

Required tools for Installation Works							
1	Phillips screw driver	6	Pipe cutter	11	Thermometer	17	Torque wrench
2	Level gauge	7	Reamer	12	Megameter		18 N•m (1.8 kgf•m)
3	Electric drill, hole core drill (ø70 mm)	8	Knife	13	Multimeter		42 N•m (4.3 kgf•m)
4	Hexagonal wrench (4 mm)	9	Gas leak detector	14	Vacuum pump		55 N•m (5.6 kgf•m)
5	Spanner	10	Measuring tape	15	Gauge manifold		65 N•m (6.6 kgf•m)
				16	Hand gloves		100 N•m (10.2 kgf•m)

Attached accessories

No.	Accessories part	Qty.
1	Drain elbow	1

SELECT THE BEST LOCATION

OUTDOOR UNIT
❑ If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed. ❑ There should not be any animal or plant which could be affected by hot air discharged. ❑ Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles. ❑ Do not place any obstacles which may cause a short circuit of the discharged air. ❑ If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the table.

Table A

Model	Capacity W (HP)	Piping size		Std. Length (m)	Max. Elevation (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)	Piping Length for add. gas (m)	Max. Refrigerant Charge (kg)	Indoor A _{min} (m²)
		Gas	Liquid								
Z20***, XZ20***	3/4HP	9.52 mm (3/8")	6.35 mm (1/4")	5	15	3	15	10	7.5	0.78	Not applicable (*)
Z25***, XZ25***	1.0HP				15	3	15	10	7.5	0.78	Not applicable (*)
Z35***, XZ35***	1.5HP				15	3	15	10	7.5	0.89	Not applicable (*)
Z42***, XZ42***	1.75HP				15	3	15	10	7.5	0.91	Not applicable (*)
Z50***, XZ50***	2.0HP	12.7 mm (1/2")			15	3	30	15	7.5	1.47	Not applicable (*)
Z71***	2.5HP	15.88 mm (5/8")			20	3	30	25	10	1.85	4.46

(*) Systems with total refrigerant charge, *m_t*, lower than 1.84 kg are not subjected to any room area requirements.

Example: For Z20***

If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 25 g (10-7.5) m x 10 g/m = 25 g.

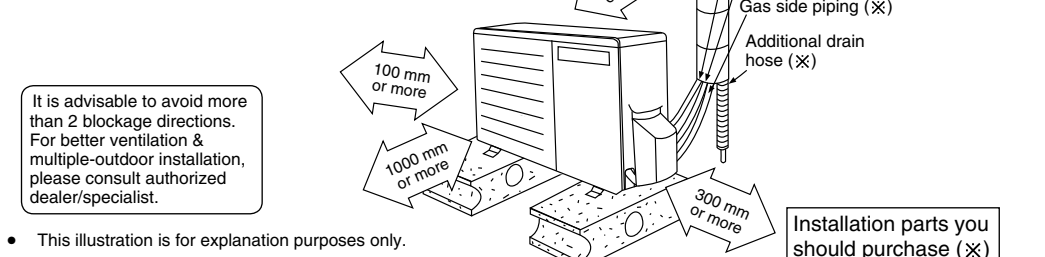
$A_{min} = (m_t / (2.5 \times (LFL)^{(5/4)} \times h_o)) ^2$ ** not less than concentration factor margin

A_{min} = Required minimum room area, in m²
m_t = Refrigerant charge in appliance, in kg
LFL = Lower flammability limit (0.307 kg/m³)
h_o = Installation height of the appliance (1.8 m for wall mounted)
CF = Concentration factor with a value of 0.75

** The required minimum room area, *A_{min}*, shall also be governed by the concentration factor margin formula below :

$A_{min} = m_t / (CF \times LFL \times h_o)$

The higher value shall be taken when determining the room area.

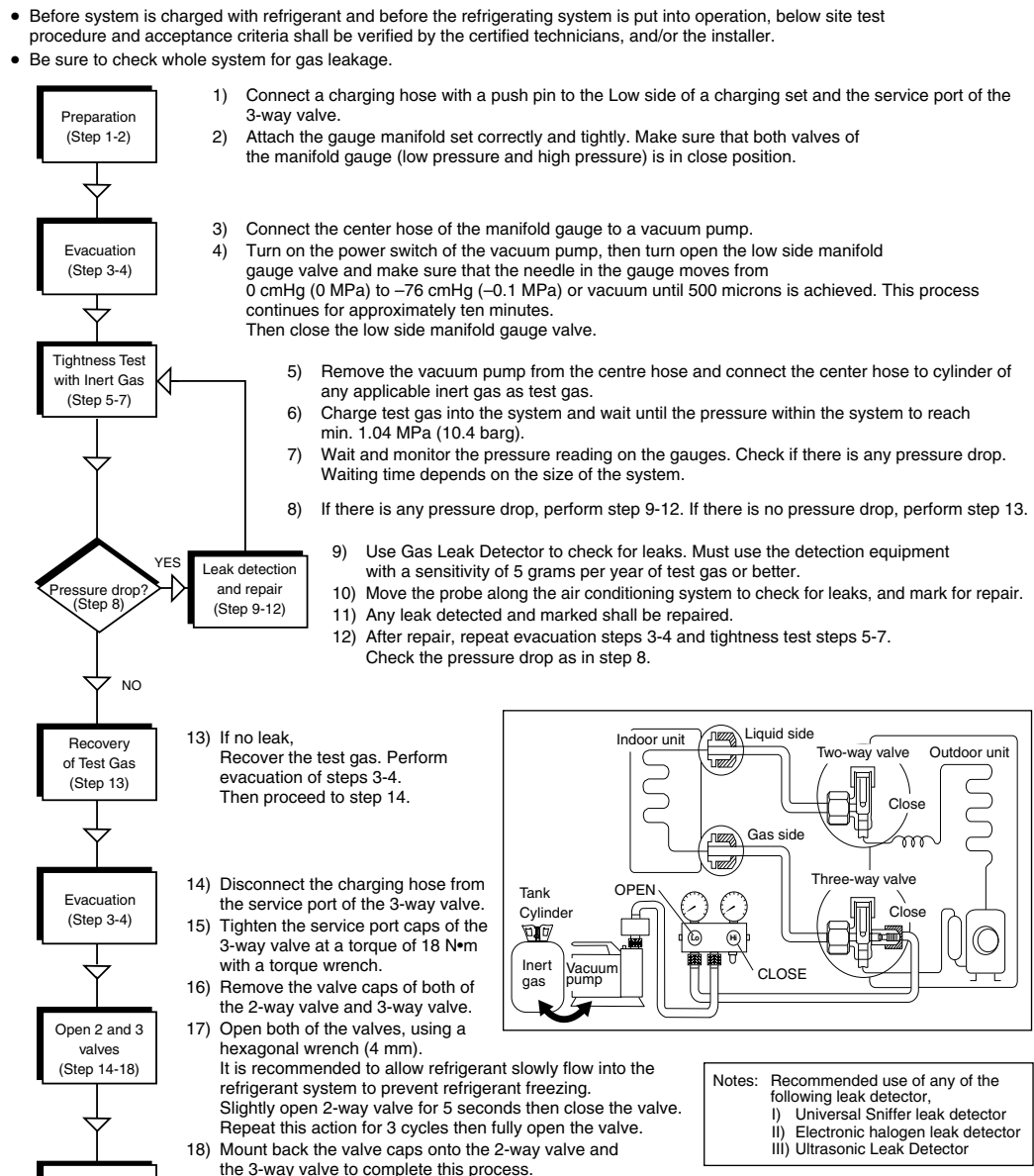


- This illustration is for explanation purposes only.

4 AIR TIGHTNESS TEST ON THE REFRIGERATING SYSTEM

- Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation.

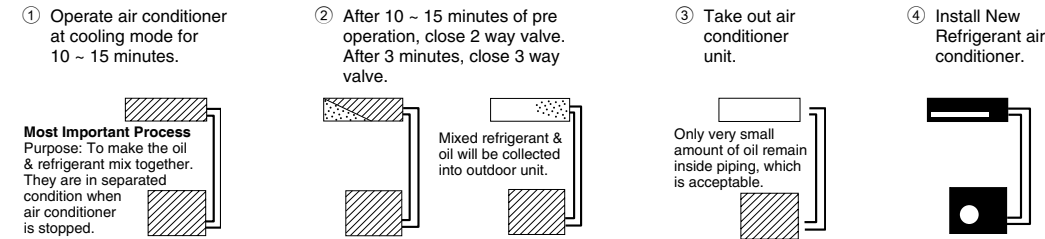
- There is no extra refrigerant in the outdoor unit for air purging.



IN CASE OF REUSING EXISTING REFRIGERANT PIPING

- Observe the followings to decide reusing the existing refrigerant piping. Poor refrigerant piping could result in product failure.
- In the circumstances listed below, do not reuse any refrigerant piping. Instead, make sure to install a new piping.
 - Heat insulation is not provided for either liquid-side or gas-side piping or both.
 - The existing refrigerant pipe has been left in an open condition.
 - The diameter and thickness of the existing refrigerant piping does not meet the requirement.
 - The piping length and elevation does not meet the requirement.
 Perform proper pump down before reuse piping.
- In the circumstances listed below, clean it thoroughly before reuse.
 - Pump down operation cannot be performed for the existing air-conditioner.
 - The compressor has a failure history.
 - Oil color is darken. (ASTM 4.0 and above).
 - The existing air-conditioner is gas/oil heat pump type.
- Do not reuse the flare to prevent gas leak. Make sure to install a new flare.
- If there is a welded part on the existing refrigerant piping, conduct a gas leak check on the welded part.
- Replace deteriorated heat insulating material with a new one. Heat insulating material is required for both liquid-side and gas-side piping.

Proper Pump Down Method

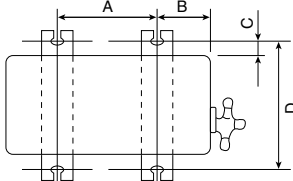


1 SELECT THE BEST LOCATION (Refer to "Select the best location" section)

2 INSTALL THE OUTDOOR UNIT

- After selecting the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.
- Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm). Make sure unit install in balance level to ensure that water flow out from unit drainage hole.
 - When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt, screws or nails.

Model	A	B	C	D
Z20***, XZ20***	570 mm	105 mm	18.5 mm	320 mm
Z25***, XZ25***				
Z35***, XZ35***				
Z42***, XZ42***				
Z50***, XZ50***	613 mm	131 mm	24 mm	360.5 mm
Z71***				



3 CONNECT THE PIPING

Connecting The Piping to Indoor	Connecting The Piping to Outdoor
For connection joint location at outside building Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping) Connect the piping • Align the center of piping and sufficiently tighten the flare nut with fingers. • Further tighten the flare nut with torque wrench in specified torque as stated in the table.	For connection joint location at inside building • Refer to indoor installation instruction.

Piping size	Torque
6.35 mm (1/4")	[18 N•m (1.8 kgf•m)]
9.52 mm (3/8")	[42 N•m (4.3 kgf•m)]
12.7 mm (1/2")	[55 N•m (5.6 kgf•m)]
15.88 mm (5/8")	[65 N•m (6.6 kgf•m)]
19.05 mm (3/4")	[100 N•m (10.2 kgf•m)]

5 CONNECT THE CABLE TO THE OUTDOOR UNIT

- Remove the control board cover from the unit by loosening the screw.
- Connection cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² (3/4 ~ 1.75HP) or 4 x 2.5 mm² (2.0 ~ 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

Terminals on the outdoor unit	S1 2 3
Colour of wires (connection cable)	
Terminals on the indoor unit	L 1 N S1 2 3

- Secure the cable onto the control board with the holder (clammer).
- Attach the control board cover back to the original position with screw.
- For wire stripping and connection requirement, refer to instruction **CONNECT THE CABLE TO THE INDOOR UNIT**.
 - Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

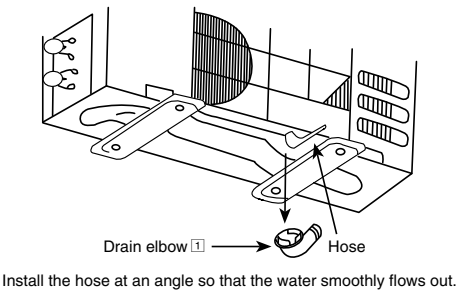
WARNING
This equipment must be properly earthed.

6 PIPING INSULATION

- Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
- If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

DISPOSAL OF OUTDOOR UNIT DRAIN WATER

- If a drain elbow is used, the unit should be placed on a stand which is taller than 3 cm.
- If the unit is used in an area where temperature falls below 0°C for 2 or 3 days in succession, it is recommended not to use a drain elbow, for the drain water freezes and the fan will not rotate.



CHECK ITEMS

- Is there any gas leakage at flare nut connections?
- Has the heat insulation been carried out at flare nut connection?
- Is the connection cable being fixed to terminal board firmly?
- Is the connection cable being clamped firmly?
- Is the earth wire connection properly done?
- Is the power supply voltage complied with rated value?
- Is there any abnormal sound?
- Is the cooling/heating operation normal?
- Is the thermostat operation normal?

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☹ Neutahujte příliš silně. Přílišné utažení může způsobit únik plynu.	
Velikost potrubí	Točivý moment
6,35 mm (1/4")	[18 N•m (1,8 kgf•m)]
9,52 mm (3/8")	[42 N•m (4,3 kgf•m)]
12,7 mm (1/2")	[55 N•m (5,6 kgf•m)]
15,88 mm (5/8")	[65 N•m (6,6 kgf•m)]
19,05 mm (3/4")	[100 N•m (10,2 kgf•m)]

Odtokové koleno 1 → Hadice

Hadici nainstalujte pod úhlem, aby voda mohla plynule vytékat.

	Pracuje termostat normálně?
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Nejdůležitější proces
Účel: Zajistit smíchání oleje a chladiva. Jsou v odděleném stavu, když je klimatizace vypnutá.

trojcestný ventil.
Smíchané chladivo a olej se shromažďují ve venkovní jednotce.

V potrubí zůstává pouze velmi malé množství oleje, což je přijatelné.

