

WRD 11 -2 .G..

WRD 14 -2 .G..

WRD 18 -2 .G..

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Safety information

If you smell gas:

- ▶ Close the gas valve.
- ▶ Open the windows.
- ▶ Do not turn on any electrical switch.
- ▶ Extinguish any fire.
- ▶ Go to a different location and call the gas supplier or an authorised technician.

If you smell combustion gases:

- ▶ Turn off the heater.
- ▶ Open doors and windows.
- ▶ Notify a gas fitter.

Assembly, modifications

- ▶ The assembly and modifications during the installation of the heater can only be performed by an authorised installer.
- ▶ Do not modify the pipes which conduct combustion gases.
- ▶ Do not close or reduce air circulation vents.

Maintenance

- ▶ The user must periodically maintain and check the heater.
- ▶ The user is responsible for safety and environmental protection during installation.
- ▶ The heater must be serviced annually.
- ▶ Only original spare parts are allowed to be used.

Explosive and highly inflammable material

- ▶ Do not store or use inflammable material (paper, solvents, paints, etc) near the heater.

Combustion air and surrounding air

- ▶ To avoid corrosion, the combustion air and surrounding air must be free from harmful substances (e.g. halogenated hydrocarbons which contain chlorine and fluorine compounds).

Information to the client

- ▶ Inform the client about how to operated and handle the heater.
- ▶ Inform the client that no independent modifications are permitted.

Explanation of symbology



The safety instructions which appear in the text have a grey background and are identified in the margin by a triangle surrounding an exclamation mark.

The warnings used indicate the degree of risk in case the precautionary measures are not complied with.

- Caution is used to indicate the risk of minor material damage.
- Warning is used to indicate the risk of minor personal injuries or more severe material damage.
- Danger is used to indicate the risk of severe personal injuries which, in certain cases, may result in death.



Indications in the text are identified by the symbol in the margin.

The beginning and end of the text are indicated by a horizontal line.

The instructions contain important information which does not pose a risk to people or the heater.

1 Technical Characteristics and Dimensions

1.1 General Description



Model	WRD 11/14/18 -2 G...
Category	II _{2H3+}
Type	B _{11BS}

Tab. 1

1.2 Explanation of Model Code

W	R	D	11	-2	G	23 31	S...
W	R	D	14	-2	G	23 31	S...
W	R	D	18	-2	G	23 31	S...

Tab. 2

- W** Water gas heater
- R** Proportional power adjustment
- D** Digital display
- 11** Capacity (l/min)
- 2** Version 2
- G** Electronic ignition powered by hydrogenerator
- 23** Indicator number of natural gas H
- 31** Indicator number of LPG
- S...** Country code

1.3 Accessories (Included with Appliance)

- Gas heater
- Attachment elements
- Connection elements
- Heater documentation.

1.4 Description of the heater

Operating convenience, as the heater is ready to operate by simply pressing a switch.

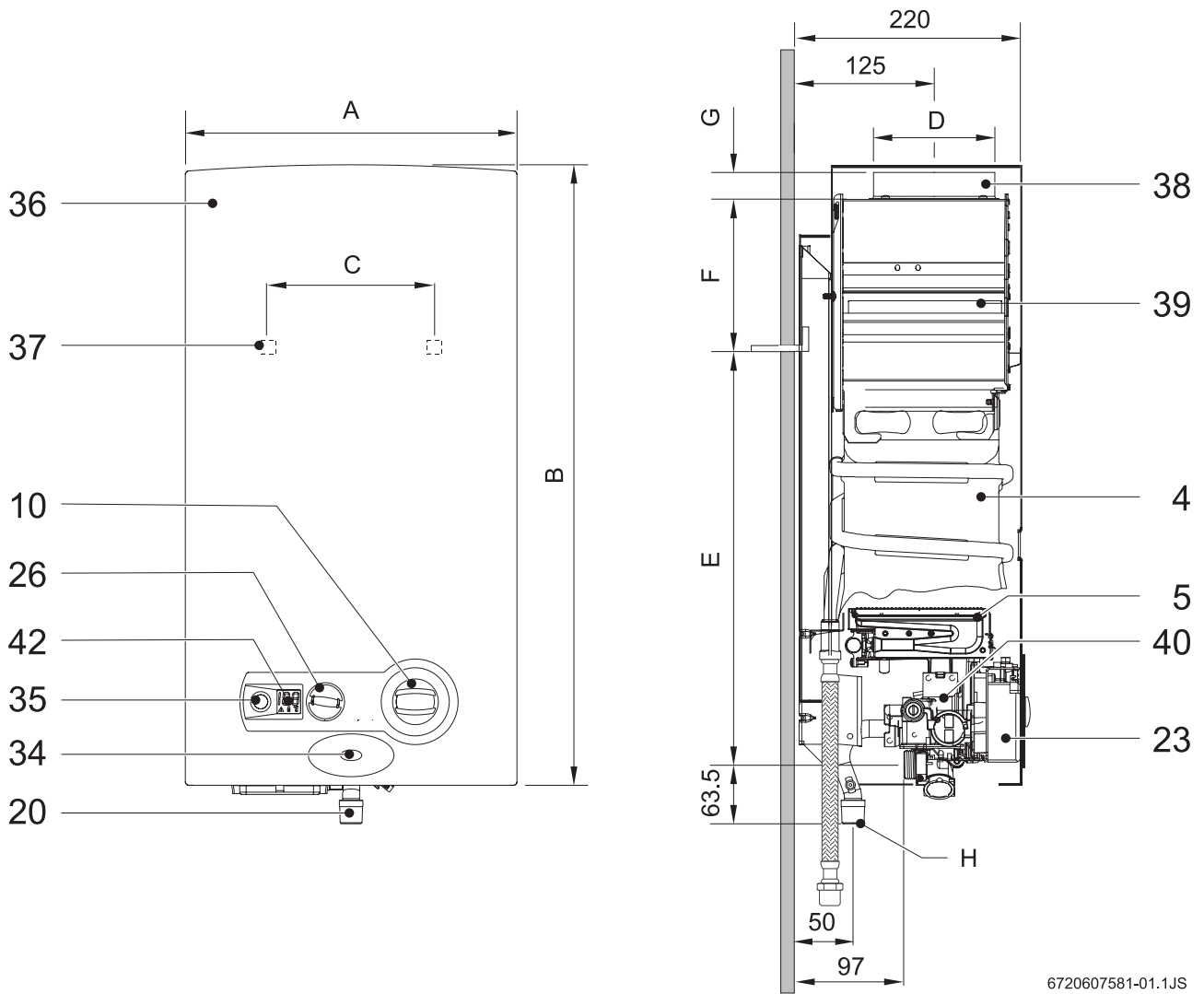
- Heater for wall-mounting
- Ignition by electronic device triggered when the water valve opens
- Hydrodynamic generator which produces sufficient energy to ignite and control the heater.
- Gauge to display temperature, burner operation and malfunctions

- Temperature sensor to monitor the water temperature at the heater output
- Great savings in comparison with conventional heaters, due to the possibility of power adjustment and no permanent pilot flame
- Natural gas/LPG burner
- Semi-permanent pilot burner which only functions during the period between the opening of the water valve and the ignition of the main burner
- Heat exchanger without tin/lead covering
- Water valve in fibreglass-reinforced polyamide, 100% recyclable
- Automatic adjustment of the water flow by means of a device which permits a constant flow to be maintained in spite of variable pressure supplies
- Gas flow adjustment proportional to the water flow to maintain a constant high temperature.
- Safety devices:
 - Ionisation probe to check for accidental extinction of the burner flame
 - Flue gas safety device which turns off the heater in case of inadequate combusted gas evacuation conditions
 - Temperature limiter which prevents overheating of the heat exchanger.

1.5 Special accessories

- Conversion kit from natural gas to butane/propane and vice-versa.

1.6 Dimensions



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Fig. 1

- 4 Heat exchanger
- 5 Burner
- 10 Temperature/volume selector
- 20 Gas connection
- 23 Ignition unit
- 26 Power selector
- 34 LED - Burner status check
- 35 Switch/LED - Low water pressure indicator
- 36 Front cover
- 37 Opening for mounting on the wall
- 38 Connection collar to the combustion gases pipe
- 39 Flue with non-return device
- 40 Gas valve
- 42 Digital display

Dimensions (mm)	A	B	C	D	E	F	G	H (Ø)	
								Natural gas	LPG
WRD11G	310	580	228	112,5	463	60	25	3/4"	1/2"
WRD14G	350	655	228	132,5	510	95	30	3/4"	1/2"
WRD18G	425	655	334	132,5	540	65	30	3/4"	1/2"

Tab. 3 Dimensions

1.7 Functional diagram of the heater

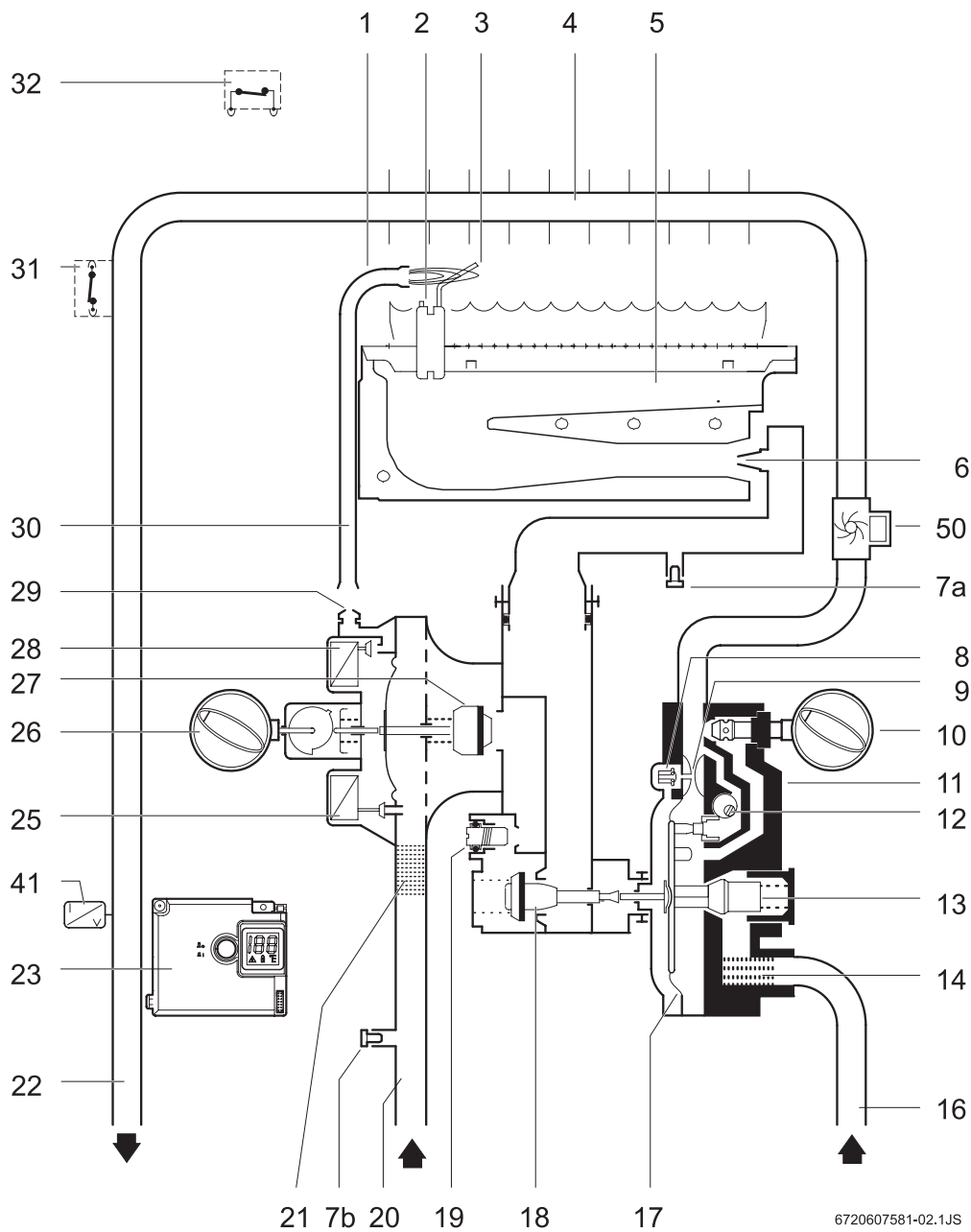


Fig. 2 Functional diagram

- | | | | |
|-----------|---|-----------|------------------------|
| 1 | Pilot burner | 20 | Gas supply pipe |
| 2 | Spark plug | 21 | Gas filter |
| 3 | Ionisation probe | 22 | Hot water pipe |
| 4 | Heat exchanger | 23 | Ignition unit |
| 5 | Main burner | 25 | Servo valve |
| 6 | Injector | 26 | Power selector |
| 7a | Screw for measurement of pressure in burner | 27 | Gas valve |
| 7b | Screw for measurement of input pressure | 28 | Pilot valve |
| 8 | Slow ignition valve | 29 | Pilot injector |
| 9 | Venturi | 30 | Pilot gas pipe |
| 10 | Temperature/volume selector | 31 | Temperature limiter |
| 11 | Water valve | 32 | Flue gas safety device |
| 12 | Command cone | 41 | Temperature sensor |
| 13 | Water flow regulator | 50 | Hydrogenerator |
| 14 | Water filter | | |
| 16 | Cold water pipe | | |
| 17 | Diaphragm | | |
| 18 | Main gas valve | | |
| 19 | Maximum gas adjusting screw | | |

1.8 Electrical diagram

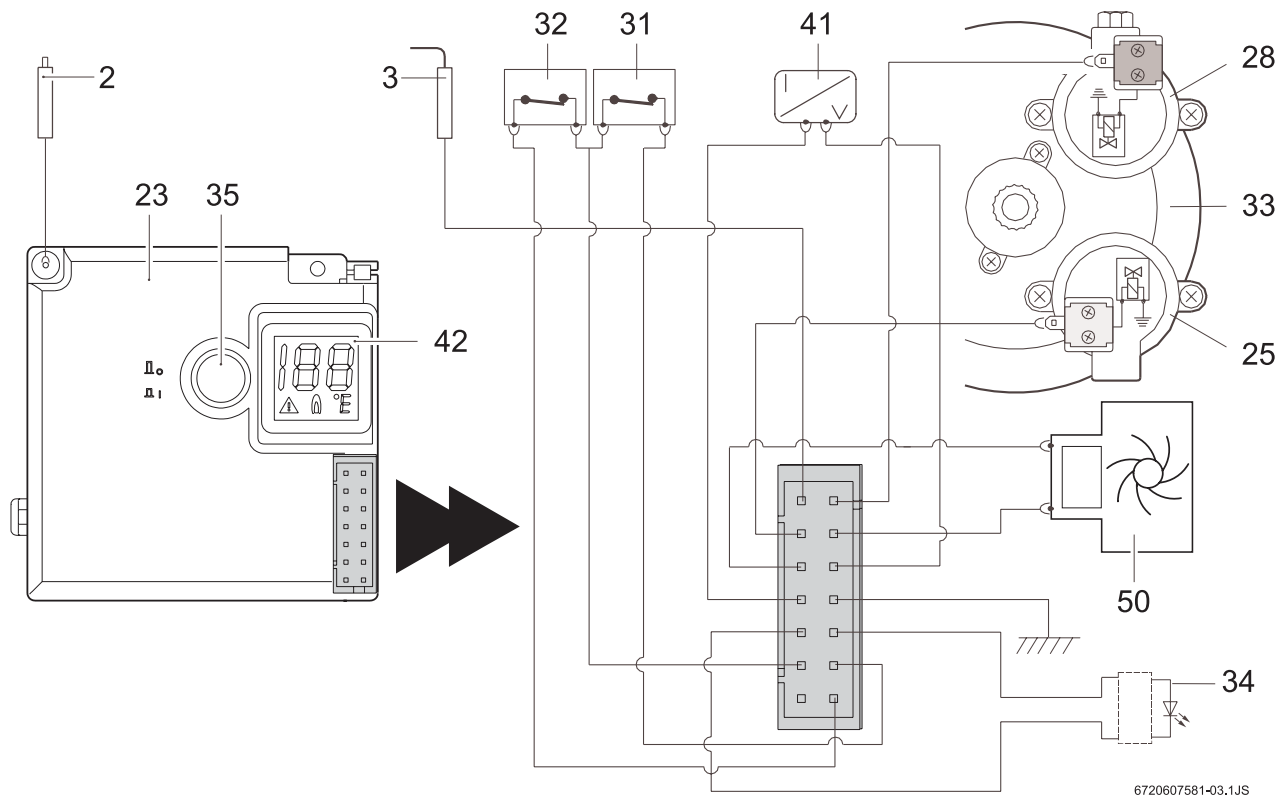


Fig. 3 Electrical diagram

2	Spark plug	33	Diaphragm valve
3	Ionisation probe	34	LED - Burner status check
23	Ignition unit	35	Switch/LED - Low water pressure indicator
25	Servo valve (normally open)	41	Temperature sensor
28	Pilot valve (normally closed)	42	Digital display
31	Temperature limiter	50	Hydrogenerator
32	Flue gas safety device		

1.9 Function

This gas heater is equipped with automatic electronic ignition which simplifies its operation.

► To do so, just turn on the switch (Fig. 7).

After this procedure, automatic ignition occurs whenever a hot water tap is opened. First, the pilot burner is lit and approximately four seconds afterwards the main burner. The pilot burner flame is then extinguished after a short period of time.

This is a way of saving a great amount of energy as the pilot burner only operates for the minimum necessary time to ignite the main burner, in contrast to conventional systems which operate permanently.



Air in the gas supply pipe when the heater is started up may cause ignition to fail.

If this happens:

► Close and open the hot water tap to repeat the ignition process until all the air has been purged.

1.10 Technical characteristics

Technical characteristics	Symbol	Units	WRD11	WRD14	WRD18
Power and flow					
Nominal useful power	P _n	kW	19,2	23,6	30,5
Minimum useful power	P _{min}	kW	7	7	9
Useful power (adjustment range)		kW	7 - 19,2	7 - 23,6	9 - 30,5
Nominal thermal flow	Q _n	kW	21,8	27	34,5
Minimum thermal flow	Q _{min}	kW	8,1	8,1	10,3
Gas data*					
Supply pressure					
Natural gas H	G20	mbar	20	20	20
LPG (butane/propane)	G30/G31	mbar	30/37	30/37	30/37
Consumption					
Natural gas H	G20	m ³ /h	2,3	2,9	3,7
LPG (butane/propane)	G30/G31	kg/h	1,7	2,2	2,75
Number of injectors			12	14	18
Water data					
Maximum permissible pressure**	p _w	bar	12	12	12
Temperature selector in fully clockwise position					
Temperature rise		°C	50	50	50
Flow range		l/min	2 - 5,5	2 - 7	2 - 8,8
Minimum operating pressure	p _{wmin}	bar	0,35	0,35	0,45
Minimum pressure for maximum flow		bar	0,55	0,65	0,8
Temperature selector in fully anti-clockwise position					
Temperature rise		°C	25	25	25
Flow range		l/min	4 - 11	4 - 14	4 - 17,6
Minimum operating pressure		bar	0,45	0,45	0,45
Minimum pressure for maximum flow		bar	1	1,4	1,7
Combustion products***					
Minimum low pressure		mbar	0,015	0,015	0,015
Flow		g/s	13	17	22
Temperature		°C	160	170	180

Tab. 4

* Hi 15 °C - 1013 mbar - dry: Natural gas 34.2 MJ/m³ (9.5 kWh/m³)

LPG: Butane 45.72 MJ/kg (12.7 kWh/kg) - Propane 46.44 MJ/kg (12.9 kWh/kg)

** Considering the water dilution effect this value must not be exceeded.

*** For nominal calorific power

2 Regulations

Any local by-laws and regulations pertaining to installation and use of gas-heated appliances must be observed. Please refer to the laws that should be attended in your country.

3 Installation



The gas installation, the connection of exhaust/supply pipes as well as the initial startup are to be performed exclusively by authorised gas fitters.



The heater can only be used in the countries indicated on the rating plate.



The use of these heaters with water supply pressure values below 0.5 bar is not recommended.

3.1 Important information

- ▶ Before installing, call the gas company and check the standard relating to gas heaters and ventilation requirements for rooms.
- ▶ Install a gas cut-off valve as close as possible to the heater.
- ▶ After finishing the gas system, the pipes must be thoroughly cleaned and leak-tested; to avoid damaging the gas valve by excess pressure, this test must be performed with the gas valve of the heater closed.
- ▶ Check if the heater corresponds to the type of gas provided.
- ▶ Check if the flow and pressure through the installed reducer are appropriate for the consumption of the heater (see technical data in the table 4).

3.2 Selection of the place of installation

Requirements regarding the place of installation

- Do not install the heater in rooms with a volume of less than 8 m³ (not including the volume of the furniture providing this does not exceed 2 m³).
- Comply with the specific instructions for each country.
- Assemble the gas heater in a well-ventilated location where it will not be exposed to temperatures below zero and in a place where there is an evacuation pipe for combustion gases.
- The gas heater must not be installed over a heat source.

- To avoid corrosion, the combustion air must be free from harmful substances. Examples of particularly corrosive substances: halogenated hydrocarbons contained in solvents, paints, glues, engine gases and various domestic detergents. If necessary, take adequate measures.
- Respect the minimum installation clearances indicated in Fig. 4.
- The heater must not be installed in locations where the room temperature can reach 0 °C.

In case of a frost risk:

- ▶ Turn off the heater.
- ▶ Purge the heater (see section 6.3).

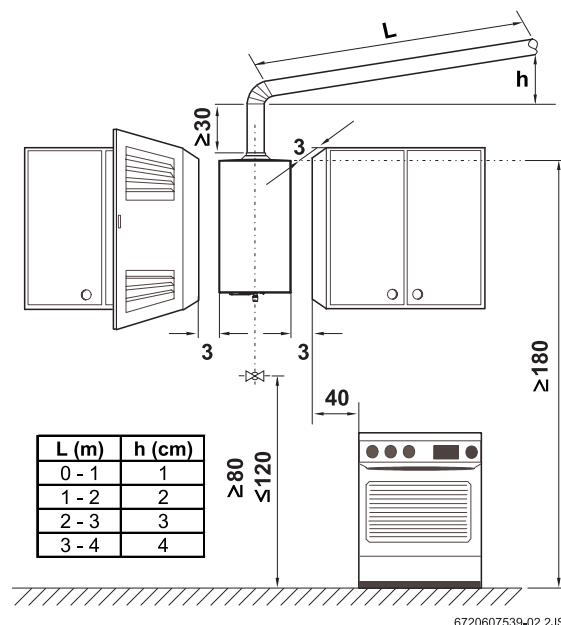


Fig. 4 Minimum clearances

Combustion gases

- All gas heaters must be connected in a leak-proof manner to a gas evacuation pipe of adequate dimensions.
- The flue must:
 - be vertical (reduced horizontal sections or no horizontal sections at all)
 - be thermally insulated
 - have an exit above the maximum roof level
- A flexible or rigid pipe should be used, fit it inside the flue socket. The external diameter of the pipe should be slightly smaller than the dimension specified in the appliances dimensions table.
- Must be mounted a protection wind/rain in the extremity of the evacuation pipe.



Caution: Ensure that the extremity of the evacuation pipe is placed between the ledge and the ring of the flue.

If these conditions cannot be met, a different location must be selected for the gas intake and evacuation.

Surface temperature

The maximum surface temperature of the heater is less than 85 °C, with the exception of the combustion gases evacuation device. No special protection measures are required for flammable construction materials or built-in furniture items.

Air intake

The place where the heater is to be installed must have an area of air supply according to the table.

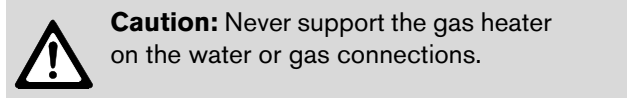
Heater	Minimum useful area
WRD11G	≥60 cm ²
WRD14G	≥90 cm ²
WRD18G	≥120 cm ²

Tab. 5 Useful areas for air intake

The minimum requirements are listed above; however, each country's specified requirements must also be respected.

3.3 Heater mounting

- ▶ Remove the temperature/flow selector and the power selector.
- ▶ Unscrew the front fixing screws.
- ▶ With a simultaneous movement towards you and upwards, release the front of the two lugs from the back.
- ▶ Fix the heater vertically, using the provided screw hooks and plugs.

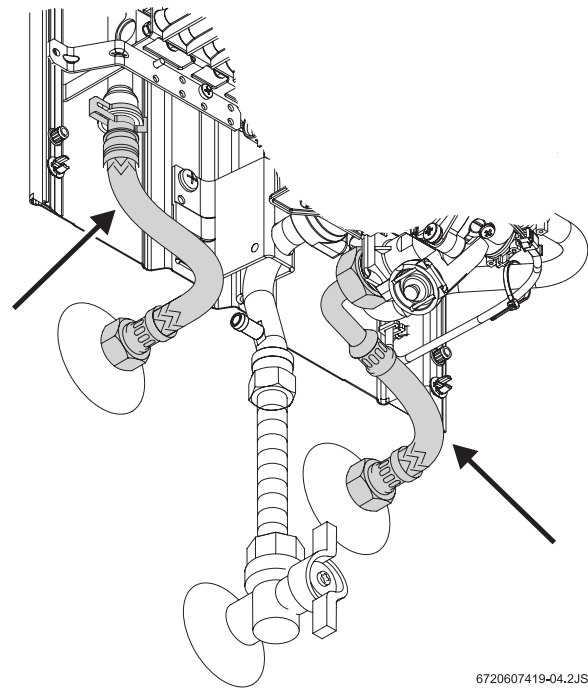


3.4 Water connection

It is advisable to purge the installation beforehand, because the presence of dirt may reduce the flow and, in extreme cases, cause a blockage.

- ▶ Identify the cold water pipe (Fig. 5, item A) and the hot water pipe (Fig. 5, item B), so as to avoid any possible mis-connection.

- ▶ Connect the water pipes to the water valve using the provided connection accessories.



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Fig. 5 Water connection



It is advisable to install a non-return valve on the supply side of the heater to avoid problems caused by sudden changes in supply pressure.

3.5 Hydrogenerator operation

The hydrogenerator (hydrodynamic generator) is inserted in the water circuit between the water valve and the heat exchanger. This component has a turbine that rotates when water flows past its blades. This movement is transmitted to an electric generator which powers the heater ignition unit.

The electrical voltage value supplied by the HDG is between 1.1 and 1.7 VDC. In this way, there is no need for batteries.

3.6 Gas connection


Any local by-laws and regulations pertaining to installation and use of gas-heated appliances must be observed.

Please refer to the laws that should be attended in your country.

3.7 Commissioning

- ▶ Turn on the gas and water cocks and check all connections for leaks.
- ▶ Check flue gas safety device good functioning, proceed as explained in section 6.4.

4 Use

-  Open all water and gas blocking devices. Purge the pipes.



Caution: The front panel in the burner and pilot burner area may reach high temperatures, with risk of burning in case of contact.

4.1 Digital display - description

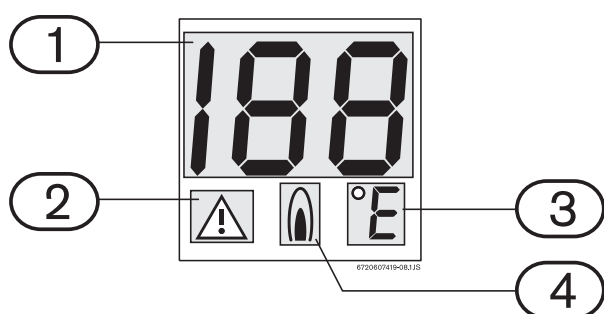


Fig. 6 Digital display

- 1 Temperature/error code
- 2 Malfunction indicator
- 3 Temperature measurement units
- 4 Heater in operation (burner turned on)

4.2 Before starting up the heater



Caution:

- ▶ Initial startup must be performed by a qualified technician who will provide the client with all the necessary information for optimum operation of the gas heater.

- ▶ Check if the gas indicated on the rating plate is the same as the one used at the location.
- ▶ Open the gas valve.
- ▶ Open the water valve.

4.3 Turning the heater on and off

Turning on

- ▶ Press the switch , position .

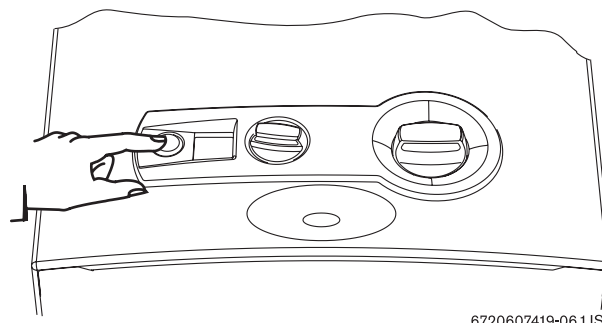


Fig. 7

Green light on = Main burner on

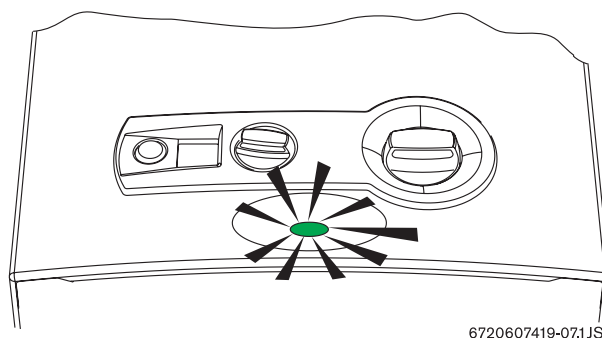


Fig. 8

Turning off

- ▶ Press the switch , position .

4.4 Water flow

If the red LED starts flashing, check the water pressure.

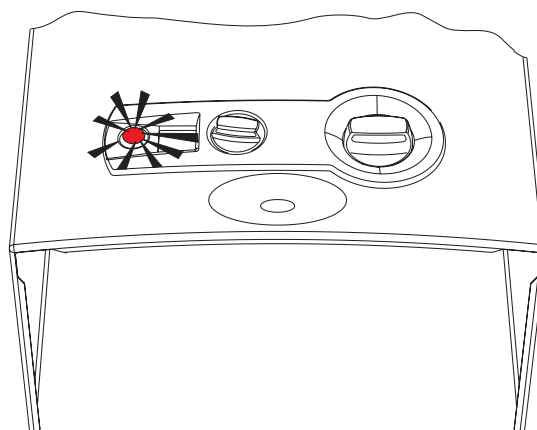


Fig. 9

4.5 Power adjustment

Lower water temperature.
Less power.

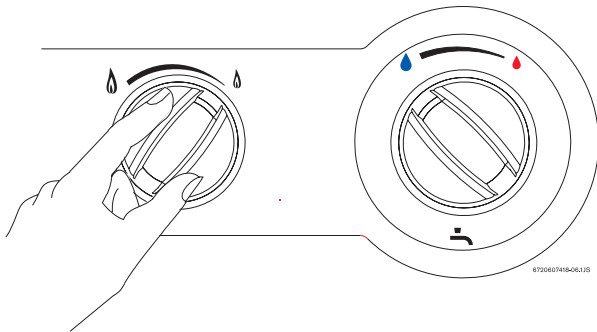


Fig. 10

Higher water temperature.
More power.

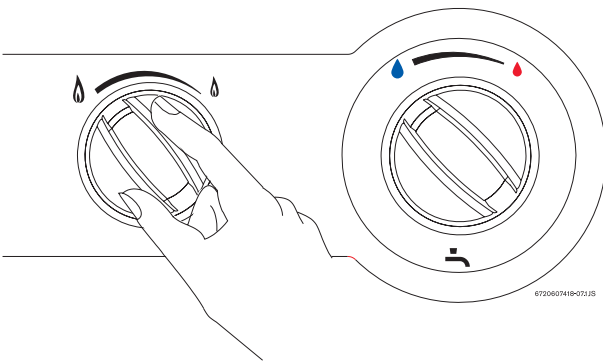


Fig. 11

4.6 Temperature/flow adjustment

- ▶ Turn anti-clockwise
Increases flow and decreases water temperature.

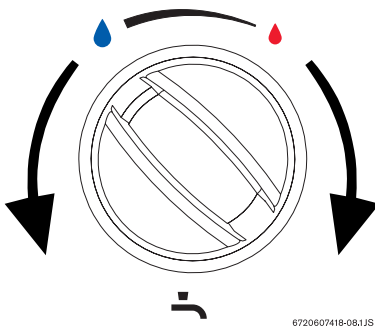


Fig. 12

- ▶ Turn clockwise.
Decreases flow and increases water temperature.

Regulating the temperature to the minimum required value reduces energy consumption as well as the possibility of limescale deposits in the heat exchanger.



Caution: The temperature on the display is not precise, always check before bathing children or elderly people.

5 Adjustments

5.1 Heater adjustment



Sealed elements must not be opened.

Natural gas

Heaters for natural gas (G 20) are supplied sealed from the factory after being adjusted to the values indicated on the rating plate.



Heaters must not be turned on if the connection pressure is lower than 15 mbar or higher than 25 mbar.

Liquefied gas

Heaters for propane/butane (G31/G30) are supplied sealed from the factory after being adjusted to the values indicated on the rating plate.



Danger: The following procedures must only be performed by a qualified technician.

It is possible to adjust the power using the burner pressure process, although a manometer is necessary for this procedure.

5.2 Pressure adjustment

Accessing the adjusting screw

- ▶ Remove the front part of the heater (see 3.3).

Connecting the manometer

- ▶ Unscrew the shut-off screws (Fig. 13).
- ▶ Connect the manometer to the burner pressure measuring point.

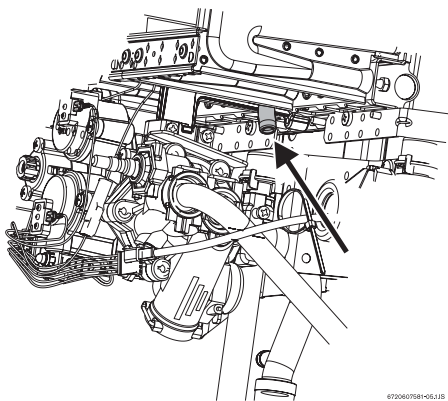


Fig. 13 Pressure measurement point

Maximum gas flow adjustment

- ▶ Remove the seal from the adjusting screw (Fig. 14).
- ▶ Turn on the heater with the power selector set to the left (maximum position).

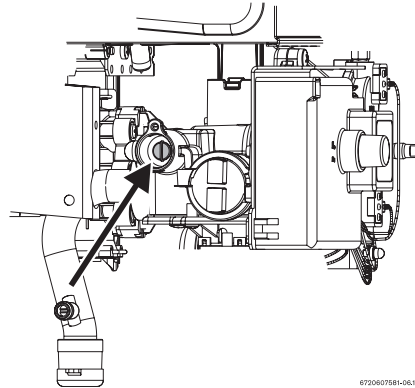


Fig. 14 Maximum gas flow adjusting screw

- ▶ Open various hot water taps.
- ▶ Using the adjusting screw (Fig. 14), regulate the pressure until achieving the values indicated in the table 6.
- ▶ Seal the adjusting screw once again.

Minimum gas flow adjustment



The minimum gas flow adjustment is performed automatically after the adjustment of the maximum gas flow.

		Natural gas H	Butane	Propane
Injector code	WR11	8708202113 (1,10)	8708202130 (0,70)	
		8708202124 (1,20)	8708202128 (0,72)	
	WR14	8708202113 (1,10)	8708202128 (0,72)	
		8708202116 (1,25)	8708202132 (0,75)	
	WR18	8708202115 (1,15)	8708202130 (0,70)	
		8708202116 (1,25)	8708202132 (0,75)	
Connection pressure (mbar)	WR11 WR14 WR18	20	30	37
MAX (mbar)	WR11	12,7	28	35
	WR14	12	28	35
	WR18	10,3	25,5	32,5

Tab. 6 Burner pressure

5.3 Conversion to a different type of gas

Only use the **original conversion kits**.

The conversion must only be performed by a qualified technician. The original conversion kits are supplied with assembly instructions.

6 Maintenance



Maintenance must only be performed by a qualified technician. After one or two years of use a general overhaul must be performed.



Warning: Before performing any maintenance work:

- ▶ Close the water flow valve.
- ▶ Close the gas flow valve.

- ▶ Only use original spare parts.
- ▶ Order the spare parts according to the spare parts catalogue for the heater.
- ▶ Replace the joints and removed O-rings with new ones.
- ▶ Only the following lubricants must be used:
 - Hydraulic part: Unisilikon L 641 (8 709 918 413)
 - Coil unions: HFt 1 v 5 (8 709 918 010).

6.1 Periodic maintenance work

Functional check

- ▶ Check the operation of all safety, adjustment and monitoring elements.

Heat exchanger

- ▶ Check the heat exchanger is clean.
- ▶ In case of dirt:
 - Remove the heat exchanger and take out the limiter.
 - Clean the chamber with a powerful jet of water.
- ▶ If dirt persists: Soak the plates in hot water with detergent and clean thoroughly.
- ▶ If necessary: De-lime the interior of the heat exchanger and the connection pipes.
- ▶ Install the heat exchanger using new joints.
- ▶ Install the limiter on the support.

Burner

- ▶ Check the burner annually and clean it if necessary.
- ▶ If it is very dirty (grease, soot): Remove the burner, soak it in hot water with detergent and clean it thoroughly.

Water filter

- ▶ **Replace** the water filter installed in the water valve entry.

Burner and pilot injector

- ▶ Remove and clean the pilot burner.
- ▶ Remove and clean the pilot injector.



Warning: Without a water filter installed, turning on the heater is prohibited.

6.2 Startup after maintenance work

- ▶ Tighten all connections once more.
- ▶ Read chapter 4 “Use” and chapter 5 “Adjustments”.

6.3 Purge the appliance

If there is a risk of freezing, proceed as follows:

- ▶ Remove the fixing lock from the filter screw cap (no. 1) situated in the water valve.
- ▶ Remove the filter screw cap (no. 2) from the water valve.
- ▶ Empty all the water contained in the heater.

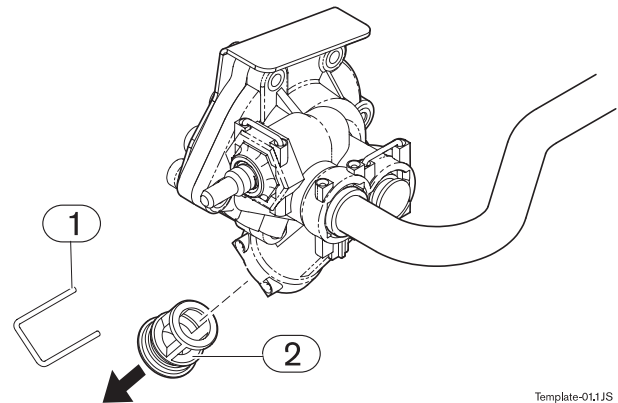


Fig. 15 Purging

- 1 Lock
- 2 Filter screw cap

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6.4 Flue gas safety device



Danger: The probe must never be turned off, modified or replaced with a different part under any circumstances.

Operation and precautions

This probe verifies the conditions of flue evacuation and, in case of malfunction, it automatically turns off the heater. This prevents the combustion gases from entering the room where the gas heater has been installed. The probe restarts after a reset period.

If the heater turns off during operation:

- ▶ Ventilate the room.
- ▶ 10 minutes later, turn on the heater once again. Call a qualified technician if the same thing happens again.



Danger: The user must never touch the device.

Maintenance*

If the probe malfunctions, proceed in the following manner:

- ▶ Unscrew the probe fixing screw.
- ▶ Detach the ignition unit terminal.
- ▶ Replace the damaged part and proceed with its assembly using the steps indicated in the previous table, in reverse order.

Operating check*

To check the correct operation of the combustion gas probe, proceed in the following manner:

- ▶ Remove the combustion gases evacuation pipe.
- ▶ Replace it with a pipe (approximately 50 cm long) blocked at one end.
- ▶ The pipe must be routed vertically.
- ▶ Turn on the heater at nominal power and with the temperature selector adjusted to maximum temperature.

In these conditions, the heater must turn off two minutes afterwards, at most. Remove the pipe and replace the evacuation pipe.

* These procedures must be performed by a qualified installer.

7 Problems

7.1 Problem/cause/solution

Assembly, maintenance and repairs must be performed by qualified technicians only. The following chart offers solutions to possible problems (solutions followed by an * must be undertaken by qualified technicians only).

Problem	Cause	Solution
The heater does not ignite and digital display is turned off.	Switch turned off.	Check switch position.
Slow and difficult ignition of the burner.	Reduced water flow.	Check and correct.
Red LED in switch flashes.	Reduced water flow.	Check and correct.
Water at low temperature.		Check the temperature selector position and adjust it according to the desired water temperature.
Water is not heated, no flame.	Insufficient gas supply.	Check reducer, and if inadequate or malfunctioning, replace it. Check if the bottles (butane) freeze during operation, and if so, move them to a warmer place.
The burner turns off the heater is operating.	Temperature limiter has tripped (digital display shows "E9"). Flue gas safety device has tripped (digital display shows "A4").	Wait 10 minutes and restart the heater. If the problem persists, call a qualified technician. Vent the area. Wait 10 minutes and restart the heater. If the problem persists, call a qualified technician.
Incorrect temperature information in the appliance digital display.	Insufficient contact of the temperature sensor.	Check and correct the temperature sensor assembling.
Digital display shows "E1".	Water temperature sensor has tripped (outlet water temperature above 85 °C).	Reduce the water temperature using the power and/or temperature adjustment selector. If the problem persists, call a qualified technician.
Digital display shows "A7".	Temperature sensor incorrectly connected. Temperature sensor defective.	Check and correct connection. Replace the temperature sensor.
Blocked heater.	Digital display shows "F7" or "E0".	Turn the heater off and on, if the problem persists, call a qualified technician.
There is spark but the main burner does not ignite, heater blocked.	No ionisation probe signal (digital display shows "EA").	Check: <ul style="list-style-type: none"> • Gas supply. • Ignition system (ionisation electrode and electrovalves).

Tab. 7

Problems

Problem	Cause	Solution
Blocked heater, digital display shows "F0".	Power was activated with a hot water tap running.	Turn the water off and on. If the problem persists, call a qualified technician.
Reduced water flow.	Insufficient water supply pressure. Dirty taps or mixers. Gas valve blocked. Heat exchanger blocked (limescale).	Check and correct. * Check and clean. Clean filter.* Clean and de-lime if necessary.*

Tab. 7

