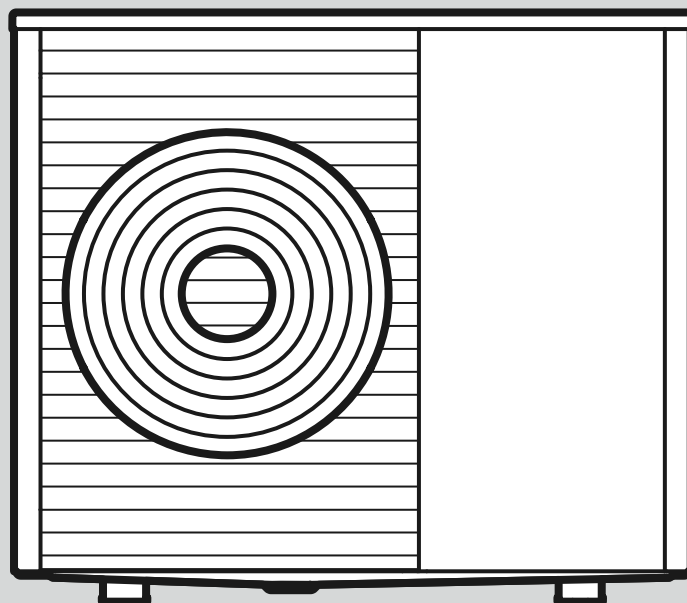


# aroTHERM

VWL 35/5 AS 230V S2 ... VWL 125/5 AS S2

- da** Betjeningsvejledning
- da** Installations- og vedligeholdelsesvejledning
- en** Operating instructions
- en** Installation and maintenance instructions
- fi** Käyttöohjeet
- fi** Asennus- ja huolto-ohjeet
- no** Bruksanvisning
- no** Installasjons- og vedlikeholdsanvisning
- sv** Bruksanvisning
- sv** Anvisningar för installation och underhåll
- en** Country specifics



# Operating instructions

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# 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 symbols 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 product is the outdoor unit of an air-to-water heat pump with split construction.

The product uses the outdoor air as a heat source and can be used to heat a residential building and for domestic hot water generation.

The product is only intended for outdoor installation.

The product is intended exclusively for domestic use.

The intended use only allows for these product combinations:

| Outdoor unit     | Indoor unit                          |
|------------------|--------------------------------------|
| VWL ..5/5 AS ... | VWL ..8/5 IS ...<br>VWL ..7/5 IS ... |

Intended use includes the following:

- observance of the operating instructions included for the product and any other installation components
- compliance with all inspection and maintenance conditions listed in the instructions.

This product can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the product in a safe way and understand the hazards involved. Children must not play with the product. Cleaning and user maintenance work must not be carried out by children unless they are supervised.

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 death due to changes to the product or the product environment

- ▶ Never remove, bridge or block the safety devices.
- ▶ Do not tamper with any of the safety devices.
- ▶ Do not damage or remove any tamper-proof seals on components.
- ▶ Do not make any changes:
  - The product itself
  - To the supply lines
  - On the drain pipework
  - On the expansion relief valve for the heat source circuit
  - to constructional conditions that may affect the operational reliability of the product

### 1.3.2 Risk of injury from freezing caused by touching refrigerant

The product is delivered with an operational filling of R410A refrigerant. Escaping refrigerant may cause freezing if the exit point is touched.

- ▶ If refrigerant escapes, do not touch any components of the product.
- ▶ Do not inhale any vapours or gases that escape from the refrigerant circuit as a result of leaks.



- ▶ Avoid skin or eye contact with the refrigerant.
- ▶ In the event of skin or eye contact with the refrigerant, seek medical advice.

### **1.3.3 Risk of injury from burns caused by touching refrigerant pipes**

The refrigerant pipes between the outdoor unit and the indoor unit may become extremely hot during operation. There is a risk of burns.

- ▶ Do not touch any uninsulated refrigerant pipes.

### **1.3.4 Risk of injury and material damage due to maintenance and repairs carried out incorrectly or not carried out at all**

- ▶ Never attempt to carry out maintenance work or repairs on your product yourself.
- ▶ Faults and damage should be immediately eliminated by a competent person.
- ▶ Adhere to the maintenance intervals specified.

### **1.3.5 Risk of malfunctions caused by incorrect power supply**

The power supply must remain within the specified limits so that the product does not malfunction:

- Single-phase: 230 V (+10/-15%), 50 Hz
- Three-phase: 400 V (+10/-15%), 50 Hz

### **1.3.6 Risk of material damage caused by frost**

- ▶ Ensure that the heating installation always remains in operation during freezing conditions and that all rooms are sufficiently heated.
- ▶ If you cannot ensure the operation, have a competent person drain the heating installation.

### **1.3.7 Risk of environmental damage caused by escaping refrigerant**

The product contains the refrigerant R410A. This refrigerant must not be allowed to escape into the atmosphere. R410A is a fluorinated greenhouse gas covered by the Kyoto Protocol, with a GWP of 2088 (GWP = Global Warming Potential). If this gas escapes into

the atmosphere, its impact is 2088 times greater than the natural greenhouse gas CO<sub>2</sub>.

Before the product is disposed of, the refrigerant that is contained in it must be completely drained into a suitable vessel so that it can then be recycled or disposed of in accordance with regulations.

- ▶ Ensure that only an officially certified competent person with appropriate protective equipment carries out installation or maintenance work or any other form of intervention on the refrigerant circuit.
- ▶ Arrange for the refrigerant that is contained in the product to be recycled or disposed of by a certified competent person in accordance with the regulations.

### **1.3.8 Danger caused by improper operation**

Improper operation may present a danger to you and others, and cause material damage.

- ▶ Carefully read the enclosed instructions and all other applicable documents, particularly the "Safety" section and the warnings.
- ▶ Only carry out the activities for which instructions are provided in these operating instructions.



## 2 Notes on the documentation

- ▶ Always observe all the operating and installation instructions included with the system components.
- ▶ Pass these instructions and all other applicable documents on to the end user.

### 2.1 Validity of the instructions

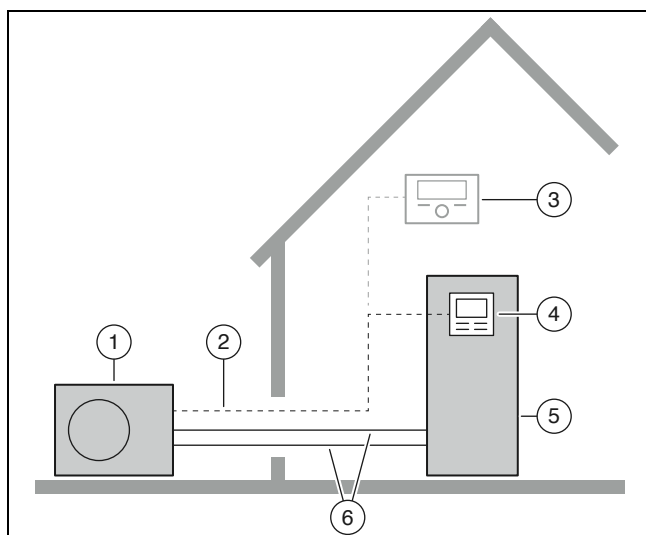
These instructions apply only to:

| Product              |
|----------------------|
| VWL 35/5 AS 230V S2  |
| VWL 55/5 AS 230V S2  |
| VWL 75/5 AS 230V S2  |
| VWL 105/5 AS 230V S2 |
| VWL 105/5 AS S2      |
| VWL 125/5 AS 230V S2 |
| VWL 125/5 AS S2      |

## 3 Product description

### 3.1 Heat pump system

Design of a typical heat pump system with split technology:



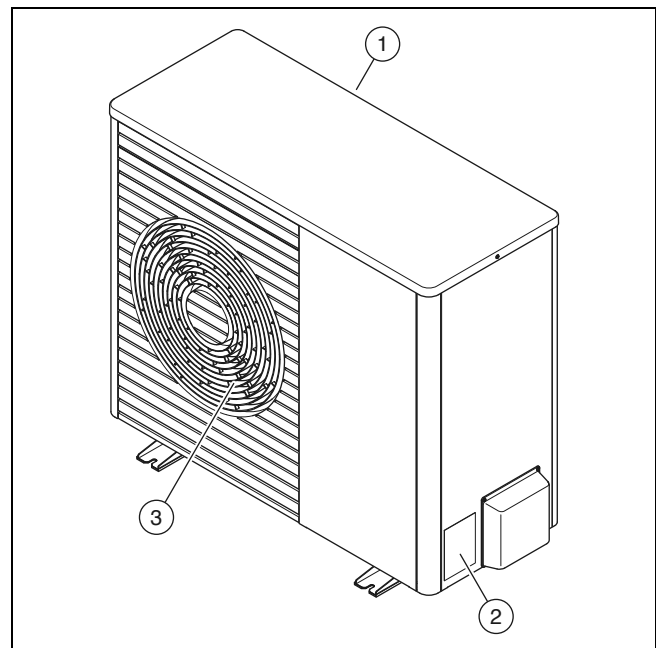
- |                  |                               |
|------------------|-------------------------------|
| 1 Outdoor unit   | 4 Control for the indoor unit |
| 2 eBUS line      | 5 Indoor unit                 |
| 3 System control | 6 Refrigerant circuit         |

### 3.2 Functions of the heat pump

The heat pump has a closed refrigerant circuit in which refrigerant circulates.

Cyclic evaporation, compression, liquefaction and expansion takes in heat energy from the surroundings and transfers it to the building. In cooling mode, heat energy is extracted from the building and released into the environment.

### 3.3 Product design



- |                    |                     |
|--------------------|---------------------|
| 1 Air inlet grille | 3 Air outlet grille |
| 2 Data plate       |                     |

### 3.4 Data plate and serial number

The data plate is located on the right-hand side of the product's exterior.

The data plate includes the nomenclature and the serial number.

### 3.5 CE marking



The CE marking shows that the products comply with the basic requirements of the applicable directives as stated on the declaration of conformity.

The declaration of conformity can be viewed at the manufacturer's site.

### 3.6 Fluorinated greenhouse gases

The product contains fluorinated greenhouse gases.

## 4 Operation

### 4.1 Switching on the product

- ▶ Switch on all of the disconnectors to which the product is connected in the building.

## 4.2 Operating the product

- ▶ It is operated via the indoor unit's control (→ Operating instructions for the indoor unit).

## 4.3 Guaranteeing frost protection

1. Ensure that the product is switched on and remains switched on.
2. Ensure that no snow accumulates around the air inlet grille and air outlet grille.

## 4.4 Switching off the product

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Guarantee the frost protection.

# 5 Care and maintenance

## 5.1 Keeping the product clear

1. Regularly remove branches and leaves that have gathered around the product.
2. Regularly remove leaves and dirt from the ventilation grille below the product.
3. Regularly remove snow from the air inlet grille and from the air outlet grille.
4. Regularly remove snow that has gathered around the product.

## 5.2 Cleaning the product

1. Clean the casing with a damp cloth and a little solvent-free soap.
2. Do not use sprays, scouring agents, detergents, solvents or cleaning agents that contain chlorine.

## 5.3 Maintenance



### **Danger!**

### **Risk of injury and risk of material damage due to neglected or incorrect maintenance and repairs.**

Neglected or incorrect maintenance work or repairs may lead to personal injury or damage to the product.

- ▶ Never attempt to carry out maintenance work or repairs on the product.
- ▶ Employ an authorised installation company to complete such work. We recommend making a maintenance contract.

# 6 Troubleshooting

## 6.1 Eliminating faults

- ▶ If you observe a cloud of vapour on the product, you do not have to do anything. This effect may arise during the thawing process.
- ▶ If the product will no longer start up, check whether the power supply is interrupted. If required, switch on all of the disconnectors to which the product is connected in the building.
- ▶ Contact a competent person if the measure that is described is unsuccessful.

## 7 Decommissioning

### 7.1 Temporarily decommissioning the product

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Protect the heating installation against frost.

### 7.2 Permanently decommissioning the product

- ▶ Have a competent person permanently decommission the product.

# 8 Recycling and disposal

- ▶ The competent person who installed your product is responsible for the disposal of the packaging.



■ If the product is labelled with this mark:

- ▶ In this case, do not dispose of the product with the household waste.
- ▶ Instead, hand in the product to a collection centre for waste electrical or electronic equipment.



■ If the product contains batteries that are labelled with this mark, these batteries may contain substances that are hazardous to human health and the environment.

- ▶ In this case, dispose of the batteries at a collection point for batteries.

## 8.1 Arranging disposal of refrigerant

The product is filled with R410A refrigerant.

- ▶ Refrigerant must only be disposed of by an authorised competent person.
- ▶ Observe the general safety information.

## **9 Guarantee and customer service**

### **9.1 Guarantee**

You can find information about the manufacturer's guarantee in the Country specifics.

### **9.2 Customer service**

You can find contact details for our customer service in the Country specifics.

# Installation and maintenance instructions

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# 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 symbols 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 product is the outdoor unit of an air-to-water heat pump with split construction.

The product uses the outdoor air as a heat source and can be used to heat a residential building and for domestic hot water generation.

The product is only intended for outdoor installation.

The product is intended exclusively for domestic use.

The intended use only allows for these product combinations:

| Outdoor unit     | Indoor unit                          |
|------------------|--------------------------------------|
| VWL ..5/5 AS ... | VWL ..8/5 IS ...<br>VWL ..7/5 IS ... |

Intended use includes the following:

- observance of accompanying operating, installation and maintenance instructions for the product and any other system components
- installing and setting up 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 code.

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 caused by inadequate qualifications

The following work must only be carried out by competent persons who are sufficiently qualified to do so:

- Set-up
- Dismantling
- Installation
- Start-up
- Inspection and maintenance
- Repair
- Decommissioning
- ▶ Proceed in accordance with current technology.

### 1.3.2 Risk of injury due to the heavy weight of the product

The product weighs over 50 kg.

- ▶ Make sure that the product is carried by at least two people.
- ▶ Use suitable transport and lifting equipment, in accordance with your job safety analysis.
- ▶ Use suitable personal protective equipment: Gloves, safety footwear, protective goggles, protective helmet.

### 1.3.3 Risk of death due to lack of safety devices

The basic diagrams included in this document do not show all safety devices required for correct installation.

- ▶ Install the necessary safety devices in the installation.



- ▶ Observe the applicable national and international laws, standards and directives.

#### **1.3.4 Risk of death from electric shock**

There is a risk of death from electric shock if you touch live components.

Before commencing work on the product:

- ▶ Disconnect the product from the power supply by switching off all power supplies at all poles (electrical partition in over-voltage category III for full partition, e.g. fuse or circuit breaker).
- ▶ Secure against being switched back on again.
- ▶ Wait for at least 3 minutes until the capacitors have discharged.
- ▶ Check that there is no voltage.

#### **1.3.5 Risk of burns, scalds and frostbite due to hot and cold components**

There is a risk of burns and frostbite from some components, particularly uninsulated pipelines.

- ▶ Only carry out work on the components once these have reached environmental temperature.

#### **1.3.6 Risk of injury from freezing caused by touching refrigerant**

The product is delivered with an operational filling of R410A refrigerant. Escaping refrigerant may cause freezing if the exit point is touched.

- ▶ If refrigerant escapes, do not touch any components of the product.
- ▶ Do not inhale any vapours or gases that escape from the refrigerant circuit as a result of leaks.
- ▶ Avoid skin or eye contact with the refrigerant.
- ▶ In the event of skin or eye contact with the refrigerant, seek medical advice.

#### **1.3.7 Risk of environmental damage caused by escaping refrigerant**

The product contains the refrigerant R410A. This refrigerant must not be allowed to escape into the atmosphere. R410A is a fluorinated greenhouse gas covered by the Kyoto Protocol, with a GWP of 2088 (GWP = Global Warming Potential). If this gas escapes into

the atmosphere, its impact is 2088 times greater than the natural greenhouse gas CO<sub>2</sub>.

Before the product is disposed of, the refrigerant that is contained in it must be completely drained into a suitable vessel so that it can then be recycled or disposed of in accordance with regulations.

- ▶ Ensure that only an officially certified competent person with appropriate protective equipment carries out installation or maintenance work or any other form of intervention on the refrigerant circuit.
- ▶ Arrange for the refrigerant that is contained in the product to be recycled or disposed of by a certified competent person in accordance with the regulations.

#### **1.3.8 Risk of material damage caused by using an unsuitable tool**

- ▶ Use the correct tool.

#### **1.3.9 Risk of material damage caused by using an unsuitable material**

Unsuitable refrigerant pipes may cause material damage.

- ▶ Only use special copper pipes designed for refrigeration technology.

#### **1.4 Regulations (directives, laws, standards)**

- ▶ Observe the national regulations, standards, directives, ordinances and laws.



## 2 Notes on the documentation

- ▶ Always observe all the operating and installation instructions included with the system components.
- ▶ Pass these instructions and all other applicable documents on to the end user.

### 2.1 Validity of the instructions

These instructions apply only to:

| Product              |
|----------------------|
| VWL 35/5 AS 230V S2  |
| VWL 55/5 AS 230V S2  |
| VWL 75/5 AS 230V S2  |
| VWL 105/5 AS 230V S2 |
| VWL 105/5 AS S2      |
| VWL 125/5 AS 230V S2 |
| VWL 125/5 AS S2      |

### 2.2 Further information

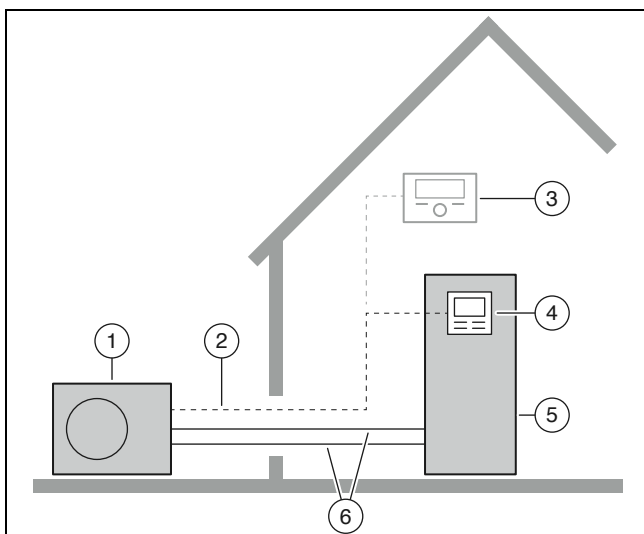


- ▶ Scan the displayed code using your smartphone in order to view further information about the installation.
  - ◀ You are guided to installation videos.

## 3 Product description

### 3.1 Heat pump system

Design of a typical heat pump system with split technology:



- |                  |                               |
|------------------|-------------------------------|
| 1 Outdoor unit   | 4 Control for the indoor unit |
| 2 eBUS line      | 5 Indoor unit                 |
| 3 System control | 6 Refrigerant circuit         |

### 3.2 Cooling mode

Depending on the country, the product has the heating mode or heating and cooling mode function.

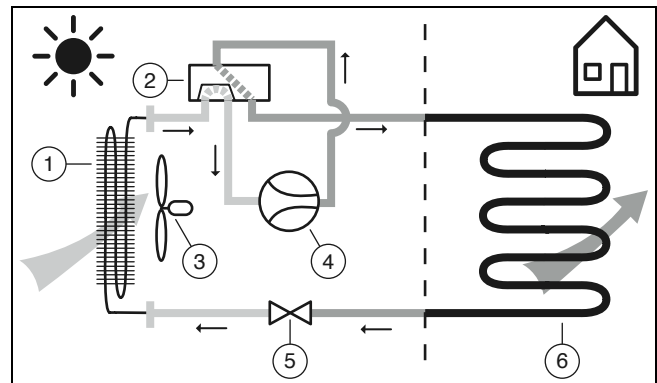
Products that are delivered at the factory with no cooling mode are labelled with "S2" in the nomenclature. For these units, an optional accessory can be used to subsequently activate the cooling mode.

### 3.3 Functions of the heat pump

The heat pump has a closed refrigerant circuit in which refrigerant circulates.

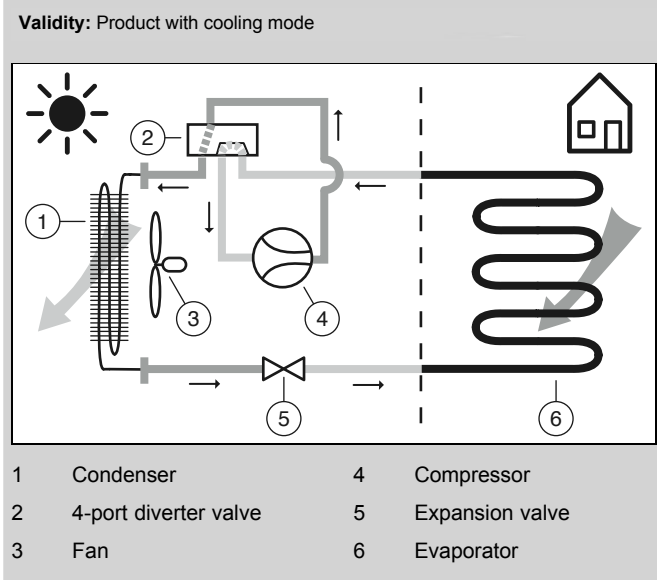
In heating mode, cyclic evaporation, compression, liquefaction and expansion take in heat energy from the surroundings and transfer it to the building. In cooling mode, heat energy is extracted from the building and released into the environment.

#### 3.3.1 Operating principle in heating mode



- |                         |                   |
|-------------------------|-------------------|
| 1 Evaporator            | 4 Compressor      |
| 2 4-port diverter valve | 5 Expansion valve |
| 3 Fan                   | 6 Condenser       |

#### 3.3.2 Operating principle in cooling mode



#### 3.3.3 Noise reduction mode

A noise reduction mode can be activated for the product.

In noise reduction mode, the product operates more quietly than in normal operating mode. This is achieved using a

limited compressor rotational speed and an adjusted fan speed.

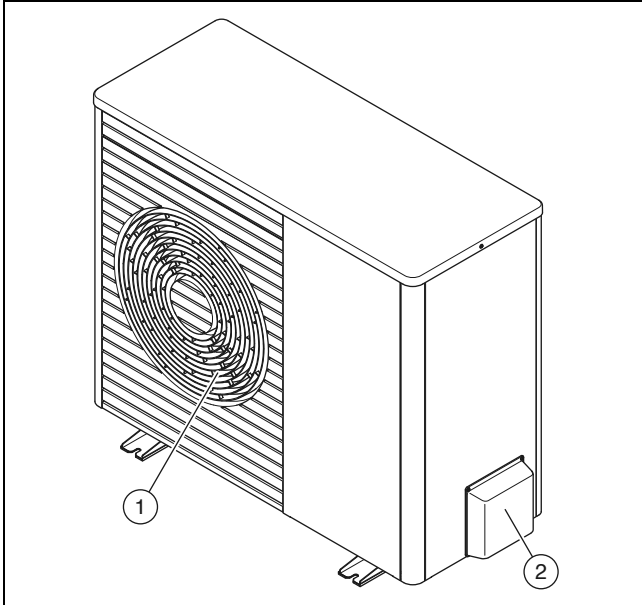
### 3.4 Description of the product

The product is the outdoor unit of an air-to-water heat pump with split technology.

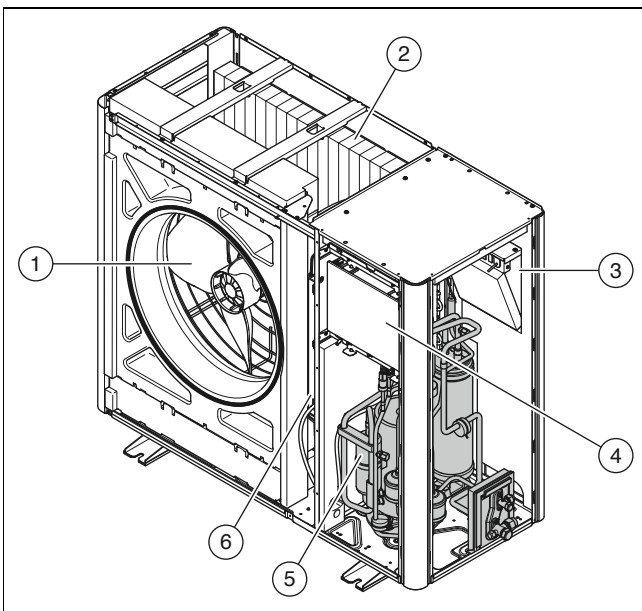
The outdoor unit is connected to the indoor unit via the refrigerant circuit.

### 3.5 Product design

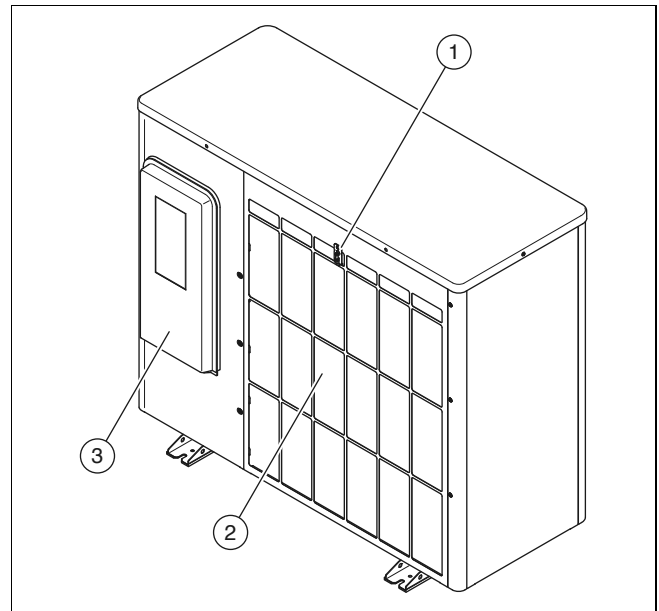
#### 3.5.1 Unit



- |   |                   |   |                                     |
|---|-------------------|---|-------------------------------------|
| 1 | Air outlet grille | 2 | Cover for the hydraulic connections |
|---|-------------------|---|-------------------------------------|

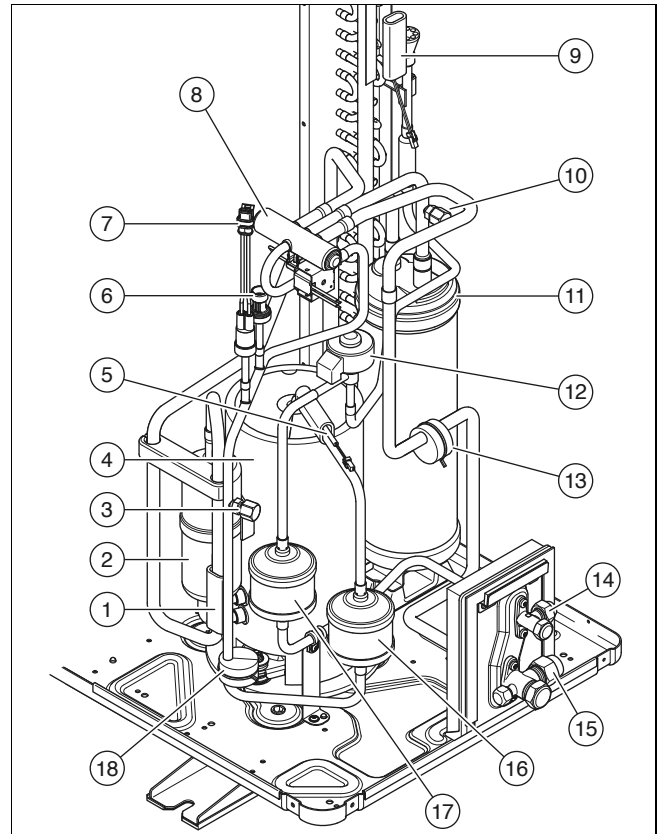


- |   |                     |   |                       |
|---|---------------------|---|-----------------------|
| 1 | Fan                 | 4 | HMU PCB               |
| 2 | Evaporator          | 5 | Compressor            |
| 3 | INSTALLER BOARD PCB | 6 | INVERTER assembly PCB |



- |   |                                     |   |                                      |
|---|-------------------------------------|---|--------------------------------------|
| 1 | Temperature sensor at the air inlet | 3 | Cover for the electrical connections |
| 2 | Air inlet grille                    |   |                                      |

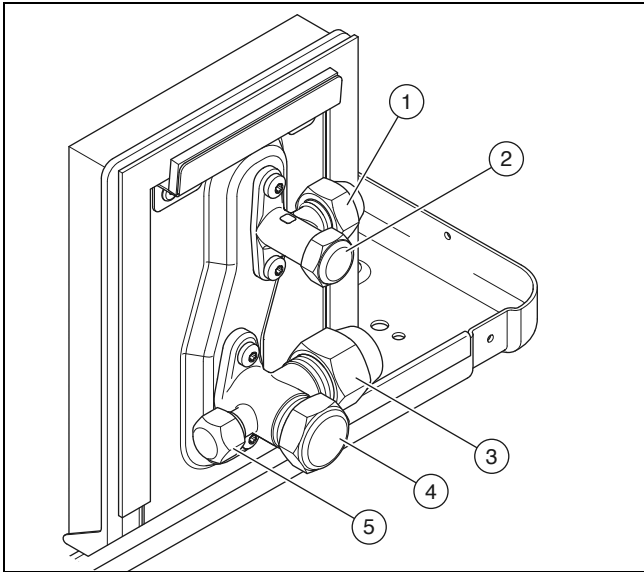
#### 3.5.2 Compressor assembly



- |   |  |    |   |
|---|--|----|---|
| 1 | Temperature sensor upstream of the compressor    | 6  | Pressure sensor                                 |
| 2 | Refrigerant separator                            | 7  | Pressure switch                                 |
| 3 | Maintenance connection in the high-pressure area | 8  | 4-port diverter valve                           |
| 4 | Compressor                                       | 9  | Temperature sensor at the evaporator            |
| 5 | Temperature sensor downstream of the compressor  | 10 | Maintenance connection in the low-pressure area |
|   |  | 11 | Refrigerant buffer                              |
|   |  | 12 | Electronic expansion valve                      |
|   |  | 13 |   |
|   |  | 14 |   |
|   |  | 15 |   |
|   |  | 16 |   |
|   |  | 17 |   |
|   |  | 18 |   |

- 13 Weight
- 14 Connection for liquid pipe
- 15 Connection for hot gas pipe
- 16 Silencer
- 17 Filter/dryer
- 18 Weight

### 3.5.3 Isolation valves



- 1 Connection for liquid pipe
- 2 Isolation valve for liquid pipe
- 3 Connection for hot gas pipe
- 4 Isolation valve for hot gas pipe
- 5 Maintenance connection with Schrader valve

### 3.6 Information on the data plate

The data plate is located on the right-hand side of the product's exterior.

A second data plate is located inside the product. It becomes visible when the top casing is removed.

| Information       | Meaning                           |
|-------------------|-----------------------------------|
| Serial no.        | Unique unit identification number |
| VWL ...           | Nomenclature                      |
| IP                | Protection class                  |
|                   | Compressor                        |
|                   | Control                           |
|                   | Fan                               |
| P max             | Rated power, maximum              |
| I max             | Rated current, maximum            |
| I                 | In-rush current                   |
| MPa (bar)         | Permissible operating pressure    |
|                   | Refrigerant circuit               |
| R410A             | Refrigerant type                  |
| GWP               | Global Warming Potential          |
| kg                | Fill quantity                     |
| t CO <sub>2</sub> | CO <sub>2</sub> equivalent        |

| Information | Meaning   |
|-------------|---|
| Ax/Wxx      | Air inlet temperature x °C and heating flow temperature xx °C |
| COP /       | Coefficient of performance/heating mode                       |
| EER /       | Energy efficiency ratio/cooling mode                          |

### 3.7 CE marking



The CE marking shows that the products comply with the basic requirements of the applicable directives as stated on the declaration of conformity.

The declaration of conformity can be viewed at the manufacturer's site.

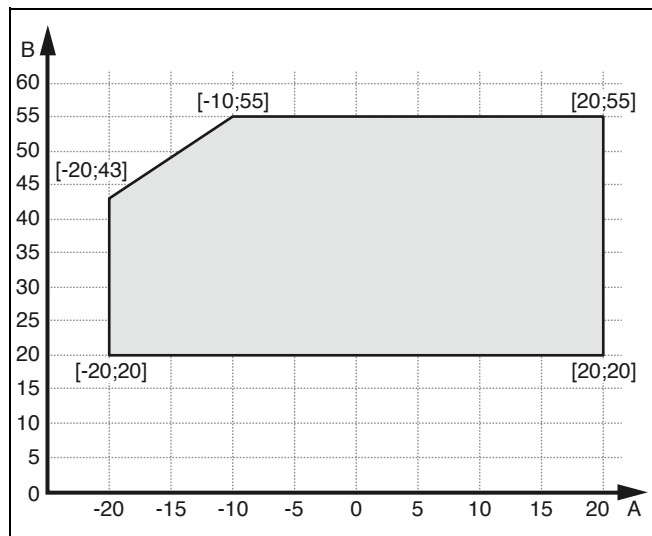
### 3.8 Connection symbols

| Symbol | Connection                        |
|--------|-----------------------------------|
|        | Refrigerant circuit, liquid pipe  |
|        | Refrigerant circuit, hot gas pipe |

### 3.9 Application limits

The product works between a minimum and maximum outdoor temperature. These outdoor temperatures define the application limits for the heating mode, domestic hot water mode and cooling mode. Operating outside of the application limits leads to the product switching off.

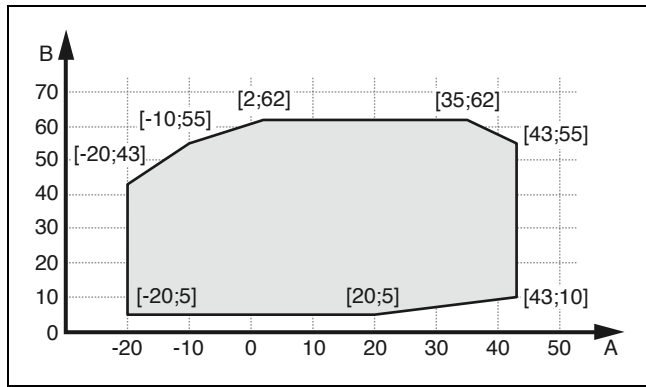
#### 3.9.1 Heating mode



A Outdoor temperature

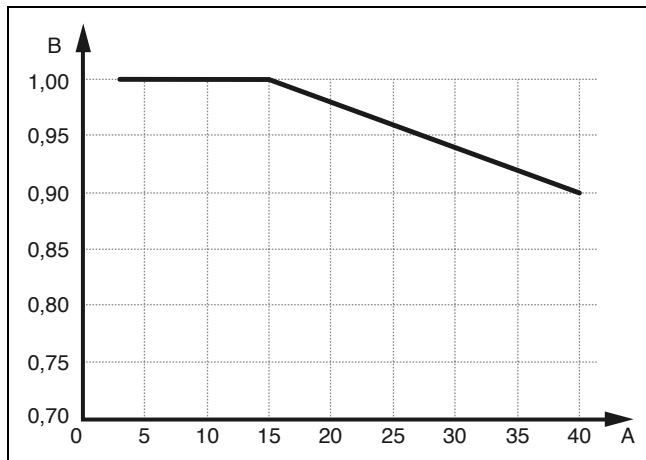
B Heating water temperature

### 3.9.2 DHW mode



A Outdoor temperature      B Heating water temperature

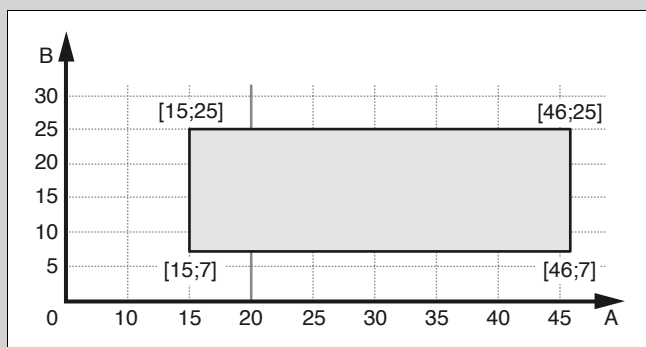
### 3.9.3 Heat output



A Basic length of the refrigerant pipes in metres      B Power factor

### 3.9.4 Cooling mode

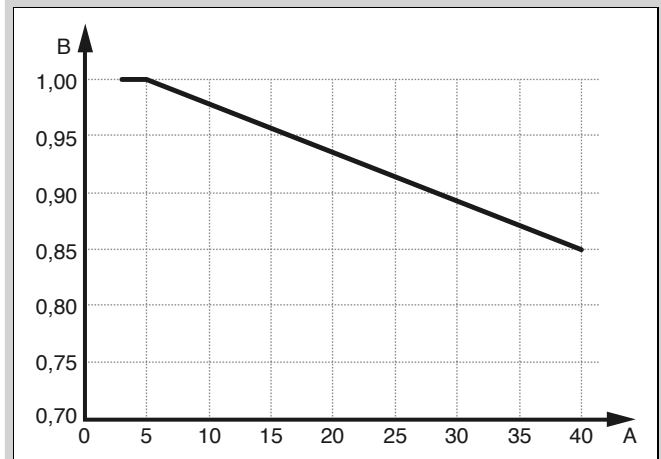
Validity: Product with cooling mode



A Outdoor temperature      B Heating water temperature

### 3.9.5 Cooling output

Validity: Product with cooling mode



A Basic length of the refrigerant pipes in metres      B Power factor

### 3.10 Thawing mode

At outdoor temperatures below 5 °C, condensation on the fins of the evaporator may freeze and frost may form. This frost is automatically detected and is automatically thawed at certain intervals.

The thawing occurs by reversing the refrigeration circuit while the heat pump is operating. The heat energy that is required for this is taken from the heating installation.

Correct thawing operation is only possible if the minimum volume of heating water is circulating in the heating installation:

| Product                 | If the back-up heater is activated | If the back-up heater is deactivated |
|-------------------------|------------------------------------|--------------------------------------|
| VWL 35/5 and VWL 55/5   | 15 litres                          | 40 litres                            |
| VWL 75/5                | 20 litres                          | 55 litres                            |
| VWL 105/5 and VWL 125/5 | 45 litres                          | 150 litres                           |

### 3.11 Safety devices

The product is equipped with technical safety devices. See "Safety devices" graphic (→ Appendix B).

If the refrigerant circuit pressure exceeds the maximum pressure of 4.15 MPa (41.5 bar), the pressure switch switches the product off. Following a waiting period, another attempt is made to start it. After three failed start attempts in succession, a fault message is displayed.

If the product is switched off, the crankcase housing heating is switched on when the compressor outlet temperature reaches 7 °C. This prevents possible damage caused by switching the product back on.

If the compressor inlet temperature and the compressor outlet temperature are below -15 °C, the compressor does not start up.

If the temperature measured at the compressor outlet is higher than the permissible temperature, the compressor is switched off. The permissible temperature depends on the evaporation and condensation temperature.

In the indoor unit, the heating circuit's circulation water volume is monitored. If no flow rate can be detected when there is a heat demand when the circulation pump is running, the compressor does not start up.

If the heating water temperature falls below 4 °C, the product's frost protection function is automatically activated as the heating pump is started.

## 4 Set-up

### 4.1 Unpacking the product

1. Remove the outer packaging parts.
2. Remove the accessory.
3. Remove the documentation.
4. Remove the four screws from the pallet.

### 4.2 Checking the scope of delivery

- ▶ Check the contents of the packaging units.

| Quantity | Designation                  |
|----------|------------------------------|
| 1        | Product                      |
| 1        | Condensate discharge tundish |
| 1        | Bag with small parts         |
| 1        | Enclosed documentation       |

### 4.3 Transporting the product



#### Warning.

#### Risk of injury from lifting a heavy weight.

Lifting weights that are too heavy may cause injury to the spine, for example.

- ▶ Note the weight of the product.
- ▶ Have two people lift product VWL 35/5 to VWL 75/5.
- ▶ Have four people lift product VWL 105/5 and VWL 125/5.



#### Caution.

#### Risk of material damage due to incorrect transportation.

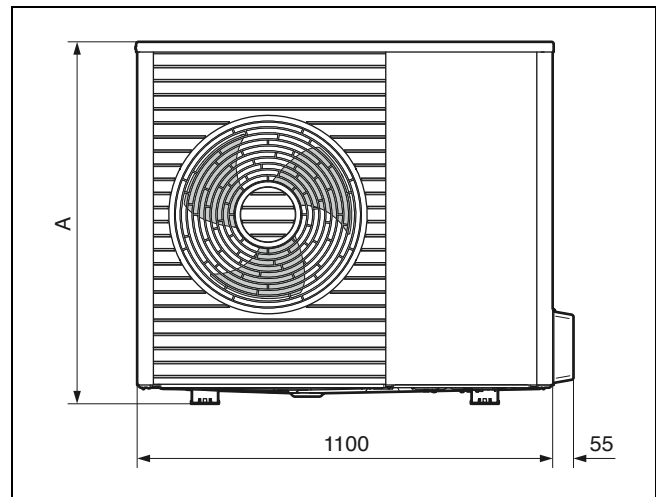
The product must never be tilted at an angle of more than 45°. Otherwise, this may lead to faults in the refrigerant circuit during subsequent operation.

- ▶ During transport, do not tilt the product by any more than the maximum angle of 45°.

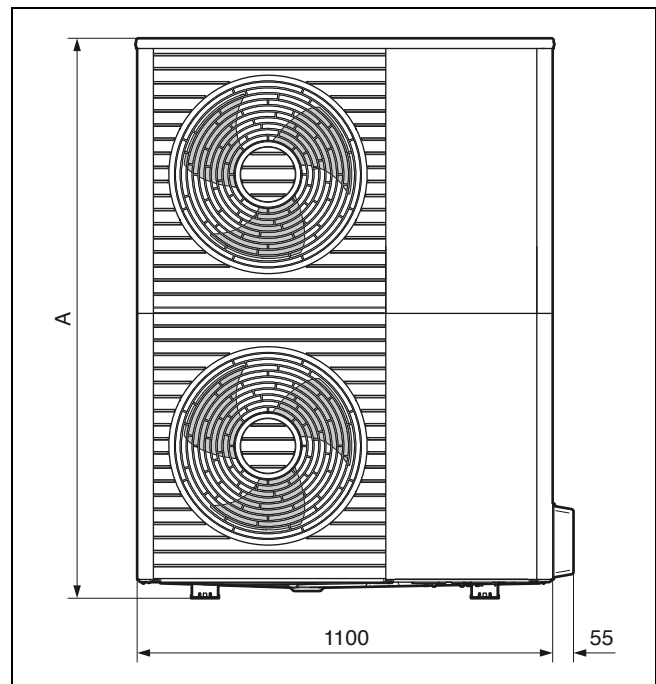
1. Use the transport straps or carrying straps or a hand truck.
2. Protect the casing sections against damage.

## 4.4 Dimensions

### 4.4.1 Front view

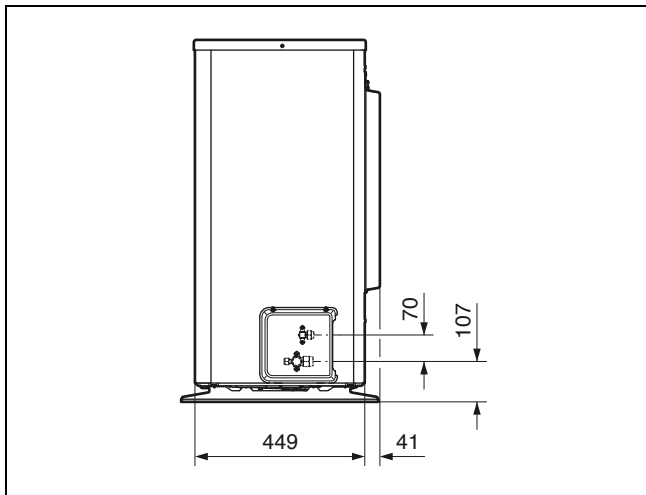


| Product      | A   |
|--------------|-----|
| VWL 35/5 ... | 765 |
| VWL 55/5 ... | 765 |
| VWL 75/5 ... | 965 |

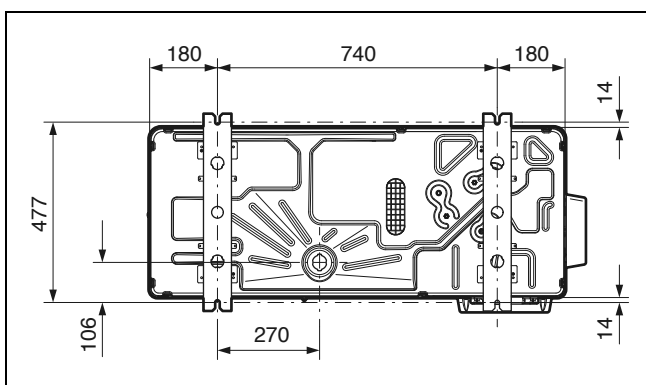


| Product       | A    |
|---------------|------|
| VWL 105/5 ... | 1565 |
| VWL 125/5 ... | 1565 |

#### 4.4.2 Side view, right



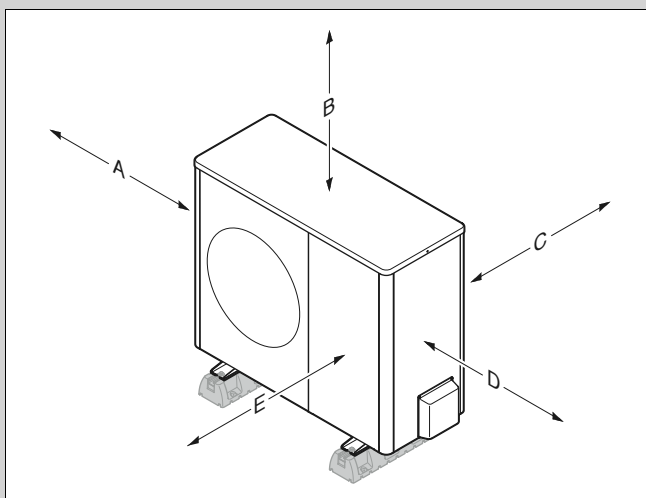
#### 4.4.3 Bottom view



#### 4.5 Complying with minimum clearances

- ▶ To guarantee sufficient air flow and to facilitate maintenance work, observe the minimum clearances that are specified.
- ▶ Ensure that there is sufficient room to install the hydraulic lines.

Validity: Floor installation OR Flat roof installation

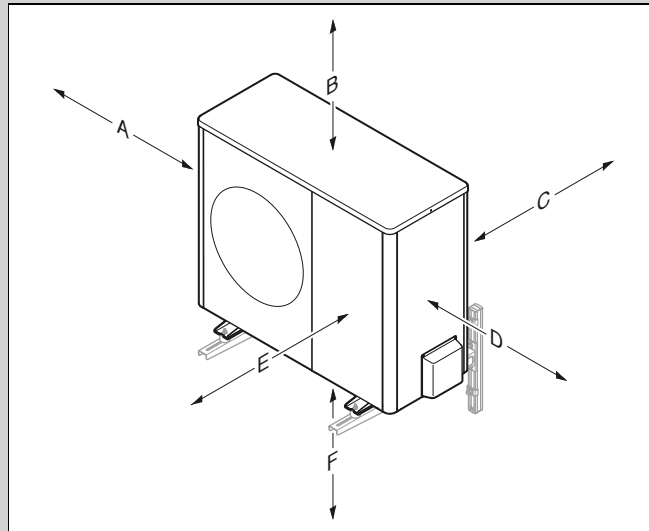


| Minimum clearance | Heating mode | Heating and cooling mode |
|-------------------|--------------|--------------------------|
| A                 | 100 mm       | 100 mm                   |
| B                 | 1000 mm      | 1000 mm                  |

| Minimum clearance | Heating mode         | Heating and cooling mode |
|-------------------|----------------------|--------------------------|
| C                 | 200 mm <sup>1)</sup> | 250 mm                   |
| D                 | 500 mm               | 500 mm                   |
| E                 | 600 mm               | 600 mm                   |

1) 250 mm is recommended for dimension C in order to guarantee good access during the electrical installation.

Validity: Wall-mounting



| Minimum clearance | Heating mode         | Heating and cooling mode |
|-------------------|----------------------|--------------------------|
| A                 | 100 mm               | 100 mm                   |
| B                 | 1000 mm              | 1000 mm                  |
| C                 | 200 mm <sup>1)</sup> | 250 mm                   |
| D                 | 500 mm               | 500 mm                   |
| E                 | 600 mm               | 600 mm                   |
| F                 | 300 mm               | 300 mm                   |

1) 250 mm is recommended for dimension C in order to guarantee good access during the electrical installation.

#### 4.6 Conditions for the installation type

The product is suitable for these installation types:

- Ground installation
- Wall installation
- Flat-roof installation

The following conditions must be observed for this installation type:

- Wall-mounting with the unit mounting bracket from the accessories is not permitted for products VWL 105/5 and VWL 125/5.
- Flat-roof installation is not suitable for extremely cold or snowy regions.



## 4.7 Requirements for the installation site



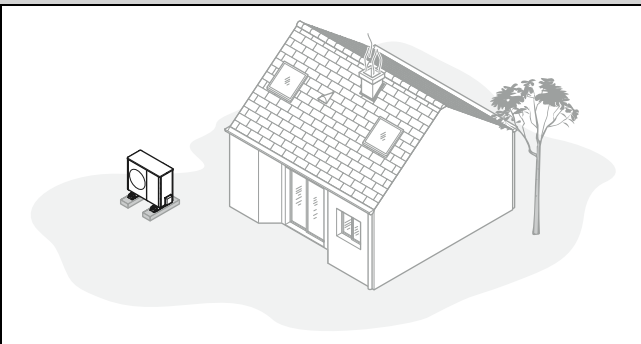
### **Danger!** **Risk of injury due to ice formation.**

The air temperature at the air outlet is below the outdoor temperature. This can lead to ice formation.

- ▶ Select a site and an orientation at which the air outlet is at least 3 m away from walkways, plastered surfaces and down-pipes.

- ▶ If the installation site is in the immediate vicinity of the coastline, ensure that the product is protected against spraying water by an additional protection device. In doing so, the minimum clearances must be complied with.
- ▶ Observe the permissible height difference between the outdoor unit and indoor unit.
- ▶ Keep away from flammable substances or flammable gases.
- ▶ Keep away from heat sources.
- ▶ Avoid using preloaded extract air.
- ▶ Keep away from ventilation openings and extract-air shafts.
- ▶ Keep away from deciduous trees and shrubs.
- ▶ Do not expose the outdoor unit to dusty air.
- ▶ Do not expose the outdoor unit to corrosive air. Keep away from animal stalls or stables.
- ▶ Please note that the installation site must be below 2000 m above sea level.
- ▶ Please note the noise emissions. Select an installation site that is as far away from your own bedroom as possible.
- ▶ Please note the noise emissions. Select an installation site that is as far away from the windows of adjacent building as possible.

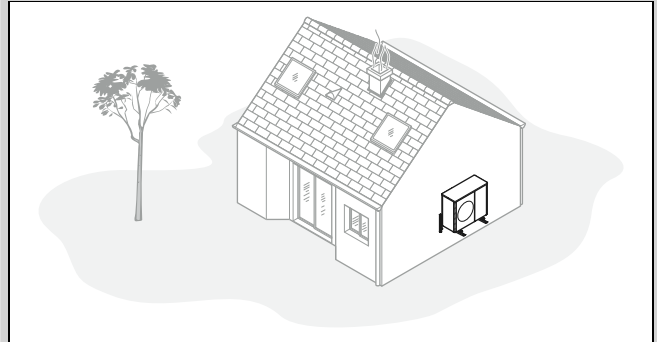
#### **Validity:** Floor installation



- ▶ Avoid choosing an installation site that is in the corner of a room, between walls or between fences.
- ▶ Prevent the return intake of air from the air outlet.
- ▶ Ensure that water cannot collect on the subsoil.
- ▶ Ensure that the subsoil can absorb water well.
- ▶ Plan a bed of gravel and rubble for the condensate discharge.
- ▶ Select an installation site which is free from significant accumulations of snow in winter.
- ▶ Select an installation site at which the air inlet is not affected by strong winds. Position the unit as crosswise to the main direction of wind as possible.

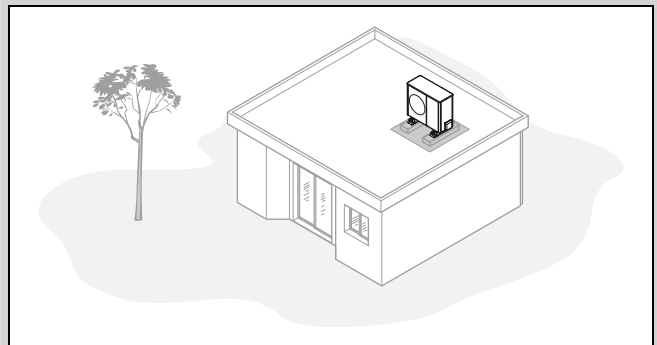
- ▶ If the installation site is not protected against the wind, you should plan to set up a protective wall.
- ▶ Please note the noise emissions. Avoid corners of rooms, recesses or sites between walls.
- ▶ Please note the noise emissions. Select an installation site with excellent sound absorption thanks to grass, hedges or fencing.
- ▶ Route the hydraulic lines and electrical wires underground. Provide a safety pipe that leads from the outdoor unit through the wall of the building.

#### **Validity:** Wall-mounting



- ▶ Ensure that the wall fulfils the static requirements. Please note the weight of the unit mounting bracket (accessory) and the outdoor unit.
- ▶ Avoid choosing an installation position which is near to a window.
- ▶ Please note the noise emissions. Maintain sufficient clearance from reflective building walls.
- ▶ Route the hydraulic lines and electrical wires.
- ▶ Provide a wall duct.

#### **Validity:** Flat roof installation

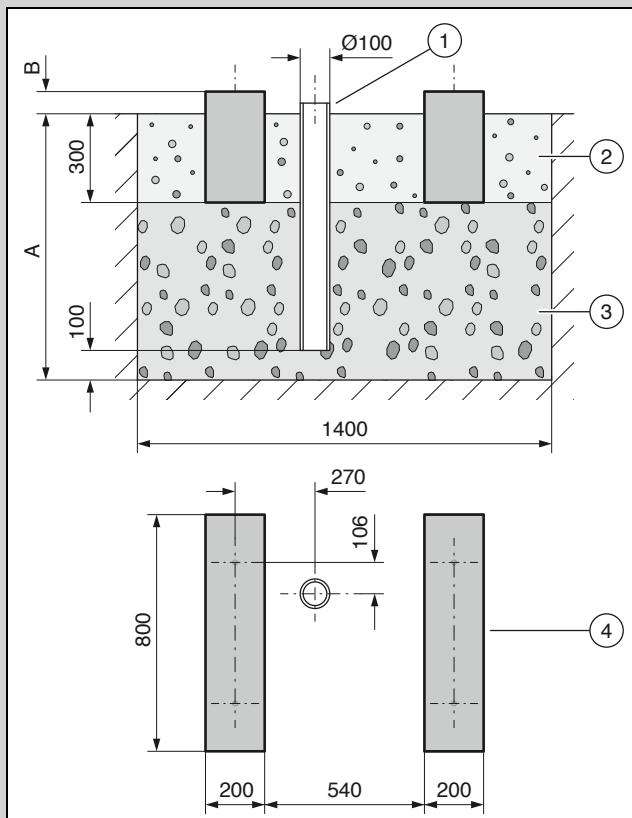


- ▶ Only install the product in buildings with a solid construction and that have cast concrete ceilings throughout.
- ▶ Do not install the product in buildings with a wooden structure or with a lightweight roof.
- ▶ Select an installation site that is easily accessible so that maintenance and service work can be carried out.
- ▶ Select an installation site that is easily accessible so that foliage or snow can be regularly removed from the product.
- ▶ Select an installation site that is close to a downpipe.
- ▶ Select an installation site at which the air inlet is not affected by strong winds. Position the unit as crosswise to the main direction of wind as possible.
- ▶ If the installation site is not protected against the wind, you should plan to set up a protective wall.
- ▶ Please note the noise emissions. Maintain sufficient clearance from adjacent buildings.

- ▶ Route the hydraulic lines and electrical wires.
- ▶ Provide a wall duct.

## 4.8 Creating a foundation

Validity: Floor installation



- ▶ Dig a hole in the ground. The recommended dimensions can be found in the figure.
- ▶ Insert a downpipe (1).
- ▶ Insert a layer of coarse rubble (3). Calculate the depth (A) in accordance with local conditions.
  - Region with ground frost: Minimum depth: 900 mm
  - Region without ground frost: Minimum depth: 600 mm
- ▶ Calculate the height (B) in accordance with local conditions.
- ▶ Create two concrete strip foundations (4). The recommended dimensions can be found in the figure.
- ▶ Place a gravel bed (2) between and beside the strip foundations.

## 4.9 Guaranteeing occupational safety

Validity: Wall-mounting

- ▶ Ensure that the installation position on the wall can be safely accessed.
- ▶ If the work on the product takes place at a height above 3 m, install technical fall protection.
- ▶ Observe the local laws and regulations.

Validity: Flat roof installation

- ▶ Ensure that the flat roof can be safely accessed.
- ▶ Maintain a safety area of 2 m to the fall edge, plus the clearance that is required for working on the product. The safety area must not be entered.

- ▶ Alternatively, install technical fall protection at the fall edge, for example reliable railings.
- ▶ Alternatively, set up technical safety catch equipment, for example scaffolding or safety nets.
- ▶ Maintain sufficient clearance to any roof escape hatches and flat-roof windows.
- ▶ When carrying out the work, use suitable protective equipment (e.g. barriers) to prevent you from stepping on or falling through any escape hatches and flat-roof windows.

## 4.10 Installing the product

Validity: Floor installation

- ▶ Use the appropriate products from the accessories, depending on the required installation type.
  - Small damping feet
  - Large damping feet
  - Raised base and small damping feet
- ▶ Align the product horizontally.

Validity: Wall-mounting

- ▶ Check the design and load-bearing capacity of the wall. Note the weight of the product.
- ▶ Use the unit mounting bracket that is suitable for wall-mounting from the accessories.
- ▶ Use the small damping feet.
- ▶ Align the product horizontally.

Validity: Flat roof installation



### Warning.

#### Risk of injury due to toppling over in the wind.

The product may topple over if there is a wind load.

- ▶ Use two concrete bases and an anti-slip protective mat.
- ▶ Screw the product to the concrete base.

- ▶ Use the large damping feet.
- ▶ Align the product horizontally.

## 4.11 Connecting the condensate discharge pipe



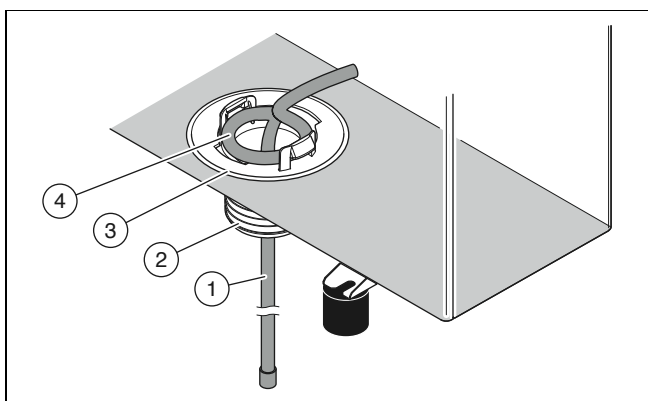
### Danger!

#### Risk of injury due to frozen condensate.

Frozen condensate on paths may cause falls.

- ▶ Ensure that condensate does not discharge onto paths and that ice cannot build up there.

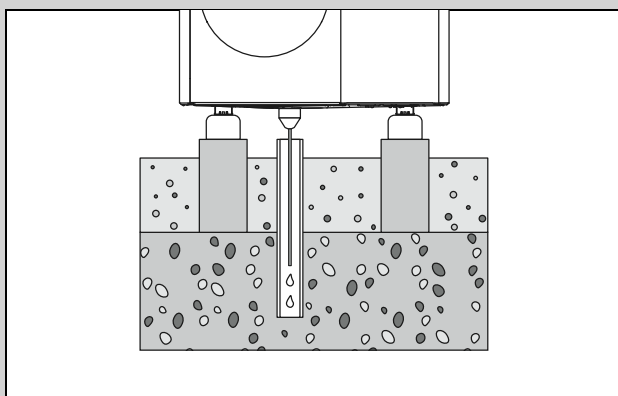
1. For all installation types, ensure that any condensate that accumulates is discharged frost-free.



**Validity:** Floor installation

**Condition:** Version without drain pipework

- ▶ Install the supplied condensate discharge tundish (3).
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and into the downpipe.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.



- ▶ Ensure that the condensate discharge tundish is positioned in the centre above the downpipe in the gravel bed.

**Condition:** Version with drain pipework

- ▶ Install this design only in regions without ground frost.
- ▶ Install the supplied condensate discharge tundish (3) and adapter (2).
- ▶ Connect the drain pipework to the adapter.
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and the adapter and into the drain pipework.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.

**Validity:** Wall-mounting

**Condition:** Version without drain pipework

- ▶ Install the supplied condensate discharge tundish (3).
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and to the outside.
- ▶ Slide the end of the heating wire from the outside through the condensate discharge tundish and back to the inside until it forms a U-shape within the condensate discharge tundish.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.
- ▶ Use the gravel bed below the product to drain away the condensate.

**Condition:** Version with drain pipework

- ▶ Install the supplied condensate discharge tundish (3) and adapter (2).
- ▶ Connect the drain pipework to the adapter and to a downpipe. In doing so, ensure that there is a sufficient downward gradient.
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and the adapter and into the drain pipework.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.
- ▶ If the region is one with ground frost, install electrical trace heating for the drain pipework.

**Validity:** Flat roof installation

**Condition:** Version without drain pipework

- ▶ Install the supplied condensate discharge tundish (3).
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and to the outside.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.
- ▶ Use the flat roof to drain away the condensate.

**Condition:** Version with drain pipework

- ▶ Install the supplied condensate discharge tundish (3) and adapter (2).
- ▶ Connect the drain pipework to the adapter and to a downpipe over a short distance. In doing so, ensure that there is a sufficient downward gradient.
- ▶ Slide the heating wire (1) from inside through the condensate discharge tundish and the adapter and into the drain pipework.
- ▶ Adjust the internal heating wire in such a way that the loop (4) lies concentric to the hole in the floor plate.
- ▶ If the region is one with ground frost, install electrical trace heating for the drain pipework.

#### 4.12 Setting up a protective wall

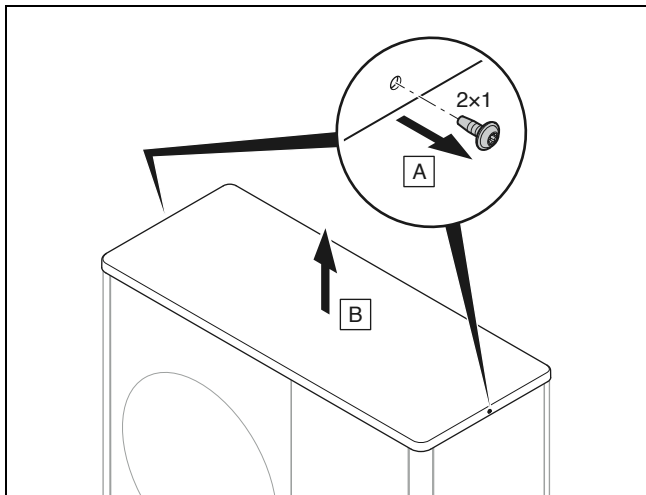
**Validity:** Floor installation OR Flat roof installation

- ▶ If the installation site is not protected against the wind, set up a protective wall against the wall.
- ▶ Comply with the minimum clearances.

#### 4.13 Removing/installing the casing sections

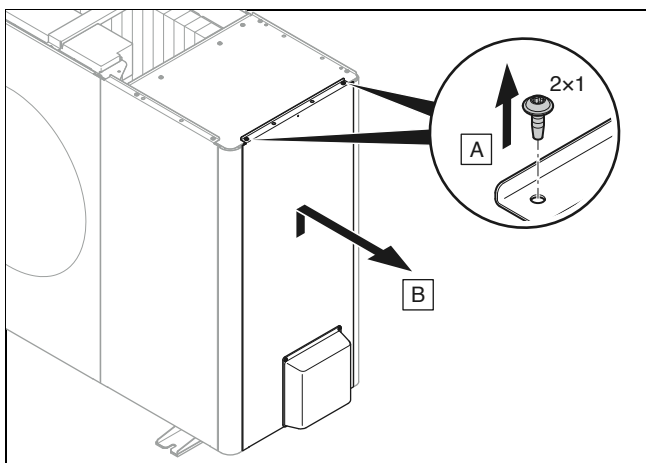
The following work must only be carried out when required or during maintenance work or repair work.

#### 4.13.1 Removing the top casing



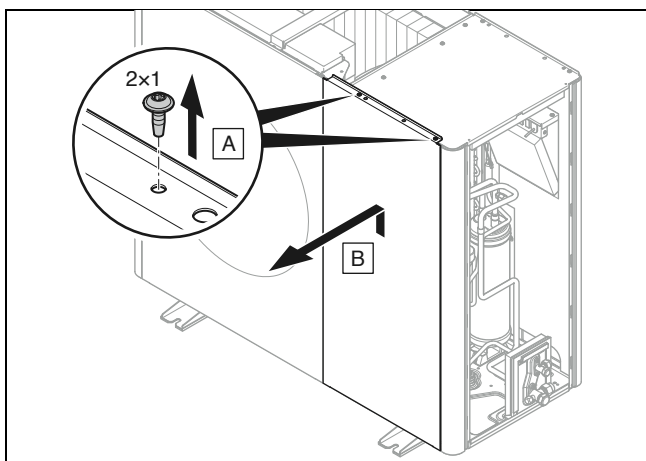
► Remove the top casing as shown in the figure.

#### 4.13.2 Removing the right-hand side casing



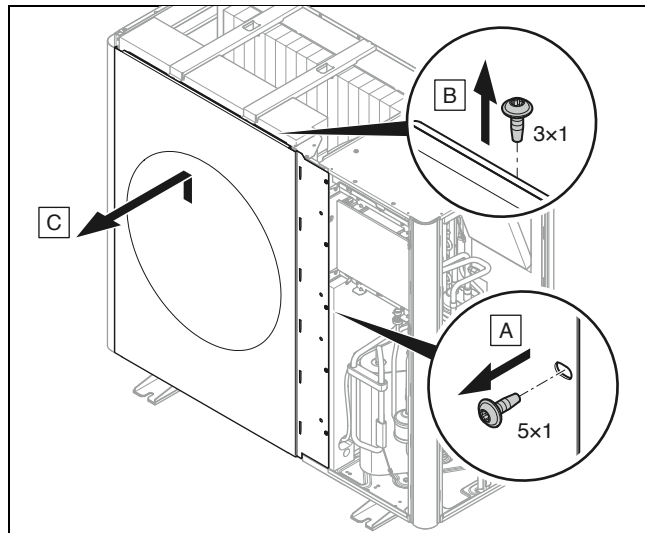
► Remove the right-hand side casing as shown in the figure.

#### 4.13.3 Removing the front casing



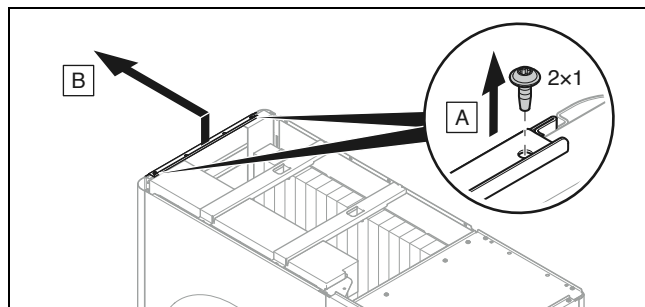
► Remove the front casing as shown in the illustration.

#### 4.13.4 Removing the air outlet grille



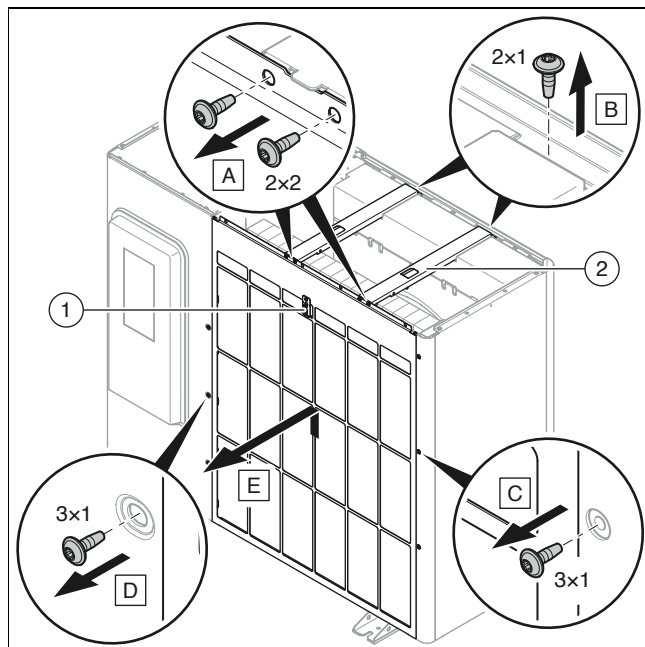
► Remove the air outlet grille as shown in the figure.

#### 4.13.5 Removing the left-hand side casing



► Remove the left-hand side casing as shown in the figure.

#### 4.13.6 Removing the air inlet grille



1. Disconnect the electrical connection to the temperature sensor (1).
2. Remove the two cross-members (2) as shown in the figure.
3. Remove the air inlet grille as shown in the figure.

### 4.13.7 Installing the casing sections

1. When installing, carry out the steps for removal in reverse.
2. To do this, follow the figures for the removal (→ Section 4.13.1).

## 5 Hydraulics installation

### 5.1 Preparing work on the refrigerant circuit



#### Danger!

**Risk of injury and risk of environmental damage due to escaping refrigerant.**

Touching any escaping refrigerant may cause injury. Escaping refrigerant leads to environmental damage if it reaches the atmosphere.

- ▶ Only carry out work on the refrigerant circuit if you have been trained to do so.



#### Caution.

**Risk of material damage when extracting refrigerant.**

When extracting refrigerant, there is a risk of material damage caused by freezing.

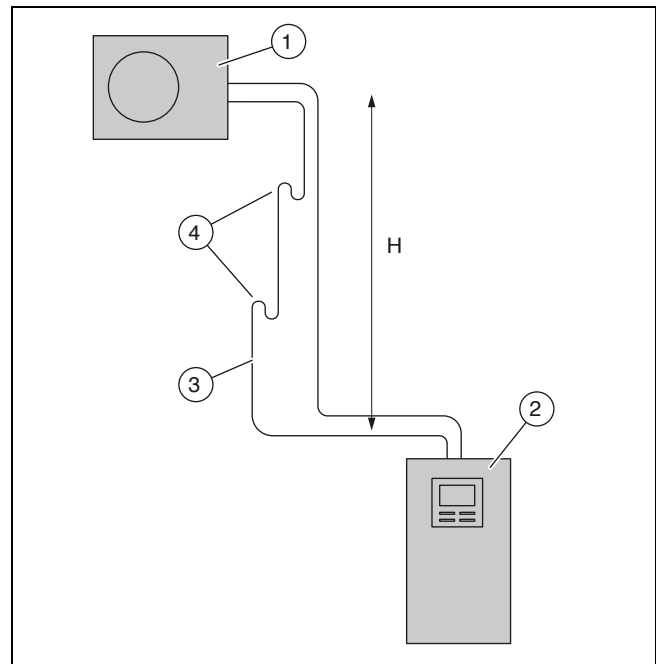
- ▶ Ensure that heating water flows through the indoor unit's condenser or it is completely drained when extracting refrigerant on the secondary side.

1. The outdoor unit is pre-filled with R410A refrigerant. Determine whether additional refrigerant is required.
2. Ensure that the two isolation valves are closed.
3. Purchase suitable and appropriate refrigerant pipes in accordance with the technical data.
4. Ensure that the refrigerant pipes that are used comply with these requirements:
  - Special copper pipes for the refrigeration technology
  - Thermal insulation
  - Weather resistance and UV resistance.
  - Protection against rodent bites.
  - Flaring with 90° flare in accordance with the SAE standard
5. Keep the refrigerant pipes blocked until they are installed.
6. Purchase the necessary tools and equipment:

| Always required   | May be required   |
|---|---|
| <ul style="list-style-type: none"> <li>– Flaring tool for 90° flare</li> <li>– Torque spanner</li> <li>– Refrigerant fitting</li> <li>– Nitrogen cylinder</li> <li>– Vacuum pump</li> <li>– Vacuum gauge</li> </ul> | <ul style="list-style-type: none"> <li>– Refrigerant cylinder with R410A</li> <li>– Refrigerant scales</li> </ul> |

## 5.2 Planning the routing of the refrigerant pipes

### 5.2.1 Outdoor unit above indoor unit

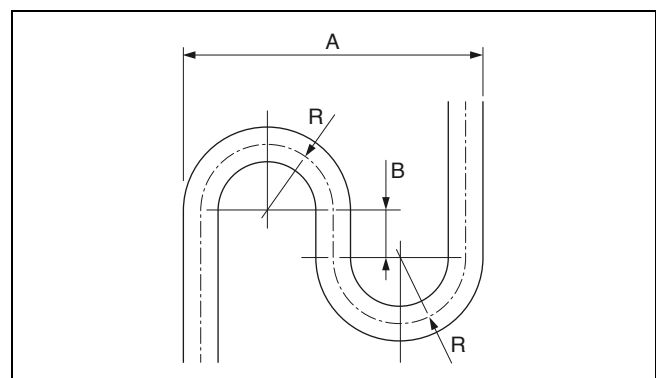


- |   |              |   |                     |
|---|--------------|---|---------------------|
| 1 | Outdoor unit | 3 | Hot gas pipe        |
| 2 | Indoor unit  | 4 | Oil elevation elbow |

The outdoor unit can be installed up to a maximum height difference  $H$  of 30 m above the indoor unit. In this case, a refrigerant pipe with a maximum length of 40 m is permitted. Depending on the height difference, oil elevation elbows must be installed in the hot gas pipe

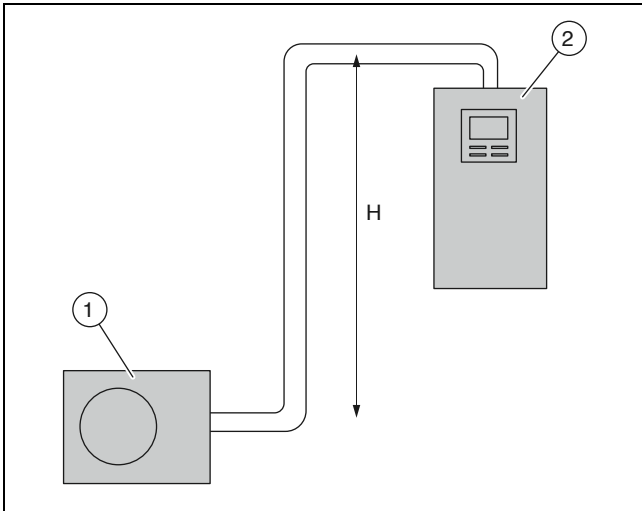
| Height difference $H$ | Oil elevation elbow   |
|-----------------------|---|
| up to 10 m            | No oil elevation elbow required   |
| Up to 20 m            | One oil elevation elbow at 10 m high  |
| Above 20 m            | One oil elevation elbow at 10 m high, one additional oil elevation elbow at 20 m high |

The oil elevation elbow must comply with these geometric requirements.



| Product               | Outer diameter, hot gas pipe | A   | B  | R  |
|-----------------------|------------------------------|-----|----|----|
| VWL 35/5 and VWL 55/5 | 1/2 "                        | 173 | 40 | 40 |
| VWL 75/5 to VWL 125/5 | 5/8 "                        | 256 | 40 | 60 |

## 5.2.2 Indoor unit above the outdoor unit



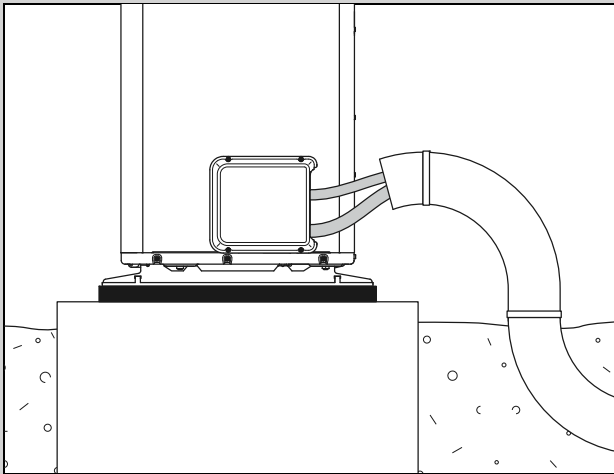
1 Outdoor unit                      2 Indoor unit

The indoor unit can be installed up to a maximum height difference  $H$  of 10 m above the outdoor unit. In this case, a refrigerant pipe with a maximum length of 25 m is permitted. No oil elevation elbow is required.

## 5.3 Routing refrigerant pipes to the product

**Validity:** Floor installation

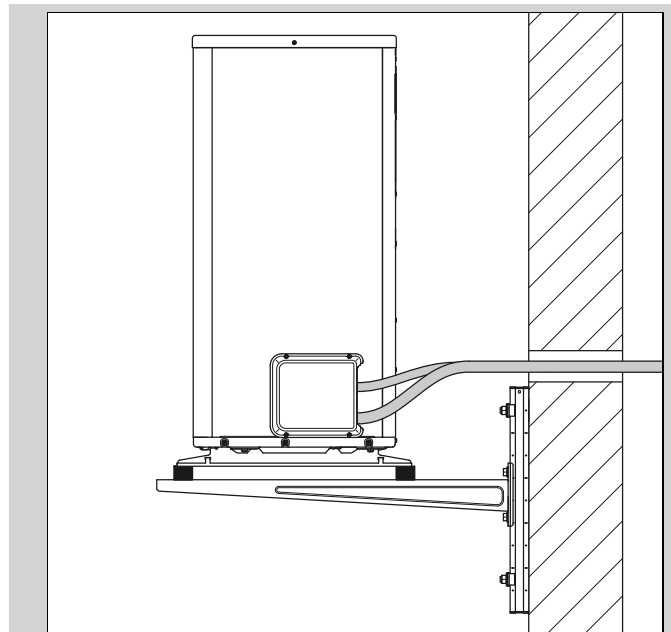
- ▶ Route the refrigerant pipe through the wall duct and to the product.



- ▶ Route the refrigerant pipes through a suitable safety pipe in the ground, as shown in the figure.
- ▶ Bend the refrigerant pipes only once into their final position. Use a bending spring or a bending tool to avoid kinks.
- ▶ Route the refrigerant pipes in the wall duct with a slight downward gradient to the outside.
- ▶ Route the refrigerant pipe centrally through the wall duct without the lines touching the wall.

**Validity:** Wall-mounting

- ▶ Route the refrigerant pipe through the wall duct and to the product.



- ▶ Bend the refrigerant pipes only once into their final position. Use a bending spring or a bending tool to avoid kinks.
- ▶ Ensure that the refrigerant pipes do not come into contact with the wall and the product's casing sections.
- ▶ Route the refrigerant pipes in the wall duct with a slight downward gradient to the outside.
- ▶ Route the refrigerant pipe centrally through the wall duct without the lines touching the wall.

## 5.4 Routing refrigerant pipes in the building



### Caution.

#### Risk of noise transmission.

If the refrigerant pipes are routed incorrectly, noise may be transmitted to the building during operation.

- ▶ Do not route the refrigerant pipes in screed or masonry in the building.
- ▶ Do not route the refrigerant pipes through living rooms in the building.

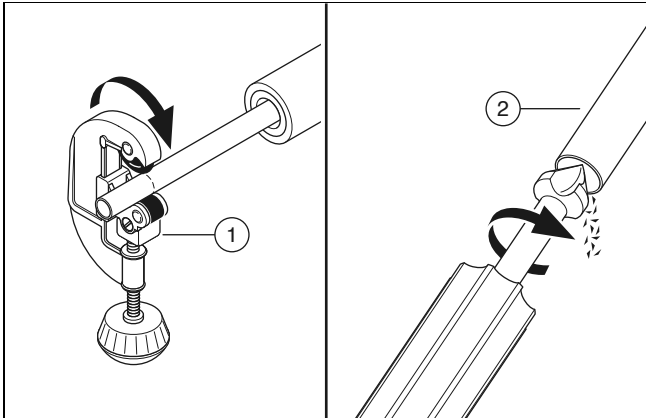
1. Route the refrigerant pipes from the wall duct to the indoor unit.
2. Bend the refrigerant pipes only once into their final position. Use a bending spring or a bending tool to avoid kinks.
3. Bend the refrigerant pipes at the right angle to the wall and avoid mechanical tension during the routing.
4. Ensure that the refrigerant pipes do not come into contact with the wall.
5. Use wall brackets with rubber insert to secure these. Place the wall brackets around the thermal insulation of the refrigerant pipe.
6. Check whether oil elevation elbows are required (→ Section 5.2).
7. If required, install oil elevation elbows in the hot gas pipe.

## 5.5 Remove the cover for the hydraulic connections

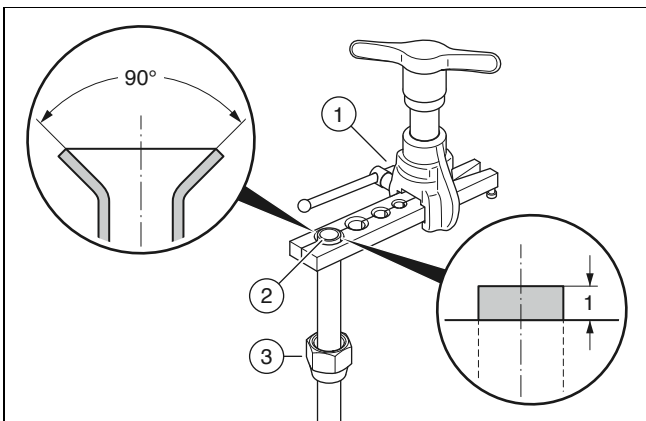
1. Remove the screws at the upper edge.
2. Release the cover by lifting it out of the stop.

## 5.6 Cutting the pipes to length and flaring the pipe ends

1. Keep the pipe ends downwards when working on them.
2. Prevent the ingress of metal chips, dirt or moisture.

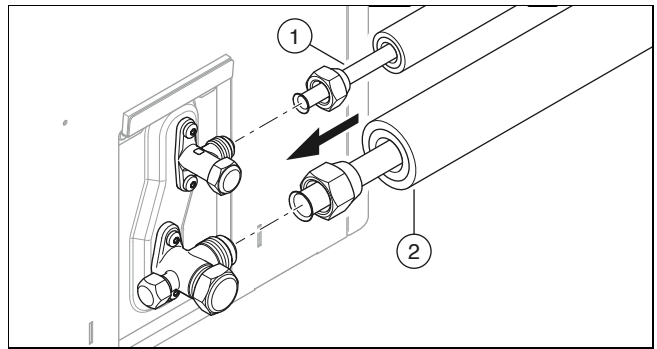


3. Cut the copper pipe to length at a right angle using a pipe cutter (1).
4. Deburr the inside and outside of the pipe end (2). Remove all chips carefully.
5. Unscrew the flare nut from the associated service valve.



6. Slide the flare nut (3) onto the pipe end.
7. Use a flaring tool to create flaring in accordance with the SAE standard (90° flare).
8. Insert the pipe end into the appropriate die matrix in the flaring tool (1). Allow the pipe end to protrude by 1 mm. Clamp the pipe end.
9. Widen the pipe end (2) using the flaring tool.

## 5.7 Connecting the refrigerant pipes



1. Apply a drop of flare oil to the outsides of the pipe ends.
2. Connect the hot gas pipe (2).
3. Tighten the flare nut. Use pliers to hold the service valve in place while doing so.

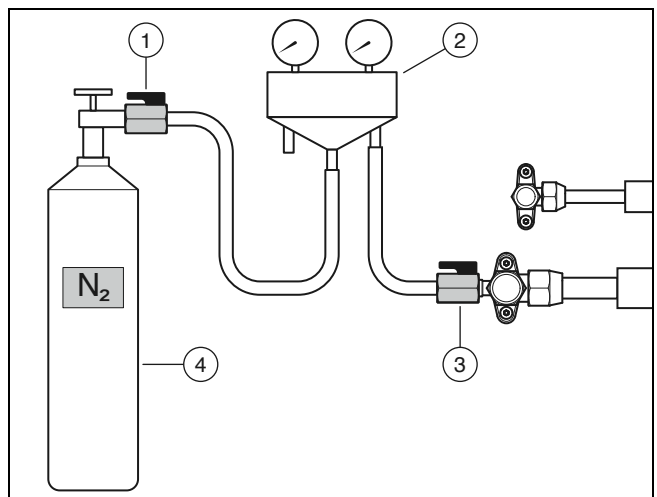
| Product               | Pipe diameter | Tightening torque |
|-----------------------|---------------|-------------------|
| VWL 35/5 and VWL 55/5 | 1/2 "         | 50 to 60 Nm       |
| VWL 75/5 to VWL 125/5 | 5/8 "         | 65 to 75 Nm       |

4. Connect the liquid pipe 1.
5. Tighten the flare nut. Use pliers to hold the service valve in place while doing so.

| Product               | Pipe diameter | Tightening torque |
|-----------------------|---------------|-------------------|
| VWL 35/5 and VWL 55/5 | 1/4 "         | 15 to 20 Nm       |
| VWL 75/5 to VWL 125/5 | 3/8 "         | 35 to 45 Nm       |

## 5.8 Checking the refrigerant circuit for tightness

1. Ensure that the two isolation valves on the outdoor unit are still closed.
2. Observe the maximum operating pressure in the refrigerant circuit.



3. Connect a refrigerant fitting (2) with a ball valve (3) to the maintenance connection for the hot gas pipe.
4. Connect the refrigerant fitting with a ball valve (1) to a nitrogen cylinder (4). Use dry nitrogen.
5. Open both of the ball valves.
6. Open the nitrogen cylinder.

- Test pressure: 2.5 MPa (25 bar)
7. Close the nitrogen cylinder and the ball valve (1).
    - Waiting period: 10 minutes
  8. Check all of the connections in the refrigerant circuit for tightness. Use leak detection spray for this.
  9. Observe whether the pressure is stable.

**Result 1:**

The pressure is stable and no leaks were found:

- ▶ Completely drain the nitrogen gas via the refrigerant fitting.
- ▶ Close the ball valve (3).

**Result 2:**

The pressure drops or a leak is found:

- ▶ Eliminate the leakage.
- ▶ Repeat the test.

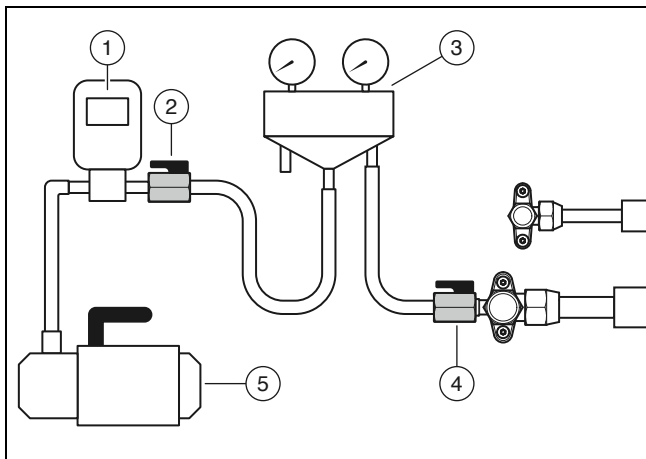
## 5.9 Evacuating the refrigerant circuit



**Note**

During evacuation, residual moisture is removed from the refrigerant circuit at the same time. The length of the process depends on the residual moisture and the outdoor temperature.

1. Ensure that the two isolation valves on the outdoor unit are still closed.



2. Connect a refrigerant fitting (3) with a ball valve (4) to the maintenance connection for the hot gas pipe.
3. Connect the refrigerant fitting with a ball valve (2) to a vacuum gauge (1) and a vacuum pump (5).
4. Open both of the ball valves.
5. **First test:** Switch on the vacuum pump.
6. Drain the refrigerant pipes and the indoor unit's plate heat exchanger.
  - Absolute pressure to be reached: 0.1 kPa (1.0 mbar)
  - Running time of the vacuum pump: 30 minutes
7. Switch off the vacuum pump.
  - Waiting period: 3 minutes
8. Check the pressure.

**Result 1:**

Pressure is stable:

- ▶ The first test is complete. Start with the second test.

**Result 2:**

The pressure increases and there is a leak:

- ▶ Check the flare connections on the outdoor unit and indoor unit. Eliminate the leakage.

- ▶ Start with the second test.

**Result 3:**

The pressure increases and there is residual moisture:

- ▶ Carry out the drying process.
- ▶ Start with the second test.

9. **Second test:** Switch on the vacuum pump.
10. Drain the refrigerant pipes and the indoor unit's plate heat exchanger.
  - Absolute pressure to be reached: 0.1 kPa (1.0 mbar)
  - Running time of the vacuum pump: 30 minutes
11. Switch off the vacuum pump.
  - Waiting period: 3 minutes
12. Check the pressure.

**Result 1:**

Pressure is stable:

- ▶ The second test is complete. Close the ball valves (2) and (4).

**Result 2:**

The pressure increases.

- ▶ Repeat the second test.

## 5.10 Adding additional refrigerant



**Danger!**

**Risk of injury due to escaping refrigerant.**

Touching any escaping refrigerant may cause injury.

- ▶ Wear personal protective equipment.

1. Determine the basic length of the refrigerant pipe.
2. Calculate the required volume of additional refrigerant.

| Product               | Basic length | Refrigerant volume                                   |
|-----------------------|--------------|--|
| VWL 35/5 and VWL 55/5 | < 15 m       | None   |
|                       | 15 m to 25 m | 30 g for every additional metre (above 15 m)         |
|                       | 25 m to 40 m | 300 g + 47 g for every additional metre (above 25 m) |

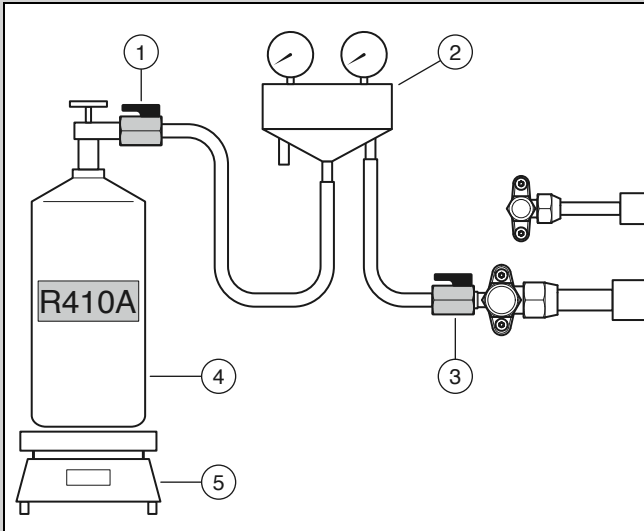
| Product  | Basic length | Refrigerant volume                                    |
|----------|--------------|---|
| VWL 75/5 | < 15 m       | None  |
|          | 15 m to 25 m | 70 g for every additional metre (above 15 m)          |
|          | 25 m to 40 m | 700 g + 107 g for every additional metre (above 25 m) |

| Product                 | Basic length | Refrigerant volume                                   |
|-------------------------|--------------|--|
| VWL 105/5 and VWL 125/5 | < 15 m       | None   |
|                         | 15 m to 25 m | 70 g for every additional metre (above 15 m)         |
|                         | 25 m to 40 m | 700 g + 83 g for every additional metre (above 25 m) |



**Condition:** Length of the refrigerant pipe > 15 m

- ▶ Ensure that the two isolation valves on the outdoor unit are still closed.



- ▶ Connect the refrigerant fitting (2) with the ball valve (1) to a refrigerant cylinder (4).
  - Refrigerant to be used: R410A
- ▶ Put the refrigerant cylinder on the scales (5). If the refrigerant cylinder does not have an immersion sleeve, put it on the scales upside down.
- ▶ Leave the ball valve (3) closed. Open the refrigerant cylinder and the ball valve (1).
- ▶ If the hoses have been filled with refrigerant, set the scales to zero.
- ▶ Open the ball valve (3). Fill the outdoor unit with the calculated refrigerant volume.
- ▶ Close both of the ball valves.
- ▶ Close the refrigerant cylinder.

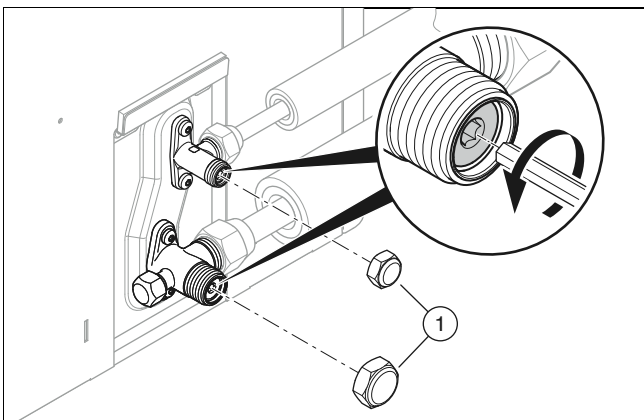
### 5.11 Releasing the refrigerant



**Danger!**  
**Risk of injury due to escaping refrigerant.**

Touching any escaping refrigerant may cause injury.

- ▶ Wear personal protective equipment.



1. Remove both covering caps (1).
2. Unscrew both hexagon socket screws as far as they will go.
  - ◀ The refrigerant flows into the refrigerant pipes and the indoor unit.

3. Check that no refrigerant is escaping. Check in particular all of the screwed connections and valves.
4. Screw on both covering caps. Tighten the covering caps.

### 5.12 Completing work on the refrigerant circuit

1. Disconnect the refrigerant fitting from the maintenance connection.
2. Screw the covering cap onto the maintenance connection.
3. Attach thermal insulation to the refrigerant pipes.
4. Note down the refrigerant volume added at the factory, the additional refrigerant volume added and the total refrigerant volume on the sticker on the product.
5. Enter the data in the service book.
6. Install the cover for the hydraulic connections.

## 6 Electrical installation

### 6.1 Preparing the electrical installation



**Danger!**

**Risk of death from electric shock as a result of an improper electrical connection!**

An improper electrical connection may negatively affect the operational safety of the product and result in material damage or personal injury.

- ▶ Only carry out the electrical installation if you are a trained competent person and are qualified for this work.

1. Observe the technical connection conditions for connecting to the energy supply company's low-voltage network.
2. Determine whether the energy supply company lockout function has been provided for the product, and how the power supply for the product should be designed, depending on the type of shutdown.
3. Use the data plate to determine whether the product requires a 1~/230V or a 3~/400V electrical connection.
4. Use the data plate to determine the product's rated current. Derive the suitable cable cross-sections for the electrical wires from this.
5. Prepare the routing of the electrical wires from the building and through the wall duct to the product.

### 6.2 Requirements for electrical components

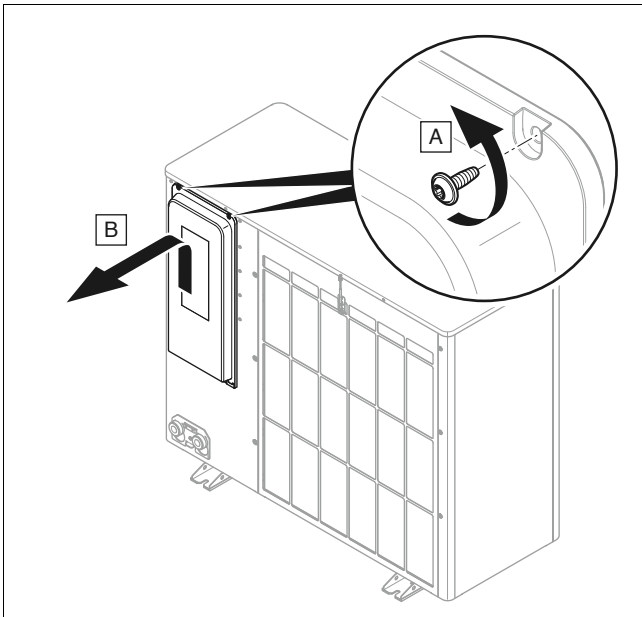
- ▶ Flexible hose lines that are suitable for routing outdoors must be used for the power supply. The specification must comply with the standard 60245 IEC 57 with the abbreviation H05RN-F as a minimum.
- ▶ The disconnectors must correspond to overvoltage category III for full isolation.
- ▶ For the electrical fuse protection, slow-blow fuses with C characteristics must be used. With a three-phase power supply, the fuses must be three-pole switching.
- ▶ To protect people, type B universal-current-sensitive residual-current circuit breakers must be used if these are stipulated for the installation site.

### 6.3 Installing components for the energy supply company lockout function

With the energy supply company lockout function, the heat generation from the heat pump can be switched off temporarily by the energy supply company. The unit can be shut down in two ways:

1. The signal for the shutdown is fed to connection S21 for the indoor unit.
  2. The signal for the shutdown is fed to a partition that is installed on-site in the meter/fuse box.
- ▶ If the energy supply company lockout function is provided, install and wire additional components in the building's meter/fuse box.
  - ▶ To do this, follow the wiring diagram in the appendix of the installation instructions for the indoor unit.

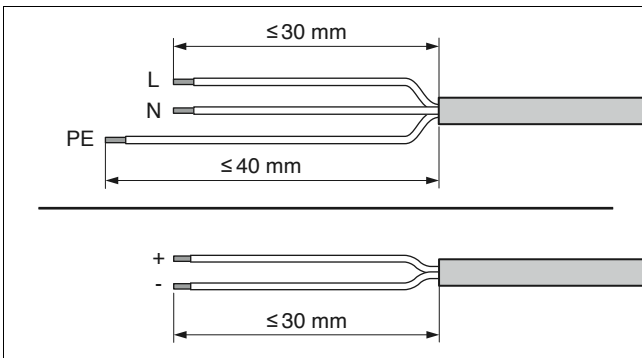
### 6.4 Removing the cover for the electrical connections



- ▶ Remove the cover, as shown in the figure.

### 6.5 Stripping the electrical wire

1. If required, shorten the electrical wire.



2. Strip the outer sheathing from the electrical wire. In doing so, ensure that the insulation on the individual conductors is not damaged.
3. To avoid short circuits resulting from loose individual wires, fit conductor end sleeves on the stripped ends of the conductors.

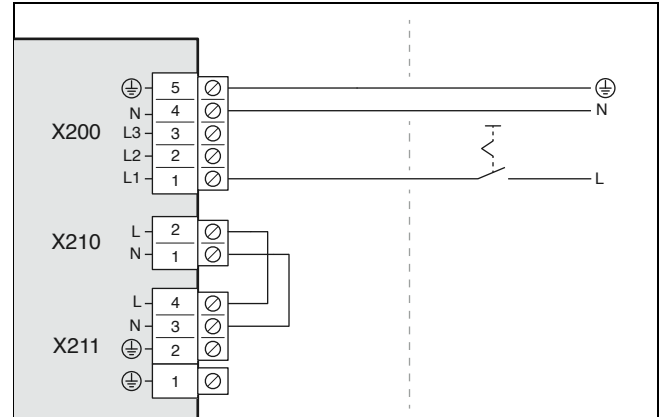
### 6.6 Establishing the power supply, 1~/230V

- ▶ Determine the type of connection:

| Case  | Connection type     |
|---|---------------------|
| Energy supply company lockout not provided                          | Single power supply |
| Energy supply company lockout provided, shutdown via connection S21 |                     |
| Energy supply company lockout provided, shutdown via partition      | Dual power supply   |

#### 6.6.1 1~/230V, single power supply

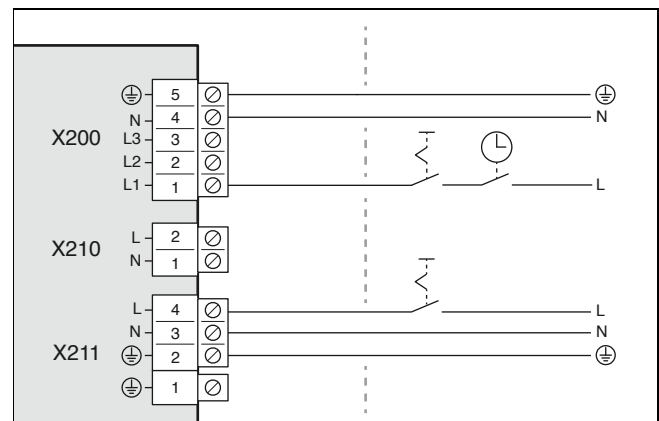
1. If it is stipulated for the installation site, install one residual-current circuit breaker for the product.



2. Install a disconnector for the product in the building.
3. Use one 3-pole power supply cable.
4. Route the power supply cable from the building and through the wall duct to the product.
5. Connect the power supply cable to connection X200.
6. Use the strain relief clamp to secure the power supply cable in place.

#### 6.6.2 1~/230V, dual power supply

1. If it is stipulated for the installation site, install two residual-current circuit breakers for the product.



2. Install two disconnectors for the product in the building.
3. Use two 3-pole power supply cables.
4. Route the power supply cables from the building and through the wall duct to the product.
5. Connect the power supply cable (from the heat pump electricity meter) to connection X200. This power supply may be temporarily switched off by the energy supply company.

6. Remove the 2-pole bridge from the X210 connection.
7. Connect the power supply cable (from the household electricity meter) to connection X211. This power supply is constant.
8. Use the strain relief clamps to secure the power supply cables in place.

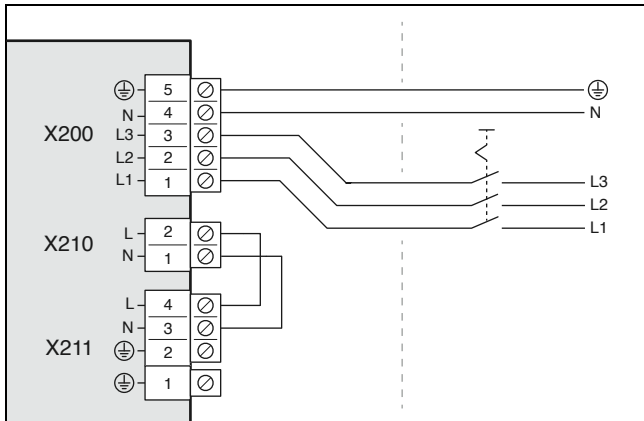
## 6.7 Establishing the power supply, 3~/400V

- Determine the type of connection:

| Case  | Connection type     |
|---|---------------------|
| Energy supply company lockout not provided                          | Single power supply |
| Energy supply company lockout provided, shutdown via connection S21 |                     |
| Energy supply company lockout provided, shutdown via partition      | Dual power supply   |

### 6.7.1 3~/400V, single power supply

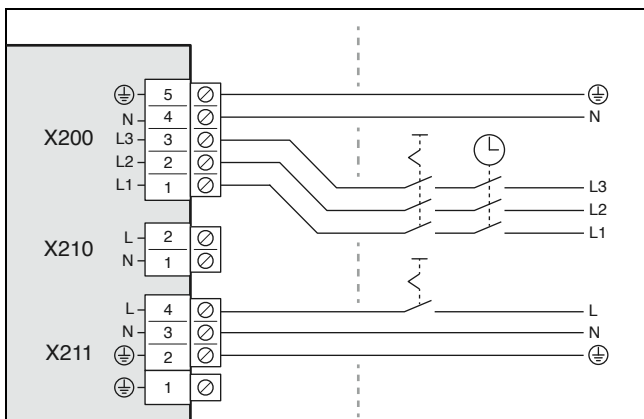
1. If it is stipulated for the installation site, install one residual-current circuit breaker for the product.



2. Install a disconnector for the product in the building.
3. Use one 5-pole power supply cable.
4. Route the power supply cable from the building and through the wall duct to the product.
5. Connect the power supply cable to connection X200.
6. Use the strain relief clamp to secure the power supply cable in place.

### 6.7.2 3~/400V, dual power supply

1. If it is stipulated for the installation site, install two residual-current circuit breakers for the product.



2. Install two disconnectors for the product in the building.

3. Use a 5-pole power supply cable and a 3-pole power supply cable.
4. Route the power supply cables from the building and through the wall duct to the product.
5. Connect the 5-pole power supply cable (from the heat pump electricity meter) to connection X200. This power supply may be temporarily switched off by the energy supply company.
6. Remove the 2-pole bridge from the X210 connection.
7. Connect the 3-pole power supply cable (from the household electricity meter) to connection X211. This power supply is constant.
8. Use the strain relief clamps to secure the power supply cables in place.

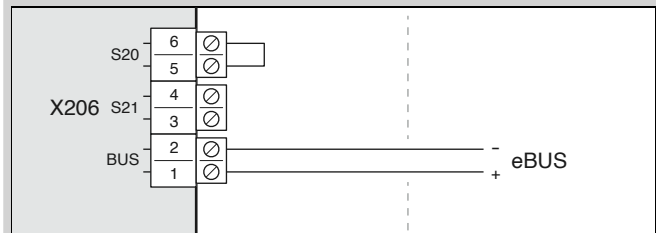
## 6.8 Connecting the eBUS line

**Condition:** Refrigerant pipes with eBUS line

- Connect the eBUS line to connection X206, BUS.
- Use the strain relief clamp to secure the eBUS line in place.

**Condition:** Separate eBUS line

- Use a 2-pole eBUS line with a conductor cross-section of 0.75 mm<sup>2</sup>.
- Route the eBUS line from the building and through the wall duct to the product.



- Connect the eBUS line to connection X206, BUS.
- Use the strain relief clamp to secure the eBUS line in place.

## 6.9 Connecting accessories

- Observe the wiring diagram in the appendix.

## 6.10 Installing the cover for the electrical connections

1. Secure the cover by lowering it into the stop.
2. Use two screws to secure the cover to the upper edge.

## 7 Start-up

### 7.1 Checking before switching on

- Check whether all the hydraulic connections are established correctly.
- Check whether all the electrical connections are established correctly.
- Check whether a disconnector is installed.
- If it is stipulated for the installation site, check whether a residual-current circuit breaker has been installed.
- Read through the operating instructions.
- After installation, ensure that at least 30 minutes have passed before switching on the product.

- ▶ Ensure that the cover for the electrical connections is installed.

## 7.2 Switching on the product

- ▶ Switch on all of the disconnectors to which the product is connected in the building.

## 8 Handing over to the end user

### 8.1 Instructing the end user

- ▶ Explain to the end user how the product operates.
- ▶ Point out, in particular, the safety warnings to the end user.
- ▶ Make the end user aware of the need for regular maintenance.

## 9 Troubleshooting

### 9.1 Fault messages

In the event of a fault, a fault code is shown on the display of the indoor unit's control.

- ▶ Use the "Fault messages" table (→ installation instructions for the indoor unit, Appendix).

### 9.2 Other faults

- ▶ Use the "Troubleshooting" table (→ installation instructions for the indoor unit, Appendix).

## 10 Inspection and maintenance

### 10.1 Observing the work plan and intervals

- ▶ Comply with the specified intervals. Carry out all of the work that is mentioned ( Appendix D).

### 10.2 Procuring spare parts

The original components of the unit were also certified as part of the CE declaration of conformity. You can find information about available Vaillant original spare parts by contacting the contact address provided on the back page of these instructions.

- ▶ If you require spare parts for maintenance or repair work, use only Vaillant original spare parts.

### 10.3 Preparing for inspection and maintenance

- ▶ Observe the basic safety rules before carrying out inspection and maintenance work or installing spare parts.
- ▶ When working in a raised position, observe the occupational safety rules (→ Section 4.9).
- ▶ Switch off all of the disconnectors to which the product is connected in the building.
- ▶ Disconnect the product from the power supply but ensure that the product is still earthed.
- ▶ When working on the product, protect all electric components from spraying water.

## 10.4 Carrying out maintenance work

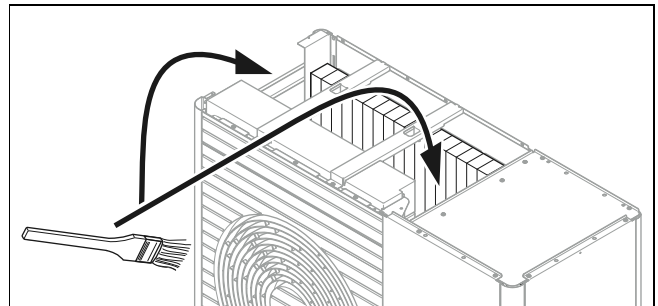
### 10.4.1 Cleaning the product

- ▶ Only clean the product when all of the casing sections and covers have been installed.
- ▶ Do not clean the product with a high-pressure cleaner or a direct jet of water.
- ▶ Clean the product using a sponge and hot water with cleaning agent.
- ▶ Do not use abrasive cleaners. Do not use solvents. Do not use any cleaning agents that contain chlorine or ammonia.

### 10.4.2 Removing the covers and casing sections

1. Remove the cover for the hydraulic connections. (→ Section 5.5)
2. Remove the cover for the electrical connections. (→ Section 6.4)
3. Remove the casing sections to the extent required for the subsequent maintenance work (→ Section 4.13.1).

### 10.4.3 Cleaning the evaporator



1. Clean the gaps between the evaporator fins using a soft brush. In doing so, avoid fins being bent.
2. Remove any dirt and depositions.
3. If required, straighten out any bent fins using a fin comb.

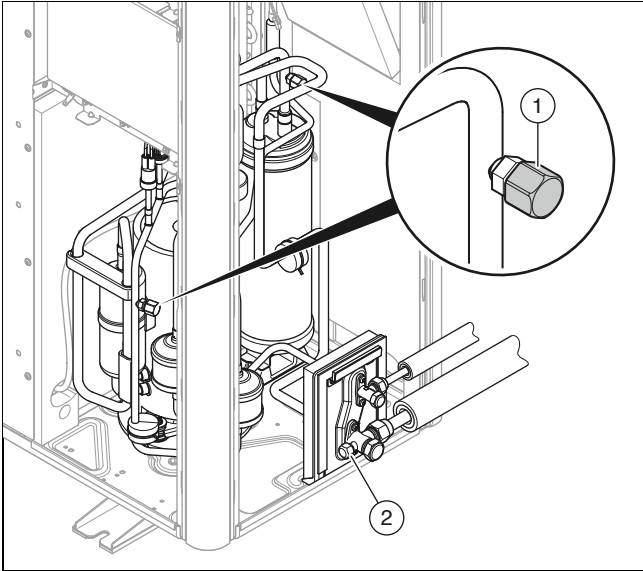
### 10.4.4 Checking the fan

1. Turn the fan by hand.
2. Check that the fan runs freely.

### 10.4.5 Cleaning the condensate discharge

1. Remove the dirt that has accumulated on the condensate tray or in the condensate discharge pipe.
2. Check that the water can drain freely. Pour approx. 1 l water into the condensate tray.

### 10.4.6 Checking the refrigerant circuit



1. Check whether the components and pipelines are free from dirt and corrosion.
2. Check that the covering caps **(1)** on the internal maintenance connection are positioned securely.
3. Check that the covering cap **(2)** on the external maintenance connection is positioned securely.
4. Check whether the thermal insulation for the refrigerant pipes is undamaged.
5. Check whether the refrigerant pipes have been routed without any kinks.

### 10.4.7 Checking the refrigerant circuit for tightness

**Validity:** Except Denmark AND Refrigerant volume  $\geq 2.4$  kg OR Denmark AND Refrigerant volume  $\geq 1.0$  kg

1. Ensure that this annual leak-tightness test in the refrigerant circuit is carried out in accordance with the ordinance (EU) Nr. 517/2014.
2. Check whether the components in the refrigerant circuit and the refrigerant pipes are free from damage, corrosion and oil leaks.
3. Check the refrigerant circuit for leak-tightness using a gas sniffer. In doing so, check all of the components and pipelines.
4. Document the result of the leak-tightness test in the service book.

### 10.4.8 Checking the electrical connections

1. In the connection box, check that the electrical wires are seated firmly in the plugs or terminals.
2. Check the earthing in the connection box.
3. Check whether the power supply cable is free from damage. If it needs to be replaced, ensure that it is only replaced by Vaillant or customer service or a similarly qualified person in order to prevent hazards.

### 10.4.9 Checking the small damping feet for wear

1. Check whether the damping feet are significantly compressed.
2. Check whether the damping feet have significant cracks.
3. Check whether there is substantial corrosion on the screwed connection for the damping feet.
4. If required, procure and install new damping feet.

### 10.5 Completing inspection and maintenance

- ▶ Installing the casing sections.
- ▶ Switch on the power supply and the product.
- ▶ Start up the product.
- ▶ Carry out an operational test and a safety test.

## 11 Decommissioning

### 11.1 Temporarily decommissioning the product

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Disconnect the product from the power supply.

### 11.2 Permanently decommissioning the product

1. Switch off all of the disconnectors to which the product is connected in the building.
2. Disconnect the product from the power supply.



#### Caution.

#### Risk of material damage when extracting refrigerant.

When extracting refrigerant, there is a risk of material damage caused by freezing.

- ▶ Ensure that heating water flows through the indoor unit's condenser or it is completely drained when extracting refrigerant on the secondary side.

3. Extract the refrigerant.
4. Dispose of or recycle the product and its components.

## 12 Recycling and disposal

### 12.1 Recycling and disposal

#### Disposing of the packaging

- ▶ Dispose of the packaging correctly.
- ▶ Observe all relevant regulations.

**Validity:** Great Britain

- ▶ For detailed information refer to [www.vaillant.co.uk](http://www.vaillant.co.uk).

## 12.2 Disposing of the refrigerant

---



### **Warning.**

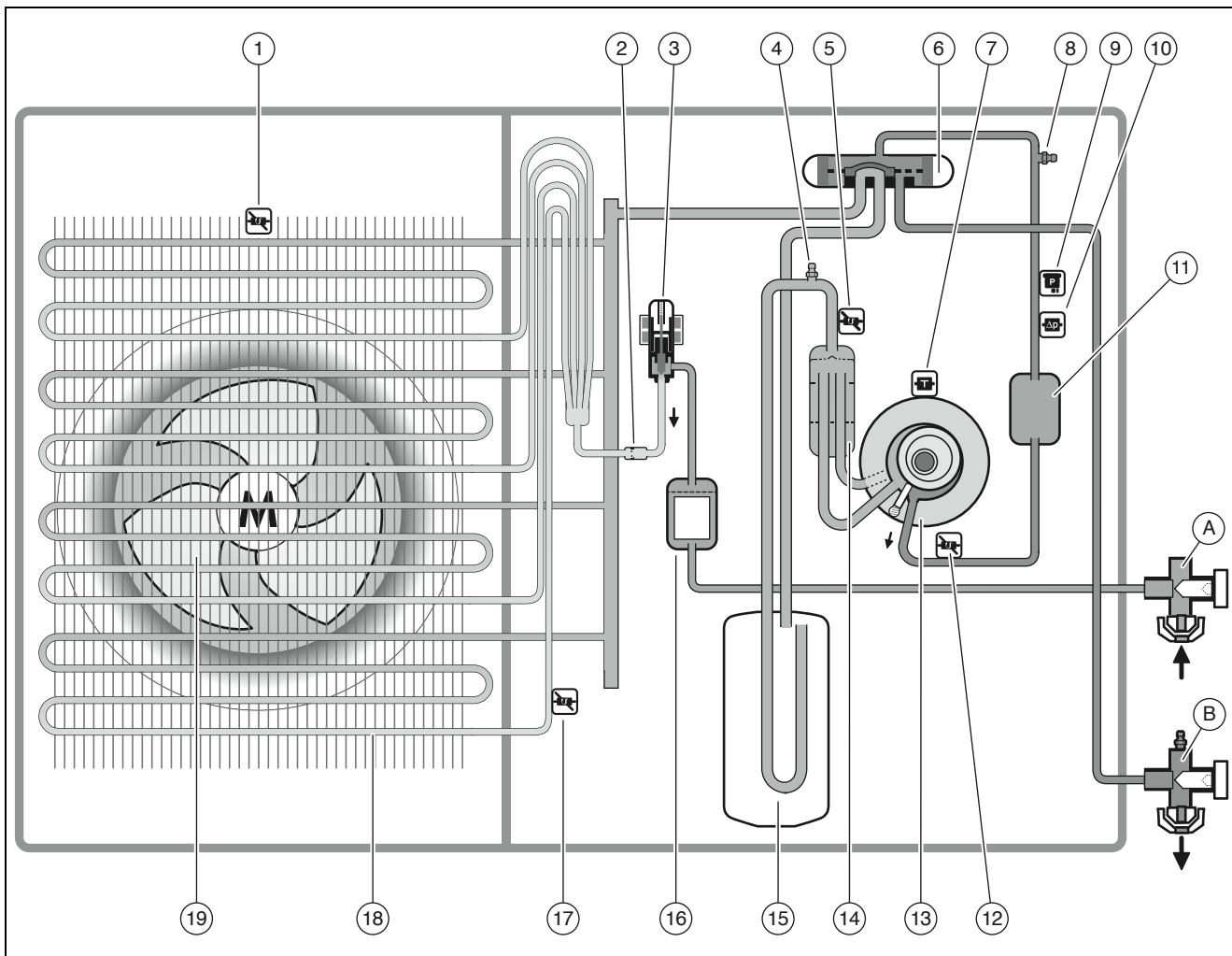
#### **Risk of damage to the environment.**

The product contains the refrigerant R410A. This refrigerant must not be allowed to escape into the atmosphere. R410A is a fluorinated greenhouse gas covered by the Kyoto Protocol, with a GWP of 2088 (GWP = Global Warming Potential).

- ▶ Before the product is disposed of, have the refrigerant which it contains completely drained into a suitable vessel so that it can then be recycled or disposed of in accordance with regulations.
- 
- ▶ Ensure that the refrigerant is disposed of by a qualified competent person.

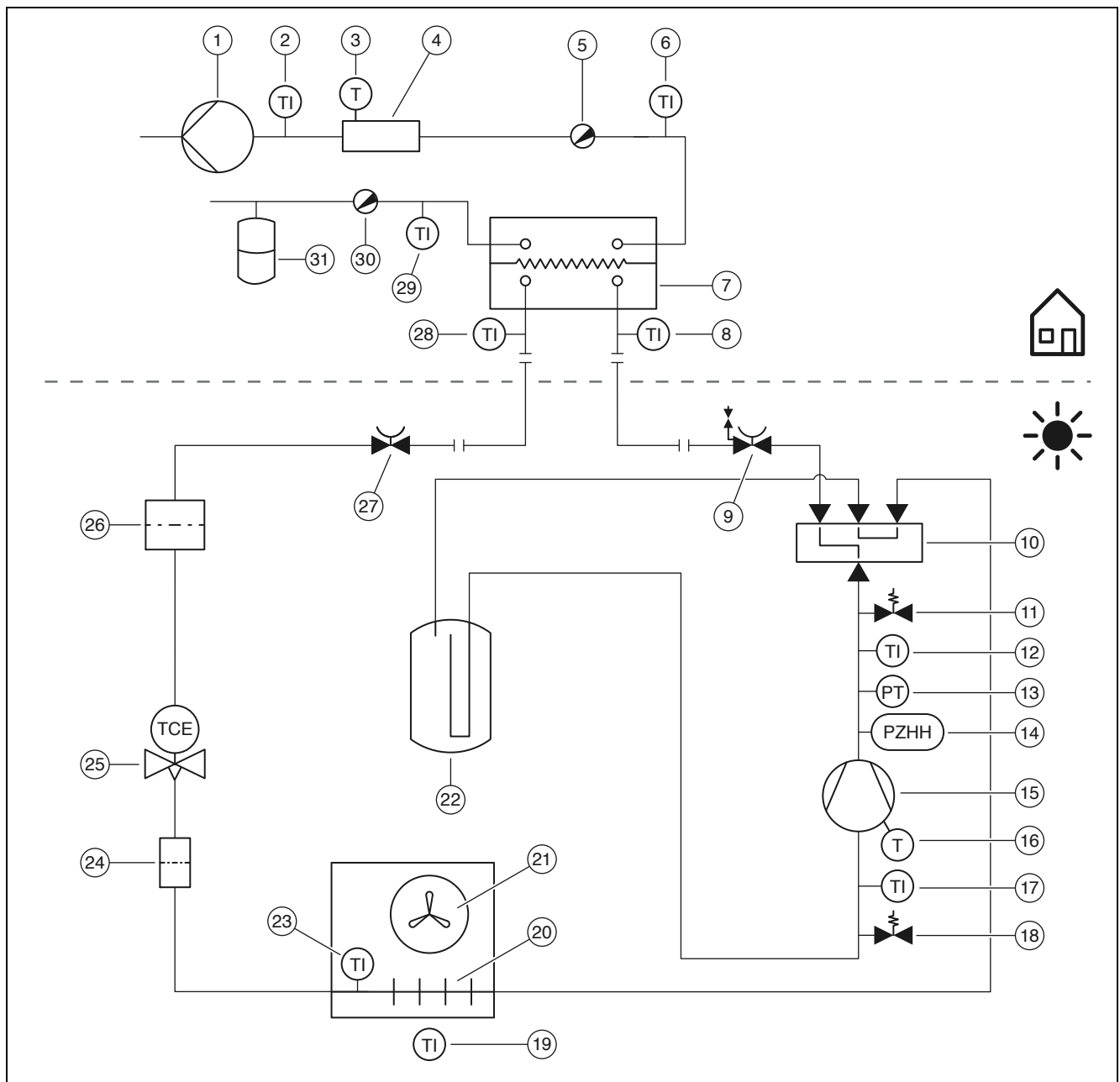
# Appendix

## A Functional diagram



- |    |  |    |   |
|----|--|----|---|
| 1  | Temperature sensor at the air inlet              | A  | Isolation valve for liquid pipe                 |
| 2  | Filter   | B  | Isolation valve for hot gas pipe                |
| 3  | Electronic expansion valve                       | 12 | Temperature sensor downstream of the compressor |
| 4  | Maintenance connection in the low-pressure area  | 13 | Compressor                                      |
| 5  | Temperature sensor upstream of the compressor    | 14 | Refrigerant separator                           |
| 6  | 4-port diverter valve                            | 15 | Refrigerant buffer                              |
| 7  | Temperature sensor on the compressor             | 16 | Filter/dryer                                    |
| 8  | Maintenance connection in the high-pressure area | 17 | Temperature sensor at the evaporator            |
| 9  | Pressure sensor                                  | 18 | Evaporator                                      |
| 10 | Pressure switch                                  | 19 | Fan   |
| 11 | Silencer   |    |   |

## B Safety devices

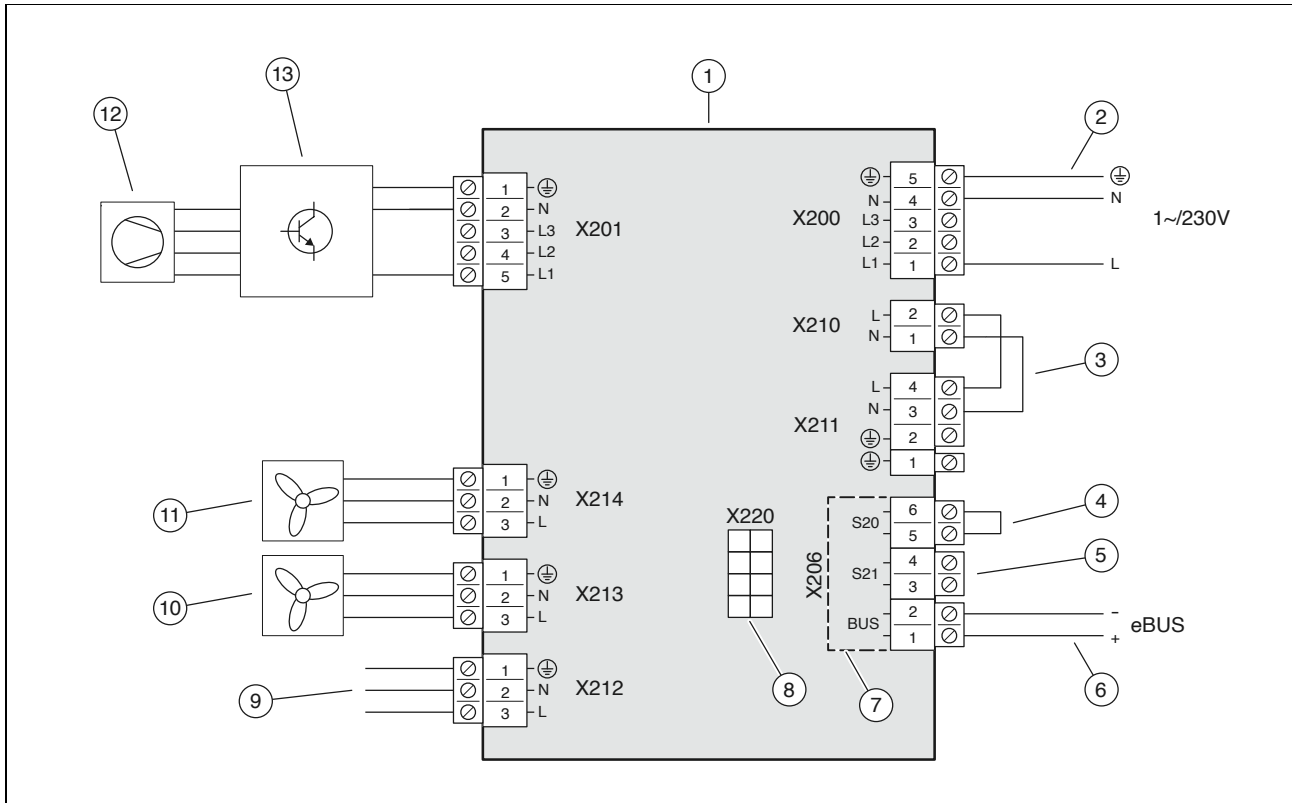


|    |   |    |   |
|----|---|----|---|
| 1  | Heating pump  | 16 | Temperature monitor at the compressor           |
| 2  | Temperature sensor downstream of the back-up heater | 17 | Temperature sensor upstream of the compressor   |
| 3  | Temperature cut-out                                 | 18 | Maintenance connection in the low-pressure area |
| 4  | Electric back-up heater                             | 19 | Temperature sensor at the air inlet             |
| 5  | Purging valve                                       | 20 | Evaporator                                      |
| 6  | Temperature sensor on the heating flow              | 21 | Fan   |
| 7  | Condenser   | 22 | Refrigerant buffer                              |
| 8  | Temperature sensor upstream of the condenser        | 23 | Temperature sensor at the evaporator            |
| 9  | Isolation valve for hot gas pipe                    | 24 | Filter  |
| 10 | 4-port diverter valve                               | 25 | Electronic expansion valve                      |
| 11 | Maintenance connection in the high-pressure area    | 26 | Filter/dryer                                    |
| 12 | Temperature sensor downstream of the compressor     | 27 | Isolation valve for liquid pipe                 |
| 13 | Pressure sensor in the high-pressure area           | 28 | Temperature sensor downstream of the condenser  |
| 14 | Pressure switch in the high-pressure area           | 29 | Temperature sensor on the heating return        |
| 15 | Compressor with refrigerant separator               | 30 | Drain valve                                     |
|    |   | 31 | Expansion vessel                                |



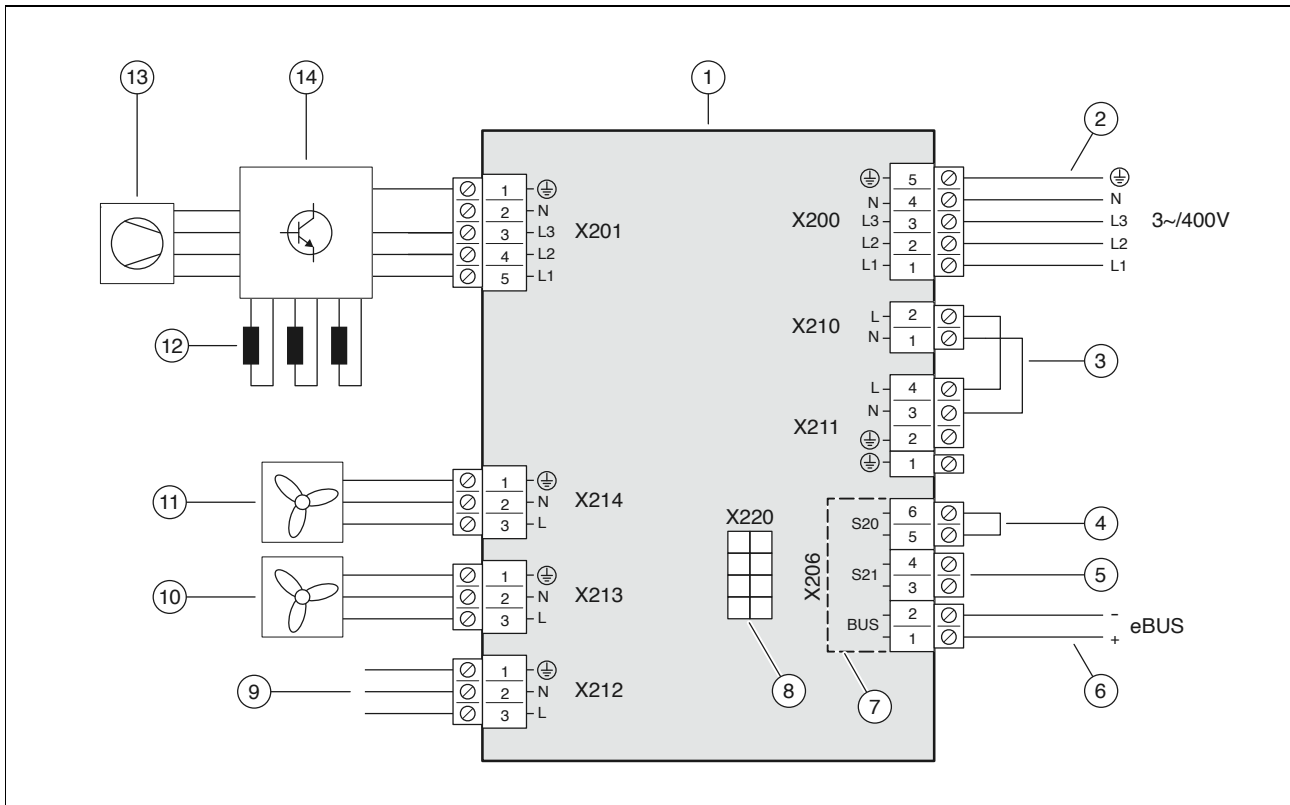
## C Wiring diagram

### C.1 Wiring diagram, power supply, 1~/230V



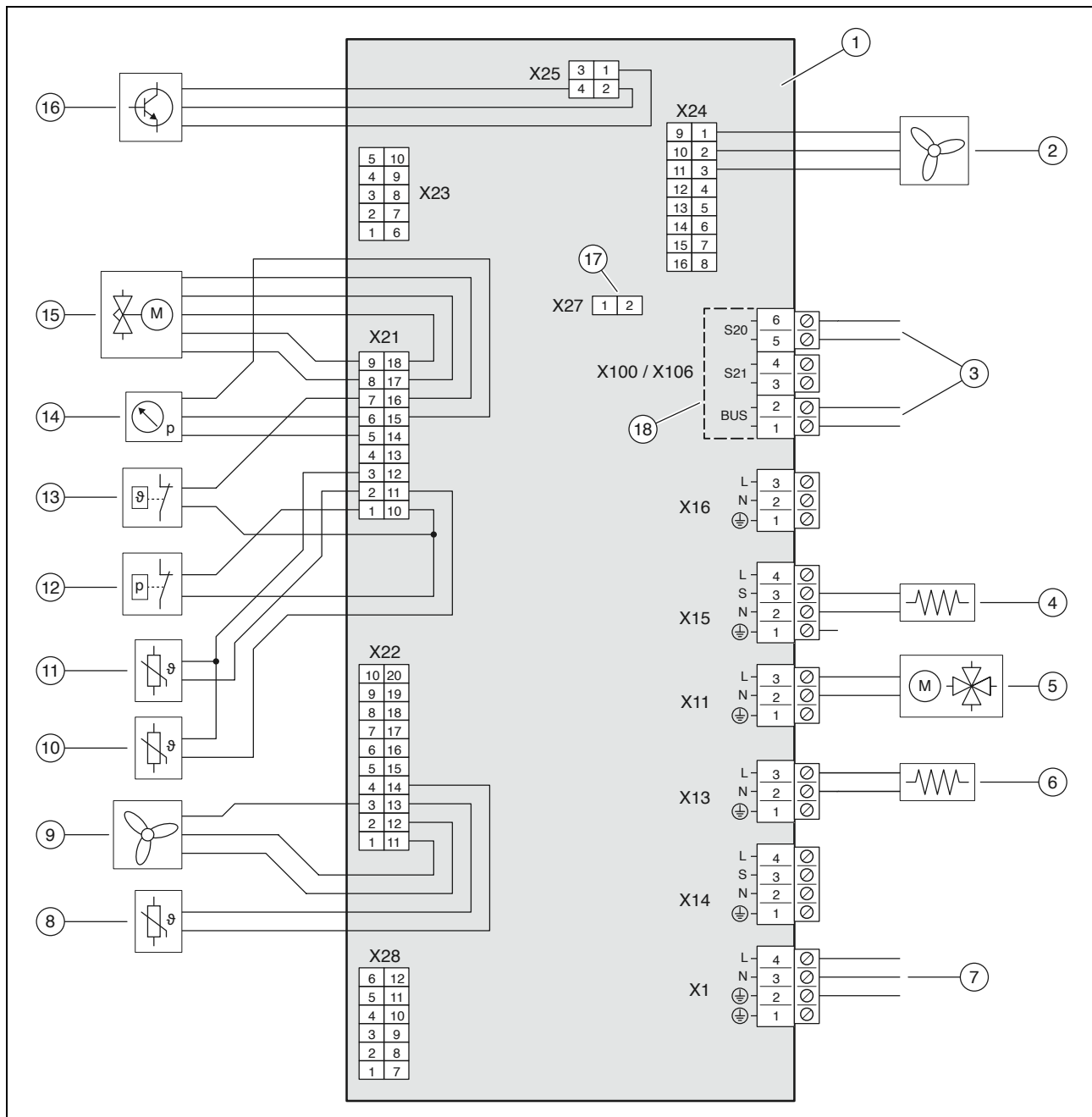
- |   |   |    |   |
|---|---|----|---|
| 1 | INSTALLER BOARD PCB   | 7  | Range for the safety extra-low voltage (SELV) |
| 2 | Power supply connection   | 8  | Connection to the HMU PCB, data line          |
| 3 | Bridge, depending on the type of connection (energy supply company lockout) | 9  | Connection to the HMU PCB, power supply       |
| 4 | Input for limit thermostat, not used  | 10 | Power supply for fan 2, if available          |
| 5 | Input S21, not used   | 11 | Power supply for fan 1                        |
| 6 | eBUS line connection  | 12 | Compressor                                    |
|   |   | 13 | INVERTER assembly                             |

## C.2 Wiring diagram, power supply, 3~/400V




|   |   |    |  |
|---|---|----|--|
| 1 | INSTALLER BOARD PCB   | 8  | Connection to the HMU PCB, data line             |
| 2 | Power supply connection   | 9  | Connection to the HMU PCB, power supply          |
| 3 | Bridge, depending on the type of connection (energy supply company lockout) | 10 | Power supply for fan 2, if available             |
| 4 | Input for limit thermostat, not used  | 11 | Power supply for fan 1                           |
| 5 | Input S21, not used   | 12 | Choke (only for product VWL 105/5 and VWL 125/5) |
| 6 | eBUS line connection  | 13 | Compressor                                       |
| 7 | Range for the safety extra-low voltage (SELV)                               | 14 | INVERTER assembly                                |

### C.3 Wiring diagram, sensors and actuators



- |   |                                       |    |  |
|---|---------------------------------------|----|--|
| 1 | HMU PCB                               | 10 | Temperature sensor, behind the compressor      |
| 2 | Actuation for fan 2, if available     | 11 | Temperature sensor, in front of the compressor |
| 3 | Connection to the INSTALLER BOARD PCB | 12 | Pressure switch                                |
| 4 | Crankcase heating                     | 13 | Temperature monitor                            |
| 5 | 4-port diverter valve                 | 14 | Pressure sensor                                |
| 6 | Condensate tray heater                | 15 | Electronic expansion valve                     |
| 7 | Connection to the INSTALLER BOARD PCB | 16 | Actuation for INVERTER assembly                |
| 8 | Temperature sensor, at the air inlet  | 17 | Slot for coding resistor for cooling mode      |
| 9 | Actuation for fan 1                   | 18 | Range for the safety extra-low voltage (SELV)  |

## D Inspection and maintenance work

| # | Maintenance work   | Interval                         |  |
|---|--|----------------------------------|---|
| 1 | Cleaning the product   | Annually                         | 68  |
| 2 | Cleaning the evaporator  | Annually                         | 68  |
| 3 | Checking the fan   | Annually                         | 68  |
| 4 | Cleaning the condensate discharge  | Annually                         | 68  |
| 5 | Checking the refrigerant circuit   | Annually                         | 69  |
| 6 | <b>Validity:</b> Except Denmark AND Refrigerant volume $\geq$ 2.4 kg OR Denmark AND Refrigerant volume $\geq$ 1.0 kg<br>Checking the refrigerant circuit for tightness | Annually                         | 69  |
| 7 | Checking the electrical connections  | Annually                         | 69  |
| 8 | Checking the small damping feet for wear   | Annually after the first 3 years | 69  |

## E Technical data



### Note

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



### Note

The performance data also covers the noise reduction mode (unit operates with reduced noise emissions).



### Note

The performance data is determined using a special test method. You can find information about this from the manufacturer of the product by stating "Performance data test method".

### Technical data – General

|                                       | VWL 35/5<br>AS 230V<br>(S2)                                      | VWL 55/5<br>AS 230V<br>(S2)                                      | VWL 75/5<br>AS 230V<br>(S2)                                      | VWL 105/5<br>AS 230V<br>(S2)                                     | VWL 105/5<br>AS (S2)  | VWL 125/5<br>AS 230V<br>(S2)                                     | VWL 125/5<br>AS (S2)  |
|---------------------------------------|--|--|--|--|---|--|---|
| <b>Width</b>                          | 1,100 mm   | 1,100 mm   | 1,100 mm   | 1,100 mm   | 1,100 mm  | 1,100 mm   | 1,100 mm  |
| <b>Height</b>                         | 765 mm   | 765 mm   | 965 mm   | 1,565 mm   | 1,565 mm  | 1,565 mm   | 1,565 mm  |
| <b>Depth</b>                          | 450 mm   | 450 mm   | 450 mm   | 450 mm   | 450 mm  | 450 mm   | 450 mm  |
| <b>Weight, with packaging</b>         | 111.4 kg   | 111.4 kg   | 126 kg   | 187 kg   | 206 kg  | 187 kg   | 206 kg  |
| <b>Weight, ready for operation</b>    | 92.2 kg  | 92.2 kg  | 106.3 kg   | 162.5 kg   | 181.5 kg  | 162.5 kg   | 181.5 kg  |
| <b>Rated voltage</b>                  | 230 V<br>(+10%/-<br>15%),<br>50 Hz,<br>1~/N/PE                   | 230 V<br>(+10%/-<br>15%),<br>50 Hz,<br>1~/N/PE                   | 230 V<br>(+10%/-<br>15%),<br>50 Hz,<br>1~/N/PE                   | 230 V<br>(+10%/-<br>15%),<br>50 Hz,<br>1~/N/PE                   | 400 V<br>(+10%/-<br>15%),<br>50 Hz,<br>3~/N/PE                  | 230 V<br>(+10%/-<br>15%),<br>50 Hz,<br>1~/N/PE                   | 400 V<br>(+10%/-<br>15%),<br>50 Hz,<br>3~/N/PE                  |
| <b>Rated power, maximum</b>           | 2.96 kW  | 2.96 kW  | 3.84 kW  | 4.90 kW  | 7.60 kW   | 4.90 kW  | 7.60 kW   |
| <b>Rated current, maximum</b>         | 11.5 A   | 11.5 A   | 14.9 A   | 21.3 A   | 13.5 A  | 21.3 A   | 13.5 A  |
| <b>In-rush current</b>                | 11.5 A   | 11.5 A   | 14.9 A   | 21.3 A   | 13.5 A  | 21.3 A   | 13.5 A  |
| <b>IP rating</b>                      | IP 15 B  | IP 15 B  | IP 15 B  | IP 15 B  | IP 15 B   | IP 15 B  | IP 15 B   |
| <b>Fuse type</b>                      | Character-<br>istic C,<br>slow-blow,<br>single-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>single-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>single-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>single-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>three-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>single-pole<br>switching | Character-<br>istic C,<br>slow-blow,<br>three-pole<br>switching |
| <b>Overvoltage category</b>           | II   | II   | II   | II   | II  | II   | II  |
| <b>Fan, power consumption</b>         | 50 W   | 50 W   | 50 W   | 50 W   | 50 W  | 50 W   | 50 W  |
| <b>Fan, quantity</b>                  | 1  | 1  | 1  | 2  | 2   | 2  | 2   |
| <b>Fan, rotational speed, maximum</b> | 620 rpm  | 620 rpm  | 620 rpm  | 680 rpm  | 680 rpm   | 680 rpm  | 680 rpm   |
| <b>Fan, air flow, maximum</b>         | 2,300 m <sup>3</sup> /h  | 2,300 m <sup>3</sup> /h  | 2,300 m <sup>3</sup> /h  | 5,100 m <sup>3</sup> /h  | 5,100 m <sup>3</sup> /h   | 5,100 m <sup>3</sup> /h  | 5,100 m <sup>3</sup> /h   |

## Technical data – Refrigerant circuit

|   | VWL 35/5<br>AS 230V<br>(S2)    | VWL 55/5<br>AS 230V<br>(S2)    | VWL 75/5<br>AS 230V<br>(S2)    | VWL 105/5<br>AS 230V<br>(S2)   | VWL 105/5<br>AS (S2)           | VWL 125/5<br>AS 230V<br>(S2)   | VWL 125/5<br>AS (S2)           |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Material, refrigerant pipe  | Copper                         | Copper                         | Copper                         | Copper                         | Copper                         | Copper                         | Copper                         |
| Basic length, refrigerant pipe, minimum                                       | 3 m                            | 3 m                            | 3 m                            | 3 m                            | 3 m                            | 3 m                            | 3 m                            |
| Basic length of the refrigerant pipe, maximum, outdoor unit above indoor unit | 40 m                           | 40 m                           | 40 m                           | 40 m                           | 40 m                           | 40 m                           | 40 m                           |
| Permissible height difference, outdoor unit above the indoor unit             | 30 m                           | 30 m                           | 30 m                           | 30 m                           | 30 m                           | 30 m                           | 30 m                           |
| Basic length of the refrigerant pipe, maximum, indoor unit above outdoor unit | 25 m                           | 25 m                           | 25 m                           | 25 m                           | 25 m                           | 25 m                           | 25 m                           |
| Permissible height difference, indoor unit above the outdoor unit             | 10 m                           | 10 m                           | 10 m                           | 10 m                           | 10 m                           | 10 m                           | 10 m                           |
| Connection technology, refrigerant pipe                                       | Flare connection               | Flare connection               | Flare connection               | Flare connection               | Flare connection               | Flare connection               | Flare connection               |
| Outer diameter, hot gas pipe  | 1/2"<br>(12.7 mm)              | 1/2"<br>(12.7 mm)              | 5/8"<br>(15.875 mm)            | 5/8"<br>(15.875 mm)            | 5/8"<br>(15.875 mm)            | 5/8"<br>(15.875 mm)            | 5/8"<br>(15.875 mm)            |
| Outer diameter, liquid pipe   | 1/4"<br>(6.35 mm)              | 1/4"<br>(6.35 mm)              | 3/8"<br>(9.575 mm)             | 3/8"<br>(9.575 mm)             | 3/8"<br>(9.575 mm)             | 3/8"<br>(9.575 mm)             | 3/8"<br>(9.575 mm)             |
| Minimum wall thickness, hot gas pipe  | 0.8 mm                         | 0.8 mm                         | 0.95 mm                        | 0.95 mm                        | 0.95 mm                        | 0.95 mm                        | 0.95 mm                        |
| Minimum wall thickness, liquid pipe   | 0.8 mm                         | 0.8 mm                         | 0.8 mm                         | 0.8 mm                         | 0.8 mm                         | 0.8 mm                         | 0.8 mm                         |
| Refrigerant, type   | R410A                          | R410A                          | R410A                          | R410A                          | R410A                          | R410A                          | R410A                          |
| Refrigerant, fill quantity  | 1.50 kg                        | 1.50 kg                        | 2.39 kg                        | 3.60 kg                        | 3.60 kg                        | 3.60 kg                        | 3.60 kg                        |
| Refrigerant, Global Warming Potential (GWP)                                   | 2088                           | 2088                           | 2088                           | 2088                           | 2088                           | 2088                           | 2088                           |
| Refrigerant, CO <sub>2</sub> equivalent                                       | 3.13 t                         | 3.13 t                         | 4.99 t                         | 7.52 t                         | 7.52 t                         | 7.52 t                         | 7.52 t                         |
| Permissible operating pressure, maximum                                       | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        | 4.15 MPa<br>(41.50 bar)        |
| Compressor, type  | Rotary piston                  | Rotary piston                  | Rotary piston                  | Rotary piston                  | Rotary piston                  | Rotary piston                  | Rotary piston                  |
| Compressor, oil type  | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) | Specific polyvinyl ether (PVE) |
| Compressor, control   | Electronic                     | Electronic                     | Electronic                     | Electronic                     | Electronic                     | Electronic                     | Electronic                     |

## Technical data – Application limits, heating mode

|  | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|--|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Air temperature, minimum                                       | -20 °C                      | -20 °C                      | -20 °C                      | -20 °C                       | -20 °C               | -20 °C                       | -20 °C               |
| Air temperature, maximum                                       | 20 °C                       | 20 °C                       | 20 °C                       | 20 °C                        | 20 °C                | 20 °C                        | 20 °C                |
| Air temperature, minimum, during domestic hot water generation | -20 °C                      | -20 °C                      | -20 °C                      | -20 °C                       | -20 °C               | -20 °C                       | -20 °C               |
| Air temperature, maximum, during domestic hot water generation | 43 °C                       | 43 °C                       | 43 °C                       | 43 °C                        | 43 °C                | 43 °C                        | 43 °C                |

## Technical data – Application limits, cooling mode

Validity: Product with cooling mode

|                          | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|--------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Air temperature, minimum | 15 °C                       | 15 °C                       | 15 °C                       | 15 °C                        | 15 °C                | 15 °C                        | 15 °C                |
| Air temperature, maximum | 46 °C                       | 46 °C                       | 46 °C                       | 46 °C                        | 46 °C                | 46 °C                        | 46 °C                |

## Technical data – Power, heating mode

|  | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|--|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Heat output, A2/W35  | 2.46 kW                     | 3.37 kW                     | 4.51 kW                     | 8.20 kW                      | 8.20 kW              | 8.23 kW                      | 8.23 kW              |
| Coefficient of performance, COP, EN 14511, A2/W35                            | 3.75                        | 3.67                        | 3.68                        | 3.87                         | 3.87                 | 3.64                         | 3.64                 |
| Power consumption, effective, A2/W35   | 0.66 kW                     | 0.92 kW                     | 1.23 kW                     | 2.12 kW                      | 2.12 kW              | 2.26 kW                      | 2.26 kW              |
| Power consumption, A2/W35  | 3.20 A                      | 4.40 A                      | 5.50 A                      | 10.20 A                      | 3.30 A               | 10.50 A                      | 3.40 A               |
| Heat output, A7/W35  | 3.13 kW                     | 4.42 kW                     | 5.78 kW                     | 9.70 kW                      | 9.70 kW              | 10.25 kW                     | 10.25 kW             |
| Coefficient of performance, COP, EN 14511, A7/W35                            | 4.89                        | 4.68                        | 4.58                        | 4.57                         | 4.57                 | 4.54                         | 4.54                 |
| Power consumption, effective, A7/W35   | 0.64 kW                     | 0.95 kW                     | 1.26 kW                     | 2.12 kW                      | 2.12 kW              | 2.26 kW                      | 2.26 kW              |
| Power consumption, A7/W35  | 3.20 A                      | 4.60 A                      | 5.80 A                      | 9.90 A                       | 3.20 A               | 10.50 A                      | 3.50 A               |
| Heat output, A7/W45  | 3.05 kW                     | 4.04 kW                     | 5.47 kW                     | 9.06 kW                      | 9.06 kW              | 9.60 kW                      | 9.60 kW              |
| Coefficient of performance, COP, EN 14511, A7/W45                            | 3.54                        | 3.49                        | 3.57                        | 3.49                         | 3.49                 | 3.49                         | 3.49                 |
| Power consumption, effective, A7/W45   | 0.86 kW                     | 1.16 kW                     | 1.53 kW                     | 2.60 kW                      | 2.60 kW              | 2.75 kW                      | 2.75 kW              |
| Power consumption, A7/W45  | 4.10 A                      | 5.40 A                      | 6.80 A                      | 12.00 A                      | 4.10 A               | 12.70 A                      | 4.30 A               |
| Heat output, A7/W55  | 2.73 kW                     | 3.69 kW                     | 4.95 kW                     | 10.35 kW                     | 10.35 kW             | 10.90 kW                     | 10.90 kW             |
| Coefficient of performance, COP, EN 14511, A7/W55                            | 2.62                        | 2.67                        | 2.69                        | 2.77                         | 2.77                 | 2.77                         | 2.77                 |
| Power consumption, effective, A7/W55   | 1.05 kW                     | 1.38 kW                     | 1.84 kW                     | 3.74 kW                      | 3.74 kW              | 3.94 kW                      | 3.94 kW              |
| Power consumption, A7/W55  | 4.90 A                      | 6.30 A                      | 8.00 A                      | 17.00 A                      | 5.80 A               | 18.30 A                      | 6.20 A               |
| Heat output, A-7/W35   | 3.56 kW                     | 4.88 kW                     | 6.68 kW                     | 10.15 kW                     | 10.15 kW             | 11.80 kW                     | 11.80 kW             |
| Coefficient of performance, COP, EN 14511, A-7/W35                           | 3.11                        | 2.67                        | 2.64                        | 2.78                         | 2.78                 | 2.45                         | 2.45                 |
| Power consumption, effective, A-7/W35  | 1.15 kW                     | 1.83 kW                     | 2.53 kW                     | 3.65 kW                      | 3.65 kW              | 4.81 kW                      | 4.81 kW              |
| Power consumption, A-7/W35   | 5.40 A                      | 8.60 A                      | 11.80 A                     | 17.40 A                      | 5.70 A               | 22.70 A                      | 7.50 A               |
| Heat output, A-7/W35, noise reduction mode 40%                               | 3.20 kW                     | 3.20 kW                     | 4.20 kW                     | 7.50 kW                      | 7.50 kW              | 7.50 kW                      | 7.50 kW              |
| Coefficient of performance, COP, EN 14511, A-7/W35, noise reduction mode 40% | 3.10                        | 3.10                        | 3.10                        | 2.90                         | 2.90                 | 2.90                         | 2.90                 |
| Heat output, A-7/W35, noise reduction mode 50%                               | 2.70 kW                     | 2.70 kW                     | 3.50 kW                     | 6.30 kW                      | 6.30 kW              | 6.30 kW                      | 6.30 kW              |
| Coefficient of performance, COP, EN 14511, A-7/W35, noise reduction mode 50% | 3.20                        | 3.20                        | 3.20                        | 3.00                         | 3.00                 | 3.00                         | 3.00                 |
| Heat output, A-7/W35, noise reduction mode 60%                               | 2.20 kW                     | 2.20 kW                     | 2.80 kW                     | 5.10 kW                      | 5.10 kW              | 5.10 kW                      | 5.10 kW              |
| Coefficient of performance, COP, EN 14511, A-7/W35, noise reduction mode 60% | 3.20                        | 3.20                        | 3.20                        | 2.90                         | 2.90                 | 2.90                         | 2.90                 |

## Technical data – Power, cooling mode

Validity: Product with cooling mode

|   | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|---|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Cooling output, A35/W18                         | 4.83 kW                     | 4.83 kW                     | 6.30 kW                     | 12.78 kW                     | 12.78 kW             | 12.78 kW                     | 12.78 kW             |
| Energy efficiency ratio, EER, EN 14511, A35/W18 | 3.76                        | 3.76                        | 3.58                        | 3.28                         | 3.28                 | 3.28                         | 3.28                 |
| Power consumption, effective, A35/W18           | 1.29 kW                     | 1.29 kW                     | 1.76 kW                     | 3.90 kW                      | 3.90 kW              | 3.90 kW                      | 3.90 kW              |

|  | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|--|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Power consumption, A35/W18                     | 6.00 A                      | 6.00 A                      | 7.90 A                      | 17.40 A                      | 5.90 A               | 17.40 A                      | 5.90 A               |
| Cooling output, A35/W7                         | 3.12 kW                     | 3.12 kW                     | 6.17 kW                     | 8.69 kW                      | 8.69 kW              | 8.69 kW                      | 8.69 kW              |
| Energy efficiency ratio, EER, EN 14511, A35/W7 | 2.69                        | 2.69                        | 2.32                        | 2.49                         | 2.49                 | 2.49                         | 2.49                 |
| Power consumption, effective, A35/W7           | 1.16 kW                     | 1.16 kW                     | 2.66 kW                     | 3.49 kW                      | 3.49 kW              | 3.49 kW                      | 3.49 kW              |
| Power consumption, A35/W7                      | 5.40 A                      | 5.40 A                      | 7.30 A                      | 15.50 A                      | 5.10 A               | 15.50 A                      | 5.10 A               |

#### Technical data – Noise emissions, heating mode

|   | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|---|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Sound power, EN 12102, EN ISO 9614-1, A7/W35                            | 51 dB(A)                    | 53 dB(A)                    | 54 dB(A)                    | 58 dB(A)                     | 58 dB(A)             | 59 dB(A)                     | 58 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A7/W45                            | 51 dB(A)                    | 53 dB(A)                    | 55 dB(A)                    | 59 dB(A)                     | 58 dB(A)             | 59 dB(A)                     | 59 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A7/W55                            | 53 dB(A)                    | 54 dB(A)                    | 54 dB(A)                    | 60 dB(A)                     | 60 dB(A)             | 60 dB(A)                     | 60 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A-7/W35, noise reduction mode 40% | 52 dB(A)                    | 52 dB(A)                    | 52 dB(A)                    | 57 dB(A)                     | 59 dB(A)             | 57 dB(A)                     | 59 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A-7/W35, noise reduction mode 50% | 50 dB(A)                    | 50 dB(A)                    | 50 dB(A)                    | 56 dB(A)                     | 57 dB(A)             | 56 dB(A)                     | 57 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A-7/W35, noise reduction mode 60% | 46 dB(A)                    | 46 dB(A)                    | 48 dB(A)                    | 53 dB(A)                     | 55 dB(A)             | 53 dB(A)                     | 55 dB(A)             |

#### Technical data – Noise emissions, cooling mode

Validity: Product with cooling mode

|   | VWL 35/5<br>AS 230V<br>(S2) | VWL 55/5<br>AS 230V<br>(S2) | VWL 75/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS 230V<br>(S2) | VWL 105/5<br>AS (S2) | VWL 125/5<br>AS 230V<br>(S2) | VWL 125/5<br>AS (S2) |
|---|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------|------------------------------|----------------------|
| Sound power, EN 12102, EN ISO 9614-1, A35/W18 | 54 dB(A)                    | 54 dB(A)                    | 56 dB(A)                    | 59 dB(A)                     | 59 dB(A)             | 59 dB(A)                     | 59 dB(A)             |
| Sound power, EN 12102, EN ISO 9614-1, A35/W7  | 54 dB(A)                    | 54 dB(A)                    | 55 dB(A)                    | 58 dB(A)                     | 59 dB(A)             | 58 dB(A)                     | 59 dB(A)             |

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## Country specifics

### 1 DK, Denmark

#### 1.1 Eftersyn og service

Ifølge Dansk lovgivning skal produkter der indeholder en kølemiddel fyldning større end 1 kg, efterses mindst en gang årligt, af en person der opfylder kvalifikationskravene for at udføre service på sådanne anlæg.

#### 1.2 Garanti

Vaillant yder en garanti på to år regnet fra opstartsdatoen, dog 10 år på scrollkompressoren i flexoTHERM. I denne garantiperiode afhjælper Vaillant kundeservice gratis materiale- eller fabrikationsfejl.

For fejl, som ikke skyldes materiale- eller fabrikationsfejl, f.eks. på grund af en usagkyndig installation eller ureguleret anvendelse, påtager Vaillant sig ikke noget ansvar.

Fabriksgarantien dækker kun, når installationen er udført af en vvs-installatør /elinstallatør. Hvis der udføres service/ reparation af andre end Vaillant kundeservice, bortfalder garantien, medmindre dette arbejde udføres af en installatør med de nødvendige kvalifikationer.

#### 1.3 Kundeservice

##### Vaillant A/S

Drejergangen 3 A  
DK-2690 Karlslunde  
Telefon 46 160200  
Vaillant Kundeservice 46 160200  
info@vaillant.dk  
www.vaillant.dk

### 2 FI, Finland

#### 2.1 Takuu

Takuu vastaa maanne lainmukaisia määräyksiä.

#### 2.2 Asiakaspalvelu

Asiakaspalvelumme yhteystiedot löytyvät takapuoilella mainitun osoitteen alta tai WWW-sivulta osoitteesta www.vaillant.fi.

### 3 GB, Great Britain

#### 3.1 Commissioning Checklist

You can find the Commissioning Checklist at the end of this document.

#### 3.2 Benchmark

Vaillant is a licensed member of the Benchmark Scheme.

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by a competent person approved at the time by the Health and Safety Executive and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme.

Benchmark is managed and promoted by the Heating and Hotwater Industry Council.



For more information visit [www.centralheating.co.uk](http://www.centralheating.co.uk)

#### 3.3 Guarantee

Vaillant provides a full parts and labour guarantee for this appliance for the duration as shown on the enclosed registration card which must be fully completed and returned within 30 days of installation. All appliances must be installed by a suitably competent person fully conversant and in accordance with all current regulations applicable to the appliance type installation. In the case of gas appliances the Gas Safety (Installation and Use) Regulations 1998, and the manufacturer's instructions. In the UK competent persons approved at the time by the Health and Safety Executive undertake the work in compliance with safe and satisfactory standards. Installers should also be fully conversant with and competent with all necessary electrical and building regulations that may apply to the installation.

In addition all unvented domestic hot water cylinders must be installed by a competent person to the prevailing building regulations at the time of installation (G3). All appliances shall be fully commissioned in accordance with our installation manual and Benchmark commissioning check list (this will be included within the installation manual). These must be signed and given to the user for safe keeping during the hand over process. Installers should also at this time advise the user of the annual servicing requirements and advise of appropriate service agreement.

Terms and conditions do apply to the guarantee, details of which can be found on the registration card included with this appliance. In order to qualify for guarantee after one year the appliance must be serviced in accordance with our installation manual servicing instructions. The benchmark service history should be completed. Note - all costs associated with this service are excluded from this guarantee.

Failure to install and commission this appliance in compliance with the manufacturer's instructions will invalidate the

guarantee (this does not affect the customer's statutory rights).

### **3.4 Customer service**

For contact details for our customer service department, you can write to the address that is provided on the back page, or you can visit [www.vaillant.co.uk](http://www.vaillant.co.uk).

## **4 NO, Norway**

### **4.1 Fabrikkgaranti**

I løpet av garantiperioden utbedres gratis fastslåtte material- eller fabrikkasjonsfeil på apparatet av Vaillant Kundeservice.

Vi påtar oss intet ansvar for feil som ikke skyldes material- eller fabrikkasjonsfeil, f.eks. feil på grunn av feil installasjon eller ikke forskriftsmessig behandling. Vi gir fabrikkgaranti kun når apparatet er installert av anerkjente fagfolk. Hvis andre enn vår kundeservice utfører arbeid, oppheves fabrikkgarantien, da alt arbeid skal utføres av godkjente fagfolk.

Fabrikkgarantien oppheves også hvis det er montert inn deler i apparatet som ikke er tillatt av Vaillant.

Krav som går ut over gratis reparasjon av feil, f.eks. krav om skadeerstatning, omfattes ikke av fabrikkgarantien.

### **4.2 Kundeservice**

Kontaktdata for vår kundeservice finner du på adressen som står på baksiden eller på [www.vaillant.no](http://www.vaillant.no).

## **5 SE, Sweden**

### **5.1 Fabriksgaranti**

Vaillant lämnar dig som ägare en garanti under två år från datum för drifttagningen. Under denna tid avhjälper Vaillants kundtjänst kostnadsfritt material- eller tillverkningsfel.

Vi åtar oss inget ansvar för fel, som inte beror på material- eller tillverkningsfel, t.ex. fel på grund av osakkunnig installering eller hantering i strid mot föreskrifterna. Vi lämnar fabriksgaranti endast om apparaten installerats av en auktoriserad fackman.

Om arbeten på apparaten inte utförs av vår kundtjänst, bortfaller fabriksgarantin. Fabriksgarantin bortfaller också om delar, som inte godkänns av Vaillant, monteras i apparaten.

Fabriksgarantin täcker inte anspråk utöver kostnadsfritt avhjälpande av fel, t.ex. skadeståndskrav.

### **5.2 Kundtjänst**

Kontaktadresser för vår kundtjänst hittar du på baksidan angiven adress eller på [www.vaillant.se](http://www.vaillant.se).

## Benchmark Commissioning & Warranty Validation Service Record

It is a requirement that the heat pump is installed and commissioned to the manufacturers' instructions and the data fields on the commissioning checklist completed in full.

To instigate the warranty the heat pump needs to be registered with the manufacturer within one month of the installation. The warranty rests with the end-user (consumer), and they should be made aware it is ultimately their responsibility to register with the manufacturer, within the allotted time period.

It is essential that the heat pump is serviced in line with the manufacturers' recommendations, at least annually. This must be carried out by a competent, certified operative. The service details should be recorded on the Benchmark Service and Interim Heat Pump Work Record and left with the householder. Failure to comply with the manufacturers' servicing instructions and requirements will invalidate the warranty.



[www.hhic.co.uk](http://www.hhic.co.uk)

**This Commissioning Checklist is to be completed in full by the competent person who commissioned the heat pump and associated equipment as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.**

Failure to install and commission according to the manufacturers' instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

\* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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[www.hhic.org.uk](http://www.hhic.org.uk)  
Issue date: 20.08.2020

## AIR TO WATER HEAT PUMP COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the heat pump and associated equipment as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

|  |                                  |
|--|----------------------------------|
| Customer name:   | Telephone number:                |
| Address:   |                                  |
| Heat Pump Make and Model                                     |                                  |
| Heat Pump Serial Number                                      |                                  |
| Commissioned by (PRINT NAME):                                | Certified Operative Reg. No. [1] |
| Company name:  | Telephone number:                |
| Company address:   |                                  |
|  | Commissioning date:              |
| Building Regulations Notification Number (if applicable) [2] |                                  |

| CONTROLS - SYSTEM AND HEAT PUMP (tick the appropriate boxes) |  |    |                                       |
|--|--|----|---------------------------------------|
| Time and temperature control to heating                      | Room thermostat and programmer/timer     |    | Programmable Roomstat                 |
|  | Load/weather compensation                |    | Optimum start control                 |
| Time and temperature control to hot water                    | Cylinder thermostat and programmer/timer |    | Combined with Heat pump main controls |
| Heating zone valves (including underfloor loops)             | Fitted                                   |    | Not required                          |
| Hot water zone valves  | Fitted                                   |    | Not required                          |
| Thermostatic radiator valves                                 | Fitted                                   |    | Not required                          |
| Heat Pump Safety Interlock [3]                               | Built In                                 |    | Provided                              |
| Outdoor Sensor   | Fitted                                   |    | Not required                          |
| Automatic bypass to system                                   | Fitted                                   |    | Not required                          |
| Buffer Vessel Fitted   | Yes                                      | No | If YES Volume: Litres                 |

| ALL SYSTEMS   |                 |
|---|-----------------|
| The heating system has been filled and pressure tested  | Yes             |
| Expansion vessel for heating is sized, fitted & charged in accordance with manufacturer's instructions      | Yes             |
| The heat pump is fitted on a solid/stable surface capable of taking its weight                              | Yes             |
| The system has been flushed and cleaned in accordance with BS7593 and heat pump manufacturer's instructions | Yes             |
| What system cleaner was used?   |                 |
| What inhibitor was used?  | Quantity litres |
| Is the system adequately frost protected?   | Yes             |

| OUTDOOR UNIT  |     |
|---|-----|
| Are all external pipeworks insulated?                           | Yes |
| Is the fan free from obstacles and operational?                 | Yes |
| Has suitable consideration been made for waste water discharge? | Yes |

| CENTRAL HEATING MODE     |                                  |
|--------------------------|----------------------------------|
| Heating Flow Temperature | °C Heating Return Temperature °C |

| DOMESTIC HOT WATER MODE Measure and Record:         |          |  |                  |
|---|----------|--|------------------|
| Is the heat pump connected to a hot water cylinder? | Unvented | Vented   | Thermal Store    |
| Hot water has been checked at all outlets           | Yes      | Have Thermostatic Blending Valves been fitted? | Yes Not required |

| ADDITIONAL SYSTEM INFORMATION      |            |            |                 |               |        |
|------------------------------------|------------|------------|-----------------|---------------|--------|
| Additional heat sources connected: | Gas Boiler | Oil Boiler | Electric Heater | Solar Thermal | Other: |

| ALL INSTALLATIONS  |     |
|--|-----|
| The heating, hot water and ventilation systems complies with the appropriate Building Regulations                              | Yes |
| All electrical work complies with the appropriate Regulations  | Yes |
| The heat pump and associated products have been installed and commissioned in accordance with the manufacturer's instructions  | Yes |
| The operation of the heat pump and system controls have been demonstrated to the customer                                      | Yes |
| The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer | Yes |

|  |
|--|
| Commissioning Engineer's Signature   |
| Customer's Signature   |
| (To confirm satisfactory demonstration and receipt of manufacturer's literature) |

Notes: [1] Installers should be members of an appropriate Competent Persons Scheme. [2] All installations in England and Wales must be notified to Local Area Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer. [3] May be required for systems covered by G3 Regulations



## SERVICE RECORD

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

### Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions. Always use the manufacturer's specified spare part when replacing controls.

|                   |       |                   |       |
|-------------------|-------|-------------------|-------|
| <b>SERVICE 01</b> | Date: | <b>SERVICE 02</b> | Date: |
| Engineer name:    |       | Engineer name:    |       |
| Company name:     |       | Company name:     |       |
| Telephone No:     |       | Telephone No:     |       |
| Operative ID No:  |       | Operative ID No:  |       |
| Comments:         |       | Comments:         |       |
|                   |       |                   |       |
|                   |       |                   |       |
| Signature         |       | Signature         |       |
| <b>SERVICE 03</b> | Date: | <b>SERVICE 04</b> | Date: |
| Engineer name:    |       | Engineer name:    |       |
| Company name:     |       | Company name:     |       |
| Telephone No:     |       | Telephone No:     |       |
| Operative ID No:  |       | Operative ID No:  |       |
| Comments:         |       | Comments:         |       |
|                   |       |                   |       |
|                   |       |                   |       |
| Signature         |       | Signature         |       |
| <b>SERVICE 05</b> | Date: | <b>SERVICE 06</b> | Date: |
| Engineer name:    |       | Engineer name:    |       |
| Company name:     |       | Company name:     |       |
| Telephone No:     |       | Telephone No:     |       |
| Operative ID No:  |       | Operative ID No:  |       |
| Comments:         |       | Comments:         |       |
|                   |       |                   |       |
|                   |       |                   |       |
| Signature         |       | Signature         |       |
| <b>SERVICE 07</b> | Date: | <b>SERVICE 08</b> | Date: |
| Engineer name:    |       | Engineer name:    |       |
| Company name:     |       | Company name:     |       |
| Telephone No:     |       | Telephone No:     |       |
| Operative ID No:  |       | Operative ID No:  |       |
| Comments:         |       | Comments:         |       |
|                   |       |                   |       |
|                   |       |                   |       |
| Signature         |       | Signature         |       |
| <b>SERVICE 09</b> | Date: | <b>SERVICE 10</b> | Date: |
| Engineer name:    |       | Engineer name:    |       |
| Company name:     |       | Company name:     |       |
| Telephone No:     |       | Telephone No:     |       |
| Operative ID No:  |       | Operative ID No:  |       |
| Comments:         |       | Comments:         |       |
|                   |       |                   |       |
|                   |       |                   |       |
| Signature         |       | Signature         |       |

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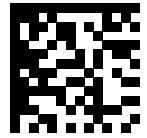
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