

COMPACT P / AIR 9 - INSTALL OVERVIEW



THIS GUIDE DOES NOT TAKE THE PLACE OF THE FACTORY ISSUED INSTALLERS MANUAL AND IS ONLY TO SHOW THE INDICATIVE ARRANGEMENT OF A TYPICAL INSTALLATION.

Installers guide can be found at <https://www.en.nilan.dk/downloads>

Plumbing and Electrical overview

Air 9 ASHP - Outside unit



Consumer unit



LABELLED 25AMP SUPPLY

Double pole isolator (no fuse)



Armoured cable from the Consumer unit



LABELLED ISOLATOR LOCAL TO UNIT

LABELLED ISOLATOR LOCAL TO UNIT



LABELLED ISOLATOR LOCAL TO UNIT

NOTE - Remove Schuko plug and wire directly to fuse spur.

Pre-moulded 20m communications cable - DO NOT CUT AND REJOIN

Note: Place a roped 75mm ventilation duct at first fix stage to pull through comms cable at install stage.

LABELLED Network cable hardwired to GATEWAY back to WIFI router



LABELLED 13AMP SUPPLY FOR Compact P GATEWAY



LABELLED 13AMP SUPPLY FOR AIR9 GATEWAY

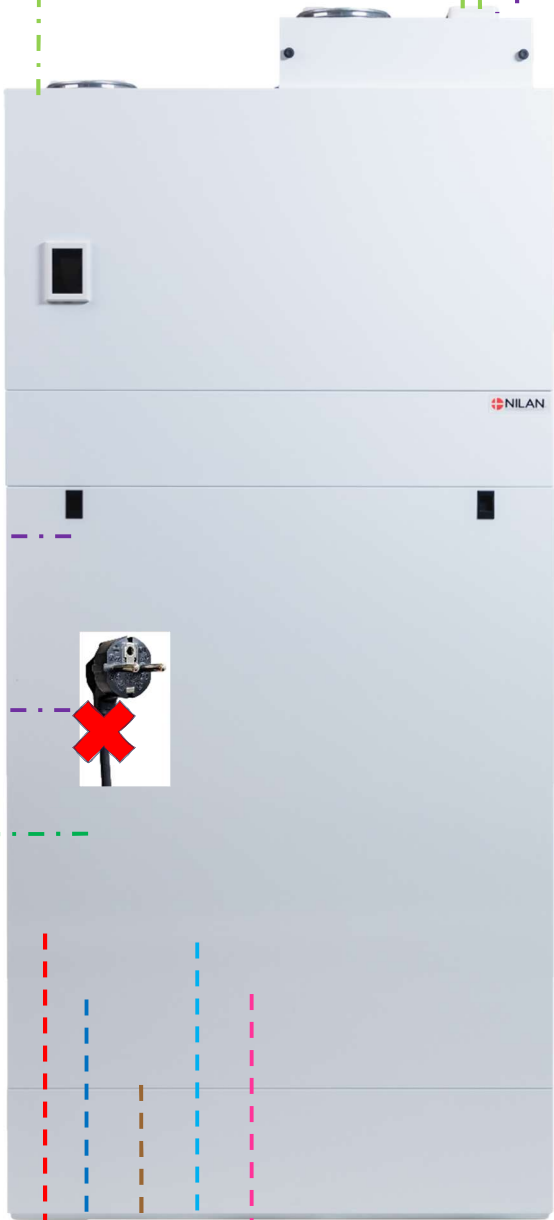


Make sure 8 pin Modbus plug is connected.

This is supplied with unit.

Compact P

Air 9 ASHP – Inside unit contained within



Condensate drip to drainage system.

Note: Drip hose complete with a pre-fitted heating element to prevent freezing

Less than 10m =

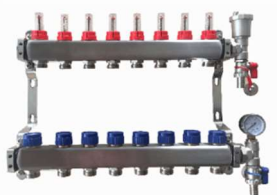
28mm flow and return, sleeved within Aramaflex insulation joints sealed, concealed within 1 x 150mm duct OR 2 x 100mm ducts.

More than 10m = 32mm flow and return, sleeved within Aramaflex insulation joints sealed, concealed as before

Alternatively a district heating pre-insulated pipe or Multilayer pre-insulated pipe depending on distance and preference

Flow and return from Buffer to UFH or TT Rads.

NOTE: manifold must not have mixer



Condensate drip to drainage.

Maintain loop at low level.

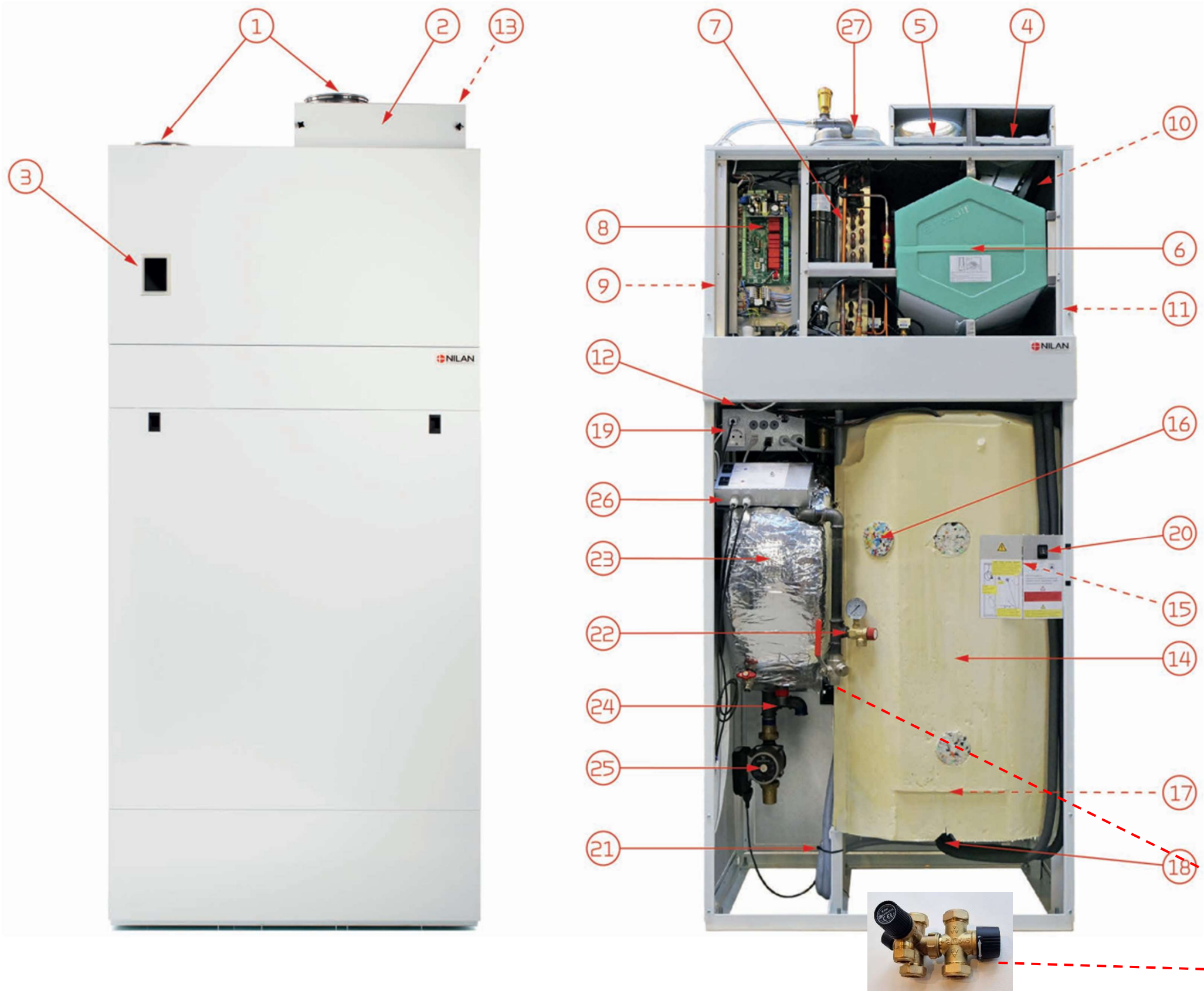
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Unit - the indoor unit



- Compact P:**
- 1. Duct connections
 - 2. Front panel for filter changes
 - 3. The control panel (HMI touch-screen)
 - 4. Extract air filter
 - 5. Outdoor air filter (pollen filter placed here if required)
 - 6. Counterflow heat exchanger
 - 7. Heat pump
 - 8. Automation CTS602
 - 9. Fans
 - 10. 100% bypass damper
 - 11. Pre-heating element (Polar version only)
 - 12. USB cable (for connection to PC)
 - 13. Gateway for App solution
 - 14. 180 l domestic hot water tank (DHW)
 - 15. 1,5 kW electrical supply heating element (with overheating cut-out)
 - 16. Electronically monitored sacrificial anode
 - 17. Solar coil (SOL version only)
 - 18. Plumbing connections
 - 19. Electrical connection panel
 - 20. Emergency mode (DHW)
 - 21. Condensate drain with water trap
- AIR:**
- 22. Safety valve and manometer for the central heating circuit
 - 23. 50 l buffer tank
 - 24. Filling tap and particle filter for the central heating circuit
 - 25. Circulation pump for circulation to the external unit
 - 26. Supplementary electric for central heating 2x3kW
 - 27. 8 l expansion tank for central heating circuit

NOTE

No 22 requires a circulation pump to the UFH, this has a filter gauze pre-installed.

Details of anti scald fitting on the following page

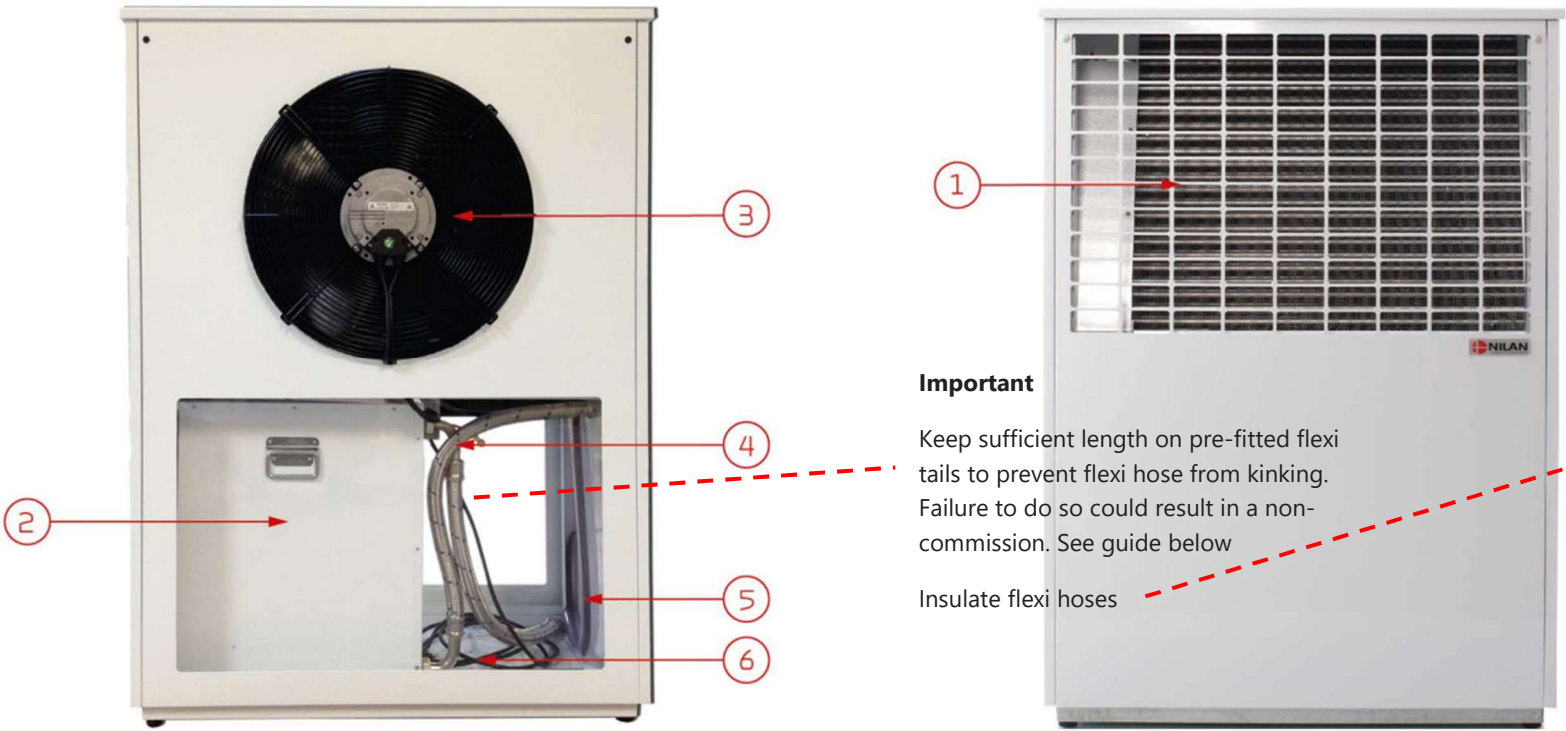
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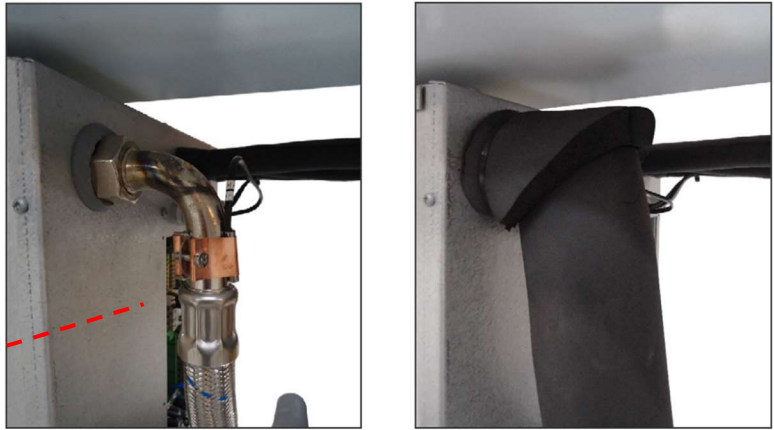
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Unit - the outdoor unit



Important
Keep sufficient length on pre-fitted flexi tails to prevent flexi hose from kinking. Failure to do so could result in a non-commission. See guide below
Insulate flexi hoses

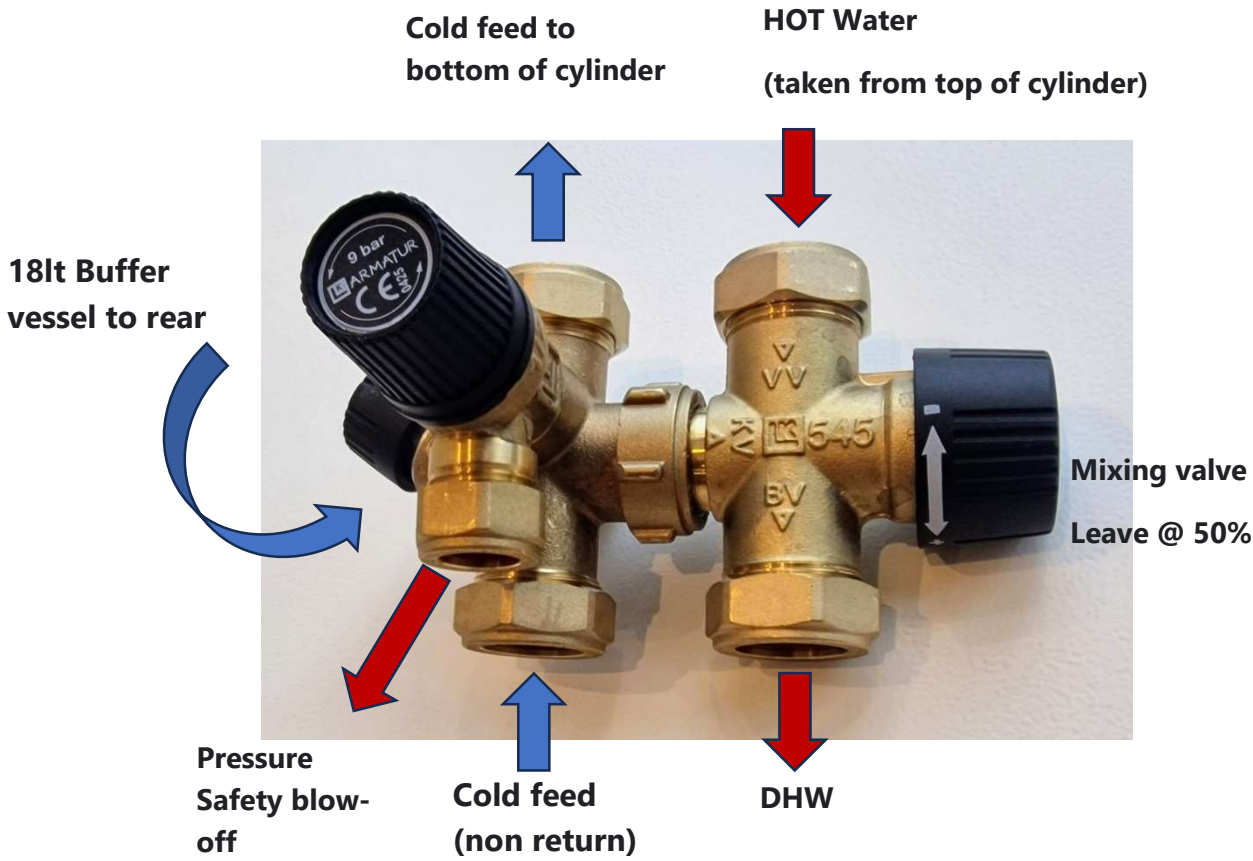
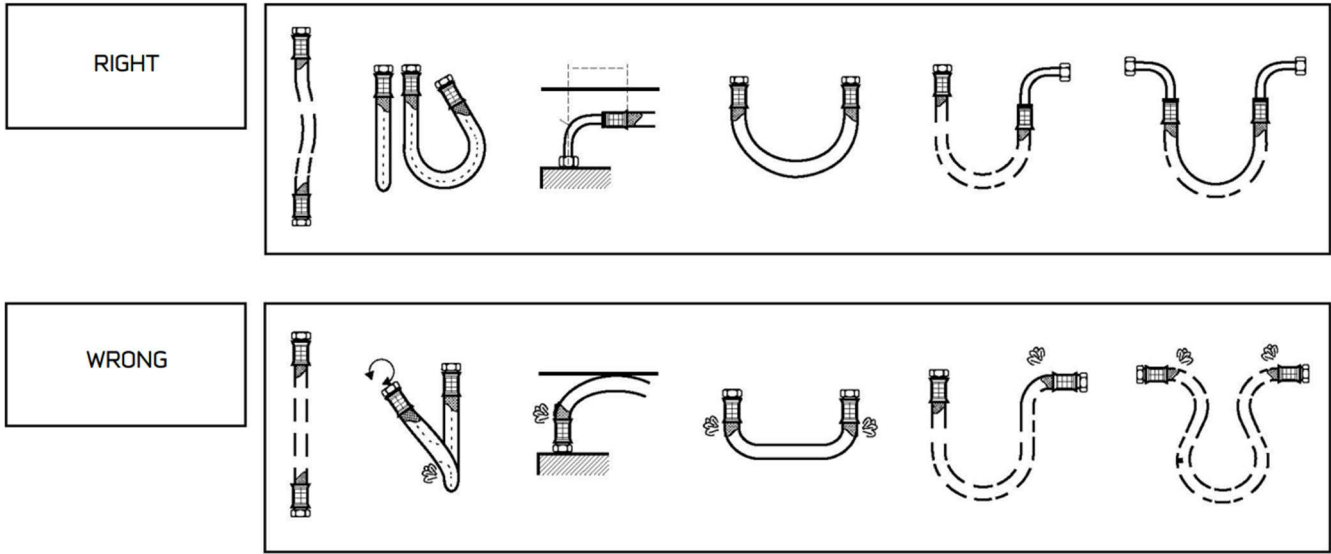
Insulation of hoses from the outdoor unit
It is important that the brine hoses between the indoor part and the outdoor part are well insulated, according to current standards. This is done to avoid heat loss and to achieve good operation.



*Photo: Example of AIR outdoor unit. The outdoor unit is available in several variants.

- 1. Evaporator element
- 2. Heat pump
- 3. Fan
- 4. Connectors to indoor unit (liquid)
- 5. Condensate drain with integrated heating cable
- 6. Communication with indoor unit and electrical connection

ATTENTION
The illustration above shows an example of an AIR outdoor unit. See dimensional sketch for details on AIR9 and AIR9+.



Factory supplied anti scald device to be fitted to bottom of the DHW cylinder

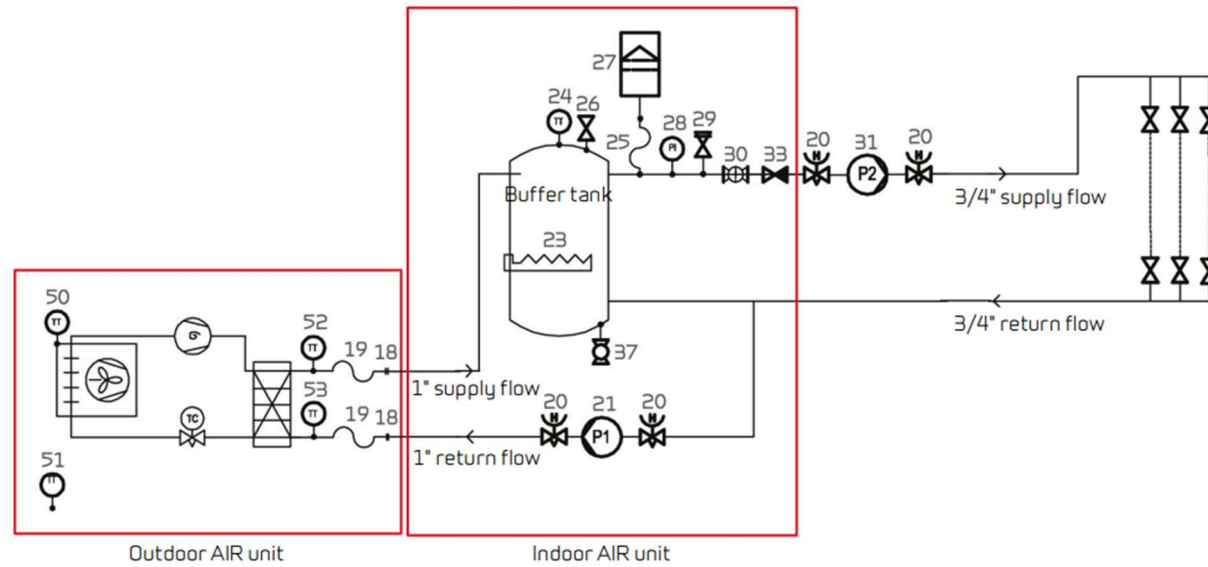
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Installation without a SHW250

Piping diagram



* Everything within the red box is Nilan delivery.

- | | |
|---|--|
| 18. Connection 1" | 28. Manometer |
| 19. Flexible hose 1" | 29. Safety valve 2.5 bar |
| 20. Shut-off valve | 30. Shut-off valve with particle filter |
| 21. P1 circulation pump 130 mm | 31. P2 circulation pump |
| 23. Supplemental electric heating 2 x 3 kW | 33. Check valve 3/4" |
| 24. Temperature sensor T18 buffer tank (flow) | 37. Feed tap 1/2" |
| 25. Flexible hose 10 mm | 50. Temperature sensor T23 evaporator element |
| 26. Automatic control vent 3/8" | 51. Temperature sensor T20 outdoor temperature |
| 27. Expansion vessel 8 litre | 52. Temperature sensor T17 after condenser |
| | 53. Temperature sensor T16 before condenser |

Important installer notes

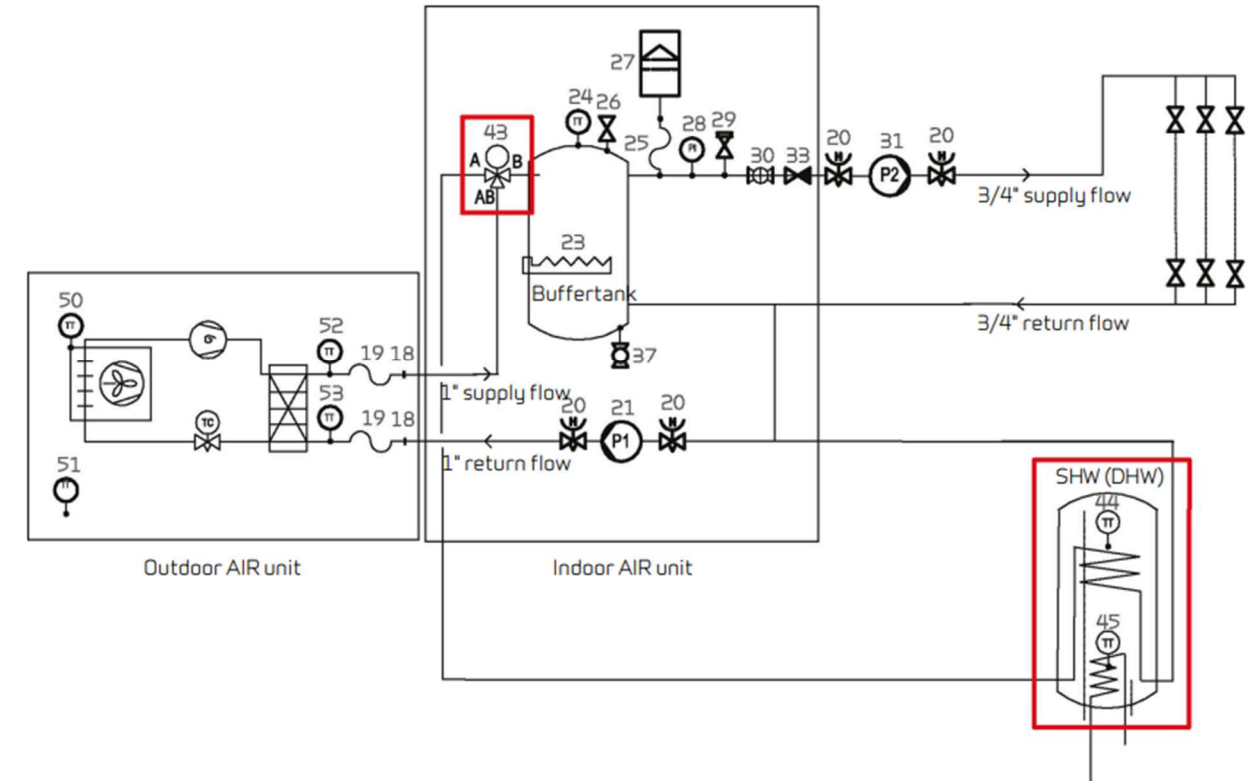
Be mindful, the 3 way valve at no 43 needs to be in the correct orientation.

¼ turn Valve & T fitting required at 25-27 so as to bleed UFH at commissioning stage, this is not factory supplied and should be fitted by the installer

Installation with a SHW250

Hot water tank

The AIR unit can be connected to an external hot water tank (SHW) or to the hot water tank in the Compact P (DHW). A three-way valve, which can be purchased as an accessory, is required.



- | | |
|--|--|
| 18. Connection 1" | 30. Stop valve with particle filter |
| 19. Flexible hose 1" | 31. P2 circulation pump |
| 20. Shut-off valve | 33. Check valve 3/4" |
| 21. P1 circulation pump 130 mm | 37. Filling tap 1/2" |
| 23. Electrical supplement heating 2 x 3 kW | 43. 3-way valve |
| 24. Temperature sensor T18 buffer tank (supply flow) | 44. Temperature sensor T21 hot water tank top |
| 25. Flexible hose 10 mm | 45. Temperature sensor T22 hot water tank bottom |
| 26. Automatic vent 3/8" | 50. Temperature sensor T23 evaporator surface |
| 27. Expansion tank 8 litre | 51. Temperature sensor T20 outdoor temperature |
| 28. Manometer | 52. Temperature sensor T17 after condenser |
| 29. Safety valve 2,5 bar | 53. Temperature sensor T16 before condenser |

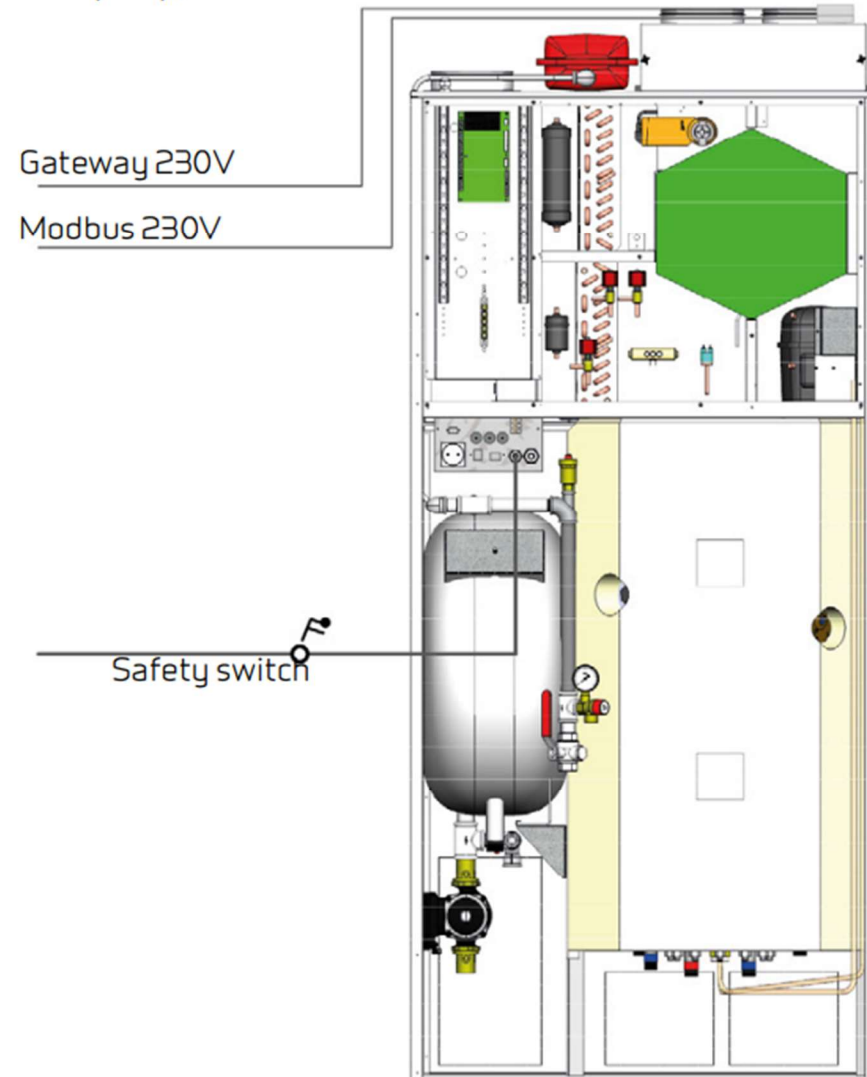
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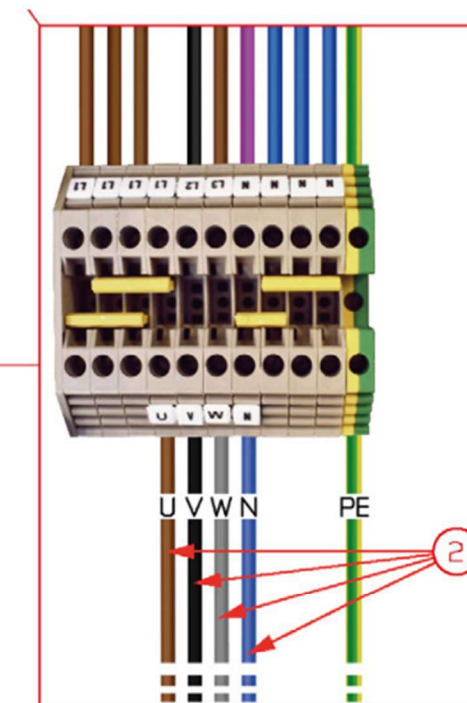
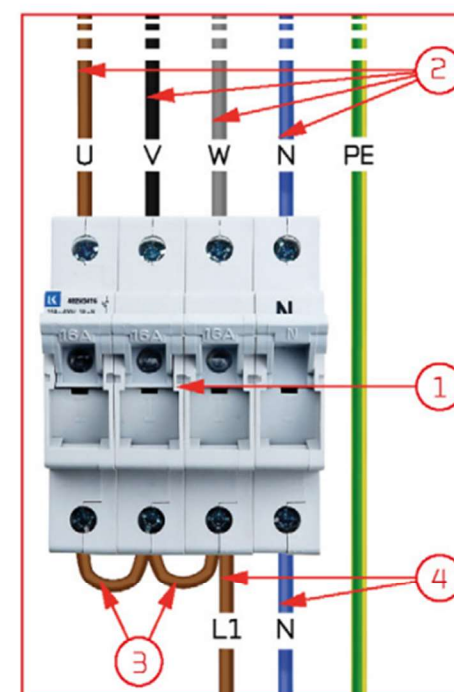
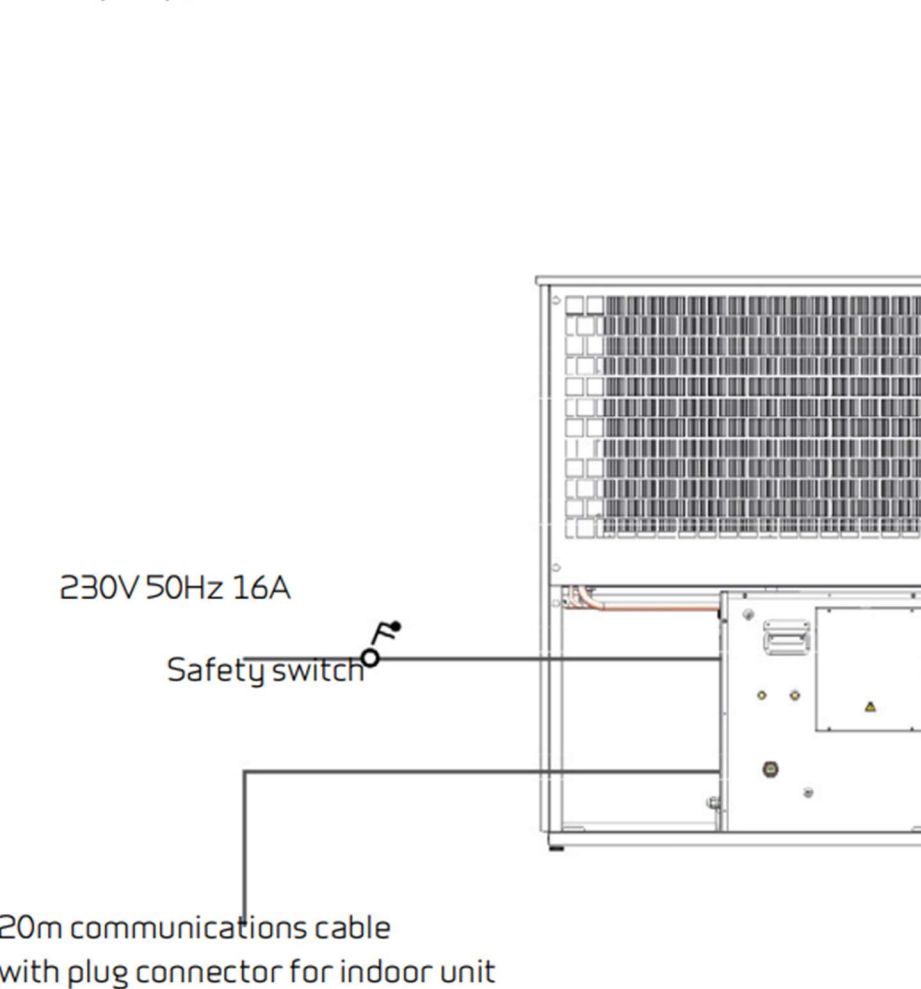
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Electrical Layout – see page 1 also

Heat pump, indoor AIR unit



Heat pump, outdoor AIR unit



1 x 230V

1. In the panelboard there must be mounted a 3x16A circuit breaker. There must be 40A available before the circuit breaker.

2. Wires are connected between the terminal block and the circuit breaker:
U = brown, V = black,
W = gray, N = blue/zero.

3. Jumpers are mounted on the access side of the circuit breaker from 1-2 and 2-3.

4. Brown (L1) is mounted in the third wire inlet. Blue/zero (N) is mounted in the fourth wire inlet.

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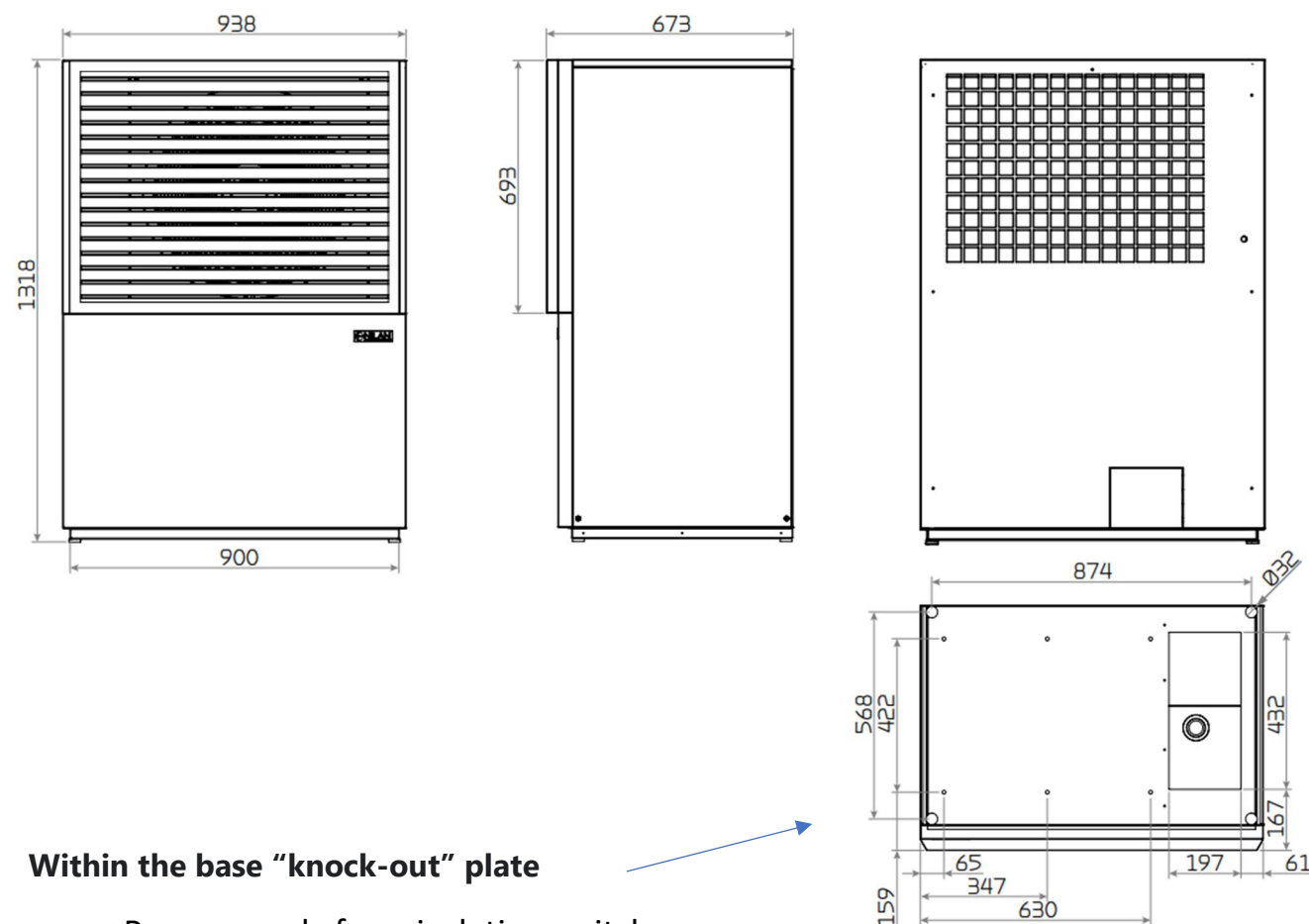
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AIR9 (Version 2022)

Dimensional drawing



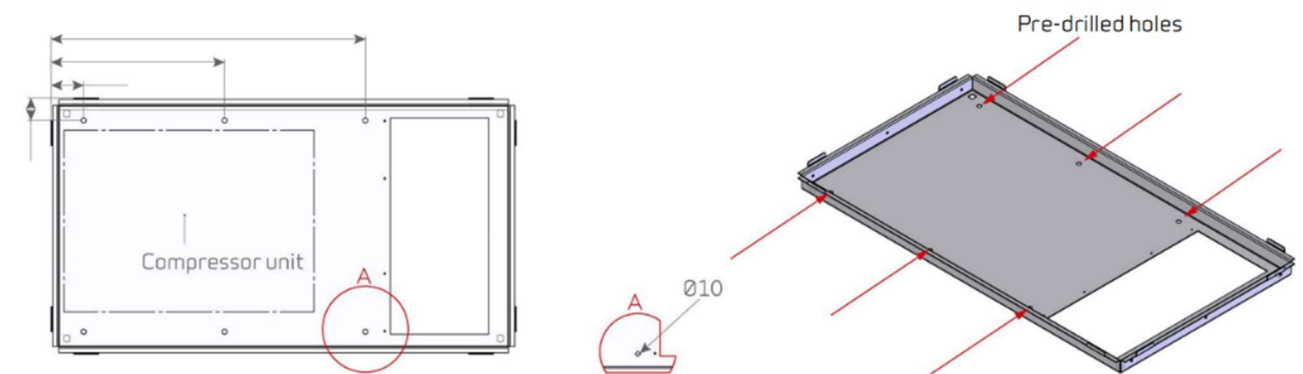
Within the base "knock-out" plate

1. Power supply from isolation switch
2. 26mm Flow
3. 26mm Return
4. Roped duct for pre-moulded comms cable (do not cut and rejoin)
5. Condensate drip

Air9 Supporting base

Fixing of outdoor unit to substrate

If the outdoor unit is placed in a place with a lot of wind, e.g. on a roof, it is necessary to attach it to the substrate using the 6 pre-drilled holes in the bottom.



ATTENTION

The illustration above shows an example of an AIR outdoor unit. See dimensional sketch for details on AIR9 and AIR9 +.

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Air9 example bases

Note:

Be mindful that cold air will be blowing from the fan, if this is pointed towards a outside living space this may pose a future comfort issue. Turning the Air 9 "back to front" may be considered more practical. As per first photo

Consider sound issues on next page when setting out the base.

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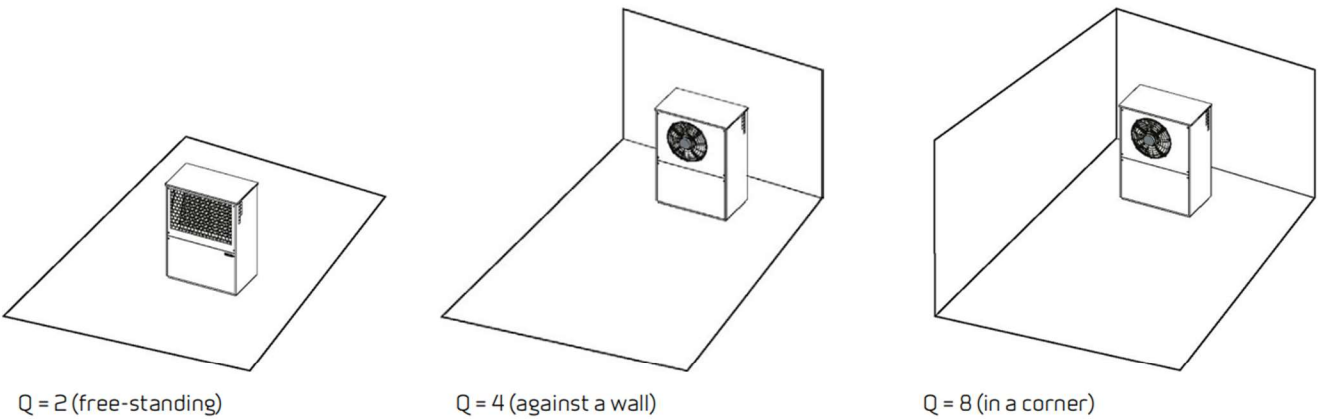


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Sound data

The sound from the AIR unit's external unit can be propagated depending on where it is sited relative to the building and the underlying surface, as well as on other surrounding objects and surfaces.



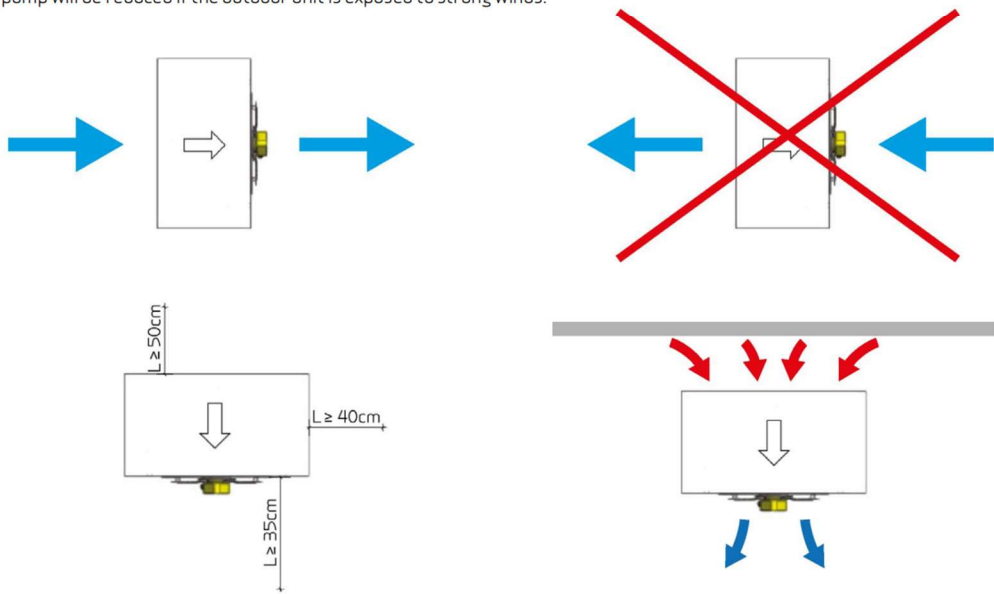
Sound effect LWA dB(A) 7/6 °C - 30/35 °C = 46 db(A) in accordance with EN14511, EN12102 and EN3743/1

Sound pressure LpA dB(A) calculated in accordance with EN13487:2003:

Distance in metres	1	2	6	10	21
Location factor 2	38	32	22	18	12
Location factor 4	41	35	26	21	15
Location factor 8	44	38	28	24	18

Positioning an outdoor unit

An outdoor unit must always be positioned on a firm, horizontal and vibration free surface. Consider securing it to a fixed base. You should also take into account the prevailing wind direction during the cold months when heating is required, as the performance of the heat pump will be reduced if the outdoor unit is exposed to strong winds.



If required, you can consider putting up a windbreak. However, clearance requirements must be met.

Shown below are the horizontal minimum distances to building parts and sim. that are required for the heat pump to perform properly.

If you want to position AIR up against the building, it is important that you take into account potential noise from the outdoor unit so it does not become a cause of irritation in-doors.

Position AIR so air is supplied from the dwelling. The air gains added energy from solar heating of the building walls during the day and from general heat loss from the building. This can then improve the efficiency of the heat pump.

Condensate drain

During operation, condensate water will form in the evaporator of the outdoor unit. It must be able to drain away safely. A 700 mm hose has been fitted to the condensate tray of the evaporator. You run this to a drain.

The condensate drain must be protected against frost although the 1.5 m heating cable Ø25/4 mm, included, also helps keep the condensate drain frost free. The heating cable starts heating at an outdoor temperature < 2 °C.



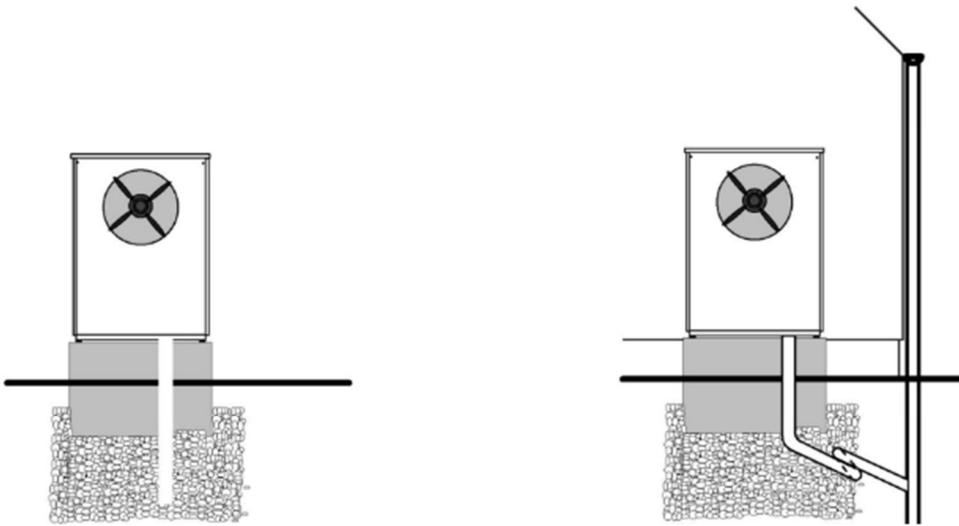
ATTENTION

The condensate water must be able to drain safely so it does not cause damage to the building.



ATTENTION

The condensate drainage system from the outdoor unit must be dimensioned so that it can drain up to 6 litres/hour.



If the condensate water drains into gravel, you must ensure that the drainage system reaches the frost-free subsoil.

If the outdoor unit is placed close to the building, the condensate water can simply drain into one of the downpipes. Remember to install a water trap.

The condensate water can also be led directly to a surface water drainage system.