

Job Name:

System Reference:

Date:

MODULAR WATER-SOURCE VRF HEAT PUMP SYSTEM**FEATURES**

- Single modules up to 20 tons with the ability to combine single modules for systems up to 30 tons
- 208/230V, 3-Phase, 60Hz and 460V, 3-Phase, 60Hz options
- Designed for closed water loops
- Dual heat recovery - from water loop and refrigerant circuit
- 0-10V output signal to modulate water flow for compliance with energy codes
- Features Variable Evaporating Temperature (VET) technology, which enables the outdoor unit to raise the target evaporation temperature based on the difference between set point and return air temperature, saving energy.
- Water flow can be stopped while the unit is in a thermo-off state, saving on pump energy consumption. For twinned systems, both modules must be thermo-off to stop water flow.
- Enhanced water-side heat exchanger design for improved efficiency and reduced risk of clogging
- Self-cooling cabinet design
- Inlet water temperature range: 23-113° F
- Max. Total Refrigerant Piping Length: up to 2,460 feet based on model
- Connects to CITY MULTI® indoor units; controlled via CITY MULTI® Controls Network (CMCN)
- External finish: Acrylic-painted steel
- Stack multiple units on a field-supplied rack to take advantage of vertical space when available
- Extended 10-year parts and compressor warranty available

ACCESSORIES

- Twinning Kit (required) (CMY-Q100CBK2)
- Joint Kit (for details see Pipe Accessories Submittal)
- BC Controller (for details see BC Controller Submittal)

SPECIFICATIONS: PQRYP144YSLMU-A1

| Specifications | | System | |
|---|-----------------------|---------------------|--------------------------------------|
| Unit Type | | PQRYP144YSLMU-A1 | |
| Nominal Cooling Capacity (460V) | Btu/h | 144,000 | |
| Nominal Heating Capacity (460V) | Btu/h | 160,000 | |
| Total Net weight of Modules | Lbs. (kg) | 812 (368) | |
| Electrical Power Requirements | Voltage, Phase, Hertz | 460V, 3-phase, 60Hz | |
| Piping Diameter (Brazed) | | | |
| From Twinning Kit to First Joint or Header (In. / mm) | Liquid pipe | In. (mm) | 7/8 (22.2) |
| | Gas pipe | In. (mm) | 1-1/8 (28.58) |
| Max. Total Refrigerant Line Length | Ft. | 2,460 | |
| Max. Refrigerant Line Length (Between ODU & IDU) | Ft. | 541 | |
| Max. Control Wiring Length | Ft. | 1,640 | |
| Indoor Unit | Total capacity | | 50~150% of heat source unit capacity |
| | Model/Quantity | | P06~P96/1~36 |
| Sound pressure level (measured in anechoic room) | dB(A) | 49 | |
| Compressor Operating Range | 12% - 100% | | |
| AHRI Ratings (Ducted/Non-Ducted) | EER | 15.1 / 18.6 | |
| | IEER | 22.5 / 26.1 | |
| | COP | 5.29 / 5.94 | |
| | SCHE | 21.7 / 20.2 | |

Refer to Module Data^{*1}

| Specifications | | | Module 1 ^{*1} | Module 2 ^{*1} |
|-----------------------------------|-----------------------|------|-------------------------------|-------------------------------|
| Unit Type | | | PQRYP72YLMU-A1 | PQRYP72YLMU-A1 |
| Nominal Cooling Capacity (460V) | Btu/h | | 72,000 | 72,000 |
| Nominal Heating Capacity (460V) | Btu/h | | 80,000 | 80,000 |
| Operating Temperature Range | Cooling (Indoor) | W.B. | 59~75°F (15~24°C) | 59~75°F (15~24°C) |
| | Heating (Indoor) | D.B. | 59~81° F (15~27°C) | 59~81° F (15~27°C) |
| Operating Water Temperature Range | Circulating water | °F | 50~113° F (10~45°C) | 50~113° F (10~45°C) |
| | Circulating water | °F | 50~113° F (10~45°C) | 50~113° F (10~45°C) |
| External dimension H x W x D | In. | | 43-5/16 x 34-11/16 x 21-11/16 | 43-5/16 x 34-11/16 x 21-11/16 |
| | mm | | 1,100 x 880 x 550 | 1,100 x 880 x 550 |
| Net weight | lbs. (kg) | | 406 (184) | 406 (184) |
| External finish | | | Galvanized steel sheets | Galvanized steel sheets |
| Electrical Power Requirements | Voltage, Phase, Hertz | | 460V, 3-phase, 60Hz | 460V, 3-phase, 60Hz |
| Minimum Circuit Ampacity | A | | 6 | 6 |

SPECIFICATIONS: PQRYP144YSLMU-A1

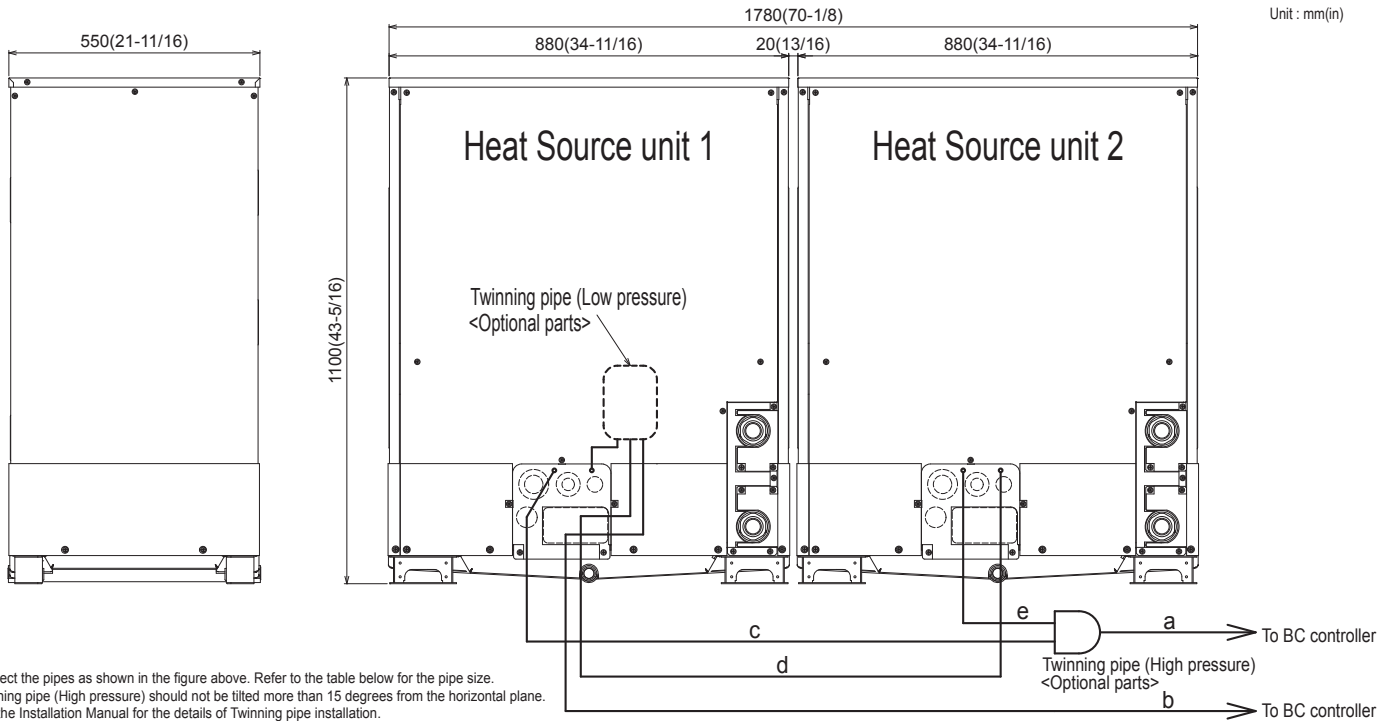
| Specifications | | Module 1 ^{*1} | | Module 2 ^{*1} | |
|--|--------------------------|------------------------|--|--|--|
| Unit Type | | PQRYP72YLMU-A1 | | PQRYP72YLMU-A1 | |
| Maximum Overcurrent Protection | A | 15 | 15 | 15 | 15 |
| Circulating Water (quality must meet regulations) | | | | | |
| Flow Rate | G/min (gpm) | 25.4 | 25.4 | 25.4 | 25.4 |
| | L/s | 1.6 | 1.6 | 1.6 | 1.6 |
| Pressure Drop | Ft. | 8.0 | 8.0 | 8.0 | 8.0 |
| | psi | 3.48 | 3.48 | 3.48 | 3.48 |
| Operation Volume Range | G/min (gpm) | 13.2 ~ 31.7 | 13.2 ~ 31.7 | 13.2 ~ 31.7 | 13.2 ~ 31.7 |
| | L/m | 50 ~ 120 | 50 ~ 120 | 50 ~ 120 | 50 ~ 120 |
| Maximum Water Pressure | MPa | 2 | 2 | 2 | 2 |
| | psi | 290 | 290 | 290 | 290 |
| Water-source Connection for Inlet and Outlet | In. | 1-1/2 NPT | 1-1/2 NPT | 1-1/2 NPT | 1-1/2 NPT |
| Piping Diameter (Brazed) | | | | | |
| From Modules to Twinning Kit [In.(mm)] | Liquid (High Pressure) | In. (mm) | 5/8 (15.88) | 3/4 (19.05) | 3/4 (19.05) |
| | Gas (Low Pressure) | In. (mm) | 3/4 (19.05) | 7/8 (22.2) | 7/8 (22.2) |
| Sound pressure level (measured in anechoic room) | | dB(A) | 46 | 46 | 46 |
| Compressor Type x Quantity | | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| Motor output | | kW | 4.3 | 4.3 | 4.3 |
| Lubricant | | | MEL32 | MEL32 | MEL32 |
| Refrigerant | | | R410A x 11 lbs. + 1 oz. (5.0 kg) | R410A x 11 lbs. + 1 oz. (5.0 kg) | R410A x 11 lbs. + 1 oz. (5.0 kg) |
| Protection Devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | 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 | Over-heat protection, Over-current protection |
| | Compressor | | Over-heat protection | Over-heat protection | Over-heat protection |

*1 Each individual module requires a separate electrical connection. Reference electrical data for each individual module.

Notes:

DIMENSIONS: PQRYP144YSLMU-A1

Unit : mm(in)



- Note 1. Connect the pipes as shown in the figure above. Refer to the table below for the pipe size.
 2. Twinning pipe (High pressure) 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. Only use the Twinning pipe by Mitsubishi (optional parts).

Twinning pipe connection size

| Package unit name | | PQRYP144YSLMU-A1 | PQRYP168YSLMU-A1 | PQRYP192YSLMU-A1 | PQRYP216YSLMU-A1 | PQRYP240YSLMU-A1 |
|-----------------------------------|--------------------|-------------------------|-------------------|------------------|------------------|------------------|
| Component unit name | Heat Source unit 1 | PQRYP72YLMU-A1 | PQRYP96YLMU-A1 | PQRYP96YLMU-A1 | PQRYP120YLMU-A1 | PQRYP120YLMU-A1 |
| | Heat Source unit 2 | PQRYP72YLMU-A1 | PQRYP72YLMU-A1 | PQRYP96YLMU-A1 | PQRYP96YLMU-A1 | PQRYP120YLMU-A1 |
| Twinning pipe Kit(optional parts) | | CMY-Q100CBK2 | | | | |
| BC controller~Twinning pipe | High pressure a | ø22.2(7/8) | | | ø22.2(7/8) *1 | |
| | Low pressure b | ø28.58(1-1/8) | | | ø34.93(1-3/8) | |
| Twinning pipe~Heat source unit | Unit model | High pressure c or e | Low pressure d | | | |
| | P72 | ø15.88(5/8) *2 | ø19.05(3/4) *2 | | | |
| | P96 | ø19.05(3/4) | ø22.2(7/8) | | | |
| | P120 | | | | | |

*1. When the piping length is 65 m or longer, use the ø28.58(1-1/8) pipe for the part that exceeds 65 m.
 *2. When the package unit name "PQRYP168YSLMU-A1", use the ø19.05(3/4) pipe for high pressure and the ø22.2(7/8) pipe for low pressure.

DIMENSIONS: PQRV-P72YLMU-A1

Note1. Seal around the water piping, the refrigerant piping, the power supply, and the control wiring and plug unused knockout holes with putty, etc., to prevent moisture or dirt from entering cabinet.

Note2. At the time of product shipment, the front side piping serves as the local drainage connection.

When connecting on the rear side, please remove the rear side plug sealing corks, and attach on the front side.

Note3. See Fig. A and Fig. B for service clearances.

Note4. If piping is installed in front of the unit, provide clearances as shown in Fig. A and Fig. B.

Note5. Environmental condition for installation: -20~40°C(DB) (-4~-104°F) for 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 heat source unit is not in operation and provide glycol for freeze protection.

•Drain the water from inside of the heat source unit when the heat source unit will not operate for a long term.

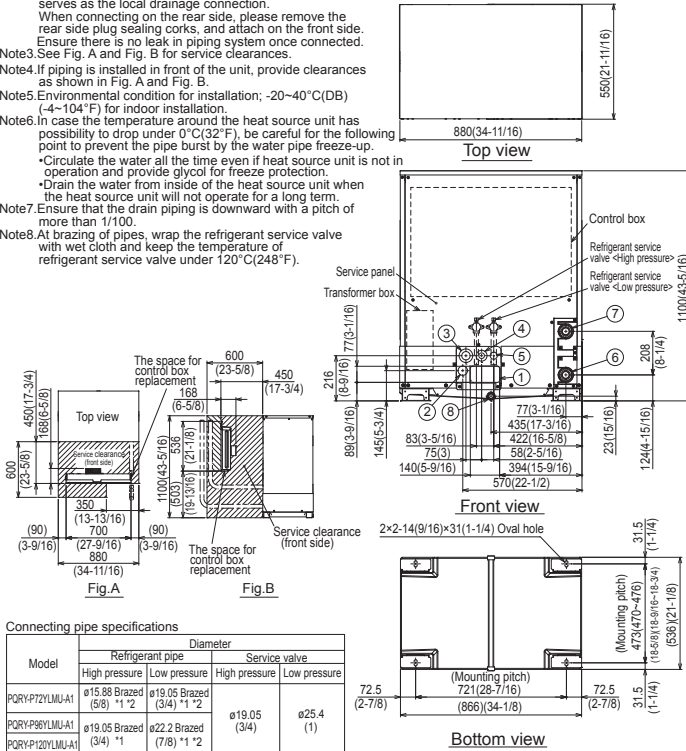
Note7. Ensure that the drain piping is downward with a pitch of more than 1/100.

Note8. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

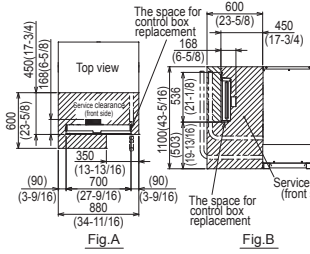
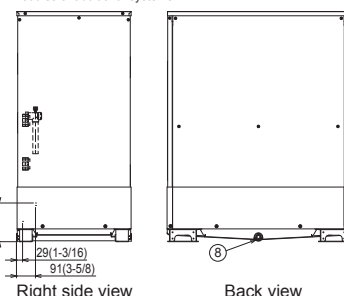
Unit : mm(in)

<Accessories>

- Refrigerant (high pressure) conn. pipe 1pc. (P72/P96/P120 ; Packaged in the accessory kit)
- Refrigerant (low pressure) conn. elbow 1pc. (P72/P96/P120 ; Packaged in the accessory kit)
- Water stopper 1pc. (P72/P96/P120 ; Packaged in the accessory kit)
- Sealing material for water stopper 1pc. (P72/P96/P120 ; Packaged in the accessory kit)
- Sealing material for field piping (high pressure, low pressure) 1pc. each (P72/P96/P120 ; Packaged in the accessory kit)
- Sealing material for drain socket 1pc. (P72/P96/P120 ; Packaged in the accessory kit)
- Pipe cover for low pressure 1pc. (P72/P96/P120 ; Packaged in the accessory kit)



Top of unit casing not suitable for supporting system modules stacked above - field framing required for stacking modules of additional systems



| Model | Refrigerant pipe | | Service valve | |
|------------------|---------------------------|---------------------------|---------------|--------------|
| | High pressure | Low pressure | High pressure | Low pressure |
| PQRV-P72YLMU-A1 | ø15.88 Brazed (5/8) *1 *2 | ø19.05 Brazed (3/4) *1 *2 | ø19.05 (3/4) | ø25.4 (1) |
| PQRV-P96YLMU-A1 | ø19.05 Brazed (3/4) *1 | ø22.2 Brazed (7/8) *1 *2 | | |
| PQRV-P120YLMU-A1 | | | | |

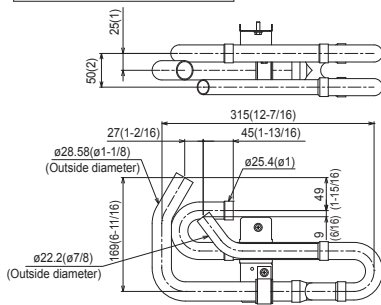
*1 Connect by using the connecting pipes and elbow that are supplied.
 *2 Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO. | Usage | Specifications |
|-----|-------------------------|--|
| ① | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | For pipes | Front through hole (Uses when trimming kit (optional parts) is mounted.) ø45 Knockout hole (1-13/16) |
| ③ | For wires | Front through hole ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ④ | For wires | Front through hole ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑤ | For transmission cables | Front through hole ø34 Knockout hole (1-3/8) |
| ⑥ | Water pipe inlet | NPT1-1/2 Screw |
| ⑦ | Water pipe outlet | NPT1-1/2 Screw |
| ⑧ | Drain pipe | Rc3/4 Screw |

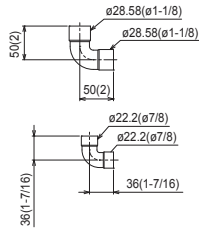
DIMENSIONS: CMY-Q100CBK2 (TWINNING KIT)

Unit : mm(in)

Low-pressure pipe twinning kit



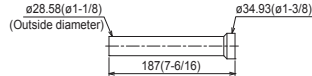
<Elbow pipe(Accessory)>



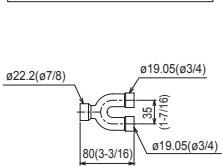
<Accessory>

- Fixing screw 1
- Insulation cover 1
- Pipe cover (150mm(5-15/16) Length) 2
- Pipe cover (60mm(2-3/8) Length) 1
- Pipe cover (80mm(3-3/16) Length) 2
- Cable tie 2
- Water stopper 1
- Sealing material (Small) 1
- Sealing material (Large) 1

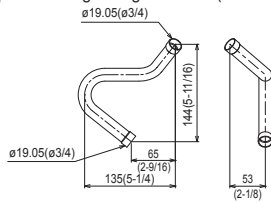
<Pipe for routing through the front (Accessory)>



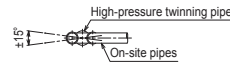
High-pressure twinning pipe



<Pipe for routing through the front (Accessory)>

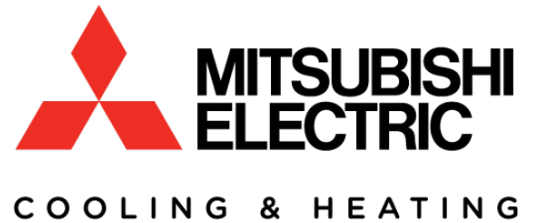


Note 1. Refer to the figure below for the installation position of the high-pressure twinning pipe.



Inclination tolerance of the high-pressure twinning pipe is $\pm 15^\circ$ relative to the ground.

2. Pipe diameter is indicated by inside diameter.



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