

Installation instructions

for contractors

VIESSMANN

Vitocrossal 300

Type CU3A, 13 to 60 kW

Gas condensing boiler with Matrix gas burner and Lambda Pro Control

Natural gas and LPG version


Open flue and room sealed operation




VITOCROSSAL 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
- Relevant country-specific safety regulations

Working on the system

- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it 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.
- Wear suitable personal protective equipment when carrying out any work.



Danger

Hot surfaces and fluids can lead to burns or scalding.

- Before maintenance and service work, switch off the appliance and let it cool down.
- Never touch hot surfaces on the boiler, burner, flue system or pipework.

- ! **Please note**
 - Electronic assemblies can be damaged by electrostatic discharge. Prior to commencing work, touch earthed objects such as heating or water pipes to discharge static loads.

Repair work

- ! **Please note**
 - Repairing components that fulfil a safety function can compromise the safe operation of the system. Replace faulty components only with genuine Viessmann spare parts.












1. Information	Disposal of packaging	5
	Symbols	5
	Intended use	5
	Product information	6
	■ Vitocrossal 300, CU3A	6
	■ System examples	6
2. Preparing for installation	7
3. Installation sequence	Siting and levelling the boiler	8
	Fitting the thermal insulation	9
	Fitting the boiler flue connection and trap	11
	Fitting the side panels	14
	Mounting the control unit	15
	Connections on the heating water side	16
	Making the safety connections	16
	Flue gas connection	17
	■ Connections on the flue gas side	17
	■ Attach support plate	17
	■ Condensate drain pipe	18
	■ Neutralising system (if included)	18
	Fitting the burner to the boiler door	18
	Burner connections on the gas side	19
	■ Conversion to other gas types	19
	Burner electrical connection	20
	Connecting the sensors	21
	Connecting the cables to the control unit	22
	Connecting external cables	23
	■ External electrical connections	23
	■ External demand via switching contact	24
	■ External blocking via switching contact	25
	■ Connection of accessories	26
	■ Routing connecting cables/leads	27
	■ Applying strain relief	27
	Inserting the coding card	28
	Fitting the top panels	29
	Inserting and connecting the programming unit	30
	Fitting the front panel	31
	Commissioning and adjustment	31

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.
	<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 intended solely for installation and operation in sealed unvented heating systems that comply with EN 12828, with due attention paid to CECS215-2017 and the associated installation, service and operating instructions. It is only designed for heating up heating water that is of potable water quality.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

The appliance is intended exclusively for domestic or semi-domestic use; even users who have not had any instruction are able to operate the appliance safely.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

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

Intended use (cont.)

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed).

Product information

Vitocrossal 300, CU3A

Preset for operation with natural gas E and LL

Conversion to LPG P



See service instructions.

Conversion for other countries

The Vitocrossal 300 may only be delivered to the countries specified on the type plate. For deliveries to other countries, approved contractors must arrange individual approval on their own initiative and in accordance with the law of the country in question.

System examples

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

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Preparing for installation

Clearance dimensions

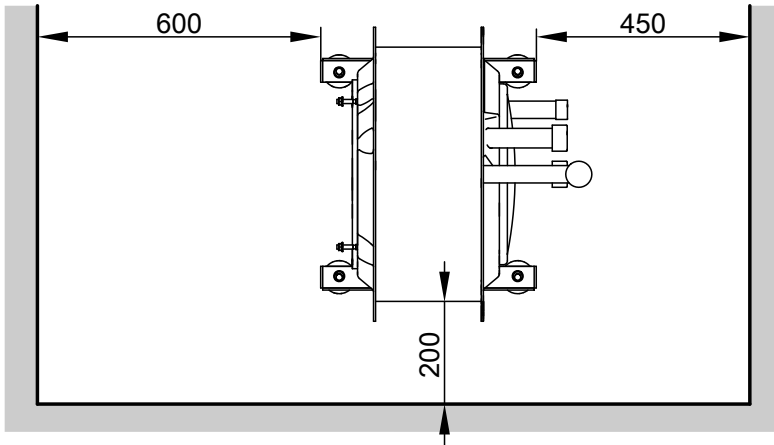


Fig. 1

 **KOMFORT**

Siting and levelling the boiler

- ! Please note**
Damage to the flue gas connection can result in leaks.
Never lift or move the boiler by the flue gas connection.

Note
A suitable condensate drain must be available in the installation room if the boiler is installed at ground level (max. 50 mm above the floor).

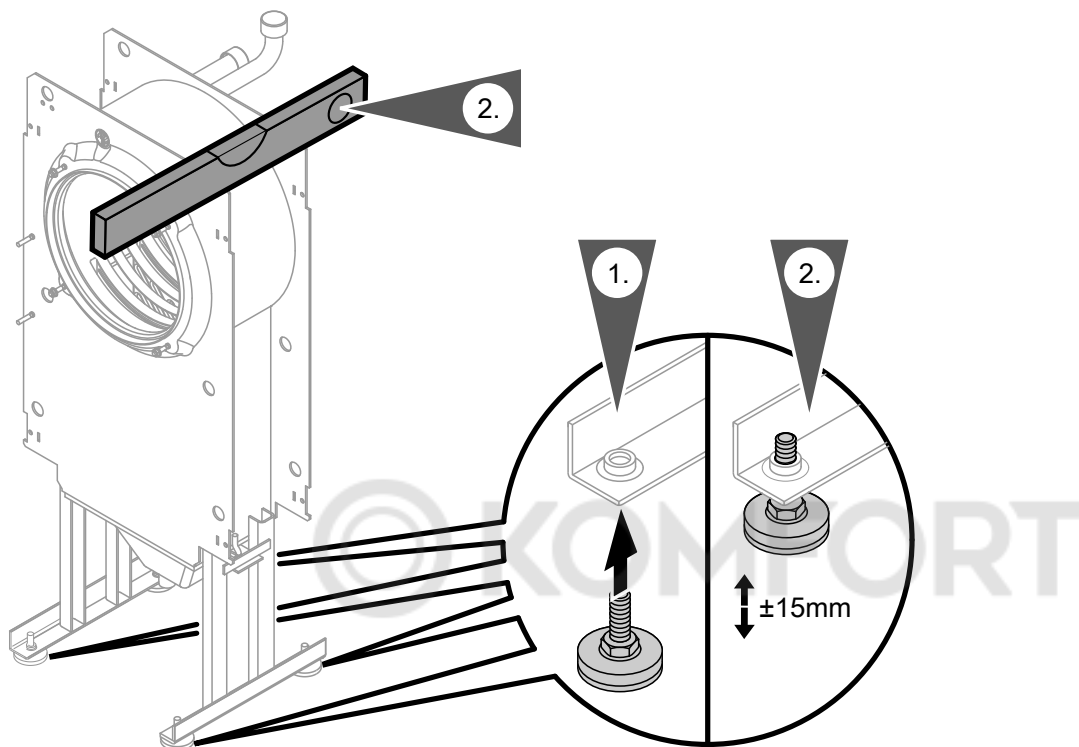


Fig. 2

Remove the transport bracket. To do so undo two screws, remove batten and cardboard.

1. Insert the adjustable feet provided into the base rails.

Note

If a neutralising system is being fitted, wind out the adjustable feet as far as possible.

2. Level the boiler horizontally using the adjustable feet.

Note

Special foundations are not required.

Fitting the thermal insulation

Note

All required components are included in the thermal insulation box.

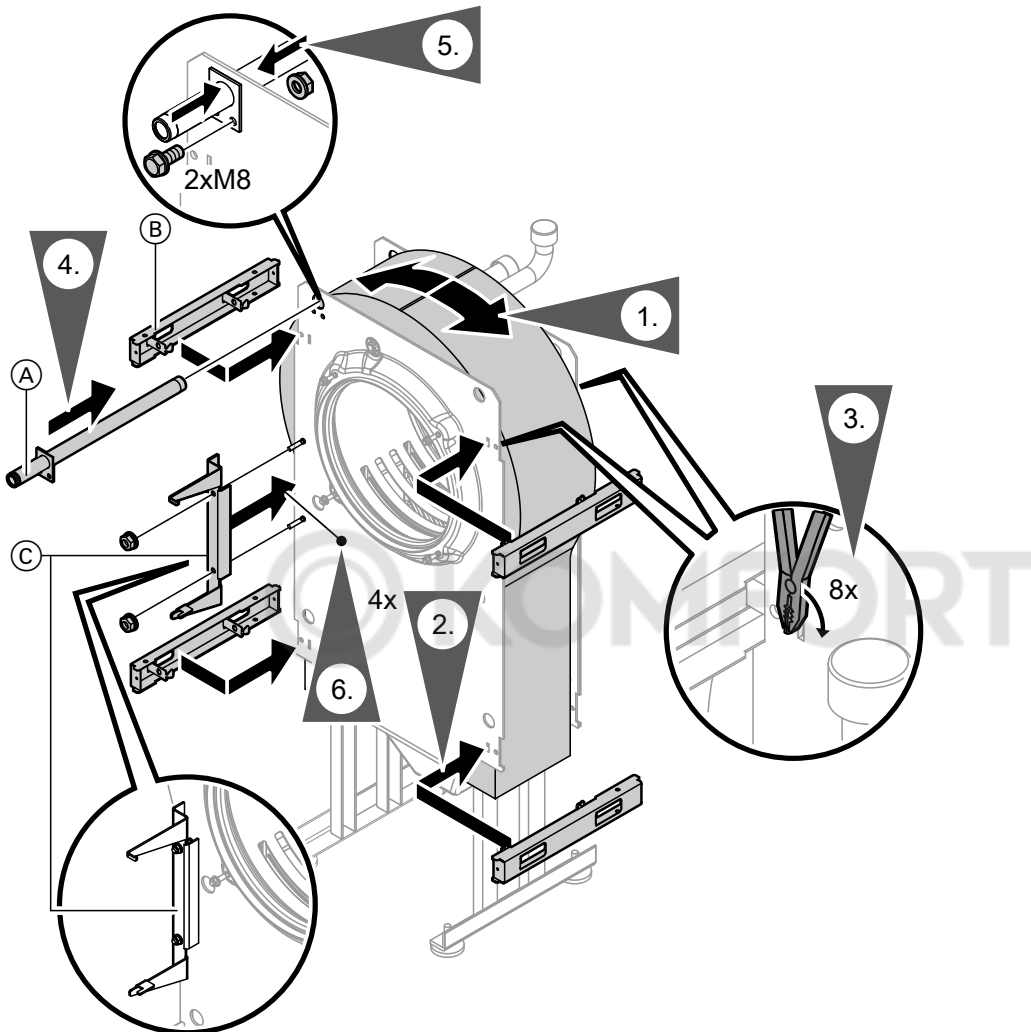


Fig. 3

- (A) Gas connection pipe
- (B) Retaining bracket (short side to the front)
- (C) Service retainer

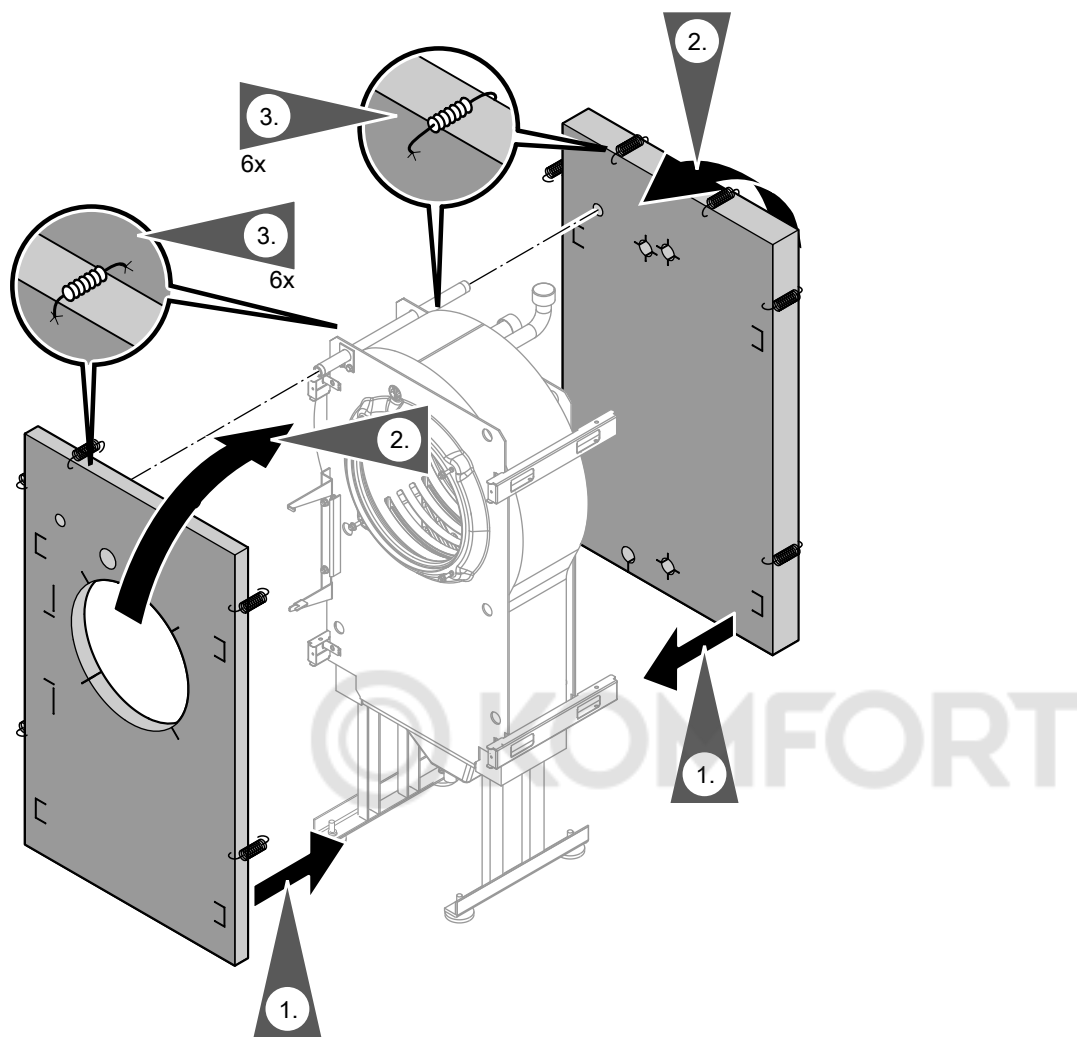


Fig. 4

Fitting the thermal insulation (cont.)

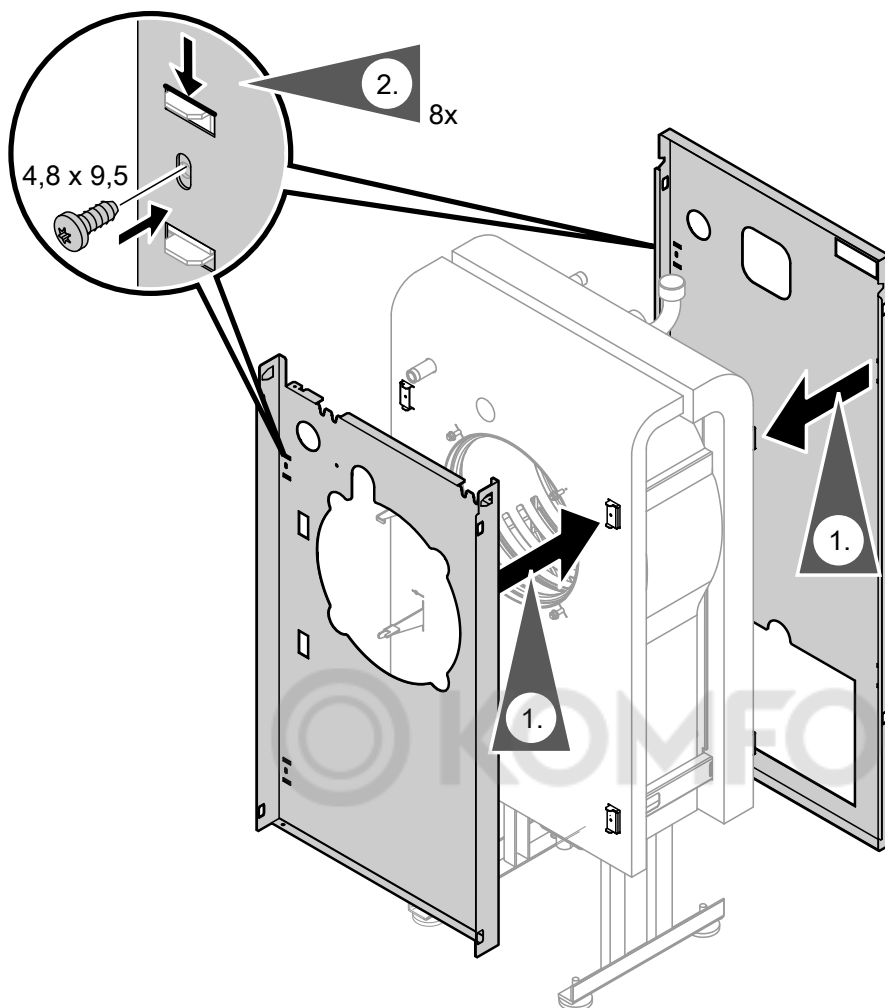


Fig. 5

Fitting the boiler flue connection and trap

Note

Boiler flue connection is located in the combustion chamber.

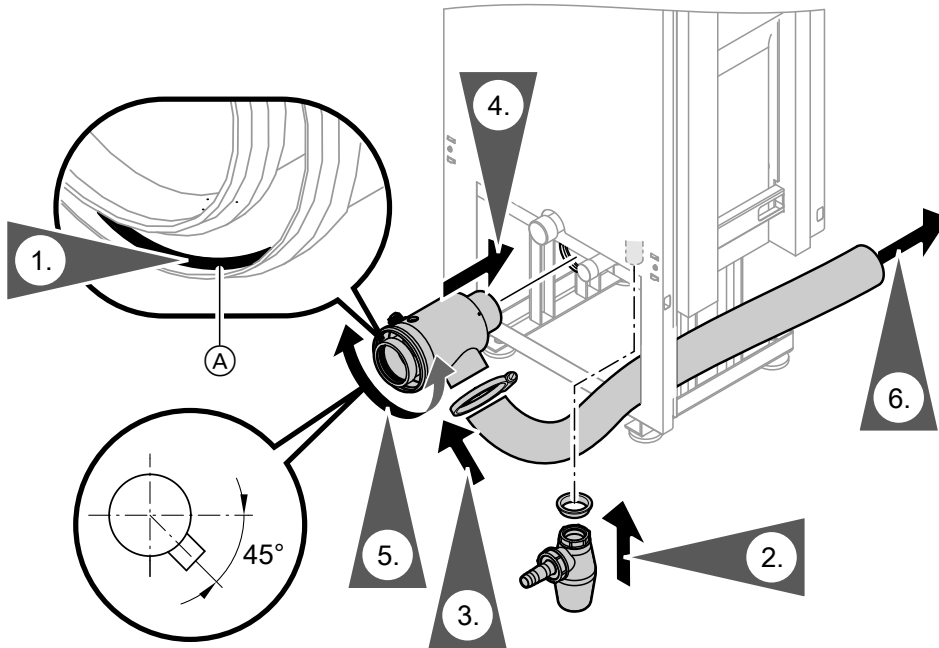


Fig. 6

1. For open flue operation: Remove gasket (A) from boiler flue connection, if installed.
2. Fill the trap with water. Seal in at condensate drain of flue gas collector. Tighten the union nut until finger-tight.

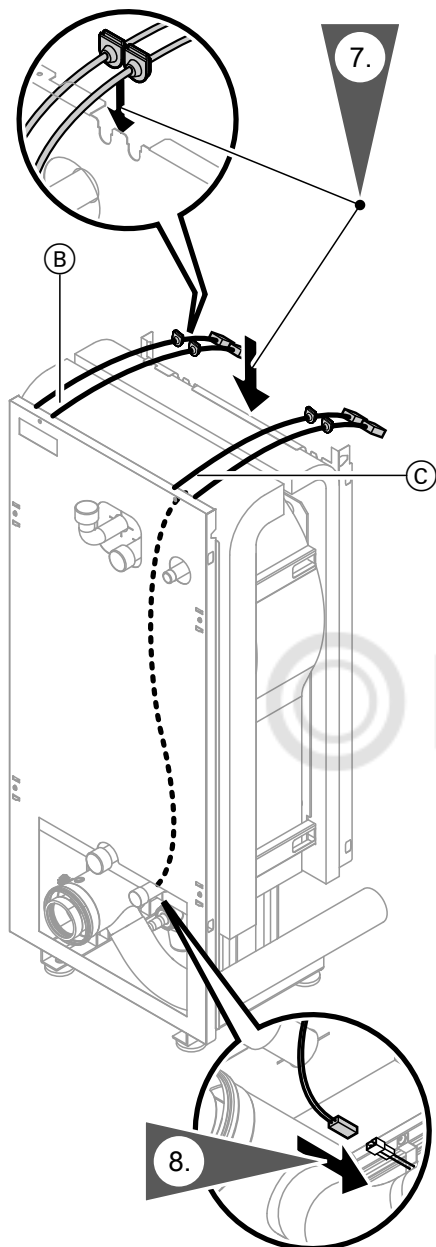
Note

There is a risk of flue gas escaping if the trap is not filled with water.

3. Using a hose clip, secure the ventilation air hose to the boiler flue connection.
4. Push the boiler flue connection onto the flue outlet as far as it will go.
5. Align the ventilation air aperture.
6. Push the ventilation air hose towards the front, between the boiler base and the side panel.

Fitting the boiler flue connection and trap (cont.)

Cable harnesses



7. Position cable harnesses on the thermal insulation.

Note

Cable harnesses are supplied in the control unit pack.

Ⓑ 230 V~ cables (large plugs, route along the r.h. side)

Ⓒ Extra low voltage (ELV) leads (route along the l.h. side)

Route the flue gas temperature sensor lead towards the bottom, between the thermal insulation and the back panel.

8. Connect flue gas temperature sensor.

Fig. 7

Fitting the side panels

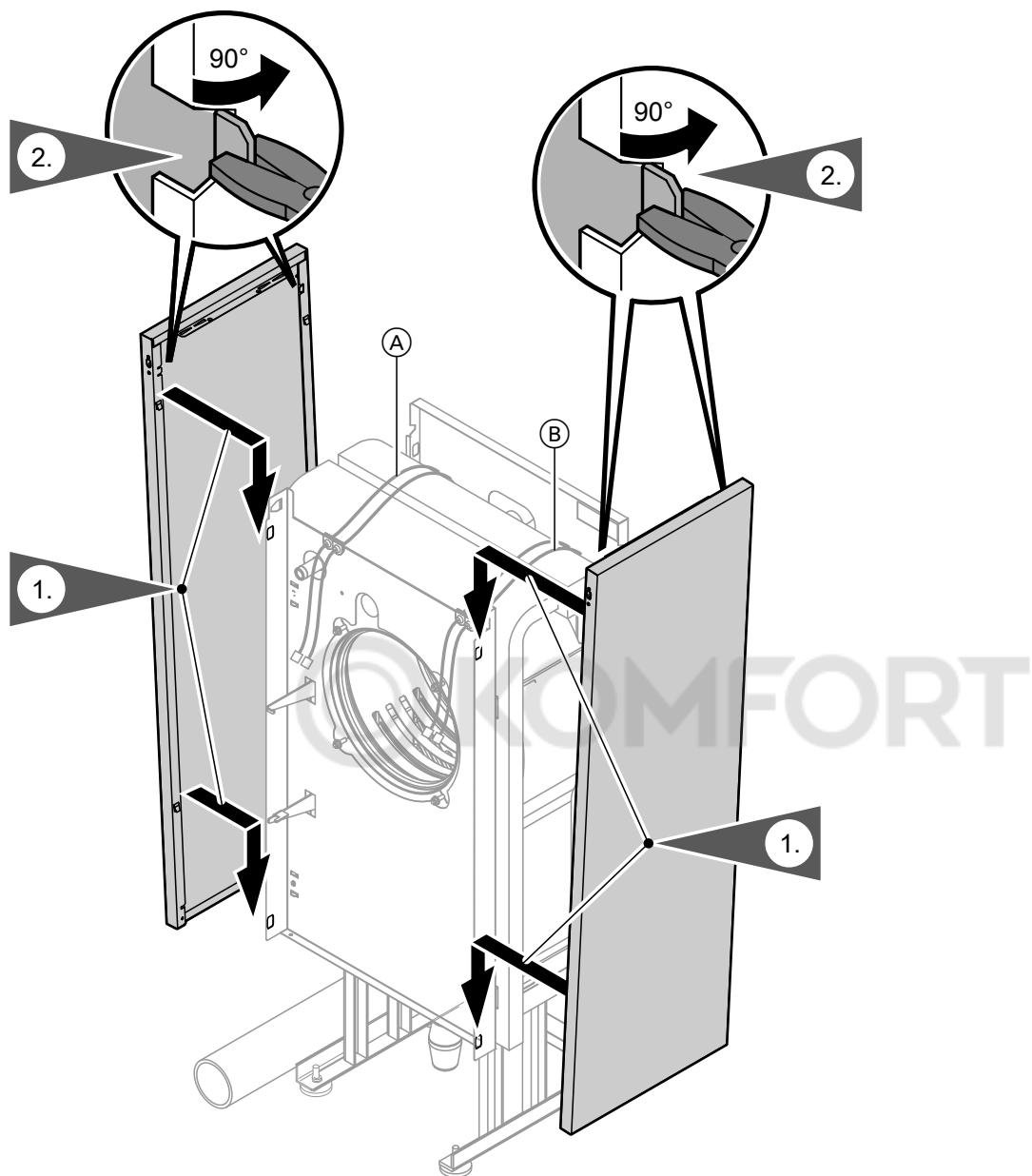


Fig. 8

- Ⓐ Extra low voltage (ELV) leads
- Ⓑ 230 V~ cables (large plugs)

Mounting the control unit

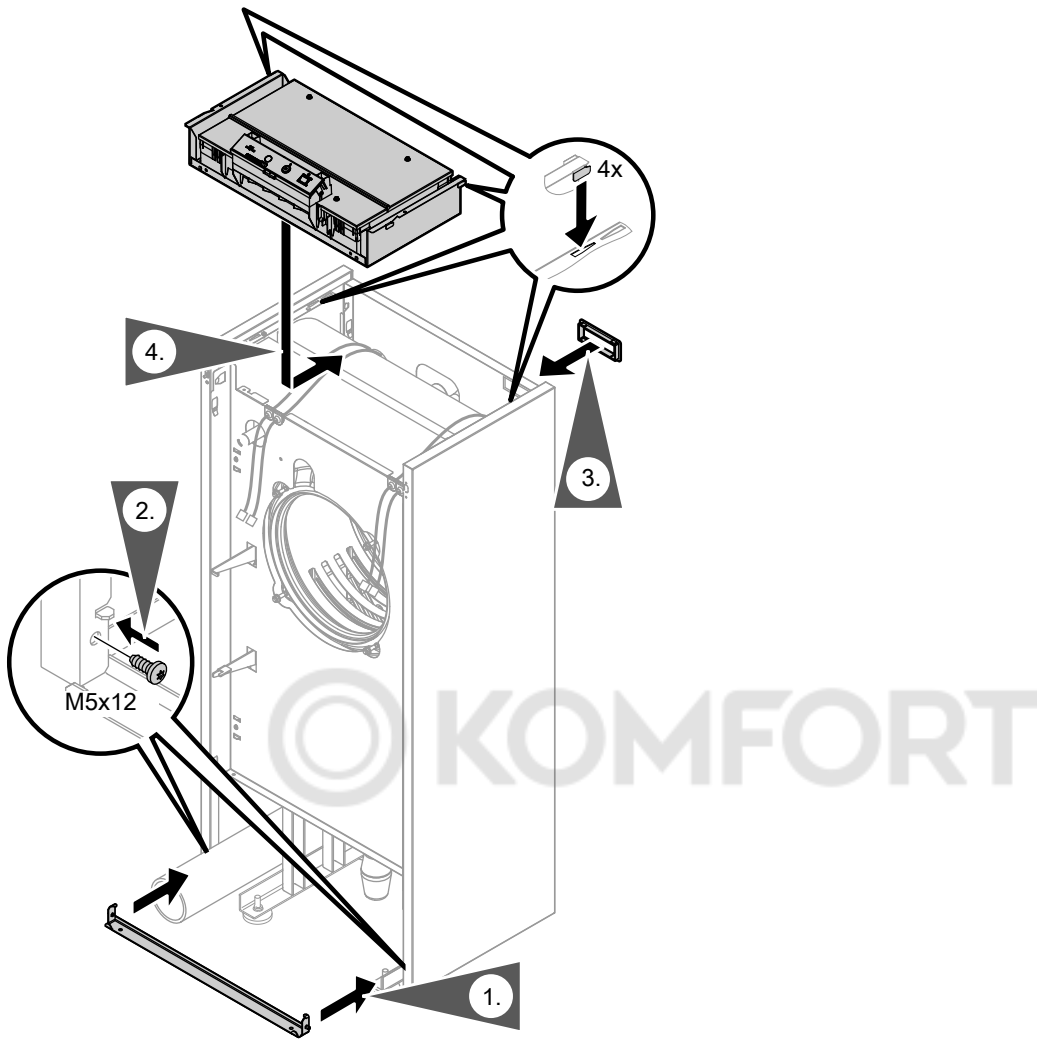
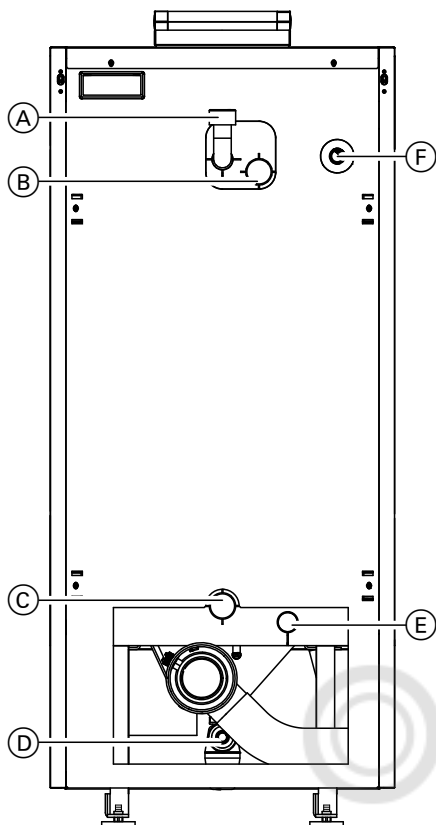


Fig. 9

Connections on the heating water side



- Ⓒ Boiler return G 1½
- Ⓓ Condensate drain Ø 19 mm
- Ⓔ Safety return and drain (expansion vessel) R 1
- Ⓕ Gas connection R ¾

Note

*The Vitocrossal is only suitable for fully pumped hot water heating systems.
Never install 4-way mixers, overflow valves or other flow/return bypass devices.
Never connect a heating return to the safety return.*



Please note

Connections subject to mechanical loads can cause appliance damage.
Connect the pipework free of load and torque stress.

1. Thoroughly flush the heating system.
2. Connect the heating circuits.

Fig. 10

- Ⓐ Safety connection (safety valve and air vent valve)
G 1½
- Ⓑ Boiler flow G 1½

Making the safety connections



Safety equipment block installation instructions

1. Install the safety lines.

Min. cross-sections:

- Safety valve inlet connection
DN 15 (R ½)
- Safety valve discharge pipe
DN 20 (R ¾)
- Pipe to the expansion vessel
DN 20 (R ¾)



Please note

Connections subject to mechanical loads can cause appliance damage.
Connect the pipework free of load and torque stress.

Low water indicator (water level limiter)

Tests have verified that the requirements to EN 12828 are met. This makes an additional low water indicator unnecessary.

2. Check the connections on the heating water side for leaks.

Permiss. operating pressure: 3 bar (0.3 MPa)

Min. operating pressure: 1 bar (0.1 MPa)

Test pressure: 4 bar (0.4 MPa)

Safety valve

Equip boilers with a safety valve that is individually tested to TRD 721 [or local regulations] and is marked according to the system version.

Flue gas connection

Do not carry out **commissioning** until the following conditions are met:

- Free passage through the flue gas pipes.
- Flue system with positive pressure is gas-tight.
- Inspection port covers checked for secure and tight seating.
- Apertures for ensuring sufficient combustion air supply are open and cannot be closed off.
- Applicable regulations on installing and commissioning flue systems have been followed.



Danger

Leaking or blocked flue systems or an insufficient supply of combustion air cause life threatening poisoning due to carbon monoxide in the flue gas.

Ensure the flue system is in good working order. Vents for interconnected combustion air supply must be non-closable in open flue operation. Prevent condensate drainage via a wind protector.

Connections on the flue gas side

Note

Ensure the flue gas connection is free of load and torque stress.



Flue system installation instructions

Flue gas connection: \varnothing 80 mm

Ventilation air connection: \varnothing 125 mm



Please note

Balanced or standard flues must not come loose.

Use floor or wall mounted fixing clamps (balanced flue system accessories) to secure the pipes in place.

Connect the flue outlet to the flue with the shortest possible run, maintaining a slight rise (min. 3°). Avoid sharp kinks.

Attach support plate

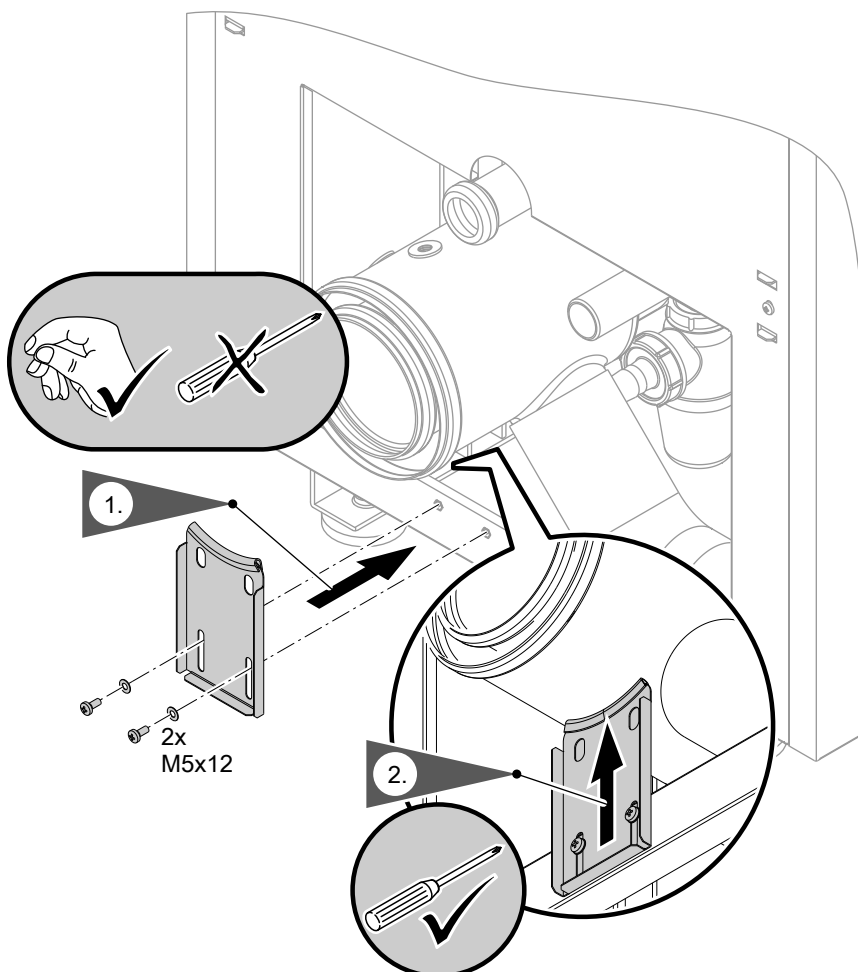


Fig. 11

Flue gas connection (cont.)

Condensate drain pipe

- Connect the trap with the plastic hose to the drainage system.
- Route the condensate pipe with a fall and below the anti-flooding level of the flue gas collector.
- The condensate drain into the drainage system must be clearly visible.
- Connection external \varnothing : 19 mm

Neutralising system (if included)

Site the neutralising system behind the boiler and connect it to the condensate drain.
Connect the neutralising system to the drainage system.



Neutralising system installation instructions

Fitting the burner to the boiler door

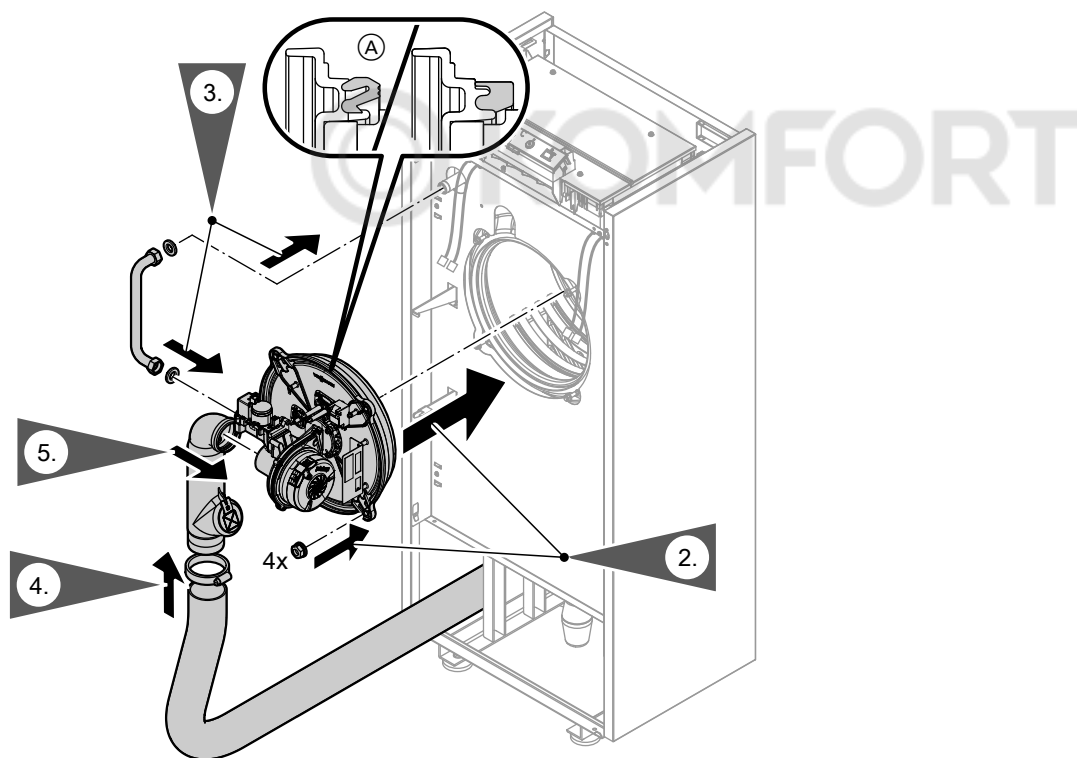


Fig. 12

1. Check the seating of profiled gasket (A) on the burner and correct if required.
2. Insert the burner. Tighten nuts until finger-tight. Then tighten diagonally with a torque of 4 Nm.
3. Using the gaskets provided, fit the flexible gas pipe to the boiler and gas solenoid valve. Torque: 15 Nm
4. Push ventilation air hose onto inlet adaptor and secure with hose clip.
5. Push inlet adaptor onto ventilation air connector of fan as far as it will go.

Burner connections on the gas side

Note on operation with LPG

When installing the boiler in rooms below ground level we recommend fitting an external safety solenoid valve.

1. Connect the gas supply according to TRGI 2008 [or local regulations].
 - Ⓐ Connect the mains gas according to ÖVGW G K directives and the regionally applicable building regulations.
 - Ⓒ Connect the gas supply according to SVGW.
 - Gas supply pressure: 20 mbar (2 kPa)
 - Max. permiss. gas supply pressure: 57.5 mbar (5.75 kPa)
 - Gas connection: R $\frac{3}{4}$
2. Carry out a leak test.

Note

Only use suitable and approved leak detection agents (EN 14291) and devices for the leak test. Leak detection agents with unsuitable constituents (e.g. nitrites, sulphides) can cause material damage. Remove residues of the leak detection agent after testing.



Please note

Excessive test pressure will damage the burner and gas solenoid valve.
Max. test pressure 150 mbar. If a higher pressure is required for tightness tests, disconnect the burner and gas solenoid valve from the main supply pipe. Undo the fitting.

Note

Just closing the gas shut-off valve is not sufficient. There is then a risk of pressure entering the valve.
Damage due to excessive test pressure is excluded from our warranty.

3. Purge the gas line.

Conversion to other gas types



Service instructions

Burner electrical connection

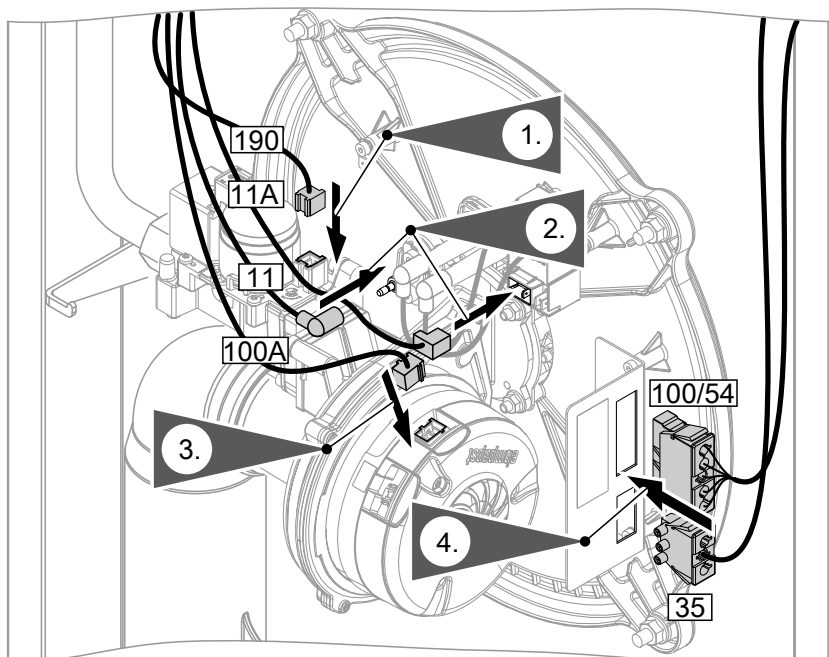


Fig. 13

Extra low voltage (ELV) plugs

- 11 Ionisation electrode
- 11A Ionisation ignition unit
- 100A Fan control
- 190 Gas solenoid valve modulation coil control

Plug 230 V~

- 35 Gas solenoid valve
- 100/54 Fan and ignition unit

Connecting the sensors

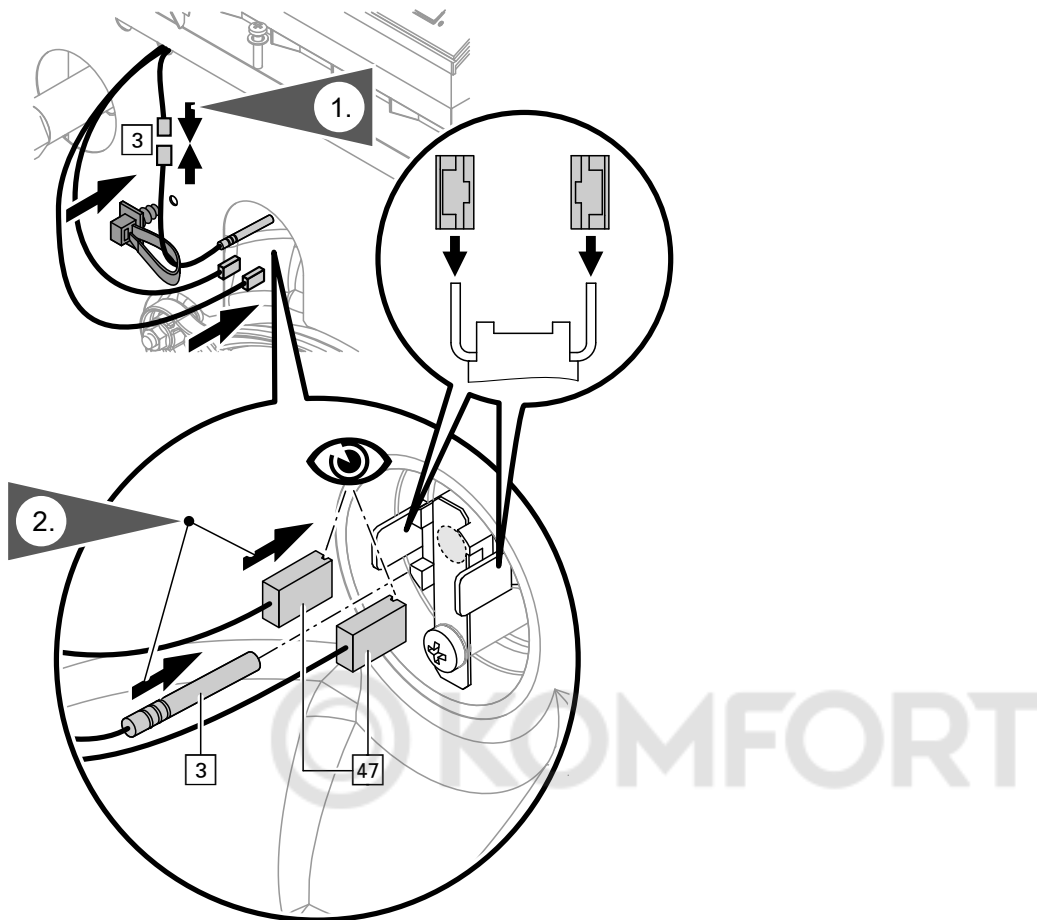


Fig. 14

- 3 Boiler water temperature sensor
- 47 Temperature limiter

Step 2

Push the boiler water temperature sensor into the sensor well as far as it will go. Insert cable tie and clip into cover panel. Apply strain relief to the cable.

Connecting the cables to the control unit

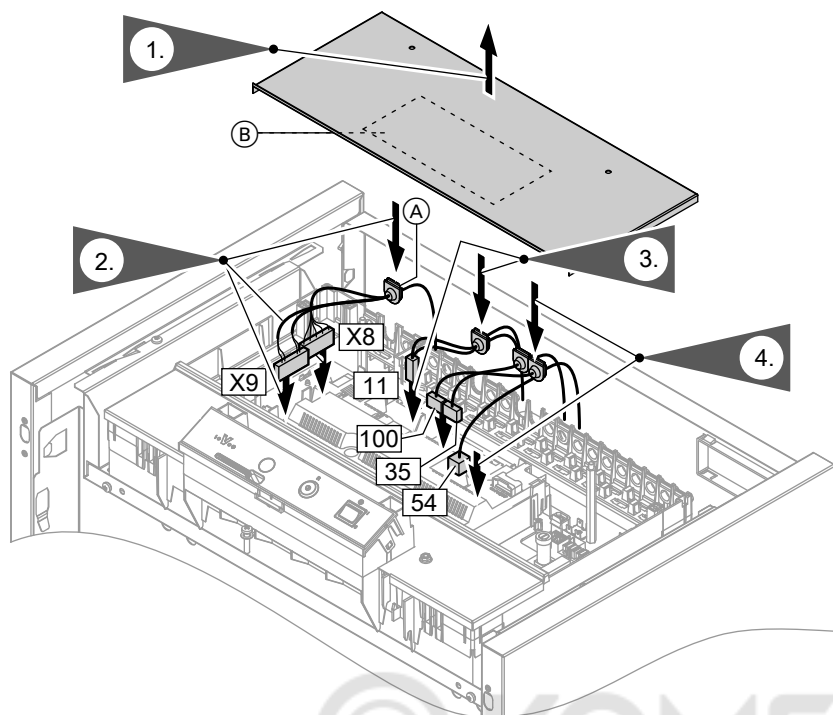


Fig. 15

Extra low voltage (ELV) plugs

- 11 Ionisation electrode
- X... Electrical interfaces

Plug 230 V~

- 35 Gas solenoid valve
- 54 Ignition unit
- 100 Fan

Note

For all leads, insert the moulded strain relief (A) into the control unit enclosure.

Note

The electrical connection diagram is on the underside of cover panel (B).

Connecting external cables

External electrical connections

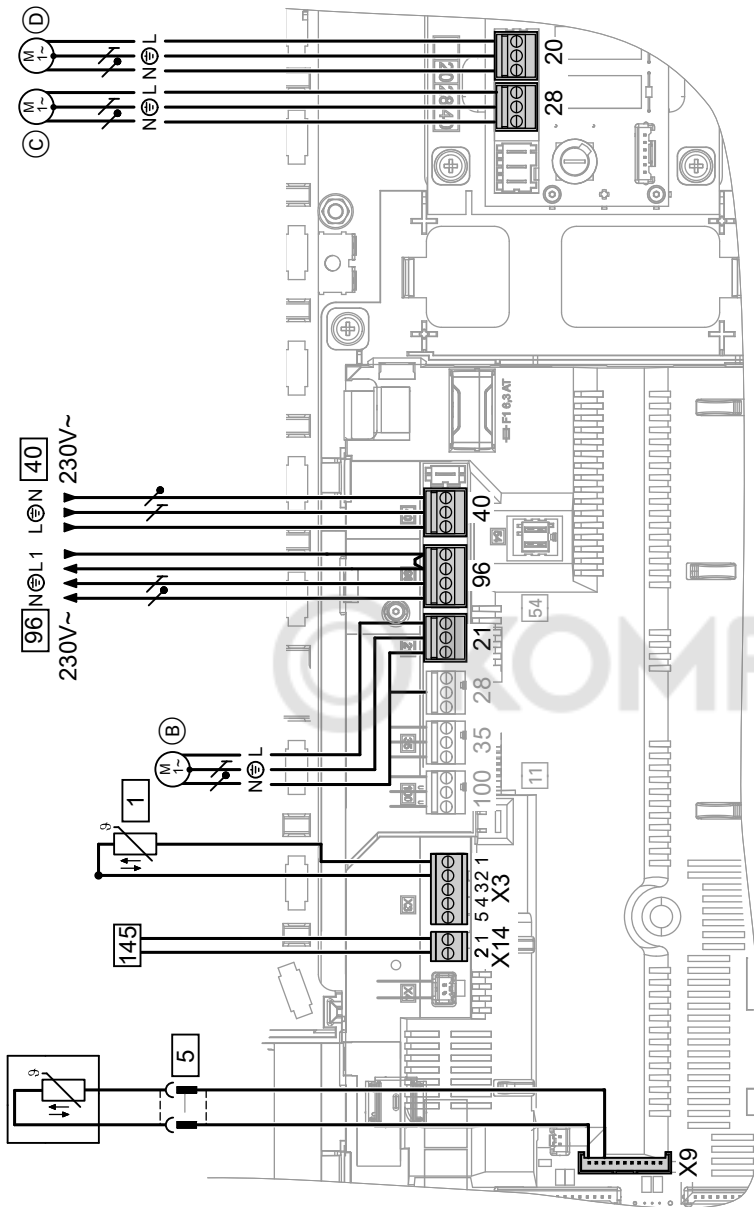


Fig. 16



Note on connecting accessories

When connecting accessories observe the separate installation instructions provided with them.

Plug 230 V~

- 20 Heating circuit pump (D)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~
- 21 Circulation pump for cylinder heating (B)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~
- 28 DHW circulation pump (C)
Rated voltage: 230 V~
Rated current: Max. 2 (1) A~

40 Power supply




Danger

Incorrect core assignment can result in serious injury and damage to the appliance. Take care not to interchange wires "L1" and "N".

- Implement the mains connection as a permanent connection (3-core cable NYM). If the mains connection is made with a flexible power cable, the earth conductor should be min. 1 cm longer so that the live conductors get pulled taught first in the event of strain relief failure.
- Install an isolator in the power cable which simultaneously isolates all non-earthed conductors from the mains with contact separation of at least 3 mm.

Connecting external cables (cont.)

- We additionally recommend installing an AC/DC-sensitive RCD (RCD class B ) for DC (fault) currents that can occur with energy efficient equipment.

- Max. fuse rating 16 A.

96 External demand

External blocking

Power supply accessories (230 V~ 50 Hz). Where the boiler is sited in a wet room, accessories outside the wet area must not be connected to the power supply at the control unit.

If the boiler is not sited in a wet room, the power supply for accessories can be connected at the control unit. This connection is directly controlled with the system ON/OFF switch (max. 6 A).

Extra low voltage (ELV) plugs

1 Outside temperature sensor

Installation:

- North or north-westerly wall, 2 to 2.5 m above ground level; in multi storey buildings, in the upper half of the second floor
- Not above windows, doors or vents
- Not immediately below balconies or gutters
- Never render over
- 2-core cable, max. 35 m long with a cable cross-section of 1.5 mm²

5 Cylinder temperature sensor (enclosed with the control unit).

145 KM-BUS subscriber (accessories)

- Vitotrol 200-A or 300-A remote control
- Vitocom 100
- Mixer extension kit
- Solar control module, type SM1
- EA1 extension
- Wireless base station

External demand via switching contact

Connection options:

- EA1 extension (accessory, see separate installation instructions)
- Plug 96

When the contact is closed, burner operation is load-dependent. The boiler water is heated to the set value selected in parameter/coding address "9b" in the "**General**"/1 group. The boiler water temperature is limited by this set value and by the electronic maximum limit (coding address "06" in the "**Boiler**"/2 group).



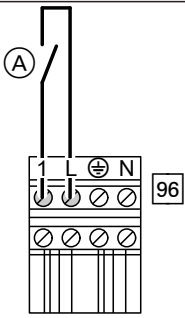
Please note

Live contacts lead to short circuits or phase failure.

The external connection **must be floating** and meet the requirements of protection class II.

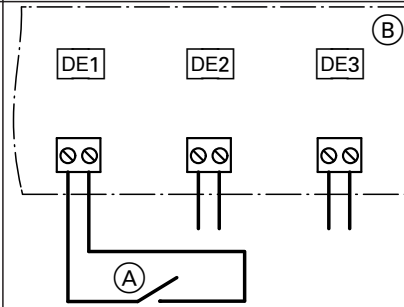
Connecting external cables (cont.)

Plug 96



- (A) Floating contact (when connecting, remove jumper between L and 1)

EA1 extension



- (A) Floating contact
(B) EA1 extension

Parameters/codes

- "4b:1" in the **"General"/1** group
- Effect of the function on the relevant heating circuit pump:
Parameter/coding address "d7" in the **"Heating circuit"** group (only for weather-compensated control units)
- Effect of the function on the circulation pump for cylinder heating:
Parameter/coding address "5F" in the **"DHW"/3** group

Parameters/codes

- Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) to 2 in the **"General"/1** group
- Effect of the function on the relevant heating circuit pump:
Parameter/coding address "d7" in the **"Heating circuit"** group (only for weather-compensated control units)
- Effect of the function on the circulation pump for cylinder heating:
Parameter/coding address "5F" in the **"DHW"/3** group

External blocking via switching contact

Connection options:

- Plug 96
- EA1 extension (accessory, see separate installation instructions)

When the contact is closed, the burner is switched off. The heating circuit pump and (if installed) the circulation pump for cylinder heating are switched according to the set parameter/code (see the following table "Parameters/codes").



Please note

Live contacts lead to short circuits or phase failure.

The external connection **must be floating** and meet the requirements of protection class II.

Connecting external cables (cont.)

Plug 96	EA1 extension
<p>(A) Floating contact (when connecting, remove jumper between L and 1)</p>	<p>(A) Floating contact (B) EA1 extension</p>
<p>Parameters/codes</p> <ul style="list-style-type: none"> ▪ "4b:2" in the "General"/1 group ▪ Effect of the function on the heating circuit pump: Parameter/coding address "d6" in the "Heating circuit" group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5E" in the "DHW"/3 group 	<p>Parameters/codes</p> <ul style="list-style-type: none"> ▪ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) to 3 or 4 in the "General"/1 group ▪ Effect of the function on the heating circuit pump: Parameter/coding address "d6" in the "Heating circuit" group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5E" in the "DHW"/3 group

Connection of accessories

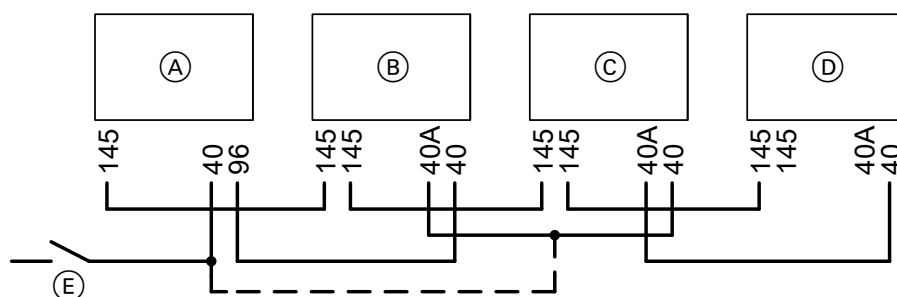


Fig. 17

- (A) Boiler control unit
- (B) Extension kit for heating circuit with mixer M2
- (C) Extension kit for heating circuit with mixer M3
- (D) EA1 extension or solar control module, type SM1
- (E) ON/OFF switch

If the current flowing to the connected actuators (e.g. circulation pumps) is higher than the fuse rating of the accessory: Only use the output concerned to control an on-site relay.

Accessories	Internal fuse protection
Extension kit for heating circuit with mixer	2 A
EA1 extension	2 A
Solar control module, type SM1	2 A

Routing connecting cables/leads



Please note

If connecting cables/leads come into contact with hot components, they may get damaged. When routing and securing connecting cables/leads on site, ensure that the maximum permissible temperature for these is not exceeded.

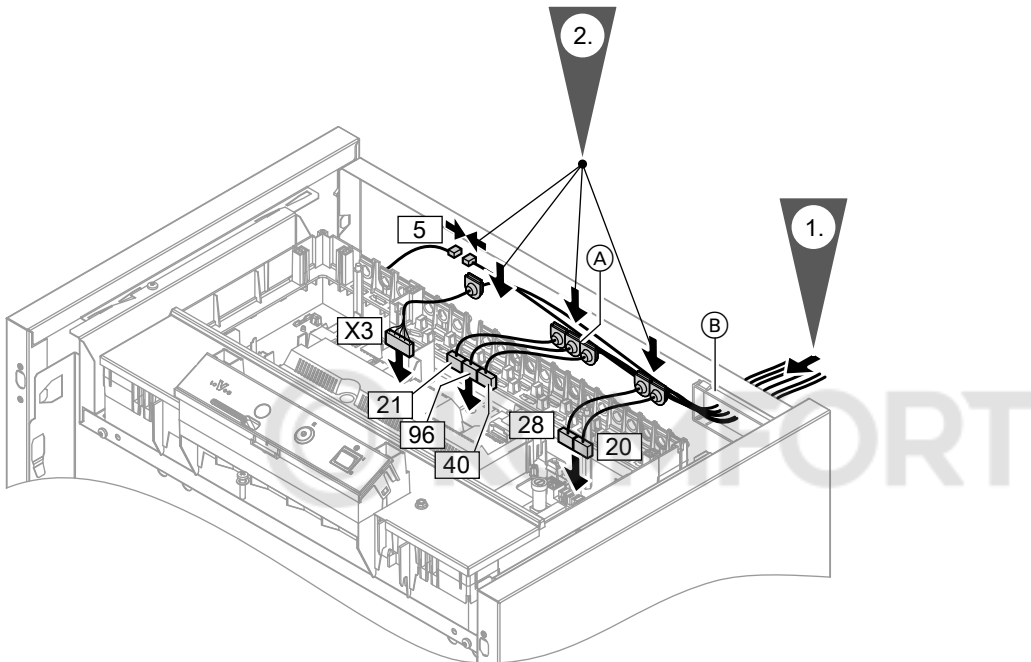
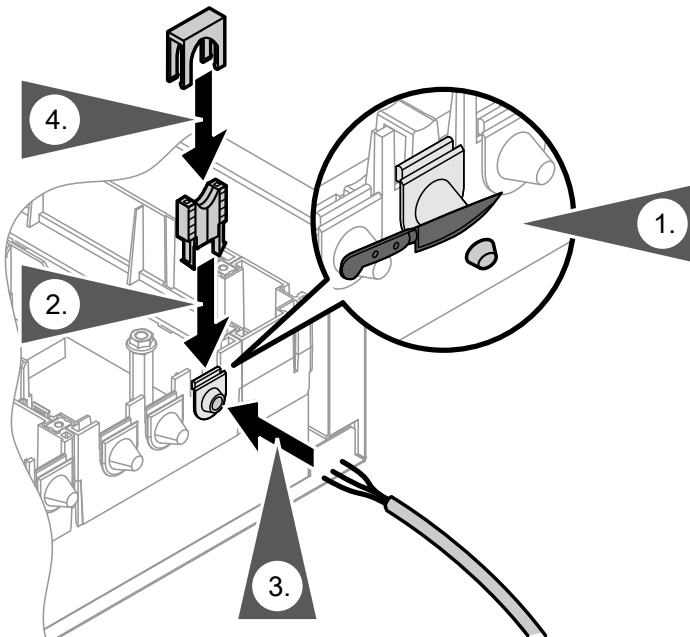


Fig. 18

- (A) Strain relief fittings
- (B) Cable entry

Applying strain relief

On-site cables



Connecting external cables (cont.)

Fig. 19 Strip max. 100 mm of insulation from the cables.

Cables with moulded strain relief

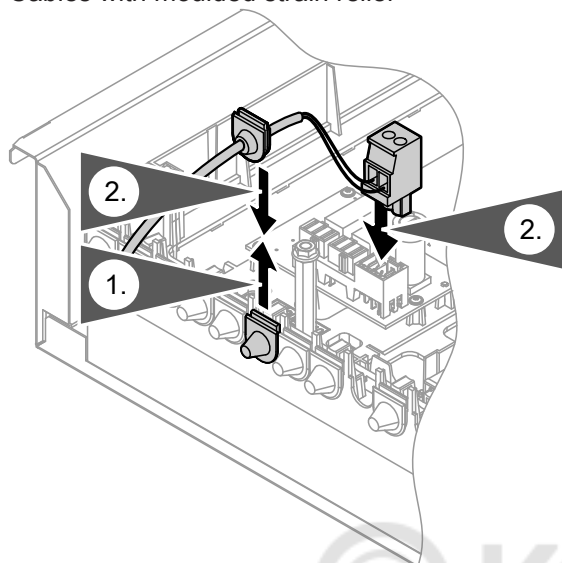


Fig. 20

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Inserting the coding card

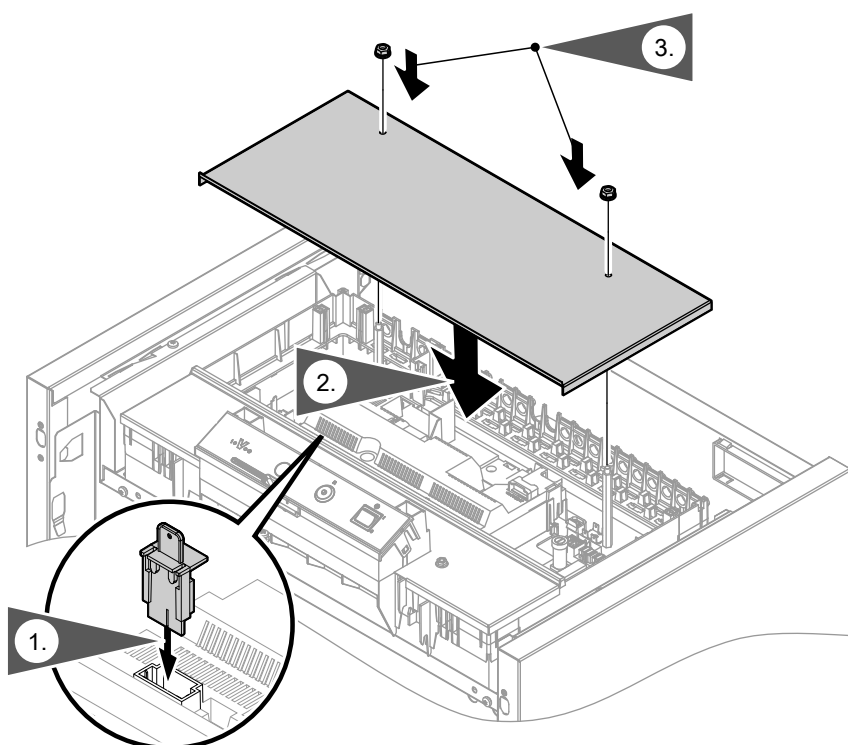


Fig. 21

3. **Note**
Nuts are supplied with the control unit.

Inserting and connecting the programming unit

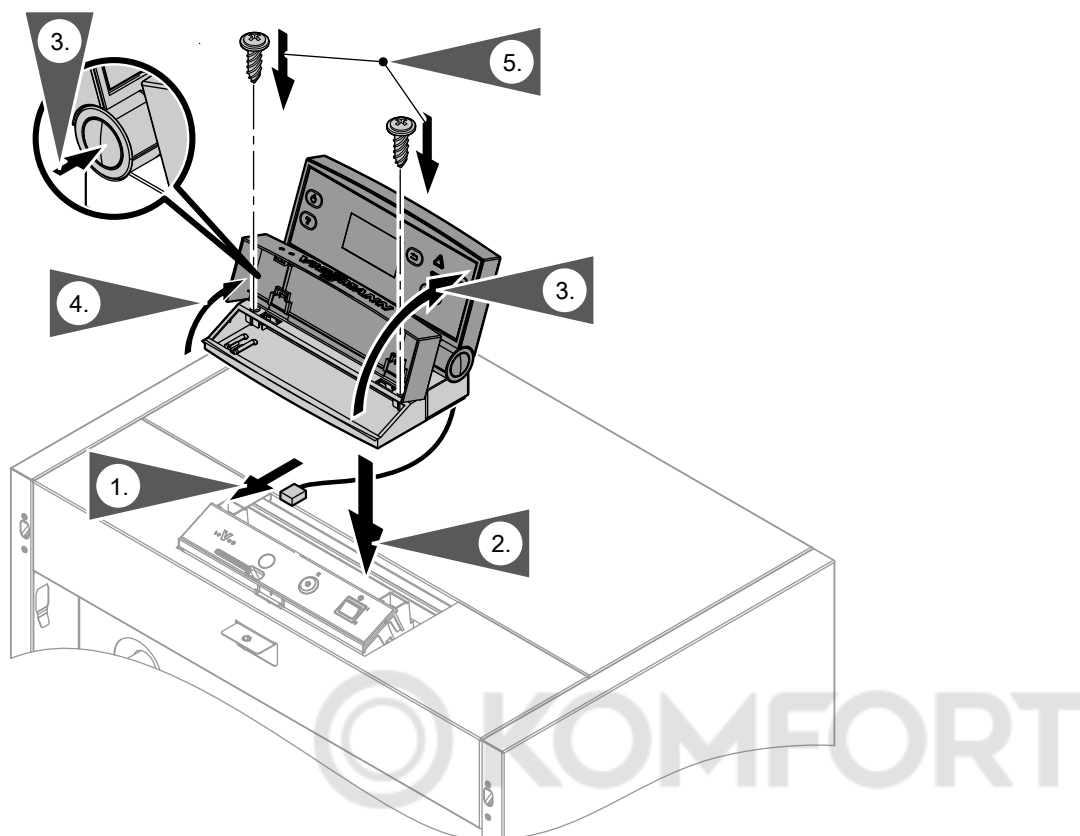


Fig. 23

Fitting the front panel

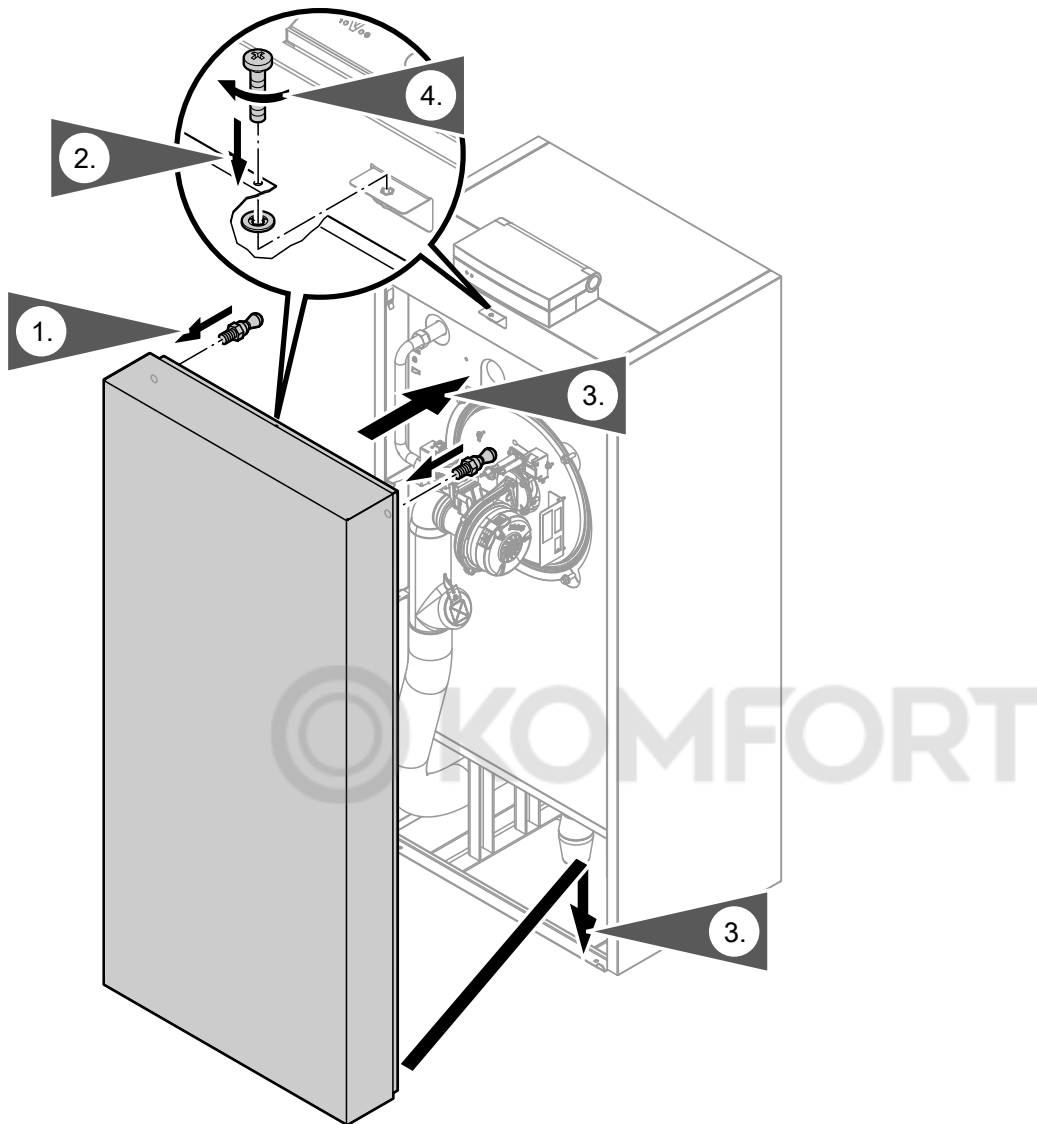



Fig. 24

Commissioning and adjustment

 Service instructions for boiler and boiler control unit

Specification

Output 13 to 60 kW

Rated voltage	230 V
Rated frequency	50 Hz
Rated current	6 A
Protection class	I
Permissible ambient temperature	
▪ Operation	0 to +40 °C
▪ Storage and transport	-20 to +65 °C
Electronic temperature limiter setting	90 °C
Temperature limiter setting	110 °C (fixed)
Backup fuse (power supply)	Max. 16 A

Output	kW	13		19	
		Partial load 20 %	Full load 100 %	Partial load 13.7 %	Full load 100 %
Efficiency 50/30	%	106	106	106	106
Efficiency 80/60	%	96	96	96	96
Rated heating output range					
$T_F/T_R = 50/30$ °C	kW	2.6 - 13		2.6 - 19	
$T_F/T_R = 80/60$ °C	kW	2.4 - 11.8		2.4 - 17.2	
Rated heating input range	kW	2.5 - 12.3		2.5 - 17.9	
Heat input Q_{nw} Hi (booster)	kW	16.7		—	
Product ID		CE-0085BN0570			
Supply values (rel. to standard state)					
Natural gas E (G20)	m ³ /h	0.26	1.30	0.26	1.90
Natural gas LL (G25)	m ³ /h	0.30	1.51	0.30	2.20
LPG P (G31)*	kg/h	0.19	0.95	0.19	1.39
Electr. connection					
Voltage	V	230		230	
Frequency	Hz	50		50	
Power consumption	W	30 %	100 %	30 %	100 %
Standby	W	12	20	13	32
Energy efficiency class ErP		A			

Note

The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar

Specification (cont.)

Output	kW	26		35		45		60	
Load		Partial load	Full load	Partial load	Full load	Partial load	Full load	Partial load	Full load
	%	20		20		26.6		20	
Efficiency 50/30	%	106		106		106		106	
Efficiency 80/60	%	96		96		96		96	
Rated heating output range									
T _F /T _R = 50/30 °C	kW	5.2 - 26		7 - 35		12 - 45		12 - 60	
T _F /T _R = 80/60 °C	kW	4.7 - 23.5		6.3 - 31.7		10.9 - 40.8		10.9 - 54.3	
Rated heating input range	kW	4.9 - 24.5		6.6 - 33		11.3 - 42.5		11.3 - 56.6	
Product ID		CE-0085BN0570							
Supply values (rel. to standard state)									
Natural gas E (G20)	m ³ /h	2.61		3.52		4.47		5.95	
Natural gas LL (G25)	m ³ /h	3.04		4.10		5.19		6.91	
LPG P (G31)*	kg/h	1.93		2.60		3.3		4.39	
Electr. connection									
Voltage	V	230		230		230		230	
Frequency	Hz	50		50		50		50	
Power consumption	W	30 %	100 %	30 %	100 %	30 %	100 %	30 %	100 %
Standby	W	15	37	18	56	19	68	20	115
Energy efficiency class		A							

Note

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6192245 Subject to technical modifications.