BOSCH

Installation and maintenance instructions for the contractor

Gas boiler

Gaz 6000 W

WBN 6000-30-H-E-N/L-S2400

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Contents

1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings

Warnings in this document are identified by a warning triangle printed against a grey background.
Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information

This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
–	List entry (second level)

Table 1

1.2 General safety instructions

Instructions for the target group

These installation instructions are intended for gas fitters, plumbers, heating engineers and electricians. All instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including possible loss of life.

- ▶ Read the installation instructions (heat source, heating controller, etc.) before installation.
- ▶ Observe safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Keep a record of all work carried out.

Determined use

This appliance is not for use as a pool or SPA pool heater.

If you smell gas

- ▶ Turn off gas tap.
- ▶ Open windows and doors.
- ▶ Do not operate any electrical switches.
- ▶ Extinguish any naked flames.
- ▶ Leave the building and telephone your gas supply utility and authorised contractor from an outside phone.

Risk to life from poisoning by flue gas

There is a risk to life from escaping flue gas.

- ▶ Never modify any parts for flue gas routing.
- ▶ Ensure that flue pipes and gaskets are not damaged.

Risk to life from poisoning by flue gas due to inadequate combustion

There is a risk to life from escaping flue gas. If flues are damaged or leaking, observe the following rules.

- ▶ Close off the fuel supply.
- ▶ Open windows and doors.
- ▶ If necessary, warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Rectify any damage to the flue immediately.
- ▶ Ensure that there is an adequate combustion air supply.
- ▶ Do not cover or reduce the size of ventilation apertures in doors, windows and walls.
- ▶ Ensure that there is an adequate combustion air supply, including for any heat sources, which have been installed at a later date, e.g. if there are extractor fans, kitchen fans or air conditioning units with an air discharge outside.
- ▶ Never operate the product, if there is an insufficient combustion air supply.

Installation, commissioning and maintenance

Installation, commissioning and maintenance must only be carried out by an approved contractor.

- ▶ Never shut off safety valves.
- ▶ Check for gas or oil leaks after working on parts, which are used for gas or oil routing.
- ▶ In the case of open flue operation:Ensure that the installation location meets the ventilation requirements.
- ▶ Only install genuine spare parts.

Electrical work

Electrical work must only be carried out by qualified electricians.

- ▶ Before starting electrical work:

- Isolate all poles of the mains voltage and secure against reconnection.
- Using suitable means, test that the power supply is disconnected.

▶ Also see connection diagrams of other system components.

Handover to the user

When handing over the heating system, instruct the user in its operation and operating conditions.

▶ Explain the operation - with particular emphasis on all safety-related actions.
▶ Explain that conversions and repairs must only be carried out by an approved contractor.
▶ Point out the need for inspections and maintenance for safe and environmentally-compatible operation.
▶ The installation and operating instructions must be given to the user for keeping.
▶ The appliance is unsuitable for use as a pool heater.
▶ Do not spray aerosols in the vicinity of this appliance while it is in operation.
▶ Do not use or store flammable materials in or near this appliance.
▶ Do not place articles on or against the appliance.
▶ Do not modify this appliance.

2 Product details

WBN 6000-30-H-E-N/L-S2400 are appliances for central heating.

2.1 Standard delivery

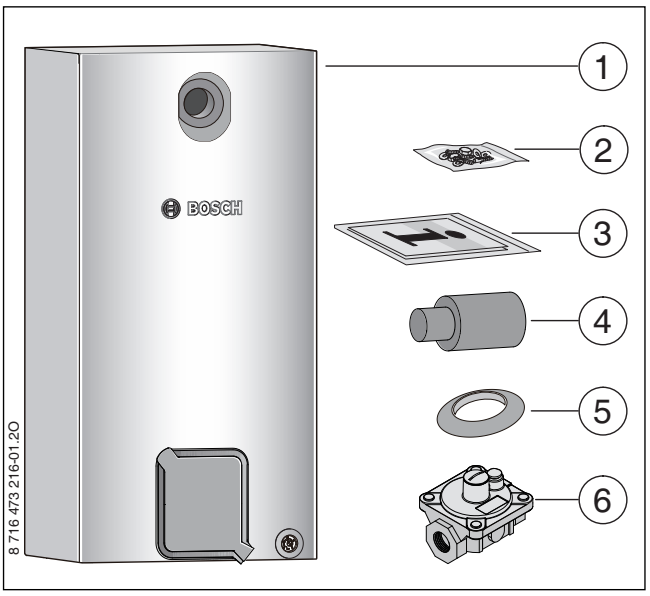

Fig. 1

[1] Wall-mounted gas boiler
[2] Fixing material
[3] Set of printed documents for the appliance
[4] Flue pipe
[5] Grommet
[6] Regulator(Only for NG appliance)

2.2 Overview of the gas categories that can be used

The code number indicates the gas family according to AS 4552:

Code number	Wobbe index (W_S) (15 °C)	Gas type
23	12.2 - 55.0 MJ/m^3	NG
31	72.9 - 87.2 MJ/m^3	LPG

Table 2

LPG type[1)]	Use
Commercial Propane	recommended
Commercial Butane	permitted
General Product	permitted
Universal LPG (U-LPG)	permitted

Table 3

1) according to NZS 5435

2.3 Data plate

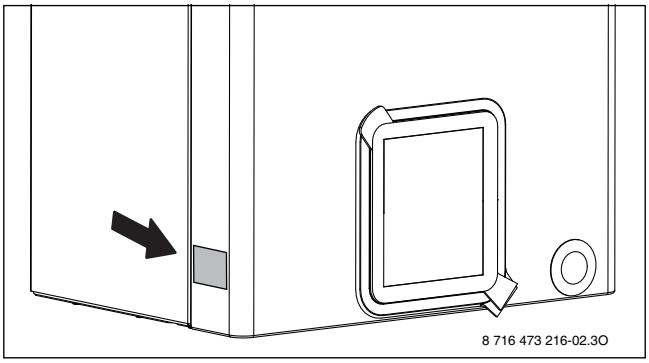

Fig. 2

On the data plate, you will find details on the appliance output, approval information and the series number.

2.4 Description of appliance

- Gas boiler only for external installation
- Gas boiler only for central heating
- Gas boiler for wall installation
- Power cable
- Liquid Crystal Display
- Automatic ignition
- Continuously controlled output
- Full backup via the electronics with flame monitoring and solenoid valves according to EN 298
- Three-stage heating circuit pump with automatic air vent valve
- No minimum water circulation rate required
- Fixed connections for flue gas/combustion air as concentric pipe Ø 60/100 mm
- Curve-controlled fan
- Temperature sensor and temperature control for central heating
- Temperature limiter in the flow
- Safety valve, pressure gauge, expansion vessel

2.5 Accessories

Below is a list of typical accessories for this appliance. You can find comprehensive details of all available accessories in our catalogue.

- OR30
- OR80
- CR10
- CR50

2.6 Dimensions and minimum clearances

For serviceability after clearances.

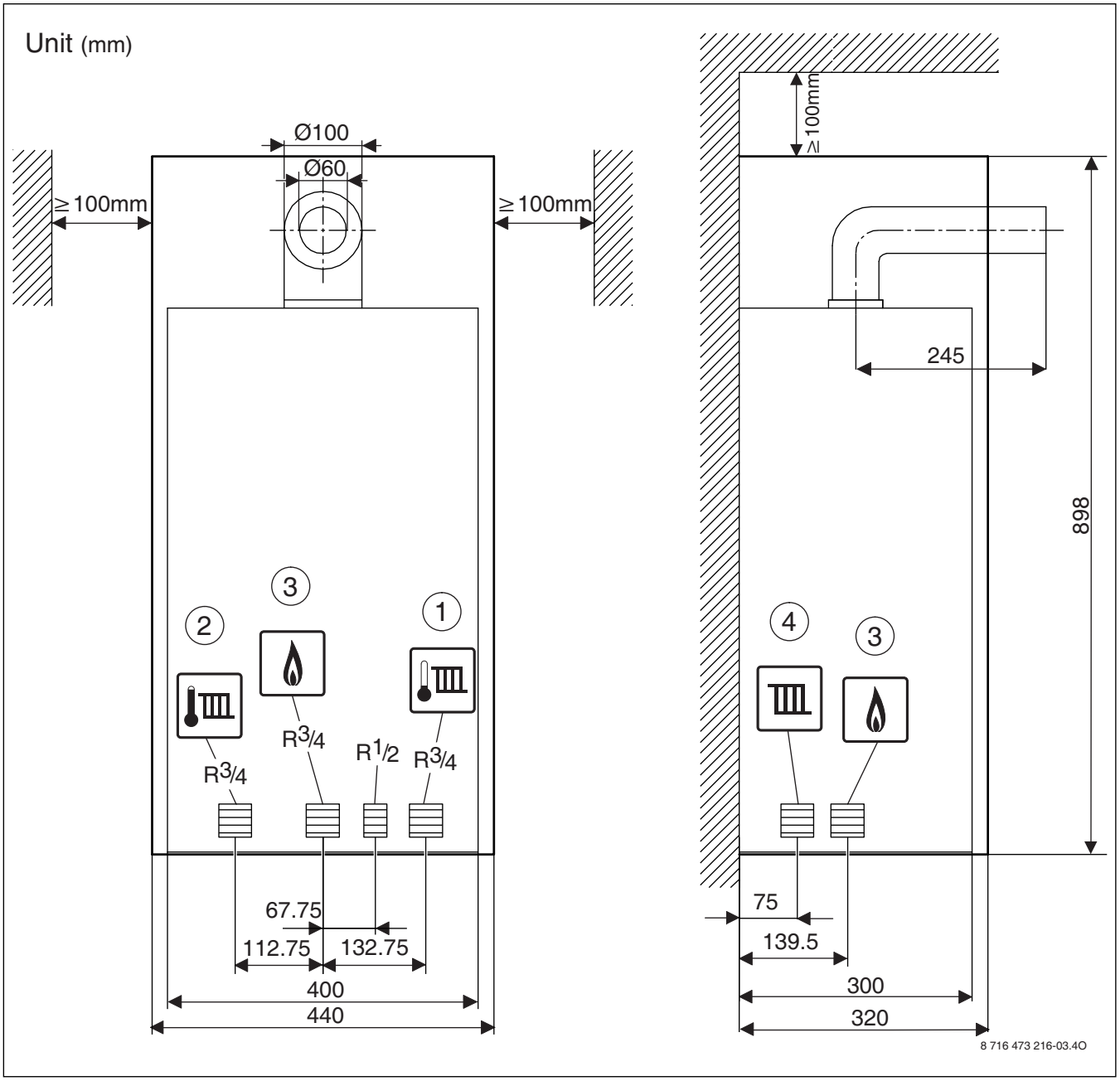

Fig. 3

[1] CH return
[2] CH flow
[3] Gas inlet
[4] CH pipe

2.7 Appliance layout

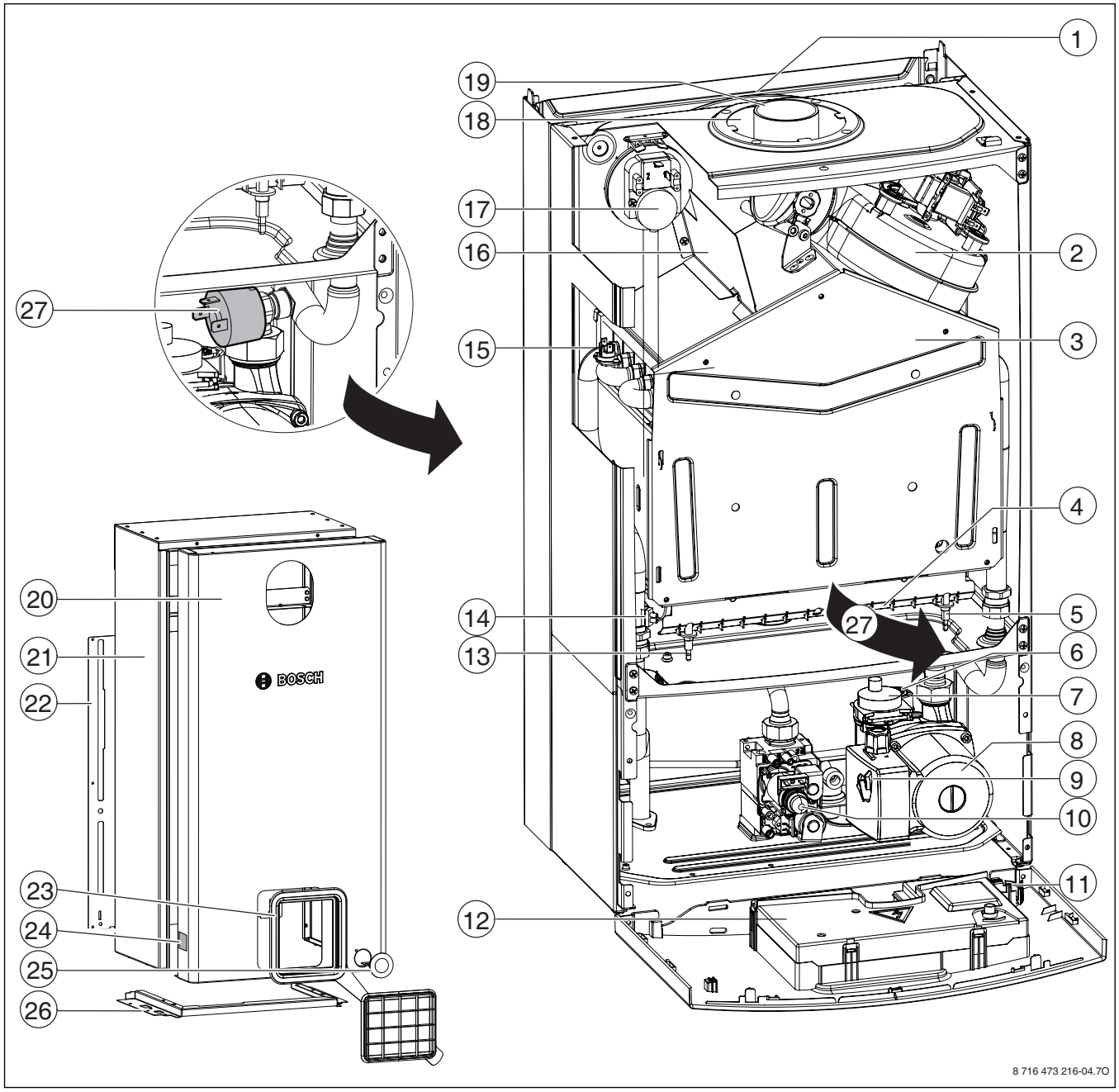

Fig. 4

[1] Expansion vessel
[2] Combustion fan
[3] Combustion chamber
[4] Burner pan with blast tube connection
[5] Ignition electrode
[6] Safety valve (heating circuit)
[7] Automatic air vent valve
[8] Heating circuit pump
[9] Pump speed selector switch
[10] Gas valve
[11] Pressure gauge
[12] Control device
[13] Monitoring electrode
[14] Flow temperature sensor
[15] Temperature limiter for heating block
[16] Air baffle
[17] Differential pressure switch
[18] Combustion air inlet
[19] Flue pipe
[20] Front cover for outer casing
[21] Main cover for outer casing
[22] Back plate for outer casing
[23] Interface cap
[24] Type plate
[25] Plastic cover
[26] Base plate for outer casing
[27] Pressure switch

2.8 Electrical wiring diagram

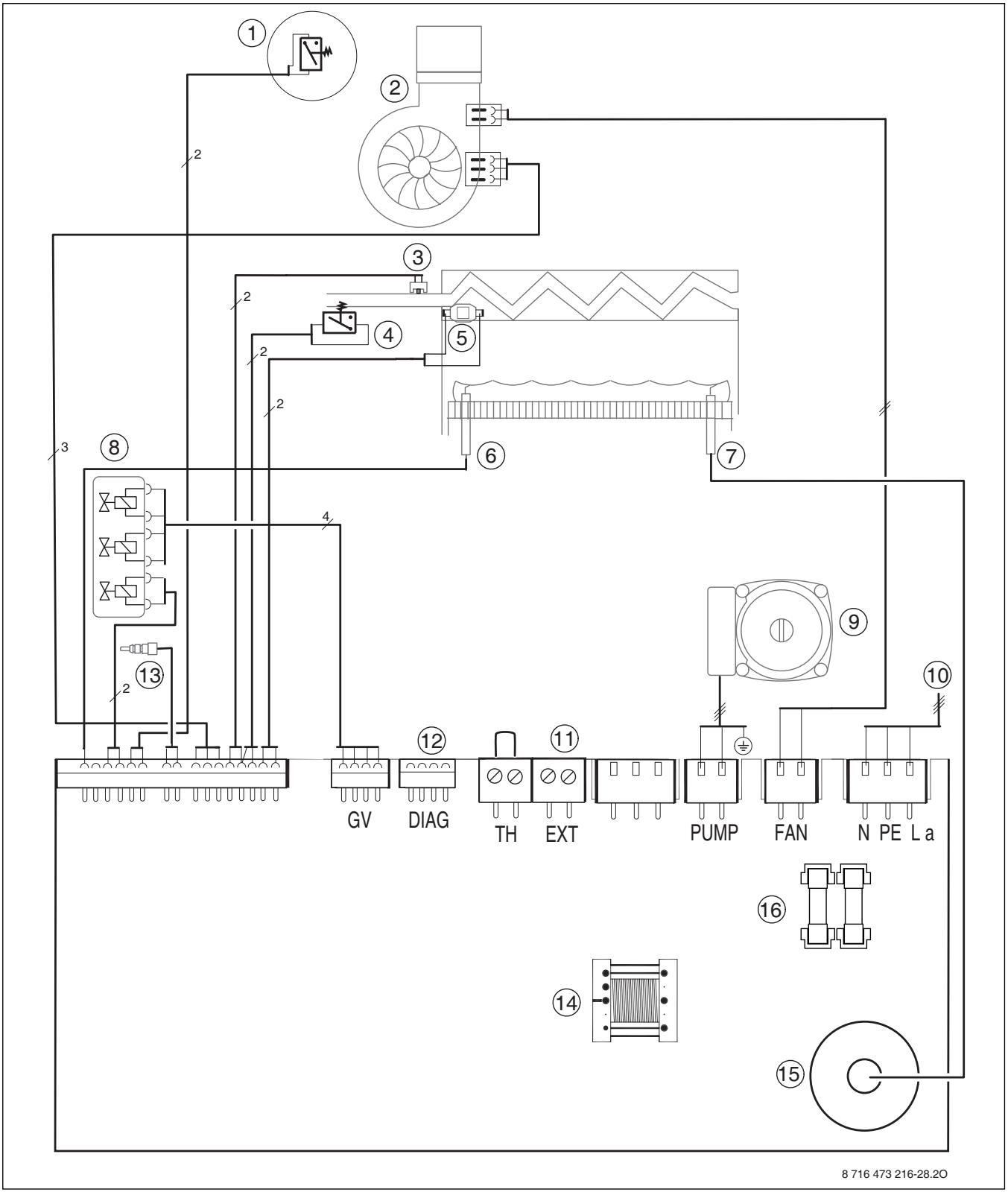

Fig. 5

[1] Differential pressure switch
[2] Fan
[3] Flow temperature sensor
[4] Water pressure switch
[5] Temperature limiter for heating block
[6] Monitoring electrode
[7] Ignition electrode
[8] Gas valve
[9] Heating circuit pump
[10] 240 V power cable
[11] Connection for outside temperature sensor
[12] Diagnostic interface
[13] OTM connection or on/off controller [1)]
[14] Transformer
[15] Ignition transformer
[16] Fuse wire

1) Remove jumper before connection

2.9 Technical data

	Unit	WBN 6000-30	
		NG	LPG
Max. rated heat output (P_{max}) 80/60 °C	kW	30	30
Max. rated heat input (Q_{max}), central heating	kW	33.2	33.2
Min. rated heat output (P_{min}) 53/47 °C	kW	9	9
Min. rated heat input (Q_{min}), central heating	kW	10.2	10.2
Gas supply rate			
Natural gas type H ($H_{i(15\,°C)}$ = 9.5 kWh/m^3)	MJ/hr	132.8	–
Butane/propane (H_i = 12.9 kWh/kg)	MJ/hr	–	132.8
Permissible gas supply pressure			
NG	Kpa	1.13	–
LPG	Kpa	–	2.75
Expansion vessel			
Pre-charge pressure	bar	0,5	0,5
Total capacity	L	8	8
Actual volume (EN 13831)	L	6	6
Calculation values for calculating cross-section to EN 13384			
Flue gas temperature 80/60 °C max. rated	°C	145	145
Flue gas temperature 80/60 °C min. rated	°C	73	73
Flue gas mass flow rate, max. rated	g/s	13.6	13.5
Flue gas mass flow rate, min. rated	g/s	10,3	10,4
CO_2 at max. rated output	%	5.5 – 6.0	5.6 – 7.0
CO_2 at min. rated output	%	2.0 – 2.5	2.3 – 2.8
Flue gas rating group to G 636/G 635		G_{61}/G_{62}	G_{61}/G_{62}
NO_x content	mg/kWh	132	132
NO_x class		3	3
Flue gas connection		60/100	60/100
General data			
Power supply voltage	AC ... V	240	240
Frequency	Hz	50	50
Max. power consumption (central heating mode)	W	<130	<130
Standby power consumption	W	2	2
Noise output level	≤ dB(A)	≤ 38	≤ 38
Max. flow temperature	°C	40 – 82	40 – 82
Max. permissible operating pressure (P_{MS}) heating	bar	3	3
Permissible ambient temperature	°C	0 – 50	0 – 50
Nominal capacity of appliance heating	l	1,6	1,6
Weight (excl. packaging)	kg	42	42
Dimensions, W x H x D	mm	440 × 898 × 315	440 × 898 × 315

Table 4

3 Regulations

Where no specific instruction is given, reference should be made to the following standards:

- **AS/NZS 5601** Gas Installations,
- **AS 1596** LPG storage and handling,
- **AS 4552** Gas fired water heaters for hot water supply and/or central heating,
- **AS/NZS 3000** Electrical Installations,
- **AS1697** Installation and maintenance of steel pipe systems for gas,
- **AS 4032** Water supply - valves for the control of hot water supply temperatures,
- **AS 3498** Authorization requirements for plumbing products - water heaters and hot-water storage tanks.
- **AS 1910** Water supply - float control valves for use in hot and cold water
- **AS 3500** National plumbing and drainage code.

4 Flue gas routing

4.1 Approved flue accessories

The flue accessories form part of the CE approval for the appliance. For this reason, only the provided original flue accessories must be installed.

- Flue accessories, concentric pipe Ø 60/100 mm.

4.2 Installation instructions

CAUTION: Low efficiency and functional problems if an incorrect fan stage is used!

- ▶ Before fitting the flue kits:
  Apply a thin coating of solvent-free grease (e.g. Vaseline) to the joint seals.
- ▶ When fitting the balanced flue, always push the pipe fully home into the sockets.

5 Installation

DANGER: Risk of explosion!

- ▶ Turn off gas valve before working on gas-carrying components.
- ▶ Check for leaks before working on gas-carrying components.

Installation, power connection, connection on the gas and flue gas side and commissioning must only be carried out by a contractor approved for such work by the local gas or power supply authority.

Not suitable for pool or spa pool application.

5.1 Important notes

- ▶ Before installing the appliance, consult your gas supply utility and your local flue gas inspector [where appropriate].

Fill and top-up water for the heating system

Unsuitable fill and top-up water in the heating system can result in the heat exchanger scaling up and failing prematurely.

Hardness range	Water treatment
soft (≤ 8.4 °dH)	not required
medium (8.4 - 14 °dH)	recommended
hard (≥ 14 °dH)	required

Table 5

For straightforward water treatment:

- ▶ Use the system approved by us.

Open vented heating systems

- ▶ Open vented heating systems must be converted to sealed systems.

Gravity fed heating systems

- ▶ Connect the appliance to the existing pipework via a low loss header with a dirt separator.

Galvanised radiators and pipes

To prevent gas formation:

- ▶ Do not use galvanised radiators or pipes.

If a room thermostat is used

- ▶ Do not fit a thermostatic radiator valve to the radiator in the primary room.

Anti-freeze

The following anti-freeze fluids are permitted:

Designation	Concentration
Varidos FSK	22 - 55 %
Alphi - 11	25 - 40 %
Glythermin NF	20 - 62 %
Antifrogen N	20 - 40 %

Table 6

Corrosion inhibitor

The following corrosion inhibitors are permissible:

Designation	Concentration
Fernox	see supplier information
Sentinel	see supplier information

Table 7

Sealants

In our experience, adding sealants to the heating water may result in problems (deposits in the heating block). We therefore advise against using them.

Water circulation noises

To prevent water circulation noises:

- ▶ Fit an overflow valve or, with 2-pipe heating systems, a 3-way valve to the radiator furthest from the boiler.

5.2 Checking the size of the expansion vessel

The following diagram provides you with a rough estimate of whether the installed expansion vessel is sufficient or whether an additional expansion vessel is required.

The characteristic curves shown are based on the following key data:

- 1% water volume in expansion vessel or 20% of nominal volume of expansion vessel
- Differential operating pressure of the safety valve of 0.5 bar, according to DIN 3320
- Pre-charge pressure of expansion vessels matches static head of the system above the heat exchanger
- Maximum operating pressure of 3 bar

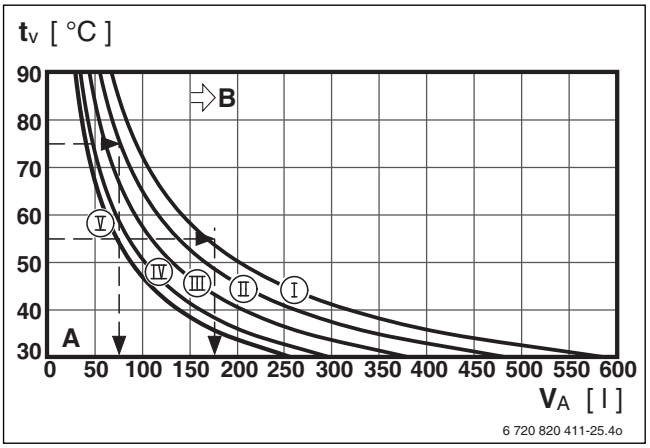

Fig. 6

I Pre-charge pressure 0.5 bar (default setting)
II Pre-charge pressure 0.75
III Pre-charge pressure 1.0 bar
IV Pre-charge pressure 1.2 bar
V Pre-charge pressure 1.3 bar
t_V Flow temperature
V_A System content in litres
A Operating range of the expansion vessel
B Additional expansion vessel required

- ▶ If intersection is on the limit: determine the exact size of the vessel according to DIN EN 12828.
- ▶ If the intersection is to the right of the curve: install additional expansion vessel.

5.3 Siting the appliance

Regulations concerning the installation site

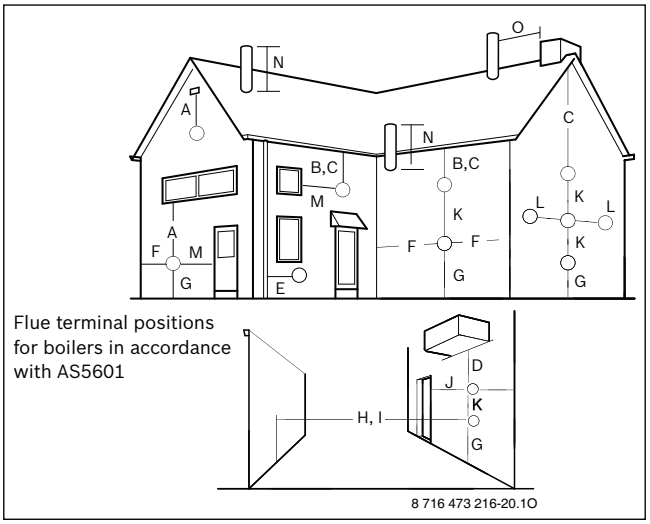

Fig. 7

Key to illustration

Fan assisted flue terminal position Terminal Position		Minimum Spacing
A	Directly below, an opening window, air vent or other ventilation opening	1000mm
B	Below guttering, drain pipes or soil pipes	75mm
C	Below eaves	300mm
D	Below balconies or a car port roof*	300mm
E	From vertical drain pipes or soil pipes	75mm
F	From internal or external corners	300mm
G	Above adjacent ground, roof or balcony level	300mm
H	From a surface facing the terminal	500mm
I	From a terminal facing the terminal	1200mm
K	Vertically from a terminal on the same wall	1500mm
L	Horizontally from a terminal on the wall	300mm
M	Adjacent to opening	300mm
N	Above intersection with roof	500mm
O	For a vertical structure on the roof	500mm

Table 8

Installations in car ports are not recommended.

- ▶ Pluming will occur at the terminal so terminal positions where this could cause a nuisance should be avoided.
- ▶ The boiler must be installed so that the terminal is exposed to the external air.
- ▶ It is important that the position of the terminal allows the free passage of air at all times.
- ▶ Minimum acceptable spacing from the openings are specified above, for domestic situations in accordance with AS 5601.

Surface temperature

The maximum surface temperature of the appliance is below 85 °C. That means that no special safety precautions are required with regard to flammable building materials and fitted furniture. If regulations differ in individual countries they must be observed.

5.4 Fitting the appliance

- ▶ Fix the mounting template supplied with the documents to the wall, observing a lateral clearance of at least 100 mm (→ page 5).
- ▶ Drill the holes for the screw hooks according to the mounting template.

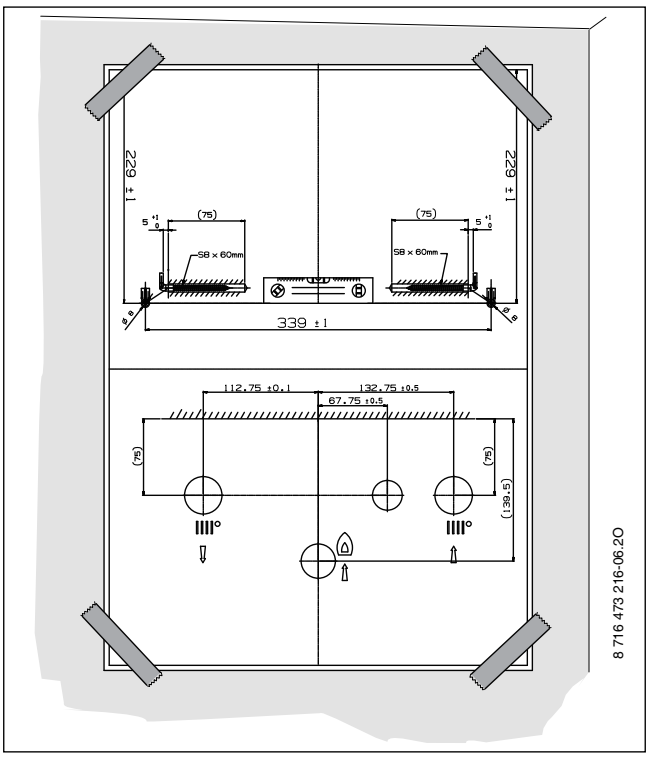

Fig. 8 Mounting template

- ▶ Remove the mounting template.

NOTICE: Residues in the pipework can damage the appliance.
- ▶ Flush out the system to remove all dirt residues.

- ▶ Remove packing, taking care to observe the instructions on the packing.
- ▶ Check the destination country on the type plate and make sure that the gas type specified on the identification plate matches that of the gas supplied by the gas utility company (→ page 6).
- ▶ Ensure that the wall mounting fixings are suitable for the weight of the appliance.

Remove the front cover

1. Undo screws;
2. Remove the front cover down.

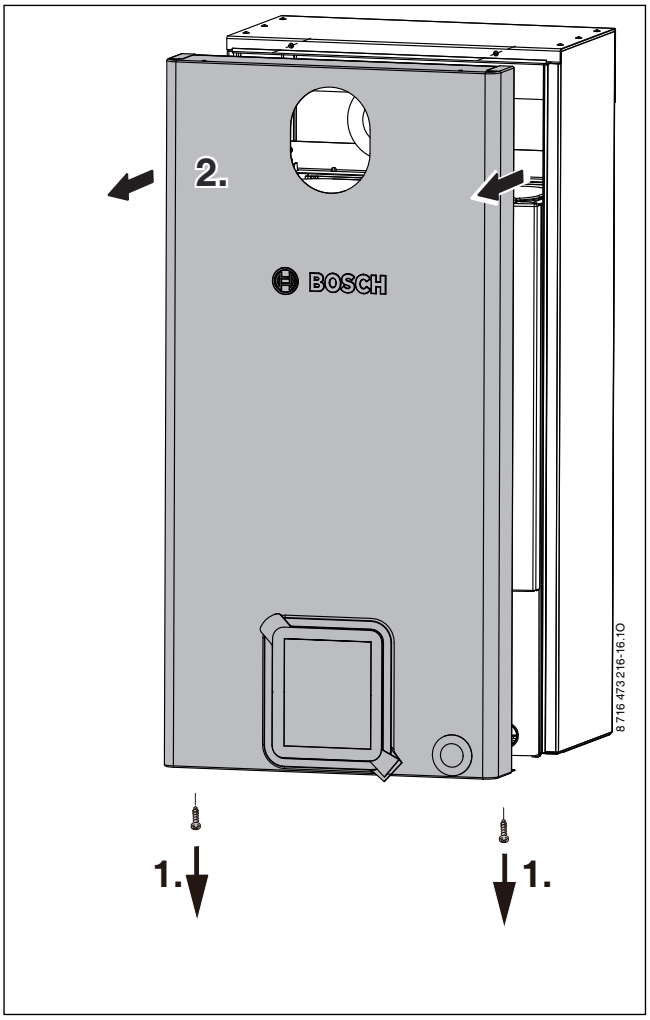

Fig. 9

Take out inner foam

1. Take out the down foam;
2. Take out the upper foam.

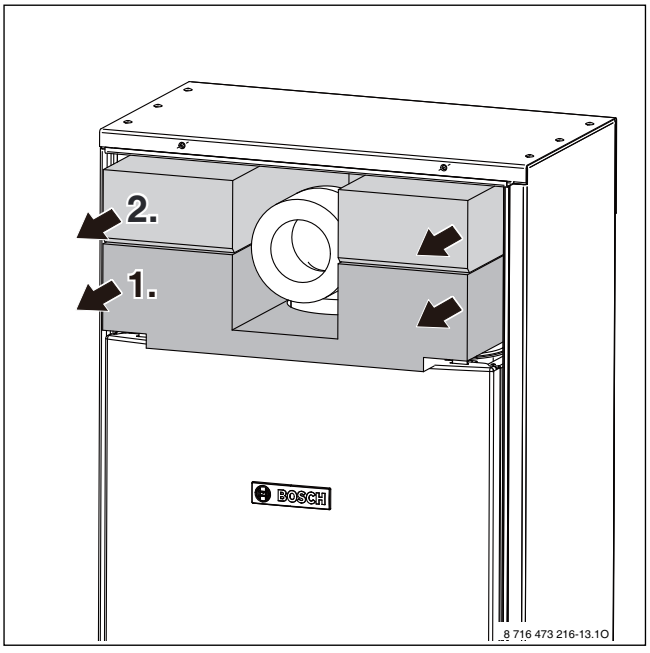

Fig. 10

1. Fit dowels;
2. Fit screw hooks;
3. Position the appliance on the wall and mount it on the screw hooks.

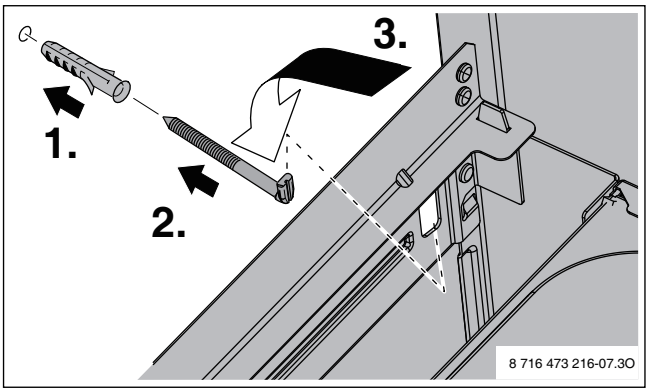

Fig. 11 Mounting the appliance on the screw hooks

5.5 Installation of the supply pipes

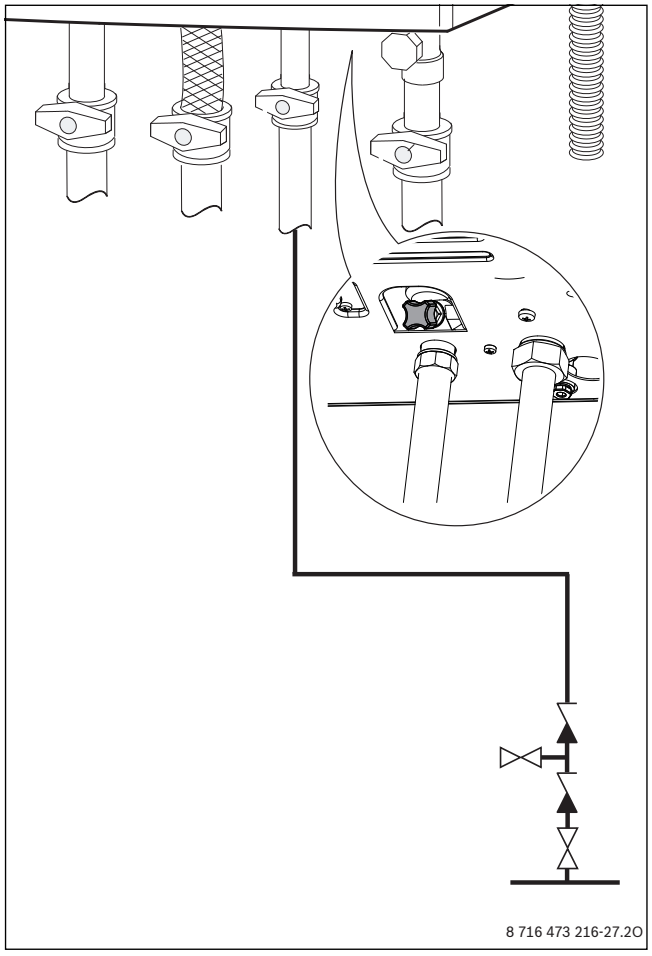

Fig. 12

- ▶ Determine the internal pipe diameter for the gas supply in accordance with AS/NZS 5601.
- ▶ All pipe connections in the heating system must be suitable for a pressure of 3 bar.
- ▶ Install regulator[1)] (only for NG appliance) and convert connection[1)].
- ▶ For filling and draining the system, fit drain & fill valves at the lowest point of the system.
- ▶ Use corrosion-resistant materials to produce the drain for the safety valve.
  Such materials include: vitrified clay pipes, hard PVC pipes, PVC pipes, PE-HD pipes, PP pipes, ABS/ASA pipes, cast-iron pipes with enamel lining or coating, steel pipes with plastic coating, stainless steel pipes, borosilicate glass pipes.
- ▶ The PRV is a safety device for the boiler and if activated may discharge boiling water steam through the relief valve drain line.

CAUTION:
- ▶ Do not modify or seal off drain pipes.
- ▶ Pipe work must always slope downwards.

5.6 Checking the connections

Water connections
- ▶ Open the heating flow and return valves and fill the heating system.
- ▶ Check sealing points for tightness (testing pressure: max. 2.5 bar at the pressure gauge).

Gas Connection:
- Fit a union to the water heater gas inlet for easy connection and removal. The thread diameter is 20 mm.THIS DOES NOT INDICATE THE SIZE OF THE GAS SUPPLY.
- Fit an AGA / NZGA approved isolating gas valve in the supply line adjacent to the water heater gas connection..
- Ensure that the supply pipe and the gas pressure regulator (LPG or Natural Gas) has sufficient flow capacity for this and other appliances connected to the fitting line.
- For LPG appliances ensure that gas cylinders are of sufficient size.
- Before connecting the appliance to the gas service, purge any debris or air from the gas service.
- Check all joints for leaks with an approved leak tester after connection.
- Refer to AS/NZS 5601 Installation Code for pipe sizing and details.Ensure that the gas pipe size is correct. If undersized the appliance will not operate correctly .For Natural Gas installations where the inlet pressure exceeds 1.5kPa an appliance regulator is supplied.SERVICE CALLS ARE CHARGEABLE FOR UNITS WITH INCORRECT PIPE SIZES OR BLOCKED GAS OR WATER FILTERS.

Testing Gas Supply Pipe
- ▶ Close the gas valve to protect the gas train from pressure damage.
- ▶ Check sealing points for leaks (testing pressure: max. 15 Kpa).
- ▶ Release the pressure on the gas supply pipe.

1) accessory

5.7 Connecting the flue accessories

The adapter has been installed in advance.If it need be installed again, please following the below installation instruction.

- ▶ Ensure that the gasket is fitted inside the flue outlet.
- ▶ Push on the flue gas elbow and secure with the screws supplied.

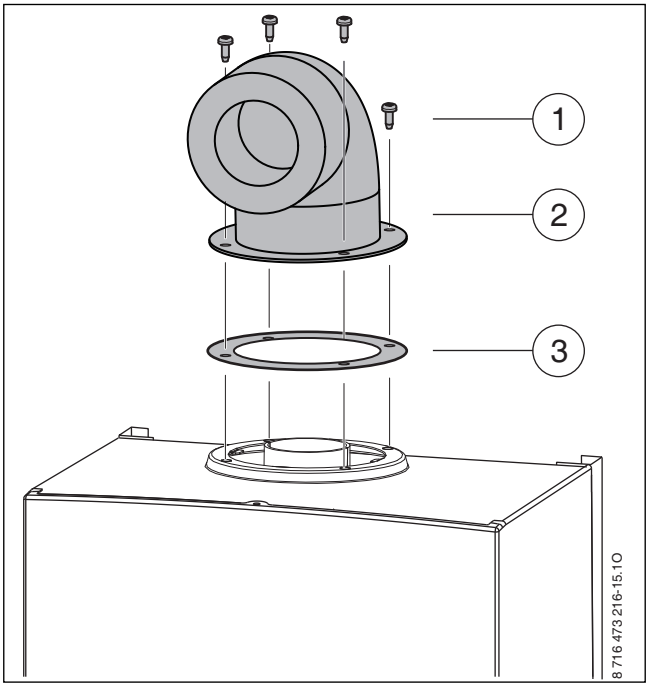

Fig. 13 Securing flue accessories

[1] Screws
[2] Flue/adaptor
[3] Gasket

Fix the flue pipe

1. Fix the short flue pipe.
2. Fix the flue weather seal.

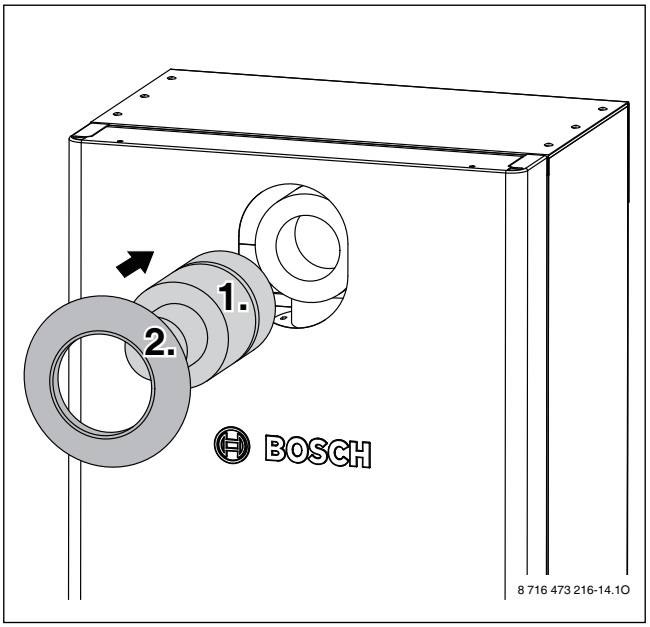

Fig. 14

6 Electrical connections

6.1 General notes

DANGER: Risk of electric shock
- ▶ Before carrying out work on electrical components, disconnect the power supply (240 V AC) (fuse, circuit breaker) and secure against unintentional reconnection.

All appliance modulation, control and safety components are tested and ready-wired for use.

Observe safety measures according to the relevant regulations and AS/NZS 3000.No other electrical consumer units may be connected to the same power cable.

Fuses

The appliance is protected by two fuses. They are located on the circuit board.

Replacement fuses are located on the cover of the control unit.

6.2 Connect appliances with power cable and mains plug

- ▶ Insert the power cable plug into an earthed power socket.

6.3 Control unit terminals

NOTICE: Cable residues can damage the control unit.
- ▶ Only remove the insulation from the cable outside the control unit.

Flip down the control unit

The casing is secured with two screws against unauthorised removal (electrical safety).
- ▶ Always secure the outer casing with these screws.

1. Undo screws.
2. Pull the control unit down.
3. Flip the control unit down.

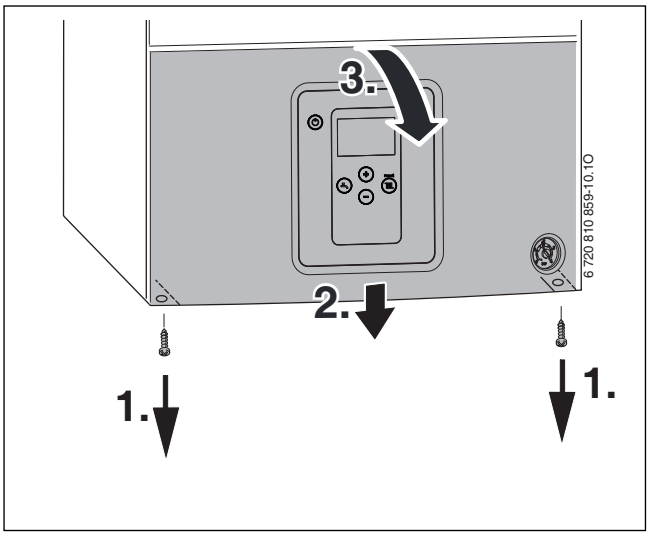

Fig. 15

6.3.1 Connecting the On/Off controller or Room Thermostat

Operate this appliance with a controller or use the bridging piece and operate the appliance directly.

The controller must be suitable for mains voltage (from boiler) and must not have its own earth connection.The controller should be used as recommended by Bosch OR 30 and OR 80.

Before installation, please refer to the electrical wiring diagram for controller connection.For installation and electrical connection, see the relevant installation instructions provided with the thermostat.

The controller connection on the control unit is located underneath a cover.

- ▶ Isolate the power supply before connecting or disconnecting any thermostat.
- ▶ Remove the cover.
- ▶ Remove the jumper from the TH terminals.
- ▶ Connect the controller to the TH terminals.

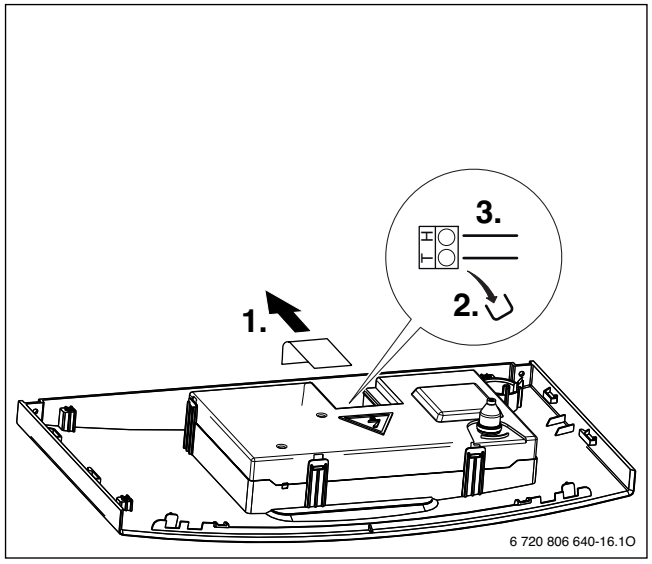

Fig. 16

7 Commissioning

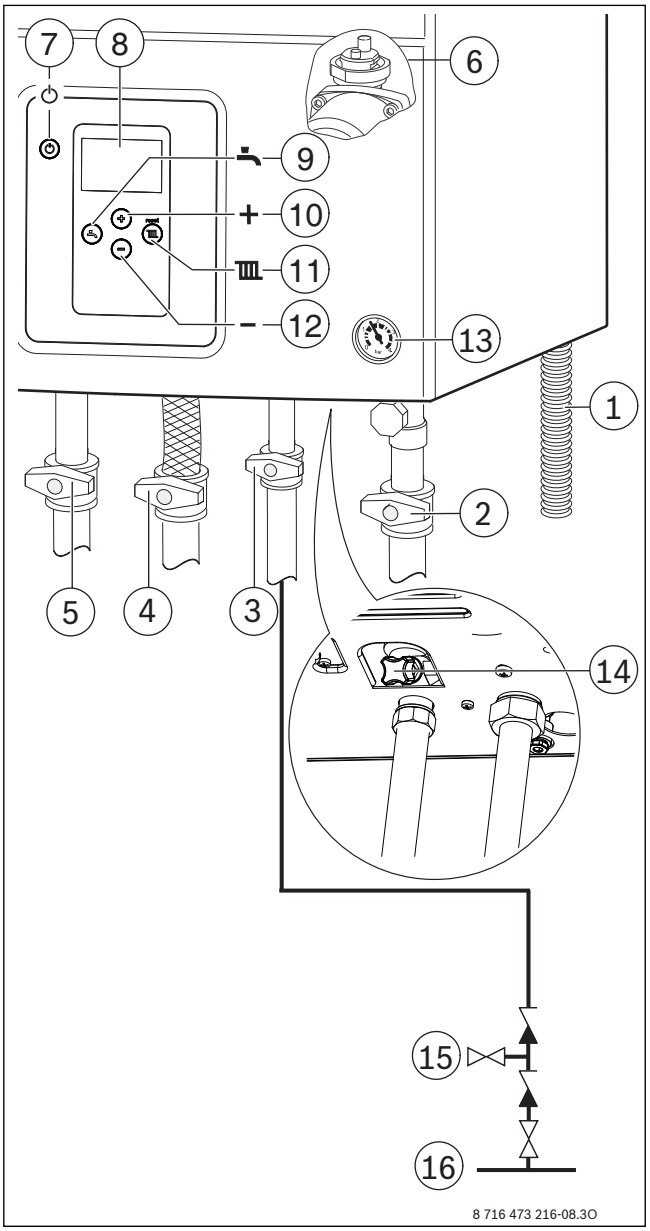

Fig. 17

[1] Drain hose
[2] Heating return valve
[3] Cold water valve
[4] Gas valve
[5] Heating flow valve
[6] Automatic air vent valve
[7] Standby key
[8] Display
[9] Return
[10] ⊕ key
[11] Heating Temp/Reset/"OK"
[12] ⊖ key (mode)
[13] Pressure gauge
[14] System top-up fixture
[15] Test point
[16] Cold water supply

7.1 Displays

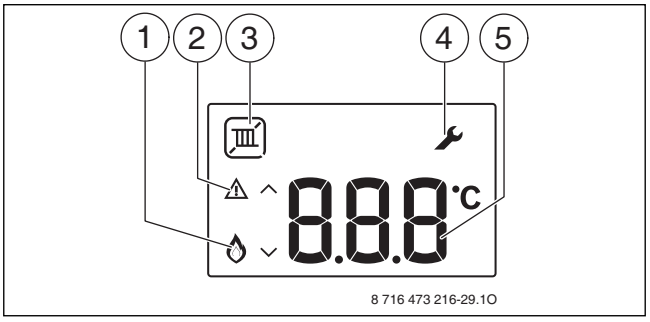

Fig. 18 Displays

[1] Burner operation
[2] Fault display/standby mode display
[3] Heating mode active
[4] Service mode
[5] Temperature display (in °C)

7.2 Before commissioning

NOTICE: Commissioning without water will destroy the appliance.
- ▶ Only operate the appliance once it has been filled with water.

- ▶ Adjust pre-charge pressure of expansion vessel to static head of the heating system (→ page 10).
- ▶ Open the automatic air vent valve (leave open) (→ Fig. 17, [6], page 14).
- ▶ Open all system radiator valves.
- ▶ Open the heating flow valve and heating return valve (→ Fig. 17, [5] and [2], page 14).
- ▶ Fill the heating system to 1 - 2 bar and close the fill valve.
- ▶ Bleed radiators.
- ▶ Top up heating system to pressure of 1 - 2 bar.
- ▶ Check that the gas type specified on the type plate matches that of the gas supply (→see Fig. 4, [24]).
- ▶ Open the gas valve (→ Fig. 17, [4]).
- ▶ Plug in the power plug: the appliance enters standby mode.

7.3 Switching the appliance on/off

Initial switching on/setting the fan stage

At the factory, fan stage 0 is selected, i.e. fan and burner will not start.

- ▶ Start the appliance at the standby key (→Fig. 19).
  The following fault display is shown:

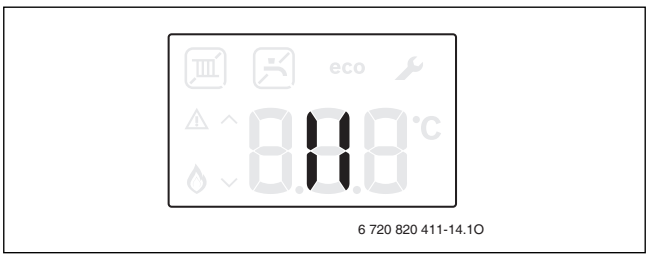

Fig. 19

Set fan stage:

- ▶ Determine a suitable fan stage.
- ▶ Hold down ⊕ and ⊖ at the same time until **L.1** is shown on the display.
- ▶ Press ⊕ until **L.2** is shown on the display.
- ▶ Press to make settings in menu 2.
- ▶ Press ⊕ or ⊖ to call up service function 2.b.d and set to the fan stage 01(→ page 21).
- ▶ Press to switch to the service function.
  The value flashes on the display.
- ▶ Press ⊕ or ⊖ to set the required value.
- ▶ Hold down until the selected service function appears on the display.
  The display switches to the selected service function automatically.
- ▶ Press standby.
  The boiler returns to standard mode.

Switching on

- ▶ Start the appliance at the standby key.
  The display shows the heating water flow temperature.

Switching off/standby mode

- ▶ Shut down the appliance at the standby key.
  Only the warning symbol continues to be displayed.
- ▶ If the appliance is to be switched off for a longer period of time: observe correct frost protection procedures (→ chapter 7.8).

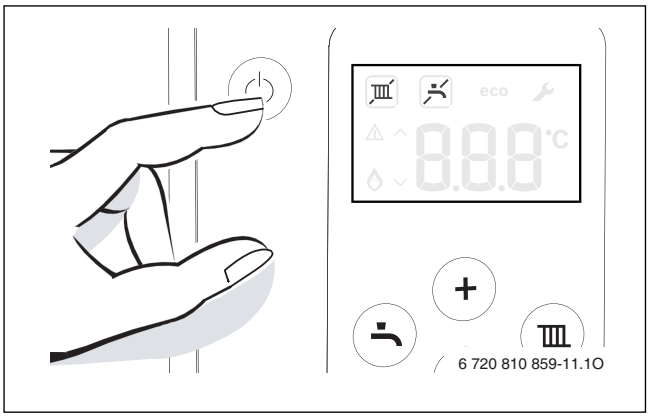

Fig. 20

The appliance has an anti-seizing function which prevents the heating circuit pump and the 3-way valve seizing up following long periods of inactivity.
The anti-seizing function remains active during standby mode.

7.4 Setting the maximum flow temperature

The maximum flow temperature can be set between 40 °C and approx. 82 °C. The current flow temperature is shown on the display.

- ▶ Press temperature display with 1 Hz frequency flickering.
- ▶ Press ⊕ or ⊖ to set the required maximum flow temperature.
- ▶ After 3 times flickering, the setting temperature is saved automatically, display goes back to central heating
  The display shows the current flow temperature.
- ▶ Central heating active indicator.

You can find typical maximum flow temperatures in Tab. 9.

When selecting - -, heating mode is disabled (appears on the display, summer mode).

When the burner is active in heating mode, the symbol and the burner symbol appear on the display.

Flow temperature	Sample application
.. (symbol appears)	Summer mode
Approx. 75 °C	Radiator heating system
approx. 82 °C	Convector heating system
Approx. 50 °C	Underfloor heating system

Table 9 Maximum flow temperature

7.5 Setting the heating control unit

Observe the operating instructions of the heating controller. This shows you:
- how to adjust the room temperature,
- how to heat economically and save energy.

7.6 After commissioning

- Check the gas supply pressure (→ page 22).
- Record the settings in the commissioning report (→ page 31).

7.7 Setting summer mode

The heating circuit pump and consequently central heating are switched off. The DHW and power supply for the heating control unit and timer are retained.

NOTICE: Heating system at risk through frost. In summer mode, only the appliance is protected against frost.
- Observe frost protection measures where there is a risk of frost (→ Chapter 7.8).

To set summer mode:
- Press temperature display with 1 Hz frequency flickering.
- Keep pressing (−) until " - -" symbol appears on the display.
- After 3 times flicking of " - -", active summer mode. The display shows central heating temperature.
- Summer mode start indicator .

Additional instructions are contained in the operating instructions for the heating programmer.

7.8 Setting frost protection

Frost protection for the heating system:

Frost protection for the heating system is only ensured if the heating circuit pump is operational and is pumping heating water through the entire system.
- Leave the heating switched on.
- Set the maximum flow temperature to at least 40 °C (→chapter 7.4).

-or- If you want to leave the appliance switched off:
- Add anti-freeze to the heating water (→ page 9) and drain the DHW circuit.

For further information, see the heating controller operating instructions.

Appliance frost protection:

The appliance frost protection function switches the burner and heating circuit pump on when the temperature in the installation room (at temperature sensor for heating flow) falls below 5 °C. This prevents the boiler freezing up.
- Activate summer mode (→ chapter 7.7) or set the appliance to standby mode (→ chapter 7.3).

NOTICE: Heating system at risk through frost. In summer/standby mode, only the appliance is protected against frost.

8 Heating pump

8.1 Changing the heating circuit pump curve

The speed of the heating pump can be changed at the pump terminal box.

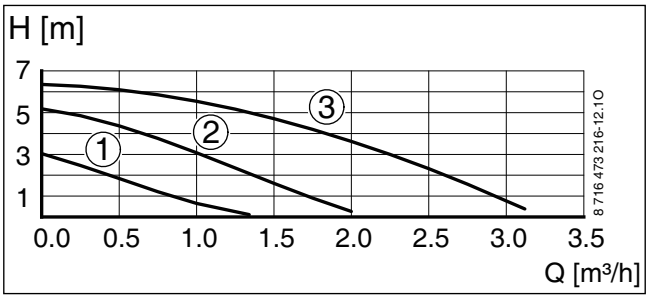

Fig. 21

[1] Curve for switch position 1
[2] Curve for switch position 2
[3] Curve for switch position 3 (default setting)
[H] Residual head
[Q] Amount of circulating water

- In order to save as much energy as possible and keep flow noise to a minimum, set a low pump curve.

8.2 Pump anti-seizing function

This function prevents the heating pump and the 3-way valve seizing up following long periods of inactivity.
The anti-seizing function remains active during standby mode.

Every time the pump is switched off, a timer is started. If after 24 hours the pump has not run again, it is switched on briefly.

9 Service menu settings

9.1 Operating the service menu

The service menu enables the convenient adjustment and checking of many appliance functions.

The service menu splits into three submenus:

- Menu 1, for setting level one service functions (→ page 18)
- Menu 2, for setting level two service functions (→ page 20)
- Menu 3, for setting the appliance type and output (→ page 21)

For an overview of service functions, see chapter 9.2 from page 18.

Selecting a service function

Calling up the service functions is different from one menu to the next. For a description, see the beginning of each menu overview.

- ▶ Calling up a menu:
  - Menu 1 (→ page 18)
  - Menu 2 (→ page 20)
  - Menu 3 (→ page 21)
- ▶ Press ⊕ or ⊖ to scroll through the menu's service functions.

Making a setting

- ▶ Press ▥ to switch to the service function.
  The value flashes on the display.
- ▶ Press ⊕ or ⊖ to set the required value.

Saving a setting

- ▶ Hold down ▥ until the selected service function appears on the display.
  The display switches to the selected service function automatically.

If you do not press a key for 15 minutes, the service menu will be closed automatically.

Exiting the service function without saving settings

- ▶ Press standby.
  The boiler returns to standard mode.

Restoring values to standard setting

To restore all values from service levels 1 and 2 to their default settings:

- ▶ Select service function 2.8.E in the second service menu and save value **01**. The appliance starts with the default setting.

9.2 Service functions overview

9.2.1 Menu 1

To call up a service function in this menu:

- ▶ Hold down ⊕ and ⊖ at the same time until **L.1** is shown on the display.
- ▶ Press ☰ to make settings in menu 1.
- ▶ Press ⊕ or ⊖ to scroll through the menu's service functions.

The user is responsible for the safety and environmental compliance of the heating system.

You should therefore arrange a maintenance and inspection contract with an authorised contractor, covering an annual inspection and demand-dependent maintenance. This guarantees you high efficiency and environmentally compatible combustion.

For service/parts and maintenance in AU please contact 1300 30 70 37. For NZS 0800 54 33 52.

Service function		Possible settings/display
1.2.C	Venting function	The venting function can be activated after maintenance. The following settings are possible: • **00**: Venting function off • **01**: Venting function is switched on and after completion automatically reset to **00** **Default setting** is **00**.
1.2.d	Thermal disinfection of the DHW cylinder	Not applicable.
1.2.F	Operation Mode	With this service function, you can temporarily change the appliance operating mode. The following settings are possible: • **00**: Standard operation; the appliance runs according to controller specifications. • **02**: The appliance runs for 15 minutes at the set maximum output. After 15 minutes, the appliance switches to standard mode. • **03**: The appliance runs for 15 minutes at minimum output. After 15 minutes, the appliance switches to standard mode. • **04**: The appliance runs for 15 minutes at maximum output. After 15 minutes, the appliance switches to standard mode. **Default setting** is 0.
1.3.b	Time interval for starting and stopping the burner	The time interval determines the minimum delay between the burner stop and restart. Setting range: **1** to **10** minutes. **Default setting** is **3** minutes.
1.3.C	Temperature differential for stopping and restarting the burner	The temperature differential determines the level by which the flow temperature must drop below the set flow temperature before the drop is interpreted as a heat demand. Settings in 1 K steps are possible. The temperature differential can be selected between **0** and **10** K. **Default setting** is **5** K.
1.3.F	Duration of heat retention	Heating mode is disabled for this period of time following DHW heating. The following settings are possible: • 1 ... 10 minutes **Default setting** is **1** minute.
1.4.A	Low system pressure monitoring :	To monitor the system water pressure The following settings are possible: • **00**: Deactive the water pressure monitoring • **01**:Active the water pressure monitoring **Default setting** is **01**.
1.4.d	Pump special overrun	The following settings are possible: • **00**: Disable • **01**: Enable **Default setting** is **00**.
1.5.b	Fan run-on time	This service function allows you to set the fan run-on time. The run-on time can be set from **01** to **18** (10 - 180 seconds). **Standard setting** is **03** (30 seconds).
1.6.A	Calling up the last fault saved	The function enables you to retrieve the last fault stored. The service function is reset at **00**.

Table 10 Menu 1

Service function		Possible settings/display
1.6.d	Current turbine flow rate	The current turbine flow rate is displayed. Possible displays are: • **0.0.** - **20.0.**: 0.0 to 20 l/min
1.7.A	Liquid crystal display illumination	The following settings are possible: • **00**: Off • **01**: on **Default setting** is **00**.
1.7.C	Minimum DHW flow rate	Not applicable.

Table 10 Menu 1

9.2.2 Menu 2

To call up a service function in this menu:

- ▶ Hold down ⊕ and ⊖ at the same time until **L.1** is shown on the display.
- ▶ Press ⊕ until **L.2** is shown on the display.
- ▶ Press ☰ to make settings in menu 2.
- ▶ Press ⊕ or ⊖ to scroll through the menu's service functions.

Service function		Possible settings/comments/displays
2.1.A	Maximum output	Some gas supply utilities charge a basic rate based on output. The output can be limited to the specific heat demand between the minimum rated output and maximum rated output. **Default setting** is the maximum rated output. ▶ Set the output in per cent. ▶ Measure the gas flow rate and compare it with the information from the setting tables . If they do not match, change the setting.
2.1.b	Maximum output (DHW)	Not applicable.
2.2.b	Maximum flow temperature	The maximum flow temperature can be set to between 40 °C and 82 °C. **Default setting** is **82**.
2.3.d	Minimum rated output (heating)	The output can be set to any percentage value between the minimum and maximum rated output. The **default setting** is the minimum rated output (heating), which varies according to appliance.
2.4.E	Internal parameter	Do not change value 0.
2.8.A	Software version	The current software version is displayed.
2.8.E	Returning the appliance to its standard settings	This service function enables you to reset the appliance to its standard settings. Setting **00**.

Table 11 Menu 2

Service function		Possible settings/comments/displays
2.9.A	Permanent operating mode	This function permanently sets an operating mode. The following settings are possible: • **00**: Standard operation; the appliance runs according to controller specifications. • **01**: The appliance runs at minimum output. • **02**: The appliance runs at maximum output. **Default setting** is 0.
2.9.b	Current fan speed	Current fan speed in 1/s.
2.9.E	Signal turbine delay	Not applicable.
2.9.F	Heating circuit pump run-on time	The pump run-on time is started by the control system at the end of the heat demand. The following settings are possible: • **0 to 10**: run-on time in minutes (steps of 1 minute) **Default setting** is **3** minutes.
2.A.A	Temperature at flow temperature sensor	This service function allows you to display the temperature at the flow temperature sensor.
2.A.b	DHW temperature	Not applicable.
2.A.C	Temperature at cylinder temperature sensor (WBN 6000-..H..)	Not applicable.
2.b.d	Fan stage	This service function allows you to match the fan performance to the flue length. **Default setting** is **00** (fan does not start). For an external appliance, the fan stage must be set to 01.
2.b.F	DHW heating delay (solar mode)	Not applicable.
2.0.A	Gas type for appliance type	This service function allows you to set the gas type. Possible displays are: • **00**: Appliance for natural gas • **01**: Appliance for LPG
2.0.B	Ionisation current	• With operational burner: – ≥ 1 µA = OK – < 1 µA = faulty • With burner off: – < 1 µA = OK – ≥ 1 µA = faulty
2.d.d	Ignition gain current	Specific circumstances, can strengthen the ignition: Setting from **0** to **30** are possible **Default setting** is **0**

Table 11 Menu 2

9.2.3 Menu 3

To call up a service function in this menu:

- ▶ Hold down ⊕ and ⊖ at the same time until **L.1** is shown on the display.
- ▶ Press ⊕ until **L.3** is shown on the display.
- ▶ Press ☰ to make settings in menu 3.
- ▶ Press ⊕ or ⊖ to scroll through the menu's service functions.

Service function		Possible settings/comments/displays
3.1.A	Appliance type	This service function allows you to adjust the control unit to the appliance. This is necessary when the control unit is replaced.

Table 12 Menu 3

10 Converting the appliance to different gas types

10.1 Converting to a different gas type

The following gas conversion kits are available:

Appliance	Conversion to	Injector size	Part no.
WBN 6000-30-H-E-N/L-S2400	LPG	0.88 mm	8 716 420 217
	NG	1.50 mm	8 716 420 216

Table 13

DANGER: Risk of explosion!
- ▶ Turn off gas valve before working on gas-carrying components.
- ▶ Check for leaks before working on gas-carrying components.

- ▶ Install the conversion kit according to the accompanying installation instructions (refer to installation manual in spare part).
- ▶ Make the gas settings after every conversion (→ section 10.2).

10.2 Gas settings (natural and LPG)

10.2.1 Preparations

- ▶ Flip the control unit down (→ page 13).
- ▶ Mount the control unit at the bottom of the appliance so that the gas train and the control unit can be operated at the same time.

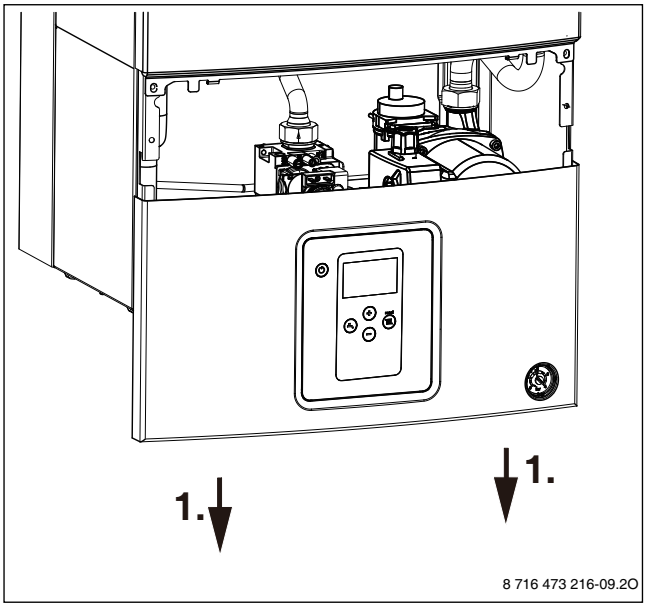

Fig. 22 Control unit, mounted in the frame, allowing the gas train and control unit to be operated at the same time

The rated output can be set using the nozzle pressure or volumetrically.

- ▶ Always initially adjust at maximum output and then at minimum outout.
- ▶ To ensure heat transfer, open radiator valves or hot water draw-off point.

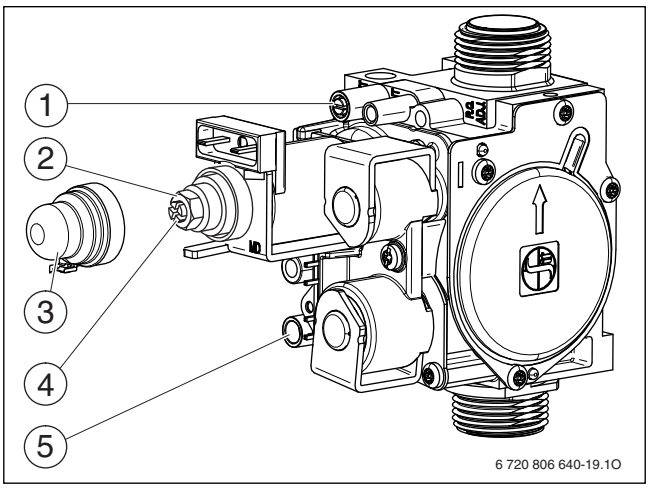

Fig. 23 Gas train

[1] Test port (for nozzle pressure)
[2] Adjusting screw, maximum gas volume
[3] Cap
[4] Adjusting screw, minimum gas volume
[5] Test nipple for gas supply pressure

10.2.2 Nozzle pressure setting method

Nozzle pressure at maximum output

- ▶ Select service function 1.2.F and operating mode **04** (**= maximum rated output**) (→ page 18).
- ▶ Loosen the sealing screw at the test nipple for the nozzle pressure (→ Fig. 23, [1]) and connect the U-tube pressure gauge.
- ▶ Remove the cover (→ Fig. 23, [3]).
- ▶ For "max." specified nozzle pressure (mbar). Use the setting screw to set the nozzle pressure for the max. gas volume (→ Fig. 23, [2]). Turn clockwise = more gas; turn anti-clockwise = less gas.

Nozzle pressure at minimum output

- ▶ Select service function 1.2.F and operating mode **03 (= minimum rated output**) (→ page 18).
- ▶ For "min." specified nozzle pressure (mbar). Use the setting screw to set the nozzle pressure for the min. gas volume (→ Fig. 23, [2]).
- ▶ Check the set min. and max. values and correct them if required.

Checking the gas supply pressure

- ▶ Switch off the gas boiler, close the gas valve, remove the U-tube pressure gauge and tighten the sealing screw [1].
- ▶ Loosen the sealing screw at the test nipple for the gas supply pressure (→ Fig. 23, [5]) and connect the pressure gauge.
- ▶ Open the gas valve and switch on the gas boiler.
- ▶ Select service function 1.2.F and operating mode **04** (**= maximum rated output**) (→ page 18).
- ▶ Check the required flowing gas supply pressure.

Gas type	Nominal pressure [Kpa]	Permissible pressure range at max. rated output [Kpa]
Natural gas H (23)	1.13	1.13 - 3.0
LPG (Propane)[1)]	2.75	2.5 - 3.5
LPG (Butane)		

Table 14

1) Standard figure for LPG with fixed cylinders with capacities up to 15 000 l

Never commission the appliance above or below these values. Identify the cause and rectify the fault. Where that is not possible, isolate the appliance from the gas side and notify the customer.

Resetting the appliance to standard operating mode

- ▶ Select service function 1.2.F and operating mode **00** (**= standard mode**) (→ page 18).
- ▶ Switch off the appliance, close the gas valve, remove the pressure gauge and tighten the sealing screw.
- ▶ Reattach the cover and seal it.

11 Flue gas testing

11.1 Setting the appliance output

To select the **maximum appliance output**:

- ▶ Select service function 1.2.F and operating mode **04** (→ page 18).

To select the **minimum appliance output**:

- ▶ Select service function 1.2.F and operating mode **03** (→ page 18).

You have 15 minutes in which to take your measurements. Afterwards, the appliance returns to standard mode.

To select **Standard mode**:

- ▶ Select service function 1.2.F and operating mode **00** (→ page 18).

-or-

- ▶ Press standby.
  The boiler returns to standard mode.

11.2 Testing for flue gas tightness

You can test for flue gas tightness by measuring the O_2 or CO_2 content of the combustion air.

An annular gap probe is required for carrying out the test.

This test is only possible with flue routing type C_{12} and C_{32}.

The O_2 level must not be below 20.6 %. The CO_2 level must not exceed 0.2 %.

- ▶ To ensure heat transfer, open radiator valves or hot water draw-off point.
- ▶ Switch on the appliance and wait a few minutes.
- ▶ Remove the sealing plug from the combustion air testing socket (2).
- ▶ Insert the probe into the test port.

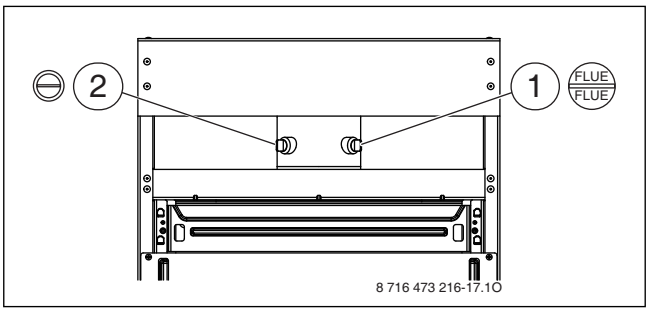

Fig. 24

[1] Test port for flue gas
[2] Test port for combustion air

- ▶ Seal the test port.
- ▶ Select service function 1.2.F and operating mode **04** (→ page 18).
- ▶ Measure the O_2 or CO_2 level.
- ▶ Select service function 1.2.F and operating mode **00** (→ page 18).
- ▶ switch off the appliance.
- ▶ Remove the probe.
- ▶ Refit plug.

11.3 Measuring CO level in flue gas

A multi-port probe is required for carrying out the test.

- ▶ To ensure heat transfer, open radiator valves or hot water draw-off point.
- ▶ Switch on the appliance and wait a few minutes.
- ▶ Remove the sealing plug from the flue gas testing socket (1).
- ▶ Insert the probe as far as it will go into the test port.
- ▶ Seal the test port.
- ▶ Select service function 1.2.F and operating mode **04** (→ page 18).
- ▶ Measure the CO level.
- ▶ Select service function 1.2.F and operating mode **00** (→ page 18).
- ▶ switch off the appliance.
- ▶ Remove the probe.
- ▶ Refit plug.

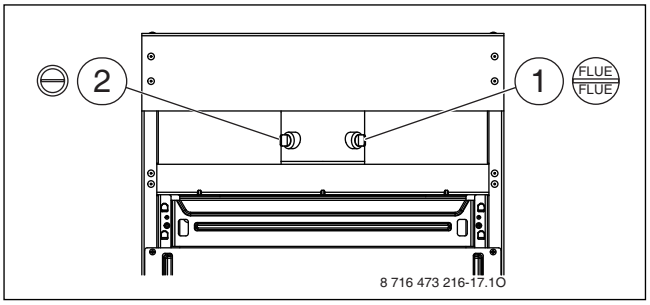

Fig. 25

[1] Test port for flue gas
[2] Test port for combustion air

11.4 Measuring flue gas loss

A flue gas probe and a temperature sensor are required for carrying out the test.

- ▶ To ensure heat transfer, open radiator valves or hot water draw-off point.
- ▶ Switch on the appliance and wait a few minutes.
- ▶ Remove the sealing plug from the flue gas testing socket (1).
- ▶ Insert the flue gas probe approx. 60 mm into the test port or to the position at which the flue gas temperature is highest.
- ▶ Seal the test port.
- ▶ Remove the sealing plug from the combustion air testing socket (2).
- ▶ Push the temperature sensor approx. 20 mm into the port.
- ▶ Seal the test port.
- ▶ Select service function 1.2.F and operating mode **04** (→ page 18).
- ▶ Measure the flue gas loss or boiler efficiency at a boiler temperature of 60 °C.
- ▶ Select service function 1.2.F and operating mode **00** (→ page 18).
- ▶ switch off the appliance.
- ▶ Remove the probe.
- ▶ Remove the temperature sensor.
- ▶ Refit plug.

12 Environmental protection / disposal

Environmental protection is a key commitment of the Bosch Group. Quality of products, efficiency and environmental protection are equally important objectives for us. Environmental protection laws and regulations are strictly adhered to.
To protect the environment, we use the best possible technology and materials taking into account economic points of view.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling.
All of our packaging materials are environmentally compatible and can be recycled.

Old appliances

Old appliances contain materials that must be recycled.
The relevant assemblies are easy to separate, and all plastics are identified. In this way the individual assemblies can be easily sorted and directed to recycling or disposal.

13 Inspection/Maintenance

To ensure that gas consumption and environmental impact remain as low as possible over an extended period of time, we recommend that you take out an inspection/maintenance contract with an authorised contractor covering an annual inspection, and maintenance at other times as required.

DANGER: Risk of explosion!
- ▶ Turn off gas valve before working on gas-carrying components.
- ▶ Check for leaks before working on gas-carrying components.

DANGER: Risk of poisoning
- ▶ Check for leaks before working on gas-carrying components.

DANGER: Risk of electric shock
- ▶ Before carrying out work on electrical components, disconnect the power supply (240 V AC) (fuse, circuit breaker) and secure against unintentional reconnection.

WARNING: Risk of scalding
Hot water can lead to severe scalding.
- ▶ Close all valves and possibly drain appliance prior to working on parts carrying water.

NOTICE: Escaping water can damage the electronics.
- ▶ Cover the electronics prior to working on parts carrying water.

Important notes

For an overview of faults, see page 29.

- The following test equipment is required:
  - Electronic flue gas emission meter for CO_2 , CO and exhaust temperature
  - Pressure gauge for 0 - 30 mbar (resolution at least 0.1 mbar)
- Special tools are not required
- Permissible lucricants:
  - For components in contact with water: Unisilkon L 641 (8 709 918 413 0).
  - Unions: HFt 1 v 5 (8 709 918 010).
- ▶ Only use genuine spare parts!
- ▶ Refer to the spare parts catalogue when ordering spare parts.
- ▶ Always renew seals and O-rings removed during servicing or repair work.

After inspection/maintenance
- ▶ Retighten all loosened threaded fittings.
- ▶ Recommission the appliance (→ page 14).
- ▶ Check all connections for leaks.

13.1 Description of various maintenance operations

13.1.1 Calling up the last fault saved
- ▶ Select service function **1.6.A** (→ page 18).

For an overview of faults, see page 29.

13.1.2 Opening the appliance
Taking down flue pipe

1. Take down the sealing.
2. Take the short flue pipe.

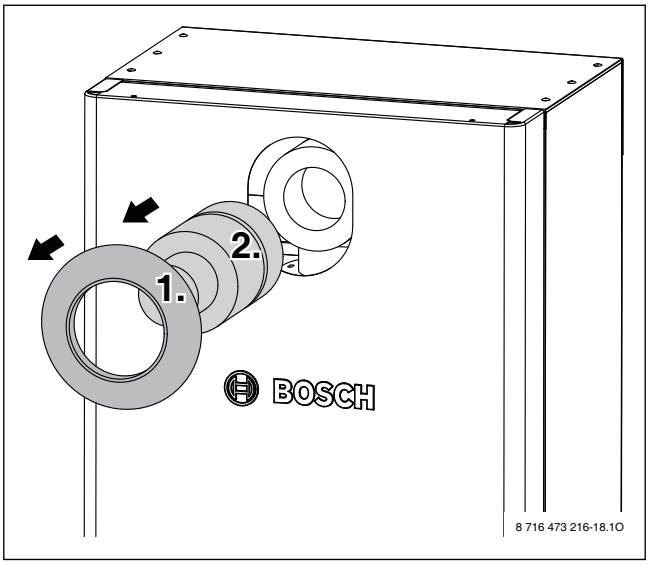

Fig. 26

Remove the front cover

1. Undo the screws.
2. Remove the front cover down.

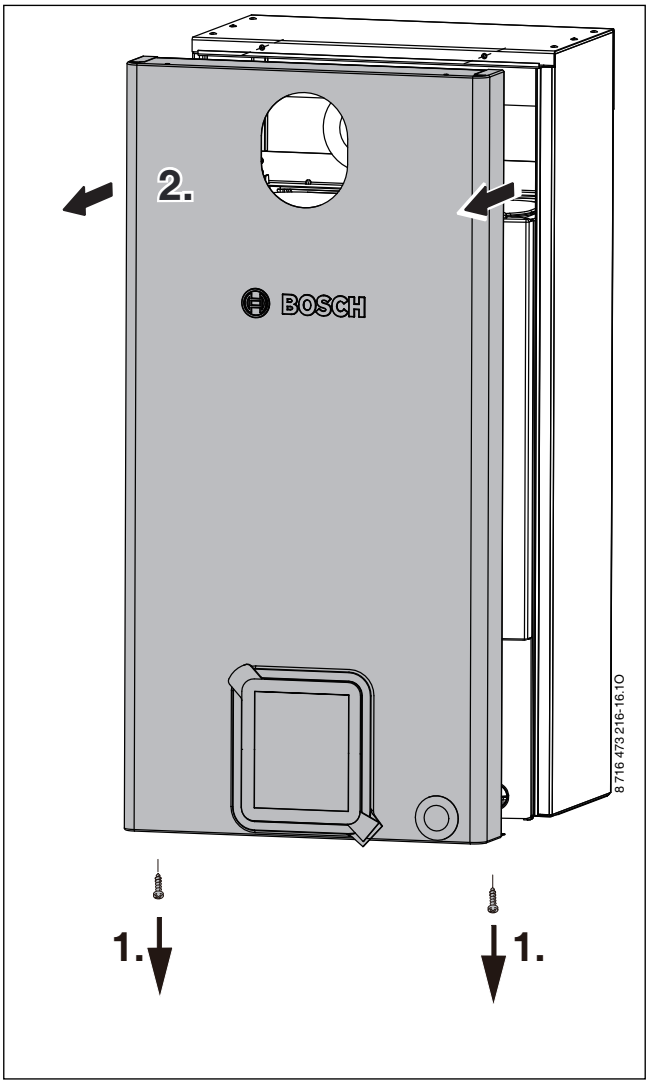

Fig. 27

Flipping down the control unit

The casing is secured with two screws against unauthorised removal (electrical safety).
▶ Always secure the outer casing with these screws.

1. Undo screws.
2. Pull the control unit down.
3. Flip the control unit down.

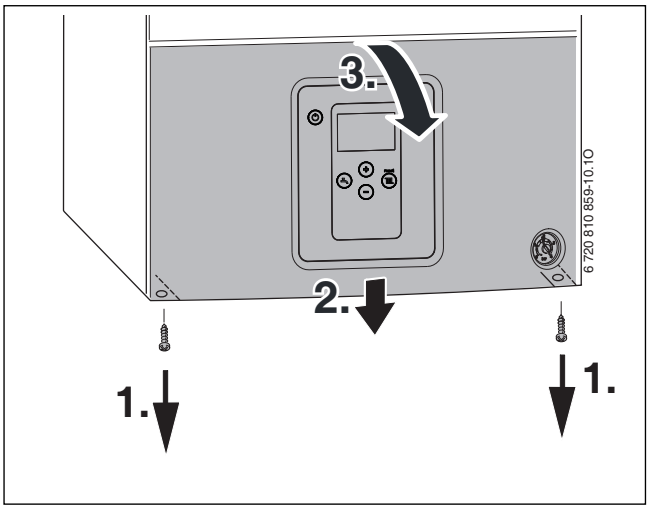

Fig. 28

Removing the front casing

The front casing is secured with two screws against unauthorised removal (electrical safety).
▶ Always secure the outer casing with these screws.

1. Remove both safety screws from the appliance front.
2. Lift off the case.

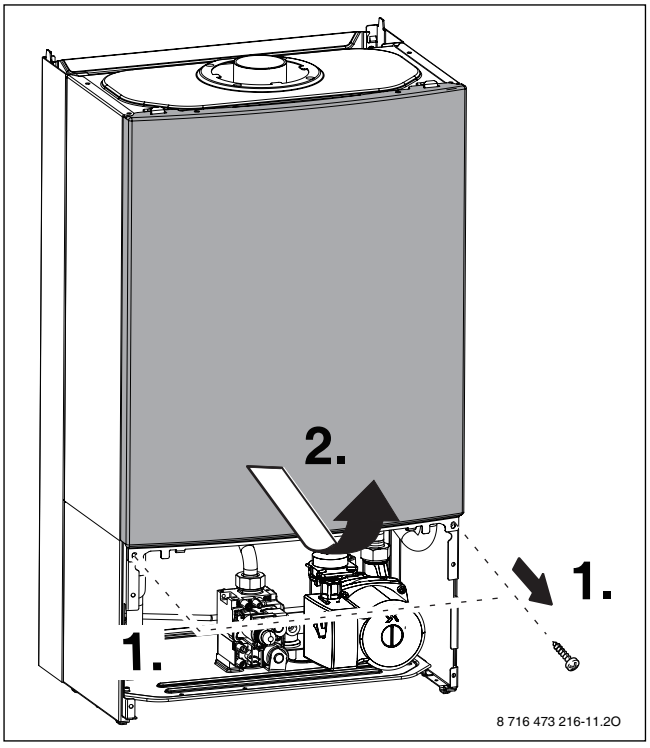

Fig. 29

13.1.3 Cleaning the burner pan, nozzles and burner

▶ Loosen five screws and lift out the combustion chamber cover by pulling it forwards.

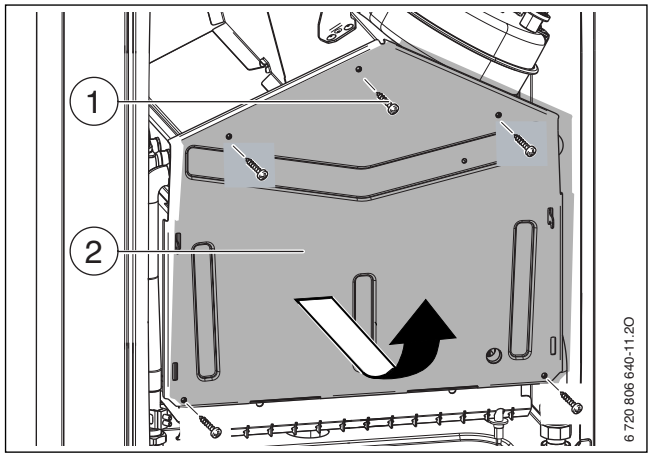

Fig. 30 Opening the burner

[1] Screws
[2] Combustion chamber cover

▶ Remove burner.
▶ Remove the nozzle holder.
▶ Clean burner using a brush. Ensure that the blades and nozzles are clear. **Do not use a metal brush to clean the nozzles**.
▶ Check electrodes for contamination and clean or replace if required.
▶ Check the gas setting (→ page 22).

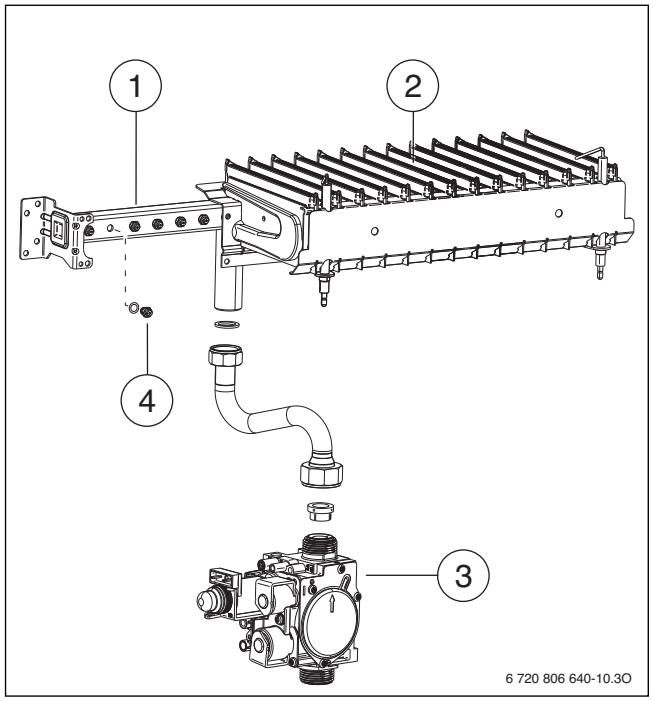

Fig. 31

[1] Blast tube connection
[2] Burner half
[3] Gas train
[4] Nozzle

13.1.4 Cleaning the heat exchanger

1. Disconnect the cable.
2. Remove screw fittings.
3. Pull the heat exchanger out towards the front.

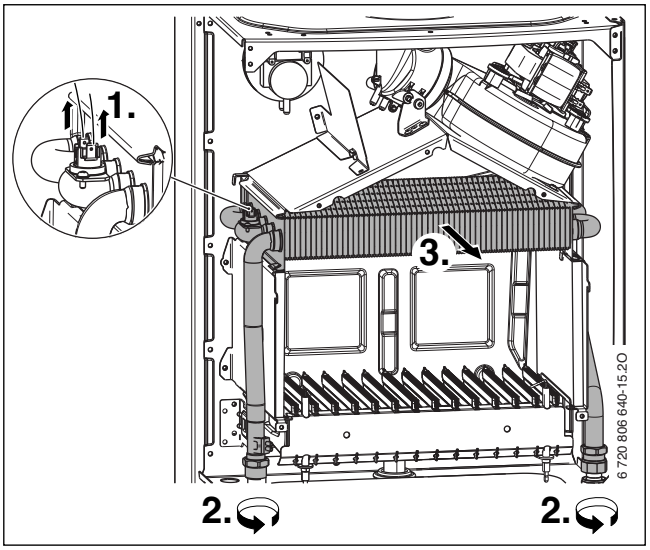

Fig. 32

▶ Clean the heat exchanger in water using a rinsing agent and reinstall it.
▶ Carefully straighten any distorted fins on the heat exchanger.

13.1.5 Checking the expansion vessel (also see page 10)

According to DIN 4807, Part 2, Section 3.5, the expansion vessel must be checked annually.

▶ Depressurise the appliance.
▶ Adjust the pre-charge pressure of the expansion vessel to the static head of the heating system, if necessary.

13.1.6 Setting the heating system pressure

NOTICE: Damage to appliance due to cold water!
Stress cracks can occur on the hot heat exchanger when the heating water is topped up.
▶ Only top up the heating water when the appliance is cold.

Pressure gauge reading	
1 bar	Minimum system pressure (when cold)
1 - 2 bar	Optimum system pressure
3 bar	Maximum system pressure at highest heating water temperature:: must not be exceeded (safety valve opens).

Table 15

▶ If the pointer is below 1 bar (when the system is cold), top up with water to the system until the pointer is between 1 bar and 2 bar again.
▶ If there is a pressure drop: check the expansion vessel and heating system for leaks.

13.1.7 Checking electrical wiring

▶ Check wiring for mechanical damage and replace faulty cables/leads.

13.2 Checklist for inspection and maintenance

Date							
1	Call up the last fault saved in the electronics, service function **1.6.A** (→ page 18).						
2	Perform a visual check of the air/flue gas routing.						
3	Check the gas supply pressure, (→ page 22).	mbar					
4	Check for leaks on the gas and water connections (→ page 12).						
5	Check heat exchanger, (→ page 26).						
6	Check burner (→ page 26).						
7	Check electrodes (→ page 26).						
8	Check the expansion vessel pre-charge pressure matches the static head of the heating system.	bar					
9	Check the heating system pressure.	bar					
10	Check electrical wiring for damage.						
11	Check the heating controller settings.						
12	Check the set service functions.						

Table 16

14 Displays

The display shows the following (tab.Fig. 17 andFig. 18):

Value displayed	Description
Number, point, number or letter, point followed by a letter	Service function (→ Tab. 10 to Tab. 12, page 18 to 21)
Letter followed by number or letter	Fault code flashes (→ Tab. 19, page 29)
Two numbers or one number, point followed by number or Three numbers	Decimal figure e.g. flow temperature

Table 17 Displays

Special display	Description
	Venting function enabled (approx. 2 minutes).
	Summer mode (appliance frost protection)
e.g. **EA**	Fault code (→ chapter 15.1)
	Fan stage 0 is set, → service function **2.b.d**.
only 	Standby

Table 18 Special displays

15 Fault mode

15.1 Troubleshooting

DANGER: Risk of explosion!
- ▶ Turn off gas valve before working on gas-carrying components.
- ▶ Check for leaks before working on gas-carrying components.

DANGER: Risk of poisoning
- ▶ Check for leaks before working on gas-carrying components.

DANGER: Risk of electric shock
- ▶ Before carrying out work on electrical components, disconnect the power supply (240 V AC) (fuse, circuit breaker) and secure against unintentional reconnection.

WARNING: Risk of scalding
Hot water can lead to severe scalding.
- ▶ Close all valves and possibly drain appliance prior to working on parts carrying water.

NOTICE: Escaping water can damage the electronics.
- ▶ Cover the electronics prior to working on parts carrying water.

All safety, modulation and control components are monitored by the Heatronic system.

If a fault occurs during operation, the display shows the ⚠ symbol and possibly 🔧, and a fault code (e.g. **EA**) flashes.

If ⚠ and 🔧 appear:

- ▶ Press and hold down ▥ until the ⚠ and 🔧 symbols are no longer displayed.
  The appliance will start up again and the flow temperature will be displayed.

If only ⚠ appears:

- ▶ Switch the appliance first off and then on again by means of the standby key.
  The appliance will start up again and the flow temperature will be displayed.

If a fault persists:

- ▶ Contact your approved installer or Customer Service for assistance, providing details of the fault and the appliance.

For an overview of faults, see page 29.
For an overview of displays, see page 28.

If a fault persists:

- ▶ Check the circuit board, replace it if required and reset the service functions.

15.2 Faults that are shown on the display

Display code	Description	Remedy
A7	Temperature sensor for hot water is faulty.	▶ Check the temperature sensor and connecting lead for breaks or short-circuits; replace them if required.
Ad	Cylinder temperature sensor not detected.	Check cylinder temperature sensor and connecting lead.
C1	Fan speed too low.	▶ Check power supply. ▶ Check flue gas system; clean or repair if required.
C4	The differential pressure switch will not respond if the fan is switched off.	Check pressure switch and wiring, check connection hoses.
C6	Pressure switch not closing.	Check fan lead and connector, check fan, replace as necessary.
		Check pressure switch, sensor and connecting pipes.
C7	Fan not running.	Check fan lead and connector, check fan, replace as necessary.
CE	Filling pressure of the heating system is too low.	▶ Top up the system with water.
d7	Gas valve faulty.	▶ Check lead. ▶ Check gas train; replace if required.
E2	Flow temperature sensor faulty (lead break).	Check the temperature sensor and connecting lead for breaks or short-circuits.
E9	Temperature limiter for heating block has responded.	▶ Check heat exchanger temperature limiter and lead for breaks; replace if required. ▶ Check the operating pressure of the heating system. ▶ Check temperature limiter; replace if required. ▶ Check pump starter; replace pump if required. ▶ Check the fuse; replace if required (→ page 7). ▶ Bleed the appliance. ▶ Check heating block on the water side; replace if required. ▶ Check flue gas temperature limiter and lead for breaks; replace if required.
EA	Flame not detected.	▶ Check earth lead is correctly connected. ▶ Check whether gas valve is open. ▶ Check gas supply pressure; correct if required. ▶ Check power supply. ▶ Check electrodes with lead; replace if required. ▶ Check flue gas system; clean or repair if required. ▶ Check gas settings; correct if required. ▶ For natural gas: Check external gas flow limiter; replace if required. ▶ For open flue operation, check air supply or ventilation apertures. ▶ Clean heat exchanger (→ page 26). ▶ Check gas train; replace if required.
F7	A flame is detected although the appliance is switched off.	▶ Check electrodes for contamination; replace if required. ▶ Check flue gas system; clean or repair if required. ▶ Check PCB for moisture; dry if required.
FA	A flame is detected after the gas has been switched off.	▶ Check gas train; replace if required. ▶ Check electrodes and lead; replace if required. ▶ Check flue gas system; clean or repair if required.
	Fan stage not selected.	▶ Select fan stage.
P	Appliance type not defined.	▶ Set appliance type (→ service function 3.1.A).
Fd	Key was held down for too long (over 30 secs).	▶ Press the key again for less than 30 secs.

Table 19

15.3 Faults that are not shown on the display

Appliance faults	Remedy
Flow noises	▶ Correctly set the pump speed at the pump terminal box.
Heat-up takes too long	▶ Correctly set the pump speed at the pump terminal box.
Flue gas readings incorrect; CO levels too high	▶ Check gas type. ▶ Check gas supply pressure; adjust if required. ▶ Check flue gas system; clean or repair if required. ▶ Check gas settings; replace gas train if required.
Ignition too violent, poor	▶ Check gas type. ▶ Check gas supply pressure; adjust if required. ▶ Check power supply. ▶ Check electrodes with lead; replace if required. ▶ Check flue gas system; clean or repair if required. ▶ Check gas settings; replace gas train if required. ▶ For natural gas: Check external gas flow limiter; replace if required. ▶ Check burner; replace if required.
DHW outlet temperature is not reached	▶ Check appliance type and gas type; see service function 2.0.A. ▶ Check turbine. Replace if required.

Table 20 Faults that are not shown on the display

15.4 Sensor values

15.4.1 Flow temperature sensor

Temperature/ °C Measuring tolerance ± 10 %	Resistance/ Ω
0	33 242
10	19 947
20	12 394
30	7 947
40	5 242
50	3 548
60	2 459
70	1 740
80	1 256
90	923

Table 21

16 Commissioning report for the appliance

Customer/system user:			
Surname, first name		Street, house number	
Telephone/fax		Postcode, town	
System installer:			
Order number:			
Appliance type		(**Complete a separate report for every appliance!**)	
Serial number:			
Date commissioned:			
☐ Individual appliance | ☐ Cascade, Number of appliances:			
Boiler room:	☐ Cellar | ☐ Attic | Other:		
	Ventilation apertures: Number: ....., Size: approx.		cm^2
Flue routing:	☐ Twin pipe system | ☐ LAS | ☐ Duct | ☐ Separate pipe routing		
	☐ Plastic | ☐ Stainless steel | ☐ Aluminium		
	Total length: approx. ..... m | 90° bend: ..... pce | 15 - 45° bend: ..... pce		
	Flue tightness test (with combustion air flowing in countercurrent): ☐ Yes | ☐ No		
	CO_2 value in the combustion air at maximum rated output:		%
	O_2 value in the combustion air at maximum rated output:		%
Notes regarding underpressure or overpressure operation:			
Gas setting and flue gas test:			
Set gas type: ☐ Natural gas H | ☐ Propane | ☐ Butane			
Gas supply pressure:	Kpa	Gas static supply pressure:	Kpa
Selected maximum rated output:	kW	Selected minimum rated output:	kW
Gas flow rate at maximum rated output:	mj/hr	Gas flow rate at minimum rated output:	mj/hr
Net calorific value H_{iB}:	kWh/m^3		
Measuring the flue gas loss at maximum rated output:	%	Measuring the flue gas loss at minimum rated output:	%
CO at maximum rated output:	ppm	CO at minimum rated output:	ppm
Flue gas temperature at maximum rated output:	°C	Flue gas temperature at minimum rated output:	°C
Maximum measured flow temperature:	°C	Minimum measured flow temperature:	°C
System hydraulics:			
☐ Low loss header, type:		☐ Additional expansion vessel Size/pre-charge pressure: Automatic air vent valve installed? ☐ Yes | ☐ No	
☐ Heating circuit pump:			
☐ DHW cylinder/type/number/heating surface output:			
☐ System hydraulics checked, notes:			

Modified service functions: (Select the modified service functions and enter the values here.)	
Example: service function 1.7.A changed from 00 to 01	
Heating control unit:	
☐ Heating control unit set, notes:	
☐ Modified heating control unit settings documented in the controller operating/installation instructions	
The following work has been carried out:	
☐ Electrical connections checked, notes:	
	☐ Combustion air/flue gas test carried out
☐ Function check carried out	☐ Was a tightness test carried out on the gas and water sides?
Commissioning includes checking the settings, a visual boiler tightness test and a function check of the boiler and control unit. The system installer conducts a test of the heating system. If minor installation faults are identified on Bosch components during commissioning, Bosch is fully prepared to rectify these faults once consent has been given by the customer. This does not imply any liability for the installation performance.	
The system named above has been checked to the extent described. _____ Name of service engineer	The documents have been handed over to the user. The user has been made aware of the safety information and operation of the above-mentioned heat source, including accessories. Attention has been drawn to the requirement for regular maintenance of the above-mentioned heating system. _____ Date, user's signature
_____ Date, system installer's signature	**Affix the test report here.**

Robert Bosch (Australia) Pty Ltd
Thermotechnology Division

Voluntary Repair or Replacement Warranty for Hot Water and Heating products (Non-Solar)

Applicable for purchases after 1 January 2012
See table at back for applicable models

All Bosch products are carefully checked, tested and certified to Australian and New Zealand standards.

Important Note: Mandatory Australian Consumer Law statement

If you have purchased your product in Australia, you should be aware that:

*This warranty is provided **in addition to** other rights and remedies held by a consumer at law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.*

Important Note: New Zealand law

If you have purchased your product in New Zealand, you should be aware that:

This warranty is supplemental to any other rights and remedies you have under the *Consumer Guarantees Act 1993 NZ*, unless your purchase is made for commercial purposes, in which case Bosch excludes all consumer guarantees implied in the *Consumer Guarantees Act 1993 NZ* in respect of your product.

Warranty
Bosch warrants, at its option, to repair or replace those Bosch water heater products specified in the product table on the last page of this warranty (**Products**) if such Products are faulty or defective in manufacture or materials during the relevant Product warranty period.

The warranty period commences on the date of purchase. If the date of original purchase cannot be determined, then the warranty period will commence six (6) months after the date of manufacture stamped on the Product. Bosch may require evidence to verify the date of purchase.

This warranty only covers repair or replacement of defective Products (including labour costs where indicated). It does not cover:

- any costs incurred by the end user in normal or scheduled maintenance of the Products; or
- subject to any law to the contrary, any damage to property, personal injury, direct or indirect loss, consequential losses or other expenses arising from breach of this warranty. Any end user concerned with this exclusion should consider the "*Important Note: Mandatory Australian Consumer Law statement*" above.

Warranty Period and Coverage
The warranty periods for the Products vary according to the particular class. The respective warranty periods are specified in the product table on the last page of this warranty.

For “Parts only” warranty, the end user will be charged for service call costs and service technician fees in effecting the replacement.

For valid claims within "Parts & Labour" warranty periods, the end user will not be charged for costs associated with making a warranty claim, including service call costs, any service technician fees or the cost of replacement parts and freight, provided that:

- the Product is located within the usual operating area of an authorised service technician; and
- the Product has been installed according to the installation instructions so as to provide adequate service access.

If the Product is not located within the usual operating area of an authorised service technician, the end user will be required to pay the service call costs associated with a service call under this voluntary warranty.

Notwithstanding the above, if the Product has not been installed in accordance with the installation instructions in regards to access, or has been otherwise installed in location where service access is difficult, the end user will be required to pay charges associated with the difficult access. This includes, but is not limited to, the removal of walls or doors to gain access and the use of specialised equipment to move the Product or components to safe working levels. Where the Product cannot be safely accessed, Bosch may refuse to service the Product under this voluntary warranty.

For invalid claims under this voluntary warranty, the end user will be liable for the costs of making the warranty claim including any service call costs.

Warranty Conditions
This voluntary warranty is subject to the following conditions:

- The Product must have been installed and correctly commissioned by an authorised and licensed installer in compliance with applicable Australian Plumbing and Gas Standards. Proof may be required of correct commissioning of the Product (such as certificate of compliance). Claims for failures due to incorrect installation or commissioning are not covered under this voluntary warranty and may be rejected by Bosch.
- Where a Product or part thereof is replaced or repaired under this voluntary warranty, the balance of the original voluntary warranty will apply. The replacement Product or part does not carry a new voluntary warranty.
- The Product must have its original serial numbers and rating labels intact.
- The warranty does not extend to any Products that have been completely or partially disassembled.
- These warranty terms cannot be amended except in writing by an authorised officer of Bosch.
- The warranty only applies to Products installed for an end user in Australia or New Zealand and purchased from Bosch or from a reseller where the Products have been originally sold by Bosch.
- Any claim made under this voluntary warranty meets the requirements set out below in the “How to Make a Warranty Claim” section.

Warranty Exclusions
This warranty will not apply to a defect or fault to the extent to which it arises:

- due to storage, handling or installation of the Products otherwise than in accordance with instructions provided for the Products by Bosch or without reasonable care, including installation of a Product which is of inappropriate size or type for the intended purpose;
- due to operation, use or maintenance of the Products otherwise than in accordance with instructions provided for the Products by Bosch or without reasonable care, including use of the Products with faulty or unsuitable plumbing, water pressure, power or gas supply;
- due to accidental damage or use of the Products for a purpose or in environmental conditions for which the Products were not designed or sold, or use of the products outside the specified or normal operating ranges for such Products;

- as a result of changes which occur in the condition or operational qualities of the Products due to climate or other environmental influence, foreign material contamination or water entry or as a result of exposure to excessive heat or solvents or because of use of non-potable water or bore water in the Product or damage as result of an Act of Nature including but not limited to storms, fires, floods and lightning strikes;
- from normal wear and tear or when replacement or repair of parts would be part of normal maintenance or service of the Products or where the damage is only to surface coating, varnish or enamel;
- as a result of repairs, alterations or modifications to the Product which have been performed by a person who is not suitably qualified and experienced to perform works on the Products; or
- from the use of any spare parts not manufactured, sold or approved by Bosch in connection with the repair or replacement of Product.

This voluntary warranty does not apply to damage that has been caused by continued use of a Product after it is known, or would have been known with regular servicing, it is defective.

Failure to service Products in accordance with recommendations in instruction manuals for Products may result in a warranty claim under this voluntary warranty being rejected by Bosch. Bosch alerts end users that instruction manuals for Products contain specific recommendations for servicing and safety checks to be carried out on Products.

Wrong Deliveries and Transit Damage
Wrong deliveries, incorrect or damaged packing and transit damage claims are not warranty claims. Such cases should be directed to Bosch's Customer Service line in Australia on ph: 1300 307 037 or in New Zealand on ph: 0800 543 352.

How to Make a Warranty Claim
If a Product fails within the warranty period, the end user must stop using the Product and make a claim as soon as possible, in any event before the end of the Warranty Period (see Deadlines for Submitting Warranty Claims below).

To make a warranty claim under this voluntary warranty, call the Bosch Customer Contact Centre (in Australia on ph: 1300 307 037 or in New Zealand on ph: 0800 543 352). Please be ready to provide the model and serial number, date of installation, purchase details and a full description of the problem. Alternatively, for claims in Australia, you can post details of your claim to Robert Bosch (Aust) Pty Ltd, Attn TT Warranty Department, Locked Bag 66, Clayton Sth, Victoria, 3169. Claims received by post will take longer to process and we encourage you to call. Bosch may refer you to one of its Bosch Warranty Authorised Service Dealers.

Proof of purchase and purchase date, as well as proof of installation and proper commissioning by a licensed installer, may be required by Bosch or an authorised service technician.

All warranty service calls will be conducted by an authorised service technician during normal business hours. Bosch will not accept claims under this voluntary warranty for attendance and repair of the Product by third parties not authorised by Bosch.

Deadlines for Submitting Warranty Claims
Bosch aims to rectify genuine quality problems as a priority. This is generally achieved by investigating why defective products have failed and by introducing immediate corrective action measures to prevent re-occurring warranty failures. It is therefore critical that all warranty claims are promptly submitted to Bosch as soon as the product fails, and in any event before the end of the warranty period.

Product Liability and Product Safety
Bosch should be informed immediately about any potential product safety concerns within and outside the warranty period. Bosch is well aware of its product liability and product safety obligations and responsibilities. It is our aim to ensure appropriate product safety standards are met in order to avoid injury, loss and damage caused by defects in any Products.

Privacy
Bosch is required to seek personal information from an end user who seeks to make a claim under this warranty.

Such personal information may be used by Bosch and/or any authorised service technician (who is authorised to process warranty claims and/or carry out warranty repairs on behalf of Bosch) for the purpose of processing such warranty claim and also for the provision of customer support and further information about Bosch's products and services (**Purpose**).

If an end user does not wish to provide Bosch and/or its authorised service technician with personal information, Bosch may be unable to process the end user's warranty claim or to provide the end user with additional customer support, services and information.

Bosch is committed to protecting the privacy of personal information and will act in compliance with applicable privacy laws, including the National Privacy Principles under the Australian *Privacy Act 1988* (Cth) (as amended) and New Zealand's Information Privacy Principles described in the *Privacy Act 1993 (NZ)*.

Bosch takes security measures in order to protect any personal information collected in the warranty claim process against manipulation, loss, destruction, access by unauthorized persons or unauthorized disclosure.

Bosch will not disclose any personal information to third parties other than for the Purpose or except as required by law.

An end user has the right to access the personal information Bosch or its authorised service technician hold about them. The end user can request to see, change or modify the personal information held about them, or withdraw consent for its usage, by contacting Bosch at the Bosch Contact Details below.

Bosch Contact Details
This warranty is offered by Robert Bosch (Australia) Pty Ltd (ACN 004 315 628) of 1555 Centre Road, Clayton, Victoria 3168. Please call the Customer Contact Centre on 1300 30 70 37 in Australia or 0800 543 352 in New Zealand if you have any queries in relation to this warranty or contact us using the online form at www.bosch-climate.com.au.

Bosch Product List and Respective Warranty Periods

The following is a list of the classes of products sold by Bosch which are covered by this voluntary warranty, and the warranty periods which apply in each case. The warranty period is subject otherwise to the specific terms referred to in the main body of the warranty under the heading "Warranty Periods".

Product Group	Detailed Description	Usage	All Components Parts & Labour	Heat Exchanger Parts only
Highflow units				
Highflow	70 series	Domestic	3 years	10 years
Highflow		Commercial	1 year	1 year
Highflow	Eco 26	Domestic	3 years	10 years
Highflow		Commercial	1 year	1 year
KM3211 WH	32	Domestic	3 years	10 years
KM3211 WH		Commercial	2 year	5 year
KM3211 WH Q	32Q	Domestic	3 years	10 years
KM3211 WH Q		Commercial	2 year	5 year
BC 3200 RA	BC3200	Domestic	3 years	10 years
BC 3200 RA		Commercial	2 year	5 year
Highflow Accessories	Controllers	Both	3 years	-
Highflow Accessories	Vent Caps	Both	1 Year	-
Highflow Accessories	Recess box's	Both	1 Year	-
Mechanical units				
Hydropower	Hydro	Domestic	2 year	10 year
Hydropower		Commercial	1 year	1 year
Pilot operated	Pilot	Domestic	2 year	10 year
Pilot operated		Commercial	1 year	1 year
GWH internal compact	Internal Compact	Domestic	2 year	10 year
GWH internal compact		Commercial	1 year	1 year
GWH external	External Compact	Domestic	2 year	10 year
GWH external		Commercial	1 year	1 year
Mechanical Accessories	Exogel valve	Both	1 year	-
Mechanical Accessories	heat shield	Both	1 year	-
Boiler Products				
Condens 5000 boiler	18 kW	Domestic	1 year	5 year
Condens 5000 boiler		Commercial	1 year	5 year
Condens 5000 boiler	30 kW	Domestic	1 year	5 year
Condens 5000 boiler		Commercial	1 year	5 year
Condens 5000 combi boilers	37 kW	Domestic	1 year	5 year
Condens 5000 combi boilers		Commercial	1 year	5 year
GAZ 6000W		Both	1 year	-

"Parts & Labour" means free of charge repair and/or replacement, including labour.

"Parts only" means a replacement heat exchanger, free of charge. All installation and repair labour costs are the responsibility of the owner.

"**Domestic use**" warranty period applies to Products installed to supply hot water for use by individuals in domestic dwellings. For Products used for all other uses, the commercial use warranty period will apply. This includes, without limitation, installations such as centralised or bulk hot systems, hotels, sporting complexes, caravan parks, laundry facilities, restaurants and cafes.

Hydronic boiler manufacturer's warranty terms & conditions (continued)

Any service call costs incurred by the owner of the boiler for any matter not covered by the terms of this warranty will not be reimbursed by Bosch, even if such costs are incurred during the warranty period. Repair or replacement of the boiler or any parts under this warranty does not lengthen or renew the warranty period. This warranty is not transferable and is only offered to the original purchaser of the boiler. This warranty only applies to Bosch hydronic boilers purchased and used in Australia and New Zealand.

WARRANTY EXTENSION OPTION: This warranty may be extended from 1 year to 2 years at no additional cost if the warranty is registered with Bosch within 30 days of the date of installation, as follows: (1) online at www.bosch-climate.com.au (Australia) or www.bosch-climate.co.nz (New Zealand) OR (2) by completing the enclosed warranty card and returning it to Bosch. All warranty periods commence on the date of installation of the appliance.

IMPORTANT NOTE: This warranty does not affect any of your statutory rights. This warranty is provided in addition to any statutory rights, warranties or guarantees imposed or implied by any applicable law.

PRIVACY: A customer's personal information collected during warranty registration may be used for the provision of customer support, for the provision of information about products and services and for other marketing activities undertaken by Bosch and their business partners within or on behalf of Bosch ('Purpose'). Bosch is committed to protecting the privacy of its customers' personal information and will act in compliance with the National Privacy Principles and Privacy Act 1988 (Cth). Bosch will not forward customers' personal information to third parties other than for the Purpose. A customer can object at any time to the use of their personal information for the Purpose. Bosch will cease to use a customer's personal information accordingly if an objection is made.

Manufacturer's Warranty (Applicable for purchases from 1 January 2012) Important Note For Australian Consumers. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

COMPLETE THE FORM BELOW TO REGISTER YOUR WARRANTY OR REGISTER ONLINE AT WWW.BOSCH-CLIMATE.COM.AU OR WWW.BOSCH-CLIMATE.CO.NZ

In order to register your warranty it is essential that this card is completed in full before it is returned

TO BE COMPLETED BY THE HOUSEHOLDER

PLEASE COMPLETE IN CAPITAL LETTERS IN BLACK INK

STATUS (Please tick)

OWNER ☐ TENANT ☐ HOUSING ASSOCIATION ☐

Title

First name

Surname

Address 1

Address 2

Address 3

Town

State

Postcode

Country

Tel

Email

@

INSTALLER

PLEASE COMPLETE IN CAPITAL LETTERS IN BLACK INK

DATE OF INSTALLATION

IS THIS A REPLACEMENT ☐ OR NEW INSTALLATION ☐ (Please tick)

Company

First name

Surname

Address 1

Address 2

Address 3

Town

State

Postcode

Country

Tel

Email

MERCHANT/SUPPLIER OF BOILER

LICENCE NO.

MODEL

WHAT WAS THE SYSTEM CLEANSER USED?

FERNOX ☐ SENTINEL ☐ OTHER ☐

WHAT WAS THE SYSTEM INHIBITOR USED?

FERNOX ☐ SENTINEL ☐ OTHER ☐

FOR INTERNAL USE ONLY

Your Bosch hydronic boiler comes with a 1 year manufacturer's warranty. You are invited to extend your warranty from 1 year to 2 years*. Simply register with Bosch online or complete and return this warranty card.

The registration must occur within 30 days of the date of installation.

- **By post –** Please send your completed card to: Robert Bosch (Australia) Pty Ltd, TT/SAU-ASA, Locked Bag 66, Clayton South, VIC 3169, Australia.
- **On-line – you can register on our website: www.bosch-climate.com.au** (Australia) or **www.bosch-climate.co.nz** (New Zealand)

If you would like to discuss your Bosch hydronic boiler further please call our Customer Contact Centre on 1300 30 70 37 (Australia) or 0800 54 33 52 (NZ).

*To qualify for your free 2 year warranty you must register by one of the above methods within 30 days of your Bosch hydronic boiler's installation.

Hydronic boiler manufacturer's warranty terms & conditions

Robert Bosch (Australia) Pty Ltd (Bosch) offers, at its option, to repair or exchange (free of material and labour charges) this Bosch hydronic boiler which are proven to Bosch's reasonable satisfaction to be faulty or defective in manufacture or materials for one year in accordance with the following conditions:

The boiler must have been installed by an authorised and licensed installer. Proof may be required of the date of installation and correct commissioning of the boiler has been carried out to Bosch's satisfaction. Warranty claims must be in writing stating the model, serial number, date of installation, together with proof of purchase and a full description of the problem. Any warranty calls must conducted by an authorised Bosch service agent. Invoices for attendance and repair of the boiler by third parties not authorised by Bosch will not be accepted for payment by Bosch. This warranty excludes any damage or failure caused by faulty installation, neglect, misuse, accidental or non-accidental damage, failure to follow instructions, use of unauthorised repairs or parts, or use of the boiler for purposes other than which it was designed (such as commercial use). This warranty does not include costs of consumables or accessories, wear and tear, normal or scheduled maintenance, damage to property, personal injury, direct or indirect loss, consequential losses or other expenses.

Please turn over for further warranty terms and conditions.

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