

Low-temperature oil/gas boiler

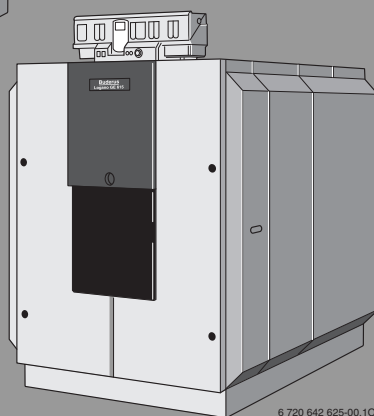
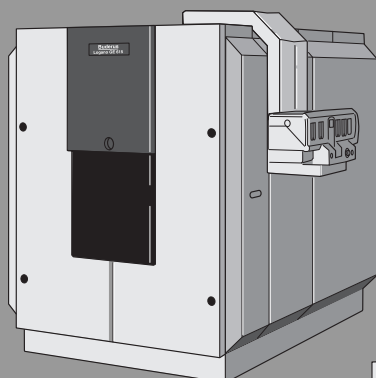
Logano G615

Boilers for oil/gas-fired power burners

Buderus

Read carefully prior to installation and maintenance

APPROVED



WARNING:

If installation, adjustment, modification, operation or maintenance of the heating system is carried out by an unqualified person, this may result in personal injury or property damage. The directions of this installation manual must be followed precisely. If support or additional information is required, contact a qualified service company, service provider or the gas company.

WARNING:

Observe the safety instructions of this installation manual before placing the heating appliance in operation. The operating manual is a component of the technical documentation and must be handed over to the operator of the heating system. Explain to the owner or operator how to use the heating system using the operating instructions. Make sure that he has been familiarized with all information required for the operation of the heating system.

This manual is available in the English and French language.

Please keep this manual for future reference.

About this manual



The appliance has been tested to meet all national requirements in effect on the date of manufacture. The certificates are on file with the manufacturer.

This installation and maintenance instructions contain important information for the safe and proper installation, initial start-up and maintenance of the oil/gas-fired boiler Logano G615.

These service and installation instructions are designed for specialists, who, due to their vocational training and experience, are knowledgeable in handling heating systems and oil and gas installations.

The oil/gas-fired boiler Logano G615 is available in two variants (disassembled and assembled).

These installation and service instructions explain the installation and service of both boiler types.

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1 Guideline to symbols and safety instructions

1.1 Guideline to symbols

Warnings



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



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

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

- **NOTICE** indicates that damage to property may occur.
- **CAUTION** indicates possible minor to medium personal injury.
- **WARNING** indicates possible severe personal injury.
- **DANGER** indicates a potential for loss of life.

Important Information



Important information neither indicating personal injury nor damage to property are marked with this symbol. They are separated by lines above and below the text.

Additional symbols

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

Table 1

1.2 Safety instructions

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

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

Risk due to oil leaks

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

If you smell gas

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

If you smell flue gas

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

Danger of electric shock when the control panel is open

- ▶ Always de-energize the control panel before working on electrical parts (circuit breaker).
- ▶ Take provisions against unintentional reconnection.

Danger of poisoning due to flue gas if supply of combustion air is insufficient

- ▶ Safeguard supply of combustion air.
- ▶ Do not cover or reduce the size of ventilation openings in doors, windows and walls.
- ▶ Safeguard sufficient supply of combustion air also for appliances installed at a later date, e.g. kitchen exhaust fans, clothes dryers, and air conditioning units with vent to the outside.
- ▶ Never operate the appliance if the supply of combustion air is insufficient.

Combustion air / room air

To prevent corrosion, keep the supply of combustion air / room air free of corrosive substances (e.g. halogenated hydrocarbons that contain chlorine or fluorine compounds).

Danger of explosion of flammable gases.

- ▶ Only employ a trained and certified contractor to carry out work on the gas train.

Explosive and easily combustible materials

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

Installation, conversion

Only have the appliance installed or modified by a trained and certified heating contractor.

Never modify any parts that carry flue gas.

Never close the outlet of safety valves. Water may be expelled from any safety valve during heat-up.

Inspection and maintenance

The operator is responsible for safety and environmental compliance of the heating system.

Sign a maintenance and inspection contract with a trained and certified contractor, covering an annual inspection and demand-dependent maintenance. This guarantees high efficiency and environmentally sound combustion.

Instructing the customer

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

Disposal

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

Other important information

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

2 Product description

The boiler is a low-temperature boiler for oil or gas power burners with constant or reset boiler water temperature control without minimum return temperature.



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

- ▶ Only use burners that meet the technical requirements of the oil/gas-fired boiler Logano G615 (→ Chapter 3, page 9).

The main components of the Logano G615 oil/gas-fired boiler are:

- The boiler heat exchanger transfers the heat generated by the burner to the boiler water.
- The boiler jacket and thermal insulation minimize energy loss.
- The control panel serves to monitor and control all electrical boiler components.

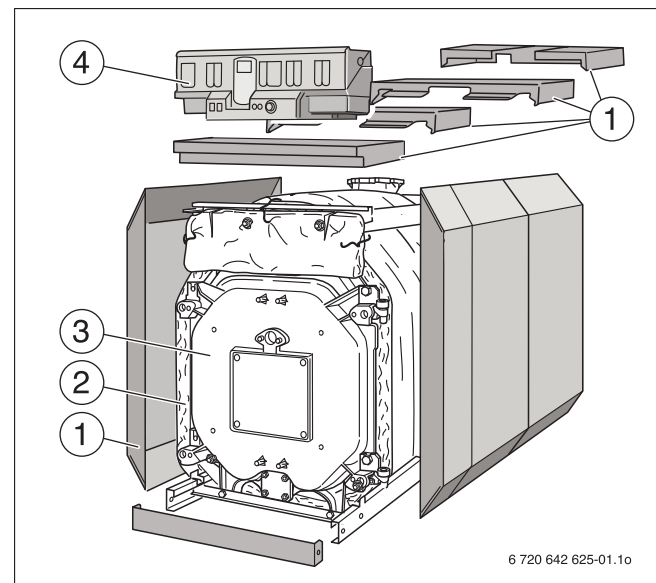


Fig. 1 Oil/gas-fired boiler Logano G615

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

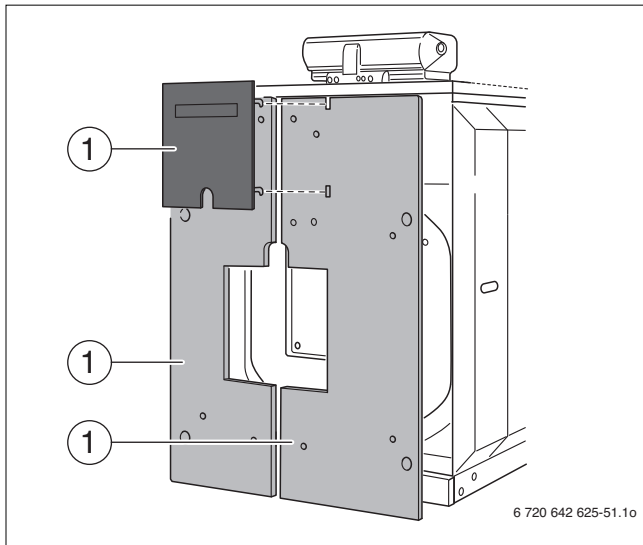


Fig. 2 Front jacket

[1] Burner door panel

The Logano G6 15 oil/gas-fired boiler is supplied with or without a burner. You can obtain undrilled or predrilled burner plates (hole pattern depends on burner) as accessories from Buderus.

The predrilled burner plate is included in the scope of delivery for the Logano G615 with oil or gas-fired fan-assisted burners.



During installation and operation of the heating system, observe all national standards and guidelines! Also observe the details on the boiler rating plate.



To prevent boiler contamination, we recommend installing a dirt trap in the water system.



As a basic rule, flush existing systems before connecting the boiler.

Fuels			
Logano G615	Heating oil	Liquid propane (LPG)	Natural Gas (NG)
Remark	The Logano G615 boiler can be operated with the specified fuels. Select a burner suitable for use with the fuels specified for the Logano G615 boiler. The output figures shown in the Tab. "Technical Data" are nominal power figures. Carry out maintenance and cleaning procedures annually. Check that the entire system is functioning correctly. Immediately remedy faults. If heating oil is used, shorter maintenance intervals may be necessary depending on the operating time.		

Table 2 Fuels

2.1 Designated use

The Logano G615 oil/gas-fired boilers have been designed for the heating of boiler water.

The Logano G615 can be operated with oil, gas, and combination burners. For a list of the approved burners, please contact Bosch Thermotechnology Corp.

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

2.2 Operating conditions

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 heating 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 unique feature reduces thermal stress, the main cause of failure of traditional cast iron boilers. The advantage of

this technology is the maintenance of the minimum operating temperature of the boiler (→ Tab. 3); this makes the installation of a shunt pump unnecessary. This way, the costs for the pump itself and its power consumption, as well as possible failure costs are saved. 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.

		Control of all heating zones with Buderus 4000	External controls (BMS) or with Buderus 4212 with ZM 427 or Aquastat control
Minimum flow rate		none	
Minimum return temperature	°F (°C)	none	
Minimum operating temperature oil boiler ¹⁾	°F (°C)	122 (50)	
Minimum operating temperature gas boiler NOT DEFINED	°F (°C)	122 (50) ²⁾	140 (60) ²⁾
Maximum supply temperature	°F (°C)	212 ³⁾ /248 ⁴⁾ (100 ³⁾ /120 ⁴⁾	
Maximum operating pressure	PSI (bar)	87 (6)	
For operation with two-stage oil and gas burners	-	Set the partial load stage to 60 %	
Time constant of the temperature controller	sec	40	
Time constant of the monitor/limiter	sec	40	

Table 3

- 1) This temperature has to be reached within ten minutes of the burner starting and has to be maintained whilst the burner is firing.
- 2) 65 with partial load < 60 % °C
- 3) The maximum supply temperature is 212 °F (100 °C), if the boiler is operated as hot water boiler.
- 4) The maximum supply temperature is 248 °F (120 °C), if the boiler is operated as a hot water generator.



A heating zone with a mixing valve improves controllability and is specifically recommended for systems with differing water temperature zones.

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 water temperature. The controls can reduce the flow rate by closing the valves on the mixed heating circuits, modulating the boiler primary pumps, closing the motorized butterfly valves or by having a motorized valve in the boiler return on a single boiler installation. The Buderus 4000 series controls can manage this process or it can be completed by the BMS.

If it is not possible for the control panel 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 third-party controller. 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.

2.3 Compliance with standards and regulations

Installation and operation of the system must comply with all applicable codes, regulations and statutory requirements.

Installation, connection of the fuel supply and flue connector, commissioning, connection of the electrical power supply, servicing and repair may only be carried out by a trained and certified heating contractor. Only registered gas fitters may carry out work on the gas train.

The system must be cleaned and serviced once a year. The operation of the complete system must be tested at the same time. Any faults must be corrected immediately.

The design and mode of operation of this boiler comply with the American National Standard ANSI Z21.13/CSA4.9, latest edition for Gas Fired Low Pressure Steam and Hot Water Boilers.

Other confirmed approvals and certifications are indicated by labels on the boiler.

The heat exchanger has been designed and certified in accordance with the ASME Boiler and Vessel Code, Section IV.

Installation of the wall mounted condensing gas boiler must comply with all applicable codes and regulations imposed by the national, Federal or local authorities and bodies. If no specific requirements are defined, in the USA, the latest edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54 applies. In Canada, installation must comply in all respects with the latest edition of the Installation Code for Gas Burning Appliances and Equipment, CAN/CSA-B.149 and the applicable local regulations and requirements for the appliance category. The relevant authorities and regulatory bodies must be informed before installation starts.

Where required by local regulations, the system must comply with the American Society of Mechanical Engineers Safety Code for Controls and Safety Devices for Automatically Fired Boilers (ASME CSD-1).

The hot water distribution system must comply with all applicable codes and regulations. When replacing an existing boiler, it is important to check the condition of the entire hot water distribution system to ensure safe operation.

In the Commonwealth of Massachusetts, this appliance must be installed by a licensed plumber and gas fitter. Valves external to the boiler must be fitted with T-handles and condensate piping must be installed in accordance with the State Plumbing Code.

2.4 Additional regulations for installations in the Commonwealth of Massachusetts

(a) For all side wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the side wall exhaust vent termination is less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

- **INSTALLATION OF CARBON MONOXIDE DETECTORS.** At the time of installation of the side wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professionals for the installation of hard wired carbon monoxide detectors.
 - In the event that the side wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.
 - In the event that the requirements of this subdivision cannot be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.
- **APPROVED CARBON MONOXIDE DETECTORS.** Each carbon monoxide detector as required in accordance with the above provisions shall comply with NPA 720 and be ANSI/UL 2034 listed and IAS certified.
- **SIGNAGE.** A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (½) inch in size, “GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS”.
- **INSPECTION.** The state or local gas inspector of the side wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspections, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CRM 5.08(2)(a) 1 through 4.

(b) EXEMPTIONS: The following equipment is exempt from 248 CRM 5.08(2)(a) 1 through 4:

- The equipment listed in Section 10 entitled “Equipment Not Required To Be Vented” in the most current edition of NFPA 54 as adopted by the board; and
- Product Approved side wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.

(c) MANUFACTURERS REQUIREMENTS - GAS EQUIPMENT VENTING SYSTEM REQUIRED. When the manufacturer of Product Approved side wall horizontally mounted gas equipment provides a venting system design or venting system components with the equipment, the instructions provided by the manufacturer for the installation of the equipment and venting shall include:

- Detailed instructions for the installation of the venting system or the venting system components; and
- A complete parts list for the venting system design or venting system.

(d) MANUFACTURERS REQUIREMENTS - GAS EQUIPMENT VENTING SYSTEM NOT PROVIDED. When the manufacturer of Product Approved side wall horizontally vented gas fueled equipment does not provide the parts for the venting of flue gases, but identifies “special venting systems”, the following requirements shall be satisfied by the manufacturer:

- The referenced “special venting systems” shall be included with the appliance or equipment installation instructions; and
- The “special venting systems” shall be Product Approved by the Board, and the instructions for that system shall include a parts list and detailed installation instructions.

(e) A copy of all instructions for all Product Approved side wall horizontally vented gas fueled equipment, all venting instructions, all parts lists for venting instructions, and/or venting design instructions shall remain with the appliance or equipment at the completion of the installation.

3 Specifications

The technical data provides information about the output profile of the Logano G615.

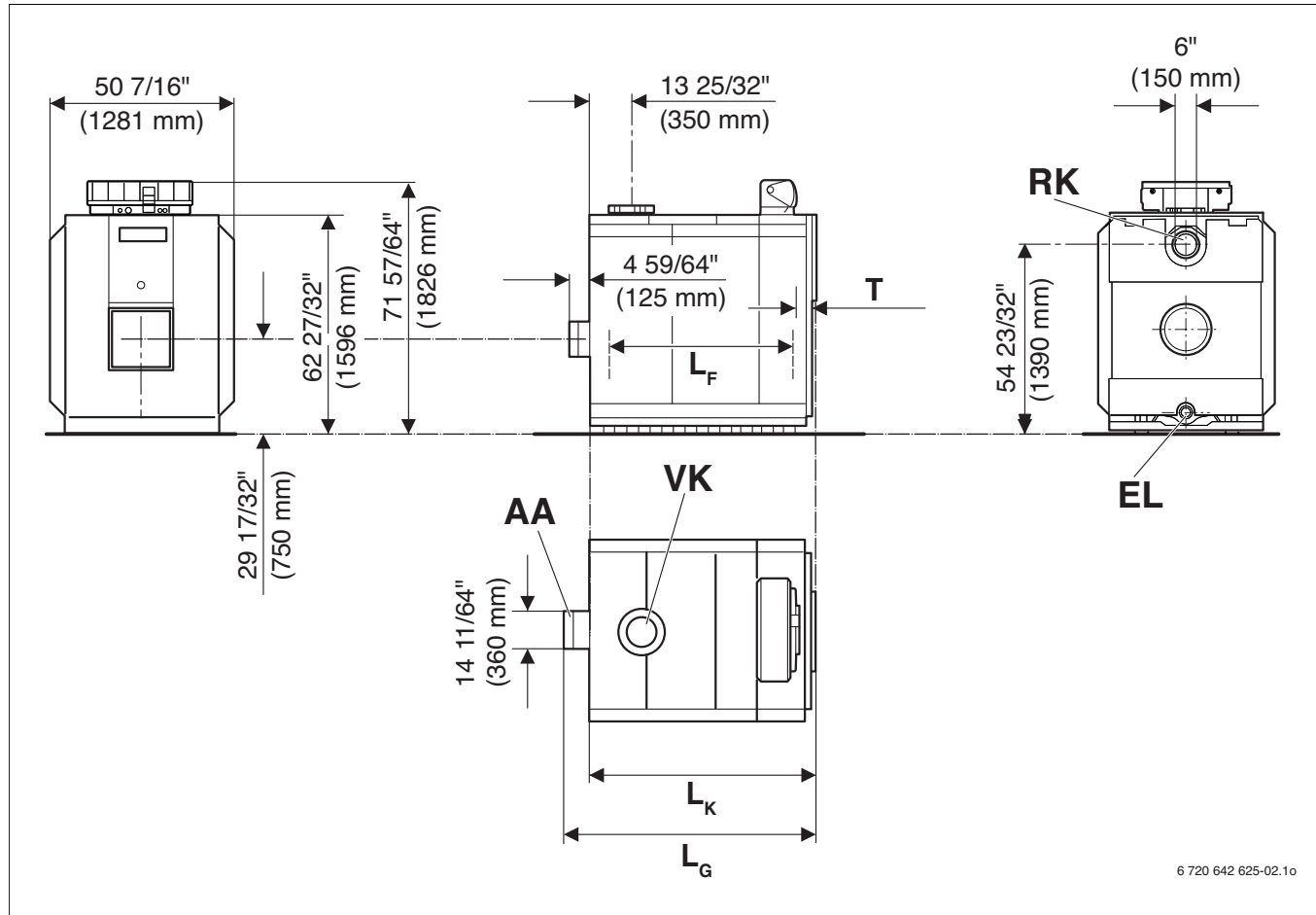


Fig. 3 Connections and dimensions

- [AA] Flue gas spillage
- [EL] Drain valve (Rp $\frac{3}{4}$)¹⁾
- [L_K] Boiler heat exchanger length
- [L_G] Overall boiler length
- [RK] Return connection on the boiler²⁾
- [VK] Supply connection on the boiler³⁾

1) With the drain valve (EL), you may only drain the system, not fill it.

2) The filling of the boiler and the system must be undertaken on a separate connector on the return line.

3) The flange corresponds to the order reduced to 212 (DN100), 176 (DN80) or 149 (DN65).

Logano G615									
Boiler capacity	Unit	570	660	740	820	920	1020	1110	1200
Number of boiler sections	–	9	10	11	12	13	14	15	16
Gross output	Btu/hr (kW)	1951 (570)	2242 (660)	2532 (740)	2822 (820)	3112 (920)	3402 (1020)	3692 (1110)	3982 (1200)
Net AHRI rating water, gas	Btu/hr	1697	1950	2202	2454	2706	2958	3210	3463
Net AHRI rating water, oil	Btu/hr	1697	1950	2202	2454	2706	2958	3210	3463
Input rating gas	Btu/hr (kW)	2309 (616.2)	2670 (713.5)	3031 (800.0)	3392 (886.5)	3753 (994.6)	4113 (1102.0)	4474 (1200.0)	4835 (1297.0)
Input rating oil	gph (l/h)	9 (16)	10 (18,5)	11 (21)	12 (23,5)	13 (26)	14 (28,5)	15 (31)	16 (33)
Overall boiler length (L _G)	inches (mm)	75 53/64" (1926)	82 33/64" (2096)	89 7/32" (2266)	95 29/32" (2436)	102 19/32" (2606)	109 19/64" (2776)	115 63/64" (2946)	122 43/64" (3116)
Boiler block length (L _K)	inches (mm)	71 1/64" (1804)	77 23/32" (1974)	84 13/32" (2144)	91 7/64" (2314)	97 51/64" (2484)	104 31/64" (2654)	111 3/16" (2824)	117 7/8" (2994)
Single boiler section size (B × H × T)	inches (mm)	43 9/64" × 64 9/16" × 6 45/64" (1096 × 1640 × 170)							
Boiler block transport size (B × H × L)	inches (mm)	43 9/64" × 64 9/16" × L _K (1096 × 1640 × L _K)							
Combustion chamber length (L _F)	inches (mm)	60 1/32" (1525)	66 47/64" (1695)	73 27/64" (1865)	80 1/8" (2035)	86 13/16" (2205)	93 1/2" (2375)	100 13/64" (2545)	106 7/8" (2715)
Combustion chamber diameter	inches (mm)	26 49/64" (680)							
Burner door thickness	inches (mm)	5 4 5/64" (145)							
Weight, net ¹⁾	lbs. (kg)	5.523 (2505)	6.056 (2747)	6.592 (2990)	7.125 (3232)	7.661 (3475)	8.179 (3710)	8.715 (3953)	9.143 (4147)
Boiler water content	gal (l)	148.25 (561)	164 (621)	180 (681)	195.75 (741)	211.5 (801)	227.5 (861)	243.25 (921)	259.25 (981)
Gas capacity	gal (l)	243.5 (922)	271.25 (1027)	299 (1132)	326.75 (1237)	354.5 (1342)	382.25 (1447)	410 (1552)	437.75284 (1657)
Flue gas temperature partial load 60 %	°F (°C)	284 (140)							
Flue gas temperature full load	°F (°C)	338 – 356 (170 – 180)							
Flue gas mass flow rate, oil, partial load 60 %	°F (°C)	32.277 (0.1537)	32.32 (0.1778)	32.359 (0.1995)	32.397 (0.2207)	32.446 (0.2479)	32.495 (0.275)	32.539 (0.2992)	32.582 (0.3234)
Flue gas mass flow rate oil, full load ²⁾	lbs./s (kg/s)	0.5115 – 0.5765 (0.232 – 0.2615)	0.5714 – 0.6676 (0.2592 – 0.3028)	0.6616 – 0.7487 (0.3001 – 0.3396)	0.7416 – 0.8296 (0.3364 – 0.3763)	0.8217 – 0.9308 (0.3727 – 0.4222)	0.9218 – 1.0313 (0.4181 – 0.4678)	1.0218 – 1.1228 (0.4635 – 0.5093)	1.1118 – 1.2136 (0.5043 – 0.5505)

Table 4 Technical data and dimensions


Logano G615									
Boiler capacity	Unit	570	660	740	820	920	1020	1110	1200
Flue gas mass flow rate, gas, partial load 60%	lbs./s (kg/s)	0.34 (0.1542)	0.3935 (0.1785)	0.4414 (0.2002)	0.4883 (0.2215)	0.5485 (0.2488)	0.6085 (0.276)	0.662 (0.3003)	0.7156 (0.3246)
Flue gas mass flow, gas, full load ²⁾	lbs./s (kg/s)	0.5132 – 0.5787 (0.2328 – 0.2625)	0.5736 – 0.67 (0.2602 – 0.3039)	0.664 – 0.7513 (0.3012 – 0.3408)	0.7443 – 0.8325 (0.3376 – 0.3776)	0.8247 – 0.9341 (0.3741 – 0.4237)	0.9251 – 1.0348 (0.4196 – 0.4694)	1.0256 – 1.127 (0.4652 – 0.5112)	1.1158 – 1.2181 (0.5061 – 0.5525)
CO ₂ content, oil	%	13							
CO ₂ content, gas	%	10							
Required flue pressure (draft requirement)	PSI (Pa)	0 (0)							
Fireside pressure drop	in W.C. (mbar)	0.9624 (2.4)	1.3634 (3.4)	1.6842 (4.2)	1.6842 (4.2)	1.6441 (4.1)	1.8045 (4.5)	2.1654 (5.4)	2.3258 (5.8)
Permissible supply temperature ³⁾	°F (°C)	212 – 248 (100 – 120 ⁴⁾)							
Allowable operating water pressure	PSI (bar)	87 (6)							
									

Table 4 Technical data and dimensions

- 1) Weight not incl. packaging material approx. 4 – 5 % less.
- 2) The details relate to the upper and lower rated output range.
- 3) Safety limit (high limit safety cut-out). Maximum possible supply temperature = safety limit (STB) – 32 °F (– 18 K).
Example: Safety limit (STB) = 212 °F (100 °C), max. possible supply temperature = 212 – 32 = 180 °F (100 – 18 = 82 °C).
- 4) Observe all gas regulations and requirements for your country.

4 Scope of delivery

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

- After delivery, check all packaging for perfect condition.
- Check the delivery for completeness.

4.1 Logano G615 – Delivery as a pre-assembled block

Component	Qty	Packaging
Boiler heat exchanger	1	Pallet
Fittings	1	Crate
Assembly parts	1	Crate
Jacket pack A	1	Crate
Jacket pack B	1	Crate
Thermal insulation	1	Foil pouch

Table 5 Scope of delivery (block delivery)

4.2 Logano G615 – Delivery in loose sections

Component	Qty	Packaging
Front, rear, intermediate section with top supply connection and burner door	1	Pallet
Central sections (depending on boiler size)	2 – 5	Pallet
Fittings basic unit, 9 – 16 pieces	1	Crate
Additional fittings (content depends on boiler size)	1	Crate
Assembly parts	1	Crate
Jacket pack A	1	Crate
Jacket pack B	1	Crate
Thermal insulation	1	Foil pouch
Tie rods set with spring packages		

Table 6 Scope of supply (loose sections)

5 Transporting the boiler

Use suitable equipment to transport the individual boiler sections (delivery as loose sections) and other individual parts.



WARNING: Risk of injury from improperly secured boiler sections.

- ▶ Use only suitable means of transportation when handling the boiler sections, e.g. a sack truck with strap or heavy duty dolly.
- ▶ Secure the individual boiler sections to prevent them from sliding off when transporting them.



NOTICE: Risk of system damage from impacts.

- ▶ The standard delivery of the Logano G615 oil/gas-fired boiler contains components that are sensitive to shock.
- ▶ During handling protect all electronic and other components against impact.
- ▶ Please observe the transport instructions on the packaging.



NOTICE: Risk of system damage from contamination.

- ▶ If you intend to keep the boiler in storage once it has been assembled, observe the following:
- ▶ Protect the boiler connections against contamination by sealing them off or covering them.



Dispose of packaging in an environmentally responsible manner.

6 Positioning the boiler

This chapter describes how to properly position the Logano G615.



NOTICE: Risk of system damage from freezing.

- ▶ Install the system in a room free from the danger of freezing.

6.1 Tools and auxiliary materials

The following tools and auxiliary materials are required for the boiler assembly (the listed items are not contained in the scope of delivery).

- Boiler assembly tool 2.3
- Installation kit (accessory)
- Steel hammer and wooden or rubber mallet
- Half-round bastard file
- Screwdriver (Philips and flat head)
- Flat chisel, support wedge, flat iron
- Metric wrenches

- Cleaning rags and cloth
- Fine emery cloth
- Wire brush
- 3-in-1 oil
- Solvent (gasoline, mineral spirits)
- Level, tape measure, chalk, straight edge

Boiler assembly tool size 2.3

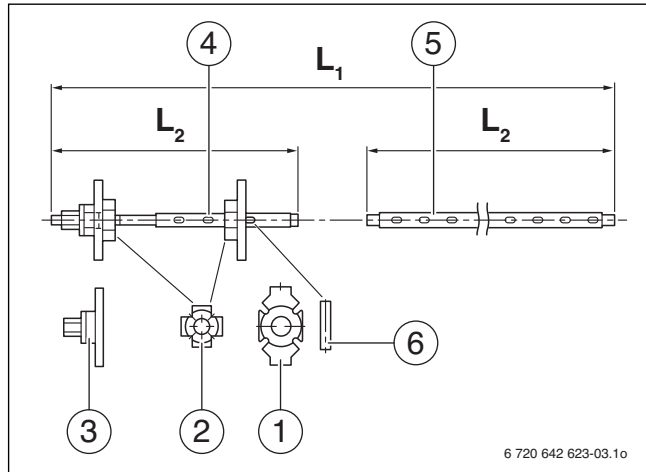


Fig. 4 Boiler assembly tool size 2.3 (dimensions in mm)

- [1] Mating flange
- [2] Additional flange
- [3] Compression unit
- [4] Tie rod
- [5] Extension
- [6] Wedge (size 2.3)
- [L₁] 121 1/4" (3080 mm)
- [L₂] 31 1/2" (800 mm)

Boiler sections	Assembly tool(s) per boiler hub	Extension piece per boiler hub	Length (total) in inches (mm)
9 – 16	1	3	121 1/4 (3080)

Table 7 Boiler assembly tool size 2.3 (complete in the toolbox)



For the correct arrangement of the flange when performing the assembly procedure, refer to page 17.

6.2 Recommended wall clearances

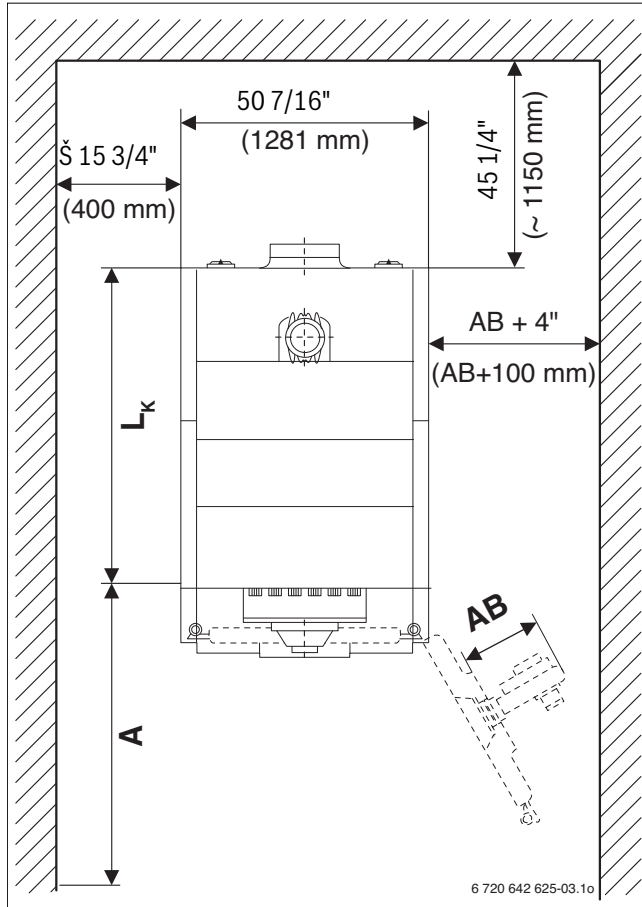


Fig. 5 Installation room with boiler



Observe the recommended wall clearances for complete opening of the burner door, for boiler installation and for cleaning and maintenance (→ Fig. 5 and Tab. 8).

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

The wall clearance on the hinge side must be at least the burner projection (AB). A distance of AB + 4" (AB + 100 mm) from the wall is recommended.

Boiler capacity		Clearance A inch (mm)	
BTU/h (kW)	Sections	Recommended	minimum
1,944,921 – 2,797,956 (570 – 820)	9 – 12	90 35/64" (2300)	55 1/8" (1400)
3,139,170 – 4,094,570 (920 – 1200)	13 – 16	118 7/64" (3000)	59 1/16" (1500)

Table 8 Recommended and minimum wall clearances

If you do not observe the recommended minimum wall clearances, you will not be able to use the cleaning kit. Alternatively shorter cleaning devices or wet cleaning may be used.

6.3 Installing the boiler on a boiler base or foundation

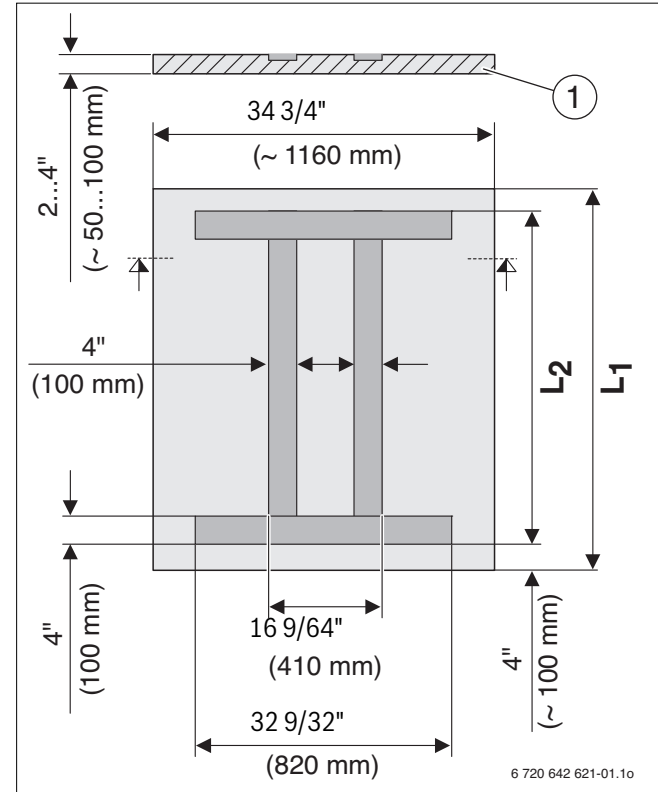


Fig. 6 Base dimensions



A silencing boiler base is available as an accessory from Buderus.

Place the boiler on a 2 – 4 inch (450 – 100 mm) tall base (observe wall clearances). The base must be flat and level. The front edge of the boiler should be flush with the edge of the base.

When pouring a foundation for the boiler, use the steel inserts with the following dimensions:

3 15/16 × 1 31/32 × 5/16 inches (100 × 50 × 8 mm) or sheet metal with the dimensions

3 15/16 × 13/64 inches (100 × 5 mm).

Number of boiler sections	L1 (base) inch (mm)	L2 (steel section) inch (mm)
9	65 3/4" (1670)	57 7/8" (1470)
10	72 7/16" (1840)	64 9/16" (1640)
11	79 9/64" (2010)	71 1/4" (1810)
12	85 53/64" (2180)	77 61/64" (1980)
13	92 33/64" (2350)	84 41/64" (2150)
14	99 7/32" (2520)	91 11/32" (2320)
15	105 29/32" (2690)	98 1/32" (2490)
16	112 19/32" (2860)	104 23/32" (2660)

Table 9 Base dimensions for angle or sheet metal steel lengths

7 Boiler block assembly



WARNING: Risk of injury from improperly secured boiler sections.

- ▶ Use only suitable means of transportation when handling the boiler sections, e.g. a heavy duty hand truck with strap or a heavy duty hand truck.
- ▶ Secure the individual boiler sections to prevent them from sliding off during transport.

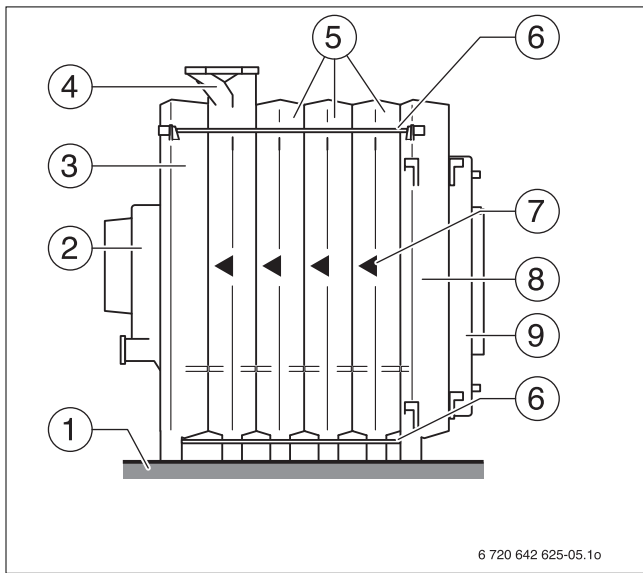


Fig. 7 Assembled boiler block

- [1] Boiler base or foundation
- [2] Draft diverter
- [3] Rear section
- [4] Intermediate section with supply connection
- [5] Intermediate section
- [6] Tie rod
- [7] Sequence of installation
- [8] Front section
- [9] Burner door with burner plate

A distinction is made between delivery as a pre-assembled block and delivered as disassembled sections. When delivered as a block, the boiler sections are already fully assembled and checked for leaks prior to delivery. If the assembled boiler is too large or too heavy to be brought to its final installation location in the building, delivery of the disassembled boiler in sections offers a solution.

The assembly of the boiler block from individual sections is described below.

For details on final assembly of the remainder of the boiler, → see Chapter 7.3, page 19.

7.1 Assembly of a boiler block from sections



WARNING: Risk of injury from insufficiently secured boiler sections.

- ▶ Secure boiler sections during assembly and take measures to prevent them from tipping over. The installation aid (accessory) is available from Buderus on request.

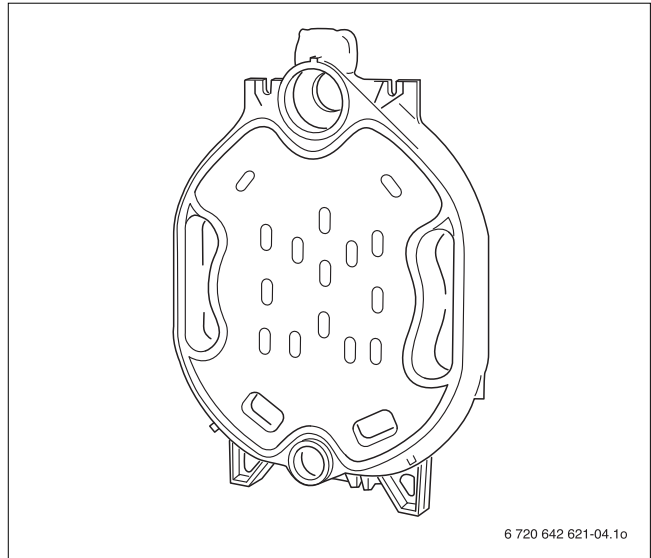


Fig. 8 Rear section

The assembly of the boiler block is always done from the rear to the front, that is, the rear section (→ Fig. 7, [3]) is always mounted first and the front section (→ Fig. 7, [8]) is always mounted last.

Observe the installation direction arrows of the boiler sections (→ Fig. 7, [7]) during assembly!

Observe the correct positioning of the intermediate section with top supply connection (→ Fig. 7, [4])!

Mount the boiler block according to the instructions and figures below!

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

Preparing boiler sections

- ▶ Remove nuts and washers from the studs on the hubs of the boiler sections before attaching the rear section and front section.
- ▶ Put the rear section in place and secure during assembly taking measures to prevent tipping over (→ Fig 8 and separate instructions for installation).
- ▶ File down any burrs on the hubs if necessary.

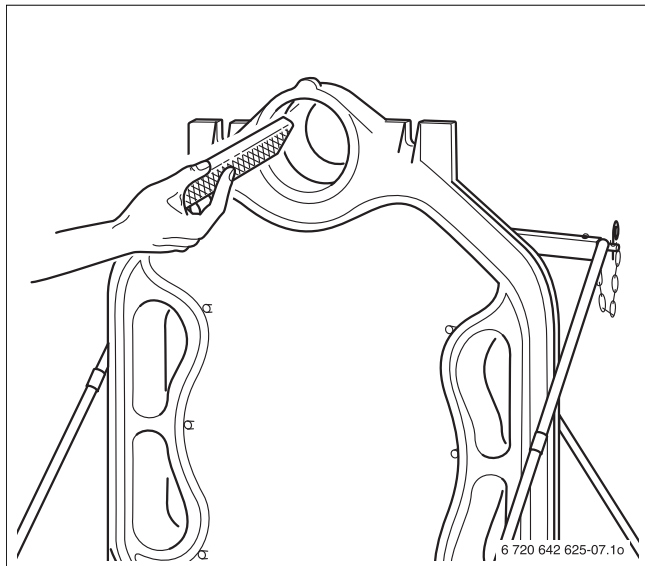


Fig. 9 Filing down burrs on the hub

- ▶ Clean the packing grooves where required using a wire brush and cloth.



WARNING: Danger of fire from combustible cleaning agents.

- ▶ When using solvents, avoid open flames, ambers and sparks.
- ▶ Please observe the safety instructions regarding any solvents used.

- ▶ Clean the hub sealing faces with a rag soaked in solvents or gasoline.
- ▶ Evenly coat the hub sealing faces with sealant.



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

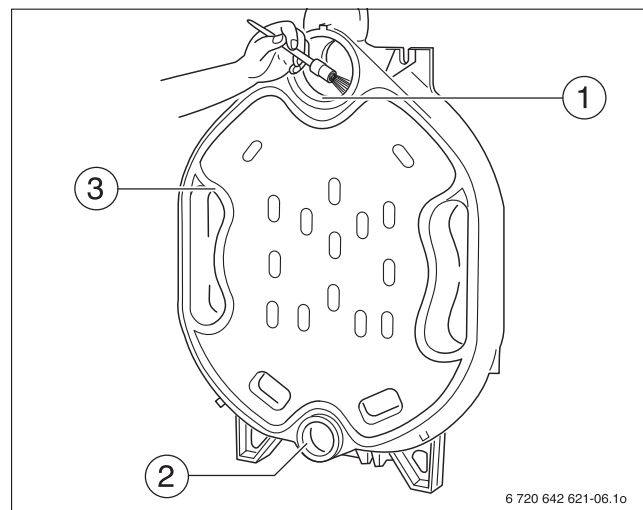


Fig. 10 Coating the hub sealing faces

- [1] Sealing face of top hub
- [2] Sealing face of bottom hub
- [3] Packing groove

- ▶ Clean nipple with a rag soaked in solvents or gasoline and coat evenly with sealant.



WARNING: Health hazard from noxious vapors released during material handling, such as solvents, primers or sealant.

- ▶ Ensure adequate ventilation of the installation area.
- ▶ Please note the handling and safety instructions of the product used.

- ▶ Insert nipple directly into the top (size 4, 181/70) and bottom (size 2, 119/50) hub on the rear section.
- ▶ Strike the nipple with hefty hammer strokes in a cross pattern.



The top nipple must protrude approx. 1 3/4" (43 mm) and the bottom nipple approx. 1 1/4" (32 mm) out of the corresponding hubs.

- ▶ Remove any burrs with a file.



The packing grooves must be clean and dry for the sealant rope to adhere properly.

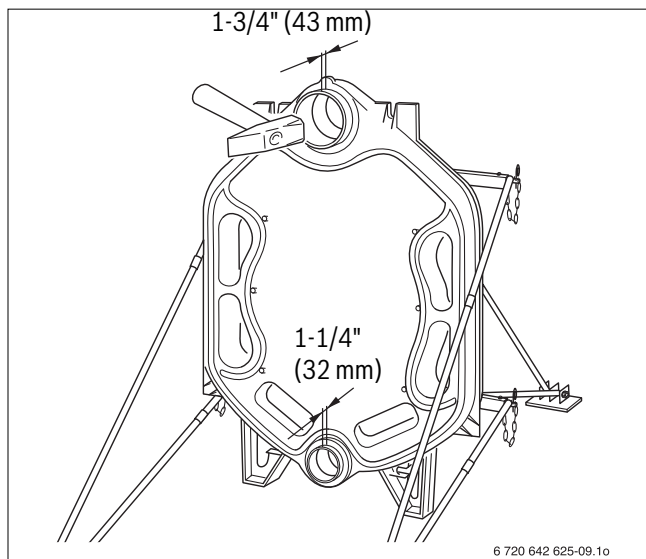


Fig. 11 Driving nipples home

- ▶ Coat the packing grooves with adhesive (primer).

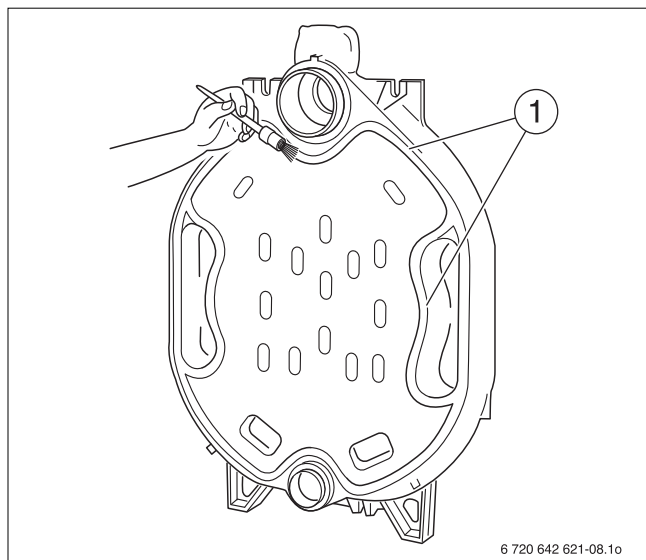


Fig. 12 Coat the packing grooves with adhesive (primer)

- [1] Packing grooves

- ▶ Insert the flexible sealant rope on the front of the rear section, starting around the top hub, into the packing grooves, and press in lightly.
- ▶ At the butt joints, overlap the sealant rope by approx. 3/4" (20 mm) and press firmly together.



Unroll the required length of sealant rope from the spool supplied. Peel the backing paper from the sealant rope when inserting into the packing groove (do not stretch).

- ▶ Do not let sealant rope overlap at the left and right of the butt joints (→ Fig. 13, [3]).

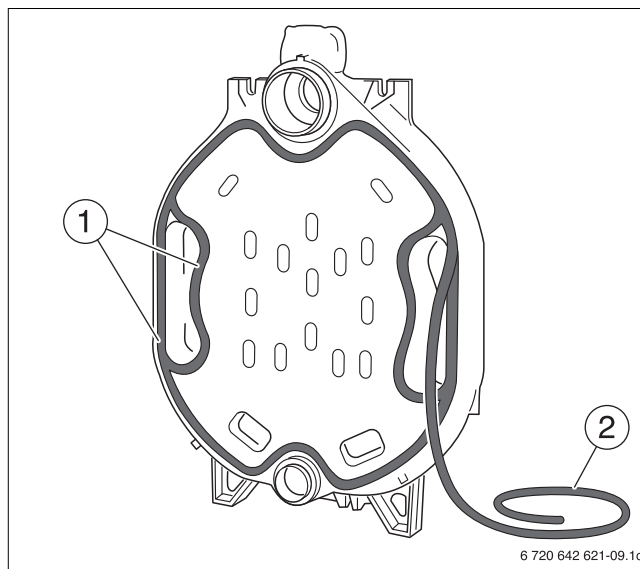


Fig. 13 Inserting sealant rope

- [1] Packing grooves
[2] Sealant rope
[3] Butt joints

Prepare the first intermediate section (with top supply connection):

- ▶ File down any burrs on the hub.
- ▶ The packing springs must be clean and dry. Clean if necessary.
- ▶ Clean the hub sealing faces with a rag soaked in mineral spirit or gasoline.

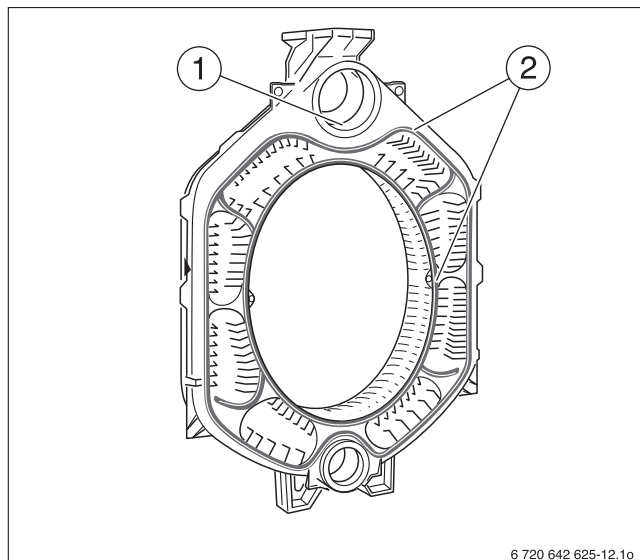


Fig. 14 Preparing the center section

- [1] Sealing face of the hub
[2] Packing springs

- ▶ Evenly coat the hub sealing faces with sealant.
- ▶ Coat the packing springs with primer.
- ▶ Position the intermediate section with the supply connection so that the top and bottom hubs fit onto the nipples in the rear section. The directional arrow must point towards the rear.

i To make installation easier, place the boiler section to be fitted onto the nipple on the top hub first. Then it is easier to align the boiler section on the bottom hub.

- ▶ Drive first intermediate section onto the rear section using a wooden or a rubber mallet.

i Before the nipples are inserted in the next intermediate section, the partly-assembled boiler block must be compressed using the boiler assembly tool.

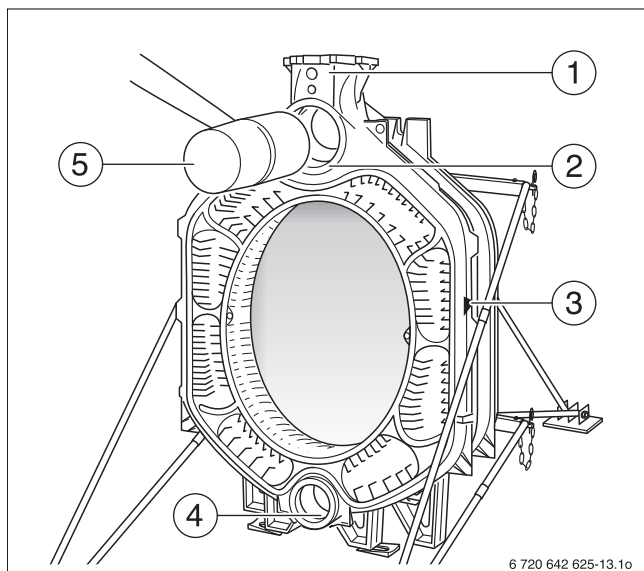


Fig. 15 Pound intermediate section in place

- [1] Supply connection
- [2] Top hub
- [3] Directional arrow
- [4] Bottom hub
- [5] Wood or rubber mallet

i Use boiler assembly tool 2.3 (→ Fig. 4, page 12).

- ▶ Push pressure flange with clamping nuts onto the tie rods.
- ▶ Push a tie rod through the top and bottom hubs on the boiler block.
- ▶ Push mating flanges onto the tie rods and secure each with wedge.
- ▶ Hold the tie rod in the center of the 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 hubs after being pounded in and that they have not been compromised.
- ▶ Never compress more than one nipple joint at a time.
- ▶ Stop compressing the sections when the boiler hubs meet.

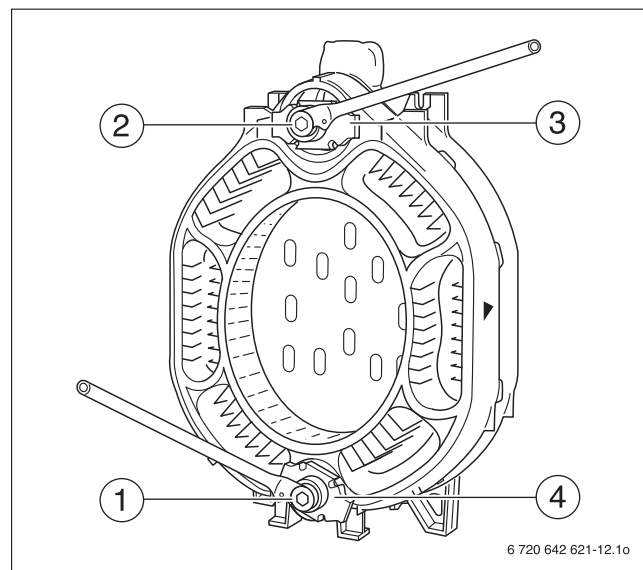


Fig. 16 Using the boiler assembly tool

- [1] Boiler assembly tool (bottom hub)
- [2] Boiler assembly tool (top hub)
- [3] Pressure flange (top)
- [4] Pressure flange (bottom)

- ▶ Place ratchet wrench onto clamping nut and compress boiler sections by tightening evenly.



CAUTION: Danger of accident from material fatigue. Improperly used or poorly maintained assembly tools may fail.

- ▶ Never work directly in front of the assembly tool while it is being tensioned.
- ▶ Ensure that no one is standing in front of the assembly tool.

- ▶ Release and remove the boiler assembly tool.
- ▶ Check nipples are seated correctly.



NOTICE: Assembly tool damage due to loose screw connections of the tie rods.

- ▶ Always check the tie rods before each use and retighten as necessary. The tie rod is correctly positioned if it is fully inserted and no threads are showing (→ Fig. 17, [2]).
- ▶ Always keep the threads (→ Fig. 17, [1]) clean. Dirty threads may damage the assembly tool during compression.

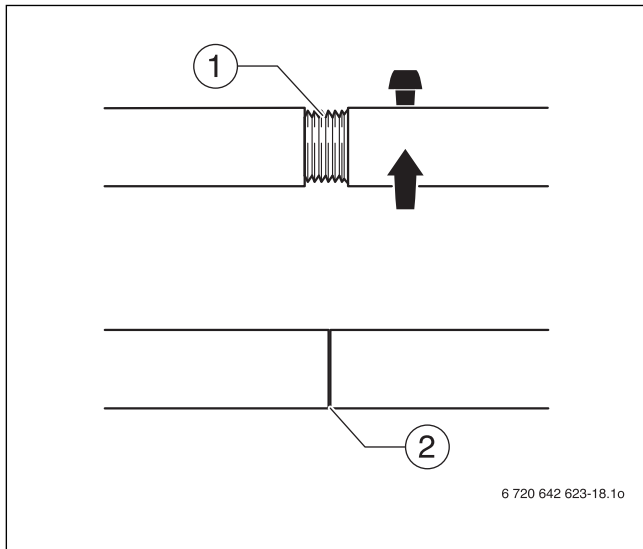


Fig. 17 Boiler assembly tool 2.3

- [1] Screw connection of the tie rods (disassembled)
- [2] Screw connection of the tie rods (correctly positioned)

Fig. 18 shows the intermediate section with supply connection. The nipples for mounting of the next intermediate section are inserted into the corresponding hubs. The sealant rope has already been inserted into the packing groove. As shown for the rear section (→ Fig. 13, page 16), here too, the flexible sealant rope is interrupted. The boiler section has been equipped with foot wedges for ease of installation. The boiler section foot wedges are also used later for final leveling of the boiler block.

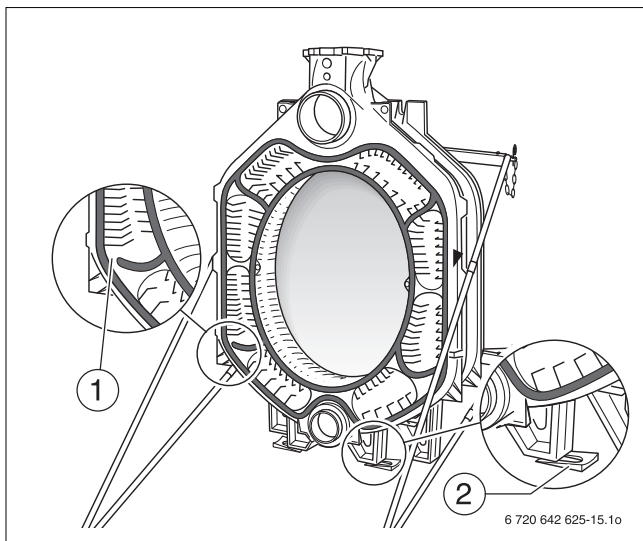


Fig. 18 Using the boiler section foot wedges

- [1] Sealant rope (interrupted)
- [2] Boiler section foot wedge

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



After the front section is attached, loosen the assembly tool but do not remove it. First insert the tie rods.



NOTICE: Damage to system through excessively low contact pressure.

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

- ▶ Insert the tie rods (with spring packages fitted) into the cast lugs on the top left and right, and bottom left and right, next to the boiler block hubs.
- ▶ Turn and tighten each nut on the tie rods by hand.
- ▶ Now tighten the nuts on the tie rods 1 to 1½ turns.
- ▶ Level the boiler block vertically and horizontally on the base/foundation (→ see Chapter 6.3, page 13). Use the boiler section foot wedges provided for this purpose (→ Fig. 18, page 18).
- ▶ Remove boiler assembly tool.

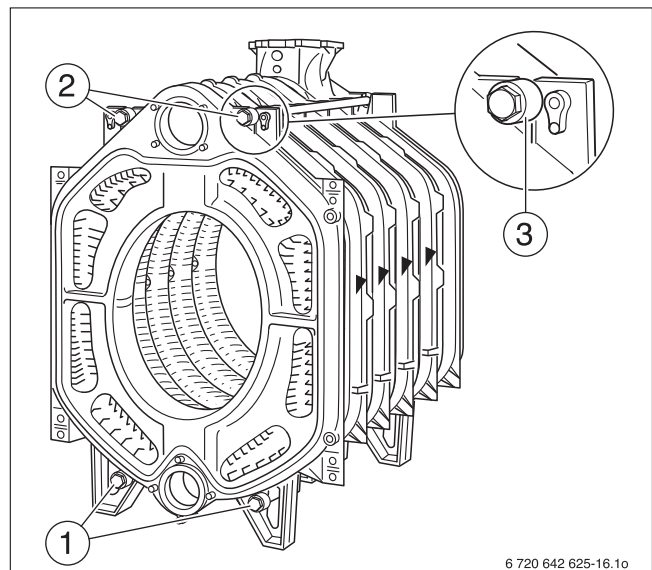


Fig. 19 Inserting the tie rods

- [1] Tie rods (bottom)
- [2] Tie rods (top)
- [3] Tie rod with spring package

The next step describes the installation of the supply pipe (→ see Chapter 7.4, page 19).

7.3 Setting up the boiler block – (assembled block)



DANGER: Risk of fatal injury from falling objects.

- ▶ Provide a suitable means of supporting the load.
- ▶ Observe all locally applicable occupational health & safety regulations regarding lifting equipment.

- ▶ Cut the straps.
- ▶ Remove pallet.

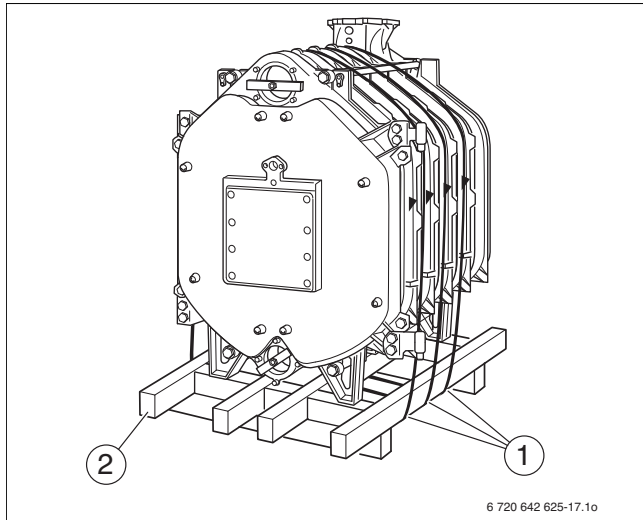


Fig. 20 Boiler block on pallet

- [1] Securing straps
- [2] Pallet

- ▶ Level the boiler block vertically and horizontally on the base/foundation. Use the boiler section foot wedges provided for this purpose.
- ▶ After leveling the boiler block, remove the transport safety brace from the top and bottom hub.

The following pages describe the installation of the supply pipe and sensor well. You must do both irrespective of whether the boiler is supplied pre-assembled or in separate sections.

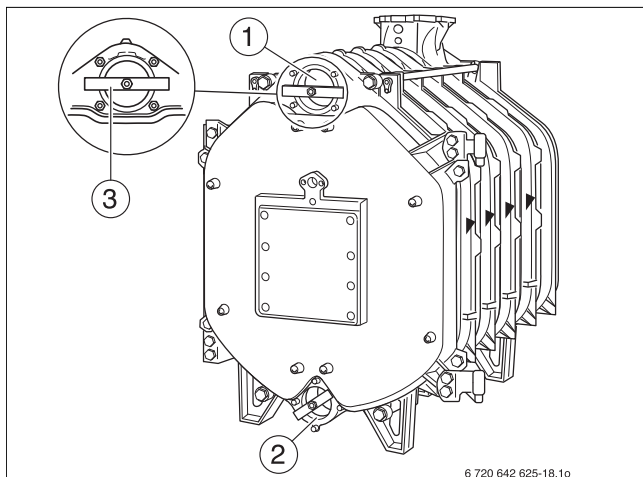


Fig. 21 Removing the transport safety brace

- [1] Top hub
- [2] Bottom hub
- [3] Transport safety brace

7.4 Inserting the supply pipe (parts crate)

For boilers with 9 – 11 sections, the supply pipe consists of 2 pieces, and 12 – 16 sections 3 pieces.

- ▶ Push the flat gasket over the supply pipe.
- ▶ Push the supply pipe from the front into the top boiler hub.
- ▶ Close off with flange cover.



The supply pipe must be fixed in such a way that the holes on the supply pipe are positioned at the correct angle. This ensures optimum distribution of water in the area of the top boiler hub (Thermostream principle).

- ▶ Make sure that the cam [3] on the end plate of the supply pipe (→ Fig. 22, [3]) fits in the notch in the top boiler hub (→ Fig 22, [5]).

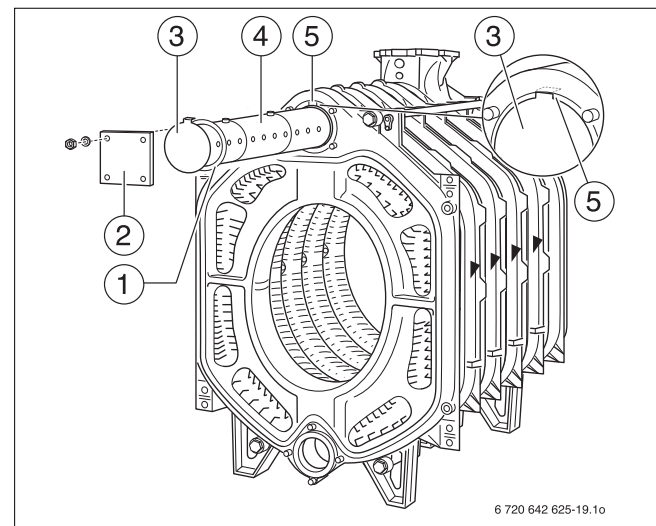


Fig. 22 Sealing in the supply pipe

- [1] Flat gasket
- [2] Flange cover
- [3] Cam
- [4] Supply pipe
- [5] Notch in top boiler hub

7.5 Installing sensor well (fittings crate)

Sensor well R 3/4 "

- ▶ Seal and install sensor well R 3/4 " from the front (length: 4 21/64" (110 mm)) into the top R 3/4 " tapped hole of the supply connection.

Sensor well R 1/2 "

- ▶ Seal and install sensor well R 1/2 " from the front (length: 4 21/64" (110 mm)) into the lower R 1/2 " tapped hole of the supply connection.

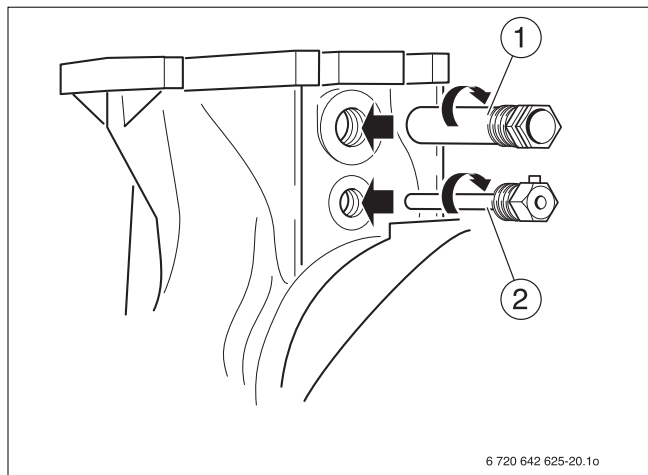


Fig. 23 Installing sensor wells

- [1] Sensor well R 3/4 "
- [2] Sensor well R 1/2 "

7.6 Inserting the lower distribution tube (fittings crate)

- ▶ Mount the tapped hole for the drain connection on the bottom boiler hub behind the flange (edge length 5 - 1/8" (130 mm)) with R 3/4 ".
- ▶ Fit customer-supplied boiler drain valve.



The customer-supplied boiler fill and drain valve is only used as a drain valve here.

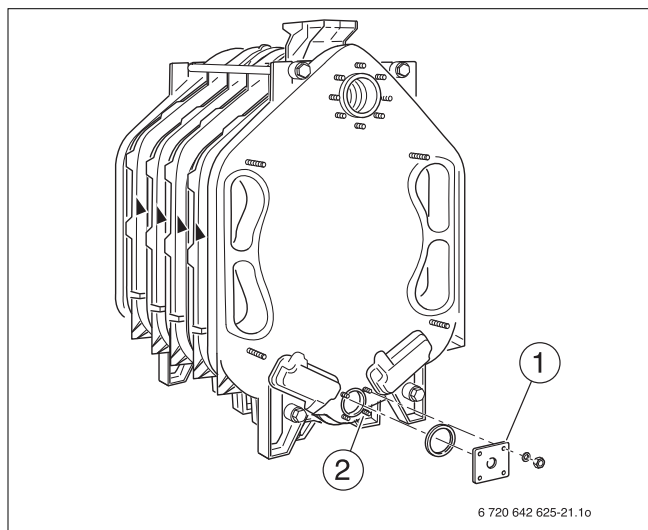


Fig. 24 Fitting the flange

- [1] Fill and drain connection
- [2] Bottom boiler hub (rear)

- ▶ Push the lower distribution tube element with spring (L₃) into the bottom boiler hub first.
- ▶ Hook the other lower distribution tube elements (L₂) into one another according to the detailed drawing.
- ▶ As the last lower distribution tube element, hook in the one with the handle (L₁).
- ▶ Close off bottom boiler hub with flat gasket and flange cover.



The length and number of the lower distribution tube elements depends on the boiler size and can be determined using → Table 10 below.

Elements		9	10	11	12	13	14	15	16
L ₁	18 29/32" (480 mm)	1	-	-	1	-	1	-	-
	25 19/32" (650 mm)	-	1	1	-	1	-	1	1
L ₂	20 5/64" (510 mm)	1	1	-	2	2	-	-	3
	26 49/64" (680 mm)	-	-	1	-	-	2	2	-
L ₃	17 23/32" (450 mm)					1			

Table 10 Length and number of the lower distribution tube elements

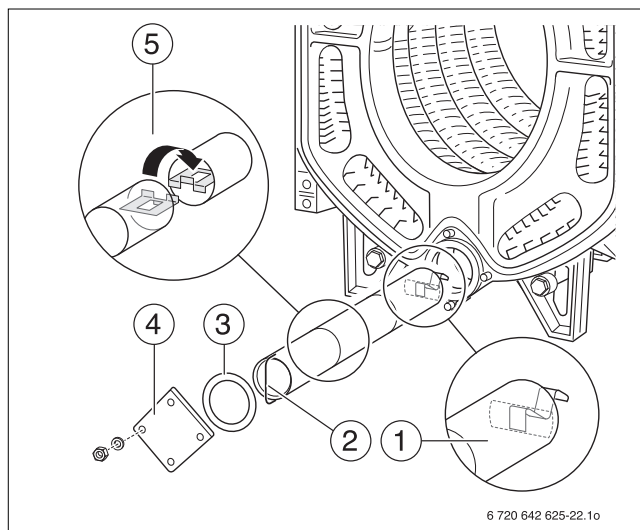


Fig. 25 Inserting the lower distribution tube

- [1] Lower distribution tube element L₃
- [2] Lower distribution tube element L₁
- [3] Flat gasket
- [4] Flange cover
- [5] Lower distribution tube element L₂

7.7 Leak test

Conduct a leak test of the boiler block only when the boiler was delivered disassembled. Pre-assembled blocks are leak tested at the factory.

For details of assembling the remainder of the boiler if the block is delivered pre-assembled → see Chapter 7.9.4, page 24.

7.7.1 Carrying out leak test



WARNING: Danger of life from neglecting to follow safety regulations.

- ▶ Observe the applicable national standards, occupational safety provisions and regulations for executing leak tests.



NOTICE: Risk of system damage from overpressure.

- ▶ Ensure that no pressure, control or safety equipment is fitted during leak tests.

The leak test must be performed with a test pressure of 125 psi (8.6 bar). Use a suitable pressure gauge to measure the pressure.

- ▶ Drain the water from the fill and drain valve (→ Fig. 24, [1], page 20), at the water supply connection, or at a leaky hub connection.
- ▶ Close off supply and return connections (supply connection flange with air vent valve).
- ▶ Slowly fill the boiler block with water via the fill and drain connection. Purge the air from the boiler block via the boiler supply connection with purger.

7.7.2 Seal leaks.

If leaky hub connections are discovered during the pressure test, proceed as follows.

- ▶ Remove supply pipe and lower distribution tube.
- ▶ Undo nuts on tie rods and remove tie rods.
- ▶ Separate the boiler block at the leak location by driving (knocking) in flat wedges or chisels between the sections at the points provided at the top and bottom (→ Fig. 26).

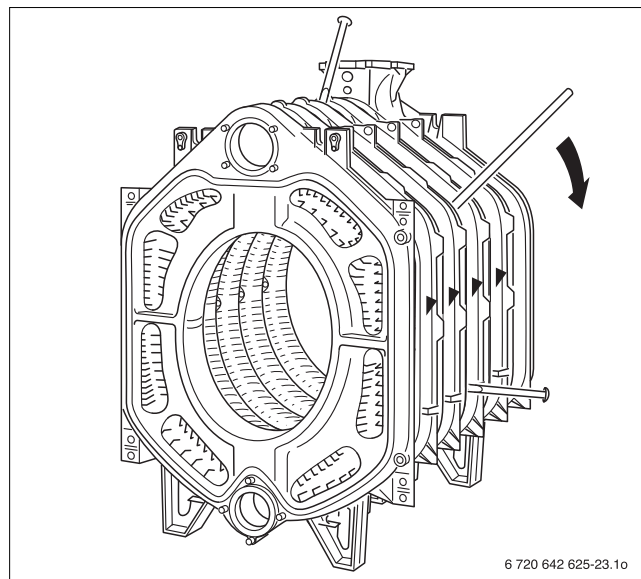


Fig. 26 Separating the boiler block



Use new nipples and new sealant rope for the reassembly.

- ▶ Pull the boiler back together and repeat the leak test.

7.8 Boiler water connections

Please observe the following information regarding the boiler connection to the system of pipes. These instructions are important for trouble-free operation.



NOTICE: Risk of system damage from leaking connections.

- ▶ All pipe connections to the boiler must be free of stress and tension.



NOTICE: System damage due to deposits, local overheating, and corrosion.

- ▶ As a basic rule, clean and flush existing systems thoroughly before connecting new boiler.
- ▶ Install a desludging unit in the boiler return to prevent damage to the boiler.

The weld neck flange is fitted to the top boiler hub if the return is connected at a later stage.

The weld neck flange and flat gasket are shown.

- ▶ The supply connection flange is required for connecting the supply at a later stage.

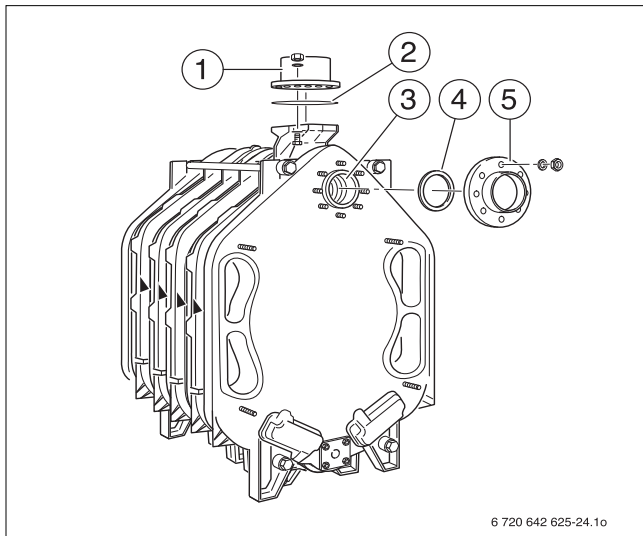


Fig. 27 Fitting a flange

- [1] Supply connection flange
- [2] Flat gasket
- [3] Top boiler hub (return connection)
- [4] Flat gasket
- [5] Weld neck flange



The supply and return manifolds are included in the Buderus scope of delivery.



NOTICE: Risk of system damage from temperature stresses.

- ▶ Install a fill valve on the system side.
- ▶ When the heating system is in operation, do not fill it via the boiler fill & drain valve. Instead, fill it on the system side.

7.9 Installing draft diverter, baffles, and burner door

The next step in the assembly process is to install the burner door and draft diverter. The pre-assembled boiler comes with these components already installed.

7.9.1 Positioning the draft diverter

The GP sealant rope (fiberglass cord with silicon casing) which forms a seal is inserted in the draft diverter at the factory.

- ▶ Glue GP sealant rope (approx. 59 1/16 inches (1500 mm) long) into the groove on the rear section using adhesive.
- ▶ Insert the sealant rope in such a way that its joint is at the top of the groove.
- ▶ Place the draft diverter onto the four threaded studs on the rear section and secure using washers and nuts.

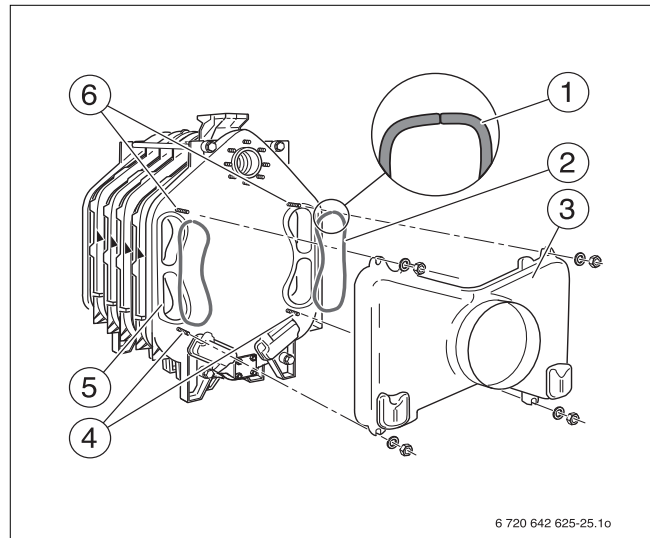


Fig. 28 Positioning the draft diverter

- [1] Sealant rope joint at the top of the groove
- [2] Sealant rope
- [3] Draft diverter
- [4] Threaded studs
- [5] Rear section
- [6] Threaded studs

7.9.2 Screwing cleanout cover onto rear section

Fig. 29 shows the fully equipped rear section with the cleanout covers on the draft diverter and the cleanout covers on the rear section.

- ▶ GP10Glue GP sealant rope (approx. 31 1/2 inches (800 mm) long) into the groove on the rear section with Silastic adhesive (sealant rope joint at top).
- ▶ Secure the cleanout covers on the rear section with washers and nuts.

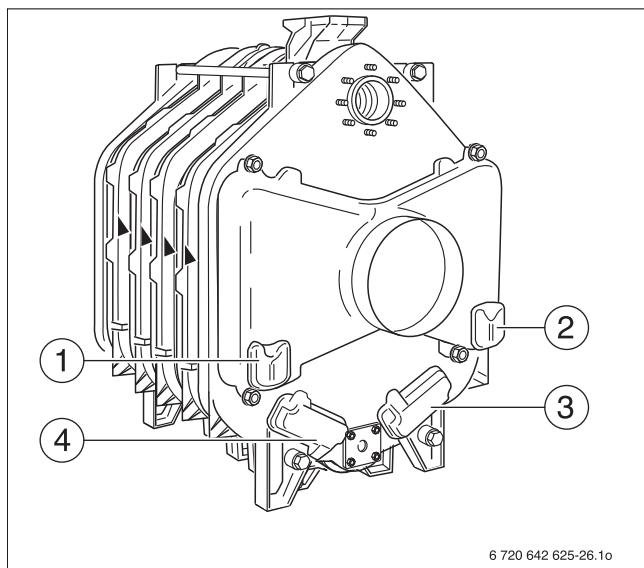


Fig. 29 Securing the cleanout covers

- [1] Cleanout cover on the draft diverter
- [2] Cleanout cover on the draft diverter
- [3] Cleanout cover on the rear section
- [4] Cleanout cover on the rear section

7.9.3 Fitting burner door

In the factory, the burner door is mounted with the hinges on the right hand side. For left-hand closing, remove the hinges from the right-hand side and reinstall them on the left-hand side of the burner door.

- ▶ Place a few drops of Silastic adhesive, 6 – 8 inches (15 – 20 cm) apart in the packing grooves on the front section.
- ▶ Insert GP sealant rope into the packing groove on the front section with the joint on the right or left hand side. Position the sealant rope on the side.
- ▶ Screw the hinge pins (right-hand) to the boiler front section with M12 × 55 machine screws in each case. For left-hand closing, secure accordingly on the left-hand side.
- ▶ Hook the burner door with the hinge lobes into the hinge pins.

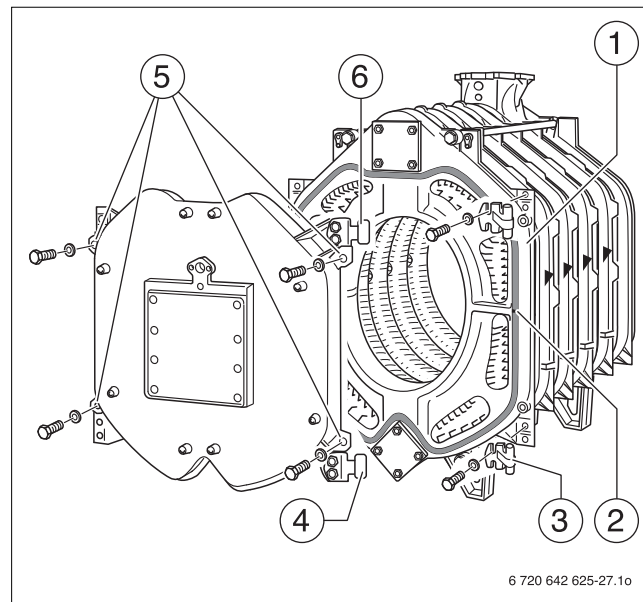


Fig. 30 Fitting burner door panel

- [1] Hinge pins (top)
- [2] Sealant rope (side)
- [3] Hinge pins (bottom)
- [4] Hinge lobe (bottom)
- [5] Holes in the burner door
- [6] Hinge lobe (top)

7.9.4 Inserting the flue gas baffles



In pre-assembled boilers, the flue gas baffles are already fitted

- ▶ Remove the cardboard transport protectors from the pre-assembled boiler.



The boiler consisting of 16 boiler sections does not contain any flue gas baffles.



Flue gas baffles with sickle profile and wave profile are being used in these boilers.

The flue gas baffles with sickle profile consist of two pieces, and it is very important that both parts are connected securely when inserting the baffle into the boiler. When fitting a hot gas flue with sickle profile baffles, make absolutely certain that both partial plates are hooked into one another.

→ Fig. 32, page 24 shows sectional and interconnected baffles.

- ▶ Remove the flue gas baffles from the crate and insert into the flue gas passages as indicated by their inscription (→ Fig. 31, Fig. 32, Fig. 33, and Tab. 11).

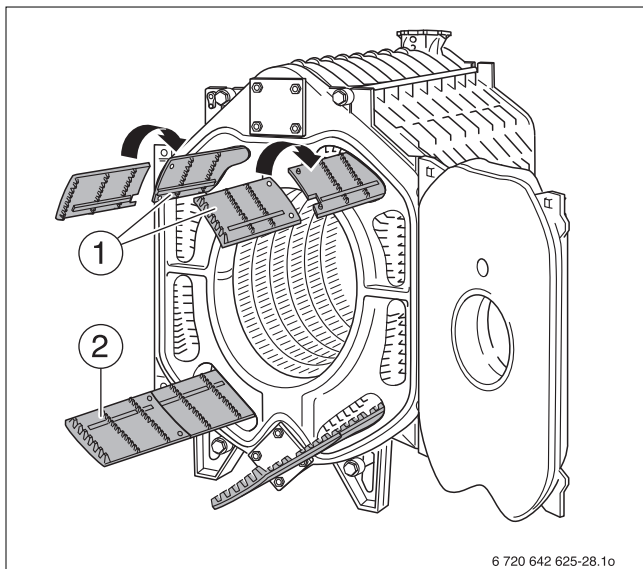


Fig. 31 Insert the flue gas baffles (boiler block with 9 sections)

- [1] Flue gas baffles with sickle profile (sectional baffle)
- [2] Flue gas baffles with sickle profile (interconnected)

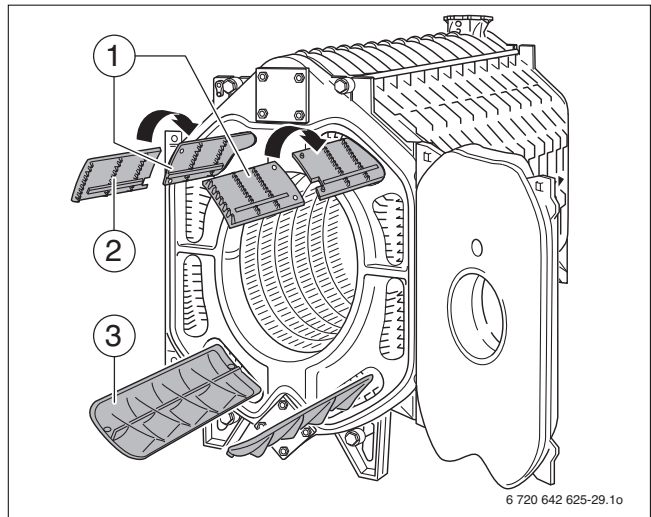


Fig. 32 Insert the flue gas baffles (boiler block with 13 sections)

- [1] Flue gas baffles with sickle profile (sectional baffle)
- [2] Flue gas baffles with sickle profile (sectional baffle)
- [3] Flue gas baffle with wave profile

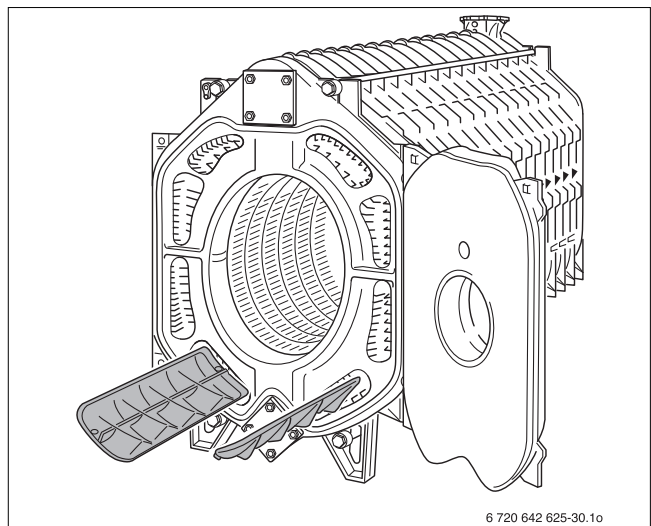


Fig. 33 Insert the flue gas baffles (boiler block with 15 sections)

- [1] Flue gas baffle with wave profile

Number of sections	Number of flue gas baffles			
	top left	top right	bottom left	bottom right
9	2 × sickle profile	2 × sickle profile	2 × sickle profile	2 × sickle profile
10	2 × sickle profile	2 × sickle profile	2 × sickle profile	2 × sickle profile
11	2 × sickle profile	2 × sickle profile	2 × sickle profile	2 × sickle profile
12	1 × wave profile	1 × wave profile	2 × sickle profile	2 × sickle profile
13	2 × sickle profile	2 × sickle profile	1 × wave profile	1 × wave profile
14	1 × wave profile	1 × wave profile	1 × wave profile	1 × wave profile
15	–	–	1 × wave profile	1 × wave profile
16	–	–	–	–

Table 11 Number of flue gas baffles

7.10 Installation of the boiler jacket

7.10.1 Fitting the thermal insulation

The thermal insulation provided corresponds to the boiler size.

- ▶ Arrange the thermal insulation on the boiler block as shown in the diagram in → Fig. 35 (the figures to the left of the boiler blocks represent the number of boiler sections).
- ▶ Push thermal insulation under the boiler block. The boiler feet are placed in the cut-outs in the thermal insulation.

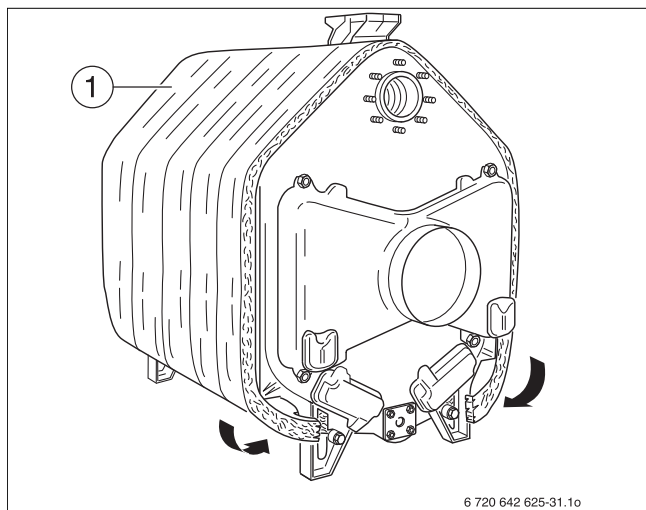
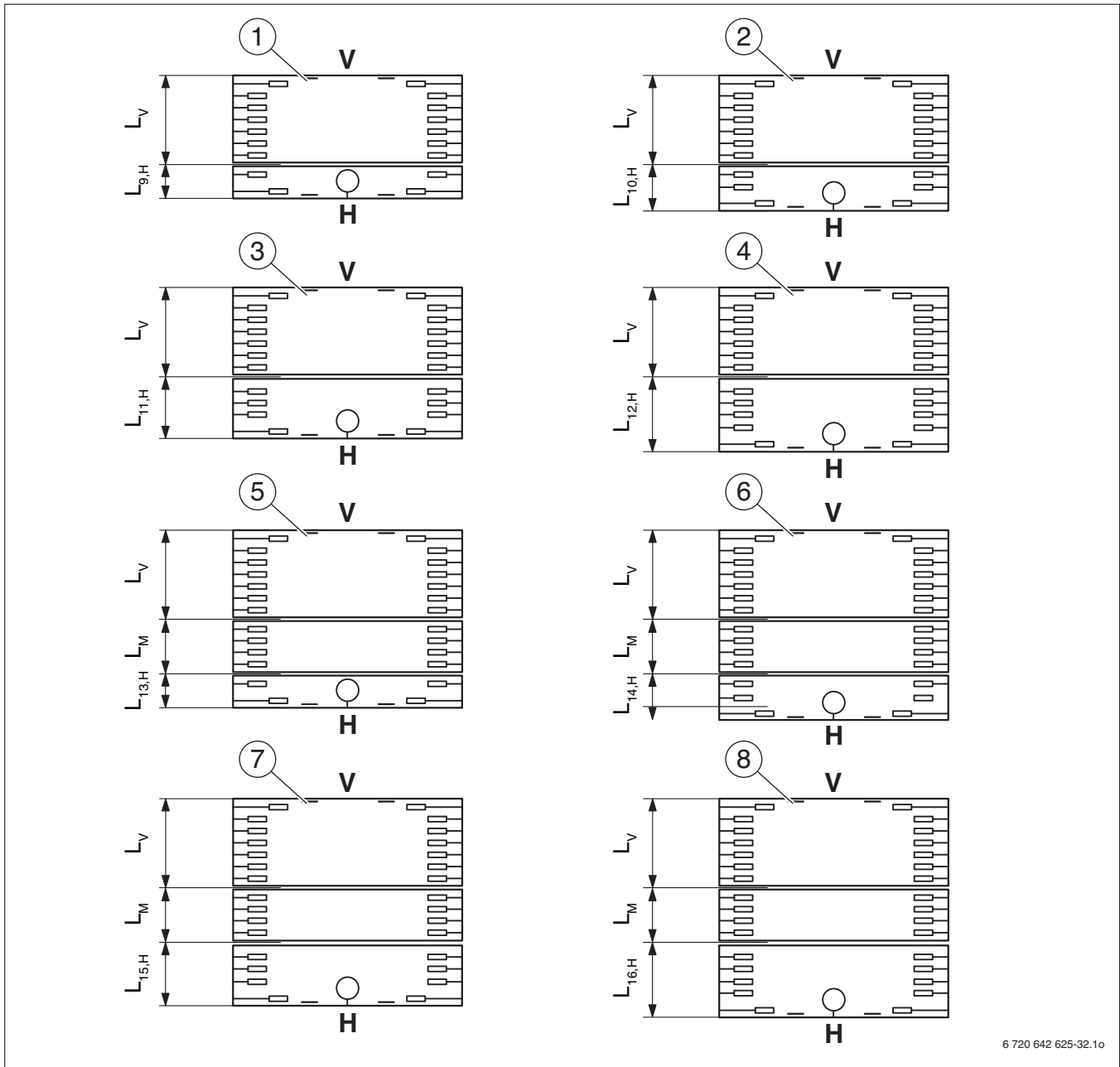


Fig. 34 Boiler block with thermal insulation

[1] Thermal insulation



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Fig. 35 Thermal insulation for the various boiler sizes

Item → Fig. 35	Number of boiler sections	L_V in inch (mm)	L_M in inch (mm)	$L_{n,H}$ in inch (mm)
1	9	45 43/64" (1160)	-	16 17/32" (420)
2	10			23 15/64" (590)
3	11			29 59/64" (760)
4	12			36 39/64" (930)
5	13		26 49/64" (680)	16 17/32" (420)
6	14			23 15/64" (590)
7	15			29 59/64" (760)
8	16			36 39/64" (930)

Table 12

7.10.2 Fitting the profile rails

- ▶ Place top front profile rails onto the cast lugs and screw in place with machine screws (M8 × x 12). The folded edge on the front profile rail must face forward.
- ▶ Place top rear profile rails onto the cast lugs and screw in place with machine screws (M8 × x 12). The folded edge of the rear profile rail must face rearward.
- ▶ Place the side profile rails from the side on the front and rear profile rails and screw on with self-tapping screws. The folded edge of the side profile rails must point towards the rear, while the oval holes must be positioned towards the center of the boiler.

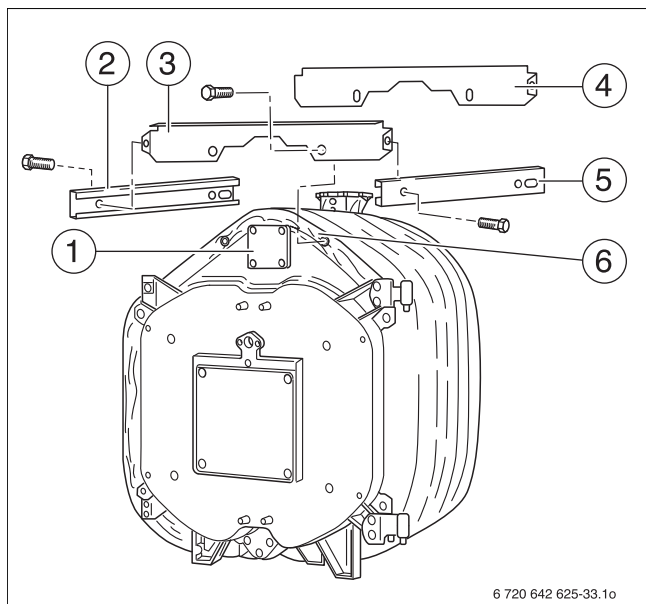


Fig. 36 Fitting front, rear, and side profile rails

- [1] Cast lugs
- [2] Side profile rail
- [3] Front profile rail (top front)
- [4] Rear profile rail (top rear)
- [5] Side profile rail
- [6] Cast lugs

- ▶ Attach the bottom front and rear profile rails onto the feet of the end sections using machine screws.

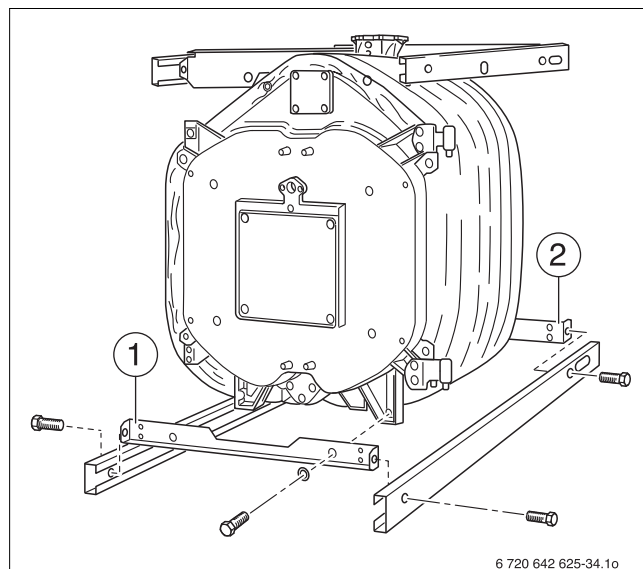


Fig. 37 Fitting the lower profile rails

- [1] Front profile rail (bottom front)
- [2] Rear profile rail (bottom rear)

- ▶ Place the bottom side profile rails with the folded edges towards the inside and the oval hole towards the rear of the boiler from the side on the front and rear profile rails and screw on using self-tapping screws.
- ▶ Push rear section thermal insulation onto the breach. The cut-out for the boiler return must point upward.
- ▶ Attach the rear section thermal insulation to the rear profile rail with two spring hooks.

- ▶ Close the slot below the flue outlet with spring hooks.

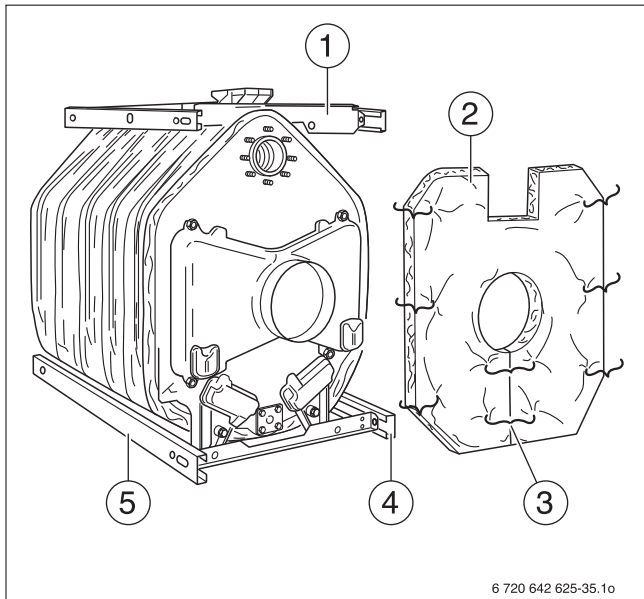


Fig. 38 Fitting lower side profile rails and thermal insulation

- [1] Rear profile rail
- [2] Rear section thermal insulation
- [3] Spring hooks
- [4] Bottom side profile rail
- [5] Bottom side profile rail

- ▶ Push rectangular thermal insulation onto the front top profile rail.
- ▶ Fasten thermal insulation with 3 spring hooks.
- ▶ If a burner cable is used, now would be the time to route it on the outside of the insulation.



There are advantages to routing the burner cable underneath the boiler jacket. To prevent damage to the burner cable while opening the burner door, the burner cable must always be fed down the hinge side.

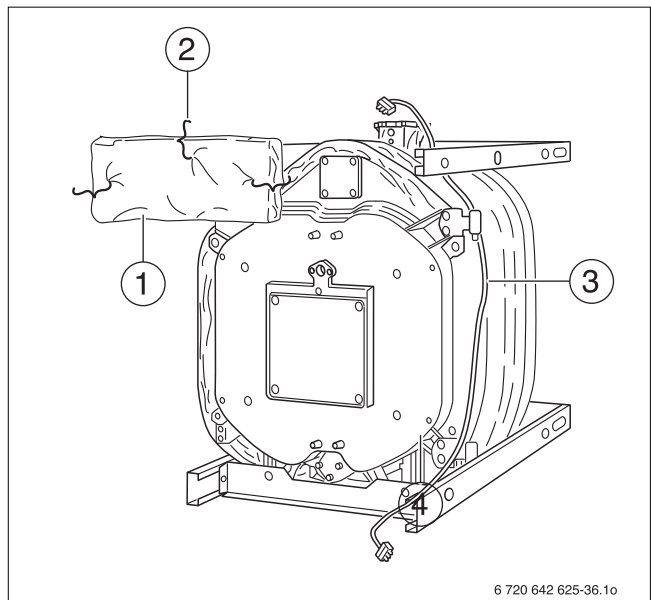


Fig. 39 Fitting the rectangular thermal insulation and burner cable (installation optional)

- [1] Thermal insulation
- [2] Spring hooks
- [3] Burner cable (installation optional)

- ▶ Attach strain relief for the burner cable depending on the door hinges left or right, to the bottom profile rail (→ Fig. 40 – for burner door hinge right).
- ▶ Push the front base panel from the front onto the bottom side profile rail and screw together.
- ▶ Mount rear base panel in the same way.

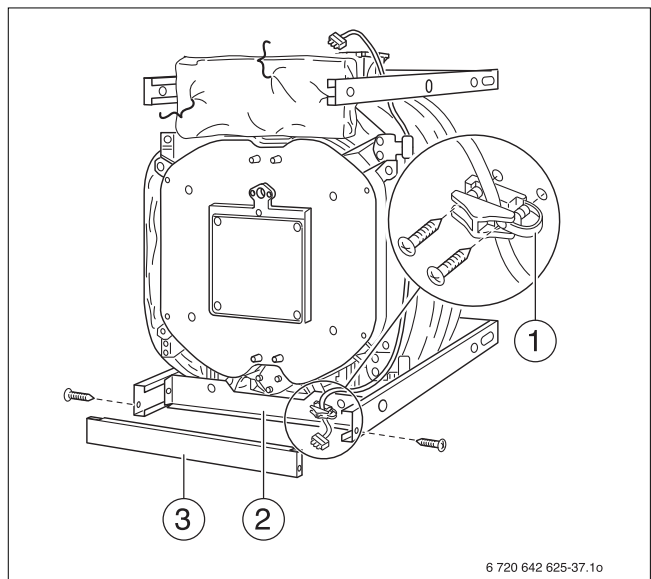


Fig. 40 Installation of the burner cable strain relief and base plates

- [1] Burner cable strain relief
- [2] Bottom front profile rail
- [3] Front base panel



For the arrangement of the side panels and covers, please see Fig. 43, page 30.

- ▶ Push the first side panel with the lower folded edge behind the bottom side profile rail, lift slightly and slide the hook into the slots in the top side profile rail.

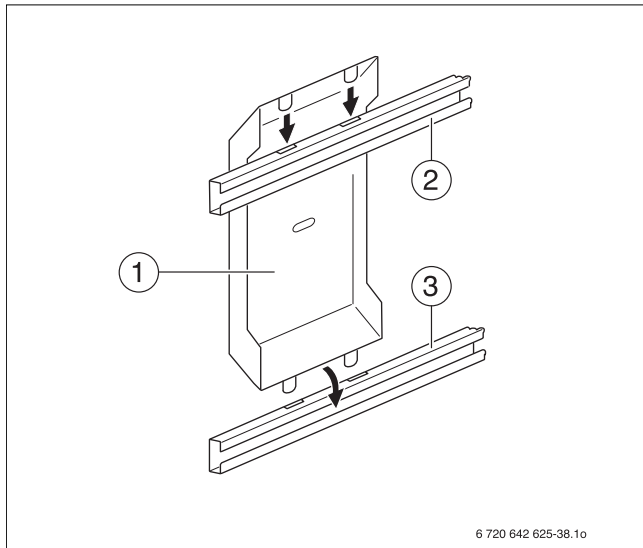


Fig. 41 Mounting the side panel

- [1] First side panel
- [2] Top side profile rail
- [3] Bottom side profile rail

- ▶ Push the remaining side panels with the lower folded edge behind the bottom side profile rail, lift slightly and slide the upper folded edge into the slots in the upper side profile rail.

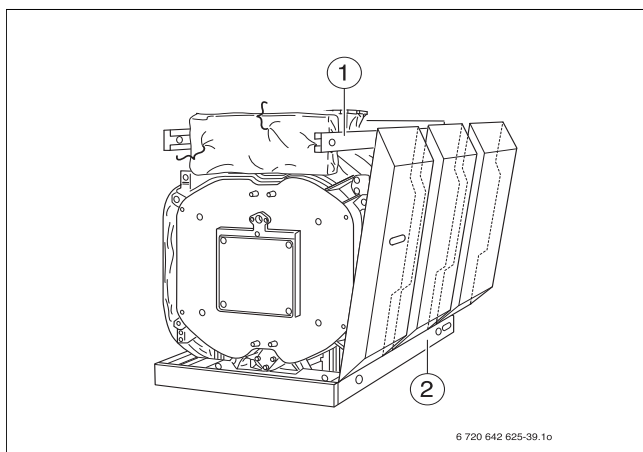


Fig. 42 Fitting the remaining side panels

- [1] Top side profile rail
- [2] Bottom side profile rail

7.10.3 Fitting side panels and top covers

► Fit all side panels as shown in the diagram.

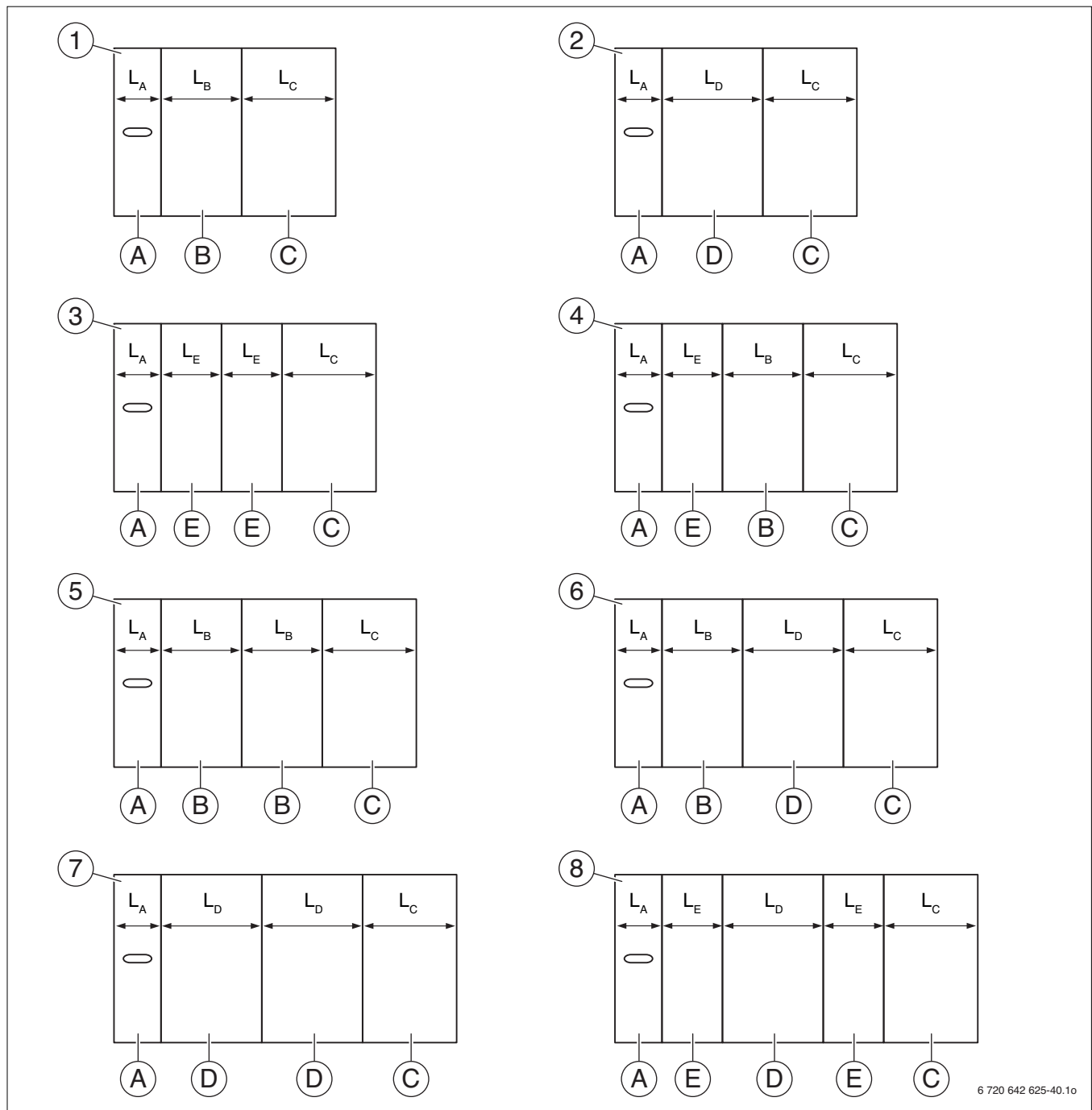
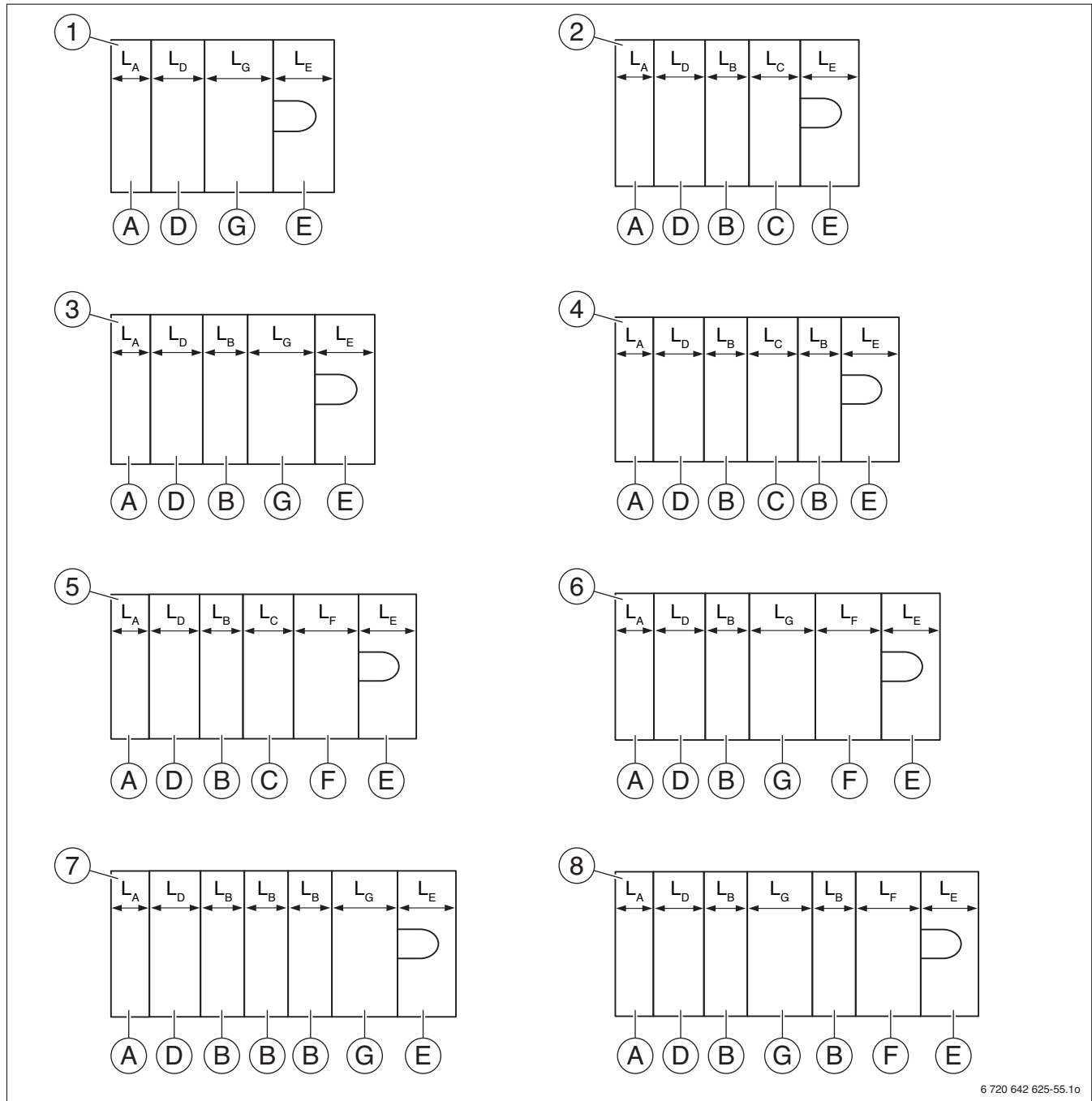


Fig. 43 Arrangement of side panels for the various boiler sizes (dimensions in inches (mm))

- [1] 9 boiler sections
- [2] 10 boiler sections
- [3] 11 boiler sections
- [4] 12 boiler sections
- [5] 13 boiler sections
- [6] 14 boiler sections
- [7] 15 boiler sections
- [8] 16 boiler sections
- [L_A] 11 1/32" (280 mm)
- [L_B] 26 49/64" (680 mm)

- [L_C] 30 33/64" (775 mm)
- [L_D] 33 15/32" (850 mm)
- [L_E] 20 5/64" (510 mm)

► Fit all top covers as shown in the diagram.



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Fig. 44 Arrangement of top covers for the various boiler sizes

- [1] 9 boiler sections
- [2] 10 boiler sections
- [3] 11 boiler sections
- [4] 12 boiler sections
- [5] 13 boiler sections
- [6] 14 boiler sections
- [7] 15 boiler sections
- [8] 16 boiler sections

- [L_A] 11 1/32" (280 mm)
- [L_B] 13 25/64" (340 mm)
- [L_C] 15 3/4" (400 mm)
- [L_D] 15 3/4" (400 mm)
- [L_E] 19 15/16" (485 mm)
- [L_F] 20 5/64" (510 mm)
- [L_G] 22 7/16" (570 mm)

► Push front top cover marked "A" with the hook in the slots of the side profile rail and push forward.

- Screw back of top cover "A" to each side profile rail using one self-tapping screw.

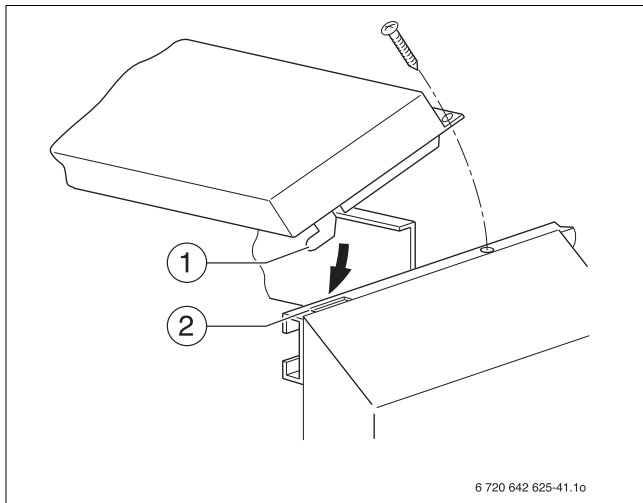


Fig. 45 Fitting the front top cover "A"

- [1] Hook
- [2] Slots in side profile rail

- Push 15 3/4 inches (400 mm) wide top cover marked "D" with the folded edge under the front top cover.

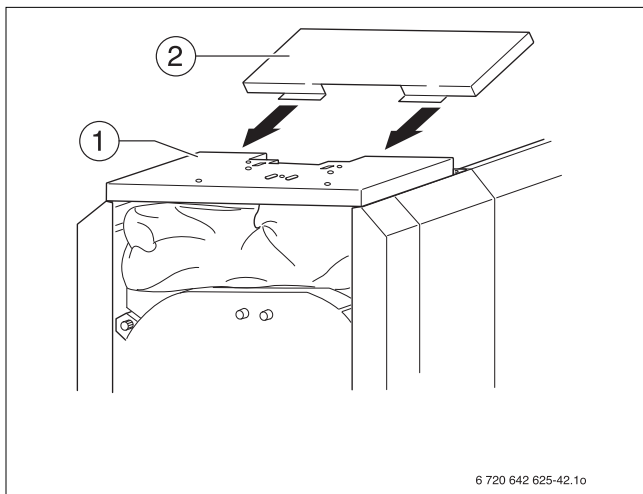


Fig. 46 Fitting top cover "D"

- [1] Front top cover
- [2] Top cover "D"



Before the remaining top covers are put in place, the control panel must be fitted, the capillary tubes fed to the sensor wells and the sensors placed in the sensor wells (see → Chapter 9.1, page 34).

- Screw the top rear boiler to the back of the rear most top cover and side panels.

- Screw the bottom rear boiler with the cut-out for the fill and drain connection down onto the side panels.

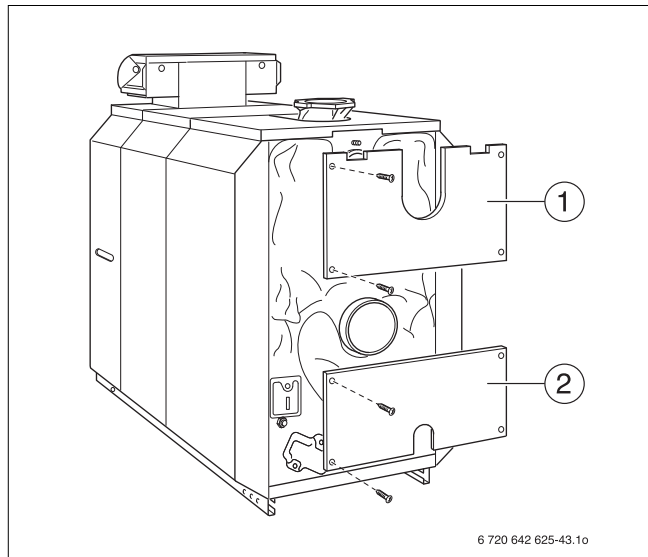


Fig. 47 Fitting the top and bottom boiler rear panels

- [1] Top rear boiler
- [2] Bottom rear boiler

- Screw the left or right front panel with four machine screws to the cast lugs of the burner door.
- Hook burner door panel into the cut-outs in the front cover.

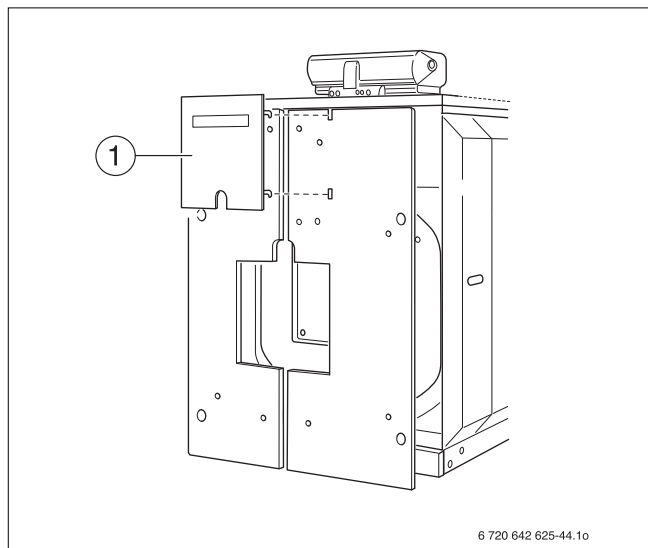


Fig. 48 Fitting the left and right front panels

- [1] Burner door panel

8 Connecting the boiler on the flue gas side

This chapter describes how the boiler connections are made on the flue gas side.

8.1 Fitting the vent pipe sealing collar (accessory)



We recommend you use a vent pipe sealing collar (→ Fig. 49, [1]).

- ▶ Push the vent pipe (→ Fig. 49, [4]) as far as possible onto the draft diverter outlet (→ Fig. 49, [6]).
- ▶ Place the vent pipe sealing collar (→ Fig. 49, [1]) around the vent pipe (→ Fig. 49, [4]) and draft diverter (→ Fig. 49, [6]) outlet so that it overlaps at the top.
- ▶ Place hose clamps (→ Fig. 49, [5]) over the vent pipe sealing collar (→ Fig. 49, [1]). One of the hose clamps (→ Fig. 49, [5]) must press onto the draft diverter outlet (→ Fig. 49, [6]) and one onto the vent pipe (→ Fig. 49, [4]).
- ▶ Tighten hose clamps (→ Fig. 49, [5]). The vent pipe sealing collar (→ Fig. 49, [1]) must fit smoothly and firmly in place.

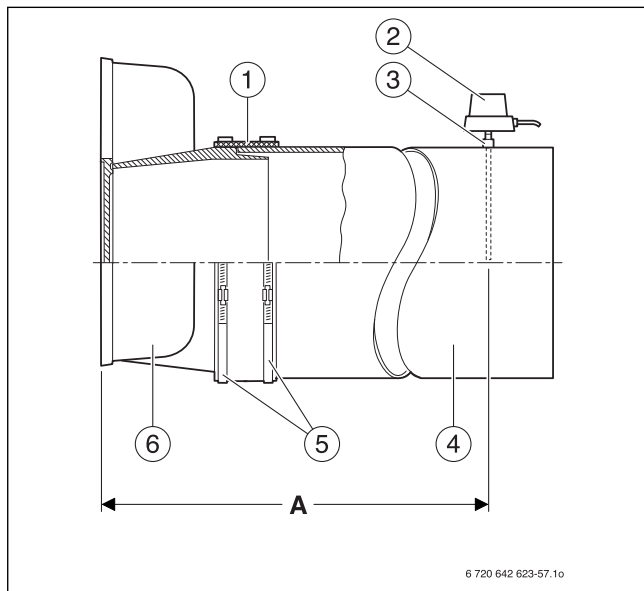


Fig. 49 Sealing the vent pipe

- [1] Vent pipe sealing collar
- [2] Flue gas temperature sensor
- [3] Sleeve
- [4] Vent pipe
- [5] Hose clamps
- [6] Draft diverter
- [A] $2 \times$ Vent pipe diameter, at least 28 22/64 inches (720 mm)



Retighten the hose clamps if needed.

8.2 Installing a flue gas temperature sensor (option)

- ▶ Weld a sleeve (→ Fig. 49, [3]) at a distance of two (2) \times vent pipe diameters (A) from the draft diverter (→ Fig. 49, [6]) in the vent pipe (→ Fig. 49, [4]).
- ▶ Fit the flue gas temperature sensor (→ Fig. 49, [2]) as described in the separate installation manual.

9 Installing the control panel

This section explains how to install a Logamatic 4000 series control panel and its set of temperature sensors.



DANGER: Risk to life from electric shock.

- ▶ Electrical work may only be performed by professionals with appropriate qualifications.
- ▶ Before opening the appliance, isolate all poles of the mains power supply and secure against unintentional reconnection.
- ▶ Please observe all installation instructions.

9.1 Installing the control panel

Fig. 50 shows the control panel and front top cover "A" from behind.

- ▶ Loosen both screws on top of the control panel and remove the cover. Lift off the terminal cover toward the top.

Mounting the control panel

- ▶ Fit the control panel at the front by inserting the alignment tabs into the oval holes in the front top boiler cover.
- ▶ Tilt the control panel forward and then tip back. The flexible hooks must engage with the rectangular openings at the rear of the front boiler cover.
- ▶ Attach the base of the control panel to the top cover using two self-tapping screws.

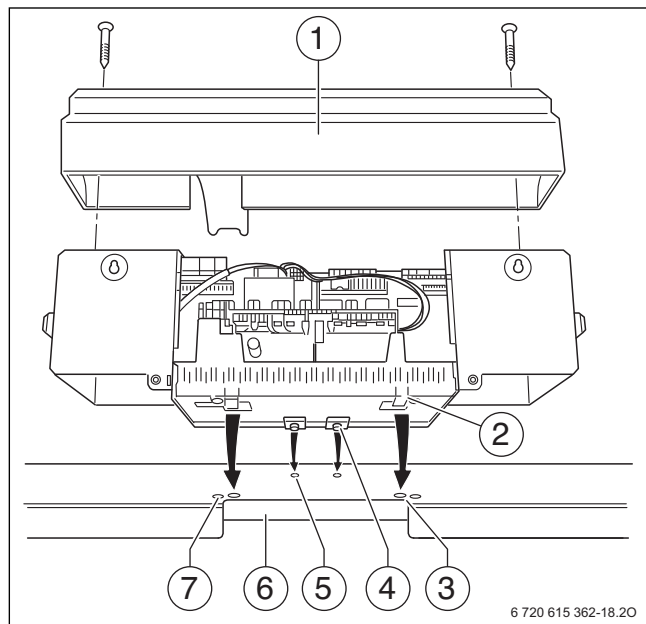


Fig. 50 Installing the control panel

- [1] Terminal cover
- [2] Flexible hooks
- [3] Rectangular cutouts in the front top boiler cover
- [4] Alignment tabs
- [5] Oval holes in the front top boiler cover
- [6] Cable duct
- [7] Front top boiler cover

Connecting power supply



Hard wire the control panel to the building power supply following recognized standards such as EN 50165 and local code, rules, and regulations.

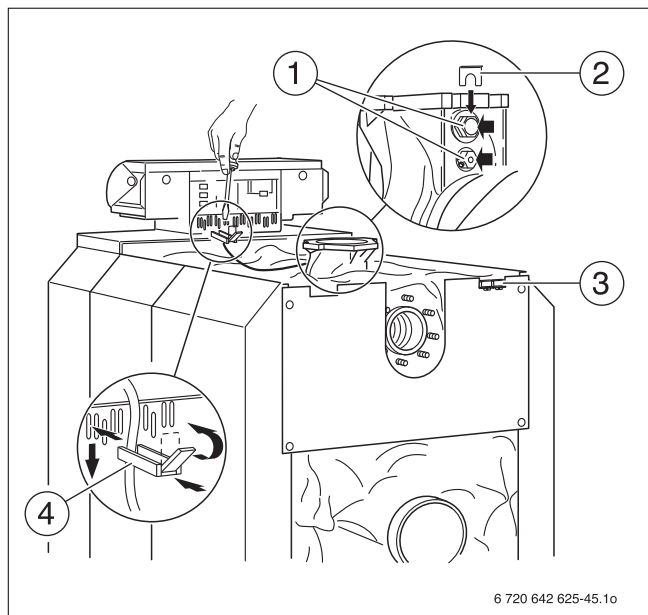


Fig. 51 Fastening the connecting cables

- [1] Sensor wells
- [2] Sensor retaining clip
- [3] Cable entry
- [4] Cable strain relief

- ▶ Connect the electrical cables as shown in the wiring diagram. Take care to ensure proper cable and capillary tube routing.



Secure all cables with cable strain reliefs.

- ▶ Insert cable strain relief with cable inside into the clip frame and secure by closing the lever.

Mounting rear panel and terminal cover

- ▶ If necessary, break away section from the rear panel.
- ▶ Engage the lower hook of the rear panel section with the frame at an angle and tilt upward until the upper hooks engage with the side panels.
- ▶ Put the top cover in place and tighten the screws.

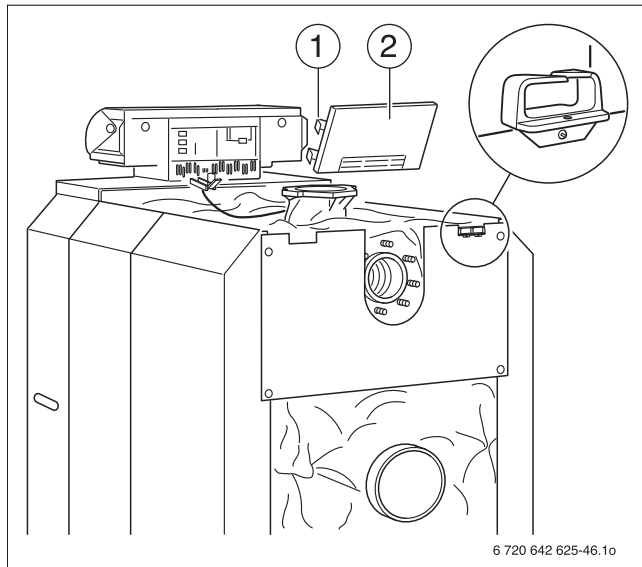


Fig. 52 Mounting the rear wall section

- [1] Side hooks
- [2] Rear panel section (control panel)

9.2 Installing set of temperature sensors**NOTICE:** Appliance damage from damaged capillaries.

- ▶ Make sure that the capillaries are not crushed or otherwise compromised during unrolling and routing.

- ▶ Route the capillaries through the cable duct and unroll to the required length.
- ▶ Guide the capillaries to the corresponding sensor wells and secure with the clips (magnified view in Fig. 53 is rotated by 180°).
- ▶ Attach cable entry (→ Fig. 52) to the left and right of the boiler rear panel.

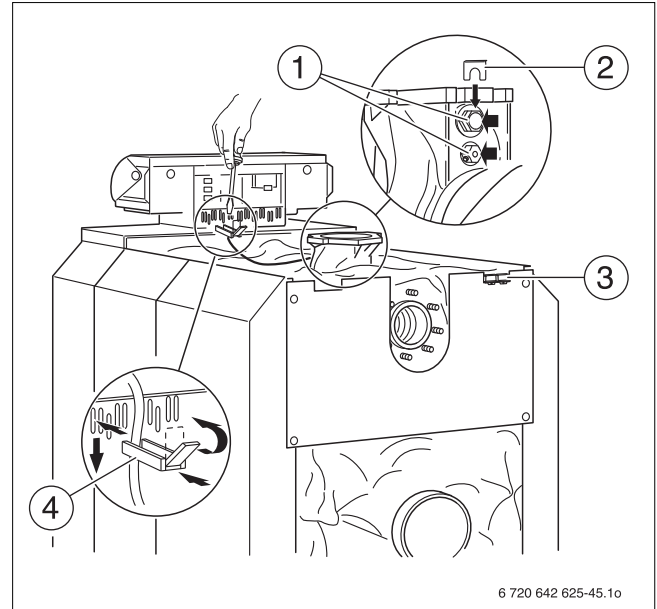


Fig. 53 Fastening the connecting cables

- [1] Sensor wells
- [2] Sensor retaining clip
- [3] Cable entry
- [4] Cable strain relief

Both sensor wells have already been installed in the supply (→ Chapter 7.5, page 20).

The sensors (control panel sensor TRK, manual reset high limit and Logamatic sensor FK or thermostat sensor) are installed in the sensor wells.



The manual reset high limit (STB) can be distinguished from the control panel sensor.

The sensors must be arranged as follows:

- ▶ Push the control panel sensor TRK out of the sensor spacer by pressing it lightly.

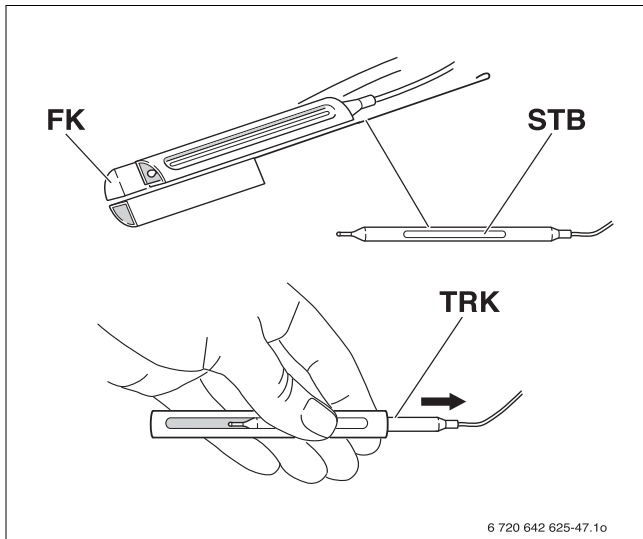


Fig. 54 Temperature sensor set

- ▶ Insert the control panel sensor in the sensor well R 1/2" and secure with a screw.
- ▶ Insert the manual reset high limit (STB) and Logamatic FK plus the two sensor spacers in the sensor well R 3/4" and secure with a clip.

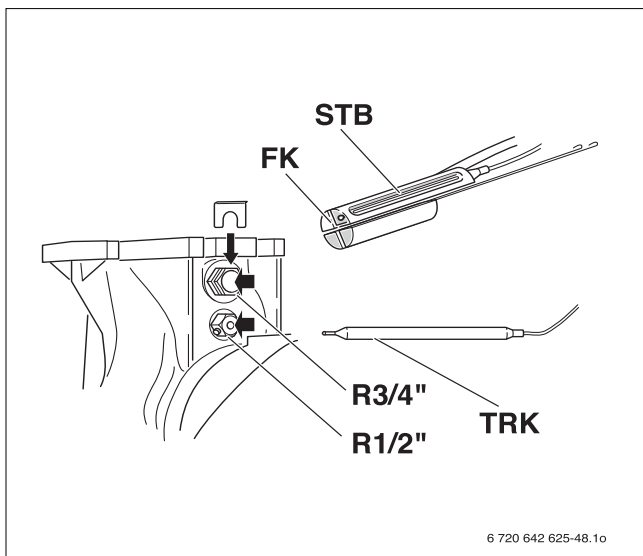


Fig. 55 Installing set of temperature sensors

10 Mounting the burner

This chapter explains how to install the burner.



NOTICE: Damage to boiler due to incorrect burner.

- ▶ Only use burners that conform to the technical requirements of the boiler (see → Chapter 3, page 9).

- ▶ Close the burner door and secure with 4 machine screws (M16 × 140) in the positions shown. Tighten the machine screws evenly crosswise.



You can obtain undrilled or predrilled burner plates (hole pattern depends on burner) as accessories from Buderus.

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

- ▶ Drill or cut the burner plate (→ Fig. 56, [1]) to match the required burner tube diameter \varnothing 10 5/8 inches (270 mm).
- ▶ Drill burner attachment holes using the burner flange as a template.
- ▶ Screw burner plate onto the burner door (seal with GP sealant rope; diameter \varnothing 25/64 inches (10 mm)).
- ▶ Screw the burner to the burner plate.
- ▶ Cut insulating rings to match the burner tube diameter (→ Fig. 56, [2]).
- ▶ Fill the remaining gap between the burner door thermal insulation and the burner tube → Fig. 56, [4]) using the appropriate insulating rings or boiler packing insulation (→ Fig. 56, [3]).
- ▶ Connect the vent blower connection to the burner to ensure the inspection window remains free of deposits.

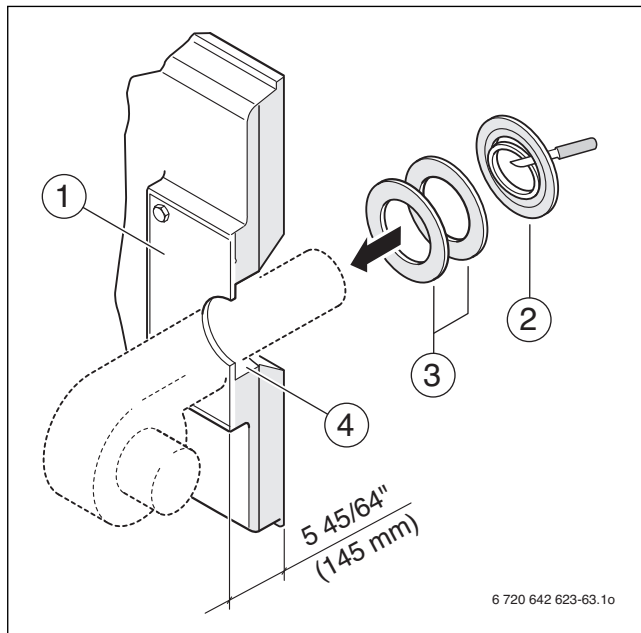


Fig. 56 Mounting the burner

The pH value of the boiler water increases after the heating system has been filled. After 3 – 6 months (at the time of the first service), check whether the pH value of the boiler water has stabilized.

11 System start-up

You can connect control panel of the 4000 series to the Logano G615. The commissioning process for the different types of control panels is the same.

- ▶ Complete the commissioning log during the start-up process (→ Chapter 11.5, page 40).



NOTICE: Boiler damage from contaminated combustion air supply.

- ▶ Ensure there is sufficient air supply.
- ▶ Do not use or store any chlorine-containing cleaning agents or halogenated hydrocarbons (e.g. in spray cans, solvents and cleansers, paints, adhesives) in the boiler room.
- ▶ Do not operate the boiler when heavy dust is present, e.g. caused by construction work.

- ▶ If the burner got contaminated as a result of construction work, it must be cleaned before being commissioned.

11.1 Filling the system



NOTICE: Risk of system damage from temperature stresses.

- ▶ During operation, only fill the heating system via the fill valve on the system side.

Refer to the table below for information about correct use and treatment of the fill and make-up water.

Overall boiler output Q/MBH (kW)	Ca (HCO ₃) ₂ concentration / grains per gallon ¹⁾ (ppm m ³)	Maximum fill and make-up water quantity V _{max} / ft ³ (m ³)	Boiler water pH value
341 < Q ≤ 1,194 (100 < Q ≤ 350)	≤ 11.7 (≤ 2.0)	V _{max} = three times system volume	8.2–9.5
1,194 < Q ≤ 3412 (350 < Q ≤ 1000)	≤ 8.8 (≤ 1.5)		
341 < Q ≤ 1,194 (100 < Q ≤ 350)	> 11.7 (> 2.0)	$V_{\max} = 0,0243 \cdot \frac{Q(\text{MBH})}{\text{Ca}(\text{HCO}_3)_2 \left(\frac{\text{gr}}{\text{gal}} \right)}$	8.2–9.5
1,194 < Q ≤ 3412 (350 < Q ≤ 1000)	> 8.8 (> 1.5)	$\left(V_{\max} = 0,0313 \cdot \frac{Q(\text{kW})}{\text{Ca}(\text{HCO}_3)_2 \left(\frac{\text{mol}}{\text{m}^3} \right)} \right)$	

Table 13 Requirements for fill, make-up and boiler water

1) ft³ = 7.48 gal

11.2 Commissioning the system

- ▶ For commissioning, establish the required normal operating pressure.
- ▶ Check that the flue gas baffles have been inserted correctly.

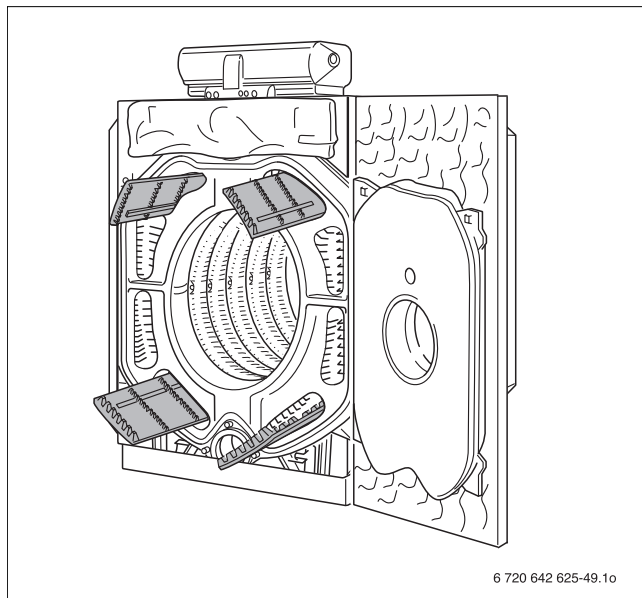


Details about the quality of the boiler water → operator's log



NOTICE: Boiler damage due to temperature stresses. If you fill the heating system when it is hot, the resulting temperature stress can cause stress cracks causing the boiler to leak. The boiler will then leak.

- ▶ Only fill the heating system when cold. (max. supply temperature 104 °F (40 °C)).
- ▶ During operation, only fill the heating system via the fill valve on the system side.



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Fig. 57 Checking that flue gas baffles are seated correctly

11.3 Start up the control panel

Please see the accompanying technical documentation for the 4000 series control panel for information about on how to start it up.

11.4 Initial burner start-up

- ▶ When commissioning the burner, follow the instructions in the technical documentation enclosed with the burner.
- ▶ Complete the commissioning log for the burner.

11.5 Commissioning log

The Logano G615 can be used with an oil- or gas-fired burner. Fill in the commissioning log for the appropriate type of oil or gas burner carefully.

► Sign all start-up work as completed and enter the relevant date.

Commissioning operations		Individual steps	Comments (signature)
1.	Perform leak test of the entire system		
2.	Fill the heating system with water	→ page 37	
3.	Air purge the heating system		
4.	Perform the leak test if the boiler was assembled on site	→ page 21	
5.	Record the filling water quantity and composition in the operator's log (included with the technical documentation).		
6.	Check position of the flue gas baffles (do not install baffles in the 16-section boiler)	→ page 24	
7.	Check the fuel line for leaks.		
8.	Start up the control panel	→ page 39	
9.	Initial burner start-up	See burner documentation	
10.	Check the flue gas temperature		
11.	Check vent pipe for leaks		
12.	Check boiler and flue gas side for leaks		
13.	Enter the fuel used in the table provided in the operating instructions.		
14.	Inform the owner and operator and hand over technical documentation		
15.	Confirm properly-completed commissioning		
<hr/> Company stamp/signature/date			

12 Shutting down the system



NOTICE: Risk of system damage from freezing.

- ▶ The heating system can freeze up if it is disabled, e.g. shut down due to a fault.
- ▶ Protect the heating system from freezing when temperatures below freezing are expected. Drain the boiler water from the heating system at its lowest point using the drain valve. To do this, open the air vent at the highest point in the system.

12.1 Shutting down the heating system via the control panel

- ▶ Turn off the ON/OFF switch on the controls (position "0"). This switches off the boiler and all its components (e.g. burner).
- ▶ Close the main fuel shutoff valve.

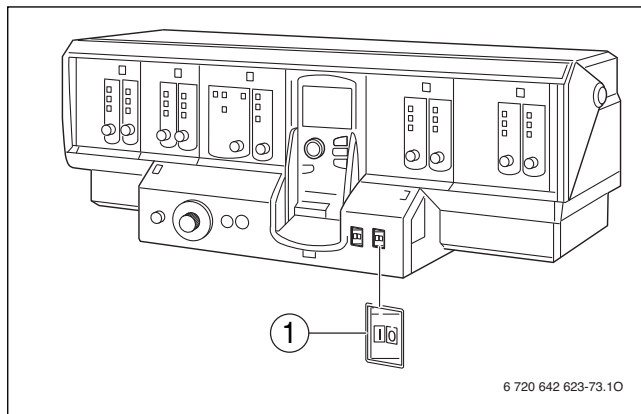


Fig. 58 Turning the heating system off

[1] ON/OFF switch

12.2 Shutting down the system in an emergency



In an emergency disconnect electrical power to the boiler and heating system by shutting off the emergency shut-off switch on the boiler or outside the boiler room, or disengage the heating system circuit breaker.

In other dangerous situations, immediately close the main fuel shut-off valve.

- ▶ Shut off the fuel supply to the burner.

13 System inspection and maintenance

13.1 General information

Offer your customer a maintenance contract covering annual inspection and servicing work as required. To find out what a contract for annual inspection and demand-based servicing covers, refer to Chapter 13.7, page 45.



DANGER: Risk of fatal injury from the explosion of flammable gases.

- ▶ Work on gas components must be carried out by trained and certified personnel only.



Spare parts can be ordered from the Buderus spare parts catalog.

13.2 Why is regular maintenance important?

Heating systems must be serviced regularly for the following reasons:

- to achieve a high level of efficiency and to operate the system economically (low fuel consumption),
- to achieve a high level of operational safety and reliability,
- to maintain a clean and environmentally friendly combustion.

13.3 Cleaning the boiler with cleaning brushes

- ▶ Shut down the heating system (→ Chapter 12.1, page 41).



DANGER: Risk to life from electric shock.

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



DANGER: Risk of fatal injury from the explosion of flammable gases.

- ▶ Work on gas components must only be carried out by trained and certified gas fitters.

Opening the boiler door



NOTICE: Damage to the jacket parts from opening of the burner door.

- ▶ Before opening the burner door, remove the front side panels.

- ▶ Lift the side panels (with hand hole → Fig. 59, [2]) slightly and remove. Do not remove the front panels (burner door jacket → Fig. 59, [1 and 3]).

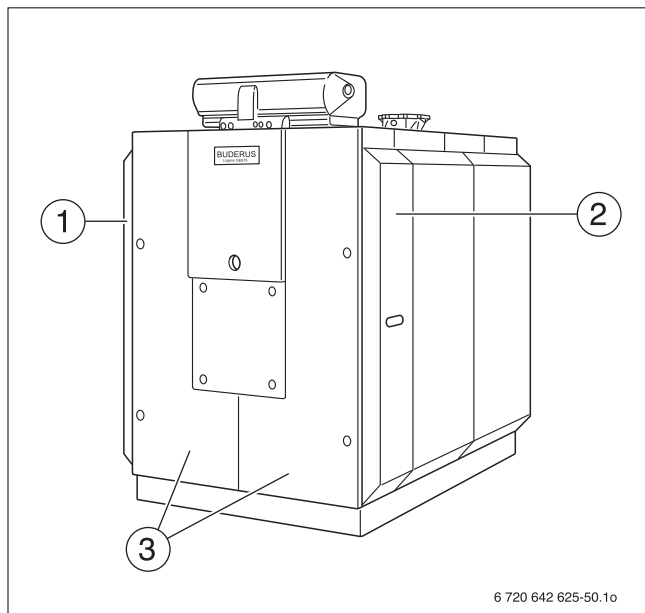


Fig. 59 Opening the boiler door

- [1] Front side panel (left)
- [2] Front side panel (right)
- [3] Front panel sections (burner door jacket)

- ▶ Loosen the fastening screws of the burner door with a flat wrench from the side.
- ▶ Swing out burner door.

The boiler can be cleaned with brushes and/or by a wet method. Cleaning accessories are available from the manufacturer

- ▶ Remove the flue gas baffles from the heat exchanger (→ Fig. 60).

i The boiler consisting of 16 boiler sections does not contain any flue gas baffles (→ Chapter 7.9.4, page 24).

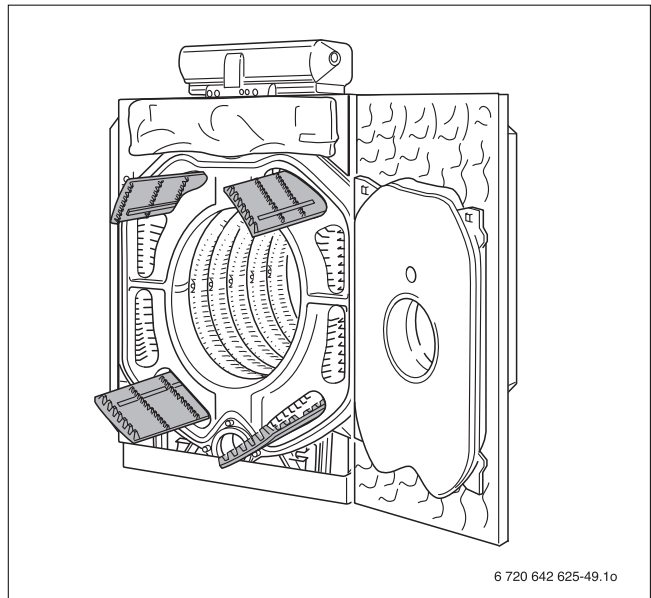


Fig. 60 Flue gas baffles, removing

- ▶ Remove bottom boiler rear panel.
- ▶ Loosen spring hooks below the flue outlet (→ see Fig. 38, page 28).
- ▶ Fold both ends of the thermal insulation upward and fasten with the spring hooks.
- ▶ Remove the cleanout covers from the draft diverter.

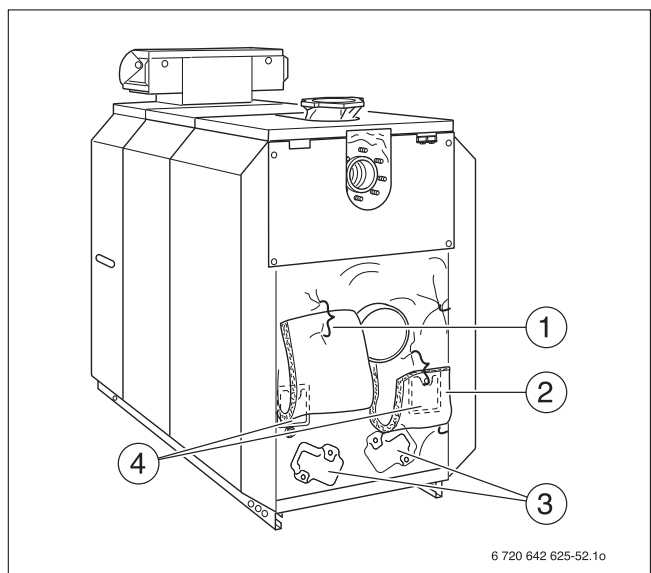


Fig. 61 Removing the cleanout cover

- [1] Thermal insulation (folded upwards)
 - [2] Thermal insulation (folded upwards)
 - [3] Cleanout cover on the rear section
 - [4] Cleanout cover on the draft diverter
- ▶ Clean the top and bottom flue gas passages with cleaning brushes #4 and #5 (→ Fig. 63).
 - ▶ Clean the combustion chamber with cleaning brush 8.
 - ▶ Remove debris from the front and the cleanout openings on the rear section and on the draft diverter (→ Fig. 61, page 42).
 - ▶ Check sealant ropes on the cleanout openings and burner door. Replace damaged or hardened sealant ropes.



Appropriate sealant ropes are available from your local Buderus wholesaler.

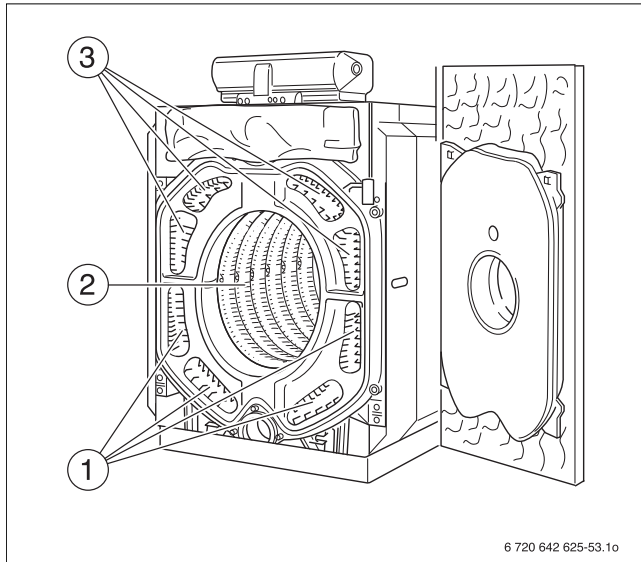


Fig. 62 Heat exchanger flue gas passages, cleaning

- [1] Bottom flue gas passages
- [2] Combustion chamber
- [3] Top flue gas passages

- ▶ Clean flue gas baffles with the cleaning brushes.
- ▶ Insert flue gas baffles into flue gas passages (→ Fig. 31, page 32 and Fig. 33 and Fig. 24, page 24).

- ▶ Close cleanout covers and burner door. Tighten screws evenly. Reinstall front side panels. Reinstall any plugs.
- ▶ Fold the rear section thermal insulation down and pull together under the flue outlet using spring hooks.
- ▶ Remount bottom boiler panel.

With the use of the cleaning brushes, optimal cleaning of the boiler can be achieved.

The various brush types available are shown in Fig. 63.

For brush sizes as well as usage locations for the brushes, consult Table 14.

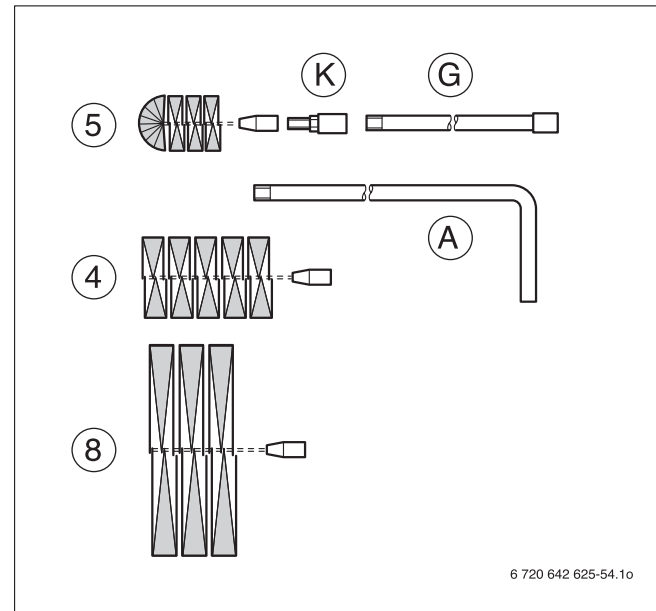


Fig. 63 Cleaning brushes

Number of sections	Brush designation	Brush size inch (mm)	Application	Rod designation	Length of the rods inch (mm)
9 - 11	4	2 61/64 × 4 21/64 (75 × 110)	Flue gas passages	A + K	78 47/64 (2000)
12 - 14		2 23/64 × 2 7/8 (60 × 73)			98 27/64 (2500)
15 - 16	5	7 7/8 × 3 5/32 (200 × 80)	Combustion chamber	A + G + K	78 47/64 + 39 3/8 (2000 + 1000)
	8				

Table 14 Brush sizes and usage locations

13.4 Wet-cleaning the boiler

When wet cleaning, pick the cleaning agent based on the degree of contamination (encrustations or soot).

Proceed in the same sequence as if cleaning with cleaning brushes (→ see Chapter 13.3, page 41).



Follow the operating instructions of the cleaning agent and the cleaning brushes!
Under some circumstances, it may be necessary to deviate from the procedure described here.

- ▶ Cover the control panel with plastic to prevent spray from entering the control panel.
- ▶ Spray cleaning agent evenly into the heat exchanger flue gas passages.
- ▶ Close burner door and start up the heating system.

- ▶ Heat the boiler water temperature to at least 158 °F (70 °C).
- ▶ Shut down the boiler.
- ▶ Allow boiler to cool down, then open burner door.
- ▶ Brush out the heat exchanger heater.

13.5 Checking the operating pressure

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

- ▶ Read the current operating pressure (psi) and temperature (°C or °F) from the temperature/pressure gauge.
- ▶ If the operating pressure drops below 15 psi (1 bar), ref boiler water.

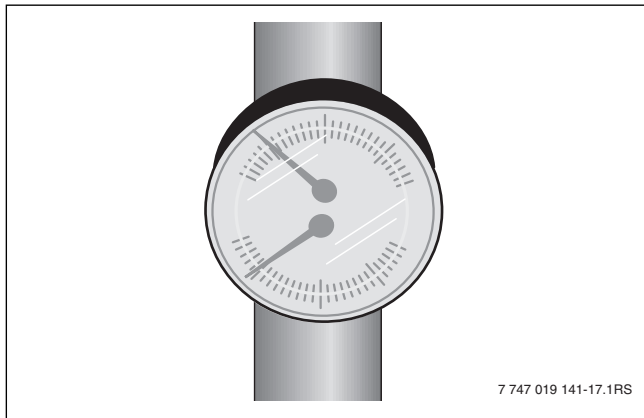


Fig. 64 Pressure/temperature gauge

13.6 Refilling boiler water and purging the system



NOTICE: Risk of system damage from temperature stresses.

- ▶ When the heating system is in operation, do not fill it via the boiler fill & drain valve. Instead, fill it on the system side.



Bring the system up to the required operating pressure.

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



NOTICE: Risk of system damage due to frequent refilling.

- ▶ 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 bled.
- ▶ Check the heating system for leaks and the function of the expansion vessel.

13.7 Inspection and maintenance logs

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

► Initial and date the inspection operations completed.

The inspection and maintenance logs can also be used as templates.

Inspection work	Page	Date: _____	Date: _____
1. Check general condition of heating system		<input type="checkbox"/>	<input type="checkbox"/>
2. Visual inspection and function check of the heating system		<input type="checkbox"/>	<input type="checkbox"/>
3. Check fuel and water-carrying components of the system for: <ul style="list-style-type: none"> • Leaks during operation • Visible signs of corrosion • Signs of aging 		<input type="checkbox"/>	<input type="checkbox"/>
4. Check the combustion chamber and heating surfaces for contamination. Shut down the heating system first.	→ 43	<input type="checkbox"/>	<input type="checkbox"/>
5. Check the burner (→ burner documentation)		<input type="checkbox"/>	<input type="checkbox"/>
6. Check the flue gas and venting system for proper operation and safety (see → burner documentation)		<input type="checkbox"/>	<input type="checkbox"/>
7. Check the operating pressure and inlet pressure of the diaphragm expansion vessel for heating systems	→ 44	<input type="checkbox"/>	<input type="checkbox"/>
8. Check the function of indirect-fired water heater tank and anode rod (→ tank documentation)		<input type="checkbox"/>	<input type="checkbox"/>
9. Check the control panel setting (see → control panel documentation)		<input type="checkbox"/>	<input type="checkbox"/>
10. Record the final checks of the inspection work, incl. measurements and test results		<input type="checkbox"/>	<input type="checkbox"/>
Confirm professional inspection			
		Company stamp/ signature	Company stamp/ signature

Table 15 Inspection log



If during inspection work conditions are identified that require additional service and maintenance, perform this work on an as-needed basis. If make-up water is added, the quality of this water must correspond to the specifications in the enclosed operating manual.

	Date: _____	Date: _____	Date: _____	Date: _____
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Company stamp/ signature	Company stamp/ signature	Company stamp/ signature	Company stamp/ signature

Table 16 Continuation

Additional maintenance work as-needed	Page	Date: _____	Date: _____
1. Shut down the heating system	→ 41	<input type="checkbox"/>	<input type="checkbox"/>
2. Remove and clean heat exchanger baffles	→ 42	<input type="checkbox"/>	<input type="checkbox"/>
3. Clean the flue gas passages (heating surfaces) and flue gas baffles	→ 43	<input type="checkbox"/>	<input type="checkbox"/>
4. Clean the combustion chamber	→ 43	<input type="checkbox"/>	<input type="checkbox"/>
5. Clean the draft diverter	→ 43	<input type="checkbox"/>	<input type="checkbox"/>
6. Insert the flue gas baffles	→ 24	<input type="checkbox"/>	<input type="checkbox"/>
7. Check gaskets/sealant ropes on the burner and burner door and replace if required	→ 43	<input type="checkbox"/>	<input type="checkbox"/>
8. Commissioning the heating system	→ 37	<input type="checkbox"/>	<input type="checkbox"/>
9. Record the final checks of the maintenance work, incl. measurements and test results		<input type="checkbox"/>	<input type="checkbox"/>
10. Check safe and proper operation		<input type="checkbox"/>	<input type="checkbox"/>
Confirm professional inspection			
		Company stamp/ signature	Company stamp/ signature

Table 17 Maintenance log book

	Date: _____	Date: _____	Date: _____	Date: _____
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Company stamp/ signature	Company stamp/ signature	Company stamp/ signature	Company stamp/ signature

Table 18 Continuation

14 Troubleshooting burner faults

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



NOTICE: Risk of system damage from freezing.
The heating system can freeze up in cold weather if it has been disabled due to a fault shutdown.

- ▶ Rectify the fault immediately and restart the heating system.
- ▶ If this is not possible, drain the heating and DHW system of pipes at the lowest point.

Troubleshooting burner faults

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



NOTICE: Risk of system damage due to too many resets.
▶ The burner ignition transformer may be damaged if you press the reset button more than three times in succession when the burner refuses to start.

- ▶ Do not attempt to remedy the fault by pressing the reset button more than three times in succession.

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

15 Spare parts

► Request spare parts with name and part number using the spare parts list.



NOTICE: Damage caused by use of spare parts not supplied by Buderus may not be covered under the manufacturer's warranty.

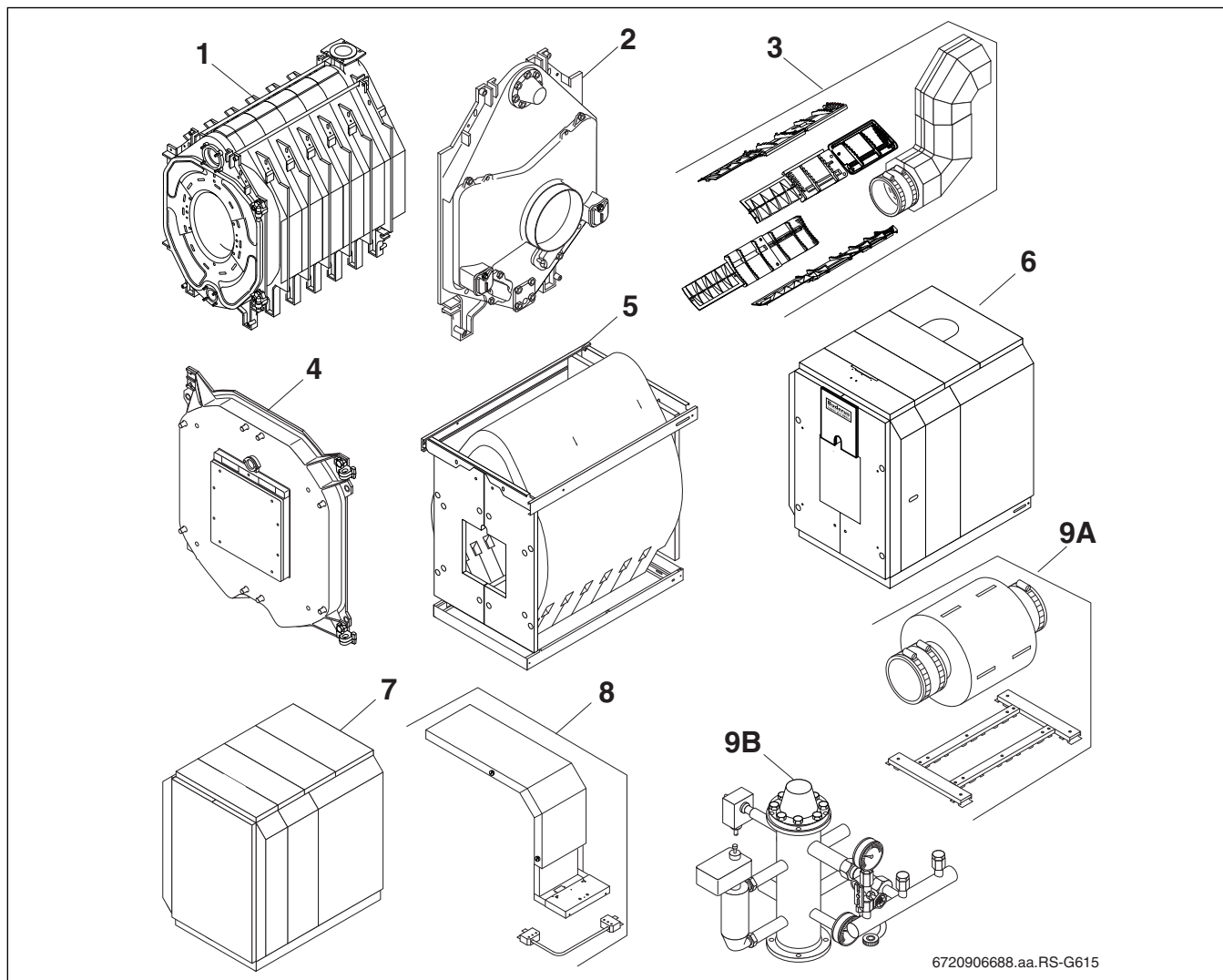


Fig. 65 Spare part groups Logano G615

Item (→ Fig. 65)	Designation	Spare parts list
1	Group 1 – boiler block - front	→ page 49
2	Group 2 – boiler block - rear	→ page 51
3	Group 3 – boiler block - accessories	→ page 53
4	Group 4 – burner door	→ page 55
5	Group 5 – jacket - fastening	→ page 57
6	Group 6 – sheetmetal parts front/rear	→ page 59
7	Group 7 – sheetmetal parts	→ page 61
8	Group 8 – sheetmetal parts carriers	→ page 63

Table 19 Spare part groups Logano G615

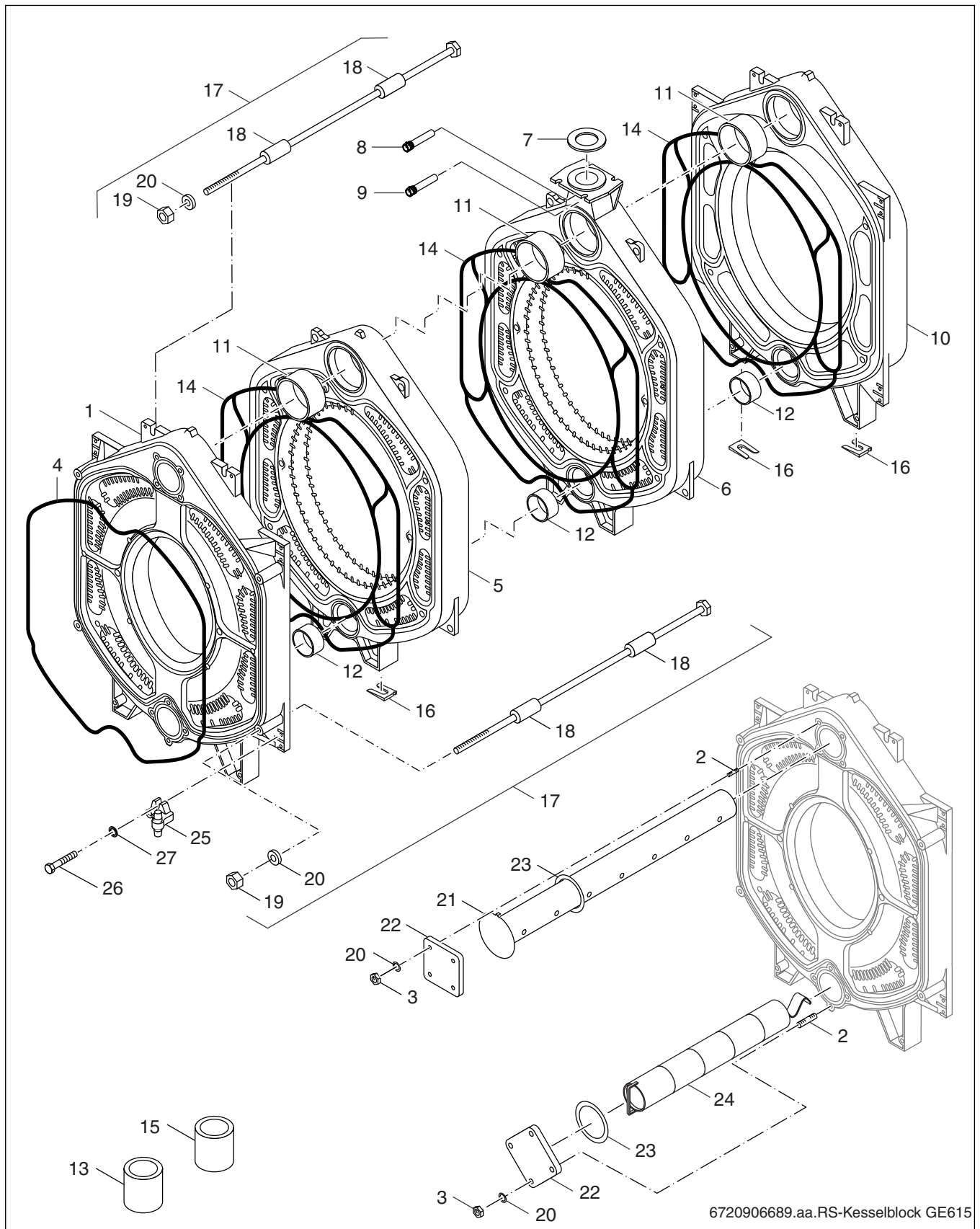


Fig. 66 Group 1 – boiler block - front Logano G615

Item (→ Fig. 66)	Designation	Order number
1	Front section G615	8 718 572 185 0
2	Threaded stud DIN939 M16x45 5.6	3719328
3	Hexagon nuts ISO4032 M16 8 A3K	82585200
4	Sealant rope 18x3800 GP	63020975
5	Intermediate section G615	8 718 572 186 0
6	Intermediate section G615 VLO	8 718 572 187 0
7	Gasket D160x206x1.5mm	8 718 572 754 0
8	Sensor well R3/4" (100 mm)	5446065
9	Sensor well R 1/2" 4" (100 mm) long 8D	5446160
10	Rear section G615	8 718 572 216 0
11	Boiler nipple 181/70 Sz 4	7 747 024 979
12	Boiler nipple 119/50 Sz 2	7 747 024 966
13	Sealant graphite treated with linseed oil 450 g can	8 718 571 927
14	Sealant rope D15x4300 20 KMVk Pack A=2	7 747 013 784
	Sealant rope D15x4300 20 KMVk Pack B=3	7 747 013 785
	Sealant rope D15x5050 20 KMVk Pack A=2	7 747 013 787
	Sealant rope D15x5050 20 KMVk Pack B=3	7 747 013 788
15	Adhesive base 181, 12.5 oz (370 ml) in 17 oz (500 ml) can	5909922
16	Section foot wedge	5503802
17	Tie rod M16x1510 cpl	5128020
	Tie rod M16x1675 cpl	5128022
	Tie rod M16x1850 cpl	5128024
	Tie rod M16x2020 cpl	5128026
	Tie rod M16x2190 cpl	5128028
	Tie rod M16x2360 cpl	5128030
	Tie rod M16x2530 cpl	5128032
	Tie rod M16x2700 cpl	5128060
18	Spring package for tie rod	5526300
19	Hexagon nuts ISO4032 M16 8 A3K	82585200
20	Washer DIN125-A17-A3K	3869840
21	Supply pipe G615 compl. (1532 mm, 9 seg.)	67902740
	Supply pipe G615 compl. (1702 mm, 10 seg.)	67902741
	Supply pipe G615 compl. (1872 mm, 11 seg.)	67902742
	Supply pipe G615 compl. (2042 mm, 12 seg.)	67902743
	Supply pipe G615 compl. (2204 mm, 13 seg.)	67902744
	Supply pipe G615 compl. (2374 mm, 14 seg.)	67902745
	Supply pipe G615 compl. (2544 mm, 15 seg.)	67902746
	Supply pipe G615 compl. (2714 mm, 16 seg.)	67902747
22	Flange cover square 170mm	5428121
23	Gasket D125x170x1.5mm (2x)	8 718 572 753 0
24	Lower distribution tube G615 compl. 1553 long (9 seg.)	67900510
	Lower distribution tube G615 compl. 1723 long (10 seg.)	67900511
	Lower distribution tube G615 compl. 1893 long (11 seg.)	67900512
	Lower distribution tube G615 compl. 2063 long (12 seg.)	67900513
	Lower distribution tube G615 compl. 2233 long (13 seg.)	67900514
	Lower distribution tube G615 compl. 2413 long (14 seg.)	67900515
	Lower distribution tube G615 compl. 2573 long (15 seg.)	67900516
	Lower distribution tube G615 compl. 2743 long (16 seg.)	67900517
25	Hinge G615 cpl 70003789	5327460
26	Hex-head bolt ISO4017 M12x55 8.8	5090262
27	Washer DIN125-A13-A3K	5883276

Table 20 Group 1 – boiler block - front Logano G615

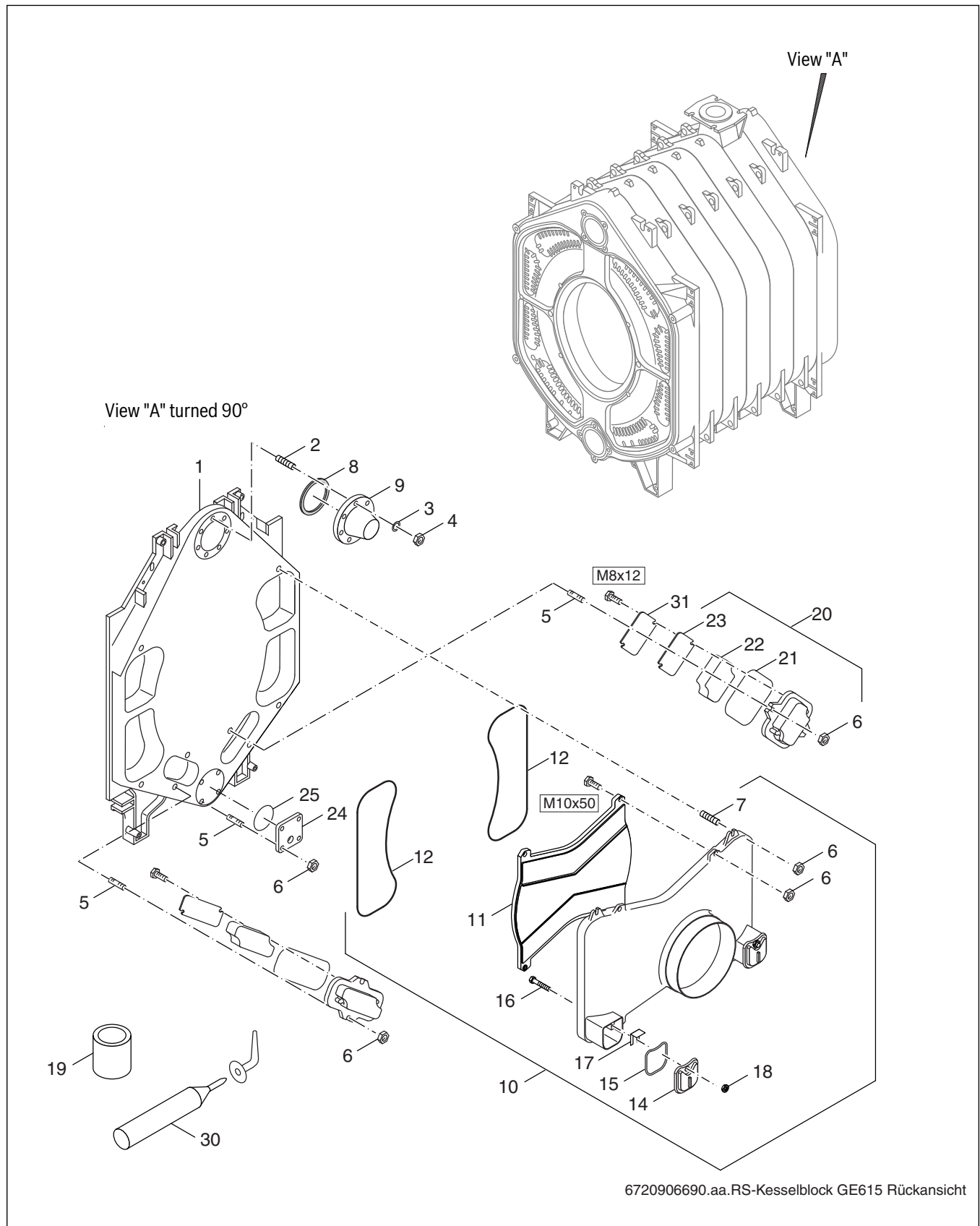
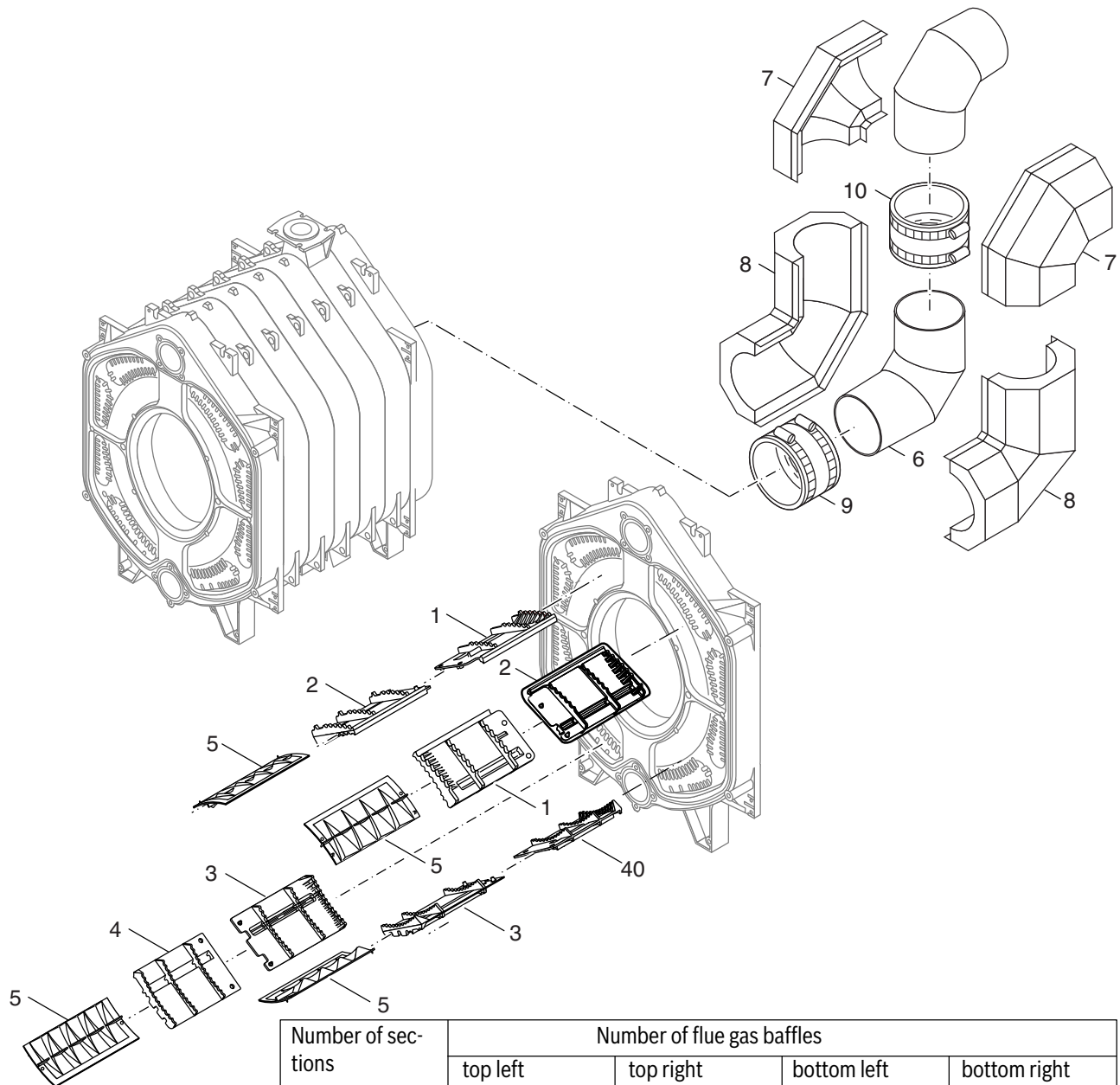


Fig. 67 Group 2 – boiler block - rear Logano G615

Item (→ Fig. 67)	Designation	Order number
1	Rear section compl. G615	63011551
2	Threaded stud DIN939 M16x45 5.6	3719328
3	Washer DIN125-A17-A3K	3869840
4	Hexagon nuts ISO4032 M16 8 A3K	82585200
5	Threaded stud DIN939 M12x35 5.6	3719184
6	Hexagon nuts EN1661 M12 8.8 A3K	5834420
7	Threaded stud DIN939 M12x45 5.8	3719192
8	Gasket D160x206x1.5mm	8 718 572 754 0
9	Weld neck flange, round, steel PN 6 DN150 DIN2631	5663034
	Weld neck flange, round, steel DN100 DIN2631	5663160
	Flange PN 6 DN125 for G615	5663162
10	Draft diverter G615 cpl 70003785	5321806
11	Rear panel G615 70003786	5932680
12	Sealant rope GP14x1650mm long	63020965
14	Cleanout cover compl. for the draft diverter	5371906
15	Sealant rope GP10x1070mm long	63020962
16	Hex-head bolt ISO4017 M12x55 8.8	5090262
17	Locking plate 14x22.5x22x0.6	63007334
18	Hexagon nuts EN1661 M12 8.8 A3K	5834420
19	Sealing compound brown	63014361
20	Cleanout cover G615 cpl 70003794	5371876
21	Sealant rope GP10x1070mm long	63020962
22	Thermal insulation cleanout cover G615	67902738
23	Protective plate D G615 70003796	5371176
24	Flange RP3/4 Mod11306470, square 130 Exc	5430284
25	Gasket D94x120x1.5mm (2x)	8 718 572 752 0
30	Sealing material Silastic 732 90ml tube	5909320
31	Sealant rope GP10x1070mm long	63020962

Table 21 Group 2 – boiler block - rear Logano G615



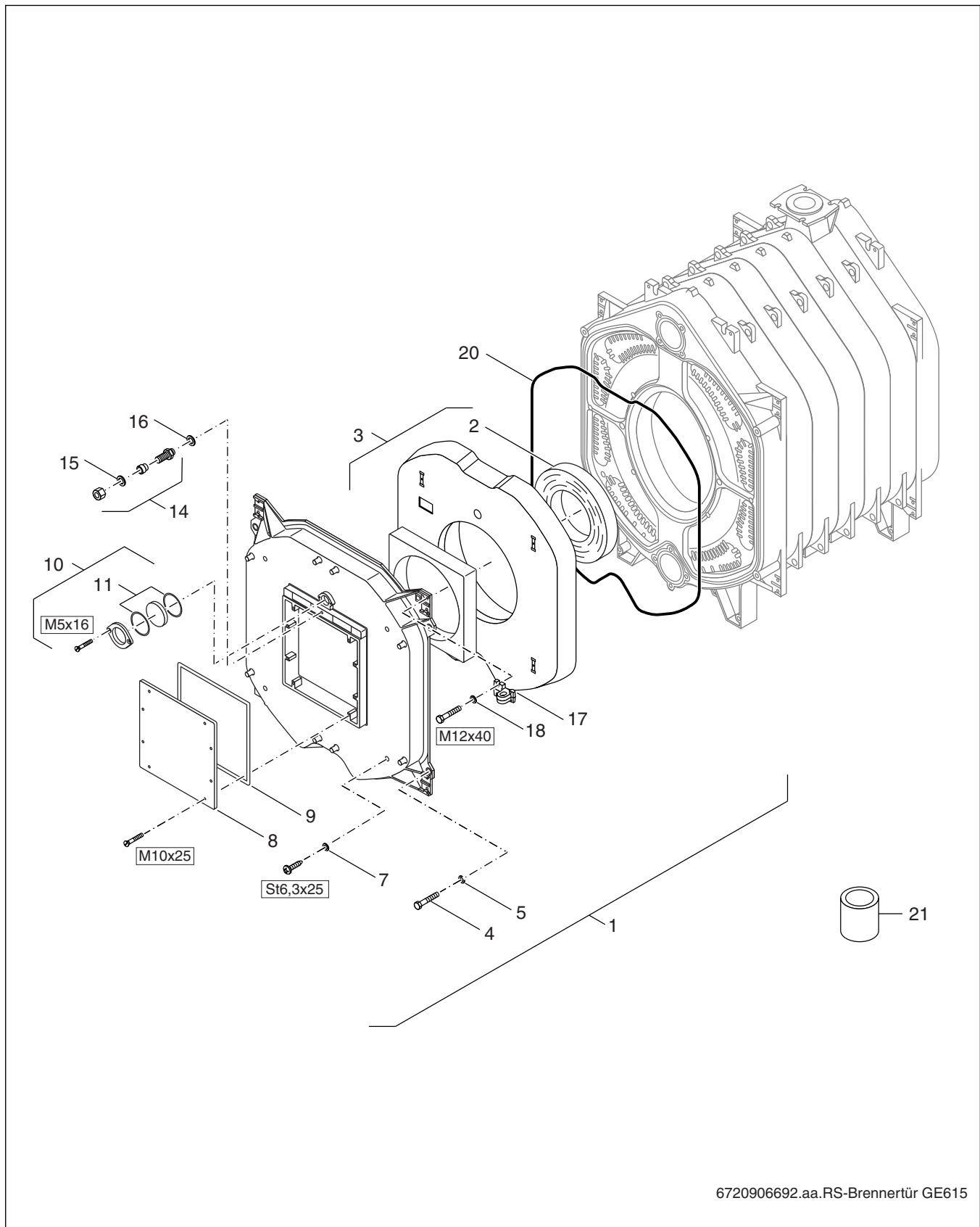
Number of sections	Number of flue gas baffles			
	top left	top right	bottom left	bottom right
9	2x sickle profile	2x sickle profile	2x sickle profile	2x sickle profile
10	2x sickle profile	2x sickle profile	2x sickle profile	2x sickle profile
11	2x sickle profile	2x sickle profile	2x sickle profile	2x sickle profile
12	1x wave profile	1x wave profile	2x sickle profile	2x sickle profile
13	2x sickle profile	2x sickle profile	1x wave profile	1x wave profile
14	1x wave profile	1x wave profile	1x wave profile	1x wave profile
15	0	0	1x wave profile	1x wave profile
16	0	0	0	0

6720906691.aa.RS-Kesselblock GE615 Zubehör

Fig. 68 Group 3 – boiler block - accessories Logano G615

Item (→ Fig. 68)	Designation	Order number
1	Flue gas baffle top sickle profile T1	67902699
2	Flue gas baffle top sickle profile T2	67902700
3	Flue gas baffle bottom sickle profile T1	67902701
4	Flue gas baffle bottom sickle profile T2	67902702
5	Flue gas baffle with wave profile	5265250
6	Vent pipe G615-wt70S2	5384862
7	Thermal insulation vent pipe part 1+2	67902965
8	Thermal insulation vent pipe part 3+4	67902967
9	Vent pipe seal sleeve set DN360	5354432
10	Gasket for flue collar DN360 compl.	5354308
	Maintenance package G615 verp	63007464

Table 22 Group 3 – boiler block - accessories Logano G615



Item (→ Fig. 69)	Designation	Order number
1	Burner door compl. G615	63015445
2	Insulation ring burner door cpl. G615/SB735	5335835
3	Thermal insulation br door G615 Board607	63002425
4	Hex-head bolt M16x140 (DIN931), black	80080136
5	Washer DIN125-A17-A3K	3869840
7	Washer 6.4x20x1.25 A3K (10x)	7 747 030 742
8	Burner plate 10x430x430 V1 ungeb verp	8 718 575 172
9	Sealant rope 10x2000 GP	63020963
10	Inspection hole cover plate cpl.	63037570
11	Gasket D42x52x1.5mm	5752520
14	Threaded pipe adapter GE 10-lr Ermeto	5802753
15	Gasket D13.5x1mm	5752220
16	Seal ring 13x18x1.5	5883094
17	Hinge eyelet G615 70003791	5327464
18	Washer DIN125-A13-A3K	5883276
20	Sealant rope 18x3800 GP	63020975
21	Sealing compound brown	63014361

Table 23 Group 4 – burner door Logano G615

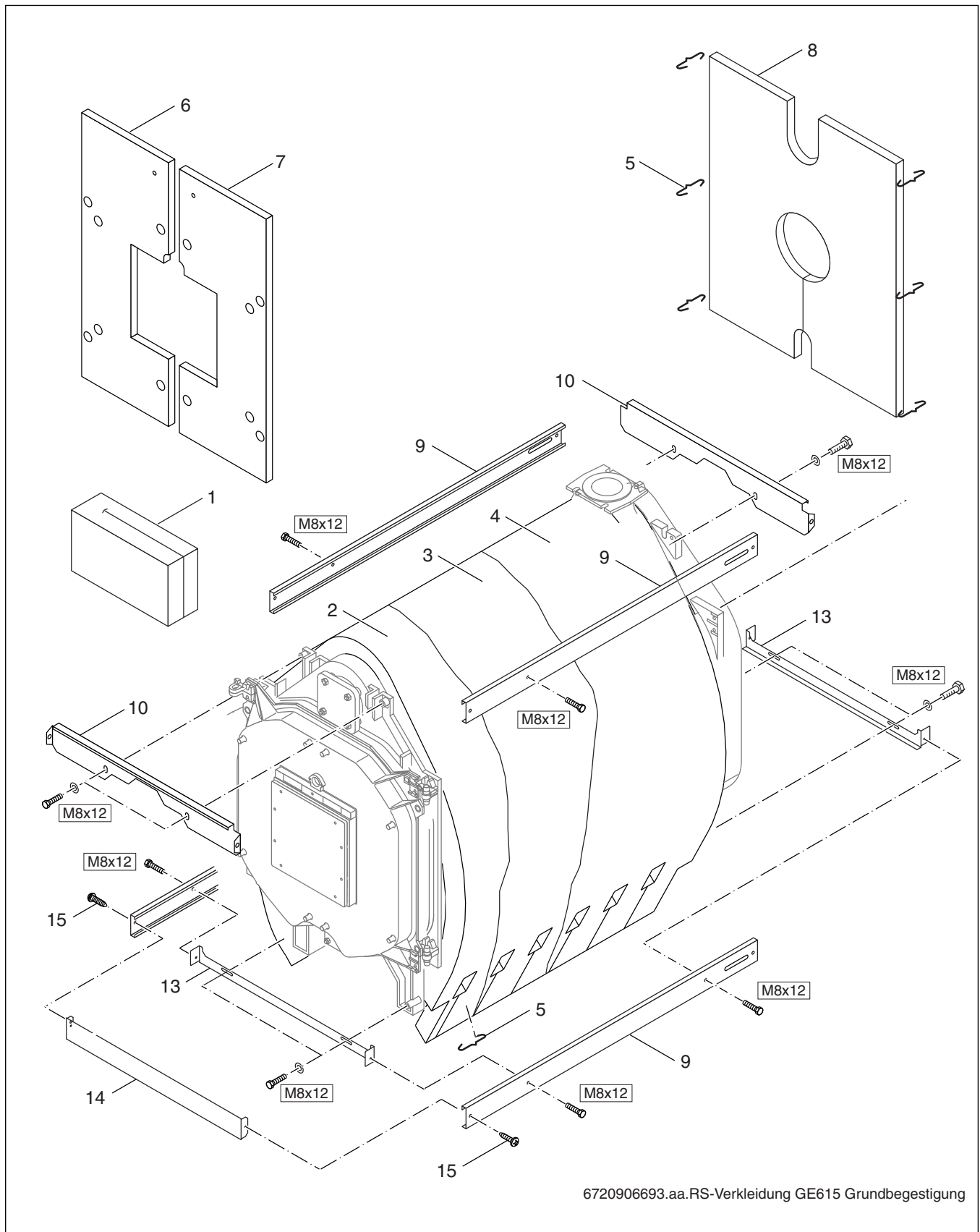


Fig. 70 Group 5 – jacket - fastening Logano G615

Item (→ Fig. 70)	Designation	Order number
1	Thermal insulation 80x280x1250mm	67902651
2	Thermal insulation 100x4700x420mm	67902659
	Thermal insulation 100x4700x590mm	67902660
	Thermal insulation 100x4700x760mm	67902661
	Thermal insulation 100x4700x930mm	67902662
	Thermal insulation 100x4700x680	5932818
3	Thermal insulation 100x4700x680	5932818
4	Thermal insulation 100x4700x1160mm	67902650
5	Retaining spring (10x)	7 747 016 084
6	Thermal insulation front cover left G615	67902658
7	Thermal insulation front cover right G615	63014989
8	Rear panel insulation G615	67902649
9	Profile rail compl. 1720mm long G615	67902652
	Profile rail compl. 1890mm long G615	67902653
	Profile rail compl. 2060mm long G615	67902654
	Profile rail compl. 2230mm long G615	67902655
	Profile rail compl. 2400mm long G615	67902656
	Profile rail compl. 2570mm long G615	67902664
	Profile rail compl. 2740mm long G615	67902665
	Profile rail compl. 2910mm long G615	67902666
10	Top profile rail G615	5932702
13	Bottom profile rail G615	5932700
14	Base panel compl. G615	67902663
15	Flat-head screw ST3.9x9.5 A3T (10x)	7 747 026 999

Table 24 Group 5 – jacket - fastening Logano G615

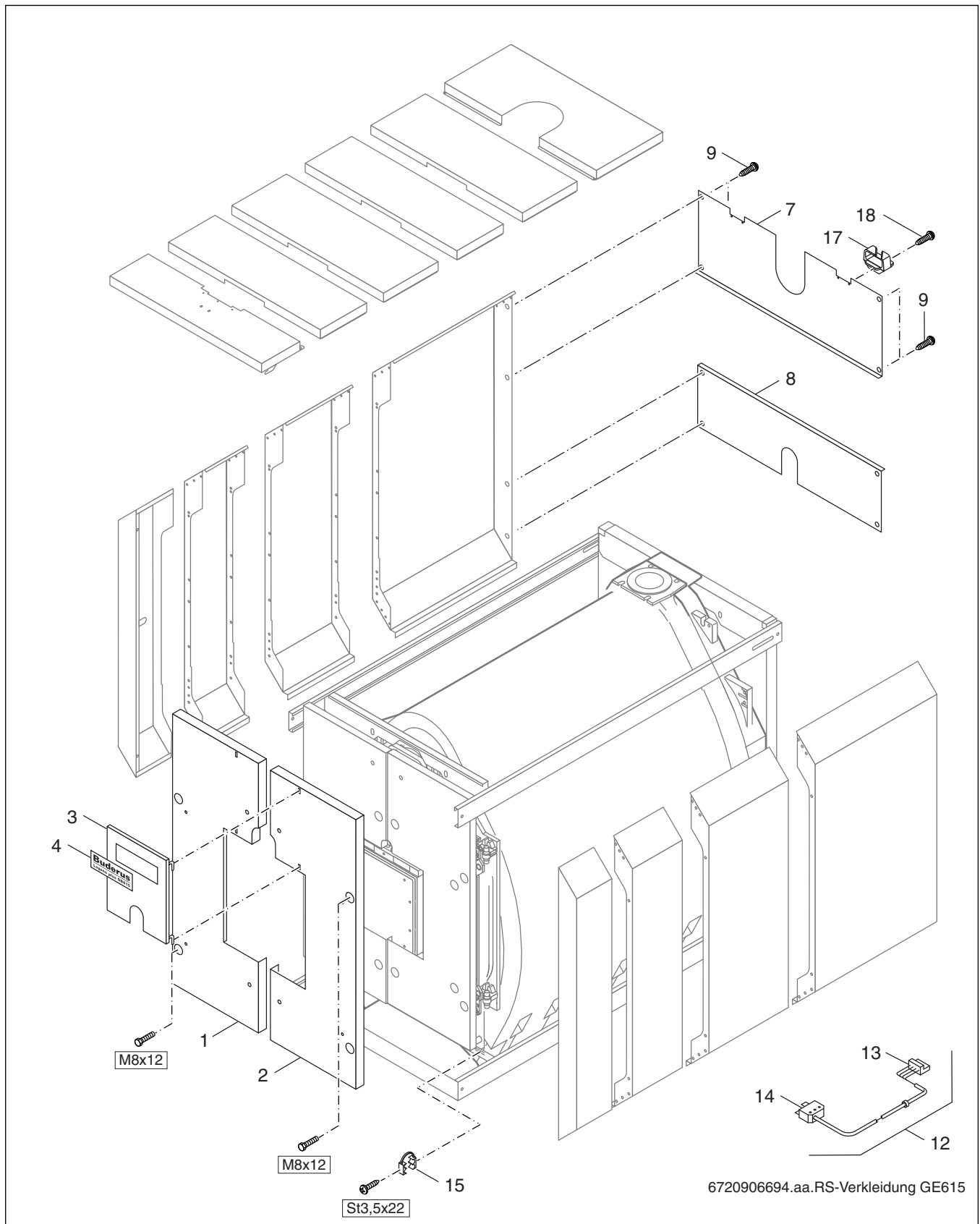


Fig. 71 Group 6 – sheetmetal parts front/rear Logano G615

Item (→ Fig. 71)	Designation	Order number
1	Front cover G615 left cpl	67902647
2	Front cover G615 right cpl	67902648
3	Cover G615 cpl	67902642
4	Logano G615 name plate	67902828
	Rear panel top G615	67902851
7	Rear panel bottom G615	5932732
8	Flat-head screw ST3.9x9.5 A3T (10x)	5932734
9	Burner connection cable 170" (4300 mm) long compl.	7 747 026 999
12	Connection terminal 7-pin green BR 1 burner	7079331
13	Connector part ST18/7 silver-plated	7 747 023 989
14	Cover clamp strain relief	67903164
15	Cable clamp	5340450
17	Flat-head screw ST3.9x9.5 A3T (10x)	7060754
18	Front cover G615 left cpl	7 747 026 999

Table 25 Group 6 – sheetmetal parts front/rear Logano G615

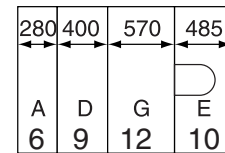
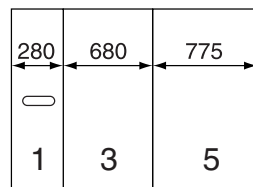
Boiler capacity

Side panels

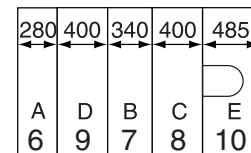
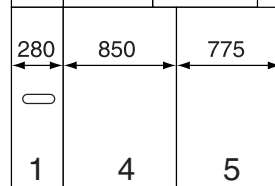
Covers

Logano GE615
(Logano plus GE615)

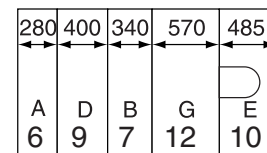
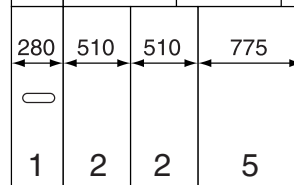
570/9
(645/9)



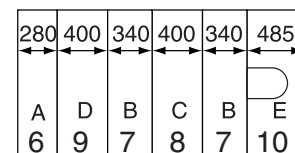
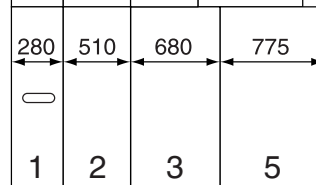
660/10
(745/10)



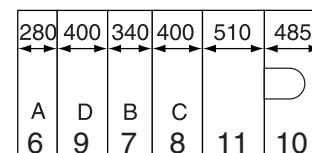
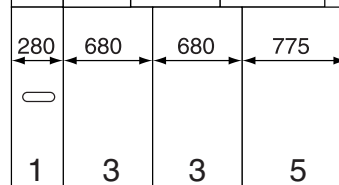
740/11
(845/11)



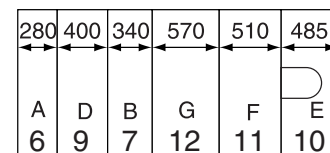
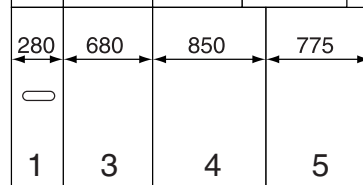
820/12
(-)



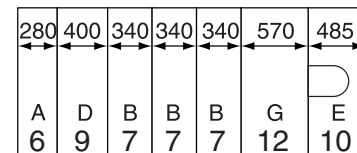
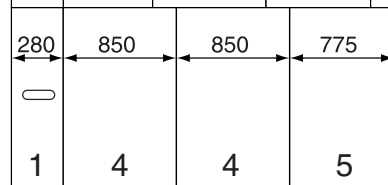
920/13
(970/13)



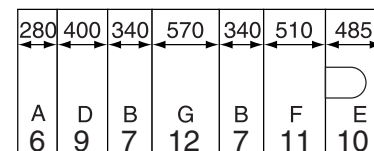
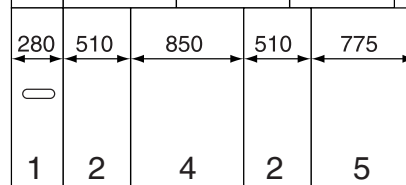
1020/14
(1065/14)



1110/15
(-)



1200/16
(1150/16)



6720906695.aa.RS-Verkleidung GE615 Anordnung

Fig. 72 Group 7 – sheet metal parts Logano G615

Item (→ Fig. 72)	Designation	Order number
1	Side panel G615 280br left cpl (parts A-I)	67902628
	Side panel G615 510br left cpl (part B)	67902644
2	Side panel G615 680br left cpl (part C)	67902629
3	Side panel G615 850br left cpl (part D)	67902631
4	Side panel G615 775br left cpl (parts E-I)	67902632
5	Top cover front G615 cpl (part A)	67902630
	Top cover cpl 340br G615 (part B)	67902645
6	Top cover cpl 400br G615 (part C)	67902633
7	Top cover G615 400br cpl (part D)	67902637
8	Top cover G615 485br cpl (part E)	67902635
9	Top cover cpl 510br G615 (part F)	67902636
10	Top cover cpl 570br G615 (part G)	67902639
11	Side panel G615 280br left cpl (parts A-I)	67902638
12	Side panel G615 510br left cpl (part B)	67902634

Table 26 Group 7 – sheet metal parts Logano G615

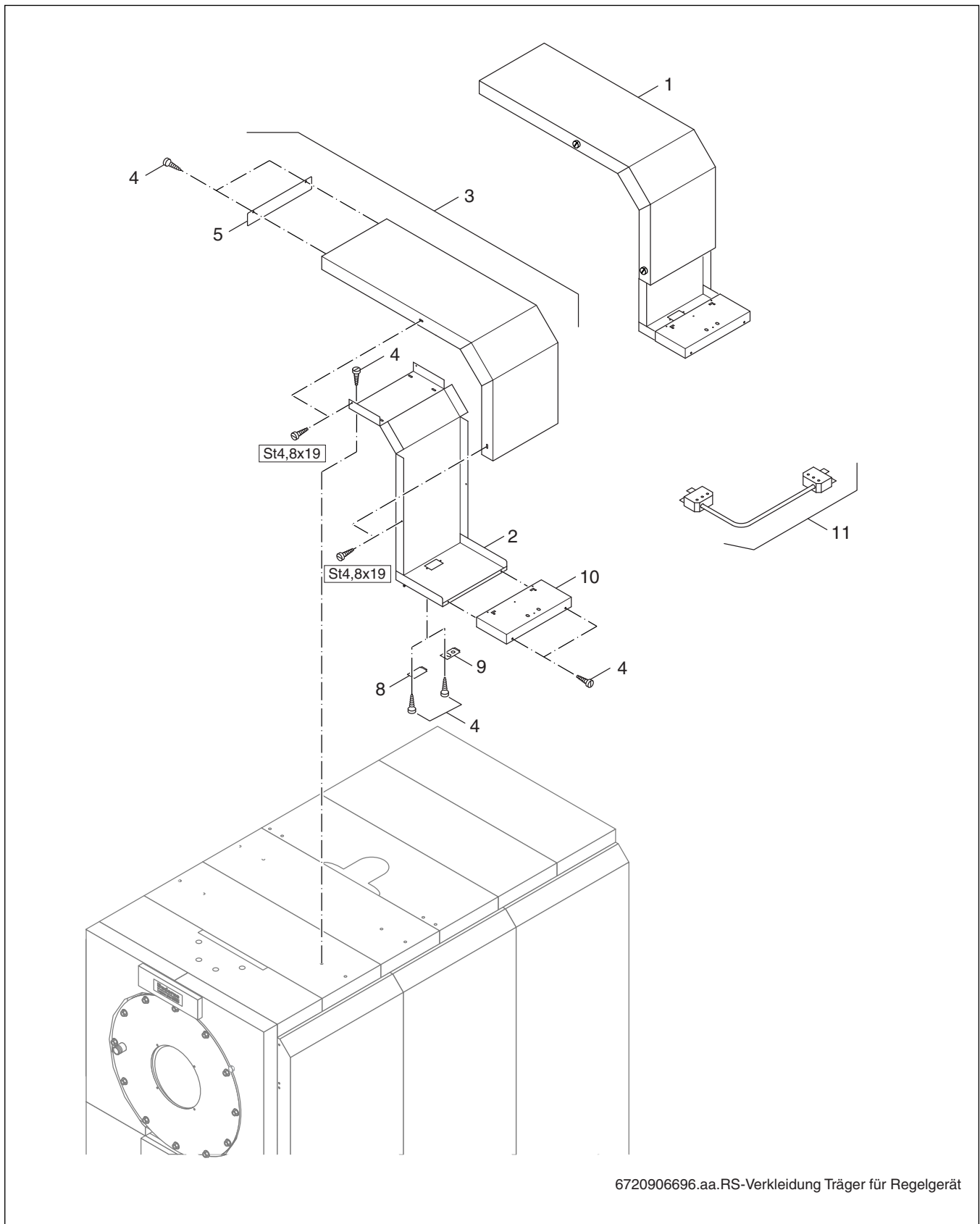


Fig. 73 Group 8 – sheetmetal parts carriers Logano G615

Item (→ Fig. 73)	Designation	Order number
1	Side control panel bracket	5097580
2	Base carrier for control panel	7079670
3	Cover for control panel carrier	63045232
4	Flat-head screw ST3.9x9.5 A3T (10x)	7 747 026 999
5	Cover plate for control panel carrier	63045231
8	Conduit shield (blue)	63045229
9	Conduit slotted (blue) (1x)	63045226
10	Top cover for HS 4311/4312	63045225
11	Burner cable 8M	7079690
	Installation material for control panel carrier	63045180

Table 27 Group 8 – sheetmetal parts carriers Logano G615

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T

Temperature control..... 7

Transport..... 12

Appendix

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.

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

Date, signature (system installer)

Date, signature (user)

For use by system installer

Type _____

User _____

Manufacturer no. _____

Location _____

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

Date, signature (user)



Buderus

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