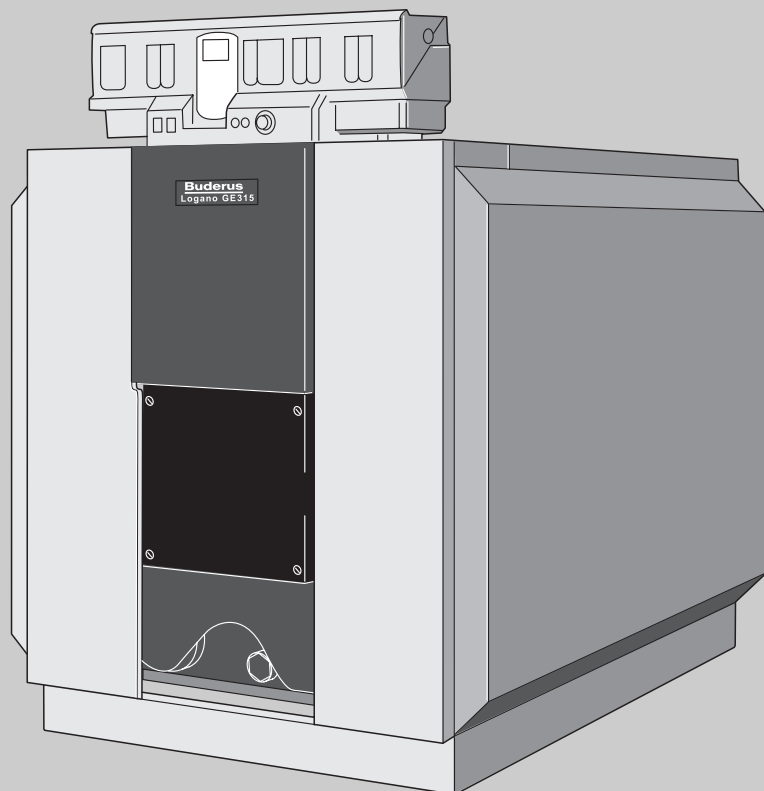


Installation and maintenance instructions

Cast Iron Sectional
Boiler for use with
Forced Draft Burners.



Logano GE315

For contractors

Read carefully before
carrying out installation and
maintenance.

1	Safety	4
1.1	Key to symbols	4
1.2	Correct use	4
1.3	EU Declaration of Conformity	4
2	Regulations/Guidelines	5
2.1	General information	5
2.2	Scope of use of boiler	5
3	Installation	6
3.1	Standard delivery	6
3.1.1	Delivery as a pre-assembled block	6
3.2	Operating conditions for Buderus G and GE cast iron boilers	7
3.3	Operating conditions GE 315	7
3.4	Tools and accessories for delivery in loose sections	8
3.4.1	Boiler compression tool size 2.2	8
3.4.2	Boiler compression tool size 2.3 (complete in the toolbox)	8
3.5	Siting	9
3.5.1	Foundation	9
3.5.2	Recommended wall clearances for installation and maintenance	10
3.6	Boiler block installation	11
3.6.1	Arrangement of sections in the boiler block (delivery in loose sections)	11
3.6.2	Joining the boiler block assembly (delivery as loose sections)	12
3.6.3	Aligning the boiler block assembly when the boiler is delivered ready-assembled	17
3.6.4	Sliding the feed pipe into place	18
3.6.5	Seal-in the sensor well	18
3.7	Leaks	19
3.7.1	Preparing for the leak test	19
3.7.2	Leak test according to TRD 702	20
3.8	Installing fittings and burner door with delivery in loose sections	21
3.8.1	Positioning the flue gas header	21
3.8.2	Clean-out cover on the rear section	21
3.8.3	Installing the burner door	22
3.8.4	Inserting the hot gas baffle plates	22
3.8.5	Burner installation	23
3.8.6	Attach flue pipe sealing collar (optional extra)	24
3.8.7	Fitting the flue gas temperature sensor (optional extra)	24
3.9	Boiler casing	25
3.9.1	Connection plates	25
3.9.2	Thermal insulation	26
3.9.3	Side panels and hoods	27
3.10	Control unit	30
3.10.1	Installing the control unit	30
3.11	Installation of the temperature sensor	31
4	Maintenance	33
4.1	General information	33

4.2	Cleaning with cleaning brushes	33
4.3	Wet cleaning	36
4.4	Checking the water level	36
4.5	Fill and service water	36
5	Appendix.	37
5.1	Dimensions and specifications.	37

1 Safety

1.1 Key to symbols

Warnings



Warnings in this document are framed and identified by a warning triangle printed against a grey background.



If there is a danger due to electricity, the exclamation mark in the warning triangle is replaced by a lightning symbol.

Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

- **NOTICE** indicates that material losses may occur.
- **CAUTION** indicates that minor to medium injury may occur.
- **WARNING** indicates possible severe personal injury.
- **DANGER** indicates a risk to life.

Important information



Important information where there is no risk to people or property is indicated by the adjacent symbol. It is bordered by lines above and below the text.

Additional symbols

Symbol	Explanation
▶	Action step
→	Cross-reference to other parts of this document or to other documents
•	List/list entry
–	List/list entry (second level)

Tab. 1

1.2 Correct use

Use this technical equipment only for its intended purpose and according to the Operating instructions. Maintenance and repairs must only be carried out by authorised personnel.

Only operate this equipment in those combinations and together with accessories and spare parts indicated in the Operating instructions. Any other combination, accessories and wearing parts may only be used if these are specifically designed for the intended application and impair neither the performance characteristics nor the stipulated safety requirements.

1.3 EU Declaration of Conformity

This product conforms in design and operation to the European Directives and the supplementary national requirements. Its conformity is confirmed by the CE designation.

You can call up the Declaration of Conformity for this product on the internet at www.buderus.de/konfo or request a copy from your local Buderus sales office.

2 Regulations/Guidelines

2.1 General information

The design and operating characteristics of Buderus oil-/gas-fired forced draft boilers Logano GE315 comply with the requirements of DIN EN 303, TRD 702 and the German additional standard DIN 4702 Part 1.

The following European guidelines have been complied with:

- 90/396/EEC – Gas consumption appliances
- 92/42/EEC – Efficiencies
- 73/23/EEC – Low voltage
- 89/336/EEC – EMC
- 97/23 EC – Pressure vessels

During installation and operation of the system, standard engineering practices and the provisions of the buildings regulations and any legislative requirements must be observed.

A list of the corresponding DIN standards or DIN EN standards, regulations and guidelines is included in the accompanying Buderus installation instructions for heating engineers.

Only qualified personnel must carry out the installation, the main fuel and flue gas connections, the commissioning, the electrical connection 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 this maintenance procedure, check the correct function of the entire system. Immediately rectify all discovered faults.

2.2 Scope of use of boiler

• Max. high limit temperature	120 °C
• Max. operating pressure	6 bar
The maximum time constants T for the following are:	
• Temperature controller	40 sec.
• Monitor/limiter	40 sec.

The information on the boiler rating plate is definitive and must be observed.

Fuels

Logano GE315:

- EL heating oil to DIN 51 603.
- Natural gas, liquid gas
- Biogas (special operating conditions)

For boiler and feed water requirements, see data sheet "Water treatment" and VDI 2035 "Guideline for water treatment".

To protect the entire system, we recommend installing a dirt filter and a desludging device in the return line.

Any oil or gas-fired burner with type approval to EN 267 or EN 676 may be used.

Please store documentation carefully; it is required for the annual service.

3 Installation

3.1 Standard delivery

The Logano GE315 can be delivered either as a pre-assembled block or in loose sections.

3.1.1 Delivery as a pre-assembled block

- 1 Pallet: boiler block
with burner door and feed pipe
- 1 carton: cladding
(according to boiler rating)
- 1 shrink-wrap package: thermal insulation

Delivery in loose sections

- 1 pallet: front and rear section,
3 middle sections and burner door
- 1 pallet: middle sections – depending on
boiler rating
- 1 carton: fittings and flue gas header
- 1 pack: anchor rods and feed pipe
- 1 carton: cladding
(according to boiler rating)
- 1 shrink-wrap package: thermal insulation

3.2 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.

3.3 Operating conditions GE 315

Logano cast iron boilers		Operating conditions (and terms of guarantee!)					
		Min. boiler water volume flowrate	Min. boiler water temperature	Breaks in operation (boiler completely shut down)	Heating circuit control by heating mixing valve ¹⁾	Minimum return temperature	Others
GE315	In combination with Logamatic control panel ²⁾	No requirements	No requirements Operating tem- peratures will be maintained by the Logamatic control panel	No requirements	Needed with underfloor hea- ting systems; beneficial with low-temperature heating systems, (e.g. system design temp. 55/45 °C)	No requirements	When fired with two-stage forced draught oil or gas bur- ner: part-load stage must be set to 60 %
GE315	In combination with control panel for con- stant boiler water tempera- ture e. g. Logamatic 4212	No requirements	55 °C ³⁾	Permissible if system is operated normally for at least 3 hours af- ter the break	Required	No requirements	When fired with two-stage forced draught oil or gas bur- ner: part-load stage must be set to 60 %

Tab. 2 Operating conditions for Logano GE315 Ecostream cast iron boilers

- 1) Heating circuit control by mixing valves will improve the control characteristics; particularly recommended for systems containing more than one heating circuit
- 2) Where the control panel is unable to act on heating circuits then, with the burner on, an operating flow temperature of 50 °C must be reached within 10 mins. and must be maintained as a minimum temperature (e.g. by reducing the flowrate).
- 3) With modulated gas-firing < 60 % part load, minimum 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.

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.

3.4 Tools and accessories for delivery in loose sections

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

- Boiler compression tool 2.2 (Fig. 1) or 2.3 (Fig. 2)
- Installation kit (accessory)
- Steel hammer and wooden or rubber mallet
- Half-round bastard file
- Screwdriver (Philips and flat head)
- Flat chisel
- Spanners, sizes 13 mm, 19 mm, 24 mm and 36 mm, and socket size 19 mm
- Support wedge, flat iron
- Cleaning rags and cloth
- Fine emery cloth
- Wire brush
- Lubricating oil
- Solvent (petrol or solution)
- Spirit level, ruler, chalk, straight edge
- Flange with air vent valve (for pressure test)

3.4.1 Boiler compression tool size 2.2

Sections	Compression tool(s) per boiler hub	Extension pieces per boiler hub	Length (overall) [mm]
5 – 7	1	0	1560
8 – 9	1 (1)	1 (0)	2160 (2160)

3.4.2 Boiler compression tool size 2.3 (complete in the toolbox)

Sections	Compression tool(s) per boiler hub	Extension pieces per boiler hub	Length (overall) [mm]
5 – 9	1	3	3080



For the correct arrangement of the flange when performing the compression procedure, refer to page 14

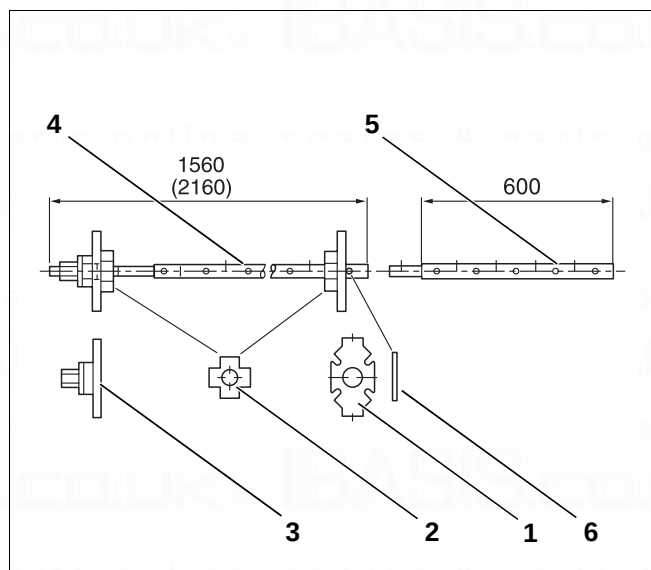


Fig. 1 Boiler compression tool size 2.2

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

- 1 Mating flange
- 2 Additional flange
- 3 Compression unit (pressure flange with clamping nut)
- 4 Pull rod
- 5 Extension
- 6 Dowel pin (size 2.2)
- 7 Wedge (size 2.3)

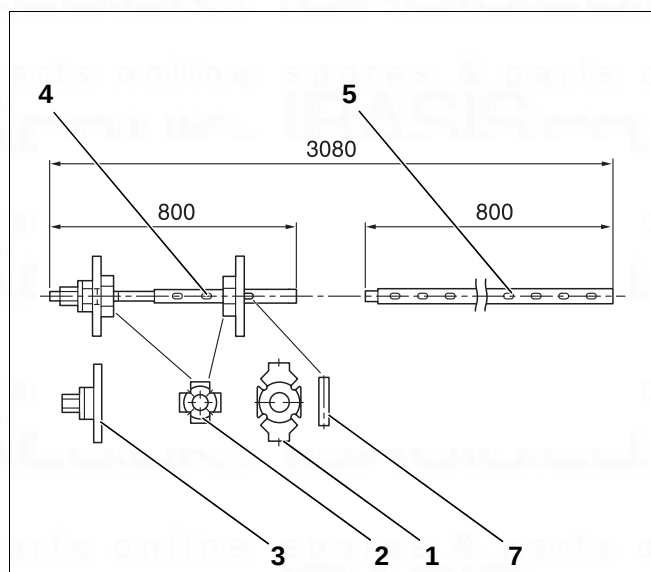


Fig. 2 Boiler compression tool size 2.2

3.5 Siting

3.5.1 Foundation

When setting up the boiler, we recommend you observe the specified wall clearances for improved installation and maintenance (Fig. 4).

It is advisable to place the boiler on a 5 – 10 cm high base (Fig. 3, [1]). The base should be completely flat and level. The front edge of the boiler should be flush with the edge of the base.



A silencing boiler plinth is available as optional equipment from Buderus.

If this optional boiler plinth is not used, a concrete foundation can be constructed on-site. When building the foundation, a 100 × 50 × 8 mm steel angle or 100 × 5 mm steel flat should be incorporated to ensure that the boiler sections can slide when the boiler is installed (→ Fig. 3 and the following table).

Number of sections	L ₁ (foundation) [mm]	L ₂ (steel section) [mm]
5	970	730
6	1130	890
7	1290	1050
8	1450	1210
9	1610	1370

Tab. 3 Foundation dimensions and lengths of steel flats or steel angles

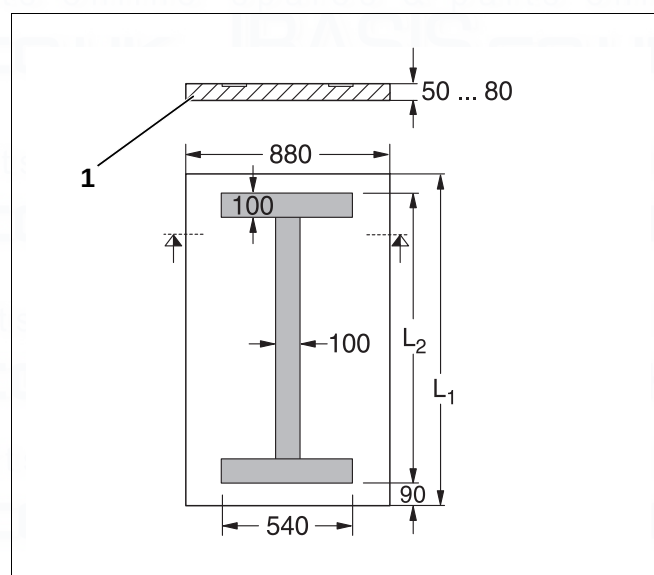


Fig. 3 Foundation dimensions

3.5.2 Recommended wall clearances for installation and maintenance

Observe the recommended wall clearances for swinging out the burner door, for boiler installation and for cleaning and maintenance (Fig. 4).

The burner door can be hung on the right or left.

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

The wall clearance on the hinge side must be at least the same as the amount by which the burner projects (AB). A distance of AB + 100 mm from the wall is recommended.

The length L_K depends on the number of boiler elements or boiler rating (→ "Dimensions and specifications" on page 37).

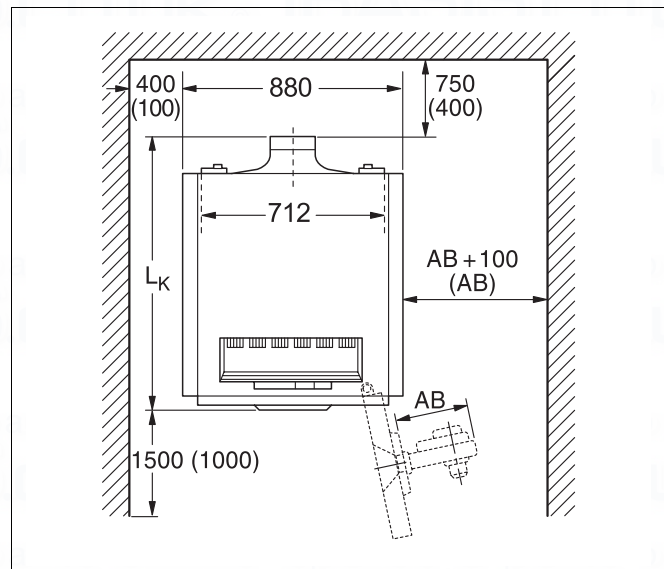


Fig. 4 Boiler room with boiler



If you do not observe the recommended clearances, you will not be able to use the cleaning set (available as an accessory) to clean the boiler. As an alternative, we recommend using shorter (approx. 1 m in length) mountable cleaning devices or wet cleaning.

3.6 Boiler block installation

Depending on the type of delivery, we distinguish between a **delivery in loose sections** and **delivery as a ready-assembled block**. When delivered as a ready-assembled block, the boiler is assembled and checked for leaks prior to despatch. If, because of physical limitations, a boiler block cannot be assembled as a complete unit, delivery as loose sections would enable the assembly on site.

For **installation of boiler supplied fully assembled**
→ Chapter "3.6.3 Aligning the boiler block assembly when the boiler is delivered ready-assembled", page 17.



CAUTION: Risk of injury due to inadequately secured boiler sections.

- ▶ Use only a suitable means of transportation when handling the boiler sections, e.g. a sack truck with strap or a stair or step trolley.
- ▶ Prevent the boiler sections from sliding off when transporting them.

3.6.1 Arrangement of sections in the boiler block (delivery in loose sections)

The boiler block is always installed starting from the rear with the rear section and working towards the front (Fig. 5, [4]). The front section (Fig. 5, [10]) is always fitted last.

Observe the installation direction arrows (Fig. 5, [9]) during assembly and carry this out in accordance with the following instructions and illustrations.



CAUTION: Risk of injury due to inadequately secured boiler sections.

- ▶ Secure the rear section against tipping. If a hoisting tool is available, this can be used to set up the boiler sections safely.

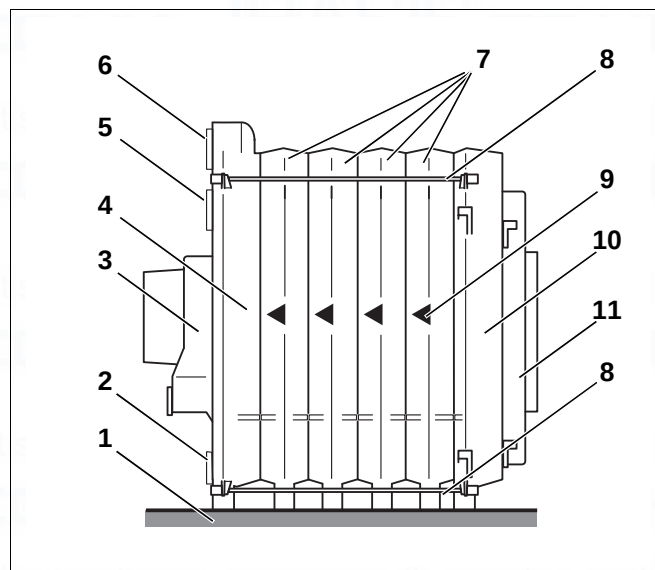


Fig. 5 Boiler block

- 1 Base/sound-absorbing boiler plinth
- 2 Drain
- 3 Flue gas collector
- 4 Rear section
- 5 Return connection
- 6 Flow connection
- 7 Centre sections
- 8 Anchor rod
- 9 Installation direction arrow
- 10 Front section
- 11 Burner door with burner plate

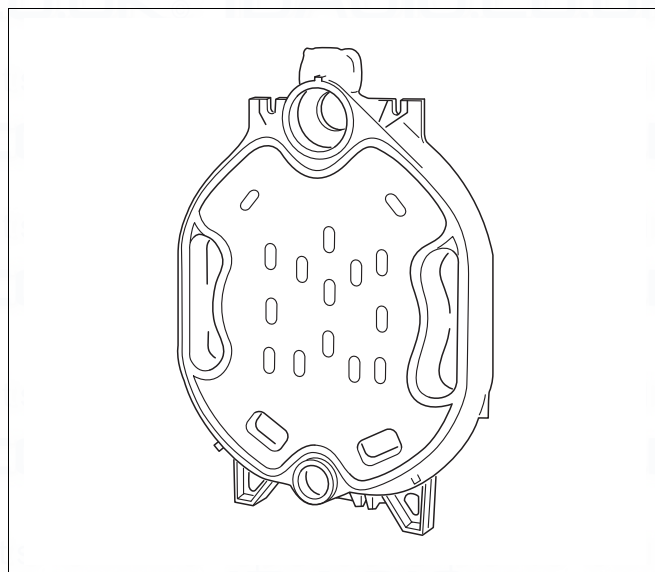


Fig. 6 Rear section

3.6.2 Joining the boiler block assembly (delivery as loose sections)

Remove nuts and washers from the studs on the hubs of the boiler sections before attaching the rear section and front section.

- ▶ Set up the rear section and secure it against tipping.
- ▶ File down any burrs on the hubs (Fig. 7).

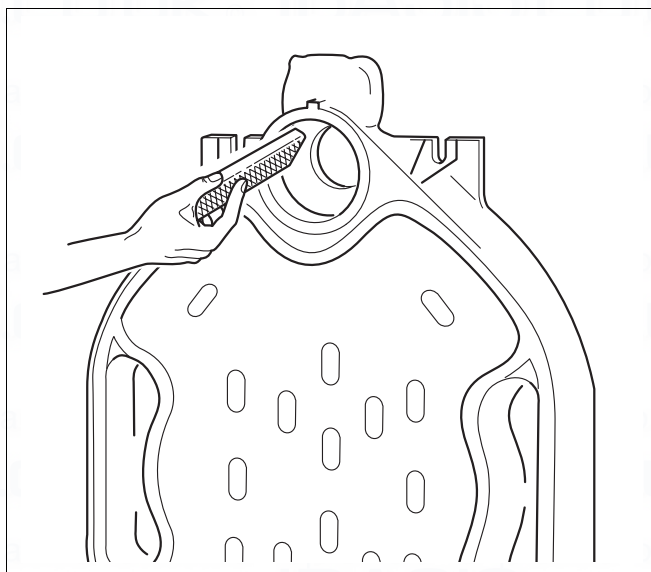


Fig. 7 Filing off flash

- ▶ Clean the packing grooves where required using a wire brush and cloth (Fig. 8, [3]).
- ▶ Clean the hub sealing faces (Fig. 8, [1] and [2]) with a rag soaked in white spirit.
- ▶ Evenly coat the hub sealing faces with sealant.

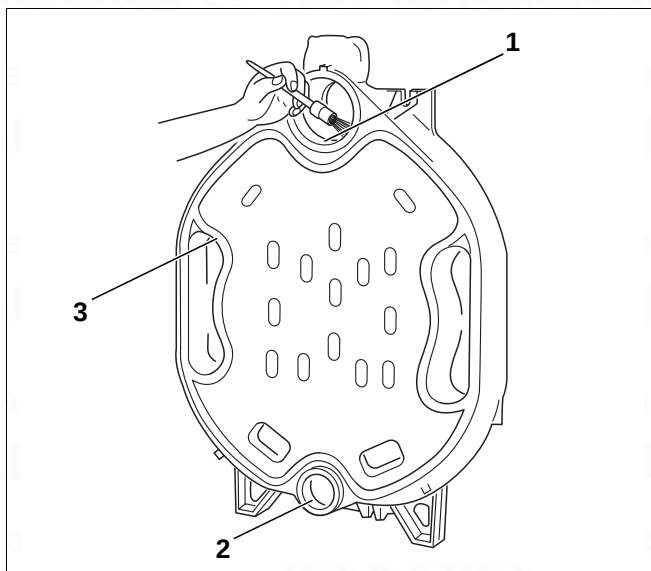


Fig. 8 Preparing packing grooves and hubs

The next step involves preparing the nipples that will eventually seal the boiler sections.

- ▶ Clean nipple with a rag soaked in white spirit and coat evenly with sealant.
- ▶ Insert 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. The upper nipple (Fig. 9, [1]) and the lower nipple (Fig. 9, [2]) should protrude approx. 28 mm out of the corresponding hub once they have been driven in.
- ▶ Remove any burrs with a file.

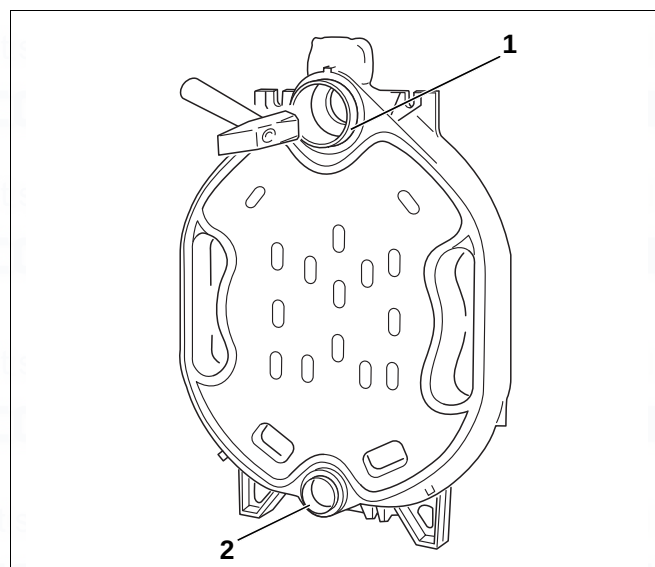


Fig. 9 Driving nipples home

The packing grooves (Fig. 10, [1]) must be clean and dry to enable the packing cord to adhere properly.

- ▶ Coat the packing grooves with adhesive (adhesive base)



CAUTION: Risk to health from vapours released and also skin contact during the processing of materials, such as adhesives, adhesive bases or sealants.

- ▶ Observe processing and safety instructions on the material packaging.
- ▶ Ensure good ventilation in the installation area.
- ▶ Wear work gloves to avoid contact with skin.
- ▶ The product and its container must be treated as hazardous waste for disposal purposes.

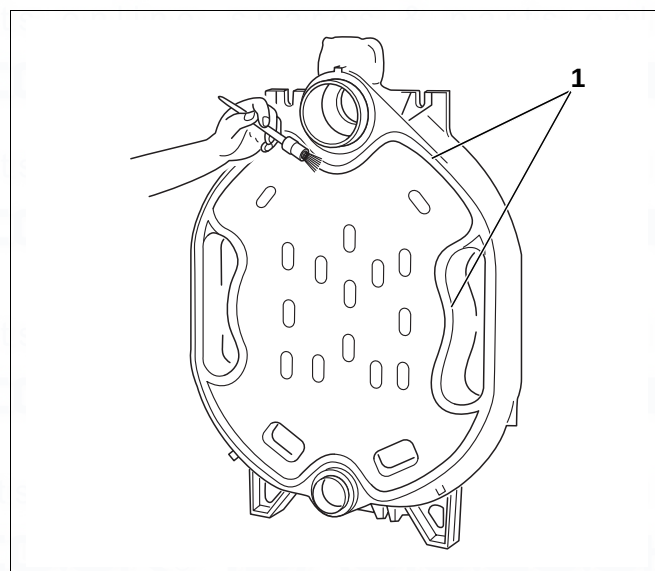


Fig. 10 Coating the packing grooves with adhesive

- ▶ Insert the flexible packing cord (KM cord: (Fig. 11, [2]) on the front of the rear section, starting around the upper hub, into the packing grooves (Fig. 11, [1]) and press in lightly. At the butt joints, overlap the packing cord by approx. 2 cm and press firmly together.

Unroll the required length of packing cord (KM cord) from the roll supplied. Peel the backing paper from the packing cord (without stretching it) as you insert the cord into the packing groove.

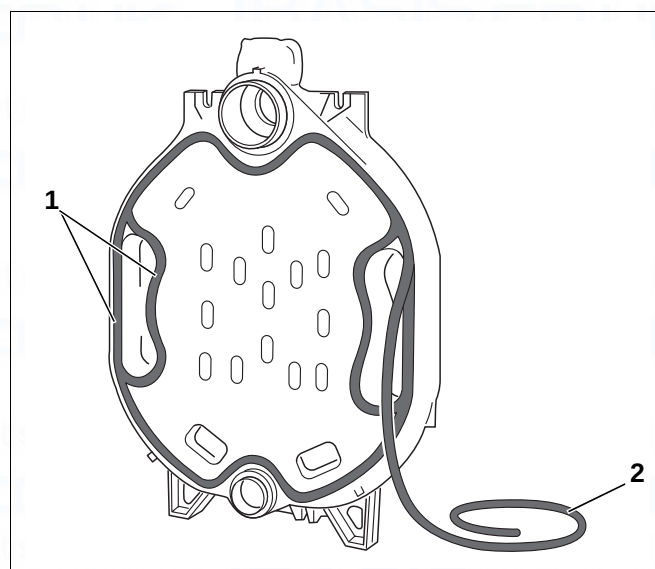


Fig. 11 Inserting packing cord (KM cord)

Preparation of the first centre section:

- ▶ File down any burrs on the hubs (as shown in Fig. 7).
- ▶ The packing springs must be clean and dry. Clean if necessary.
- ▶ Clean the hub sealing faces with a rag soaked in white spirit.
- ▶ Evenly coat the hub sealing faces with sealant (Fig. 12, [1]).
- ▶ Coat the packing springs with adhesive (adhesive base) (Fig. 12, [2]).

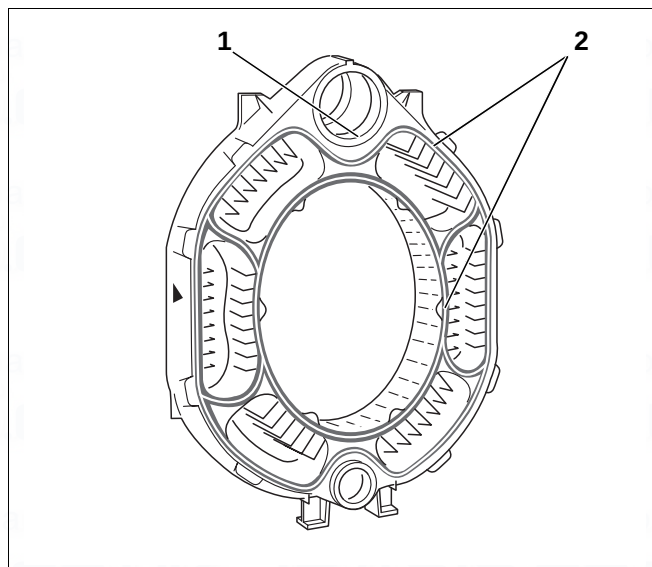


Fig. 12 Preparing the centre section

- ▶ Position the centre section so that the upper and lower hubs (Fig. 13, [1] and [3]) fit onto the nipples in the rear section. The installation direction arrow (Fig. 13, [2]) must point towards the back.

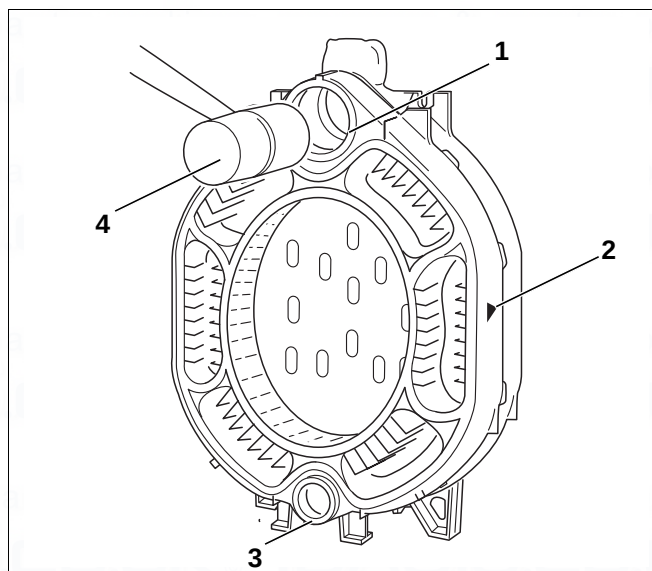


Fig. 13 Knocking the centre section into place



To make installation easier, place the boiler section to be fitted onto the nipple on the upper hub first. The boiler section can then be adjusted accordingly on the lower hub.

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

Next, the part-assembled boiler block must be pulled together using the boiler compression tool (Fig. 14).



Only boiler compression tools of size 2.2 or 2.3 may be used (Fig. 1 or Fig. 2 and Fig. 14, [1] and [2]).

- ▶ Push the compression units (Fig. 14, [3] and [4]) onto the pull rods (Fig. 1 or Fig. 2, [4]).
- ▶ Push a pull rod through the upper and lower hubs on the boiler.

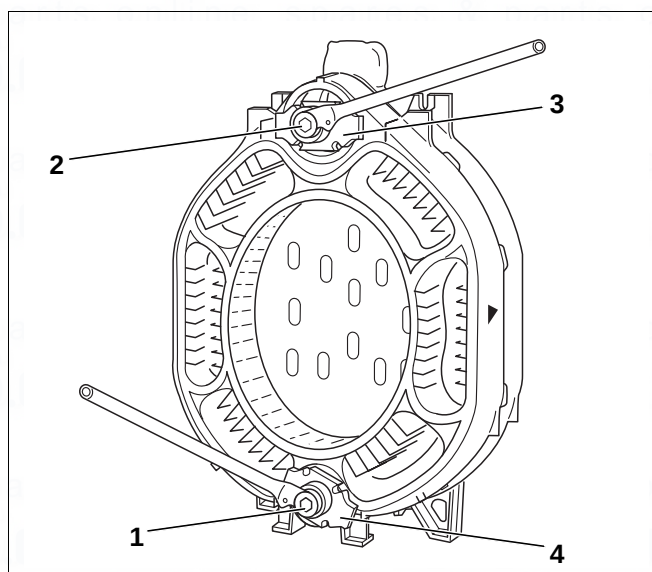


Fig. 14 Using the boiler compression tool

- ▶ Push additional flange (Fig. 15, [1]) onto both pull rods (Fig. 15, [3]) and secure in each case with wedge (Fig. 15, [2]) or cylinder pin (with compression tool 2.2).
- ▶ Hold the pull rod in the middle of the boiler hubs and slightly draw together the compression tools using the clamping nut.



NOTICE: The boiler can be damaged by pulling the boiler sections together incorrectly, or due to excessive compression.

- ▶ Ensure that the nipples are positioned straight in the boiler sections after being hammered in and that they have not been damaged.
- ▶ Never compress more than one nipple joint at a time.
- ▶ Stop compressing when the boiler hubs meet.

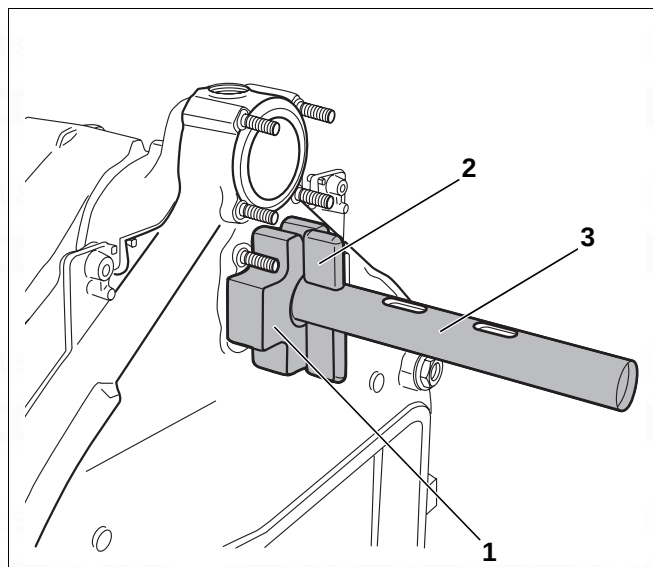


Fig. 15 Boiler compression tool on rear section

- ▶ Place both ratchet wrenches onto clamping nuts of the compression unit and press boiler sections together by tightening evenly.
- ▶ Release and remove the boiler compression tool.
- ▶ Check nipples are seated correctly.



NOTICE: Risk of damage to compression tool

The compression tool may be damaged or destroyed if you compress pull rods with loose threaded connections.

- ▶ Always check the pull rods before each use and tighten as necessary. The pull rod is correctly positioned if it is fully inserted and no thread is showing.
- ▶ Always keep the thread clean. Dirty threads may damage the compression tool during compression.
- ▶ Always lubricate the thread sufficiently.

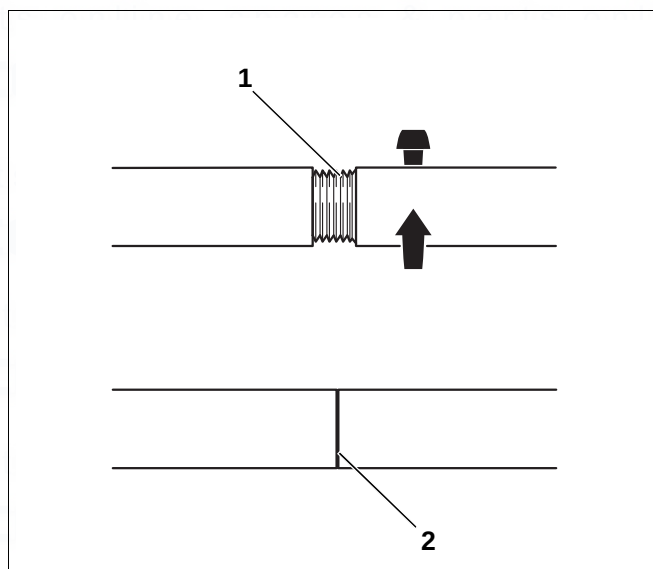


Fig. 16 Boiler compression tool 2.3

The boiler sections must be aligned to make the installation easier.

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

After the front section is attached, loosen the compression tool but do not remove it.

Insert the anchor rod before removing the compression tool!

- ▶ Insert the three anchor rods (with spring packs fitted) into the cast lugs at the designated positions (Fig. 17, [1], [2] and [3]).
When inserting the anchor rods, make sure the spring packs are mounted on the rear of the boiler.
- ▶ Put a nut onto each of the threaded anchor rods and tighten by hand.



NOTICE: Damage to system through excessively low contact pressure.

- ▶ Do not compress the spring pack. Only use the spring pack in its original state.

- ▶ Now tighten the nuts on the anchor rods by turning them through 1 to 1½ turns.
- ▶ Level the boiler vertically and horizontally on the foundation/silencing plinth (→ Chapter "3.5 Siting", page 9).
- ▶ Remove boiler compression tool.

The next step describes the installation of the feed pipe (→ Chapter "3.6.4 Sliding the feed pipe into place", page 18).

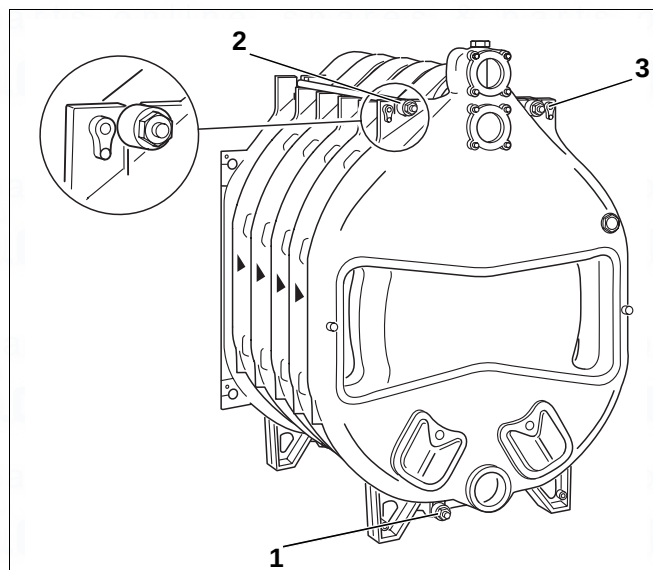


Fig. 17 Installing the anchor rods

3.6.3 Aligning the boiler block assembly when the boiler is delivered ready-assembled

- ▶ Cut the retaining band (Fig. 18, [1]).
- ▶ Remove the pallet prior to positioning the boiler block (Fig. 18, [2]).



DANGER: Risk of fatal injury from falling objects. There is a danger of the load dropping if the load-carrying equipment is unsuitable!

- ▶ Observe the accident prevention regulations VBG9a "Lifting tackle for use with lifting equipment". (for information on the corresponding weights for each of the boiler ratings refer to Section "Dimensions and specifications" on page 37).

- ▶ Level the boiler vertically and horizontally on the foundation/silencing plinth (→ Chapter "3.5 Siting", page 9).

The installation procedure for the feed pipe and sensor well described on the following pages must be carried out irrespective of whether the boiler is delivered as a ready-assembled block or in loose sections.

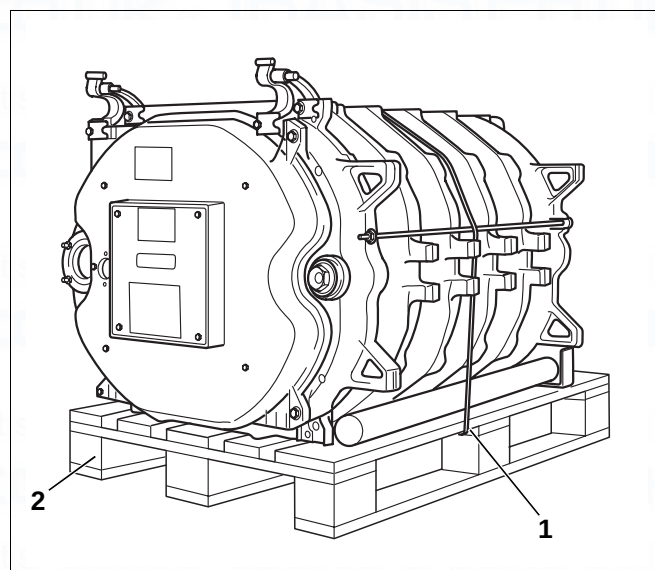


Fig. 18 Boiler block on pallet

3.6.4 Sliding the feed pipe into place

- Slide gasket (Fig. 19, [1]) over the feed pipe (Fig. 19, [4]).
- Push the feed pipe from the front into the upper boiler hub.
- Close off with dummy flange (Fig. 19, [2]).



The lug (Fig. 19, [3]) on the feed pipe connection endplate must slide into the recess on the upper boiler hub (Fig. 19, [5]). The feed pipe must be fixed in such a way that the escape openings on the feed pipe are positioned at the correct angle. This ensures optimum distribution of water in the area of the upper boiler hub.

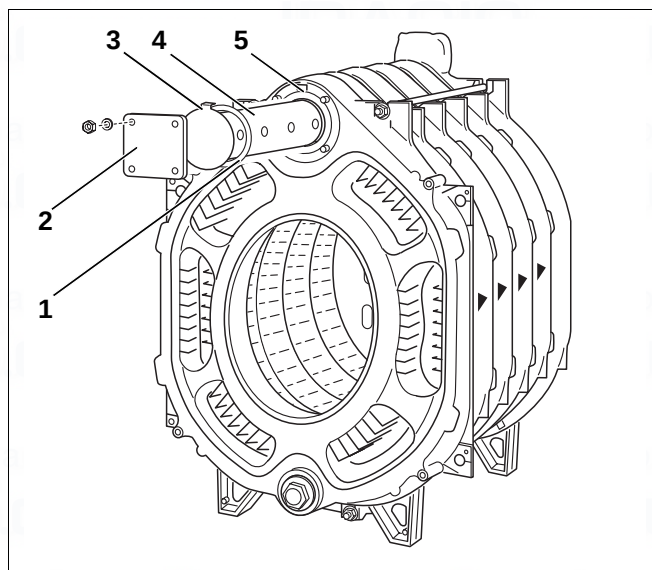


Fig. 19 Installation – feed pipe

3.6.5 Seal-in the sensor well

Sensor well 3/4"

- Seal sensor well 3/4" (length: 110 mm) (Fig. 20, [1]) from the top into the 3/4" tapped hole in the flow connection (Fig. 20, [2]).

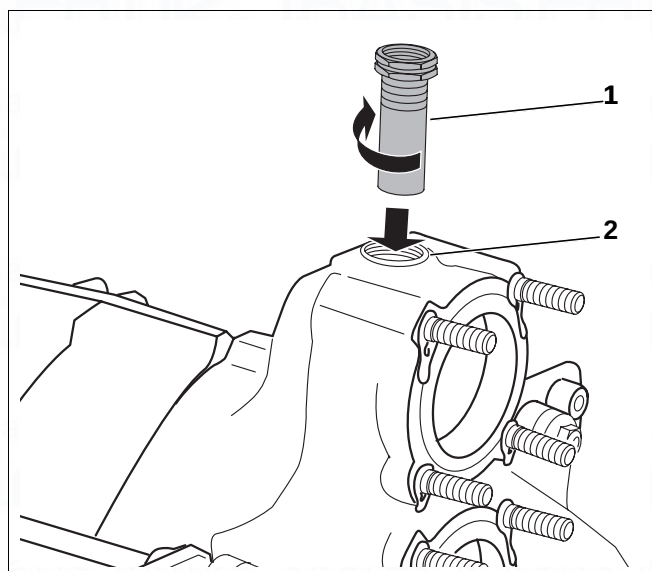


Fig. 20 Installation – sensor well

3.7 Leaks

A **leak test** must only be carried out on the boiler if it is **delivered in loose sections**. If supplied as a pre-assembled block, the leak test has already been carried out in the factory.

It follows therefore that the measures described below are only for boilers delivered in loose sections.

For **installation of boiler supplied fully assembled**
→ Chapter "3.8.4 Inserting the hot gas baffle plates", page 22.

3.7.1 Preparing for the leak test

- ▶ Close off lower boiler hub (Fig. 21, [3]) at the front and rear. To do this, place corresponding seal (Fig. 21, [1]) on the relevant boiler hub and seal-in the relevant sealing plug. In this case, the sealing plug with the $\frac{3}{4}$ " tapped hole for the fill and drain connection (Fig. 21, [2]) is mounted on the rear of the boiler.
- ▶ Install the on-site fill and drain valve.
- ▶ Close off flow and return connections (mount flange with air vent valve on flow connection).



NOTICE: System damage!

- ▶ When you carry out the leak test, make sure that no pressure, control or safety device that cannot be isolated from the boiler water chamber is installed. There is a danger of damage due to overpressure.

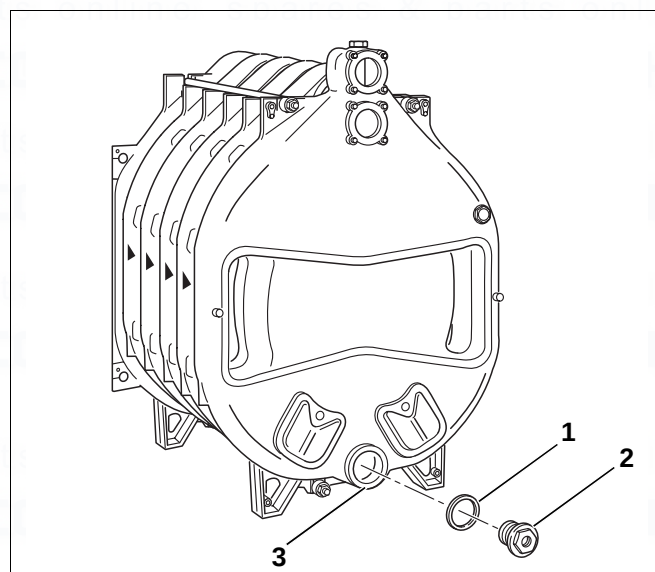


Fig. 21 Installation – flange

- ▶ Slowly fill the boiler with water via the fill and drain connection. While doing this, vent the boiler via the boiler flow connection with air vent.
- ▶ If a hub connection is leaking, first drain the water through the fill/drain taps.
- ▶ Remove feed pipe.
- ▶ Undo nuts on four anchor rods and remove anchor rods.
- ▶ Separate the boiler at the leak location by driving (knocking) in flat wedges or chisels between the sections at the designated points (Fig. 22, [1] and [2]) at the top and bottom.

You **MUST** use new nipples and new packing cord when reassembling. Pull the boiler back together and repeat the leak test.

3.7.2 Leak test according to TRD 702

The leak test must be carried out in accordance with TRD 702 Section 10.2.2 or DIN 18380. The test pressure depends on the actual pressure in the heating system and should be 1.3 times the prevailing pressure or at least 4 bar.

Use a pressure gauge class 1.0 to measure the pressure.

- ▶ The weld neck flange (with welded-on pipe) is fitted to the upper boiler hub (Fig. 23, [6] – return connection) if the return is connected at a later stage. The weld neck flange and flat gasket are shown in (Fig. 23, [4] and [5]).

The flow connection flange (Fig. 23, [3]) with flat gasket (Fig. 23, [2]) is required for connecting the flow at a later stage (Fig. 23, [1]).

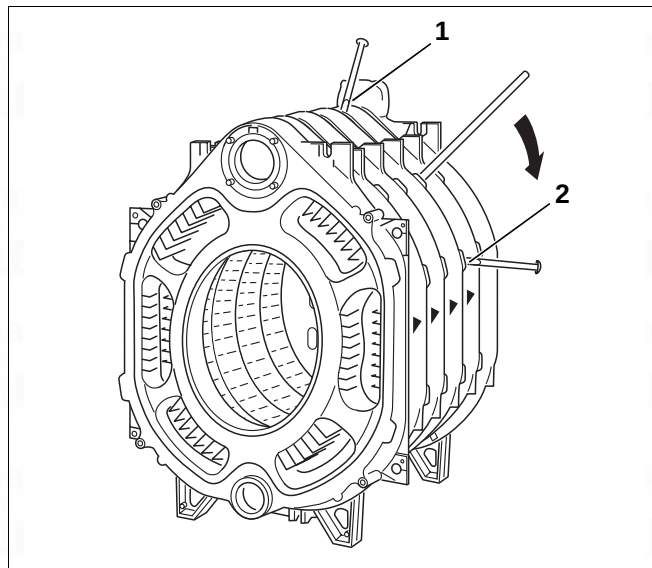


Fig. 22 Separating the boiler block

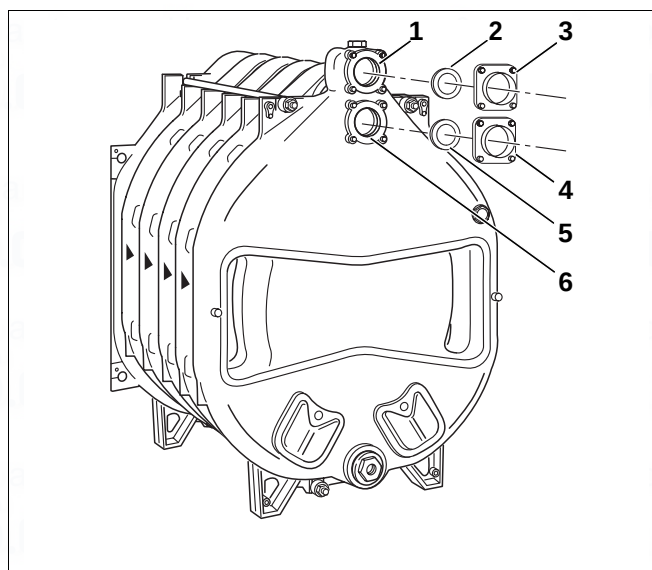


Fig. 23 Installation – connection flange

3.8 Installing fittings and burner door with delivery in loose sections

In contrast to the delivery in separate sections, when the boiler is delivered pre-assembled the burner door and flue gas header are fitted to the boiler block.

3.8.1 Positioning the flue gas header

The KM cord (Fig. 24, [2]) is used to seal the joints between the boiler and flue gas header (Fig. 24, [1]).

- ▶ Coat the packing grooves with adhesive (adhesive base)
- ▶ Push the KM cord firmly into the groove. Insert the packing cord in such a way that the packing cord joint is in the side part of the groove (Fig. 24, [3]).
- ▶ Place the flue gas header onto the two threaded studs on the rear section (Fig. 24, [4] and [5]) and secure using washers and nuts.

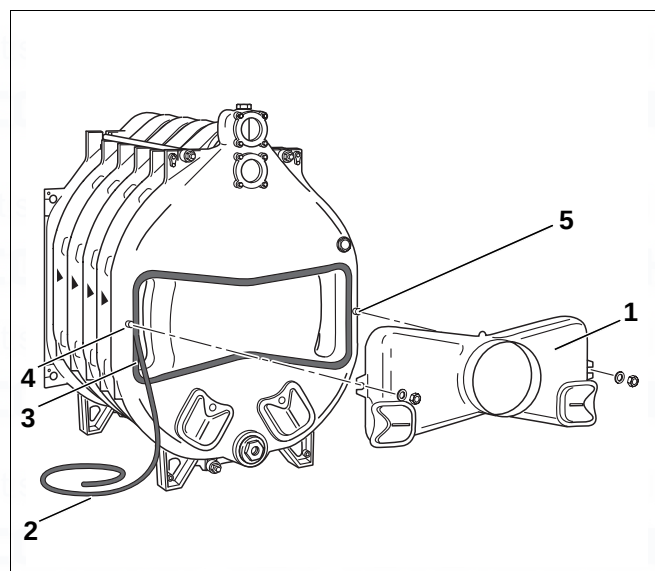


Fig. 24 Installation – flue gas header

3.8.2 Clean-out cover on the rear section

Fig. 25 shows the fully equipped rear section with the cleaning access covers on the flue gas header (Fig. 25, [1] and [2]) and the cleaning access covers on the rear section (Fig. 25, [3] and [4]).

All cleaning access covers are factory-fitted.

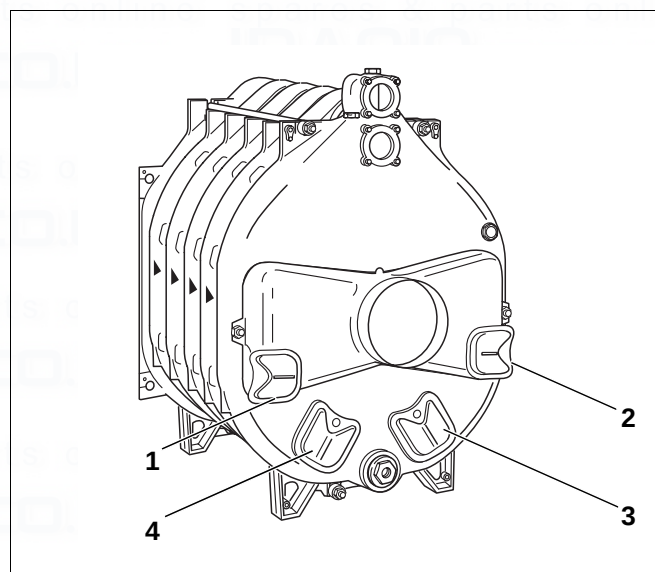


Fig. 25 Rear section with fittings installed

3.8.3 Installing the burner door

In the factory, the burner door hinge lobes (Fig. 26, [4] and [6]) are fitted on the right-hand side. For left-hand closing, mount the hinge lobes accordingly on the left-hand side of the burner door.

- Screw the hinge pins (Fig. 26, [1] and [3]) to the front boiler section with 2 M 12 x 50 machine screws in each case. This is shown in Fig. 26 for the right-hand closing version. For left-hand closing, secure hinge pins accordingly on the left-hand side.
- Affix 18 mm diameter GP cord in the front section using Silastik adhesive. The packing cord joint should be located at the side (Fig. 26, [2]).
- Hook the burner door with the hinge lobes into the hinge pins.

3.8.4 Inserting the hot gas baffle plates



When the block is supplied ready assembled, the hot gas baffle plates are already fitted and only the corrugated cardboard packaging needs to be removed.

- Take hot gas baffle plates out of the fittings case and insert into the hot gas flues as indicated by the **inscription on them** (→ Fig. 27 and following table).

Number of boiler sections	Number Hot gas baffle plates	Length Hot gas baffle plates	Installation directions on the hot gas baffle plate
5	4	360	top right top left bottom right bottom left
6 – 7	4	440	
8	4	360	
9	4	200	

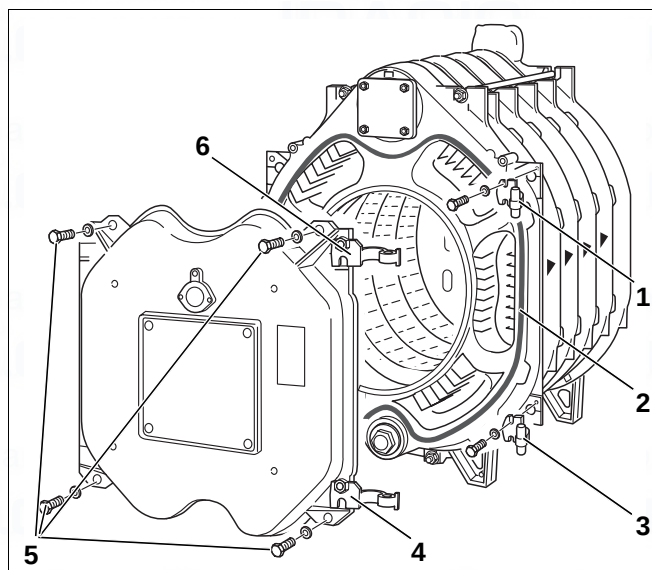


Fig. 26 Hooking in the burner door

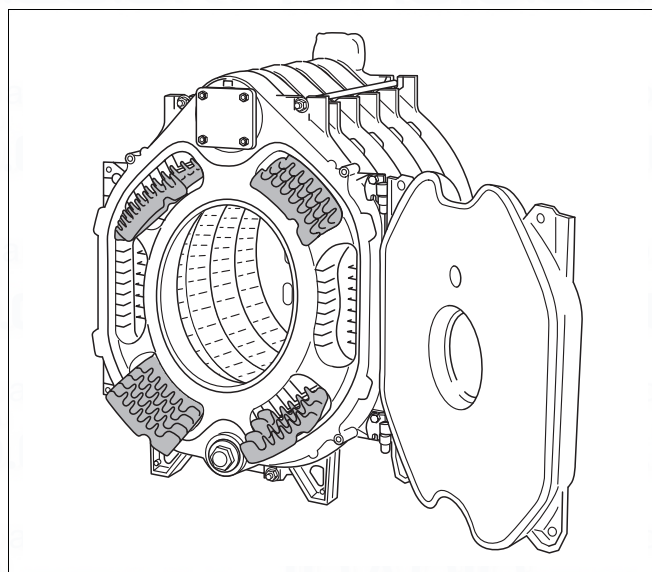


Fig. 27 Hot gas baffle plates

3.8.5 Burner installation

- ▶ Close the burner door and secure with 4 machine screws (M16 × 140) (Fig. 26, [5]). Tighten the machine screws evenly crosswise.



Predrilled and undrilled burner plates are available from Buderus upon request (accessory).

If you have ordered an undrilled burner plate from Buderus, you will have to machine this on site:

- ▶ Drill or cut the burner plate (Fig. 28, [1]) to match the required blast tube diameter (max. dia. 270 mm).
- ▶ Drill holes for fastening the boiler using the burner connecting flange as a template.
- ▶ Screw burner plate onto the burner door (seal with GP packing cord; diameter 10 mm).
- ▶ Screw the burner to the burner plate.
- ▶ Cut out insulating rings to match the blast tube diameter (Fig. 28, [2]).
- ▶ Fill the remaining gap between burner door lagging and blast tube (Fig. 28, [4]) with the modified insulation rings (Fig. 28, [3]).
- ▶ Connect the sight glass blower connection to the burner to ensure the sight glass remains clear of deposits.

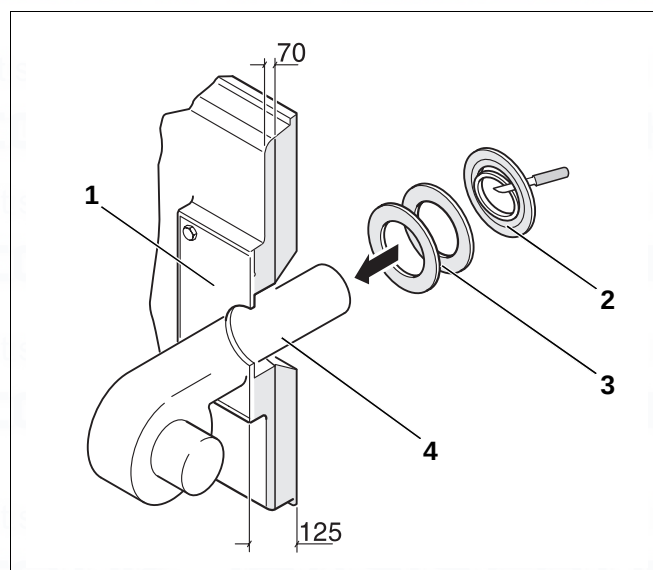


Fig. 28 Installation – burner

3.8.6 Attach flue pipe sealing collar (optional extra)



It is recommended that a flue pipe sealing collar be used (Fig. 29, [1]).

- ▶ Push the flue pipe as far as possible onto the flue gas header outlet.
- ▶ Place the flue pipe sealing collar around the flue pipe and flue gas header outlet so that it overlaps at the top.
- ▶ Place jubilee clips (Fig. 29, [4]) over the flue pipe sealing collar. One of the jubilee clips must press onto the flue gas header outlet and one onto the flue pipe.
- ▶ Tighten jubilee clips.

The flue pipe sealing collar must fit smoothly and firmly in place after tightening the jubilee clips.



After the boiler has been operating a short while, the jubilee clips must be retightened.

3.8.7 Fitting the flue gas temperature sensor (optional extra)

- ▶ Weld the coupling (Fig. 29, [3]) into the flue pipe at a distance from the flue gas header which is twice the diameter of the flue pipe (A) – min. 720 mm.
- ▶ Fit the flue gas temperature sensor (Fig. 29, [2]) as described in the separate installation manual.

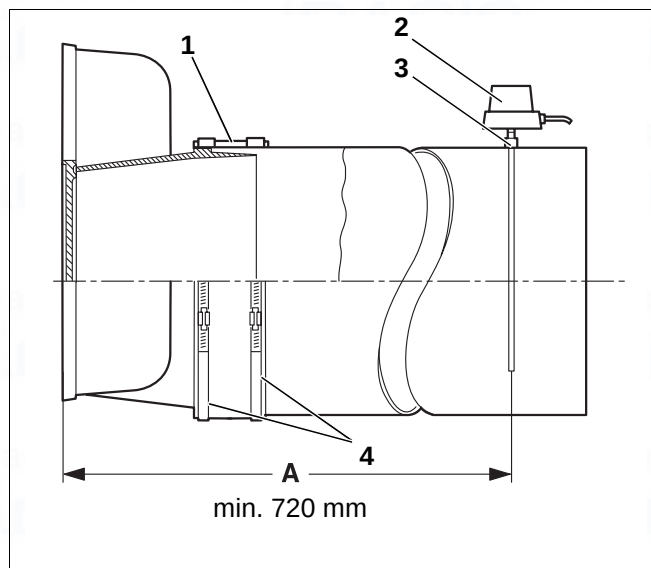


Fig. 29 Installation – flue pipe

3.9 Boiler casing

This section describes how to install thermal insulation and cladding components.

3.9.1 Connection plates

The folded edges of the front cross bars must face forwards.

- ▶ An additional nut must be turned on each of the two upper anchor rods on the front of the boiler (Fig. 30, [2]).
- ▶ Insert the top front cross bar (Fig. 30, [1]) between the first and second nut of the anchor rods in each case and fasten to the cast lugs.
- ▶ Fully tighten the outside nuts.
- ▶ Screw the bottom front cross bar (Fig. 30, [3]) with two machine screws to the feet of the boiler front section.

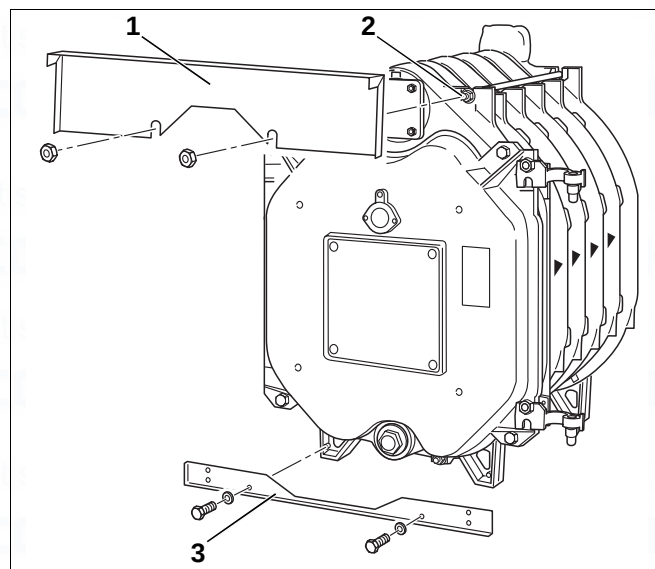


Fig. 30 Installation – front connection plates

- ▶ Fasten top rear cross bar (Fig. 31, [1]) to the cast lugs then to rear section with machine screws (M 8 × 15). The folded edge on the front cross bar must **face forwards**.
- ▶ Screw the bottom cross bar (Fig. 31, [2]) to the feet of the rear section with two machine screws (M 8 × 15). The folded edge of the bottom cross bar must point towards the rear.

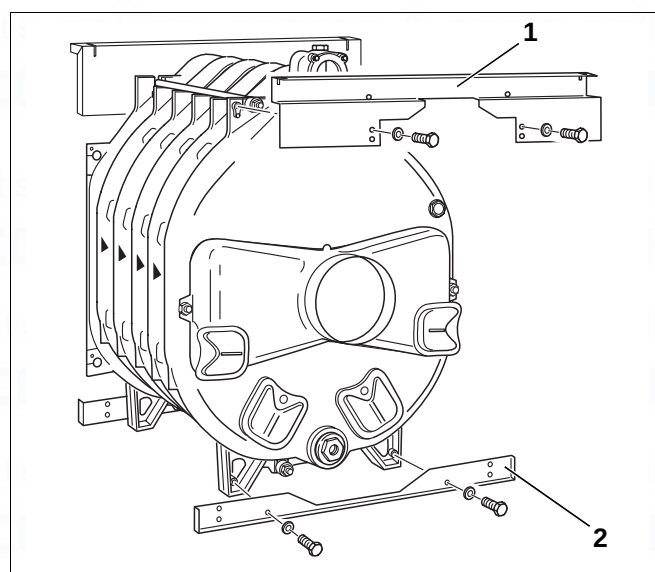


Fig. 31 Installation – rear connection plates

3.9.2 Thermal insulation

- ▶ The thermal insulation provided corresponds to the boiler size (Tab. 3). The thermal insulation must be arranged on the boiler block as shown in Fig. 32.
- ▶ Push the thermal insulation under the boiler block in the lower section of the boiler. The boiler section feet are placed in the cut-outs in the thermal insulation.

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

Tab. 4 Dimensions – thermal insulation

- ▶ Push rear section thermal insulation (Fig. 33, [2]) onto the exhaust outlet. The cut-out for the boiler flow and boiler return must point upwards.
- ▶ Attach the rear section thermal insulation to the top rear connection plate with two tensioning springs (Fig. 33, [1]).
- ▶ Close the slit below the flue outlet with tensioning springs (Fig. 33, [3]).

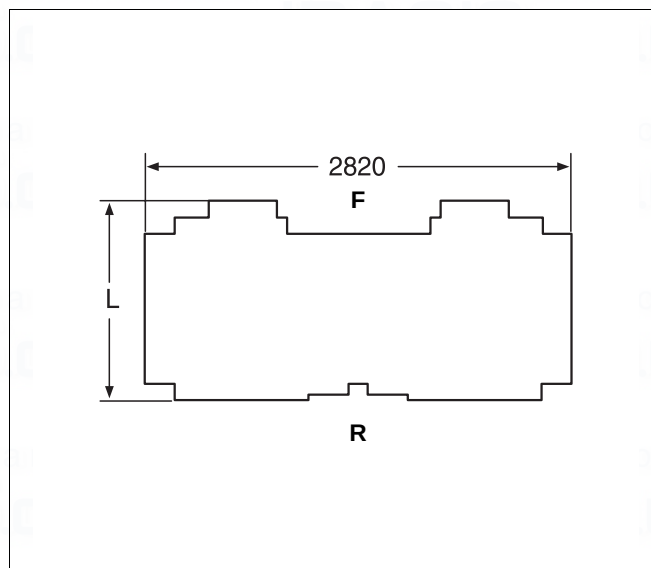


Fig. 32 Thermal insulation
F $\triangleq$ front (front of boiler)
R $\triangleq$ rear (rear of boiler)

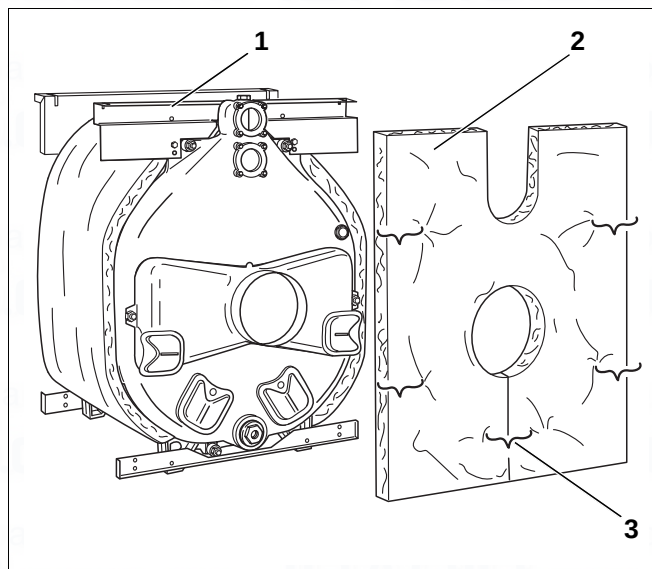


Fig. 33 Installation – rear section thermal insulation

- ▶ Push the front thermal insulation (Fig. 34, [1]) with slits (Fig. 34, [2]) onto the front folded edge of the top connection plate.
- ▶ Route burner cable (Fig. 34, [3]) over the thermal insulation down the side of the boiler block.
- ▶ Fasten the burner cable with strain relief to the bottom cross bar with two screws (Fig. 34, [4]).



To prevent damage to the burner cable while opening the burner door, the burner cable must always be fed down the hinge side, whichever side the burner door may be hung on.

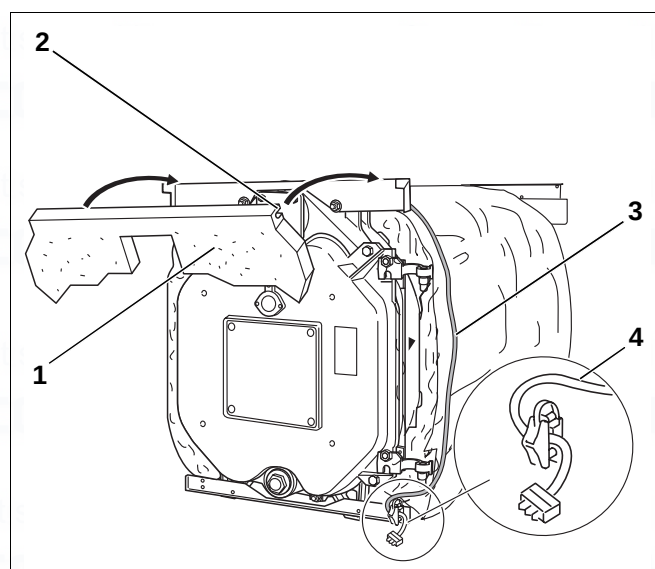


Fig. 34 Installation – front thermal insulation

3.9.3 Side panels and hoods

- ▶ Attach side panel (Fig. 35, [1]) with the cut-outs into the slits of the top connection plates (Fig. 35, [2]) and push forwards as far as it will go (see arrows in Fig. 35).
- ▶ Screw the side panels at the bottom to the bottom connection plates using two self-tapping screws in each case (Fig. 35, [3]).

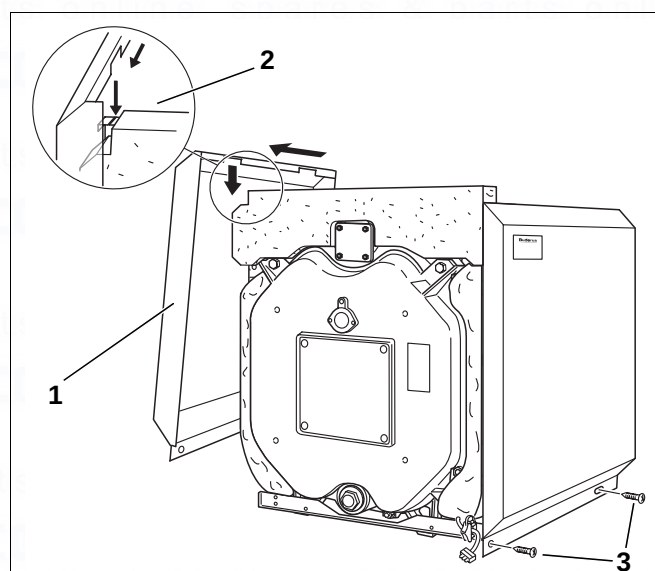


Fig. 35 Installation – side panels

- Place front hood (Fig. 36, [1]) between the side panels so the cut-out (Fig. 36, [3]) fits over the connection plate.
- Screw the rear hood to the side panels using one self-tapping screw per panel (Fig. 36, [2]).

Before fitting the other parts of the hood, you must first install the control unit, route the capillary tubes to the sensor well and insert the sensors into the sensor well (→ Chapter "3.10 Control unit", page 30).

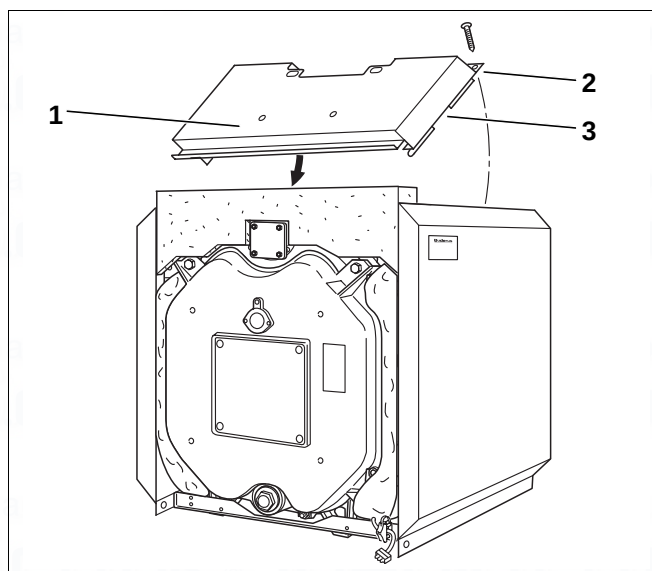


Fig. 36 Installation – front hood

- Place rear hood (Fig. 37, [1]) between the side panels so the cut-out (Fig. 37, [2]) fits over the connection plate.

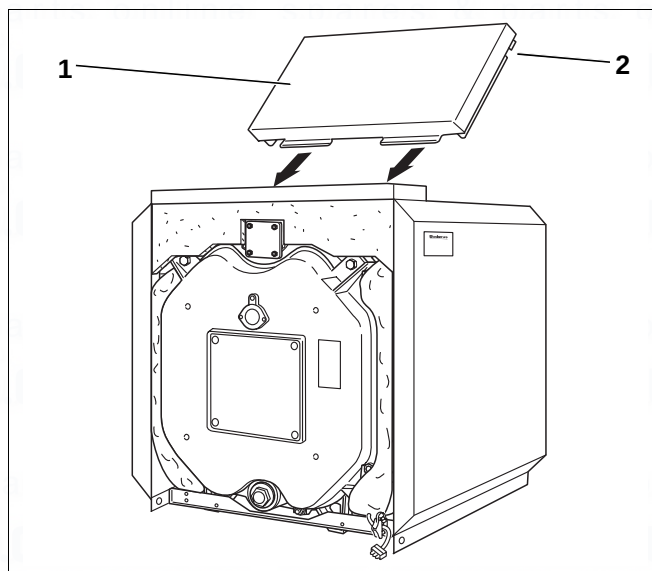


Fig. 37 Installation – rear hood

Push the base rails (front and rear) (Fig. 38, [2]) onto the bottom folded edges of the side panels and screw on at the side using one self-tapping screw in each case (Fig. 38, [1] and [3]).

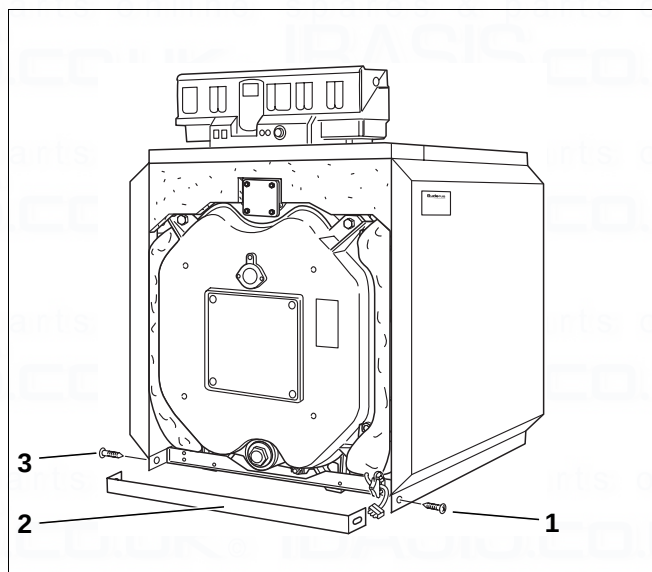


Fig. 38 Installation – front base rail

- Screw the upper boiler rear panel (Fig. 39, [2]) to the rear of the hood (Fig. 39, [1]) and the side panels.

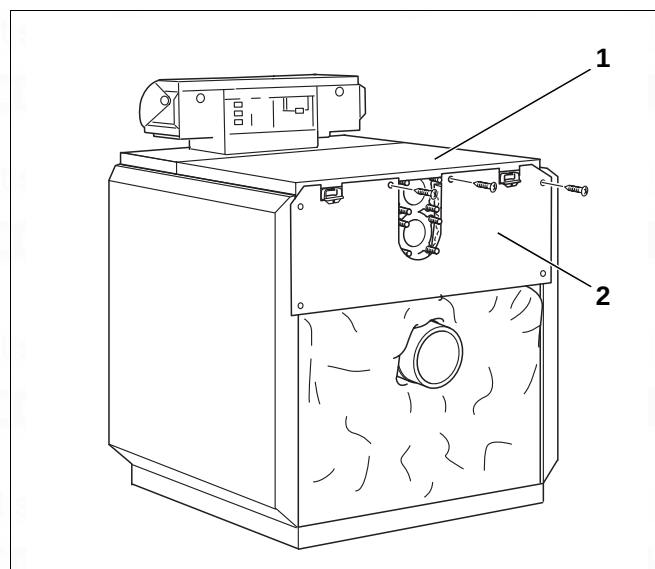


Fig. 39 Installation – upper boiler rear panel

- Screw the lower boiler rear panel (Fig. 40, [2]) with the cut-out for the fill and drain connection down onto the side panels (Fig. 40, [1] and [3]).

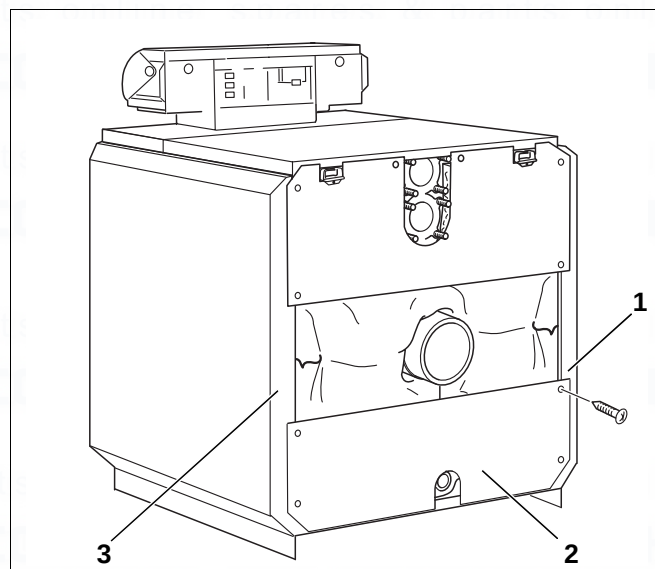


Fig. 40 Installation – lower boiler rear panel

- Attach the front panel (Fig. 41, [3]) at the bottom in the centre to the plinth panel (Fig. 41, [2]).
- Attach the front panel at the top to the folded edge of the front hood (Fig. 41, [1]).

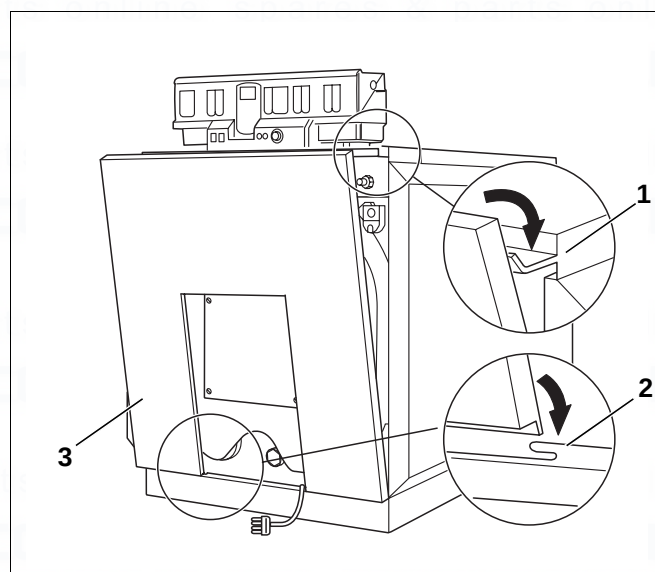


Fig. 41 Installation – front panel

- ▶ Hook burner door panel into the cut-outs in the front panel (Fig. 42, [1]).
- ▶ Subject to the boiler location, affix the type plate (Fig. 42, [2]) to the right or left side panel.



When the boiler is supplied ready-assembled, the type plate can be found in the combustion chamber accompanied by the assembly and maintenance instructions; when the boiler supplied in separate sections, it can be found in the transparent pocket on the burner door.

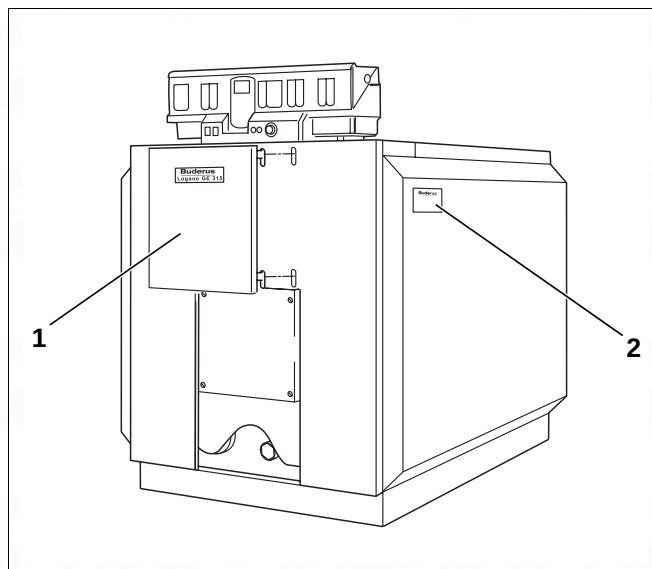


Fig. 42 Attaching the burner door panel

3.10 Control unit

3.10.1 Installing the control unit

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

- ▶ Undo both screws in the terminal cover (Fig. 43, [1]). Lift the terminal cover up and off.
- ▶ Put the control unit in place Fit the control unit at the front by inserting the locking tabs (Fig. 43, [4]) into the oval holes in the front boiler hood (Fig. 43, [5]). Pull the control unit forwards and then tip backwards. The resilient hooks (Fig. 43, [2]) must latch into the rectangular openings at the back of the front boiler hood (Fig. 43, [3]).
- ▶ Screw the base of the control unit on the left and right of the cable entry (Fig. 43, [6]) onto the front boiler hood using two self-tapping screws (Fig. 43, [7]).

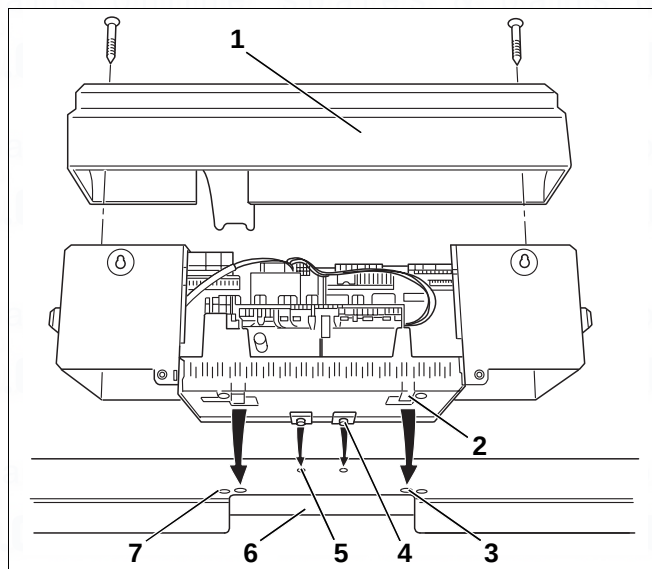


Fig. 43 Installation – control unit

3.11 Installation of the temperature sensor

- If necessary, make knock-outs (Fig. 44, [1]) in the rear panel of the cable entry (Logamatic 33..) or remove the rear panel section (Logamatic 43..) (Fig. 44, [2]).
- Route the capillary tubes through the cable entry and unroll to the required length.

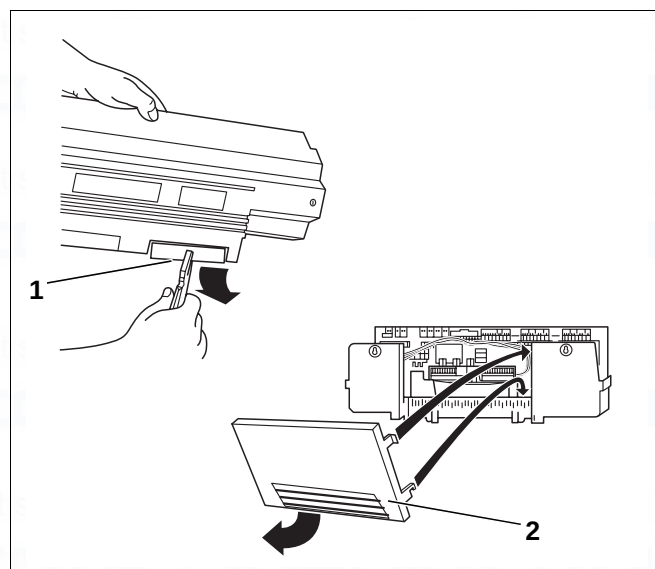


Fig. 44 Preparation – cable entry

The sensor well has already been sealed in the flow connection socket (→Chapter "3.6.5 Seal-in the sensor well", page 18).

The temperature sensor set connected to the control unit (consisting of three temperature sensors and one sensor blind piece Fig. 45, [1]) is installed in the sensor well R $\frac{3}{4}$ ".

- Route capillary pipe sensor to the measuring port of the boiler and then guide the sensor into the sensor well (Fig. 45, [2]) and secure with the retaining clip (Fig. 45, [3]).

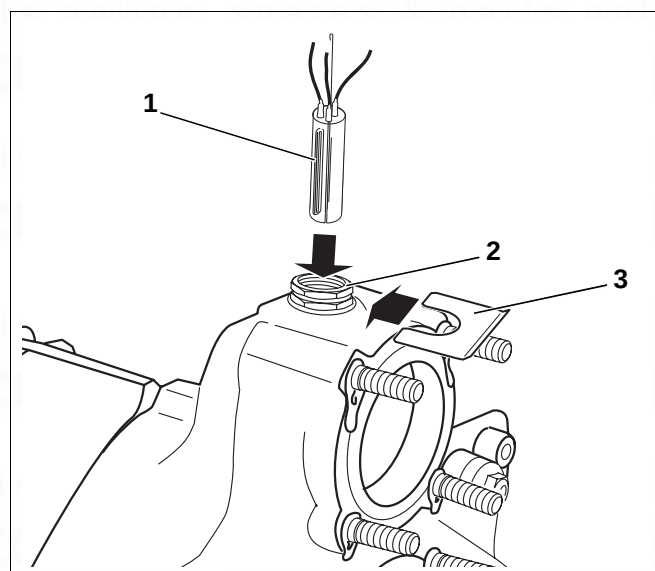


Fig. 45 Installation – sensor set

- Screw cable entry (Fig. 46, [1] and [2]) to the left and right of the boiler rear panel.
- Establishing the electrical connection as shown in the wiring diagram. Take care to ensure correct cable and capillary tube routing.

A permanent electrical connection must be made in accordance with EN 50165 or the relevant national installation standard.



Local regulations must be observed.
Secure all cables with cable clips.

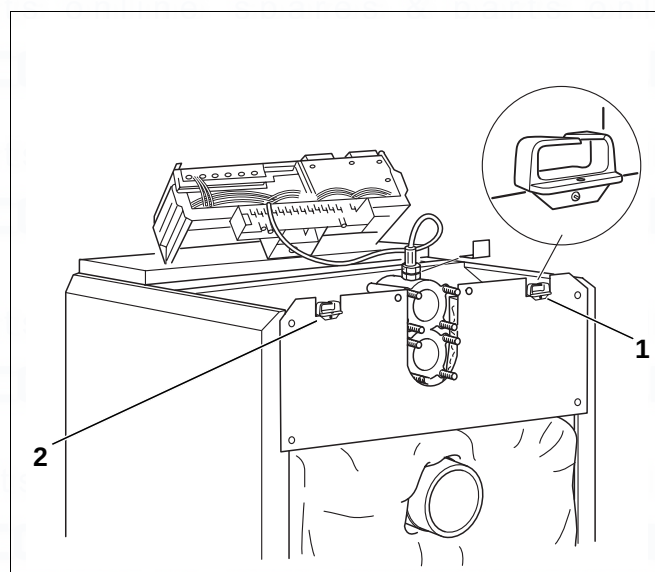


Fig. 46 Power supply

- ▶ Insert cable clips with cable inside into the clip frame and secure by clamping it with the tab (Fig. 47, [1]).

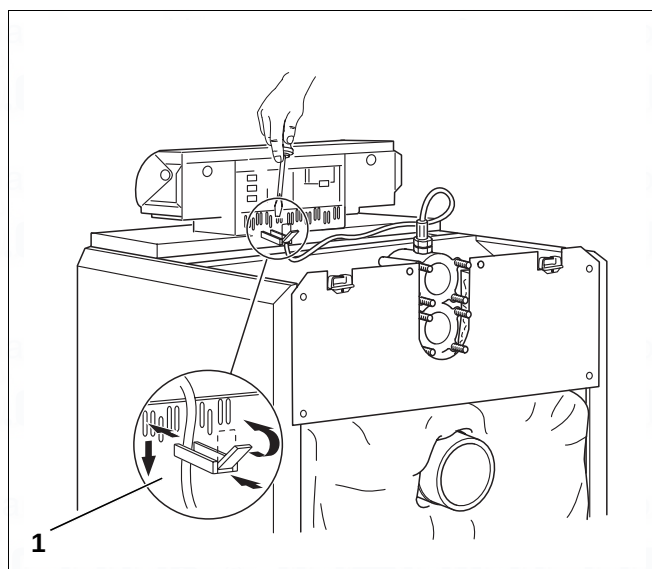


Fig. 47 Fastening the electr. connecting leads

- ▶ Hook the lower hook on the rear panel section (Logamatic 43..) into the clip frame and apply pressure at the top until the side hooks click into place (Fig. 44, [2]).
- ▶ Screw terminal cover (Fig. 43, [1]) with the two self-tapping screws back into the control unit base (Fig. 48).

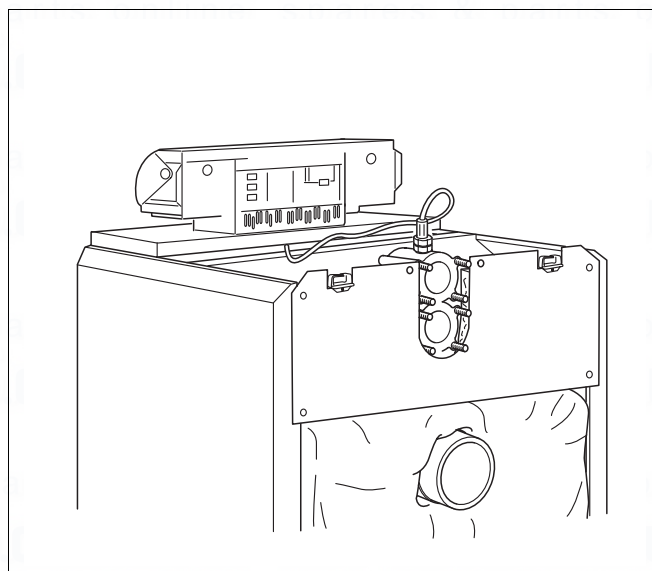


Fig. 48 Boiler with fitted control unit

4 Maintenance

4.1 General information

Important for saving energy!

- ▶ Have the burner setting checked regularly.
Ensure high efficiency and soot-free combustion.
- ▶ Clean your boiler at least once a year.
You can obtain suitable cleaning brushes from Buderus.



ATTENTION!

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

4.2 Cleaning with cleaning brushes

- ▶ De-energise the system.



DANGER: Risk of fatal injury from electric shock.

- ▶ Before opening the appliance, isolate all poles of the mains power supply and secure against unintentional reconnection.

- ▶ Put the main power switch (Fig. 49, [1]) on the control panel in position "0".
- ▶ Isolate the fuel supply to the burner.



DANGER: Risk to life from the explosion of flammable gases!

- ▶ Any work on components may only be carried out by an approved contractor.

- ▶ Slightly lift the front panel and remove by pulling forwards (Fig. 50).
- ▶ Undo the four machine screws that fasten the burner door to the front section (→ Chapter "3.8.3 Installing the burner door", page 22).

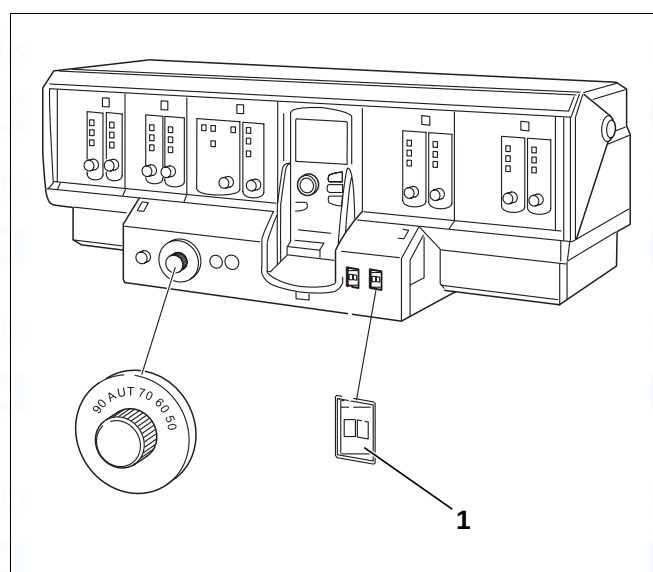


Fig. 49 Example showing Logamatic 4311

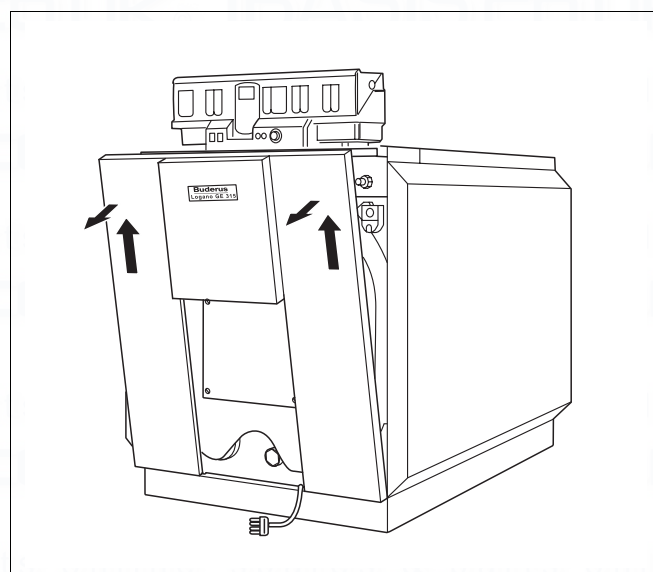


Fig. 50 Removing the front panel

- Swing out burner door.
- Take the hot gas baffle plates forwards out of the hot gas flues (Fig. 51, [1] - [4]).

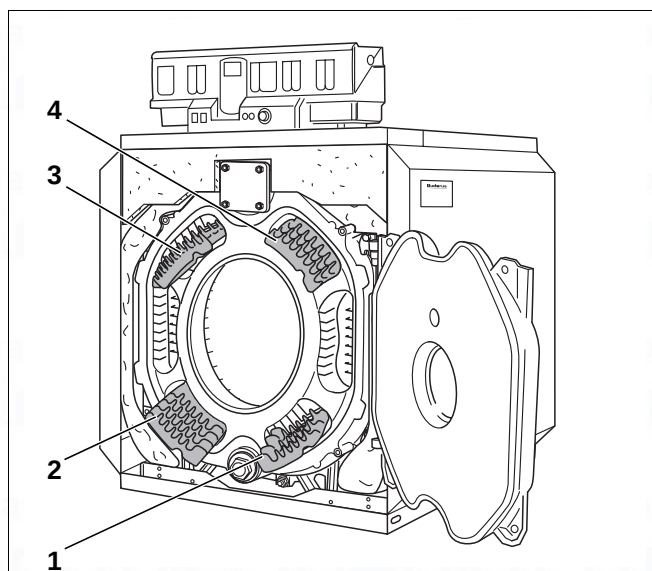


Fig. 51 Removing the hot gas baffle plates

- Undo the four self-tapping screws on the boiler rear panel at the bottom.
- Remove lower boiler rear panel.
- Loosen tensioning springs below the flue outlet (also cp. Fig. 33 on page 26).
- Fold both ends of the thermal insulation up (Fig. 52, [1]) and fasten in this position with the tensioning springs.
- Remove the cleaning access covers from the rear section (Fig. 52, [2]) and the flue gas header (Fig. 52, [3]).

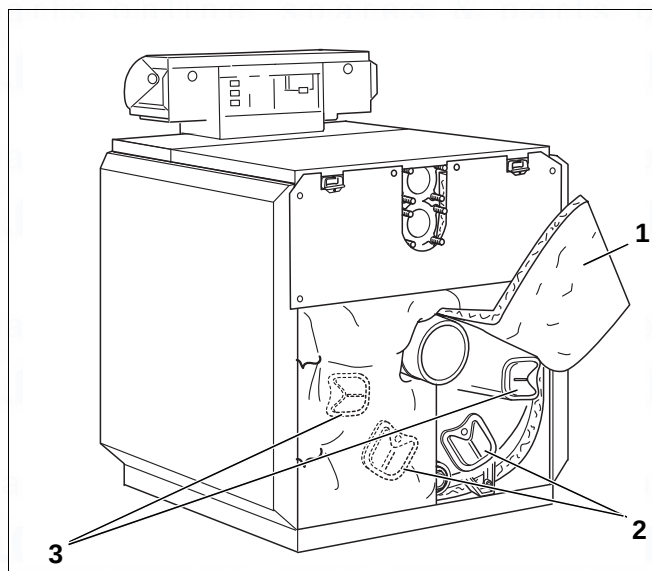


Fig. 52 Disassembly – cleaning access cover

- Use cleaning brushes.

The various brush types available from Buderus (optional extras) are shown in Fig. 53.

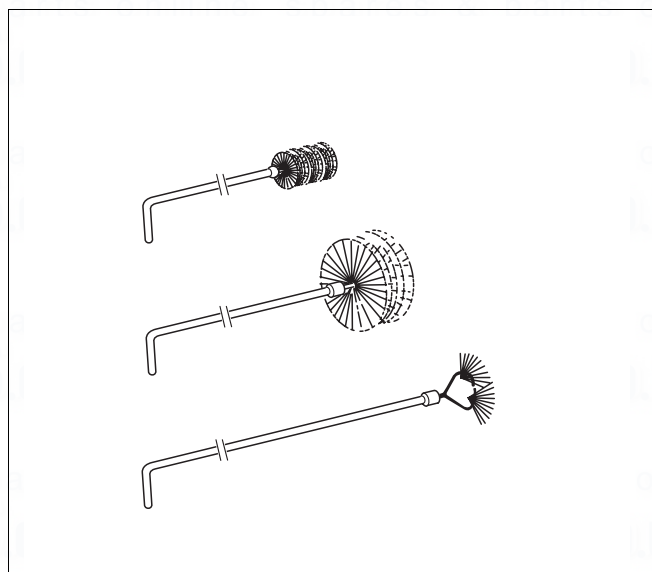


Fig. 53 Cleaning brushes

- ▶ Clean the hot gas flues (Fig. 54, [1] and [3]) with cleaning brushes 1 and 2 (Fig. 53) starting at the front and working towards the back.
- ▶ Clean the rear wall of the combustion chamber with cleaning brush 3.
- ▶ Clean the rest of the combustion chamber (Fig. 54, [2]) with cleaning brush 2.
- ▶ Clean the bottom 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 header.
- ▶ Check packing cords on the openings of the cleaning access covers and burner door. Replace damaged or hardened packing cords.



Packing cords are available from your nearest branch.

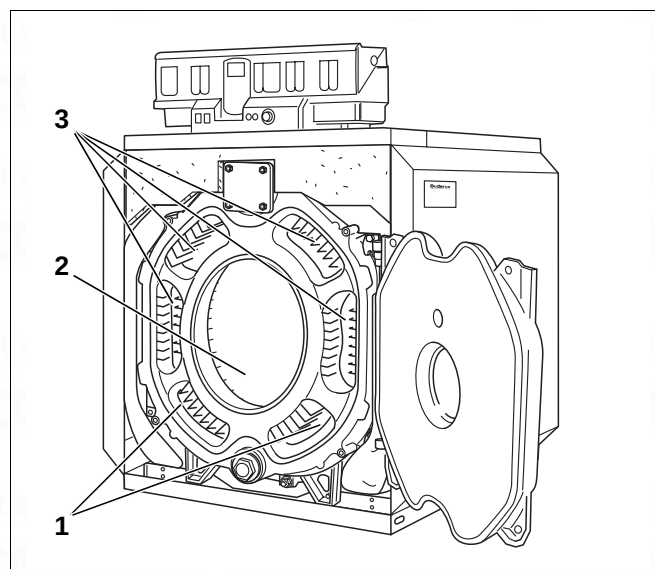


Fig. 54 Cleaning the hot gas flues

- ▶ Clean hot gas baffle plates with the cleaning brushes.
- ▶ Insert the hot gas baffle plates in the hot gas flues (→ Chapter "3.8.4 Inserting the hot gas baffle plates", page 22).
- ▶ Fasten cleaning access cover and close burner door. Tighten screws evenly.
- ▶ Fold the rear section lagging down and pull together under the flue outlet using the tensioning spring (Fig. 55, [1]).
- ▶ Hang the bottom boiler rear panel sections on the left and right into the slots in the folded edge of the upper boiler rear panel and the side panel and screw the connecting plate below the flue outlet onto the bottom boiler rear sections.

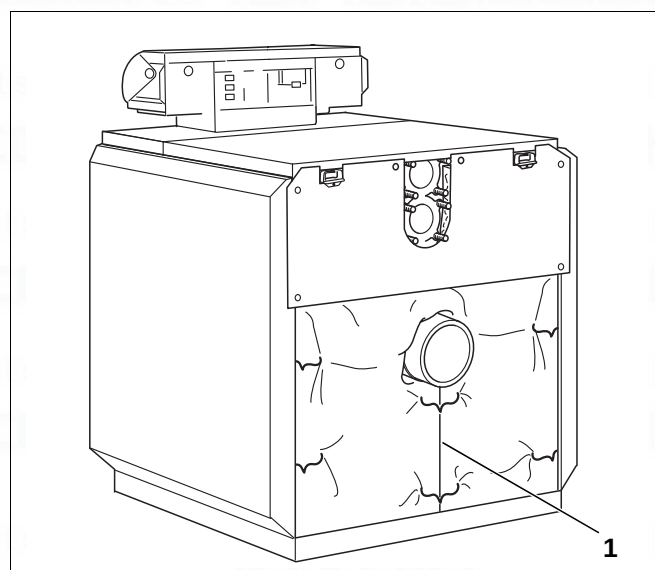


Fig. 55 Pulling the rear section lagging together

4.3 Wet cleaning

Proceed with the wet cleaning in the same order as described for cleaning with brushes.

Observe the instructions for the cleaning equipment and cleaning agent used without fail.

4.4 Checking the water level

- ▶ With open vented systems, set the red marking on the pressure gauge to the required system pressure. With sealed unvented systems the pressure gauge needle must be within the green marking.
- ▶ Check the water level in the system; top up if necessary and vent the complete system. If water is lost during operation, the water should be topped up slowly and the complete system vented. If water loss occurs frequently, locate the cause and rectify the problem without delay.

4.5 Fill and service water

Particular attention must be paid to the local water conditions and if necessary the water must be treated.



For relevant information, refer to Code of Practice K8 "Water treatment for heating systems" (overall catalogue), or enclosed data sheet "Water treatment".

Data and system handover

Type _____

User _____

Manufacturer no. _____

Location _____

System installer _____

The system named above has been installed and commissioned according to standard engineering practice, as well as provisions of the buildings inspectorate and any legislative requirements.

Date, signature (system installer)

The technical documentation has been handed over to the user. He has been familiarised with the safety instructions, operation and maintenance of the system.

----- please detach here ----- ✂

For use by system installer

Type _____

User _____

Manufacturer no. _____

Location _____

The technical documentation has been handed over to the user. He has been familiarised with the safety instructions, operation and maintenance of the system.

Date, signature (user)

Notes

Buderus

Cotswold Way, Warndon, Worcester WR4 9SW
Customer service: 0844 892 3004
Technical support: 0844 892 4224

www.buderus-commercial.co.uk

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

Bosch Thermotechnik GmbH
Sophienstrasse 30-32
D-35576 Wetzlar
www.buderus.de
info@buderus.de

C & F Quadrant Ltd.
Unit L40 Cherry Orchard Industrial Estate
Cherry Orchard, Dublin 10
Tel.: 01.6305700
Fax.: 01.6305706 / 01.6305715
www.cfquadrant.ie
E-mail: sales@cfquadrant.ie

Middle East and Caucasian Area

Bosch Termoteknik Dış Ticaret A.Ş.
İstanbul Deri ve Endüstri Serbest Bölgesi
T-10 Parsel 34975 Tuzla
İstanbul / Turkey
Tel.: +90 216 581 03 00

Products manufactured by
Bosch Thermotechnik GmbH
Sophienstrasse 30-32
D-35576 Wetzlar

www.buderus.com

Buderus