

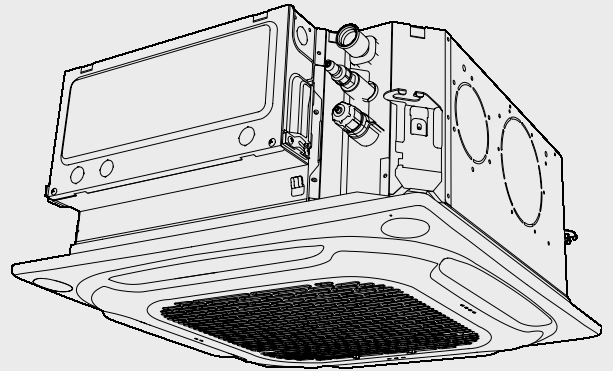
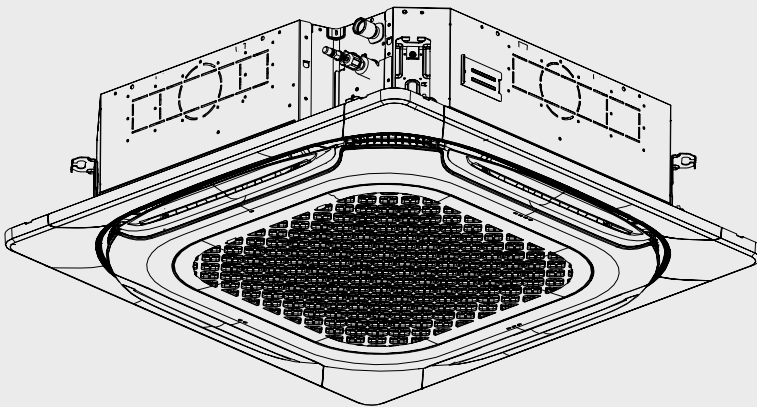


Installation and Operating Instructions

Bosch IDS Heat Pump

Edge Multi Series - Four Way Cassette and Compact Four Way Cassette

7K-18K Capacities | R-454B



BTC 762003321A / 11.2025



Table of Contents

1	Key to Symbols and Safety Instructions	4	11	Troubleshooting	59
1.1	Key to Symbols	4	11.1	Error Codes	59
1.2	Explanation of Symbols Displayed on the Indoor Unit / Outdoor Unit	4	11.2	Operational State Codes	61
1.3	Safety	4			
2	Dimensions	12	12	Test Run	62
2.1	Four-Way Cassette: 9K, 12K, 18K Models	12	12.1	Before Test Run	62
2.2	Compact 4-Way Cassette: 7K, 9K, 12K, 18K Models	13	12.2	Test Run Instructions	62
3	36" x 36" Four-Way Cassette Installation	14	13	Water Discharge Test	62
3.1	Selecting Installation Location	14	14	Disposal Guidelines	63
3.2	Four-Way Cassette Cardboard Mounting Template	15			
3.3	Mounting the 36" x 36" Four-Way Cassette	16			
3.4	36" x 36" Four-way Cassette Drain Piping Installation	18			
3.4.1	Connecting to the Drain Outlet of the Indoor Unit	18			
3.4.2	Install the Drain Pipes	18			
3.4.3	How to Perform Drain Piping	19			
3.4.4	Testing of Drain Piping	21			
4	Compact Four-Way Cassette Installation	22			
4.1	Selecting Installation Location	22			
4.2	Compact Four-Way Cassette Cardboard Mounting Template	23			
4.3	Mounting the Compact Four-Way Cassette	24			
4.4	Compact Four-Way Cassette Drain Piping Installation	27			
4.4.1	Connecting to the Drain Outlet of the Indoor Unit	27			
4.4.2	Install the Drain Pipes	27			
4.4.3	How to Perform Drain Piping	28			
4.4.4	Testing of Drain Piping	30			
5	Refrigerant Piping Connection	31			
5.1	Flaring Connection Instructions – Refrigerant Piping	31			
5.2	Brazing Connection Instructions – Refrigerant Piping	34			
5.3	Pipe Insulation	35			
6	Electrical Wiring	36			
6.1	Four-Way Cassette Power Wiring	36			
6.2	Compact Four-Way Cassette Power Wiring	40			
6.3	Control Wiring	44			
6.4	Grounding	44			
7	Communicating Set up	44			
7.1	Thermostat Wiring	46			
8	Airflow Performance	50			
8.1	Four-Way Cassette Airflow Table	50			
8.2	Compact Four-Way Cassette Airflow Table	50			
9	Panel Installation (Accessory)	51			
9.1	Four-Way Cassette Display Panel Installation	51			
9.2	Compact Four-Way Cassette Display Panel Installation	54			
9.3	Filter Installation	57			
10	Electrical and Refrigerant Leak Checks	58			
10.1	Electrical Safety Checks	58			
10.2	Refrigerant Leak Checks	58			

1 Key to Symbols and Safety Instructions

1.1 Key to Symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following keywords are defined and can be used in this document:

DANGER
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION
CAUTION indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.

NOTICE
NOTICE is used to address practices not related to personal injury.

Important information

Important information
 The info symbol indicates important information where there is no risk to people or property.

1.2 Explanation of Symbols Displayed on the Indoor Unit / Outdoor Unit

Symbol	
	WARNING This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION This symbol shows that the operation manual should be read carefully.
	CAUTION This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION This symbol shows that information is available such as the operating manual or installation manual.

Table 1

1.3 Safety

Please read safety precautions before installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.

WARNING
Improper or dangerous operation!

Installation must be performed by a licensed contractor, and per the instructions in the installation manual. Improper installation can cause water leakage, electrical shock, or fire.

In North America, installation must be performed in accordance with the requirement of NEC (National Electric Code) and CEC (Canadian Electric Code) by licensed and qualified personnel only.

Only contact a licensed contractor for repair or maintenance of this unit.

WARNING

Electrical hazard!

Do not modify the length of the power supply cord or use an extension cord to power the unit.

Do not share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electrical shock.

WARNING

Contains lead!

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

NOTICE

Improper operation, product damage!

IDS Edge Multi Series - Four Way Cassette and Compact Four Way Cassette (R-454B) cannot be combined or paired with previous IDS Condenser generations (R-410A).



WARNING

Installation requirements!

Installation must be performed by a licensed contractor, and per the instructions in the installation manual. Improper installation can cause water leakage, electrical shock, or fire.

In North America, installation must be performed in accordance with the requirement of NEC (National Electric Code) and CEC (Canadian Electric Code) by licensed and qualified personnel only.

Only contact a licensed contractor for repair or maintenance of this unit.

Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.

Install the unit in a solid location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and/or damage.



WARNING

Electrical hazard!

For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. The power supply to the outdoor unit requires a service disconnect at the unit. Only use a dedicated circuit. Never share a power source connected to this system. Insufficient electrical capacity or defects in electrical work can cause electrical shock or fire.

For all electrical work, use the specified cables. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock.

All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.

In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.

If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons such as a licensed electrician in order to avoid a hazard.

The product must be properly grounded at the time of installation, or electrical shock may occur.

If connecting power to fixed wiring, an all-pole disconnection device which has at least 1/8" clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device(RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.



CAUTION

Fire hazard!

For units that have an auxiliary electric heater, do not install the unit within 1 meter (3 feet) of any combustible materials.

Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.

NOTICE

Property damage!

Install condensate drainage piping according to the instructions in this manual. Improper condensate drainage may cause water damage to your home and property.



CAUTION

Contains refrigerant!

This air-conditioning unit contains fluorinated gases. For specific information on the type of gas and the amount, please refer to the relevant label on the outdoor unit itself.

Installation, service, maintenance and repair of this unit must be performed by a certified technician.

Product removal and recycling must be performed by a certified technician.

If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months.

When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

NOTICE

Product damage!

Fuse specifications: The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, for example: T3.15AL/250VAC, T5AL/250VAC, T3.15A/250VAC, T5A/250VAC, T20A/250VAC, T30A/250VAC, etc.

Only blast-proof ceramic fuses can be used.



WARNING

Flammable refrigerant!

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn.

Be aware that refrigerants may not contain an odor.



CAUTION

Fire, personal injury, product damage!

Remove all static electricity before touching units.



WARNING

Flammable refrigerant!

The appliance uses R454B refrigerant.



1.3.1 For R-454B refrigerant charge amount and minimum room area

The indoor and outdoor units are designed to be used together. Please verify the unit you purchased per Table 4 and Table 5. The indoor unit should be installed at least 7.6ft/2.3m above from the floor, and the minimum room area of operating or storage should be as specified in Table 3.

Room size restriction

The appliances are connected via an air duct system to one or more rooms, the bottom of the air outlet of the air duct in the room should be at a height $\geq 7.3\text{ft}/2.2\text{m}$ from the floor. In UL/CSA 60335-2-40, the R-454B refrigerant belongs to mildly flammable refrigerants, which will limit the room area of the system service. Similarly, the total amount of refrigerant in the system should be less than or equal to the maximum allowable refrigerant charge, which depends on the room area serviced by the system.

The nouns in this section are explained as follows :

- **Mc**: The actual refrigerant charge in the system.
- **A**: the actual room area where the appliance is installed.
- **A_{min}**: The required minimum room area.
- **M_{max}**: The allowable maximum refrigerant charge in a room.
- **Q_{min}**: The minimum circulation airflow.
- **Anv_{min}**: The minimum opening area for connected rooms.
- **TA_{min}**: The total area of the conditioned space (For appliances serving one or more rooms with an air duct system).
- **TA**: The total area of the conditioned space connected by air ducts .

Refrigerant charge and room area limitations

For the purpose of determination of room area (A) when used to calculate the maximum allowable refrigerant charge (m_{max}) in an unventilated space, the following shall apply. The room area (A) shall be defined as the room area enclosed by the projection to the floor of the walls, partitions and doors of the space in which the appliance is installed. Spaces connected by only drop ceilings, ductwork, or similar connections shall not be considered a single space. For units mounted higher than 1,8 m, spaces divided by partition walls which are no higher than 1,6 m shall be considered a single space. For fixed appliances, rooms on the same floor and connected by an open passageway between the spaces can be considered a single room when determining compliance to A_{min} , if the passageway complies with all of the following.

- It is a permanent opening.
- It extends to the floor.
- It is intended for people to walk through.

For fixed appliances, the area of the adjacent rooms, on the same floor, connected by permanent opening in the walls and/or doors between occupied spaces, including gaps between the wall and the floor, can be considered a single room when determining compliance to A_{min} , provided all of the following are met.

- The space shall have appropriate openings according to Sec.2.
- The minimum opening area for natural ventilation Anv_{min} shall not be less than the following:

Height of outlet ft (m)	A ft ² / (m ²)	Mc oz (kg)	M_{max} oz (kg)	Anv_{min} ft ² (m ²)
7.2 (2.2)	53.81 (5)	176.35 (5)	94.7 (2.6850)	0.4843 (0.045)
7.2 (2.2)	64.58 (6)	176.35 (5)	103.72 (2.941)	0.4520 (0.042)
7.2 (2.2)	75.34 (7)	176.35 (5)	112.05 (3.177)	0.4089 (0.038)
7.2 (2.2)	86.11 (8)	176.35 (5)	119.77 (3.396)	0.3767 (0.035)
7.2 (2.2)	96.87 (9)	176.35 (5)	127.04 (3.602)	0.3336 (0.031)
7.2 (2.2)	107.63 (10)	176.35 (5)	133.92 (3.797)	0.3013 (0.028)
7.2 (2.2)	118.40 (11)	176.35 (5)	140.48 (3.983)	0.2583 (0.024)
7.2 (2.2)	129.16 (12)	176.35 (5)	146.72 (4.16)	0.2152 (0.02)
7.2 (2.2)	139.93 (13)	176.35 (5)	152.71 (4.33)	0.1722 (0.016)
7.2 (2.2)	150.69 (14)	176.35 (5)	158.46 (4.493)	0.1399 (0.013)
7.2 (2.2)	161.45 (15)	176.35 (5)	164.04 (4.651)	0.0968 (0.009)
7.2 (2.2)	172.22 (16)	176.35 (5)	169.40 (4.803)	0.0538 (0.005)
7.2 (2.2)	182.98 (17)	176.35 (5)	174.62 (4.951)	0.0107 (0.001)

Table 2



Take the $Mc = 5.0\text{kg}$ as an example. For appliances serving one or more rooms with an air duct system, the room area calculation shall be determined based on the total area of the conditioned space (TA) connected by ducts taking into consideration that the circulating airflow distributed to all the rooms by the appliance integral indoor fan will mix and dilute the leaking refrigerant before entering any room.

Opening conditions for connected rooms

When the openings for connected rooms are required, the following conditions shall be applied.

- The area of any openings above $11\text{ - }13/16\text{''}$ from the floor shall not be considered in determining compliance with Anv_{min} .
- At least 50% of the required opening area Anv_{min} shall be below $7\text{ - }7/8\text{''}$ from the floor.
- The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than $3\text{ - }15/16\text{''}$ from the floor.
- Openings are permanent openings which cannot be closed.
 - For openings extending to the floor the height shall not be less than $25/32\text{''}$ above the surface of the floor covering
- A second higher opening shall be provided. The total size of the second opening shall not be less than 50% of minimum opening area for Anv_{min} and shall be at least 59" above the floor.



The requirement for the second opening can be met by drop ceilings, ventilation ducts, or similar arrangements that provide an airflow path between the connected rooms.

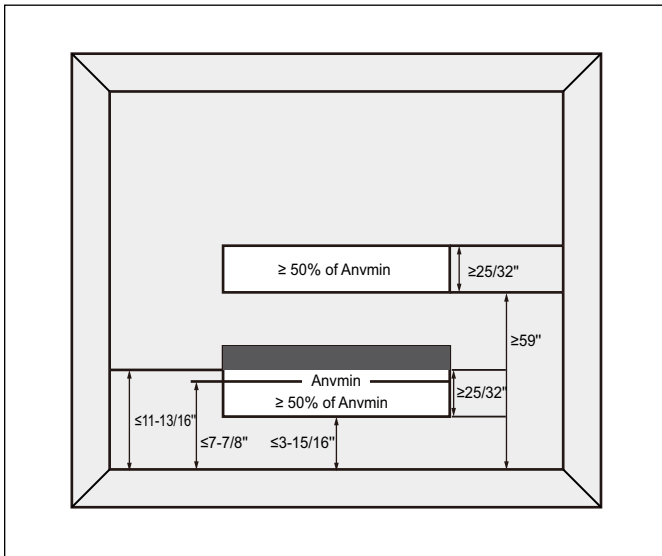


Figure 1

- The room into which refrigerant can leak, plus the connected adjacent room(s) shall have a total area of not less than TA_{min} .
- The room area in which the unit is installed shall be not less than $20\%TA_{min}$.

A_{min} [ft ² /m ²]	hinst [ft/m]				
mc or mREL [oz/kg]	5.9~7.2 / 1.8~2.2	7.5/2.3	8.2/2.5	8.9/2.7	9.8/3.0
≤62.7/1.776			12/1.10		
63.5/1.8	60/5.53	57/5.29	52/4.86	48/4.50	44/4.05
70.5/2	66/6.14	63/5.88	58/5.41	54/5.01	48/4.50
77.6/2.2	73/6.76	70/6.46	64/5.95	57/5.51	53/4.95
84.6/2.4	79/7.37	76/7.05	70/6.49	65/6.01	58/5.41
91.7/2.6	86/7.99	82/7.64	76/7.03	70/6.51	63/5.86
98.8/2.8	93/8.6	89/8.23	81/7.57	75/7.01	68/6.31
105.8/3	99/9.21	95/8.81	87/8.11	81/7.51	73/6.76
112.9/3.2	106/9.83	101/9.4	93/8.65	86/8.01	78/7.21
119.9/3.4	112/10.44	107/9.99	99/9.19	92/8.51	82/7.66
127/3.6	119/11.06	114/10.58	105/9.73	97/9.01	87/8.11
134/3.8	126/11.67	120/11.16	111/10.27	102/9.51	92/8.56
141.1/4	132/12.29	126/11.75	116/10.81	108/10.01	97/9.01
148.1/4.2	139/12.9	133/12.34	122/11.35	113/10.51	102/9.46
155.2/4.4	145/13.51	139/12.93	128/11.89	119/11.01	107/9.91
162.2/4.6	152/14.13	145/13.51	134/12.43	124/11.51	111/10.36
169.3/4.8	159/14.74	152/14.1	140/12.97	129/12.01	116/10.81
176.4/5	165/15.36	158/14.69	145/13.51	135/12.51	121/11.26

Table 3

A_{min}: the required minimum room area in ft² /m²

mc: the actual refrigerant charge in the system in oz/kg

mREL: the refrigerant releasable charge in oz/kg

hinst: the height of the bottom of the appliance relative to the floor of the room after installation.


WARNING

Fire, property damage, personal injury, or death!

The minimum area for installation must be met. The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge.

Installation (where refrigerant pipes are allowed)

- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- That the installation of pipe-work shall be kept to a minimum.
- That pipe-work shall be protected from physical damage.
- Where refrigerant pipes shall be compliance with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- Be more careful that foreign matter (oil, water, etc) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- All working procedure that affects safety means shall only be carried by competent persons.
- Appliance shall be stored in a well ventilated area where the room size corresponds to the room area as specific for operation.
- Joints shall be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in standstill and under operation or under a pressure of at least these standstill or operation conditions after installation. Detachable joints shall NOT be used in the indoor side of the unit (brazed, welded joint could be used).
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- LEAK DETECTION SYSTEM installed. Unit must be powered except for service. For the unit with refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display an error code (ELOC) and emit a buzzing sound, the compressor of outdoor unit will immediately stop, and the indoor fan will start running. The service life of the refrigerant sensor is 15 years. When the refrigerant sensor malfunctions, the indoor unit will display the error code "FHCC". The refrigerant sensor can not be repaired and can only be replaced by the manufacture. It shall only be replaced with the sensor specified by the manufacture.
- that protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;
- that piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system;
- that steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation;
- that precautions shall be taken to avoid excessive vibration or pulsation;
- the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:
 - a. The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system can not be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
 - b. The test pressure after removal of pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
 - c. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 500 microns within 10 min. The vacuum pressure level shall be specified in the manual, and shall be the lesser of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings. - field-made
- field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.

Flammable Refrigerant

When a FLAMMABLE REFRIGERANT is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to:

- the mass charge amount (M) used in the appliance,
- the installation location,
- the type of ventilation of the location or of the appliance.
- piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

Qualification of Workers

Any maintenance, service and repair operations must be required qualification of the working personnel. Every working procedure that affects safety means shall only be carried out by competent persons that joined the training and achieved competence should be documented by a certificate. The training of these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition. Examples for such working procedures are:

- breaking into the refrigerating circuit;
- opening of sealed components;
- opening of ventilated enclosures.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

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 a naked flame) shall not be used. The following leak detection methods are deemed acceptable for refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.



Examples of leak detection fluids are:

- bubble method
- fluorescent method agents

If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is 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. See the following instructions of removal of refrigerant.

Removal and Evacuation

When breaking into the refrigerant circuit to make repairs or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations; evacuate; purge the circuit with inert gas (recommended for A2L); evacuate (recommended for A2L); continuously flush or purge with inert gas when using flame to open circuit; and open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed: Works shall be undertaken with appropriate tools only (In case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them. Cylinders shall be kept upright. Ensure that the refrigeration system is earthed prior to charging the system with refrigerant. Label the system when charging is complete (if not already). Extreme care shall be taken not to overfill the refrigeration system. Prior to recharging the system it shall be pressure tested with oxygen free nitrogen (OFN). The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

When adding refrigerant, use ONLY R454B. This product cannot be used with any other type of refrigerant!

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Transportation, Marking and Storage for Units

1. Transport of equipment containing flammable refrigerants: Must be in compliance with the transport regulations.
2. Marking of equipment using signs: Must be in compliance with local regulations.
3. Disposal of equipment using flammable refrigerants: Must be in compliance with national regulations.
4. Storage of equipment/appliances: The storage of equipment should be in accordance with the manufacturer's instructions.

Storage of packed (unsold) equipment: The storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

2 Dimensions

2.1 Four-Way Cassette: 9K, 12K, 18K Models

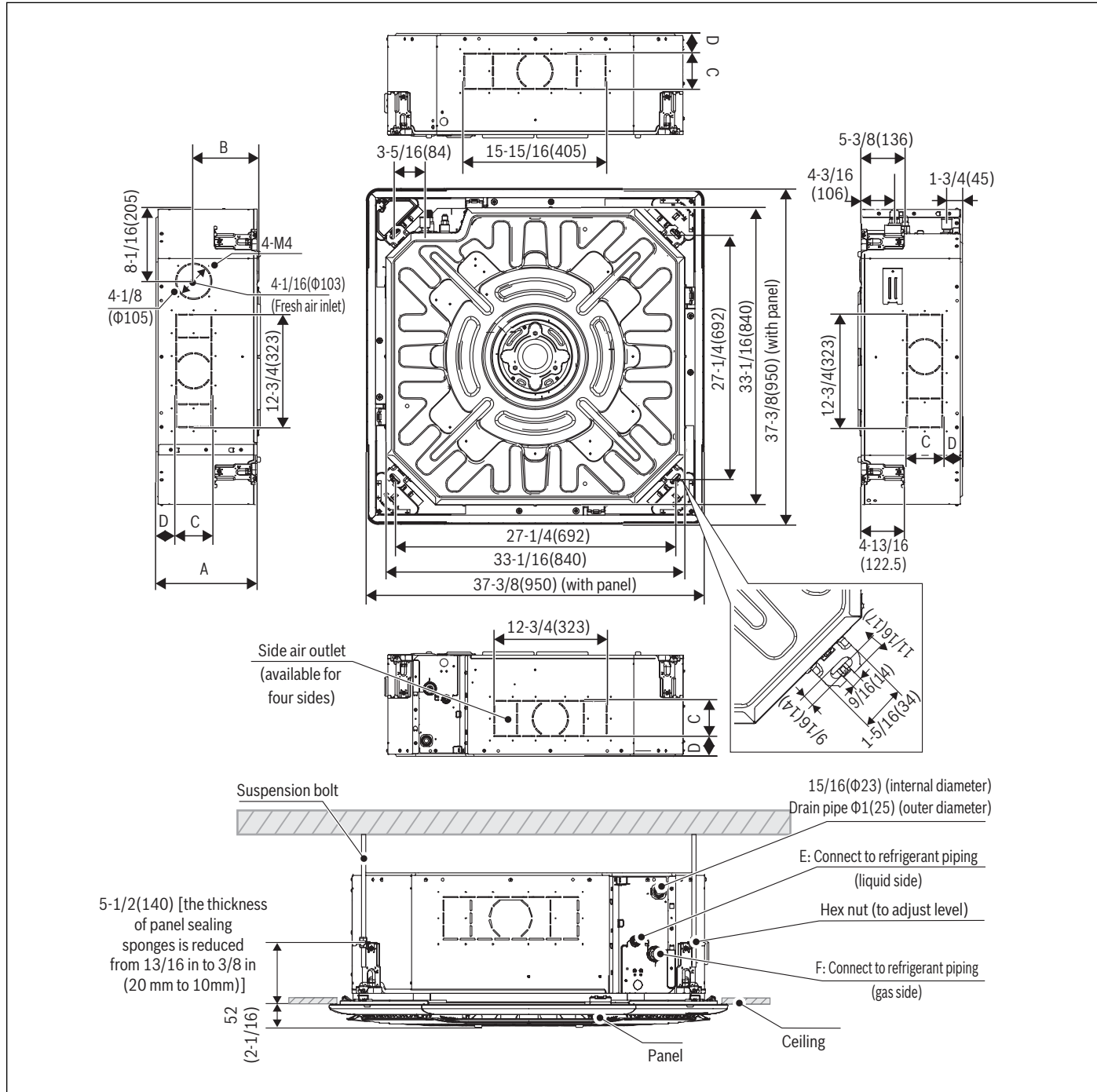


Figure 2 Dimensions Inch [mm]

Model Size	Dimensions Inch [mm]					
	Unit Height "A"	Fresh Air Inlet Offset "B"	Unit Side Air Inlet Offset "C"	Unit Side Air Inlet Offset "D"	Unit Liquid Line Size "E"	Unit Vapor Line Size "F"
9	8 [204]	5-9/16 [141]	2-1/2 [63]	1-5/8 [41.5]	1/4 [6.35]	1/2 [12.7]
12						
18	9-11/16 [246]	4-1/16 [163]	4-1/16 [103]			

Table 4

2.2 Compact 4-Way Cassette: 7K, 9K, 12K, 18K Models

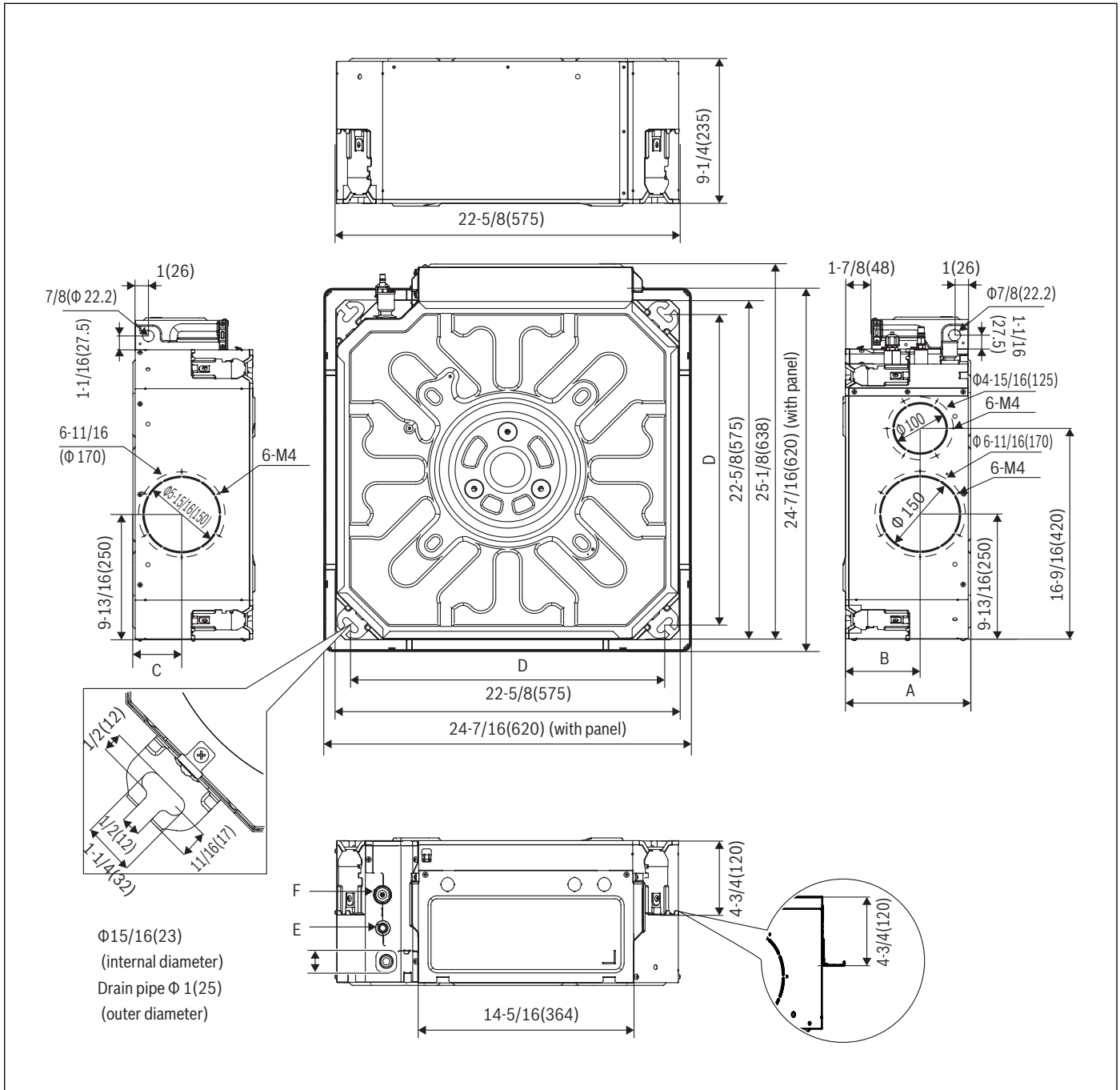


Figure 3 Dimensions Inch [mm]

Model Size	Dimensions Inch [mm]					
	Unit Height "A"	Fresh Air Inlet Offset "B"	2nd Fresh Air Inlet Offset "C"	Mounting tab Size "D"	Unit Liquid Line Size "E"	Unit Vapor Line Size "F"
7	9-1/4 [235]	5-1/2 [140]	3-3/4 [95]	20-7/8 [530]	1/4 [6.35]	1/2 [12.7]
9						
12						
18						

Table 5

3 36" x 36" Four-Way Cassette Installation

3.1 Selecting Installation Location

When the conditions in the ceiling exceeds 90°F (32°C) with a relative humidity of 80%, or when fresh air needs to be introduced to the space, additional insulation is required (minimum 0.4in(10 mm) thickness, polyethylene foam).



Before installing the indoor unit, refer to the label on the product box to make sure that the model number of the indoor unit pairs with the model number of the outdoor unit.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

- Proper installation locations meet the following standards:
 - Good air circulation
 - Convenient drainage of condensate
 - Noise from the unit will not disturb other people
 - Firm and solid—the location will not vibrate
 - Strong enough to support the weight of the unit
 - A location at least three feet from all other electrical devices (e.g., TV, radio, computer)
 - Flat horizontal ceiling
 - Sufficient clearance for maintenance and service
 - Requires enough or exist room for the connecting pipes and drainpipes.
 - There is no direct radiation from heaters.
 - The air inlet and outlet are not blocked.
- DO NOT install unit in the following locations:
 - Near any source of heat, steam, or combustible gas
 - Near flammable items such as curtains or clothing
 - Near any obstacle that might block air circulation
 - Near the doorway
 - In a location subject to direct sunlight
 - Areas with oil drilling or fracking
 - Coastal areas with high salt content in the air
 - Areas with corrosive gas, such as sulfurous acid gas
 - Areas with strong electromagnetic waves

Step 2: Check required space

Determine the required space as shown in Figure 4. Use the provided mounting cardboard template to accurately mark the drilling positions for the suspension bolts. Additionally, ensure that an access hole is created on the side of the electrical box. Recommended size for the access hole: 17-3/4" x 17-3/4" (450 x 450 mm).

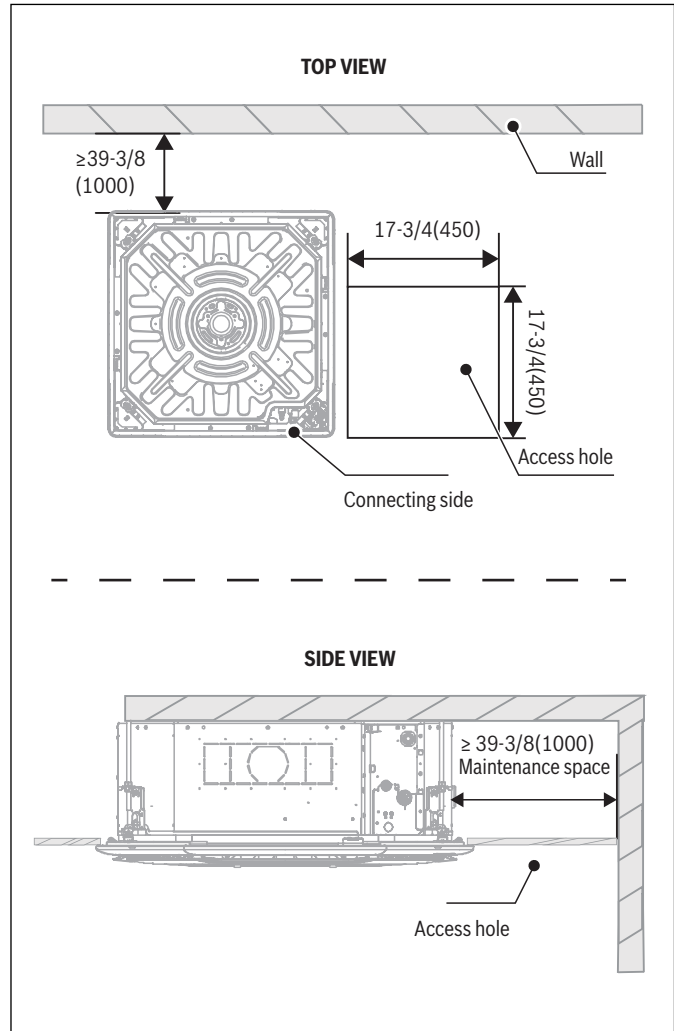


Figure 4 Dimensions Inch [mm]

3.2 Four-Way Cassette Cardboard Mounting Template

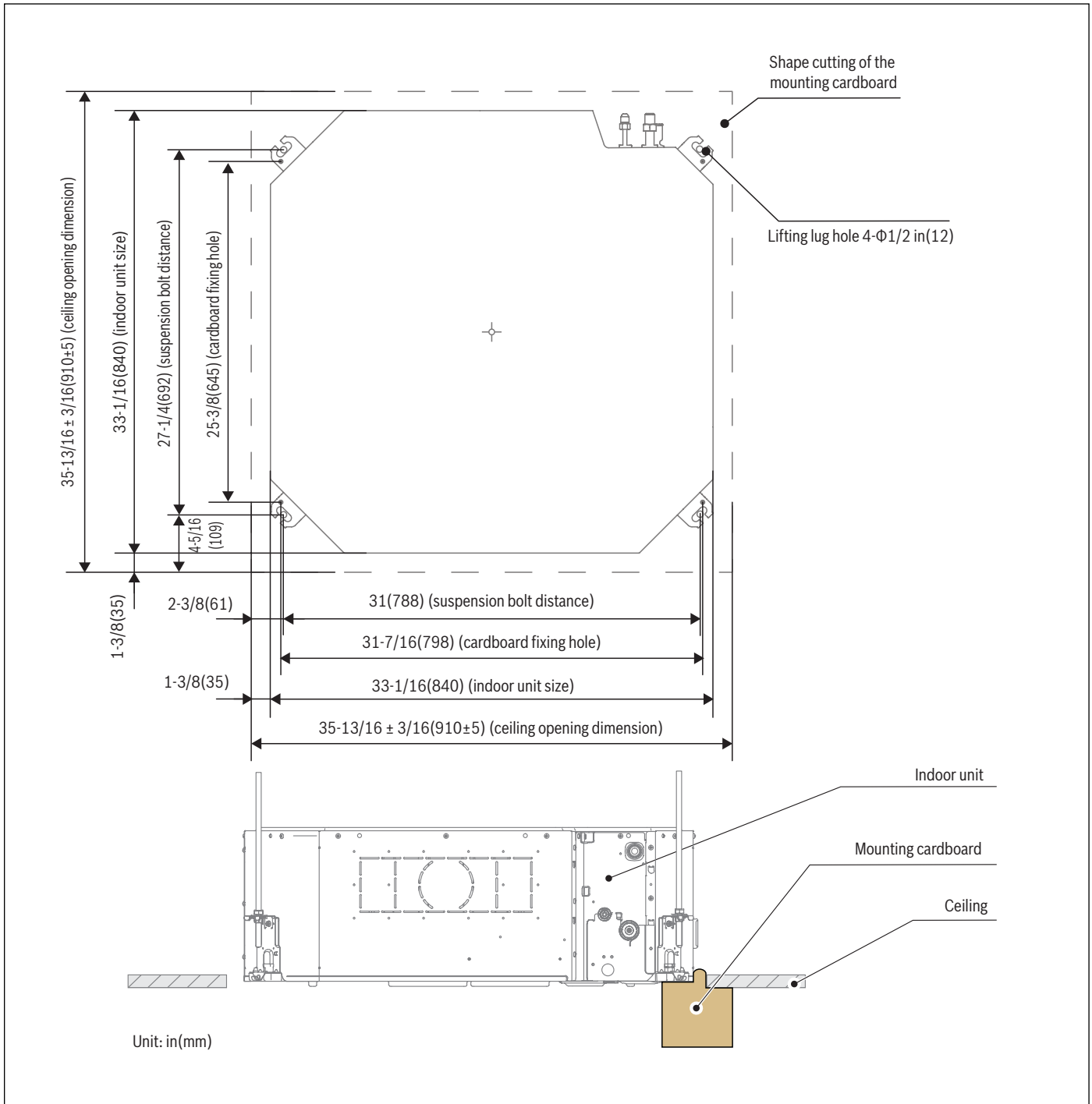


Figure 5 Dimensions Inch [mm]

Recommended Distances Between the Indoor Unit and The Ceiling

Use the included mounting cardboard template shown in Figure 5 to accurately mark the required ceiling cutout and the positions of the four suspension bolts. Be sure to cut the cardboard along the designated cutting lines before measuring and marking the bolt locations as well as the ceiling cutout. Adjust the hex nuts on the suspension bolts to ensure the unit is perfectly level.

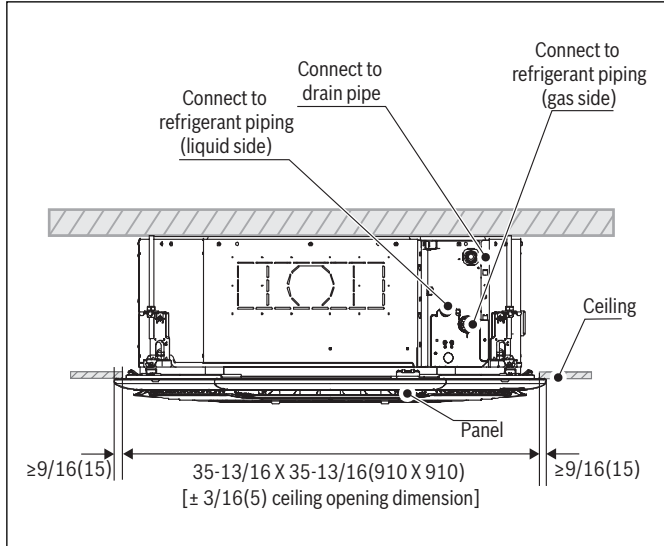


Figure 6 Dimensions Inch [mm]

! WARNING

Contains refrigerant!

Do not install the unit in an area where flammable materials are present due to risk of explosion resulting in serious injury or death.

! WARNING

Property damage/system failure!

If the base is not strong enough to support the weight of the unit, the unit could fall out of place and cause serious injury.

3.3 Mounting the 36" x 36" Four-Way Cassette

Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed (except for the decoration panel). However, for existing ceiling, install fresh air inlet component kit and branch duct before installing the unit. If installing in a new room/ceiling it may be beneficial to embed hook for suspension bolts. Ensure the hook can withstand 4 times the weight of the indoor unit and will not loosen due to concrete shrinkage. It is also important the ceiling is leveled to ensure proper operation of the unit.

Step 1: Mark and cut out ceiling

Use the mounting cardboard to cut out a 35-13/16in x 35-13/16in (91cmx91cm) hole in the ceiling, see Figure 7.

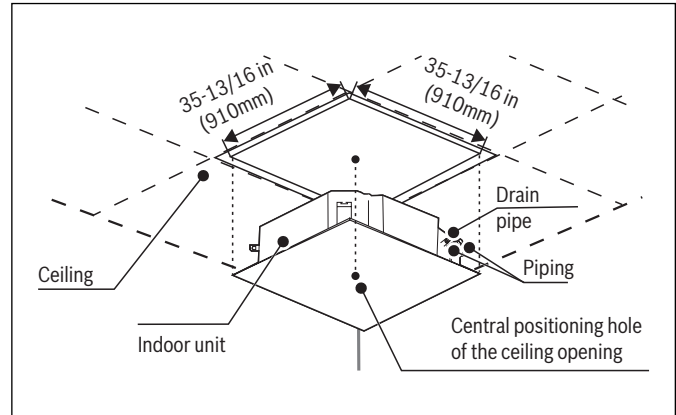


Figure 7

Step 2: Install mounting bolts and suspension bolts

Field supplied high-quality carbon steel bolts (galvanized or with other anti-rust paint applied) or stainless steel bolts should be used for the suspension bolts. Refer to Figure 8 and Figure 9.

! WARNING

Electrical hazard, fire, personal injury, property damage, product damage!

Ensure the installation location is able to support the weight of the unit. Take reinforcement measures when necessary and comply with all local ordinances.

Ensure the unit is mounted securely.

The unit may fall and cause personal injury if the location is not strong enough.

Unstable installation may cause the unit to fall and cause an accident.

Before wiring/piping the system, ensure the installation area is safe and free of water, power, gas, and other hidden dangers.

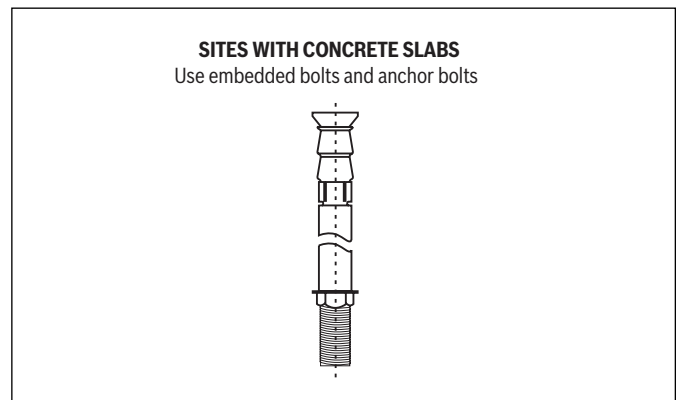


Figure 8

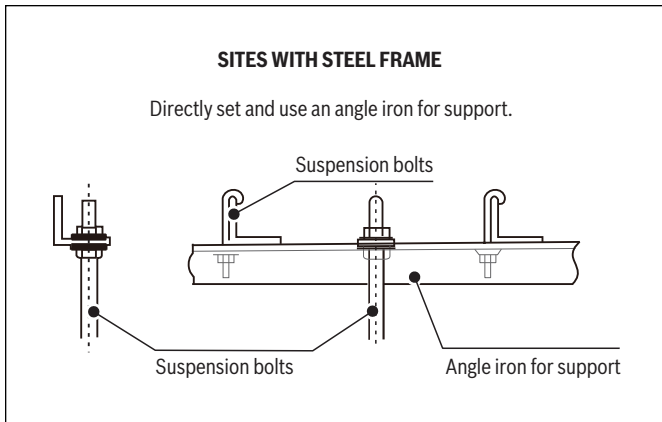


Figure 9

- a. Use a pencil to mark where the suspension bolts will go on the ceiling. Make sure the marks line up with the holes on the cassette.
- b. Drill pilot holes at the marked spots and install 4 anchor bolts.
- c. Use turnbuckle nuts to connect or weld 4 suspension bolts [the suspension bolt diameter shall not be less than 3/8in(10mm)] to the anchor bolts.
- d. On each suspension bolt, place 3 nuts divided into two groups:
 - One nut on top
 - Two nuts at the bottom
- e. Hang the cassette by fitting the mounting tabs onto the suspension bolts and secure the nuts (Figure 10). If the length of the hanger rod exceeds 59-1/16in (1.5m), two diagonal support rods must be added to enhance stability.

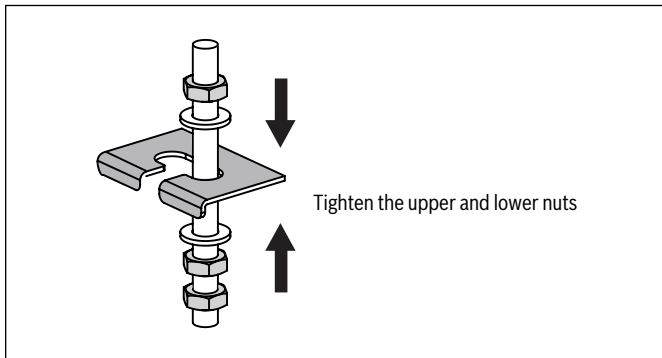


Figure 10

- f. Finally, level the unit by adjusting the hex nuts on the four mounting hooks. The bottom of the unit should also be 3/8in to 1/2in (10-12mm) recessed from the bottom of the ceiling (see Figure 11).

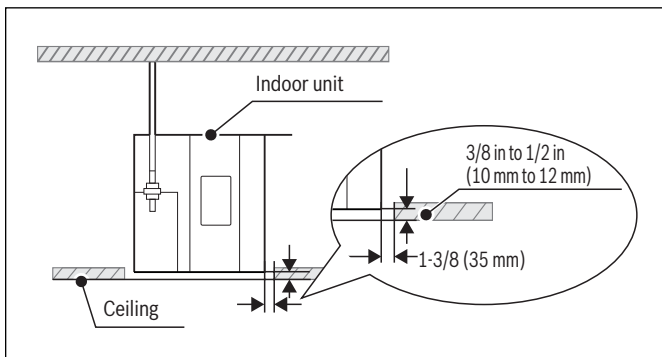


Figure 11

- g. Additionally, Ensure the condensate discharge pipe is not slanted so the float switch function properly (see Figure 12).

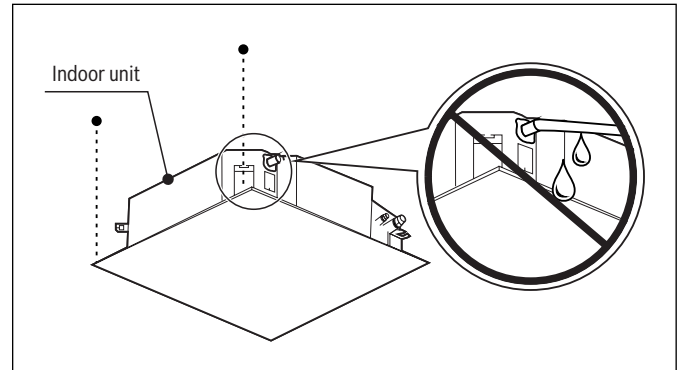


Figure 12

! WARNING

Personal injury, property damage, product damage!

If the suspension bolt diameter is less than 3/8" (10mm), the bolt may fail and cause the cassette to fall and cause property damage and/or bodily harm.

When the length of the hanging rods exceeds 59-1/16in (1.5m), two diagonal supports are required to increase stability. Failing to do so may cause the rods to fail and cause the cassette to fall and cause property damage and/or bodily harm.

Step 3: Check that the unit is horizontally level

Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch. (If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch may malfunction and cause water to drip.)

Check if the unit is levelled at all four corners with a level measuring instrument or a water-filled translucent vinyl tube as shown in Figure 13.

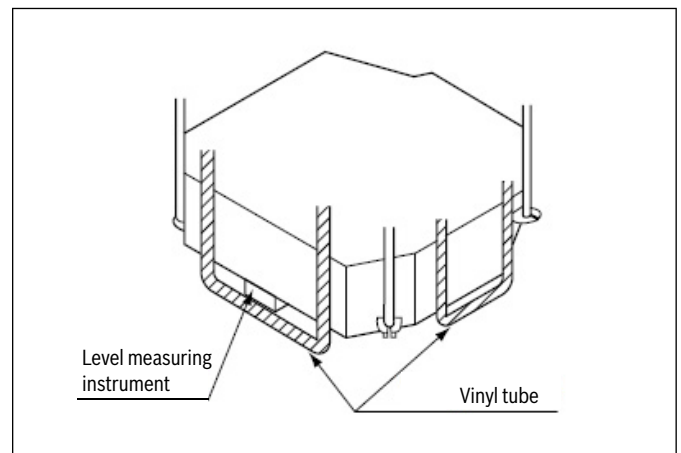


Figure 13

3.4 36" x 36" Four-way Cassette Drain Piping Installation

NOTICE

Property damage, product damage!

Before installation of the drain pipe, determine its direction and elevation to ensure a straight slope and avoid obstruction from other piping.

The highest point of the drain pipe should be equipped with a vent port to ensure proper condensate drainage. The dispelling port should also face downwards to prevent contaminants such as dirt from entering the piping.

Do not connect the drain pipe to a wastewater pipe, sewage pipe, or any other other pipe that produce corrosive gases and odors as this will cause corrosion of the coils as well as introduce odor to the room. Please note that if these instructions are not followed, the user may be held responsible.

A full water test should be conducted after the drain pipe is installed to verify proper function and identify leaks.

Avoid adverse slopes, convex/concave pipes as improper flow will cause poor drainage.

Drain pipes should be properly insulated to avoid condensation on them.

All drain pipe joints must be sealed to prevent leaks.

3.4.1 Connecting to the Drain Outlet of the Indoor Unit

Install the PVC drain piping to the water pump outlet show in figure below. Ensure the orifice of the PVC pipe is flat and smooth. Fasten the connection between the water pump outlet and the drain piping with cable ties in combination with PVC/ rubber adhesives. Ensure proper use of the adhesives to prevent corrosion on the EPDM rubber. Pipe insulation should also be used. Ensure the insulation is about 2in longer than the drain pipe to ensure enough casing is available.

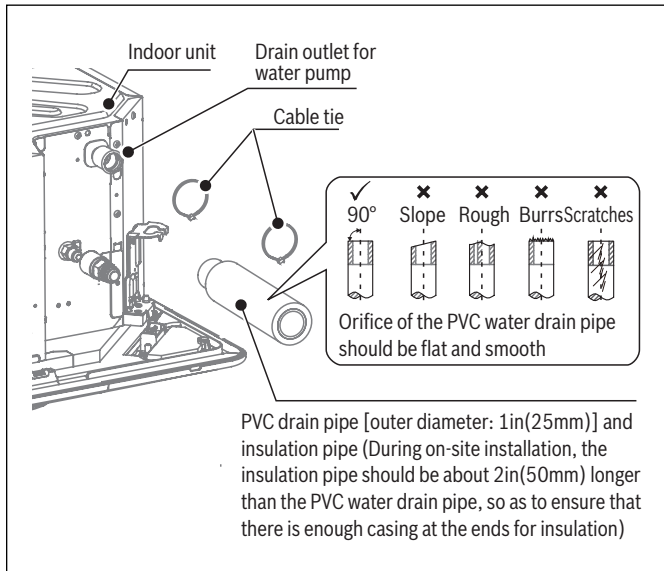


Figure 14

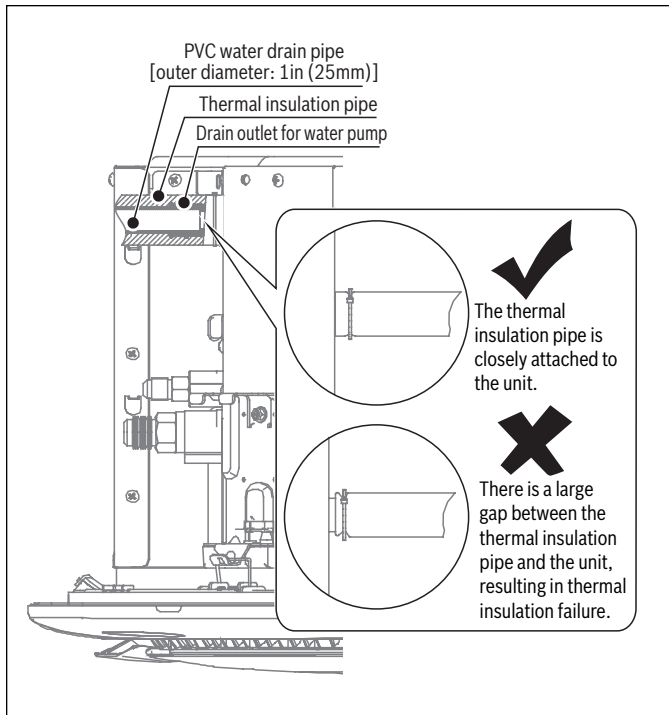


Figure 15

3.4.2 Install the Drain Pipes

- Keep the drain pipe short and sloping downwards at a gradient of at least 1/4" per foot to prevent air from remaining trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (PVC pipe, nominal diameter 0.8in/20mm, outside diameter 1in/25mm).
- Push the drain hose as far as possible over the drain socket, and tighten the metal clamp securely.
- Wrap the insulation (field supplied) over the metal clamp and drain hose to insulate. See Figure 15.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supplied).
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket.

3.4.3 How to Perform Drain Piping

- Connect the drain hose to the drain raising pipes and insulate them.
- Connect the drain hose to the drain socket on the indoor unit and tighten it with the clamp.

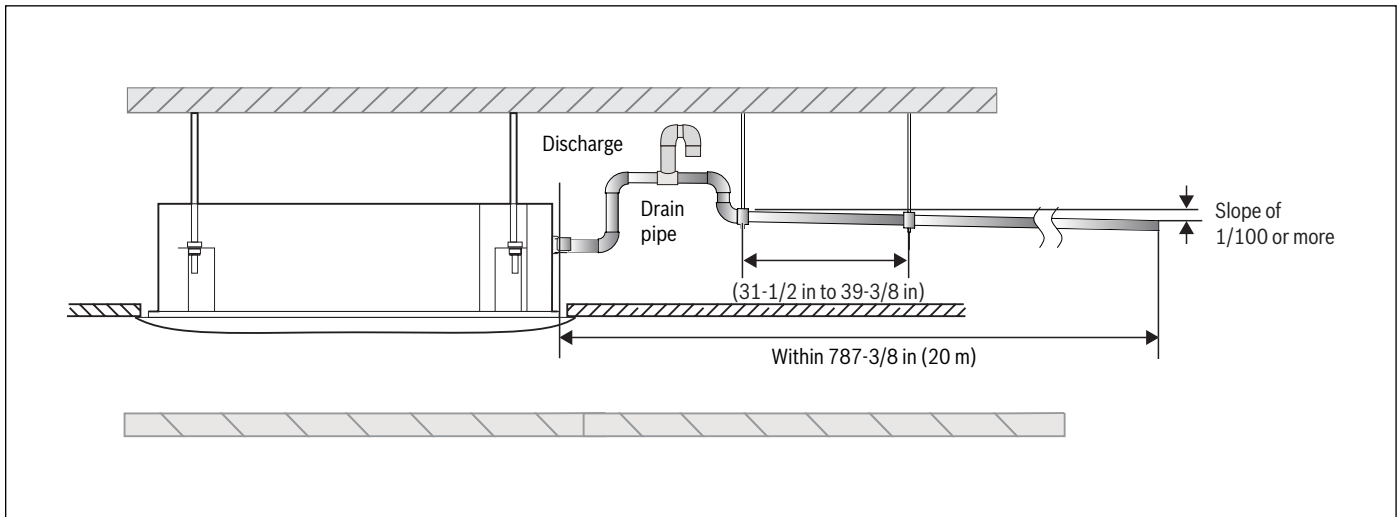


Figure 16

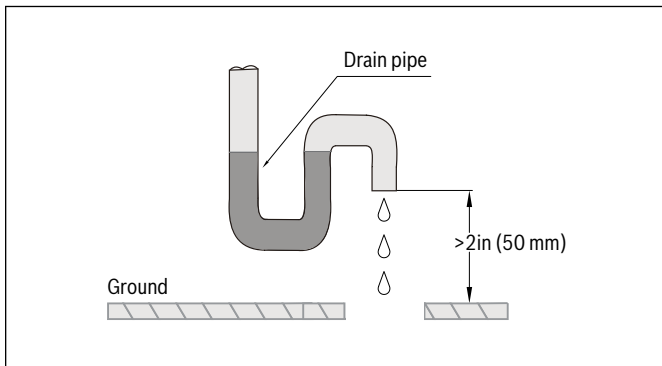


Figure 17

- The end point of the drain pipe must be more than 2in (50mm) above the ground or from the base of the water drainage slot. DO NOT submerge the end in water. If draining directly to a ditch, the drain pipe must bend upwards to form a U-shaped water plug to prevent odors from entering the room through the piping.

Precautions

- Install the drain raising pipes at a height of less than 39-3/8in (1m).
- Install the drain raising pipes at a right angle to the indoor unit and no more than 7-7/8 in (200mm) from the unit.
- To ensure a downward slope of 1/8" per foot, install hanging bars every 2.6ft (0.8m) to 3.2ft(1m).
- When unifying multiple drain pipes, install the pipes as shown in Figure 18. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.

3.4.4 Testing of Drain Piping

After the piping work is finished, check if unit drains correctly.

- Put approximately 1/4gal. of water into the drain pan through the fresh air intake. Make sure not to pour water over the drain pump or any electric parts including the drain pump. Remove the water cover and place a tube to add water through the uncovered hole (See Figure 20).

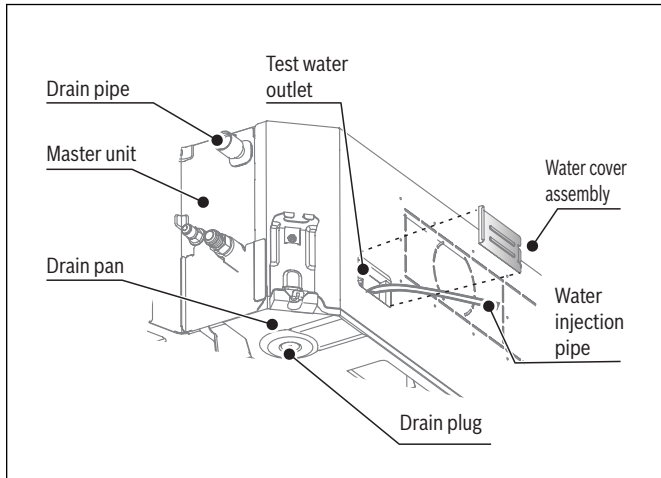


Figure 20

- When electrical wiring work and refrigerant piping/charging are finished, check drainage flow during COOL operation, explained in Section "12 Test Run" on page 62 .

4 Compact Four-Way Cassette Installation

4.1 Selecting Installation Location

When the conditions in the ceiling exceeds 90°F (32°C) with a relative humidity of 80%, or when fresh air needs to be introduced to the space, additional insulation is required (minimum 0.4in(10 mm) thickness, polyethylene foam).



Before installing the indoor unit, refer to the label on the product box to make sure that the model number of the indoor unit pairs with the model number of the outdoor unit.

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

- Proper installation locations meet the following standards:
 - Good air circulation
 - Convenient drainage of condensate
 - Noise from the unit will not disturb other people
 - Firm and solid—the location will not vibrate
 - Strong enough to support the weight of the unit
 - A location at least three feet from all other electrical devices (e.g., TV, radio, computer)
 - Flat horizontal ceiling
 - Sufficient clearance for maintenance and service
 - Requires enough or exist room for the connecting pipes and drainpipes.
 - There is no direct radiation from heaters.
 - The air inlet and outlet are not blocked.
- DO NOT install unit in the following locations:
 - Near any source of heat, steam, or combustible gas
 - Near flammable items such as curtains or clothing
 - Near any obstacle that might block air circulation
 - Near the doorway
 - In a location subject to direct sunlight
 - Areas with oil drilling or fracking
 - Coastal areas with high salt content in the air
 - Areas with corrosive gas, such as sulfurous acid gas
 - Areas with strong electromagnetic waves

Step 2: Check required space

Determine the required space as shown in Figure 23. Use the provided mounting cardboard template to accurately mark the drilling positions for the suspension bolts. Additionally, ensure that an access hole is created on the side of the electrical box (Figure 21 and Figure 22). Recommended size for the access hole: 17-3/4" x 17-3/4" (450 x 450 mm).

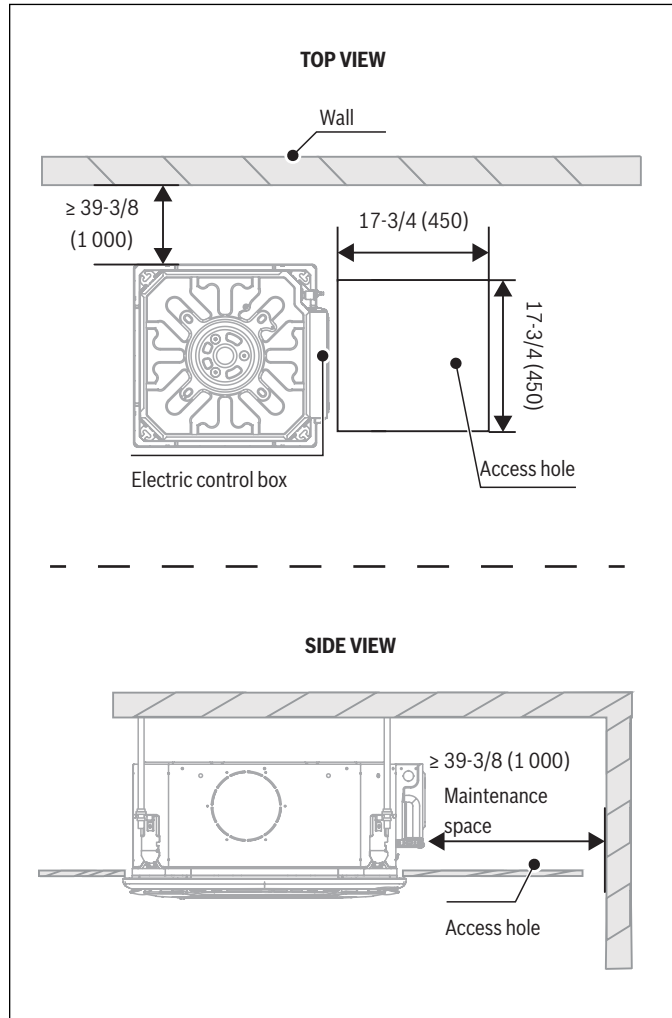


Figure 21 Dimensions Inch [mm]

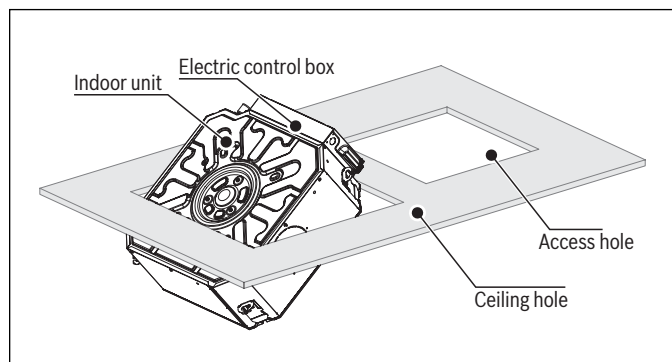


Figure 22

4.2 Compact Four-Way Cassette Cardboard Mounting Template

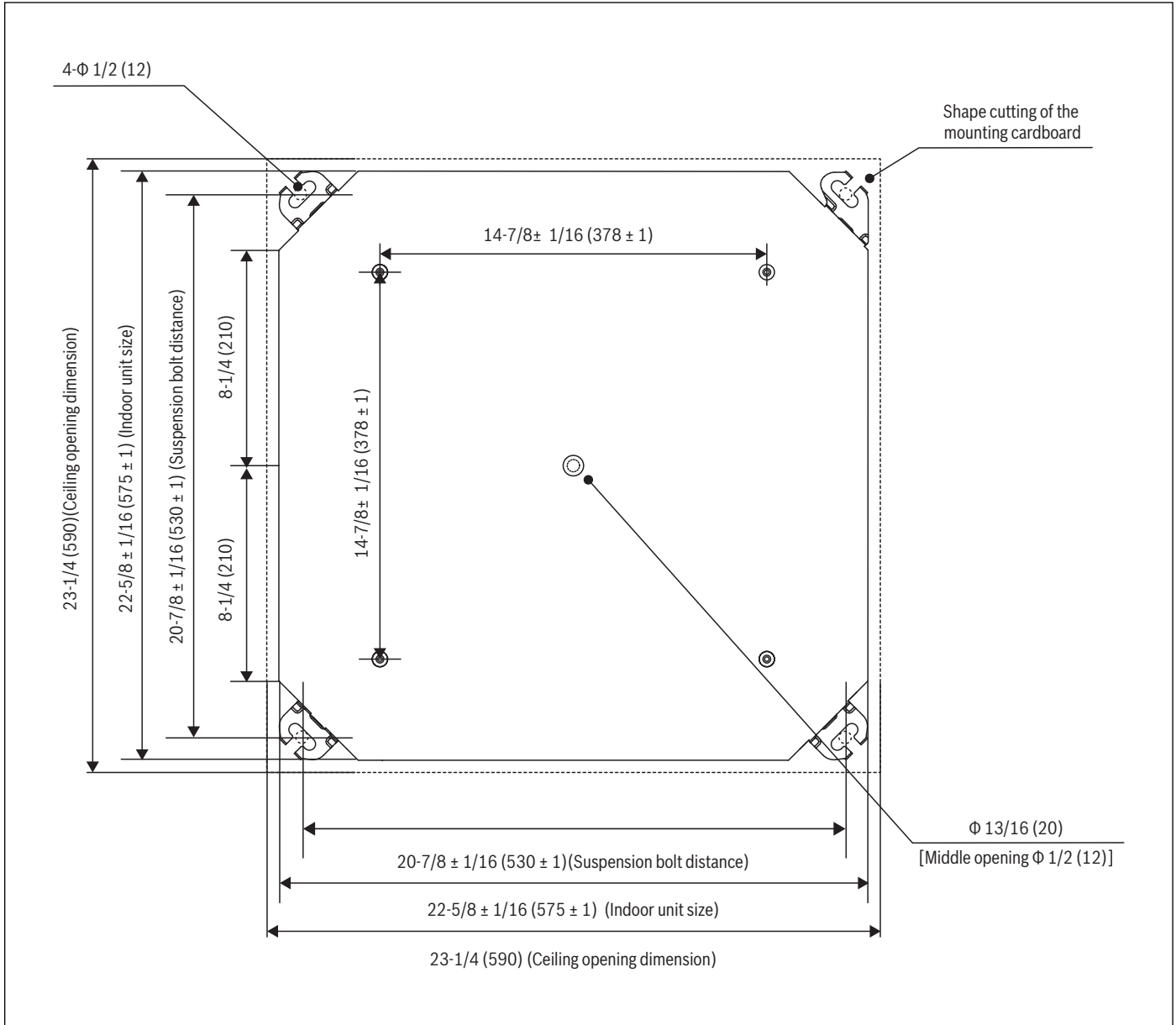


Figure 23 Dimensions Inch [mm]

Recommended Distances Between the Indoor Unit and The Ceiling

Use the included mounting cardboard template shown in Figure 24 to accurately mark the required ceiling cutout and the positions of the four suspension bolts. Be sure to cut the cardboard along the designated cutting lines before measuring and marking the bolt locations as well as the ceiling cutout. Adjust the hex nuts on the suspension bolts to ensure the unit is perfectly level.

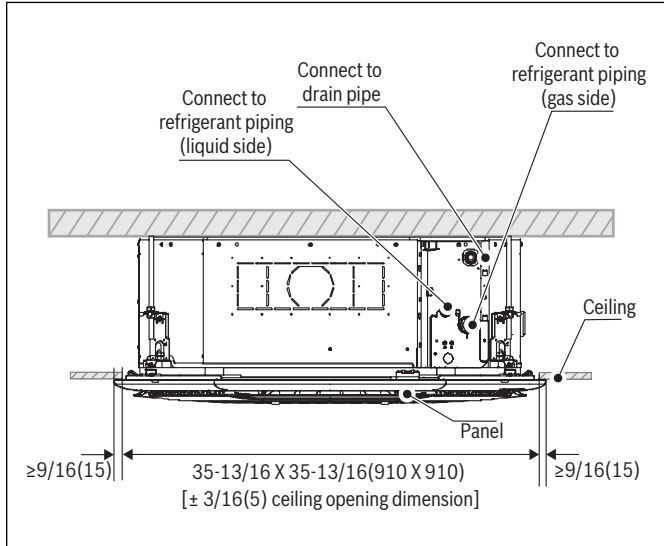


Figure 24 Dimensions Inch [mm]

WARNING
Contains refrigerant!

Do not install the unit in an area where flammable materials are present due to risk of explosion resulting in serious injury or death.

WARNING
Property damage/system failure!

If the base is not strong enough to support the weight of the unit, the unit could fall out of place and cause serious injury.

4.3 Mounting the Compact Four-Way Cassette

Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed (except for the decoration panel). However, for existing ceiling, install fresh air inlet component kit and branch duct before installing the unit. If installing in a new room/ceiling it may be beneficial to embed hook for suspension bolts. Ensure the hook can withstand 4 times the weight of the indoor unit and will not loosen due to concrete shrinkage. It is also important the ceiling is leveled to ensure proper operation of the unit.

Step 1: Mark and cut out ceiling

Use the mounting cardboard to cut out a 23-1/4in x 23-1/4in (59cmx59cm) hole in the ceiling, see Figure 25.

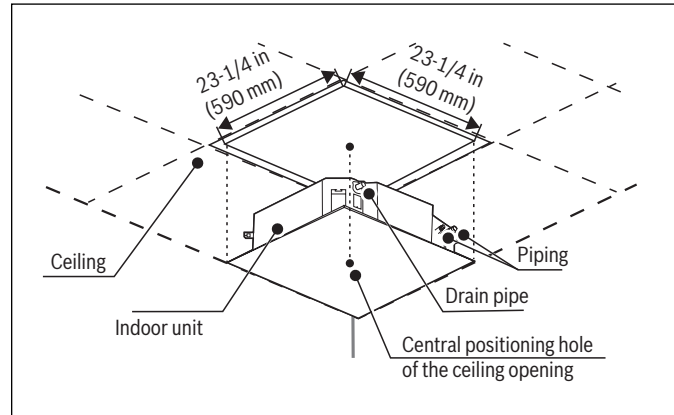


Figure 25

Step 2: Install mounting bolts and suspension bolts

Field supplied high-quality carbon steel bolts (galvanized or with other anti-rust paint applied) or stainless steel bolts should be used for the suspension bolts. Refer to Figure 26 and Figure 27.

WARNING
Electrical hazard, fire, personal injury, property damage, product damage!

Ensure the installation location is able to support the weight of the unit. Take reinforcement measures when necessary and comply with all local ordinances.

Ensure the unit is mounted securely.

The unit may fall and cause personal injury if the location is not strong enough.

Unstable installation may cause the unit to fall and cause an accident.

Before wiring/piping the system, ensure the installation area is safe and free of water, power, gas, and other hidden dangers.

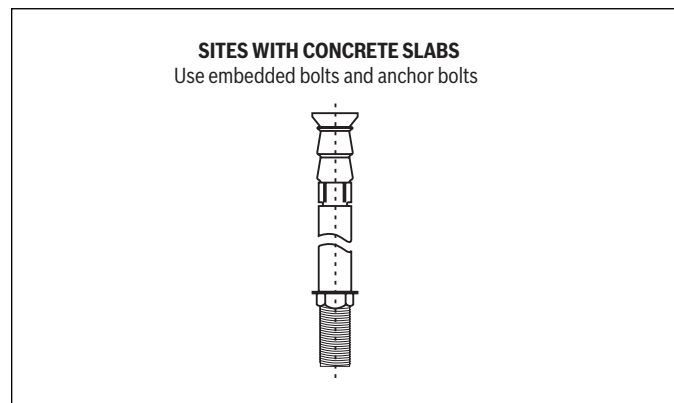


Figure 26

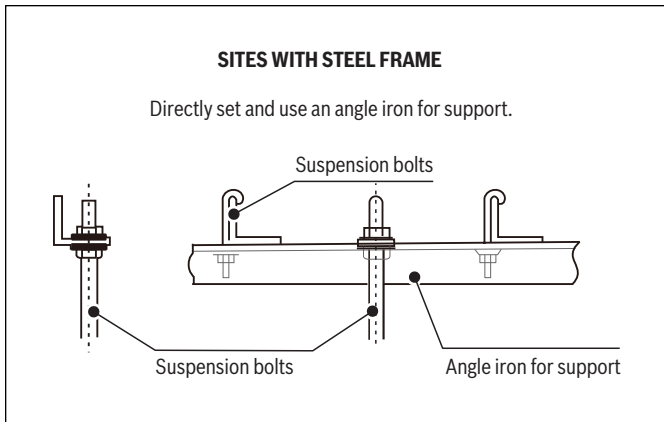


Figure 27

- a. Use a pencil to mark where the suspension bolts will go on the ceiling. Make sure the marks line up with the holes on the cassette.
- b. Drill pilot holes at the marked spots and install 4 anchor bolts.
- c. Use turnbuckle nuts to connect or weld 4 suspension bolts [the suspension bolt diameter shall not be less than 3/8in(10mm)] to the anchor bolts.
- d. On each suspension bolt, place 3 nuts divided into two groups:
 - One nut on top
 - Two nuts at the bottom
- e. Hang the cassette by fitting the mounting tabs onto the suspension bolts and secure the nuts (Figure 28). If the length of the hanger rod exceeds 59-1/16in (1.5m), two diagonal support rods must be added to enhance stability.

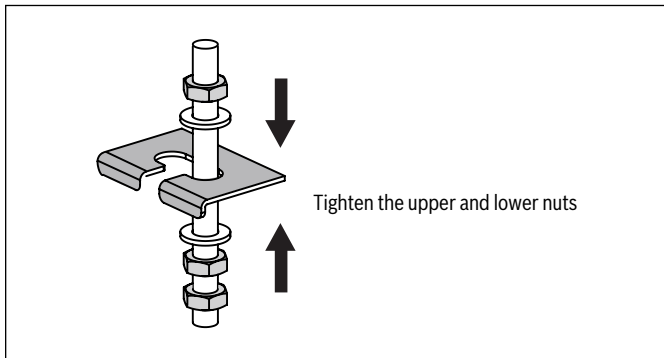


Figure 28

- f. Finally, level the unit by adjusting the hex nuts on the four mounting hooks. The bottom of the unit should also be 3/8in to 1/2in (10-12mm) recessed from the bottom of the ceiling (see Figure 29).

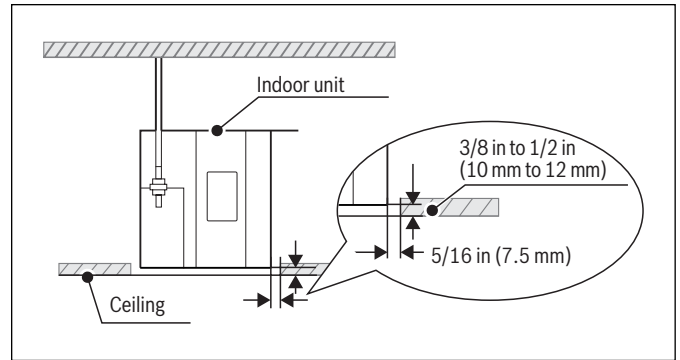


Figure 29

- g. Additionally, Ensure the condensate discharge pipe is not slanted so the float switch function properly (see Figure 30).

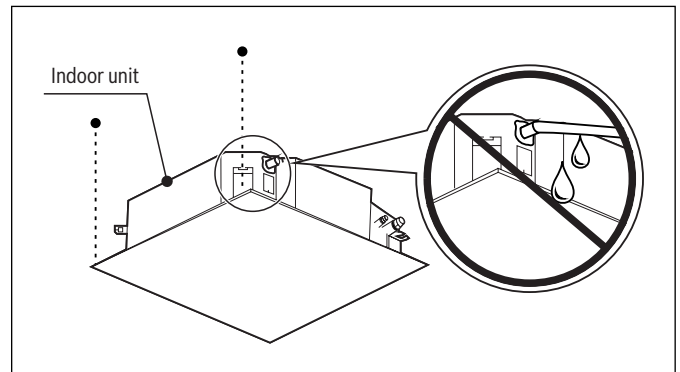


Figure 30

! WARNING

Personal injury, property damage, product damage!

If the suspension bolt diameter is less than 3/8" (10mm), the bolt may fail and cause the cassette to fall and cause property damage and/or bodily harm.

When the length of the hanging rods exceeds 59-1/16in (1.5m), two diagonal supports are required to increase stability. Failing to do so may cause the rods to fail and cause the cassette to fall and cause property damage and/or bodily harm.

Step 3: Check that the unit is horizontally level

Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch. (If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch may malfunction and cause water to drip.)

Check if the unit is levelled at all four corners with a level measuring instrument or a water-filled translucent vinyl tube as shown in Figure 31.

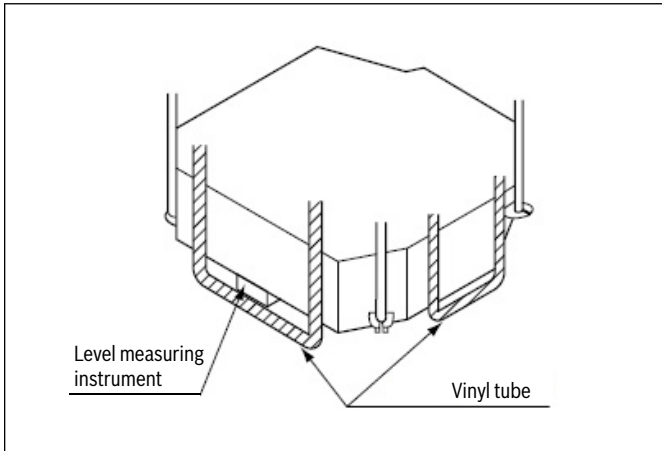


Figure 31

4.4 Compact Four-Way Cassette Drain Piping Installation

NOTICE

Property damage, product damage!

Before installation of the drain pipe, determine its direction and elevation to ensure a straight slope and avoid obstruction from other piping.

The highest point of the drain pipe should be equipped with a vent port to ensure proper condensate drainage. The dispelling port should also face downwards to prevent contaminants such as dirt from entering the piping.

Do not connect the drain pipe to a wastewater pipe, sewage pipe, or any other other pipe that produce corrosive gases and odors as this will cause corrosion of the coils as well as introduce odor to the room. Please note that if these instructions are not followed, the user may be held responsible.

A full water test should be conducted after the drain pipe is installed to verify proper function and identify leaks.

Avoid adverse slopes, convex/concave pipes as improper flow will cause poor drainage.

Drain pipes should be properly insulated to avoid condensation on them.

All drain pipe joints must be sealed to prevent leaks.

4.4.1 Connecting to the Drain Outlet of the Indoor Unit

Install the PVC drain piping to the water pump outlet show in figure below. Ensure the orifice of the PVC pipe is flat and smooth. Fasten the connection between the water pump outlet and the drain piping with cable ties in combination with PVC/ rubber adhesives. Ensure proper use of the adhesives to prevent corrosion on the EPDM rubber. Pipe insulation should also be used. Ensure the insulation is about 2in longer than the drain pipe to ensure enough casing is available.

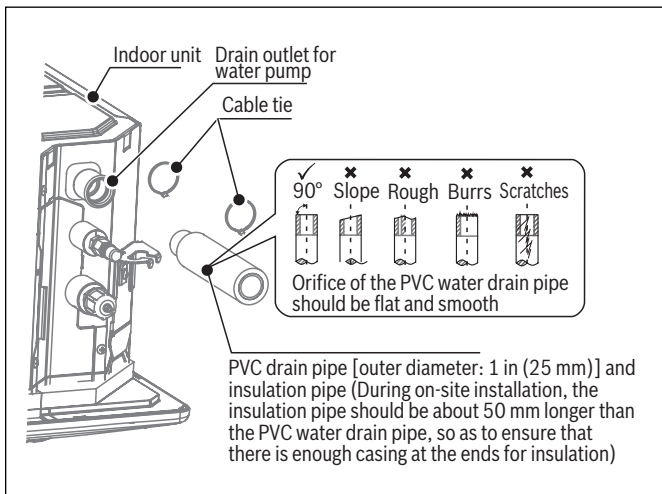


Figure 32

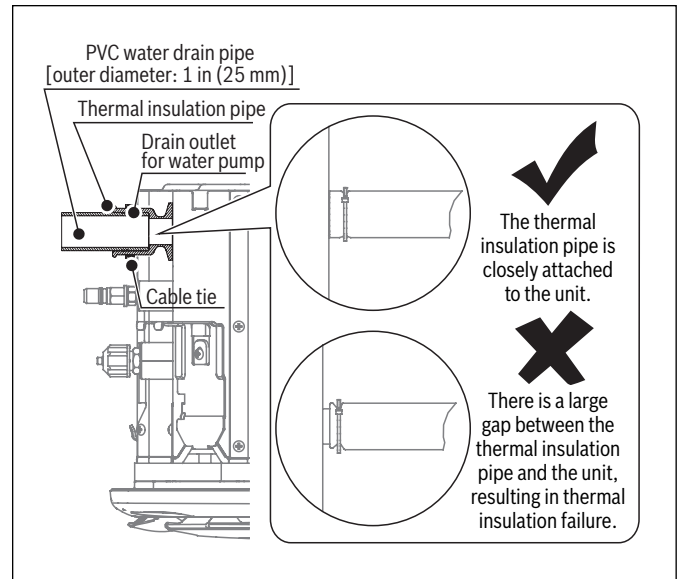


Figure 33

4.4.2 Install the Drain Pipes

- Keep the drain pipe short and sloping downwards at a gradient of at least 1/4" per foot to prevent air from remaining trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (PVC pipe, nominal diameter 0.8in/20mm, outside diameter 1in/25mm).
- Push the drain hose as far as possible over the drain socket, and tighten the metal clamp securely.
- Wrap the insulation (field supplied) over the metal clamp and drain hose to insulate. See Figure 33.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supplied).
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket.

4.4.3 How to Perform Drain Piping

- Connect the drain hose to the drain raising pipes and insulate them.
- Connect the drain hose to the drain socket on the indoor unit and tighten it with the clamp.

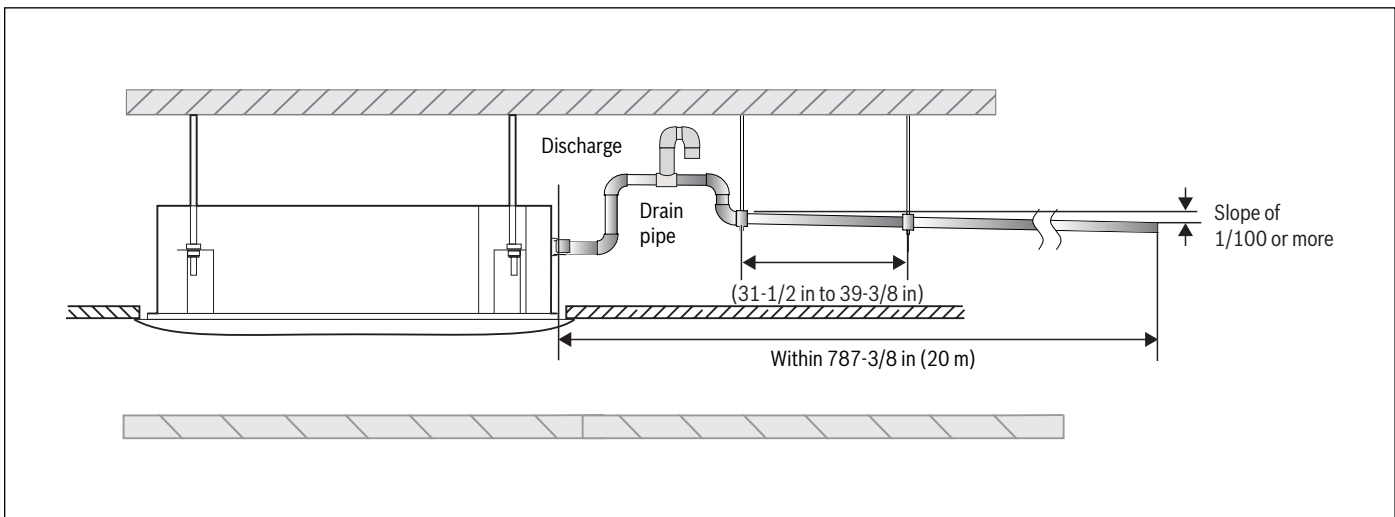


Figure 34

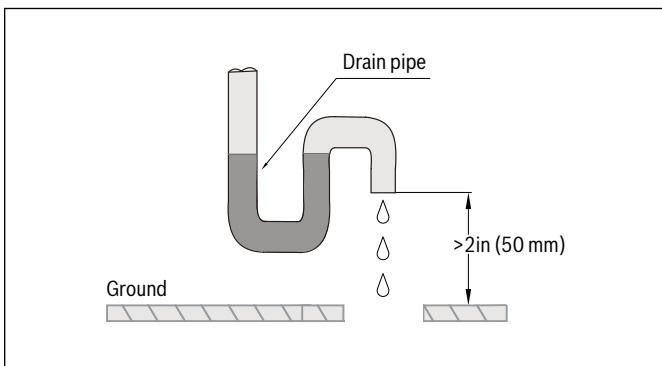


Figure 35

- The end point of the drain pipe must be more than 2in (50mm) above the ground or from the base of the water drainage slot. DO NOT submerge the end in water. If draining directly to a ditch, the drain pipe must bend upwards to form a U-shaped water plug to prevent odors from entering the room through the piping.

Precautions

- Install the drain raising pipes at a height of less than 39-3/8in (1m).
- Install the drain raising pipes at a right angle to the indoor unit and no more than 7-7/8 in (200mm) from the unit.
- To ensure a downward slope of 1/8" per foot, install hanging bars every 2.6ft (0.8m) to 3.2ft(1m).
- When unifying multiple drain pipes, install the pipes as shown in Figure 36. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.

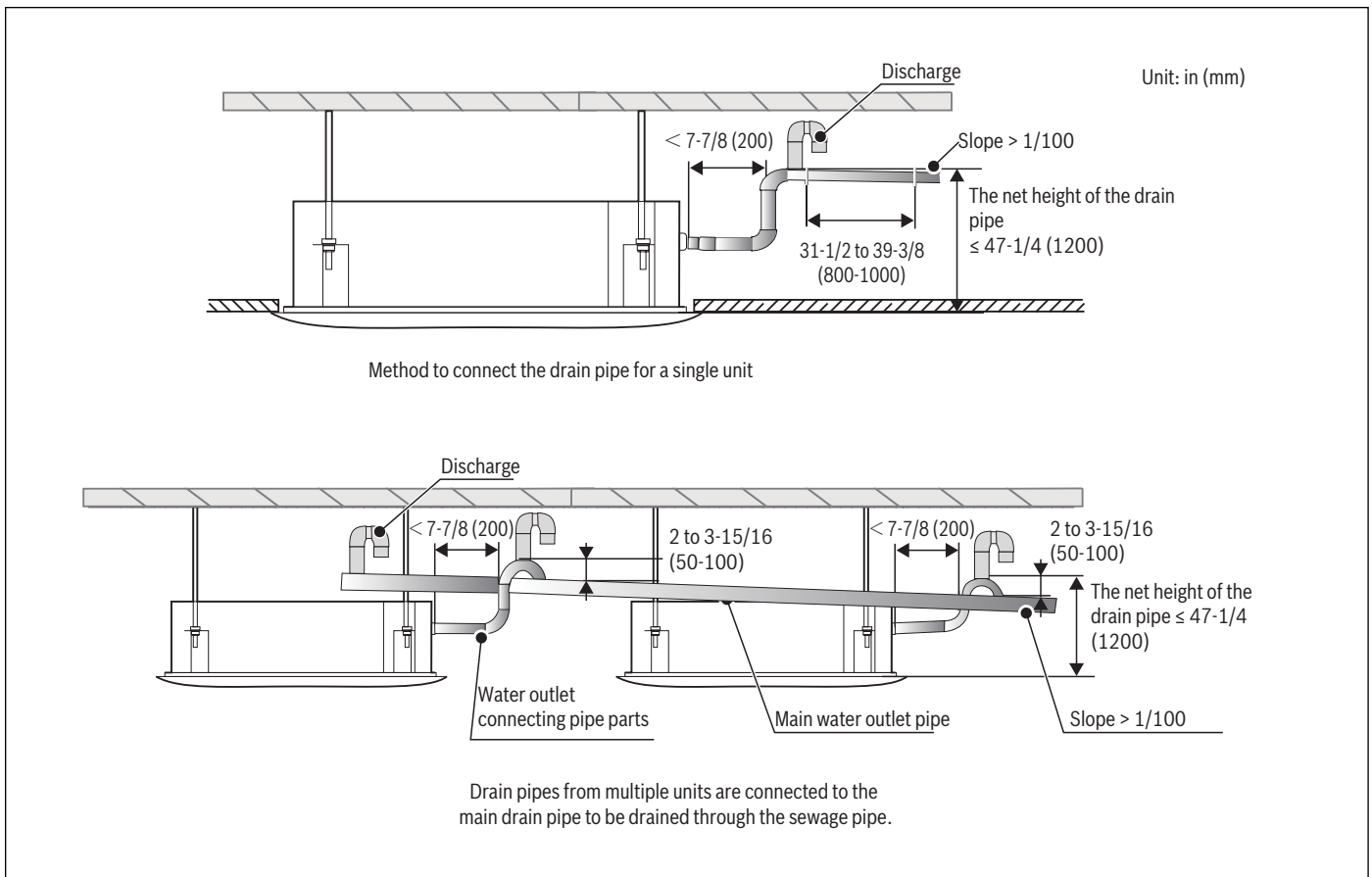


Figure 36

NOTICE

Property damage/system failure!

Drain piping connections. Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

To ensure no excessive pressure is applied to the included drain hose. Do not bend or twist when installing (this may cause leakage).

Prevent inconsistent drainage flow directions for horizontal piping to avoid adverse slopes and poor drainage (see Figure 37).

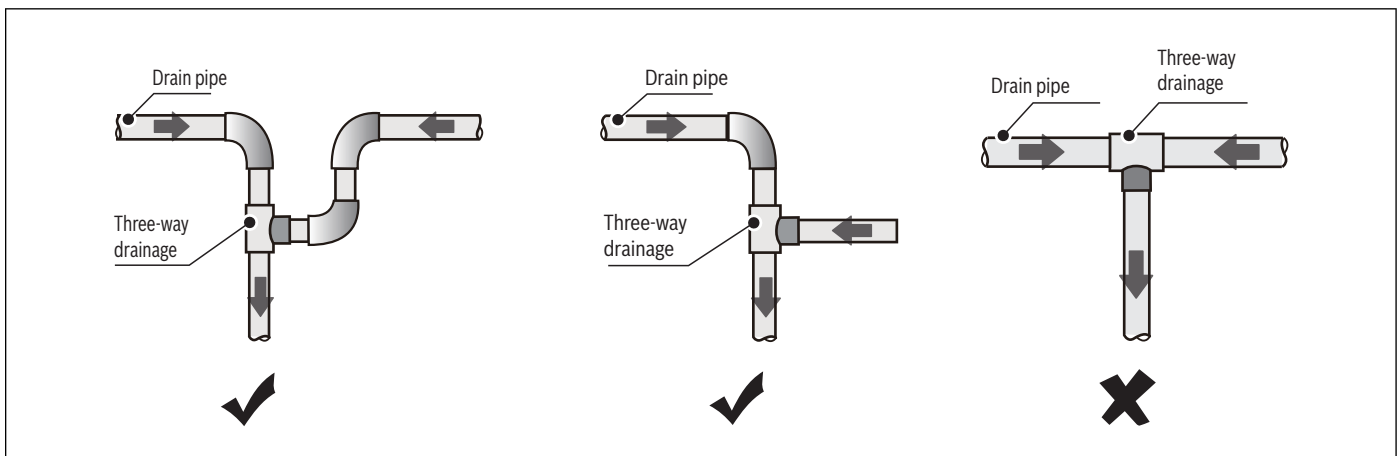


Figure 37

4.4.4 Testing of Drain Piping

After the piping work is finished, check if unit drains correctly.

- Put approximately 1/4gal. of water into the drain pan through the fresh air intake. Make sure not to pour water over the drain pump or any electric parts including the drain pump. Remove the water cover and place a tube to add water through the uncovered hole (See Figure 38).

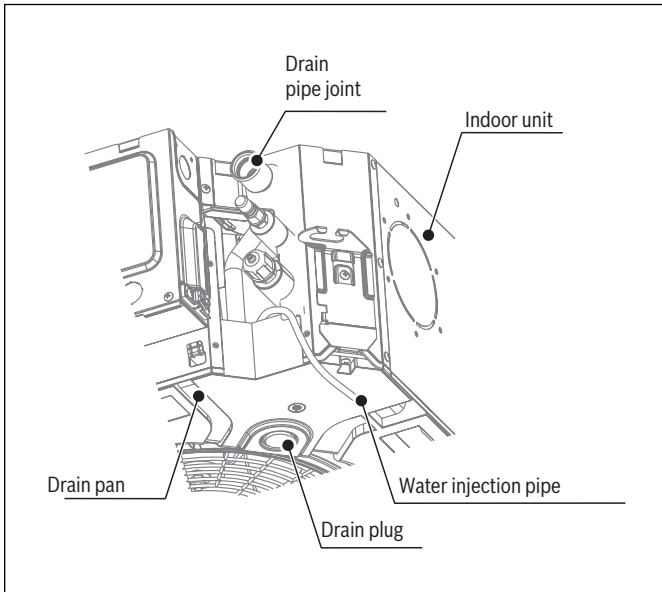


Figure 38

- When electrical wiring work and refrigerant piping/charging are finished, check drainage flow during COOL operation, explained in Section "12 Test Run" on page 62.

5 Refrigerant Piping Connection

5.1 Flaring Connection Instructions – Refrigerant Piping

Step 1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a little longer than the measured distance.
3. Make sure that the pipe is cut at a perfect 90° angle. Refer to Figure 39 for cut examples.

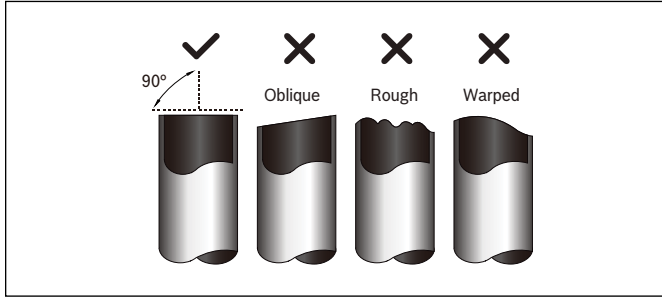


Figure 39

NOTICE

Product damage!

Be extra careful not to damage, kink, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

Step 2: Remove burrs

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.

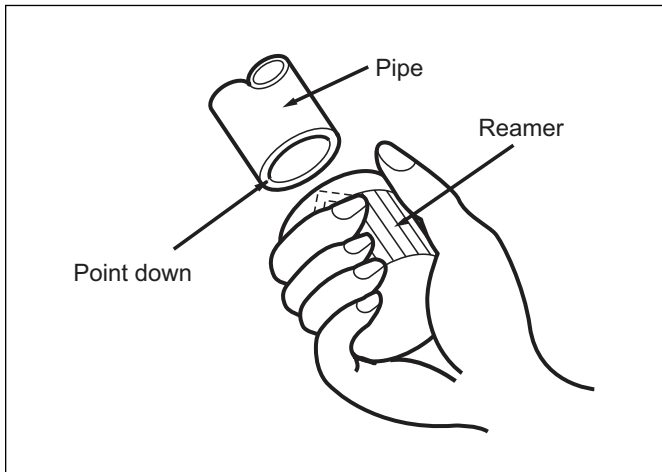


Figure 40

Step 3: Flare pipe ends

Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from cut pipe, seal the ends with a piece of tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing in the proper direction, because you can't put them on or change their direction after flaring. See Figure 41.

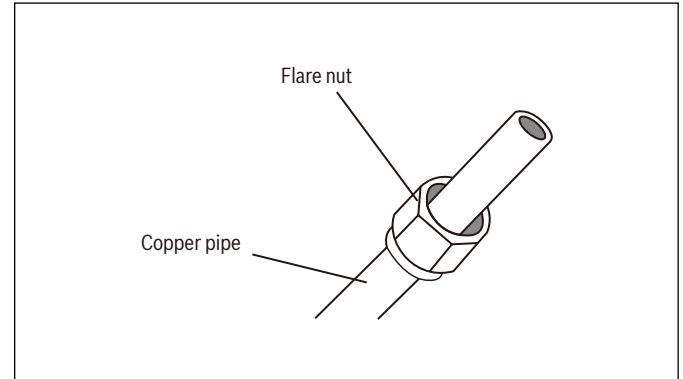


Figure 41

4. Remove tape from ends of pipe when ready to perform flaring work.
5. Clamp flaring block on the end of the pipe. The end of the pipe must extend beyond the edge of the flare form in accordance with the dimensions shown in the Table 6.

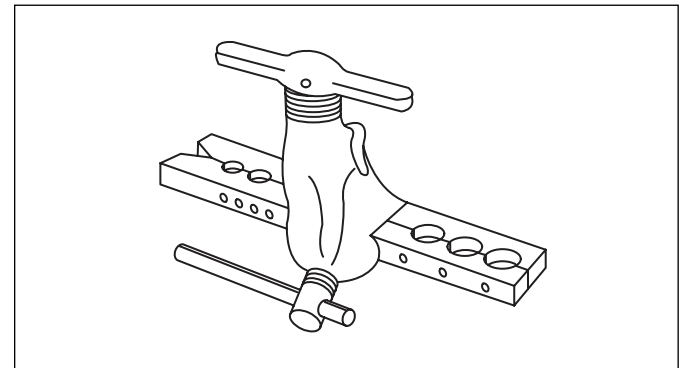


Figure 42

Piping extension beyond flare form

Outer diameter of tube in. (mm)	A mm (in.)	
	Min.	Max.
Ø 1/4 (Ø 6.35)	5/16 (8.3)	5/16 (8.7)
Ø 3/8 (Ø 9.52)	1/2 (12)	1/2 (12.4)
Ø 1/2 (Ø 12.7)	5/8 (15.4)	5/8 (15.8)
Ø 5/8 (Ø 15.9)	3/4 (18.6)	3/4 (19.1)
Ø 3/4 (Ø 19.1)	7/8 (22.9)	15/16 (23.3)

Table 6

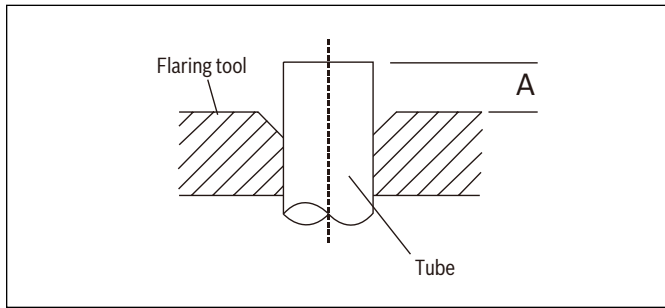


Figure 43

6. Place flaring tool onto the flaring block.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared.
8. Remove the flaring tool and flaring block, then inspect the end of the pipe for cracks and even flaring. Slide the nut up to see if the flare is of proper diameter and does not interfere with the threads in the flare nut.

Step 4: Connect pipes

When connecting refrigerant pipes, be careful not to use excessive torque or to deform the piping in any way. You should first connect the low-pressure (suction) pipe, then the high-pressure pipe (liquid line).



Minimum Bend Radius - When bending connective refrigerant piping, the maximum bend radius shall not exceed 15% of the deformed pipe area: $D1/D2 \geq 85\%$. (See Figure 44)

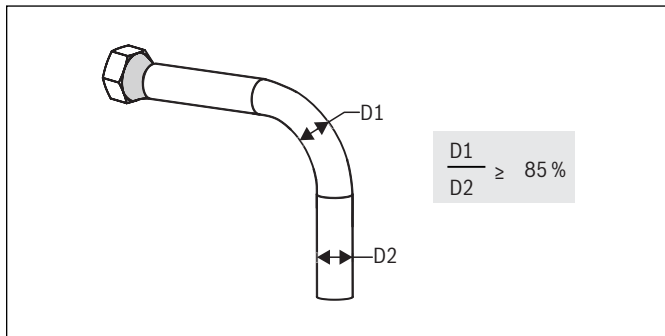


Figure 44

NOTICE

Product damage!

Make sure that no oil remains on plastic parts of the decoration panel (accessories sold separately). Oil may cause degradation and damage to plastic parts.

Connecting Piping to Indoor Unit

1. When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.



Ensure the refrigeration oil is for R454B refrigerant.

2. Align the center of the two pipes that you will connect. See Figure 46.

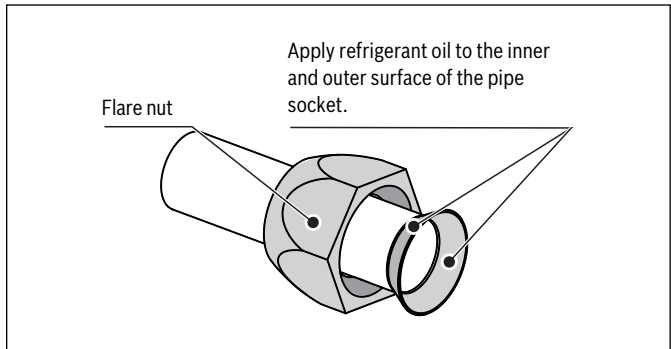


Figure 45

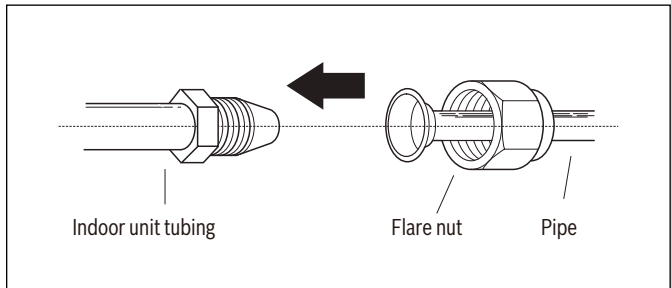


Figure 46

3. Tighten the flare nuts by hand.
4. Using a wrench, hold the nut on the unit tubing.

- While firmly holding the nut on the unit tubing, use a torque wrench to tighten the flare nut according to the torque values in the Torque Requirements Table 7. Loosen the flaring nut slightly, then tighten again.

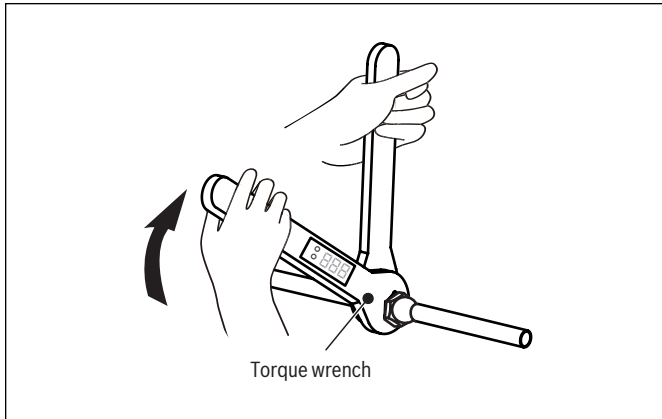


Figure 47

Torque Requirements

Pipe Gauge in. (mm)	Flare Nut Torque Specification
Ø 1/4 (6.35)	10.5 - 12.7 ft. lbs (14.2-17.2 N.m)
Ø 3/8 (9.52)	24.1 - 29.4 ft. lbs (32.7-39.9 N.m)
Ø 1/2 (12.7)	36.5 - 44.5 ft.lbs (49.5-60.3 N.m)
Ø 5/8 (15.9)	45.6 - 55.6 ft. lbs (61.8-75.4 N.m)
Ø 3/4 (19.1)	71.7 - 87.5 ft. lbs (97.2-118.6 N.m)

Table 7

NOTICE

Product damage - do not use excessive torque!

Excessive force can break the nut or damage the refrigerant piping. You must not exceed torque requirements shown in the table above.

- Add a protective nut to shield the connection point (see figure below). The protective nut is single use. If removed, the protective nut should be replaced with a new one.

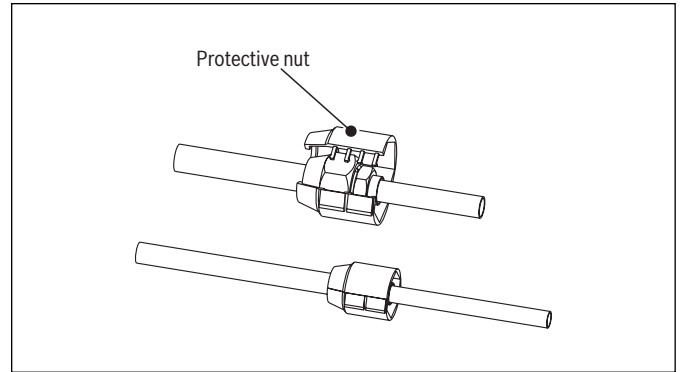


Figure 48

5.2 Brazing Connection Instructions – Refrigerant Piping

When field constraints do not allow for flaring the connections, the refrigerant pipes can be brazed. When brazing:

- Always fill the pipes with nitrogen while brazing.
- Maintain a pressure of 0.2 bar (20 Pa) using a pressure relief valve.

NOTICE

Product damage!

Brazing Guidelines

- Do not use flux. Use phosphor copper material that does not require flux.
- Do not use antioxidants. Residual antioxidants can clog the piping and damage the product.

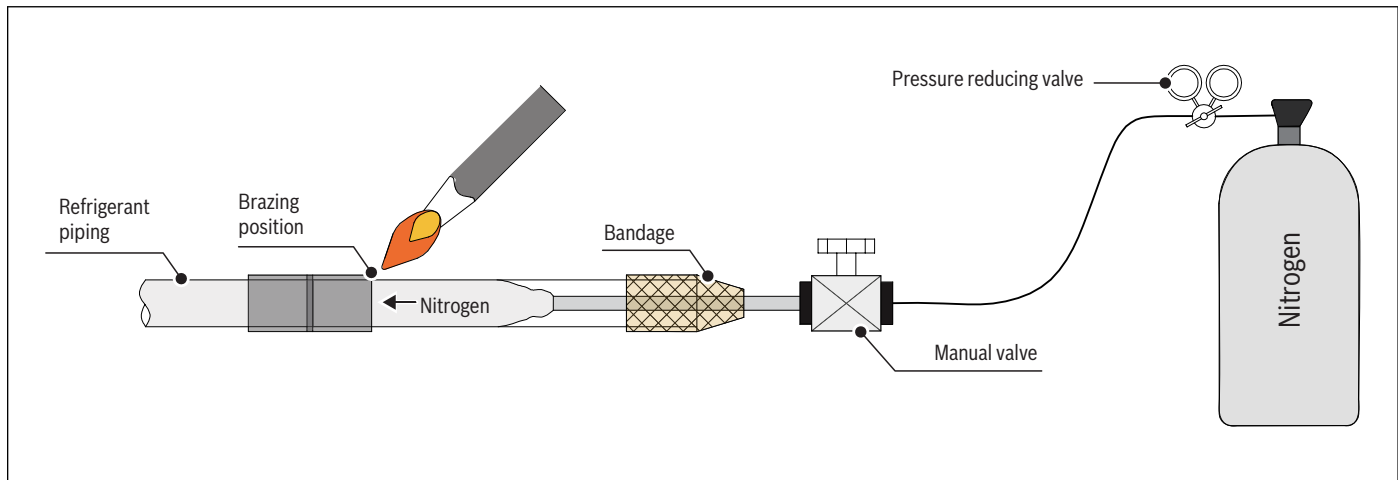


Figure 49

After the brazing work is finished, make sure to check that there is no refrigerant leakage. After checking for vapor leaks, be sure to insulate the pipe connections.

5.3 Pipe Insulation

1. Be sure to insulate both the vapor and liquid piping. Use separate thermal insulation pipes for gas and liquid refrigerant pipes. See the figure below.

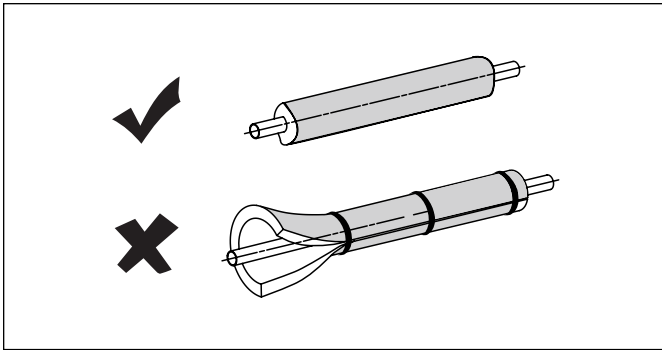


Figure 50

2. Finally, insulate as shown in the figure below. Be sure to use a thermal insulation material with a heat resistance of at least 248°F (120°C) for the vapor line.

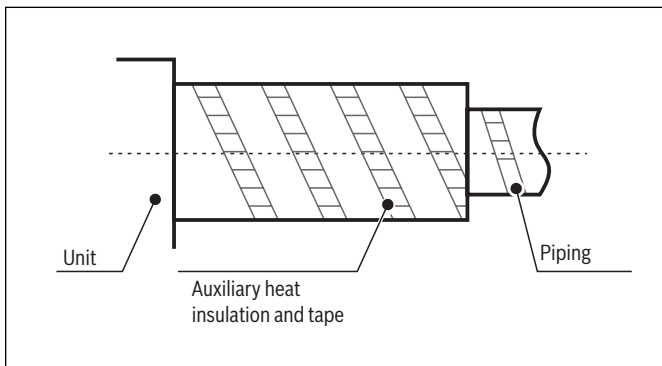


Figure 51



CAUTION

Personal injury!

For local insulation, be sure to insulate local piping all the way into the pipe connections inside the unit. Exposed piping may cause condensation or may cause burns when touched.

6 Electrical Wiring

Field wiring must comply with the National Electric Code (C.E.C. in Canada) and any applicable local ordinances.

WARNING

Electrical hazard!

Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury or death.

Model	Capacity	Voltage	Frequency (Hz)	Blower Power (HP)	Speeds	Minimum Circuit Ampacity (A)	Maximum Circuit Protector
Four-Way Cassette	9	208/230	60	1/16	7	0.92	10(A)
	12			1/16		0.92	
	18			1/6		1.49	
Compact Four-Way Cassette	7	208/230	60	1/16	7	0.54	10(A)
	9			1/16		0.54	
	12			1/16		0.54	
	18			1/16		0.65	

Table 8

6.1 Four-Way Cassette Power Wiring

It is important that proper electrical power is available for connection to the unit being installed. See the unit nameplate, wiring diagram, and electrical data in the installation instructions for more detailed requirements.

- If required, install a branch circuit disconnect of adequate size, located within sight, and readily accessible from the unit.

Supply circuit power wiring must be 167 °F (75 °C) minimum copper conductors only. See Electrical Data section for ampacity, wire size and circuit protector requirements. Supply circuit protection devices may be either fuses or “HACR” type circuit breakers.

- Ensure supply voltage to the unit is not more than 10% over / under rated voltage
- Power wiring is connected to the power terminal block in unit electric cabinet

WARNING

Electrical hazard !

Before performing electrical work, read these regulations:

1. All wiring must comply with local and national electrical codes, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client and refuse to install the unit until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. When connecting power to fixed wiring, install a surge protector and main power switch with a capacity of 1.5 times the maximum current of the unit.
6. When connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The licensed electrician must use an approved/listed circuit breaker.
7. Only connect the unit to an individual branch /dedicated circuit. Do not connect another appliance to that circuit.
8. Make sure to properly ground the outdoor unit.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.

DANGER

Electrical hazard !

Before performing any electrical or wiring work, turn off the main power to the system.

Power Wiring Instructions:

1. Remove the two screws shown in the Figure 52.
2. Lift and push the bottom end of the electric control box cover. Pull downwards to complete the removal.

WARNING

Electrical hazard !

While crimping wires, make sure you clearly distinguish the Live ("L") Wire from other wires.

WARNING

Electrical hazard !

All wiring must be performed strictly in accordance with the wiring diagram located on the inside of the indoor unit's wire cover.

CAUTION

Fire hazard!

Use copper conductors only. Do not bond and connect the power supply cable as this may cause the cable to heat up and cause a fire.

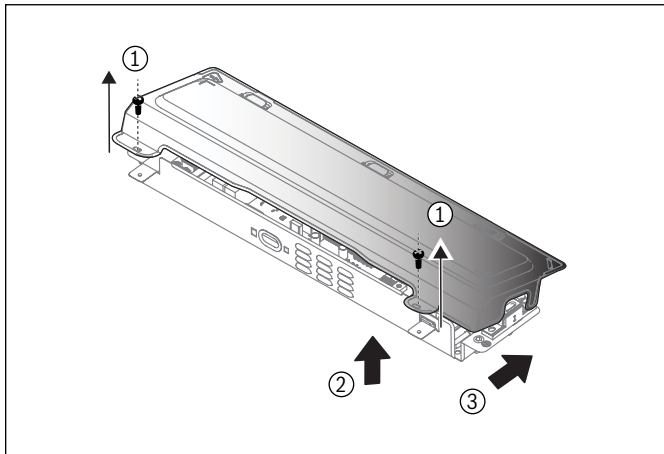


Figure 52

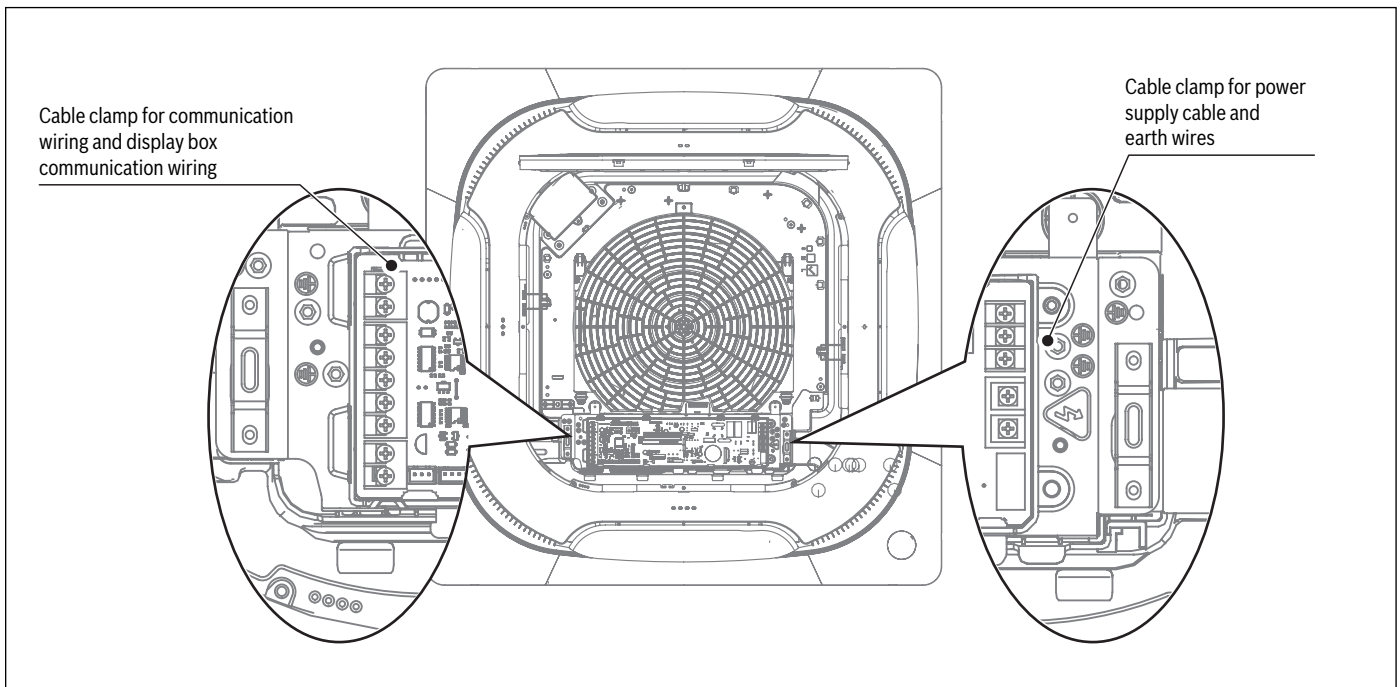


Figure 53

- Strip the power wire and crimp an insulated ring wire connector. Ensure the crimp is secure (see Figure 54). If unable to crimp due to field constraints, connect the power supply cables to the CN1 terminal block. When connecting the cables to the terminal, ensure the diameter of each strand is equal on either side of the individual screw terminal. Refer to Figure 55 for an example.

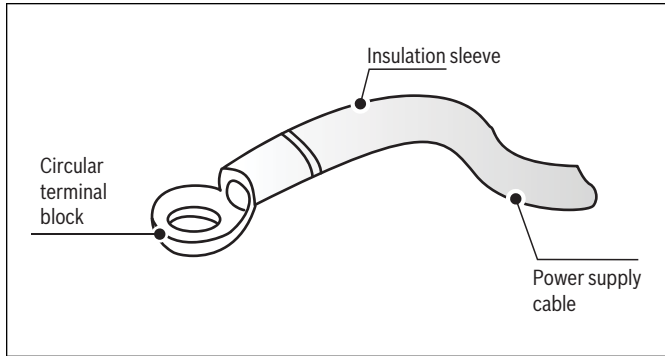


Figure 54

- Connect the main power cables to L1 and L2 on terminal CN1 in the main control box. Connect the ground wire to the grounding screw on the electric control box's sheet metal section.

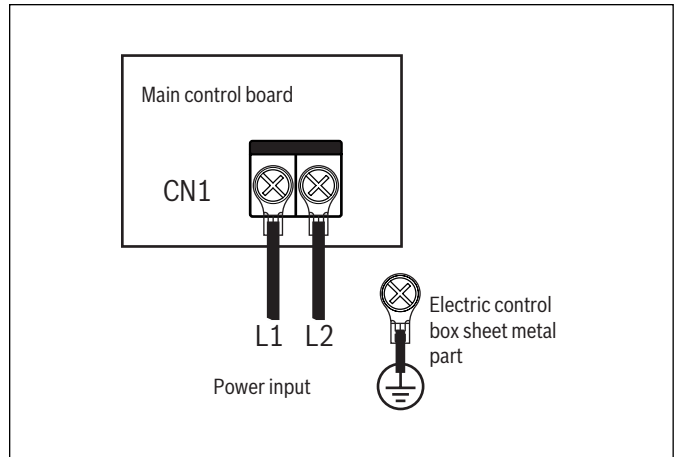


Figure 56

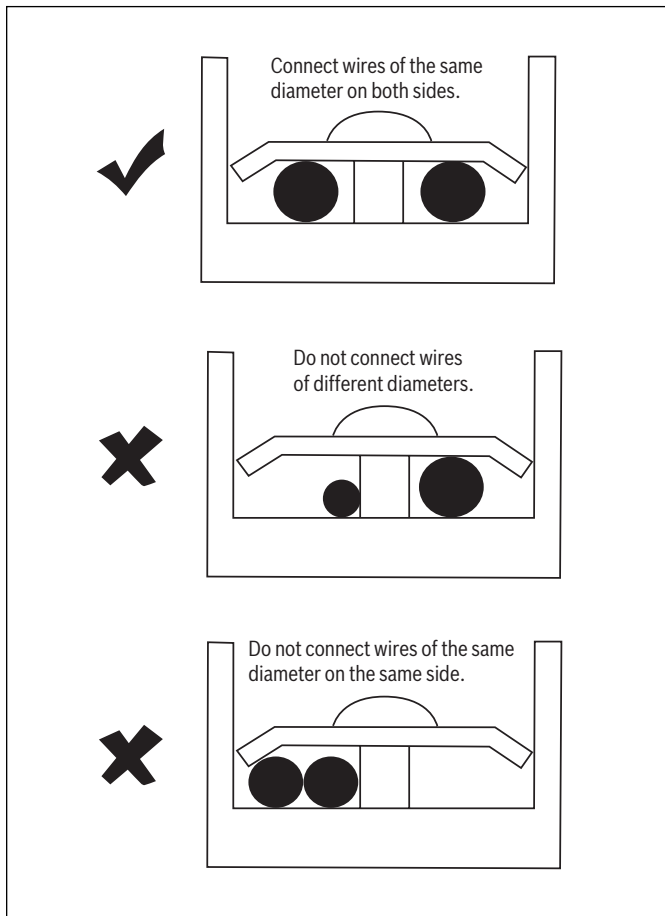


Figure 55

- Secure the power cables with the clamp shown in Figure 57 below.

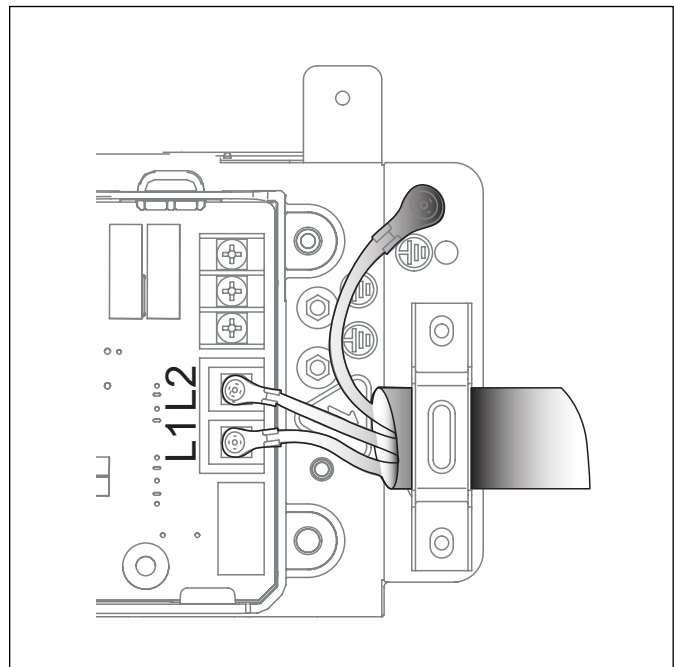


Figure 57

Multi-zone Power Wiring:

When connecting multiple indoor units, the outdoor unit power supply must be separate from the power supply for the indoor units. All indoor units connected to the same outdoor unit must use the same power source, circuit breaker, and leakage protection device. See figure below.

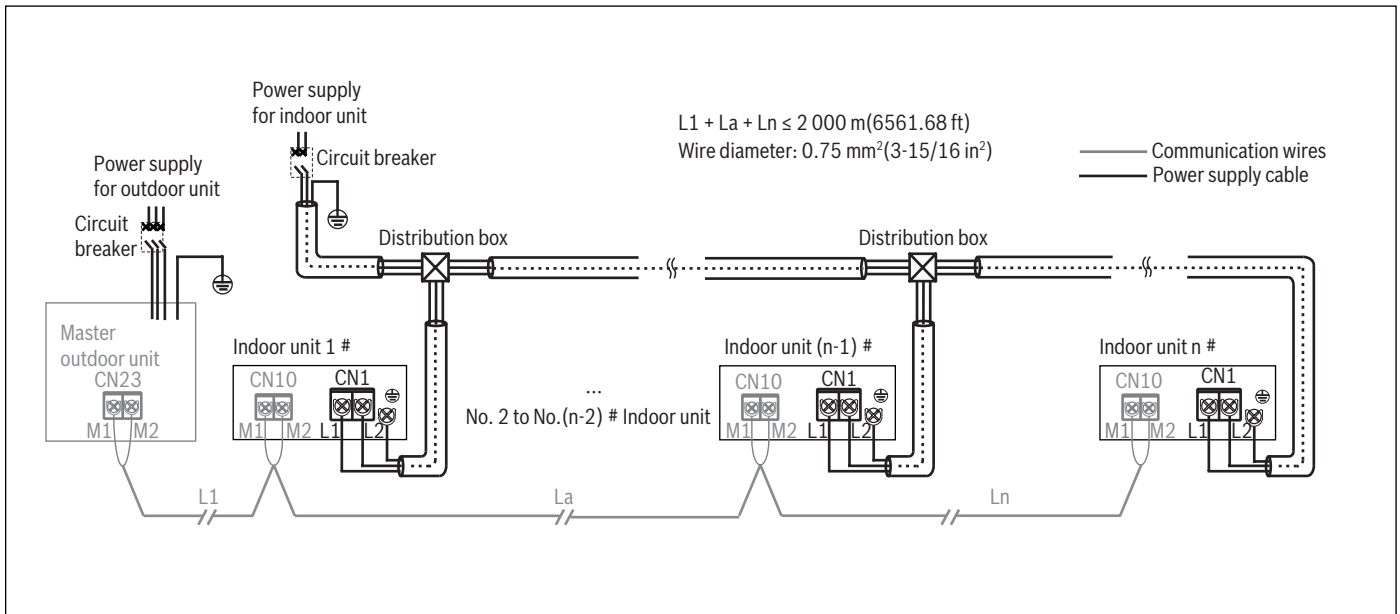


Figure 58

6.2 Compact Four-Way Cassette Power Wiring

It is important that proper electrical power is available for connection to the unit being installed. See the unit nameplate, wiring diagram, and electrical data in the installation instructions for more detailed requirements.

- If required, install a branch circuit disconnect of adequate size, located within sight, and readily accessible from the unit.

Supply circuit power wiring must be 167 °F (75 °C) minimum copper conductors only. See Electrical Data section for ampacity, wire size and circuit protector requirements. Supply circuit protection devices may be either fuses or “HACR” type circuit breakers.

- Ensure supply voltage to the unit is not more than 10% over / under rated voltage
- Power wiring is connected to the power terminal block in unit electric cabinet

WARNING

Electrical hazard !

Before performing electrical work, read these regulations:

1. All wiring must comply with local and national electrical codes, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client and refuse to install the unit until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. When connecting power to fixed wiring, install a surge protector and main power switch with a capacity of 1.5 times the maximum current of the unit.
6. When connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The licensed electrician must use an approved/listed circuit breaker.
7. Only connect the unit to an individual branch /dedicated circuit. Do not connect another appliance to that circuit.
8. Make sure to properly ground the outdoor unit.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.

DANGER

Electrical hazard !

Before performing any electrical or wiring work, turn off the main power to the system.

Power Wiring Instructions:

1. Remove the two screws shown in the Figure 59.
2. Lift and push the bottom end of the electric control box cover. Pull downwards to complete the removal.

WARNING

Electrical hazard !

While crimping wires, make sure you clearly distinguish the Live (“L”) Wire from other wires.

WARNING

Electrical hazard !

All wiring must be performed strictly in accordance with the wiring diagram located on the inside of the indoor unit's wire cover.

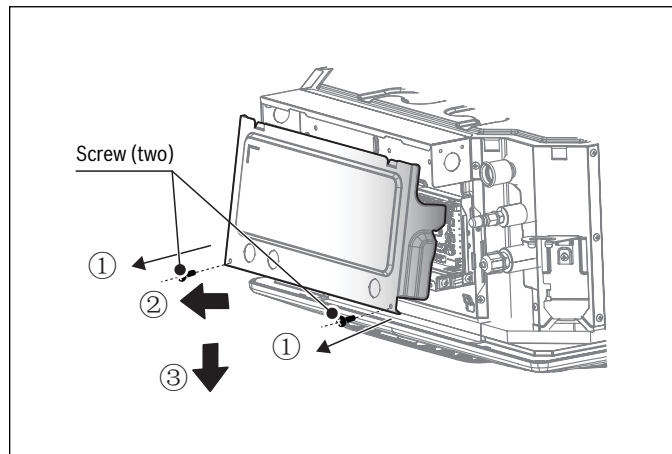


Figure 59

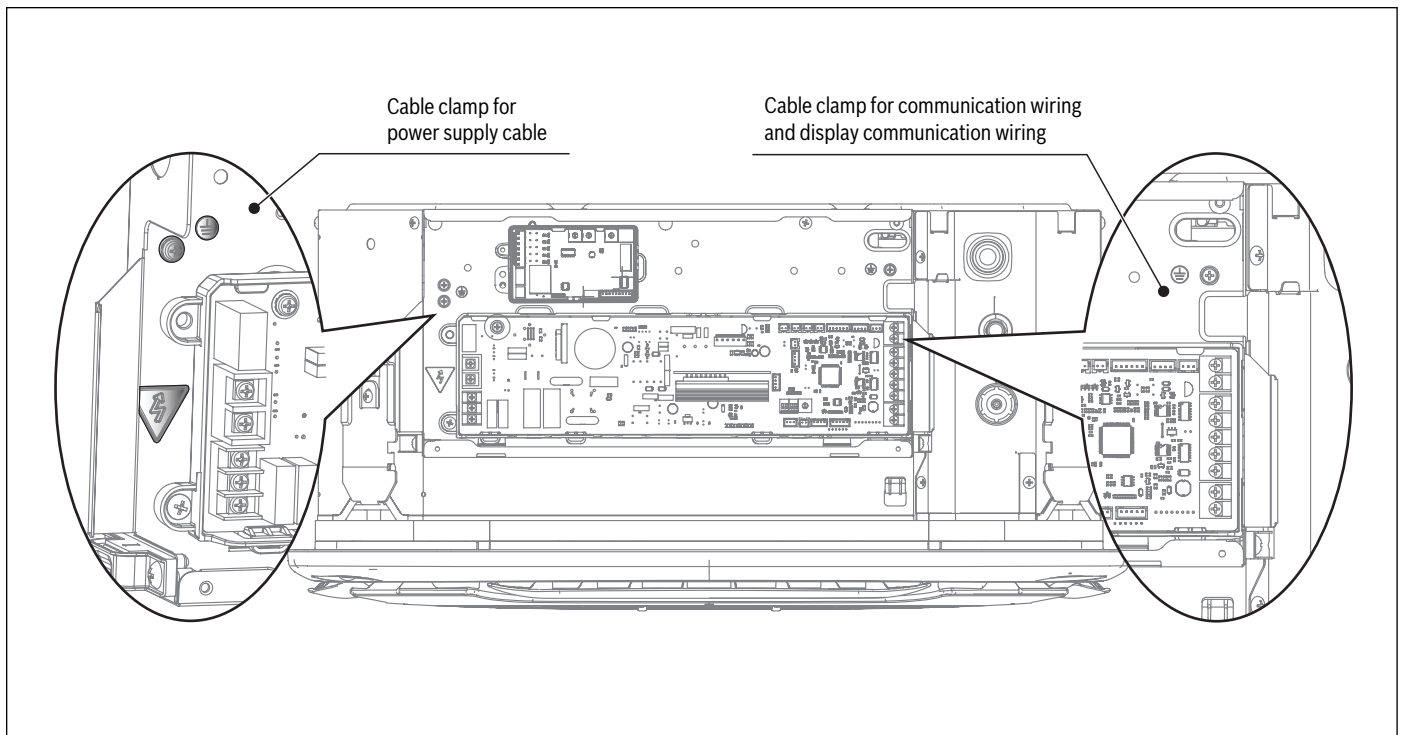


Figure 60



CAUTION

Fire hazard!

Use copper conductors only. Do not bond and connect the power supply cable as this may cause the cable to heat up and cause a fire.

- Strip the power wire and crimp an insulated ring wire connector. Ensure the crimp is secure (see Figure 61). If unable to crimp due to field constraints, connect the power supply cables to the CN1 terminal block. When connecting the cables to the terminal, ensure the diameter of each strand is equal on either side of the individual screw terminal. Refer to Figure 62 for an example.

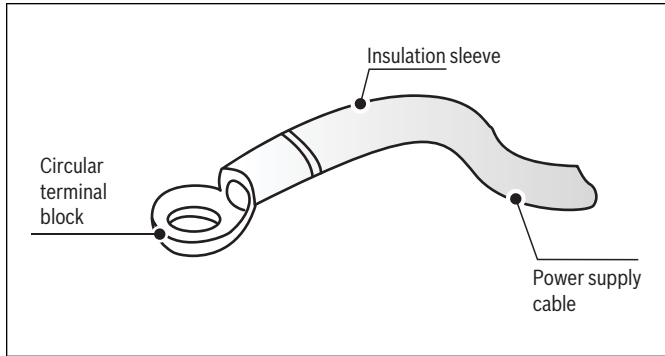


Figure 61

- Connect the main power cables to L1 and L2 on terminal CN1 in the main control box. Connect the ground wire to the grounding screw on the electric control box's sheet metal section.

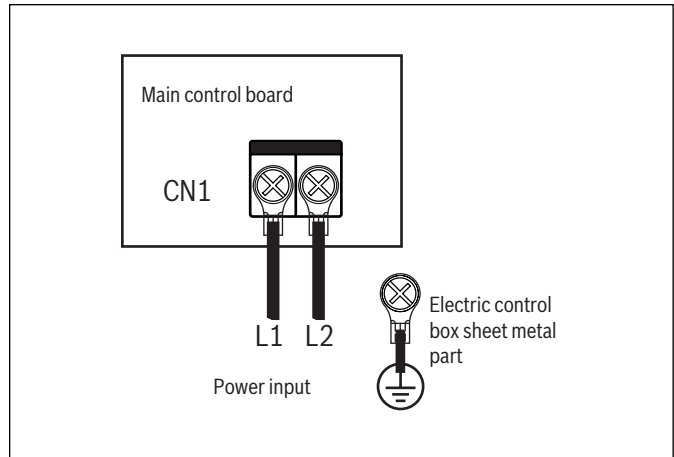


Figure 63

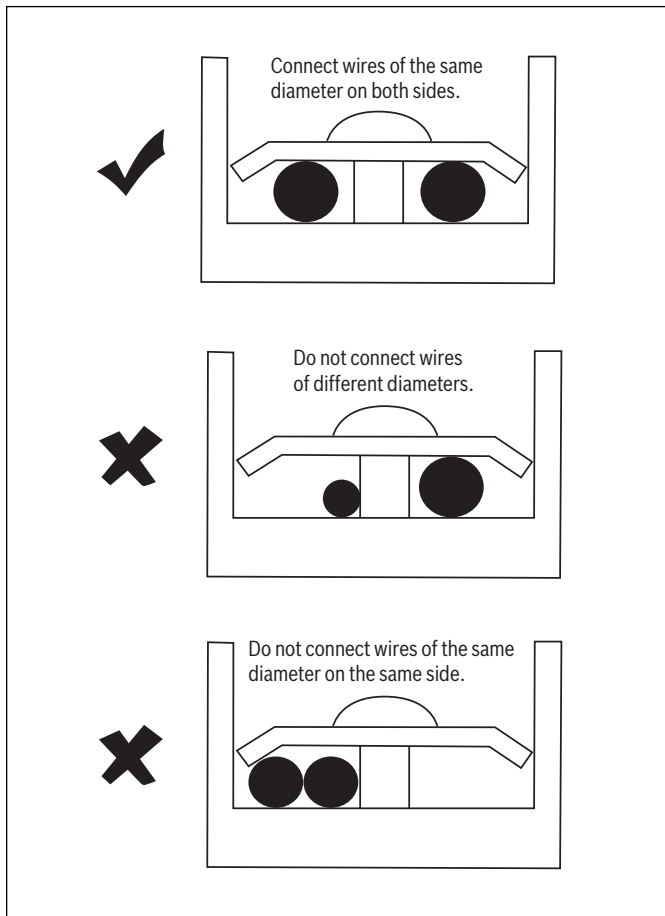


Figure 62

- Secure the power cables with the clamp shown in Figure 64 below.

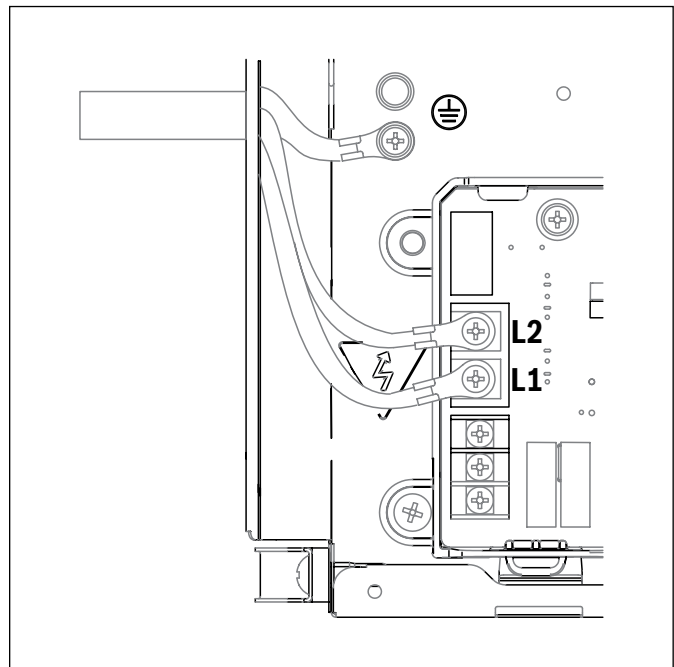


Figure 64

Multi-zone Power Wiring:

When connecting multiple indoor units, the outdoor unit power supply must be separate from the power supply for the indoor units. All indoor units connected to the same outdoor unit must use the same power source, circuit breaker, and leakage protection device. See figure below.

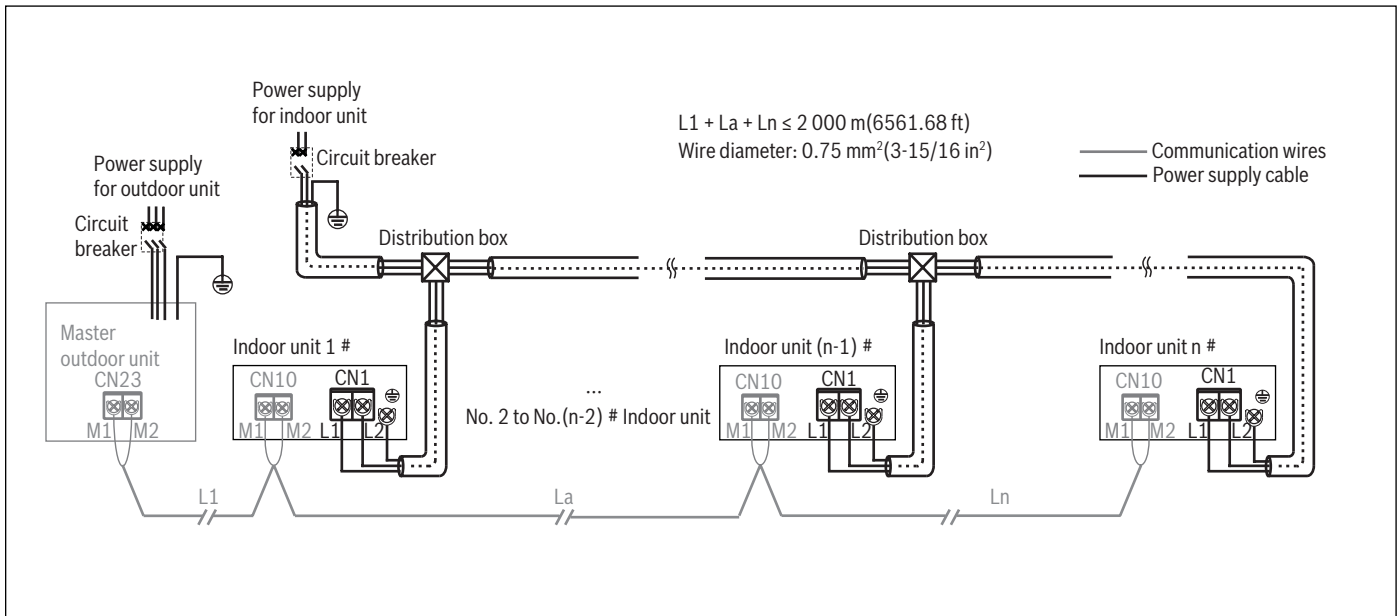


Figure 65

6.3 Control Wiring

NOTICE

Product damage!

Do not connect the communication cables with power on, otherwise it will damage the circuit board.

Do not connect the power cables (high voltage) to the Hyper-Link (M1 M2) communication wires (low voltage), otherwise it will damage the circuit board.

Do not interconnect different communication buses (M1, M2, X1, X2, D1, D2, etc.), otherwise it will damage the circuit board.

Do not squeeze or pull the unit connection, and make sure the wiring is not in contact with the sharp edges of the sheet metal.

Make sure, after installation, separation of control wiring and power wiring has been maintained.

WARNING

Electrical hazard !

Low voltage control connections are made to low voltage screw terminals in the control box. The **Hyper-Link (M1 M2) communication wires** are attached to screw terminals (CN10) on the control board. The connectors of communication cables must be connected reliably and protected by insulation. The copper cables must not be exposed. Unused communication cables should be insulated, and the copper cables must not be exposed. Avoid sharp edges of the sheet metal for communication cables to prevent wear. If the wear is serious, it may lead to short circuit or electric leakage and cause danger. Do not pull the communication cables. The communication cables must be routed as closely as possible, and when there is strong electromagnetic interference in the environment, it is recommended to use shielded cables for communication cables. Otherwise, the communication may be abnormal. When using shielded wires, the shielding layer must be grounded at one end to prevent ground loops and ensure proper shielding. Power cords and communication cables must be separated from each other with a distance of more than 2 inches to prevent interference.



Low voltage control wiring should not be run in conduit with high voltage wiring. Keep distance between the two conduits per local codes.

Maximum Low Voltage Wiring Length can be seen in Table 9.

Hyper-Link (M1 M2) Communication Wire Size	Max Length
18 AWG	6561.68 ft. (2000m)

Table 9

- See wiring diagram located on inside of blower access panel of air handler for proper wiring instruction.
- After installation, ensure separation of low voltage and high voltage wiring is maintained.

6.4 Grounding

WARNING

Electrical hazard !

The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.

The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes.

Grounding may also be accomplished by attaching ground wire(s) to ground lug provided in the unit wiring compartment.

Use of multiple supply circuits require grounding of each circuit to lug provided in unit.

Ground lug is located on the upper right side of the cabinet.

7 Communicating Set up



The factory default mode is Hyper-Link (M1 M2) communication between the outdoor and indoor units and 24VAC connection with the thermostat.

- Hyper-Link (M1 M2) communication mode is only available with a matched outdoor unit which has Hyper-Link (M1 M2) communication function.
- If there are 2 or more systems (communication) in the same area, make sure the low voltage wires are connected to the right unit that are connected to the same refrigerant line.
- The IDS Edge 4-Way Cassette (BISA18) and the IDS Edge Compact 4-way Cassette (BIKA18) can only be configured to communicating mode when installed with an IDS Edge ODU/Max ODU (BOHA18).

Low Voltage wire connections with the outdoor unit/other indoor units, communicating

1. Locate CN10 on the main control board.
2. Connect the communication wires to the screw terminal in CN10. There is no polarity in these communication wires.
3. When connecting to the outdoor unit:
 - Make sure M1 on the indoor unit is connected to M1 on the outdoor unit.
 - Likewise, M2 on the indoor unit must connect to M2 on the outdoor unit.

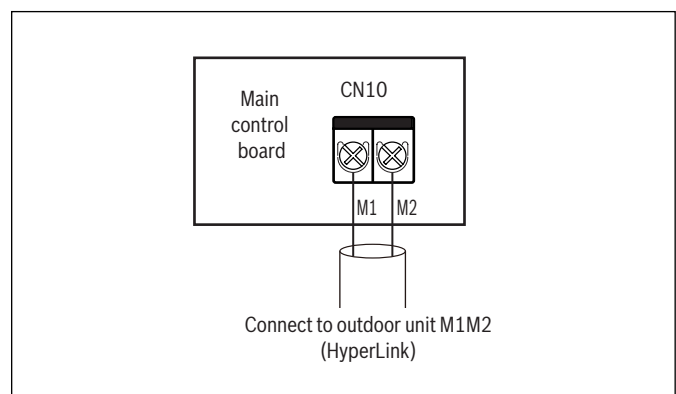


Figure 66

Multi-zone Communication Wiring

When wiring communication lines for multiple indoor units, follow the same method used for a single-zone system:

- Connect M1 to M1 on every unit.
- Connect M2 to M2 on every unit.

Make sure the total length of the communication wire chain does not exceed 6,561 ft (2,000 m). Exceeding this limit can cause data loss. See figure below.

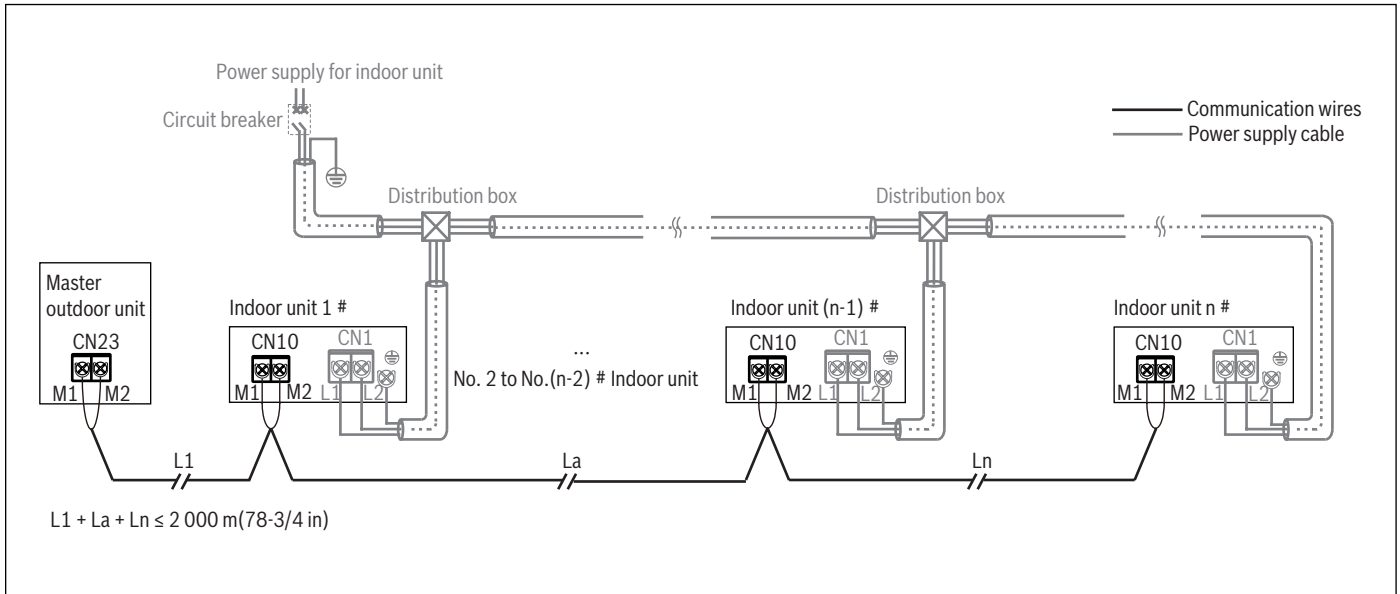


Figure 67

7.1 Thermostat Wiring

A field supplied 24V linear transformer is required to wire a thermostat to the unit. See Figure 68 for an example wiring set up. Ensure SW1-4 is set to the ON position when using the 24V transformer (see Figure 69).

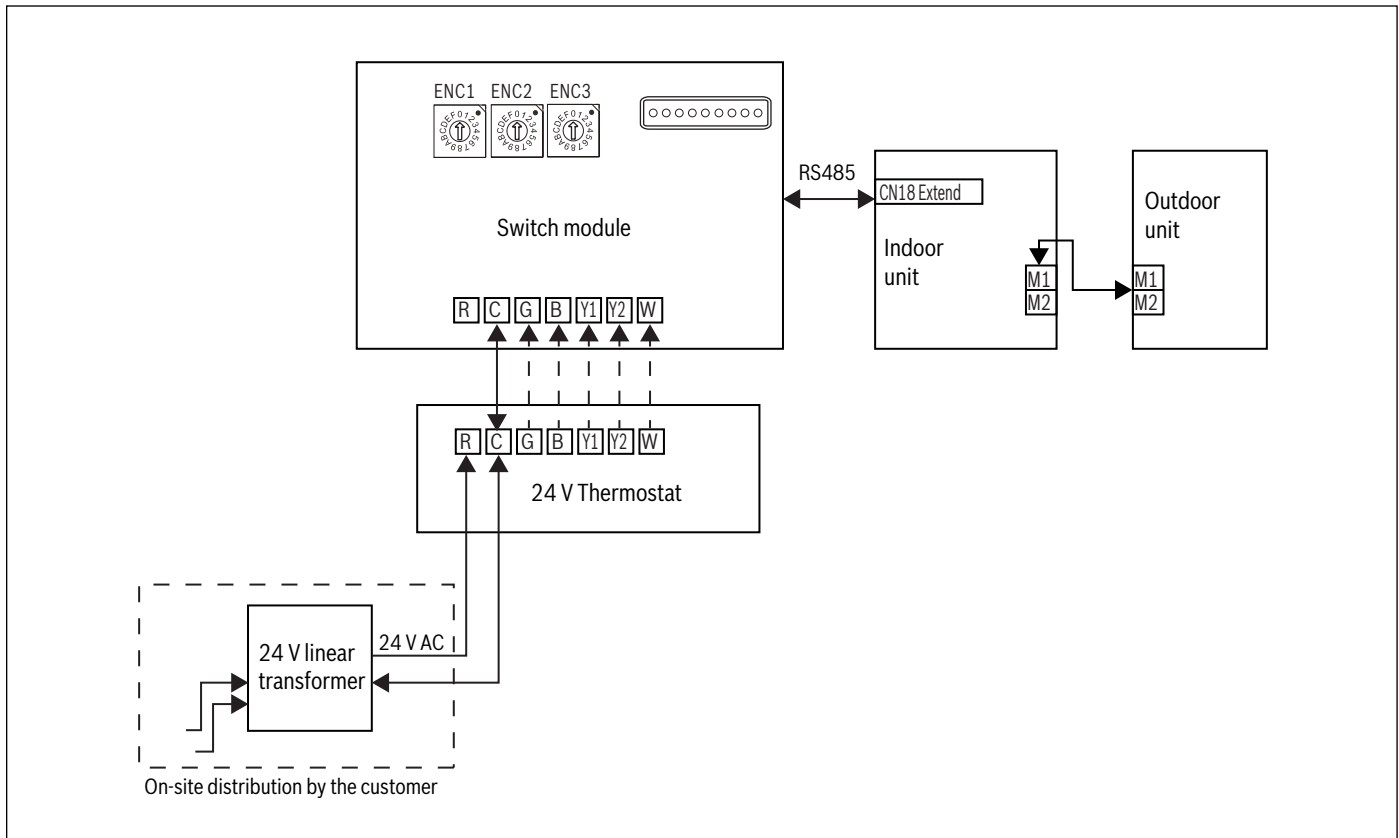


Figure 68

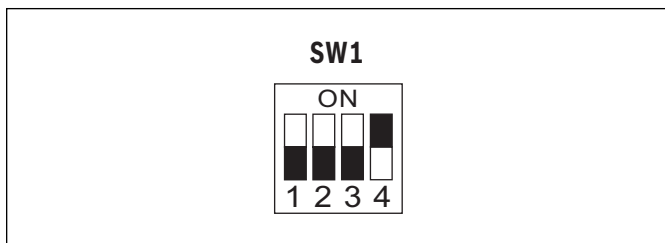


Figure 69

See Table 10, Table 13 & Table 14 or fan tap information for each thermostat signal and the CFM of each fan tap.

	Mode	Y1 or G (MIN)	Y1 + Y2 (MAX)
Fan Tap	COOL	4	7
	HEAT		

Table 10

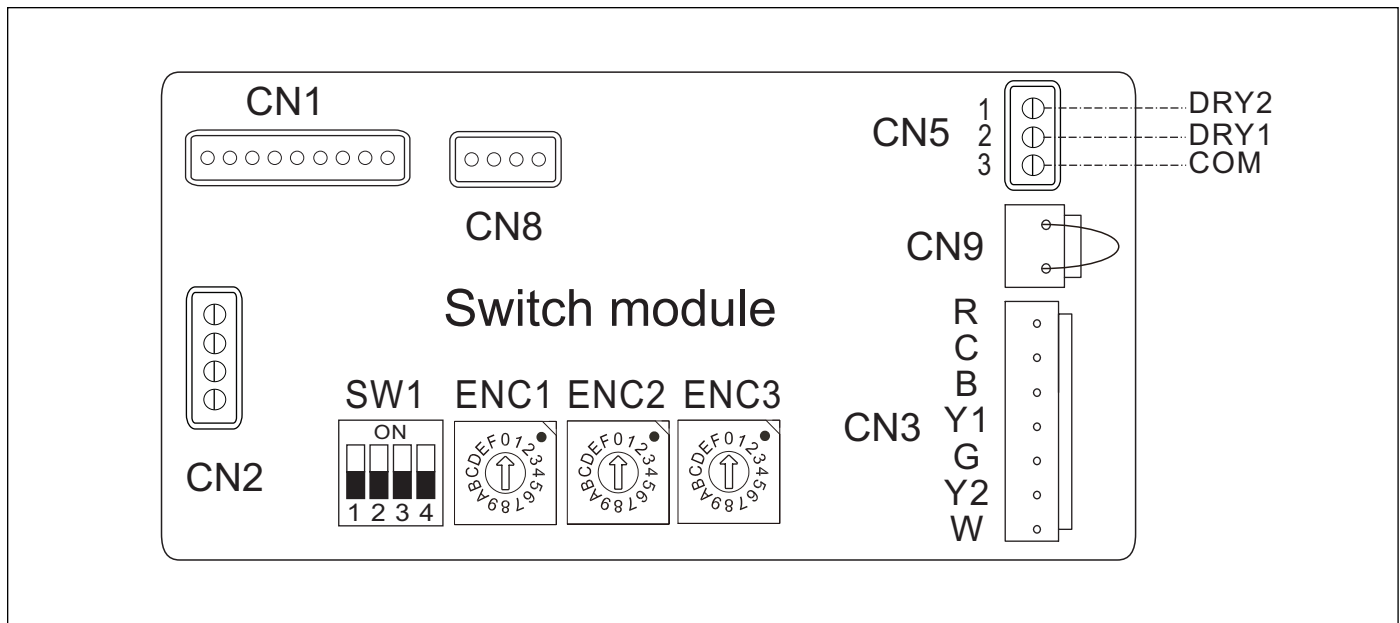


Figure 71

Port	Attribute	Function
CN1	Output	Connects the switch module to the main indoor control board via CN18 for communication between the two boards
CN2	Reserved	Reserved
CN3	Thermostat Wiring	Conventional 24V Thermostat Wire Signals
CN5	Output	A passive multi-function dry contact set by the ENC1 dip switch. The function depends on the ENC1 dip switch setting. Refer to Table 12
CN8	Input	Connect the A2L refrigerant leakage
CN9	Input	Short circuit, No function definition
SW1-1	Reserved	Reserve
SW1-2		
SW1-3		
SW1-4		
ENC1	Setting	Multi-function dry contact definition
ENC2	Reserved	Reserved
ENC3		

Table 11

Dry Contact

The CN5 port serves as a DRY contact for accessory use.

DRY 1: Fan Output dry contact, which can be connected to devices such as air valves, new fans, and exhaust fans.

DRY 2: multi-function dry contact. The specific logic varies according to the dip switch value of ENC 1. After changing the ENC1 value, the setting will only take effect after the indoor unit is power cycled.

See Table 12 for the setting definitions of ENC1 and their effects on the CN5 DRY contact.

ENC1	Dry2 Signal Type	Display	Common external device
0	Invalid setting	/	/
1	Indoor unit fan status output	ON/OFF ≤ 24 V DC/AC 1A	Air valve, FAPU, Air discharge device
2	Shutdown/ non- shutdown output	ON/OFF ≤ 24 V DC/AC 1A	Appliance
3	Third-party heater output (air duct installed inside)	ON/OFF ≤ 24 V DC/AC 1A	Electric heating Tube
4	Fault alarm output	ON/OFF ≤ 24 V DC/AC 1A	Alarm equipment
5	Third-party humidifier control	ON/OFF ≤ 24 V DC/AC 1A	Humidifier
6	Dehumidifier control	ON/OFF ≤ 24 V DC/AC 1A	Dehumidifier
7	Preheater control	ON/OFF ≤ 24 V DC/AC 1A	Fresh air preheater
8	Third-party heater output (air ducts installed outside)	ON/OFF ≤ 24 V DC/AC 1A	Wall-mounted heater
9	Cooling operation output	ON/OFF ≤ 24 V DC/AC 1A	External device
A	Heating operation output	ON/OFF ≤ 24V DC/AC 1A	External device
B	Human detection sensor status output	ON/OFF ≤ 24V DC/AC 1A	Indicator /window off control
C	Defrosting operation output	ON/OFF ≤ 24V DC/AC 1A	External device
D	Economizer control	ON/OFF ≤ 24V DC/AC 1A	Air-side economizer
E	Invalid setting	/	/
F	Invalid setting	/	/

Table 12

8 Airflow Performance

The airflow performance data is based on blower air volume at every fan tap.

8.1 Four-Way Cassette Airflow Table

Motor Speed		Air Handler Model Size		
		9	12	18
CFM	Tap 1	337	296	485
	Tap 2	359	337	504
	Tap 3	380	379	523
	Tap 4	402	420	542
	Tap 5	424	461	560
	Tap 6	445	503	579
	Tap 7	467	544	598

Table 13

8.2 Compact Four-Way Cassette Airflow Table

Motor Speed		Air Handler Model Size			
		7	9	12	18
CFM	Tap 1	176	194	206	282
	Tap 2	194	212	226	311
	Tap 3	211	231	247	341
	Tap 4	229	250	267	370
	Tap 5	247	268	288	400
	Tap 6	264	287	309	429
	Tap 7	282	305	330	460

Table 14

9 Panel Installation (Accessory)

9.1 Four-Way Cassette Display Panel Installation

NOTICE

Product damage!

DO NOT place the panel facedown on the floor, against a wall, or on uneven surfaces.

Step 1: Remove the front grille.

- a. Push both of the tabs towards the middle simultaneously to unlock the hook on the grille.

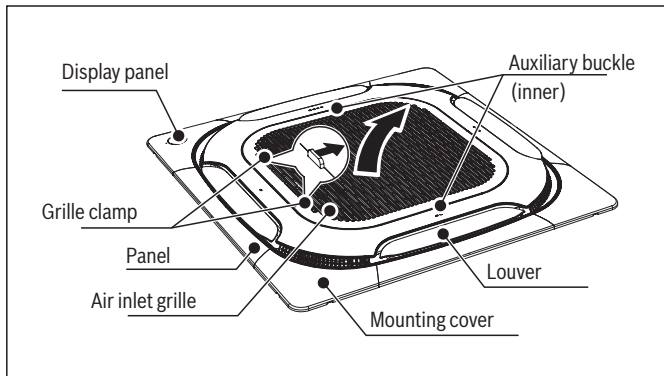


Figure 72

- b. Hold the grille at a 45° angle, lift it up slightly and detach it from the main body.

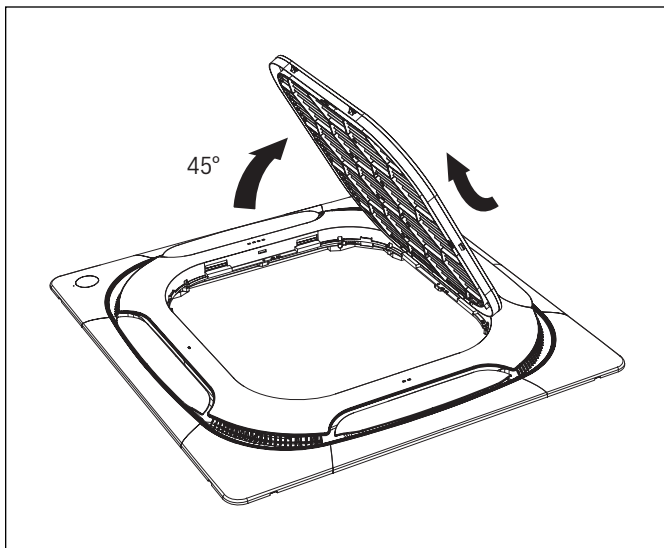


Figure 73

Step 2: Remove the mounting covers.

- a. Carefully remove the mounting covers at the four corners. One of the corners will have the display cable that will need to be connected to the indoor unit (see Figure 74).

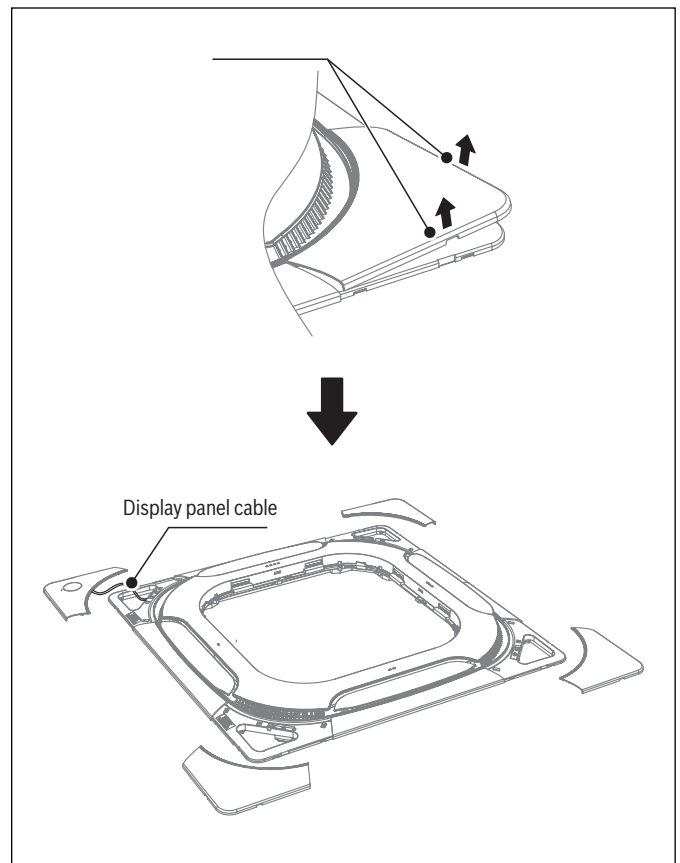


Figure 74

Step 3: Install the panel.

- a. Ensure the display on the panel is on the same side as the refrigerant connections (see Figure 75).

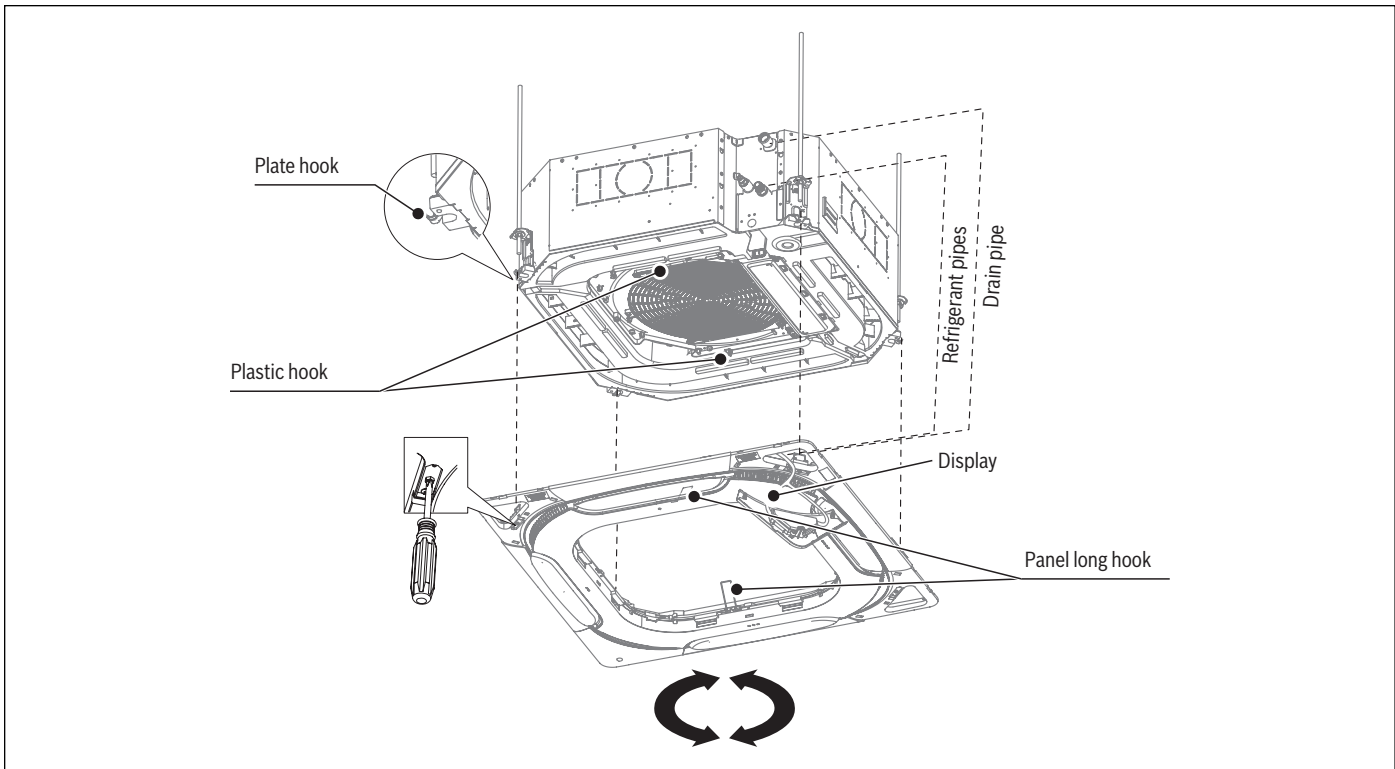


Figure 75

- b. Hang the panel by hooking the two long wire hooks on the inner side of the panel onto the plastic hooks on the indoor unit.
- c. Hook all four corners of the panel to the plate hooks on the outer corners of the indoor unit (see Figure 75).
- d. Lightly tighten the locking screws at each corner of the display panel.
DO NOT fully tighten yet.
- e. Adjust the panel so it completely covers the ceiling opening.
- f. Fully tighten the four corner screws until the sealing material on the panel is compressed to about 3/8"–9/16" (10–15 mm) (see Figure 76).

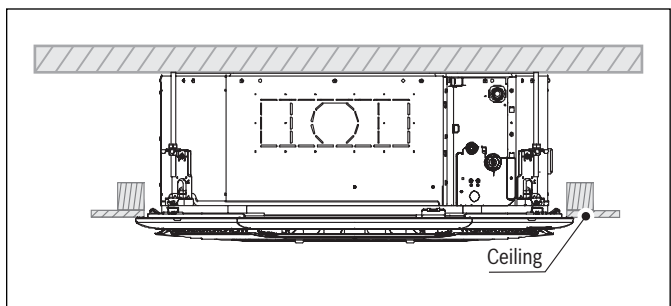


Figure 77

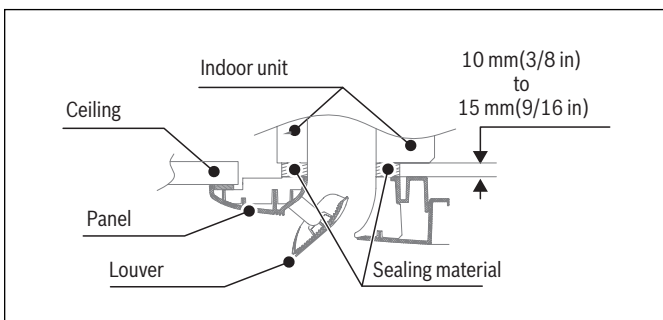


Figure 76

Step 4: Connect the display to the Unit

- a. Connect the 4-core cable to CN30 of the indoor unit's main control board

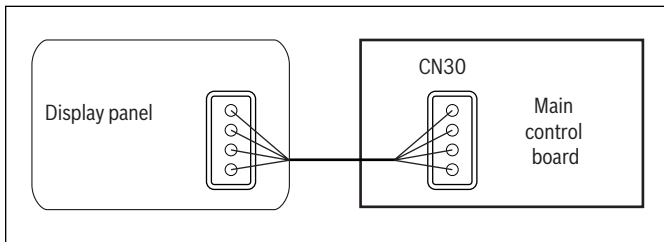


Figure 78

Step 5: Install the air inlet grille

- a. Position the grille so the lanyard aligns with the lanyard hook on the inside of the panel (See Figure 79).

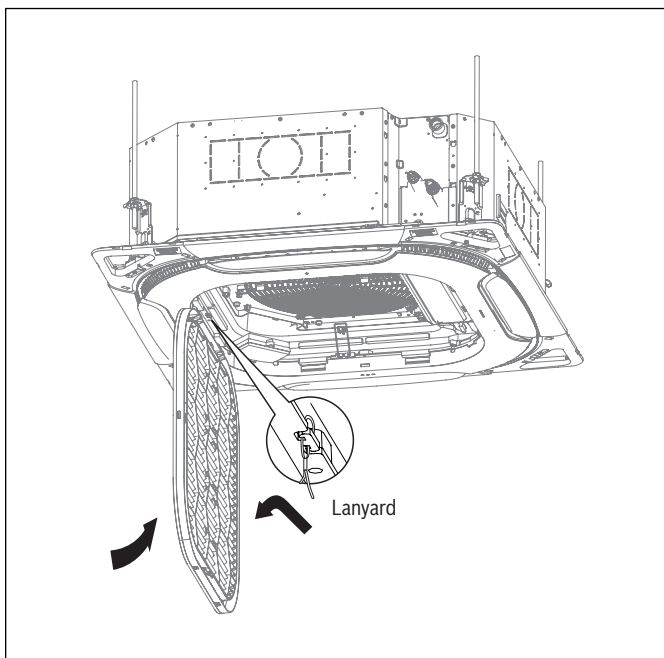


Figure 79

- b. Attach the suspension hooks on the air grille to the hook holes along the inner edge of the panel.
- c. Secure the lanyard to the lanyard hook on the air grille.

- d. Push the air grille up into the air inlet of the indoor unit until all four sides click into place (see Figure 80).

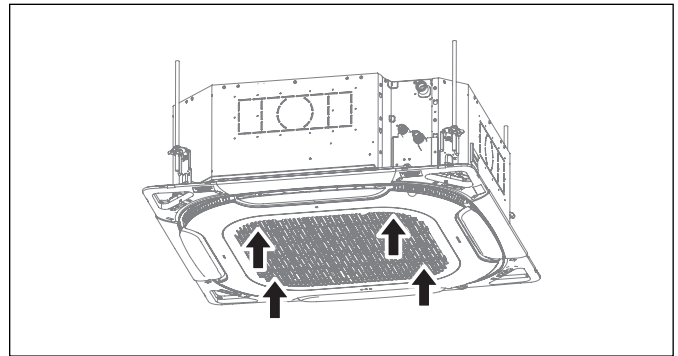


Figure 80

Step 6: Check the panel seal

- a. Ensure the panel is flush and leveled with the ceiling. Maintaining a seal will prevent contaminants from bypassing the air filter, unit condensation from dripping, and other issues that may affect the unit's performance.
- b. If not leveled or flush, adjust the nuts of the unit's mounting bolts.

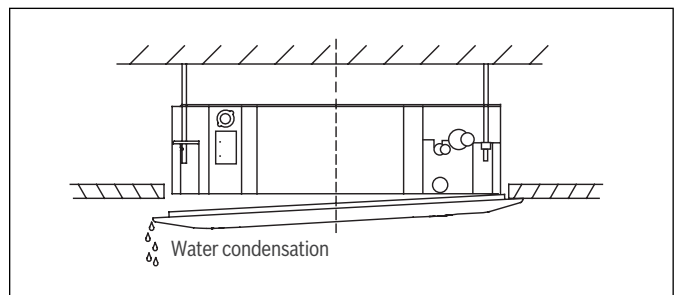


Figure 81

Step 7: Install the corner covers and display panel

- a. Attach each corner cover lanyard to the hooks on the corners of the panel (see Figure 82).
- b. Push the corner covers up into the panel until they click into place. Be careful not to damage the corner cover with the display panel cable while attaching it to the panel.

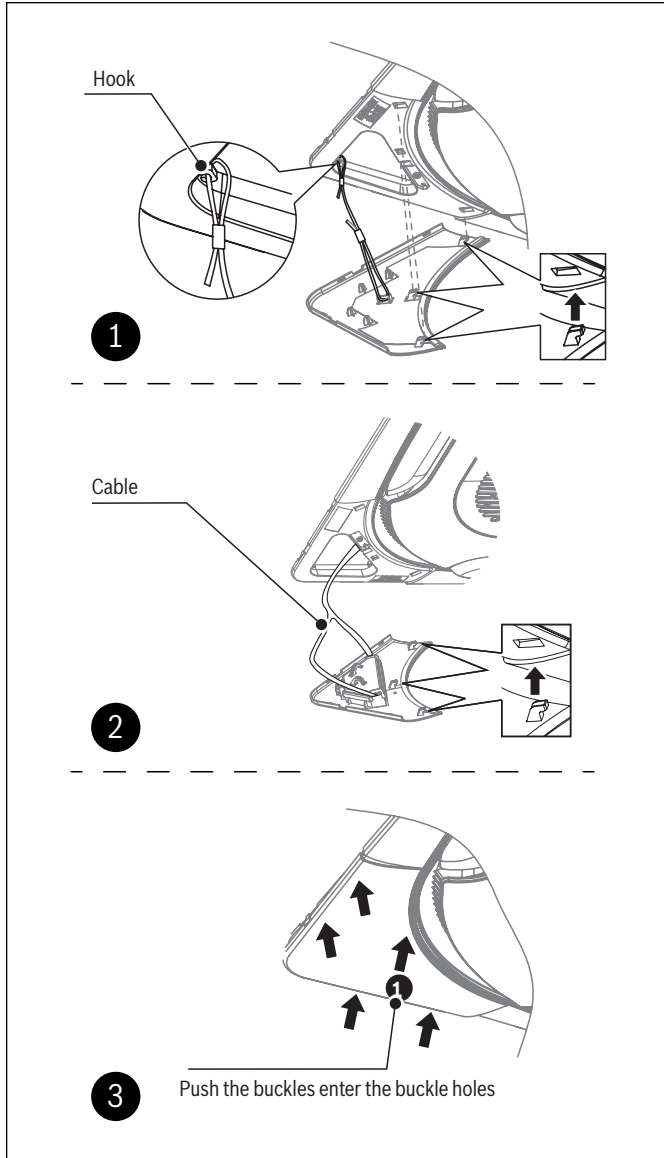


Figure 82

NOTICE

Product damage!

- Do not clamp the lanyard when fitting the cover plate.
- Do not clamp the cable when fitting the display panel.

9.2 Compact Four-Way Cassette Display Panel Installation

NOTICE

Product damage!

DO NOT place the panel facedown on the floor, against a wall, or on uneven surfaces.

Step 1: Remove the front grille.

- a. Push both of the tabs towards the middle simultaneously to unlock the hook on the grille.

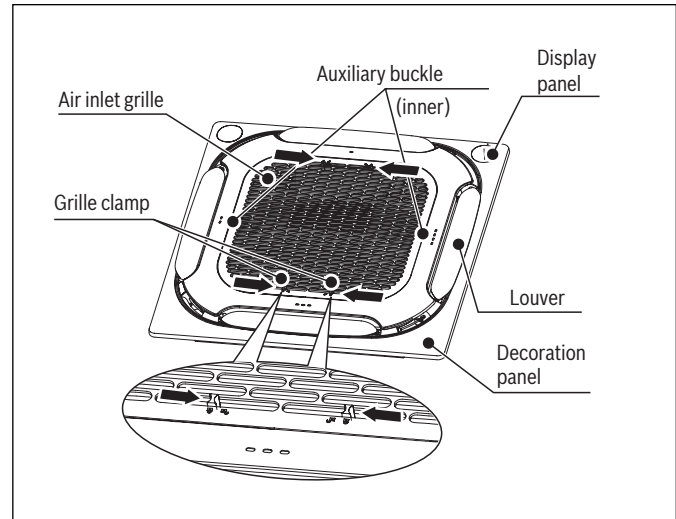


Figure 83

- b. Hold the grille parallel to the unit and detach the air grille from the main body.

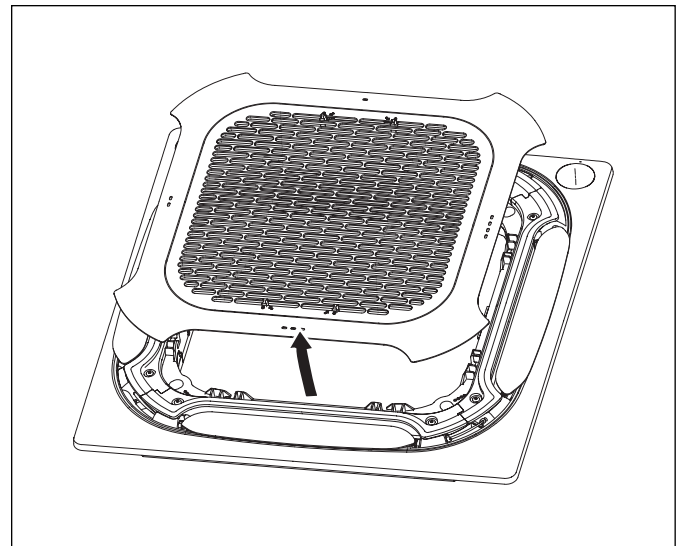


Figure 84

Step 2: Install the panel.

- a. Install the panel on the indoor unit by lightly tightening the included M5x20 screws (see Figure 85).

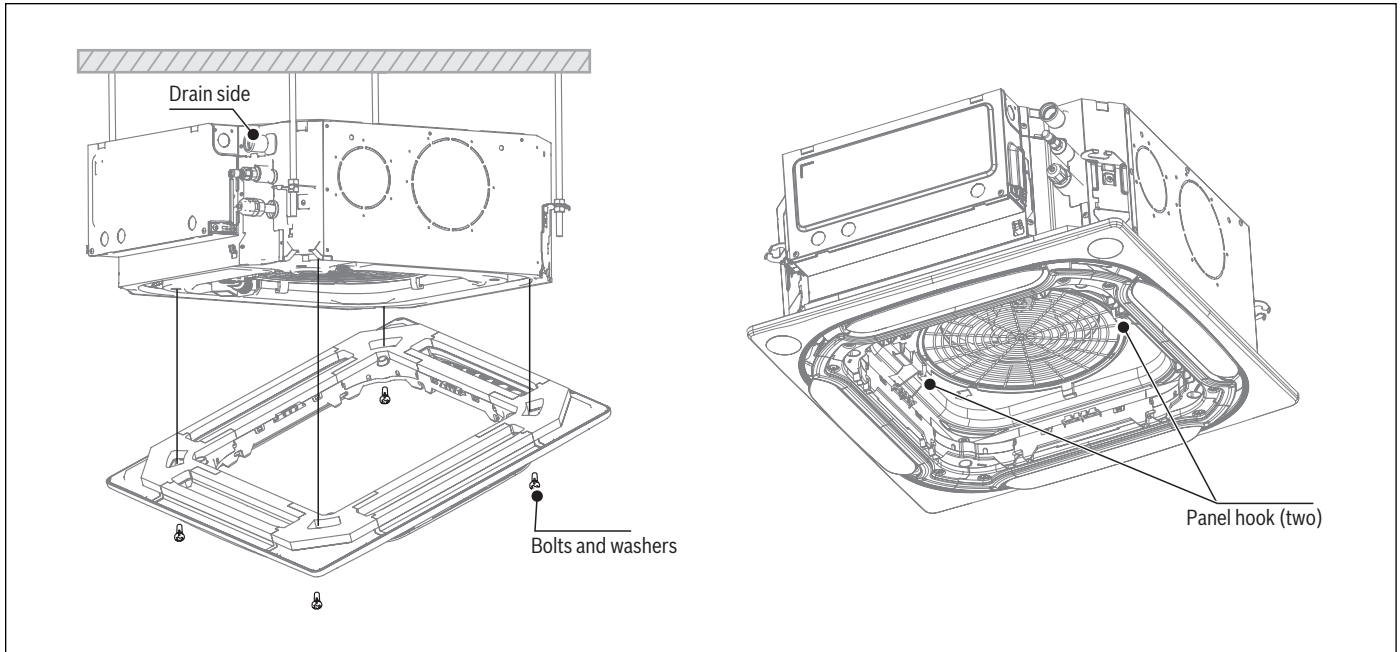


Figure 85

- b. Ensure the two inner wire hooks of the panel are clipped onto the inside of the indoor unit.
- c. Adjust the panel so it completely covers the ceiling opening.
- d. Fully tighten the four screws until the sealing material on the panel is compressed to about 3/16"-1/4" (4-6mm) (see Figure below).

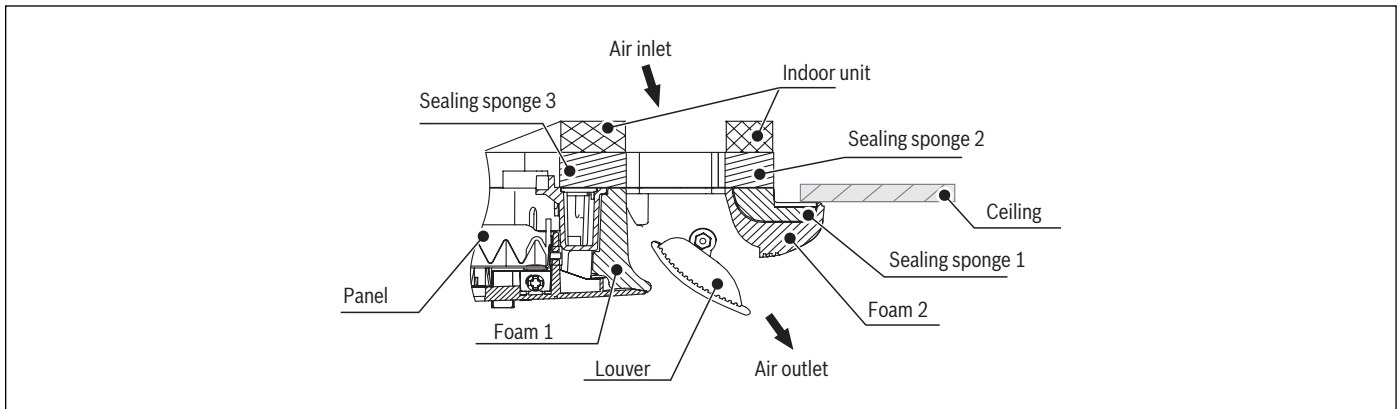


Figure 86

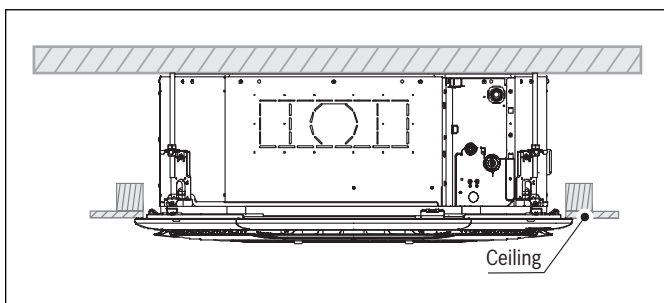


Figure 87

Step 3: Connect the display to the Unit

- a. Connect the 4-core cable to CN30 of the indoor unit's main control board

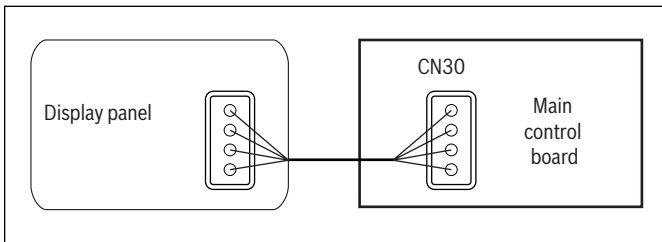


Figure 88

Step 4: Install the Air Inlet Grille

- a. Position the grille so the lanyard lines up with the lanyard hook on the inside of the panel.
- b. Secure the lanyard to both the air grille and the lanyard slotted hook on the display panel.
- c. Push the air grille up into the air inlet of the indoor unit until all four sides click into place (see Figure 89).

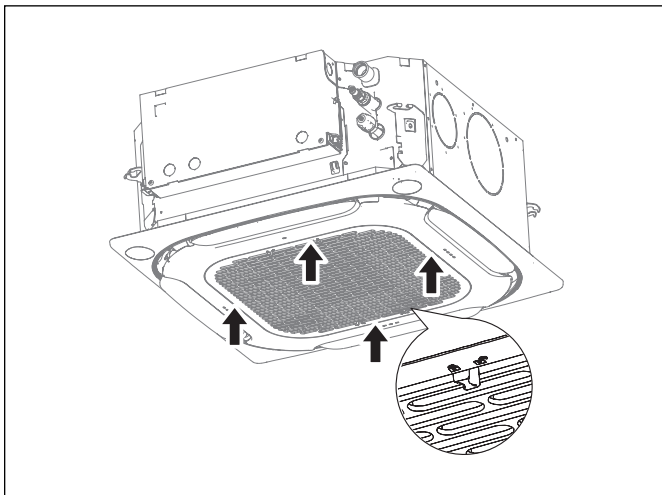


Figure 89

Step 5: Check the panel seal

- a. Ensure the panel is flush and leveled with the ceiling. Maintaining a seal with prevent contaminants from bypassing the air filter, unit condensation from dripping, and other issue that may affect unit performance.
- b. If not leveled or flush, adjust the nuts of the unit's mounting bolts.

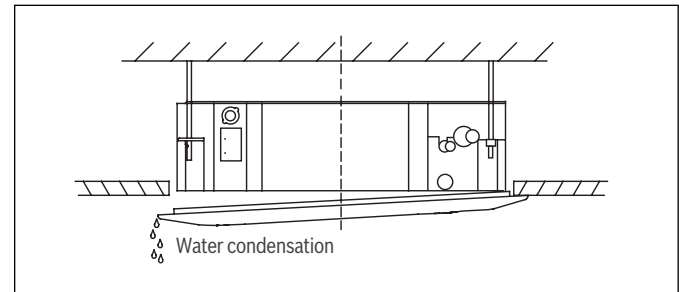


Figure 90

9.3 Filter Installation

Both the four-way cassette and the compact four-way cassette have a factory installed primary filter. If an additional filter is desired it must be field supplied.

1. Remove the grille by pressing the buckles inwards at four locations. See figure below.

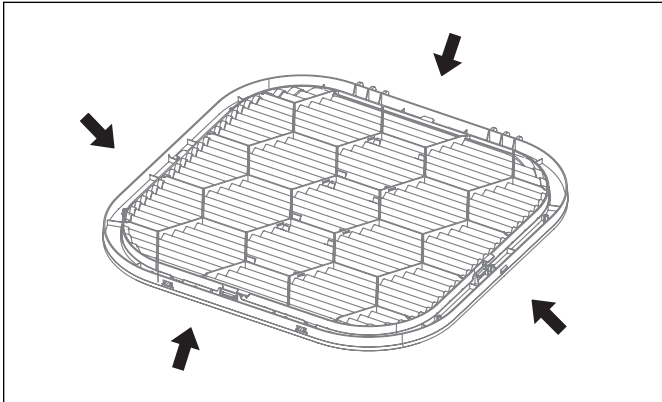


Figure 91

2. Insert the filter. The filter bracket must also be secured to the air inlet grill using 8 #8-3/8" (M4x10) screws (See Figure 92).

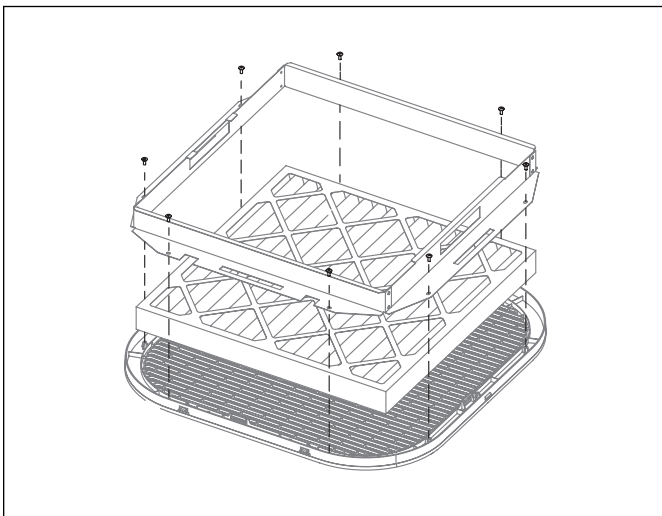


Figure 92

3. To replace the filter in the future, lift one side and pull out old filter.

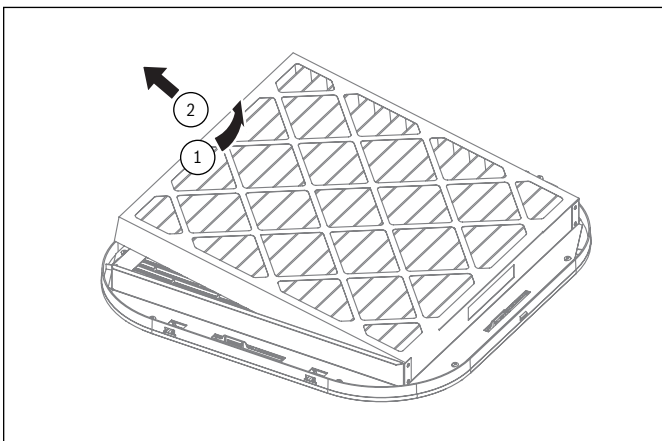


Figure 93

4. Insert new filter and push down to secure.

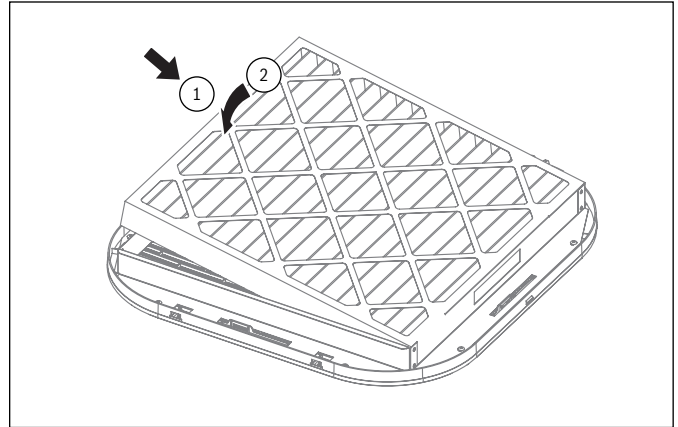


Figure 94

5. Fix the installation cover plate rope to the pillar of the installation cover plate, and gently press the installation cover plate into the panel.

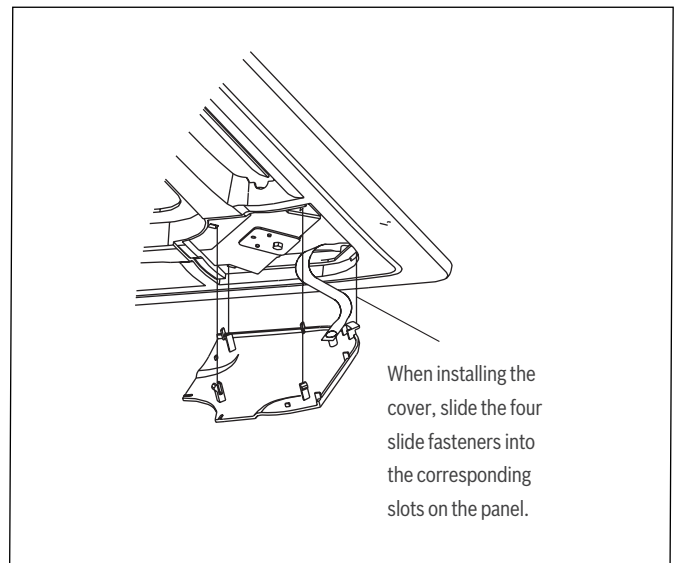


Figure 95



After installation, the display plug, swing, water pump and other wire bodies must be placed in the electric control box.

10 Electrical and Refrigerant Leak Checks

10.1 Electrical Safety Checks



After installation, confirm that all electrical wiring is installed in accordance with local and national codes / regulations, and according to the Installation Manual. All testing must be performed by a licensed electrician.

Before test run

- Check grounding work
- Measure grounding resistance by visual detection and with grounding resistance tester. Grounding resistance must be less than 0.1Ω.



This may not be required for some locations. Refer to local code requirements.

During test run

- Check for electrical leakage:
During the Test Run, use an electroprobe and multimeter to perform a comprehensive electrical leakage test. If electrical leakage is detected, turn off the unit immediately and call a licensed electrician to find and resolve the cause of the leakage.



WARNING

Electrical hazard!

All wiring must comply with local and national electrical codes and must be installed by a licensed electrician.

10.2 Refrigerant Leak Checks



Perform refrigerant leak check on all joints.

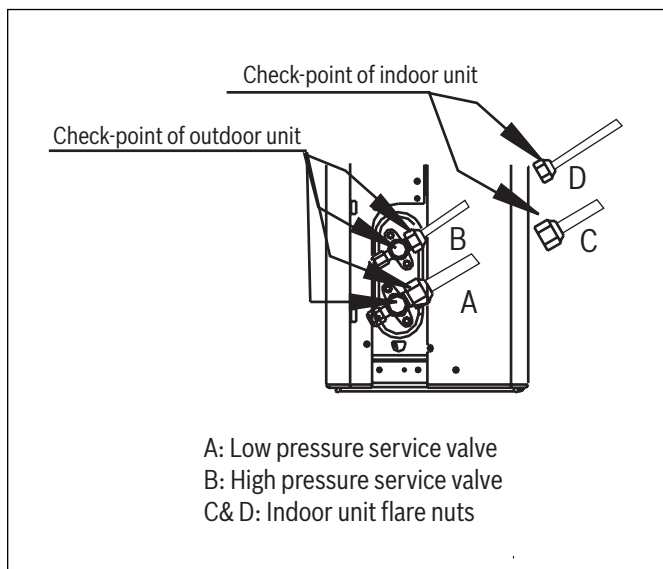


Figure 96

11 Troubleshooting

11.1 Error Codes

When the indoor unit encounters a recognized error, then an error code will be displayed on the HMI screen with letters first, then numbers. These error codes are described in the Table 15 and Table 16.



The error code will remain displayed until the cause has been determined and resolved. Once resolved, power the unit off, wait ten seconds, and power back on to clear the error code.

Code	Fault Description
A01	Emergency stop
A11	R454B refrigerant leak detected
A51	Outdoor unit fault
A71	Interlocking control Heat Recovery Ventilation Unit fault(in-series application)
A72	Humidity Unit fault
A73	Interlocking control Heat Recovery Ventilation Unit fault non-serial application)
A74	The AHU Kit child unit fault
A81	Self-check fault
A82	MS (refrigerant flow direction switching device) fault
A91	Mode conflict
b11	1# EEV coil fault
b12	1# EEV body fault
b13	2# EEV coil fault
b14	2# EEV body fault
b34	Protection on 1 # water pump
b35	Protection on 2 # water pump
b36	Water level switch alarm
b71	Reheating electric heater fault
b72	Preprocessing electric heater fault
b81	Humidifier fault
C11	Duplicate indoor unit address code
C21	Abnormal communication between the indoor unit and outdoor unit
C41	Abnormal communication between the indoor unit main control board and fan drive board
C51	Abnormal communication between the indoor unit and wired controller
C52	Abnormal communication between the indoor unit and Wi-Fi Kit
C61	Abnormal communication between the indoor unit main control board and display board
C71	Abnormal communication between the AHU Kit child unit and parent unit
C72	Number of AHU Kits is not the same as the set number
C73	Abnormal communication between the linked humidifying indoor unit and master indoor unit
C74	Abnormal communication between the linked FAPU and master indoor unit (series setting)
C75	Abnormal communication between the linked FAPU and master indoor unit (non-series setting)
C76	Abnormal communication between the main wired controller and secondary wired controller
C77	Abnormal communication between the indoor unit main control board and 1 # Expansion board
C78	Abnormal communication between the indoor unit main control board and 2 # Expansion board
C79	Abnormal communication between the indoor unit main control board and Switch board
C81	The indoor unit is in power-off state
d16	Air inlet temperature of the indoor unit is too low in heating mode
d17	Air inlet temperature of the indoor unit is too high in cooling mode
d43	Reminder for expiration of life of refrigerant leakage sensor
d81	Alarm for exceeding temperature and humidity range
dE1	Sensor control board fault

Table 15

Code	Fault Description
dE2	PM2.5 sensor fault
dE3	CO2 sensor fault
dE4	Formaldehyde sensor fault
dE5	Human Detect sensor fault
E21	T0 (fresh inlet air temperature sensor) short-circuits or cuts off
E22	The upper dry bulb temperature sensor short-circuits or cuts off
E23	The lower dry bulb temperature sensor short-circuits or cuts off
E24	T1 (Indoor unit return air temperature sensor) short-circuits or cuts off
E31	The built-in room temperature sensor of the wired controller short-circuits or cuts off
E32	The wireless temperature sensor short-circuits or cuts off
E33	The external room temperature sensor short-circuits or cuts off
E61	Tcp (pre-cooled fresh air temperature sensor) short-circuits or cuts off
E62	Tph (pre-heated fresh air temperature sensor) short-circuits or cuts off
E81	TA (outlet air temperature sensor) short-circuits or cuts off
EA1	Outlet air humidity sensor fault
EA2	Return air humidity sensor fault
EA3	Upper wet bulb sensor fault
EA4	Lower wet bulb sensor fault
EC1	R454B refrigerant leakage sensor fault
F01	T2A (heat exchanger inlet temperature sensor) short-circuits or cuts off
F11	T2 (heat exchanger middle temperature sensor) short-circuits or cuts off
F12	T2 (heat exchanger middle temperature sensor) overtemperature protection
F21	T2B (heat exchanger outlet temperature sensor) short-circuits or cuts off
P31	Fan drive board input side overcurrent protection
P34	At least 6 times P31 fault codes detected within 60 minutes
P52	Power supply voltage is too low fault
P71	Main control board EEPROM fault
P72	Indoor unit display control board EEPROM fault
U01	Locked (electronic lock)
U11	Unit model code not set
U12	Capacity(HP) code not set
U14	Capacity(HP) code setting error
U15	AHU Kit fan control input signal DIP setting error
U38	Address code not detected
J01	Motor failed more than once
J1E	IPM (fan module) overcurrent protection
J11	Instantaneous overcurrent protection for phase current
J3E	Low bus voltage fault
J31	High bus voltage fault
J43	Phase current sample bias error
J45	Motor and indoor unit are unmatched
J47	IPM and indoor unit are unmatched
J5E	Motor startup failure
J52	Motor blocking protection
J55	Speed control mode setting error
J6E	Phase lack protection of motor

Table 16

LED Description		Display Status	Description
Green LED	Refrigerant Sensor Communication Indicator	OFF	No communication between the Switch Module and the Refrigerant Sensor
		ON	Normal communication between the Switch Module and the Refrigerant Sensor
		Blinking	Abnormal communication between the Switch Module and Refrigerant Sensor
Red LED	Switch Module Communication Indicator	OFF	Communication between the Switch Module and the indoor unit main control board failed
		ON	Normal communication between the Switch Module and the indoor unit main control board
			Abnormal communication between the Switch Module and indoor unit main control board

Table 17

11.2 Operational State Codes

This unit will also have operation code depending on what state the indoor unit is operating. The table below describes the operational codes.

Code	Fault Description
d0	Oil return or preheating operation
dC	Self-cleaning
dd	Mode conflict
dF	Defrosting
dH	Outdoor unit running in heating mode
d51	Static pressure detection
d61	Remote shutdown
d71	Indoor unit backup operation
d72	outdoor unit backup operation
OTA	Main control program upgrading

Table 18

Online Help Resources

Alternatively, please visit our Service & Support webpage to find FAQs, videos, service bulletins, and more; www.bosch-homecomfort.us/service or use your cellphone to scan the code below.

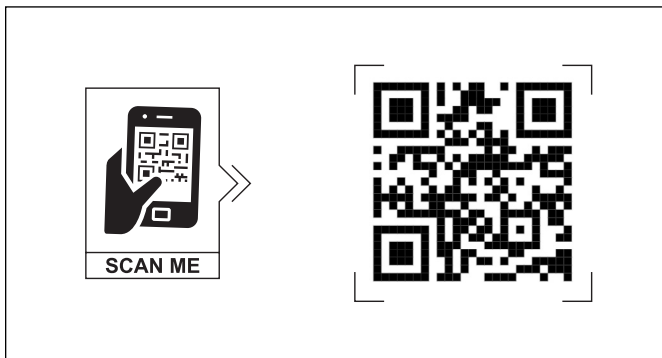


Figure 97

12 Test Run

12.1 Before Test Run

Only perform test run after you have completed the following steps:

- **Electrical Safety Checks:**
Verify your line voltage is correct based on the specification.
- **Gas Leak Checks:**
Check all flare nut connections and confirm that the system is not leaking
- Confirm that gas and liquid (high and low pressure) valves are fully open

12.2 Test Run Instructions

You should perform the Test Run for at least 30 minutes.

1. Energize power at the outdoor unit.
2. Upon initial unit installation, wait one (1) hour before starting the unit if compressor crankcase heater is used and the outdoor ambient temperature is below 70 °F.
3. Press the ON/OFF button on the remote controller to turn it on.
4. Press the MODE button to scroll through the following functions, one at a time:
 - COOL – Select lowest possible temperature
 - HEAT – Select highest possible temperature
5. Let each function run for 5 minutes, and perform the following checks:

List of Checks to Perform	Pass	Fail
No electrical leakage		
Unit is properly grounded		
All electrical terminals properly covered		
Indoor and outdoor units are solidly installed		
All pipe connection points do not leak		
Water drains properly from drain hose		
All piping is properly insulated		
Unit performs COOL function properly		
Unit performs HEAT function properly		
Indoor unit louvers rotate properly		
Indoor unit responds to remote controller		

Table 19

6. After the Test Run is successfully complete, and you confirm that all check points in List of Checks to Perform have PASSED, do the following:
 - a. Using remote control, return unit to normal operating temperature.
 - b. Using insulation tape, wrap the indoor refrigerant pipe connections that you left uncovered during the indoor unit installation process.



A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after shut off.

13 Water Discharge Test

Before the test, make sure that the water discharge pipeline is smooth, and check that each connection is sealed properly.

- Conduct the water discharge test in the new room before the ceiling is paved.
 1. Connect the power supply, and set the air conditioner to operate in the COOL or DRY mode. Check the running sound of the drainage pump.
 2. Keep cool mode running at least 10 min.
 3. Stop the air conditioner. Wait for three minutes, and then check if there is anything unusual. If the water discharge piping layout is not correct, the excessive water flow will cause the water level error and “b36” error code will be displayed on the display panel. There may even be water overflowing from the water pan.
 4. Continue to add water until the alarm for excessive water levels is triggered. Check if the drainage pump drains water immediately. After three minutes, if the water level does not fall below the warning level, the unit will shut down. At this time, you need to turn OFF the power supply, and drain away the accumulated water via the drain plug on the bottom before you use the unit normally.
 5. Turn OFF the power supply, remove the water manually using the drainage plug, and put the test cap back to the original place.

NOTICE

Property damage!

The drainage plug at the bottom of the unit body is used to discharge accumulated water from the drain pan if the air conditioner malfunctions and being repaired. When the air conditioner is operating normally, make sure the drainage plug is properly plugged to prevent water from leaking.

14 Disposal Guidelines

Components

Many parts in the Air Conditioner can be fully recycled in the end of the product life. Contact your city authorities for information about the disposal of recyclable products.

Refrigerant

At the end of the service life of this appliance and prior to its environmental disposal, a person qualified to work with refrigerant circuits must recover the refrigerant from within the sealed system.



WARNING

Contains refrigerant !

Improper disposal of this appliance endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain.

Disposing of this product correctly will help ensure that the waste undergoes the necessary treatment, recovery and recycling.

**United States and Canada
Bosch Thermotechnology Corp.
65 Grove St.
Watertown, MA 02472**

**Tel: 800-283-3787
www.bosch-homecomfort.us**

BTC 762003321 A / 11.2025

**Bosch Thermotechnology Corp. reserves the right to
make changes without notice due to continuing
engineering and technological advances.**

Version Française

