

Air-cooled Chilling Unit

**e-series**

**DATA BOOK**

MODEL

**EACV-P040YBL(-N)(-BS)**

**EACV-P050YBL(-N)(-BS)**

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## EACV-P-YBL(-N)

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# 1. Product Specifications

## 1-1. Specifications

|                                                                   |                          |                         |                                                        |
|-------------------------------------------------------------------|--------------------------|-------------------------|--------------------------------------------------------|
| Model                                                             |                          |                         | EACV-P040YBL(-N)(-BS)                                  |
| Power source                                                      |                          |                         | 3-phase 3-wire 460V 50/60Hz                            |
| Cooling capacity *1                                               |                          | BTU/h                   | 511,800                                                |
|                                                                   |                          | kW                      | 150.00                                                 |
|                                                                   | Power input              | kW                      | 45.10                                                  |
|                                                                   | EER                      | BTU/(W × h)             | 11.35                                                  |
|                                                                   | IPLV *4                  | BTU/(W × h)             | 22.33                                                  |
|                                                                   | Water flow rate          | GPM(m <sup>3</sup> /h)  | 113.6(25.8)                                            |
| Cooling capacity(EN14511) *2                                      |                          | BTU/h                   | 506,955                                                |
|                                                                   |                          | kW                      | 148.58                                                 |
|                                                                   | Power input              | kW                      | 46.52                                                  |
|                                                                   | EER                      | BTU/(W × h)             | 10.90                                                  |
|                                                                   | Water flow rate          | GPM (m <sup>3</sup> /h) | 113.6(25.8)                                            |
|                                                                   |                          |                         |                                                        |
| Current input                                                     | Cooling current 460V *1  | A                       | 63                                                     |
|                                                                   | Maximum current          | A                       | 111                                                    |
| Water pressure drop *1                                            |                          | ftAq                    | 38.2                                                   |
|                                                                   |                          | psi                     | 16.5                                                   |
|                                                                   |                          | kPa                     | 114                                                    |
| Temp range                                                        | Cooling                  | °F (°C)                 | Outlet water 41~86(Outlet water 5~30) *5               |
|                                                                   | Outdoor                  | °F (°C)                 | 5~109.4(-15~43) *5                                     |
| Circulating water volume range                                    |                          | GPM (m <sup>3</sup> /h) | 56.8~149.7(12.9~34.0)                                  |
| Sound pressure level (measured in anechoic room) at 3.28ft(1m) *1 |                          | dB (A)                  | 66                                                     |
| Sound power level (measured in anechoic room) *1                  |                          | dB (A)                  | 84                                                     |
| Diameter of water pipe<br>(Standard piping)                       | Inlet                    | in. (mm)                | 2 1/2B(65A) housing type joint                         |
|                                                                   | Outlet                   | in. (mm)                | 2 1/2B(65A) housing type joint                         |
| Diameter of water pipe<br>(Inside header piping)                  | Inlet                    | in. (mm)                | 6B(150A) housing type joint                            |
|                                                                   | Outlet                   | in. (mm)                | 6B(150A) housing type joint                            |
| External finish                                                   |                          |                         | Polyester powder coating steel plate                   |
| External dimension H × W × D                                      |                          | in.(mm)                 | 92-9/16 × 133-7/8 × 42-9/16(2350 × 3400 × 1080)        |
| Net weight                                                        | Standard piping          | lbs (kg)                | 2822(1280)                                             |
|                                                                   | Inside header piping     | lbs (kg)                | 2857(1296)                                             |
| Design pressure                                                   | R410A                    | psi (MPa)               | 601(4.15)                                              |
|                                                                   | Water                    | psi (MPa)               | 145(1.0)                                               |
| Heat exchanger                                                    | Water side               |                         | Stainless steel plate and copper brazing               |
|                                                                   | Air side                 |                         | Plate fin and copper tube                              |
| Compressor                                                        | Type                     |                         | Inverter scroll hermetic compressor                    |
|                                                                   | Maker                    |                         | MITSUBISHI ELECTRIC CORPORATION                        |
|                                                                   | Starting method          |                         | Inverter                                               |
|                                                                   | Quantity                 |                         | 4                                                      |
|                                                                   | Motor output             | kW                      | 11.7 × 4                                               |
|                                                                   | Lubricant                |                         | MEL32                                                  |
| Fan                                                               | Air flow rate            | cfm                     | 9357 × 4                                               |
|                                                                   |                          | m <sup>3</sup> /min     | 265 × 4                                                |
|                                                                   |                          | L/s                     | 4417 × 4                                               |
|                                                                   | Type, Quantity           |                         | Propeller fan × 4                                      |
|                                                                   | Starting method          |                         | Inverter                                               |
|                                                                   | Motor output             | kW                      | 0.92 × 4                                               |
| Protection                                                        | High pressure protection |                         | High pres.Sensor & High pres.Switch at 601psi(4.15MPa) |
|                                                                   | Inverter circuit         |                         | Over-heat protection, Over current protection          |
|                                                                   | Compressor               |                         | Over-heat protection                                   |
| Refrigerant                                                       | Type × charge            |                         | R410A × 33(lbs) × 4 *3<br>(R410A × 15(kg) × 4)         |
|                                                                   | Control                  |                         | LEV                                                    |

### Notes:

- \*1 Under normal cooling conditions at outdoor temp 95°FDB/75.2°FWB (35°CDB/24°CWB) outlet water temp 44.6°F (7°C) inlet water temp 53.6°F (12°C). Pump input is not included in cooling capacity and power input.
- \*2 Under normal cooling conditions at outdoor temp 95°FDB/75.2°FWB (35°CDB/24°CWB) outlet water temp 44.6°F (7°C) inlet water temp 53.6°F (12°C). Pump input is included in cooling capacity and power input based on EN14511.
- \*3 Amount of factory-charged refrigerant is 6.6lbs (3kg) × 4. Please add the refrigerant at the field.
- \*4 IPLV is calculated in accordance with AHRI 550-590.
- \*Please don't use the steel material for the water piping.
- \*Please always make water circulate, or pull the circulation water out completely when not in use.
- \*Please do not use groundwater or well water in direct.
- \*The water circuit must be closed circuit.
- \*Due to continuous improvement, the above specifications may be subject to change without notice.
- \*This model doesn't equip with a pump.
- \*5 Please refer to 2-1-5. Operation temperature range.

### Unit converter

BTU/h = kW × 3.412  
cfm = m<sup>3</sup>/min × 35.31  
lbs = kg/0.4536

\*Above specification data is subject to rounding variation.

# 1. Product Specifications

|                                                                   |                          |                         |                                                        |
|-------------------------------------------------------------------|--------------------------|-------------------------|--------------------------------------------------------|
| Model                                                             |                          |                         | EACV-P050YBL(-N)(-BS)                                  |
| Power source                                                      |                          |                         | 3-phase 3-wire 460V 50/60Hz                            |
| Cooling capacity *1                                               |                          | BTU/h                   | 614,160                                                |
|                                                                   |                          | kW                      | 180.00                                                 |
|                                                                   | Power input              | kW                      | 59.01                                                  |
|                                                                   | EER                      | BTU/(W × h)             | 10.41                                                  |
|                                                                   | IPLV *4                  | BTU/(W × h)             | 21.57                                                  |
|                                                                   | Water flow rate          | GPM(m <sup>3</sup> /h)  | 136.5(31.0)                                            |
| Cooling capacity(EN14511) *2                                      |                          | BTU/h                   | 606,517                                                |
|                                                                   |                          | kW                      | 177.76                                                 |
|                                                                   | Power input              | kW                      | 61.25                                                  |
|                                                                   | EER                      | BTU/(W × h)             | 9.90                                                   |
|                                                                   | Water flow rate          | GPM (m <sup>3</sup> /h) | 136.5(31.0)                                            |
|                                                                   |                          |                         |                                                        |
| Current input                                                     | Cooling current 460V *1  | A                       | 83                                                     |
|                                                                   | Maximum current          | A                       | 111                                                    |
| Water pressure drop *1                                            |                          | ftAq                    | 54.9                                                   |
|                                                                   |                          | psi                     | 23.8                                                   |
|                                                                   |                          | kPa                     | 164                                                    |
| Temp range                                                        | Cooling                  | °F (°C)                 | Outlet water 41~86(Outlet water 5~30) *5               |
|                                                                   | Outdoor                  | °F (°C)                 | 5~109.4(-15~43) *5                                     |
| Circulating water volume range                                    |                          | GPM (m <sup>3</sup> /h) | 56.8~149.7(12.9~34.0)                                  |
| Sound pressure level (measured in anechoic room) at 3.28ft(1m) *1 |                          | dB (A)                  | 68                                                     |
| Sound power level (measured in anechoic room) *1                  |                          | dB (A)                  | 86                                                     |
| Diameter of water pipe<br>(Standard piping)                       | Inlet                    | in. (mm)                | 2 1/2B(65A) housing type joint                         |
|                                                                   | Outlet                   | in. (mm)                | 2 1/2B(65A) housing type joint                         |
| Diameter of water pipe<br>(Inside header piping)                  | Inlet                    | in. (mm)                | 6B(150A) housing type joint                            |
|                                                                   | Outlet                   | in. (mm)                | 6B(150A) housing type joint                            |
| External finish                                                   |                          |                         | Polyester powder coating steel plate                   |
| External dimension H × W × D                                      |                          | in.(mm)                 | 92-9/16 × 133-7/8 × 42-9/16(2350 × 3400 × 1080)        |
| Net weight                                                        | Standard piping          | lbs (kg)                | 2822(1280)                                             |
|                                                                   | Inside header piping     | lbs (kg)                | 2857(1296)                                             |
| Design pressure                                                   | R410A                    | psi (MPa)               | 601(4.15)                                              |
|                                                                   | Water                    | psi (MPa)               | 145(1.0)                                               |
| Heat exchanger                                                    | Water side               |                         | Stainless steel plate and copper brazing               |
|                                                                   | Air side                 |                         | Plate fin and copper tube                              |
| Compressor                                                        | Type                     |                         | Inverter scroll hermetic compressor                    |
|                                                                   | Maker                    |                         | MITSUBISHI ELECTRIC CORPORATION                        |
|                                                                   | Starting method          |                         | Inverter                                               |
|                                                                   | Quantity                 |                         | 4                                                      |
|                                                                   | Motor output             | kW                      | 11.7 × 4                                               |
|                                                                   | Lubricant                |                         | MEL32                                                  |
| Fan                                                               | Air flow rate            | cfm                     | 9357 × 4                                               |
|                                                                   |                          | m <sup>3</sup> /min     | 265 × 4                                                |
|                                                                   |                          | L/s                     | 4417 × 4                                               |
|                                                                   | Type, Quantity           |                         | Propeller fan × 4                                      |
|                                                                   | Starting method          |                         | Inverter                                               |
|                                                                   | Motor output             | kW                      | 0.92 × 4                                               |
| Protection                                                        | High pressure protection |                         | High pres.Sensor & High pres.Switch at 601psi(4.15MPa) |
|                                                                   | Inverter circuit         |                         | Over-heat protection, Over current protection          |
|                                                                   | Compressor               |                         | Over-heat protection                                   |
| Refrigerant                                                       | Type × charge            |                         | R410A × 33(lbs) × 4 *3<br>(R410A × 15(kg) × 4)         |
|                                                                   | Control                  |                         | LEV                                                    |

## Notes:

- \*1 Under normal cooling conditions at outdoor temp 95°FDB/75.2°FWB (35°CDB/24°CWB) outlet water temp 44.6°F (7°C) inlet water temp 53.6°F (12°C). Pump input is not included in cooling capacity and power input.
- \*2 Under normal cooling conditions at outdoor temp 95°FDB/75.2°FWB (35°CDB/24°CWB) outlet water temp 44.6°F (7°C) inlet water temp 53.6°F (12°C). Pump input is included in cooling capacity and power input based on EN14511.
- \*3 Amount of factory-charged refrigerant is 6.6lbs (3kg) × 4. Please add the refrigerant at the field.
- \*4 IPLV is calculated in accordance with AHRJ 550-590.
- \*Please don't use the steel material for the water piping.
- \*Please always make water circulate, or pull the circulation water out completely when not in use.
- \*Please do not use groundwater or well water in direct.
- \*The water circuit must be closed circuit.
- \*Due to continuous improvement, the above specifications may be subject to change without notice.
- \*This model doesn't equip with a pump.
- \*5 Please refer to 2-1-5. Operation temperature range.

## Unit converter

|       |                               |
|-------|-------------------------------|
| BTU/h | = kW × 3.412                  |
| cfm   | = m <sup>3</sup> /min × 35.31 |
| lbs   | = kg/0.4536                   |

\*Above specification data is subject to rounding variation.

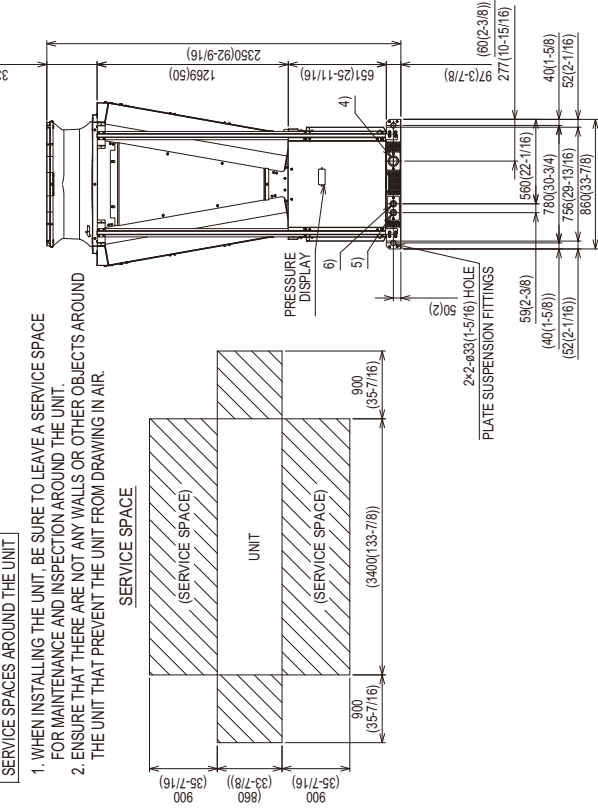
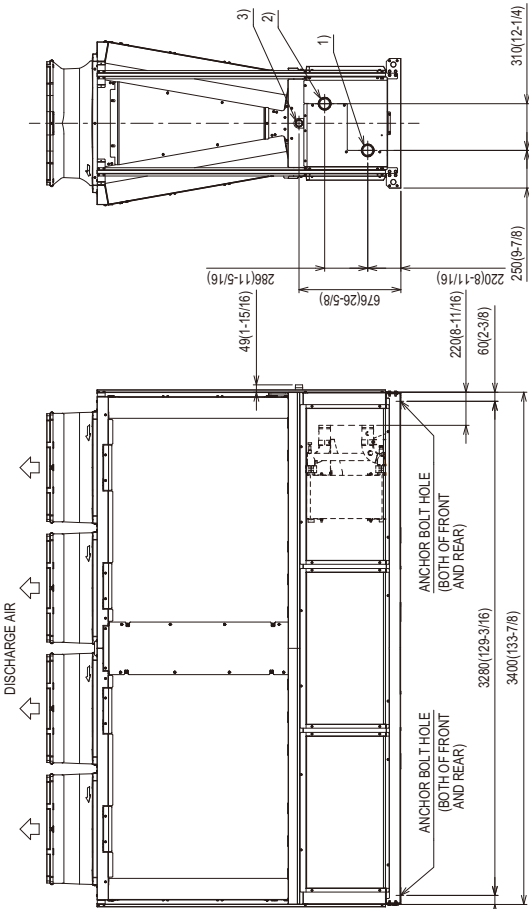
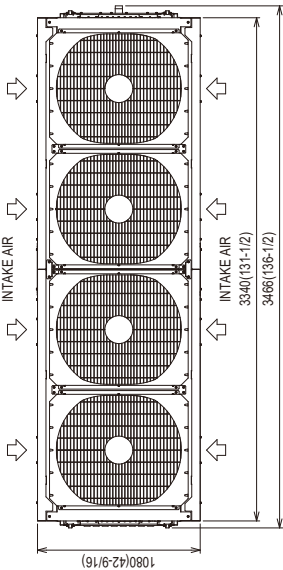
1-2. External Dimensions

EACV-P040, 050YBL(-BS)

Unit: mm (in.)

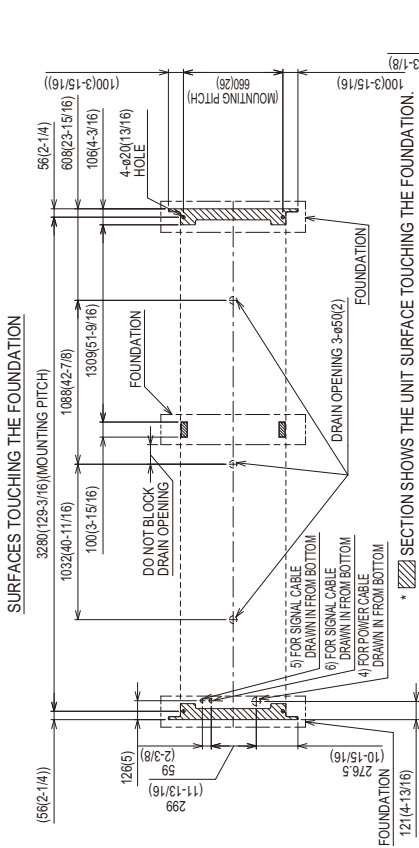
NOTE 1. CONNECT COOL WATER PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.  
NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE HEAT EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING.  
BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE INLET OF COOL WATER PIPES.  
NOTE 3. FOR HOW TO DRAW IN POWER CABLES OR CONNECT COOL WATER PIPES, REFER TO THE SEPARATE DOCUMENT.  
NOTE 4. THE HOUSING TYPE JOINTS FOR CONNECTING A COOL WATER INLET AND OUTLET SHOULD BE PREPARED ON SITE.

| NO. | NAME                                       | DESCRIPTION                                 |
|-----|--------------------------------------------|---------------------------------------------|
| 1)  | COOL WATER INLET                           | 2-1/2B HOUSING TYPE<br>JOINT ATTACHED (× 1) |
| 2)  | COOL WATER OUTLET                          | 2-1/2B HOUSING TYPE<br>JOINT ATTACHED (× 1) |
| 3)  | DRAIN OPENING                              | R1-1/2 EXTERNAL THREAD                      |
| 4)  | POWER CABLE INLET                          | ø66(2-5/8) × 1                              |
| 5)  | SIGNAL CABLE INLET<br>(LOW CURRENT CABLE)  | ø34(1-3/8)                                  |
| 6)  | SIGNAL CABLE INLET<br>(HIGH CURRENT CABLE) | ø34(1-3/8)                                  |

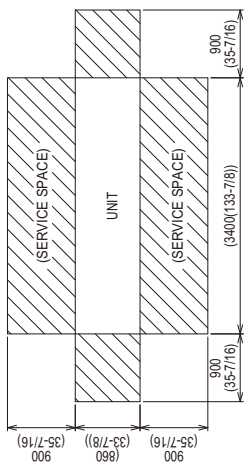


<STANDARD PIPING TYPE>

- [INSTALLATION ON FOUNDATION]
1. SECURELY FIX THE UNIT WITH BOLTS TO KEEP THE UNIT FROM FALLING DOWN DURING EARTHQUAKES.
  2. INSTALL THE UNIT ON A FOUNDATION MADE OF CONCRETE OR IRON.
  3. NOISE AND VIBRATIONS FROM THE UNIT MAY BE TRANSMITTED THROUGH THE FLOOR AND WALLS.  
PROVIDE ADEQUATE PROTECTION AGAINST NOISE AND VIBRATION.
  4. ANCHOR BOLTS SHOULD BE PREPARED ON SITE.
  5. WHEN BUILDING THE FOUNDATION, TAKE THE FLOOR STRENGTH, AND PIPING AND WIRING ROUTES INTO CONSIDERATION.



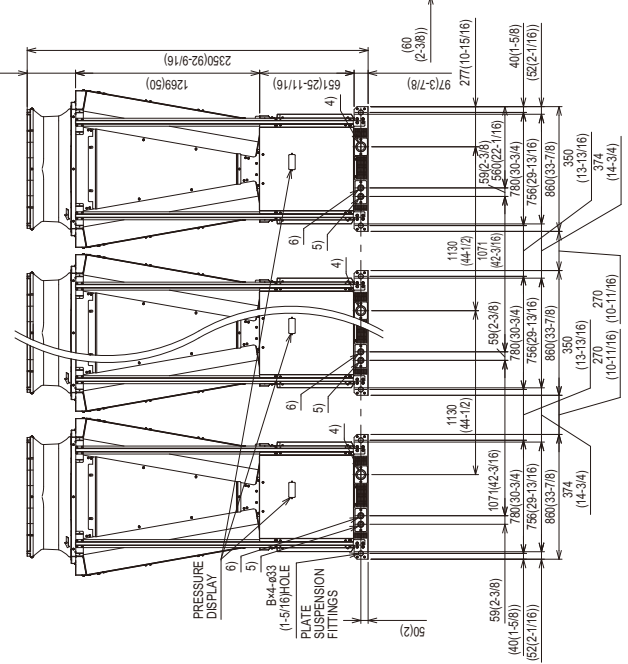
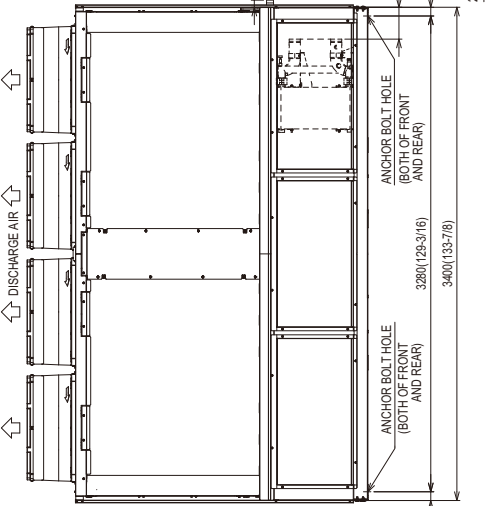
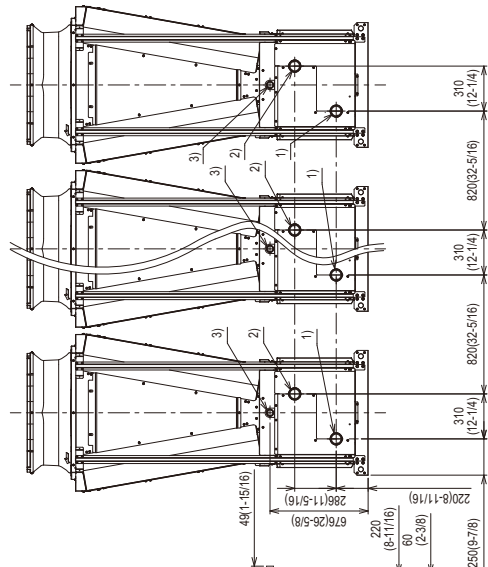
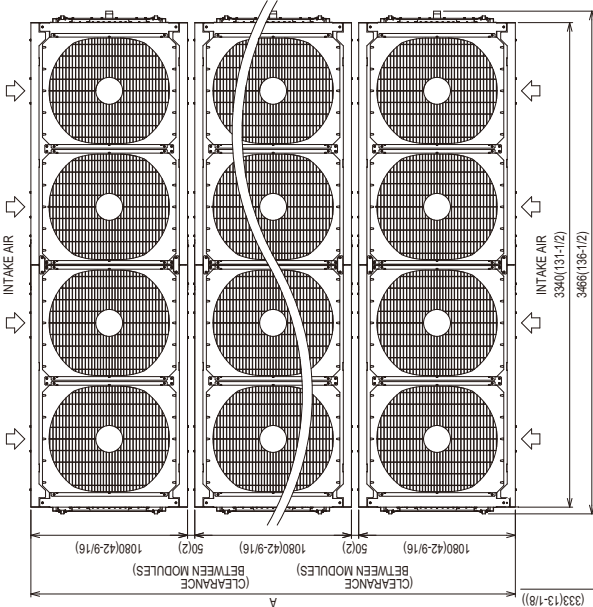
- SERVICE SPACES AROUND THE UNIT
1. WHEN INSTALLING THE UNIT, BE SURE TO LEAVE A SERVICE SPACE FOR MAINTENANCE AND INSPECTION AROUND THE UNIT.
  2. ENSURE THAT THERE ARE NOT ANY WALLS OR OTHER OBJECTS AROUND THE UNIT THAT PREVENT THE UNIT FROM DRAWING IN AIR.



EACV-P040, 050YBL(-BS)

Unit: mm (in.)

| NO. | NAME                                    | DESCRIPTION                        |
|-----|-----------------------------------------|------------------------------------|
| 1)  | COOL WATER INLET                        | 2-1/2B HOUSING TYPE JOINT ATTACHED |
| 2)  | COOL WATER OUTLET                       | 2-1/2B HOUSING TYPE JOINT ATTACHED |
| 3)  | DRAIN OPENING                           | R1-1/2 EXTERNAL THREAD             |
| 4)  | POWER CABLE INLET                       | ø66(2-5/8) x 1                     |
| 5)  | SIGNAL CABLE INLET (LOW CURRENT CABLE)  | ø34(1-3/8)                         |
| 6)  | SIGNAL CABLE INLET (HIGH CURRENT CABLE) | ø34(1-3/8)                         |



<CONNECTED MODULES>

NOTE 1. CONNECT COOL WATER PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.  
NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE HEAT EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING.  
BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE INLET OF COOL WATER PIPES.  
NOTE 3. FOR HOW TO DRAW IN POWER CABLES OR CONNECT COOL WATER PIPES, REFER TO THE SEPARATE DOCUMENT.  
NOTE 4. THE HOUSING TYPE JOINTS FOR CONNECTING A COOL WATER INLET AND OUTLET SHOULD BE PREPARED ON SITE.  
NOTE 5. THE VALUES OF A TO C IN THE FIGURE ARE AS FOLLOWS.

| MODULE COUNT | A                | B (HANGING HOLE COUNT) | C (FOUNDATION HOLE COUNT) |
|--------------|------------------|------------------------|---------------------------|
| 1 MODULE     | 1080(42-9/16)    | 1                      | 1                         |
| 2 MODULES    | 2210(87-1/16)    | 2                      | 2                         |
| 3 MODULES    | 3340(131-1/2)    | 3                      | 3                         |
| 4 MODULES    | 4470(176)        | 4                      | 4                         |
| 5 MODULES    | 5600(220-1/2)    | 5                      | 5                         |
| 6 MODULES    | 6730(265)        | 6                      | 6                         |
| 7 MODULES    | 7860(309-1/2)    | 7                      | 7                         |
| 8 MODULES    | 8990(353-15/16)  | 8                      | 8                         |
| 9 MODULES    | 10120(398-7/16)  | 9                      | 9                         |
| 10 MODULES   | 11250(442-15/16) | 10                     | 10                        |
| 11 MODULES   | 12380(487-7/16)  | 11                     | 11                        |
| 12 MODULES   | 13510(531-15/16) | 12                     | 12                        |

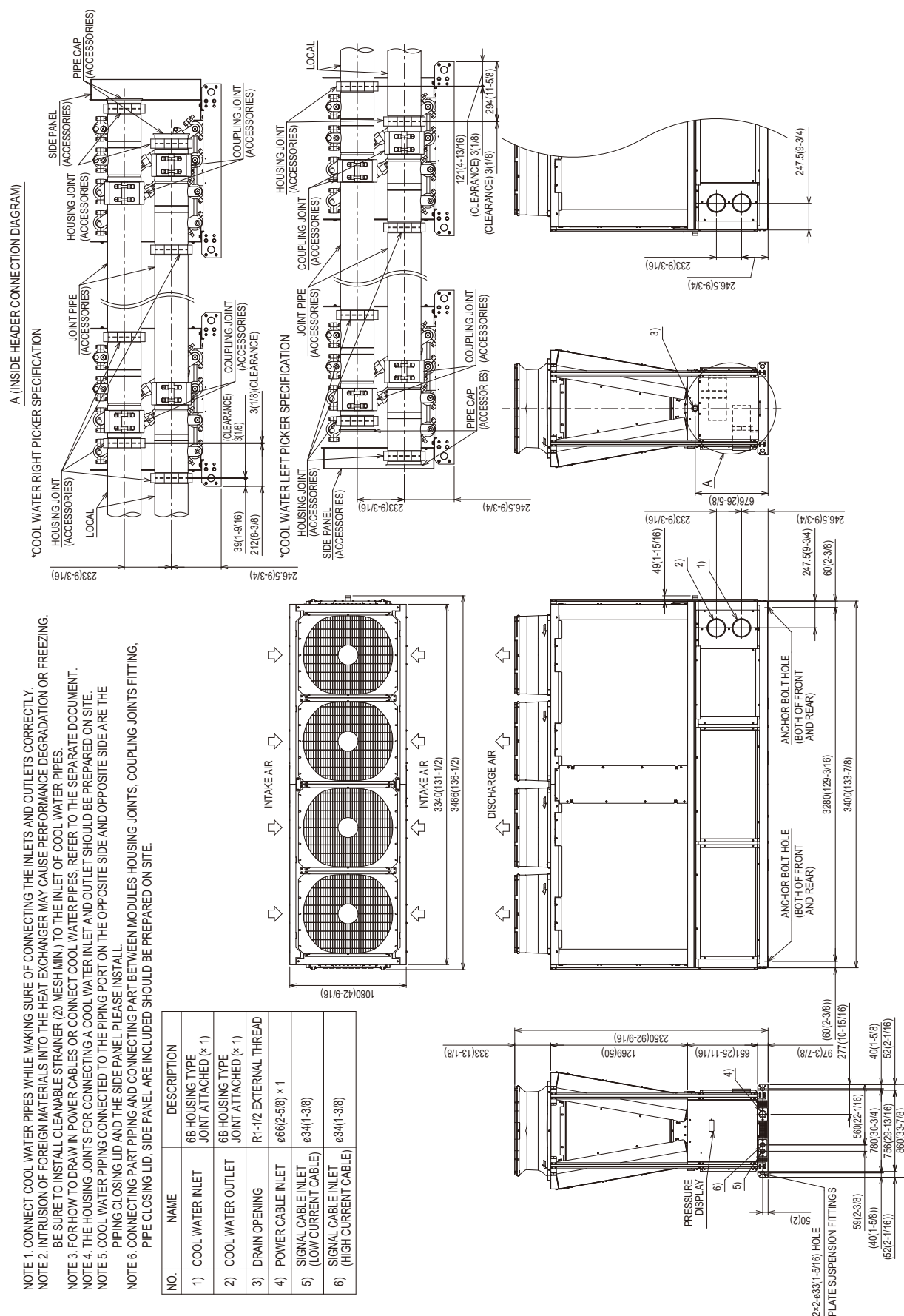
## Unit: mm (in.)



## Unit: mm (in.)

NOTE 1. CONNECT COOL WATER PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.  
NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING.  
BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE INLET OF COOL WATER PIPES.  
NOTE 3. FOR HOW TO DRAW IN POWER CABLES OR CONNECT COOL WATER PIPES, REFER TO THE SEPARATE DOCUMENT.  
NOTE 4. THE HOUSING JOINTS FOR CONNECTING A COOL WATER INLET AND OUTLET SHOULD BE PREPARED ON SITE.  
NOTE 5. COOL WATER PIPING CONNECTED TO THE PIPING PORT ON THE OPPOSITE SIDE AND OPPOSITE SIDE ARE THE PIPING CLOSING LID AND THE SIDE PANEL PLEASE INSTALL.  
NOTE 6. CONNECTING PART PIPING AND CONNECTING PART BETWEEN MODULES HOUSING JOINTS, COUPLING JOINTS FITTING, PIPE CLOSING LID, SIDE PANEL ARE INCLUDED SHOULD BE PREPARED ON SITE.

| NO. | NAME                                       | DESCRIPTION                             |
|-----|--------------------------------------------|-----------------------------------------|
| 1)  | COOL WATER INLET                           | 6B HOUSING TYPE<br>JOINT ATTACHED (x 1) |
| 2)  | COOL WATER OUTLET                          | 6B HOUSING TYPE<br>JOINT ATTACHED (x 1) |
| 3)  | DRAIN OPENING                              | R1-1/2 EXTERNAL THREAD                  |
| 4)  | POWER CABLE INLET                          | ø66(2-5/8) x 1                          |
| 5)  | SIGNAL CABLE INLET<br>(LOW CURRENT CABLE)  | ø34(1-3/8)                              |
| 6)  | SIGNAL CABLE INLET<br>(HIGH CURRENT CABLE) | ø34(1-3/8)                              |

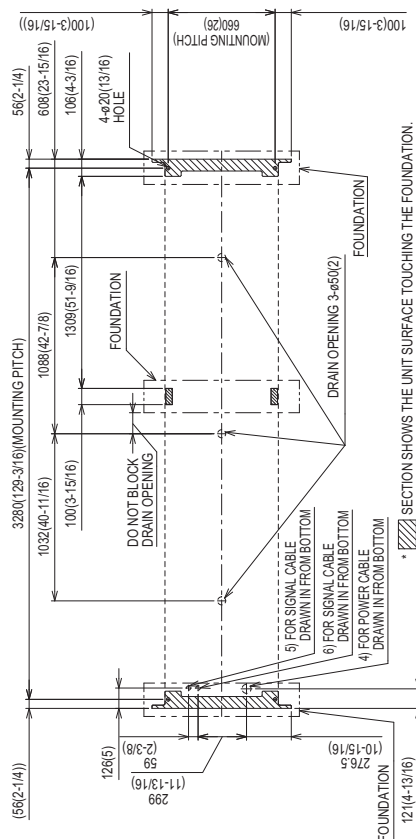


## Unit: mm (in.)

## INSTALLATION ON FOUNDATION

1. SECURELY FIX THE UNIT WITH BOLTS TO KEEP THE UNIT FROM FALLING DOWN DURING EARTHQUAKES.
2. INSTALL THE UNIT ON A FOUNDATION MADE OF CONCRETE OR IRON.
3. NOISE AND VIBRATIONS FROM THE UNIT MAY BE TRANSMITTED THROUGH THE FLOOR AND WALLS. PROVIDE ADEQUATE PROTECTION AGAINST NOISE AND VIBRATION.
4. ANCHOR BOLTS SHOULD BE PREPARED ON SITE.
5. WHEN BUILDING THE FOUNDATION, TAKE THE FLOOR STRENGTH, AND PIPING AND WIRING ROUTES INTO CONSIDERATION.

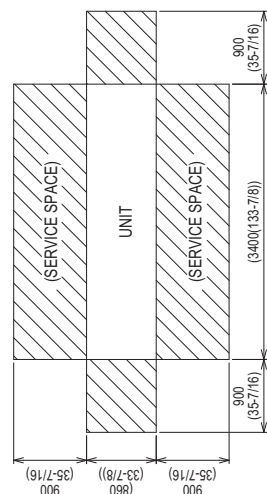
## SURFACES TOUCHING THE FOUNDATION



## SERVICE SPACES AROUND THE UNIT

1. WHEN INSTALLING THE UNIT, BE SURE TO LEAVE A SERVICE SPACE FOR MAINTENANCE AND INSPECTION AROUND THE UNIT.
2. ENSURE THAT THERE ARE NOT ANY WALLS OR OTHER OBJECTS AROUND THE UNIT THAT PREVENT THE UNIT FROM DRAWING IN AIR.

## SERVICE SPACE



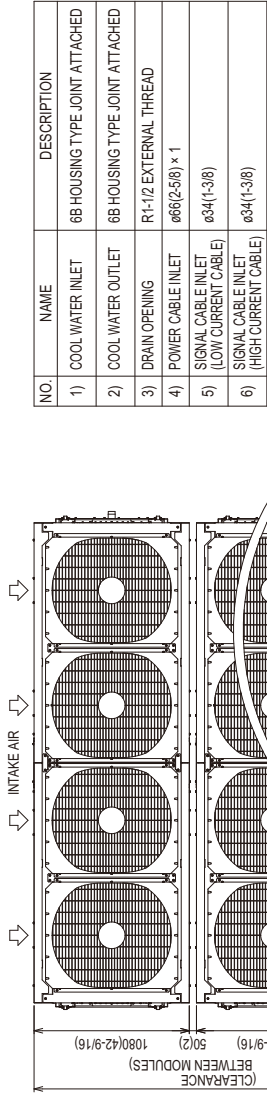
EACV-P040, 050YBL-N(-BS)

Unit: mm (in.)

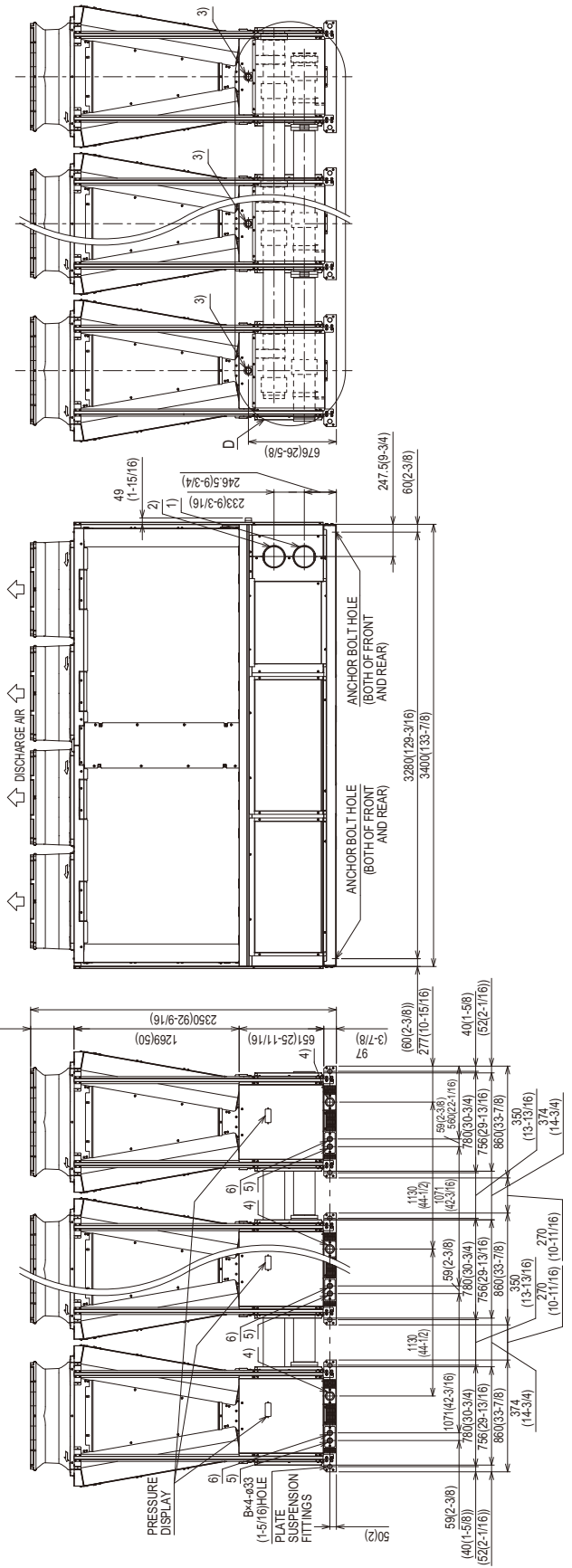
<CONNECTED MODULES>

- NOTE 1. CONNECT COOL WATER PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.
- NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE HEAT EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING.
- NOTE 3. BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE INLET OF COOL WATER PIPES.
- NOTE 4. FOR HOW TO DRAW IN POWER CABLES OR CONNECT COOL WATER PIPES, REFER TO THE SEPARATE DOCUMENT.
- NOTE 5. THE HOUSING JOINTS FOR CONNECTING A COOL WATER INLET AND OUTLET SHOULD BE PREPARED ON SITE.
- NOTE 6. COOL WATER PIPING CONNECTED TO THE PIPING PORT ON THE OPPOSITE SIDE AND OPPOSITE SIDE ARE THE PIPING CLOSING LID AND THE SIDE PANEL PLEASE INSTALL.
- NOTE 7. CONNECTING PART PIPING AND CONNECTING PART BETWEEN MODULES HOUSING JOINTS, COUPLING JOINTS FITTING, PIPE CLOSING LID, SIDE PANEL ARE INCLUDED SHOULD BE PREPARED ON SITE.
- NOTE 8. THE VALUES OF A TO C IN THE FIGURE ARE AS FOLLOWS.

| MODULE COUNT | A             | B<br>(HANGING HOLE COUNT) | C<br>(FOUNDATION HOLE COUNT) |
|--------------|---------------|---------------------------|------------------------------|
| 1 MODULE     | 1080(42-9/16) | 1                         | 1                            |
| 2 MODULES    | 2210(87-1/16) | 2                         | 2                            |
| 3 MODULES    | 3340(131-1/2) | 3                         | 3                            |
| 4 MODULES    | 4470(176)     | 4                         | 4                            |
| 5 MODULES    | 5600(220-1/2) | 5                         | 5                            |
| 6 MODULES    | 6730(265)     | 6                         | 6                            |



| NO. | NAME                                    | DESCRIPTION                    |
|-----|-----------------------------------------|--------------------------------|
| 1)  | COOL WATER INLET                        | 6B HOUSING TYPE JOINT ATTACHED |
| 2)  | COOL WATER OUTLET                       | 6B HOUSING TYPE JOINT ATTACHED |
| 3)  | DRAIN OPENING                           | R1-1/2 EXTERNAL THREAD         |
| 4)  | POWER CABLE INLET                       | 66(2-5/8) × 1                  |
| 5)  | SIGNAL CABLE INLET (LOW CURRENT CABLE)  | 634(1-3/8)                     |
| 6)  | SIGNAL CABLE INLET (HIGH CURRENT CABLE) | 634(1-3/8)                     |



## Unit: mm (in.)



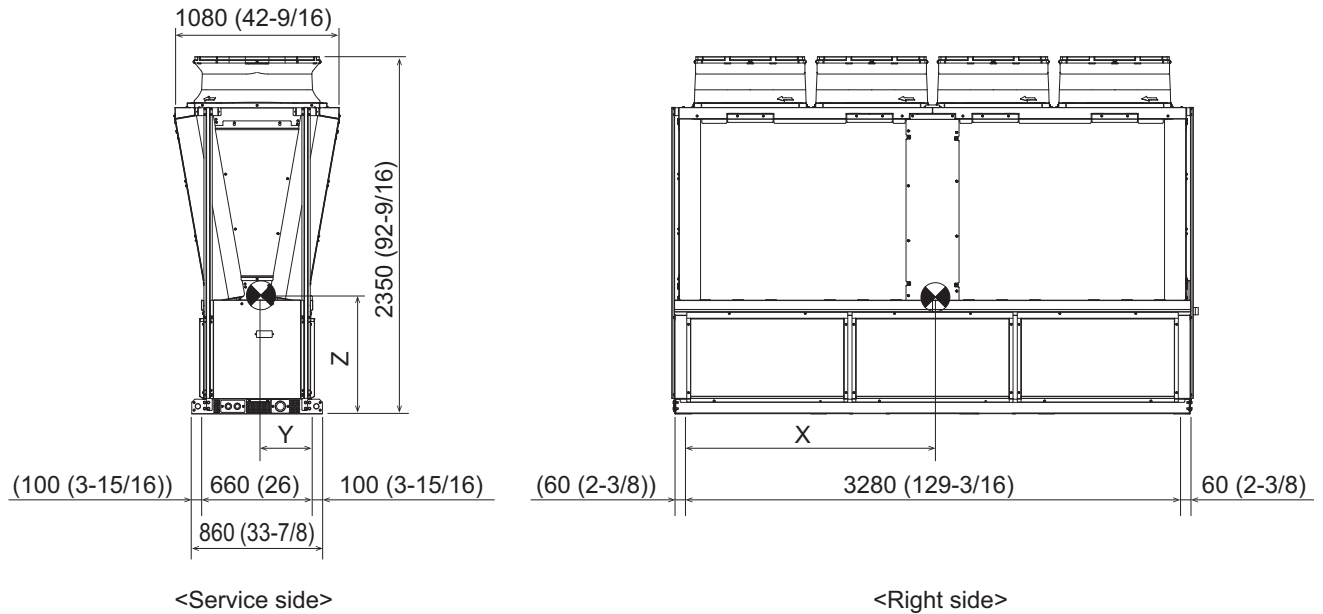
# 1. Product Specifications

## 1-3. Center of Gravity

The center of gravity position is shown with the  mark.

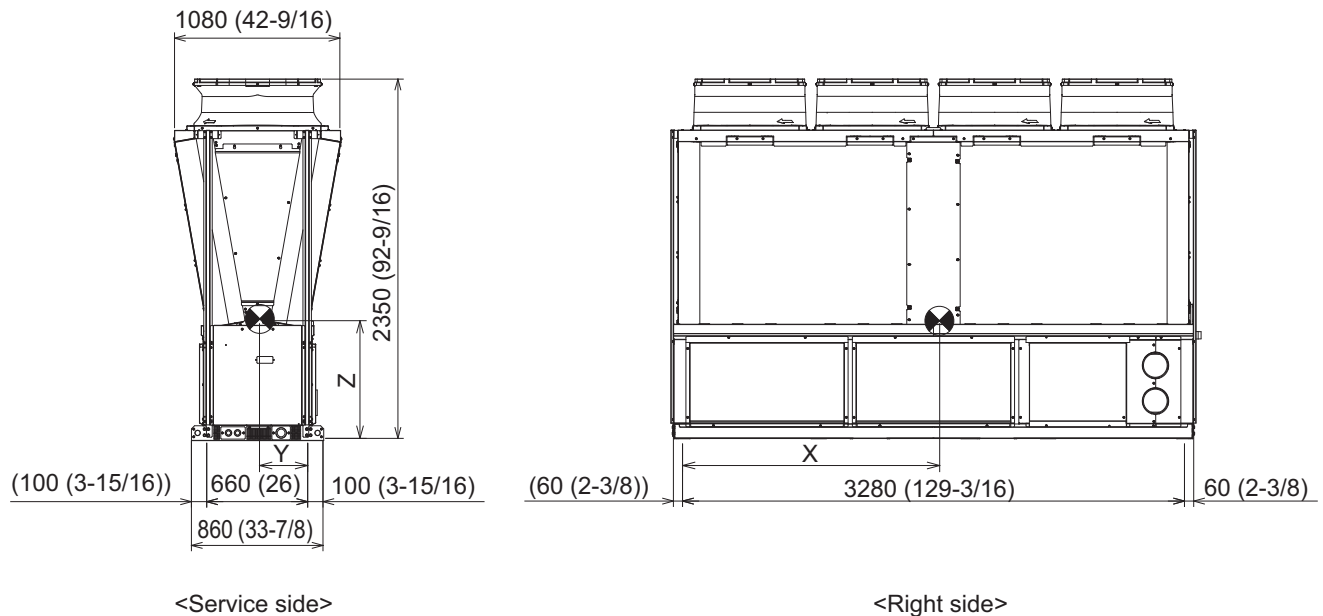
Standard piping type

<Unit: mm (in.)>



Inside header piping type

<Unit: mm (in.)>



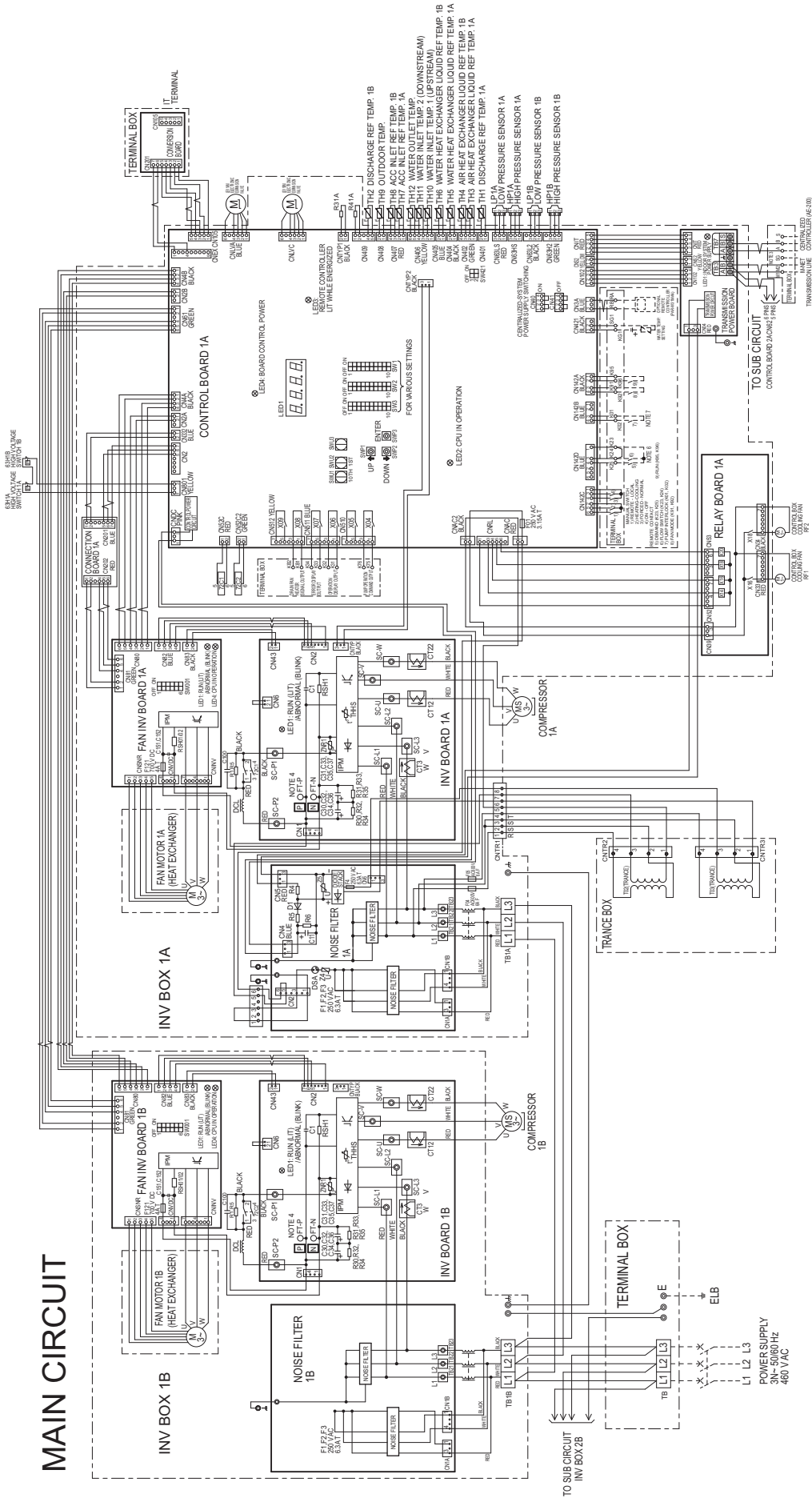
<Unit: mm (in.)>

| Specification             | X              | Y             | Z             |
|---------------------------|----------------|---------------|---------------|
| Standard piping type      | 1655 (65-3/16) | 315 (12-7/16) | 775 (30-9/16) |
| Inside header piping type | 1680 (66-3/16) | 315 (12-7/16) | 770 (30-3/8)  |

1-4. Electrical Wiring Diagrams

EACV-P040, 050YBL

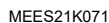
MAIN CIRCUIT



- Note1. The broken lines indicate the optional parts field-supplied parts and field work.
- Note2. Dashed lines indicate control box.
- Note3. For modules in the same unit, provide daisy-chain wiring between M1, M2 and SG.
- Note4. The control box has many parts charged with high voltage in it. Before inspecting the inside of the control box, be sure to turn off the power supply and leave it alone for at least 10 minutes and then confirm that the voltage between the tab terminal (FT-P and FT-N) declined sufficiently (to 20 V DC or less).
- Note5. Faston terminals have a locking function. Press the tab in the middle of the terminals to remove them. Check that the terminals are securely locked in place after insertion.
- Note6. Be sure to connect the short circuit wire between the terminals K23 and K24 to connect a flow switch.
- Note7. A short-circuit may cause abnormal stop or malfunctions. Operation signals can be received from through the No-voltage contact.
- Note8. Use a 4-20mA signal output device with insulation. Feeding 30mA or more current may damage the circuit board.
- Note9. The specifications of the product are subject to change without prior notice for improvement.
- Note10. Make sure that on site terminal connection is correct.
- Note11. With wrong connection, operation error may occur. Leave a space of at least 3 cm (2 inch) between the low voltage external wiring (No-voltage contact input and remote controller wiring) and wiring of 100V or greater. Do not place them in the same conduit tube or cable tray cable as this will damage the circuit board.
- Note12. When cable tray is used for the control cable wiring, use a separate cable tray cable for the following wiring.
- (a) Optional remote controller wiring
  - (b) No-voltage contact input wiring
  - (c) No-voltage contact output wiring
  - (d) Analog input wiring
- Note13. Use a contact that takes 12VDC 1mA for No-voltage contact input. When the power voltage is 460V, No-voltage contact output will be 250VAC. The current range must be between 10mA and 1A.

**EACV-P-YBL(-N)**

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## 1. Product Specifications

When using a local controller, refer to the table below for the types of input/output signals that are available and the operations that correspond to the signals.

### External Input/Output

|             |                                               |                                                                                                                                                                                                                                                                                               |                                                                                                                                     |                                                                                                     |                |
|-------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------|
| Input type  | Dry contact                                   |                                                                                                                                                                                                                                                                                               | ON (Close)                                                                                                                          | OFF (Open)                                                                                          | Terminal block |
|             | (a)UNIT OPERATION                             | Run/Stop                                                                                                                                                                                                                                                                                      | The unit will go into operation when the water temperature drops below the preset temperature.                                      | The unit will stop except when the unit is in the Anti-Freeze mode.                                 | K95-K96        |
|             | (b)FAN MODE                                   | Forced/Normal                                                                                                                                                                                                                                                                                 | When the outdoor temperature is 5°C (41°F) or less, the fan will remain in operation after the compressor has stopped.              | The fan will stop when the compressor stops.                                                        | K91-K92        |
|             | (c)FLOW SWITCH                                | Normal/Error                                                                                                                                                                                                                                                                                  | The unit is allowed to operate.                                                                                                     | The unit will not operate.                                                                          | K23-K24        |
|             | (d)PUMP INTERLOCK                             | Normal/Error                                                                                                                                                                                                                                                                                  | The unit is allowed to operate.                                                                                                     | The unit will not operate.                                                                          | K01-K02        |
|             | (e)PEAK-DEMAND CONTROL                        | On/Off                                                                                                                                                                                                                                                                                        | The unit will operate at or below the maximum capacity level that was set for the Peak-demand control setting.                      | The unit will operate at or below the maximum capacity.                                             | K23-K25        |
|             | (f)OUTLET WATER TEMP SWITCHING                | 2nd/1st                                                                                                                                                                                                                                                                                       | Setting temp 2<br>(Refer to page 71 Settings table)                                                                                 | Setting temp 1<br>(Refer to page 71 Settings table)                                                 | KC1-KC2        |
|             | Analog                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                     |                                                                                                     | Terminal block |
|             | Input type                                    |                                                                                                                                                                                                                                                                                               | Action                                                                                                                              |                                                                                                     |                |
|             | (g)WATER TEMP SETTING/CAPACITY CONTROL SIGNAL | Water temperature or capacity control signal can be set by using the external analog input to the CN421 on the MAIN circuit board. One analog input type can be selected from the following types: 4-20 mA, 1-5 V, 0-10 V, or 2-10 V.<br>*Use a 4-20 mA signal output device with insulation. |                                                                                                                                     |                                                                                                     | SG1(+)-KG1(-)  |
| Output type | (h)EXTERNAL WATER SENSOR 1 (option)           | For simultaneous operating group                                                                                                                                                                                                                                                              |                                                                                                                                     |                                                                                                     | K1-K2          |
|             | (i)EXTERNAL WATER SENSOR 2 (option)           | For identical water system group                                                                                                                                                                                                                                                              |                                                                                                                                     |                                                                                                     | K3-K4          |
|             | Contact type                                  |                                                                                                                                                                                                                                                                                               | Conditions in which the contact closes (turns on)                                                                                   | Conditions in which the contact opens (turns off)                                                   | Terminal block |
|             | (j)ERROR INDICATOR                            | Close/Open                                                                                                                                                                                                                                                                                    | The unit has made an abnormal stop.                                                                                                 | During normal operation                                                                             | K33-K34        |
|             | (k)OPERATION INDICATOR                        | Close/Open                                                                                                                                                                                                                                                                                    | The "UNIT OPERATION" contact (item (a) above) or the ON/OFF button on the remote controller is ON.                                  | The "UNIT OPERATION" contact (item (a) above) or the ON/OFF button on the remote controller is OFF. | K31-K32        |
| RC/M-NET    | (l)PUMP OPERATION COMMAND                     | Close/Open                                                                                                                                                                                                                                                                                    | The pump will operate according to the status of the "UNIT OPERATION" contact or the ON/OFF button on the remote controller button. | Under all conditions other than the ones listed on the left                                         | K75-K76        |
|             | (m)DRAIN PAN HEATER SIGNAL                    | Close/Open                                                                                                                                                                                                                                                                                    | Outdoor temperature has dropped below a set outdoor temperature.                                                                    | Outdoor temperature is at or above a set outdoor temperature +2°C (+3.6°F).                         | KB1-KB2        |
| RC/M-NET    | REMOTE CONTROLLER                             | PAR-W31MAA                                                                                                                                                                                                                                                                                    |                                                                                                                                     |                                                                                                     | RA-RB          |
|             | Centralized controller                        | AE-200                                                                                                                                                                                                                                                                                        |                                                                                                                                     |                                                                                                     | A-B            |
|             | M-NET                                         | -                                                                                                                                                                                                                                                                                             |                                                                                                                                     |                                                                                                     | M1-M2          |

## 1. Product Specifications

### Input and output correspondence table

When wiring on site, check the operation during the commissioning.

|                           |                                               | Terminal block | ON                                            | OFF    | System leader unit | Group leader unit | SUB unit |
|---------------------------|-----------------------------------------------|----------------|-----------------------------------------------|--------|--------------------|-------------------|----------|
| No-voltage contact input  | Run                                           | K95-K96        | Run                                           | Stop   | ○                  | —                 | —        |
|                           | Fan mode                                      | K91-K92        | Forced                                        | Normal | ○                  | —                 | —        |
|                           | Pump interlock                                | K01-K02        | Normal                                        | Error  | ○                  | ○                 | ○*       |
|                           | Flow switch                                   | K23-K24        | Normal                                        | Error  | ○                  | ○                 | ○*       |
|                           | Outlet water temp. switching                  | KC1-KC2        | 2nd                                           | 1st    | ○                  | —                 | —        |
|                           | Demand                                        | K23-K25        | ON                                            | OFF    | ○                  | —                 | —        |
| Analog input              | Water temp. setting / Capacity control signal | SG1(+)-KG1(-)  | 4-20mA, 0-10, 2-10V, 1-5V                     |        | ○                  | —                 | —        |
|                           | External water sensor 1 (Option)              | K1-K2          | For simultaneous operating group              |        | ○                  | ○                 | —        |
|                           | External water sensor 2 (Option)              | K3-K4          | For identical water system group              |        | ○                  | —                 | —        |
| No-voltage contact output | Operation display output                      | K31-K32        | During the operation command reception is ON. |        | ○                  | ○                 | ○        |
|                           | Error display output                          | K33-K34        | While abnormally stop is ON.                  |        | ○                  | ○                 | ○        |
|                           | Pump operation command output                 | K75-K76        | ON is when the pump is required.              |        | ○                  | ○                 | ○*       |
|                           | Drain pan heater signal output                | KB1-KB2        | During the low outdoor temperature is ON.     |        | ○                  | ○                 | ○        |
| RC                        | Remote controller                             | RA-RB          | PAR-W31MAA                                    |        | ○                  | —                 | —        |
|                           | Centralized controller                        | A-B            | AE-200                                        |        | ○                  | —                 | —        |

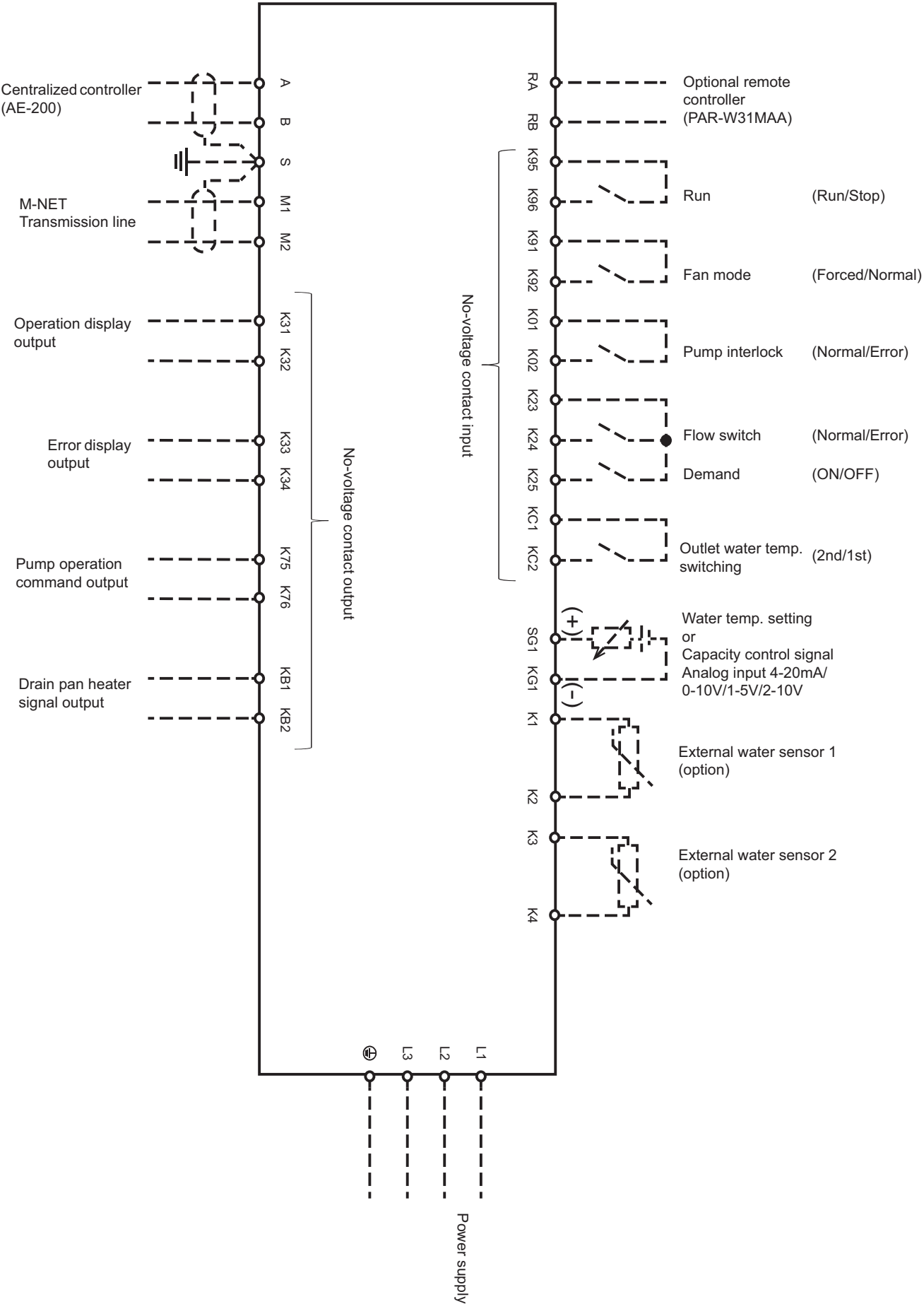
○: Input and output signal is enabled.

—: Invalid

\*Invalid when the one pump system

External signal interface

EACV-P-YBL(-N)

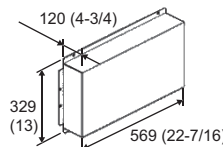
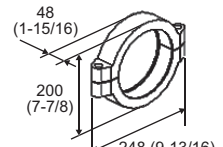
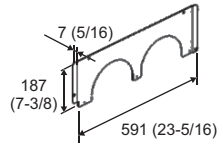
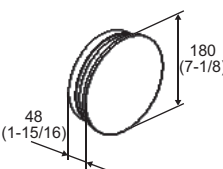
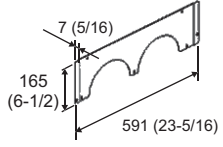
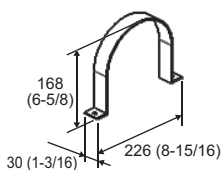
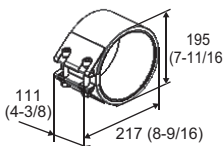
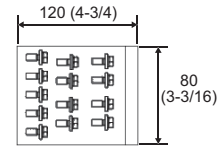
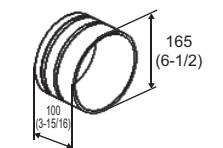


## 1. Product Specifications

### 1-5. Optional parts

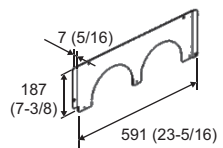
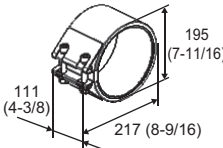
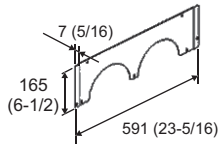
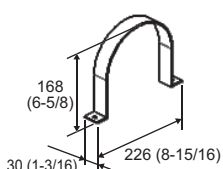
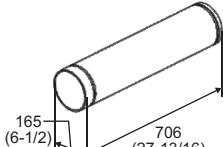
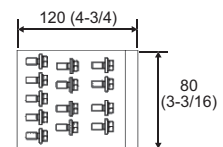
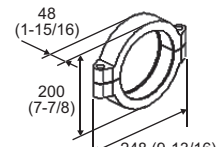
#### 1-5-1. Piping Kit DT-01HK (Only for Inside header (-N))

Refer to Installation/Instructions Manual.

|     |                    |                                                                                     |          | mm (in.) |                 |                                                                                      |          |
|-----|--------------------|-------------------------------------------------------------------------------------|----------|----------|-----------------|--------------------------------------------------------------------------------------|----------|
| No. | Parts name         | Size and shape                                                                      | Quantity | No.      | Parts name      | Size and shape                                                                       | Quantity |
| 1   | SIDE PANEL         |    | 1        | 6        | VICTAULIC JOINT |   | 4        |
| 2   | PANEL BL           |    | 1        | 7        | PIPE CAP        |   | 2        |
| 3   | PANEL BR           |    | 1        | 8        | SADDLE          |   | 1        |
| 4   | STRAUB JOINT       |   | 2        | 9        | BOLT M5         |  | 1        |
| 5   | JOINT PIPE (SHORT) |  | 2        |          |                 |                                                                                      |          |

#### 1-5-2. Connection Piping Kit DT-02HK (Only for Inside header (-N))

Refer to Installation/Instructions Manual.

|     |                   |                                                                                     |          | mm (in.) |              |                                                                                       |          |
|-----|-------------------|-------------------------------------------------------------------------------------|----------|----------|--------------|---------------------------------------------------------------------------------------|----------|
| No. | Parts name        | Size and shape                                                                      | Quantity | No.      | Parts name   | Size and shape                                                                        | Quantity |
| 1   | PANEL BL          |  | 2        | 5        | STRAUB JOINT |  | 2        |
| 2   | PANEL BR          |  | 2        | 6        | SADDLE       |  | 2        |
| 3   | JOINT PIPE (LONG) |  | 2        | 7        | BOLT M5      |  | 1        |
| 4   | VICTAULIC JOINT   |  | 2        |          |              |                                                                                       |          |

1. Product Specifications

EACV-P-YBL(-N)

1-5-3. Fin Guard DT-150FG

Parts list

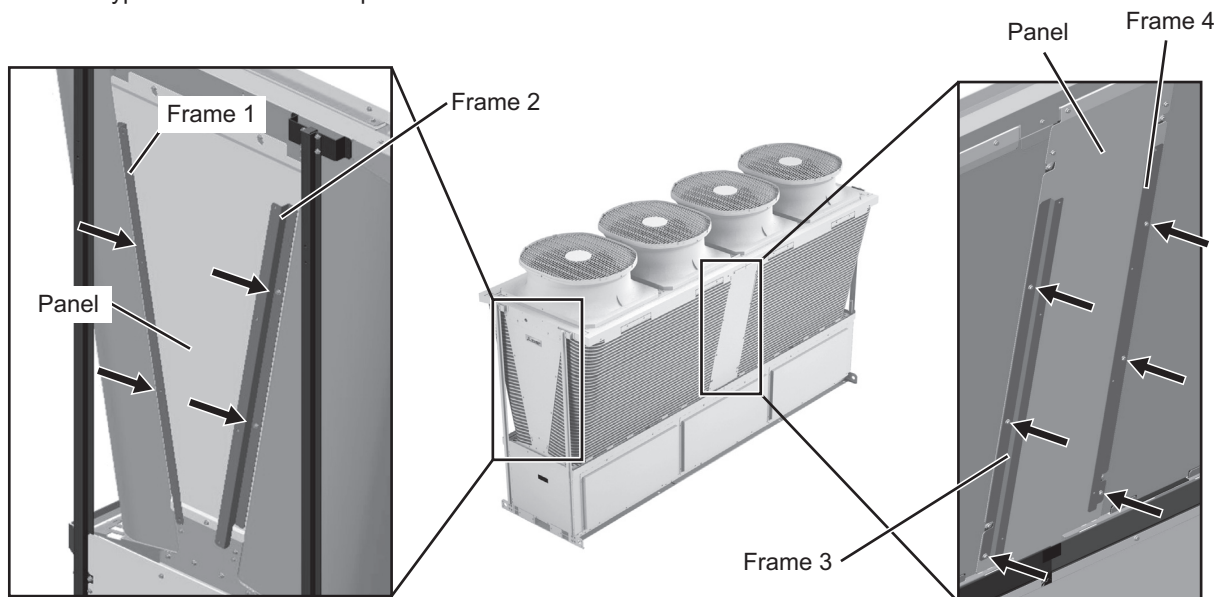
mm (in.)

| FIN GUARD                                             |                                                       | PLATE                                                  | SCREWS                                                 |
|-------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| <div><div>(1)</div><div></div><div>4 pcs.</div></div> |                                                       | <div><div>(2)</div><div></div><div>28 pcs.</div></div> | <div><div>(7)</div><div></div><div>32 pcs.</div></div> |
| FRAME 1                                               | FRAME 2                                               | FRAME 3                                                | FRAME 4                                                |
| <div><div>(3)</div><div></div><div>2 pcs.</div></div> | <div><div>(4)</div><div></div><div>2 pcs.</div></div> | <div><div>(5)</div><div></div><div>2 pcs.</div></div>  | <div><div>(6)</div><div></div><div>2 pcs.</div></div>  |

## 1. Product Specifications

### Installing the fin guard

(1) Attach four types of frames to each position.



Screw down Frames 1 and 2 on the panel with M5 screws at the four positions indicated with arrows in the figure.

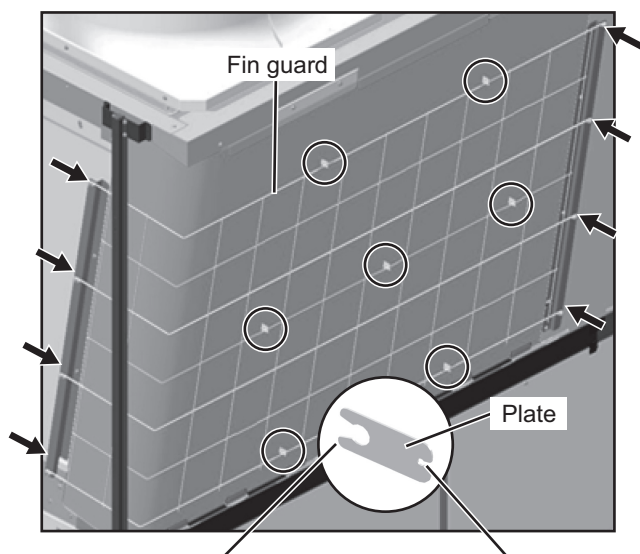
\* Screw down Frames 1 and 2 in the same way on the other side.

Screw down Frames 3 and 4 on the panel with M5 screws at the six positions indicated with arrows in the figure.

\* Screw down Frames 3 and 4 in the same way on the other side.

(2) Attach the fin guards to four sides.

(3) Attach the plates according to the figure below.



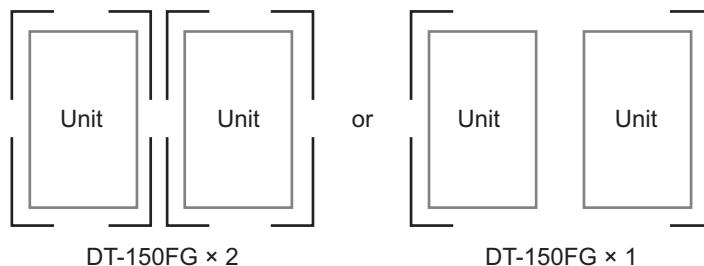
Fix on the pipe for air-heat exchanger.

Fix on the frame of fin guard.

Fix the fin guards at the positions indicated with arrows in the figure with the supplied M5 screws. (Eight screws are used to fix each fin guard.)

Attach the plates at the positions indicated with circles. (Seven plates are used for each fin guard.)

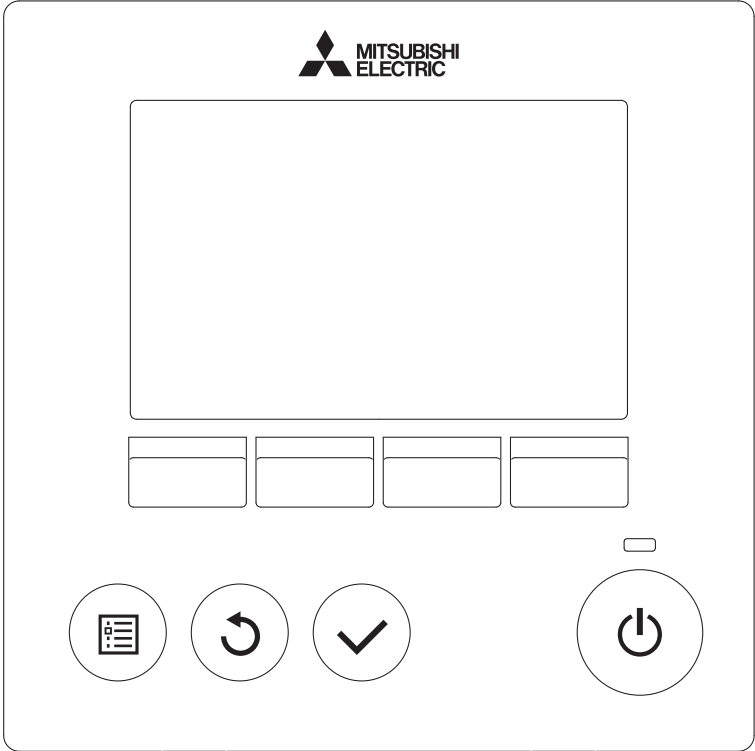
• In the case of two units



1-5-4. Remote controller PAR-W31MAA

Refer to 6-1. PAR-W31MAA specifications.

EACV-P-YBL(-N)



## 1. Product Specifications

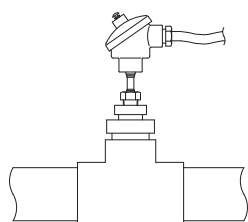
### 1-5-5. External water temperature sensor TW-TH16

1. Required parts for installing a external water temperature sensor
    - A) External water temperature sensor
    - B) Cable for connecting between the sensor and the unit\*
    - C) Cable terminal for connecting to the sensor and the unit terminal block\*  
(Terminals for M4 screws × 4)\*
- \* A) and B) are field-supplied.

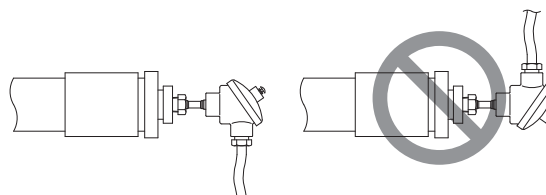
|                |                                        |
|----------------|----------------------------------------|
| Size           | 2-core, 1.25 mm <sup>2</sup> or larger |
| Type           | CVVS or CPEVS                          |
| Maximum length | 20 m (66ft)                            |

- ## 2. Installing a external water temperature sensor

As shown in the figures below, install the sensor at the merged part of water pipes or the load-side tank. The sensor can be installed in either the vertical or the horizontal position. When installing the sensor in the horizontal position, make sure to place the cable-access-hole side down.



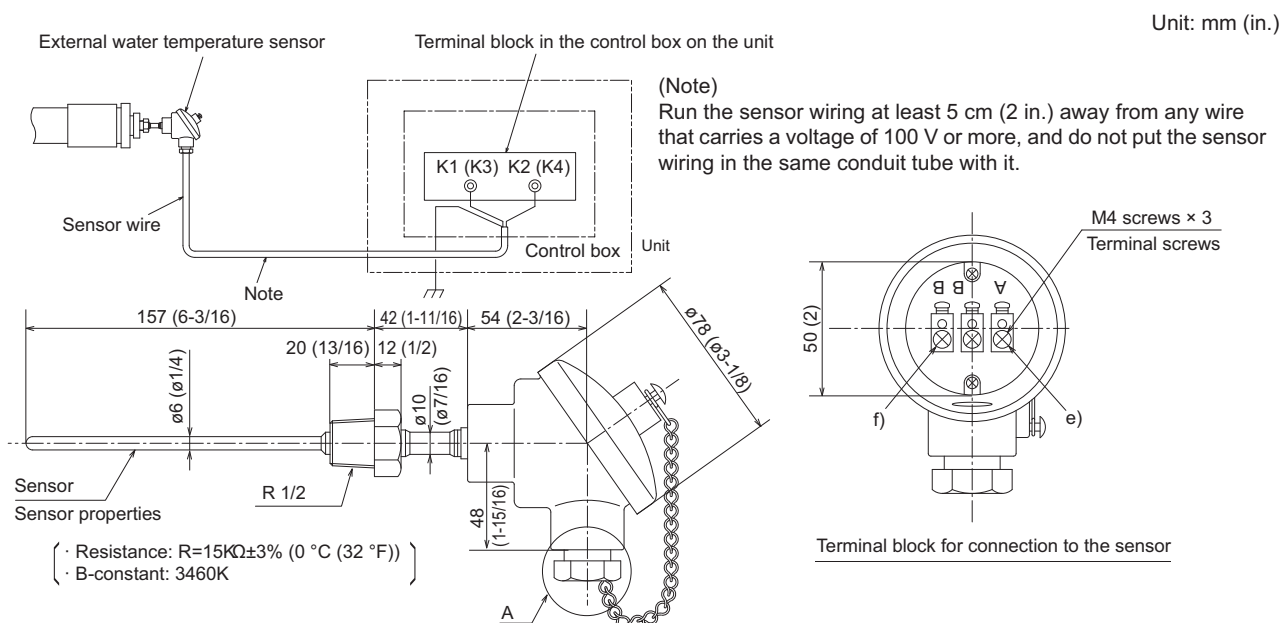
### Vertical installation



### Horizontal installation

- ### 3. Wiring for a external water temperature sensor

As shown in the figures below, connect the cable to the external water temperature sensor and the terminal block in the unit control box.



On the unit side, connect the sensor cable to the terminals K1 and K2 (or K3 and K4) in the terminal block in the unit control box. Connect the shielded cable to the ground terminal.

On the sensor side, as shown in the figure at right, run the cable through d), c), and b), attach the field-supplied terminals for M4 screws to the cable, and then connect the terminals to the screws e) and f) (terminal A and B).

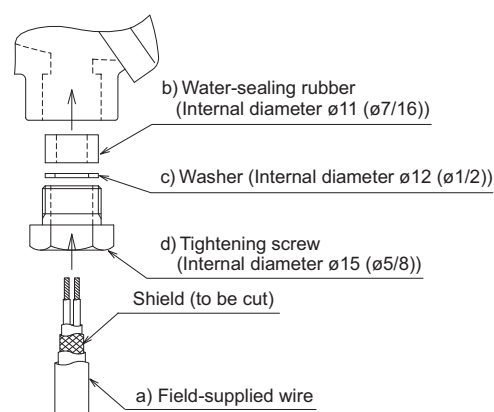
Cut the shielded cable and leave it unconnected.

(On the unit side, the shielded cable should be connected to the ground terminal already.)

Tighten the tightening screw d), and caulk the gap between the tightening screw d) and cable a) to prevent water leakage.

\*1 In a multiple module connection system, install the temperature sensor where the cold/hot water from each module is sufficiently mixed to provide a representative temperature.

\*2 The temperature sensor must be installed on a pipe between the outlet of the unit and the entrance to the load-side system.



Detailed view of the area labeled "A" in the figure above

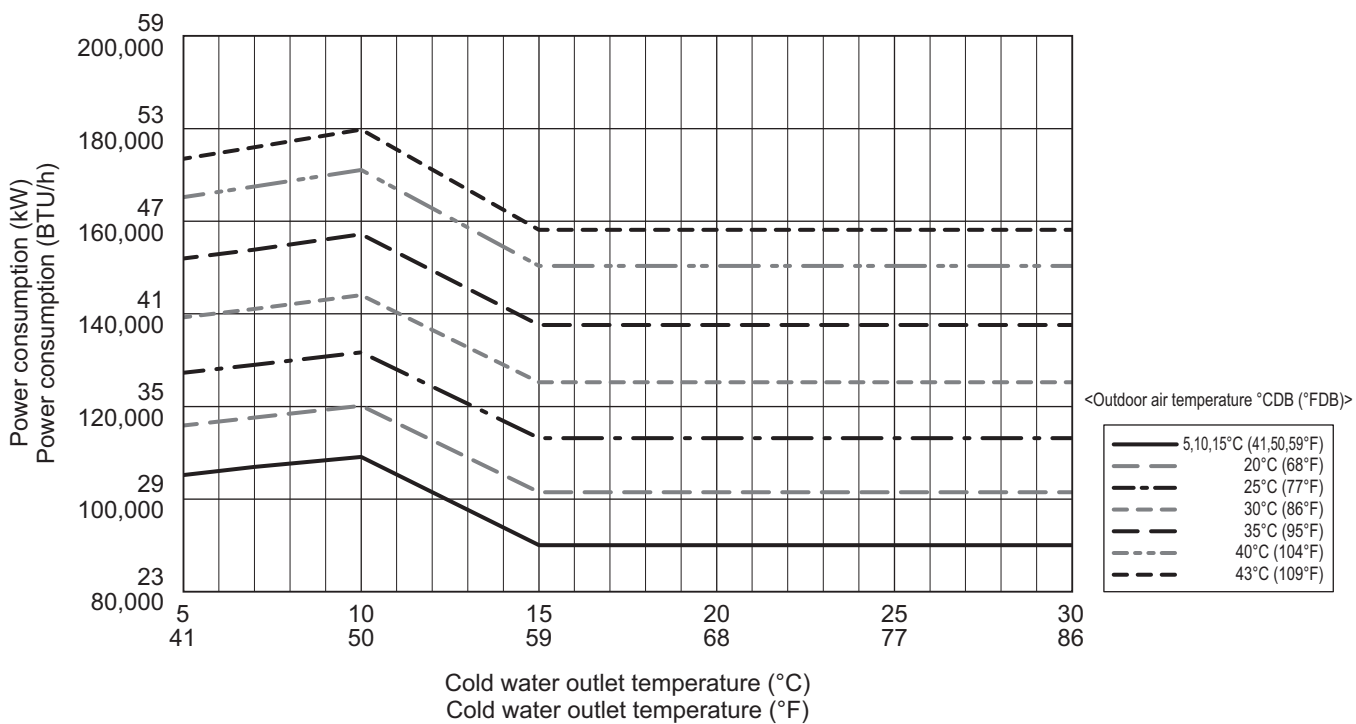
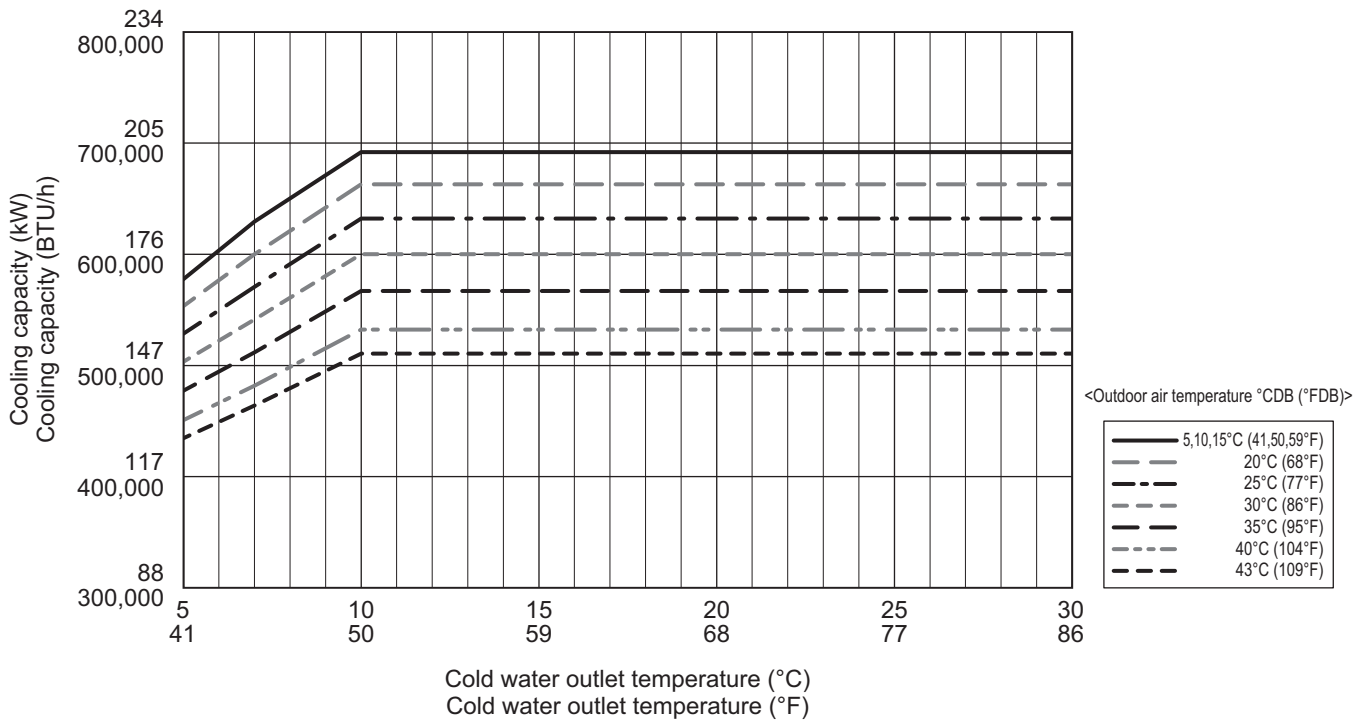
2-1. Capacity tables

2-1-1. Correction by temperature

[Cold water outlet/inlet temperature difference 5°C/9°F]

EACV-P040YBL

■Cooling Capacity [Water]

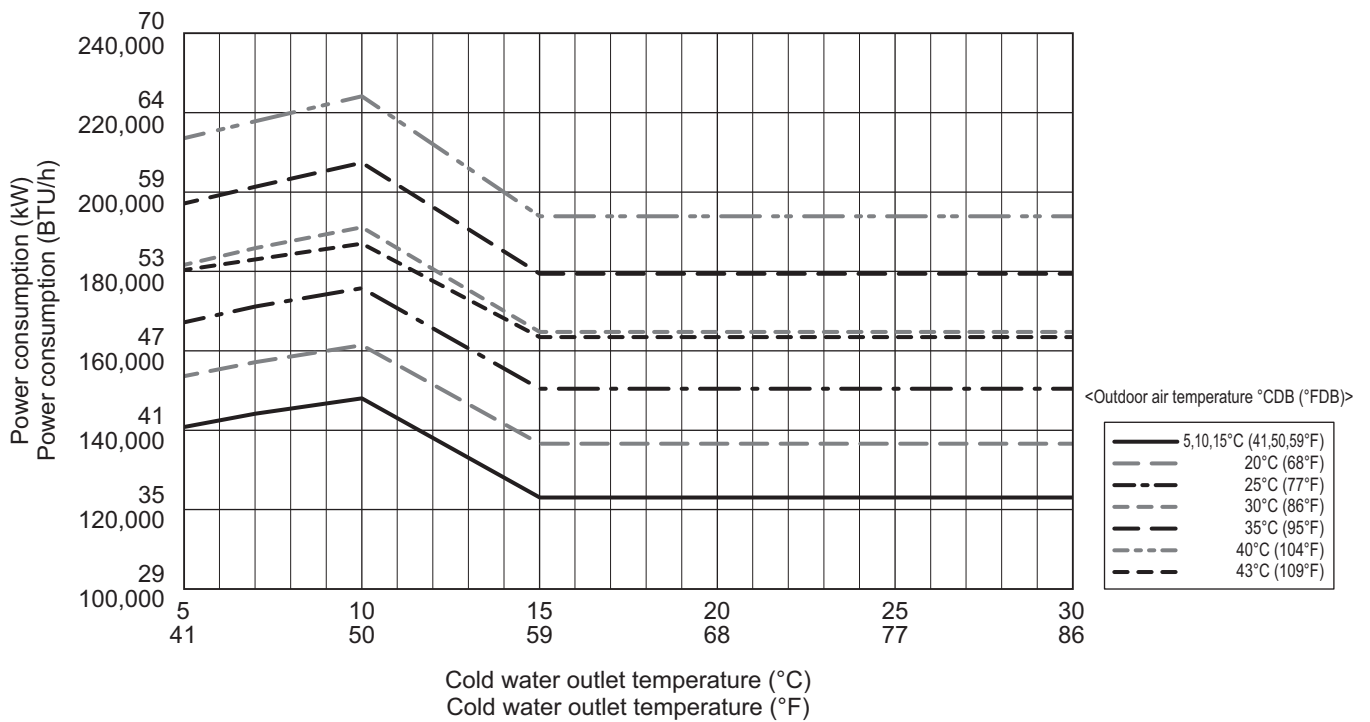
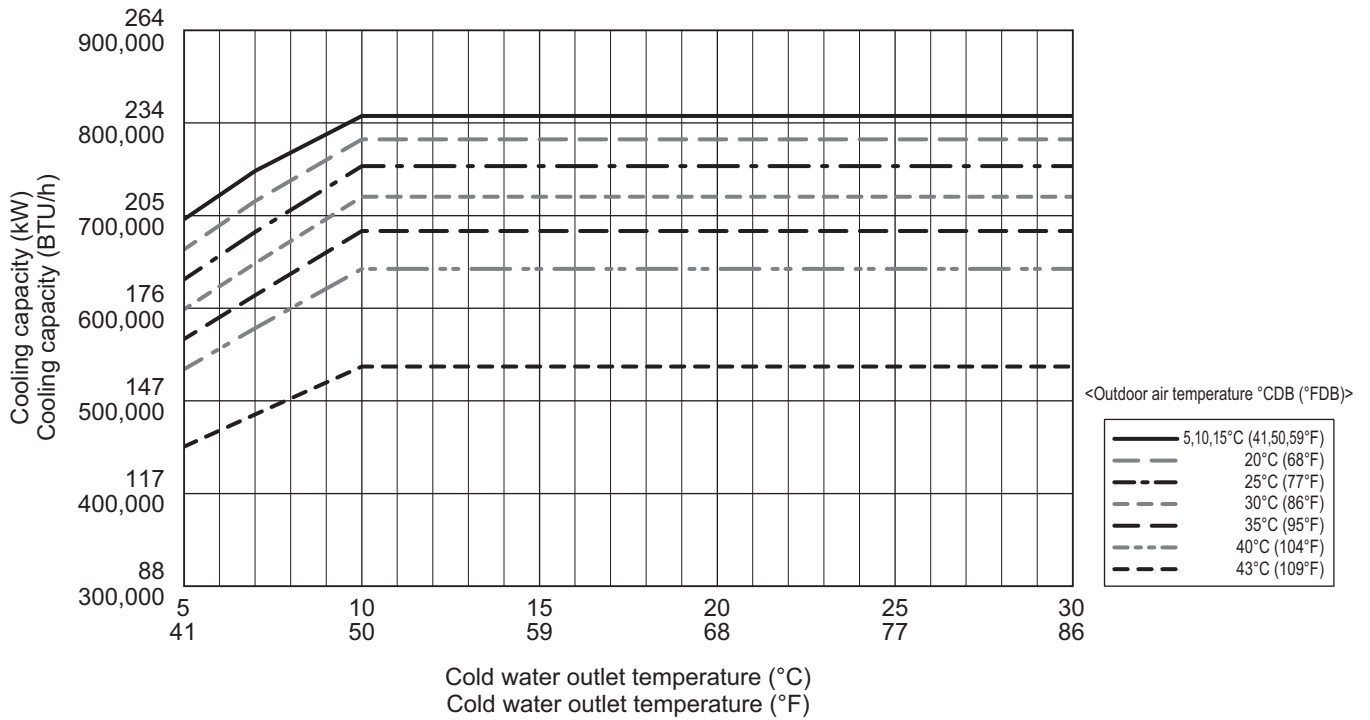


## 2. Product Data

[Cold water outlet/inlet temperature difference 5°C/9°F]

EACV-P050YBL

■ Cooling Capacity [Water]



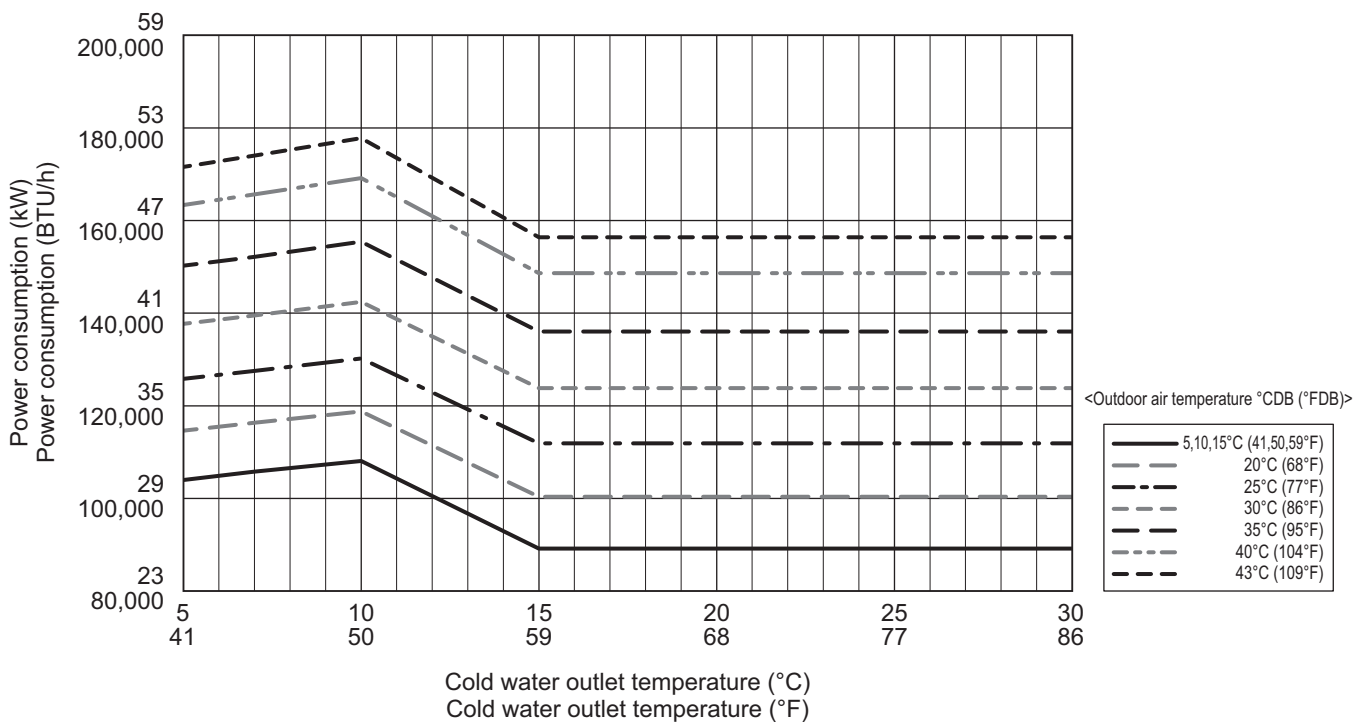
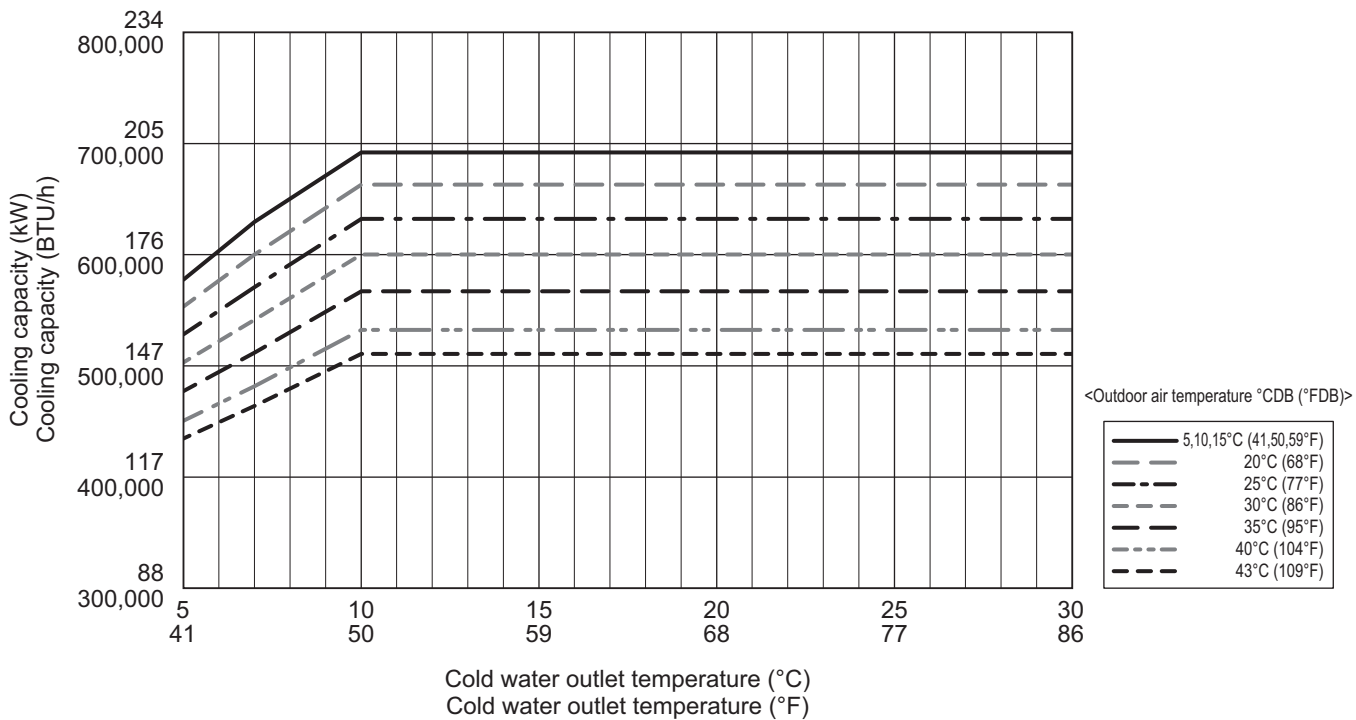
2. Product Data

[Cold water outlet/inlet temperature difference 6°C/11°F]

EACV-P040YBL

■Cooling Capacity [Water]

EACV-P-YBL(-N)

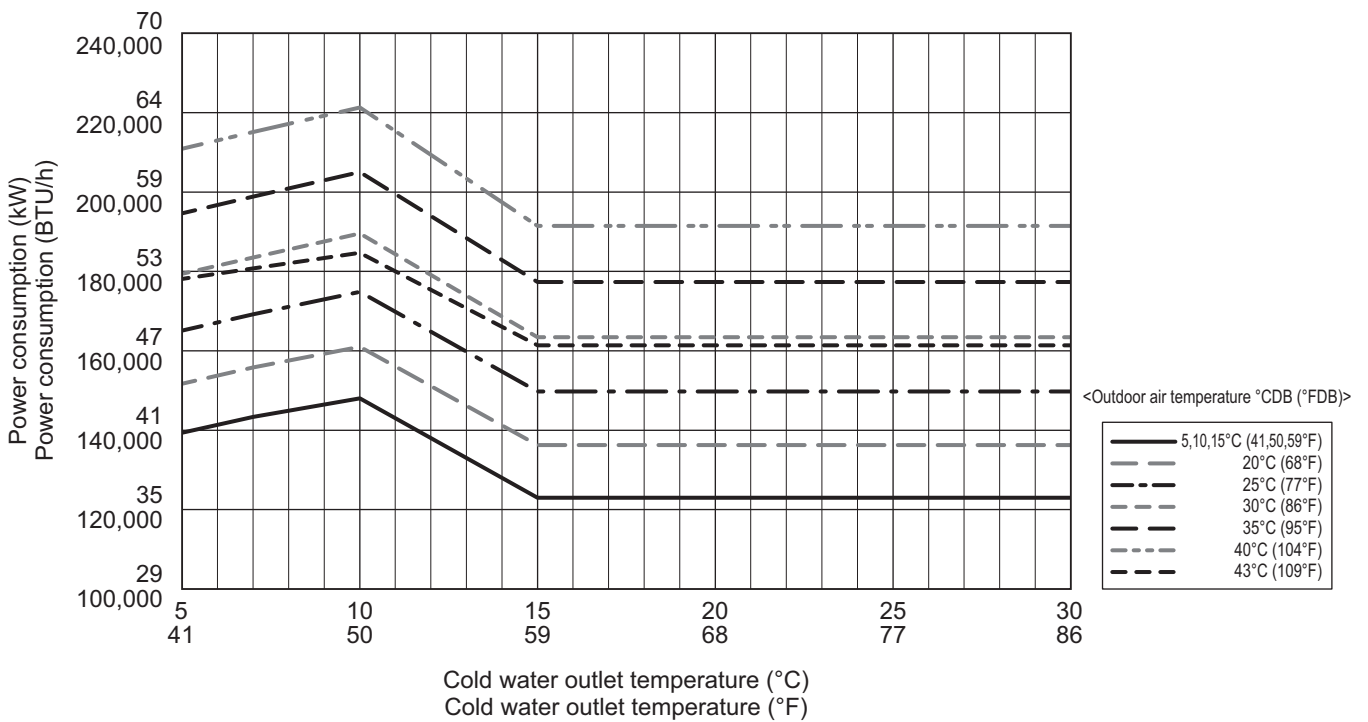
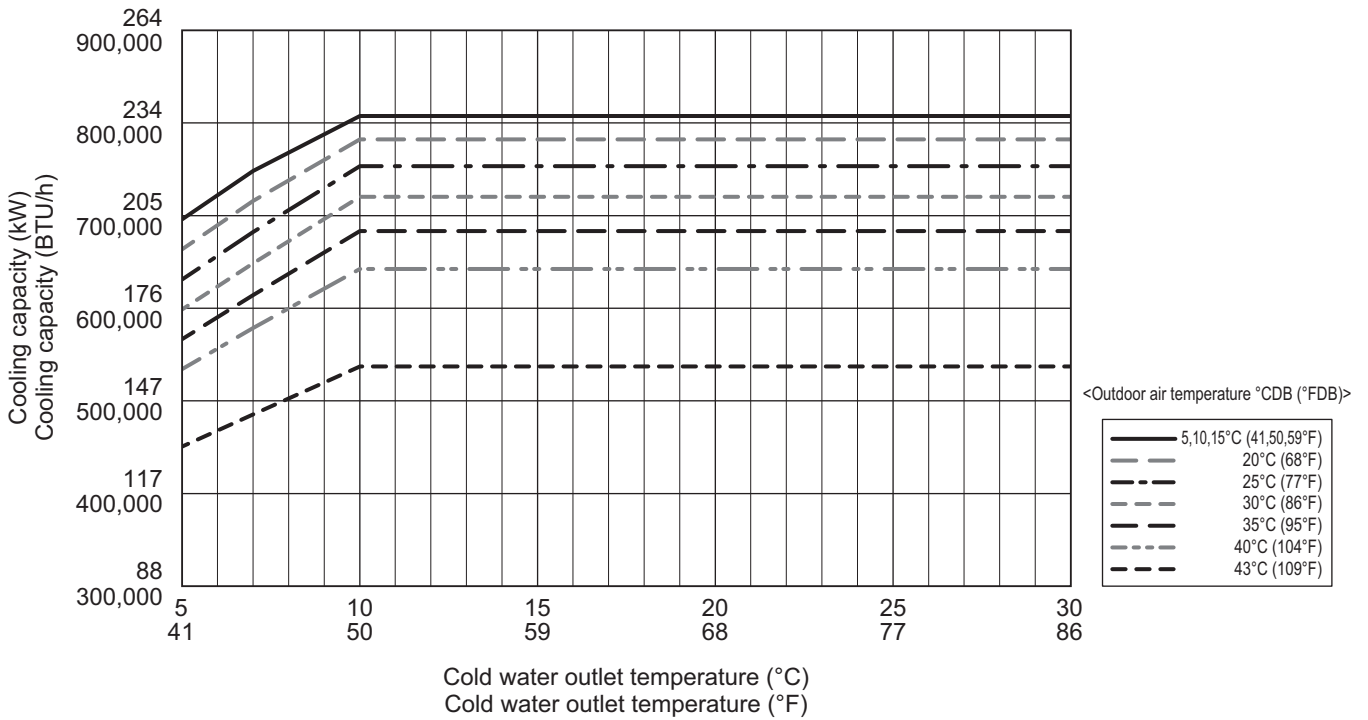


## 2. Product Data

[Cold water outlet/inlet temperature difference 6°C/11°F]

EACV-P050YBL

■ Cooling Capacity [Water]



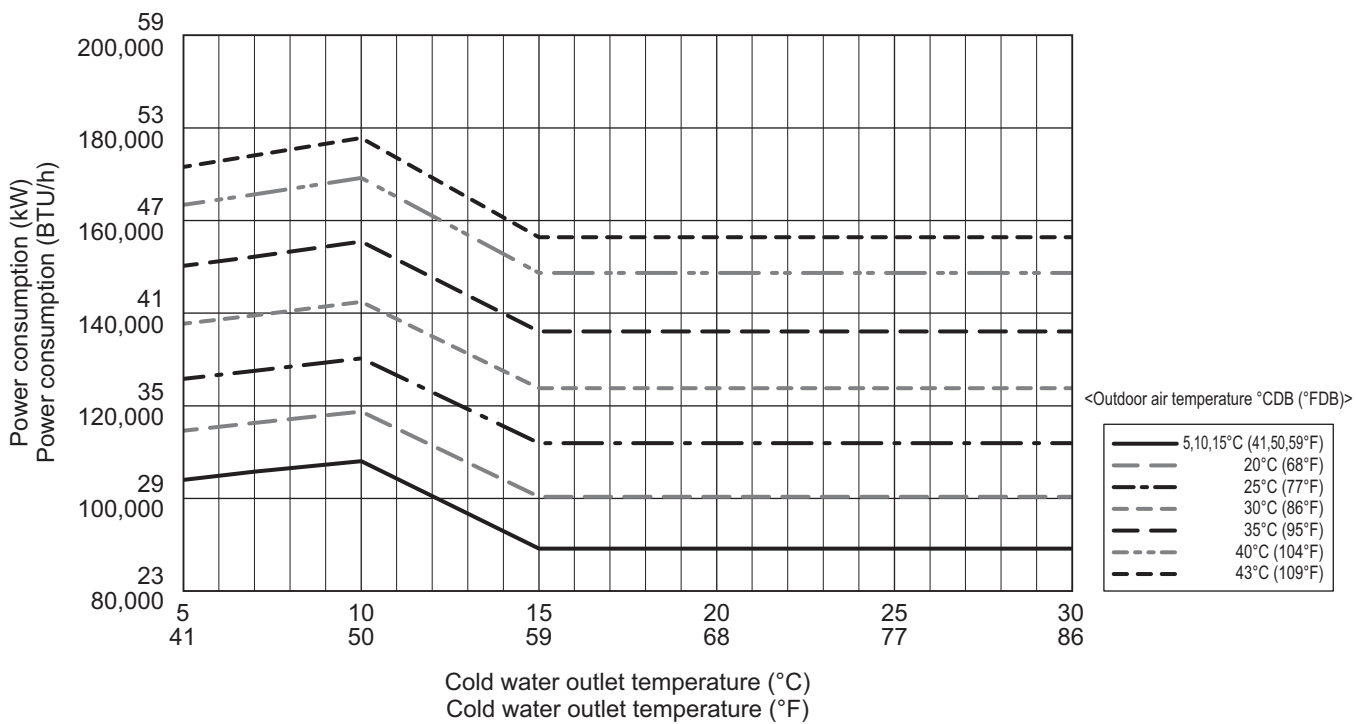
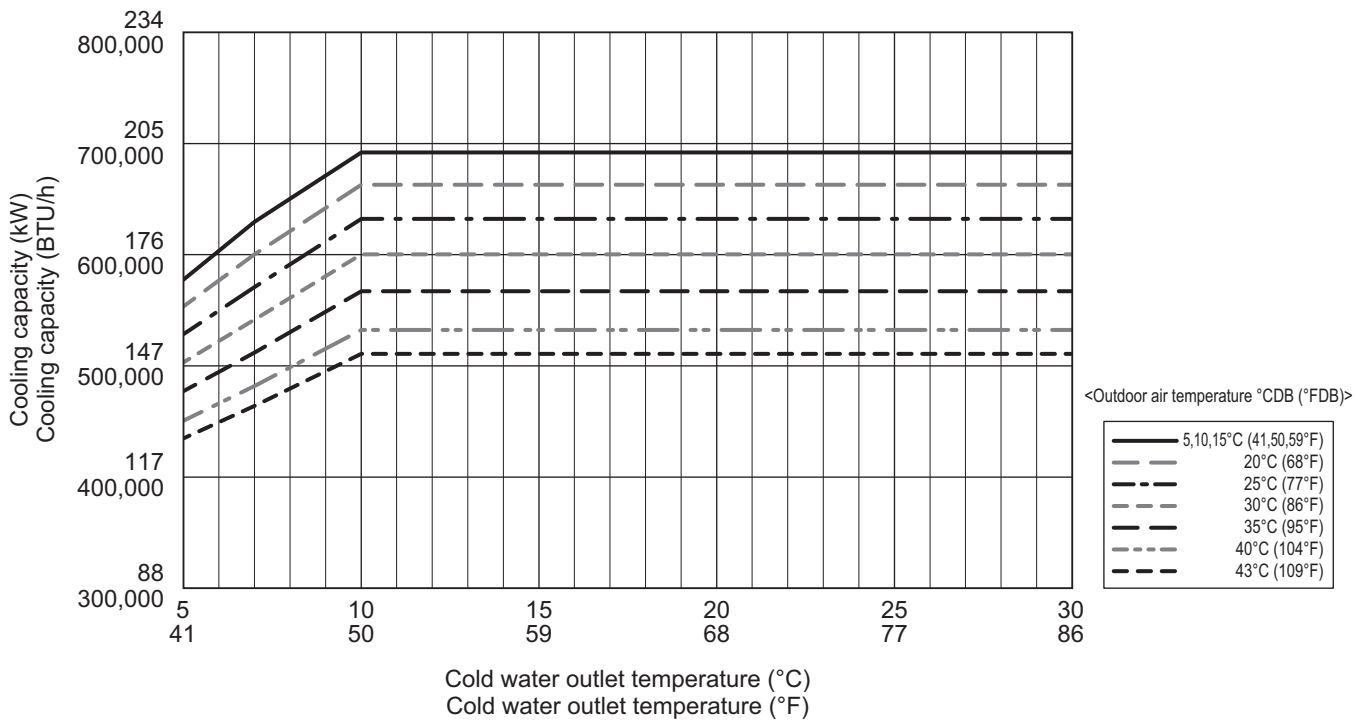
2. Product Data

[Cold water outlet/inlet temperature difference 7°C/13°F]

EACV-P040YBL

■Cooling Capacity [Water]

EACV-P-YBL(-N)

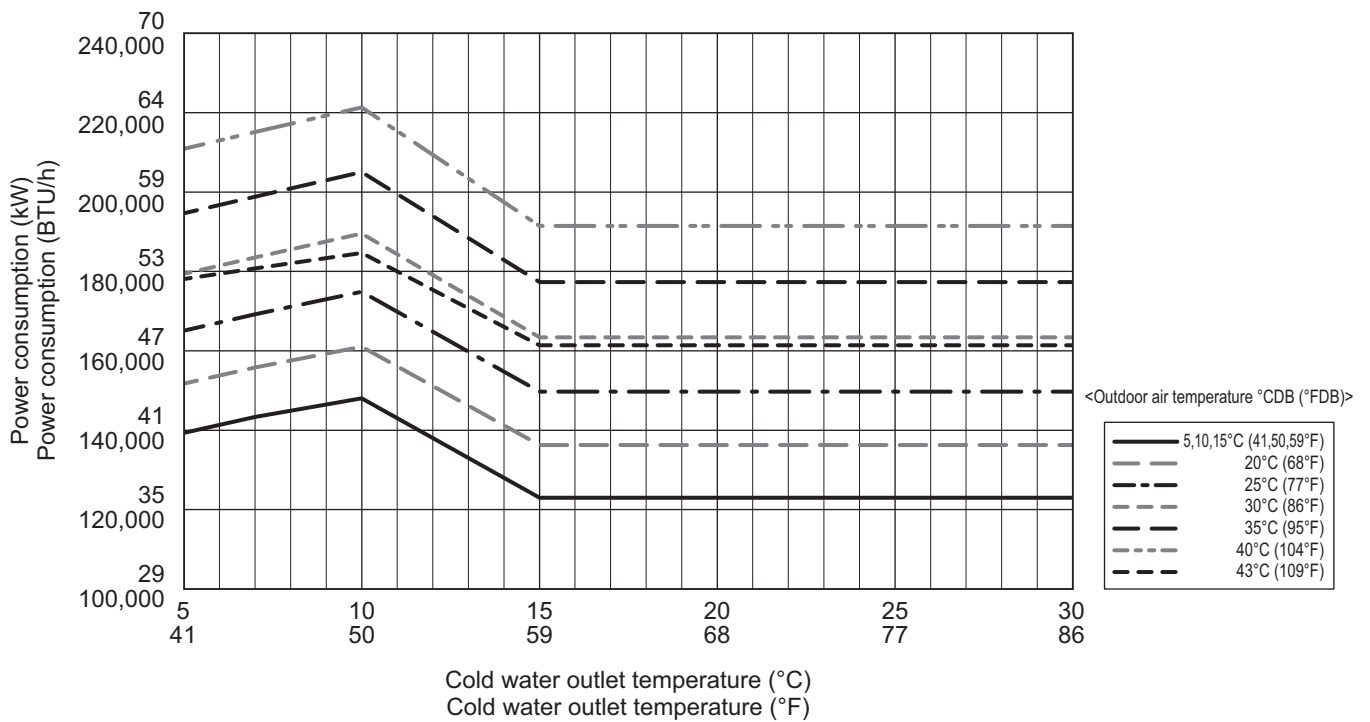
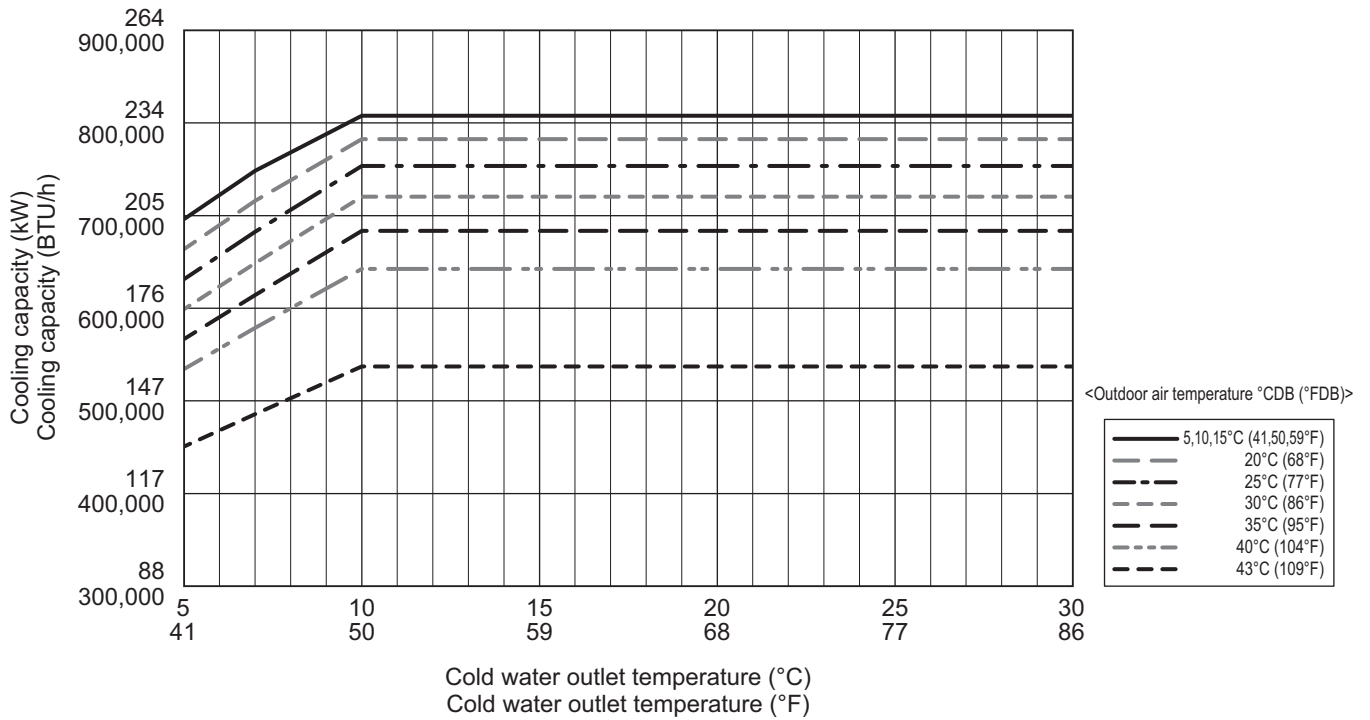


## 2. Product Data

[Cold water outlet/inlet temperature difference 7°C/13°F]

EACV-P050YBL

■Cooling Capacity [Water]



## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 5°C/9°F

| MODEL                                 |                                     |       | EACV-P040YBL |          |         |        |        |         |         |         |         |         |         |          |          |
|---------------------------------------|-------------------------------------|-------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |       | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |
| 5 (41)                                | Cooling capacity                    | BTU/h | 577652       | 577652   | 577652  | 577652 | 577652 | 577652  | 577652  | 553426  | 528519  | 503270  | 477339  | 450725   | 434689   |
|                                       |                                     | KW    | 169.3        | 169.3    | 169.3   | 169.3  | 169.3  | 169.3   | 169.3   | 162.2   | 154.9   | 147.5   | 139.9   | 132.1    | 127.4    |
|                                       | Power consumption                   | BTU/h | 105192       | 105192   | 105192  | 105192 | 105192 | 105192  | 105192  | 115906  | 127268  | 139278  | 151936  | 165209   | 173500   |
|                                       |                                     | KW    | 30.83        | 30.83    | 30.83   | 30.83  | 30.83  | 30.83   | 30.83   | 33.97   | 37.30   | 40.82   | 44.53   | 48.42    | 50.85    |
|                                       | Cold water flow rate                | GPM   | 128.1        | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.8   | 117.1   | 111.8   | 106.1   | 99.9     | 96.4     |
|                                       |                                     | m³/h  | 29.1         | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.9    | 26.6    | 25.4    | 24.1    | 22.7     | 21.9     |
|                                       | Water pressure loss                 | ftAq  | 48.5         | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.5    | 40.5    | 37.1    | 33.5    | 29.8     | 27.8     |
|                                       |                                     | psi   | 21.0         | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.3    | 17.5    | 16.1    | 14.5    | 12.9     | 12.0     |
|                                       |                                     | kPa   | 145          | 145      | 145     | 145    | 145    | 145     | 145     | 133     | 121     | 111     | 100     | 89       | 83       |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 7 (45)                                | Cooling capacity                    | BTU/h | 629514       | 629514   | 629514  | 629514 | 629514 | 629514  | 629514  | 600171  | 570828  | 541484  | 511800  | 481774   | 464032   |
|                                       |                                     | KW    | 184.5        | 184.5    | 184.5   | 184.5  | 184.5  | 184.5   | 184.5   | 175.9   | 167.3   | 158.7   | 150.0   | 141.2    | 136.0    |
|                                       | Power consumption                   | BTU/h | 106966       | 106966   | 106966  | 106966 | 106966 | 106966  | 106966  | 117612  | 128974  | 141052  | 153881  | 167495   | 175991   |
|                                       |                                     | kW    | 31.35        | 31.35    | 31.35   | 31.35  | 31.35  | 31.35   | 31.35   | 34.47   | 37.80   | 41.34   | 45.10   | 49.09    | 51.58    |
|                                       | Cold water flow rate                | GPM   | 139.6        | 139.6    | 139.6   | 139.6  | 139.6  | 139.6   | 139.6   | 133.4   | 126.8   | 120.2   | 113.6   | 107.0    | 103.0    |
|                                       |                                     | m³/h  | 31.7         | 31.7     | 31.7    | 31.7   | 31.7   | 31.7    | 31.7    | 30.3    | 28.8    | 27.3    | 25.8    | 24.3     | 23.4     |
|                                       | Water pressure loss                 | ftAq  | 57.2         | 57.2     | 57.2    | 57.2   | 57.2   | 57.2    | 57.2    | 52.2    | 47.5    | 42.8    | 38.1    | 34.1     | 31.8     |
|                                       |                                     | psi   | 24.8         | 24.8     | 24.8    | 24.8   | 24.8   | 24.8    | 24.8    | 22.6    | 20.6    | 18.6    | 16.5    | 14.8     | 13.8     |
|                                       |                                     | kPa   | 171          | 171      | 171     | 171    | 171    | 171     | 171     | 156     | 142     | 128     | 114     | 102      | 95       |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 10 (50)                               | Cooling capacity                    | BTU/h | 691954       | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 662952  | 632244  | 600171  | 567074  | 532272   | 510776   |
|                                       |                                     | kW    | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h | 109116       | 109116   | 109116  | 109116 | 109116 | 109116  | 109116  | 120137  | 131703  | 144055  | 157191  | 171078   | 179778   |
|                                       |                                     | KW    | 31.98        | 31.98    | 31.98   | 31.98  | 31.98  | 31.98   | 31.98   | 35.21   | 38.60   | 42.22   | 46.07   | 50.14    | 52.69    |
|                                       | Cold water flow rate                | GPM   | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 147.1   | 140.5   | 133.4   | 125.9   | 118.0    | 113.2    |
|                                       |                                     | m³/h  | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 33.4    | 31.9    | 30.3    | 28.6    | 26.8     | 25.7     |
|                                       | Water pressure loss                 | ftAq  | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 63.2    | 57.9    | 52.2    | 46.8    | 41.2     | 38.1     |
|                                       |                                     | psi   | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 27.4    | 25.1    | 22.6    | 20.3    | 17.8     | 16.5     |
|                                       |                                     | kPa   | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 189     | 173     | 156     | 140     | 123      | 114      |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 15 (59)                               | Cooling capacity                    | BTU/h | 691954       | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 662952  | 632244  | 600171  | 567074  | 532272   | 510776   |
|                                       |                                     | kW    | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h | 90043        | 90043    | 90043   | 90043  | 90043  | 90043   | 90043   | 101507  | 113176  | 125220  | 137572  | 150333   | 158146   |
|                                       |                                     | kW    | 26.39        | 26.39    | 26.39   | 26.39  | 26.39  | 26.39   | 26.39   | 29.75   | 33.17   | 36.70   | 40.32   | 44.06    | 46.35    |
|                                       | Cold water flow rate                | GPM   | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 147.1   | 140.5   | 133.4   | 125.9   | 118.0    | 113.2    |
|                                       |                                     | m³/h  | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 33.4    | 31.9    | 30.3    | 28.6    | 26.8     | 25.7     |
|                                       | Water pressure loss                 | ftAq  | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 63.2    | 57.9    | 52.2    | 46.8    | 41.2     | 38.1     |
|                                       |                                     | psi   | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 27.4    | 25.1    | 22.6    | 20.3    | 17.8     | 16.5     |
|                                       |                                     | kPa   | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 189     | 173     | 156     | 140     | 123      | 114      |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 20 (68)                               | Cooling capacity                    | BTU/h | -            | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 662952  | 632244  | 600171  | 567074  | 532272   | 510776   |
|                                       |                                     | kW    | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h | -            | 90043    | 90043   | 90043  | 90043  | 90043   | 90043   | 101507  | 113176  | 125220  | 137572  | 150333   | 158146   |
|                                       |                                     | kW    | -            | 26.39    | 26.39   | 26.39  | 26.39  | 26.39   | 26.39   | 29.75   | 33.17   | 36.70   | 40.32   | 44.06    | 46.35    |
|                                       | Cold water flow rate                | GPM   | -            | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 147.1   | 140.5   | 133.4   | 125.9   | 118.0    | 113.2    |
|                                       |                                     | m³/h  | -            | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 33.4    | 31.9    | 30.3    | 28.6    | 26.8     | 25.7     |
|                                       | Water pressure loss                 | ftAq  | -            | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 63.2    | 57.9    | 52.2    | 46.8    | 41.2     | 38.1     |
|                                       |                                     | psi   | -            | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 27.4    | 25.1    | 22.6    | 20.3    | 17.8     | 16.5     |
|                                       |                                     | kPa   | -            | 196      | 196     | 196    | 196    | 196     | 196     | 189     | 173     | 156     | 140     | 123      | 114      |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 25 (77)                               | Cooling capacity                    | BTU/h | -            | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 662952  | 632244  | 600171  | 567074  | 532272   | 510776   |
|                                       |                                     | kW    | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h | -            | 90043    | 90043   | 90043  | 90043  | 90043   | 90043   | 101507  | 113176  | 125220  | 137572  | 150333   | 158146   |
|                                       |                                     | kW    | -            | 26.39    | 26.39   | 26.39  | 26.39  | 26.39   | 26.39   | 29.75   | 33.17   | 36.70   | 40.32   | 44.06    | 46.35    |
|                                       | Cold water flow rate                | GPM   | -            | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 147.1   | 140.5   | 133.4   | 125.9   | 118.0    | 113.2    |
|                                       |                                     | m³/h  | -            | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 33.4    | 31.9    | 30.3    | 28.6    | 26.8     | 25.7     |
|                                       | Water pressure loss                 | ftAq  | -            | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 63.2    | 57.9    | 52.2    | 46.8    | 41.2     | 38.1     |
|                                       |                                     | psi   | -            | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 27.4    | 25.1    | 22.6    | 20.3    | 17.8     | 16.5     |
|                                       |                                     | kPa   | -            | 196      | 196     | 196    | 196    | 196     | 196     | 189     | 173     | 156     | 140     | 123      | 114      |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |
| 30 (86)                               | Cooling capacity                    | BTU/h | -            | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 662952  | 632244  | 600171  | 567074  | 532272   | 510776   |
|                                       |                                     | kW    | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h | -            | 90043    | 90043   | 90043  | 90043  | 90043   | 90043   | 101507  | 113176  | 125220  | 137572  | 150333   | 158146   |
|                                       |                                     | kW    | -            | 26.39    | 26.39   | 26.39  | 26.39  | 26.39   | 26.39   | 29.75   | 33.17   | 36.70   | 40.32   | 44.06    | 46.35    |
|                                       | Cold water flow rate                | GPM   | -            | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 147.1   | 140.5   | 133.4   | 125.9   | 118.0    | 113.2    |
|                                       |                                     | m³/h  | -            | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 33.4    | 31.9    | 30.3    | 28.6    | 26.8     | 25.7     |
|                                       | Water pressure loss                 | ftAq  | -            | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 63.2    | 57.9    | 52.2    | 46.8    | 41.2     | 38.1     |
|                                       |                                     | psi   | -            | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 27.4    | 25.1    | 22.6    | 20.3    | 17.8     | 16.5     |
|                                       |                                     | kPa   | -            | 196      | 196     | 196    | 196    | 196     | 196     | 189     | 173     | 156     | 140     | 123      | 114      |
|                                       |                                     |       |              |          |         |        |        |         |         |         |         |         |         |          |          |

\* Pump doesn't include.

## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 5°C/9°F

| MODEL                                 |                                     |                  | EACV-P050YBL |          |         |        |        |         |         |         |         |         |         |          |          |        |
|---------------------------------------|-------------------------------------|------------------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|--------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |                  | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |        |
| 5 (41)                                | Cooling capacity                    | BTU/h            | 696048       | 696048   | 696048  | 696048 | 696048 | 696048  | 696048  | 663634  | 631220  | 598806  | 566733  | 534319   | 450725   |        |
|                                       |                                     | KW               | 204.0        | 204.0    | 204.0   | 204.0  | 204.0  | 204.0   | 204.0   | 194.5   | 185.0   | 175.5   | 166.1   | 156.6    | 132.1    |        |
|                                       | Power consumption                   | BTU/h            | 140813       | 140813   | 140813  | 140813 | 140813 | 140813  | 140813  | 140813  | 153642  | 167188  | 181655  | 197111   | 213557   | 180358 |
|                                       |                                     | KW               | 41.27        | 41.27    | 41.27   | 41.27  | 41.27  | 41.27   | 41.27   | 41.27   | 45.03   | 49.00   | 53.24   | 57.77    | 62.59    | 52.86  |
|                                       | Cold water flow rate                | GPM              | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 147.5   | 140.0   | 133.0   | 125.9    | 118.4    | 99.9   |
|                                       |                                     | m³/h             | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 33.5    | 31.8    | 30.2    | 28.6     | 26.9     | 22.7   |
|                                       | Water pressure loss                 | ftAq             | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 63.6    | 57.6    | 51.9    | 46.8     | 41.5     | 29.8   |
|                                       |                                     | psi              | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 28.4    | 27.6    | 24.9    | 22.5    | 20.3     | 18.0     | 12.9   |
|                                       |                                     | kPa              | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 196     | 190     | 172     | 155     | 140      | 124      | 89     |
|                                       | 7 (45)                              | Cooling capacity | BTU/h        | 748252   | 748252  | 748252 | 748252 | 748252  | 748252  | 748252  | 715838  | 682400  | 648621  | 614160   | 578675   | 485528 |
| KW                                    |                                     |                  | 219.3        | 219.3    | 219.3   | 219.3  | 219.3  | 219.3   | 219.3   | 209.8   | 200.0   | 190.1   | 180.0   | 169.6    | 142.3    |        |
| Power consumption                     |                                     | BTU/h            | 144157       | 144157   | 144157  | 144157 | 144157 | 144157  | 144157  | 144157  | 157157  | 171180  | 185852  | 201342   | 217822   | 183020 |
|                                       |                                     | kW               | 42.25        | 42.25    | 42.25   | 42.25  | 42.25  | 42.25   | 42.25   | 42.25   | 46.06   | 50.17   | 54.47   | 59.01    | 63.84    | 53.64  |
| Cold water flow rate                  |                                     | GPM              | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 144.0   | 136.5    | 128.6    | 107.9  |
|                                       |                                     | m³/h             | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 32.7    | 31.0     | 29.2     | 24.5   |
| Water pressure loss                   |                                     | ftAq             | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 65.6    | 60.9    | 54.9    | 48.9     | 34.5     |        |
|                                       |                                     | psi              | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 28.4    | 28.4    | 26.4    | 23.8    | 21.2     | 14.9     |        |
|                                       |                                     | kPa              | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 196     | 196     | 182     | 164     | 146      | 103      |        |
| 10 (50)                               |                                     | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | 148013       | 148013   | 148013  | 148013 | 148013 | 148013  | 148013  | 148013  | 161422  | 175752  | 191106  | 207415   | 224100   | 187012 |
|                                       |                                     | KW               | 43.38        | 43.38    | 43.38   | 43.38  | 43.38  | 43.38   | 43.38   | 43.38   | 47.31   | 51.51   | 56.01   | 60.79    | 65.68    | 54.81  |
|                                       | Cold water flow rate                | GPM              | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7    | 142.7    | 119.3  |
|                                       |                                     | m³/h             | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0     | 32.4     | 27.1   |
|                                       | Water pressure loss                 | ftAq             | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6     | 59.6     | 42.2   |
|                                       |                                     | psi              | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4     | 25.8     | 18.3   |
|                                       |                                     | kPa              | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 196     | 196     | 196     | 196     | 196      | 178      | 126    |
|                                       | 15 (59)                             | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | 123037       | 123037   | 123037  | 123037 | 123037 | 123037  | 123037  | 123037  | 136582  | 150469  | 164765  | 179437   | 193904   | 163469 |
|                                       |                                     | kW               | 36.06        | 36.06    | 36.06   | 36.06  | 36.06  | 36.06   | 36.06   | 36.06   | 40.03   | 44.10   | 48.29   | 52.59    | 56.83    | 47.91  |
| Cold water flow rate                  |                                     | GPM              | 149.7        | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7    | 142.7    | 119.3  |
|                                       |                                     | m³/h             | 34.0         | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0     | 32.4     | 27.1   |
| Water pressure loss                   |                                     | ftAq             | 65.6         | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6     | 59.6     | 42.2   |
|                                       |                                     | psi              | 28.4         | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4     | 25.8     | 18.3   |
|                                       |                                     | kPa              | 196          | 196      | 196     | 196    | 196    | 196     | 196     | 196     | 196     | 196     | 196     | 196      | 178      | 126    |
| 20 (68)                               |                                     | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | -            | 123037   | 123037  | 123037 | 123037 | 123037  | 123037  | 123037  | 136582  | 150469  | 164765  | 179437   | 193904   | 163469 |
|                                       |                                     | kW               | -            | 36.06    | 36.06   | 36.06  | 36.06  | 36.06   | 36.06   | 36.06   | 40.03   | 44.10   | 48.29   | 52.59    | 56.83    | 47.91  |
|                                       | Cold water flow rate                | GPM              | -            | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7    | 142.7    | 119.3  |
|                                       |                                     | m³/h             | -            | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0     | 32.4     | 27.1   |
|                                       | Water pressure loss                 | ftAq             | -            | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6     | 59.6     | 42.2   |
|                                       |                                     | psi              | -            | 28.4     | 28.4    | 28.4   | 28.4   | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4     | 25.8     | 18.3   |
|                                       |                                     | kPa              | -            | 196      | 196     | 196    | 196    | 196     | 196     | 196     | 196     | 196     | 196     | 196      | 178      | 126    |
|                                       | 25 (77)                             | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | -            | 123037   | 123037  | 123037 | 123037 | 123037  | 123037  | 123037  | 136582  | 150469  | 164765  | 179437   | 193904   | 163469 |
|                                       |                                     | kW               | -            | 36.06    | 36.06   | 36.06  | 36.06  | 36.06   | 36.06   | 36.06   | 40.03   | 44.10   | 48.29   | 52.59    | 56.83    | 47.91  |
| Cold water flow rate                  |                                     | GPM              | -            | 149.7    | 149.7   | 149.7  | 149.7  | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7   | 149.7    | 142.7    | 119.3  |
|                                       |                                     | m³/h             | -            | 34.0     | 34.0    | 34.0   | 34.0   | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0    | 34.0     | 32.4     | 27.1   |
| Water pressure loss                   |                                     | ftAq             | -            | 65.6     | 65.6    | 65.6   | 65.6   | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6    | 65.6     |          |        |

\* Pump doesn't include.

## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 6°C/11°F

| MODEL                                 |                                     |                  | EACV-P040YBL |          |         |        |        |         |         |         |         |         |         |          |          |
|---------------------------------------|-------------------------------------|------------------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |                  | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |
| 5 (41)                                | Cooling capacity                    | BTU/h            | 577652       | 577652   | 577652  | 577652 | 577652 | 577652  | 577652  | 553426  | 528519  | 503270  | 477339  | 450725   | 434689   |
|                                       |                                     | kW               | 169.3        | 169.3    | 169.3   | 169.3  | 169.3  | 169.3   | 169.3   | 162.2   | 154.9   | 147.5   | 139.9   | 132.1    | 127.4    |
|                                       | Power consumption                   | BTU/h            | 103998       | 103998   | 103998  | 103998 | 103998 | 103998  | 103998  | 114609  | 125835  | 137708  | 150230  | 163367   | 171555   |
|                                       |                                     | kW               | 30.48        | 30.48    | 30.48   | 30.48  | 30.48  | 30.48   | 30.48   | 33.59   | 36.88   | 40.36   | 44.03   | 47.88    | 50.28    |
|                                       | Cold water flow rate                | GPM              | 107.0        | 107.0    | 107.0   | 107.0  | 107.0  | 107.0   | 107.0   | 102.1   | 97.7    | 92.9    | 88.5    | 83.2     | 80.6     |
|                                       |                                     | m³/h             | 24.3         | 24.3     | 24.3    | 24.3   | 24.3   | 24.3    | 24.3    | 23.2    | 22.2    | 21.1    | 20.1    | 18.9     | 18.3     |
|                                       | Water pressure loss                 | ftAq             | 34.1         | 34.1     | 34.1    | 34.1   | 34.1   | 34.1    | 34.1    | 31.1    | 28.4    | 25.8    | 23.4    | 21.1     | 19.7     |
|                                       |                                     | psi              | 14.8         | 14.8     | 14.8    | 14.8   | 14.8   | 14.8    | 14.8    | 13.5    | 12.3    | 11.2    | 10.2    | 9.1      | 8.6      |
|                                       |                                     |                  | kPa          | 102      | 102     | 102    | 102    | 102     | 102     | 93      | 85      | 77      | 70      | 63       | 59       |
|                                       | 7 (45)                              | Cooling capacity | BTU/h        | 629514   | 629514  | 629514 | 629514 | 629514  | 629514  | 629514  | 600171  | 570828  | 541484  | 511800   | 481774   |
| kW                                    |                                     |                  | 184.5        | 184.5    | 184.5   | 184.5  | 184.5  | 184.5   | 184.5   | 175.9   | 167.3   | 158.7   | 150.0   | 141.2    | 136.0    |
| Power consumption                     |                                     | BTU/h            | 105772       | 105772   | 105772  | 105772 | 105772 | 105772  | 105772  | 116315  | 127541  | 139483  | 152175  | 165618   | 174046   |
|                                       |                                     | kW               | 31.00        | 31.00    | 31.00   | 31.00  | 31.00  | 31.00   | 31.00   | 34.09   | 37.38   | 40.88   | 44.60   | 48.54    | 51.01    |
| Cold water flow rate                  |                                     | GPM              | 116.2        | 116.2    | 116.2   | 116.2  | 116.2  | 116.2   | 116.2   | 111.0   | 105.7   | 99.9    | 94.7    | 88.9     | 85.9     |
|                                       |                                     | m³/h             | 26.4         | 26.4     | 26.4    | 26.4   | 26.4   | 26.4    | 26.4    | 25.2    | 24.0    | 22.7    | 21.5    | 20.2     | 19.5     |
| Water pressure loss                   |                                     | ftAq             | 40.2         | 40.2     | 40.2    | 40.2   | 40.2   | 40.2    | 40.2    | 36.5    | 33.1    | 29.8    | 26.8    | 23.8     | 22.1     |
|                                       |                                     | psi              | 17.4         | 17.4     | 17.4    | 17.4   | 17.4   | 17.4    | 17.4    | 15.8    | 14.4    | 12.9    | 11.6    | 10.3     | 9.6      |
|                                       |                                     |                  | kPa          | 120      | 120     | 120    | 120    | 120     | 120     | 109     | 99      | 89      | 80      | 71       | 66       |
| 10 (50)                               |                                     | Cooling capacity | BTU/h        | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   |
|                                       | kW                                  |                  | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h            | 108058       | 108058   | 108058  | 108058 | 108058 | 108058  | 108058  | 118772  | 130236  | 142451  | 155451  | 169167   | 177799   |
|                                       |                                     | kW               | 31.67        | 31.67    | 31.67   | 31.67  | 31.67  | 31.67   | 31.67   | 34.81   | 38.17   | 41.75   | 45.56   | 49.58    | 52.11    |
|                                       | Cold water flow rate                | GPM              | 128.1        | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.4   | 117.1   | 111.0   | 104.8   | 98.6     | 94.7     |
|                                       |                                     | m³/h             | 29.1         | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.8    | 26.6    | 25.2    | 23.8    | 22.4     | 21.5     |
|                                       | Water pressure loss                 | ftAq             | 48.5         | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.2    | 40.5    | 36.5    | 32.8    | 29.1     | 26.8     |
|                                       |                                     | psi              | 21.0         | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.1    | 17.5    | 15.8    | 14.2    | 12.6     | 11.6     |
|                                       |                                     |                  | kPa          | 145      | 145     | 145    | 145    | 145     | 145     | 132     | 121     | 109     | 98      | 87       | 80       |
|                                       | 15 (59)                             | Cooling capacity | BTU/h        | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   |
| kW                                    |                                     |                  | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
| Power consumption                     |                                     | BTU/h            | 89156        | 89156    | 89156   | 89156  | 89156  | 89156   | 89156   | 100347  | 111914  | 123821  | 136036  | 148661   | 156372   |
|                                       |                                     | kW               | 26.13        | 26.13    | 26.13   | 26.13  | 26.13  | 26.13   | 26.13   | 29.41   | 32.80   | 36.29   | 39.87   | 43.57    | 45.83    |
| Cold water flow rate                  |                                     | GPM              | 128.1        | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.4   | 117.1   | 111.0   | 104.8   | 98.6     | 94.7     |
|                                       |                                     | m³/h             | 29.1         | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.8    | 26.6    | 25.2    | 23.8    | 22.4     | 21.5     |
| Water pressure loss                   |                                     | ftAq             | 48.5         | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.2    | 40.5    | 36.5    | 32.8    | 29.1     | 26.8     |
|                                       |                                     | psi              | 21.0         | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.1    | 17.5    | 15.8    | 14.2    | 12.6     | 11.6     |
|                                       |                                     |                  | kPa          | 145      | 145     | 145    | 145    | 145     | 145     | 132     | 121     | 109     | 98      | 87       | 80       |
| 20 (68)                               |                                     | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   |
|                                       | kW                                  |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h            | -            | 89156    | 89156   | 89156  | 89156  | 89156   | 89156   | 100347  | 111914  | 123821  | 136036  | 148661   | 156372   |
|                                       |                                     | kW               | -            | 26.13    | 26.13   | 26.13  | 26.13  | 26.13   | 26.13   | 29.41   | 32.80   | 36.29   | 39.87   | 43.57    | 45.83    |
|                                       | Cold water flow rate                | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.4   | 117.1   | 111.0   | 104.8   | 98.6     | 94.7     |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.8    | 26.6    | 25.2    | 23.8    | 22.4     | 21.5     |
|                                       | Water pressure loss                 | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.2    | 40.5    | 36.5    | 32.8    | 29.1     | 26.8     |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.1    | 17.5    | 15.8    | 14.2    | 12.6     | 11.6     |
|                                       |                                     |                  | kPa          | -        | 145     | 145    | 145    | 145     | 145     | 132     | 121     | 109     | 98      | 87       | 80       |
|                                       | 25 (77)                             | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   |
| kW                                    |                                     |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
| Power consumption                     |                                     | BTU/h            | -            | 89156    | 89156   | 89156  | 89156  | 89156   | 89156   | 100347  | 111914  | 123821  | 136036  | 148661   | 156372   |
|                                       |                                     | kW               | -            | 26.13    | 26.13   | 26.13  | 26.13  | 26.13   | 26.13   | 29.41   | 32.80   | 36.29   | 39.87   | 43.57    | 45.83    |
| Cold water flow rate                  |                                     | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.4   | 117.1   | 111.0   | 104.8   | 98.6     | 94.7     |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.8    | 26.6    | 25.2    | 23.8    | 22.4     | 21.5     |
| Water pressure loss                   |                                     | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.2    | 40.5    | 36.5    | 32.8    | 29.1     | 26.8     |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.1    | 17.5    | 15.8    | 14.2    | 12.6     | 11.6     |
|                                       |                                     |                  | kPa          | -        | 145     | 145    | 145    | 145     | 145     | 132     | 121     | 109     | 98      | 87       | 80       |
| 30 (86)                               |                                     | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   |
|                                       | kW                                  |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |
|                                       | Power consumption                   | BTU/h            | -            | 89156    | 89156   | 89156  | 89156  | 89156   | 89156   | 100347  | 111914  | 123821  | 136036  | 148661   | 156372   |
|                                       |                                     | kW               | -            | 26.13    | 26.13   | 26.13  | 26.13  | 26.13   | 26.13   | 29.41   | 32.80   | 36.29   | 39.87   | 43.57    | 45.83    |
|                                       | Cold water flow rate                | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 122.4   | 117.1   | 111.0   | 104.8   | 98.6     | 94.7     |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 27.8    | 26.6    | 25.2    | 23.8    | 22.4     | 21.5     |
|                                       | Water pressure loss                 | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 44.2    | 40.5    | 36.5    | 32.8    | 29.1     | 26.8     |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 19.1    | 17.5    | 15.8    | 14.2    | 12.6     | 11.6     |
|                                       |                                     |                  | kPa          | -        | 145     | 145    | 145    | 145     | 145     | 132     | 121     | 109     | 98      | 87       | 80       |

\* Pump doesn't include.

## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 6°C/11°F

| MODEL                                 |                                     |                  | EACV-P050YBL |          |         |        |        |         |         |         |         |         |         |          |          |        |
|---------------------------------------|-------------------------------------|------------------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|--------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |                  | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |        |
| 5 (41)                                | Cooling capacity                    | BTU/h            | 696048       | 696048   | 696048  | 696048 | 696048 | 696048  | 696048  | 663634  | 631220  | 598806  | 566733  | 534319   | 450725   |        |
|                                       |                                     | kW               | 204.0        | 204.0    | 204.0   | 204.0  | 204.0  | 204.0   | 204.0   | 194.5   | 185.0   | 175.5   | 166.1   | 156.6    | 132.1    |        |
|                                       | Power consumption                   | BTU/h            | 139346       | 139346   | 139346  | 139346 | 139346 | 139346  | 139346  | 139346  | 151732  | 165073  | 179369  | 194655   | 210896   | 178106 |
|                                       |                                     | kW               | 40.84        | 40.84    | 40.84   | 40.84  | 40.84  | 40.84   | 40.84   | 40.84   | 44.47   | 48.38   | 52.57   | 57.05    | 61.81    | 52.20  |
|                                       | Cold water flow rate                | GPM              | 128.6        | 128.6    | 128.6   | 128.6  | 128.6  | 128.6   | 128.6   | 128.6   | 122.8   | 116.7   | 111.0   | 104.8    | 98.6     | 83.2   |
|                                       |                                     | m³/h             | 29.2         | 29.2     | 29.2    | 29.2   | 29.2   | 29.2    | 29.2    | 29.2    | 27.9    | 26.5    | 25.2    | 23.8     | 22.4     | 18.9   |
|                                       | Water pressure loss                 | ftAq             | 48.9         | 48.9     | 48.9    | 48.9   | 48.9   | 48.9    | 48.9    | 48.9    | 44.5    | 40.2    | 36.5    | 32.8     | 29.1     | 21.1   |
|                                       |                                     | psi              | 21.2         | 21.2     | 21.2    | 21.2   | 21.2   | 21.2    | 21.2    | 21.2    | 19.3    | 17.4    | 15.8    | 14.2     | 12.6     | 9.1    |
|                                       |                                     | kPa              | 146          | 146      | 146     | 146    | 146    | 146     | 146     | 146     | 133     | 120     | 109     | 98       | 87       | 63     |
|                                       | 7 (45)                              | Cooling capacity | BTU/h        | 748252   | 748252  | 748252 | 748252 | 748252  | 748252  | 748252  | 715838  | 682400  | 648621  | 614160   | 578675   | 485528 |
| kW                                    |                                     |                  | 219.3        | 219.3    | 219.3   | 219.3  | 219.3  | 219.3   | 219.3   | 209.8   | 200.0   | 190.1   | 180.0   | 169.6    | 142.3    |        |
| Power consumption                     |                                     | BTU/h            | 143338       | 143338   | 143338  | 143338 | 143338 | 143338  | 143338  | 155792  | 169167  | 183497  | 198817  | 215092   | 180734   |        |
|                                       |                                     | kW               | 42.01        | 42.01    | 42.01   | 42.01  | 42.01  | 42.01   | 42.01   | 45.66   | 49.58   | 53.78   | 58.27   | 63.04    | 52.97    |        |
| Cold water flow rate                  |                                     | GPM              | 138.3        | 138.3    | 138.3   | 138.3  | 138.3  | 138.3   | 138.3   | 138.3   | 132.5   | 126.4   | 119.8   | 113.6    | 107.0    | 89.8   |
|                                       |                                     | m³/h             | 31.4         | 31.4     | 31.4    | 31.4   | 31.4   | 31.4    | 31.4    | 31.4    | 30.1    | 28.7    | 27.2    | 25.8     | 24.3     | 20.4   |
| Water pressure loss                   |                                     | ftAq             | 56.2         | 56.2     | 56.2    | 56.2   | 56.2   | 56.2    | 56.2    | 56.2    | 51.5    | 47.2    | 42.5    | 38.1     | 34.1     | 24.4   |
|                                       |                                     | psi              | 24.4         | 24.4     | 24.4    | 24.4   | 24.4   | 24.4    | 24.4    | 24.4    | 22.3    | 20.5    | 18.4    | 16.5     | 14.8     | 10.6   |
|                                       |                                     | kPa              | 168          | 168      | 168     | 168    | 168    | 168     | 168     | 168     | 154     | 141     | 127     | 114      | 102      | 73     |
| 10 (50)                               |                                     | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | 148013       | 148013   | 148013  | 148013 | 148013 | 148013  | 148013  | 148013  | 161012  | 174865  | 189537  | 204993   | 221302   | 184657 |
|                                       |                                     | kW               | 43.38        | 43.38    | 43.38   | 43.38  | 43.38  | 43.38   | 43.38   | 43.38   | 47.19   | 51.25   | 55.55   | 60.08    | 64.86    | 54.12  |
|                                       | Cold water flow rate                | GPM              | 149.3        | 149.3    | 149.3   | 149.3  | 149.3  | 149.3   | 149.3   | 149.3   | 144.9   | 139.1   | 133.4   | 126.4    | 118.9    | 99.5   |
|                                       |                                     | m³/h             | 33.9         | 33.9     | 33.9    | 33.9   | 33.9   | 33.9    | 33.9    | 33.9    | 32.9    | 31.6    | 30.3    | 28.7     | 27.0     | 22.6   |
|                                       | Water pressure loss                 | ftAq             | 65.3         | 65.3     | 65.3    | 65.3   | 65.3   | 65.3    | 65.3    | 65.3    | 61.6    | 56.9    | 52.2    | 47.2     | 41.8     | 29.4   |
|                                       |                                     | psi              | 28.3         | 28.3     | 28.3    | 28.3   | 28.3   | 28.3    | 28.3    | 28.3    | 26.7    | 24.7    | 22.6    | 20.5     | 18.1     | 12.8   |
|                                       |                                     | kPa              | 195          | 195      | 195     | 195    | 195    | 195     | 195     | 195     | 184     | 170     | 156     | 141      | 125      | 88     |
|                                       | 15 (59)                             | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | 123003       | 123003   | 123003  | 123003 | 123003 | 123003  | 123003  | 123003  | 136241  | 149719  | 163401  | 177322   | 191447   | 161388 |
|                                       |                                     | kW               | 36.05        | 36.05    | 36.05   | 36.05  | 36.05  | 36.05   | 36.05   | 36.05   | 39.93   | 43.88   | 47.89   | 51.97    | 56.11    | 47.30  |
| Cold water flow rate                  |                                     | GPM              | 149.3        | 149.3    | 149.3   | 149.3  | 149.3  | 149.3   | 149.3   | 149.3   | 144.9   | 139.1   | 133.4   | 126.4    | 118.9    | 99.5   |
|                                       |                                     | m³/h             | 33.9         | 33.9     | 33.9    | 33.9   | 33.9   | 33.9    | 33.9    | 33.9    | 32.9    | 31.6    | 30.3    | 28.7     | 27.0     | 22.6   |
| Water pressure loss                   |                                     | ftAq             | 65.3         | 65.3     | 65.3    | 65.3   | 65.3   | 65.3    | 65.3    | 65.3    | 61.6    | 56.9    | 52.2    | 47.2     | 41.8     | 29.4   |
|                                       |                                     | psi              | 28.3         | 28.3     | 28.3    | 28.3   | 28.3   | 28.3    | 28.3    | 28.3    | 26.7    | 24.7    | 22.6    | 20.5     | 18.1     | 12.8   |
|                                       |                                     | kPa              | 195          | 195      | 195     | 195    | 195    | 195     | 195     | 195     | 184     | 170     | 156     | 141      | 125      | 88     |
| 20 (68)                               |                                     | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | -            | 123003   | 123003  | 123003 | 123003 | 123003  | 123003  | 123003  | 136241  | 149719  | 163401  | 177322   | 191447   | 161388 |
|                                       |                                     | kW               | -            | 36.05    | 36.05   | 36.05  | 36.05  | 36.05   | 36.05   | 36.05   | 39.93   | 43.88   | 47.89   | 51.97    | 56.11    | 47.30  |
|                                       | Cold water flow rate                | GPM              | -            | 149.3    | 149.3   | 149.3  | 149.3  | 149.3   | 149.3   | 149.3   | 144.9   | 139.1   | 133.4   | 126.4    | 118.9    | 99.5   |
|                                       |                                     | m³/h             | -            | 33.9     | 33.9    | 33.9   | 33.9   | 33.9    | 33.9    | 33.9    | 32.9    | 31.6    | 30.3    | 28.7     | 27.0     | 22.6   |
|                                       | Water pressure loss                 | ftAq             | -            | 65.3     | 65.3    | 65.3   | 65.3   | 65.3    | 65.3    | 65.3    | 61.6    | 56.9    | 52.2    | 47.2     | 41.8     | 29.4   |
|                                       |                                     | psi              | -            | 28.3     | 28.3    | 28.3   | 28.3   | 28.3    | 28.3    | 28.3    | 26.7    | 24.7    | 22.6    | 20.5     | 18.1     | 12.8   |
|                                       |                                     | kPa              | -            | 195      | 195     | 195    | 195    | 195     | 195     | 195     | 184     | 170     | 156     | 141      | 125      | 88     |
|                                       | 25 (77)                             | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | -            | 123003   | 123003  | 123003 | 123003 | 123003  | 123003  | 123003  | 136241  | 149719  | 163401  | 177322   | 191447   | 161388 |
|                                       |                                     | kW               | -            | 36.05    | 36.05   | 36.05  | 36.05  | 36.05   | 36.05   | 36.05   | 39.93   | 43.88   | 47.89   | 51.97    | 56.11    | 47.30  |
| Cold water flow rate                  |                                     | GPM              | -            | 149.3    | 149.3   | 149.3  | 149.3  | 149.3   | 149.3   | 149.3   | 144.9   | 139.1   | 133.4   | 126.4    | 118.9    | 99.5   |
|                                       |                                     | m³/h             | -            | 33.9     | 33.9    | 33.9   | 33.9   | 33.9    | 33.9    | 33.9    | 32.9    | 31.6    | 30.3    | 28.7     | 27.0     | 22.6   |
| Water pressure loss                   |                                     | ftAq             | -            | 65.3     | 65.3    | 65.3   | 65.3   | 65.3    | 65.3    | 65.3    | 61.6    | 56.9    | 52.2    | 47.2     | 41.8     | 29.4   |
|                                       |                                     | psi              | -            | 28.3     | 28.3    | 28.3   | 28.3   | 28.3    | 28.3    | 28.3    | 26.7    | 24.7    | 22.6    | 20.5     | 18.1     | 12.8   |
|                                       |                                     | kPa              | -            | 195      | 195     | 195    | 195    | 195     | 195     | 195     | 184     | 170     | 156     | 141      | 125      | 88     |
| 30 (86)                               |                                     | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | -            | 123003   | 123003  | 123003 | 123003 | 123003  | 123003  | 123003  | 136241  | 149719  | 163401  | 177322   | 191447   | 161388 |
|                                       |                                     | kW               | -            | 36.05    | 36.05   | 36.05  | 36.05  | 36.05   | 36.05   | 36.05   | 39.93   | 43.88   | 47.89   | 51.97    | 56.11    | 47.30  |
|                                       | Cold water flow rate                | GPM              | -            | 149.3    | 149.3   | 149.3  | 149.3  | 149.3   | 149.3   | 149.3   | 144.9   | 139.1   | 133.4   | 126.4    | 118.9    | 99.5   |
|                                       |                                     | m³/h             | -            | 33.9     | 33.9    | 33.9   | 33.9   | 33.9    | 33.9    | 33.9    | 32.9    | 31.6    | 30.3    | 28.7     | 27.0     | 22.6   |
|                                       | Water pressure loss                 | ftAq             | -            | 65.3     | 65.3    | 65.3   | 65.3   | 65.3    | 65.3    | 65.3    | 61.6    | 56.9    | 52.2    | 47.2     | 41.8     | 29.4   |
|                                       |                                     | psi              | -            | 28.3     | 28.3    | 28.3   | 28.3   | 28.3    | 28.3    | 28.3    | 26.7    | 24.7    | 22.6    | 20.5     | 18.1     | 12.8   |
|                                       |                                     | kPa              | -            | 195      | 195     | 195    | 195    | 195     | 195     | 195     | 184     | 170     | 156     | 141      | 125      | 88     |

\* Pump doesn't include.

## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 7°C/13°F

| MODEL                                 |                                     |                  | EACV-P040YBL |          |         |        |        |         |         |         |         |         |         |          |          |        |
|---------------------------------------|-------------------------------------|------------------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|--------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |                  | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |        |
| 5 (41)                                | Cooling capacity                    | BTU/h            | 577652       | 577652   | 577652  | 577652 | 577652 | 577652  | 577652  | 553426  | 528519  | 503270  | 477339  | 450725   | 434689   |        |
|                                       |                                     | kW               | 169.3        | 169.3    | 169.3   | 169.3  | 169.3  | 169.3   | 169.3   | 162.2   | 154.9   | 147.5   | 139.9   | 132.1    | 127.4    |        |
|                                       | Power consumption                   | BTU/h            | 102940       | 102940   | 102940  | 102940 | 102940 | 102940  | 102940  | 102940  | 113415  | 124538  | 136275  | 148661   | 161661   | 169781 |
|                                       |                                     | kW               | 30.17        | 30.17    | 30.17   | 30.17  | 30.17  | 30.17   | 30.17   | 30.17   | 33.24   | 36.50   | 39.94   | 43.57    | 47.38    | 49.76  |
|                                       | Cold water flow rate                | GPM              | 91.6         | 91.6     | 91.6    | 91.6   | 91.6   | 91.6    | 91.6    | 87.6    | 83.7    | 79.7    | 75.7    | 71.3     | 69.1     |        |
|                                       |                                     | m³/h             | 20.8         | 20.8     | 20.8    | 20.8   | 20.8   | 20.8    | 20.8    | 20.8    | 19.9    | 19.0    | 18.1    | 17.2     | 16.2     | 15.7   |
|                                       | Water pressure loss                 | ftAq             | 25.1         | 25.1     | 25.1    | 25.1   | 25.1   | 25.1    | 25.1    | 23.1    | 21.1    | 19.4    | 17.4    | 15.7     | 14.7     |        |
|                                       |                                     | psi              | 10.9         | 10.9     | 10.9    | 10.9   | 10.9   | 10.9    | 10.9    | 10.9    | 10.0    | 9.1     | 8.4     | 7.5      | 6.8      | 6.4    |
|                                       |                                     | kPa              | 75           | 75       | 75      | 75     | 75     | 75      | 75      | 69      | 63      | 58      | 52      | 47       | 44       |        |
|                                       | 7 (45)                              | Cooling capacity | BTU/h        | 629514   | 629514  | 629514 | 629514 | 629514  | 629514  | 629514  | 600171  | 570828  | 541484  | 511800   | 481774   | 464032 |
| kW                                    |                                     |                  | 184.5        | 184.5    | 184.5   | 184.5  | 184.5  | 184.5   | 184.5   | 175.9   | 167.3   | 158.7   | 150.0   | 141.2    | 136.0    |        |
| Power consumption                     |                                     | BTU/h            | 104680       | 104680   | 104680  | 104680 | 104680 | 104680  | 104680  | 104680  | 115087  | 126210  | 138050  | 150606   | 163912   | 172238 |
|                                       |                                     | kW               | 30.68        | 30.68    | 30.68   | 30.68  | 30.68  | 30.68   | 30.68   | 30.68   | 33.73   | 36.99   | 40.46   | 44.14    | 48.04    | 50.48  |
| Cold water flow rate                  |                                     | GPM              | 99.9         | 99.9     | 99.9    | 99.9   | 99.9   | 99.9    | 99.9    | 99.9    | 95.1    | 90.7    | 85.9    | 81.0     | 76.2     | 73.5   |
|                                       |                                     | m³/h             | 22.7         | 22.7     | 22.7    | 22.7   | 22.7   | 22.7    | 22.7    | 22.7    | 21.6    | 20.6    | 19.5    | 18.4     | 17.3     | 16.7   |
| Water pressure loss                   |                                     | ftAq             | 29.8         | 29.8     | 29.8    | 29.8   | 29.8   | 29.8    | 29.8    | 29.8    | 27.1    | 24.8    | 22.1    | 19.7     | 17.7     | 16.4   |
|                                       |                                     | psi              | 12.9         | 12.9     | 12.9    | 12.9   | 12.9   | 12.9    | 12.9    | 12.9    | 11.7    | 10.7    | 9.6     | 8.6      | 7.7      | 7.1    |
|                                       |                                     | kPa              | 89           | 89       | 89      | 89     | 89     | 89      | 89      | 89      | 81      | 74      | 66      | 59       | 53       | 49     |
| 10 (50)                               |                                     | Cooling capacity | BTU/h        | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   | 510776 |
|                                       | kW                                  |                  | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |        |
|                                       | Power consumption                   | BTU/h            | 106966       | 106966   | 106966  | 106966 | 106966 | 106966  | 106966  | 106966  | 117543  | 128905  | 140950  | 153813   | 167393   | 175923 |
|                                       |                                     | kW               | 31.35        | 31.35    | 31.35   | 31.35  | 31.35  | 31.35   | 31.35   | 31.35   | 34.45   | 37.78   | 41.31   | 45.08    | 49.06    | 51.56  |
|                                       | Cold water flow rate                | GPM              | 109.6        | 109.6    | 109.6   | 109.6  | 109.6  | 109.6   | 109.6   | 109.6   | 105.2   | 100.4   | 95.1    | 89.8     | 84.5     | 81.0   |
|                                       |                                     | m³/h             | 24.9         | 24.9     | 24.9    | 24.9   | 24.9   | 24.9    | 24.9    | 24.9    | 23.9    | 22.8    | 21.6    | 20.4     | 19.2     | 18.4   |
|                                       | Water pressure loss                 | ftAq             | 35.8         | 35.8     | 35.8    | 35.8   | 35.8   | 35.8    | 35.8    | 35.8    | 33.1    | 30.1    | 27.1    | 24.4     | 21.8     | 19.7   |
|                                       |                                     | psi              | 15.5         | 15.5     | 15.5    | 15.5   | 15.5   | 15.5    | 15.5    | 15.5    | 14.4    | 13.1    | 11.7    | 10.6     | 9.4      | 8.6    |
|                                       |                                     | kPa              | 107          | 107      | 107     | 107    | 107    | 107     | 107     | 107     | 99      | 90      | 81      | 73       | 65       | 59     |
|                                       | 15 (59)                             | Cooling capacity | BTU/h        | 691954   | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   | 510776 |
| kW                                    |                                     |                  | 202.8        | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |        |
| Power consumption                     |                                     | BTU/h            | 88234        | 88234    | 88234   | 88234  | 88234  | 88234   | 88234   | 88234   | 99323   | 110719  | 122525  | 134638   | 147125   | 154768 |
|                                       |                                     | kW               | 25.86        | 25.86    | 25.86   | 25.86  | 25.86  | 25.86   | 25.86   | 25.86   | 29.11   | 32.45   | 35.91   | 39.46    | 43.12    | 45.36  |
| Cold water flow rate                  |                                     | GPM              | 109.6        | 109.6    | 109.6   | 109.6  | 109.6  | 109.6   | 109.6   | 109.6   | 105.2   | 100.4   | 95.1    | 89.8     | 84.5     | 81.0   |
|                                       |                                     | m³/h             | 24.9         | 24.9     | 24.9    | 24.9   | 24.9   | 24.9    | 24.9    | 24.9    | 23.9    | 22.8    | 21.6    | 20.4     | 19.2     | 18.4   |
| Water pressure loss                   |                                     | ftAq             | 35.8         | 35.8     | 35.8    | 35.8   | 35.8   | 35.8    | 35.8    | 35.8    | 33.1    | 30.1    | 27.1    | 24.4     | 21.8     | 19.7   |
|                                       |                                     | psi              | 15.5         | 15.5     | 15.5    | 15.5   | 15.5   | 15.5    | 15.5    | 15.5    | 14.4    | 13.1    | 11.7    | 10.6     | 9.4      | 8.6    |
|                                       |                                     | kPa              | 107          | 107      | 107     | 107    | 107    | 107     | 107     | 107     | 99      | 90      | 81      | 73       | 65       | 59     |
| 20 (68)                               |                                     | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   | 510776 |
|                                       | kW                                  |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |        |
|                                       | Power consumption                   | BTU/h            | -            | 88234    | 88234   | 88234  | 88234  | 88234   | 88234   | 88234   | 99323   | 110719  | 122525  | 134638   | 147125   | 154768 |
|                                       |                                     | kW               | -            | 25.86    | 25.86   | 25.86  | 25.86  | 25.86   | 25.86   | 25.86   | 29.11   | 32.45   | 35.91   | 39.46    | 43.12    | 45.36  |
|                                       | Cold water flow rate                | GPM              | -            | 109.6    | 109.6   | 109.6  | 109.6  | 109.6   | 109.6   | 109.6   | 105.2   | 100.4   | 95.1    | 89.8     | 84.5     | 81.0   |
|                                       |                                     | m³/h             | -            | 24.9     | 24.9    | 24.9   | 24.9   | 24.9    | 24.9    | 24.9    | 23.9    | 22.8    | 21.6    | 20.4     | 19.2     | 18.4   |
|                                       | Water pressure loss                 | ftAq             | -            | 35.8     | 35.8    | 35.8   | 35.8   | 35.8    | 35.8    | 35.8    | 33.1    | 30.1    | 27.1    | 24.4     | 21.8     | 19.7   |
|                                       |                                     | psi              | -            | 15.5     | 15.5    | 15.5   | 15.5   | 15.5    | 15.5    | 15.5    | 14.4    | 13.1    | 11.7    | 10.6     | 9.4      | 8.6    |
|                                       |                                     | kPa              | -            | 107      | 107     | 107    | 107    | 107     | 107     | 107     | 99      | 90      | 81      | 73       | 65       | 59     |
|                                       | 25 (77)                             | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   | 510776 |
| kW                                    |                                     |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |        |
| Power consumption                     |                                     | BTU/h            | -            | 88234    | 88234   | 88234  | 88234  | 88234   | 88234   | 88234   | 99323   | 110719  | 122525  | 134638   | 147125   | 154768 |
|                                       |                                     | kW               | -            | 25.86    | 25.86   | 25.86  | 25.86  | 25.86   | 25.86   | 25.86   | 29.11   | 32.45   | 35.91   | 39.46    | 43.12    | 45.36  |
| Cold water flow rate                  |                                     | GPM              | -            | 109.6    | 109.6   | 109.6  | 109.6  | 109.6   | 109.6   | 109.6   | 105.2   | 100.4   | 95.1    | 89.8     | 84.5     | 81.0   |
|                                       |                                     | m³/h             | -            | 24.9     | 24.9    | 24.9   | 24.9   | 24.9    | 24.9    | 24.9    | 23.9    | 22.8    | 21.6    | 20.4     | 19.2     | 18.4   |
| Water pressure loss                   |                                     | ftAq             | -            | 35.8     | 35.8    | 35.8   | 35.8   | 35.8    | 35.8    | 35.8    | 33.1    | 30.1    | 27.1    | 24.4     | 21.8     | 19.7   |
|                                       |                                     | psi              | -            | 15.5     | 15.5    | 15.5   | 15.5   | 15.5    | 15.5    | 15.5    | 14.4    | 13.1    | 11.7    | 10.6     | 9.4      | 8.6    |
|                                       |                                     | kPa              | -            | 107      | 107     | 107    | 107    | 107     | 107     | 107     | 99      | 90      | 81      | 73       | 65       | 59     |
| 30 (86)                               |                                     | Cooling capacity | BTU/h        | -        | 691954  | 691954 | 691954 | 691954  | 691954  | 691954  | 662952  | 632244  | 600171  | 567074   | 532272   | 510776 |
|                                       | kW                                  |                  | -            | 202.8    | 202.8   | 202.8  | 202.8  | 202.8   | 202.8   | 194.3   | 185.3   | 175.9   | 166.2   | 156.0    | 149.7    |        |
|                                       | Power consumption                   | BTU/h            | -            | 88234    | 88234   | 88234  | 88234  | 88234   | 88234   | 88234   | 99323   | 110719  | 122525  | 134638   | 147125   | 154768 |
|                                       |                                     | kW               | -            | 25.86    | 25.86   | 25.86  | 25.86  | 25.86   | 25.86   | 25.86   | 29.11   | 32.45   | 35.91   | 39.46    | 43.12    | 45.36  |
|                                       | Cold water flow rate                | GPM              | -            | 109.6    | 109.6   | 109.6  | 109.6  | 109.6   | 109.6   | 109.6   | 105.2   | 100.4   | 95.1    | 89.8     | 84.5     | 81.0   |
|                                       |                                     | m³/h             | -            | 24.9     | 24.9    | 24.9   | 24.9   | 24.9    | 24.9    | 24.9    | 23.9    | 22.8    | 21.6    | 20.4     | 19.2     | 18.4   |
|                                       | Water pressure loss                 | ftAq             | -            | 35.8     | 35.8    | 35.8   | 35.8   | 35.8    | 35.8    | 35.8    | 33.1    | 30.1    | 27.1    | 24.4     | 21.8     | 19.7   |
|                                       |                                     | psi              | -            | 15.5     | 15.5    | 15.5   | 15.5   | 15.5    | 15.5    | 15.5    | 14.4    | 13.1    | 11.7    | 10.6     | 9.4      | 8.6    |
|                                       |                                     | kPa              | -            | 107      | 107     | 107    | 107    | 107     | 107     | 107     | 99      | 90      | 81      | 73       | 65       | 59     |

\* Pump doesn't include.

## 2. Product Data

Cooling capacity: Cold water outlet/inlet temperature difference 7°C/13°F

| MODEL                                 |                                     |                  | EACV-P050YBL |          |         |        |        |         |         |         |         |         |         |          |          |        |
|---------------------------------------|-------------------------------------|------------------|--------------|----------|---------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|--------|
| Cold water outlet temperature °C (°F) | Outdoor air temperature °CDB (°FDB) |                  | -15 (5)      | -10 (14) | -5 (23) | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 43 (109) |        |
| 5 (41)                                | Cooling capacity                    | BTU/h            | 696048       | 696048   | 696048  | 696048 | 696048 | 696048  | 696048  | 663634  | 631220  | 598806  | 566733  | 534319   | 450725   |        |
|                                       |                                     | kW               | 204.0        | 204.0    | 204.0   | 204.0  | 204.0  | 204.0   | 204.0   | 194.5   | 185.0   | 175.5   | 166.1   | 156.6    | 132.1    |        |
|                                       | Power consumption                   | BTU/h            | 137674       | 137674   | 137674  | 137674 | 137674 | 137674  | 137674  | 137674  | 149923  | 163128  | 177253  | 192334   | 208371   | 175991 |
|                                       |                                     | kW               | 40.35        | 40.35    | 40.35   | 40.35  | 40.35  | 40.35   | 40.35   | 40.35   | 43.94   | 47.81   | 51.95   | 56.37    | 61.07    | 51.58  |
|                                       | Cold water flow rate                | GPM              | 110.5        | 110.5    | 110.5   | 110.5  | 110.5  | 110.5   | 110.5   | 110.5   | 105.2   | 99.9    | 95.1    | 89.8     | 84.5     | 71.3   |
|                                       |                                     | m³/h             | 25.1         | 25.1     | 25.1    | 25.1   | 25.1   | 25.1    | 25.1    | 25.1    | 23.9    | 22.7    | 21.6    | 20.4     | 19.2     | 16.2   |
|                                       | Water pressure loss                 | ftAq             | 36.1         | 36.1     | 36.1    | 36.1   | 36.1   | 36.1    | 36.1    | 36.1    | 33.1    | 29.8    | 27.1    | 24.4     | 21.8     | 15.7   |
|                                       |                                     | psi              | 15.7         | 15.7     | 15.7    | 15.7   | 15.7   | 15.7    | 15.7    | 15.7    | 14.4    | 12.9    | 11.7    | 10.6     | 9.4      | 6.8    |
|                                       |                                     | kPa              | 108          | 108      | 108     | 108    | 108    | 108     | 108     | 108     | 99      | 89      | 81      | 73       | 65       | 47     |
|                                       | 7 (45)                              | Cooling capacity | BTU/h        | 748252   | 748252  | 748252 | 748252 | 748252  | 748252  | 748252  | 715838  | 682400  | 648621  | 614160   | 578675   | 485528 |
| kW                                    |                                     |                  | 219.3        | 219.3    | 219.3   | 219.3  | 219.3  | 219.3   | 219.3   | 209.8   | 200.0   | 190.1   | 180.0   | 169.6    | 142.3    |        |
| Power consumption                     |                                     | BTU/h            | 141666       | 141666   | 141666  | 141666 | 141666 | 141666  | 141666  | 141666  | 153915  | 167154  | 181314  | 196463   | 212533   | 178584 |
|                                       |                                     | kW               | 41.52        | 41.52    | 41.52   | 41.52  | 41.52  | 41.52   | 41.52   | 41.52   | 45.11   | 48.99   | 53.14   | 57.58    | 62.29    | 52.34  |
| Cold water flow rate                  |                                     | GPM              | 118.4        | 118.4    | 118.4   | 118.4  | 118.4  | 118.4   | 118.4   | 118.4   | 113.6   | 108.3   | 103.0   | 97.3     | 91.6     | 77.1   |
|                                       |                                     | m³/h             | 26.9         | 26.9     | 26.9    | 26.9   | 26.9   | 26.9    | 26.9    | 26.9    | 25.8    | 24.6    | 23.4    | 22.1     | 20.8     | 17.5   |
| Water pressure loss                   |                                     | ftAq             | 41.5         | 41.5     | 41.5    | 41.5   | 41.5   | 41.5    | 41.5    | 41.5    | 38.1    | 34.8    | 31.8    | 28.4     | 25.1     | 18.1   |
|                                       |                                     | psi              | 18.0         | 18.0     | 18.0    | 18.0   | 18.0   | 18.0    | 18.0    | 18.0    | 16.5    | 15.1    | 13.8    | 12.3     | 10.9     | 7.8    |
|                                       |                                     | kPa              | 124          | 124      | 124     | 124    | 124    | 124     | 124     | 124     | 114     | 104     | 95      | 85       | 75       | 54     |
| 10 (50)                               |                                     | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | 146238       | 146238   | 146238  | 146238 | 146238 | 146238  | 146238  | 146238  | 159102  | 172784  | 187285  | 202570   | 218675   | 182474 |
|                                       |                                     | kW               | 42.86        | 42.86    | 42.86   | 42.86  | 42.86  | 42.86   | 42.86   | 42.86   | 46.63   | 50.64   | 54.89   | 59.37    | 64.09    | 53.48  |
|                                       | Cold water flow rate                | GPM              | 128.1        | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 128.1   | 124.2   | 119.3   | 114.0   | 108.3    | 101.7    | 85.0   |
|                                       |                                     | m³/h             | 29.1         | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 29.1    | 28.2    | 27.1    | 25.9    | 24.6     | 23.4     | 19.3   |
|                                       | Water pressure loss                 | ftAq             | 48.5         | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 48.5    | 45.5    | 42.2    | 38.5    | 34.8     | 30.8     | 21.8   |
|                                       |                                     | psi              | 21.0         | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 21.0    | 19.7    | 18.3    | 16.7    | 15.1     | 13.3     | 9.4    |
|                                       |                                     | kPa              | 145          | 145      | 145     | 145    | 145    | 145     | 145     | 145     | 136     | 126     | 115     | 104      | 92       | 65     |
|                                       | 15 (59)                             | Cooling capacity | BTU/h        | 807620   | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | 236.7        | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | 121570       | 121570   | 121570  | 121570 | 121570 | 121570  | 121570  | 121570  | 134638  | 147944  | 161490  | 175240   | 189195   | 159477 |
|                                       |                                     | kW               | 35.63        | 35.63    | 35.63   | 35.63  | 35.63  | 35.63   | 35.63   | 35.63   | 39.46   | 43.36   | 47.33   | 51.36    | 55.45    | 46.74  |
| Cold water flow rate                  |                                     | GPM              | 128.1        | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 128.1   | 124.2   | 119.3   | 114.0   | 108.3    | 101.7    | 85.0   |
|                                       |                                     | m³/h             | 29.1         | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 29.1    | 28.2    | 27.1    | 25.9    | 24.6     | 23.1     | 19.3   |
| Water pressure loss                   |                                     | ftAq             | 48.5         | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 48.5    | 45.5    | 42.2    | 38.5    | 34.8     | 30.8     | 21.8   |
|                                       |                                     | psi              | 21.0         | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 21.0    | 19.7    | 18.3    | 16.7    | 15.1     | 13.3     | 9.4    |
|                                       |                                     | kPa              | 145          | 145      | 145     | 145    | 145    | 145     | 145     | 145     | 136     | 126     | 115     | 104      | 92       | 65     |
| 20 (68)                               |                                     | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | -            | 121570   | 121570  | 121570 | 121570 | 121570  | 121570  | 121570  | 134638  | 147944  | 161490  | 175240   | 189195   | 159477 |
|                                       |                                     | kW               | -            | 35.63    | 35.63   | 35.63  | 35.63  | 35.63   | 35.63   | 35.63   | 39.46   | 43.36   | 47.33   | 51.36    | 55.45    | 46.74  |
|                                       | Cold water flow rate                | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 128.1   | 124.2   | 119.3   | 114.0   | 108.3    | 101.7    | 85.0   |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 29.1    | 28.2    | 27.1    | 25.9    | 24.6     | 23.1     | 19.3   |
|                                       | Water pressure loss                 | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 48.5    | 45.5    | 42.2    | 38.5    | 34.8     | 30.8     | 21.8   |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 21.0    | 19.7    | 18.3    | 16.7    | 15.1     | 13.3     | 9.4    |
|                                       |                                     | kPa              | -            | 145      | 145     | 145    | 145    | 145     | 145     | 145     | 136     | 126     | 115     | 104      | 92       | 65     |
|                                       | 25 (77)                             | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
| kW                                    |                                     |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
| Power consumption                     |                                     | BTU/h            | -            | 121570   | 121570  | 121570 | 121570 | 121570  | 121570  | 121570  | 134638  | 147944  | 161490  | 175240   | 189195   | 159477 |
|                                       |                                     | kW               | -            | 35.63    | 35.63   | 35.63  | 35.63  | 35.63   | 35.63   | 35.63   | 39.46   | 43.36   | 47.33   | 51.36    | 55.45    | 46.74  |
| Cold water flow rate                  |                                     | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 128.1   | 124.2   | 119.3   | 114.0   | 108.3    | 101.7    | 85.0   |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 29.1    | 28.2    | 27.1    | 25.9    | 24.6     | 23.1     | 19.3   |
| Water pressure loss                   |                                     | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 48.5    | 45.5    | 42.2    | 38.5    | 34.8     | 30.8     | 21.8   |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 21.0    | 19.7    | 18.3    | 16.7    | 15.1     | 13.3     | 9.4    |
|                                       |                                     | kPa              | -            | 145      | 145     | 145    | 145    | 145     | 145     | 145     | 136     | 126     | 115     | 104      | 92       | 65     |
| 30 (86)                               |                                     | Cooling capacity | BTU/h        | -        | 807620  | 807620 | 807620 | 807620  | 807620  | 807620  | 782372  | 753370  | 720273  | 683424   | 642480   | 537049 |
|                                       | kW                                  |                  | -            | 236.7    | 236.7   | 236.7  | 236.7  | 236.7   | 236.7   | 229.3   | 220.8   | 211.1   | 200.3   | 188.3    | 157.4    |        |
|                                       | Power consumption                   | BTU/h            | -            | 121570   | 121570  | 121570 | 121570 | 121570  | 121570  | 121570  | 134638  | 147944  | 161490  | 175240   | 189195   | 159477 |
|                                       |                                     | kW               | -            | 35.63    | 35.63   | 35.63  | 35.63  | 35.63   | 35.63   | 35.63   | 39.46   | 43.36   | 47.33   | 51.36    | 55.45    | 46.74  |
|                                       | Cold water flow rate                | GPM              | -            | 128.1    | 128.1   | 128.1  | 128.1  | 128.1   | 128.1   | 128.1   | 124.2   | 119.3   | 114.0   | 108.3    | 101.7    | 85.0   |
|                                       |                                     | m³/h             | -            | 29.1     | 29.1    | 29.1   | 29.1   | 29.1    | 29.1    | 29.1    | 28.2    | 27.1    | 25.9    | 24.6     | 23.1     | 19.3   |
|                                       | Water pressure loss                 | ftAq             | -            | 48.5     | 48.5    | 48.5   | 48.5   | 48.5    | 48.5    | 48.5    | 45.5    | 42.2    | 38.5    | 34.8     | 30.8     | 21.8   |
|                                       |                                     | psi              | -            | 21.0     | 21.0    | 21.0   | 21.0   | 21.0    | 21.0    | 21.0    | 19.7    | 18.3    | 16.7    | 15.1     | 13.3     | 9.4    |
|                                       |                                     | kPa              | -            | 145      | 145     | 145    | 145    | 145     | 145     | 145     | 136     | 126     | 115     | 104      | 92       | 65     |

\* Pump doesn't include.

2. Product Data

EACV-P-YBL(-N)

2-1-2. Capacity table

EER for cooling [Water]

EACV-P040YBL

Water flow rate 25.8 m<sup>3</sup>/h (113.6 GMP)

| Capacity                        | Air temp<br>°C D.B<br>(°F D.B) | Outlet water temp °C (°F) |           |            |            |            |            |            |
|---------------------------------|--------------------------------|---------------------------|-----------|------------|------------|------------|------------|------------|
|                                 |                                | 5<br>(41)                 | 7<br>(45) | 10<br>(50) | 15<br>(59) | 20<br>(68) | 25<br>(77) | 30<br>(86) |
| 175kW<br>597,100BTU/h<br>(117%) | -15(5)                         | -                         | 21.87     | 26.20      | -          | -          | -          | -          |
|                                 | -10(14)                        | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | -5(23)                         | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | 0(32)                          | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | 5(41)                          | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | 10(50)                         | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | 15(59)                         | -                         | 21.87     | 26.20      | 31.77      | 31.77      | 31.77      | 31.77      |
|                                 | 20(68)                         | -                         | 17.71     | 21.39      | 25.08      | 25.08      | 25.08      | 25.08      |
|                                 | 25(77)                         | -                         | -         | 17.61      | 20.23      | 20.23      | 20.23      | 20.23      |
|                                 | 30(86)                         | -                         | -         | 14.43      | 16.55      | 16.55      | 16.55      | 16.55      |
|                                 | 35(95)                         | -                         | -         | -          | -          | -          | -          | -          |
|                                 | 40(104)                        | -                         | -         | -          | -          | -          | -          | -          |
|                                 | 43(109)                        | -                         | -         | -          | -          | -          | -          | -          |
| 150kW<br>511,800BTU/h<br>(100%) | -15(5)                         | 22.01                     | 24.81     | 28.73      | -          | -          | -          | -          |
|                                 | -10(14)                        | 22.01                     | 24.81     | 28.73      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | -5(23)                         | 22.01                     | 24.81     | 28.73      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | 0(32)                          | 22.01                     | 24.84     | 28.76      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | 5(41)                          | 22.01                     | 24.84     | 28.76      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | 10(50)                         | 22.01                     | 24.84     | 28.76      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | 15(59)                         | 22.01                     | 24.84     | 28.76      | 34.67      | 34.67      | 34.67      | 34.67      |
|                                 | 20(68)                         | 18.05                     | 20.37     | 23.47      | 27.33      | 27.33      | 27.33      | 27.33      |
|                                 | 25(77)                         | 14.81                     | 16.79     | 19.35      | 21.94      | 21.94      | 21.94      | 21.94      |
|                                 | 30(86)                         | -                         | 13.85     | 16.10      | 17.98      | 17.98      | 17.98      | 17.98      |
|                                 | 35(95)                         | -                         | 11.35     | 13.41      | 14.88      | 14.88      | 14.88      | 14.88      |
|                                 | 40(104)                        | -                         | -         | 11.05      | 12.35      | 12.35      | 12.35      | 12.35      |
|                                 | 43(109)                        | -                         | -         | -          | -          | -          | -          | -          |
| 125kW<br>426,500BTU/h<br>(83%)  | -15(5)                         | 24.53                     | 26.89     | 30.64      | -          | -          | -          | -          |
|                                 | -10(14)                        | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | -5(23)                         | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | 0(32)                          | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | 5(41)                          | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | 10(50)                         | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | 15(59)                         | 24.53                     | 26.89     | 30.64      | 36.78      | 36.78      | 36.78      | 36.78      |
|                                 | 20(68)                         | 20.27                     | 22.08     | 24.98      | 28.97      | 28.97      | 28.97      | 28.97      |
|                                 | 25(77)                         | 16.82                     | 18.32     | 20.61      | 23.24      | 23.24      | 23.24      | 23.24      |
|                                 | 30(86)                         | 14.06                     | 15.29     | 17.13      | 18.94      | 18.94      | 18.94      | 18.94      |
|                                 | 35(95)                         | 11.77                     | 12.83     | 14.36      | 15.70      | 15.70      | 15.70      | 15.70      |
|                                 | 40(104)                        | 9.79                      | 10.75     | 12.11      | 13.14      | 13.14      | 13.14      | 13.14      |
|                                 | 43(109)                        | 8.70                      | 9.62      | 10.92      | 11.87      | 11.87      | 11.87      | 11.87      |
| 100kW<br>341,200BTU/h<br>(67%)  | -15(5)                         | 25.83                     | 27.94     | 31.60      | -          | -          | -          | -          |
|                                 | -10(14)                        | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | -5(23)                         | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | 0(32)                          | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | 5(41)                          | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | 10(50)                         | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | 15(59)                         | 25.83                     | 27.94     | 31.60      | 37.87      | 37.87      | 37.87      | 37.87      |
|                                 | 20(68)                         | 21.36                     | 23.00     | 25.79      | 29.89      | 29.89      | 29.89      | 29.89      |
|                                 | 25(77)                         | 17.78                     | 19.04     | 21.19      | 23.92      | 23.92      | 23.92      | 23.92      |
|                                 | 30(86)                         | 14.84                     | 15.90     | 17.61      | 19.41      | 19.41      | 19.41      | 19.41      |
|                                 | 35(95)                         | 12.52                     | 13.34     | 14.71      | 15.97      | 15.97      | 15.97      | 15.97      |
|                                 | 40(104)                        | 10.58                     | 11.29     | 12.39      | 13.34      | 13.34      | 13.34      | 13.34      |
|                                 | 43(109)                        | 9.55                      | 10.20     | 11.19      | 12.04      | 12.04      | 12.04      | 12.04      |
| 75kW<br>255,900BTU/h<br>(50%)   | -15(5)                         | 26.00                     | 28.01     | 31.56      | -          | -          | -          | -          |
|                                 | -10(14)                        | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | -5(23)                         | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | 0(32)                          | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | 5(41)                          | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | 10(50)                         | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | 15(59)                         | 26.00                     | 28.01     | 31.56      | 37.84      | 37.84      | 37.84      | 37.84      |
|                                 | 20(68)                         | 21.50                     | 23.10     | 25.79      | 29.92      | 29.92      | 29.92      | 29.92      |
|                                 | 25(77)                         | 17.84                     | 19.11     | 21.19      | 23.95      | 23.95      | 23.95      | 23.95      |
|                                 | 30(86)                         | 14.91                     | 15.87     | 17.54      | 19.38      | 19.38      | 19.38      | 19.38      |
|                                 | 35(95)                         | 12.49                     | 13.27     | 14.54      | 15.87      | 15.87      | 15.87      | 15.87      |
|                                 | 40(104)                        | 10.54                     | 11.12     | 12.15      | 13.10      | 13.10      | 13.10      | 13.10      |
|                                 | 43(109)                        | 9.52                      | 10.07     | 10.95      | 11.77      | 11.77      | 11.77      | 11.77      |
| 50kW<br>170,600BTU/h<br>(33%)   | -15(5)                         | 25.04                     | 26.99     | 30.37      | -          | -          | -          | -          |
|                                 | -10(14)                        | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | -5(23)                         | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | 0(32)                          | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | 5(41)                          | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | 10(50)                         | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | 15(59)                         | 25.04                     | 26.99     | 30.37      | 36.30      | 36.30      | 36.30      | 36.30      |
|                                 | 20(68)                         | 20.74                     | 22.31     | 24.84      | 28.73      | 28.73      | 28.73      | 28.73      |
|                                 | 25(77)                         | 17.23                     | 18.46     | 20.47      | 23.10      | 23.10      | 23.10      | 23.10      |
|                                 | 30(86)                         | 14.33                     | 15.32     | 16.96      | 18.77      | 18.77      | 18.77      | 18.77      |
|                                 | 35(95)                         | 11.98                     | 12.76     | 14.02      | 15.35      | 15.35      | 15.35      | 15.35      |
|                                 | 40(104)                        | 10.03                     | 10.65     | 11.67      | 12.62      | 12.62      | 12.62      | 12.62      |
|                                 | 43(109)                        | 9.01                      | 9.55      | 10.44      | 11.26      | 11.26      | 11.26      | 11.26      |

## 2. Product Data

### EER for cooling [Water]

EACV-P050YBL

Water flow rate 31.0 m<sup>3</sup>/h (136.5 GMP)

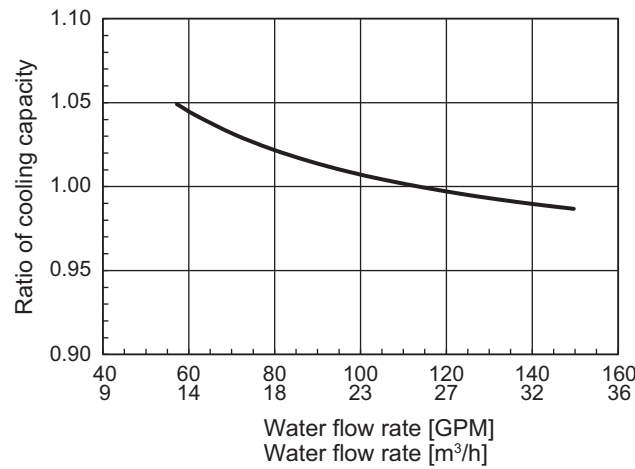
| Capacity                        | Air temp<br>°C D.B<br>(°F D.B) | Outlet water temp °C (°F) |           |            |            |            |            |            |
|---------------------------------|--------------------------------|---------------------------|-----------|------------|------------|------------|------------|------------|
|                                 |                                | 5<br>(41)                 | 7<br>(45) | 10<br>(50) | 15<br>(59) | 20<br>(68) | 25<br>(77) | 30<br>(86) |
| 210kW<br>716,520BTU/h<br>(117%) | -15(5)                         | -                         | 18.53     | 21.73      | -          | -          | -          | -          |
|                                 | -10(14)                        | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | -5(23)                         | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | 0(32)                          | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | 5(41)                          | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | 10(50)                         | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | 15(59)                         | -                         | 18.53     | 21.73      | 26.72      | 26.72      | 26.72      | 26.72      |
|                                 | 20(68)                         | -                         | -         | 18.08      | 21.63      | 21.63      | 21.63      | 21.63      |
|                                 | 25(77)                         | -                         | -         | 15.25      | 17.95      | 17.95      | 17.95      | 17.95      |
|                                 | 30(86)                         | -                         | -         | 12.97      | 15.05      | 15.05      | 15.05      | 15.05      |
|                                 | 35(95)                         | -                         | -         | -          | -          | -          | -          | -          |
|                                 | 40(104)                        | -                         | -         | -          | -          | -          | -          | -          |
|                                 | 43(109)                        | -                         | -         | -          | -          | -          | -          | -          |
| 180kW<br>614,160BTU/h<br>(100%) | -15(5)                         | 18.29                     | 20.88     | 24.67      | -          | -          | -          | -          |
|                                 | -10(14)                        | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | -5(23)                         | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | 0(32)                          | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | 5(41)                          | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | 10(50)                         | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | 15(59)                         | 18.29                     | 20.88     | 24.67      | 30.74      | 30.74      | 30.74      | 30.74      |
|                                 | 20(68)                         | 15.56                     | 17.44     | 20.27      | 24.50      | 24.50      | 24.50      | 24.50      |
|                                 | 25(77)                         | 13.14                     | 14.64     | 16.86      | 19.99      | 19.99      | 19.99      | 19.99      |
|                                 | 30(86)                         | -                         | 12.35     | 14.16      | 16.58      | 16.58      | 16.58      | 16.58      |
|                                 | 35(95)                         | -                         | 10.41     | 11.98      | 13.89      | 13.89      | 13.89      | 13.89      |
|                                 | 40(104)                        | -                         | -         | 10.07      | 11.63      | 11.63      | 11.63      | 11.63      |
|                                 | 43(109)                        | -                         | -         | -          | -          | -          | -          | -          |
| 150kW<br>511,800BTU/h<br>(83%)  | -15(5)                         | 20.54                     | 23.47     | 27.53      | -          | -          | -          | -          |
|                                 | -10(14)                        | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | -5(23)                         | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | 0(32)                          | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | 5(41)                          | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | 10(50)                         | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | 15(59)                         | 20.54                     | 23.47     | 27.53      | 34.77      | 34.77      | 34.77      | 34.77      |
|                                 | 20(68)                         | 17.40                     | 19.45     | 22.49      | 27.36      | 27.36      | 27.36      | 27.36      |
|                                 | 25(77)                         | 14.77                     | 16.24     | 18.56      | 22.04      | 22.04      | 22.04      | 22.04      |
|                                 | 30(86)                         | 12.49                     | 13.65     | 15.52      | 18.12      | 18.12      | 18.12      | 18.12      |
|                                 | 35(95)                         | 10.51                     | 11.53     | 13.07      | 15.12      | 15.12      | 15.12      | 15.12      |
|                                 | 40(104)                        | 8.80                      | 9.76      | 11.05      | 12.73      | 12.73      | 12.73      | 12.73      |
|                                 | 43(109)                        | -                         | -         | 10.03      | 11.43      | 11.43      | 11.43      | 11.43      |
| 120kW<br>409,440BTU/h<br>(67%)  | -15(5)                         | 23.17                     | 26.00     | 30.06      | -          | -          | -          | -          |
|                                 | -10(14)                        | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | -5(23)                         | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | 0(32)                          | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | 5(41)                          | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | 10(50)                         | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | 15(59)                         | 23.17                     | 26.00     | 30.06      | 38.25      | 38.25      | 38.25      | 38.25      |
|                                 | 20(68)                         | 19.38                     | 21.39     | 24.46      | 29.79      | 29.79      | 29.79      | 29.79      |
|                                 | 25(77)                         | 16.31                     | 17.74     | 20.10      | 23.75      | 23.75      | 23.75      | 23.75      |
|                                 | 30(86)                         | 13.75                     | 14.84     | 16.68      | 19.31      | 19.31      | 19.31      | 19.31      |
|                                 | 35(95)                         | 11.63                     | 12.49     | 13.96      | 15.97      | 15.97      | 15.97      | 15.97      |
|                                 | 40(104)                        | 9.83                      | 10.61     | 11.81      | 13.41      | 13.41      | 13.41      | 13.41      |
|                                 | 43(109)                        | 8.87                      | 9.62      | 10.71      | 12.08      | 12.08      | 12.08      | 12.08      |
| 90kW<br>204,720BTU/h<br>(50%)   | -15(5)                         | 25.69                     | 28.01     | 31.77      | -          | -          | -          | -          |
|                                 | -10(14)                        | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | -5(23)                         | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | 0(32)                          | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | 5(41)                          | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | 10(50)                         | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | 15(59)                         | 25.69                     | 28.01     | 31.77      | 40.36      | 40.36      | 40.36      | 40.36      |
|                                 | 20(68)                         | 21.09                     | 22.93     | 25.79      | 31.25      | 31.25      | 31.25      | 31.25      |
|                                 | 25(77)                         | 17.47                     | 18.87     | 21.12      | 24.74      | 24.74      | 24.74      | 24.74      |
|                                 | 30(86)                         | 14.60                     | 15.66     | 17.40      | 19.96      | 19.96      | 19.96      | 19.96      |
|                                 | 35(95)                         | 12.25                     | 13.07     | 14.47      | 16.34      | 16.34      | 16.34      | 16.34      |
|                                 | 40(104)                        | 10.34                     | 10.99     | 12.11      | 13.61      | 13.61      | 13.61      | 13.61      |
|                                 | 43(109)                        | 9.35                      | 9.93      | 10.92      | 12.21      | 12.21      | 12.21      | 12.21      |
| 60kW<br>204,720BTU/h<br>(33%)   | -15(5)                         | 26.61                     | 28.29     | 31.42      | -          | -          | -          | -          |
|                                 | -10(14)                        | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | -5(23)                         | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | 0(32)                          | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | 5(41)                          | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | 10(50)                         | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | 15(59)                         | 26.61                     | 28.29     | 31.42      | 38.86      | 38.86      | 38.86      | 38.86      |
|                                 | 20(68)                         | 21.70                     | 23.13     | 25.59      | 30.44      | 30.44      | 30.44      | 30.44      |
|                                 | 25(77)                         | 17.81                     | 19.00     | 20.98      | 24.23      | 24.23      | 24.23      | 24.23      |
|                                 | 30(86)                         | 14.74                     | 15.70     | 17.33      | 19.62      | 19.62      | 19.62      | 19.62      |
|                                 | 35(95)                         | 12.21                     | 13.03     | 14.33      | 16.04      | 16.04      | 16.04      | 16.04      |
|                                 | 40(104)                        | 10.20                     | 10.85     | 11.91      | 13.31      | 13.31      | 13.31      | 13.31      |
|                                 | 43(109)                        | 9.21                      | 9.76      | 10.65      | 11.91      | 11.91      | 11.91      | 11.91      |

2-1-3. Correction by water flow rate

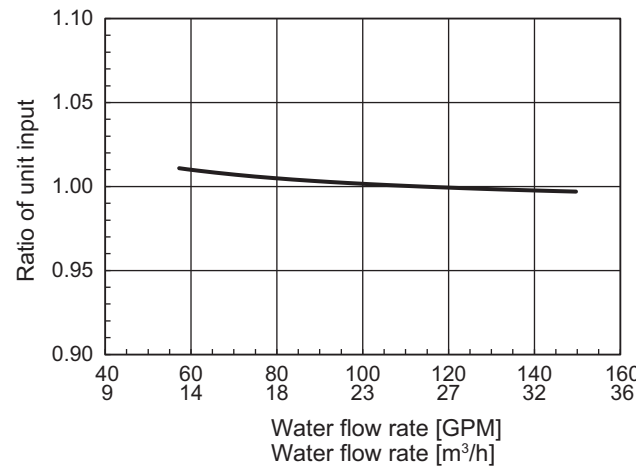
EACV-P040YBL

■ Cooling

EACV-P-YBL(-N)



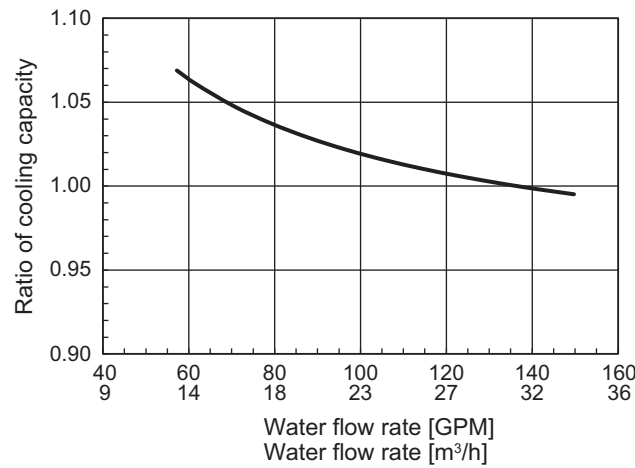
\*Conditions  
Outdoor temperature 35°C/95°F  
Outlet water temperature 7°C/19°F



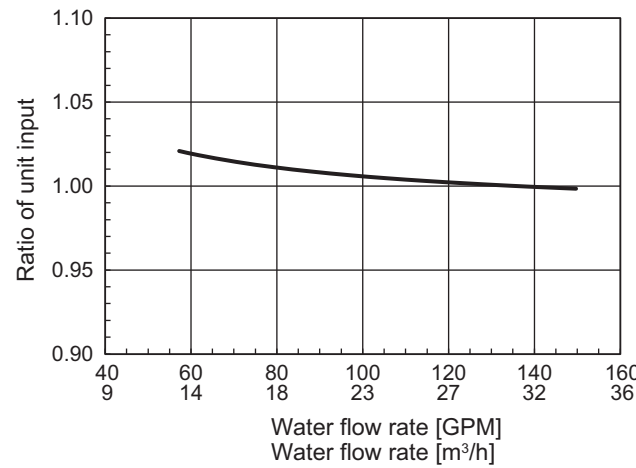
\*Conditions  
Outdoor temperature 35°C/95°F  
Outlet water temperature 7°C/19°F

EACV-P050YBL

■ Cooling



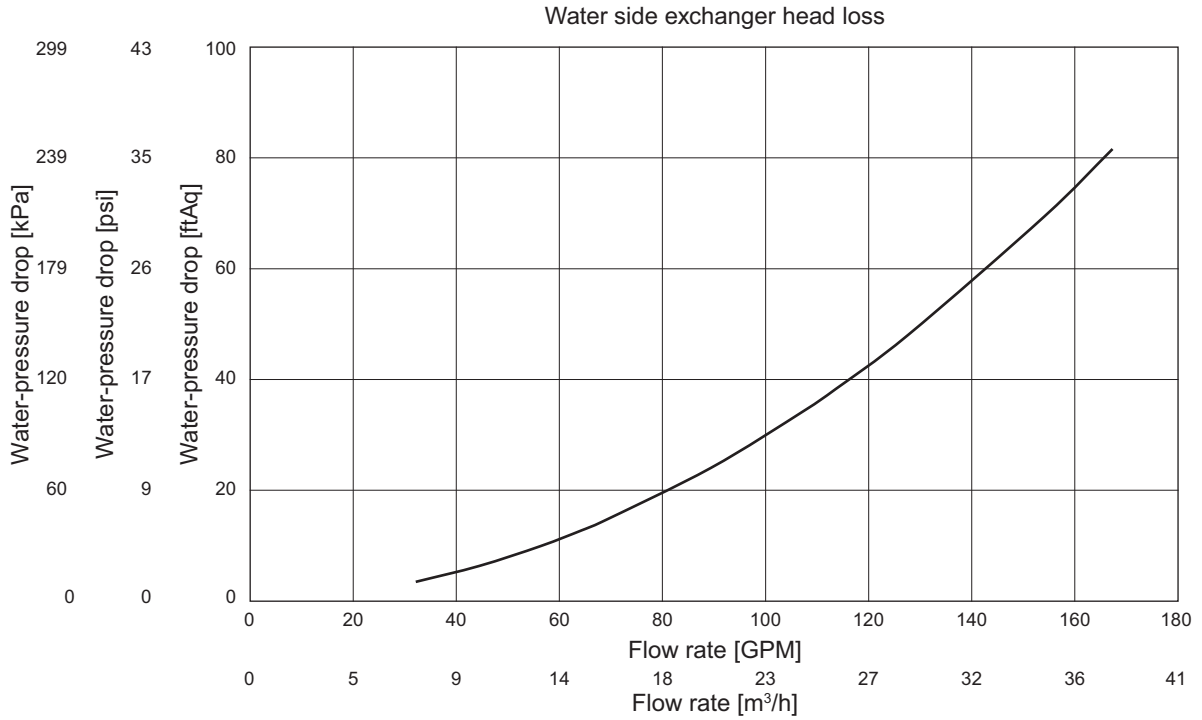
\*Conditions  
Outdoor temperature 35°C/95°F  
Outlet water temperature 7°C/19°F



\*Conditions  
Outdoor temperature 35°C/95°F  
Outlet water temperature 7°C/19°F

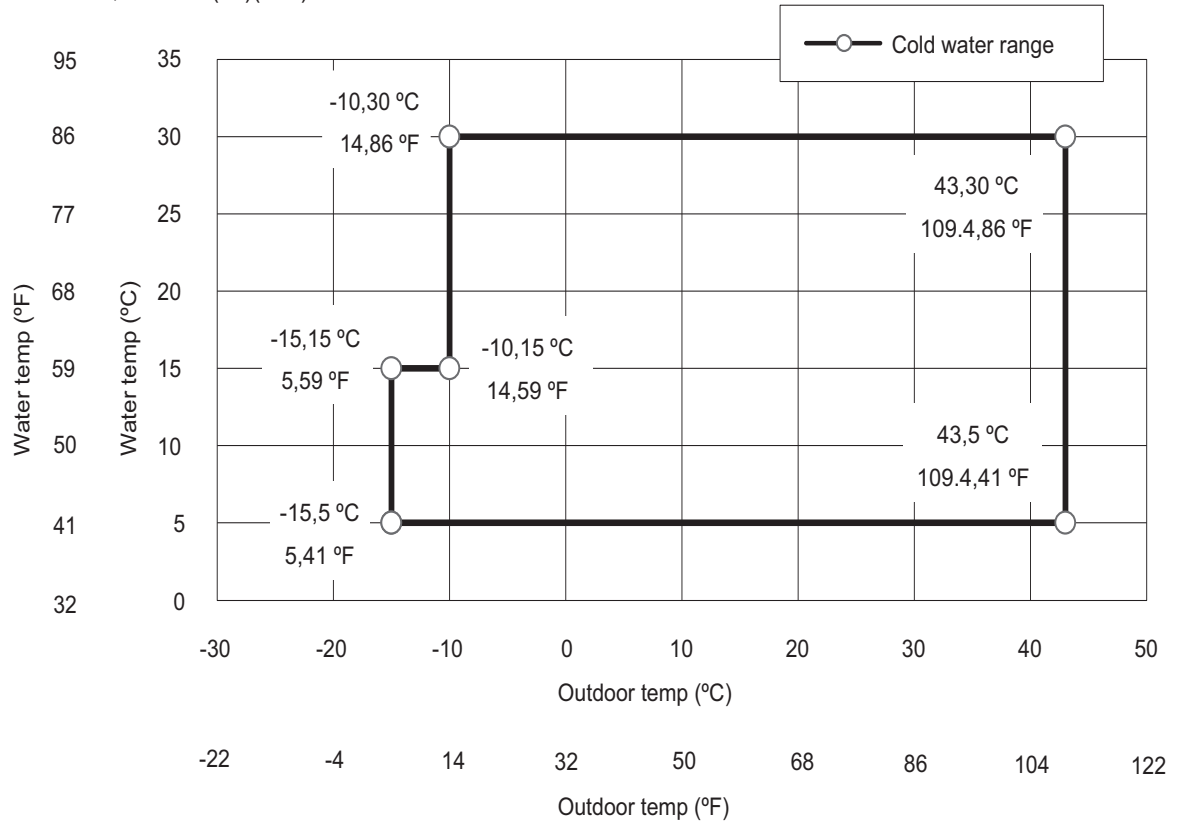
2-1-4. Water pressure drop

EACV-P040, 050YBL  
[Water]



2-1-5. Operation temperature range

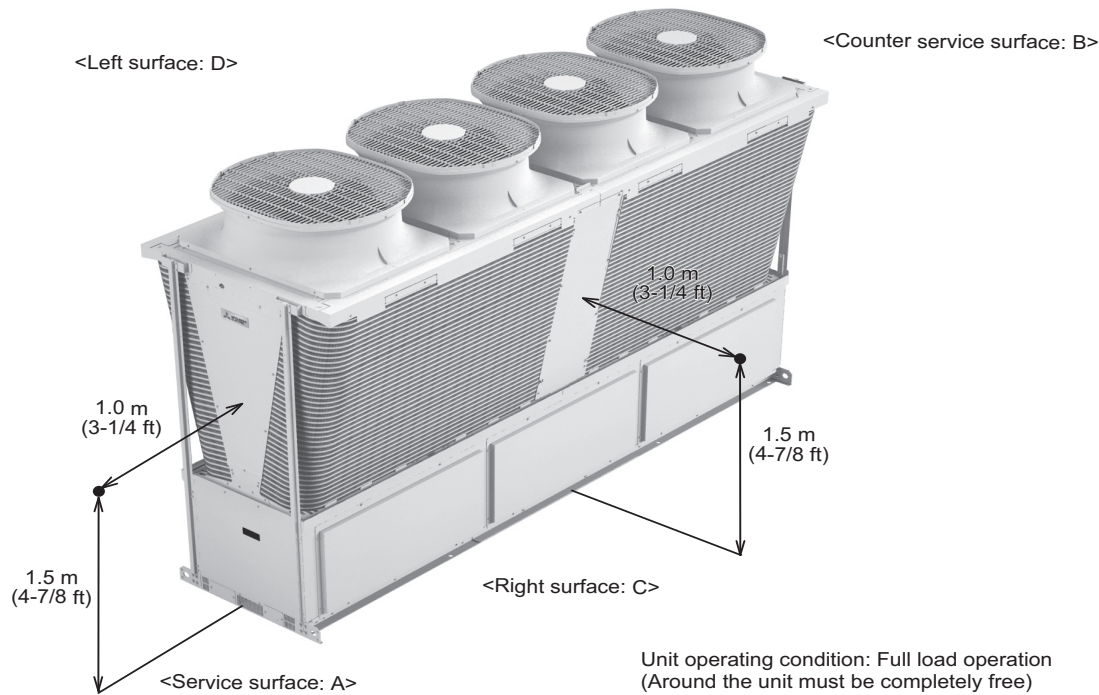
EACV-P040, 050YBL(-N)(-BS)



2-2. Sound pressure levels

Measurement condition  
EACV-P040, 050YBL

EACV-P-YBL(-N)



Sound pressure level  
The following values are the planned value.

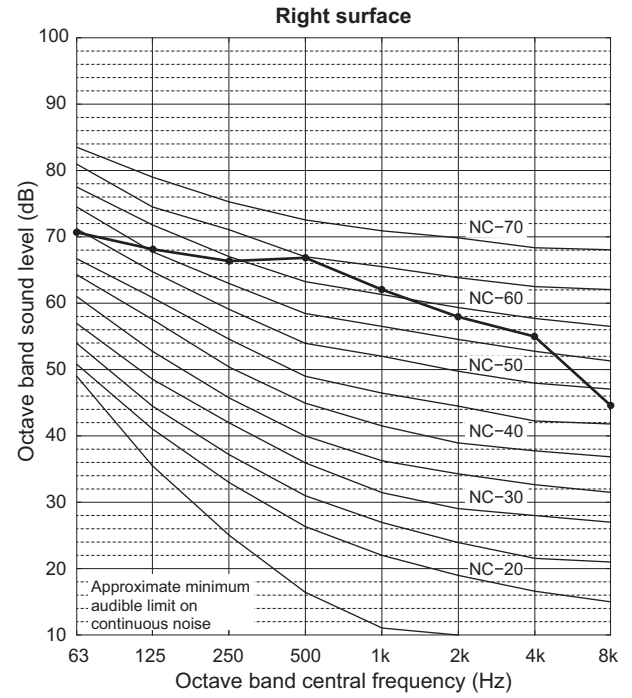
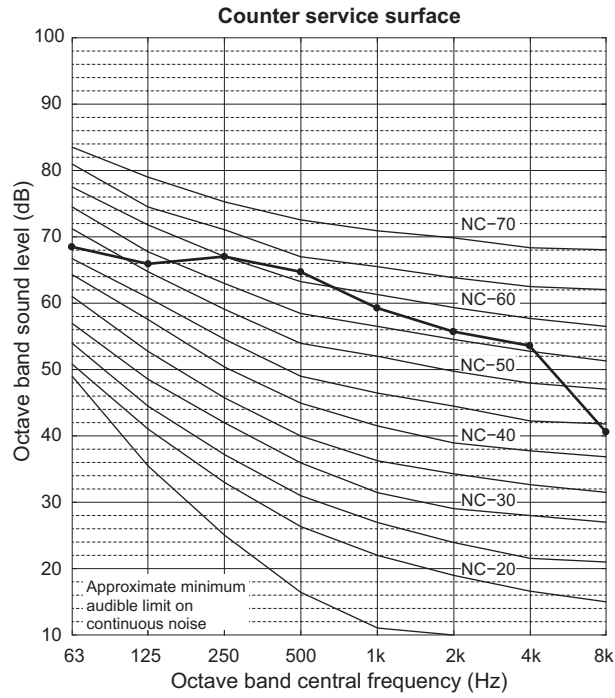
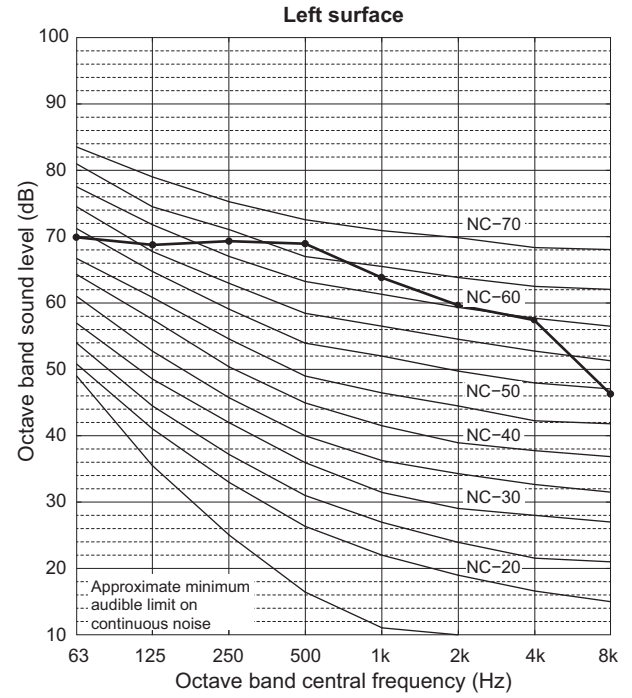
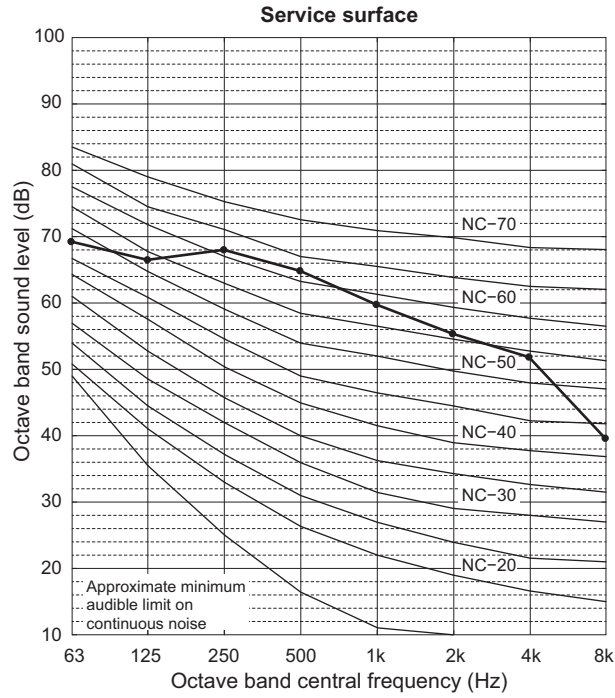
| Sound pressure level dB <A> (anechoic room level) |              |              |
|---------------------------------------------------|--------------|--------------|
| Measurement location                              | EACV-P040YBL | EACV-P050YBL |
| Service surface: A                                | 66           | 68           |
| Counter service surface: B                        | 66           | 67           |
| Right surface: C                                  | 68           | 71           |
| Left surface: D                                   | 70           | 70           |

\* The above values are obtained by converting the values measured in location with less echo sound to the anechoic room level.  
The values could be larger than those values if the operating conditions are different or the measuring location is affected by echo sound.  
(It could be roughly 4 dB to 6 dB higher though it depends on the installation conditions.)  
Regarding the installation, consider the effect of echo sound, implement soundproof treatment as necessary.

## 2. Product Data

EACV-P040YBL

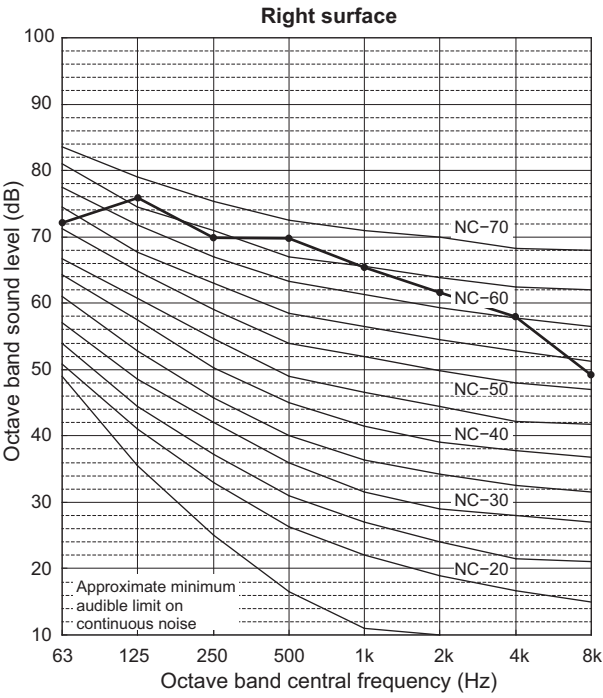
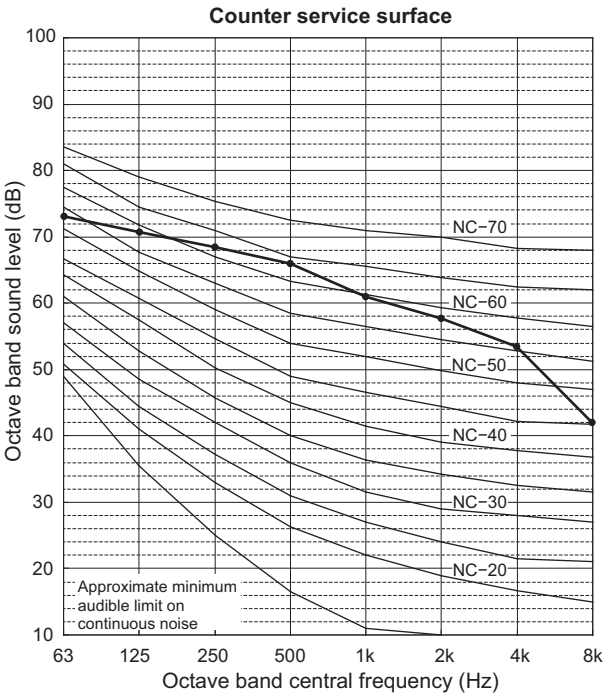
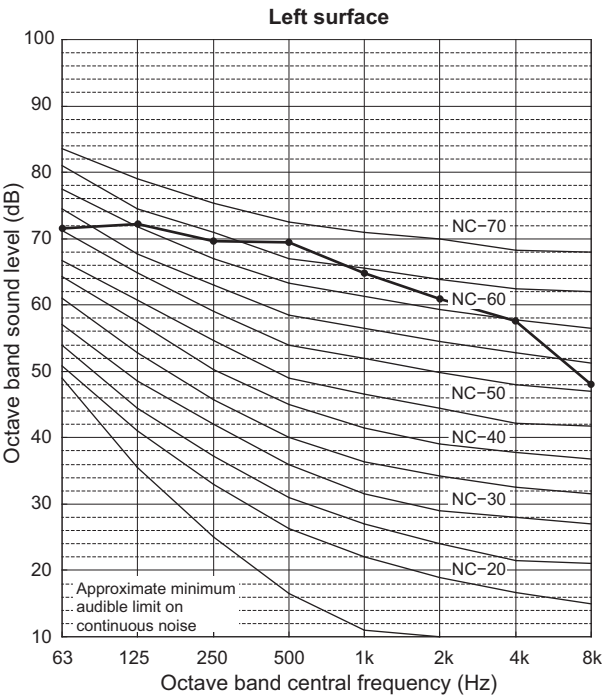
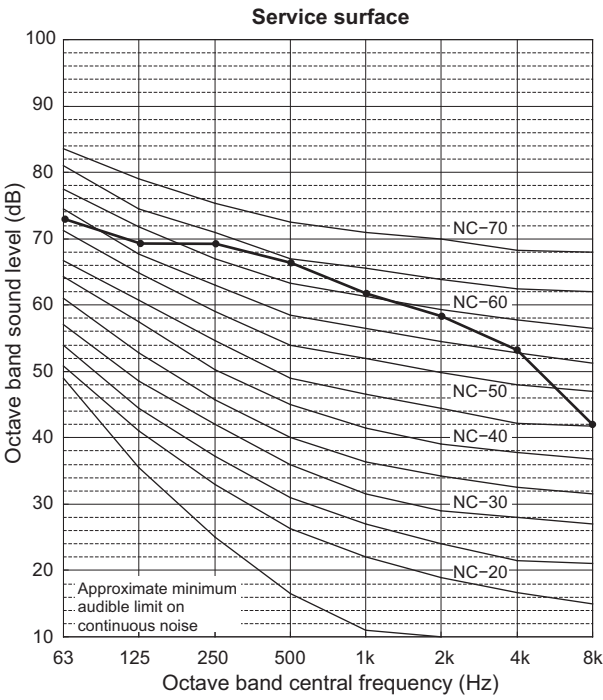
EACV-P-YBL(-N)



2. Product Data

EACV-P050YBL

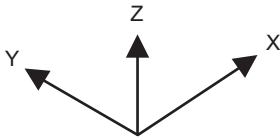
EACV-P-YBL(-N)



2. Product Data

2-3. Vibration levels

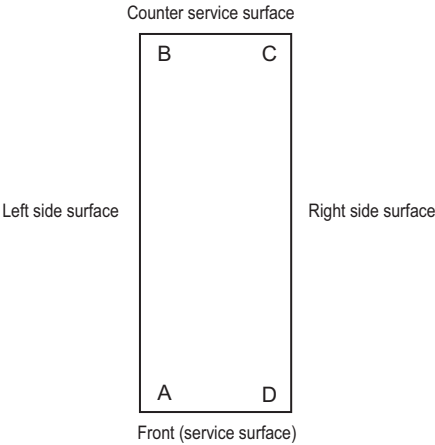
EACV-P040, 050YBL



unit:  $\mu\text{m}$  (one side amplitude effective value)

|   | X  | Y   | Z  |
|---|----|-----|----|
| A | 24 | 14  | 24 |
| B | 48 | 64  | 50 |
| C | 26 | 100 | 26 |
| D | 8  | 18  | 26 |

\* The above values are the planned value.



**Note**

- 1. Unit operation condition
  - Full load operation
- 2. Unit installation conditions
  - Directly placed on the surface plate in the test room in the Works

## 2. Product Data

### 2-4. Salt Protection Specifications

| No. | Name                                                  | Base material                 | standard | salt damage protection | Surface treatment                                                    | Treatment thickness |                |
|-----|-------------------------------------------------------|-------------------------------|----------|------------------------|----------------------------------------------------------------------|---------------------|----------------|
|     |                                                       |                               |          |                        |                                                                      | External            | Internal       |
| 1   | Fan guard<br>Bell mouth                               | Polypropylene resin           | ●        | ●                      | -                                                                    | -                   | -              |
| 2   | Panel                                                 | Alloyed galvanized sheet      | ●        |                        | Polyester resin coating                                              | 30 μm or more       | 30 μm or more  |
|     |                                                       |                               |          | ●                      | Polyester resin coating                                              | 70 μm or more       | 70 μm or more  |
| 3   | Fan                                                   | Polypropylene resin           | ●        | ●                      | -                                                                    | -                   | -              |
| 4   | Motor                                                 | Unsaturated polyester resin   | ●        | ●                      | -                                                                    | -                   | -              |
| 5   | Motor support                                         | Galvanized sheet              | ●        | ●                      | -                                                                    | -                   | -              |
| 6   | Heat exchanger<br>(Only fin)                          | Aluminum plate                | ●        | ●                      | Cellulose series and urethane series resin coating                   | 1 μm or more        | -              |
| 7   | Bottom frame<br>(Including drain pan)                 | Alloyed galvanized sheet      | ●        | ●                      | Polyester resin coating                                              | 70 μm or more       | 70 μm or more  |
| 8   | Compressor                                            | Carbon steel                  | ●        | ●                      | Epoxy resin coating                                                  | 13 μm or more       | 13 μm or more  |
| 9   | Pillar                                                | Alloyed galvanized sheet      | ●        |                        | Polyester resin coating                                              | 30 μm or more       | 30 μm or more  |
|     |                                                       |                               |          | ●                      | Polyester resin coating                                              | 70 μm or more       | 70 μm or more  |
| 10  | Water-side heat exchanger<br>(Including water piping) | Stainless steel               | ●        | ●                      | -                                                                    | -                   | -              |
| 11  | Electrical parts box                                  | Galvanized sheet              | ●        | ●                      | -                                                                    | -                   | -              |
| 12  | Printed circuit board                                 | Composite material <CEM-3>    | ●        | ●                      | Polyurethane coating                                                 | 20 μm or more       | 20 μm or more  |
| 13  | Terminal box                                          | Galvanized sheet              | ●        | ●                      | -                                                                    | -                   | -              |
| 14  | Receiver                                              | Carbon steel                  | ●        |                        | Phenolic modified alkyd resin dip                                    | 30 μm or more       | -              |
|     |                                                       |                               |          | ●                      | Epoxy resin and polyurethane resin coating                           | 70 μm or more       | -              |
| 15  | Accumulator                                           | Carbon steel                  | ●        |                        | Phenolic modified alkyd resin dip                                    | 30 μm or more       | -              |
|     |                                                       |                               |          | ●                      | Epoxy resin and polyurethane resin coating                           | 70 μm or more       | -              |
| 16  | Saddle (Water piping)                                 | Stainless steel               | ●        | ●                      | -                                                                    | -                   | -              |
| 17  | Fin guard (Option)                                    | Iron wires                    | ●        | ●                      | Polyethylene resin coating                                           | 300 μm or more      | 300 μm or more |
| 18  | Screw                                                 | Stainless steel, Carbon steel | ●        | ●                      | Zinc-nickel alloy plating + Geomet filming (only carbon steel screw) | -                   | -              |

#### Application Guide

|                     |  |                   |                             |
|---------------------|--|-------------------|-----------------------------|
| Direct sea breeze   |  | Distance from sea |                             |
|                     |  | 300m(984ft.)      | 500m(1,640ft) 1km(3,280ft.) |
| Facing inland sea   |  | BS                | STD                         |
| Facing ocean        |  | BS                |                             |
| Island location     |  | BS                |                             |
| Indirect sea breeze |  |                   |                             |
| Facing inland sea   |  | BS                | STD                         |
| Facing ocean        |  | BS                |                             |
| Island location     |  | BS                |                             |

#### Caution;

- 1 Set the outdoor unit to the place with rare direct sea breeze.
- 2 Don't attach a sunshade. A rain will clean the attached salt.
- 3 Set the outdoor unit horizontally. The water should not keep in the unit.
- 4 Please wash the outdoor unit periodically.
- 5 Repair the scratch on the panel as soon as possible.
- 6 Inspect periodically. Paint or change parts if necessary.

### 3. Installation

#### 3-1. Selecting the Installation Site

##### 3-1-1. Installation Conditions

**Select the installation site in consultation with the client.**

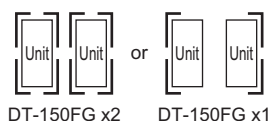
Select a site to install the unit that meets the following conditions:

- The unit will not be subject to heat from other heat sources.
- The noise from the unit will not be a problem.
- The unit will not be exposed to strong winds.
- Water from the unit can be drained properly.
- Enough space for installation and service as shown in 3-1. Selecting the Installation Site.
- There is a possibility of injuring with the fin of the heat exchanger, so abide by following contents.

- 1) Appliances not accessible to the general public.
- 2) Limit the installation to a place where the general public cannot touch the product.
- 3) When installing in a location where the general public can touch the product, install the optional fin guard.

Option Parts: DT-150FG

When two units are joined



##### 1. Protection against winds

- Pay attention to the wind direction and installation location to ensure that the air heat exchanger is not directly exposed to strong winds.
- If unable to avoid strong winds, install wind breaking hoods or walls, etc.

##### 2. Cold Climate Installation

Observe the following when installing the units in areas where snow or strong winds prevail.

- Avoid direct exposure to rain, winds, and snow.
- If the unit is installed in the direct line of rain, winds, or snow, install snow hoods. Use a snow net or snow fence as necessary to protect the unit.
- Install the unit on a base approximately twice as high as the expected snowfall.

##### 3. Weight

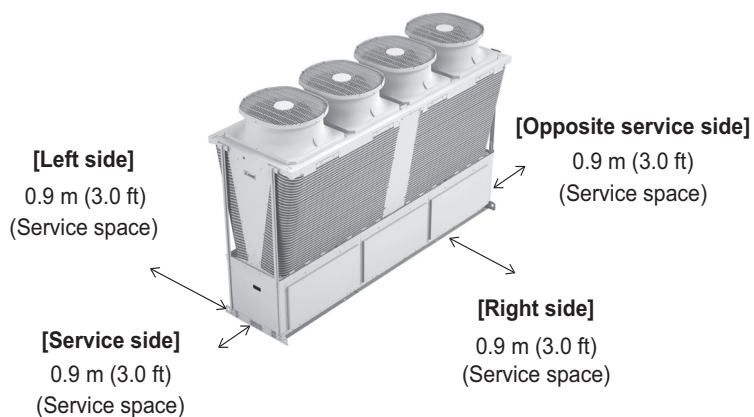
|      |                      | Net weight lbs (kg) | Operating weight lbs (kg) |
|------|----------------------|---------------------|---------------------------|
| EACV | Standard piping      | 2822 (1280)         | 2881 (1307)               |
|      | Inside header piping | 2857 (1296)         | 3007 (1364)               |

\* Weight of the optional parts: DT-01HK (64lbs (29 kg)), DT-02HK (93lbs (42 kg)), DT-150FG (29lbs (13 kg))

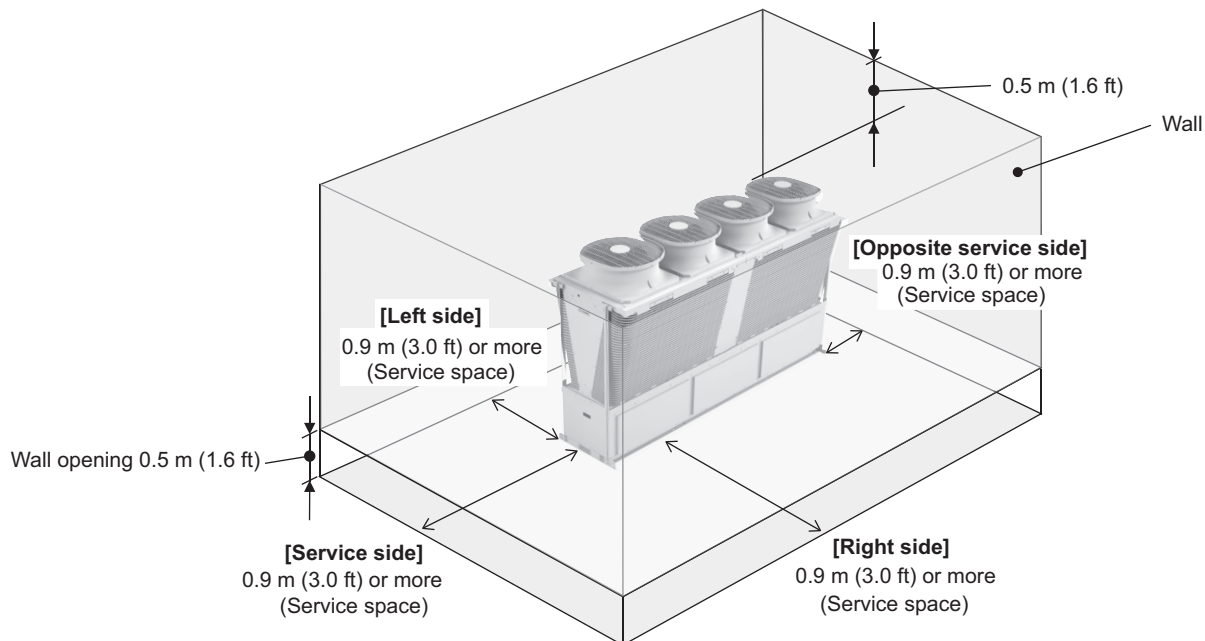
#### 3-1-2. Installation Space Requirement

##### 1. Single unit installation

###### (1) Required space



###### (2) If entire surrounding area enclosed by walls (but vent holes installed at bottom of wall)



\*Wall height 2.9 m (9.5 ft) (unit height (2.4 m (7.9 ft)) + 0.5 m (1.6 ft))

\*Vent holes: 0.5 m (1.6 ft) from floor

\*Even if installed as shown in this figure, a short cycle may occur due to the influence of wind.

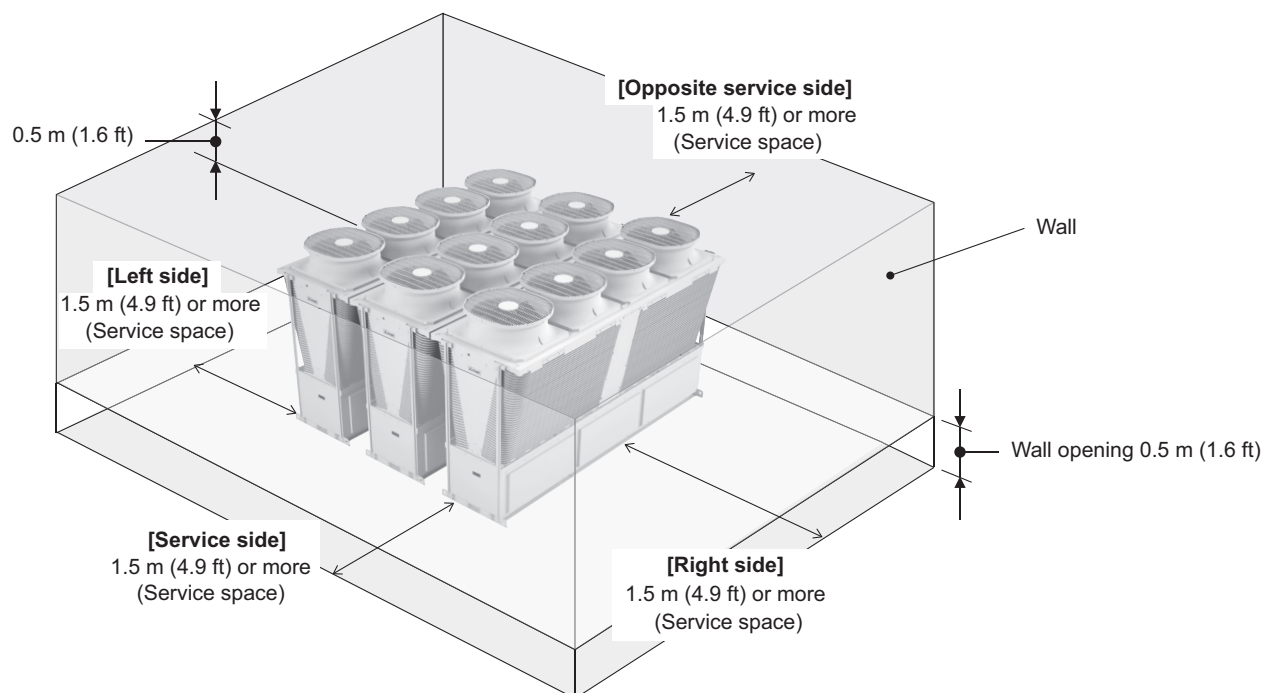
### 3. Installation

#### 2. Multiple unit installation

##### (1) Required space



##### (2) If entire surrounding area enclosed by walls (but vent holes installed at bottom of wall)



\*Wall height 2.9 m (9.5 ft) (unit height (2.4 m (7.9 ft)) + 0.5 m (1.6 ft))

\*Vent holes: 0.5 m (1.6 ft) from floor

\*Even if installed as shown in this figure, a short cycle may occur due to the influence of wind.

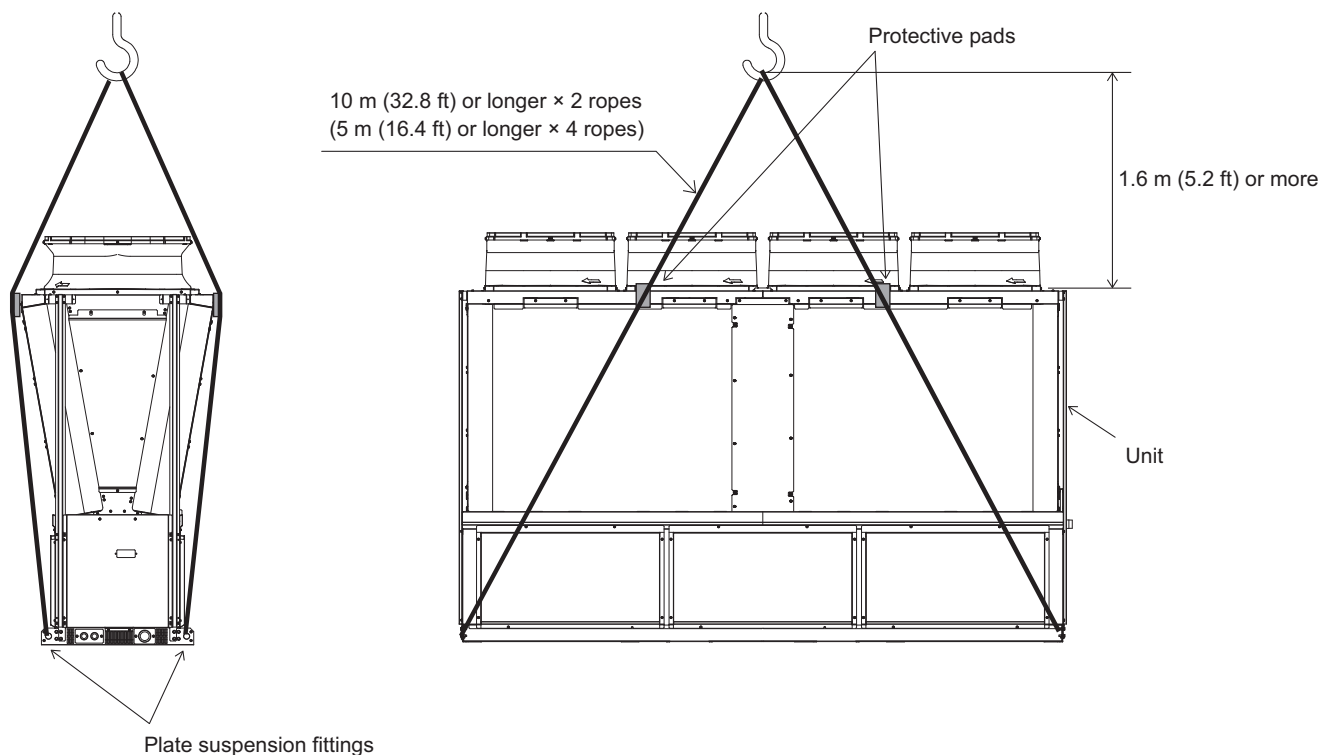
### 3. Installation

#### 3-2. Unit Installation

Units should be installed only by personnel certified by Mitsubishi Electric.

##### 3-2-1. Product suspension method

- If transporting the product suspended, use the two suspension sections at the front and rear.
- Always feed rope through the four suspension sections so that the unit is not subjected to shocks.
- Use two ropes that are 10 m (32.8 ft) or longer. (Use four ropes that are 5 m (16.4 ft) or longer.)
- Use suspension equipment that is capable of supporting the weight of the product.
- Always suspend the product in four sections. (do not suspend the product two sections as this is dangerous)
- Use the appropriate protective pads to ensure that the rope does not rub against the outer panel.
- Refer to the center of gravity position shown in 1-3. Center of Gravity, and suspend the unit while taking care to prevent a deviated center of gravity.



#### ⚠ Warning:

- Lift the unit by placing the slings at designated locations. Support the unit securely at four points to keep it from slipping and sliding. If the unit is not properly supported, it may fall and cause personal injury.

### 3. Installation

#### 3-2-2. Installation on foundation

- ♦Securely fix the unit with bolts to keep the unit from falling down during earthquakes.
- ♦Install the unit on a foundation made of concrete or iron.
- ♦Noise and vibrations from the unit may be transmitted through the floor and walls. Provide adequate protection against noise and vibration. (Such as using damper pads)

#### ⚠ Warning:

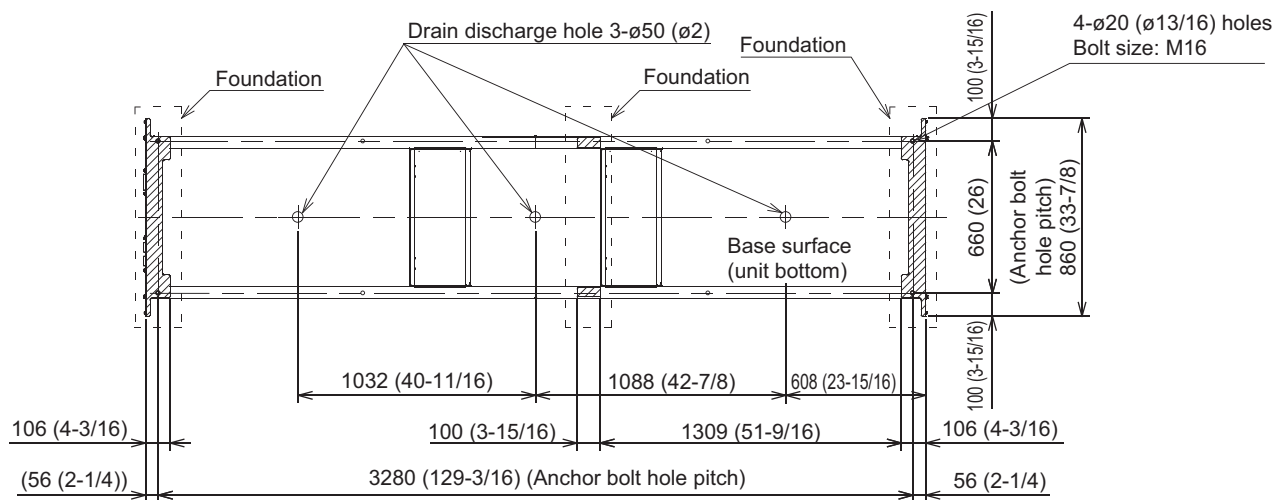
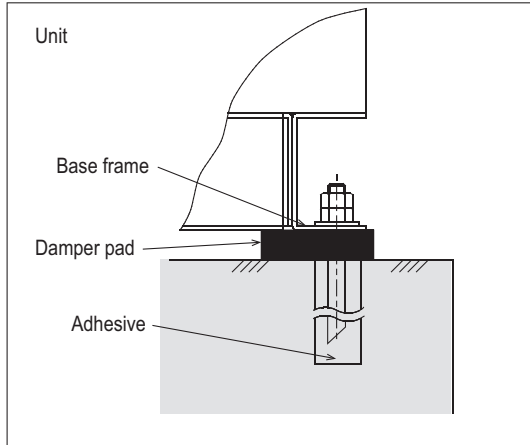
- ♦Be sure to install the unit on a surface strong enough to withstand its weight to keep the unit from falling down and causing injury.
- ♦Provide adequate protection against earthquakes. Improper installation may cause the unit to fall down, resulting in personal injury.

When building the foundation, take the floor strength, and piping and wiring routes into consideration.  
When using damper pads, be sure to attach them to all corners of the unit.

| Bolt size | Number |
|-----------|--------|
| M16       | 4      |

Unit: mm (in.)

[Enlarged view]



\* show mounting surface.

## 4. System Design

### 4-1. Water Pipe Installation

#### 4-1-1. Schematic Piping Diagram and Piping System Components

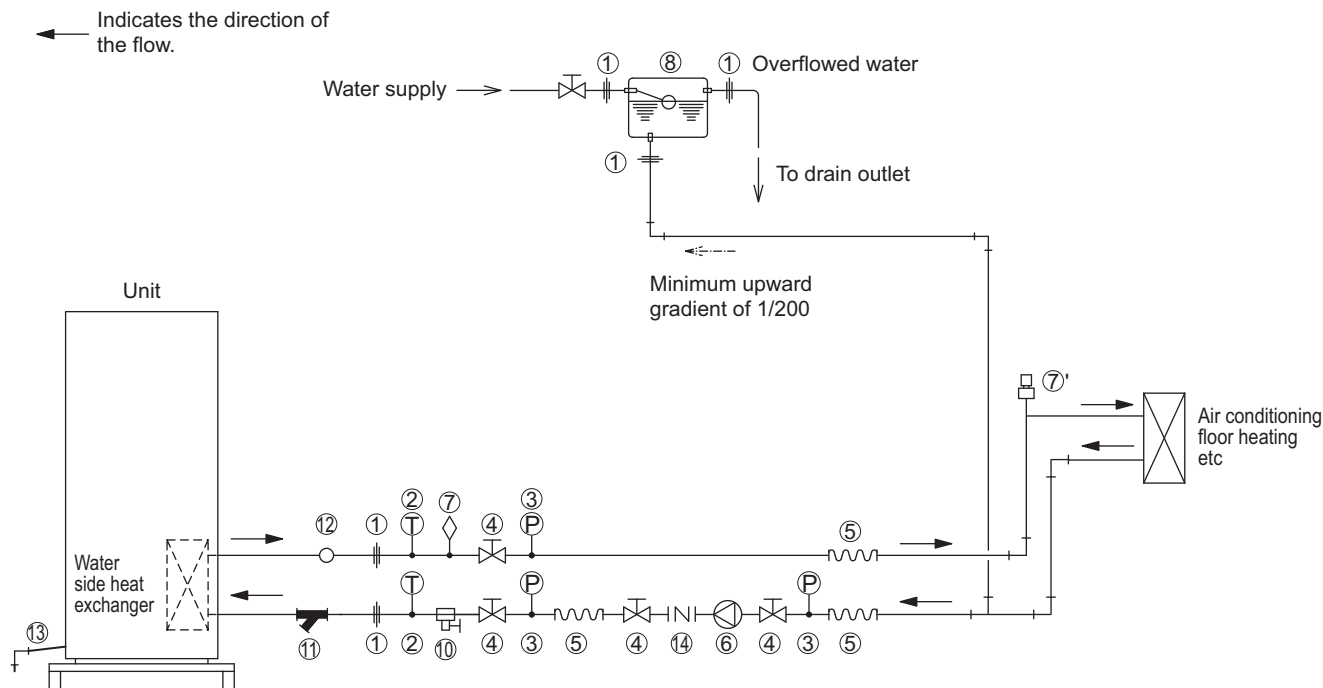
Water circuit

**Please build the water circuit so that it is a closed system.**

Do not use water directly for showers or other applications.

Do not allow other heat source water to mix with the water circuit.

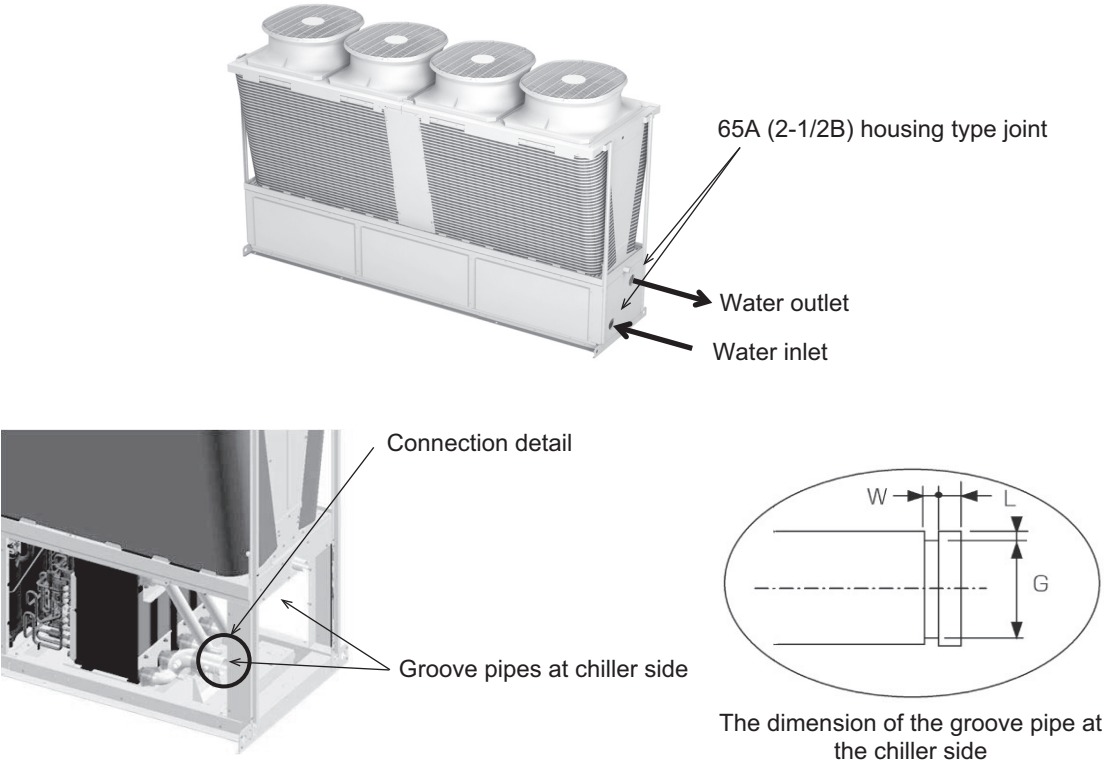
Build a water circuit as inlet water temperature fluctuation is within 5°C (41°F)/10 minutes.



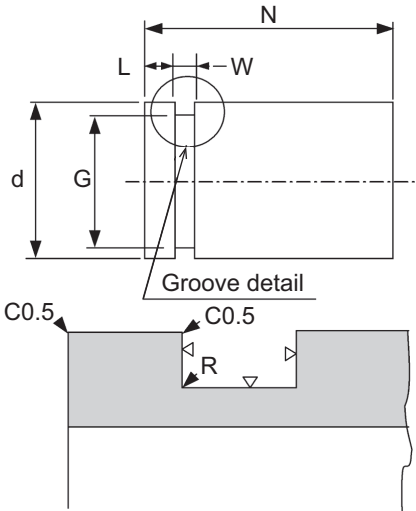
|                              |                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Union joints/flange joints | Required to allow for a replacement of equipment.                                                                                                                                                                                                                                                                                                               |
| ② Thermometer                | Required to check the performance and monitor the operation of the units.                                                                                                                                                                                                                                                                                       |
| ③ Water pressure gauge       | Recommended for checking the operation status.                                                                                                                                                                                                                                                                                                                  |
| ④ Valve                      | Required to allow for a replacement or cleaning of the flow adjuster.                                                                                                                                                                                                                                                                                           |
| ⑤ Flexible joint             | Recommended to prevent the noise and vibration from the pump from being transmitted.                                                                                                                                                                                                                                                                            |
| ⑥ Pump                       | Use a pump that is large enough to compensate for the total water pressure loss and supply sufficient water to the unit.                                                                                                                                                                                                                                        |
| ⑦ Air vent valve             | Install air venting valves to the places where air can accumulate. Automatic air vent valves (such as ⑦') are effective.                                                                                                                                                                                                                                        |
| ⑧ Expansion tank             | Install an expansion tank to accommodate expanded water and to supply water.                                                                                                                                                                                                                                                                                    |
| ⑨ Water pipe                 | Use pipes that allow for easy air purging, and provide adequate insulation.                                                                                                                                                                                                                                                                                     |
| ⑩ Drain valve                | Install drain valves so that water can be drained for servicing.                                                                                                                                                                                                                                                                                                |
| ⑪ Strainer                   | Install a strainer near the unit to keep foreign materials from entering the water-side head exchanger.                                                                                                                                                                                                                                                         |
| ⑫ Flow switch                | Required to protect the unit.                                                                                                                                                                                                                                                                                                                                   |
| ⑬ Drain pipe                 | Install the drain pipe with a downward inclination of between 1/100 and 1/200.<br>To prevent drain water from freezing in winter, install the drain pipe as steep an angle as practically possible and minimize the straight line.<br>For cold climate installation, take an appropriate measure (e.g., drain heater) to prevent the drain water from freezing. |
| ⑭ Check valve                | Required to prevent the backward flow.                                                                                                                                                                                                                                                                                                                          |

## 4. System Design

### 4-1-2. Standard piping type



Victaulic standard groove specifications

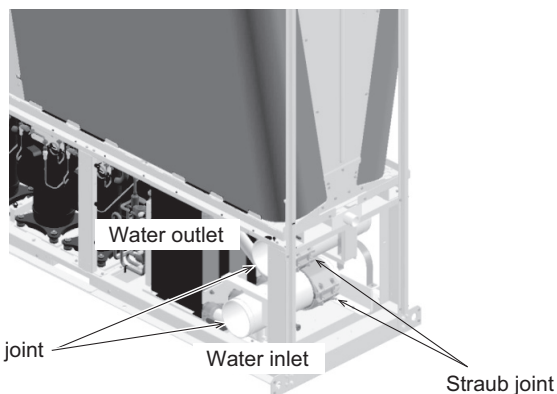
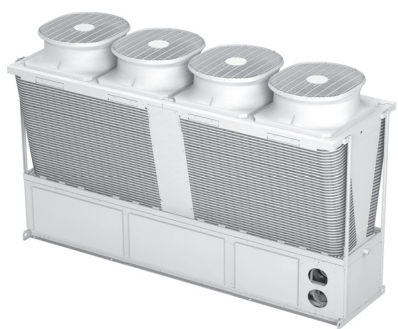


<Unit: mm (in.)>

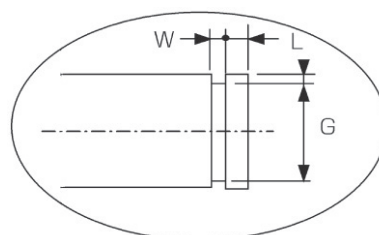
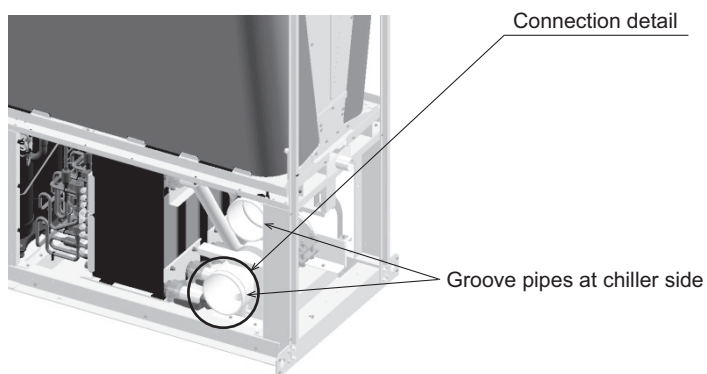
|   | Pipe size                                      |
|---|------------------------------------------------|
|   | 65A (2-1/2B)                                   |
| d | ø76.1 (ø3)                                     |
| G | ø72.2 $^{+0}_{-0.4}$ (ø2-7/8 $^{+0}_{-1/16}$ ) |
| W | 8.7 $^{+0}_{-0.7}$ (3/8 $^{+0}_{-1/16}$ )      |
| L | 15.88 $^{+0}_{-0.7}$ (11/16 $^{+0}_{-1/16}$ )  |
| N | 50 (2)                                         |
| R | 1.0 (1/16)                                     |

### 4-1-3. Inside header piping type

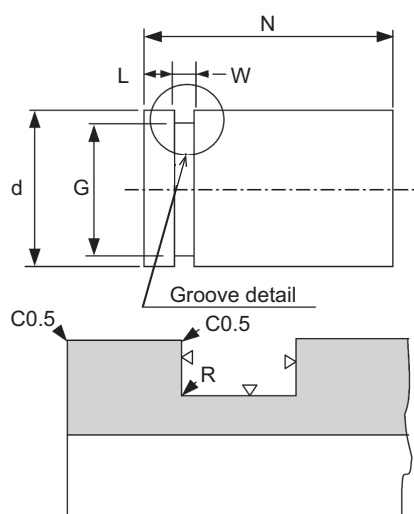
#### 1. Inside header piping connection



150A (6B) housing type joint

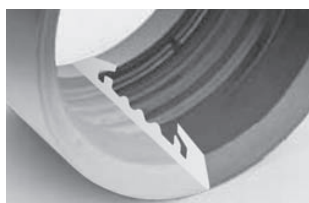


The dimension of the groove pipe at the chiller side



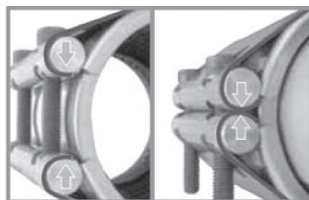
<Unit: mm (in.)>

|   | Pipe size                                    |
|---|----------------------------------------------|
|   | 150A (6B)                                    |
| d | ø165.1 (ø6-1/2)                              |
| G | ø160.8 (ø6-3/8)                              |
| W | 8.7 $^{+0.7}_{-0}$ (3/8 $^{+1/16}_{-0}$ )    |
| L | 15.9 $^{+0.7}_{-0}$ (11/16 $^{+1/16}_{-0}$ ) |
| N | 50.0 (2)                                     |
| R | 1.0 (1/16)                                   |

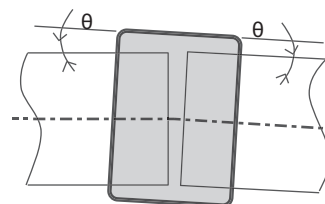
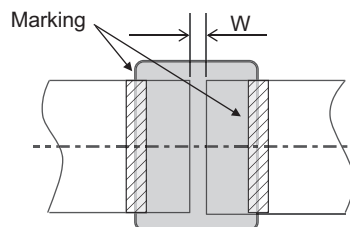


The seal rubber has a lip construction to improve water stopping performance.

Adjust the Straub position to that the marking on both sides is visible.



The bolts need only be tightened until the casing is sealed (metal touches). Consequently, the procedure can be carried out accurately by anyone to the same level, regardless of worker proficiency or the type of pipe.



- Allowable tolerance for gaps and tilting  
Pipe gap tolerance [W]: 0 to 25 mm (0 to 1 in.)  
Allowable pipe tilt angle [θ]: ±2°

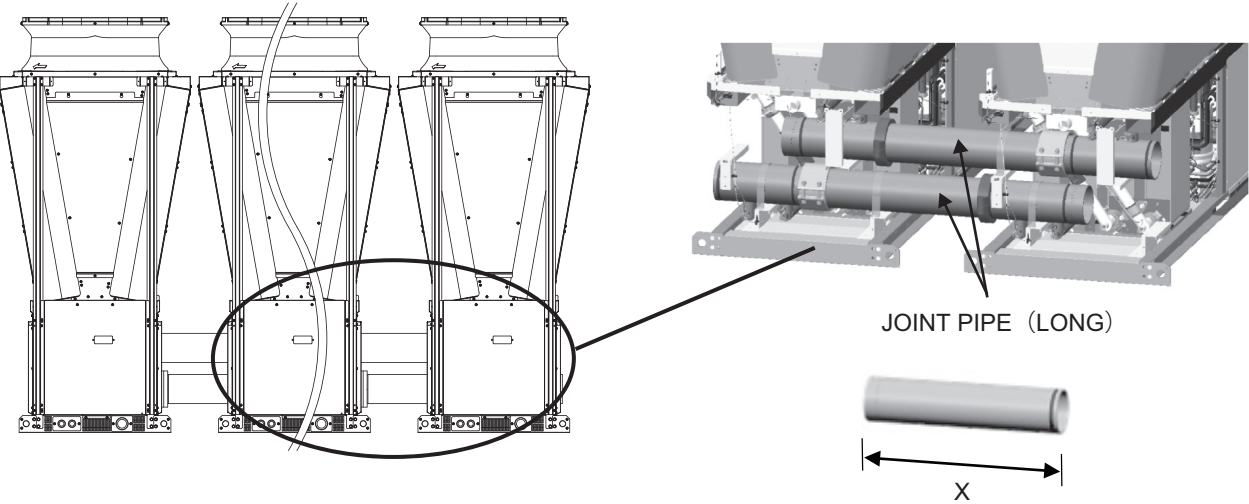
# 4. System Design

## 2. Inside header piping connection with joint pipe (LONG)

The joint pipe (LONG) size is included in the optional parts DT-02HK and can be used to secure wider working space.

- The joint pipe (LONG) can be extended from its original size with a locally procured piping.

Inside header piping type unit (Multiple unit installation)



<Unit: mm (in.)>

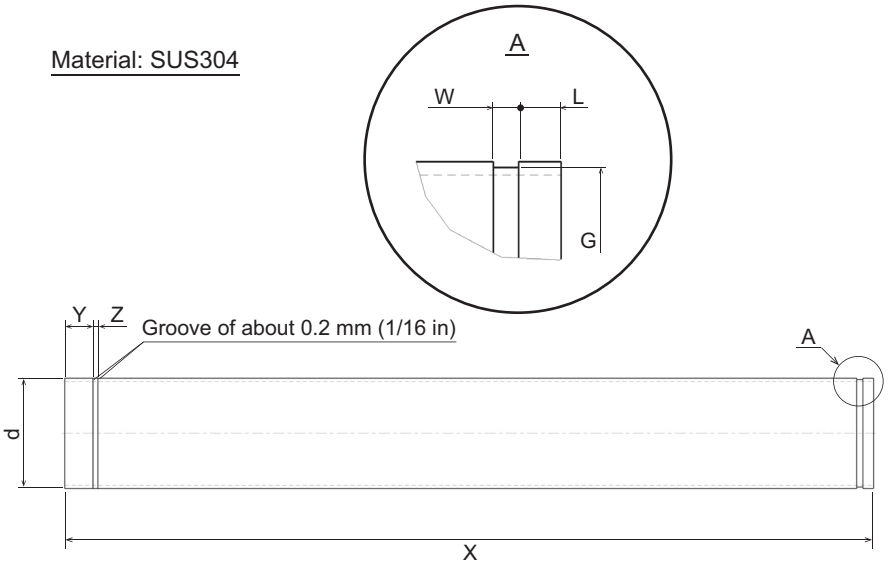
|               | JOINT PIPE (LONG) size X |
|---------------|--------------------------|
| Original size | 706 (27-13/16)           |
| Max size      | 1232 (48-9/16)           |

\* The joint pipe (LONG) size can be changed  $706 \leq X \leq 1232$  ( $27-13/16 \leq X \leq 48-9/16$ ).

<Unit: mm (in.)>

|   | Pipe size<br>6B (150A)                                       |
|---|--------------------------------------------------------------|
| d | $\phi 165.1$ ( $\phi 6-1/2$ )                                |
| G | $\phi 160.8$ ( $\phi 6-3/8$ )                                |
| W | $8.7^{+0.7}_{-0}$ ( $3/8^{+1/16}_{-0}$ )                     |
| L | $15.9^{+0.7}_{-0}$ ( $11/16^{+1/16}_{-0}$ )                  |
| X | $706 \leq X \leq 1232$<br>( $27-13/16 \leq X \leq 48-9/16$ ) |
| Y | 43.0 (1-3/4)                                                 |
| Z | 7.5 (5/16)                                                   |

Material: SUS304



### 4-1-4. Notes on pipe corrosion

#### Water processing and water quality control

Poor-quality circulating water can cause the water-side heat exchanger to scale up or corrode, reducing heat-exchange performance. Properly control the quality of the circulating water.

- Removing foreign objects and impurities in the pipes

During installation, keep foreign objects, such as welding and sealant fragments and rust, out of the pipes.

- Water Quality Control

- (1) Poor-quality water can corrode or scale up the heat exchanger. Regular water treatment is recommended.

Water circulation systems using open heat storage tanks are particularly prone to corrosion.

When using an open heat storage tank, install a water-to-water heat exchanger, and use a closed-loop circuit.

If a water supply tank is installed, keep contact with air to a minimum, and keep the level of dissolved oxygen in the water no higher than 1 mg/ℓ.

- (2) Water quality standard

| Items           |                                                    | Lower mid-range temperature water system<br>Water Temp. ≤ 60°C (140°F) |                    | Higher mid-range temperature water system<br>Water Temp. > 60°C (140°F) |                    | Tendency  |               |
|-----------------|----------------------------------------------------|------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------|--------------------|-----------|---------------|
|                 |                                                    | Recirculating water                                                    | Make-up water      | Recirculating water                                                     | Make-up water      | Corrosive | Scale-forming |
| Standard items  | pH (25°C (77°F))                                   | 7.0 ~ 8.0                                                              | 7.0 ~ 8.0          | 7.0 ~ 8.0                                                               | 7.0 ~ 8.0          | ○         | ○             |
|                 | Electric conductivity (mS/m) (25°C (77°F))         | 30 or less                                                             | 30 or less         | 30 or less                                                              | 30 or less         | ○         | ○             |
|                 | (μS/cm) (25°C (77°F))                              | [300 or less]                                                          | [300 or less]      | [300 or less]                                                           | [300 or less]      |           |               |
|                 | Chloride ion (mg Cl/ℓ)                             | 50 or less                                                             | 50 or less         | 30 or less                                                              | 30 or less         | ○         |               |
|                 | Sulfate ion (mg SO <sub>4</sub> <sup>2-</sup> /ℓ)  | 50 or less                                                             | 50 or less         | 30 or less                                                              | 30 or less         | ○         |               |
|                 | Acid consumption (pH4.8) (mg CaCO <sub>3</sub> /ℓ) | 50 or less                                                             | 50 or less         | 50 or less                                                              | 50 or less         |           | ○             |
|                 | Total hardness (mg CaCO <sub>3</sub> /ℓ)           | 70 or less                                                             | 70 or less         | 70 or less                                                              | 70 or less         |           | ○             |
|                 | Calcium hardness (mg CaCO <sub>3</sub> /ℓ)         | 50 or less                                                             | 50 or less         | 50 or less                                                              | 50 or less         |           | ○             |
| Reference items | Ionic silica (mg SiO <sub>2</sub> /ℓ)              | 30 or less                                                             | 30 or less         | 30 or less                                                              | 30 or less         |           | ○             |
|                 | Iron (mg Fe/ℓ)                                     | 1.0 or less                                                            | 0.3 or less        | 1.0 or less                                                             | 0.3 or less        | ○         | ○             |
|                 | Copper (mg Cu/ℓ)                                   | 1.0 or less                                                            | 1.0 or less        | 1.0 or less                                                             | 1.0 or less        | ○         |               |
|                 | Sulfide ion (mg S <sup>2-</sup> /ℓ)                | Not to be detected                                                     | Not to be detected | Not to be detected                                                      | Not to be detected | ○         |               |
|                 | Ammonium ion (mg NH <sub>4</sub> <sup>+</sup> /ℓ)  | 0.3 or less                                                            | 0.1 or less        | 0.1 or less                                                             | 0.1 or less        | ○         |               |
|                 | Residual chlorine (mg Cl/ℓ)                        | 0.25 or less                                                           | 0.3 or less        | 0.1 or less                                                             | 0.3 or less        | ○         |               |
|                 | Free carbon dioxide (mg CO <sub>2</sub> /ℓ)        | 0.4 or less                                                            | 4.0 or less        | 0.4 or less                                                             | 4.0 or less        | ○         |               |
|                 | Ryzner stability index                             | —                                                                      | —                  | —                                                                       | —                  | ○         | ○             |

Reference: Guideline of Water Quality for Refrigeration and Air Conditioning Equipment. (JRA GL02E-1994)

- (3) Please consult with a water quality control specialist about water quality control methods and water quality calculations before using anti-corrosive solutions for water quality management.

- (4) When replacing an air conditioner (including when only the heat exchanger is replaced), first analyze the water quality and check for possible corrosion.

Corrosion can occur in water systems in which there has been no signs of corrosion. If the water quality level has dropped, adjust the water quality before replacing the unit.

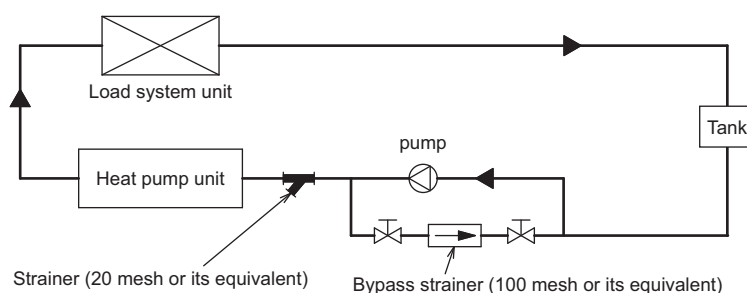
- (5) Suspended solids in the water

Sand, pebbles, suspended solids, and corrosion products in water can damage the heating surface of the heat exchanger and cause corrosion. Install a good quality strainer (20 mesh or better) at the inlet of the unit to filter out suspended solids.

#### Removing foreign substances from the water system

Consider installing a settlement tank or a bypass strainer to remove foreign substances from the water system.

Select a strainer capable of handling two to three percent of the circulating water. The figure below shows a sample system with a bypass strainer.



## 4. System Design

### (6) Connecting pipes made from different materials

If different types of metals are placed in direct contact with each other, the contact surface will corrode.

Install an insulating material between pipes that are made of different materials to keep them out of direct contact with each other.

### (7) Piping material

Use hot water output piping material that can withstand heat of 60°C (140°F) or more. Use hot water input piping material that can withstand the maximum input water temperature. All piping must be made of SUS or similar material to withstand corrosion.

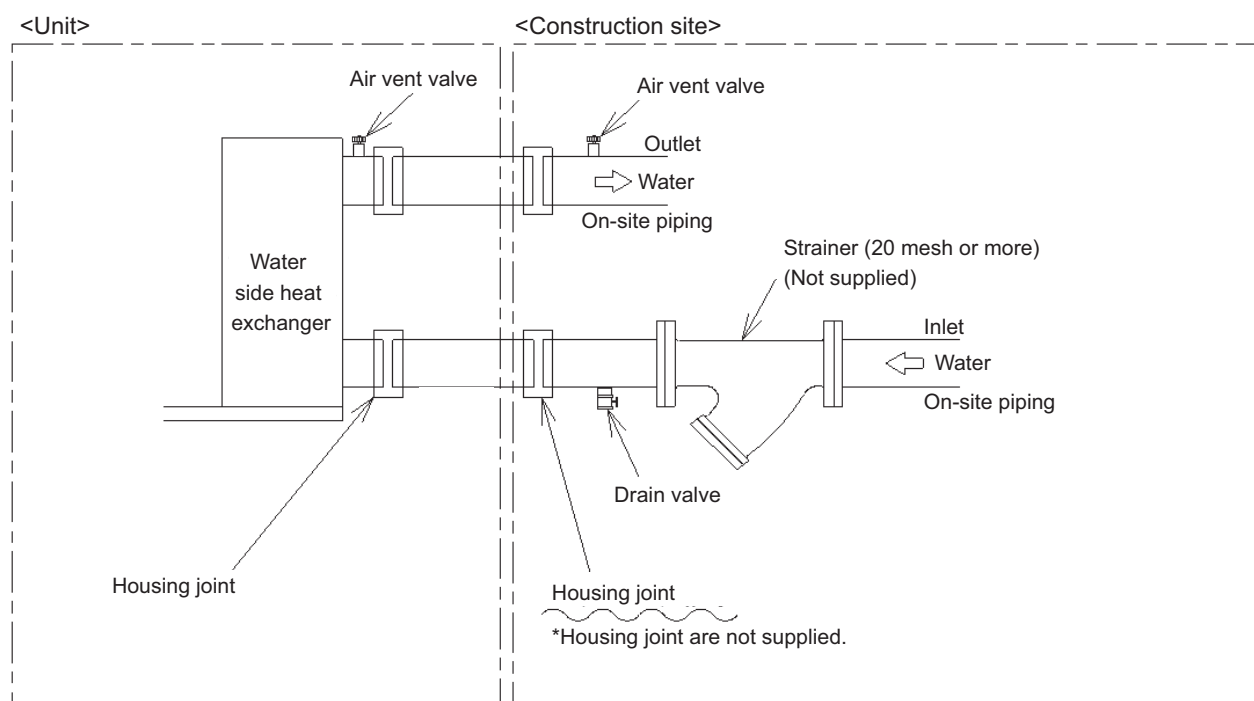
## 4-1-5. Installing the Strainer and Flow Switch

### 1. Installing the strainer

Install a strainer on the inlet pipe near the unit to filter out suspended solids and prevent clogging or corrosion of the heat exchanger.

Install a strainer in a way that allows for easy access for cleaning, and instruct the user to clean it regularly.

Operating the units with a clogged strainer may cause the units to make an abnormal stop. Select a location to install a strainer, taking into consideration the installation angle, insulation thickness, and maintenance space.



### 2. Installing a flow switch

Install a flow switch that meets the following specifications on the water pipe.

Connect the flow switch to the flow switch contact on the unit.

Minimum flow rate = 12.9 m<sup>3</sup>/h (56.8 GMP)

Unit usage range (water flow rate): 12.9 - 34.0 m<sup>3</sup>/h (56.8-149.7 GMP)

### 4-1-6. Ensuring enough water in the water circuit

#### 1. Required amount of water

If the amount of water in the water circuit (circulating water circuit) is insufficient, the unit operation hours may become shorter or the amount of water temperature change to be controlled may become extremely large.

Also, the defrost operation during the heating mode may not function properly. Refer to the table below for the minimum amount of water required in the circuit.

If the water pipe is too short to keep enough amount of water, install a cushion tank in the water pipe to ensure enough amount of water.

| Model             | Minimum amount of water <ℓ (gal)> |
|-------------------|-----------------------------------|
| EACV-P040, 050YBL | 800 (211)                         |

#### 2. Calculating the required amount of water in the water circuit

The required amount of water in the water circuit can be obtained from the following formula.

(Required amount of water in the water circuit) = (Amount of water that can be held in the water pipe) + (Amount of water that can be held in the heat source unit) + (Amount of water that can be held in the load-side unit)

#### The amount of water that can be held per meter of the water pipe <ℓ/m (gal/ft)>

| Pipe size    |             |             |              |              |              |
|--------------|-------------|-------------|--------------|--------------|--------------|
| 2 1/2B (65A) | 3B (80A)    | 4B (100A)   | 5B (125A)    | 6B (150A)    | 8B (200A)    |
| 3.77 (0.30)  | 5.16 (0.42) | 8.87 (0.71) | 13.23 (1.07) | 18.91 (1.52) | 32.44 (2.61) |

#### The amount of water that can be held in the heat source unit <ℓ (gal)>

| Standard | Inside header piping type |
|----------|---------------------------|
| 27 (7.1) | 68 (18.0)                 |

#### 3. Inlet/Outlet pipe connection size and material

The table below shows the inlet/outlet pipe connection size.

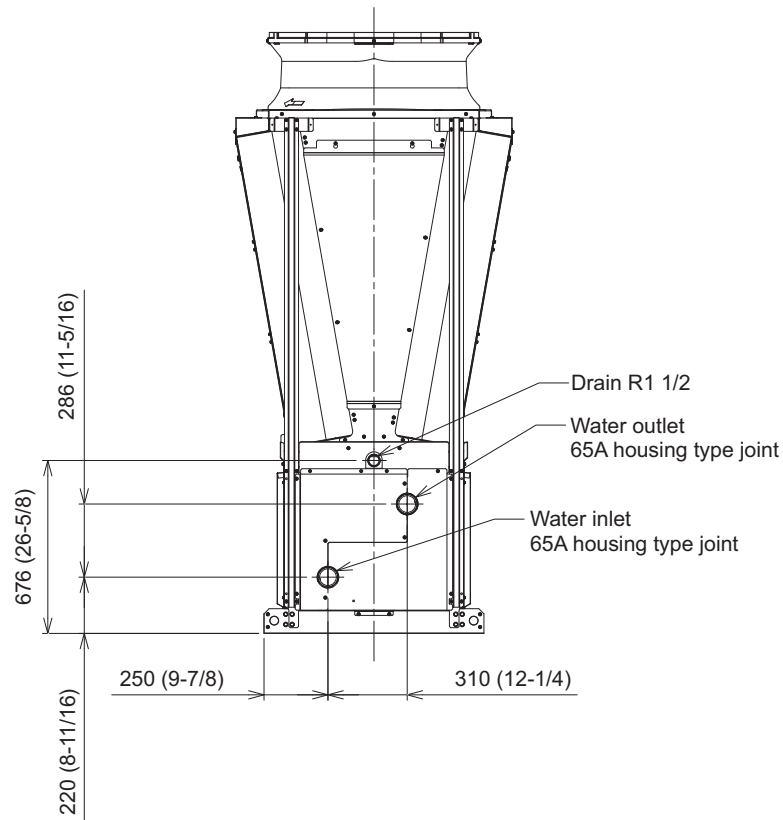
#### Inlet/Outlet pipe connection size

| Piping type               | Inlet pipe connection                                               | Outlet pipe connection                                              |
|---------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|
| Standard                  | 65A (2-1/2B) housing type joint<br>(Field-supplied Victaulic joint) | 65A (2-1/2B) housing type joint<br>(Field-supplied Victaulic joint) |
| Inside header piping type | 150A (6B) housing type joint<br>(Field-supplied Victaulic joint)    | 150A (6B) housing type joint<br>(Field-supplied Victaulic joint)    |

### 4-1-7. Water Piping Size and Location

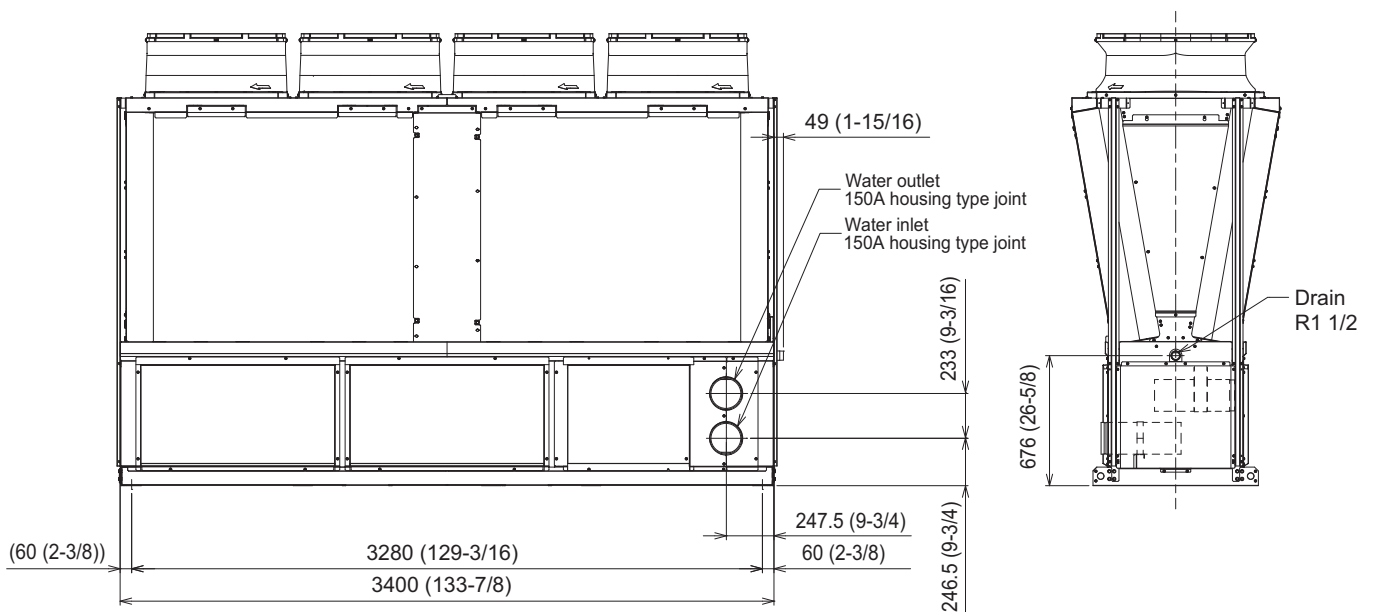
#### 1. Standard piping type

Unit: mm (in.)



#### 2. Inside header piping type

Unit: mm (in.)



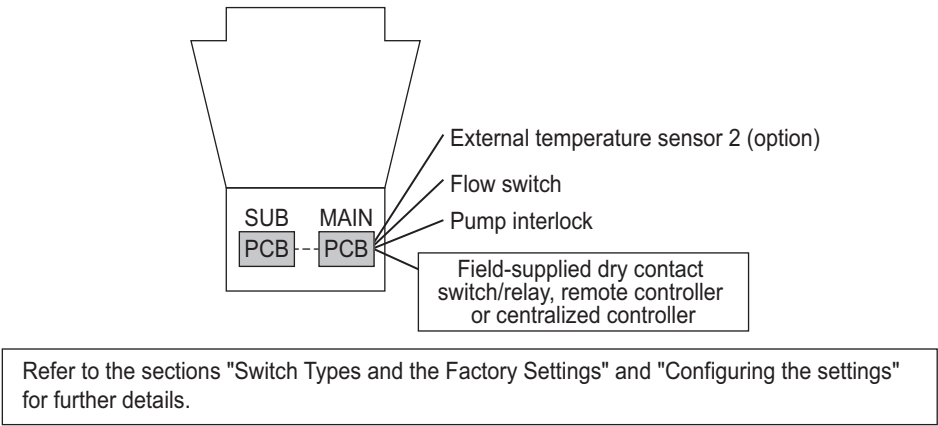
5-1. System Configurations

The system must be configured only by personnel certified by Mitsubishi Electric.

5-1-1. Schematic Diagrams of Individual and Multiple Module Connection Systems

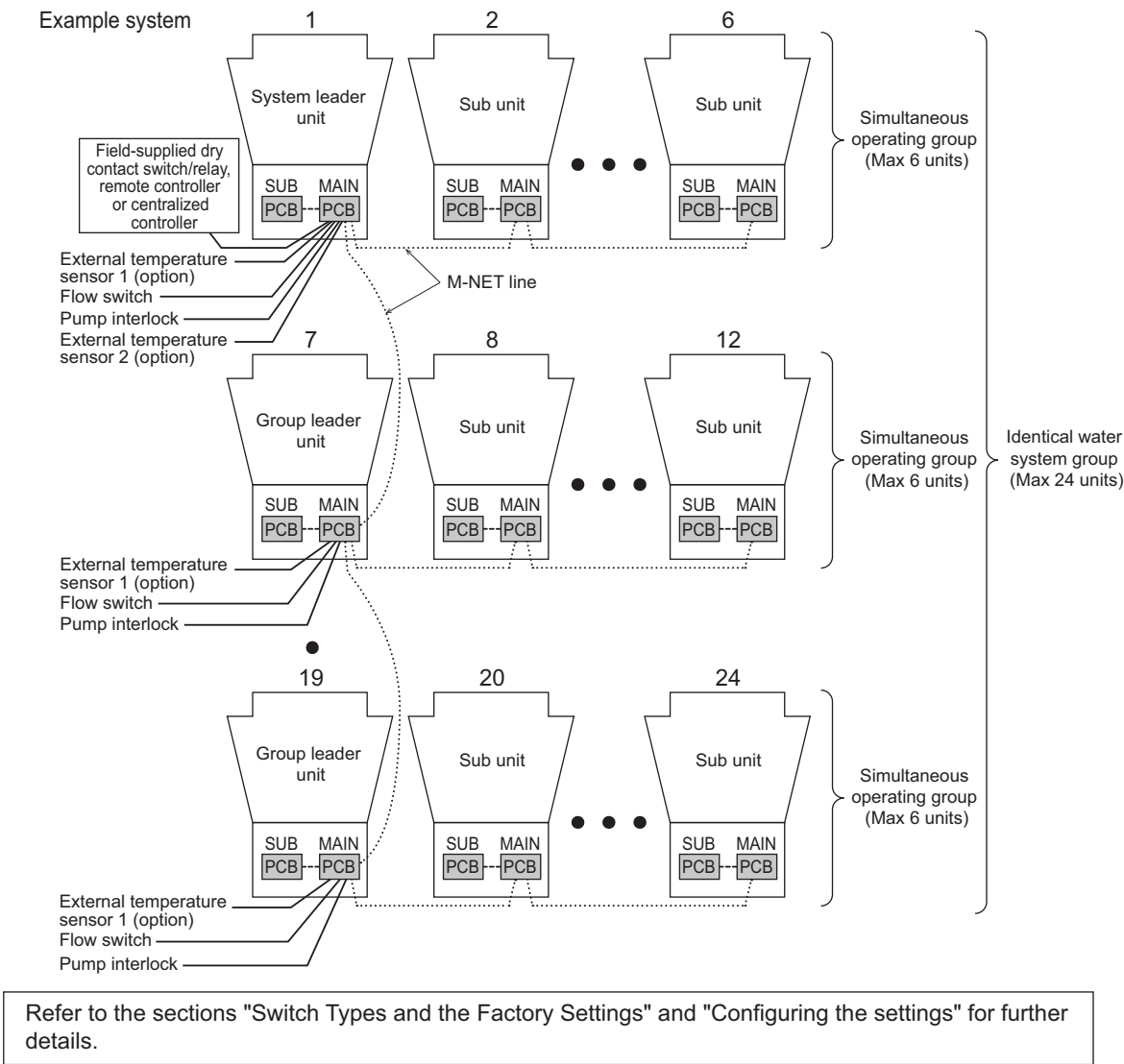
EACV-P-YBL(-N)

(1) Individual system



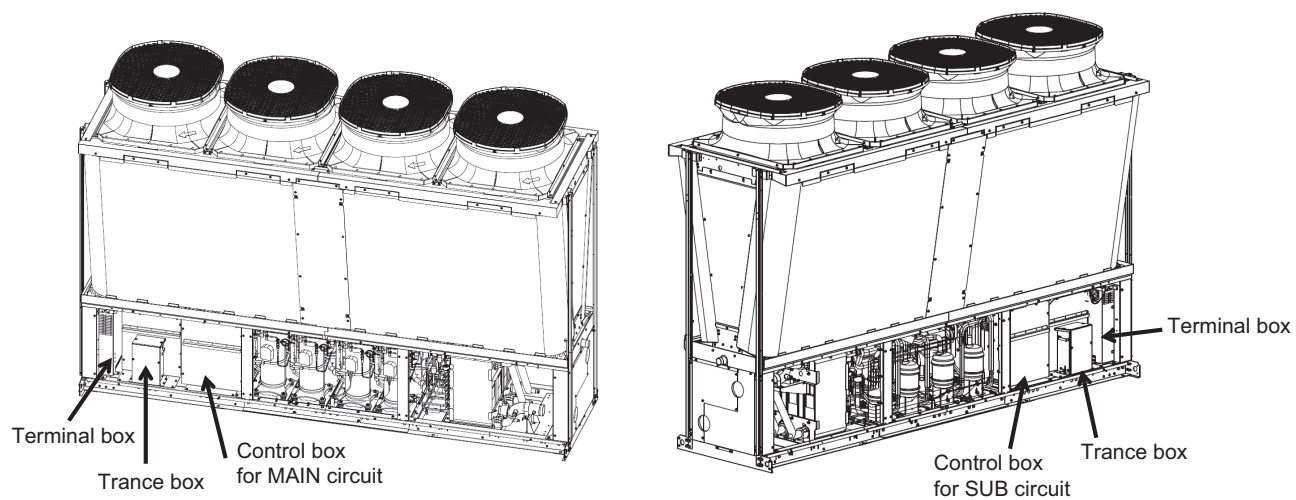
(2) Multiple module connection system (Max.24 modules)

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| System leader unit | The unit controls the identical water system group.                         |
| Group leader unit  | The unit transmits the command from the system leader unit to the sub unit. |
| Sub unit           | The unit is other than leader unit.                                         |



### 5-1-2. Switch Types and the Factory Settings

#### (1) Switch names and functions



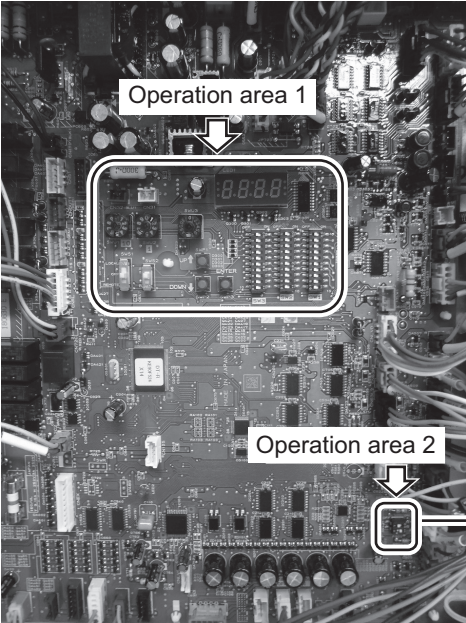
There are three main ways to set the settings as follows:

- 1) Dip switches (SW1 - SW3, SW421)
- 2) Dip switches used in combination with the push switches
- 3) Rotary switches

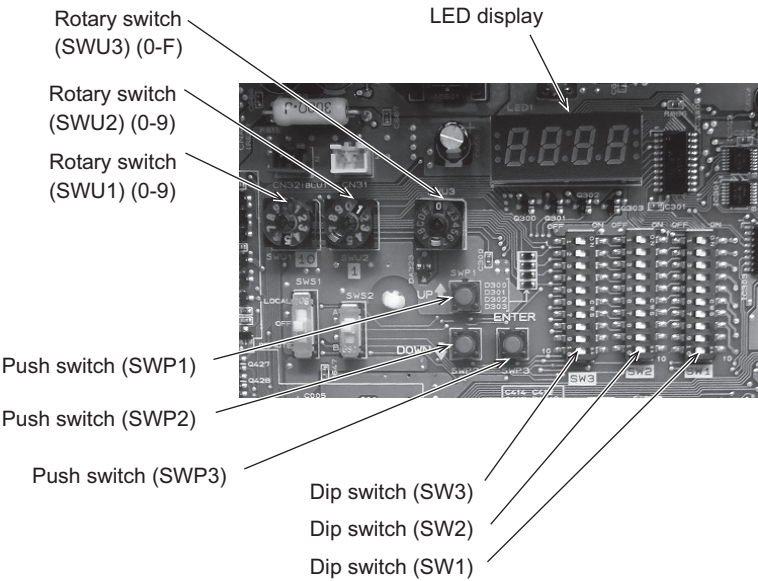
See next page for how these switches are used to set certain items.

Different types of switches on the PCB

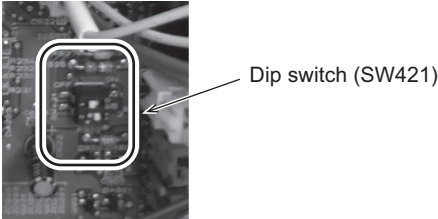
[Control board]



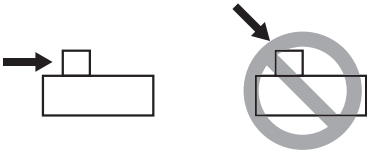
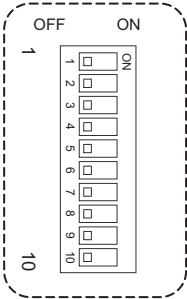
[Enlarged the operation area 1]



[Enlarged the operation area 2]



|               |       |                                                                         | Initial Setting |             |
|---------------|-------|-------------------------------------------------------------------------|-----------------|-------------|
|               |       |                                                                         | MAIN circuit    | SUB circuit |
| Rotary switch | SWU1  | Sets the 10's digit of the unit address.                                | "0"             | "5"         |
|               | SWU2  | Sets the 1's digit of the unit address.                                 | "1"             | "1"         |
|               | SWU3  | Use for switching the setting.                                          | "0"             | "0"         |
| Push switch   | SWP1  | Use for increasing the setting value.                                   | -               | -           |
|               | SWP2  | Use for decreasing the setting value.                                   | -               | -           |
|               | SWP3  | Use for changing and deciding the setting value.                        | -               | -           |
| Dip switch    | SW1-3 | Select a setting which is decided with a combination of switch numbers. | -               | -           |
|               | SW421 | Analog input type setting (Refer to Page 71 and 72)                     | -               | (Unused)    |



Slide the dip switches:  
do not push down the switches.



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

## 5. Wiring Design

(2) Factory Switch Settings (Dip switch settings table)

| SW  |    | Function                             | Usage                                                                                                                                               | Factory setting |             | OFF setting                                                                                                                                        | ON setting                                            | System leader unit     | Group leader unit      | SUB module             | Setting timing         |
|-----|----|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------|------------------------|------------------------|------------------------|
|     |    |                                      |                                                                                                                                                     | MAIN circuit    | SUB circuit |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
| SW1 | 1  | Settings change or view the settings | These switches are used for setting change with push switch SWP 1, 2 and 3.                                                                         | OFF             | OFF         | The 7-segment LED display is changed.                                                                                                              |                                                       | Depends on the setting | Depends on the setting | Depends on the setting | Depends on the setting |
|     | 2  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 3  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 4  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 5  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 6  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 7  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 8  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 9  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 10 |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
| SW2 | 1  | Model setting                        |                                                                                                                                                     | -               | -           | Leave the setting as it is.                                                                                                                        |                                                       | -                      | -                      | -                      | At a reset             |
|     | 2  | System setting                       | Set the duties to each unit.                                                                                                                        | OFF             | -           | System leader unit : ON ON<br>Group leader unit : ON OFF<br>Sub unit : OFF OFF                                                                     |                                                       | Required               | Required               | Required               | At a reset             |
|     | 3  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 4  | Water-temperature control 1 (option) | Selects either the external water temperature sensor or the built-in sensor to be used to control water temperature. (Simultaneous operating group) | OFF             | -           | Built-in sensor on the unit                                                                                                                        | External water temperature sensor 1                   | Required               | Required               | Required               | At a reset             |
|     | 5  | Water-temperature control 2 (option) | Selects target temperature correction control. (Identical water system group)                                                                       | OFF             | -           | OFF                                                                                                                                                | ON<br>(External water sensor 2 is required.)          | Required               | Fixed OFF              | Fixed OFF              | At a reset             |
|     | 6  | Multiple unit control                | Selects optimum control of number of operating units.                                                                                               | OFF             | -           | Ineffective                                                                                                                                        | Effective                                             | Required               | Fixed OFF              | Fixed OFF              | At a reset             |
|     | 7  | Analog input setting                 | Allows or disallows the analog signals from a remote location.                                                                                      | OFF             | -           | Disallows the external analog signals.                                                                                                             | Allows the external analog signals.                   | Required               | Fixed OFF              | Fixed OFF              | At a reset             |
|     | 8  | Analog input signal switching        | Selects either the water temperature or the capacity control ratio. (Effective only when SW2-7 is set to ON.)                                       | OFF             | -           | Water temperature                                                                                                                                  | Capacity control ratio                                | Required               | Fixed OFF              | Fixed OFF              | At a reset             |
|     | 9  | BMS setting *                        |                                                                                                                                                     | OFF             | -           | No input from BMS                                                                                                                                  | Input from BMS                                        | Required               | Fixed OFF              | Fixed OFF              | At a reset             |
|     | 10 | Model setting                        |                                                                                                                                                     | OFF             | OFF         | Leave the setting as it is.                                                                                                                        |                                                       | Fixed OFF              | Fixed OFF              | Fixed OFF              | Any time               |
| SW3 | 1  | Analog input type setting            | Selects analog input 4-20mA/ 0-10V/1-5V/2-10V. (Effective only when SW2-7 is set to ON and SW3-4 is set to OFF.)                                    | OFF             | -           | 1 / 2<br>4-20mA: OFF OFF<br>1-5V: ON OFF<br>0-10V: OFF ON<br>2-10V: ON ON                                                                          |                                                       | Required               | Fixed OFF              | Fixed OFF              | Any time               |
|     | 2  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 3  | Model setting                        |                                                                                                                                                     | OFF             | OFF         | Leave the setting as it is.                                                                                                                        |                                                       | Fixed OFF              | Fixed OFF              | Fixed OFF              | Any time               |
|     | 4  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 5  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 6  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 7  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 8  |                                      |                                                                                                                                                     |                 |             |                                                                                                                                                    |                                                       |                        |                        |                        |                        |
|     | 9  | Auto restart after power failure     | Enables or disables the automatic restoration of operation after power failure (in the same mode as the unit was in before a power failure).        | ON              | ON          | An alarm will be issued when power is restored after a power outage. The alarm will be reset when the power is turned off and then turned back on. | Automatically restores operation after power failure. | Required               | Required               | Required               | Any time               |
|     | 10 | Model setting                        |                                                                                                                                                     | OFF             | OFF         | Leave the setting as it is.                                                                                                                        |                                                       | Fixed OFF              | Fixed OFF              | Fixed OFF              | Any time               |

"-" in the table indicates that the function in the corresponding row will be disabled regardless of the actual switch setting. The factory setting for these items is OFF.

\* Connection to a BMS requires an installation of PAC-UKPRC001-CN-1 (Third-Party Interface).  
Use a BMS with insulation

| SW2-7 | SW2-8 | SW2-9 | Input from BMS      |
|-------|-------|-------|---------------------|
| ON    | OFF   | ON    | Target temperature  |
| ON    | ON    | ON    | Capacity            |
| OFF   | OFF   | ON    | Outdoor temperature |

5-1-3. Configuring the Settings

The settings must be set only by a qualified personnel.

1. System configuration

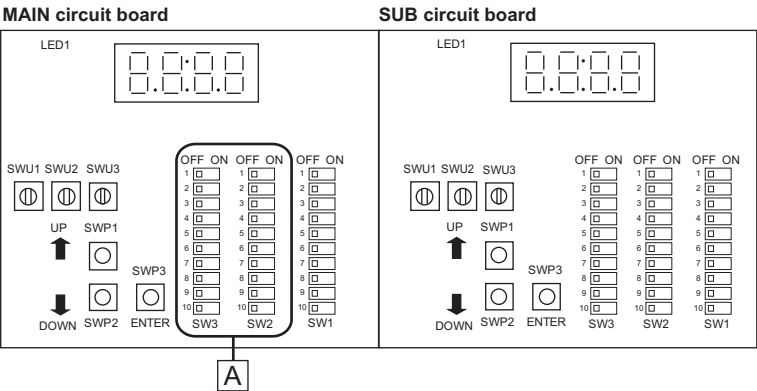
(1) Set the dip switches.

Switch settings on the MAIN circuit

Set the dip switches (labeled A in the figure at right) that correspond to the items below, according to the local system.

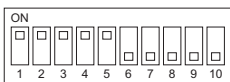
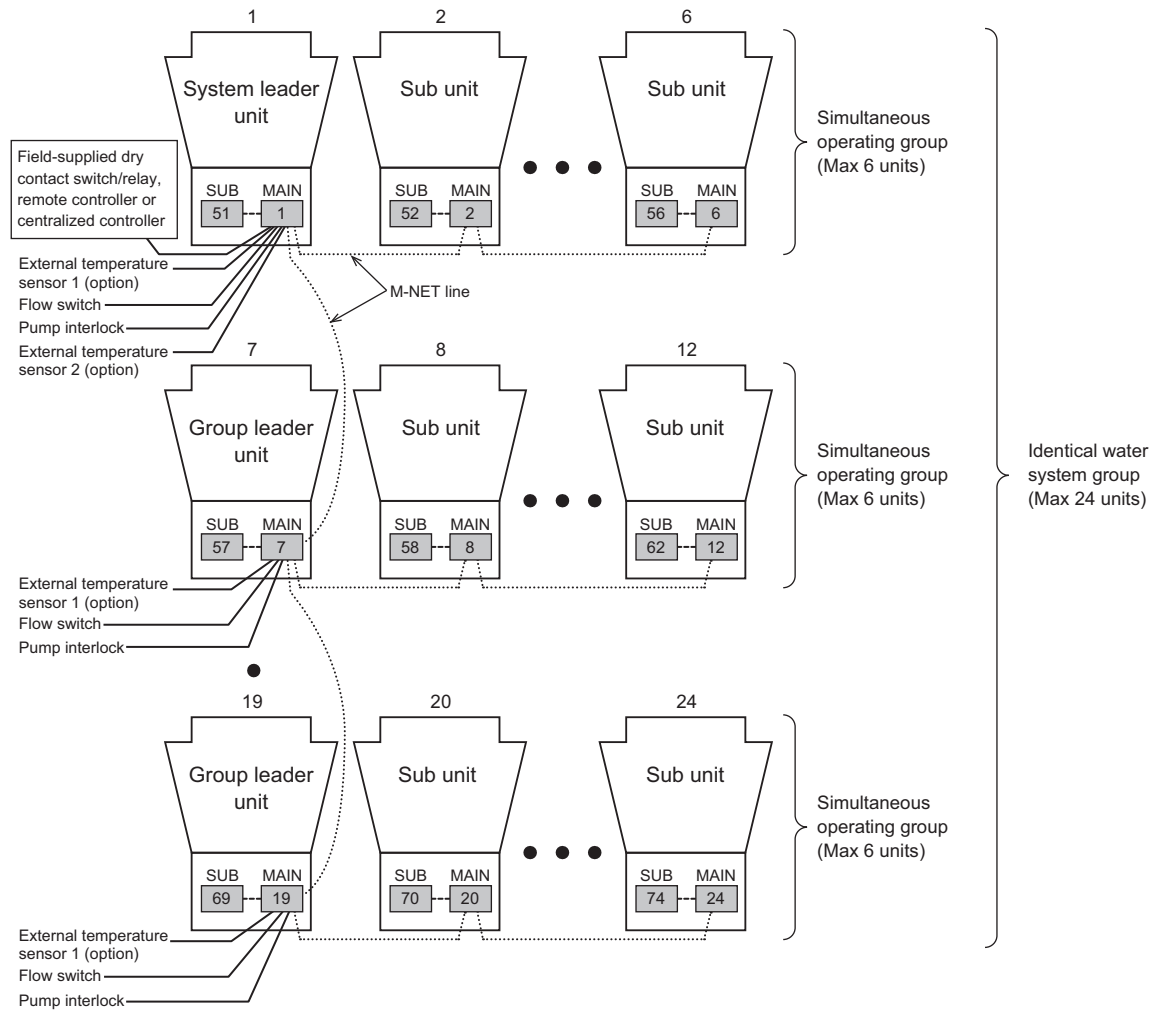
- Water temperature control based on the external water temperature reading
- Analog signals from a remote location

Refer to "Dip switch settings table" for further details.



(2) Set the rotary switches. (Address setting)

Example of address setting

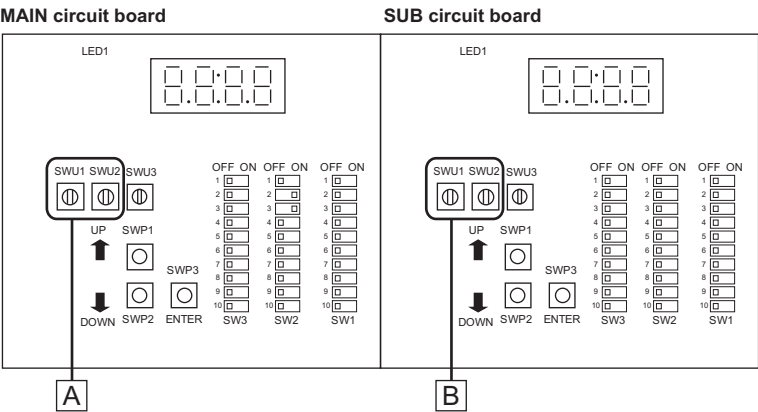


The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

5. Wiring Design

Setting the switches on the system leader unit

Make sure the address of the MAIN circuit on the main module is set to "1" (labeled A in the figure at right) and that the address of the SUB circuit on the main module is set to "51" (labeled B in the figure at right).  
The address of each SUB circuit should equal the sum of the MAIN circuit address on the same module and 50.



Setting the switches on the group leader unit and the sub unit

MAIN circuit

(1) Set the MAIN circuit addresses with the rotary switches. (labeled A in the figure). Set the 10's digit with SWU1, and set the 1's digit with SWU2. Assign sequential addresses to the MAIN circuit on all sub modules starting with 2.

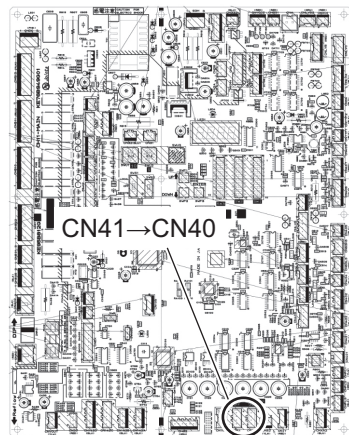
SUB circuit

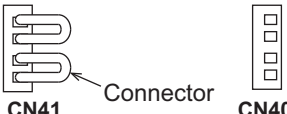
(2) Set the SUB circuit addresses with the rotary switches (labeled B in the figure). Set the 10's digit with SWU1, and set the 1's digit with SWU2. Assign sequential addresses to the SUB circuit on all sub modules starting with 52.

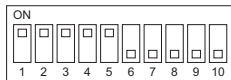
(3) Set the M-NET power supply.

When connecting a system leader unit and a group leader unit to a multiple units connection system, the connector connected to CN41 on the MAIN circuit board (Address 1) must be disconnected and then connected to CN40.

\*Leave the connector connected to CN41 when using an AE-200 as the centralized controller.

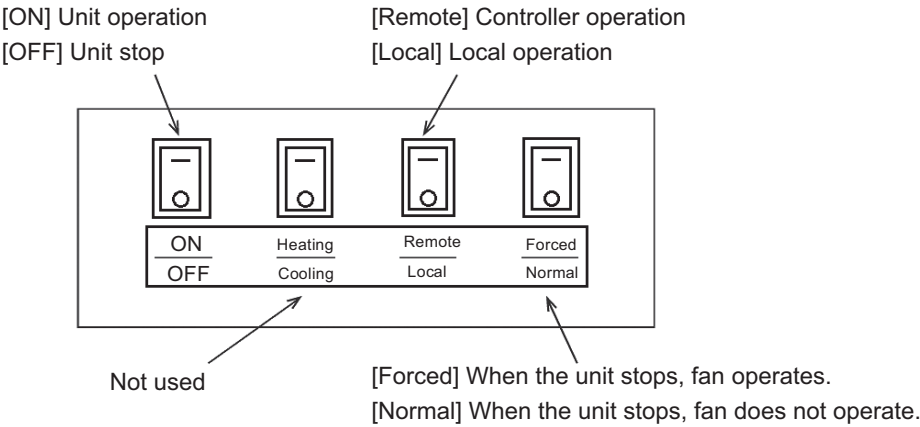


| Address 1                                                                            | All addresses other than Address 1                                                    |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Move the connector from CN41 to CN40.                                                | Leave the connector connected to CN41.                                                |
|  |  |



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

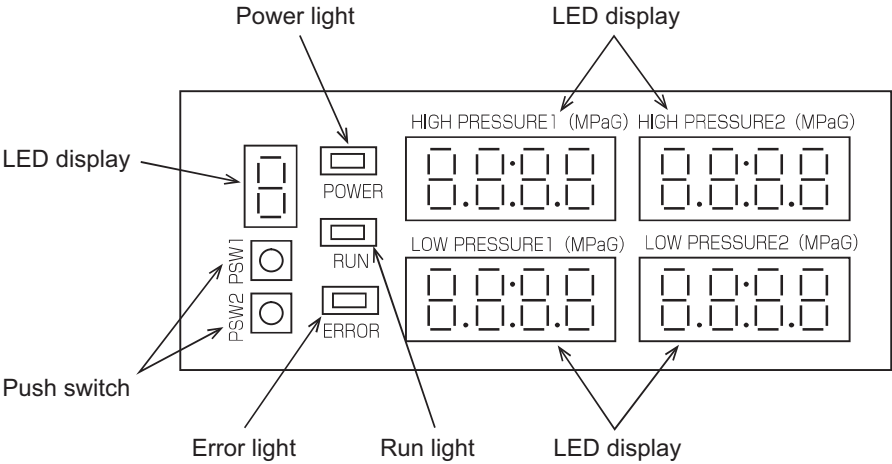
Selector switch settings



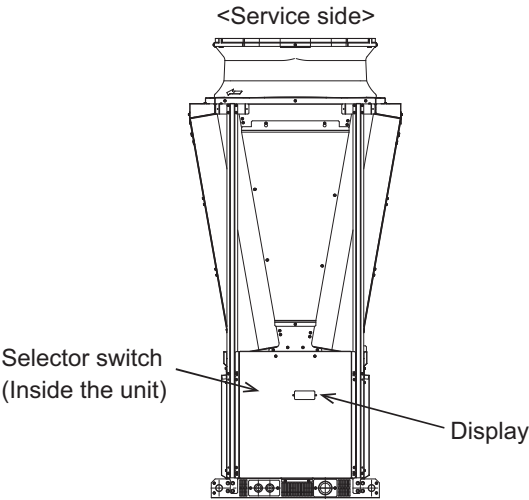
**CAUTION**

- Do not open the terminal cover, when selector switches are operated.

Display



The positions of the selector switch and the display



## 5. Wiring Design

### Priority order of the water-temperature-setting-input-signal sources

Water temperature can be controlled by using the signals from the two types of input sources listed below. The setting for the item with higher priority will override the settings for the items with lower priorities. The water temperature will be controlled according to the temperature setting in the "Target water temperature" column that corresponds to a specific combination of the settings for the two items.

| Priority 1   | Priority 2                                                                          |                                                      |                            | Target water temperature                                                                  |
|--------------|-------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------|
| Analog input | Remote controller PAR-W31MAA<br>Input from centralized controller AE-200 or BMS (*) |                                                      |                            |                                                                                           |
|              | No remote controller                                                                | Manual setting                                       | Schedule setting           |                                                                                           |
| SW2-7: ON    | -                                                                                   | Ineffective                                          | Ineffective                | Temperature setting for the analog signal input                                           |
| SW2-7: OFF   | When no RC is used                                                                  | -                                                    | -                          | Target water temperature is set from the main board.                                      |
|              | -                                                                                   | When the remote controller is used by manual setting | -                          | Target water temperature is set from the remote controller directly.                      |
|              | -                                                                                   | -                                                    | When schedule has been set | Target water temperature is controlled according to the setting on the remote controller. |

\* AE-200 and BMS cannot both be simultaneously connected. Only connect one or the other.

### Priority order of the operation signal sources

|                                            | No-voltage contact             | Remote controller<br>PAR-W31MAA | Input from centralized<br>controller AE-200 or BMS |
|--------------------------------------------|--------------------------------|---------------------------------|----------------------------------------------------|
| Unit operation (Run/Stop)                  | The last setting has priority. |                                 |                                                    |
| Fan mode<br>(The contact ON has priority.) | OFF                            | The last setting has priority.  |                                                    |
|                                            | ON                             | Ineffective                     |                                                    |

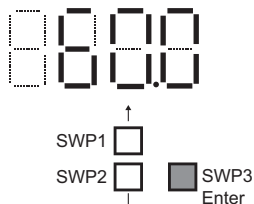
### 2. Making the settings

Use the LED display and the three push switches (SWP1 (↑), SWP2 (↓), and SWP3 (Enter)) to change the current settings on the circuit board and to monitor various monitored values.

#### (1) Setting procedures

Take the following steps to set the push switches SWP1 through SWP3. These switches must be set after the dip switch SW1 has been set.

1)

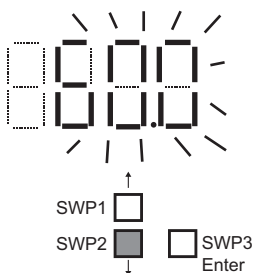


Normally a value of setting item appears on the display.



Press SWP3 (Enter) to enable the configuration changes.

2)



The current setting value will blink.

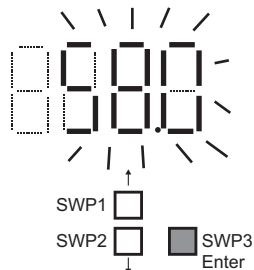


The left figure shows that the current setting value is "60.0."

To decrease this value to 58.0, for example, press SWP2 (↓).

Press SWP1 (↑) to increase the value.

3)



When the desired value is displayed (58.0 in the example at left), press SWP3 (Enter).



The displayed value will stop blinking and stay lit.

A lit LED indicates that the new setting has been saved.

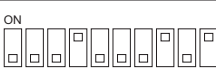
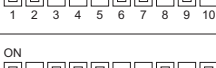
\* Pressing SWP1 (↑) or SWP2 (↓) will change the blinking setting value, but the change will not be saved until SWP3 (Enter) is pressed.

Press and hold SWP1 (↑) or SWP2 (↓) for one second or longer to fast forward through the numbers.

## 5. Wiring Design

### (2) Table of settings items

Set the dip switch SW1 as shown in the table below to set the value for the items in the "Setting item" column.

| No. | Rotary switch (SWU3) | Dip switch setting (SW1) *1                                                         | Setting Item                            | Default | Need or non-need to set the setting *2 |   |                       |   |                       |   | Notes *4                        |
|-----|----------------------|-------------------------------------------------------------------------------------|-----------------------------------------|---------|----------------------------------------|---|-----------------------|---|-----------------------|---|---------------------------------|
|     |                      |                                                                                     |                                         |         | System                                 |   | Group                 |   | Sub                   |   |                                 |
|     |                      |                                                                                     |                                         |         | M                                      | S | M                     | S | M                     | S |                                 |
| 1   | 1                    |    | Setting temp 1 (Cooling mode)           | 7°C     | <input type="radio"/>                  | — | —                     | — | —                     | — | Range 5-30°C (41–86°F)          |
| 2   | 1                    |    | Setting temp 2 (Cooling mode)           | 7°C     | <input type="radio"/>                  | — | —                     | — | —                     | — | Range 5-30°C (41–86°F)          |
| 3   | 1                    |    | Peak-demand control signal input source | 0       | <input type="radio"/>                  | — | —                     | — | —                     | — | 0: Dry contact<br>1: PAR-W31MAA |
| 4   | 1                    |    | Maximum peak-demand capacity            | 100%    | <input type="radio"/>                  | — | —                     | — | —                     | — | Range 60-100%                   |
| 5   | 1                    |    | Preset temp. A (Cooling)                | 5°C     | <input type="radio"/>                  | — | —                     | — | —                     | — | Range 5-30°C (41–86°F)          |
| 6   | 1                    |    | Preset temp. B (Cooling)                | 30°C    | <input type="radio"/>                  | — | —                     | — | —                     | — | Range 5-30°C (41–86°F)          |
| 7   | 1                    |    | Drain pan heater operation outdoor temp | 0°C     | <input type="radio"/>                  | — | <input type="radio"/> | — | <input type="radio"/> | — | Range -40–20°C (-40–68°F)       |
| 8   | 1                    |   | Thermo differential 1 (Cooling mode)    | 3°C     | <input type="radio"/>                  | — | <input type="radio"/> | — | <input type="radio"/> | — | Range 0.2–5°C (32–41°F)         |
| 9   | 1                    |  | Thermo differential 2 (Cooling mode)    | 2°C     | <input type="radio"/>                  | — | <input type="radio"/> | — | <input type="radio"/> | — | Range 0.2–5°C (32–41°F)         |
| 10  | 1                    |  | Year setting                            | —       | <input type="radio"/>                  | — | —                     | — | —                     | — |                                 |
| 11  | 1                    |  | Month/Date setting                      | —       | <input type="radio"/>                  | — | —                     | — | —                     | — |                                 |
| 12  | 1                    |  | Current time                            | —       | <input type="radio"/>                  | — | —                     | — | —                     | — |                                 |

\*1 Do not apply undue force when changing the Dip switch settings as this may cause malfunctions.

\*2 System: System leader unit

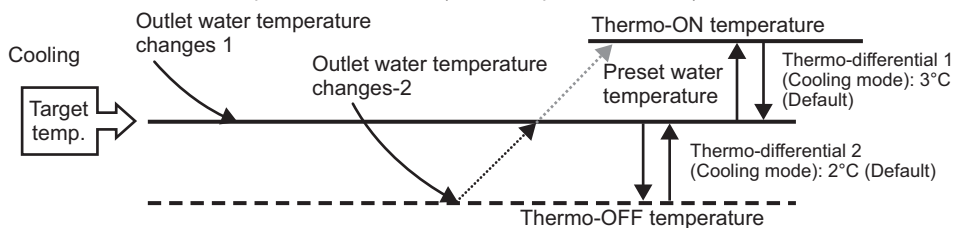
Group: Group leader unit

Sub: Sub unit

M: MAIN circuit

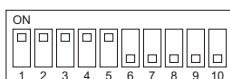
S: SUB circuit

\*3 Thermo - ON/OFF temperature conditions (water temperature control)



When the water temperature is controlled based on the outlet water temperature, compressor frequency will be controlled in the way that the target water temperature will be maintained.

\*4 It cannot be set in Fahrenheit.



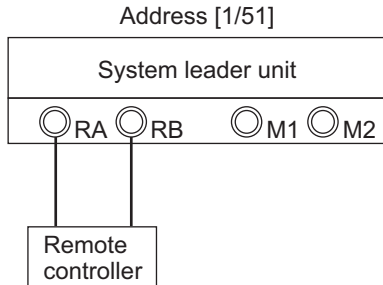
The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

### 3. Setting procedures

#### (1) System setting

<1>Making the settings for the initial start-up process

##### (A) Single unit

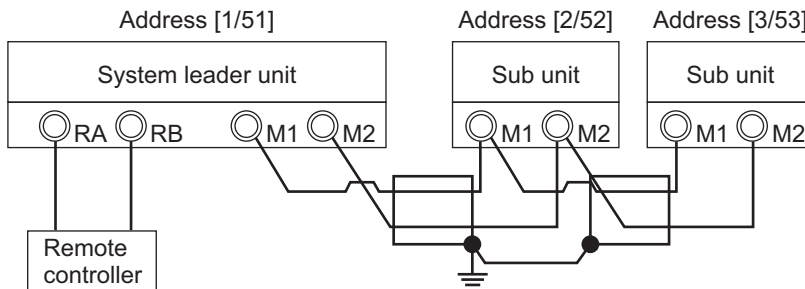


##### Setting address 1

- 1) Turn off the power.
- 2) System leader unit (Address 1 SW2-2, 2-3: ON)
- 3) Turn the power back on.  
Address 1 → LED display [EEEE]  
Address 51 → LED display [9999]
- 4) SWU3: Press and hold F and ENTER for 5 seconds.  
(Initializes the system)  
Address 1 → LED display [9999]  
Address 51 → LED display [9999]
- 5) Start-up process complete  
Address 1 → LED display [\_\_|\_|]  
Address 51 → LED display [\_\_|\_|]
- 6) SWU3: 0

\*No settings are required for address 51.

##### (B) One system leader unit and two sub units (1 group, 3 units in the group)



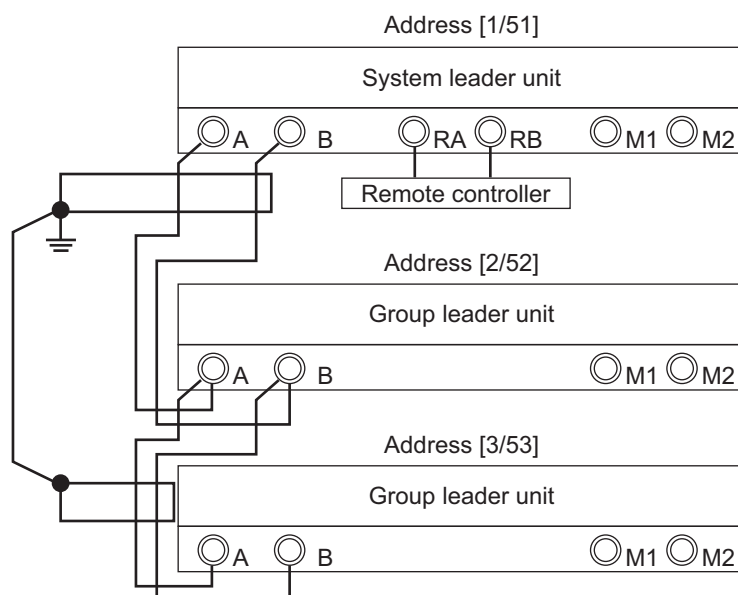
##### Setting address 1

- 1) Turn off the power.
- 2) System leader unit (Address 1 SW2-2, 2-3: ON)
- 3) Turn the power back on.  
Address 1 → LED display [EEEE]  
Address 51 → LED display [9999]
- 4) Setting the number of units for the group  
SWU3: 1  
SW1: 1, 2, 3, 4, 8, 10 ON  
Press ENTER once.  
↓  
Address 1 → LED display [1]  
↓  
Press UP twice.  
↓  
Address 1 → LED display [3]  
↓  
Press ENTER once.  
SW1 OFF
- 5) SWU3: Press and hold F and ENTER for 5 seconds.  
(Initializes the system)  
Address 1 → LED display [9999]  
Address 51 → LED display [9999]
- 6) Start-up process complete  
Address 1 → LED display [\_\_|\_|]  
Address 51 → LED display [\_\_|\_|]
- 7) SWU3: 0

\*No settings are required for any address other than for address 1.

\*The default setting for the number of units in a group is 1.  
The maximum number of units per group is 6.

(C) System leader unit and group leader unit (3 groups, 1 unit in each group)



### (1) Setting address 1

- 1) Turn off the power.
- 2) System leader unit (Address 1 SW2-2, 2-3: ON)
- 3) Turn the power back on.

Address 1 → LED display [EEEE]

Address 51 → LED display [9999]

### 4) Setting the number of units for each group

\*The default setting for the number of units in a group is 1.

### 5) Setting the number of groups

SWU3: 1

Press ENTER once.

SW1: 5, 8, 10 ON

↓

Address 1 → LED display [1]

↓

Press UP twice.

↓

Address 1 → LED display [3]

↓

Press ENTER once.

SW1 OFF

\*The default setting for the number of units in a group is 1.

The maximum number of groups is 24.

### (2) Setting address 2

- 6) Turn off the power.
- 7) Group leader unit (SW2-2: ON)
- 8) Turn the power back on.

Address 2 → LED display [EEEE]

Address 52 → LED display [9999]

### 9) Setting the number of units for each group

\*The default setting for the number of units in a group is 1.

### 10) SWU3: Press and hold F and ENTER for 5 seconds.

(Initializes the system)

Address 2 → LED display [9999]

Address 52 → LED display [9999]

Start-up process complete

Address 2 → LED display [9999]

Address 52 → LED display [\_\_\_\_|\_|]

\*Address 3 (Group leader unit) is set in the same way as above.)

### (3) Setting address 1 (second time)

### 11) SWU3: Press and hold F and ENTER for 5 seconds.

(Initializes the system. System leader unit initialized last)

Address 1 → LED display [9999]

Address 51 → LED display [9999]

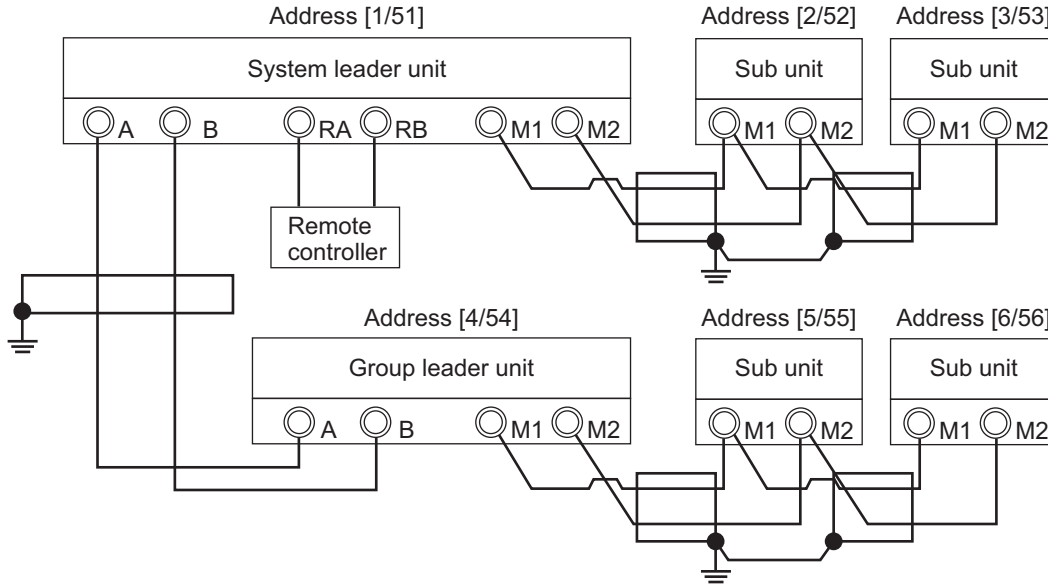
Start-up process complete

Address 1 → LED display [\_\_\_\_|\_|]

Address 51 → LED display [\_\_\_\_|\_|]

### 12) SWU3: 0

(D) System leader unit, Group leader unit and Sub unit (2 groups, 3 units in each group)



(1) Setting address 1

- 1) Turn off the power.
- 2) System leader unit (Address 1 SW2-2, 2-3: ON)
- 3) Turn the power back on.

Address 1 → LED display [EEEE]  
Address 51 → LED display [9999]

4) Setting the number of units for each group

SWU3: 1  
Press ENTER once.  
SW1: 1, 2, 3, 4, 8, 10 ON

↓  
Address 1 → LED display [1]

↓  
Press UP twice.

↓  
Address 1 → LED display [3]

↓  
Press ENTER once.  
SW1 OFF

\*The default setting for the number of units in a group is 1.  
The maximum number of units per group is 6.

5) Setting the number of groups

SWU3: 1  
Press ENTER once.  
SW1: 5, 8, 10 ON

↓  
Address 1 → LED display [1]

↓  
Press UP twice.

↓  
Address 1 → LED display [2]

↓  
Press ENTER once.  
SW1 OFF

\*The default setting for the number of units in a group is 1.  
The maximum number of units per group is 24.

(2) Setting address 4

- 6) Turn off the power.
- 7) Group leader unit (SW2-2: ON)
- 8) Turn the power back on.

Address 4 → LED display [EEEE]  
Address 54 → LED display [9999]

9) Setting the number of units for each group

SWU3: 1  
Press ENTER once.  
SW1: 1, 2, 3, 4, 8, 10 ON

↓  
Address 4 → LED display [1]

↓  
Press UP twice.

↓  
Address 4 → LED display [3]

↓  
Press ENTER once.  
SW1 OFF

\*No group number settings are required for address 4 (Group leader unit).

10) SWU3: Press and hold F and ENTER for 5 seconds.

(Initializes the system)

Address 4 → LED display [9999]  
Address 54 → LED display [9999]

Start-up process complete

Address 4 → LED display [9999]  
Address 54 → LED display [\_\_\_\_|\_|]

(3) Setting address 1 (second time)

- 11) SWU3: Press and hold F and ENTER for 5 seconds.  
(Initializes the system. System leader unit initialized last)

Address 1 → LED display [9999]  
Address 51 → LED display [9999]

Start-up process complete

Address 1 → LED display [\_\_\_\_|\_|]  
Address 51 → LED display [\_\_\_\_|\_|]

12) SWU3: 0

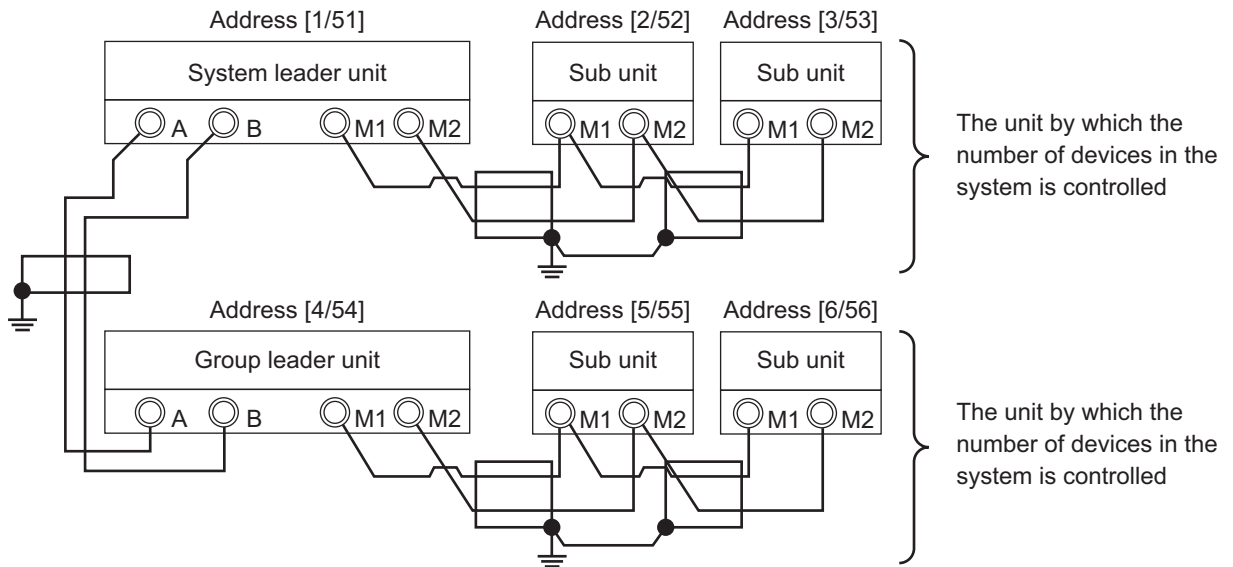
\*No settings are required for any address other than for addresses 1 and 4.

## 5. Wiring Design

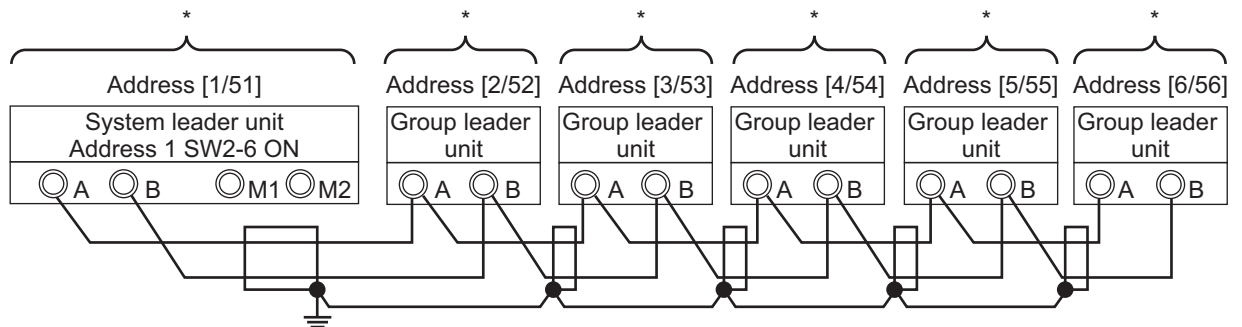
### <2>Multiple unit control

By setting SW2-6 to ON for address 1, optimum control of number of operating units will be performed.  
All units will simultaneously operate when SW2-6 is set to OFF.

(A) System leader unit, group leader unit, and sub unit



(B) System leader unit and group leader unit

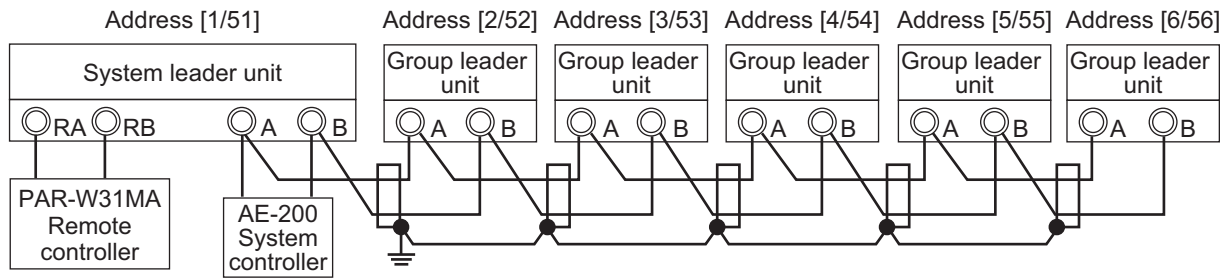


\*The unit by which the number of devices in the system is controlled

5. Wiring Design

EACV-P-YBL(-N)

<3>Example of system configuration  
Optimum control of number of operating units

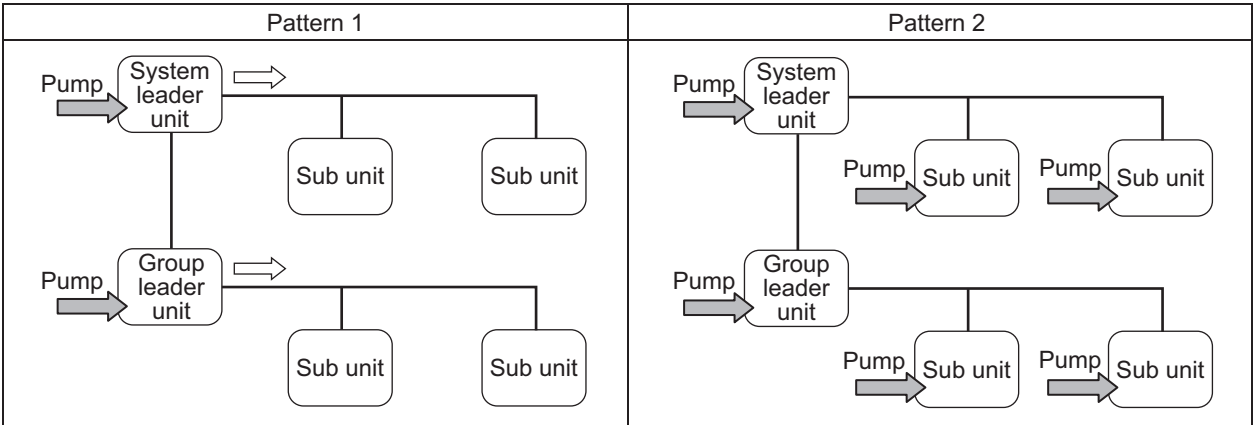


Settings table

| Setting item              | SWU3 | DIP SW | SW1                                                                                                                                                                   | Setting timing | System leader unit |      | Simultaneous operation Group leader unit |      | Simultaneous operation Group leader unit |      | Simultaneous operation Group leader unit |      | Simultaneous operation Group leader unit |      | Simultaneous operation Group leader unit |      |   |   |
|---------------------------|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------|------|------------------------------------------|------|------------------------------------------|------|------------------------------------------|------|------------------------------------------|------|------------------------------------------|------|---|---|
|                           |      |        |                                                                                                                                                                       |                | 1                  |      | 2                                        |      | 3                                        |      | 4                                        |      | 5                                        |      | 6                                        |      |   |   |
|                           |      |        |                                                                                                                                                                       |                | MAIN               | SUB  | MAIN                                     | SUB  | MAIN                                     | SUB  | MAIN                                     | SUB  | MAIN                                     | SUB  | MAIN                                     | SUB  |   |   |
| M-NET address             | -    | -      | -                                                                                                                                                                     | At a reset     | 1                  | 51   | 2                                        | 52   | 3                                        | 53   | 4                                        | 54   | 5                                        | 55   | 6                                        | 56   |   |   |
| M-NET power supply        | -    | -      | -                                                                                                                                                                     | -              | CN40               | CN41 | CN41                                     | CN41 | CN41                                     | CN41 | CN41                                     | CN41 | CN41                                     | CN41 | CN41                                     | CN41 |   |   |
| System settings           | -    | 2-2    | -                                                                                                                                                                     | At a reset     | ON                 | -    | ON                                       | -    | ON                                       | -    | ON                                       | -    | ON                                       | -    | ON                                       | -    |   |   |
|                           | -    | 2-3    | -                                                                                                                                                                     | At a reset     | ON                 | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    |   |   |
| Number of groups          | 1    | -      | <div>ON<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6 7 8 9 10</div></div> | At a reset     | 6                  | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1 | - |
| Number of units per group | 1    | -      | <div>ON<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6 7 8 9 10</div></div> | At a reset     | 1                  | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1                                        | -    | 1 | - |
| Multiple unit control     | -    | 2-6    | -                                                                                                                                                                     | At a reset     | ON                 | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    | OFF                                      | -    |   |   |

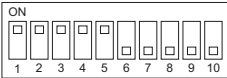
- \*The shaded cells indicate the settings that requires changes from the default settings.
- \*Some settings require the following after the settings were changed: A power reset, or setting SWU3 to F, and pressing and holding ENTER for 5 seconds.
- \*When using an AE-200 as the centralized controller, leave the M-NET power supply connector as it is.

<4>Setting the pump system



| Setting item | SWU3 | DIPSW | SW1                                                                                                                                                                   | Factory setting |     | Note                       |
|--------------|------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|----------------------------|
|              |      |       |                                                                                                                                                                       | MAIN            | SUB |                            |
| Pump setting | 1    | -     | <div>ON<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6 7 8 9 10</div></div> | 0               | -   | 0: Pattern 1, 1: Pattern 2 |

\*Pump settings must be made on the MAIN circuit on all units.



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

## 5. Wiring Design

### (2) Water-temperature setting

Different water temperature settings can be set for different modes.

Set the dip switches on the circuit board as follows to make the settings for the items described in this section.

Press the push switch SWP3 to enable the configuration changes.

Press the push switches SWP1 (↑) or SWP2 (↓) to increase or decrease the value.

When the desired value is displayed, press SWP3 to save the setting value.

Settings table

| No. | Rotary switch (SWU3) | Dip switch setting (SW1)                                                          | Setting Item                     | Initial value | Unit *1 | Setting       |             |             | Setting change from an optional remote controller (PAR-W31MAA) *2 |
|-----|----------------------|-----------------------------------------------------------------------------------|----------------------------------|---------------|---------|---------------|-------------|-------------|-------------------------------------------------------------------|
|     |                      |                                                                                   |                                  |               |         | Increments *1 | Lower limit | Upper limit |                                                                   |
| 1   | 1                    |  | Setting temp 1 (Cooling mode) *3 | 7             | °C      | 0.1°C         | 5           | 30          | Possible *3                                                       |
| 2   | 1                    |  | Setting temp 2 (Cooling mode) *4 | 7             | °C      | 0.1°C         | 5           | 30          | Possible *4                                                       |

\*1 It cannot be set in Fahrenheit.

\*2 Temperature setting increments: 0.5°C

\*3 No-voltage contact KC1-KC2: OFF

\*4 No-voltage contact KC1-KC2: ON

### (3) Peak-demand control operation

Peak-demand control is a function used to control the power consumptions of the units.

The compressor's maximum operating frequency will be controlled according to the peak-demand control signal.

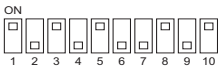
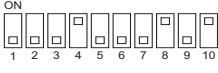
Set the dip switches on the circuit board as follows to make the settings for the items described in this section.

Press the push switch SWP3 to enable the configuration changes.

Press the push switches SWP1 (↑) or SWP2 (↓) to increase or decrease the value.

When the desired value is displayed, press SWP3 to save the setting value.

Settings table

| No. | Rotary switch (SWU3) | Dip switch setting (SW1)                                                            | Setting Item                                                                | Initial value | Unit | Setting    |             |             | Setting change from an optional remote controller (PAR-W31MAA) |
|-----|----------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------|------|------------|-------------|-------------|----------------------------------------------------------------|
|     |                      |                                                                                     |                                                                             |               |      | Increments | Lower limit | Upper limit |                                                                |
| 1   | 1                    |  | Peak-demand control signal input source<br>(0: Dry contact, 1: PAR-W31MAA*) | 0             | -    | 1          | 0           | 1           | Not possible                                                   |
| 2   | 1                    |  | Maximum peak-demand capacity<br>(When No.1 is set to "0")                   | 100           | %    | 1%         | 60          | 100         | Not possible                                                   |

\* Make the setting from the remote controller when No.1 is set to "1".



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

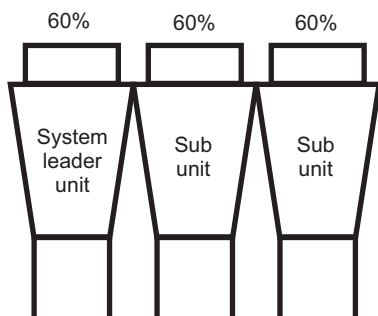
## 5. Wiring Design

### (4) Demand operation

The demand function can reduce the power consumption.

#### Single unit control

In the case of single unit control, the unit is operated up to the specified demand limit.



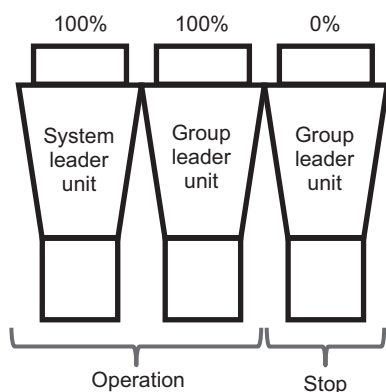
#### Multiple unit control

In the case of multiple unit control, the number of operating units are limited by demand value.

When the demand value is 70%, the group operate such as below figure.

3 groups x demand 70% => 2 groups operation

(=2.1 (-> round down to the decimal point ->) ≈2)



\*In the case of multiple unit control, the demand capacity may not actually be the capacity because it sets the number of operable units.

Other examples)

Even if you set demand capacity to 90% in the case of 2 sets, the number of operable units will be only 1 (round down to the decimal point).

The operating capacity of one group is 50%.

(In the case of multiple unit control, the frequency of each unit is controlled within the range of 0 to 100% regardless of the demand capacity.)

## 5. Wiring Design

### (5) Remote water temperature or capacity control ratio setting input signal type

When SW2-7 is ON, SW2-8 is OFF and SW2-9 is OFF external analog signals can be used to set the water temperatures.

When SW2-7 and SW2-8 are ON, external analog signals can be used to set the capacity control ratio.

Analog input type can be selected from the following four types:

4-20 mA

0-10 V

1-5 V

2-10 V

Select SW3-1 and SW3-2 to set the type of analog input signal from a remote location.

Set the dip switches on the circuit board as follows to change the settings.

|         | SW421-1 | SW421-2 | SW3-1 | SW3-2 |
|---------|---------|---------|-------|-------|
| 4-20 mA | ON      | ON      | OFF   | OFF   |
| 1-5 V   | OFF     | ON      | ON    | OFF   |
| 0-10 V  | OFF     | OFF     | OFF   | ON    |
| 2-10 V  | OFF     | OFF     | ON    | ON    |

\* Incorrectly setting SW421 may cause damage to the circuit board.

### (6) Setting the water temperature using analog signal input

When dip switch SW2-7 is set to ON (Enable external input), SW2-8 is set to OFF and SW2-9 is set to OFF, the target water temperature varies with the preset temperatures A and B and the type of analog input signal.

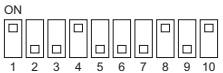
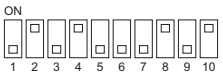
Set the dip switches on the circuit board as follows to make the settings for the items described in this section.

Press the push switch SWP3 to enable the configuration changes.

Press the push switches SWP1 (↑) or SWP2 (↓) to increase or decrease the value.

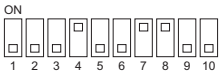
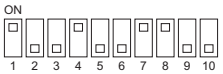
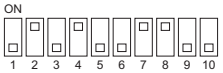
When the desired value is displayed, press SWP3 to save the setting value.

Settings table

| No. | Rotary switch (SWU3) | Dip switch setting (SW1)                                                            | Setting Item             | Initial value | Unit *1 | Setting       |             |             | Setting change from an optional remote controller (PAR-W31MAA) |
|-----|----------------------|-------------------------------------------------------------------------------------|--------------------------|---------------|---------|---------------|-------------|-------------|----------------------------------------------------------------|
|     |                      |                                                                                     |                          |               |         | Increments *1 | Lower limit | Upper limit |                                                                |
| 1   | 1                    |  | Preset temp. A (Cooling) | 5             | °C      | 1°C           | 5           | 30          | Not possible                                                   |
| 2   | 1                    |  | Preset temp. B (Cooling) | 30            | °C      | 1°C           | 5           | 30          | Not possible                                                   |

\* Due to the resistance of the wire that is connected to the analog input, the preset temperature may not properly be sent. If this is the case, check the current value of the analog input, and adjust the output value of the connected signal output device. Refer to the table below for how to display the value of the analog input.

\*1 It cannot be set in Fahrenheit.

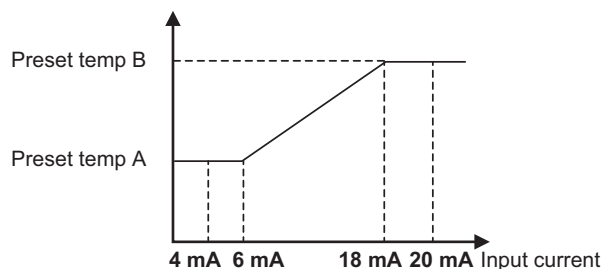
| No. | Rotary switch (SWU3) | Dip switch setting (SW1)                                                            | Monitorable items                    | Unit |
|-----|----------------------|-------------------------------------------------------------------------------------|--------------------------------------|------|
| 1   | 0                    |  | Current value (4-20 mA)              | mA   |
| 2   | 0                    |  | 5V voltage value (1-5 V)             | V    |
| 3   | 0                    |  | 10V voltage value (0-10 V or 2-10 V) | V    |



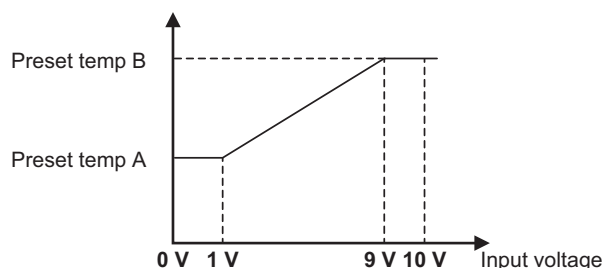
The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

## 5. Wiring Design

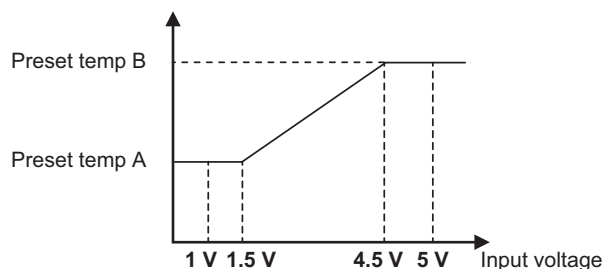
- When the water temperature setting input signal type is 4-20 mA
  - External analog input signal of 6 mA: Preset temp. A
  - External analog input signal of 18 mA: Preset temp. B
  - External analog input signal of between 6 and 18 mA: the preset temperature will be linearly interpolated.



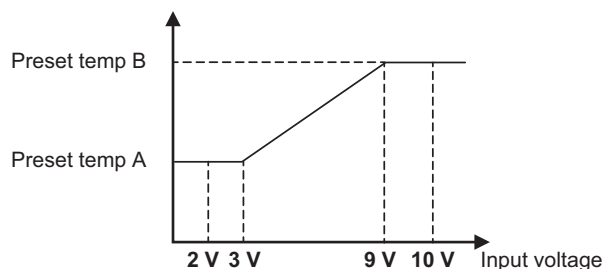
- When the water temperature setting input signal type is 0-10 V
  - External analog input signal of 1 V: Preset temp. A
  - External analog input signal of 9 V: Preset temp. B
  - External analog input signal of between 1 and 9 V: the preset temperature will be linearly interpolated.



- When the water temperature setting input signal type is 1-5 V
  - External analog input signal of 1.5 V: Preset temp. A
  - External analog input signal of 4.5 V: Preset temp. B
  - External analog input signal of between 1.5 and 4.5 V: the preset temperature will be linearly interpolated.



- When the water temperature setting input signal type is 2-10 V
  - External analog input signal of 3 V: Preset temp. A
  - External analog input signal of 9 V: Preset temp. B
  - External analog input signal of between 3 and 9 V: the preset temperature will be linearly interpolated.



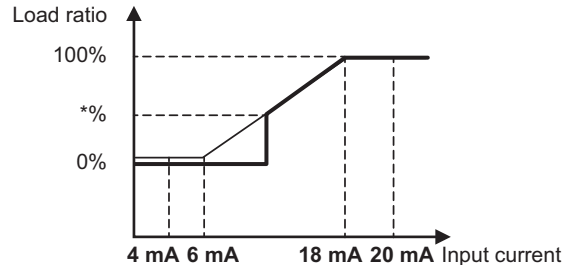
## 5. Wiring Design

### (7) Setting the capacity control ratio using analog signal input

When dip switch SW2-7 is set to ON (Enable external input), SW2-8 is set to ON and SW2-9 is set to OFF, the capacity control ratio varies with the type of analog input signal.

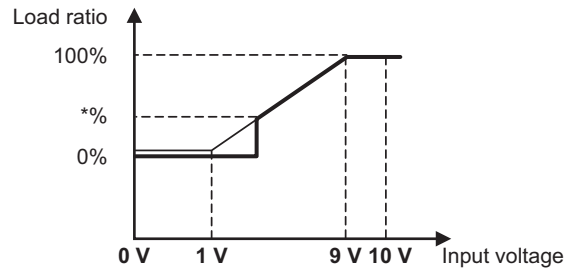
- When the water temperature setting input signal type is 4-20 mA

- External analog input signal of 6 mA: 0%
- External analog input signal of 18 mA: 100%
- External analog input signal of between 6 and 18 mA: the percent will be linearly interpolated.



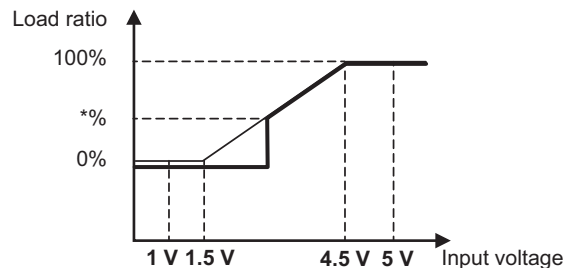
- When the water temperature setting input signal type is 0-10 V

- External analog input signal of 1 V: 0%
- External analog input signal of 9 V: 100%
- External analog input signal of between 1 and 9 V: the percent will be linearly interpolated.



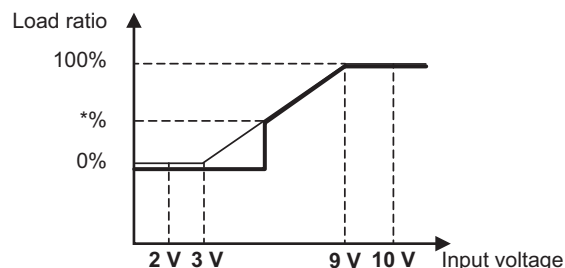
- When the water temperature setting input signal type is 1-5 V

- External analog input signal of 1.5 V: 0%
- External analog input signal of 4.5 V: 100%
- External analog input signal of between 1.5 and 4.5 V: the percent will be linearly interpolated.



- When the water temperature setting input signal type is 2-10 V

- External analog input signal of 3 V: 0%
- External analog input signal of 9 V: 100%
- External analog input signal of between 3 and 9 V: the percent will be linearly interpolated.



\*%: When the compressor frequency drops below the lowest frequency, the compressor stops.  
The frequency value that causes the compressor to stop varies depending on the outside temperature and water temperature.

## 5. Wiring Design

### (8) Setting the drain pan heater signal output condition

A temperature at which the signal output to operate drain pan heaters can be selected.

Drain pan heater signal output condition

The following condition is met.

- ♦The outdoor temperature drops below a set outdoor temperature.

The drain pan signal is output from KB1-KB2.

Drain pan heater signal output stop condition

The following condition is met.

- ♦The outdoor temperature is at or above a set outdoor temperature +2°C (+3.6°F).

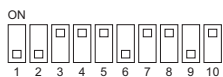
Set the dip switches on the circuit board as follows to make the settings for the items described in this section.

Press the push switch SWP3 to enable the configuration changes.

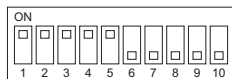
Press the push switches SWP1 (↑) or SWP2 (↓) to increase or decrease the value.

When the desired value is displayed, press SWP3 to save the setting value.

Settings table

| No. | Rotary switch (SWU3) | Dip switch setting (SW1)                                                          | Setting Item                            | Initial value | Unit *1 | Setting       |             |             | Setting change from an optional remote controller (PAR-W31MAA) |
|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------|---------------|---------|---------------|-------------|-------------|----------------------------------------------------------------|
|     |                      |                                                                                   |                                         |               |         | Increments *1 | Lower limit | Upper limit |                                                                |
| 1   | 1                    |  | Drain pan heater operation outdoor temp | 0             | °C      | 1°C           | -40         | 20          | Not possible                                                   |

\*1 It cannot be set in Fahrenheit.

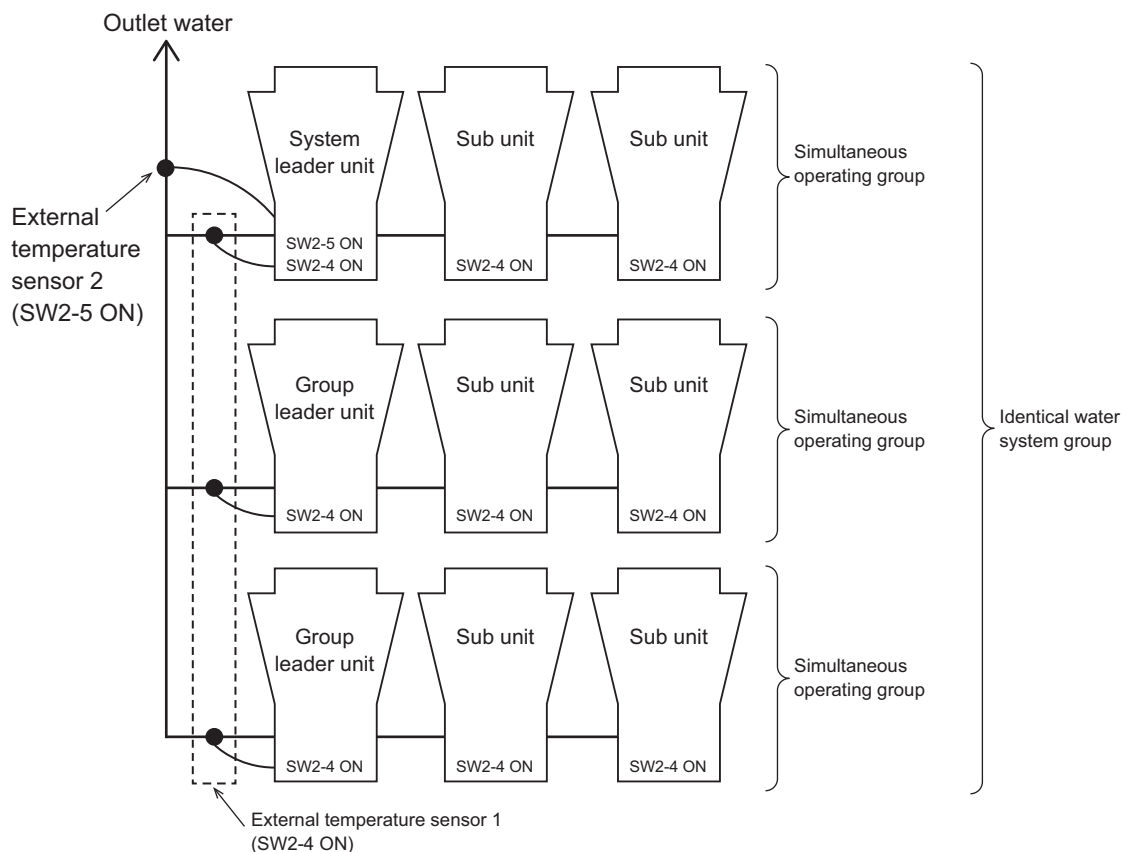


The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

## 5. Wiring Design

### (9) External temperature sensor control

An optional External temperature sensor (TW-TH16) is required.



#### External temperature sensor 1

Used to control the water temperature of simultaneous operating group.

#### External temperature sensor 2

The water outlet temperature of each unit in the identical water system group is corrected to bring the water temperature at the merged section of the outlet water pipes toward the target temperature.

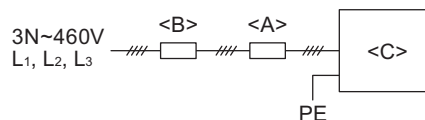
## 5. Wiring Design

### 5-2. Electrical Wiring Installation

#### 5-2-1. Main Power Supply Wiring and Switch Capacity

Schematic Drawing of Wiring (Example)

- <A> Switch (with current breaking capability)
- <B> Current leakage breaker
- <C> unit



Main power supply wire size, switch capacities, and system impedance

| Model             | Minimum wire thickness (mm <sup>2</sup> ) |        |        | Current leakage breaker       | Local switch (A) |      | No-fuse breaker (A) | Max. Permissible System Impedance |
|-------------------|-------------------------------------------|--------|--------|-------------------------------|------------------|------|---------------------|-----------------------------------|
|                   | Main cable                                | Branch | Ground |                               | Capacity         | Fuse |                     |                                   |
| EACV-P040, 050YBL | 35                                        | -      | 35     | 160 A 200 mA 0.1 sec. or less | 150              | 150  | 160                 | 0.08 Ω                            |

- 1) Use a dedicated power supply for each unit. Ensure that each unit is wired individually.
- 2) When installing wiring, consider ambient conditions (e.g., temperature).
- 3) The wire size is the minimum value for metal conduit wiring. If voltage drop is a problem, use a wire that is one size thicker. Make sure the power-supply voltage does not drop more than 5%.
- 4) Specific wiring requirements should adhere to the wiring regulations of the region.
- 5) Power supply cords of appliances shall not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57).
- 6) A switch with at least 3 mm (1/8 in.) contact separation in each pole shall be provided by the Air Conditioner installer.
- 7) Do not install a phase advancing capacitor on the motor. Doing so may damage the capacitor and result in fire.

#### ⚠ WARNING

- Be sure to use specified wires and ensure no external force is imparted to terminal connections. Loose connections may cause overheating and fire.
- Be sure to use the appropriate type of overcurrent protection switch. Note that overcurrent may include direct current.

#### ⚠ CAUTION

- Some installation sites may require an installation of an earth leakage breaker for the inverter. If no earth leakage breaker is installed, there is a danger of electric shock.
- Only use properly rated breakers and fuses. Using a fuse or wire of the wrong capacity may cause malfunction or fire.

#### Note

- This device is intended for the connection to a power supply system with a maximum permissible system impedance shown in the above table at the interface point (power service box) of the user's supply.
- Ensure that this device is connected only to a power supply system that fulfills the requirements above. If necessary, consult the public power supply company for the system impedance at the interface point.
- This equipment complies with IEC 61000-3-12 provided that the short-circuit power  $S_{sc}$  is greater than or equal to  $S_{sc}(*2)$  at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, in consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power  $S_{sc}$  greater than or equal to  $S_{sc}(*2)$ .

$S_{sc}(*2)$

|                |
|----------------|
| $S_{sc}$ (MVA) |
| 10.61          |

Control cable specifications

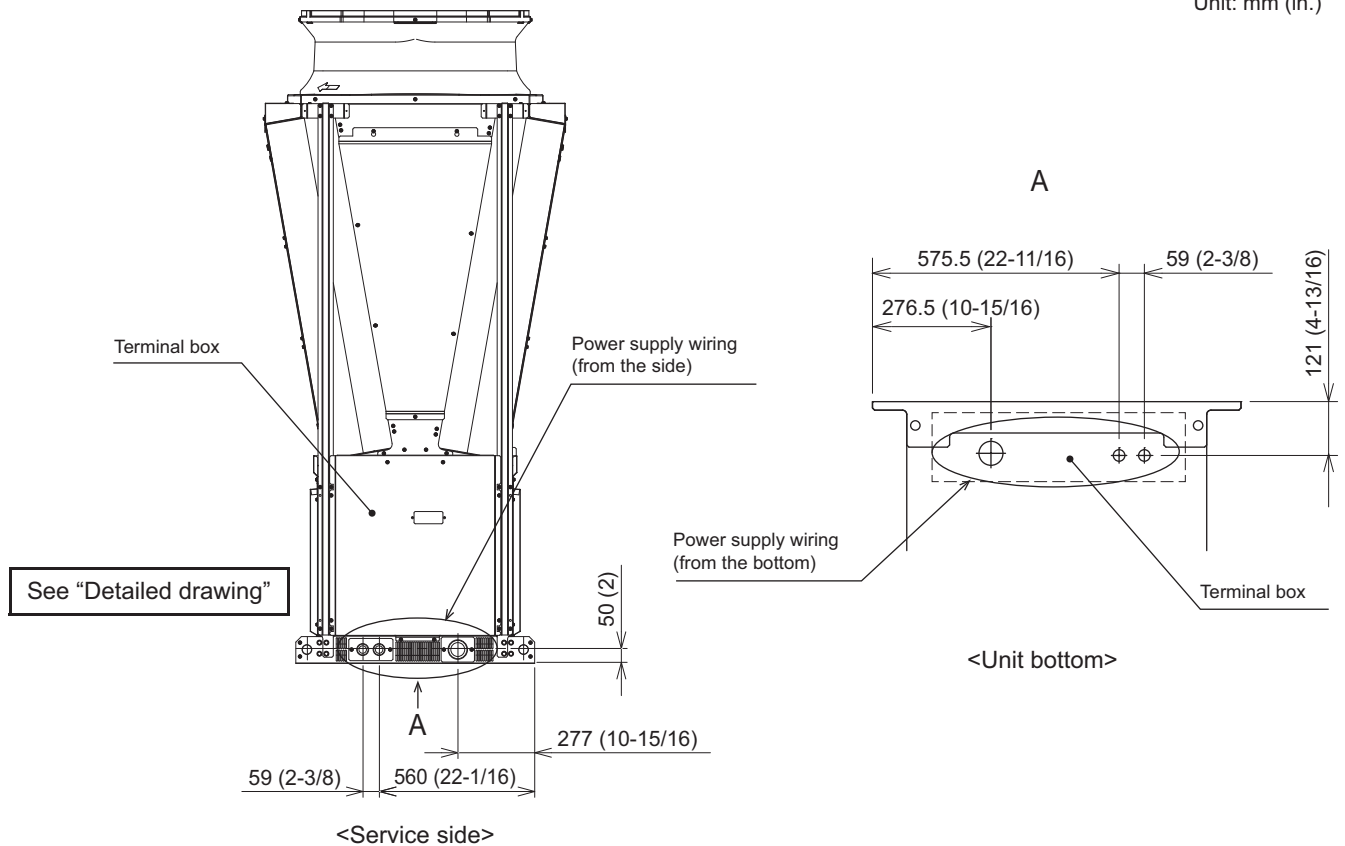
|                              |                         |                                                       |
|------------------------------|-------------------------|-------------------------------------------------------|
| Remote controller cable      | Size                    | 0.3 mm <sup>2</sup> (Max. 200 m (656 ft) total)       |
|                              | Recommended cable types | 2-core sheathed cable                                 |
| M-NET cable between units *1 | Size                    | Min. 1.25 mm <sup>2</sup> (Max. 120 m (393 ft) total) |
|                              | Recommended cable types | Shielded cable CVVS, CPEVS or MVVS                    |
| External input wire size     |                         | Min. 0.3 mm <sup>2</sup>                              |
| External output wire size    |                         | 1.25 mm <sup>2</sup>                                  |

\*1 Use a CVVS or CPEVS cable (Max. total length of 200 m (656 ft)) if there is a source of electrical interference nearby (e.g., factory) or the total length of control wiring exceeds 120 m (393 ft).

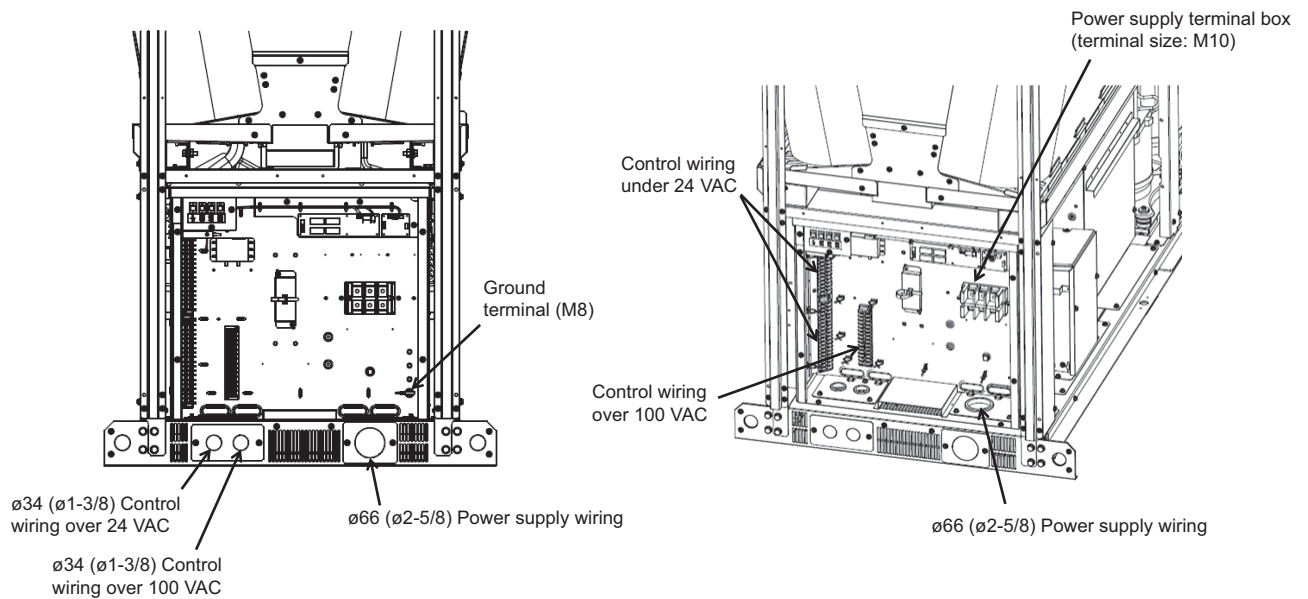
### 5-2-2. Cable Connections

#### 1. Schematic Diagram of a Unit and Terminal Block Arrangement

Unit: mm (in.)



Detailed drawing



- (1) Remove the front terminal box cover.
- (2) Wire the power supply and control wires. The terminal box is covered with a bush.  
Cut the bush before connecting wires to the terminal box.
- (3) Fasten the power supply wires by the cable strap.
- (4) Secure the cable conduit, and then waterproof the area around the pipe with silicon, etc.
- (5) Reattach the terminal box cover.

## 5. Wiring Design

### 2. Precautions when fastening screws

- \* Faulty contacts due to loose screws may cause overheating and fire.
- \* Using the circuit board while it is damaged may cause overheating and fire.

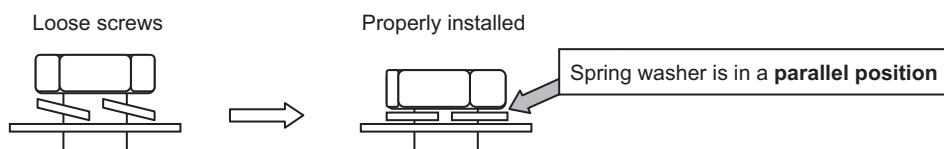
<1> Screw fastening torque

Power supply terminal block, M8 screw: **10 to 13.5 N·m**

Use the following methods to check that the screws have been fastened.

1) Check that the spring washer is in a parallel position.

- \* If the screw is biting into the washer, simply fastening the screw to the specified torque cannot determine whether it has been installed properly.

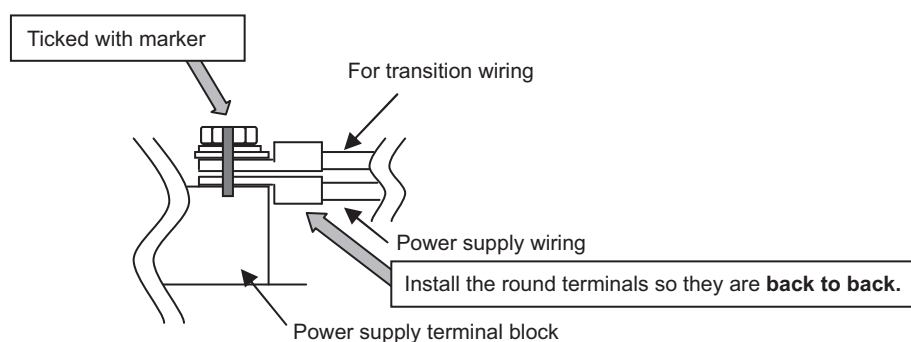


2) Check that the wiring does not move at the screw terminal.

<2> Take extra care not to ruin the screw thread due to fastening the screw at an angle.

- \* To prevent fastening the screw at an angle, install the round terminals so they are back to back.

<3> After fastening the screw, use a permanent marker to tick off the screw head, washer and terminal.



### 3. Installing the conduit tube

- Always use a conduit to run the power supply wiring.
- Select the conduit size based on the hole.
- The cable conduits must be prepared locally.
- Do not store the 24VDC or less low-voltage circuit and 100VAC or higher main circuit and control circuit cables in the same multi-core cable, or bundle them together.
- Attach cable conduits securely to the foundation, etc. to ensure that excessive loads are not applied to the power supply terminal box.
- Seal the area around the cable conduit connection to ensure that no water penetrates the cable conduit connection port.

## 6. Controller

### 6-1. PAR-W31MAA specifications

| Item                            | Description                                                                                                                                                                                                                                                       | Operations | Display |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|
| ON/OFF                          | Runs and stops the operation of a group of units                                                                                                                                                                                                                  | ○          | ○       |
| Water temperature setting       | Temperature can be set within the ranges below. (in increments of 0.5°C)<br>Cooling            5°C ~ 30°C (41°F ~ 86°F)<br>* The settable range varies depending on the unit to be connected.<br>* It cannot be set in Fahrenheit.                                | ○          | ○       |
| Water temperature display       | -20°C ~ 90°C (-4°F ~ 194°F)<br>(in increments of 0.5°C)<br>* The settable range varies depending on the unit to be connected.<br>* It cannot be displayed in Fahrenheit.                                                                                          | ×          | ○       |
| Permit/Prohibit local operation | Individually prohibits operations of each local remote control function: ON/OFF, Operation modes, water temperature setting, Circulating water replacement warning reset.<br>* Upper level controller may not be connected depending on the unit to be connected. | ×          | ○       |
| Weekly scheduler                | ON/OFF/Water temperature setting can be done up to 6 times one day in the week. (in increments of a minute)                                                                                                                                                       | ○          | ○       |
| Error                           | When an error is currently occurring on a unit, the afflicted unit and the error code are displayed.                                                                                                                                                              | ×          | ○       |
| Self check (Error history)      | Searches the latest error history by pressing the CHECK button twice.                                                                                                                                                                                             | ○          | ○       |
| LANGUAGE setting                | The language on the dot matrix LCD can be changed. (11 languages)<br>English/French/German/Swedish/Spanish/Italian/Danish/Dutch/Finnish/Norwegian/Portuguese                                                                                                      | ○          | ○       |
| Operation locking function      | Remote controller operation can be locked or unlocked.<br>• All-switch locking<br>• Locking except ON/OFF switch                                                                                                                                                  | ○          | ○       |

---

**⚠ Warning**

- Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
  - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, repair, or at the time of disposal of the unit.
  - It may also be in violation of applicable laws.
  - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- Our chilling units contain a fluorinated greenhouse gas, R410A.

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