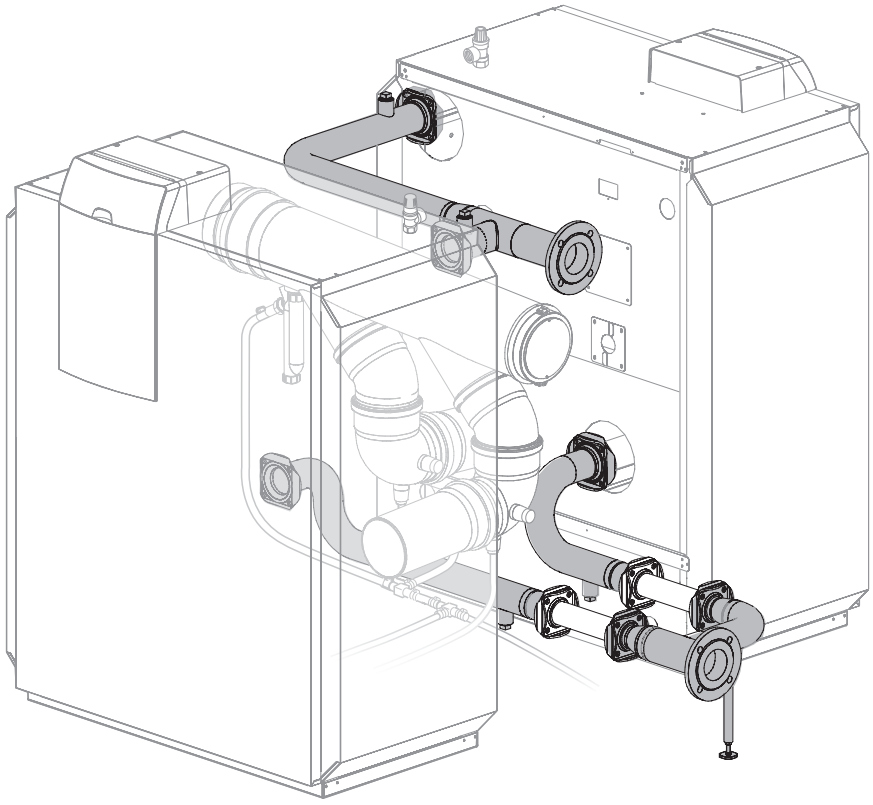
Installation instructions

Cascade pipework
Logano plus GB312 (Dual boiler)



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About this manual

This installation manual contains important information for the safe and appropriate installation of the cascade pipework.

These installation instructions are designed for heating contractors who, through their training and experience, are accustomed to working with heating systems.

Only use original Buderus spare parts. Buderus cannot accept liability for any losses resulting from the use of parts not supplied by Buderus.

Correct use

The heating water cascade pipework is for connecting the water systems of two Logano plus GB312 boilers.

USER NOTE

Observe all standards and guidelines applicable to the installation and operation of this heating system in your country.

1 Positioning

SYSTEM DAMAGE

CAUTION!

through frost.

Install the boiler in a room where it is safe from the risk of freezing.

USER NOTE

The pipework for the two boiler blocks should be installed before fitting the flue pipe.

The cascade pipework can be installed in the opposite direction. Please observe the minimum clearances. Reducing the minimum clearances makes the boiler more difficult to access.

The base or foundation on which the boiler is to stand must be perfectly flat, level and strong enough to support the weight.

Level the boilers horizontally and vertically.

Boiler rating kW:		180*	240*	320*	400*	480*	560*
A (mm)	recommended	700					
	minimum	500					
B (mm)	recommended	700					
	minimum	500					
C (mm)	recommended	500					
	minimum	100					
D (mm)	recommended	700			900		
	minimum	550	550	500	700	650	600
E (mm)		see Fig. 2 and Table 2					

Tab. 1 Dimensions in mm

** Values of both dual boilers added together*

USER NOTE

Where appropriate, allow extra wall clearances for additional components.

Observe the boiler installation and maintenance instructions.

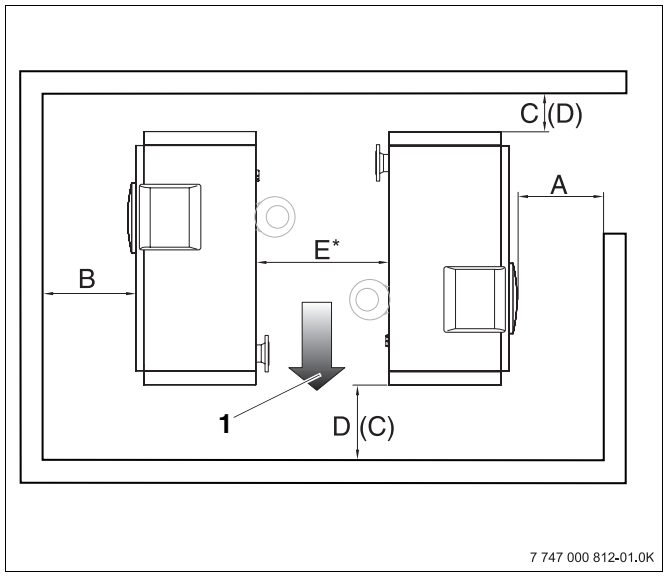

Fig. 1 Positioning

Item 1: *Example of pipework direction*

( ) The information in brackets applies when the pipework is installed in the opposite direction.

** See Fig. 2 and Table 2.*

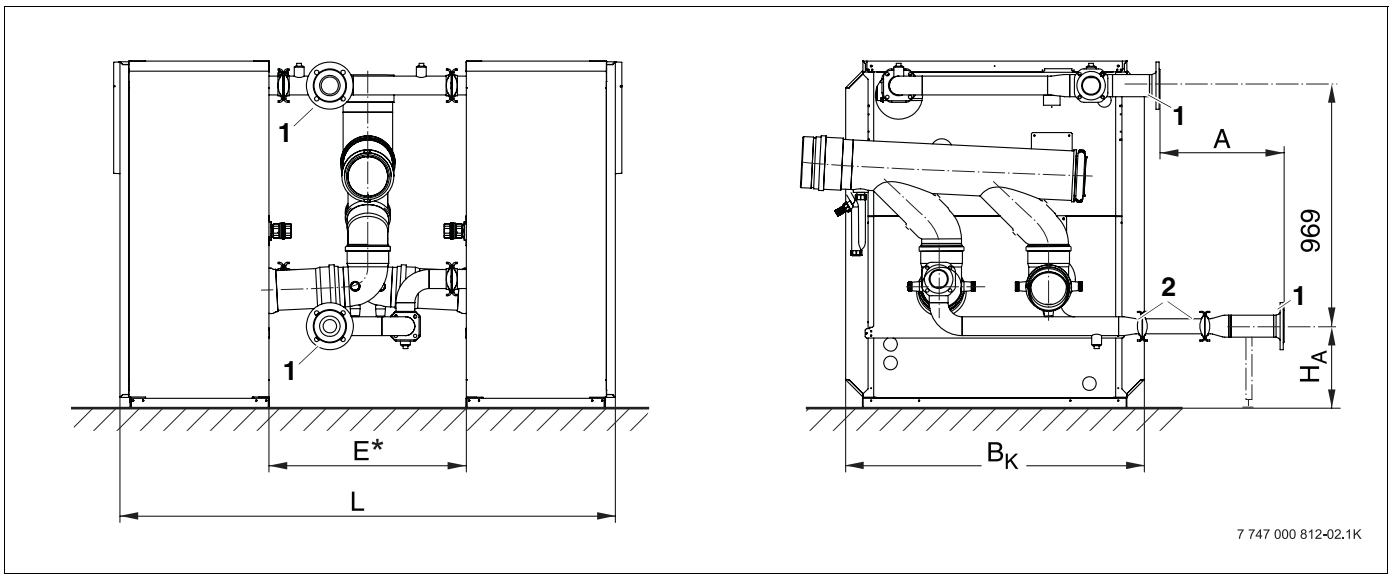

Fig. 2 Cascade pipework GB312 dimensions

* *When installing shut-off valves (available as option), E is 108 mm longer for 90 to 120 kW boilers, and 138 mm longer for 160 to 280 kW boilers.*

Measurement A = 560 when installing pump

USER NOTE

Please note that when installing additional shut-off valves in the flow VK and return RK, the installation dimension E increases (see dimension E* in Fig. 2).

Boiler rating	**2 x 90 kW (2 x 4 sect.)**	**2 x 120 kW (2 x 4 sect.)**	**2 x 160 kW (2 x 5 sect.)**	**2 x 200 kW (2 x 6 sect.)**	**2 x 240 kW (2 x 7 sect.)**	**2 x 280 kW (2 x 8 sect.)**
E	642 (750)*	642 (750)*	795 (933)*	935 (1073)*	935 (1073)*	935 (1073)*
L	1842	1842	1995	2135	2135	2135
B_K	994		1202		1410	
H_A	339		330		330	
Flange VK/RK (Fig. 2, **item 1**)	DN65 (circular hole Ø 130)		DN80 (circular hole Ø 150)		DN100 (circular hole Ø 170)	
Flange pump (Fig. 2, **item 2**)	DN50 (circular hole Ø 110)		DN50 (circular hole Ø 110)		DN65 (circular hole Ø 130)	

Tab. 2 GB312 cascade pipework dimensions (in mm)

* *Observe the dimension in brackets when installing the optional shut-off valves (see also Fig. 2).*

2 Scope of supply

The boiler and control device are installed as described in the installation instructions supplied with the individual products. Order pumps separately.

Material	Quantity	Fig. 3 Pos.
Installation instructions		
Flow piece (in two parts)	1	1.1 1.2
Long return piece (in two parts)	1	2.1 2.2
Short return piece	1	3
Return connection piece	1	4
Brace	1	5

Tab. 3 Pipework scope of supply

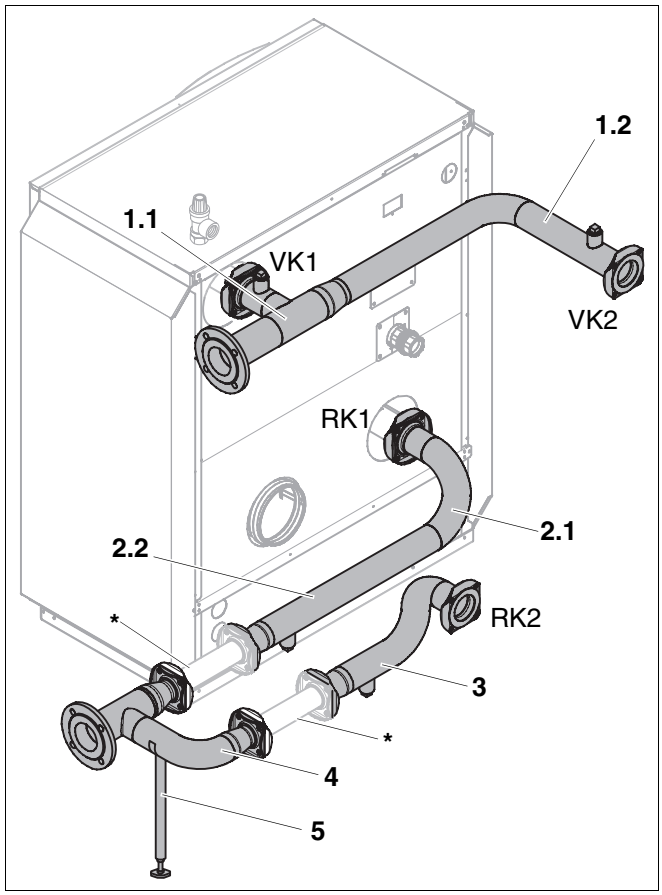

Fig. 3 Pipework scope of supply

* *The pipe section shown here is not part of the scope of supply. It is shown in place of the pump.*

3 Installing the pipework

Because welding work is required, it is advisable to fit the heating water cascade pipework before fitting the flue gas header.

CAUTION!

SYSTEM DAMAGE

through incorrect installation or operation.

Please observe the boiler installation, maintenance and operating instructions.

3.1 Installing the pipe connections

USER NOTE

The connections must only be connected to the positions shown in Fig. 4.

- Before installing the pipe connections, check connections on the boiler for possible damage.

USER NOTE

If one of the flanged connectors becomes loose after installation/commissioning, a new gasket should be inserted before tightening again.

CAUTION!

SYSTEM DAMAGE

through leaking connections.

Tighten screws and nuts on flanged connectors diagonally.

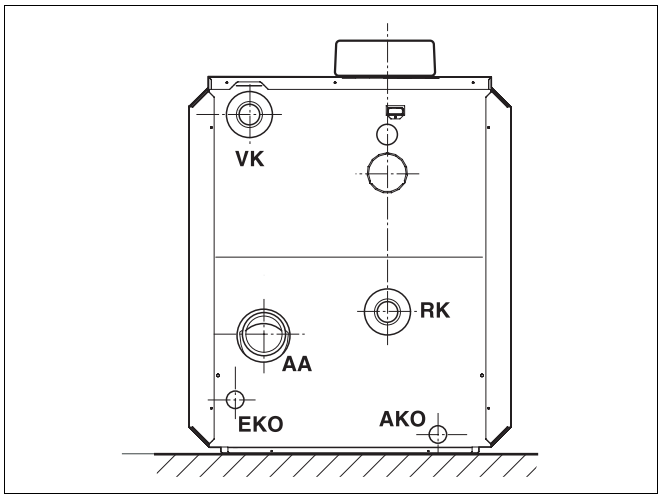

Fig. 4 Logano GB312 boiler connections

Legend for Fig. 4

AA	= Flue outlet
VK	= Boiler flow
AKO	= Condensate outlet
RK	= Boiler return
EKO	= Condensate inlet

3.2 Fitting part 1 of the flow connection to the first boiler

- Remove the factory-fitted welded flange from the flow.

CAUTION!

SYSTEM DAMAGE

Hold the check valve firmly when removing the welded flange.

- The check valve (Fig. 5, **Item 5**) remains fitted to the flow according to the flow direction.

CAUTION!

SYSTEM DAMAGE

through incorrect installation.

Note the flow direction of the check valve carefully.
The valve must open in the direction of flow.

- Place gasket (Fig. 5, **Item 2**) on the check valve.
- Screw flow piece flange (Fig. 5, **Item 6**) onto the flow flange (Fig. 5, **Item 4**) on the boiler, using four bolts (Fig. 5, **Item 3**) and nuts (Fig. 5, **Item 1**).

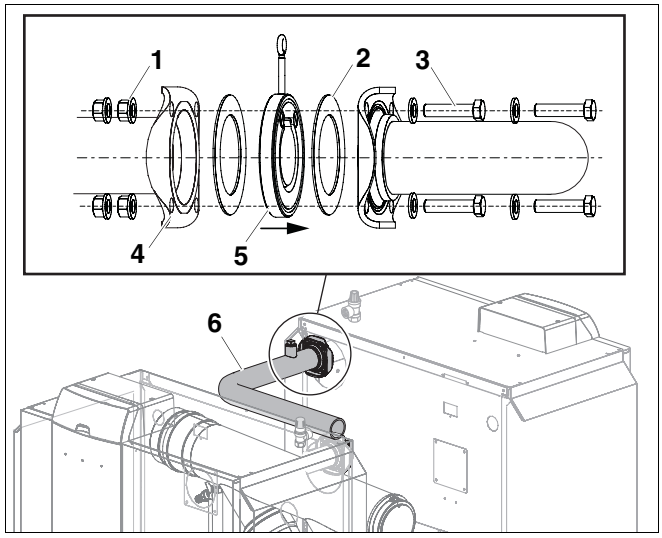

Fig. 5 Fitting the flow connection to the first boiler

Item 1: *Nut (boiler scope of supply)*

Item 2: *Gasket (boiler scope of supply)*

Item 3: *Bolt (boiler scope of supply)*

Item 4: *Flange on boiler flow*

Item 5: *Check valve (boiler scope of supply)*

Item 6: *Flow piece (part 1)*

3.3 Fitting part 2 of the flow connection to the second boiler

- Remove the factory-fitted welded flange from the flow.

CAUTION!

SYSTEM DAMAGE

Hold the check valve firmly when removing the welded flange.

- The check valve (Fig. 6, **Item 5**) remains fitted to the flow according to the flow direction.

CAUTION!

SYSTEM DAMAGE

through incorrect installation.

Note the flow direction of the check valve carefully.
The valve must open in the direction of flow.

- Place gasket (Fig. 6, **Item 2**) on the check valve.
- Screw flow piece flange (Fig. 6, **Item 6**) onto the flow flange (Fig. 6, **Item 4**) on the second boiler, using four bolts (Fig. 6, **Item 3**) and nuts (Fig. 6, **Item 1**).

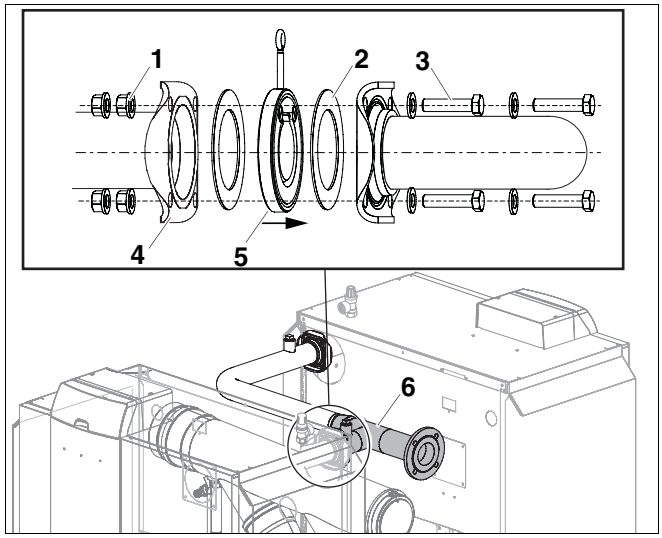

Fig. 6 Fitting flow piece onto the second boiler

Item 1: *Nut (boiler scope of supply)*

Item 2: *Gasket (boiler scope of supply)*

Item 3: *Bolt (boiler scope of supply)*

Item 4: *Flange on boiler flow*

Item 5: *Check valve (boiler scope of supply)*

Item 6: *Flow piece (part 2)*

- Weld the two flow pieces together without applying any stress.

USER NOTE

Because of tolerances, the pipe sections may have to be adjusted. Shorten the pipe sections if required or bend at the elbow by warming.

Couplings on the flow connection (Fig. 7, **Item 1**) are provided for ventilation.

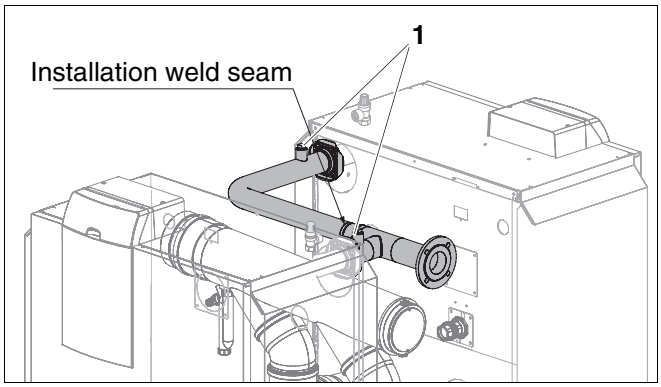

Fig. 7 Welding flow connection

3.4 Connecting the shut-off valves

The shut-off valves (Fig. 8, **Item 1**) are not part of the scope of supply and must be ordered separately. A shut-off valve can be connected to every flow and return.

CAUTION!

SYSTEM DAMAGE

Hold the check valve firmly when removing the shut-off valve.

CAUTION!

SYSTEM DAMAGE

through incorrect installation.

The check valve (Fig. 8, **Item 2**) remains fitted to the flow according to the flow direction.

Note also the flow direction of the shut-off valve carefully.

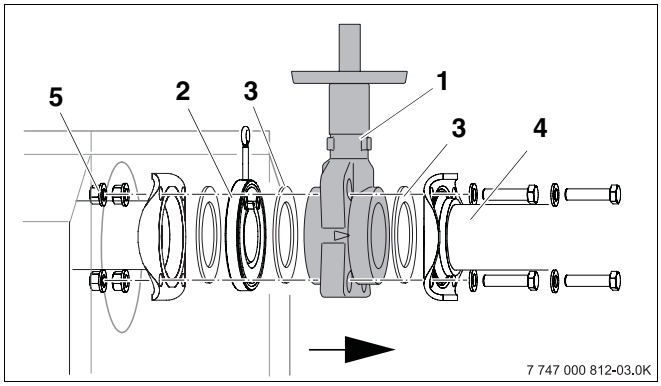

Fig. 8 Fitting the shut-off valves

Item 1: *Shut-off valve*

Item 2: *Check valve*

Item 3: *Gasket*

Item 4: *Flow piece*

Item 5: *Nut*

When installing the shut-off valve, the additional gasket and longer screws must be used.

- Place gasket (Fig. 8, **Item 3**) and shut-off valve (Fig. 8, **Item 1**) on the check valve.
- Screw flow piece flange (Fig. 8, **Item 4**) onto the flow flange on the boiler, using four bolts and nuts (Fig. 4, **Item 5**).

The flue pipe section coming from the flue gas connection on the boiler must be extended using the enclosed pipe section when installing the shut-off valve.

- Shorten pipe section to 108 mm for 90 to 120 kW boilers or to 138 mm for 160 to 280 kW boilers.
- Push in the pipe section on the boiler flue gas connection (see "Flue gas header installation instructions").

3.5 Installation of the return connector

3.5.1 Fitting short return piece to the first boiler

- Remove the factory-fitted welded flange from the return.
- Place gasket (Fig. 9, **Item 2**) on the boiler return.
- Screw return piece flange by hand (Fig. 9, **Item 5**) onto the return flange (Fig. 9, **Item 4**) on the boiler, using four bolts (Fig. 9, **Item 3**) and nuts (Fig. 9, **Item 1**).

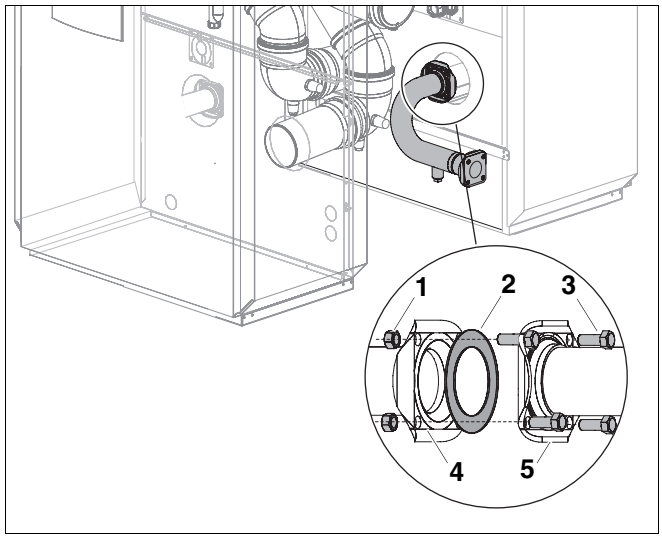

Fig. 9 Fitting the return connection to the first boiler

Item 1: *Nut (boiler scope of supply)*

Item 2: *Gasket (boiler scope of supply)*

Item 3: *Bolt (boiler scope of supply)*

Item 4: *Flange on boiler return*

Item 5: *Return piece*

3.5.2 Fitting part 1 of the long return piece to the second boiler

- Remove the factory-fitted welded flange from the return.
- Place gasket (Fig. 10, **Item 2**) on the return of the second boiler.
- Screw return piece flange (Fig. 10, **Item 5**) onto the return flange (Fig. 10, **Item 4**) on the second boiler, using four bolts (Fig. 10, **Item 3**) and nuts (Fig. 10, **Item 1**).

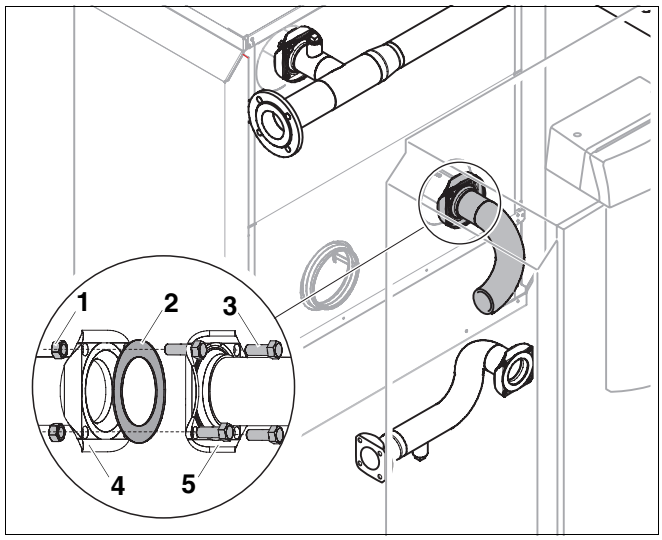

Fig. 10 Fitting return piece onto the second boiler

Item 1: *Nut (boiler scope of supply)*

Item 2: *Gasket (boiler scope of supply)*

Item 3: *Bolt (boiler scope of supply)*

Item 4: *Flange on boiler return*

Item 5: *Return piece*

3.5.3 Connecting the pumps

The pumps (heating circuit pumps) (Fig. 11, **Item 1**) are not part of the scope of supply and must be ordered separately.
Depending on the system layout, two pumps must be used. Please note the system recommendations in the Technical Guide (e.g. using a pump (heating circuit pump) when using a "low loss header").

SYSTEM DAMAGE

through fitting pump incorrectly.

CAUTION!

- Always fit the pump and motor horizontally between the flange.

Gasket and bolts do not form part of the scope of supply of the pipework (available as option).

- Place pump and gasket on the flange of the return piece in the direction of flow, and screw in place with 4 bolts and nuts.
- Fasten return connecting piece (Fig. 12, **Item 2**) and gasket to pump (Fig. 12, **Item 1**) using 4 bolts and nuts as shown in Fig. 12.
- Position brace (Fig. 12, **Item 3**) under the return connecting piece and adjust its height until the return pipework is stress-free.
- Place the second pump (according to the flow direction) with gasket on the flange of the return connecting piece and fasten using 4 bolts and nuts.
- Place the flange of part 2 of the long return piece (Fig. 13, **Item 2**) and gasket on the second pump and fasten using 4 bolts and nuts.
- Tighten screws on the flanged connectors.

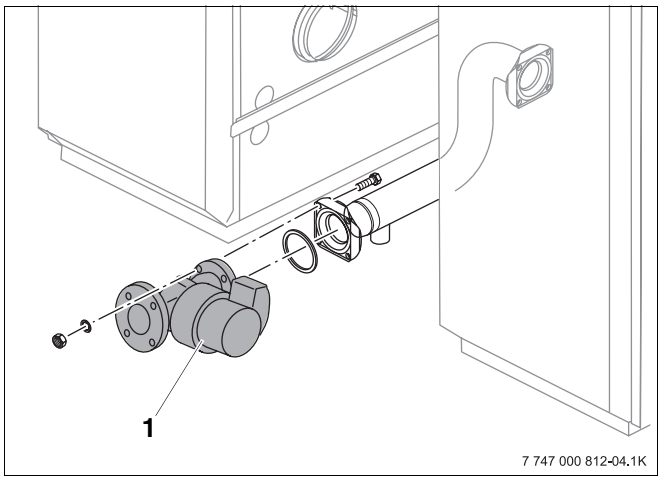

Fig. 11 Connecting the pump

Item 1: *Pump (available as option)*

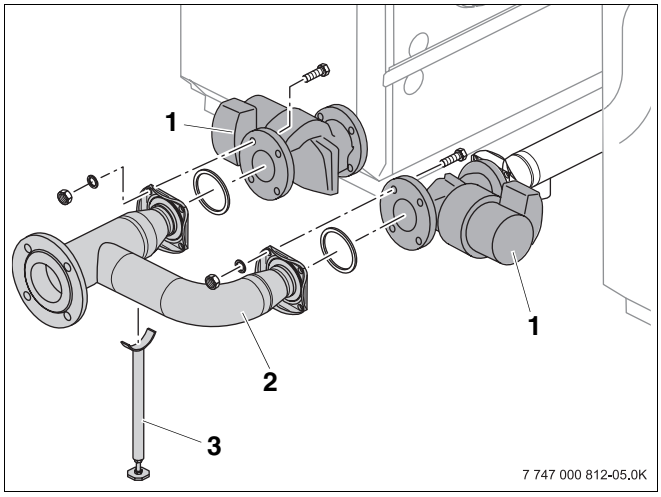

Fig. 12 Fitting return connecting piece

Item 1: *Pump*

Item 2: *Return connecting piece*

Item 3: *Brace*

3.5.4 Welding part 2 of the long return piece

- Weld both parts of the long return piece together without applying any stress.
- Check all connections and weld seams for leaks.

USER NOTE

Because of tolerances, the pipe sections may have to be adjusted. Shorten the pipe sections if required or bend at the elbow by warming.

The coupling on the return connection (Fig. 13, **Item 3**) is provided for draining.

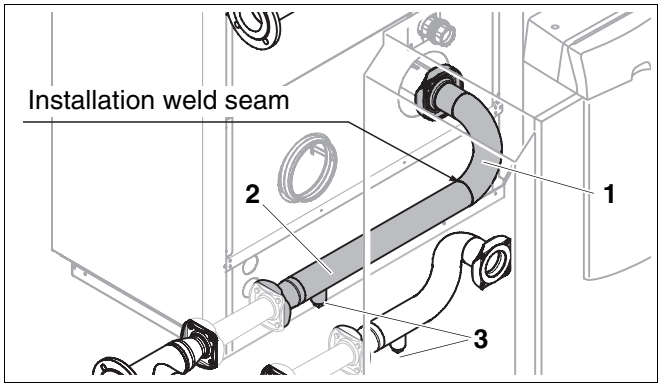

Fig. 13 Welding the long return piece

Item 1: *Part 1 of the long return piece*

Item 2: *Part 2 of the long return piece*

Item 3: *Coupling on the return*

4 Making electrical connection to system and filling

4.1 Electrical connection of the system

RISK TO LIFE

from electric shock.

WARNING!

- Ensure that the electrical cables are not touching any hot parts.

- The electrical connections must be carried out as per the wiring diagram according to the technical documentation for the controller.

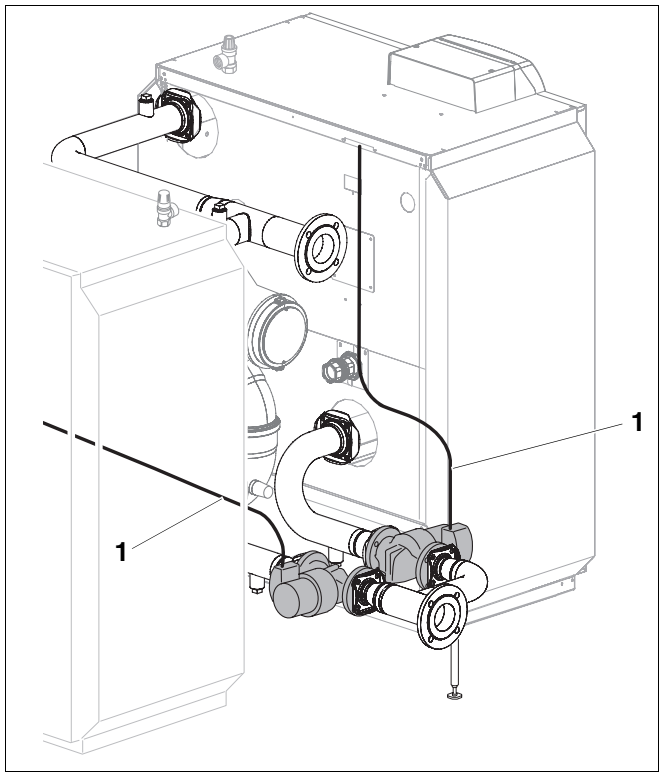

Fig. 14 Electrical connection

Item 1: *Electric cables from pumps*

4.2 Filling the system

Observe the installation and maintenance instructions of the boiler.

Your installer:

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