Installation Instructions

for the installer

Vitodens 200
Type WB2
Wall-mounted, gas-fired condensing boiler

Natural gas and LPG version

Vitodens 200

5862 078 GB 9/2000

Safety instructions

⚠ *Please follow these safety instructions closely to avoid the risk of injury to persons and damage to property.*

Safety regulations
Please observe all relevant safety requirements defined by DIN, DIN EN, DVGW, TRF and VDE (GB: British Standards codes of practice) (see also the red sheet headed "Important safety information" in the enclosed documents or in the "Vitotec planning documentation" ring binder).

In certain countries, boilers and burners must be registered or issued with a permit in accordance with national regulations.

Boiler location
Please refer to the technical data sheet or technical guide for details of the conditions which must be fulfilled by the room in which the boiler is installed.

Work on the equipment
Installation, maintenance and repairs **must** be carried out by a **competent person** (heating engineer/service contractor). (See VDE 0105, Part 1: regarding work on electrical equipment).

Electrical components provided by the customer must be type-tested.

When carrying out work which involves opening up the control unit, no static discharge should be allowed to take place through the internal components.

Gas installation work
Gas installation work must be carried out by an approved installer (GB: registered with C.O.R.G.I.).
The requirements for starting up gas-fired systems and LPG-fired systems, as defined in TRGI'86/96 and TRF 1996 respectively, must be complied with.

⚠ ***Safety instruction!***
This heading in these instructions denotes information which must be observed to safeguard persons and property.

⚠ ***Caution!***
This heading denotes actions which must be avoided in the interests of the safety of persons and property.

This symbol indicates a reference to other instructions which must be observed.

Product information

Vitodens 200
Type WB2
Gas-fired condensing boiler for sealed heating systems conforming to DIN 4751.
Suitable only for fully pumped heating systems.

Natural gas version
The Vitodens 200 is preset for operation with natural gas E and can be converted for operation with natural gas LL with a conversion kit.

LPG version
The Vitodens 200 is preset for operation with LPG and can be converted for operation with natural gas E or LL with a conversion kit.

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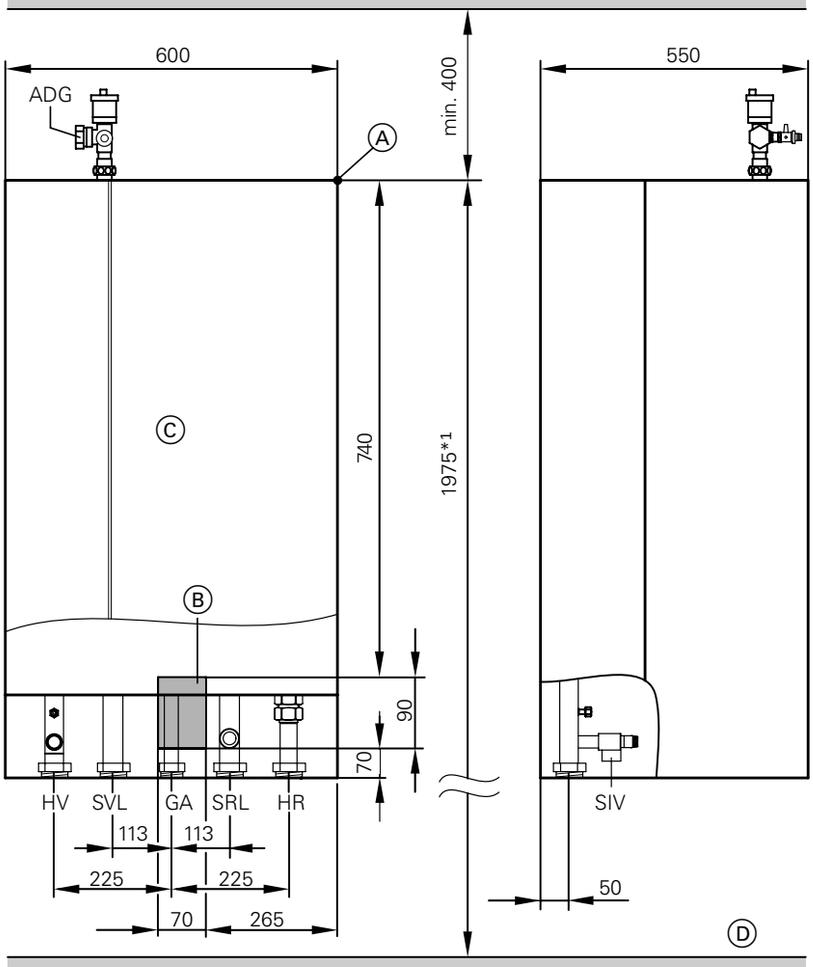
Preparing the connections



Legend

ADG Expansion vessel, 1'' coupling
GA Gas connection, ¾'' dia.
HR Heating return, 1½'' coupling
HV Heating flow, 1½'' coupling
SIV Safety valve
SRL Cylinder return, 1½'' coupling
SVL Cylinder flow, 1½'' coupling

*[*1]Recommendation*

Ⓐ Reference point for top of boiler
Ⓑ Entry point for electrical cables
Ⓒ Boiler dimensions
Ⓓ Finished floor level

Please note:
The maximum ambient temperature of the system should not exceed 35 °C.

It is not necessary to observe minimum clearances from combustible materials as the maximum permissible surface temperature of 85 °C is not exceeded at the rated output.

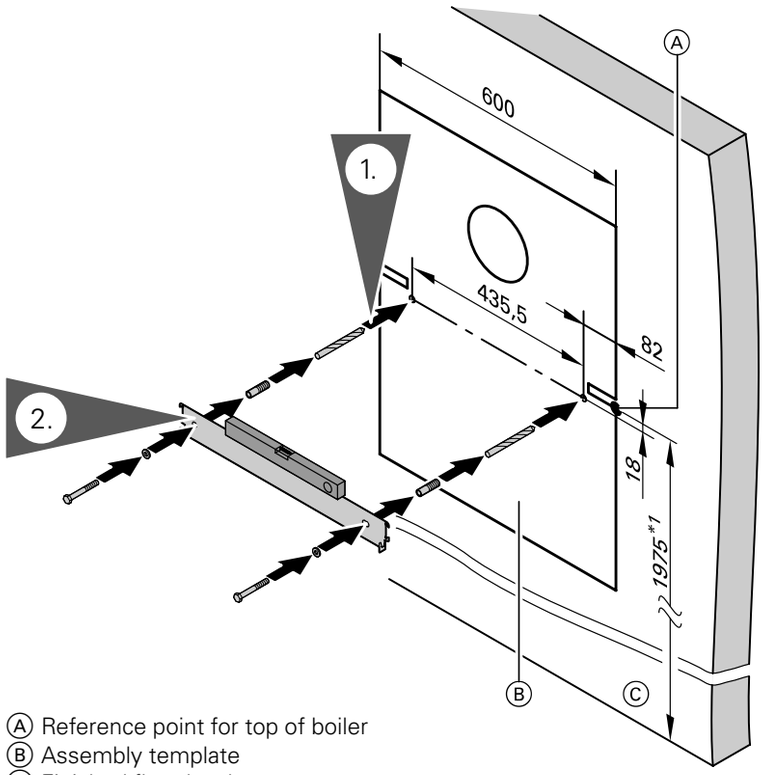
- The heating water connections and the gas connection can be prepared on site. See drawing for position and size of the connections.
- Run electrical cables under plaster (recommendation) and leave cables in shaded area (see drawing) protruding at least 1200 mm from the wall.
- Carry out mains electrical connection (230 V~ 50 Hz) via a fixed connection.

Please note:
Use the following cables:
NYM-J 3 × 1.5 mm^2 (GB: Cables to BS 6500 Table 9) for mains power cables.

NYM with the required number of conductors (GB: Cables to BS 6500 Table 9) for external equipment.

Wall mounting

Wall mounting bracket



Ⓐ Reference point for top of boiler
Ⓑ Assembly template
Ⓒ Finished floor level

*1 *Recommendation*

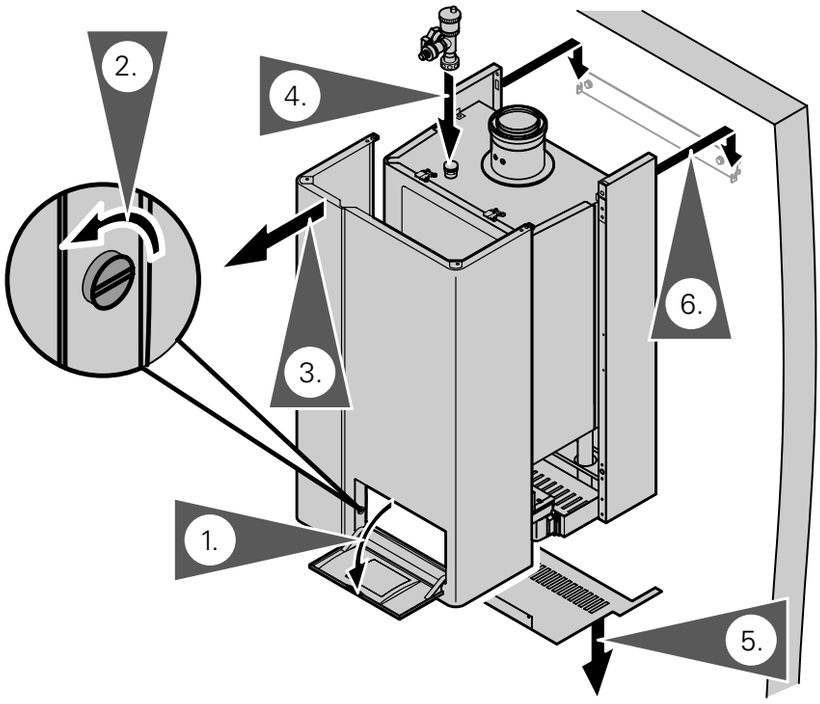
⚠ ***Safety instruction!***
The screws and plugs provided are only suitable for concrete.
Otherwise use fastening materials with a load-carrying capacity of 110 kg.

1. Drill holes (10 mm dia.).

Please note:
Assembly template for marking the drill-holes is supplied with the boiler.

2. Align wall mounting bracket and screw on.

Boiler



1. Open the hinged cover on the control unit (press briefly with fingertip).

2. Unlock the closure.

3. Remove the front panel.

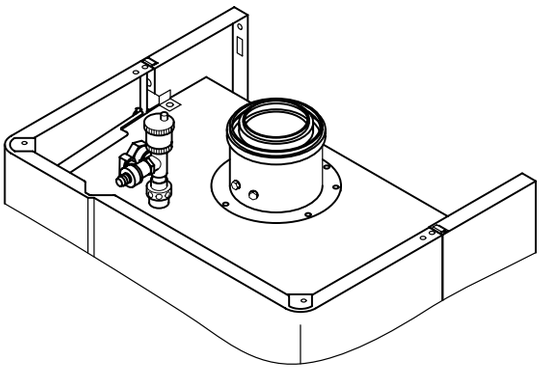
4. Seal in the extension for the expansion vessel on the flow pipe.

5. Unscrew the guard panel (if still mounted) and pull off towards you.

6. Hook the boiler onto the mounting.

Connections

Flue gas connections

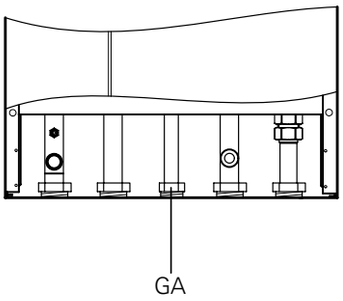


See installation instructions for flue system

Run the connecting pipe to the stack by the shortest possible route and at a rising angle (min. 3º).

Please note:
To simplify installation, we recommend that an assembly pipe section (sliding coupling, accessory) should be installed in the connecting pipe.

Gas connections



GA Gas connection ¾'' dia.

1. Connect up the gas in accordance with TRGI '86/96 (for natural gas) or TRF 1996 (for LPG) (GB: British Standards codes of practice).

Conversion to other gas type:
See service instructions

2. Seal in the gas shut-off valve.

3. Test for gas soundness.

4. Bleed air from the gas supply pipe.

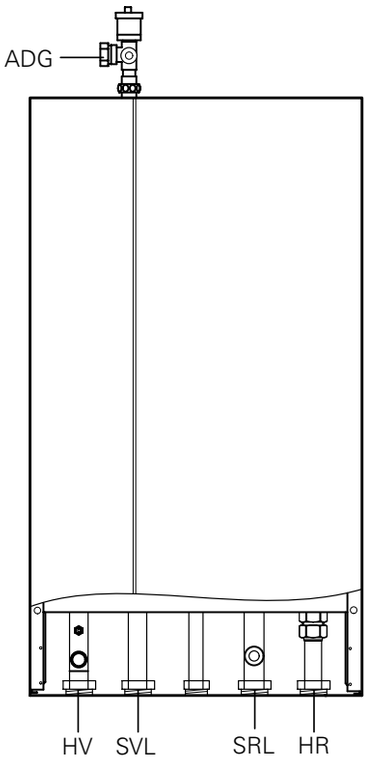
Please note:
According to TRF 1996-Vol. 2 – valid since 1st September 1997 – an external safety solenoid valve is no longer required for ***boilers installed below ground level.***
However, the external safety solenoid valve has proved so effective in achieving a high standard of safety that we shall continue to recommend its installation in conjunction with the adaptor (Part No. 7404 582).

⚠ ***Safety instruction!***
Max. test pressure 150 mbar.
If a higher pressure is required for detecting leaks in the gas connection pipe (e.g. for the preliminary test and main test in accordance with TRGI'86/96 or TRF 1996), disconnect the boiler and gas fittings from the mains gas pipe and unscrew the screwed connection. It is not sufficient to close the gas shut-off valve as there is a risk that the pressure will reach and destroy the fittings.

Damage due to excessively high pressure is not covered by the warranty.

Connections (continued)

Heating water connections



ADG Connection for expansion vessel, 1'' coupling
HR Heating return, 1½'' coupling
HV Heating flow, 1½'' coupling
SRL Cylinder return, 1½'' coupling
SVL Cylinder flow, 1½'' coupling

1. Thoroughly flush out the heating system (especially before connecting up the boiler to an existing system).

2. Connect the boiler to customer's piping.

Please note:
Install a commercially available air separator in the heating return.

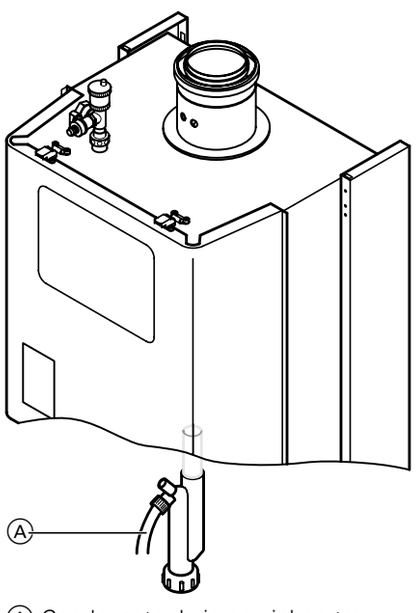
Max. operating pressure ..... 3 bar
Test pressure ..... 4 bar

Damage due to excessively high pressure is not covered by the warranty.

⚠ ***Safety instruction as per DIN 4751!***
The blow-off line of the safety valve must be designed and constructed so as to prevent the possibility of increases in pressure.
Outflowing water must be discharged safely, with the outlet point of the blow-off line positioned so that it is clearly visible.
A low water indicator to DIN 4751-3 is not required.

Please note:
Only those commercially available corrosion inhibitors should be used which are approved for boilers with domestic hot water heating via single-wall heat exchangers.

Condensate connections



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Ⓐ Condensate drain on siphon trap

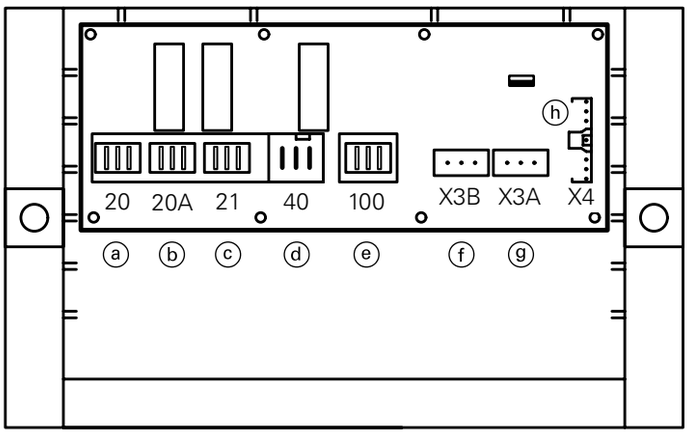
Install the condensate drain pipe with a suitable gradient.
Discharge the condensate from the flue system (if drain installed) together with the condensate from the boiler into the drainage system either directly or (if required) via a neutralizing unit (accessory).

Please note:
*A pipe ventilation facility **must** be arranged between the siphon trap and the neutralizing unit.*

Electrical connections

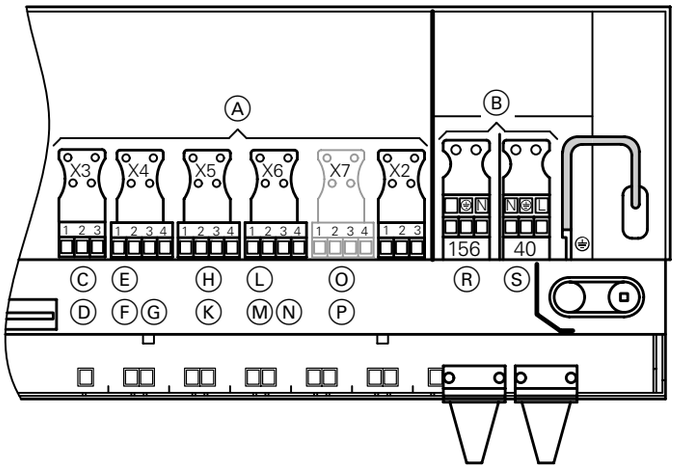
Overview of electrical connections and plug-in connectors

Junction box for circulation pumps



ⓐ DHW circulation pump or boiler circuit pump
ⓑ Heating circuit pump
ⓒ Circulation pump for heating the cylinder
ⓓ Mains connection (230 V~ 50 Hz)
ⓔ Fan motor (burner)
ⓕ BUS connection for boiler circuit pump
ⓖ BUS connection for heating circuit pump
ⓗ Control cable

Control unit



Ⓐ Low voltage connections
Ⓑ Mains voltage connections
Ⓒ M clock thermostat
Ⓓ WS/RS remote control unit
Ⓔ F clock thermostat
Ⓕ External changeover of the heating program/External request
Ⓖ Central fault indicator*1
Ⓗ Extension kit for heating circuit with mixing valve
Ⓚ Dekamatik-HK
Ⓛ Wall mounting fixture
Ⓜ Outdoor temperature sensor
Ⓝ External blocking of the burner
Ⓞ Flow temperature sensor for low loss header
Ⓟ Cylinder temperature sensor
Ⓡ Mains connection for accessories (230 V~ 50 Hz)
Ⓢ Mains connection (230 V~ 50 Hz)

*1 *The connection extension adaptor, Part No. 7404 582, is required for connection purposes. Direct connection is not permitted.*

Notes on connection of accessories

For details of the other installation steps involved, please refer also to the separate installation instructions provided with the accessories concerned.

Accessories or switch contacts which are connected to the same contacts of a connector can only be used as an alternative.

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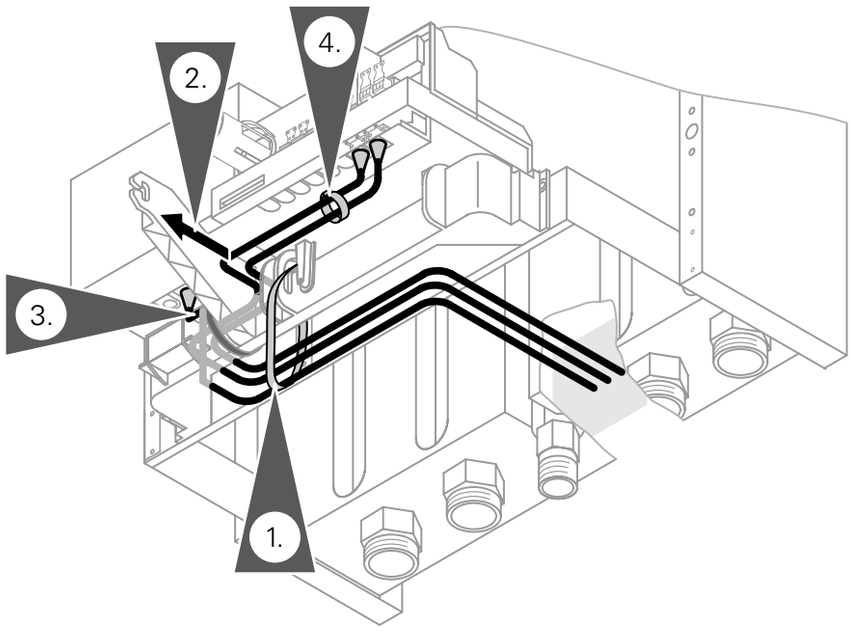
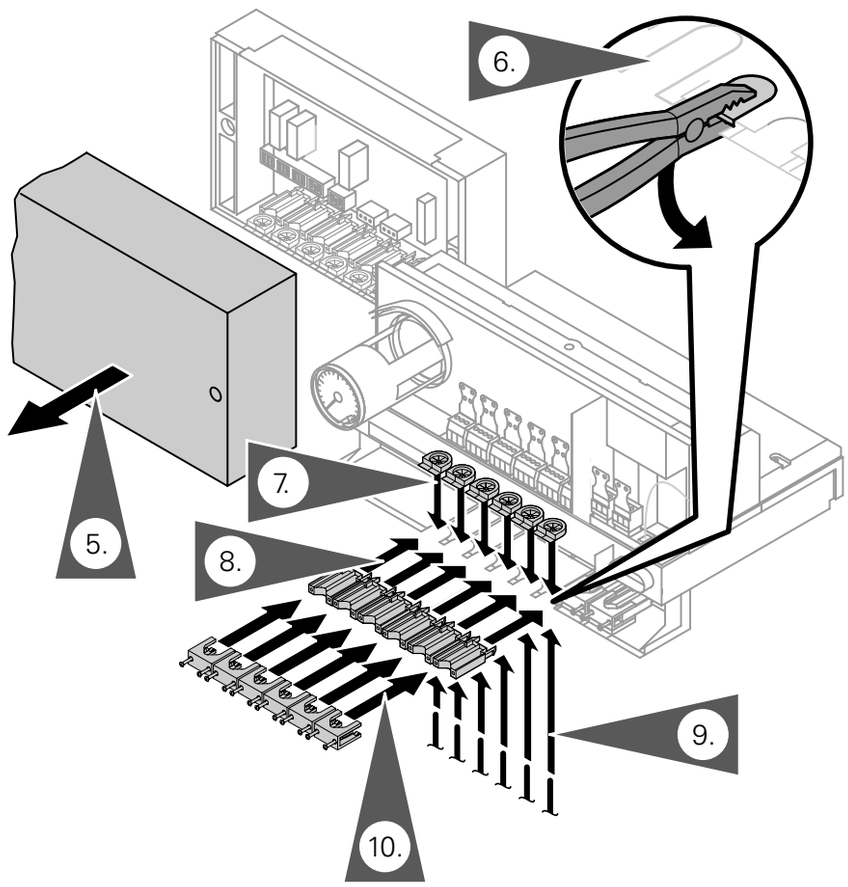
Electrical connections (continued)

Routing of the connecting cables

⚠ ***Safety instruction!***
When running and securing the connecting cables on site, take care to ensure that the maximum permissible temperatures of the cables are not exceeded.





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1. Secure the cables which are run to the control unit to the transverse bracket, using cable ties.

2. Pull the cables forward between the support arm and the control unit.

⚠ ***Safety instruction!***
It is essential to route the cables as shown in the drawing to guarantee the correct freedom of movement of the control unit.
Take care to avoid kinking the capillaries of the manometer.

3. Run the cables to the junction box (circulation pumps) above the transverse bracket directly to the junction box.

4. The cables below the control unit should be secured together with cable ties.

Please note:
*Do **not** secure cables in the vicinity of the control unit to the transverse bracket.*

5. Unscrew the case cover of the junction box.

6. Break off the necessary number of tabs to provide openings in the case for the external cables to be connected (see page 8).

7. Fit cable bushings.

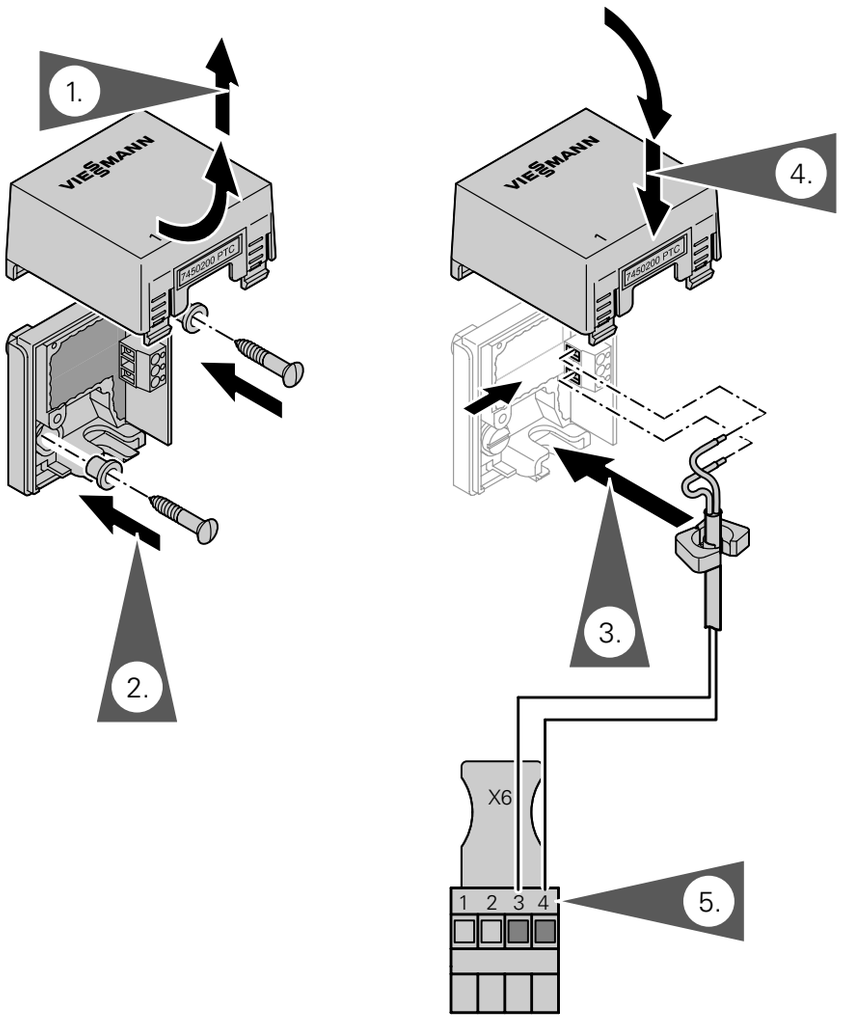
8. Fit the bottom parts of the strain relief clamps at the corresponding bushings (make the openings with a screwdriver).

9. Run the cables into the control case or junction box through the corresponding bushings.

10. Screw on the top parts of the strain relief clamps.

Electrical connections (continued)

Outdoor temperature sensor **Control unit for weather-compensated operation**



1. Remove the cap.

2. Mount the bottom part of the case (cable entry must point downwards).

Please note:
The outdoor temperature sensor should be mounted 2 to 2.5 metres above ground level on the north or north-west facing wall of the building. In the case of multi-storey buildings, it should be mounted in the upper half of the second storey.
Make sure that the sensor is not located over windows, doors and air vents, nor immediately beneath a balcony or guttering.
The outdoor temperature sensor must not be plastered over. If mounting on an unplastered wall, make allowances for thickness of plaster or remove sensor before plastering wall.

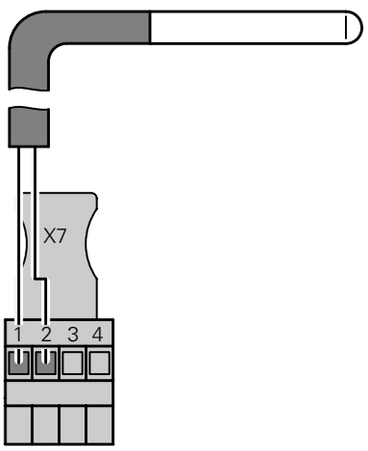
3. Connect the cable to the terminals (the wires are interchangeable).
Cable:
2×1.5 mm^2, max. 35 m long, copper.

Please note:
Do not run cable immediately next to 230/400 V cables.

4. Place cap over base and snap on.

5. Connect the outdoor temperature sensor to the connector "X6" (the wires are interchangeable).

Cylinder temperature sensor



Please note:
Install the sensor in the domestic hot water cylinder as described in the separate installation instructions.

Insert connector "X7" of the cylinder temperature sensor in "X7".

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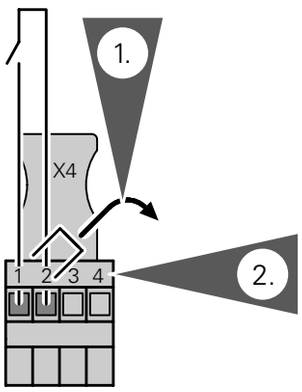
Electrical connections (continued)

External changeover of the heating program/External request — **Control unit for weather-compensated operation**



See service instructions with regard to changing the coding addresses.

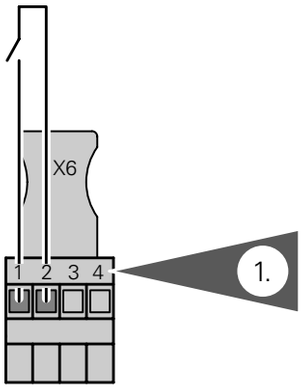
1. Remove jumper between "X4.1" and "X4.2".

2. Connect switch contact to connector "X4".

Please note:
The floating contact must be provided on site.

External blocking — **Installed on site**

The connection for "External blocking" can only be used as an alternative to the wall mounting fixture.



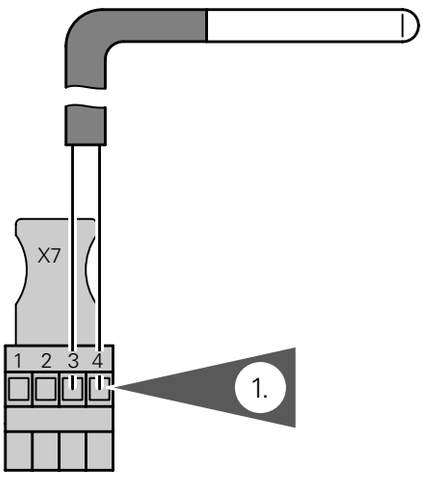
1. Connect the switch contact to connector "X6".

Please note:
The floating contact must be provided on site.

See service instructions regarding changes to the plug-in jumper "X6" and the coding addresses.

Electrical connections (continued)

Flow temperature sensor for low loss header



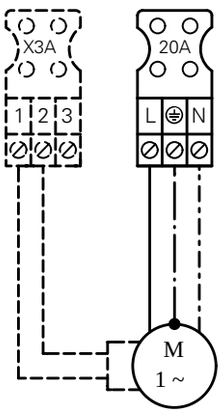
Please note:

Install the sensor in the low loss header as described in the separate installation instructions.

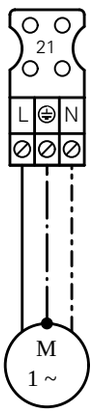
1. Connect the flow temperature sensor to connector "X7" of the cylinder temperature sensor.

Connection of the circulation pumps

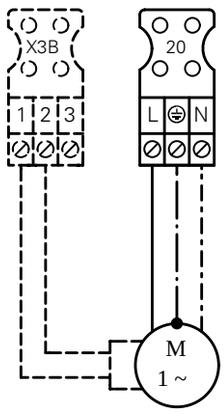
Heating circuit pump



Circulation pump for heating the cylinder



Circulation pump or boiler circuit pump



1. Connect the circulation pumps with the cables provided on site to the junction box for circulation pumps.

Please note:
The wires of the BUS connection are interchangeable.

2. Insert connectors and apply strain relief to cables.

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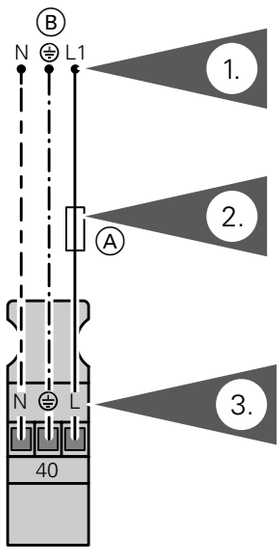
Mains electrical connection of control unit

⚠ ***Safety instruction!***
When connecting the equipment to the mains, please observe the connection requirements of the local energy supply company and VDE regulations.
GB: WARNING: THIS EQUIPMENT MUST BE EARTHED.
Please observe current I.E.E. regulations and any local regulations which apply when connecting this equipment to the mains.
The mains power cable must be protected by a fuse with a maximum rating of 16 A.

Mains electrical isolator switch
On firing systems conforming to DIN VDE 0116, the mains electrical isolator switch installed on site must fulfil the requirements stated in "Section 6" of DIN VDE 0116. The mains electrical isolator switch must be installed outside the boiler room and must simultaneously isolate ***all*** *non-earthed conductors with at least 3 mm contact separation.*



Ⓐ Fuse, max. 16 A
Ⓑ Mains voltage 230 V~ 50 Hz

1. Connect to the mains (230 V~ 50 Hz) via a fixed connection.

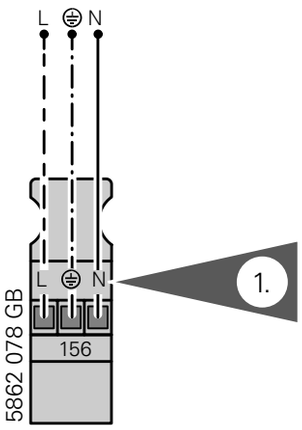
⚠ ***Caution!***
Do not interchange wires "L1" and "N".

2. Check whether the mains power cable to the control unit is fitted with a fuse with a maximum rating of 16 A.

3. Connect mains power cable to connector "40" (green/yellow wire must be longer than the rest).

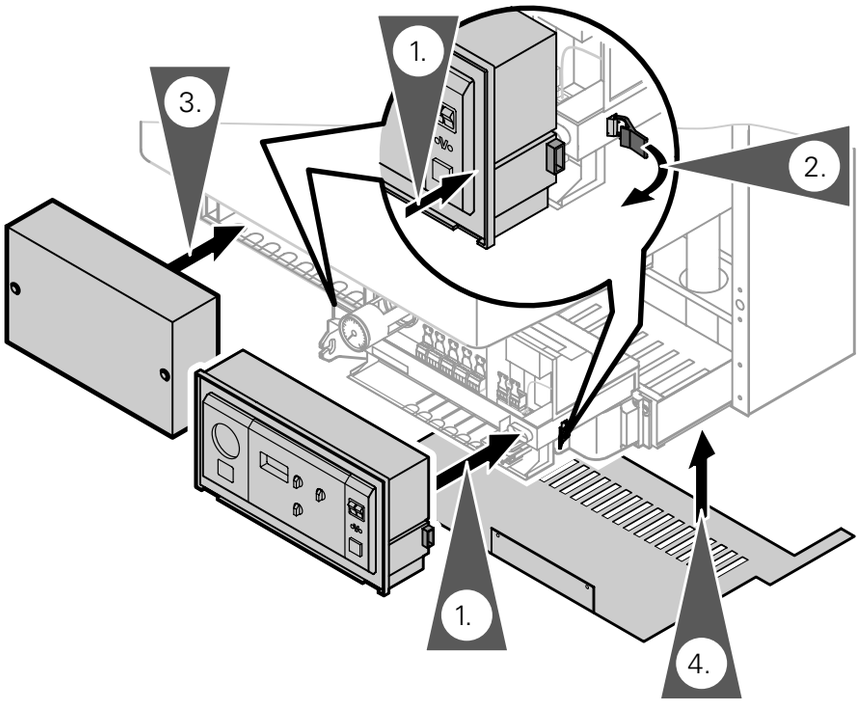
Mains electrical connection of accessories

⚠ ***Safety instruction!***
Where the boiler is installed in a bathroom or shower room, the connection of accessories to the mains must not be carried out at the control unit.
Where the boiler is installed outside such rooms, accessories can be connected to the mains directly at the control unit. This connection is switched by means of the heating system on/off switch (max. 3 A).



1. Connect mains power cable to connector "156" (green/yellow wire must be longer than the rest).

Mounting the programming unit of the control unit



Please note:
The control unit is packed separately.

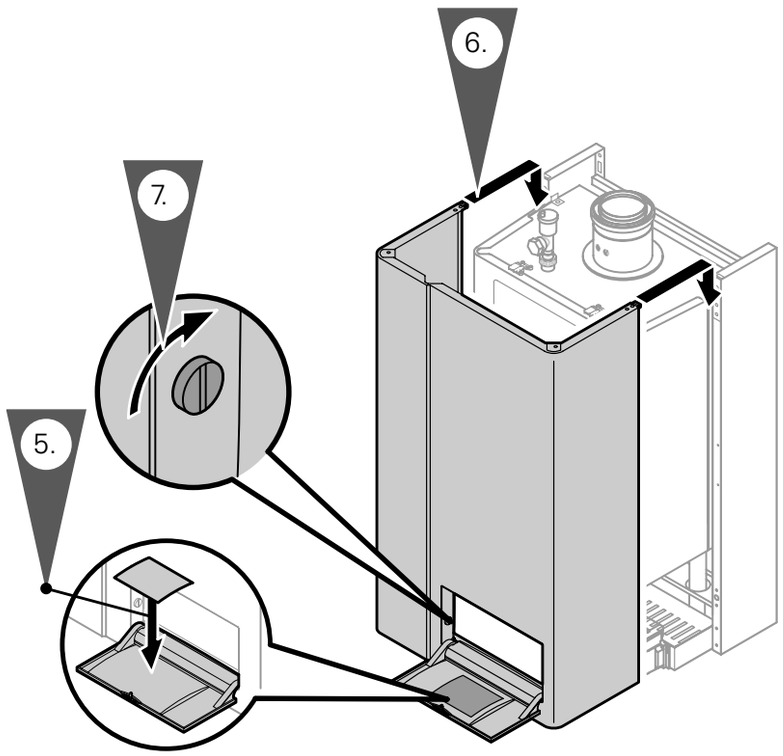
1. Position the control unit case in the guideways on the side and push back.

Please note:
When this is done, the electrical connection of the control unit components takes place automatically.
Do not kink the capillaries of the manometer.

2. Lock with the catches on the side (if fitted).

3. Screw on the cover of the junction box (circulation pumps).

4. Screw on the guard panel.



5. A sticker containing an overview of the user controls is supplied with the control unit. Affix the sticker **from inside** to the hinged cover of the control unit on the front panel.

6. Hook on the front panel.

7. Lock the turn-lock fastener.

After installation ...

Start-up and adjustment

See service instructions for details of start-up and adjustment.

Technical data

Rated output range	kW	11-44	15-60
Gas supply pressure			
Natural gas	mbar	20	20
LPG	mbar	50	50
Max. gas supply pressure[*1]	mbar	57.5	57.5
Max. test pressure (gas pipe)	mbar	150	150
Boiler connections			
Boiler flow and return	Ø''	1½	1½
Cylinder flow and return	Ø''	1½	1½
Expansion vessel	Ø''	1	1
Gas connection	Ø''	¾	¾
Max. operating pressure	bar	3	3
Test pressure	bar	4	4
Minimum system pressure	bar	0,8	0,8
Flue gas values[*2]			
Temperature[*3]			
■ with return temperature of 30 °C			
– at rated output	°C	35	40
– at min. output	°C	33	35
■ with return temperature of 60 °C	°C	65	70
Mass flow rate with			
■ natural gas			
– at rated output	kg/h	81.2	110.6
– at min. output	kg/h	21.1	27.7
■ LPG			
– at rated output	kg/h	79.5	108.9
– at min. output	kg/h	20.6	27.5
Available draught	Pa	100	100
	mbar	1	1
Flue outlet	mm ID	110	110
Ventilation pipe	mm ID	150	150

*[*1] If the gas supply pressure is higher than the maximum permitted value, a separate gas governor must be installed upstream of the system.*
*[*2] Values for calculating the size of the flue system to DIN 4705, based on 8.5 % CO_2 for natural gas and 10 % CO_2 for LPG.*
*[*3] Flue gas temperatures are gross values measured at 20 °C combustion air temperature.*

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