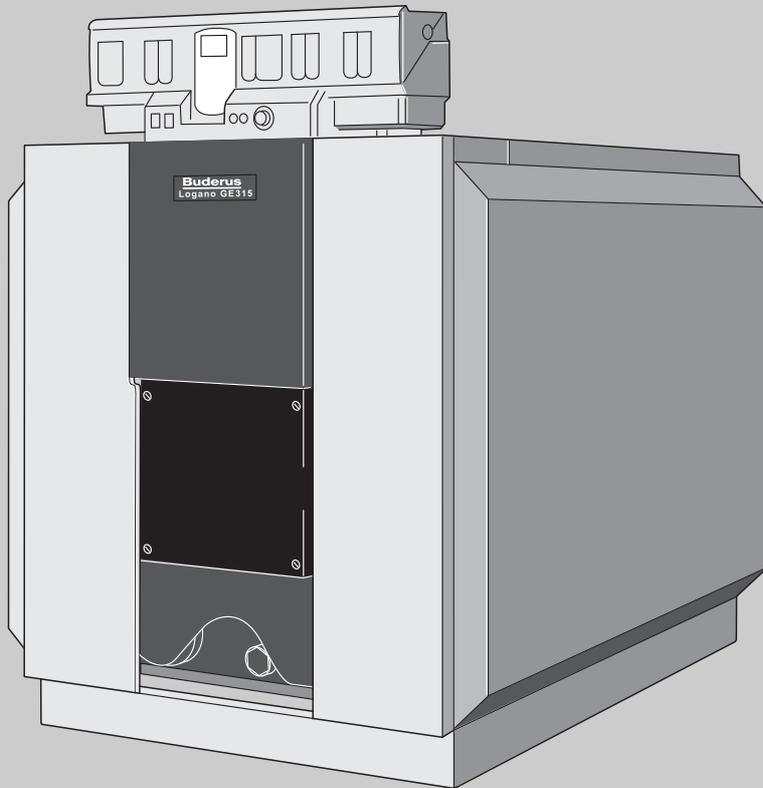


Installation and maintenance instructions

Cast iron sectional boiler for oil or gaspressure jet burners



Logano GE315

For the installer

Please read thoroughly prior to installation and maintenance

Correct use

The Logano GE615 fan-assisted boiler is intended for generating heating water. You may use any type-tested oil or gas fired burners to EN 267 or EN 676 provided their operating range meets the boiler specification.

Using the boiler for any other purpose will be considered improper use. Buderus accepts no liability for any damage resulting as a consequence of such use.

Your warranty could be invalidated if you do not comply with the installation and operating instructions.



The design and operation of this product conforms to European Directives and the supplementary national requirements. Its conformity is confirmed by the CE marking. You can view the Declaration of Conformity on the internet at www.buderus.de/konfo or request a copy from your local Buderus office.

We reserve the right to make any technical modifications!

Constant development may lead to minor deviations of illustrations, functional steps and specifications from those described/shown.

Regulations and directives

Installation:

90/396/EEC gas appliance directive
92/42/EEC boiler efficiency directive
73/23/EEC low voltage directive
89/336/EEC EMC directive
97/23/EC pressure equipment directive
current Gas safety (Installation and Use) Regulations
The Building Regulations
Building Standards (Scotland)
IEE Wiring Regulations BS 7671
National and ByLaws of the local water undertaking
Corgi registered required to work on the appliance (Competent Persons)
Oftec registered required to work on the appliance (Competent Persons)

Codes of practice:

BS 6880 Code of practice for low temperature hot water heating systems for output greater than 45 kW
BS 6644 Specification for Installation of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd family gases)
CP 342.2 centralised hot water supply
BS 5449 Forced circulation hot water systems
BS 5546 Installation of gas hot water supplies for domestic purpose (2nd. Family Gases)
BS 6891 Low pressure installation pipes
BS 5410 Code of practice for Oil firing Part 2
BS 5854 & IM/11 Codes of Practice for flues (as appropriate)
BS 7074 Application Selection & Installation of Expansion vessels & ancillary for sealed water systems Part 2
IGE/UP/1 Soundness testing & purging of industrial & commercial installations
IGE/UP/2 Gas installation pipework and compressors on industrial and commercial premises
IGE/UP/7 Gas installations in Timber framed buildings
IGE/UP/10 Installation of gas appliances in industrial and commercial premises, part 1: flued appliances
CISBE Guide
Management of Health and & Safety at work regulations 1992 – Guidance note PM5
Health & Safety at work act 1974
Manual Handling Regulations 1992

The Electricity at Work Regulations, 1989

| | | |
|----------|--|-----------|
| 1 | Regulations and guidelines | 6 |
| 1.1 | General | 6 |
| 1.2 | Boiler application | 6 |
| 2 | Installation | 7 |
| 2.1 | Standard delivery | 7 |
| 2.1.1 | Pre-assembled delivery | 7 |
| 2.1.2 | Supplied in sections | 7 |
| 2.2 | Tools and additional materials as required for assembly | 8 |
| 2.2.1 | Boiler compression tool size 2.2 | 8 |
| 2.2.2 | Boiler compression tool 2.3 (complete in toolbox) | 8 |
| 2.3 | Positioning | 9 |
| 2.3.1 | Plinth | 9 |
| 2.3.2 | Clearance from walls recommended for installation and maintenance | 10 |
| 2.4 | Installation of boiler sections | 11 |
| 2.4.1 | Arrangement of the boiler sections within the boiler block (unassembled) | 11 |
| 2.4.2 | Fitting the boiler sections (unassembled) | 12 |
| 2.4.3 | Aligning the boiler block for pre-assembled deliveries | 17 |
| 2.4.4 | Slide the return header into place (carton of installation components) | 18 |
| 2.4.5 | Sealing the sensor well | 18 |
| 2.5 | Leak test | 19 |
| 2.5.1 | Leak test preparation | 19 |
| 2.5.2 | Test pressure | 20 |
| 2.6 | Installation of fittings and burner door (only for unassembled boilers) | 21 |
| 2.6.1 | Positioning the flue gas collector | 21 |
| 2.6.2 | Cleaning cover at the rear section | 21 |
| | Installation | 22 |
| 2.6.3 | Install the burner door | 22 |
| 2.6.4 | Insert the hot gas baffle plates | 22 |
| 2.6.5 | Burner installation | 23 |
| 2.6.6 | Fit the flue gas pipe sealing collar (optional accessory) | 24 |
| 2.6.7 | Fit the flue gas temperature sensor (Option) | 24 |
| 2.7 | Boiler casing | 25 |
| 2.7.1 | Support brackets | 25 |
| 2.7.2 | Thermal insulation | 26 |
| 2.7.3 | Side and top casing | 27 |
| 2.8 | Control unit | 30 |
| 2.8.1 | Controller installation | 30 |
| 2.8.2 | Installation of the temperature sensor | 31 |
| 3 | System start-up | 33 |
| 3.1 | Filling the heating system and checking for leaks | 33 |
| 3.2 | Making the system operational | 36 |
| 3.3 | Commissioning the control device | 36 |
| 3.4 | Start up the burner | 36 |
| 3.5 | Commissioning report | 37 |
| 3.6 | Operating conditions for Buderus G and GE cast iron boilers | 38 |

| | | |
|----------|--|-----------|
| 3.7 | Operating conditions GE 315 | 38 |
| 4 | System shutdown | 39 |
| 4.1 | Shutting down the system via the control device. | 39 |
| 4.2 | Shutting down the system in an emergency | 39 |
| 5 | System inspection and maintenance | 40 |
| 5.1 | General notes | 40 |
| 6 | Maintenance | 41 |
| 6.1 | General notes | 41 |
| 6.2 | Cleaning with cleaning brushes | 41 |
| 6.3 | Wet-cleaning the boiler | 44 |
| 6.4 | Checking the water level | 44 |
| 6.5 | Filling and operational water | 44 |
| 6.6 | Checking the system water pressure. | 45 |
| 6.7 | Inspection and maintenance reports | 47 |
| 7 | Correcting burner faults | 49 |
| | Appendix | 50 |

1 Regulations and guidelines

1.1 General

The design and operation of cast iron sectional oil or gas boilers from Buderus for pressure jet applications type Logano GE315 meet the requirements of EN 303.

The following European guidelines were observed:

- 90/396/EEC – Devices using gas
- 92/42/EEC – Efficiency levels
- 73/23/EEC – Low voltage
- 89/336/EEC – EMC

Observe any standards and guidelines applicable to the installation and operation of this system, as may apply in your country!

Only qualified personnel must carry out the installation, the connection of fuel supplies and flue ducts, the commissioning, the connection to the mains electrical power supply as well as maintenance and repair work. Only registered gas fitters may carry out work on gas components.

Carry out maintenance and cleaning procedures annually! As part of these steps, check the proper function of the entire system. Immediately correct all discovered faults.

1.2 Boiler application

| | |
|--|----------|
| – max. flow temperature | 100 °C |
| – max. operating pressure | 6 bar |
| The maximum time constant T applicable to the following are: | |
| – temperature controller | 40 secs. |
| – contactor/limiter | 40 secs. |

Observe the details on the boiler data plate, which are crucial.

Fuel gas

Logano GE315:

- Heating oil EL
- Natural gas, LPG

For requirements relating to boiler and feed water, see supplement "Water treatment" and VDI 2035 "Guideline for water treatment".

For the protection of the entire system we recommend you install a dirt filter as well as a de-sludge facility into the return line.

All oil and gas burners with type approval acc. to EN 267 or EN 676 may be used.

Important! Retain this document in a safe place; it is required for the annual service.

2 Installation

2.1 Standard delivery

The Logano GE315 boiler can be supplied as ready assembled block or in individual boiler segments.

2.1.1 Pre-assembled delivery

- 1 Pallet: Boiler block with burner door and feed pipe
- 1 Cartons: Casing (depending on boiler size)
- 1 Foil packaging: Thermal insulation

2.1.2 Supplied in sections

- 1 Pallet: Front and rear segment
3 central segments and burner door
- 1 Pallet: Central segments – depending on boiler size
- 1 Carton: Mounting components and flue gas collector
- 1 Bundle: Tie bars and return header
- 1 Cartons: Casing (depending on boiler size)
- 1 Foil packaging: Thermal insulation

2.2 Tools and additional materials as required for assembly

The following tools and additional materials are required for the boiler assembly (the listed items must be provided by the installer):

- Boiler tensioning tool 2.2 (→ Fig. 1) or 2.3 (→ Fig. 2)
- Installation kit (Option)
- Steel hammer and wooden or rubber mallet
- Half-round bastard file
- Screwdriver (Philips and flat head)
- Flat chisel
- Spanner SW 19, 36, 13, 19, 18, 24, 27 and Allan key SW19
- Support wedge, flat iron
- Cleaning rags and cloth
- Fine emery cloth
- Wire brush
- 3-in-1 Oil
- Solvent (petrol or solution)
- Spirit level, ruler, chalk, straight edge
- Blanking flange with vent facility (for pressure test)

2.2.1 Boiler compression tool size 2.2

| Segments | Compression tool per boiler hub | Extension pieces per boiler hub | Length (total) [mm] |
|----------|---------------------------------|---------------------------------|---------------------|
| 5 – 7 | 1 | 0 | 1560 |
| 8 – 9 | 1 (1) | 1 (0) | 2160 (2160) |

2.2.2 Boiler compression tool 2.3 (complete in toolbox)

| Segments | Compression tool per boiler hub | Extension pieces per boiler hub | Length (total) [mm] |
|----------|---------------------------------|---------------------------------|---------------------|
| 5 – 9 | 1 | 3 | 3080 |

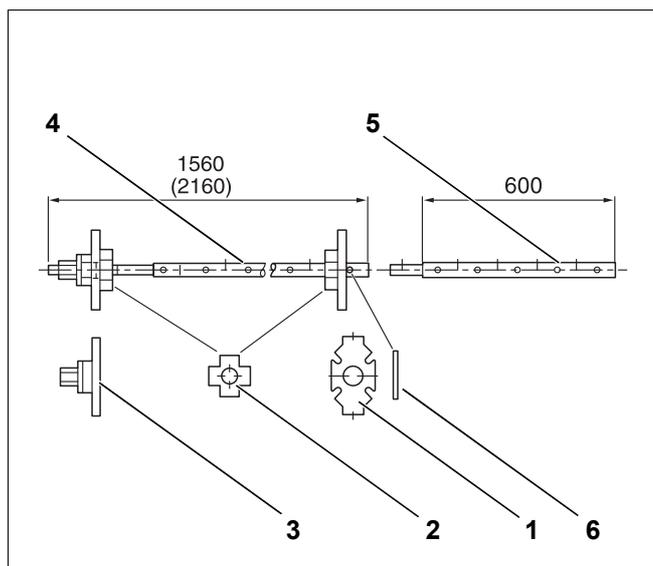


Fig. 1 Boiler compression tool size 2.2

Legend for (Fig. 1) and (Fig. 2):

- 1 The mating flange
- 2 Additional flange
- 3 Compression unit (compression flange and clamping nut)
- 4 Pull rod
- 5 Extension
- 6 Cylindrical pin (size 2.2)
- 7 Wedge (size 2.3)

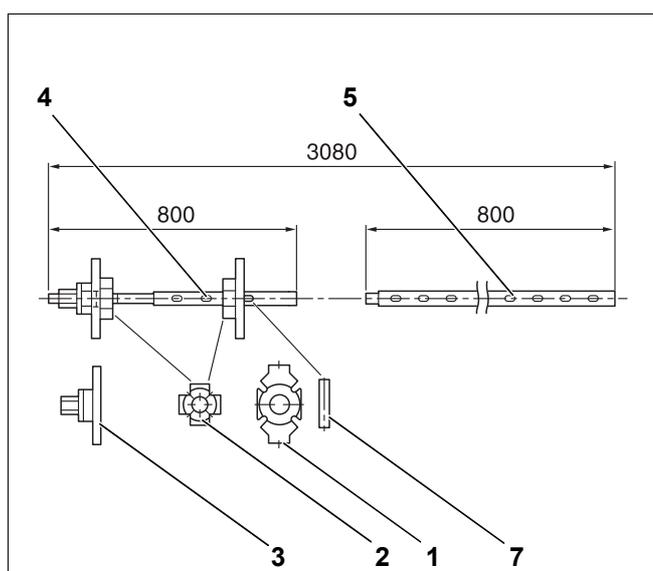


Fig. 2 Boiler compression tool size 2.3



NOTE!

For the correct arrangement of flanges for the compression step, → page 14.

2.3 Positioning

2.3.1 Plinth

Please maintain the recommended clearance from walls when positioning the boiler to enable easy access for installation and maintenance (→ Fig. 4).

To assist boiler room tidiness the boiler should be placed on a plinth 5–10 cm high (→ Fig. 1, [1]). The plinth must be perfectly flat and level. The front edge of the boiler should be flush with the edge of the plinth.



NOTE!

As an option we can offer a boiler plinth designed to reduce transmitted noise.

You can cast a concrete plinth if the optional boiler plinth is not used. When casting the plinth, you must incorporate a steel angle with the dimensions 100 x 50 x 8 mm or a steel strip with the dimensions 100 x 5 mm (→ Fig. 3 and the following table).

| Number of segments | L ₁ (plinth) [mm] | L ₂ (length of steel section) [mm] |
|--------------------|------------------------------|---|
| 5 | 970 | 730 |
| 6 | 1130 | 890 |
| 7 | 1290 | 1050 |
| 8 | 1450 | 1210 |
| 9 | 1610 | 1370 |

Tab. 1 Dimensions of plinth and length of angular or flat steel section

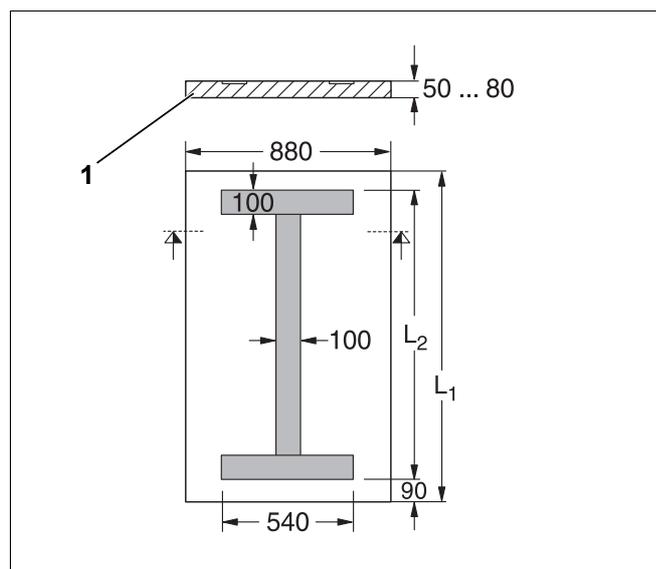


Fig. 3 Plinth dimensions [mm]

2.3.2 Clearance from walls recommended for installation and maintenance

We recommend you maintain the indicated clearance between boiler and walls, which is required for opening the burner door, the boiler installation as well as for cleaning and maintaining your system (→ Fig. 4).

You may hang the burner door for l.h. or r.h. opening.

When installing your boiler please maintain the recommended minimum dimensions (shown in brackets). Select the recommended clearances between wall and boiler to enable easy access during installation, maintenance and service work.

The distance from the wall on the hinge side must at least permit the burner withdrawal (AB). We recommend a distance between wall and boiler of AB + 100 mm.

Length L_K depends on the number of boiler segments or the boiler size (→ "Dimensions and specification", page 35).

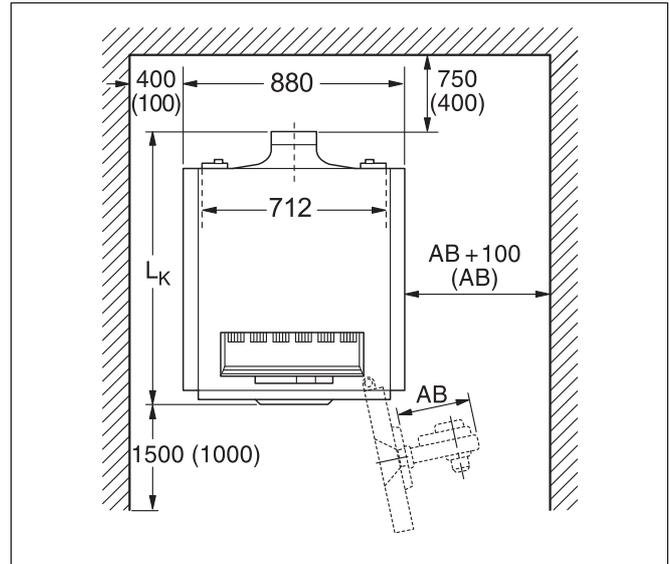


Fig. 4 Boiler room with boiler in place [mm]



NOTE!

If a clearance less than the recommended distance is chosen, you will not be able to clean the boiler with the optional cleaning kit. As an alternative we would recommend the use of shorter (length approx. 1 m) cleaning devices or wet cleaning.

2.4 Installation of boiler sections

The boiler block is available either pre-assembled or unassembled in sections. For pre-assembled blocks, the boiler sections are pre-assembled and checked for leaks prior to despatch. If, because of physical limitations, a boiler block cannot be delivered as a complete unit, on site installation is carried out using separate sections.

For the further **installation of pre-assembled boiler segments**, → Chapter 2.4.3 "Aligning the boiler block for pre-assembled deliveries", page 17.



ATTENTION!

Risk of injury through inadequately secured boiler sections!
For your own safety, use only suitable means of transportation when handling the boiler sections, e.g. a sack truck with strap or a stair truck, etc. When handling, secure the boiler sections to the means of transport to prevent them slipping.

2.4.1 Arrangement of the boiler sections within the boiler block (unassembled)

The boiler block is assembled from the rear to the front, commencing with the rear segment (→ Fig. 5, [4]). Always assemble the front section (→ Fig. 5, [10]) last.

During assembly note the arrows denoting the direction of installation (→ Fig. 5, [9]) and proceed according to the following instructions and illustrations!



ATTENTION!

Risk of injury through inadequately secured boiler sections!
Secure the rear section against tipping!
Where available you can use lifting gear to safely position the boiler sections.

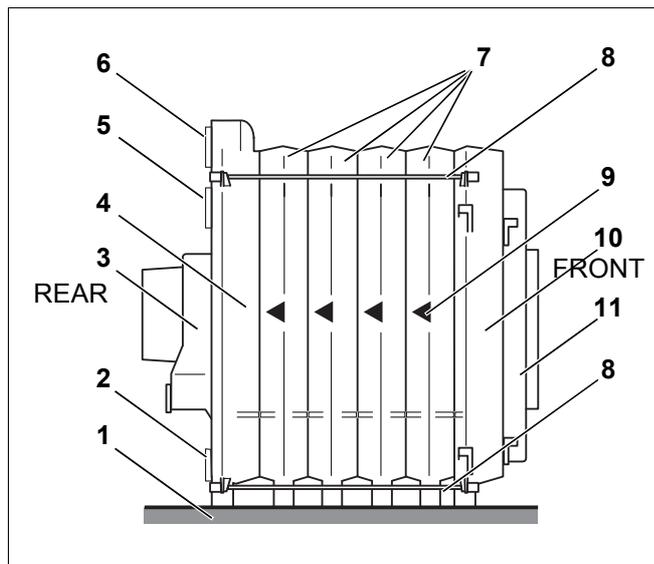


Fig. 5 Boiler block

Legend (→ Fig. 5):

- 1 Plinth or vibration absorbing boiler plinth
- 2 Drain
- 3 Flue gas collector
- 4 Rear section
- 5 Return connection
- 6 Flow connection
- 7 Central sections
- 8 Tie bar
- 9 Arrow – assembly direction pointing towards rear
- 10 Front section
- 11 Burner door with burner plate

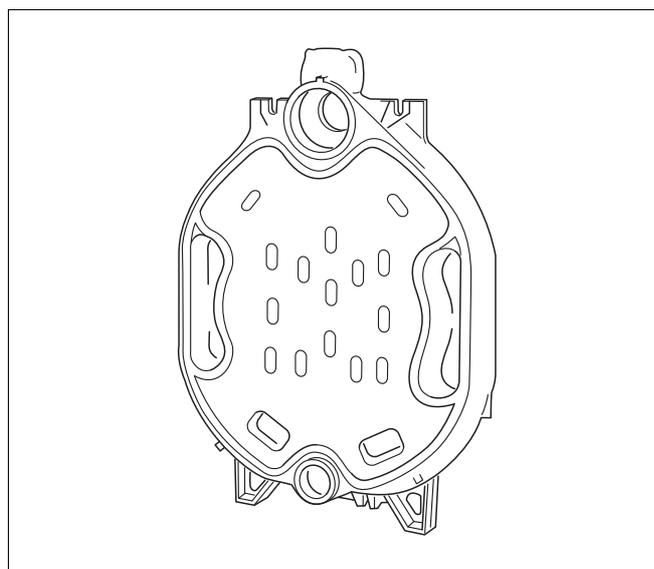


Fig. 6 Rear section

2.4.2 Fitting the boiler sections (unassembled)

Prior to fitting the front and rear sections, remove the nuts and washers from the bolts on the boiler section hubs.

- Position the rear section and secure against falling.
- Remove possible burrs from the hub using a file (→ Fig. 7).

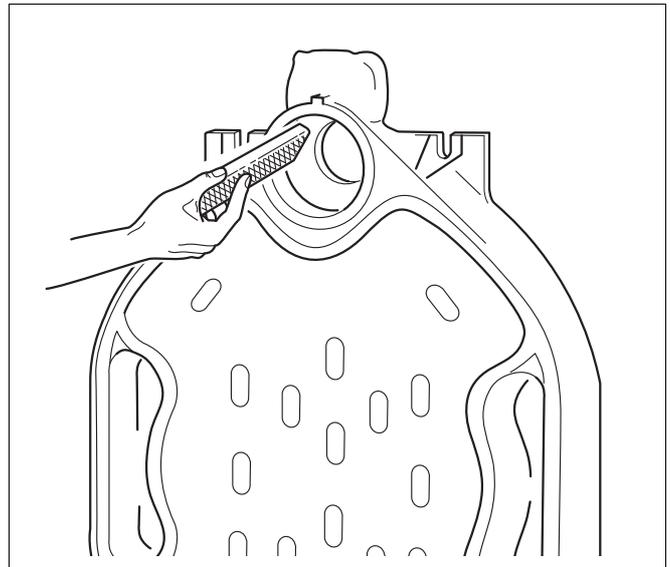


Fig. 7 Burr removal

- Clean the packing groove (→ Fig. 8, [3]) where required using a wire brush and cloth.
- Clean the hub sealing faces (→ Fig. 8, [1] & [2]) with a cloth soaked in white spirit.
- Coat the hub sealing faces evenly with the orange sealing compound (Marked as LEINOMENNIGE).

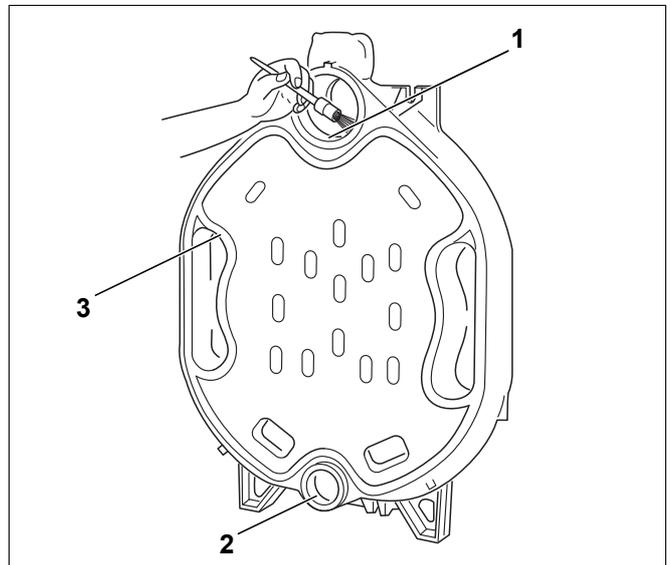


Fig. 8 Preparation of packing grooves and hubs

During the next step, the nipples are prepared for the closing up of the boiler sections.

- Clean nipples with a cloth soaked in white spirit and coat half the surface with the orange sealing compound.
- Fit the nipples straight into the upper (size 2, 119/50) and lower (size 0, 57/50) hub of the rear section and hammer home securely with alternate heavy blows. Afterwards, the upper nipple (→ Fig. 9, [1]) and the lower nipple (→ Fig. 9, [2]) should protrude approx. 28 mm from the respective hub.
- Remove any burrs which might have been created with a file. Finish coating the outer surface of the nipple with orange sealing compound.

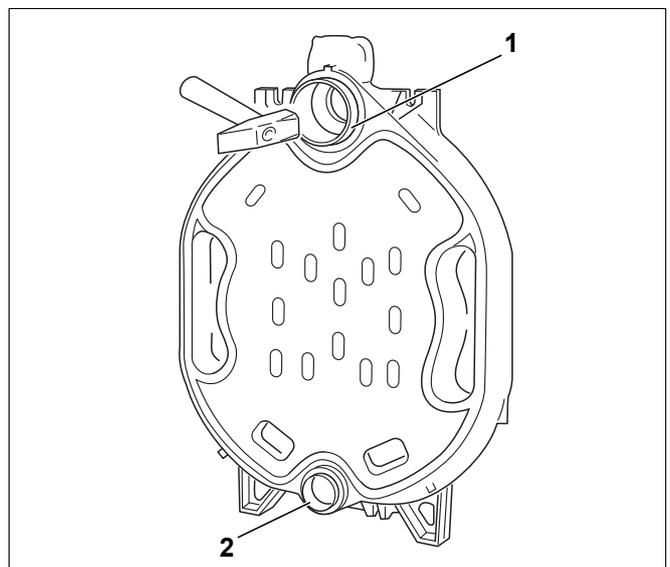


Fig. 9 Hammering the nipples home

Keep the packing grooves (→ Fig. 10, [1]) clean and dry to enable the packing cord to adhere to the groove.

- Coat the packing groove with primer marked as (Buderus Haftgrund primer 181).



ATTENTION!

For health and safety reasons, ensure adequate ventilation at the workplace when applying primer!

- Insert the elastic sealing cord (KM string: Fig. 11, [2]) into the packing groove at the front of the rear section, beginning in the hub area (→ Fig. 11, [1]) and lightly press home. Overlap the sealing string by 2 cm and press firmly together.

Unroll the required length of packing cord (KM string) from the roll supplied. Separate the backing paper from the cord (but do not stretch), as you insert the cord into the packing groove.

Preparation of the first middle section:

- Remove any burrs from the hub using a file (see Fig. 7).
- Ensure the sealing grooves are clean and dry; clean where necessary.
- Clean the hub sealing faces with a cloth soaked in white spirit.
- Coat the hubs with the orange sealing compound (Marked as (LEINOMENNIGE)) (→ Fig. 12, [1]).
- Coat the sealing grooves with primer (→ Fig. 12, [2]).

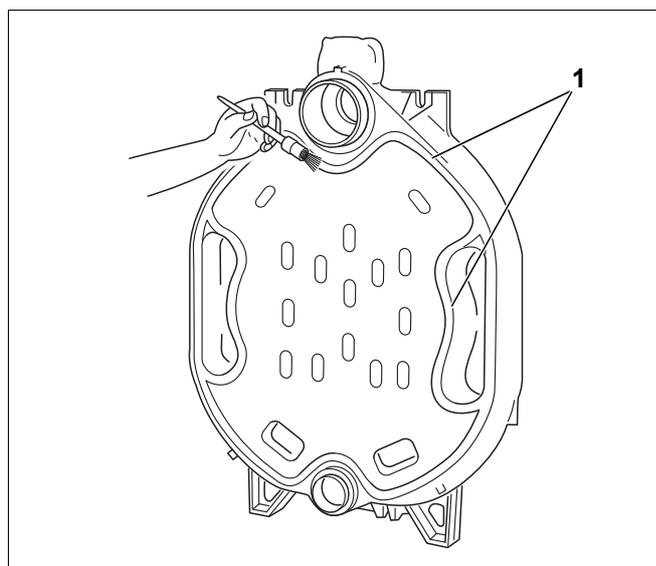


Fig. 10 Coating the packing grooves with adhesive

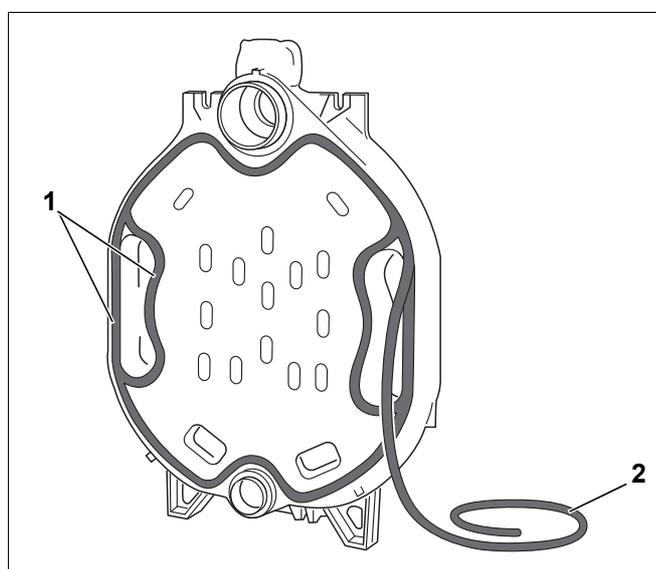


Fig. 11 Fitting the sealing cord (KM string)

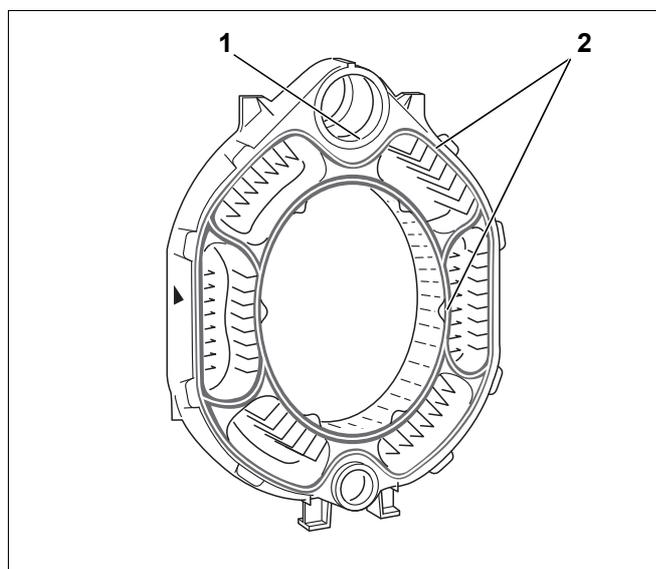


Fig. 12 Preparation of the central section

- Set the middle section with the upper and lower hubs (→ Fig. 13, [1] & [3]) onto the nipples in the rear sections. Note: the assembly arrow (→ Fig. 13, [2]) must point to the rear.

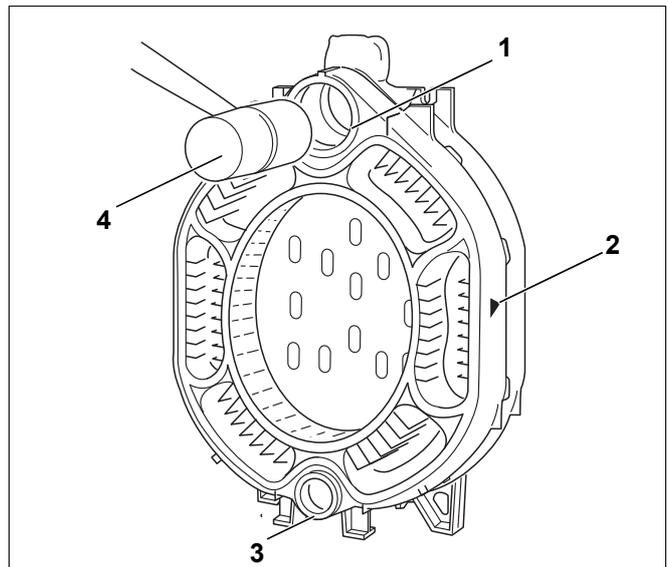


Fig. 13 Pushing home the central section



NOTE!

For easier assembly, locate the boiler section to be fitted onto the nipple of the upper hub first. Then align the boiler section on the lower hub.

- Drive the first centre section onto the end section using a wooden or a rubber mallet (→ Fig. 13, [4]).

Now compress the boiler block section with the compression tool (→ Fig. 14).



ATTENTION!

Use only boiler compression tools size 2.2 or 2.3 (Fig. 1 or Fig. 2 and Fig. 14, [1] & [2]).

- Push the compression units (→ Fig. 14, [3] & [4]) onto the pull rods (Fig. 1 or Fig. 2, [4]).
- Insert one pull rod through the upper and one through the lower boiler hub.

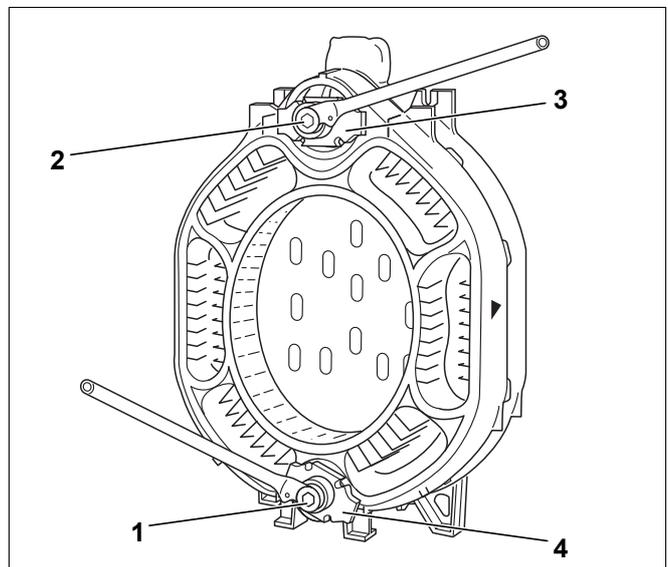


Fig. 14 Application of the boiler compression tool

- Push additional pull flanges onto both pull rods (→ Fig. 15, [3]) at the back of the boiler (→ Fig. 15, [1]) and secure each with a wedge (→ Fig. 15, [2]) or cylindrical pin (for compression tool 2.2).
- Hold the pulling rod at the centre of the boiler hubs and, with the clamping nut, lightly draw together the compression tools.



ATTENTION!

Never pull together more than one nipple connection (two sections) per compression step, otherwise the boiler block could be pulled together unevenly. This would lead to leaks at the nipple joints.

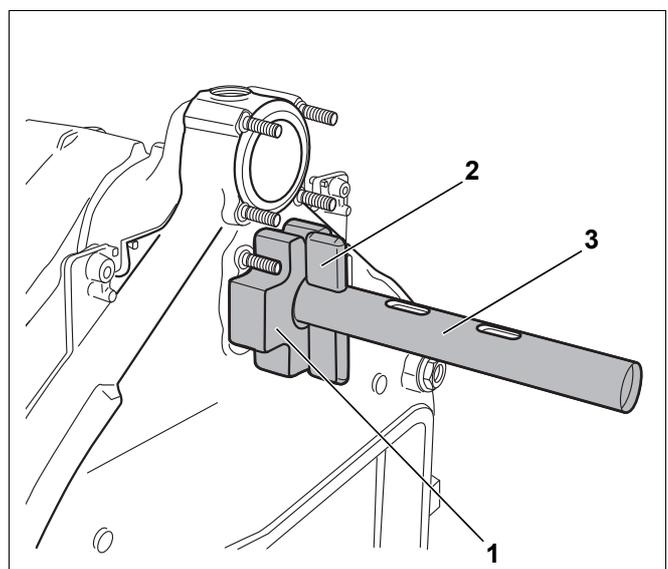


Fig. 15 Boiler compression tool at the rear section

- Set both ratchet spanners onto the clamping nuts of the compression unit and press the boiler sections evenly together by tightening the nuts equally.



ATTENTION!

Do not continue to tighten the assembly by force once the hubs are in contact. Further tightening could damage the boiler sections.

- Loosen and remove boiler compression tool.
- Check nipple for correct seating.



ATTENTION!

Loosening the boiler compression tool size 2.3 can lead to a slackening of the pull rod screw connections (→ Fig. 16, [1]). Therefore check and, if necessary, re-tighten the boiler compression tool before its next use (→ Fig. 16, [2]). Carrying out the compression step with loose screw connections can lead to damage or the destruction of the compression tool.

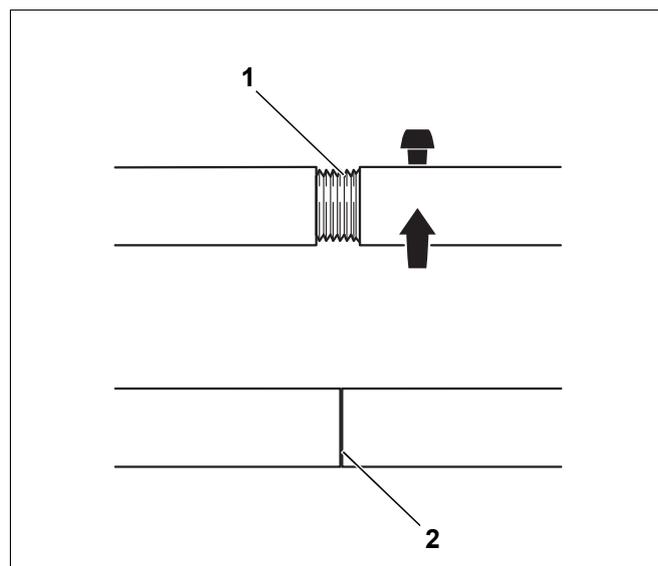


Fig. 16 Boiler compression tool size 2.3

Align the boiler section to ease assembly.

**Assemble all other boiler sections as described.
The front section is assembled last.**

Slacken the compression tool after the front section has been assembled – but do not remove it yet!

Insert the tie bars before removing the compression tool!

- Insert the three tie bars with the spring sets mounted into the locations provided in the cast profiles (→ Fig. 17, [1], [2] & 3).
Note when inserting the tie bars that the spring sets are fitted at the back of the boiler.
- By hand screw one nut onto each of the tie bars threads.



ATTENTION!

Use the spring sets only as complete sets, i.e. do not undo!

- Now tighten the nuts on each tie bar by 1 to 1 ½ turns.
- Align the boiler on the plinth or vibration absorbing plinth in the horizontal and vertical plane (→ Chapter 2.3 "Positioning", page 9).
- Remove the boiler compression tool.

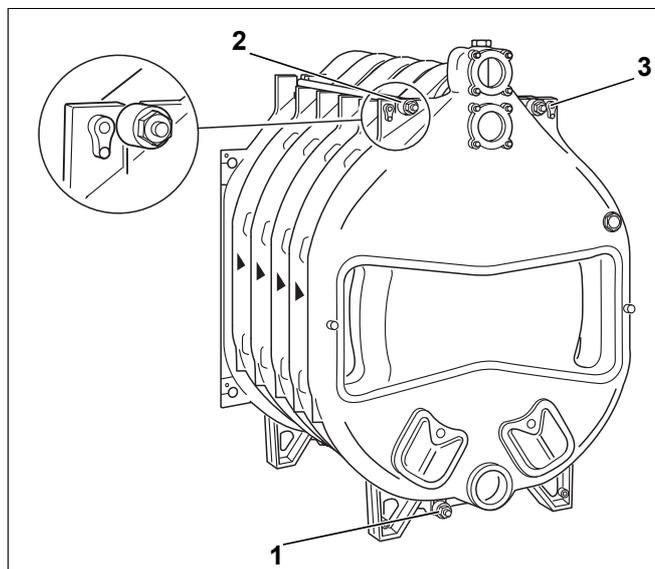


Fig. 17 Installation of the tie bars

The next step refers to the installation of the return header (→ Chapter 2.4.4 "Slide the return header into place (carton of installation components)", page 18).

2.4.3 Aligning the boiler block for pre-assembled deliveries

- Cut through the securing band (→ Fig. 18, [1]).
- Remove the pallet prior to positioning the boiler (→ Fig. 18, [2]).



CAUTION

DANGER TO LIFE!

Hazard from falling material!
 Hazard through falling from unsuitable means of transportation!
 Observe Health and Safety at Work Regulations regarding lifting with lifting gear!
 (For weight details of various boiler sizes see section "Dimensions and specification", page 35).

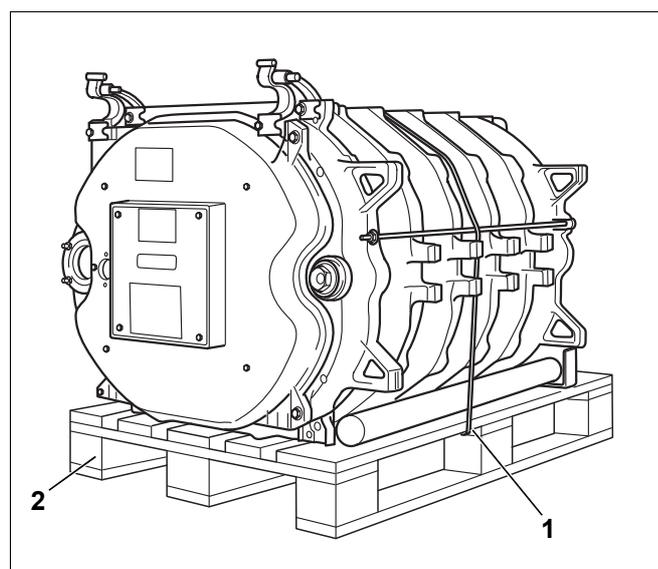


Fig. 18 Boiler block on pallet

- Align the boiler on the plinth or antivibration absorbing plinth in the horizontal and vertical plane (→ Chapter 2.3 "Positioning", page 9). To do this use the boiler section base wedges supplied.

The return header and sensor well installation described on the following pages applies to boilers delivered as pre-assembled in sections.

2.4.4 Slide the return header into place (carton of installation components)

- Pull flat seal (→ Fig. 19, [1]) over the return header (→ Fig. 19, [4]).
- Insert the return header from the front into the upper boiler hub.
- Close the pipe with a blanking flange (→ Fig. 19, [2]).



NOTE!

The profile (→ Fig. 19, [3]) on the end plate of the feed pipe must engage into the recess of the upper boiler hub (→ Fig. 19, [5]). This secures the feed pipe so, that the feed pipe exit port is positioned at a right angle to the boiler. This ensures optimum water distribution in the area of the upper boiler hub.

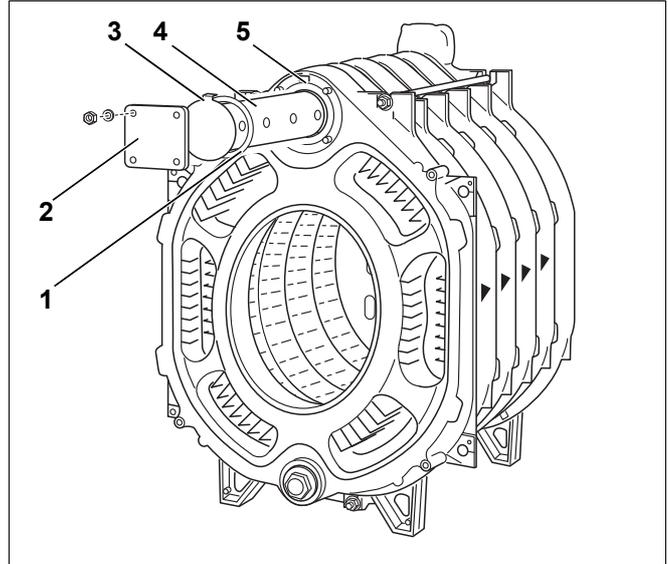


Fig. 19 Return header installation

2.4.5 Sealing the sensor well

Sensor well $\frac{3}{4}$ "

- Seal the sensor well $\frac{3}{4}$ " (Length: 110 mm) (→ Fig. 20, [1]) from above into the $\frac{3}{4}$ " threaded hole of the flow connection (→ Fig. 20, [2]).

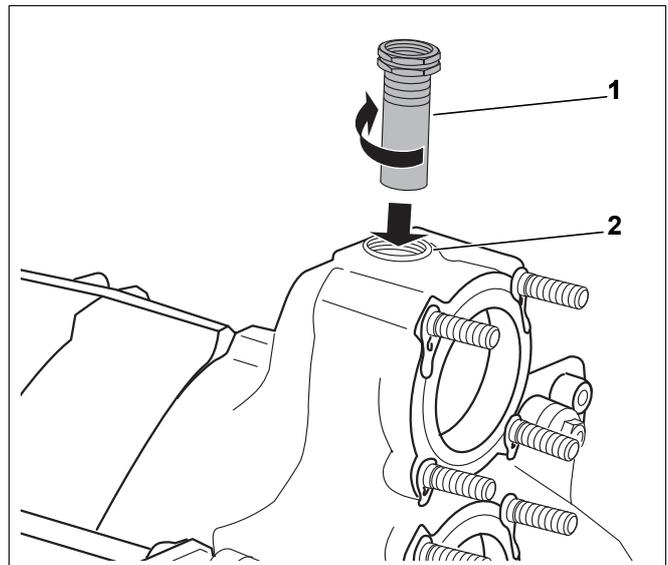


Fig. 20 Sensor well installation

2.5 Leak test

Carry out a **leak test** on the boiler **only when loose sections are delivered**. Pre-assembled sections are leak tested in the factory.

Therefore the following steps only apply to boilers delivered in loose sections.

For the further **installation of pre-assembled boiler segments**, see chapter "2.6.4 Insert the hot gas baffle plates", page 20.

2.5.1 Leak test preparation

- Close the lower boiler hub at the front and rear (→ Fig. 21, [3]). To do this, set the corresponding gasket (→ Fig. 21, [1]) onto the respective boiler hub and seal the corresponding drain plug into the appropriate port.
Fit the plug with internal $\frac{3}{4}$ " thread for the drain cock (→ Fig. 21, [2]) to the rear of the boiler.
- Fit the drain cock (not supplied as standard).
- Close the flow and return connections (install the flange with vent screw on the flow connections).



ATTENTION!

When you carry out the leak test, no control or safety equipment must be connected to the water system. These could be damaged by high pressure.

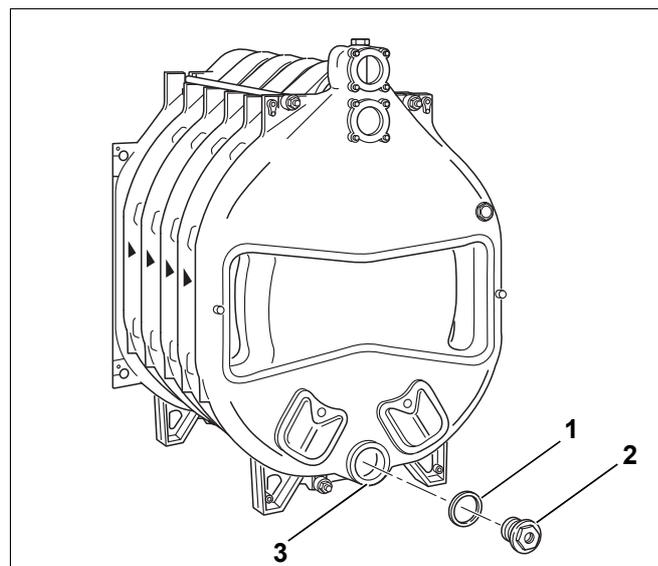


Fig. 21 Flange installation

- Slowly fill the boiler with water through the drain cock. At the same time vent the system at the boiler flow connection.
- If a hub connection is leaking, first drain the water through the drain cock.
- Remove the return header.
- Remove the nuts from the four tie bars and then the bars themselves.
- Separate the boiler sections by driving (hammering) flat wedges or chisel at the points provided (→ Fig. 22, [1] & [2]) at the top and bottom between the relevant sections.

You must use new nipples and gaskets for the re-assembly. Draw the boiler sections together and re-test for leaks.

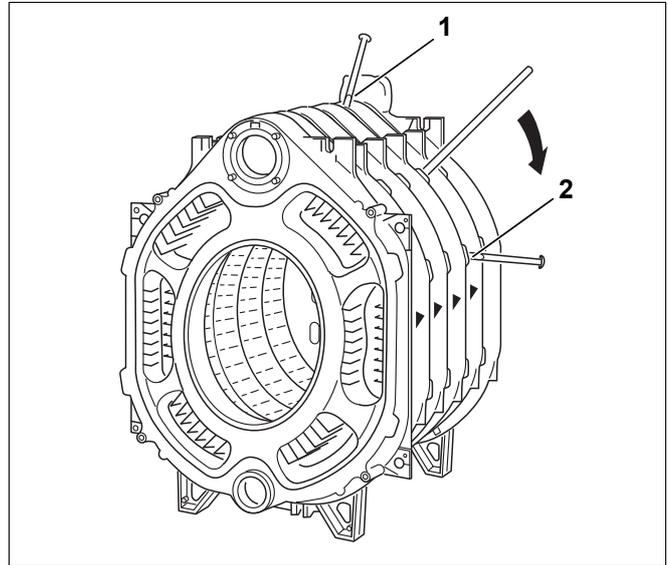


Fig. 22 Separating the boiler block

2.5.2 Test pressure

The test pressure during the leak test depends on the design pressure for each individual heating system and should be 1.5 times nominal pressure (normally 7.8 bar for 30 minutes).

Use a pressure gauge class 1.0 for measuring the pressure.

- The weld neck flange is fitted to the upper boiler hub (→ Fig. 23, [6] – return connection) when the return is installed later. The illustration shows the weld neck flange and the flat gasket (→ Fig. 23, [4] & [5]).
- The flow connection flange (→ Fig. 23, [3]) and the flat gasket (→ Fig. 23, [2]) are required for the flow connections which is fitted later (→ Fig. 23, [1]).

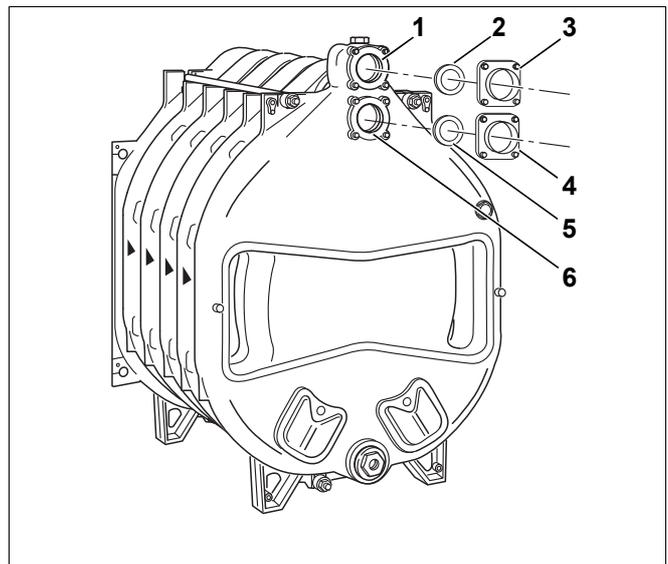


Fig. 23 Connection flange installation

2.6 Installation of fittings and burner door (only for unassembled boilers)

In contrast to unassembled boilers, the burner door and the flue gas collector are already fitted in the factory, when the boiler is supplied as a pre-assembled block.

2.6.1 Positioning the flue gas collector

Use sealing cord (→ Fig. 24, [2]) as a gasket between the boiler and the flue gas collector (→ Fig. 24, [1]).

- Clean the groove first before packing the sealing cords as a gasket between the boiler and flue gas collector.
- Coat the packing groove with adhesive (primer 181).
- Firmly press the sealing cord into the groove. You must insert the packing cord so, that it lies in the lateral area of the groove (→ Fig. 24, [3]).
- Position the flue gas collector onto both bolts at the rear section (→ Fig. 24, [4] & [5]) and secure with washers and nuts.

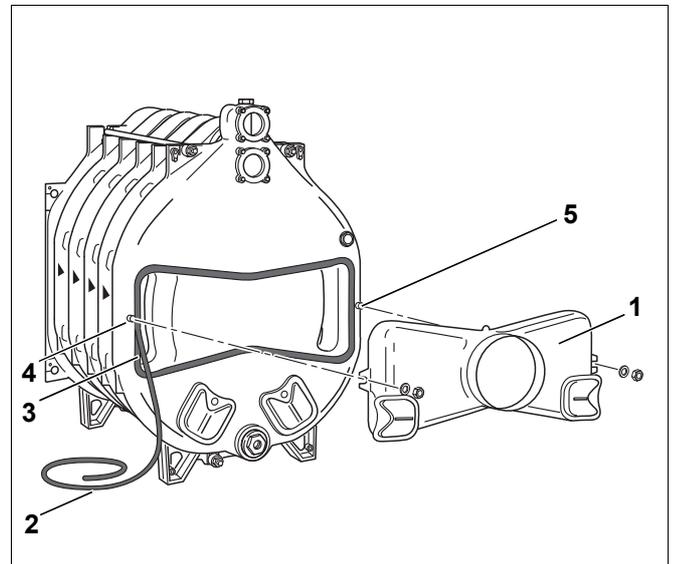


Fig. 24 Flue gas collector installation

2.6.2 Cleaning cover at the rear section

Fig. 25 shows the rear sections equipped with cleaning covers fitted to the flue gas collector (→ Fig. 25, [1] & [2]) as well as the cleaning covers on the rear section (→ Fig. 25, [3] & [4]).

All cleaning covers are fitted in the factory.

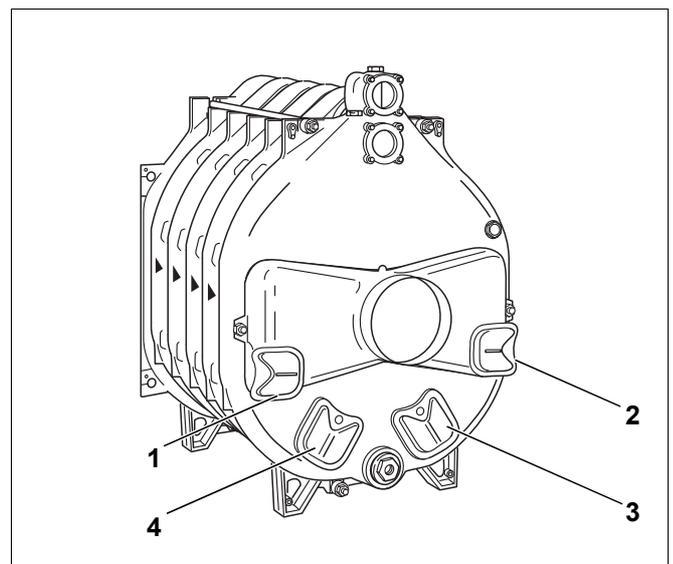


Fig. 25 Rear section with mounted fittings

2.6.3 Install the burner door

Both hinges are fitted at the factory (Fig. 26, [4] & [6]) to the r.h. side of the burner door. To convert to l.h. hinges, fit the hinge parts to the l.h. side of the burner door.

- Secure each hinge pin (Fig. 26, [1] & [3]) with 2 No. M 12 x 50 screws on the front section. Fig. 26 shows this as r.h. closing. Fit the hinge pins to the l.h. side for l.h. closing.
- Stick sealing cord (18 mm dia.) into the front section using adhesive. Position the butt ends of the gasket string on the side of the section (Fig. 26, 2).
- Hook the burner door with the hinge rings onto the hinge pins.

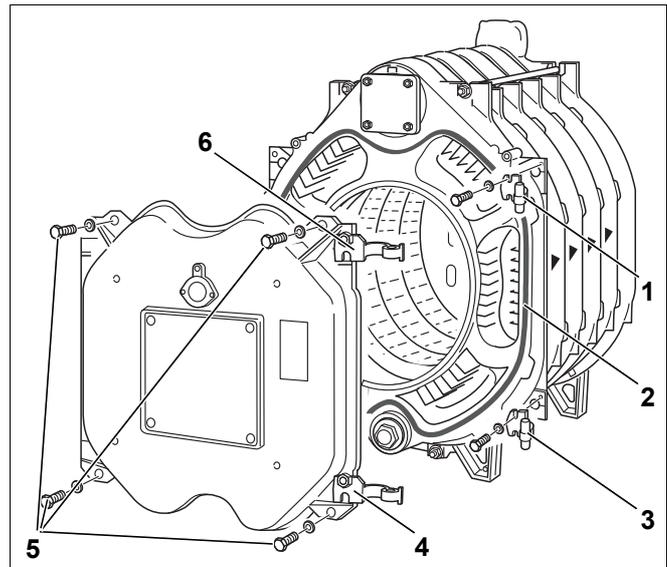


Fig. 26 Hooking on the burner door

2.6.4 Insert the hot gas baffle plates



NOTE!

The hot gas baffles are already fitted if you receive a pre-assembled boiler block. You must only remove the protective transport packing.

- Remove the hot gas baffle from the fitting crate and insert it into the hot gas ways according to the **instructions cast into the baffle body** (see Fig. 27 and the following table).

| Boiler size in kW | Number of boiler sections | Number of hot gas baffle plates | Length of hot gas baffle plates | Fitting instructions on the baffle |
|-------------------|---------------------------|---------------------------------|---------------------------------|--|
| 105 | 5 | 4 | 360 | upper r.h. upper l.h. lower r.h. lower l.h. |
| 140/ 170 | 6 – 7 | 4 | 440 | |
| 200 | 8 | 4 | 360 | |
| 230 | 9 | 4 | 200 | |

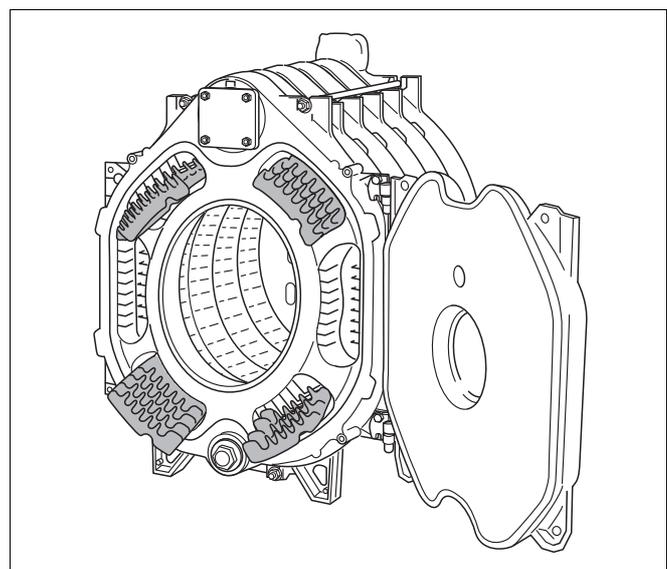


Fig. 27 Hot gas baffle plates

2.6.5 Burner installation

- Close the burner door and secure with 4 screws (M16 x 140) (Fig. 26, [5]). Tighten the screws alternately in a cross pattern.
- Cut using oxy-acetylene or drill the burner plate (Fig. 28, [1]) on site according to the required burner pipe diameter (max. diameter 270 mm). Drill the burner mounting holes according to the hole pattern of the burner connection flange.



NOTE!

As option you can obtain pre-drilled burner plates from **Buderus** (accessory).

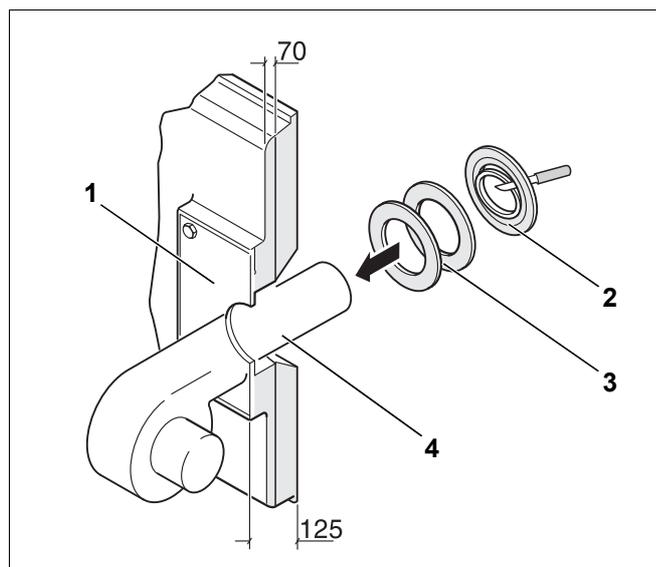


Fig. 28 Burner installation (dimensions in mm)

- Secure the burner plate on the burner door with screws provided (seal with sealing cords of 10 mm diameter).
- Screw the burner to the burner plate.
- Cut out insulating rings according to the burner pipe diameter (Fig. 28, [2]).
- Fill the remaining gap between the thermal insulation on the burner door and the burner blast tube (Fig. 28, [4]) with suitably adapted insulating rings (Fig. 28, [3]).
- Connect the breather tube on the sight glass with the burner to keep the glass free from condensation.
- Fit burner according to the manufactures instructions.

2.6.6 Fit the flue gas pipe sealing collar (optional accessory)



NOTE!

We recommend you use a flue gas pipe sealing collar (Fig. 29, [1]).

- Insert the flue gas pipe until it contacts the flue gas collector coupling.
- Place the flue gas pipe sealing collar on the top so that it overlaps the flue gas pipe and the coupling.
- Place the jubilee clips (Fig. 29, [4]) over the flue gas pipe sealing collar. One of the jubilee clips must clamp on the coupling of the flue gas collector and the other onto the flue gas pipe.
- Tighten the jubilee clips.

After the jubilee clips have been tightened the flue gas pipe sealing collar must fit evenly and closely.



NOTE!

Re-tighten the jubilee clips a short time after commissioning.

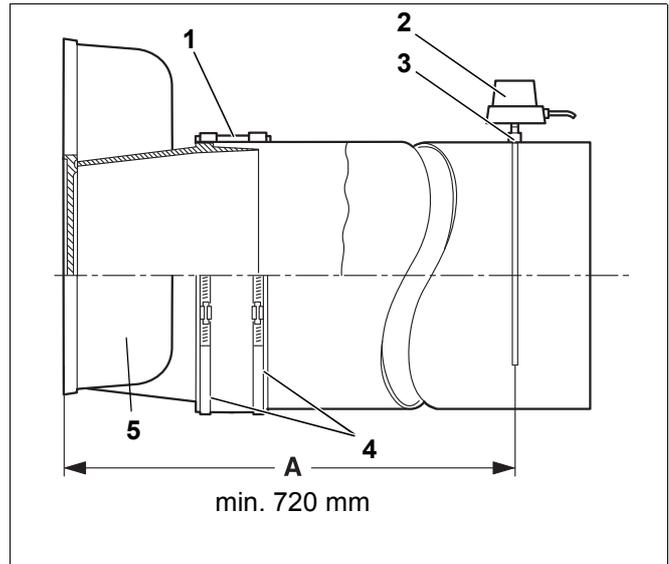


Fig. 29 Flue gas pipe installation

- 1 Flue pipe sealing collar
- 2 Flue gas temperature sensor
- 3 Coupling
- 4 Jubilee clip
- 5 Flue gas collector

2.6.7 Fit the flue gas temperature sensor (Option)

- Weld the coupling (Fig. 29, [3]) at a distance of $2 \times$ flue gas pipe diameter (A) – min. 720 mm – from the flue gas collector into the flue gas pipe.
- Install the flue gas temperature sensor (Fig. 29, [2]) in accordance with separate installation instructions.

2.7 Boiler casing

This section describes how to fit thermal insulation and casing components.

2.7.1 Support brackets

The edge of the front support brackets must point to the front.

- At the boiler front screw one further nut onto each tie-bars (Fig. 30, [2]).
- Insert the cross support bracket at the front on top of the boiler (Fig. 30, [1]) between the first and the second nut of the tie bars and secure on the cast lugs.
- Tighten the outer nuts.
- Secure the cross support bracket at the lower front (Fig. 30, [3]) with two screws on the boiler section feet of the front section.

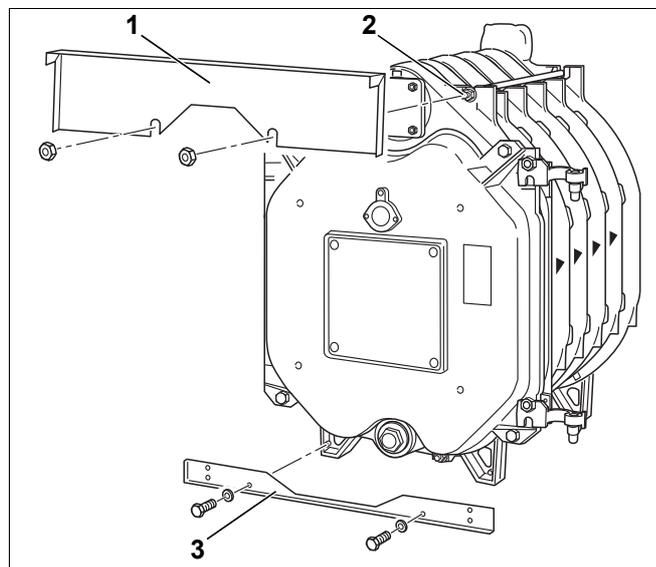


Fig. 30 Installation of the front support brackets

- Secure the upper rear support bracket (Fig. 31, [1]) on the cast lugs and with screws (M 8 x 15) on the rear section. The edge of the front upper support bracket must point **to the front**.
- Secure the lower support bracket (Fig. 31, [2]) with two screws (M 8 x 15) to the feet of the rear section. The edge of the lower support bracket must point to the rear.

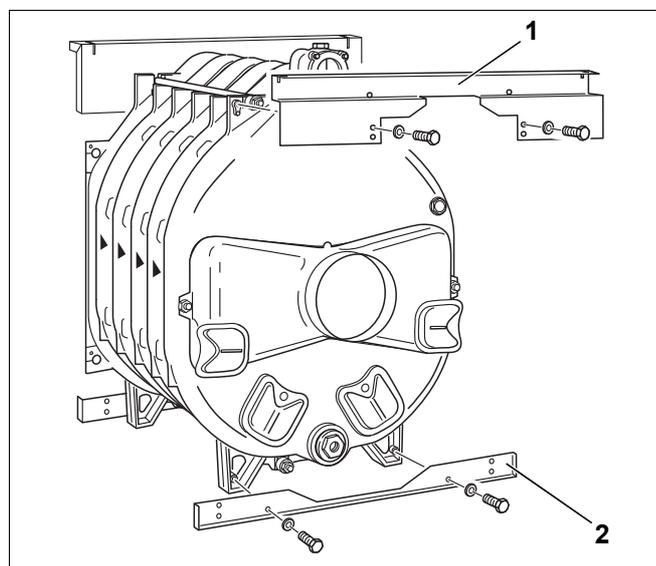


Fig. 31 Installation of the rear support brackets

2.7.2 Thermal insulation

- The thermal insulation supplied corresponds to the respective boiler size (Tab. 1). Arrange the thermal insulation according to the Fig. 32 illustration shown on the boiler block.
- At the lower boiler area push the insulating material under the boiler block. The boiler section feet are set into the cut-outs of the thermal insulation.

| Boiler size | Boiler segments | L |
|-------------|-----------------|------|
| 105 | 5 | 840 |
| 140 | 6 | 1000 |
| 170 | 7 | 1160 |
| 200 | 8 | 1320 |
| 230 | 9 | 1480 |

Tab. 1 Thermal insulation dimensions

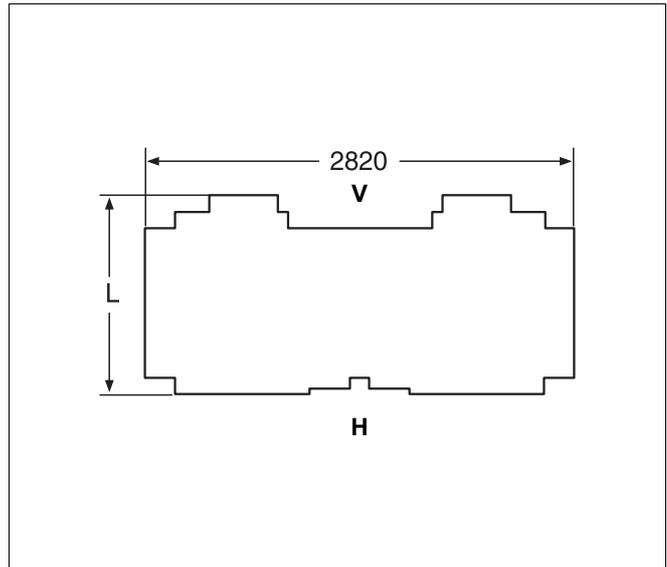


Fig. 32 Thermal insulation
 V: Front (boiler front)
 H: Rear (boiler back)

- Slide the thermal insulation for the rear section (Fig. 33, [2]) onto the flue gas coupling. Ensure that the cut-out for the boiler flow and return points upwards.
- Hook the thermal insulation for the rear section into the upper cross support bracket using two spring hooks (Fig. 33, [1]).
- Close the gap below the flue gas coupling with spring hooks (Fig. 33, [3]).

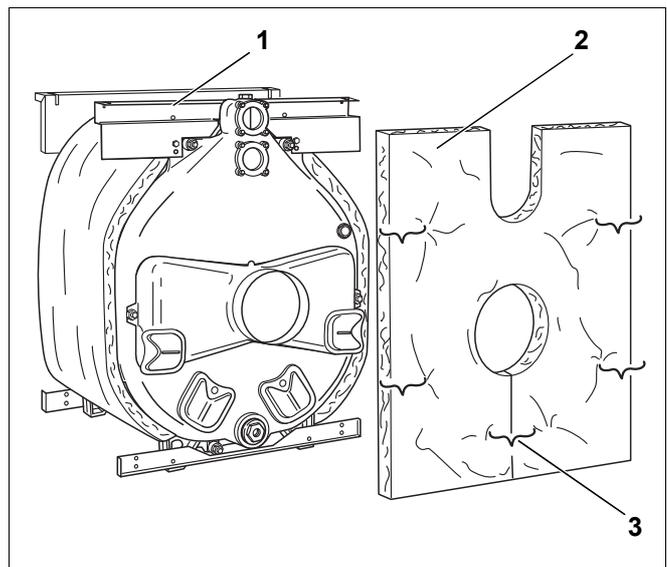


Fig. 33 Installation of thermal insulation at the rear section

- Slide the front insulation (Fig. 34, [1]) with its slot (Fig. 34, [2]) onto the front edge of the upper support bracket.
- Lead the burner cable (Fig. 34, [3]) on top of the thermal insulation down over the side of the boiler block.
- With two screws secure the burner cable and strain relief on the lower cross tie-rod (Fig. 34, [4]).

**NOTE!**

To prevent the cable being damaged when opening the burner door, always route the burner cable – depending on the handing of the burner door – on the hinge side of the door.

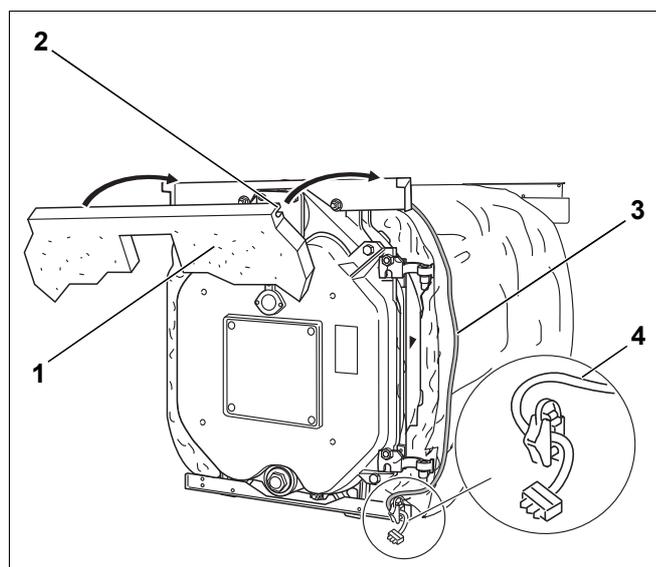


Fig. 34 Installation of the front insulation

2.7.3 Side and top casing

- Hook the side casing (Fig. 35, [1]) with cut outs into the slots of the upper cross support bracket (Fig. 35, [2]) and push forward against the end stop (see arrow in Fig. 35).
- With two self-tapping screws each secure the side walls at the bottom (Fig. 35, [3]).

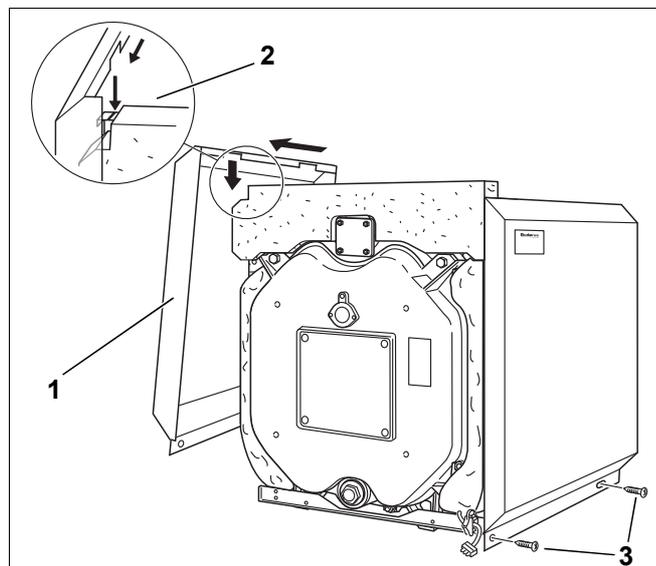


Fig. 35 Side casing installation

- Position the top at the front (Fig. 36, [1]) between the side walls so that the cut-out engages (Fig. 36, [3]) above the cross support bracket.
- Secure the top with one self-tapping screw on each (Fig. 36, [2]) of the side walls.

Install the control unit, position the capillary tubes and the sensor well and insert the sensors into the wells, before any other hood components are positioned (see chapter 2.8 "Control unit", page 30).

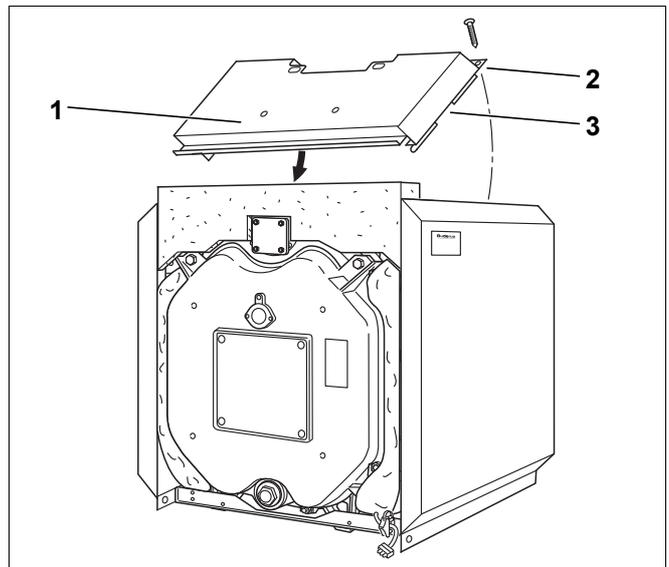


Fig. 36 Installation of the front hood

- Position the rear hood (Fig. 37, [1]) between the side walls, so that the cut-out engages (Fig. 37, [2]) above the cross support bracket.

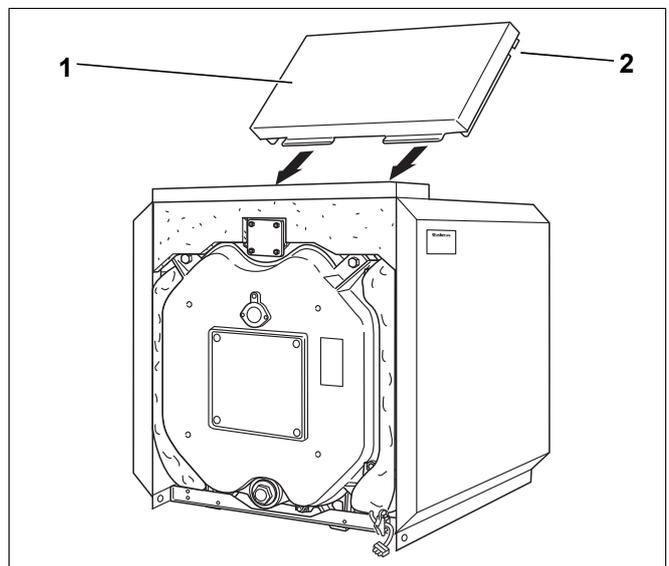


Fig. 37 Installation of the rear hood

Push the plinth rails (front and back) (Fig. 38, [2]) on the lower side wall edge and secure on their sides with one self-tapping screw each (Fig. 38, [1] & [3]).

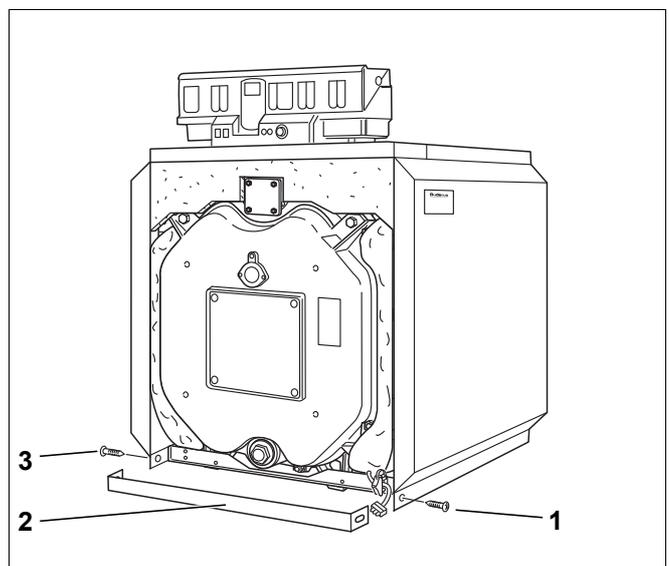


Fig. 38 Installation of the front plinth rail

- Secure the rear upper boiler wall (Fig. 39, [2]) on the back of the rear hood (Fig. 39, [1]) and on the side walls.

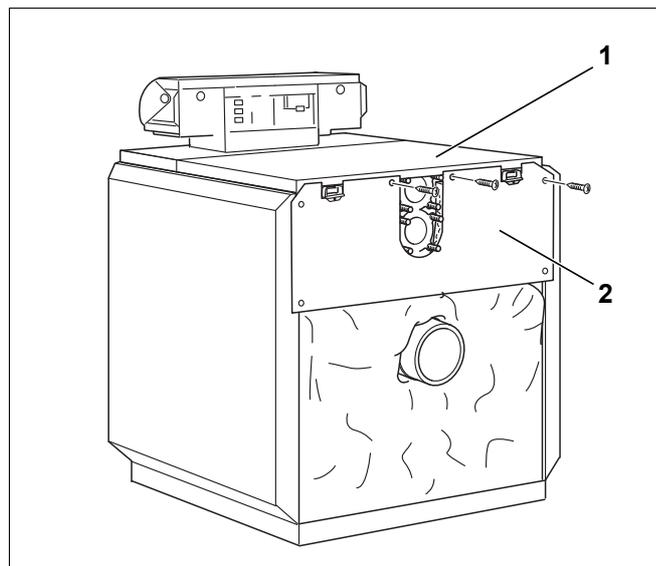


Fig. 39 Installation of the upper boiler back wall

- Secure the lower rear boiler wall (Fig. 40, [2]) – with the cut-out for the fill/drain cock at the bottom – on the side walls (Fig. 40, [1] & [3]).

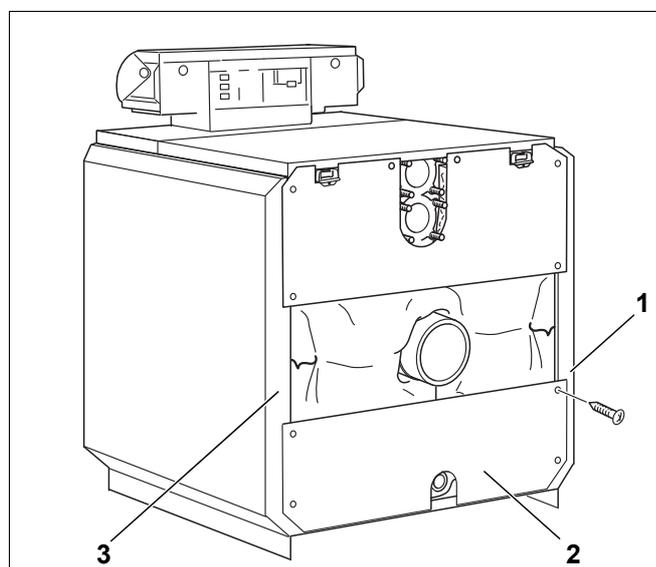


Fig. 40 Installation of the lower boiler back wall

- Hook the front wall (Fig. 41, [3]) at the bottom centre into the plinth front (Fig. 41, [2]).
- Hook the front wall at the top into the edge of the front hood (Fig. 41, [1]).

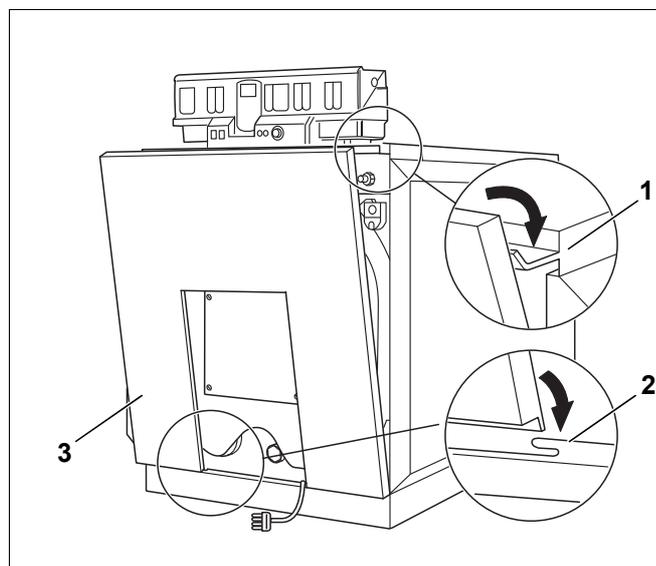


Fig. 41 Front wall installation

- Hook the burner door cover into the front wall recesses (Fig. 42, [1]).
- Place the data plate (Fig. 42, [2]) according to boiler location on the r.h. or l.h. side wall.

**NOTE!**

For boilers delivered as pre-assembled blocks you will find the data plate together with the installation and maintenance instructions inside the combustion chamber; if you receive loose components you will find it inside a clear bag on the burner door.

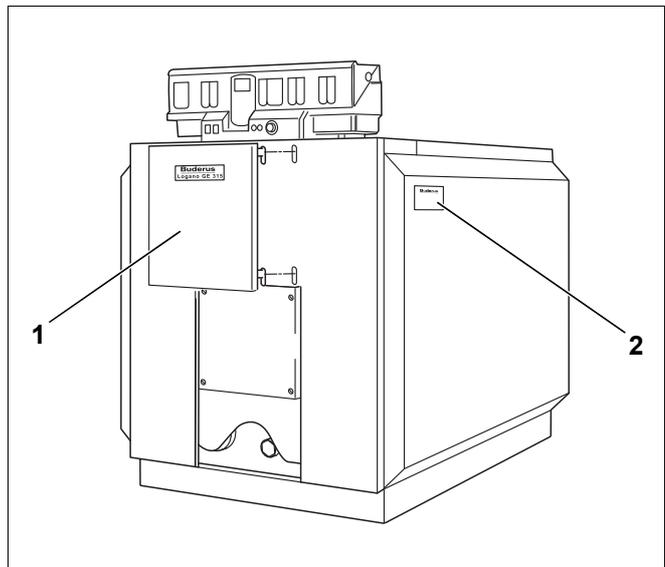


Fig. 42 Hooking on the burner door cover

2.8 Control unit

2.8.1 Controller installation

Fig. 43 shows the control unit and the front cover as viewed from the rear.

- Loosen both screws (Fig. 43, [1]) securing the terminal cover. Remove the terminal cover by pulling it upwards.
- Mount the control unit. Insert the control unit at the front of the boiler with the locating tabs (Fig. 43, [4]) into the oval apertures of the front boiler hood (Fig. 43, [5]). Pull the control unit forward and then pivot it back. Ensure that the resilient hooks (Fig. 43, [2]) engage at the rear into the rectangular apertures of the front boiler hood (Fig. 43, [3]).
- Secure the control unit base on the r.h. and l.h. side of the cable way (Fig. 43, [6]) in the front boiler hood with two self-tapping screws (Fig. 43, [7]).

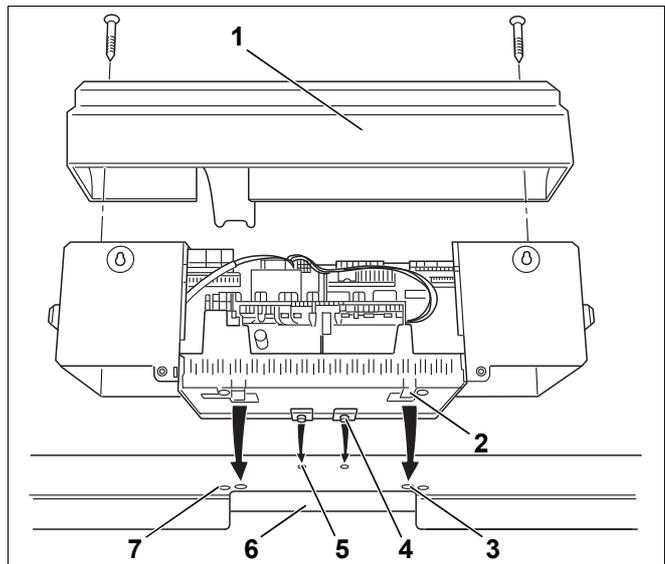


Fig. 43 Control unit installation

2.8.2 Installation of the temperature sensor

- Where necessary remove any knockouts (Fig. 44, [1]) in the back of the cable gland (Logamatic 33..) or from the rear wall (Logamatic 43..) (Fig. 44, [2]).
- Insert the capillary tubes through the cable gland and unroll to the required length.

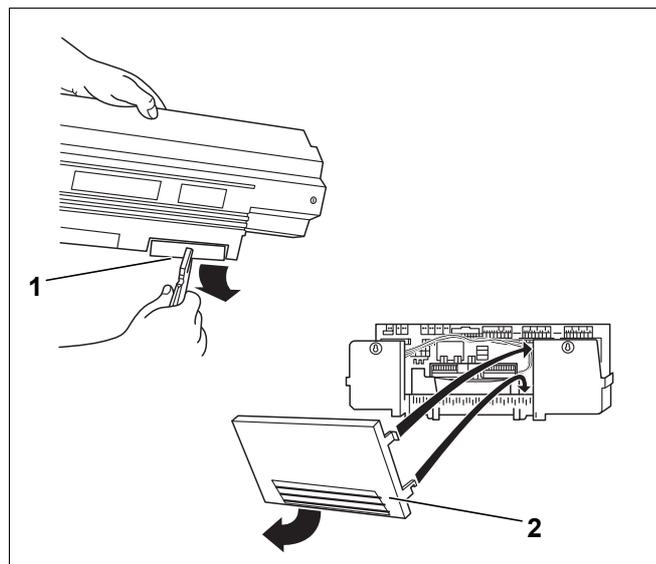


Fig. 44 Cable gland preparation

The sensor well has already been sealed into the flow connection coupling (see chapter 2.4.5 "Sealing the sensor", page 16).

The sensor bundle (three sensors, one sensor blank Fig. 45, [1]) connected to the control unit is fitted into the 3/4" sensor well.

- Lead the capillary sensor to the measuring point on the boiler and insert it into the sensor well (Fig. 45, [2]); then secure the assembly with a sensor securing device (Fig. 45, [3]).

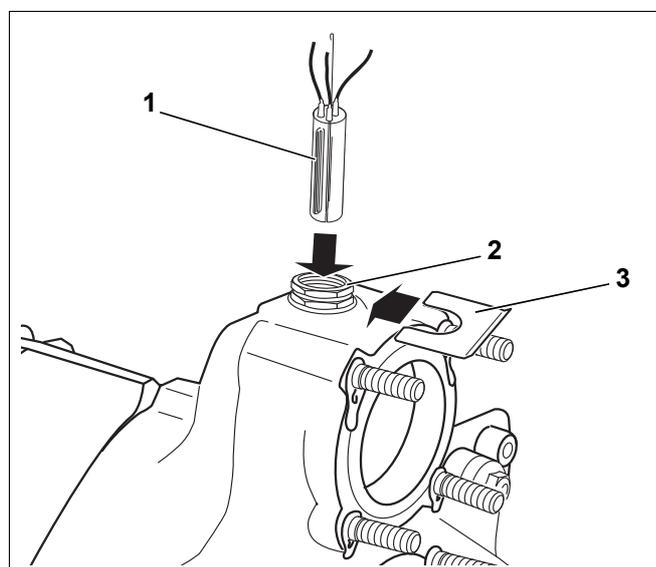


Fig. 45 Sensor bundle installation

- Secure the cable gland (Fig. 46, [1] & [2]) on the l.h. and r.h. side to the rear of the boiler.
- Make all electrical connections in accordance with the wiring diagram. Pay particular attention to the cable and capillary pipe runs!

Provide a permanent connection acc. to EN 50165.



NOTE!

Observe all local requirements, e.g. current I.E.E Wiring Regulations in GB!
Secure all cables with cable clips.

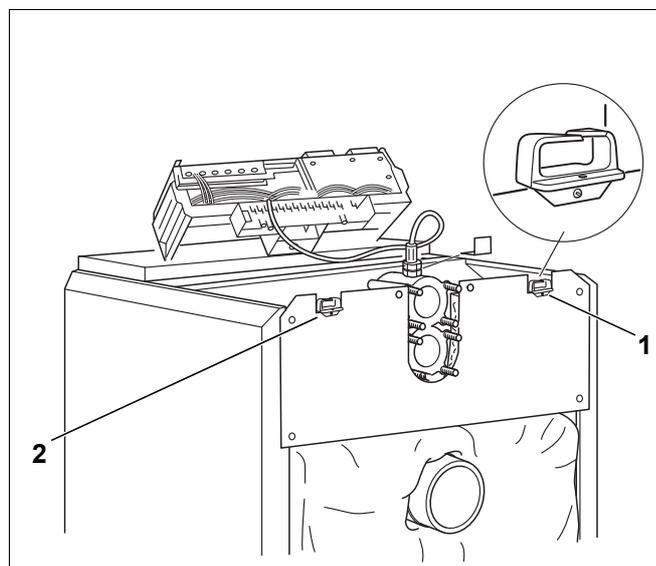


Fig. 46 Electrical connection

- Insert cable clips with fitted cables into the clip frame and secure by pivoting the lever (Fig. 47, [1]).

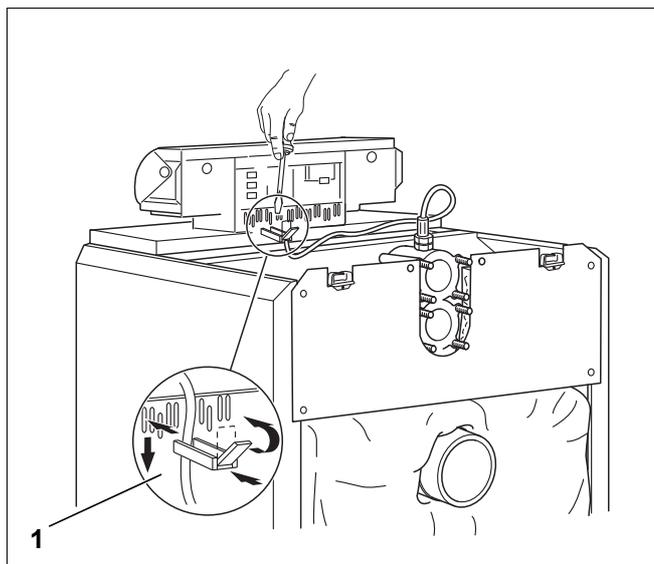


Fig. 47 Securing the electrical connection cables

- Hook the rear wall (Logamatic 43..) with the lower hooks into the clip frame and push the top part home, until the hooks engage (Fig. 44, [2]).
- Fit the terminal cover (Fig. 43, [1]) with two self-tapping screws and secure on the control unit base (Fig. 48).

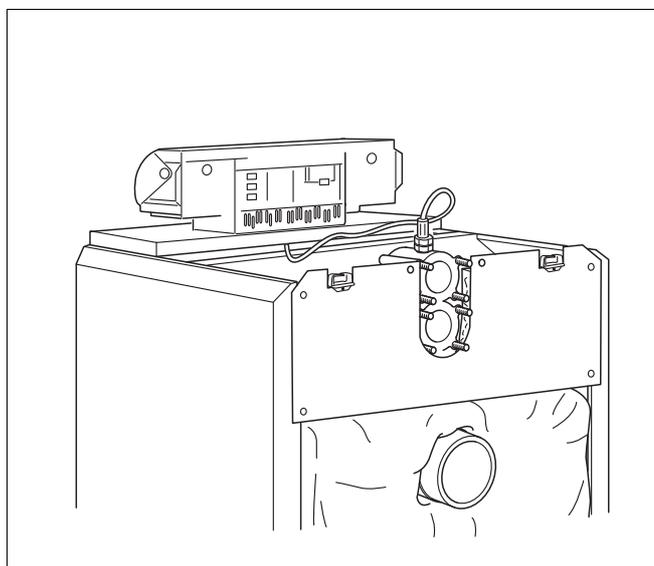


Fig. 48 Boiler with control unit installed

3 System start-up

You can connect series 4000 control devices to GE315 boilers. These control devices are commissioned through identical steps.



BOILER DAMAGE

through heavy dust deposits.

- CAUTION!**
- Do not operate the boiler where heavy dust contamination persists, e.g. through building work inside the boiler room.

- Complete the commissioning report (see chapter 3.5 "Commissioning report", page 37).

3.1 Filling the heating system and checking for leaks



SYSTEM DAMAGE

through temperature stresses.

- CAUTION!**
- Fill the heating system only via the filling connection in the pipework (return) of the heating system. (In the UK fill the system in accordance with the WRAS approved methods).

Observe the following table regarding the appropriate use and preparation of the fill and make-up water.

This table is an extract from the Code of Practice K8 "Water treatment for hot water heating systems" in the Buderus sales catalogue.

The pH value of the heating water increases after the system has been filled. Check after the first three to six months (during the first maintenance), whether the pH value of the heating water has settled down.

| Total boiler output in kW | Ca (HCO ₃) ₂ concentration of the fill and make-up water in mol/m ³ | Maximum fill and make-up water volume V _{max} in m ³ | Heating water pH value |
|---------------------------|---|---|------------------------|
| 100 < Q ≤ 350 | ≤ 2,0 | V _{max} = three times the system volume | 8.2–9.5 |
| 350 < Q ≤ 1000 | ≤ 1.5 | | |
| 100 < Q ≤ 350 | > 2.0 | $V_{max} = 0,0313 \cdot \frac{Q(kW)}{Ca(HCO_3)_2 \left(\frac{mol}{m^3} \right)}$ | 8.2–9.5 |
| 350 < Q ≤ 1000 | > 1.5 | | |

Tab. 2 Requirements of filling, make-up and heating water

Before commissioning the heating system, check for leaks to prevent problems during operation. Pressurise the heating system to 1.3x bar permissible operating pressure (observe the safety pressure of the safety valve).

On sealed systems the pressure gauge needle (Fig. 49, [2]) must be within the green range (Fig. 49, [3]). Set the red needle (Fig. 49, [1]) on the pressure gauge to the required system pressure.

- Check the system water pressure



CAUTION!

SYSTEM DAMAGE

through over pressure during leak testing. Pressure, control and safety equipment may be damaged through excessive pressure.

- When you carry out a leak test, make sure that no pressure, control or safety equipment is fitted which cannot be isolated from the boiler water chamber.

- Shut off the pressure expansion vessel from the system by closing the cap valve.
- Check the connections and pipework for leaks.
- Open the mixing and shut-off valves on the hot water (primary) side.
- Fill the system via an approved filling link.

Filling the heating system

Filling and refilling of the heating circuit must be carried out by a method that has been approved by the Water Regulation Advisory Scheme (WRAS), for the type of heating appliances, i.e. Domestic (in-house) Fluid Category 3. Non-Domestic (other than in-house) Fluid Category 4. Depending on the Fluid Category the approved method should comprise of the following:

1. Requirements Fluid Category 3 systems (fig see right)
 - Control valve (stop valve) including a double check valve on the mains cold water supply pipe
 - Temporary connection to be removed after filling (filling loop)
 - Control valve (stop valve) on the heating system pipework

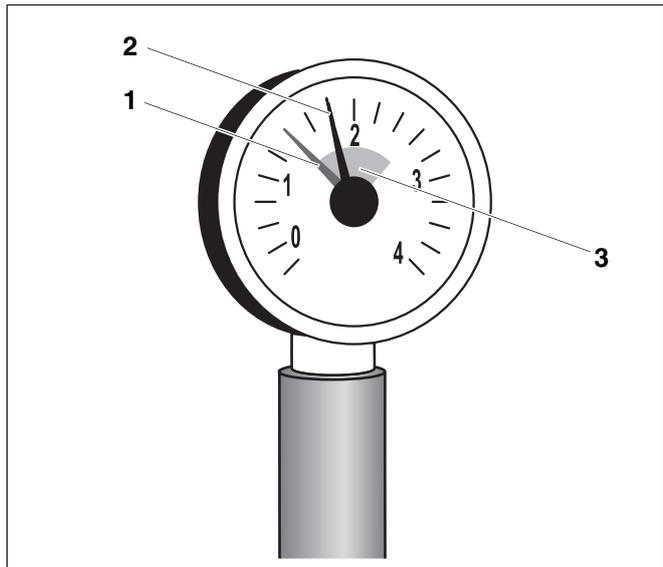


Fig. 49 Pressure gauge for **sealed systems**

- 1 Red needle
- 2 Pressure gauge needle
- 3 Green marking

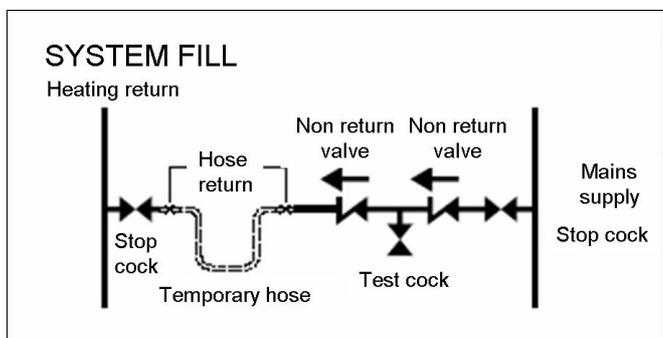


Fig. 50 Requirements Fluid Category 3 systems

2. Requirements Fluid Category 4 systems (fig see right)

- Control valve (stop valve) on the mains cold water supply pipe
- Strainer
- Verifiable Backflow Prevention Device with reduced pressure Zone (RPZ valve assembly) incorporating a Type BA air gap
- Tundish
- Control valve (stop valve) on the heating system pipework

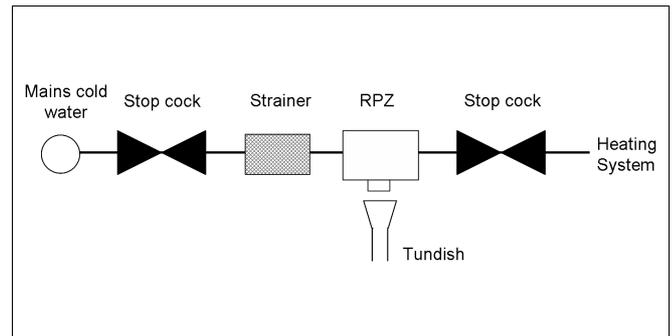


Fig. 51 Requirements Fluid Category 4 systems

- Open the cap of the automatic air vent by one full turn to allow air to escape.
- Slowly fill the heating system. Observe the pressure gauge whilst filling.
- Close the water tap and the boiler drain valve once the required operating pressure has been reached.
- Bleed the system via the radiator bleed valves.
- Top up with water if the pressure drops as a result of bleeding the system.
- Take the hose off the boiler drain valve.



SYSTEM DAMAGE

through frequent topping up.

- CAUTION!**
- The heating system may be damaged, depending on water quality, by corrosion or scaling if you frequently need to top-up the heating water.

- Enquire from your installer, whether you can use your public water untreated or whether you need to treat it before filling your system.
- Notify your installer, if you need to regularly add top-up water to your system.

3.2 Making the system operational

Observe the following during commissioning:

- Prior to commissioning vent the heating system via radiators and air vents.
- Check, whether the hot gas baffle plates have been correctly inserted.

3.3 Commissioning the control device

Please check in the documentation of the series 4000 control device, which you are using, how to commission the control device.

3.4 Start up the burner

- Proceed with the commissioning of the burner in accordance with the installation and maintenance instructions included with the burner.
- Complete the commissioning report included in the burner documentation.

You may raise the flue gas temperature, if you discover during measurements for the commissioning report, that the flue gas temperature is too low for the type of chimney used (danger of condensation).

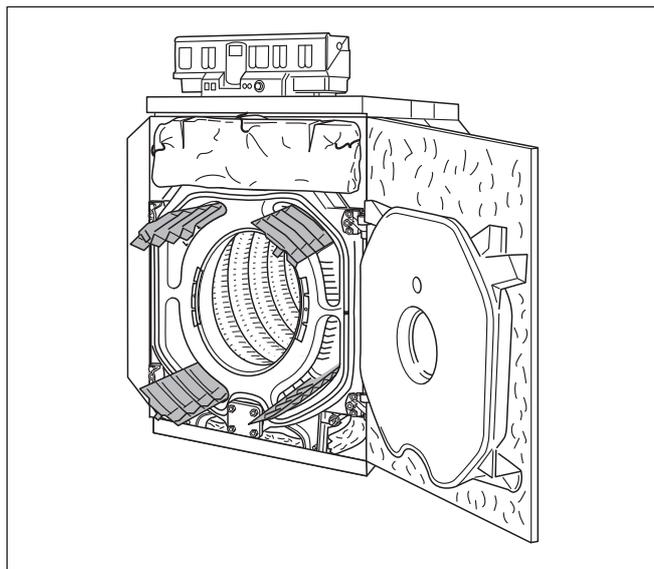


Fig. 52 Check the location of the hot gas baffle plates

3.5 Commissioning report

GE315 boilers can be operated with an oil or a gas burner. During commissioning, carefully complete the commissioning report for either the oil or gas burner.

- Sign all commissioning work as completed and enter the relevant date.

| Commissioning work | Page (individual steps) | Comments (signature) |
|--|--------------------------|----------------------|
| 1. Fill the heating system with water | Page 33 | |
| 2. Vent the heating system via radiators and air vents | | |
| 3. Leak test carried out? (only for boilers supplied in sections) | Page 19 | |
| 4. Check the location of the hot gas baffle plates | Page 36 | |
| 5. Commission the control device | Page 36 | |
| 6. Start up the burner | See burner documentation | |
| 7. Check the flue gas temperature | Page 36 | |
| 8. Inform the system user and hand over all relevant technical documentation | | |
| 9. Confirm professional commissioning | | |
| company stamp/signature/date | | |



USER NOTE

- Enter the fuel to be used into the table (see operating instructions "Preamble", page 2).

3.6 Operating conditions for Buderus G and GE cast iron boilers

Thermostream technology is a unique feature of Buderus cast iron boilers. Return water is preheated and mixed within the boiler before it comes in contact with the heated surface of the combustion chamber. The Thermostream technology ensures there is an even temperature distribution in the boiler and avoids condensate forming within the combustion chamber. This reduces thermal stress, the main cause of failure of normal cast iron boilers. The benefit of this technology is that if the minimum boiler operating temperature of the boiler is maintained (see table below), there is no need for a conventional shunt pump to be installed, saving the cost of a pump, the electricity it consumes and the breakdown it can cause. The minimum boiler operating temperature as shown in the table below must be reached within 10 minutes and then be maintained while the burner is running.

3.7 Operating conditions GE 315

| Logano | | Operating conditions (Guarantee conditions!) | | | | |
|--------|--|--|--|---|----------------------------|---|
| | | Min. boiler water volume flow | Min. boiler water temperature | Operating Interruption (complete boiler shut-down) | Minimum return temperature | Others |
| GE315 | In conjunction with a Logamatic control device ²⁾ | Not obligatory | Not obligatory Operating temperatures are safeguarded by the Logamatic control device | Not obligatory | Not obligatory | For operation with two-stage oil and gas pressure jet burners: Set the partial load stage to 60% |
| GE315 | In conjunction with a Logamatic control device for constant boiler water temperatures, e.g. Logamatic 4212 | Not obligatory | 55 °C ²⁾ | Possible if, after Interruption of the operation, there follows at least 3 hrs. heating operation | Not obligatory | For operation with two-stage oil and gas pressure jet burners: Set the partial load stage to 60% |

Tab. 3

21/2 Operating conditions for Logano GE315

- 1) A heating circuit control with mixer improves the control characteristics, and is recommended, in particular, in systems with several heating circuit.
- 2) If heating circuits or a boiler circuit actuator cannot be regulated via the control device (for example pump logic), an operating temperature of 50 °C must be reached within 10 min of switching the burner ON by restricting the volume flow.
- 3) Modulation for gas combustion < 60% partial load, min. boiler water temperature 65 °C.

This operating condition can be easily achieved by the controls monitoring the boiler temperature and reducing the flow rate through the boiler until the required temperature is reached. This is then maintained by continuing to control flow based on the boiler temperature. The controls can reduce the flow rate by closing the valves on the mixed heating circuits or by modulating the boiler primary pumps or by closing the motorised butterfly valves or by having a motorised valve in the boiler return on a single boiler installation. The Buderus 4000 series controls can manage this process or it can be done by the BMS.

If it is not possible for the controls to regulate the flow sufficiently to meet this operating condition then a shunt pump circuit must be fitted to avoid the type of thermal stress that all boilers would experience in these conditions. This shunt pump circuit can be controlled either with a Buderus 4000 control or with a Buderus 4212 fitted with a ZM427 module. Failure to ensure that the operating condition is maintained may lead to thermal stress in the boiler and eventual failure of the sections which would be outside the scope of the warranty.

4 System shutdown

You can connect control devices series 4000 to Logano GE515 boilers. These control devices are shut down through identical steps.



SYSTEM DAMAGE

through frost.

CAUTION!

The heating system can freeze up if it is not in use, e.g. through a shut-down because of fault(s).

- Protect your heating system against frost damage, where temperatures below zero are expected. Drain the heating water at the drain cock at the lowest point in the system. To do this, open the air vent valve at the highest point in the system.

4.1 Shutting down the system via the control device

Shut down your boiler via the control device. The burner is automatically shut down when the system is shut down via the control device.

- Isolate the main fuel valve.

4.2 Shutting down the system in an emergency



USER NOTE

- Only in an emergency, switch off the system via the boiler room fuse or heating system emergency stop switch.

In other dangerous circumstances, isolate the main fuel shut-off valve and the electrical power supply of the system via the boiler room main fuse or the emergency stop switch for the boiler room.

- Isolate the main fuel valve.

5 System inspection and maintenance

5.1 General notes

Please ensure your boiler and burner is checked and maintained annually by a heating engineer. We recommend that you take a service contract to ensure this is done regularly. Failure to maintain the boiler will lead to higher fuel cost, possible breakdown reduces Service life.



DANGER TO LIFE

through the explosion of volatile gases.

WARNING!

- Work on gas components must only be carried out by qualified and authorised personnel.



USER NOTE

You may order spare parts from the Buderus spare parts catalogue.

6 Maintenance

6.1 General notes

Important for energy saving!

- Please ensure your boiler and burner is checked and maintained annually by a heating engineer. We recommend that you take a Service contract to ensure this is done regularly. Failure to maintain the boiler will lead to higher fuel cost, possible breakdown reduced service life.
- You can obtain special cleaning brushes from your local Buderus dealer.

6.2 Cleaning with cleaning brushes

- Disconnect your heating system from the mains electricity supply.



NOTE!

e.g. activate the emergency stop switch for your heating system outside your boiler room and secure against unintentional switching on.

- Switch the On/Off switch (Fig. 49, [1]) on the control unit to "0" (OFF).
- Isolate the main fuel valve.



ATTENTION!

Work on fuel lines **MUST** only be performed by **registered engineers** [In the UK engineers must be **CORGI** or **OFTEC** registered] .

- Slightly raise the front wall and remove forward (Fig. 50).
- Loosen the four screws securing the burner door on the front sections (see Chapter "2.6.3 Burner door installation", page 20).
- Open the burner door.

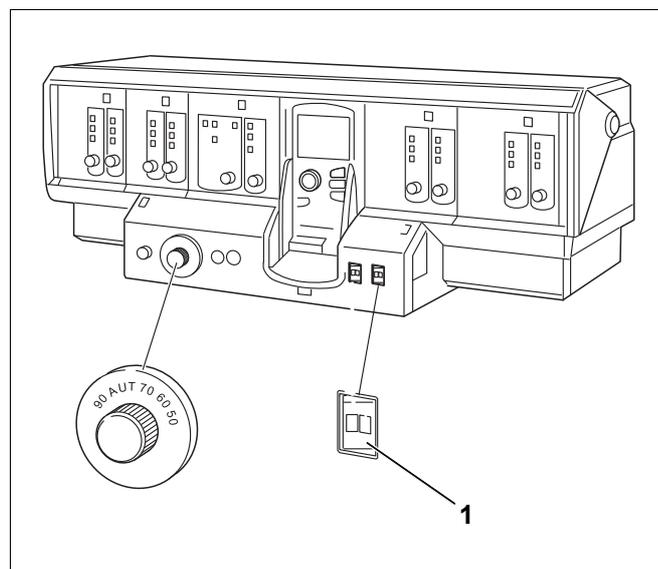


Fig. 53 Example: Logamatic 4000 Series control unit

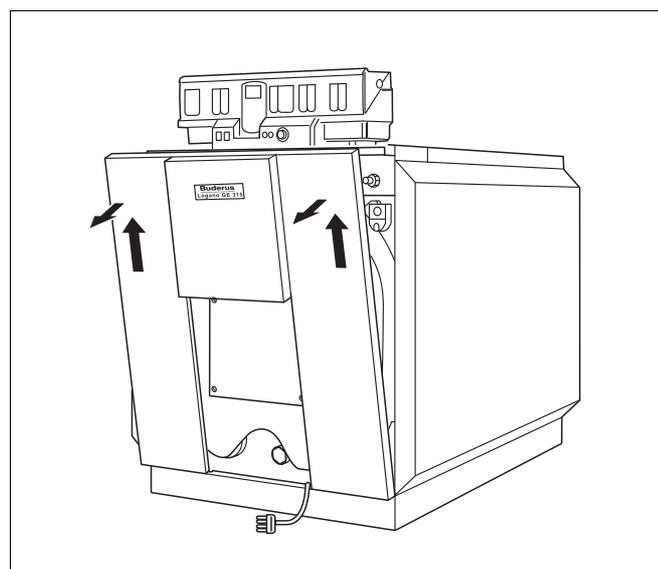


Fig. 54 Remove the front wall

- Remove the hot gas baffle by pulling it forward out of the hot gas flues (Fig. 51, [1] – [4]).

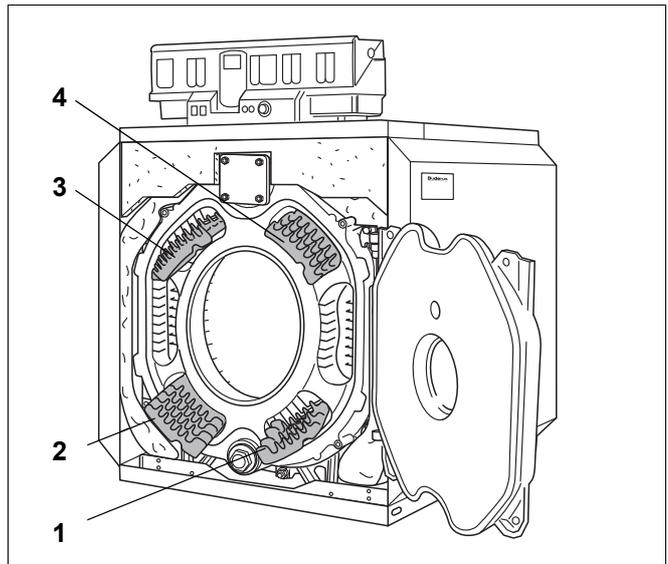


Fig. 55 Remove the hot gas baffles

- Loosen the four self-tapping screws on the lower boiler back.
- Remove the boiler back.
- Loosen the hook springs below the flue gas coupling (see Fig. 33, page 24).
- Pivot both ends of the thermal insulation upwards (Fig. 52, [1]) and fix with the hook spring.
- Remove the cleaning cover on the rear section (Fig. 52, [2]) and the flue gas collector (Fig. 52, [3]).

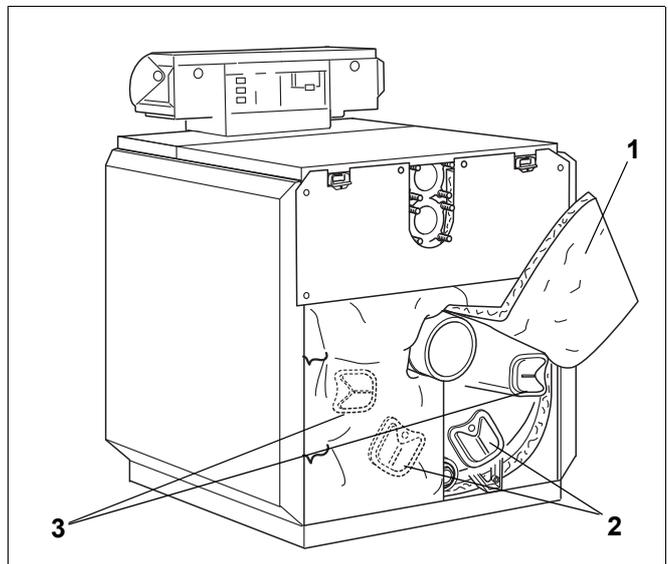


Fig. 56 Cleaning cover removal

- Use the cleaning brushes.

You will find an illustration of the various types of brushes offered by **Buderus** (optional accessory) in Fig. 53.

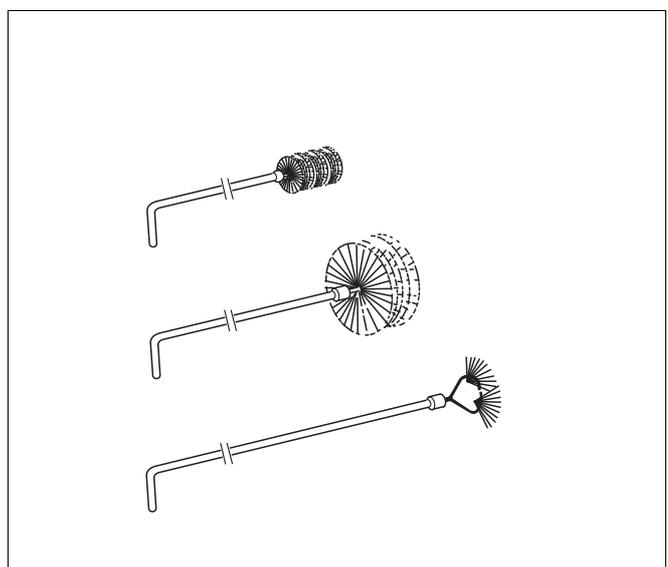


Fig. 57 Cleaning brushes

- Clean the hot gas flues (Fig. 54, [1] & [3]) with cleaning brushes 1 and 2 (Fig. 53) from the front to the back.
- Clean the combustion chamber with cleaning brush 3.
- Clean the remaining combustion chamber (Fig. 54, [2]) with cleaning brush 2.
- Clean the lower hot gas flues from the front with cleaning brush 2 (Fig. 54, [1]).
- Remove all loose combustion residues from the combustion chamber, the hot gas flues and the flue gas collector.
- Check all sealing cord in cleaning openings and on the burner door. Replace all damaged or hardened seals.

**NOTE!**

Your Buderus dealer will supply you with suitable sealing cord.

- Clean the hot gas baffle plates with the cleaning brushes.
- Insert the hot gas baffles into the hot gas flues (see Chapter "2.6.4 Insert the hot gas baffle plates", page 20).
- Close the cleaning cover and the burner door. Tighten all screws equally.
- Pivot the thermal insulation on the rear section and draw together below the flue gas coupling using a spring hook (Fig. 55, [1]).
- Hook the lower boiler wall sections on the left and the right into the slots of the edge of the upper rear boiler wall and the side wall and secure the connecting plate below the flue gas coupling on the lower boiler back wall section.

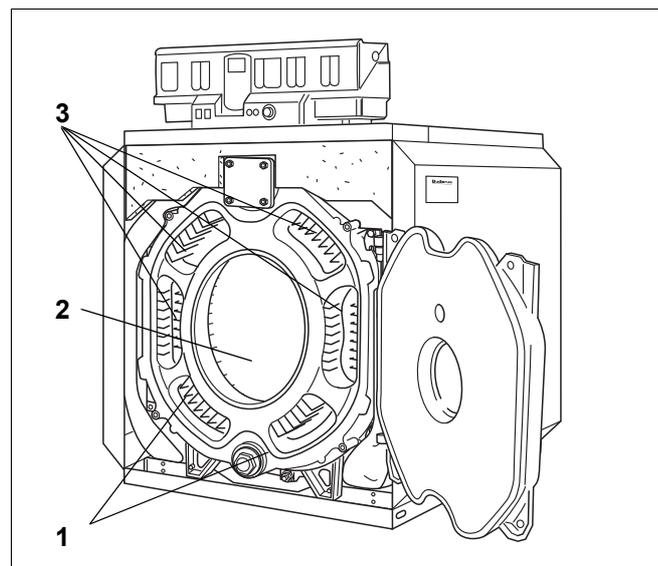


Fig. 58 Cleaning the hot gas flues

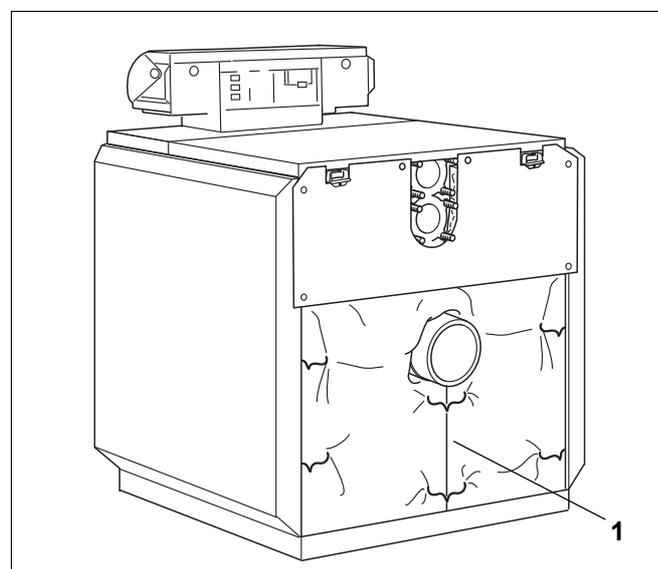


Fig. 59 Draw the thermal insulation on the rear section together

6.3 Wet-cleaning the boiler

When wet-cleaning, use a cleaning agent appropriate for the level of contamination. Proceed with the wet cleaning in the same order as for cleaning with brushes.

You must observe the operating instructions of the cleaning equipment and the cleaning solution used!



USER NOTE!

- For wet-cleaning (chemical cleaning), observe the operating instructions of the relevant cleaning equipment and the cleaning agent.
It may be necessary to vary the wet-cleaning process from that described here.

-
- Select a cleaning agent in accordance with the level of contamination (soot level or encrustation).
 - Cover the control device with foil; spray must not enter into the control device.
 - Spray cleaning agent evenly from the top into the hot gas flues.
 - Heat up the boiler water temperature to at least 70 °C.
 - Brush out the hot gas flues.

6.4 Checking the water level

- For systems with a header tank, set the red marker on the pressure gauge to the required system pressure. On sealed systems the pressure gauge marker must be within the green range.
- Check the system water level; where required replenish with water and vent the entire system. If water is lost during operation, replenish it slowly and vent the entire system. If the system frequently requires topping up, investigate the cause and rectify immediately.

6.5 Filling and operational water

Note especially the local water conditions necessary, carry out water treatment.



NOTE!

For details on water treatment see the instruction sheet K8 "Water treatment for heating systems".

6.6 Checking the system water pressure

Systems are generally differentiated as open or sealed systems. Open systems are now only rarely installed. Therefore, a sealed system is used as an example of how you can check the water pressure.

Open systems

On open systems the pressure gauge needle (Fig. 60, [1]) must be within the red range (Fig. 60, [3]). In open systems kettling noise may occur within the boiler. This does not damage the boiler but should be considered before installing an open system where noise can be nuisance.

Sealed systems

On sealed systems the pressure gauge needle (Fig. 61, [2]) must be within the green range (Fig. 61, [3]). Set the red needle (Fig. 61, [1]) on the pressure gauge to the required system pressure.



USER NOTE

- Create the operating pressure required for the system.

- Set the pressure gauge needle accordingly.
- Check the system water pressure.



SYSTEM DAMAGE

through frequent re-filling.

CAUTION!

The system may be damaged, depending on water quality, by corrosion or scaling, if you frequently need to re-fill your system with make-up water.

- Ensure that your heating system is adequately vented.
- Check the heating system for leaks and the function of the expansion vessel.

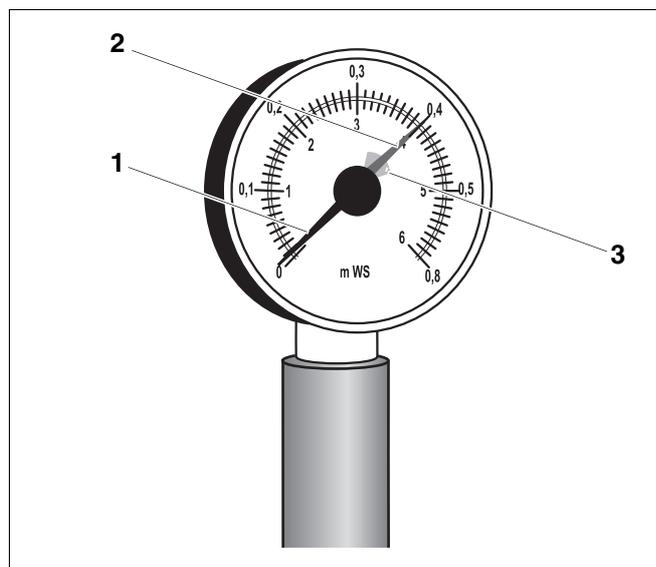


Fig. 60 Pressure gauge for open systems

- 1 Pressure gauge needle
- 2 Green needle
- 3 Red range

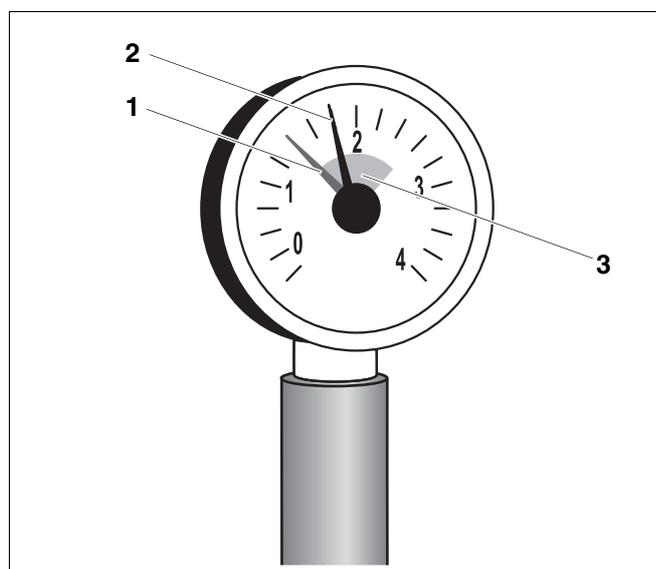


Fig. 61 Pressure gauge for sealed systems

- 1 Red needle
- 2 Pressure gauge needle
- 3 Green range

The water pressure in the system is too low, if the pressure gauge needle falls below (Fig. 61, [2]) the green range (Fig. 61, [3]). You then need to re-fill the heating system with make-up water (see chapter 3 "System start-up", page 33).

**SYSTEM DAMAGE**

through temperature stresses.

CAUTION!

- The boiler must only be filled via a filling tap installed in the return pipe. (In the UK the boiler must be filled used a W.R.A.S. approved method).

- Top up with water as required.
- Vent the heating system.
- Check the water pressure once more.

6.7 Inspection and maintenance reports

The inspection and maintenance reports provide an overview of the required inspection and maintenance work.

Complete the reports during inspection and maintenance.

- Sign all inspection work as completed and enter the relevant date.

| Inspection work | Page (individual steps) | Comments |
|--|----------------------------------|----------|
| 1. Check the general system condition | | |
| 2. Check the system visually and for function | | |
| 3. Check the fuel and water components of the system for: <ul style="list-style-type: none"> – leaks – visible signs of corrosion – signs of ageing | | |
| 4. Check the combustion chamber and the heating surface for contamination; shut-down the system for this step | page 39 | |
| 5. Check the burner function | See burner documentation | |
| 6. Check the flue gas routing for function and safety | See burner documentation | |
| 7. Check the water pressure and inlet pressure of the diaphragm expansion vessel in sealed systems | page 45 | |
| 8. Check the water pressure and the inlet pressure in open systems | page 45 | |
| 9. Check the function of the DHW cylinder and that of the corrosion protection anode | See DHW cylinder documentation | |
| 10. Check the control device settings | See control device documentation | |
| 11. Final check of the inspection work; document the measurement and test results | | |
| Confirm the professional inspection with signature, date and company stamp | | |
| | | |
| | | |
| | | |

| Demand-dependent maintenance work | Page (individual steps) | Comments |
|---|--------------------------|----------|
| 1. System shutdown | page 39 | |
| 2. Remove and clean the hot gas baffle plates | page 42 | |
| 3. Clean the hot gas flues (heating surfaces) | page 43 | |
| 4. Clean the combustion chamber | page 43 | |
| 5. Clean the flue gas collector | page 43 | |
| 6. Install the hot gas baffle plates | page 22 | |
| 7. Check and, if required, replace gaskets/packing cord on burner and burner door | See burner documentation | |
| 8. System start-up | page 33 | |
| 9. Final check of the maintenance work; document the measurement and test results | See burner documentation | |
| 10. Check the function and safety in operation | See burner documentation | |
| | | |
| | | |
| | | |

7 Correcting burner faults

Heating system faults are indicated in the control device display. You will find detailed information regarding fault displays in the service instructions of each respective control device. In addition any burner fault is indicated by a fault lamp on the burner.



CAUTION!

SYSTEM DAMAGE

through frequent activation of the reset button.

The burner ignition transformer may be damaged if you press the reset button more than three times in succession after the burner refuses to start.

- Do not attempt to clear a fault more than three times in succession by using the reset button.

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

See the technical burner documentation for information regarding the resetting of the burner, if the burner will not start after three attempts.

Appendix

Dimensions and Specification

Logano GE 315 Cast iron sectional oil or gas boilers

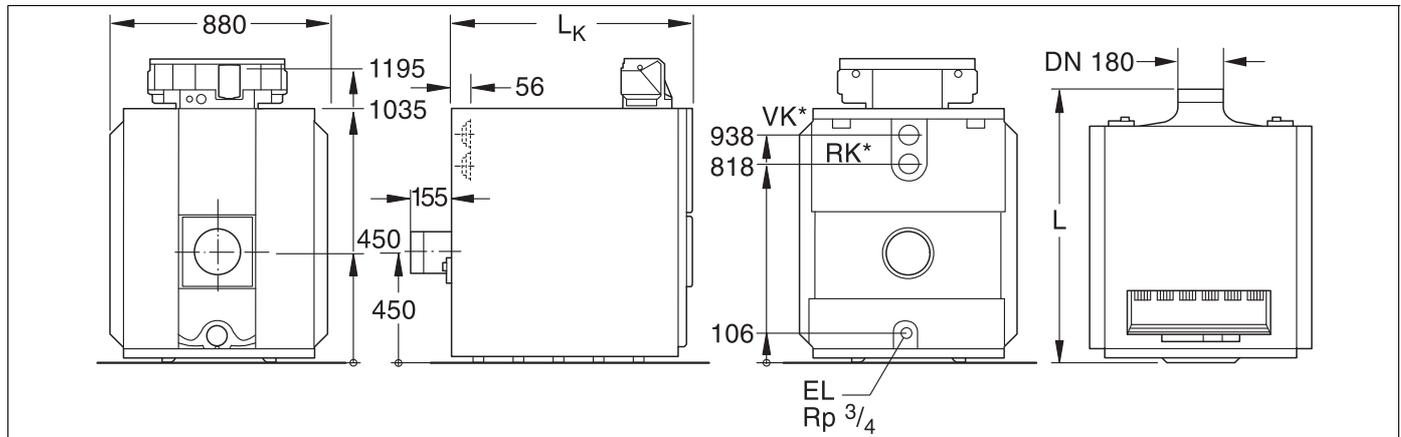


Fig. 1 VK = boiler flow, RK = boiler return, EL = drain

| Boiler size | | | 105 | 140 | 170 | 200 | 230 |
|--|-------------------------|----------|--|---------------|---------------|---------------|---------------|
| Boiler segments | Number | | 5 | 6 | 7 | 8 | 9 |
| Nominal heat output ⁵⁾ | from [kW] to [kW] | | 86 – 105 | 106 – 140 | 141 – 170 | 171 – 200 | 201 – 230 |
| Rated heat input | from [kW] to [kW] | | 92,1 – 113,5 | 113,5 – 151,4 | 151,0 – 183,4 | 183,1 – 215,1 | 215,2 – 247,9 |
| Length of boiler block | L _K | [mm] | 970 | 1130 | 1290 | 1450 | 1610 |
| Boiler segment transport dimensions | | [mm] | Width 712 / Height 934 / Depth 160 | | | | |
| Boiler block | | [mm] | Width 712 / Height 994 / Length L _K | | | | |
| Length of combustion chamber | L _F | [mm] | 790 | 950 | 1110 | 1270 | 1430 |
| Diameter of combustion chamber | Ø | [mm] | 400 | | | | |
| Depth of burner door | T | [mm] | 125 | | | | |
| Net weight ¹⁾ | | [kg] | 543 | 631 | 719 | 807 | 895 |
| Water content | approx. | [l] | 143 | 171 | 199 | 227 | 255 |
| Gas content | | [l] | 147 | 181 | 215 | 249 | 263 |
| Flue gas temperature ²⁾ | Part load 60 % | [°C] | 137 | 138 | 136 | 132 | 141 |
| | Full load | [°C] | 162 – 185 | 154 – 182 | 162 – 180 | 158 – 176 | 168 – 190 |
| Flue gas mass flow rate – oil | Part load 60 % | [kg/sec] | 0,0283 | 0,0377 | 0,0458 | 0,0539 | 0,0620 |
| | Full load ³⁾ | [kg/sec] | 0,0391-0,0482 | 0,0482-0,0643 | 0,0641-0,0779 | 0,0777-0,0913 | 0,0913-0,1052 |
| CO ₂ content – oil | | | 13,0 | | | | |
| Flue gas mass flow rate – gas | Part load 60 % | [kg/sec] | 0,0284 | 0,0379 | 0,0460 | 0,0541 | 0,0622 |
| | Full load ³⁾ | [kg/sec] | 0,0392-0,0484 | 0,0484-0,0645 | 0,0643-0,0781 | 0,0780-0,0916 | 0,0917-0,1056 |
| CO ₂ content – gas | | | 10 | | | | |
| Chimney draught required | | [Pa] | 0 | | | | |
| Flue gas resistance | | [mbar] | 0,28 – 0,41 | 0,46 – 0,79 | 0,71 – 1,30 | 1,34 – 1,78 | 1,32 – 1,77 |
| Maximum flow temperature ⁴⁾ | | [°C] | 120 | | | | |
| Max. working pressure | | | 6 | | | | |
| Boiler type approval number | | | 06-226-683 | | | | |
| CE Certification, product ID No. | | | CE - 461 AS 255 | | | | |

1) Weight incl. packaging approx. 6 – 8 % higher.

2) Acc. to DIN EN 303. Min. flue gas temperature for calculating flue dimensions acc. to DIN 4705 is approx. 12 K lower.

3) Full load details relate to the upper and lower rated output range.

4) High limit safety cut-out (safety temperature limiter).

Max. supply temperature = safety limit (STB) – 18 K. Example: Safety limit (STB) = 100°C, max. (possible) supply temperature = 100 – 18 = 82°C.

5) Note for Switzerland: In reality the stated max. values will – regarding compliance with the LRV – not be reached.

Ratings and system handover

Type _____

User _____

Manufacturer's no. _____

Location _____

System builder _____

The above system has been installed in accordance with the state of the art and all building and legal regulations and requirement and has been commissioned.

The technical documentation has been handed to the user. The user was advised of all safety requirements and was instructed in the use and maintenance of the above system.

Date, signature (system builder)

Date, signature (user)

----- please cut off here -----



For the system builder

Type _____

User _____

Manufacturer's no. _____

Location _____

The technical documentation has been handed to the user. The user was advised of all safety requirements and was instructed in the use and maintenance of the above system.

Date, signature (user)

Buderus
Cotswold Way, Warndon, Worcester WR4 9SW
Customer service: 0870 421 5933
Technical support: 0870 421 5944
Fax: 01905 753130
www.buderus-commercial.co.uk

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

Buderus