



# **WARNING!**

Improper installation, adjustment, alteration, service or maintenance can cause injury, loss of life or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

**Warning: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other boiler.
- What to do if you smell gas
  - Do not try to light any boiler.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

# **Notice:**

- This manual is also available in the English and French language.
- This manual must be retained for future reference.



# **Installation instructions**

**Logamax plus**

**GB162-80 kW/100 kW**

6720820035 (2016/06) US/CA

Please read thoroughly before starting the installation

**Buderus**

# Contents

<b>1</b>	<b>General information</b>	<b>2</b>
<b>2</b>	<b>Safety and general instructions</b>	<b>3</b>
2.1	Designated use	3
2.2	Hazard definitions	3
2.3	The following instructions must be observed	3
2.4	Regulations	3
<b>3</b>	<b>Dimensions and connections</b>	<b>4</b>
<b>4</b>	<b>Items supplied with pump group</b>	<b>5</b>
<b>5</b>	<b>Installation</b>	<b>6</b>
5.1	General installation instructions	6
5.2	Making the gas connection	6
5.3	Installing the heating supply and return	7
5.4	Installing the condensate trap	8
5.5	Connecting the condensate drain pipe	8
5.6	Connecting the expansion vessel (accessory)	9
5.7	Making the electrical connections to the pump	9
5.8	Installing the insulation cover	10
5.9	Commissioning	10

# 1 General information

## About these instructions

These installation instructions contain important information about the safe and proper installation of the Logamax plus GB162-80 kW /100 kW pump group.

These instructions are to be used in conjunction with the boiler installation instructions to make sure that the installation is carried out correctly.

These Installation Instructions are intended for professional installers, who have the necessary training and experience for working on heating and gas systems.

## Subject to technical modifications

Slight changes may be made without prior notice to the illustrations, process steps and technical data as a result of our policy of continuous improvement.

## 2 Safety and general instructions

Please observe these instructions in the interest of your own safety.

### 2.1 Designated use

The pump group and gas connection must only be installed on the GB162-80 kW /100 kW heating boiler.

### 2.2 Hazard definitions

The following defined terms are used throughout the documentation to bring attention to the presence of hazards of various risk levels. Notices give important information concerning the operation of the product.



#### DANGER

Indicates the presence of hazards that will cause severe personal injury, death or substantial property damage.



#### WARNING

Indicates the presence of hazards that can cause severe personal injury, death or substantial property damage.



#### CAUTION

Indicates presence of hazards that will or cause minor personal injury or property damage.



#### CAUTION

Risk of electric shock.

Indicates presence of hazards due to electric shock.



#### NOTICE

Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

### 2.3 The following instructions must be observed

- Other combinations, accessories and consumables must only be used if they are specifically designed for the intended application and do not affect the system performance and the safety requirements.
- Maintenance and repairs must only be carried out by trained professionals.

You must also observe:

- the local building regulations stipulating the installation rules at the time of installation.
- the technical rules laid down by the gas utility company concerning the connection of the gas burner fitting to the local gas main.

- the instructions and standards concerning the safety equipment for the water/space heating system.
- the Installation Instructions for building heating systems.



#### DANGER

flammable gas explodes.

Beware if you smell gas: there may be an explosion hazard!

**Warning: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other boiler.

#### What to do if you smell gas

- Do not try to light any boiler.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.



#### WARNING

Danger of fatal accident from explosive fumes.

- Only carry out work on gas pipes and fittings if you are properly registered.

### 2.4 Regulations

The installation must conform to the requirements of the authority having jurisdiction or, in the absence of such requirements, to the latest edition of the National Fuel Gas Code, ANSI Z223.1 (NFPA 54). In Canada, installation must be in accordance with the requirements of CAN/CSA B149.1, Natural Gas and Propane Installation Code.

### 3 Dimensions and connections

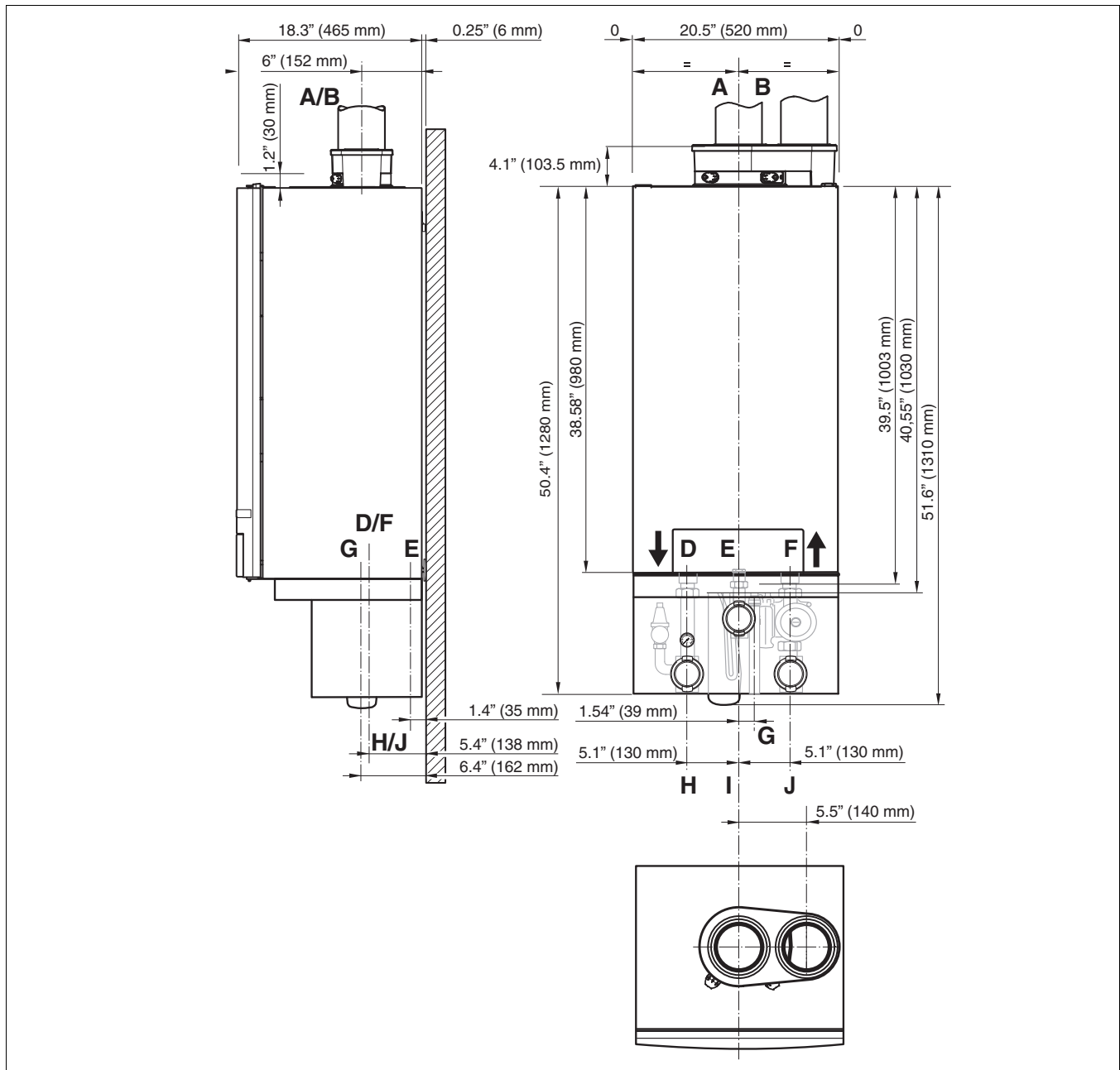


Fig. 1 Dimensions and connections (dimensions in mm)

- |   |   |
|---|---|
| <b>A (LA)</b> = Flue gas connection;<br>inside diameter 4"        | <b>I</b> = Gas connection to pump group;<br>1" NPT female thread  |
| <b>B (AA)</b> = Air intake connection;<br>inside diameter 4"      | <b>J (PR)</b> = Pump group return;<br>G1½" male thread, flat seal |
| <b>C (WB)</b> = Wall Bracket (not shown in picture)               |   |
| <b>D (VK)</b> = Supply;<br>G1½" union nut with female thread      |   |
| <b>E (GAS)</b> = Gas connection to boiler;<br>Rp1" female thread  |   |
| <b>F (RK)</b> = Return;<br>G1½" union nut with female thread      |   |
| <b>G (AKO)</b> = Condensate water outlet;<br>Ø 32 mm O/D          |   |
| <b>H (PF)</b> = Pump group supply;<br>G1½" male thread, flat seal |   |

## 4 Items supplied with pump group

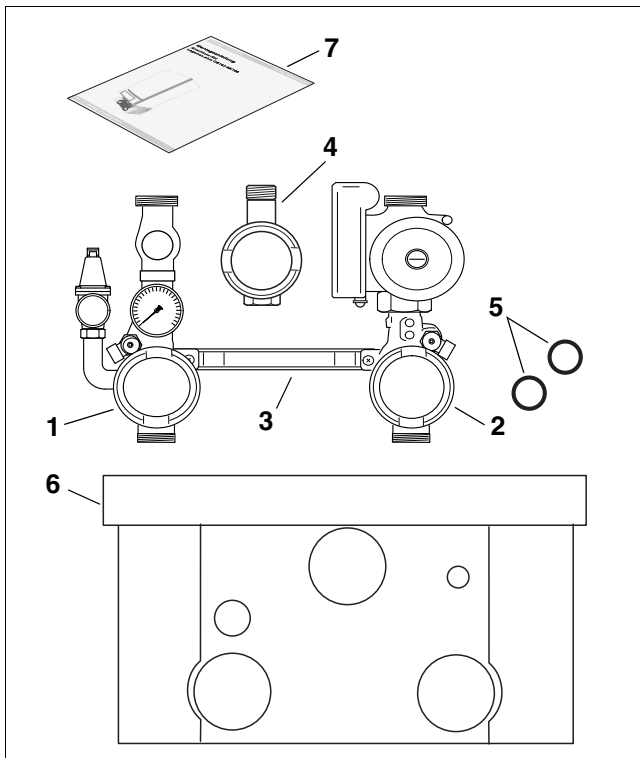


fig. 2 Items supplied with GB162-80 kW/100 kW pump group

- 1: Isolating valve, red (Supply) with pressure gauge. Connections for drain cock and safety valve 30 psi (2 bar), (50 psi, 3.5 bar max.)
- 2: Isolating valve, blue (Return) with pump, drain cock and non-return valve (removable)
- 3: Connecting bracket
- 4: Gas valve, yellow
- 5: Flat rubber seal 1 ½" (2x)
- 6: Insulation cover
- 7: Technical documentation

- When receiving the delivery, check if the packaging is intact.
- Check that all items listed are included in the delivery.

## 5 Installation



### WARNING

Danger of fatal accident due to electric shock.

- Before opening the boiler: Switch OFF the main power supply to the boiler.

### 5.1 General installation instructions

- Connect all pipes without forcing them into position.
- Make sure that the connections are tight and carry out a gas and water tightness test after completing the connection work (also see the boiler installation instructions).

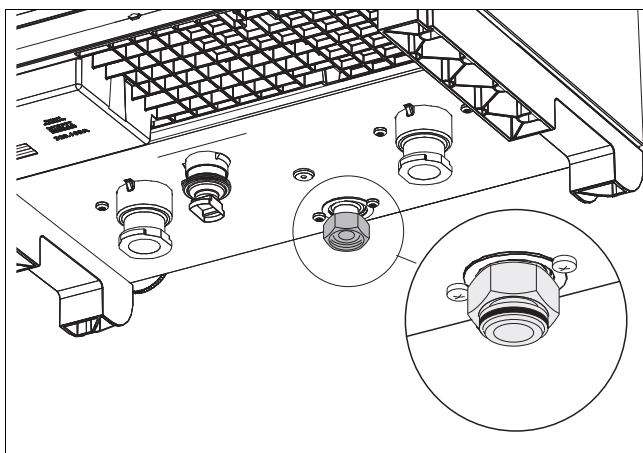


fig. 3 Rubber o-ring

### 5.2 Making the gas connection



### WARNING

Danger of fatal accident due to gas escaping.

- The gas connection that is supplied with the pump group is exclusively for use with the GB162 boiler.
- Make sure that the factory-fitted o-ring is located in the threaded connection (boiler side, see fig. 3, detailed picture).



### NOTICE

Use the supplied gas valve only with the Logamax plus GB162-80 kW/100 kW.

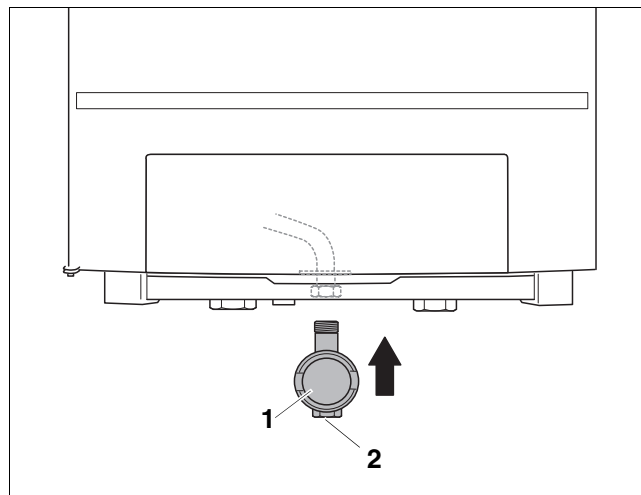


fig. 4 Making the gas connection

- 1: Gas isolating valve
- 2: Gas connection

- Install the gas valve (fig. 4, [1]) onto the gas pipe in the boiler.
- Connect the main gas supply to the gas isolating valve (fig. 4, [2]) free of stress.



### NOTICE

We recommend to integrate a gas filter in the gas line.



### WARNING

Pipes and screw connections may leak explosive fumes after commissioning and maintenance activities have been carried out.

- Perform a leakage test and repair as necessary.
- Only use approved detection products to locate leaks.

### 5.3 Installing the heating supply and return

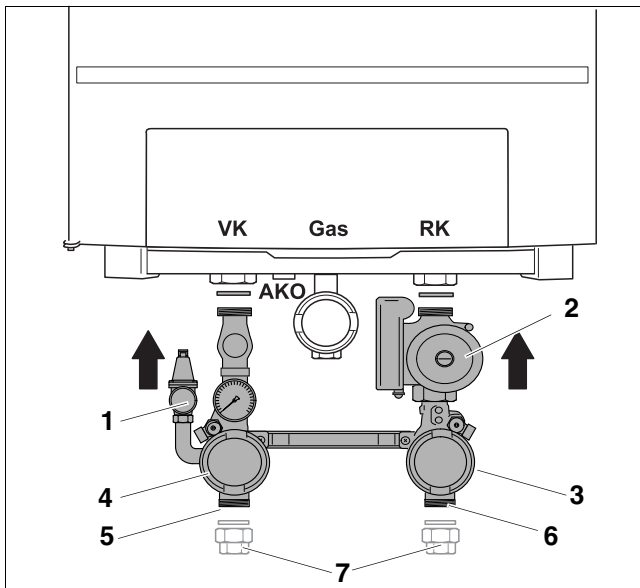


fig. 5 Installing the isolating valves

- 1: Pressure relief valve (included)
- 2: Pump
- 3: Isolating valve, blue (Return)
- 4: Isolating valve, red (Supply)
- 5: Supply connection
- 6: Return connection
- 7: Screw fitting 1" female thread (accessory)



#### NOTICE

- To prevent debris in the heating system we advise you to integrate a dirt filter (y-strainer) in the return circuit.
- When connecting the heating boiler to an existing heating system, a dirt filter (y-strainer) is mandatory.
- If a dirt filter (y-strainer) is installed, install a shut-off valve for filter cleaning immediately upstream and downstream of this dirt filter.
- Install the blue and red isolating valve (fig. 5, [3] and [4]) with the flat rubber seals in place on the Boiler Return and Supply connections.
- Connect the supply pipe to the red isolating valve (fig. 5, [5]) free of stress. If necessary, use the screw fitting (accessory, fig. 5, [7]).
- Connect the return pipe to the blue isolating valve (fig. 5, [6]) free of stress. If necessary, use the screw fitting (accessory, fig. 5, [7]).
- Calculate the supply and return pipe diameters taking into consideration the residual head downstream of the pump group with the minimum required volume flow (see Tab. 1). The minimum diameters of the supply and return connections are 1½" (Ø 35 mm).

	Residual head psi (mbar)	with minimum required volume flow Gal/h (L/h)	with $\Delta T$ [K]
GB162-80 kW with pump group UP 26-99	0 <sup>1)</sup>	950 (3,600)	20
GB162-100 kW with pump group UP 26-99	0 <sup>1)</sup>	1,136 (4,300)	20

Table 1 Residual head downstream of pump group with a single-boiler system

1) Low loss header required



#### NOTICE

When using plastic pipework in the heating system, e.g. for underfloor heating, it has to be oxygen diffusion tight. If this pipework does not comply with the relevant standards, a heat exchanger must be integrated to separate the systems.

#### Installing the differential pressure controller

If a low loss header is present and a situation can occur where all secondary zones can shut down, then it is necessary to install a differential pressure controller to the secondary side of the open manifold. This serves to protect the secondary pump against overheating as a result of insufficient flow.

#### Installing the drain cock

Since the isolating valve for the return circuit already has an integrated filling and drain valve, fitting a drain valve is not necessary.

#### Installing the check valve

Since the isolating valve for the return circuit (blue) already has an integrated check valve, fitting a check valve in the return circuit is not necessary.

#### Installing a safety valve

A pressure relief valve must be installed on the pump group (see fig. 5, [1], page 7) to prevent the pressure in the heating system from becoming excessively high.

- Install a pressure relief valve of 30 psi (2 bar). If necessary a pressure relief valve with a maximum of 50 psi (3.5 bar) can be used.

## 5.4 Installing the condensate trap

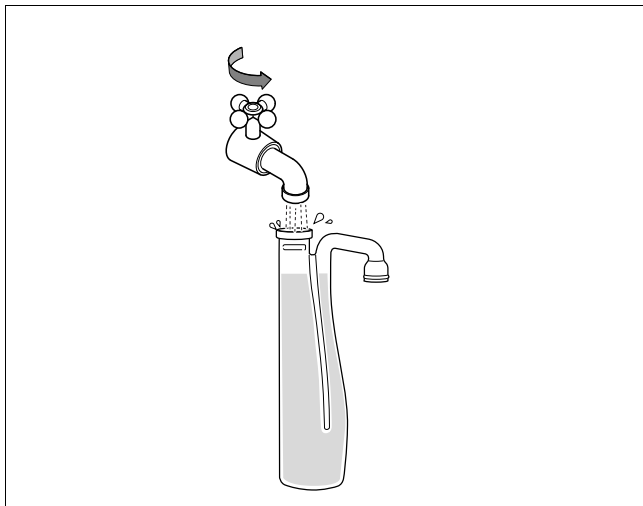


fig. 6 Filling the condensate trap with clean water



### WARNING

Danger of fatal accident due to poisoning.

- If the condensate trap is not filled with clean water, flue gas can escape and put people's lives at risk.
- Fill the condensate trap (supplied with the boiler) with clean water (fig. 6).

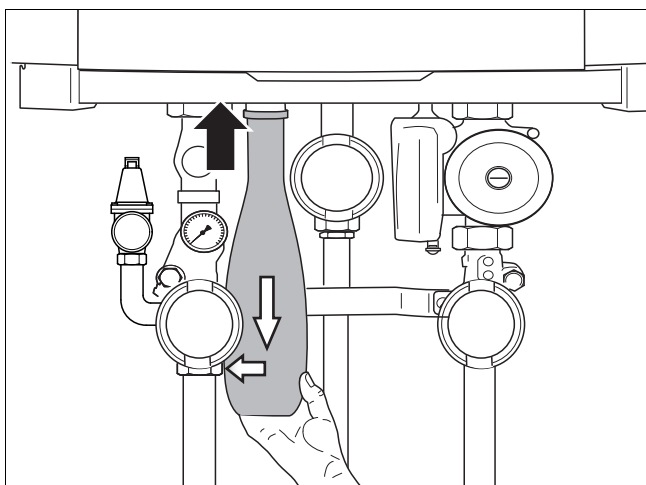


Fig. 7 Installing the condensate trap

- Connect the condensate trap (fig. 7) to the condensate water outlet. The condensate trap has a bayonet connector, insert and turn  $\frac{1}{4}$  rotation clockwise to click into position.

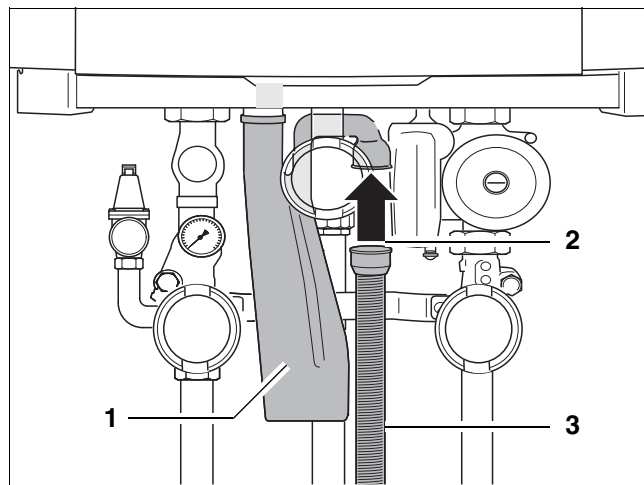


fig. 8 Installing the condensate trap hose

- Connect the condensate trap hose (fig. 8, [3]) and the rubber sleeve (fig. 8, [2]) to the condensate trap (fig. 8, [1]).

## 5.5 Connecting the condensate drain pipe

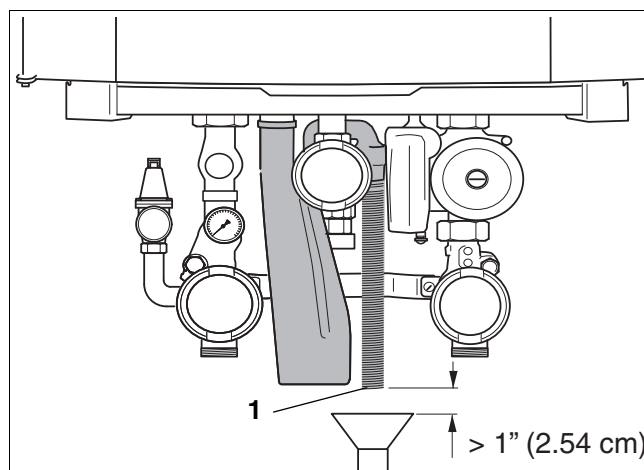


fig. 9 Condensate drain pipe



### NOTICE

The condensate must be drained from the boiler in accordance with the applicable rules and regulations.



### NOTICE

Use materials approved by the authority having jurisdiction. In the absence of such authority, PVC and CPVC pipe must comply with ASTM D1785, F441 or D2665. Cement and primer must comply with ASTM D2564 or F493. For Canada, use CSA or ULC certified PVC or CPVC pipe, fittings and cement.

- Connect the condensate drain pipe to the condensate trap (fig. 8, [1] and fig. 9, [1]), taking the following into account:



- An air gap of at least 1" (2.54 cm) must be maintained between the boiler condensate trap and the condensate pipework.
- If the condensate outlet of the boiler is lower than the drain, a condensate pump must be used.
- The condensate produced by the boiler has a pH value between 3 and 4. Install a neutralization unit if required by the local code.

## 5.6 Connecting the expansion vessel (accessory)



### CAUTION

Damage to the unit due to faulty pressure relief.

- The expansion vessel must be of sufficient capacity.

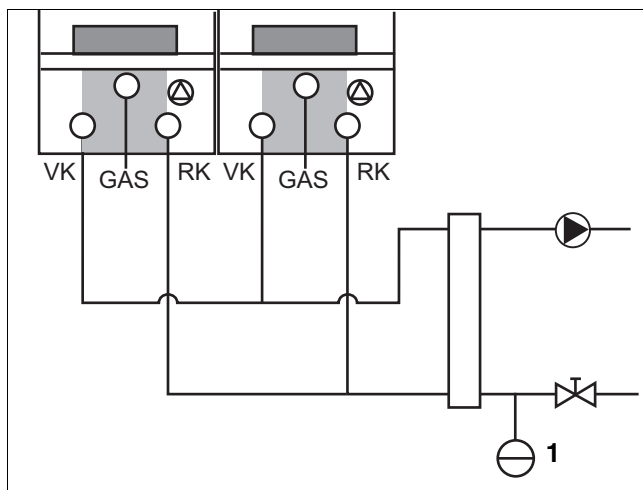


fig. 10 Connecting the expansion vessel in a multi-boiler configuration (cascade configuration)

1: Expansion vessel

### Connecting the expansion vessel in a multi-boiler configuration (cascade configuration)

In cascade systems only one expansion vessel is required for the heating system.

- Connect the expansion vessel to the secondary side of the header in the return circuit (fig. 10), so that every boiler is connected to the expansion vessel (fig. 10).

Refer to the cascade system installation instructions for the installation details.

## 5.7 Making the electrical connections to the pump

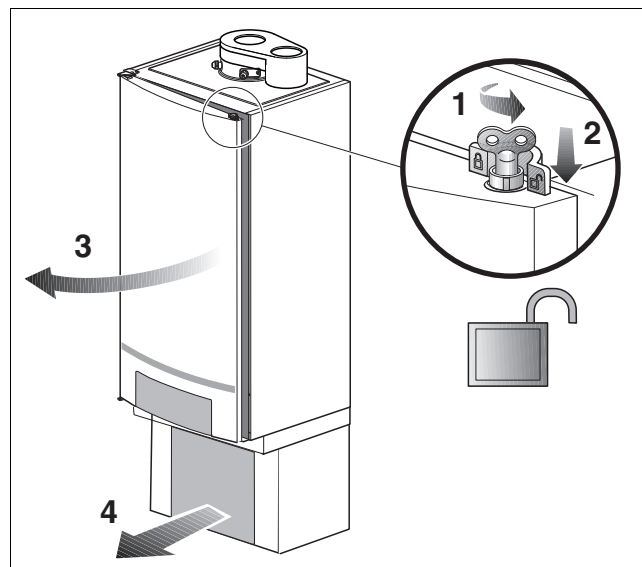


fig. 11 Opening the boiler door

- Turn the vent key through a quarter rotation to undo the boiler door lock (fig. 11, [1]).
- Push the fastener down (fig. 11, [2]) and open the boiler door (fig. 11, [3]).
- Remove the insulation cover of the pump group (fig. 11, [4]).

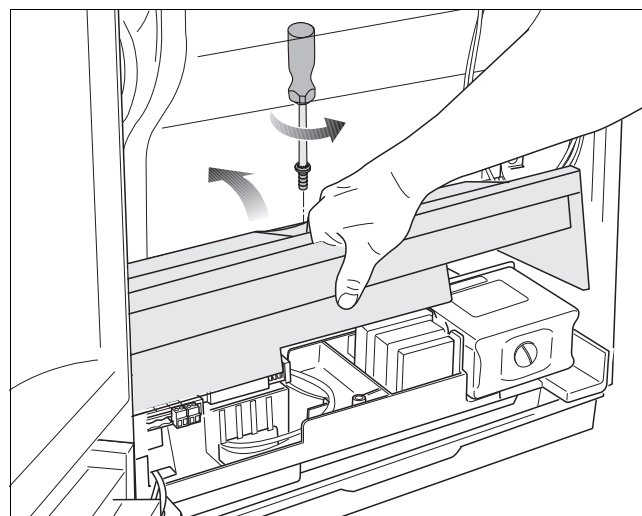


fig. 12 Pulling the cover over the electrical connections up

- Remove 1 screw to release the cover over the electrical connections and pull the cover up (fig. 12).

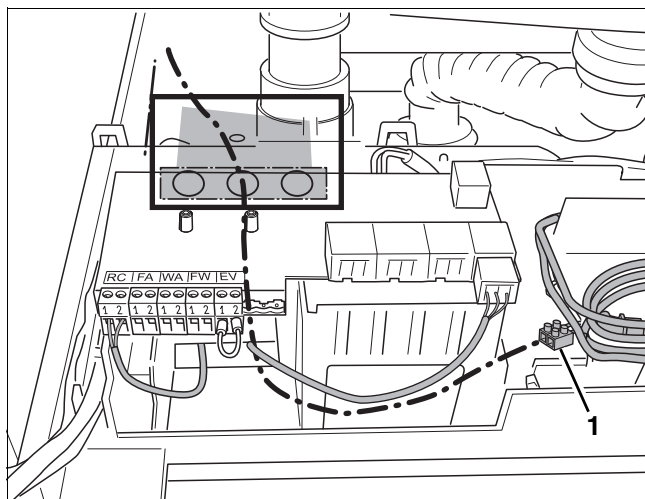


fig. 13 Routing the pump connection cable

1: Pump connection cable

- Route the pump connection cable from the boiler through the opening below the electrical connection box downwards (see fig. 13, [1]).

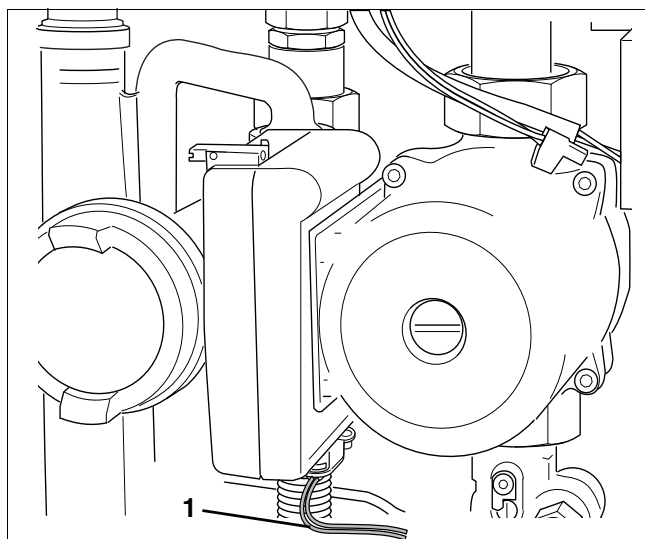


fig. 14 Connecting the pump

1: Main power cable connector

- Connect the main power cable connector (fig. 14, [1]) to the pump using an approved cable (not supplied).

## 5.8 Installing the insulation cover

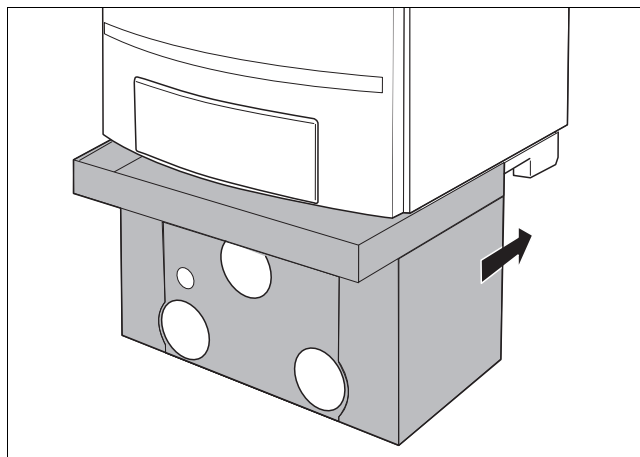


fig. 15 Installing the insulation cover



### NOTICE

The control panel cover must be closed.

- Slide the insulation cover with its upper edge into the groove of the lower support (fig. 15).

## 5.9 Commissioning



### NOTICE

See the Installation and servicing instructions of the boiler assembly for commissioning instructions of the boiler. Observe the safety instructions and take the relevant measures.



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