

Job Name:

Schedule Reference:

Date:



MODULAR WATER-SOURCE VRF HEAT PUMP

Standard Installation (*1) PQHY-P312ZSLMU-A1
 Geothermal Installation (*1)(*2) PQHY-P312ZSLMU-A1

ACCESSORIES

- Twinning Kit * CMY-Y200CBK2
Twinning Kit is necessary to combine the refrigerant flow of the modules and is sold separately.
- T-Branch Joint (≤ 72,000 Btu/h) CMY-Y102SS-G2
- T-Branch Joint (73,000 - 144,000 Btu/h) CMY-Y102LS-G2
- T-Branch Joint (145,000 - 234,000 Btu/h) CMY-Y202S-G2
- T-Branch Joint (≥ 235,000 Btu/h) CMY-Y302S-G2
- Header - 4 Branch (Capacity: ≤ 72,000 Btu/h) CMY-Y104C-G
- Header - 8 Branch (Capacity: ≤ 144,000 Btu/h) CMY-Y108C-G
- Header - 10 Branch (Capacity: ≤ 234,000 Btu/h) CMY-Y1010C-G

| Specifications | | System | Module 1 | Module 2 |
|--|------------------------|---------------------------|---|--|
| Unit Type | | PQHY-P312ZSLMU-A1 | PQHY-P168ZLMU-A1 | PQHY-P144ZLMU-A1 |
| Nominal Cooling Capacity (575V) (*1) | Btu/h | 312,000 | 168,000 | 144,000 |
| Nominal Heating Capacity (575V) (*1)(*2) | Btu/h | 350,000 | 188,000 | 160,000 |
| Operating Temperature Range | Cooling (Indoor) | Refer to Module Data | 59~75° F (15~24° C) WB | |
| | Heating (Indoor) | | 59~81° F (15~27° C) DB | |
| Operating Water Temperature Range | Cooling (*3) | Refer to Module Data | 50~113° F (10~45° C) | |
| | Heating (*3) | | 50~113° F (10~45° C) | |
| External Dimensions (H x W x D) | In. (mm) | Refer to Module Data | 57-1/8 x 34-11/16 x 21-11/16 (1450 x 880 x 550) | 57-1/8 x 34-11/16 x 21-11/16 (1450 x 880 x 550) |
| Net Weight | Lbs. (kg) | 1024 (464) | 512 (232) | 512 (232) |
| External Finish | | Refer to Module Data | Galvanized steel sheet | |
| Electrical Power Requirements | Voltage, Phase, Hertz | Refer to Module Data (*4) | 575V, 3-phase, 60Hz | |
| Minimum Circuit Ampacity (MCA) (*4) (*) | A | Refer to Module Data (*4) | 16 | 13 |
| Maximum Overcurrent Protection (MOP) (*4) | A | Refer to Module Data (*4) | 25 | 20 |
| <i>Circulating Water (quality must meet regulations)</i> | | | | |
| Flow Rate | GPM | Refer to Module Data | 31.7 | 31.7 |
| Pressure Drop | psi | | 6.38 | 6.38 |
| Operation Volume Range | GPM | | 19.8 - 50.9 | 19.8 - 50.9 |
| Maximum Water Pressure | psi | | 290 | 290 |
| Water-source Connection for Inlet and Outlet | In. | | NPT1-1/2 Screw (Install strainer (more than 50 meshes) at water inlet piping of the unit) | |
| <i>Piping Diameter (Brazed)</i> | | | | |
| From Twinning Kit to First Joint or Header (In. / mm) | Liquid (High Pressure) | 3/4 / 19.05 | Refer to System Data | Refer to System Data |
| | Gas (Low Pressure) | 1-3/8 / 34.93 | Refer to System Data | Refer to System Data |
| From Modules to Twinning Kit (In. / mm) | Liquid (High Pressure) | Refer to Module Data | 5/8 / 15.88 | 5/8 / 15.88 |
| | Gas (Low Pressure) | Refer to Module Data | 1-1/8 / 28.58 | 1-1/8 / 28.58 |
| Max. Total Refrigerant Line Length | Ft. | 2,460 | Refer to System Data | Refer to System Data |
| Max. Refrigerant Line Length (Bet. ODU & IDU) | Ft. | 541 | | |
| Max. Control Wiring Length | Ft. | 1,640 | | |
| Indoor Unit | Total Capacity | 50~130% | Refer to System Data | Refer to System Data |
| | Model / Quantity | P06~P96 / 2~50 | Refer to System Data | Refer to System Data |
| Sound Pressure Level | dB(A) | 58 | 56 | 54 |
| Compressor Operating Range | | 9% - 100% | Refer to System Data | Refer to System Data |
| Compressor Type x Quantity | | Refer to Module Data (*4) | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| Refrigerant | | Refer to Module Data | R410A x 13 lbs. + 4 oz. (6.0 kg) | R410A x 13 lbs. + 4 oz. (6.0 kg) |
| Protection Devices | High Pressure | Refer to Module Data | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| | Inverter Circuit | | Over-heat protection, Over-current protection | Over-heat protection, Over-current protection |
| | Compressor | | Over-heat protection | Over-heat protection |
| AHRI Ratings (Ducted/Non-Ducted) | EER | 11.2 / 13.0 | Refer to System Data | |
| | IEER | 17.6 / 20.4 | Refer to System Data | |
| | COP | 4.80 / 5.26 | Refer to System Data | |

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NOTES: (*1) <CITY MULTI indoor unit>
 Nominal cooling conditions (Test conditions are based on AHRI 1230)
 Indoor: 81°F D.B./68°F W.B. (27°C D.B./19°C W.B.),
 Water temperature: 86°F (30°C)
 Brine concentration 0%

Nominal heating conditions (Test conditions are based on AHRI 1230)
 Indoor: 68°F D.B. (20°C D.B.),
 Water temperature: 68°F (20°C)
 Brine concentration 0%

(*2) <PWFY-P36/72NMU-E-AU>
 Nominal cooling conditions
 Circulating water Temp.: 86°F (30°C)
 Pipe length: 25 ft. (7.6 m)
 Level difference: 0 ft. (0 m)
 Inlet water Temp.: 149°F (23°C)
 Water flow rate: 1.93 m³/h (8.3 gpm) <P36> / 3.86 m³/h (16.6 gpm) <P72>
 Brine concentration: 0%

Nominal heating conditions
 Circulating water Temp.: 68°F (20°C)
 Pipe length: 25 ft. (7.6 m)
 Level difference: 0 ft. (0 m)
 Inlet water Temp.: 86°F (30°C)
 Water flow rate: 2.15 m³/h (9.2 gpm) <P36> / 4.30 m³/h (18.5 gpm) <P72>
 Brine concentration: 0%

(*3) If using circulating water temperatures between 23° and 50° F, Dip switch 3-9 must be turned on and glycol (antifreeze) must be added to the water loop to prevent freezing down to 5° F.

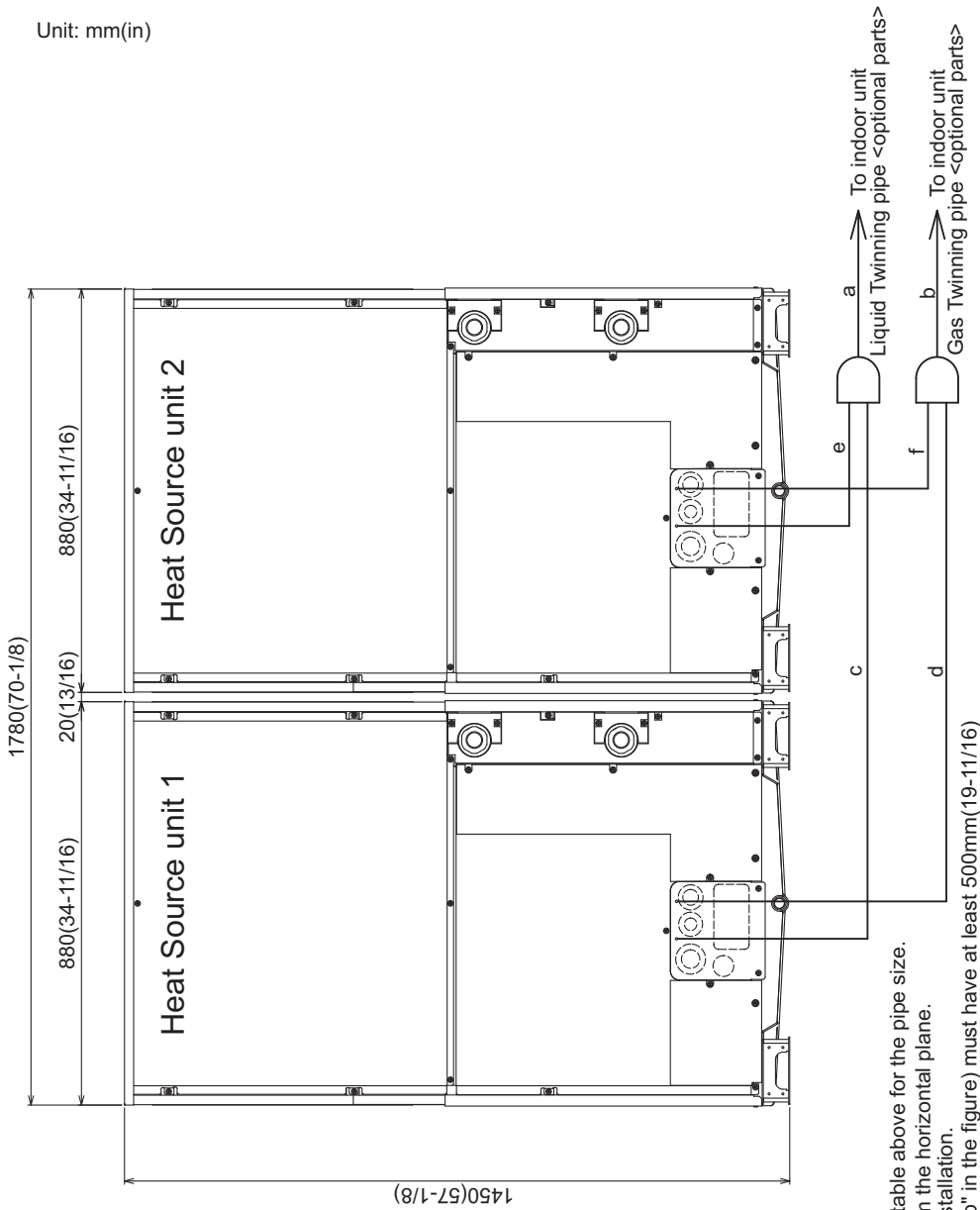
(*4) <Each individual module requires a separate electrical connection.>

Note: Mitsubishi Electric (MESCA) supports the use of only MESCA supplied and approved accessories for proper functioning of the unit(s). Use of non-MESCA supported accessories will affect warranty coverage.

* All electrical work shall comply with National (CEC) and local codes and regulations.

Module: PQHY-P312ZSLMU-A1 - DIMENSIONS

Unit: mm(in)



- Note 1. Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
 2. Twinning pipes should not be tilted more than 15 degrees from the horizontal plane.
 3. See the Installation Manual for the details of Twinning pipe installation.
 4. The pipe section before the Twinning pipe (sections "a" and "b" in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
 5. Only use the Twinning pipe by Mitsubishi (optional parts).

Twinning pipe connection size

| Package unit name | PQHY-P28ZSLMU-A1 | PQHY-P312ZSLMU-A1 | PQHY-P36ZSLMU-A1 | PQHY-P360ZSLMU-A1 |
|----------------------------------|--------------------|-------------------|------------------|-------------------|
| Component unit name | Heat Source unit 1 | PQHY-P144ZLMU-A1 | PQHY-P168ZLMU-A1 | PQHY-P192ZLMU-A1 |
| | Heat Source unit 2 | PQHY-P144ZLMU-A1 | PQHY-P168ZLMU-A1 | PQHY-P168ZLMU-A1 |
| Twinning Kit(Optional parts) | CMY-Y200CBK2 | | | |
| Indoor unit~ Twinning pipe | ø19.05(3/4) | | | |
| | a | ø34.93(1-3/8) | | |
| | b | ø41.28(1-5/8) | | |
| Twinning pipe~Heat Source unit 1 | ø15.88(5/8) | | | |
| | c | ø28.58(1-1/8) | | |
| Twinning pipe~Heat Source unit 2 | ø15.88(5/8) | | | |
| | e | ø28.58(1-1/8) | | |
| | f | ø28.58(1-1/8) | | |

Specifications are subject to change without notice.

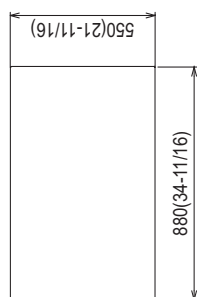
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Modules: 1, 2 : PQHY-P144_168ZLMU-A1 - DIMENSIONS

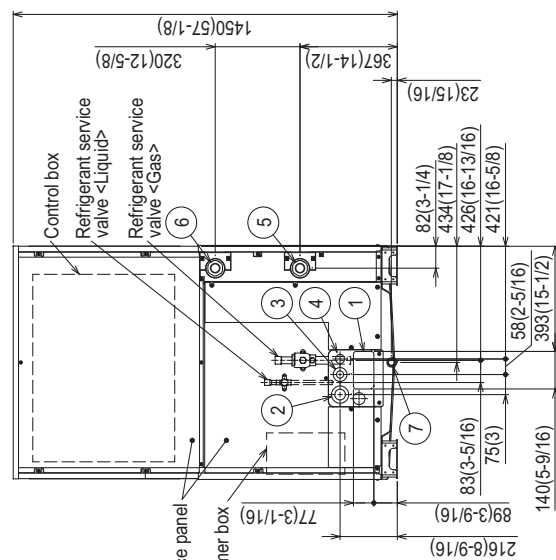
Unit: mm(in)

- <Accessories>
- Refrigerant (Liquid) conn. pipe.....1pc.
(P144/P168/P192; Packaged in the accessory kit)
 - Refrigerant (Gas) conn. elbow.....1pc.
(P144/P168/P192; Packaged in the accessory kit)
 - Water stopper(Liquid,Gas).....1pc. each
(P144/P168/P192; Packaged in the accessory kit)
 - Sealing material for water stopper (Liquid,Gas).....1pc. each
(P144/P168/P192; Packaged in the accessory kit)
 - Sealing material for field piping (Liquid,Gas).....1pc. each
(P144/P168/P192; Packaged in the accessory kit)
 - Sealing material for drain socket.....1pc.
(P144/P168/P192; Packaged in the accessory kit)
 - Pipe cover for gas.....1pc.
(P144/P168/P192; Packaged in the accessory kit)
 - Sealing material for base leg (two types).....4pcs. each
(P144/P168/P192; Packaged in the accessory kit)
 - Sealing material for panel.....1pc.
(P144/P168/P192; Packaged in the accessory kit)

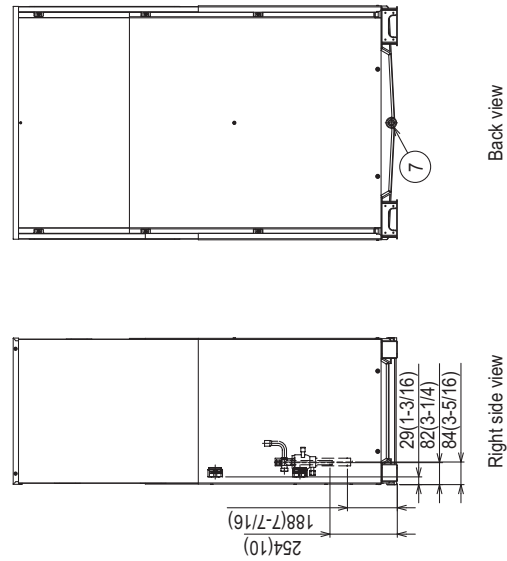
- Note1. Close a hole of the water piping, the refrigerant piping, the power supply, and the control wiring and unused knockout holes with the putty etc. so as not to infiltrate rain water etc.(field erection work)
- Note2. At the time of product shipment, the front side piping specification serves as the local drainage connection. When connecting on the rear side, please remove the rear side plug sealing corks, and attach a front side. Ensure there is no leak after the attachment has been fitted.
- Note3. Take notice of service space as Fig.A. (In case of single installation, 600mm(23-5/8) or more of back space as front space makes easier access when servicing the unit from rear side.)
- Note4. If water pipes or refrigerant pipes stretch upward, required space for service and maintenance due to replacement of control box is shown in Fig.B.
- Note5. Environmental condition for installation; -20~40°C(DB)(-4~104°F) as indoor installation.
- Note6. In case the temperature around the heat source unit has possibility to drop under 0°C(32°F), be careful for the following point to prevent the pipe burst by the water pipe freeze-up.
- Circulate the water, all the time even if the heat source unit is not in operation.
 - Drain the water from inside of the heat source unit when the heat source unit will not operate for a long term.
- Note7. Ensure that the drain piping is downward with a pitch of more than 1/100.
- Note8. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of the refrigerant service valve under 120°C(248°F).



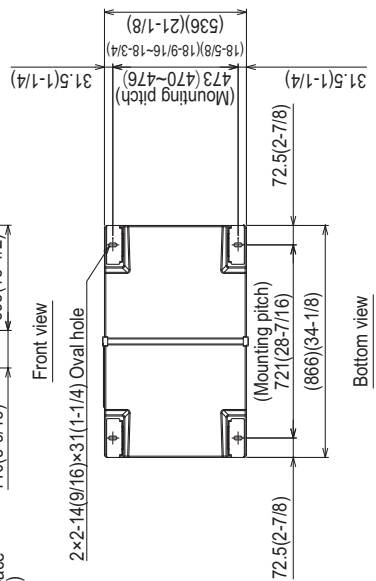
Top view



Front view



Back view



Bottom view

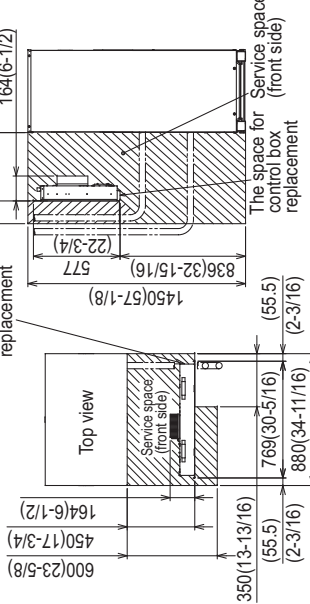


Fig.A

Fig.B

Connecting pipe specifications

| Model | Diameter | | Service valve |
|-----------------|-------------------------|-------------------------|---------------|
| | Refrigerant pipe | Gas | |
| PQH-P142ZLMU-A1 | Liquid | Gas | Liquid |
| | Gas | Gas | |
| PQH-P162ZLMU-A1 | Ø12.7 Braze (1/2) *1 *2 | Ø28.58 Braze (1-1/8) *1 | Liquid |
| | Ø15.88 Braze (5/8) *1 | Ø25.58 (1-1/8) | |

*1 Connect by using the connecting pipes and elbow that are supplied.
*2 Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO | Usage | Specifications |
|----|-------------------------|---|
| ① | For pipes | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | For wires | Ø62.7, or Ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ③ | For transmission cables | Ø43.7, or Ø22.2 Knockout hole (1-3/4) (7/8) |
| ④ | Water pipe inlet | Ø34 Knockout hole (1-3/8) |
| ⑤ | Water pipe outlet | NPT1-1/2 Screw |
| ⑥ | Drain pipe | NPT1-1/2 Screw |
| ⑦ | | Rc3/4 Screw |

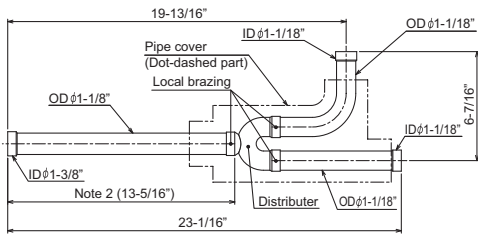
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Twinning Kit: CMY-Y200CBK2

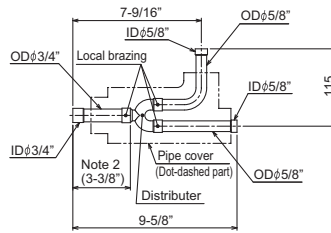
in.

CMY-Y200CBK2

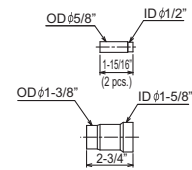
For Gas pipe:



For Liquid pipe:

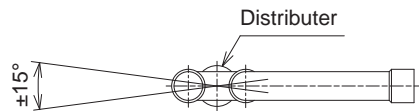


<Deformed pipe(Accessory)>



ID: Inner Diameter OD: Outer Diameter

Note 1. Reference the attitude angle of the branch pipe below the fig.

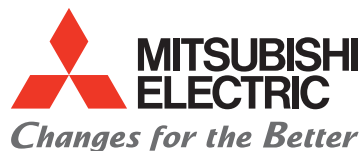


The angle of the branch pipe for high pressure is within $\pm 15^\circ$ against the horizontal plane.

2. Use the attached pipe to braze the port-opening of the distribute
3. Pipe diameter is indicated by inside diamete
4. Only use the Twinning pipe by Mitsubishi (optional parts)

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Notes:



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