

Vitoplex 100-LS

Type **SXD**, 0.26 to 0.7 t/h

Oil/gas low pressure steam boiler

Permissible operating pressure 1 bar (0.1 MPa)



VITOPLEX 100-LS



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.



Please note

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

Note

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

Target group

These instructions are exclusively intended for qualified contractors.

- Work on gas installations must only be carried out by a registered gas fitter.
- Work on electrical equipment may only be carried out by a qualified electrician.
- The commissioning must only be carried out by trained specialist personnel in accordance with the Viessmann operating and service instructions.

Regulations to be observed

- Pressure Equipment Directive
- Health and Safety at Work Act (BetrSichV) [Germany] and extended technical rules for operational safety (TRBS)
- Country-specific safety regulations for the installation site
- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations

Working on the system

- Close the fuel shut-off valve and secure against unintentional reopening.
- 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.

1. Information	Disposal of packaging	4
	Symbols	4
	Intended use	4
	Product information	5
	■ System examples	5
	Note	5
2. Preparing for installation	Clearance dimensions	6
	Anti-vibration supports	6
3. Installation sequence	Boiler positioning and levelling	7
	Connection on the water and steam side	8
	Connecting the flue gas side	9
	Fitting the thermal insulation	10
	■ Boiler shell thermal insulation	10
	■ Front rails and front thermal insulation	11
	■ Back rails and back thermal insulation	12
	■ Side and back panels	13
	■ Front and cover panels	14
	Fitting the control valves	14
	■ Water level indicator and fitting assembly (accessories)	15
	■ Temperature controller and cover panels	16
	Installing electrodes (accessories)	17
	■ Multiple level electrode for operating pressure up to 0.5 bar (50 kPa)	17
	■ Combined level electrode for operating pressure up to 1.0 bar (0.1 MPa)	19
	TDS valve (manual) (accessories)	23
	TDS unit (automatic)	24
	Installing the safety valve and testing for tightness	24
	Mounting the burner	25
	Combustion chamber sight glass	25
	■ Mounting the combustion chamber sight glass	25
	■ Closing off the sight glass aperture on burners without ventilation connection	26
	Setting the pressure switch	27
	■ Pressure switch	27
	Adjusting the burner	27
	Commissioning information	28

Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

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.
	- Component must audibly click into place. - or - Acoustic signal
	- 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

Note

Applies to the product including all components

1. Operate under defined Viessmann general and operating conditions (standard conditions) for Vitoplex steam boilers and accessories, e.g. temperature range, min./max. humidity, air pressure, etc.
2. Use the specified equipment and auxiliary materials (lubricants, spare and wearing parts, etc.)
3. Use defined fuels.
4. Read, observe and comply with associated product documentation, e.g. technical guides, installation/service/operating instructions.
5. Only install and operate in heating systems as per EN 12953 and 14394.
6. Only use for steam generation or water heating.

Intended use (cont.)

7. Only use for heating water according to EN 12953, TRD 611 and 612, and VdTÜV/AGFW datasheet (TCh 1466/FW510).
8. Equip for local operation according to regulations specific to the country and site.
9. Fixed installation
10. Use only components approved for the specific system.

Note

*Any use not complying with the above points will be deemed to be **inappropriate**.*

Manufacturer approval

Any usage not as intended must first be approved by the manufacturer.

Exclusion of liability

- Inappropriate use without manufacturer approval
- Incorrect use of the steam boiler or its components
- Incorrect operation
- Modification of system components not complying with their intended function

Product information

Vitoplex 100-LS, type SxD

- Fuels: Fuel oil and natural gas
- Steam output 0.26 to 0.7 t/h
- Permissible operating pressure up to 1 bar (0.1 MPa)

System examples

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

Note

All diagrams in this document are schematic, illustrative examples.

Clearance dimensions

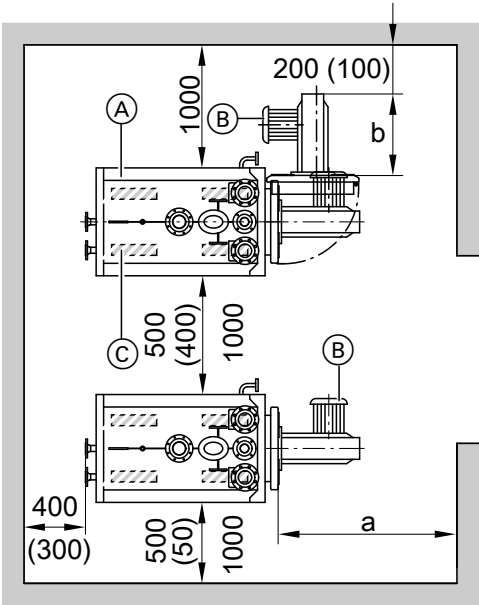


Fig. 1

- Ⓐ Boiler
- Ⓑ Burner
- Ⓒ Anti-vibration supports

Steam output	t/h	0.26	0.44	0.7
a	mm	1200	1300	1400
b	mm	Observe the installed burner length		
Height above the boiler	mm	800	800	850

Anti-vibration supports

Recommendation
Use to provide vibration isolation and minimise transmission of structure-borne noise.

 **Installation of anti-vibration supports**
Manufacturer's installation instructions

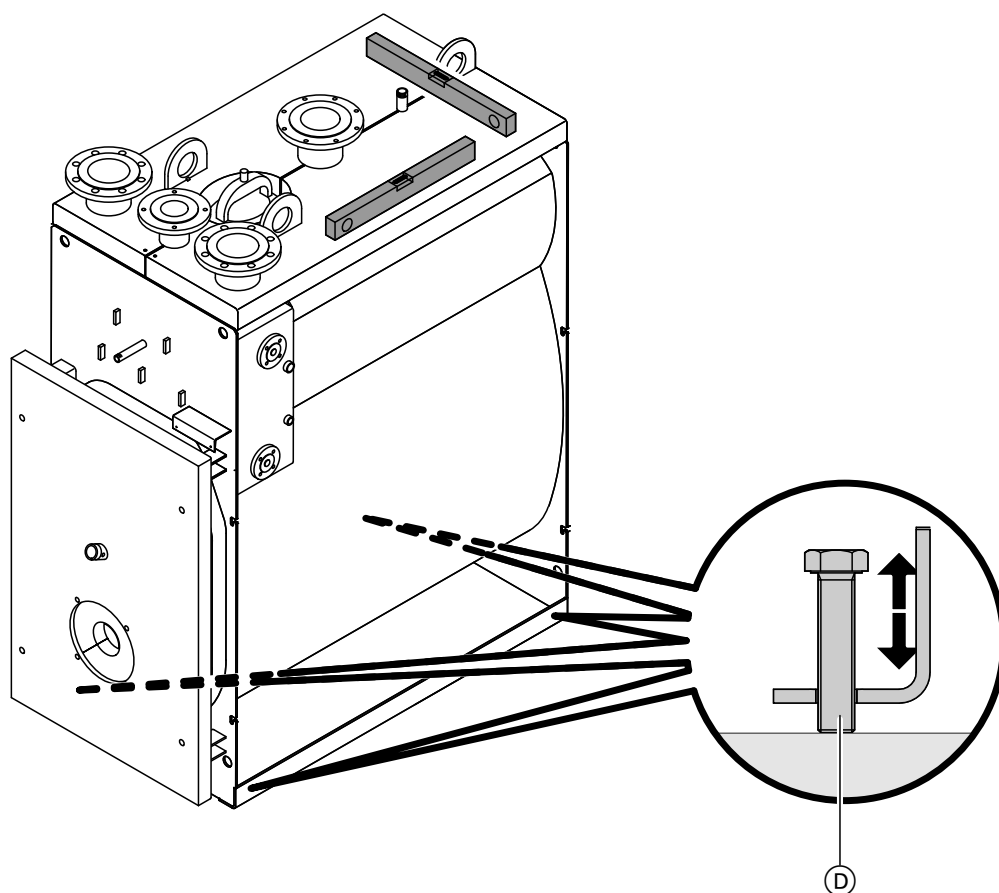


Fig. 2

1. Insert adjusting screws ① 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 **anti-vibration boiler supports** ② (see Fig. 1), in which case adjusting screws ① will not be required.

Connection on the water and steam side



Danger

Opening the boiler connections and apertures whilst the boiler is under pressure can lead to a high risk of severe injury. Only open the connections on the water side and steam side, as well as the inspection ports, after the boiler has been completely depressurised.

Note

Install all pipe connections free of load and torque stress.

Thoroughly flush the system, especially when connecting the boiler to an existing system.

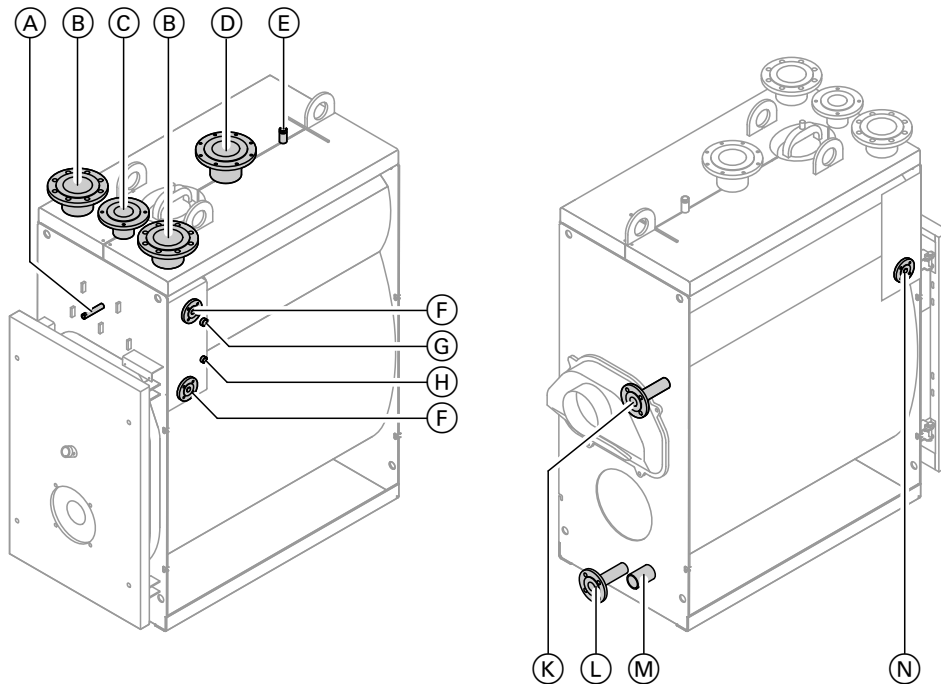


Fig. 3

A	Female fitting assembly connection (with twin connector R $\frac{3}{4} \times \frac{1}{2}$)	R $\frac{3}{4}$
	with 3 female connections for pressure gauge, pressure regulator and safety pressure limiter	R $\frac{1}{2}$
B	Connector for water level limiter/water level control	DN 100 PN 16
C	Safety valve connector	see page 24
D	Steam connector for 0.26 t/h	DN 100 PN 16
	for 0.44 and 0.7 t/h	DN 125 PN 16
E	Vent connector	R $\frac{3}{4}$
F	Connector for water level indicator	DN 20 PN 40
G	Female vent connection	R $\frac{3}{4}$
H	Sleeve for additional control equipment	R $\frac{1}{2}$
K	Feedwater connector	DN 40 PN 40
L	Drain connector	DN 40 PN 40
M	Female cleaning connection	R 2
N	Connector for TDS valve or TDS unit	DN 20 PN 40

Connecting the flue gas side

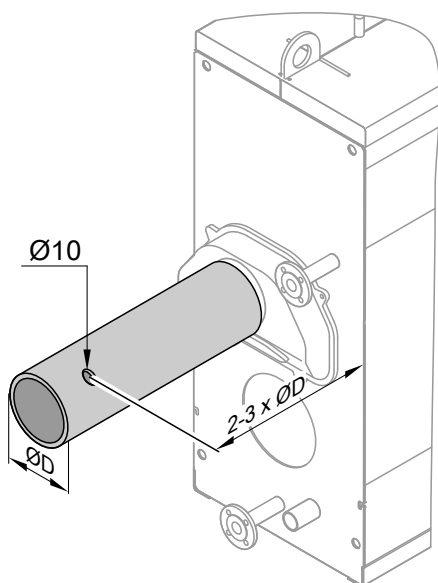


Fig. 4

1. Connect the flue outlet with the shortest possible run to the chimney, maintaining a slight incline.

Steam output t/h	0.26	0.44	0.7
Flue gas connection	200	200	250
Ø external			

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 to fit the thermal insulation can be found in the thermal insulation box.

Boiler shell thermal insulation

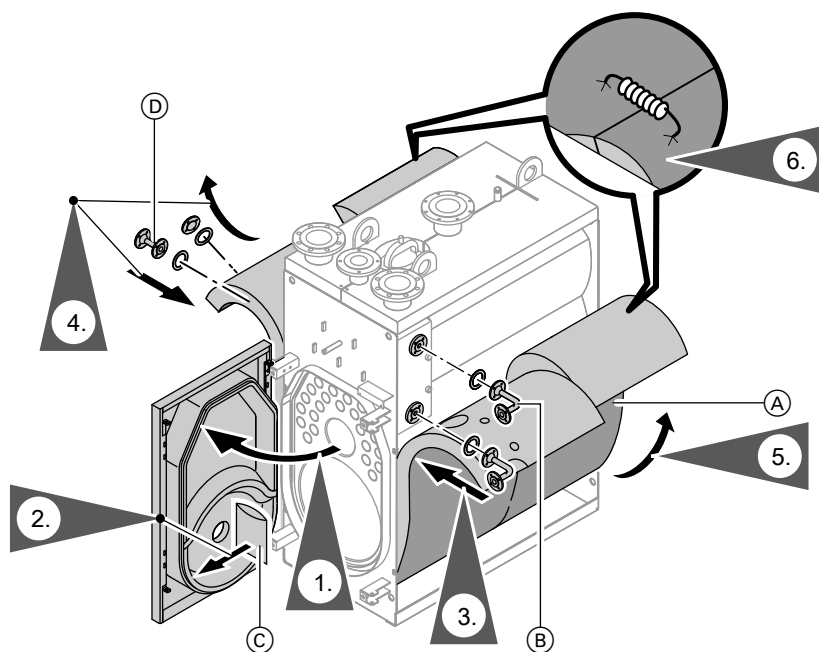


Fig. 5

- Ⓐ Black side outwards,
for 0.7 t/h: 2 pce
- Ⓑ Secure the pipe bends by their longest side to the
flanges, with gaskets.
- Ⓓ Only if the TDS valve or TDS unit is fitted:
Secure the extension piece with gasket to the
flange; remove the blank flange to do so.

Note

Remove bag Ⓒ containing the type plate and keep
safe. This will be required later (see page 13).

Front rails and front thermal insulation

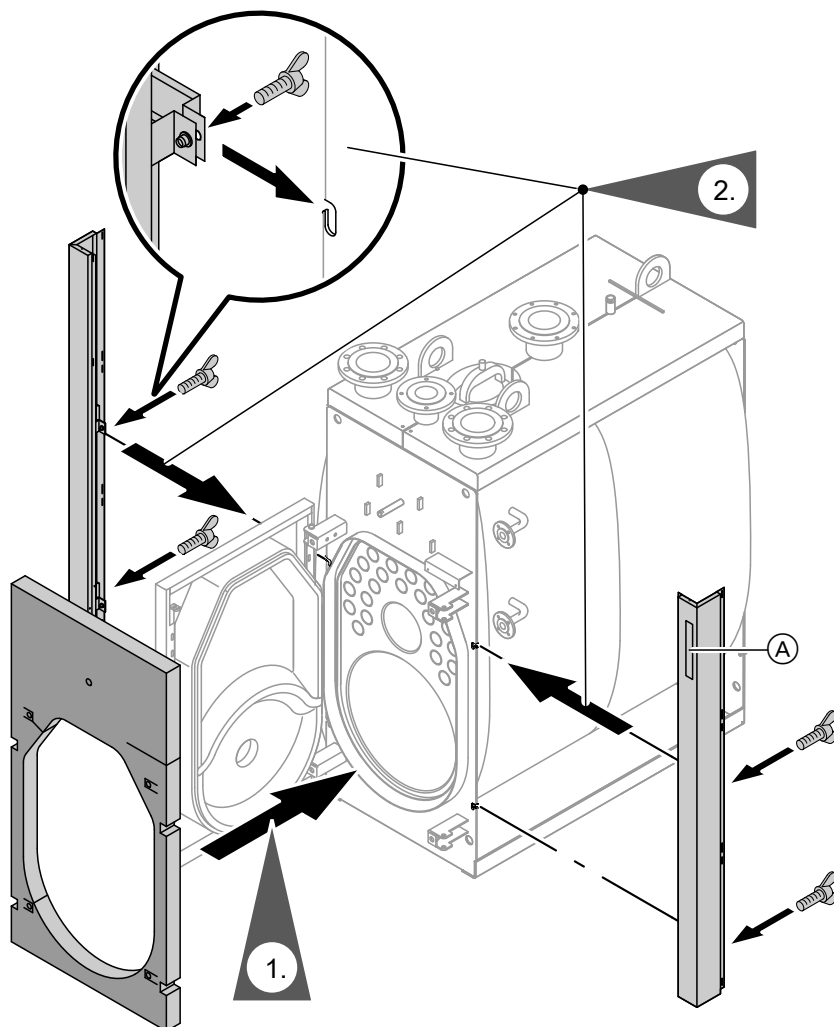


Fig. 6

(A) Vitoplex logo

Note

Cut out the insulation mat for the front panel if required. Secure the joints with spring hooks. Seal the cut-outs with the glass fibre strips supplied.

Back rails and back thermal insulation

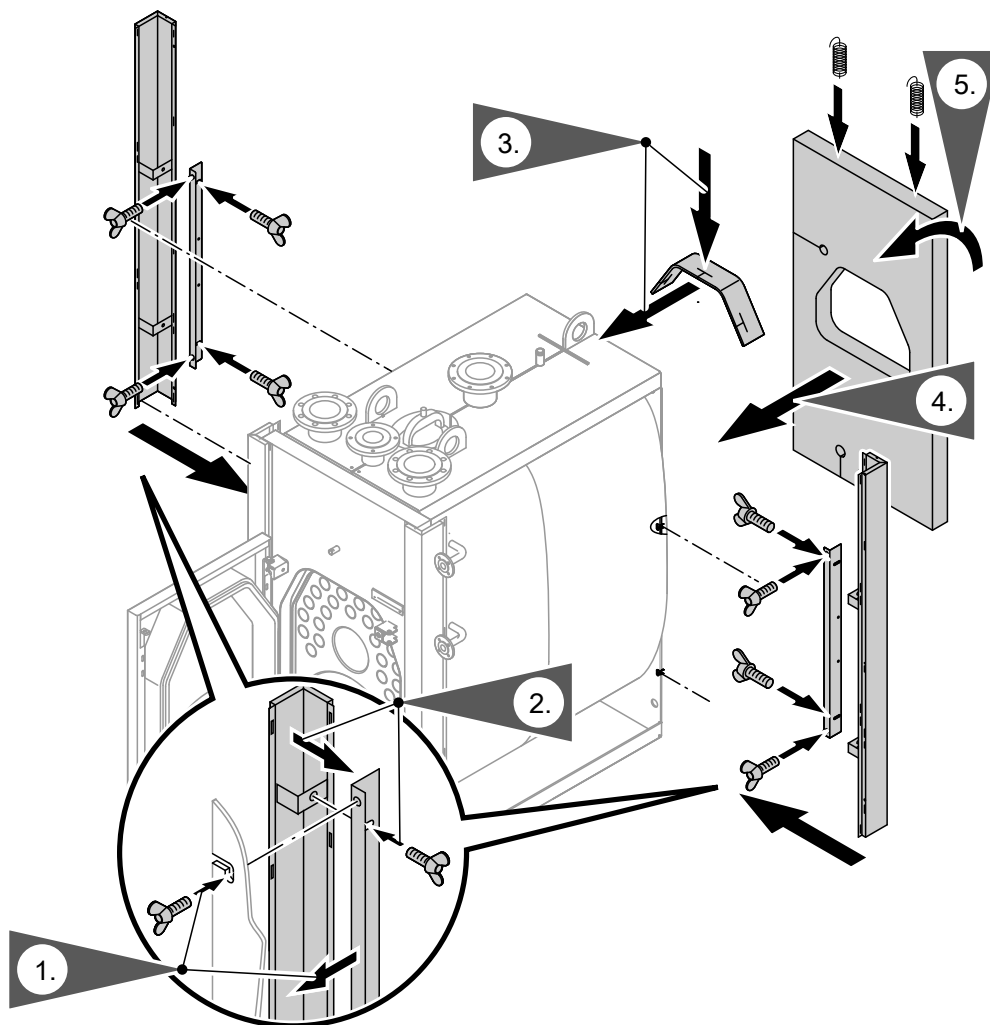


Fig. 7

Note

Seal the cut-outs with the glass fibre strips supplied.
Compare the manufacturer's details on the back of the boiler with the details on the type plate.

Side and back panels

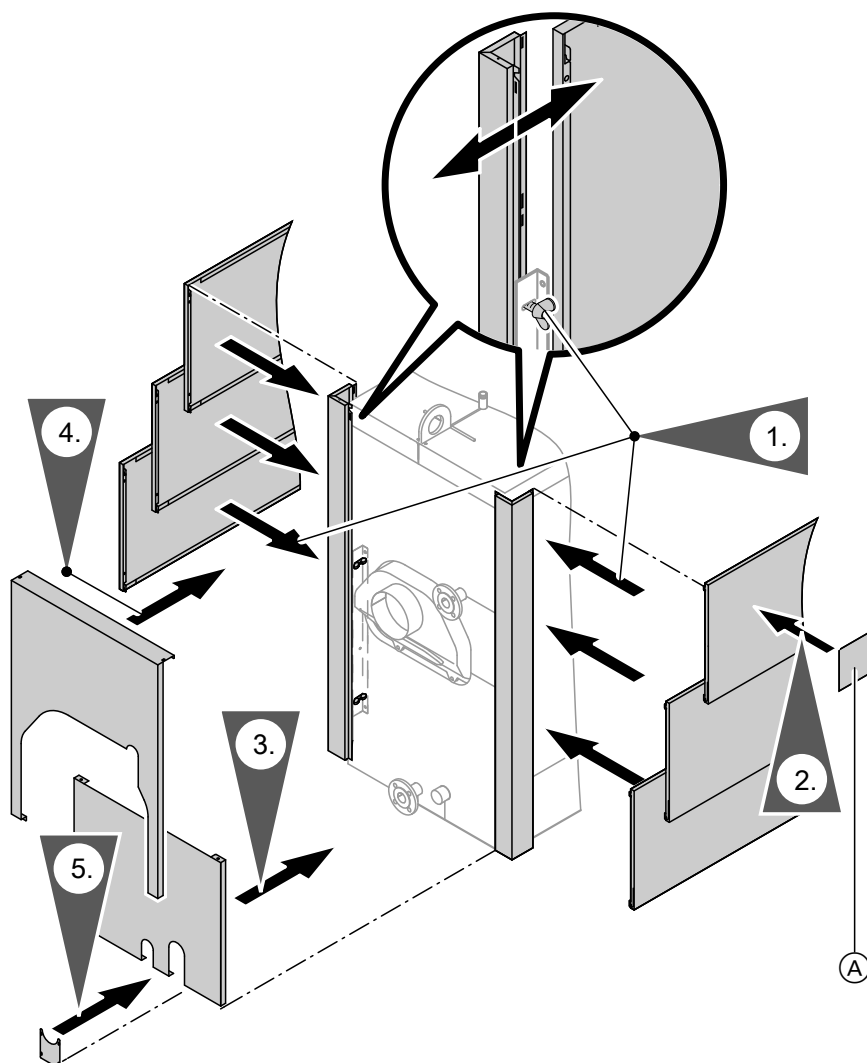


Fig. 8

Ⓐ Affix the type plate.

Note

Compare the manufacturer's details on the back of the boiler with the details on the type plate.
If replacing the side panel on which the type plate is fitted, please order a new type plate. State the serial no. when ordering.

Front and cover panels

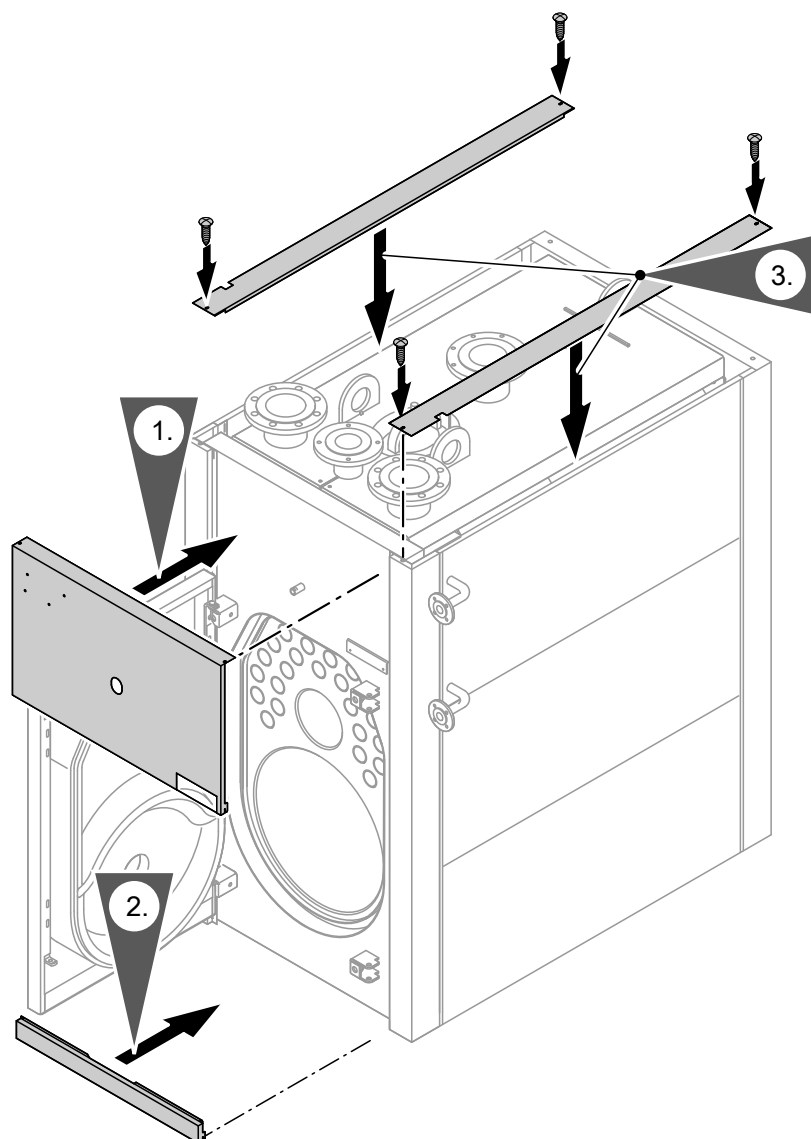


Fig. 9

Fitting the control valves

Note

Carry out the installation in accordance with the instructions supplied with the equipment.

Water level indicator and fitting assembly (accessories)

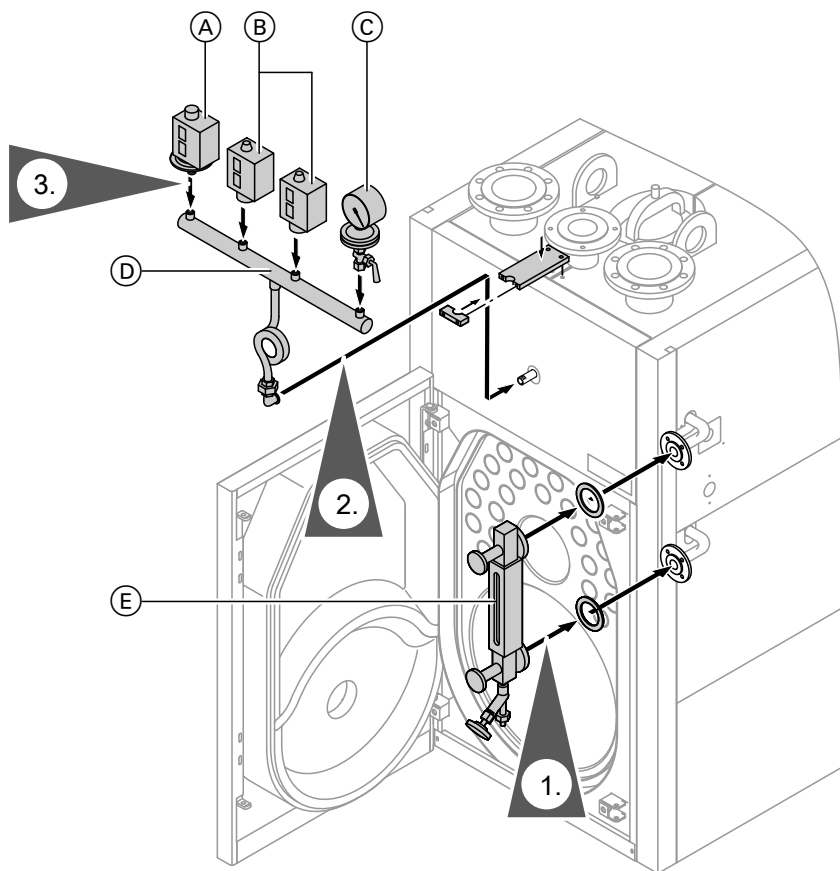


Fig. 10

- (A) Safety pressure limiter, optionally with cap valve
- (B) Pressure regulator or pressure transducer, optionally with cap valve
- (C) Pressure gauge with test valve

- (D) Fitting assembly
- (E) Water level indicator



Installation instructions for "fittings"

Temperature controller and cover panels

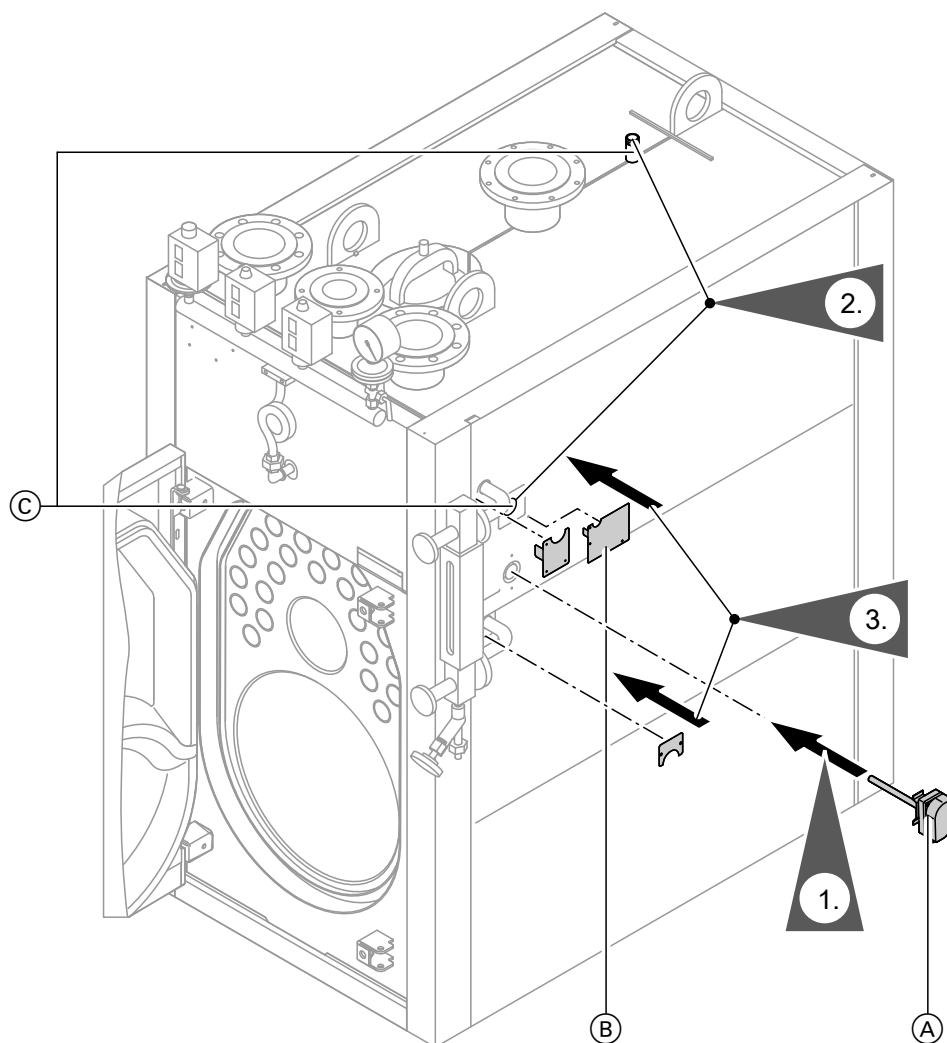


Fig. 11

- (A) Temperature controller or poss. cover panel
- (B) Cover panel
Fit the large cover panel only if no air vent valve (accessories) is connected to the side of the boiler.
- (C) Connect the air vent valve either to the female connection on top of the boiler or next to the water level indicator. Cap any female connection that is not used.

Installing electrodes (accessories)

Note

Install the electrodes for controlling and limiting the water level in accordance with the electrode installation instructions.

Match or adjust the electrodes to the switching points listed in the table.

Only install one electrode for limiting the water level in each connector.

However, water level control and water level limitation can be combined.

Ensure the electrodes of multi boiler systems are not interchanged.

Multiple level electrode for operating pressure up to 0.5 bar (50 kPa)

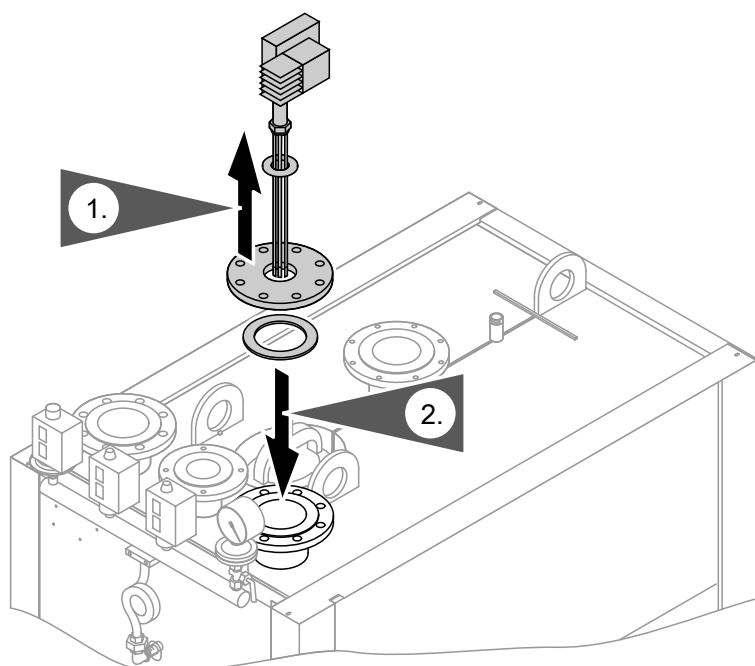


Fig. 12

Note

See the following diagram for trimming the electrodes.

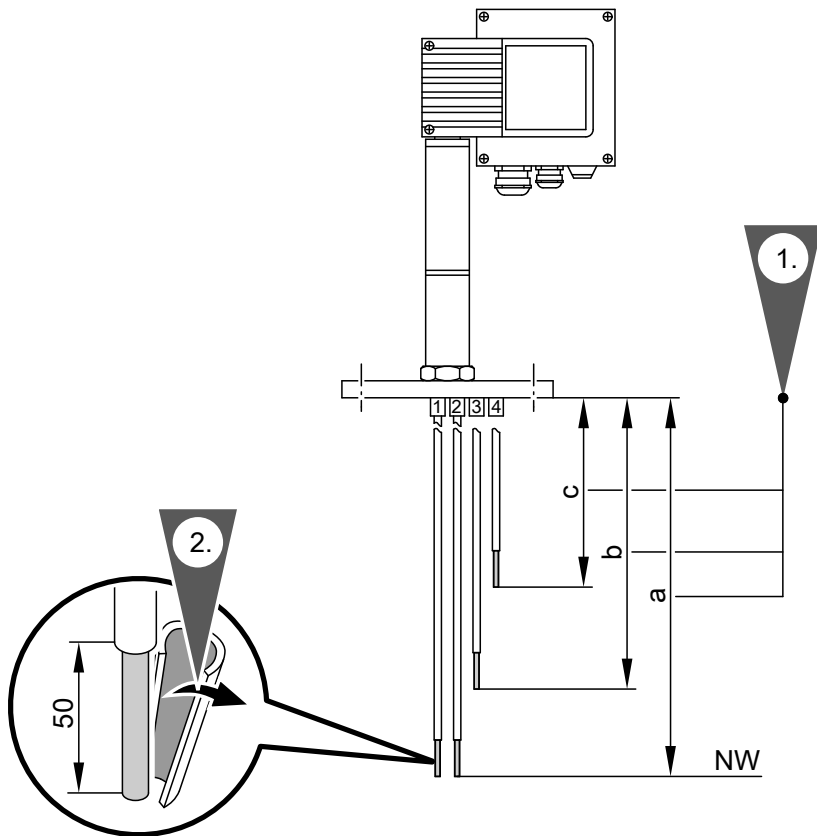


Fig. 13

NW Minimum water level

1. Trim the electrode rods to the stated lengths.
2. Strip the electrodes after trimming them to size.

Steam output		t/h	0.26	0.44	0.7
Reference electrode to low water level NW	Dim. a	mm	520	565	595
Pump ON	Dim. b	mm	470	515	545
Pump OFF	Dim. c	mm	440	485	515

Note
Do not bend the electrode rods when trimming them.

Combined level electrode for operating pressure up to 1.0 bar (0.1 MPa)

Water level controller

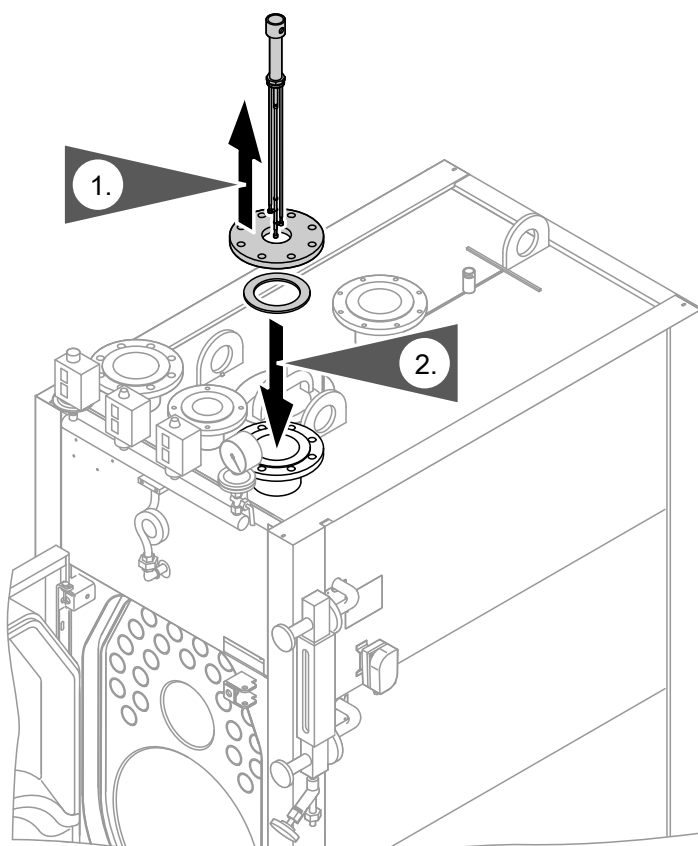


Fig. 14

Note

See the following diagram for trimming the electrodes.

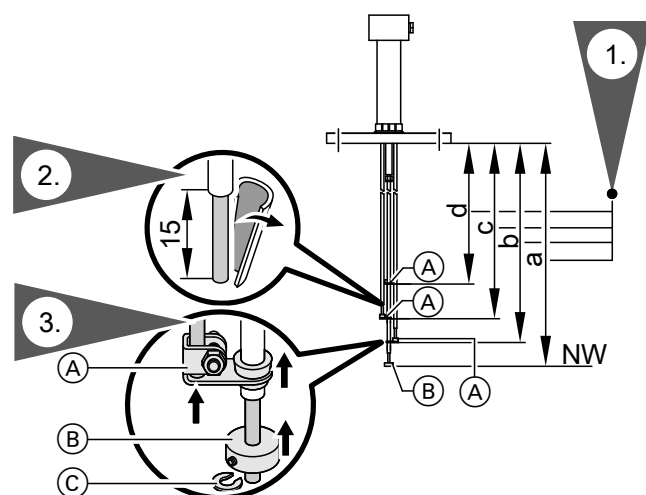


Fig. 15

NW Minimum water level

1. Trim the electrode rods to the stated lengths.
2. Strip the electrodes after trimming them to size.
3. Secure test area extension (A) on each of the external electrode rods.
4. Push test area extension (B) onto the central electrode rod and secure with the grub screw.

Installing electrodes (accessories) (cont.)

5. Push locking washer ③ onto the central electrode rod.

Steam output		t/h	0.26	0.44	0.7
Reference electrode to low water level NW	Dim. a	mm	520	565	595
Pump ON	Dim. b	mm	470	515	545
Pump OFF	Dim. c	mm	440	485	515
Maximum water level	Dim. d	mm	375	420	450

Note

During trimming, prevent the electrode rods being bent.

Water level limiter

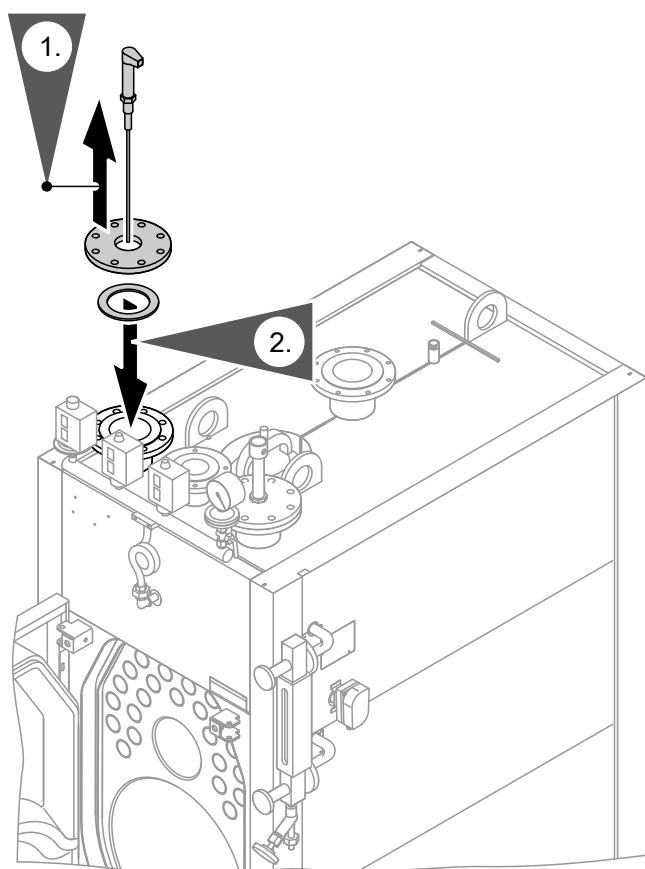


Fig. 16

Note

See the following diagram for trimming the electrode.

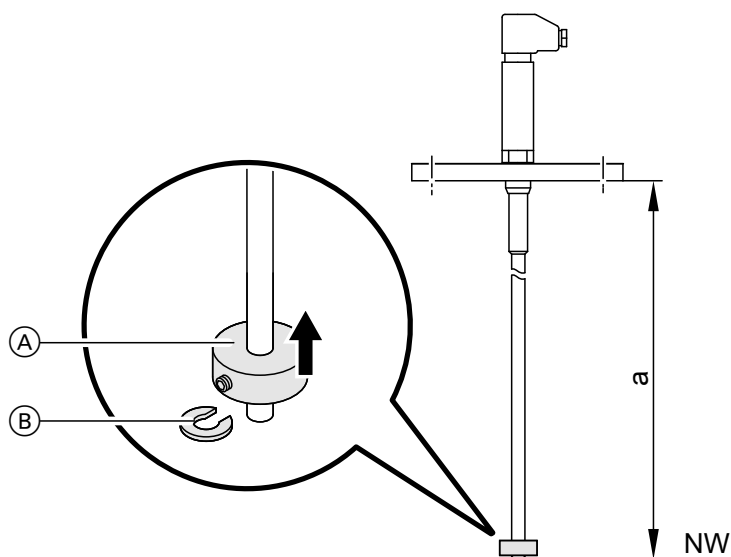


Fig. 17

- (A) Test area extension
see page 21.
- (B) Locking washer
- NW Minimum water level

Steam out- put	t/h	0.26	0.44	0.7
Dim. a	mm	520	565	595

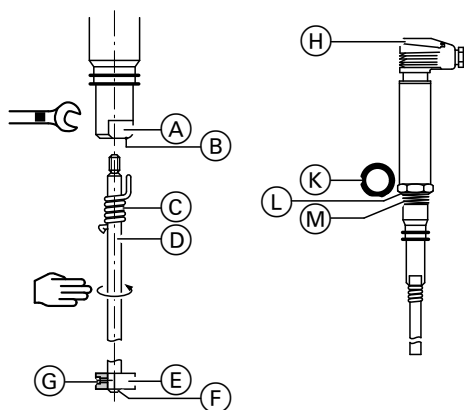


Fig. 18

1. Thread electrode extension (D) into electrode tip (A).
2. Tear into the test length of electrode extension (D).
3. Unscrew electrode extension (D) from electrode tip (A) and trim it to size.
4. Thread electrode extension (D) into electrode tip (A).
5. Move spring clip (C) onto electrode extension (D), until it locks in hole (B).
6. Should a test area extension be required, push washer (E) onto extension (D) so that the extension protrudes 2 mm beyond the underside of the washer.
7. Secure washer (E) with grub screw (G).
8. Push locking washer (F) from below over extension (D) against washer (E).
9. Check the sealing faces on the flange cover.

Installing electrodes (accessories) (cont.)

10. Position seal ring (K) onto sealing face (L) of the electrode.

Note

Use only seal ring D 27×32 DIN 7603-1.4301 supplied.

Note

When installing the level electrode, ensure that the electrode tip is not bent and has no earth contact. Leave the electrode casing outside the boiler thermal insulation.

11. Coat electrode thread (M) with a little silicone grease.



Manufacturer's installation instructions

12. Insert the level electrode into the flange cover and tighten (spanner size 36).

Note

When the system is cold, the torque should be 160 Nm.

Electrical connection

Electrode connection:

Screened 4-core cable, e.g. I-Y(St)Y 2 × 2 × 0.8 or LiYCY 4 × 0.5 mm²

Max. length 100 m	for conductivity from 10 µS/cm
Max. length 30 m	for conductivity from 0.5 µS/cm
Max. length 15 m	for conductivity from 0.5 µS/cm and use of the auxiliary appliance URN 1 (24 V-)

TDS valve (manual) (accessories)

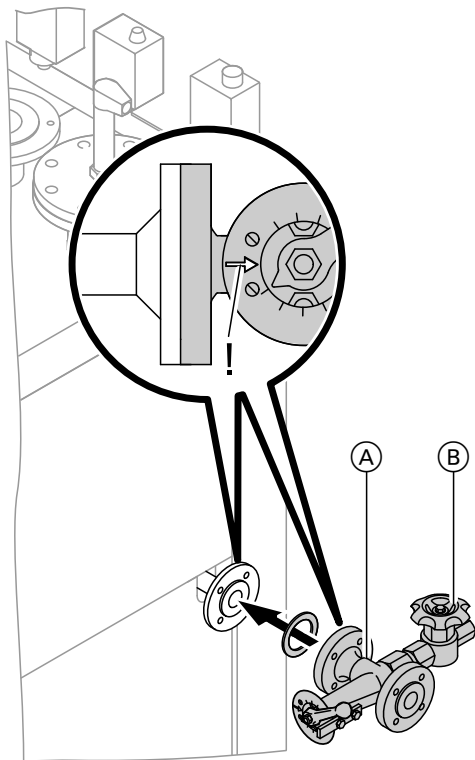


Fig. 19

- Ⓐ TDS valve
- Ⓑ Sampling valve
(supplied separately)

Note

Flow in the direction of the arrow. Select any installation position. The scale should be easily legible.

1. Unscrew the locking screw (spanner size 19) at the base of the TDS valve body.
2. Insert the sampling valve.
3. Fit a shut-off valve upstream.



Manufacturer's installation instructions

TDS unit (automatic)

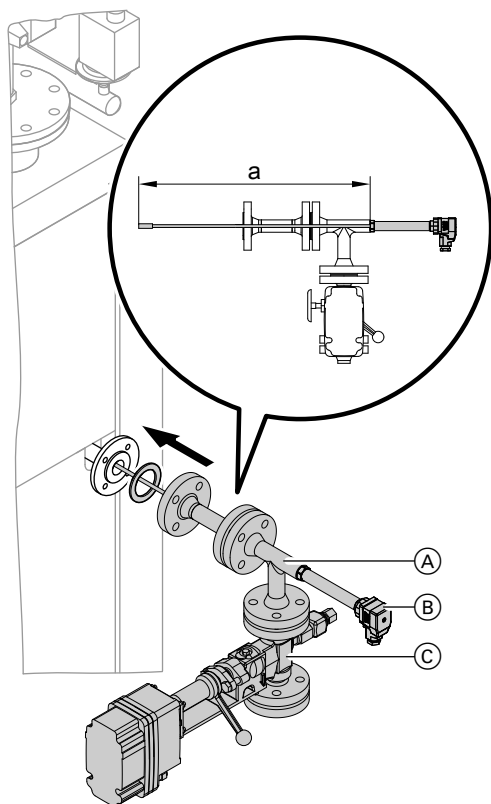


Fig. 20

- Ⓐ Test vessel
- Ⓑ Conductivity electrode
- Ⓒ TDS valve

1. Insert and secure the electrode in the test vessel only with the seal ring supplied.
2. Mount the test vessel on the extension connector.
3. Connect the TDS line.

Steam out-put	t/h	0.26	0.44	0.7
Conductivity electrode (Dim. a)	mm	400	450	500

Installing the safety valve and testing for tightness

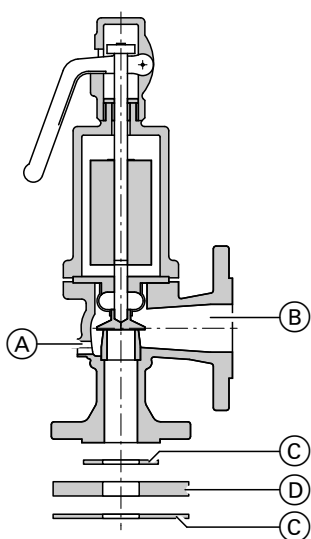


Fig. 21

1. Fit intermediate flange Ⓓ with gaskets Ⓒ on the connector for the safety connection.

Safety connection:

for 0.26 and 0.44 t/h: DN 65 PN 16
for 0.7 t/h: DN 80 PN 16

2. Install the safety valve vertically.
3. Connect discharge pipe Ⓑ and the dewatering line Ⓐ.
4. Check the connections for possible leaks.

Test pressure: 4.8 bar/0.48 MPa

Note

Damage due to excessively high test pressure is excluded from our warranty.

Mounting the burner



Separate burner documentation

The burner fixing hole circle, burner fixing holes and flame head aperture meet the requirements of EN 303-1.

The burner may be fitted directly to the hinged boiler door. Fit the burner plate that is part of the standard delivery if the burner dimensions deviate from those stated in EN 303-1.

See table for the max. flame head aperture.

Steam output	t/h	0.26	0.44	0.7
Maximum flame head aperture	Ø mm	240	240	290
Minimum flame head length	mm	150	150	150

Note

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

To safeguard perfect function, maintain the required minimum flame head length.

Cut out the thermal insulation mat in the boiler door to match the flame head diameter.



Please note

High temperatures can damage the boiler door. Seal the annular gap between the flame head and the thermal insulation block with the flame head gasket supplied.

Note

Failure to observe these instructions can result in damage to the boiler door through excessively high temperatures.

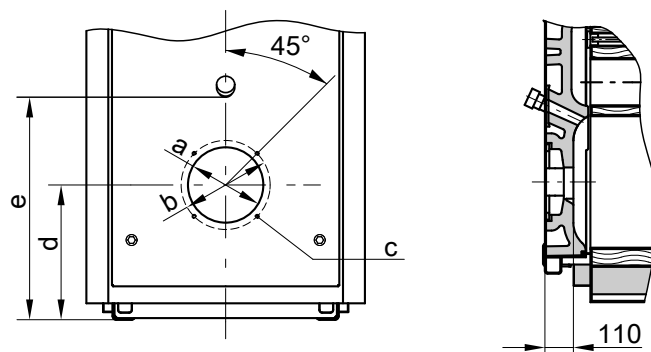


Fig. 22

Nominal steam mass flow rate	t/h	0.26	0.44	0.7
a	Ø mm	240	240	290
b	Ø mm	270	270	330
c	Quantity	4	4	4
	Thread	M 10	M 10	M 12
d	mm	440	456	492
e	mm	696	749	804

Combustion chamber sight glass

Mounting the combustion chamber sight glass

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

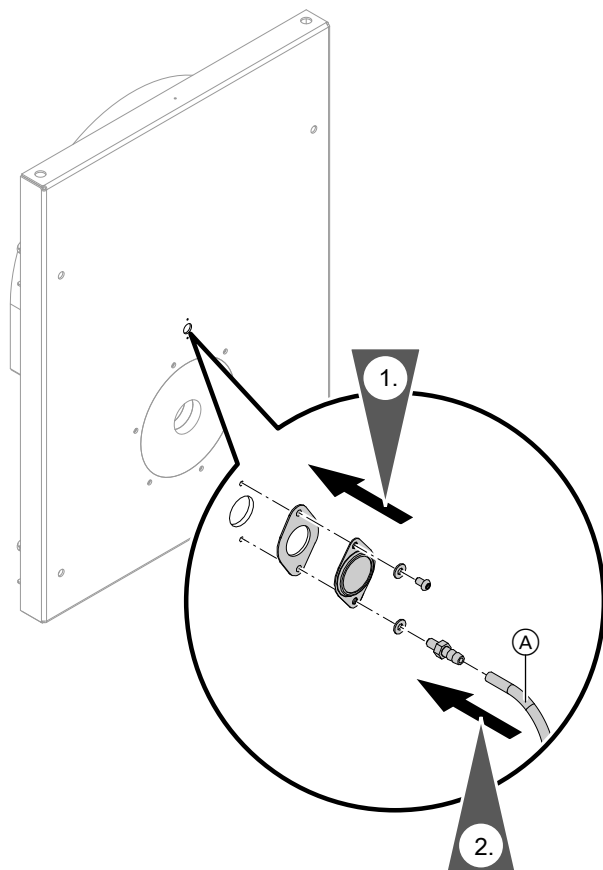


Fig. 23

2. Only for burners with ventilation connection: Connect plastic hose (A) with the sight glass and the fan part of the burner (test port for "static burner pressure").

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.

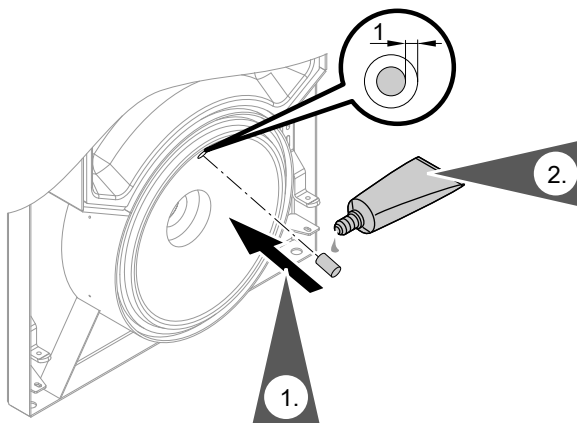


Fig. 24

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

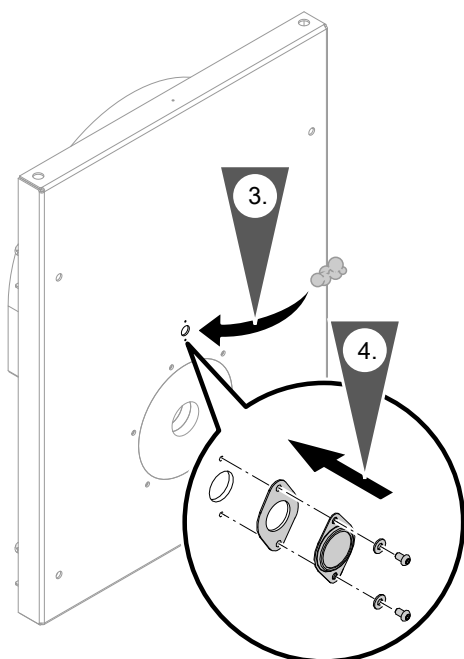


Fig. 25

Setting the 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 also connected to the combustion chamber sight glass.



"Pressure switch set" installation instructions

Adjusting the burner



Separate burner documentation

Adjust the highest oil or gas throughput of the burner to the specified steam output of the boiler.

Steam output t/h	Pressure drop on the hot gas side	
	Pa	mbar
0.26	90	0.90
0.44	180	1.80
0.7	250	2.50

Set the minimum steam output for the base load stage according to the actual chimney conditions.

Commissioning information



Service instructions for boiler and burner



Viessmann Werke GmbH & Co. KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

5592837 Subject to technical modifications.