



### **DANGER!**


If these instructions are not followed exactly, a fire or explosion may be caused with serious property damage or loss of life and serious injury.

- Do not store or use gasoline or any other flammable liquids or vapors in the vicinity of this system or any other heating system.
- The heating system must only be installed and serviced by a qualified service company or qualified service provider.

## Logano G201

**For the operator**

**Please read carefully before use.**



Dear Customer,

heat is our element – and it has been for more than 275 years. From the very beginning, we have invested all of our energy and passion in order to develop individual solutions to make your climate comfortable.

Regardless of whether heat, hot water or ventilation – with a Buderus product you will have highly-efficient heating technology in the proven Buderus quality, which will make you comfortable reliably for a long time.

We manufacture using the latest technologies and take care that our products are efficiently attuned to one another. Operating efficiency and environmental friendliness are always our focus.

Thank you for purchasing our product – and thus also for efficient energy usage that provides great comfort. So that things remain this way, please read these operating instructions carefully. If you have problems, please contact your installer. He will be glad to help you.

What if your installer cannot be reached? Then our customer service is there for you!

We wish you great enjoyment with your new Buderus product!

Your Buderus Team

# Contents

<b>1</b>	<b>Safety instructions and symbol key</b>	<b>4</b>
1.1	Explanation of symbols	4
1.2	General safety instructions	4
<b>2</b>	<b>Information about the appliance</b>	<b>5</b>
2.1	Designated use	5
2.2	Standards, regulations and directives	5
2.3	Operating tips	5
2.4	Air supply	5
2.5	Disposal	6
2.6	Product description	7
<b>3</b>	<b>General instructions about the fuels wood and coal</b>	<b>8</b>
3.1	Wood firing	8
3.2	Coal firing	8
3.3	Condensate and tar formation	8
3.4	Storing fuel	9
3.4.1	Storing wood correctly	9
3.4.2	Storing coal correctly	9
<b>4</b>	<b>Start-up and operation</b>	<b>10</b>
4.1	Before operating the appliance	10
4.2	Check operating pressure, fill up the heating water, and bleed the heating system	10
4.2.1	Checking the operating pressure	11
4.2.2	Topping up the heating water and bleeding the heating system	11
4.3	Setting the firing controller	12
4.4	Heating up the boiler	13
4.5	Energy absorption	15
4.6	Re-filling fuel	15
4.7	Constant heating mode (fire continues burning overnight)	16
4.8	Shutting down the boiler	16
4.9	Shutting down the boiler temporarily	16
4.10	Shutting down the boiler for a long period	16
4.11	Action in an emergency	16
<b>5</b>	<b>Cleaning and maintenance</b>	<b>17</b>
5.1	Cleaning the boiler	17
5.1.1	Frequent cleaning	18
5.1.2	Monthly cleaning	18
<b>6</b>	<b>Troubleshooting</b>	<b>20</b>

# 1 Safety instructions and symbol key

## 1.1 Explanation of symbols



**Safety instructions** in the text are marked with a warning triangle and printed on a gray background.

Signal words are used to indicate the level of risk if countermeasures are not taken.

- **Caution** indicates that minor damage to property may occur.
- **Warning** indicates that minor personal injury or severe damage to property may occur.
- **Danger** means that severe personal injury may occur. Very serious cases may result in death.



**Notes** are identified in the text by this symbol. They are separated by horizontal lines above and below the text.

Notes contain important information in cases where there is no risk to the user or the appliance.

## 1.2 General safety instructions

### Risk of poisoning

- Insufficient air supply may cause dangerous combustion gas leaks.
- Never close off or reduce the size of air inlet or outlet vents.
- The boiler must not be operated until the obstruction has been removed.

### Explosive or easily flammable materials

- Do not store flammable materials or liquids near the boiler.
- Abide by minimum distances to combustible materials.

### Installation, operation

- Only have the appliance installed by an approved heating contractor.
- Do not modify any parts that carry flue gas.
- Do not operate the appliance without water.
- Always keep system openings (doors, maintenance cover, fill openings) closed during operation.
- Only use approved fuels.
- Do not cover or reduce the size of ventilation openings in doors, windows and walls.

### Maintenance and servicing

- Recommendation: sign a maintenance and inspection contract with an approved heating contractor and have the appliance serviced annually.
- The flue gas system of the boiler must be in accordance with local approvals for solid fuel boilers.
- Have the entire flue system cleaned once a year by a qualified chimney sweep.
- The operator is responsible for the general and environmental safety of the system.
- Read and follow the safety instructions in the "Cleaning and maintenance" chapter.
- Use only genuine spare parts.

### Combustion/room air

- Keep combustion/room air free of aggressive materials (e.g. ones that contain halogenated hydrocarbons, chlorine or fluorine compounds). This will help you prevent corrosion.
- Prevent heavy accumulation of dust.

## 2 Information about the appliance

These instructions contain important information for the system operator for the safe operation of the boiler.

### 2.1 Designated use

The Logano G201 solid fuel boiler is a heating boiler for coal and wood firing (split log firing) in single and multi-family houses. In order to ensure proper use, please observe the details on the rating plate and the specifications to ensure proper use of this appliance.

### 2.2 Standards, regulations and directives



Observe all local codes and standards during operation!

### 2.3 Operating tips

When operating the heating system observe the following:

- The boiler may only be operated by adults who are familiar with the instructions and boiler operation.
- Make sure that children are not allowed in the vicinity of the boiler unsupervised when it is in operation.
- Do not use any fluids for lighting or boosting the boiler.
- Ashes should be placed in a steel container with a tight fitting lid, and moved outdoors. Other waste must not be placed in this container.
- Do not place or store any flammable objects near the filling or combustion chamber or at a safety distance of 24 to 48 inches around the boiler.
- Do not place any flammable objects on the boiler.
- Only clean the surface of the boiler with non-flammable cleaners.
- Do not store any flammable materials in the boiler room (e.g. petroleum, oil).
- Do not use any flammable liquids for heating.
- While the boiler is operating, do not exceed the rated output of the boiler (overheating).
- Operate the boiler at a maximum temperature of 194 °F and check it regularly during operation.
- Operate the boiler with a minimum return temperature of 131 °F. Ensure that this temperature limit is adhered to with a suitable set-up.
- The minimum boiler water temperature must be above 131 °F, because with a lower temperature, steam can condense. This has negative consequences for the proper operation of the boiler and its life span.
- The boiler operator must follow the operating instructions.

- The boiler operator may only start up the boiler, take the boiler out of operation, and clean it. All other work must be performed by an authorized service company.
- The service technician is obligated to inform the boiler operator about the operation and the correct, safe operation of the boiler.
- In case of danger of explosion, fire, escaping combustible gases or vapors (e.g. vapors that arise when gluing linoleum, PVC, etc.), do not operate the boiler.
- Heed the flammability of building materials (→ installation and maintenance instructions).

### 2.4 Air supply



**DANGER:** Risk of fatal injury from lack of oxygen in the boiler room!

- Make sure there is adequate fresh-air ventilation by providing air vents to the outside.
- Point out to the system operator that those air vents must remain open.



**WARNING:** System damage and risk of injury in case of incorrect start-up!

Lack of adequate air for combustion can lead to creosote formation.

- Make sure there is adequate fresh-air ventilation by providing air vents to the outside.
- Point out to the system operator that those air vents must remain open.



**WARNING:** Risk of system damage due to aggressive materials in the ventilation!

During combustion, halogenated hydrocarbons that contain chlorine or fluorine compounds cause increased corrosion in the boiler.

- Keep ventilation free of aggressive materials.



The boiler draws in the required combustion air from the environment. The boiler may only be set up and operated in rooms that are permanently well-ventilated!

## **2.5 Disposal**

- Packing materials made of wood and paper can be burned in the boiler.
- Dispose of packaging in an environmentally responsible manner.
- Dispose of old devices in an environmentally responsible manner at an authorized disposal site.

## 2.6 Product description

The Logano G201 is a solid fuel boiler and approved for fueling with coal and wood chunks.

The boiler consists of:

- Air vent [1]
- Ash pan door [2]
- Fuel filler door [3]
- Firing controller [4] with rod and chain
- Aquastat [5]
- Manifold [6] with safety valve and thermometer/ manometer.

Using the firing controller [4], the desired boiler water temperature is set and limited to this maximum value.

The firing controller [4] is connected to the air vent [1] via a chain (in the ash pan door) and regulates the airflow of the boiler. The warmer the boiler becomes, the more the air vent is closed so that the set boiler water temperature is not exceeded.

The fuel filler door [3] allows you to fill the ignition chamber with fuel.

The ignition chamber transmits the heat generated to the heating water.

The ash container is behind the ash pan door [2].

The thermometer/manometer on the manifold [6] displays the temperature in the boiler and the water pressure.

The jacket is lined with insulation materials and thus prevents radiation loss and stand-by heat losses.

### Exhaust flap

The exhaust flap is opened to heat up a cold boiler or in case of poor flue draft (→ Fig. 2 above). This allows hot flue gas to escape more quickly into the chimney and the chimney "draws" better.

When the boiler is operating normally and when there is sufficient flue draft, the exhaust flap is closed (→ Fig. 2 below). This way, less heat is lost through the chimney.

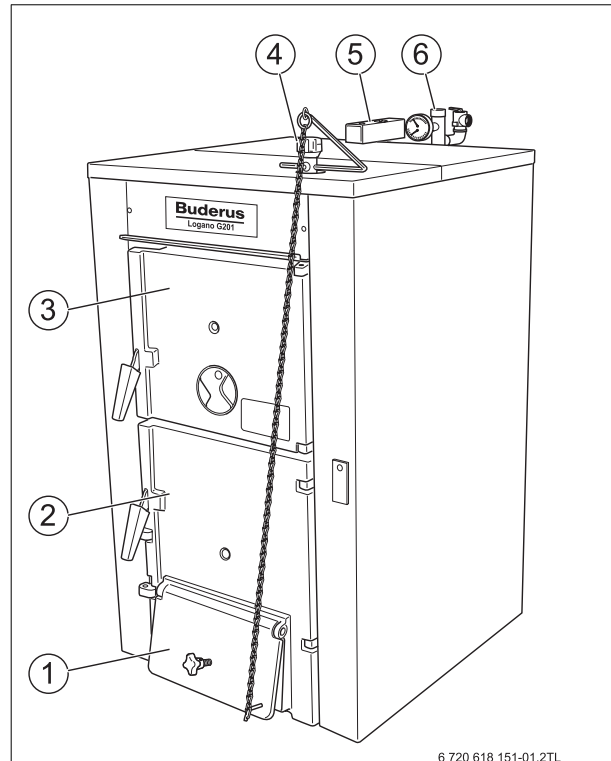


Fig. 1 Logano G201

- |   |                   |
|---|-------------------|
| 1 | Air vent          |
| 2 | Ash pan door      |
| 3 | Fuel filler door  |
| 4 | Firing controller |
| 5 | Aquastat          |
| 6 | Manifold          |

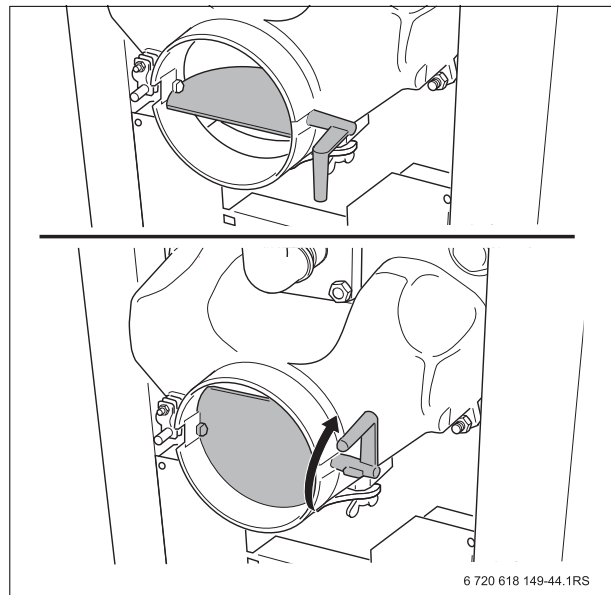


Fig. 2 Exhaust flap (top: open; bottom: closed)

### 3 General instructions about the fuels wood and coal

Wood and coal can be used as fuels.



**DANGER:** Danger of fatal accident due to escaping carbon monoxide (CO)!  
In case of firing with brown coal, the boiler can silt up and CO can escape.

- Do not use brown coal for firing.



**WARNING:** Health and/or system damage due to the use of unsuitable fuels!  
The use of unsuitable fuels can create materials that endanger health and/or the heating system.

- Do not use plastics, household waste, chemically-treated wood, old paper, chips, bark or chipboard waste for firing.

The flue gas temperatures are generally 212 – 392 °F. Depending on local conditions, fuels used (wood or coal), and how clean the boiler is, these values can be exceeded.

#### 3.1 Wood firing

Prescribed is split and dried wood with a diameter of 6 inches and a maximum wood humidity of 20 %.

Boiler type	Maximum length of split or chipped wood
27	15 ¼ inches
35	19 ¼ inches
40	27 ¼ inches

Tab. 1 Maximum length of split or chipped wood

Only use dry, natural, chunky wood. With a wood humidity of more than 20 %, the boiler output is reduced. In addition, there can be increased tar formation, which reduces the life span of the boiler. The specified output values and the unfettered function of the boiler can only be guaranteed with a maximum wood humidity of up to 20 %.

Type of wood	Heating value (with wood humidity of 20 %)	
	Weight per cord LBS	BTUs per cord air-dried wood
Beech	3000	24,000,000
Oak	3250	26,000,000
Pine	1800	17,000,000
Spruce	2100	18,000,000

Tab. 2 Energy value of various types of wood

As substitute fuels, the following are permissible (reduced output and shorter maintenance intervals): wood briquets and wood chips.

#### 3.2 Coal firing

Best suited are anthracite coal and coke – any kind of lump 1 (0.8 – 1.6 inches). The burning times for coal are significantly longer than the burning times for wood.

As substitute fuels, the following are permissible (reduced output and shorter maintenance intervals): anthracite coal and coke type lump 2 (0.4 – 0.8 inches) or fragments (1.6 – 4.0 inches) and pressed fuels.

#### 3.3 Condensate and tar formation

Improper operation of the boiler causes excessive condensate and tar formation. This way, damage to the boiler and the flue gas system can occur.

When heating up the cold boiler, water condenses in the boiler, which runs down on the interior walls. This way, you might think that the boiler is draining off. This "sweating" of the boiler ends as soon as the ashes accumulate on the interior walls of the boiler.

In case of operation at low boiler temperature (return temp less than 131 °F) and fuel with too high a humidity content, condensation can also form on the heating surfaces. Here too, the condensation runs downwards.

Heating with too low a boiler temperature causes tar formation and can cause premature damage to the flue gas system due to sooting.

- Follow the operating instructions for the boiler.
- Operate the boiler at the recommended operating temperatures.
- Only heat the boiler with the recommended fuels (→ Chapter 3.1 and 3.2).
- Remove tar accumulations with the cleaning scraper when the boiler is warm.

### 3.4 Storing fuel

#### 3.4.1 Storing wood correctly

##### Storage outdoors

- If possible, split wood must be stored on the south side of a building in an area protected against precipitation and ventilated.
- Stack split wood loosely against a wall and support it on at least one side.

##### Storage indoors

- In case of short-term storage inside a building, select a dry and ventilated room.



Do not store larger quantities of wood in buildings for a long time!

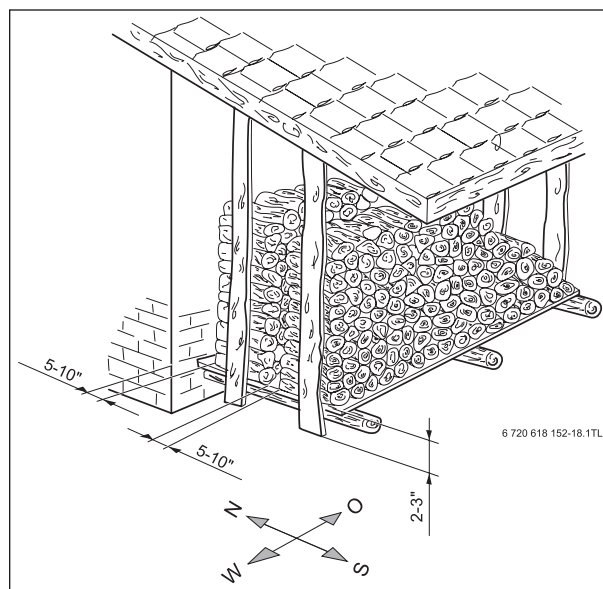


Fig. 3 Wood storage outdoors

#### 3.4.2 Storing coal correctly

Coal is suitable for storage outside of and inside of buildings. For safe storage, the following conditions for the storage location must be heeded:

- Do not store any other flammable materials in the storage location.
- The temperature in the storage location may not exceed 75 °F in order to prevent gas releases from the fuel.
- Protect storage location against snow and rain.
- Do not store any damp coal on dry coal.
- Plan the coal delivery when the coal storage is 75 % empty.
- If possible, store new and old coal separately.

## 4 Start-up and operation

### 4.1 Before operating the appliance



**DANGER:** Risk of injury from open boiler doors!

- Keep the ignition chamber door of the boiler closed during operation.



**DANGER:** Risk of injury from too-high temperature of the flue gas header (→ Fig. 16, page 19)!

- Do not touch the flue gas header during operation.



**WARNING:** Damage to the system!

Start-up without a sufficient quantity of water destroys the appliance.

- Always operate the boiler with sufficient water.

Before start-up, heed the following instructions for personal safety:

- Unsupervised operation of the boiler with an open door is not permitted.
- The use of ignition accelerants in the boiler is forbidden.

### 4.2 Check operating pressure, fill up the heating water, and bleed the heating system

The water used for filling the heating system loses a substantial amount of volume in the first few days due to the release of its gas content. This causes air pockets to form and the heating water starts to make noises.

- With new heating systems, check the operating pressure daily at first, topping up the heating water and bleeding the radiators if needed.
- Later on, check the operating pressure monthly, topping up heating water and bleeding the boiler and radiators if needed.

#### 4.2.1 Checking the operating pressure

Your heating contractor will have set the system to the required operating pressure of at least 15 psi (1 bar) and entered the setting in Tab. 3, page 12.

- Read off the current operating pressure and temperature from the temperature/pressure gauge.
- If the temperature/pressure gauge needle drops below the minimum pressure of 15 psi, the operating pressure is too low. Add water to the system.

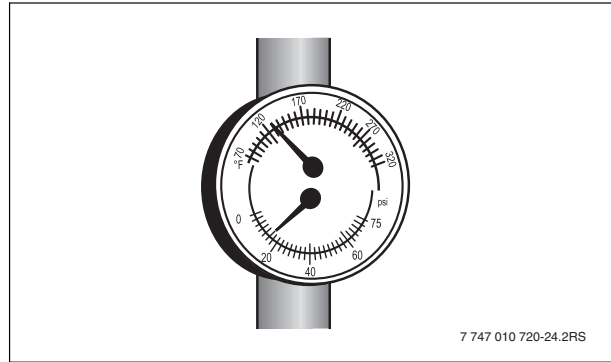


Fig. 4 Pressure/temperature gauge

#### 4.2.2 Topping up the heating water and bleeding the heating system

Ask your heating contractor to show you where the boiler fill & drain valve for topping up the heating system is located in your heating system.



**WARNING:** Risk to health due to pollution of drinking water!

- Always observe the regulations and standards applicable in your jurisdiction for the prevention of contamination of drinking water (e.g. by water from heating systems).



**CAUTION:** Risk of damage to system due to temperature stress!

If you fill the heating system when it is hot, the resulting temperature stresses can cause stress cracks. The boiler will then leak.

- Only fill the heating system when cold (the flow temperature should be no more than 100 °F).

- Connect the hose to the water tap. Push a hose filled with water onto the hose connection of the boiler fill & drain valve, fasten with a hose clip, and open the boiler fill & drain valve.
- Slowly fill the heating system. Observe the pressure gauge (pressure/temperature gauge) while doing so.
- Close the water tap and the boiler fill & drain valve once the required operating pressure has been reached.
- Bleed the heating system via the purge valves on the boiler piping.
- Top up with additional water if the pressure drops as a result of bleeding the system.
- Remove the hose from the boiler fill & drain valve.



**CAUTION:** Risk of system damage due to frequent topping up!

If you have to top up the heating water frequently, the heating system may suffer damage from corrosion or scaling, depending on the water quality.

- Ask your heating contractor if the local water can be used untreated or whether it needs to be treated.
- Notify your heating contractor if you find you need to top up your heating system frequently.

**Operating pressure**

Design operating pressure (optimum setting)	_____ psi
Maximum heating system operating pressure (standard = 30 psi)	_____ psi

Tab. 3 Operating pressure (entered by system installer)

**4.3 Setting the firing controller**

- Set the firing controller to the red marking (70 °C/ 158 °F) (→ Fig. 5) or depending on the outdoor temperature according to Tab. 4.
- Heat up the boiler (→ Chapter 4.4, page 13).
- Adjust the tension of the chain by setting the lever (or shortening the chain) so that the air vent is closed at 70 °C/158 °F boiler water temperature up to a minimum degree (0.2 inches) and the chain hangs somewhat loosely. This prevents sulfur gas formation when the boiler water temperature has been reached.



If the air vent is closed completely, there is no complete combustion. Tar accumulates on the heating surfaces, which requires more cleaning effort.

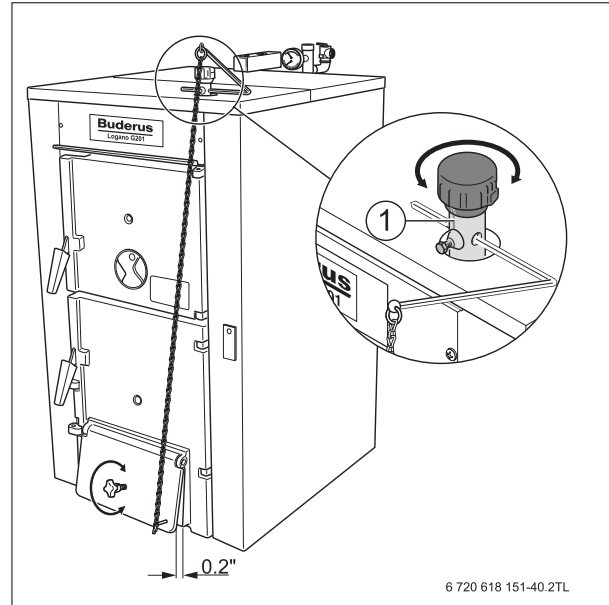


Fig. 5 Setting the firing controller

- 1 Red marking (70 °C/158 °F)

Outdoor temperature in °F	Flow temperature in °F	Setting firing controller in °C
5	194	90
14	176	80
28	158	70
32	149	65
41	140	60
50	113	45
60	104	40

Tab. 4 Settings for the firing controller depending on the outdoor temperature

#### 4.4 Heating up the boiler



**WARNING:** Risk of system damage due to incorrect operation!

Overfilling the firing chamber with fuel can cause overheating and damage to the boiler.

- Adjust fuel quantity to the energy absorption of the heating system (→ Chapter 4.5, page 15).



Important for clean burning in the boiler are the correct operation of the boiler and a sufficient flue draft for the flue gas system.

- Open the ash pan door.
  - Turn the bolt [2] of the front grate counter-clockwise to the stop.
  - Fold the front grate [1] downwards.
- 
- Turn the bolt [2] of the segment plate counter-clockwise to the stop.
  - Remove the segment plate [1].

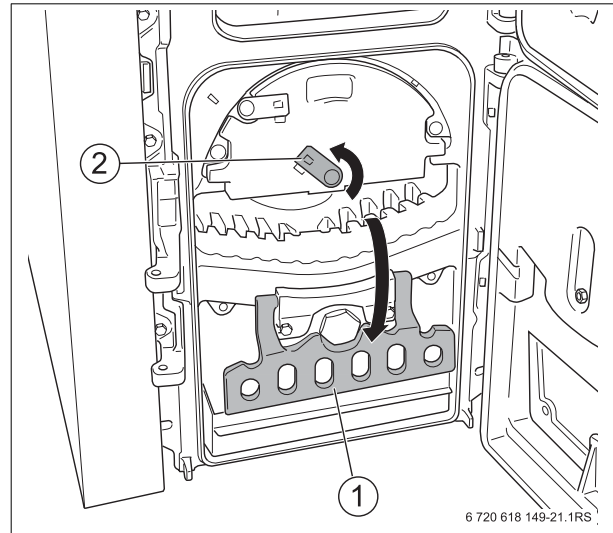


Fig. 6 Folding the front grate downwards

- 1 Front grate
- 2 Bolt

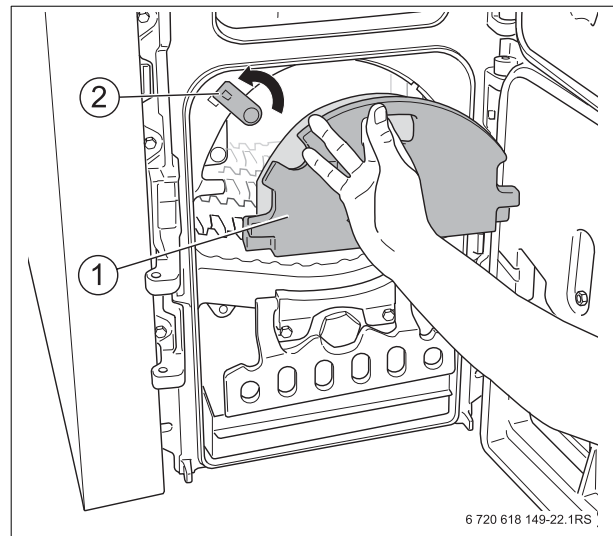


Fig. 7 Removing the segment plate

- 1 Segment plate
- 2 Bolt

- To increase the draft of the boiler, open the exhaust flap.

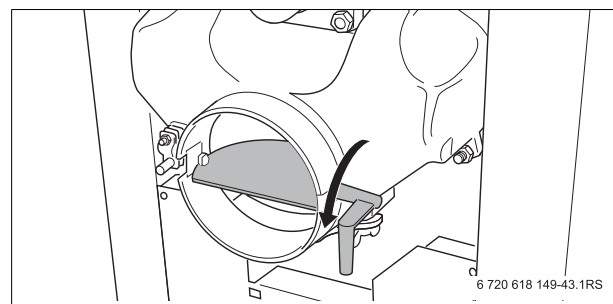


Fig. 8 Open the exhaust flap

- Insert a layer of paper [2].
- Insert a 3 to 4 inch layer of fuel (thin kindling, coal or coke) on the paper layer [2]. Do not use any thick logs.
- Light the fuel inside the boiler.
- If you are using solid accelerant (coal igniter), light the accelerant outside of the boiler and then place it on the ignition material.
- Fold the front grate upwards and insert the segment plate.
- Leave the ash pan door slightly open.
- Let the fuel burn for 15 – 20 minutes until there are embers.
- Close the ash pan door.

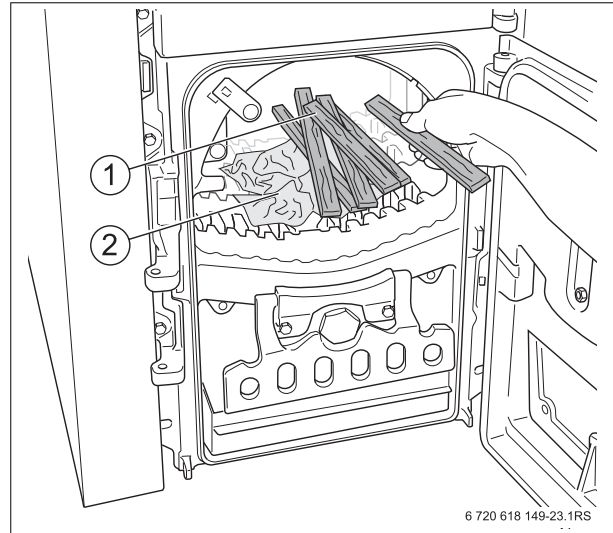


Fig. 9 Inserting the paper layer and fuel

- 1 Fuel (e.g. wood)
- 2 Paper layer

- Open the fuel filler door and fill the ignition chamber [1] to 1/4 of its volume with fuel.



Before the fuel space [1] is filled, the fuel inserted must be completely burned off and there must be sufficient embers.

- Close the fuel filler door.
- To prevent heat losses in the chimney, close the exhaust flap depending on the flue draft (→ Fig. 11). If the flue gases are not drawing properly (flue draft is not sufficient), open the exhaust flap a little again (→ Fig. 8, page 13).



The heating-up time may vary depending on how clean the boiler is, the local conditions, the fuels used, and the weather (low pressure in the flue gas system).

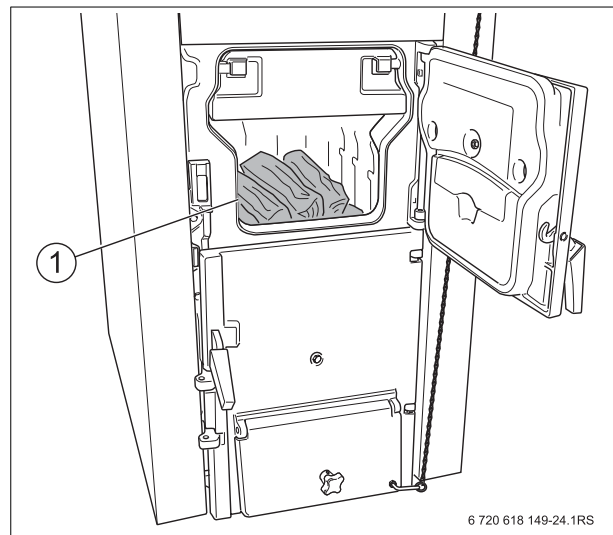


Fig. 10 Inserting fuel (heating up)

- 1 Combustion chamber



With wood firing, note: logs that are too short and too thick cause uneven burning.

- Only use logs of the specified thickness and length (→ Chapter 3.1, page 8).



Large types of anthracite coal and coke burn longer; with too great a quantity of fuel, the output can be reduced. Check and stoke the fire at short intervals.

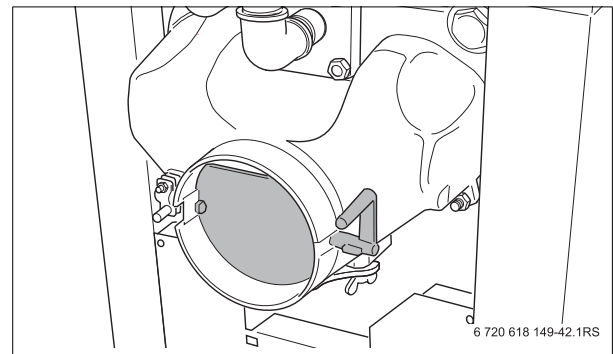


Fig. 11 Closing the exhaust flap

## 4.5 Energy absorption

The energy absorption of the heating system (consisting essentially of boiler and buffer storage) depends on the actual value of the water temperature of the buffer storage. For economical operation of the heating system, the fuel quantity used must be adjusted to the respective energy absorption. This way, overheating of the boiler is avoided and pollutant emission is reduced.

## 4.6 Re-filling fuel

Depending on the type and quality of fuel, the burning duration of a boiler filling with nominal output of the boiler is approximately 2 to 4 hours with wood firing and approximately 3 to 5 hours with coal firing.



The combustion is disturbed if the fuel filler door is opened in between. This can cause poor burning and excessive flue gas emission.

- If possible, let the fuel burn completely down.

In order to re-fill fuel or check the fill level:

- Open the fuel filler door a crack and wait approximately 10 seconds so that there is less flue gas in the fuel space. As soon as the flue gas quantity is reduced, open the fuel filler door completely.
- In order to reduce the smoke formation in the boiler room during re-filling, open the exhaust flap (→ Fig. 13 above).
- Stoke the fire with a poker and insert the desired quantity of fuel.  
Through regular stoking, even combustion and a constant power output of the boiler can be achieved.



A quick covering of the embers with fuel reduces the emission of flue gases from the ignition chamber.

**Note if you are burning wood:** only re-fill enough wood that there is a distance of at least 2 inches remaining between the uppermost log and the upper edge of the ignition chamber (→ Fig. 12).

**Note if you are burning coal:** re-fill coal up to a height of 12 inches. The best conditions for a coal fire are if the height and width of the fill quantity are equal. On each firing, fill the ignition chamber with coal up to the beginning of the fuel fill door.

- Close the fuel filler door [1] and exhaust flap (→ Fig. 13 below).

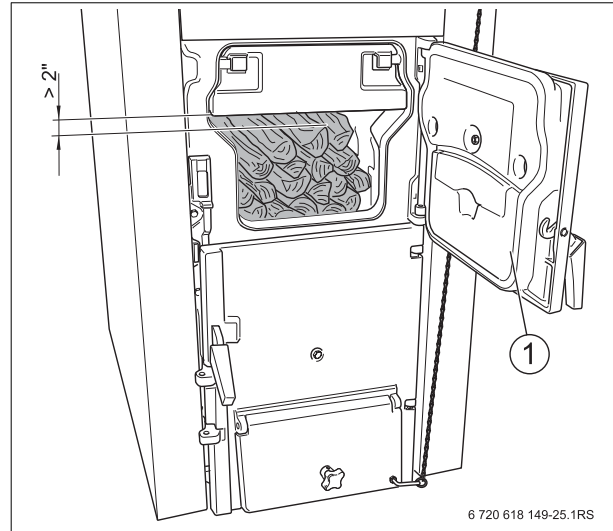


Fig. 12 Re-filling fuel: wood

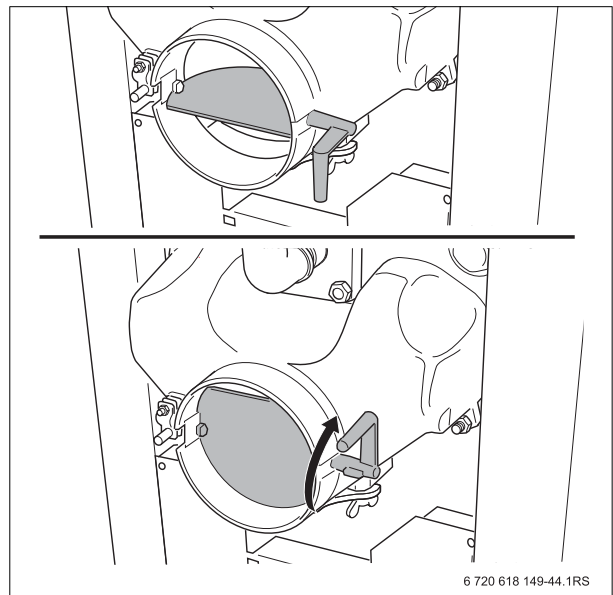


Fig. 13 Exhaust flap (top: open; bottom: closed)

## 4.7 Constant heating mode (fire continues burning overnight)

In constant heating mode, the boiler can be operated for twelve hours at a reduced heat output.



**DANGER:** Risk of fatal accident due to low-temperature carbonization gases!

When the boiler is running at low output, low-temperature carbonization gases can be produced that can cause smoke poisoning if inhaled.

- Do not inhale any visible fumes.
- Make sure the boiler room is well-ventilated.
- Clean the boiler and flue system (→ Chapter 5.1, page 17 and following).
- Have the flue draft of the chimney checked.



**CAUTION:** System damage due to tar and condensate!

With boiler water return temperatures below 131 °F, there is more tar and condensate in the ignition chamber and the life span of the boiler is reduced sharply.

- Operate boiler constantly with a boiler water temperature between 176 °F and 194 °F.

Adjust the boiler settings as follows for constant heating mode:

- Stoke the fire and completely fill the fuel feeder box (split wood).
- In order to reduce the combustion air intake, close the air vent almost completely.
- Open the exhaust flap.  
This way, the formation of tar and soot accumulations in the flue gas system are reduced during constant heating operation.
- Set the return temperature booster on the mixing valve so that the boiler water temperature rises to between 176 and 194 °F.

The next day, you can quickly bring the boiler back up to normal heat as follows:

- Re-fill fuel and reset the return temperature booster to its normal position.
- Open the air flap a crack (0.2 inches).
- Close the exhaust flap after successful heating up.

## 4.8 Shutting down the boiler



**WARNING:** Risk of system damage due to frost!

If the heating system has been shut down, it may freeze up in cold weather conditions.

- When there is a risk of frost, protect your heating system against freezing up.
- If there is risk of frost and you are not operating the boiler, empty the system.



To shut the boiler down, let it burn off everything without artificially accelerating the combustion process.

- When shutting down the boiler for a long period (e.g. at the end of the heating season) carefully clean it, since the humidity content of the ashes can cause corrosion.
- When there is a risk of frost, protect your heating system against freezing up. Either empty the water-carrying lines or fill up the system with anti-freeze (follow the manufacturer's instructions).

## 4.9 Shutting down the boiler temporarily

- Allow the boiler to cool.
- Open the fuel fill door and clean the firing chamber.
- Open the ash pan door.
- Dispose of the ashes.
- Clean the ash pan.
- Close the ash pan door.
- Close the fuel filler door.

## 4.10 Shutting down the boiler for a long period

When shutting down the boiler for a long period (e.g. at the end of the heating season), carefully clean it.

## 4.11 Action in an emergency

In the event of an emergency, e.g. if there is a risk of explosion or in case of fire, proceed as follows:

- Never put yourself at risk of fatal injury. Your own safety must always take the highest priority.
- Carefully open the fuel filler door.  
Carefully opening the fuel filler door prevents the flames from leaping out towards you.
- Extinguish the fire with water.

## 5 Cleaning and maintenance



**WARNING:** Damage to system due to improper maintenance!

Insufficient or improper maintenance of the boiler can cause damage and void warranty claims.

- Ensure regular, extensive, and professional maintenance of the heating system.



The regular professional maintenance of the heating system maintains its efficiency, guarantees high reliability, and environmentally-friendly combustion.



The cleaning of the heating system depends on the fuel quality and the environmental conditions.



Do the cleaning before you begin to heat and only when the combustion chamber has cooled off.



**WARNING:** Risk to health due to incorrect operation!

Opening the fuel filler door while heating causes pressure fluctuations in the boiler and the uncontrolled escape of flue gases.

- Only open the fuel filler door when the boiler is not lit and it has cooled off.

### 5.1 Cleaning the boiler

Soot and ash accumulations on the interior walls of the boiler reduce the heat transfer. Insufficient cleaning increases fuel consumption and can cause undesirable pollution of the environment.



**DANGER:** Risk of environmental damage due to improper operating state!

- Clean the boiler regularly depending on fuel consumption.

The ashes that are created during combustion accumulate primarily in the fuel space.

- Clean the fuel space regularly every 1 to 3 days.



**WARNING:** Risk of system damage due to insufficient maintenance and cleaning!

Larger quantities of ashes in the fuel space can cause overheating of and damage to the boiler.

- Remove the ashes from the boiler regularly.

### 5.1.1 Frequent cleaning

The ashes must be removed from the combustion chamber/ash pan every 1 to 3 days.

- Open the ash pan door [2].
- Fold the front grate downwards and remove the segment plate (→ Fig. 6, page 13 and Fig. 7, page 13).
- Tip the combustion residues into the ash pan.
- Insert the segment plate and fold the front grate upwards.
- Remove the combustion residues from the ash pan with the ash shovel [1].



Do not place hot ashes in plastic and waste containers.

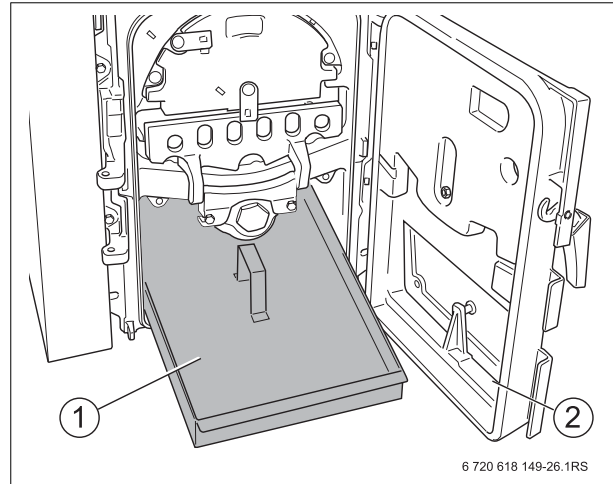


Fig. 14 Cleaning the ash pan

- 1 Ash shovel
- 2 Ash pan door

### 5.1.2 Monthly cleaning

The heat exchanger heater flue and the flue gas header (→ Fig. 16, page 19) must be checked monthly and cleaned if necessary. Insufficient cleaning can cause damage to the boiler and the voiding of warranty claims.



**WARNING:** Risk of system damage due to insufficient maintenance and cleaning!

- Clean the heat exchanger heat flues and the flue gas header regularly.

#### Heat exchanger heater flue, cleaning

- Open the fuel fill door [2] and remove the waste steam plate [1].
- Clean the ash residues from the heat exchanger with brushes.  
Do not bump against the back wall in order to avoid damage and leaks.
- Insert the waste steam plate [1] and close the fuel filler door [2].
- Take the steps described under 5.1.1.

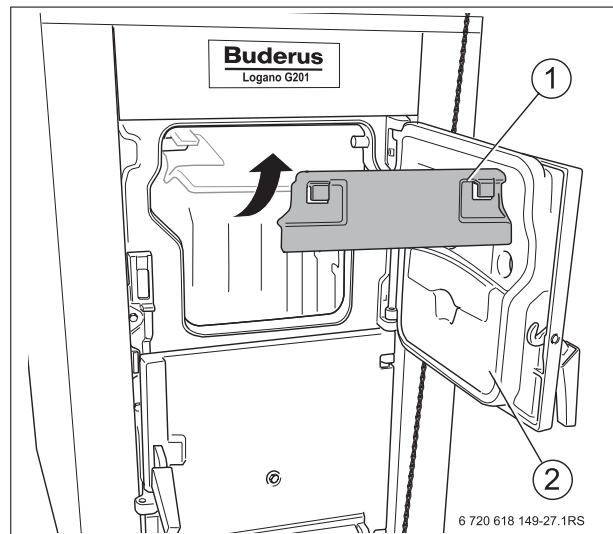


Fig. 15 Heat exchanger heater flue, cleaning

- 1 Waste steam plate
- 2 Fuel filler door

### Cleaning the flue gas header

The flue gas header [2] is cleaned via the inspection aperture. The inspection aperture is on the bottom of the flue gas header and is sealed with the cleaning cover [1].

- Unscrew the two wing nuts on the cleaning cover.
- Carefully remove the cleaning cover [1].
- Remove the combustion residues via the inspection aperture.
- Close the inspection aperture with the cleaning cover [1]. Check that the seal is seated correctly.
- Screw the cleaning cover [1] back on with two wing nuts.

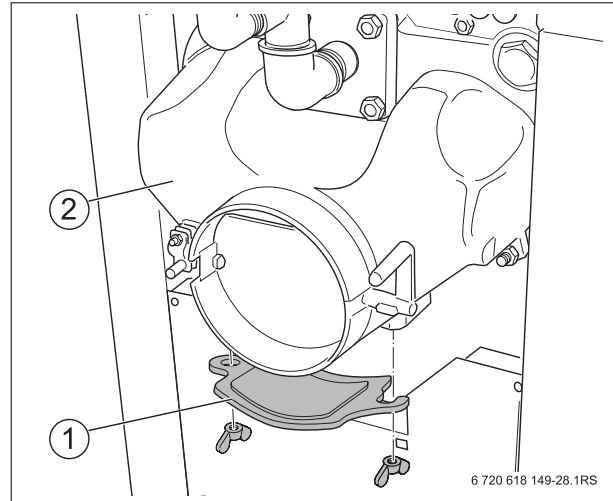


Fig. 16 Cleaning the flue gas header

- 1 Cleaning cover
- 2 Flue gas header

## 6 Troubleshooting

If a fault occurs, contact your heating contractor.

Fault	Cause	Remedy
Boiler output too low	Calorific value of the fuel used is too low, humidity of the fuel is higher than 20 %	Use prescribed fuel with prescribed humidity
	Operating conditions not adhered to	Inform your heating contractor and have flue draft, return temperature checked
Too much condensate forms in the fuel space of the boiler, black liquid leaks out of the fuel filler door	Boiler output too high	Insert less fuel. Check possible heat loss in the object
	Incorrect or too-humid fuel	Use prescribed fuel with prescribed humidity
	Low boiler water temperature	Inform heating contractor and check/ increase minimum boiler water temperature and ensure a minimum temperature of 131 °F for the return due to a suitable setting of the mixing valve

Tab. 5 Overview of faults

## Notes

## Notes

## Notes

**United States and Canada**

Bosch Thermotechnology Corp.  
50 Wentworth Avenue  
Londonderry, NH 03053  
Tel. 603-552-1100  
Fax 603-584-1681  
[www.buderus.net](http://www.buderus.net)  
U.S.A.

Products manufactured by  
Bosch Thermotechnik GmbH  
Sophienstrasse 30-32  
D-35576 Wetzlar  
[www.buderus.de](http://www.buderus.de)

Bosch Thermotechnology Corp. reserves the right  
to make changes without notice due to continuing  
engineering and technological advances.

**Buderus**