 48 CGB-24: 48	20	100
GB17	HG17	Minimum pump speed, heating mode	%	CGB-11: 56 CGB-20: 77 CGB-24: 82	20	100
	HG21	Minimum boiler water temperature TK-min	°C	20	20	90

## CGB-11/CGB-20/CGB-K-20/CGB-24/CGB-K-24 Output setting (parameter GB04)

The output setting can be modified with Wolf control accessories with eBUS capability. The heating output will be determined by the gas fan speed. By reducing the gas fan speed in accordance with the table, the maximum output will be matched (at 80/60 °C) to natural gas H and LPG.

### CGB-11

Heating output (kW)	3,3	4	5	6	7	8	9	10
Display value (%)	26	29	35	42	49	56	63	70

### CGB-20/CGB-K-20

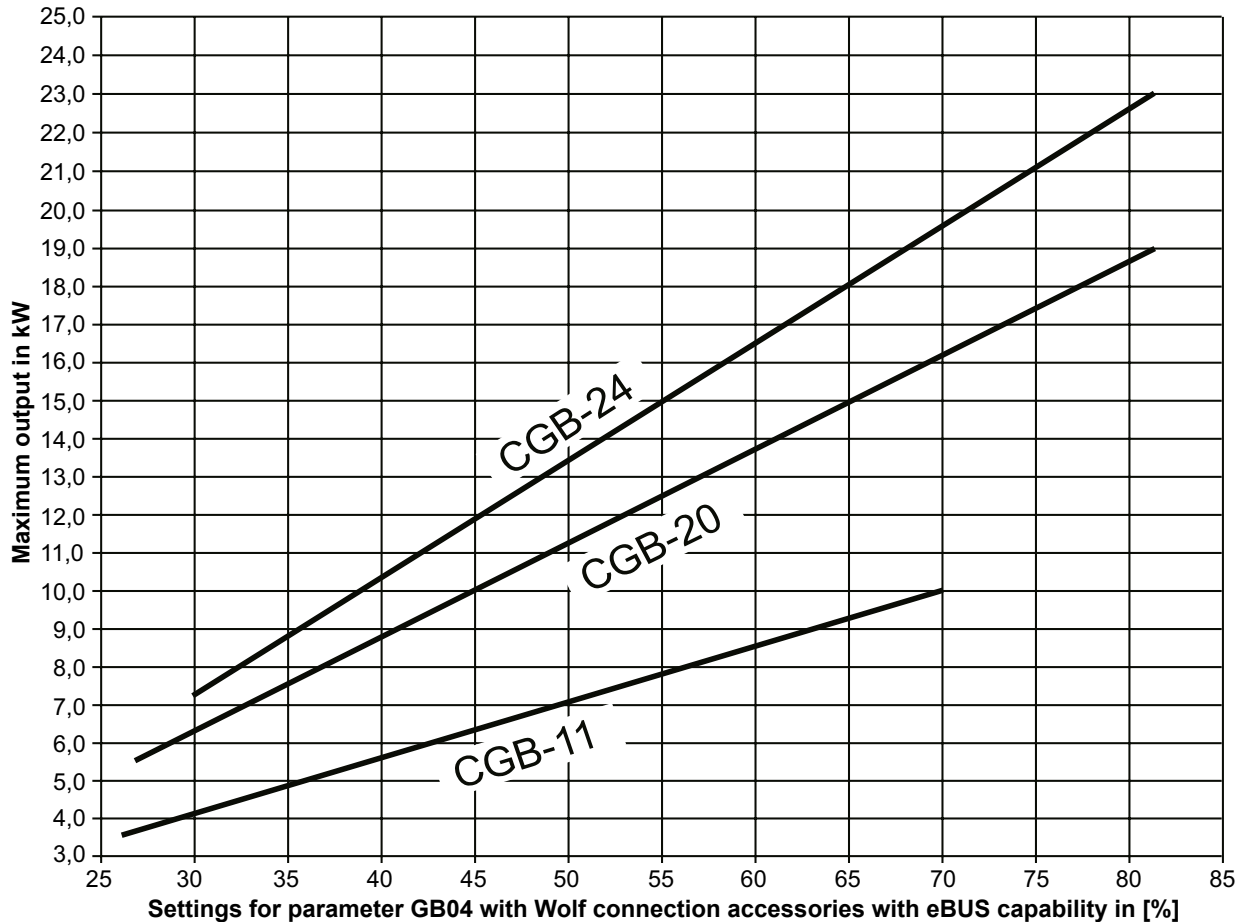
Heating output (kW)	5,6	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Display value (%)	27	29	33	37	41	45	49	54	57	62	66	70	74	78	82

### CGB-24/CGB-K-24

Heating output (kW)	7,1	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Display value (%)	30	32	35	38	42	45	47	52	55	57	61	64	67	70	73	77	82

Table: Output setting

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



The gas fired condensing boiler is either equipped with a three-stage pump or with a modulating pump. If a modulating pump is installed, see chapter „Modulating pump“.

In the delivered condition, the three-stage pump is set to stage 2 (centre position).

You can select the pump stage manually.

- Check with the diagram „Residual boiler head“ in chapter „Specification“, whether this setting is correct for your system.

The following settings are recommended:

Boiler	Pump stage
Central heating boiler	1, 2, 3
Central heating boiler with cyl.	1, 2, 3
Combi boiler	2, 3

- Shut down the boiler at the ON/OFF switch.
- Remove the cover lid.
- Unlock the control unit housing and pivot it out.
- At the switch, select the required pump stage.

**NB** Ensure that the switch correctly clicks into place and does not remain in an intermediate position.

**NB** Select the next lower pump stage when flow noise is excessive.

**NB** Select the next higher pump stage, if individual radiators remain cold, even though their valves are open.

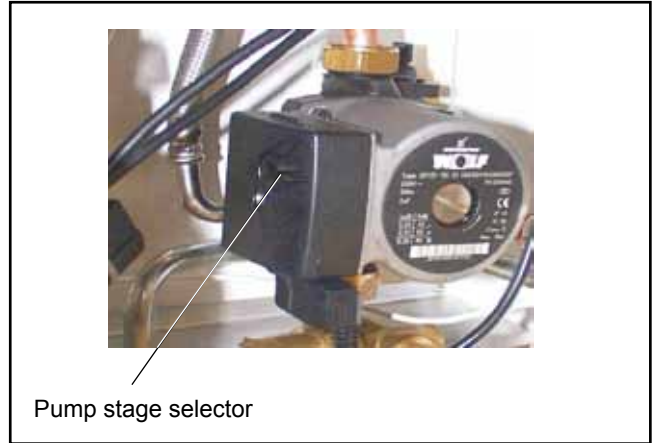


Fig.: Selector at the three-stage heating circuit pump

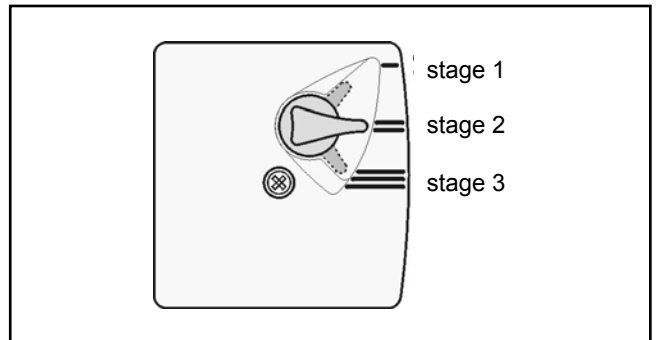


Fig.: Switching stages at the three-stage heating circuit pump

Test the combustion parameters with the boiler closed.

## Testing the combustion air

- Remove the screw from the r.h. test port.
- Open the gas shut-off valve.
- Insert the test probe.
- Start the gas fired condensing boiler and turn the heating water temperature selector to the emissions test symbol (illuminated status display ring flashes yellow).
- Test the temperature and CO<sub>2</sub> value.

The balanced flue pipe is not sound, if the CO<sub>2</sub> content is > 0.3 %; rectify the leak.

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

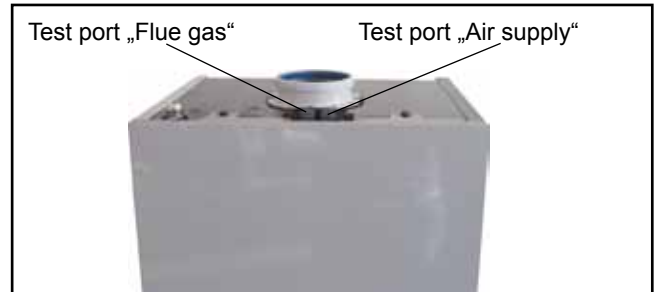


Fig.: Test ports

## Testing the flue gas parameters

**NB** Flue gas can escape into the installation room, if the test port is not sealed. This results in a risk of asphyxiation.

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

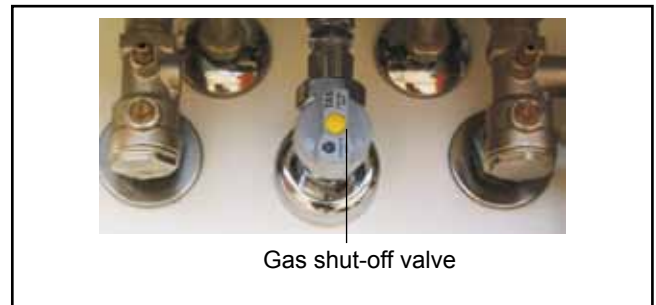


Fig.: Shut-off valves

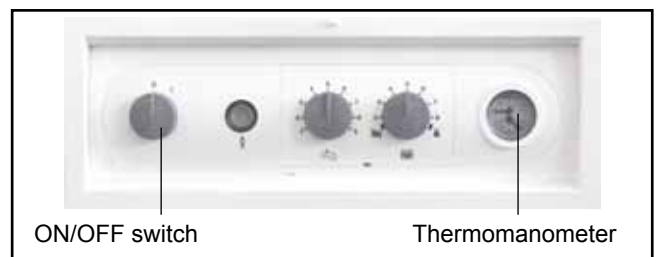



Fig.: Control unit overview

### Adjusting the gas:air mixture

NB

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

#### A) CO<sub>2</sub> adjustment at the upper load (emissions test mode)

- Pivot the control unit lid down.  
Unlock the casing lid with the l.h. and r.h. rotating locks. Release the lower part of the casing lid and unhook at the top.
- Remove the screw from the l.h. „Flue gas“ test port.
- Insert the test probe of the CO<sub>2</sub> test equipment into the „Flue gas“ test port.
- Turn the temperature selector to the emissions test position,  (illuminated status display ring flashes yellow).
- Check the CO<sub>2</sub> content at full load, and compare the actual value with those in the table below.
- Pivot the control unit out and correct the CO<sub>2</sub> content with the gas flow adjusting screw on the gas combination valve (in accordance with the table).

- Turn clockwise - lower CO<sub>2</sub> content
- Turn anti-clockwise - higher CO<sub>2</sub> content

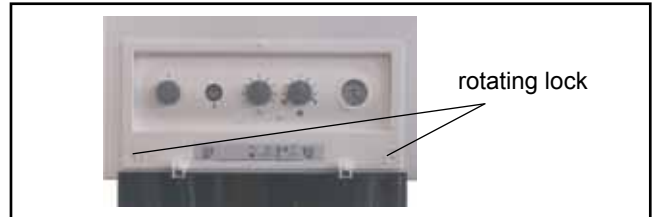


Fig.: Open the rotating locks

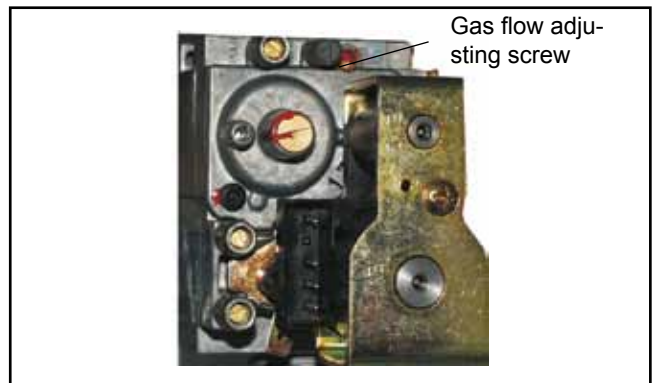


Fig.: Gas combination valve

CGB / CGB-K boiler open at upper load	
Natural gas H 8,8% ± 0,2%	LPG P 9,9% ± 0,3%

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



Fig.: Flue gas test with an open boiler



### B) CO<sub>2</sub> adjustment at the lower load (soft start)

- Restart the boiler by pressing the „Reset button“.
- Check and correct (if required) the CO<sub>2</sub> content approx. 20 s after burner start with the CO<sub>2</sub> meter, by fine adjusting the zero point adjusting screw in accordance with the table below. Make this adjustment within 120 s after burner start. If necessary, repeat the start phase for setting purposes by pressing the „Reset button“.
- **Turn clockwise - higher CO<sub>2</sub> content.**
- **Turn anti-clockwise - lower CO<sub>2</sub> content.**

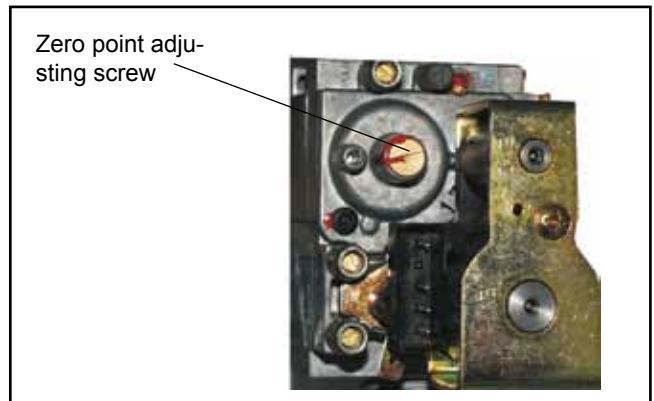


Fig.: Gas combination valve

CGB / CGB-K boiler open at lower load	
Natural gas H 8,8% ± 0,2%	LPG P 10,8% ± 0,5%

### C) Checking the CO<sub>2</sub> adjustment

- After completing the work, refit the casing lid and check the CO<sub>2</sub> value with the boiler closed.

**NB** During the initial start-up, the EC emissions can reach 200 ppm for the first hours, as binding agents from the insulation combust.



Observe the CO emissions whilst making CO<sub>2</sub> adjustments. The gas combination valve is incorrectly adjusted, if the CO value lies >200ppm, when the CO<sub>2</sub> value is correct. In that case, take the following steps::

- Fully insert the zero point adjusting screw
- open the zero point adjusting screw 3 revolutions for natural gas, and 2 revolutions for LPG.
- Repeat the adjusting process from section A).
- The boiler is correctly adjusted, when the CO<sub>2</sub> value corresponds with those in the adjacent table.



Fig.: Flue gas test with a closed boiler

CGB / CGB-K boiler closed at upper load	
Natural gas H 9,0% ± 0,2%	LPG P 10,1% ± 0,3%

### D) Completing the adjustments

- Switch the boiler OFF and close the test ports and hose nipple; check for leaks.

CGB / CGB-K boiler closed at lower load	
Natural gas H 9,0% ± 0,2%	LPG P 11,1% ± 0,5%

Commissioning steps	Test values or confirmation
1.) Gas type	Natural gas H <input type="checkbox"/> LPG <input type="checkbox"/> Wobbe index _____ kWh/m <sup>3</sup> Net calorific value _____ kWh/m <sup>3</sup>
2.) Gas supply pressure checked?	<input type="checkbox"/>
3.) Gas soundness test carried out?	<input type="checkbox"/>
4.) Balanced flue system checked?	<input type="checkbox"/>
5.) Water connections checked for leaks?	<input type="checkbox"/>
6.) Fill the siphon	<input type="checkbox"/>
7.) Vented boiler and system?	<input type="checkbox"/>
8.) System pressure 1.5 - 2.5 bar?	<input type="checkbox"/>
9.) Entered type of gas and output onto label?	<input type="checkbox"/>
10.) Function test carried out?	<input type="checkbox"/>
11.) Flue gas test: Gross flue gas temperature Ventilation air temperature Net flue gas temperature Carbon dioxide content (CO <sub>2</sub> ) or oxygen content (O <sub>2</sub> ) Carbon monoxide content (CO)	_____ t <sub>A</sub> [°C] _____ t <sub>L</sub> [°C] _____ (t <sub>A</sub> - t <sub>L</sub> ) [°C] _____ % _____ ppm
12.) Casing fitted?	<input type="checkbox"/>
13.) System user trained, tech. docs. handed over?	<input type="checkbox"/>
14.) Confirm commissioning?	_____ <input type="checkbox"/>

Via conversion sets, Wolf offer you the option of matching your gas fired condensing boiler to changing conditions.

Conversion to other gas types:

from	tu	CGB-11	CGB-(K)-20	CGB-(K)-24
Natural gas H	LPG P	-	86 10 593	86 10 927
LPG P	Natural gas H	-	86 10 592	56 10 928

Boiler	Gas type conversion		High limit safety cut-out STB	
	Gas type	Gas restrictor	Flue gas STB	Combustion chamber STB
CGB-11	H	Green 430 17 20 523	27 41 063	-
CGB-(K)-20	H	Orange 580 17 20 532	27 41 063	-
	LPG	Green 430 17 20 523		
CGB-(K)-24	H	White 780 17 20 522	Designation green dot	27 41 068
	LPG	Red 510 17 20 520	27 44 089	

Conversion to alternative DHW versions:

from	to	Set
Central heating boiler Boiler	Boiler with cylinder ...SW-120 for finished surfaces Boiler with third party cylinder	86 02 714 86 02 715
Central heating boiler Boiler with cylinder	Combi boiler (only CGB-20) Heiztherme	86 02 668 86 02 708
Boiler with cylinder Combi boiler	Combi boiler (only CGB-20) Boiler	86 02 668 86 02 708
Combi boiler	Boiler with cylinder	86 02 708 <sup>1)</sup>

<sup>1)</sup> A conversion set is only required, if you no longer possess the conversion label.  
The conversion is detailed in chapter „Conversion of combi boilers to boilers with cylinder“.



Conversions must only be carried out by authorised contractors.

Please carry out the following steps:

- Separate the cold water inlet and the DHW inlet from the connecting block of the combi boiler.
- Remove the siphon.
- Separate the plug-in connection from the flow rate sensor.
- Release the pipe from the three-way valve at the plate heat exchanger.
- Release the union from the distributor block at the plate heat exchanger.
- Remove the disconnected assembly.
- Connect the released fittings in accordance with the Fig. „Cylinder connections“. For this, use the connection set for Wolf cylinders from the range of Wolf accessories.
- Connect the cylinder sensor from the range of Wolf accessories with the blue plug, which has become vacant.
- Install the filled siphon.



After the conversion, carry out a master reset with power connected. Otherwise, no heat demand can be recognised. All parameters will then be reset to their factory settings.

If you have already made changes to the control unit parameters to match the control unit to your system, then it is essential to make notes of these changes beforehand and to re-adjust your system after the master reset.

Carry out the master reset as follows:

- Switch OFF the boiler.
- Hold down the reset button and simultaneously start the boiler.
- Only release the reset button after the illuminated ring has flashed.
- Leave the boiler running for approx. 1 minute.

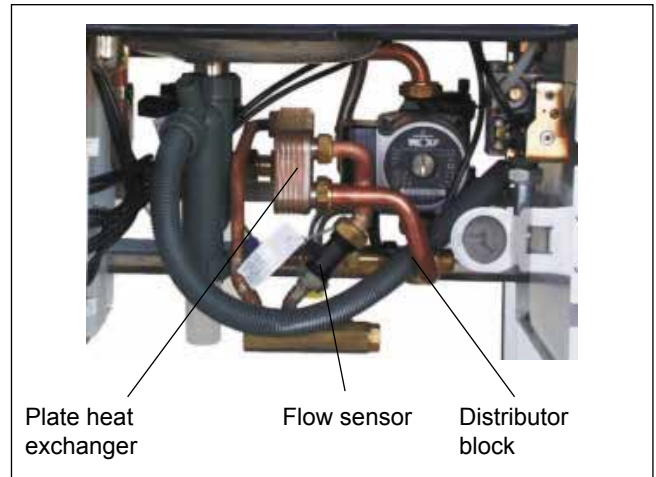


Fig.: Combi boiler pipework



Fig.: Connection block removed

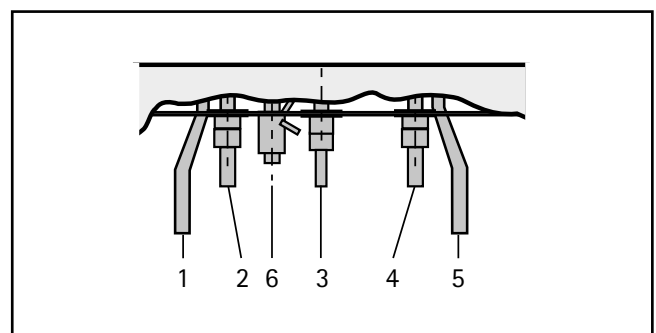


Fig.: Connections

- 1 DHW flow
- 2 Heating flow
- 3 Gas connection
- 4 Heating return
- 5 DHW return
- 6 Condensate drain

## Safety instructions

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



„Safety instructions“ are instructions with which you must comply exactly, to prevent injury and material losses.



Danger through ‚live‘ electrical components. Please note: Switch OFF the ON/OFF switch before removing the casing.

Never touch electrical components or contacts when the ON/OFF switch is in the ON position. This brings a risk of electrocution, which may result in injury or death.

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

NB

This indicates technical instructions which you must observe to prevent material losses and boiler malfunctions.

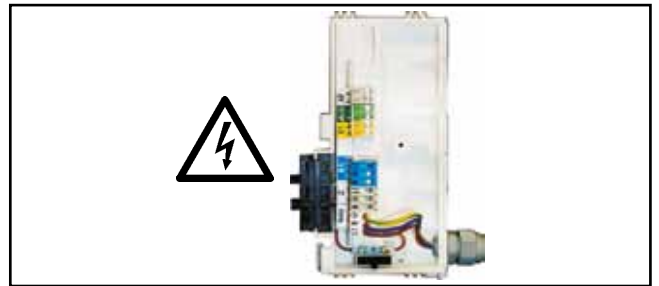


Fig.: Terminal box:  
Danger from electric power

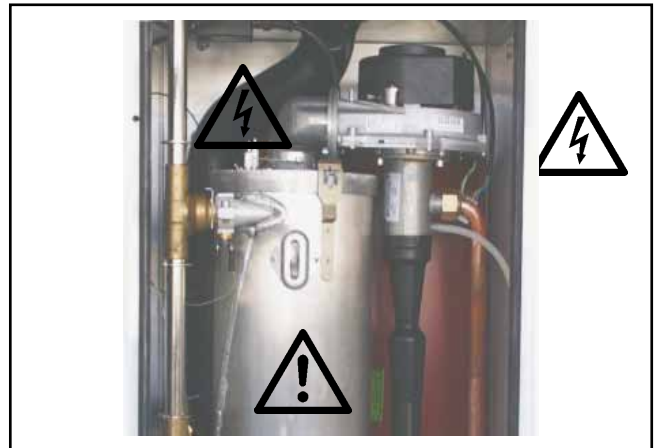


Fig.: Ignition transformer, high voltage ignition electrode, combustion chamber  
Danger through ‚live‘ electrical components; danger through hot components

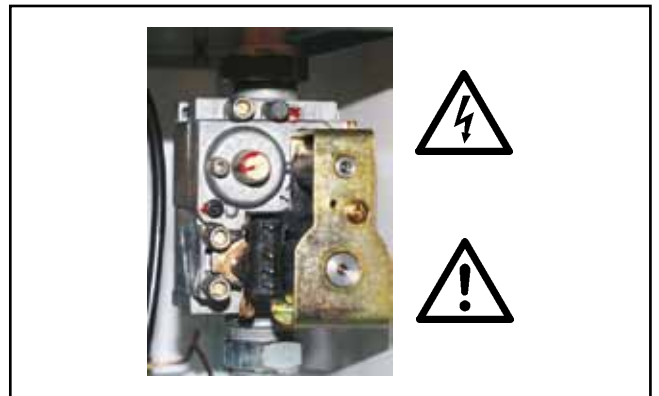


Fig.: Gas combination valve  
Risk of electrical shock, risk of poisoning and explosion from escaping gas

## General notes




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



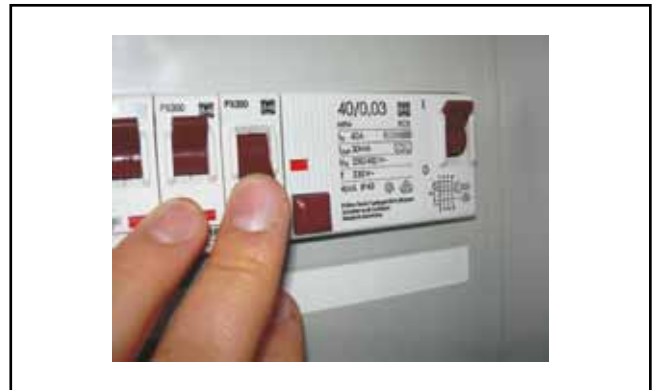
Fig.: Gas connection: Escaping gas may cause poisoning or the risk of explosion


- Pivot the control unit lid down.  
Switch OFF the boiler at the ON/OFF switch.



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

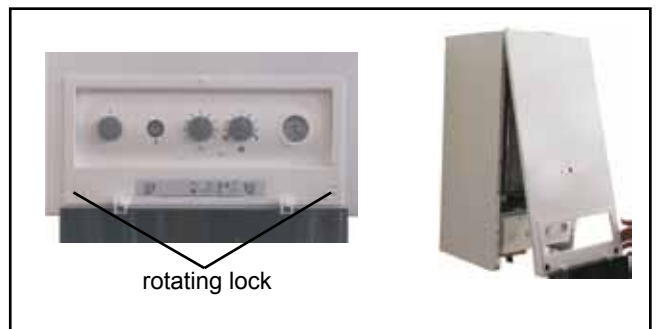
- Disconnect the system from the power supply.



-  Close the gas shut-off valve.



- Unlock the casing lid with the l.h. and r.h. rotating locks.  
Release the lower part of the casing lid and unhook at the top.





### Danger of burning

Several components may be hot. Let these cool down or wear gloves.

- Pull the control hose off the mixing chamber.



- Crack open the gas supply connection.



- Pull out the locking clip.



- Lift the combustion chamber.



- Fit the cleaning tray.



- Pivot the combustion chamber out.



- Pull the plug off the gas fan.



- Pull the plugs off the ionisation and the ignition electrodes.





- Open the retaining tabs.



- Remove the combustion chamber lid upwards.



- Rotate the combustion chamber pot and remove downwards.



### Visual burner gasket check

Lubricate the burner gasket with Wolf silicone grease or replace and lubricate.



- Clean the heat exchanger with a brush.



**Versions with coated heat exchanger must only be cleaned with a plastic brush.**



- Clean the condensate pan.



- When you notice a loss of water, check the expansion vessel inlet pressure and increase it, if required, to 0.75 bar. The heating circuit must be at zero pressure.



- Replace the upper and lower combustion chamber gasket; lubricate the new gaskets with silicone grease.



- Lubricate the combustion chamber seat.



- Replace the monitoring electrode.  
Check and replace the ignition electrode, if necessary.



**Visual insulation check**  
replace, if broken



### Assembly

- Replace the combustion chamber lid on the combustion chamber and secure with locking tabs.



### NB

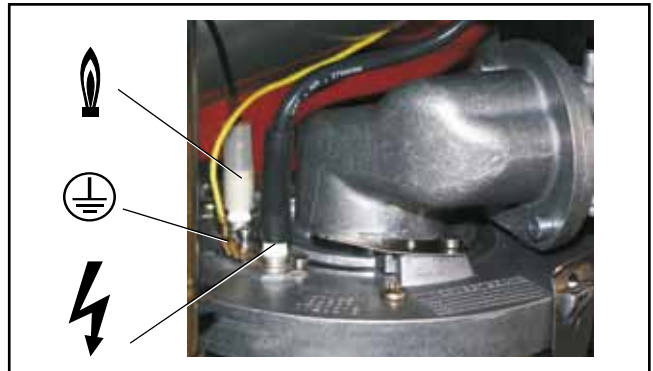
- Install the combustion chamber pot.



- Push the plugs back onto the ionisation and the ignition electrodes.



- Push the plug back onto the gas fan.



- Pivot the combustion chamber unit back into place.



- Push the combustion chamber down into the condensate pan.



Secure the locking clip.



- Check the gas restrictor.

Boiler output	Gas type	Gas restrictor
11 kW *	E/H	Green 430 17 20 523
20 kW	E/H	Orange 580 17 20 532
	LPG	Green 430 17 20 523
24 kW	E/H	White 780 17 20 522
	LPG	Red 510 17 20 520



\* only CGB

- Remove the cleaning container.
- Check the balanced flue system.



### Checking the siphon



If required, clean and re-fill.



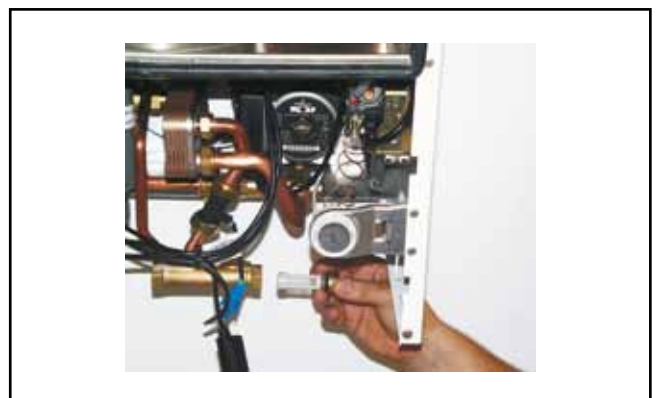
Check for tight fit,  
prevent flue gas from escaping.



- Shut off the cold water supply.



- Clean the cold water strainer.



- If the DHW output is too low, descale the DHW heat exchanger and the non-return valve.
- Reopen the cold water tap.

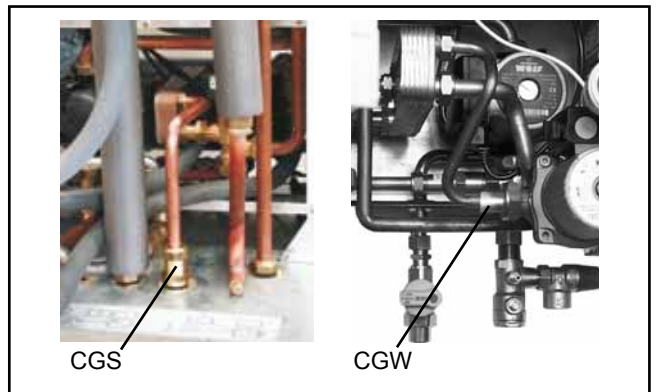


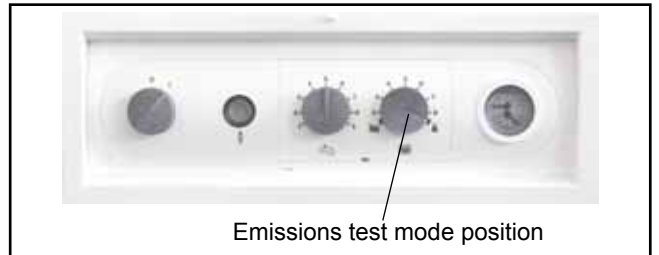
Fig.: Non-return valve

**Completing the adjustments**

- Switch the boiler OFF and close the test ports and hose nipples; check for leaks.
- Fit the casing.

**Test run**

- Reset the MCBs.
- open the gas tap.
- Switch ON the boiler.
- Set the program selector to emissions test mode.

**Carrying out a ventilation test**

Check LAF for soundness, if the CO<sub>2</sub> value > 0.2%.

**Flue gas test**

Re-adjust the CO<sub>2</sub> content, if required  
(see next page)






### Checking control accessories



Fig.: BM



Fig.: AWT

- The display must show BUS connection  .



BUS connection

### Maintenance requires the following:

1	Maintenance set CGB-11/20/24	Art.-Nr.	86 03 017
1	Cleaning set	Art.-Nr.	86 03 194
1	Test equipment for BlmSchV test [Germany]		

### We recommend you have the following as part of your service kit:

1	Insulation CC top part	Art.-Nr.	86 03 041
1	Gasket for flue gas temperature controller	Art.-Nr.	86 03 033
1	Sealing collar for test port	Art.-Nr.	39 03 143
1	Silicone grease	10 g tube	Art.-Nr. 86 02 264
1	Burner gasket	Art.-Nr.	39 03 121
1	Flow temperature sensor	Art.-Nr.	86 03 038
1	Flue gas temperature controller	Art.-Nr.	86 03 058
1	Flue gas temperature controller	Art.-Nr.	86 01 869
1	Ignition electrode	Art.-Nr.	86 03 061
1	Protective anode for enamelled cylinder	Art.-Nr.	24 45 128

## Overview of the steps to be taken and the maintenance report

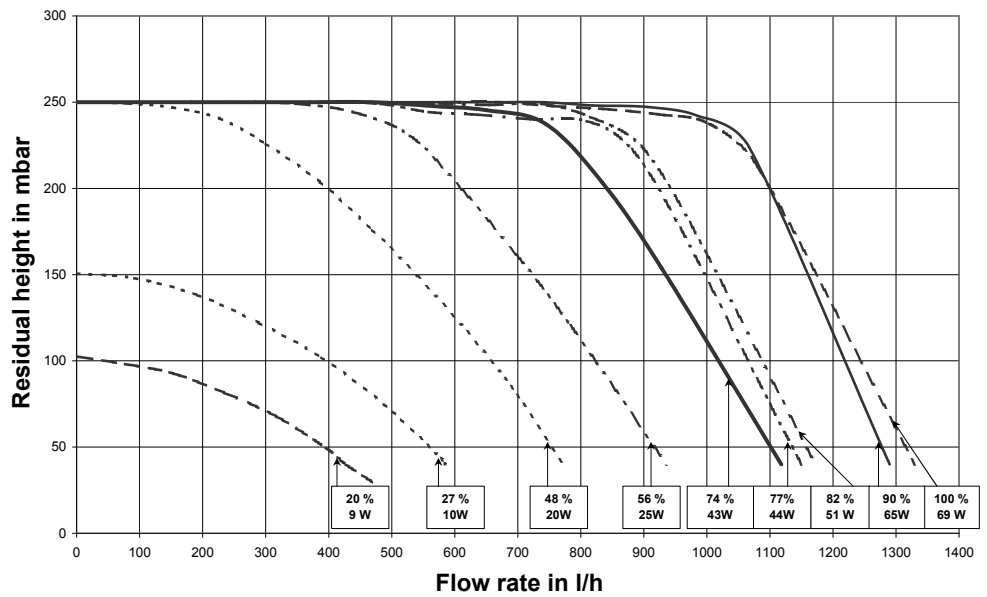
No.	Step	Report item	Report item
1	Switch OFF the boiler, switch OFF the emergency stop switch		
2	Close the gas supply valve,		
3	Remove the casing and the combustion chamber housing		
4	Pull the electrical connections off fan, sensors and electrodes		
5	Remove the combustion chamber lid upwards		
6	Clean the burner, if required	○	○
7	Clean the heating water heat exchanger	○	○
8	Clean the condensate pan	○	○
9	Clean the mixing chamber, if required	○	○
10	Refill granulate, if a neutralising system is installed	○	○
11	Refill granulate, if a neutralising system is installed	○	○
12	Refill granulate, if a neutralising system is installed	○	○
13	Check the protective anode every two years on enamelled cylinders.	○	○
14	Assemble the equipment		
15	Clean and fill the siphon, install and check for tight fit	○	○
16	Descale the DHW heat exchanger, if required	○	○
17	Clean the DHW strainer	○	○
18	Check the expansion vessel in case of water loss	○	○
19	Open the gas supply valve and start the boiler		
20	Gas soundness test	○	○
21	Flue gas soundness test	○	○
22	Check the ignition	○	○
23	Check the interaction with control accessories	○	○
24	Flue gas test in emissions test mode	○	○
25	Gross flue gas temperature	°C	°C
26	Ventilation air temperature	°C	°C
27	Net flue gas temperature	°C	°C
28	Carbon dioxide content (CO <sub>2</sub> )	%	%
29	or oxygen content (O <sub>2</sub> )	%	%
30	Carbon monoxide content (CO)	%	%
31	Flue gas loss	%	%
	Confirm maintenance (company stamp, signature)		
	Date		



# Maintenance

Report item	Report item	Report item	Report item	Report item	Report item
o	o	o	o	o	o
o	o	o	o	o	o
o	o	o	o	o	o
o	o	o	o	o	o
o	o	o	o	o	o
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o	o	o	o	o	o
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°C	°C	°C	°C	°C	°C
°C	°C	°C	°C	°C	°C
°C	°C	°C	°C	°C	°C
%	%	%	%	%	%
%	%	%	%	%	%
%	%	%	%	%	%
%	%	%	%	%	%

## Residual height of the modulating pump (class A)



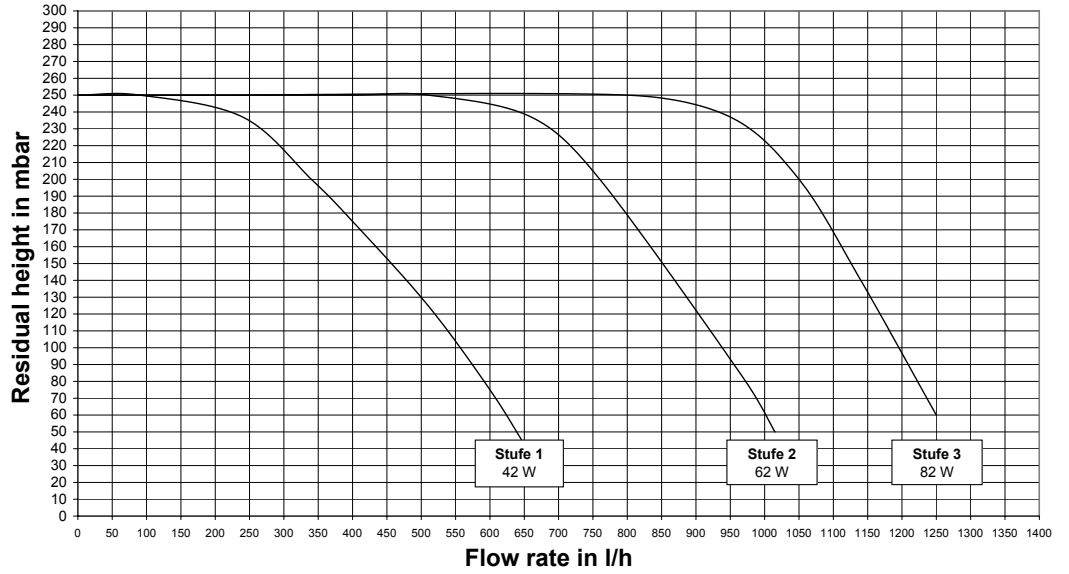
### Function description modulating pump (modulating pump not for 24 kW) (class A)

- In heating mode: The heating circuit pump modulates in proportion to the burner output, i.e. at max. burner load, the pump operates with the maximum selected pump speed for „Heating mode“. At minimum burner load, the pump operates with the minimum selected pump speed for „Heating mode“. In other words, the burner and pump output are regulated subject to the required heating load. The power consumption is reduced by the pump modulation.
- In DHW mode: The heating circuit pump will not modulate, but operates constantly with the selected „DHW“ pump speed (see table).
- In standby mode: The heating circuit pump operated with the selected „Standby mode“ pump speed.

### Factory settings „Pump speed“

Boiler	Heating mode		DHW	Standby
	Max.	Min.		
CGB-11	56 %	27 %	56 %	20 %
CGB-(K)-20	77 %	48 %	74 %	20 %
CGB-(K)-24	82 %	48 %	90 %	20 %

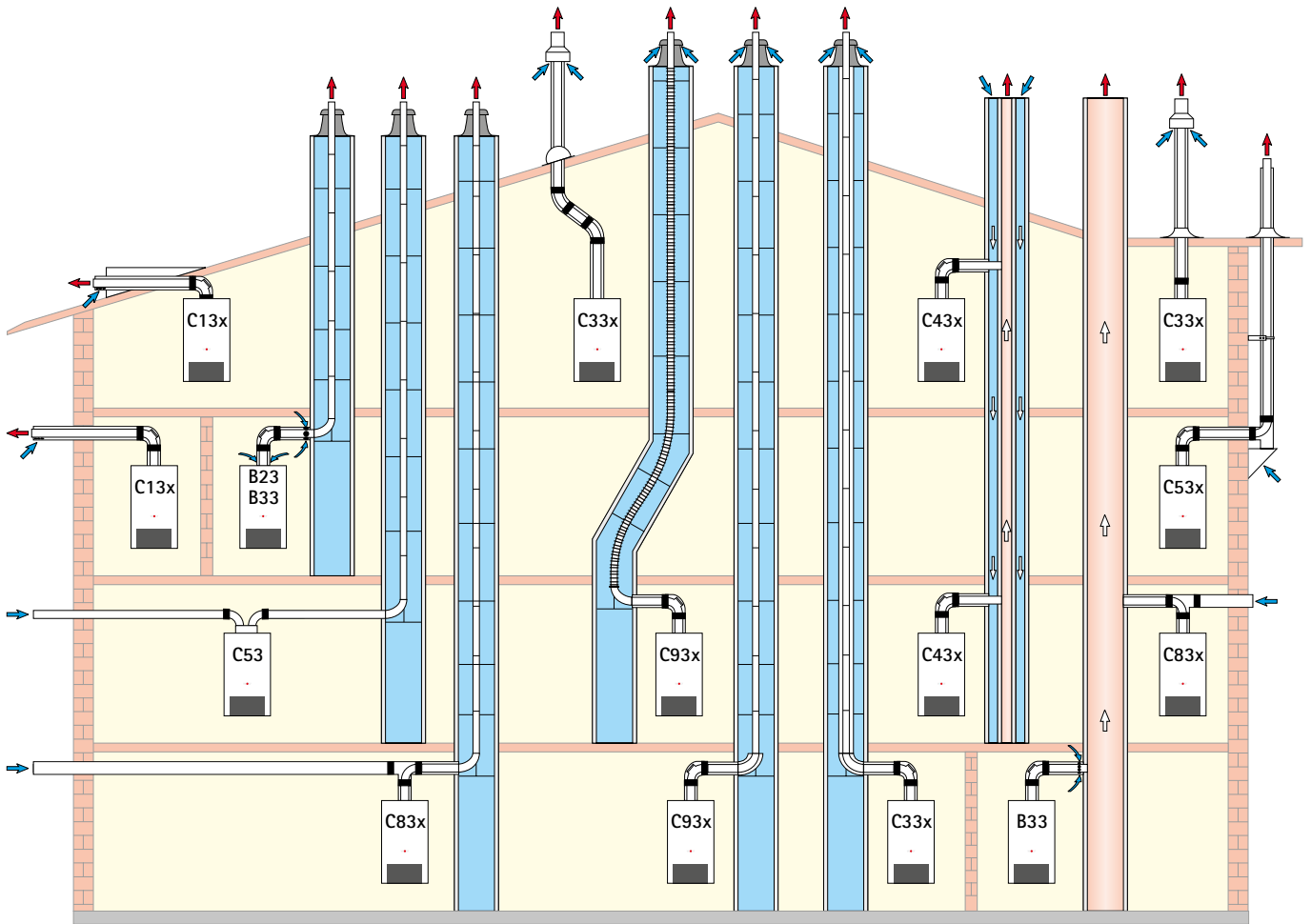
### Residual height of the three-stage pump



### Solution

Problem	Solution
Individual radiators are not getting properly warm. i.e. reduced	Create hydraulic balancing, flow rate of hotter radiators.
During spring and autumn, the required room temperature is not reached.	Increase set room temperature at controller, e.g. from 20 to 25 °C.
Selected room temp. is not reached when outside temperatures are very low.	Select a steeper heating curve at the controller, e.g. from 1.0 to 1.2.

### Balanced flue system



## Balanced flue system

Versions as condensing boilers up to 24 kW		Maximum length <sup>1) 2)</sup> [m]	
		DN60/100	DN80/125
B23	Flue inside a duct and combustion air directly through the boiler (open flue) + 2 m horizontal connecting line	-	30
B33	Flue DN 80 inside a duct + 2 m horizontal concentric connection line (open flue)	13	30
B33	Connection to a moisture-resistant flue gas chimney with horizontal concentric connection pipe (open flue)	Calculation to DIN EN 13384 (MRC manufacturer)	
C13x	Horizontal roof outlet through a pitched roof, <b>not for CGB-11 with DN 60/100</b> (balanced flue - on-site dormer)	9	10
C13x	External wall outlet (balanced flue) (for DE < 11 kW)	5	10
C33x	Vertical concentric roof outlet through a pitched or flat roof, vertical concentric balanced flue for installation in a duct (balanced flue)	9	22
C43x	Connection to a moisture-resistant balanced flue chimney (MRC) maximum pipe length from the centre of the boiler bend to the connector 2 m (balanced flue)	Calculation to DIN EN 13384 (MRC manufacturer)	
C53	Connection to the flue in a duct and ventilation air supply through the external wall	-	30
C53x	Connection to a flue on an external wall (balanced flue)	-	22
C83x	Connection to a flue in a duct and ventilation air supply through an external wall (balanced flue)	-	30
C83x	Concentric connection to a moisture-resistant flue gas chimney and combustion air through an outside wall (balanced flue)	Calculation to DIN EN 13384 (MRC manufacturer)	
C93x	Vertical flue for duct installation DN 80 <b>rigid/flexible</b> + 2 m horizontal concentric connecting line	13	22

<sup>1)</sup> Available fan draught: 90 Pa  
(The maximum length corresponds to the total length from the appliance to the flue terminal)

**Note: Systems C33x and C83x are also suitable for installation in garages.**

Where necessary, adapt the installation examples to the relevant Building Regulations and requirements of your country/region. Discuss any questions relating to the installation, particularly of inspection pieces and ventilation apertures (ventilation generally required above 50 kW output) prior to installation with your local heating engineer/flue gas inspector.

**The length dimensions refer to concentric balanced flue and flues, specifically only to original Wolf components.**

**Balanced flue systems DN60/100 and DN80/125 are certified as systems together with Wolf gas condensing boilers.**

The following balanced flue or flues with CE-0036-CPD-9169003 certification may be used:

- Flue DN80
- Concentric balanced flue DN60/100 and DN80/125
- Flue DN110
- Concentric balanced flue (on an external wall) DN80/125
- Flue, flexible DN83

The necessary type plates are supplied with the respective WOLF accessory.

Observe all additional installation instructions included with accessories.

**General notes**

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

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



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



If the balanced flue crosses different floors, route the pipes outside the 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 fired 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 fired 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 exhaust running between the top edge of the ceiling and the roof skin must be run inside a liner that provides the same fire resistance and is constructed from non-combustible materials. There is a risk of transferring fires, if these requirements are ignored.



If fire resistance **is not** required for the ceiling, route the lines for the combustion air supply and the flue gas from the top edge of the ceiling to 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 fires spreading, if these requirements are ignored.

A clearance between the concentric balanced flue and combustible materials or components is not required, as no temperatures higher than 85 °C will occur at the rated output.

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



**Balanced flues without ducts must not be routed through other rooms, otherwise there would be a risk of fire spreading, and no mechanical protection would be provided.**

NB

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



Secure the balanced flue or flue outside ducts with spacer pipe brackets with a minimum clearance of 50 cm from the flue outlet or upstream/downstream of deviations to prevent the pipe joints being pulled apart. Flue gas may escape, if this rule is not observed. Furthermore, equipment damage may result.



**Flue gas temperature limiter**

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

The boiler restarts when the reset button is pressed.

The rated boiler output in heating mode must be reduced to below 11 kW, if the gas fired condensing boiler is installed with a balanced flue routed over an external wall (for appropriate measures, see chapter „matching the maximum output“ on page 24).

**Connection to the balanced flue**

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

Flue connections are created using couplings and gaskets. Always arrange couplings against the condensate flow direction. **Install the balanced flue with a slope of at least 3° towards the gas fired condensing boiler. Install spacer clamps to secure the location (see installation example).**

**Calculating the balanced flue length**

The calculated length of the balanced flue system or the flue is derived from the straight pipe length and the length of the pipe bends.

Example for a system comprising 60/100<sup>1)</sup>

Length of straight balanced flue 1.5 m

1 x 87° bend = 1.5 m

2 x 45° bends = 2 x 1.3 m

L = straight length + bend length

L = 1.5 m + 1 x 1.5 m + 2 x 1.3 m

L = 5.6 m

**Note:** To avoid the fresh air supply and flue gas exhaustion influencing each other above the roof, we recommend you maintain a minimum clearance of 2.5 m between the inlet and outlet.

<sup>1)</sup> Length equivalence of the system:

	60/100	80/125
87°-bend	1,5 m	3 m
45°-bend	1,3 m	1,5 m

**Connection to a moisture-resistant balanced flue chimney (MRC), flue gas chimney or flue gas system, type C 43x**

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

Straight balanced flues may be up to **2 m long, when connecting the system to a balanced flue chimney.**

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

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

Straight balanced flues may be **up to 2 m long, when connecting the system to a flue gas chimney.** In addition to the boiler connection bend, up to **two** 90° diversions may be installed.

The flue gas chimney must be certified [in Germany] by the DIBT or must be CE-designated; it must also be approved for condensing operation.

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

The air vents to the boiler room must be free of obstructions.

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

The straight, horizontal flue must not be longer than 2 m. In addition to the boiler connection bend, up to two 90° diversions may be installed into the horizontal flue.

For this version, observe the ventilation requirements for boiler rooms acc. to DVGW-TRGI.

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

The straight, horizontal flue must not be longer than 2 m. For horizontal air supply pipes, a maximum length of 2 m is recommended. Observe special requirements for flues, that are not surrounded by combustion air, acc. to DVGW-TRGI 2008 and all locally applicable combustion orders.

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

Original Wolf components are designed for long-term use, are designated with the DVGW quality seal and are matched for use with Wolf gas fired condensing boilers. When using third party equipment that is only DIBT certified or CD-designated, the installer will be responsible for the correct sizing and perfect function of such systems. Faults, material losses and injuries resulting from incorrect pipe lengths, excessive pressure drop, premature wear with escaping flue gas and condensate or incorrect function, e.g. through components working themselves loose, are excluded from our warranty, if non-approved third party equipment is used.

Straight balanced flues may be a maximum of **2 m long, when connecting the system to a combustion air supply and a separate flue.**

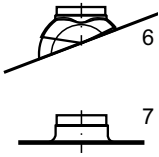
In addition to the boiler connection bend, up to **two** 90° diversions may be installed.

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

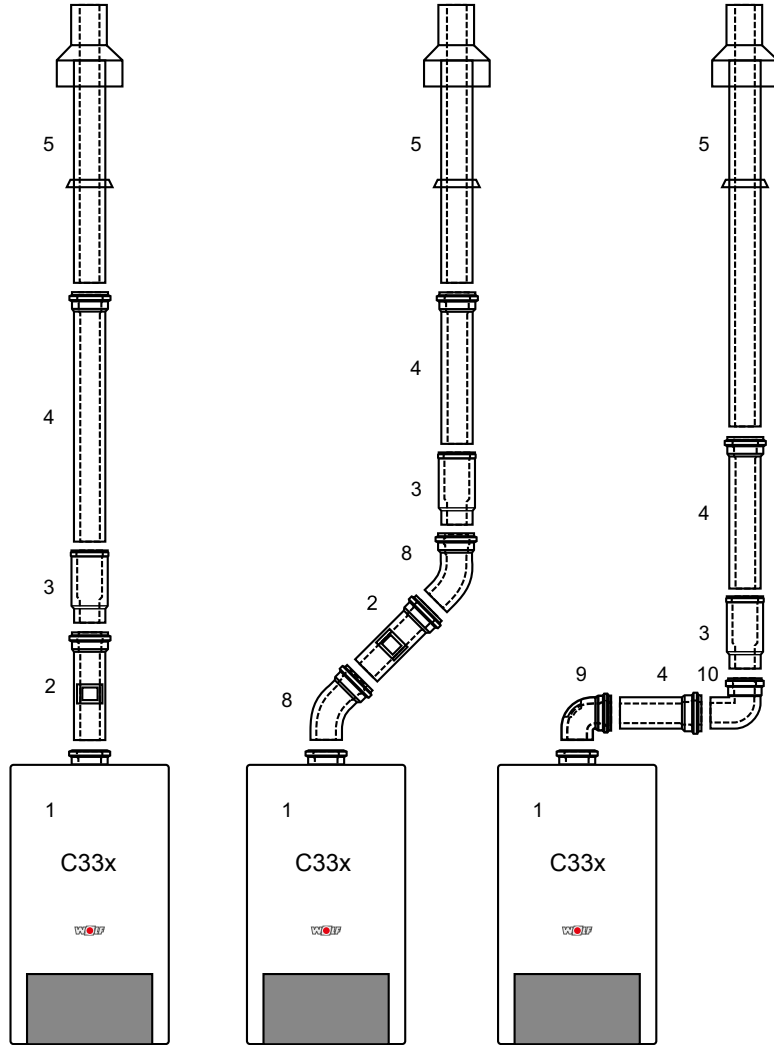
**Multiple connection to a common chimney**

These boilers are suitable for multiple connection to a common chimney in accordance with the DVGW Code of Practice G 635. An internal flue gas return facility is used to prevent a return flow of flue gas. The plumb clearance between two gas fired boilers must be at least 2.5 m. The installed flue gas system must be certified for multiple connection to a common chimney. A verification is required for the correct sizing in accordance with fire protection regulations.

### Vertical balanced flue routing (examples) system DN60/100

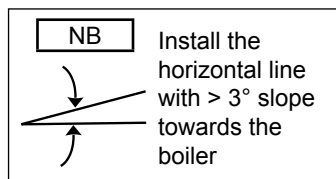
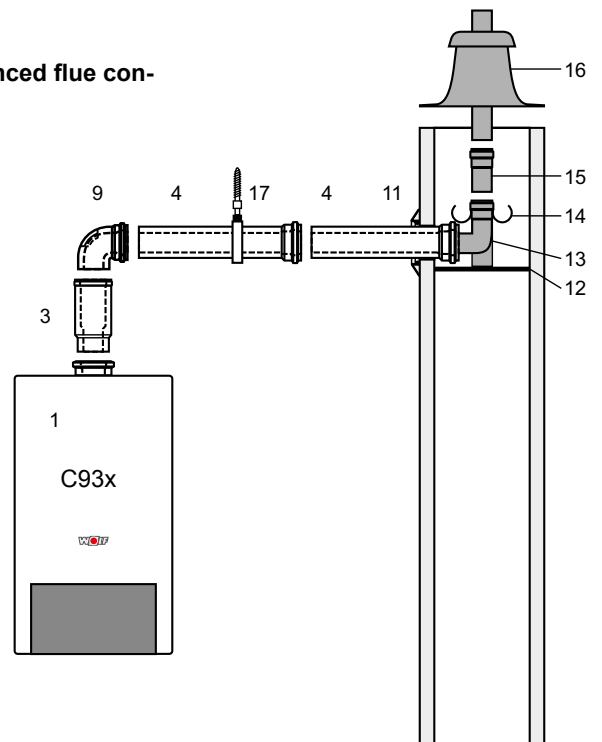


- 1 Gas fired condensing boiler
- 2 Balanced flue incl. inspection aperture (250 mm long)
- 3 Separator DN60/100 (slide coupling) if required
- 4 Balanced flue DN60/100  
500 mm  
1000 mm  
2000 mm
- 5 Balanced flue, vertical DN60/100 (roof outlet for flat or pitched roofs)  
L = 1200 mm  
L = 1200 mm ... 1700 mm



- 6 Universal tile for pitched roof 25/450
- 7 Flat roof collar
- 8 Bend 45° DN60/100
- 9 Inspection elbow DN60/100
- 10 Bend 87° DN60/100
- 11 Rose
- 12 Support rail
- 13 Support bend 87° DN60 to DN80
- 14 Spacers
- 15 Flue DN80  
500 mm  
1000 mm  
2000 mm

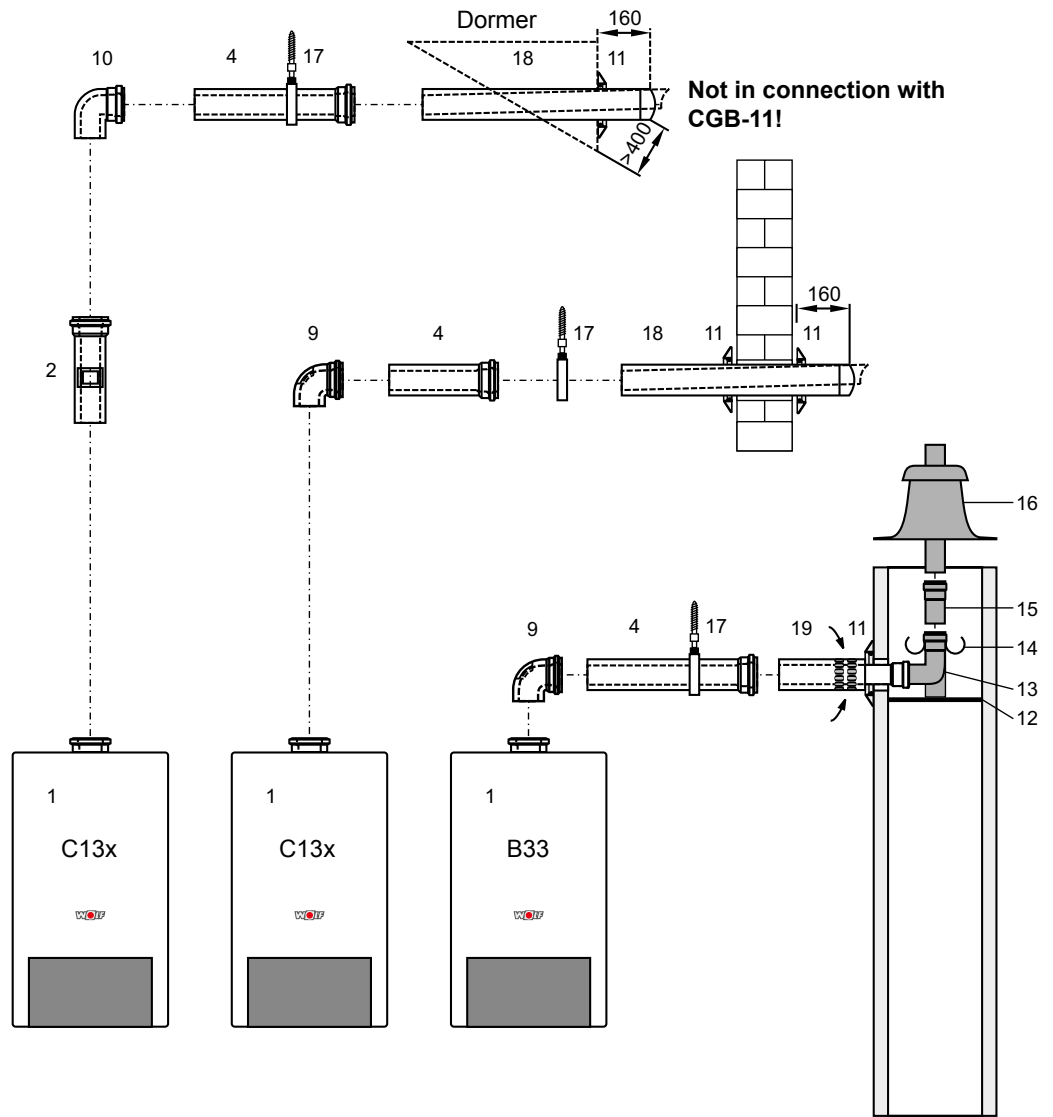
### Sample installation for balanced flue connection options (vertical)



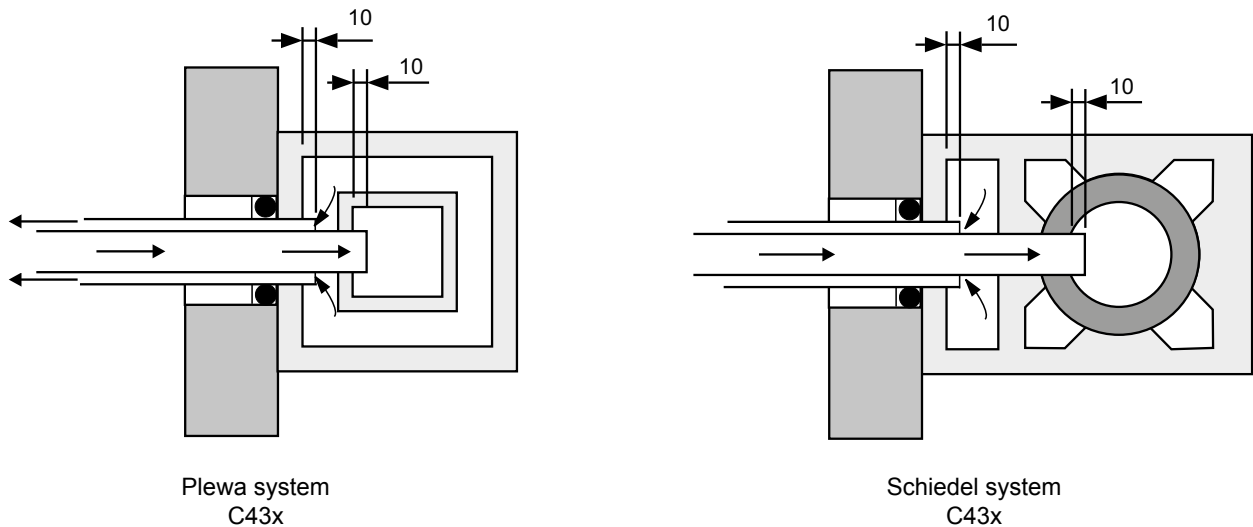
Flue gas < 120 °C

### Horizontal balanced flue / connection to balanced flue chimney (examples) system DN60/100

- 1 Gas fired condensing boiler
- 2 Separator DN60/100 (slide coupling) if required
- 4 Balanced flu DN60/100  
500 mm  
1000 mm  
2000 mm
- 9 Inspection elbow
- 10 Bend 87° DN60/100
- 11 Rose
- 12 Support rail
- 13 Support bend 87° DN60 auf DN80
- 14 Spacers
- 15 Flue DN80  
500 mm  
1000 mm  
2000 mm
- 16 Duct cover with UV-stabilised terminal
- 17 Spacer clip
- 18 Balanced flue horizontal, incl cowl
- 19 Connection to a flue gas chimney B33 length 250 mm with air apertures



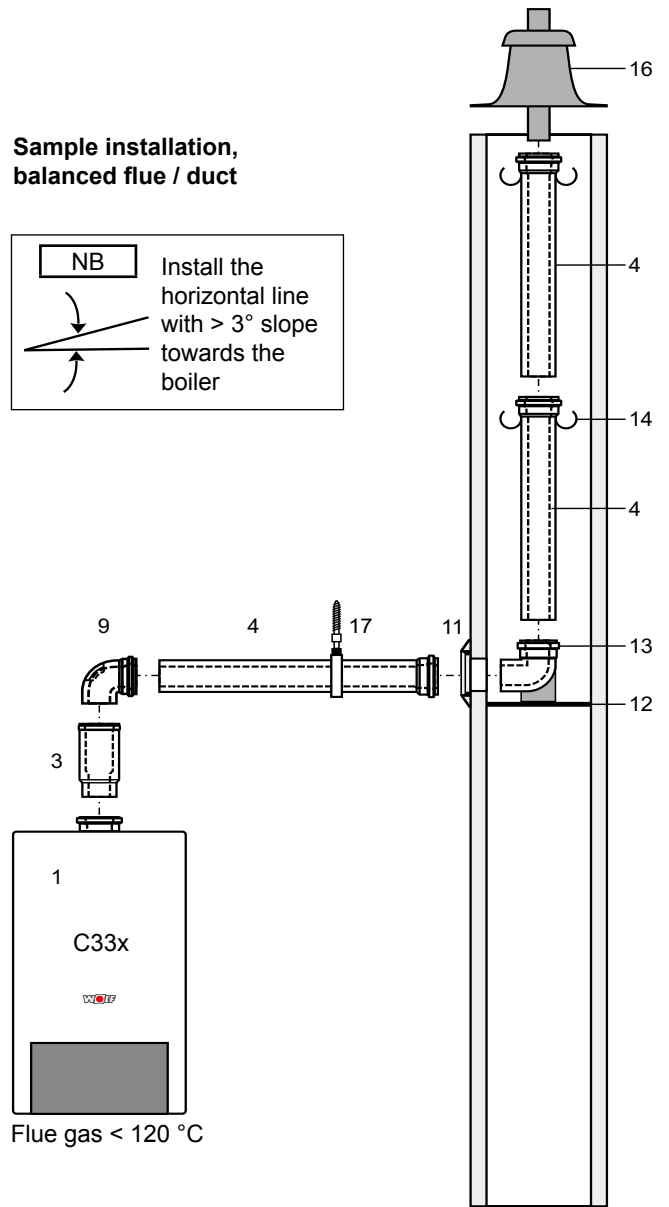
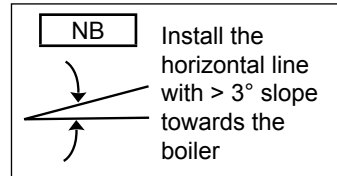
### Connection to a moisture-resistant flue gas system and balanced flue chimney



### Balanced flue inside a duct with horizontal connection line DN60/100

- 1 Gas fired condensing boiler**
- 3 Separator DN60/100**  
(slide coupling)  
if required
- 4 Balanced flu DN60/100**  
500 mm  
1000 mm  
2000 mm
- 9 Inspection elbow**
- 11 Rose**
- 12 Support rail**
- 13 Support bend 87° DN60/100**
- 14 Spacers**
- 16 Duct cover with**  
UV-stabilised terminal
- 17 Spacer clip**

#### Sample installation, balanced flue / duct



### Connection to a flue gas chimney (examples) DN60/100

#### Connection to a moisture-resistant flue gas chimney B33

Install flue gas chimney connections with air apertures directly on the flue gas chimney in accordance with the diagram shown, so that all components of the flue gas path are surrounded by combustion air.

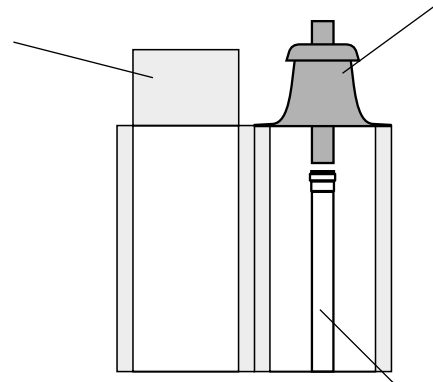
The air vents to the boiler room must be free from obstruction.

The flue gas chimney must be tested for suitability. Apply 0 Pa when calculating the chimney draught. Obtain the flue outlet from the chimney manufacturer, if required, to safeguard the connection conditions.

#### Connection to a moisture-resistant flue with two or multiple draught chimneys (duct)

Extend chimneys for solid fuel or liquid fuels at least to the height of the plastic pipe

All metal cowl from the Wolf product range



System made from polypropylene up to 120 °C, EC designated

Inform your local heating engineer prior to installation.

### Supplementary installation instructions for balanced flue DN60/100

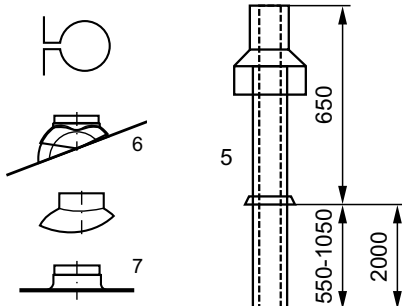
Flat roof: Affix the ceiling outlet approx. Ø 130 mm (7) to the roof cover.

Pitched roof: At (6), observe the installation instructions on the cowl, regarding roof pitches.

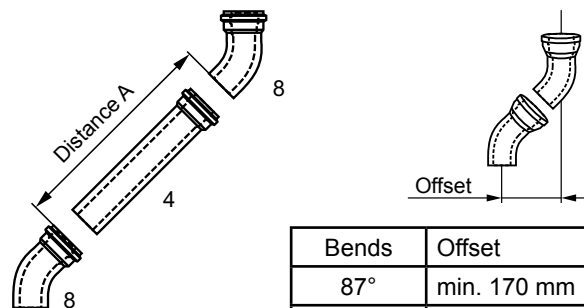
Insert the roof outlet (5) from above through the roof and secure vertically with the fixing bracket to a rafter or brickwork.

**Install the roof outlet only in its original condition. Modifications are not permissible.**

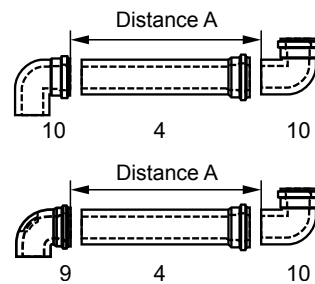
Fixing bracket



If an inspection aperture is required for the balanced flue, insert a balanced flue with inspection aperture (2) (200 mm length).



Bends	Offset
87°	min. 170 mm
45°	min. 73 mm



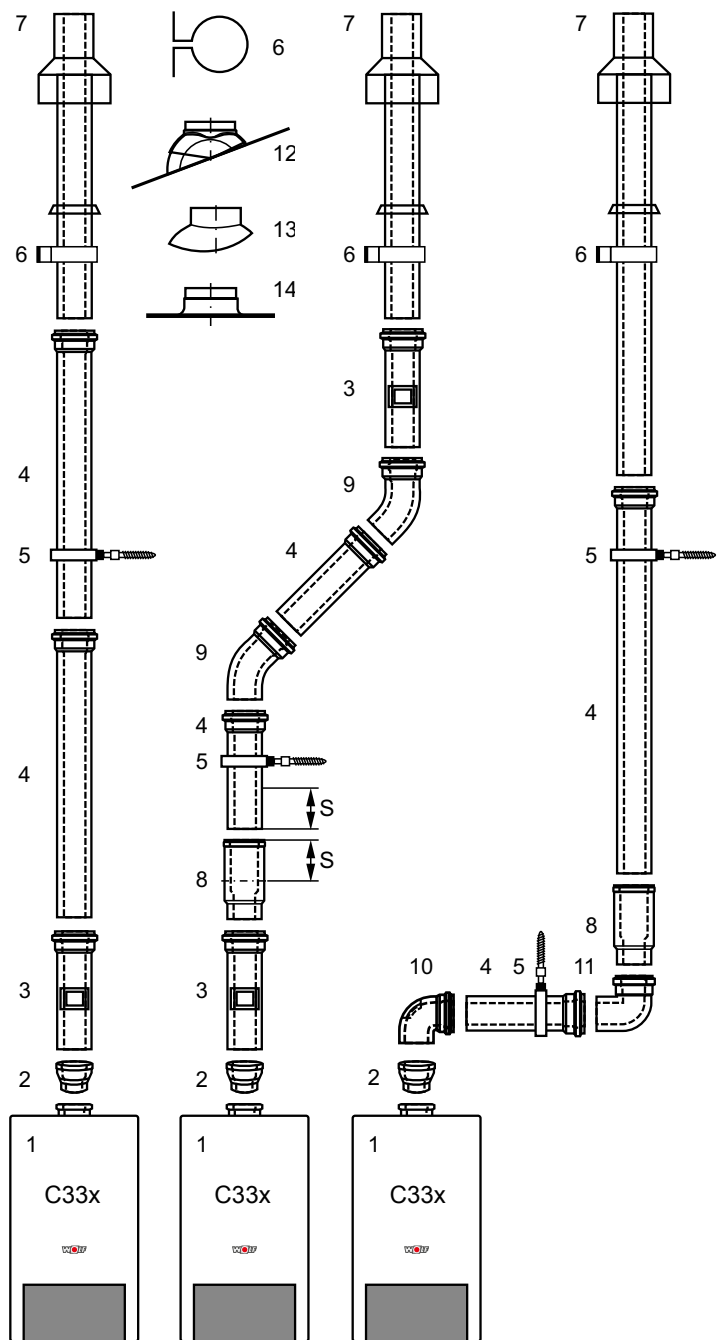
Determine distance A. Balanced flue length (4) always 100 mm longer than distance A.

Always trim the flue on the smooth side, **never** on the coupling side.

**Chamfer the flue after trimming.**

### Vertical concentric balanced flue C33x (examples) system DN80/125

- 1 Gas fired condensing boiler
- 2 Adaptor from DN60/100 to DN80/125
- 3 Balanced flue incl. inspection aperture DN 80/125 (250 mm long)
- 4 Balanced flue DN80/125  
500 mm  
1000 mm  
2000 mm
- 5 Spacer clip
- 6 Fixing bracket DN125 for roof outlet
- 7 Balanced flue, vertical DN80/125 (roof outlet for flat or pitched roofs)  
L = 1200 mm  
L = 1800 mm
- 8 Separator (slide coupling), if required
- 9 Bend 45° DN 80/125
- 10 Inspection elbow 87° DN80/125
- 11 Bend 87° DN80/125
- 12 Universal tile for pitched roof 25/450
- 13 Klöber adaptor 20-50°
- 14 Flat roof collar



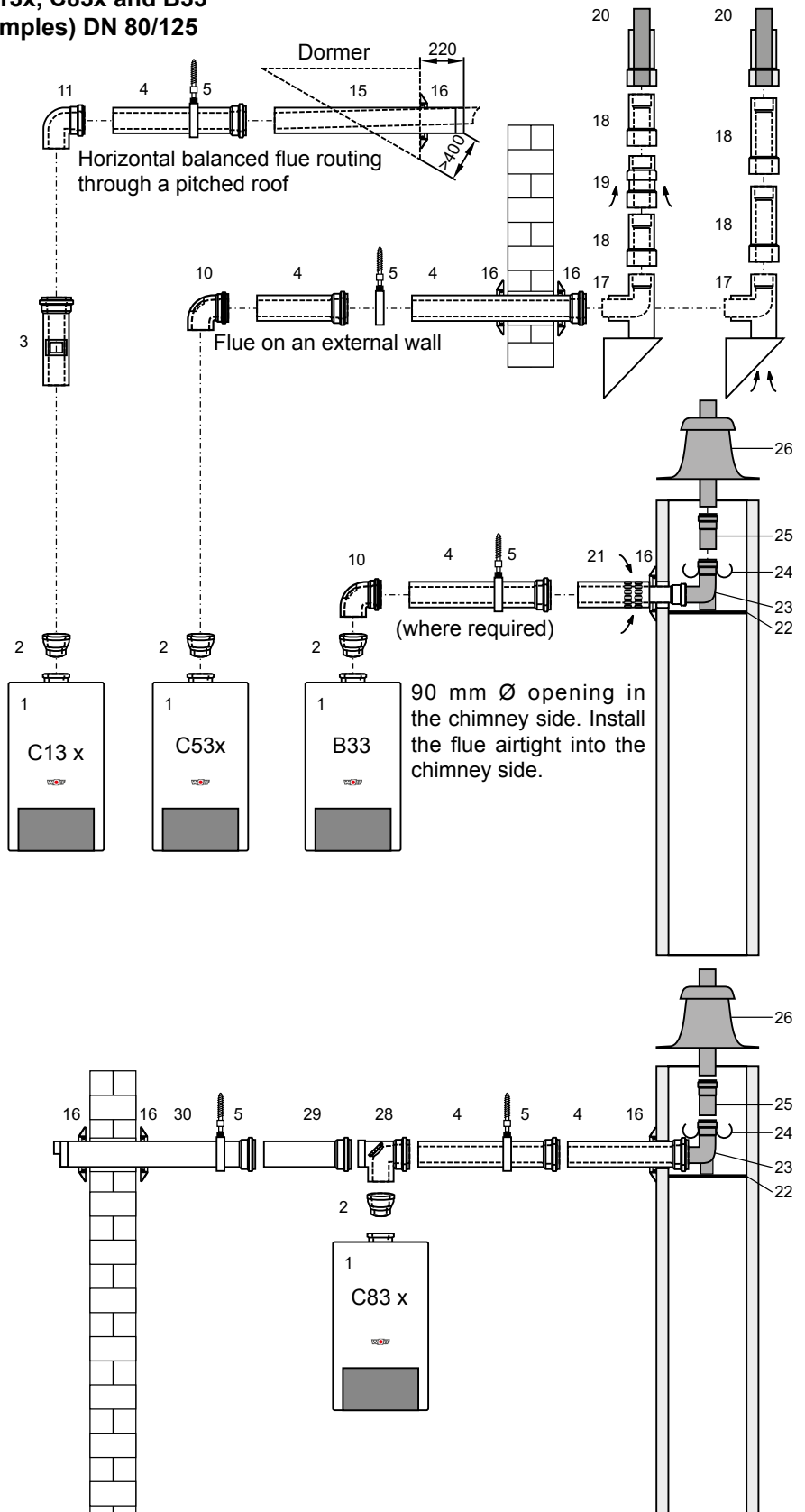
**Art C33x:** Gas fired condensing boiler with combustion air and flue gas routed vertically via the roof.

**Please note:** During installation, slide the separator (8) fully into the coupling. Push the next balanced flue (4) 50 mm (dim. „S“) into the coupling of the separator, and secure in this location, e.g. with pipe clips DN125 (5) or a fixing screw on the air inlet side. Lubricate the pipe ends and gaskets for easier installation (use only grease without silicone). Determine the required inspection piece (3) (10) with your heating engineer prior to the installation. Adaptor (2) is always required.

NB

### Horizontal concentric balanced flue C13x, C83x and B33 and flue on an external wall C53x (examples) DN 80/125

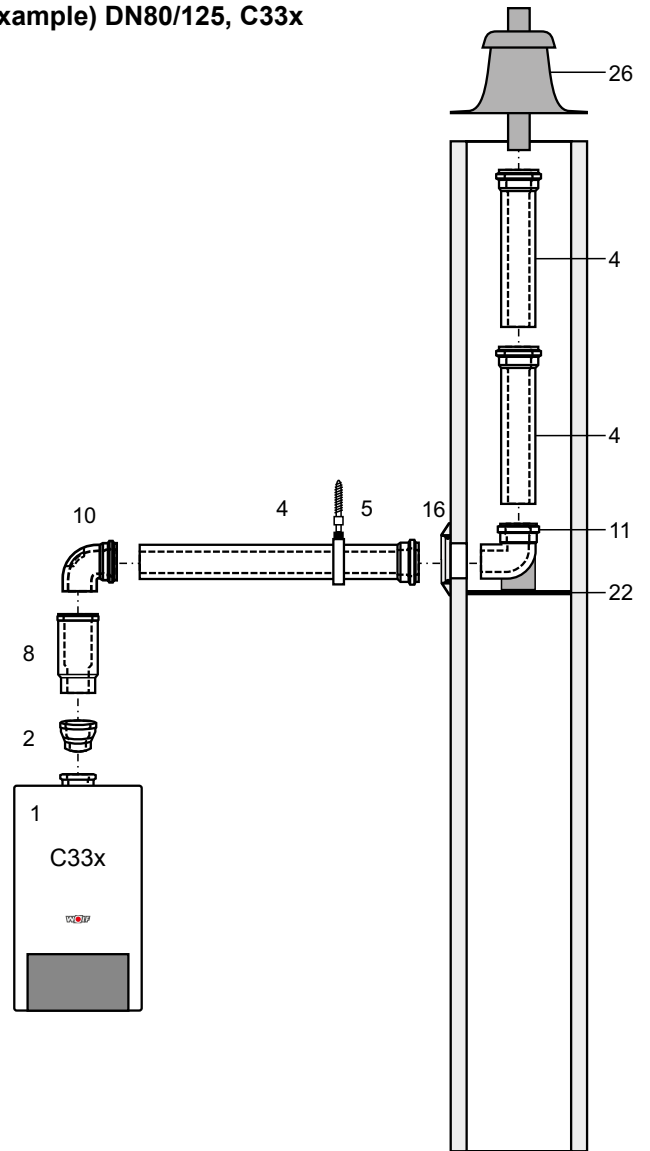
- 1 Gas fired condensing boiler
- 2 Adaptor from DN60/100 to DN80/125
- 3 Balanced flue incl. inspection aperture DN80/125 (250 mm long)
- 4 Balanced flue DN80/125  
500 mm  
1000 mm  
2000 mm
- 5 Spacer clip
- 10 Inspection elbow 87° DN80/125
- 11 Bend 87° DN80/125
- 15 Balanced flue horizontal, incl cowl
- 16 Rose
- 17 External wall panel 87° DN80/125 with smooth air pipe end
- 18 Balanced flue pipe, external wall DN80/125
- 19 LAir inlet piece, external wall DN80/125
- 20 conc. terminal end with clamping strap
- 21 Connection to a flue gas chimney B33 Length 250 mm with air apertures
- 22 Support rail
- 23 Support bend 87° DN80
- 24 Spacers
- 25 PP flue DN80
- 26 Duct cover with UV-stabilised terminal
- 28 Inspection tee
- 29 Air pipe Ø 125 mm
- 30 Air inlet pipe Ø 125 mm



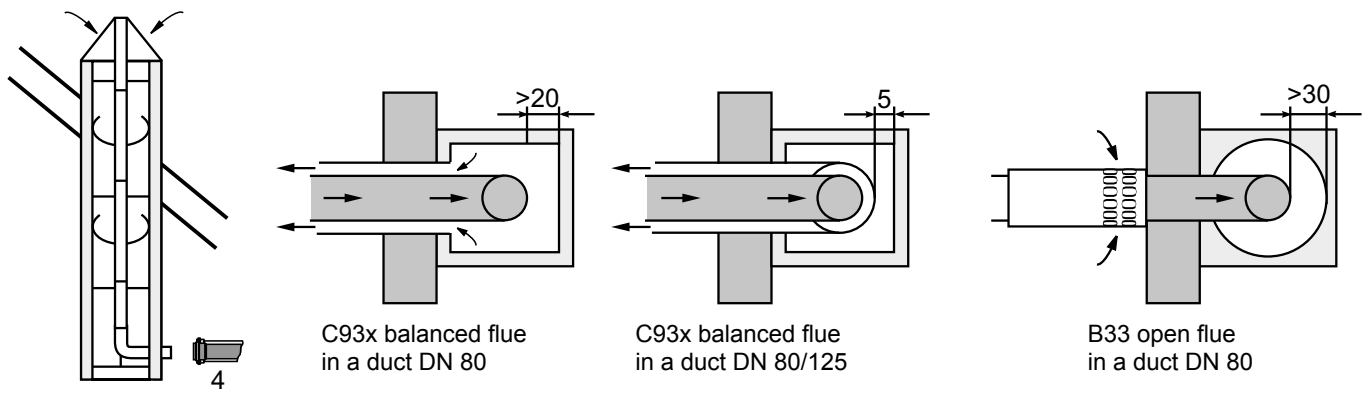


Connection to a concentric balanced flue inside a duct (example) DN80/125, C33x  
 Connection to the flue inside a duct, C93x

- 1 Gas fired condensing boiler
- 2 Adaptor from DN60/100 to DN80/125
- 4 Balanced flue DN80/125  
 500 mm  
 1000 mm  
 2000 mm
- 5 Spacer clip
- 8 Separator (slide coupling), if required
- 10 Inspection elbow 87° DN80/125
- 11 Support bend 87° DN80/125
- 16 Rose
- 22 Support rail
- 26 Duct cover with UV-stabilised terminal



Inform your local heating engineer prior to installation.



C93 x balanced flue system  
 DN 80/185 horizontal  
 and DN 80 vertical

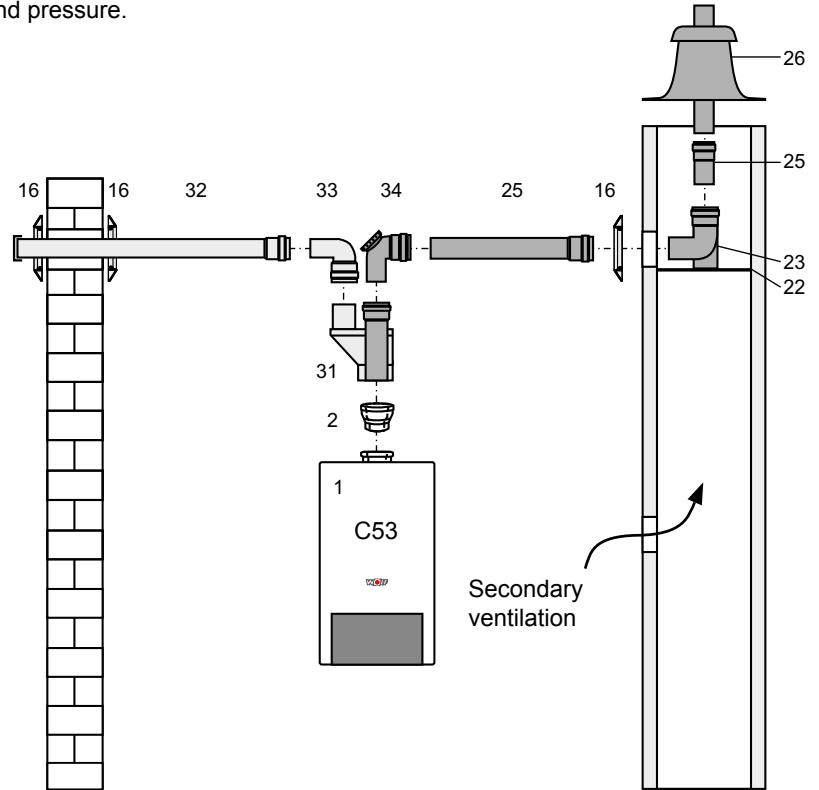
### Eccentric balanced flue

Install the balanced flue distributor 80/80 mm eccentric (31) for separate air supply/ flue gas routing acc. to (2) downstream of the connection adaptor DN 80/125 with a test connector.

When connecting a balanced flue certified acc. to Building Regulations, observe the permit of the relevant body.

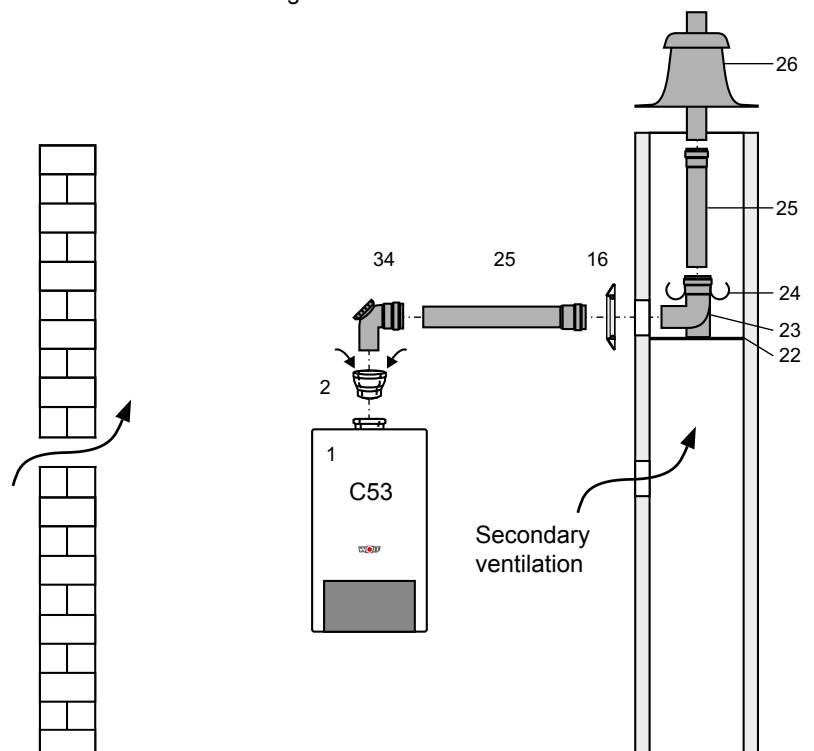
Install the horizontal flue with approx. 3° slope (5 cm/m) towards the boiler. Route the horizontal air supply with a 3° slope towards the outside – install the air inlet with a cowl; permissible wind pressure at the air inlet 90 Pa. The burner will not operate with higher wind pressure.

- 1 Gas fired condensing boiler
- 2 Adaptor from DN 60/100 to DN 80/125
- 16 Rose
- 22 Support rail
- 23 Support bend 87° DN 80
- 24 Spacers
- 25 PP Flue DN80  
500 mm  
1000 mm  
2000 mm
- 26 Duct cover with UV-stabilised terminal
- 31 Balanced flue distributor 80/80 mm
- 32 Air inlet pipe Ø 125 mm
- 33 Bend 90° DN80
- 34 Tee 87° with inspection aperture DN80



Maintain the following clearance between the internal duct wall and the flue:

- for circular ducts: 3 cm
- for rectangular ducts: 2 cm



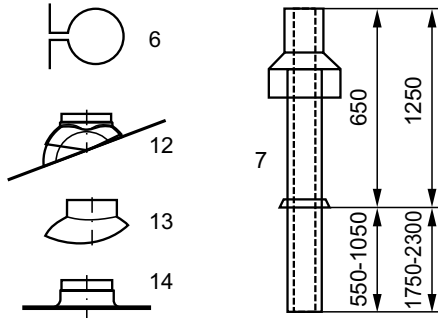
### Supplementary installation instructions for balanced flue DN 80/125

Flat roof: Affix the ceiling outlet approx. Ø 130 mm (14) to the roof cover.

Pitched roof: At (12), observe the installation instructions on the cowl, regarding roof pitches.

Insert the roof outlet (7) from above through the roof and secure vertically with (6) to a rafter or brickwork.

**Install the roof outlet only in its original condition. Modifications are not permissible.**



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

Generally install the adaptor from LAF DN60/100 to DN80/125 (2) **vertically and always on the flue outlet of the gas condensing boiler.**

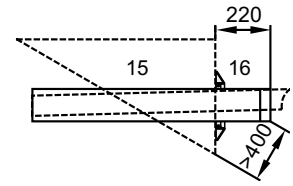


Transition from balanced flue DN 60/100 to DN 80/125

Inspection piece (3)

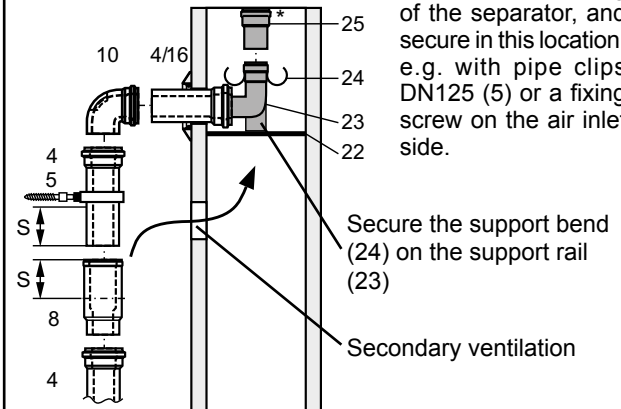
Install all horizontal balanced flues with  $> 3^\circ$  slope (5 cm//>m) towards the boiler. Any condensate must be returned to the boiler.

Install the centring triangles near the end of the pipe.



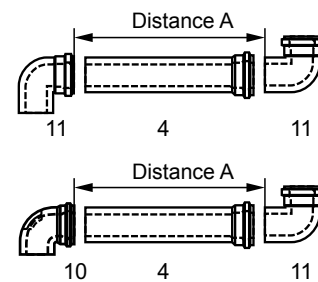
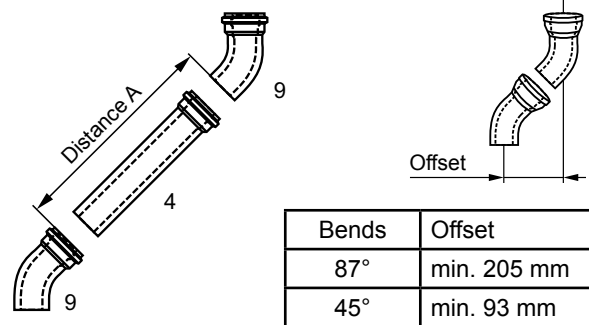
During installation, slide the separator (8) fully into the coupling. Push the next balanced flue (4) 50 mm (dim. „S“) into the coupling,

and secure in this location, e.g. with pipe clips DN125 (5) or a fixing screw on the air inlet side.



\* Observe the installation instructions for the flue gas system made from polypropylene (PP).

Generally install the adaptor from LAF DN60/100 to DN80/125 (2) **vertically and always on the flue outlet of the gas condensing boiler.**



Determine distance A. Flue length (4) always 100 m longer than distance A.

Always trim the flue on the smooth side, **never** on the coupling side. **Chamfer the flue after trimming.**

**Note:** For inspections of (3), undo the clamp. Undo and remove the cowl. Separate at the slide coupling for inspection or separation (8).

**NB** Wet or lubricate all air/flue gas joints prior to installation, e.g. with a grease without silicone.

### Underfloor heating system

When using pipes which are impermeable to oxygen, the underfloor heating system can be directly connected to a heating system with a rated output of up to 13 kW, subject to system pressure drop.

Generally install a thermostat for underfloor heating systems, to protect the pipes from overheating.

When connecting underfloor heating systems with a demand higher than approx. 13 kW, an additional three-way mixer plus an additional pump will be required.

Install a regulating valve in the return, which can reduce the excessive head of the additional pump, if required.

**NB** Regulating valves must not be able to be adjusted by the system user.

Provide system separation by means of a heat exchanger, when using pipes which are not impermeable to oxygen. Inhibitors are not permissible.

If an additional heating circuit is operated in parallel to the underfloor heating system, match that circuit hydraulically to that of the underfloor heating system.

**NB** When you operate a gas fired boiler together with an underfloor heating system, we recommend you size the available volume of the diaphragm expansion vessel 20 % greater than recommended by the relevant standard. A diaphragm expansion vessel which is too small will result in an ingress of oxygen into the heating system and therefore lead to corrosion damage.

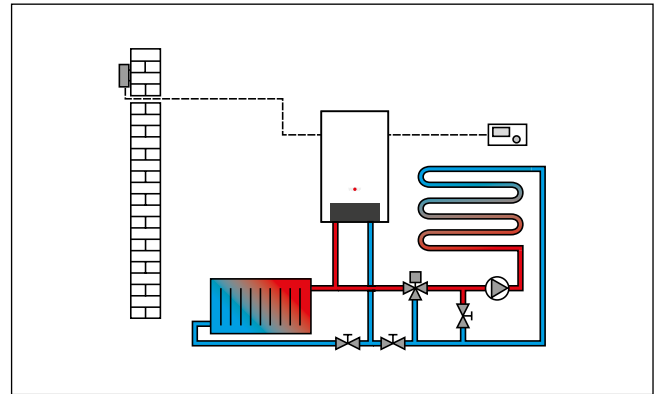


Fig.: Underfloor heating system

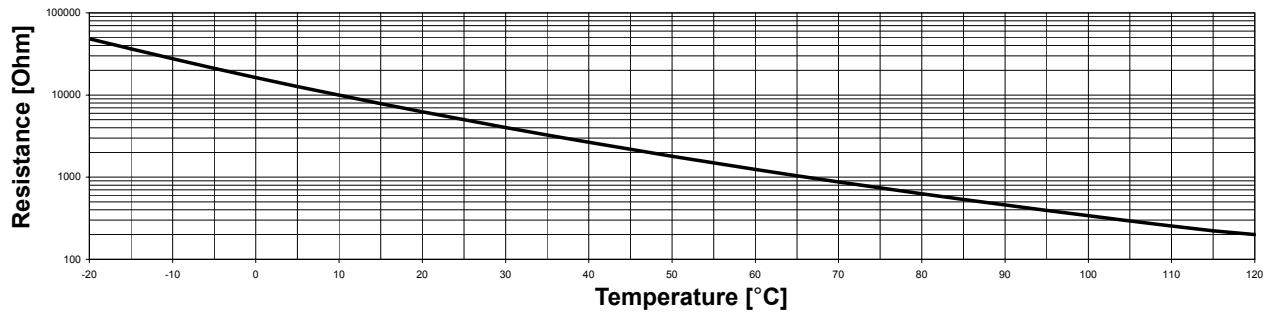
### Operation of the gas fired condensing centre with a DHW circulation line:

We recommend proper insulation of the pipework where the gas fired condensing centre is connected to a DHW circulation line. In addition, equip the DHW circulation line with a time switch. This is commonly started for DHW operation during times of demand. We recommend the following procedure for the optimum, energy-efficient adjustment of the time switch:

Never set the time switch permanently ON during times of demand, but ON and OFF in 15 minute intervals. The slight cooling down of the heated water inside the DHW circulation line will not result in any loss of convenience.

Your DHW circulation pump will then be adjusted so that energy consumption is minimised yet DHW convenience is maximised. This enables the DHW circulation pump ON-time to be reduced by 50 %.

## Sensor resistances



## Temperature/pressure drop

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

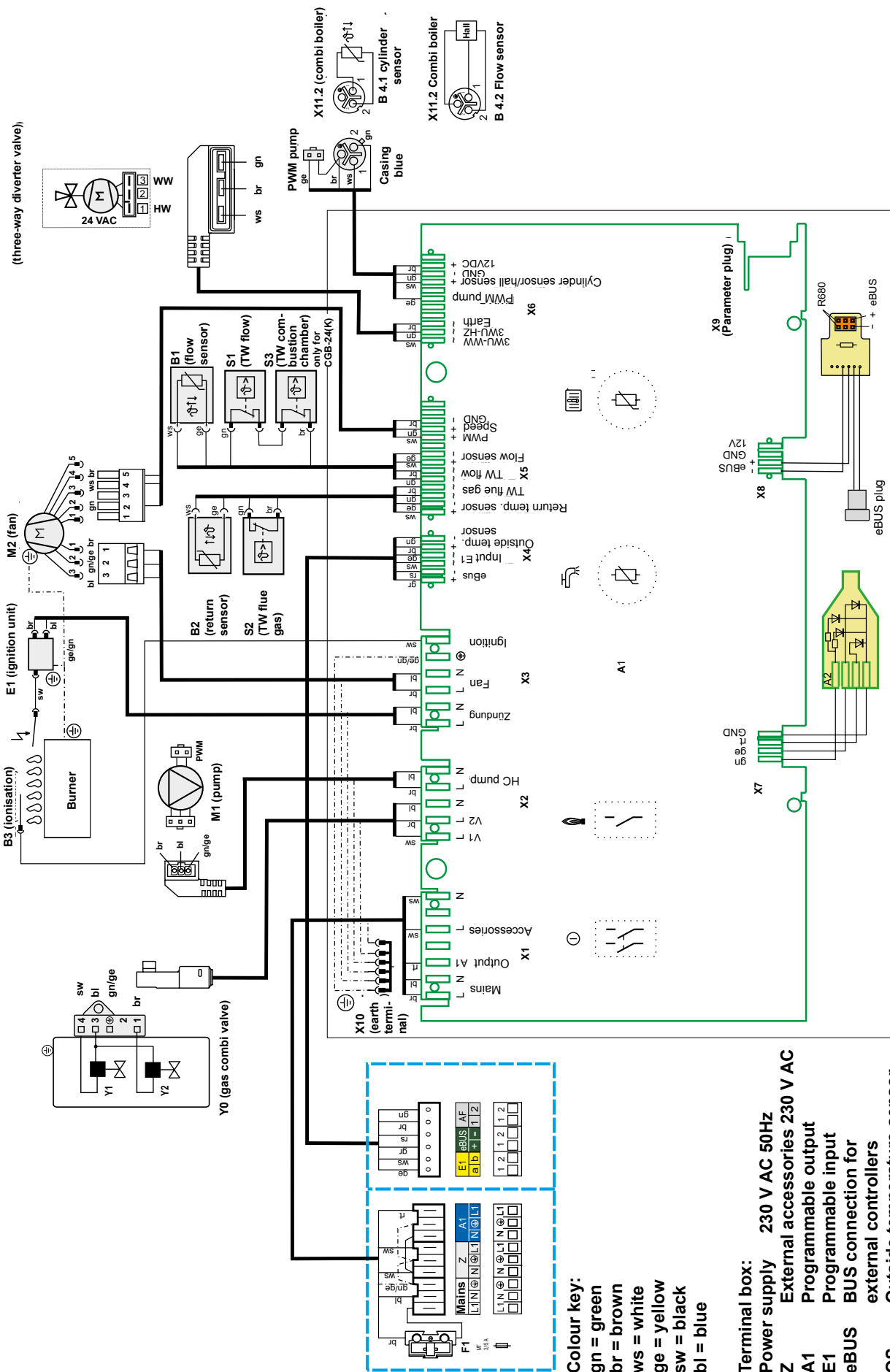
## Category

<b>Boiler</b>	CGB-11	CGB-(K)-20	CGB-(K)-24
<b>Category</b>	I <sub>2H</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>

## Types of connection

Boiler	Type <sup>1)</sup>	Operating mode		To be connected to..				
		Open flue	Balanced flue	moisture-resistant chimney	balanced flue chimney	balanced flue routing	acc. to Build Regs cert. LAF	moisture-resistant flue
CGB-(K)	B23, B33, C13x, C33x, C43x, C53, C53x, C83x, C93x	X	X	B33, C53, C83x	C43x	C13x <sup>2)</sup> , C33x, C53x	C63x	B23, C53x, C83x, C93x

<sup>1)</sup> Marking „x“ indicates that all flue pipe components are surrounded by combustion air.



Type		CGB-11	CGB-20	CGB-K-20	CGB-24	CGB-K-24
Nominal output at 80/60 °C	kW	10,0/14,6 <sup>1)</sup>	19,0/22,9 <sup>1)</sup>	19,0/22,9 <sup>1)</sup>	23,1/27,6 <sup>1)</sup>	23,1/27,6 <sup>1)</sup>
Nominal output at 50/30 °C	kW	10,9	20,5	20,5/-	24,8/-	24,8/-
Rated thermal load	kW	10,3/15,0 <sup>1)</sup>	19,5/23,5 <sup>1)</sup>	19,5/23,5 <sup>1)</sup>	23,8/28,5 <sup>1)</sup>	23,8/28 <sup>1)</sup>
Lowest output (modulating) at 80/60	kW	3,2	5,6	5,6	7,1	7,1
Lowest output (modulating) at 50/30	kW	3,6	6,1	6,1	7,8	7,8
Lowest thermal load (modulating)	kW	3,3	5,7	5,7	7,3	7,3
SEDBUK						
Naturalgas	band	B	B	B	B	B
LPG	band	-	B	B	B	B
SAP 2009 annual efficiency						
Naturalgas	%	88.9	88.9	88.8	88.8	88.7
LPG	%	-	89.9	89.8	89.7	89.7
Outside diameter heating flow	mm	20(G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )
Outside diameter heating return	mm	20(G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )	20 (G <sup>3/4</sup> )
DHW connection	G	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>
Cold water inlet	G	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>	<sup>3/4</sup>
Gas connection	R	<sup>1/2</sup>	<sup>1/2</sup>	<sup>1/2</sup>	<sup>1/2</sup>	<sup>1/2</sup>
Air/flue gas connection	mm	60/100	60/100	60/100	60/100	60/100
Gas connection value:						
Natural gas H (Hi = 9,5 kWh/m <sup>3</sup> =34,2MJ/m <sup>3</sup> )	m <sup>3</sup> /h	1,08/1,58 <sup>1)</sup>	2,05/2,47 <sup>1)</sup>	2,05/2,47 <sup>1)</sup>	2,50/3,00 <sup>1)</sup>	2,50/3,00 <sup>1)</sup>
LPG (Hi = 12,8 kWh/kg=46,1MJ/kg)	kg/h	-	1,52/1,84 <sup>1)</sup>	1,52/1,84 <sup>1)</sup>	1,83/2,23 <sup>1)</sup>	1,86/2,23 <sup>1)</sup>
Gas supply pressure:						
Natural gas	mbar	20	20	20	20	20
LPG	mbar	-	50	50	50	50
Flow temperature, factory setting	°C	75	75	75	75	75
Flow temperature, factory setting	°C	90	90	90	90	90
Max. system pressure	bar	3,0	3,0	3,0	3,0	3,0
Heating water heat exchanger water content	Ltr.	1,3	1,3	1,3	1,3	1,3
DHW throughput	l/min	-	-	2,0-6,5	-	2,0-8,0
Minimum flow pressure/Min. flow press. to EN625	bar	-	-	0,2/1,0	-	0,2/1,0
Spec. water flow rate „D“ at ΔT = 30 K	l/min	-	-	9,4	-	13,0
Max. design pressure	bar	-	-	10	-	10
DHW temperature range <sup>2)</sup>	°C	-	-	40 - 60	-	40-60
DHW heat exchanger corrosion protection		-	-	stainless steel	-	stainless steel
Expansion vessel:						
Total capacity	Ltr.	12	12	12	12	12
Inlet pressure	bar	0,75	0,75	0,75	0,75	0,75
Permissible sensor temperatures	°C	95	95	95	95	95
Flue gas mass flow rate Qmax	g/s	4,7/6,8 <sup>1)</sup>	8,9/10,7 <sup>1)</sup>	8,9/10,7 <sup>1)</sup>	10,8/13,0 <sup>1)</sup>	10,8/13,0 <sup>1)</sup>
Flue gas mass flow rate Qmin	g/s	1,45	2,62	2,62	2,7	2,7
Flue gas temperature 80/60 - 50/30 Qmax	°C	75-45	75-45	75-45	85-45	85-45
Flue gas temperature 80/60 - 50/30 Qmin	°C	45-26	36-27	36-27	43-41	43-41
Available gas fan draught Qmax	Pa	90	90	90	90	90
Available gas fan draught Qmin	Pa	12	12	12	12	12
Flue gas values to DVGW G 635	G <sub>52</sub>	G <sub>52</sub>	G <sub>52</sub>	G <sub>52</sub>	G <sub>52</sub>	G <sub>52</sub>
Fitted fuse (medium slow)	V~/Hz	230/50	230/50	230/50	230/50	230/50
Fitted fuse (medium slow)	A	3,15	3,15	3,15	3,15	3,15
Power consumption with modulating pump class A pump	W	90	90	90	90	105
Power consumption with 3-stage-pump	W	110	110	110	110	110
Protection		IPX4D	IPX4D	IPX4D	IPX4D	IPX4D
Total weight	kg	42	42	45	42	45
Condensate volume at 50/30°C	litres./h	approx. 1,2	approx. 2,0	approx. 2,0	approx. 2,4	approx. 2,4
Condensate ph value		approx. 4,0	approx. 4,0	approx. 4,0	approx. 4,0	approx. 4,0
CE designation		CE 0085BN0380				

<sup>1)</sup> Heating mode/DHW mode

<sup>2)</sup> Relative to a cold water temperature of 10 °C

All faults will be displayed as a fault code by Wolf controllers with eBUS capability. To these faults, cause and remedy may be allocated by means of 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	The flow temperature has exceeded the limit for TBV shutdown. Heat exchanger severely contaminated.	Check system pressure/heatingcircuit pump. Check the HC pump step switch. Vent the heating system. Press the reset button.
4	No flame is established	No flame established during the burner start.	Check the gas supply pipe and open the gas shut-off valve, if necessary. Check the ignition electrode and cable. Press the reset button.
5	Flame failure during operation	Flame failure within 15 s after flame recognition.	Check CO <sub>2</sub> values. Check ionisation electrode and cable. Press the reset button.
6	TW excess temperature	The flow/return temperature has exceeded the limit for TW shutdown.	Check system pressure. Vent the heating system. Set the pump to stage 2 or 3.
7	TBA excess temp.	The flue gas temperature has exceeded the limit for TBA shutdown.	Check for correct installation of combustion chamber pot.
11	Flame pretence	A flame is recognised before the burner starts.	Press the reset button.
12	Flow sensor faulty	Flow temperature sensor or lead faulty.	Check lead. Check the flow sensor.
14	Cylinder sensor faulty	DHW temperature sensor or lead faulty.	Check sensor and lead.
15	Outside temp.	Outside temperature sensor or lead faulty.	Check lead. Check the outside temperature sensor.
16	Return sensor faulty	Return temperature sensor or lead faulty.	Check lead. Replace the return sensor.
20	Gas valve „1“ fault	A flame is recognised 15 s after burner operation, even if gas valve 1 has received a shutdown command.	Replace the gas combination valve.
21	Gas valve „2“ fault	A flame is recognised 15 s after burner operation, even if gas valve 2 has received a shutdown command.	Replace the gas combination valve.
24	Gas fan fault	The gas fan does not reach the required pre-purging speed.	Check the gas fan supply cable and gas fan. Press the reset button.
25	Gas fan fault	The gas fan does not reach the ignition speed.	Check the gas fan supply cable and gas fan. Press the reset button.
26	Gas fan fault	The gas fan does not stop.	Check the gas fan supply cable and the gas fan. Press the reset button.
30	CRC fault gas fired	The EEPROM record „Gas fired condensing boiler“ is	Switch the power supply OFF and ON; if unsuccessful, replace the control PCB.
31	CRC fault burner	The EEPROM record „Boiler“ is invalid.	Switch the power supply OFF and ON; if unsuccessful, replace the control PCB.
32	Fault in the 24 VAC supply	24 V AC supply outside the permissible range (e.g. short circuit).	Check the three-way valve. Check the gas fan.
33	CRC default values fault	The EEPROM record „Master reset“ is invalid.	Replace the control PCB.
34	CRC fault, BCC	Faulty boiler coding card	Replace parameter plug
35	BBC missing	Boiler coding card was removed	Korrekten Parameterstecker wieder aufstecken
36	CRC fault, BCC	Faulty boiler coding card	Replace parameter plug
37	Incorrect BCC	The boiler coding card is incompatible with the control unit PCB	Refit the correct parameter plug
38	BCC no. invalid	Faulty boiler coding card	Replace parameter plug
39	BCC system error	Faulty boiler coding card	Replace parameter plug
41	Flow monitoring	Return temperature > flow + 25 K.	Vent the heating system, check the system pressure. Check the heating circuit pump.
50	Activation of boiler coding card	The parameter plug must still be enabled	Press reset 2x
52	Activation of boiler coding card	The parameter plug must still be enabled	Press reset 2x
60	Ionisation current fluctuates	The siphon or the flue gas system is blocked severe storm.	Clean siphon, check the flue gas system, Check ventilation air, check monitoring electrode.
61	Ionisation current drops	Poor gas quality, monitoring electrode faulty, severe storm.	Check monitoring electrode and lead.
	LED constantly red	Ionisation lead shorted out or Ionisation electrode earthed (housing).	Check the ionisation lead and position of electrode to burner. Press the reset button.



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



Product group: CGB

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH
Supplier's model identifier			CGB-11	CGB-20	CGB-24
Seasonal space heating energy efficiency class			A	A	A
Rated heat output	$P_{rated}$	kW	10	19	23
Seasonal space heating energy efficiency	$\eta_s$	%	92	92	92
Annual energy consumption for space heating	$Q_{HE}$	kWh	5652	10739	13043
Sound power level, indoors	$L_{WA}$	dB	50	49	52
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction

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



Product group: CGB-K

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH
Name			CGB-K-20	CGB-K-24
Load profile			XL	XL
Seasonal space heating energy efficiency class			A	A
Water heating energy efficiency class			A	A
Rated heat output	$P_{\text{rated}}$	kW	19	23
Annual energy consumption for space heating	$Q_{\text{HE}}$	kWh	10739	13043
Annual fuel consumption for water heating	AFC	GJ	18	18
Seasonal space heating energy efficiency	$\eta_s$	%	92	92
Seasonal water heating energy efficiency	$\eta_{\text{wh}}$	%	82	82
Sound power level, indoors	$L_{\text{WA}}$	dB	49	52
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction

Type			CGB-11	CGB-20	CGB-K-20	CGB-24	CGB-K-24
Condensing boiler	[yes/no]		yes	yes	yes	yes	yes
Low temperature boiler (**)	[yes/no]		no	no	no	no	no
B11 boiler	[yes/no]		no	no	no	no	no
Cogeneration space heater	[yes/no]		no	no	no	no	no
If yes, equipped with a supplementary heater	[yes/no]		-	-	-	-	-
Combination heater	[yes/no]		no	no	yes	no	yes
Item	Symbol	Unit					
Rated heat output	$P_{rated}$	kW	10	19	19	23	23
Useful heat output at rated heat output and high-temperature regime (*)	$P_4$	kW	10,0	19,0	19,0	23,1	23,1
Useful heat output at 30% of rated heat output and low-temperature regime (**)	$P_1$	kW	3,0	5,7	5,7	6,9	6,9
Auxiliary electricity consumption at full load	$e_{lmax}$	kW	0,015	0,022	0,022	0,028	0,028
Auxiliary electricity consumption at part load	$e_{lmin}$	kW	0,010	0,012	0,012	0,015	0,015
Auxiliary electricity consumption in standby mode	$P_{sb}$	kW	0,005	0,005	0,005	0,005	0,005
Seasonal space heating energy efficiency	$\eta_s$	%	92	92	92	92	92
Useful efficiency at rated heat output and high-temperature regime (*)	$\eta_4$	%	87,9	88,0	88,0	87,8	87,8
Useful efficiency at 30% of rated heat output and low-temperature regime (**)	$\eta_1$	%	97,3	96,7	96,7	96,7	96,7
Standby heat loss	$P_{stby}$	kW	0,049	0,049	0,049	0,048	0,048
Ignition burner power consumption	$P_{ing}$	kW	0,000	0,000	0,000	0,000	0,000
Emissions of nitrogen oxides	$NO_x$	mg/kWh	12	19	19	19	19
Declared load profile	(M, L, XL, XXL)	-	-	-	XL	-	XL
Daily electricity consumption	$Q_{elec}$	kWh	-	-	0,162	-	0,171
Water heating energy efficiency	$\eta_{wh}$	%	-	-	82	-	82
Daily fuel consumption	$Q_{fuel}$	kWh	-	-	23,956	-	23,844
Contact details	Wolf GmbH, Industriestraße 1, D-84048 Mainburg						

(\*) High-temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.

(\*\*) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet).

# Declaration of conformity

(acc. to ISO/IEC 17050-1)

No. 3061344  
Issued by: **Wolf GmbH**  
Address: Industriestraße 1, D-84048 Mainburg  
Product: Gas fired condensing boilers  
CGB-11, CGB-20, CGB-K-20, CGB-24, CGB-K-24

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

§ 6, 1.BImSchV, 26.01.2010  
DIN EN 297, 10/2005  
DIN EN 437, 09/2009  
DIN EN 483, 06/2000  
DIN EN 677, 08/1998  
DIN EN 625, 10/1995  
DIN EN 60335-1, 02/2007  
DIN EN 60335-2-102 / 04/2007  
DIN EN 55014-1, 06/2007

In accordance with the following Directives:

90/396/EEC (Gas Appliances Directive)  
2004/108/EC (EMC Directive)  
2006/95/EC (Low Voltage Directive)  
2009/125/EG (ErP Directive)  
2011/65/EU (RoHS Directive)

This product is identified as follows:



Mainburg, 15.07.2015

  
Gerdewan Jacobs  
Executive Board Engineering

  
i. V. Klaus Grabmaier  
Product approval