

Operating instructions for users **Logano plus SB325**

Introduction

Dear Customer,

Heat is our element - and has been now for more than 275 years. Right from the start, we invest all our energies and passion into developing individual solutions for you, so you feel comfortable in your home.

Whether heat, domestic hot water or ventilation, a product from Buderus will always provide you with highly efficient heating technology of proven quality that will reliably keep your home cosy for many years to come.

We manufacture in accordance with the state of the art and ensure that our products are efficiently matched to each other. In this endeavour, efficiency and environmental compatibility are our priorities.

Thank you for choosing a Buderus product - a choice that will give you not only efficient energy utilisation but also high levels of comfort and convenience. To ensure that you retain this level of excellence, please read the operating instructions carefully. If, contrary to expectations, problems arise, please contact your installer who will be happy to assist you.

Should your installer not be available, then contact our customer service that is available to you around the clock.

We hope you will enjoy your new Buderus product!

Your Buderus Team

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1 General safety instructions and explanation of symbols

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	Meaning
▶	Action step
→	Cross-reference to another part of this document
•	List/list entry

Table 1

1.2 Safety regulations

Danger through failure to consider your own safety in an emergency such as a fire

- ▶ Never put your life at risk. Your own safety is paramount.

Installation and conversion

Insufficient ventilation can lead to dangerous flue gas leaks.

- ▶ Only have the boiler installed or modified by a qualified heating engineer.
- ▶ Never change any parts in contact with flue gas.
- ▶ Never cover or reduce the size of air vents in doors, windows or walls. If draught-proof windows are fitted, ensure there is an adequate combustion air supply.
- ▶ 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 current applicable standards, rules and regulations.

Risk of damage due to operator error

Operator errors can result in injury and damage to property.

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

If you smell gas

- ▶ Close the gas isolation valve.
- ▶ Open the windows.
- ▶ Never operate electrical switches, including telephones, plugs or doorbells.
- ▶ Extinguish all naked flames.
- ▶ No open fire.
- ▶ Never smoke.
- ▶ Never use lighters.
- ▶ Warn all occupants of the building, but do not ring doorbells.
- ▶ Leave the building and telephone the national gas emergency service on 0800 111999 **from an outside phone**.

If you smell flue gas

- ▶ Switch off the appliance.
- ▶ Open windows and doors.
- ▶ Notify an authorised contractor.

Electric shock hazard

- ▶ Before carrying out any work on the heating system, disconnect the heating system from the power supply across all poles. For example, activate the emergency stop switch outside the boiler room. It is not enough to switch off the control unit.
- ▶ Secure power supply against unintentional reconnection.
- ▶ Observe country-specific rules and regulations when making the electrical connection, commissioning, servicing and carrying out maintenance.

Thermal disinfection

- ▶ **Risk of scalding!**
Monitor any operation with temperatures in excess of 60 °C.

Inspection and service

- ▶ **Recommendation for customers:** Arrange a service and inspection contract with the service department of the manufacturer or with an authorised contractor, covering an annual inspection and demand-dependent service.
- ▶ The user is responsible for the general and environmental safety of the heating system.
- ▶ Immediately correct all faults to prevent system damage!
- ▶ Use only genuine spare parts from the manufacturer. Losses caused by the use of spare parts and accessories not supplied by the manufacturer are excluded from the manufacturer's warranty.

Explosive and highly flammable material

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

Combustion/room air

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

Disposal

- ▶ Dispose of packaging in an environmentally responsible manner.

2 About the appliance

2.1 Determined use

The Logano plus SB325 condensing boiler has been designed for hot water heating systems in e.g. apartment buildings or industrial units. The boiler is only approved for open flue operation.

Any pressure-jet gas burner type-tested to EN 676 can be used if its operating range matches the boiler specifications.

Only burners that have been tested and approved for electromagnetic compatibility (EMC) may be used.

2.2 EU Declaration of Conformity

The design and operation of this product conform to the applicable European directives and supplementary national requirements. Conformity has been demonstrated.

You can ask for a copy of the declaration of conformity for this product. For this see the contact address on the back of these instructions.

2.3 Operating conditions



Observe all standards and directives applicable to the installation and operation of this heating system in your country. Observe the information on the data plate. These are definitive and must be observed.



Set the burner to the rated heat input QN specified on the data plate as a maximum.

Conditions of use	Unit	Value
Maximum permissible temperature, high-limit safety cut-out	°C	110
Maximum operating pressure	bar	4
Maximum number of burner starts	per annum	15 000

Table 2 Conditions of use

Operating conditions	Logano plus SB325	Logano plus SB325
Boiler water flow rate	None –	None –
Min. boiler water temperature	in conjunction with a Logamatic control unit for modulating operation.	in conjunction with a Logamatic control unit 4212 for constant boiler water temperatures or when supplemented by a third party control unit.
Operating Interruption (complete boiler shut-down)		
Heating system control with mixer		
Minimum return temperature		
Miscellaneous	1)2)	1)

Table 3 Operating conditions

- 1) Maximum 15,000 burner starts per year. In order not to exceed the number of burner starts, observe the information on setting the control unit and burner in the technical guide or installation instructions. If this value is exceeded, however, please contact the manufacturer's service department.
- 2) The number of burner starts per year is affected by the boiler system's operating settings (controller parameters in the boiler controller and combustion setting) and sizing to correspond with the consumers' heat demand. To avoid exceeding the number of annual burner starts as a result of operating settings which have not been optimised, the manufacturer offers a complete commissioning and regular document inspections for floor standing residential conventional boilers, burners and boiler controller (Logamatic control units with function modules).



The number of burner starts can be checked in the MEC on the third-party control unit or alternatively on the burner control unit.

2.4 Suitable fuels

The boiler must only be operated with the specified fuels. Only burners that are suitable for the specified fuels may be used.

Your heating contractor has entered the required type of fuel in tab. 4, chapter 10, page 10.

Gas burner



The combustion of biogas is not permitted.

Permissible fuels:

- Natural gas from the public gas supply in accordance with national regulations with a total sulphur content <math>< 50 \text{ mg/m}^3</math>.
- LPG in accordance with national regulations with a content of elementary sulphur <math>< 1.5 \text{ ppm}</math> and volatile sulphur <math>< 50 \text{ ppm}</math>.

2.5 Data plate



If you contact the manufacturer with any questions about this product, always provide the details on the data plate. These details enable us to assist you specifically and quickly.

The information on the data plate is binding and must be observed!

The data plate includes details of the serial number, output and approval data.

2.6 Product description

With the Logano plus SB325 floor standing condensing boilers, all parts that come into contact with products of combustion or condensate are made from high grade stainless steel. This makes operation possible without limitations on the flow and return temperature, the flow rate or the burner low load. It is also referred to in this manual as the boiler or the heat appliance.

The SB325 has two separate thermohydraulic return connections for the high and low temperature heating circuits. The SB325 must be equipped with a burner that is suitable for the boiler. The boiler functions according to the three-pass system (→ Fig. 1).

The main components of the boiler are (→ Fig. 2, page 5):

- Boiler body [3] in conjunction with a burner [2]
The boiler block transfers the heat produced by the burner to the heating water.
- Thermally insulating casing [3]
The boiler shell and thermal insulation reduce energy losses.
- Control unit [1]
The control unit monitors and controls all electrical boiler components.

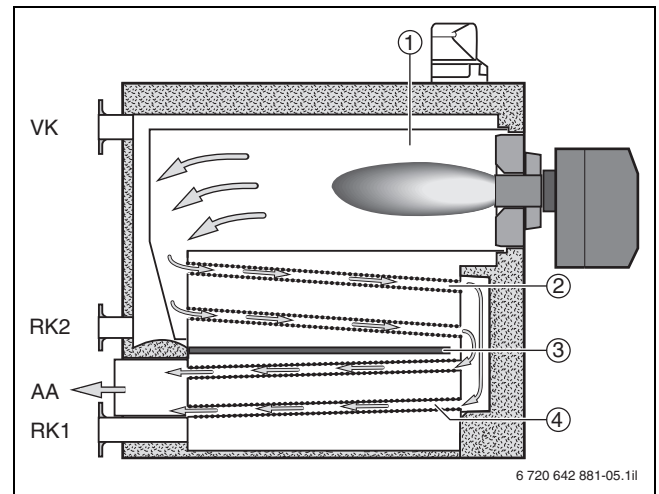


Fig. 1 Function diagram of the hot gas path in the floor standing condensing boiler Logano plus SB325

- [AA] Flue gas outlet
- [RK1] Return connection for low temperature heating circuits
- [RK2] Return connection for high temperature heating circuits
- [VK] Flow connection
- [1] Combustion chamber (1st pass)
- [2] Upper condensation secondary heating surface (condensing plus heating surface, 2nd pass)
- [3] Water guide element
- [4] Lower condensation secondary heating surface (condensing plus heating surface, 3rd pass)

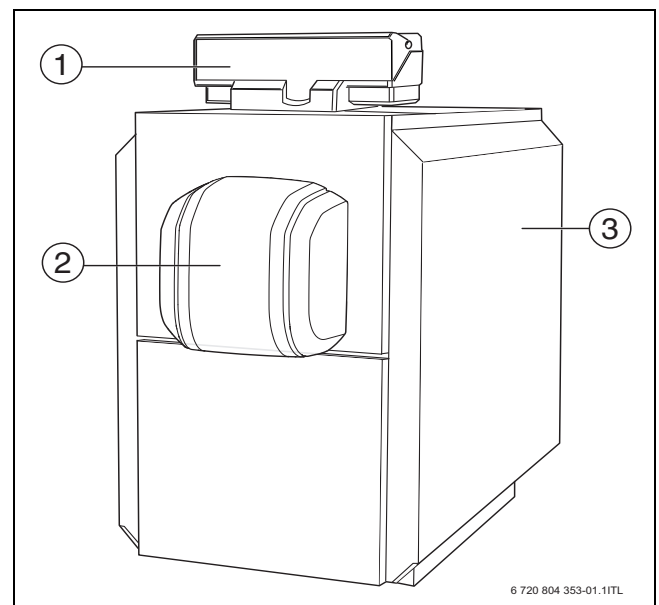


Fig. 2 Boiler overview

- [1] Control unit
- [2] Burner
- [3] Boiler shell with insulation and boiler casing

3 Information on installation and operation



Observe all standards and guidelines applicable to the installation and operation of this system in your country. The details on the data plate are definitive and must be observed.

3.1 Combustion air quality

- ▶ Keep the supply of combustion air free of corrosive substances (e.g. halogenated hydrocarbons that contain chlorine or fluorine compounds).
This will help to prevent corrosion.
- ▶ Never use or store chlorinated cleaning agents or halogenated hydrocarbons (as contained in spray cans, solvents or cleaning agents, paints and adhesives, for example) in the boiler room.
- ▶ Keep the combustion air supply free of dust.
- ▶ If building work is taking place in the installation room and creating a lot of dust, shut the boiler down. A burner contaminated during building work must be cleaned before commissioning.

3.2 Heating water quality

The quality of the fill and top-up water is an essential factor for efficiency, functional reliability, long service life and for maintaining the constant operational condition of a heating system. If the system is filled with water that has a high calcium hardness, this will be deposited on the heat exchanger surfaces and will restrict the transfer of heat to the heating water. As a result, the wall temperatures of the stainless steel heat exchanger surfaces will rise and the thermal stresses (loads on the boiler shell) will increase.

This is why the quality of the fill or top-up water must meet the conditions stipulated in the operator's log provided and be recorded in this log.

3.3 Using antifreeze



Chemical additives that are not certified as harmless by the manufacturer must not be used.

Antifreeze based on glycol has been used in heating systems for many years, for example Antifrogen N manufactured by Clariant.

The use of other types of antifreeze should not be a cause for concern if the product is comparable with Antifrogen N.

Observe the antifreeze manufacturer's instructions. Follow the manufacturer's details regarding mixing ratios.

The specific thermal capacity of Antifrogen N antifreeze is lower than the specific thermal capacity of water. To enable the transfer of the required heat output, increase the required flow rate accordingly. This should also be taken into account when sizing the system components (e.g. pumps) and the pipework.

As the heat transfer medium has a higher viscosity and density than water, take the higher pressure drop through the pipework and other system components into account.

Check the resistance of all plastic or non-metallic components in the system separately.

4 Commissioning

- ▶ Ask your contractor to provide information about how the boiler works and is operated.
- ▶ Never undertake any modifications or maintenance.

4.1 Preparing the heating system for operation

For you to be able to commission the heating system, observe the following:



Open the automatic air vent valve only briefly for venting.

- ▶ Check that the required operating pressure has been built (→ chapter 7.3).
- ▶ Check the flange connections and other connections for tightness.
- ▶ Fill the condensate siphon.
- ▶ Open the fuel supply to the main fuel shut-off valve.
- ▶ Switch on the heating system emergency stop switch.

4.2 Commissioning the control unit and burner

By commissioning the control unit you automatically commission the burner as well. The burner can then be started by the control unit. For further information, see the installation instructions of the relevant control unit or burner.

- ▶ Use the control unit to commission the boiler.

5 De-commissioning



NOTICE: System damage due to frost.

At temperatures below freezing the heating system can freeze up if it is not operational, e.g. because of a fault shutdown.

- ▶ When there is risk of frost, protect your heating system against freezing.
- ▶ If your heating system has been shut down for several days due to a fault shutdown and there is a risk of frost, drain the heating water at the drain & fill valve. Also leave the air vent valve at the highest point in the system open.



NOTICE: System damage due to frost.

The heating system can freeze up as a result of a power failure or if the power has been switched off.

- ▶ Check the "Control unit settings" to ensure the system remains operational (especially when there is a risk of frost).

5.1 Shutting down the heating system

Shut down your heating system via the control unit. This also switches the burner off automatically.

- ▶ Set the On/Off switch of the control unit to "0" (Off).
- ▶ Isolate the fuel supply to the burner.

5.2 Shutting down the heating system in an emergency



Only in emergencies, switch OFF the heating system via the boiler room MCB/fuse or the heating system emergency stop switch.

- ▶ In dangerous situations, immediately close the main fuel shut-off valve and the power supply of the heating system via the boiler room main MCB/fuse or the heating system emergency stop switch.
- ▶ Isolate the fuel supply to the burner.
- ▶ Never put your life at risk. Your own safety is paramount.

6 Correcting a burner fault



NOTICE: System damage due to frost.

When there is a frost, the heating system can freeze up if it is not operational, e.g. because of a fault shutdown.

- ▶ At temperatures below freezing protect your heating system against freezing up.
- ▶ If your heating system has been shut down for several days due to a fault shutdown and there is a risk of frost, drain the heating water at the drain & fill valve. Also leave the air vent valve at the highest point in the system open.



NOTICE: System damage from pressing the reset button too frequently.

This can damage the burner ignition transformer.

- ▶ Press the reset button no more than three times in sequence.

The display shows heating system faults. Further information on the fault displays can be found in the operating instructions of the relevant control unit. In addition, burner faults are signalled by an indicator on the burner.

- ▶ Press burner reset button (see burner operating instructions).
- If the burner still fails to start after three attempts, contact a contractor.

7 Inspection and service

7.1 General notes



NOTICE: System damage due to inadequate cleaning and maintenance.

- ▶ Carry out cleaning and maintenance at least once a year. In the course of this work, check the entire heating system including the neutralising system for correct function.
- ▶ Immediately correct all faults to prevent system damage.



Annual inspection and service are part of the warranty terms.



Use only genuine spare parts from the manufacturer. Spare parts can be ordered from the manufacturer's spare parts catalogue.

Arrange an annual inspection and responsive maintenance and inspection contract with the service department of the manufacturer or with your contractor.

The manufacturer's address can be found on the last page.

7.2 Why is regular maintenance important?

Have your heating system regularly serviced:

- to maintain a high level of efficiency and to operate the system economically (low fuel consumption),
- to achieve a high level of operational reliability,
- to maintain the cleanest possible combustion

7.3 Checking and correcting the water pressure

The heating system must contain sufficient water to ensure its correct function.

- ▶ If the water pressure in the heating system is too low, top up with water.
- ▶ Check the water pressure monthly.

7.3.1 When should you check the water pressure in the heating system?



The fill and top-up water quality must comply with the specifications in the operator's log supplied.



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

- ▶ Vent the heating system (e.g. bleeding the radiators).
- ▶ If required, top up with water.

Recently added fill or top-up water loses much of its volume in the first few days because it releases gases. With new systems you should therefore initially check the heating water pressure on a daily basis, and then at gradually longer intervals.

- Once the heating system is hardly losing any volume, check the heating water pressure monthly.

A distinction is generally made between open vented and sealed unvented systems. In practice, open vented systems are rarely installed nowadays. We will therefore be using a sealed unvented heating system to demonstrate how you can check the water pressure. All settings will have already been made by the contractor when the system was first commissioned.

7.3.2 Sealed unvented systems



NOTICE: System damage due to frequent topping up! Subject to the water quality, your heating system can be damaged through corrosion or scaling.

- ▶ Ensure that the heating system is vented correctly.
- ▶ Check the heating system for leaks and the expansion vessel for functionality.
- ▶ Observe the requirements regarding water quality (see operator's log).
- ▶ If water loss occurs frequently, locate the cause and rectify the problem without delay.



NOTICE: System damage due to temperature stresses!

- ▶ Only fill the heating system when cold (the flow temperature must not exceed 40 °C).
- ▶ During operation, only fill the heating system via the fill valve in the heating system pipework (return).

For sealed unvented systems, the pressure gauge needle [3] must be within the green band [2]. The red needle [1] of the pressure gauge must be set to the pressure required for the heating system.

- ▶ Checking the heating system water pressure.
- ▶ Top up the heating water if the pressure gauge needle [3] drops below the green band [2].
- ▶ Top-up with water via the filling facility.
- ▶ Vent the heating system.
- ▶ Check the water pressure once more.

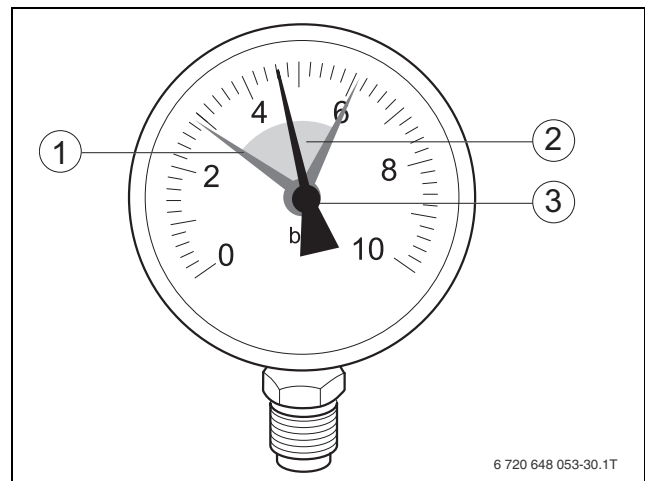


Fig. 3 Manometer for sealed unvented heating systems

- [1] Red needle
- [2] Green marking
- [3] Manometer needle

7.3.3 Installations with automatic pressurisation units

For installations in which an automatic pressurisation unit is integrated, observe the manufacturer's instructions.

The water quality requirements also apply here (see operator's log).

8 Energy saving tips

Economy mode

The appliance has been designed, so that the gas consumption and environmental impact are as low as possible yet comfort is at its optimum level.

Inspection/Maintenance

So that gas consumption and environmental impact can be kept as low as possible for as long as possible, we recommend that you take out a maintenance and inspection contract with the service department of the manufacturer or with a qualified contractor covering an annual inspection and responsive maintenance of the boiler.

Heating controls

We recommend the installation of a heating control unit with room temperature controller or a weather-compensated controller and thermostatic valves.

For further information, see the relevant installation and operating instructions of the controller.

Heating systems with weather-compensated control unit

With this type of control, the outside temperature is captured, and the heating flow temperature is adjusted in accordance with the heating curve set at the controller. The lower the outside temperature, the higher the flow temperature.

Set the heating curve as low as possible. Turn the appliance temperature controller to the maximum design temperature of the heating system.

Heating systems with room temperature-dependent control

The room where the room temperature controller is installed (lead room) determines the temperature in other rooms. Thermostatic valves should not be installed in the lead room.

Set the appliance temperature controller to the maximum design temperature of the heating system.

In each room (except the lead room), the temperature can be regulated individually by means of thermostatic valves. If a lower temperature is required in the lead room than in the other rooms, leave the room temperature controller set as is and reduce the temperature at the radiator valve.

Thermostats

Fully open the thermostatic radiator valves in order to achieve the required room temperature. Change the required room temperature at the temperature controller only if the temperature is not achieved after a prolonged period.

Venting

Never leave windows slightly open for ventilation purposes. Otherwise, heat will be constantly discharged from the room without significantly improving the room's air. It is better to fully open windows briefly.

Close thermostatic radiator valves whilst airing rooms.

Economy mode (night setback)

Substantial amounts of fuel can be saved by reducing the room temperature during day or night. Reducing the temperature by 1 K can save up to 5 % energy. It is not recommended to let the daytime temperature of heated rooms drop below +15 °C, otherwise the cooled-down walls would continue to cool down the room. The room temperature is increased, leading to a higher energy consumption than if the supply of heat remains constant. In a well insulated building, set the temperature for economy mode to a low level. Even if the set economy temperature is never reached, energy will be saved as the heating system remains switched off. The start of the economy mode can be set to earlier if necessary.

DHW

Always set the hot water temperature to as low as possible.

A lower setting on the thermostat means a higher rate of energy savings. Furthermore, higher hot water temperatures result in increased limescale deposits and thereby impair the function of the appliance (e.g. longer heating-up times or lower output).

Circulation pump

If necessary, set an existing circulation pump for hot water to your individual requirements using a timer (e. g. mornings, midday, and evenings).

Now you know how to heat economically with the heating system.

Contact your installer should you have further questions - alternatively, write to us.

9 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. All legislation pertaining to the environment is strictly observed. To protect the environment we use the best possible technology and materials, subject to economic considerations.

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.

Obsolete equipment

Old appliances contain materials that should be recycled. The relevant assemblies are easy to separate, and all plastics are identified. In this manner the individual components are easily sorted and added into the recycling and disposal systems.

10 General information

Cleaning the boiler jacket

Wipe down the boiler jacket with a damp cloth. Never use aggressive or corrosive cleaning agents.

Appliance details

When requesting a customer service visit, it is useful to provide detailed information about your appliance.

You will find these details on the data plate or the appliance type label (→ installation and maintenance instructions).

Gas boiler (e.g. Logano SB325):

.....

Serial number:

Commissioning date:.....

Correct fuel

This heating system requires the correct fuel to ensure perfect operation. During commissioning, your heating contractor will enter the correct fuel type for your heating system in the table below.



NOTICE: Risk of system damage through use of incorrect fuel.
▶ Only use the fuel intended for your heating system.



We recommend you seek the advice of your heating contractor if you intend to change the fuel for your heating system.

Use only the following fuel:
<div style="border-top: 1px solid black; border-bottom: 1px solid black; width: 80%; margin: 0 auto;"></div>
<div style="border-top: 1px solid black; width: 80%; margin: 0 auto;"></div> <p>Stamp/Signature/Date</p>

Table 4

Notes

Buderus

Cotswold Way, Warndon, Worcester WR4 9SW
All Enquiries: 0844 892 3004

www.buderus.co.uk

In the UK and IE, Buderus is a brand name
of Bosch Thermotechnology Ltd.

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