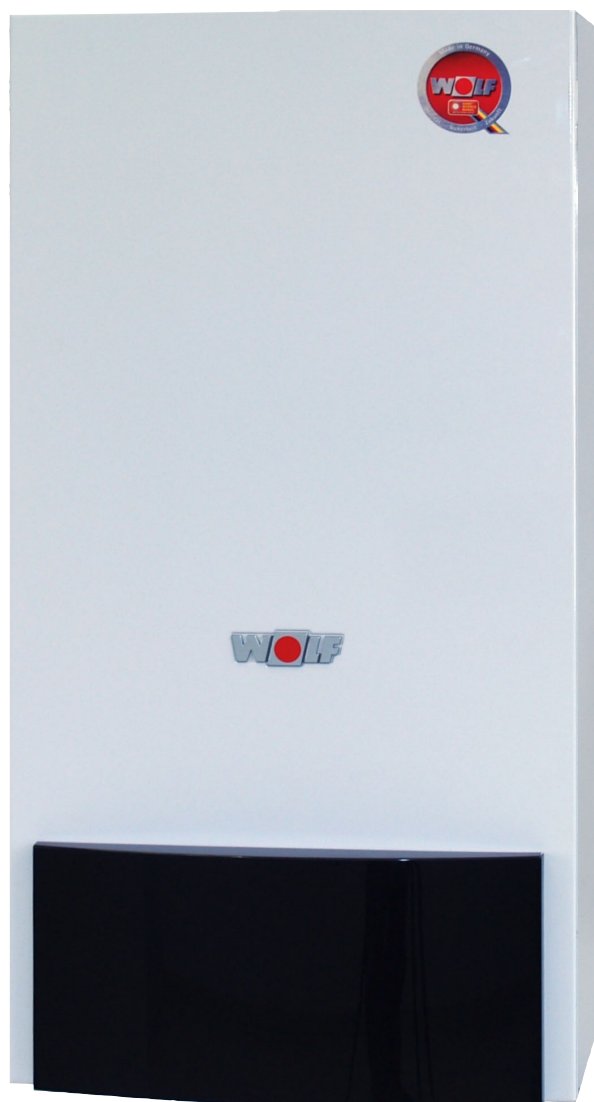




Technik, die dem Menschen dient.

Installation and operating instructions

Gas fired wall mounted boiler CGG-1K-24/28



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



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



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

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

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

NB

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

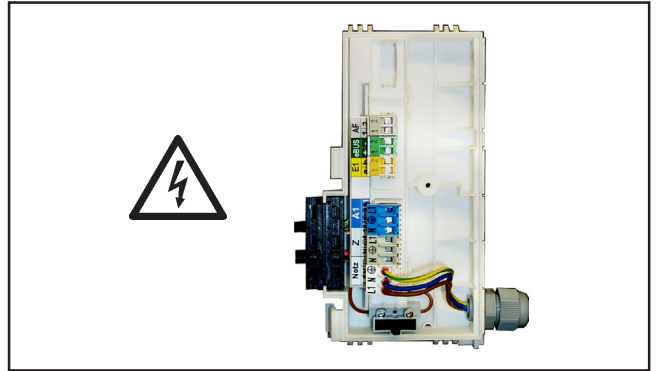


Fig.: Terminal box: Danger from electric current

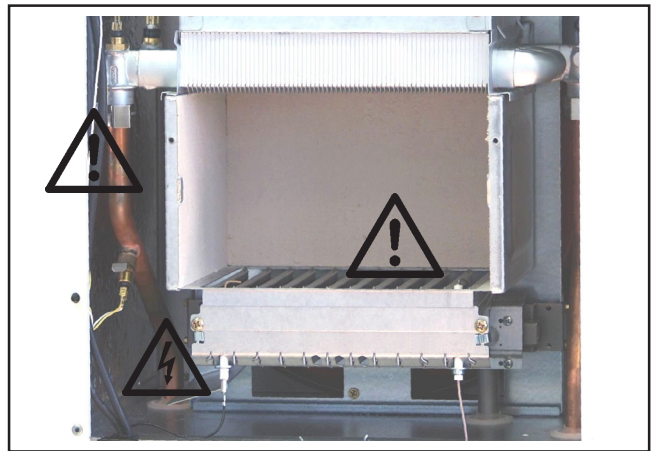


Fig.: Ignition transformer, high voltage ignition electrode, combustion chamber
Risk of electrocution, risk of burning through hot components



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

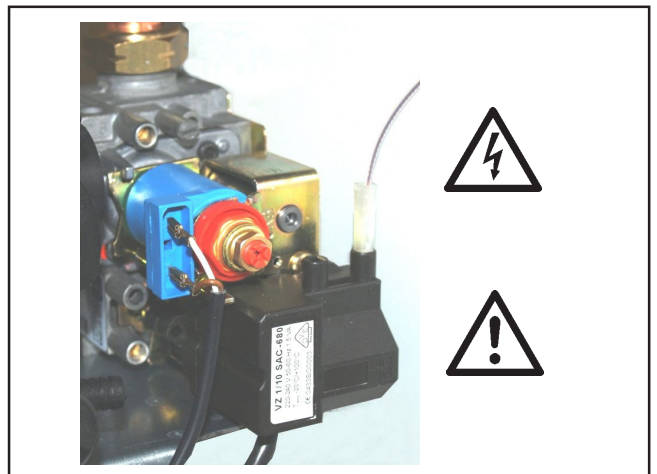


Fig.: Gas combination valve
Danger from electric current
Escaping gas may cause poisoning or the risk of explosion

Please follow these safety instructions closely to prevent accidents and material losses.

Safety regulations

- Observe all national safety regulations and installation requirements.
- Installation, commissioning, inspection, maintenance and repairs must only be carried out by a competent person (heating engineer / installation contractor).
- Before working on the equipment / heating system, switch OFF the power supply (e.g. by removing a separate mains fuse or by means of a main electrical isolator) and safeguard against unauthorised reconnection.
- Disconnect the system by means of a device that isolates all non-earthed conductors simultaneously with at least 3 mm contact separation.
- It is not permitted to carry out repairs on parts that fulfil a safety function.
- Use only original WOLF replacement parts or those that are equivalent and that have been approved by the manufacturer.

Commissioning

- Commissioning must only be carried out by the system installer or a commissioning engineer designated by him. All actual values must be recorded in a commissioning/ service report that should be kept with these instructions.

Instructing the system user

- The system installer must hand the operating instructions to the system user and instruct him/her in the operation of the system.

Standards and regulations

Category:	II2H3B/P, <PL> II2ELw3B/P, II2H3P
NOx class:	3
Efficiency:	☆☆☆ (3 stars acc. to 92/42/EEC)
Flue types:	C12x, C32x, C42x, C52, B32
Operating mode:	Open flue / balanced flue
To be connected to:	Chimney / balanced flue chimney / balanced flue

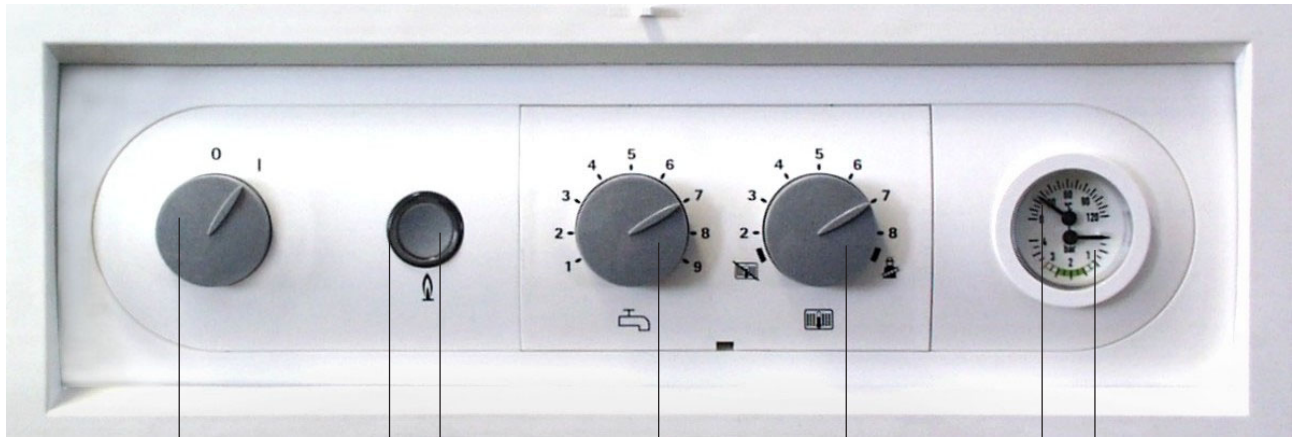
Standards

EN 297
 EN 483
 EN 60 335-1
 EN 50 165
 EN 55 014
 EN 61 000-3-2/-3

Directives

90/396/EEC
 2004/108/EC
 73/23/EEC
 92/42/EEC

- Obtain the permission of your mains gas supplier and all relevant authorities prior to the installation of Wolf gas fired combi boilers.
- Open flue gas fired boilers must only be installed in a room that complies with the appropriate ventilation requirements.



ON / OFF switch

Reset button

DHW temperature selector

Thermometer

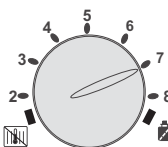
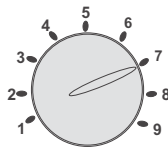
Illuminated signal ring

Heating water temperature selector

Pressure gauge

Signal ring as status display

Display	Explanation
Flashing green	Standby (power supply ON, burner OFF)
Constant green light	Heat demand: pump running, burner OFF
Flashing yellow	Emissions test mode
Constant yellow light	Burner ON, flame steady
Flashing red	Fault



DHW temperature selector

The settings 1-9 correspond to a DHW temperature of 40 to 60 °C. Combined with a control thermostat for wall mounted gas fired boilers, the adjustment at the DHW temperature selector is disabled; instead the temperature is selected at the boiler control thermostat.

Heating water temperature selector

The setting range 2-8 corresponds to a heating water temperature of 40 to 80 °C. Combined with a control thermostat for wall mounted gas fired boilers, the adjustment at the heating water temperature selector is disabled; instead the temperature is selected at the boiler control thermostat.

Setting




Winter mode (position 2 to 8)

The circulation pump operates in heating mode.




Summer mode

Switch set to  circulation pump OFF (heating OFF); only DHW heating, frost protection, pump anti-seizing protection enabled, i.e. the circulation pump runs for approx. 30 s every 24 hours.



Emissions test mode

Turning the switch to position  lets the boiler operate at maximum output. The illuminated signal ring flashes yellow for 15 minutes or until the maximum flow temperature has been exceeded.

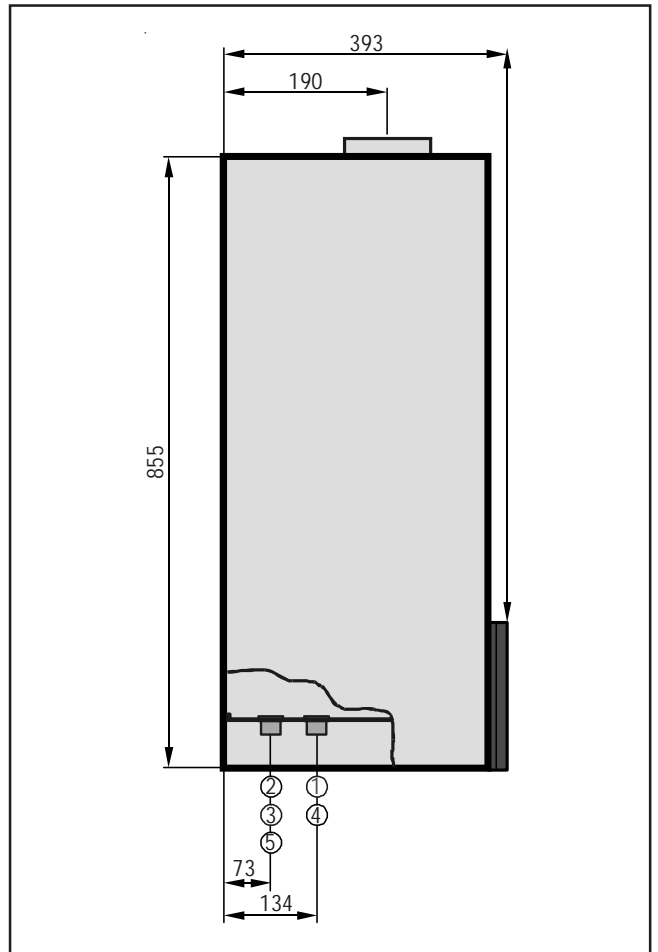
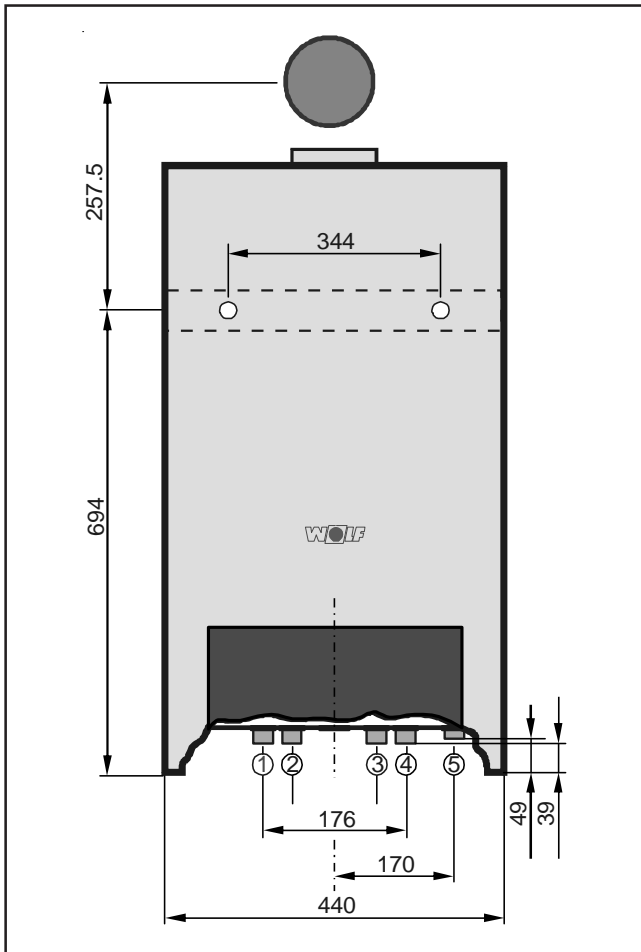


Thermometer/pressure gauge

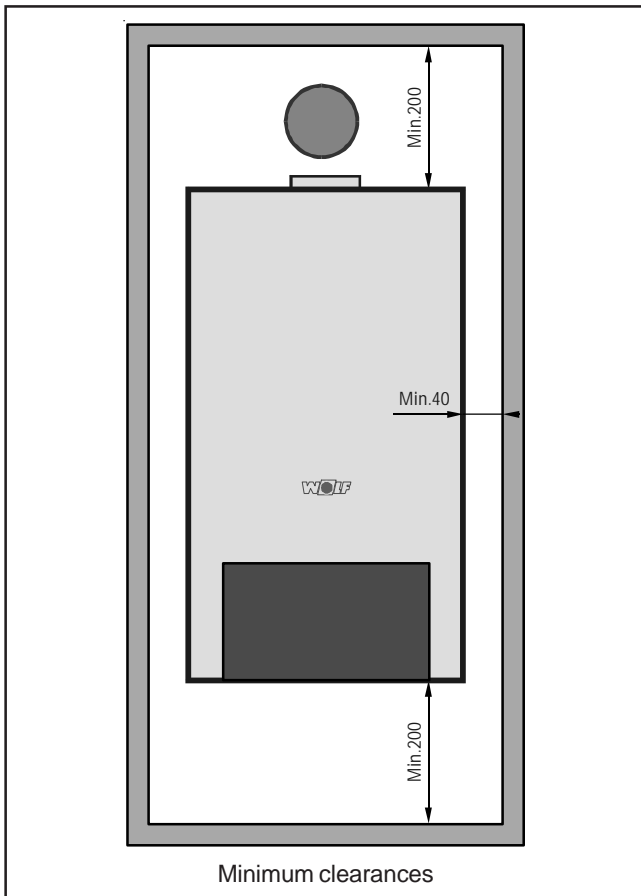
The heating water temperature is displayed in the upper half, the heating system water pressure in the lower half.

Note:

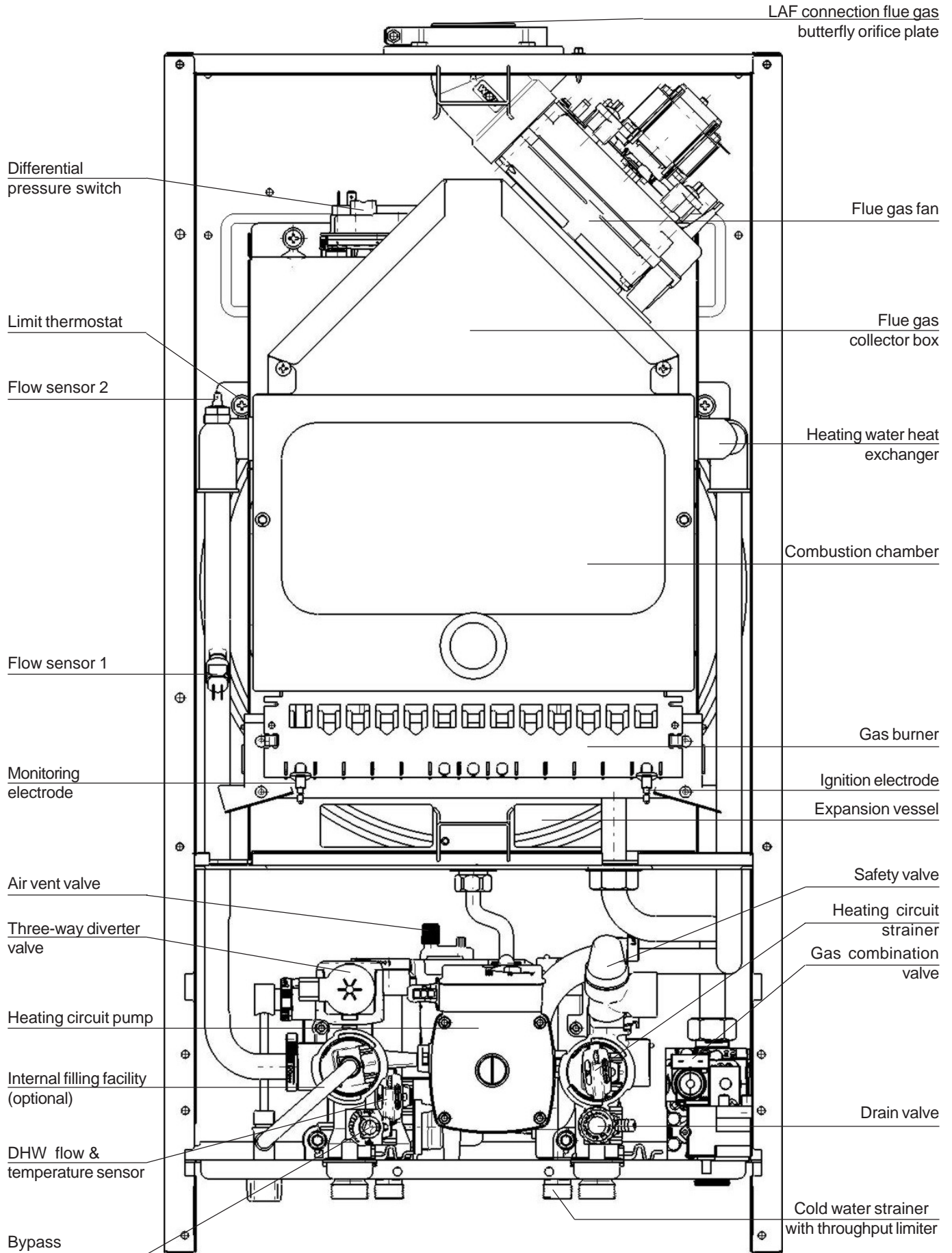
In conjunction with the accessory controllers BM / AWT / ART, the settings at the boiler relating to DHW and heating water are disabled.

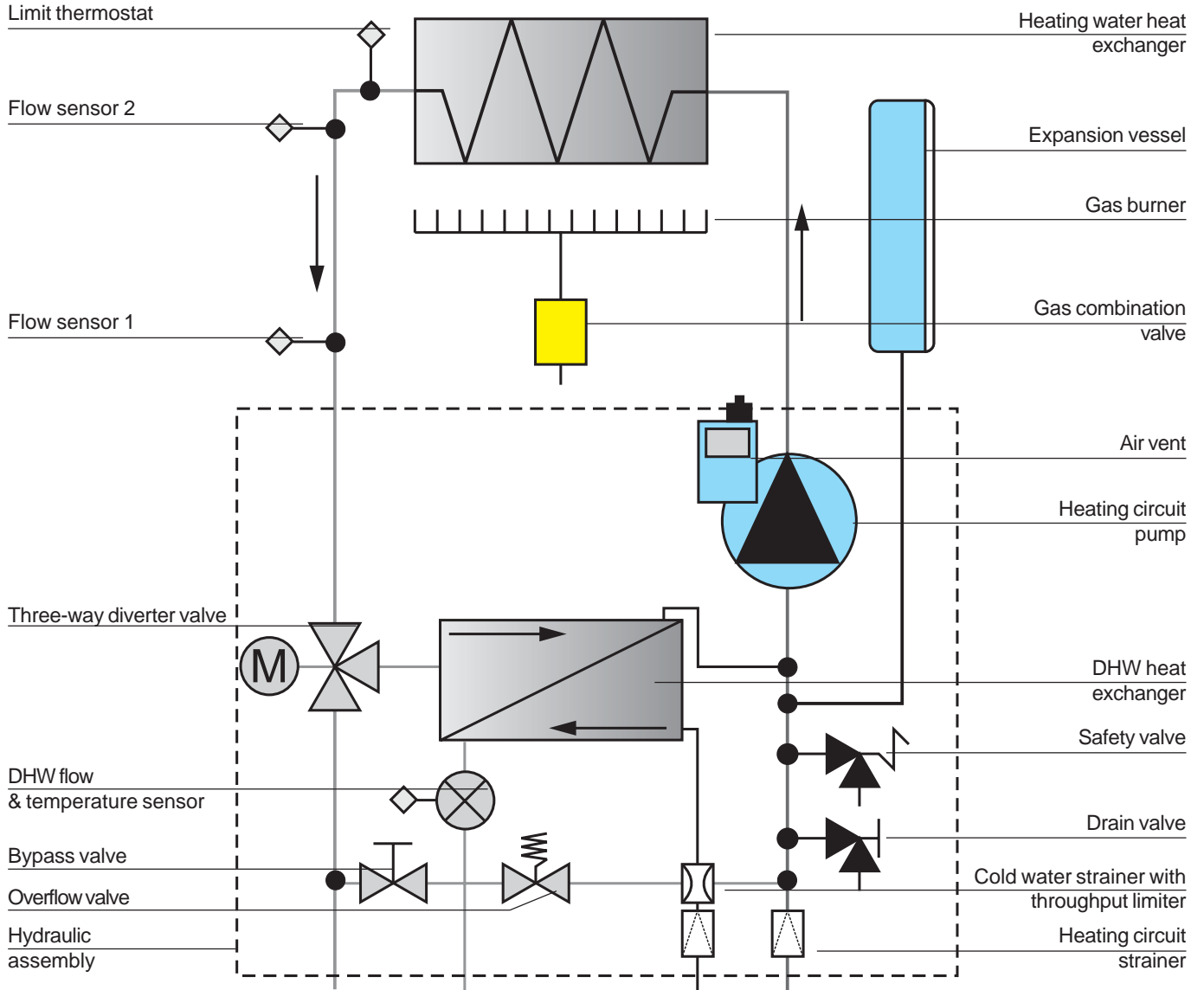


- ① Heating flow
- ② DHW
- ③ Cold water
- ④ Heating return
- ⑤ Gas connection



CGG-1K-24/28





General

- Determine the installation location for the gas fired boiler; maintain the specified minimum clearances (see the r.h. diagram).
- Fit the installation template (paper poster) supplied to the wall.
- Transfer the fixing hole and connection positions marked on the installation template to the wall (e.g. with a power drill).
- Remove the installation template.
- Drill $\varnothing 12$ mm holes for the mounting bracket and secure the bracket using the rawl plugs and screws supplied. (Before securing the bracket, check that the rawl plugs are suitable for the wall construction.)
- Remove the casing lid of the gas fired boiler. For this, pivot the control unit lid down, hook in the r.h. and l.h. turn buckle, undo the bottom of the casing lid and unhook at the top.
- Hang the gas fired boiler with the hook-in brace on the back of the boiler into the mounting bracket.

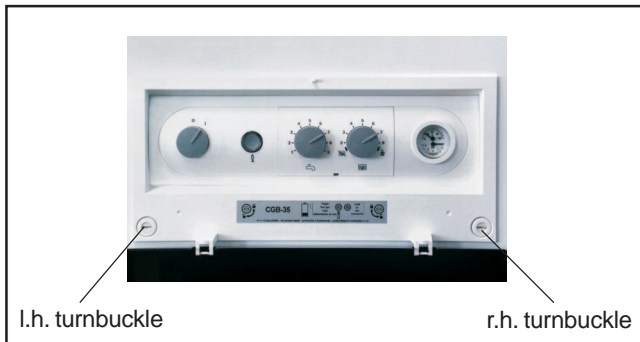


Fig.: Opening the turnbuckle

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



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

NB

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



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.



Balanced flue gas fired boilers must only be installed in a room that complies with the appropriate ventilation requirements. Otherwise there is a risk of asphyxiation or poisoning. Read these installation and operating instructions before installing the gas fired boiler. Also take the technical guide into consideration.

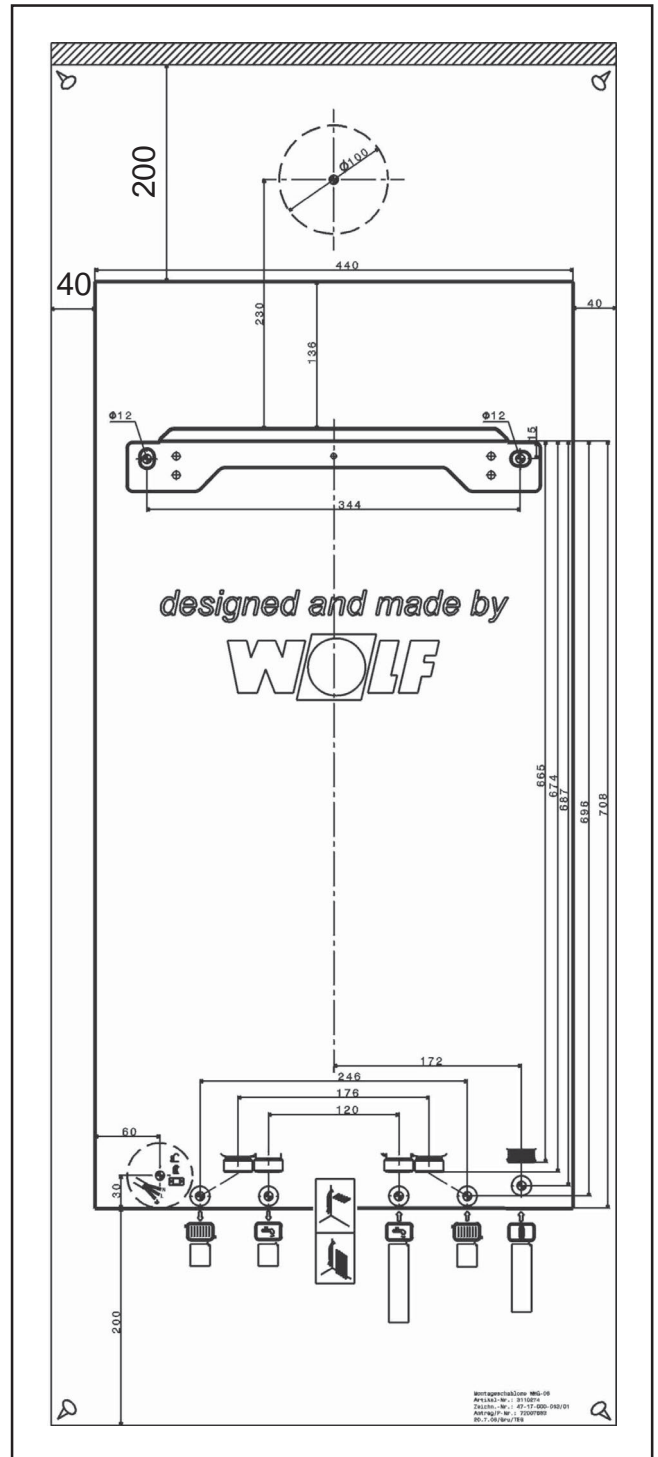


Fig.: Installation template

Installation inside a cupboard

For installation of the gas fired boiler inside a cupboard note the following:



Never install the gas fired boiler on the back wall of the cupboard, as this component may not be substantial enough to carry the boiler weight. This would create the risk of water and gas leaks which in turn would result in a risk of explosion and flooding.

- Remove the back wall of the cupboard

Minimum clearance between the gas fired boiler and the cupboard sides 25 mm.

Gas connection



Laying the gas pipe as well as making the gas connections must only be carried out by a licensed gas fitter. Close the gas ball valve on the gas fired combi boiler to pressure test the gas pipe. Remove all residues from the heating pipework and the gas pipe prior to connecting the gas fired boiler, particularly in older systems. Prior to commissioning, test all pipe and gas connections for leaks. Inappropriate installation or using unsuitable components or assemblies may lead to gas escaping, which results in a risk of poisoning and explosion.



The gas valve can be subjected to a maximum pressure of 150 mbar. Higher pressure may damage the gas valve, resulting in a risk of explosion, asphyxiation or poisoning. Close the gas ball valve on the gas fired boiler to pressure test the gas pipe.

Note: As standard, a combined cold water strainer with throughput controller ② is fitted at the cold water connection ① of the boiler. (see Fig.)

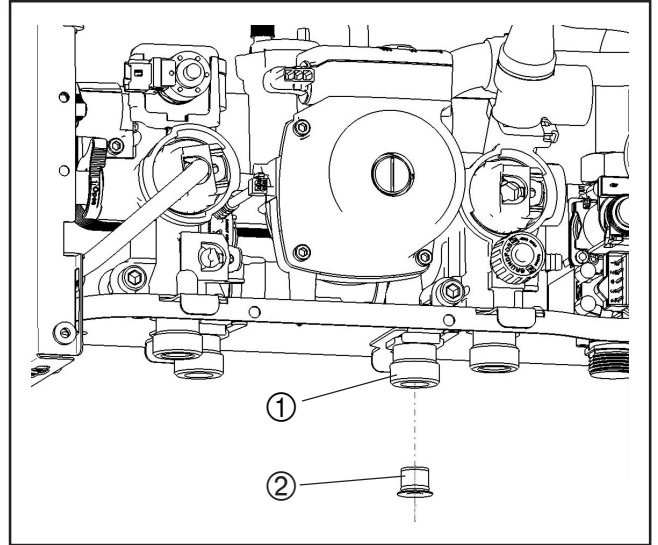


Fig.: Throughput controller with cold water strainer

Hydraulic connections

- Wolf connection sets (accessories) are available for installation on finished and unfinished walls. The connection pipes are Cu 18x1.

Cold water and DHW connection

For the cold water and DHW connection, we recommend the installation in accordance with DIN 1988.



Install a tested and certified pressure reducer, if the cold water supply pressure is above the maximum permissible operating pressure of 10 bar. Otherwise water could escape resulting in a risk of flooding.

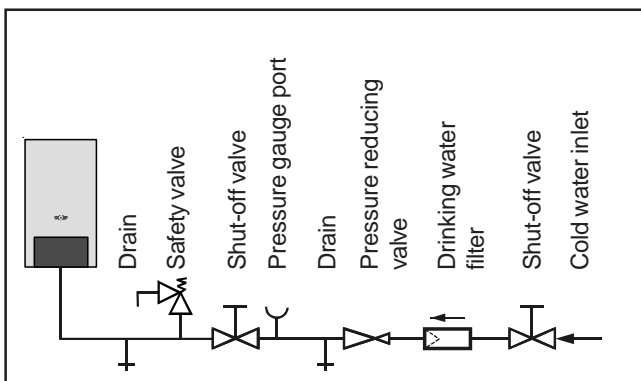


Fig.: Cold water connection in accordance with DIN 1988

Installation on finished walls

- ① Heating flow
- ① DHW
- ③ Cold water
- ④ Heating return
- ⑤ Gas connection

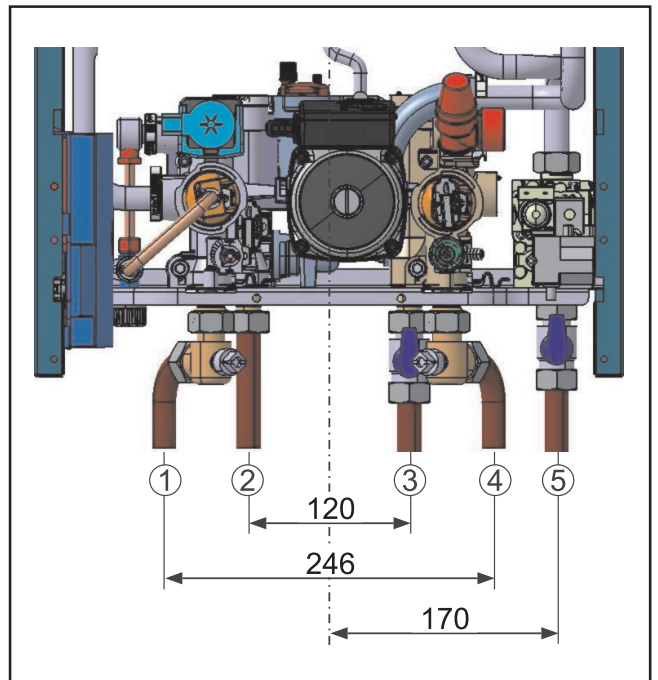


Fig.: Front view, connection set for installation on finished walls (part no. 86 12 188)

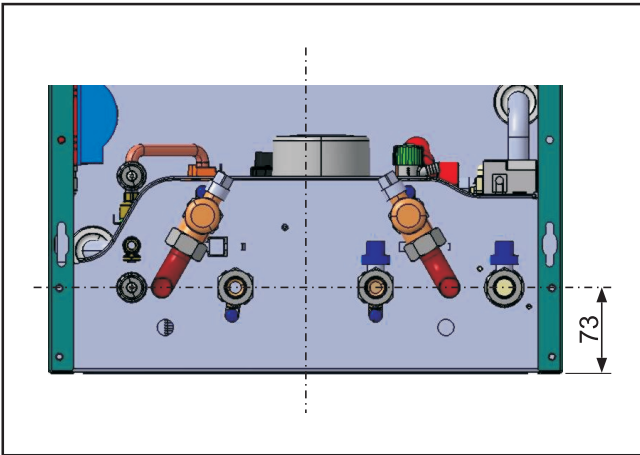


Fig.: View from below, connection set for installation on finished walls (part no. 86 12 188)

Installation on unfinished walls

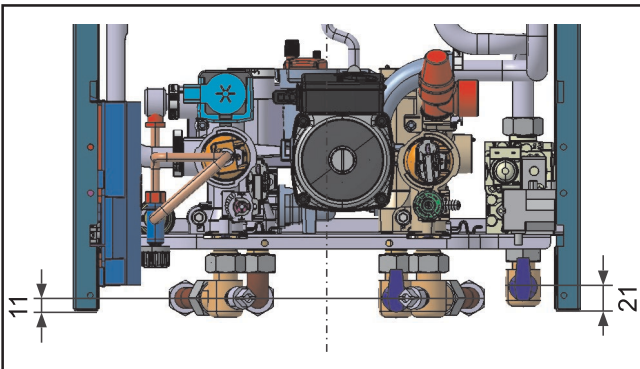


Fig.: Front view, connection set for installation on unfinished walls (part no. 86 12 189)

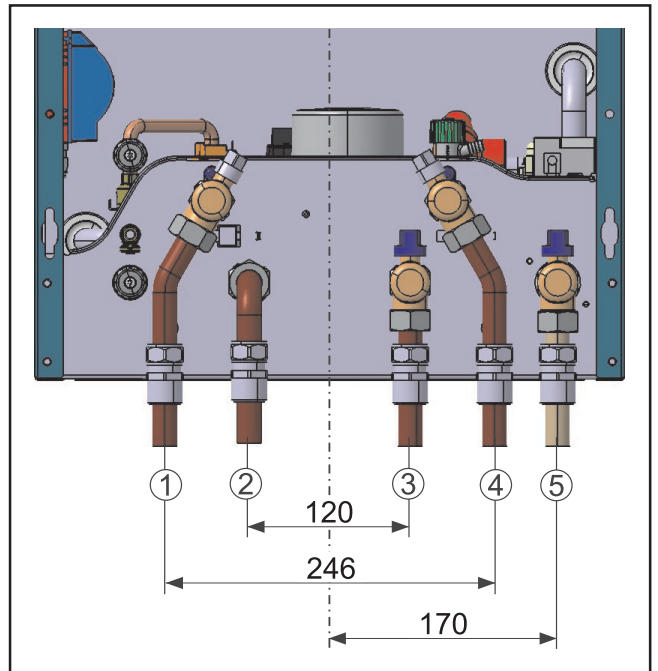


Fig.: View from below, connection set for installation on unfinished walls (part no. 86 12 188)

Selection of the flue gas butterfly orifice plate

- Prior to installing the flue gas system, check using the appropriate tables, which of the **flue gas butterfly orifice plates** supplied should be used. This is subject to the length of the balanced flue pipe.



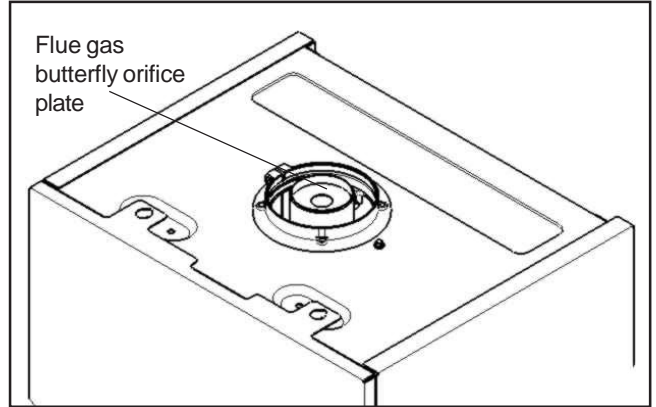
Never exceed the maximum lengths specified in the tables, otherwise incomplete combustion may result.



If the CO content in the flue gas is higher than 300 ppm (free of air), remove the cause; otherwise do not continue to operate the gas fired boiler, as there would be a risk of flue gas escaping, resulting in the danger of poisoning.



Wolf boilers are certified as one unit with the original Wolf balanced flue system. Use only original Wolf balanced flue systems. Using alternative accessories can lead to incorrect functions. Material losses and injuries cannot then be prevented.



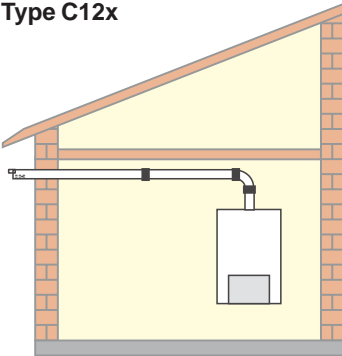
Calculating the flue length 60/100 mm

Calculated flue length = length of straight pipes + 1.0 m per 90° bend / tee + 0.5 m per 45° bend

General information:

From a length of 3 m upwards, we recommend the installation of a condensate trap.

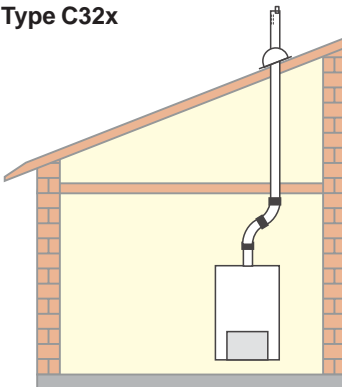
Type C12x



Outside wall connection (balanced flue)
concentric horizontal system 60/100 mm
calculated pipe length min. / max. = 0.3 / 5.0 m

Boiler CGG-1K	Calculated length	Flue gas butterfly orifice plate no. Ø
24	≤ 3 m	1 (38.0 mm)
	> 3 m ≤ 5 m	2 (39.8 mm)
28	≤ 2 m	2 (39.8 mm)
	> 2 m ≤ 5 m	3 (42.5 mm)

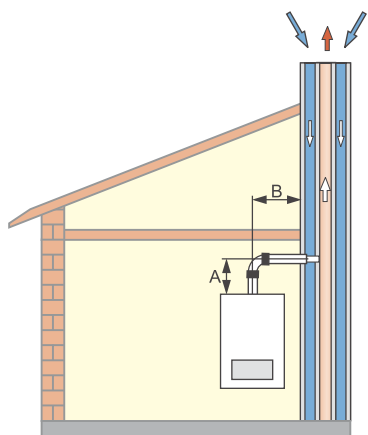
Type C32x



Roof outlet (balanced flue)
concentric vertical system 60/100 mm
calculated pipe length min. / max. = 0.3 / 5.0 m

Boiler CGG-1K	Calculated length	Flue gas butterfly orifice plate no. Ø
24	≤ 3 m	1 (38.0 mm)
	> 3 m ≤ 5 m	2 (39.8 mm)
28	≤ 2 m	2 (39.8 mm)
	> 2 m ≤ 5 m	3 (42.5 mm)

Type C42x

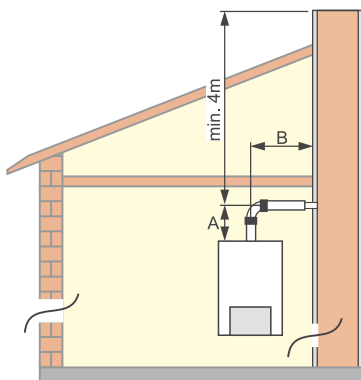


Connection to a room sealed balanced flue concentric system 60/100 mm

Boiler CGG-1K	Calculated length A + B	Flue gas butterfly orifice plate no. Ø
24	≤ 2 m	1 (38.0 mm)
28	≤ 2 m	2 (39.8 mm)

Room sealed balanced flue / duct sizing through calculation according to EN 13384 or country-specific standard as atmospheric pressure system with an inlet pressure = 0 Pa

Type B32

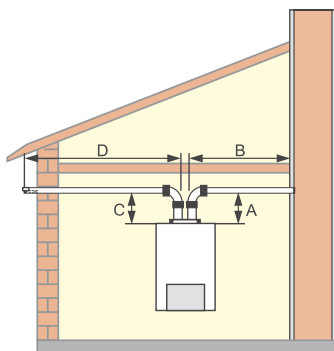


Connection to a chimney;
ventilation air directly via the boiler or through a horizontal concentric supply line (open flue)
concentric system 60/100 mm

Boiler CGG-1K	Calculated length A + B	Flue gas butterfly orifice plate no. Ø
24	≤ 3 m	1 (38.0 mm)
28	≤ 2 m	2 (39.8 mm)

Room sealed balanced flue / duct sizing through calculation according to EN 13384 or country-specific standard as atmospheric pressure system with an inlet pressure = 0 Pa

Type C52



Connection to the flue in a duct and ventilation air through an external wall (balanced flue) system 80/80 mm

Boiler CGG-1K	Calculated length A + B + C + D	Flue gas butterfly orifice plate no. Ø
24	≤ 13 m	39.8 mm
28	≤ 12 m	42.5 mm

Room sealed balanced flue / duct sizing through calculation according to EN 13384 or country-specific standard as atmospheric pressure system with an inlet pressure = 0 Pa



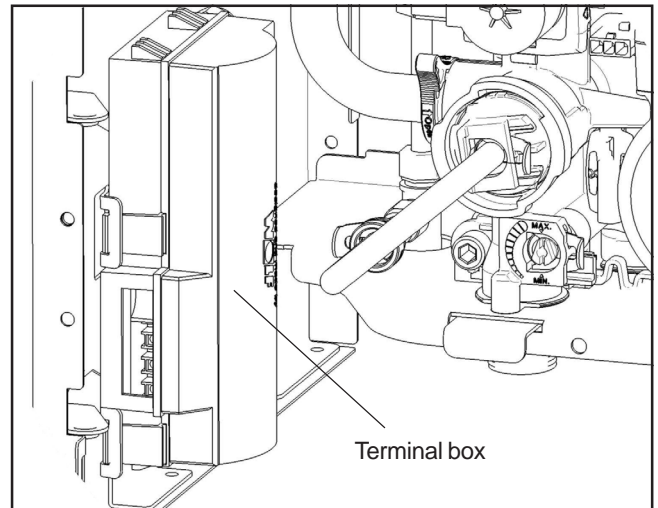
Only qualified electricians must carry out the electrical installation; that installer will be responsible for compliance with all current standards and directives.



The mains terminals in the terminal box are 'live' even when the ON / OFF switch has been switched OFF. Non-observance can result in a risk of electrocution, which may be detrimental to health or lead to death.

Installation information Power connection

- Isolate the system from the power supply before opening.
- 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.
- Push the inserts back into the terminal box casing.
- Terminate the appropriate cores inside the terminal box.



- Connection, outside temperature sensor

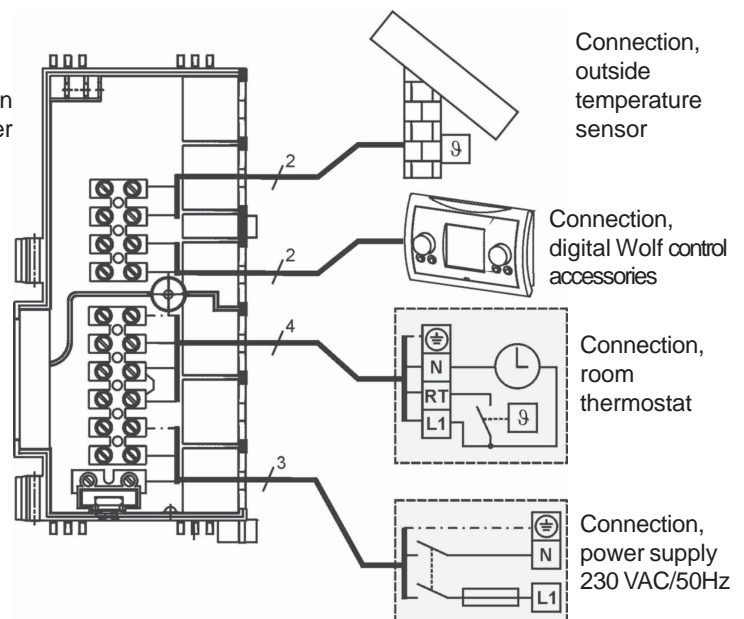
The outside temperature sensor for digital control accessory (e.g. BM) may be connected to the terminal strip of the gas fired boiler or the terminal strip of the BM.

- Connection of digital Wolf control accessories (e.g. ART, AWT, MM, 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 > 0.5mm²) as the connecting cable between the control unit accessory and the gas fired boiler.

- Connection, room thermostat 230 V

Connect the room thermostat cable at the terminals in accordance with the wiring diagram; first remove the jumper between the respective terminals.

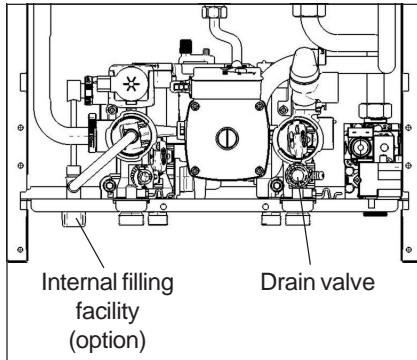


Filling the system



Fill the system and vent it thoroughly to safeguard the perfect function of the gas fired boiler.

The heating water must not be mixed with inhibitors or antifreeze; otherwise leaks and flooding could result.



- Before connecting the gas fired boiler to the heating system, flush the entire system to remove residues such as welding pearls, hemp, putty, etc. from the pipework.
- Fill the DHW system of the boiler until water flows out of a DHW draw-off point.
- 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 and the shut-off valves on the heating water side of the boiler.

Procedure for boilers with internal filling facility

- Fill the entire heating system and boiler via the filling facility or an on-site fill & drain valve up to approx. 1.5 bar, whilst simultaneously venting the heating system.
- Close the shut-off valves on the heating water side of the boiler (flow and return).
- Push the drain hose onto the drain valve of the hydraulic assembly.
- Flush all air out of the heat exchanger by simultaneously opening the internal filling facility and the drain valve on the hydraulic assembly.

Procedure for boilers without internal filling facility

- Fill the entire heating system and boiler via an on-site fill & drain valve up to approx. 1.5 bar, whilst simultaneously venting the heating system.
- Close the return shut-off valve on the heating water side of the boiler.
- Push the drain hose onto the drain valve of the hydraulic assembly.
- Flush all air out of the heat exchanger by simultaneously opening the on-site fill & drain valve and the drain valve on the hydraulic assembly.

- Remove the drain hose and open the boiler shut-off valves on the heating water side again.

- Open the gas ball valve.

- Start the boiler, set the heating water temperature selector to position "2" (pump running, illuminated signal ring (status display) constantly green).

- Vent the pump; for this, briefly open and then retighten the air vent screw.

Top up with water when the system pressure falls severely.

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

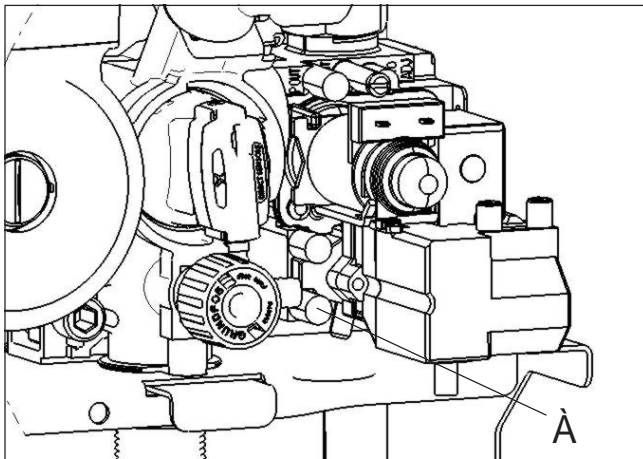
- In constant operation, the heating circuit will be automatically vented via the heating circuit pump.



Only qualified personnel must carry out the commissioning and boiler operation as well as the user instruction to prevent dangers and injuries as well as material losses.

Prior to installation, ensure that the boiler corresponds to the gas type available.

Gas type	Wobbe index Ws	
	kWh/m ³	MJ/m ³
Natural gas H	12.7 - 15.2	45.7 - 54.7
LPG	20.3 - 24.3	72.9 - 87.3



- Open the gas connections.
- The boiler and system must be fully vented and must be absolutely tight.
- Check that all flue gas accessories have been correctly installed.
- Remove the casing cover.
- Release the plug at test nipple ① and vent the gas supply pipe.
- Retighten the plug.
- Start the boiler.
- Check the ignition and the regular flame structure of the burner.



Check test nipple ① for soundness, otherwise gas may escape, resulting in a risk of explosion, asphyxiation or poisoning.

- If the system water pressure falls below 1.5 bar, top up with water up to 1.5 to max. 2.5 bar.

Connect the test equipment

- The gas fired boiler must be switched OFF. Open the gas shut-off valve.
- Remove the casing lid.
- Release the plug at test nipple ①.
- Connect the hose to the pressure test device at test nipple ① and check against atmosphere.
- Start the boiler and read off the indicated value.
- Enter the value in the commissioning report.

Gas type	Nom. supply pressure	Permissible range
Natural gas H	20 mbar	18*-25 mbar
LPG B/P	50 mbar	43-57 mbar
LPG B/P	29 mbar	25-35 mbar

* 13 mbar in Russia; this may result in a reduction in boiler output by up to 2 kW.

Never take the boiler into use if the actual value falls outside the specified limits.

→ Notify your gas supply company.

Remove the test equipment:

- Shut down the boiler. Close the gas shut-off valve.
- Pull the hose off and tighten the test nipple again. Open the gas shut-off valve.



Check the test nipple for soundness, otherwise gas may escape, resulting in a risk of explosion, asphyxiation or poisoning.

NB Modifications must only be carried out by a recognised heating contractor or by the Wolf customer service to prevent a risk of injury, equipment damage and incorrect functions.



If parameter A 09 (frost protection limit) is set lower than the factory setting, frost protection is no longer ensured. This can lead to heating system damage.

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

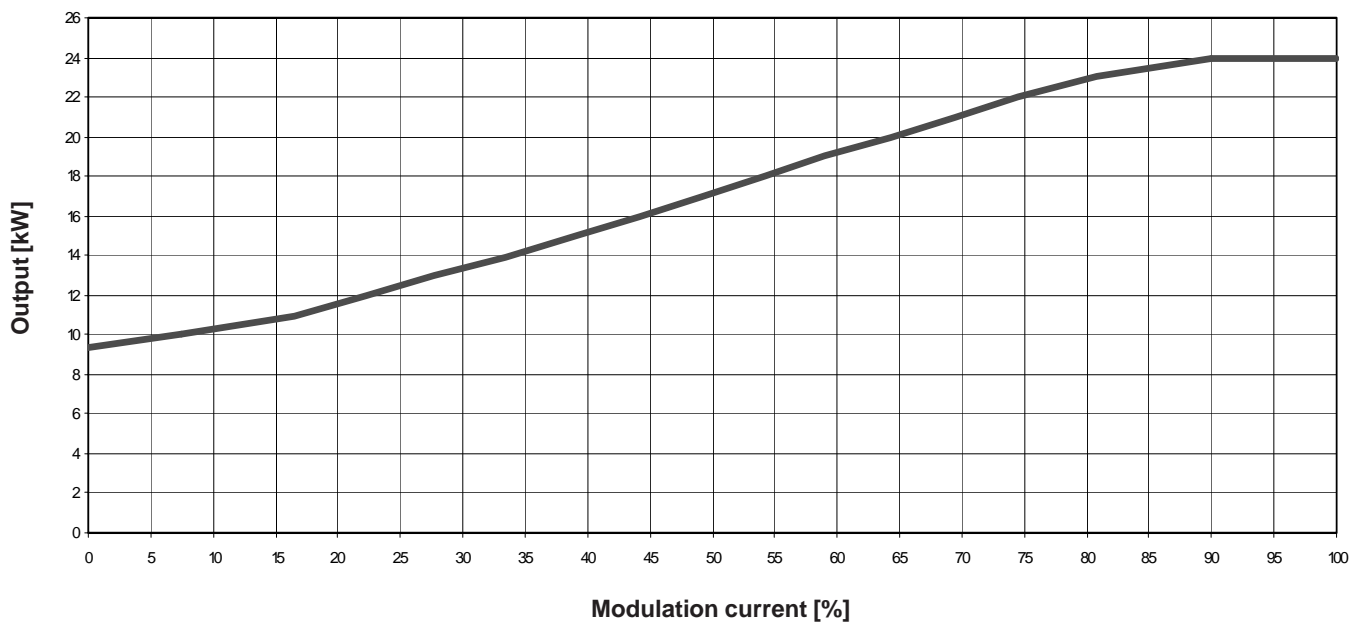
The settings in column 2 apply to Wolf control systems with programming module BM.

1	2	Parameters	Unit	Factory set.	Min.	Max.
GB 01	HG 01	Burner switching differential	K	8	5	25
	HG 02	Min. modulation current HTG / DHW Min. modulation current of the gas valve for HTG / DHW	%	1	1	100
	HG 03	Max. modulation current DHW Max. modulation current of the gas valve for DHW	%	100	1	100
GB 04	HG 04	Max. modulation current HTG Max. modulation current of the gas valve for HTG	%	100	1	100
GB 06	HG 06	Pump operating mode 0 > Pump ON in winter mode 1 > Pump ON during burner operation	-	0	0	1
GB 07	HG 07	Pump run-on time HTG Heating circuit pump run-on time in minutes in htg. mode	min.	1	0	30
GB 08	HG 08	Max. flow temperature Applicable to heating operation	°C	80	40	90
GB 09	HG 09	Cycle block Applicable to heating operation	min	7	1	30
	HG 11	DHW quick start temperature Temp. of the plate-type heat exchanger in summer mode	°C	10	10	60
	HG 12	Gas type 1 > NG (natural gas) 0 > LPG (LPG)	-	1	0	1
GB 05	A 09	Frost protection limit with connected outside temperature sensor and insufficient temperature > pump ON	°C	2	-20	10
	HG 21	Min. flow temperature for heating operation	°C	40	20	60

The output setting can be modified with Wolf control accessories with eBUS capability via parameter HG 04. The heating output will be determined by the modulation current of the the gas valve. By reducing the modulation current in accordance with the table, the maximum output will be matched at 80/60 °C to natural gas H and LPG.

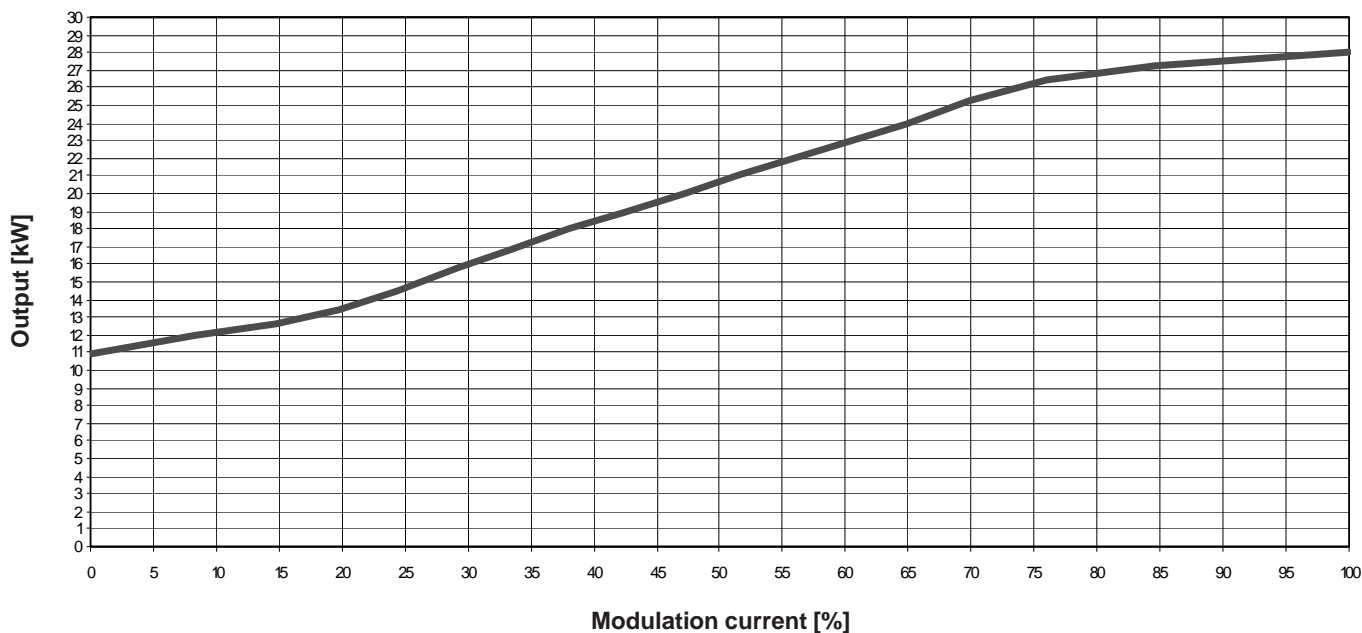
Output [kW]	9.4	12	15	18	21	24
I_{Mod} [%]	1	22	39	54	69	100

Output change CGG-1K-24 G31 / G30 / G20



Output [kW]	10.9	14	18	22	26	28
I_{Mod} [%]	1	22	38	56	73	100

Output change CGG-1K-28 G31 / G30 / G20



The boiler is equipped with a three-stage pump that is set to stage 2 in the delivered condition.

The minimum circulation volume is ensured by a connection line between the flow and return. An automatic overflow valve and a manually adjustable bypass valve are integrated into the connection line.

In the delivered condition, the bypass valve is fully opened to "MAX". Closing the valve can increase the residual head (see diagram).

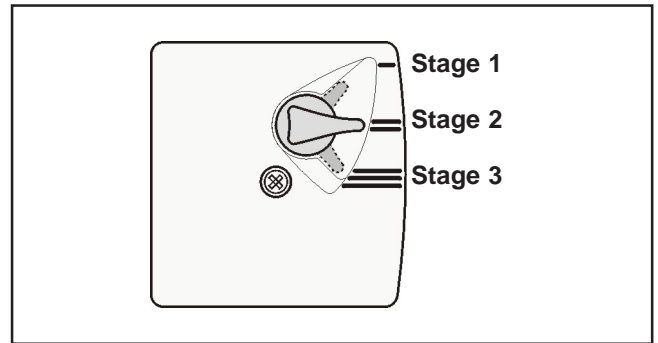
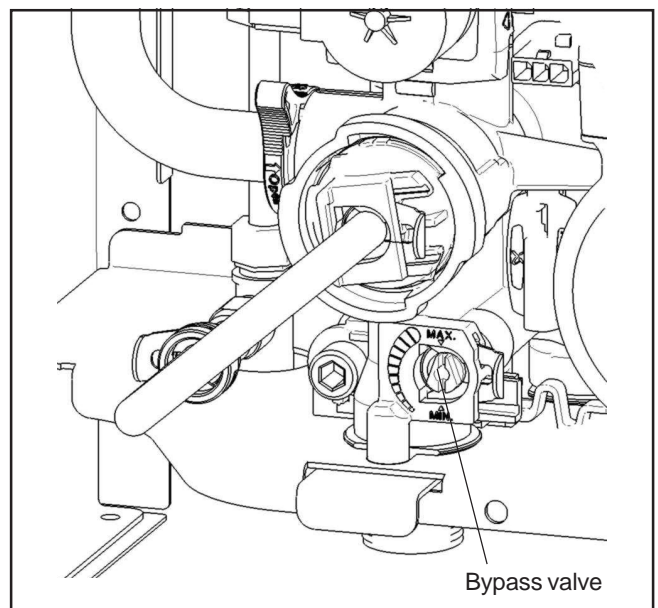
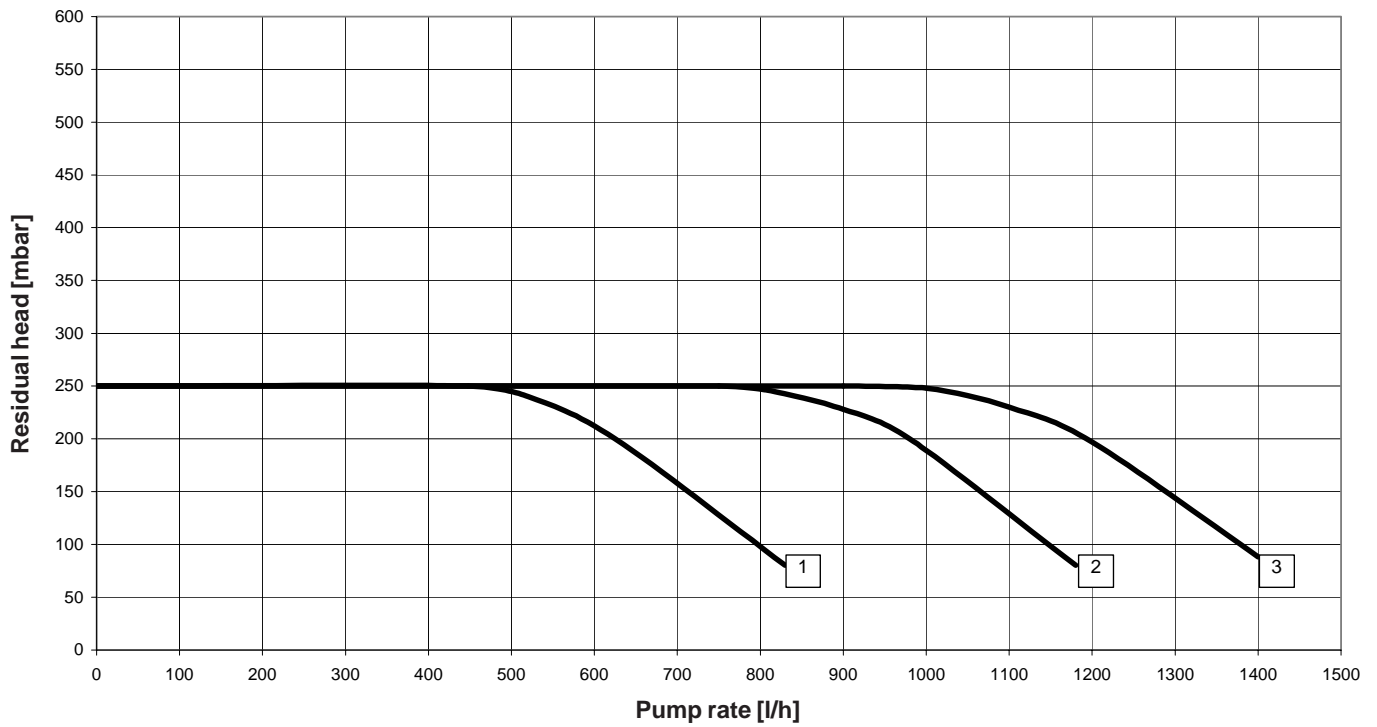


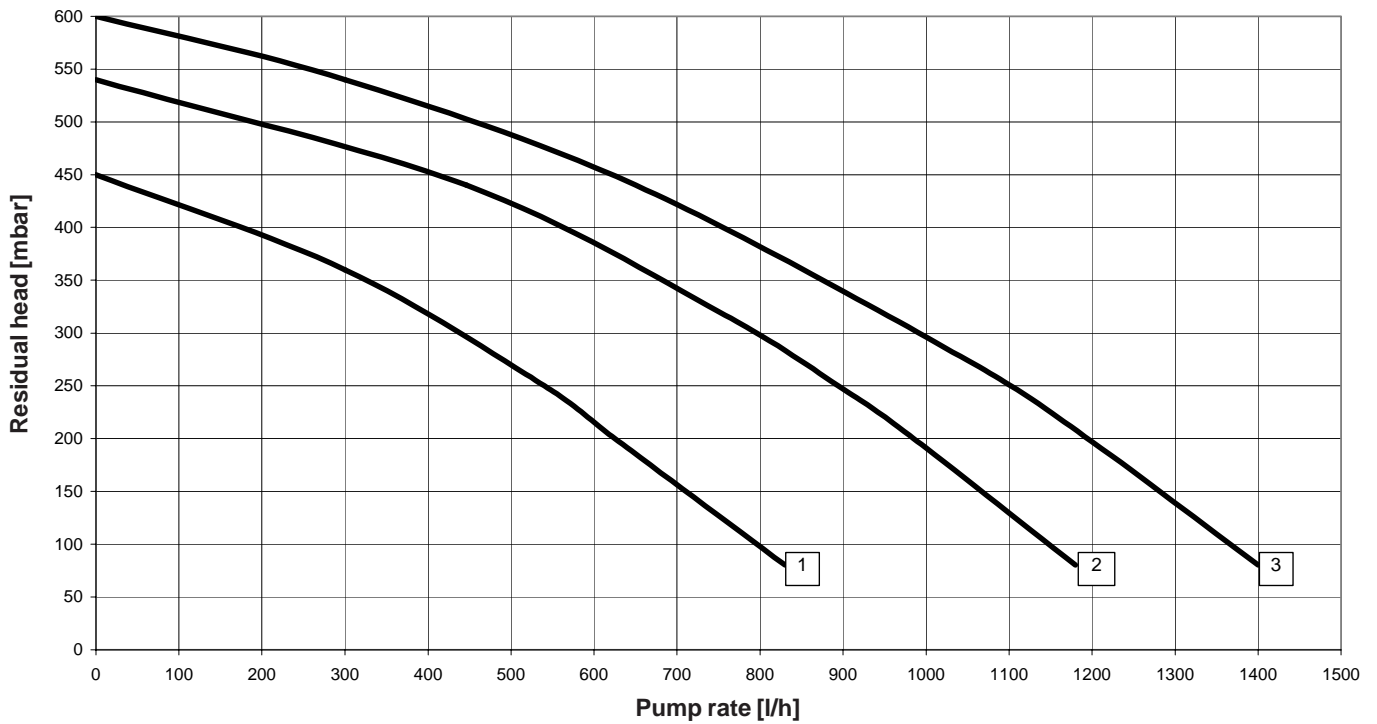
Fig.: Pump rate stages at the heating circuit pump



Bypass valve fully opened (delivered condition)



Bypass valve closed



Commissioning steps	Actual value or confirmation
1.) Gas type	Natural gas H <input type="checkbox"/> LPG <input type="checkbox"/> Wobbe index _____ kWh/m ³ Calorific value _____ kWh/m ³
2.) Calculated flue length Integral flue gas butterfly orifice plate	_____ m No. _____ / _____ mm
3.) Gas supply pressure checked?	_____ mbar
4.) Nozzle pressures checked? (only complete when changing the gas type):	<input type="checkbox"/>
5.) Gas leak test carried out?	<input type="checkbox"/>
6.) Balanced flue system checked?	<input type="checkbox"/>
7.) Water connections checked for leaks?	<input type="checkbox"/>
8.) Vented boiler and system?	<input type="checkbox"/>
9.) System pressure 1.5 - 2.5 bar?	<input type="checkbox"/>
10.) Function test carried out?	<input type="checkbox"/>
11.) Casing fitted?	<input type="checkbox"/>
12.) System user trained, tech. docs. handed over?	<input type="checkbox"/>
13.) Commissioning confirmed? Company / Name Date / Signature	_____ _____ / _____

NB Advise the system user that an approved contractor should clean and check the heating system annually, to safeguard the reliable and economic function of his heating system and to avoid risks to individuals and prevent material losses.

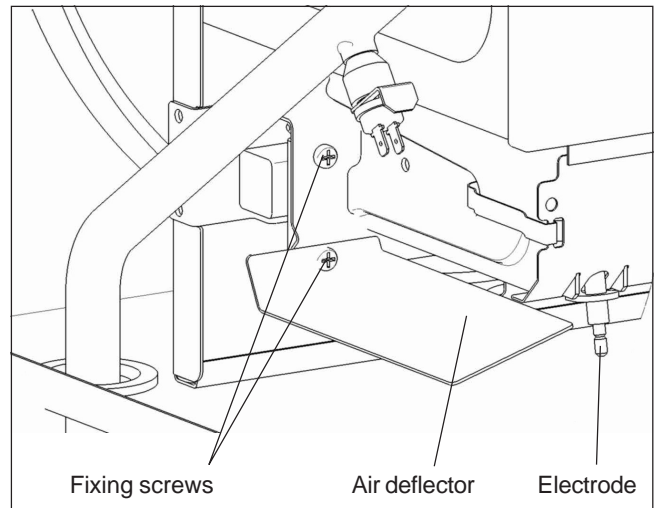
We recommend users arrange a service contract.

Report about the inspection and service work

No.	Step	To be implemented		Service 1	Service 2
		always	if required		
1	Switch OFF boiler, isolate from power supply and close gas shut-off valve	X			
2	Close the shut-off valves on the water and heating water side	X			
3	Remove the gas burner and check for contamination	X		<input type="checkbox"/>	<input type="checkbox"/>
4	Clean the gas burner and gas nozzles		X	<input type="checkbox"/>	<input type="checkbox"/>
5	Check the heating water heat exchanger for contamination	X		<input type="checkbox"/>	<input type="checkbox"/>
6	Clean the heating water heat exchanger		X	<input type="checkbox"/>	<input type="checkbox"/>
7	Reinstall the gas burner	X			
8	Clean and refit the DHW heat exchanger		X	<input type="checkbox"/>	<input type="checkbox"/>
9	Clean and refit the strainer in the cold water inlet	X		<input type="checkbox"/>	<input type="checkbox"/>
10	Check the tightness of electrical plug-in connections	X		<input type="checkbox"/>	<input type="checkbox"/>
11	Check the condition of the ignition and ionisation electrodes	X		<input type="checkbox"/>	<input type="checkbox"/>
12	Replace the electrodes, if required		X	<input type="checkbox"/>	<input type="checkbox"/>
13	Re-open the shut-off valves on the water and heating water side	X			
14	Check the hydraulic component for possible leaks	X		<input type="checkbox"/>	<input type="checkbox"/>
15	Open the gas shut-off valve and start the boiler	X			
16	Check the ignition and burner characteristics	X		<input type="checkbox"/>	<input type="checkbox"/>
17	Check the gas components for soundness	X		<input type="checkbox"/>	<input type="checkbox"/>
18	Confirm the inspection or service steps	X			
	Company				
	Name				
	Date				
	Signature				

Cleaning the gas burner:

- Switch OFF the boiler at the ON / OFF switch, isolate it from the power supply and close the gas shut-off valve.
- Remove the casing lid of the gas fired boiler. For this, pivot the control unit lid down, hook in the r.h. and l.h. turn buckle, undo the bottom of the casing lid and unhook at the top.
- Push the retaining clip of the front cover up or down out of the way and remove the front cover.
- Pull the cables off the **electrodes**.
- Remove the four burner **retaining screws** (slotted screws; Philips screw H) and pull out the burner with the **air deflector(s)**.
- Remove combustion residues with a brush (non-metallic brush).
- Clean the nozzles and injectors, if required, with a soft brush and compressed air.
- Wash severely contaminated burners with a soapy solution and rinse with tap water.
- The burner is refitted in reverse order, but only after cleaning the heating water heat exchanger.



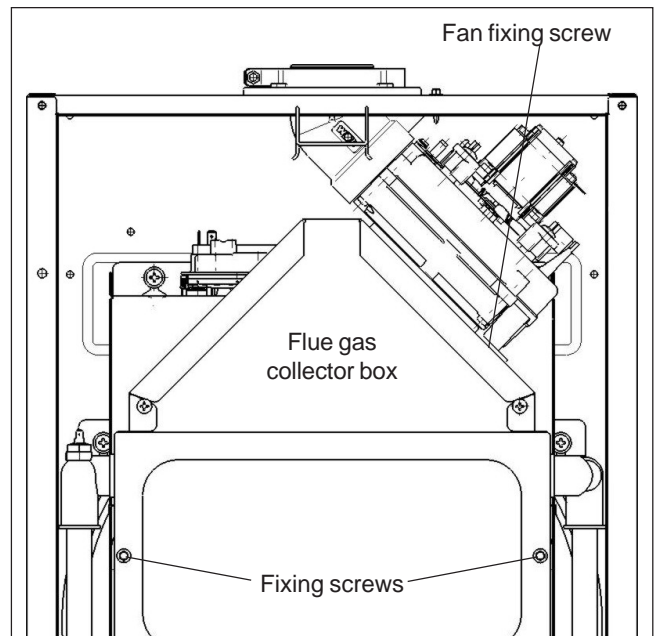
NB: Carry out in parallel with the other side

Cleaning the heating water heat exchanger:

- Pull the cables from the fan.
- **Undo the fan fixing screw** and remove the fan.
- After undoing both **fixing screws**, remove the front wall of the combustion chamber.
- Pull the **flue gas collector box** out of the front.
- Clean the heating water heat exchanger from the top and the bottom with a brush (non-metallic) and, if required, blow off residues with compressed air.

During this step, take care not to bend the fins. If necessary straighten them with a pair of pliers.

- Reassemble the components in reverse order.
- Reinstall the gas burner.
- Refit the front cover.



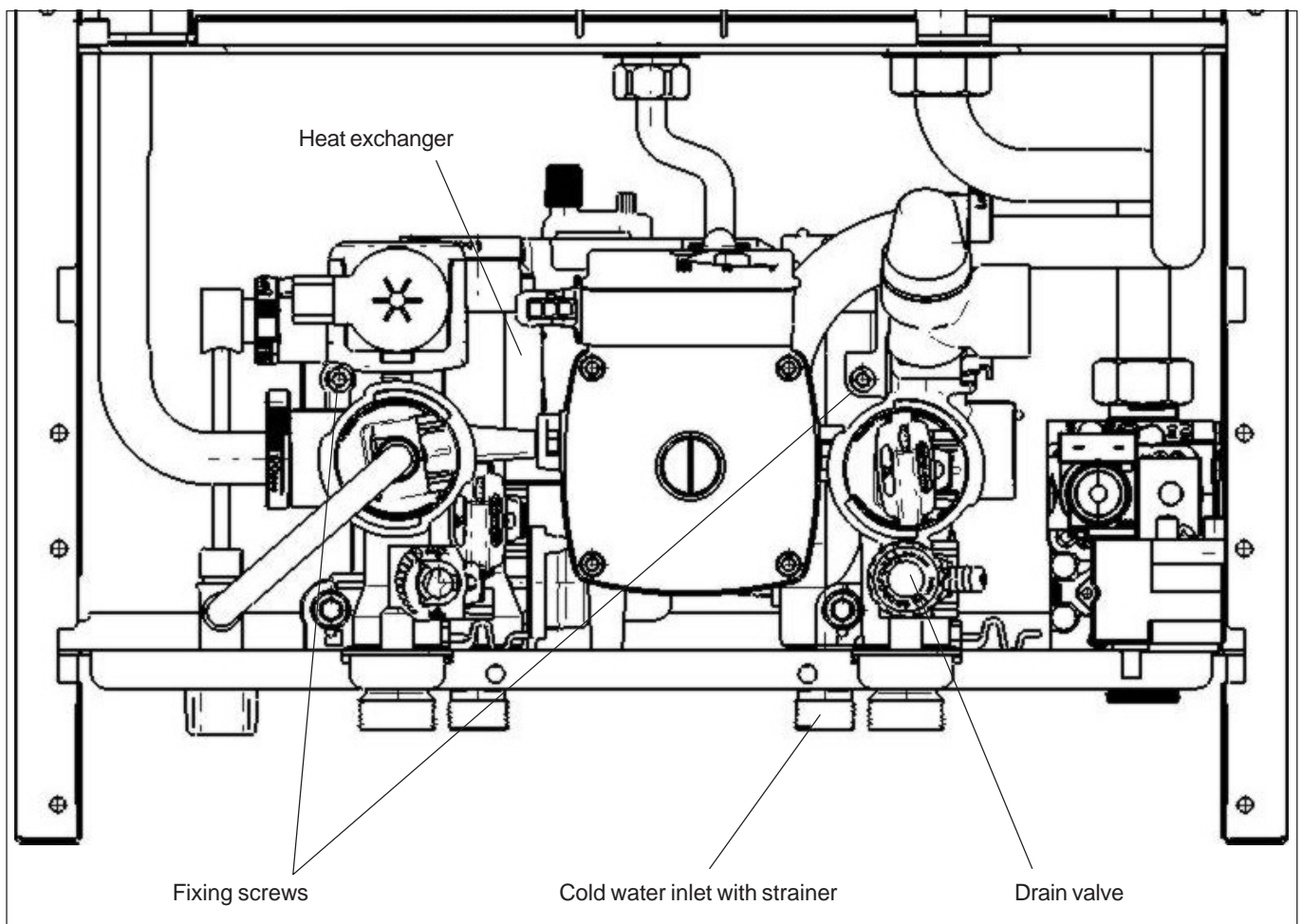
Cleaning the DHW heat exchanger

Subject to the water quality it may be advisable to regularly descale the DHW heat exchanger on the DHW side.

- Close the shut-off valve on the cold water side and open the plug on the boiler. Catch any escaping water in a suitable container.
- Close the shut-off valves on the heating water side (flow and return). Drain the boiler via the drain valve of the hydraulic assembly.
- Undo the two **heat exchanger fixing screws** and pull the exchanger above the hydraulic assembly out of the boiler.
- Treat the **heat exchanger** with a commercially available descaler.
- Reassemble in reverse order.
- When filling the boiler, proceed in accordance with the corresponding chapter in these instructions. Only fill the boiler after cleaning the **strainer in the cold water inlet**, if required.

Cleaning the strainer in the cold water inlet

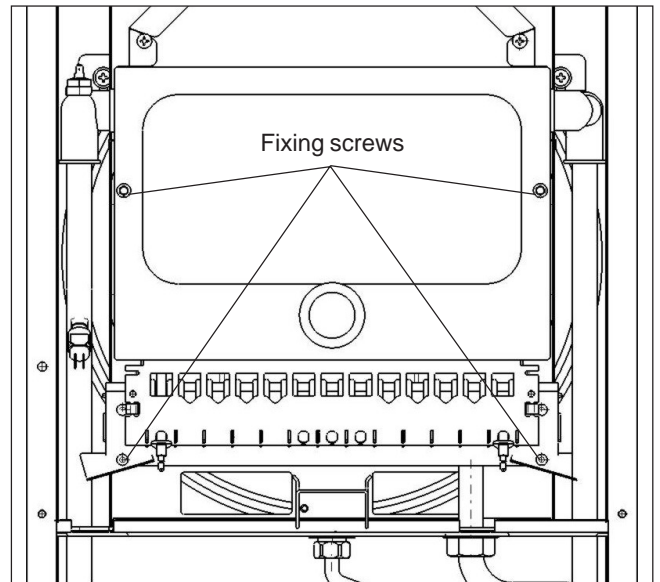
- Close the cold water inlet on the system side.
- Remove the cold water inlet shut-off valve on the equipment side. Catch any escaping water in a suitable container.
- Pull out the **strainer** and blow through with compressed air or clean it under running fresh water.
- Reassemble in reverse order using new gaskets.



The conversion to other gas types is made in four steps: **Nozzle change, adjusting the control unit, checking the nozzle pressure and possible adjustment and identification** of the conversion on the boiler.

1. Nozzle change:

- Switch OFF the boiler at the ON / OFF switch and isolate it from the power supply.
- Remove the casing lid of the gas fired boiler. For this, pivot the control unit lid down, hook in the r.h. and l.h. turn buckle, undo the bottom of the casing lid and unhook at the top.
- Push the retaining clip of the front cover up or down out of the way and remove the front cover.
- After undoing both **fixing screws**, remove the front wall of the combustion chamber.
- Pull the cable from the ignition and the ionisation electrodes.
- Remove the four burner **retaining screws** (slotted screws; Philips screw H) and pull out the burner with the air deflector(s).
- Remove all burner nozzles (spanner size 7) from the gas manifold.
- Insert the new burner nozzles with new copper sealing rings.

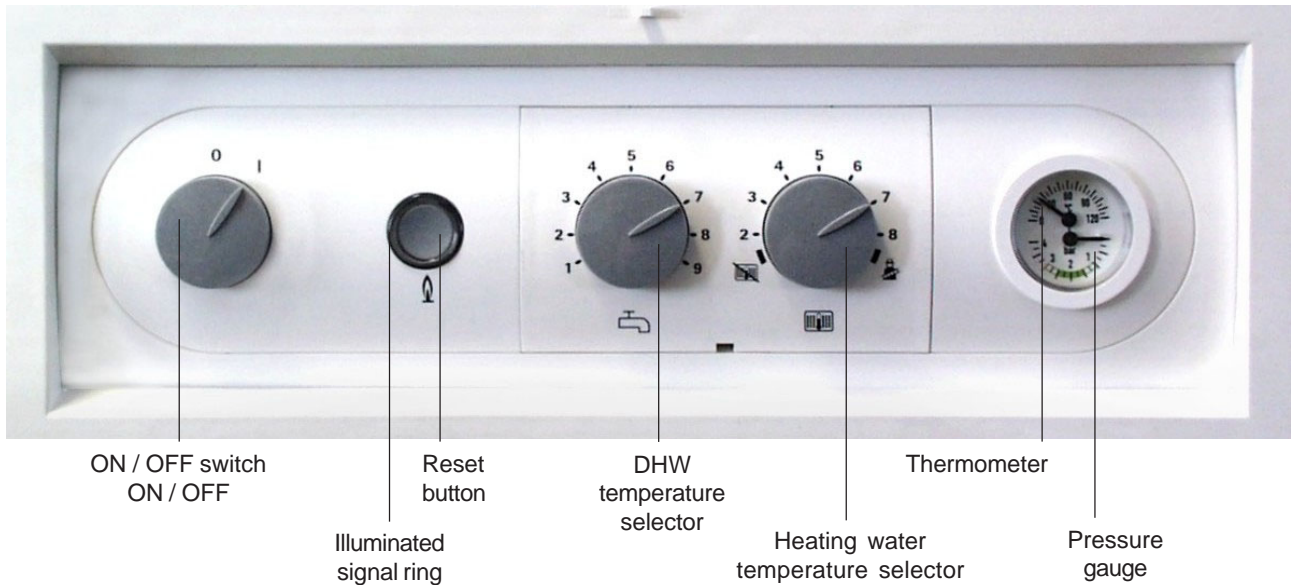


Boiler	No. of nozzles	Natural gas		LPG butane/propane	
		Nozzle ID	Nozzle Ø mm	Nozzle ID	Nozzle Ø mm
CGG-1K-24	12	135	1.35	080	0.80
CGG-1K-28	14	135	1.35	080	0.80

Table: No. of nozzles, nozzle size

- Reassemble the boiler in reverse order.
- Continue with adjusting the control unit.

2. Adjusting the control unit:



- At the system ON / OFF switch, switch the boiler first OFF and then ON again. There must not be any fault present at the boiler.
- Press the reset button (within the following 30 seconds) and it hold down during the next steps.
- After 5 seconds, the illuminated signal ring indicates the currently selected gas type (see table adjusting the gas type).
- Turn the heating water temperature selector towards the required gas type and check the setting by means of the colour of the illuminated signal ring (see table adjusting the gas type).
- The adjustment will only be activated when the reset button is released.
- A successful conversion of the gas type is indicated by a triple flashing (yellow/red) of the signal ring.

Gas type	Natural gas	LPG
Signal ring	quickly flashing yellow	quickly flashing red
Heating water temperature adjustment	l.h. end stop	r.h. end stop

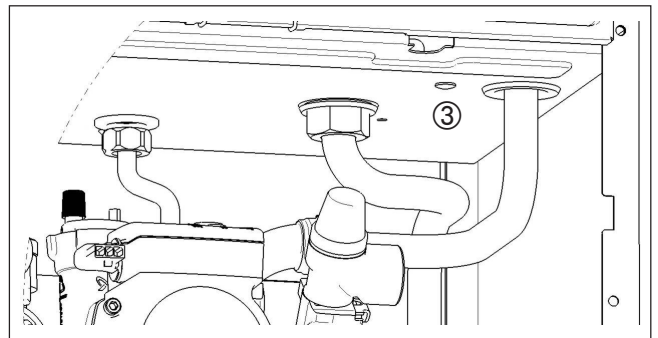
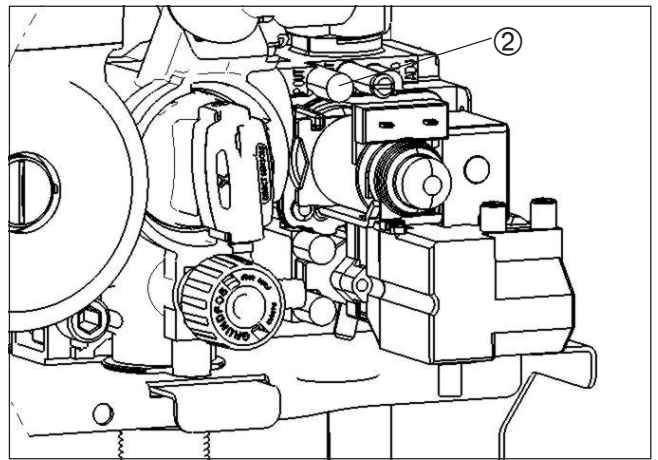
Table: Adjusting the gas type

NB Check the nozzle pressure after converting the gas type, otherwise material losses and incorrect functions can occur.

3. Checking and adjusting the nozzle pressure

Connect the test equipment:

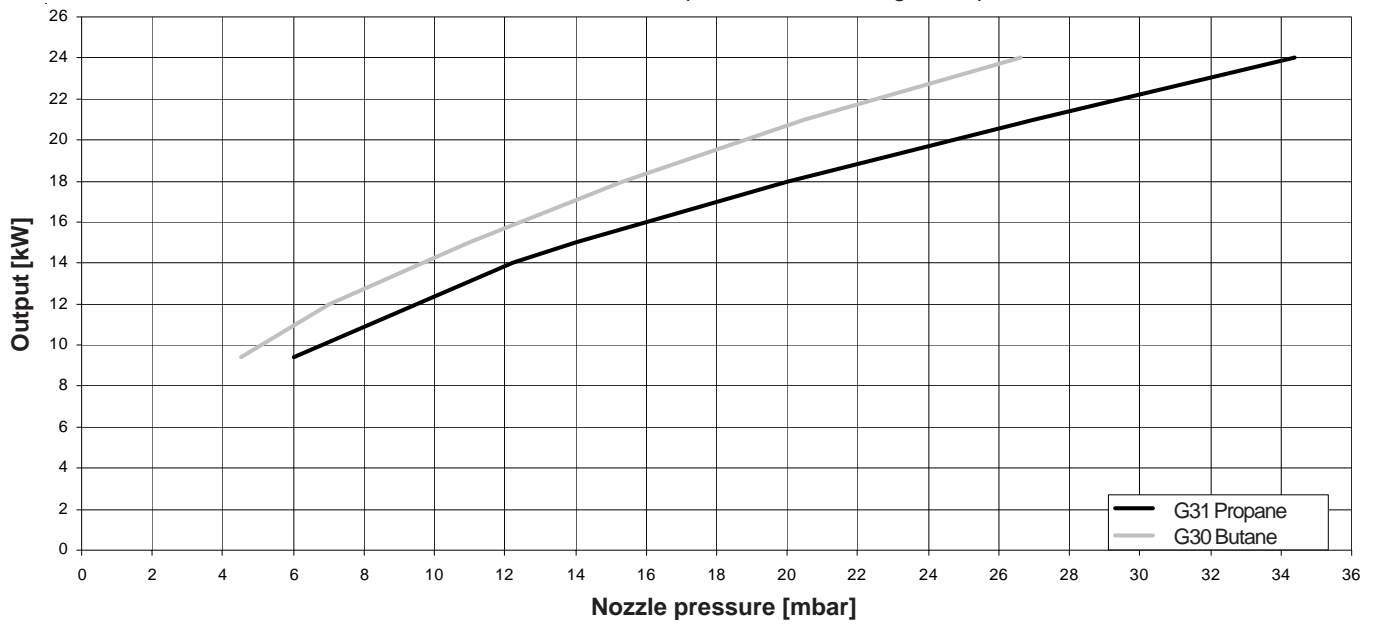
- The boiler must be switched OFF.
Open the gas shut-off valve.
- Remove the casing cover.
- Undo the plug at test nipple ②.
- (+) Connect the differential pressure tester with a hose at test nipple ②.
- (-) Connect the differential pressure tester with a hose at test port ③ of the combustion chamber casing.
- Start the boiler by turning the heating water temperature selector to position 8.
- Read off the nozzle pressure Pmin (at minimum boiler output) within 180 seconds of ignition (soft start phase = minimum output).
- Turn the heating water temperature selector further to the emissions test position [chimney sweep].
- Read off the nozzle pressure Pmax (at maximum boiler output) within the 15 minute test phase.
- Compare the actual values with those in the table.



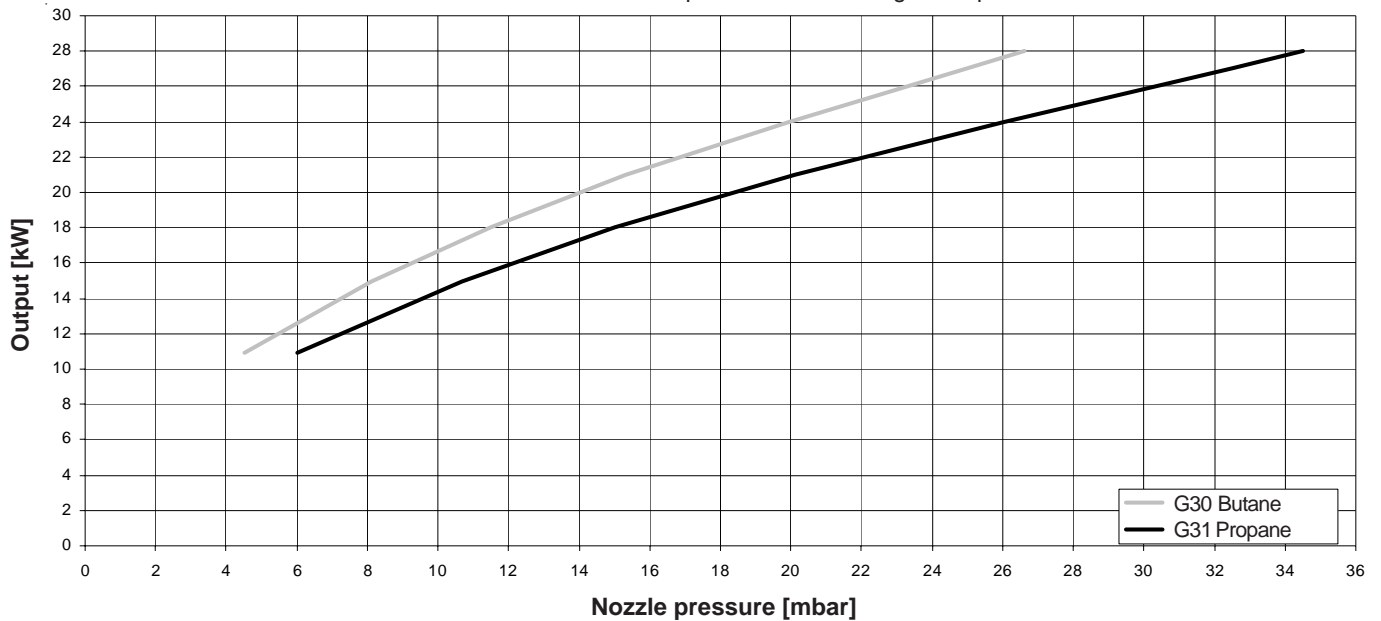
Gas fired boiler	Output kW	Thermal load kW		Nozzle pressures in mbar (1013 mbar; 15 °C)		
				Natural gas H Ws = 14.1 kWh/m ³ = 50.7 MJ/m ³	Butane Ws = 24.3 kWh/m ³ = 87.3 MJ/m ³	Propane Ws = 21.3 kWh/m ³ = 76.8 MJ/kg
CGG-1K-24	9.4	10.4	Pmin	2.1 ± 0.5	4.5 ± 0.5	6.0 ± 0.5
	24.0	26.7	Pmax	12.3 ± 0.5	26.6 ± 0.5	34.4 ± 0.5
CGG-1K-28	10.9	12.0	Pmin	2.1 ± 0.5	4.5 ± 0.5	6.0 ± 0.5
	28.0	31.1	Pmax	12.7 ± 0.5	26.6 ± 0.5	34.5 ± 0.5

Table: Nozzles pressures to be maintained

Output CGG-1K-24 G31 (propane) / G30 (butane)
Details relate to 1013 mbar air pressure and 15 °C gas temperature

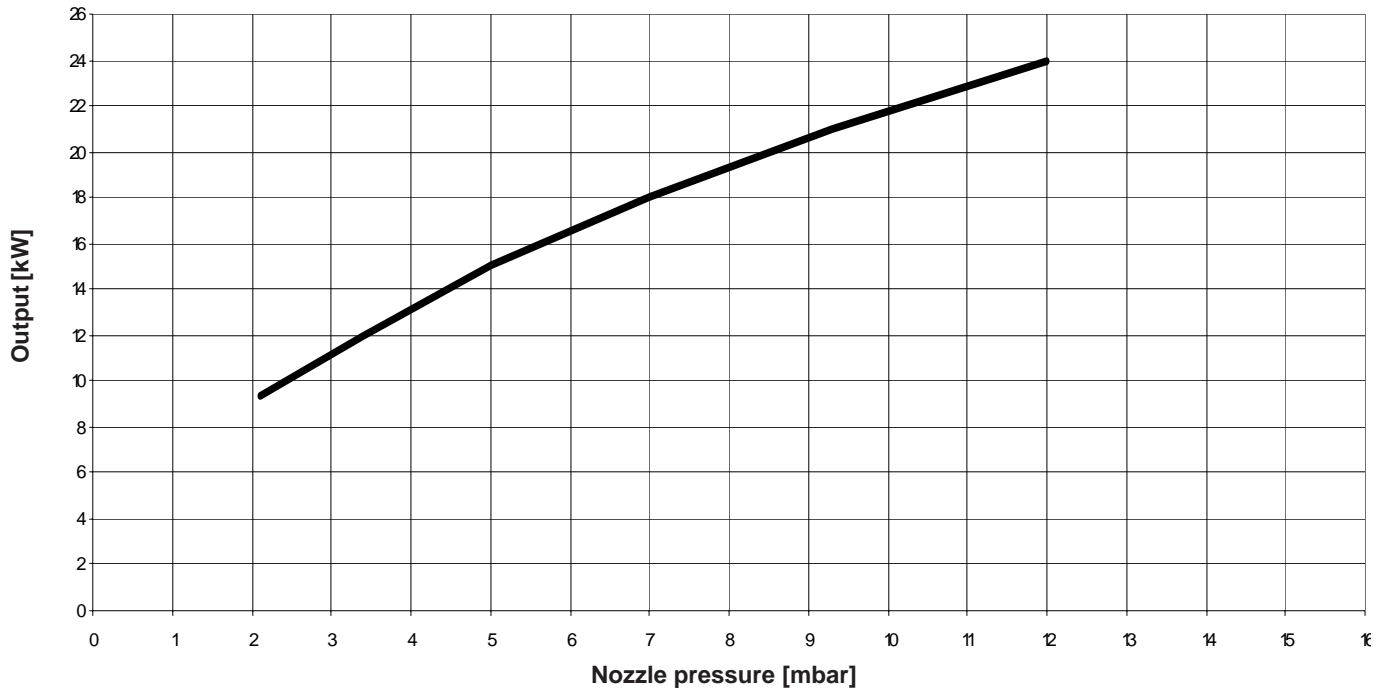


Output CGG-1K-28 G31 (propane) / G30 (butane)
Details relate to 1013 mbar air pressure and 15 °C gas temperature



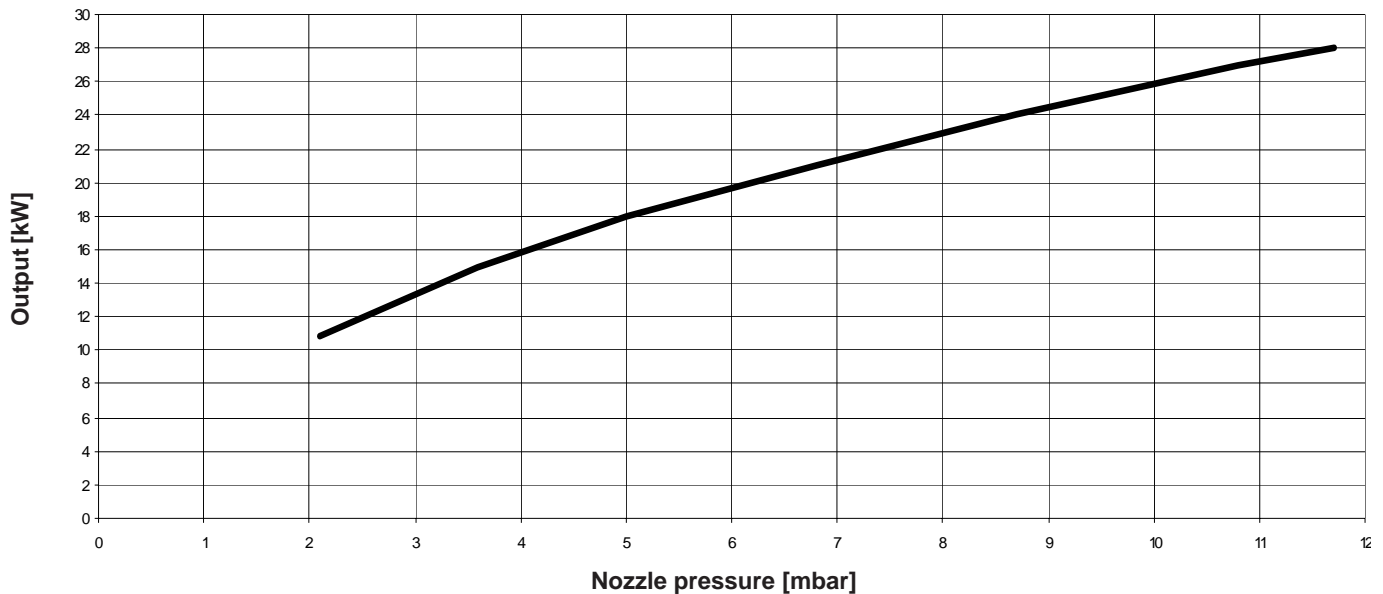
Output CGG-1K-24 natural gas

Details relate to 1013 mbar air pressure and 15 °C gas temperature



Output CGG-1K-28 natural gas

Details relate to 1013 mbar air pressure and 15 °C gas temperature



NB

If the actual values fall outside these limits, readjust the gas valve (see the respective chapter), otherwise material losses at the boiler and incorrect functions can result.

Otherwise remove the test equipment:

- Shut down the boiler. Close the gas shut-off valve.
- Pull the hoses off and tighten test nipple ② and test port ③. Open the gas shut-off valve.

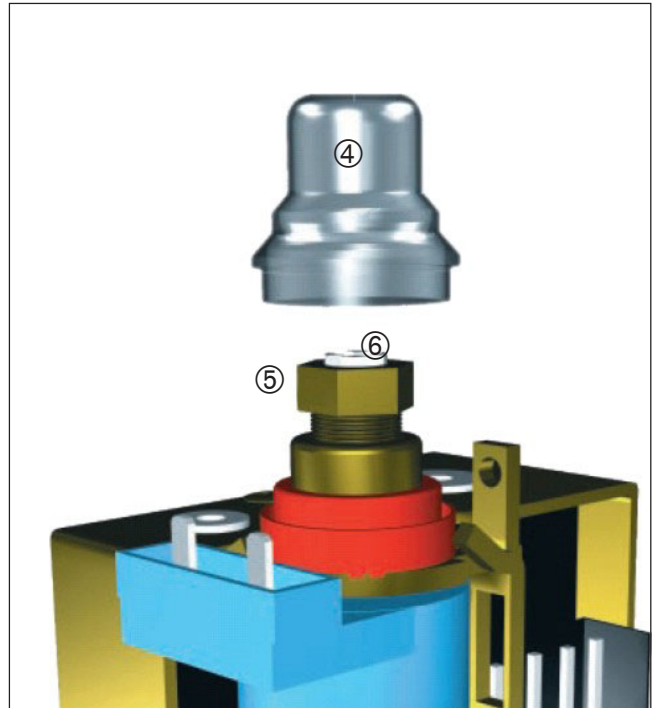


Check the test nipple for soundness.

Readjusting the gas valve:

Carry out the nozzle pressure adjustment in the following order:

- Remove transparent plastic cap ④ from the gas combination valve.
- Operate the boiler in emissions test mode (**Pmax**).
- Adjust the maximum pressure at nut ⑤ (spanner size 10).
- Tightening increases the pressure.
- Releasing reduces the pressure.
- Pull the cable from the gas valve; the boiler goes to minimum output (**Pmin**).
- Adjust the minimum pressure at screw ⑥ (Philips screwdriver 6x1); during this adjustment, hold nut ⑤ tightly.
- Tightening increases the pressure.
- Releasing reduces the pressure.
- Reposition plastic cap ④.
- Reconnect the cable.



Remove the test equipment:

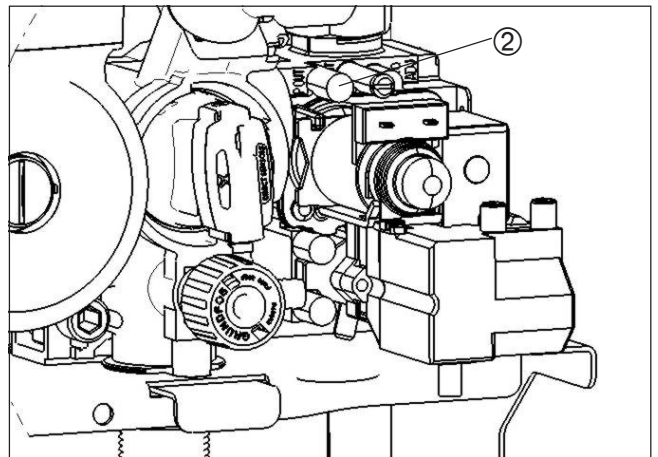
- Shut down the boiler and close the gas shut-off valve.
- Pull the hoses off and tighten the test nipple and the test port. Open the gas shut-off valve.



Check test nipple ② for soundness, otherwise gas may escape, resulting in a risk of explosion.

4. Identification:

Carry out the re-designation of the gas type in accordance with the instructions supplied with the conversion kit.



The flue gas emissions must be tested with the boiler closed.

Testing the combustion air

- Remove the screw from the test port "inlet air".
- Open the gas shut-off valve.
- Inset the test probe until it bottoms out.
- Start the boiler and turn the heating water temperature selector to emissions test [chimney sweep symbol]. (The illuminated status display ring flashes yellow.)
- Test the temperature and CO₂ value.

The balanced flue pipe is not sound if the CO₂ content $\geq 0.3\%$; rectify the leak.

- After the test has been completed, switch the boiler OFF, remove the test probe and close the test port. Ensure the screws are seated firmly.



Vertical boiler flue connection

Testing the flue gas parameters



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

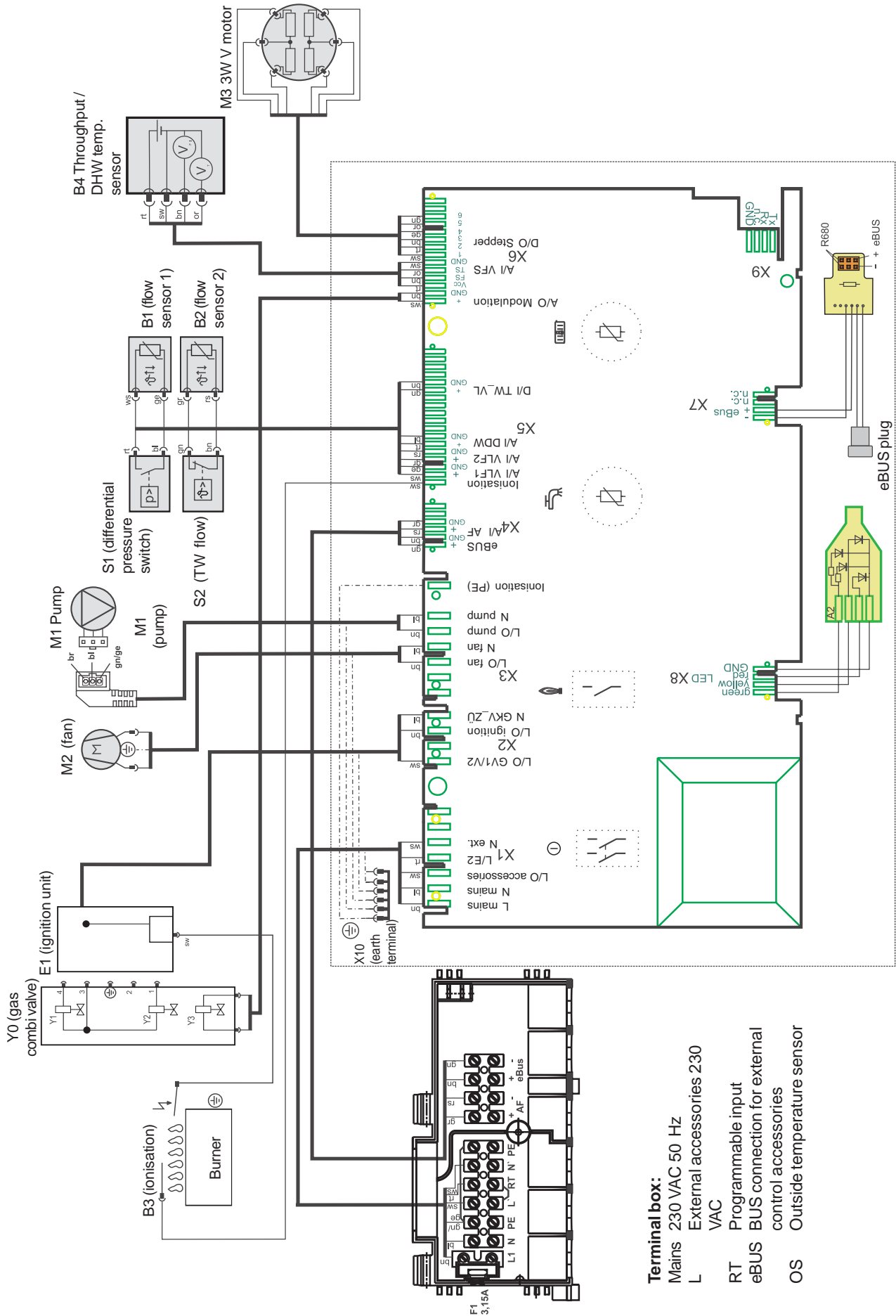
- Remove the screw from the test port "flue gas".
- Open the gas shut-off valve.
- Inset the test probe until it bottoms out.
- Start the boiler and turn the heating water temperature selector to emissions test [chimney sweep symbol]. (The illuminated status display ring flashes yellow.)
- Inset the test probe into the centre of the pipe.
- After the test has been completed, switch the boiler OFF, remove the test probe and close the test port. Ensure the screws are seated firmly.



Horizontal boiler flue connection



Manifold with test port Ø 80/80



Type		CGG-1K-24	CGG-1K-28
Rated output	kW	24	28
Rated thermal load	kW	26.7	31.1
Lowest output (modulating)	kW	9.4	10.9
Lowest thermal load (modulating)	kW	10.4	12.0
Heating flow	G	¾"	¾"
Heating return	G	¾"	¾"
DHW connection	G	¾"	¾"
Cold water connection	G	¾"	¾"
Gas connection	R	¾"	¾"
Air / flue gas connection	mm	100/60	100/60
Gas supply details:			
Natural gas H (Hi = 9.5 kWh/m ³ = 34.02 MJ/m ³)	m ³ /h	2.8	3.3
LPG B/P (Hi = 12.9 kWh/kg = 46.3 MJ/kg)	kg/h	2.1	2.4
Gas supply pressure:			
Natural gas H	mbar	20	20
LPG B/P	mbar	50	50
Flow temperature	°C	40-90	40-90
Heating water temperature range (pre-selected)	°C	40-80	40-80
Max. overall pressure, heating	bar	3	3
Heating water heat exchanger content	l	0.5	0.5
Residual pump head / stage 1 / 2 / 3			
Rated output (Δt = 20 K)	mbar	- / 220 / 320	- / 120 / 210
Specific throughput D to Δt = 30 K	l/min	11.5	14.4
DHW throughput (version IT, ES)	l/min	2-8 (12)	2-8 (12)
Minimum flow pressure / minimum flow pressure to EN 625	bar	0.2 / 0.9	0.2 / 0.9
Max. permissible overall pressure	bar	10	10
DHW temperature range	°C	40-60	40-60
Expansion vessel			
Total capacity	l	8	8
Inlet pressure	bar	0.75	0.75
Flue gas volume flow ¹⁾	g/s	13.8 / 14.9	17.2 / 18.2
Flue gas temperature ¹⁾	°C	125-165	125-165
Required boiler draught	Pa	0	0
Flue gas category to DVGW G 635		U ₀₂	U ₀₂
Electrical connection	V~/Hz	230/50	230/50
Integral fuse A		3.15	
Power consumption	W	120	120
Protection		IPX 4D	IPX 4D
Total weight (dry)	kg	40	42
CE ID		CE0085BR0377	CE0085BR0377

¹⁾ Q_{B_Min} / Q_{B_Rated} at 80/60 °C at the boiler connection

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

Fault code	Fault	Cause	Remedy
1	TBV excess temperature	The flow temperature has exceeded the limit for TBV shutdown temperature exceeded. Heat exchanger severely contaminated.	Check the system pressure. Check the heating circuit pump. Check the step switch of the HC pump. Vent the heating system. Press the reset button. Clean the heat exchanger.
4	None Flame established	No flame established during the burner start	Check the gas supply pipe and open the gas tap, if necessary. Check the ignition electrode and ignition cable. Press the reset button.
6	TW excess temperature	The flow/return temperature has exceeded the limit for the TW shutdown temperature.	Check the system pressure. Vent the system. Set the pump to stage 2 or 3.
11	False flame signal	A flame is recognised before the burner starts.	Press the reset button.
12	Flow sensor faulty	The sensor for the flow temperature or the lead are faulty (sensor 1 or sensor 2).	Check the lead. Check the flow sensor.
15	Outside temperature sensor faulty	The sensor for the outside temperature or the lead is faulty.	Check the lead. Check the outside temperature sensor.
22	Lack of air	No differential pressure switch ON.	Press the reset button; check the silicone hoses to the differential pressure switch. Check the flue gas system and gas fan. Check the differential pressure switch.
23	Fault differential pressure switch	Differential pressure switch does not switch OFF.	Press the reset button. Replace the differential pressure switch, if required.
41	Flow monitoring	Flow temperature 2, flow temperature 1 > 12 K Excessive temperature change	Vent the heating system, check the system pressure. Check the heating circuit pump.
45	Fault sensor Throughput	Lead or sensor faulty or not connected	Check the lead and and replace the sensor, if required.
46	Fault sensor DHW outlet temperature	Lead or sensor faulty or not connected	Check the lead and and replace the sensor, if required.

EC declaration of conformity

Hiermit erklären wir, dass die Wolf-Gas-Brennwerttherme sowie die Wolf-Gasheizkessel dem Baumuster entsprechen, wie es in der EG-Baumusterprüfbescheinigung beschrieben ist, und dass sie den für sie geltenden Anforderungen der Gasgeräte-richtlinie 90/396/EWG vom 29.06.1990 genügen.

EC Declaration of Conformity

We herewith declare, that Wolf wall mounted gas appliances as well as Wolf gas boilers correspond to the type described in the EC-Type Examination Certificate, and that they meet the specified requirements according to the Gas Equipment Directive 90/396/EEC dated 1990/06/29.

Déclaration de conformité au modèle type CE

Ci-joint, nous confirmons, que les chaudières murales à gaz Wolf et les chaudières a gaz Wolf sont conformes aux modèles type CE, et qu'elles correspondent aux exigences fondamentales en vigueur de la directive du 29-06-1990 par rapport aux installations alimentées de gaz (90/396/CEE).

Dichiarazione di conformita campione di costruzione - EG

Con la presente dichiariamo che le nostre caldaie murali a Gas Wolf e le caldaie a Gas Wolf corrispondono al e campioni di costruzione, come sono descritte nel certificato di collaudo EG „campione di costruzione“ e che esse soddisfano le disposizioni in vigore nella normativa: 90/396/EWG apparecchiature a Gas.

EG-konformiteitsverklaring

Hierbij verklaren wij dat de Wolf gaswandketels alsmede de Wolf atmosferische staande gasketels gelijkwaardig zijn aan het model, zoals omschreven in het EG-keuringscertificaat, en dat deze aan de van toepassing zijnde eisen van de EG-richtlijn 90/396/EWG (Gastoestellen) d. d. 29.06.90 voldoen.

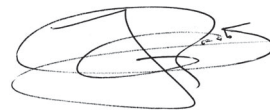
Declaración a la conformidad del tipo - CE

Por la presente declaramos que las calderas murales Wolf al igual que las calderas atmosfericas a gas corresponden a la certificación CE y cumplen la directiva de gas 90/396/CEE del 29.06.1990.

Wolf GmbH
Industriestraße 1
D-84048 Mainburg



Dr. Fritz Hille
Engineering Director



Gerdewan Jacobs
Engineering Manager