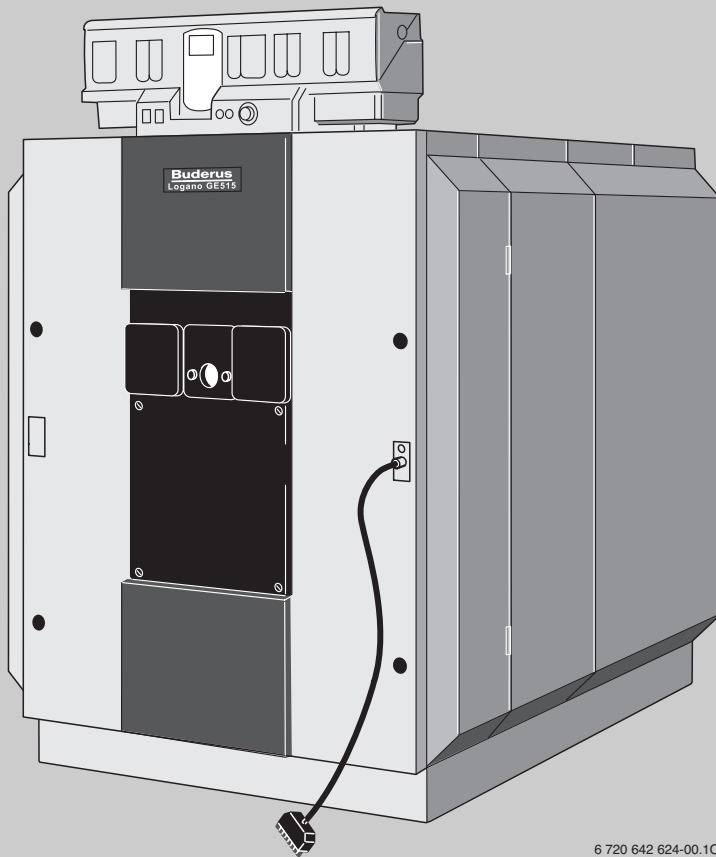


Operating Instructions

Low-temperature oil/gas boiler



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WARNING: If installation, adjustment, modification, operation or maintenance of the heating system is carried out by an unqualified person, this may result in personal injury or property damage.

Precisely follow the instructions of this manual.

If support or additional information is required, contact a qualified service company, service provider or the gas company.

WARNING:

Observe the safety instructions of this manual before commissioning the heating device.

The operating manual is a component of the technical documentation and must be handed over to the operator of the heating system. The handling of the heating system according to the operating manual must be explained to the owner or operator. Make sure that he has been familiarized with all information required for the operation of the heating system.

This manual is available in the English and French language.

Please keep this manual for future reference.

Logano G515

Low temperature boilers for
oil/gas fired power burners

For users

Please read carefully
before use.

6 720 647 203 (2017/02) US/CA



Buderus

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1 Explanation of symbols and safety information

1.1 Explanation of symbols

Warnings



Warnings are indicated in the text by a warning triangle and a gray background.



In case of danger from electric shock, the exclamation point on the warning triangle is replaced with a lightning symbol.

Signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing damage are not taken.

- **NOTICE** indicates that minor damage to property may occur.
- **CAUTION** indicates possible minor to medium personal injury.
- **WARNING** indicates possible severe personal injury.
- **DANGER** indicates that severe personal injury may occur.

Important information



Important information that presents no risk to people or property is indicated with this symbol. It is separated by horizontal lines above and below the text.

Additional symbols

Symbol	Meaning
▶	Sequence of steps
→	Cross-reference to other points in this document or to other documents
•	Listing/list entry
–	Listing/list entry (2nd level)

Tab. 1

1.2 Safety instructions

Danger from failing to consider your own safety in an emergency such as a fire

- ▶ Never risk your own life. Your own safety must always take the highest priority.

Risk due to oil leaks

- ▶ When using oil as the fuel, national regulations hold the operator responsible for immediately calling a specialist contractor to remedy oil leaks the moment they are discovered.

If you smell gas

- ▶ Close the gas shut-off valve.
- ▶ If you hear gas escaping, evacuate the affected area immediately.
- ▶ Open the windows.
- ▶ Do not operate any electrical switches or equipment such as telephones, power plugs and doorbells.
- ▶ Extinguish all open flames.
- ▶ Do not smoke.
Do not use lighters.
- ▶ Warn all occupants of the building, but do not ring doorbells.
- ▶ Call your gas utility company and your local heating contractor **from outside the building**. If necessary, notify police or the fire department.

If you smell flue gas

- ▶ Switch off the appliance.
- ▶ Open windows and doors.
- ▶ Inform a trained and certified heating contractor.

Danger of electrical shock

- ▶ Before carrying out any work on the heating system, disconnect all poles of the heating system by activating the emergency shutoff switch outside the boiler room or disengaging the heating system circuit breaker.
- ▶ It is not sufficient just to switch off the controller.
- ▶ Take measures to ensure that the heating system cannot be switched on again unintentionally.

Risk of damage due to operator error

Operator errors can result in personal injury and damage to property.

- ▶ Ensure that children never operate this appliance unsupervised or play with it.
- ▶ Ensure that only people who know to operate this appliance correctly have access to it.

Installation, conversion

Insufficient ventilation may cause dangerous flue gas leaks.

- ▶ Only have the appliance installed or modified by a trained and certified heating contractor.
- ▶ Never change any parts in contact with flue gas.
- ▶ Do not cover or reduce the size of ventilation openings in doors, windows and walls. If draft-proof windows are fitted, ensure there is an adequate supply of air to the room for combustion.
- ▶ Ensure that the boiler installation room remains free from the risk of frost.
- ▶ The heating system must be installed and operated in accordance with the applicable rules of technology as well as the national, regional and local code.
- ▶ Do not hang up laundry to dry in the boiler room.

Inspection and maintenance

Heating systems should be regularly maintained for the following reasons:

- to achieve a high level of efficiency and to operate the system economically (low fuel consumption),
- to achieve a high level of operational safety,
- to maintain the cleanest combustion.
- ▶ **Recommendation for customers:** Sign a maintenance and inspection contract with a trained and certified contractor, covering an annual inspection and demand-dependent maintenance.
- ▶ The operator is responsible for the general and environmental safety of the heating system.
- ▶ Immediately correct all faults to prevent system damage.
- ▶ Use only original Buderus spare parts. Damage caused by the use of spare parts not supplied by Buderus are excluded from the Buderus warranty.

Explosive and easily combustible materials

- ▶ Never use or store easily flammable materials (paper, thinners, paints etc.) near the appliance.

Combustion air/room air

- ▶ Keep the supply of combustion/room air free of corrosive substances (e.g. halogenated hydrocarbons that contain chlorine or fluorine compounds). This will help prevent corrosion.
- ▶ Prevent heavy accumulation of dust.

Instructing the customer

- ▶ Instruct customers about the functions and operation of the appliance.
- ▶ Inform the customer that they must not carry out any modifications or repairs.
- ▶ Only use the boiler for its intended purpose and only when it is in working order.

Disposal

- ▶ Dispose of packaging in an environmentally responsible manner.
- ▶ All heating system components that have to be replaced should be disposed of in environmentally-responsible manner at an authorized disposal site.

The right fuel

This system requires the correct fuel to ensure a proper operation. During commissioning, your system installer will enter the correct type of fuel, which your system requires, into the table below (→ Chapter 2.4, page 7).

Danger of water damage

- ▶ Do not use the appliance if any part of it has been under water.
- ▶ Call in a trained and certified heating contractor immediately to check the appliance and replace any electrical or gas valve components that have been under water.

Other important information

- ▶ If the system overheats or the gas supply does not shut off, do not switch off or disconnect the power supply to the pump. Instead, shut off the gas supply somewhere else to the heating system.

2 Product description

The oil/gas fired boiler Logano G515 has been developed and built employing the latest technologies and safety regulations.

Particular emphasis is placed on ease of operation. Please observe the safety instructions and the operating instructions to ensure optimum safe, economical and environmentally-friendly operation of your system.

The main components of the Logano G515 oil/gas fired boiler are:

- Boiler block (→ Fig. 1, [3]).
The boiler block transfers the heat generated by the burner to the heating water.
- Boiler shell (jacket → Fig. 1 and 2, [1]), thermal insulation (→ Fig. 1, [2]).
The boiler jacket and thermal insulation minimize energy loss.
- Control panel (→ Fig. 1, [4])
The control panel is designed to monitor and control all electrical components of the oil/gas fired boiler Logano G515.

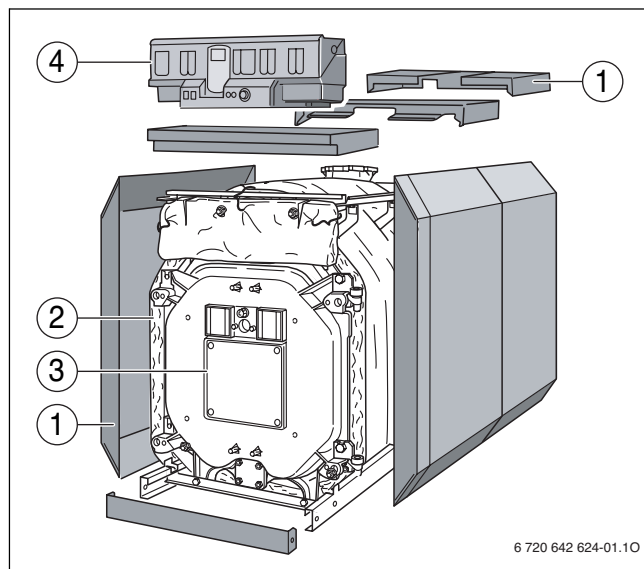


Fig. 1 Oil/gas fired boiler Logano G515

- 1 Boiler shell (jacket)
- 2 Thermal insulation
- 3 Boiler heat exchanger
- 4 Control panel

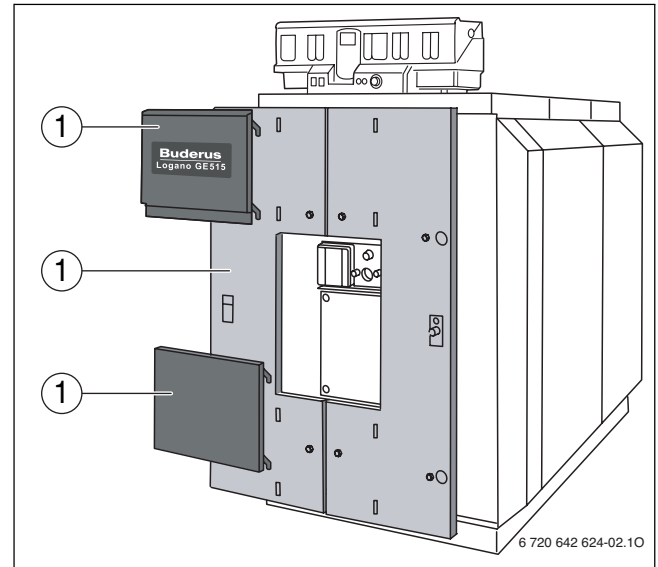


Fig. 2 Front jacket

- 1 Boiler shell (jacket)

2.1 Correct use

The Logano G515 is designed for heating boiler water and water heating. Any other purpose is considered improper use. Any resulting damage is excluded from the manufacturer's warranty.

The Logano G515 can be operated with oil, gas, and combination burners. For a list of the approved burners, please contact Bosch Thermotechnology Corp.

This boiler can be operated with an aquastat, the Logamatic 4000, and other control systems.

2.2 Certification and testing mark

This appliance has been tested and certified and meets all applicable standards for the US and Canadian markets.

2.3 The correct fill and make-up water

Note the fundamental system-specific water quality requirements.

Water designation

Water is used as the heat transfer medium in your heating system. Depending on its purpose, the water is given different descriptions.

- Heating water:
Water contained within your heating system.
- Fill water:
Water used for the first filling of your system before commissioning.
- Make-up water:
Water used for topping up the heating system in case of water loss.

Water quality requirements

All water contains substances, e.g. $\text{Ca}(\text{HCO}_3)_2$ (calcium hydrogen carbonate) that could affect the operation of your heating system. These can cause corrosion, scale formation or deposits.

To ensure your heating system always operates economically, properly and safely, not to mention in an energy-efficient manner, we recommend that you regularly monitor the quality of the fill and make-up water and treat it accordingly as and when necessary.



NOTICE: System damage from corrosion or scale formation as the result of using fill and make-up water that does not conform to the system-specific requirements.

- ▶ Ask your trained and certified installer or local water company what the concentration of $\text{Ca}(\text{HCO}_3)_2$ (calcium hydrogencarbonate) is in your area.
- ▶ If the fill and make-up water does not meet system-specific requirements, it will have to be treated. Consult your trained and certified installer if this is the case.

For the correct use and treatment of the fill and make-up water, the contents of the following table **MUST** be observed.

Overall boiler output MBH (kW)	$\text{Ca}(\text{HCO}_3)_2$ concentration / grains per gallon (ppm)	Maximum fill and make-up water quantity V_{\max} / gallon (m ³)	Heating water pH value
341 < Q ≤ 1,194 (100 < Q ≤ 350)	≤ 11.7 (≤ 200)	$V_{\max} = \text{three times system volume}$	8.2–9.5
1,194 < Q ≤ 3412 (350 < Q ≤ 1000)	≤ 8.8 (≤ 150)		
341 < Q ≤ 1,194 (100 < Q ≤ 350)	> 11.7 (> 200)	$V_{\max} = 0,1818 \cdot \frac{Q(\text{MBH})}{\text{Ca}(\text{HCO}_3)_2 \left(\frac{\text{gr}}{\text{gal}}\right)}$ $\left(V_{\max} = 3,13 \cdot \frac{Q(\text{kW})}{\text{Ca}(\text{HCO}_3)_2(\text{ppm})} \right)$	8.2–9.5
1,194 < Q ≤ 3412 (350 < Q ≤ 1000)	> 8.8 (> 150)		

Tab. 2 Requirements for fill, make-up and heating water

2.4 The correct fuel

To ensure it operates properly, the heating system requires fuel of the correct type and grade.



NOTICE: Risk of system damage from use of incorrect fuel.

- ▶ Only use the fuel specified. The correct fuel is entered in → Tab. 3 by the heating contractor.

Use the following fuel:

Stamp/Signature/Date

Tab. 3 Fuel to be used (entered by heating system installer)



We recommend you seek the advice of your system installer if you intend changing the fuel for your system.

3 System start-up

This chapter explains how you prepare the system for operation and how to commission the control panel and the burner.

3.1 Making the system operational

You should check the following to prepare the system for operation:

- ▶ Operating water pressure of the system (→ Chapter 3.2)
- ▶ Fuel is supplied and the main fuel shut-off valve is open
- ▶ Heating system emergency shutoff switch set to ON

Ask your heating contractor to show you where the fill valve for your heating system (boiler return) is located.

3.2 Check and correct the operating pressure

Your heating system must contain sufficient water to ensure the functionality of your system.



NOTICE: Risk of system damage due to frequent refilling.

- ▶ If you need to add water frequently, the heating system may be damaged by corrosion and scale buildup depending on the water quality.
- ▶ Bleed the heating system. If necessary, fill with make-up water.
- ▶ Check the heating system for leaks and the correct operation of the expansion vessel.
- ▶ Notify your heating contractor if you find the need to refill your heating system frequently.

If the operating pressure in the system is too low, fill make-up water into your system (→ Chapter 2.3, page 6).

- Recently added fill or make-up water loses much of its volume in the first few days because it releases gases. With newly filled heating systems, initially check the operating pressure daily and then in ever increasing intervals.



Air pockets may form in the heating system from the fill or make-up water releasing gases.

- Once the system is losing minimal volume, check the operating pressure of the heating water once a month.

All factory default settings will have already been made by the heating contractor when the system was first commissioned.

3.2.1 Checking the operating water pressure

The operating pressure must be at least 15 psi (1 bar).

- ▶ Read the current operating pressure and temperature (°C (°F)) on the temperature/pressure gauge.
- ▶ If the operating pressure drops below 15 psi (1 bar), fill up the heating water.

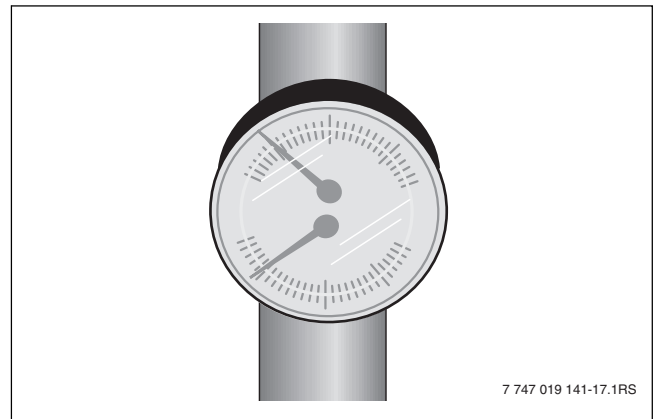


Fig. 3 Pressure/temperature gauge

3.2.2 Filling with heating water and bleeding the system



Let your local heating contractor show you where the boiler fill and drain valve for filling and draining the heating water is located on your heating system.

- ▶ Slowly fill the heating system via the on-site fill valve. During filling, observe the display (pressure gauge).
- ▶ Once the desired operating pressure is reached, stop the procedure.
- ▶ Bleed the heating system via the purge valves.
- ▶ Add fill water again if the operating pressure drops as a result of bleeding the system.

3.3 Starting up the control panel and the burner

Start your boiler via the control panel (→ Fig. 4). By starting the control panel, you also automatically start the burner. The burner is then fired by the control panel. For further details, see the operating instructions of the relevant control panel or burner.

- ▶ Switch the boiler water thermostat (→ Fig. 4, [1]) to "AUT".
- ▶ Set the ON/OFF switch (→ Fig. 4, [2]) to "I" (ON).

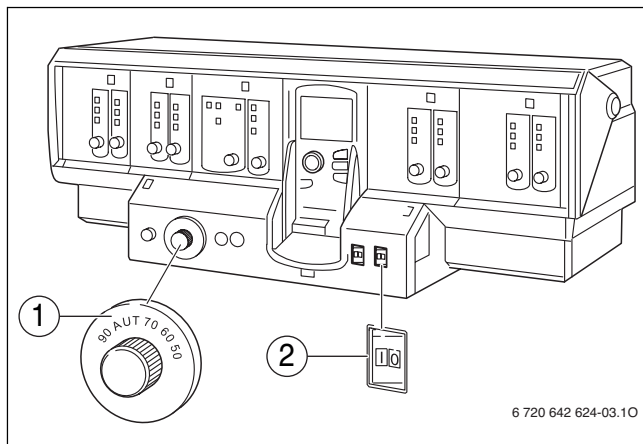


Fig. 4 Control panel (for example: Logamatic 4000)

- 1 Boiler water thermostat
- 2 ON/OFF switch



Follow the control panel operating instructions.

4 Shutting down the system

This chapter explains how you shut down your boiler and switch off the control panel and the burner. Furthermore, it contains details on how to shut down your heating system in an emergency.



NOTICE: Risk of system damage from freezing.

- ▶ The system can freeze up if it is out of service, e.g. from a shutdown because of fault(s).
- ▶ Protect your system against frost damage where temperatures below freezing are expected.
- ▶ Drain the heating water at the lowest point in the system, using the KFE tap (boiler fill and drain valve). To do this, open the purger at the highest point in the system.

- ▶ Shut off the fuel supply at the main fuel shut-off valve.

4.1 Switching off the control panel and the burner

Shut down your boiler via the control panel (→ Fig. 4). The burner is automatically shut down when the control panel is switched off.

- ▶ Set the ON/OFF switch (→ Fig. 4, [2]) to "0" (OFF).



For further details on this subject, see the operating instructions for the relevant control panel.

4.2 Shutting down the system in an emergency



Only in emergencies, switch off the system using the emergency shutoff switch or by disengaging the heating system circuit breaker.

In other dangerous situations, immediately close the main fuel shut-off valve and the power supply of the heating system using the emergency shutoff switch or by disengaging the heating system circuit breaker (→ Chapter 1.2, page 3).

5 Correcting burner faults

Heating system faults are shown on the control panel display. You will find detailed information regarding fault displays in the service instructions for the relevant control panel. The burner fault is also indicated by a fault lamp on the burner.



NOTICE: Risk of system damage from freezing.

- ▶ The system can freeze if it is out of service, e.g. from a shutdown because of fault(s).
- ▶ If the system remains switched off for several days because of a fault shutdown, you should drain the heating water via the KFE tap at the lowest point in the system to protect it against freezing.

- ▶ Press the burner reset button (see burner operating instructions).



NOTICE: Risk of system damage due to too many resets.

- ▶ The burner ignition transformer may be damaged if you press the reset button more than three times in succession when the burner refuses to start.
- ▶ Do not attempt to remedy the fault by pressing the reset button more than three times in succession.

If the burner does not restart after three attempts, refer to the technical documentation provided with the burner to find out how to reset it.

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