

Installation instructions for contractors

VIESSMANN

Vitoplex 300
Type TX3A, 90 to 500 kW
Oil/gas boiler



VITOPLEX 300



Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained



Danger

This symbol warns against the risk of injury.

Note

Details identified by the word "Note" contain additional information.



Please note

This symbol warns against the risk of material losses and environmental pollution.

Target group

These instructions are exclusively intended for qualified contractors.

- Work on gas installations may only be carried out by a registered gas fitter.
- Work on electrical equipment may only be carried out by a qualified electrician.

Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
 - Ⓐ ÖNORM, EN, ÖVGW G K directives, ÖVGW-TRF and ÖVE
 - Ⓒ SEV, SUVA, SVGW, SVTI, SWKI, VKF and EKAS guideline 1942: LPG, part 2

Working on the system

- Isolate the system from the power supply (e.g. by removing the separate fuse or by means of a mains isolator) and check that it is no longer 'live'.
- Safeguard the system against reconnection.
- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.

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Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

DE: Use the disposal system organised by Viessmann.

AT: Use the ARA statutory disposal system (Altstoff Recycling Austria AG, licence number 5766).

CH: Packaging waste is disposed of by the HVAC contractor.

Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	<ul style="list-style-type: none"> ▪ Component must audibly click into place. or ▪ Acoustic signal
	<ul style="list-style-type: none"> ▪ Fit new component. or ▪ In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do not dispose of component in domestic waste.

Intended use

The appliance is only intended to be installed and operated in sealed unvented heating systems that comply with EN 12828, with due attention paid to the associated installation, service and operating instructions as well as the details in the datasheet. It is only designed for the heating up of heating water.

Commercial or industrial usage for a purpose other than the heating up of heating water shall be deemed inappropriate.

Intended use presupposes that a fixed installation in conjunction with permissible components designed for this purpose has been carried out.

Intended use (cont.)

Every other use will be deemed to be inappropriate. Any resulting losses are excluded from the manufacturer's liability.

Any usage beyond this must be approved by the manufacturer for the individual case.

Intended use also includes the adherence to maintenance and inspection intervals.

Product information

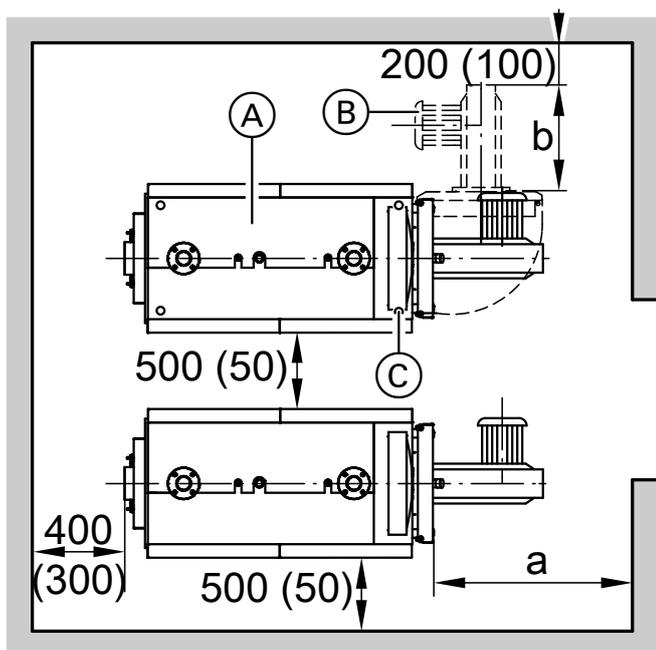
Vitoplex 300, type TX3A

- Fuels: Fuel oil and natural gas
- Permissible operating pressure 4 bar (0.4 MPa)
- Rated heating output 90 to 500 kW

System examples

Available system examples: See www.viessmann-schemes.com.

Clearance dimensions



Dimensions in brackets are minimum clearances.

Fig. 1

- Ⓐ Boiler
- Ⓑ Burner
- Ⓒ Adjustable anti-vibration feet (accessories)

Rated heating output	kW	90	115	140	180	235	300	390	405	500
a ^{*1}	mm	1100			1400		1600			
b	mm	Observe the installed burner length.								

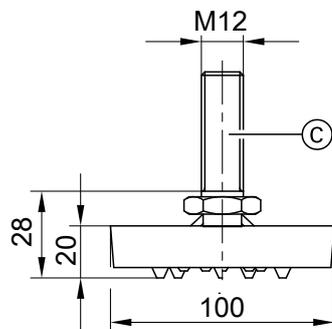


Fig. 2

Rated heating output	kW	90	115	140	180	235	300	390	405	500
Adjustable anti-vibration feet										
Permissible load	kg	2000								
Quantity	pce	4								

^{*1} Maintain this space in front of the boiler to enable the removal of internal pipes or for cleaning hot gas flues.

Siting and levelling the boiler

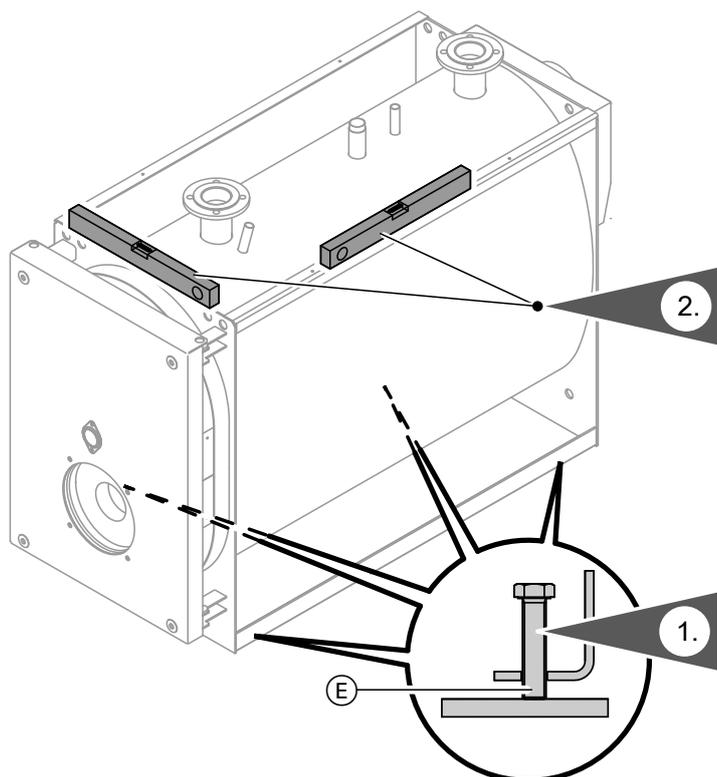


Fig. 3

1. Insert adjusting screws (E) into the base rails.

Note

The adjusting screws and sight glass closure can be found inside the combustion chamber.

2. Level the boiler horizontally. No special foundations are required.

Note

We recommend positioning the boiler on **adjustable anti-vibration feet** (C); see Fig. 6. Insert adjustable feet into the base rails from below.

Changing the boiler door opening

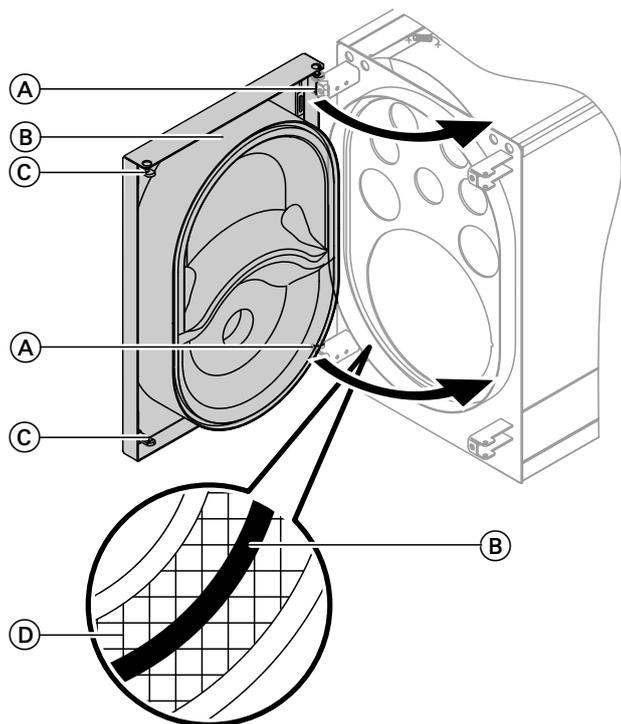


Fig. 4

The boiler door is hung on the opposite side by moving bolt (A) to the r.h. side. Sealing frame (B) should press centrally onto boiler door gasket (D) when the boiler door is closed. If necessary, align mounting bracket (C).

Combustion chamber sight glass

Mounting the combustion chamber sight glass

For burners with ventilation connection for sight glass

The sight glass casing with accessories is supplied inside the combustion chamber.

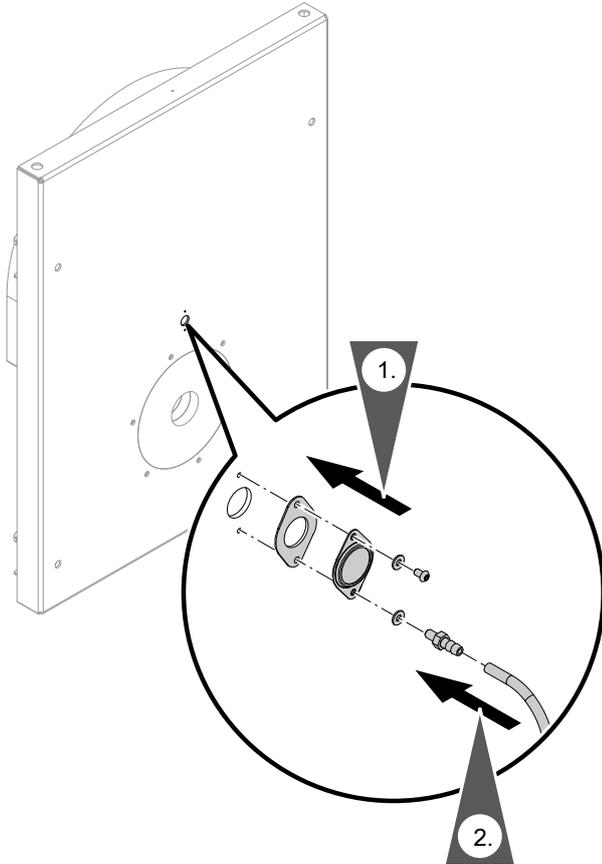


Fig. 5

Closing off the sight glass aperture on burners without ventilation connection

On burners without ventilation connection for sight glass, the sight glass aperture in the boiler door is closed off with a plug. The sight glass only serves to cover the aperture.



Danger

When working with high temperature insulating materials that contain zirconium or aluminium silicate ceramic fibres, fibre dust may develop. This fibre dust can be harmful to health.

Only trained personnel may adjust or replace the insulation. Wear suitable protective clothing, especially breathing equipment and safety goggles.

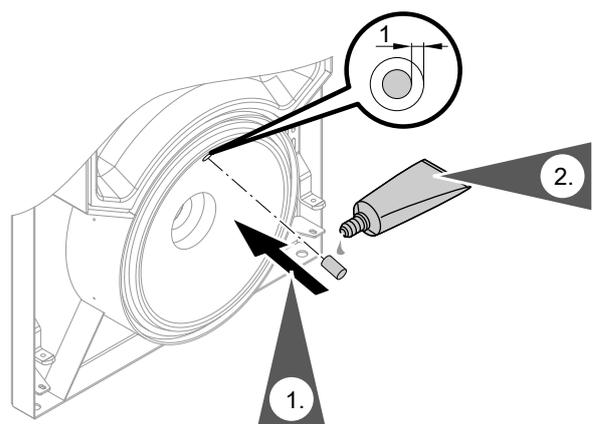


Fig. 6

1. Check that the plug is a precise fit. If necessary, enlarge hole in insulation block.
2. Apply adhesive all around the plug. Insert plug.

Note

Adhesive drying time: 24 hours

Combustion chamber sight glass (cont.)

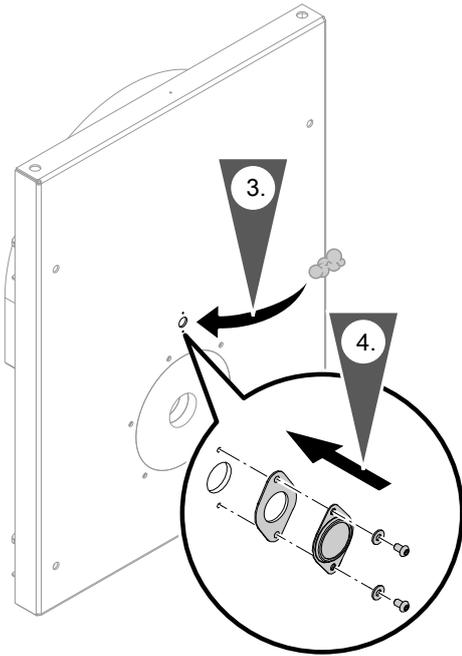


Fig. 7

Pressure switch

Pressure switch

The pressure switch is a safety accessory and is required for every boiler to EN 303 with pressure-jet burners to EN 676 (third party burners) for shutting down the burner in case of flue gas back pressure/ condensate banked up in the boiler/flue system.

The adjustable, interlocking pressure switch is connected to the control unit safety chain, and to an additional pressure measuring connector for "combustion chamber pressure". The control unit safety chain is connected in series to the maximum pressure switch, the minimum pressure switch and the high limit safety cut-out. A setting of approx. 2 mbar above the actual combustion room pressure in full load operation ensures the burner will shut down used in the event of a fault. The pressure is measured in full load operation upstream of the pressure switch.

Note

The hose for measuring the pressure is connected to the combustion chamber sight glass.



"Pressure switch set" installation instructions

Connections on the heating water side

Note

Install all pipe connections free of load and torque stress.

Connections on the heating water side (cont.)

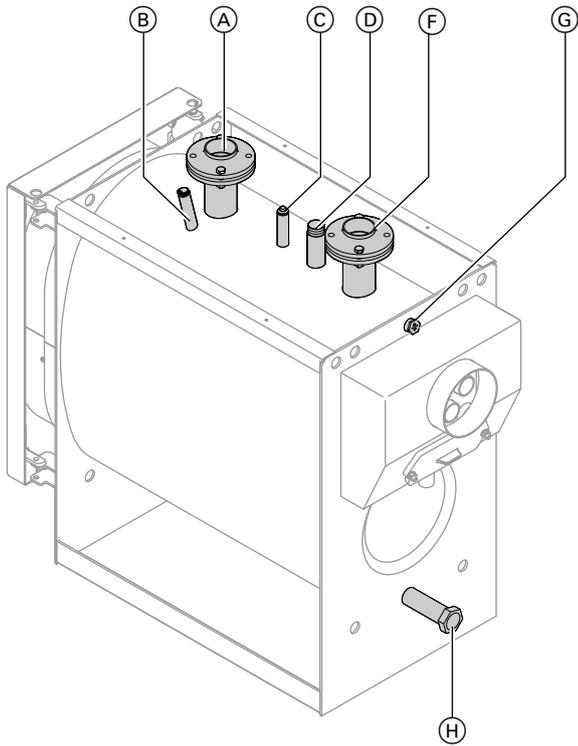


Fig. 8 90 to 115 kW

- (A) Boiler return, DN 65
- (B) Female connection for Therm-Control temperature sensor (NTC 10 k Ω), R $\frac{1}{2}$
- (C) Female connection for pressure gauge, R $\frac{1}{2}$
- (D) Safety connection (safety valve), see page 12
- (F) Boiler flow, DN 65
- (G) Female connection for boiler water temperature sensor, high limit safety cut-out and temperature controller
- (H) Drain, R $\frac{1}{4}$

Connections on the heating water side (cont.)

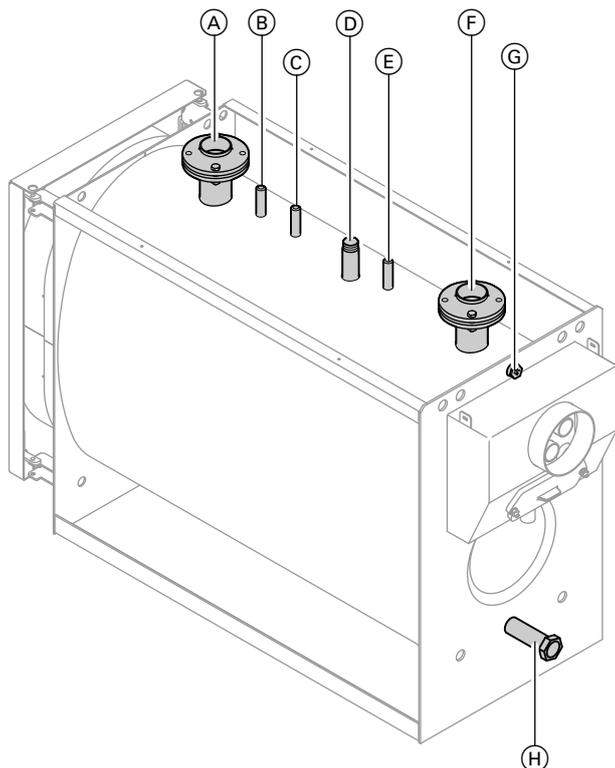


Fig. 9 140 to 500 kW

- Ⓐ Boiler return
 - Up to 235 kW: DN 65
 - 300 kW: DN 80
 - From 390 kW: DN 100
- Ⓑ Female connection for Therm-Control temperature sensor (NTC 10 kΩ), R ½
- Ⓒ Female connection, R ½
 - Up to 235 kW:
For pressure gauge
 - From 300 kW:
For fitting assembly
- Ⓓ Safety connection (safety valve), see page 12
- Ⓔ Female connection for high limit safety cut-out (instead of flash trap), R ½ (from 235 kW)
- Ⓕ Boiler flow
 - Up to 235 kW: DN 65
 - For 300 kW: DN 80
 - From 390 kW: DN 100
- Ⓖ Female connection for boiler water temperature sensor, high limit safety cut-out and temperature controller
- Ⓗ Drain, R 1¼

From 235 kW upwards use the following components in conjunction with the Vitotrans 300:

- Maximum pressure limiter
- Minimum pressure limiter (connection Ⓒ); see Fig. 9). This requires the fitting assembly.

- Flash trap for the safety valve
- As an alternative to the above:
A 2nd maximum pressure limiter and an on-site high limit safety cut-out

Making the safety connection and testing for tightness



Safety equipment block installation instructions

Install the safety lines.

Safety connection	
▪ 90 to 300 kW	R 1¼
▪ 390 to 500 kW	R 1½
Permiss. operating pressure	4 bar (0.4 MPa)
Test pressure	5.2 bar (0.52 MPa)

Making the safety connection and testing for... (cont.)

Low water indicator

The boiler control unit included in the standard delivery prevents impermissible heating in the event of water shortage. According to EN 12828, the low water indicator can therefore be omitted for the Vitoplex 300 up to 300 kW (except in attic heating centres).

Therm-Control start-up control (with temperature sensor NTC 10 k Ω)

A shunt pump for raising the return temperature is not required. During the start-up phase, the heating circuit flow rate may be reduced to no more than 50 % of the maximum value by means of the heating circuit control unit or heating circuit pumps (speed stages). For multi boiler systems, reduce it to max. 50 % of the smallest boiler. This applies during commissioning and after night or weekend shutdowns, for example. The heating circuit control unit or heating circuit pumps are regulated by means of the factory-fitted Therm-Control temperature sensor (NTC 10 k Ω). For further details regarding the Therm-Control start-up system, see the technical guide.



Therm-Control installation instructions

Note

Equip the boilers with a safety valve that is type-tested, complies with EN 4126 and is designated in accordance with the system version.

Install all pipe connections free of load and torque stress.



Please note

Unsuitable water quality can damage the boiler body.

Only fill the boiler with water that complies with the "Water quality requirements" (see service instructions and VDI 2035 guideline).

Connections on the flue gas side

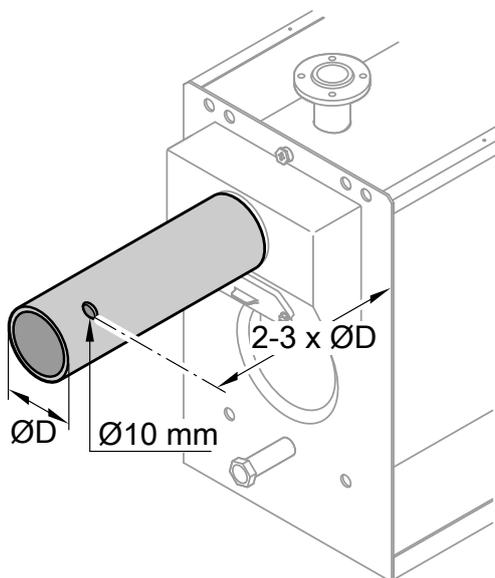


Fig. 10



Vitoair installation instructions

1. Connect the flue outlet with the shortest possible run to the chimney and maintain a slight incline.

External diameter, flue outlet

90 and 115 kW	178 mm
140 to 300 kW	198 mm
390 to 500 kW	248 mm

2. Create a test port.
3. Seal in and thermally insulate the flue pipe (all connections/joints must be gas-tight).

Fitting the thermal insulation

Note

All components required for fitting the thermal insulation can be found in the thermal insulation box.

Boiler body thermal insulation

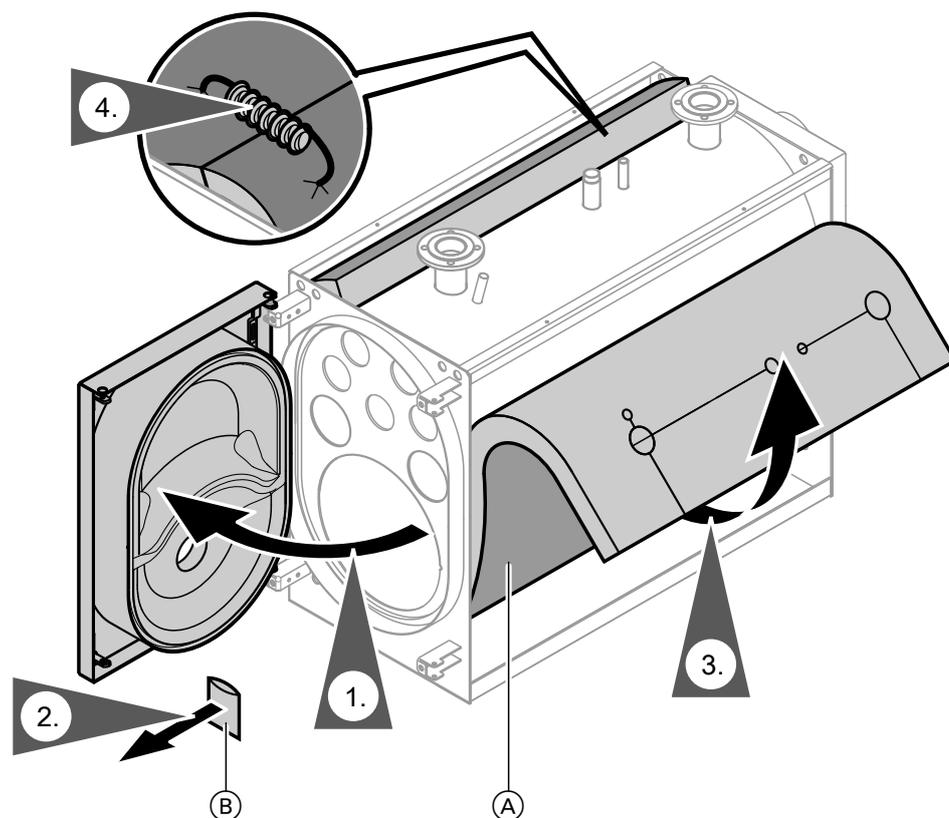


Fig. 11

Ⓐ Black side outwards

Note

Remove bag Ⓑ containing the type plate and keep safe. This will be required later.

Rear thermal insulation

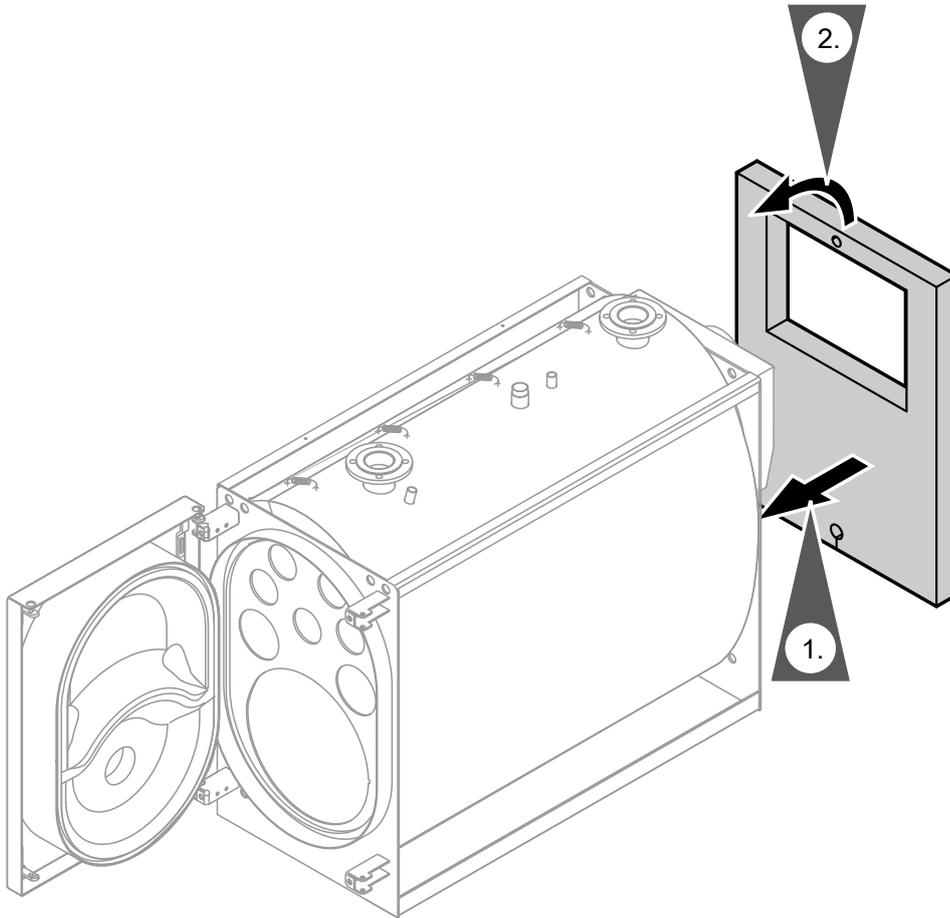


Fig. 12

Check that the serial number on the type plate matches the serial number stamped into the back panel of the boiler.

Side panels and burner cables

Side panels and burner cables (90 to 300 kW)

Note

Burner cables [41](#) and [90](#) are included.

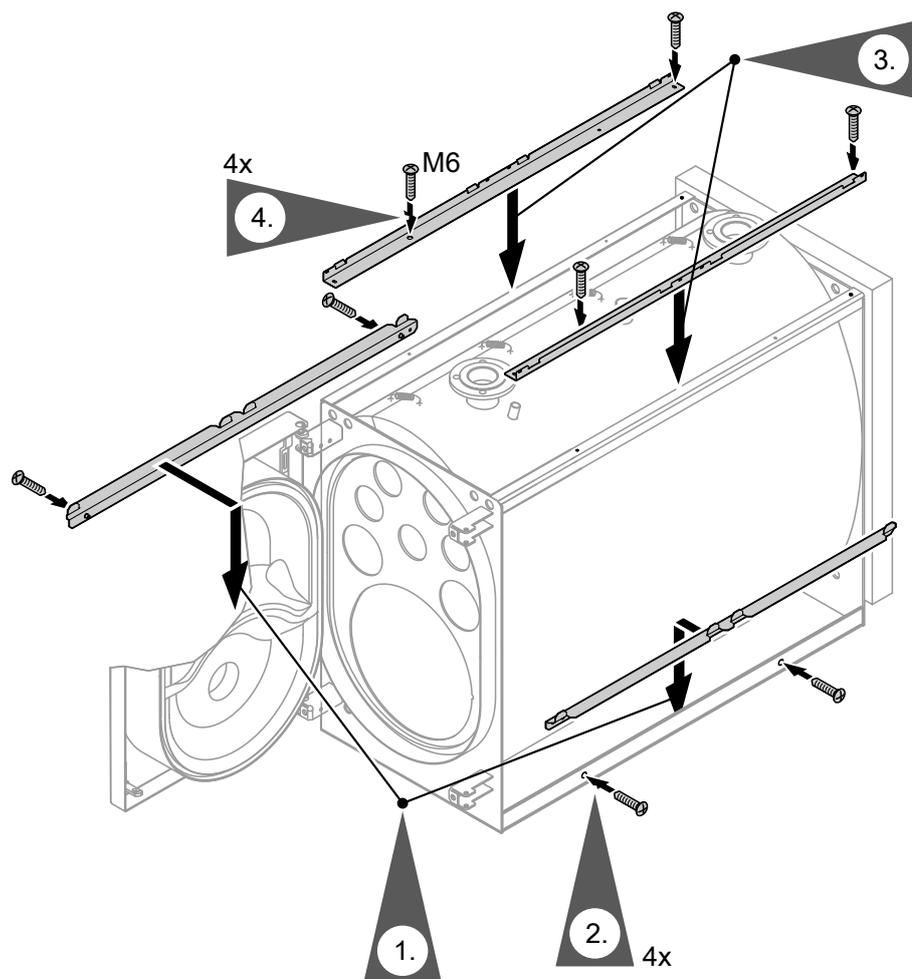


Fig. 13

Using screws, secure the lower rails behind the boiler base rails.

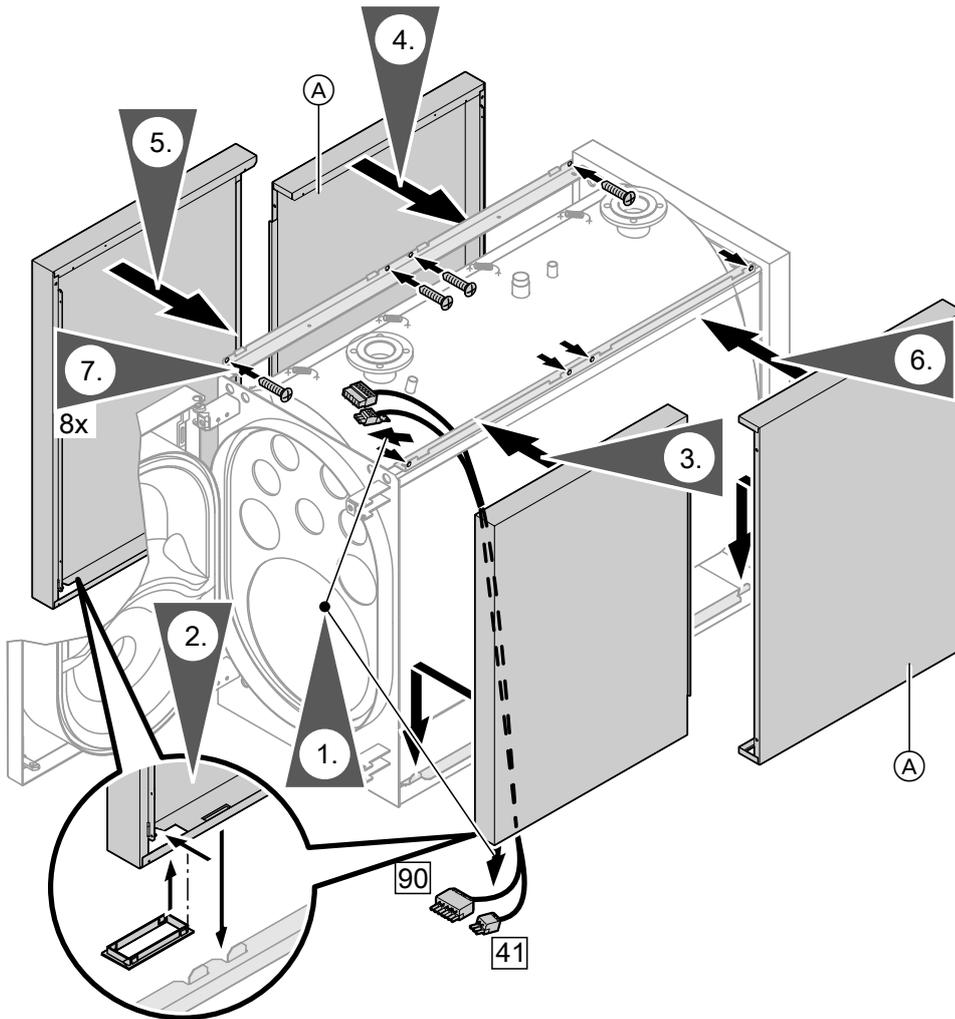


Fig. 14

Ⓐ Side panels with screw holes at the rear

Route burner cables 41 and 90 along the side of the boiler where the boiler door hinges are located.

Side panels and burner cables (390 to 500 kW)

Note

Burner cables 41 and 90 are included.

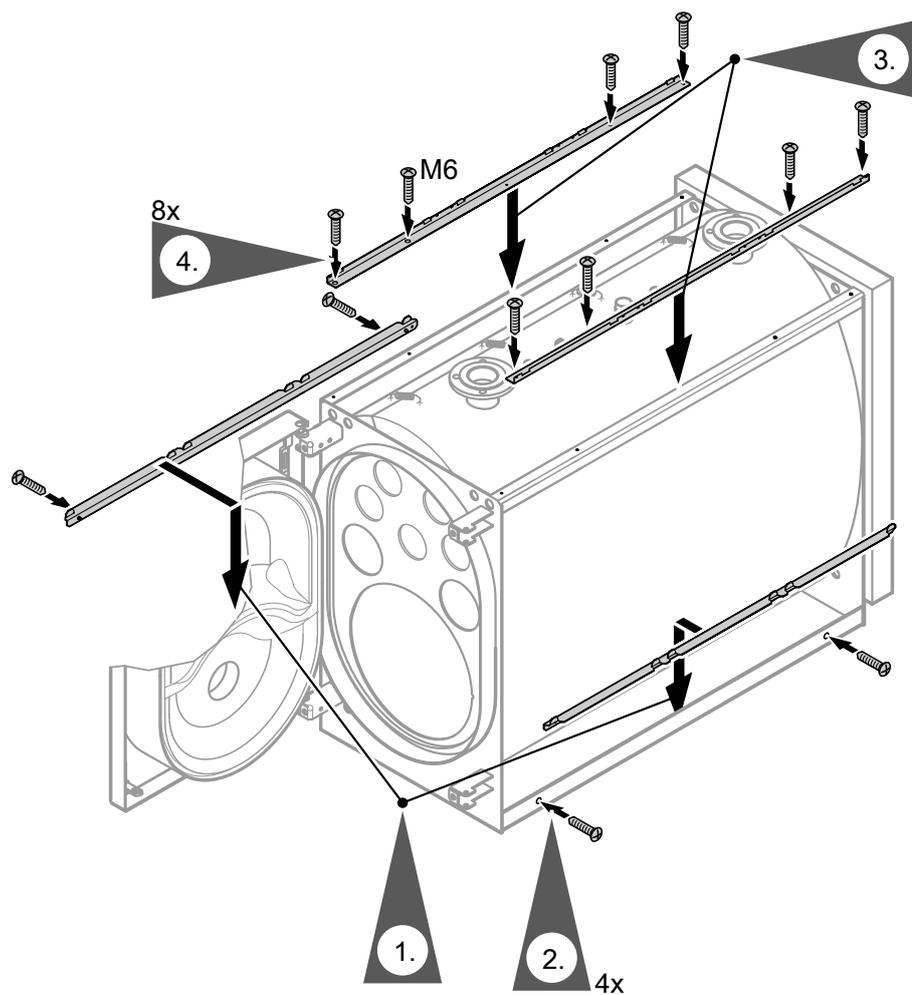


Fig. 15

Using screws, secure the lower rails behind the boiler base rails.

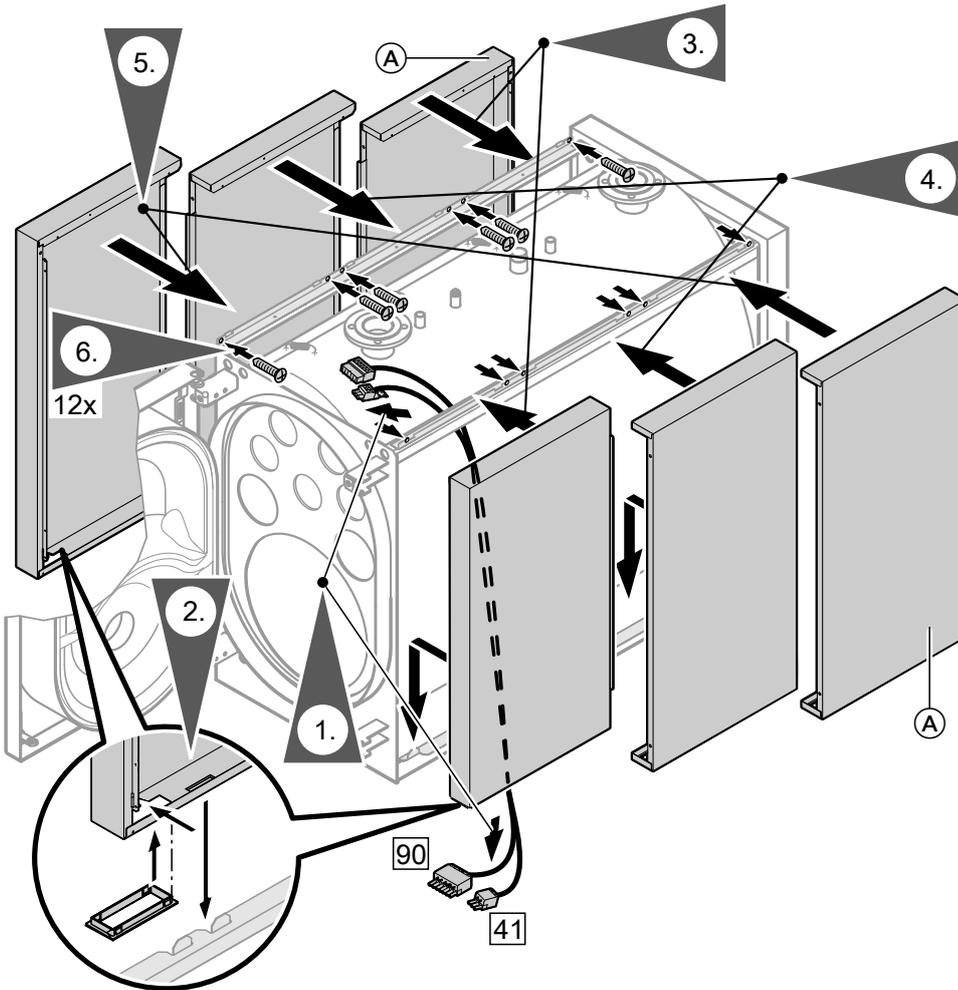


Fig. 16

(A) Side panels with screw holes at the rear

Route burner cables **41** and **90** along the side of the boiler where the boiler door hinges are located.

Front panels

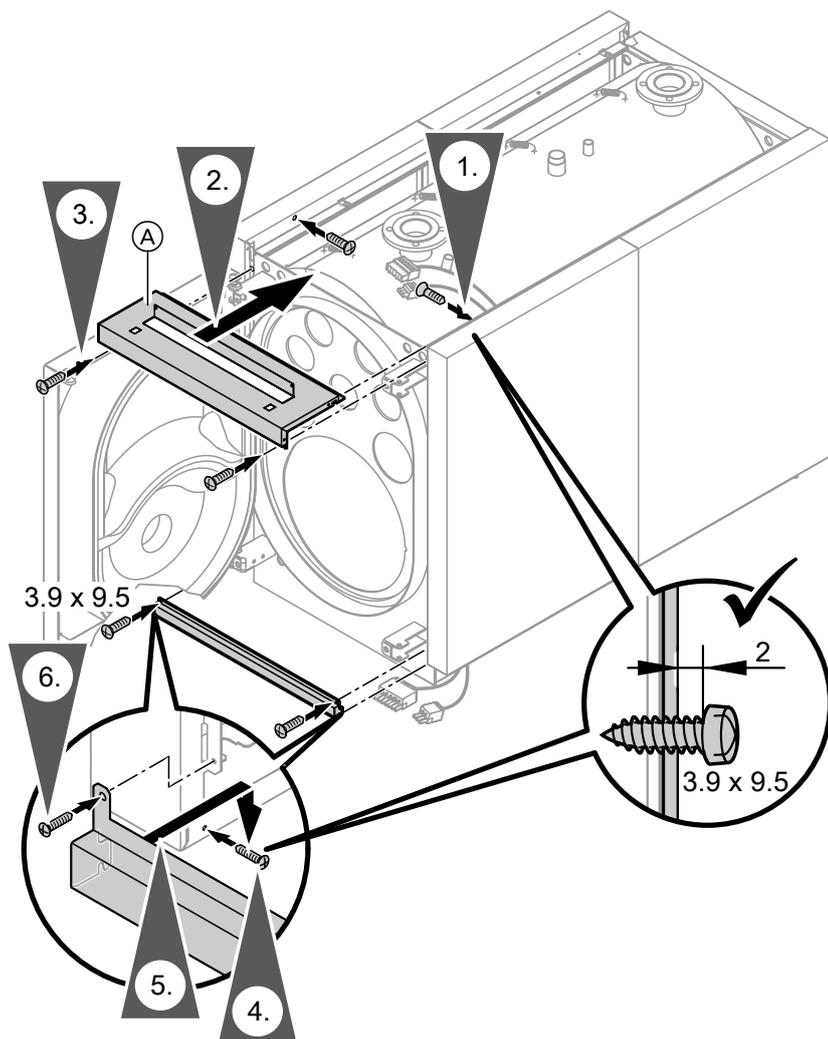


Fig. 17

Preparing for the control unit installation



Connections to the back of the control unit
Boiler control unit installation instructions

Sensors and plugs can be found in the following packs:

- Boiler water temperature sensor [3] is supplied in the control unit pack.
- The Therm-Control temperature sensor (NTC 10 kΩ) [17] is supplied separately.

- The boiler coding card and logo are supplied with the product pack.
- Power supply plug [40] is supplied with the control unit.



Please note

Damaged capillary tubes will result in malfunctions of the measuring probes.
Never kink the capillary tubes.

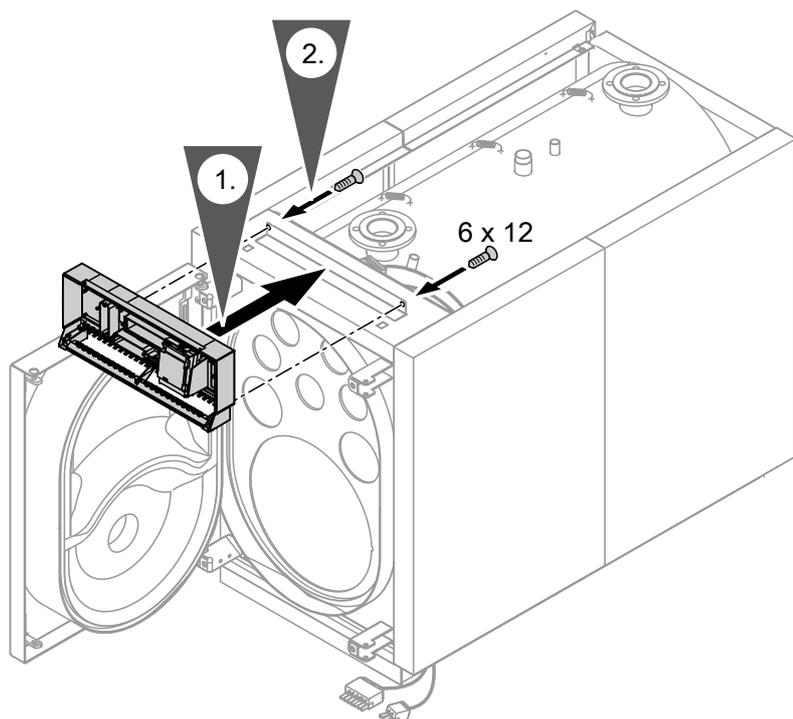


Fig. 18

Note

Screws (6 x 12) can be found with the control unit fascia (packed separately with the thermal insulation).

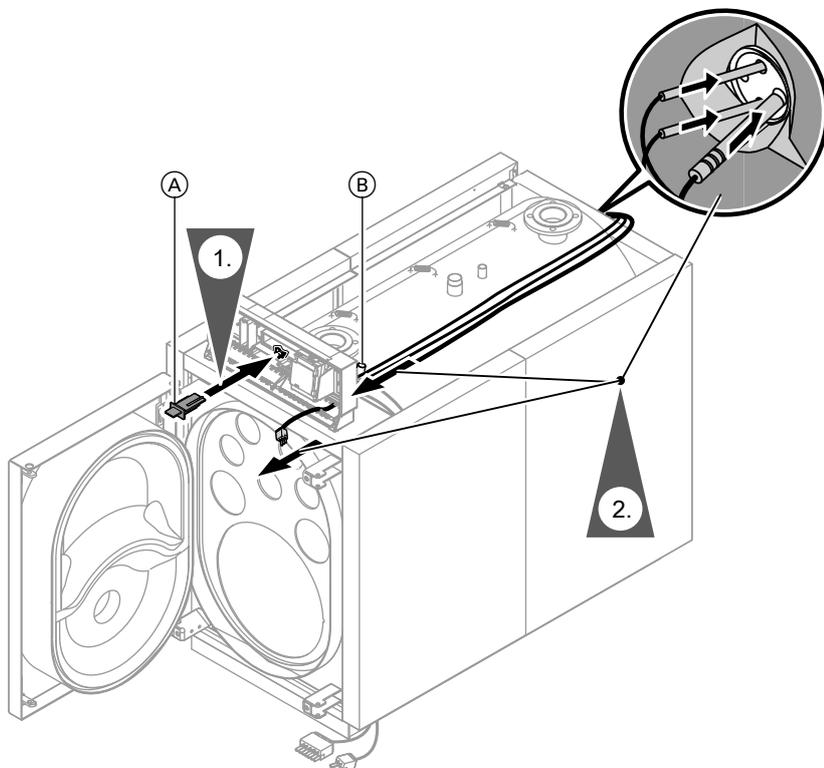


Fig. 19

- (A) Boiler coding card
- (B) Sensor well for temperature sensor

Preparing for the control unit installation (cont.)

Push the measuring probes, boiler water temperature sensor and Therm-Control temperature sensor (NTC 10 k Ω) as far as they will go into the sensor wells.

Install the Therm-Control temperature sensor (NTC 10 k Ω)

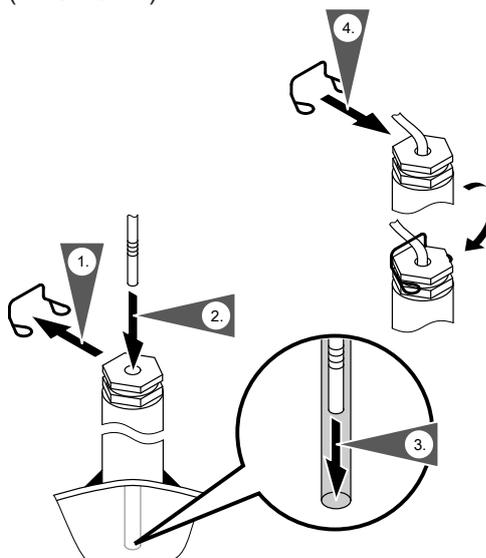


Fig. 20

Mounting the rear and top panels

Rear panels

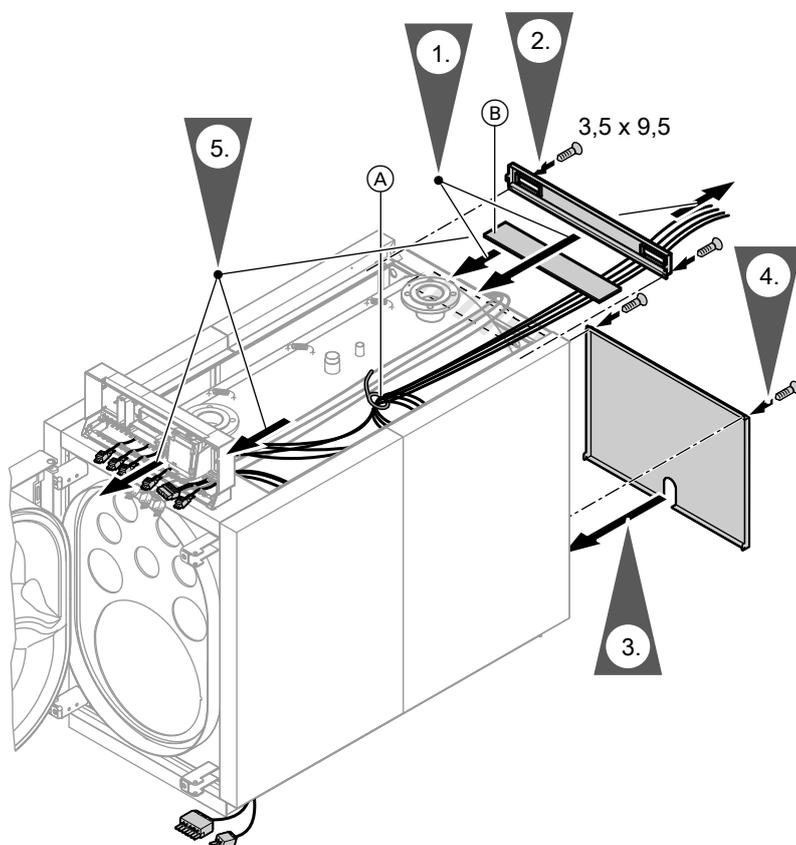


Fig. 21

- (A) LV leads (bundle and secure)
- (B) Thermal insulation mat, flue gas collector

Mounting the rear and top panels (cont.)

Pull all external leads through the apertures in the back and front panels and into the wiring chamber of the control unit.



Boiler control unit installation instructions

Top panels

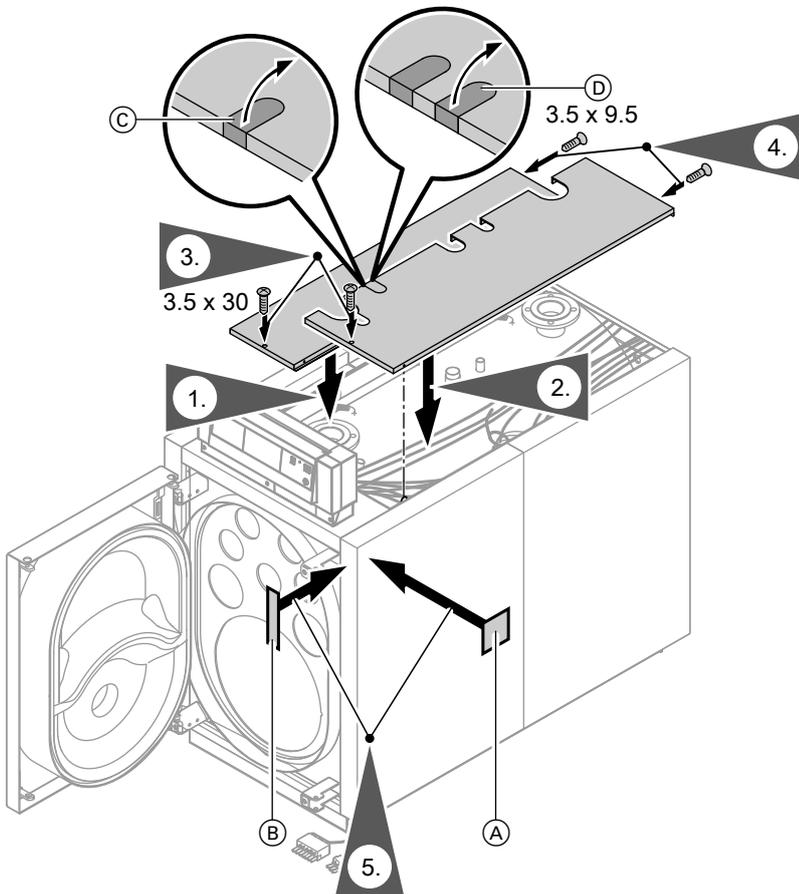


Fig. 22

- (A) Boiler type plate, on the left or right of the side panel
- (B) Logo

- (C) For 140, 180, 390, 405, 500 kW:
Remove the cut-out on the return connector.
- (D) For 235 and 300 kW:
Remove the cut-out on the return connector.

Mounting the rear and top panels (cont.)

Control unit fascia

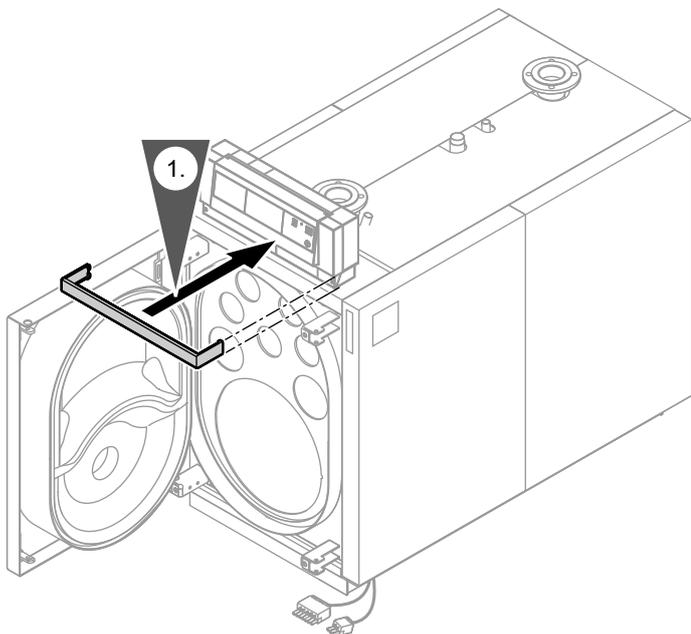


Fig. 23

Mounting the burner



Separate burner documentation.

The burner fixing hole circle, burner fixing holes and flame tube aperture are specified in the datasheet.

The burner may be mounted directly on the hinged boiler door. If the burner dimensions deviate from those specified in the datasheet, mount the burner plate that is part of the standard delivery.

1. Cut out the thermal insulation mat in the boiler door to suit the flame tube diameter.



Danger

Fibre dust can be produced if working with high temperature insulation materials that contain zirconium or aluminium silicate ceramic fibres. This fibre dust can be harmful to health.

Only trained personnel may adjust or replace the insulation. Wear suitable protective clothing, especially breathing equipment and safety goggles.

2. Mount the burner.

Note

The flame tube must protrude from the thermal insulation of the boiler door.

3. Seal the annular gap between the flame tube and the thermal insulation block with the flame tube gasket supplied. For this, firmly insert the flame tube gasket into the gap.

Note

Failure to observe this can result in boiler door damage due to excessive temperatures.

4. Close the boiler door. Tighten the screws cross-wise (torque 25 Nm).



Danger

Leaks can result in a risk of poisoning through escaping gas. Check gaskets carefully.

Connecting the hose from the combustion chamber sight glass to the burner

To mount the combustion chamber sight glass, see page 9.

Commissioning information



Service instructions for boiler, burner and boiler control unit

Specification

Rated heating output	kW	90	115	140	180	235	300	405	500
Rated heat input	kW	97	124	151	194	254	323	436	538
Permiss. flow temperature (= safety temperature)	°C	110 (up to 120 °C on request)							
Permiss. operating pressure	bar	4							
	kPa	400							
Pressure drop on the hot gas side	Pa	40	60	80	100	200	200	250	330
	mbar	0.4	0.6	0.8	1.0	2.0	2.0	2.5	3.3
Boiler body dimensions									
Length excl. boiler door	mm	1215	1420	1405	1600	1820	1820	1865	2010
Width	mm	575	575	650	650	730	730	865	865
Height (incl. connectors)	mm	1145	1145	1180	1180	1285	1285	1455	1455
Overall dimensions									
Length excl. burner	mm	1300	1500	1485	1680	1905	1905	1945	2090
Length incl. burner and hood	mm	1700	1905	1910	2110	2330	2330	–	–
Width	mm	755	755	825	825	905	905	1040	1040
Height incl. control unit	mm	1315	1315	1350	1350	1460	1460	1625	1625
Maintenance height (control unit)	mm	1485	1485	1520	1520	1630	1630	1795	1795
Foundation									
Length	mm	1000	1200	1200	1400	1650	1650	1650	1800
Width	mm	760	760	830	830	900	900	1040	1040
Combustion chamber diameter	mm	380	380	400	400	480	480	570	570
Combustion chamber length	mm	800	1000	1000	1200	1400	1400	1400	1550
Weight									
Boiler body	kg	350	394	460	490	650	742	940	1110
Weight incl. thermal insulation and boiler control unit	kg	395	440	510	540	710	802	1075	1295
Weight incl. thermal insulation, boiler control unit and burner	kg	420	464	540	570	740	832	–	–
Capacity boiler water	litres	170	210	250	290	470	430	590	630
Boiler connections									
Boiler flow and return	PN 6 DN	65	65	65	65	65	80	100	100
Safety connection (safety valve)	R	1¼	1¼	1¼	1¼	1¼	1¼	1½	1½
Drain	R	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Flue gas parameters²									
Temperature (at 60 °C boiler water temperature)									
– At rated heating output	°C	160							
– At partial load	°C	105							

² Values for calculating the size of the flue system to EN 13384, relative to 13 % CO₂ for fuel oil EL and 10 % CO₂ for natural gas.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The details for partial load refer to an output of 60 % of rated heating output. If the partial load differs (depending on operating mode), calculate the flue gas mass flow rate accordingly.

Specification (cont.)

Rated heating output	kW	90	115	140	180	235	300	405	500
Temperature (at 80 °C boiler water temperature)	°C	175							
Flue gas mass flow rate		1.5225 x combustion output in kW							
– For natural gas	kg/h	1.5 x combustion output in kW							
– For fuel oil EL	kg/h								
Required draught	Pa/ mbar	0							
Flue gas connection									
Nominal diameter	∅ mm	180	180	200	200	200	200	250	250
External	∅ mm	178	178	198	198	198	198	248	248
Standard seasonal efficiency [to DIN]									
(for operation with fuel oil/ natural gas)	%	90 (H _s) [gross cv]							
At heating system temperature 75/60 °C									
Standby loss q _{B,70}	%	0.40	0.37	0.32	0.34	0.37	0.29	0.25	0.23
Rated heating output									
Boiler with Vitotrans 300									
– Gas operation	kW	98.7	126.1	152.7	197.1	257.2	328.5	435.2	543.7
– Oil operation	kW	95.8	122.5	148.8	191.7	250.3	319.5	429.5	529.9
Pressure drop on the hot gas side									
Boiler with Vitotrans 300	Pa	105	125	165	185	300	300	355	435
	mbar	1.05	1.25	1.65	1.85	3.00	3.00	3.55	4.35

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