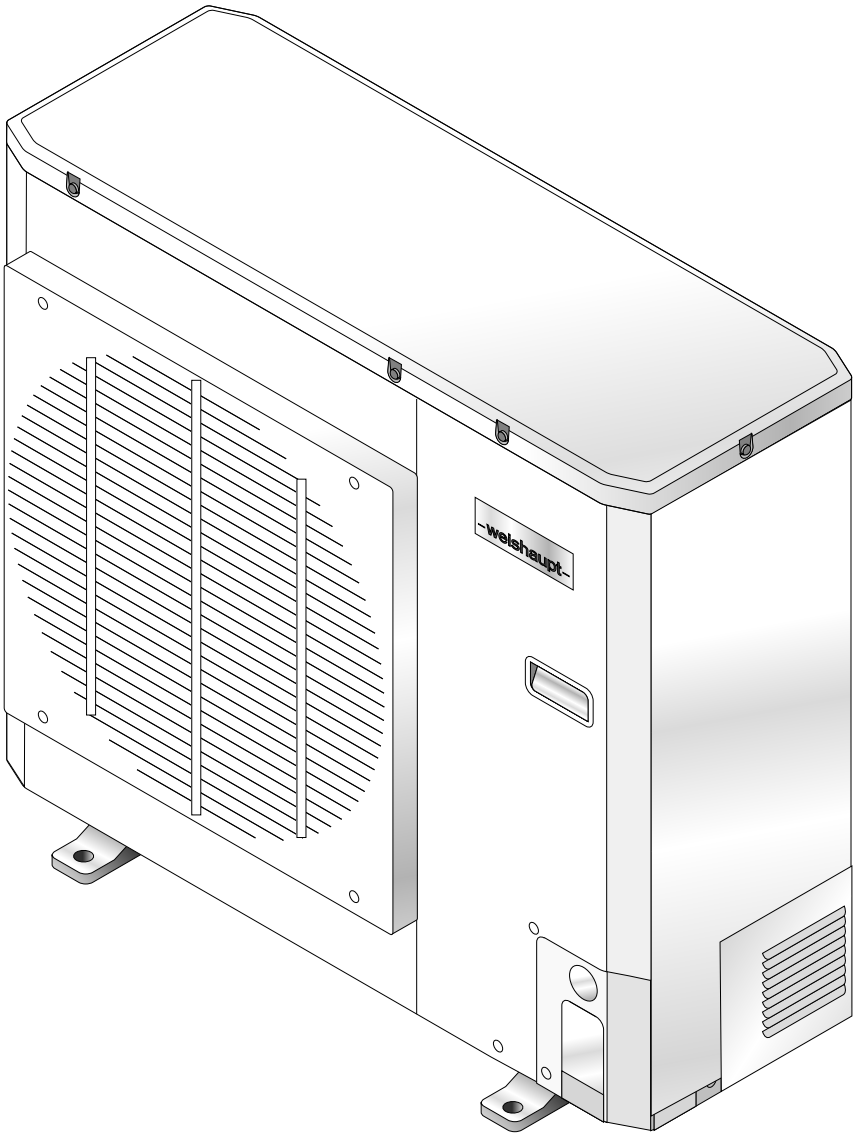
–weishaupt–

# manual

Installation and operating instruction




**Outdoor unit WWP L 7 AERS**

83279402 ▪ 1/2013-08

# Conformity certification

5115000002

Manufacturer: **Max Weishaupt GmbH**

Address: **Max-Weishaupt-Straße**
**D-88475 Schwendi**

Product: Outdoor unit

**WWP L 7 AERS**

The product described above conforms with

the regulations of directives:

| | |
|---|---|
| LVD | 2006 / 95 / EC |
| EMC | 2004 / 108 / EC |

This product is labelled as follows:

CE

Schwendi, 21.05.2013

ppa.

Dr. Schloen

Manager Research
and Development

ppa.

Denkinger

Manager Production and
Quality Management

# 1 User instructions

This installation and operating manual forms part of the appliance and must be kept on site.

## 1.1 User guide

### 1.1.1 Symbols

| | |
|---|---|
|  **DANGER** | Immediate danger with high risk.<br>Non observance can lead to serious injury or death. |
|  **WARNING** | Danger with medium risk.<br>Non observance can lead to environmental damage, serious injury or death. |
|  **CAUTION** | Danger with low risk.<br>Non observance can cause damage to the equipment and injury to personnel. |
|  | Important information |
| ▶ | Requires direct action |
| ✓ | Result after an action |
| ▪ | Itemisation |
| ... | Range of values |

### 1.1.2 Target group

These installation and operating instructions are intended for the operator and qualified personnel. They should be observed by all personnel working on the unit.

Work on the unit must only be carried out by personnel who have the relevant training and instruction.

Persons with limited physical, sensory or mental capabilities may only work on the unit if they are supervised or have been trained by an authorised person.

Children must not play near or on the unit.

## 1.2 Guarantee and Liability

Guarantee and liability claims for personal and equipment damage are excluded, if they can be attributed to one or more of the following causes:

- Non approved application,
- non-observance of the installation and operating instruction,
- operation with faulty safety equipment,
- continual operation despite a fault,
- improper installation, commissioning, operation and service,
- unauthorised modifications made to the unit,
- the installation of additional components, which have not been tested with the unit,
- repairs, which have been carried out incorrectly,
- the use of non original Weishaupt parts,
- unsuitable media,
- defects in the inlet lines,
- acts of God.

# 2 Safety

## 2.1 Permissible application

The outdoor unit is suitable for heating and cooling of refrigerant R410A.

The unit is only suitable for domestic application. It is not suitable for use in industrial processes.

Improper use could:
- endanger the health and safety of the user or third parties,
- cause damage to the unit or other material assets.

## 2.2 Procedure when refrigerant leaks

The outdoor unit is filled with refrigerant. When storing and installing the unit in a room please observe:

Leaking refrigerant collects at the base of the unit. Inhalation may cause suffocation, and even death.

Avoid open flames and spark generation.

- ► Use protection provided on site to isolate the outdoor unit/system from the mains supply.
- ► Open doors and windows.
- ► Leave the room.
- ► Warn all tenants.
- ► Notify refrigeration engineer.

## 2.3 Safety measures

Safety relevant fault conditions must be eliminated immediately.

### 2.3.1 Normal operation

- All labels on the unit must be kept in a legible condition,
- only operate the unit with its panels fitted,
- stipulated settings, service and inspection work should be carried out at regular intervals.

### 2.3.2 Electrical connection

For work carried out on live parts:
- Observe the accident prevention instructions BGV A3 and adhere to local directives,
- tools in accordance with EN 60900 should be used.

### 2.3.3 Refrigeration circuit

- Only a competent person in accordance with §5 ChemKlimaSchutzV (Carbon Chemical Regulation) may install, alter and service a refrigeration circuit.
- Observe BG regulation "Operating works material" (BGR 500).
- Wear safety glasses and work gloves when handling refrigerant.
- Carry out soundness test with leakage detector after each service and fault rectification.

## 2.4 Disposal

Dispose of all materials used in a safe and environmentally friendly way. Observe local regulations.

Dispose of refrigerant in the correct manner.

# 3 Product description

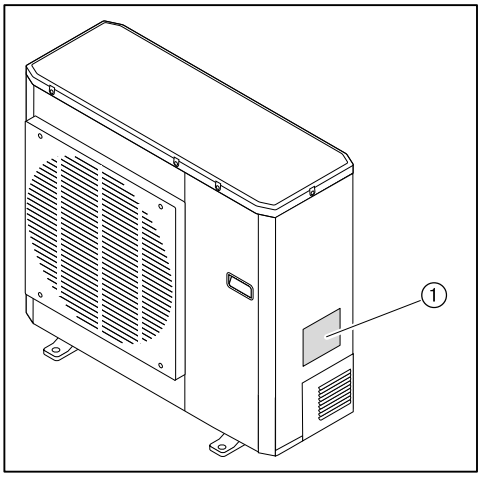
## 3.1 Type key

WWP L 7 AERS

| | |
|---|---|
| WWP | Type: Weishaupt heat pump |
| L | Heat source: Air |
| 7 | Size: 7 |
| A | Version: Outdoor installation |
| E | Version: Single phase |
| R | Version: Reversible |
| S | Version: Split |

## 3.2 Serial number

The serial number on the name plate identifies the product. This is required by Weishaupt's customer service department.




① Name plate

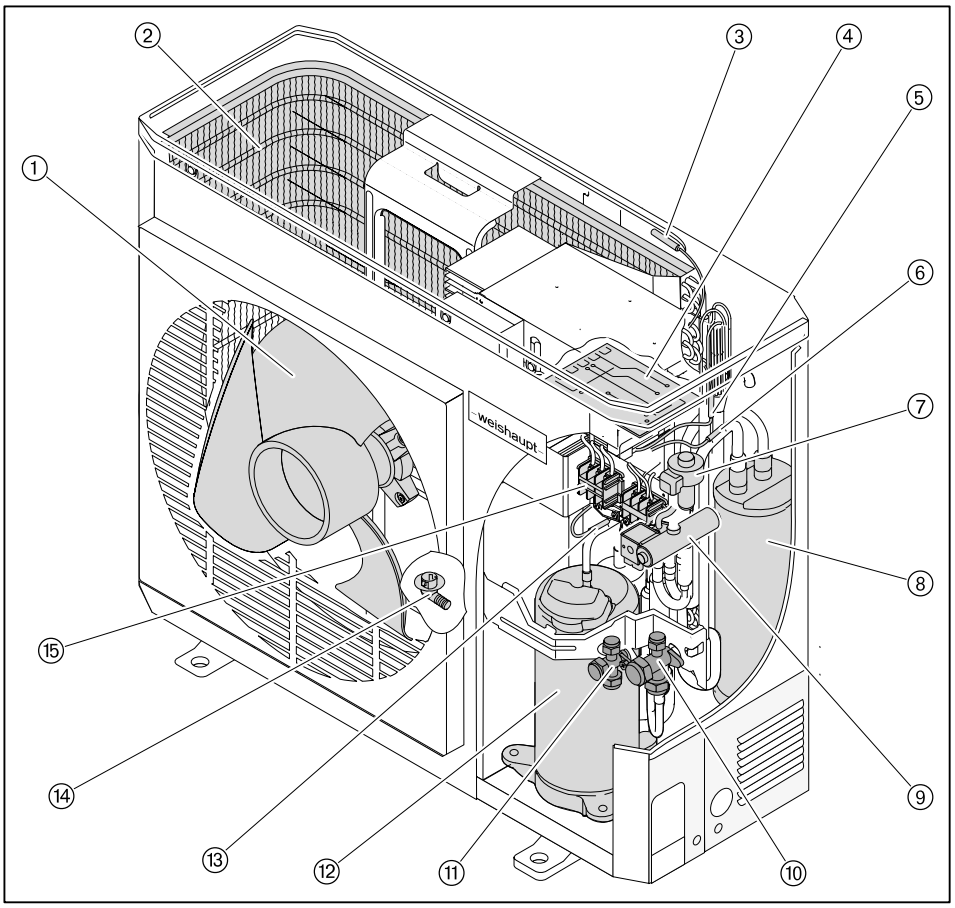
Ser. No. _____

## 3.3 Function

The outdoor unit extracts heat from the outside air. The energy extracted is transferred to the heating circuit by a refrigerant.

An internal circuit reversal means that the unit can also be used for cooling.

**Overview**




① Fan
② Evaporator
③ TO sensor (external temperature)
④ Circuit board
⑤ TE sensor (temperature of evaporator)
⑥ TS sensor (suction side temperature)
⑦ Expansion valve
⑧ Liquid separator
⑨ 4 way change-over valve
⑩ Refrigerant connection 5/8"
⑪ Refrigerant connection 3/8"
⑫ Compressor
⑬ TD sensor (pressure side temperature)
⑭ Condensate outlet
⑮ Electrical connection

#### Fan

The fan draws ambient air through the evaporator.

#### Evaporator

The evaporator (heat exchanger) removes the heat energy from the intake air and transfers it to the refrigerant.

#### Compressor

The compressor draws the refrigerant from the evaporator at low pressure and brings it to a higher pressure and temperature level.

#### Condenser

The condenser (heat exchanger) is fitted in the hydraulic unit.

In the condenser, the refrigerant releases the recovered energy to the heating water.

#### Expansion valve

In the expansion valve, the pressure and temperature are reduced to the output level. This allows the refrigerant in the evaporator to absorb heat again.

## 3.4 Technical data

### 3.4.1 Approval data

| | |
|---|---|
| EHPA, Germany | DE-HP-00386 |
| EHPA, Switzerland | CH-HP-00407 |
| Basic standards | EN 60730-1<br>EN 60730-2<br>EN 60335-1 |

### 3.4.2 Electrical data

| | |
|---|---|
| Supply voltage / frequency | 230 V / 50 Hz |
| Total power consumption | max 11.7 A |
| Power consumption standby | 14 W |
| Heating circuit pump consumption | max 87 W |
| Domestic water feeder pump consumption | maximum 45 W |
| Type of protection | IPX4 |
| External fusing | 16 A |

### 3.4.3 Heat source and installation location

| | |
|---|---|
| Heat source | Air |
| Installation location | outdoors |

### 3.4.4 Ambient conditions

| | |
|---|---|
| Temperature in operation - heating | -20 °C … +30 °C |
| Temperature in operation - cooling | 0 … +46 °C |
| Temperature during transport / storage | -20 °C … +60 °C |
| relative humidity | max 80 %, no dew point |

### 3.4.5 Emissions

**Sound levels**

| **Dyad noise emission values to ISO 4871** | | |
|---|---|---|
| Operating condition A7/W35: | | |
| Capacity | 6.5 | kW |
| Nominal frequency | 87 | Hz |
| Measured sound power level $L_{WA}$ (re 1 pW) | 68 | dB(A)(1 |
| Uncertainty value $K_{WA}$ | 1 | dB(A) |
| Calculated sound pressure level $L_{pA}$ (re 20 µPa) | 40 | dB(A)(2 |
| Uncertainty value $K_{pA}$ | 1 | dB(A) |

(1 Determined to noise level measurement standard ISO 3741.
(2 Determined at 10 metre distance from the air outlet, when free-standing.
The measured noise levels plus uncertainty values form the upper limit value, which could occur when measuring.

## 3.4.6 Capacity

| | |
|---|---|
| Evaporator air throughput | 2820 m³/h |
| Recommended condenser heating water throughput | 1.118 m³/h / 8.6 kPa |

**Capacity data - heating (EN 14511)**

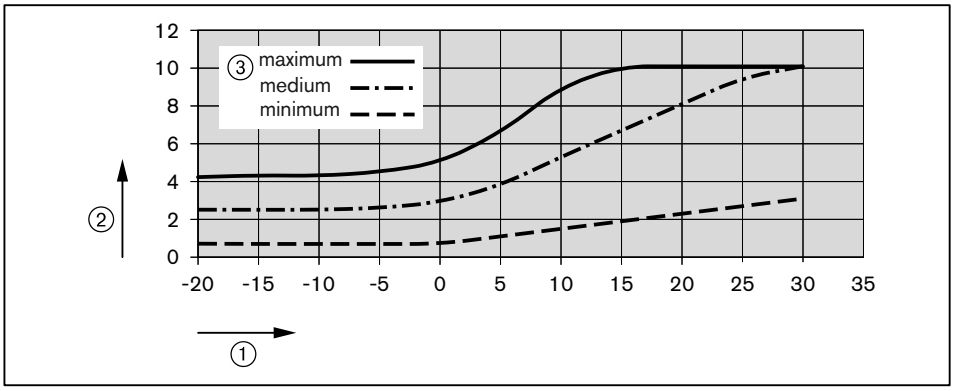
| | | |
|---|---|---|
| Heating water supply temperature | | +20 ... +60 °C |
| Air temperature application limit | | -20 ... +30 °C |
| Heating water temperature differential | A2 / W35 | 5 K |
| Nominal heat capacity | A2 / W35 | 3.4 kW |
| Coefficient of performance (COP) | A2 / W35 | 3.41 |
| Heating water temperature differential | A7 / W35 | 5 K |
| Nominal heat capacity | A7 / W35 | 5.0 kW |
| Coefficient of performance (COP) | A7 / W35 | 4.43 |

**Capacity data - cooling (EN 14511)**

| | | |
|---|---|---|
| Cooling water supply temperature | | +4 ... +18 °C |
| Air temperature application limit | | 0 ... +46 °C |
| Cooling - temperature differential | A35 / W7 | 5 K |
| Nominal cooling capacity | A35 / W7 | 5.3 kW |
| Efficiency ratio (EER) | A35 / W7 | 2.47 |
| Cooling - temperature differential | A35 / W18 | 5 K |
| Nominal cooling capacity | A35 / W18 | 7.0 kW |
| Efficiency ratio (EER) | A35 / W18 | 3.4 |

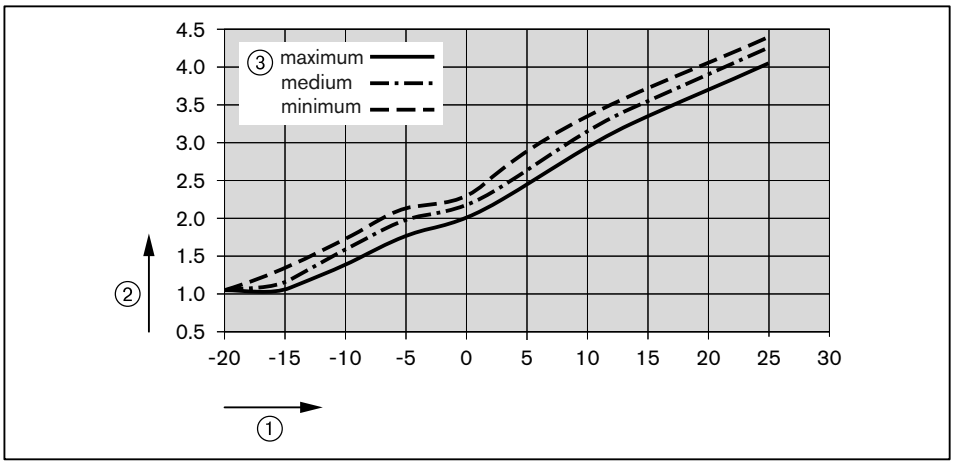
## 3.4.7 Characteristic curves - heating (to EN 14511)

**Heating capacity at 35 °C water outlet temperature**




① Air intake temperature in °C
② Heating capacity in kW
③ Compressor frequency

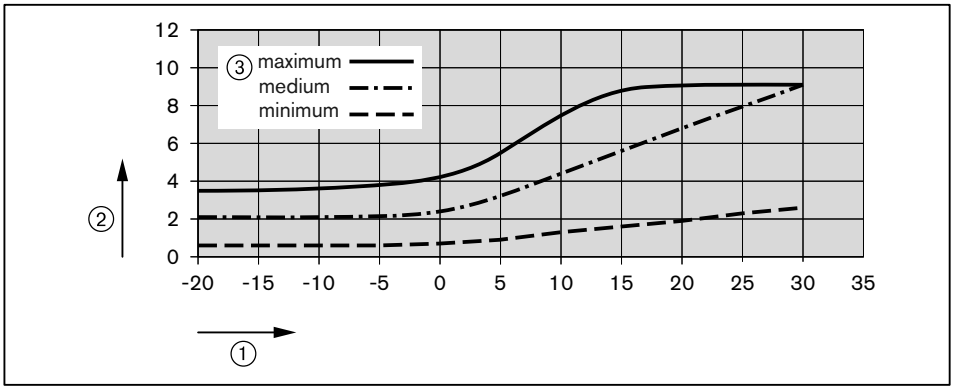
**Coefficient of performance (COP) at 35 °C water outlet temperature**




① Air intake temperature in °C
② Coefficient of performance
③ Compressor frequency

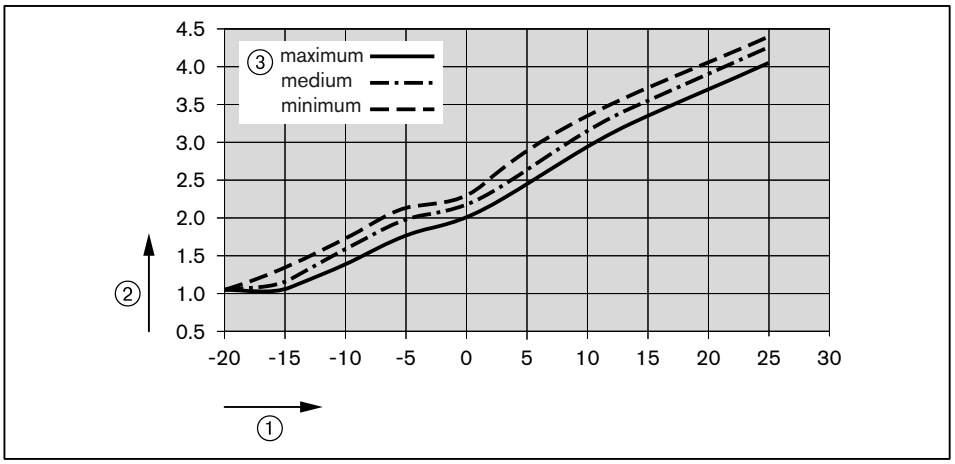
### 3 Product description

**Heating capacity at 55 °C water outlet temperature**




① Air intake temperature in °C
② Heating capacity in kW
③ Compressor frequency

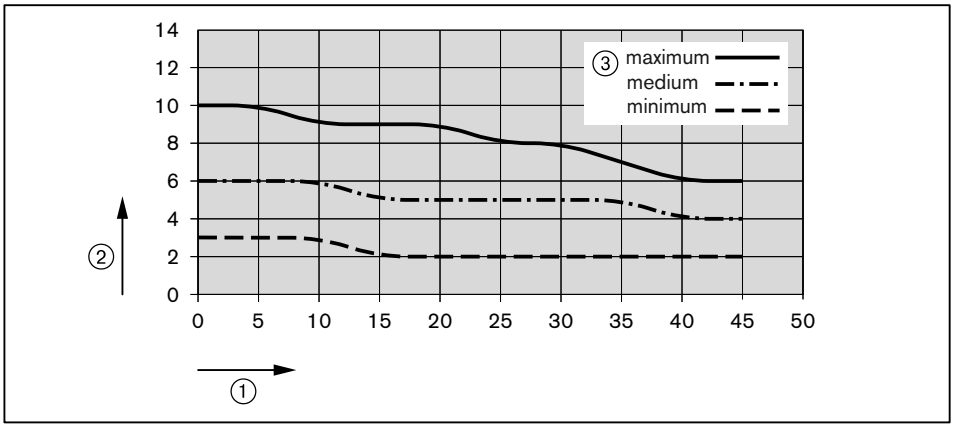
**Coefficient of performance (COP) at 55 °C water outlet temperature**




① Air intake temperature in °C
② Coefficient of performance
③ Compressor frequency

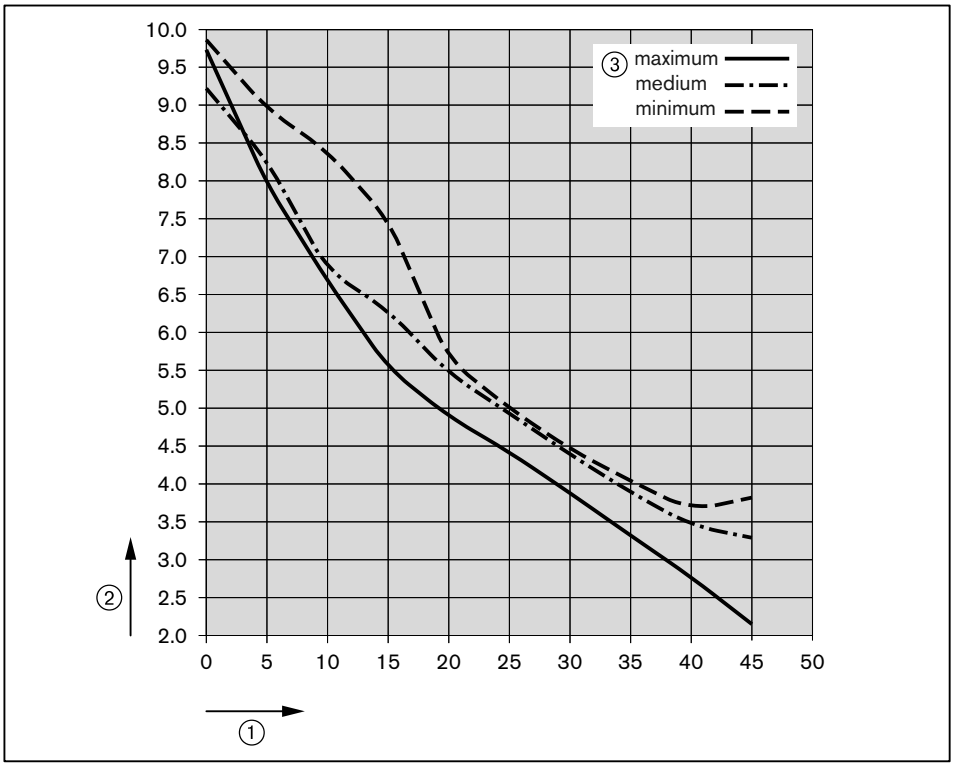
## 3.4.8 Characteristic curves - cooling (to EN 14511)

**Cooling capacity at 18 °C water outlet temperature**




① Air intake temperature in °C
② Cooling capacity in kW
③ Compressor frequency

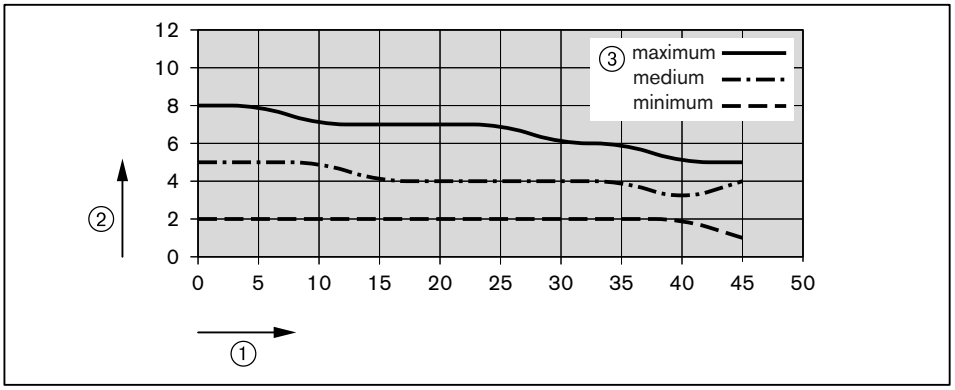
**Efficiency ratio (EER) at 18 °C water outlet temperature**




① Air intake temperature in °C
② Coefficient of performance
③ Compressor frequency

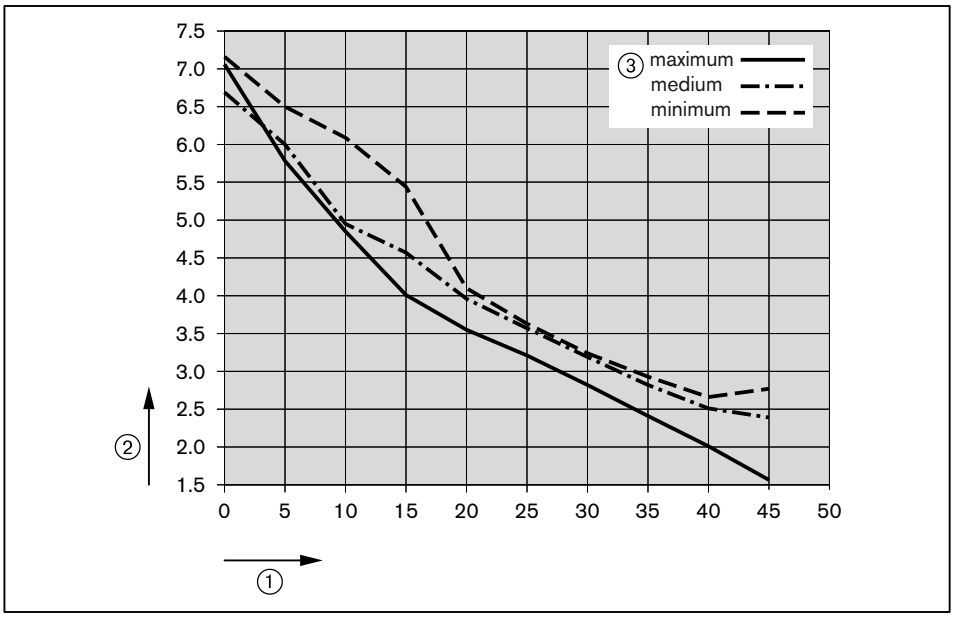
### 3 Product description

**Cooling capacity at 7 °C water outlet temperature**




① Air intake temperature in °C
② Cooling capacity in kW
③ Compressor frequency

**Efficiency ratio (EER) at 7 °C water outlet temperature**




① Air intake temperature in °C
② Coefficient of performance
③ Compressor frequency

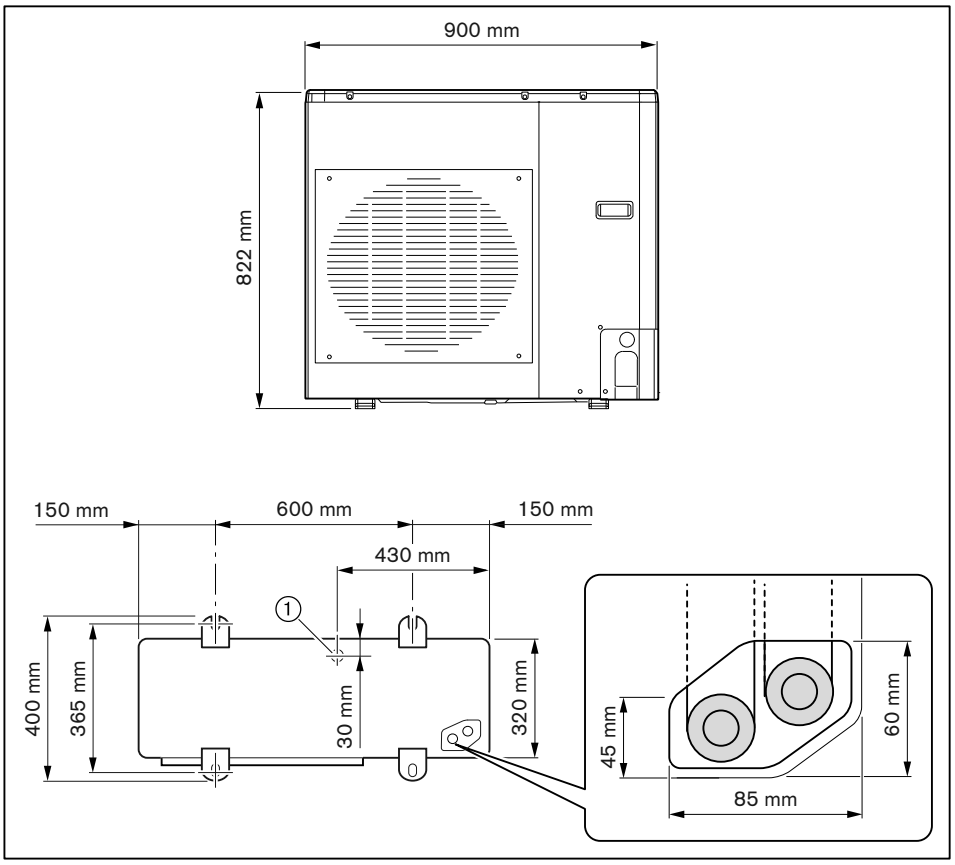
### 3.4.9 Operating pressure

| | |
|---|---|
| Refrigerant high pressure side | max 42 bar |
| Refrigerant low pressure side | max 19 bar |

### 3.4.10 Contents

| | |
|---|---|
| Refrigerant R410A | 1.365 kg |

### 3.4.11 Dimensions




① Condensate outlet opening

### 3.4.12 Weight

Weight empty: ca. 51 kg

# 4 Installation

## 4.1 Installation conditions

**Check installation location**

The air flow in the intake and outlet area must not be impeded.
- ► In areas with heavy snow fall the unit should be installed at a higher elevation or where it is protected from snow.
- ► Ensure intake area is kept free from leaves.

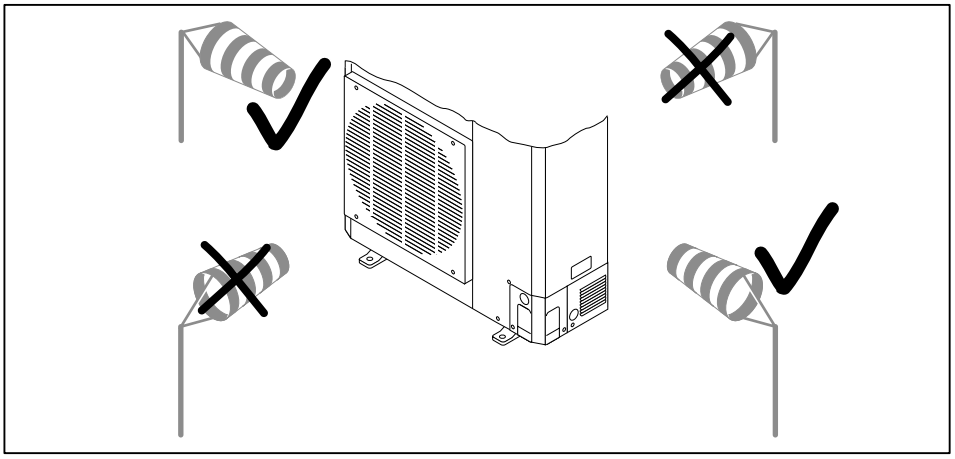
Cooled outlet air can lead to cooling of adjacent heated rooms and to icing up of footpaths, drainpipes, etc.
- ► Do not direct outlet air towards walls, footpaths or drainpipes.

Cooled air collects at low level and in courtyards and is drawn in again by the heat pump.
- ► Do not install the unit at low level or in courtyards.

The height difference between the outdoor unit and the hydraulic unit must not exceed 10 m.

In areas with strong wind, the unit should be installed in such a way that the wind does not blow directly toward the fan.

- ► Check the main wind direction.



Sound can be amplified when it is reflected by walls. Installation in wall niches and in wall corners adversely affect the sound emissions.
- ► The unit should preferably be installed in an open area.

- ► Observe requirements of TA Noise relative to noise emissions (see Ch. 3.4.5). For example distance to bedrooms, terraces, etc.
- ► Check bearing capacity of floor (see Ch. 3.4.12).
- ► Ensure the floor is even and level.
- ► If necessary concrete foundations (see Ch. 11.1).
- ► If necessary check bearing capacity of masonry when wall mounting.
- ► Check pipework path.
- ► Provide frost free condensate outlet or ensure that condensate water can drain away unimpeded.
- ► Ensure accessibility for servicing.

## 4 Installation

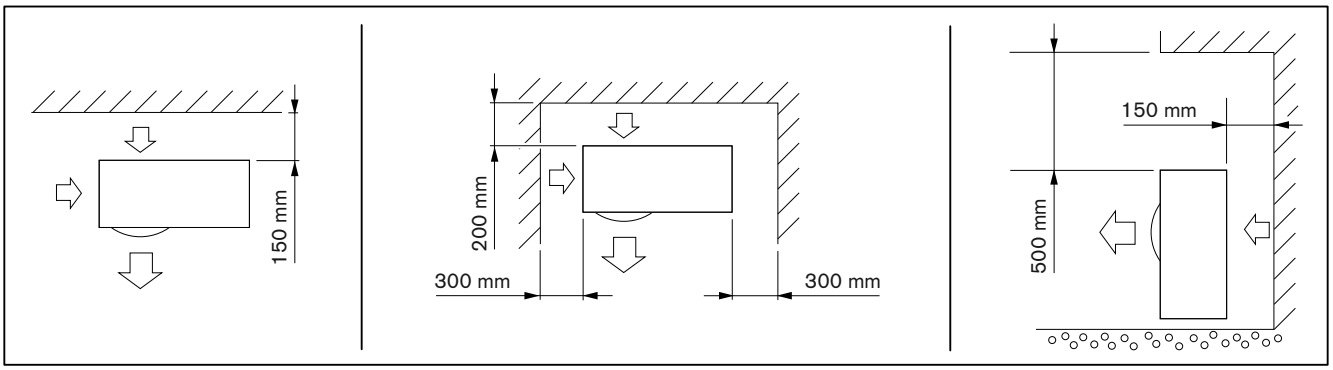
### Minimum clearances

Do not install the unit near doors and windows. Do not let the outlet air blow against windows of neighbouring buildings.

**CAUTION**

**Problems caused by non-compliance with minimum clearances**
A short circuit of the air flow can cause problems.
► Do not place solid objects near the air inlet and outlet area.

► Observe minimum clearance to buildings and sold objects:



## 4.2 Installing outdoor unit

**DANGER**

**Risk of suffocation due to leaking refrigerant**
Leaking refrigerant collects at the base of the unit.
Inhalation may cause suffocation, and even death.
Contact with the skin can cause frostbite.
► Do not damage refrigeration circuit.

**WARNING**

**Environmental damage due to leaking refrigerant**
Refrigerant contains fluorinated greenhouse gases in accordance with the Kyoto Protocol and must not be discharged into the atmosphere.
► Do not damage refrigeration circuit.

**CAUTION**

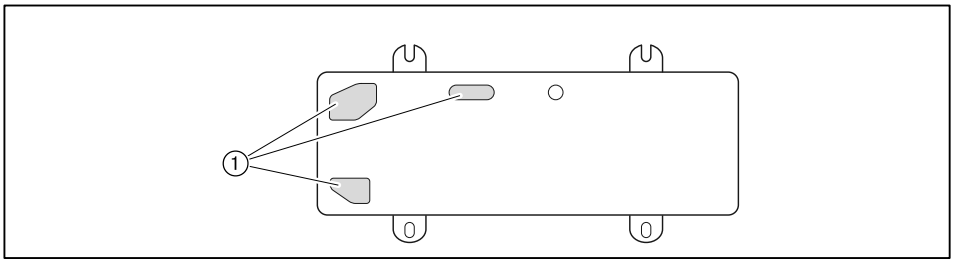
**Damage to the unit by tilting**
Compressor could be damaged.
► When transporting, do not tilt the unit more than 45°.

Observe wind load in accordance with DIN 1055 and protect depending on structural conditions on site.

**Break out openings for condensate outlet**

The condensate must be drained from the unit by the shortest route. This also applies when using trace heating for the condensate pan (accessory).

► Break out pre-cut openings ① in the base.
✓ Condensate water can also drain away through these openings.

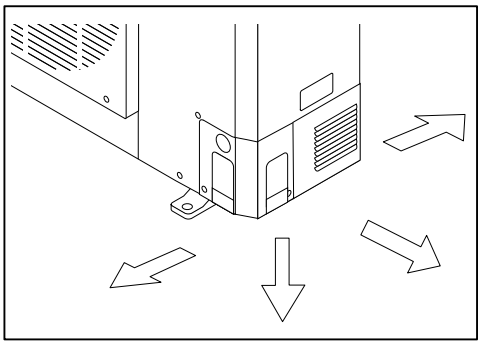


### 4.2.1 Floor mounted installation

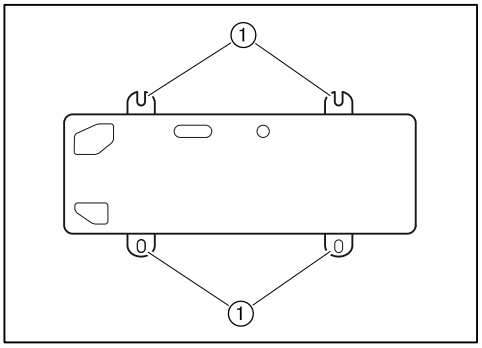
The outdoor unit must have a minimum clearance of 10 cm from the floor and must be installed at least 20 cm above any expected snow level.

Weishaupt recommends a strip foundation (see Ch. 11.1).

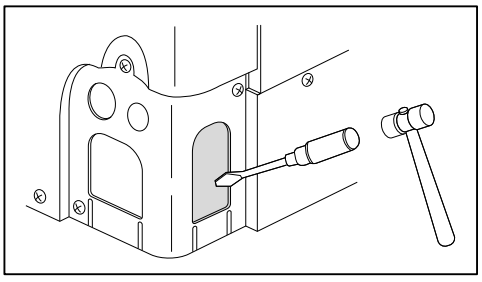
- ► Place unit on to the floor or foundation and align horizontally.
- ✓ Condensate can seep into the gravel.
- ► Specify on which side the electrical wiring and refrigerant pipework should be routed.



- ► Secure unit to floor using M8 screws ①.



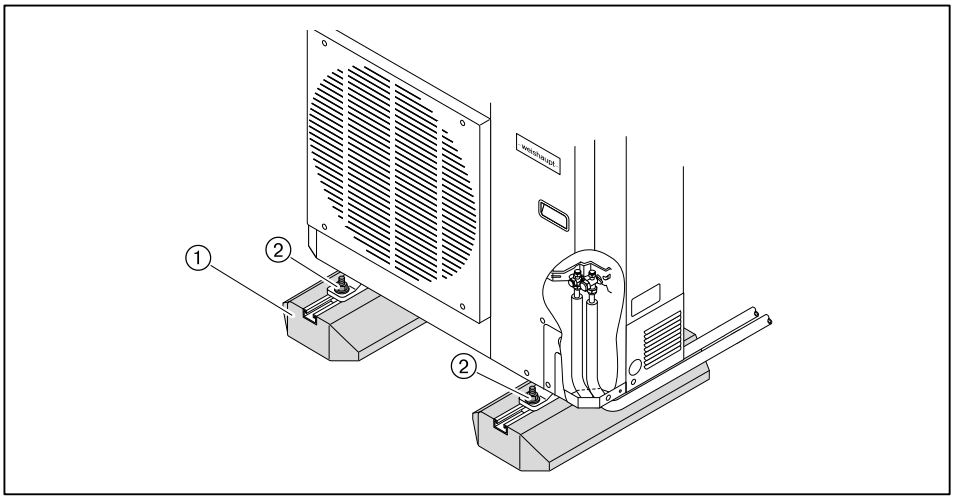

- ► Break out pre-cut break point using a screwdriver.
- ► Deburr the opening and fit edge protection supplied.



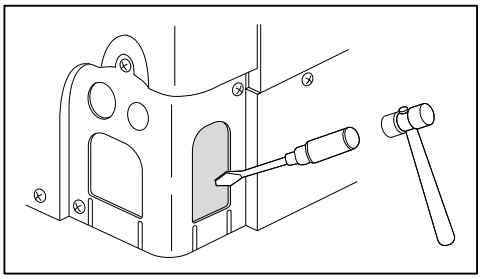
### 4.2.2 Installation on a flat roof (optional)

Weishaupt recommends mounting rails (accessory) for installation on a flat roof.

- ► Fit mounting rails ① to the roof.
- ► Place unit on to the mounting rails and align horizontally.
- ► Secure unit to the mounting rails using the 4 screws ② provided.



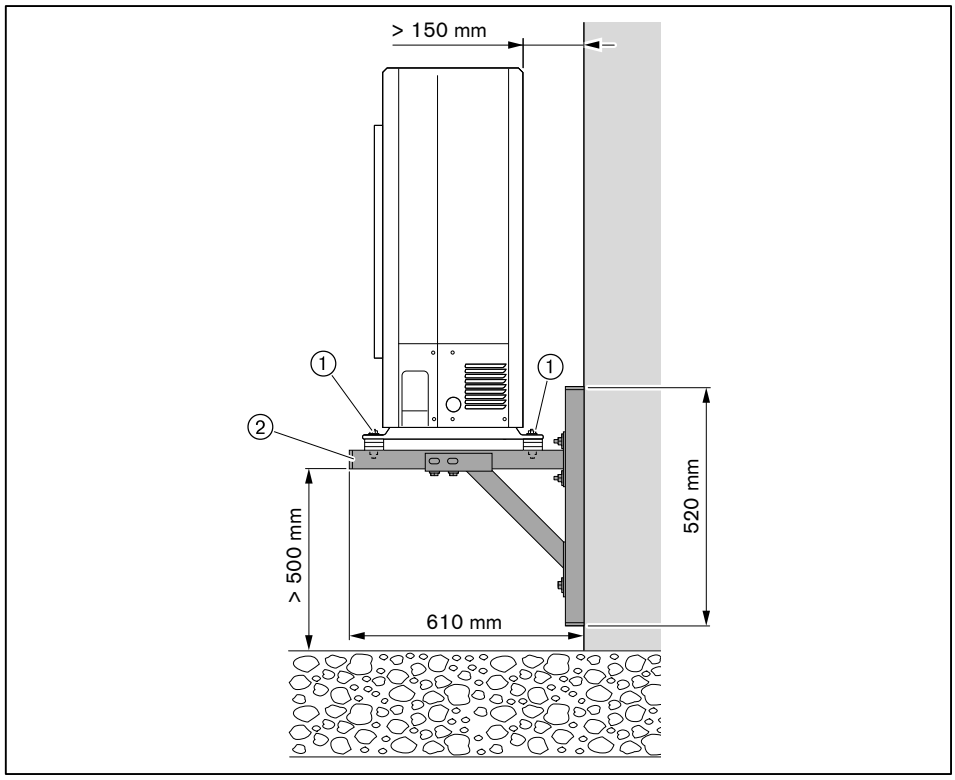

- ► Specify on which side the electrical wiring and refrigerant pipework should be routed.
- ► Break out pre-cut break point using a screwdriver.
- ► Deburr the opening and fit edge protection supplied.



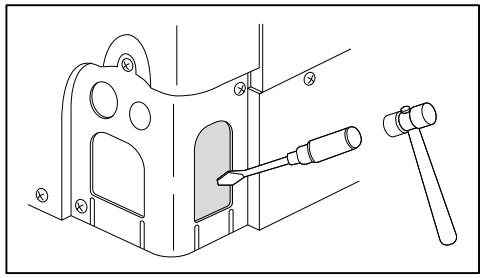
### 4.2.3 Wall-mounted installation (optional)

The following should be noted when mounting the wall bracket (accessory):
- ensure sufficient space is available below the unit for refrigerant pipework
- suitable fixing material should be provided according to the construction of the wall (see Ch. 3.4.12),
- condensate will only drain away, when the unit is placed horizontally.

- ► Install wall bracket in accordance with the installation instructions.
- ► Position wall bracket ② horizontally and secure to the wall.
- ► Place unit on to the wall bracket and align horizontally.
- ► Secure unit to the wall bracket using the 4 screws ① supplied.




- ► Specify on which side the electrical wiring and refrigerant pipework should be routed.
- ► Break out pre-cut break point using a screwdriver.
- ► Deburr the opening and fit edge protection supplied.



# 5 Installation

## 5.1 Refrigerant pipework

Use only 3/8" and 5/8" copper piping to EN-12735-1 suitable for refrigerant, and temperature resistant insulation up to 110 °C (accessory).

**CAUTION**

**Damage caused by contaminants in the refrigerant circuit**
Moisture or dirt can enter the refrigerant circuit.
- ► Do not use second-hand refrigerant pipework.
- ► Use only closed refrigerant pipework.

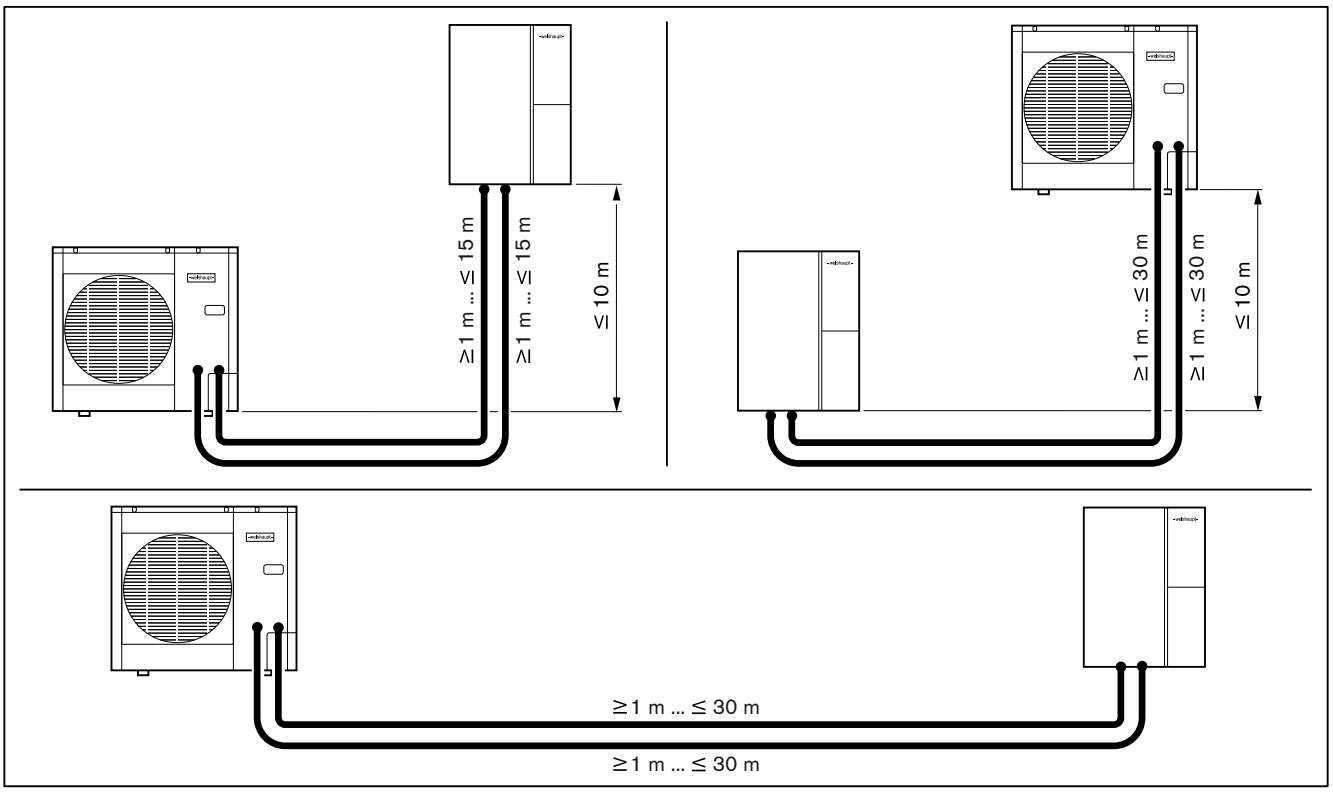
### 5.1.1 Installing refrigerant pipework

**CAUTION**

**Risk of injury due to incorrectly installed pipework**
Emergency exits and traffic routes must be freely accessible.
- ► Route pipework in such a way that it does not pose any danger to persons.

Observe the following during installation:
- An interaction with other supply pipework can occur when installing in ducts (i.e. hot flue gas pipe). If necessary insulate supply pipework
- Do not install pipework in elevator shafts
- install pipework in public stairways and passages at a height of at least 2.20 m
- when installing on fire-resistant walls and ceilings pipework should be sealed with fire-retarding material
- Protect pipework from excessive stress, e.g. distortion, do not use as brackets
- Protect pipework from environmental influences (e.g. dirt, waste, water)

Observe maximum length of refrigerant pipework:



**5 Installation**

- ► Define wall openings and breakthroughs for refrigerant pipework and electrical wiring whilst observing:
  - 3/8" refrigerant pipework external diameter 28 mm
  - 5/8" refrigerant pipework external diameter 36 mm.
- ► Drill wall breakthrough.

**CAUTION**

**Damage caused by contaminants in the refrigerant circuit**
Moisture or dirt can enter the refrigerant circuit.
- ► Ensure pipes are clean prior to and during installation.
- ► Plug pipes when installing through walls.

**CAUTION**

**Damaged pipework caused by kinking**
Copper pipes kink easily and can then no longer be used.
- ► Do not step onto the copper pipes.
- ► Choose sufficiently large bending radius, and/or use pipe bending device.

- ► Install refrigerant pipework using the most direct route with minimum bends/fittings.
- ► Install pipe brackets at a minimum distance of 2 m.
- ✓ Oscillations are avoided.
- ► Use protective tubes when installing under ground.

**CAUTION**

**Damage to the building structure caused by condensate water**
If the pipework is not insulated, or if the insulation is damaged, condensate water will build up.
- ► Fully insulate the pipework.

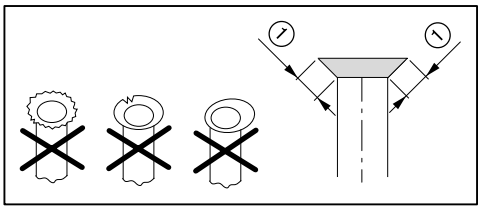
- ► Check if
  - the pipework is fully insulated
  - all joints are wrapped with insulating tape
- ► If necessary wrap damaged insulation with insulating tape (accessory).
- ► All wall breakthroughs should be sealed by others.

### 5.1.2 Connecting refrigerant pipework

► Shorten pipework using pipe cutter to required length and deburr. Ensure no splinters fall into the pipework.

Follow the guidelines for flare nut connections to EN 378-2.

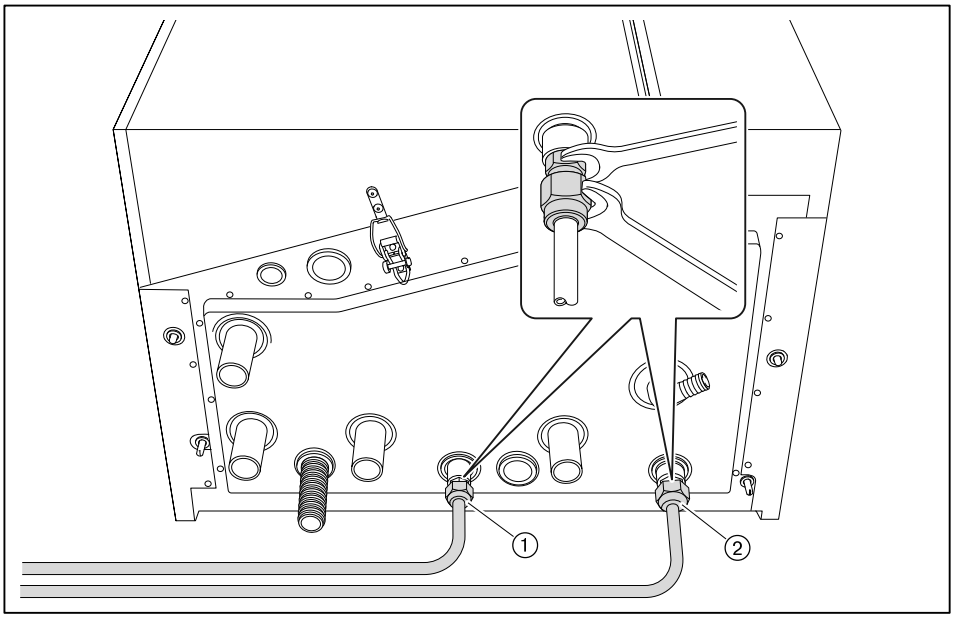
► Use the pre-mounted flare nuts supplied with the hydraulic unit and outdoor unit.
► Push flare nut over the pipe end.
► Create a flare nut connection at each pipe end, making sure that:
  ▪ the flare nut ends do not have any burrs or faults,
  ▪ the wall length of the cup ① is equal.



**WARNING**

**Refrigerant may escape due to incorrect torque**
Refrigerant may escape if the torque is insufficient. If the torque is to high, the pipework could be damaged and this would also allow refrigerant to escape.
► Torques to EN 378-2 should be used.

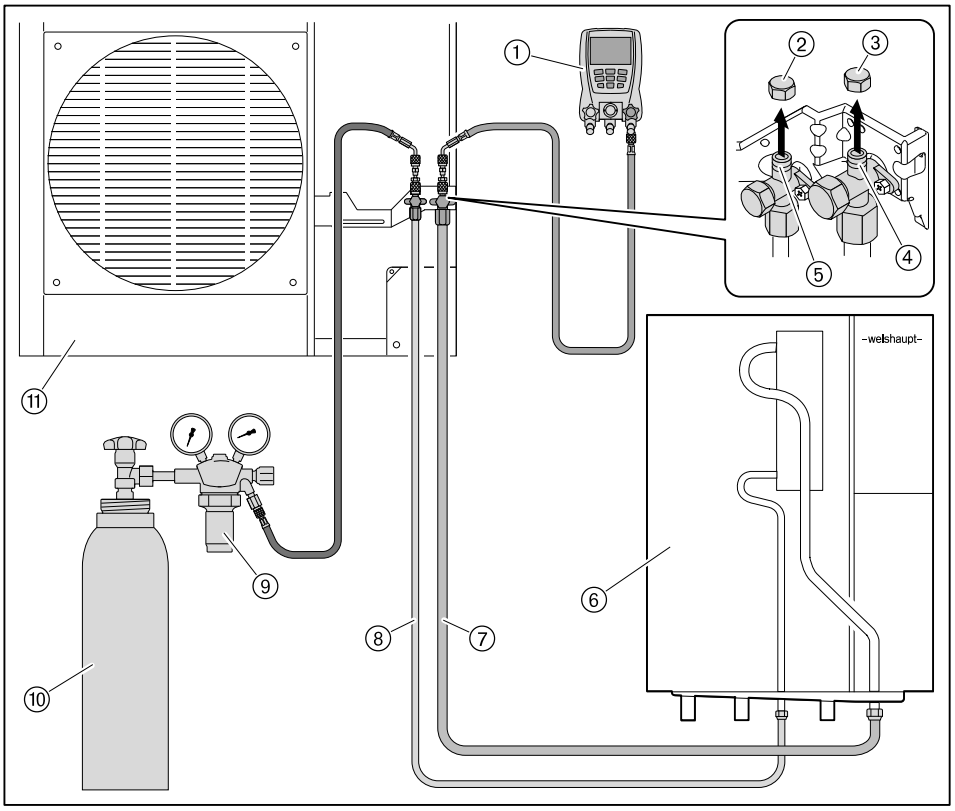
► Connect 3/8" pipework ① and 5/8" pipework ② to the outdoor unit and hydraulic unit, counter-holding using a second spanner.



### 5.1.3 Check refrigerant pipework for leaks

Service valves are closed at the factory. They must not be opened for leakage testing.

- ▶ Remove the cap ③ from the Schrader valve ④ of the 5/8" pipework (hot gas pipe).
- ▶ Connect manifold gauge ① to the Schrader valve ④.
- ▶ Remove the cap ② from the Schrader valve ⑤ of the 3/8" pipework (liquid pipe).
- ▶ Connect gauge ⑨ to the Schrader valve of the 3/8" pipework.
- ▶ Check for leaks with dry Nitrogen ⑩:
  - high pressure side test pressure approx. 42 bar,
  - duration of test minimum 15 minutes.
- ▶ Check connections and joints of pipework.
- ▶ If necessary, rectify any leaks.

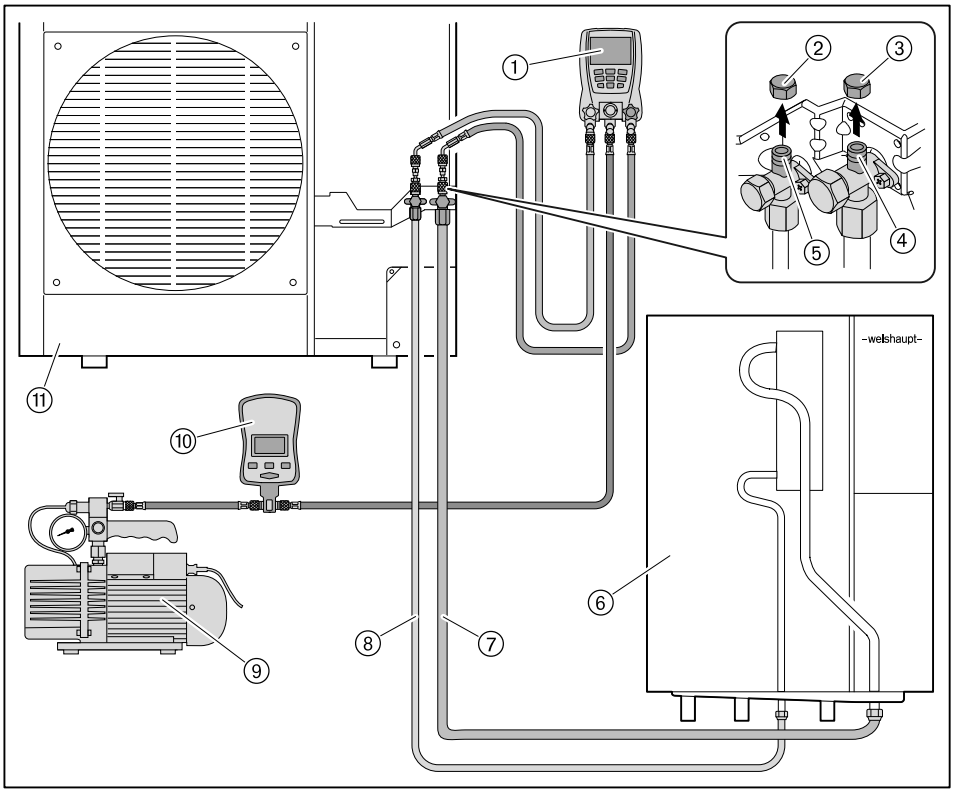



① Digital manifold gauge
② Cap of Schrader valve of 3/8" pipework
③ Cap of Schrader valve of 5/8" pipework
④ Schrader valve of 5/8" pipework
⑤ Schrader valve of 3/8" pipework
⑥ Hydraulic unit
⑦ 5/8" hot gas pipe
⑧ 3/8" liquid pipe
⑨ Pressure reducer
⑩ Dry Nitrogen
⑪ Outdoor unit

### 5.1.4 Evacuating refrigerant pipework

Nitrogen must be expelled from the refrigerant pipework and the hydraulic unit with excess pressure.

- ► Remove the cap ③ from the Schrader valve ④ of the 5/8" pipework (hot gas pipe).
- ► Connect manifold gauge ① to the Schrader valve ④.
- ► Remove the cap ② from the Schrader valve ⑤ of the 3/8" pipework (liquid pipe).
- ► Connect manifold gauge ① to the Schrader valve ⑤.
- ► Connect vacuum pump ⑨ and vacuum gauge ⑩ to the manifold gauge.
- ► Evacuate pipework for approx. 30 minutes.
- ✓ Final partial pressure < 4 mbar.
- ► Close valves on manifold gauge ①.
- ► Remove manifold gauge from the Schrader valves ④ and ⑤.
- ► Close Schrader valves with caps.
- ► Remove vacuum gauge.




① Digital manifold gauge
② Cap of Schrader valve of 3/8" pipework
③ Cap of Schrader valve of 5/8" pipework
④ Schrader valve of 5/8" pipework
⑤ Schrader valve of 3/8" pipework
⑥ Hydraulic unit
⑦ 5/8" hot gas pipe
⑧ 3/8" liquid pipe
⑨ Vacuum pump
⑩ Vacuum gauge
⑪ Outdoor unit

## 5.2 Filling addition refrigerant

The outdoor unit is pre-filled with refrigerant, which is sufficient for 20 m of single refrigerant pipework. If 20 m are exceeded, 40 g of refrigerant must be added per additional metre of single length pipework.

**Example**

| | |
|---|---|
| pre-filled refrigerant is sufficient for pipework length | 20 m |
| actual length of refrigerant pipework | 22 m |
| pre-filled refrigerant quantity as per name plate | 1365 g |
| additional refrigerant required ( 2 m at 40 g) | 80 g |
| Total quantity | 1445 g |

- ▶ Calculating refrigerant quantity required.
- ▶ If additional refrigerant is required, carry out the following tasks.

**5 Installation**

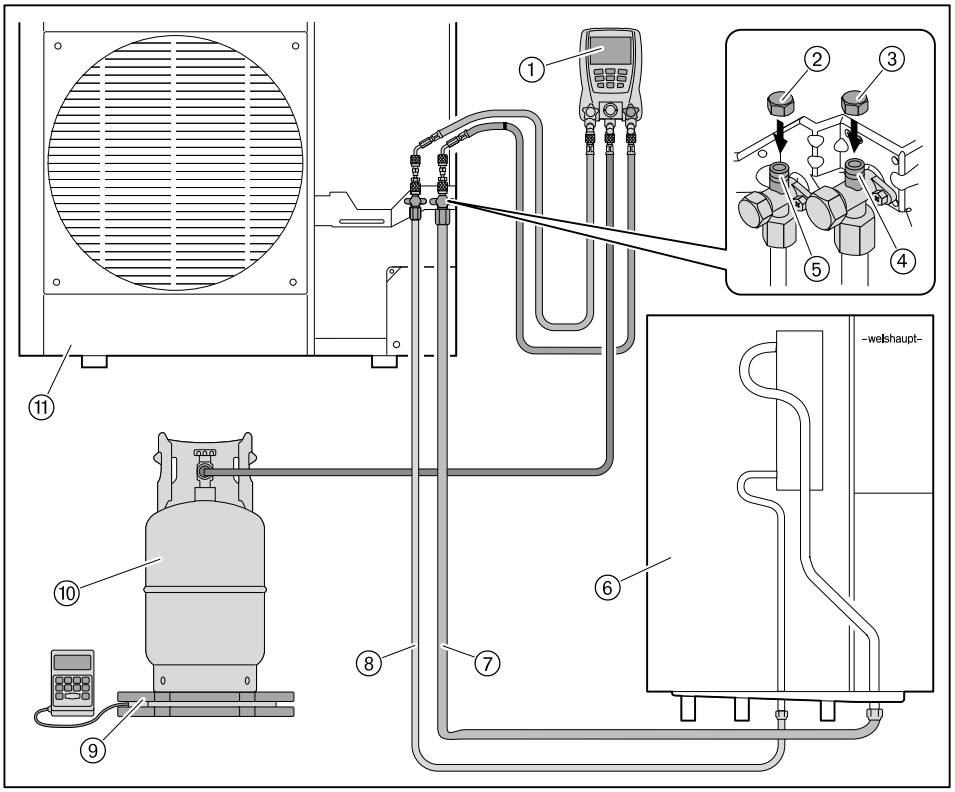
**CAUTION**

**Damage to the unit caused by incorrect refrigerant**
Unsuitable refrigerant causes faults and damage.
► Use only R410A refrigerant.

**CAUTION**

**Damage to the compressor caused by excess refrigerant**
Over-filling can lead to bursting and therefore cause injury.
► Adhere to exact filling quantity.

Digital scales ⑨ are required.
► Fill calculated quantity of refrigerant ⑩ via the Schrader valve of the 3/8" pipework.
► Close Schrader valves with caps ② and ③.
► Check for leaks using a leak detecting device during operation.

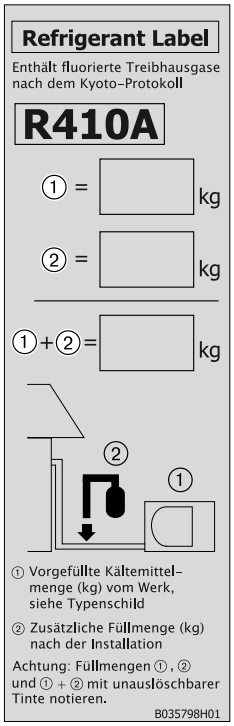



① Digital manifold gauge
② Cap of Schrader valve of 3/8" pipework
③ Cap of Schrader valve of 5/8" pipework
④ Schrader valve of 5/8" pipework
⑤ Schrader valve of 3/8" pipework
⑥ Hydraulic unit
⑦ 5/8" hot gas pipe
⑧ 3/8" liquid pipe
⑨ Digital scales
⑩ R410A refrigerant
⑪ Outdoor unit

## 5.3 Record refrigerant quantity

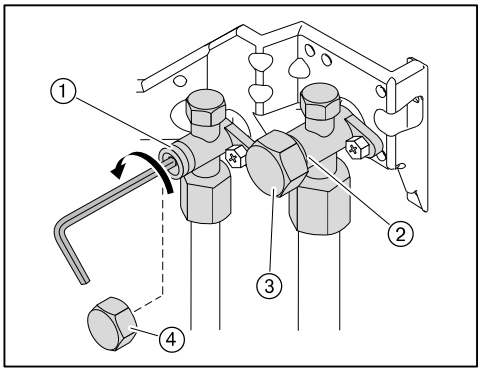
Additional label is supplied with the outdoor unit.

- ► Record refrigerant quantity ① as per name plate.
- ► Record top-up refrigerant quantity ② and total quantity ① and ②.
- ► Secure additional label to the outdoor unit, next to the name plate.



## 5.4 Release refrigerant

- ▶ Remove cap ④ from the service valve of the 3/8" pipework.
- ▶ Fully open service valve of 3/8" pipework ①.
- ▶ Remove cap ③ from the service valve of the 5/8" pipework.
- ▶ Fully open service valve of 5/8" pipework ②.
- ✓ The inflow of refrigerant into the pipework is audible.
- ▶ Close service valves with caps ④ and ③.
- ▶ Check for leaks using a leak detecting device during operation.



## 5.5 Condensate connection

Only fit condensate outlet to the unit if the drainage is piped, otherwise let condensate drip away freely.

**CAUTION**

**Damage to the building structure caused by condensate**
Condensate can damage and soil building structure.
- ► Install condensate hose in such a way that the condensate can seep into the ground unimpeded and without freezing, and does not cause damage to the building structure.

- ► If necessary, fit condensate hose with internal Ø of 16 mm (supplied by others).
- ✓ Condensate can drain away unimpeded.
- ► Do not discharge the condensate directly into the sewer due to the risk of corrosion.

Weishaupt recommends trace heating for the condensate pan (accessory).

## 5.6 Electrical installation

DANGER

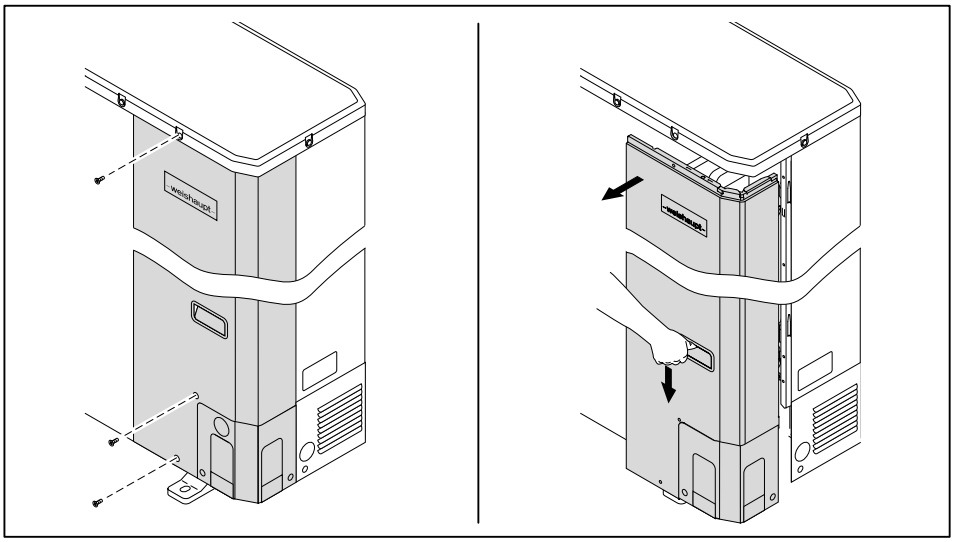
**Risk of electric shock**
Working on the unit when voltage is applied can lead to electric shock.
- ► Isolate unit from mains prior to carrying out work.
- ► Safeguard against accidental re-start.

The electrical installation must only be carried out by qualified electricians. Observe local regulations.

CAUTION

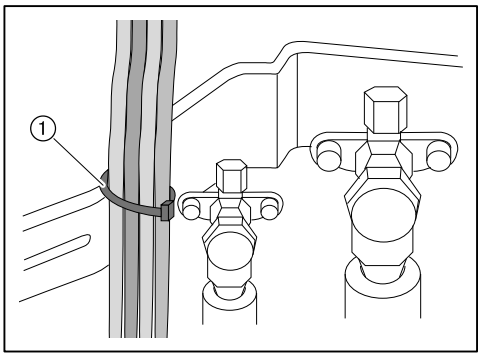
**Damage due to incorrect wiring**
Hot compressors or pipework can damage electrical wiring.
- ► Secure wiring in such a way that it does not come into contact with hot components.

► Remove side panel.

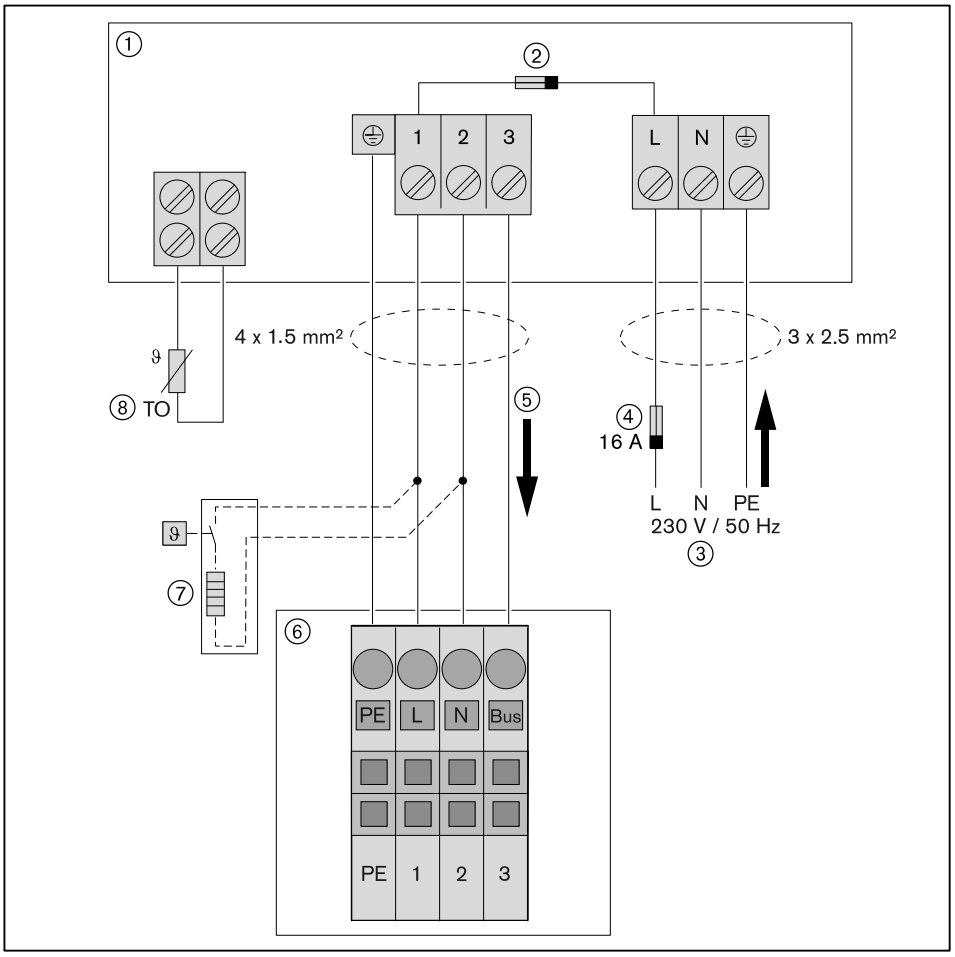


**5 Installation**

- ► Run power cables through recesses.
- ► Connect wiring as shown in the wiring diagram.
- ► Secure wiring with cable ties ① to bracket.
- ► If mounting the external sensor outside the unit, re-connect the sensor wiring to the luster terminal.



### 5.6.1 Wiring diagram




| No. | Connection | Remarks |
|---|---|---|
| ① | Outdoor unit | Voltage supply 230 V / 50 Hz |
| ② | Internal micro fuse | 6.3 A |
| ③ | Feed from sub-distributors to the outdoor unit | FI protection switch 30 mA<br>Cross section 2.5 mm² |
| ④ | External fusing supplied by others | 16 A |
| ⑤ | Connection of outdoor unit to hydraulic unit | Cross section 1.5 mm² |
| ⑥ | Hydraulic unit | |
| ⑦ | Trace heating for condensate pan (optional) | Accessories |
| ⑧ | External sensor | |

# 6 Commissioning

See installation and operating manual of hydraulic unit.

# 7 Shutdown

See installation and operating manual of hydraulic unit.

# 8 Servicing

## 8.1 Notes on servicing

DANGER

**Risk of electric shock**
Working on the unit when voltage is applied can lead to electric shock.
► Isolate hydraulic unit and outdoor unit from mains prior to carrying out work.
► Safeguard against accidental re-start.

DANGER

**Risk of suffocation due to leaking refrigerant**
Leaking refrigerant collects at the base of the unit.
Inhalation may cause suffocation, and even death.
Contact with the skin can cause frostbite.
► Do not damage refrigeration circuit.

WARNING

**Danger of getting burned on hot components**
Hot components can lead to burns.
► Allow components to cool.

WARNING

**Environmental damage due to leaking refrigerant**
Refrigerant contains fluorinated greenhouse gases in accordance with the Kyoto Protocol and must not be discharged into the atmosphere.
► Do not damage refrigeration circuit.

Servicing must only be carried out by qualified personnel. The unit should be service annually. Depending on site conditions more frequent checks may be required.

Weishaupt recommends a service contract is entered into to ensure regular inspections.

The operator should check the unit regularly for contamination and clean if necessary.

**Prior to servicing**

► Inform the operator about the extent of service work to be carried out.
► Switch off installation and safeguard against accidental re-start.
► Remove front side panel (see Ch. 5.6).

**Following servicing**

► Carry out visual inspection:
  ▪ check pipe connections,
  ▪ check refrigerant pipework and insulation for visible damage,
  ▪ complete insulation of refrigerant pipework.
► If necessary replace damaged refrigerant pipework and insulation.
► Check for leaks using a leak detecting device during operation.
► Carry out a function test.
► Refit front side panel.

## 8.2 Cleaning the outdoor unit

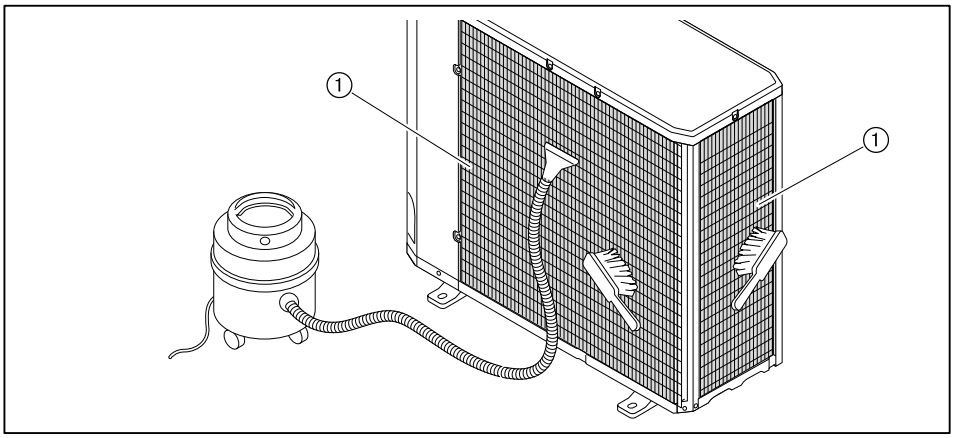
Observe notes on servicing (see Ch. 8.1).

CAUTION

**Risk of injury from sharp edges**
Sharp edges on the evaporator can cause injury.
► Wear protective gloves when cleaning the evaporator.

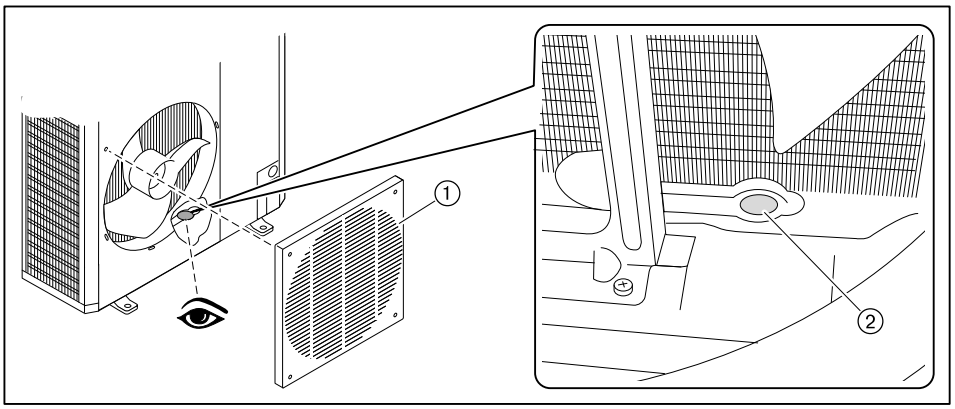
The outdoor unit should be cleaned at least once a year, preferably at the beginning of the heating season.

► Use protection provided on site to isolate the outdoor unit/system from the mains supply.
► Do not use sharp objects when cleaning, as these could damage the refrigeration circuit.
► Clean leaves and dirt away from the evaporator ① using a broom.
► If necessary use vacuum cleaner to clean evaporator.




**Check condensate outlet**

► Ensure the unit is isolated from the mains.
✓ Fan will not start.
► Remove casing ①.
► Check condensate outlet opening ② and condensate pan.
► Remove dirt if necessary.
✓ Condensate can drain away unimpeded.

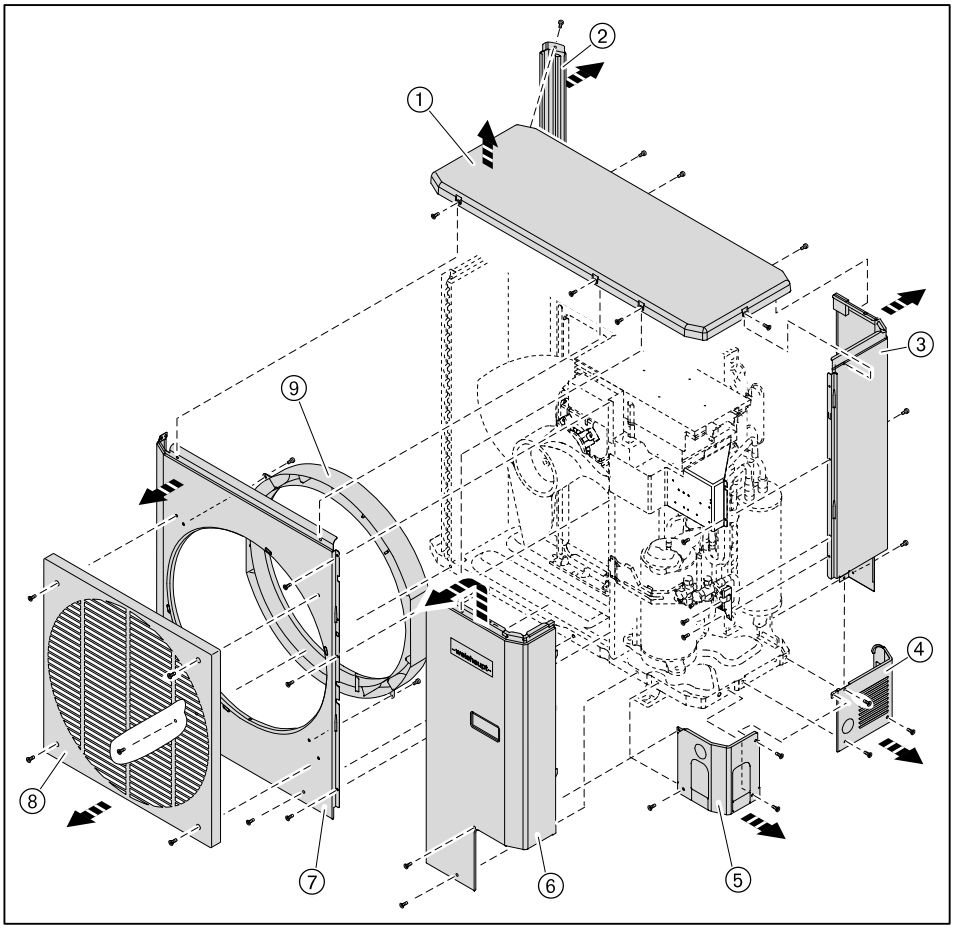


## 8.3 Replace casing

Notes on servicing (see Ch. 8.1).

To replace the corner post ② and the rear side panel ③ the cover ① has to be removed.

- ► Remove screw and unhook the front side panel ⑥ downward.
- ► Remove screws and remove service covers ④ and ⑤.
- ► Remove screws and remove air grill ⑧, front panel ⑦ and nozzle ring ⑨.
- ► Remove screws and remove cover ①, whilst supporting the rear side panel ③ and corner post ②.
- ► Remove screws and remove side panel ③ and corner post ②.
- ► Refit casing in reverse order.



## 8.4 Repairing the refrigeration circuit

Notes on servicing (see Ch. 8.1).

If it is suspected that the refrigerant has been leaking it is not possible to judge how much refrigerant remains in the refrigeration circuit. It is therefore necessary to remove all the remaining refrigerant and dispose of it. Refill with new refrigerant once the leak has been repaired.

**CAUTION**

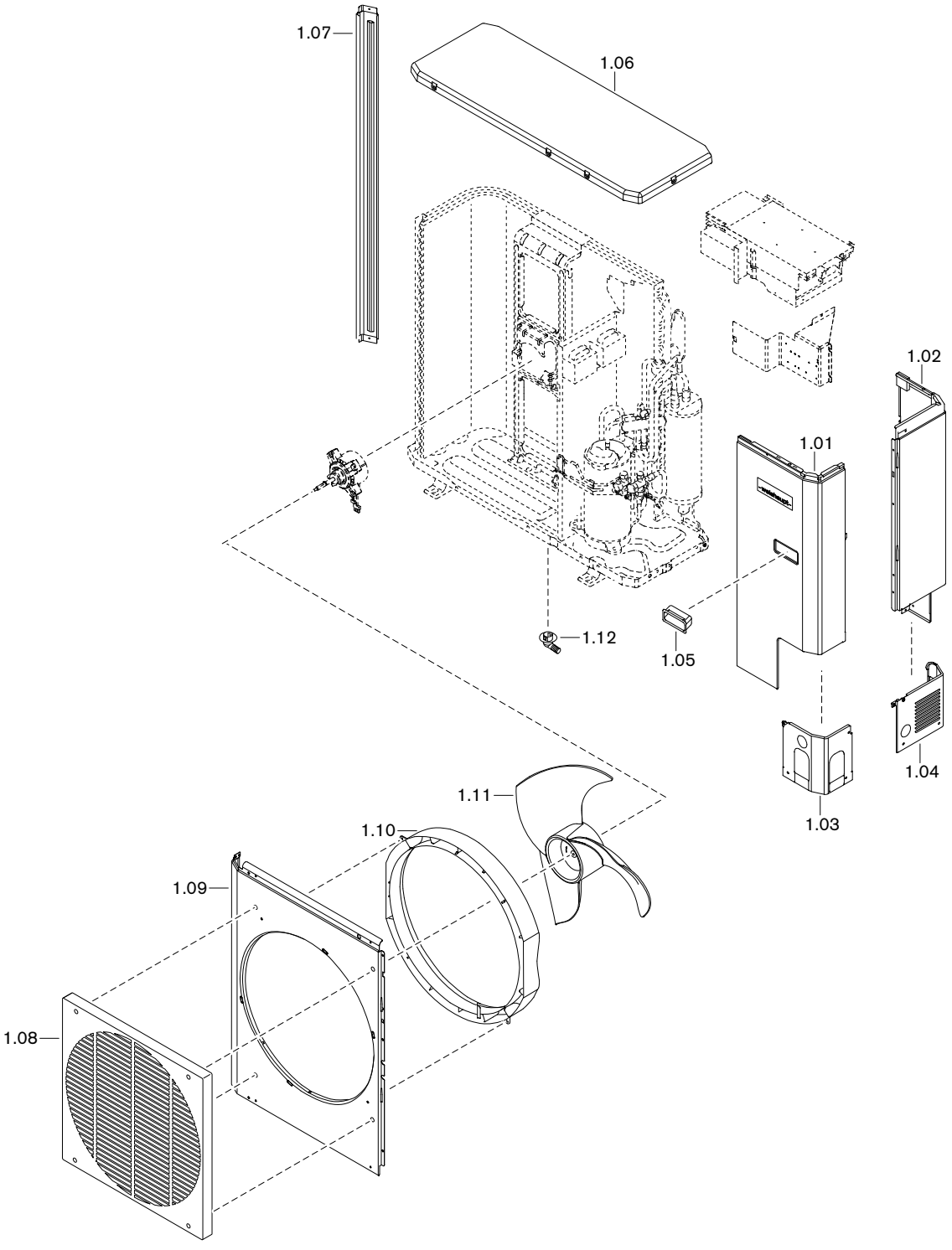
**Damage to the unit caused by incorrect refrigerant**
Unsuitable refrigerant causes faults and damage.
- ► Use only R410A refrigerant.

**CAUTION**

**Damage to the compressor caused by excess refrigerant**
Over-filling can lead to bursting and therefore cause injury.
- ► Adhere to exact filling quantity.

- ► The quantity of refrigerant required can be found on the additional label (see Ch. 5.3).
- ► Use a suction device to completely drain any refrigerant from the unit.
- ► Dispose of drained refrigerant in an approved manner.
- ► Check refrigerant pipework is not leaking (see Ch. 5.1.3).
- ► Gradually fill liquid R410A refrigerant (see Ch. 5.2).
- ► Close pipe connections.

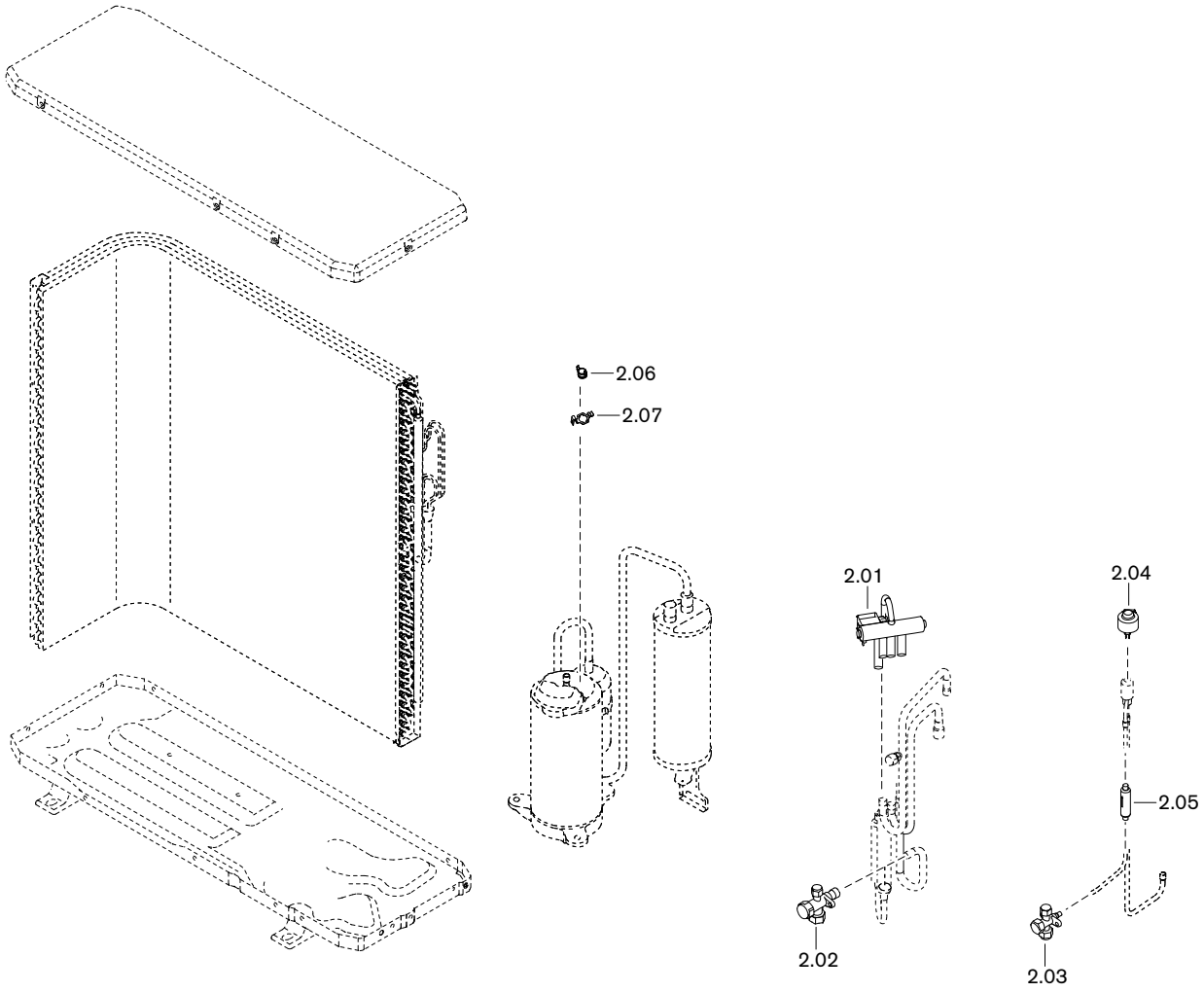
## 9 Spares



## 9 Spares

| Pos. | Description | Order No. |
|---|---|---|
| 1.01 | Front side panel | 511 501 60 03 7 |
| 1.02 | Rear side panel | 511 501 60 05 7 |
| 1.03 | Front service cover | 511 501 60 07 7 |
| 1.04 | Rear service cover | 511 501 60 08 7 |
| 1.05 | Handle | 511 501 60 18 7 |
| 1.06 | Cover | 511 501 60 11 7 |
| 1.07 | Corner post | 511 501 60 09 7 |
| 1.08 | Air grill | 511 501 01 01 7 |
| 1.09 | Front panel | 511 501 60 01 7 |
| 1.10 | Nozzle ring | 511 501 60 17 7 |
| 1.11 | Fan blade | 511 501 60 15 7 |
| 1.12 | Condensate outlet | 499 059 |

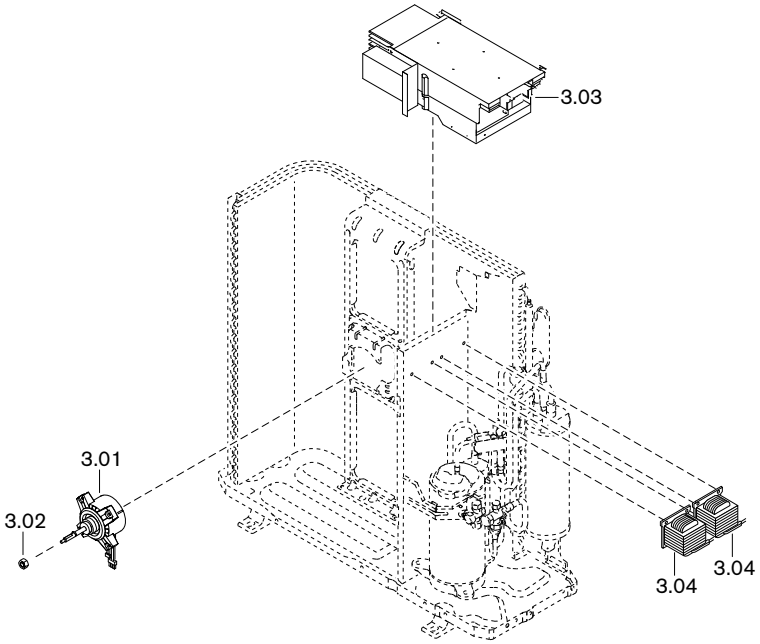
**9 Spares**

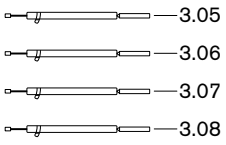


## 9 Spares

| Pos. | Description | Order No. |
|---|---|---|
| 2.01 | 4 way change-over valve | 511 501 60 23 7 |
| | – coil for 4 way change-over valve | 511 501 60 35 7 |
| 2.02 | Service valve 5/8" complete | 511 501 60 27 7 |
| | – Flare nut connection SAE 5/8" | 452 649 |
| 2.03 | Service valve 3/8" complete | 511 501 60 29 7 |
| | – Flare nut connection SAE 3/8" | 452 648 |
| 2.04 | Attachment expansion valve PMV | 511 501 60 25 7 |
| 2.05 | Filter for refrigeration circuit | 511 501 60 37 7 |
| 2.06 | Temperature limiter | 511 501 60 21 7 |
| 2.07 | Bracket temperature limiter | 511 501 60 22 7 |

**9 Spares**



## 9 Spares

| Pos. | Description | Order No. |
|---|---|---|
| 3.01 | Fan motor | 511 501 60 12 7 |
| 3.02 | Fan nut | 511 501 60 14 7 |
| 3.03 | Control box (circuit board) | 511 501 60 30 7 |
| | – Base P.C. Board (circuit board) | 511 501 60 50 7 |
| | – Terminal rail 6P, 20 A | 511 501 60 517 |
| 3.04 | Inductor | 511 501 60 32 7 |
| 3.05 | TD sensor pressure side temperature NTC 50 kΩ | 511 501 60 40 7 |
| 3.06 | TE sensor evaporating temperature NTC 10 kΩ | 511 501 60 41 7 |
| 3.07 | TS sensor suction side temperature NTC 10 kΩ | 511 501 60 42 7 |
| 3.08 | TO sensor external temperature NTC 10 kΩ | 511 501 60 43 7 |

# 10 Technical documentation

## 10.1 Sensor variables

**TE sensor evaporating temperature**
**TS sensor suction side temperature**
**TO sensor external temperature**
**External sensor (accessory)**
**Water temperature sensor**
**Refrigerant pipework temperature sensor**
**De-couple sensor**
**Hot water sensor B3**

| | NTC 10 kΩ | | NTC 50 kΩ |
|---|---|---|---|
| °C | Ω | °C | Ω |
| -20 | 96807 | 20 | 72000 |
| -15 | 72809 | 40 | 27000 |
| -10 | 55253 | 60 | 16000 |
| -5 | 42282 | 80 | 7000 |
| 0 | 32640 | | |
| 5 | 25391 | | |
| 10 | 19902 | | |
| 15 | 15713 | | |
| 20 | 12493 | | |
| 25 | 10000 | | |
| 30 | 8056 | | |
| 35 | 6530 | | |
| 40 | 5325 | | |
| 45 | 4367 | | |
| 50 | 3601 | | |
| 55 | 2985 | | |
| 60 | 2487 | | |
| 65 | 2082 | | |
| 70 | 1751 | | |
| 75 | 1480 | | |
| 80 | 1256 | | |

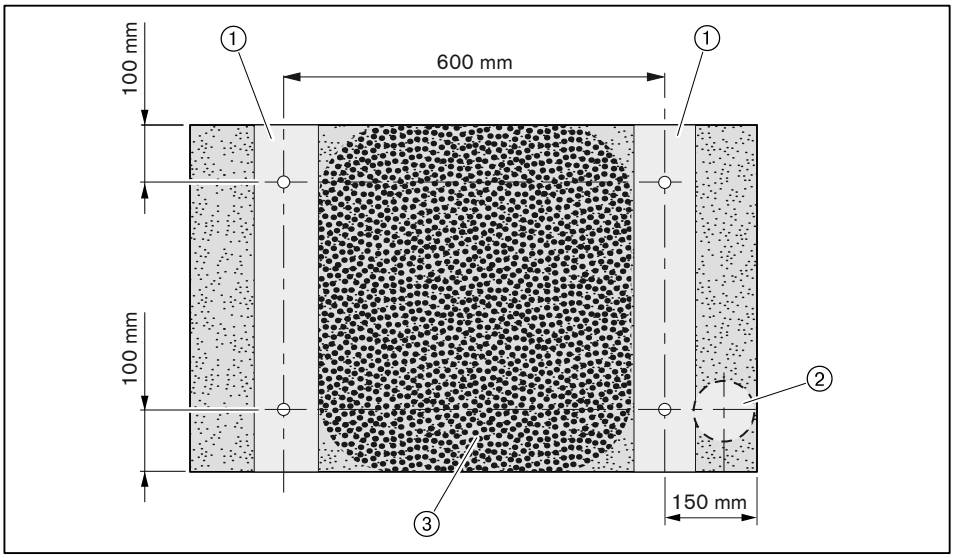
**TD sensor pressure side temperature**

# 11 Project planning

## 11.1 Foundation plan

### Overhead view

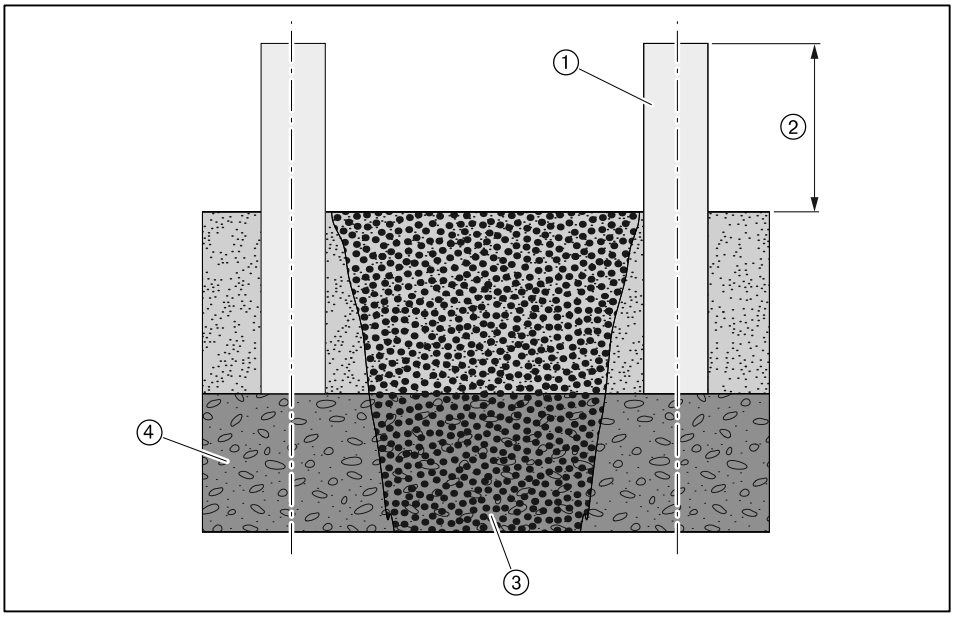
► Run changes in direction of the drainage pipe ② only with elbows ≤ 30°.




① Concrete base
② Drainage pipe Ø 100 mm
③ Gravel layer

### Front view

The concrete base should be 20 cm above the maximum snow level expected, and a minimum of 10 cm from the floor.




① Concrete base
② 10 ... 20 cm above the expected snow level
③ Gravel layer
④ Soil

# 12 Notes

## 12 Notes

## 13 Key word index

–weishaupt–

**Max Weishaupt GmbH** · 88475 Schwendi

Weishaupt close by? Addresses, telephone numbers etc. can be found at www.weishaupt.de



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**W Burners** **up to 570 kW**

The compact burners, proven millions of times over, are economical and reliable. Available as gas, oil and dual fuel burners for domestic and commercial applications.
The purflam® burner version with special mixing head gives almost soot-free combustion of oil with greatly reduced NOx emissions.

**monarch® WM Burners and Industrial Burners** **up to 11,700 kW**

These legendary industrial burners are durable and versatile.
Numerous variations of oil, gas and dual fuel burners meet a wide range of applications and capacity requirements.

**WK Burners** **up to 28,000 kW**

These industrial burners of modular construction are adaptable, robust and powerful.
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**multiflam® Burners** **up to 17,000 kW**

This innovative Weishaupt technology for medium and large burners provides minimum emission values at capacities up to 17 MW.
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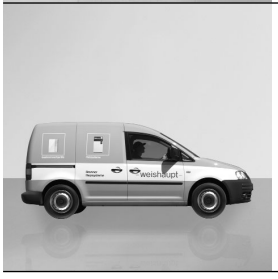
**MCR Technology / Building Automation from Neuberger**

From control panels to complete building management systems - at Weishaupt you can find the entire spectrum of modern control technology. Future orientated, economical and flexible.



**Service**

Weishaupt customers can be assured that specialist knowledge and tools are available whenever they are needed. Our service engineers are fully qualified and have extensive product knowledge, be it for burners, heat pumps, condensing boilers or solar collectors.

**Wall-hung condensing boilers for oil and gas** **up to 240 kW**

The wall-hung condensing boilers WTC-GW and WTC-OW have been developed to meet the highest demands in ease of operation and efficiency.
Modulating operation means these units operate quietly and economically.

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The stylish flat-plate collectors are the ideal complement for any Weishaupt heating system. They are suitable for solar water heating and for combined heating support. With versions for on-roof, in-roof and flat roof installations, solar energy can be utilised on almost any roof.

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This attractive program for domestic water heating includes classic water heaters, solar storage tanks, heat pump storage tanks and energy storage tanks.

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The heat pump range offers solutions for the utilisation of heat from the air, the soil or ground water.
Some systems are also suitable for cooling buildings.

**Geothermal probe drilling**

With its daughter company, BauGrund Süd, Weishaupt also offers geothermal probe and well drilling. With the experience of more than 10,000 systems and more than 2 million meters of drilling, BauGrund Süd offers a comprehensive service program.