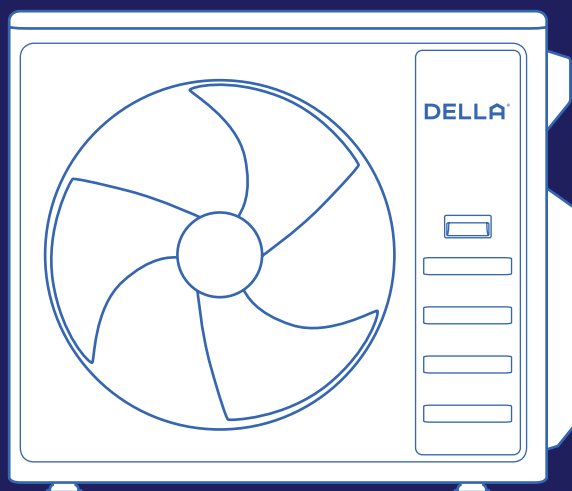


DELLA®



TCQ Series Multi-Zone Inverter



Instruction Manual
Installation Guide



Watch video
before Installation

Welcome to **DELLA®**

5 Things to know before installation

Thank You for trusting Della as your home comfort solution. We know no better how exciting it must be to have a new and functional AC to make your living space more comfortable. But AC installation, in reality, is far from being simple. Here are a few things you must know before installing the AC whether by yourself or by a professional HVAC technician. This will give you an idea of what to look out for installing an AC so that it can perform at its maximum efficiency and every dollar you invest in it pays off.



The installation location is critical

Not all places are created equal. Only proper placement of the AC will maximize efficiency while balancing the interior aesthetic. As wall requires for the installation, you need to make sure to get the placement and location right the first time.



Handle the refrigerant pipes perfectly

The refrigerant pipe is one of the most important, if not the most important, parts of the mini split AC system. So, be sure to understand what the entire process entails. You might need special-purpose tools to shorten and bend the pipe. Purchasing lengthening pipes to match your connection might also be necessary. Any flow in the handling of the refrigerant pipes may cause a refrigerant leak or reduced efficiency. The cost to repair or re-install the refrigerant pipe can quickly frustrate and upset any DIYer, especially when trying to save money by not hiring a professional. Additional refrigerant might also be needed if you used lengthening pipes or find any leaks during your install. Further more, it's always a good idea to test for any refrigerant leaks after completing your installation by using soapy spray or professional detector tools. Please contact us if you need extra refrigerant.



Bundle the line set correctly

The line set contains the refrigerant pipes, drain hose, and electrical wires. A good bundling prevent water condensation and protects it from external elements, as well as matching the exact distance of the installation. No one wants extra line set dangling around.



Vacuum pumping the refrigerant circuit

Mini-split AC absolutely needs vacuum pumping in order to perform efficiently and prevent refrigerant from reacting with air moisture and damaging the internal parts of the machine. With a vacuum pump and a micron gauge, the process does not take very long, but it is important to do it right.



Safe electrical connection

A safe and properly electrical connection is crucial necessity for the installation. The voltage, power breaker protection, cable requirement and wiring must correspond to the specifications of each model. A poor connection can quickly becomes a fire hazard.



Most of the problems emerge from incorrect or poor installation. Installation performed by professional HVAC technician can greatly reduce the chance of having problems for years to come. On top of that, Della provide extended warranty for professional installation. If you need assistance or have questions, we are here for you.



support.dellahome.com



800-863-4143
6:00 a.m. - 4:00 p.m. PST
Monday - Friday



24/7 Live Chat

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Warning and Safety

- Read this guide before installation. Failure to follow the safety instructions may result in property damage, serious injury, or death.
- Please keep this manual.



Danger:

Indicates an IMMINENTLY hazardous situation that, if not avoided, will result in death, serious injury, or serious property damage.



Warning:

Indicates a POTENTIALLY hazardous situation that, if not avoided, will result in death, serious injury, or serious property damage.



Caution:

Indicates a POTENTIALLY hazardous situation that, if not avoided, will result in minor to moderate injury. It may also be used to indicate unsafe practice.



Attention:

Pay additional attention to the instruction.



DO NOT:

Indicates prohibited actions and / or practice.

About Refrigerant



- The air conditioner is pre-charged with refrigerant. Handle the air conditioner with care and check if there is any refrigerant leakage during installation. Refrigerants have no odor and can be toxic and flammable. Rapid evaporation of refrigerant may cause frostbite, cardiac arrhythmia, and / or irritation, as well as cause environmental damage.
- In the case of refrigerant leakage, shut down the appliance and disconnect from the power supply. An inspection must be performed by a qualified technician.

Additional Information About R32 Refrigerant



- In UL/CSA 60335-2-40, R32 refrigerant is classified as class A2L, which is mildly flammable. Therefore, R32 refrigerant is suitable for system needing additional refrigerant charge and which will limit the area of the rooms being served by the system. Similarly, the total amount of refrigerant in the system shall be less than or equal to the allowable maximum refrigerant charge. The allowable maximum refrigerant charge depends on the area of the rooms being served by the system.
- For R32 refrigerant, the maximum charge in a room shall be in accordance with the following:
 - $M_{max} = SF \times LFL \times h_o \times A$
- or the minimum floor area A_{min} to install an appliance with refrigerant M_c (kg) shall be in accordance with:
 - $A_{min} = M_c / (SF \times LFL \times h_o)$
- M = Mass
- M_{max} = Maximum charge mass
- M_c = Mass charged
- A = Floor area
- LFL = Lower Flammable Limit, for R32 LFL is 0.306 kg / m³

Warning and Safety

Additional Information About R32 Refrigerant



- Maximum Charge (kg)

Refrigerant	LFL (kg/m ³)	h _o (m)	Floor Area (m ²)						
			4	7	10	15	20	30	50
R32	0.306	2.5	1.53	2.68	3.83	5.51	6.36	7.79	10.06
		2.8	1.71	3.00	4.28	6.17	7.12	8.73	11.27
		3.0	1.84	3.21	4.59	6.61	7.63	9.35	12.07

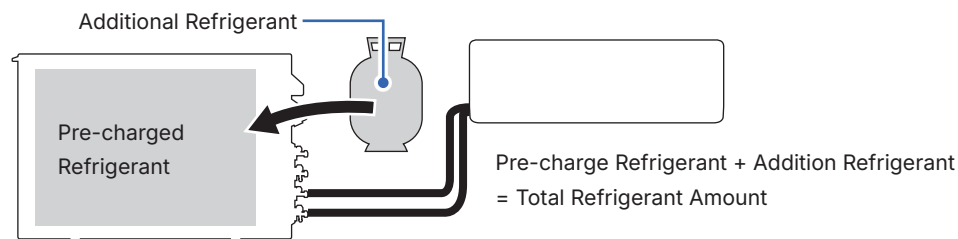
Refrigerant	LFL (lb/ft ³)	h _o (ft)	Floor Area (ft ²)						
			43	75.3	107.6	161.4	215.2	322.9	538.1
R32	0.019	8.2	16.5	28.8	41.2	59.3	73	83.9	108.2
		9.2	18.4	32.3	46.1	66.4	76.3	94.0	121.3
		9.8	19.8	34.6	49.4	71.1	82.1	100.6	129.9

- Minimum Room Area (m²)

Refrigerant	LFL (kg/m ³)	h _o (m)	Charge Amount (M)						
			0.58 kg	0.60 kg	1 kg	1.07 kg	1.20 kg	1.58 kg	2.0 kg
R32	0.306	2.5	1.52	1.57	2.61	2.80	3.14	4.13	5.23
		2.8	1.35	1.40	2.33	2.50	2.80	3.69	4.67
		3.0	1.26	1.31	2.18	2.33	2.61	3.44	4.36

Refrigerant	LFL (lb/ft ³)	h _o (ft)	Minimum Room Area (ft ²)						
			0.58 kg	0.60 kg	1 kg	1.07 kg	1.20 kg	1.58 kg	2.0 kg
R32	0.019	8.2	16.4	16.9	28.1	30.1	33.8	44.5	56.3
		9.2	14.5	15.1	25.1	26.9	30.1	39.7	50.3
		9.8	13.6	14.1	23.5	25.1	28.1	37.0	46.9

- The total refrigerant charge should be calculated by adding the precharge amount and additional amount.



- When Installing or using the appliance with A2L type refrigerant, beware of the following symbols.



A2L

- This symbol means this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.



- This symbol means that read the operation instruction carefully.



- This symbol means that personnel handling the equipment should reference to the installation manual.



- This symbol means information is available in the installation or operation instruction manual.

Warning and Safety

Additional Information About R32 Refrigerant



- Prior to any work on systems containing flammable refrigerants, always check the area to ensure that the risk of ignition is minimized. All possible ignition sources, such as cigarette, should be kept sufficiently far away from the site of installation, repairing, removing, and disposal during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment should be surveyed to make sure that there are no flammable hazards or ignition risk. "No smoking" sign shall be displayed.
- Installation or maintenance of refrigerant system shall be taken under a controlled procedure to minimize the risk of flammable gas or vapor being present while the work is being performed.
- All working personnel and others around the working area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off, and ensure that the conditions within the area have been made safe.
- The area shall be checked with an appropriate refrigerant detector prior to and during work to ensure the technician is aware of potentially flammable atmospheres.
- If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
- Ensure that the area is in the open or it is adequately ventilated before breaking into the system or conducting any work that will product heat. A degree of ventilation shall continue during the period that the work is carried out.
- The following checks shall be applied to installations using flammable refrigerants:
 - The refrigerant charge amount is in accordance with the room size within which the refrigerant containing parts are installed.
 - The ventilation machinery and outlet are operating adequately and are not obstructed.
 - If an indirect refrigerating circuit is being used, the secondary circuit shall be check for the presence of refrigerant.
 - Refrigerant pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitable protected against being corroded.
- Detection of flammable refrigerants:
 - Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch or any other detector using naked flame shall not be used.
 - Electronic leak detectors shall be used to detect flammable refrigerant. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
 - Leak detection equipment shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.
 - Leak detection fluids are suitable for use with most refrigerants, but the use of detergents containing chlorine shall be avoided as chlorine may react with the refrigerant and corrode the pipe work.
 - If a leak is suspected, all open flame shall be removed or extinguished.
 - If a leakage of refrigerant found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
 - Oxygen free nitrogen shall be purged through the system both before and during the brazing process.

Warning and Safety

About Installation	
 	- Do not install or store this appliance in a room with continuously operating ignition sources such as open flames, gas appliances, or electric heater. - Do not install the appliance within 20" / 50cm of flammable substances such as alcohol, etc. Or pressurized containers such as spray cans. - Do not alter, change, or modify the appliance. - Do not reuse existing refrigerant line sets when replacing or upgrading an air conditioning system that uses a different refrigerant type. Different refrigerants may have different chemical properties, lubricants and operate in different pressures, do not assume the existing line set to be compatible.
 	- The room for the installation, use, repair, and / or storage of this air conditioner should be greater than 54 sq ft / 5m². - Stop valve cover must be installed on the air conditioner to prevent possible refrigerant leak. - Refrigerant leakage or damaged pipelines must be inspected and repaired by a qualified HVAC technician. - The installation of refrigerant pipe work shall be kept to a minimum length. - The appliance must be installed in accordance with applicable federal, state, and local regulations. - When evacuating mini-split system with A2L rated refrigerant, an A2L rated vacuum pump must be used. If an A2L rated pump is not available, vacuuming must be done outdoor only. Failure to follow this instruction may result in fire or explosion hazard.
	- Before installation, make sure the AC system is placed on a flat and stable platform in its upright position for at least 6 hours to prevent lubricating oil from damaging the compressor. - Prevent children from accessing the work area during installation to prevent unforeseeable accident. - The base of the outdoor unit must be firmly fixed. - Carry out a test run after the installation. - Installation of a mini split AC requires specialized training and equipment. Hire a licensed professional if not familiar with electrical wiring and HVAC system. - The packaging materials are recyclable and should be disposed of in a separate waste bins. - The appliance should not be installed in a location where the air outlet of the indoor or outdoor unit is obstructed. Obstruction of these opening may cause damage or malfunctions to the appliance.
About Power and Electricity	
 	- Ensure that the power voltage corresponds to that stamped on the rating plate. - A fuse or overload protection device with a suitable capacity for indoor unit must be installed. - The appliance must be fitted with means for disconnection from the main power supply under over-voltage category III conditions. All electrical wiring must follow federal, state, or local regulations. - When working on the electric terminals, ensure the appliance is disconnected from the power supply. - Make sure the appliance is properly grounded to prevent electric shock.
 	- Do not bend, tug, or compress the power cord during installation to prevent damaging the power cord. Damaged electrical cord should be replaced by a qualified electrician. - Do not use power extensions and / or multi-socket modules for appliance installation.

Product Specification (Indoor Unit - TC Series)

	048-TC-9K2VR-IN	048-TC-12K2VR-IN	048-TC-18K2VR-IN	048-TC-24K2VR-IN
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	9000	12000	18000	24000
Rated Heating Capacity (Btu / h)	10000	12000	18000	24000
Noise Level	28 - 42 dBA	28 - 45 dBA	32 - 49 dBA	34 - 51 dBA
Dimension	31.93" x 12.05" x 7.48" 811 mm x 306 mm x 190 mm	31.93" x 12.05" x 7.48" 811 mm x 306 mm x 190 mm	35.83" x 12.01" x 7.68" 910 mm x 305 mm x 195 mm	39.57" x 12.64" x 8.66" 1005 mm x 321 mm x 220 mm
Net Weight	18.74 lb / 8.5 kg	18.74 lb / 8.5 kg	21.38 lb / 9.7 kg	26.46 lb / 12 kg
Suitable Area	Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Moisture Removal (per hour)	2.7 pints / 1.3 L	3.4 pints / 1.6 L	4.6 pints / 2.2 L	5.5 pints / 2.6 L

	048-TC-36K2VR-IN
Power Supply	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	36000
Rated Heating Capacity (Btu / h)	36000
Noise Level	37 - 54 dBA
Dimension	48.03" x 14.17" x 9.88" 1220 mm x 360 mm x 251 mm
Net Weight	38.6 lb / 17.5 kg
Suitable Area	Up to 2500 sq. ft
Moisture Removal (per hour)	6.3 pints / 3 L

Product Specification (Indoor Unit - CC Series)

	048-CC-9K2V-IN	048-CC-12K2V-IN	048-CC-18K2V-IN	048-CC-24K2V-IN
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	9000	12000	18000	24000
Rated Heating Capacity (Btu / h)	9000	12000	18000	24000
Noise Level	Indoor Unit 32 - 43 dBA	32 - 45 dBA	37 - 48 dBA	37 - 51 dBA
Dimension	Indoor Unit 22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	33.07" x 33.07" x 9.65" 840 mm x 840 mm x 245 mm
	Indoor Panel 25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	37.40" x 37.40" x 2.87" 950 mm x 950 mm x 73 mm
Net Weight	Indoor Unit 31.9 lb / 14.5 kg	31.9 lb / 14.5 kg	31.9 lb / 14.5 kg	51.8 lb / 23.5 kg
	Indoor Panel 6 lb / 2.7 kg	6 lb / 2.7 kg	6 lb / 2.7 kg	13.2 lb / 6 kg
Suitable Area	Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Air Flow	194 - 329 CFM	194 - 360 CFM	253 - 441 CFM	482 - 836 CFM
Moisture Removal (per hour)	2.3 pints / 1.1 L	3.4 pints / 1.6 L	4.7 pints / 2.2 L	5.5 pints / 2.6 L
Refrigerant	R32	R32	R32	R32
Condensate Drain Connection Diameter	OD ø 24 mm	OD ø 24 mm	OD ø 24 mm	OD ø 32 mm

Product Specification (Indoor Unit - DC Series)

	048-DC-9K2V-IN	048-DC-12K2V-IN	048-DC-18K2V-IN	048-DC-24K2V-IN
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	9000	12000	18000	24000
Rated Heating Capacity (Btu / h)	9000	12000	18000	24000
Noise Level	28 - 42 dBA	32 - 44 dBA	33 - 48 dBA	34 - 51 dBA
Dimension	27.5" x 19.25" x 7.88" 700 mm x 490 mm x 200 mm	27.5" x 19.25" x 7.88" 700 mm x 490 mm x 200 mm	35.38" x 19.25" x 7.88" 900 mm x 490 mm x 200 mm	43.25" x 17.75" x 7.88" 1100 mm x 490 mm x 200 mm
Net Weight	33.1 lb / 15 kg	33.1 lb / 15 kg	39.7 lb / 18 kg	50.7 lb / 23 kg
Suitable Area	Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Moisture Removal (per hour)	2.3 pints / 1.1 L	3.3 pints / 1.6 L	4.6 pints / 2.2 L	5.5 pints / 2.6 L
Refrigerant	R32	R32	R32	R32

Product Specification (Indoor Unit - FC Series)

	048-FC-18K2V-IN	048-FC-24K2V-IN
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	18000	24000
Rated Heating Capacity (Btu / h)	18000	24000
Noise Level	36 - 50 dBA	40 - 53 dBA
Dimension	41.54" x 26.57" x 9.25" 1055 mm x 675 mm x 235 mm	41.54" x 26.57" x 9.25" 1055 mm x 675 mm x 235 mm
Net Weight	52.9 lb / 24 kg	55.1 lb / 25 kg
Suitable Area	Up to 1000 sq. ft	Up to 1500 sq. ft
Moisture Removal (per hour)	5.7 pints / 2.7 L	7.2 pints / 3.4 L
Refrigerant	R32	R32

Product Specification (Outdoor Unit)

	048-TCQ-MODU-1D2	048-TCQ-MODU-1D3	048-TCQ-MODU-1D4	048-TCQ-MODU-1D5
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Ductless) (Btu / h)	18000	28000	38000	42000
Rated Heating Capacity (Ductless) (Btu / h)	18000	28000	42000	42000
Rated Cooling Capacity (Ducted) (Btu / h)	18000	24000	36000	39000
Rated Heating Capacity (Ducted) (Btu / h)	18000	27000	40000	42000
Cooling (Ductless)	Power Consumption	1540 W	2500 W	3400 W
	Rated Current	6.7 A	10.9 A	14.8 A
Heating (Ductless)	Power Consumption	1320 W	2100 W	3600 W
	Rated Current	5.7 A	9.1 A	15.7 A
Cooling (Ducted)	Power Consumption	1560 W	2200 W	3275 W
	Rated Current	7 A	10 A	14 A
Heating (Ducted)	Power Consumption	1350 W	2200 W	4090 W
	Rated Current	6 A	10 A	18 A
Noise Level	56 dBA	61 dBA	67 dBA	67 dBA
Dimension	33.54" x 13.74" x 23.70" 852 mm x 349 mm x 602 mm	36.50" x 14.96" x 27.52" 927 mm x 380 mm x 699 mm	42.28" x 18.43" x 33.58" 1074 mm x 468 mm x 853 mm	42.28" x 18.43" x 33.58" 1074 mm x 468 mm x 853 mm
Net Weight	72.8 lb / 33 kg	97.0 lb / 44 kg	151.0 lb / 68.5 kg	154.3 lb / 70 kg
Refrigerant	R32	R32	R32	R32
Number of Indoor Unit Connection	2	3	4	5

Product Specification (Compatible Outdoor Unit)

	048-TCQ-MODU-1D2	048-TCQ-MODU-1D3	048-TCQ-MODU-1D4	048-TCQ-MODU-1D5
048-TC-9K2VR-IN	O	O	O	O
048-TC-12K2VR-IN	O	O	O	O
048-TC-18K2R-IN	X	O	O	O
048-TC-24K2R-IN	X	X	O	O
048-TC-36K2R-IN	X	X	X	O
048-CC-9K2V-IN	O	O	O	O
048-CC-12K2V-IN	O	O	O	O
048-CC-18K2V-IN	X	O	O	O
048-CC-24K2V-IN	X	X	O	O
048-DC-9K2V-IN	O	O	O	O
048-DC-12K2V-IN	O	O	O	O
048-DC-18K2V-IN	X	O	O	O
048-DC-24K2V-IN	X	X	O	O
048-FC-18K2V-IN	X	O	O	O
048-FC-24K2V-IN	X	X	O	O

NOTE: The total Btu for all connected indoor units must stay within 130% of the outdoor unit's Btu.
System performance decreases if all indoor units are on simultaneously and exceed outdoor unit's Btu capacity.

Installation Info (Power Supply, Breaker Size)

Power Supply and Breaker Size

		048-TCQ-MODU-1D2	048-TCQ-MODU-1D3	048-TCQ-MODU-1D4	048-TCQ-MODU-1D5
Power Supply		208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Cooling (Ductless)	Power Consumption	1540 W	2500 W	3400 W	3760 W
	Rated Current	6.7 A	10.9 A	14.8 A	16.3 A
Heating (Ductless)	Power Consumption	1320 W	2100 W	3600 W	3330 W
	Rated Current	5.7 A	9.1 A	15.7 A	14.5 A
Cooling (Ducted)	Power Consumption	1560 W	2200 W	3275 W	3560 W
	Rated Current	7 A	10 A	14 A	15 A
Heating (Ducted)	Power Consumption	1350 W	2200 W	4090 W	3440 W
	Rated Current	6 A	10 A	18 A	15 A
Min. Circuit Ampacity		14 A	16 A	24 A	27 A
Min. Wire Size (American Wire Gauge)		12 AWG	12 AWG	10 AWG	10 AWG
Breaker Size		20 A	25 A	35 A	45 A

Installation Info (Refrigerant & Pipe Set)

Indoor Unit Refrigerant Pipe Size

		048-TC series	048-CC series	048-DC series	048-FC series
9K	Liquid Line	1/4"	1/4"	1/4"	—
	Gas Line	3/8"	3/8"	3/8"	—
12K	Liquid Line	1/4"	1/4"	1/4"	—
	Gas Line	3/8"	3/8"	3/8"	—
18K	Liquid Line	1/4"	1/4"	1/4"	1/4"
	Gas Line	3/8"	1/2"	1/2"	1/2"
24K	Liquid Line	1/4"	1/4"	1/4"	1/4"
	Gas Line	1/2"	5/8"	5/8"	5/8"
36K	Liquid Line	1/4"	—	—	—
	Gas Line	5/8"	—	—	—

NOTE: 3/8" to 1/2" Lineset converter and 3/8" to 5/8" Lineset converter should be used with indoor unit that equipped with 1/2" or 5/8" gas line.

Installation Info (Refrigerant & Pipe Set)

Refrigerant and Pipe Set Info

048-TCQ-MODU-1D2		048-TCQ-MODU-1D3	048-TCQ-MODU-1D4	048-TCQ-MODU-1D5
Standard Length		16.4 ft / 5 m	16.4 ft / 5 m	16.4 ft / 5 m
Max. Distance Between Indoor and Outdoor Unit		82 ft / 25 m	98 ft / 30 m	98 ft / 30 m
Max. Elevation Between Indoor and Outdoor Unit		49 ft / 15 m	49 ft / 15 m	49 ft / 15 m
Max. Total Lineset Length		131 ft / 40 m	263 ft / 80 m	328 ft / 100 m
Type of Refrigerant		R32	R32	R32
Factory Refrigerant Pre-charge for up to 25 ft pipe		42.3 oz / 1200 g	84.7 oz / 2400 g	84.7 oz / 2400 g
Additional Refrigerant Charge		0.11 oz / ft (10 g / m)	0.11 oz / ft (10 g / m)	0.11 oz / ft (10 g / m)
Liquid Line	Pipe Diameter	1/4"	1/4"	1/4"
	Torque Parameter	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m
Gas Line	Pipe Diameter	3/8"	3/8"	3/8"
	Torque Parameter	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m
3/8" to 1/2" Lineset Adapter ¹	For Pipe Diameter	—	1/2"	1/2"
	Torque Parameter	—	45 - 50 N-M / 33.2 - 36.9 lbf-ft / 4.6 - 5.1 kgf-m	45 - 50 N-M / 33.2 - 36.9 lbf-ft / 4.6 - 5.1 kgf-m
3/8" to 5/8" Lineset Adapter ²	For Pipe Diameter	—	5/8"	5/8"
	Torque Parameter	—	60 - 65 N-M / 44.3 - 48.0 lbf-ft / 6.6 - 6.6 kgf-m	60 - 65 N-M / 44.3 - 48.0 lbf-ft / 6.6 - 6.6 kgf-m

NOTE: ^{1,2} 3/8" to 1/2" Lineset converter and 3/8" to 5/8" Lineset converter should only be used with indoor unit that equipped with 1/2" or 5/8" gas line.

Installation Info

Picking a Installation Location for the Indoor Unit (Wall Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

Page 16

- Make sure the wall is strong enough to hold the weight of the indoor unit and prevent it from vibration.
- Make sure the air inlet and outlet are clear of any obstruction.
- Make sure condensation can be easily drained.
- A place where all connections can be easily made to the outdoor unit.
- A place where the indoor unit is out of children's reach.
- A place where the indoor unit is accessible for maintenance.
- Install the indoor unit 10 ft / 3 m away from TV or radio appliances.

NOTE: Radio interference may occur if appliances are placed too close to each other.

- Do not install in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Do not install the indoor unit near the door way.



To prevent the indoor unit from falling down and blocking exit way in case of an emergency such as fire or earthquake etc.

Picking a Installation Location for the Indoor Unit (Cassette Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

Page 16

- Make sure the ceiling and it's structure is strong enough to hold the weight of the unit and prevent it from vibration.
- Make sure the air return grill and outlet are clear of any obstruction.
- The unit should be installed to a place where it is accessible for maintenance.
- Do not install the unit in a kitchen where aerosolized grease, odor, and/or smoke may be present.
- Do not install the unit in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Avoid installing the unit near windows or doors.

Picking a Installation Location for the Indoor Unit (Concealed Duct Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

Page 16

- Make sure the ceiling / structure is strong enough to hold the weight of the indoor unit and prevent it from vibration.
- Make sure the air inlet and outlet are clear of any obstruction.
- Make sure condensation can be easily drained.
- A place where all connections can be easily made to the outdoor unit.
- A place where the indoor unit is out of children's reach.
- A place where the indoor unit is accessible for maintenance.
- Install the indoor unit 10 ft / 3 m away from TV or radio appliances.

NOTE: Radio interference may occur if appliances are placed too close to each other.

- Do not install in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Do not install the indoor unit near the doorway.



To prevent the indoor unit from falling down and blocking exit way in case of an emergency such as fire or earthquake etc.

- Do not install the indoor unit where caustic gas exist in the air.



To prevent copper alloy, or aluminum panels in the indoor unit from corrosion.

- Do not install the indoor unit in area with strong electromagnetic wave.

Installation Info

Picking a Installation Location for the Indoor Unit (Floor Ceiling Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

Page 16

- Make sure the ceiling / structure is strong enough to hold the weight of the indoor unit and prevent it from vibration.
- Make sure the air inlet and outlet are clear of any obstruction.
- Make sure condensation can be easily drained.
- A place where all connections can be easily made to the outdoor unit.
- A place where the indoor unit is out of children's reach.
- A place where the indoor unit is accessible for maintenance.
- Install the indoor unit 10 ft / 3 m away from TV or radio appliances.

NOTE: Radio interference may occur if appliances are placed too close to each other.

- Do not install in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Do not install the indoor unit near the doorway.
 - ⚠ To prevent the indoor unit from falling down and blocking exit way in case of an emergency such as fire or earthquake etc.
- Do not install the indoor unit where caustic gas exist in the air.
 - ⚠ To prevent copper alloy, or aluminum panels in the indoor unit from corrosion.
- Do not install the indoor unit in area with strong electromagnetic wave.

Picking a Installation Location for the Outdoor Unit

- Do not install the outdoor unit near a heat source, steam, or flammable gas.
- Do not install the outdoor unit in windy or dusty locations.
- Do not install the outdoor unit in places where people often pass.
- Avoid installing the outdoor unit in places where it will be exposed to direct sunlight.

NOTE: If necessary, build a protection that does not interfere with the airflow.

- Make sure there is enough space around the outdoor unit to circulate air.

Page 25/41/65/89

- Outdoor unit must be placed in a safe and solid location.
- The outdoor unit should ideally be placed on a elevated concrete pad.
- If installing in snowy region, it is recommended the outdoor unit to be installed above the seasonal snow level.



- Before installation, make sure the AC system is placed on a flat and stable platform in its upright position for at least 6 hours to prevent lubricating oil from damaging the compressor.

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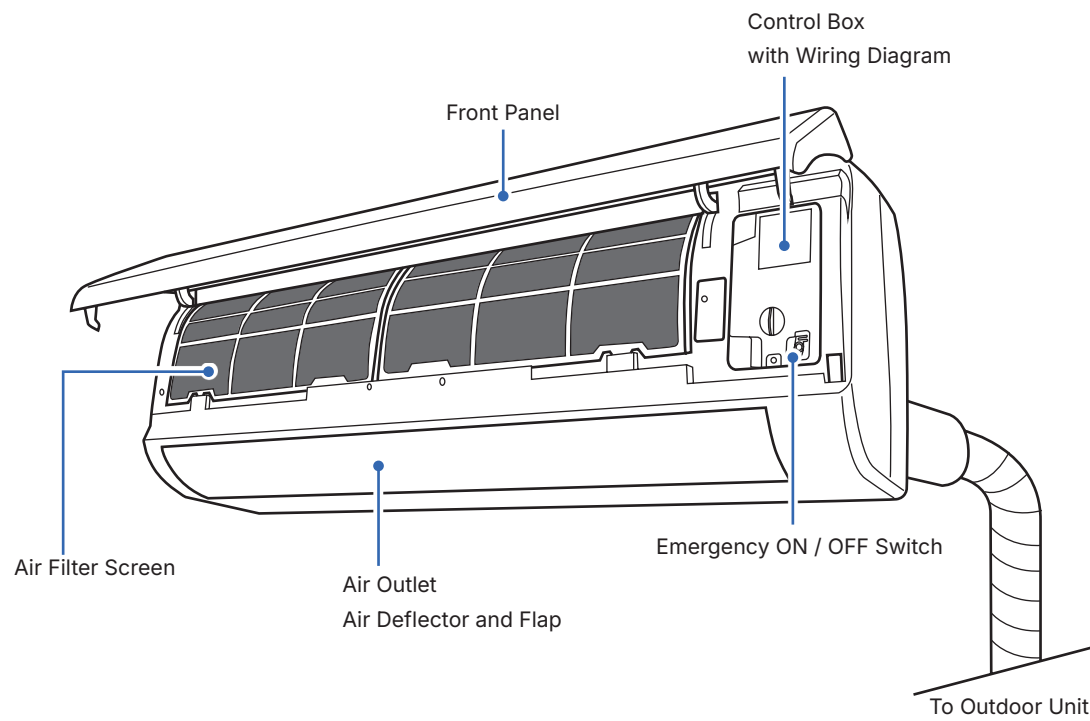




Wall Mounted Type Indoor Unit

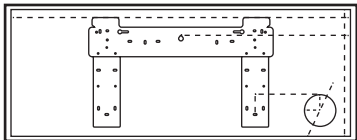
Installation Guide

Name of Parts

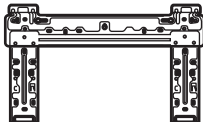


Name of Parts

Included Accessories (for each wall mount indoor unit)



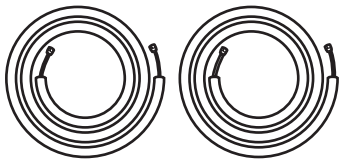
Bracket Template
1x



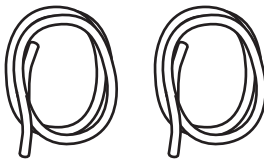
Mounting Plate
1x



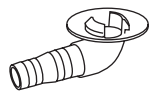
Communication Cable
1x



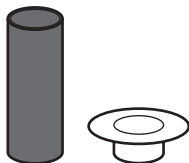
Refrigerant Pipe
Narrow 1x
Thick 1x



Drain Hose
2x



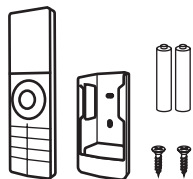
Drainage Joint
1x



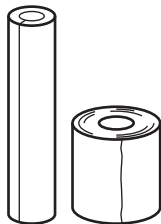
Wall Sleeve & Cover
1x



Plasticine Putty
1x



Remote Control, Holder 1x
Battery 2x



Insulation Foam & Wrap
1x



Rubber Foot Pad
4x



1/2" Male to 3/8" Female
Lineset Converter ¹



5/8" Male to 3/8" Female
Lineset Converter ²

NOTE: ^{1 2} Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant pipe.

Name of Parts

Tools Needed for Wall Mounted Indoor Unit (Not included)

- Screw Driver
- Hole Saw Ø2.75" / Ø70mm
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Spirit Level
- Stud Finder
- Thermometer
- Vacuum Pump
- Dry Wall Anchors / Molly Bolts
- Wood Screws
- Floor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- Caulk
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

NOTE: Tools marked with * are needed for shortening the refrigerant pipe and / or electrical wire to the exact desired length.

ONLY a qualified HVAC technician should attempt altering the pipe length and / or the wire length.

Installation Preview

1 Choose the installation location
Page 17

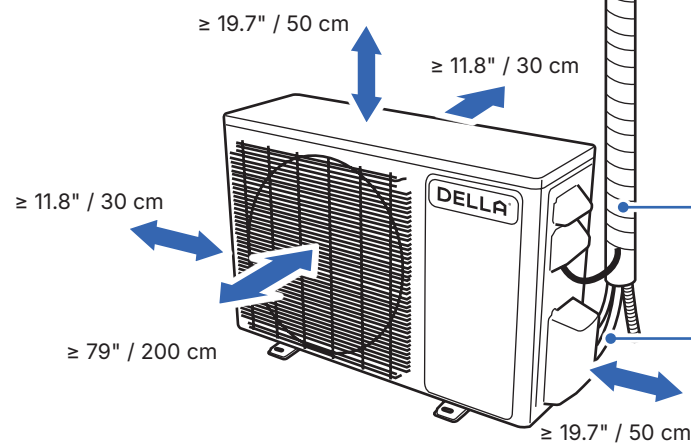
2 Drill wall hole and
Install mounting plate
Page 26-27

3 Indoor unit connection

- Connect the drain hose to the indoor unit
Page 28
- Pass the communication cable into the indoor unit
Page 29

4 Mount the indoor unit
Page 32

5 Connect refrigerant pipes to indoor unit
Page 33



	MODU - 1D2	MODU - 1D3	MODU - 1D4	MODU - 1D5
Standard Length per Indoor Unit	16.4 ft / 5 m			
Max. Distance per Indoor Unit	82 ft / 25 m	98 ft / 30 m		
Max. Elevation per Indoor Unit	49 ft / 15 m			

6 Placing the outdoor unit
Page 107-108

7 Connection between indoor and outdoor unit

- Connect the refrigerant pipes
Page 110, 111
- Connect the electrical wires
Page 112

8 Vacuum pumping
Page 118-127

9 Finishing
Page 128

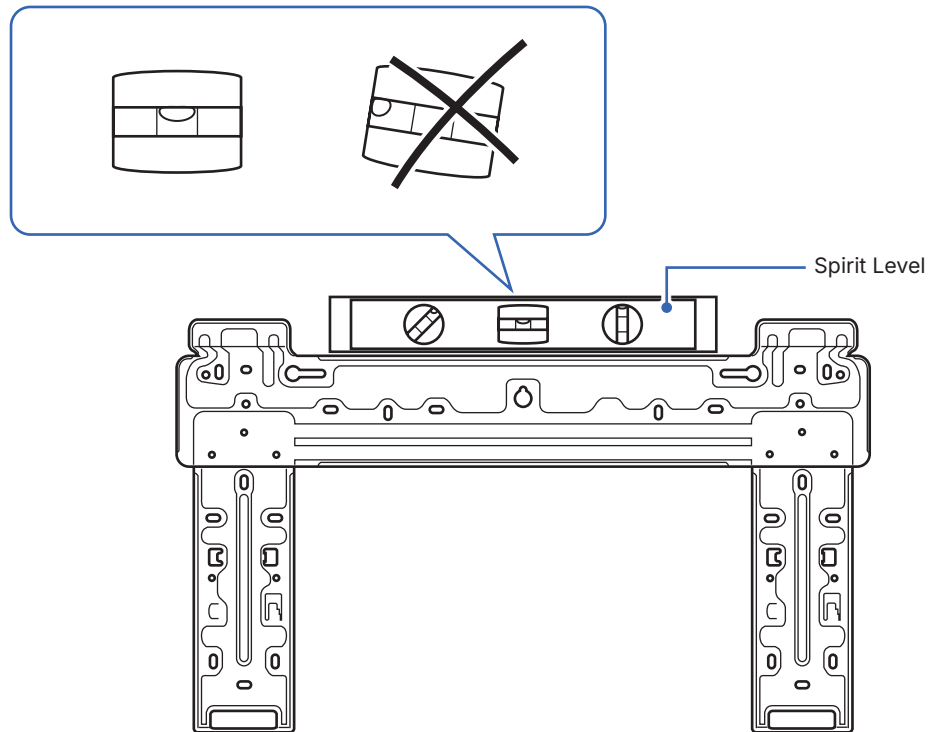
10 Check list
Page 130

11 Test run
Page 131

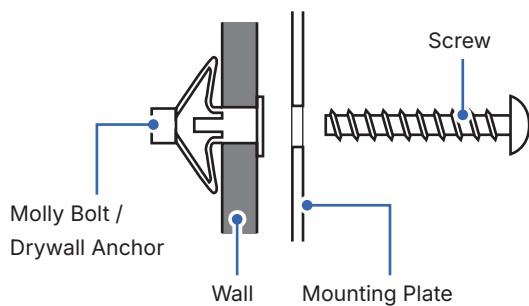
Indoor Unit Installation (Wall Mounted Indoor Unit)

Install the Mounting Bracket

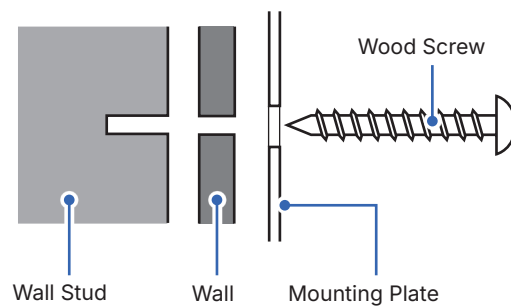
1. Locate the studs and electrical wires inside the wall. Then use the template included with the indoor unit or the etched marking on the mounting plate to determine the exact mounting location.
2. Use a spirit level to level the mounting plate on the wall. Then mark out the screw hole positions.
3. Drill pilot hole on the marked locations.
4. Insert wall anchors into the pilot holes and affix the mounting plate to the wall using screws.
Use a wood screw if the pilot hole position is directly on a wood stud.



Hollow Drywall



Wood Stud



- You must use the correct wall anchor according to the type of the wall.

Indoor Unit Installation (Wall Mounted Indoor Unit)

Drill Wall Hole and Insert Wall Sleeve

1. Pick 1 of the 3 piping positions on your indoor unit.

Piping Position

Right side of the unit

Directly behind the unit
(Recommended)

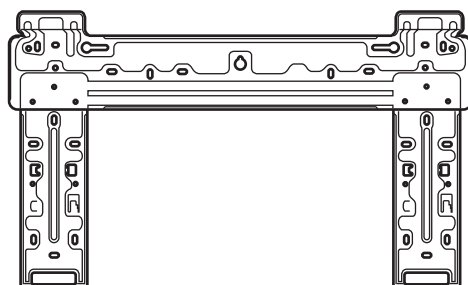
Left side of the unit

QUICK
TIPS

Gently bend the pipe on the
protected area

2. Mark the position on the wall.

Example of Wall Hole Position with Piping Directly Behind the Indoor Unit

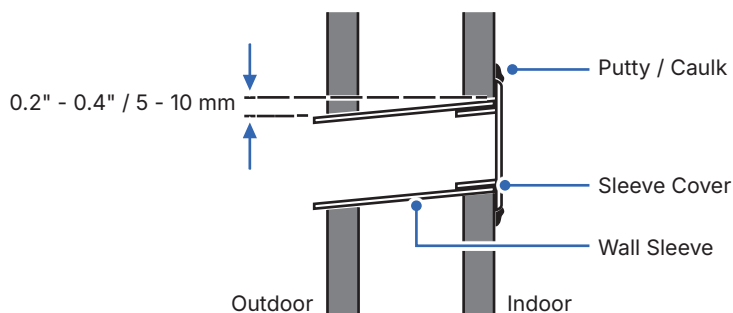


Ø 2.75" / 70 mm hole



- Make sure there is no building structure pillar, stud, electrical wire, or any water pipes in the way of the drill hole. Drilling into electrical wires or water pipes inside the wall may cause electric shock, fire, or water damage.

3. Drill a 2.75" / 70 mm hole from the indoor wall to the outdoor wall. The hole must be slanted downward with a small angle.
4. Insert the wall sleeve and sleeve cover into the wall. Then seal off gaps with putty or caulk.

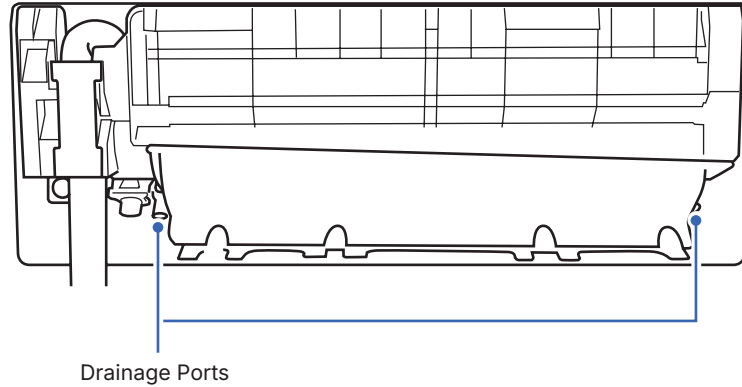


- Always insert the sleeve into the wall hole and seal the surrounding with putty / caulk. This will prevent water, insects, or small animals from getting into the house.

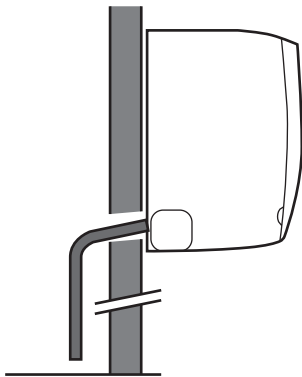
Indoor Unit Installation (Wall Mounted Indoor Unit)

Connect the Indoor Unit Drain Hose

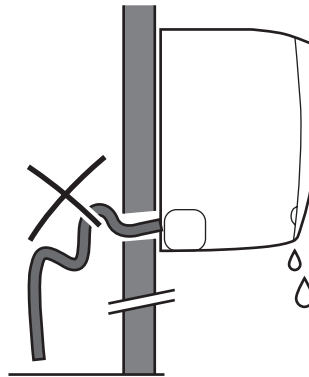
1. Connect the drainage hose to the indoor unit drainage port.
NOTE: In some models, drainage ports are available on both sides of the indoor unit. You can choose one side to attach the drain hose and insert a rubber plug on the unused port. Always pick the side closer to the wall hole.
2. Make sure the joint is firmly connected and has a good seal.
3. Wrap the joint with Teflon tape to prevent any possible leak.



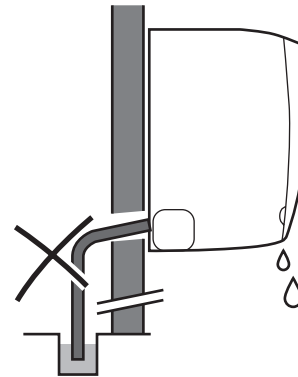
Drain Hose Installation



- Drain hose must be slanted downward and leave a small gap between the ground and the hose.



- Avoid having bends or dents on the drain hose.
- Do not leave the end of the hose into the drainage gutter.



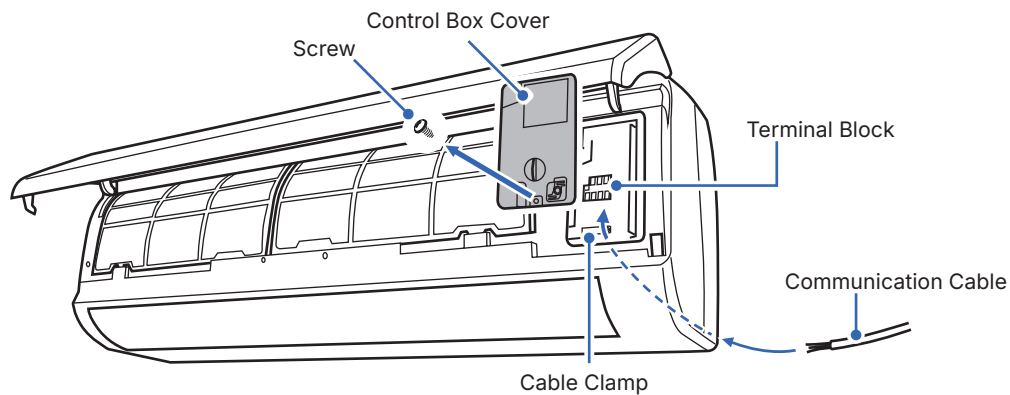
Indoor Unit Installation (Wall Mounted Indoor Unit)

Connect Communication Cable to the Indoor Unit



- Electrical wiring must be done by a qualified technician or electrician. Failing to connect the wires correctly will cause short circuit, a fire, and property damage.
- Do not use the communication cable as power supply cable.

1. Open the front panel of the indoor unit.
2. Remove the control box cover from the control box.
3. Pass the communication cable from the back of the indoor unit to the control box.
4. Unscrew the cable clamp in the indoor unit.
5. Connect communication wires to the corresponding terminal and secure the cable using the cable clamp.
6. Reinstall the control box cover and close the indoor unit's front panel.



- Purchase communication cable that is 3 - 4 ft longer than your planned refrigerant lineset length.
- Do not modify the communication cable by extending the cable.

Indoor Unit Installation (Wall Mounted Indoor Unit)

Indoor Unit Circuit Diagram (TC Series)

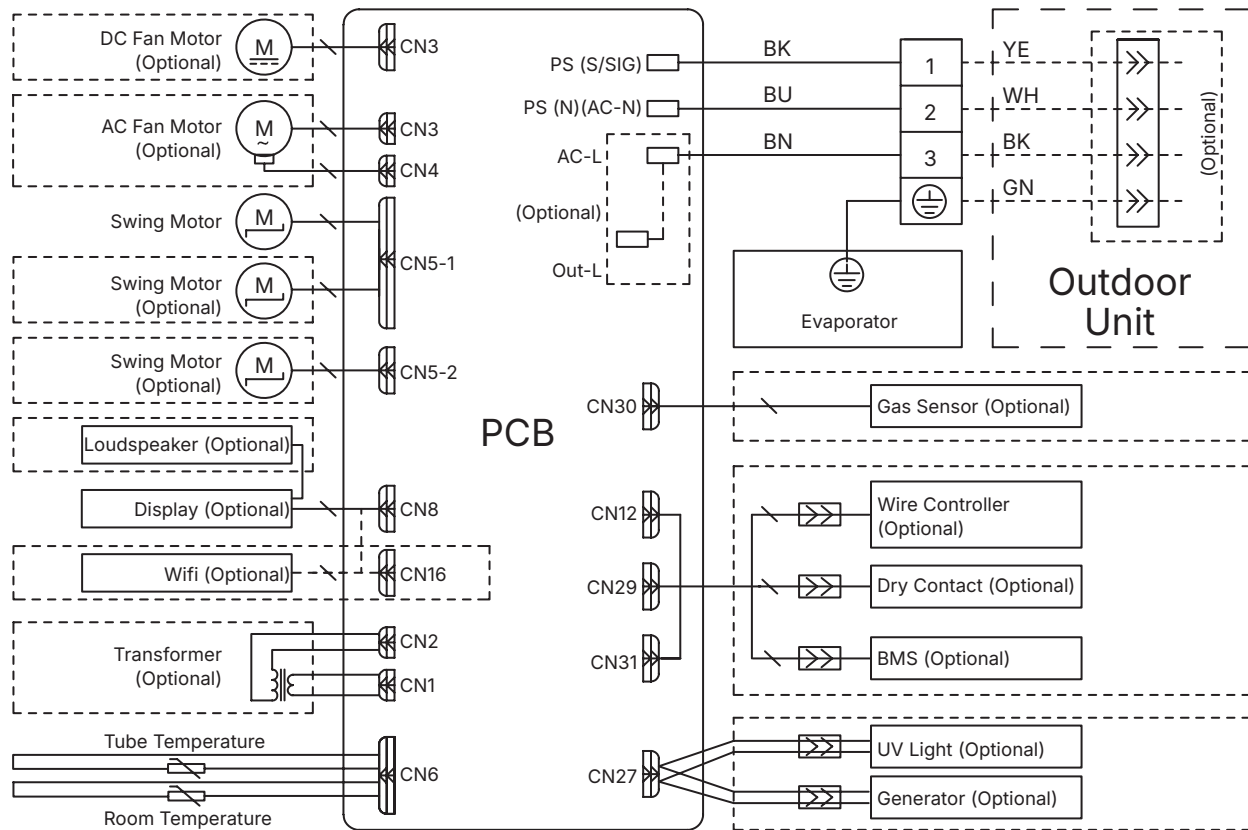
048-TC-9K2VR-IN

048-TC-12K2VR-IN

048-TC-18K2VR-IN

048-TC-24K2VR-IN

048-TC-36K2VR-IN

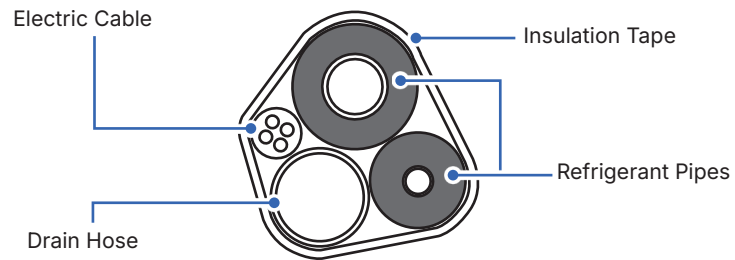


Indoor Unit Installation (Wall Mounted Indoor Unit)

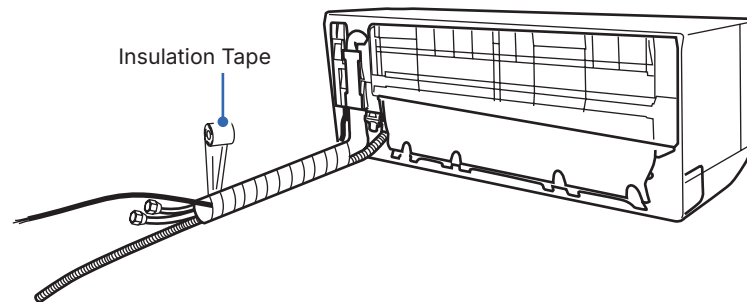
Bundle the Indoor Unit Refrigerant Pipes, Hose, and Cable

Refrigerant Pipes, drain hose, and electric cable must be properly arranged and bundled with insulation tape before passing them through the wall hole.

1. Arrange the refrigerant pipes, drain hose, and electric cable according to the image below.
2. Wrap the bundle with insulation pipe.



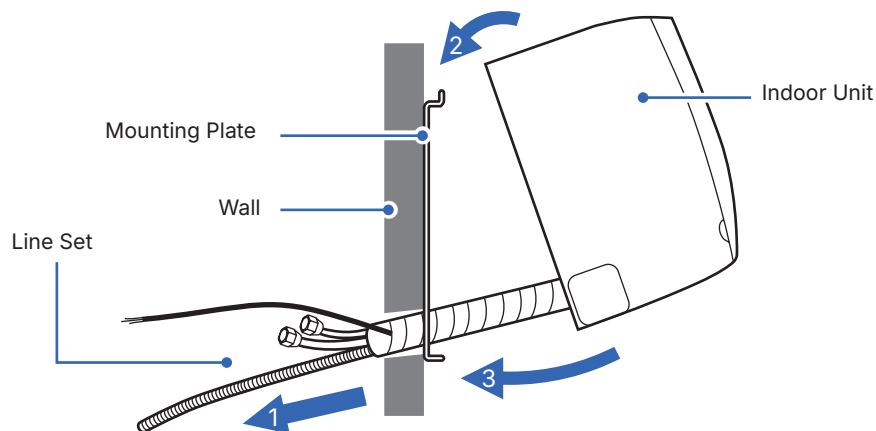
- Drain hose must positioned at the bottom to prevent water leakage.



Indoor Unit Installation (Wall Mounted Indoor Unit)

Pass Line Set Through Wall Hole and Mount Indoor Unit

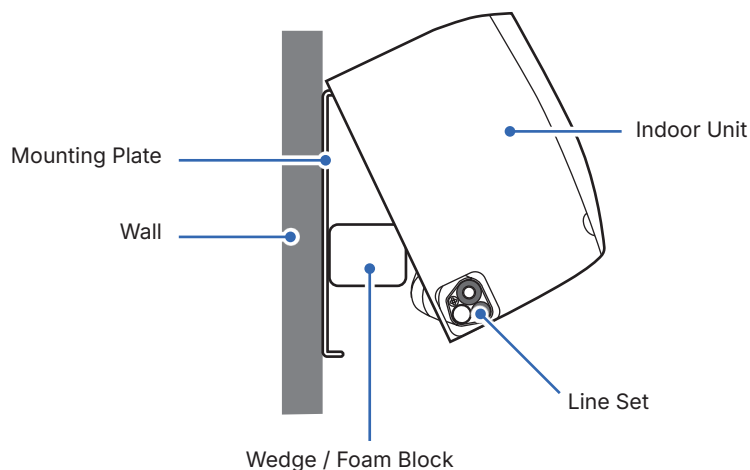
1. Carefully pass the line set bundle through the wall hole.
2. Hook the top of the indoor unit on the mounting plate.
Push the unit lightly left and right to make sure it is firmly hooked on the mounting plate.
3. Push down the bottom of the indoor unit and snap into the mounting plate.



Pass Line Set Through Wall Hole and Mount Indoor Unit (Left Piping Direction)

If you choose to have the piping direction on the left side of the indoor unit,

1. Carefully pass the drain hose and electric cable through the wall hole.
2. Hook the top of the indoor unit on the mounting plate.
Push the unit lightly left and right to make sure it is firmly hooked on the mounting plate.
3. Place a wedge or foam block or something slightly soft between the mounting plate and the indoor unit for a easier installation process in later steps.
4. Push down the bottom of the indoor unit and snap into the mounting plate after connecting the refrigerant pipes to the indoor unit.



- The indoor unit is not secured in place at this step for left side piping direction installation. Handle the unit and lineset with caution. It is recommended to have a person looking after the unit and make sure it does not fall during the later installation process.

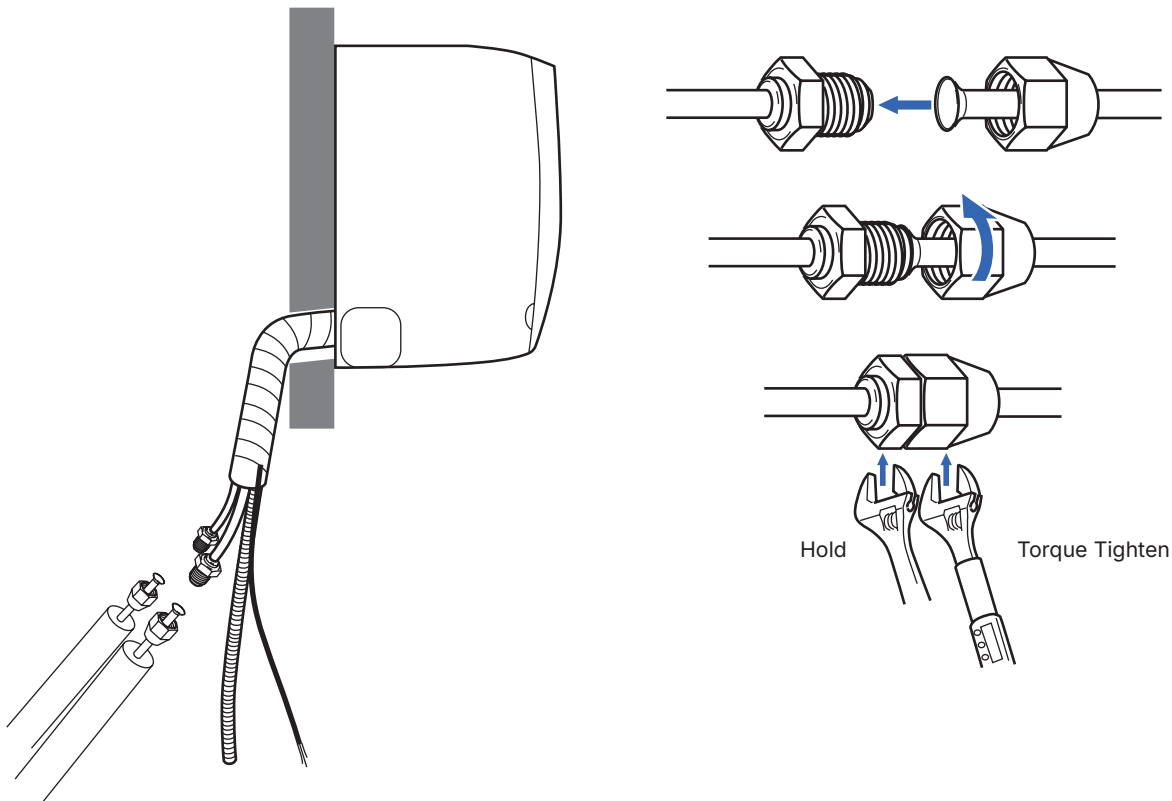
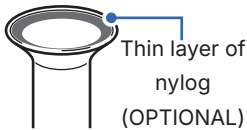
Indoor Unit Installation (Wall Mounted Indoor Unit)

Connect the Refrigerant Pipes to the Indoor Unit

1. Align the refrigerant pipes to that from the indoor unit, then tighten the nut by hand.
2. Use a torque wrench to tighten the nut according to the torque requirement.



- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.



Pipe Diameter	1/4" (φ6.35)	3/8" (φ9.52)	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

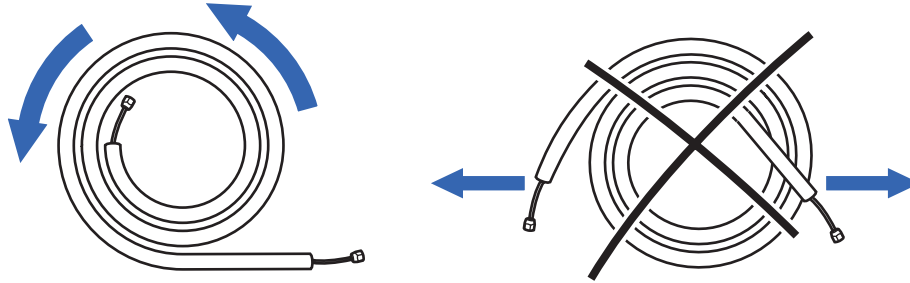


- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on [Page 15-16](#) .

Indoor Unit Installation (Wall Mounted Indoor Unit)

Preparing the Refrigerant Pipe

1. Unroll the included refrigerant pipe.



- Do not pull the refrigerant pipe to prevent the pipe from kinking or bending.

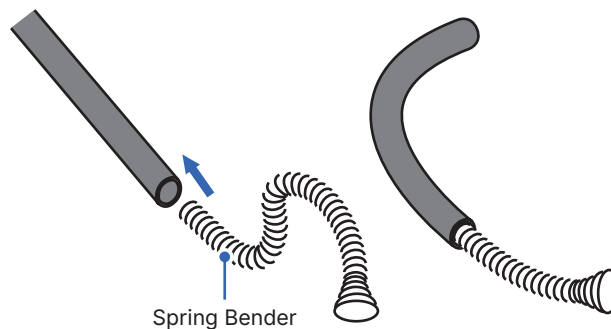
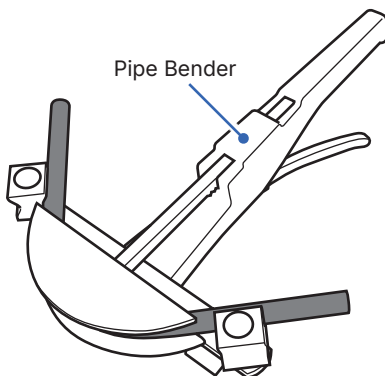
2. Remove the cover and make sure the ports are clean and smooth.



3. In the case of a imperfect flaring or the pipe needs to be shorten for the installation, refrigerant pipe should be cut and flare by qualified technician.



- Use a pipe bender or spring bender to shape the refrigerant pipes along wall and corners. Bending the pipe without bending tools would easily kink or damage the pipe, which would cause refrigerant starvation, or leakage in the system.



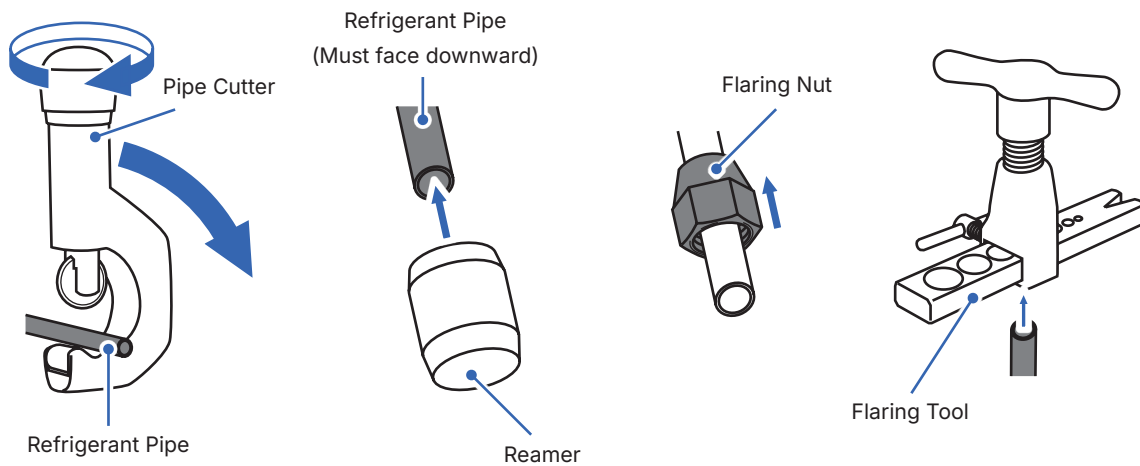
Indoor Unit Installation (Wall Mounted Indoor Unit)

Cutting and Flaring Refrigerant Pipe

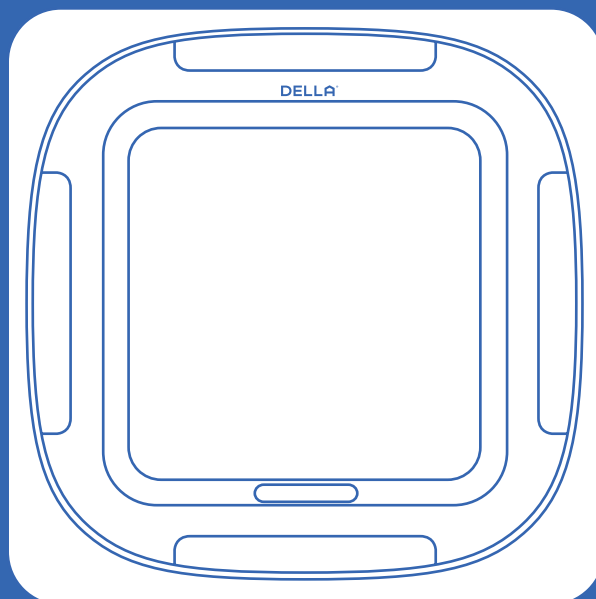


- Any refrigerant pipe alteration should only be done by qualified technician. Incorrect work may cause refrigerant leak, reduce cooling / heating efficiency, damage to the unit. Warranty does not cover any damage(s) caused by incorrect refrigerant pipe alteration.

- Cut the copper pipe with a pipe cutter.
- Remove any burrs or rough edges with a reamer with the pipe facing downward.
NOTE: The opening of the pipe must face toward the ground to prevent chips or dust from entering the pipe.
- Insert the flare nut to the pipe.
- Use the flaring tool to flare the copper pipe. The flaring angle must match to that of the refrigerant lines from the unit.



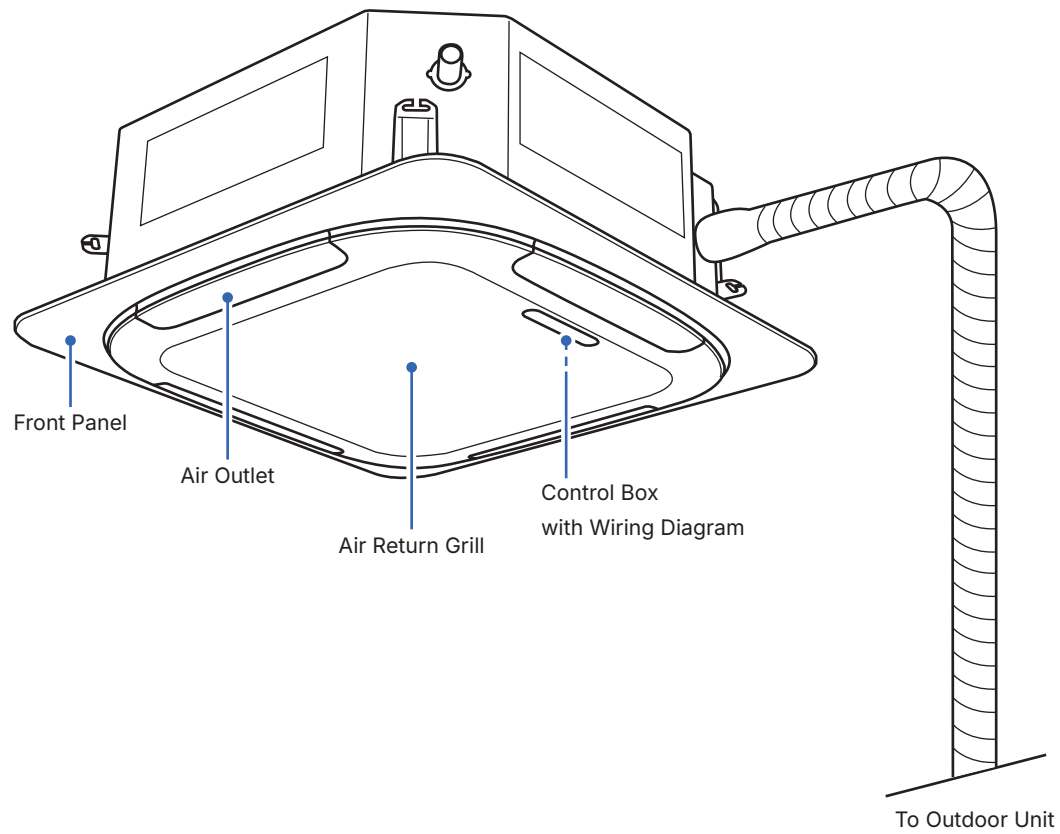




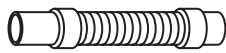
Cassette Type Indoor Unit

Installation Guide

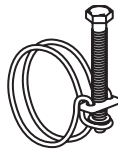
Name of Parts



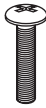
Name of Parts



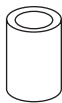
Flexible Drain Hose
1x



Hose Clamp
1x



Phillips Pan Head Bolt
4x



Insulated Sleeve
2x



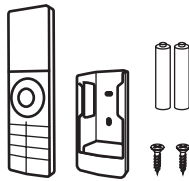
Cable Clamp
2x



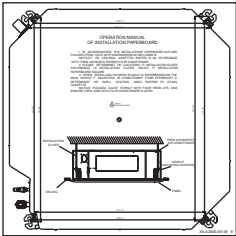
Rubber Pad
4x



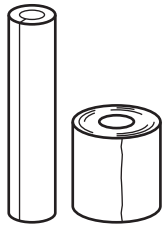
Zip Tie
4x



Remote Control, Holder 1x
Battery 2x



Installation Template
1x



Insulation Foam & Wrap
1x



1/2" Male to 3/8" Female
Lineset Converter ¹



5/8" Male to 3/8" Female
Lineset Converter ²

NOTE: ^{1 2} Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant pipe.

Name of Parts

Tools Needed for Cassette Indoor Unit (Not included)

- Screw Driver
- Hole Saw
- Wall Saw / Power Saw
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Bullseye Spirit Level
- Power Drill
- Thermometer
- Vacuum Pump
- Drop-In Anchor
- M10 Threaded Rod
- M10 Washer
- Threaded Rod Wrench
- PVC Drain Pipes
- PVC pipe cutter
- Insulation Foam
- Floor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- HVAC sealant / Nylog
- Caulk
- Wall Sleeve and Cover
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

NOTE: Tools marked with * are needed for shortening the refrigerant pipe and / or electrical wire to the exact desired length.

ONLY a qualified HVAC technician should attempt altering the pipe length and / or the wire length.

Installation Preview (Cassette Type Indoor Unit)

1 Choose the installation location

Page 17

2 Ceiling hole, Refrigerant pipes, drain hose, and electrical wires preparation

Page 42-43

3 Install hanging rods

Page 44-45

4 Hanging the indoor unit

Page 46

5 Indoor unit connection

- Connect the drain hose to the indoor unit
Page 47
- Connect refrigerant pipes into the indoor unit
Page 51
- Connect the electrical wire into the indoor unit
Page 55

6 Placing the outdoor unit

Page 107-108

7 Connection between indoor and outdoor unit

- Connect the refrigerant pipes
Page 110, 111
- Connect the electrical wires
Page 112

8 Vacuum pumping

Page 118-127

9 Finishing

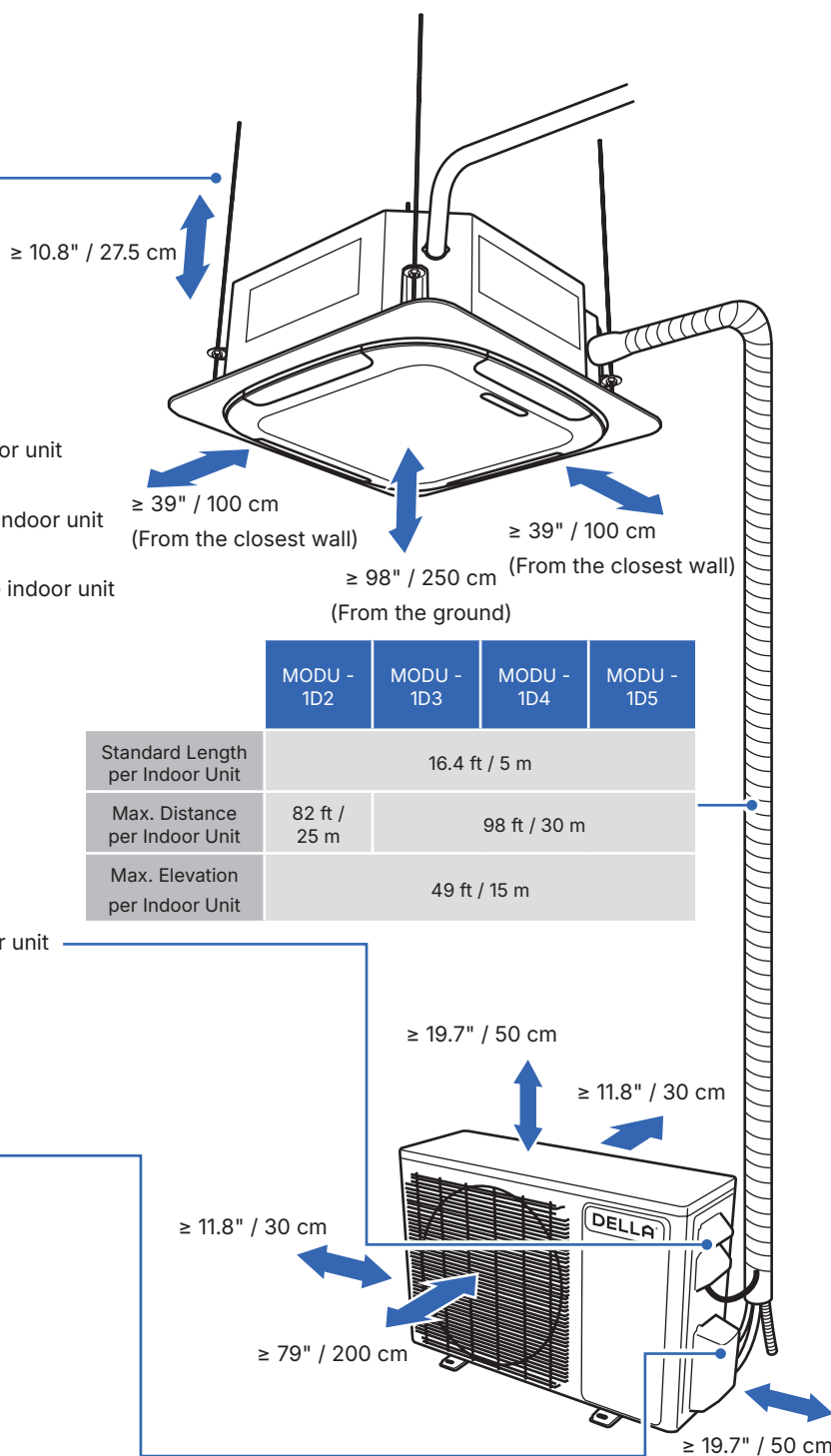
Page 128

10 Check list

Page 130

11 Test run

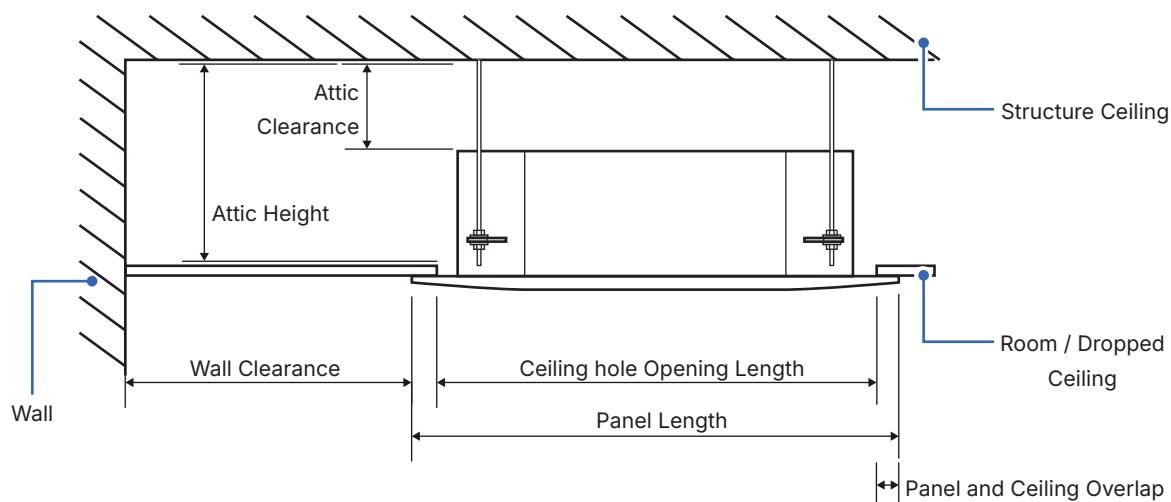
Page 131



Indoor Unit Installation (Cassette Type Indoor Unit)

Open Ceiling Hole for Installation

1. Before installation work, make sure the structure ceiling is strong enough to hold the weight of the indoor unit.
2. Plan out the installation location in accordance to the clearance measurement table below.
3. Cut open the ceiling for the installation. Make sure the opening size is smaller than the cassette unit panel.

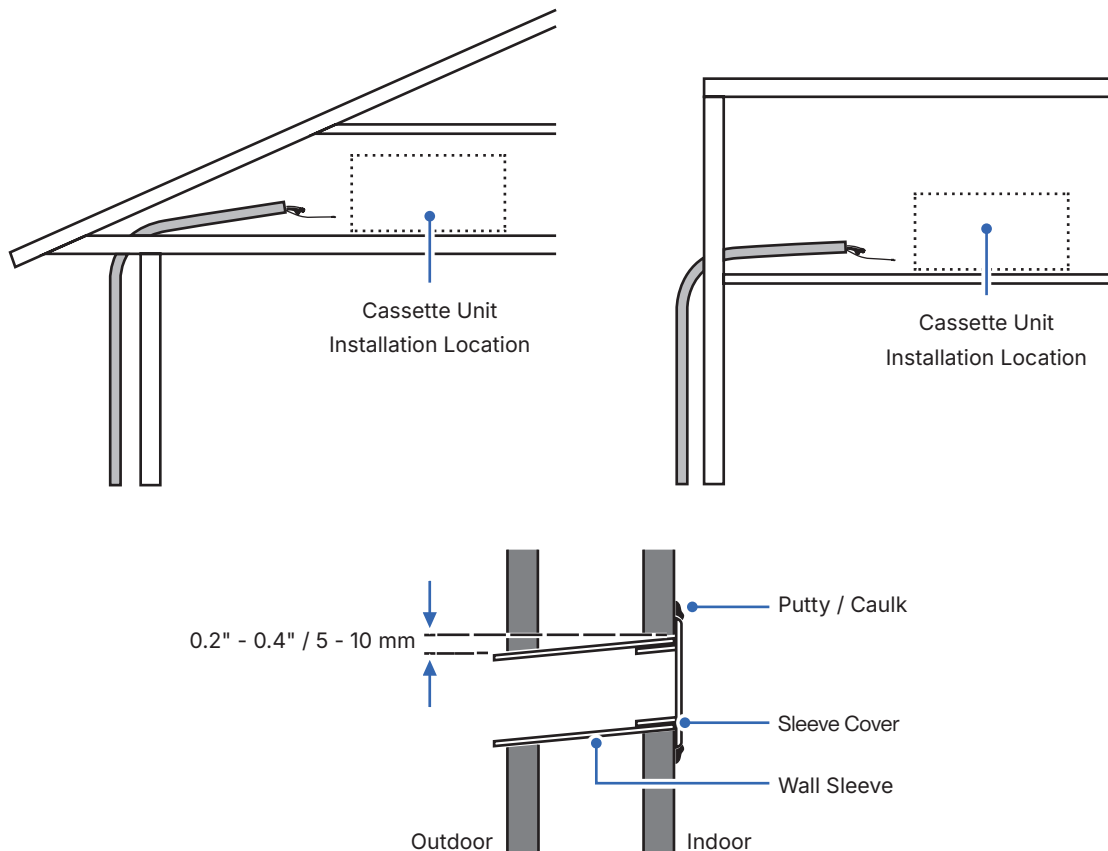


	048-CC-9K2V-IN	048-CC-12K2V-IN	048-CC-18K2V-IN	048-CC-24K2V-IN
Attic Clearance	> 2" / 50mm	> 2" / 50mm	> 2" / 50mm	> 2" / 50mm
Attic Height	> 10.8" / 275mm	> 10.8" / 275mm	> 10.8" / 275mm	> 10.8" / 275mm
Wall Clearance	> 39" / 1000mm	> 39" / 1000mm	> 39" / 1000mm	> 39" / 1000mm
Panel Length	25.59"x 25.59"	25.59"x 25.59"	25.59"x 25.59"	37.40"x 37.40"
	650mm x 650mm	650mm x 650mm	650mm x 650mm	950mm x 950mm
Panel and Ceiling Overlap	~ 1" / 25mm	~ 1" / 25mm	~ 1" / 25mm	~ 1" / 25mm

Indoor Unit Installation (Cassette Type Indoor Unit)

Prepare Refrigerant Lineset, Drain Pipe, and Electrical Cable

1. Route the refrigerant lineset, drain pipe, and electrical cable from the cassette unit installation location to the outdoor unit installation location.
Detail information on handling refrigerant line set on [Page 53](#) .
Detail information on drain pipe on [Page 47-48](#) .
2. Make sure the drain pipe is slanted downward to prevent condensation and water from back-flowing into the cassette unit.
3. Depending on the building, you can route the lineset toward the outside through an opening on the wall or the soffit.



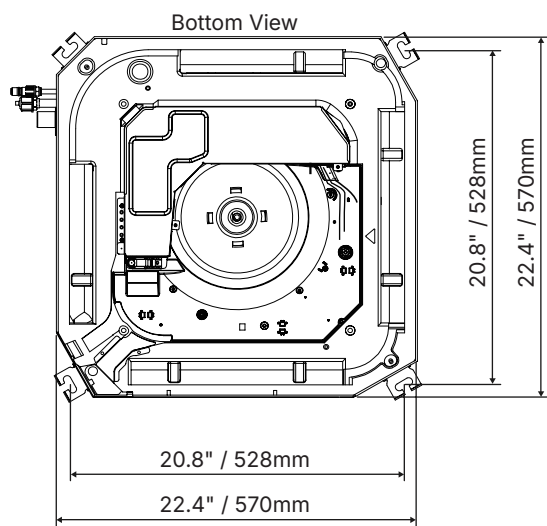
- Always insert the sleeve into the wall hole and seal the surrounding with putty / caulk. This will prevent water, insects, or small animals from getting into the house.

Indoor Unit Installation (Cassette Type Indoor Unit)

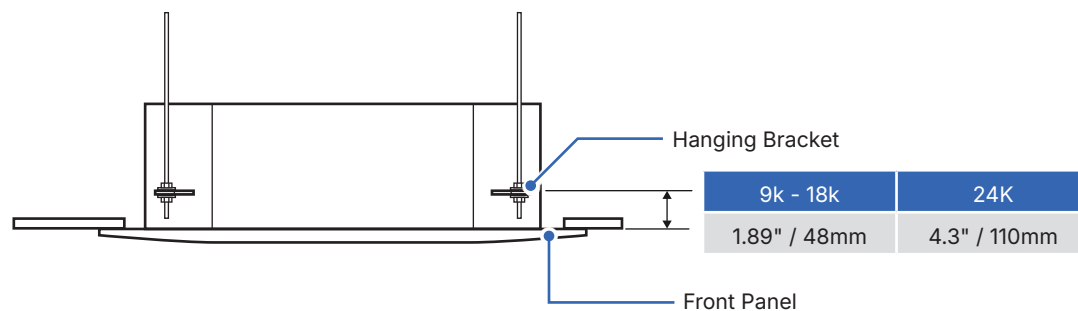
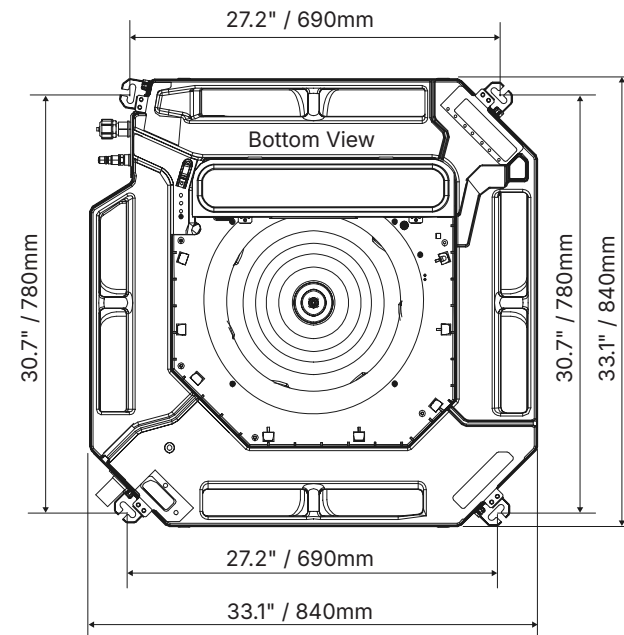
Attaching Threaded Rods for Hanging

1. Reference the graphics below and mark the threaded rods attaching locations.
Make sure the cassette refrigerant ports and drain port is facing the pre-routed refrigerant lineset and drain pipe.
2. Drill pilot holes on the marks.
3. Choose and attach the suitable anchor for your structure ceiling.
4. Cut M10 threaded rods into correct length and attach them into the anchors.

048-CC-9K2V-IN
048-CC-12K2V-IN
048-CC-18K2V-IN



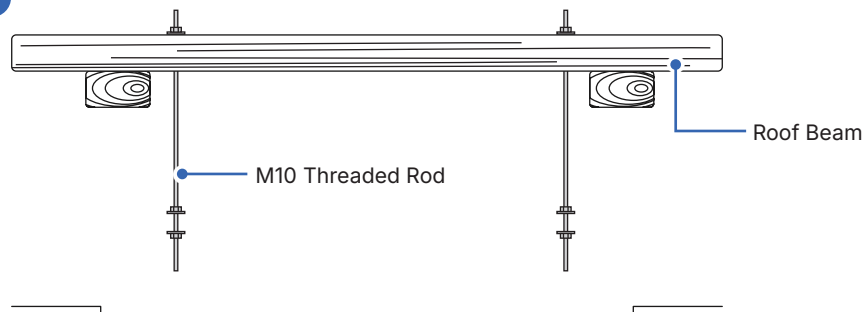
048-CC-24K2V-IN



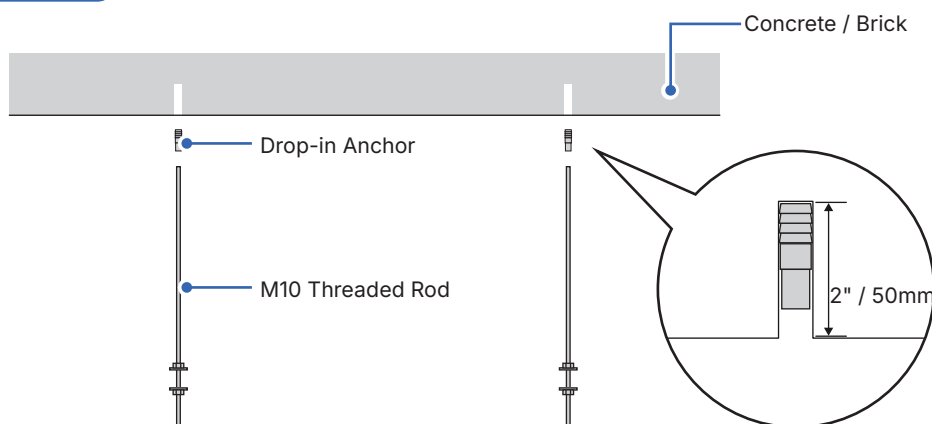
Indoor Unit Installation (Cassette Type Indoor Unit)

Attaching Threaded Rods for Hanging

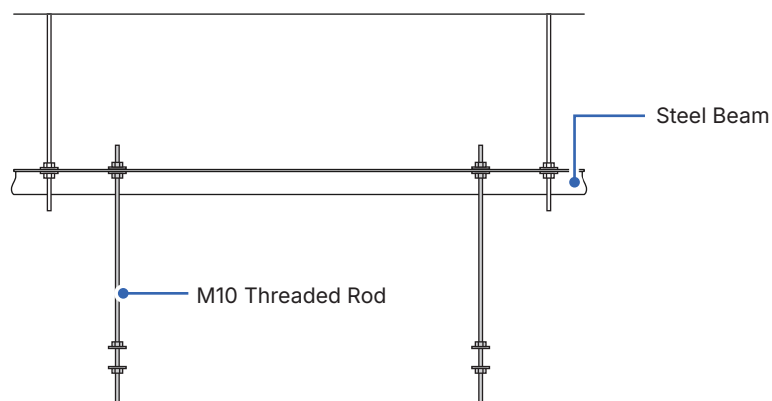
On Wood Beam



On Concrete / Brick



On Steel Beam



- It is recommended to use threaded rod wrench to tighten the threaded rod into the drop in anchor and make sure it can support the weight of the cassette unit and withstand operating vibration.

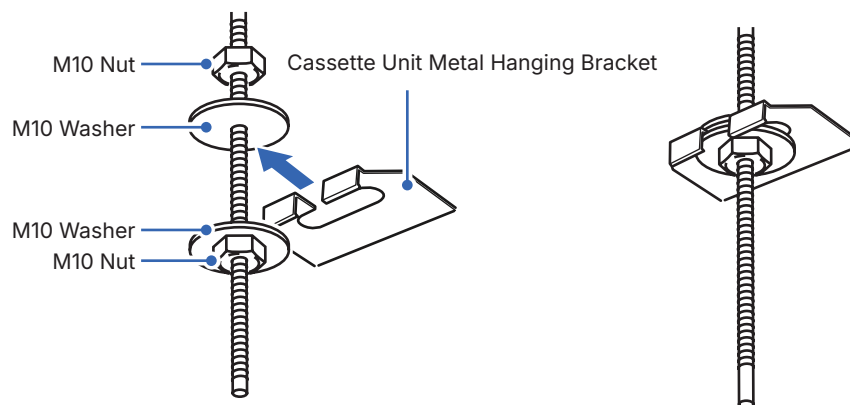
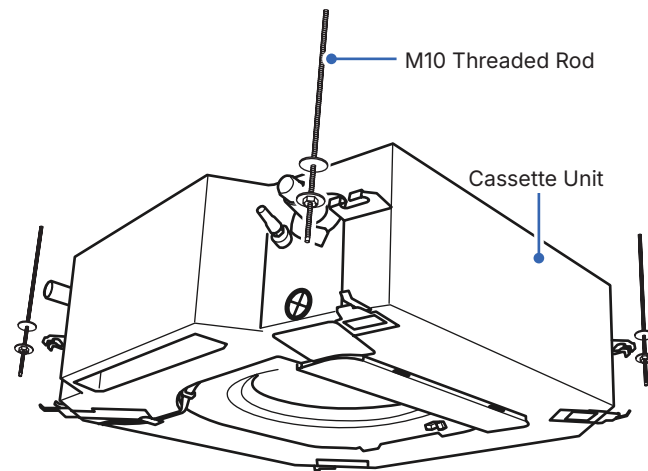
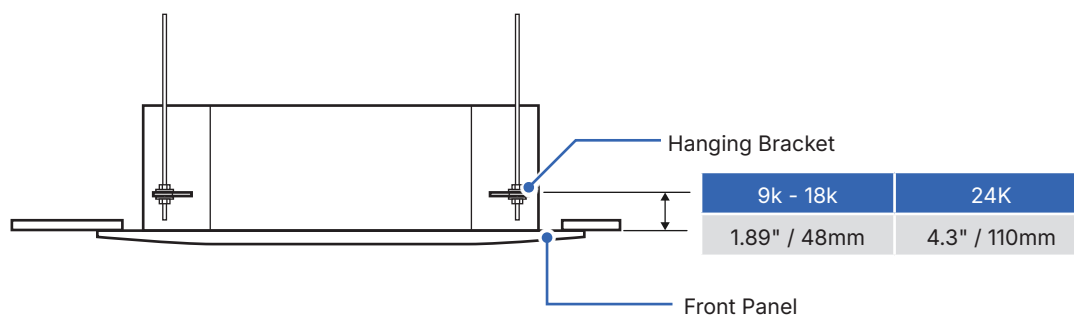
Indoor Unit Installation (Cassette Type Indoor Unit)

Hanging the Cassette Unit

1. Attach M10 nuts and M10 washers to the threaded rod at the hanging height.
2. Align the cassette unit into the ceiling opening and hang the hanging brackets to the M10 washers.
3. Level the unit all around with a bullseye spirit level and tighten the M10 nuts to secure the unit in place.



- Lift the cassette unit to the ceiling with 2 people, or with the help of a power lifter. Carrying the cassette unit alone without assistant would result in injury.
- A bull's eye level is recommended to be used to level the cassette unit. The cassette unit is equipped with a built-in drain pump and float switch. Failing to level the unit may cause float switch to malfunction and cause water leakage.



Indoor Unit Installation (Cassette Type Indoor Unit)

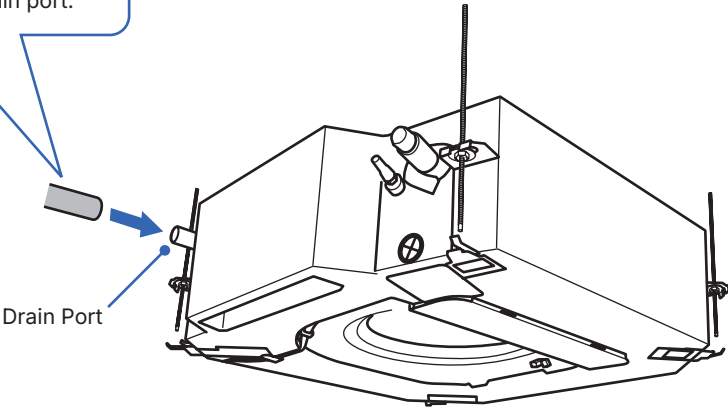
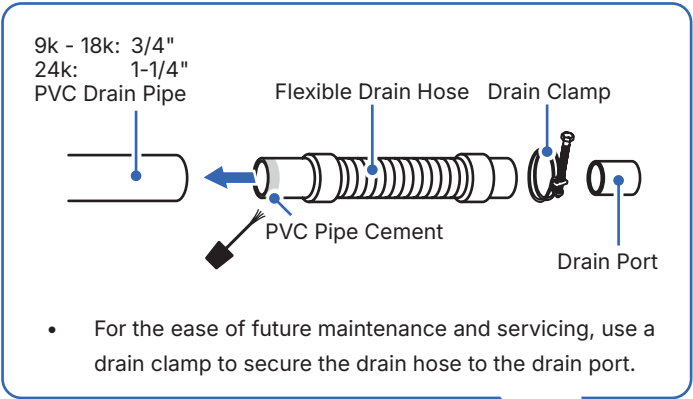
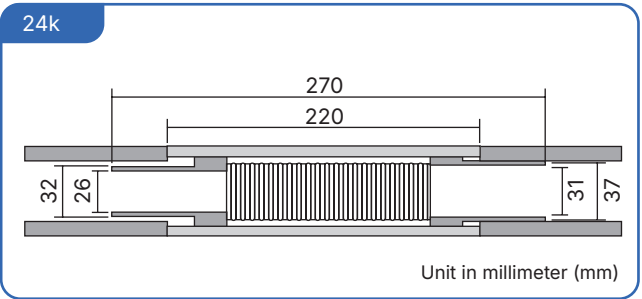
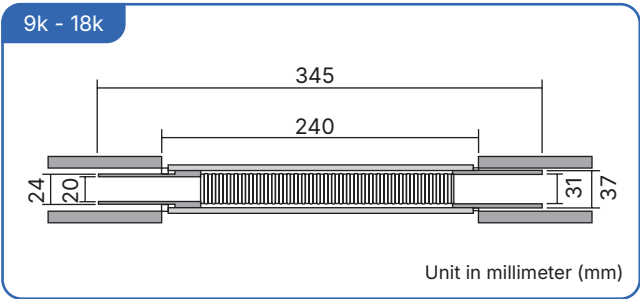
Connecting the Drain Pipe to the Cassette Unit

- 1. Attach drain pipe to the cassette unit.
- 2. Make sure the connection is tightly secured.
- 3. Wrap the connection and the drain pipe with insulating foam.



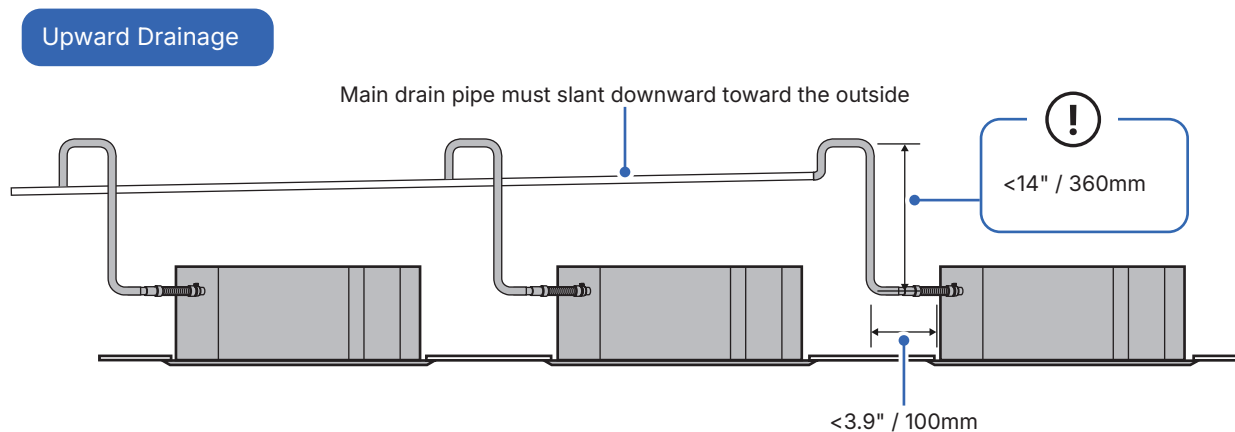
- The drain pipe connection must be wrapped with insulating foam to prevent condensation from building up on the pipe's surface, which may result in water dripping in the ceiling.
- The following should be used for drain pipe installation:

Drainage Pipe Material	9k - 18k	Ø24mm or 3/4" Polyvinyl Chloride (PVC) pipe
	24k	Ø32mm or 1-1/4" Polyvinyl Chloride (PVC) pipe
Heat Insulation Material		10mm thick Foamed Polyethylene Insulation Plate



Indoor Unit Installation (Cassette Type Indoor Unit)

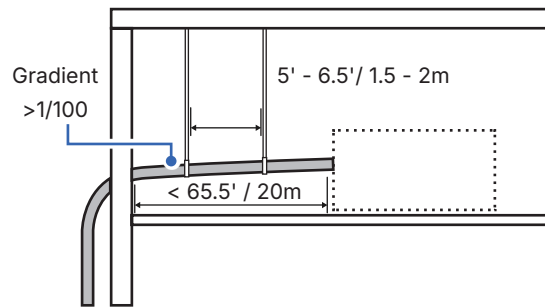
Connecting the Drain Pipe to the Cassette Unit



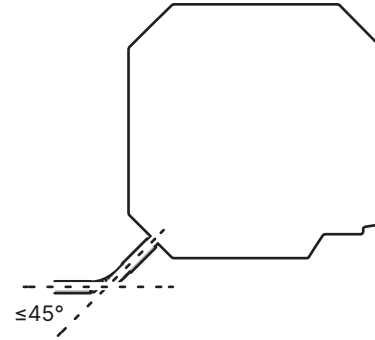
- Cassette unit has a drain pump that support upward drainage.
- Make sure the drain pipe lead upward no higher than 14" / 360mm and back downward to the main drain pipe. Keep the upward lead as short as possible to prevent water from back flowing.

Indoor Unit Installation (Cassette Type Indoor Unit)

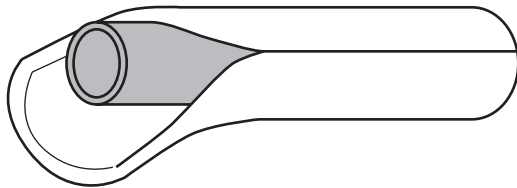
Connecting the Drain Pipe to the Cassette Unit



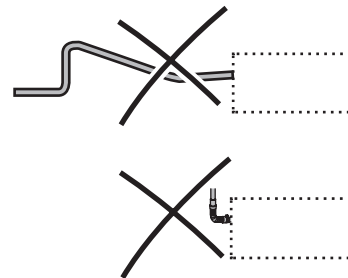
- The total pipe length traveling outside should be kept within 65.5' / 20m.
- When using a long drain pipe, hang the pipe in place every 5' - 6.5' / 1.5 - 2m.
- Drain pipe should slope down at a gradient over 1/100.



- The flexible hose should be kept within 45° from the drain port.



- Wrap the drain hose, drain pipe, and all connections with insulation foam. (10mm thick foamed polyethylene insulation plate)



- Do not slant the drain pipe upward.
- Do not bend the flexible pipe upward.
- Upward drainage installation should be straightly followed on [Page 48](#).

Indoor Unit Installation (Cassette Type Indoor Unit)

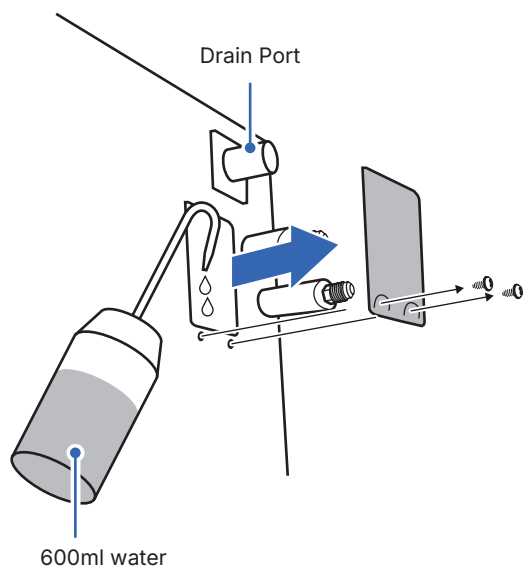
Drainage Test

- Drain pipe should be tested after the installation and make sure there is no leak.
- Remove the cover from the cassette unit.
- Slowly stow 600ml of water into the drain channel inside the unit. Avoid touching the drain pump motor.
- Disconnect the water level switch and power 220V AC to the terminal board, and the drain pump will start up by itself.
- After running the drain pump for 2 minutes, reset the water level pin. the drain pump motor will stop after 22 minutes.

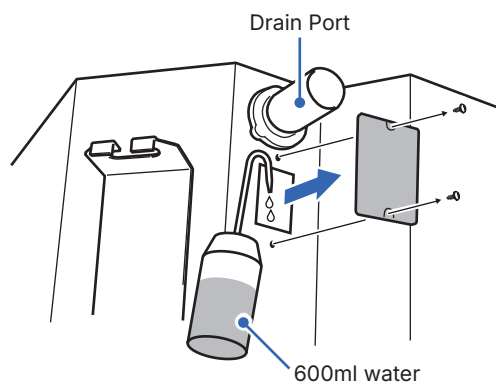


- Any leakage along the drain line must be addressed before using the AC.

9k - 18k



24k



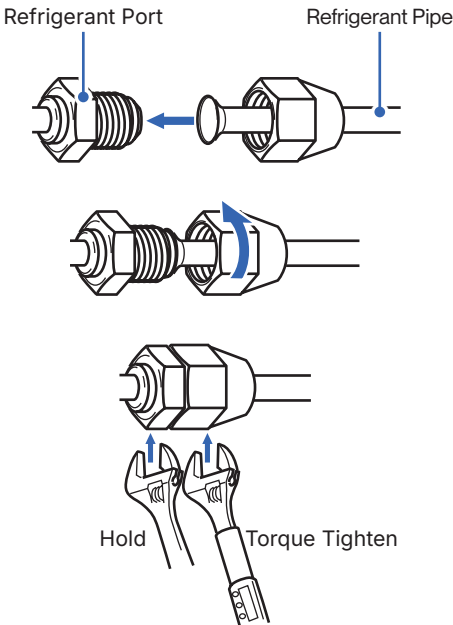
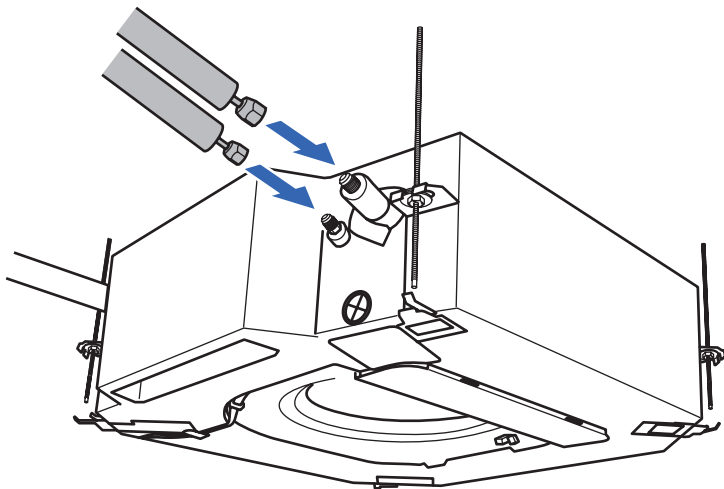
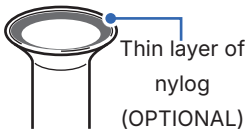
Indoor Unit Installation (Cassette Type Indoor Unit)

Connecting the Refrigerant Pipe to the Cassette Unit

1. Remove the protective caps on the cassette unit's refrigerant ports.
2. Align refrigerant pipes straight to the refrigerant ports, and hand tighten the flaring nuts.
3. Tighten the flaring nuts with torque wrench to the spec.
4. Wrap and cover the connection with insulating foam and tape.



- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.



Pipe Diameter	1/4" (φ6.35)	3/8" (φ9.52)	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

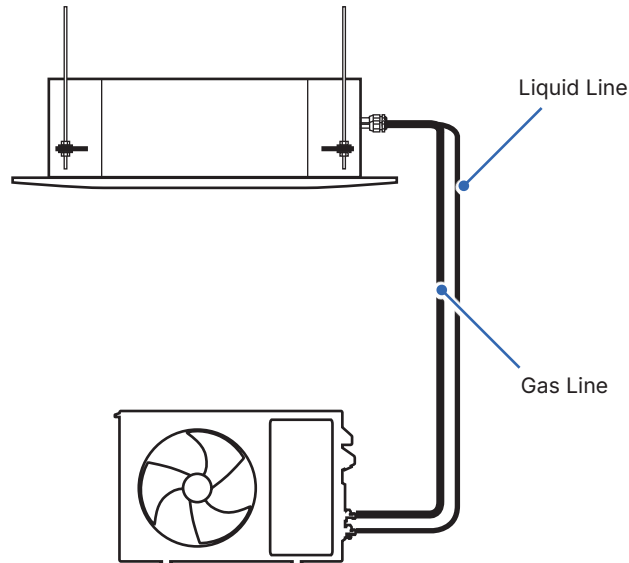


- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on [Page 15-16](#) .
- Refrigerant pipe and its connection must be insulated to prevent condensation from forming on the surface which would result in a water leak.

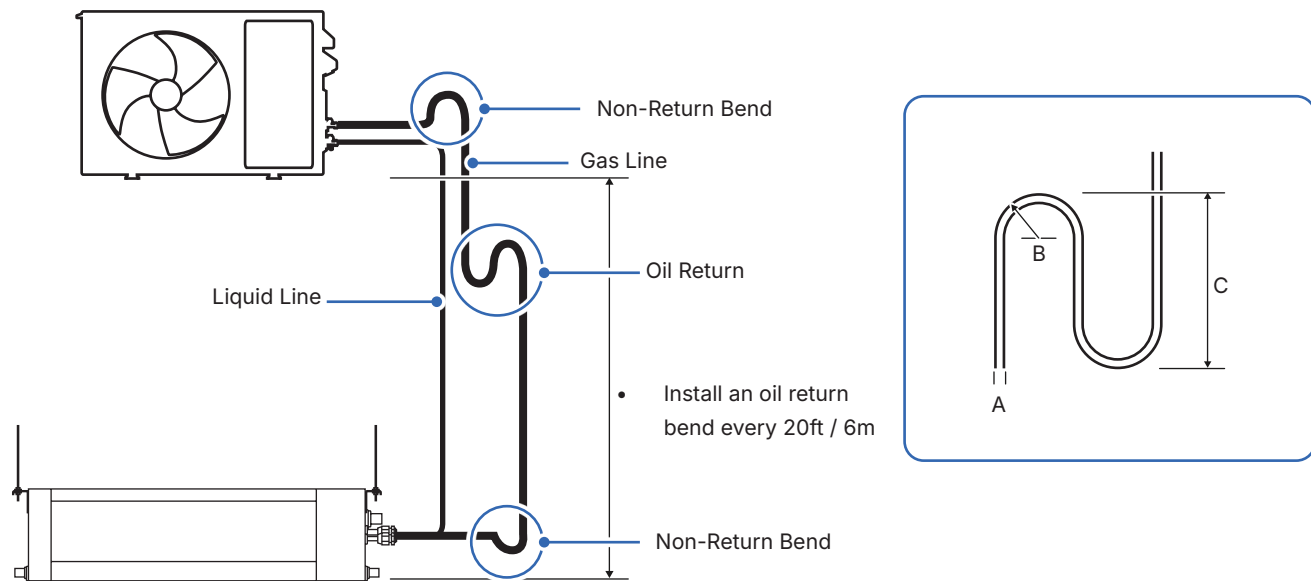
Indoor Unit Installation (Cassette Type Indoor Unit)

Arrange Refrigerant Pipe to the Outdoor Unit

Outdoor Unit Below Indoor Unit



Outdoor Unit Above Indoor Unit



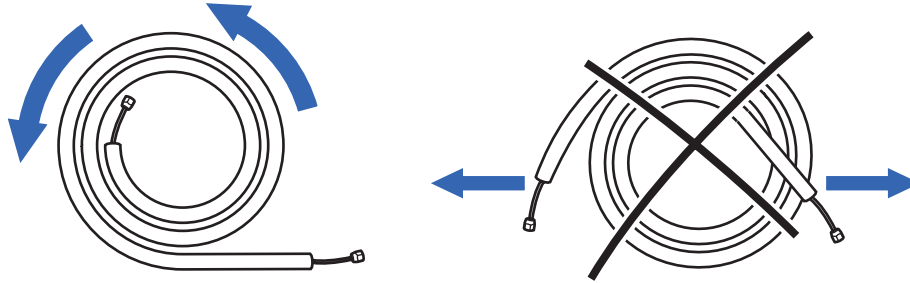
- Oil return bend and non-return bend at the lowest and highest position of the gas line is necessary when installing the outdoor unit above the indoor unit.
- Refrigerant pipe handling on [Page 53](#).

(A) Pipe Diameter	(B)	(C)
3/8"	≥20 mm	≤150 mm
1/2"	≥26 mm	≤150 mm
5/8"	≥33 mm	≤150 mm

Indoor Unit Installation (Cassette Type Indoor Unit)

Preparing the Refrigerant Pipe

1. Unroll the included refrigerant pipe.



- Do not pull the refrigerant pipe to prevent the pipe from kinking or bending.

2. Remove the cover and make sure the ports are clean and smooth.



Imperfect Flaring

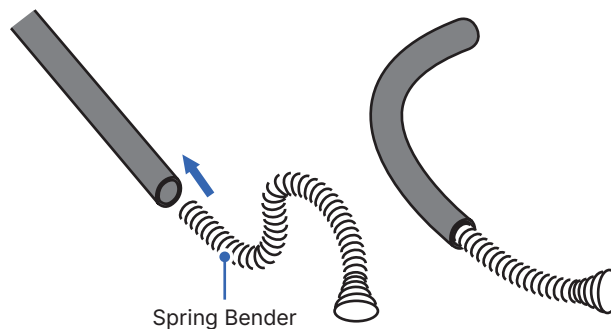
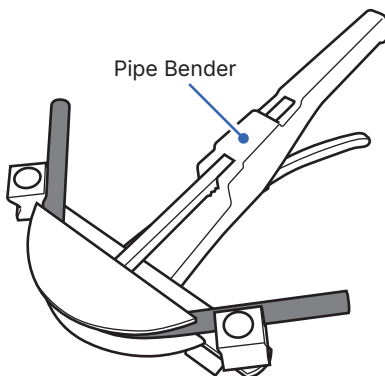


Dirty Flaring

3. In the case of a imperfect flaring or the pipe needs to be shorten for the installation, refrigerant pipe should be cut and flare by qualified technician.



- Use a pipe bender or spring bender to shape the refrigerant pipes along wall and corners. Bending the pipe without bending tools would easily kink or damage the pipe, which would cause refrigerant starvation, or leakage in the system.



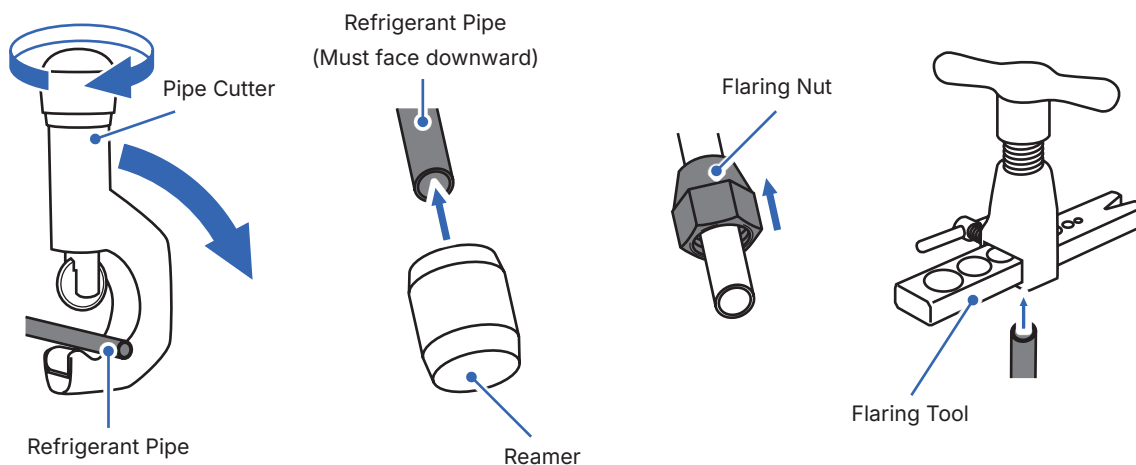
Indoor Unit Installation (Cassette Type Indoor Unit)

Cutting and Flaring Refrigerant Pipe



- Any refrigerant pipe alteration should only be done by qualified technician. Incorrect work may cause refrigerant leak, reduce cooling / heating efficiency, damage to the unit. Warranty does not cover any damage(s) caused by incorrect refrigerant pipe alteration.

- Cut the copper pipe with a pipe cutter.
- Remove any burrs or rough edges with a reamer with the pipe facing downward.
NOTE: The opening of the pipe must face toward the ground to prevent chips or dust from entering the pipe.
- Insert the flare nut to the pipe.
- Use the flaring tool to flare the copper pipe. The flaring angle must match to that of the refrigerant lines from the unit.

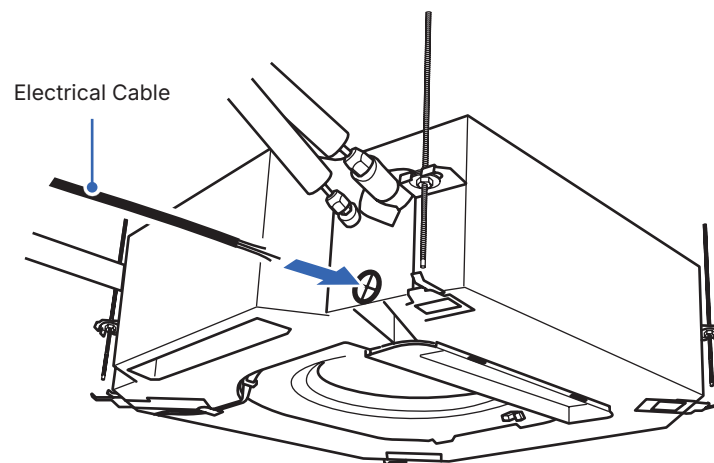
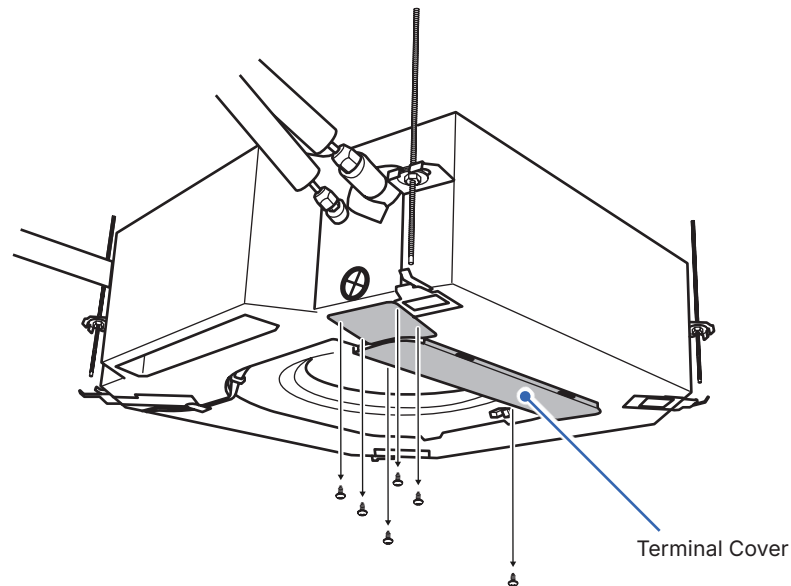


Indoor Unit Installation (Cassette Type Indoor Unit)

Connecting the Communication Cable to the Cassette Unit

1. Remove the terminal covers from the cassette unit.
2. Insert the communication cable through the opening on the unit casing into the terminal box.
3. Connect the wires to the corresponding terminal and secure the cable using the cable clamp.

NOTE: Exact electrical diagram can be found on the back of the terminal cover.

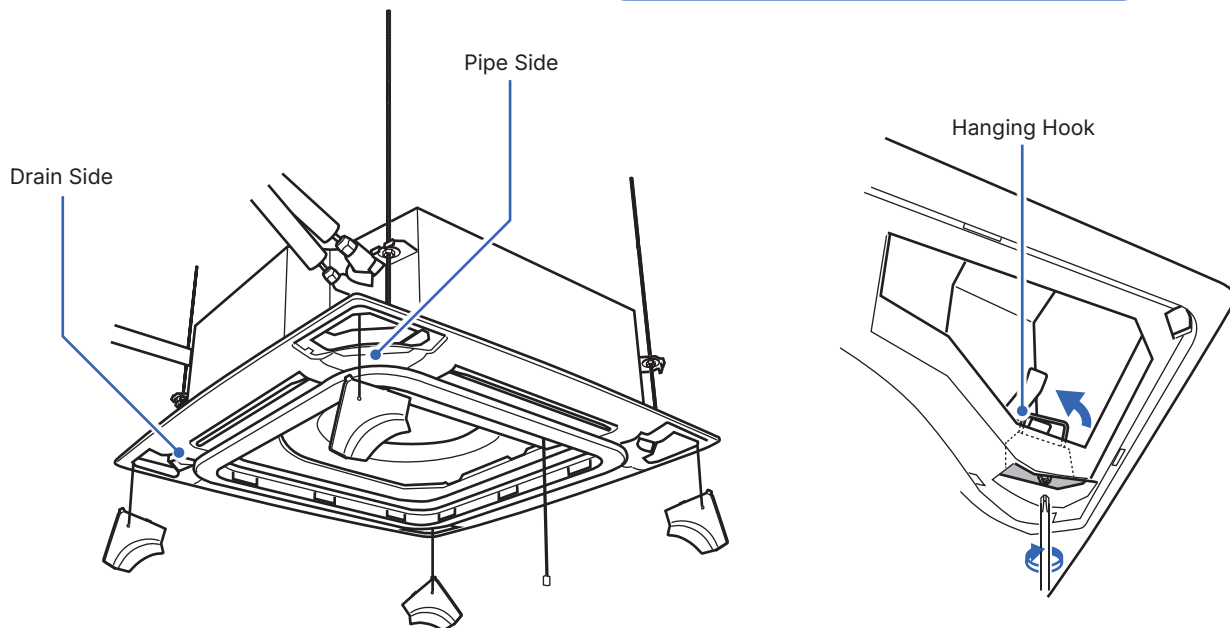
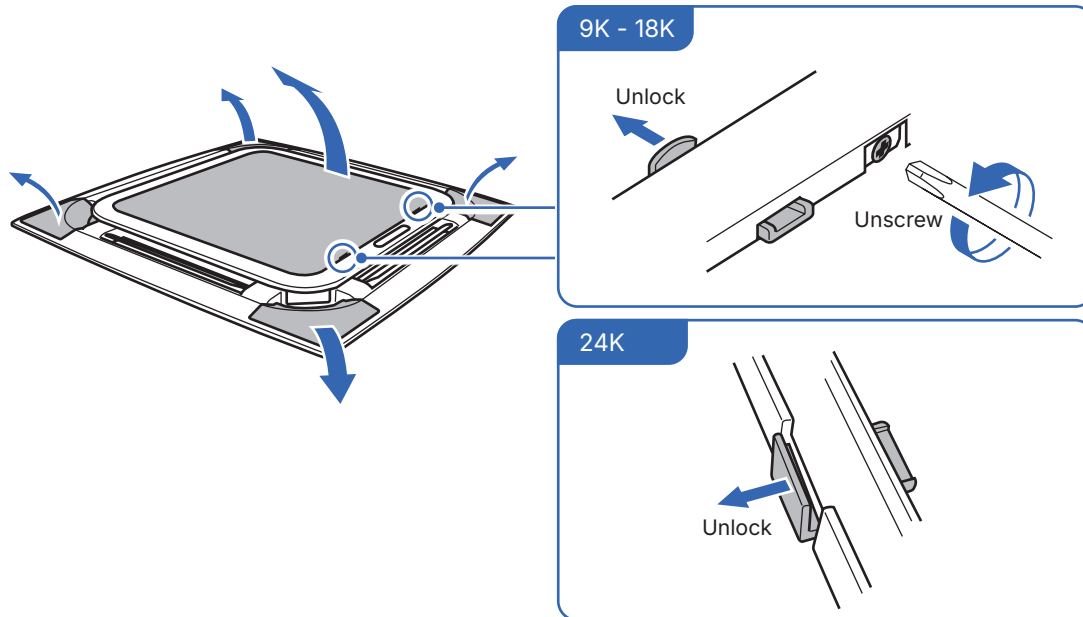


- Purchase communication cable that is 3 - 4 ft longer than your planned refrigerant lineset length.
- Do not modify the communication cable by extending the cable.

Indoor Unit Installation (Cassette Type Indoor Unit)

Attaching the Front Panel

1. Remove the air return grill and detach the panel corner covers from the panel.
2. Align the panel to the cassette unit. The panel has markings at the corners to help determine the drain corner and refrigerant port corner.
3. Hang the hanging hooks on the panel to the metal taps on the unit, then tighten the screws until the panel is lightly press against the ceiling.



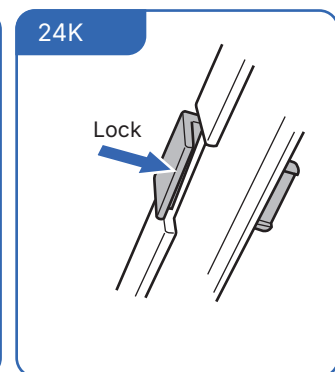
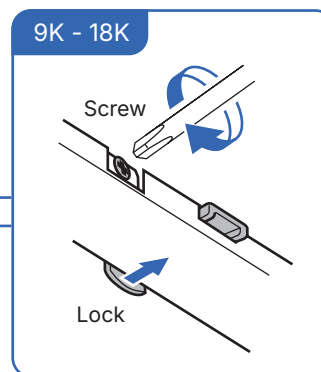
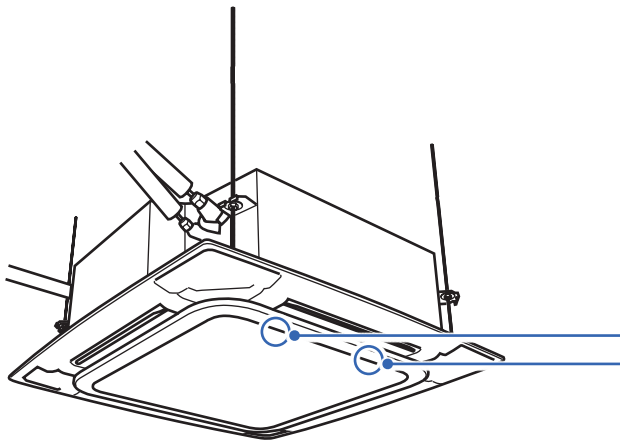
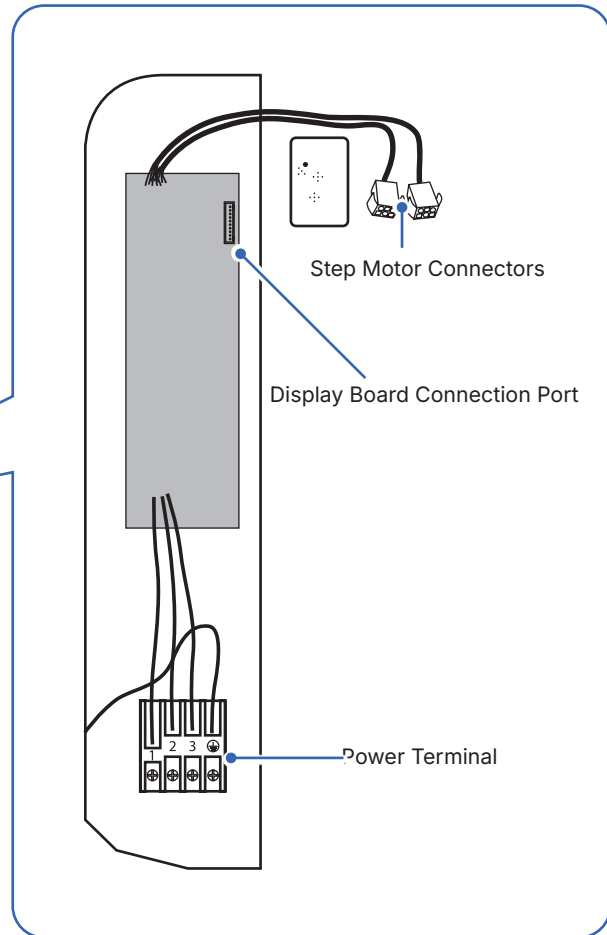
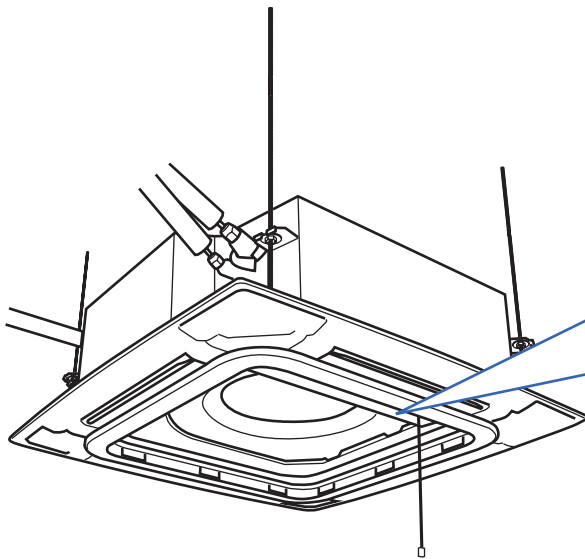
QUICK TIPS

- Markings on the panel indicates the pipe and drain side.
- Arrange the electrical cable from the panel so that it does not get pinched between the panel and the cassette unit.

Indoor Unit Installation (Cassette Type Indoor Unit)

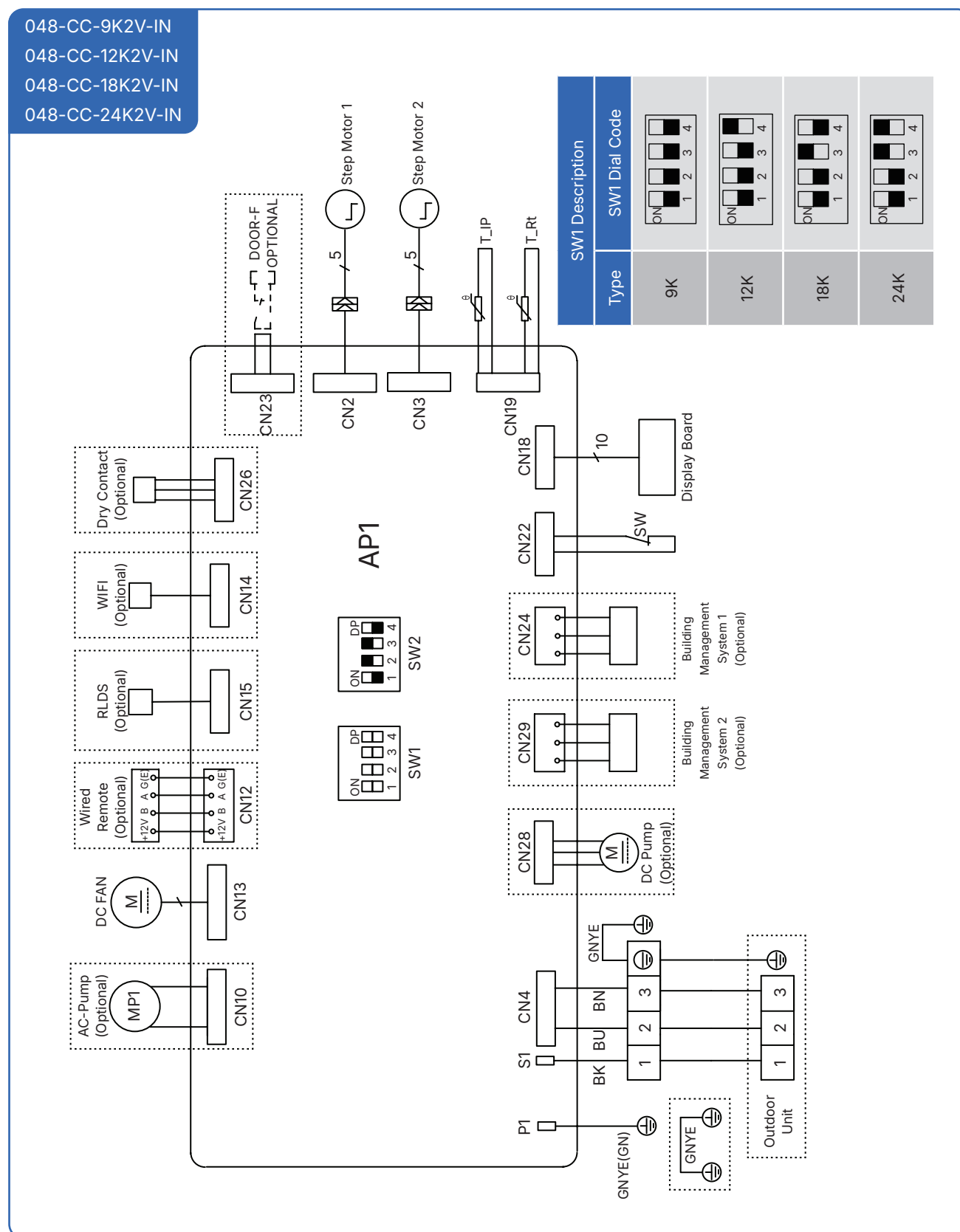
Connecting the Cable from the Panel to The Cassette Unit

1. Connect the cables from the panel to the ports on the cassette unit.
2. Manage the cables using zip ties and arrange them away from movable parts and avoid obstructing the air return.
3. Attach the terminal covers back to its original place.
4. Reattach the air return grill onto the panel.



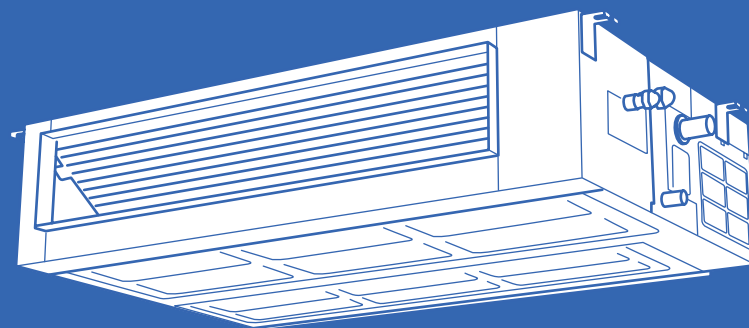
Indoor Unit Installation (Cassette Type Indoor Unit)

Indoor Unit Circuit Diagram (Cassette Type)



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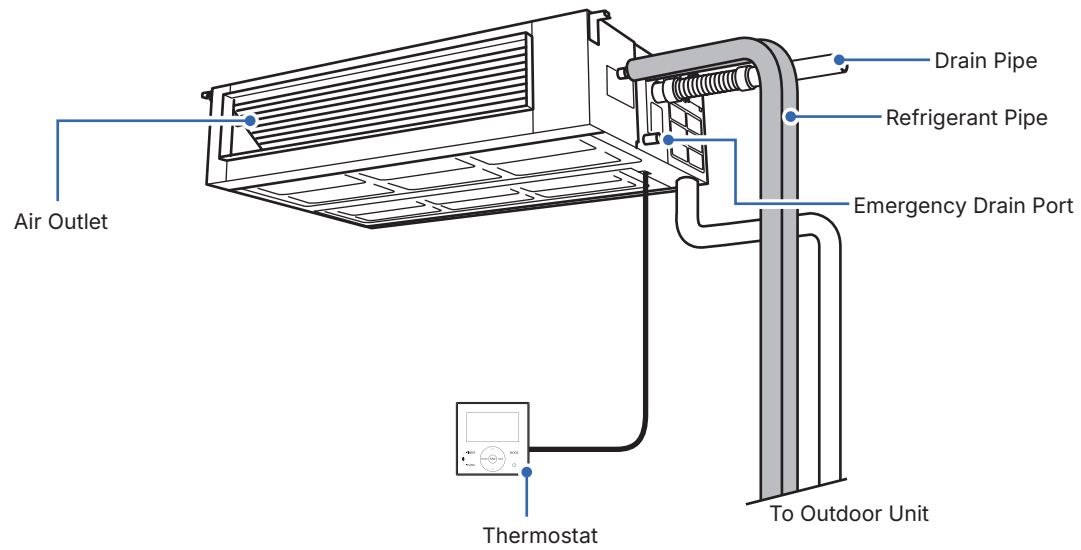




Concealed Duct Type Indoor Unit

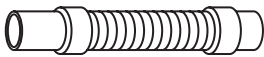
Installation Guide

Name of Parts



Name of Parts

Included Accessories (for each concealed duct indoor unit)



Flexible Drain Hose
1x



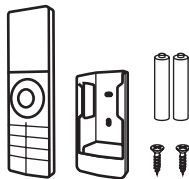
Hose Clamp
1x



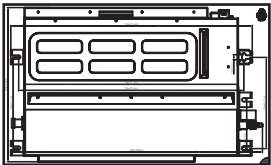
Rubber Foot Pad
4x



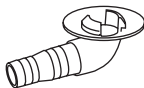
Communication Cable
1x



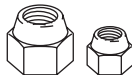
Remote Control, Holder 1x
Battery 2x



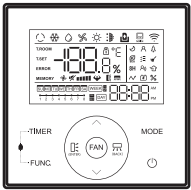
Installation Template
1x



Drainage Joint
1x



Brass Nut Set
2x



Thermostat
1x



1/2" Male to 3/8" Female
Lineset Converter ¹



5/8" Male to 3/8" Female
Lineset Converter ²

NOTE: ^{1 2} Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant pipe.

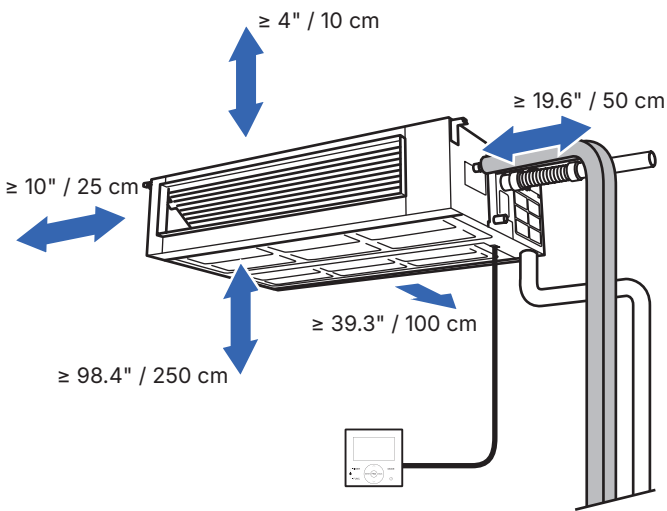
Name of Parts

Tools Needed for Concealed Duct Indoor Unit (Not included)

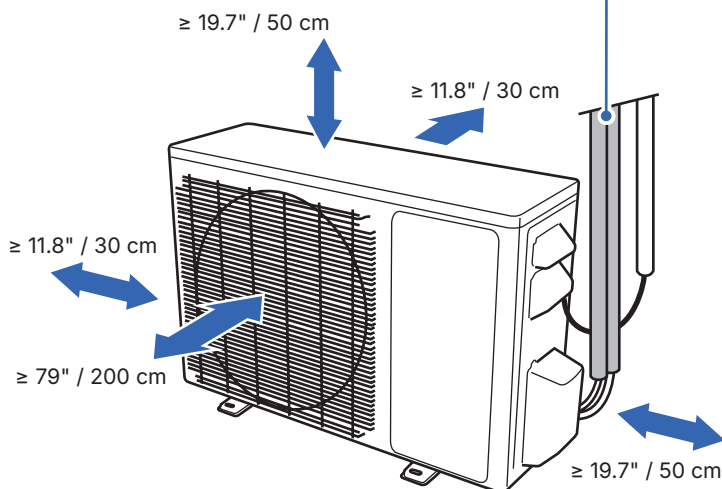
- Screw Driver
- Hole Saw Ø2.75" / Ø70mm
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Bullseye Spirit Level
- Stud Finder
- Thermometer
- Vacuum Pump
- Dry Wall Anchors / Molly Bolts
- Wood Screws
- Floor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- HVAC sealant / Nylog
- Caulk
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

NOTE: Tools marked with * are needed for shortening the refrigerant pipe and / or electrical wire to the exact desired length.
ONLY a qualified HVAC technician should attempt altering the pipe length and / or the wire length.

Installation Preview (Concealed Duct Type Indoor Unit)



	MODU - 1D2	MODU - 1D3	MODU - 1D4	MODU - 1D5
Standard Length per Indoor Unit	16.4 ft / 5 m			
Max. Distance per Indoor Unit	82 ft / 25 m	98 ft / 30 m		
Max. Elevation per Indoor Unit	49 ft / 15 m			



- 1 Choose the installation location
Page 17
- 2 Ceiling hole, refrigerant pipe, drain hose, and electrical cable preparation
Page 68
- 3 Installing hanging rod
Page 69
- 4 Hanging the indoor unit
Page 70
- 5 Connect air duct to the indoor unit
Page 71
- 6 Indoor unit connection
 - Connect the drain hose to the indoor unit
Page 72
 - Pass the electrical wire into the indoor unit
Page 74
 - Connect the refrigerant pipe to the indoor unit
Page 78
- 7 Installing Thermostat
Page 81
- 8 Placing the outdoor unit
Page 107-108
- 9 Connection between indoor and outdoor unit
 - Connect the refrigerant pipes
Page 110, 111
 - Connect the electrical wires
Page 112
- 10 Vacuum pumping
Page 118-127
- 11 Finishing
Page 128
- 12 Check list
Page 130
- 13 Test run
Page 131

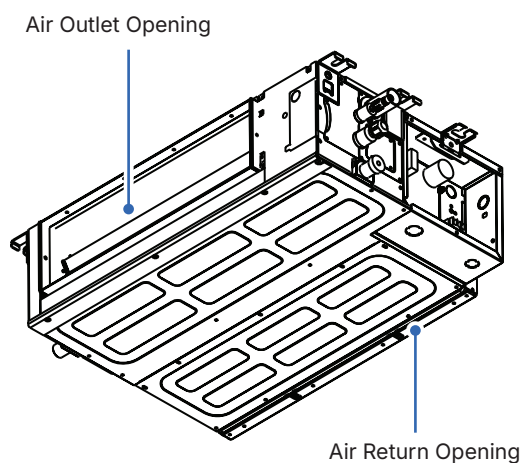
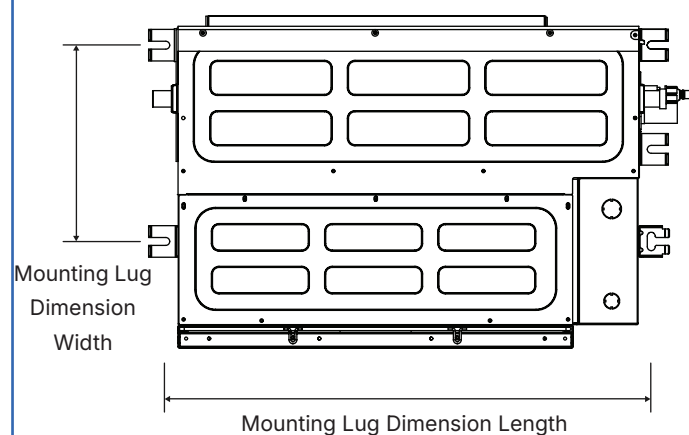
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Indoor Unit Dimension

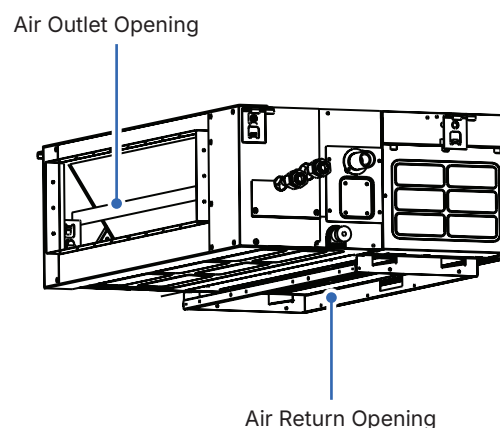
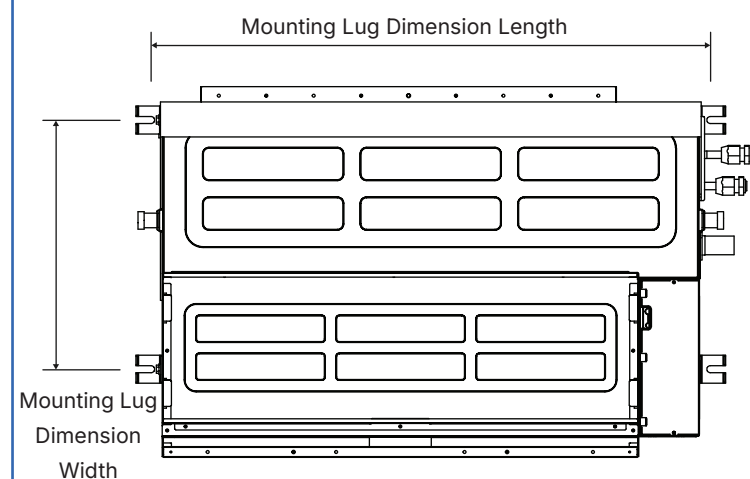
048-DC-9K2V-IN

048-DC-12K2V-IN

048-DC-18K2V-IN



048-DC-24K2V-IN



	Mounting Lug Dimension		Air Outlet Opening		Air Return Opening	
	Length	Width	Length	Width	Length	Width
9 - 12K	738	298	510	140	600	187
18K	958	298	730	140	820	187
24K	1138	365	930	140	1030	183

Unit in millimeter (mm)

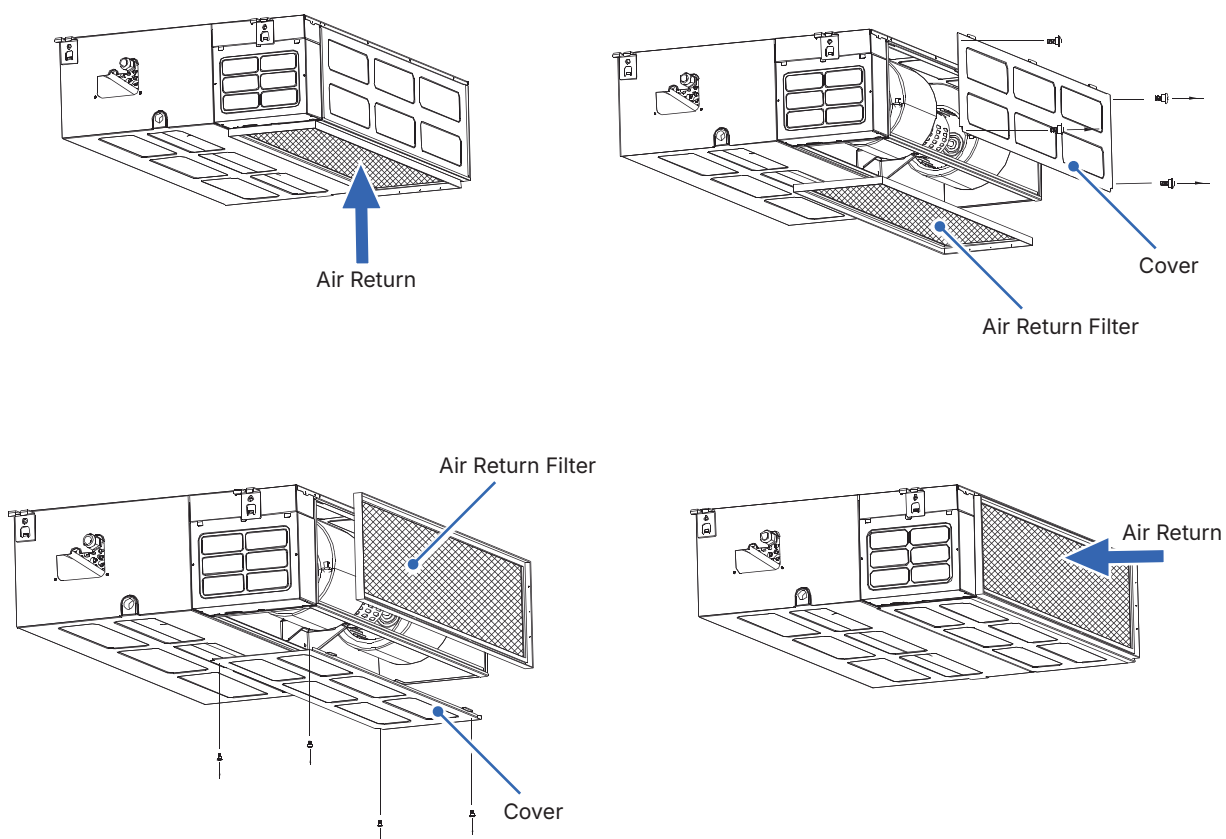
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Deciding Air Return Position

The indoor unit is fitted with the air return at the bottom position.

Swap the air return and cover plate position to change the air return to the back position.

1. Remove the air return filter and the back cover from the indoor unit.
2. Re-install the cover to the bottom of the indoor unit and the air return filter to the back.



Indoor Unit Installation (Concealed Duct Type Indoor Unit)

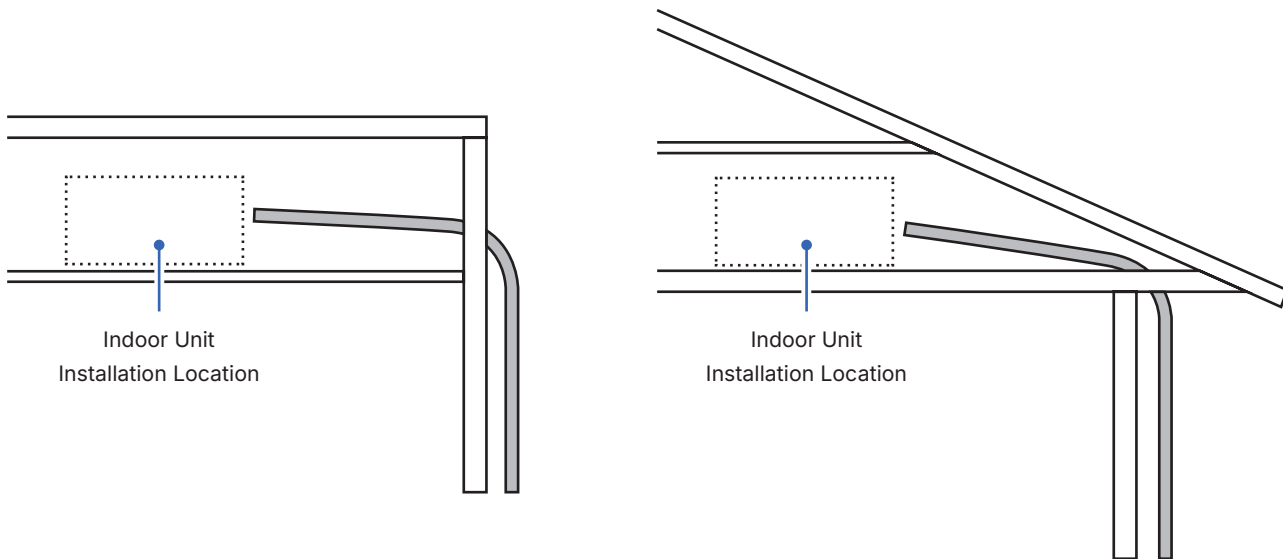
Prepare Refrigerant Lineset, Drain Pipe, and Electrical Cable

1. Route the refrigerant lineset, drain pipe, and electrical cable from the indoor unit installation location to the outdoor unit installation location.

Detail information on handling refrigerant line set on [Page 76](#) .

Detail information on drain pipe on [Page 72](#) .

2. Depending on the building, you can route the lineset toward the outside through an opening on the wall or the soffit.



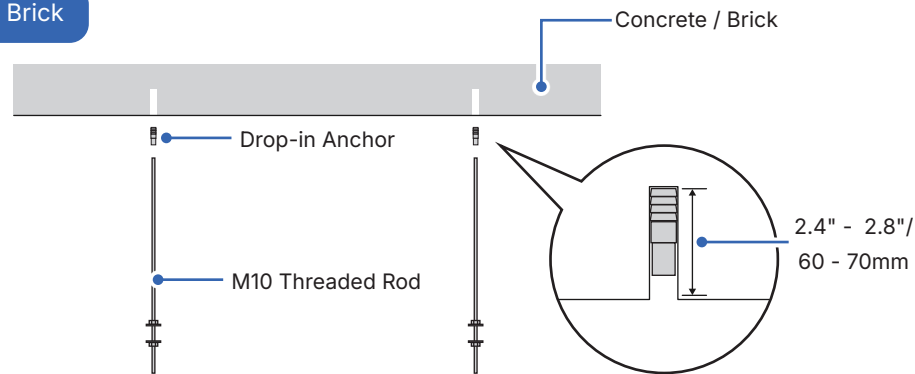
- Always insert the sleeve into the wall hole and seal the surrounding with putty / caulk. This will prevent water, insects, or small animals from getting into the house.

Indoor Unit Installation (Concealed Duct Type Indoor Unit)

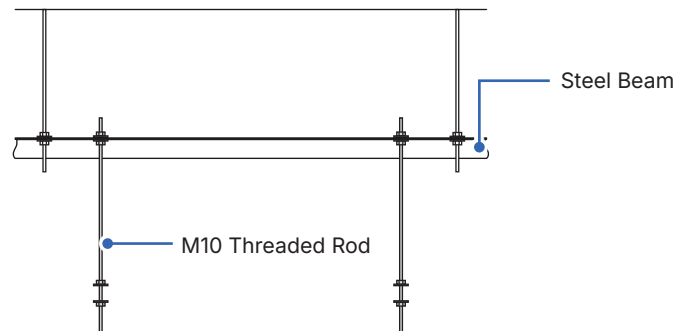
Attaching Threaded Rods for Hanging

1. Using the installation template and mark the threaded rods attaching locations.
Make sure the indoor unit refrigerant ports and drain port is facing the pre-routed refrigerant lineset and drain pipe.
2. Drill pilot holes on the marks.
3. Choose and attach the suitable anchor for your structure ceiling.
4. Cut M10 threaded rods into correct length and attach them into the anchors.

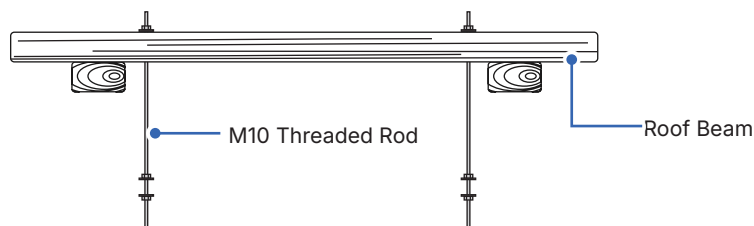
On Concrete / Brick



On Steel Beam



On Wood Beam



- It is recommended to use threaded rod wrench to tighten the threaded rod into the drop in anchor and make sure it can support the weight of the cassette unit and withstand operating vibration.

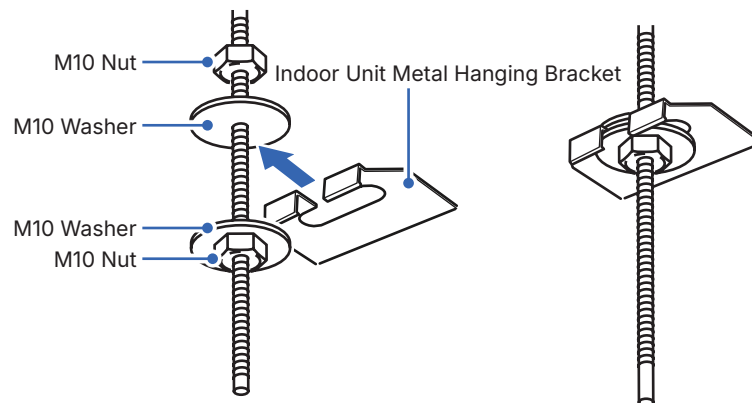
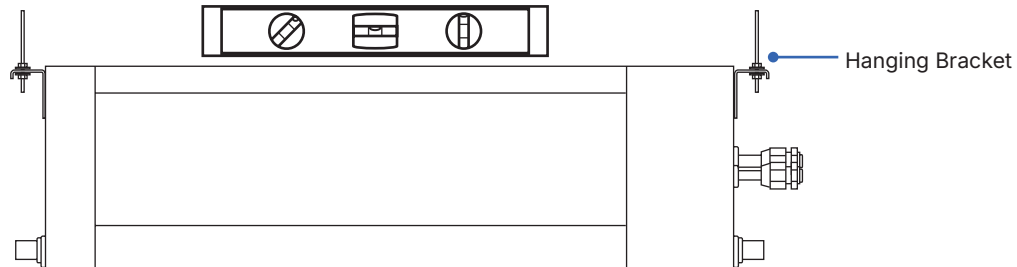
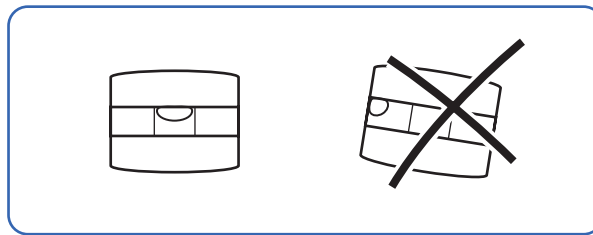
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Hanging the Indoor Unit

1. Attach M10 nuts and M10 washers to the threaded rod at the hanging height.
2. Hang the hanging brackets to the M10 washers.
3. Level the unit all around with a bullseye spirit level and tighten the M10 nuts to secure the unit in place.



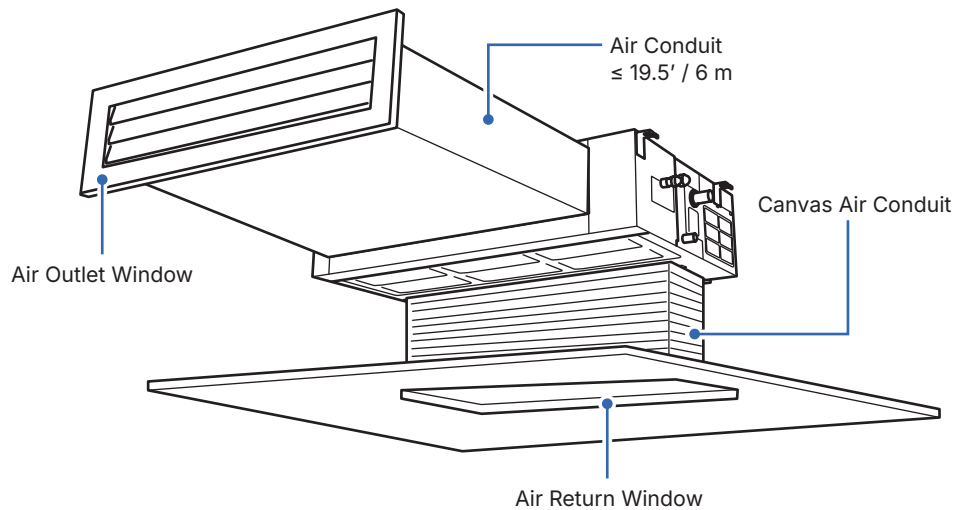
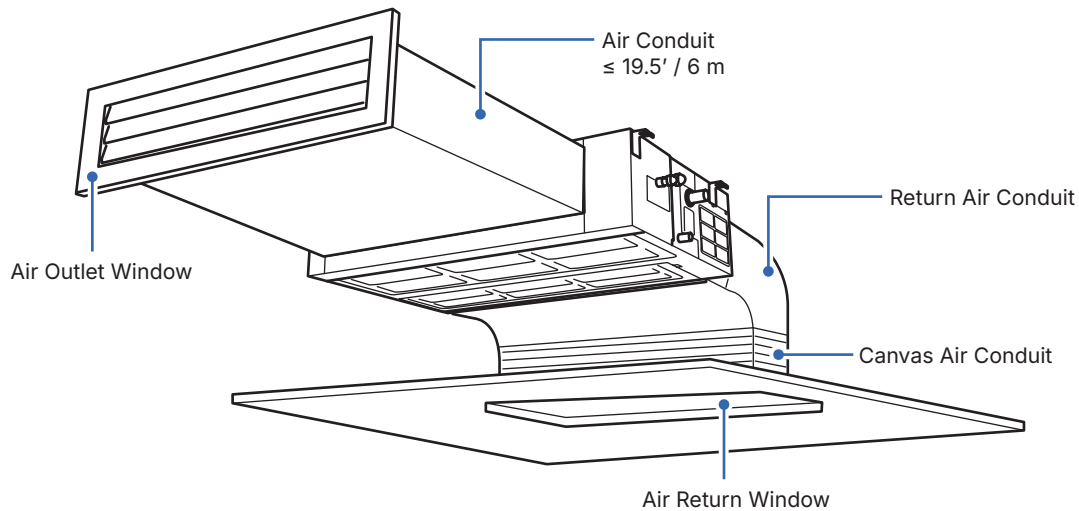
- Lift the indoor unit to the ceiling with 2 people, or with the help of a power lifter. Carrying the indoor unit alone without assistant would result in injury.
- A bull's eye level is recommended to be used to level the indoor unit. The indoor unit is equipped with a built-in drain pump and float switch. Failing to level the unit may cause float switch to malfunction and cause water leakage.



Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Connect Air Duct

1. Attach one end of the air conduit to the indoor unit air outlet by rivet, the other end to a air outlet window in the room. Make sure the total length should be within 19.6ft or 6m.
2. Connect a canvas air conduit to the indoor unit air return and the other end to a air return window.



- In the case of using a round air outlet window, connect the indoor unit to a rectangular to round transition conduit.
- Air outlet conduit and return conduit should be equipped with heat-insulating layer to minimize energy loss in transmission process and limit condensation from forming.
- Air conduit and return conduit should be secured in place with suspension rod. All connection should be tightly sealed by gasket cement.
- To minimize energy loss, air pipe and air conduit should be equipped with heat-insulating layers.

Indoor Unit Installation (Concealed Duct Type Indoor Unit)

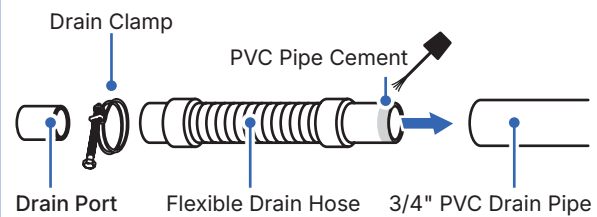
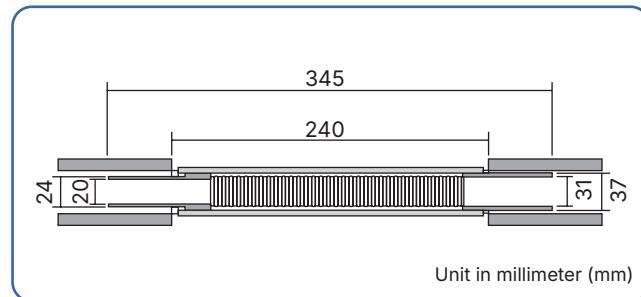
Connect Drain Hose

1. Attach drain pipe to the indoor unit.
2. Make sure the connection is tightly secured.
3. Wrap the connection and the drain pipe with insulating foam.

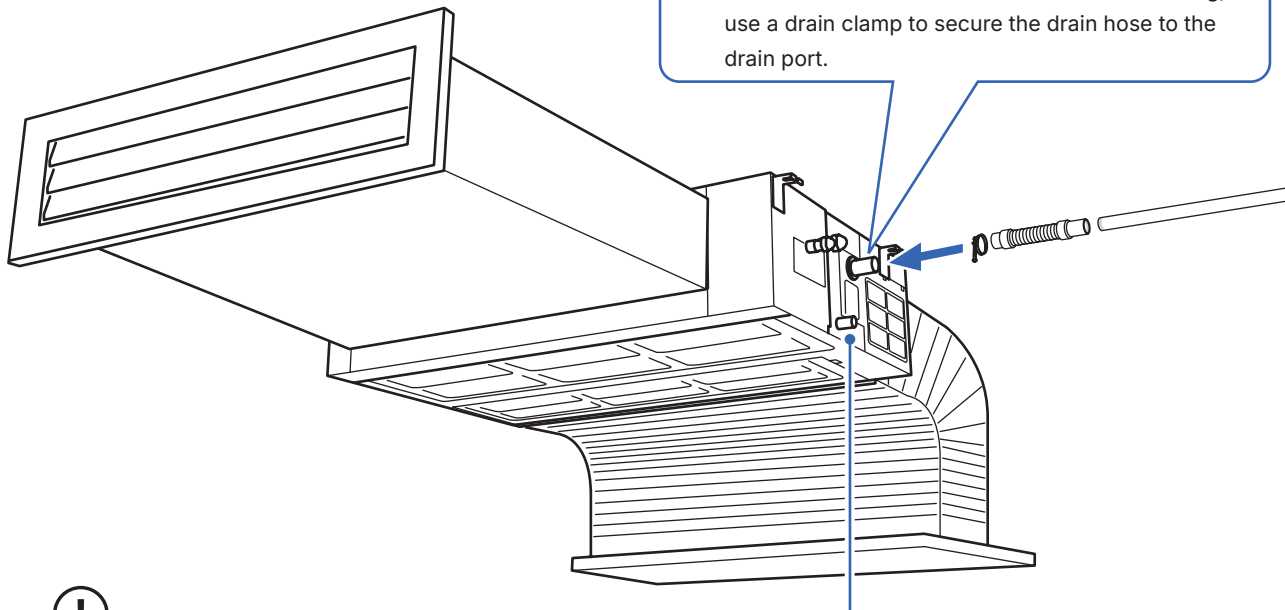


- The drain pipe and all its connection must be wrapped with insulating foam to prevent condensation from building up on the pipe's surface, which may result in water dripping in the ceiling.
- The following should be used for drain pipe installation:

Drainage Pipe Material	Ø24mm or 3/4" Polyvinyl Chloride (PVC) pipe
Heat Insulation Material	10mm Thick Foamed Polyethylene Insulation Plate



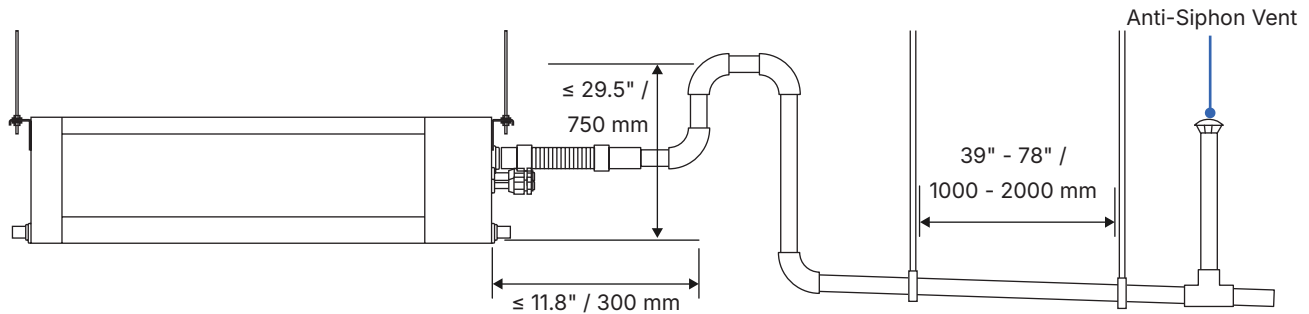
- For the ease of future maintenance and servicing, use a drain clamp to secure the drain hose to the drain port.



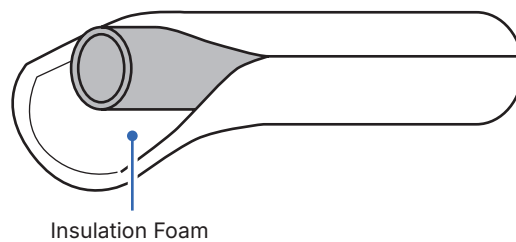
- The transparent drain port should only be used during maintenance or service work. It should be plugged during normal operation.
- Do not connect the drain pipe to the transparent drain port.
- Transparent drain port can be connected to a Ø21mm drain pipe during maintenance or service work.

Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Connect Drain Hose



- A water pipe trap should be installed near the opening of the drain pipe to create a barrier that prevents harmful and foul-smelling gases from back flowing into the indoor unit.
- When using a long drain pipe, hang the pipe in place every 39" - 78".

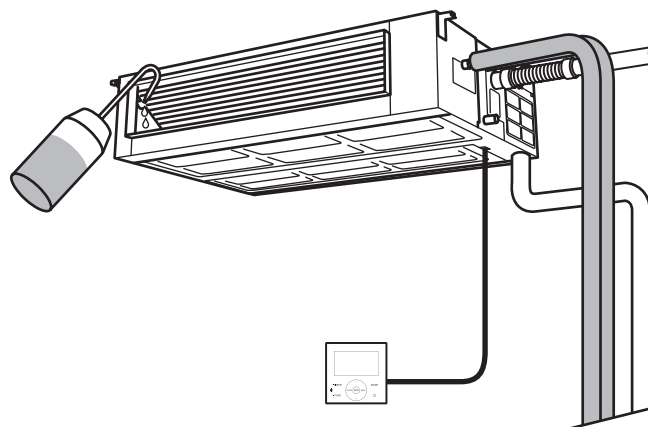


- Wrap the drain hose, drain pipe, and all connections with insulation foam. (10mm thick foamed polyethylene insulation plate)

Drain Test

Perform a drain test after installing the whole unit to check if there is any water leak.

1. Temporarily disconnect the air conduit from the air outlet.
2. Turn on the AC and set it in COOL mode.
3. Slowly pour 1000 ml of water into the drain pain via the air outlet opening and make sure there is no leakage or back flow of water.
4. After the drain test, reconnect the air conduit to the air outlet.

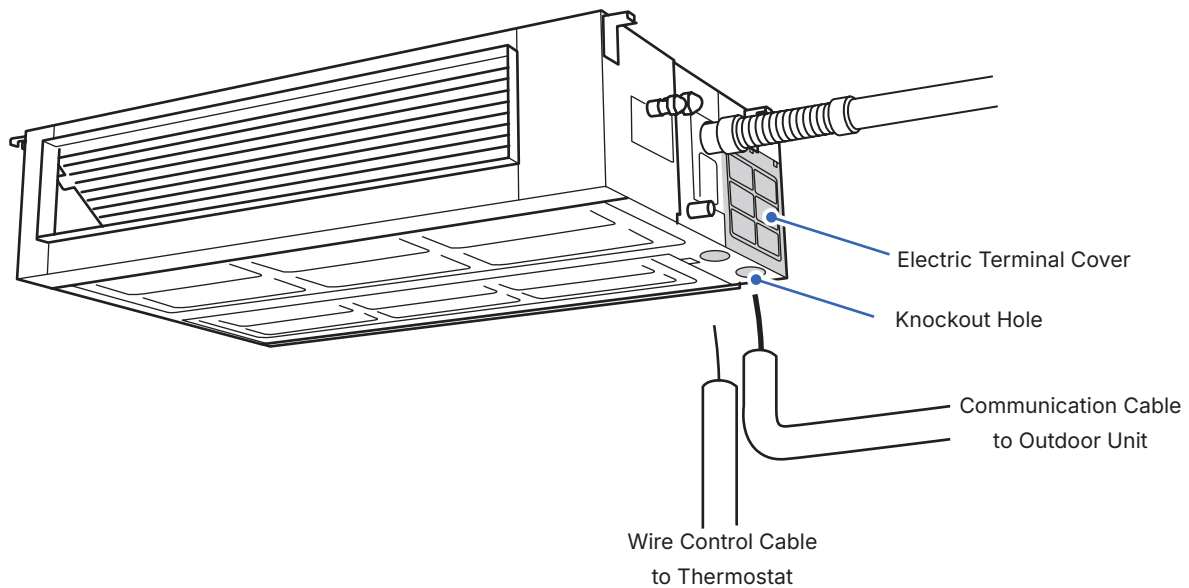


Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Connecting the Communication Cables

1. Feed communication cable into a electrical conduit that leads to the wall hole.
2. Feed thermostat cable into another electrical conduit.
3. Remove the terminal covers from the indoor unit.
4. Punch out the knockout hole on underneath the terminal.
5. Insert the electrical cable through the knock out hole into the terminal
6. Connect the wires to the corresponding terminal and secure the cable using the cable clamp.
7. Put the terminal cover back in place.

NOTE: Exact electrical diagram can be found on the back of the terminal cover.

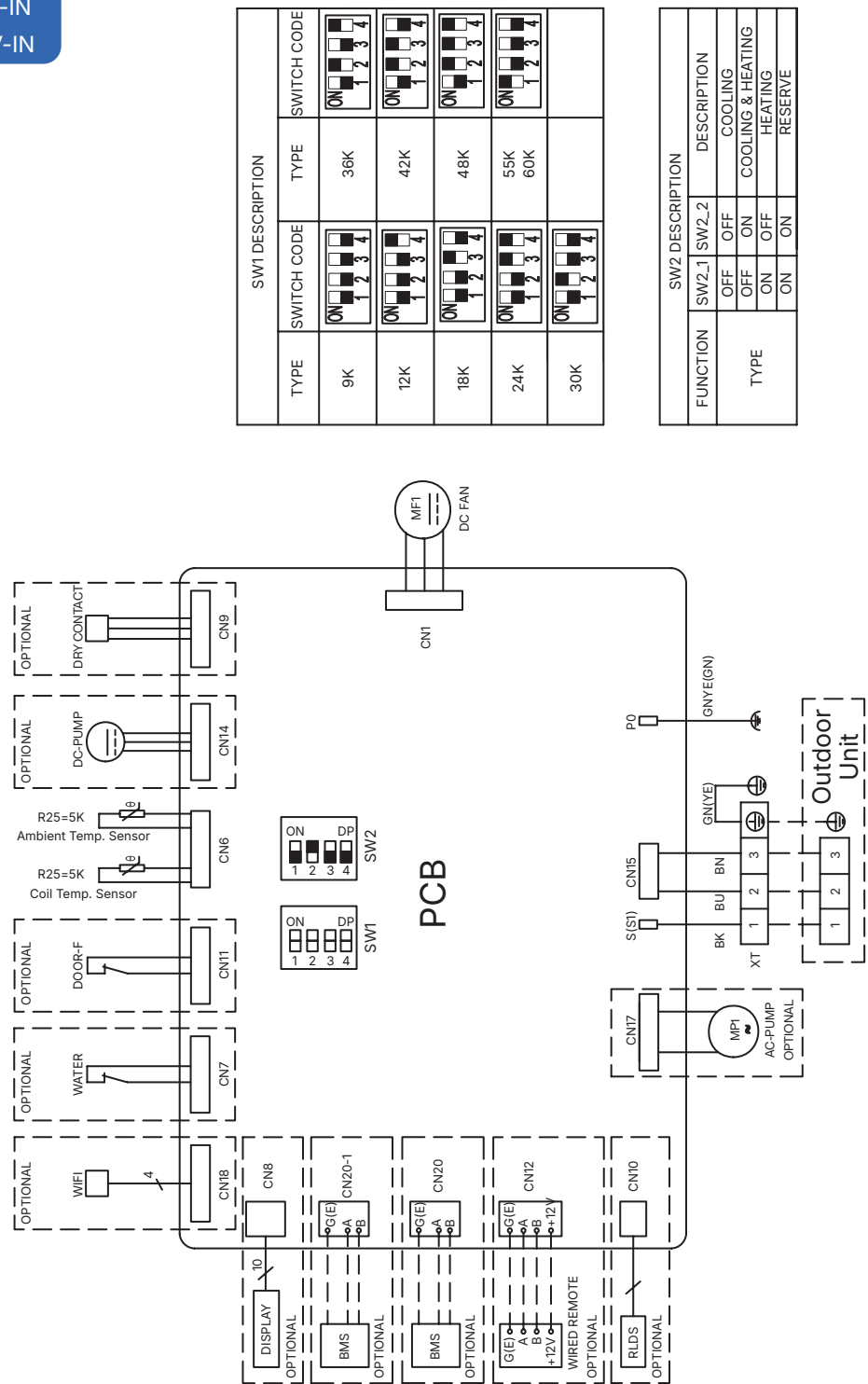


- Purchase communication cable that is 3 - 4 ft longer than your planned refrigerant lineset length.
- Do not modify the communication cable by extending the cable.

Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Indoor Unit Circuit Diagram

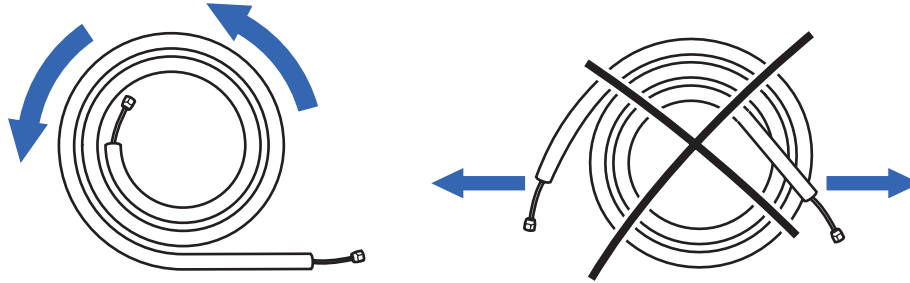
048-DC-9K2V-IN
048-DC-12K2V-IN
048-DC-18K2V-IN
048-DC-24K2V-IN



Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Preparing the Refrigerant Pipe

1. Unroll the included refrigerant pipe.



- Do not pull the refrigerant pipe to prevent the pipe from kinking or bending.

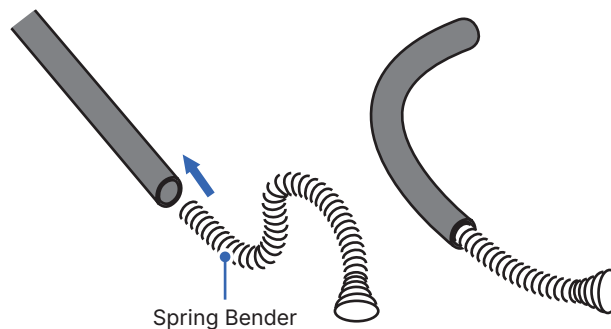
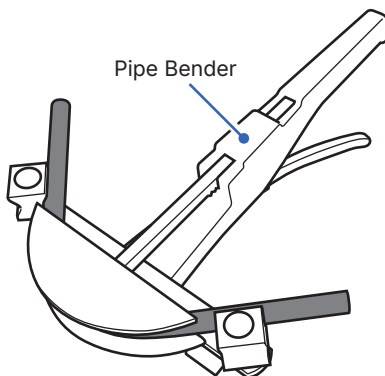
2. Remove the cover and make sure the ports are clean and smooth.



3. In the case of a imperfect flaring or the pipe needs to be shorten for the installation, refrigerant pipe should be cut and flare by qualified technician.



- Use a pipe bender or spring bender to shape the refrigerant pipes along wall and corners. Bending the pipe without bending tools would easily kink or damage the pipe, which would cause refrigerant starvation, or leakage in the system.



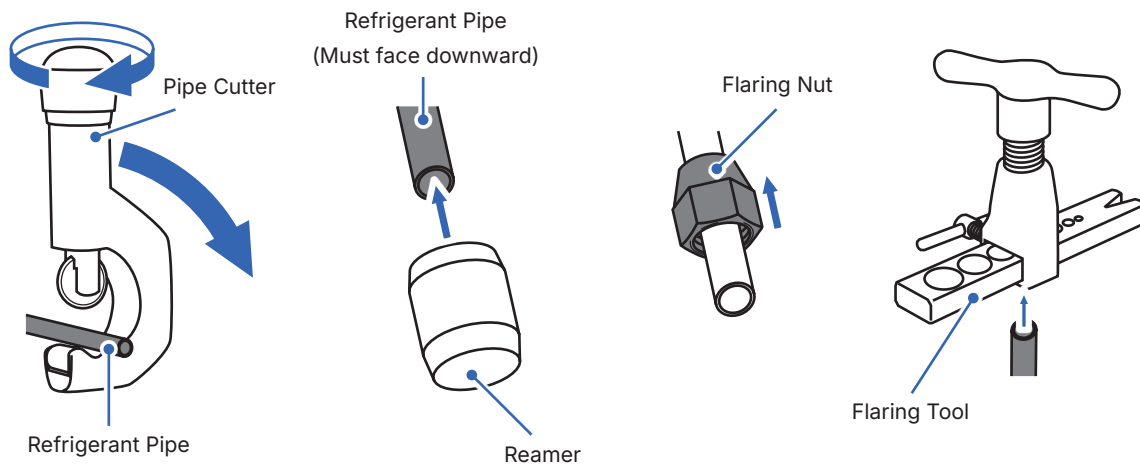
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Cutting and Flaring Refrigerant Pipe



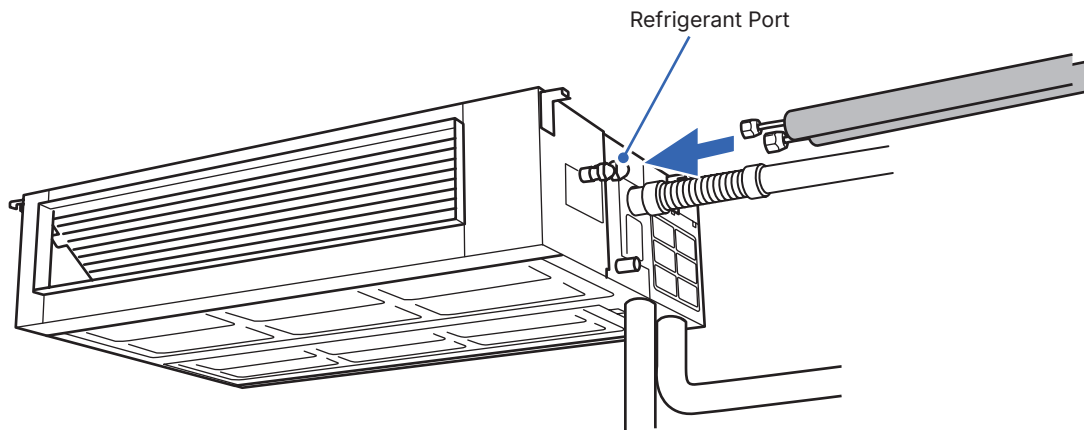
- Any refrigerant pipe alteration should only be done by qualified technician. Incorrect work may cause refrigerant leak, reduce cooling / heating efficiency, damage to the unit. Warranty does not cover any damage(s) caused by incorrect refrigerant pipe alteration.

- Cut the copper pipe with a pipe cutter.
- Remove any burrs or rough edges with a reamer with the pipe facing downward.
NOTE: The opening of the pipe must face toward the ground to prevent chips or dust from entering the pipe.
- Insert the flare nut to the pipe.
- Use the flaring tool to flare the copper pipe. The flaring angle must match to that of the refrigerant lines from the unit.

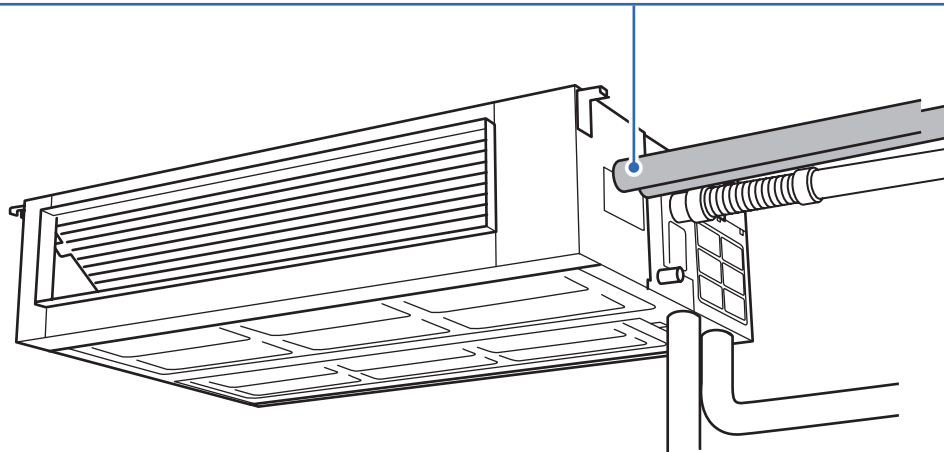


Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Connecting Refrigerant Pipe to the Indoor Unit



- The refrigerant pipe and connection joint should be wrapped in heat insulating materials and prevent the formation of condensed air.



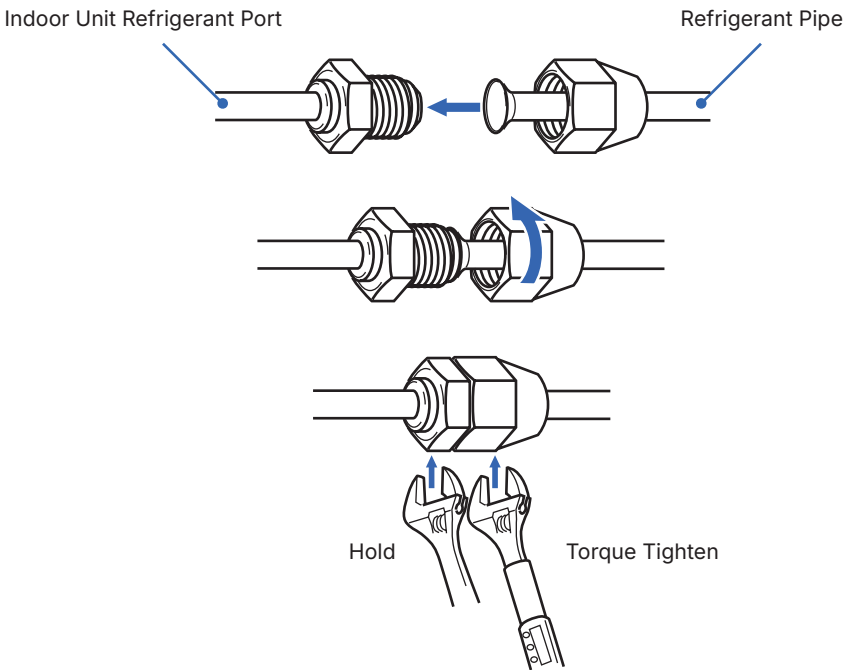
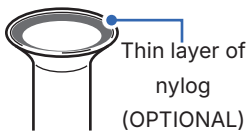
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Connecting Refrigerant Pipe to the Indoor Unit

- 1. Remove the protective caps from the refrigerant pipes and from the indoor unit refrigerant port.
- 2. Align the refrigerant pipe straight to the port, then tighten the nut by hand.
- 3. Use a torque wrench to tighten the nut according to the torque requirement.



- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.



Pipe Diameter	1/4" (φ6.35)	3/8" (φ9.52)	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

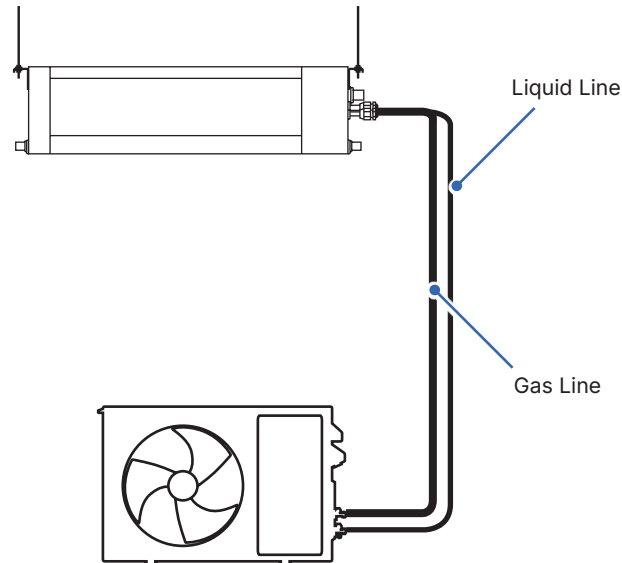


- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on [Page 15-16](#) .

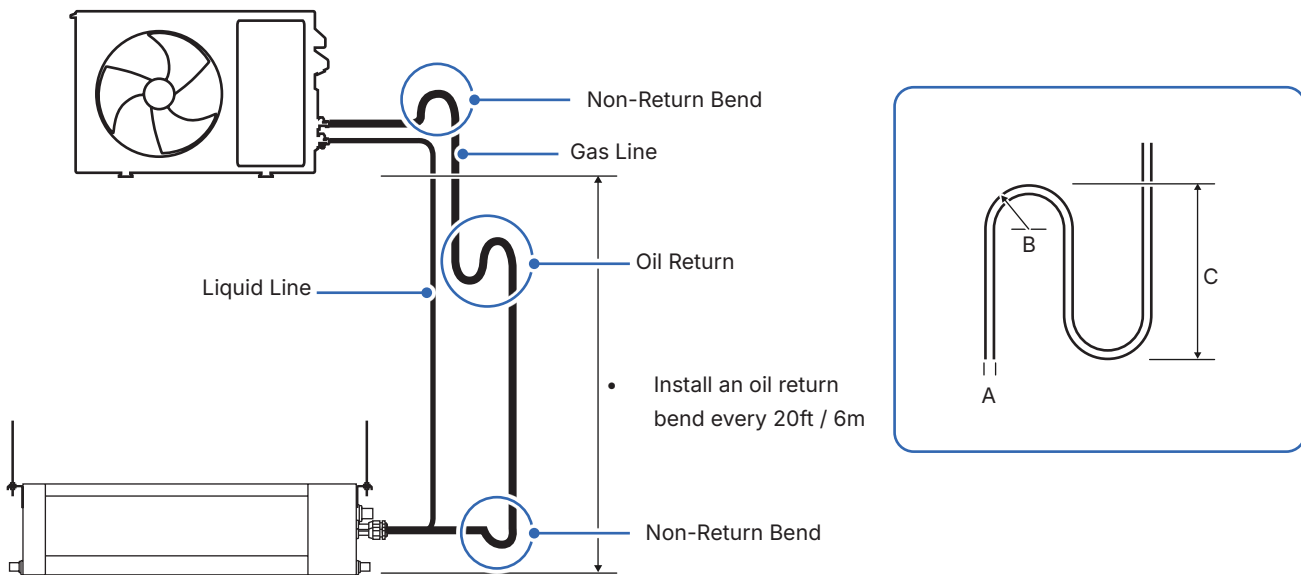
Indoor Unit Installation (Concealed Duct Type Indoor Unit)

Arrange Refrigerant Pipe to the Outdoor Unit

Outdoor Unit Below Indoor Unit



Outdoor Unit Above Indoor Unit



- Oil return bend and non-return bend at the lowest and highest position of the gas line is necessary when installing the outdoor unit above the indoor unit.
- Refrigerant pipe handling on [Page 76](#).

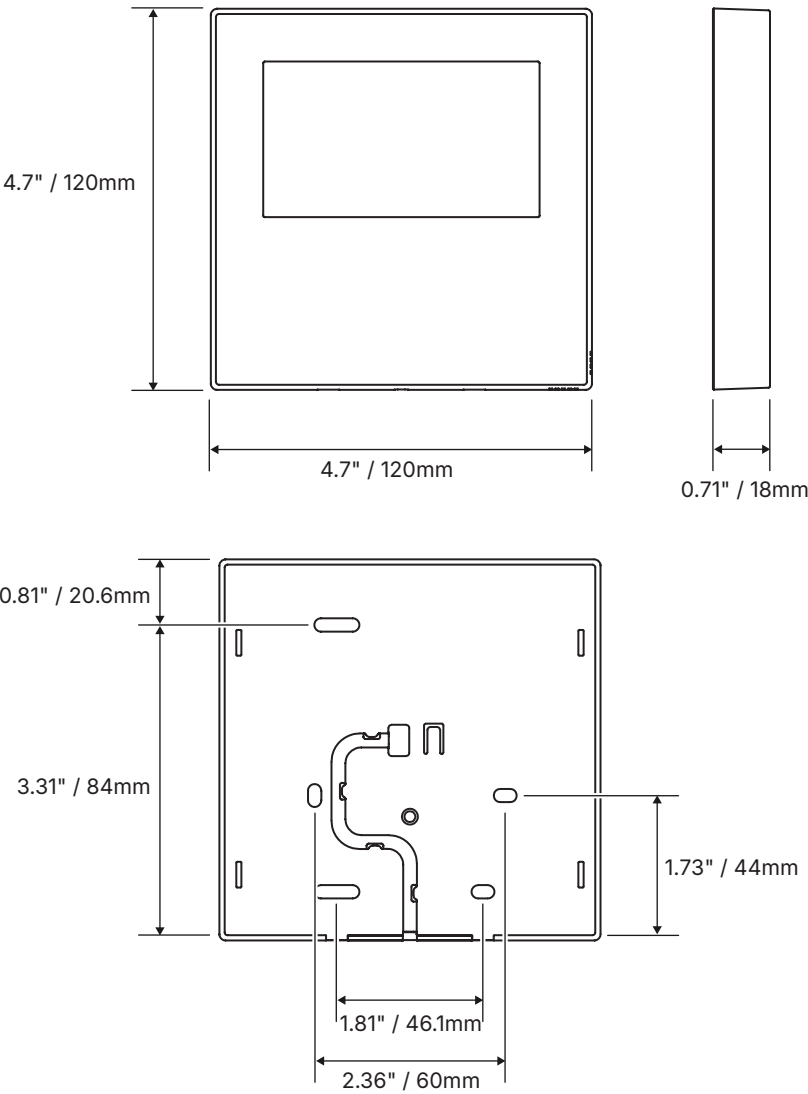
(A) Pipe Diameter	(B)	(C)
3/8"	≥20 mm	≤150 mm
1/2"	≥26 mm	≤150 mm
5/8"	≥33 mm	≤150 mm

Thermostat Installation

Specification

	048-T-CTRL
Input Voltage	DC 5V / 12V
Ambient Temperature Range	23°F - 110°F / -5°C - 43°C
Ambient Humidity Range	RH 40% - RH 90%
Wire Type	Shielded vinyl cord / cable
Wire Size	0.5 - 1.25mm ²
Wire Length	49ft / 15m

Dimension



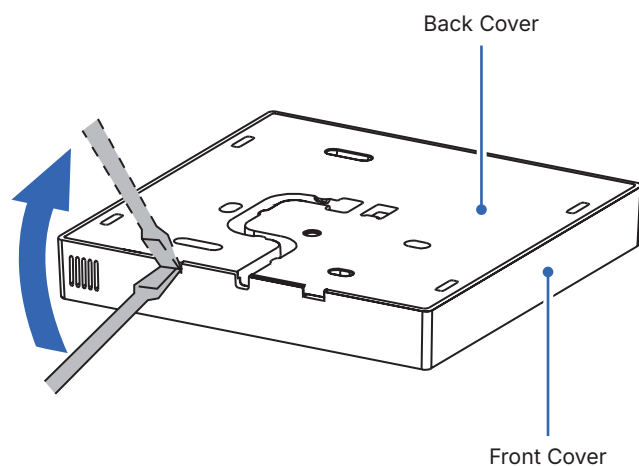
Thermostat Installation

Mounting the Thermostat

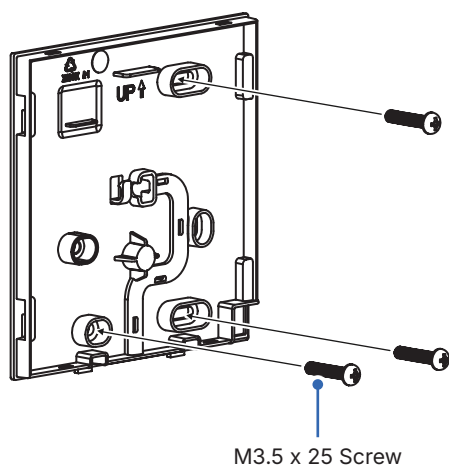
1. Use a flathead screwdriver to gently pry apart the back cover and the front cover.
2. Mount the back cover of the thermostat directly on the wall or on a 86 type (86mm x 86mm) switch box.



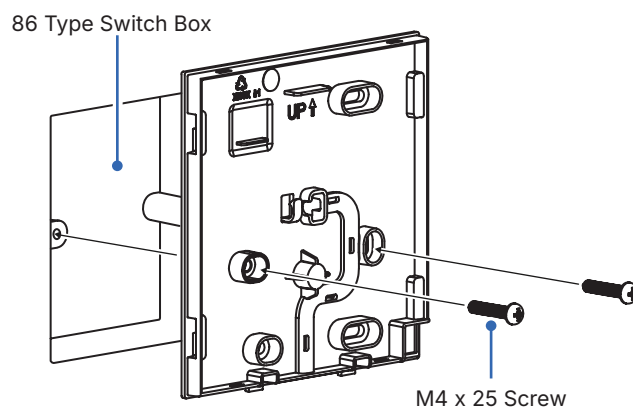
- Be careful when pry open the two halves and not damage the PCB on the front cover.



Mounting on Wall



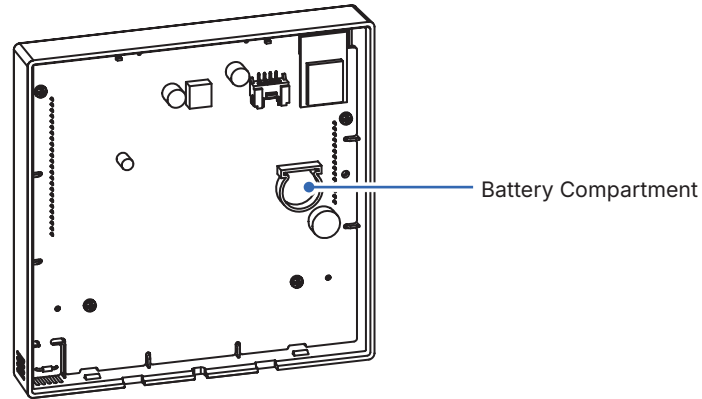
Mounting on 86 Type Switch Box



Thermostat Installation

Backup Battery (Optional)

- Backup battery can be installed into the thermostat's battery compartment.
- Backup battery provides power to the thermostat in case of power failure to ensure time keeping.

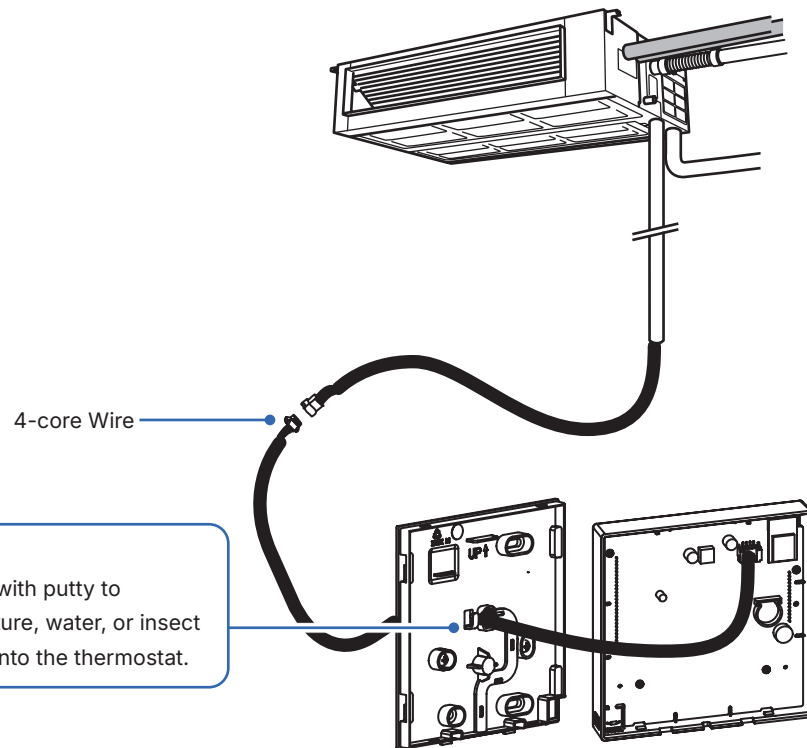


Wiring

1. Connect the wire control cable from the indoor unit to the thermostat.
2. Seal the gap between the wire and the opening on the thermostat's back cover with putty to prevent moisture, water, or insect from getting into the thermostat.

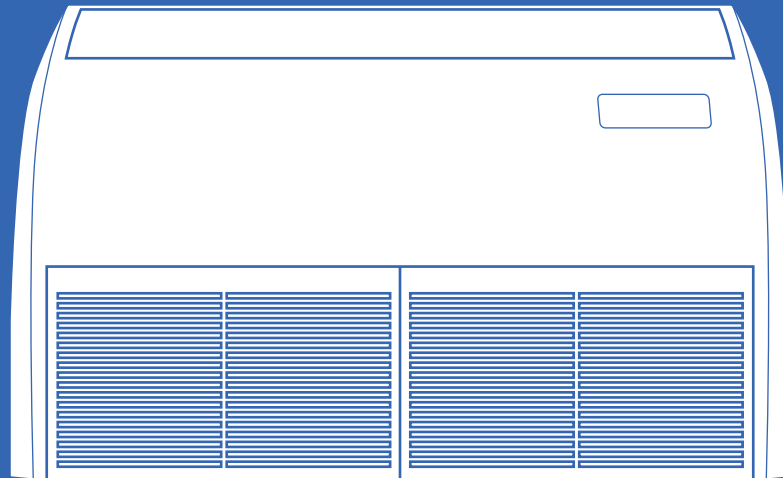


- The connection lug at the end of the shielded wire should be properly grounded.



- Seal the gap with putty to prevent moisture, water, or insect from getting into the thermostat.

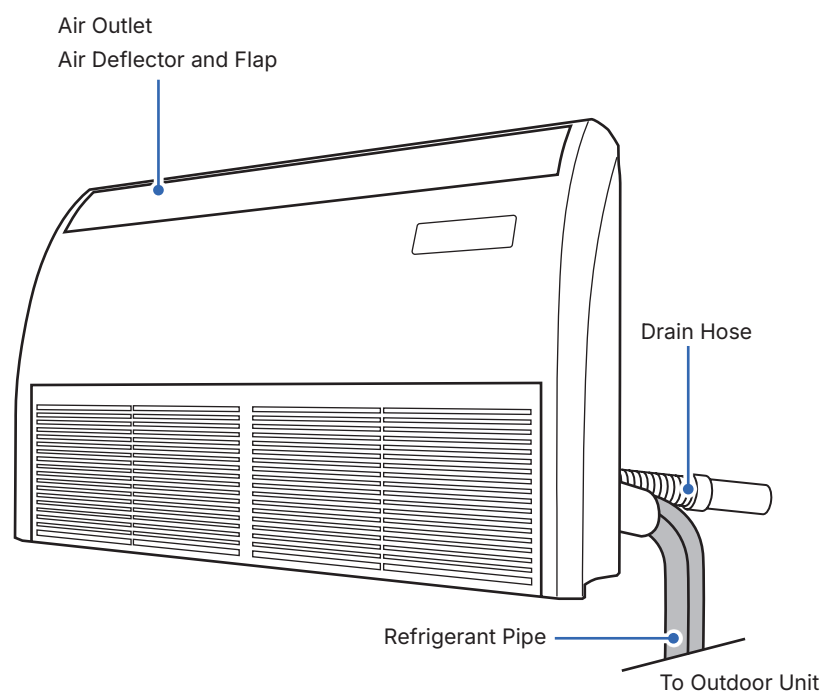
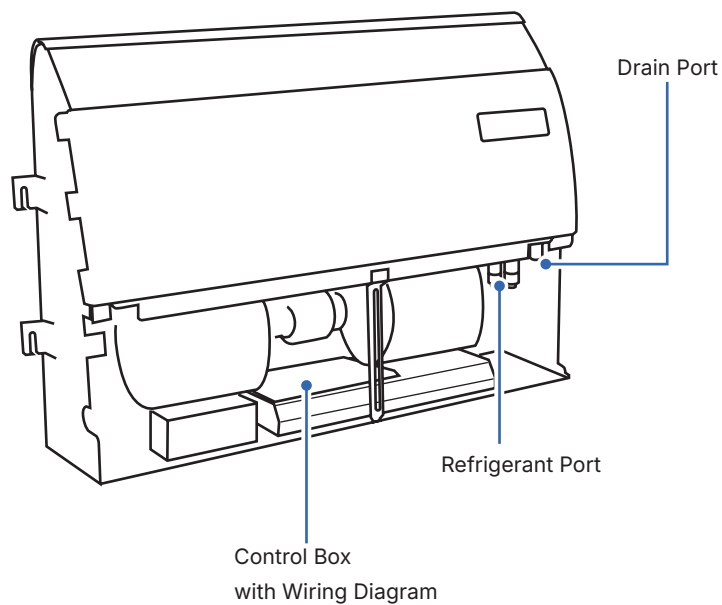




Floor Ceiling Type Indoor Unit

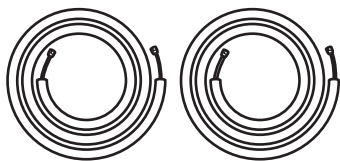
Installation Guide

Name of Parts



Name of Parts

Included Accessories (for each floor ceiling indoor unit)



Refrigerant Pipe
Narrow 1x
Thick 1x



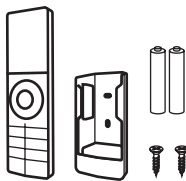
Flexible Drain Hose
1x



Drain Hose Clamp
1x



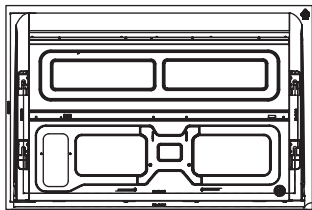
Rubber Foot Pad
4x



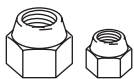
Remote Control, Holder 1x
Battery 2x



Communication Cable
1x



Installation Template
1x



Brass Nut Set
2x



1/2" Male to 3/8" Female
Lineset Converter ¹



5/8" Male to 3/8" Female
Lineset Converter ²

NOTE: ^{1 2} Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant pipe.

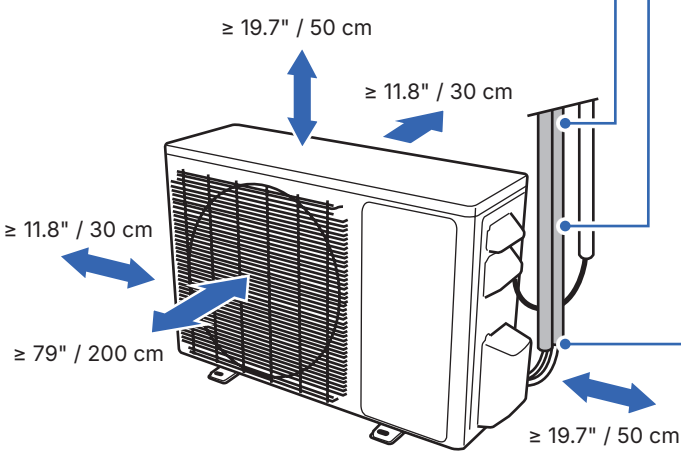
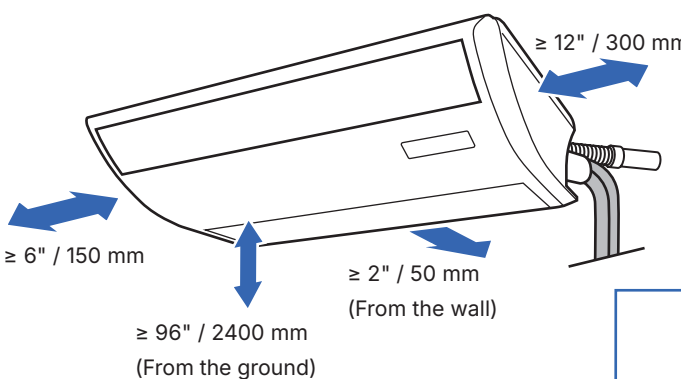
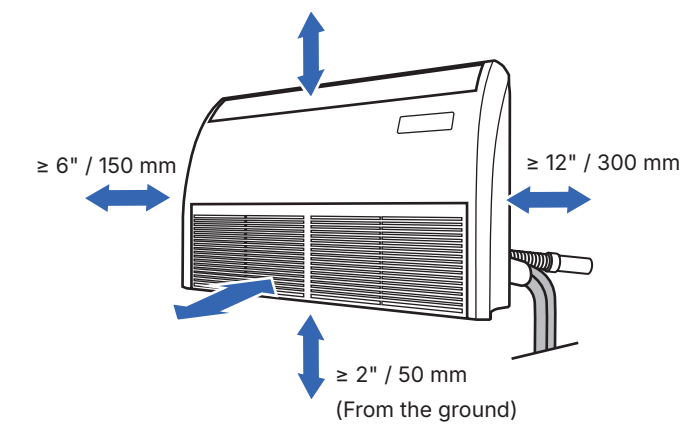
Name of Parts

Tools Needed for Floor Ceiling Indoor Unit (Not included)

- Screw Driver
- Hole Saw Ø2.75" / Ø70mm
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Bullseye Spirit Level
- Stud Finder
- Thermometer
- Vacuum Pump
- Dry Wall Anchors / Molly Bolts
- Wood Screws
- Floor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- Caulk
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

NOTE: Tools marked with * are needed for shortening the refrigerant pipe and / or electrical wire to the exact desired length.
ONLY a qualified HVAC technician should attempt altering the pipe length and / or the wire length.

Installation Preview (Floor Ceiling Type Indoor Unit)



- 1 Choose the installation location
Page 18
- 2 Drill wall hole and mounting indoor unit
Page 90
- 3 Indoor unit connection
 - Connect the drain hose to the indoor unit
Page 95
 - Pass the electrical wire into the indoor unit
Page 97
 - Connect the refrigerant pipe to the indoor unit
Page 101

	MODU - 1D2	MODU - 1D3	MODU - 1D4	MODU - 1D5
Standard Length per Indoor Unit	16.4 ft / 5 m			
Max. Distance per Indoor Unit	82 ft / 25 m	98 ft / 30 m		
Max. Elevation per Indoor Unit	49 ft / 15 m			

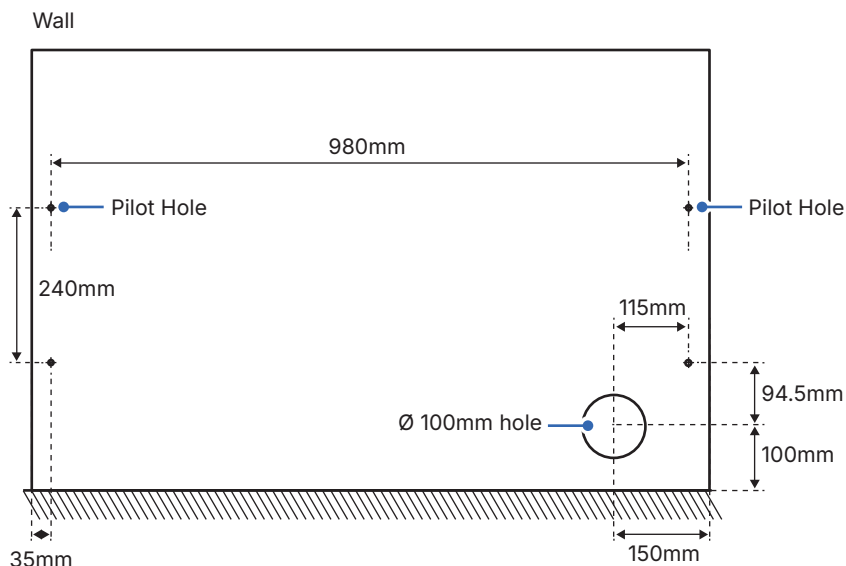
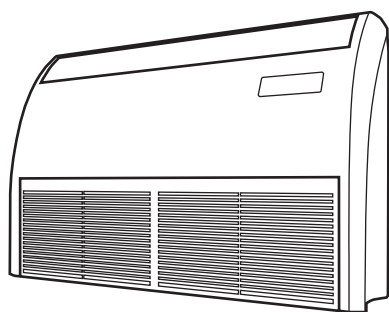
- 4 Placing the outdoor unit
Page 107-108
- 5 Connection between indoor and outdoor unit
 - Connect the refrigerant pipes
Page 110, 111
 - Connect the electrical wires
Page 112
- 6 Vacuum pumping
Page 118-127
- 7 Finishing
Page 128
- 8 Check list
Page 130
- 9 Test run
Page 131

Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

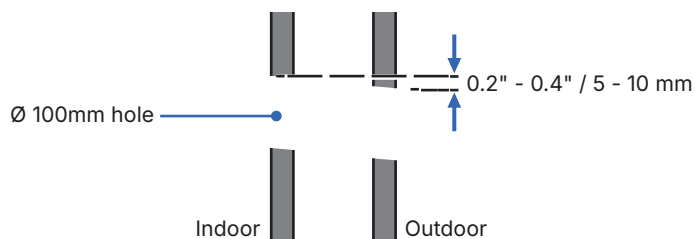
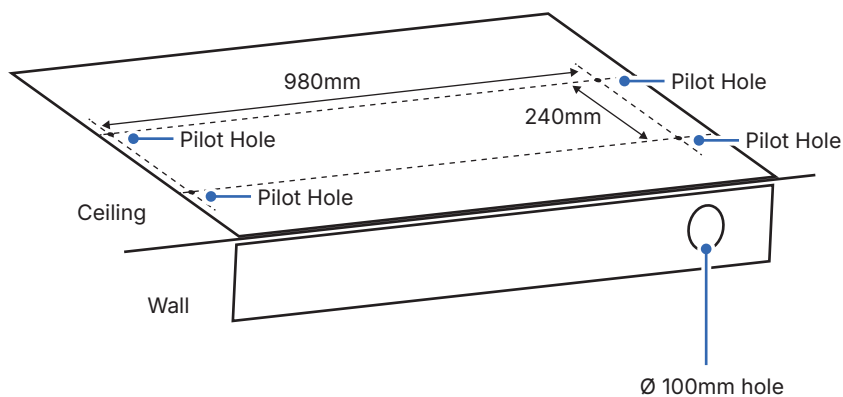
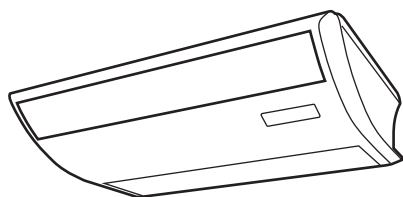
Drill holes on wall

1. Locate the studs and electrical wires inside the wall / ceiling. Then use the template included with the indoor unit or the etched marking on the indoor unit mounting plate to determine the exact mounting location.
2. Use a spirit level to level the mounting plate on the wall / ceiling. Then mark out the pilot hole positions.
3. Drill all the pilot holes for mounting and the lineset. The lineset pilot hole must be slanted downward.

Floor Mounting



Ceiling Mounting

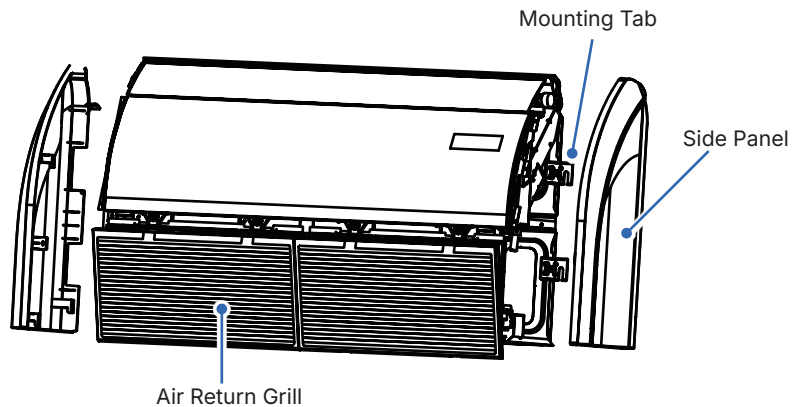


- Make sure there is no building structure pillar, stud, electrical wire, or any water pipes in the way of the drill hole. Drilling into electrical wires or water pipes inside the wall may cause electric shock, fire, or water damage.

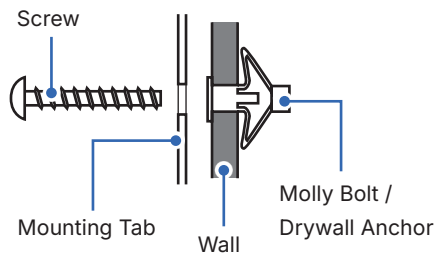
Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Mounting the indoor unit (Floor Mounting)

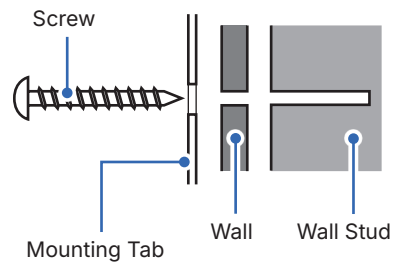
1. Insert anchors if you are planning to mount the unit on a drywall / concrete wall.
Use a wood screw if mounting the unit on wood stud.
2. Remove the side panels and air return grill from the indoor unit.
3. Mount the indoor unit on the wall.



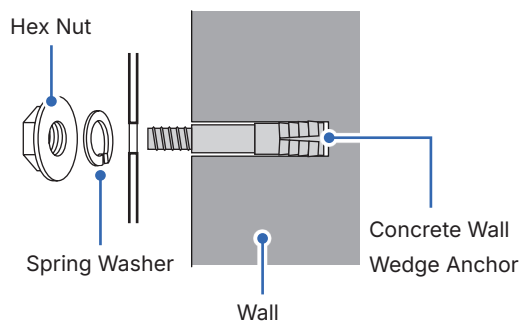
Hollow Drywall



Wood Stud



Concrete Wall



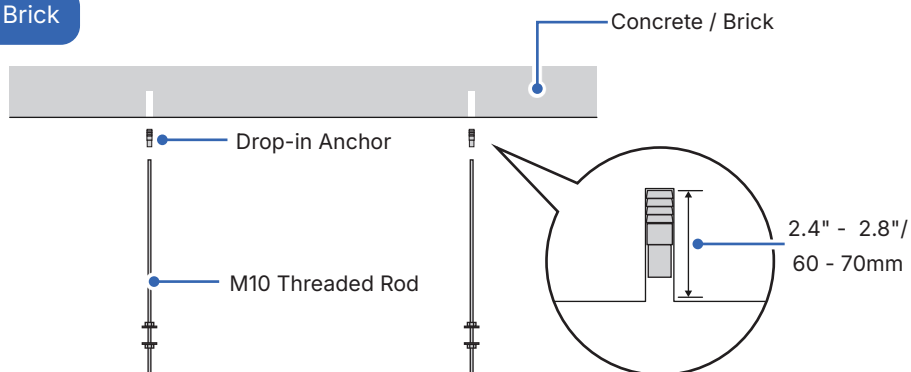
- You must use the correct wall anchor according to the type of the wall.

Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

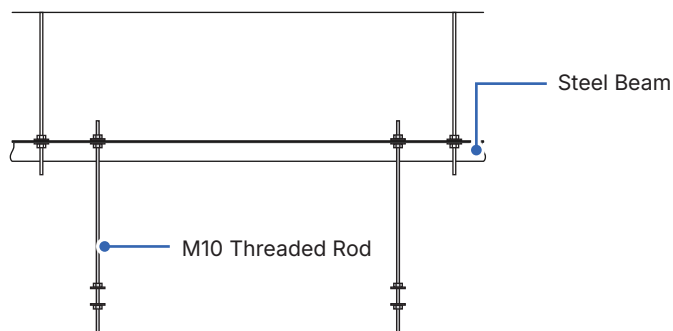
Mounting the indoor unit (Ceiling Mounting)

1. Choose and attach the suitable anchor for your structure ceiling.
2. Cut M10 threaded rods into correct length and attach them into the anchors.

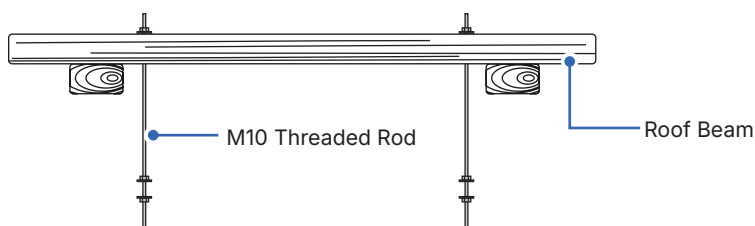
On Concrete / Brick



On Steel Beam



On Wood Beam



- It is recommended to use threaded rod wrench to tighten the threaded rod into the drop in anchor and make sure it can support the weight of the cassette unit and withstand operating vibration.

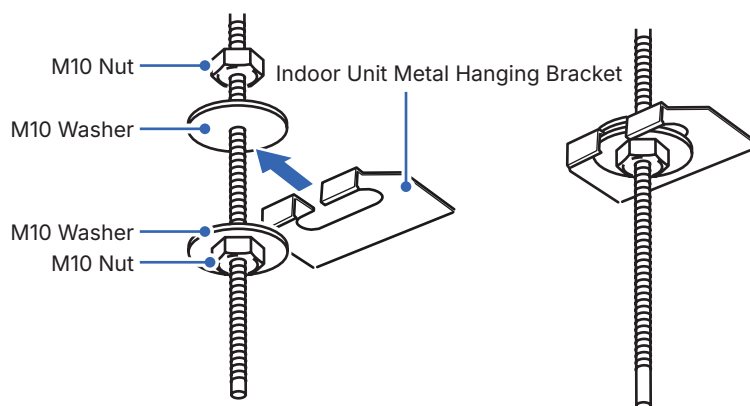
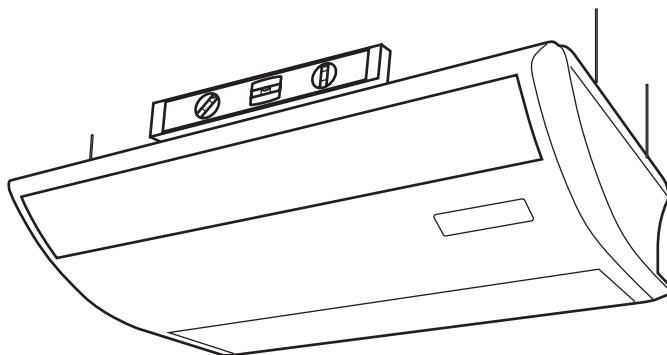
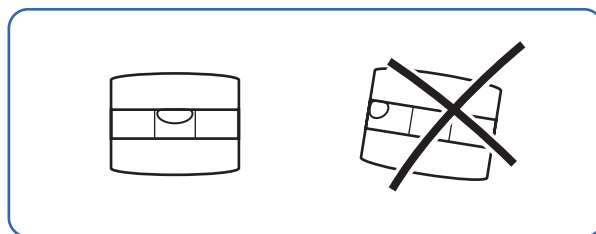
Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Mounting the indoor unit (Ceiling Mounting)

1. Attach M10 nuts and M10 washers to the threaded rod at the hanging height.
2. Hang the hanging brackets to the M10 washers.
3. Level the unit all around with a bullseye spirit level and tighten the M10 nuts to secure the unit in place.



- Lift the indoor unit to the ceiling with 2 people, or with the help of a power lifter. Carrying the indoor unit alone without assistant would result in injury.
- A bull's eye level is recommended to be used to level the indoor unit. The indoor unit is equipped with a built-in drain pump and float switch. Failing to level the unit may cause float switch to malfunction and cause water leakage.

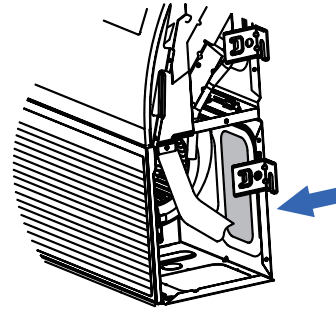
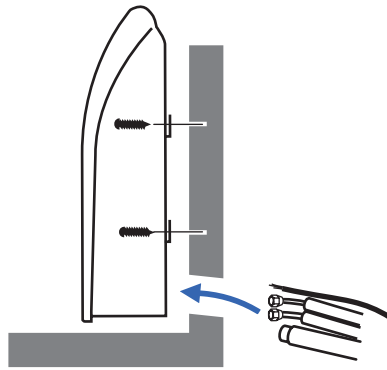


Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

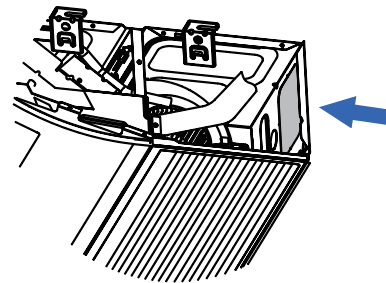
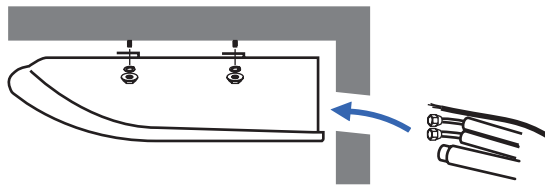
Pass Lineset to the Indoor Unit

1. Pass the drain hose, refrigerant pipes, and communicating wires to the indoor unit through the wall hole.

Floor Mounting



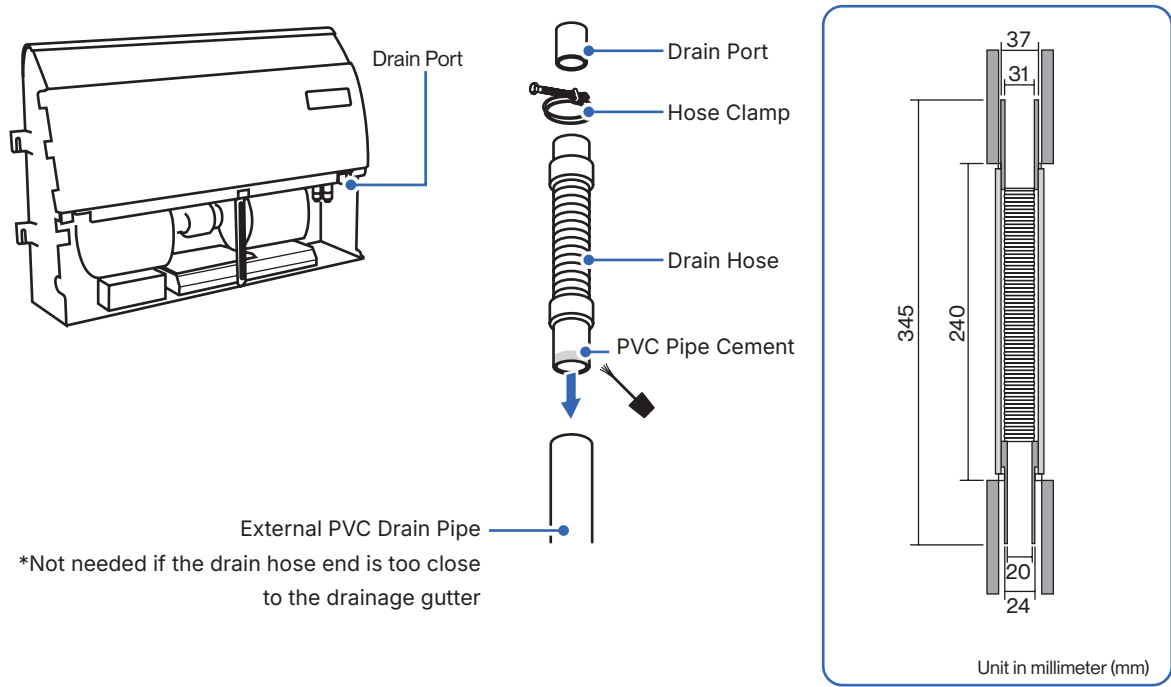
Ceiling Mounting



Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

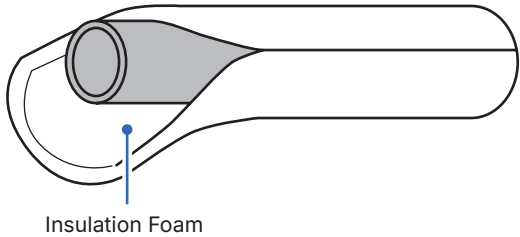
Connect the Indoor Unit Drain Hose

- 1. Connect the drainage hose to the indoor unit drainage port.
- 2. Make sure the joint is firmly connected and has a good seal.
- 3. Secure the connection with a hose clamp.
- 4. Wrap the connection and the drain pipe with insulating foam.



- The drain pipe and all its connection must be wrapped with insulating foam to prevent condensation from building up on the pipe's surface, which may result in water dripping in the ceiling.
- The following should be used for drain pipe installation:

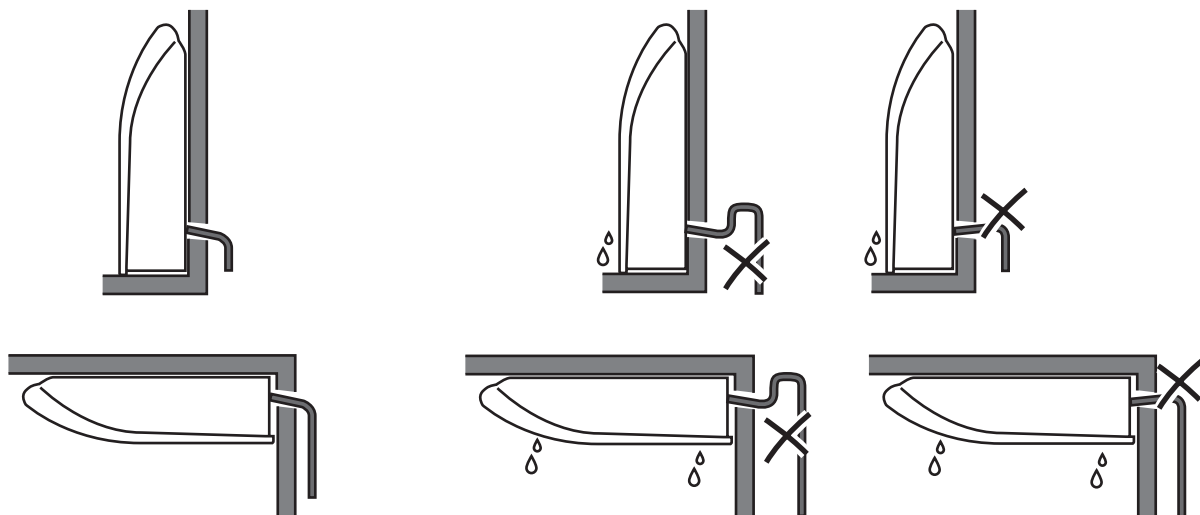
Drainage Pipe Material	Ø24mm or 3/4" Polyvinyl Chloride (PVC) pipe
Heat Insulation Material	10mm Thick Foamed Polyethylene Insulation Plate



Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Connect the Indoor Unit Drain Hose

Drain Pipe Installation



- Drain pipe must be slanted downward and leave a small gap between the ground and the pipe.

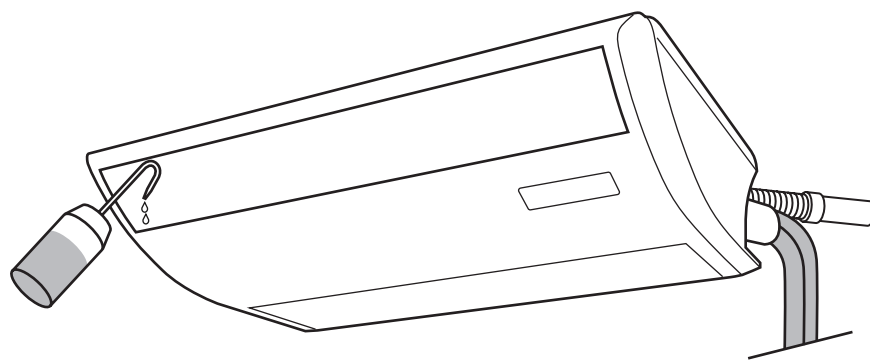


- Avoid having bends or dents on the drain pipe.
- Do not leave the end of the pipe into drainage gutter.

Drain Test

Perform a drain test there is any water leak.

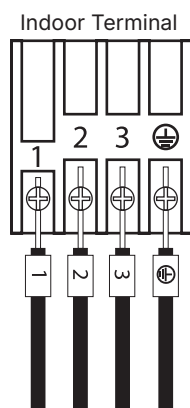
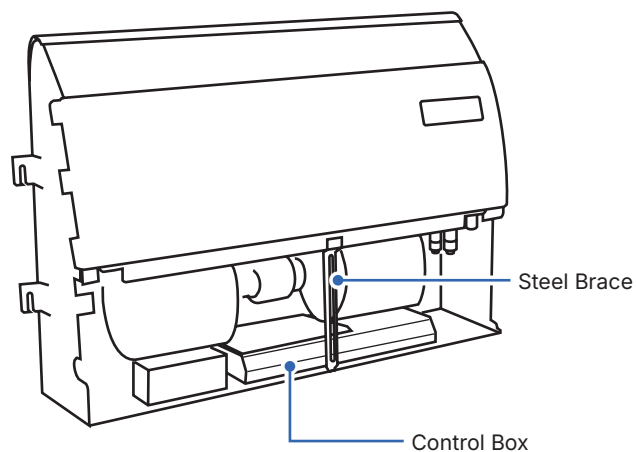
1. Locate the drain pan behind the air outlet.
2. Slowly pour 2000ml of water into the drain pan via the air outlet opening and make sure there is no leakage or back flow of water.



Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Connect the Indoor Unit Communication Cable

1. Remove the steel bracket from the indoor unit.
2. Pass the communication cable into the control box.
3. Connect the wires on the communication cable to that of the terminal.
4. Reattach the steel bracket after connecting the cable.

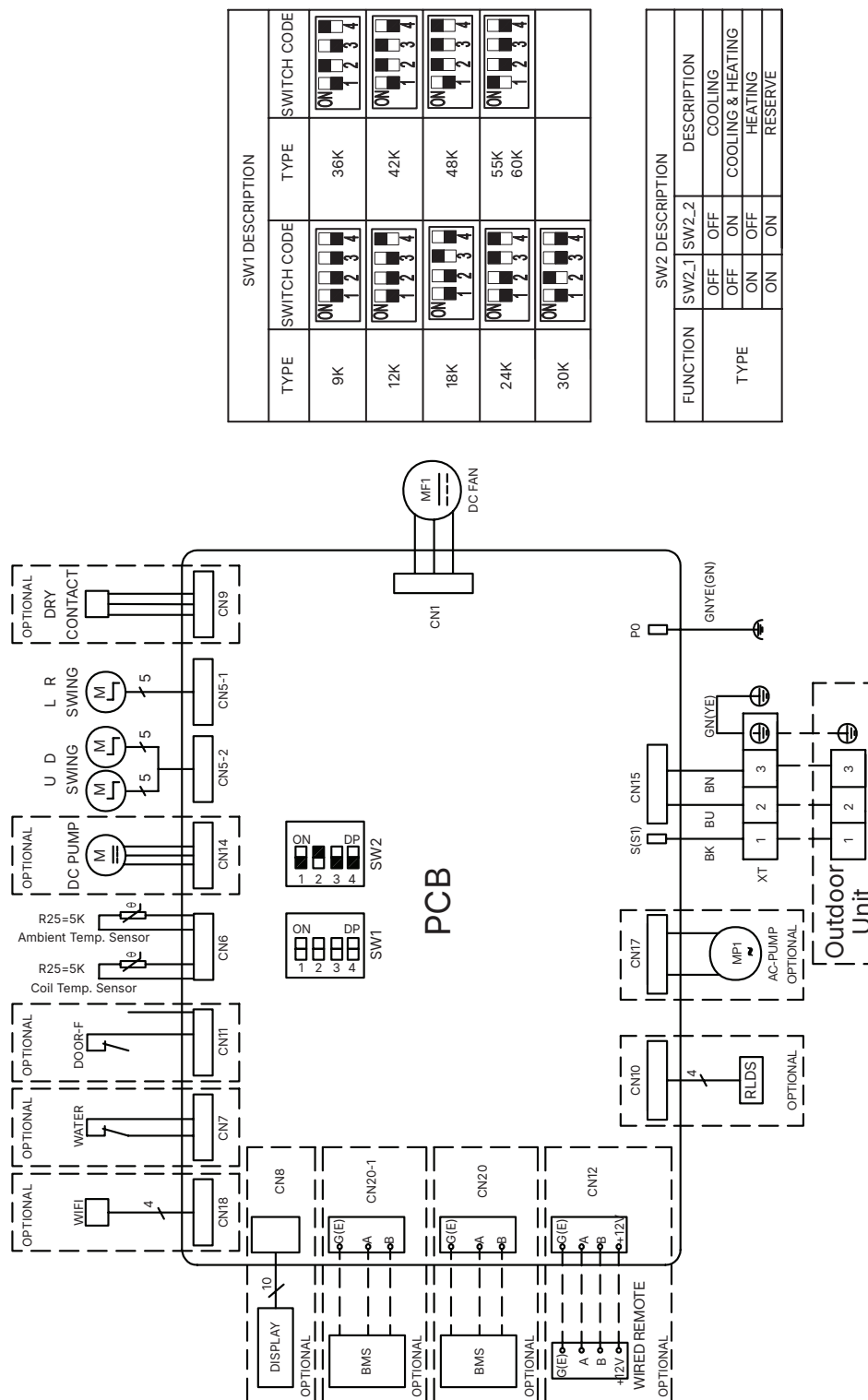


Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Indoor Unit Circuit Diagram

048-FC-18K2V-IN

048-FC-24K2V-IN



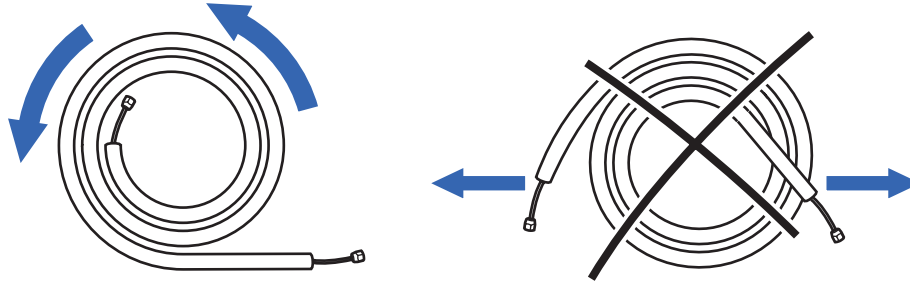
SW1 DESCRIPTION			
TYPE	SWITCH CODE	TYPE	SWITCH CODE
9K	ON 1 2 3 4	36K	ON 1 2 3 4
12K	ON 1 2 3 4	42K	ON 1 2 3 4
18K	ON 1 2 3 4	48K	ON 1 2 3 4
24K	ON 1 2 3 4	55K 60K	ON 1 2 3 4
30K	ON 1 2 3 4		

SW2 DESCRIPTION			
FUNCTION	SW2_1	SW2_2	DESCRIPTION
TYPE	OFF	OFF	COOLING
	ON	ON	COOLING & HEATING
	ON	OFF	HEATING
	ON	ON	RESERVE

Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Preparing the Refrigerant Pipe

1. Unroll the included refrigerant pipe.

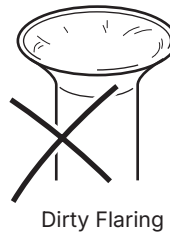


- Do not pull the refrigerant pipe to prevent the pipe from kinking or bending.

2. Remove the cover and make sure the ports are clean and smooth.



Imperfect Flaring

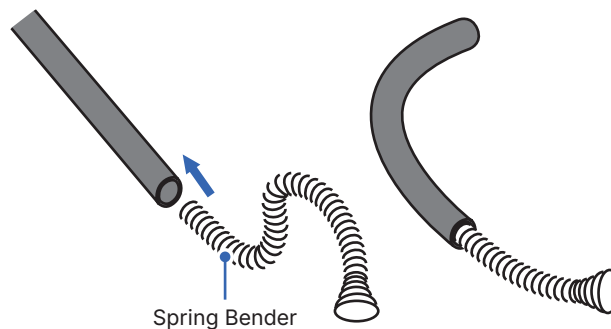
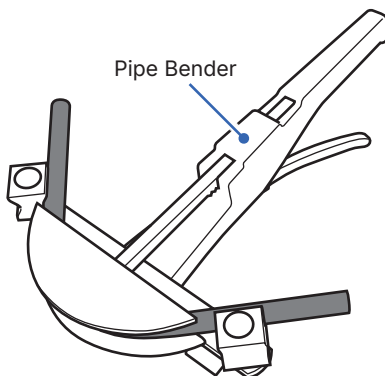


Dirty Flaring

3. In the case of a imperfect flaring or the pipe needs to be shorten for the installation, refrigerant pipe should be cut and flare by qualified technician.



- Use a pipe bender or spring bender to shape the refrigerant pipes along wall and corners. Bending the pipe without bending tools would easily kink or damage the pipe, which would cause refrigerant starvation, or leakage in the system.



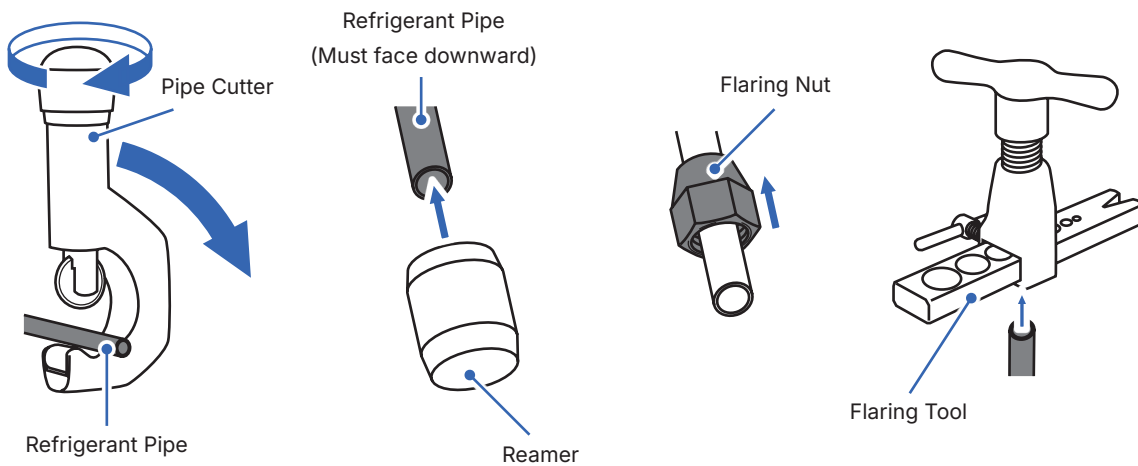
Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Cutting and Flaring Refrigerant Pipe



- Any refrigerant pipe alteration should only be done by qualified technician. Incorrect work may cause refrigerant leak, reduce cooling / heating efficiency, damage to the unit. Warranty does not cover any damage(s) caused by incorrect refrigerant pipe alteration.

- Cut the copper pipe with a pipe cutter.
- Remove any burrs or rough edges with a reamer with the pipe facing downward.
NOTE: The opening of the pipe must face toward the ground to prevent chips or dust from entering the pipe.
- Insert the flare nut to the pipe.
- Use the flaring tool to flare the copper pipe. The flaring angle must match to that of the refrigerant lines from the unit.



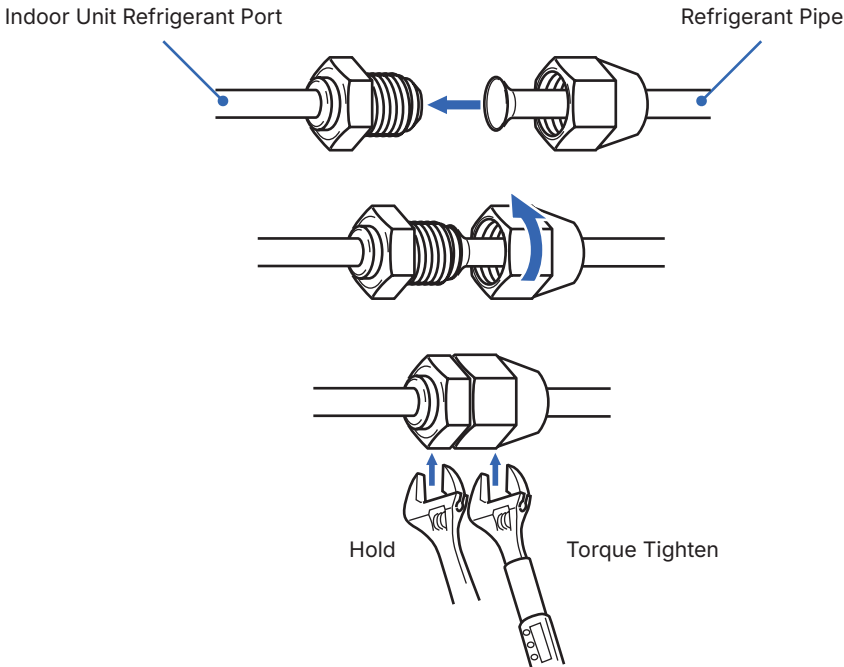
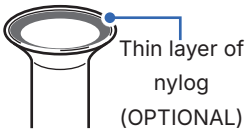
Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Connecting Refrigerant Pipe to the Indoor Unit

- 1. Remove the protective caps from the refrigerant pipes and from the indoor unit refrigerant port.
- 2. Align the refrigerant pipe straight to the port, then tighten the nut by hand.
- 3. Use a torque wrench to tighten the nut according to the torque requirement.



- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.



Pipe Diameter	1/4" (φ6.35)	3/8" (φ9.52)	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	18 - 20 N-M	30 - 35 N-M	45 - 50 N-M	60 - 65 N-M
	13.3 - 14.8 lbf-ft	22.1 - 25.8 lbf-ft	33.2 - 36.9 lbf-ft	44.3 - 48.0 lbf-ft
	1.8 - 2.0 kgf-m	3.0 - 3.6 kgf-m	4.6 - 5.1 kgf-m	6.1 - 6.6 kgf-m

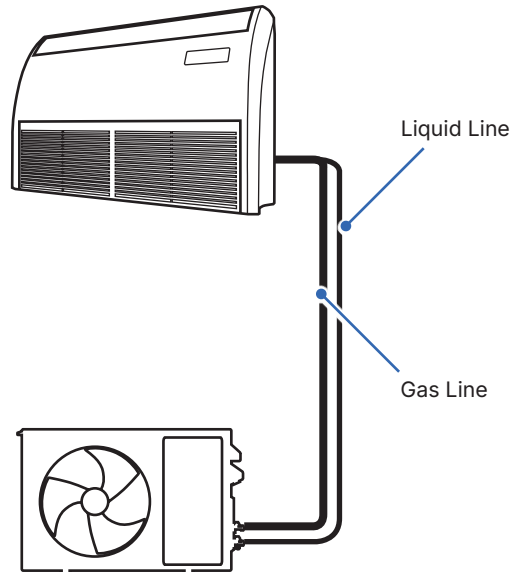


- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on [Page 15-16](#) .

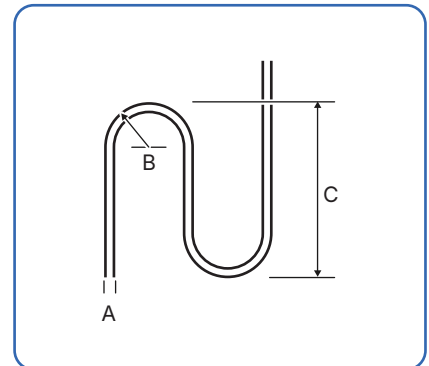
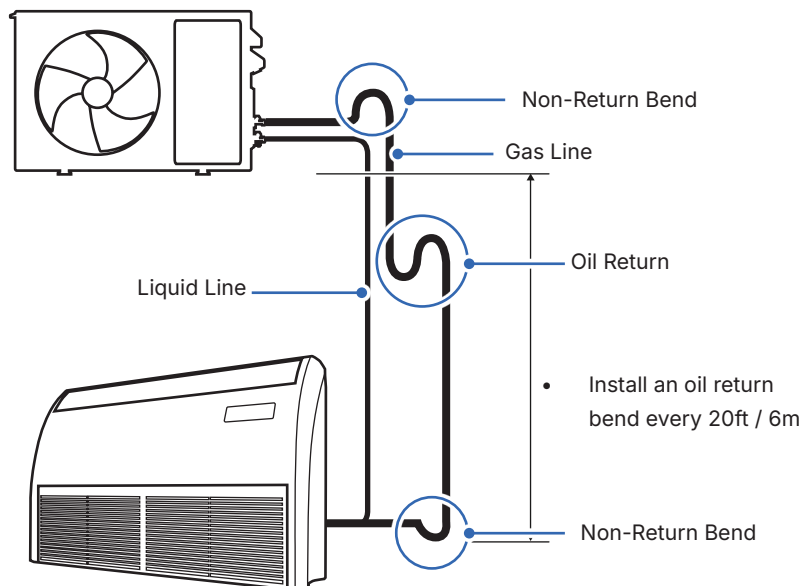
Indoor Unit Installation (Floor Ceiling Type Indoor Unit)

Arrange Refrigerant Pipe to the Outdoor Unit

Outdoor Unit Below Indoor Unit



Outdoor Unit Above Indoor Unit

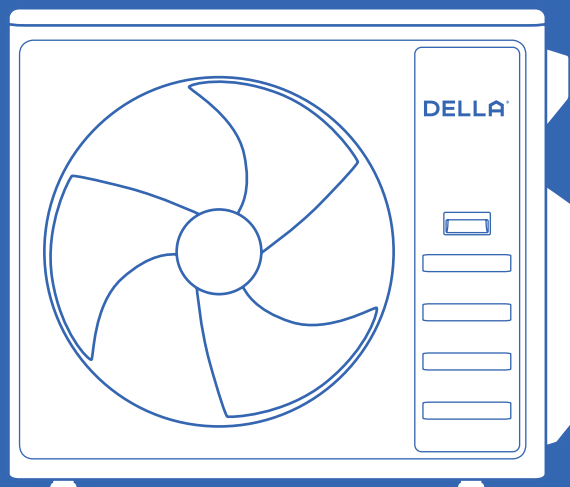


- Oil return bend and non-return bend at the lowest and highest position of the gas line is necessary when installing the outdoor unit above the indoor unit.
- Refrigerant pipe handling on [Page 99](#).

(A) Pipe Diameter	(B)	(C)
3/8"	≥20 mm	≤150 mm
1/2"	≥26 mm	≤150 mm
5/8"	≥33 mm	≤150 mm

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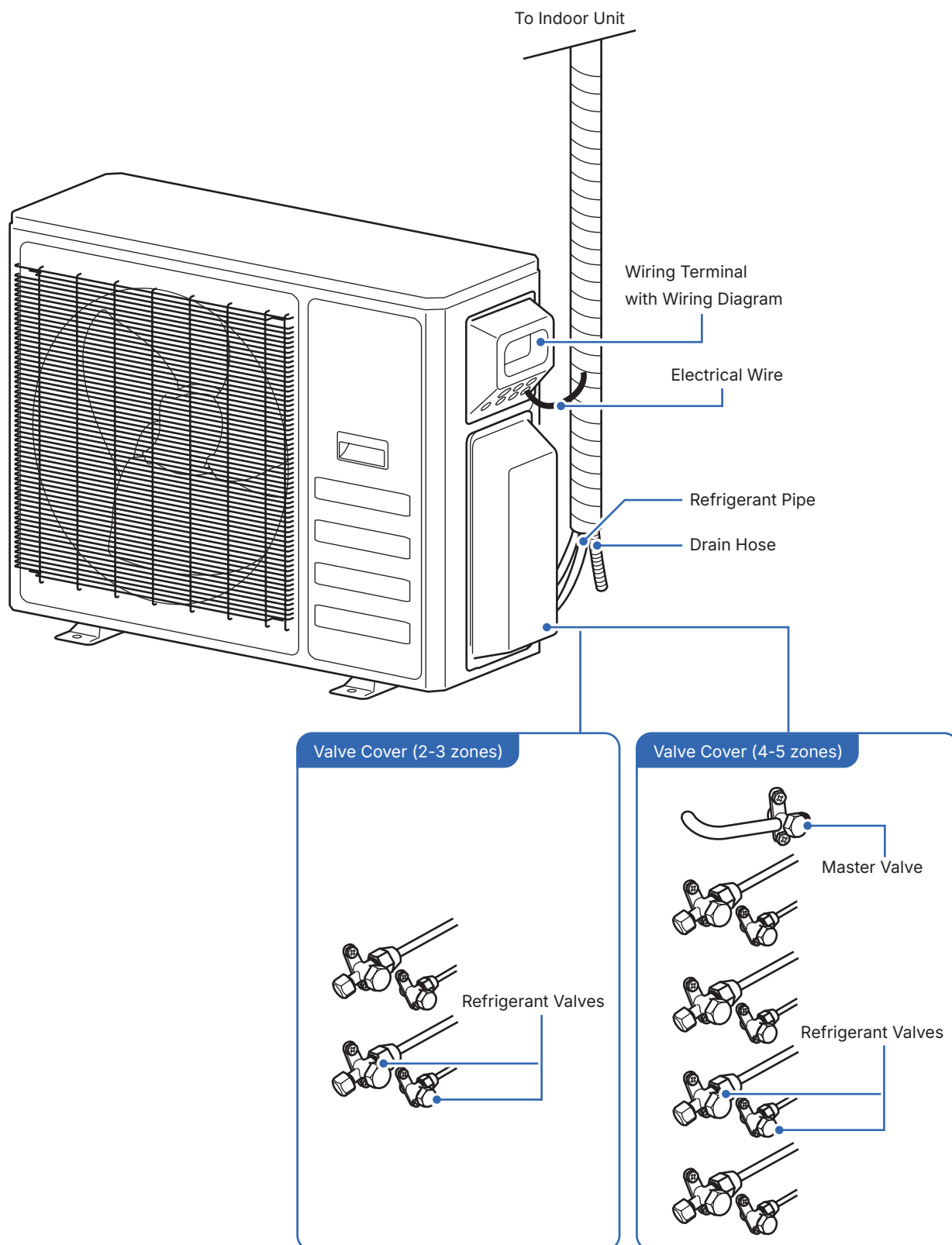




Outdoor Unit

Installation Guide

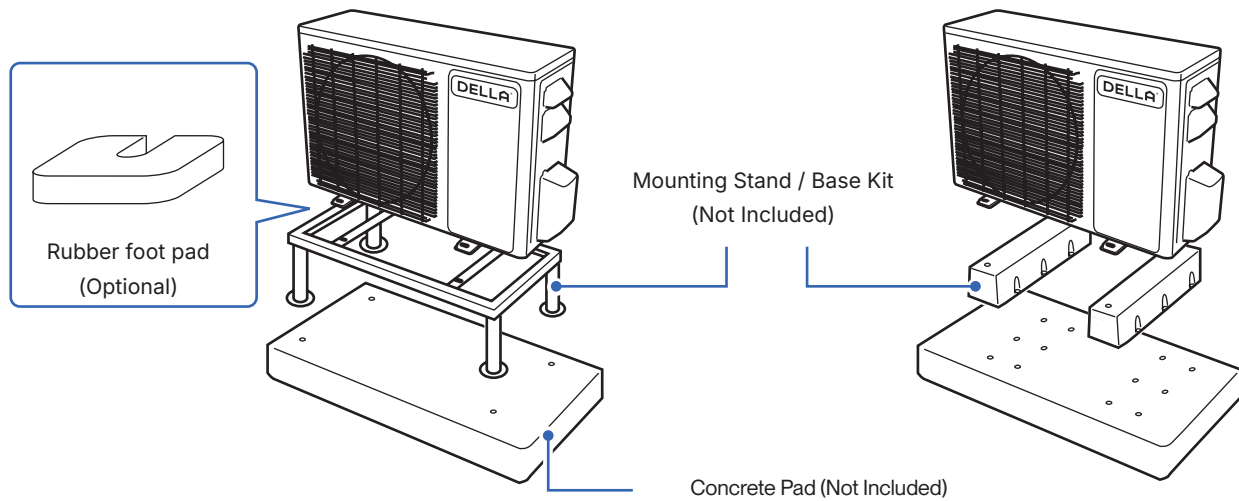
Name of Parts



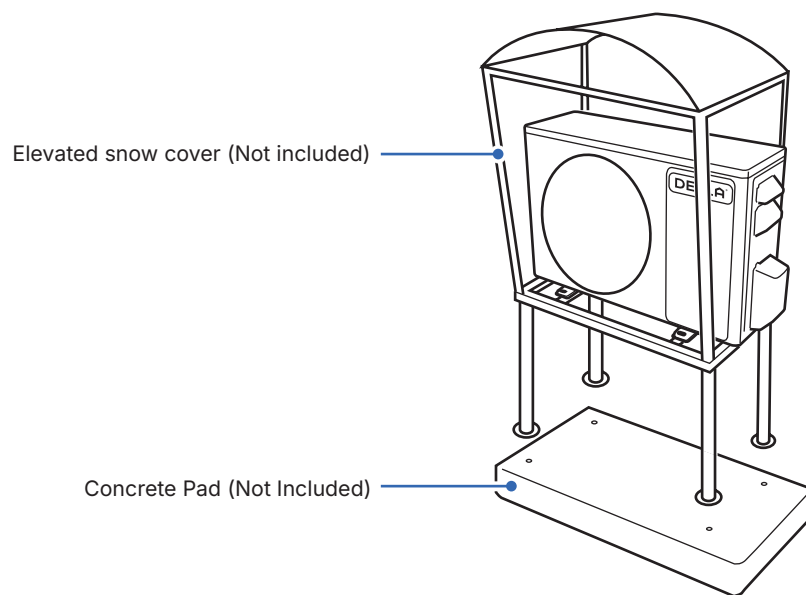
Outdoor Unit Installation

Secure the Outdoor Unit (Ground Installation)

1. Place a concrete pad on the installation location.
NOTE: You do not need a concrete pad if the ground is concrete.
2. Mount the indoor unit on a mounting stand or base kit.
NOTE: Rubber foot pads can be placed between the outdoor unit and the mounting kit to reduce vibration or noise.
3. Drill holes on the concrete pad or concrete ground.
4. Secure the mounting stand or base kit on the concrete with concrete anchor bolts.



- Outdoor unit should be installed on a elevated mounting stand with snow cover if using in a snowy region.

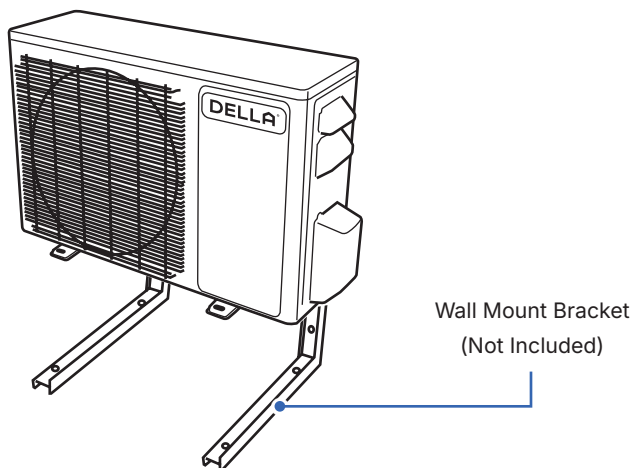


Outdoor Unit Installation

Secure the Outdoor Unit (Wall Installation)

The outdoor unit can be fixed on a wall mounting bracket if there is no ground mounting option.

1. Measure the distance between the outdoor unit's legs.
2. Mount the wall mounting bracket on the wall.
3. Secure the outdoor unit on the wall mounting bracket.

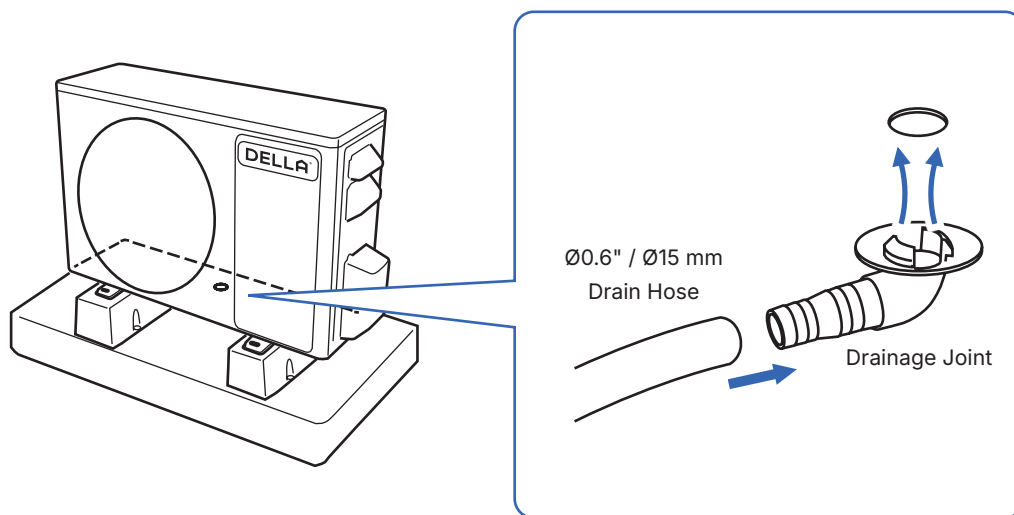


- The wall mounting bracket and the wall must be able to support at least 4 times the weight of the outdoor unit.

Attach Drainage Port and Hose

Outdoor unit drainage helps prevent condensation or frost inside the unit during cold weather.

1. Drainage joint installation is recommended for heat pump models.
2. Insert drainage joint into the bottom hole of the outdoor unit.
3. Connect one end of the drain hose to the joint and the other end to your desired drainage point.

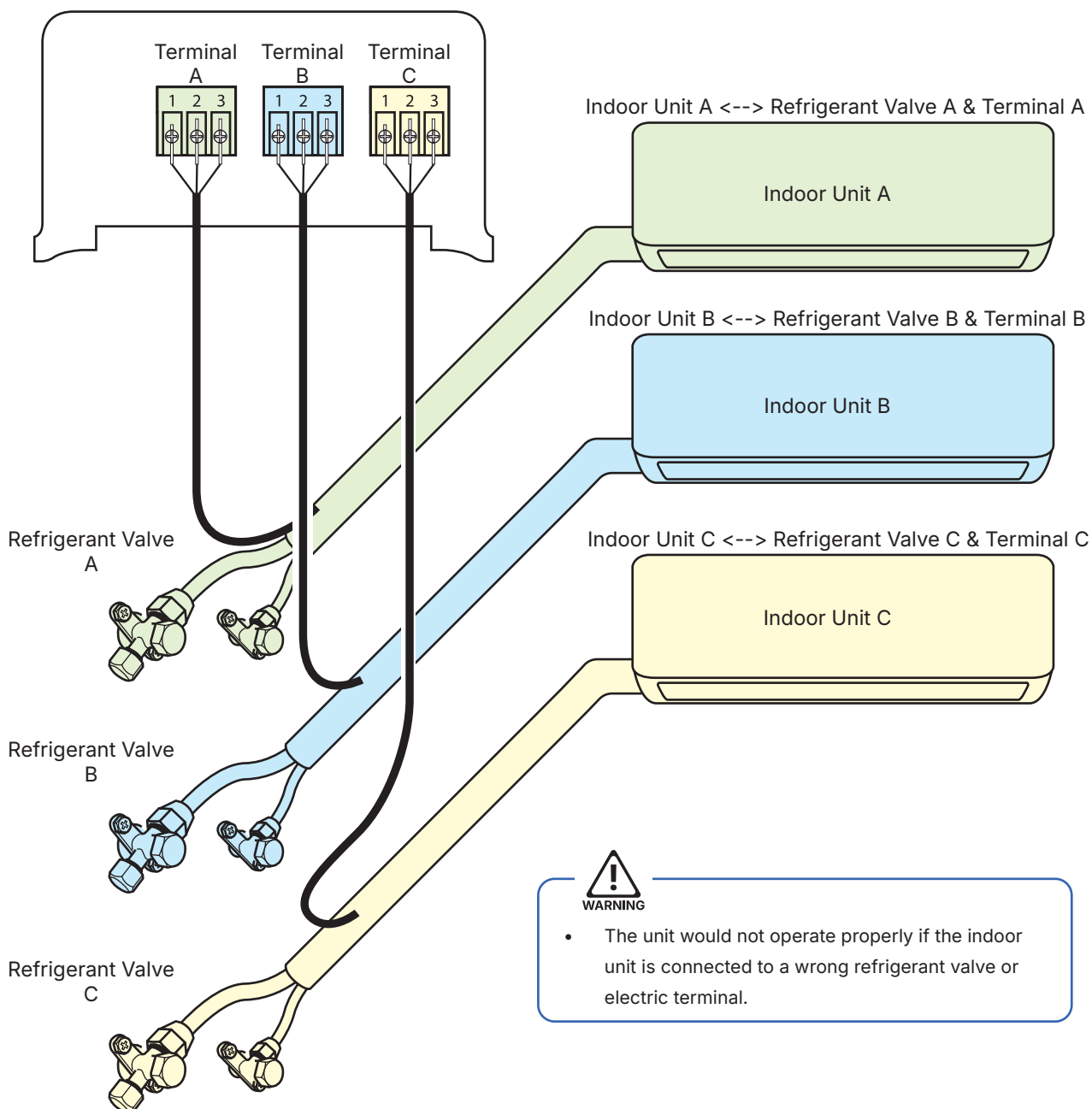


Outdoor Unit Installation

Refrigerant Pipes and Electrical Cables Connection



- Each indoor units on the multi zone system must be connected to their respective corresponding refrigerant valve and electrical terminal.



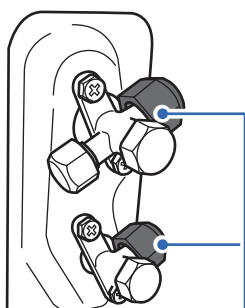
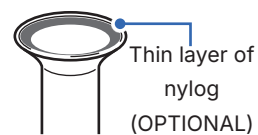
Outdoor Unit Installation

Connect the Refrigerant Pipes to the Outdoor Unit

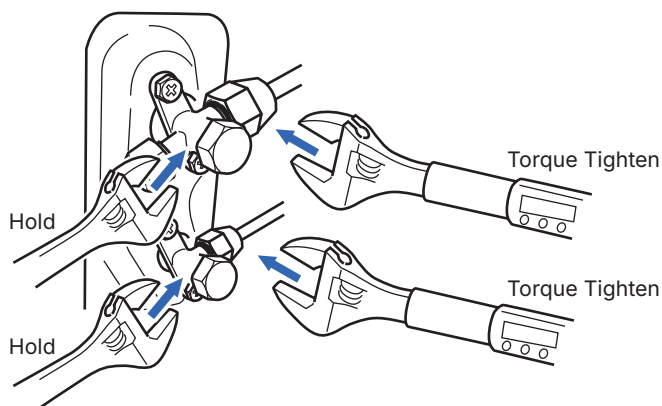
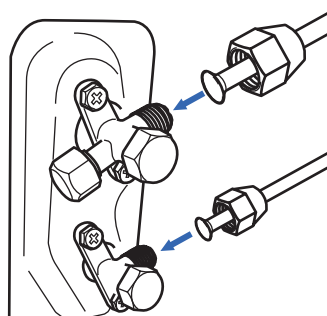
1. Unscrew the screws on the valve cover, press it down gently and remove the cover from the outdoor unit.
2. Remove plastic caps from the end of the valves.
3. Align the refrigerant pipes to the outdoor unit valve, then tighten the nut by hand.
4. Use a torque wrench to tighten the nut according to the torque requirement.



- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.



Remove Plastic Caps



Pipe Diameter	1/4" (φ6.35)	3/8" (φ9.52)	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m



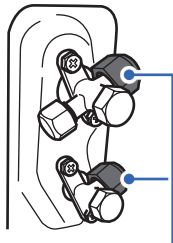
- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on [Page 15-16](#) .

Outdoor Unit Installation

Connect the Refrigerant Pipes to the Outdoor Unit (Using Lineset Converter)

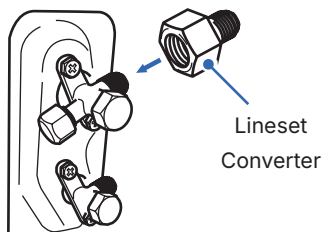
Some indoor unit models are equipped with a 1/2" or 5/8" copper pipe on the gas line, and require a lineset converter for proper connection to the outdoor unit.

- 1. Unscrew the screw on the valve cover, press it down gently and remove the cover from the outdoor unit.
- 2. Remove plastic caps from the end of the valves.

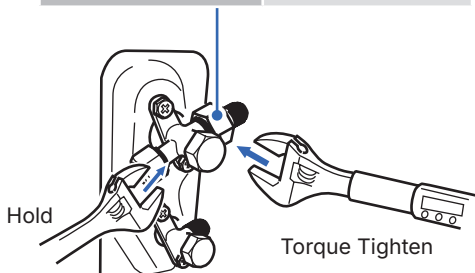


Remove Plastic Caps

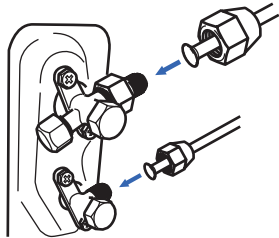
- 3. Align the lineset converter to the outdoor unit valve, then use a torque wrench to tighten the converter according to the torque requirement.



Converter Size	3/8" (φ9.52)
Torque Parameter	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m

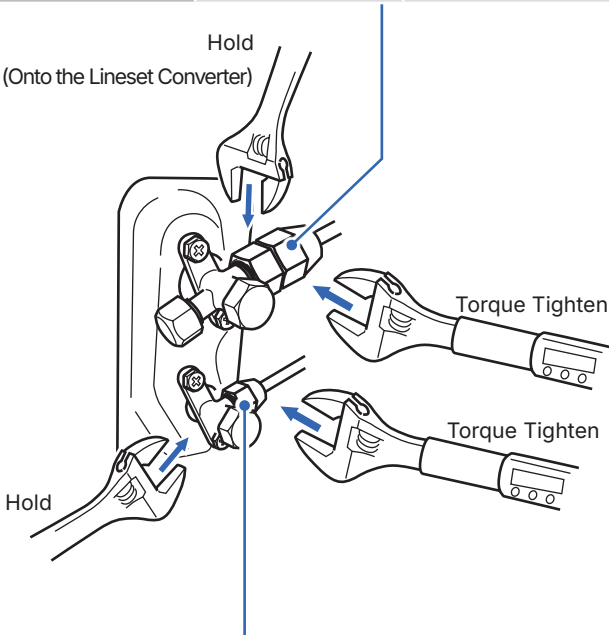


- 4. Align the liquid line to the outdoor unit valve, and the gas line to the converter, then tighten the nut by hand.



- 5. Use a torque wrench to tighten the nut according to the torque requirement.

Gas Pipe Diameter	1/2" (φ12.7)	5/8" (φ15.88)
Torque Parameter	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m



Liquid Pipe Diameter	1/4" (φ6.35)
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m

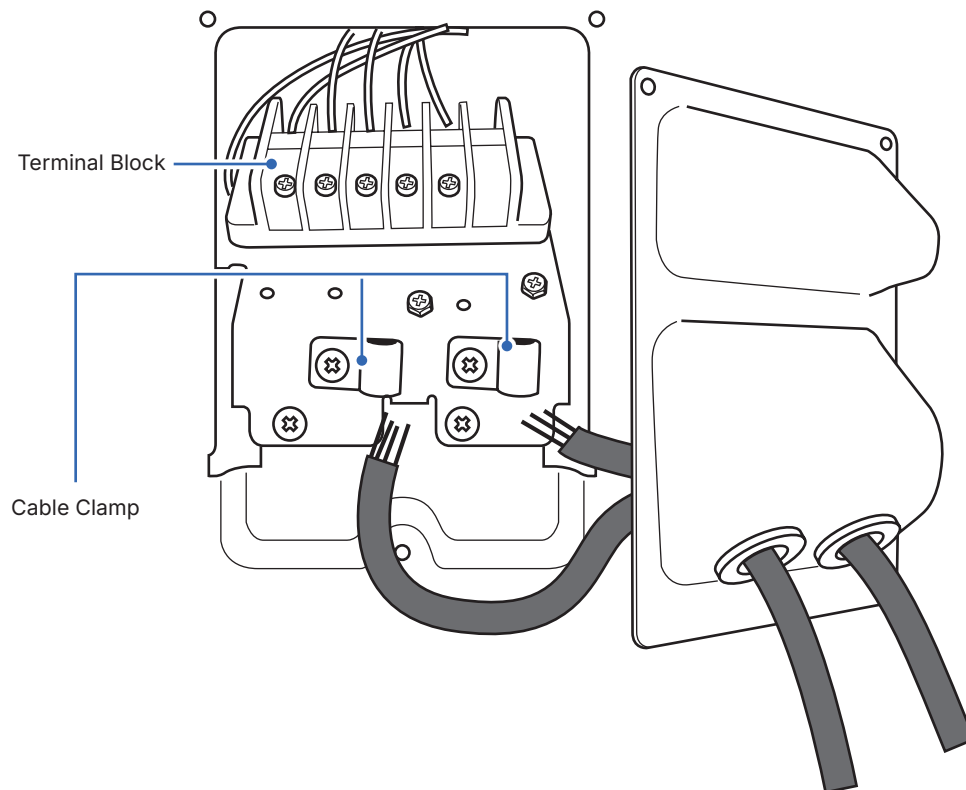
Outdoor Unit Installation

Connect the Electrical Wire



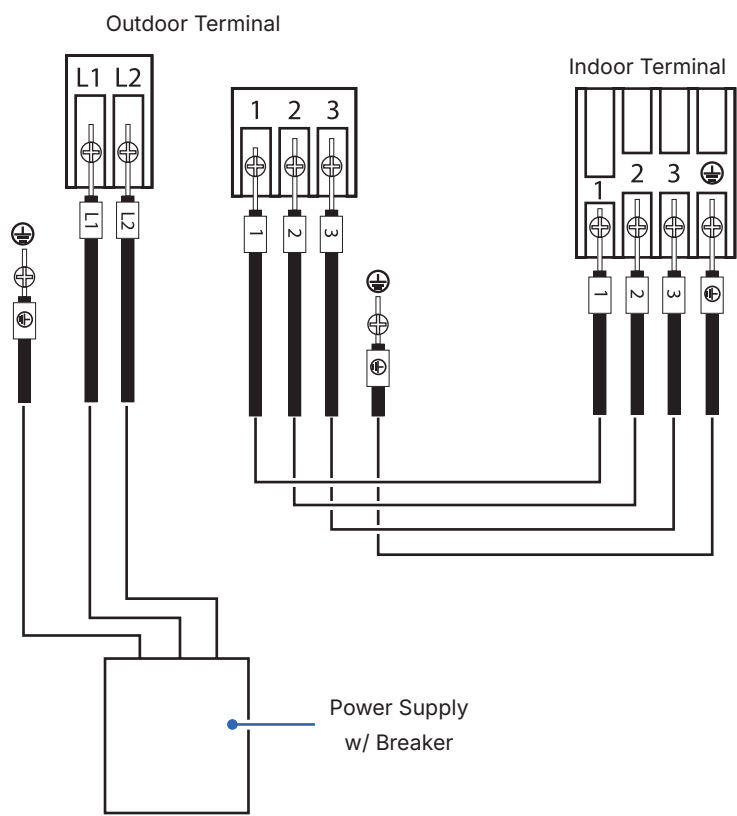
- Electrical wiring must be done by a qualified technician or electrician. Failing to connect the wires correctly will cause short circuit, a fire, and property damage.
- Do not use the communication cable as power supply cable.

1. Unscrew the screws from the wiring cover, press the cover downward gently, and remove from the outdoor unit.
2. Unscrew the cable clamp.
3. Insert the communication cable from the indoor unit through the opening on the cover, then connect the wires to the outdoor unit terminal.
4. Insert power supply cable (not included) to the opening on the cover, then connect the wires to the outdoor unit terminal.
5. Turn off any power from the power supply, and connect the wires to the power supply circuit box.
Exact power supply cable and breaker size requirement on [Page 14](#).
6. Reinstall the wiring cover to its original place.



Outdoor Unit Installation

Connect the Electrical Wire

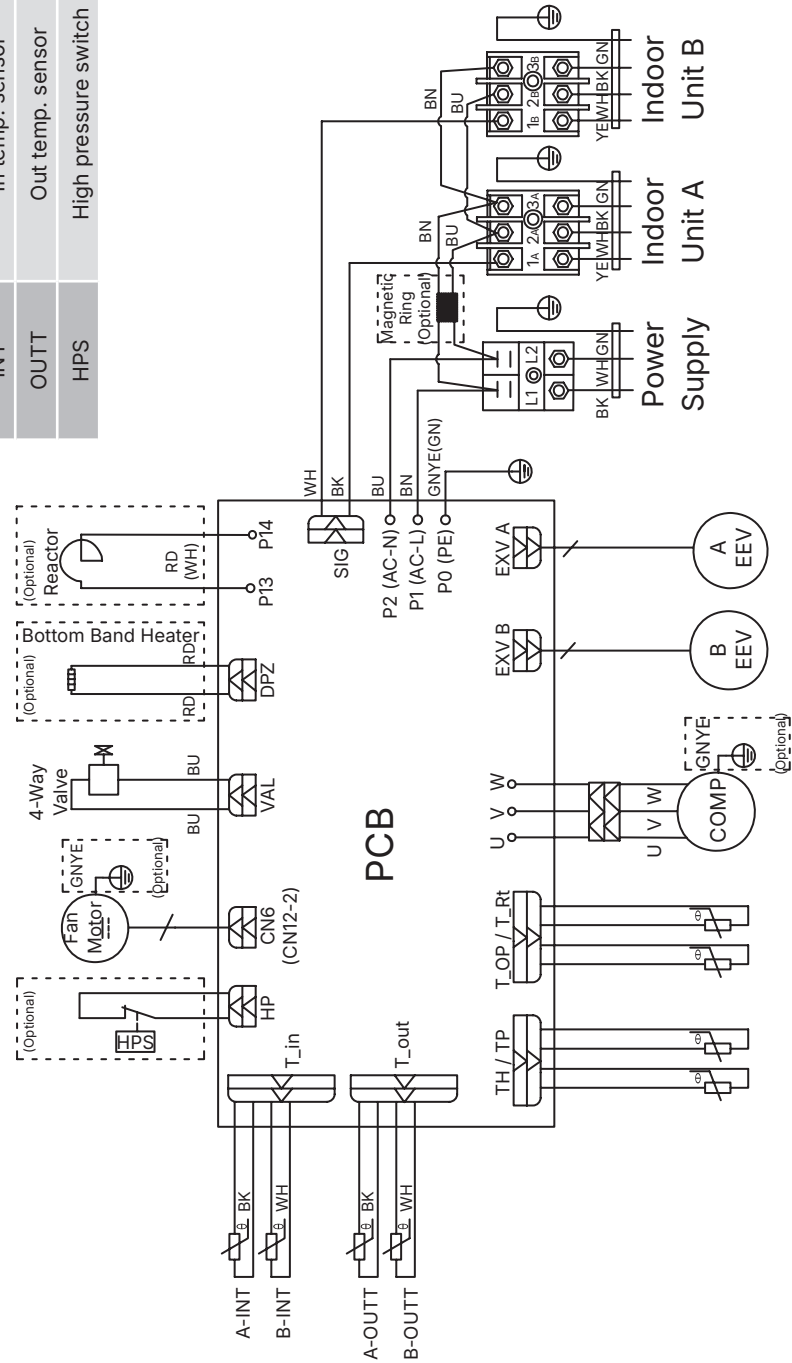


Outdoor Unit Installation

Outdoor Unit Circuit Diagram

048-TCQ-MODU-1D2

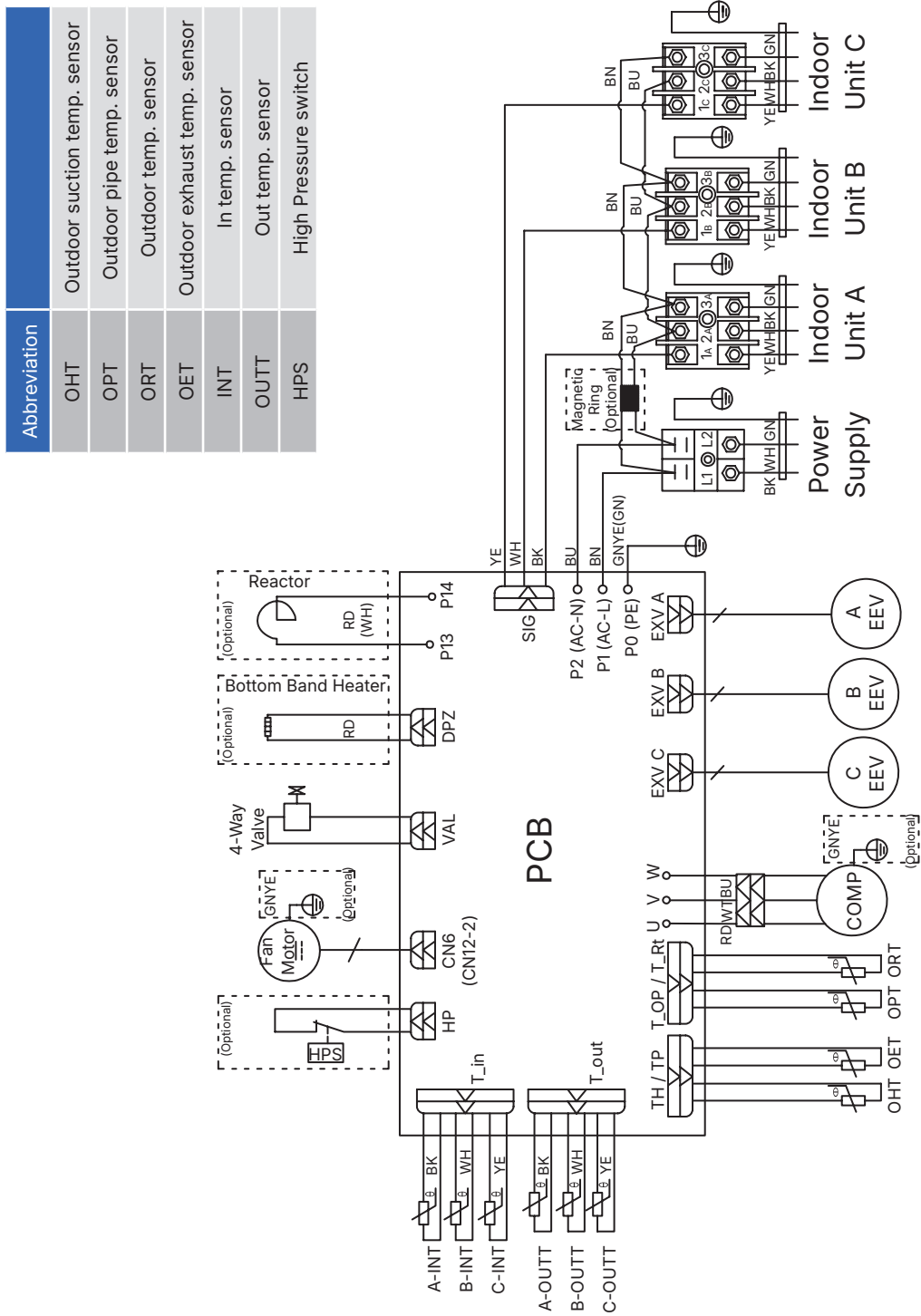
Abbreviation	
OHT	Outdoor suction temp. sensor
OPT	Outdoor pipe temp. sensor
ORT	Outdoor temp. sensor
OET	Outdoor exhaust temp. sensor
INT	In temp. sensor
OUTT	Out temp. sensor
HPS	High pressure switch



Outdoor Unit Installation

Outdoor Unit Circuit Diagram

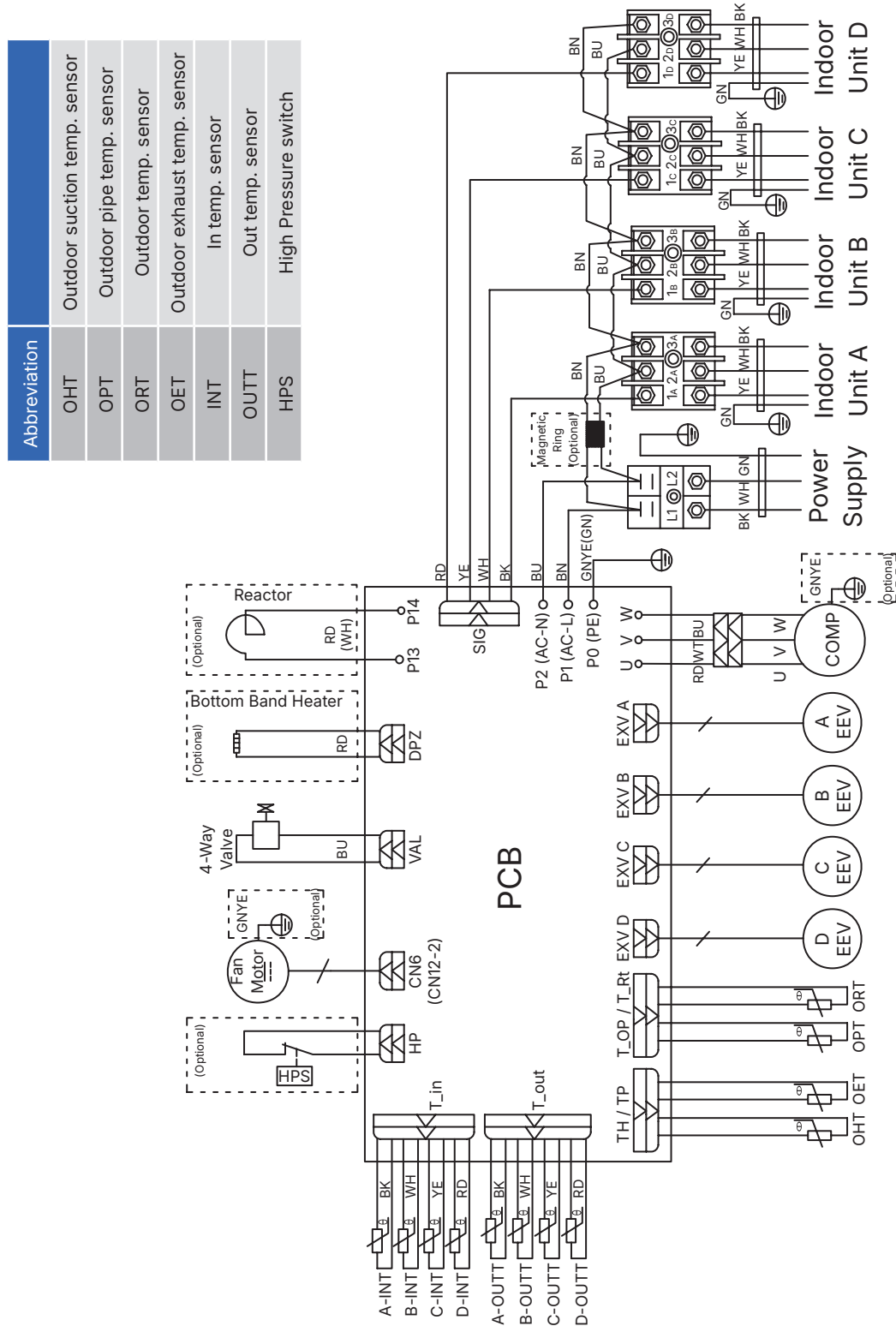
048-TCQ-MODU-1D3



Outdoor Unit Installation

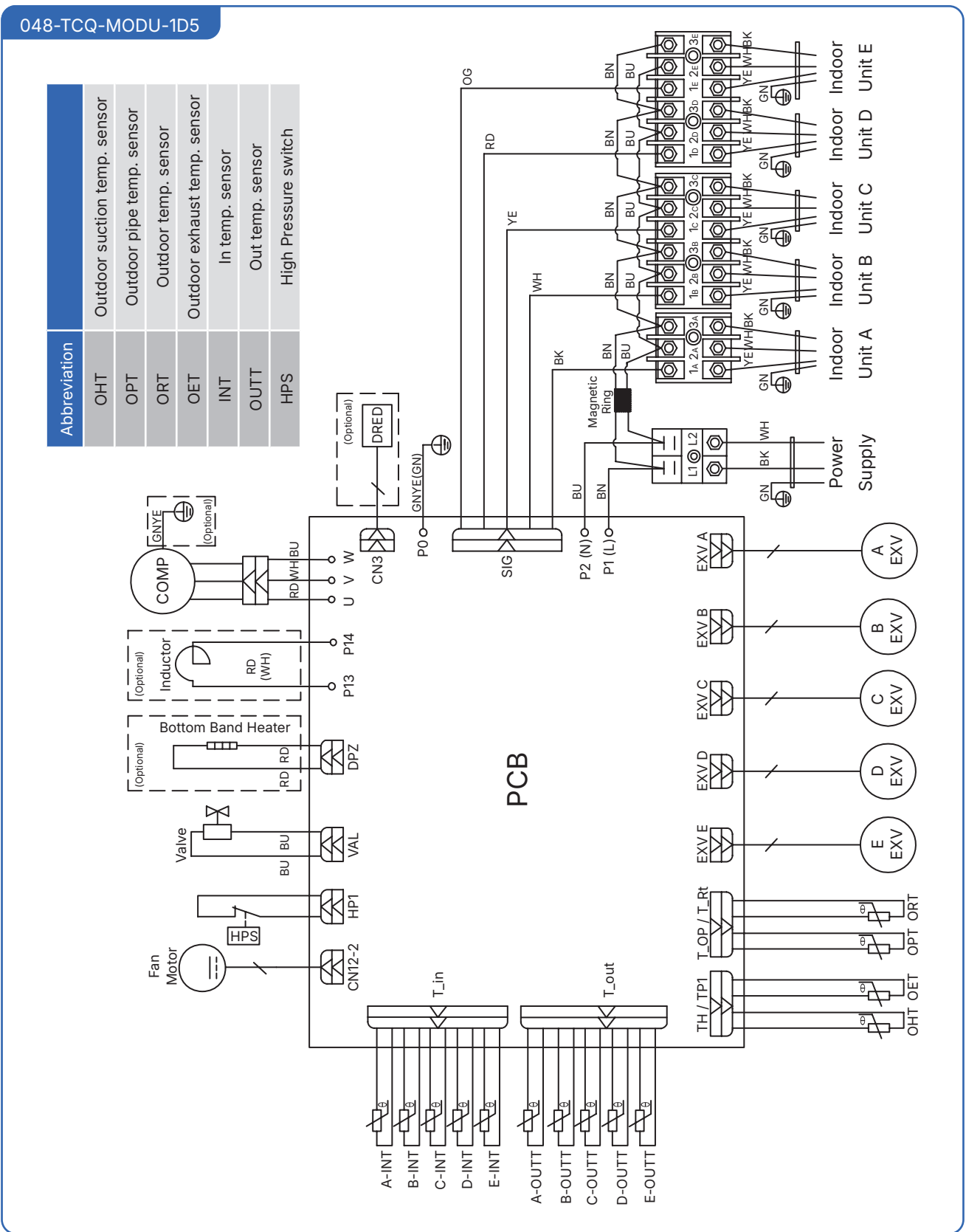
Outdoor Unit Circuit Diagram

048-TCQ-MODU-1D4



Outdoor Unit Installation

Outdoor Unit Circuit Diagram



Outdoor Unit Installation

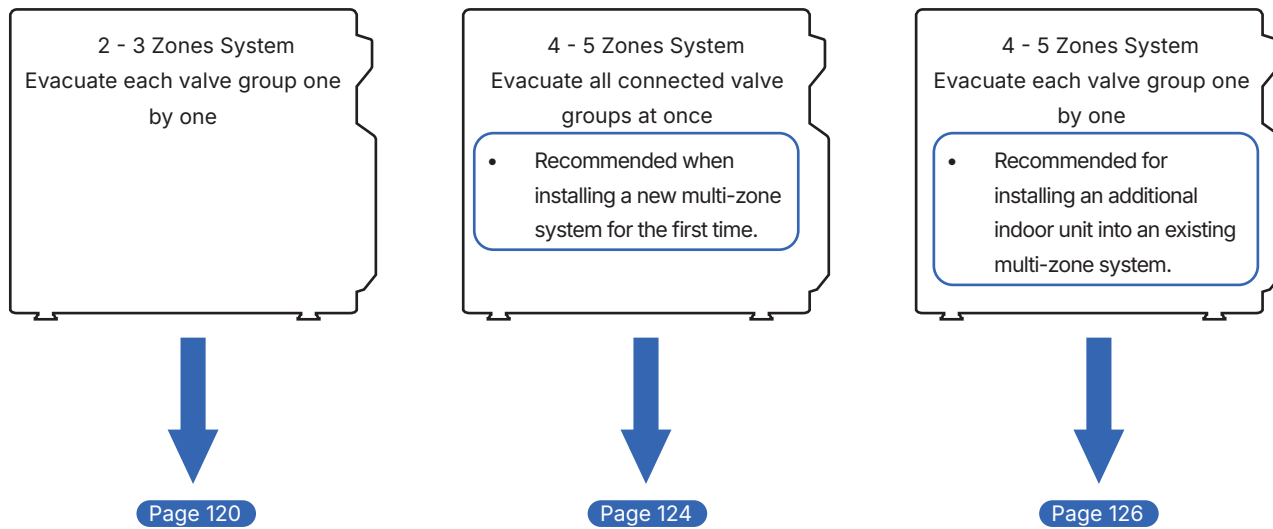
Vacuum Pumping

Della multi-zone mini split AC system require vacuum evacuation before operation.

Vacuuming the refrigerant lineset removes air moisture that the refrigerant can react with and damage internal components and reduce system efficiency.

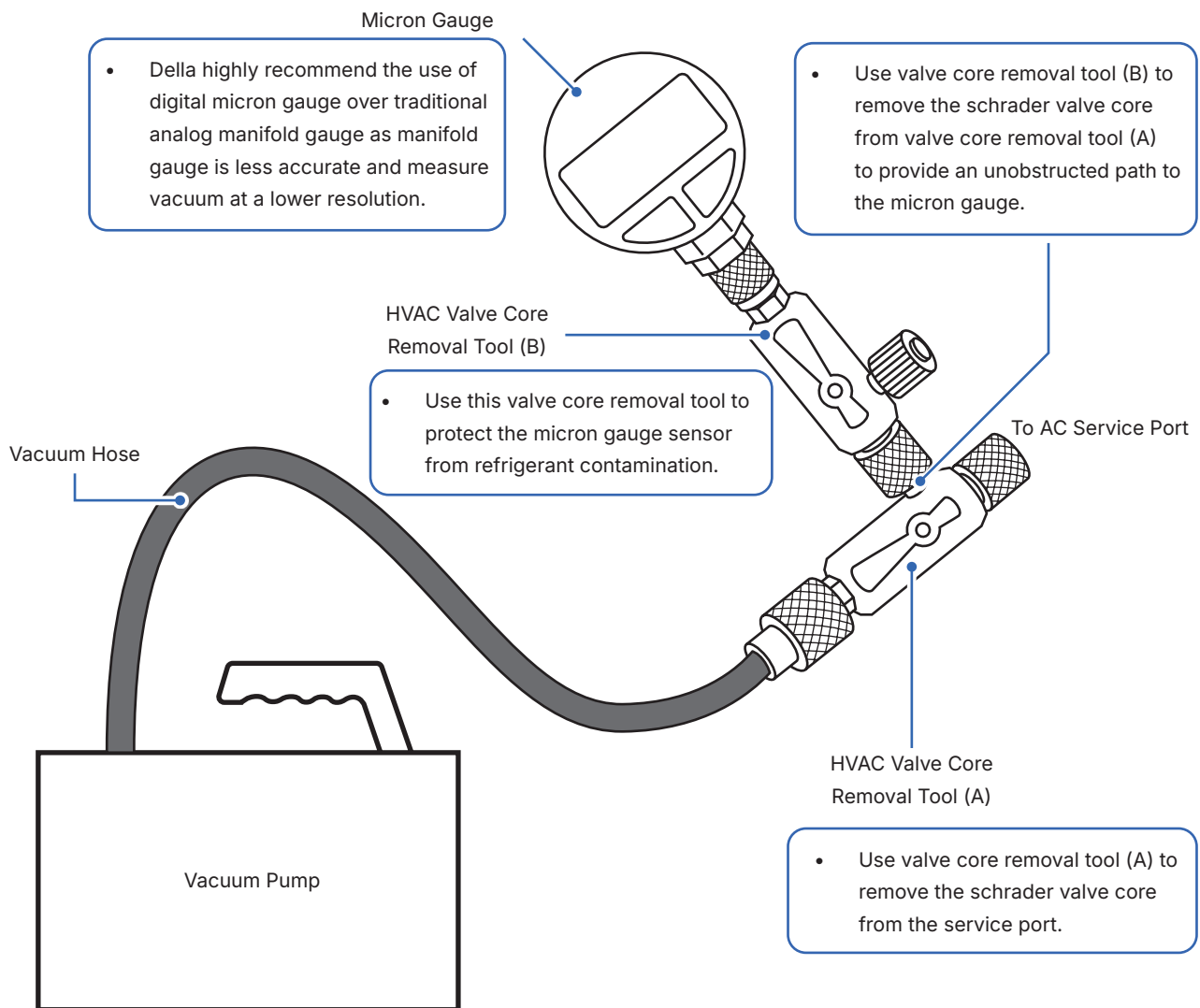
Depending on the number of zones your system supports, different evacuation methods may be required.

Follow these instructions carefully and select the method best suited for your installation.



Outdoor Unit Installation

Vacuum Pumping Tools Set Up



WARNING

- When evacuating mini-split system with A2L rated refrigerant, an A2L rated vacuum pump must be used. If an A2L rated pump is not available, vacuuming must be done outdoor only. Failure to follow this instruction may result in fire or explosion hazard.

Outdoor Unit Installation (2-3 Zones System)

Vacuum Pumping, Leak Test (Using Micron Gauge) *RECOMMENDED, and Adjust Refrigerant Level

1. Remove the protective caps from the service port, low pressure valve (Lo-R), and high-pressure valve (Hi-R).
2. Remove schrader valve core from the service port using valve core removal tool.
3. Connect valve core removal tool (A) to the service port.
4. Connect one end of the vacuum hose to the vacuum pump, and the other end to valve core removal tool (A).
5. Connect micron gauge onto valve core removal tool (B) and then connect to the side port of valve core removal tool (A).
6. OPEN both ball valves on valve core removal tool (A) and (B).
7. Turn on the vacuum pump and run until the micron gauge indicate the value of 500 micron or lower. (Ideally close to 350)
8. CLOSE the ball valve on valve core removal tool (A) and turn OFF the vacuum pump. Let the vacuum pressure settle for at least 5 minutes. Ensure the gauge reading does not exceed 500 microns.
11. Disconnect the vacuum hose and insert the schrader valve back into the valve core removal tool (A). Make sure the end cap is tightly sealed and then open the ball valve on valve core removal tool (A).
12. Reinstall the schrader valve into the service port.
13. Disconnect the valve core removal tools from the service port.
14. The outdoor unit comes with enough refrigerant for the standard length refrigerant pipe set. Add refrigerant charge if you use a longer refrigerant line. [Page 16](#)
15. Fully open the high pressure valve (Hi-R), and then fully open the low pressure valve (Lo-R).
16. Reattach all protective caps back on the service port, low pressure valve and high pressure valve.
17. Reattach the valve cover on the outdoor unit.

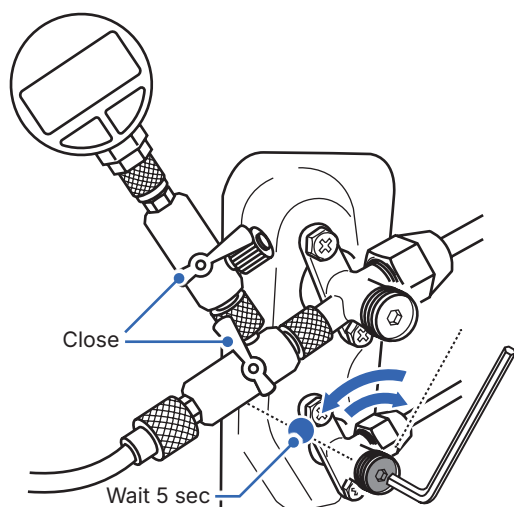


- You must leave the micron gauge and vacuum pump connected for a short period after vacuuming the system and check for a successful deep vacuum in order to make sure there is no leak and no contaminants inside the refrigerant lineset.
- In the case of the gauge reading exceeding 500, which indicate a leak, check and re-tighten all connection. Then perform vacuuming again.



- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before fully opening the refrigerant valve.
- Each indoor unit connected to the multi-zone outdoor unit must vacuumed respectively.

9. CLOSE the ball valve on valve core removal tool (B).
10. OPEN the high pressure valve (Hi-R) for 1/4 turn for 5 seconds, and CLOSE the high pressure valve (Hi-R) again.



Additional Refrigerant

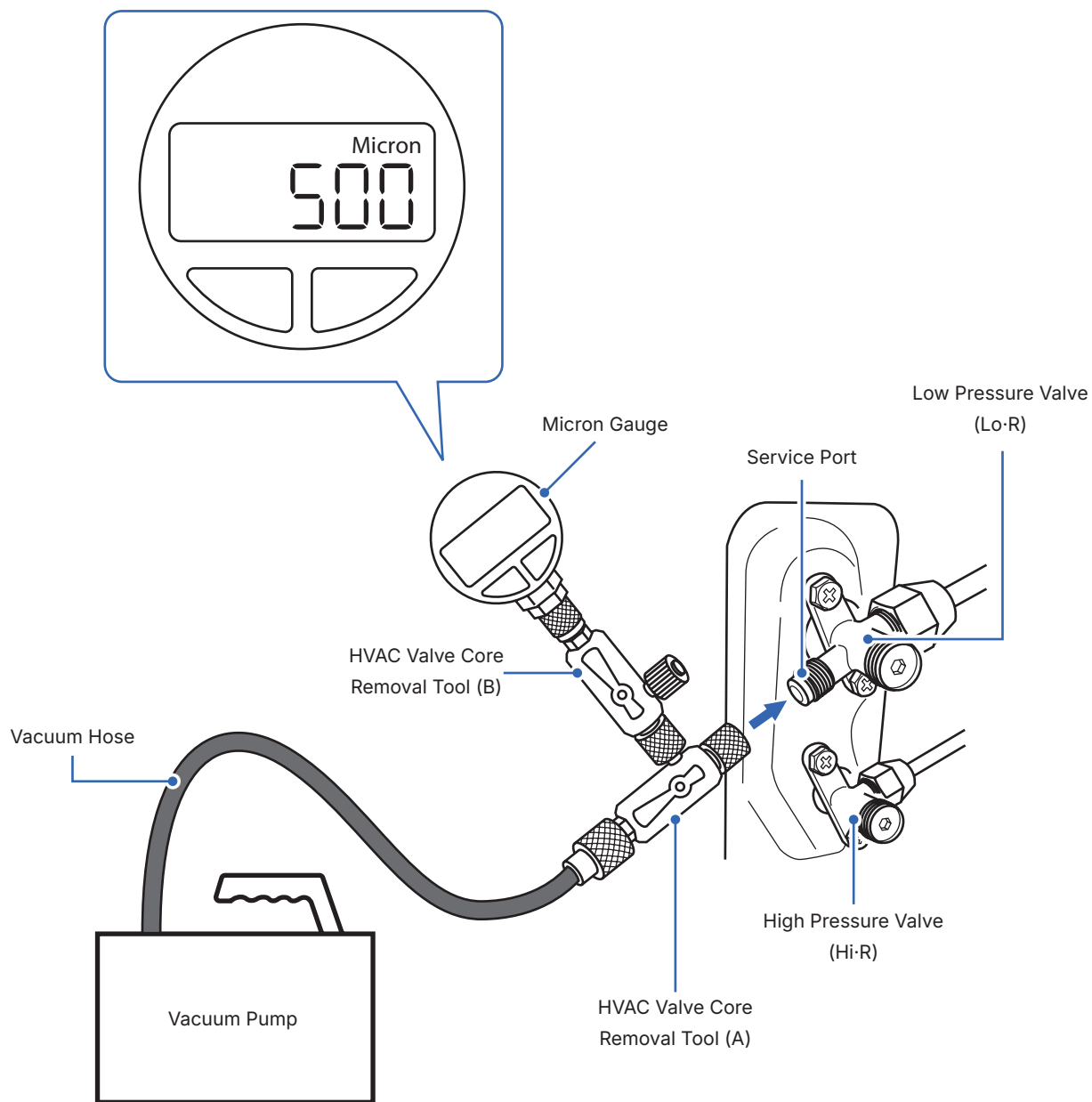
- Additional Refrigerant Amount (ounce)
 $[0.11 \times (\text{Total install length (ft)} - \text{Supported zones no.} \times 25)] \text{ oz}$
- Additional Refrigerant Amount (gram)
 $[10 \times (\text{Total install length (m)} - \text{Supported zones no.} \times 7.5)] \text{ g}$
- Example 1:
 A total of 60ft of pipe line is installed for a 2 zones system,
 $[0.11 \times (60 - 2 \times 25)] \text{ oz}$
 $= [0.11 \times (60 - 50)] \text{ oz}$
 $= 1.1 \text{ oz of additional refrigerant}$
- Example 2:
 A total of 40ft of pipe line is installed for a 2 zones system,
 $[0.11 \times (40 - 2 \times 25)] \text{ oz}$
 $= [0.11 \times (40 - 50)] \text{ oz}$
 $= -1.1 \text{ oz}$
 $= \text{NO additional refrigerant needed when getting NEGATIVE value.}$

Outdoor Unit Installation (2-3 Zones System)

Micron Gauge Connection



- Before vacuum pumping, make sure all refrigerant pipings are connected.
- It is recommended to perform a nitrogen leak check on all refrigerant joints.
- Check if all wiring is connected.



Outdoor Unit Installation (2-3 Zones System)

Vacuum Pumping, Leak Test (Using Manifold Gauge), and Adjust Refrigerant Level

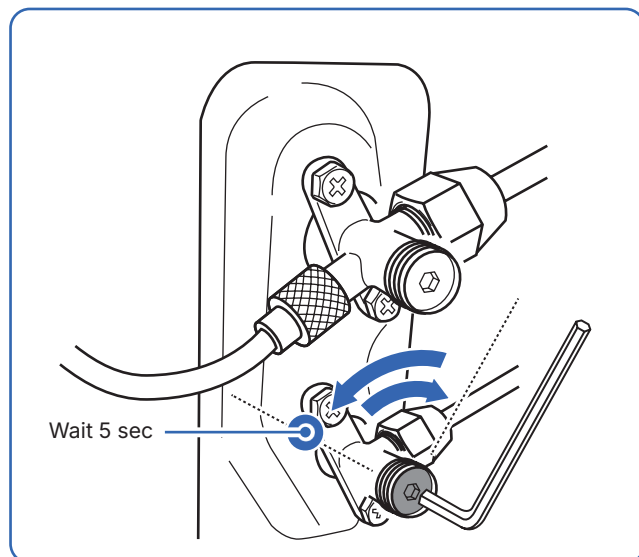


- Analog manifold gauge is less accurate and measure vacuum at a lower resolution than a digital micron gauge. DELLA recommend using micron gauge for vacuum pumping mentioned on [Page 120](#).

1. Remove the protective caps from the service port, low-pressure valve (Lo-R), and high-pressure valve (Hi-R).
2. Connect the vacuum hose with a push pin from the manifold gauge to the service port.
3. Connect the charging hose from the manifold gauge to the vacuum pump.
4. OPEN the low-pressure valve (Lo-M) and CLOSE the high pressure valve (Hi-M) on the manifold gauge.
5. Turn on the vacuum pump to vacuum the system.
6. Let the vacuum pump run for at least 15 minutes and make sure the gauge indicates -0.1 Mpa (-76 cmHg).
NOTE: Depending on your refrigerant line set length and vacuum pump power, it might takes longer time.
7. Close the pressure valve (Lo-M) and turn off the vacuum pump.
8. Leave the system connected with the manifold gauge for 5 minutes, then make sure the gauge indication does not exceed 0.005 Mpa .
NOTE: In the case of a leak, and the pressure value increases, reconnect all the connection joints on the refrigerant line, and redo the vacuum pumping.
9. Open the high-pressure valve (Hi-R) for $1/4$ turn, then close the valve after 5 seconds.
10. Check all connection joints with refrigerant leak detector or liquid leak detector.
11. The air conditioner comes with enough refrigerant for the standard length pipe set, add refrigerant charge if you use a lengthened refrigerant line.
-00-
12. Disconnect the pressure hose from the service port, then fully open the low pressure valve (Lo-R) and high pressure valve (Hi-R).
13. Put the protective caps back on the service, low-pressure valve, and high-pressure valve.
14. Tighten the caps.
15. Turn on the air conditioner and confirm it can power on properly, and then turn it off.



- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve until vacuum pumping is completed.
- Stop and disconnect the vacuum pump from the system before opening the refrigerant valve.
- Each indoor unit connected to the multi-zone outdoor unit must vacuumed respectively.

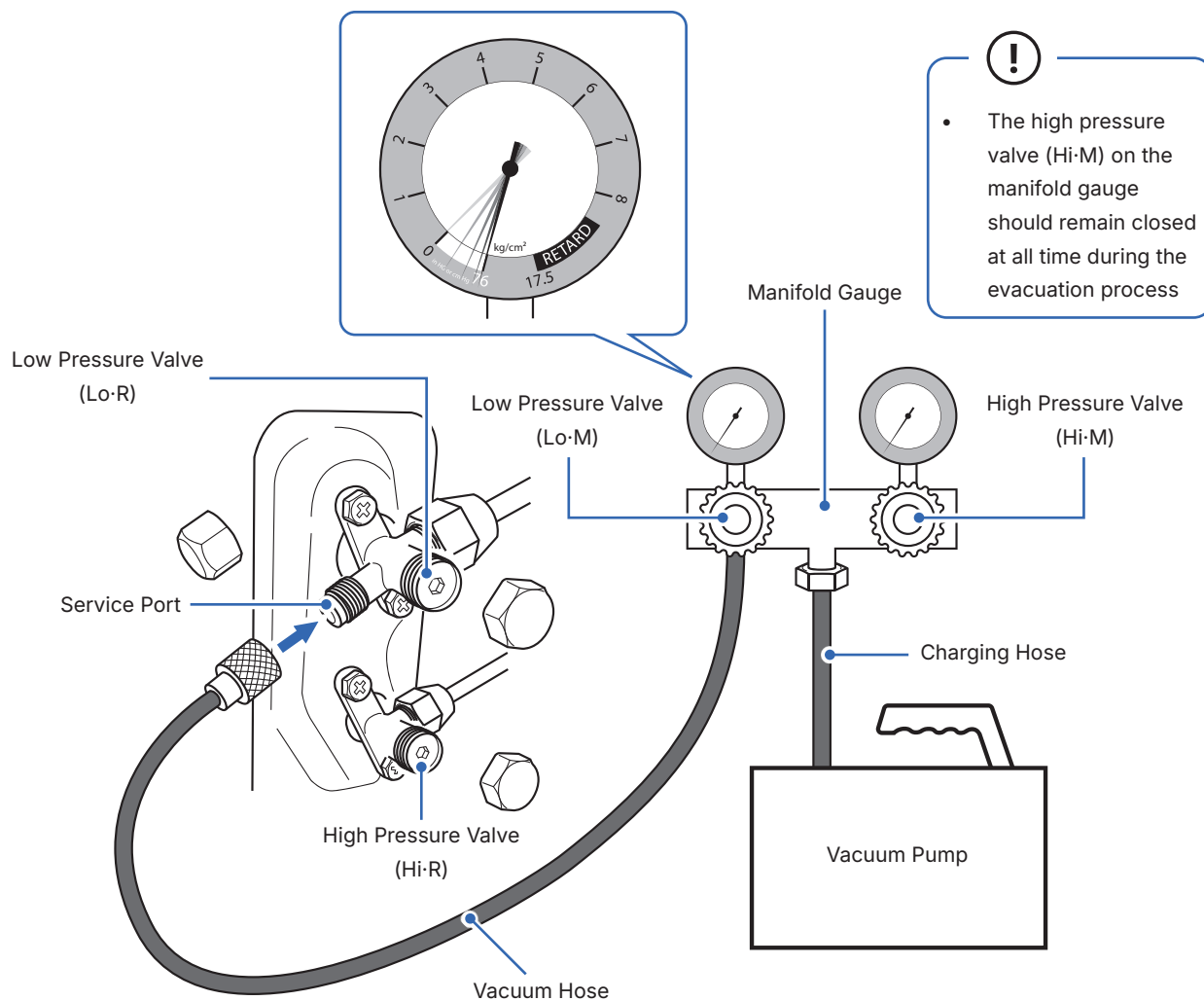


Additional Refrigerant

- Additional Refrigerant Amount (ounce)
 $[0.11 \times (\text{Total Install length (ft)} - 25)] \text{ oz}$
- Additional Refrigerant Amount (gram)
 $[10 \times (\text{Total Install length (m)} - 7.5)] \text{ g}$

Outdoor Unit Installation (2-3 Zones System)

Manifold Gauge Connection



Outdoor Unit Installation (4-5 Zones System with Master Valve)

Vacuum Pumping, Leak Test (Using Micron Gauge) *RECOMMENDED, and Adjust Refrigerant Level

1. Remove the protective caps from the master service port, and from all the low pressure valves (Lo-R) that has a indoor unit connected.
2. Remove schrader valve core from the master service port using valve core removal tool.
3. Connect valve core removal tool (A) to the master service port.
4. Connect one end of the vacuum hose to the vacuum pump, and the other end to valve core removal tool (A).
5. Connect micron gauge onto valve core removal tool (B) and then connect to the side port of valve core removal tool (A).
6. OPEN both ball valves on valve core removal tool (A) and (B).
7. OPEN the low pressure valves.
12. Disconnect the vacuum hose and insert the schrader valve back into the valve core removal tool (A). Make sure the end cap is tightly sealed and then open the ball valve on valve core removal tool (A).
13. Reinstall the schrader valve into the service port.
14. Disconnect the valve core removal tools from the service port.
15. The outdoor unit comes with enough refrigerant for the standard length refrigerant pipe set. Add refrigerant charge if you use a longer refrigerant line. [Page 16](#)
16. Fully open the high pressure valves (Hi-R), following by the low pressure valves (Lo-R) that has a connected unit.
17. Fully open the master valve.
18. Reattach all protective caps back on the master service port, low pressure valves and high pressure valves.
19. Reattach the valve cover on the outdoor unit.



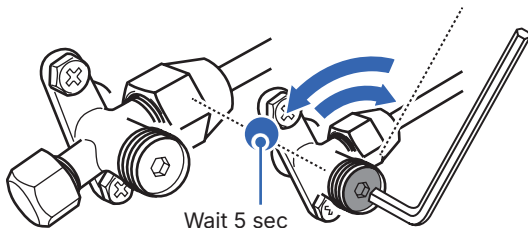
- ONLY open the low pressure valves, DO NOT open the high pressure valves.

8. Turn on the vacuum pump and run until the micron gauge indicate the value of 500 micron or lower. (Ideally close to 350)
9. CLOSE the ball valve on valve core removal tool (A) and turn OFF the vacuum pump. Let the vacuum pressure settle for at least 5 minutes. Ensure the gauge reading does not exceed 500 microns.



- You must leave the micron gauge and vacuum pump connected for a short period after vacuuming the system and check for a successful deep vacuum in order to make sure there is no leak and no contaminants inside the refrigerant lineset.
- In the case of the gauge reading exceeding 500, which indicate a leak, check and re-tighten all connection. Then perform vacuuming again.

10. CLOSE the ball valve on valve core removal tool (B).
11. OPEN all the connected high pressure valve (Hi-R) for 1/4 turn for 5 seconds, and CLOSE the high pressure valve (Hi-R) again.



- ONLY open high pressure valves that has a connected unit.



- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before fully opening the refrigerant valve.
- Master valve must be opened after evacuation for the system to perform properly.

Additional Refrigerant

- Additional Refrigerant Amount (ounce)
 $[0.11 \times (\text{Total install length (ft)} - \text{Supported zones no.} \times 25)] \text{ oz}$
- Additional Refrigerant Amount (gram)
 $[10 \times (\text{Total install length (m)} - \text{Supported zones no.} \times 7.5)] \text{ g}$
- Example 1:
 A total of 150ft of pipe line is installed for a 5 zones system,
 $[0.11 \times (150 - 5 \times 25)] \text{ oz}$
 $= [0.11 \times (150 - 125)] \text{ oz}$
 $= 2.75 \text{ oz of additional refrigerant}$
- Example 2:
 A total of 60ft of pipe line is installed for a 3 zones system,
 $[0.11 \times (60 - 3 \times 25)] \text{ oz}$
 $= [0.11 \times (60 - 75)] \text{ oz}$
 $= -1.65 \text{ oz}$
 $= \text{NO additional refrigerant needed when getting NEGATIVE value.}$

Outdoor Unit Installation (4-5 Zones System with Master Valve)

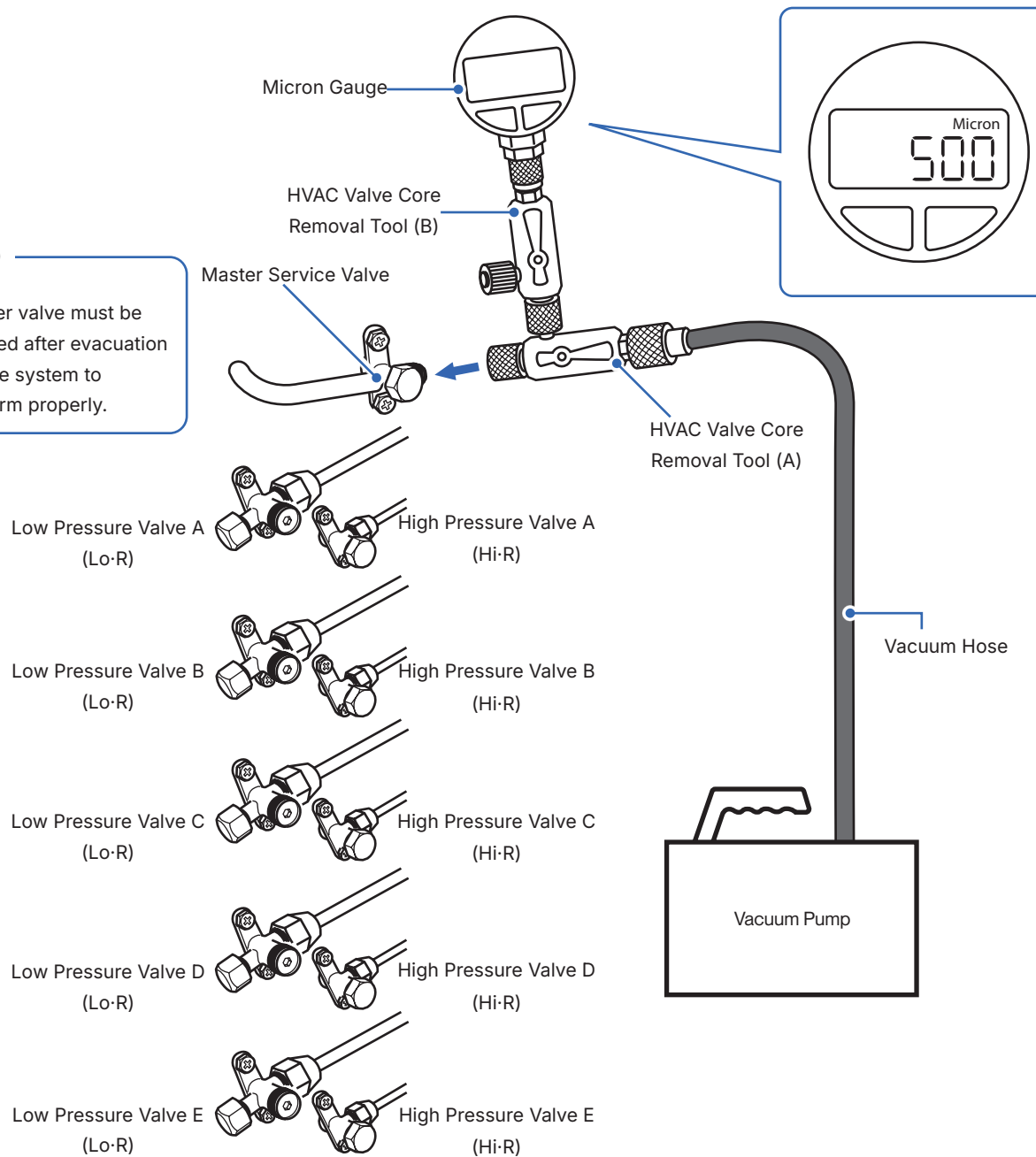
Micron Gauge Connection



- Before vacuum pumping, make sure all refrigerant pipings are connected.
- It is recommended to perform a nitrogen leak check on all refrigerant joints.
- Check if all wiring is connected.



- Master valve must be opened after evacuation for the system to perform properly.



Outdoor Unit Installation (4-5 Zones System, Adding New Indoor Unit)

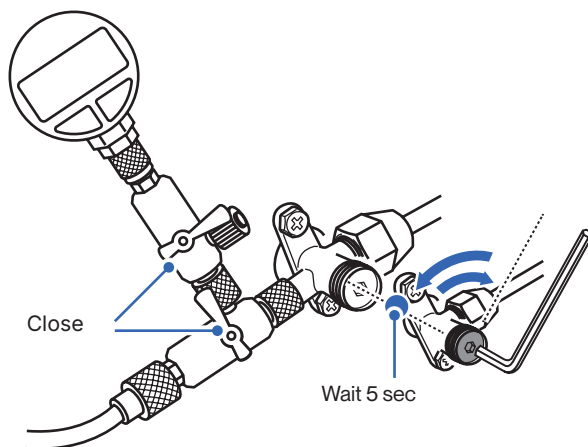
Vacuum Pumping, Leak Test (Using Micron Gauge) *RECOMMENDED, and Adjust Refrigerant Level

1. Remove the protective caps from the service port, low pressure valve (Lo-R), and high-pressure valve (Hi-R) on the valve group with a newly added indoor unit.
2. Remove schrader valve core from the service port using valve core removal tool.
3. Connect valve core removal tool (A) to the service port.
4. Connect one end of the vacuum hose to the vacuum pump, and the other end to valve core removal tool (A).
5. Connect micron gauge onto valve core removal tool (B) and then connect to the side port of valve core removal tool (A).
6. OPEN both ball valves on valve core removal tool (A) and (B).
7. Turn on the vacuum pump and run until the micron gauge indicate the value of 500 micron or lower. (Ideally close to 350)
8. CLOSE the ball valve on valve core removal tool (A) and turn OFF the vacuum pump. Let the vacuum pressure settle for at least 5 minutes. Ensure the gauge reading does not exceed 500 microns.
11. Disconnect the vacuum hose and insert the schrader valve back into the valve core removal tool (A). Make sure the end cap is tightly sealed and then open the ball valve on valve core removal tool (A).
12. Reinstall the schrader valve into the service port.
13. Disconnect the valve core removal tools from the service port.
14. The outdoor unit comes with enough refrigerant for the standard length refrigerant pipe set. Add refrigerant charge if you use a longer refrigerant line. [Page 16](#)
15. Fully open the high pressure valve (Hi-R), following by the low pressure valve (Lo-R) on the valve group of the newly added indoor unit..
16. Reattach all protective caps back on the service port, low pressure valve and high pressure valve.
17. Reattach the valve cover on the outdoor unit.



- You must leave the micron gauge and vacuum pump connected for a short period after vacuuming the system and check for a successful deep vacuum in order to make sure there is no leak and no contaminants inside the refrigerant lineset.
- In the case of the gauge reading exceeding 500, which indicate a leak, check and re-tighten all connection. Then perform vacuuming again.

9. CLOSE the ball valve on valve core removal tool (B).
10. OPEN the high pressure valve (Hi-R) for 1/4 turn for 5 seconds, and CLOSE the high pressure valve (Hi-R) again.



- ONLY open high pressure valves on the valve group currently being vacuumed.



- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before fully opening the refrigerant valve.
- Each newly added indoor unit connected into an existing multi-zone system must be vacuumed respectively.

Additional Refrigerant

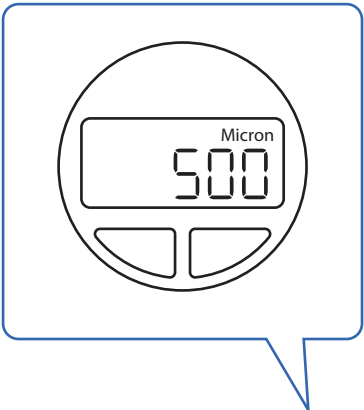
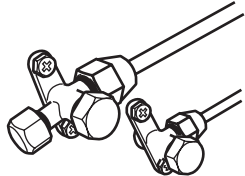
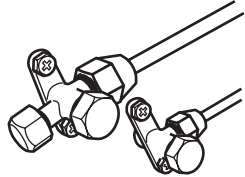
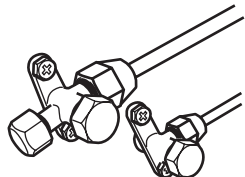
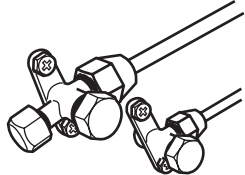
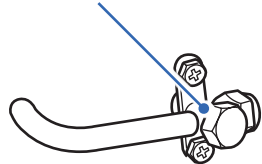
- Additional Refrigerant Amount (ounce)
 $[0.11 \times (\text{Total install length (ft)} - \text{Supported zones no.} \times 25)] \text{ oz}$
- Additional Refrigerant Amount (gram)
 $[10 \times (\text{Total install length (m)} - \text{Supported zones no.} \times 7.5)] \text{ g}$
- Example 1:
 A total of 150ft of pipe line is installed for a 5 zones system,
 $[0.11 \times (150 - 5 \times 25)] \text{ oz}$
 $= [0.11 \times (150 - 125)] \text{ oz}$
 $= 2.75 \text{ oz of additional refrigerant}$
- Example 2:
 A total of 60ft of pipe line is installed for a 3 zones system,
 $[0.11 \times (60 - 3 \times 25)] \text{ oz}$
 $= [0.11 \times (60 - 75)] \text{ oz}$
 $= -1.65 \text{ oz}$
 $= \text{NO additional refrigerant needed when getting NEGATIVE value.}$

Outdoor Unit Installation (4-5 Zones System, Adding New Indoor Unit)



- Master valve has been fully opened on the existing operational system. There is no need to close the master valve when evacuating a newly added indoor unit valve group.

Master Service Valve



Micron Gauge

HVAC Valve Core Removal Tool (B)

Low Pressure Valve (Lo-R)
Service Port

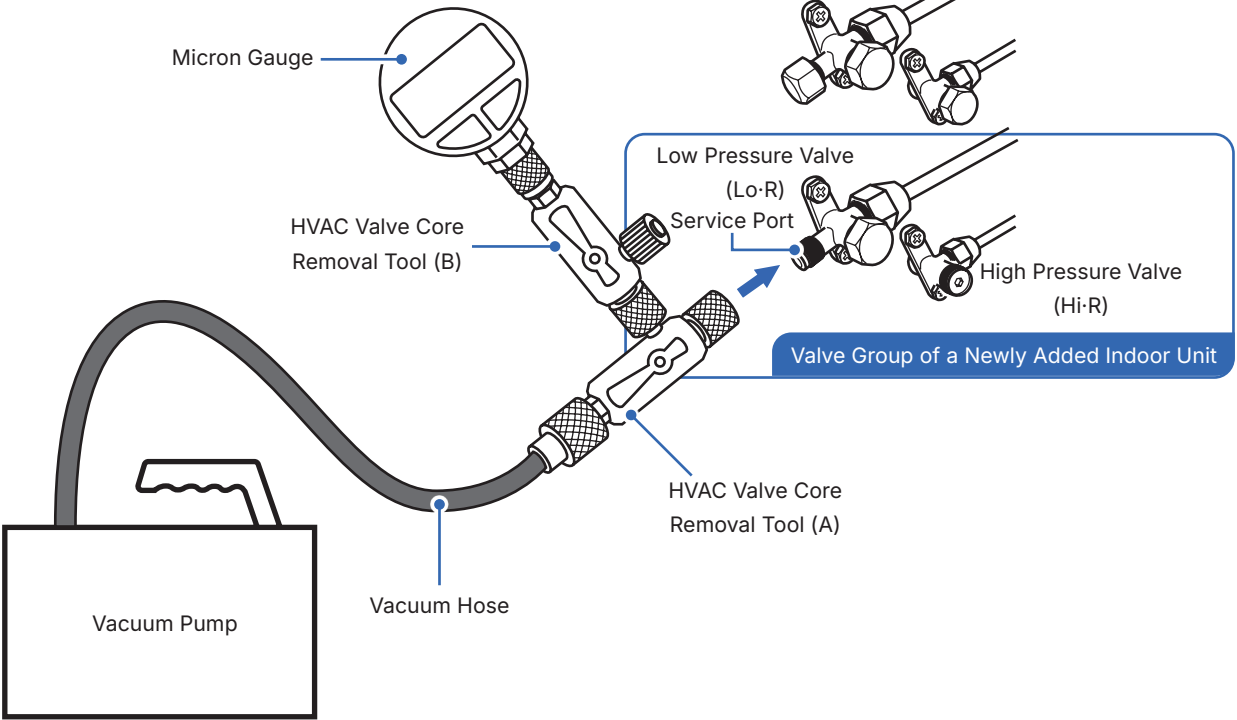
High Pressure Valve (Hi-R)

Valve Group of a Newly Added Indoor Unit

HVAC Valve Core Removal Tool (A)

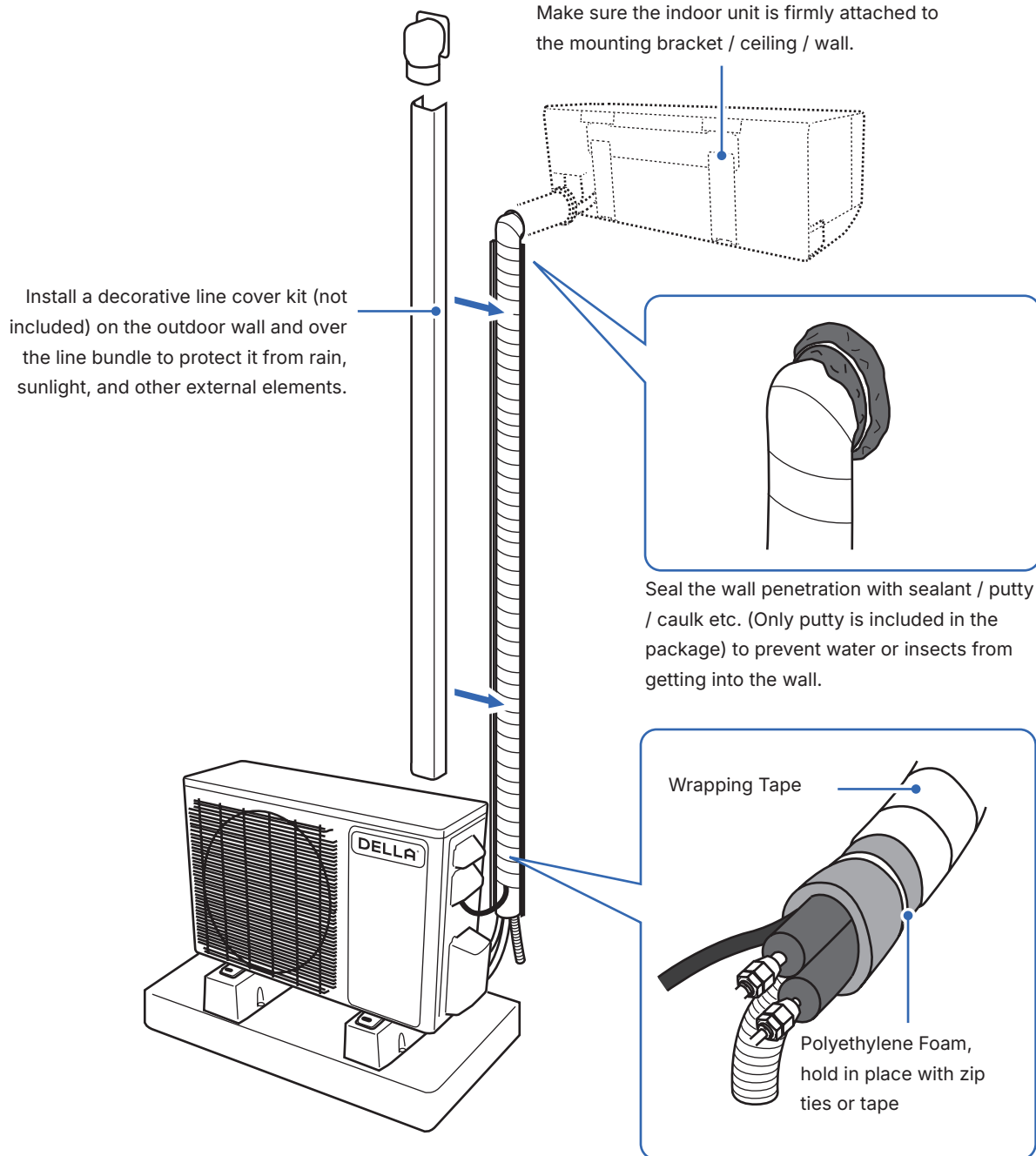
Vacuum Hose

Vacuum Pump



Finishing

Line Set Insulation, Bundling, and Finishing Touch

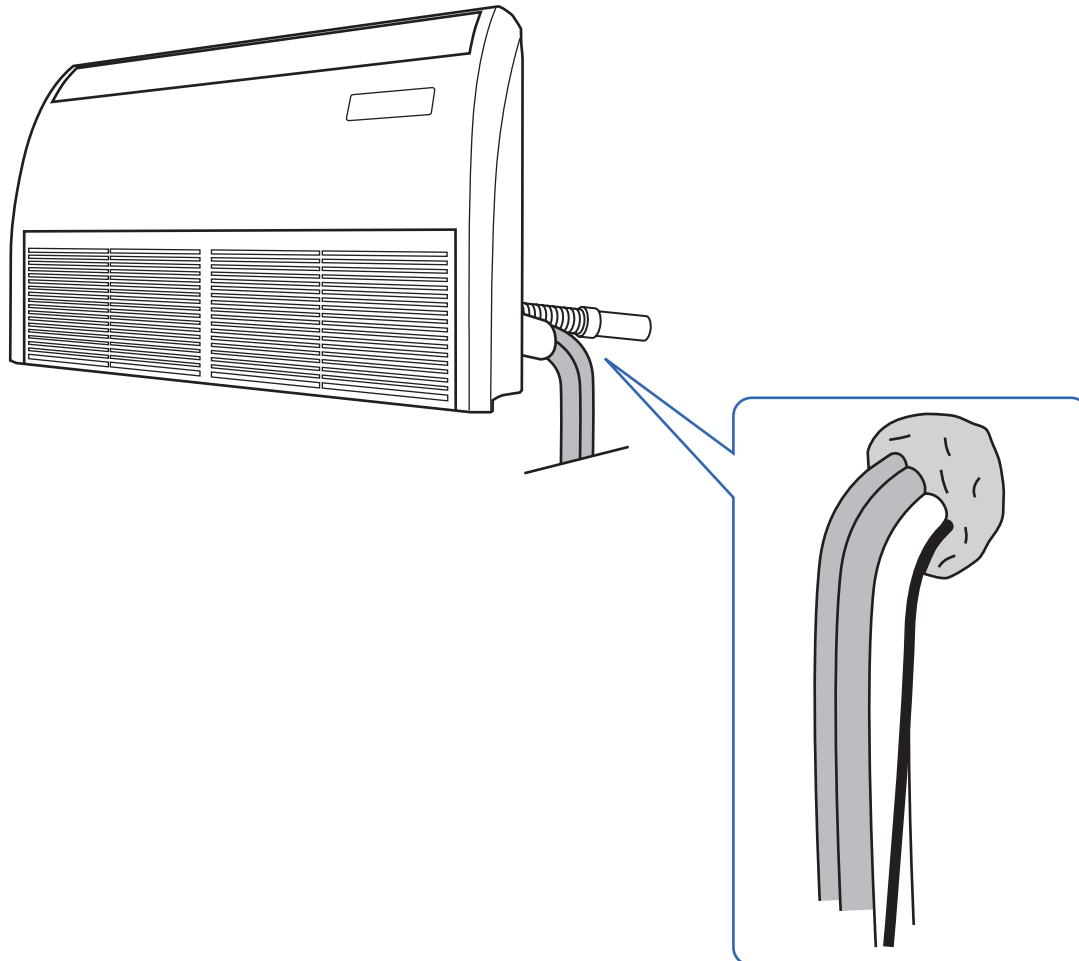


QUICK TIPS

- When wrapping and bundling the line set, avoid over tightening to prevent the insulating materials from over compression.
- Make sure all connection joints are properly insulated.

Finishing

Line Set Insulation, Bundling, and Finishing Touch



Seal the wall penetration with sealant / putty / caulk etc. (Only putty is included in the package) to prevent water or insects from getting into the wall.

Finishing

Check List

Go through the following list and check your installation.

☒ the check box for each confirmation.

Check List	Status
Are the indoor and outdoor unit kept at least the minimum distance away from the closest wall and obstacle?	☐
Is the indoor unit securely mounted?	☐
Are all the panels on the unit secured and would not fall out?	☐
Is the drain hose properly attached?	☐
Are the refrigerant pipes securely connected and no refrigerant leakage?	☐
Are the refrigerant pipes and electrical cables from each indoor unit connected to their corresponding ports? (e.g. Indoor unit A connecting to refrigerant valve A and electrical terminal A on the outdoor unit)	☐
Are all pipes, hoses, and cable bundled and wrapped with insulation tape?	☐
Is the system properly vacuumed?	☐
Is all the wall opening sealed off?	☐
Are the refrigerant valves fully opened?	☐
Do the power supply and voltage match the unit rating? (Check before connecting to power supply)	☐
Is the electrical wiring in the unit connected and secured?	☐
Are the units properly grounded?	☐
Is the power breaker, fuse, or protection device installed?	☐
Can the remote control send control commands to the air conditioner?	☐



- Any failures, accidents, or damages caused by improper installation are not covered by the warranty.

Finishing

Test Run

After the installation, test run the mini split system and take sure it performs and works properly without water leak or abnormal noise.

1. Turn on the power supply.
2. Turn on the air conditioner using the remote control.
3. Test the unit at the lowest temperature in COOL mode.
4. Test the unit at the highest temperature in HEAT mode.
5. Test each mode for at least 8 minutes.
 - Measure the air temperature at the air outlet.
 - Check if water drains properly from the drainage hose.
 - Check if the louver and deflectors move properly.
6. If everything is operating normally, return to normal setting and turn off the air conditioner.
7. Inform the user to read the operation instruction before use, and demonstrate to the user how to use the air conditioner, the necessary knowledge of service and maintenance, and a reminder of accessories storage.



- Wait for at least 2 hours before turning on the air conditioner after installation. Make sure the air conditioner is powered during the wait time and let the system to balance the refrigerant pressure and calibrate sensors.
- When switching between COOL mode and HEAT mode, the system might takes about 3 - 5 minutes due to an internal protection system.



- If the ambient temperature exceed the normal operation range, lift the front panel and use the emergency button to run COOL and HEAT modes.



Contact us if you encounter any problems during or after the installation.



support.dellahome.com



800-863-4143
6:00 a.m. - 4:00 p.m. PST
Monday - Friday



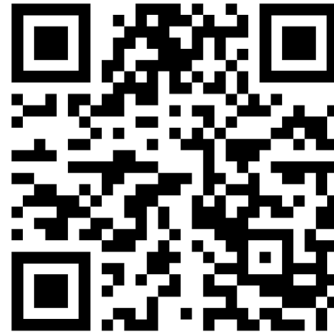
24/7 Live Chat



Warranty



Scan the QR code or visit our page on dellahome.com/pages/warranty to sign up for warranty coverage on your new DELLA appliance.



dellahome.com/pages/warranty

Compliance Information

Radio Frequency Interference



Model: 048-TCQ-MODU series

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Memo

