For the competent person

Installation instructions

fluoCOLLECT groundwater module

VWW 11/4 SI

VWW 19/4 SI

INTen

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Contents

1 Safety

1.1 Action-related warnings

Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

Warning symbols and signal words

Danger!
Imminent danger to life or risk of severe personal injury

Danger!
Risk of death from electric shock

Warning.
Risk of minor personal injury

Caution.
Risk of material or environmental damage

1.2 Intended use

There is a risk of injury or death to the user or others, or of damage to the product and other property in the event of improper use or use for which it is not intended.

The VWW xx/4 SI accessory is used to transfer heat from the groundwater to the heat transfer medium – brine – of the heat pump, and must only be combined with Vaillant heat pumps for domestic use. The combinations are intended for use as heat generators for closed wall and underfloor heating systems. The VWW xx/4 SI accessory can only be used with the Vaillant VWF xx7/4, VWF xx7/4 230 V, VWF xx7/4 S1, VWF xx8/4 and VWF xx8/4 230 V heat pumps.

Intended use includes the following:

– observance of accompanying operating, installation and servicing instructions for the product and any other system components
– installing and fitting the product in accordance with the product and system approval
– compliance with all inspection and maintenance conditions listed in the instructions.

Intended use also covers installation in accordance with the IP class.

Any other use that is not specified in these instructions, or use beyond that specified in this document shall be considered improper use. Any direct commercial or industrial use is also deemed to be improper.

Caution.

Improper use of any kind is prohibited.

1.3 General safety information

1.3.1 Risk of material damage caused by using an unsuitable tool

▸ Use the correct tool to tighten or loosen screw connections.

1.4 Regulations (directives, laws, standards)

▸ Observe the national regulations, standards, guidelines and laws.

2 Notes on the documentation

2.1 Observing other applicable documents

► You must observe all the operating and installation instructions included with the system components.

2.2 Storing documents

► Pass these instructions and all other applicable documents on to the system operator.

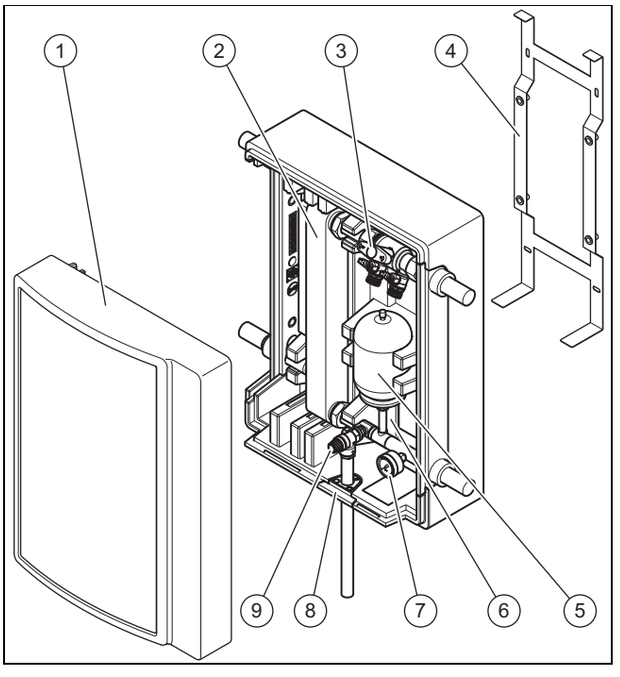
2.3 Applicability of the instructions

These instructions apply only to:

Product
VWW 11/4 SI
VWW 19/4 SI

3 Product description

3.1 Product design



1	Front casing	6	Identification plate
2	Heat exchanger	7	Pressure gauge
3	Stop valve block with two filling connections	8	Aperture for the expansion relief valve's drain hose
4	Product holder	9	Expansion relief valve (enclosed with the heat pump)
5	Brine expansion vessel		

3.2 Information on the identification plate

At the factory, the identification plate is attached to the back wall below the brine expansion vessel.

Information on the identification plate	Meaning
	Read the instructions.
	Information on disposal.
VWW xx/4 SI	Type designation for the groundwater module
VWW	Vaillant heat pump water
xx/4	Power in kW/product generation
SI	**B**rine combination heat exchanger unit for **i**nside installation
MPa	Max. line pressure
IP	Level of protection/protection class
W10/W35	Performance data at groundwater temperature/heating flow temperature
	Bar code with serial number, The 7th to 16th digits of the serial number form the article number

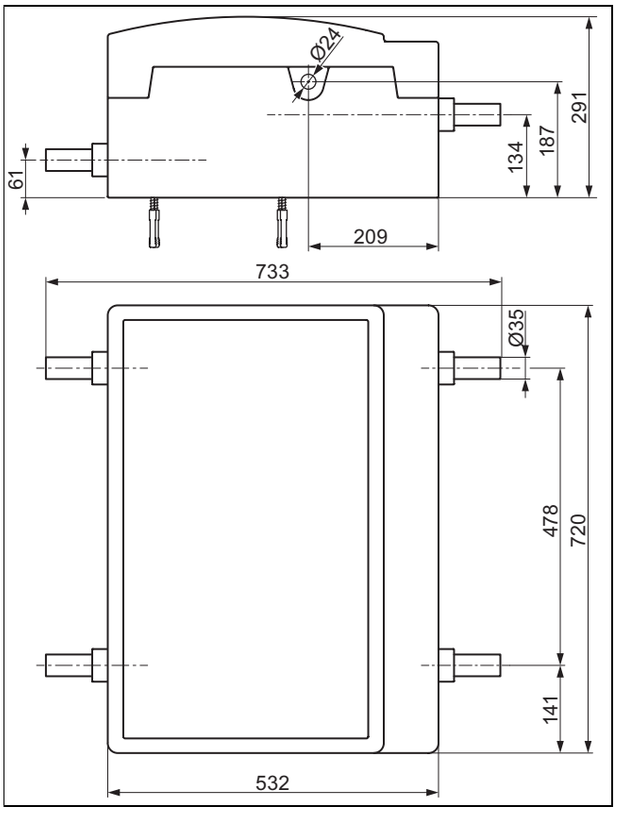
4 Installation

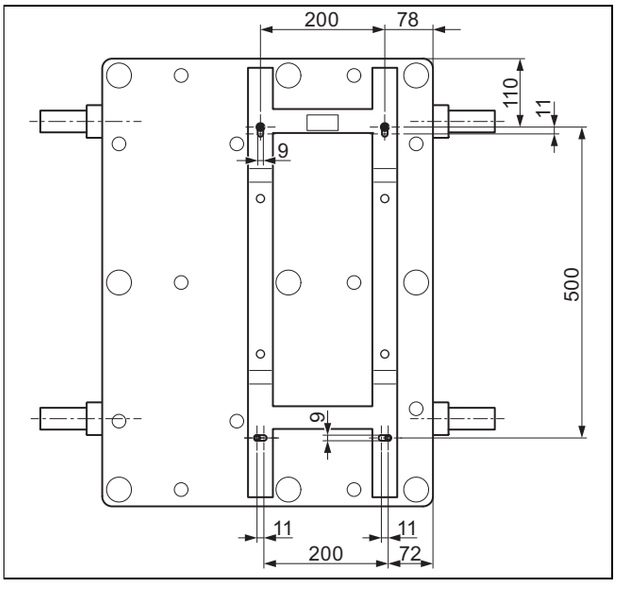
4.1 Checking the scope of delivery

► Check that the scope of delivery is complete.

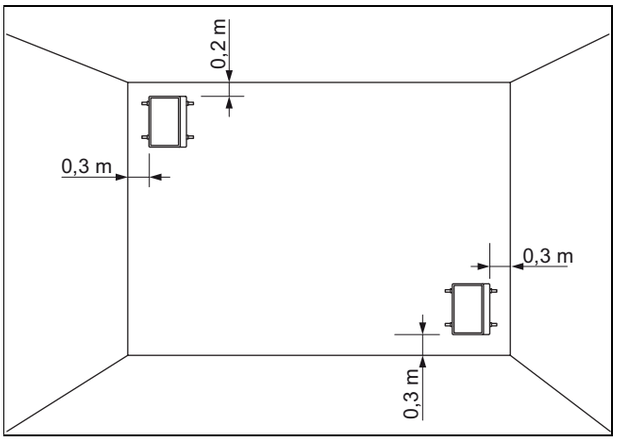
Quantity	Description
1	Groundwater module (VWW SI)
1	Product holder
1	Enclosed items – Screws for wall mounting, product bracket – Screws for mounting the product on the product bracket – Expansion relief valve drain hose – Adaptor for connecting the drain hose to the expansion relief valve – Plug X200 for connecting temperature sensors that are installed on-site for the flow and return on the groundwater side
1	Installation and maintenance instructions

4.2 Dimensions





4.3 Observing the requirements for the installation site



- ► Observe the minimum clearances at the selected installation site.
- ► Check the condition of the wall with regards to its load-bearing capacity.
  - – Load-bearing capacity: ≥ 12 kg (≥ 26.5 lb)

4.4 Observing the requirements for the well-water quality

Caution.

Risk of damage from unsuitable well water.

Deposits caused by using unsuitable well water may damage the suction well, the pipelines and the intermediate heat exchanger. Using water that contains salt is not permitted.

- ► Before installing the unit, check that the quality level of the well water that is drawn in is sufficient.

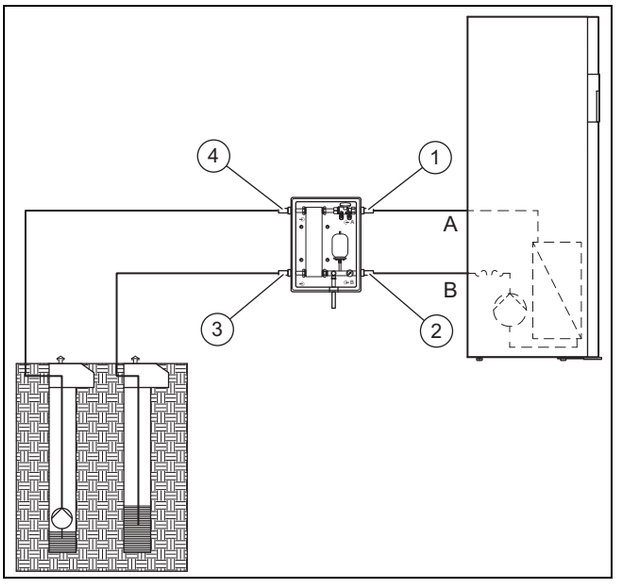
Irrespective of the legal requirements, a water analysis must be carried out in accordance with the following table for evaluating the quality of the well water, and you must decide whether the well water can be used as a heat source. The table is to be used as a guide and does not claim to be complete.

As limit values, the values for nickel prevail because the groundwater station contains a nickel-soldered stainless steel plate heat exchanger. If the property "Arrow down" (unsuitable) appears in the column or the property "Risk of corrosion" appears in the column twice, operation is not permitted.

Water components	Concentration in mg/l	Nickel
Iron, dissolved Fe **	< 0.2 > 0.2	★ ↓**
Manganese, dissolved Mn **	< 0.1 > 0.1	★ ↓**
Aluminium, dissolved Al	> 0.2 < 0.2	★ ★

Water components	Concentration in mg/l	Nickel
Hydrogen sulphide H_2S	< 0.05 > 0.05	★ ↓
Sulphide SO_3	< 1	★
Ammonia NH_3	< 2 2 - 20	★ ★
Carbon dioxide, free aggressive CO_2	< 5 5 - 20 > 20	★ ★ ★
Oxygen O_2	< 2 > 2	★ ★
Sulphate $[SO_4]^{2-}$	< 70 70 - 300 > 300	★ ★ ↓
Hydrogen carbonate HCO_3^-	< 70 70 - 300 > 300	★ ★ ★
Chloride Cl^-	< 300 > 300	★ ☆
Nitrate, dissolved NO_3	< 100 > 100	★ ★
Optical characteristics ***		Clear, colourless
Limit value		
Total water hardness	4.0-8.5 °dH	★
pH value	< 6.0 6.0-7.5 7.5-9.0 > 9.0	☆ ☆/★ ★ ★
Electrical conductivity (at 20 °C)	< 10 µS/cm 10-500 µS/cm > 500 µS/cm	★ ★ ★
★	Resistance normally good	
☆	Risk of corrosion; if several criteria are rated with ☆: Critical	
↓	Unsuitable	
**	To prevent the sedimentation of iron ochre, especially in the injection well, a limit value of < 0.2 mg/litre for iron (Fe) and < 0.1 mg/litre for manganese (Mn) must always be observed.	
***	Cloudiness or settleable substances must not be present in the groundwater, irrespective of the statutory regulations. Extremely fine dirt particles that lead to clouding of the water also cannot be eliminated by filters. They may therefore accumulate in the intermediate heat exchanger on the VWW xx/4 and adversely affect the heat transfer performance.	

4.5 Connection diagram



1 Connection: From the heat source to the heat pump (hot brine)
2 Connection: From the heat pump to the heat source (cold brine)
3 Connection: Groundwater return
4 Connection: Groundwater flow

4.6 Installing the product holder

Conditions: The load-bearing capacity of the wall is sufficient, The fixing material may be used for the wall

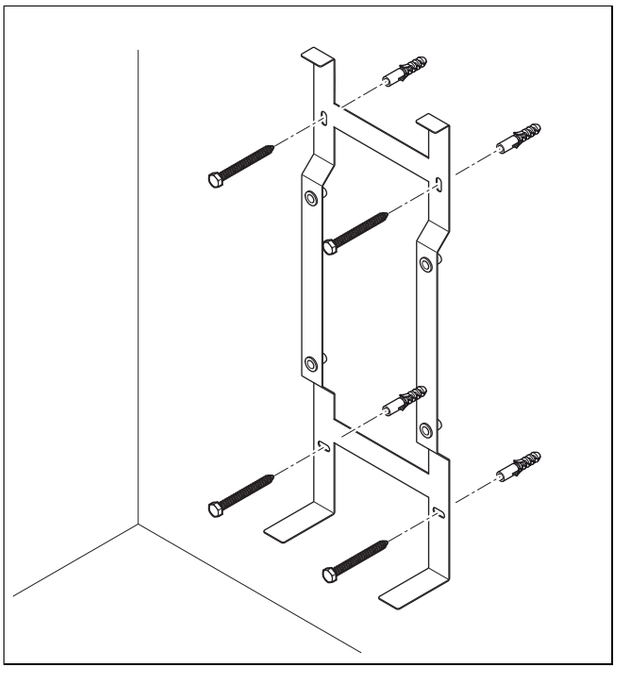
► Wall-mount the product as described.

Conditions: The load-bearing capacity of the wall is not sufficient

► Ensure that wall-mounting apparatus on-site has a sufficient load-bearing capacity. Use individual stands or primary walling, for example.
► Do not wall-mount the product if you cannot provide wall-mounting apparatus with a sufficient load-bearing capacity.

Conditions: The fixing material may not be used for the wall

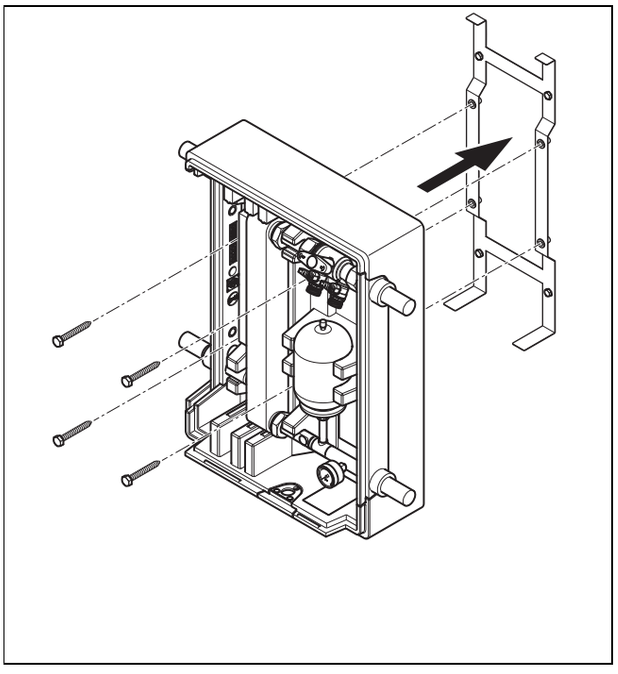
► Wall-mount the product as described using the permitted fixing material provided on-site.



1. Mount the product bracket on the wall. If possible, use the enclosed fixing material.
   – Aligning the product's hydraulic supply lines: Horizontal

4.7 Installing the product

1. Remove the front casing by pulling it from the product.



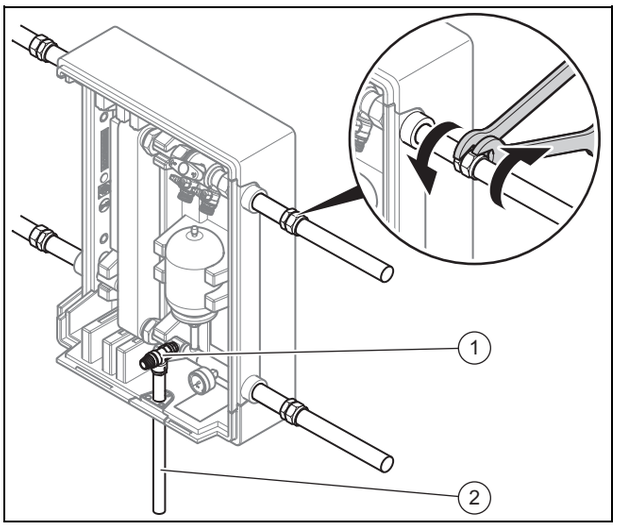
2. Set the product on the product bracket.
3. Use the enclosed screws to mount the product to the product bracket.

5 Hydraulic installation

5.1 Observing the hydraulic prerequisites

- ► Use pipes that have a suitable outer diameter.
  – Outer diameter: ≥ 35 mm (≥ 1.38 in)
  – Max. length of the brine lines: 2 x 5 m
  – Max. number of 90° elbows in the brine line: 10
- ► For efficiency reasons, the clearance between the heat pump and the groundwater station should be kept as small as possible.

5.2 Installing supply lines



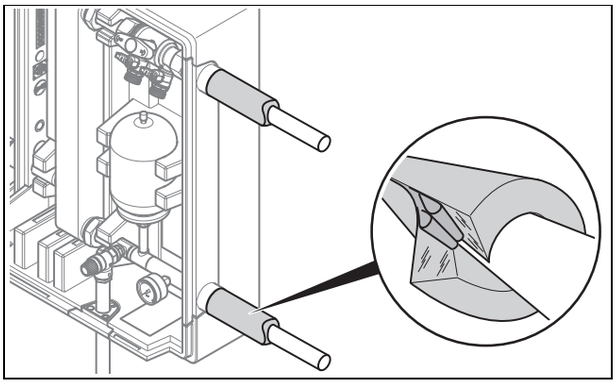
1. Install the supply lines without tension using press connections or compression joints.
2. Install the expansion relief valve **(1)** that is enclosed with the heat pump.
3. Install the enclosed drain hose **(2)** on the expansion relief valve. Guide the drain hose through the aperture that is provided in the casing and that leads to the outside.
4. Ensure that there is a collection device.

5.3 Connecting the heat pump to the well-water circuit

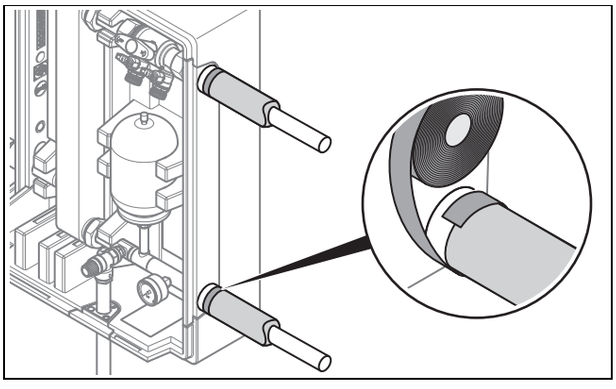
In most cases, the well-water system is designed with a suction and injection well. The ends of the pipelines of the suction and injection wells must lie deep enough below the well-water surface to prevent the water from taking in oxygen from the air. This oxygen leads to the coagulation of iron and manganese that is dissolved in the water and this, in turn, may lead to deposits in the injection well and the heat exchanger in the groundwater module.

- ► In the suction well, install the well pump (immersion pump) that must be provided on-site. For this, observe the installation and assembly instructions for the well pump.

5.4 Installing the thermal insulation

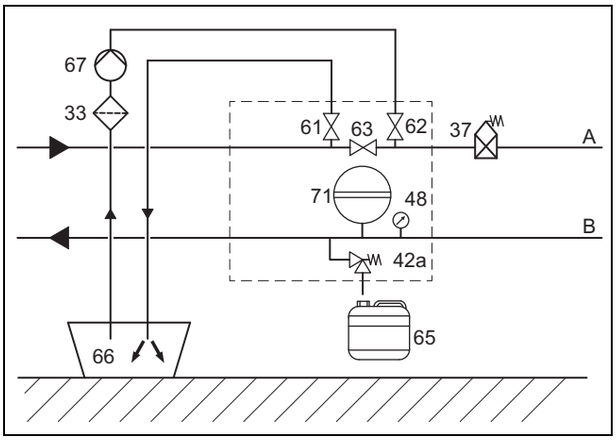


1. After the installation, insulate all pipelines using vapour-diffusion-tight insulation.



2. Insulate the transition between the product and the pipelines using vapour-diffusion-tight insulation.

5.5 Filling the brine circuit



33	Dirt filter	66	Brine container
37	Automatic air separator	67	Filling pump
42a	Expansion relief valve	71	Brine diaphragm expansion tank
48	Pressure gauge	A	From the heat source to the heat pump (hot brine)
61	Stop valve	B	From the heat pump to the heat source (cold brine)
62	Stop valve		
63	Stop valve		
65	Brine collecting container		

1. Follow the instructions in the → Installation and maintenance instructions for the heat pump.
2. Install a dirt filter **(33)** in the pressure line.
3. Connect the filling pump's pressure line to the stop valve **(62)**.
4. Close the stop valve **(63)**.
5. Open the stop valve **(62)**.
6. Connect a hose, which leads to the brine fluid, to the stop valve **(61)**.
7. Open the stop valve **(61)**.

Caution.
Risk of material damage caused by an incorrect filling direction.

If you fill the brine pump against the direction of flow, this may lead to a turbine effect which can damage the pump's electronics.

► Ensure that the brine pump is filled in the direction of flow.

8. Use the filling pump **(67)** to pour the brine fluid from the brine container **(66)** into the brine circuit.

5.6 Calculating the brine volume

1. Use the information in the following table to calculate the required volume of brine fluid. Plan an allowance of 10 l for the calculated volume in order to facilitate the rinsing process.
2. Label the container for the remaining volume of fluid with information about the brine fluid's type and concentration.
3. Pass the vessel on to the operator so that they have brine fluid available for when the tank needs topping up.
   – Brine fluid volume per running metre, DN 35 pipe type: 0.804 l

Heat pump + groundwater module	Partial volumes in litres	Total in litres
VWF 5x/4 + VWW 11/4 SI	2,5 + 1,5	4.0
VWF 5x/4 230 V + VWW 11/4 SI	2,5 + 1,5	4.0
VWF 5x/4 S1 + VWW 11/4 SI	2,5 + 1,5	4.0
VWF 8x/4 + VWW 11/4 SI	3,1 + 1,5	4.6
VWF 8x/4 230 V + VWW 11/4 SI	3,1 + 1,5	4.6
VWF 8x/4 S1 + VWW 11/4 SI	3,1 + 1,5	4.6
VWF 11x/4 + VWW 11/4 SI	3,6 + 1,5	5.1
VWF 11x/4 230 V + VWW 11/4 SI	3,6 + 1,5	5.1
VWF 11x/4 S1 + VWW 11/4 SI	3,6 + 1,5	5.1
VWF 157/4 + VWW 19/4 SI	4,5 + 3,2	7.7
VWF 197/4 + VWW 19/4 SI	5,3 + 3,2	8.5
Sample calculation: VWF 197/4 with VWW 19/4 SI and 10 m DN 35 copper pipe	8.5 + 10 x 0.804 + 10 (reserve)	26,5

6 Connecting the electrics for the well pump and optional temperature sensors

1. Guide the cable to the heat pump's electronics box (→ Installation and maintenance instructions for VWF xxx/4).
2. Connect the well pump to slot X143 on the heat pump's mains PCB.
3. As an option, use the enclosed X200 plug to connect temperature sensors (which are available as accessories) to the X200 slot on the heat pump's mains PCB.

7 Starting up the product

1. Select "groundwater" as the heat source on the heat pump's operator control panel (→ Installation and maintenance instructions for the heat pump).

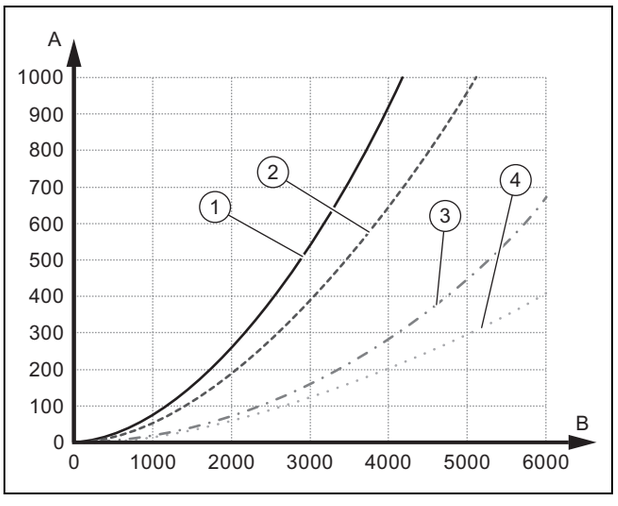
Note

The freeze protection for the brine circuit (groundwater station and heat pump) relating to the heat pump's heat source outlet sensor is set to +2 °C at the factory. This ensures that the heat exchanger for the groundwater station does not freeze on the groundwater side.

2. If required, adjust the freeze protection (→ Installation and maintenance instructions for the heat pump).

8 Pressure loss

8.1 Pressure loss



1	VWW 11/4 SI intermediate circuit side	4	VWW 19/4 SI heat source side
2	VWW 11/4 SI heat source side	A	Pressure loss in hPa (mbar)
3	VWW 19/4 SI intermediate circuit side	B	Volume flow in l/h

9 Handing the product over to the operator

- ► Inform the operator about how to handle the system.
- ► Answer any questions the operator may have. In particular, draw attention to the safety information which the operator must follow.
- ► Explain to the operator how the safety devices work and where they are located.
- ► Provide the operator with all relevant instructions and product documentation for safe-keeping.

10 Maintenance

10.1 Procuring spare parts

The original components of the product were also certified by the manufacturer as part of the declaration of conformity. If you use other, non-certified or unauthorised parts during maintenance or repair work, this may void the conformity of the product and it will therefore no longer comply with the applicable standards.

We strongly recommend that you use original spare parts from the manufacturer as this guarantees fault-free and safe operation of the product. To receive information about the available original spare parts, contact the contact address provided on the reverse of these instructions.

- ► If you require spare parts for maintenance or repair work, use only the spare parts that are permitted for the product.

10.2 Checking the pre-charge pressure of the expansion vessel

1. Drain the brine circuit (→ Installation and maintenance instructions for the heat pump).
2. Measure the pre-charge pressure of the expansion vessel at the vessel valve.

   Pre-charge pressure: ≤ 0.075 MPa (≤ 0.750 bar)

   - ► Ideally, you should top up the expansion vessel with nitrogen. Otherwise, top it up with air. Ensure that the brine circuit's drain valve is open when topping up.
3. Check whether brine is escaping at the expansion vessel's valve.

   ▽ Brine is leaking

   - ► Replace the expansion vessel.
4. Fill and purge the brine circuit.

10.3 Checking the dirt filter (on-site) in the groundwater circuit

- ► Regularly check the dirt filter (on-site) in the groundwater circuit and, if required, clean it.

11 Customer service

Applicability: Great Britain

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions for further details:

Telephone: 0330 100 3461

12 Recycling and disposal

Disposing of the packaging

► Dispose of the packaging correctly.

Disposing of the product and accessories

► Do not dispose of the product or the accessories with household waste.
► Dispose of the product and all accessories correctly.
► Observe all relevant regulations.

Appendix

A Technical data

Technical data – **General**

	VWW 11/4 SI	VWW 19/4 SI
Diameter of flow/return connections	35 mm	35 mm
Boiler dimension, width	532 mm	532 mm
Boiler dimension, height	720 mm	720 mm
Boiler dimension, depth	291 mm	291 mm
Weight, with packaging	19 kg	26 kg

A.1 Groundwater heat source

Heat source circuit/brine circuit and groundwater circuit

	VWF 58/4	VWF 88/4	VWF 118/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow of groundwater at ΔT 3 K with W10W35	1,450 l/h	2,240 l/h	3,520 l/h
Brine fluid type	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.

Heat source circuit/brine circuit and groundwater circuit

	VWF 57/4	VWF 87/4	VWF 117/4	VWF 157/4	VWF 197/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI	VWW 19/4 SI	VWW 19/4 SI
Nominal flow of groundwater at ΔT 3 K with W10W35	1,450 l/h	2,240 l/h	3,520 l/h	4,540 l/h	5,480 l/h
Brine fluid type	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.

	VWF 57/4 S1	VWF 87/4 S1	VWF 117/4 S1
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow of groundwater at ΔT 3 K with W10W35	1,450 l/h	2,240 l/h	3,520 l/h
Brine fluid type	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.

Heat source circuit/brine circuit and groundwater circuit

	VWF 58/4 230 V	VWF 88/4 230 V	VWF 118/4 230 V
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow of groundwater at ΔT 3 K with W10W35	1,450 l/h	2,240 l/h	3,520 l/h
Brine fluid type	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.

Heat source circuit/brine circuit and groundwater circuit

	VWF 57/4 230 V	VWF 87/4 230 V	VWF 117/4 230 V
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
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Brine fluid type	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.	Ethylene glycol 30% vol.

Building circuit/heating circuit

	VWF 58/4	VWF 88/4	VWF 118/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow at ΔT 5 K	1,100 l/h	1,720 l/h	2,170 l/h
Max. remaining feed head with ΔT 5 K	0.065 MPa (0.650 bar)	0.042 MPa (0.420 bar)	0.023 MPa (0.230 bar)
Nominal flow with ΔT 8 K	680 l/h	1,130 l/h	1,420 l/h

	VWF 58/4	VWF 88/4	VWF 118/4
Max. remaining feed head with ΔT 8 K	0.068 MPa (0.680 bar)	0.056 MPa (0.560 bar)	0.047 MPa (0.470 bar)
Min. volume flow during continuous operation at the application limits	680 l/h	1,130 l/h	1,420 l/h
Max. volume flow during continuous operation at the application limits	1,100 l/h	1,720 l/h	2,170 l/h
Heating pump electrical power consumption for W10/W35 ΔT 5 K with an external pressure loss of 250 mbar in the heating circuit	35 W	45 W	55 W

Building circuit/heating circuit

	VWF 57/4	VWF 87/4	VWF 117/4	VWF 157/4	VWF 197/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI	VWW 19/4 SI	VWW 19/4 SI
Nominal flow at ΔT 5 K	1,100 l/h	1,720 l/h	2,170 l/h	2,920 l/h	3,990 l/h
Max. remaining feed head with ΔT 5 K	0.065 MPa (0.650 bar)	0.042 MPa (0.420 bar)	0.023 MPa (0.230 bar)	0.056 MPa (0.560 bar)	0.021 MPa (0.210 bar)
Nominal flow with ΔT 8 K	680 l/h	1,130 l/h	1,420 l/h	1,870 l/h	2,610 l/h
Max. remaining feed head with ΔT 8 K	0.068 MPa (0.680 bar)	0.056 MPa (0.560 bar)	0.047 MPa (0.470 bar)	0.082 MPa (0.820 bar)	0.069 MPa (0.690 bar)
Min. volume flow during continuous operation at the application limits	680 l/h	1,130 l/h	1,420 l/h	1,870 l/h	2,610 l/h
Max. volume flow during continuous operation at the application limits	1,100 l/h	1,720 l/h	2,170 l/h	2,920 l/h	3,990 l/h
Heating pump electrical power consumption for W10/W35 ΔT 5 K with an external pressure loss of 250 mbar in the heating circuit	35 W	45 W	55 W	100 W	110 W

	VWF 57/4 S1	VWF 87/4 S1	VWF 117/4 S1
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow at ΔT 5 K	1,100 l/h	1,720 l/h	2,170 l/h
Max. remaining feed head with ΔT 5 K	0.065 MPa (0.650 bar)	0.042 MPa (0.420 bar)	0.023 MPa (0.230 bar)
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Building circuit/heating circuit

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	VWF 58/4 230 V	VWF 88/4 230 V	VWF 118/4 230 V
Max. volume flow during continuous operation at the application limits	1,100 l/h	1,720 l/h	2,170 l/h
Heating pump electrical power consumption for W10/W35 ΔT 5 K with an external pressure loss of 250 mbar in the heating circuit	35 W	45 W	55 W

Building circuit/heating circuit

	VWF 57/4 230 V	VWF 87/4 230 V	VWF 117/4 230 V
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Nominal flow at ΔT 5 K	1,100 l/h	1,720 l/h	2,170 l/h
Max. remaining feed head with ΔT 5 K	0.065 MPa (0.650 bar)	0.042 MPa (0.420 bar)	0.023 MPa (0.230 bar)
Nominal flow with ΔT 8 K	680 l/h	1,130 l/h	1,420 l/h
Max. remaining feed head with ΔT 8 K	0.068 MPa (0.680 bar)	0.056 MPa (0.560 bar)	0.047 MPa (0.470 bar)
Min. volume flow during continuous operation at the application limits	680 l/h	1,130 l/h	1,420 l/h
Max. volume flow during continuous operation at the application limits	1,100 l/h	1,720 l/h	2,170 l/h
Heating pump electrical power consumption for W10/W35 ΔT 5 K with an external pressure loss of 250 mbar in the heating circuit	35 W	45 W	55 W

Performance data

The following performance data is applicable to new products with clean heat exchangers.

Check conditions for determining the performance data in accordance with EN 14511.

Installation: Connection lines on the heat source side between VWF xx/4 and VWW xx/4 SI = 2 x 2 m (pipe internal diameter = 32 mm), environment circuit pump setting: Heating mode: Factory setting (auto), Cooling mode: Factory setting (auto)

	VWF 58/4	VWF 88/4	VWF 118/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Heating output W10/W35 ΔT 5 K	6.40 kW	10.00 kW	12.90 kW
Power consumption W10/W35 ΔT 5 K	1.40 kW	1.90 kW	2.40 kW
Output figure W10/W35 ΔT 5 K/coefficient of performance EN 14511	4.80	5.20	5.10
Heating output W10/W45 ΔT 5 K	6.30 kW	10.10 kW	12.90 kW
Power consumption W10/W45 ΔT 5 K	1.70 kW	2.50 kW	3.10 kW
Output figure W10/W45 ΔT 5 K/coefficient of performance EN 14511	3.70	4.10	4.00
Heating output W10/W55 ΔT 8 K	6.30 kW	10.30 kW	13.30 kW
Power consumption W10/W55 ΔT 8 K	2.10 kW	3.00 kW	3.90 kW
Output figure W10/W55 ΔT 8 K/coefficient of performance EN 14511	3.00	3.50	3.30
Hot water output figure/coefficient of performance W10/Wxx DIN EN 16147 at target cylinder temperature of 50 °C and 6 K hysteresis	3.30 kW	2.80 kW	2.80 kW
Hot water draw-off profile W10/Wxx DIN EN 16147	XL	XL	XL
Hot water mixed water volume 40 °C (V40) W1050 /Wxx at target cylinder temperature of 50 °C	227 l	230 l	227 l
Sound power level W10/W35 EN 12102/EN 14511 L_{WI} in heating mode	42.2 dB(A)	41.6 dB(A)	46.0 dB(A)

	VWF 58/4	VWF 88/4	VWF 118/4
Sound power level W10/W45 EN 12102/EN 14511 L_{WI} in heating mode	41.8 dB(A)	45.8 dB(A)	45.7 dB(A)
Sound power level W10/W55 EN 12102/EN 14511 L_{WI} in heating mode	45.0 dB(A)	49.2 dB(A)	46.2 dB(A)

Performance data

The following performance data is applicable to new products with clean heat exchangers.

Check conditions for determining the performance data in accordance with EN 14511

Installation: Connection lines on the heat source side between VWF xx/4 and VWW xx/4 SI = 2 x 2 m (pipe internal diameter = 32 mm), environment circuit pump setting: Heating mode: Factory setting (auto), Cooling mode: Factory setting (auto)

	VWF 57/4	VWF 87/4	VWF 117/4	VWF 157/4	VWF 197/4
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI	VWW 19/4 SI	VWW 19/4 SI
Heating output W10/W35 ΔT 5 K	6.40 kW	10.00 kW	12.90 kW	16.80 kW	23.00 kW
Power consumption W10/W35 ΔT 5 K	1.40 kW	1.90 kW	2.40 kW	3.10 kW	4.40 kW
Output figure W10/W35 ΔT 5 K/coefficient of performance EN 14511	4.80	5.20	5.10	5.40	5.20
Heating output W10/W45 ΔT 5 K	6.30 kW	10.10 kW	12.90 kW	16.60 kW	23.60 kW
Power consumption W10/W45 ΔT 5 K	1.70 kW	2.50 kW	3.10 kW	4.00 kW	5.60 kW
Output figure W10/W45 ΔT 5 K/coefficient of performance EN 14511	3.70	4.10	4.00	4.20	4.10
Heating output W10/W55 ΔT 8 K	6.30 kW	10.30 kW	13.30 kW	17.10 kW	23.80 kW
Power consumption W10/W55 ΔT 8 K	2.10 kW	3.00 kW	3.90 kW	4.80 kW	6.80 kW
Output figure W10/W55 ΔT 8 K/coefficient of performance EN 14511	3.00	3.50	3.30	3.60	3.50
Sound power level W10/W35 EN 12102/EN 14511 L_{WI} in heating mode	41.2 dB(A)	47.9 dB(A)	45.0 dB(A)	49.9 dB(A)	50.6 dB(A)
Sound power level W10/W45 EN 12102/EN 14511 L_{WI} in heating mode	40.9 dB(A)	50.3 dB(A)	47.8 dB(A)	48.0 dB(A)	47.8 dB(A)
Sound power level W10/W55 EN 12102/EN 14511 L_{WI} in heating mode	41.8 dB(A)	53.8 dB(A)	47.6 dB(A)	49.1 dB(A)	46.4 dB(A)

	VWF 57/4 S1	VWF 87/4 S1	VWF 117/4 S1
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Heating output W10/W35 ΔT 5 K	6.40 kW	10.00 kW	12.90 kW
Power consumption W10/W35 ΔT 5 K	1.40 kW	1.90 kW	2.40 kW
Output figure W10/W35 ΔT 5 K/coefficient of performance EN 14511	4.80	5.20	5.10
Heating output W10/W45 ΔT 5 K	6.30 kW	10.10 kW	12.90 kW
Power consumption W10/W45 ΔT 5 K	1.70 kW	2.50 kW	3.10 kW
Output figure W10/W45 ΔT 5 K/coefficient of performance EN 14511	3.70	4.10	4.00
Heating output W10/W55 ΔT 8 K	6.30 kW	10.30 kW	13.30 kW
Power consumption W10/W55 ΔT 8 K	2.10 kW	3.00 kW	3.90 kW
Output figure W10/W55 ΔT 8 K/coefficient of performance EN 14511	3.00	3.50	3.30
Sound power level W10/W35 EN 12102/EN 14511 L_{WI} in heating mode	41.2 dB(A)	47.9 dB(A)	45.0 dB(A)
Sound power level W10/W45 EN 12102/EN 14511 L_{WI} in heating mode	40.9 dB(A)	50.3 dB(A)	47.8 dB(A)
Sound power level W10/W55 EN 12102/EN 14511 L_{WI} in heating mode	41.8 dB(A)	53.8 dB(A)	47.6 dB(A)

Performance data

The following performance data is applicable to new products with clean heat exchangers.

Check conditions for determining the performance data in accordance with EN 14511.

Installation: Connection lines on the heat source side between VWF xx/4 and VWW xx/4 SI = 2 x 2 m (pipe internal diameter = 32 mm), environment circuit pump setting: Heating mode: Factory setting (auto), Cooling mode: Factory setting (auto)

	VWF 58/4 230 V	VWF 88/4 230 V	VWF 118/4 230 V
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Heating output W10/W35 ΔT 5 K	6.40 kW	10.00 kW	12.90 kW
Power consumption W10/W35 ΔT 5 K	1.40 kW	1.90 kW	2.40 kW
Output figure W10/W35 ΔT 5 K/coefficient of performance EN 14511	4.80	5.20	5.10
Heating output W10/W45 ΔT 5 K	6.30 kW	10.10 kW	12.90 kW
Power consumption W10/W45 ΔT 5 K	1.70 kW	2.50 kW	3.10 kW
Output figure W10/W45 ΔT 5 K/coefficient of performance EN 14511	3.70	4.10	4.00
Heating output W10/W55 ΔT 8 K	6.30 kW	10.30 kW	13.30 kW
Power consumption W10/W55 ΔT 8 K	2.10 kW	3.00 kW	3.90 kW
Output figure W10/W55 ΔT 8 K/coefficient of performance EN 14511	3.00	3.50	3.30
Hot water output figure/coefficient of performance W10/Wxx DIN EN 16147 at target cylinder temperature of 50 °C and 6 K hysteresis	3.30 kW	2.80 kW	2.80 kW
Hot water draw-off profile W10/Wxx DIN EN 16147	XL	XL	XL
Hot water mixed water volume 40 °C (V40) W1050 /Wxx at target cylinder temperature of 50 °C	227 l	230 l	227 l
Sound power level W10/W35 EN 12102/EN 14511 L_{WI} in heating mode	42.2 dB(A)	41.6 dB(A)	46.0 dB(A)
Sound power level W10/W45 EN 12102/EN 14511 L_{WI} in heating mode	41.8 dB(A)	45.8 dB(A)	45.7 dB(A)
Sound power level W10/W55 EN 12102/EN 14511 L_{WI} in heating mode	45.0 dB(A)	49.2 dB(A)	46.2 dB(A)

Performance data

The following performance data is applicable to new products with clean heat exchangers.

Check conditions for determining the performance data in accordance with EN 14511

Installation: Connection lines on the heat source side between VWF xx/4 and VWW xx/4 SI = 2 x 2 m (pipe internal diameter = 32 mm), environment circuit pump setting: Heating mode: Factory setting (auto), Cooling mode: Factory setting (auto)

	VWF 57/4 230 V	VWF 87/4 230 V	VWF 117/4 230 V
Heat source module	VWW 11/4 SI	VWW 11/4 SI	VWW 11/4 SI
Heating output W10/W35 ΔT 5 K	6.40 kW	10.00 kW	12.90 kW
Power consumption W10/W35 ΔT 5 K	1.40 kW	1.90 kW	2.40 kW
Output figure W10/W35 ΔT 5 K/coefficient of performance EN 14511	4.80	5.20	5.10
Heating output W10/W45 ΔT 5 K	6.30 kW	10.10 kW	12.90 kW
Power consumption W10/W45 ΔT 5 K	1.70 kW	2.50 kW	3.10 kW
Output figure W10/W45 ΔT 5 K/coefficient of performance EN 14511	3.70	4.10	4.00
Heating output W10/W55 ΔT 8 K	6.30 kW	10.30 kW	13.30 kW
Power consumption W10/W55 ΔT 8 K	2.10 kW	3.00 kW	3.90 kW
Output figure W10/W55 ΔT 8 K/coefficient of performance EN 14511	3.00	3.50	3.30
Sound power level W10/W35 EN 12102/EN 14511 L_{WI} in heating mode	41.2 dB(A)	47.9 dB(A)	45.0 dB(A)
Sound power level W10/W45 EN 12102/EN 14511 L_{WI} in heating mode	40.9 dB(A)	50.3 dB(A)	47.8 dB(A)
Sound power level W10/W55 EN 12102/EN 14511 L_{WI} in heating mode	41.8 dB(A)	53.8 dB(A)	47.6 dB(A)

Appendix

Application limits for the heat pump: Heating (heat source = groundwater)

- At the same volume flow rates in the heating circuit (ΔT 5 K or ΔT 8 K) and the groundwater circuit (ΔT 3 K) as for the nominal heat output test under standard nominal conditions. Operation of the pump outside the application limits results in the heat pump being switched off by the internal control and safety devices.
- Application limits for the heat pump: Heating (Groundwater heat source):
  - W15/W65
  - W25/W59
  - W25/W25
  - W10/W25
  - W10/W65

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