



## DESIGN MANUAL

# MINI-SMMS



# WARNINGS ON REFRIGERANT LEAKAGE

## Refrigerant density limit

**Important**

The room in which the air conditioner is to be installed should be designed or chosen such that in the event of a refrigerant gas leak the density of gas should not exceed a set limit.

The refrigerant R-410A, which is used in the air conditioner product, is intrinsically safe without the toxicity or combustibility of ammonia. R-410A is environmentally friendly and is not restricted by current or pending laws intended to protect the ozone layer.

Risk of suffocation through leakage of R-410A is minimal. However, with the recent increase in the number of high density buildings and use of multi air conditioner systems to ensure effective use of floor space, energy conservation and individual control, installers should ensure it is not possible to exceed density limits in the event of a refrigerant leak. In particular, where a single unit of the multi conditioner system is to be installed into a small room, select a suitable model and installation procedure so that if refrigerant leaks out, density limits are not exceeded. In a room where there is a risk of the density limit being exceeded, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.

The density can be calculated as shown below;

$$\frac{\text{Total amount of refrigerant (kg)}}{\text{Min. volume of the indoor unit installed room (m}^3\text{)}} \leq \text{density limit (kg/m}^3\text{)}$$

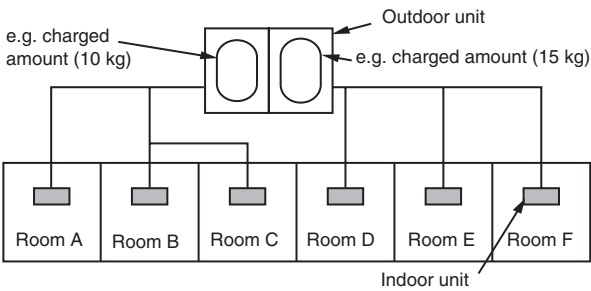
The density calculation must be carried out in accordance with local regulation or guideline like BS EN 378

The above procedure must be completed in accordance with local, national and international standards, code of practice and statutory requirements.

**Note 1:** If there are 2 or more refrigerating systems in a single area, the amount of refrigerant should be charged as required for each individual unit.

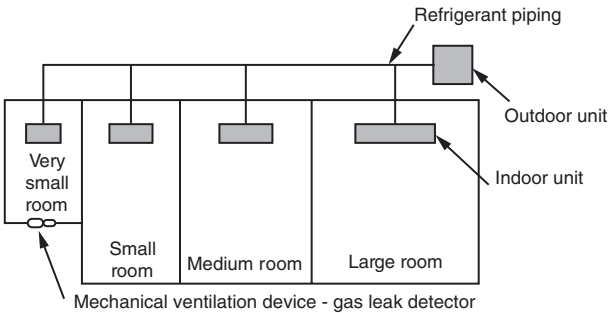
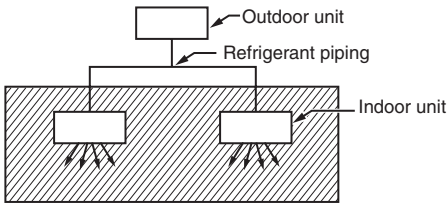
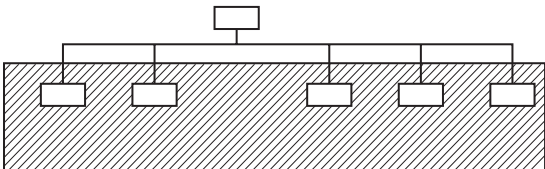
For the amount of charge in this example:

- The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.
- The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

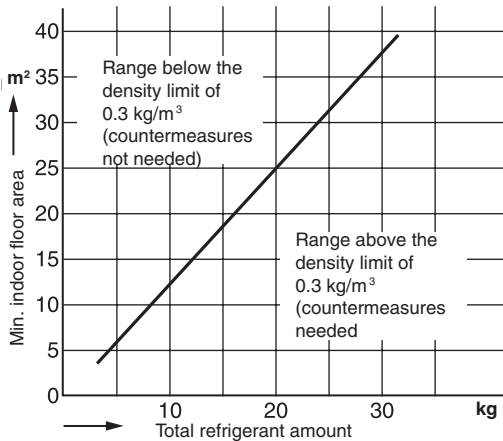


**Note 2:** The standards for minimum room volume are as follows:

- (1) No partition (shaded portion)
- (2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).
- (3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, attention must be paid to ensure safeguards are in place to avoid density limits being exceeded in each partitioned area. When leak detection is interlocked with mechanical ventilation equipment is installed in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.



**Note 3:** The minimum indoor floor area compared with the amount of refrigerant is roughly as follows (when the ceiling is 2.7 m high):



# Outline (Tentative)

- World-class energy savings—COP of 4.61\* achieved by Toshiba's unrivalled S-MMS technologies and newly developed components

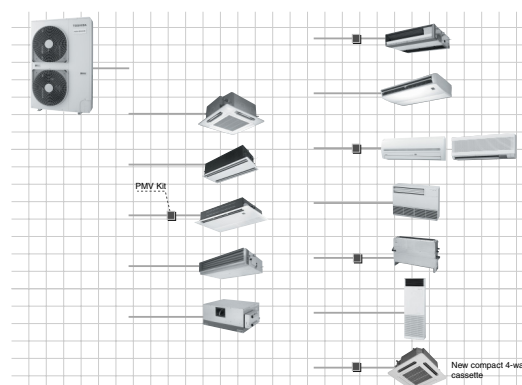
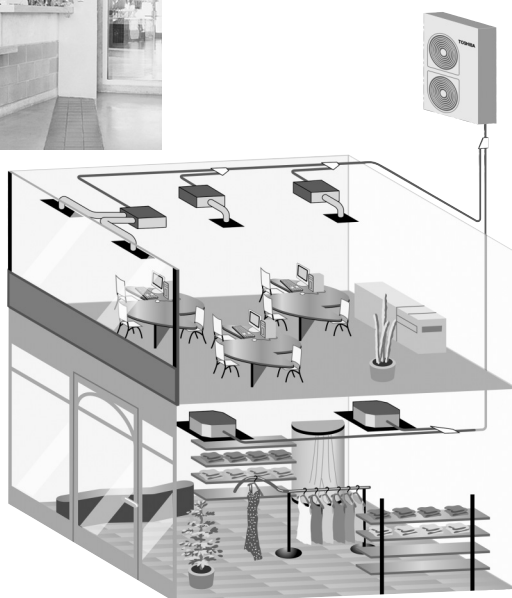
\*4HP CDU system

- Quiet operation can be further enhanced with an optional PMV (flow regulating valve) Kit.

\*Pulse Motor Valve

- Versatile application—13 types of indoor units for use in up to 9 rooms (6 HP)

Sales launch scheduled for early 2006. Specifications differ by region. For questions regarding availability, please contact your local distributor.



## Use of quieter place

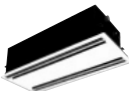
- Necessity of PMV Kit (RBM-PMV0361E / RBM-PMV0901E) for quieter place application as an optional.



## Outdoor unit line-up

| Appearance                                                                        | Model name 50Hz | Model name 60Hz |
|-----------------------------------------------------------------------------------|-----------------|-----------------|
|  | MCY-MAP0401HT   | MCY-MAP0401HT2D |
|                                                                                   | MCY-MAP0501HT   | MCY-MAP0501HT2D |
|                                                                                   | MCY-MAP0601HT   | MCY-MAP0601HT2D |

## Indoor unit line-up

| Cooling capacity (kW)                     |                                                                                     | 2.2 | 2.8 | 3.6                      | 4.5 | 5.6 | 7.1 | 8.0 | 9.0 | 11.2 | 14.0 |
|-------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|--------------------------|-----|-----|-----|-----|-----|------|------|
| (HP equivalent)                           |                                                                                     | 0.8 | 1.0 | 1.25                     | 1.7 | 2.0 | 2.5 | 3.0 | 3.2 | 4.0  | 5.0  |
| 4-way<br>Air Discharge<br>Cassette        |    |     |     | MMU-AP***1H              |     |     |     |     |     |      |      |
| Compact 4-way<br>Cassette<br>(600 x 600)  |    |     |     | MMU-AP***1MH             |     |     |     |     |     |      |      |
| 2-way<br>Air Discharge<br>Cassette        |    |     |     | MMU-AP***1WH             |     |     |     |     |     |      |      |
| 1-way<br>Air Discharge<br>Cassette        |   |     |     | MMU-AP***1YH / -AP***2SH |     |     |     |     |     |      |      |
| Concealed Duct<br>Standard                |  |     |     | MMD-AP***1BH             |     |     |     |     |     |      |      |
| Slim Duct                                 |  |     |     | MMD-AP***1SPH            |     |     |     |     |     |      |      |
| Concealed Duct<br>High Static<br>Pressure |  |     |     | MMD-AP***1H              |     |     |     |     |     |      |      |
| Under Ceiling                             |  |     |     | MMC-AP***1H              |     |     |     |     |     |      |      |
| High Wall<br>1series                      |  |     |     | MMK-AP***1H              |     |     |     |     |     |      |      |
| High Wall<br>2series                      |  |     |     | MMK-AP***2H              |     |     |     |     |     |      |      |
| Floor Standing<br>Cabinet                 |  |     |     | MML-AP***1H              |     |     |     |     |     |      |      |
| Floor Standing<br>Concealed               |  |     |     | MML-AP***1BH             |     |     |     |     |     |      |      |
| Floor<br>Standing                         |  |     |     | MMF-AP***1H              |     |     |     |     |     |      |      |

# Mini-SMMS Design Manual

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# MEMO

# 1. Design methods

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# 1-1. System Overview

## 1-1-1. Outdoor units

| Corresponding HP               |                      | Inverter unit |             |             |
|--------------------------------|----------------------|---------------|-------------|-------------|
|                                |                      | 4HP           | 5HP         | 6HP         |
| Model name                     | Heat pump(50Hz) MCY- | MAP0401HT     | MAP0501HT   | MAP0601HT   |
|                                | Heat pump(60Hz) MCY- | MAP0401HT2D   | MAP0501HT2D | MAP0601HT2D |
| Cooling capacity(kW)*1         |                      | 12.1          | 14.0        | 15.5        |
| Heating capacity(kW)*1         |                      | 12.5          | 16.0        | 18.0        |
| No.of connectable indoor units |                      | 6             | 8           | 9           |

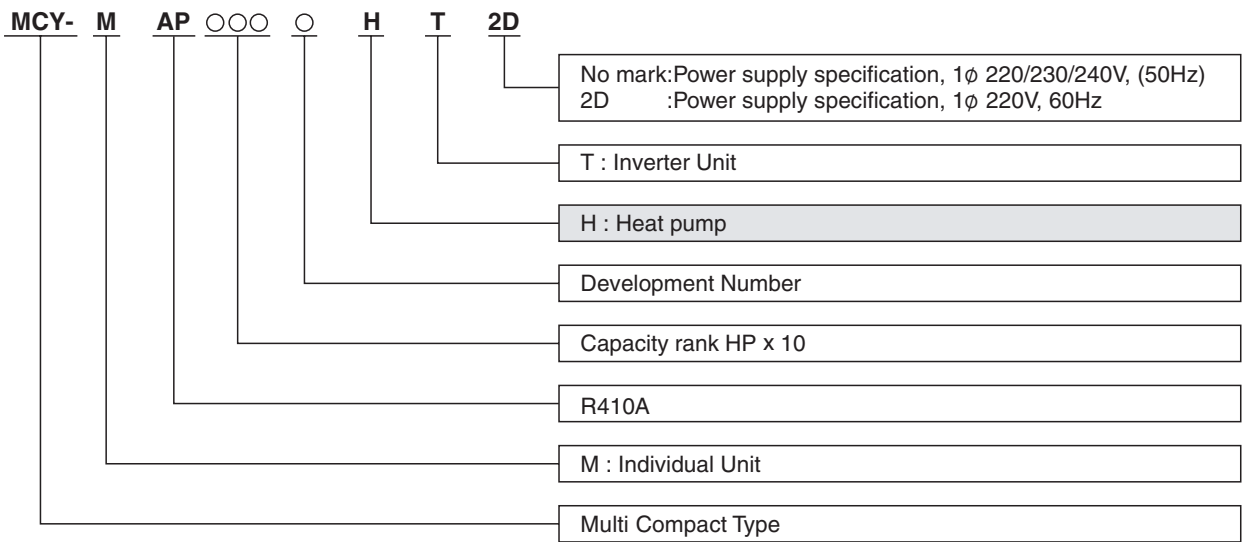
\*1 Rated conditions

Cooling:Indoor air temperature 27°C DB/19°CWB,Outdoor air temperature 35°CDB

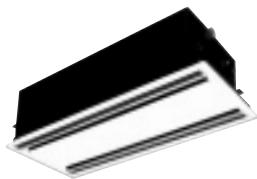
Heating:Indoor air temperature 20°C DB,Outdoor air temperature 7°CDB/6°CWB

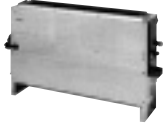


### Allocation standard of model name

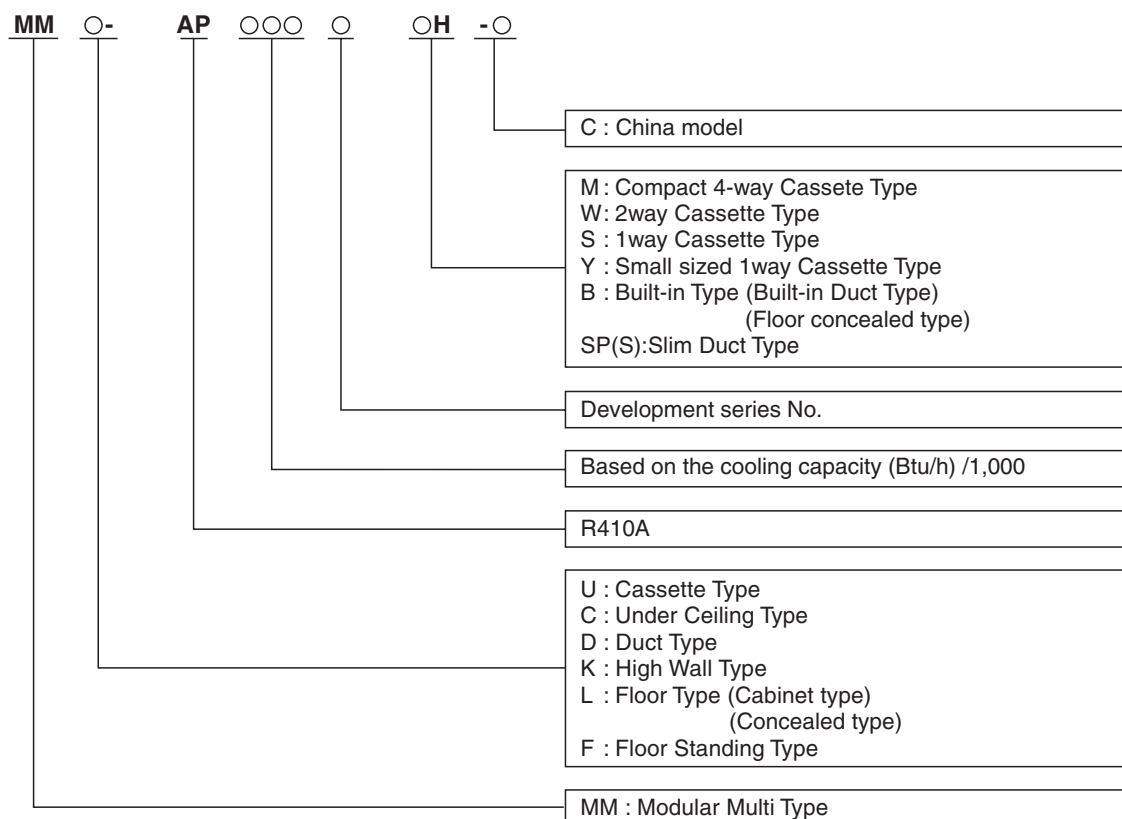


## 1-1-2. Indoor units

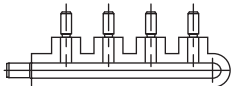
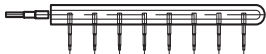
| Type                                       | Appearance                                                                          | Model name    | Capacity rank | Capacity code | Cooling capacity (kW) | Heating capacity (kW) | PMV Kit   |
|--------------------------------------------|-------------------------------------------------------------------------------------|---------------|---------------|---------------|-----------------------|-----------------------|-----------|
| 4-way Air Discharge Cassette Type          |    | MMU-AP0091H   | 009 type      | 1.00          | 2.8                   | 3.2                   | —         |
|                                            |                                                                                     | MMU-AP0121H   | 012 type      | 1.25          | 3.6                   | 4.0                   | —         |
|                                            |                                                                                     | MMU-AP0151H   | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                            |                                                                                     | MMU-AP0181H   | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                            |                                                                                     | MMU-AP0241H   | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                            |                                                                                     | MMU-AP0271H   | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
|                                            |                                                                                     | MMU-AP0301H   | 030 type      | 3.20          | 9.0                   | 10.0                  | —         |
|                                            |                                                                                     | MMU-AP0361H   | 036 type      | 4.00          | 11.2                  | 12.5                  | —         |
| Compact 4-way Air Discharge (600x600) Type |    | MMU-AP0481H   | 048 type      | 5.00          | 14.0                  | 16.0                  | —         |
|                                            |                                                                                     | MMU-AP0071MH  | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                            |                                                                                     | MMU-AP0091MH  | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                            |                                                                                     | MMU-AP0121MH  | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
|                                            |                                                                                     | MMU-AP0151MH  | 015 type      | 1.70          | 4.5                   | 5.0                   | Available |
| 2-way Air Discharge Cassette Type          |    | MMU-AP0181MH  | 018 type      | 2.00          | 5.6                   | 6.3                   | Available |
|                                            |                                                                                     | MMU-AP0071WH  | 007 type      | 0.80          | 2.2                   | 2.5                   | —         |
|                                            |                                                                                     | MMU-AP0091WH  | 009 type      | 1.00          | 2.8                   | 3.2                   | —         |
|                                            |                                                                                     | MMU-AP0121WH  | 012 type      | 1.25          | 3.6                   | 4.0                   | —         |
|                                            |                                                                                     | MMU-AP0151WH  | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                            |                                                                                     | MMU-AP0181WH  | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                            |                                                                                     | MMU-AP0241WH  | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                            |                                                                                     | MMU-AP0271WH  | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
| 1-way Air Discharge Cassette Type          |   | MMU-AP0301WH  | 030 type      | 3.20          | 9.0                   | 10.0                  | —         |
|                                            |                                                                                     | MMU-AP0071YH  | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                            |                                                                                     | MMU-AP0091YH  | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                            |                                                                                     | MMU-AP0121YH  | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
|                                            |                                                                                     | MMU-AP0152SH  | 015 type      | 1.70          | 4.5                   | 5.0                   | Available |
|                                            |                                                                                     | MMU-AP0182SH  | 018 type      | 2.00          | 5.6                   | 6.3                   | Available |
| Concealed Duct Standard Type               |  | MMU-AP0242SH  | 024 type      | 2.50          | 7.1                   | 8.0                   | Available |
|                                            |                                                                                     | MMD-AP0071BH  | 007 type      | 0.80          | 2.2                   | 2.5                   | —         |
|                                            |                                                                                     | MMD-AP0091BH  | 009 type      | 1.00          | 2.8                   | 3.2                   | —         |
|                                            |                                                                                     | MMD-AP0121BH  | 012 type      | 1.25          | 3.6                   | 4.0                   | —         |
|                                            |                                                                                     | MMD-AP0151BH  | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                            |                                                                                     | MMD-AP0181BH  | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                            |                                                                                     | MMD-AP0241BH  | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                            |                                                                                     | MMD-AP0271BH  | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
|                                            |                                                                                     | MMD-AP0301BH  | 030 type      | 3.20          | 9.0                   | 10.0                  | —         |
|                                            |                                                                                     | MMD-AP0361BH  | 036 type      | 4.00          | 11.2                  | 12.5                  | —         |
| Slim Duct Type                             |  | MMD-AP0481BH  | 048 type      | 5.00          | 14.0                  | 16.0                  | —         |
|                                            |                                                                                     | MMD-AP0071SPH | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                            |                                                                                     | MMD-AP0091SPH | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                            |                                                                                     | MMD-AP0121SPH | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
|                                            |                                                                                     | MMD-AP0151SPH | 015 type      | 1.70          | 4.5                   | 5.0                   | Available |
| Concealed Duct High Static Pressure Type   |  | MMD-AP0181SPH | 018 type      | 2.00          | 5.6                   | 6.3                   | Available |
|                                            |                                                                                     | MMD-AP0241H   | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                            |                                                                                     | MMD-AP0271H   | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
|                                            |                                                                                     | MMD-AP0361H   | 036 type      | 4.00          | 11.2                  | 10.0                  | —         |
|                                            |                                                                                     | MMD-AP0481H   | 048 type      | 5.00          | 14.0                  | 16.0                  | —         |
| Under Ceiling Type                         |  | MMC-AP0151H   | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                            |                                                                                     | MMC-AP0181H   | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                            |                                                                                     | MMC-AP0241H   | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                            |                                                                                     | MMC-AP0271H   | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
|                                            |                                                                                     | MMC-AP0361H   | 036 type      | 4.00          | 11.2                  | 12.5                  | —         |
|                                            |                                                                                     | MMC-AP0481H   | 048 type      | 5.00          | 14.0                  | 16.0                  | —         |

| Type                             | Appearance                                                                        | Model name   | Capacity rank | Capacity code | Cooling capacity (kW) | Heating capacity (kW) | PMV Kit   |
|----------------------------------|-----------------------------------------------------------------------------------|--------------|---------------|---------------|-----------------------|-----------------------|-----------|
| High Wall Type<br>(1 series)     |  | MMK-AP0071H  | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                  |                                                                                   | MMK-AP0091H  | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                  |                                                                                   | MMK-AP0121H  | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
|                                  |                                                                                   | MMK-AP0151H  | 015 type      | 1.70          | 4.5                   | 5.0                   | Available |
|                                  |                                                                                   | MMK-AP0181H  | 018 type      | 2.00          | 5.6                   | 6.3                   | Available |
|                                  |                                                                                   | MMK-AP0241H  | 024 type      | 2.50          | 7.1                   | 8.0                   | Available |
| High Wall Type<br>(2 series)     |  | MMK-AP0072H  | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                  |                                                                                   | MMK-AP0092H  | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                  |                                                                                   | MMK-AP0122H  | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
| Floor Standing<br>Cabinet Type   |  | MML-AP0071H  | 007 type      | 0.80          | 2.2                   | 2.5                   | Available |
|                                  |                                                                                   | MML-AP0091H  | 009 type      | 1.00          | 2.8                   | 3.2                   | Available |
|                                  |                                                                                   | MML-AP0121H  | 012 type      | 1.25          | 3.6                   | 4.0                   | Available |
|                                  |                                                                                   | MML-AP0151H  | 015 type      | 1.70          | 4.5                   | 5.0                   | Available |
|                                  |                                                                                   | MML-AP0181H  | 018 type      | 2.00          | 5.6                   | 6.3                   | Available |
|                                  |                                                                                   | MML-AP0241H  | 024 type      | 2.50          | 7.1                   | 8.0                   | Available |
| Floor Standing<br>Concealed Type |  | MML-AP0071BH | 007 type      | 0.80          | 2.2                   | 2.5                   | —         |
|                                  |                                                                                   | MML-AP0091BH | 009 type      | 1.00          | 2.8                   | 3.2                   | —         |
|                                  |                                                                                   | MML-AP0121BH | 012 type      | 1.25          | 3.6                   | 4.0                   | —         |
|                                  |                                                                                   | MML-AP0151BH | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                  |                                                                                   | MML-AP0181BH | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                  |                                                                                   | MML-AP0241BH | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
| Floor Standing Type              |  | MMF-AP0151H  | 015 type      | 1.70          | 4.5                   | 5.0                   | —         |
|                                  |                                                                                   | MMF-AP0181H  | 018 type      | 2.00          | 5.6                   | 6.3                   | —         |
|                                  |                                                                                   | MMF-AP0241H  | 024 type      | 2.50          | 7.1                   | 8.0                   | —         |
|                                  |                                                                                   | MMF-AP0271H  | 027 type      | 3.00          | 8.0                   | 9.0                   | —         |
|                                  |                                                                                   | MMF-AP0361H  | 036 type      | 4.00          | 11.2                  | 10.0                  | —         |
|                                  |                                                                                   | MMF-AP0481H  | 048 type      | 5.00          | 14.0                  | 16.0                  | —         |

## Allocation standard of model name



### 1-1-3. Branching joints and headers \*1

|                         | Model name         | Usage                                                           | Appearance                                                                          |
|-------------------------|--------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Y-shape branching joint | <b>RBM-BY53E</b>   | Indoor unit capacity code (*2) :Total below 6.4                 |  |
|                         | <b>RBM-BY103E</b>  | Indoor unit capacity code (*2) :Total 6.4 or more and below 7.8 |                                                                                     |
| 4-branching header      | <b>RBM-HY1043E</b> | Indoor unit capacity code (*2) :Total below 7.8                 |  |
| 8-branching header      | <b>RBM-HY1083E</b> | Indoor unit capacity code (*2) :Total below 7.8                 |  |

\*1 If total capacity code value of indoor unit exceeds that of outdoor unit, apply code of outdoor unit.

\*2 "capacity code" can be obtained from page 1-17. (capacity code is not actual capacity)

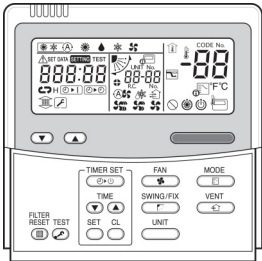
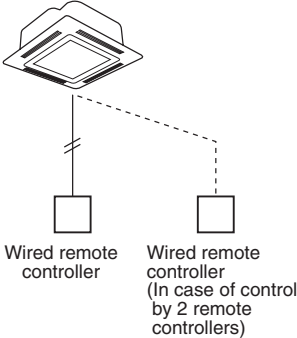
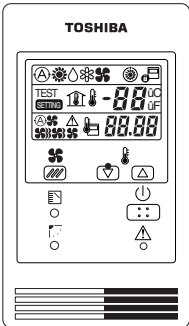
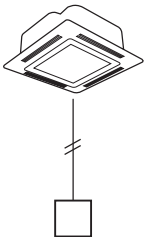
\*3 When using Y-shape branching joint for 1st branching, select according to the capacity code of outdoor unit.

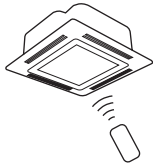
### 1-1-4. PMV Kit

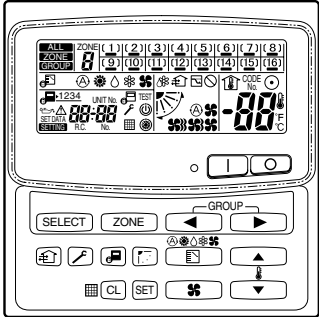
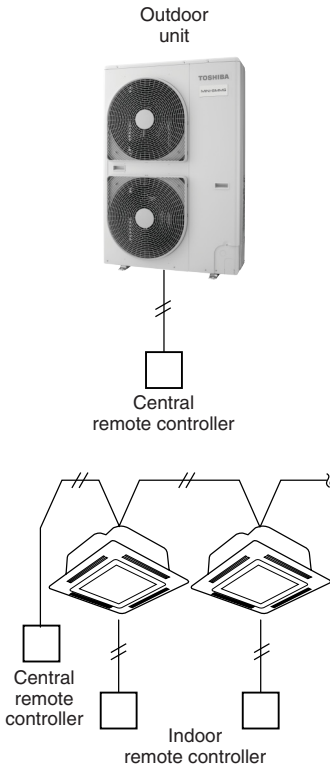
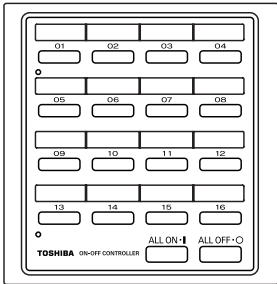
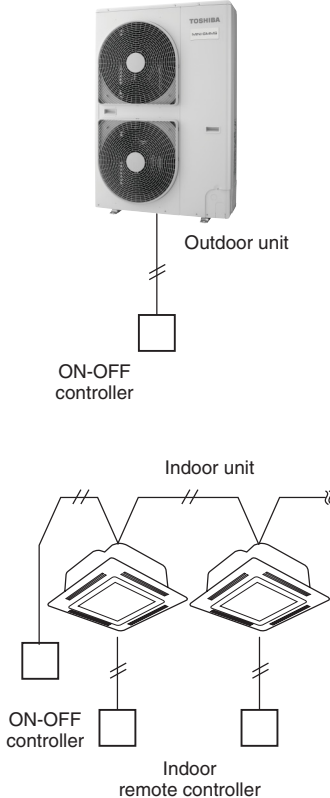
| Model name          | Indoor unit capacity type | Appearance                                                                            |
|---------------------|---------------------------|---------------------------------------------------------------------------------------|
| <b>RBM-PMV0361E</b> | 007, 009, 012 type        |  |
| <b>RBM-PMV0901E</b> | 015, 018, 024 type        |                                                                                       |

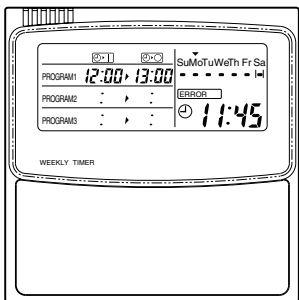
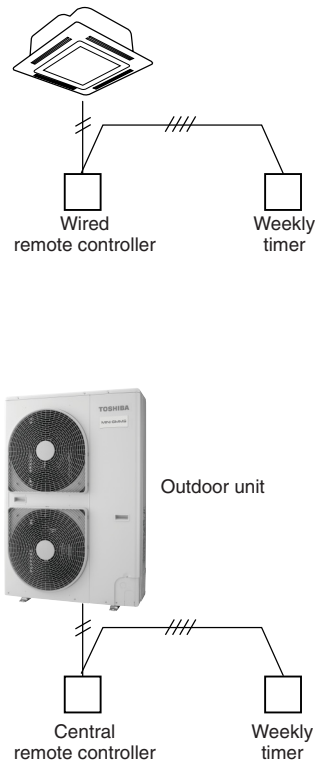
For more information see section 3.

## 1-1-5. Remote controller

| Name                           | Model name | Appearance                                                                          | Application                                                                                                                                                                                                                          | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------|------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wired remote controller        | RBC-AMT31E |    | <p><b>Connected to indoor unit</b></p>  <p>Wired remote controller</p> <p>Wired remote controller (In case of control by 2 remote controllers)</p> | <ul style="list-style-type: none"> <li>Start / Stop</li> <li>Mode Change</li> <li>Temperature setting</li> <li>Fan speed</li> <li>Timer function <ul style="list-style-type: none"> <li>① On or off elapsed timer with 30 minutes increments. Automatic off function.</li> <li>② Weekly when combined with RBC-EXW21E2 weekly schedule operation can be operated.</li> </ul> </li> <li>Filter dirty indicator<br/>Displays automatically maintenance time of indoor filter by flashes.</li> <li>Self-diagnosis function<br/>Pressing "CHECK" button displays status code.</li> <li>Control by 2 remote controllers is available.<br/>Two remote controllers can be connected to one indoor unit.<br/>The indoor unit can be separately operated from a different location.</li> </ul> |
| Simple wired remote controller | RBC-AS21E2 |  | <p><b>Connected to indoor unit</b></p>  <p>Simple remote controller</p>                                                                           | <ul style="list-style-type: none"> <li>Start / Stop</li> <li>Temperature setting</li> <li>Change of air flow</li> <li>Check code display</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Name                           | Model name      | Appearance                                                                        |                                                                                     | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|-----------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless remote controller kit | TCB-AX21U(W)-E2 |  |    | <ul style="list-style-type: none"> <li>• Start / Stop</li> <li>• Mode change</li> <li>• Temperature setting</li> <li>• Change of air flow</li> <li>• Timer function<br/>On or off timer operation, setting in 30 minutes increments.<br/>Automatic Off function.</li> <li>• Control by 2 remote controllers is available.<br/>Two wireless remote controllers can operate one indoor unit. The indoor unit can be separately operated from a different location.</li> <li>• Check code display<br/>TCB-AX21U(W)-E2<br/>(for 4-way airdischARGE cassette)<br/>RBC-AX22CE2<br/>(for under ceiling)<br/>TCB-AX21-E2<br/>(for other units except for the concealed duct high static pressure)</li> </ul>  |
|                                | RBC-AX22CE2     |                                                                                   |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                | TCB-AX21E2      |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

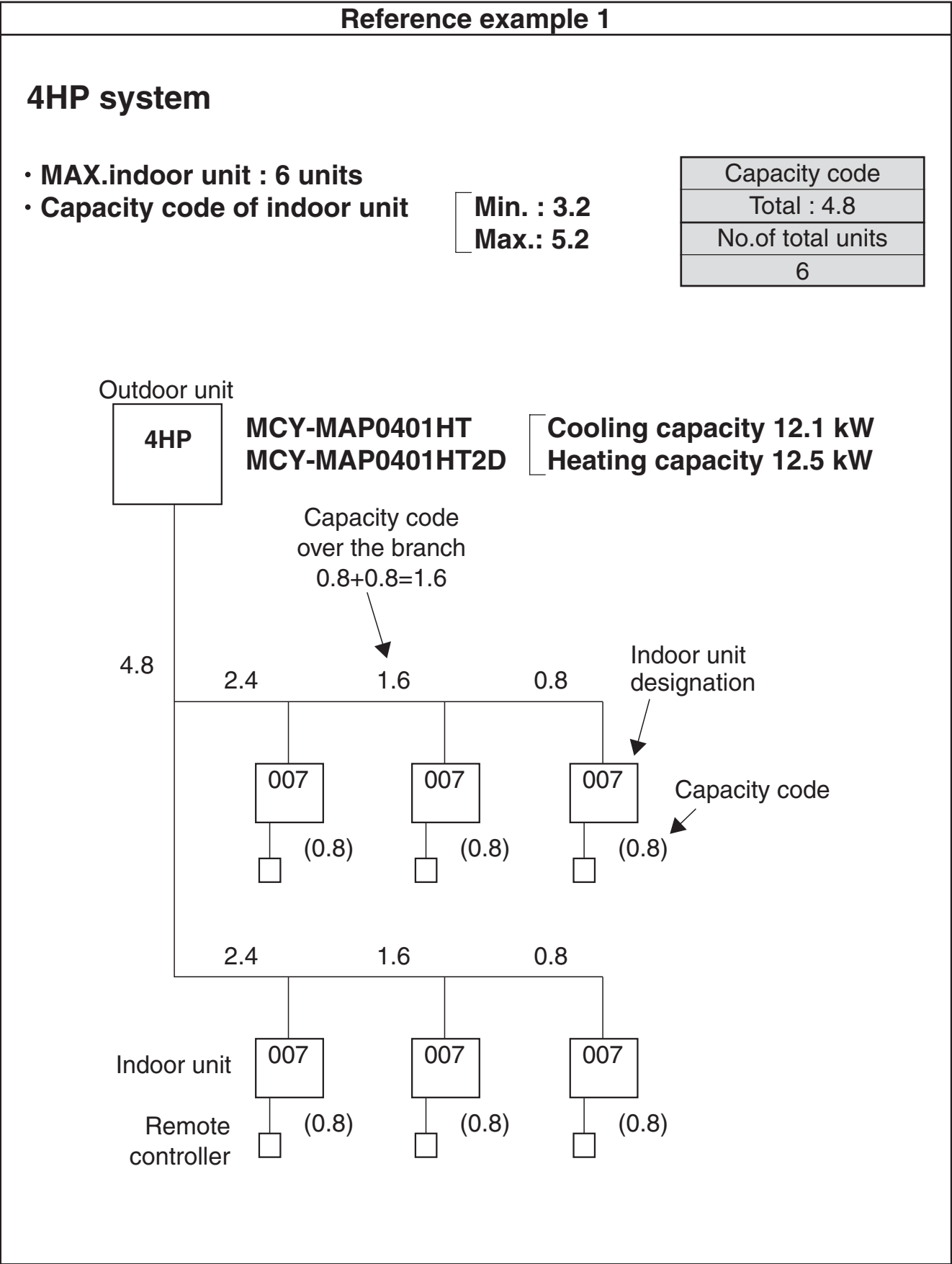
| Name                      | Model name    | Appearance                                                                          | Application                                                                                                                                                                                                                     | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|---------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Central remote controller | TCB-SC642TLE2 |    | <p><b>Connected to outdoor unit, or indoor unit</b></p> <p>Outdoor unit</p>  <p>Central remote controller</p> <p>Indoor remote controller</p> | <p>Individual control up to 64 indoor units.<br/>Individual control for max. 64 indoor units divided into 4 zones.<br/>(Up to 16 indoor units for each zone)</p> <p>Up to 16 outdoor units are connectable.</p> <p>Four selectable central control settings to restrict individual remote controller operations.</p> <p>Setting for one of 1 to 4 zones is available.</p> <p>Can be used with other central control devices (Up to 10 central control devices with in one control circuit)</p> <p>Two selectable control modes<br/>(Central controller mode)<br/>(Remote controller mode)</p> <p>Setting of simultaneous ON/OFF 3 times for each day of the week combined with a weekly timer.</p> |
| ON-OFF controller         | TCB-CC163TLE2 |  | <p><b>Connected to outdoor unit, or indoor unit</b></p> <p>Outdoor unit</p>  <p>ON-OFF controller</p> <p>Indoor remote controller</p>        | <ul style="list-style-type: none"> <li>Individual control up to 16 indoor units.</li> <li>Setting of simultaneous ON-OFF 3 times for each day of the week when combined with a weekly timer.</li> <li>Connected to 2 remote controllers is possible.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Name         | Model name  | Appearance                                                                        | Application                                                                                                                                                        | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------|-------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weekly timer | RBC-EXW21E2 |  | <p><b>Connected to central remote controller or wired remote controller</b></p>  | <p>Weekly schedule operation</p> <p>① Setting different start / stop time for each day of the week</p> <p>② ON / OFF can be set 3 times a day.</p>  <p>③ "CHECK" "PROGRAM" "DAY" button copying of settings easy.</p> <p>④ Two different schedules for a week can be specified. (Summer schedule and winter schedule, etc.)</p> <p>⑤ "CANCEL" "DAY" button enables holiday setting.</p> <p>⑥ If power supply fails, the setting contents are stored in the memory for 100 hours.</p> |

# 1-2. Basic system configuration

The following shows an example of Basic system configuration

① In case of without "PMV Kit"



① In case of without "PMV Kit"

## Reference example 2

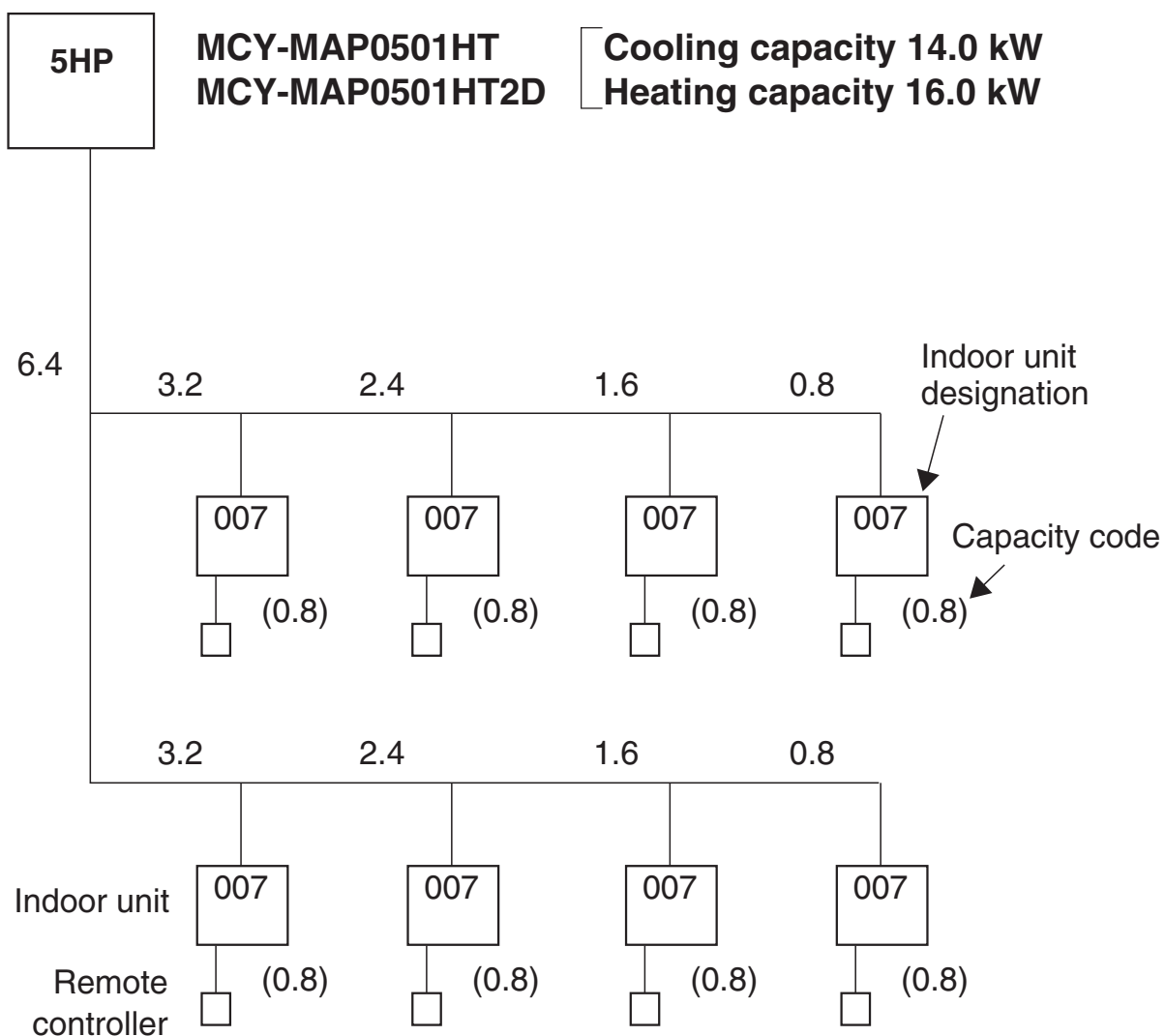
### 5HP system

- MAX.indoor unit : 8 units
- Capacity code of indoor unit

Min. : 4.0  
Max.: 6.5

|                   |
|-------------------|
| Capacity code     |
| Total : 6.4       |
| No.of total units |
| 8                 |

Outdoor unit



① In case of without "PMV Kit"

### Reference example 3

## 6HP system

- MAX.indoor unit : 9 units
- Capacity code of indoor unit

Min. : 4.8  
Max.: 7.8

|                   |
|-------------------|
| Capacity code     |
| Total : 7.6       |
| No.of total units |
| 9                 |

Outdoor unit



7.6

2.6

1.8

1.0

Indoor unit  
designation



007

(0.8)



007

(0.8)



009

(1.0)



Capacity code

5.0

2.6

1.6

0.8



009

(1.0)



007

(0.8)



007

(0.8)



2.4

1.6

0.8

Indoor unit



007

(0.8)



007

(0.8)



007

(0.8)



Remote  
controller

② In case of "PMV Kit"

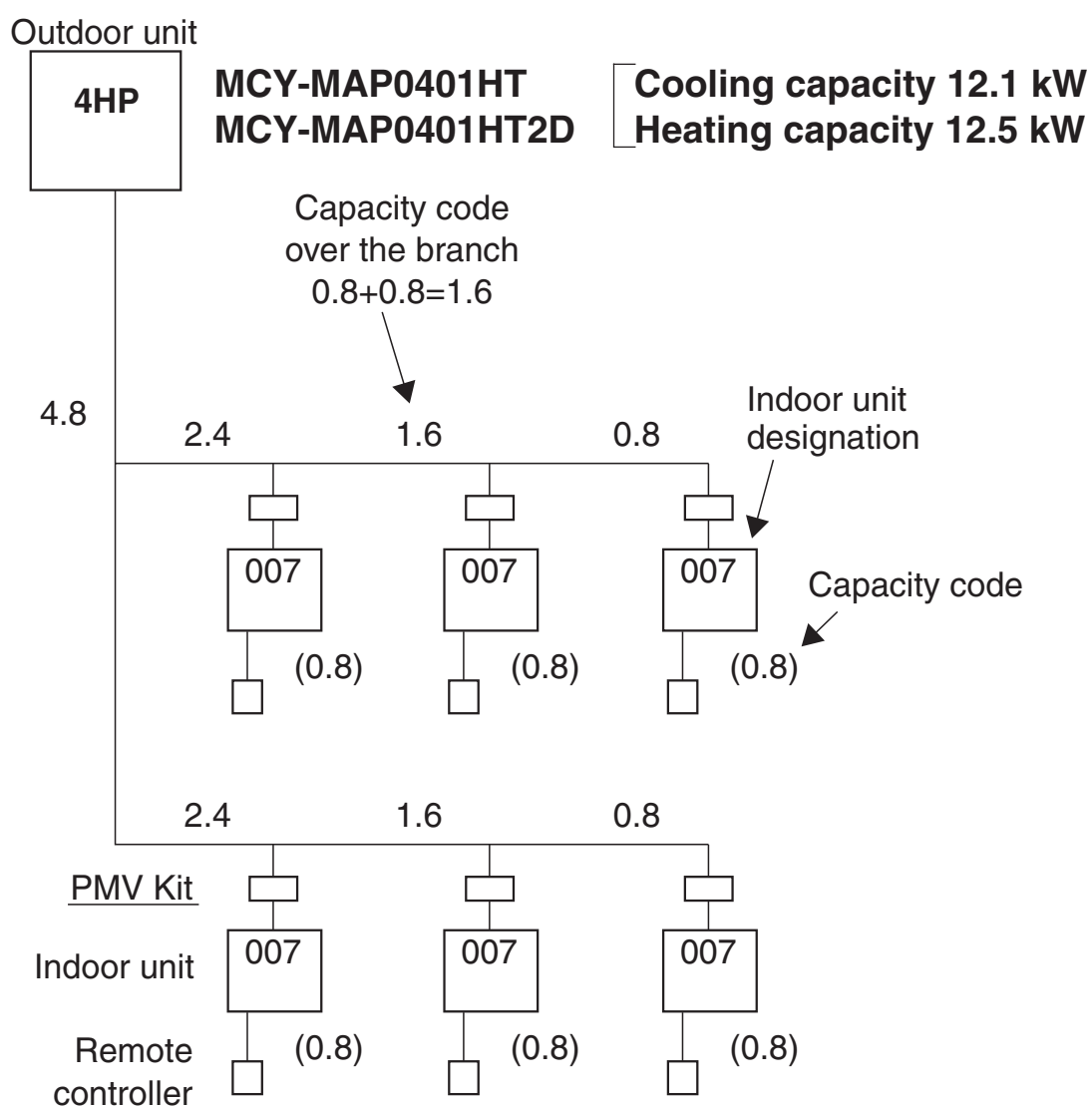
## Reference example 4

### 4HP system

- MAX.indoor unit : 6 units
- Capacity code of indoor unit

Min. : 3.2  
Max.: 5.2

|                   |
|-------------------|
| Capacity code     |
| Total : 4.8       |
| No.of total units |
| 6                 |



② In case of "PMV Kit"

## Reference example 5

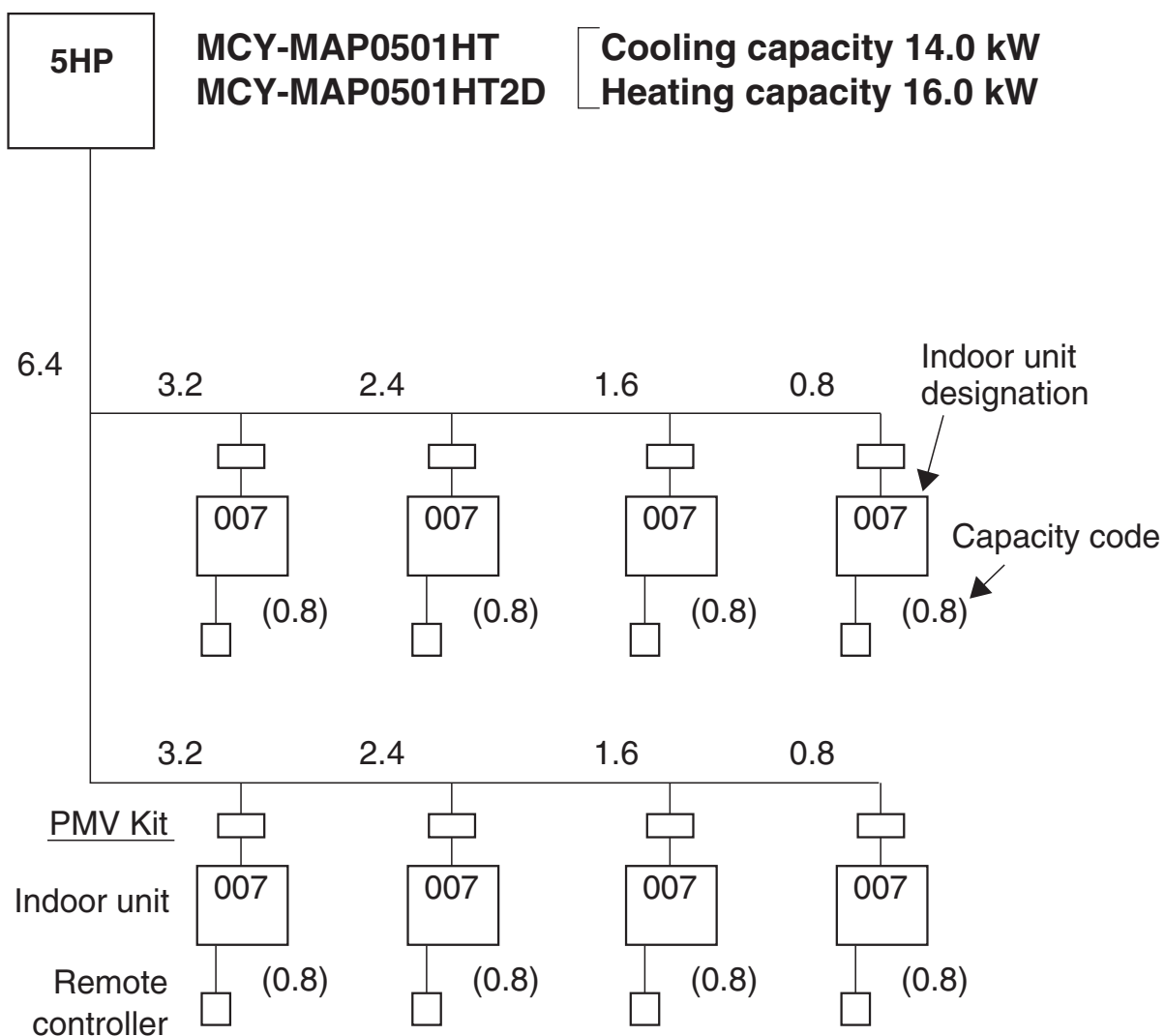
### 5HP system

- MAX.indoor unit : 8 units
- Capacity code of indoor unit

Min. : 4.0  
Max.: 6.5

|                   |
|-------------------|
| Capacity code     |
| Total : 6.4       |
| No.of total units |
| 8                 |

Outdoor unit



② In case of "PMV Kit"

## Reference example 6

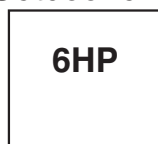
### 6HP system

- MAX.indoor unit : 9 units
- Capacity code of indoor unit

Min. : 4.8  
Max.: 7.8

|                   |
|-------------------|
| Capacity code     |
| Total : 7.6       |
| No.of total units |
| 9                 |

Outdoor unit



MCY-MAP0601HT  
MCY-MAP0601HT2D

Cooling capacity 15.5 kW  
Heating capacity 18.0 kW

7.6

2.6

1.8

1.0

Indoor unit  
designation



(0.8)

(0.8)

(1.0)

Capacity code

5.0

2.6

1.6

0.8



(1.0)

(0.8)

(0.8)

2.4

1.6

0.8

PMV Kit



Indoor unit



Remote  
controller



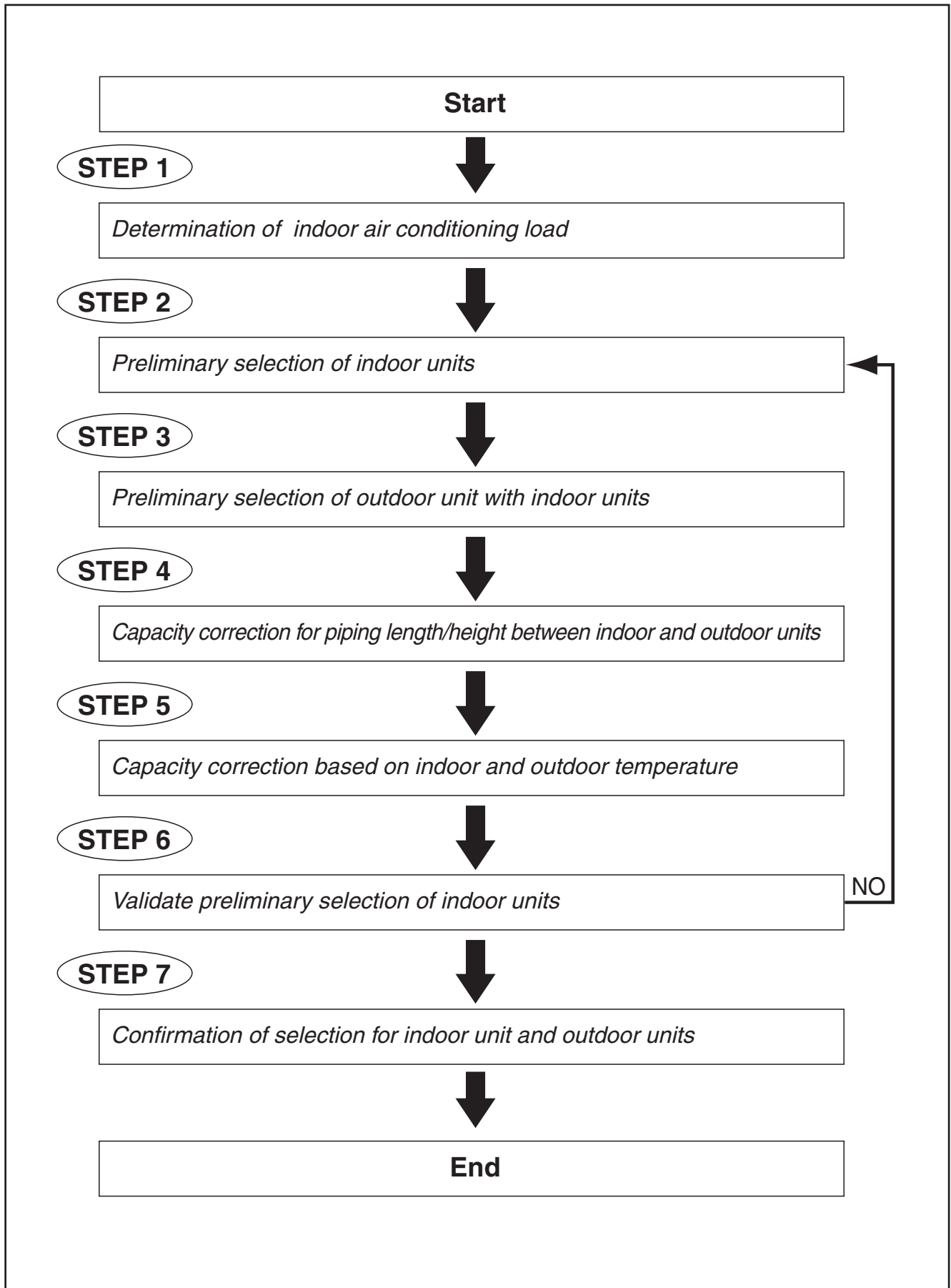
(0.8)

(0.8)

(0.8)

## 1-3. Equipment selection procedure

### 1-3-1. Selection flow chart



### 1-3-2. Combination conditions for indoor unit and outdoor unit

① For indoor unit, the capacity code is decided for each capacity rank.

| Capacity rank type | 007 | 009 | 012  | 015 | 018 | 024 | 027 | 030 | 036 | 048 |
|--------------------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| Capacity code      | 0.8 | 1   | 1.25 | 1.7 | 2   | 2.5 | 3   | 3.2 | 4   | 5   |

**NOTE :**

Capacity rank : Correspondence to Btu/h. Capacity code : Correspondence to Horsepower.

② For outdoor unit, maximum No. of connectable indoor units and total capacity code of indoor units are decided.

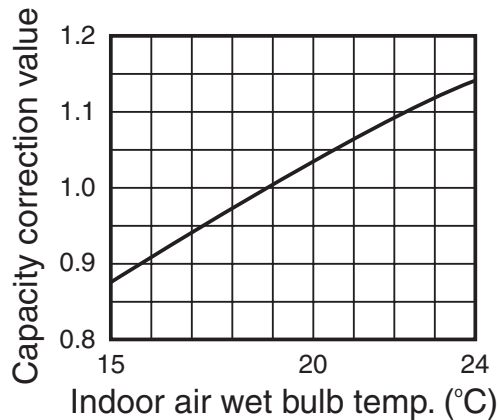
| Outdoor unit                     | Capacity code of outdoor unit | Max. No. of indoor units | Total capacity code of indoor units |
|----------------------------------|-------------------------------|--------------------------|-------------------------------------|
| MCY-MAP0401HT<br>MCY-MAP0401HT2D | 4                             | 6                        | 3.2 to 5.2                          |
| MCY-MAP0501HT<br>MCY-MAP0501HT2D | 5                             | 8                        | 4.0 to 6.5                          |
| MCY-MAP0601HT<br>MCY-MAP0601HT2D | 6                             | 9                        | 4.8 to 7.8                          |

### 1-3-3. Cooling/heating capacity characteristics

① **Cooling capacity calculation method :**

**Required cooling capacity = Cooling capacity x Factor ( I , II , III, IV, V \*1) kW**

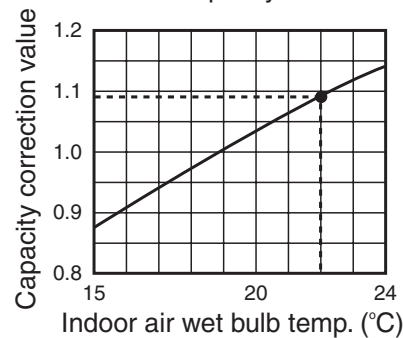
I Indoor air wet bulb temperature vs. capacity correction value



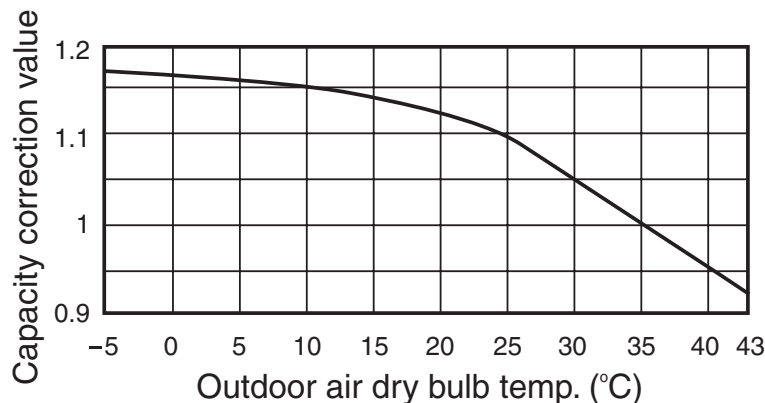
(Example)

Design Indoor conditions : 22°C WB

Capacity correction value : 1.09



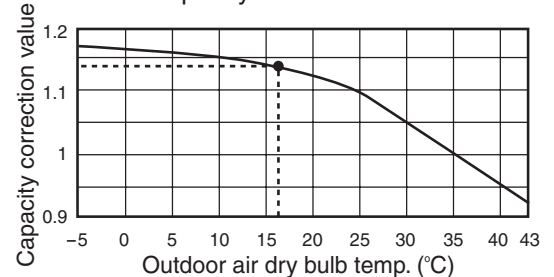
II Outdoor air dry bulb temperature vs. capacity correction value



(Example)

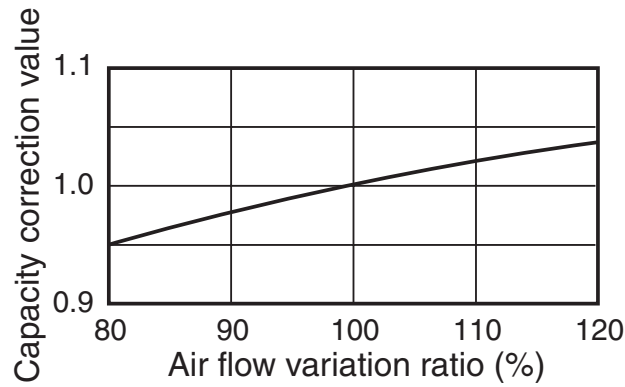
Design Outdoor conditions : 17°C DB

Capacity correction value : 1.14

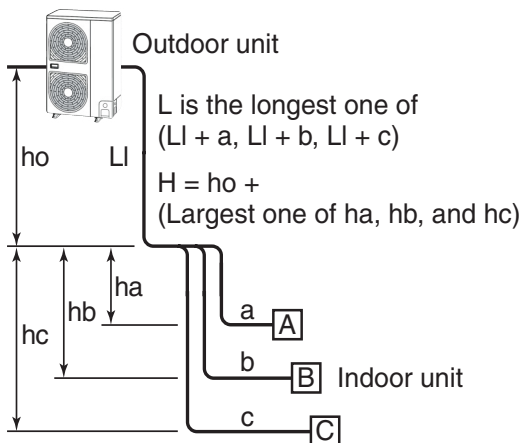
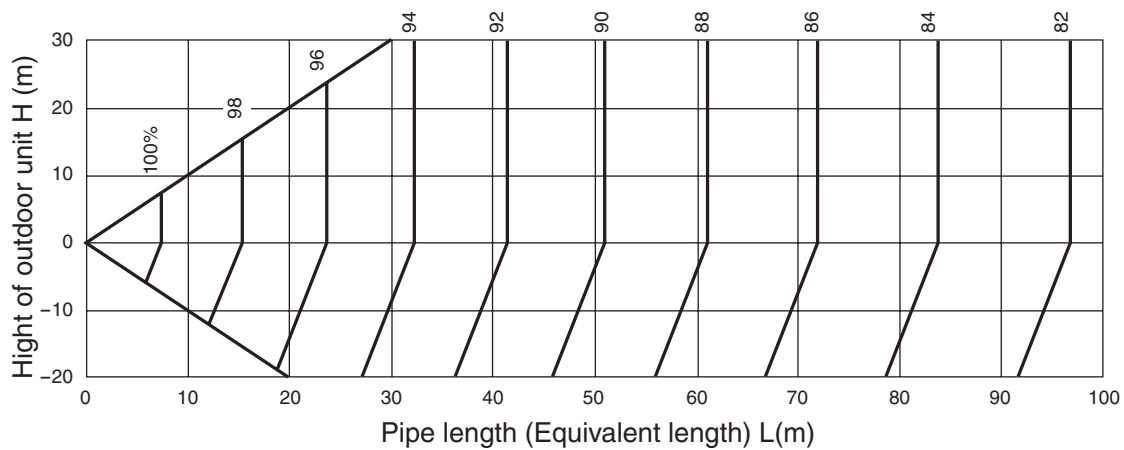


\*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

### III Air flow variation ratio of indoor unit vs. capacity correction (For concealed duct type only)

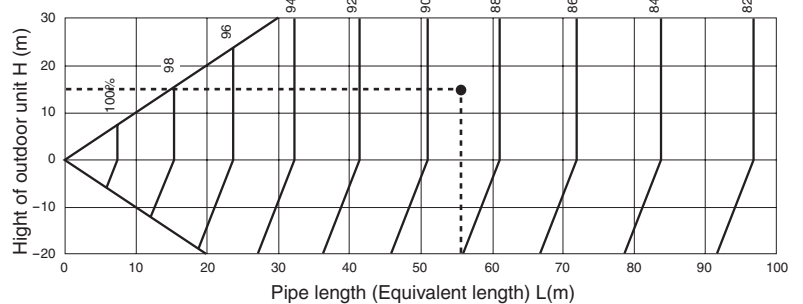


### IV Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value

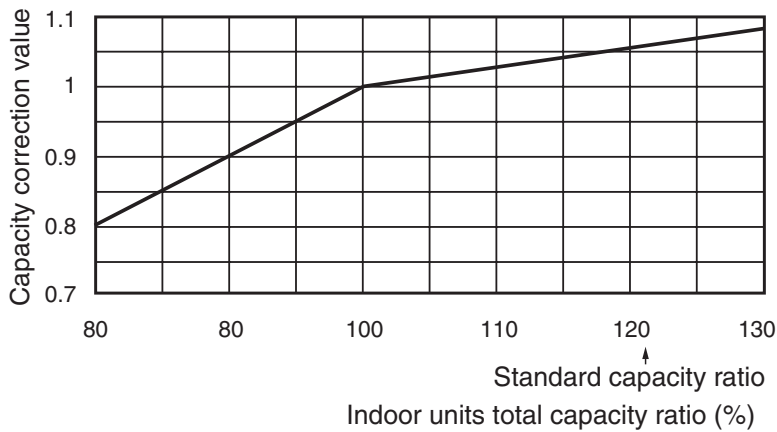


(Example)

Design Pipelength : 55m  
 Height of outdoor unit : 15m  
 Capacity correction value : 89%

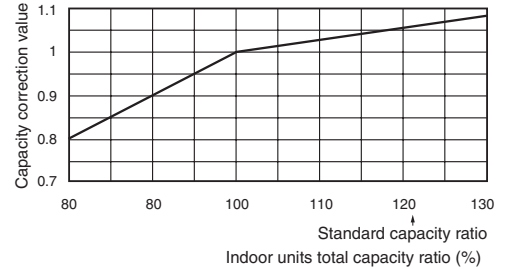


## V Correction of outdoor unit diversity



### (Example)

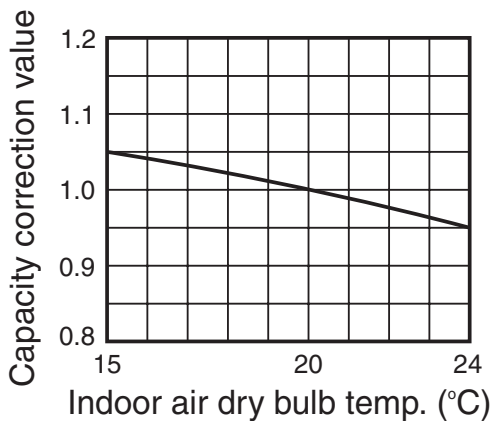
Design Outdoor unit : 5.0HP  
 Indoor units total capacity : 5.5HP  
 (Capacity ratio : 110%)  
 Capacity correction value : 1.03%



## ② Heating capacity calculation method :

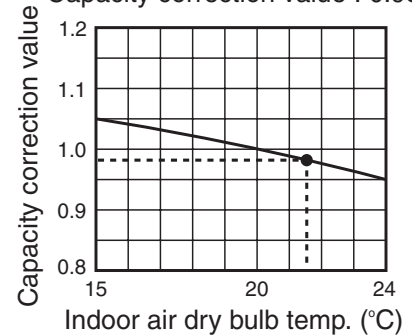
**Required heating capacity = Heating capacity x Factor ( I , II , III , IV , V\*<sup>1</sup>, VI\*<sup>2</sup>) kW**

### I Indoor air dry bulb temperature vs. capacity correction value

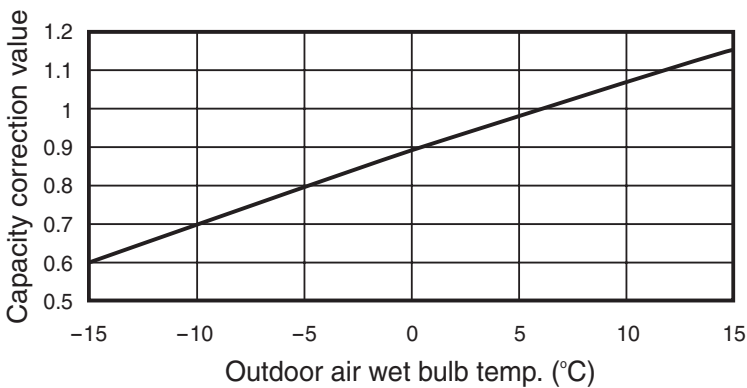


### (Example)

Design Indoor conditions : 21.5°C DB  
 Capacity correction value : 0.98

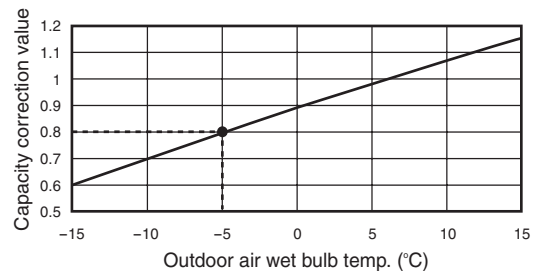


### II Outdoor air wet bulb temperature vs. capacity correction value



### (Example)

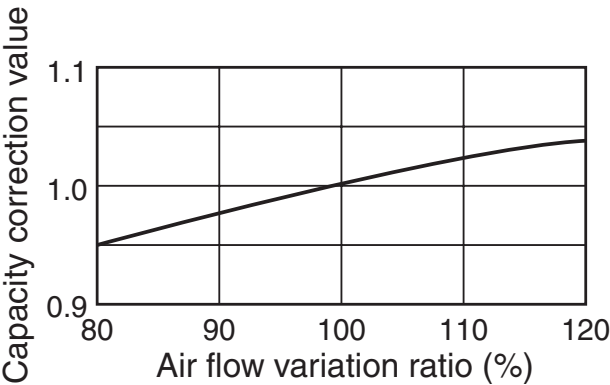
Design Outdoor conditions : -5°C WB  
 Capacity correction value : 0.8



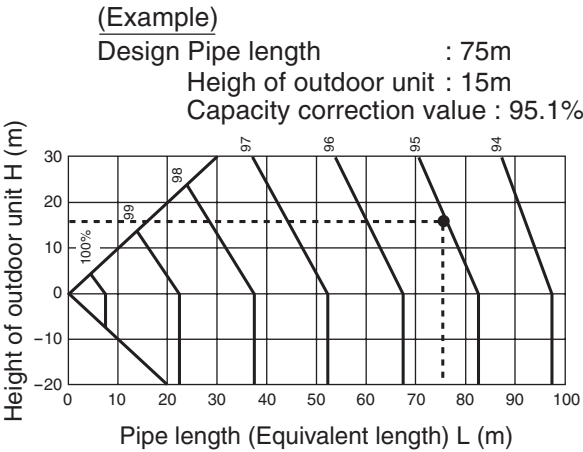
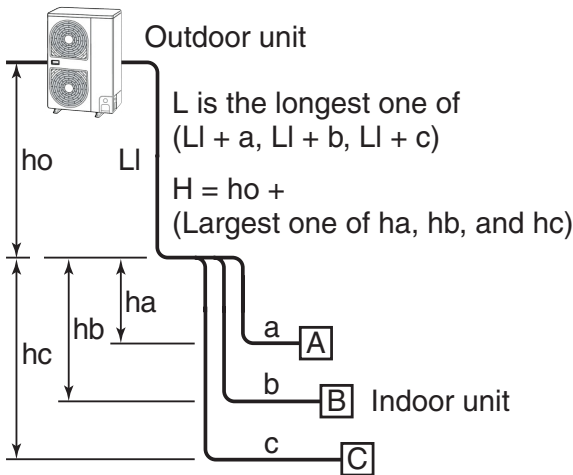
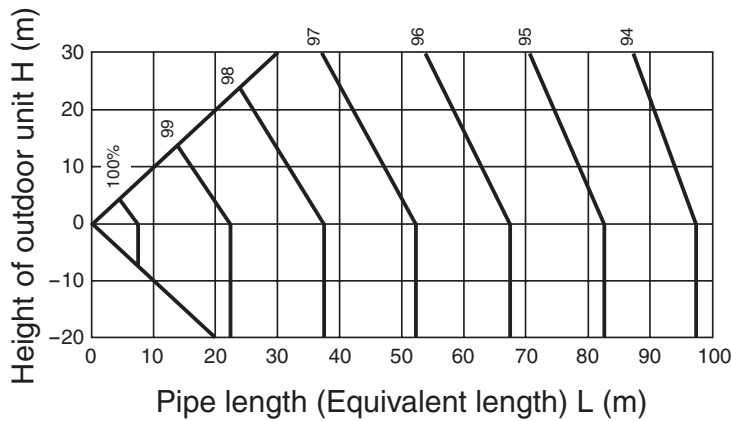
\*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

\*2 : Refer to item 3.

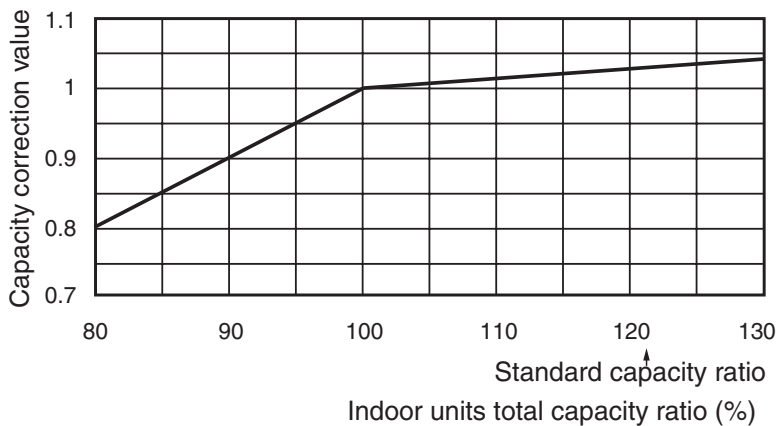
III Air flow variation ratio of indoor unit vs. capacity correction (For concealed duct type only)



IV Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value

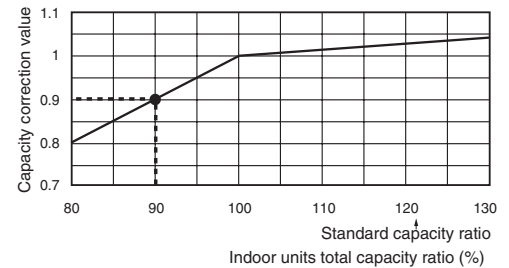


## V Correction of outdoor unit diversity



### (Example)

Design Outdoor unit : 5HP  
 Indoor units total capacity : 4.5HP  
 (Capacity ratio : 90%)  
 Capacity correction value : 0.9%



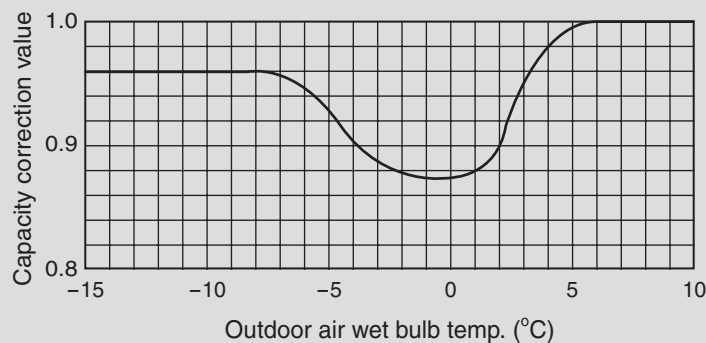
\*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

## ③ Capacity correction in case of frost on the outdoor heat exchanger in heating

Correct the heating capacity when frost was found on the outdoor heat exchanger.

Heating capacity = Capacity after correction of outdoor unit × Correction value of capacity resulted from frost  
 (Capacity after correction of outdoor unit : Heating capacity calculated in the above item 2.)

## VI Capacity correction in case of frost on the outdoor heat exchanger

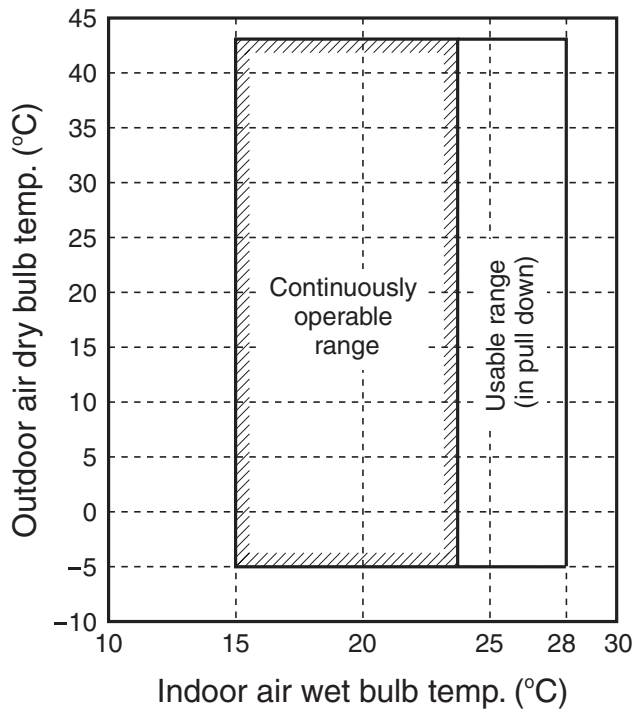


## ④ Capacity calculation for each indoor unit

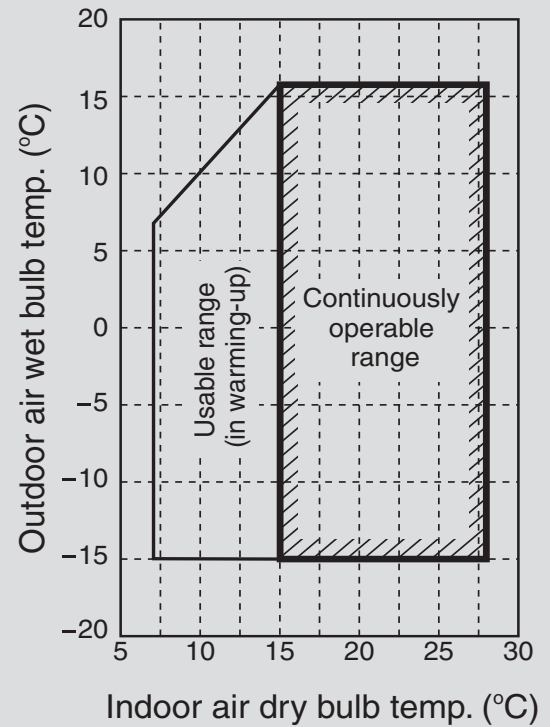
Capacity for each indoor unit  
 = Capacity after correction of outdoor unit ×  $\frac{\text{Required standard capacity of indoor unit}}{\text{Total value of standard indoor unit capacity}}$

## ⑤ Operating temperature range

**In cooling time**



**In heating time**



## ⑥ Rated conditions

Cooling :

Indoor air temperature 27°C DB/19.0°C WB, Outdoor air temperature 35°C DB

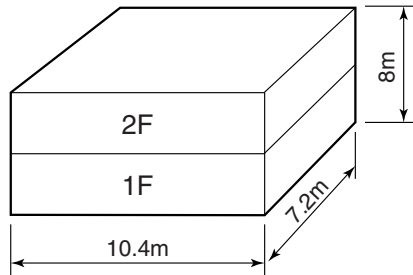
Heating :

Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

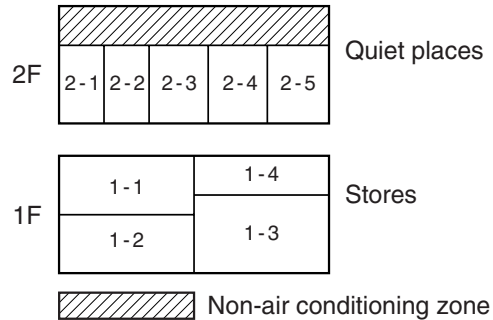
### 1-3-4. Example of equipment Selection

The following shows an example of equipment selection based upon a building model  
**Fig. 1 Overview of building model**

<Outside view>



<Floor plan>



- Steel frame, reinforced concrete building, two stories above ground. Total floor area : 150m<sup>2</sup>  
Outdoor unit is installed on the roof.
- Design indoor conditions  
Cooling : 27.0/19.0°C DB/WB, Heating : 20°C DB
- Design outdoor conditions  
Cooling : 35°C DB (Standard condition), Heating : 3°C WB (Standard condition : 6°C WB)



#### Selection Criteria for Each Floor

##### 2F : Outdoor capacity exactly matches the total indoor capacity.

- Total indoor HP = Outdoor unit HP  
Indoor : 1.5 HP x 2 units + 1.25 HP + 1.0 HP + 0.8HP = 6.05 HP  
Outdoor: 6 HP Same capacity

##### 1F : Consider the increasing heat load in the specific room.

Total indoor units HP > Outdoor unit HP

- Select each indoor unit based on individual peak room load.

Indoor : 1.0HP + 1.5HP + 2.0HP + 2.0HP =

6.5HP  $\longleftrightarrow$  Outdoor : 6HP

- The outdoor unit should have sufficient capacity to cover the peak demand of the indoor unit

## Procedure and result of equipment selection

### ① Procedure of equipment selection

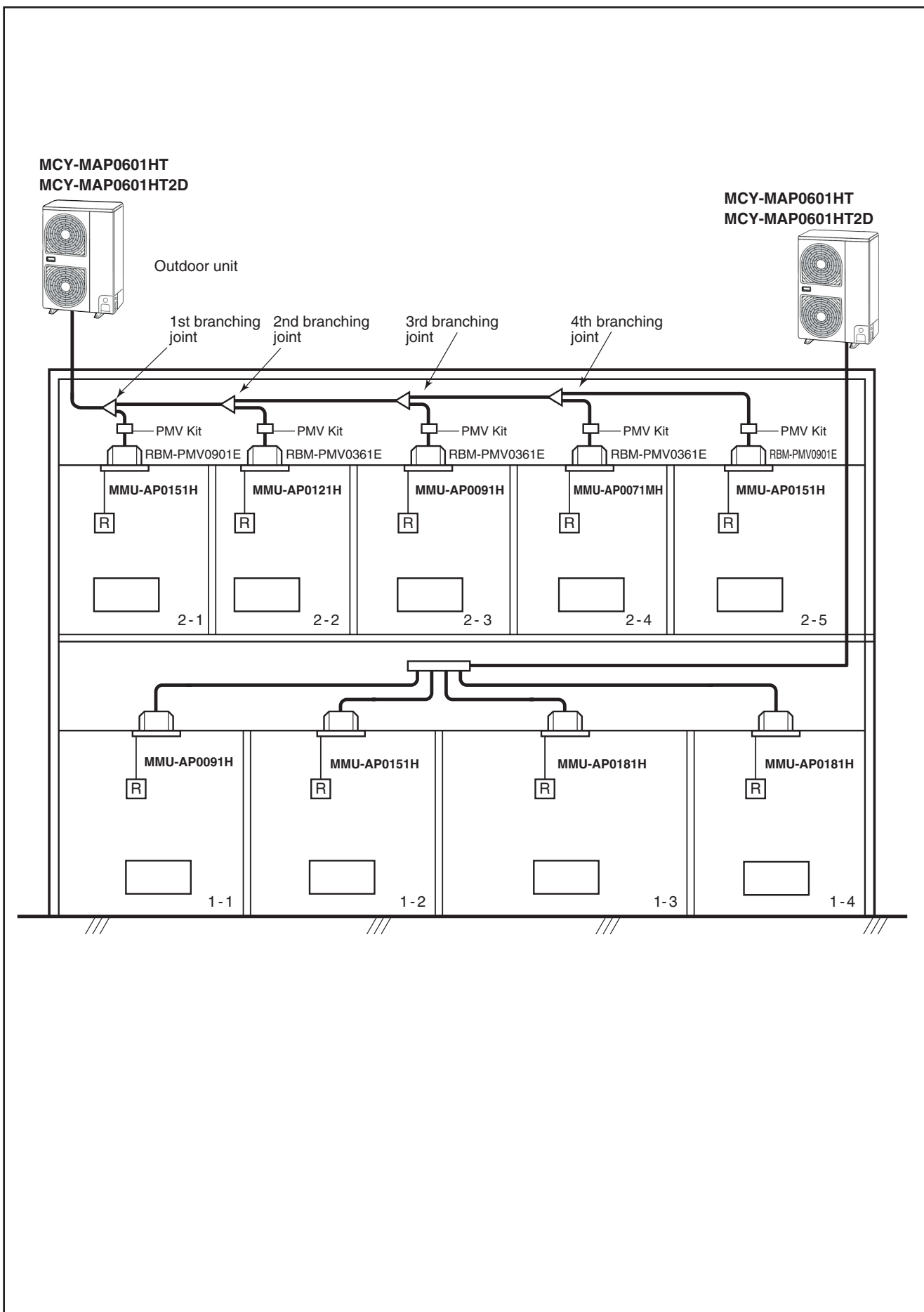
- Calculate cooling for every rooms.
- Select an indoor unit to match the cooling load for every room from the table in pages.
- Choose a tentative outdoor unit that will match with the indoor units. Perform capacity correction based on the pipe length, system lift, indoor set temperature, outdoor temperature.  
Then, make sure the corrected system cooling capacity satisfies the cooling load.

### ② Equipment selection and capacity check

| Air conditioning load |          |                                   |         | Equipment selection |               |         |                        |               |         |
|-----------------------|----------|-----------------------------------|---------|---------------------|---------------|---------|------------------------|---------------|---------|
| Floor                 | Room No. | Indoor air conditioning load (kW) |         | Indoor unit         |               |         | Outdoor unit           |               |         |
|                       |          | Cooling                           | Heating | Model               | Capacity (kW) |         | Model<br>MCY-          | Capacity (kW) |         |
|                       |          |                                   |         |                     | Cooling       | Heating |                        | Cooling       | Heating |
| 2F                    | 2-1      | 4.2                               | 3.4     | MMU-AP0151H         | 4.5           | 5.0     | MAP0601H<br>MAP0601H2D | 15.5          | 18.0    |
|                       | 2-2      | 3.3                               | 2.2     | MMU-AP0121H         | 3.6           | 4.0     |                        |               |         |
|                       | 2-3      | 2.6                               | 2.5     | MMU-AP0091H         | 2.8           | 3.2     |                        |               |         |
|                       | 2-4      | 2.3                               | 2.3     | MMU-AP0071MH        | 2.2           | 2.5     |                        |               |         |
|                       | 2-5      | 4.1                               | 4.0     | MMU-AP0151H         | 4.5           | 5.0     |                        |               |         |
| 1F                    | 1-1      | 2.6                               | 2.3     | MMU-AP0091H         | 2.8           | 3.2     | MAP0601H<br>MAP0601H2D | 15.5          | 18.0    |
|                       | 1-2      | 4.1                               | 3.8     | MMU-AP0151H         | 4.5           | 5.0     |                        |               |         |
|                       | 1-3      | 5.1                               | 4.9     | MMU-AP0181H         | 5.6           | 6.3     |                        |               |         |
|                       | 1-4      | 5.1                               | 3.7     | MMU-AP0181H         | 5.6           | 6.3     |                        |               |         |

| Piping distance |          |                       |                       | Capacity correction                                |                                                                   | Capacity check after correction |         |          |
|-----------------|----------|-----------------------|-----------------------|----------------------------------------------------|-------------------------------------------------------------------|---------------------------------|---------|----------|
| Floor           | Room No. | Equivalent length (m) | Height difference (m) | Pipe correction x temp. correction                 |                                                                   | Capacity                        |         | Judgment |
|                 |          |                       |                       |                                                    |                                                                   | Capacity (kW)                   |         |          |
|                 |          |                       |                       | Cooling                                            | Heating                                                           | Cooling                         | Heating |          |
| 2F              | 2-1      | 23                    | 5                     | 1.0<br>x<br>1.0<br>x<br>0.96<br>=0.96              | 1.0<br>x<br>0.95<br>x<br>0.99<br>x<br>0.95<br>=0.89               | 4.3                             | 4.4     | good     |
|                 | 2-2      |                       |                       |                                                    |                                                                   | 3.4                             | 3.5     |          |
|                 | 2-3      |                       |                       |                                                    |                                                                   | 2.6                             | 2.8     |          |
|                 | 2-4      |                       |                       |                                                    |                                                                   | 2.4                             | 2.4     |          |
|                 | 2-5      |                       |                       |                                                    |                                                                   | 4.3                             | 4.4     |          |
| 1F              | 1-1      | 42                    |                       | 1.0<br>x<br>1.0<br>x<br>1.03<br>x<br>0.92<br>=0.94 | 1.0<br>x<br>0.95<br>x<br>0.975<br>x<br>1.03<br>x<br>0.95<br>=0.90 | 2.6                             | 2.9     |          |
|                 | 1-2      |                       |                       |                                                    |                                                                   | 4.2                             | 4.5     |          |
|                 | 1-3      |                       |                       |                                                    |                                                                   | 5.2                             | 5.6     |          |
|                 | 1-4      |                       |                       |                                                    |                                                                   | 5.2                             | 5.6     |          |

### ③ Schematic diagram



# 1-4. Piping requirement

## 1-4-1. Free branching system

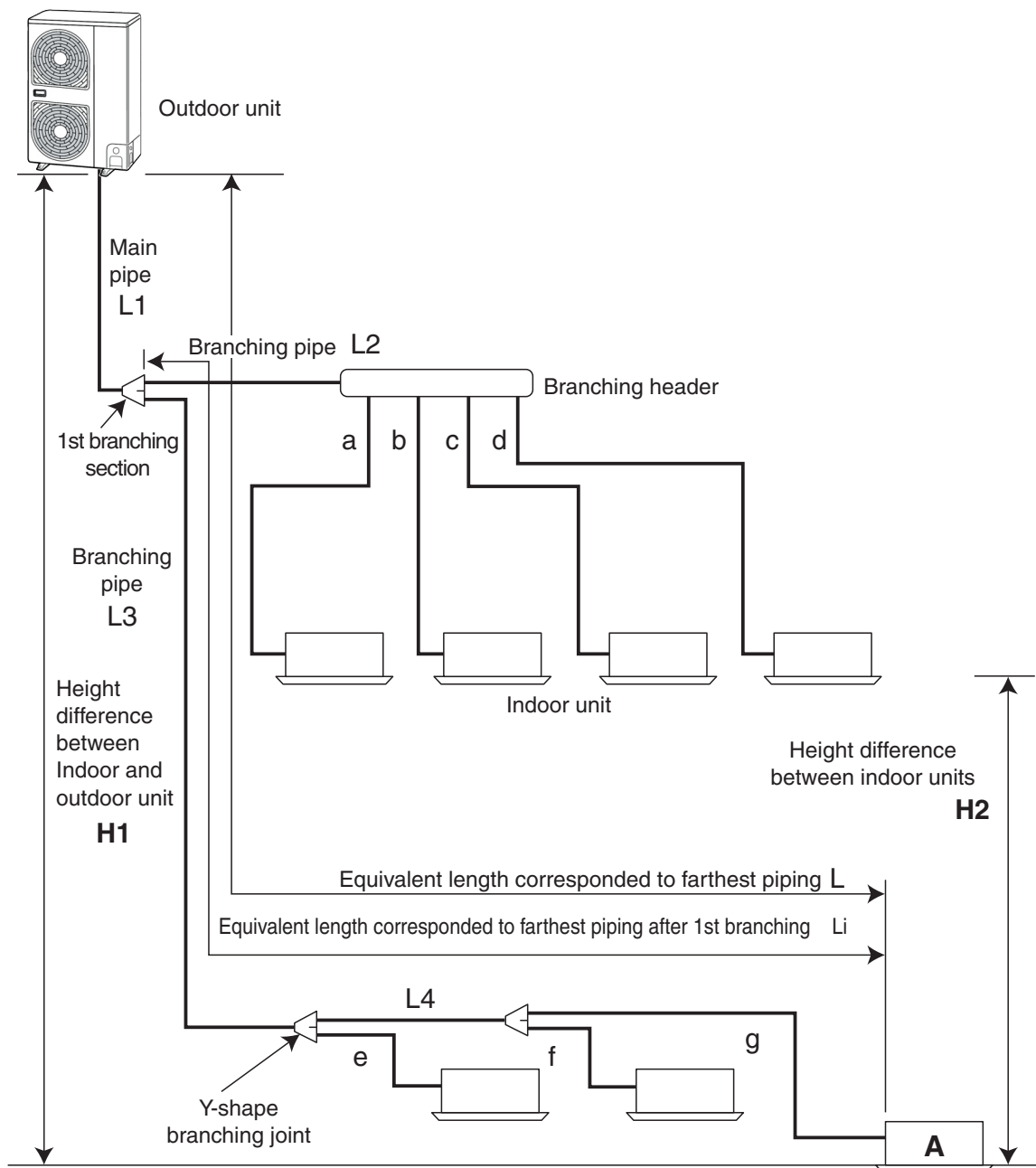
- ① Line branching system
- ② Header branching system
- ③ Header branching system after line branching
- ④ Line branching system after header branching
- ⑤ Header branching system after header branching

The above five branching systems are available to dramatically increase the flexibility of refrigerant piping design.

|                                                |                               |
|------------------------------------------------|-------------------------------|
| Line branching system                          |                               |
| Header branching system                        |                               |
| Header branching system after line branching   | <p>* In case of "PMV Kit"</p> |
| Line branching system after header branching   | <p>* In case of "PMV Kit"</p> |
| Header branching system after header branching |                               |

## 1-4-2. Refrigerant piping length and piping size

### ① Allowable length and height difference of refrigerant piping



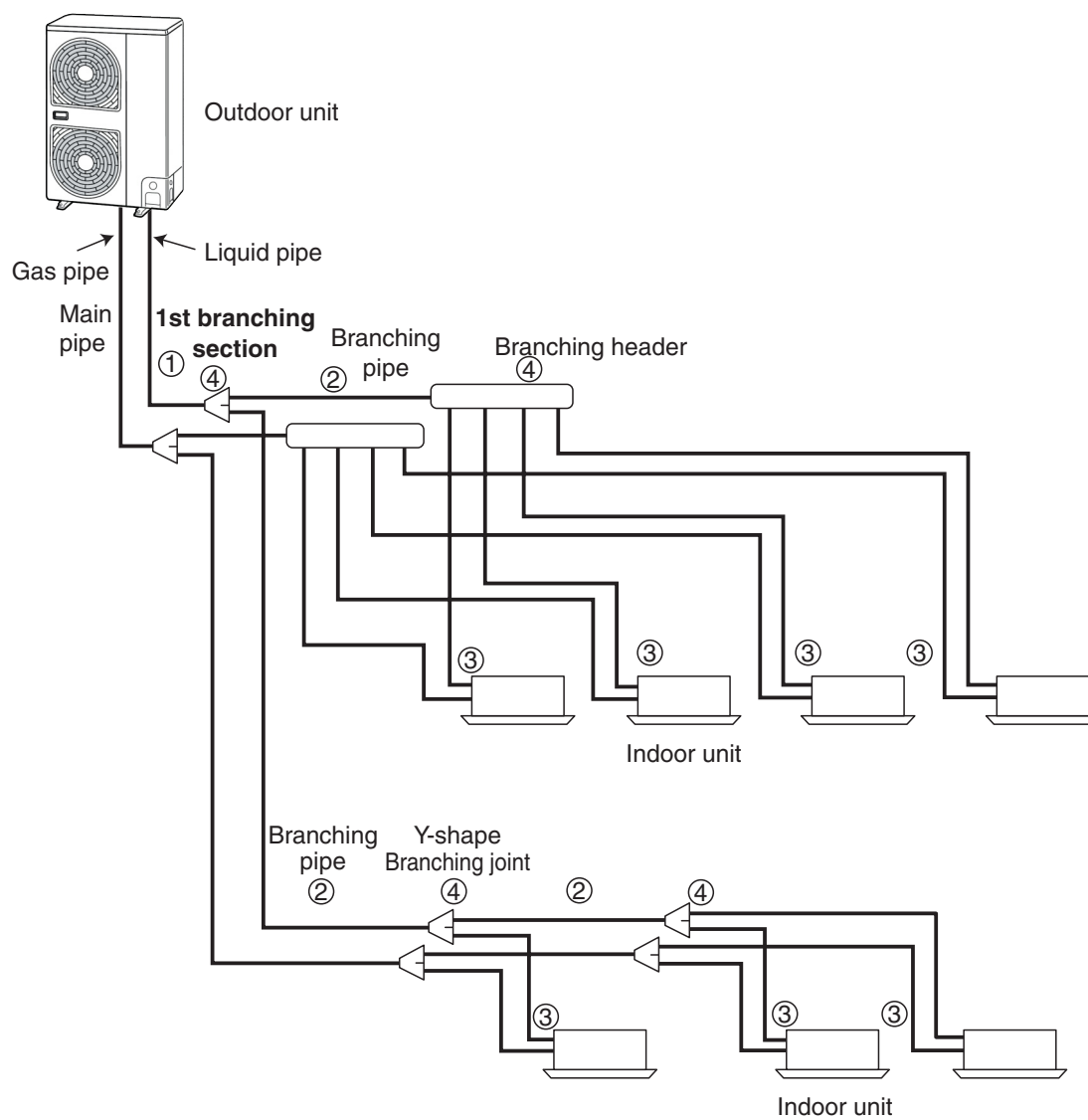
① Allowable length and height difference of refrigerant piping

|                   |                                                                        |                    | Allowable value | Piping section              |
|-------------------|------------------------------------------------------------------------|--------------------|-----------------|-----------------------------|
| Piping Length     | Total extension of pipe (Liquid pipe, real length)                     |                    | 180m            | $L1+L2+L3+L4+a+b+c+d+e+f+g$ |
|                   | Furthest piping length <b>L</b> (*1)                                   | Real length        | 100m            | $L1+L3+L4+g$                |
|                   |                                                                        | Equivalent length  | 125m            |                             |
|                   | Max.equivalent length of main pipe                                     |                    | 65m             | $L1$                        |
|                   | Equivalent length of furthest piping from 1st branching <b>Li</b> (*1) |                    | 35m             | $L3+L4+g$                   |
|                   | Max.real length of indoor unit connecting pipe                         |                    | 15m             | a, b, c, d, e, f, g         |
| Height Difference | Height between indoor and outdoor units <b>H1</b>                      | Upper outdoor unit | 30m             | —                           |
|                   |                                                                        | Lower outdoor unit | 20m             | —                           |
|                   | Height between indoor units <b>H2</b>                                  |                    | 15m             | —                           |

\*1 Furthest indoor unit from 1st branch to be named "A"

## 1-4-2. Refrigerant piping length and piping size

### ② Selection of refrigerant piping



## ② Selection of refrigerant piping

| No.                                                      | Piping parts                                | Name                                                           | Selection of pipe size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
|----------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------|----------------------------------------------------------|--------------------|------------------|-------------------------|---------------|------------------|-----------|-------------------------|------------------|------------------|----------------|-----------|-------------|----------------|-----------|-------------|
| ①                                                        | Outdoor unit<br>↓<br>1st branching section  | Main pipe                                                      | <div>Size of main pipe</div> <table><tr><td>Outdoor unit capacity type</td><td>Gas pipe (mm)</td><td>Liquid pipe (mm)</td></tr><tr><td>0401 type</td><td>15.9</td><td>9.5</td></tr><tr><td>0501 type</td><td>15.9</td><td>9.5</td></tr><tr><td>0601 type</td><td>19.1</td><td>9.5</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Outdoor unit capacity type                               | Gas pipe (mm) | Liquid pipe (mm)                                         | 0401 type          | 15.9             | 9.5                     | 0501 type     | 15.9             | 9.5       | 0601 type               | 19.1             | 9.5              |                |           |             |                |           |             |
| Outdoor unit capacity type                               | Gas pipe (mm)                               | Liquid pipe (mm)                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 0401 type                                                | 15.9                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 0501 type                                                | 15.9                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 0601 type                                                | 19.1                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| ②                                                        | Branching section<br>↓<br>Branching section | Branching pipe                                                 | <div>Pipe size between branching sections</div> <table><tr><td>Total capacity codes of indoor units at down stream side</td><td rowspan="2">Gas pipe (mm)</td><td rowspan="2">Liquid pipe (mm)</td></tr><tr><td>Equivalent to HP</td></tr><tr><td>Below 2.8</td><td>12.7</td><td>9.5</td></tr><tr><td>2.8 to below 6.4</td><td>15.9</td><td>9.5</td></tr><tr><td>6.4 to below 7.2</td><td>19.1</td><td>9.5</td></tr></table> <div>Note) If the total capacity code value of indoor units exceeds that of the outdoor units, apply the capacity code of outdoor units.</div>                                                                                                                                                                                                                                                                   | Total capacity codes of indoor units at down stream side | Gas pipe (mm) | Liquid pipe (mm)                                         | Equivalent to HP   | Below 2.8        | 12.7                    | 9.5           | 2.8 to below 6.4 | 15.9      | 9.5                     | 6.4 to below 7.2 | 19.1             | 9.5            |           |             |                |           |             |
| Total capacity codes of indoor units at down stream side | Gas pipe (mm)                               | Liquid pipe (mm)                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| Equivalent to HP                                         |                                             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| Below 2.8                                                | 12.7                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 2.8 to below 6.4                                         | 15.9                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 6.4 to below 7.2                                         | 19.1                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| ③                                                        | Branching section<br>↓<br>Indoor unit       | Indoor unit connecting pipe                                    | <div>Connecting pipe size of indoor unit</div> <table><tr><td>Indoor unit capacity type</td><td>Gas pipe (mm)</td><td>Liquid pipe (mm)</td></tr><tr><td>007, 009, 012 type</td><td>9.5</td><td>6.4</td></tr><tr><td>015, 018 type</td><td>12.7</td><td>6.4</td></tr><tr><td>024, 030, 036, 048 type</td><td>15.9</td><td>9.5</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Indoor unit capacity type                                | Gas pipe (mm) | Liquid pipe (mm)                                         | 007, 009, 012 type | 9.5              | 6.4                     | 015, 018 type | 12.7             | 6.4       | 024, 030, 036, 048 type | 15.9             | 9.5              |                |           |             |                |           |             |
| Indoor unit capacity type                                | Gas pipe (mm)                               | Liquid pipe (mm)                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 007, 009, 012 type                                       | 9.5                                         | 6.4                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 015, 018 type                                            | 12.7                                        | 6.4                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| 024, 030, 036, 048 type                                  | 15.9                                        | 9.5                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| ④                                                        | Branching section                           | <div>Y-shape branching joint</div> <div>Branching header</div> | <div>Selection of branching section</div> <table><tr><td colspan="2" rowspan="2"></td><td>Total capacity codes of indoor units at down stream side</td><td rowspan="2">Model name</td></tr><tr><td>Equivalent to HP</td></tr><tr><td colspan="2" rowspan="2">Y-shape branching joint</td><td>Below 6.4</td><td>RBM-BY53E</td></tr><tr><td>6.4 to below 7.8</td><td>RBM-BY103E</td></tr><tr><td rowspan="2">Branching header</td><td>For 4 branches</td><td>Below 7.8</td><td>RBM-HY1043E</td></tr><tr><td>For 8 branches</td><td>Below 7.8</td><td>RBM-HY1083E</td></tr></table> <div>Note) *1 : When using a Y-shape branching joint for the 1st branch, select according to capacity code of the outdoor unit.<br/>*2 : For 1 line after branching header indoor units with a maximum capacity code of 6.0 in total can be connected.</div> |                                                          |               | Total capacity codes of indoor units at down stream side | Model name         | Equivalent to HP | Y-shape branching joint |               | Below 6.4        | RBM-BY53E | 6.4 to below 7.8        | RBM-BY103E       | Branching header | For 4 branches | Below 7.8 | RBM-HY1043E | For 8 branches | Below 7.8 | RBM-HY1083E |
|                                                          |                                             | Total capacity codes of indoor units at down stream side       | Model name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
|                                                          |                                             | Equivalent to HP                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| Y-shape branching joint                                  |                                             | Below 6.4                                                      | RBM-BY53E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
|                                                          |                                             | 6.4 to below 7.8                                               | RBM-BY103E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
| Branching header                                         | For 4 branches                              | Below 7.8                                                      | RBM-HY1043E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |
|                                                          | For 8 branches                              | Below 7.8                                                      | RBM-HY1083E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          |               |                                                          |                    |                  |                         |               |                  |           |                         |                  |                  |                |           |             |                |           |             |

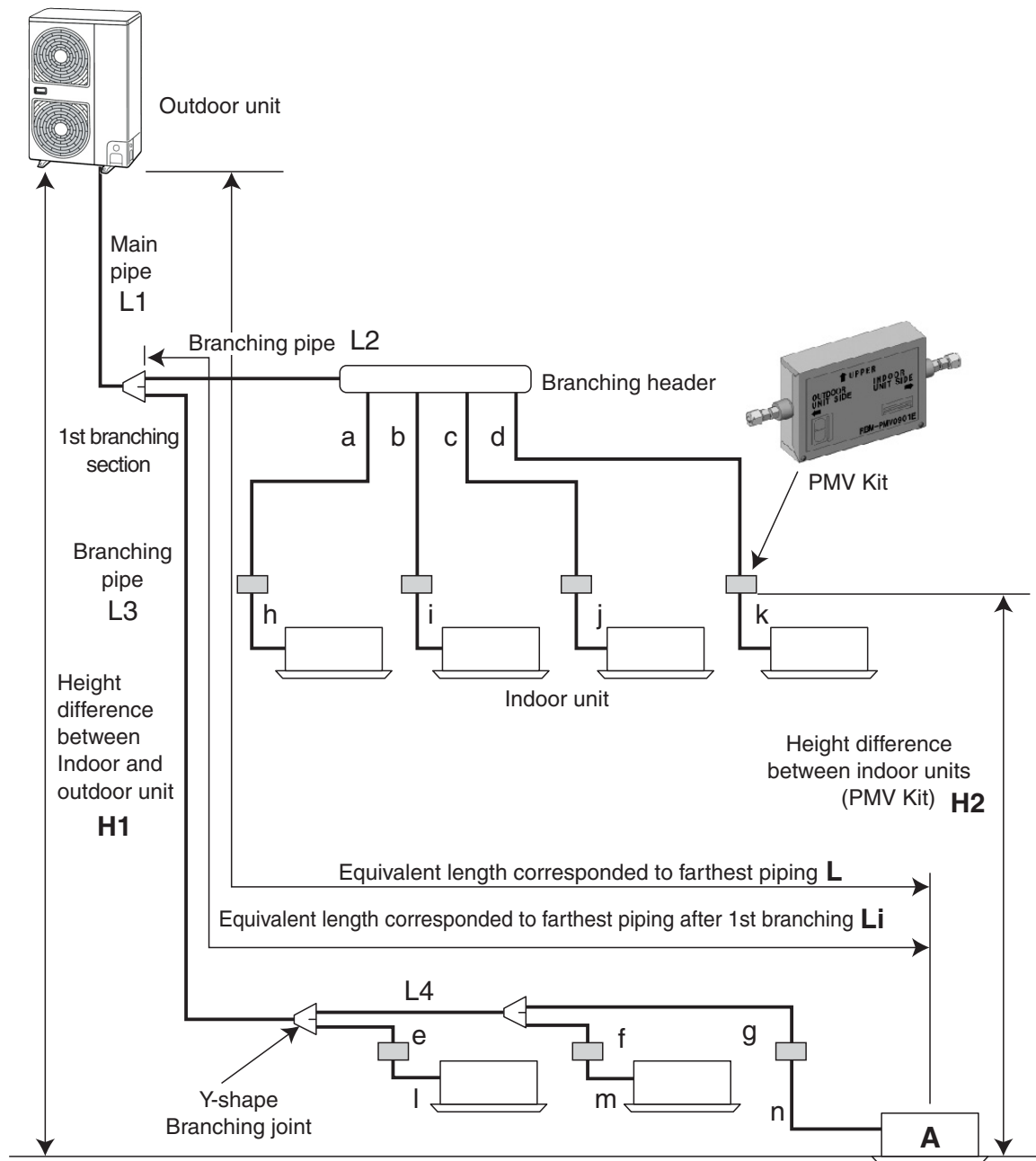
## Minimum wall thickness for R410A application

| Soft | Half Hard or Hard | OD (inch) | OD (mm) | Minimum wall thickness (mm) |
|------|-------------------|-----------|---------|-----------------------------|
| OK   | OK                | 1/4"      | 6.35    | 0.80                        |
| OK   | OK                | 3/8"      | 9.52    | 0.80                        |
| OK   | OK                | 1/2"      | 12.70   | 0.80                        |
| OK   | OK                | 5/8"      | 15.88   | 1.00                        |
| NG*  | OK                | 3/4"      | 19.05   | 1.00                        |

\*If the pipe size is  $\phi$  19.0 or more, use a suitable material.

### 1-4-3. Refrigerant piping length and piping size with PMV Kit

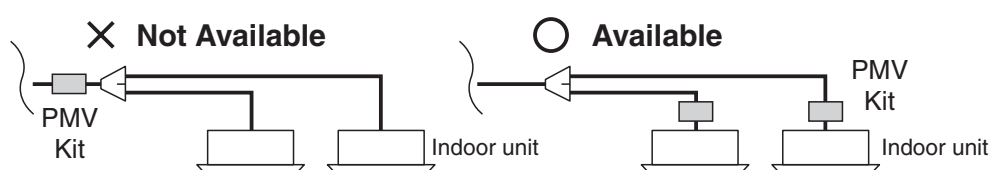
#### ① Allowable length and height difference of refrigerant piping



① Allowable length and height difference of refrigerant piping

|                   |                                                                                                                                                                    |                    | Allowable value          | Piping section                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-------------------------------------------|
| Piping Length     | Total extension of pipe (Liquid pipe, real length)                                                                                                                 |                    | 150m                     | $L1+L2+L3+L4+a+b+c+d+e+f+g+h+i+j+k+l+m+n$ |
|                   | Furthest piping length <b>L</b> (*1)                                                                                                                               | Real length        | 65m                      | $L1+L3+L4+g+n$                            |
|                   |                                                                                                                                                                    | Equivalent length  | 80m                      |                                           |
|                   | Max.equivalent length of main pipe                                                                                                                                 |                    | 50m                      | $L1$                                      |
|                   | Equivalent length of furthest piping from 1st branching <b>Li</b> (*1)                                                                                             |                    | 15m                      | $L3+L4+g+n$                               |
|                   | Max.real length of indoor unit connecting pipe                                                                                                                     |                    | 15m                      | $a+h, b+i, c+j, d+k, e+l, f+m, g+n$       |
|                   | Real length between PMV Kit and indoor unit                                                                                                                        |                    | 2m or more and up to 10m | $h, i, j, k, l, m, n$                     |
| Height Difference | Height between indoor and outdoor unit <b>H1</b>                                                                                                                   | Upper outdoor unit | 30m                      | —                                         |
|                   |                                                                                                                                                                    | Lower outdoor unit | 20m                      | —                                         |
|                   | Height between indoor units (PMV Kit) <b>H2</b><br>Height difference between highest indoor unit or PMV Kit and lowest indoor unit or PMV Kit shall be 15m or less |                    | 15m                      | —                                         |

\*1 Furthest indoor unit from 1st branch to be named "A"

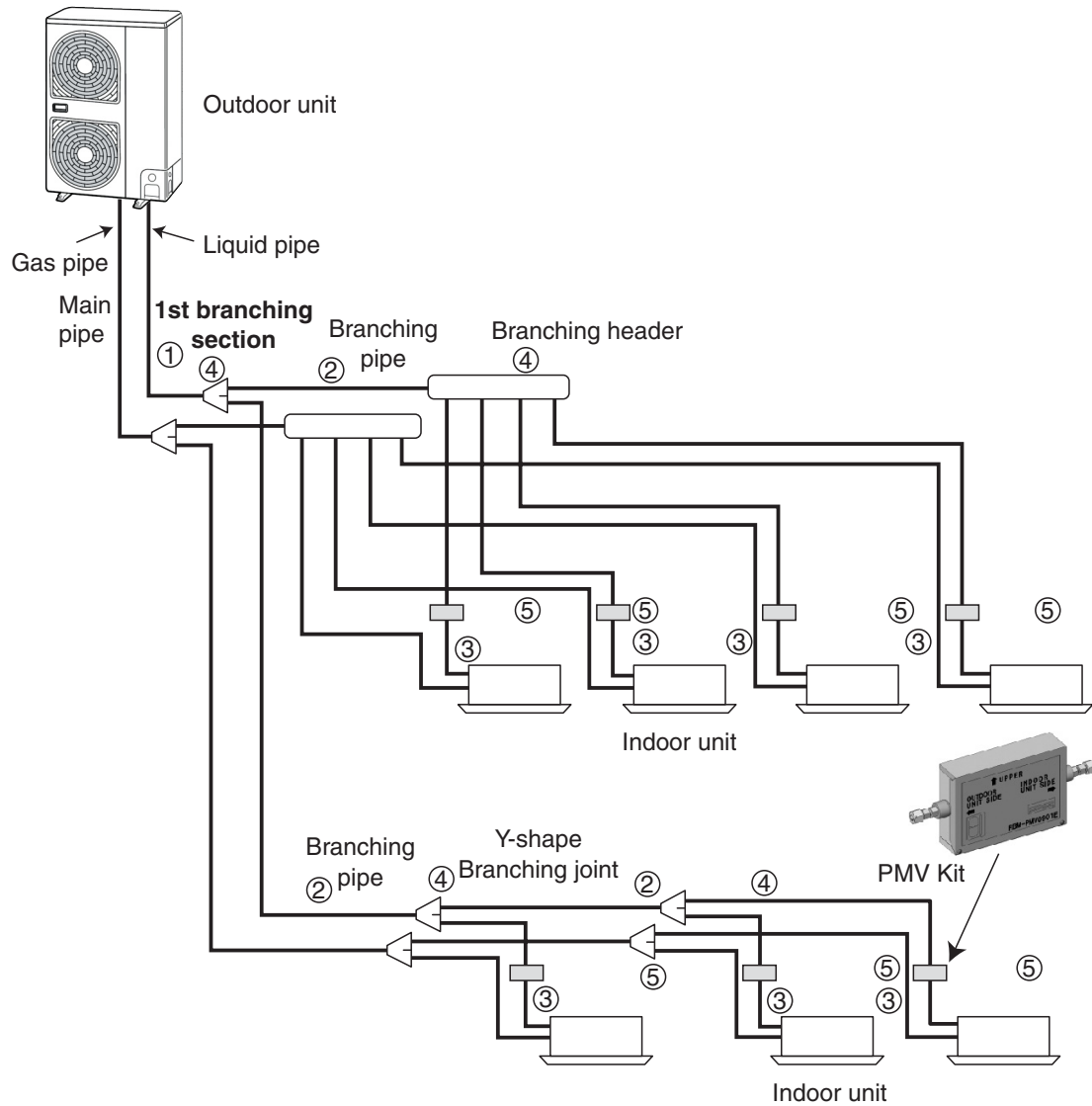


NOTE

Don't connect two or more indoor units to one PMV Kit. Arrange one indoor unit and one PMV Kit set to 1 by 1.

### 1-4-3. Refrigerant piping length and piping size with PMV Kit

#### ② Selection of refrigerant piping



## ② Selection of refrigerant piping

| No. | Piping parts                                | Name                                            | Selection of pipe size                                                                                                              |                  |                  |                  |
|-----|---------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|
| ①   | Outdoor unit<br>↓<br>1st branching section  | Main pipe                                       | Size of main pipe                                                                                                                   |                  |                  |                  |
|     |                                             |                                                 | Outdoor unit capacity type                                                                                                          | Gas pipe (mm)    | Liquid pipe (mm) |                  |
|     |                                             |                                                 | 0401 type                                                                                                                           | 15.9             | 9.5              |                  |
|     |                                             |                                                 | 0501 type                                                                                                                           | 15.9             | 9.5              |                  |
|     |                                             |                                                 | 0601 type                                                                                                                           | 19.1             | 9.5              |                  |
| ②   | Branching section<br>↓<br>Branching section | Branching pipe                                  | Pipe size between branching sections                                                                                                |                  |                  |                  |
|     |                                             |                                                 | Total capacity codes of indoor units at down stream side                                                                            |                  | Gas pipe (mm)    | Liquid pipe (mm) |
|     |                                             |                                                 | Equivalent to HP                                                                                                                    |                  |                  |                  |
|     |                                             |                                                 | Below 2.8                                                                                                                           |                  | 12.7             | 9.5              |
|     |                                             |                                                 | 2.8 to below 6.4                                                                                                                    |                  | 15.9             | 9.5              |
|     |                                             |                                                 | 6.4 to below 7.2                                                                                                                    |                  | 19.1             | 9.5              |
|     |                                             |                                                 | Note) If the total capacity code value of indoor units exceeds that of the outdoor units, apply the capacity code of outdoor units. |                  |                  |                  |
| ③   | Branching section<br>↓<br>Indoor unit       | Indoor unit connecting pipe                     | Connecting pipe size of indoor unit                                                                                                 |                  |                  |                  |
|     |                                             |                                                 | Indoor unit capacity type                                                                                                           | Gas pipe (mm)    | Liquid pipe (mm) |                  |
|     |                                             |                                                 | 007, 009, 012 type                                                                                                                  | 9.5              | 6.4              |                  |
|     |                                             |                                                 | 015, 018 type                                                                                                                       | 12.7             | 6.4              |                  |
|     |                                             |                                                 | 024 type                                                                                                                            | 15.9             | 9.5              |                  |
| ④   | Branching section                           | Y-shape branching joint<br><br>Branching header | Selection of branching section                                                                                                      |                  |                  |                  |
|     |                                             |                                                 | Total capacity codes of indoor units at down stream side                                                                            |                  | Model name       |                  |
|     |                                             |                                                 |                                                                                                                                     |                  |                  | Equivalent to HP |
|     |                                             |                                                 | Y-shape branching joint *1                                                                                                          | Below 6.4        |                  | RBM-BY53E        |
|     |                                             |                                                 |                                                                                                                                     | 6.4 to below 7.8 |                  | RBM-BY103E       |
|     |                                             |                                                 | Branching header *2                                                                                                                 | For 4 branches   | Below 7.8        | RBM-HY1043E      |
|     |                                             |                                                 |                                                                                                                                     | For 8 branches   | Below 7.8        | RBM-HY1083E      |
|     |                                             |                                                 | Note) *1 : When using a Y-shape branching joint for the 1st branch, select according to capacity code of the outdoor unit.          |                  |                  |                  |
|     |                                             |                                                 | *2 : For 1 line after branching header indoor units with a maximum capacity code of 6.0 in total can be connected.                  |                  |                  |                  |
| ⑤   | PMV Kit                                     | PMV Kit                                         | Selection of PMV Kit                                                                                                                |                  |                  |                  |
|     |                                             |                                                 | Indoor unit capacity type                                                                                                           | Model name       |                  |                  |
|     |                                             |                                                 | 007, 009, 012 type                                                                                                                  | RBM-PMV0361E     |                  |                  |
|     |                                             |                                                 | 015, 018, 024 type                                                                                                                  | PBM-PMV0901E     |                  |                  |

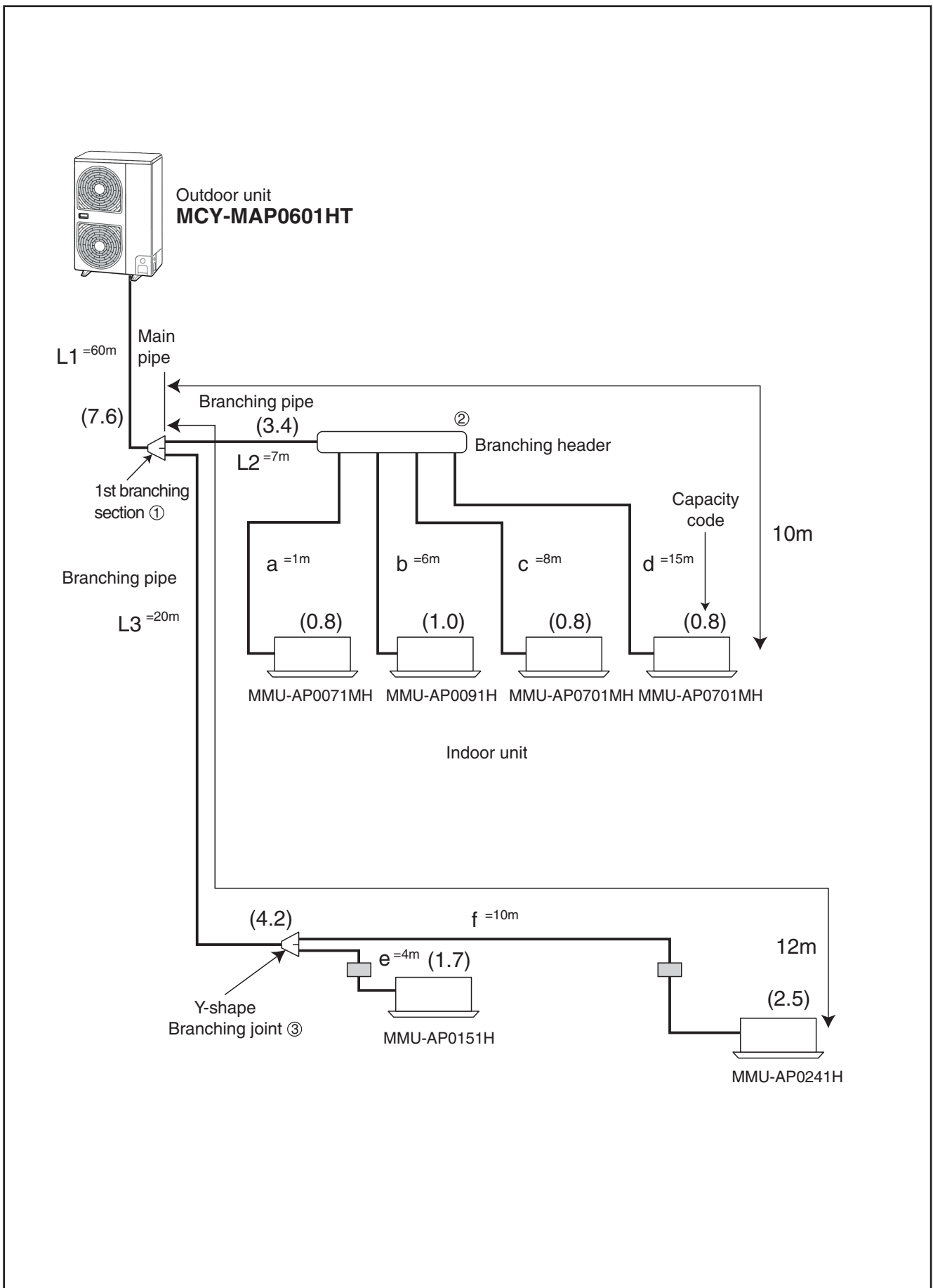
## Minimum wall thickness for R410A application

| Soft | Half Hard or Hard | OD (inch) | OD (mm) | Minimum wall thickness (mm) |
|------|-------------------|-----------|---------|-----------------------------|
| OK   | OK                | 1/4"      | 6.35    | 0.80                        |
| OK   | OK                | 3/8"      | 9.52    | 0.80                        |
| OK   | OK                | 1/2"      | 12.70   | 0.80                        |
| OK   | OK                | 5/8"      | 15.88   | 1.00                        |
| NG*  | OK                | 3/4"      | 19.05   | 1.00                        |

\*If the pipe size is  $\phi$  19.0 or more, use a suitable material as detailed in the installation manual.

## 1-4-4. Refrigerant piping example

① In case of without "PMV Kit"



• Piping size

| Mark | Equivalent length (m) | Seclection method (capacity code) | Gas pipe (mm) | Liquid pipe (mm) |
|------|-----------------------|-----------------------------------|---------------|------------------|
| L1   | 60                    | —————                             | Ø19.1         | Ø9.5             |
| L2   | 7                     | $0.8 + 1.0 + 0.8 + 0.8 = 3.4$     | Ø15.9         | Ø9.5             |
| L3   | 20                    | $1.7 + 2.5 = 4.2$                 | Ø15.9         | Ø9.5             |
| a    | 1                     | 0.8                               | Ø9.5          | Ø6.4             |
| b    | 6                     | 1.0                               | Ø9.5          | Ø6.4             |
| c    | 8                     | 0.8                               | Ø9.5          | Ø6.4             |
| d    | 15                    | 0.8                               | Ø9.5          | Ø6.4             |
| e    | 4                     | 1.7                               | Ø12.7         | Ø6.4             |
| f    | 10                    | 2.5                               | Ø15.9         | Ø9.5             |

• Y-shape branching joint and Header

| Mark |                      | Y-joint or Header select (capacity code)      | Model name  |
|------|----------------------|-----------------------------------------------|-------------|
| ①    | 1st branching        | 6<br>(capacity code of outdoor unit)          | RBM-BY53E   |
| ②    | Branch header        | $0.8 + 1.0 + 0.8 + 0.8 = 3.4$<br>(a+b+c+d=L2) | RBM-HY1043E |
| ③    | Y-shape branch joint | $1.7 + 2.5 = 4.2$<br>(e+f=L3)                 | RBM-BY53E   |

② In cace of PMV Kit

② In cace of PMV Kit



- Piping size

| Mark | Equivalent length (m) | Seclection method (capacity code) | Gas pipe (mm) | Liquid pipe (mm) |
|------|-----------------------|-----------------------------------|---------------|------------------|
| L1   | 20                    | —————                             | Ø19.1         | Ø9.5             |
| L2   | 3                     | $0.8 + 1.0 + 0.8 + 0.8 = 3.4$     | Ø15.9         | Ø9.5             |
| L3   | 6                     | $1.7 + 2.5 = 4.2$                 | Ø15.9         | Ø9.5             |
| a    | 4                     | 0.8                               | Ø9.5          | Ø6.4             |
| b    | 3                     | 1.0                               | Ø9.5          | Ø6.4             |
| c    | 6                     | 0.8                               | Ø9.5          | Ø6.4             |
| d    | 7                     | 0.8                               | Ø9.5          | Ø6.4             |
| e    | 4                     | 1.7                               | Ø12.7         | Ø6.4             |
| f    | 6                     | 2.5                               | Ø15.9         | Ø9.5             |

- Y-shape branching joint and Header

| Mark |                      | Y-joint or Header select (capacity code)        | Model name  |
|------|----------------------|-------------------------------------------------|-------------|
| ①    | 1st branching        | <sup>6</sup><br>(capacity code of outdoor unit) | RBM-BY53E   |
| ②    | Branch header        | $0.8 + 1.0 + 0.8 + 0.8 = 3.4$<br>(a+b+c+d=L2)   | RBM-HY1043E |
| ③    | Y-shape branch joint | $1.7 + 2.5 = 4.2$<br>(e+f=L3)                   | RBM-BY53E   |

- PMV Kit

| Mark | PMV Kit select (capacity code) | Model name   |
|------|--------------------------------|--------------|
| I    | 0.8                            | RBM-PMV0361E |
| II   | 1.0                            | RBM-PMV0361E |
| III  | 0.8                            | RBM-PMV0361E |
| IV   | 0.8                            | RBM-PMV0361E |
| V    | 1.7                            | RBM-PMV0901E |
| VI   | 2.5                            | RBM-PMV0901E |

## 1-4-5. Charging requirement with additional refrigerant

After the system has been vacuumed, replace the vacuum pump with a refrigerant cylinder and charge the system with additional refrigerant.



### Calculating the amount of additional refrigerant required

#### (Calculation)

Additional refrigerant charge amount is calculated from size of liquid pipe at site and its real length.

$$\text{Additional refrigerant charge amount at site } R \text{ (kg)} = \text{Real length of liquid pipe} \times \text{Additional refrigerant charge amount per liquid pipe 1m (Table 1)} + \text{Compensation by outdoor HP (Table 2)}$$

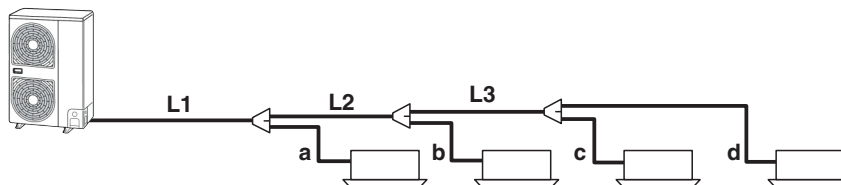
Table 1

|                                       |       |       |
|---------------------------------------|-------|-------|
| Pipe dia. at liquid side              | Ø6.4  | Ø9.5  |
| Additional refrigerant amount/1m (kg) | 0.025 | 0.055 |

Table 2

|                                 |           |           |           |
|---------------------------------|-----------|-----------|-----------|
| Outdoor unit capacity type      | 0401 type | 0501 type | 0601 type |
| Compensation by outdoor HP (kg) | -0.8      | -0.4      | 0         |

Example :  
(0501 type)



|    |            |    |            |    |           |   |           |
|----|------------|----|------------|----|-----------|---|-----------|
| L1 | Ø9.5 : 10m | L2 | Ø9.5 : 10m | L3 | Ø9.5 : 5m | a | Ø9.5 : 3m |
| b  | Ø6.4 : 3m  | c  | Ø6.4 : 4m  | d  | Ø6.4 : 5m |   |           |

$$\begin{aligned} \text{Additional charge amount } R \text{ (kg)} &= (L_x \times 0.025\text{kg/m}) + (L_y \times 0.055\text{kg/m}) + (-0.4\text{kg}) \\ &= (12 \times 0.025\text{kg}) + (28 \times 0.055\text{kg}) + (-0.4\text{kg}) \\ &= 1.44\text{kg} \end{aligned}$$

$L_x$  : Real total length of liquid pipe Ø6.4 (m)

$L_y$  : Real total length of liquid pipe Ø9.5 (m)

Note)

If the additional refrigerant amount indicates a negative result from the calculation, use air conditioner without the adding of any additional refrigerant.

## 1-5. Wiring guideline

### ⚠ CAUTIONS

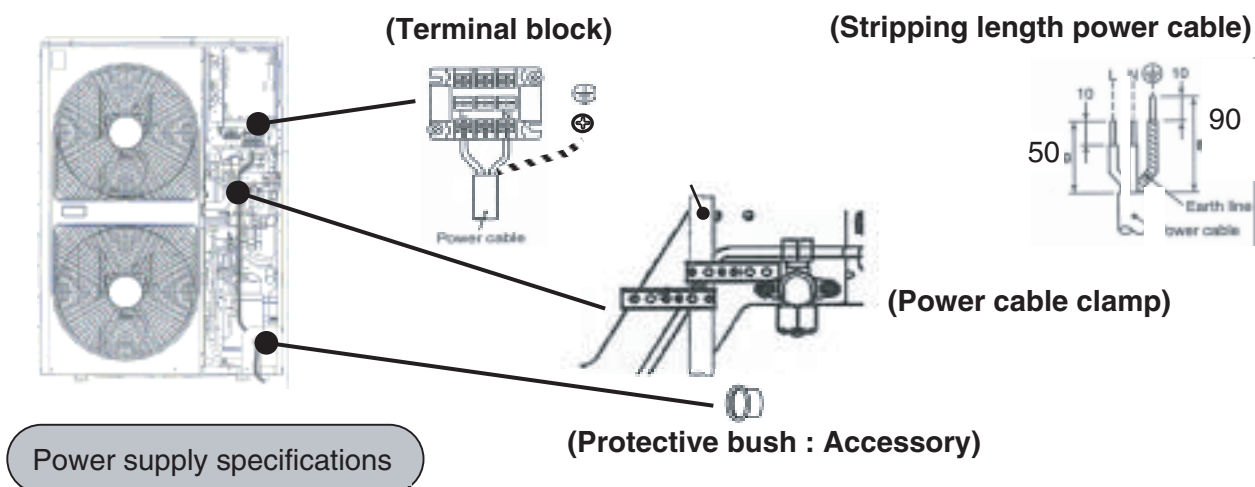
- (1) Keep the refrigerant piping system and the indoor-indoor/indoor-outdoor control wiring systems together.
- (2) When running power supplies and control wires parallel to each other, run them through separate conduits or maintain a suitable distance between them.  
(Current capacity of power supplies: 10A or less for 300m, 50A or less for 500m)

### 1-5-1. General

|   |                                                                                                                                                                                       |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① | Perform wiring of the power supplies in conformance with the regulation of the local electrical company.                                                                              |
| ② | Use a 2 core shield wire for control wiring on connecting indoor units, and connecting of indoor units to outdoor units.<br>This is recommended to prevent possible noise issues.     |
| ③ | Be sure to connect an earth leakage breaker to the power supply of the indoor units.                                                                                                  |
| ④ | Never connect 220-240V power to the control wiring terminal block (U1,U2,U3,U4). Fault will be caused.                                                                                |
| ⑤ | Locate wiring system for the control and refrigerant piping system in the same line.                                                                                                  |
| ⑥ | Arrange the cables so that the electrical wires do not come in to contact with high-temperature parts of the pipework ; otherwise insulation will melt and an accident may be caused. |
| ⑦ | Do not turn on the power supply of the indoor units until vacuuming of the refrigerant pipe has finished.                                                                             |

### 1-5-2. Connection of power supply

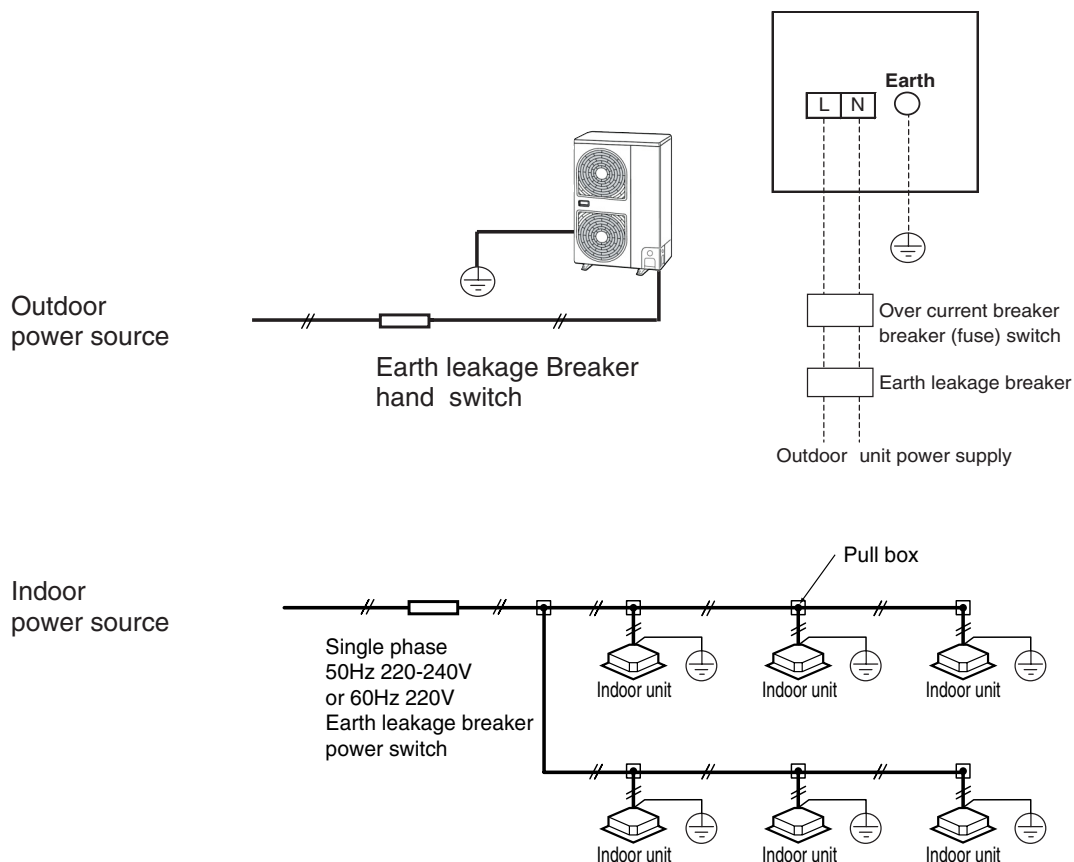
The details are as follows.



- Select the power supply cabling and fuse of each outdoor unit from the following specifications:
- 3 core cable in conformance with Design 60245 IEC 66
- Do not connect the units looping via the terminal blocks (L,N)

### 1-5-3. Electrical wiring desin

|              |                        |                    |
|--------------|------------------------|--------------------|
| Power supply | MCY-MAP###1HT series   | 1N~ 50Hz 220V-240V |
|              | MCY-MAP###1HT2D series | 1N~ 60Hz 220V      |



- Determine the wire size for the indoor unit according to the number of conncted indoor units downstream.

#### ① Outdoor Unit capacities and power supply wire sizes (Reference)

- **Observe local regulations in reference to the wire size selection and installtion.**

| Outdoor unit capacity type | Wire size *                 | Maxim running current | Installation fuse |
|----------------------------|-----------------------------|-----------------------|-------------------|
| 0401 type                  | 6 mm <sup>2</sup> Max. 28 m | 25A                   | 32A               |
| 0501 type                  | 6 mm <sup>2</sup> Max. 25 m | 28A                   | 32A               |
| 0601 type                  | 6 mm <sup>2</sup> Max. 22 m | 31A                   | 40A               |

\* Design 60245 IEC66

#### ② For Indoor Unit power supply

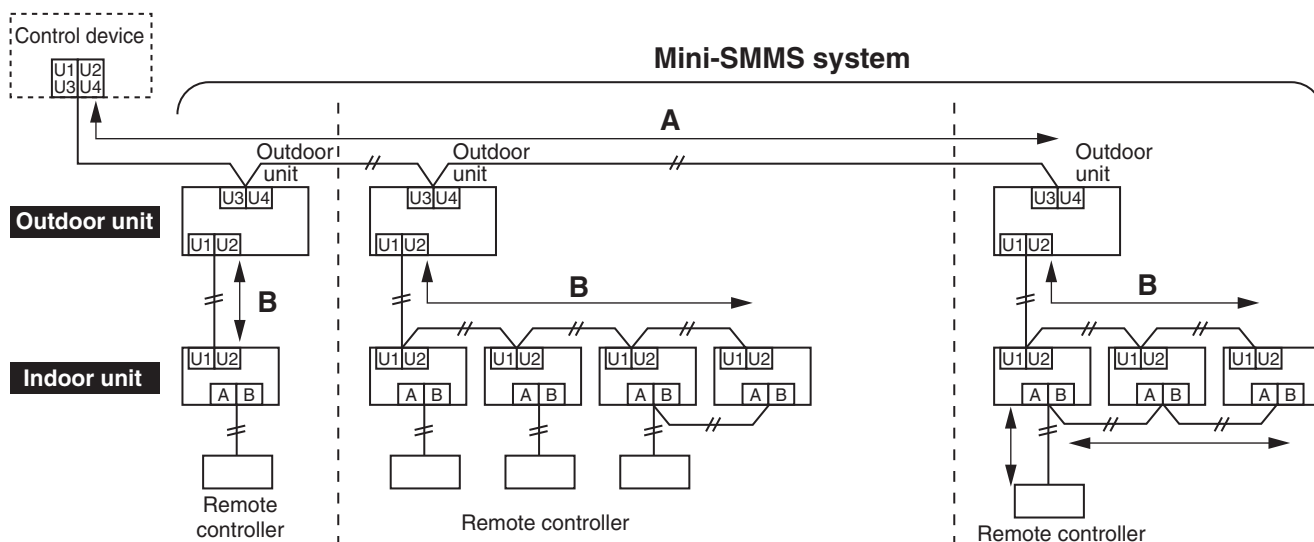
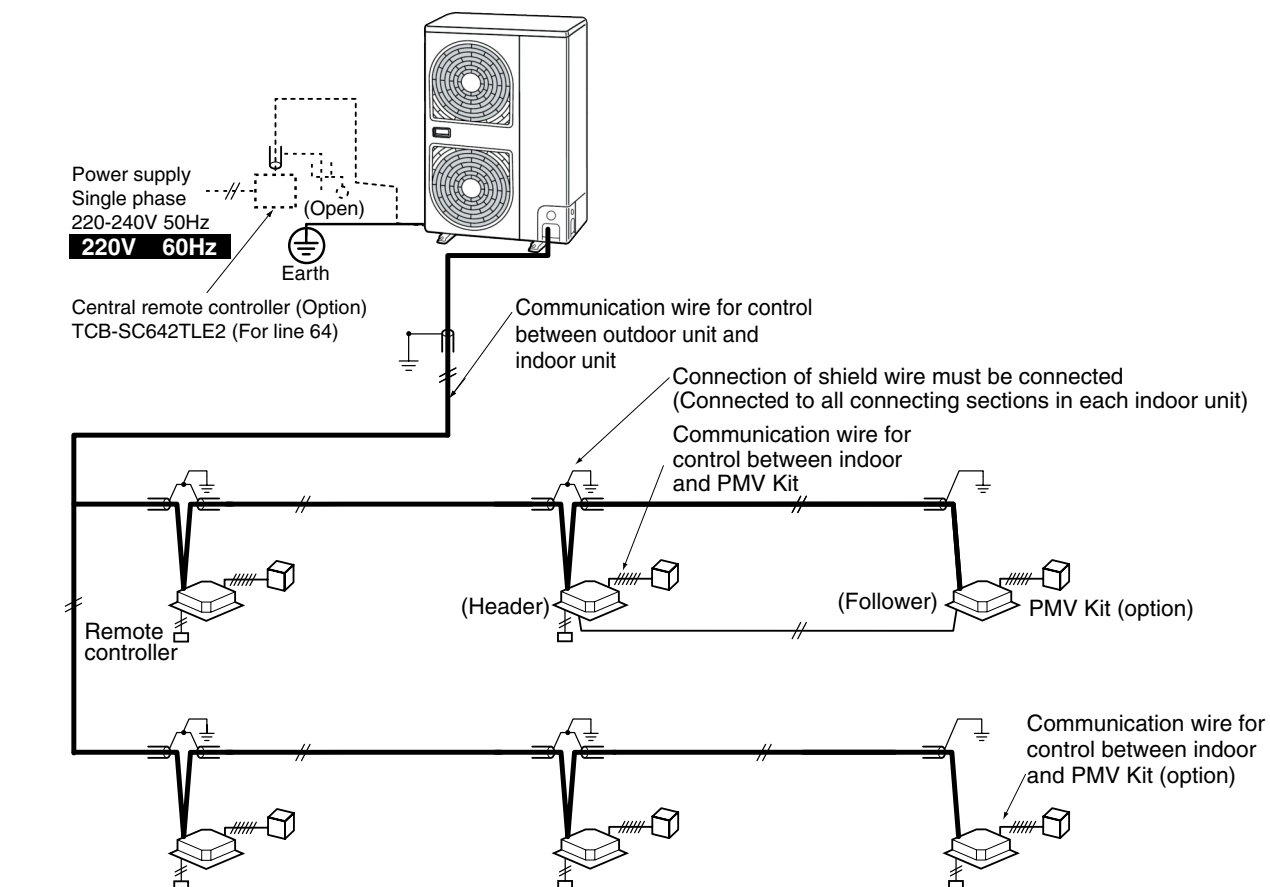
(Must be independent from the outdoor unit power supply )

| Model                      | Item | Power supply wiring        |                                   |
|----------------------------|------|----------------------------|-----------------------------------|
|                            |      | Wire size                  | Field fuse                        |
| All models of indoor units |      | 2.0mm <sup>2</sup> MAX.20m | 3.5mm <sup>2</sup> MAX.50m<br>15A |

#### NOTE:

The above connecting lengths stated in the table indicate the length from the isolator to the outdoor unit. When the power supply of the indoor units are connected in parallel, it is assumed that no more than a 2% voltage drop will occur. If the connecting length is to exceed the stated lengths, select a suitable wire in accordance with the local wiring standards.

## 1-5-4. Design of control wiring



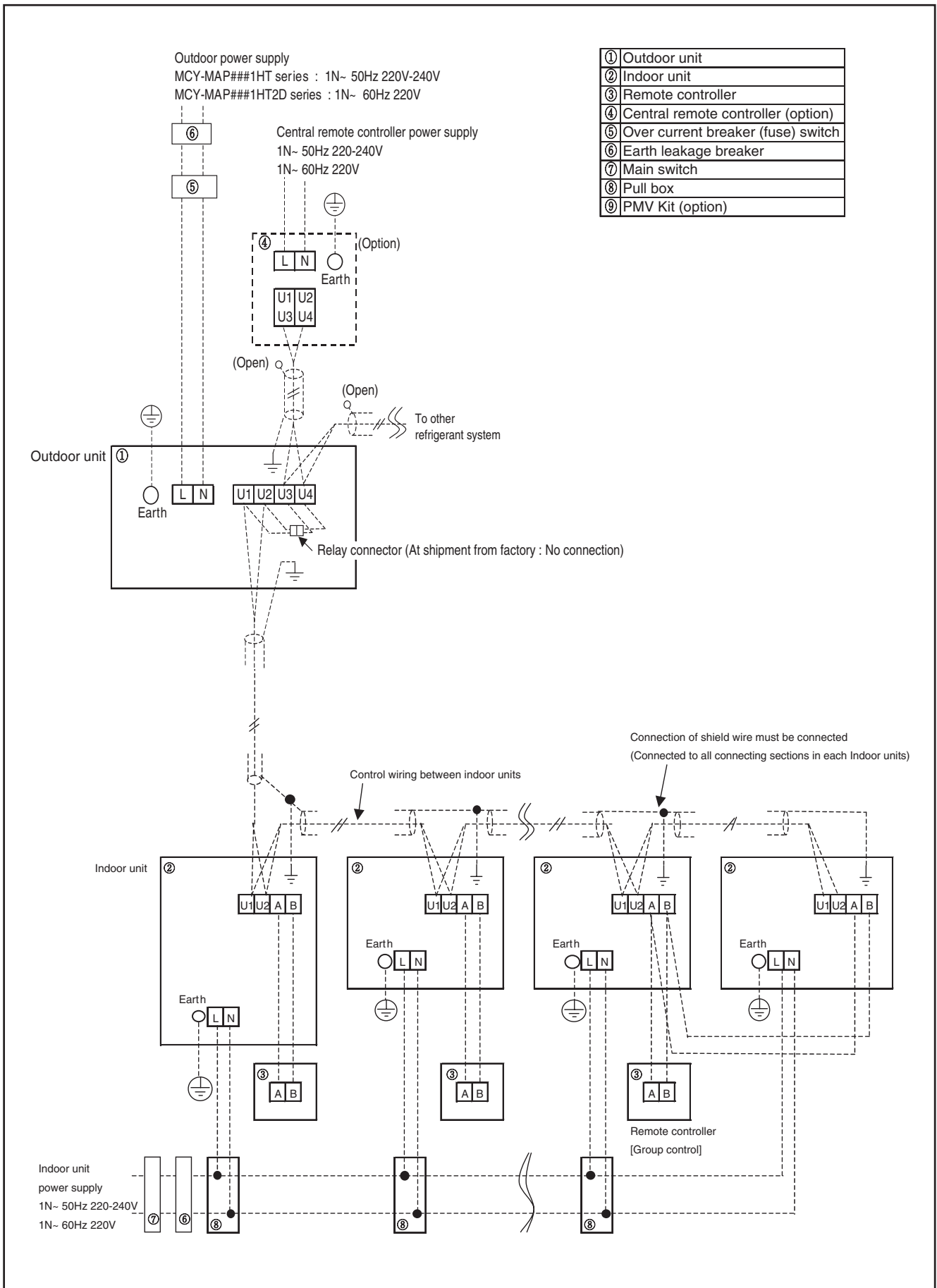
### • Wire specification, quantity, size of crossover wiring and remote controller wiring

| Name                                                                                                                                  | Q'ty                                                | Size                      |             |                    | Specification |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------|-------------|--------------------|---------------|
|                                                                                                                                       |                                                     | Up to 500m                | Up to 1000m | 1000 to 2000m      |               |
| Crossover wiring (A + B)<br>(indoor-indoor / indoor-outdoor / control wiring,<br>central control wiring) *Total Control wiring length | 2 cores                                             | 1.25mm <sup>2</sup>       |             | 2.0mm <sup>2</sup> | Shield wire   |
| Remote controller wiring                                                                                                              | 2 cores                                             | 0.5 to 2.0mm <sup>2</sup> | -           | -                  | -             |
| Control wiring between indoor and PMV Kit                                                                                             | Be sure to use the attached cable. MIN 2m - MAX 10m |                           |             |                    |               |

- (1) The crossover wiring and central control wiring uses a 2-core non-polarity communication wire. Use 2-core shielded wire to prevent possible noise issues. Connect the end of the shielded wires and earth(ground) at both the outdoor and indoor unit.  
Where the shielded wire is connected between a central controller and a outdoor unit, only earth(ground) at one end of the central control line.
- (2) Use 2-core non-polarity wire for remote controller. (A, B terminals)  
Use 2-core non-polarity wire for wiring of group control. (A, B terminals)

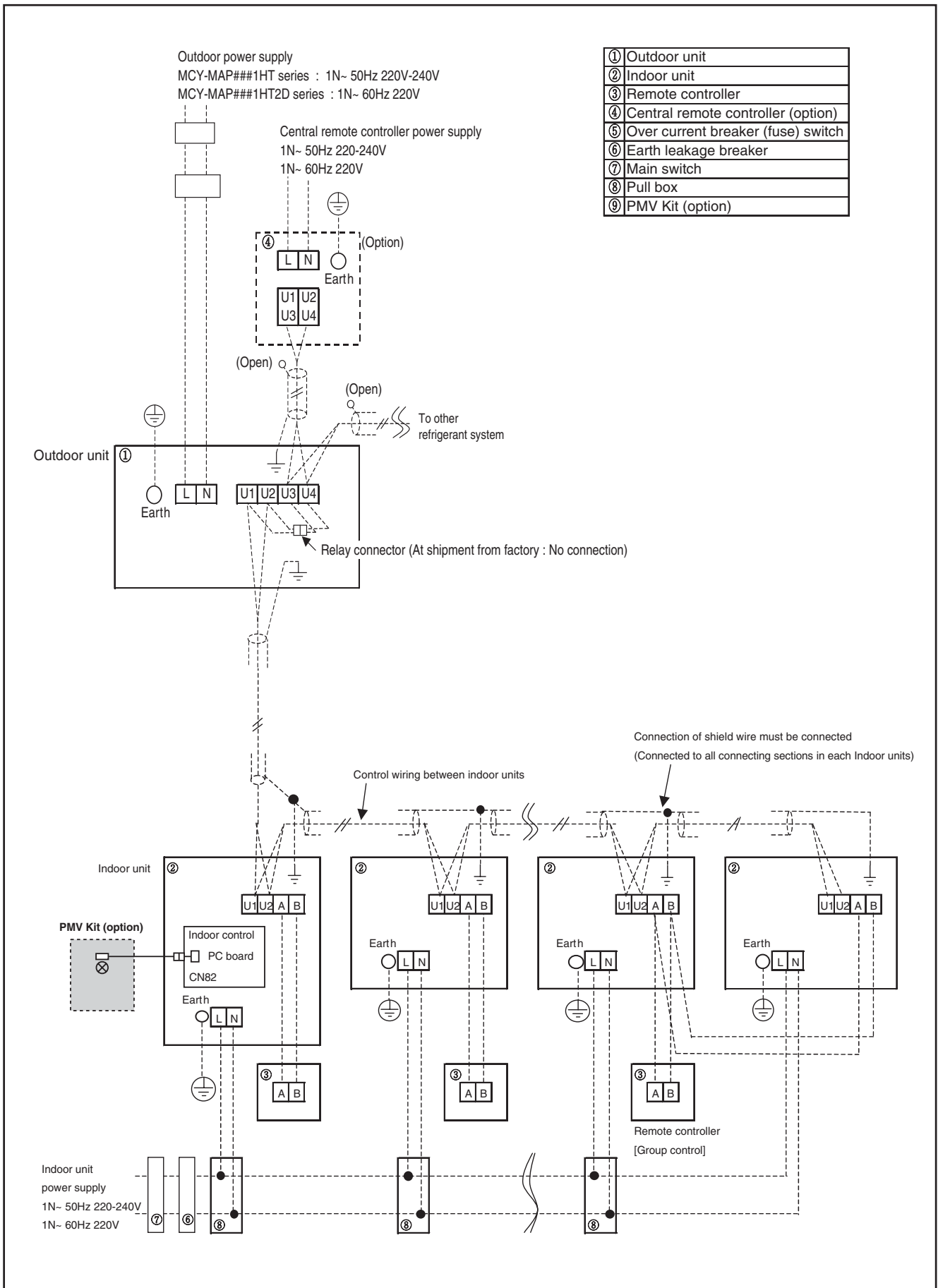
## 1-5-5. Example of system wiring Design

### ① In case of without "PMV Kit"



## 1-5-5. Example of system wiring Design

### ② In case of "PMV Kit"



## 1-5-6. Electrical characteristics

### ■ Outdoor units

50Hz

| Model name    | Nominal<br>(V-Ph-Hz) | Voltage Range |     | Compressor | Fan Motor |     | Power Supply |    |     |
|---------------|----------------------|---------------|-----|------------|-----------|-----|--------------|----|-----|
|               |                      | Min           | Max |            | kW        | FLA | MCA          |    | ICF |
| MCY-MAP0401HT | 230-1-50             | 198           | 264 | 22.4       | 0.063 x 2 | 1.2 | 25           | 32 | –   |
| MCY-MAP0501HT | 230-1-50             | 198           | 264 | 25.3       | 0.063 x 2 | 1.3 | 28           | 32 | –   |
| MCY-MAP0601HT | 230-1-50             | 198           | 264 | 27.8       | 0.063 x 2 | 1.3 | 31           | 40 | –   |

#### Legend

RLA : Rated Load Amps

FLA : Full Load Amps

kW : Fan Motor Rated Output (kW)

MCA : Minimum Circuit Amps

MOCP : Maximum Overcurrent Protection (Amps)

ICF : Maximum Instantaneous Current Flow Start

**NOTE** : RLA is based on the following conditions.

Indoor temperature : 27°CDB / 19°CWB

Outdoor temperature : 35°CDB

### ■ Indoor units

50Hz

| Type                                    | Model            | Nominal Voltage<br>(V-Ph-Hz) | Voltage Range |     | Fan Motor |      | Power Supply |      |
|-----------------------------------------|------------------|------------------------------|---------------|-----|-----------|------|--------------|------|
|                                         |                  |                              | Min           | Max | kW        | FLA  | MCA          | MOCP |
| 4-Way Air Discharge Cassette Type       | MMU-AP 0091 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.20 | 0.25         | 15   |
|                                         | MMU-AP 0121 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.20 | 0.25         | 15   |
|                                         | MMU-AP 0151 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.22 | 0.28         | 15   |
|                                         | MMU-AP 0181 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.24 | 0.30         | 15   |
|                                         | MMU-AP 0241 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.28 | 0.35         | 15   |
|                                         | MMU-AP 0271 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.28 | 0.35         | 15   |
|                                         | MMU-AP 0301 H    | 230-1-50                     | 198           | 264 | 0.060     | 0.40 | 0.50         | 15   |
|                                         | MMU-AP 0361 H    | 230-1-50                     | 198           | 264 | 0.090     | 0.68 | 0.85         | 15   |
|                                         | MMU-AP 0481 H    | 230-1-50                     | 198           | 264 | 0.090     | 0.93 | 1.16         | 15   |
| Compact 4-Way Cassette (600 x 600) Type | MMU-AP 0071 MH   | 230-1-50                     | 198           | 264 | 0.060     |      |              |      |
|                                         | MMU-AP 0091 MH   | 230-1-50                     | 198           | 264 | 0.060     |      |              |      |
|                                         | MMU-AP 0121 MH   | 230-1-50                     | 198           | 264 | 0.060     |      |              |      |
|                                         | MMU-AP 0151 MH   | 230-1-50                     | 198           | 264 | 0.060     |      |              |      |
|                                         | MMU-AP 0181 MH   | 230-1-50                     | 198           | 264 | 0.060     |      |              |      |
| 2-Way Air Discharge Cassette Type       | MMU-AP 0071 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.36 | 0.45         | 15   |
|                                         | MMU-AP 0091 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.36 | 0.45         | 15   |
|                                         | MMU-AP 0121 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.36 | 0.45         | 15   |
|                                         | MMU-AP 0151 WH   | 230-1-50                     | 198           | 264 | 0.039     | 0.37 | 0.46         | 15   |
|                                         | MMU-AP 0181 WH   | 220-1-50                     | 198           | 264 | 0.039     | 0.37 | 0.46         | 15   |
|                                         | MMU-AP 0241 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.53 | 0.66         | 15   |
|                                         | MMU-AP 0271 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.53 | 0.66         | 15   |
|                                         | MMU-AP 0301 WH   | 230-1-50                     | 198           | 264 | 0.053     | 0.54 | 0.68         | 15   |
|                                         | MMU-AP 0481 WH*1 | 230-1-50                     | 198           | 264 | 0.092     | 1.33 | 1.67         | 15   |
| 1-Way Air Discharge Cassette Type       | MMU-AP 0071 YH   | 230-1-50                     | 198           | 264 | 0.022     | 0.28 | 0.35         | 15   |
|                                         | MMU-AP 0091 YH   | 230-1-50                     | 198           | 264 | 0.022     | 0.28 | 0.35         | 15   |
|                                         | MMU-AP 0121 YH   | 230-1-50                     | 198           | 264 | 0.022     | 0.28 | 0.35         | 15   |
|                                         | MMU-AP 0152 SH   | 230-1-50                     | 198           | 264 | 0.030     | 0.40 | 0.49         | 15   |
|                                         | MMU-AP 0182 SH   | 230-1-50                     | 198           | 264 | 0.030     | 0.42 | 0.53         | 15   |
|                                         | MMU-AP 0242 SH   | 230-1-50                     | 198           | 264 | 0.030     | 0.71 | 0.88         | 15   |

\*1 China market only

## ■ Indoor units

| Type                                     | Model           | Nominal Voltage<br>(V-Ph-Hz) | Voltage Range |     | Fan Motor |      | Power Supply |      |
|------------------------------------------|-----------------|------------------------------|---------------|-----|-----------|------|--------------|------|
|                                          |                 |                              | Min           | Max | kW        | FLA  | MCA          | MOCP |
| Concealed Duct Type                      | MMD-AP 0071 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.33 | 0.41         | 15   |
|                                          | MMD-AP 0091 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.33 | 0.41         | 15   |
|                                          | MMD-AP 0121 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.39 | 0.49         | 15   |
|                                          | MMD-AP 0151 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.39 | 0.49         | 15   |
|                                          | MMD-AP 0181 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.50 | 0.62         | 15   |
|                                          | MMD-AP 0241 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.60 | 0.75         | 15   |
|                                          | MMD-AP 0271 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.60 | 0.75         | 15   |
|                                          | MMD-AP 0301 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.70 | 0.88         | 15   |
|                                          | MMD-AP 0361 BH  | 230-1-50                     | 198           | 264 | 0.120     | 0.96 | 1.20         | 15   |
|                                          | MMD-AP 0481 BH  | 230-1-50                     | 198           | 264 | 0.120     | 1.13 | 1.41         | 15   |
| Slim Duct Type                           | MMD-AP 0071 SPH | 230-1-50                     | 198           | 264 | 0.060     | 0.35 | 0.44         | 15   |
|                                          | MMD-AP 0091 SPH | 230-1-50                     | 198           | 264 | 0.060     | 0.35 | 0.44         | 15   |
|                                          | MMD-AP 0121 SPH | 230-1-50                     | 198           | 264 | 0.060     | 0.37 | 0.47         | 15   |
|                                          | MMD-AP 0151 SPH | 230-1-50                     | 198           | 264 | 0.060     | 0.38 | 0.48         | 15   |
|                                          | MMD-AP 0181 SPH | 230-1-50                     | 198           | 264 | 0.060     | 0.47 | 0.59         | 15   |
| Concealed Duct High Static Pressure Type | MMD-AP 0181 H   | 230-1-50                     | 198           | 264 | 0.160     | 0.93 | 1.16         | 15   |
|                                          | MMD-AP 0241 H   | 230-1-50                     | 198           | 264 | 0.160     | 1.55 | 1.94         | 15   |
|                                          | MMD-AP 0271 H   | 230-1-50                     | 198           | 264 | 0.160     | 1.55 | 1.94         | 15   |
|                                          | MMD-AP 0361 H   | 230-1-50                     | 198           | 264 | 0.260     | 1.87 | 2.34         | 15   |
|                                          | MMD-AP 0481 H   | 230-1-50                     | 198           | 264 | 0.260     | 2.12 | 2.65         | 15   |
| Under Ceiling Type                       | MMC-AP 0151 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.33 | 0.41         | 15   |
|                                          | MMC-AP 0181 H   | 220-1-50                     | 198           | 264 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMC-AP 0241 H   | 230-1-50                     | 198           | 264 | 0.040     | 0.48 | 0.60         | 15   |
|                                          | MMC-AP 0271 H   | 230-1-50                     | 198           | 264 | 0.040     | 0.48 | 0.60         | 15   |
|                                          | MMC-AP 0361 H   | 230-1-50                     | 198           | 264 | 0.080     | 0.90 | 1.13         | 15   |
|                                          | MMC-AP 0481 H   | 230-1-50                     | 198           | 264 | 0.080     | 0.96 | 1.20         | 15   |
| High Wall 1series Type                   | MMK-AP 0071 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.35 | 0.44         | 15   |
|                                          | MMK-AP 0091 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.35 | 0.44         | 15   |
|                                          | MMK-AP 0121 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.35 | 0.44         | 15   |
|                                          | MMK-AP 0151 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMK-AP 0181 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMK-AP 0241 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.40 | 0.50         | 15   |
| High Wall 2series Type                   | MMK-AP 0072 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.20 | 0.24         | 15   |
|                                          | MMK-AP 0092 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.21 | 0.26         | 15   |
|                                          | MMK-AP 0122 H   | 230-1-50                     | 198           | 264 | 0.030     | 0.22 | 0.27         | 15   |
| Floor Standing Cabinet Type              | MML-AP 0071 H   | 230-1-50                     | 198           | 264 | 0.045     | 0.30 | 0.37         | 15   |
|                                          | MML-AP 0091 H   | 230-1-50                     | 198           | 264 | 0.045     | 0.30 | 0.37         | 15   |
|                                          | MML-AP 0121 H   | 230-1-50                     | 198           | 264 | 0.045     | 0.49 | 0.62         | 15   |
|                                          | MML-AP 0151 H   | 230-1-50                     | 198           | 264 | 0.045     | 0.49 | 0.62         | 15   |
|                                          | MML-AP 0181 H   | 230-1-50                     | 198           | 264 | 0.070     | 0.54 | 0.68         | 15   |
|                                          | MML-AP 0241 H   | 230-1-50                     | 198           | 264 | 0.070     | 0.54 | 0.68         | 15   |
| Floor Standing Concealed Type            | MML-AP 0071 BH  | 230-1-50                     | 198           | 264 | 0.019     | 0.29 | 0.36         | 15   |
|                                          | MML-AP 0091 BH  | 230-1-50                     | 198           | 264 | 0.019     | 0.29 | 0.36         | 15   |
|                                          | MML-AP 0121 BH  | 230-1-50                     | 198           | 264 | 0.019     | 0.29 | 0.36         | 15   |
|                                          | MML-AP 0151 BH  | 230-1-50                     | 198           | 264 | 0.070     | 0.52 | 0.65         | 15   |
|                                          | MML-AP 0181 BH  | 230-1-50                     | 198           | 264 | 0.070     | 0.52 | 0.65         | 15   |
|                                          | MML-AP 0241 BH  | 230-1-50                     | 198           | 264 | 0.070     | 0.53 | 0.66         | 15   |
| Floor Standing Type                      | MMF-AP 0151 H   | 230-1-50                     | 198           | 264 | 0.037     | 0.77 | 0.96         | 15   |
|                                          | MMF-AP 0181 H   | 230-1-50                     | 198           | 264 | 0.037     | 0.77 | 0.96         | 15   |
|                                          | MMF-AP 0241 H   | 230-1-50                     | 198           | 264 | 0.063     | 1.01 | 1.27         | 15   |
|                                          | MMF-AP 0271 H   | 230-1-50                     | 198           | 264 | 0.063     | 1.01 | 1.27         | 15   |
|                                          | MMF-AP 0361 H   | 230-1-50                     | 198           | 264 | 0.110     | 1.48 | 1.85         | 15   |
|                                          | MMF-AP 0481 H   | 230-1-50                     | 198           | 264 | 0.160     | 1.84 | 2.30         | 15   |

## 1-5-6. Electrical characteristics

### ■ Outdoor units

60Hz

| Model name      | Nominal<br>(V-Ph-Hz) | Voltage Range |     | Compressor | Fan Motor |     | Power Supply |      |     |
|-----------------|----------------------|---------------|-----|------------|-----------|-----|--------------|------|-----|
|                 |                      | Min           | Max |            | kW        | FLA | MCA          | MOCP | ICF |
| MCY-MAP0401HT2D | 220-1-60             | 198           | 242 | 22.4       | 0.063 x 2 | 1.2 | 25           | 32   | –   |
| MCY-MAP0501HT2D | 220-1-60             | 198           | 242 | 25.3       | 0.063 x 2 | 1.3 | 28           | 32   | –   |
| MCY-MAP0601HT2D | 220-1-60             | 198           | 242 | 27.8       | 0.063 x 2 | 1.3 | 31           | 40   | –   |

#### Legend

RLA : Rated Load Amps

FLA : Full Load Amps

kW : Fan Motor Rated Output (kW)

MCA : Minimum Circuit Amps

MOCP : Maximum Overcurrent Protection (Amps)

ICF : Maximum Instantaneous Current Flow Start

**NOTE** : RLA is based on the following conditions.

Indoor temperature : 27°CDB / 19°CWB

Outdoor temperature : 35°CDB

### ■ Indoor units

60Hz

| Type                                    | Model          | Nominal Voltage<br>(V-Ph-Hz) | Voltage Range |     | Fan Motor |      | Power Supply |      |
|-----------------------------------------|----------------|------------------------------|---------------|-----|-----------|------|--------------|------|
|                                         |                |                              | Min           | Max | kW        | FLA  | MCA          | MOCP |
| 4-Way Air Discharge Cassette Type       | MMU-AP 0091 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.21 | 0.26         | 15   |
|                                         | MMU-AP 0121 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.21 | 0.26         | 15   |
|                                         | MMU-AP 0151 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.23 | 0.29         | 15   |
|                                         | MMU-AP 0181 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.25 | 0.31         | 15   |
|                                         | MMU-AP 0241 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.29 | 0.37         | 15   |
|                                         | MMU-AP 0271 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.29 | 0.37         | 15   |
|                                         | MMU-AP 0301 H  | 220-1-60                     | 198           | 242 | 0.060     | 0.42 | 0.52         | 15   |
|                                         | MMU-AP 0361 H  | 220-1-60                     | 198           | 242 | 0.090     | 0.70 | 0.88         | 15   |
| Compact 4-Way Cassette (600 x 600) Type | MMU-AP 0481 H  | 220-1-60                     | 198           | 242 | 0.090     | 0.98 | 1.22         | 15   |
|                                         | MMU-AP 0071 MH | 220-1-60                     | 198           | 242 | 0.060     |      |              |      |
|                                         | MMU-AP 0091 MH | 220-1-60                     | 198           | 242 | 0.060     |      |              |      |
|                                         | MMU-AP 0121 MH | 220-1-60                     | 198           | 242 | 0.060     |      |              |      |
|                                         | MMU-AP 0151 MH | 220-1-60                     | 198           | 242 | 0.060     |      |              |      |
| 2-Way Air Discharge Cassette Type       | MMU-AP 0181 MH | 220-1-60                     | 198           | 242 | 0.060     |      |              |      |
|                                         | MMU-AP 0071 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.38 | 0.47         | 15   |
|                                         | MMU-AP 0091 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.38 | 0.47         | 15   |
|                                         | MMU-AP 0121 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.38 | 0.47         | 15   |
|                                         | MMU-AP 0151 WH | 220-1-60                     | 198           | 242 | 0.039     | 0.44 | 0.55         | 15   |
|                                         | MMU-AP 0181 WH | 220-1-60                     | 198           | 242 | 0.039     | 0.44 | 0.55         | 15   |
|                                         | MMU-AP 0241 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.61 | 0.76         | 15   |
|                                         | MMU-AP 0271 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.61 | 0.76         | 15   |
| 1-Way Air Discharge Cassette Type       | MMU-AP 0301 WH | 220-1-60                     | 198           | 242 | 0.053     | 0.67 | 0.84         | 15   |
|                                         | MMU-AP 0071 YH | 220-1-60                     | 198           | 242 | 0.022     | 0.30 | 0.37         | 15   |
|                                         | MMU-AP 0091 YH | 220-1-60                     | 198           | 242 | 0.022     | 0.30 | 0.37         | 15   |
|                                         | MMU-AP 0121 YH | 220-1-60                     | 198           | 242 | 0.022     | 0.30 | 0.37         | 15   |
|                                         | MMU-AP 0152 SH | 220-1-60                     | 198           | 242 | 0.030     | 0.40 | 0.50         | 15   |
|                                         | MMU-AP 0182 SH | 220-1-60                     | 198           | 242 | 0.030     | 0.45 | 0.57         | 15   |
|                                         | MMU-AP 0242 SH | 220-1-60                     | 198           | 242 | 0.030     | 0.75 | 0.94         | 15   |

## ■ Indoor units

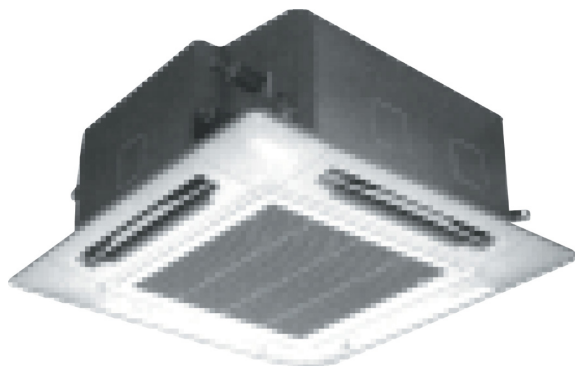
| Type                                     | Model           | Nominal Voltage<br>(V-Ph-Hz) | Voltage Range |     | Fan Motor |      | Power Supply |      |
|------------------------------------------|-----------------|------------------------------|---------------|-----|-----------|------|--------------|------|
|                                          |                 |                              | Min           | Max | kW        | FLA  | MCA          | MOCP |
| Concealed Duct Type                      | MMD-AP 0071 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.35 | 0.43         | 15   |
|                                          | MMD-AP 0091 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.35 | 0.43         | 15   |
|                                          | MMD-AP 0121 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.41 | 0.51         | 15   |
|                                          | MMD-AP 0151 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.41 | 0.51         | 15   |
|                                          | MMD-AP 0181 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.52 | 0.65         | 15   |
|                                          | MMD-AP 0241 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.63 | 0.78         | 15   |
|                                          | MMD-AP 0271 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.63 | 0.78         | 15   |
|                                          | MMD-AP 0301 BH  | 220-1-60                     | 198           | 242 | 0.120     | 0.73 | 0.91         | 15   |
|                                          | MMD-AP 0361 BH  | 220-1-60                     | 198           | 242 | 0.120     | 1.00 | 1.25         | 15   |
|                                          | MMD-AP 0481 BH  | 220-1-60                     | 198           | 242 | 0.120     | 1.18 | 1.48         | 15   |
| Slim Duct Type                           | MMD-AP 0071 SPH | 220-1-60                     | 198           | 242 | 0.060     | 0.32 | 0.41         | 15   |
|                                          | MMD-AP 0091 SPH | 220-1-60                     | 198           | 242 | 0.060     | 0.32 | 0.41         | 15   |
|                                          | MMD-AP 0121 SPH | 220-1-60                     | 198           | 242 | 0.060     | 0.36 | 0.45         | 15   |
|                                          | MMD-AP 0151 SPH | 220-1-60                     | 198           | 242 | 0.060     | 0.37 | 0.47         | 15   |
|                                          | MMD-AP 0181 SPH | 220-1-60                     | 198           | 242 | 0.060     | 0.44 | 0.56         | 15   |
| Concealed Duct High Static Pressure Type | MMD-AP 0181 H   | 220-1-60                     | 198           | 242 | 0.160     | 1.06 | 1.32         | 15   |
|                                          | MMD-AP 0241 H   | 220-1-60                     | 198           | 242 | 0.160     | 2.07 | 2.59         | 15   |
|                                          | MMD-AP 0271 H   | 220-1-60                     | 198           | 242 | 0.160     | 2.07 | 2.59         | 15   |
|                                          | MMD-AP 0361 H   | 220-1-60                     | 198           | 242 | 0.260     | 2.38 | 2.98         | 15   |
|                                          | MMD-AP 0481 H   | 220-1-60                     | 198           | 242 | 0.260     | 2.60 | 3.25         | 15   |
| Under Ceiling Type                       | MMC-AP 0151 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.35 | 0.43         | 15   |
|                                          | MMC-AP 0181 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.39 | 0.48         | 15   |
|                                          | MMC-AP 0241 H   | 220-1-60                     | 198           | 242 | 0.040     | 0.50 | 0.63         | 15   |
|                                          | MMC-AP 0271 H   | 220-1-60                     | 198           | 242 | 0.040     | 0.50 | 0.63         | 15   |
|                                          | MMC-AP 0361 H   | 220-1-60                     | 198           | 242 | 0.080     | 0.94 | 1.18         | 15   |
|                                          | MMC-AP 0481 H   | 220-1-60                     | 198           | 242 | 0.080     | 1.00 | 1.25         | 15   |
| High Wall 1series Type                   | MMK-AP 0071 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMK-AP 0091 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMK-AP 0121 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.37 | 0.46         | 15   |
|                                          | MMK-AP 0151 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.39 | 0.48         | 15   |
|                                          | MMK-AP 0181 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.39 | 0.48         | 15   |
|                                          | MMK-AP 0241 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.40 | 0.50         | 15   |
| High Wall 2series Type                   | MMK-AP 0072 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.21 | 0.26         | 15   |
|                                          | MMK-AP 0092 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.22 | 0.27         | 15   |
|                                          | MMK-AP 0122 H   | 220-1-60                     | 198           | 242 | 0.030     | 0.23 | 0.29         | 15   |
| Floor Standing Cabinet Type              | MML-AP 0071 H   | 220-1-60                     | 198           | 242 | 0.045     | 0.29 | 0.36         | 15   |
|                                          | MML-AP 0091 H   | 220-1-60                     | 198           | 242 | 0.045     | 0.29 | 0.36         | 15   |
|                                          | MML-AP 0121 H   | 220-1-60                     | 198           | 242 | 0.045     | 0.51 | 0.63         | 15   |
|                                          | MML-AP 0151 H   | 220-1-60                     | 198           | 242 | 0.045     | 0.51 | 0.63         | 15   |
|                                          | MML-AP 0181 H   | 220-1-60                     | 198           | 242 | 0.070     | 0.61 | 0.76         | 15   |
|                                          | MML-AP 0241 H   | 220-1-60                     | 198           | 242 | 0.070     | 0.61 | 0.76         | 15   |
| Floor Standing Concealed Type            | MML-AP 0071 BH  | 220-1-60                     | 198           | 242 | 0.019     | 0.31 | 0.39         | 15   |
|                                          | MML-AP 0091 BH  | 220-1-60                     | 198           | 242 | 0.019     | 0.31 | 0.39         | 15   |
|                                          | MML-AP 0121 BH  | 220-1-60                     | 198           | 242 | 0.019     | 0.31 | 0.39         | 15   |
|                                          | MML-AP 0151 BH  | 220-1-60                     | 198           | 242 | 0.070     | 0.53 | 0.66         | 15   |
|                                          | MML-AP 0181 BH  | 220-1-60                     | 198           | 242 | 0.070     | 0.53 | 0.66         | 15   |
|                                          | MML-AP 0241 BH  | 220-1-60                     | 198           | 242 | 0.070     | 0.59 | 0.73         | 15   |
| Floor Standing Type                      | MMF-AP 0151 H   | 220-1-60                     | 198           | 242 | 0.037     | 0.77 | 0.96         | 15   |
|                                          | MMF-AP 0181 H   | 220-1-60                     | 198           | 242 | 0.037     | 0.77 | 0.96         | 15   |
|                                          | MMF-AP 0241 H   | 220-1-60                     | 198           | 242 | 0.063     | 1.04 | 1.29         | 15   |
|                                          | MMF-AP 0271 H   | 220-1-60                     | 198           | 242 | 0.063     | 1.04 | 1.29         | 15   |
|                                          | MMF-AP 0361 H   | 220-1-60                     | 198           | 242 | 0.110     | 1.58 | 1.97         | 15   |
|                                          | MMF-AP 0481 H   | 220-1-60                     | 198           | 242 | 0.160     | 2.01 | 2.52         | 15   |

## 2. Indoor Units

|                                               |      |
|-----------------------------------------------|------|
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## 2-1. 4-way Air Discharge Cassette Type

### Apperance



### Standard accessories

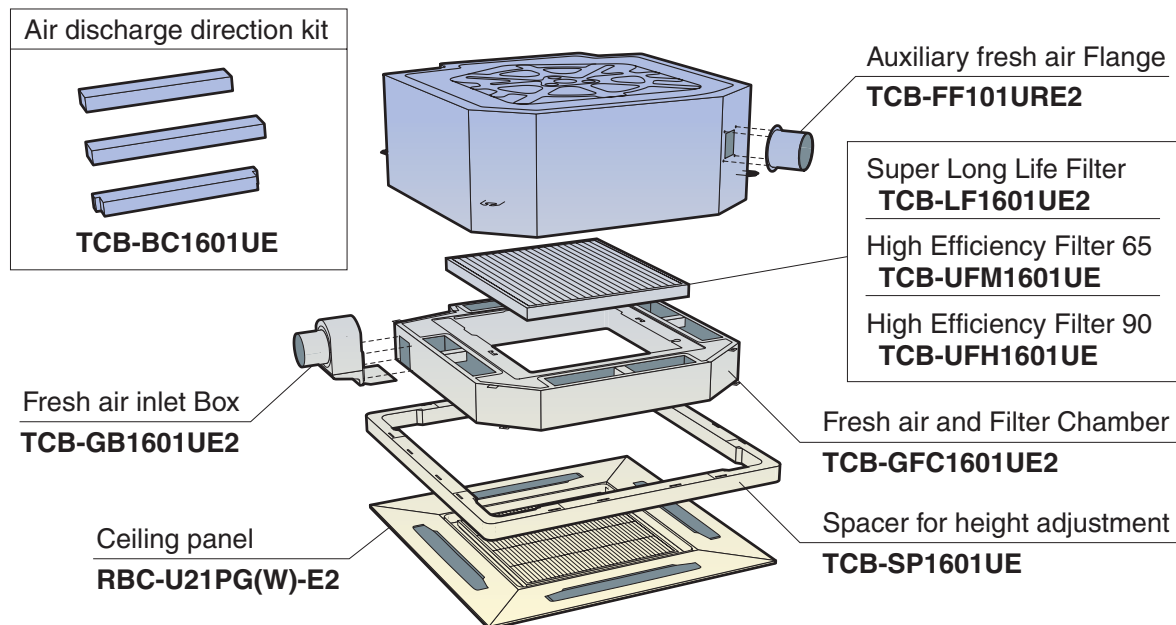
| Part name            | Q'ty | Shape     | Use                                                                    | Part name      | Q'ty | Shape | Use                                             |
|----------------------|------|-----------|------------------------------------------------------------------------|----------------|------|-------|-------------------------------------------------|
| Installation Manual  | 2    | —         | (Be sure to hand over to customer)                                     | Heat insulator | 1    |       | For heat insulating of drain connecting section |
| Heat insulating pipe | 2    |           | For heat insulating of pipe connecting section                         | Washer         | 8    |       | For hanging down unit                           |
| Installation pattern | 1    | —         | For confirmation of ceiling opening and main unit position             | Hose band      | 1    |       | For connecting drain pipe                       |
| Installation gauge   | 2    |           | For positioning of ceiling position (united with installation pattern) | Flexible hose  | 1    |       | For centering the drain pipe                    |
| Pattern fixing screw | 4    | M5 x 16 ℓ | For attaching pattern                                                  | Heat insulator | 1    |       | For sealing the wire connection opening         |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21U(W)-E2            |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-1. 4-way Air Discharge Cassette Type

### Optional accessories



| Parts Name                   | Model name      | Applied Model | Notes                                                                                                                                                                     | Remarks                 |
|------------------------------|-----------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Ceiling panel                | RBC-U21PG(W)-E2 | MMU-AP***1H   | Required accessory                                                                                                                                                        |                         |
| Super Long Life Filter       | TCB-LF1601UE2   |               | Dust collecting effect : 50%<br>(Weight method)<br>*Not valid in combination with<br>TCB-FM1601UE, TCB-UFH1601UE<br>and TCB-BC1601UE                                      | Use with TCB-GFC1601UE2 |
| High Efficiency Filter 65    | TCB-UFM1601UE   |               | Dust collecting effect : 65%<br>(NBS Colorimetric method)<br>*Not valid in combination with<br>TCB-LF1601UE2, TCB-UFH1601UE,<br>TCB-FF101URE2 and TCB-BC1601UE            | Use with TCB-GFC1601UE2 |
| High Efficiency Filter 90    | TCB-UFH1601UE   |               | Dust collecting effect : 90%<br>(NBS Colorimetric method)<br>*Not valid in combination with<br>TCB-LF1601UE2, TCB-UFM1601UE,<br>TCB-FF101URE2 and TCB-BC1601UE            | Use with TCB-GFC1601UE2 |
| Fresh air inlet Box          | TCB-GB1601UE2   |               | For fresh air intake by using the<br>knockout hole of Fresh air and filter<br>chamber. (dia=100mm)<br>*Not valid in combination with<br>TCB-FF101URE2 and<br>TCB-SP1601UE | Use with TCB-GFC1601UE2 |
| Fresh air and Filter Chamber | TCB-GFC1601UE2  |               | For fresh air intake and installing high<br>efficiency filter or super long filter<br>*Not valid in combination with<br>TCB-SP1601UE                                      |                         |
| Auxiliary fresh air Flange   | TCB-FF101URE2   |               | For easy fresh air intake by using<br>the knockout hole of indoor<br>unit.(dia=100mm)<br>*Not valid in combination with<br>TCB-GB1601UE2                                  |                         |
| Spacer for height adjustment | TCB-SP1601UE    |               | Height = 500mm<br>*Not valid in combination with<br>TCB-GB1601UE2 and TCB-GFC1601UE2                                                                                      |                         |
| Air discharge direction kit  | TCB-BC1601UE    |               | Air direction charge by cutting off<br>air discharge port (3pcs)<br>*Not valid in combination with<br>TCB-LF1601UE2, TCB-UFM1601UE,<br>TCB-UFH1601UE                      |                         |

## 2-1. 4-way Air Discharge Cassete Type



50Hz

### • Specifications (50Hz)

|                                                     |                                         |             |                                                                                    |         |               |                 |                 |         |                   |                     |                     |           |
|-----------------------------------------------------|-----------------------------------------|-------------|------------------------------------------------------------------------------------|---------|---------------|-----------------|-----------------|---------|-------------------|---------------------|---------------------|-----------|
| Model name                                          |                                         |             | MMU-                                                                               | AP0091H | AP0121H       | AP0151H         | AP0181H         | AP0241H | AP0271H           | AP0301H             | AP0361H             | AP0481H   |
| Cooling/Heating capacity (Note 1)                   |                                         |             | (kW)                                                                               | 2.8/3.2 | 3.6/4.0       | 4.5/5.0         | 5.6/6.3         | 7.1/8.0 | 8.0/9.0           | 9.0/10.0            | 11.2/12.5           | 14.0/16.0 |
| Electrical characteristics                          | Power supply                            |             | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     | Running current (A)                     |             | 0.17                                                                               |         | 0.19          | 0.21            | 0.24            |         | 0.35              | 0.59                | 0.81                |           |
|                                                     | Power consumption (kW)                  |             | 0.020                                                                              |         | 0.022         | 0.026           | 0.032           |         | 0.048             | 0.070               | 0.110               |           |
|                                                     | Starting current (A)                    |             | 0.30                                                                               |         | 0.33          | 0.36            | 0.42            |         | 0.59              | 0.87                | 1.23                |           |
| Appearance                                          | Main unit                               |             | Heat-insulating material attached Zinc hot dipping steel plate                     |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     | Ceiling Panel                           | Model       | RBC-U21PG (W)-E2                                                                   |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     |                                         | Panel color | Moon white (Munsell/2.5GY 9.0/0.5)                                                 |         |               |                 |                 |         |                   |                     |                     |           |
| Outer dimension                                     | Main unit                               | Height (mm) | 256                                                                                |         |               |                 |                 |         |                   |                     | 319                 |           |
|                                                     |                                         | Width (mm)  | 840                                                                                |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     |                                         | Depth (mm)  | 840                                                                                |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     | Ceiling panel                           | Height (mm) | 35                                                                                 |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     |                                         | Width (mm)  | 950                                                                                |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     |                                         | Depth (mm)  | 950                                                                                |         |               |                 |                 |         |                   |                     |                     |           |
| Total weight                                        | Main unit (kg)                          |             | 20                                                                                 |         | 22            |                 | 23              |         |                   | 28                  |                     |           |
|                                                     | Ceiling panel (kg)                      |             | 4.5                                                                                |         |               |                 |                 |         |                   |                     |                     |           |
| Heat exchanger                                      |                                         |             | Finned tube                                                                        |         |               |                 |                 |         |                   |                     |                     |           |
| Soundproof/Heat-insulating material                 |                                         |             | Non-flammable insulation                                                           |         |               |                 |                 |         |                   |                     |                     |           |
| Fan unit                                            | Fan                                     |             | Turbo fan                                                                          |         |               |                 |                 |         |                   |                     |                     |           |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |             | 800 (730/680)                                                                      |         | 930 (830/790) | 1,050 (920/800) | 1,200 (920/820) |         | 1,320 (1,110/850) | 1,680 (1,300/1,070) | 2,040 (1,430/1,130) |           |
|                                                     | Motor (W)                               |             | 60                                                                                 |         |               |                 |                 |         |                   |                     | 90                  |           |
| Air filter                                          |                                         |             | Standard filter attached (Long life filter)                                        |         |               |                 |                 |         |                   |                     |                     |           |
| Controller                                          |                                         |             | Remote controller                                                                  |         |               |                 |                 |         |                   |                     |                     |           |
| Connecting pipe                                     | Gas side (mm)                           |             | ø 9.5                                                                              |         | ø 12.7        |                 | ø 15.9          |         |                   |                     |                     |           |
|                                                     | Liquid side (mm)                        |             | ø 6.4                                                                              |         |               |                 | ø 9.5           |         |                   |                     |                     |           |
|                                                     | Drain port (Nominal dia. mm)            |             | 25 (Polyvinyl chloride tube)                                                       |         |               |                 |                 |         |                   |                     |                     |           |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |             | 30/29/27                                                                           |         | 31/29/27      | 32/29/28        | 34/31/28        |         | 37/33/30          | 40/36/33            | 44/38/34            |           |
| PMV Kit                                             |                                         |             | Not available                                                                      |         |               |                 |                 |         |                   |                     |                     |           |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-1. 4-way Air Discharge Cassete Type



60Hz

### • Specifications (60Hz)

|                                              |                                          |             |                              |                                                                         |               |                 |                 |          |                   |                     |                     |           |
|----------------------------------------------|------------------------------------------|-------------|------------------------------|-------------------------------------------------------------------------|---------------|-----------------|-----------------|----------|-------------------|---------------------|---------------------|-----------|
| Model name                                   |                                          |             | MMU-                         | AP0091H                                                                 | AP0121H       | AP0151H         | AP0181H         | AP0241H  | AP0271H           | AP0301H             | AP0361H             | AP0481H   |
| Cooling/Heating capacity (Note 1)            |                                          |             | (kW)                         | 2.8/3.2                                                                 | 3.6/4.0       | 4.5/5.0         | 5.6/6.3         | 7.1/8.0  | 8.0/9.0           | 9.0/10.0            | 11.2/12.5           | 14.0/16.0 |
| Electrical characteristics                   | Power supply                             |             |                              | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |               |                 |                 |          |                   |                     |                     |           |
|                                              | Running current (A)                      |             |                              | 0.18                                                                    |               | 0.20            | 0.22            | 0.26     |                   | 0.37                | 0.61                | 0.85      |
|                                              | Power consumption (kW)                   |             |                              | 0.020                                                                   |               | 0.022           | 0.026           | 0.032    |                   | 0.048               | 0.070               | 0.110     |
|                                              | Starting current (A)                     |             |                              | 0.30                                                                    |               | 0.33            | 0.36            | 0.42     |                   | 0.59                | 0.87                | 1.23      |
| Appearance                                   | Main unit                                |             |                              | Heat-insulating material attached Zinc hot dipping steel plate          |               |                 |                 |          |                   |                     |                     |           |
|                                              | Ceiling Panel                            | Model       |                              | RBC-U21PG (W) -E2                                                       |               |                 |                 |          |                   |                     |                     |           |
|                                              |                                          | Panel color |                              | Moon white (Munsell/2.5GY 9.0/0.5)                                      |               |                 |                 |          |                   |                     |                     |           |
| Outer dimension                              | Main unit                                | Height (mm) | 256                          |                                                                         |               |                 |                 |          |                   |                     | 319                 |           |
|                                              |                                          | Width (mm)  | 840                          |                                                                         |               |                 |                 |          |                   |                     |                     |           |
|                                              |                                          | Depth (mm)  | 840                          |                                                                         |               |                 |                 |          |                   |                     |                     |           |
|                                              | Ceiling panel                            | Height (mm) | 35                           |                                                                         |               |                 |                 |          |                   |                     |                     |           |
|                                              |                                          | Width (mm)  | 950                          |                                                                         |               |                 |                 |          |                   |                     |                     |           |
|                                              |                                          | Depth (mm)  | 950                          |                                                                         |               |                 |                 |          |                   |                     |                     |           |
| Total weight                                 | Main unit (kg)                           |             | 20                           |                                                                         | 22            |                 | 23              |          |                   | 28                  |                     |           |
|                                              | Ceiling panel (kg)                       |             | 4.5                          |                                                                         |               |                 |                 |          |                   |                     |                     |           |
| Heat exchanger                               |                                          |             |                              | Finned tube                                                             |               |                 |                 |          |                   |                     |                     |           |
| Soundproof/Heat-insulating material          |                                          |             |                              | Non-flammable insulation                                                |               |                 |                 |          |                   |                     |                     |           |
| Fan unit                                     | Fan                                      |             |                              | Turbo fan                                                               |               |                 |                 |          |                   |                     |                     |           |
|                                              | Standard air flow (High/Mid./Low) (m³/h) |             | 800 (730/680)                |                                                                         | 930 (830/790) | 1,050 (920/800) | 1,200 (920/820) |          | 1,320 (1,110/850) | 1,680 (1,300/1,070) | 2,040 (1,430/1,130) |           |
|                                              | Motor (W)                                |             | 60                           |                                                                         |               |                 |                 |          |                   |                     | 90                  |           |
| Air filter                                   |                                          |             |                              | Standard filter (Long life filter)                                      |               |                 |                 |          |                   |                     |                     |           |
| Controller                                   |                                          |             |                              | Remote controller                                                       |               |                 |                 |          |                   |                     |                     |           |
| Connecting pipe                              | Gas side (mm)                            |             | ø 9.5                        |                                                                         | ø 12.7        |                 | ø 15.9          |          |                   |                     |                     |           |
|                                              | Liquid side (mm)                         |             | ø 6.4                        |                                                                         |               |                 | ø 9.5           |          |                   |                     |                     |           |
|                                              | Drain port (Nominal dia. mm)             |             | 25 (Polyvinyl chloride tube) |                                                                         |               |                 |                 |          |                   |                     |                     |           |
| Sound pressure level(Note 2) (High/Mid./Low) |                                          |             | (dB(A))                      | 30/29/27                                                                |               | 31/29/27        | 32/29/28        | 34/31/28 |                   | 37/33/30            | 40/36/33            | 44/38/34  |
| PMV Kit                                      |                                          |             |                              | Not available                                                           |               |                 |                 |          |                   |                     |                     |           |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions  
Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB



## 2-2. Compact 4-way cassette (600 x 600) type

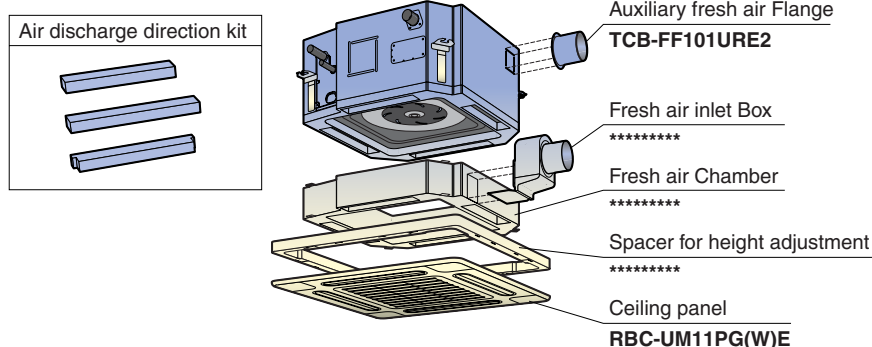
### Appearance



### Standard accessories

| Part name            | Q'ty | Shape                                                                              | Usage                                                                                 |
|----------------------|------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Installation Manual  | 1    | This manual                                                                        | (Ensure handover to customer)                                                         |
| Heat insulating pipe | 2    |   | For heat insulation of the pipe connecting section                                    |
| Installation pattern | 1    |   | For checking of ceiling opening and the main unit position                            |
| Installation gauge   | 2    |   | For positioning of the ceiling position<br>(To be used with the installation pattern) |
| Pattern fixing screw | 4    | M5 x 16 ℓ                                                                          | For attach the installation pattern                                                   |
| Heat insulator       | 1    |   | For heat insulation of drain connecting section                                       |
| Washer               | 8    |   | For hanging unit                                                                      |
| Hose band            | 1    |   | For connecting drain pipe                                                             |
| Flexible hose        | 1    |   | For adjusting core-out of drain pipe                                                  |
| Heat insulator       | 1    |  | For sealing of wire connecting port                                                   |

### Optional accessories



| Parts Name                   | Model name     | Applied Model | Notes                                                                           | Remarks                                 |
|------------------------------|----------------|---------------|---------------------------------------------------------------------------------|-----------------------------------------|
| Ceiling panel                | RBC-UM11PG(W)E | MMU-AP***1MH  | Required accessory                                                              | This product is scheduled to go on sale |
| Auxiliary fresh air Flange   | TCB-FF101URE2  |               | For easy fresh air intake by using the knockout hole of indoor unit.(dia=100mm) |                                         |
| Fresh air and Filter Chamber | TBD            |               |                                                                                 |                                         |
| Fresh air inlet Box          | TBD            |               |                                                                                 |                                         |
| Spacer for height adjustment | TBD            |               |                                                                                 |                                         |
| Air discharge direction kit  | TBD            |               |                                                                                 |                                         |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-2. Compact 4-way Cassette (600x 600) Type



50Hz

### • Specifications (50Hz)

|                                             |                                  |             |      |                                                                                     |             |             |             |             |             |
|---------------------------------------------|----------------------------------|-------------|------|-------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Model name                                  |                                  |             | MMU- | AP0071MH                                                                            | AP0091MH    | AP0121MH    | AP0151MH    | AP0181MH    |             |
| Cooling/Heating capacity (Note 1)           |                                  |             | (kW) | 2.2/2.5                                                                             | 2.8/3.2     | 3.6/4.0     | 4.5/5.0     | 5.6/6.3     |             |
| Electrical characteristics                  | Power supply                     |             |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.)  |             |             |             |             |             |
|                                             | Running current                  |             |      | (A)                                                                                 | 0.28        | 0.30        | 0.31        | 0.34        | 0.42        |
|                                             | Power consumption                |             |      | (kW)                                                                                | 0.034       | 0.036       | 0.038       | 0.041       | 0.052       |
|                                             | Starting current                 |             |      | (A)                                                                                 | 0.49        | 0.52        | 0.54        | 0.59        | 0.73        |
| Appearance                                  | Main unit                        |             |      | Zinc hot dipping steel plate *Heat-insulating material attached to only upper plate |             |             |             |             |             |
|                                             | Ceiling Panel                    | Model       |      | RBC-UM11PG(W)E                                                                      |             |             |             |             |             |
|                                             |                                  | Panel color |      | Moon white (Munsell/2.5GY 9.0/0.5)                                                  |             |             |             |             |             |
| Outer dimension                             | Main unit                        | Height (mm) |      | 268                                                                                 |             |             |             |             |             |
|                                             |                                  | Width (mm)  |      | 575                                                                                 |             |             |             |             |             |
|                                             |                                  | Depth (mm)  |      | 575                                                                                 |             |             |             |             |             |
|                                             | Ceiling panel                    | Height (mm) |      | 27                                                                                  |             |             |             |             |             |
|                                             |                                  | Width (mm)  |      | 700                                                                                 |             |             |             |             |             |
|                                             |                                  | Depth (mm)  |      | 700                                                                                 |             |             |             |             |             |
| Total weight                                | Main unit                        |             |      | (kg)                                                                                | 17          |             |             |             |             |
|                                             | Ceiling panel                    |             |      | (kg)                                                                                | 3           |             |             |             |             |
| Heat exchanger                              |                                  |             |      | Finned tube                                                                         |             |             |             |             |             |
| Soundproof/Heat-insulating material         |                                  |             |      | Non-flammable insulation                                                            |             |             |             |             |             |
| Fan unit                                    | Fan                              |             |      | Turbo fan                                                                           |             |             |             |             |             |
|                                             | Standard air flow (High/Mid/Low) |             |      | (m³/h)                                                                              | 552/462/378 | 570/468/378 | 594/504/402 | 660/552/468 | 762/642/522 |
|                                             | Motor                            |             |      | (W)                                                                                 | 60          |             |             |             |             |
| Air filter                                  |                                  |             |      | Long life filter                                                                    |             |             |             |             |             |
| Controller                                  |                                  |             |      | Remote controller                                                                   |             |             |             |             |             |
| Connecting pipe                             | Gas side                         |             |      | (mm)                                                                                | Ø 9.5       |             | Ø 12.7      |             |             |
|                                             | Liquid side                      |             |      | (mm)                                                                                | Ø 6.4       |             |             |             |             |
|                                             | Drain port (Nominal dia. mm)     |             |      | 25 (Polyvinyl choride tube)                                                         |             |             |             |             |             |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  |             |      | (dB(A))                                                                             | 36/32/28    | 37/33/28    | 37/33/29    | 40/35/30    | 44/39/34    |
| PMV Kit                                     |                                  |             |      | Available                                                                           |             |             |             |             |             |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions      Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-2. Compact 4-way Cassette (600x 600) Type



60Hz

### • Specifications (60Hz)

|                                             |                                  |             |      |                                                                                     |                              |             |             |             |             |
|---------------------------------------------|----------------------------------|-------------|------|-------------------------------------------------------------------------------------|------------------------------|-------------|-------------|-------------|-------------|
| Model name                                  |                                  |             | MMU- | AP0071MH                                                                            | AP0091MH                     | AP0121MH    | AP0151MH    | AP0181MH    |             |
| Cooling/Heating capacity (Note 1)           |                                  |             | (kW) | 2.2/2.5                                                                             | 2.8/3.2                      | 3.6/4.0     | 4.5/5.0     | 5.6/6.3     |             |
| Electrical characteristics                  | Power supply                     |             |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.)             |                              |             |             |             |             |
|                                             | Running current                  |             |      | (A)                                                                                 | 0.27                         | 0.29        | 0.30        | 0.33        | 0.41        |
|                                             | Power consumption                |             |      | (kW)                                                                                | 0.034                        | 0.036       | 0.038       | 0.041       | 0.052       |
|                                             | Starting current                 |             |      | (A)                                                                                 | 0.49                         | 0.52        | 0.54        | 0.59        | 0.73        |
| Appearance                                  | Main unit                        |             |      | Zinc hot dipping steel plate *Heat-insulating material attached to only upper plate |                              |             |             |             |             |
|                                             | Ceiling Panel                    | Model       |      | RBC-UM11PG(W)E                                                                      |                              |             |             |             |             |
|                                             |                                  | Panel color |      | Moon white (Munsell/2.5GY 9.0/0.5)                                                  |                              |             |             |             |             |
| Outer dimension                             | Main unit                        | Height      | (mm) | 268                                                                                 |                              |             |             |             |             |
|                                             |                                  | Width       | (mm) | 575                                                                                 |                              |             |             |             |             |
|                                             |                                  | Depth       | (mm) | 575                                                                                 |                              |             |             |             |             |
|                                             | Ceiling panel                    | Height      | (mm) | 27                                                                                  |                              |             |             |             |             |
|                                             |                                  | Width       | (mm) | 700                                                                                 |                              |             |             |             |             |
|                                             |                                  | Depth       | (mm) | 700                                                                                 |                              |             |             |             |             |
| Total weight                                | Main unit                        |             |      | (kg)                                                                                | 17                           |             |             |             |             |
|                                             | Ceiling panel                    |             |      | (kg)                                                                                | 3                            |             |             |             |             |
| Heat exchanger                              |                                  |             |      | Finned tube                                                                         |                              |             |             |             |             |
| Soundproof/Heat-insulating material         |                                  |             |      | Non-flammable insulation                                                            |                              |             |             |             |             |
| Fan unit                                    | Fan                              |             |      | Turbo fan                                                                           |                              |             |             |             |             |
|                                             | Standard air flow (High/Mid/Low) |             |      | (m³/h)                                                                              | 552/462/378                  | 570/468/378 | 594/504/402 | 660/552/468 | 762/642/522 |
|                                             | Motor                            |             |      | (W)                                                                                 | 60                           |             |             |             |             |
| Air filter                                  |                                  |             |      | Long life filter                                                                    |                              |             |             |             |             |
| Controller                                  |                                  |             |      | Remote controller                                                                   |                              |             |             |             |             |
| Connecting pipe                             | Gas side                         |             |      | (mm)                                                                                | Ø 9.5                        |             |             | Ø 12.7      |             |
|                                             | Liquid side                      |             |      | (mm)                                                                                | Ø 6.4                        |             |             |             |             |
|                                             | Drain port                       |             |      | (Nominal dia. mm)                                                                   | 23 (Polyvinyl chloride tube) |             |             |             |             |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  |             |      | (dB(A))                                                                             | 36/32/28                     | 37/33/28    | 37/33/29    | 40/35/30    | 44/39/34    |
| PMV Kit                                     |                                  |             |      | Available                                                                           |                              |             |             |             |             |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB



## 2-3. 2-way Air Discharge Cassette Type

### Apperarance



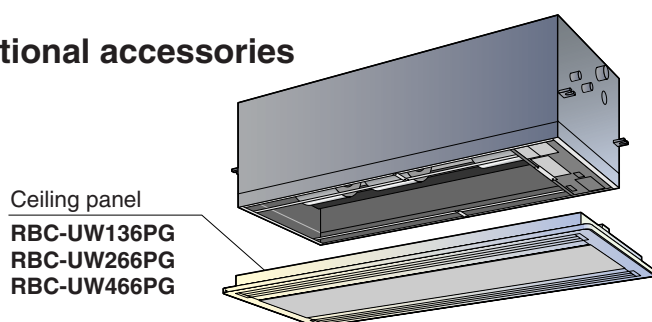
### Standard accessories

| Part name            | Q'ty                       | Shape       | Use                                                            | Part name            | Q'ty | Shape     | Use                                                                    |
|----------------------|----------------------------|-------------|----------------------------------------------------------------|----------------------|------|-----------|------------------------------------------------------------------------|
| Installation Manual  | 1                          | This manual | (Be sure to hand this over to customer)                        | Installation gauge   | 1    |           | For positioning of ceiling position (United with installation pattern) |
| Heat insulating pipe | 2                          |             | For heat insulating pipe connecting section                    | Pattern fixing screw | 6    | M5 x 16 ℓ | For attaching the installation pattern                                 |
| Installation pattern | MMU-AP0301WH type or lower | 1           | For checking the position of the ceiling openings and the unit | Fan motor connector  | 1    |           | For changing fan motor r.p.m. to apply higher ceiling                  |
|                      | MMU-AP0481WH type          | 2           |                                                                | Heat insulator       | 1    |           | For seal for wire connecting port                                      |

### Ceiling panel components

| Name         | Ceiling panel | Center panel | Air filter                                     | Screw installing panel               | Screw installing panel                                       |
|--------------|---------------|--------------|------------------------------------------------|--------------------------------------|--------------------------------------------------------------|
| Shape (Q'ty) | <br>(1 set)   | <br>(1 pc)   | <br>• RBC-UW466PG :<br>Attached to indoor unit | <br>M5 x 20 ℓ<br>(4 pcs)             | <br>M5 x 30 ℓ<br>(2 pcs)                                     |
| Usage        | —             | —            | Attached to ceiling panel, and removes dust.   | For fixing ceiling panel (4 corners) | For tentative hanging and fixing ceiling panel (Center part) |

### Optional accessories

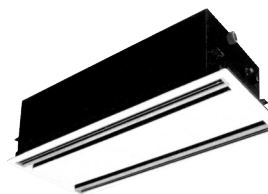


| Parts Name    | Model name  | Applied Model               | Notes              | Remarks |
|---------------|-------------|-----------------------------|--------------------|---------|
| Ceiling panel | RBC-UW136PG | MMU-AP0071WH/0091/0121WH    | Required accessory |         |
|               | RBC-UW266PG | MMU-AP0151/0181/0241/0301WH |                    |         |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-3. 2-way Air Discharge Cassette Type



50Hz

### • Specifications (50Hz)

|                                                     |                                         |             |                                                                                    |          |          |          |             |          |              |          |               |                        |
|-----------------------------------------------------|-----------------------------------------|-------------|------------------------------------------------------------------------------------|----------|----------|----------|-------------|----------|--------------|----------|---------------|------------------------|
| Model name                                          |                                         |             | MMU-                                                                               | AP0071WH | AP0091WH | AP0121WH | AP0151WH    | AP0181WH | AP0241WH     | AP0271WH | AP0301WH      | AP0481WH<br>China only |
| Cooling/Heating capacity                            |                                         |             | (kW)                                                                               | 2.2/2.5  | 2.8/3.2  | 3.6/4.0  | 4.5/5.0     | 5.6/6.3  | 7.1/8.0      | 8.0/9.0  | 9.0/10.0      | 14.0/16.0              |
| Electrical characteristics                          | Power supply                            |             | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |          |          |          |             |          |              |          |               | 1 Phase<br>50Hz 220V   |
|                                                     | Running current                         |             | (A)                                                                                | 0.31     |          |          | 0.32        |          | 0.46         |          | 0.47          | 1.16                   |
|                                                     | Power consumption                       |             | (kW)                                                                               | 0.070    |          |          | 0.072       |          | 0.105        |          | 0.106         | 0.250                  |
|                                                     | Power factor                            |             | (%)                                                                                | 97       |          |          |             |          | 99           |          | 98            |                        |
|                                                     | Starting current                        |             | (A)                                                                                | 0.47     |          |          | 0.60        |          | 0.89         |          | 0.98          | 1.33                   |
| Appearance                                          | Main unit                               |             | Heat-insulating material attached Zinc hot dipping steel plate                     |          |          |          |             |          |              |          |               |                        |
|                                                     | Ceiling Panel                           | Model       | RBC-UW136PG                                                                        |          |          |          | RBC-UW266PG |          |              |          |               | RBC-UW466PG            |
|                                                     |                                         | Panel color | Light ivory (Munsell 10Y 9/0.5)                                                    |          |          |          |             |          |              |          |               |                        |
| Outer dimension                                     | Main unit                               | Height (mm) | 398                                                                                |          |          |          |             |          |              |          |               | 406                    |
|                                                     |                                         | Width (mm)  | 830                                                                                |          |          |          | 1,350       |          |              |          |               | 1,650                  |
|                                                     |                                         | Depth (mm)  | 550                                                                                |          |          |          |             |          |              |          |               | 620                    |
|                                                     | Ceiling panel                           | Height (mm) | 8                                                                                  |          |          |          |             |          |              |          |               |                        |
|                                                     |                                         | Width (mm)  | 1,000                                                                              |          |          |          | 1,520       |          |              |          |               | 1,898                  |
|                                                     |                                         | Depth (mm)  | 650                                                                                |          |          |          |             |          |              |          |               | 680                    |
| Total weight                                        | Main unit (kg)                          |             | 33                                                                                 |          |          | 44       |             | 48       |              |          | 52            |                        |
|                                                     | Ceiling panel (kg)                      |             | 8                                                                                  |          |          | 11       |             |          |              |          | 18            |                        |
| Heat exchanger                                      |                                         |             | Finned tube                                                                        |          |          |          |             |          |              |          |               |                        |
| Soundproof/Heat-insulating material                 |                                         |             | Non-flammable insulation                                                           |          |          |          |             |          |              |          |               |                        |
| Fan unit                                            | Fan                                     |             | Centrifugal fan                                                                    |          |          |          |             |          |              |          |               |                        |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |             | 570/510/450                                                                        |          |          |          | 780/700/600 |          | 1140/960/720 |          | 1260/1140/960 | 1920/1500/1050         |
|                                                     | Motor (W)                               |             | 53                                                                                 |          |          | 39       |             | 53       |              |          | 92            |                        |
| Air filter                                          |                                         |             | Standard filter attached (Long life filter)                                        |          |          |          |             |          |              |          |               |                        |
| Controller                                          |                                         |             | Remote controller                                                                  |          |          |          |             |          |              |          |               |                        |
| Connecting pipe                                     | Gas side (mm)                           |             | ø 9.5                                                                              |          |          | ø 12.7   |             | ø 15.9   |              |          |               |                        |
|                                                     | Liquid side (mm)                        |             | ø 6.4                                                                              |          |          |          |             | ø 9.5    |              |          |               |                        |
|                                                     | Drain port (Nominal dia. mm)            |             | 25 (Polyvinyl chloride tube)                                                       |          |          |          |             |          |              |          |               |                        |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |             | 34/32/30                                                                           |          |          |          | 35/33/30    |          | 38/35/33     |          | 40/37/34      | 45/42/39               |
| PMV Kit                                             |                                         |             | Not available                                                                      |          |          |          |             |          |              |          |               |                        |

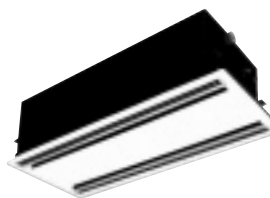
**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-3. 2-way Air Discharge Cassette Type

60Hz



### • Specifications (60Hz)

|                                                      |                                          |             |                                                                         |          |          |             |          |               |          |                 |
|------------------------------------------------------|------------------------------------------|-------------|-------------------------------------------------------------------------|----------|----------|-------------|----------|---------------|----------|-----------------|
| Model name                                           |                                          | MMU-        | AP0071WH                                                                | AP0091WH | AP0121WH | AP0151WH    | AP0181WH | AP0241WH      | AP0271WH | AP0301WH        |
| Cooling/Heating capacity                             |                                          | (kW)        | 2.2/2.5                                                                 | 2.8/3.2  | 3.6/4.0  | 4.5/5.0     | 5.6/6.3  | 7.1/8.0       | 8.0/9.0  | 9.0/10.0        |
| Electrical characteristics                           | Power supply                             |             | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |          |          |             |          |               |          |                 |
|                                                      | Running current (A)                      |             | 0.33                                                                    |          |          | 0.38        |          | 0.53          |          | 0.58            |
|                                                      | Power consumption (kW)                   |             | 0.070                                                                   |          |          | 0.076       |          | 0.115         |          | 0.123           |
|                                                      | Power factor (%)                         |             | 97                                                                      |          |          | 90          |          | 99            |          | 96              |
|                                                      | Starting current (A)                     |             | 0.46                                                                    |          |          | 0.59        |          | 0.87          |          | 0.96            |
| Appearance                                           | Main unit                                |             | Heat-insulating material attached Zinc hot dipping steel plate          |          |          |             |          |               |          |                 |
|                                                      | Ceiling panel                            | Model       | RBC-UW136PG                                                             |          |          | RBC-UW266PG |          |               |          |                 |
|                                                      |                                          | Panel color | Light ivory (Munsell 10Y 9/0.5)                                         |          |          |             |          |               |          |                 |
| Outer dimension                                      | Main unit                                | Height (mm) | 398                                                                     |          |          |             |          |               |          |                 |
|                                                      |                                          | Width (mm)  | 830                                                                     |          |          | 1.350       |          |               |          |                 |
|                                                      |                                          | Depth (mm)  | 550                                                                     |          |          |             |          |               |          |                 |
|                                                      | Ceiling panel                            | Height (mm) | 8                                                                       |          |          |             |          |               |          |                 |
|                                                      |                                          | Width (mm)  | 1,000                                                                   |          |          | 1,520       |          |               |          |                 |
|                                                      |                                          | Depth (mm)  | 650                                                                     |          |          |             |          |               |          |                 |
| Total weight                                         | Main unit (kg)                           |             | 33                                                                      |          |          | 44          |          | 48            |          |                 |
|                                                      | Ceiling panel (kg)                       |             | 8                                                                       |          |          | 11          |          |               |          |                 |
| Heat exchanger                                       |                                          |             | Finned tube                                                             |          |          |             |          |               |          |                 |
| Soundproof/Heat-insulating material                  |                                          |             | Non-flammable insulation                                                |          |          |             |          |               |          |                 |
| Fan unit                                             | Fan                                      |             | Centrifugal fan                                                         |          |          |             |          |               |          |                 |
|                                                      | Standard air flow (High/Mid./Low) (m³/h) |             | 570/510/450                                                             |          |          | 780/700/600 |          | 1,140/960/720 |          | 1,260/1,140/960 |
|                                                      | Motor (W)                                |             | 53                                                                      |          |          | 39          |          | 53            |          |                 |
| Air filter                                           |                                          |             | Standard filter (Long life filter)                                      |          |          |             |          |               |          |                 |
| Controller                                           |                                          |             | Remote controller                                                       |          |          |             |          |               |          |                 |
| Connecting pipe                                      | Gas side (mm)                            |             | ø 9.5                                                                   |          |          | ø 12.7      |          | ø 15.9        |          |                 |
|                                                      | Liquid side (mm)                         |             | ø 6.4                                                                   |          |          |             |          | ø 9.5         |          |                 |
|                                                      | Drain port (Nominal dia.mm)              |             | 25 (Polyvinyl chloride tube)                                            |          |          |             |          |               |          |                 |
| Sound pressure level(Note 2) (High/Mid./Low) (dB(A)) |                                          |             | 34/32/30                                                                |          |          | 35/33/30    |          | 38/35/33      |          | 40/37/34        |
| PMV Kit                                              |                                          |             | Not available                                                           |          |          |             |          |               |          |                 |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

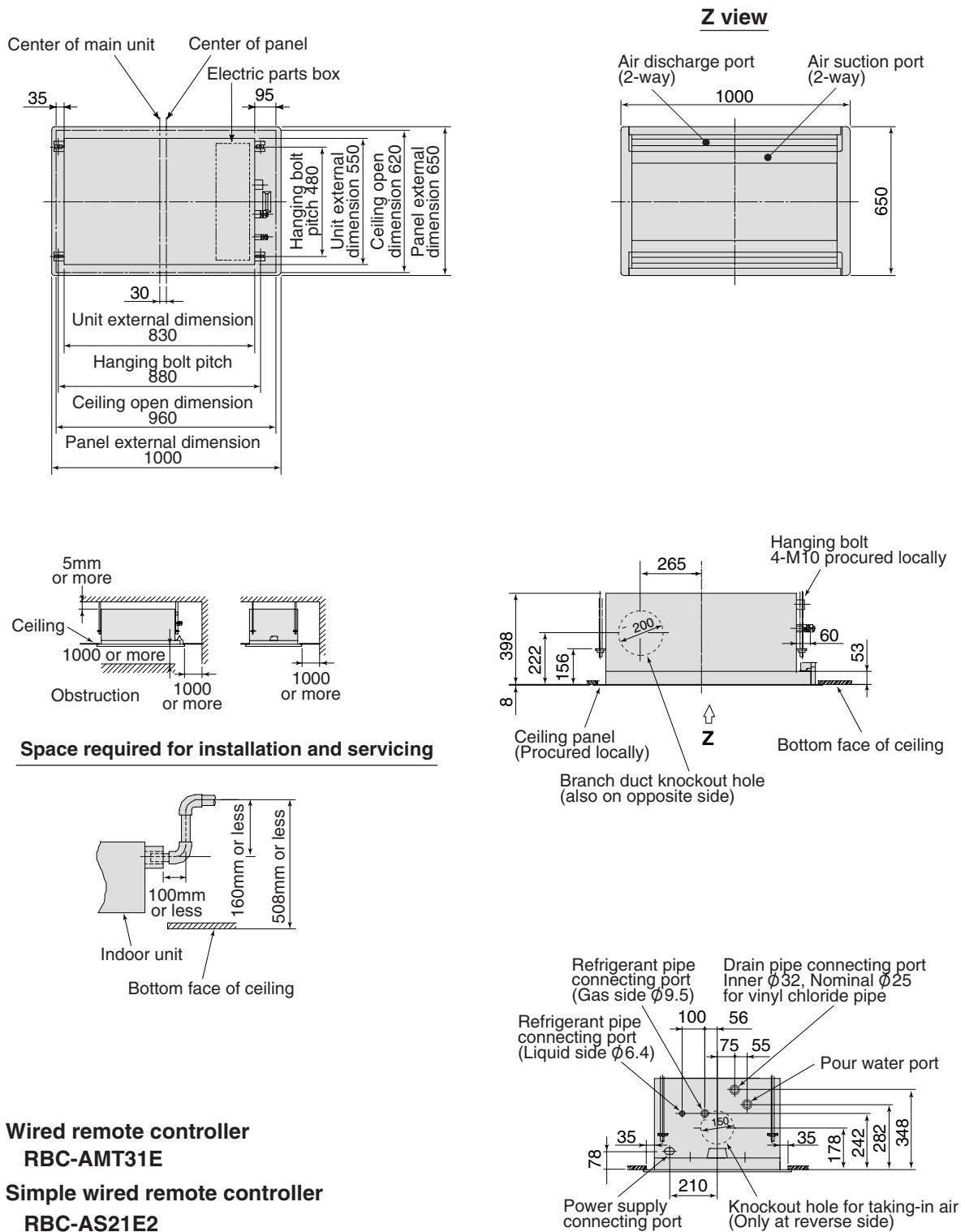
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-3. 2-way Air Discharge Cassette Type

### • Dimension

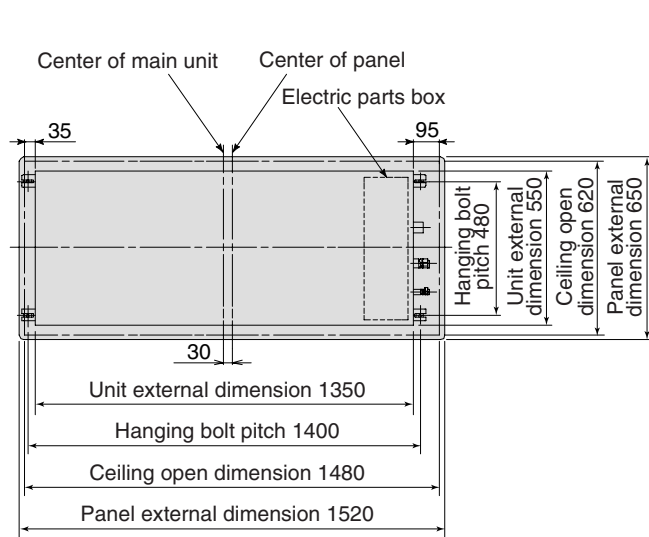
MMU-AP0071WH, AP0091WH, AP0121WH



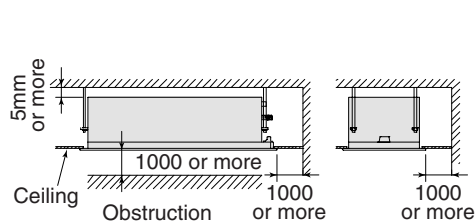
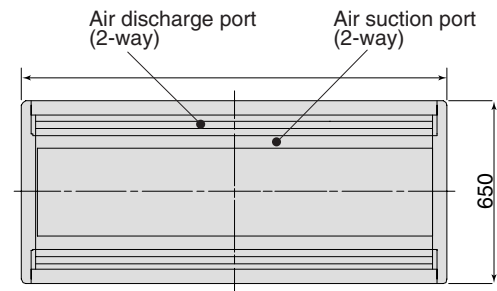
- Wired remote controller  
RBC-AMT31E
- Simple wired remote controller  
RBC-AS21E2
- Wireless remote controller kit  
TCB-AX21E2
- Weekly timer application  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

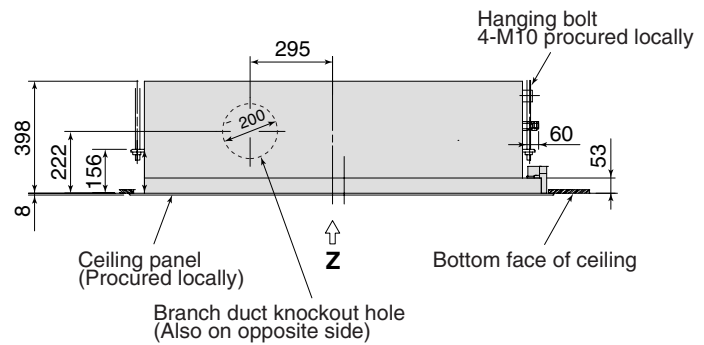
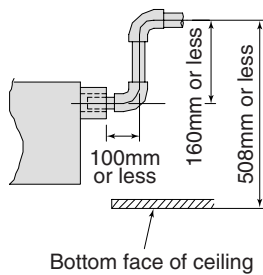
# MMU-AP0151WH, AP0181WH, AP0241WH, AP0271WH. AP0301WH



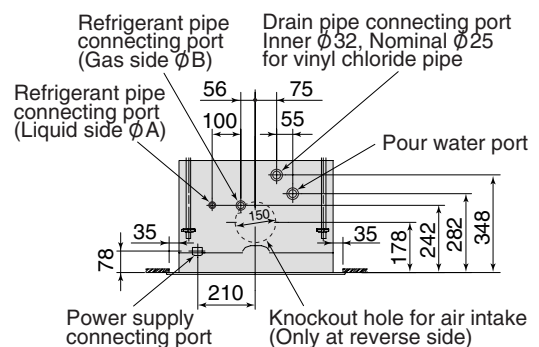
**Z view**



## Space required for installation and servicing



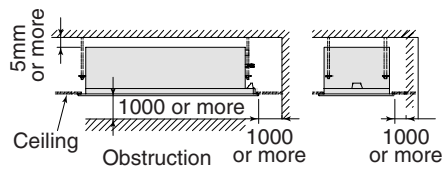
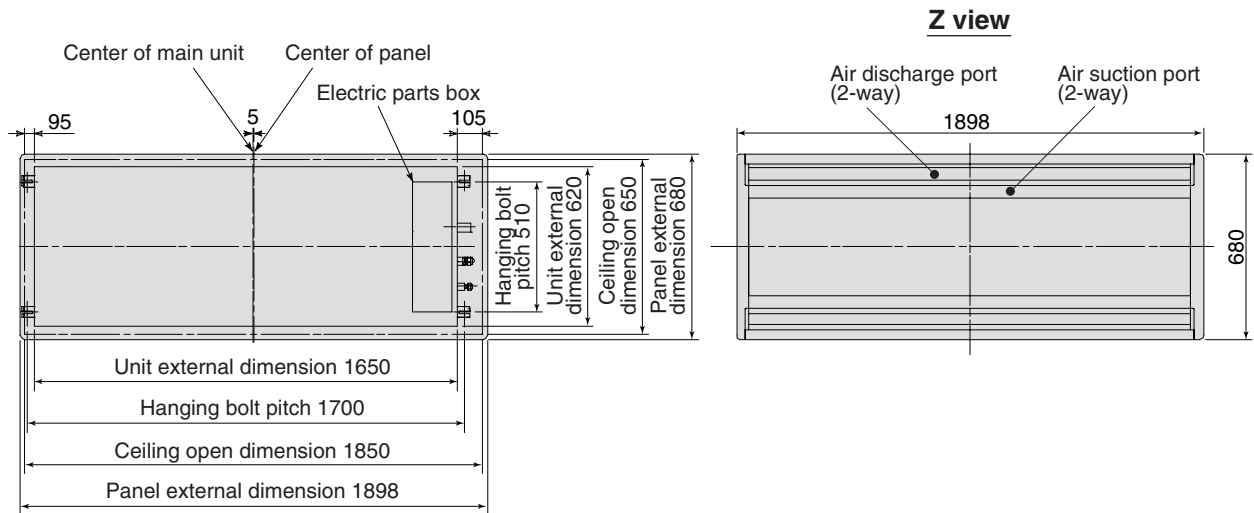
- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2



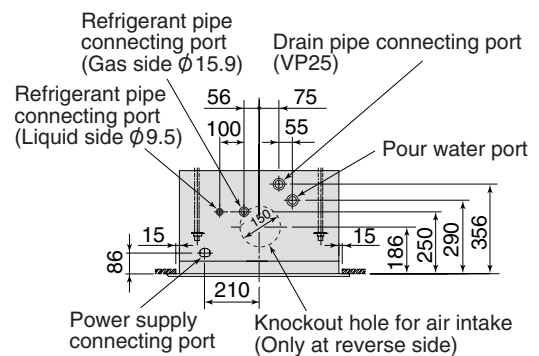
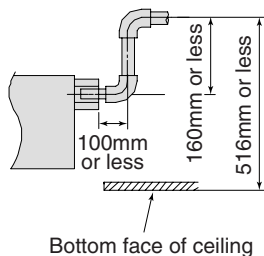
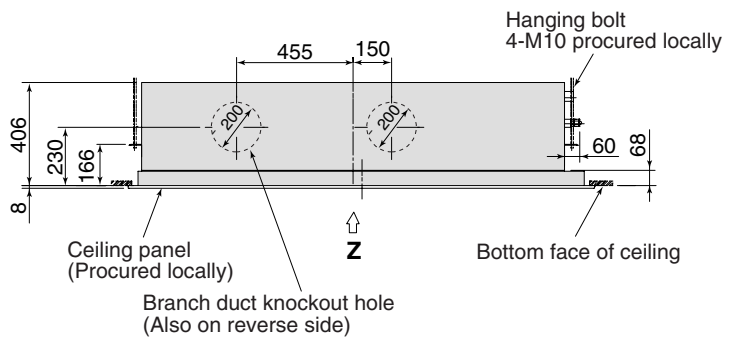
| Model                    | A          | B           |
|--------------------------|------------|-------------|
| MMU-AP0151WH to AP0181WH | $\phi$ 6.4 | $\phi$ 12.7 |
| MMU-AP0241WH to AP0301WH | $\phi$ 9.5 | $\phi$ 15.9 |

Note: All dimensions are in mm.

## MMU-AP0481WH\*CHINA market only



### Space required for installation and servicing



- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## 2-4. 1-way Air Discharge Cassette Type

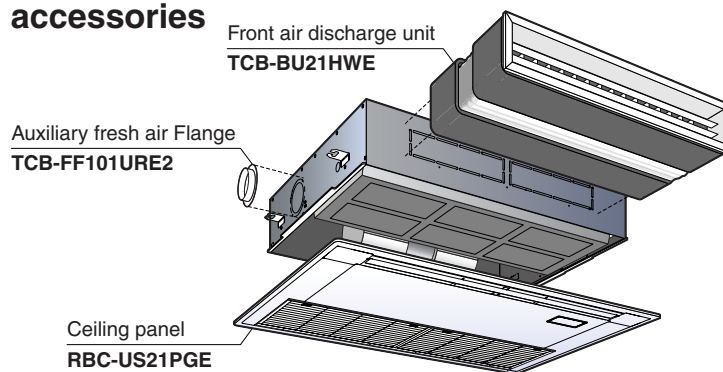
### Appera



### Standard accessories

| Part name            | Q'ty | Shape                                                                               | Usage                                                                           |
|----------------------|------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Installation Manual  | 1    | This manual                                                                         | (Be sure to hand this over to customer)                                         |
| Installation pattern | 1    | —                                                                                   | For check of ceiling opening and unit position                                  |
| Installation gauge   | 1    |                                                                                     | For check of ceiling opening and unit position (Unit with installation pattern) |
| Pattern fixing screw | 4    | M5 x 16 ℓ                                                                           | For mounting of pattern                                                         |
| Heat insulating pipe | 2    |    | For insulating pipe connecting section                                          |
| Washer               | 8    | M10 x φ34                                                                           | For hanging-down of unit                                                        |
| Hose band            | 1    |    | For connecting drain pipe                                                       |
| Flexible hose        | 1    |    | For                                                                             |
| Heat insulator       | 1    |   | For insulating drain connecting section                                         |
| Heat insulator       | 1    |  | For sealing of pipe connecting port (With slit)                                 |
| Heat insulator       | 1    |  | For sealing of pipe connecting port (Without slit)                              |

### Optional accessories



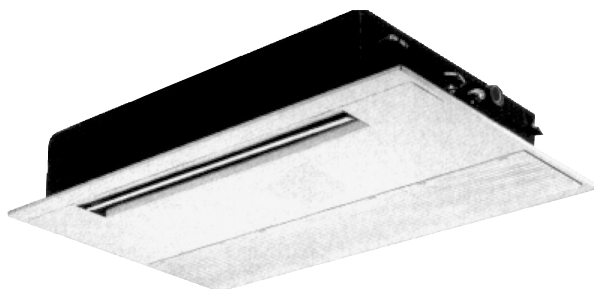
| Parts Name                 | Model name    | Applied Model              | Notes                                                                           | Remarks |
|----------------------------|---------------|----------------------------|---------------------------------------------------------------------------------|---------|
| Ceiling panel              | RBC-US21PGE   | MMC-AP0152SH/0182SH/0242SH | Required accessory                                                              |         |
| Front air discharge unit   | TCB-BUS21HWE  |                            |                                                                                 |         |
| Auxiliary fresh air Flange | TCB-FF101URE2 |                            | For easy fresh air intake by using the knockout hole of indoor unit.(dia=100mm) |         |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-4. Compact 1-way Air Discharge Cassette Type

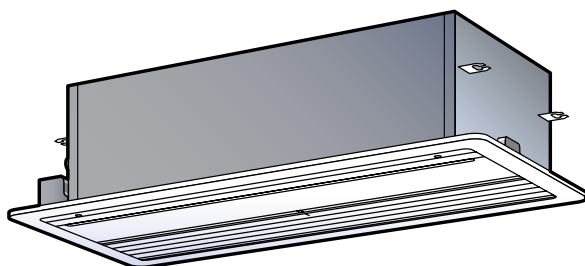
### Apperarance



### Standard accessories

| Part name            |                            | Q'ty | Shape                                                                               | Use                                                            | Part name            | Q'ty | Shape                                                                                 | Use                                                                    |
|----------------------|----------------------------|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------|------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Installation Manual  |                            | 1    | This manual                                                                         | (Be sure to hand this over to customer)                        | Installation gauge   | 1    |    | For positioning of ceiling position (United with installation pattern) |
| Heat insulating pipe |                            | 2    |   | For heat insulating pipe connecting section                    | Pattern fixing screw | 6    | M5 x 16L $\ell$                                                                       | For attaching the installation pattern                                 |
| Installation pattern | MMU-AP0301WH type or lower | 1    |  | For checking the position of the ceiling openings and the unit | Fan motor connector  | 1    |  | For changing fan motor r.p.m. to apply higher ceiling                  |
|                      | MMU-AP0481WH type          | 2    |                                                                                     |                                                                | insulator            | 1    |  | For seal for wire connecting port                                      |

### Optional accessories

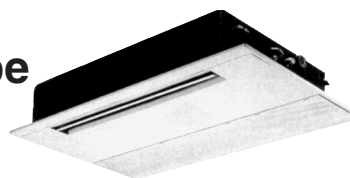


### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-4. 1-way Air Discharge Cassette Type

50Hz



### • Specifications (50Hz)

|                                             |                                  |             |                                                              |                                                                                    |          |          |                                          |             |               |
|---------------------------------------------|----------------------------------|-------------|--------------------------------------------------------------|------------------------------------------------------------------------------------|----------|----------|------------------------------------------|-------------|---------------|
| Model name                                  |                                  |             | MMU-                                                         | AP0071YH                                                                           | AP0091YH | AP0121YH | AP0152SH                                 | AP0182SH    | AP0242SH      |
| Cooling/Heating capacity(Note 1)            |                                  |             | (kW)                                                         | 2.2/2.5                                                                            | 2.8/3.2  | 3.6/4.0  | 4.5/5.0                                  | 5.6/6.3     | 7.1/8.0       |
| Electrical characteristics<br>(Note 2)      | Power supply                     |             |                                                              | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |          |          |                                          |             |               |
|                                             | Running current (A)              |             |                                                              | 0.24                                                                               |          |          | 0.34                                     | 0.37        | 0.62          |
|                                             | Power consumption (kW)           |             |                                                              | 0.053                                                                              |          |          | 0.042                                    | 0.046       | 0.075         |
|                                             | Power factor (%)                 |             |                                                              | 95                                                                                 |          |          | —                                        | —           | —             |
|                                             | Starting current (A)             |             |                                                              | 0.6                                                                                |          |          | 0.53                                     | 0.54        | 0.80          |
| Appearance                                  | Main unit                        |             |                                                              | Heat-insulating material attached Zinc hot dipping steel plate                     |          |          |                                          |             |               |
|                                             | Ceiling Panel                    | Model       |                                                              | RBC-UY135PG                                                                        |          |          | RBC-US21PGE                              |             |               |
|                                             |                                  | Panel color |                                                              | W : Silky shade (1Y8.5/0.5)                                                        |          |          | Moon white (Munsel 2.5GY9.0/0.5)         |             |               |
| Outer dimension                             | Main unit                        | Height (mm) | 235                                                          |                                                                                    |          | 200      |                                          |             |               |
|                                             |                                  | Width (mm)  | 850                                                          |                                                                                    |          | 1,000    |                                          |             |               |
|                                             |                                  | Depth (mm)  | 400                                                          |                                                                                    |          | 710      |                                          |             |               |
|                                             | Ceiling panel                    | Height (mm) | 18                                                           |                                                                                    |          | 20       |                                          |             |               |
|                                             |                                  | Width (mm)  | 1,050                                                        |                                                                                    |          | 1,230    |                                          |             |               |
|                                             |                                  | Depth (mm)  | 470                                                          |                                                                                    |          | 800      |                                          |             |               |
| Total weight                                | Main unit (kg)                   |             | 22                                                           |                                                                                    |          | 21       |                                          | 22          |               |
|                                             | Ceiling panel (kg)               |             | 3.5                                                          |                                                                                    |          | 5.5      |                                          |             |               |
| Heat exchanger                              |                                  |             |                                                              | Finned tube                                                                        |          |          |                                          |             |               |
| Soundproof/Heat-insulating material         |                                  |             |                                                              | Non-flammable insulation                                                           |          |          | Polyethylene foam + Expanded polystyrene |             |               |
| Fan unit                                    | Fan                              |             |                                                              | Centrifugal fan                                                                    |          |          |                                          |             |               |
|                                             | Standard air flow (High/Mid/Low) |             | (m³/h)                                                       | 540/480/420                                                                        |          |          | 750/690/630                              | 780/720/660 | 1,140/960/810 |
|                                             | Motor (W)                        |             | 22                                                           |                                                                                    |          | 30       |                                          |             |               |
| Controller                                  |                                  |             |                                                              | Remote controller                                                                  |          |          |                                          |             |               |
| Air filter                                  |                                  |             |                                                              | Standard filter (Long life filter)                                                 |          |          |                                          |             |               |
| Connecting pipe                             | Gas side (mm)                    |             | ø 9.5                                                        |                                                                                    |          | ø 12.7   |                                          | ø 15.9      |               |
|                                             | Liquid side (mm)                 |             | ø 6.4                                                        |                                                                                    |          |          |                                          | ø 9.5       |               |
|                                             | Drain port (Nominal dia. mm)     |             | 25 (Polyvinyl chloride tube:External dia.32 Internal dia.25) |                                                                                    |          |          |                                          |             |               |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  |             | (dB(A))                                                      | 42/39/34                                                                           |          |          | 37/35/32                                 | 38/36/34    | 45/41/37      |
| PMV Kit                                     |                                  |             |                                                              | Available                                                                          |          |          |                                          |             |               |

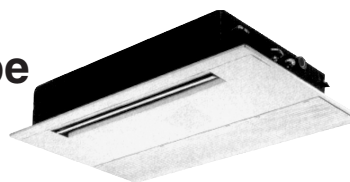
**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-4. 1-way Air Discharge Cassette Type

60Hz



### • Specifications (60Hz)

| Model name                                          |                                         |             | MMU-                                                         | AP0071YH                                                                | AP0091YH | AP0121YH    | AP0152SH                                 | AP0182SH      | AP0242SH |
|-----------------------------------------------------|-----------------------------------------|-------------|--------------------------------------------------------------|-------------------------------------------------------------------------|----------|-------------|------------------------------------------|---------------|----------|
| Cooling/Heating capacity(Note 1)                    |                                         |             | (kW)                                                         | 2.2/2.5                                                                 | 2.8/3.2  | 3.6/4.0     | 4.5/5.0                                  | 5.6/6.3       | 7.1/8.0  |
| Electrical characteristics<br>(Note 2)              | Power supply                            |             |                                                              | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |          |             |                                          |               |          |
|                                                     | Running current (A)                     |             |                                                              | 0.26                                                                    |          |             | 0.35                                     | 0.39          | 0.62     |
|                                                     | Power consumption (kW)                  |             |                                                              | 0.056                                                                   |          |             | 0.041                                    | 0.045         | 0.073    |
|                                                     | Power factor (%)                        |             |                                                              | 98                                                                      |          |             | —                                        | —             | —        |
|                                                     | Starting current (A)                    |             |                                                              | 0.60                                                                    |          |             | 0.53                                     | 0.54          | 0.80     |
| Appearance                                          | Main unit                               |             |                                                              | Heat-insulating material attached Zinc hot dipping steel plate          |          |             |                                          |               |          |
|                                                     | Ceiling Panel                           | Model       |                                                              | RBC-UY135PG                                                             |          |             | RBC-US21PGE                              |               |          |
|                                                     |                                         | Panel color |                                                              | W : Silky shade (1Y8.5/0.5)                                             |          |             | Moon white (Munsel 2.5GY9.0/0.5)         |               |          |
| Outer dimension                                     | Main unit                               | Height (mm) | 235                                                          |                                                                         |          | 200         |                                          |               |          |
|                                                     |                                         | Width (mm)  | 850                                                          |                                                                         |          | 1,000       |                                          |               |          |
|                                                     |                                         | Depth (mm)  | 400                                                          |                                                                         |          | 710         |                                          |               |          |
|                                                     | Ceiling panel                           | Height (mm) | 18                                                           |                                                                         |          | 20          |                                          |               |          |
|                                                     |                                         | Width (mm)  | 1,050                                                        |                                                                         |          | 1,230       |                                          |               |          |
|                                                     |                                         | Depth (mm)  | 470                                                          |                                                                         |          | 800         |                                          |               |          |
| Total weight                                        | Main unit (kg)                          |             | 22                                                           |                                                                         |          | 21          |                                          | 22            |          |
|                                                     | Ceiling panel (kg)                      |             | 3.5                                                          |                                                                         |          | 5.5         |                                          |               |          |
| Heat exchanger                                      |                                         |             |                                                              | Finned tube                                                             |          |             |                                          |               |          |
| Soundproof/Heat-insulating material                 |                                         |             |                                                              | Non-flammable insulation                                                |          |             | Polyethylene foam + Expanded polystyrene |               |          |
| Fan unit                                            | Fan                                     |             |                                                              | Centrifugal fan                                                         |          |             |                                          |               |          |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |             | 540/480/420                                                  |                                                                         |          | 750/690/630 | 780/720/660                              | 1,140/960/810 |          |
|                                                     | Motor (W)                               |             | 22                                                           |                                                                         |          | 30          |                                          |               |          |
| Controller                                          |                                         |             |                                                              | Remote controller                                                       |          |             |                                          |               |          |
| Air filter                                          |                                         |             |                                                              | Standard filter (Long life filter)                                      |          |             |                                          |               |          |
| Connecting pipe                                     | Gas side (mm)                           |             | ø 9.5                                                        |                                                                         |          | ø 12.7      |                                          | ø 15.9        |          |
|                                                     | Liquid side (mm)                        |             | ø 6.4                                                        |                                                                         |          |             |                                          | ø 9.5         |          |
|                                                     | Drain port (Nominal dia. mm)            |             | 25 (Polyvinyl chloride tube:External dia.32 Internal dia.25) |                                                                         |          |             |                                          |               |          |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |             | 42/39/34                                                     |                                                                         |          | 37/35/32    | 38/36/34                                 | 45/41/37      |          |
| PMV Kit                                             |                                         |             |                                                              | Available                                                               |          |             |                                          |               |          |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

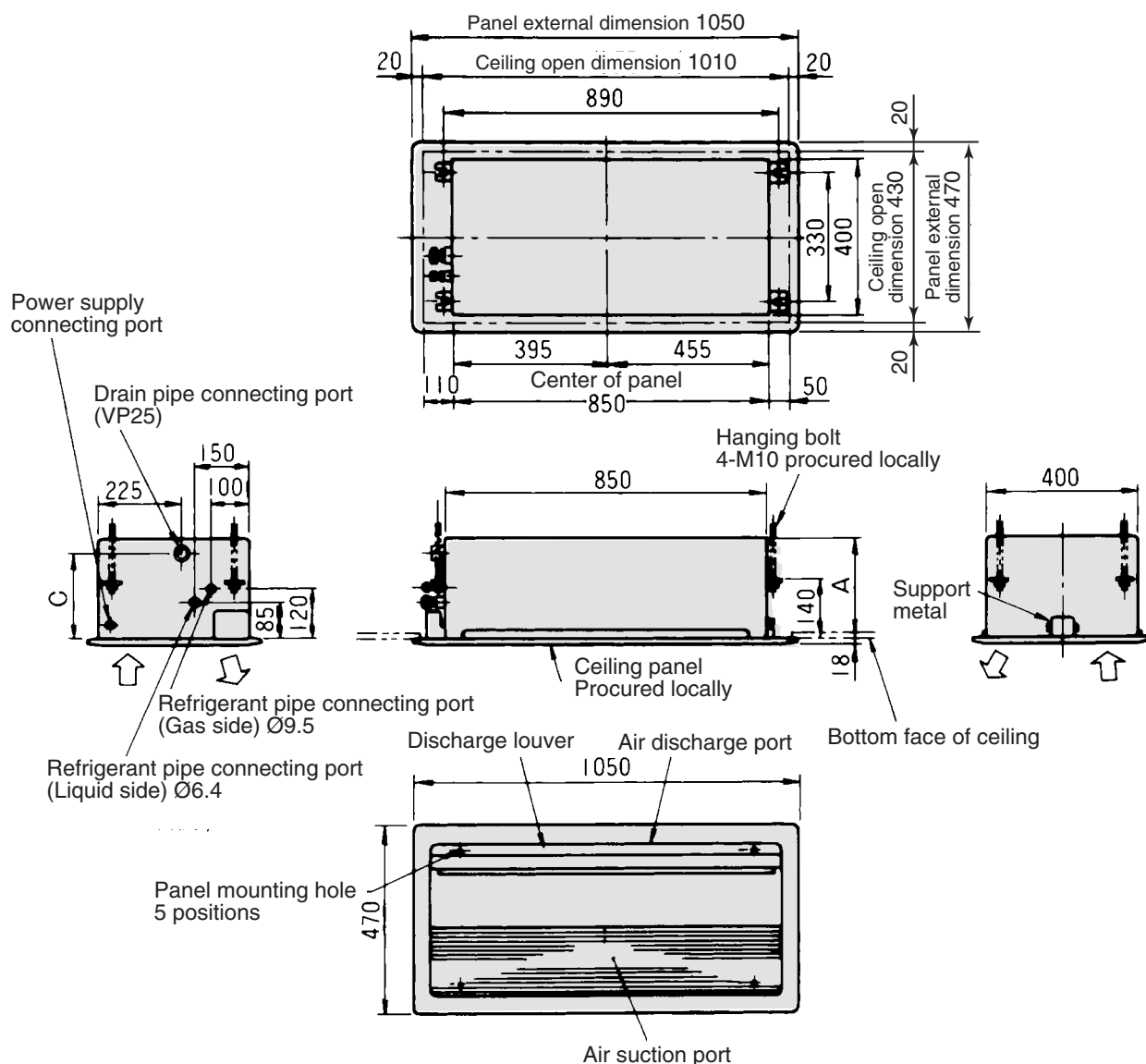
**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions      Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-4. 1-way Air Discharge Cassette Type

- **Dimension**

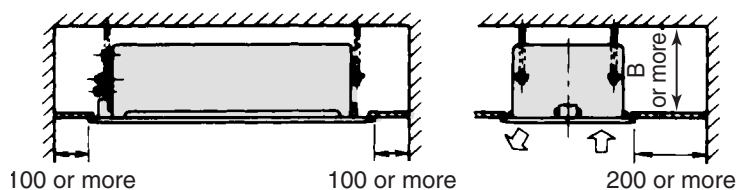
**MMU-AP0071YH, AP0091YH, AP0121YH**



## Dimensions

| Model MMU-                  | A   | B   | C   |
|-----------------------------|-----|-----|-----|
| AP0071YH,AP0091YH, AP0121YH | 235 | 245 | 200 |

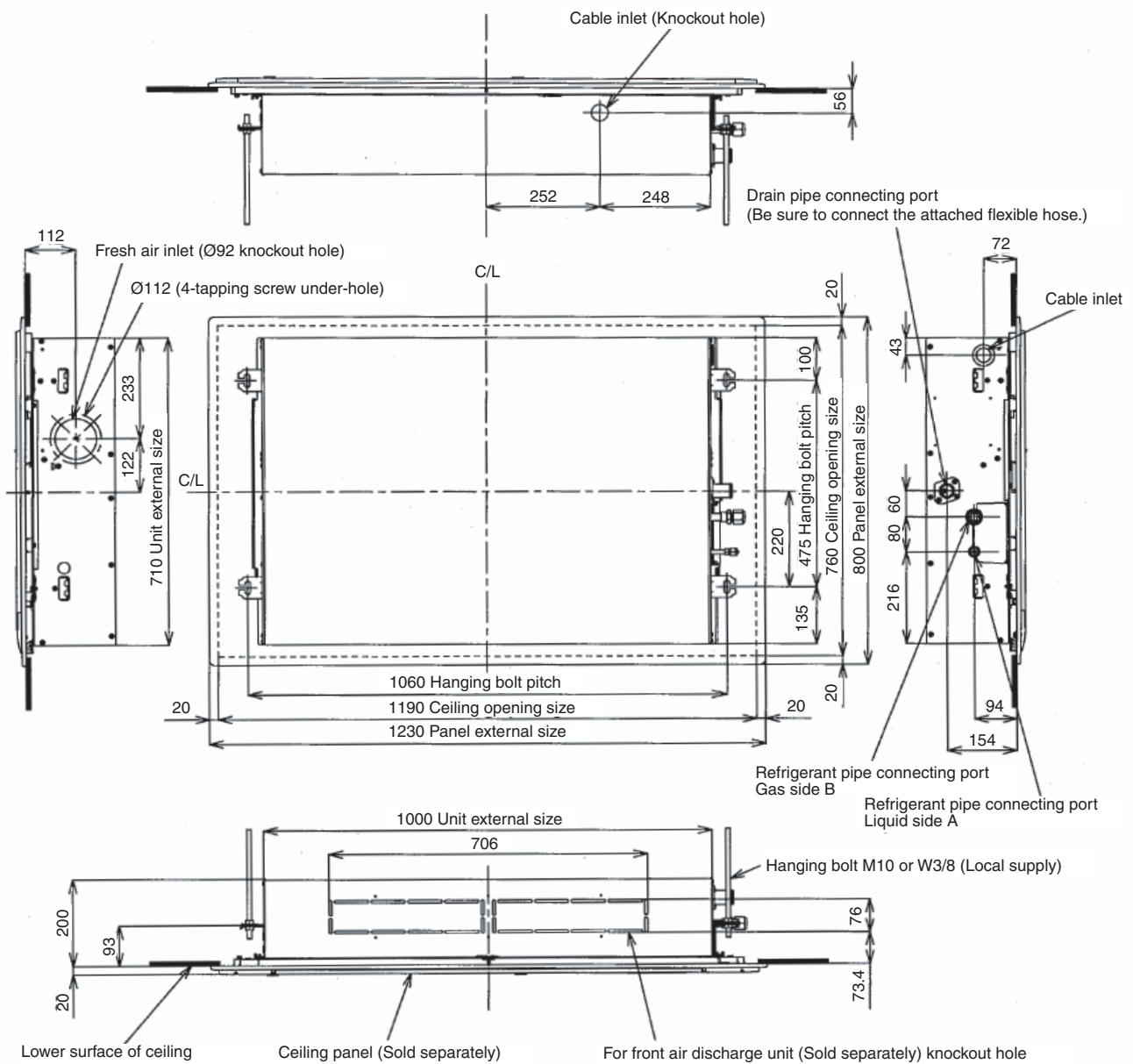
- **Wired remote controller**  
**RBC-AMT31E**
- **Simple wired remote controller**  
**RBC-AS21E2**
- **Wireless remote controller kit**  
**TCB-AX21E2**
- **Weekly timer application**  
**RBC-AMT31E and RBC-EXW21E2**



### Space required for installation and servicing

Note: All dimensions are in mm.

## MMU-AP0152SH, AP0182SH, AP0242SH



| Model name        | MMU- | A    | B     |
|-------------------|------|------|-------|
| AP015, AP018 type |      | Ø6.4 | Ø12.7 |
| AP024 type        |      | Ø9.5 | Ø15.9 |

- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2

## 2-5. Concealed Duct Standard Type

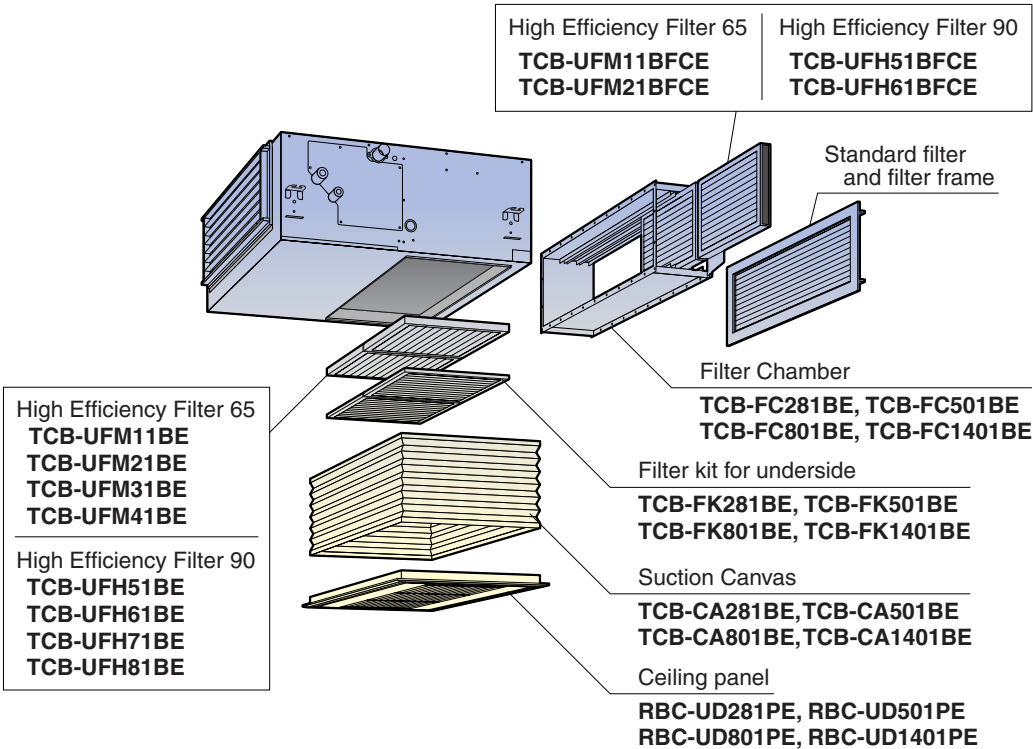
### Appearance



### Standard accessories

| Part name           | Q'ty | Shape                                                                               | Use                                            | Part name | Q'ty | Shape                                                                                | Use                       |
|---------------------|------|-------------------------------------------------------------------------------------|------------------------------------------------|-----------|------|--------------------------------------------------------------------------------------|---------------------------|
| Installation Manual | 1    | —                                                                                   | —                                              | Washer    | 8    |  | For hanging down the unit |
| Insulated pipe      | 2    |  | For heat insulating of pipe connecting section |           |      |                                                                                      |                           |

### Optional accessories



| Parts Name                                           | Model name            | Applied Model          | Notes                                                                | Remarks               |
|------------------------------------------------------|-----------------------|------------------------|----------------------------------------------------------------------|-----------------------|
| High Efficiency Filter 65<br>(For rear suction)      | TCB-UFM11BFCE         | MMD-AP0071/0091/0121BH | Dust collecting effect : 65%<br>(NBS Colorimetric method)            | Use with TCB-FC281BE  |
|                                                      | TCB-UFM11BFCE(2 pcs.) | MMD-AP0151/0181BH      |                                                                      | Use with TCB-FC501BE  |
|                                                      | TCB-UFM21BFCE         | MMD-AP0241/0271/0301BH |                                                                      | Use with TCB-FC801BE  |
|                                                      | TCB-UFM21BFCE(2 pcs.) | MMD-AP0361/0481BH      |                                                                      | Use with TCB-FC1401BE |
| High Efficiency Filter 90<br>(For rear suction)      | TCB-UFH51BFCE         | MMD-AP0071/0091/0121BH | Dust collecting effect : 90%<br>(NBS Colorimetric method)            | Use with TCB-FC281BE  |
|                                                      | TCB-UFH51BFCE(2 pcs.) | MMD-AP0151/0181BH      |                                                                      | Use with TCB-FC501BE  |
|                                                      | TCB-UFH61BFCE         | MMD-AP0241/0271/0301BH |                                                                      | Use with TCB-FC801BE  |
|                                                      | TCB-UFH61BFCE(2 pcs.) | MMD-AP0361/0481BH      |                                                                      | Use with TCB-FC1401BE |
| Filter Chamber<br>(For rear suction)                 | TCB-FC281BE           | MMD-AP0071/0091/0121BH | For high efficiency filter                                           |                       |
|                                                      | TCB-FC501BE           | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | TCB-FC801BE           | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | TCB-FC1401BE          | MMD-AP0361/0481BH      |                                                                      |                       |
| High Efficiency Filter 65<br>(For underside suction) | TCB-UFM11BE           | MMD-AP0071/0091/0121BH | Dust collecting effect : 65%<br>(NBS Colorimetric method)            |                       |
|                                                      | TCB-UFM21BE           | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | TCB-UFM31BE           | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | TCB-UFM41BE           | MMD-AP0361/0481BH      |                                                                      |                       |
| High Efficiency Filter 90<br>(For underside suction) | TCB-UFH51BE           | MMD-AP0071/0091/0121BH | Dust collecting effect : 90%<br>(NBS Colorimetric method)            |                       |
|                                                      | TCB-UFH61BE           | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | TCB-UFH71BE           | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | TCB-UFH81BE           | MMD-AP0361/0481BH      |                                                                      |                       |
| Ceiling panel<br>(Half panel for underside suction)  | RBC-UD281PE(W)        | MMD-AP0071/0091/0121BH |                                                                      |                       |
|                                                      | RBC-UD501PE(W)        | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | RBC-UD801PE(W)        | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | RBC-UD1401PE(W)       | MMD-AP0361/0481BH      |                                                                      |                       |
| Suction Canvas<br>(For underside suction)            | TCB-CA281BE           | MMD-AP0071/0091/0121BH | Adjustment height of the suction<br>canvas is more 40mm and<br>100mm |                       |
|                                                      | TCB-CA501BE           | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | TCB-CA801BE           | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | TCB-CA1401BE          | MMD-AP0361/0481BH      |                                                                      |                       |
| Filter kit for underside                             | TCB-FK281BE           | MMD-AP0071/0091/0121BH | Kit of underside prefilter &<br>shielding plate of rear suction      |                       |
|                                                      | TCB-FK501BE           | MMD-AP0151/0181BH      |                                                                      |                       |
|                                                      | TCB-FK801BE           | MMD-AP0241/0271/0301BH |                                                                      |                       |
|                                                      | TCB-FK1401BE          | MMD-AP0361/0481BH      |                                                                      |                       |

## Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-5. Concealed Duct Standard Type



50Hz

### • Specifications (50Hz)

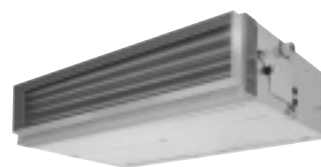
|                                             |                                                 |             |                                                                                    |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|---------------------------------------------|-------------------------------------------------|-------------|------------------------------------------------------------------------------------|------------------------------------|---------------|---------------|---------------|-----------------|----------|-------------------|---------------------|---------------------|-----------|-------|
| Model name                                  |                                                 |             | MMD-                                                                               | AP0071BH                           | AP0091BH      | AP0121BH      | AP0151BH      | AP0181BH        | AP0241BH | AP0271BH          | AP0301BH            | AP0361BH            | AP0481BH  |       |
| Cooling/Heating capacity (Note 1)           |                                                 |             | (kW)                                                                               | 2.2/2.5                            | 2.8/3.2       | 3.6/4.0       | 4.5/5.0       | 5.6/6.3         | 7.1/8.0  | 8.0/9.0           | 9.0/10.0            | 11.2/12.5           | 14.0/16.0 |       |
| Electrical characteristics                  | Power supply                                    |             | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             | Running current (A)                             |             | 0.29                                                                               |                                    | 0.34          |               | 0.43          |                 | 0.52     |                   | 0.61                |                     | 0.83      | 0.98  |
|                                             | Power consumption (kW)                          |             | 0.033                                                                              |                                    | 0.039         |               | 0.050         |                 | 0.060    |                   | 0.071               |                     | 0.107     | 0.128 |
|                                             | Starting current (A)                            |             | 0.5                                                                                |                                    | 0.59          |               | 0.75          |                 | 0.90     |                   | 1.05                |                     | 1.44      | 1.70  |
| Appearance                                  | Main unit                                       |             |                                                                                    | Zinc hot dipping steel plate       |               |               |               |                 |          |                   |                     |                     |           |       |
| Outer dimension                             | Main unit                                       | Height (mm) | 320                                                                                |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             |                                                 | Width (mm)  | 550                                                                                |                                    |               | 700           |               | 1,000           |          |                   | 1,350               |                     |           |       |
|                                             |                                                 | Depth (mm)  | 800                                                                                |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             | Suction ceiling panel                           | Height (mm) | 9                                                                                  |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             |                                                 | Width (mm)  | 630                                                                                |                                    |               | 780           |               | 1,080           |          |                   | 1,430               |                     |           |       |
|                                             |                                                 | Depth (mm)  | 500                                                                                |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
| Total weight                                | Main unit (kg)                                  |             | 28                                                                                 |                                    |               | 32            |               | 43              |          |                   | 55                  |                     |           |       |
|                                             | Ceiling panel (kg)                              |             | 3.5                                                                                |                                    |               | 4             |               | 6               |          |                   | 7                   |                     |           |       |
| Heat exchanger                              |                                                 |             |                                                                                    | Finned tube                        |               |               |               |                 |          |                   |                     |                     |           |       |
| Soundproof/Heat-insulating material         |                                                 |             |                                                                                    | Non-flammable insulation           |               |               |               |                 |          |                   |                     |                     |           |       |
| Fan unit                                    | Fan                                             |             | Centrifugal fan                                                                    |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             | Standard air flow (High/Mid/Low) (m³/h)         |             | 480 (420/340)                                                                      |                                    | 570 (490/400) | 650 (540/480) | 780 (660/540) | 1,140 (990/870) |          | 1,260 (1,080/870) | 1,620 (1,410/1,200) | 1,980 (1,710/1,490) |           |       |
|                                             | Motor (W)                                       |             | 120                                                                                |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             | External static pressure (factory setting) (Pa) |             | 40                                                                                 |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
|                                             | External static pressure (W)                    |             | 100                                                                                |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
| Air filter                                  |                                                 |             |                                                                                    | Standard filter (Long life filter) |               |               |               |                 |          |                   |                     |                     |           |       |
| Controller                                  |                                                 |             |                                                                                    | Remote controller                  |               |               |               |                 |          |                   |                     |                     |           |       |
| Connecting pipe                             | Gas side (mm)                                   |             | ø 9.5                                                                              |                                    |               | ø 12.7        |               | ø 15.9          |          |                   |                     |                     |           |       |
|                                             | Liquid side (mm)                                |             | ø 6.4                                                                              |                                    |               |               |               | ø 9.5           |          |                   |                     |                     |           |       |
|                                             | Drain port (Nominal dia. mm)                    |             | 25 (Polyvinyl chloride tube)                                                       |                                    |               |               |               |                 |          |                   |                     |                     |           |       |
| Sound pressure level(Note 2) (High/Mid/Low) |                                                 |             | (dB(A))                                                                            | 30/28/26                           |               | 31/29/27      |               | 32/30/28        | 33/31/29 |                   | 34/32/29            | 36/34/32            | 38/36/32  |       |
| PMV Kit                                     |                                                 |             |                                                                                    | Not available                      |               |               |               |                 |          |                   |                     |                     |           |       |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-5. Concealed Duct Standard Type



60Hz

### • Specifications (60Hz)

|                                                     |                                                 |             |      |                                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|-----------------------------------------------------|-------------------------------------------------|-------------|------|-------------------------------------------------------------------------|----------|------------------|----------|------------------|----------|------------------|----------|--------------------|-----------|----------------------|--|------------------------|--|------------------------|--|
| Model name                                          |                                                 |             | MMD- | AP0071BH                                                                | AP0091BH | AP0121BH         | AP0151BH | AP0181BH         | AP0241BH | AP0271BH         | AP0301BH | AP0361BH           |           |                      |  |                        |  |                        |  |
| Cooling/Heating capacity (Note 1) (kW)              |                                                 |             |      | 2.2/2.5                                                                 | 2.8/3.2  | 3.6/4.0          | 4.5/5.0  | 5.6/6.3          | 7.1/8.0  | 8.0/9.0          | 9.0/10.0 | 11.2/12.5          | 14.0/16.0 |                      |  |                        |  |                        |  |
| Electrical characteristics                          | Power supply                                    |             |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | Running current (A)                             |             |      | 0.30                                                                    |          | 0.35             |          | 0.45             |          | 0.55             |          | 0.64               |           | 0.87                 |  | 1.03                   |  |                        |  |
|                                                     | Power consumption (kW)                          |             |      | 0.033                                                                   |          | 0.039            |          | 0.050            |          | 0.060            |          | 0.071              |           | 0.107                |  | 0.128                  |  |                        |  |
|                                                     | Starting current (A)                            |             |      | 0.5                                                                     |          | 0.59             |          | 0.75             |          | 0.90             |          | 1.05               |           | 1.44                 |  | 1.70                   |  |                        |  |
| Appearance                                          | Main unit                                       |             |      | Zinc hot dipping steel plate                                            |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Outer dimension                                     | Main unit                                       | Height (mm) | 320  |                                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     |                                                 | Width (mm)  |      |                                                                         |          |                  | 700      |                  | 1,000    |                  |          |                    | 1,350     |                      |  |                        |  |                        |  |
|                                                     |                                                 | Depth (mm)  | 800  |                                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | Suction ceiling panel                           | Height (mm) | 9    |                                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     |                                                 | Width (mm)  | 630  |                                                                         |          |                  | 780      |                  | 1,080    |                  |          |                    | 1,430     |                      |  |                        |  |                        |  |
|                                                     |                                                 | Depth (mm)  | 500  |                                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Total weight                                        | Main unit (kg)                                  |             | 28   |                                                                         |          | 32               |          |                  | 43       |                  |          | 55                 |           |                      |  |                        |  |                        |  |
|                                                     | Ceiling panel (kg)                              |             | 3.5  |                                                                         |          | 4                |          |                  | 6        |                  |          | 7                  |           |                      |  |                        |  |                        |  |
| Heat exchanger                                      |                                                 |             |      | Finned tube                                                             |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Soundproof/Heat-insulating material                 |                                                 |             |      | Non-flammable insulation                                                |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Fan unit                                            | Fan                                             |             |      | Centrifugal fan                                                         |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | Standard air flow (High/Mid/Low) (m³/h)         |             |      | 480<br>(420/340)                                                        |          | 570<br>(490/400) |          | 650<br>(540/480) |          | 780<br>(660/540) |          | 1,140<br>(990/870) |           | 1,260<br>(1,080/870) |  | 1,620<br>(1,410/1,200) |  | 1,980<br>(1,710/1,490) |  |
|                                                     | Motor (W)                                       |             |      | 120                                                                     |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | External static pressure (factory setting) (Pa) |             |      | 40                                                                      |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | (pa)                                            |             |      | 100                                                                     |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Air filter                                          |                                                 |             |      | Standard filter (Long life filter)                                      |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Controller                                          |                                                 |             |      | Remote controller                                                       |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Connecting pipe                                     | Gas side (mm)                                   |             |      | ø 9.5                                                                   |          |                  | ø 12.7   |                  |          | ø 15.9           |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | Liquid side (mm)                                |             |      | ø 6.4                                                                   |          |                  |          |                  |          | ø 9.5            |          |                    |           |                      |  |                        |  |                        |  |
|                                                     | Drain port (Nominal dia. mm)                    |             |      | 25 (Polyvinyl chloride tube)                                            |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                                 |             |      | 30/28/26                                                                |          |                  | 31/29/27 |                  |          | 32/30/28         |          | 33/31/29           |           | 34/32/29             |  | 36/34/32               |  | 38/36/32               |  |
| PMV Kit                                             |                                                 |             |      | Not available                                                           |          |                  |          |                  |          |                  |          |                    |           |                      |  |                        |  |                        |  |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

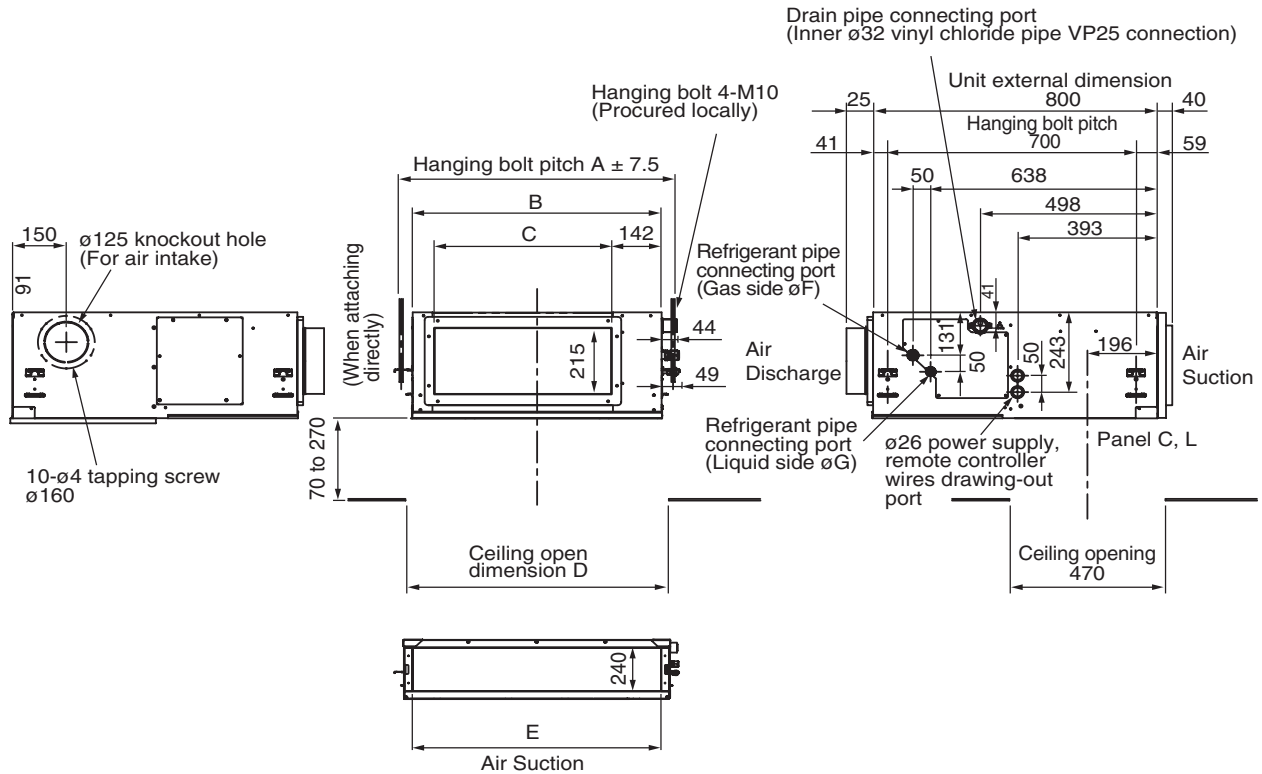
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-5. Concealed Duct Standard Type

### • Dimension

**MMD-AP0071BH, AP0091BH, AP0121BH, AP0151BH, AP0181BH, AP0241BH, AP0271BH, AP0301BH, AP0361BH, AP0481BH**



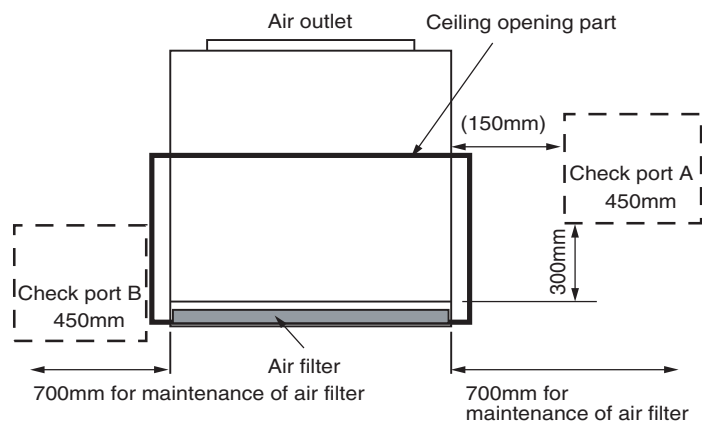
| Model MMD-                   | A    | B    | C    | D    | E    | F    | G   |
|------------------------------|------|------|------|------|------|------|-----|
| AP0071BH, AP0091BH, AP0121BH | 616  | 550  | 350  | 600  | 470  | 9.5  | 6.4 |
| AP0151BH, AP0181BH           | 766  | 700  | 500  | 750  | 620  | 12.7 | 9.4 |
| AP0241BH, AP0271BH, AP0301BH | 1066 | 1000 | 800  | 1050 | 920  | 15.9 | 9.5 |
| AP0361BH, AP0481BH           | 1416 | 1350 | 1150 | 1400 | 1270 | 15.9 | 9.5 |

**(Note)**

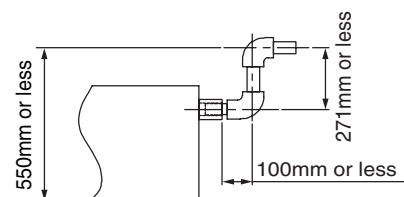
Two of high efficiency filters available  
Deodorant filter not available

**(Note)**

Be sure to create a check port at position A as indicated in the following figure. This is for maintenance of the equipment.



- **Wired remote controller**  
**RBC-AMT31E**
- **Simple wired remote controller**  
**RBC-AS21E2**
- **Wireless remote controller kit**  
**TCB-AX21E2**
- **Weekly timer application**  
**RBC-AMT31E and RBC-EXW21E2**



**Drain-up piping**

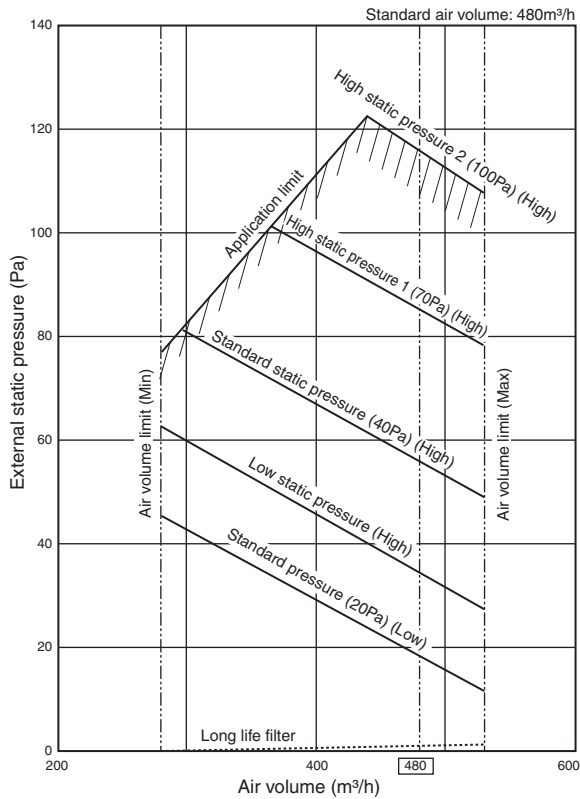
Note: All dimensions are in mm.

## 2-5. Concealed Duct Standard Type

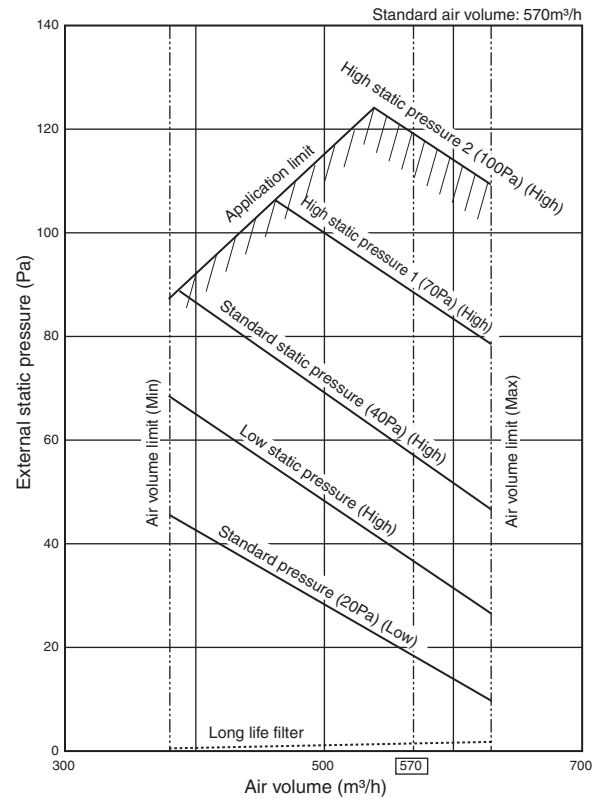
### Fan characteristics

- In case of square duct flange of discharge section

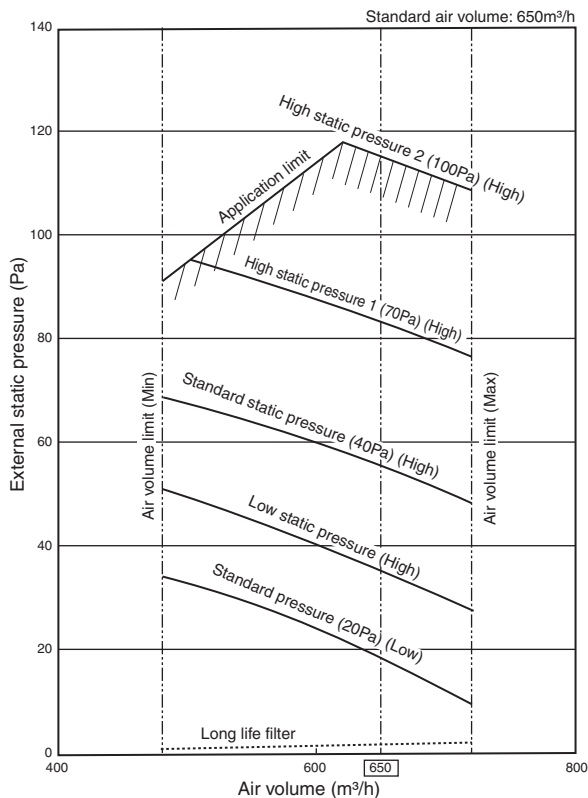
**MMD-AP0071BH, AP0091BH**



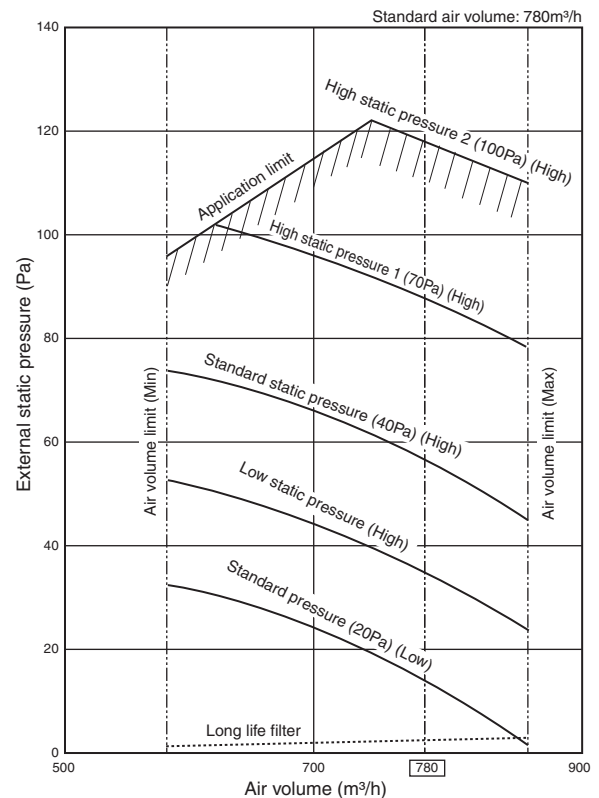
**MMD-AP0121BH**



**MMD-AP0151BH**

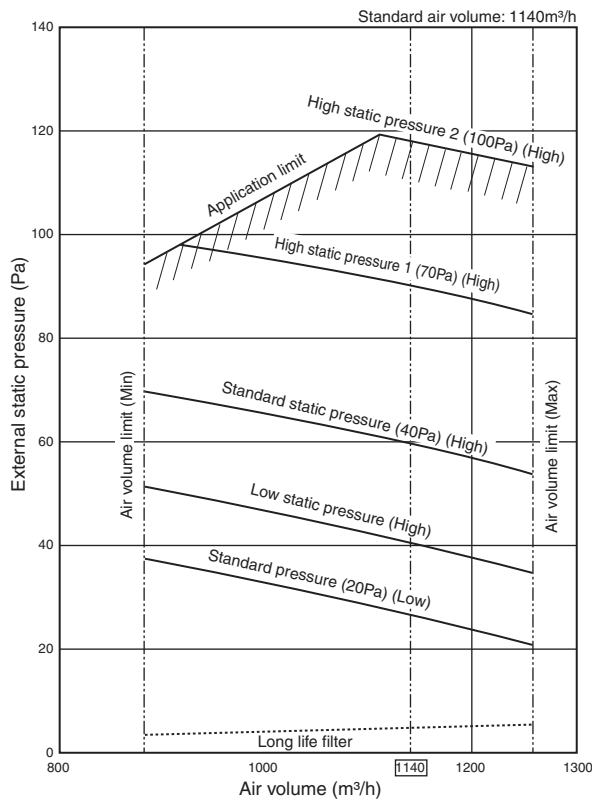


**MMD-AP0181BH**

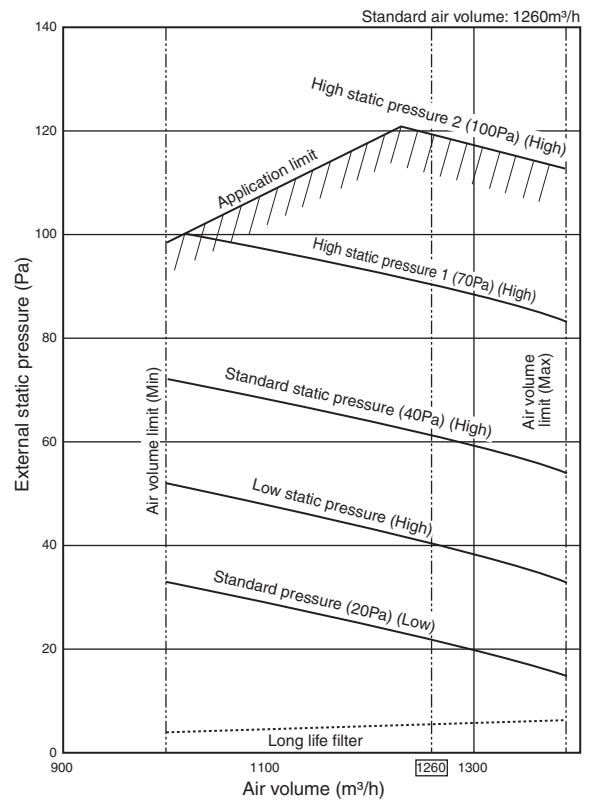


Note: "High" and "Low" is Air flow.

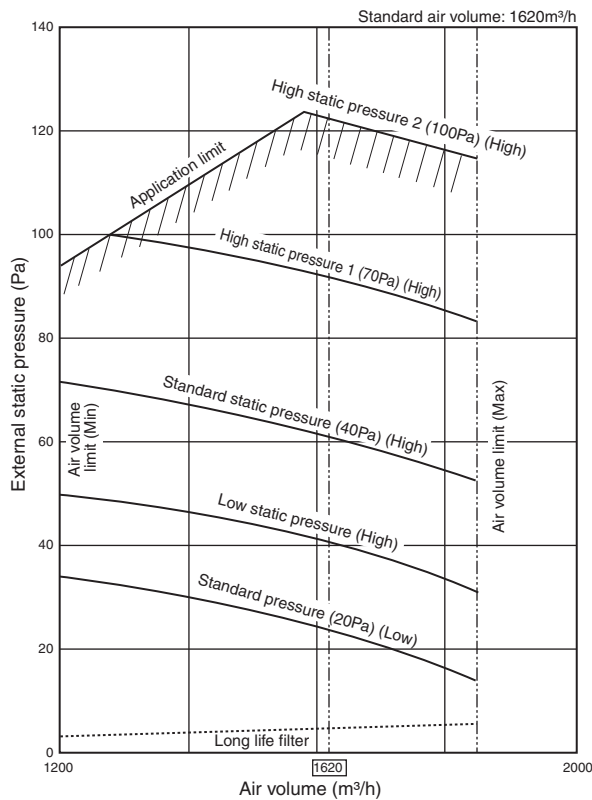
## MMD-AP0241BH, AP0271BH



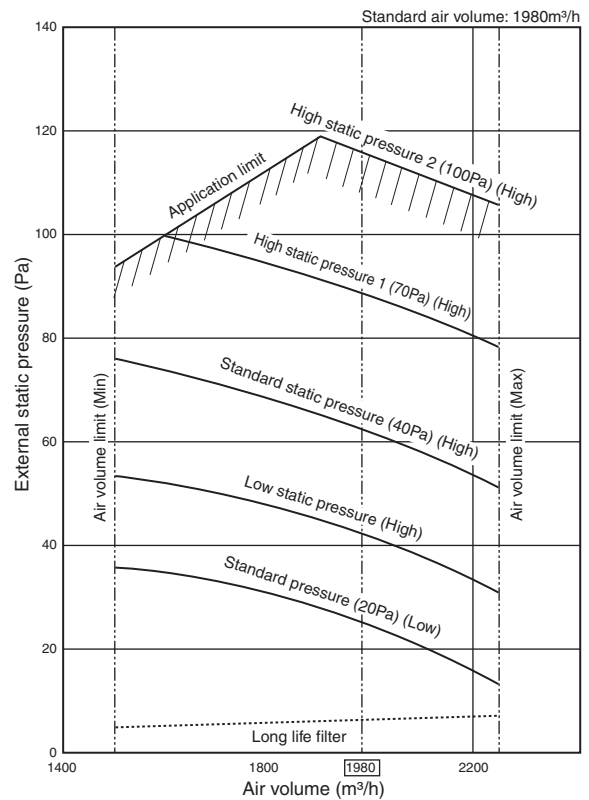
## MMD-AP0301BH



## MMD-AP0361BH



## MMD-AP0481BH



Note: "High" and "Low" is Air flow.

## 2-6. Slim Duct Type

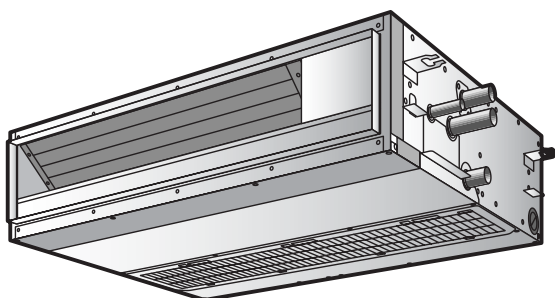
### Appearance



### Standard accessories

| Part name           | Q'ty | Shape                                                                               | Usage                                   |
|---------------------|------|-------------------------------------------------------------------------------------|-----------------------------------------|
| Installation Manual | 1    | This manual                                                                         | (Be sure to hand over to customer)      |
| insulating pipe     | 2    |    | For insulating pipe connecting section  |
| Washer              | 8    | M10 x Ø34                                                                           | For hanging-down the unit               |
| Hose band           | 1    |    | For connecting drain pipe               |
| Flexible hose       | 1    |  | For adjusting of drain pipe connecting  |
| Heat insulator      | 1    |  | For insulating drain connecting section |

### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-6. Slim Duct Type



50Hz

### • Specifications (50Hz)

|                                             |                                                 |      |                                                                                    |           |                     |             |                     |
|---------------------------------------------|-------------------------------------------------|------|------------------------------------------------------------------------------------|-----------|---------------------|-------------|---------------------|
| Model name                                  |                                                 | MMD- | AP0071SPH                                                                          | AP0091SPH | AP0121SPH           | AP0151SPH   | AP0181SPH           |
| Cooling/Heating capacity (Note 1)           |                                                 | (kW) | 2.2/2.5                                                                            | 2.8/3.2   | 3.6/4.0             | 4.5/5.0     | 5.6/6.3             |
| Electrical characteristics                  | Power supply                                    |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |           |                     |             |                     |
|                                             | Running current (A)                             |      | 0.29                                                                               | 0.29      | 0.31                | 0.32        | 0.39                |
|                                             | Power consumption (kW)                          |      | 0.039                                                                              | 0.039     | 0.043               | 0.045       | 0.054               |
|                                             | Starting current (A)                            |      | 0.51                                                                               | 0.51      | 0.54                | 0.56        | 0.68                |
| Appearance                                  |                                                 |      | Zinc hot dipping steel plate                                                       |           |                     |             |                     |
| Outer dimension                             | Height x Width x Depth (mm)                     |      | 210/845/645                                                                        |           |                     |             |                     |
| Total weight (kg)                           |                                                 |      | 22                                                                                 | 22        | 22                  | 23          | 23                  |
| Heat exchanger                              |                                                 |      | Finned tube                                                                        |           |                     |             |                     |
| Soundproof/Heat-insulating material         |                                                 |      | Polyethylene foam + Polyurethane foam                                              |           |                     |             |                     |
| Fan unit                                    | Fan                                             |      | Centrifugal fan                                                                    |           |                     |             |                     |
|                                             | Standard air flow (High/Mid./Low) (m³/h)        |      | 540/470/400                                                                        |           | 600/520/450         | 690/600/520 | 780/680/580         |
|                                             | Motor (W)                                       |      | 60                                                                                 |           |                     |             |                     |
|                                             | External static pressure (Factory setting) (Pa) |      | 6                                                                                  |           | 5                   |             | 4                   |
|                                             | External static pressure (Pa)                   |      | 6-16-31-46 (4steps)                                                                |           | 5-15-30-45 (4steps) |             | 4-14-29-44 (4steps) |
|                                             | Air filter pressure loss (m³/h)                 |      | 4                                                                                  |           | 5                   |             | 6                   |
| Air filter                                  |                                                 |      | Standard filter supplied (Long life filter)                                        |           |                     |             |                     |
| Controller                                  |                                                 |      | Remote controller                                                                  |           |                     |             |                     |
| Connecting pipe                             | Gas side (mm)                                   |      | ø 9.5                                                                              |           |                     | ø 12.7      |                     |
|                                             | Liquid side (mm)                                |      | ø 6.4                                                                              |           |                     |             |                     |
|                                             | Drain port (Nominal dia. mm)                    |      | 25 (Polyvinyl chloride tube : External dia.32 Internal dia.25)                     |           |                     |             |                     |
| Sound pressure level(Note 2) (High/Mid/Low) | Under air inlet (dB(A))                         |      | 36/33/30                                                                           |           | 38/35/32            | 39/36/33    | 40/38/36            |
|                                             | Back air inlet (dB(A))                          |      | 28/26/24                                                                           |           | 29/27/25            | 32/30/28    | 33/31/29            |
| Sound pressure level (dB(A))                |                                                 |      | 51                                                                                 |           | 53                  | 54          | 55                  |
| PMV Kit                                     |                                                 |      | Available                                                                          |           |                     |             |                     |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-6. Slim Duct Type



60Hz

### • Specifications (60Hz)

|                                             |                                                 |      |                                                                         |           |                     |             |                     |
|---------------------------------------------|-------------------------------------------------|------|-------------------------------------------------------------------------|-----------|---------------------|-------------|---------------------|
| Model name                                  |                                                 | MMD- | AP0071SPH                                                               | AP0091SPH | AP0121SPH           | AP0151SPH   | AP0181SPH           |
| Cooling/Heating capacity (Note 1)           |                                                 | (kW) | 2.2/2.5                                                                 | 2.8/3.2   | 3.6/4.0             | 4.5/5.0     | 5.6/6.3             |
| Electrical characteristics                  | Power supply                                    |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |           |                     |             |                     |
|                                             | Running current (A)                             |      | 0.27                                                                    | 0.27      | 0.30                | 0.31        | ,                   |
|                                             | Power consumption (kW)                          |      | 0.037                                                                   | 0.037     | 0.041               | 0.043       | 0.052               |
|                                             | Starting current (A)                            |      | 0.47                                                                    | 0.47      | 0.53                | 0.54        | 0.65                |
| Appearance                                  |                                                 |      | Zinc hot dipping steel plate                                            |           |                     |             |                     |
| Outer dimension                             | Height x Width x Depth (mm)                     |      | 210/845/645                                                             |           |                     |             |                     |
| Total weight                                |                                                 | (kg) | 22                                                                      | 22        | 22                  | 23          | 23                  |
| Heat exchanger                              |                                                 |      | Finned tube                                                             |           |                     |             |                     |
| Soundproof/Heat-insulating material         |                                                 |      | Polyethylene foam + Polyurethane foam                                   |           |                     |             |                     |
| Fan unit                                    | Fan                                             |      | Centrifugal fan                                                         |           |                     |             |                     |
|                                             | Standard air flow (High/Mid./Low) (m³/h)        |      | 540/470/400                                                             |           | 600/520/450         | 690/600/520 | 780/680/580         |
|                                             | Motor (W)                                       |      | 60                                                                      |           |                     |             |                     |
|                                             | External static pressure (Factory setting) (Pa) |      | 6                                                                       |           | 5                   |             | 4                   |
|                                             | External static pressure (Pa)                   |      | 6-16-31-46 (4steps)                                                     |           | 5-15-30-45 (4steps) |             | 4-14-29-44 (4steps) |
|                                             | Air filter pressure loss (m³/h)                 |      | 4                                                                       |           | 5                   |             | 6                   |
| Air filter                                  |                                                 |      | Standard filter (Long life filter)                                      |           |                     |             |                     |
| Controller                                  |                                                 |      | Remote controller                                                       |           |                     |             |                     |
| Connecting pipe                             | Gas side (mm)                                   |      | ø 9.5                                                                   |           |                     | ø 12.7      |                     |
|                                             | Liquid side (mm)                                |      | ø 6.4                                                                   |           |                     |             |                     |
|                                             | Drain port (Nominal dia. mm)                    |      | 25 (Polyvinyl chloride tube : External dia.32 Internal dia.25)          |           |                     |             |                     |
| Sound pressure level(Note 2) (High/Mid/Low) | Under air inlet (dB(A))                         |      | 36/33/30                                                                |           | 38/35/32            | 39/36/33    | 40/38/36            |
|                                             | Back air inlet (dB(A))                          |      | 28/26/24                                                                |           | 29/27/25            | 32/30/28    | 33/31/29            |
| Sound pressure level (dB(A))                |                                                 |      | 51                                                                      |           |                     | 54          | 55                  |
| PMV Kit                                     |                                                 |      | Available                                                               |           |                     |             |                     |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

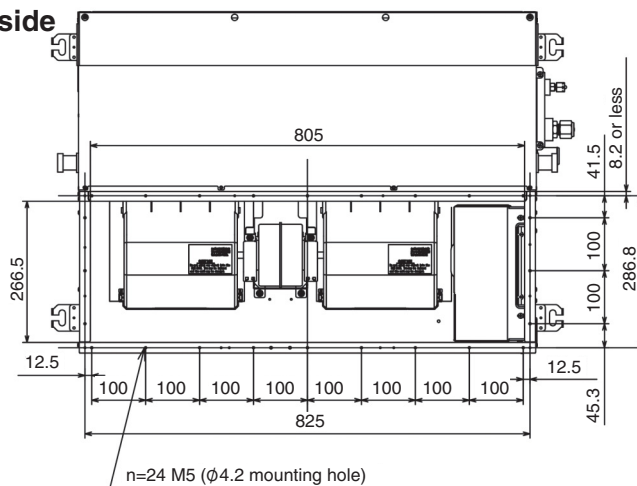
**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

- **Dimension**

[illegible]

## Underside



- 2-33

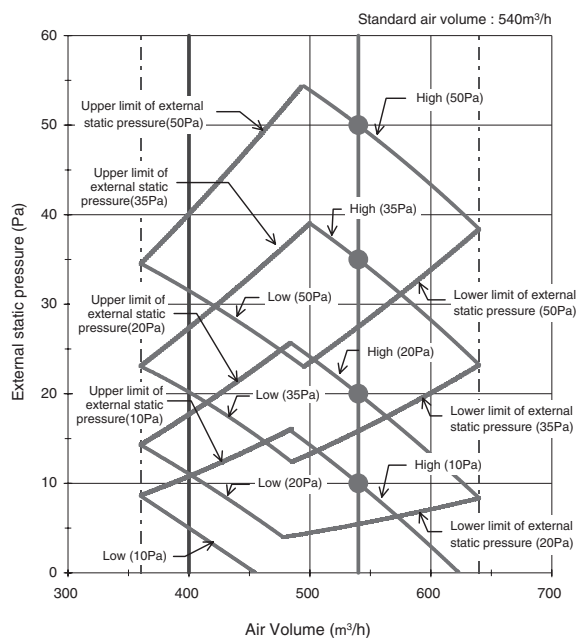
[illegible]

Technical drawing of the front view of the unit. The overall width is 805 mm and the overall height is 188.6 mm. The base width is 825 mm. The unit features a central control panel and two side compartments. The mounting holes are specified as n=22 M5 (ø4.2).

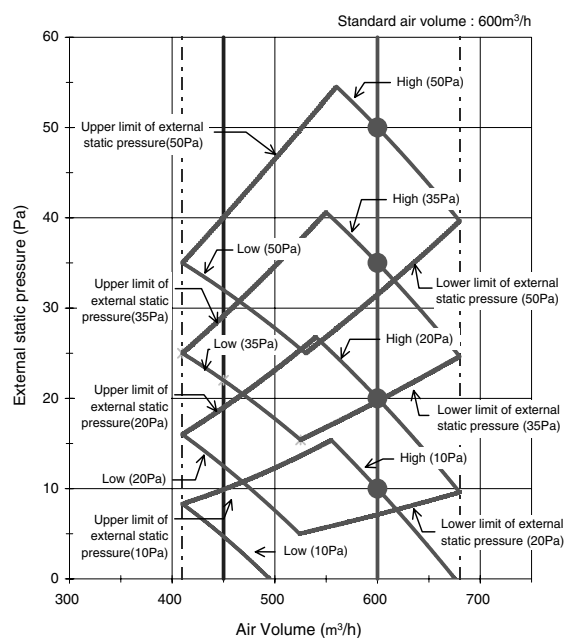
- **Wired remote controller**  
**RBC-AMT31E**
- **Simple wired remote controller**  
**RBC-AS21E2**
- **Wireless remote controller kit**  
**TCB-AX21E2**
- **Weekly timer application**  
**RBC-AMT31E and RBC-EXW21E2**

## 2-6. Slim Duct Type Fan characteristic

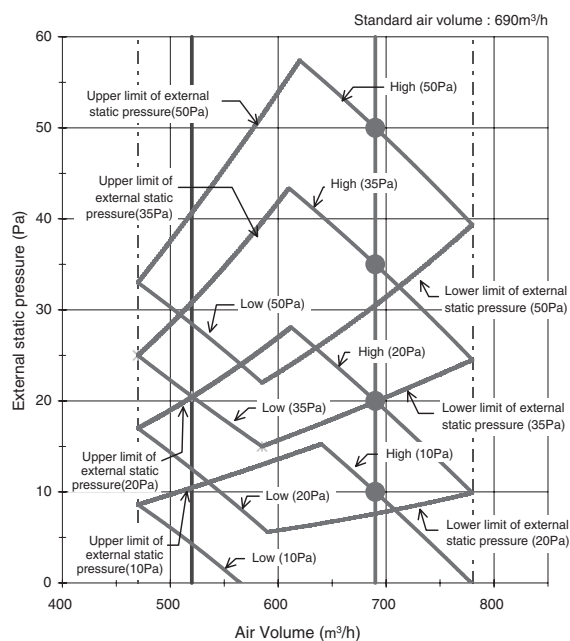
**MMD-AP0071SPH**  
**MMD-AP0091SPH**



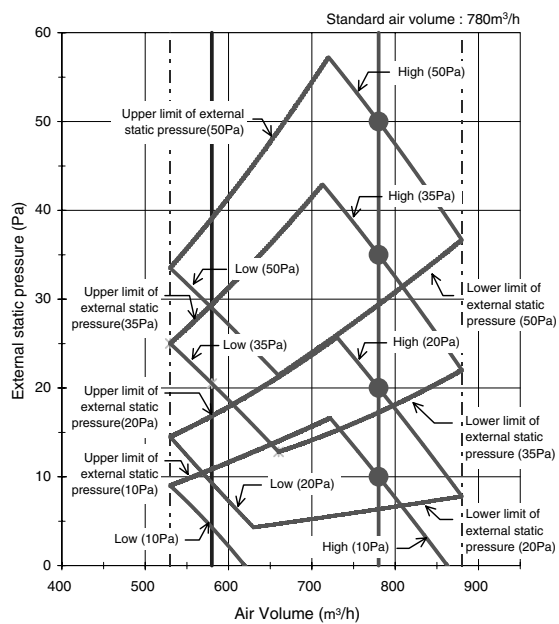
**MMD-AP0121SPH**



**MMD-AP0151SPH**

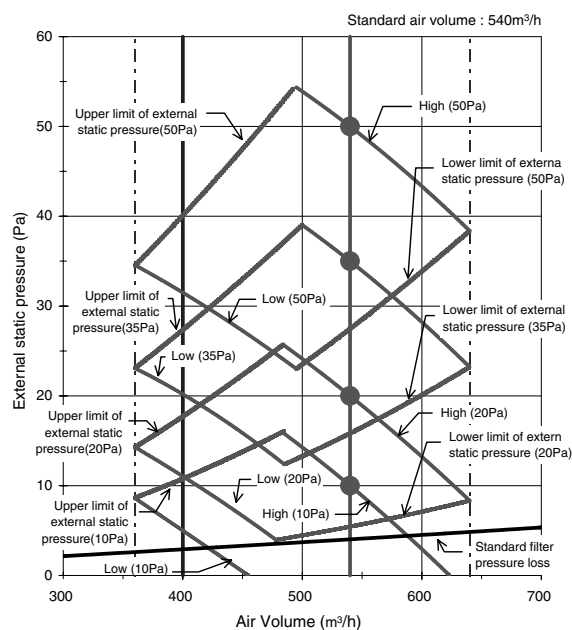


**MMD-AP0181SPH**

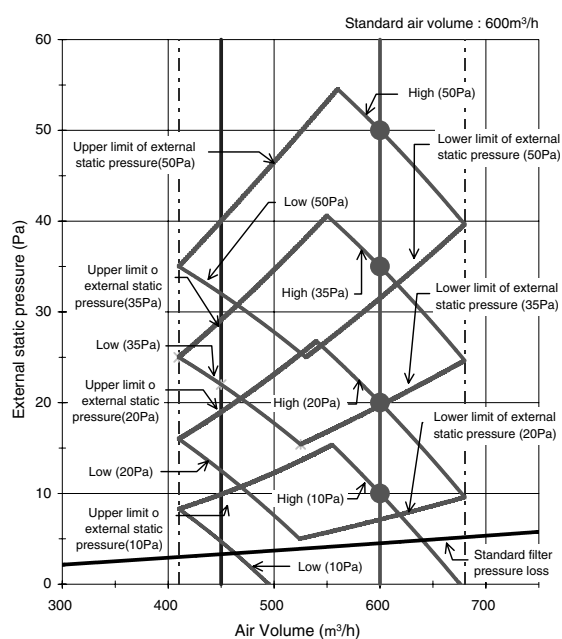


## 2-6. Slim Duct Type (Filter attached)

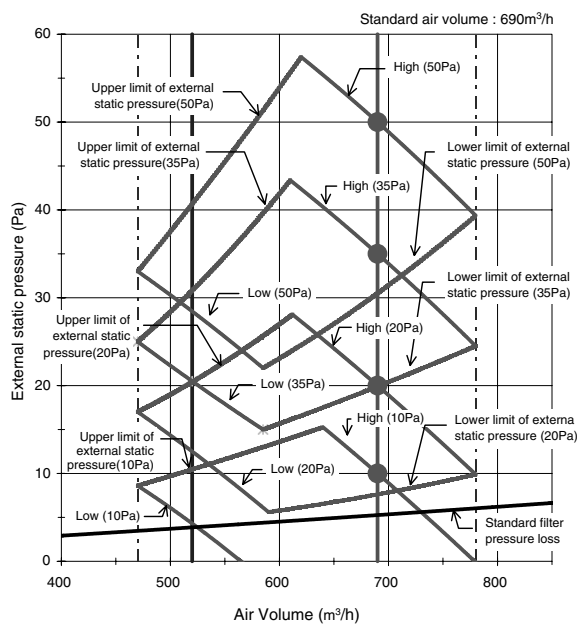
**MMD-AP0071SPH**  
**MMD-AP0091SPH**



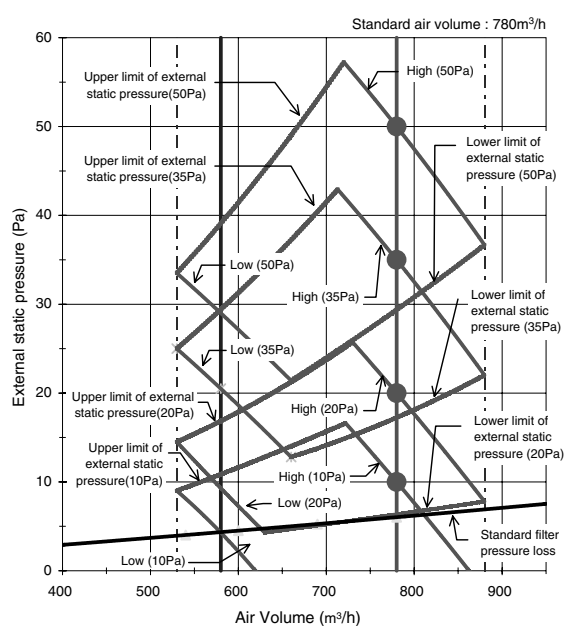
**MMD-AP0121SPH**



**MMD-AP0151SPH**

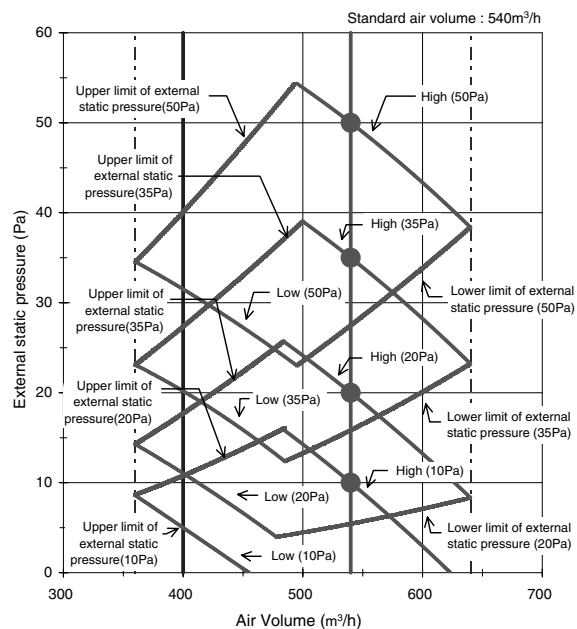


**MMD-AP0181SPH**

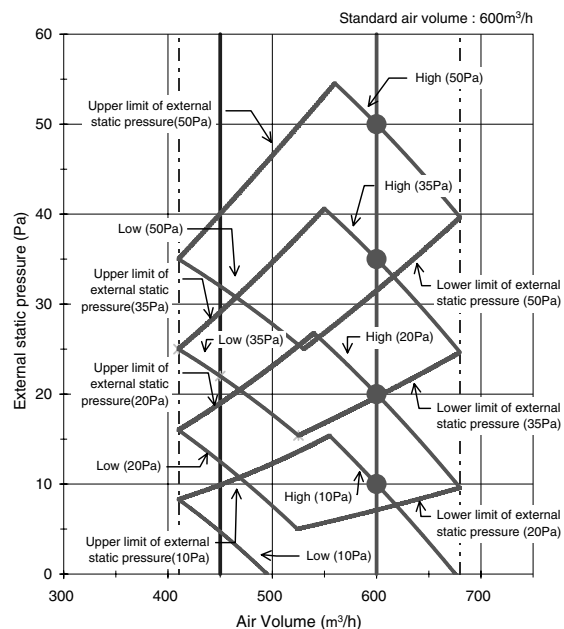


## 2-6. Slim Duct Type CHINA model (Filter attached)

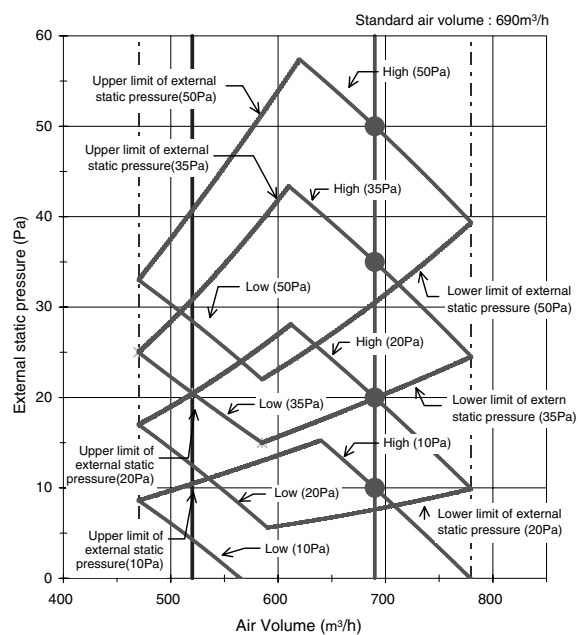
**MMD-AP0071SPH-C, SH-C**  
**MMD-AP0091SPH-C, SH-C**



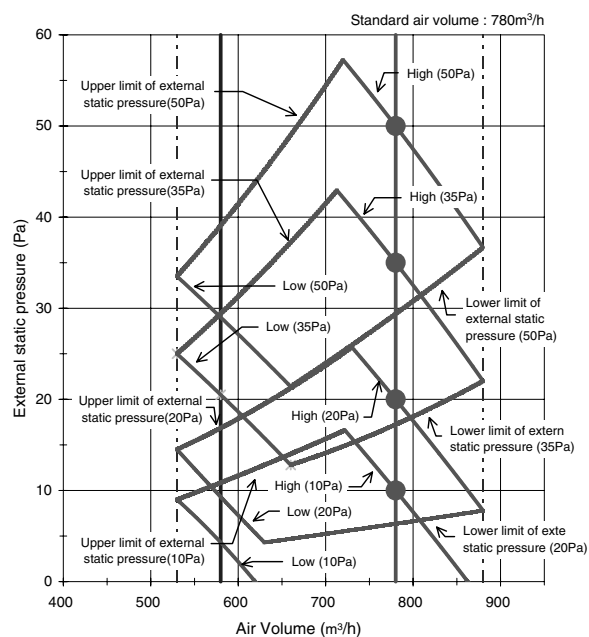
**MMD-AP0121SPH-C, SH-C**



**MMD-AP0151SPH-C, SH-C**

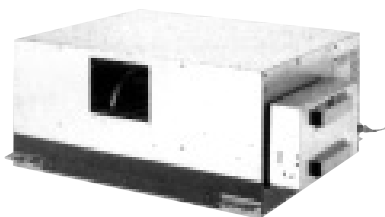


**MMD-AP0181SPH-C, SH-C**



## 2-7. Concealed Duct High Static Pressure Type

### Appearance



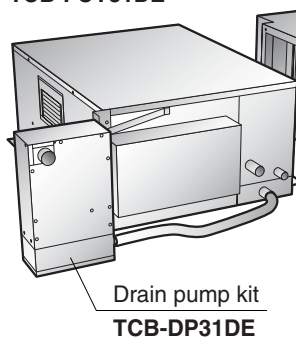
### Standard accessories

| Part name           | Q'ty | Shape | Use                                    | Part name  | Q'ty | Shape | Use                                       |
|---------------------|------|-------|----------------------------------------|------------|------|-------|-------------------------------------------|
| Installation Manual | 1    | —     | —                                      | Insulation | 1    |       | For insulating the liquid pipe connection |
| Insulation          | 1    |       | For insulating the gas pipe connection |            |      |       |                                           |

### Optional accessories

Filter Chamber

**TCB-FCY21DE, TCB-FCY31DE**  
**TCB-FCY51DE**



Drain pump kit  
**TCB-DP31DE**

Long Life Pre-Filter

**TCB-PF1D-1E**  
**TCB-PF2D-1E**

High Efficiency Filter 65  
**TCB-UFM1D-1E, TCB-UFM2D-1E**

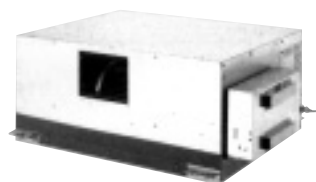
High Efficiency Filter 90  
**TCB-UFH5D-1E, TCB-UFH6D-1E**

| Parts Name                | Model name            | Applied Model          | Notes                                                     | Remarks             |
|---------------------------|-----------------------|------------------------|-----------------------------------------------------------|---------------------|
| High Efficiency Filter 65 | TCB-UFM1D-1E          | MMD-AP0181H            | Dust collecting effect : 65%<br>(NBS Colorimetric method) | Use with TCB-FCY21D |
|                           | TCB-UFM2D-1E(2 pcs.)  | MMD-AP0241/0271/0361H  |                                                           | Use with TCB-FCY31D |
|                           | TCB-UFM1D-1E(2 pcs.)  | MMD-AP0481H            |                                                           | Use with TCB-FCY41D |
| High Efficiency Filter 90 | TCB-UFH5D-1E          | MMD-AP0181H            | Dust collecting effect : 90%<br>(NBS Colorimetric method) | Use with TCB-FCY21D |
|                           | TCB-UFH6D-1E (2 pcs.) | MMD-AP0241/0271/0361H  |                                                           | Use with TCB-FCY31D |
|                           | TCB-UFH5D-1E (2 pcs.) | MMD-AP0481H            |                                                           | Use with TCB-FCY41D |
| Long life Pre-filter      | TCB-PF1D-1E           | MMD-AP0181H            | Dust collecting effect : 50%<br>(Weight method)           | Use with TCB-FCY21D |
|                           | TCB-PF2D-1E (2 pcs.)  | MMD-AP0241/0271/0361H  |                                                           | Use with TCB-FCY31D |
|                           | TCB-PF1D-1E (2 pcs.)  | MMD-AP0481H            |                                                           | Use with TCB-FCY41D |
| Filter Chamber            | TCB-FCY21DE           | MMD-AP0181H            | For high efficiency filter<br>or long life pre-filter     |                     |
|                           | TCB-FCY31DE           | MMD-AP0241/0271/0361H  |                                                           |                     |
|                           | TCB-FCY51DE           | MMD-AP0481H            |                                                           |                     |
| Drain Pump Kit            | TCB-DP31DE            | MMD-AP0181H to AP0481H | Stand-up 330 or less<br>(from bottom face of ceiling)     |                     |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-7. Concealed Duct High Static Pressure Type



50Hz

### • Specifications (50Hz)

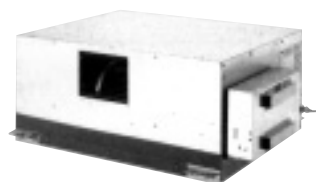
|                                                |                                            |      |                                                                                    |                             |             |             |                   |
|------------------------------------------------|--------------------------------------------|------|------------------------------------------------------------------------------------|-----------------------------|-------------|-------------|-------------------|
| Model name                                     |                                            | MMD- | AP0181H                                                                            | AP0241H                     | AP0271H     | AP0361H     | AP0481H           |
| Cooling/Heating capacity (Note 1)              |                                            | (kW) | 5.6/6.3                                                                            | 7.1/8.0                     | 8.0/9.0     | 11.2/12.5   | 14.0/16.0         |
| Electrical characteristics                     | Power supply                               |      | 1 phase 50Hz 220V (220-240V) (Separate power supply for indoor units is required.) |                             |             |             |                   |
|                                                | Running current                            |      | (A)                                                                                | 0.81                        | 1.35        | 1.63        | 1.84              |
|                                                | Power consumption                          |      | (kW)                                                                               | 0.184                       | 0.299       | 0.368       | 0.414             |
|                                                | Power factor                               |      | (%)                                                                                | 99                          | 96          | 98          |                   |
|                                                | Starting current                           |      | (A)                                                                                | 1.3                         | 3.5         | 4.1         | 4.8               |
| Appearance                                     |                                            |      | Zinc hot dipping steel plate                                                       |                             |             |             |                   |
| Outer dimension                                | Height x Width x Depth                     |      | (mm)                                                                               | 380 x 850 x 660             |             |             | 380 x 1,200 x 660 |
| Total weight                                   |                                            |      | (kg)                                                                               | 50                          | 52          | 56          | 67                |
| Heat exchanger                                 |                                            |      | Finned tube                                                                        |                             |             |             |                   |
| Soundproof/Heat-insulating material            |                                            |      | Non-flammable insulation                                                           |                             |             |             |                   |
| Fan unit                                       | Fan                                        |      | Centrifugal fan                                                                    |                             |             |             |                   |
|                                                | Standard air flow                          |      | (m³/h)                                                                             | 900                         | 1,320       | 1,600       | 2,100             |
|                                                | Motor                                      |      | (W)                                                                                | 160                         |             | 260         |                   |
|                                                | External static pressure (Factory setting) |      | (Pa)                                                                               | 137                         |             |             |                   |
|                                                | External static pressure                   |      | (Pa)                                                                               | 68.6-137-196                |             |             |                   |
|                                                | Air flow limit<br>Lower limit/Upper limit  |      | (m³/h)                                                                             | 720/1,080                   | 1,060/1,580 | 1,280/1,920 | 1,680/2,520       |
| Air filter                                     |                                            |      | Option or field supply                                                             |                             |             |             |                   |
| Controller                                     |                                            |      | Remote controller                                                                  |                             |             |             |                   |
| Connecting pipe                                | Gas side                                   |      | (mm)                                                                               | Ø 12.7                      | Ø 15.9      |             |                   |
|                                                | Liquid side                                |      | (mm)                                                                               | Ø 6.4                       | Ø 9.5       |             |                   |
|                                                | Drain port                                 |      | (Nominal dia. mm)                                                                  | 25 (One side of male screw) |             |             |                   |
| Sound pressure level(Note 2)<br>(High/Mid/Low) |                                            |      | (dB(A))                                                                            | 37                          | 40          |             |                   |
| PMV Kit                                        |                                            |      | Not available                                                                      |                             |             |             |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-7. Concealed Duct High Static Pressure Type



60Hz

### • Specifications (60Hz)

|                                                        |                                                  |      |                                                                         |             |         |             |                   |
|--------------------------------------------------------|--------------------------------------------------|------|-------------------------------------------------------------------------|-------------|---------|-------------|-------------------|
| Model name                                             |                                                  | MMD- | AP0181H                                                                 | AP0241H     | AP0271H | AP0361H     | AP0481H           |
| Cooling/Heating capacity (Note 1)                      |                                                  | (kW) | 5.6/6.3                                                                 | 7.1/8.0     | 8.0/9.0 | 11.2/12.5   | 14.0/16.0         |
| Electrical characteristics                             | Power supply                                     |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |             |         |             |                   |
|                                                        | Running current (A)                              |      | 0.92                                                                    | 1.80        |         | 2.07        | 2.26              |
|                                                        | Power consumption (kW)                           |      | 0.198                                                                   | 0.385       |         | 0.450       | 0.490             |
|                                                        | Power factor (%)                                 |      | 98                                                                      | 97          |         | 99          |                   |
|                                                        | Starting current (A)                             |      | 1.30                                                                    | 3.40        |         | 3.90        | 4.35              |
| Appearance                                             |                                                  |      | Zinc hot dipping steel plate                                            |             |         |             |                   |
| Outer dimension                                        | Height x Width x Depth (mm)                      |      | 380 x 850 x 660                                                         |             |         |             | 380 x 1,200 x 660 |
| Total weight (kg)                                      |                                                  |      | 50                                                                      | 52          |         | 56          | 67                |
| Heat exchanger                                         |                                                  |      | Finned tube                                                             |             |         |             |                   |
| Soundproof/Heat-insulating material                    |                                                  |      | Non-flammable insulation                                                |             |         |             |                   |
| Fan unit                                               | Fan                                              |      | Centrifugal fan                                                         |             |         |             |                   |
|                                                        | Standard air flow (m³/h)                         |      | 900                                                                     | 1,320       |         | 1,600       | 2,100             |
|                                                        | Motor (W)                                        |      | 160                                                                     |             |         | 260         |                   |
|                                                        | External static pressure (Factory setting) (Pa)  |      | 137                                                                     |             |         |             |                   |
|                                                        | External static pressure (Pa)                    |      | 68.6-137-196                                                            |             |         |             |                   |
|                                                        | Air flow limit<br>Lower limit/Upper limit (m³/h) |      | 720/1,080                                                               | 1,060/1,580 |         | 1,280/1,920 | 1,680/2,520       |
| Air filter                                             |                                                  |      | Option or field supply                                                  |             |         |             |                   |
| Controller                                             |                                                  |      | Remote controller                                                       |             |         |             |                   |
| Connecting pipe                                        | Gas side (mm)                                    |      | Ø 12.7                                                                  | Ø 15.9      |         |             |                   |
|                                                        | Liquid side (mm)                                 |      | Ø 6.4                                                                   | Ø 9.5       |         |             |                   |
|                                                        | Drain port (Nominal dia. mm)                     |      | 25 (One side of male screw)                                             |             |         |             |                   |
| Sound pressure level(Note 2)<br>(High/Mid/Low) (dB(A)) |                                                  |      | 37                                                                      | 40          |         |             |                   |
| PMV Kit                                                |                                                  |      | Not available                                                           |             |         |             |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

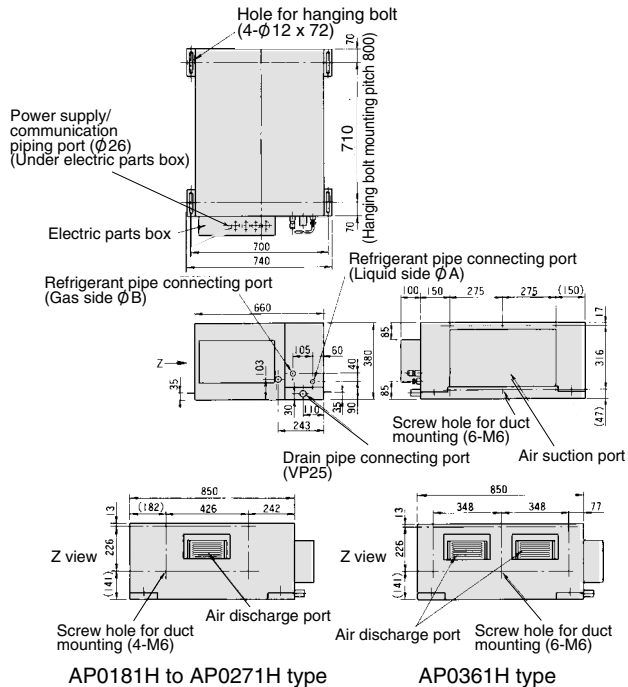
**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-7. Concealed Duct High Static Pressure Type

### • Dimension

#### MMD-AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

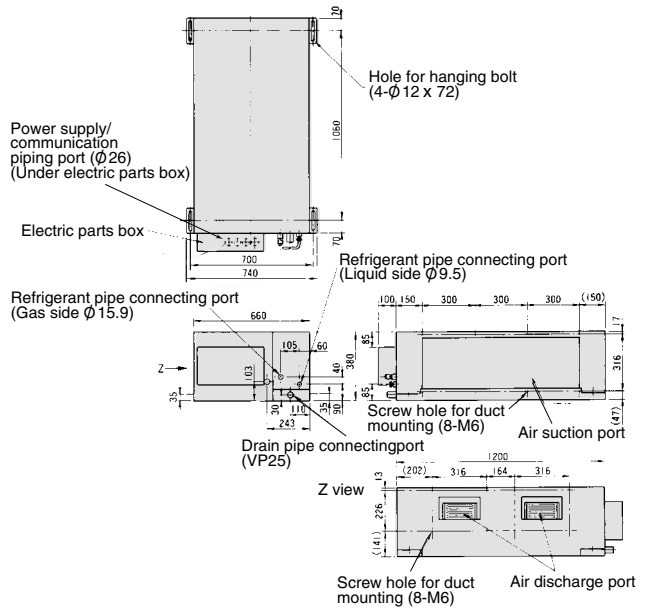
##### MMD-AP0181H to AP0361H



AP0181H to AP0271H type

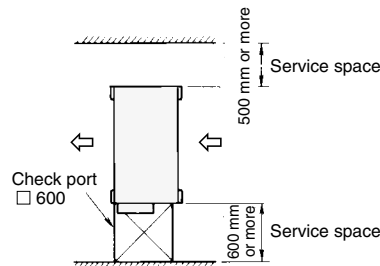
AP0361H type

##### MMD-AP0481H



| Model MMD-                         | A   | B    |
|------------------------------------|-----|------|
| AP0181H                            | 6.4 | 12.7 |
| AP0241H, AP0271H, AP0361H, AP0481H | 9.5 | 15.9 |

#### Space required for installation and servicing \*1

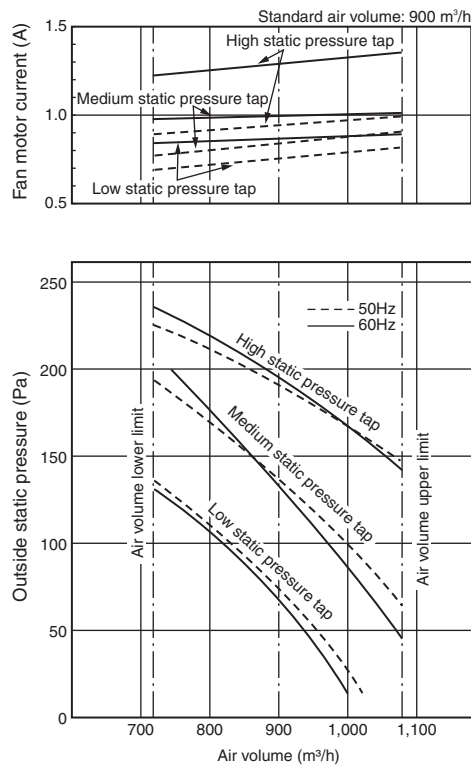


- Wired remote controller RBC-AMT31E
- Simple wired remote controller RBC-AS21E2
- Wireless remote controller kit TCB-AX21E2
- Weekly timer application RBC-AMT31E and RBC-EXW21E2

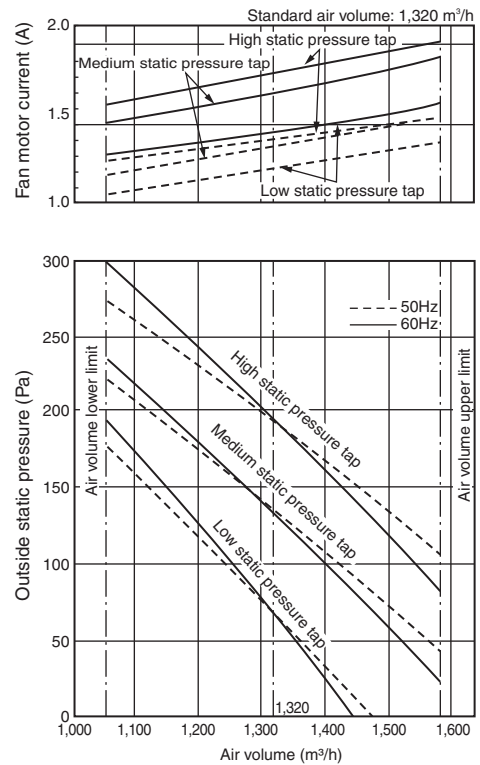
Note: All dimensions are in mm.

## 2-7. Concealed Duct High Static Pressure Type Fan Characteristics

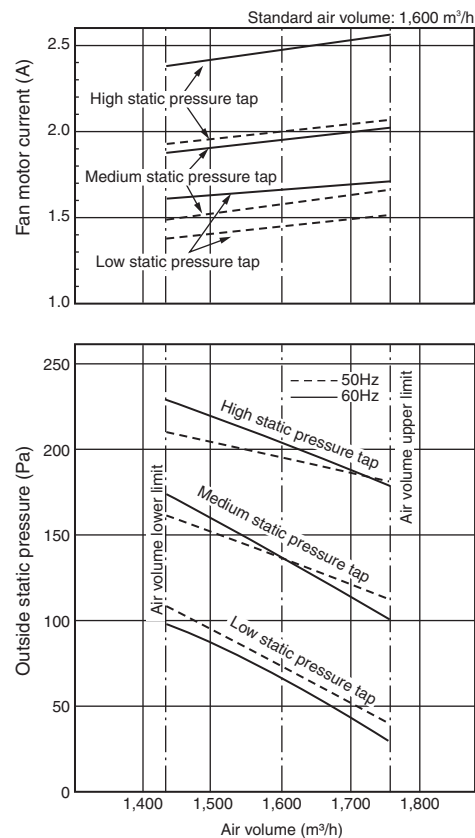
**MMD-AP0181H**



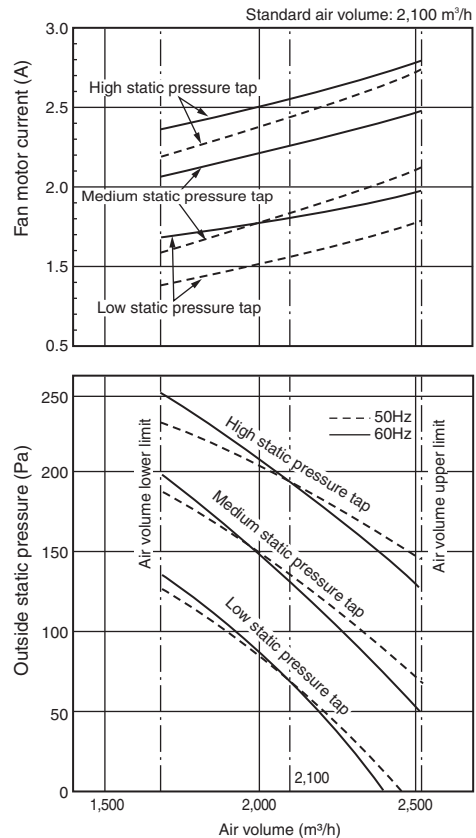
**MMD-AP0241H, AP0271H**



**MMD-AP0361H**

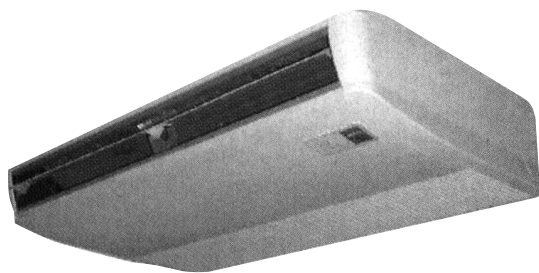


**MMD-AP0481H**



## 2-8. Under ceiling Type

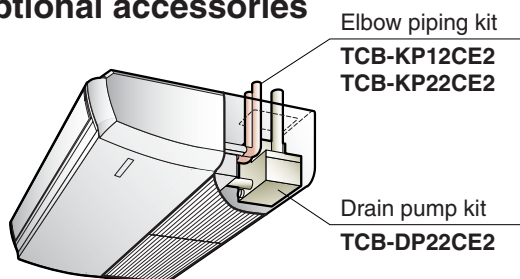
### Appearance



### Standard accessories

| Part name            | Q'ty | Shape       | Use                                                        | Part name      | Q'ty | Shape | Use                                             |
|----------------------|------|-------------|------------------------------------------------------------|----------------|------|-------|-------------------------------------------------|
| Installation Manual  | 1    | This manual | (Be sure to hand over to the customer)                     | Heat insulator | 1    |       | For heat insulating of drain connecting section |
| Heat insulating pipe | 2    |             | For heat insulation of pipe connecting section             | Washer         | 4    |       | For hanging-down unit                           |
| Installation pattern | 1    | —           | For confirmation of ceiling opening and main unit position | Hose band      | 2    |       | For connecting drain pipe                       |
| Banding band         | 2    |             | For drain hose forming                                     | Drain hose     | 1    |       | For drain piping                                |
| Bushing              | 1    |             | For power supply cord protection                           | Heat insulator | 1    |       | For sealing of piping hole                      |

### Optional accessories

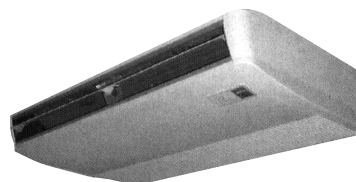


| Parts Name       | Model name  | Applied Model                | Notes                                              | Remarks             |
|------------------|-------------|------------------------------|----------------------------------------------------|---------------------|
| Drain Pump Kit   | TCB-DP22CE2 | MMC-AP0151/0181H             | Stand-up 600 or less (from bottom face of ceiling) | Use with TCB-KP12CE |
|                  |             | MMC-AP0241H/0271/0361H/0481H |                                                    | Use with TCB-KP22CE |
| Elbow Piping Kit | TCB-KP12CE2 | MMC-AP0151/0181H             | Needed when Drain Pump Kit is used                 |                     |
|                  | TCB-KP22CE2 | MMC-AP0241H/0271/0361H/0481H |                                                    |                     |

### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-8. Under Ceiling Type



50Hz

### • Specifications (50Hz)

|                                                     |                                         |      |                                                                                    |             |                   |         |                   |                   |
|-----------------------------------------------------|-----------------------------------------|------|------------------------------------------------------------------------------------|-------------|-------------------|---------|-------------------|-------------------|
| Model name                                          |                                         | MMC- | AP0151H                                                                            | AP0181H     | AP0241H           | AP0271H | AP0361H           | AP0481H           |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 4.5/5.0                                                                            | 5.6/6.3     | 7.1/8.0           | 8.0/9.0 | 11.2/12.5         | 14.0/16.0         |
| Electrical characteristics                          | Power supply                            |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |             |                   |         |                   |                   |
|                                                     | Running current (A)                     |      | 0.29                                                                               | 0.32        | 0.42              |         | 0.78              | 0.84              |
|                                                     | Power consumption (kW)                  |      | 0.033                                                                              | 0.038       | 0.050             |         | 0.091             | 0.110             |
|                                                     | Starting current (A)                    |      | 0.43                                                                               | 0.48        | 0.62              |         | 1.17              | 1.25              |
| Appearance                                          |                                         |      | White (Munsell 10Y 9.3/0.4)                                                        |             |                   |         |                   |                   |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 210 x 910 x 680                                                                    |             | 210 x 1,180 x 680 |         | 210 x 1,595 x 680 |                   |
| Total weight (kg)                                   |                                         |      | 22                                                                                 |             | 26                |         | 34                |                   |
| Heat exchanger                                      |                                         |      | Finned tube                                                                        |             |                   |         |                   |                   |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                           |             |                   |         |                   |                   |
| Fan unit                                            | Fan                                     |      | Centrifugal fan                                                                    |             |                   |         |                   |                   |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 720/600/540                                                                        | 780/660/540 | 1,110/900/840     |         | 1,650/1,380/1,200 | 1,800/1,560/1,320 |
|                                                     | Motor (W)                               |      | 30                                                                                 |             | 40                |         | 80                |                   |
| Controller                                          |                                         |      | Remote controller                                                                  |             |                   |         |                   |                   |
| Air filter                                          |                                         |      | Standard filter (Long life filter)                                                 |             |                   |         |                   |                   |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 12.7                                                                             |             | ø 15.9            |         |                   |                   |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                              |             | ø 9.5             |         |                   |                   |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                                       |             |                   |         |                   |                   |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 35/32/30                                                                           | 36/33/30    | 38/36/33          |         | 41/38/35          | 43/40/37          |
| PMV Kit                                             |                                         |      | Not available                                                                      |             |                   |         |                   |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-8. Under Ceiling Type



60Hz

### • Specifications (60Hz)

|                                             |                                  |      |                                                                         |                 |             |                   |         |                   |                   |
|---------------------------------------------|----------------------------------|------|-------------------------------------------------------------------------|-----------------|-------------|-------------------|---------|-------------------|-------------------|
| Model name                                  |                                  | MMC- | AP0151H                                                                 | AP0181H         | AP0241H     | AP0271H           | AP0361H | AP0481H           |                   |
| Cooling/Heating capacity (Note 1)           |                                  |      | (kW)                                                                    | 4.5/5.0         | 5.6/6.3     | 7.1/8.0           | 8.0/9.0 | 11.2/12.5         | 14.0/16.0         |
| Electrical characteristics                  | Power supply                     |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |                 |             |                   |         |                   |                   |
|                                             | Running current                  |      | (A)                                                                     | 0.30            | 0.34        | 0.44              |         | 0.82              | 0.87              |
|                                             | Power consumption                |      | (kW)                                                                    | 0.033           | 0.038       | 0.050             |         | 0.091             | 0.110             |
|                                             | Starting current                 |      | (A)                                                                     | 0.43            | 0.48        | 0.62              |         | 1.17              | 1.25              |
| Appearance                                  |                                  |      | White (Munsell 10Y 9.3/0.4)                                             |                 |             |                   |         |                   |                   |
| Outer dimension                             | Height x Width x Depth           |      | (mm)                                                                    | 210 x 910 x 680 |             | 210 x 1,180 x 680 |         | 210 x 1,595 x 680 |                   |
| Total weight                                |                                  |      | (kg)                                                                    | 22              |             | 26                |         | 34                |                   |
| Heat exchanger                              |                                  |      | Finned tube                                                             |                 |             |                   |         |                   |                   |
| Soundproof/Heat-insulating material         |                                  |      | Non-flammable insulation                                                |                 |             |                   |         |                   |                   |
| Fan unit                                    | Fan                              |      | Centrifugal fan                                                         |                 |             |                   |         |                   |                   |
|                                             | Standard air flow (High/Mid/Low) |      | (m³/h)                                                                  | 720/600/540     | 780/660/540 | 1,110/900/840     |         | 1,650/1,380/1,200 | 1,800/1,560/1,320 |
|                                             | Motor                            |      | (W)                                                                     | 30              |             | 40                |         | 80                |                   |
| Controller                                  |                                  |      | Remote controller                                                       |                 |             |                   |         |                   |                   |
| Air filter                                  |                                  |      | Standard filter (Long life filter)                                      |                 |             |                   |         |                   |                   |
| Connecting pipe                             | Gas side                         |      | (mm)                                                                    | ø 12.7          |             | ø 15.9            |         |                   |                   |
|                                             | Liquid side                      |      | (mm)                                                                    | ø 6.4           |             | ø 9.5             |         |                   |                   |
|                                             | Drain port (Nominal dia. mm)     |      | 20 (Polyvinyl chloride tube)                                            |                 |             |                   |         |                   |                   |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  |      | (db(A))                                                                 | 35/32/30        | 36/33/30    | 38/36/33          |         | 41/38/35          | 43/40/37          |
| PMV Kit                                     |                                  |      | Not available                                                           |                 |             |                   |         |                   |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

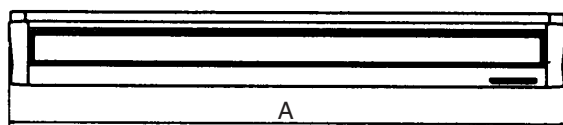
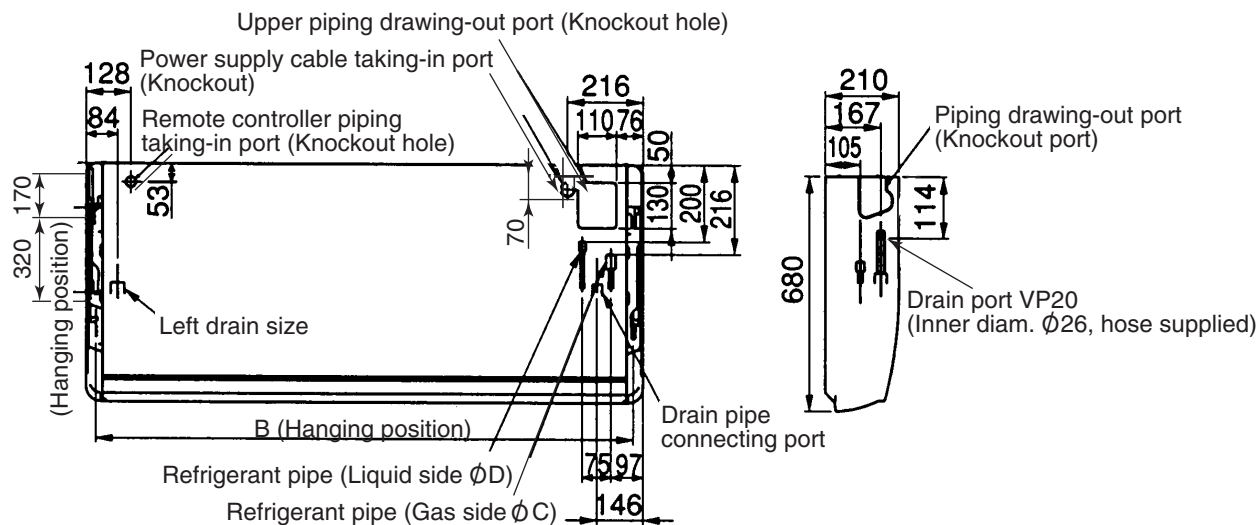
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

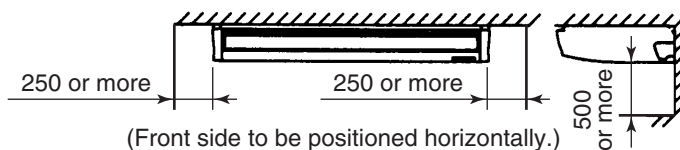
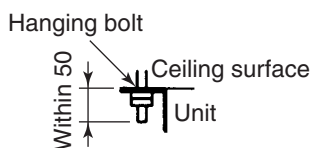
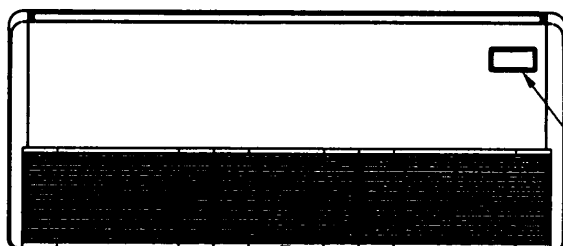
## 2-8. Under Ceiling Type

### • Dimension

#### MMC-AP0151H, AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

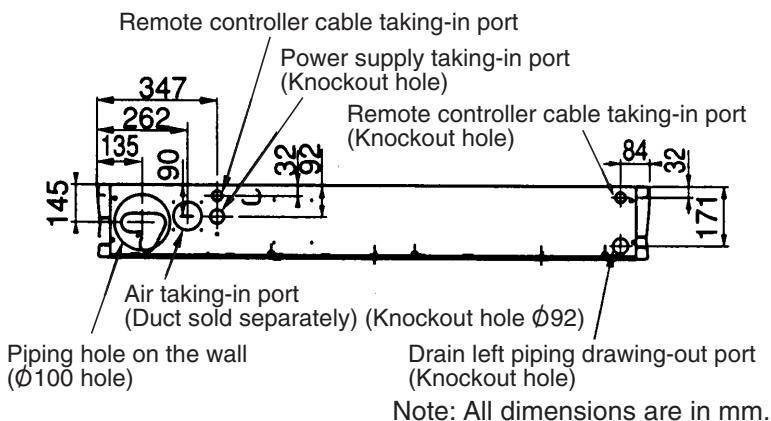


| Model MMC-       | A    | B    | C    | D   |
|------------------|------|------|------|-----|
| AP0151H, AP0181H | 910  | 855  | 12.7 | 6.4 |
| AP0241H, AP0271H | 1180 | 1125 | 15.9 | 9.5 |
| AP0361H, AP0481H | 1595 | 1540 | 15.9 | 9.5 |



#### Space required for installation and servicing

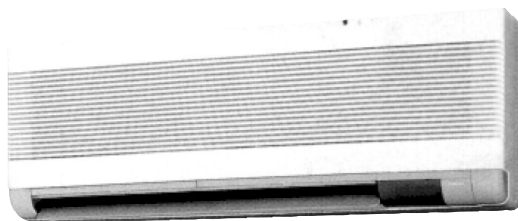
- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX22CE2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2



Note: All dimensions are in mm.

## 2-9. High Wall (1series) Type

### Appearance

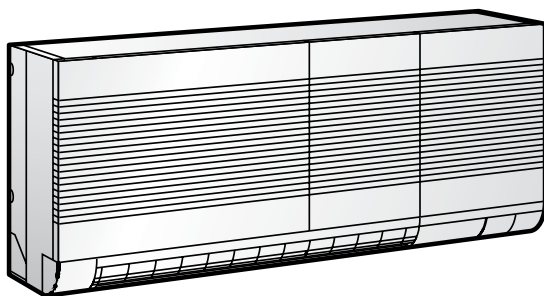


### Standard accessories

#### High Wall type (1 series)

| Part name                            | Q'ty | Shape                                                                               | Use                                            | Part name            | Q'ty | Shape                                                                               | Use                                                        |
|--------------------------------------|------|-------------------------------------------------------------------------------------|------------------------------------------------|----------------------|------|-------------------------------------------------------------------------------------|------------------------------------------------------------|
| Installation Manual                  | 1    | This manual                                                                         | (Be sure to hand over to customer)             | Installation pattern | 1    | —                                                                                   | Used for drilling holes and positioning installation plate |
| Heat Insulating pipe                 | 2    |    | For heat insulating of pipe connecting section | Screw cap            | 4    |  | Cover on fixing screw at side plate                        |
| Wood screw $\phi 5.1 \times 45 \ell$ | 12   |    | Used to fix installation plate                 | Bundling band        | 4    |  | Used to fix attached pipe heat insulating material         |
| Installation plate                   | 1    |  | Used to install indoor unit wall unit          |                      |      |                                                                                     |                                                            |

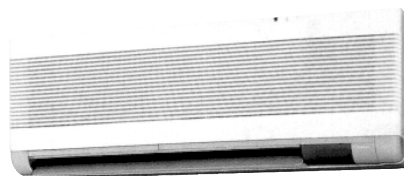
### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-9. High Wall 1series Type



50Hz

### • Specifications (50Hz)

|                                                     |                                         |      |                                                                                    |         |         |                   |         |                   |
|-----------------------------------------------------|-----------------------------------------|------|------------------------------------------------------------------------------------|---------|---------|-------------------|---------|-------------------|
| Model name                                          |                                         | MMK- | AP0071H                                                                            | AP0091H | AP0121H | AP0151H           | AP0181H | AP0241H           |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 2.2/2.5                                                                            | 2.8/3.2 | 3.6/4.0 | 4.5/5.0           | 5.6/6.3 | 7.1/8.0           |
| Electrical characteristics                          | Power supply                            |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |         |         |                   |         |                   |
|                                                     | Running current (A)                     |      | 0.30                                                                               |         |         | 0.32              |         | 0.35              |
|                                                     | Power consumption (kW)                  |      | 0.035                                                                              |         |         | 0.037             |         | 0.040             |
|                                                     | Starting current (A)                    |      | 0.36                                                                               |         |         | 0.42              |         | 0.47              |
| Appearance                                          | Suction grille and side panel           |      | Silky mist (Munsell 1Y 8.9/0.5)                                                    |         |         |                   |         |                   |
|                                                     | Discharge grille                        |      | City gray (Munsell N6.5)                                                           |         |         |                   |         |                   |
|                                                     | Bottom surface                          |      | Silky mist (Munsell 1Y 8.9/0.5)                                                    |         |         |                   |         |                   |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 368 x 895 x 210                                                                    |         |         | 368 x 1,055 x 210 |         | 368 x 1,430 x 210 |
| Total weight                                        |                                         | (kg) | 18                                                                                 |         |         | 19                |         | 25                |
| Heat exchanger                                      |                                         |      | Finned tube                                                                        |         |         |                   |         |                   |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                           |         |         |                   |         |                   |
| Fan unit                                            | Fan                                     |      | Cross-flow fan                                                                     |         |         |                   |         |                   |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 600/540/480                                                                        |         |         | 780/660/600       |         | 1,200/1,020/900   |
|                                                     | Motor outlet (W)                        |      | 30                                                                                 |         |         |                   |         |                   |
| Air filter                                          |                                         |      | Standard filter (Simple filter)                                                    |         |         |                   |         |                   |
| Controller                                          |                                         |      | Remote controller                                                                  |         |         |                   |         |                   |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 9.5                                                                              |         |         | ø 12.7            |         | ø 15.9            |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                              |         |         |                   |         | ø 9.5             |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                                       |         |         |                   |         |                   |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 39/34/31                                                                           |         |         | 42/38/35          |         | 42/38/35          |
| PMV Kit                                             |                                         |      | Available                                                                          |         |         |                   |         |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-9. High Wall 1series Type



60Hz

### • Specifications (60Hz)

|                                                     |                                         |      |                                                                         |         |         |                   |         |                   |
|-----------------------------------------------------|-----------------------------------------|------|-------------------------------------------------------------------------|---------|---------|-------------------|---------|-------------------|
| Model name                                          |                                         | MMK- | AP0071H                                                                 | AP0091H | AP0121H | AP0151H           | AP0181H | AP0241H           |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 2.2/2.5                                                                 | 2.8/3.2 | 3.6/4.0 | 4.5/5.0           | 5.6/6.3 | 7.1/8.0           |
| Electrical characteristics                          | Power supply                            |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |         |         |                   |         |                   |
|                                                     | Running current (A)                     |      | 0.32                                                                    |         |         | 0.34              |         | 0.35              |
|                                                     | Power consumption (kW)                  |      | 0.035                                                                   |         |         | 0.037             |         | 0.040             |
|                                                     | Starting current (A)                    |      | 0.46                                                                    |         |         | 0.48              |         | 0.60              |
| Appearance                                          | Suction grille and side panel           |      | Silky mist (Munsell 1Y 8.9/0.5)                                         |         |         |                   |         |                   |
|                                                     | Discharge grille                        |      | City gray (Munsell N6.5)                                                |         |         |                   |         |                   |
|                                                     | Bottom surface                          |      | Silky mist (Munsell 1Y 8.9/0.5)                                         |         |         |                   |         |                   |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 368 x 895 x 210                                                         |         |         | 368 x 1,055 x 210 |         | 368 x 1,430 x 210 |
| Total weight                                        |                                         | (kg) | 18                                                                      |         |         | 19                |         | 25                |
| Heat exchanger                                      |                                         |      | Finned tube                                                             |         |         |                   |         |                   |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                |         |         |                   |         |                   |
| Fan unit                                            | Fan                                     |      | Cross-flow fan                                                          |         |         |                   |         |                   |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 600/540/480                                                             |         |         | 780/660/600       |         | 1,200/1,020/900   |
|                                                     | Motor outlet (W)                        |      | 30                                                                      |         |         |                   |         |                   |
| Air filter                                          |                                         |      | Standard filter (Simple filter)                                         |         |         |                   |         |                   |
| Controller                                          |                                         |      | Remote controller                                                       |         |         |                   |         |                   |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 9.5                                                                   |         |         | ø 12.7            |         | ø 15.9            |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                   |         |         |                   |         | ø 9.5             |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                            |         |         |                   |         |                   |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 39/34/31                                                                |         |         | 42/38/35          |         | 42/38/35          |
| PMV Kit                                             |                                         |      | Available                                                               |         |         |                   |         |                   |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

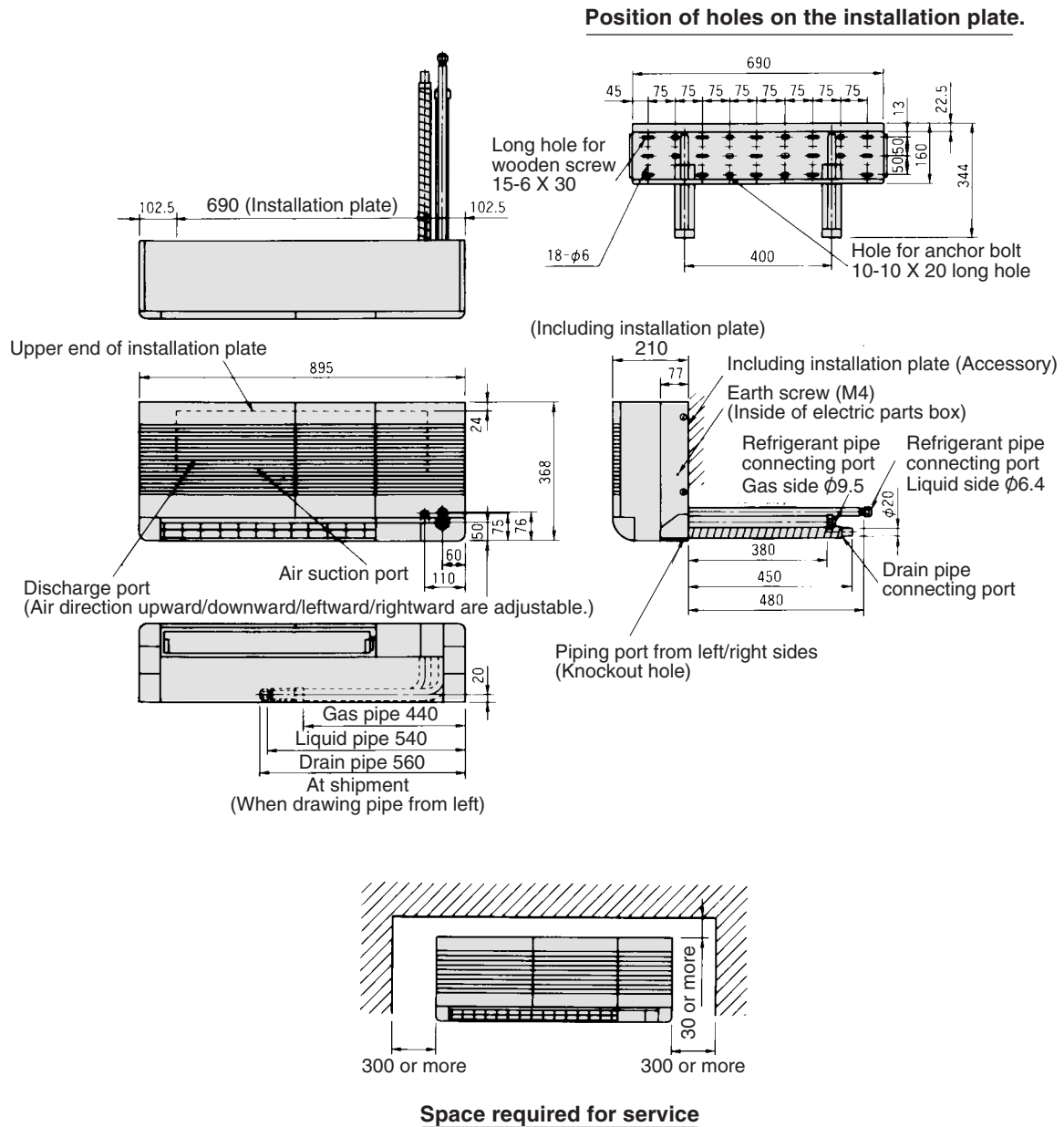
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-9. High Wall 1series Type

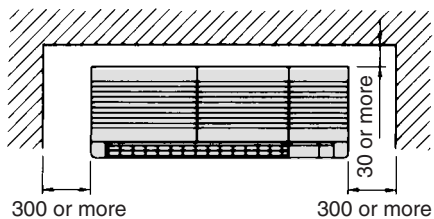
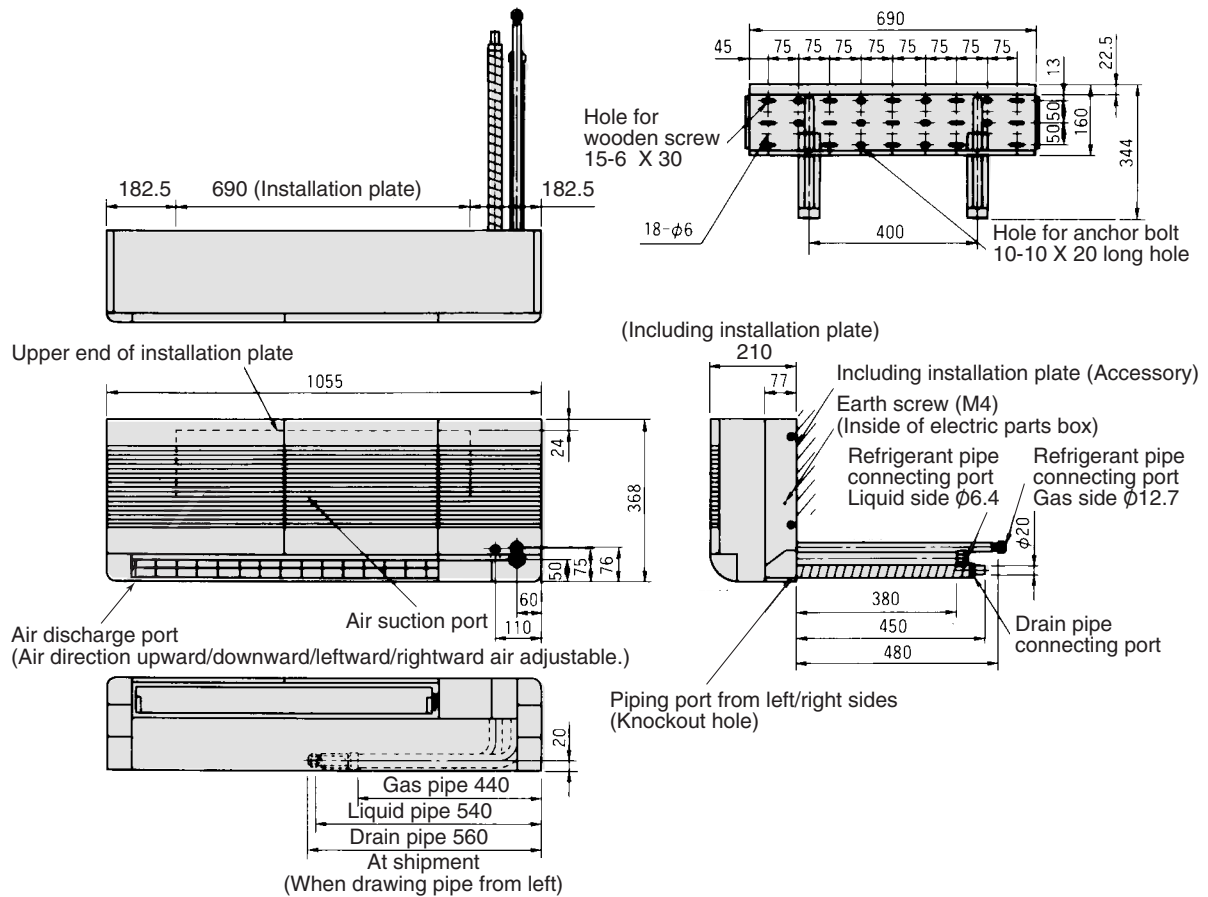
### • Dimension

MMK-AP0071H, AP0091H, AP0121H



Note: All dimensions are in mm.

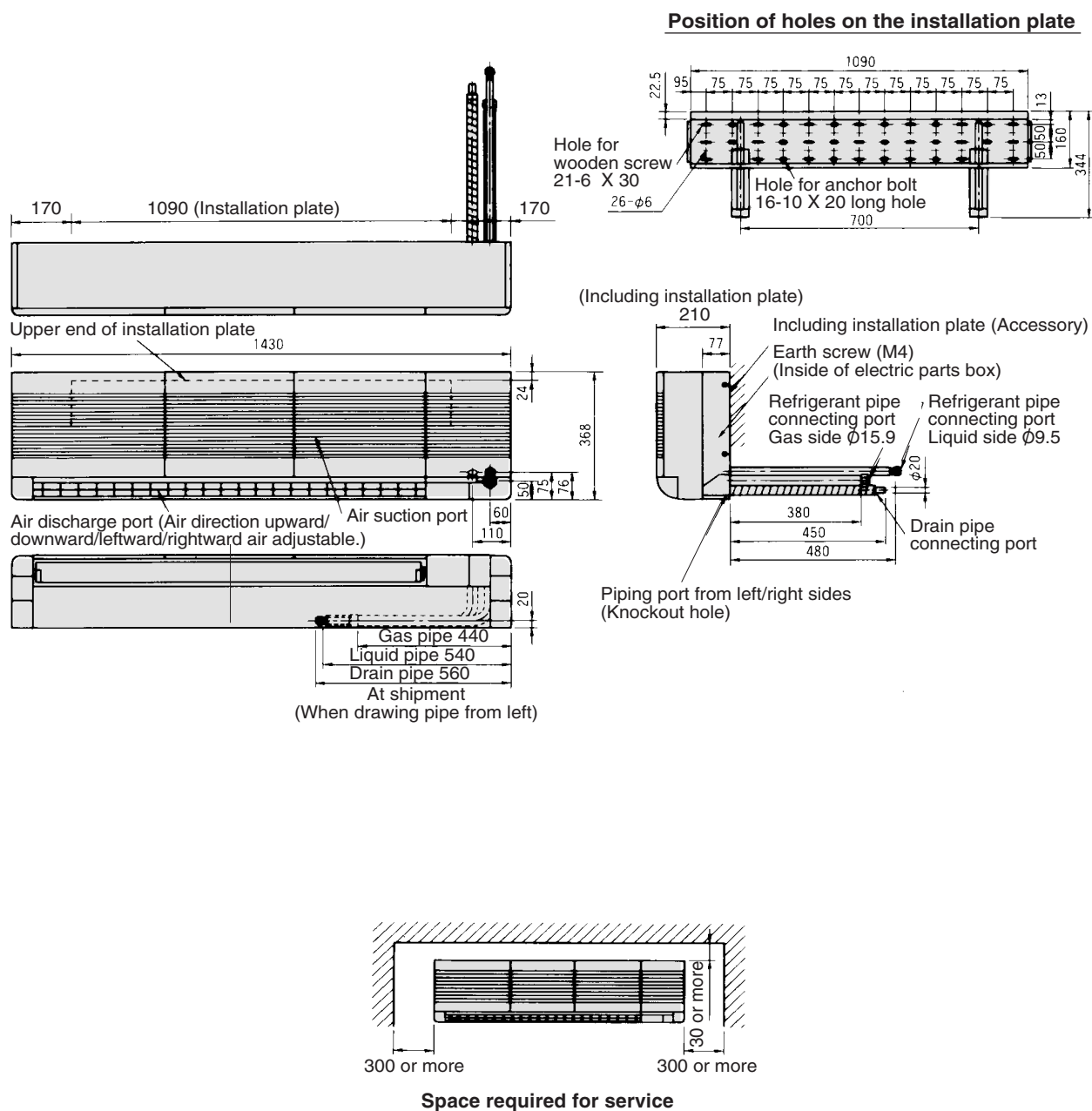
## MMK-AP0151H, AP0181H



- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## MMK-AP0241H



- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Wireless remote controller kit**  
TCB-AX21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## 2-10. High Wall (2series) Type

### Appearance

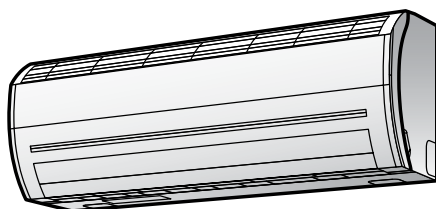


### Standard accessories

#### High Wall type (2 series)

| Part No. | Part name (Q'ty)               | Part No. | Part name (Q'ty)             | Part No. | Part name (Q'ty)                                       |
|----------|--------------------------------|----------|------------------------------|----------|--------------------------------------------------------|
| 1        | Installation plate x 1         | 3        | Battery x 2                  | 5        | Mounting screw $\phi 4 \times 25 \ell \times 6$        |
| 2        | Wireless remote controller x 1 | 4        | Remote controller holder x 1 | 6        | Pan head wood screw $\phi 3.1 \times 16 \ell \times 2$ |

### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-10. High Wall 2 series Type



50Hz

### • Specifications (50Hz)

|                                             |                                  |                     |                                                                                    |             |             |
|---------------------------------------------|----------------------------------|---------------------|------------------------------------------------------------------------------------|-------------|-------------|
| Model name                                  |                                  | MMK-                | AP0072H                                                                            | AP0092H     | AP0122H     |
| Cooling/Heating capacity (Note 1)           |                                  | (kW)                | 2.2/2.5                                                                            | 2.8/3.2     | 3.6/4.0     |
| Electrical characteristics                  | Power supply                     |                     | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |             |             |
|                                             | Running current                  | (A)                 | 0.17                                                                               | 0.18        | 0.19        |
|                                             | Power consumption                | (kW)                | 0.017                                                                              | 0.018       | 0.019       |
|                                             | Starting current                 | (A)                 | 0.22                                                                               | 0.23        | 0.24        |
| Appearance                                  | Suction grille and side panel    |                     | Moon white                                                                         |             |             |
|                                             | Discharge grille                 |                     | Moon white                                                                         |             |             |
|                                             | Bottom surface                   |                     | Moon white                                                                         |             |             |
| Outer dimension                             | Height x Width x Depth           | (mm)                | 275 x 790 x 208                                                                    |             |             |
| Total weight                                |                                  | (kg)                | 11                                                                                 |             |             |
| Heat exchanger                              |                                  |                     | Finned tube                                                                        |             |             |
| Soundproof/Heat-insulating material         |                                  |                     | Non-flammable insulation                                                           |             |             |
| Fan unit                                    | Fan                              |                     | Cross-flow fan                                                                     |             |             |
|                                             | Standard air flow (High/Mid/Low) | (m <sup>3</sup> /h) | 480/420/360                                                                        | 510/450/360 | 540/450/360 |
|                                             | Motor outlet                     | (W)                 | 30                                                                                 |             |             |
| Air filter                                  |                                  |                     | Standard filter (Simple filter)                                                    |             |             |
| Controller                                  |                                  |                     | Wireless remote controller (WH-H2UE, Packed with indoor unit)                      |             |             |
| Connecting pipe                             | Gas side                         | (mm)                | Ø 9.5                                                                              |             |             |
|                                             | Liquid side                      | (mm)                | Ø 6.4                                                                              |             |             |
|                                             | Drain port                       | (Outer dia. mm)     | 16 (Polyvinyl chloride tube)                                                       |             |             |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  | (dB(A))             | 35/32/29                                                                           | 36/33/29    | 37/33/29    |
| PMV Kit                                     |                                  |                     | Available                                                                          |             |             |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note 3 :** Wireless remote controller is packed with indoor unit.  
Wired remote controller (RBC-AMT31E, RBC-AS21E2) can be also connected.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-10. High Wall 2 series Type



60Hz

### • Specifications (60Hz)

|                                                |                               |                 |                                                                         |             |             |
|------------------------------------------------|-------------------------------|-----------------|-------------------------------------------------------------------------|-------------|-------------|
| Model name                                     |                               | MMK-            | AP0072H                                                                 | AP0092H     | AP0122H     |
| Cooling/Heating capacity (Note 1)              |                               | (kW)            | 2.2/2.5                                                                 | 2.8/3.2     | 3.6/4.0     |
| Electrical characteristics                     | Power supply                  |                 | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |             |             |
|                                                | Running current               | (A)             | 0.18                                                                    | 0.19        | 0.20        |
|                                                | Power consumption             | (kW)            | 0.017                                                                   | 0.018       | 0.019       |
|                                                | Starting current              | (A)             | 0.22                                                                    | 0.23        | 0.24        |
| Appearance                                     | Suction grille and side panel |                 | Moon white                                                              |             |             |
|                                                | Discharge grille              |                 | Moon white                                                              |             |             |
|                                                | Bottom surface                |                 | Moon white                                                              |             |             |
| Outer dimension                                | Height x Width x Depth        | (mm)            | 275 x 790 x 208                                                         |             |             |
| Total weight                                   |                               | (kg)            | 11                                                                      |             |             |
| Heat exchanger                                 |                               |                 | Finned tube                                                             |             |             |
| Soundproof/Heat-insulating material            |                               |                 | Non-flammable insulation                                                |             |             |
| Fan unit                                       | Fan                           |                 | Cross-flow fan                                                          |             |             |
|                                                |                               |                 | 480/420/360                                                             | 510/450/360 | 540/450/360 |
|                                                | Motor outlet                  | (W)             | 30                                                                      |             |             |
| Air filter                                     |                               |                 | Standard filter (Simple filter)                                         |             |             |
| Controller                                     |                               |                 | Wireless remote controller (WH-H2UE, Packed with indoor unit)           |             |             |
| Connecting pipe                                | Gas side                      | (mm)            | Ø9.5                                                                    |             |             |
|                                                | Liquid side                   | (mm)            | Ø6.4                                                                    |             |             |
|                                                | Drain port                    | (Outer dia. mm) | 16 (Polyvinyl chloride tube)                                            |             |             |
| Sound pressure level(Note 2)<br>(High/Mid/Low) |                               | (dB(A))         | 35/32/29                                                                | 36/33/29    | 37/33/29    |
| PMV Kit                                        |                               |                 | Available                                                               |             |             |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

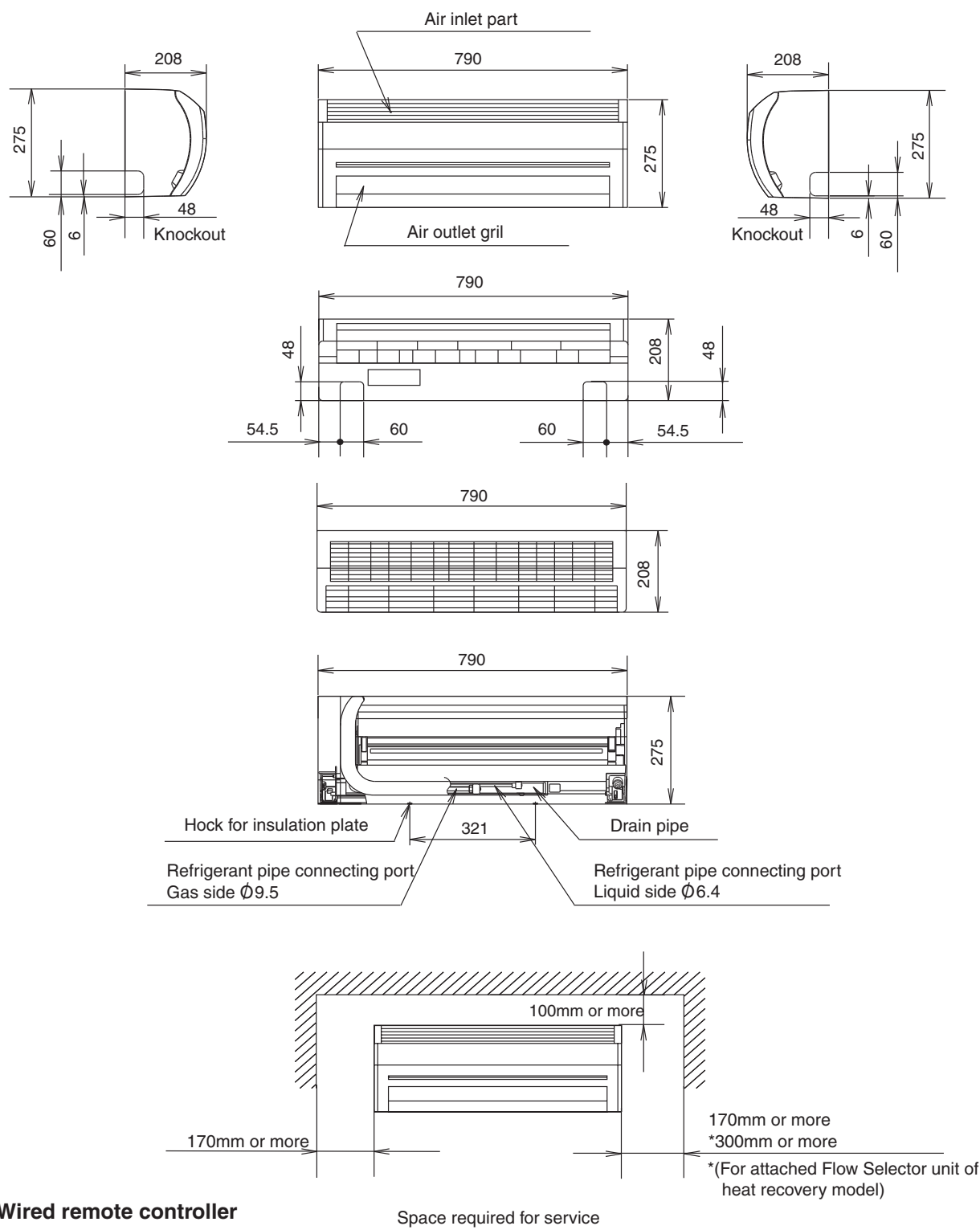
**Note 3 :** Wireless remote controller is packed with indoor unit.  
Wired remote controller (RBC-AMT31E, RBC-AS21E2) can be also connected.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
Heating : 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-10. High Wall 2 series Type

### • Dimension

MMK-AP0072H, AP0092H, AP0122H

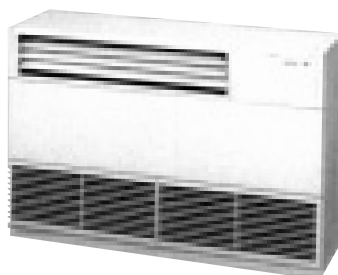


- **Wired remote controller**  
RBC-AMT31E
- **Simple wired remote controller**  
RBC-AS21E2
- **Weekly timer application**  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## 2-11. Floor Standing Cabinet Type

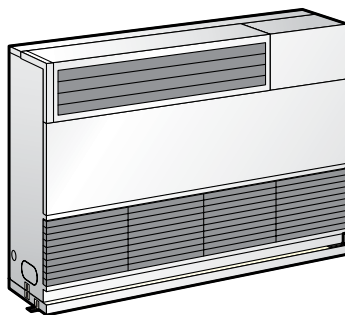
### Appearance



### Standard accessories

| Part name           | Q'ty | Shape                                                                             | Use                                             | Part name | Q'ty | Shape                                                                               | Use                                   |
|---------------------|------|-----------------------------------------------------------------------------------|-------------------------------------------------|-----------|------|-------------------------------------------------------------------------------------|---------------------------------------|
| Installation Manual | 1    | —                                                                                 |                                                 | Bushing   | 1    |  | For installation in the wire knockout |
| Heat Insulating     | 2    |  | For insulating the indoor unit pipe connections |           |      |                                                                                     |                                       |

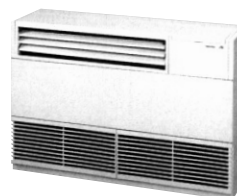
### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-11. Floor Standing Cabinet Type



50Hz

### • Specifications (50Hz)

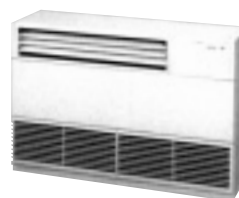
|                                                     |                                         |      |                                                                                    |         |             |         |               |         |
|-----------------------------------------------------|-----------------------------------------|------|------------------------------------------------------------------------------------|---------|-------------|---------|---------------|---------|
| Model name                                          |                                         | MML- | AP0071H                                                                            | AP0091H | AP0121H     | AP0151H | AP0181H       | AP0241H |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 2.2/2.5                                                                            | 2.8/3.2 | 3.6/4.0     | 4.5/5.0 | 5.6/6.3       | 7.1/8.0 |
| Electrical characteristics                          | Power supply                            |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |         |             |         |               |         |
|                                                     | Running current (A)                     |      | 0.26                                                                               |         | 0.43        |         | 0.47          |         |
|                                                     | Power consumption (kW)                  |      | 0.056                                                                              |         | 0.092       |         | 0.102         |         |
|                                                     | Power factor (%)                        |      | 94                                                                                 |         | 93          |         | 94            |         |
|                                                     | Starting current (A)                    |      | 0.60                                                                               |         | 0.80        |         | 1.10          |         |
| Appearance                                          |                                         |      | Silky shade (1Y8.5/0.5)                                                            |         |             |         |               |         |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 630 x 950 x 230                                                                    |         |             |         |               |         |
| Total weight (kg)                                   |                                         |      | 37                                                                                 |         |             |         | 40            | 40      |
| Heat exchanger                                      |                                         |      | Finned tube                                                                        |         |             |         |               |         |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                           |         |             |         |               |         |
| Fan unit                                            | Fan                                     |      | Centrifugal fan                                                                    |         |             |         |               |         |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 480/420/360                                                                        |         | 900/780/650 |         | 1,080/930/780 |         |
|                                                     | Motor outlet (W)                        |      | 45                                                                                 |         |             |         | 70            |         |
| Air filter                                          |                                         |      | Standard filter (Simple filter)                                                    |         |             |         |               |         |
| Controller                                          |                                         |      | Remote controller                                                                  |         |             |         |               |         |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 9.5                                                                              |         |             | ø 12.7  |               | ø 15.9  |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                              |         |             |         |               | ø 9.5   |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                                       |         |             |         |               |         |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 39/37/35                                                                           |         | 45/41/38    |         | 49/44/39      |         |
| PMV Kit                                             |                                         |      | Available                                                                          |         |             |         |               |         |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2 :** The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-11. Floor Standing Cabinet Type



60Hz

### • Specifications (60Hz)

|                                                     |                                         |      |                                                                         |         |             |         |               |         |
|-----------------------------------------------------|-----------------------------------------|------|-------------------------------------------------------------------------|---------|-------------|---------|---------------|---------|
| Model name                                          |                                         | MML- | AP0071H                                                                 | AP0091H | AP0121H     | AP0151H | AP0181H       | AP0241H |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 2.2/2.5                                                                 | 2.8/3.2 | 3.6/4.0     | 4.5/5.0 | 5.6/6.3       | 7.1/8.0 |
| Electrical characteristics                          | Power supply                            |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |         |             |         |               |         |
|                                                     | Running current (A)                     |      | 0.25                                                                    |         | 0.44        |         | 0.53          |         |
|                                                     | Power consumption (kW)                  |      | 0.053                                                                   |         | 0.092       |         | 0.113         |         |
|                                                     | Power factor (%)                        |      | 96                                                                      |         | 95          |         | 97            |         |
|                                                     | Starting current (A)                    |      | 0.60                                                                    |         | 0.80        |         | 1.10          |         |
| Appearance                                          |                                         |      | Silky shade (1Y8.5/0.5)                                                 |         |             |         |               |         |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 630 x 950 x 230                                                         |         |             |         |               |         |
| Total weight (kg)                                   |                                         |      | 37                                                                      |         |             |         | 40            |         |
| Heat exchanger                                      |                                         |      | Finned tube                                                             |         |             |         |               |         |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                |         |             |         |               |         |
| Fan unit                                            | Fan                                     |      | Centrifugal fan                                                         |         |             |         |               |         |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 480/420/360                                                             |         | 900/780/650 |         | 1,080/930/780 |         |
|                                                     | Motor outlet (W)                        |      | 45                                                                      |         |             |         | 70            |         |
| Air filter                                          |                                         |      | Standard filter (Simple filter)                                         |         |             |         |               |         |
| Controller                                          |                                         |      | Remote controller                                                       |         |             |         |               |         |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 9.5                                                                   |         |             | ø 12.7  |               | ø 15.9  |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                   |         |             |         |               | ø 9.5   |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                            |         |             |         |               |         |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 39/37/35                                                                |         | 45/41/38    |         | 49/44/39      |         |
| PMV Kit                                             |                                         |      | Available                                                               |         |             |         |               |         |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

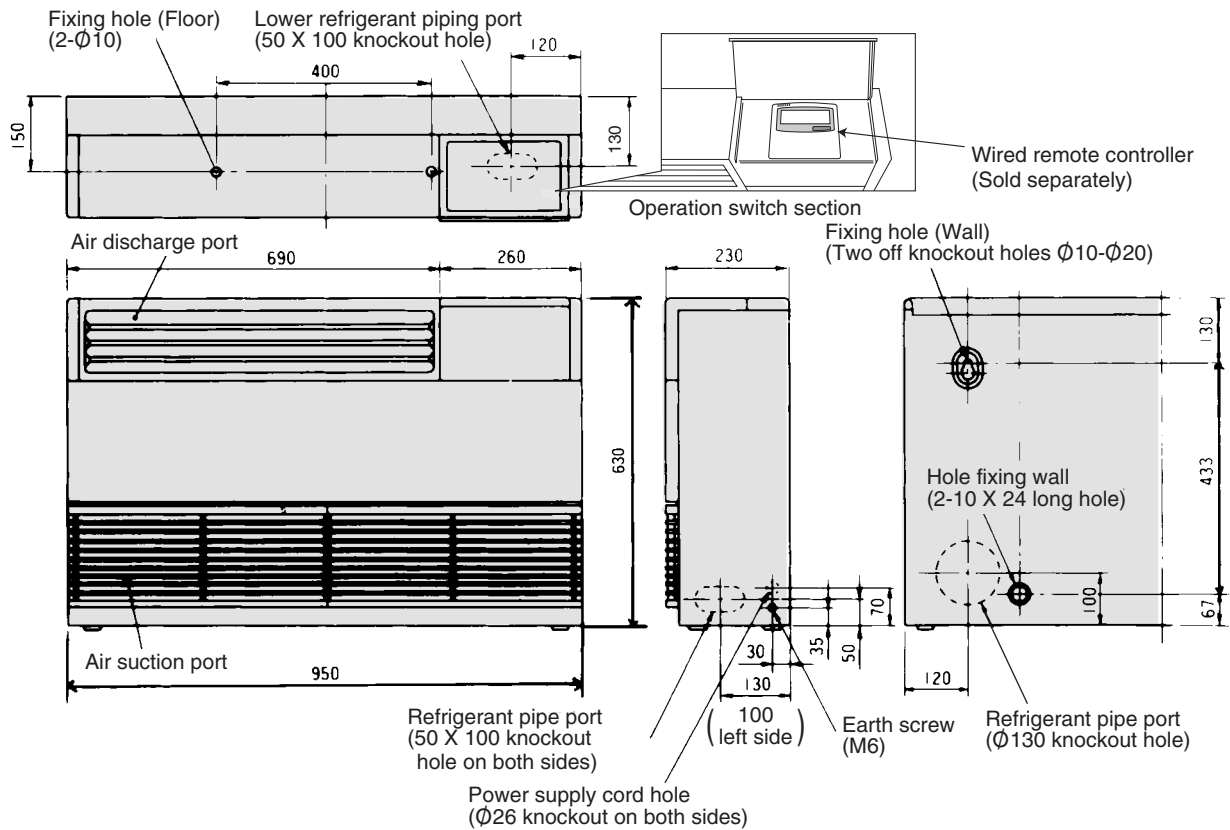
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-11. Floor Standing Cabinet Type

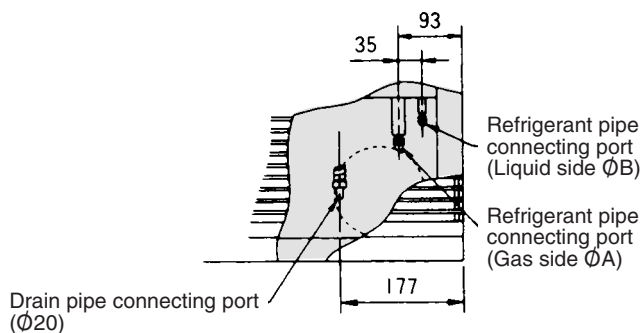
### • Dimension

#### MML-AP0071H, AP0091H, AP0121H, AP0151H, AP0181H, AP0241H

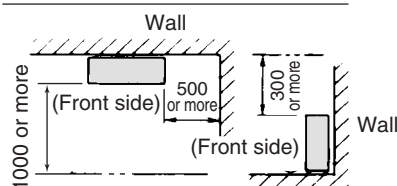


#### Dimensions

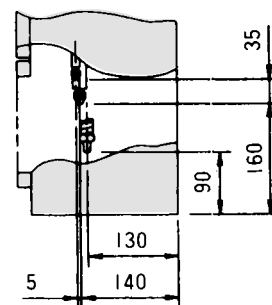
| Model MML-                | A           | B          |
|---------------------------|-------------|------------|
| AP0071H, AP0091H, AP0121H | $\Phi 9.5$  | $\Phi 6.4$ |
| AP0151H, AP0181H          | $\Phi 12.7$ | $\Phi 6.4$ |
| AP0241H                   | $\Phi 15.9$ | $\Phi 9.5$ |



Space required for service  
Figure shows piping at the left side



Positional drawing  
of piping

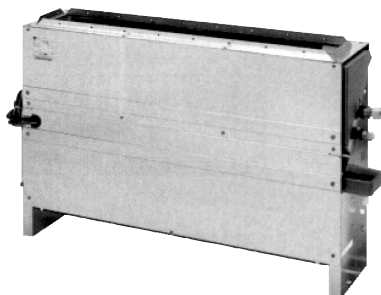


- Wired remote controller  
RBC-AMT31E
- Simple wired remote controller  
RBC-AS21E2
- Wireless remote controller kit  
TCB-AX21E2
- Weekly timer application  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## 2-12. Floor Standing Concealed Type

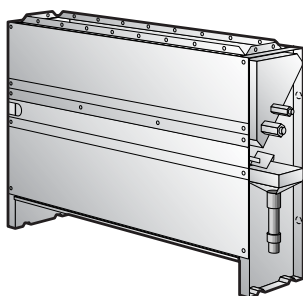
### Appearance



### Standard accessories

| Part name           | Q'ty | Shape                                                                               | Use                                                  | Part name                   | Q'ty | Shape                                                                                | Use                                                                 |
|---------------------|------|-------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------|------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Installation Manual | 1    | —                                                                                   | —                                                    | Drain receiver fixing screw | 1    |   | For fix the drain receiver                                          |
| Heat insulation     | 2    |    | For heat insulating the indoor unit pipe connections | Drain hose                  | 1    |   | For water draining (Attaches to the drain receiver.)                |
| Drain pan           | 1    |   | For water draining                                   | Heat insulated pipe         | 1    |  | For insulating the drain receiver (Attaches to the drain receiver.) |
| Drain filter        | 1    |  | Drain filter (inside the drain receiver)             |                             |      |                                                                                      |                                                                     |

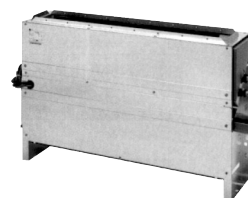
### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-12. Floor Standing Concealed Type



50Hz

### • Specifications (50Hz)

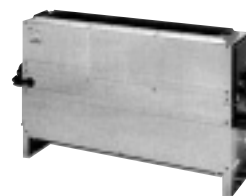
|                                                     |                                         |      |                                                                                    |          |          |                   |          |             |
|-----------------------------------------------------|-----------------------------------------|------|------------------------------------------------------------------------------------|----------|----------|-------------------|----------|-------------|
| Model name                                          |                                         | MML- | AP0071BH                                                                           | AP0091BH | AP0121BH | AP0151BH          | AP0181BH | AP0241BH    |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 2.2/2.5                                                                            | 2.8/3.2  | 3.6/4.0  | 4.5/5.0           | 5.6/6.3  | 7.1/8.0     |
| Electrical characteristics                          | Power supply                            |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |          |          |                   |          |             |
|                                                     | Running current (A)                     |      | 0.25                                                                               |          |          | 0.45              |          | 0.46        |
|                                                     | Power consumption (kW)                  |      | 0.056                                                                              |          |          | 0.090             |          | 0.095       |
|                                                     | Power factor (%)                        |      | 97                                                                                 |          |          | 87                |          | 90          |
|                                                     | Starting current (A)                    |      | 0.60                                                                               |          |          | 0.80              |          | 1.00        |
| Appearance                                          |                                         |      | Zinc hot dipping steel plate                                                       |          |          |                   |          |             |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 600 x 745 x 220                                                                    |          |          | 600 x 1,045 x 220 |          |             |
| Total weight (kg)                                   |                                         |      | 21                                                                                 |          |          | 29                |          |             |
| Heat exchanger                                      |                                         |      | Finned tube                                                                        |          |          |                   |          |             |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                           |          |          |                   |          |             |
| Fan unit                                            | Fan                                     |      | Centrifugal fan                                                                    |          |          |                   |          |             |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 460/400/300                                                                        |          |          | 740/600/490       |          | 950/790/640 |
|                                                     | Motor (W)                               |      | 19                                                                                 |          |          | 70                |          |             |
|                                                     | Static pressure range (kPa)             |      | 0                                                                                  |          |          |                   |          |             |
| Air filter                                          |                                         |      | Standard filter attached (Simple filter)                                           |          |          |                   |          |             |
| Controller                                          |                                         |      | Remote controller                                                                  |          |          |                   |          |             |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 9.5                                                                              |          |          | ø 12.7            |          | ø 15.9      |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                              |          |          |                   |          | ø 9.5       |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                                       |          |          |                   |          |             |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 36/34/32                                                                           |          |          |                   |          | 42/37/33    |
| PMV Kit                                             |                                         |      | Not available                                                                      |          |          |                   |          |             |

**Note 1** : The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2** : The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note** : Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-12. Floor Standing Concealed Type



60Hz

### • Specifications (60Hz)

|                                                    |                                         |      |                                                                         |          |          |                   |          |             |
|----------------------------------------------------|-----------------------------------------|------|-------------------------------------------------------------------------|----------|----------|-------------------|----------|-------------|
| Model name                                         |                                         | MML- | AP0071BH                                                                | AP0091BH | AP0121BH | AP0151BH          | AP0181BH | AP0241BH    |
| Cooling/Heating capacity (Note 1)                  |                                         | (kW) | 2.2/2.5                                                                 | 2.8/3.2  | 3.6/4.0  | 4.5/5.0           | 5.6/6.3  | 7.1/8.0     |
| Electrical characteristics                         | Power supply                            |      | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |          |          |                   |          |             |
|                                                    | Running current (A)                     |      | 0.27                                                                    |          |          | 0.46              |          | 0.51        |
|                                                    | Power consumption (kW)                  |      | 0.058                                                                   |          |          | 0.096             |          | 0.110       |
|                                                    | Power factor (%)                        |      | 98                                                                      |          |          | 95                |          | 98          |
|                                                    | Starting current (A)                    |      | 0.60                                                                    |          |          | 0.80              |          | 1.00        |
| Appearance                                         |                                         |      | Zinc hot dipping steel plate                                            |          |          |                   |          |             |
| Outer dimension                                    | Height x Width x Depth (mm)             |      | 600 x 745 x 220                                                         |          |          | 600 x 1,045 x 220 |          |             |
| Total weight (kg)                                  |                                         |      | 21                                                                      |          |          | 29                |          |             |
| Heat exchanger                                     |                                         |      | Finned tube                                                             |          |          |                   |          |             |
| Soundproof/Heat-insulating material                |                                         |      | Non-flammable insulation                                                |          |          |                   |          |             |
| Fan unit                                           | Fan                                     |      | Centrifugal fan                                                         |          |          |                   |          |             |
|                                                    | Standard air flow (High/Mid/Low) (m³/h) |      | 460/400/300                                                             |          |          | 740/600/490       |          | 950/790/640 |
|                                                    | Motor (W)                               |      | 19                                                                      |          |          | 70                |          |             |
|                                                    | Static pressure range (kPa)             |      | 0                                                                       |          |          |                   |          |             |
| Air filter                                         |                                         |      | Standard filter (Simple filter)                                         |          |          |                   |          |             |
| Controller                                         |                                         |      | Remote controller                                                       |          |          |                   |          |             |
| Connecting pipe                                    | Gas side (mm)                           |      | ø 9.5                                                                   |          |          | ø 12.7            |          | ø 15.9      |
|                                                    | Liquid side (mm)                        |      | ø 6.4                                                                   |          |          |                   |          | ø 9.5       |
|                                                    | Drain port (Nominal dia. mm)            |      | 20 (One side of male screw)                                             |          |          |                   |          |             |
| Sound pressure level(Note 2)(High/Mid/Low) (dB(A)) |                                         |      | 36/34/32                                                                |          |          |                   |          | 42/37/33    |
| PMV Kit                                            |                                         |      | Not available                                                           |          |          |                   |          |             |

**Note 1** : The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

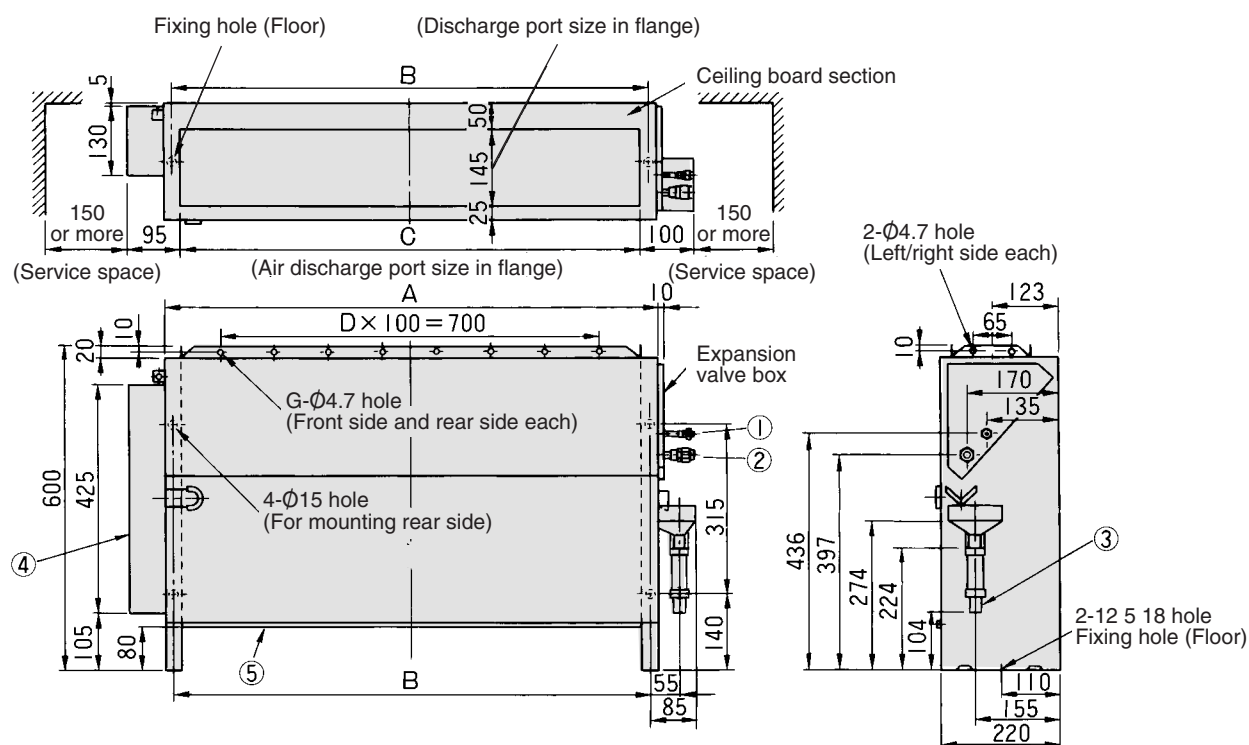
**Note 2** : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note** : Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-12. Floor Standing Concealed Type

### • Dimension

MML-AP0071BH, AP0091BH, AP0121BH, AP0151BH, AP0181BH, AP0241BH



| No. | Name                                                 |
|-----|------------------------------------------------------|
| ①   | Pipe connecting port at liquid side (ØE)             |
| ②   | Pipe connecting port at gas side (ØF)                |
| ③   | Drain pipe connecting port (20A)                     |
| ④   | Electric parts box<br>(Earth terminal on the inside) |
| ⑤   | Air filter                                           |

### Dimensions

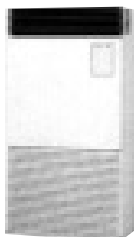
| Model MML-                   | A   | B   | C   | D | E   | F    | G |
|------------------------------|-----|-----|-----|---|-----|------|---|
| AP0071BH, AP0091BH, AP0121BH | 610 | 580 | 550 | 4 | 6.4 | 9.5  | 5 |
| AP0151BH, AP0181BH           | 910 | 880 | 850 | 7 |     | 12.7 | 8 |
| AP0241BH                     |     |     |     |   | 9.5 | 15.9 |   |

- Wired remote controller  
RBC-AMT31E
- Simple wired remote controller  
RBC-AS21E2
- Wireless remote controller kit  
TCB-AX21E2
- Weekly timer application  
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

## 2-13. Floor Standing Type

### Appearance



### Standard accessories

| Part name            | Q'ty | Shape       | Use                                                        | Part name      | Q'ty | Shape | Use                                             |
|----------------------|------|-------------|------------------------------------------------------------|----------------|------|-------|-------------------------------------------------|
| Installation Manual  | 1    | This manual | (Be sure to hand over to the customer)                     | Heat insulator | 1    |       | For heat insulating of drain connecting section |
| Heat insulating pipe | 2    |             | For heat insulation of pipe connecting section             | Washer         | 4    |       | For hanging-down unit                           |
| Installation pattern | 1    | —           | For confirmation of ceiling opening and main unit position | Hose band      | 2    |       | For connecting drain pipe                       |
| Banding band         | 2    |             | For drain hose forming                                     | Drain hose     | 1    |       | For drain piping                                |
| Bushing              | 1    |             | For power supply cord protection                           | Heat insulator | 1    |       | For sealing of piping hole                      |

### Optional accessories



### Remote controller

|                                | Model Name                 |
|--------------------------------|----------------------------|
| Wired remote controller        | RBC-AMT31E                 |
| Simple wired remote controller | RBC-AS21E2                 |
| Wireless remote controller kit | TCB-AX21E2                 |
| Weekly timer application       | RBC-AMT31E and RBC-EXW21E2 |
| Central remote controller      | TCB-SC642TLE2              |
| ON-OFF controller              | TCB-CC163TLE2              |

## 2-13. Floor Standing Type



50Hz

### • Specifications (50Hz)

|                                                     |                                         |      |                                                                                    |         |                 |         |                   |                   |
|-----------------------------------------------------|-----------------------------------------|------|------------------------------------------------------------------------------------|---------|-----------------|---------|-------------------|-------------------|
| Model name                                          |                                         | MMF- | AP0151H                                                                            | AP0181H | AP0241H         | AP0271H | AP0361H           | AP0481H           |
| Cooling/Heating capacity (Note 1)                   |                                         | (kW) | 4.5/5.0                                                                            | 5.6/6.3 | 7.1/8.0         | 8.0/9.0 | 11.2/12.5         | 14.0/16.0         |
| Electrical characteristics                          | Power supply                            |      | 1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.) |         |                 |         |                   |                   |
|                                                     | Running current (A)                     |      | 0.67                                                                               |         | 0.88            |         | 1.29              | 1.60              |
|                                                     | Power consumption (kW)                  |      | 0.150                                                                              |         | 0.190           |         | 0.280             | 0.350             |
|                                                     | Power factor (%)                        |      | 97                                                                                 |         | 94              |         |                   | 95                |
|                                                     | Starting current (A)                    |      | 0.90                                                                               |         | 1.10            |         | 1.70              | 2.10              |
| Appearance                                          |                                         |      | W : Silky shade (1Y 8.5/0.5)                                                       |         |                 |         |                   |                   |
| Outer dimension                                     | Height x Width x Depth (mm)             |      | 1,750 x 600 x 210                                                                  |         |                 |         | 1,750 x 600 x 390 |                   |
| Total weight (kg)                                   |                                         |      | 48                                                                                 |         | 49              |         | 65                |                   |
| Heat exchanger                                      |                                         |      | Finned tube                                                                        |         |                 |         |                   |                   |
| Soundproof/Heat-insulating material                 |                                         |      | Non-flammable insulation                                                           |         |                 |         |                   |                   |
| Fan unit                                            | Fan                                     |      | Centrifugal fan                                                                    |         |                 |         |                   |                   |
|                                                     | Standard air flow (High/Mid/Low) (m³/h) |      | 900/780/660                                                                        |         | 1,200/1,020/840 |         | 1,920/1,680/1,380 | 2,160/1,860/1,560 |
|                                                     | Motor (W)                               |      | 37                                                                                 |         | 63              |         | 110               | 160               |
| Air filter                                          |                                         |      | Standard filter (Simple filter)                                                    |         |                 |         |                   |                   |
| Controller                                          |                                         |      | Remote controller                                                                  |         |                 |         |                   |                   |
| Connecting pipe                                     | Gas side (mm)                           |      | ø 12.7                                                                             |         | ø 15.9          |         |                   |                   |
|                                                     | Liquid side (mm)                        |      | ø 6.4                                                                              |         | ø 9.5           |         |                   |                   |
|                                                     | Drain port (Nominal dia. mm)            |      | 20 (Polyvinyl chloride tube)                                                       |         |                 |         |                   |                   |
| Sound pressure level(Note 2) (High/Mid/Low) (dB(A)) |                                         |      | 46/43/38                                                                           |         | 49/45/40        |         | 51/48/44          | 54/50/46          |
| PMV Kit                                             |                                         |      | Not available                                                                      |         |                 |         |                   |                   |

**Note 1** : The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

**Note 2** : The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note** : Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                          Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-13. Floor Standing Type



60Hz

### • Specifications (60Hz)

|                                             |                                  |         |                                                                         |                              |                 |                   |                   |           |
|---------------------------------------------|----------------------------------|---------|-------------------------------------------------------------------------|------------------------------|-----------------|-------------------|-------------------|-----------|
| Model name                                  |                                  | MMF-    | AP0151H                                                                 | AP0181H                      | AP0241H         | AP0271H           | AP0361H           | AP0481H   |
| Cooling/Heating capacity (Note 1)           |                                  | (kW)    | 4.5/5.0                                                                 | 5.6/6.3                      | 7.1/8.0         | 8.0/9.0           | 11.2/12.5         | 14.0/16.0 |
| Electrical characteristics                  | Power supply                     |         | 1 phase 60Hz 220V (Separate power supply for indoor units is required.) |                              |                 |                   |                   |           |
|                                             | Running current                  |         | (A)                                                                     | 0.67                         | 0.90            | 1.37              | 1.75              |           |
|                                             | Power consumption                |         | (kW)                                                                    | 0.146                        | 0.195           | 0.295             | 0.380             |           |
|                                             | Power factor                     |         | (%)                                                                     | 99                           | 98              | 98                | 99                |           |
|                                             | Starting current                 |         | (A)                                                                     | 0.90                         | 1.10            | 1.80              | 2.30              |           |
| Appearance                                  |                                  |         | W : Silky Shade (1Y 8.5/0.5)                                            |                              |                 |                   |                   |           |
| Outer dimension                             | Height x Width x Depth           | (mm)    | 1,750 x 600 x 210                                                       |                              |                 |                   | 1,750 x 600 x 390 |           |
| Total weight                                |                                  | (kg)    | 48                                                                      | 49                           | 65              |                   |                   |           |
| Heat exchanger                              |                                  |         | Finned tube                                                             |                              |                 |                   |                   |           |
| Soundproof/Heat-insulating material         |                                  |         | Non-flammable insulation                                                |                              |                 |                   |                   |           |
| Fan unit                                    | Fan                              |         | Centrifugal fan                                                         |                              |                 |                   |                   |           |
|                                             | Standard air flow (High/Mid/Low) |         | (m³/h)                                                                  | 900/780/660                  | 1,200/1,020/840 | 1,920/1,680/1,380 | 2,160/1,860/1,560 |           |
|                                             | Motor                            |         | (W)                                                                     | 37                           | 63              | 110               | 160               |           |
| Air filter                                  |                                  |         | Standard filter (Simple filter)                                         |                              |                 |                   |                   |           |
| Controller                                  |                                  |         | Remote controller                                                       |                              |                 |                   |                   |           |
| Connecting pipe                             | Gas side                         |         | (mm)                                                                    | Ø 12.7                       | Ø 15.9          |                   |                   |           |
|                                             | Liquid side                      |         | (mm)                                                                    | Ø 6.4                        | Ø 9.5           |                   |                   |           |
|                                             | Drain port (Nominal dia. mm)     |         |                                                                         | 20 (Polyvinyl chloride tube) |                 |                   |                   |           |
| Sound pressure level(Note 2) (High/Mid/Low) |                                  | (dB(A)) | 46/43/38                                                                | 49/45/40                     | 51/48/44        | 54/50/46          |                   |           |
| PMV Kit                                     |                                  |         | Not available                                                           |                              |                 |                   |                   |           |

**Note 1 :** The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

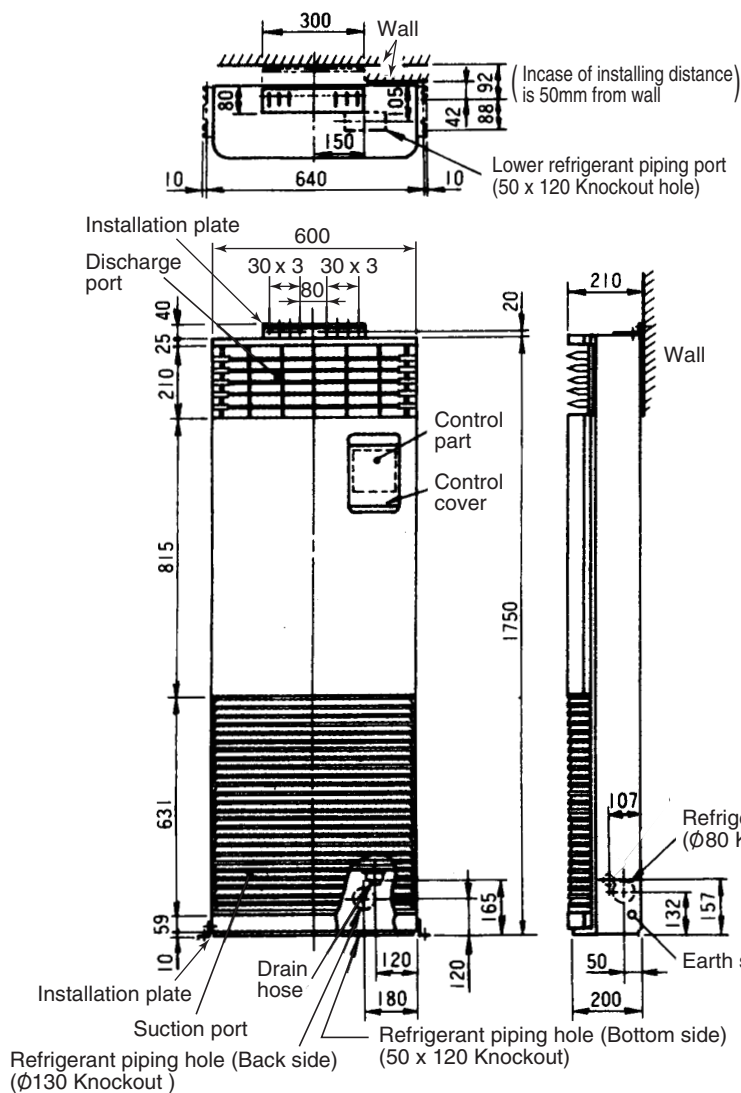
**Note 2 :** The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

**Note :** Rated conditions    Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
                                  Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

## 2-13. Floor Standing Typs

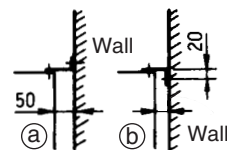
### • Dimension

#### MMF-AP0151H, AP0181H, AP0241H, AP0271H

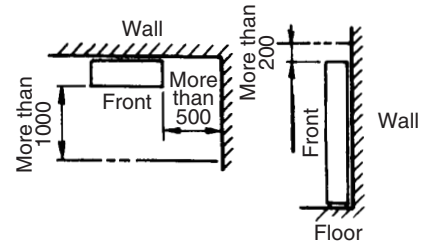


#### Dimensions

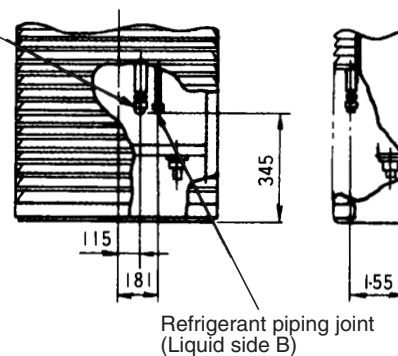
| Model                | A     | B    |
|----------------------|-------|------|
| MMF-AP0151H, AP0181H | Ø12.7 | Ø6.4 |
| MMF-AP0241H, AP0271H | Ø15.7 | Ø9.5 |



#### Space required for service (In case of right side piping)

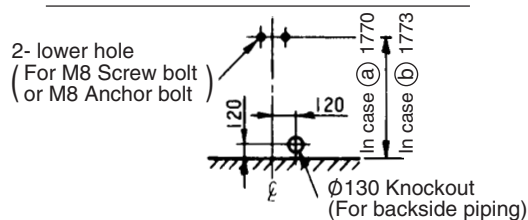


#### Refrigerant piping position

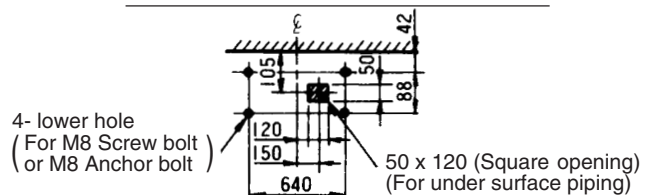


- Wired remote controller  
RBC-AMT31E
- Simple wired remote controller  
RBC-AS21E2
- Wireless remote controller kit  
TCB-AX21E2
- Weekly timer application  
RBC-AMT31E and RBC-EXW21E2

#### Details of hole for back side piping

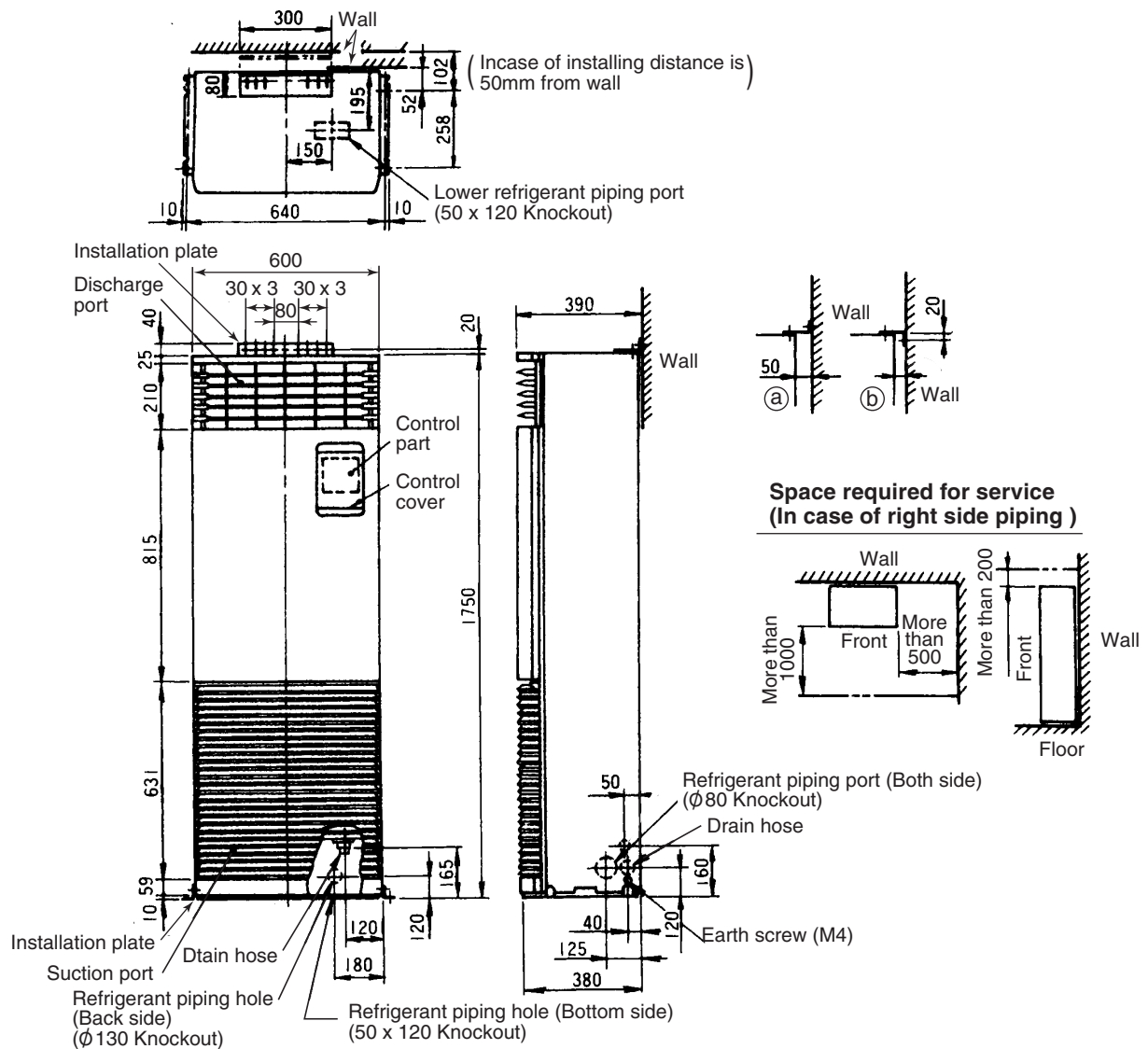


#### Details of hole for lower side piping

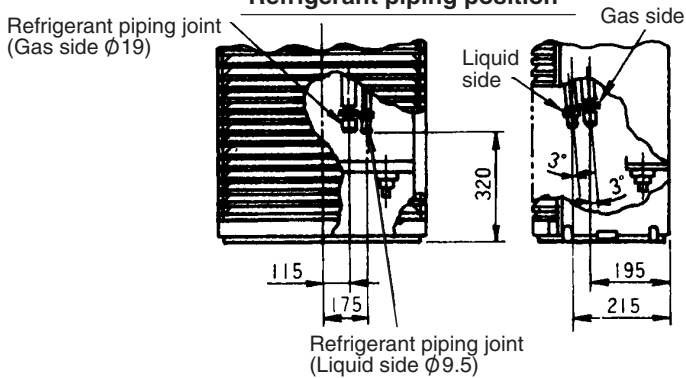


Note: All dimensions are in mm.

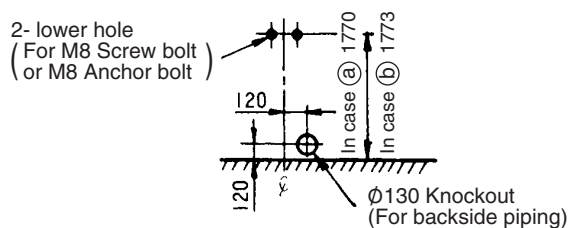
## MMF-AP0361H, AP0481H



### Refrigerant piping position

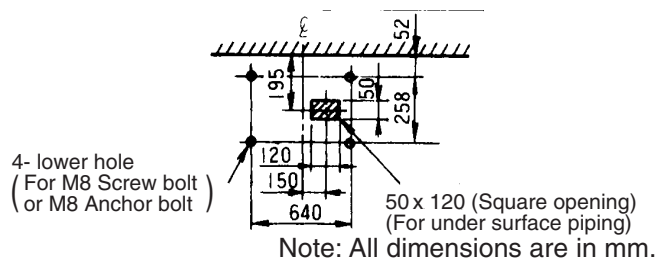


### Details of hole for back side piping



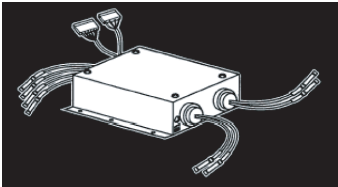
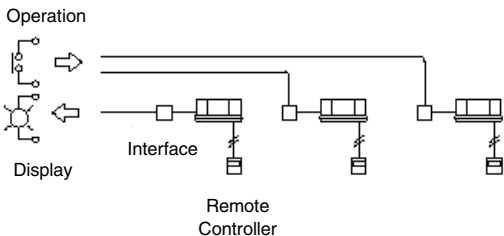
- Wired remote controller RBC-AMT31E
- Simple wired remote controller RBC-AS21E2
- Wireless remote controller kit TCB-AX21E2
- Weekly timer application RBC-AMT31E and RBC-EXW21E2

### Details of hole for lower side piping



## 2-14. Application controls of indoor units

### [1] Remote location ON/OFF control box

| Model Name   | Appearance                                                                                                  | Features                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCB-IFCB-4E2 |                            | <ul style="list-style-type: none"> <li>● Start and stop of the air conditioner is possible by a external signal and indication of operation/alarm externally.</li> </ul>                                                                                                                                                                                                                                                      |
|              | <p><b>Application</b></p>  | <p><b>Function</b></p> <ul style="list-style-type: none"> <li>• Monitoring<br/>ON/OFF status (for indoor unit)<br/>Alarm status (system &amp; indoor unit stop)</li> <li>• ON/OFF command<br/>Air conditioner can be turned ON/OFF by external signals.<br/>The external ON/OFF signals will initiate the signals shown below.</li> </ul>  |

### • Dimension

## Outside view

• Fix this control box to the place besides the indoor unit.

## Inside view

Note : All dimensions are in mm

### (NOTE) Do not install the accessory parts at the following locations.

1. Location where combustible gas may leak
2. Location where direct sunlight shines
3. Location with high humidity such as bathroom, kitchen, etc.
4. Location with high levels of dust
5. Location where rain or dew drops such as outdoors
6. Location in 1m-range of a TV or radio

| No. | Name                                      | Specification                                   |
|-----|-------------------------------------------|-------------------------------------------------|
| 1   | Case unit                                 | Galvanized steel 0.8t                           |
| 2   | Case cover                                | Galvanized steel 0.8t                           |
| 3   | Harness to connect indoor unit P.C. board | CN61 connector                                  |
| 4   | Harness for indication cable              | UL1015 AWG18 tip-insulation type butt connector |
| 5   | Harness for power supply                  | 3-core, 0.75mm <sup>2</sup>                     |
| 6   | Harness for ON/OFF command                | UL1015 AWG18 tip-insulation type butt connector |

## • Panels and accessories

| Indoor unit type                                      |                    | Accessory parts name         | Model           | Application model       | Remarks                                         |
|-------------------------------------------------------|--------------------|------------------------------|-----------------|-------------------------|-------------------------------------------------|
| 4-way Air Discharge Cassette Type                     | Required accessory | Ceiling panel                | RBC-U21PG(W)-E2 |                         |                                                 |
|                                                       | Optional           | Super Long Life Filter       | TCB-LF1601UE2   |                         | Be used with TCB-GFC1601UE2                     |
|                                                       |                    | High Efficiency Filter 65    | TCB-UFM1601UE   |                         |                                                 |
|                                                       |                    | High Efficiency Filter 90    | TCB-UFH1601UE   |                         |                                                 |
|                                                       |                    | Fresh air and Filter Chamber | TCB-GFC1601UE2  |                         |                                                 |
|                                                       |                    | Fresh air inlet Box          | TCB-GB1601UE2   |                         | Be used with TCB-GFC1601UE2                     |
|                                                       |                    | Auxiliary fresh air Flange   | TCB-FF101URE2   |                         |                                                 |
|                                                       |                    | Spacer for height adjustment | TCB-SP1601UE    |                         |                                                 |
|                                                       |                    | Air discharge direction kit  | TCB-BC1601UE    |                         | Three-piece set                                 |
| Compact 4-way Air Discharge Cassette (600 x 600) Type | Required accessory | Ceiling panel                | RBC-UM11PG(W)E  |                         |                                                 |
|                                                       | Optional           | Spacer for height adjustment | ***             |                         |                                                 |
|                                                       |                    | Fresh Air Chamber            | ***             |                         |                                                 |
|                                                       |                    | Fresh Air Intel Box          | ***             |                         |                                                 |
|                                                       |                    | Air Discharge Direction Kit  | ***             |                         |                                                 |
| 2-way Air Discharge Cassette Type                     | Required accessory | Ceiling panel                | RBC-UW136PG     | AP0071-0121             |                                                 |
|                                                       |                    |                              | RBC-UW266PG     | AP0151-0301             |                                                 |
|                                                       |                    |                              | RBC-UW466PG     | AP0481                  | China market only                               |
| 1-way Air Discharge Cassette Type                     | Required accessory | Ceiling panel                | RBC-US21PGE     |                         |                                                 |
|                                                       | Optional           | Front air discharge unit     | TCB-BU21HWE     |                         |                                                 |
|                                                       |                    | Auxiliary fresh air flange   | TCB-FF101URE2   |                         |                                                 |
| Concealed Duct Type                                   | Optional           | High Efficiency Filter 65    | TCB-UFM11BFCE   | AP0071-0121/AP0241-0301 | AP0241-AP0301 use two pcs.                      |
|                                                       |                    |                              | TCB-UFM21BFCE   | AP0151-0181/AP0361-0481 | AP0361-AP0481 use two pcs.                      |
|                                                       |                    |                              | TCB-UFM11BE     | AP0071-0121             | For underside suction                           |
|                                                       |                    |                              | TCB-UFM21BE     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-UFM31BE     | AP0241-0301             |                                                 |
|                                                       |                    |                              | TCB-UFM41BE     | AP0361-0481             |                                                 |
|                                                       |                    | High Efficiency Filter 90    | TCB-UFH51BFCE   | AP0071-0121/AP0241-0301 | AP0241-AP0301 use two pcs.                      |
|                                                       |                    |                              | TCB-UFH61BFCE   | AP0151-0181/AP0361-0481 | AP0361-AP0481 use two pcs.                      |
|                                                       |                    |                              | TCB-UFH51BE     | AP0071-0121             | For underside suction                           |
|                                                       |                    |                              | TCB-UFH61BE     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-UFH71BE     | AP0241-0301             |                                                 |
|                                                       |                    |                              | TCB-UFH81BE     | AP0361-0481             |                                                 |
|                                                       |                    | Ceiling panel                | RBC-UD281PE(W)  | AP0071-0121             | (Half panel for underside suction)              |
|                                                       |                    |                              | RBC-UD501PE(W)  | AP0151-0181             |                                                 |
|                                                       |                    |                              | RBC-UD801PE(W)  | AP0241-0301             |                                                 |
|                                                       |                    |                              | RBC-UD1401PE(W) | AP0361-0481             |                                                 |
|                                                       |                    | Suction Canvas               | TCB-CA281BE     | AP0071-0121             | For underside suction                           |
|                                                       |                    |                              | TCB-CA501BE     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-CA801BE     | AP0241-0301             |                                                 |
|                                                       |                    |                              | TCB-CA1401BE    | AP0361-0481             |                                                 |
|                                                       |                    | Filter Chamber               | TCB-FC281BE     | AP0071-0121             | For rear suction                                |
|                                                       |                    |                              | TCB-FC501BE     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-FC801BE     | AP0241-0301             |                                                 |
|                                                       |                    |                              | TCB-FC1401BE    | AP0361-0481             |                                                 |
|                                                       |                    | Filter kit for underside     | TCB-FK281BE     | AP0071-0121             |                                                 |
|                                                       |                    |                              | TCB-FK501BE     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-FK801BE     | AP0241-0301             |                                                 |
|                                                       |                    |                              | TCB-FK1401BE    | AP0361-0481             |                                                 |
| Concealed Duct High Static Pressure Type              | Optional           | High Efficiency Filter 65    | TCB-UFM1D-1E    | AP0181/0481             | AP0481 use two pcs.                             |
|                                                       |                    |                              | TCB-UFM2D-1E    | AP0241-0361             | Use two pcs.                                    |
|                                                       |                    | High Efficiency Filter 90    | TCB-UFH5D-1E    | AP0181/0481             | AP0481 use two pcs.                             |
|                                                       |                    |                              | TCB-UFH6D-1E    | AP0241-0361             | Use two pcs.                                    |
|                                                       |                    | Long Life Pre-Filter         | TCB-PF1D-1E     | AP0181/0481             | AP0481 use two pcs.                             |
|                                                       |                    |                              | TCB-PF2D-1E     | AP0241-0361             | Use two pcs.                                    |
|                                                       |                    | Filter Chamber               | TCB-FCY21DE     | AP0181                  |                                                 |
|                                                       |                    |                              | TCB-FCY31DE     | AP0241-0361             |                                                 |
|                                                       |                    |                              | TCB-FCY51DE     | AP0481                  |                                                 |
|                                                       |                    | Drain pump kit               | TCB-DP31DE      | AP0181-0481             |                                                 |
| Under Ceiling Type                                    | Optional           | Drain pump kit               | TCB-DP22CE2     | AP0151-0481             | *Required accessories when using Drain Pump Kit |
|                                                       |                    | Elbow piping kit             | TCB-KP12CE2     | AP0151-0181             |                                                 |
|                                                       |                    |                              | TCB-KP22CE2     | AP0241-0481             |                                                 |

# 3. PMV Kit

3-1. Selection of PMV Kit.....3-2

3-2. Wiring Connections.....3-2

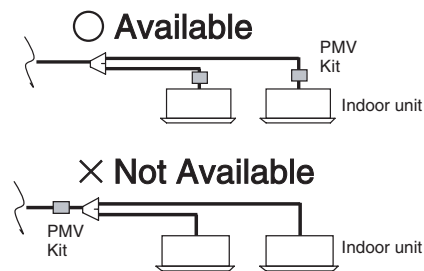
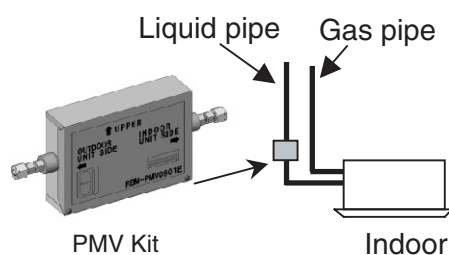
3-3. Dimensions.....3-3

### 3. PMV Kit

PMV-Kit (RBM-PMV0361E/RBM-PMV0901E) shall be required for quieter place application as an optional to reduce refrigerant sound especially in oil retrieval control or in transient operation as start up.

#### 3-1. Selection of PMV Kit

| Model name   | Indoor unit capacity type | Diameter of refrigerant pipe |
|--------------|---------------------------|------------------------------|
| RBM-PMV0361E | 007,009,012 type          | φ 6.4                        |
| RBM-PMV0901E | 015,018 type              | φ 6.4                        |
|              | 024 type                  | φ 9.5                        |



**NOTE**

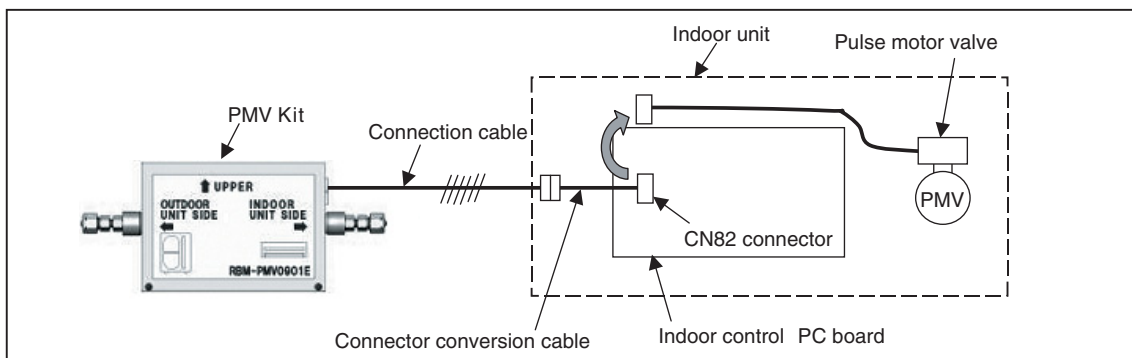
Don't connect two or more indoor units to one PMV kit. Arrange one indoor unit and one PMV kit set to 1 by 1.

Refrigerant pipe

Real length between PMV Kit and indoor unit: 2m or more and up to 10m

#### 3-2. Wiring connections

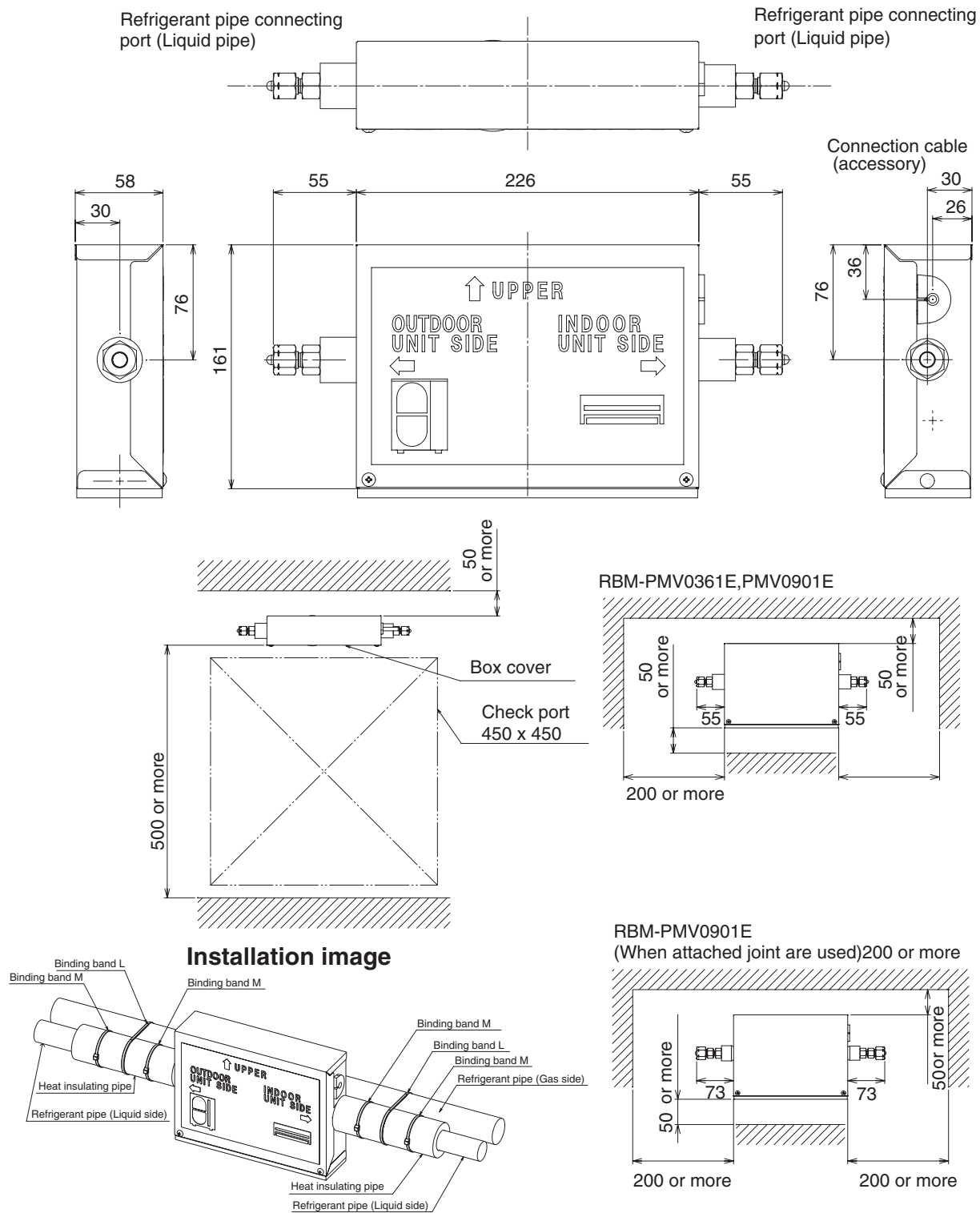
Be sure to use the attached connection cable (10m).



### 3-3. Dimension

#### • PMV Kit

#### RBM-PMV0361E, RBM-PMV0901E



Note: All dimensions are in mm.

# 4. Outdoor Units

- 4-1. Outdoor units.....4-2
- 4-2. Branching joints and Headers.....4-5
- 4-3. Application controls of outdoor unit.....4-7

## 4-1. Outdoor units



50Hz

### • Specifications (50Hz)

| Equivalent HP                                                                                                                  |                                                    |                               | Equivalent to 4HP                                                                 | Equivalent to 5HP                                                                           | Equivalent to 6HP |         |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------|---------|
| Model name                                                                                                                     |                                                    | MMY-                          | MCY-MAP0401HT                                                                     | MCY-MAP0501HT                                                                               | MCY-MAP0601HT     |         |
| Outdoor unit type                                                                                                              |                                                    |                               | Inverter unit                                                                     |                                                                                             |                   |         |
| Cooling capacity (*1)                                                                                                          |                                                    | (kW)                          | 12.1                                                                              | 14.0                                                                                        | 15.5              |         |
| Standard heating capacity (*1)                                                                                                 |                                                    | (kW)                          | 12.5                                                                              | 16.0                                                                                        | 18.0              |         |
| Power supply (*2)                                                                                                              |                                                    |                               | 1 phase 50Hz 230V (220-240V)                                                      |                                                                                             |                   |         |
| Electrical characteristics (*1)                                                                                                | Cooling                                            | Running current               | (A)                                                                               | 13.2                                                                                        | 16.1              | 21.4    |
|                                                                                                                                |                                                    | Power consumption             | (kW)                                                                              | 2.82                                                                                        | 3.47              | 4.63    |
|                                                                                                                                |                                                    | Power factor                  | (%)                                                                               | 93                                                                                          | 94                | 94      |
|                                                                                                                                |                                                    | EER (Energy Efficiency Ratio) | (kW/kW)                                                                           | 4.29                                                                                        | 4.03              | 3.35    |
|                                                                                                                                |                                                    | Starting current              | (A)                                                                               | Soft start                                                                                  |                   |         |
|                                                                                                                                | Heating                                            | Running current               | (A)                                                                               | 12.5                                                                                        | 18.3              | 22.2    |
|                                                                                                                                |                                                    | Power consumption             | (kW)                                                                              | 2.71                                                                                        | 4.00              | 4.85    |
|                                                                                                                                |                                                    | Power factor                  | (%)                                                                               | 94                                                                                          | 95                | 95      |
|                                                                                                                                |                                                    | EER (Energy Efficiency Ratio) | (kW/kW)                                                                           | 4.61                                                                                        | 4.00              | 3.71    |
|                                                                                                                                |                                                    | Starting current              | (A)                                                                               | Soft start                                                                                  |                   |         |
| External dimension                                                                                                             |                                                    | (mm)                          | Height 1,340/Width 900/Depth 320                                                  |                                                                                             |                   |         |
| Total weight                                                                                                                   |                                                    | (kg)                          | 117                                                                               |                                                                                             |                   |         |
| Color                                                                                                                          |                                                    |                               | Shilky shade (Munsell 1Y8.5/0.5)                                                  |                                                                                             |                   |         |
| Compressor                                                                                                                     | Type                                               |                               | Hermetic Type                                                                     |                                                                                             |                   |         |
|                                                                                                                                | Motor output                                       |                               | (kW)                                                                              | 2.3                                                                                         | 3.1               | 4.2     |
| Fan unit                                                                                                                       | Fan                                                |                               | Propeller fan (Quantity 2)                                                        |                                                                                             |                   |         |
|                                                                                                                                | Motor output                                       |                               | (kW)                                                                              | 0.063 + 0.063                                                                               |                   |         |
|                                                                                                                                | Air volume                                         |                               | (m³/h)                                                                            | 5,820                                                                                       | 6,120             | 6,420   |
| Heat exchanger                                                                                                                 |                                                    |                               | Finned tube                                                                       |                                                                                             |                   |         |
| Refrigerant R410A (Charged refrigerant amount) (*3)                                                                            |                                                    | (kg)                          | 7.2                                                                               |                                                                                             |                   |         |
| High-pressure switch                                                                                                           |                                                    | (MPa)                         | Open : 3.73 Close : 2.9                                                           |                                                                                             |                   |         |
| Protective devices                                                                                                             |                                                    |                               | *5                                                                                |                                                                                             |                   |         |
| Refrigerant piping specifications (*4)                                                                                         | Connecting port dia                                | gas side                      | (mm)                                                                              | 15.9                                                                                        |                   | 19.1    |
|                                                                                                                                |                                                    | Liquid side                   | (mm)                                                                              | 9.5                                                                                         |                   |         |
|                                                                                                                                | Connecting method                                  | Discharge gas side            | (mm)                                                                              | Flare                                                                                       |                   | Brazing |
|                                                                                                                                |                                                    | Liquid side                   |                                                                                   | Flare                                                                                       |                   |         |
|                                                                                                                                | Max. equivalent length                             |                               | (m)                                                                               | 15                                                                                          |                   |         |
|                                                                                                                                | Max. real length                                   |                               | (m)                                                                               | 125 (If the total bend length exceeds 125m, use the max equivalent length as the standard.) |                   |         |
|                                                                                                                                | Max. total pipe length (Real length)               |                               | (m)                                                                               |                                                                                             |                   |         |
|                                                                                                                                | Max. Height between indoor units                   |                               | (m)                                                                               | Outdoor unit is higher than indoor unit : 30                                                |                   |         |
|                                                                                                                                |                                                    |                               |                                                                                   | Outdoor unit is lower than indoor unit : 20                                                 |                   |         |
|                                                                                                                                | Real length between FMV Kit and indoor unit        |                               | (m)                                                                               | 2-10                                                                                        |                   |         |
| Control wiring<br>Total wire length(indoor unit- indoor unit/ indoor unit-outdoor unit control wiring, central control wiring) |                                                    |                               | Shield wire 1.25mm² 2cores, up to 1000m<br>Shield wire 2.0mm² 2cores, up to 2000m |                                                                                             |                   |         |
| Max. No. of connected indoor units                                                                                             |                                                    |                               | 6                                                                                 | 8                                                                                           | 9                 |         |
| Sound pressure level (Cooling/Heating) *3                                                                                      |                                                    | (dB(A))                       | 49/50                                                                             | 50/52                                                                                       | 51/53             |         |
|                                                                                                                                | Night operation (Sound reduction)control*4 (dB(A)) |                               | 46/48                                                                             | 46/48                                                                                       | 47/49             |         |

\*1 : Rated conditions      Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

The standard piping means that main pipe length is 5 m, branching pipe length 2.5 m of branch piping connected with a 0 meter height.

\*2 : The source voltage must not fluctuate more than ±10%.

\*3 : The amount does not consider extra piping lengths. Refrigerant must be added on site in accordance with the actual piping length.

\*4 : The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

\*5 : Discharge temp. sensor, Suction temp. sensor, Compressor case thermostat, High-pressure switch, Over-current sensor, High-pressure sensor, Low pressure sensor, Over-current relay.

## 4-1. Outdoor units



60Hz

### • Specifications (60Hz)

| Equivalent HP                                                                                                                  |                                                    |                               | Equivalent to 4HP                                                                 | Equivalent to 5HP                                                                           | Equivalent to 6HP |         |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------|---------|
| Model name                                                                                                                     |                                                    | MMY-                          | MCY-MAP0401HT2D                                                                   | MCY-MAP0501HT2D                                                                             | MCY-MAP0601HT2D   |         |
| Outdoor unit type                                                                                                              |                                                    |                               | Inverter unit                                                                     |                                                                                             |                   |         |
| Cooling capacity (*1)                                                                                                          |                                                    | (kW)                          | 12.1                                                                              | 14.0                                                                                        | 15.5              |         |
| Standard heating capacity (*1)                                                                                                 |                                                    | (kW)                          | 12.5                                                                              | 16.0                                                                                        | 18.0              |         |
| Power supply (*2)                                                                                                              |                                                    |                               | 1 phase 60Hz 220V                                                                 |                                                                                             |                   |         |
| Electrical characteristics (*1)                                                                                                | Cooling                                            | Running current               | (A)                                                                               | 13.8                                                                                        | 16.8              | 22.4    |
|                                                                                                                                |                                                    | Power consumption             | (kW)                                                                              | 2.82                                                                                        | 3.47              | 4.63    |
|                                                                                                                                |                                                    | Power factor                  | (%)                                                                               | 93                                                                                          | 94                | 94      |
|                                                                                                                                |                                                    | EER (Energy Efficiency Ratio) | (kW/kW)                                                                           | 4.29                                                                                        | 4.03              | 3.35    |
|                                                                                                                                |                                                    | Starting current              | (A)                                                                               | Soft start                                                                                  |                   |         |
|                                                                                                                                | Heating                                            | Running current               | (A)                                                                               | 13.1                                                                                        | 19.1              | 23.2    |
|                                                                                                                                |                                                    | Power consumption             | (kW)                                                                              | 2.71                                                                                        | 4.00              | 4.85    |
|                                                                                                                                |                                                    | Power factor                  | (%)                                                                               | 94                                                                                          | 95                | 95      |
|                                                                                                                                |                                                    | EER (Energy Efficiency Ratio) | (kW/kW)                                                                           | 4.61                                                                                        | 4.00              | 3.71    |
|                                                                                                                                |                                                    | Starting current              | (A)                                                                               | Soft start                                                                                  |                   |         |
| External dimension                                                                                                             |                                                    | (mm)                          | Height 1,340/Width 900/Depth 320                                                  |                                                                                             |                   |         |
| Total weight                                                                                                                   |                                                    | (kg)                          | 117                                                                               |                                                                                             |                   |         |
| Color                                                                                                                          |                                                    |                               | Shilky shade (Munsell 1Y8.5/0.5)                                                  |                                                                                             |                   |         |
| Compressor                                                                                                                     | Type                                               |                               | Hermetic Type                                                                     |                                                                                             |                   |         |
|                                                                                                                                | Motor output                                       |                               | (kW)                                                                              | 2.3                                                                                         | 3.1               | 4.2     |
| Fan unit                                                                                                                       | Fan                                                |                               | Propeller fan (Quantity 2)                                                        |                                                                                             |                   |         |
|                                                                                                                                | Motor output                                       |                               | (kW)                                                                              | 0.063 + 0.063                                                                               |                   |         |
|                                                                                                                                | Air volume                                         |                               | (m³/h)                                                                            | 5,820                                                                                       | 6,120             | 6,420   |
| Heat exchanger                                                                                                                 |                                                    |                               | Finned tube                                                                       |                                                                                             |                   |         |
| Refrigerant R410A (Charged refrigerant amount) (*3)                                                                            |                                                    | (kg)                          | 7.2                                                                               |                                                                                             |                   |         |
| High-pressure switch                                                                                                           |                                                    | (MPa)                         | Open : 3.73    Close : 2.9                                                        |                                                                                             |                   |         |
| Protective devices                                                                                                             |                                                    |                               | *5                                                                                |                                                                                             |                   |         |
| Refrigerant piping specifications (*4)                                                                                         | Connecting port dia                                | gas side                      | (mm)                                                                              | 15.9                                                                                        |                   | 19.1    |
|                                                                                                                                |                                                    | Liquid side                   | (mm)                                                                              | 9.5                                                                                         |                   |         |
|                                                                                                                                | Connecting method                                  | Discharge gas side            |                                                                                   | Flare                                                                                       |                   | Brazing |
|                                                                                                                                |                                                    | Liquid side                   |                                                                                   | Flare                                                                                       |                   |         |
|                                                                                                                                | Max. equivalent length                             |                               | (m)                                                                               | 15                                                                                          |                   |         |
|                                                                                                                                | Max. real length                                   |                               | (m)                                                                               | 125 (If the total bend length exceeds 125m, use the max equivalent length as the standard.) |                   |         |
|                                                                                                                                | Max. total pipe length (Real length)               |                               | (m)                                                                               |                                                                                             |                   |         |
|                                                                                                                                | Max. Height between indoor units                   |                               | (m)                                                                               | Outdoor unit is higher than indoor unit : 30                                                |                   |         |
|                                                                                                                                |                                                    |                               |                                                                                   | Outdoor unit is lower than indoor unit : 20                                                 |                   |         |
|                                                                                                                                | Real length between FMV Kit and indoor unit        |                               | (m)                                                                               | 2-10                                                                                        |                   |         |
| Control wiring<br>Total wire length(indoor unit- indoor unit/ indoor unit-outdoor unit control wiring, central control wiring) |                                                    |                               | Shield wire 1.25mm² 2cores, up to 1000m<br>Shield wire 2.0mm² 2cores, up to 2000m |                                                                                             |                   |         |
| Max. No. of connected indoor units                                                                                             |                                                    |                               | 6                                                                                 | 8                                                                                           | 9                 |         |
| Sound pressure level (Cooling/Heating) *3                                                                                      |                                                    | (dB(A))                       | 49/50                                                                             | 50/52                                                                                       | 51/53             |         |
|                                                                                                                                | Night operation (Sound reduction)control*4 (dB(A)) |                               | 46/48                                                                             | 46/48                                                                                       | 47/49             |         |

\*1 : Rated conditions      Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

The standard piping means that main pipe length is 5 m, branching pipe length 2.5 m of branch piping connected with a 0 meter height.

\*2 : The source voltage must not fluctuate more than ±10%.

\*3 : The amount does not consider extra piping lengths. Refrigerant must be added on site in accordance with the actual piping length.

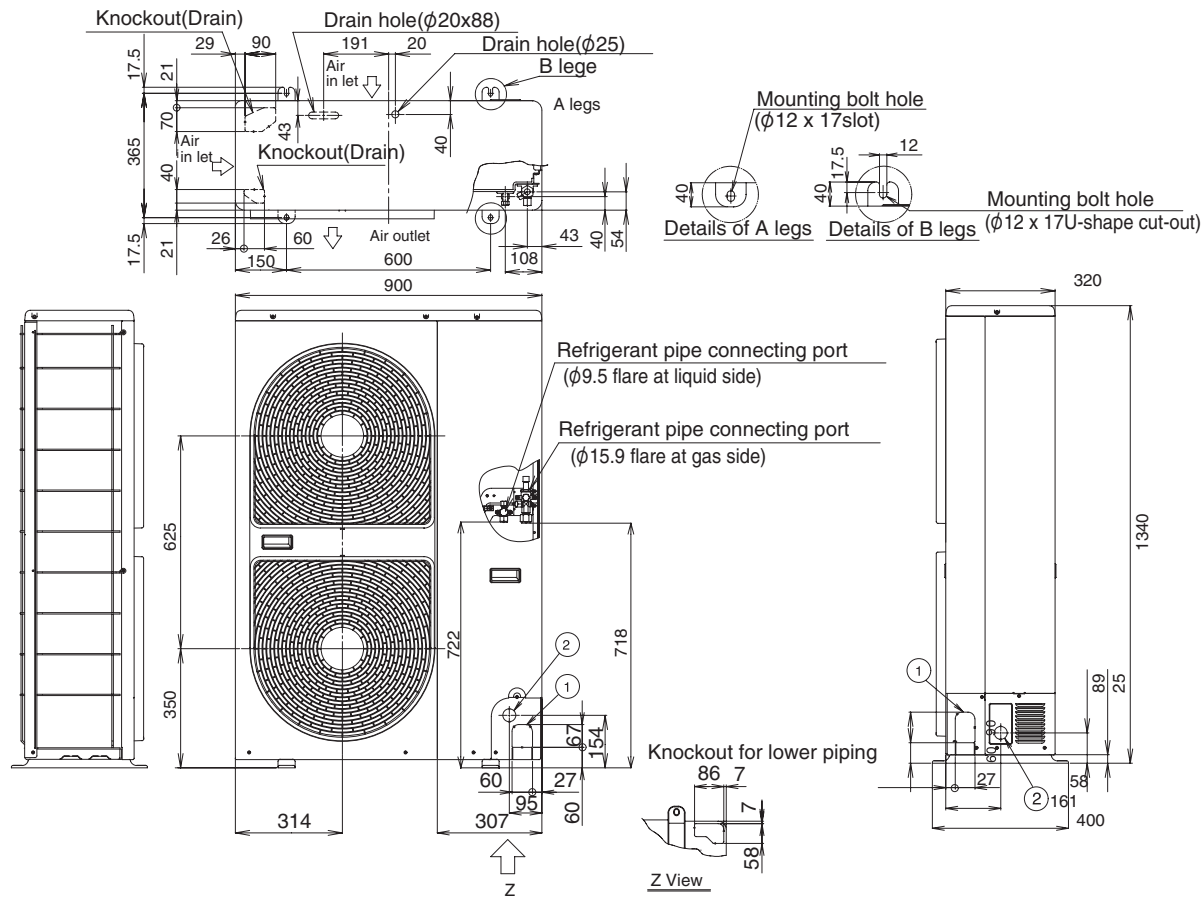
\*4 : The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

\*5 : Discharge temp. sensor, Suction temp. sensor, Compressor case thermostat, High-pressure switch, Over-current sensor, High-pressure sensor, Low pressure sensor, Over-current relay.

# 4-1. Outdoor unit

## • Dimension

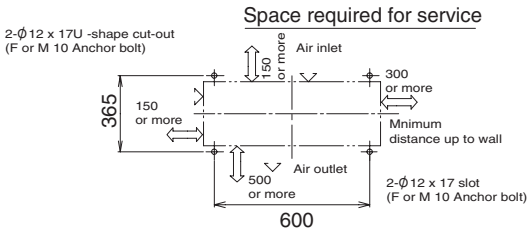
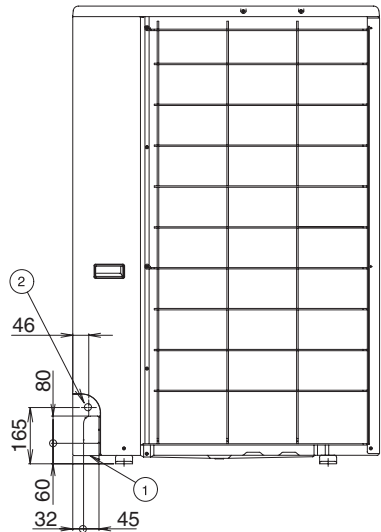
**MCY-MAP0401HT, MCY-MAP0501HT, MCY-MAP0601HT,  
MCY-MAP0401HT2D, MCY-MAP0501HT2D, MCY-MAP0601HT2D**



|   | Name                           | Notes             |
|---|--------------------------------|-------------------|
| ① | Control wiring and piping hole | —                 |
| ② | Power supply wiring hole       | Knockout hole φ38 |

**Diameter of refrigerant pipe**

| Model name     | Gas side                                              | Liquid side  |
|----------------|-------------------------------------------------------|--------------|
| MCY-MAP0401HT* | φ15.9 (Flare)                                         | φ9.5 (Flare) |
| MCY-MAP0501HT* | φ15.9 (Flare)                                         | φ9.5 (Flare) |
| MCY-MAP0601HT* | φ19.1 (Blazing connection with attached joint socket) | φ9.5 (Flare) |



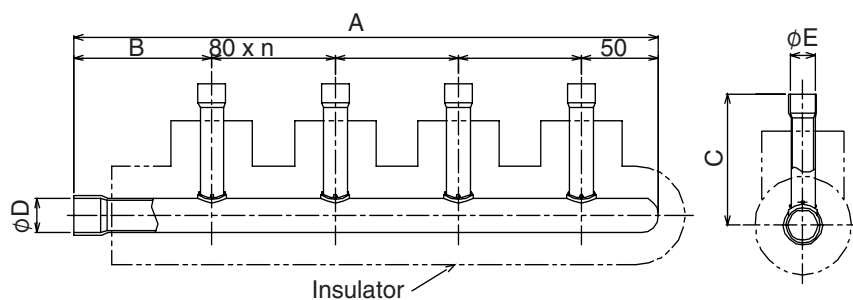
Note: All dimensions are in mm.

## 4-2. Branching joints and headers

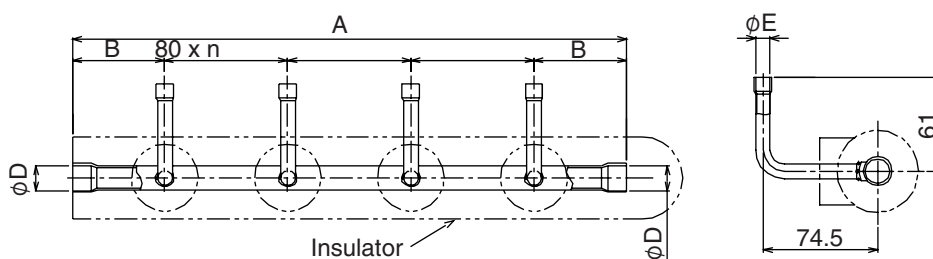
### Branch header

RBM-HY1043E, HY1083E

#### Gas side



#### Liquid side



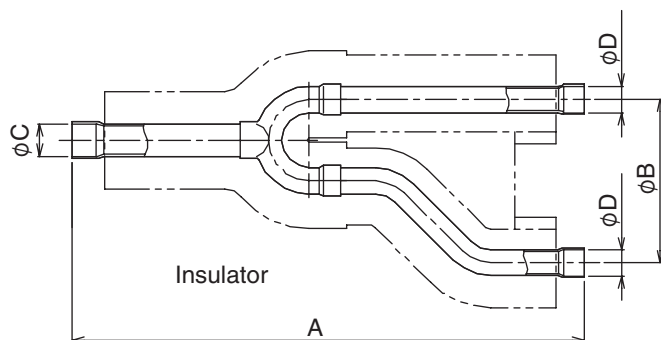
| Model       |             | A   | B  | C    | ØD   | ØE   | n | Accessory socket x Q'ty              |
|-------------|-------------|-----|----|------|------|------|---|--------------------------------------|
| RBM-HY1043E | Gas side    | 380 | 90 | 83.6 | 22.2 | 15.9 | 3 | ⑥ x 4, ⑨ x 4, ⑭ x 1,<br>⑱ x 1, ⑰ x 1 |
|             | Liquid side | 360 | 60 | —    | 15.9 | 9.5  | 3 | ① x 4, ⑥ x 1, ⑨ x 1                  |
| RBM-HY1083E | Gas side    | 700 | 90 | 83.6 | 22.2 | 15.9 | 7 | ⑥ x 8, ⑨ x 8, ⑭ x 1,<br>⑱ x 1 ⑰ x 1  |
|             | Liquid side | 680 | 60 | —    | 15.9 | 9.5  | 7 | ① x 8, ⑥ x 1, ⑨ x 1                  |

Note: All dimensions are in mm.

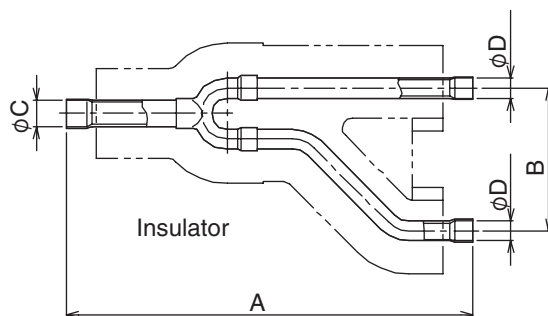
## Y-shape branch joint

RBM-BY53E, BY103E

Gas side



Liquid side



| Model      |             | A   | B  | ØC   | ØD   | Accessory socket x Q'ty                               |
|------------|-------------|-----|----|------|------|-------------------------------------------------------|
| RBM-BY53E  | Gas side    | 250 | 80 | 15.9 | 12.7 | ⑤ x 2, ⑤④ x 2, ⑨ x 1, ⑤① x 1                          |
|            | Liquid side | 200 | 70 | 12.7 | 9.5  | ① x 2, ⑤ x 1                                          |
| RBM-BY103E | Gas side    | 350 | 80 | 22.2 | 19.1 | ⑦ x 1, ⑩ x 1, ⑬ x 2, ⑱ x 1,<br>⑤② x 2, ⑦⑦ x 1, ⑧⑨ x 1 |
|            | Liquid side | 250 | 80 | 15.9 | 12.7 | ② x 1, ⑤ x 2, ⑥ x 1, ⑨ x 1,<br>⑤④ x 1                 |

Note: All dimensions are in mm.

### 4-3. Application controls of outdoor unit

Note : The P.C. boards of outdoor unit (TCB-PCDM2E, TCB-PCMO2E, TCB-PCIN2E) can be installed up to two boards.

| Model Name | Appearance | Function |
|------------|------------|----------|
|------------|------------|----------|

TCB-PCDM2E

Size : 71 x 85

### Application

\*Install this optional P.C. board in the inverter assembly of the outdoor unit.

## Power peak-cut control

### ■ Feature

The upper limit capacity and current of the outdoor unit is restricted based on the demand request signal from outside.

### ■ Normal current

|                                        |      |           |           |           |
|----------------------------------------|------|-----------|-----------|-----------|
| Outdoor unit capacity type             | MCY- | 0401 type | 0501 type | 0601 type |
| Normal current (Maxim running current) |      | 25A       | 28A       | 31A       |

### ■ Wiring

|               | Length     | Size                                  | Type        |
|---------------|------------|---------------------------------------|-------------|
| Input wiring  | Up to 500m | 2-core or 3-core, 0.75mm <sup>2</sup> | Shield wire |
| Output wiring | Up to 200m | 2-core, 0.75mm <sup>2</sup> *         | Shield wire |
|               | Up to 400m | 2-core, 1.5mm <sup>2</sup> *          |             |

\* In conformity with design 60245 IEC 57

### ■ Function / Electric wiring diagram

Two type control can be selected by setting SW07 on the interface P.C. board of the outdoor unit.

#### [ Standard function ]

Outdoor unit

I/F P.C. Board

SW07 Bit2 OFF

Connection Cable

CN513

PJ17

TCB-PCDM2E

Display Relay

OPERATION

COM-O

ON

COM-O

OFF

OFF

Local Supply

Power Supply

L1

SW1

SW2

Shield wire

Ⓛ1 :Display lamp suring power peak-cut control.

In case of pulse signal  
Be sure to prepare the point of contact for each terminal.  
The time of the pulse signal is more than 100msec.  
Don't switch on both SW1 and SW2 terminal simultaneously.

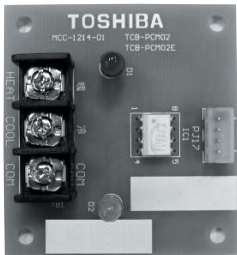
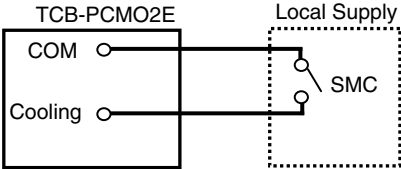
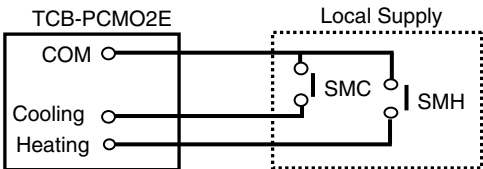
### SW07-Bit2 OFF

| Input |     | SW07-Bit1 OFF |               | SW07-Bit1 ON  |               | Display Relay |
|-------|-----|---------------|---------------|---------------|---------------|---------------|
| SW1   | SW2 | Capacity      | Current       | Capacity      | Current       | (L1)          |
| OFF   | ON  | 100% (Nomal)  | 100% (Normal) | 100% (Normal) | 100% (Normal) | OFF           |
| ON    | OFF | 0% (stop)     | 0% (stop)     | Up to 60%     | Up to 80%     | ON            |

#### ⚠ CAUTION)

- Be sure to prepare a non-voltage point for each terminal.
- Display Relay capacity of "OPERATION"
  - Below AC240V 0.5A (COSI=100%)
    - When connecting load such as relay coil to "L1" load, insert the noise surge absorber.
  - Below DC24V 1A (Non-inductive load)
    - When connecting load such as relay coil to "L1" load, insert the bypass circuit.

| Model Name | Appearance | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |               |               |                    |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
|------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|--------------------|--------------|--|--------------------|-----|-----|----------|---------|----------|---------|-----|-----|---------------|---------------|---------------|---------------|-----|----|-----|-----------|-----------|-----------|-----------|----|-----|----|-----------|-----------|-----------|-----------|----|----|----|-----------|-----------|-----------|-----------|----|
| TCB-PCDM2E |            | <div> <div> <div> <div>Outdoor unit</div> <div> <div>I/F P.C Board</div> <div>SW07<br/>Bit2 ON</div> </div> <div> <div>Connection Cable</div> <div>CNS13</div> </div> </div> <div> <div>TCB-PCDM2E</div> <div> <div>Display Relay</div> <div>OPERATIO</div> <div>COM ON</div> <div>ON COM OFF</div> <div>OFF COM</div> </div> <div>PJ17</div> </div> </div> <div> <div>Local Supply</div> <div>Power Supply</div> <div>L1</div> <div>SW1</div> <div>SW2</div> <div>Shield wire</div> </div> <div> <div>(L1):Display lamp suring power peak-cut control.</div> </div> </div> <div> <div>SW07-Bit2 ON</div> <table> <tr> <th colspan="2">Input</th><th colspan="2">SW07-Bit1 OFF</th><th colspan="2">SW07-Bit1 ON</th><th rowspan="2">Display Relay (L1)</th></tr> <tr> <th>SW1</th><th>SW2</th><th>Capacity</th><th>Current</th><th>Capacity</th><th>Current</th></tr> <tr> <td>OFF</td><td>OFF</td><td>100% (Normal)</td><td>100% (Normal)</td><td>100% (Normal)</td><td>100% (Normal)</td><td>OFF</td></tr> <tr> <td>ON</td><td>OFF</td><td>Up to 80%</td><td>Up to 80%</td><td>Up to 85%</td><td>Up to 90%</td><td>ON</td></tr> <tr> <td>OFF</td><td>ON</td><td>Up to 60%</td><td>Up to 70%</td><td>Up to 75%</td><td>Up to 80%</td><td>ON</td></tr> <tr> <td>ON</td><td>ON</td><td>0% (stop)</td><td>0% (stop)</td><td>Up to 60%</td><td>Up to 70%</td><td>ON</td></tr> </table> <div> <div>⚠ CAUTION)</div> <div> <div>•Be sure to prepare non voltage continuous point of contact for each terminal.</div> <div>•Display Relay capacity of "OPERATION"</div> <div>Below AC240V 0.5A (COSI=100%)</div> <div>When connecting load such as relay coil to "L1" load, insert the noise surge absorber.</div> <div>Below DC24V 1A (Non-inductive load)</div> <div>When connecting load such as relay coil to "L1" load, insert the bypass circuit.</div> </div> </div> </div> | Input         |               | SW07-Bit1 OFF |                    | SW07-Bit1 ON |  | Display Relay (L1) | SW1 | SW2 | Capacity | Current | Capacity | Current | OFF | OFF | 100% (Normal) | 100% (Normal) | 100% (Normal) | 100% (Normal) | OFF | ON | OFF | Up to 80% | Up to 80% | Up to 85% | Up to 90% | ON | OFF | ON | Up to 60% | Up to 70% | Up to 75% | Up to 80% | ON | ON | ON | 0% (stop) | 0% (stop) | Up to 60% | Up to 70% | ON |
| Input      |            | SW07-Bit1 OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | SW07-Bit1 ON  |               | Display Relay (L1) |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
| SW1        | SW2        | Capacity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Current       | Capacity      | Current       |                    |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
| OFF        | OFF        | 100% (Normal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 100% (Normal) | 100% (Normal) | 100% (Normal) | OFF                |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
| ON         | OFF        | Up to 80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Up to 80%     | Up to 85%     | Up to 90%     | ON                 |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
| OFF        | ON         | Up to 60%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Up to 70%     | Up to 75%     | Up to 80%     | ON                 |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |
| ON         | ON         | 0% (stop)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0% (stop)     | Up to 60%     | Up to 70%     | ON                 |              |  |                    |     |     |          |         |          |         |     |     |               |               |               |               |     |    |     |           |           |           |           |    |     |    |           |           |           |           |    |    |    |           |           |           |           |    |

| Model Name                                                                                        | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|-----------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------|
| TCB-PCMO2E                                                                                        | <div><p>Size : 55.5 x 60</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <div><h3>[2] Snowfall fan control</h3><ul style="list-style-type: none"><li>● <b>Feature</b><br/>Outdoor fan is operated by the snowfall signal from outside.</li><li>● <b>Function</b><div></div></li></ul></div>                                                                                                                                                                                                                                                                                                                                                                                                            |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
|                                                                                                   | <div><b>Application</b></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div><p>SMC : Cooling mode select input (switch)</p><table><tr><th>Terminal</th><th>Input signal</th><th>Operation</th></tr><tr><td rowspan="2">SMC</td><td><div>ON<br/><br/>OFF</div></td><td>Snowfall fan control<br/>(Operates outdoor fan.)</td></tr><tr><td><div>ON<br/><br/>OFF</div></td><td>Usual operation</td></tr></table><p>This control is activated when a input signal increases or decreases.<br/>(The increasing or decreasing signal needs to be held for a minimum of 100m/sec in order to activate the control)</p></div> | Terminal     | Input signal | Operation | SMC                                                                                                           | <div>ON<br/><br/>OFF</div> | Snowfall fan control<br>(Operates outdoor fan.) | <div>ON<br/><br/>OFF</div>   | Usual operation         |
|                                                                                                   | Terminal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Input signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Operation    |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
| SMC                                                                                               | <div>ON<br/><br/>OFF</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Snowfall fan control<br>(Operates outdoor fan.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
|                                                                                                   | <div>ON<br/><br/>OFF</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Usual operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
| <div><p>*Install this optional P.C. board in the inverter assembly of the outdoor unit.</p></div> | <div><h3>[3] External master ON/OFF control</h3><ul style="list-style-type: none"><li>● <b>Feature</b><br/>The outdoor unit starts or stops the system.</li><li>● <b>Function</b><div></div><p>SMC : Input signal for start<br/>SMH : Input signal for stop</p><table><tr><th>Terminal</th><th>Input signal</th><th>Operation</th></tr><tr><td>SMC</td><td><div>ON<br/><br/>OFF</div></td><td>Starts all indoor units.</td></tr><tr><td>SMH</td><td><div>ON<br/><br/>OFF</div></td><td>Stops all indoor units.</td></tr></table><ul style="list-style-type: none"><li>• Ensure terminal contacts are securely fixed.</li></ul><p>This control is activated when the input signal increases or decreases<br/>(The increasing or decreasing signal needs to be held for a minimum of 100m/sec in order to activate the control.)</p></li></ul></div> | Terminal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Input signal | Operation    | SMC       | <div>ON<br/><br/>OFF</div> | Starts all indoor units.                                                                                    | SMH                                             | <div>ON<br/><br/>OFF</div> | Stops all indoor units. |
| Terminal                                                                                          | Input signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
| SMC                                                                                               | <div>ON<br/><br/>OFF</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Starts all indoor units.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |
| SMH                                                                                               | <div>ON<br/><br/>OFF</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Stops all indoor units.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |              |           |                                                                                                               |                                                                                                             |                                                 |                                                                                                               |                         |

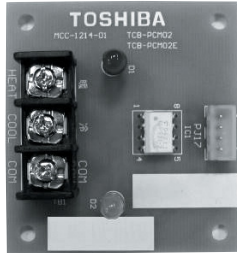
\*Install this optional P.C. board in the inverter assembly of the outdoor unit.

Model Name

Appearance

Function

TCB-PCMO2E



Size : 55.5 x 60

Application

\*Install this optional P.C. board in the inverter assembly of the outdoor unit.

### [4] Night operation (Sound reduction) control

● Feature

Sound level can be reduced by restricting the compressor and fan speeds.

● Function

TCB-PCMO2E

COM

Cooling

Local Supply

SMC

SMC : Cooling mode designated input switch

| Terminal | Input signal | Operation               |
|----------|--------------|-------------------------|
| SMC      | ON           | Night operation control |
|          | OFF          | Usual Operation         |

This control is activated when the input signal increases or decreases.  
(The increasing or decreasing signal needs to be held for a minimum of 100m/sec in order to activate the control).

### [5] Operation mode selection control

● Feature

This control can restrict the selectable operation mode.

● Function

TCB-PCMO1E

COM

Cooling

Heating

Local Supply

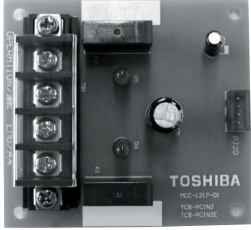
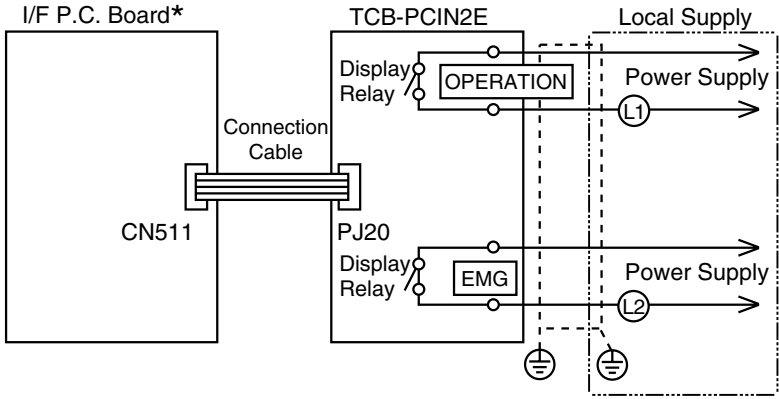
SMC

SMH

SMC : Cooling mode designated input switch  
SMH : Heating mode designated input switch

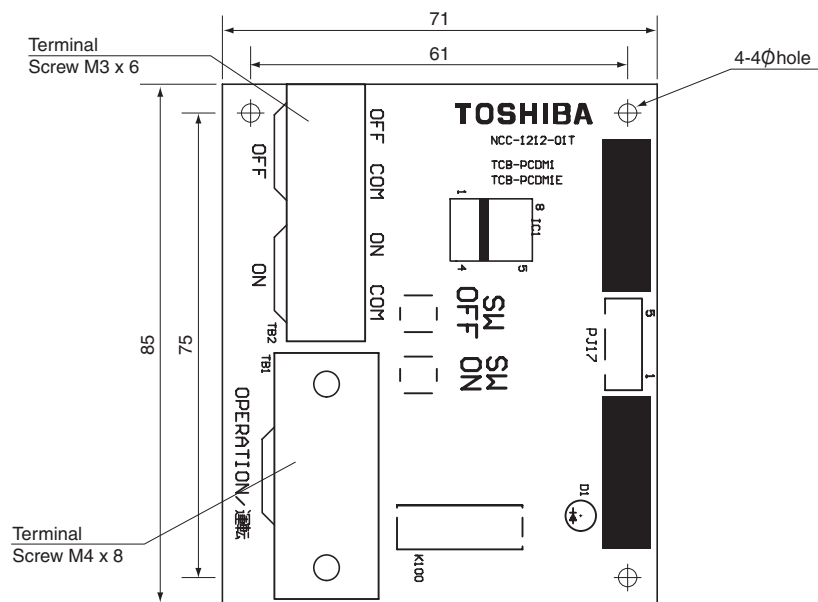
| SMC | SMH | Selected operation mode     |
|-----|-----|-----------------------------|
| ON  | OFF | Only cooling mode permitted |
| OFF | ON  | Only heating mode permitted |

Ensure terminal contacts are securely fixed.

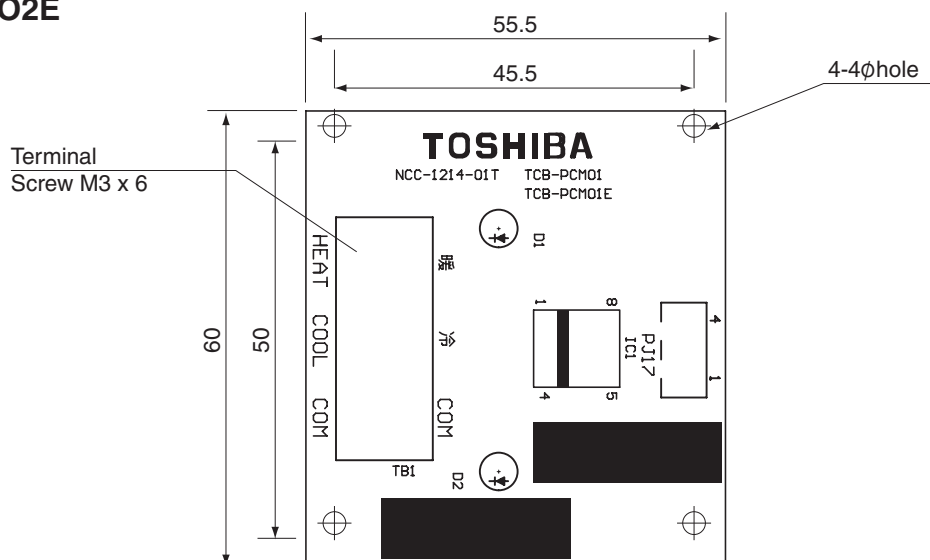
| Model Name | Appearance                                                                                                      | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCB-PCIN2E |  <p>Size : 73.0 x 79</p>       | <p>[6] Error / Operation output control</p>  <p>① : Operation monitoring lamp<br/>② : Error monitoring lamp</p> <ul style="list-style-type: none"> <li>• Ensure terminal contacts are securely fixed.</li> <li>• Display Relay capacity of "OPERATION" and "EMG"<br/>Below AC240V 0.5A(COSφ=100%)<br/>When connecting a load such as a relay coil to "L1,L2", insert the noise surge absorber.<br/>Below DC24V 1A(Non-inductive load)<br/>When connecting a load such as a relay coil to "L1,L2", insert the byass circuit.</li> </ul> |
|            | <p><b>Application</b></p> <p>*Install this optional P.C. board in to the inverter assembly of outdoor unit.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Dimension

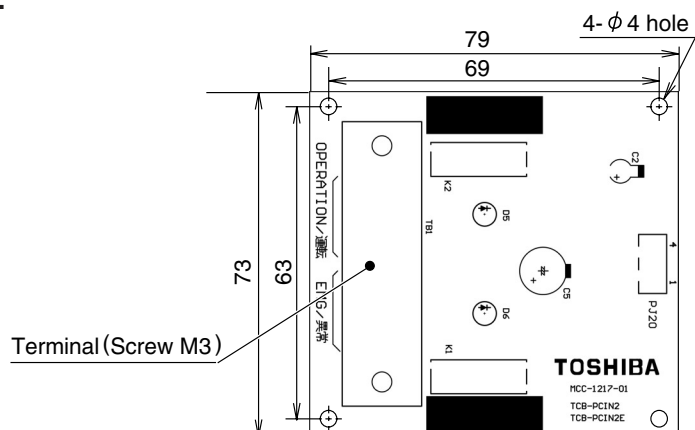
### TCB-PCDM2E



### TCB-PCMO2E



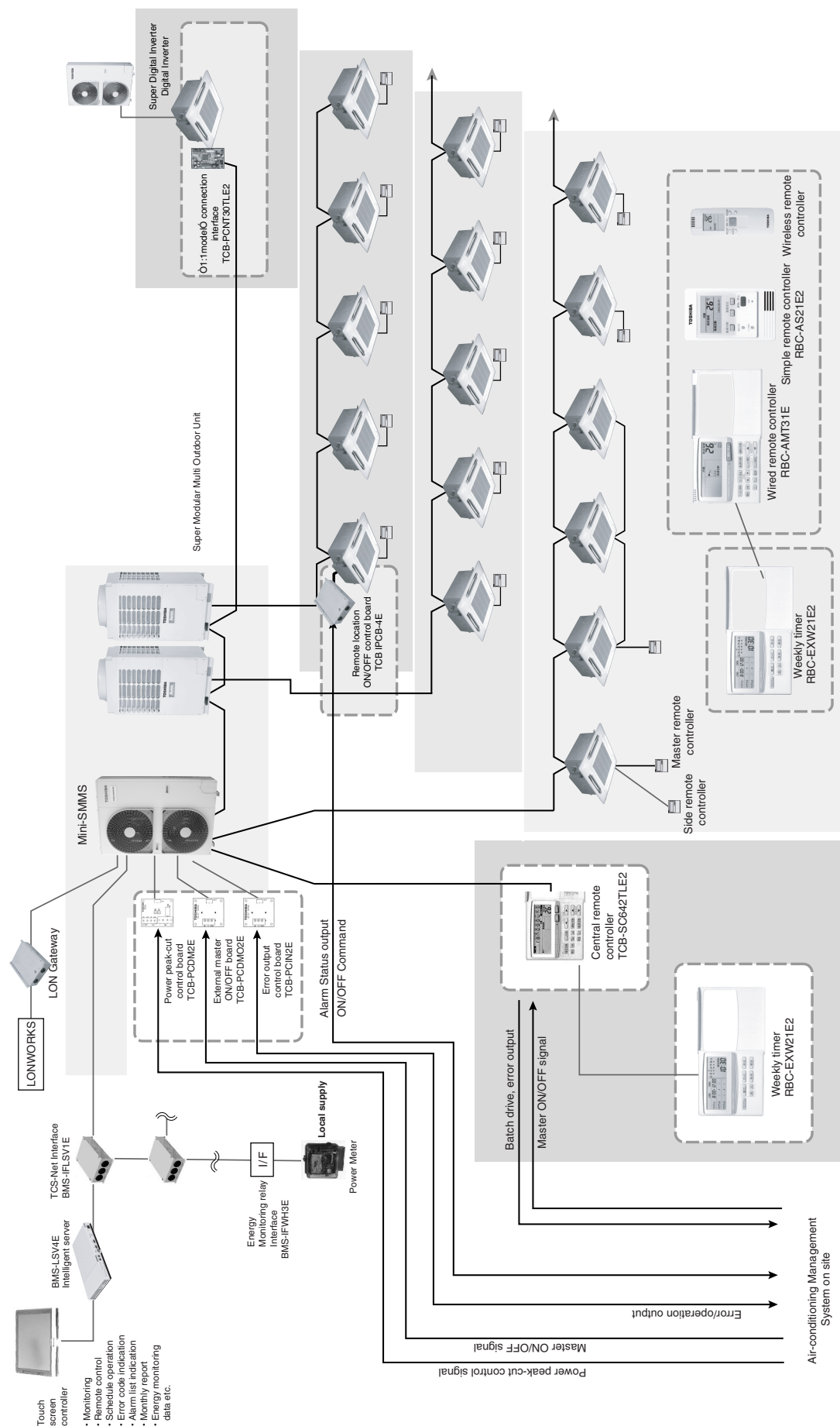
### TCB-PCIN2E



# 5. Controls

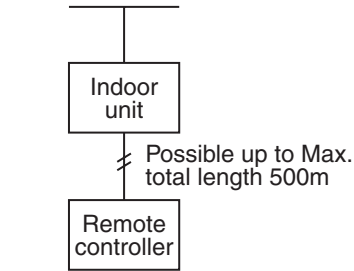
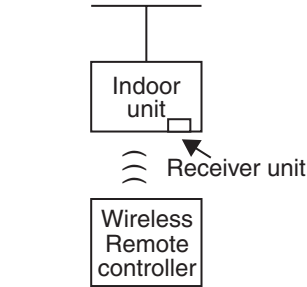
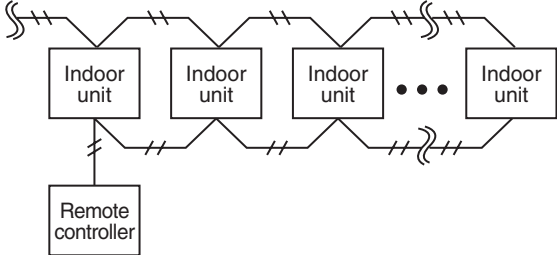
- Outline of application control.....5-2
- 5-1. Control devices.....5-3
- 5-2. Controller dimensions.....5-11

## Outline of application Control



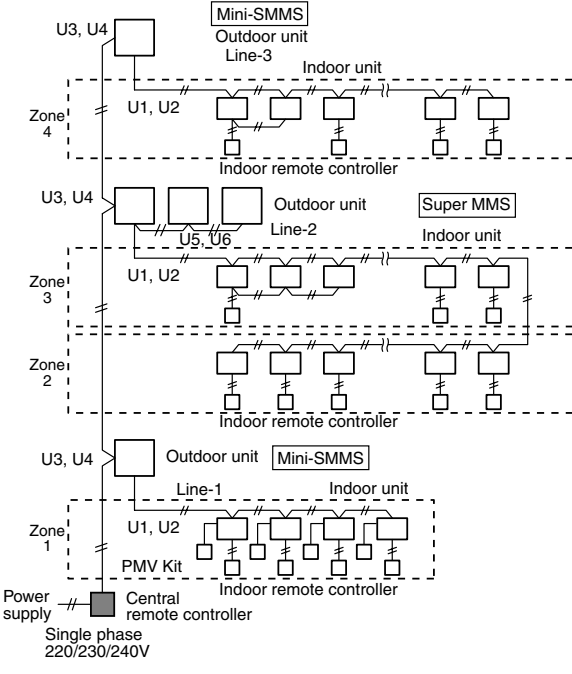
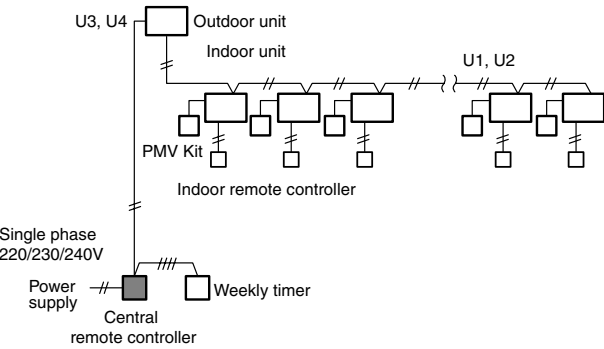
## 5-1. Control devices

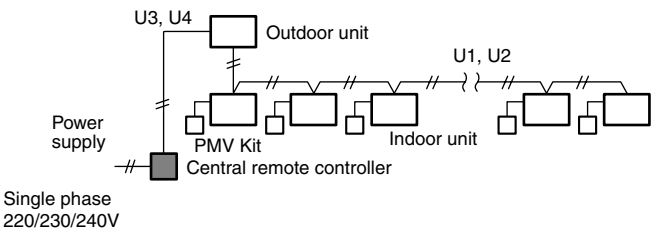
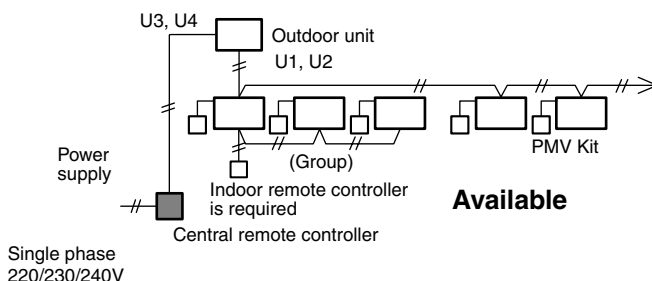
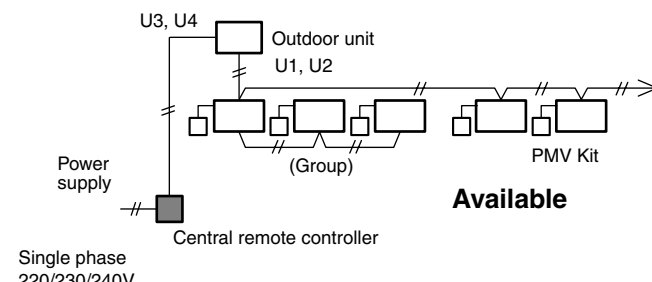
### 5-1-1. Applications for indoor remote controller

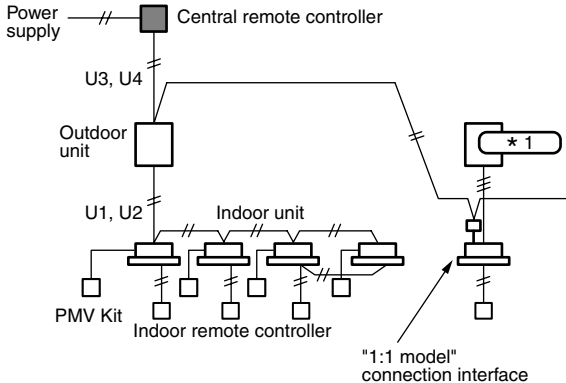
|     | Basic function                                                                                                                          | System diagram                                                                                                                                                                                                                        | Model                                                                                                                                                                                                                                                                     |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-1 | <b>Individual control</b><br>[ Air conditioner is individually operated at a distance. ]                                                | <p>Main remote controller</p>  <p>Wireless remote controller</p>  | <ul style="list-style-type: none"> <li>• Wired remote controller <b>RBC-AMT31E</b></li> <li>• Simple remote controller <b>RBC-AS21E2</b></li> <li>• Wireless remote controller kit<br/> <b>TCB-AX21U(W)-E2</b><br/> <b>RBC-AX22CE2</b><br/> <b>TCB-AX21E2</b> </li> </ul> |
| 1-2 | <b>GROUP control</b><br>[ One remote controller can control a group of up to a maximum. 8 indoor units. Operating on the same setting ] | <p>Max.8 indoor units</p>  <p>Possible up to Max. total length 500m</p>                                                                           | <ul style="list-style-type: none"> <li>• Wired remote controller <b>RBC-AMT31E</b></li> <li>• Simple remote controller <b>RBC-AS21E2</b></li> </ul>                                                                                                                       |

|     | Basic function                                                                                           | System diagram                                                                                                                                                                                                                              | Model                                                                                                                                                                                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-3 | <b>Two remote control</b><br>[Air conditioner is controlled by two remote controllers in two locations.] | <p><b>Wired system</b></p> <p>Possible up to Max. total length 500m</p> <p><b>Wireless system</b></p> <p><b>Wired &amp; Wireless combination control</b><br/>           (Either one of the two controllers can be set as side control).</p> | <ul style="list-style-type: none"> <li>• Wired remote controller <b>RBC-AMT31E</b></li> <li>• Simple remote controller <b>RBC-AS21E2</b></li> <li>• Wireless remote controller kit<br/> <b>TCB-AX21U(W)-E2</b><br/> <b>RBC-AX22CE2</b><br/> <b>TCB-AX21E2</b></li> </ul> |
| 1-4 | <b>Control by weekly timer</b><br>[Weekly schedule operation]                                            | <p><b>Weekly timer function</b></p> <ul style="list-style-type: none"> <li>• Setting of ON-OFF 3 times par day</li> <li>• Timer operation time is displayed.</li> <li>• Holiday period</li> </ul>                                           | <ul style="list-style-type: none"> <li>• Wired remote controller <b>RBC-AMT31E</b></li> <li>+</li> <li>• Weekly timer <b>RBC-EXW21E2</b></li> </ul>                                                                                                                      |

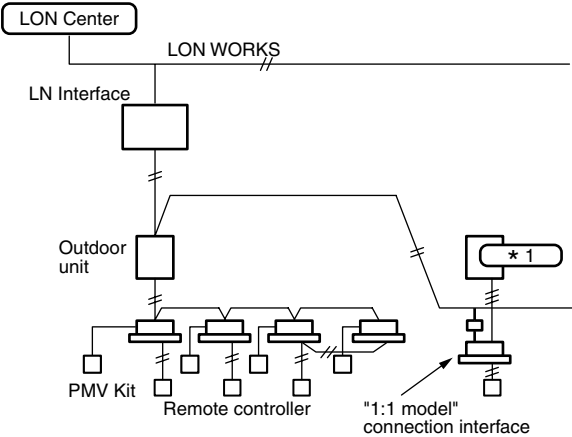
## 5-1-2. Application controls for central remote controller

|     | Basic function                                                                                                                                       | System diagram                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Model                                                                                                                                                                                                                                                                                       |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2-1 | Central management controller for 64 units                                                                                                           |  <p><b>Function of central remote controller</b></p> <ul style="list-style-type: none"> <li>• Individual control for up to 64 indoor units.</li> <li>• Individual control for max. 64 indoor units divided in to 4 zones. (Up to 16 indoor units for each zone.)</li> <li>• Up to 16 outdoor header units are connectable.</li> <li>• 4 specific central control settings to restrict individual operation by remote controller are selectable.</li> <li>• Different settings for one of 1 to 4 zones.</li> <li>• Usable with other central control devices (Up to 10 central control devices in one control circuit)</li> <li>• Two selectable control modes<br/>Central controller mode/Remote controller mode</li> <li>• Setting of simultaneous ON/OFF 3 times per day when a controller is combined with using a weekly timer.</li> </ul> | <ul style="list-style-type: none"> <li>• Central remote controller <b>TCB-SC642TLE2</b></li> <li>• Indoor remote controller</li> <li>• Wired remote controller <b>RBC-AMT31E</b></li> <li>• Simple remote controller <b>RBC-AS21E2</b></li> </ul>                                           |
| 2-2 | Central remote controller<br>+<br>Weekly timer<br>Weekly operation schedule can be set by connecting a weekly timer to the central remote controller |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Central remote controller <b>TCB-SC642TLE2</b><br/>+<br/>Weekly timer <b>RBC-EXW21E2</b></li> <li>• Indoor remote controller</li> <li>• Wired remote controller <b>RBC-AMT31E</b><br/>or<br/>Simple remote controller <b>RBC-AS21E2</b></li> </ul> |

|     | Basic function                                             | System diagram                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Model                                                                                                                                                                                         |
|-----|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2-3 | Central remote controller without indoor remote controller |  <p>Single phase<br/>220/230/240V</p> <p>( Even when grouping operation is performed by connecting multiple indoor units to 1 line, the indoor remote controller is required. )</p> <p>Example of grouping operation</p>  <p>Single phase<br/>220/230/240V</p> <p>Available</p>  <p>Single phase<br/>220/230/240V</p> <p>Available</p> | <ul style="list-style-type: none"> <li>Central remote controller<br/><b>TCB-SC642TLE2</b></li> <li>Indoor remote controller</li> <li>Wired remote controller<br/><b>RBC-AMT31E</b></li> </ul> |

|            | Basic function                                       | System diagram                                                                                                                                                 | Model                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>2-4</p> | <p>Central management control with "1 : 1 model"</p> |  <p>* TOSHIBA Digital Inverter System and Super Digital Inverter System</p> | <ul style="list-style-type: none"> <li>Central remote controller<br/><b>TCB-SC642TLE2</b><br/><b>TCB-SC163TLE2</b></li> <li>"1 : 1 model" connection interface<br/><b>TCB-PCNT30TLE2</b><br/>[ RAV-SM560KRT-E, SM800KRT-E are not compatible to connect ]</li> <li><b>Indoor remote controller</b></li> <li>Wired remote controller<br/><b>RBC-AMT31E</b></li> <li>Simple remote controller<br/><b>RBC-AS21E2</b></li> </ul> |

5-1-3. Application control for network

|     | Basic function    | System diagram                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Model                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-1 | LONWORKS®<br>(*1) |  <p>The diagram illustrates the LONWORKS network architecture. At the top, a 'LON Center' is connected to a horizontal line labeled 'LON WORKS'. Below this line, an 'LN Interface' box is connected. This interface is then connected to an 'Outdoor unit' box. From the 'Outdoor unit', a bus line extends to the right, where it connects to a '1:1 model' connection interface (marked with *1). This interface is further connected to a series of components: a 'PMV Kit', followed by three 'Remote controller' units, and finally another '1:1 model' connection interface (also marked with *1). The components are connected in a daisy-chain fashion along the bus line.</p> | <ul style="list-style-type: none"><li>• LN interface<br/><b>TCB-IFLN640TLE</b></li><li>• "1 : 1 model" connection interface<br/><b>TCB-PCNT30TLE2</b><br/>[ RAV-SM560KRT-E,<br/>SM800KRT-E are not<br/>compatible to connect ]</li><li><b>Indoor remote controller</b></li><li>• Wired remote controller<br/><b>RBC-AMT31E</b><br/><br/>or<br/><br/>• Simple remote controller<br/><b>RBC-AS21E2</b></li></ul> |

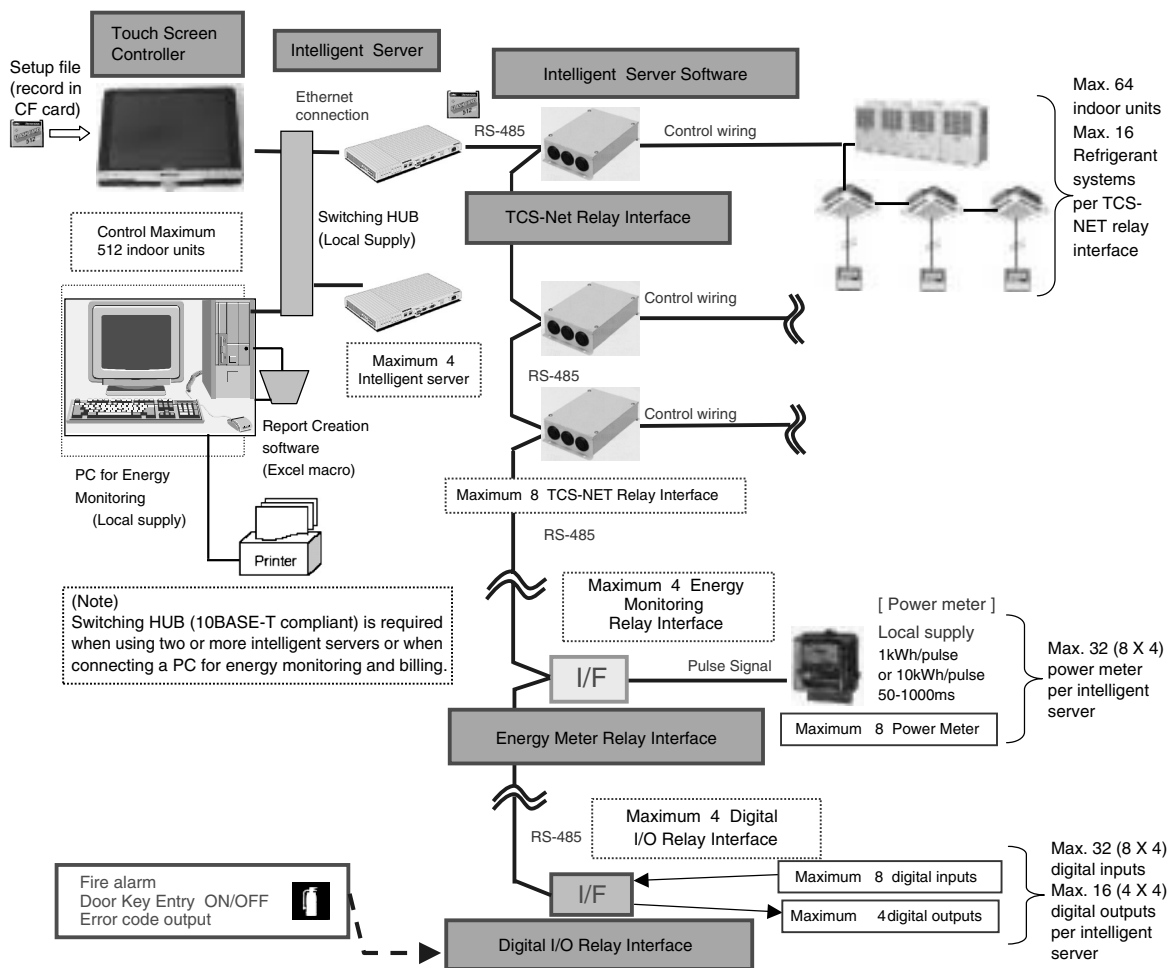
\*1) LONWORKS : Registerd trademark Echelon corporation.

|     | Basic function  | System diagram                                                                                                                                                                                                                       | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-2 | BACnet®<br>(*1) | <p>TOSHIBA Digital Inverter System and Super Digital Inverter System</p> <p>The local server should be connected to the BACnet network and the Mini-SMMS and Super MMS Super HRM system will be connected through the interface.</p> | <ul style="list-style-type: none"> <li>• BACnet server<br/><b>BMS-LSV4E</b></li> <li>• BACnet server software<br/><b>XXX-XXXXXX</b></li> <li>• TCS-Net Relay Interface<br/><b>BMS-IFLSV1E</b></li> <li>• "1 model" connection interface<br/><b>TCB-PCNT30TLE2</b><br/>[ RAV-SM560KRT-E, SM800KRT-E are not compatible to connect.]</li> <li>• <b>Indoor remote controller</b></li> <li>• Wired remote controller<br/><b>RBC-AMT31E</b></li> <li>• Simple remote controller<br/><b>RBC-AS21E2</b></li> </ul> |

\*1) BACnet™: ANSI/ASHRAE 135-1995, A Data Communication Protocol for Building Automation and Control Networks.

# Touch screen controller system

System diagram



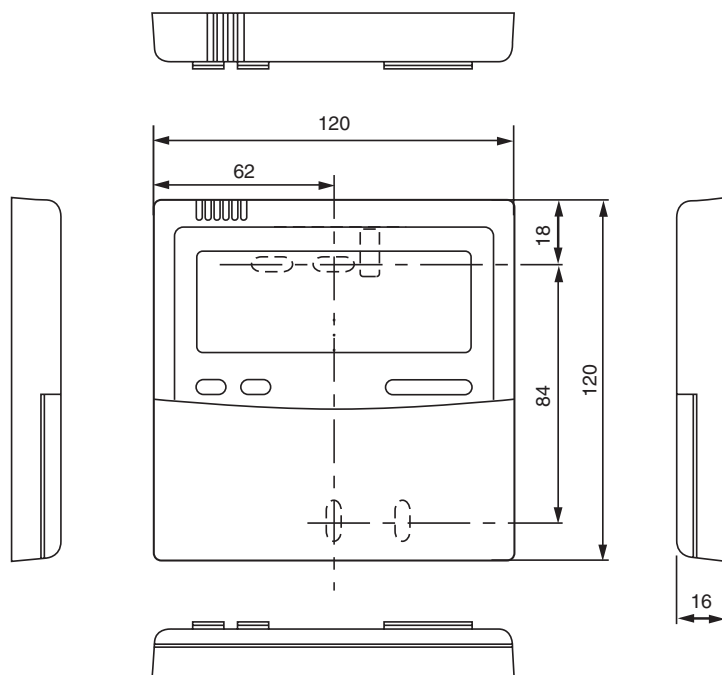
3-3

| Devices  | Model Name                                | Model Name                                                                                                                                                                                                                                         | Specification                                                 |
|----------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|          | Touch Screen controller (English version) | BMS-TP0640ACE                                                                                                                                                                                                                                      | Max 64 indoor units , without energy monitoring and billing   |
|          |                                           | BMS-TP5120ACE                                                                                                                                                                                                                                      | Max 512 indoor units , without energy monitoring and billing  |
|          |                                           | BMS-TP0640PWE                                                                                                                                                                                                                                      | Max 64 indoor units , with energy monitoring and billing      |
|          |                                           | BMS-TP5120PWE                                                                                                                                                                                                                                      | Max 512 indoor units , with energy monitoring and billing     |
|          | Intelligent Server                        | BMS-LSV4E                                                                                                                                                                                                                                          | Server in between Touch Screen controller and RS-485          |
|          | Intelligent Server Software               | BMS-STCC01E                                                                                                                                                                                                                                        | Installed on Intelligent Server                               |
|          | TCS-Net Relay Interface                   | BMS-IFLSV1E                                                                                                                                                                                                                                        | Interface between intelligent Server Control wiring(TCC-LINK) |
| Function | Energy Monitoring Relay Interface         | BMS-IFWH3E                                                                                                                                                                                                                                         | Interface for power meter                                     |
|          | Digital I/O Relay Interface               | BMS-IFDD01E                                                                                                                                                                                                                                        | Interface for input / output signal                           |
|          | (1) Monitoring air-conditioners           | Operation status can be viewed according to a unit.<br>[Unit] All building, All tenants, Each tenant, Each area, Each remote controller group<br>[Monitoring contents] Operation and alarm status, Setting status for each remote controller group |                                                               |
|          | (2) Operating of air-conditioners         | Header / individual control can be performed according to a unit.<br>[Operating contents] ON/OFF, Operation setting (operation mode, air volume, louver position, setting temp., restricted setting from remote location)                          |                                                               |
|          | (3) Schedule operation                    | Air-conditioners are operated according to the set-up schedule / operation pattern.<br>Schedule operation can be performed according to a unit.<br>[Operation pattern] Weekly pattern, special day pattern (4 pattern), Non-operation days pattern |                                                               |
|          | (4) Alarm list display                    | The present alarm contents are displayed.<br>[Display contents] Alarm contents, Unit number, Generated time                                                                                                                                        |                                                               |
|          | (5) Alarm record display                  | The alarm history records are displayed.<br>[Display contents] Alarm contents, Unit number, Generated time                                                                                                                                         |                                                               |
|          | (6) Monthly report data extraction        | Monthly report data is written to "Compact Flash". Monthly reports can be created according to a unit using the monthly report software.<br>[Monthly report contents] The number of ON/OFF, Operating time, Results of energy monitoring           |                                                               |
| Function | (7) Energy monitoring data extraction     | Power consumption data is written to "Compact Flash". Energy monitoring can be performed according to a unit using the energy monitoring software.<br>[Energy monitoring data] Power consumption according to the power meter                      |                                                               |

## 5-2. Controller dimensions

### • Wired remote controller

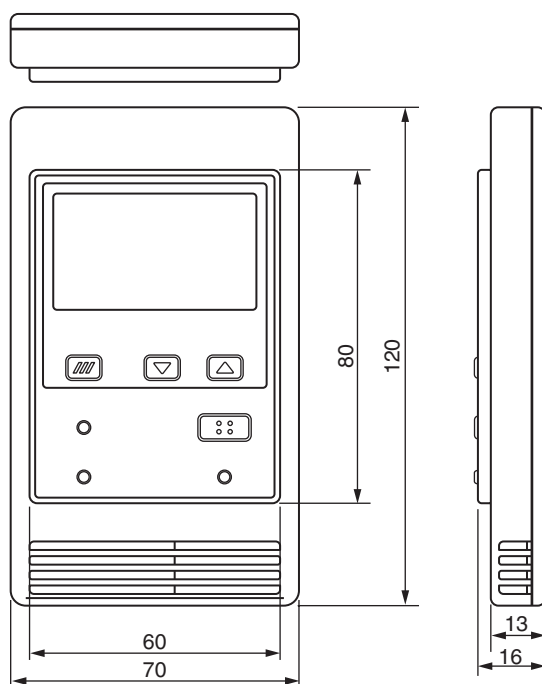
**RBC-AMT31E**



Note : All dimensions are in mm

### • Simple remote controller

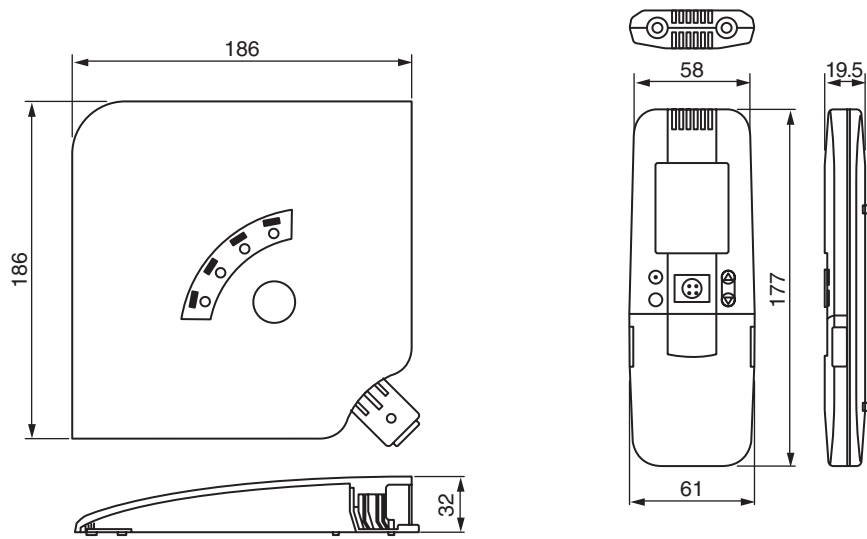
**RBC-AS21E2**



Note : All dimensions are in mm

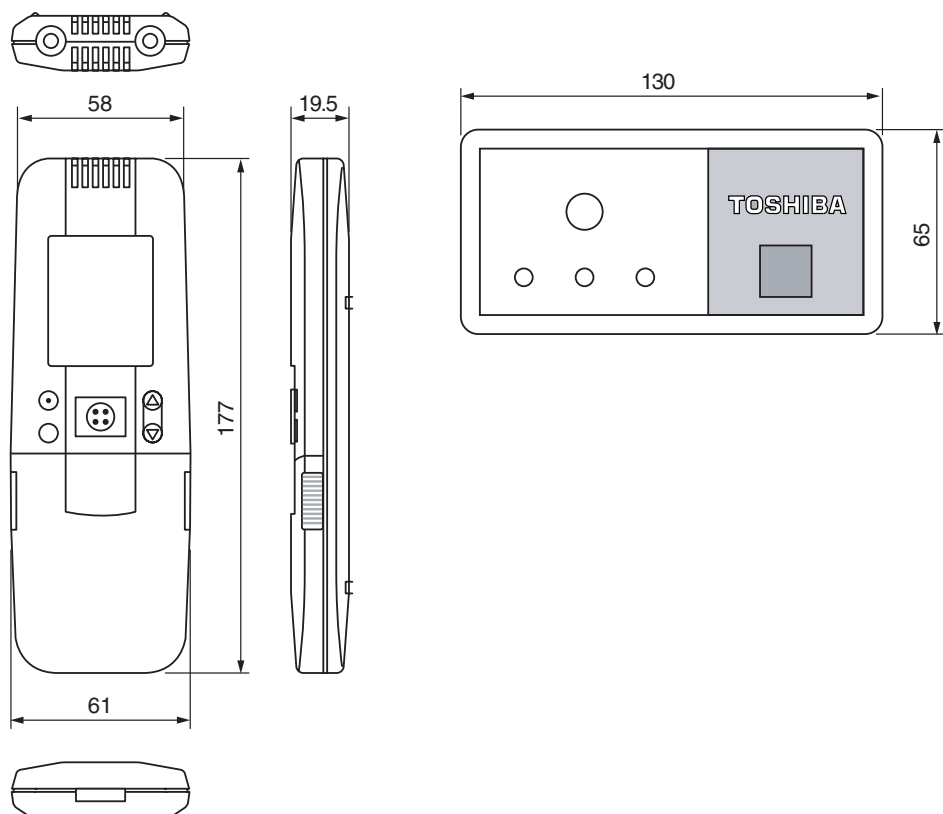
- **Wireless remote controller kit**

**TCB-AX21U (W)-E2**



Note : All dimensions are in mm

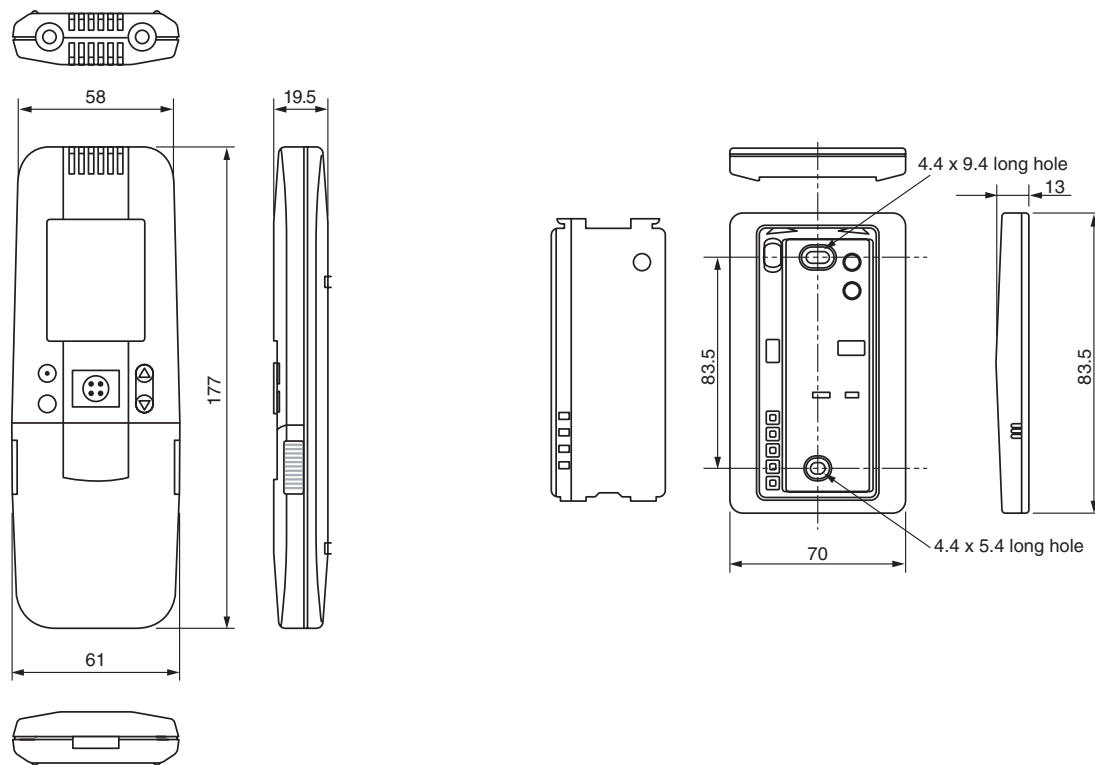
# RBC-AX22CE2



Note : All dimensions are in mm

## •Wireless remote controller kit

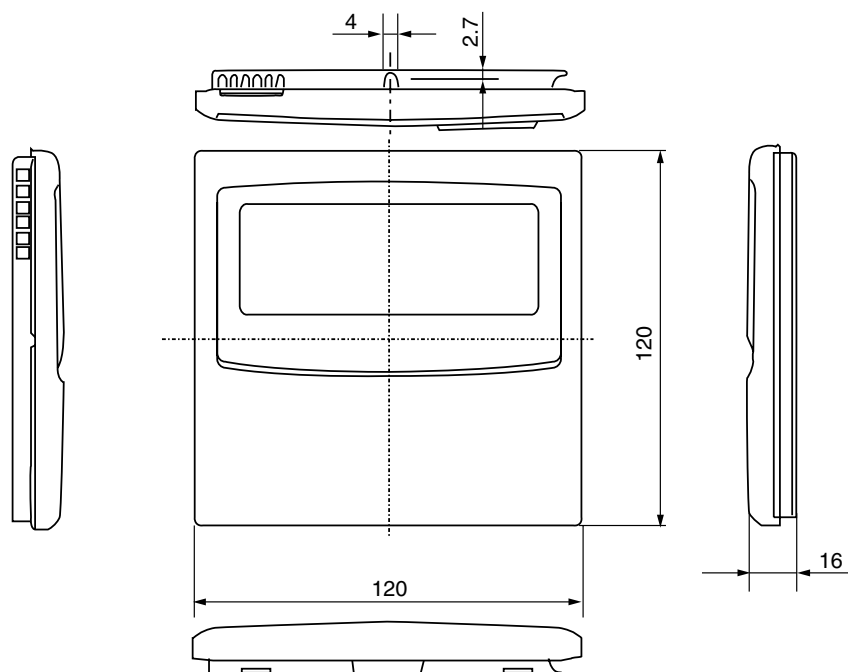
### TCB-AX21E2



Note : All dimensions are in mm

## •Weekly timer

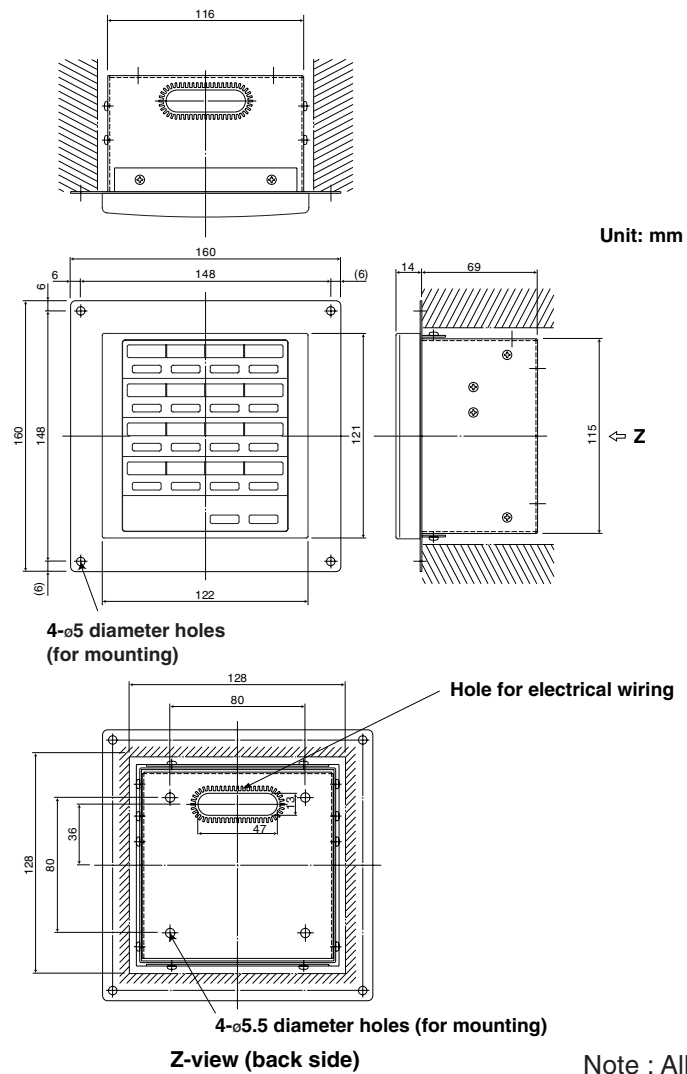
### RBC-EXW21E2



Note : All dimensions are in mm

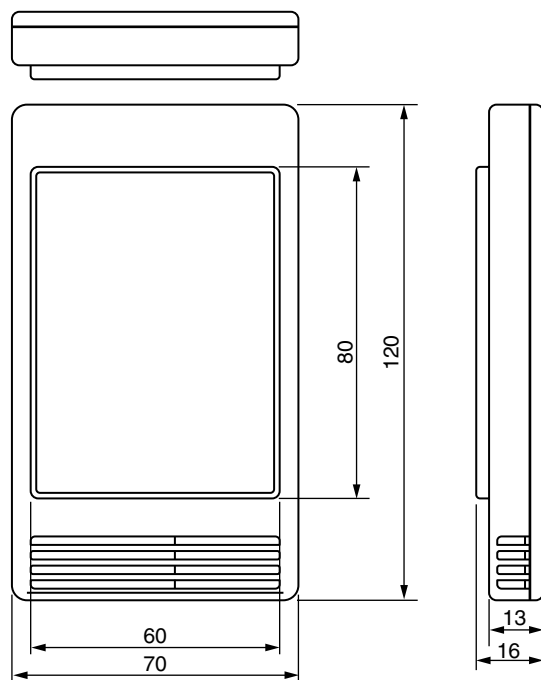
•ON-OFF controller

TCB-CC163TLE2



- Remote sensor

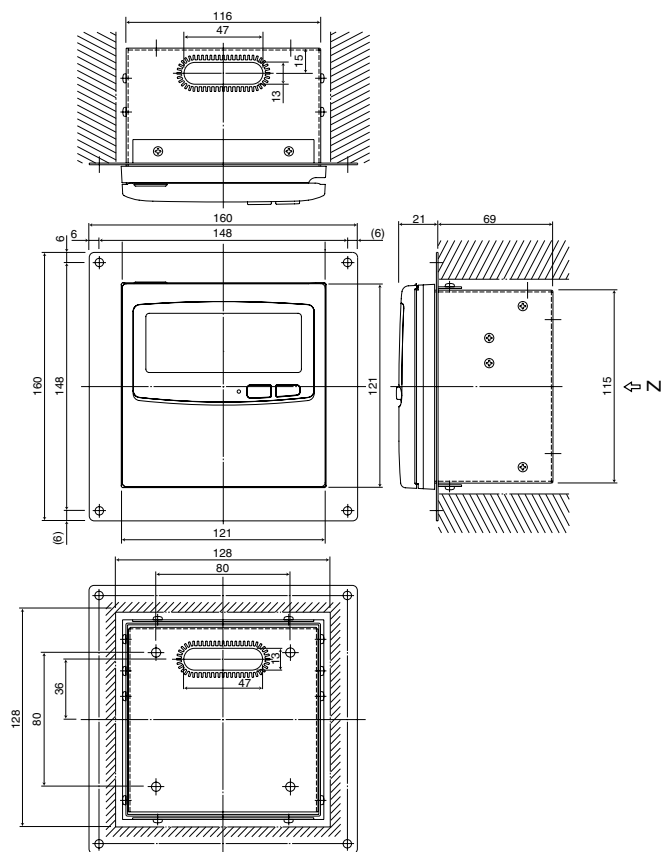
### TCB-TC21LE2



Note : All dimensions are in mm

- Central remote controller

### TCB-SC642TLE2

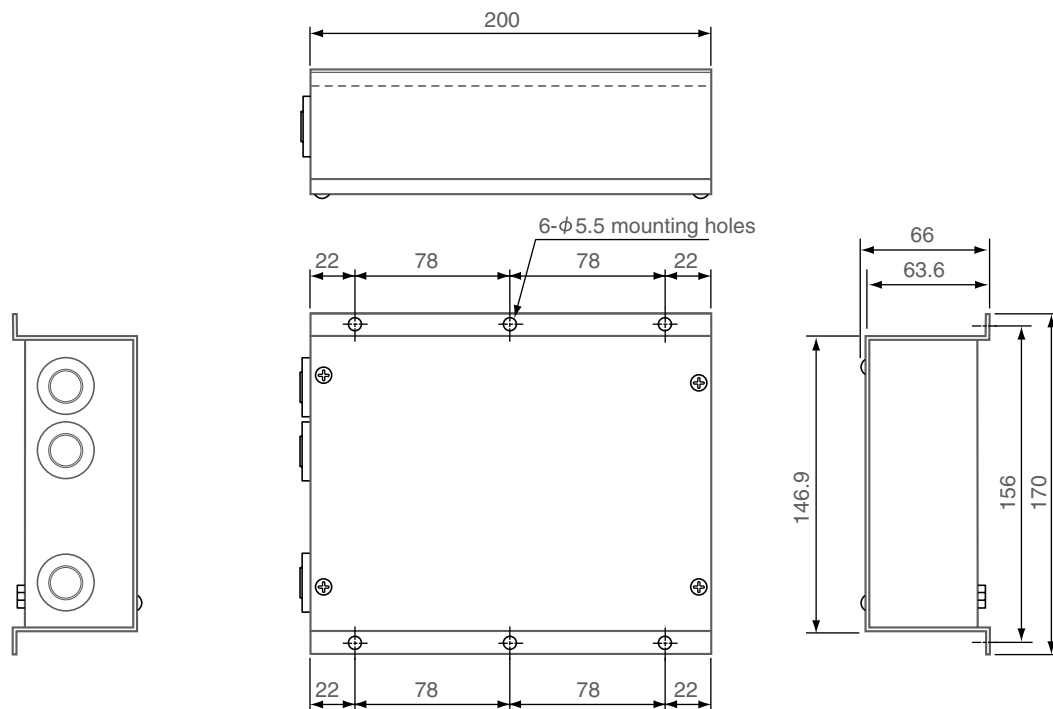


Z view (back side)

Note : All dimensions are in mm

## •TCS-Net relay interface

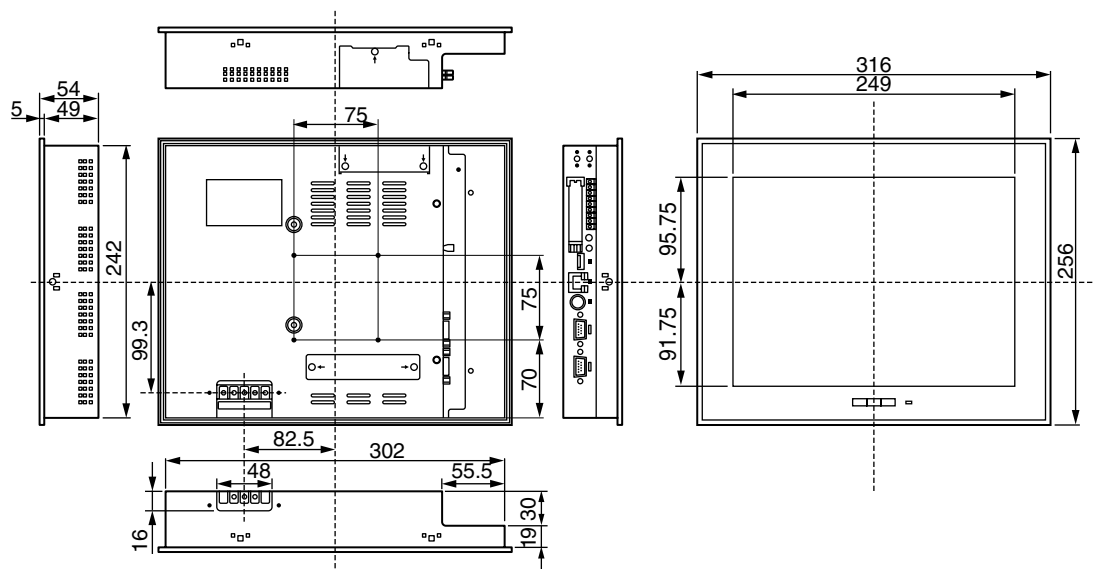
### BMS-IFLSV1E



Note : All dimensions are in mm

## •Touch screen controller

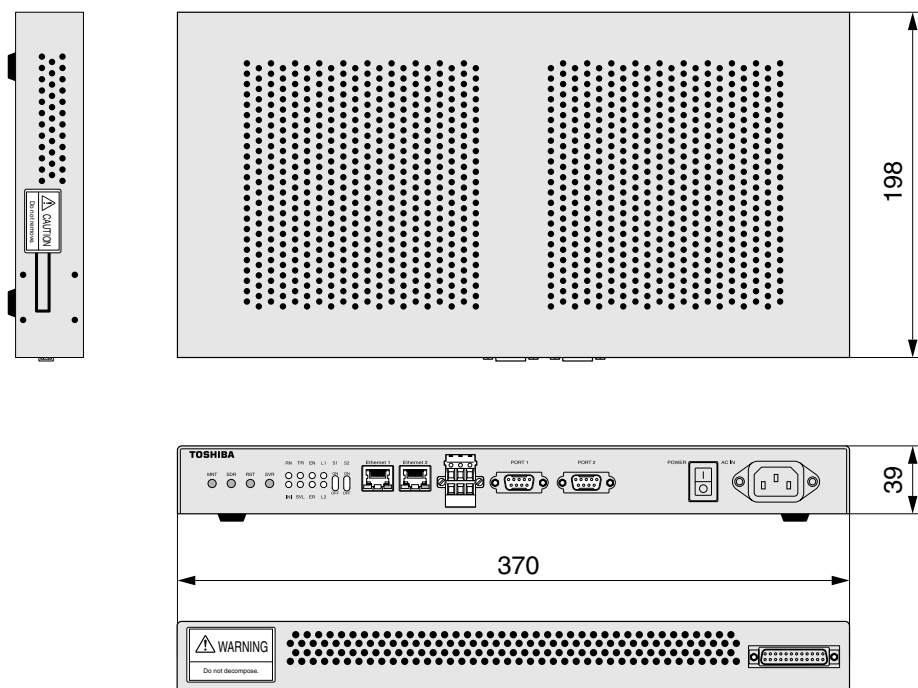
### BMS-TP0640ACE BMS-TP5120ACE BMS-TP0640PWE BMS-TP5120PWE



Note : All dimensions are in mm

- **Intelligent server**

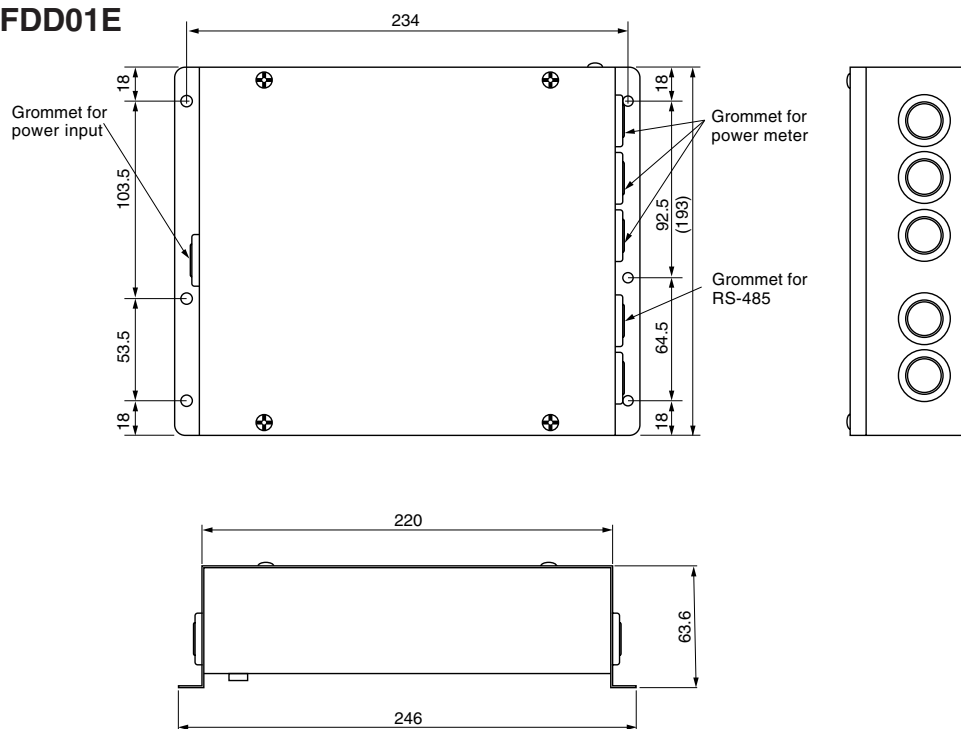
## BMS-LSV2E



Note : All dimensions are in mm

- **Energy monitoring relay interface/Digital I/O relay interface**

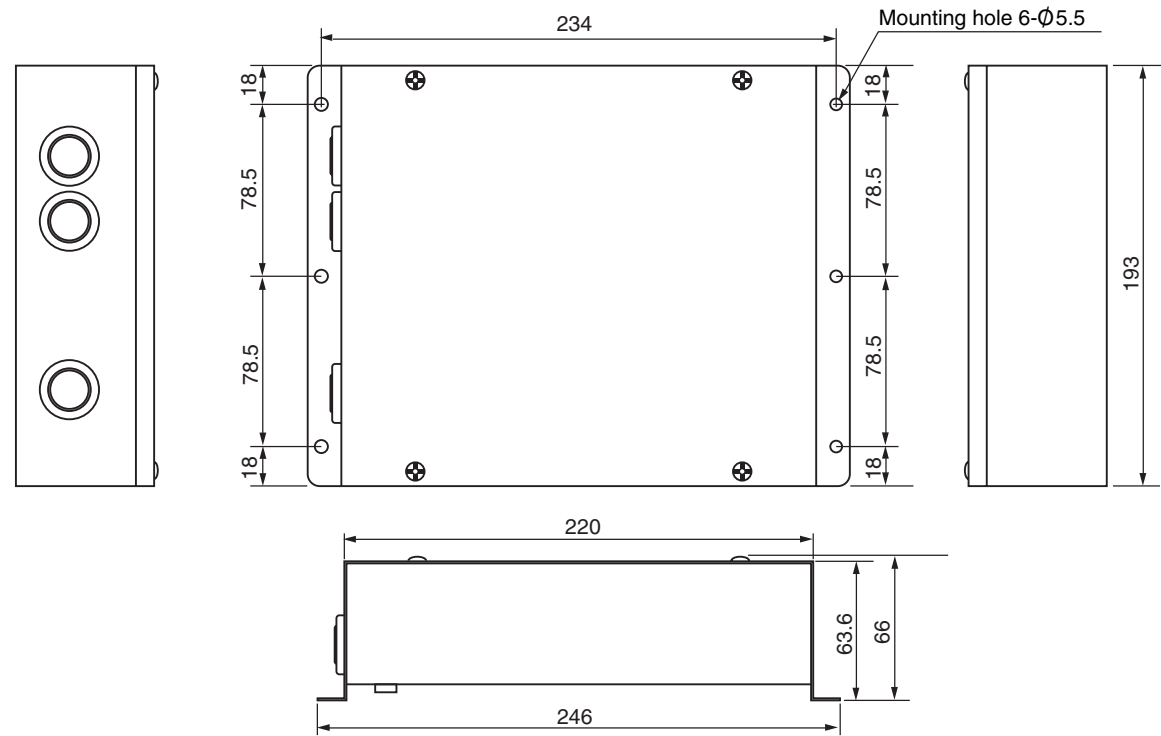
**BMS-IFWH3E**  
**BMS-IFDD01E**



Note : All dimensions are in mm

• LON GATEWAY

TCB-IFLN640TLE



Note : All dimensions are in mm

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