



Installation Manual

ZDAB

Multisplit DCI R32

EN

WARNINGS AND PRECAUTIONS

Read this document in detail before undertaking any installation work.

	This symbol indicates that this appliance uses flammable refrigerant. There is a risk of fire if refrigerant leaks and becomes exposed to an external ignition source.
	This symbol indicates that qualified personnel must handle this equipment in accordance with the installation instructions.
	Read the instructions carefully.
	Use the recommendations given in the installation instructions and the instructions for use.

WARNINGS AND PRECAUTIONS

Regulatory conditions for installation and maintenance

The installation and maintenance of the appliance must be carried out by an approved professional in accordance with the regulations and best practices in force, in particular:

France:

- Legislation on the handling of refrigerants: Decree 2007/737 and its implementing decrees.
- The commissioning of this air conditioner requires the call of a qualified installer, with a certificate of capacity in accordance with Articles R 543-75 to 123 of the Environmental Code and its implementing decrees. As well as any other operation carried out on equipment requiring the handling of refrigerants.
- NF C 15-100 and its amendments: Low-voltage electrical installations - Rules.

R32 refrigerant

- To install the unit, use R32 refrigerant in case of additional load, tools and connections specifically adapted to R32.
- This flammable fluid requires compliance with the minimum surfaces and volumes of the room where the device is installed, stored or used. Ensure that the site application is in line with the size of the treated parts and the fluid load of the installation (compliance with the EN-378 standard).
- Do not introduce substances into the appliance other than the recommended refrigerant. If air enters the refrigeration circuit, the pressure in the circuit will increase abnormally and may break the bonds.
- Do not release the refrigerant into the atmosphere. In the event of a refrigerant leak during installation, ventilate the room. At the end of the installation, no coolant leakage must be present on the circuit. A fluid leak exposed to flames can cause toxic flames.
- Do not touch the refrigerant if the connections leak or otherwise. Direct contact can cause frostbite.
- Do not install and store the unit near a heat source.
- Comply with the safety rules and use of R32 refrigerant.
- Comply with national gas regulations
- Do not puncture or burn the appliance.

General

- Dispose of packaging materials properly. Tear up plastic packaging and dispose of it in a place where children are not likely to play with it. Untorn plastic packaging can be the cause of choking.
- This unit does not contain any user-serviceable parts. Entrust it to an installer.
- This appliance may be used by children aged 8 years or older and by persons with reduced physical, sensory or mental capabilities or lack experience or knowledge, if they are properly supervised or if they have been given instructions for the safe use of the appliance and the risks involved have been apprehended. Children should not play with the device. Cleaning and maintenance by the user should not be carried out by children without supervision.

Handling

- The outdoor unit must not be lying down during transport. Lying down can damage the device by displacement of the refrigerant and deformation of the compressor suspensions. Damage caused by lying down transport is not covered by the warranty. If necessary, the outdoor unit can only be tilted when handled by hand (to go through a door, to take a staircase). This operation must be carried out with care and the device must be immediately restored to the vertical position.

Refrigerated connections

- All refrigeration circuits are susceptible to contamination by dust and humidity. If such pollutants enter the refrigeration circuit, they can contribute to degrading the reliability of the units. It is necessary to ensure the correct containment of the unit's refrigeration connections and circuits. In the event of a subsequent failure and on the basis of an expert opinion, the finding of moisture or foreign bodies in the compressor oil would systematically lead to the exclusion of the warranty.
- Check upon receipt that the refrigeration circuit fittings and plugs mounted on the indoor and outdoor units are securely in place and blocked (cannot be loosened with bare hands). If this is not the case, block them using a counterlock.
- Check that the refrigeration connections are well sealed (plastic caps or tubes crushed at the ends and brazed). If the caps need to be removed during work (e.g. recut tubes), reassemble them as quickly as possible to avoid contamination of the tube.
- Do not use blue paste or sealant for refrigerated connections as it clogs them. Its use will result in the device being taken out of warranty.
- Do not use regular mineral oil on the "Flare" fittings. Use POE refrigerant oil to avoid it entering the circuit as much as possible, as this can reduce the longevity of the equipment.
- Use dry nitrogen to remove filings from pipes and to prevent the introduction of moisture that is harmful to the operation of the appliance.
- The flare connection of the refrigeration connections must be made outdoors.

Batteries

- Do not leave batteries within reach of children.
- If the remote control is not used for a long time, remove the batteries to prevent possible leaks that could damage the device.
- If liquid leaking from the batteries comes into contact with the skin, eyes, or mouth, rinse immediately with plenty of water and consult your doctor.
- Used batteries should be removed immediately and recycled appropriately.
- Do not attempt to recharge batteries.

Installation

- Before any intervention, make sure that the general power supply is cut off.
- The installation must be carried out in accordance with the standards in force at the place of installation and the manufacturer's installation instructions.
- The installer should install the unit using the recommendations given in this manual. A poorly carried out installation can cause serious damage such as refrigerant or water leaks, electric shocks or fire hazards. If the unit is not installed in accordance with this manual, the manufacturer's warranty will not be valid.
- Only qualified personnel are able to handle, fill, purge and dispose of the refrigerant.
- These air conditioners are intended for residential and tertiary use, to ensure the thermal comfort of users. They are not intended to be used in places where humidity is excessive (florist, indoor greenhouse, wine cellar, etc.), where the ambient air is dusty and where electromagnetic interference is significant (computer room, proximity to television antennas or relays).
- The devices are not explosion-proof and therefore should not be installed in potentially explosive atmospheres.
- Take appropriate measures to prevent the outdoor unit from being used as a shelter by small animals. Animals that come into contact with electrical parts are likely to cause breakdowns or fires. Instruct the customer to keep the area around the unit clean.
- Install the units in a location where gas, liquid, and condensate drain pipes will be easy to install.
- Install the air conditioner on a foundation that is strong enough to support the weight of the unit. An inadequate foundation can cause the device to fall and cause injury.
- Install the indoor unit, outdoor unit, power cables, interconnect cables, and remote control cables at least 1 m from a television or radio receiver. This precaution is intended to avoid interference on the television reception signal or noise on the radio signal (however, even at more than 1 m the signals can still be disturbed).
- If you are moving, call an installer to disconnect and install the appliance.
- Be sure to use the parts provided or specified in the instructions during installation.
- Properly secure the electrical box cover and service panel of the units. If the unit's electrical box cover or service panel is loosely attached, there is a risk of fire, electric shock due to the presence of dust, water,

etc.

Electrical connections

- The electrical installation must be carried out in accordance with the regulations in force, in particular: NF C 15-100 standard.
- If the power cable is damaged, it should be replaced with a special cable or assembly available from the manufacturer or their service department.
- The indoor unit operates at a nominal voltage of 230 Volts 50Hz. At no time (including during start-up phases) should the voltage fall below 198 V or above 264 V at the terminals of the device.
- The maximum length of the cable depends on a voltage drop which must be less than 2%. If the cable length is excessive, use a larger cable section.
- Electrical connections will only be made when all other assembly operations (fixing, assembly, etc.) have been carried out.
- Check that the wiring is not subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse effects of the environment.
- Airwell air conditioning units are designed to operate with the following neutral regimes: TT and TN. The IT neutral regime is not suitable for these devices (use a separation transformer). Single-phase power supplies without neutral (between phases) are strictly prohibited. When it comes to three-phase devices, the neutral must also always be distributed (TT or TN).
- The contract signed with the energy supplier must be sufficient to cover not only the power of the appliance but also the sum of the powers of all the appliances likely to be operating at the same time. If the power is insufficient, check with the energy supplier the value of the power subscribed to in your contract.
- Obtain from the power distribution network operator the specifications of the cable and harmonic current, etc.
- Never use a power outlet for power.
- Use a dedicated power circuit. Do not share power with another device.
- Use an independent power line protected by an omnipolar circuit breaker with contact openings greater than 3 mm to power the appliance.
- The electrical installation must be equipped with a differential protection of 30 mA.
- Make sure to place the circuit breaker in a place where users cannot start or stop it unintentionally (annex room, etc.). When the electrical panel is outside, close it and lock it so that it cannot be easily accessible.
- Except in an emergency, never turn off the main circuit breaker or the circuit breaker of indoor units during operation. This manipulation would cause a failure of the compressor and a water leak. Turn off the indoor unit only using any type of remote control or an external input device (switch), then turn off the circuit breaker.
- Never touch electrical components immediately after the power has been turned off. An electric shock may occur. After power off, always wait 10 minutes before touching the electrical components. Static electricity in the human body can damage components. Flush static out of your body.
- Ground the unit. Improper grounding can cause electric shock.
- Improper wiring can damage the entire system.
- When the voltage is too low or collapses when starting the device, it may have trouble starting. In this case, consult your ERDF branch.
- Ensure the safety of all cables, use wires that comply with the standards in force (NF C 15-100 in particular), and that no force is exerted on the connection of the terminals or on the cables.

SUMMARY

1	GENERAL	7
1.1	COMPATIBILITY	7
1.2	COMBINATION TABLES	8
2	ACCESSORIES.....	9
3	INSTALLATION	9
3.1	IMPLANTATION	9
3.1.1	<i>A single outdoor unit.....</i>	<i>10</i>
3.1.2	<i>Multiple outdoor units</i>	<i>11</i>
3.1.3	<i>Dimensions ZDAB 2050.....</i>	<i>14</i>
3.1.4	<i>Dimensions ZDAB 3080.....</i>	<i>15</i>
3.1.5	<i>Ground anchoring.....</i>	<i>16</i>
3.1.6	<i>Disassembling the covers.....</i>	<i>17</i>
4	CONDENSATE REMOVAL	18
5	REFRIGERATED CONNECTIONS	19
5.1	FORMATTING.....	19
5.2	FLARED CONNECTION	19
5.3	ZDAB-2050-09M25	22
5.4	ZDAB-3080-09M25	23
5.5	INSULATION.....	24
6	ELECTRICAL CONNECTION	25
6.1	ELECTRICAL SIZING	25
6.1.1	<i>Cable preparation</i>	<i>25</i>
6.1.2	<i>Boniers</i>	<i>Error! Bookmark not defined.</i>
6.1.3	<i>Cable Routing.....</i>	<i>27</i>
7	COMMISSIONING OF THE PLANT	28
7.1	PRECAUTIONS.....	28
7.2	EQUIPMENT TO BE PURCHASED	28
7.2.1	<i>Leak check (no leakage).....</i>	<i>28</i>
7.2.2	<i>Vacuum draw.....</i>	<i>29</i>
7.3	ADDITIONAL CHARGE (IF NECESSARY).....	30
7.4	GAS GATHERING	30
7.5	CHECKING FOR LEAKS ON THE CIRCUIT.....	31
7.6	DEVICE TESTING.....	31
7.7	REPATRIATION OF THE REFRIGERANT TO THE OUTDOOR UNIT (PUMP DOWN)	31
8	FUNCTION TEST	32
9	ERROR CODES.....	33
10	MAINTENANCE	34
11	MAINTENANCE	35

1 GENERAL

1.1 Compatibility

	Power (W)	Cold	ZDAB-2050-09M25	ZDAB-3080-09M25
			5 300 (2 430 / 5 860)	7 900 (2 200 / 8 500)
	Power (W)	Hot	5 300 (1 760 / 6 450)	8 200 (1 470 / 8 500)
	BTU/hr	W	Compatibility	
HDMB-025N-09M25	9 000	2 500	✓	✓
HDMB-035N-09M25	12 000	3 500	✓	✓
HDMB-050N-09M25	18 000	5 000	✓	✓
HDMB-070N-09M25	24 000	7 000	-	✓
HDHC-025N-09M25	9 000	2 500	✓	✓
HDHC-035N-09M25	12 000	3 500	✓	✓
HDHC-050N-09M25	18 000	5 000	✓	✓
HDHC-070N-09M25	24 000	7 000	-	✓
XDMX-035N-09M25	12 000	3 500	✓	✓
XDMX-050N-09M25	18 000	5 000	✓	✓
CDMD-022N09M25	7 000	2 200	✓	✓
CDMD-025N-09M25	9 000	2 500	✓	✓
CDMD-035N-09M25	12 000	3 500	✓	✓
CDMD-050N-09M25	18 000	5 000	✓	✓
DDMD-025N-09M25	9 000	2 500	✓	✓
DDMD-035N-09M25	12 000	3 500	✓	✓
DDMD-050N-09M25	18 000	5 000	✓	✓
DDMD-070N-09M25	24 000	7 000	-	✓
FDMX-050N-09M25	18 000	5 000	✓	✓
FDMX-070N-09M25	24 000	7 000	-	✓



1.2 Combination Tables

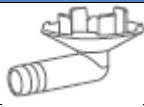
ZDAB-2050-09M25	
Unit A (BTU/hr)	Unit B (BTU/hr)
12 000	
18 000	
7 000	7 000
9 000	7 000
12 000	7 000
18 000	7 000
9 000	9 000
12 000	9 000
18 000	9 000
12 000	12 000
18 000	12 000

ZDAB-3080-09M25		
Unit A (BTU/hr)	Unit B (BTU/hr)	Unit C (BTU/hr)
12 000	7 000	
18 000	7 000	
24 000	7 000	
9 000	9 000	
12 000	9 000	
18 000	9 000	
24 000	9 000	
12 000	12 000	
18 000	12 000	
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24 000	12 000	9 000
18 000	18 000	9 000
12 000	12 000	12 000
18 000	12 000	12 000
24 000	12 000	12 000
18 000	18 000	12 000

Any combination other than those expressly specified in the tables above is likely to result in malfunctions or degraded performance. Any damage, direct or indirect, resulting from such configurations will automatically exclude the application of the warranty.

2 ACCESSORIES

Standard accessories are always present in the packaging. Collect accessories and instructions before disposing of packaging. Use accessories as directed.

Designation	Visual	Quantity
Condensate outlet		1
Gasket		1
Ferrite		2-3

3 INSTALLATION



- Do not touch the fins, otherwise you will cut yourself.
- Carry the unit carefully, holding it by the right and left handles.

3.1 Implantation

The choice of location is particularly important, as a subsequent move is a delicate operation that must be carried out by qualified personnel.

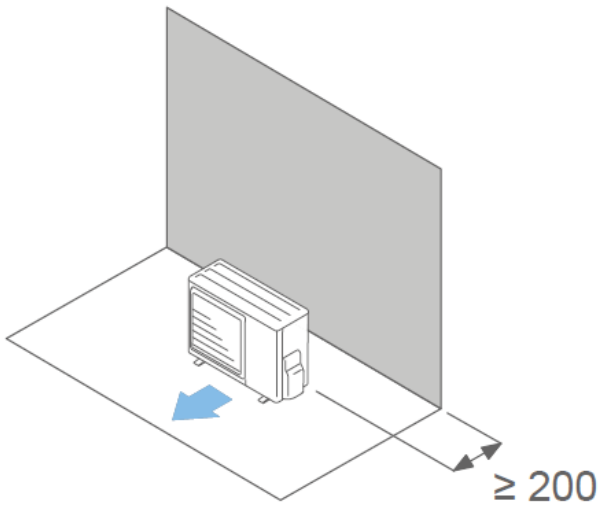
Decide on the location of the installation after discussion with the customer.

- Install the outdoor unit in a location that can support its weight and does not propagate vibrations.
- Install the outdoor unit horizontally.
- Make sure you have the indicated space to ensure good air circulation. The air inlet and outlet must not be obstructed in any way.
- Avoid installing the unit in direct sunlight.
- Do not install the unit near a source of heat, steam, or flammable gases.
- During hot mode operation, condensation water flows from the outdoor unit. Make sure to take all necessary measures to ensure that this water flows smoothly and without causing damage to buildings.
- Do not install the unit facing the wind, in a location exposed to strong winds or dust.
- Do not install the unit in a high-traffic area.
- Install the outdoor unit in an area where there will be no nuisance to the neighborhood that may be affected by airflow, noise, or vibration. If the outdoor unit is to be installed near the neighbourhood, make sure you have obtained their agreement beforehand.
- Avoid installing the outdoor unit in a location where it is likely to be subject to dirt or significant water flow (e.g. under a defective gutter).
- Check whether the passage of the connections to the indoor units is possible and easy.
- Consider care and maintenance when choosing a location. Leave enough space for easy access to the air conditioner.

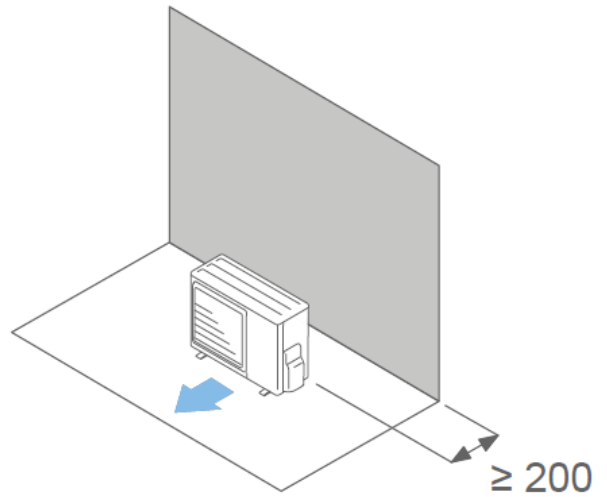
3.1.1 A single outdoor unit

Top of outdoor unit not covered

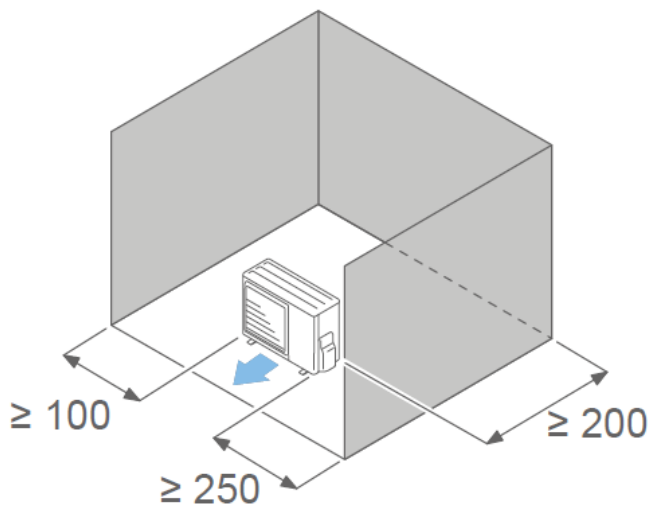
Obstacle only behind



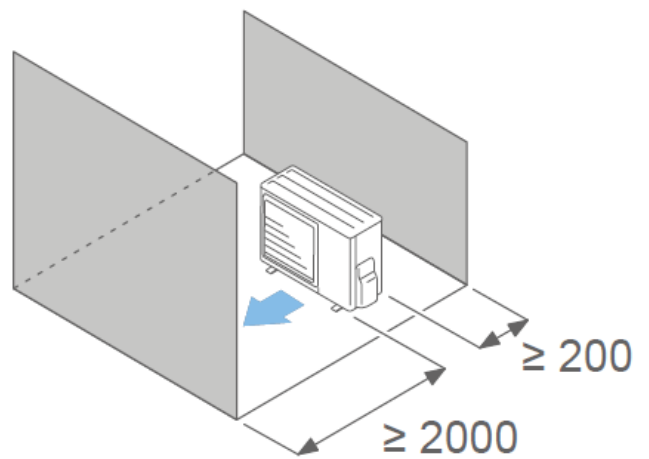
Obstacle only in front



Obstacles behind and on the sides

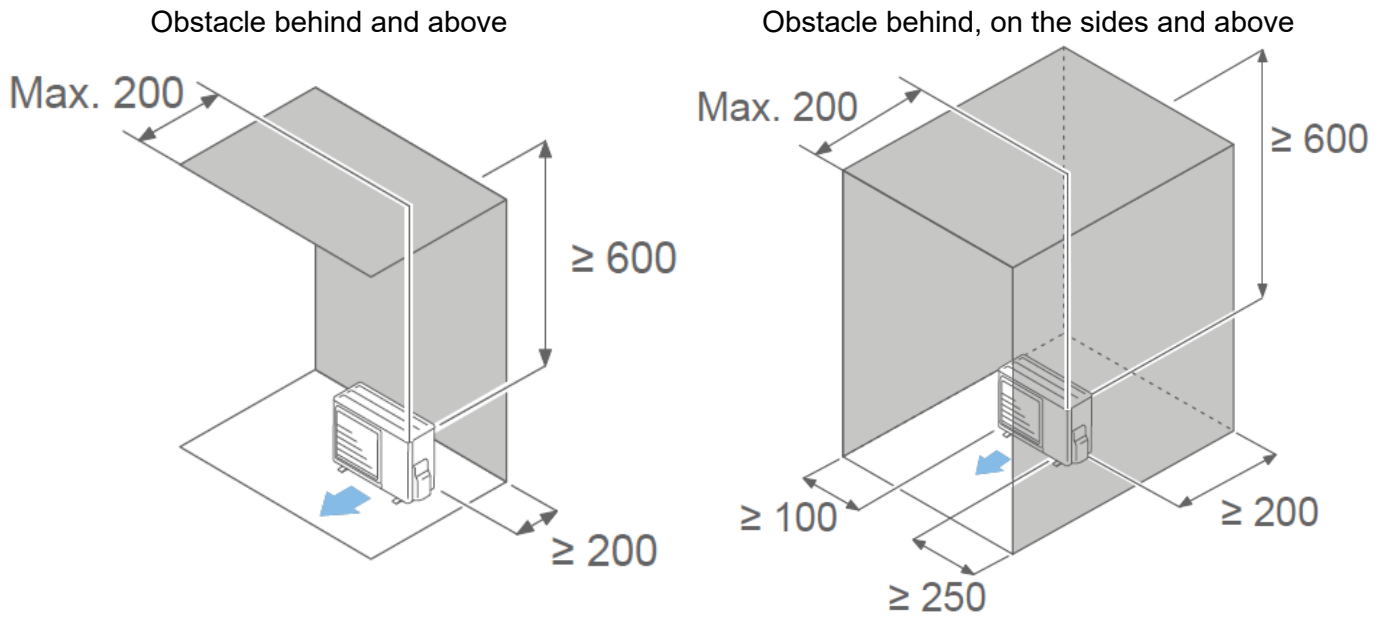


Obstacles in front and behind



Unit: mm

Covered outdoor unit top

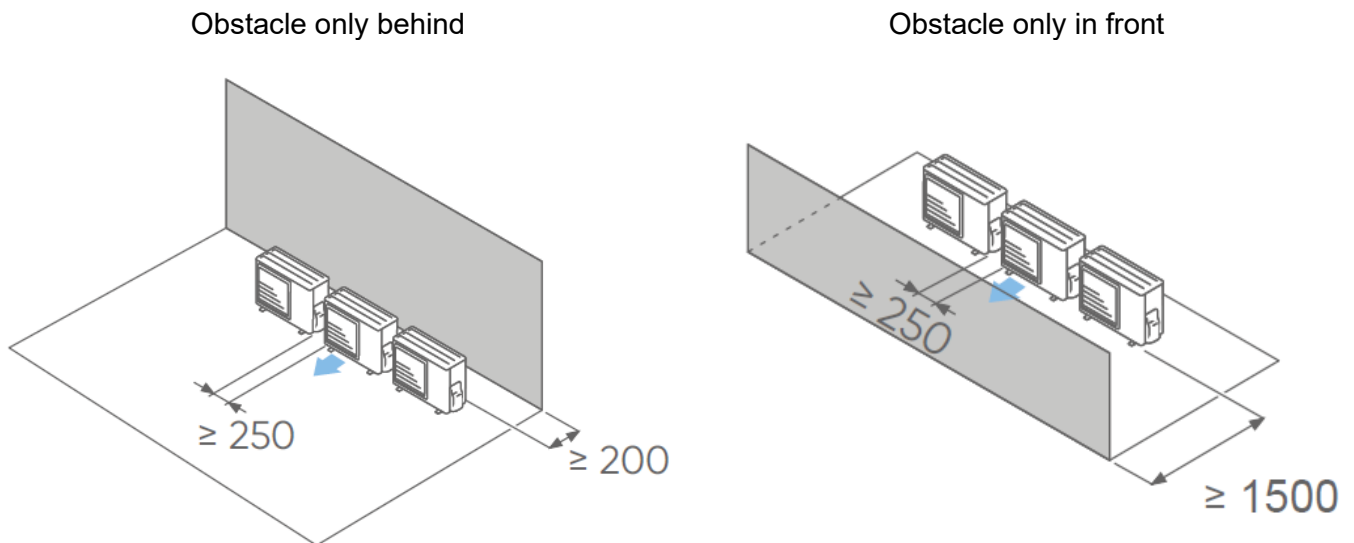


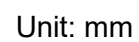
Unit: mm

3.1.2 Multiple outdoor units

1. Leave a minimum of 250 mm of space between outdoor units if they are installed side-by-side.
2. When routing linkages on the side of an outdoor unit, allow sufficient space for installation and maintenance of the linkages.
3. No more than 3 units should be installed side by side. When more than 3 units are to be installed in a line, leave sufficient space as shown in the example (when an obstacle is also present above).

Top of outdoor units not covered

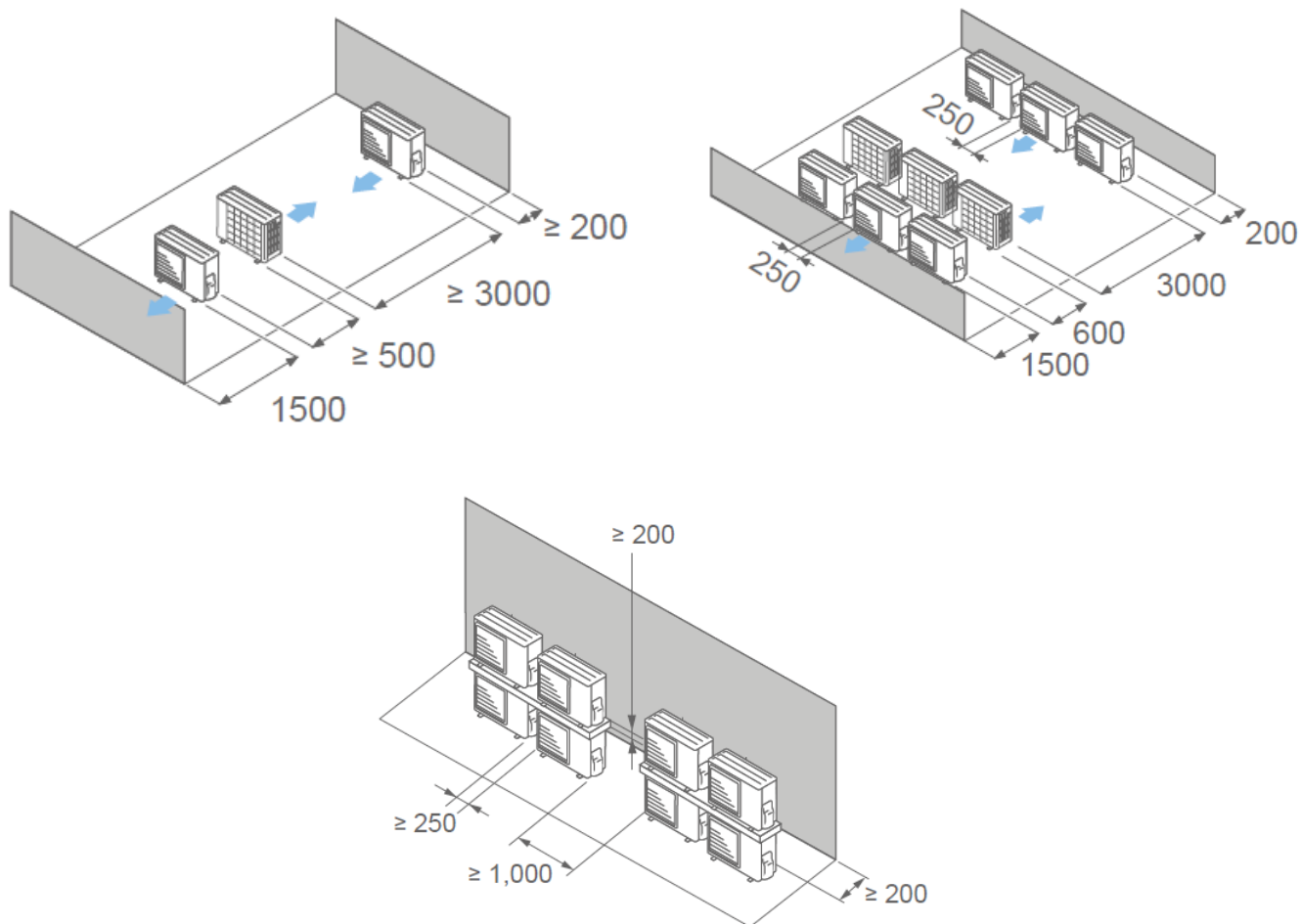




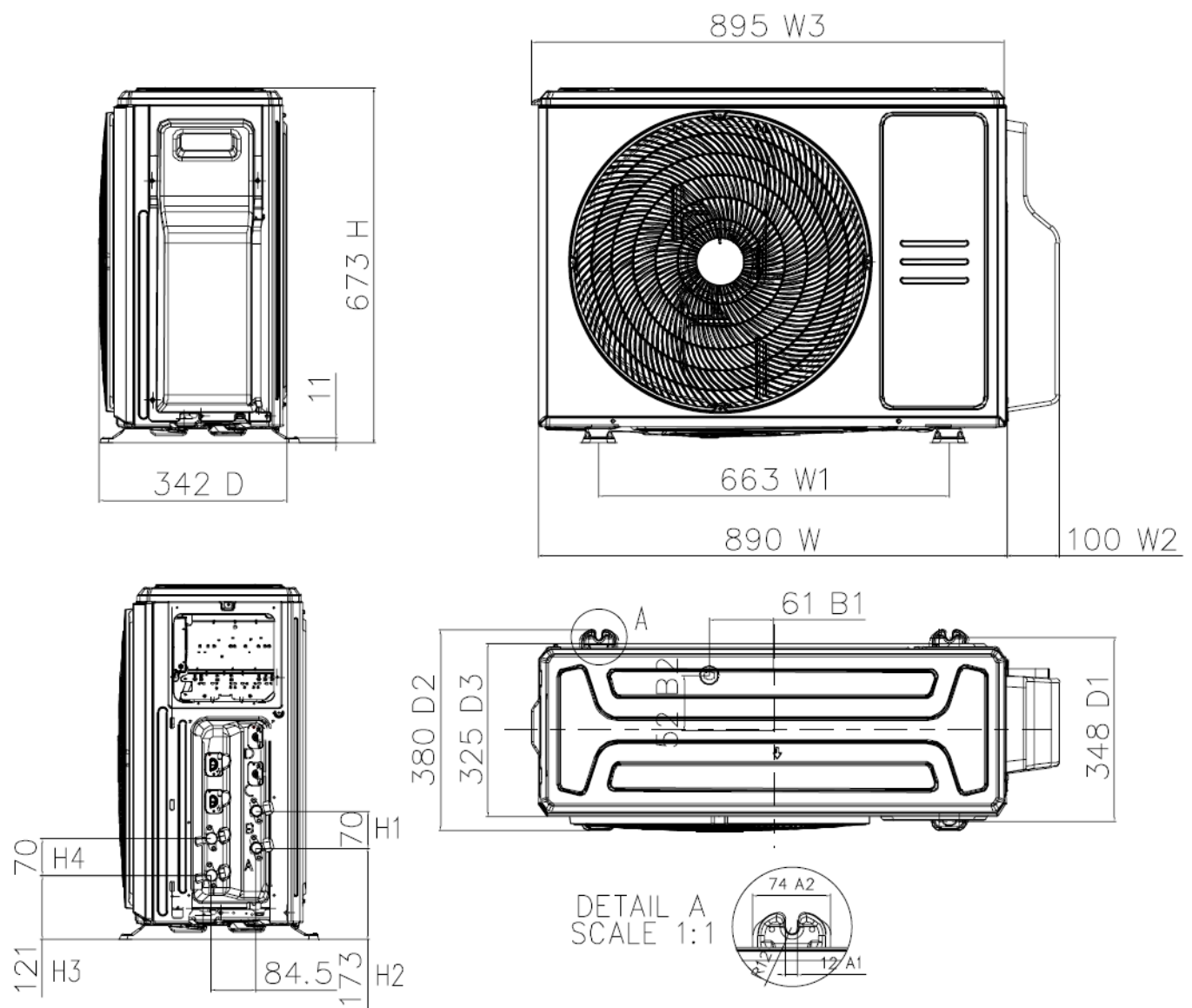
Covered outdoor units top



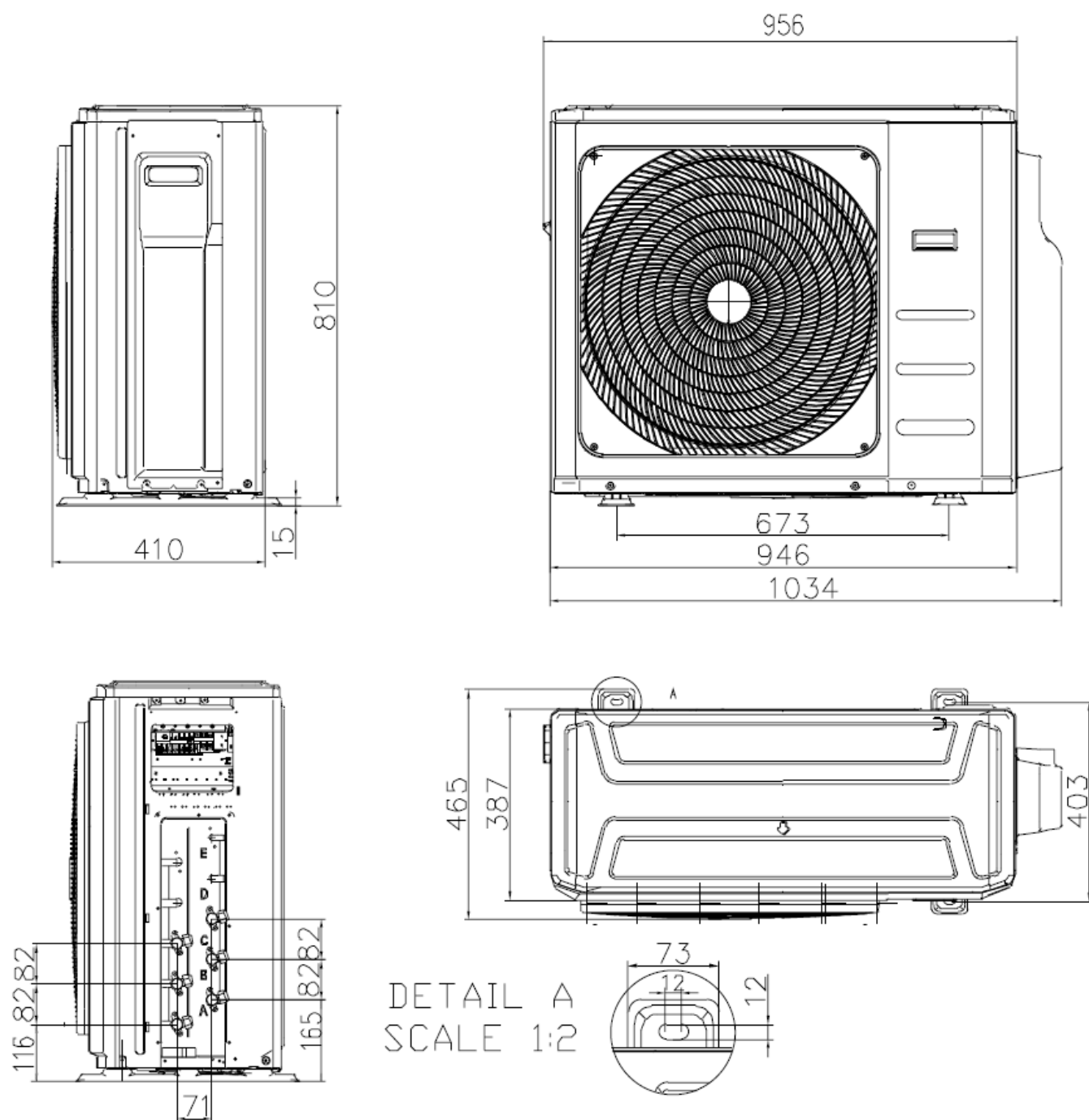
Multiple outdoor units in parallel



3.1.3 Dimensions ZDAB 2050



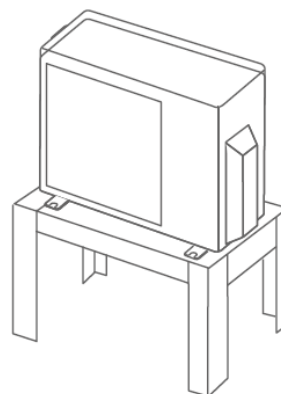
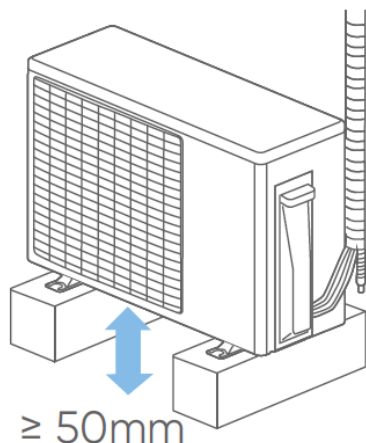
3.1.4 Dimensions ZDAB 3080



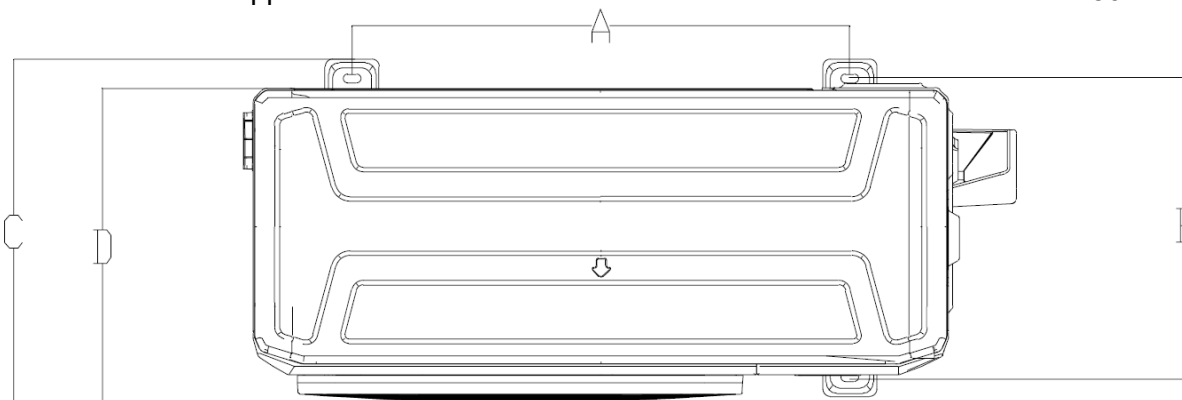
3.1.5 Ground anchoring



- Do not install the outdoor unit directly on the floor, it may cause a malfunction. Condensate water can freeze between the floor and the base of the unit and prevent condensate from draining.
- Heavy snowfall can, in some areas, obstruct the inlet and outlet of air and prevent the generation of warm air. Build a shelter and pedestal or install the outdoor unit on high legs (depending on the environment).

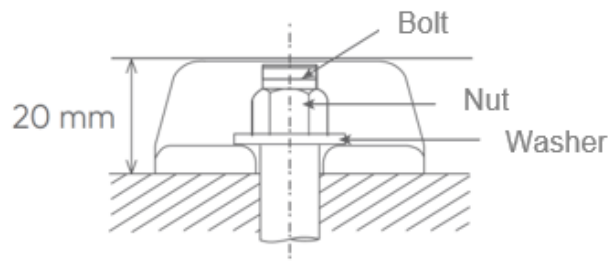


- Install the unit horizontally (do not tilt it more than 3 degrees). Make sure that when laying the foundation, there is enough space to install the refrigeration connections.
- Depending on the installation conditions, vibrations may propagate during operation causing noise. To reduce vibration, install the units on a support such as concrete blocks or anti-vibration supports. (example: anti-vibration mounts – air conditioning accessories).
- Attach the 4 anchor bolts to the location indicated by the arrows in the figure below.
- The foundation must support the cradles of the outdoor unit and have a total thickness of 50 mm or more.



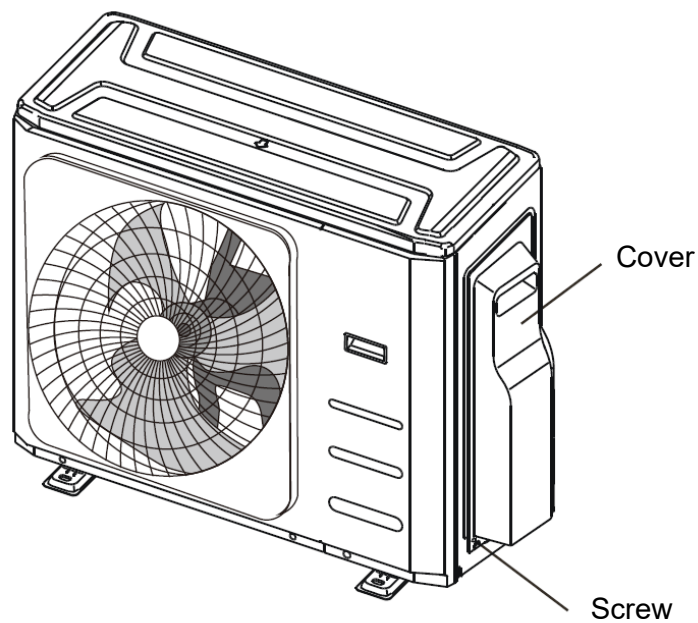
	A (mm)	B (mm)
ZDAB 2050	663	354
ZDAB 3080	673	403

1. Secure the installation using 4 anchor bolts, washers and nuts (M10).
2. The bolts will need to protrude 20mm.



3.1.6 Disassembling the covers

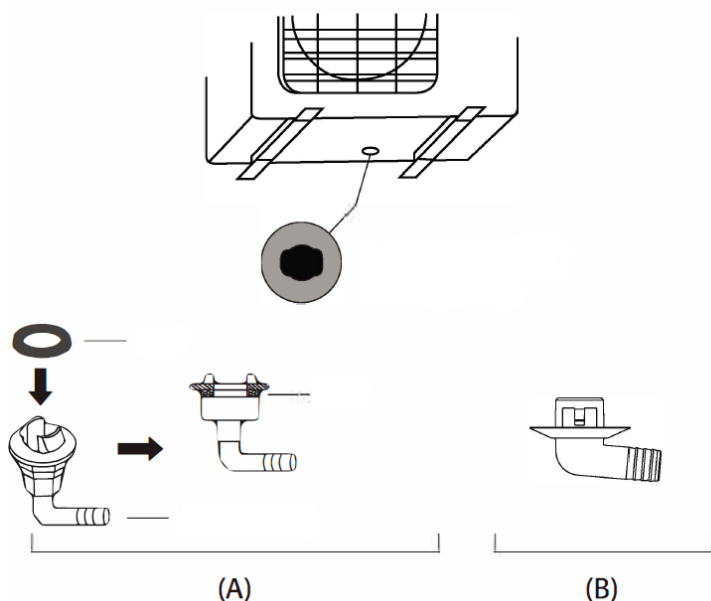
1. Remove the self-tapping screws.
2. Slide the cover down and pull it out.



4 CONDENSATE REMOVAL



- On reversible appliances, condensation water flows out during the use of the heating mode. Connect the condensate drain to a 16mm diameter PVC pipe, taking all precautions to prevent the drain from freezing into ice.
- Perform the condensate drainage installation according to the instructions, and ensure that it drains properly. If the installation is not completed, water may drip down from the unit.
- In cold areas, do not use the condensate cap and drain hose. Cold weather use (outside temperature less than or equal to 0°) of the plug and drain pipe can freeze the condensate at the end of the pipes (reversible model only). In addition, the holes in the base of the outdoor unit should never be blocked. It may be necessary to provide antifreeze resistance for the flow.
- When the condensate outlet is connected, plug the unused holes at the base of the outdoor unit with the rubber plugs and finish with sealant to avoid any risk of leakage.



5 REFRIGERATED CONNECTIONS

Use only specific tubes for refrigeration use with the following characteristics:

- Annealed copper with a high copper content (99% minimum),
- Polished inwardly,
- Dehydrated
- Corked
- Pressure resistance: 50 bar minimum
- Minimum tube thickness 0.8 mm
- Maximum tube thickness 1.0 mm

Refrigeration connections of this type are available as AIRWELL accessories.

5.1 Formatting

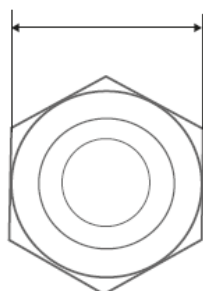


- The connections must be shaped exclusively with a bending machine or bending spring, in order to avoid any risk of crushing or breakage.
- Bend the tubes with a bending radius of at least 70 mm.
- Do not bend the copper at an angle of more than 90°.
- Do not bend the bond more than three times in the same place (risk of breakage, metal work hardening).
- Remove the connections from their insulation so that the connections can be properly bent to the bender. After bending, close the insulation with neoprene glue and assemble with adhesive tape.

5.2 Flared connection

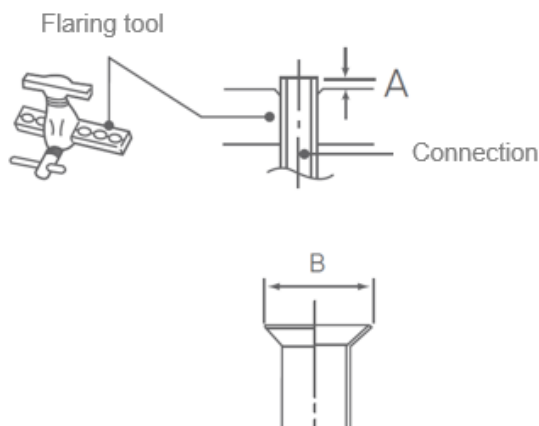
1. Cut the joints with a pipe cutter to the correct length. Be careful not to distort the connections.
2. Deburr carefully by holding the tube down to prevent the introduction of filings.
3. Retrieve the "Flare" nuts on the indoor unit and on the outdoor unit.

Width across flats



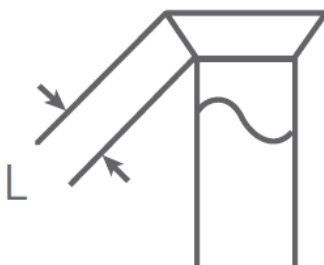
Diameters of refrigeration connections	Width of the flared nut
1/4" (6.35 mm)	17 mm
3/8" (9.52 mm)	22 mm
1/2" (12.70 mm)	26 mm
5/8" (15.88 mm)	29 mm
3/4" (19.05 mm)	36 mm

4. Thread the nuts onto the tubes before flaring.
5. Proceed with the flare. Allow the tube to protrude from the "A" rib of the duck.



Diameters of refrigeration connections	A Rating	B Rating
1/4" (6.35 mm)	0 to 0.5 mm	9.1 mm
3/8" (9.52 mm)		13.2 mm
1/2" (12.70 mm)		16.6 mm
5/8" (15.88 mm)		19.7 mm
3/4" (19.05 mm)		24.0 mm

6. After flaring, check the condition of the span. It must not have any scratches or the beginnings of breakage. Also check that the "L" rating is properly flared, free of cracks and scratches.



Pre-Connection Verification



- The refrigeration circuit is very sensitive to dust and humidity, check that the area around the connection is dry and clean before removing the caps that protect the refrigeration connections.

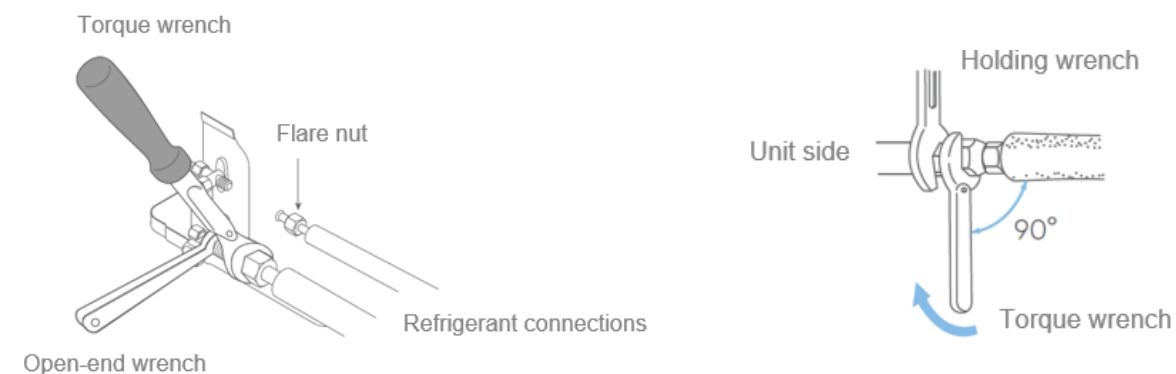
Connection



- Remove plugs from tubes and faucets only when making the connection.
- The small link must always be connected before the large one.
- Pay particular attention to the positioning of the tube in front of its fitting. If the tube is misaligned, hand tightening is not possible and the thread may be damaged.
- Use 2 wrenches for tightening to screw the flare nuts into the axis of the tube.
- Do not press the blind cap as this may cause a leak.
- Tighten the Flare nuts with the torque wrench using the specified method.
- Otherwise, the flare nut could break after a long period of use, causing a refrigerant leak which, when in contact with a flame, would produce a toxic gas.
- Do not use blue paste or sealant for refrigerated connections as it clogs them. Its use will result in the device being taken out of warranty.
- A dudgeon made inside the building should not be reused. The flared fitting on the piping will need to be removed and a new flared fitting will need to be refabricated.
- After connection, make sure that the hoses do not touch the compressor or the external panel.
- The operation of the installation cannot be guaranteed if the combinations of size, length, thickness of the connections and connections to the valves mentioned in this manual are not respected.
- Make sure to connect to both the indoor and outdoor units.
- In order not to deform the external panel, position the main elements with a wrench and tighten with a torque wrench.

7. Remove the caps from the refrigeration connections.

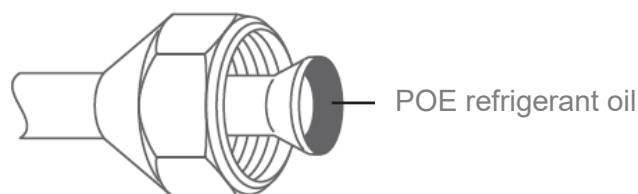
8. After correctly positioning the fittings facing each other, tighten the nuts by hand until ignition and finish with a torque wrench according to the torques listed below.



Open-end wrench

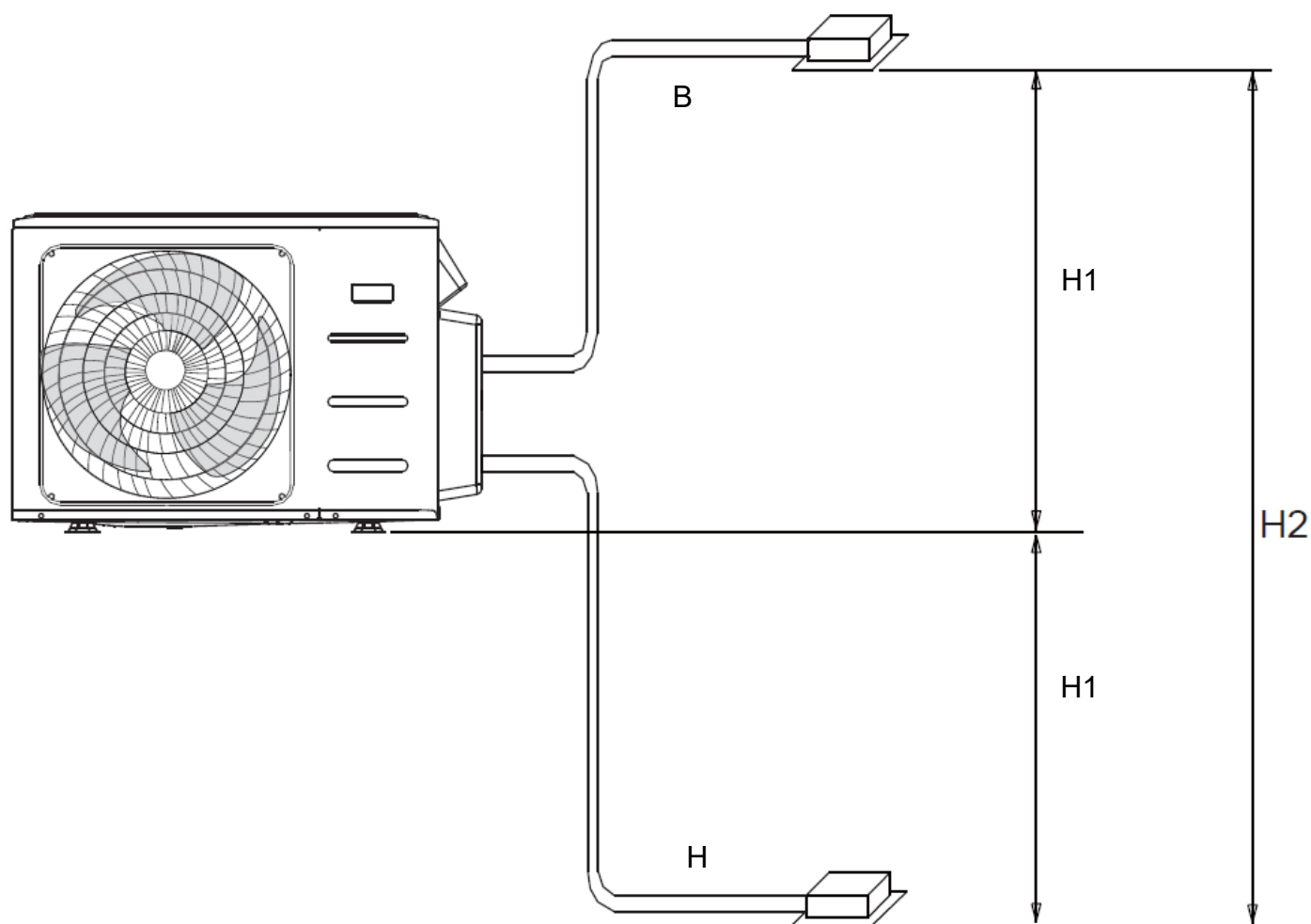
Diameters of refrigeration connections	Tightening torque
1/4" (6.35 mm)	16 to 18 N.m
3/8" (9.52 mm)	32 to 42 N.m
1/2" (12.70 mm)	49 to 61 N.m
5/8" (15.88 mm)	63 to 75 N.m
3/4" (19.05 mm)	90 to 110 N.m

9. For a better seal, double tighten (tighten once with torque, then loosen and tighten again with torque). To avoid the risk of gas leaks and ensure easy tightening, oil the seats and threads with POE refrigerant oil (suitable for R32). Do not use mineral oil.



10. After connection, make sure that the connections are not in contact with the compressor or the service panel.

5.3 ZDAB-2050-09M25



Outdoor Unit Connection Port	Models of connectable indoor units	Gas bond diameter	Liquid bond diameter
A	7 – 18	3/8" (9.52 mm)	1/4" (6.35 mm)
B	7 – 12	3/8" (9.52 mm)	1/4" (6.35 mm)

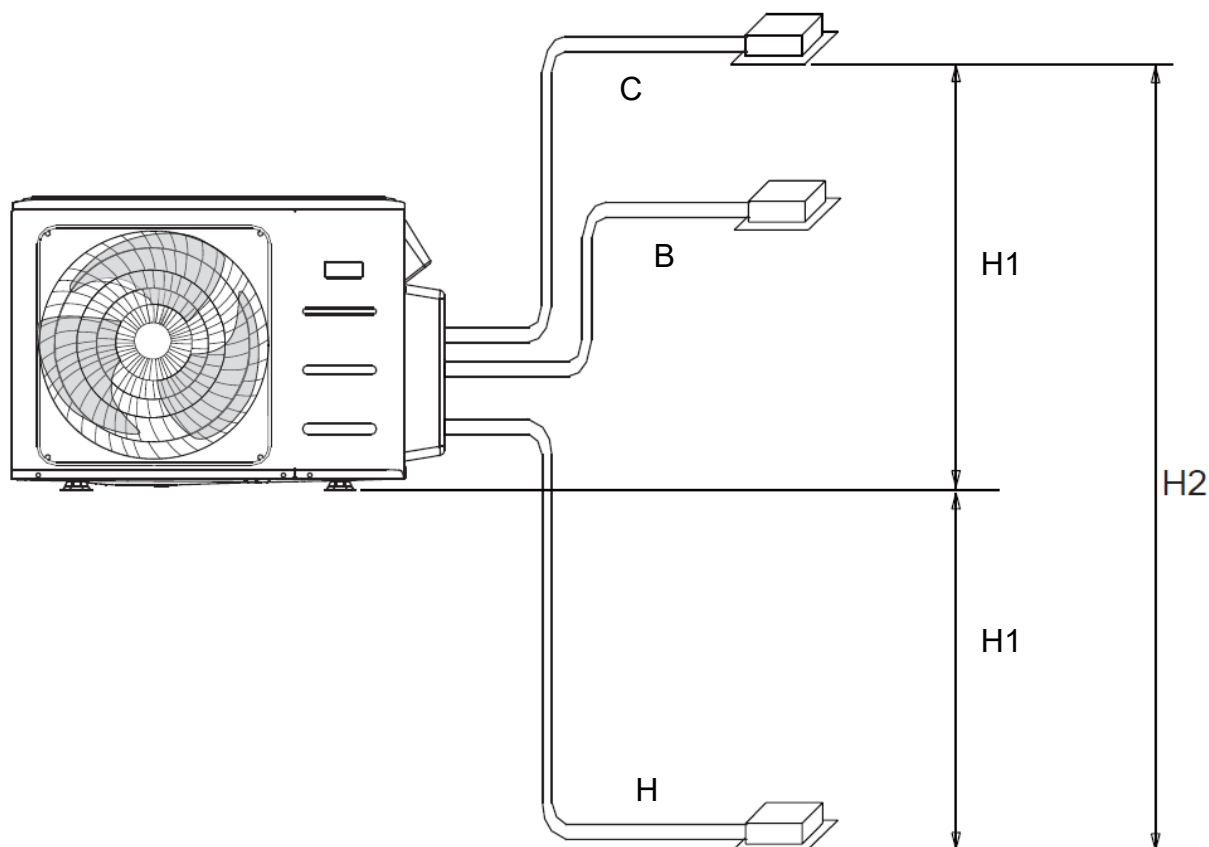
Maximum Total Length (A+B)	40 m*
Maximum length for each indoor unit (A or B)	25 m
Minimum length for each indoor unit (A or B)	5 m
Maximum elevation between outdoor and indoor units (H1)	15 m
Maximum elevation between indoor units (H2)	10 m
Minimum Total Length (A+B)	10 m

* If the total length of the connections exceeds 15 m, it is necessary to add a refrigerant top-up charge (see paragraph 7.3 on page 30).



- Respect the minimum total power connected.
- If the indoor units are of different wattages, always connect the highest wattage to port A.
- In the case of a difference in tube diameter between the IU and the EU, always install the reduction on the EU.
- To install an indoor unit, refer to the instructions in the instructions for the indoor unit chosen.

5.4 ZDAB-3080-09M25



Outdoor Unit Connection Port	Models of connectable indoor units	Gas bond diameter	Liquid bond diameter
A	7 – 24	1/2" (12.70 mm)	1/4" (6.35 mm)
B	7 – 18	3/8" (9.52 mm)	1/4" (6.35 mm)
C	7 – 12	3/8" (9.52 mm)	1/4" (6.35 mm)

Maximum Overall Length (A+B+C)	60 m*
Maximum length for each indoor unit (A or B or C)	30 m
Minimum length for each indoor unit (A or B or C)	5 m
Maximum elevation between outdoor and indoor units (H1)	15 m
Maximum elevation between indoor units (H2)	10 m
Minimum Overall Length (A+B+C)	15 m

* If the total length of the connections exceeds 22.5 m, it is necessary to add a refrigerant top-up charge (see paragraph 7.3 on page 30).



- Respect the minimum total power connected.
- If the indoor units are of different powers, always connect the highest power to port A, then B.
- In the case of a difference in tube diameter between the IU and the EU, always install the reduction on the EU.
- To install an indoor unit, refer to the instructions in the instructions for the indoor unit chosen.

5.5 Insulation



- Use insulation on refrigeration connections to prevent condensation and seepage. Determine the thickness of the insulation by referring to the table below.
- If the insulation is imperfect, condensation will form on the surface of the sleeves.
- The sleeves shall have a heat resistance corresponding to a conductivity of 0.045 W (m.K) or less (at 20°C).

		Minimum Insulation Thickness (mm)			
		Humidity> 70%	Humidity> 75%	Humidity> 80%	Humidity> 85%
Bond diameters	1/4" (6.35 mm)	8	10	13	17
	3/8" (9.52 mm)	9	11	14	18
	1/2" (12.70 mm)	10	12	15	19
	5/8" (15.88 mm)	10	12	16	20
	3/4" (19.05 mm)	10	13	16	21

If the ambient temperature and relative humidity exceed 32°C, increase the thickness of the insulation.

6 ELECTRICAL CONNECTION



- The power supply will be provided in compliance with the standards in force and in particular NF C 15-100.
- The cable used will be of type H07RNF. A differential protection of 30 mA will also be provided.
- Do not use a power outlet for power.
- This device is designed to operate under a nominal voltage of 230 Volts 50Hz.

6.1 Electrical sizing

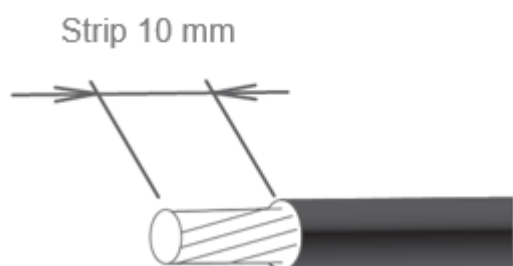
The cable cross-sections are given as a guide. It is necessary for the installer, who is in any case the "man of the art", to check that they correspond to the needs and standards in force.

	Power Cable	Circuit breaker calibre
ZDAB-2050-09M25	3G2.5 mm ²	20 A
ZDAB-3080-09M25	3G2.5 mm ²	25 A

	Interconnect Cable
DDMD	4G1.5 mm ²
CDMD	
HDMB	
HDHC	
XDMX	
FDMX	

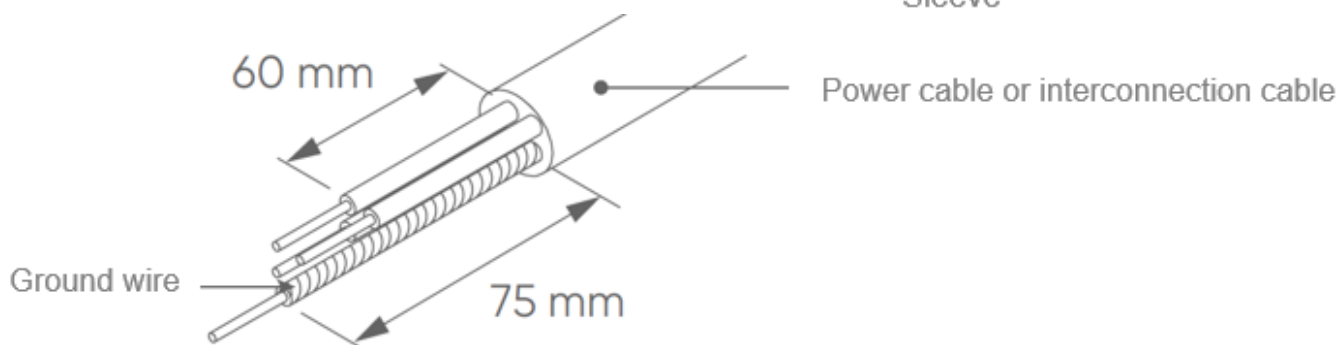
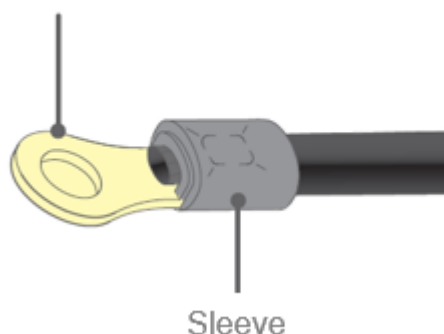
6.1.1 Cable preparation

1. Strip the ends of the cables to about 10 mm.



2. With crimping pliers, place a round crimp terminal at the end of the wire with the diameter corresponding to the terminal block screws.

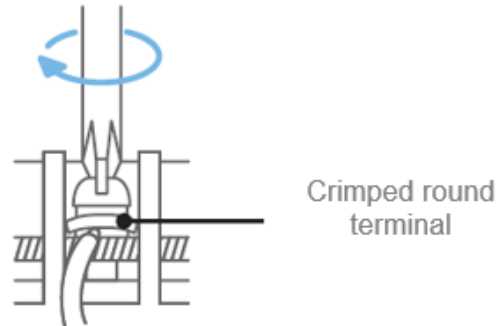
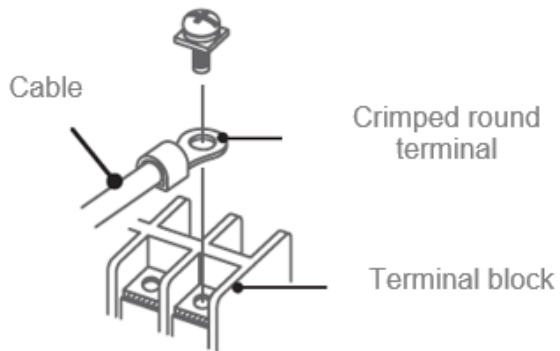
Crimped round terminal





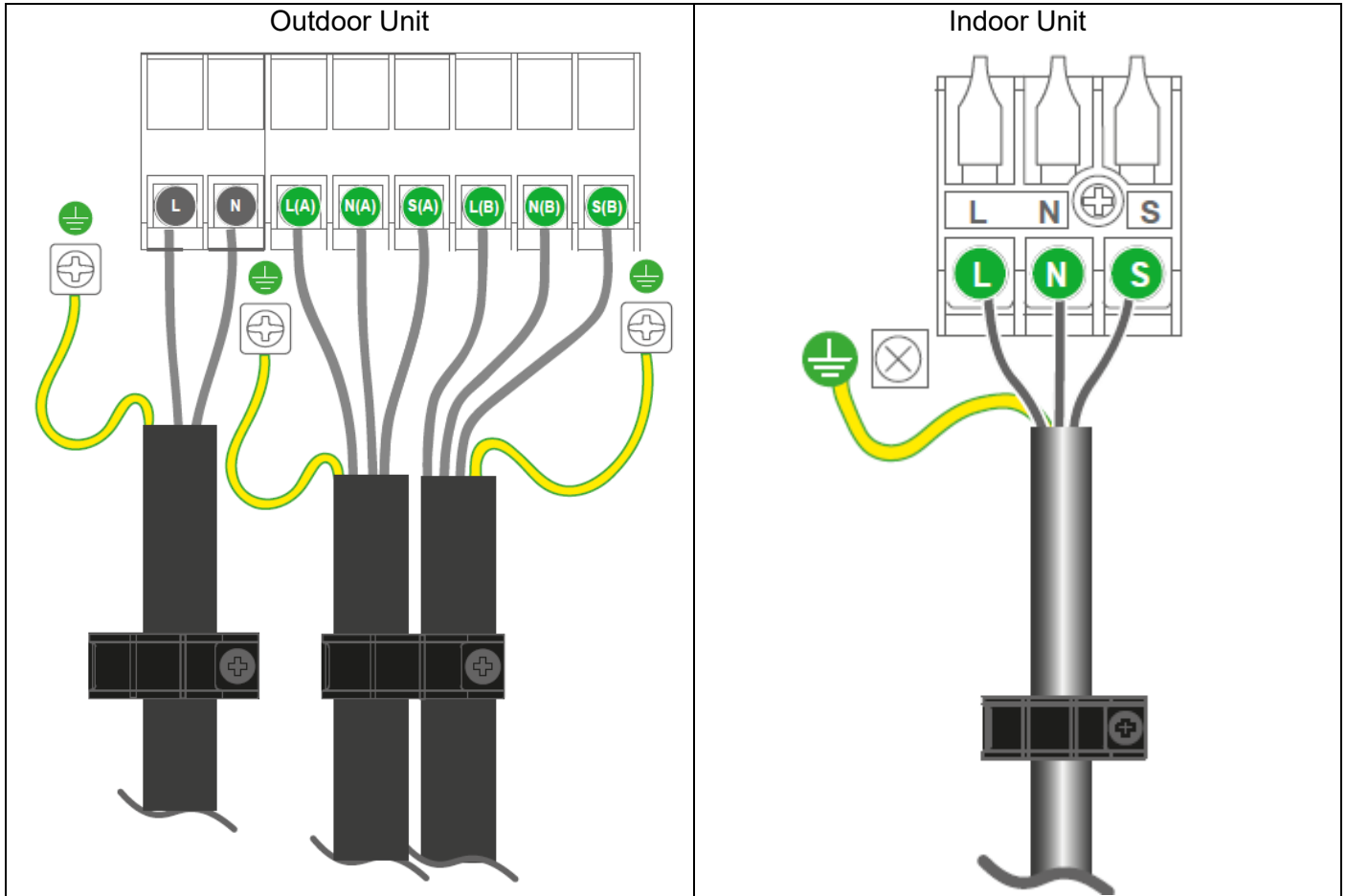
- Do not tighten the lug too tightly on the terminal block so as not to damage or break the screw.
- The use of flexible wires without crimped round lugs is formally discouraged.
- Observe the tightening torques indicated in the table below.
- Do not attach two cables with a screw to the same terminal.

Screw with special washer



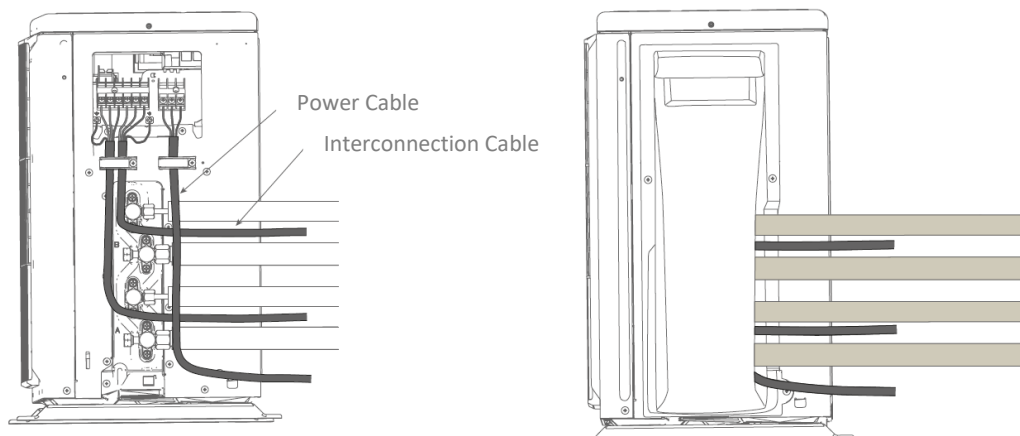
Tightening torque	
M4 Screws	1.2 to 1.8 N.m
M5 Screws	2.0 to 3.0 N.m

6.1.2 Terminal Blocks



- Match the terminal block numbers of the indoor unit's connection cables with those of the outdoor unit.
- Securely connect the connection cables to the terminal block. Imperfect installation may cause a fire.
- Insert the connection cable firmly into the terminal block. An incorrectly inserted cable is a risk of false contact.
- Do not forget the grounding of the installation.
- Use the grounding connection for the connection between two units.
- Do not tie a rigid wire with a crimped round lug. Pressure on the lug can cause malfunctions and cause the cable to heat up abnormally.

6.1.3 Cable Routing



7 COMMISSIONING OF THE PLANT

7.1 Precautions



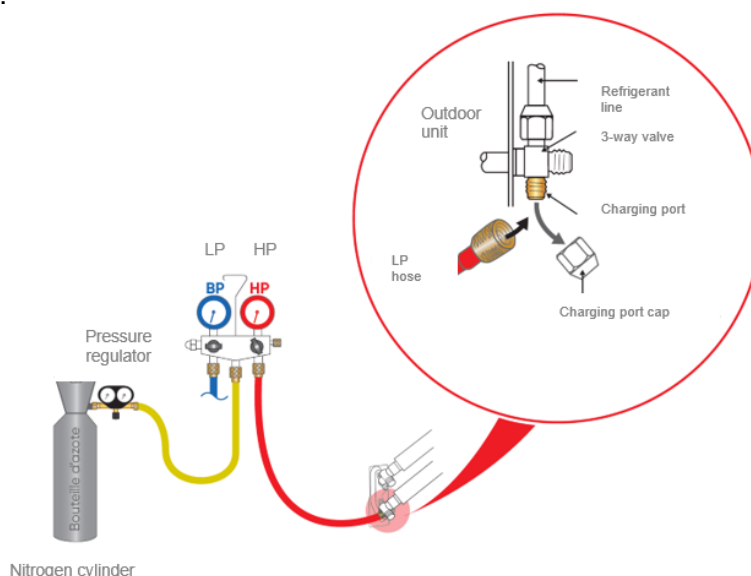
- The commissioning of this air conditioner requires the call of a qualified installer, with a certificate of capacity in accordance with Articles R 543-75 to 123 of the Environmental Code and its implementing decrees. As well as any other operation carried out on equipment requiring the handling of refrigerants.

7.2 Equipment to be purchased

Manifolds (Pressure Gauge)	The pressure is high and cannot be measured using standard pressure gauges. It is recommended to use a manifold with pressure gauges with a measuring range of -0.1 to 5.3 MPa (HP) and -0.1 to 3.8 MPa (LP).
Schrader (Charging Hose)	The use of hoses with 1/4 turn valves facilitates handling during commissioning (no purging of the hoses because it is possible to draw them out in a vacuum and isolate them). The valves are to be positioned opposite the set of pressure gauges.
Leak detector	Use a leak detector dedicated to HFCs (R32 compatible).
Vacuum pump	Use a suitable vacuum pump (containing POE synthetic oil).

7.2.1 Leak check (no leakage)

- Remove the charging port plug (Schrader) located on the gas valve (large valve). Connect the red hose (side with a valve pusher in good condition) and the other side of the hose to the red valve of the HP pressure gauge.
- Connect the yellow hose to a nitrogen cylinder with its regulator and the other side of the yellow hose to the center channel of the pressure gauge set.
- Make sure that the red valves on the HP pressure gauge and blue on the LP pressure gauge are closed.
- Open the nitrogen cylinder tap. Set your regulator to an outlet pressure of about 10 to 15 bar. Open the red valve on the HP pressure gauge to obtain the desired pressure in the refrigeration connections and in the indoor unit.
- Turn off the nitrogen cylinder tap.
- Check the tightness of the circuit by applying a soapy solution to the fittings on the side of the indoor unit and on the side of the outdoor unit (more on any soldering made on the refrigeration connections). Make sure that there are no bubbles.
- Also check that the pressure indicated by the HP pressure gauge does not drop. When the pressure remains stable and any leakage is excluded, empty the nitrogen, leaving a pressure higher than atmospheric pressure.



7.2.2 Vacuum draw

7.2.2.1 Calibrating and Checking a Vacuum Pump

1. Check the quality and oil level of the vacuum pump.
2. Connect the vacuum pump to a vacuum gauge if the vacuum pump is not equipped with one.
3. Draw in a vacuum for a few seconds.
4. The pump should reach its vacuum threshold value and the vacuum gauge needle should no longer move.
5. The pressure of the vacuum level reached must be lower than the pressure shown in the table below depending on the temperature. If not, replace the seal, hose, or pump.

Temperature	$5^{\circ}\text{C} < T < 10^{\circ}\text{C}$	$10^{\circ}\text{C} < T < 15^{\circ}\text{C}$	$T \geq 15^{\circ}\text{C}$
Pressure (bar)	0,009	0,015	0,020
Pressure (mbar)	9	15	20

7.2.2.2 Vacuum Draft Procedure

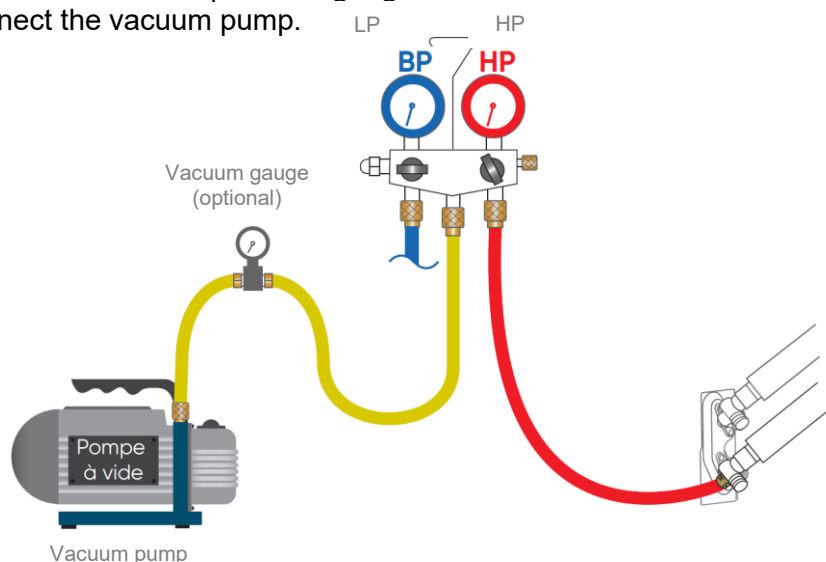
1. Purge the nitrogen from the circuit by opening the blue valve of the LP pressure gauge (return to atmospheric pressure).
2. Disconnect the nitrogen cylinder and close the valves of the LP and HP pressure gauge.
3. Replace the nitrogen cylinder with the vacuum pump.

In the event that the vacuum pump is not already equipped with one, it is possible to insert a vacuum gauge between the vacuum pump and the set of pressure gauges for more accuracy.

4. Turn the vacuum pump into operation.
5. Open the red valve of the HP pressure gauge and wait for the pressure in the circuit to drop below the value indicated in the table below depending on the temperature.

Temperature	$5^{\circ}\text{C} < T < 10^{\circ}\text{C}$	$10^{\circ}\text{C} < T < 15^{\circ}\text{C}$	$T \geq 15^{\circ}\text{C}$
Pressure (bar)	0,009	0,015	0,020
Pressure (mbar)	9	15	20

6. After obtaining the required vacuum, let it be drawn into the vacuum for about an hour (time varies depending on the length of the bond and the humidity present in the network). The vacuum can be drawn for several hours in the case of wet weather.
7. Check the vacuum by closing the red valve on the HP pressure gauge. Stop the vacuum pump. Do not disconnect any hoses.
8. After about ten minutes, the pressure should not have risen (the vacuum gauge should indicate 0 bars). If this is not the case, search for, repair the leak, carry out the leak test again and vacuum draft
9. Turn off the red valve on the HP pressure gauge.
10. Stop and disconnect the vacuum pump.



7.3 Additional charge (if necessary)

The additional load must be carried out after the vacuum draw and before gassing.

1. Calculate the additional load to be carried out

The table below allows you to quickly determine the additional load of R32 to be introduced, depending on the length of the refrigeration connection.

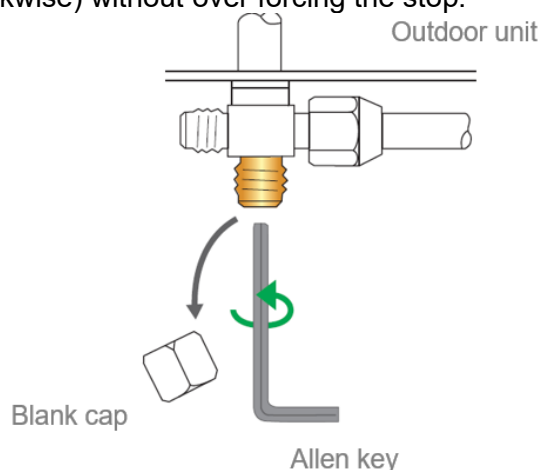
	ZDAB-2050-09M25	ZDAB-3080-09M25
Link length without additional load (m)	15	22,5
Additional load (g/m)	12	12

2. Disconnect the vacuum pump (yellow hose) and connect an R32 cylinder in the liquid withdrawal position in its place.
3. Place the bottle on a precision scale. To make the tare.
4. Open the cylinder faucet.
5. Carefully and lightly open the red valve of the HP pressure gauge and monitor the value displayed by the scale. As soon as the value displayed corresponds to the calculated value minus 50 grams, close the red valve of the HP pressure gauge and then that of the fluid bottle without disconnecting any hose.
6. Proceed with the repatriation of the refrigerant to the outdoor unit (pump down) to be able to disconnect the blue hose and possibly the fluid bottle without refrigerant leakage (in this case, leave the red HP valve of the pressure gauge open).

Note: If the additional load could not be reached (pressure too low in the cylinder), it will be necessary to continue the operation, installation in operation, (in REFRIGERATION and TEST mode) and by gently opening the red valve of the HP pressure gauge to avoid a sudden influx of fluid in a liquid state when the compressor is aspirated

7.4 Gas Gathering

1. Remove the blind access plugs to the valve controls of the outdoor unit.
2. Open the liquid valve (small valve) first and then the gas valve (large valve) as much as possible with a hex wrench/Allen (counterclockwise) without over forcing the stop.



7.5 Checking for leaks on the circuit

Once the gas has been gassed as described above, check with an electronic halogenated gas detector the connections and any soldering on the refrigeration connections (if the dudgeons have been correctly made, there should be no leak).

In the event of a leak:

- Bring the gas back into the outdoor unit (pump down). The pressure must not fall below atmospheric pressure (0 bar relative to the manifold) so as not to pollute the recovered gas with air or moisture.
- Redo the defective fitting.
- Repeat the leak check and vacuum draught.

7.6 Device Testing

1. Put the device in COLD operation and TEST mode and then carry out the necessary tests and measurements.
2. Then put the device in HOT operation and TEST mode and proceed with the necessary tests and measurements.

7.7 Repatriation of the refrigerant to the outdoor unit (pump down)

1. Put the appliance in COOL operation and TEST mode.
2. Close the liquid valve, and begin closing the gas valve until 1/2 turn away from its total closure.
3. Wait for the pressure to drop, taking care that the pressure does not fall below 0 bar. As you approach 0 bar, close the gas valve completely.
4. Stop the unit and remove the hoses.
5. Open the liquid valve (small valve) and then the gas valve (large valve).
6. Reassemble the blind valve plugs and tighten them with a wrench according to the torques indicated.

Diameter of blind caps	Tightening torque
1/4" (6.35 mm)	20 to 25 N.m
3/8" (9.52 mm)	20 to 25 N.m
1/2" (12.70 mm)	28 to 32 N.m
5/8" (15.88 mm)	30 to 35 N.m
Charging port cap	12.5 to 16 N.m

7. Turn the air conditioner back on.
8. Provide the necessary explanations and documents to the client.

8 FUNCTION TEST

Check the following before running a test run:

- Indoor Unit

- ☐ The buttons of the remote control
- ☐ The lights of the indoor unit
- ☐ The normal flow of condensation water (if necessary, pour a little water into the exchanger of the device with a wash bottle to check the proper flow)
- ☐ Absence of noise and vibration during operation.

- Outdoor Unit

- ☐ Absence of noise and vibration during operation
- ☐ Absence of draft, water or ice at the outlet of the outdoor unit, disturbing the neighbourhood.
- ☐ Normal condensation water flow
- ☐ No gas leakage

Start the function test by turning on the device and choosing the cool mode. Leave the device running while you check all points.

9 ERROR CODES

- The following errors are displayed on the digital tubes of the outdoor unit's electronic board.
- To read the error codes that are displayed on indoor units, refer to their user manual.

Map Screen	Description
EC51	Malfunction of the external EEPROM
EL01	Communication error between indoor and outdoor units
PC40	Communication malfunction between the IPM card and the outdoor main card
PC08	Outdoor Overcurrent Protection
PC10	Outdoor unit AC low voltage protection
PC11	DC bus high-voltage protection on the outdoor main board
PC12	DC Bus High Voltage Protection on Outdoor Main Board / 341 MCE Error
PC00	Protection du module IPM
PC0F	Protection du module PFC
EC71	Outdoor DC Fan Motor Overcurrent Fault
EC72	Phase loss fault of outdoor DC fan motor
EC07	Out-of-control outdoor fan speed
PC43	Phase loss protection of the external compressor
PC44	Zero-speed protection of the outdoor unit
PC45	Outdoor Unit IR Chip Control Failure
PC46	Compressor speed out of control
PC49	Compressor overcurrent fault
PC30	High Pressure Protection
PC31	Low-pressure protection
PC0A	Condenser High Temperature Protection
PC06	Protection against high compressor discharge temperature
PC0L	Protection against low ambient temperature
PC02	Maximum compressor temperature protection
EC52	Temperature sensor for condenser battery (T3) in open circuit or short circuit
EC53	Outdoor room temperature sensor (T4) open circuit or short-circuit
EC54	Open circuit or short-circuit compressor discharge temperature sensor
EC56	Outlet temperature sensor for evaporator battery (T2B) in open circuit or short circuit
EC50	Open circuit or short circuit of an external probe (T3, T4, TP)

10 MAINTENANCE

These operations, which are within everyone's reach, should be carried out at the frequencies recommended below.

Every month
(more often in a dusty
atmosphere)

Cleaning the indoor unit air filter
(The air filter is easily accessible on the indoor unit and can be cleaned either with a vacuum cleaner or with water below 40°C).

Every 3 months

Clean the bodywork of the interior unit, especially the air intake grille, with a soft, damp cloth (avoid aggressive detergents).

11 MAINTENANCE

These operations are to be carried out exclusively by competent personnel.
Your approved installer is of course at your service for these interventions.
He can offer you a maintenance contract that includes periodic visits (see below).

Seasonal maintenance

- Checking and cleaning air filters
- Verification of the perfect tightness of the refrigeration circuit (mandatory for certain appliances*)
- Cleaning of the condensate tray of the indoor unit: cleaning and disinfection of the exchanger of the indoor unit with a suitable product
- Checking and possibly cleaning the condensate drain (especially if a lift pump is used)
- Checking the general condition of the device).

** Articles R 543-75 to 123 of the Environmental Code and its implementing decrees require all owners of appliances containing an HFC load of more than five tonnes of CO₂ equivalent (plate; signage) to have the watertightness of their installation checked every year by a company duly registered with the prefecture and authorised for this type of intervention.*

Comprehensive maintenance

Operations described for seasonal maintenance, supplemented by:

- Possible dusting of the heat exchanger of the outdoor unit
- Measurement of the performance of the device (inlet/outlet temperature difference, evaporation and condensation temperature, absorbed current)
- Checking the tightness of electrical connections
- Measurement of electrical insulation
- Checking the condition of exterior bodies and refrigeration line insulation
- Checking various fasteners



**AIRWELL GROUP
10 RUE DU FORT DE SAINT CYR
78180 MONTIGNY LE BRETONNEUX
FRANCE**