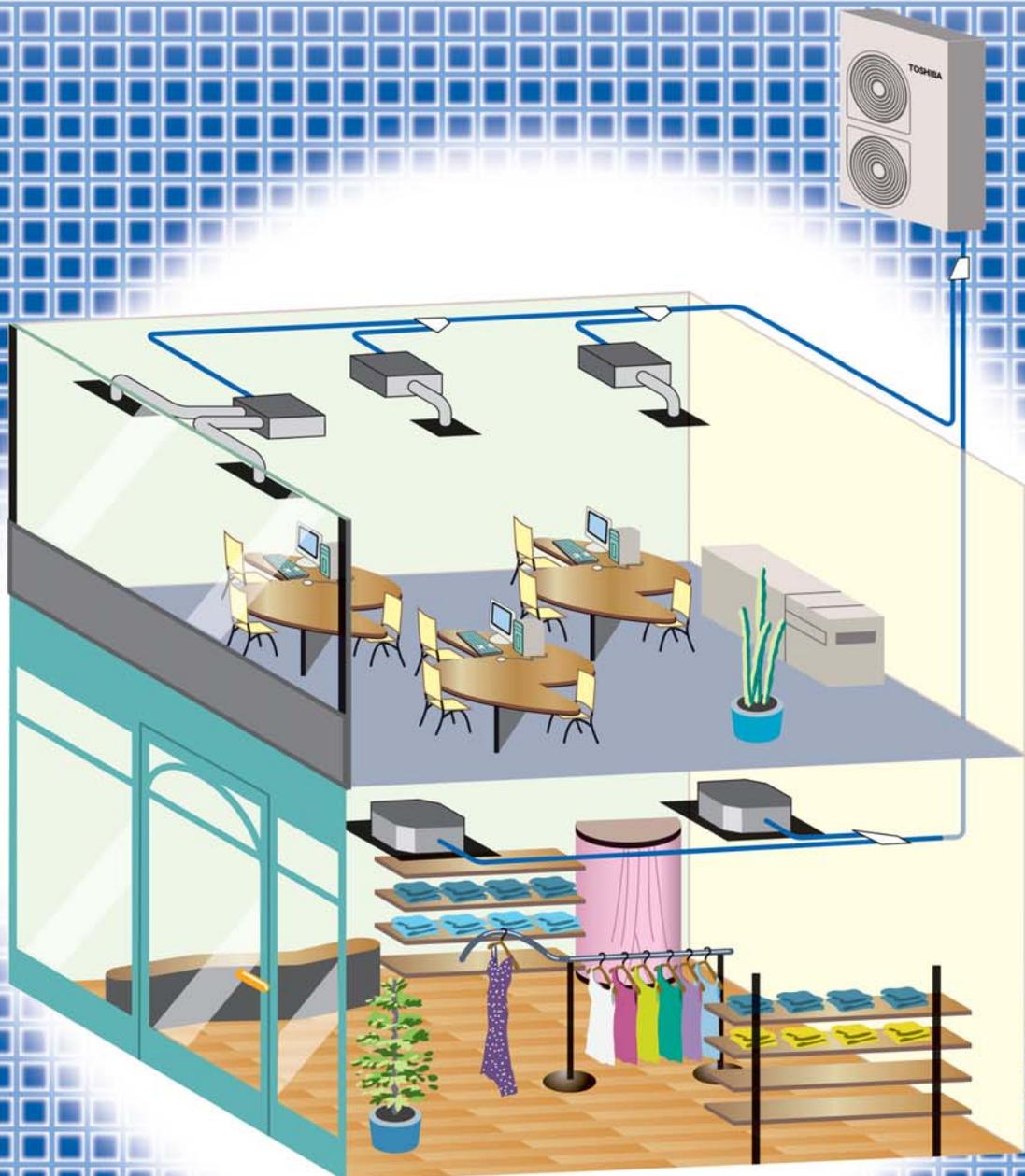




DESIGN MANUAL

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;

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

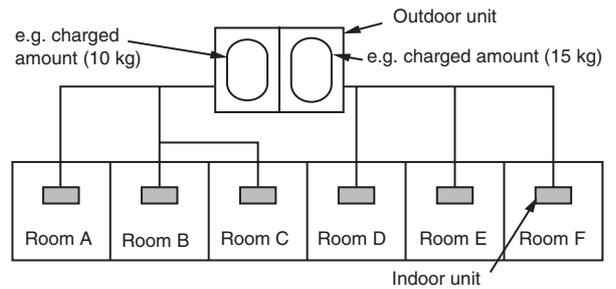
The density calculation must be carried out in accordance with local regulation or guideline like BS EN 378

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.

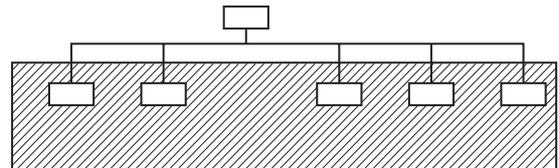
For the amount of charge in this example:

- 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.

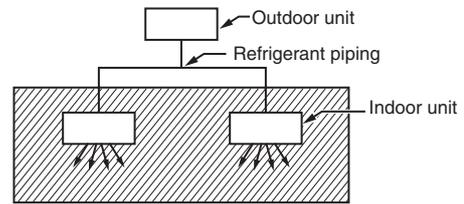


Note 2: The standards for minimum room volume are as follows:

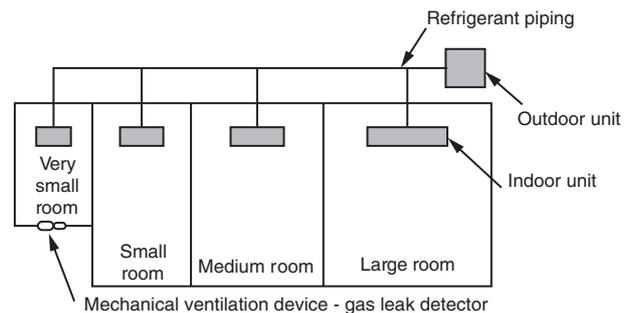
(1) No partition (shaded portion)



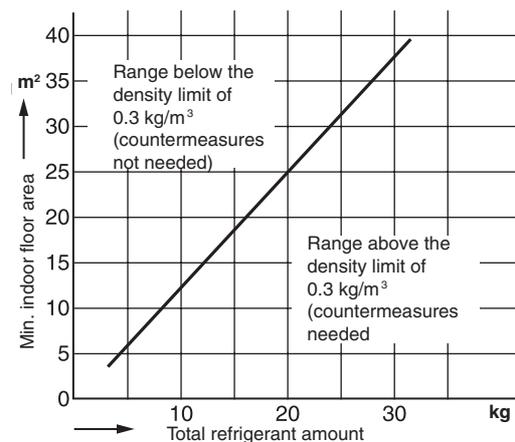
(2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).



(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.

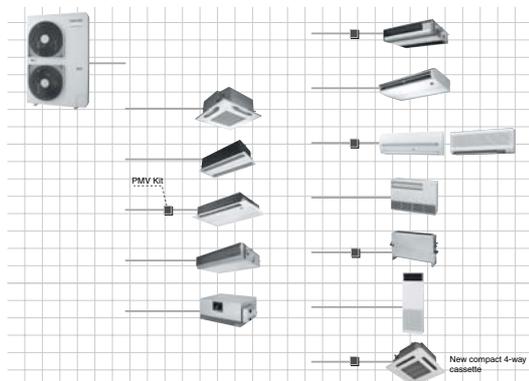
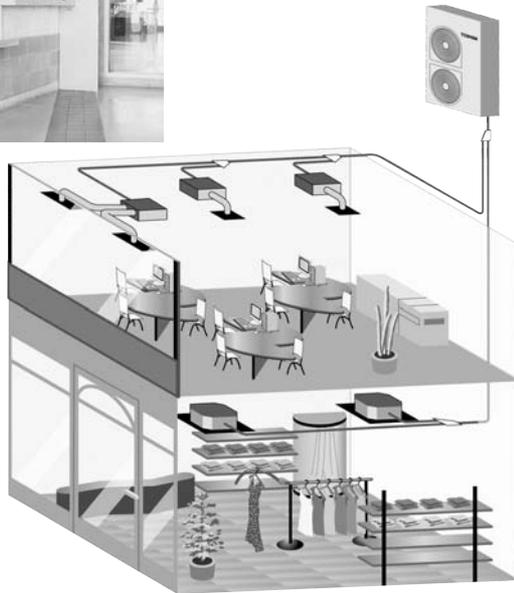


Note 3: The minimum indoor floor area compared with the amount of refrigerant is roughly as follows (when the ceiling is 2.7 m high):



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.

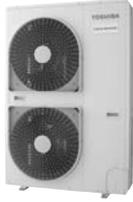


■ Use of quieter place

- 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 Air Discharge Cassette											
Compact 4-way Cassette (600 x 600)											
2-way Air Discharge Cassette											
1-way Air Discharge Cassette											
Concealed Duct Standard											
Slim Duct											
Concealed Duct High Static Pressure											
Under Ceiling											
High Wall 1series											
High Wall 2series											
Floor Standing Cabinet											
Floor Standing Concealed											
Floor Standing											

Mini-SMMS Design Manual

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1-1. System Overview

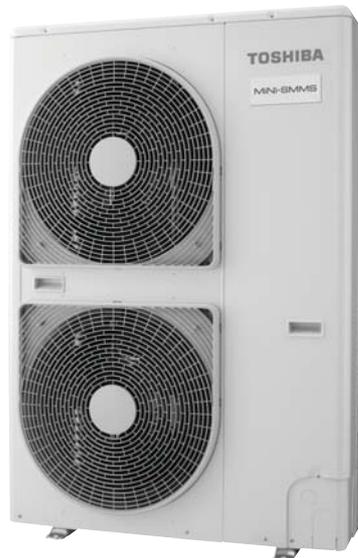
1-1-1. Outdoor units

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

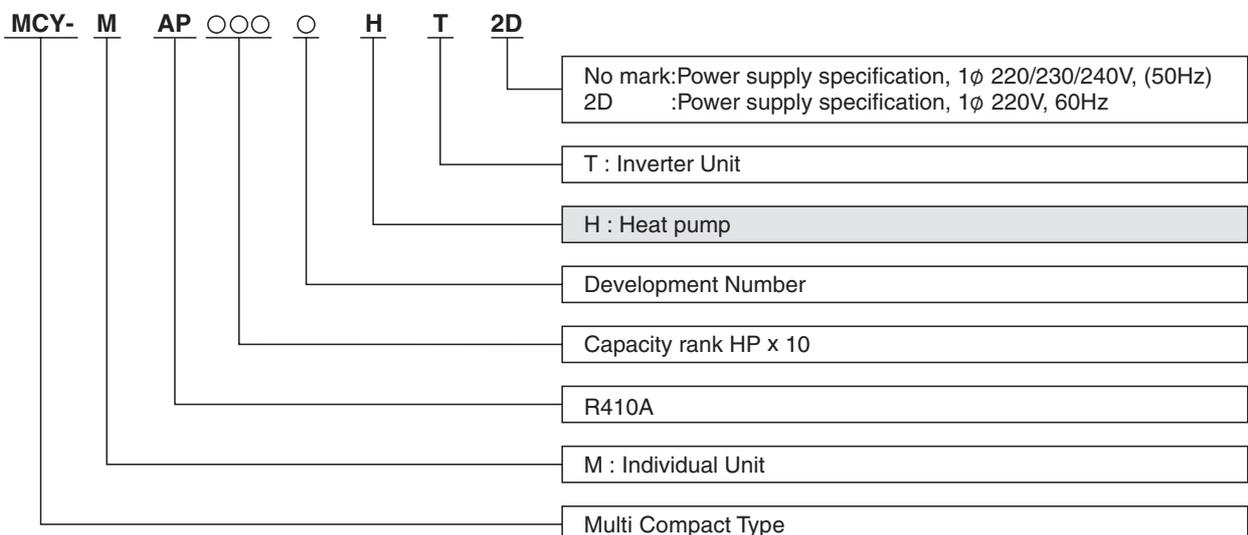
*1 Rated conditions

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

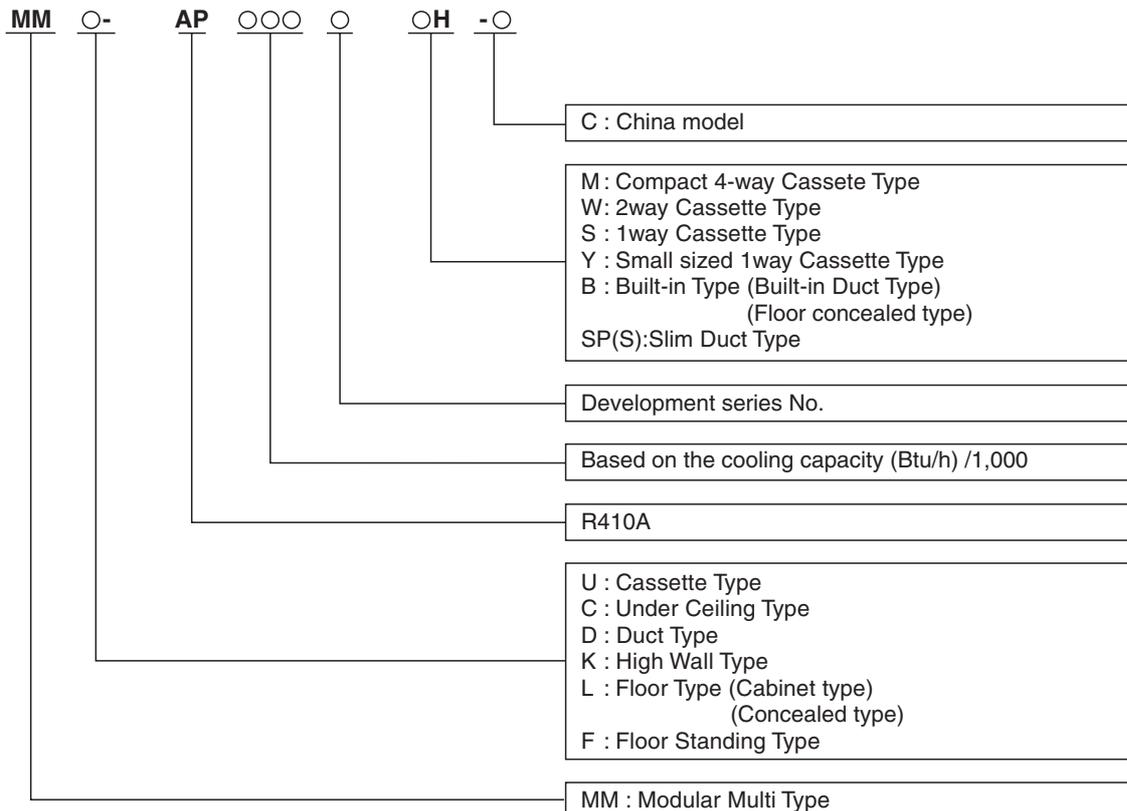


1-1-2. Indoor units

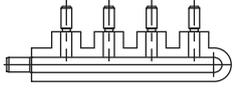
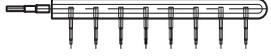
Type	Appearance	Model name	Capacity rank	Capacity code	Cooling capacity (kW)	Heating capacity (kW)	PMV Kit
4-way Air Discharge Cassette Type		MMU-AP0091H	009 type	1.00	2.8	3.2	—
		MMU-AP0121H	012 type	1.25	3.6	4.0	—
		MMU-AP0151H	015 type	1.70	4.5	5.0	—
		MMU-AP0181H	018 type	2.00	5.6	6.3	—
		MMU-AP0241H	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-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
		MMU-AP0181MH	018 type	2.00	5.6	6.3	Available
2-way Air Discharge Cassette Type		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	—
		MMU-AP0301WH	030 type	3.20	9.0	10.0	—
1-way Air Discharge Cassette Type		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
		MMU-AP0242SH	024 type	2.50	7.1	8.0	Available
Concealed Duct Standard Type		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-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
		MMD-AP0181SPH	018 type	2.00	5.6	6.3	Available
Concealed Duct High Static Pressure Type		MMD-AP0181H	018 type	2.00	5.6	6.3	—
		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 (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 (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 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 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	RBM-BY53E	Indoor unit capacity code (*2) :Total below 6.4	
	RBM-BY103E	Indoor unit capacity code (*2) :Total 6.4 or more and below 7.8	
4-branching header	RBM-HY1043E	Indoor unit capacity code (*2) :Total below 7.8	
8-branching header	RBM-HY1083E	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)

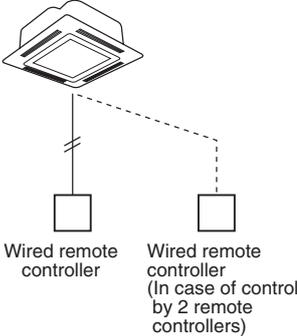
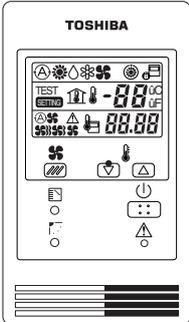
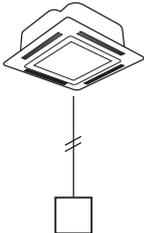
*3 When using Y-shape branching joint for 1st branching, select according to the capacity code of outdoor unit.

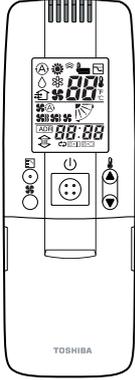
1-1-4. PMV Kit

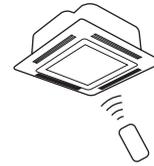
Model name	Indoor unit capacity type	Appearance
RBM-PMV0361E	007, 009, 012 type	
RBM-PMV0901E	015, 018, 024 type	

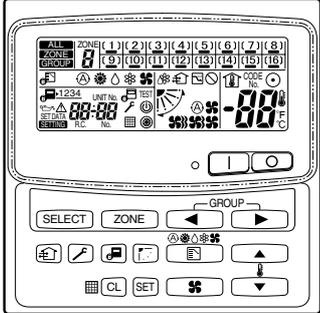
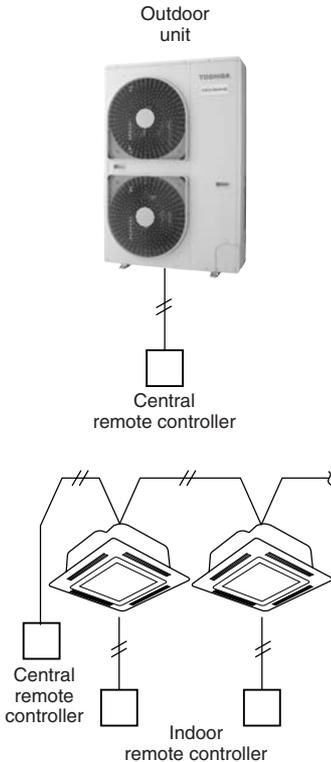
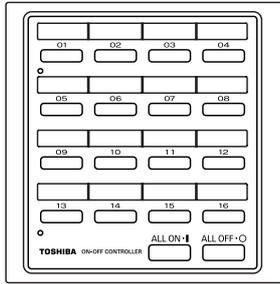
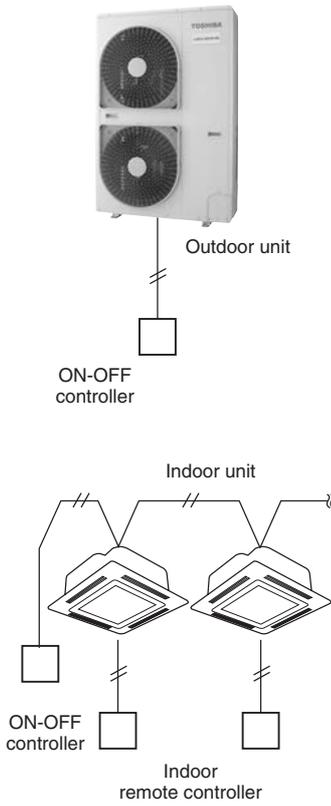
For more information see section 3.

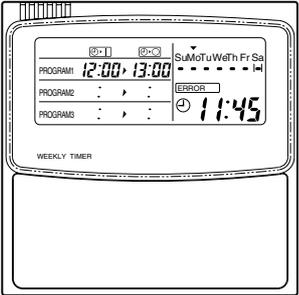
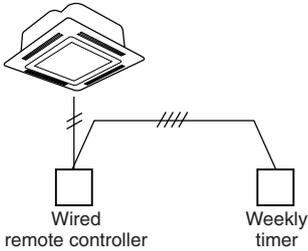
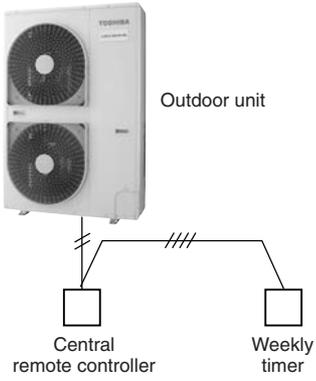
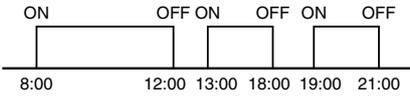
1-1-5. Remote controller

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

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



Name	Model name	Appearance	Application	Performance
Central remote controller	TCB-SC642TLE2		<p style="text-align: center;">Connected to outdoor unit, or indoor unit</p> <p style="text-align: center;">Outdoor unit</p> 	<p>Individual control up to 64 indoor units. Individual control for max. 64 indoor units divided into 4 zones. (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 (Central controller mode) (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 style="text-align: center;">Connected to outdoor unit, or indoor unit</p> <p style="text-align: center;">Outdoor unit</p> 	<ul style="list-style-type: none"> • Individual control up to 16 indoor units. • Setting of simultaneous ON-OFF 3 times for each day of the week when combined with a weekly timer. • Connected to 2 remote controllers is possible.

Name	Model name	Appearance	Application	Performance
Weekly timer	RBC-EXW21E2		<p>Connected to central remote controller or wired remote controller</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"

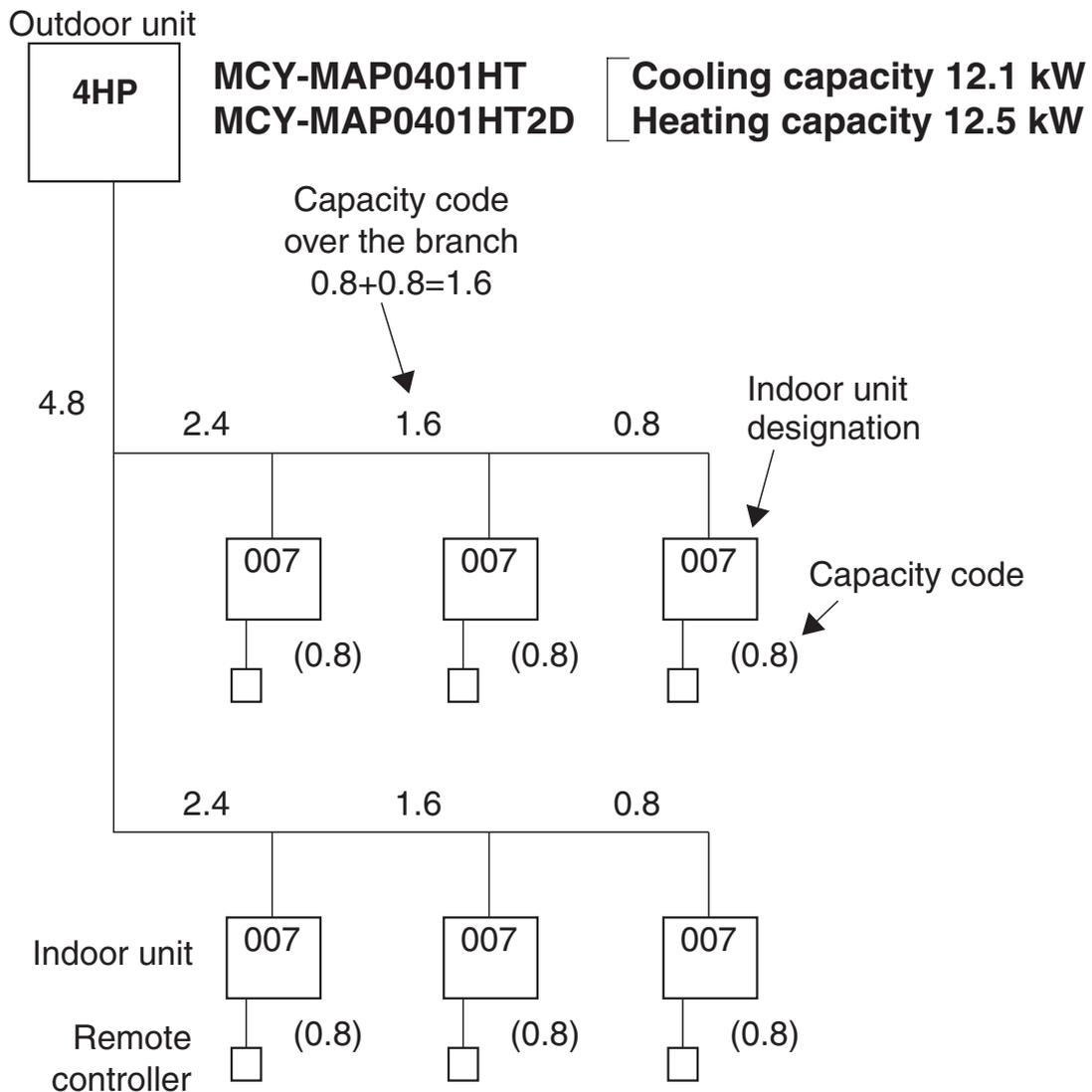
Reference example 1

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



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

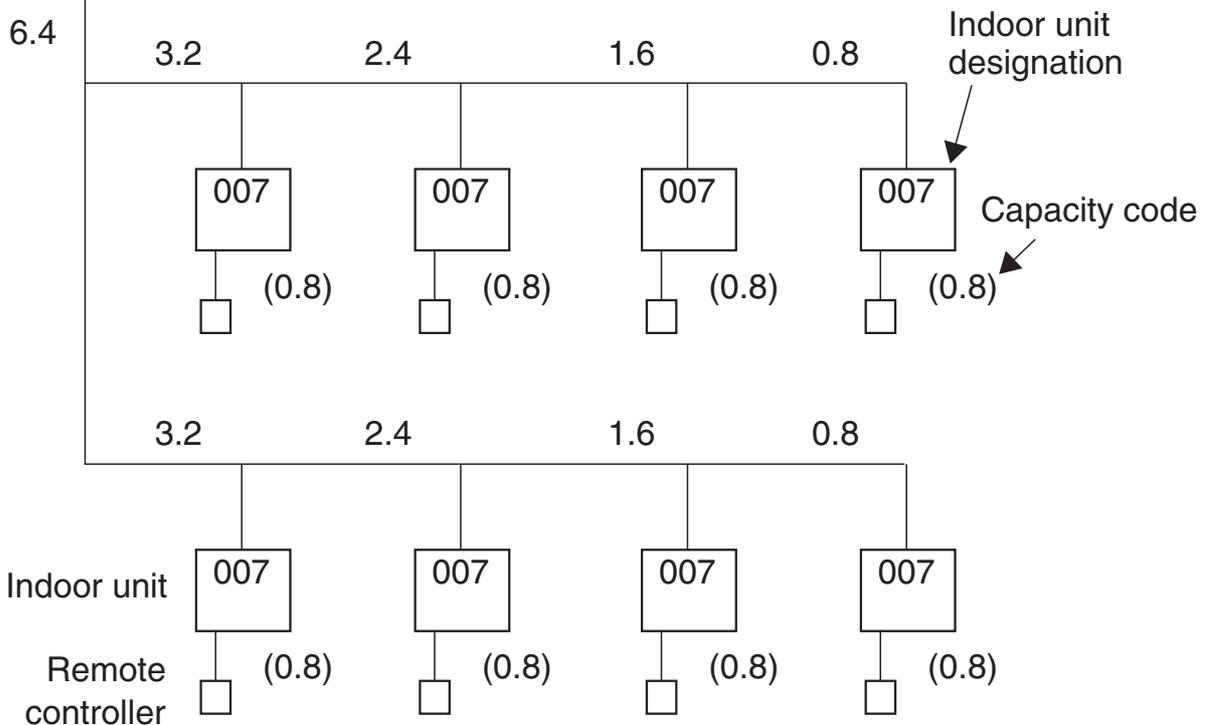
Capacity code
Total : 6.4
No.of total units
8

Outdoor unit



MCY-MAP0501HT
MCY-MAP0501HT2D

Cooling capacity 14.0 kW
Heating capacity 16.0 kW



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



MCY-MAP0601HT
MCY-MAP0601HT2D

Cooling capacity 15.5 kW
Heating capacity 18.0 kW

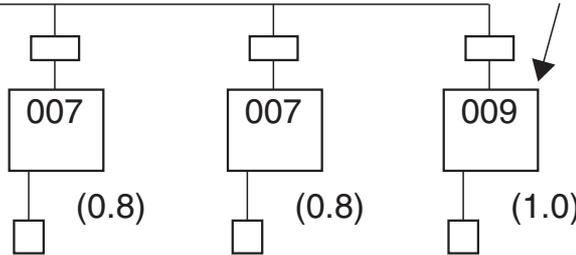
7.6

2.6

1.8

1.0

Indoor unit designation



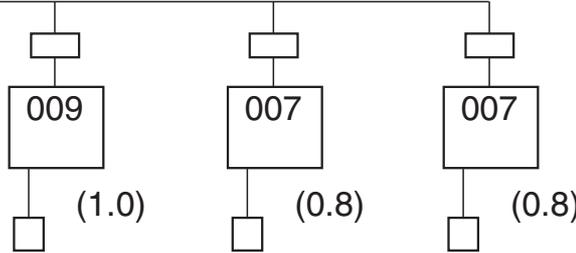
Capacity code

5.0

2.6

1.6

0.8

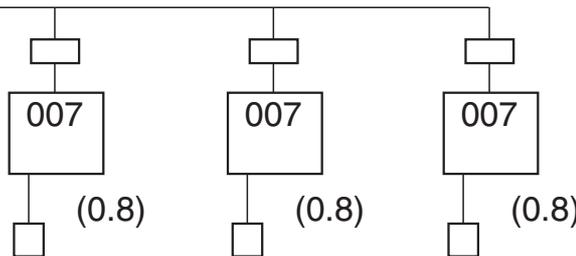


2.4

1.6

0.8

Indoor unit



Remote controller

② In case of "PMV Kit"

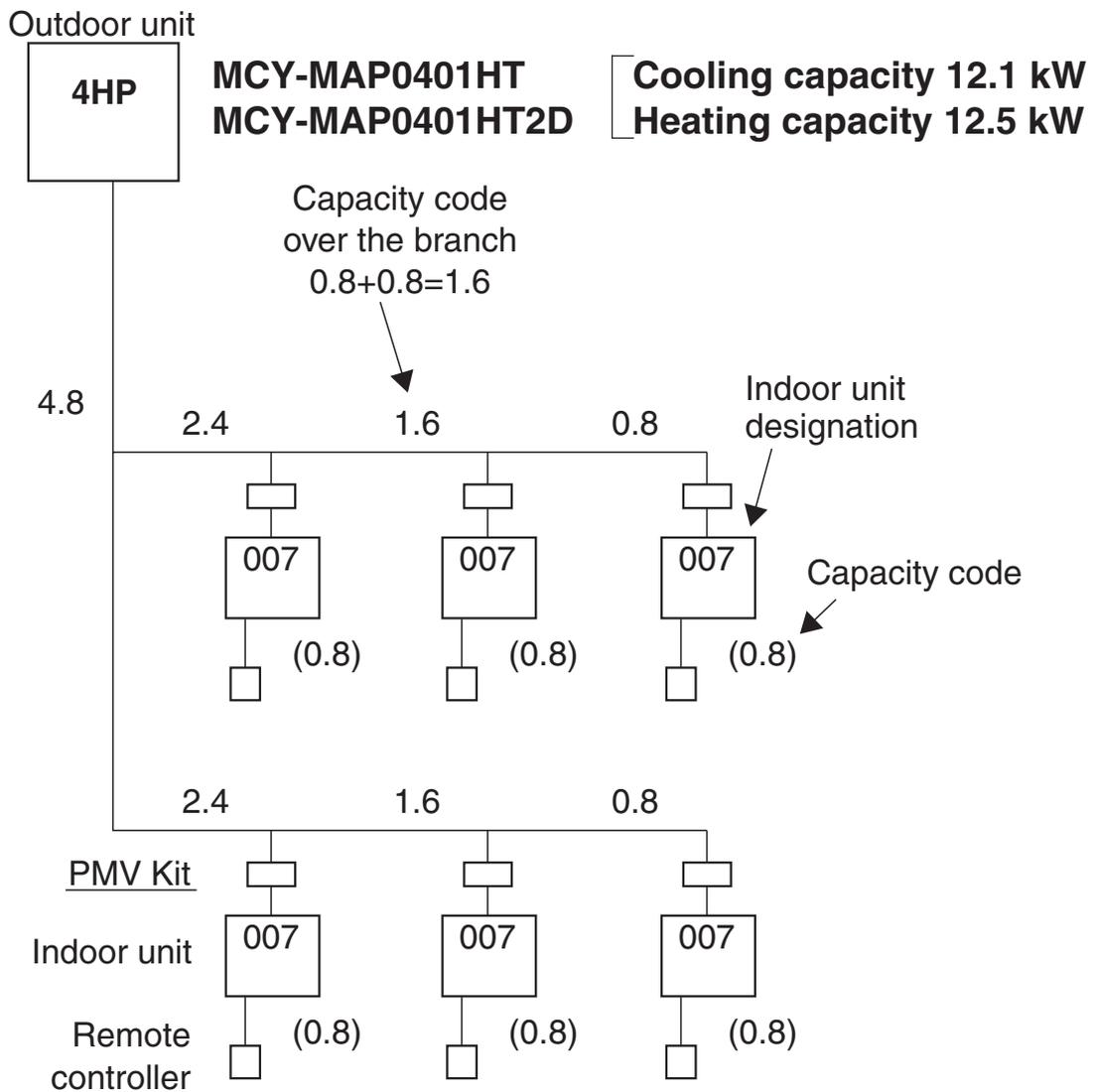
Reference example 4

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

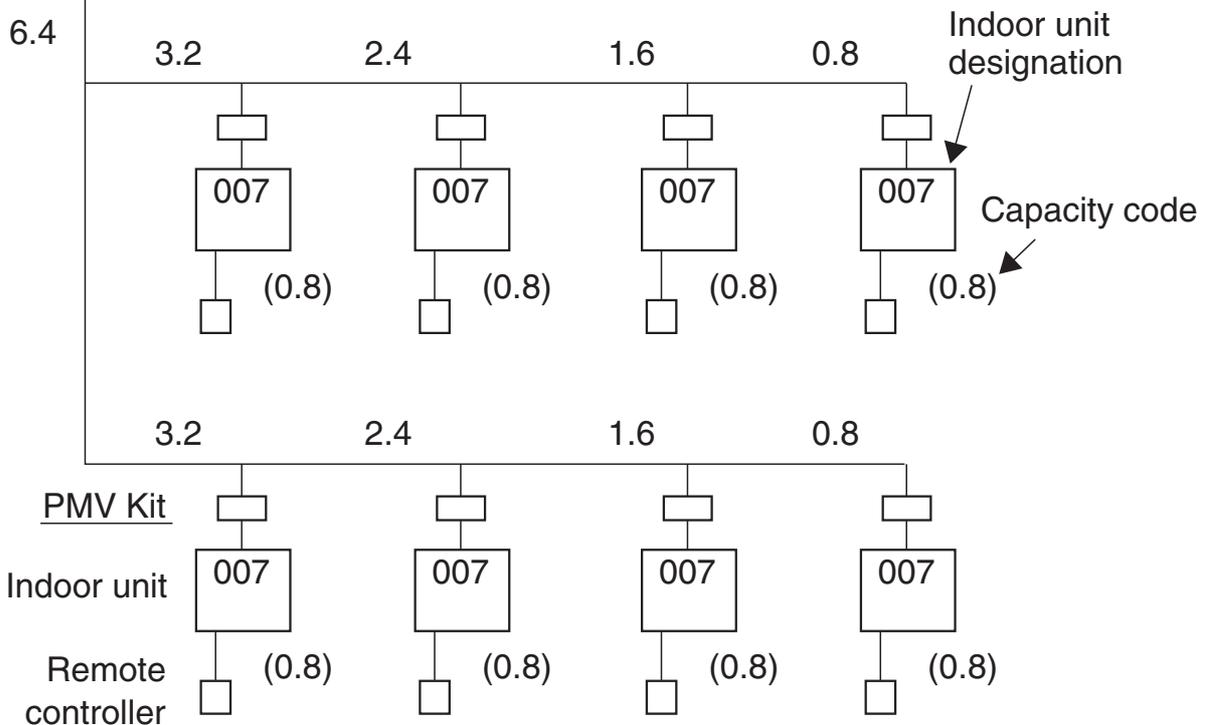
Capacity code
Total : 6.4
No.of total units
8

Outdoor unit



MCY-MAP0501HT
MCY-MAP0501HT2D

Cooling capacity 14.0 kW
Heating capacity 16.0 kW



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

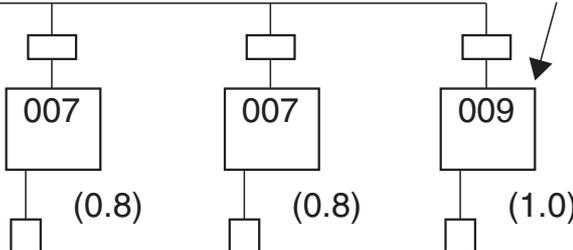
7.6

2.6

1.8

1.0

Indoor unit designation



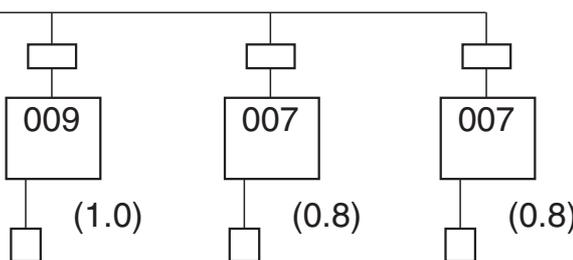
Capacity code

5.0

2.6

1.6

0.8



2.4

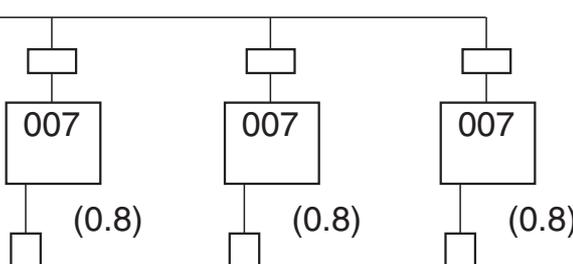
1.6

0.8

PMV Kit

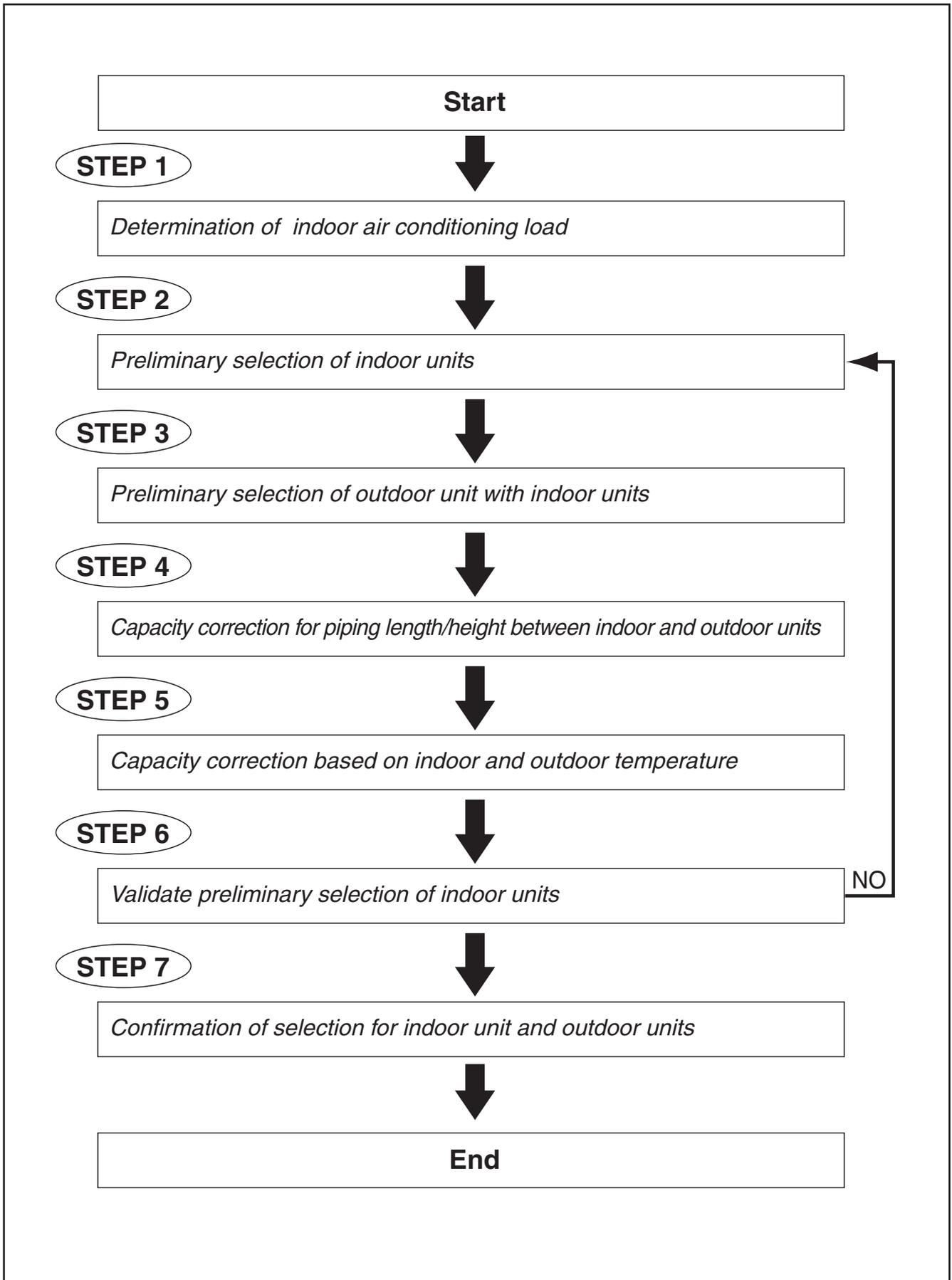
Indoor unit

Remote controller



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.

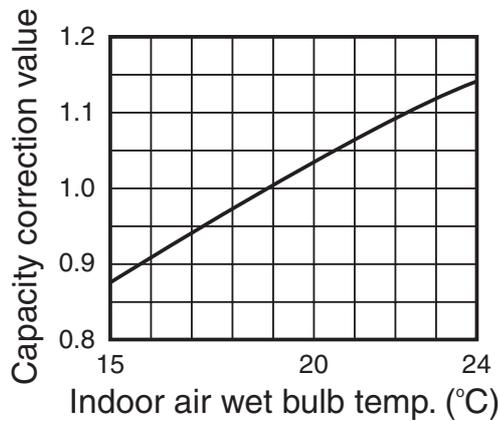
Outdoor unit	Capacity code of outdoor unit	Max. No. of indoor units	Total capacity code of indoor units
MCY-MAP0401HT MCY-MAP0401HT2D	4	6	3.2 to 5.2
MCY-MAP0501HT MCY-MAP0501HT2D	5	8	4.0 to 6.5
MCY-MAP0601HT MCY-MAP0601HT2D	6	9	4.8 to 7.8

1-3-3. Cooling/heating capacity characteristics

① **Cooling capacity calculation method :**

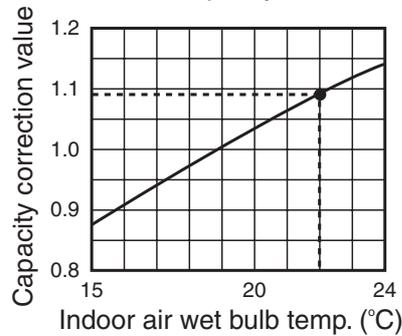
Required cooling capacity = Cooling capacity x Factor (I , II , III, IV, V*1) kW

I Indoor air wet bulb temperature vs. capacity correction value

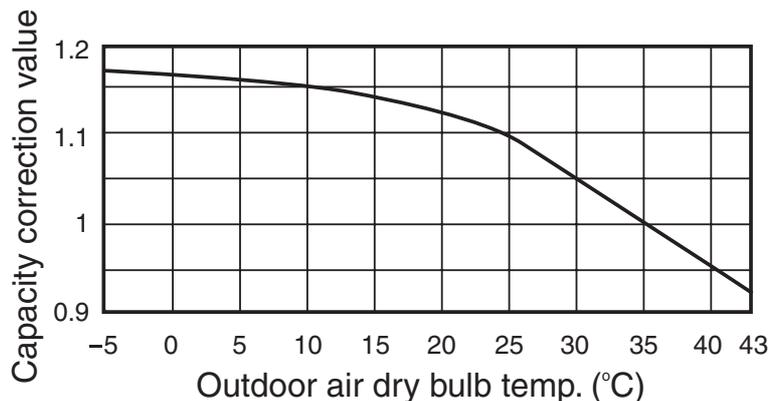


(Example)

Design Indoor conditions : 22°C WB
Capacity correction value : 1.09

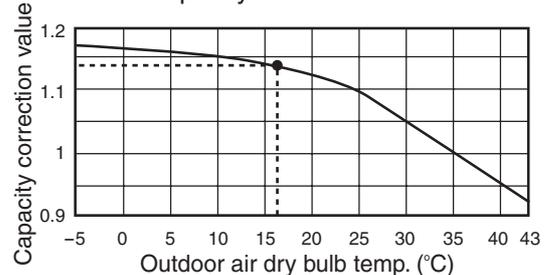


II Outdoor air dry bulb temperature vs. capacity correction value



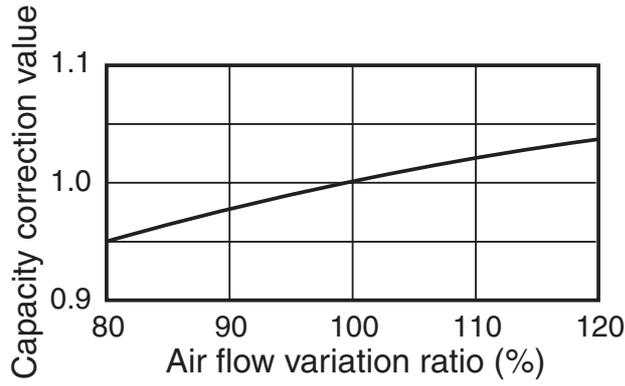
(Example)

Design Outdoor conditions : 17°C DB
Capacity correction value : 1.14

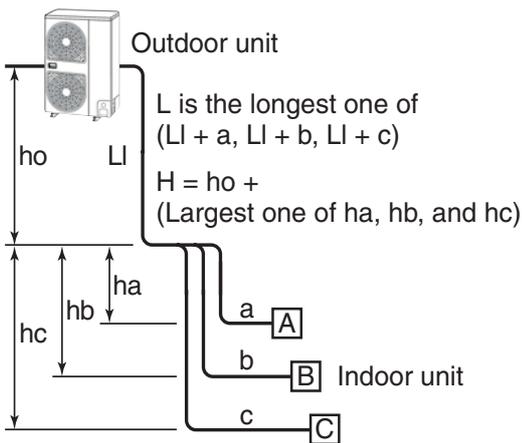
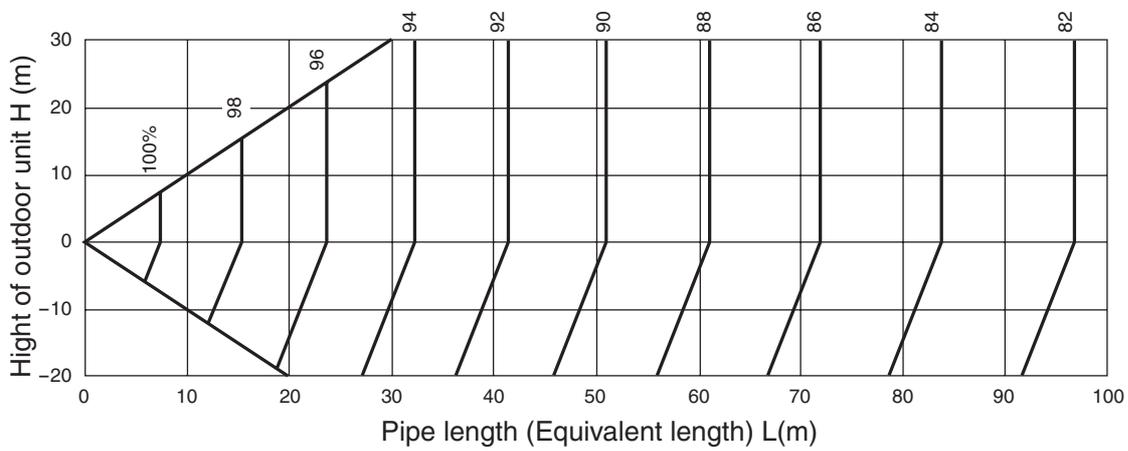


*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

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

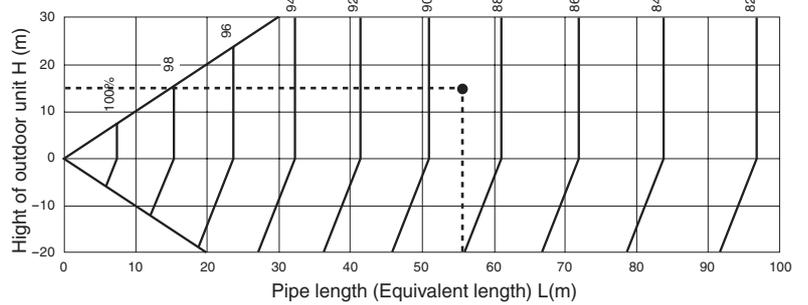


IV Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value

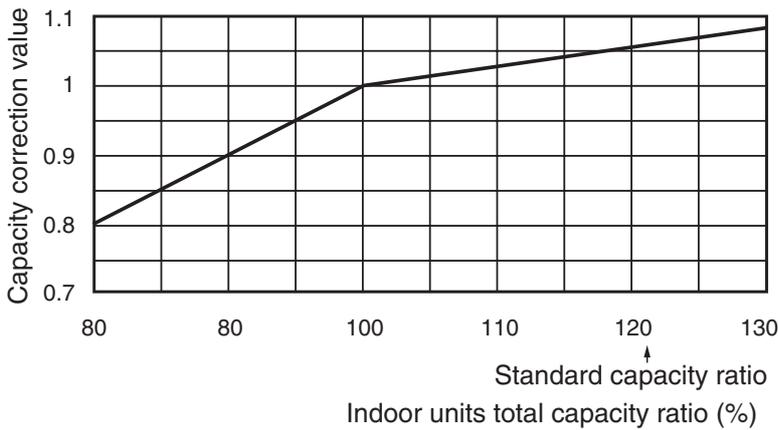


(Example)

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

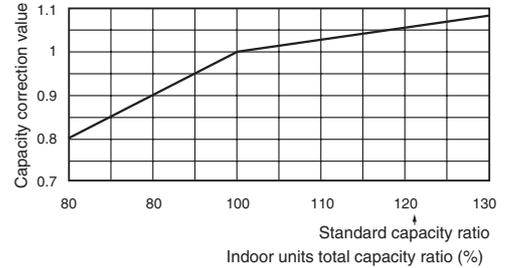


V Correction of outdoor unit diversity



(Example)

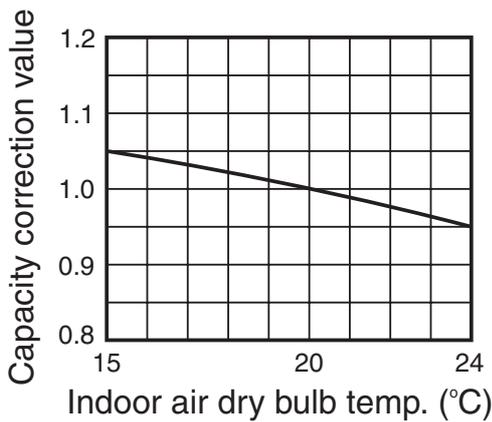
Design Outdoor unit : 5.0HP
 Indoor units total capacity : 5.5HP
 (Capacity ratio : 110%)
 Capacity correction value : 1.03%



② Heating capacity calculation method :

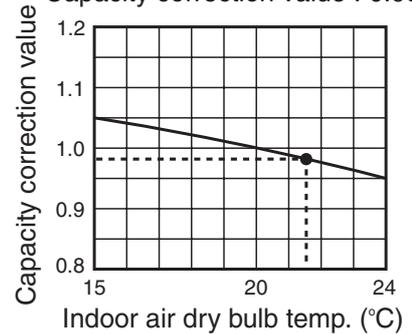
Required heating capacity = Heating capacity x Factor (I , II , III , IV , V*1, VI*2) kW

I Indoor air dry bulb temperature vs. capacity correction value

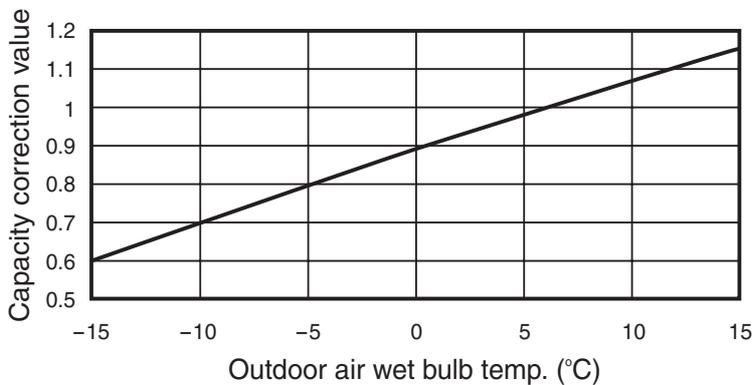


(Example)

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

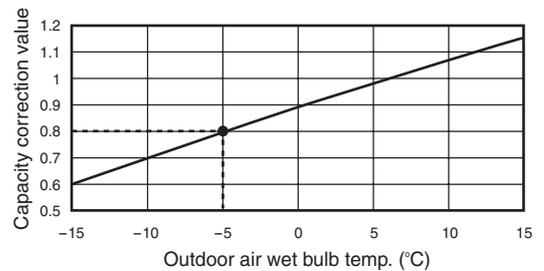


II Outdoor air wet bulb temperature vs. capacity correction value



(Example)

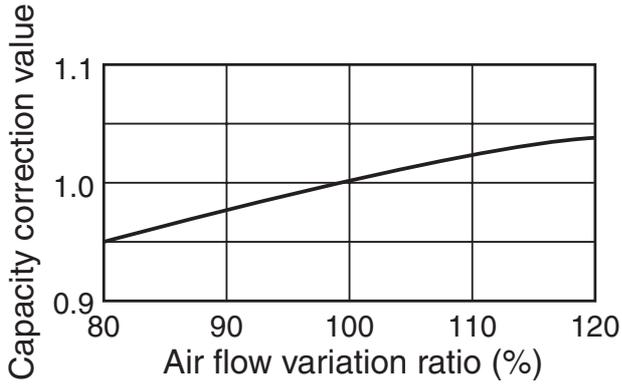
Design Outdoor conditions : -5°C WB
 Capacity correction value : 0.8



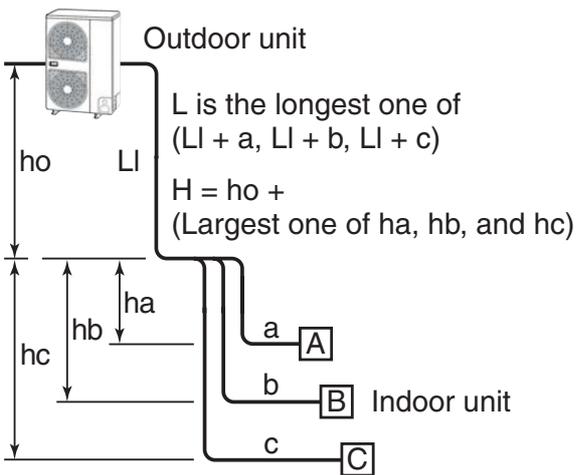
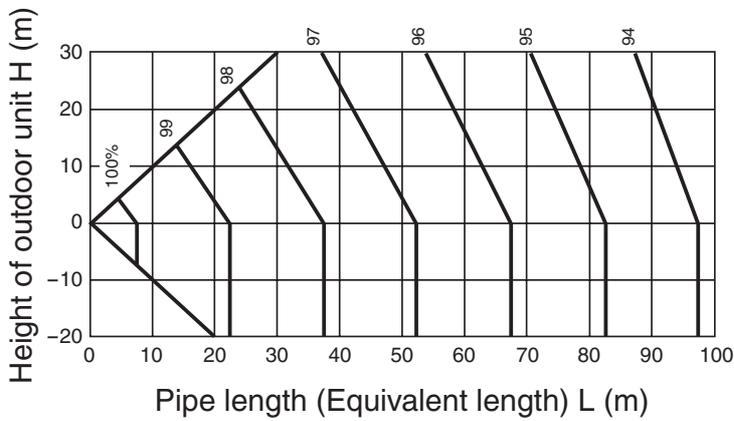
*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

*2 : Refer to item 3.

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

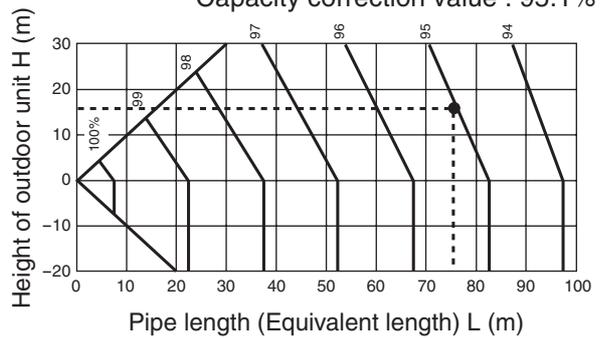


IV Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value

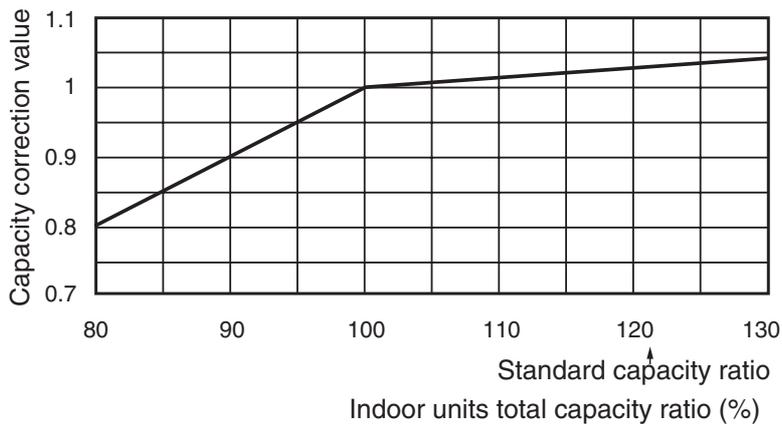


(Example)

Design Pipe length : 75m
 Height of outdoor unit : 15m
 Capacity correction value : 95.1%

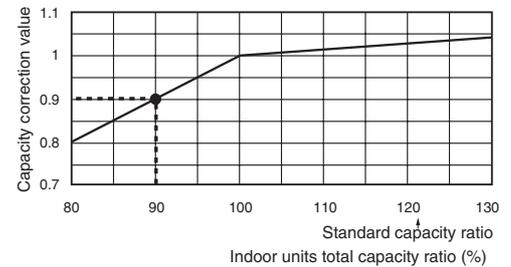


V Correction of outdoor unit diversity



(Example)

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



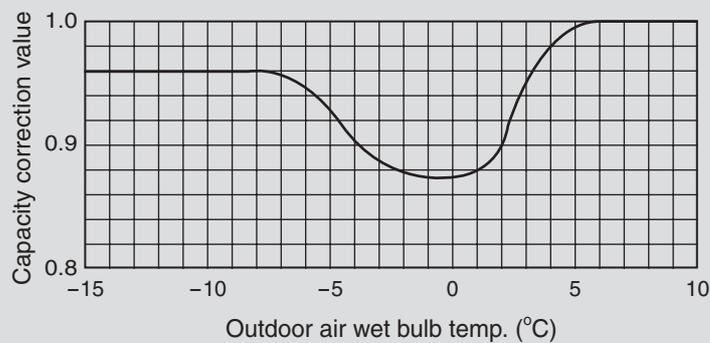
*1 : Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

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

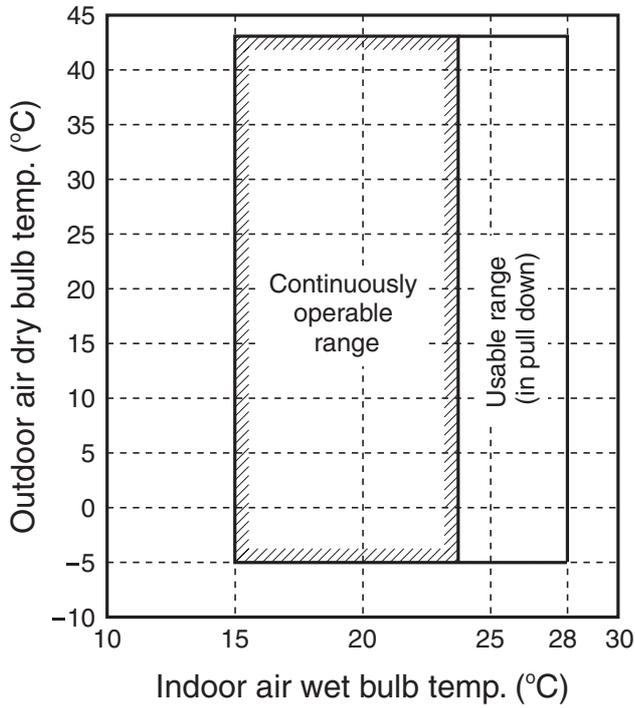


④ Capacity calculation for each indoor unit

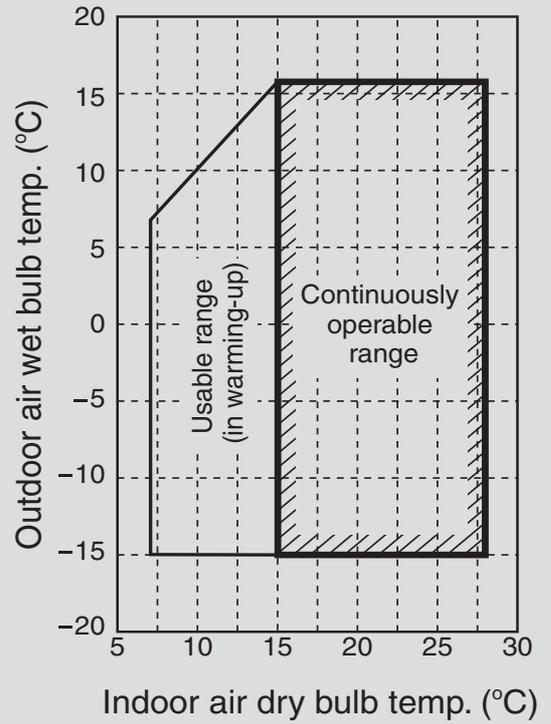
Capacity for each indoor unit
 = Capacity after correction of outdoor unit × $\frac{\text{Required standard capacity of indoor unit}}{\text{Total value of standard indoor unit capacity}}$

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

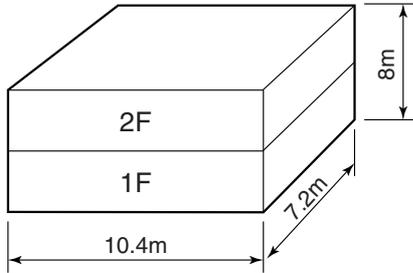
Heating :

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

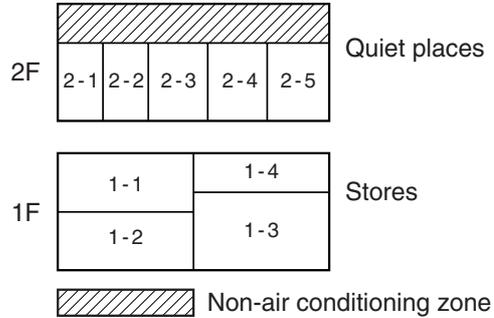
1-3-4. Example of equipment Selection

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 : 150m²
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

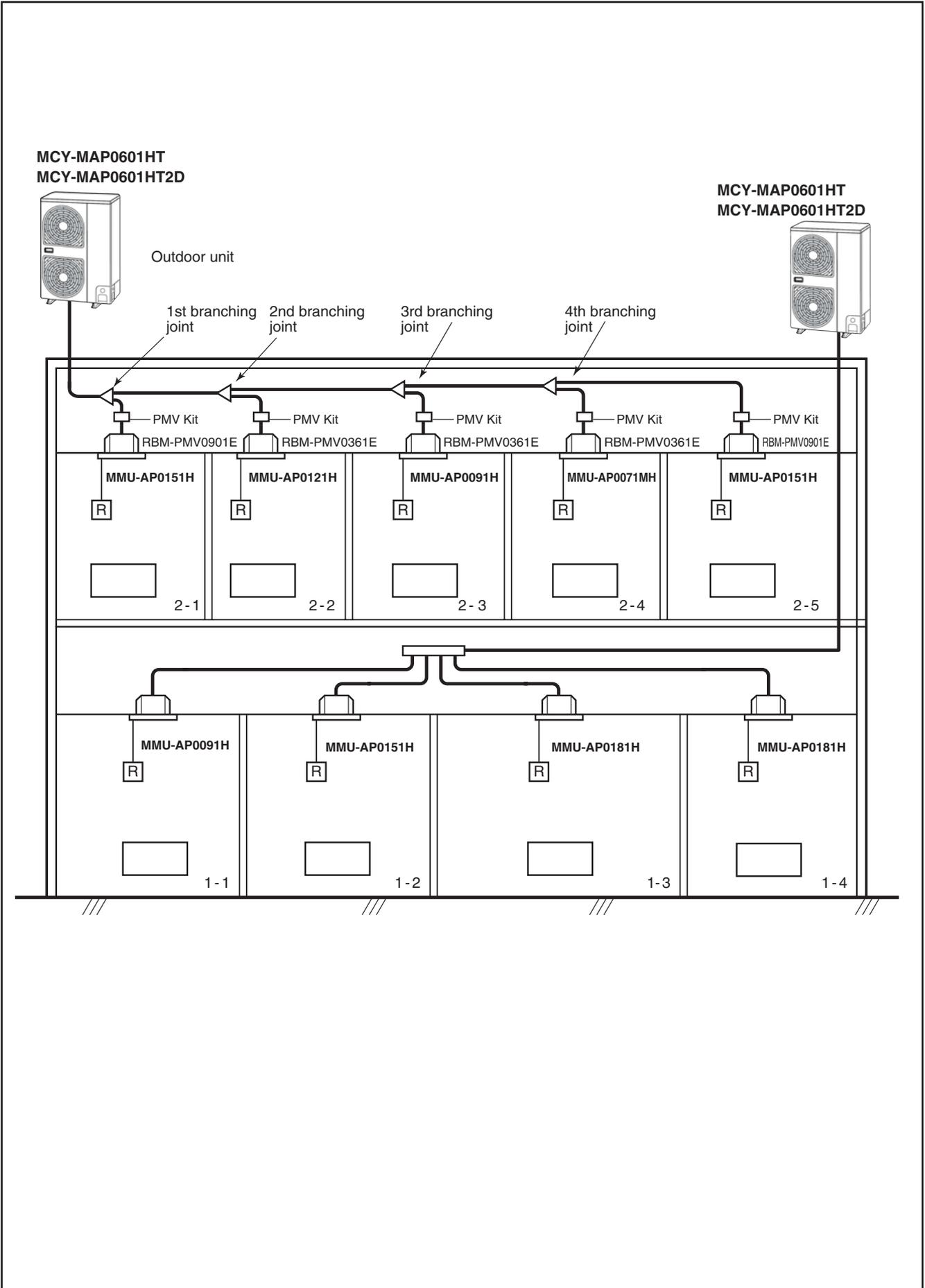
- a. Calculate cooling for every rooms.
- b. Select an indoor unit to match the cooling load for every room from the table in pages.
- c. Choose a tentative outdoor unit that will match with the indoor units. Perform capacity correction based on the pipe length, system lift, indoor set temperature, outdoor 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 MCY-	Capacity (kW)	
					Cooling	Heating		Cooling	Heating
2F	2-1	4.2	3.4	MMU-AP0151H	4.5	5.0	MAP0601H 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 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		Judgment
Floor	Room No.	Equivalent length (m)	Height difference (m)	Pipe correction x temp. correction		Capacity		
				Cooling	Heating	Capacity (kW)		
						Cooling	Heating	
2F	2-1	23	5	1.0 x 1.0 x 0.96 =0.96	1.0 x 0.95 x 0.99 x 0.95 =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 x 1.0 x 1.03 x 0.92 =0.94	1.0 x 0.975 x 1.03 x 0.95 =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

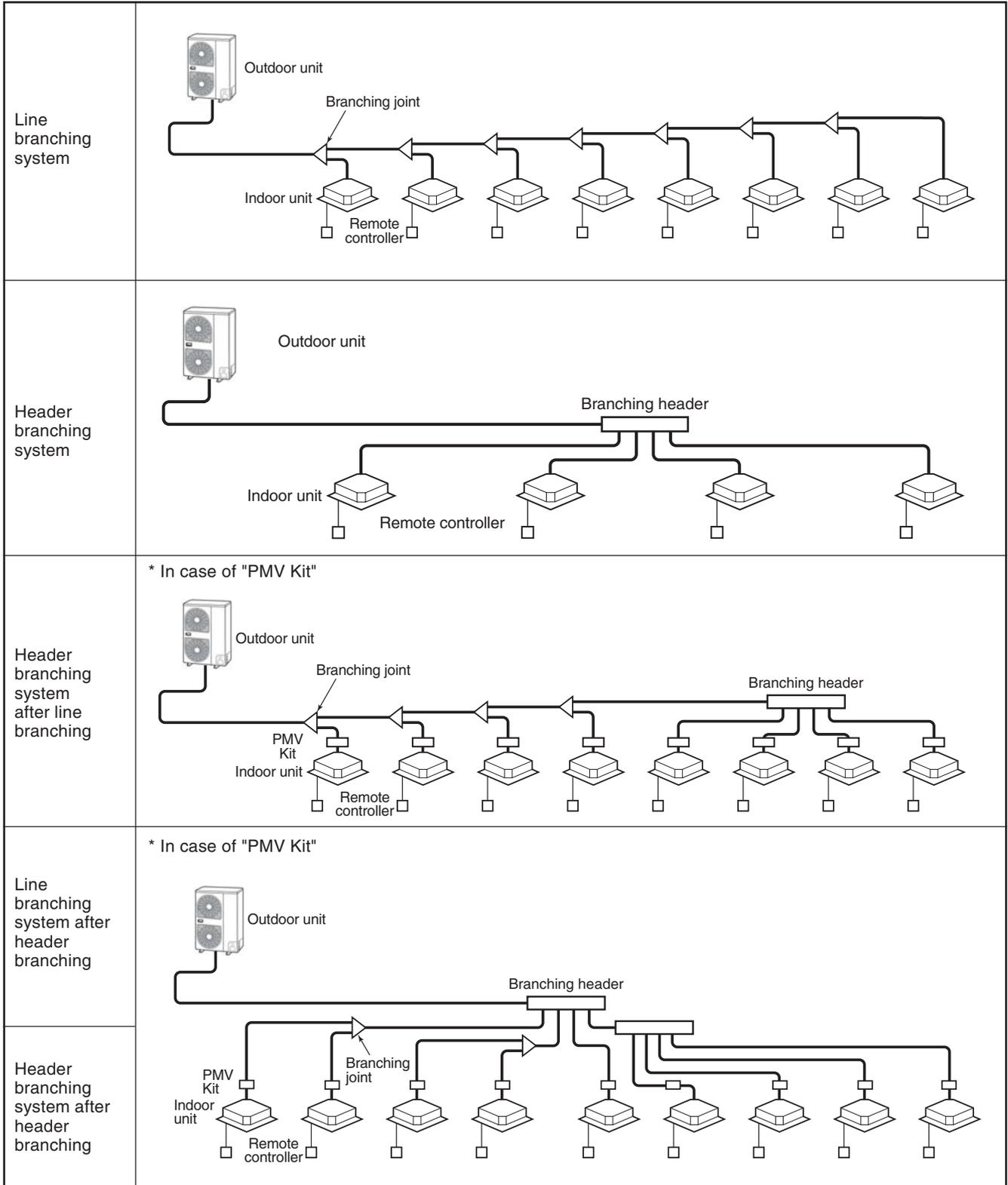


1-4. Piping requirement

1-4-1. Free branching system

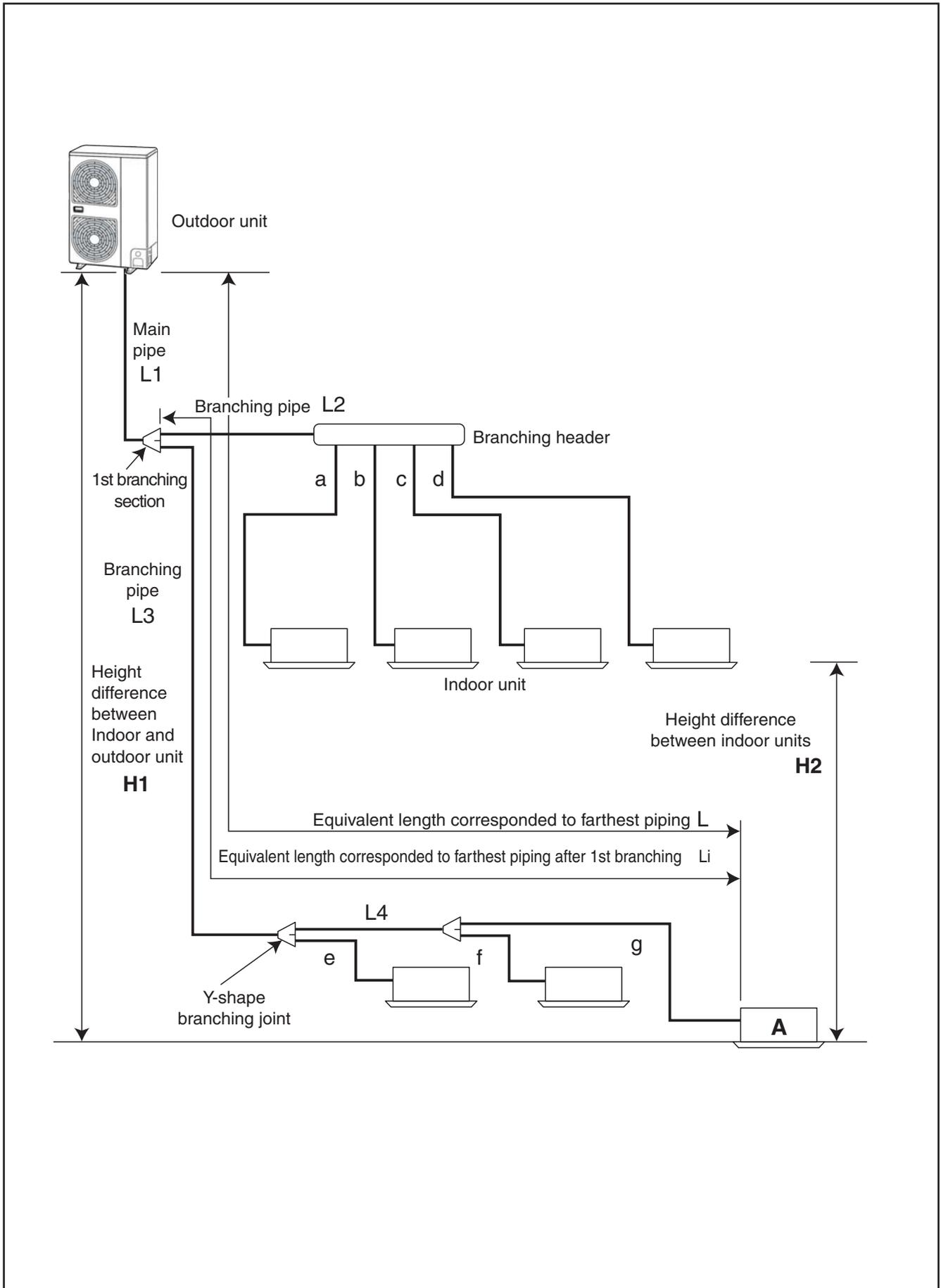
- ① Line branching system
- ② Header branching system
- ③ Header branching system after line branching
- ④ Line branching system after header branching
- ⑤ Header branching system after header branching

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



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

① Allowable length and height difference of refrigerant piping



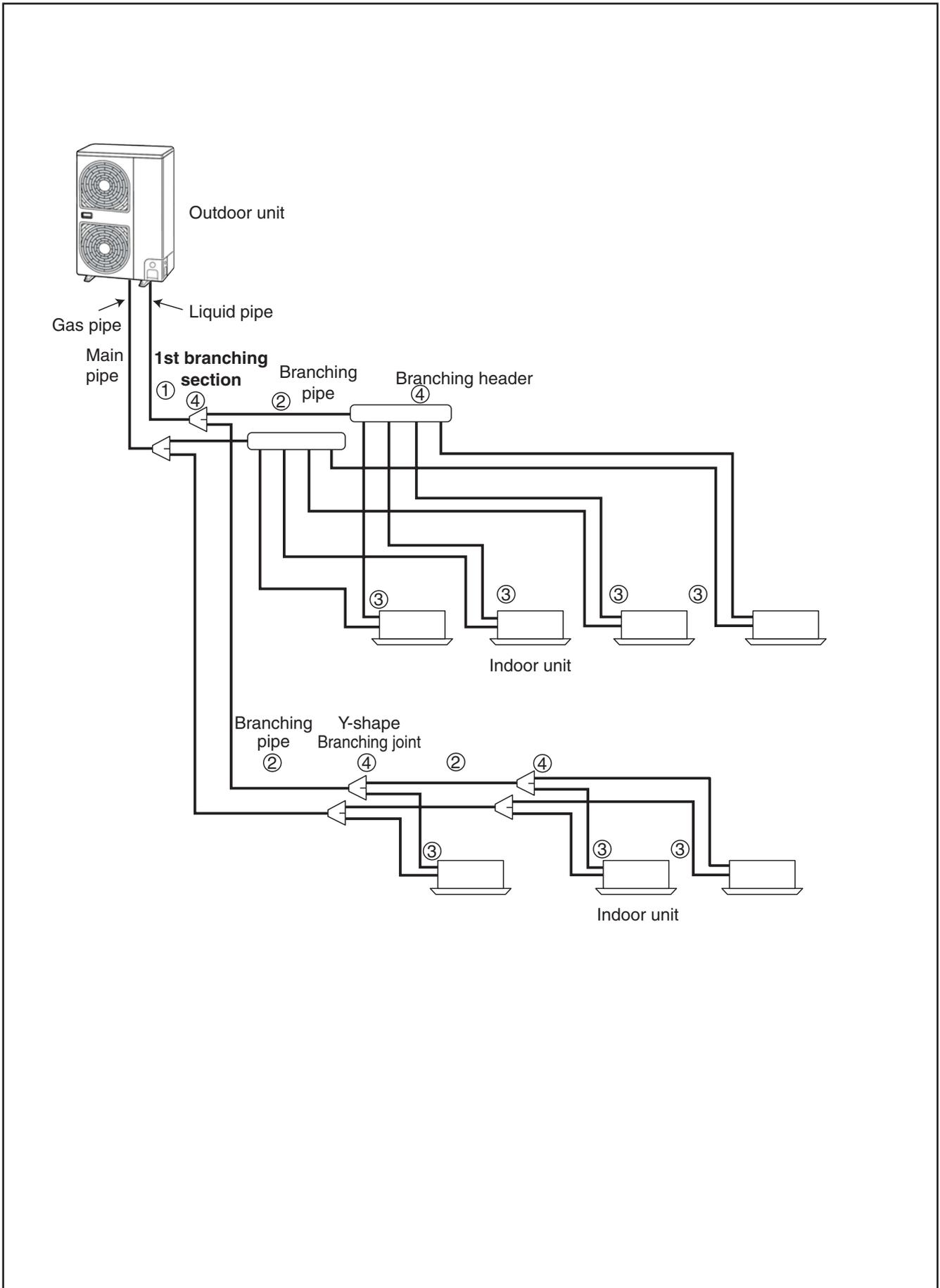
① Allowable length and height difference of refrigerant piping

		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 L (*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 Li (*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 H1	Upper outdoor unit	30m	—
		Lower outdoor unit	20m	—
	Height between indoor units H2		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 ↓ 1st branching section	Main pipe	<p>Size of main pipe</p> <table border="1"> <thead> <tr> <th>Outdoor unit capacity type</th> <th>Gas pipe (mm)</th> <th>Liquid pipe (mm)</th> </tr> </thead> <tbody> <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> </tbody> </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																								
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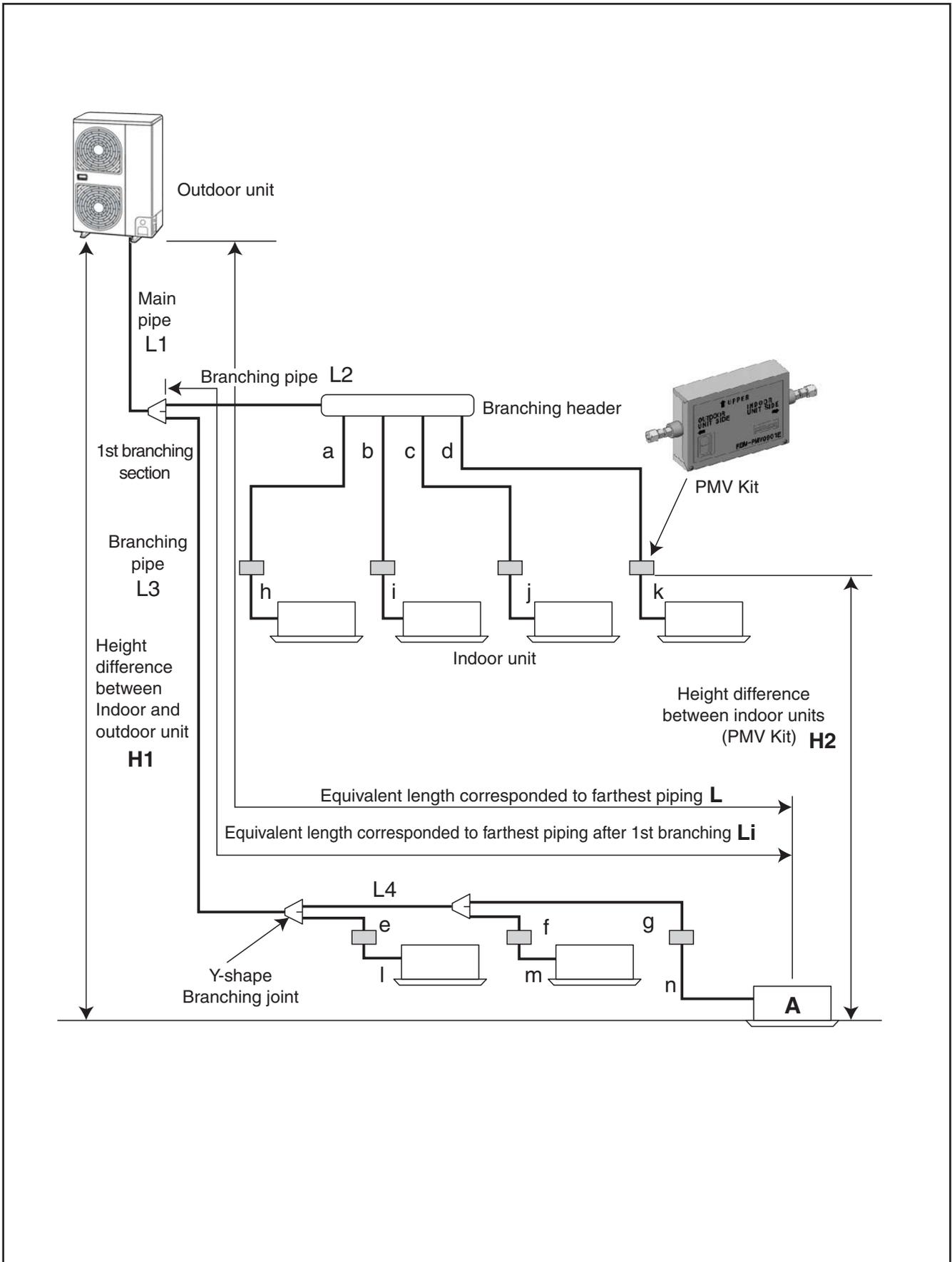
Minimum wall thickness for R410A application

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 ϕ 19.0 or more, use a suitable material.

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

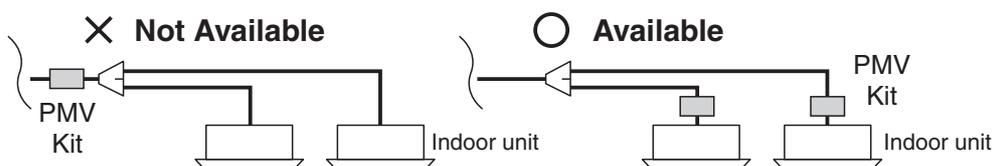
① Allowable length and height difference of refrigerant piping



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 L (*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 Li (*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 H1	Upper outdoor unit	30m	—
		Lower outdoor unit	20m	—
	Height between indoor units (PMV Kit) H2 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"

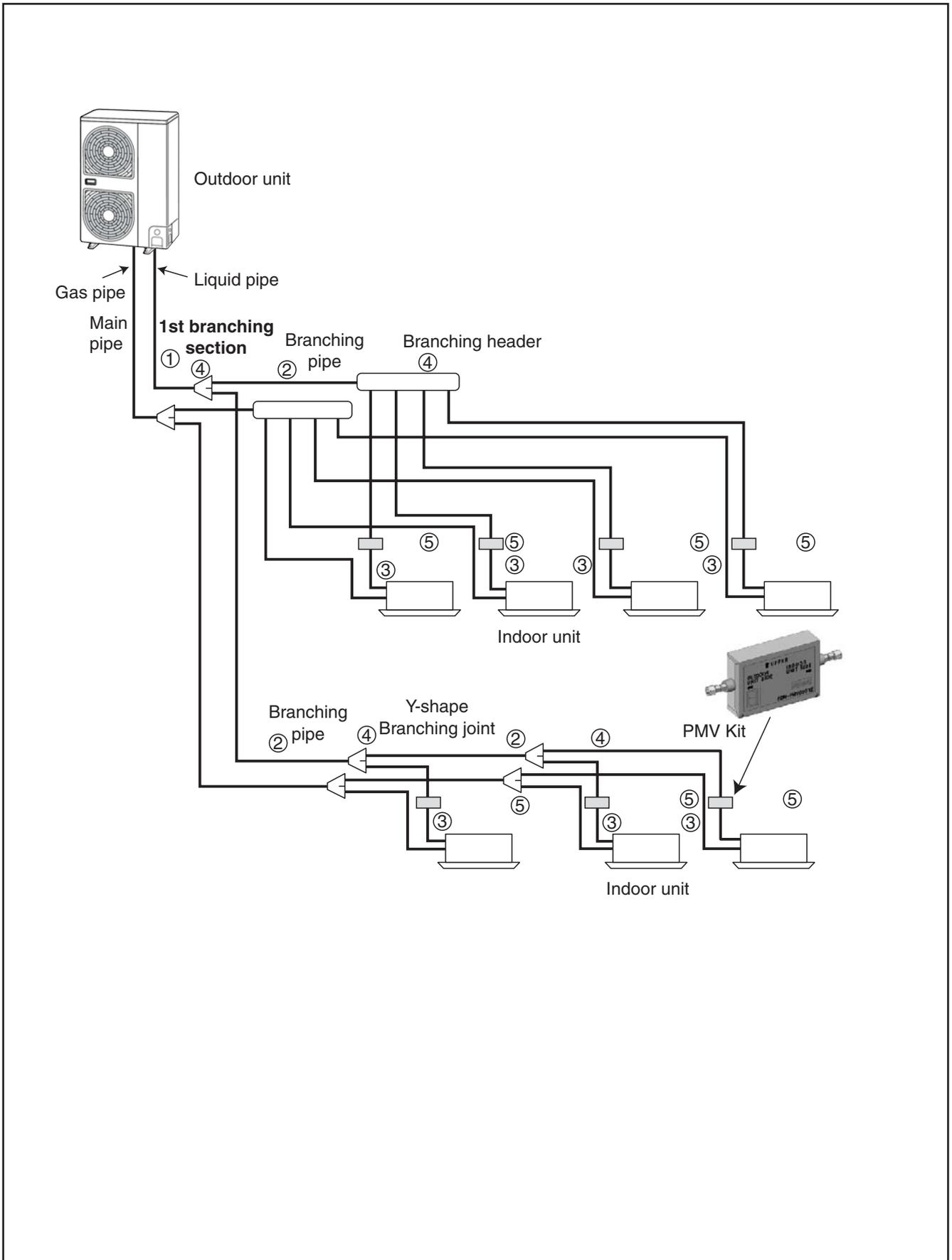


NOTE

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																							
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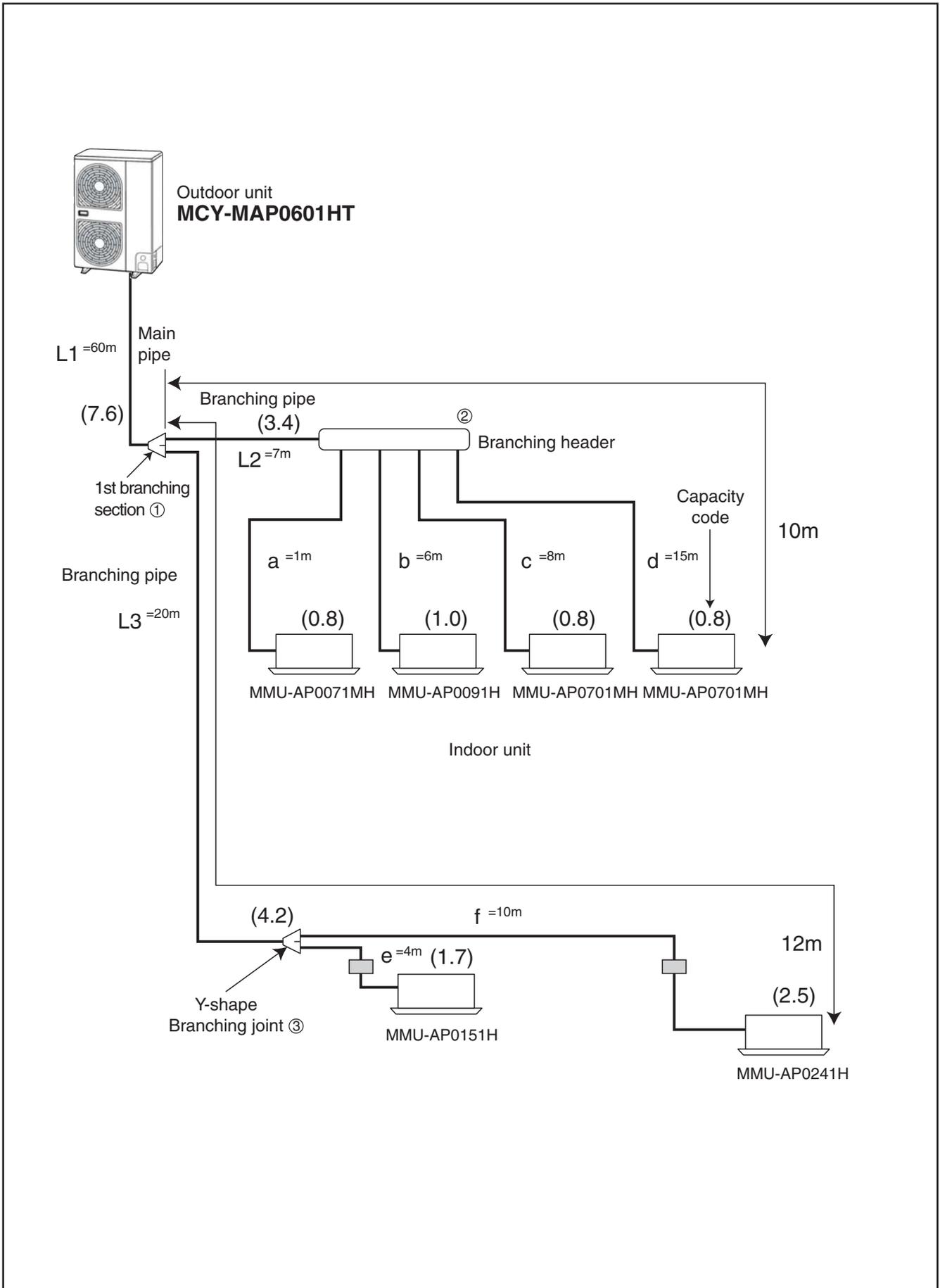
Minimum wall thickness for R410A application

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 ϕ 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

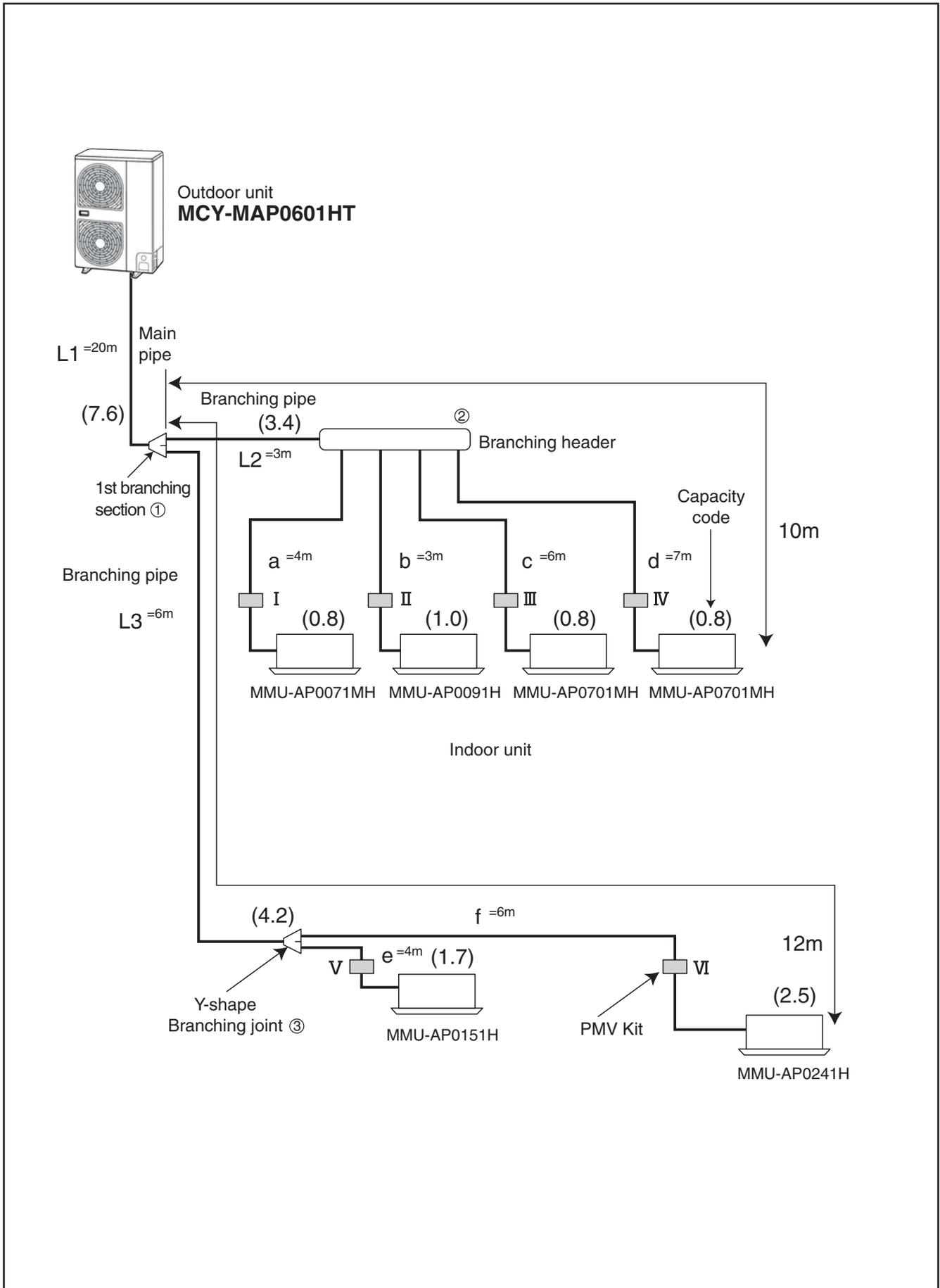
Mark	Equivalent length (m)	Seclection method (capacity code)	Gas pipe (mm)	Liquid pipe (mm)
L1	60	—————	Ø19.1	Ø9.5
L2	7	$0.8 + 1.0 + 0.8 + 0.8 = 3.4$	Ø15.9	Ø9.5
L3	20	$1.7 + 2.5 = 4.2$	Ø15.9	Ø9.5
a	1	0.8	Ø9.5	Ø6.4
b	6	1.0	Ø9.5	Ø6.4
c	8	0.8	Ø9.5	Ø6.4
d	15	0.8	Ø9.5	Ø6.4
e	4	1.7	Ø12.7	Ø6.4
f	10	2.5	Ø15.9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

• Y-shape branching joint and Header

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

1-4-4. Refrigerant piping example

② In case 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 6 (capacity code of outdoor unit)	RBM-BY53E
②	Branch header $0.8 + 1.0 + 0.8 + 0.8 = 3.4$ (a+b+c+d=L2)	RBM-HY1043E
③	Y-shape branch joint $1.7 + 2.5 = 4.2$ (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.

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

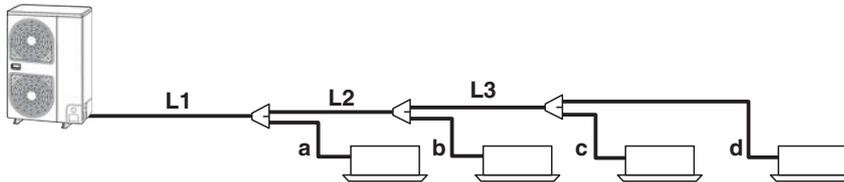
Table 1

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

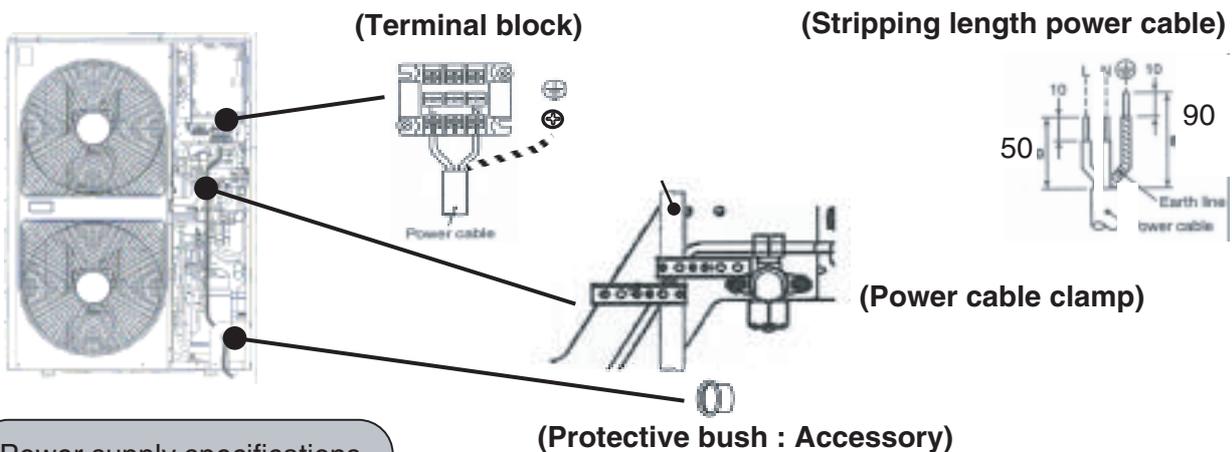
- (1) Keep the refrigerant piping system and the indoor-indoor/indoor-outdoor control wiring systems together.
- (2) When running power supplies and control wires parallel to each other, run them through separate conduits or maintain a suitable distance between them.
(Current capacity of power supplies: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

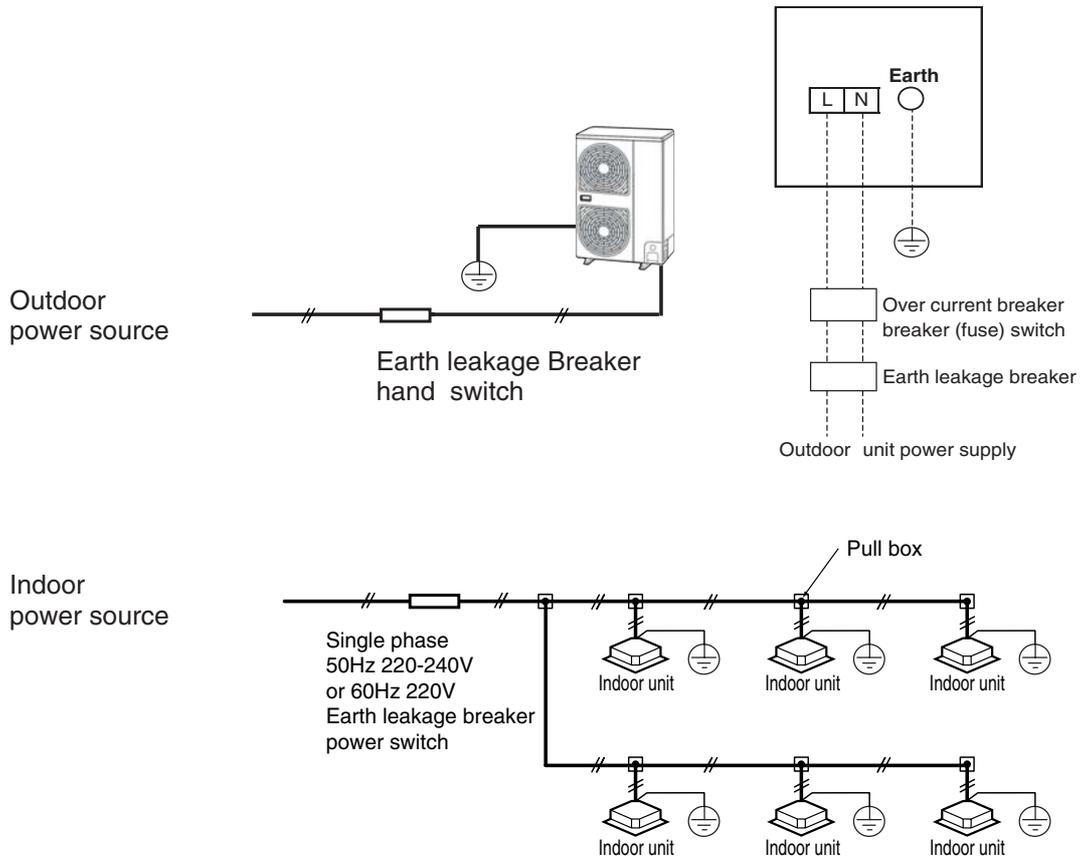


Power supply specifications

- 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 ² Max. 28 m	25A	32A
0501 type	6 mm ² Max. 25 m	28A	32A
0601 type	6 mm ² Max. 22 m	31A	40A

* Design 60245 IEC66

② For Indoor Unit power supply

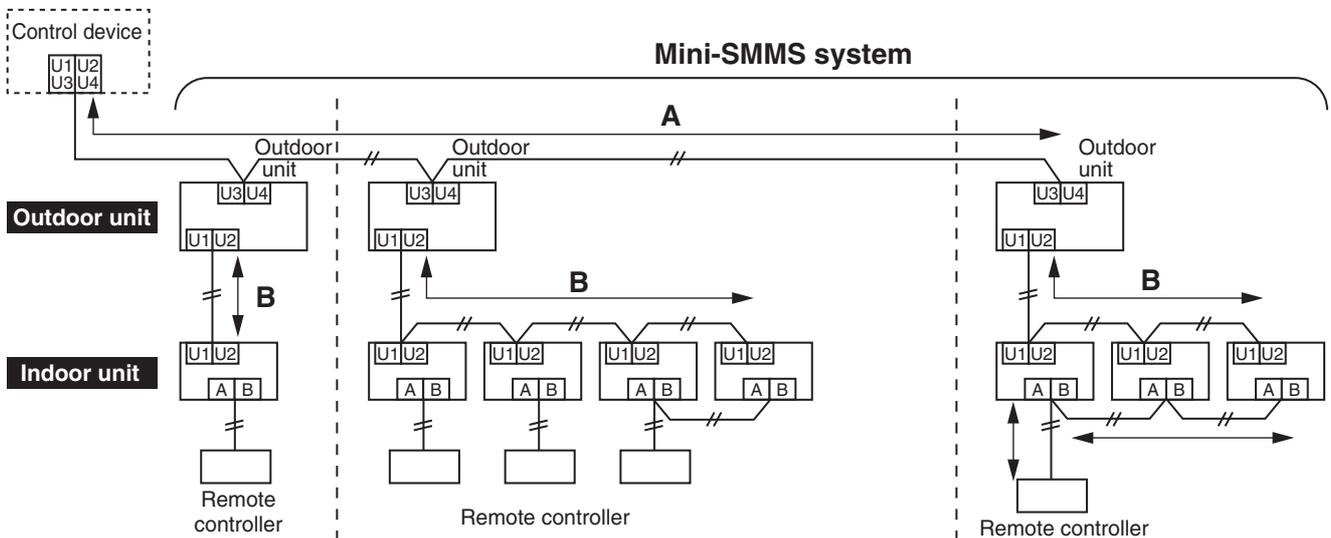
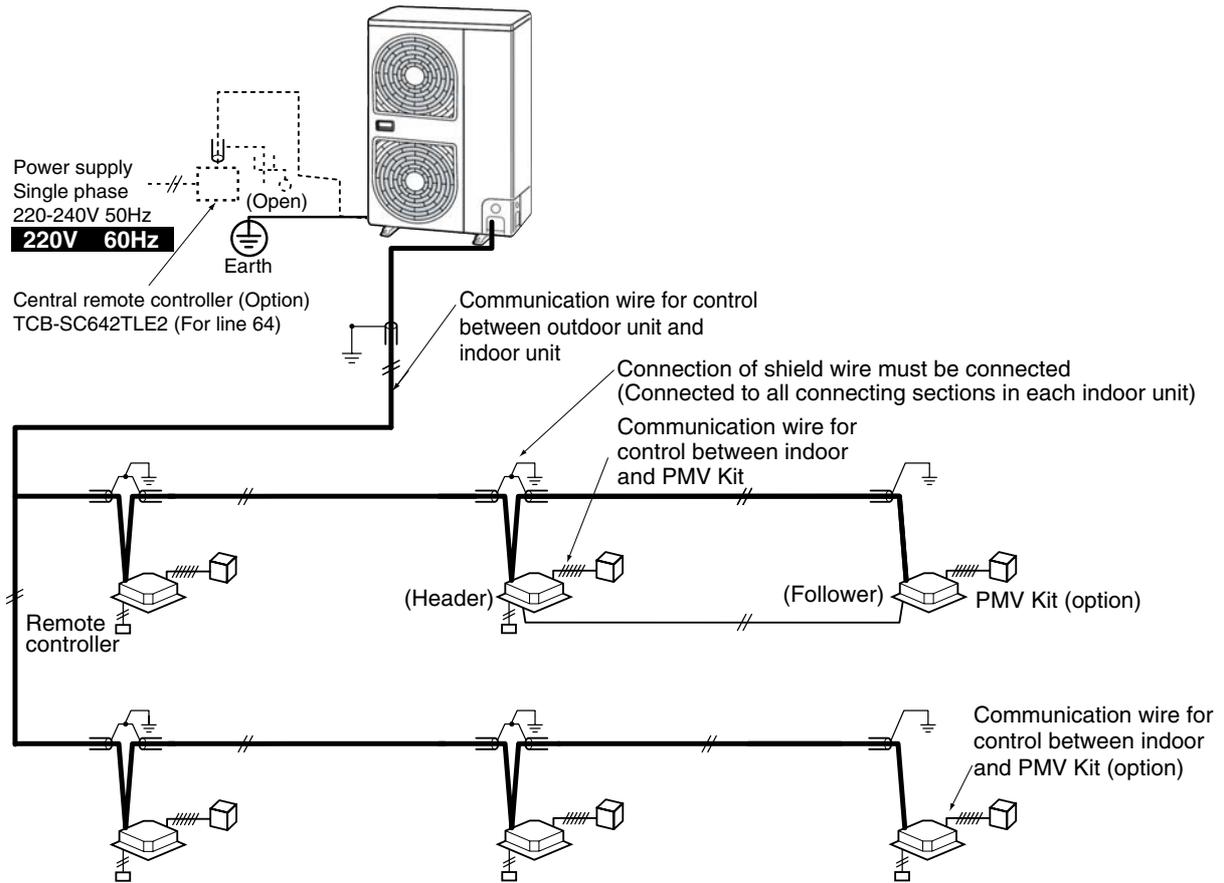
(Must be independent from the outdoor unit power supply)

Model	Item	Power supply wiring	
		Wire size	Field fuse
All models of indoor units		2.0mm ² MAX.20m	3.5mm ² MAX.50m 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



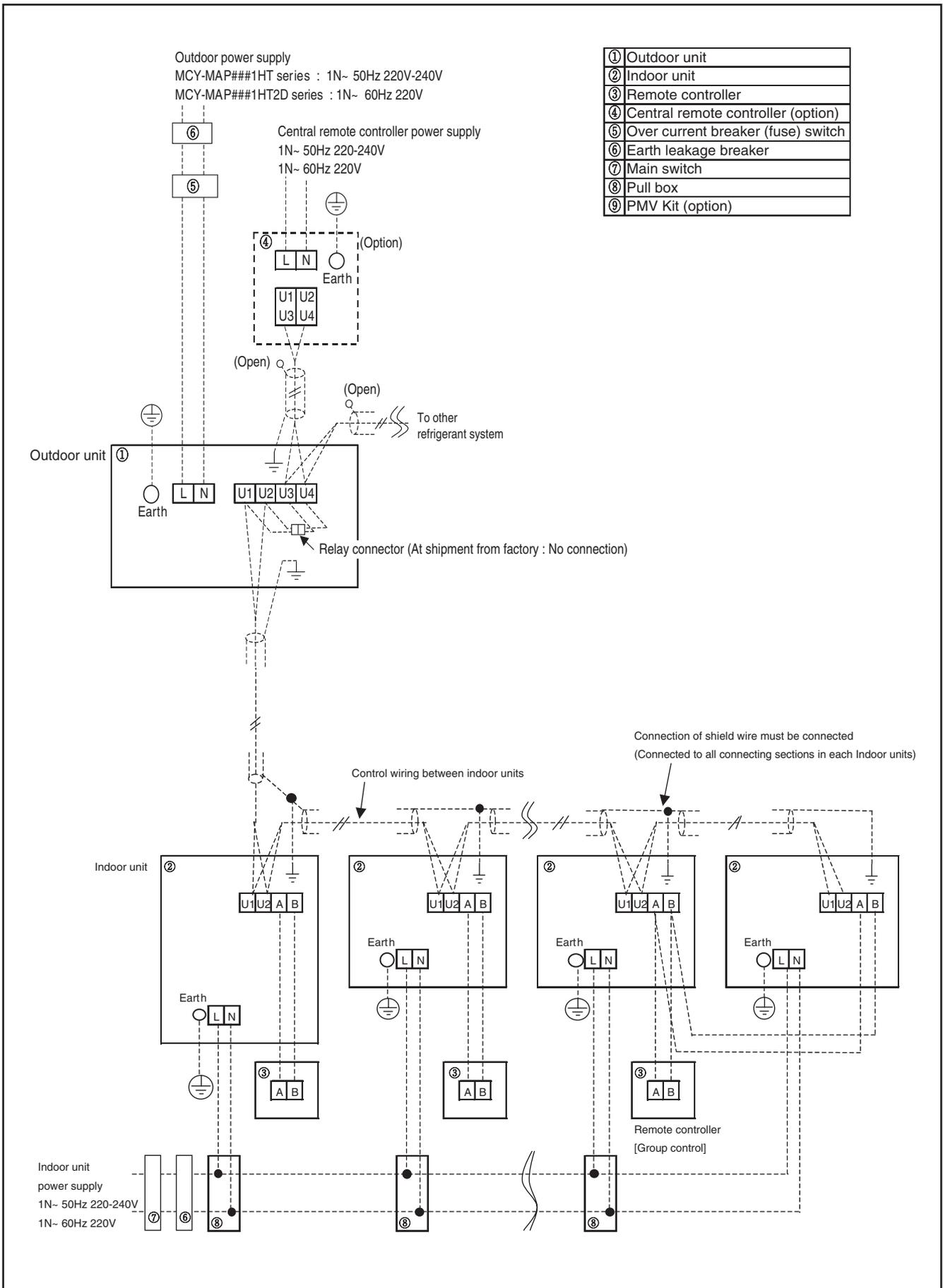
• Wire specification, quantity, size of crossover wiring and remote controller wiring

Name	Q'ty	Size			Specification
		Up to 500m	Up to 1000m	1000 to 2000m	
Crossover wiring (A + B) (indoor-indoor / indoor-outdoor / control wiring, central control wiring) *Total Control wiring length	2 cores	1.25mm ²		2.0mm ²	Shield wire
Remote controller wiring	2 cores	0.5 to 2.0mm ²	-	-	-
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)

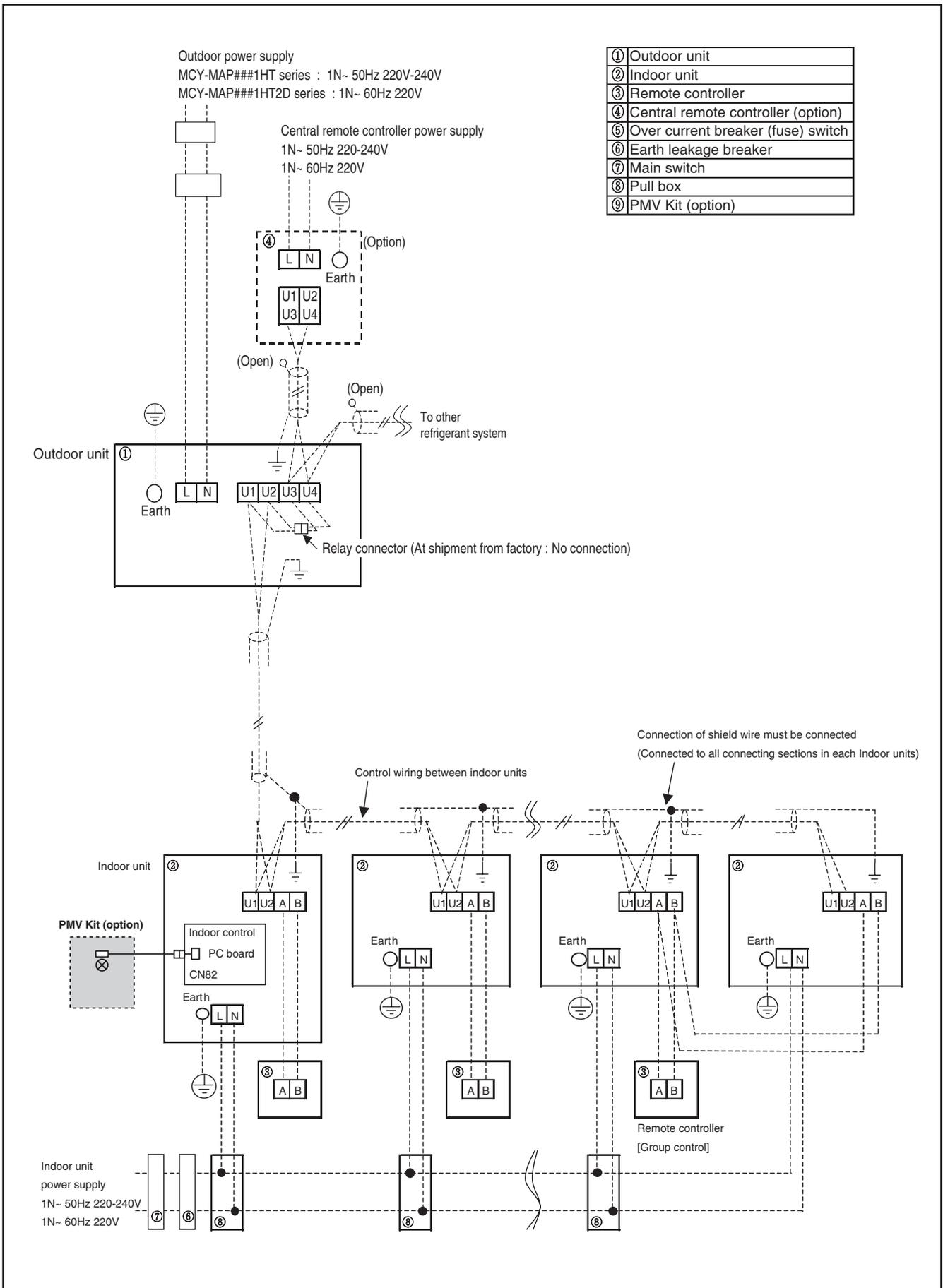
1-5-5. Example of system wiring Design

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

50Hz

■ Outdoor units

Model name	Nominal (V-Ph-Hz)	Voltage Range		Compressor	Fan Motor		Power Supply		
		Min	Max		RLA	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

50Hz

■ Indoor units

Type	Model	Nominal Voltage (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
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 (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

60Hz

■ Outdoor units

Model name	Nominal (V-Ph-Hz)	Voltage Range		Compressor RLA	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

60Hz

■ Indoor units

Type	Model	Nominal Voltage (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
MMU-AP 0301 WH	220-1-60	198	242	0.053	0.67	0.84	15	
1-Way Air Discharge Cassette Type	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 (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

Appearance



Standard accessories

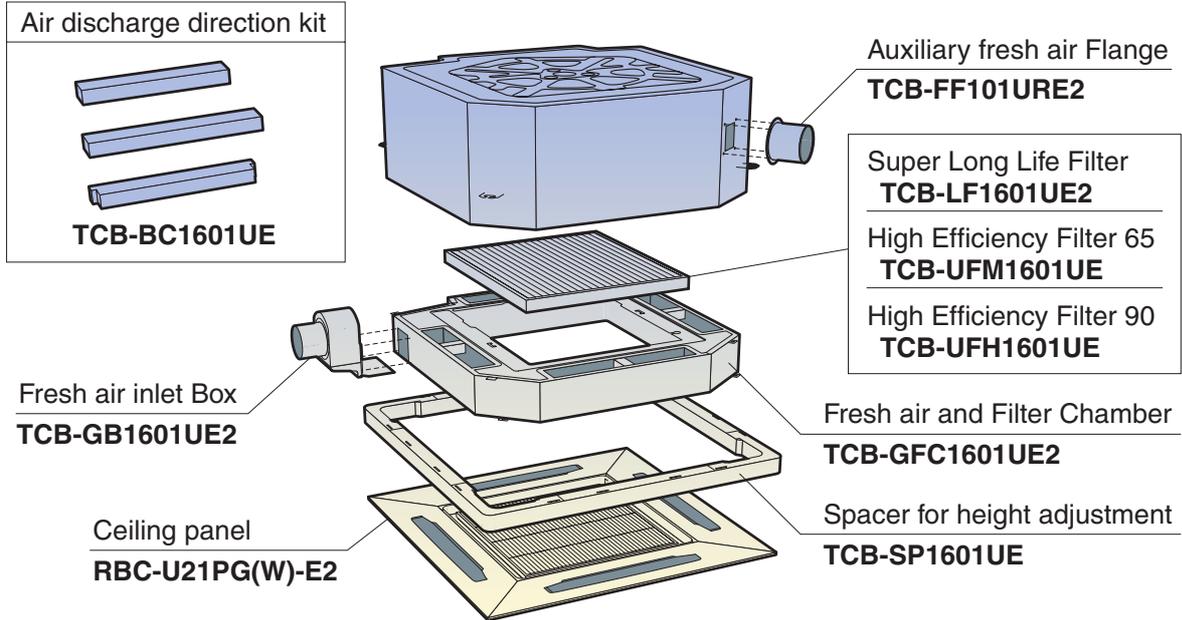
Part name	Q'ty	Shape	Use	Part name	Q'ty	Shape	Use
Installation Manual	2	—	(Be sure to hand over to customer)	Heat insulator	1		For heat insulating of drain connecting section
Heat insulating pipe	2		For heat insulating of pipe connecting section	Washer	8		For hanging down unit
Installation pattern	1	—	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% (Weight method) *Not valid in combination with TCB-FM1601UE, TCB-UFH1601UE and TCB-BC1601UE	Use with TCB-GFC1601UE2
High Efficiency Filter 65	TCB-UFM1601UE		Dust collecting effect : 65% (NBS Colorimetric method) *Not valid in combination with TCB-LF1601UE2, TCB-UFH1601UE, TCB-FF101URE2 and TCB-BC1601UE	Use with TCB-GFC1601UE2
High Efficiency Filter 90	TCB-UFH1601UE		Dust collecting effect : 90% (NBS Colorimetric method) *Not valid in combination with TCB-LF1601UE2, TCB-UFM1601UE, TCB-FF101URE2 and TCB-BC1601UE	Use with TCB-GFC1601UE2
Fresh air inlet Box	TCB-GB1601UE2		For fresh air intake by using the knockout hole of Fresh air and filter chamber. (dia=100mm) *Not valid in combination with TCB-FF101URE2 and TCB-SP1601UE	Use with TCB-GFC1601UE2
Fresh air and Filter Chamber	TCB-GFC1601UE2		For fresh air intake and installing high efficiency filter or super long filter *Not valid in combination with TCB-SP1601UE	
Auxiliary fresh air Flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia=100mm) *Not valid in combination with TCB-GB1601UE2	
Spacer for height adjustment	TCB-SP1601UE		Height = 500mm *Not valid in combination with TCB-GB1601UE2 and TCB-GFC1601UE2	
Air discharge direction kit	TCB-BC1601UE		Air direction change by cutting off air discharge port (3pcs) *Not valid in combination with TCB-LF1601UE2, TCB-UFM1601UE, 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) (m ³ /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) (m ³ /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.

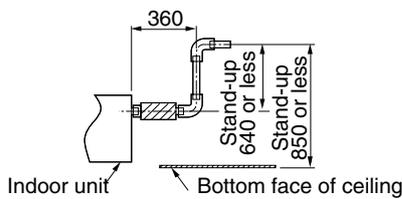
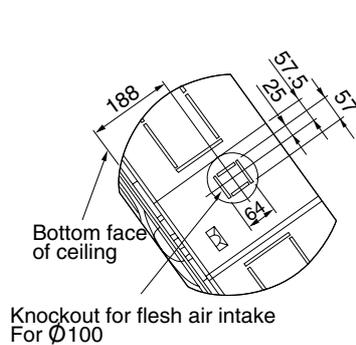
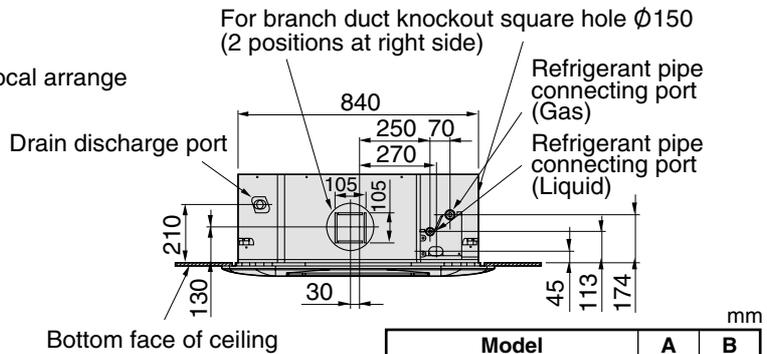
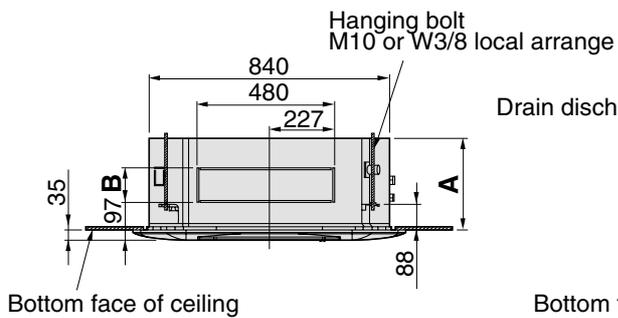
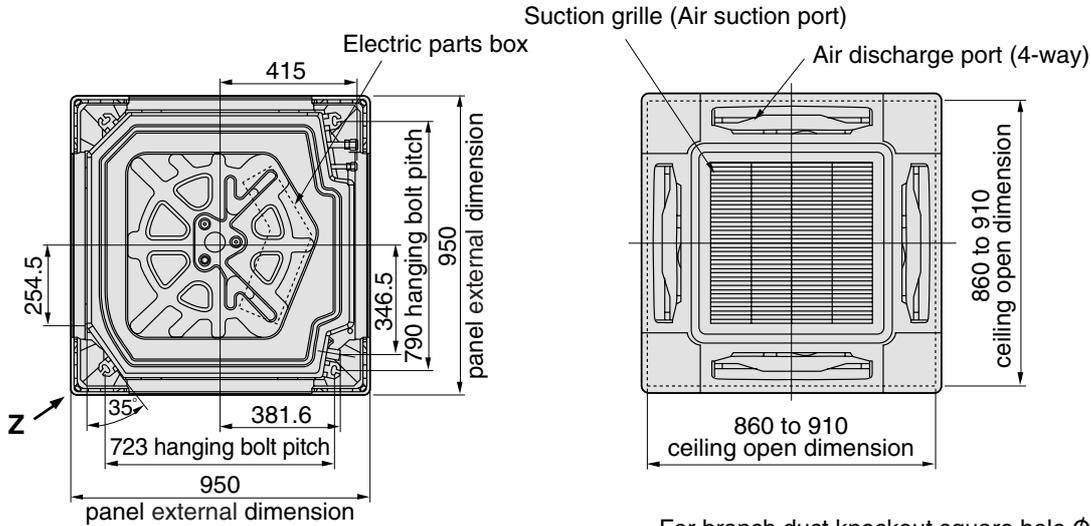
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

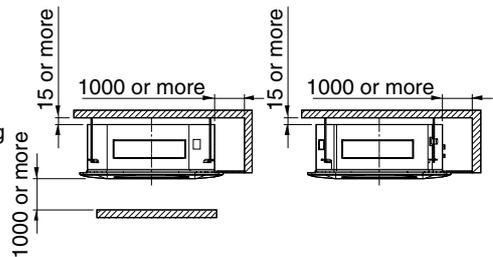
2-1. 4-Way Air Discharge Cassete Type

• Dimension

MMU-AP0091H to P0481H



(NOTE)
As ABS is used for the drain discharge port of the main unit, the vinyl chloride paste cannot be used.
Use the flexible hose (Band fix) included in the package.

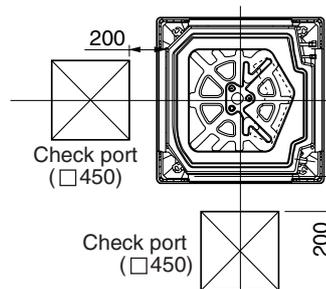


Z view

Drain-up standing-up size

Space required for installation and servicing

- **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



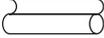
Note: All dimensions are in mm.

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

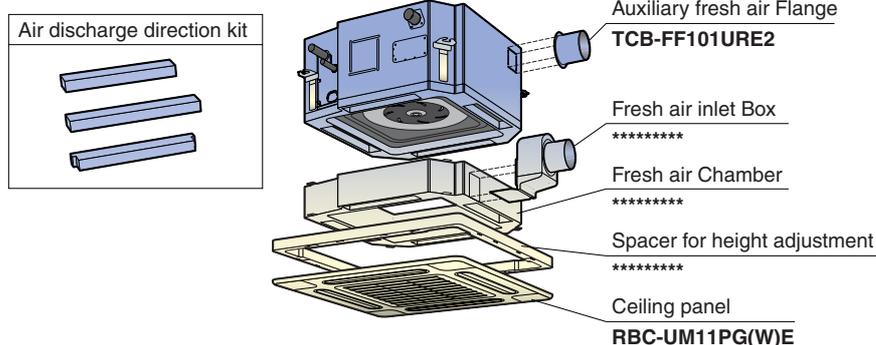
Appearance



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 (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) (m ³ /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 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 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) (m ³ /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.

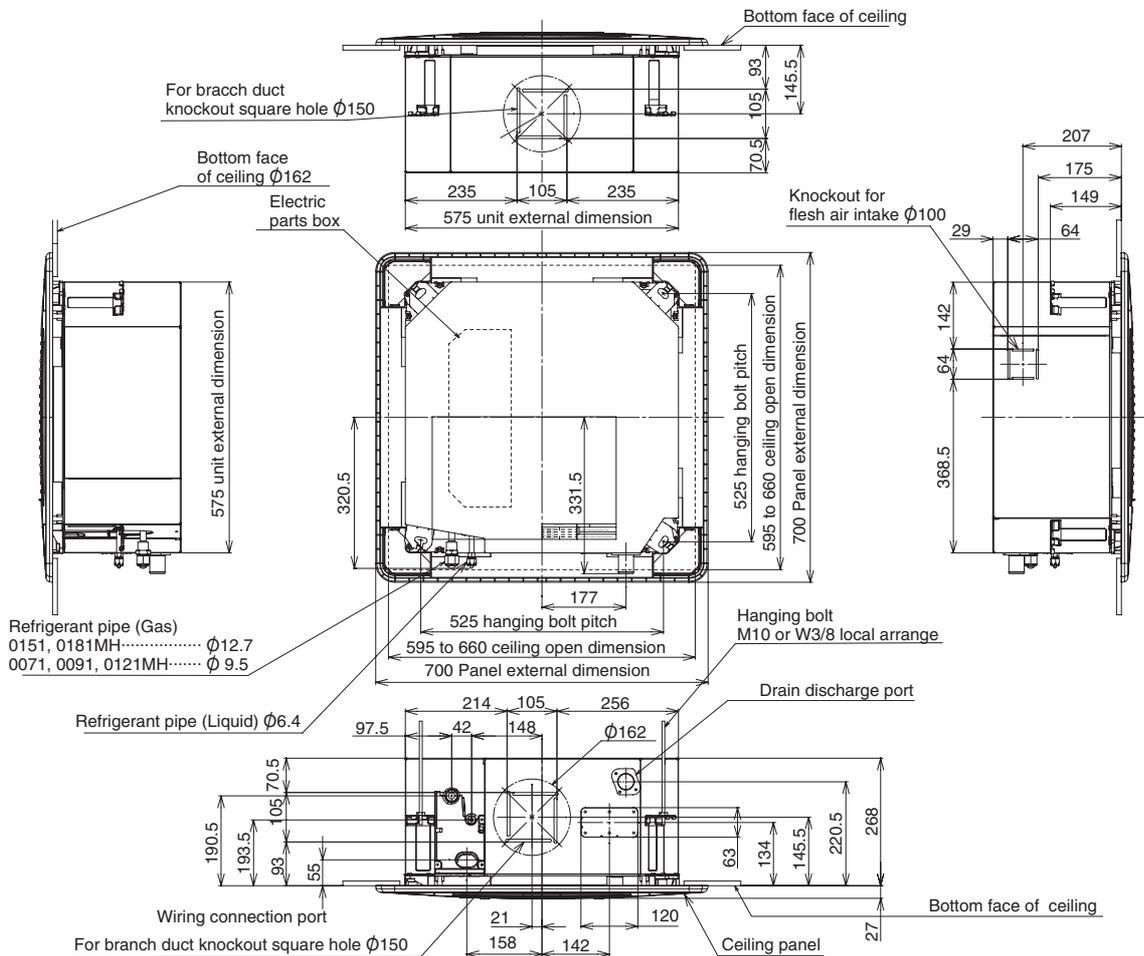
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

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

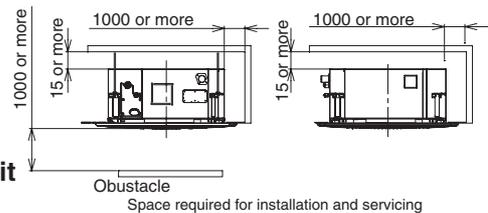
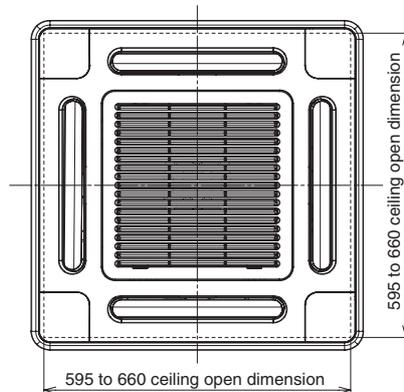
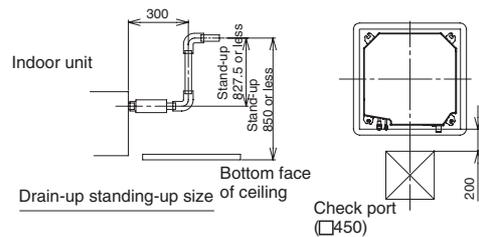
• Dimension

MMU-AP0071MH, AP0091MH, AP0121MH, AP0151MH, AP0181MH



(NOTE)

As ABS is used for the drain discharge port of the main unit, the vinyl chloride paste cannot be used. Use the flexible hose (Band fix) included in the package.



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

Note: All dimensions are in mm.

2-3. 2-way Air Discharge Cassette Type

Appearance



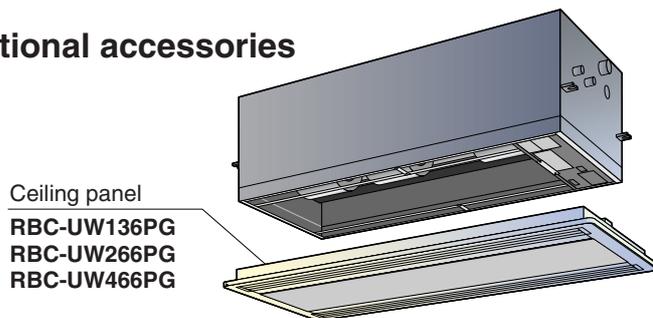
Standard accessories

Part name	Q'ty	Shape	Use	Part name	Q'ty	Shape	Use
Installation Manual	1	This manual	(Be sure to hand 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)	 (1 set)	 (1 pc)	 • RBC-UW466PG : Attached to indoor unit	 M5 x 20 ℓ (4 pcs)	 M5 x 30 ℓ (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 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 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) (m ³ /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) (m ³ /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.

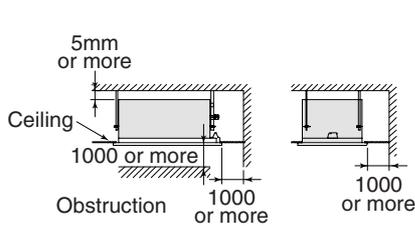
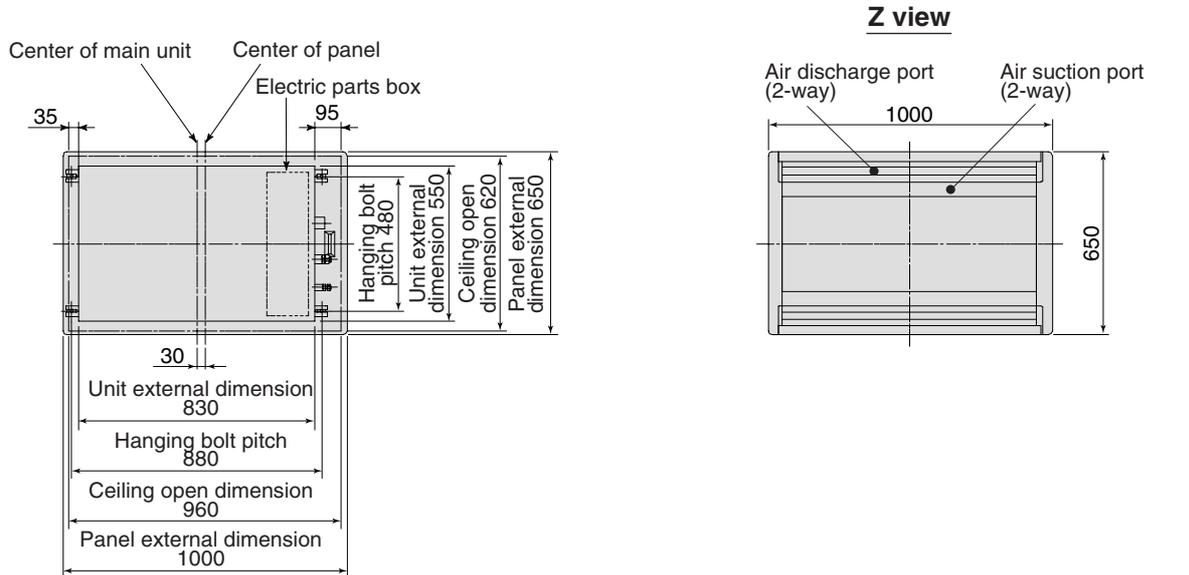
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

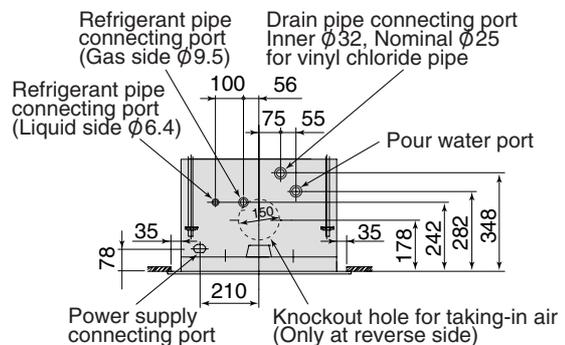
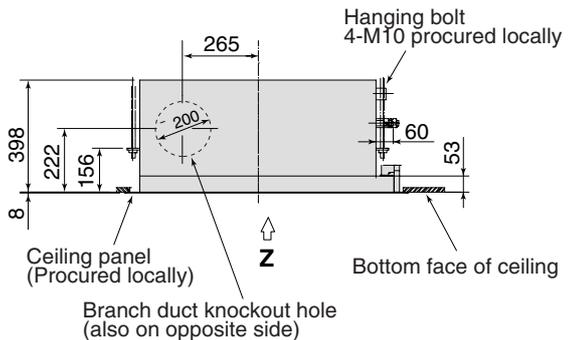
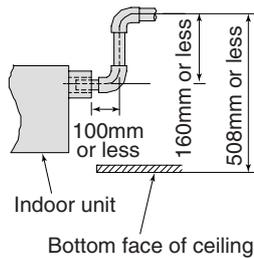
2-3. 2-way Air Discharge Cassette Type

• Dimension

MMU-AP0071WH, AP0091WH, AP0121WH



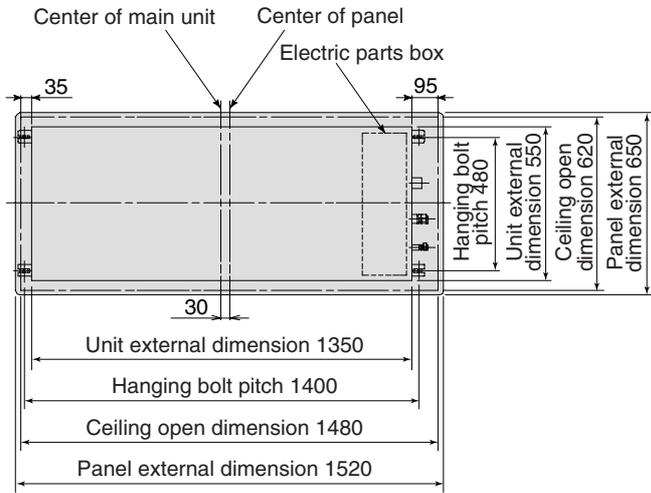
Space required for installation and servicing



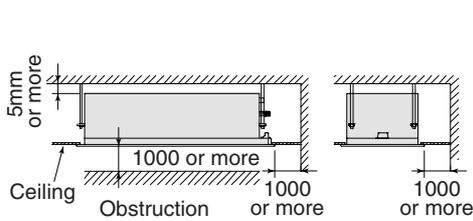
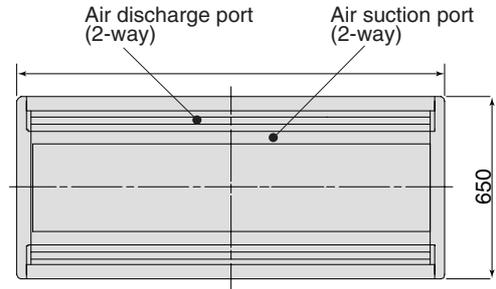
- Wired remote controller
RBC-AMT31E
- Simple wired remote controller
RBC-AS21E2
- Wireless remote controller kit
TCB-AX21E2
- Weekly timer application
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

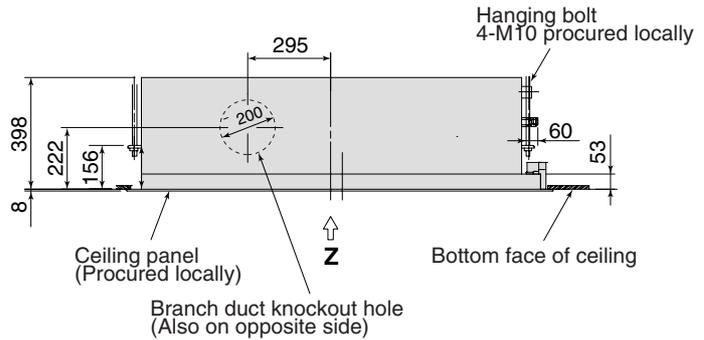
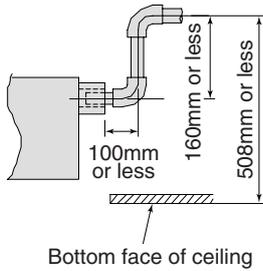
MMU-AP0151WH, AP0181WH, AP0241WH, AP0271WH. AP0301WH



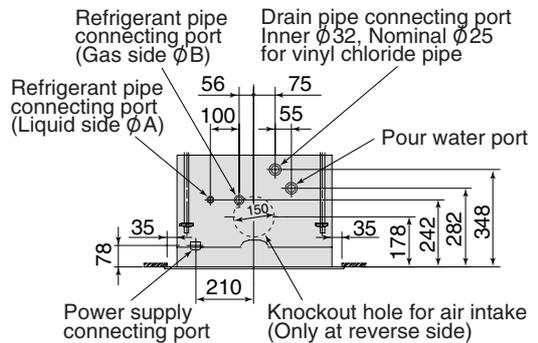
Z view



Space required for installation and servicing



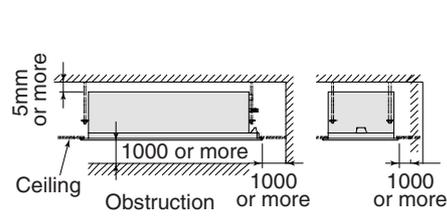
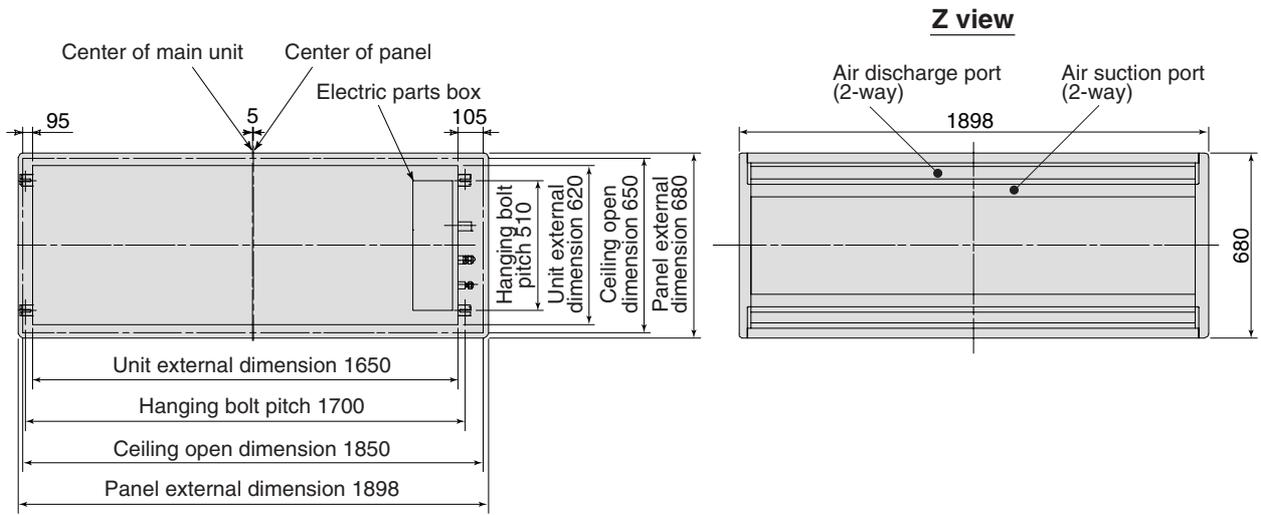
- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Wireless remote controller kit**
TCB-AX21E2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2



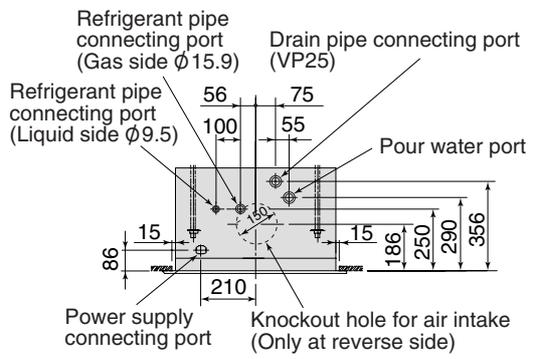
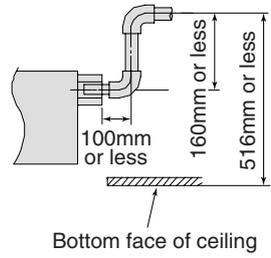
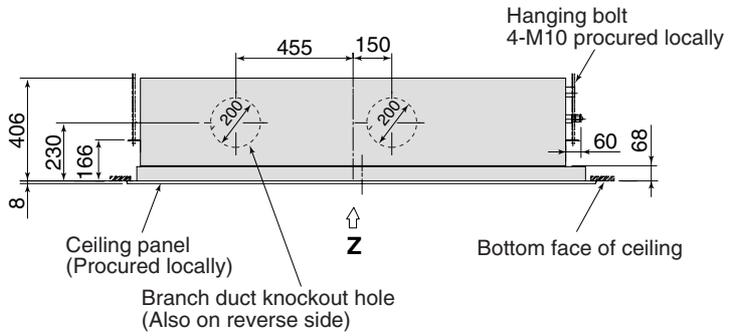
Model	A	B
MMU-AP0151WH to AP0181WH	ϕ 6.4	ϕ 12.7
MMU-AP0241WH to AP0301WH	ϕ 9.5	ϕ 15.9

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

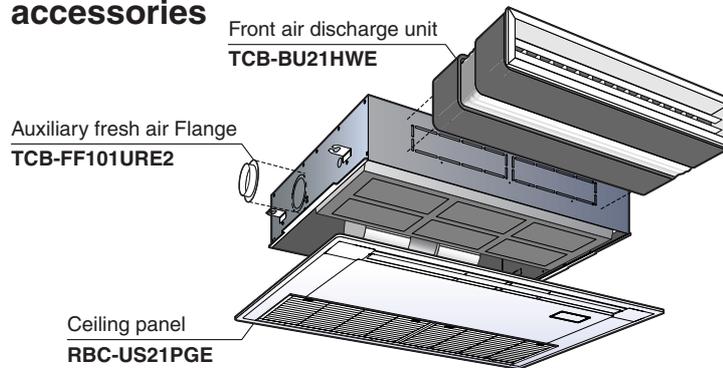
Appera



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

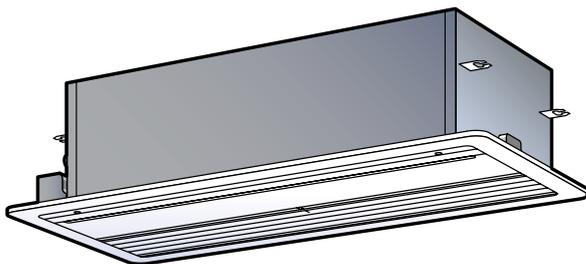
Appearance



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 \varnothing	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

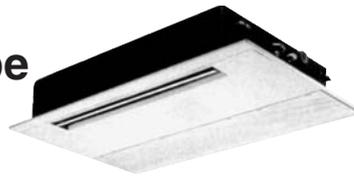


Remote controller

	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 (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) (m ³ /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						

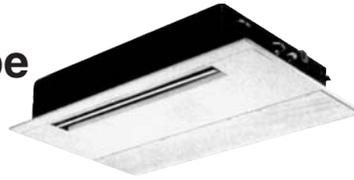
Note 1 : The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

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 (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) (m ³ /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.

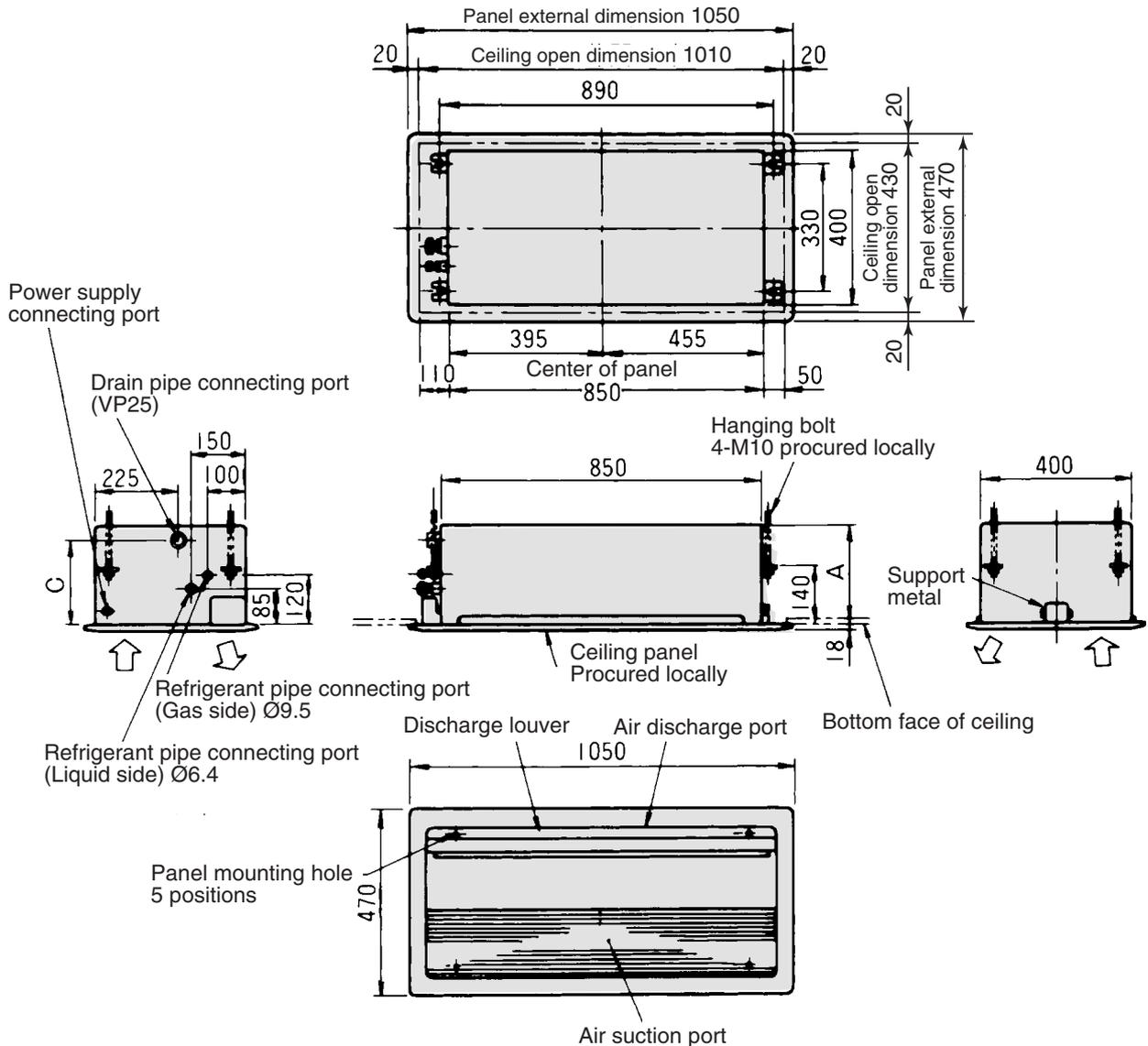
Note 2 : The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

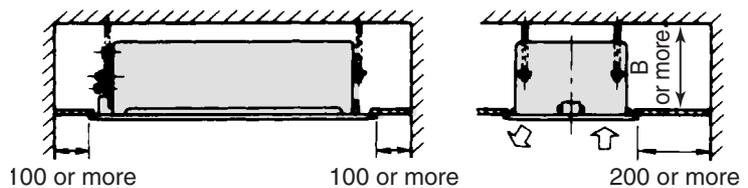
MMU-AP0071YH, AP0091YH, AP0121YH



Dimensions

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

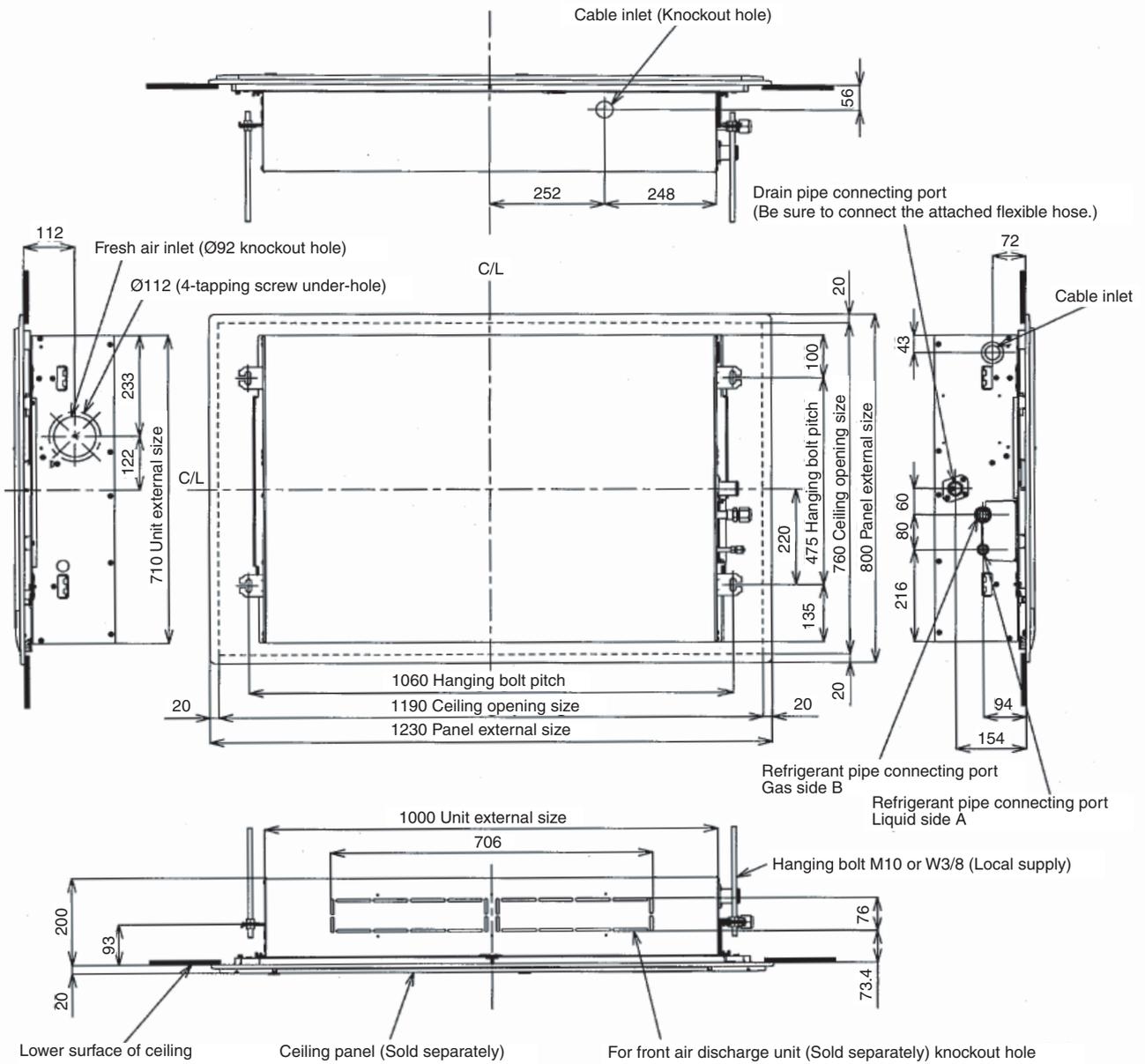
- Wired remote controller RBC-AMT31E
- Simple wired remote controller RBC-AS21E2
- Wireless remote controller kit TCB-AX21E2
- Weekly timer application RBC-AMT31E and RBC-EXW21E2



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

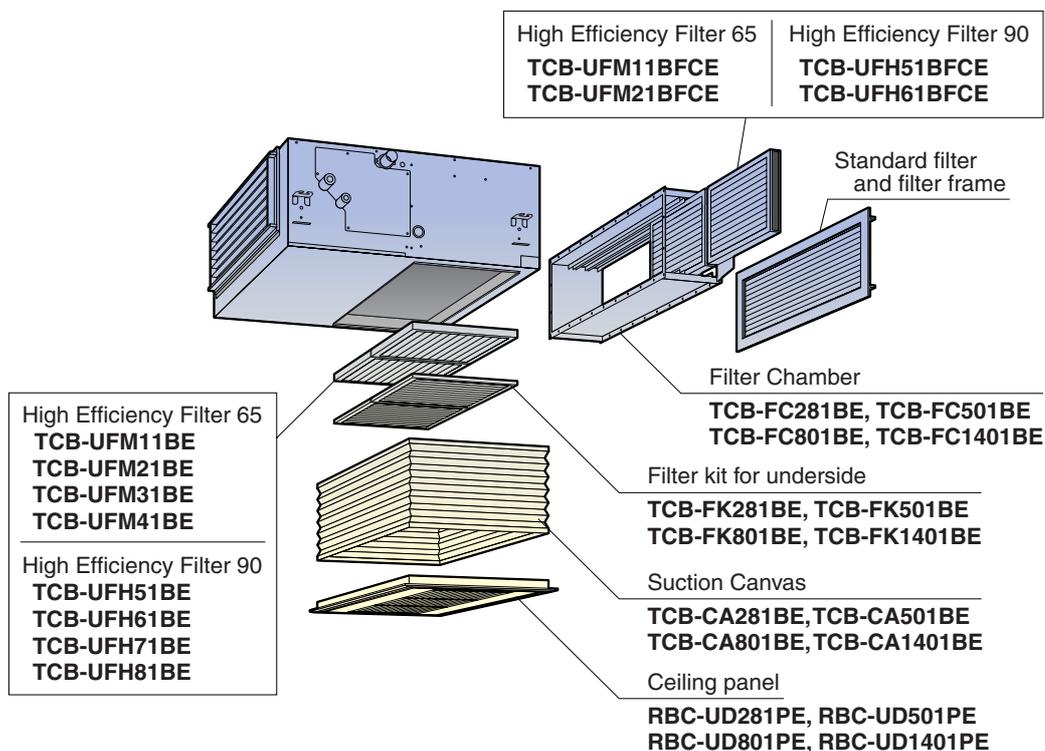
Appearance



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 (For rear suction)	TCB-UFM11BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect : 65% (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 (For rear suction)	TCB-UFH51BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect : 90% (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 (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 (For underside suction)	TCB-UFM11BE	MMD-AP0071/0091/0121BH	Dust collecting effect : 65% (NBS Colorimetric method)	
	TCB-UFM21BE	MMD-AP0151/0181BH		
	TCB-UFM31BE	MMD-AP0241/0271/0301BH		
	TCB-UFM41BE	MMD-AP0361/0481BH		
High Efficiency Filter 90 (For underside suction)	TCB-UFH51BE	MMD-AP0071/0091/0121BH	Dust collecting effect : 90% (NBS Colorimetric method)	
	TCB-UFH61BE	MMD-AP0151/0181BH		
	TCB-UFH71BE	MMD-AP0241/0271/0301BH		
	TCB-UFH81BE	MMD-AP0361/0481BH		
Ceiling panel (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 (For underside suction)	TCB-CA281BE	MMD-AP0071/0091/0121BH	Adjustment height of the suction canvas is more 40mm and 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 & 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) (m ³ /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) (m ³ /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											
		(pa)	100										
Air filter		Standard filter (Long life filter)											
Controller		Remote controller											
Connecting pipe	Gas side (mm)	∅9.5		∅12.7		∅15.9							
	Liquid side (mm)	∅6.4					∅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.

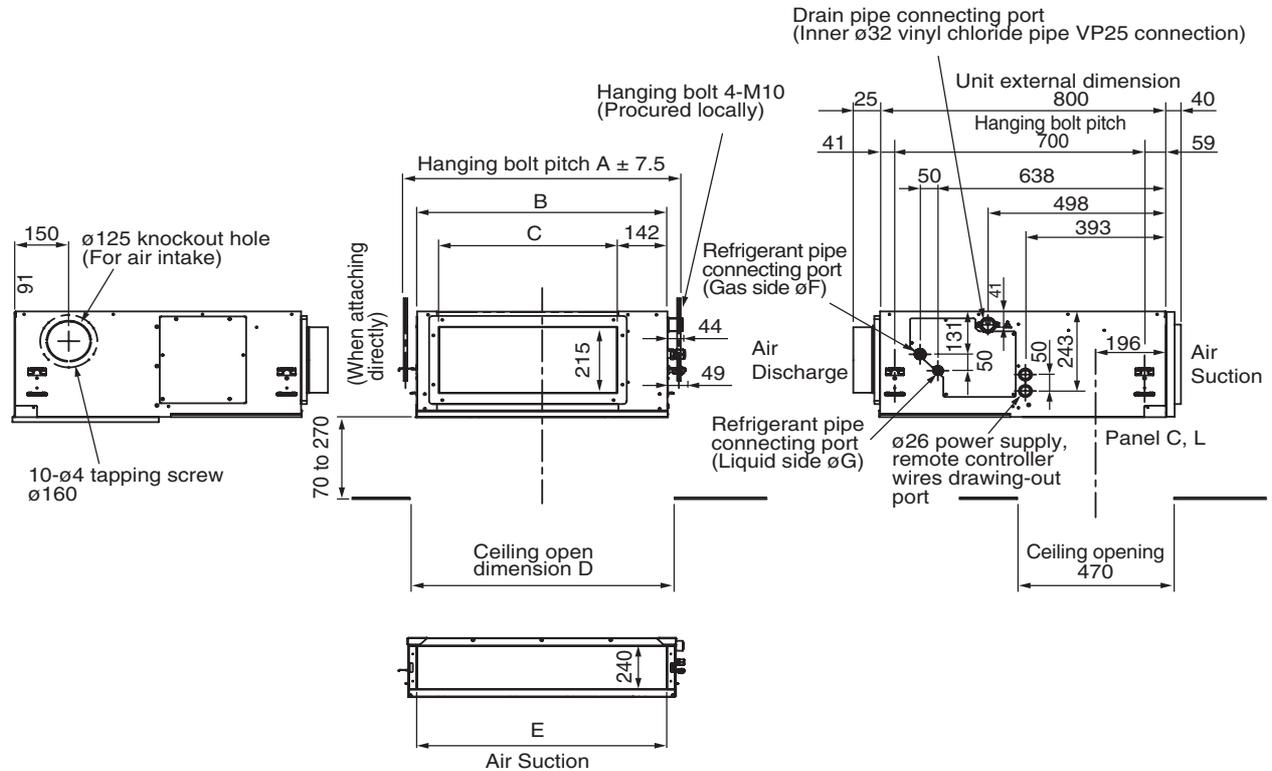
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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



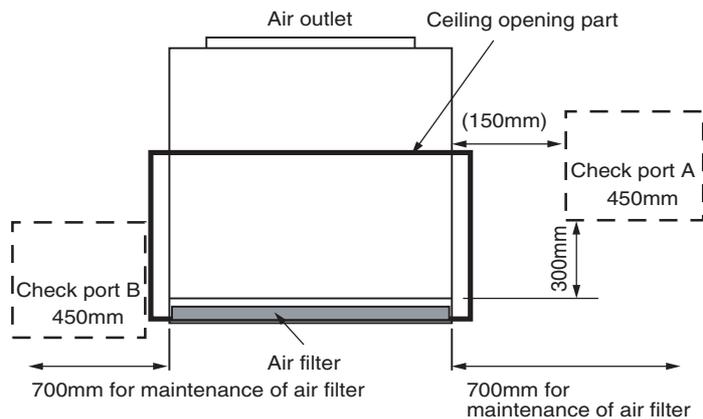
Model MMD-	A	B	C	D	E	F	G
AP0071BH, AP0091BH, AP0121BH	616	550	350	600	470	9.5	6.4
AP0151BH, AP0181BH	766	700	500	750	620	12.7	9.4
AP0241BH, AP0271BH, AP0301BH	1066	1000	800	1050	920	15.9	9.5
AP0361BH, AP0481BH	1416	1350	1150	1400	1270	15.9	9.5

(Note)

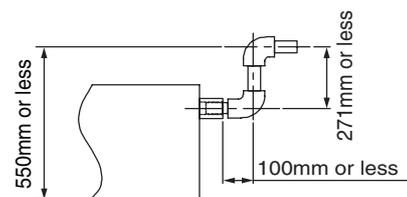
Two of high efficiency filters available
Deodorant filter not available

(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**



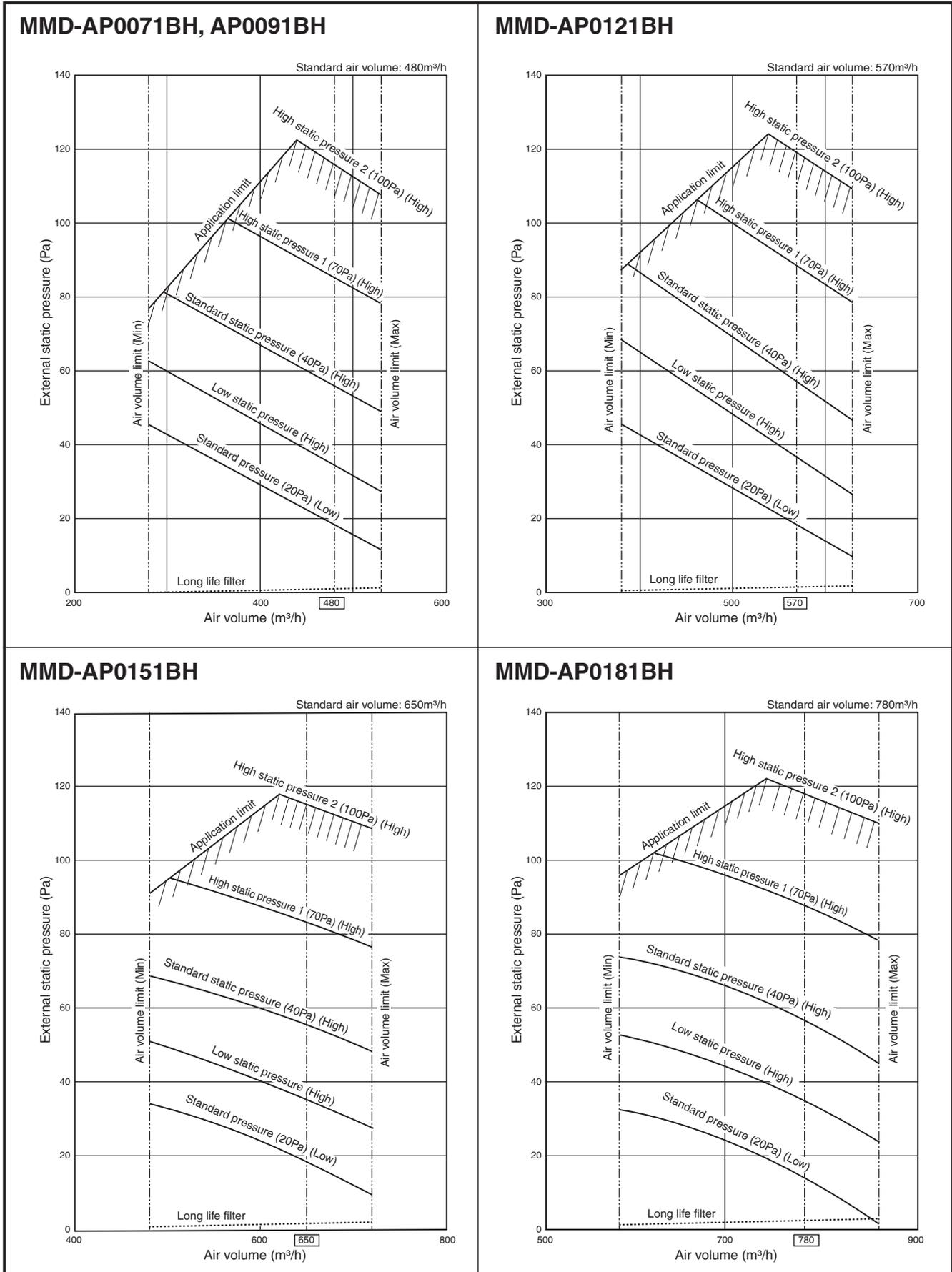
Drain-up piping

Note: All dimensions are in mm.

2-5. Concealed Duct Standard Type

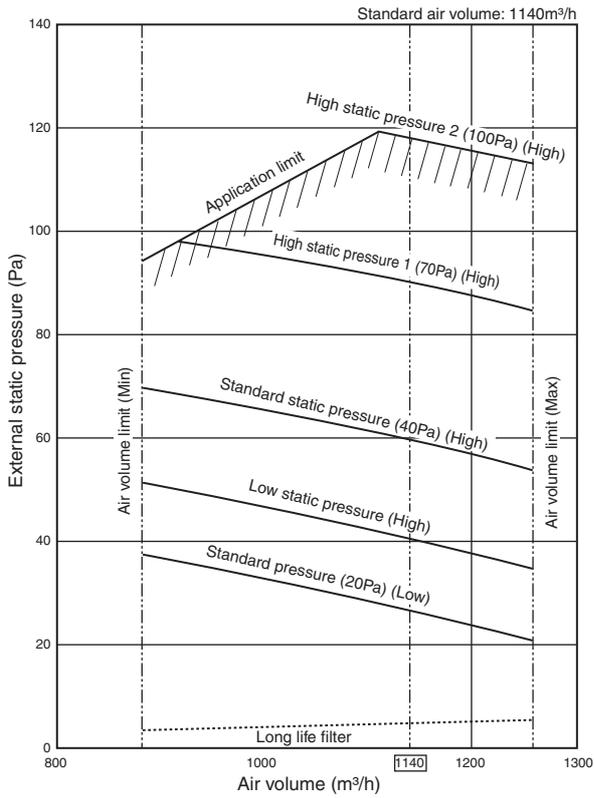
Fan characteristics

- In case of square duct flange of discharge section

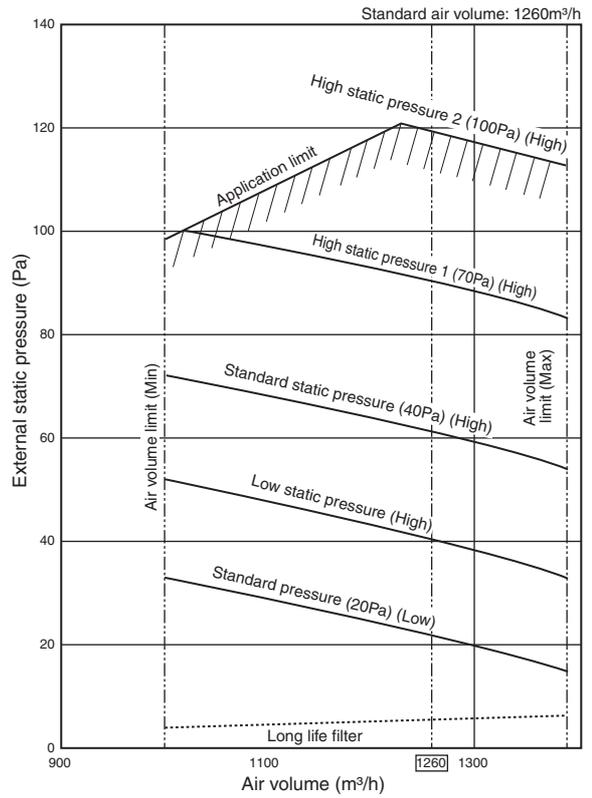


Note: "High" and "Low" is Air flow.

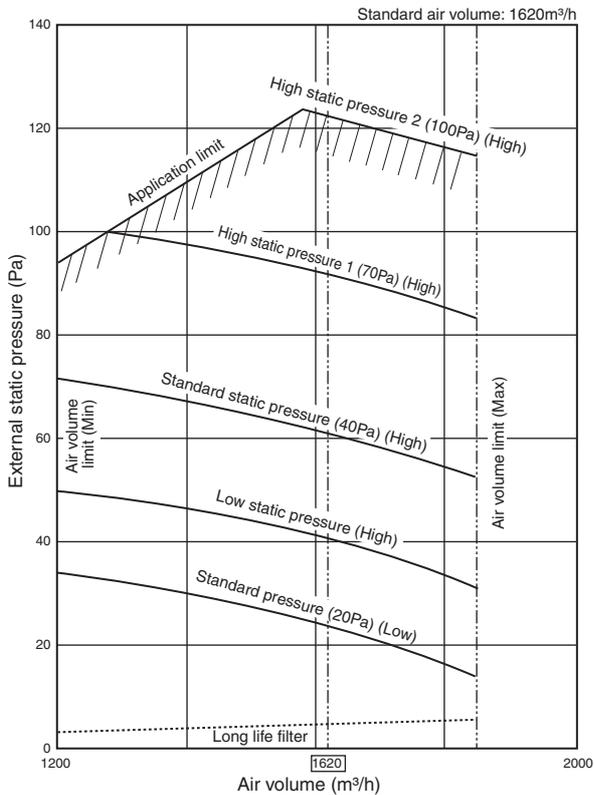
MMD-AP0241BH, AP0271BH



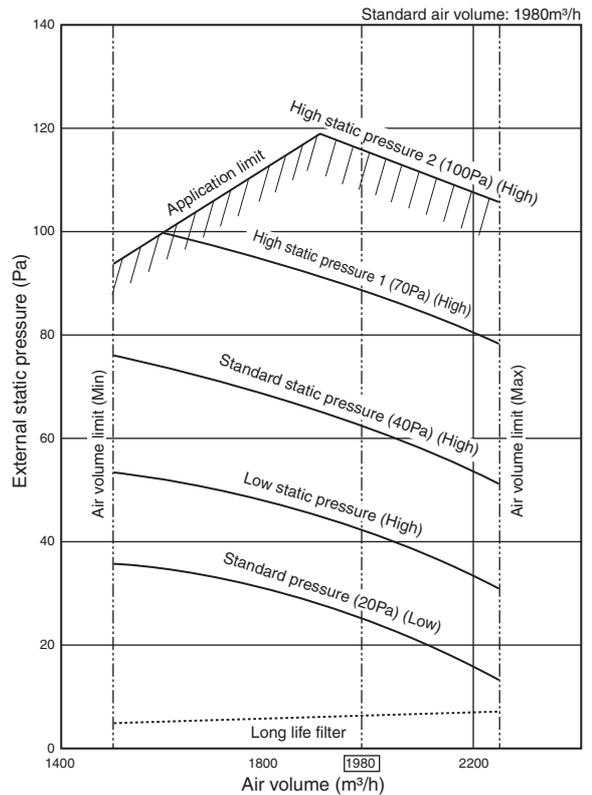
MMD-AP0301BH



MMD-AP0361BH



MMD-AP0481BH



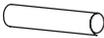
Note: "High" and "Low" is Air flow.

2-6. Slim Duct Type

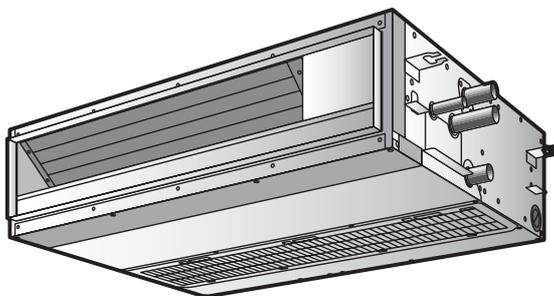
Appearance



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)	(m ³ /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	(m ³ /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	0.35	
	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)	(m ³ /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	(m ³ /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.

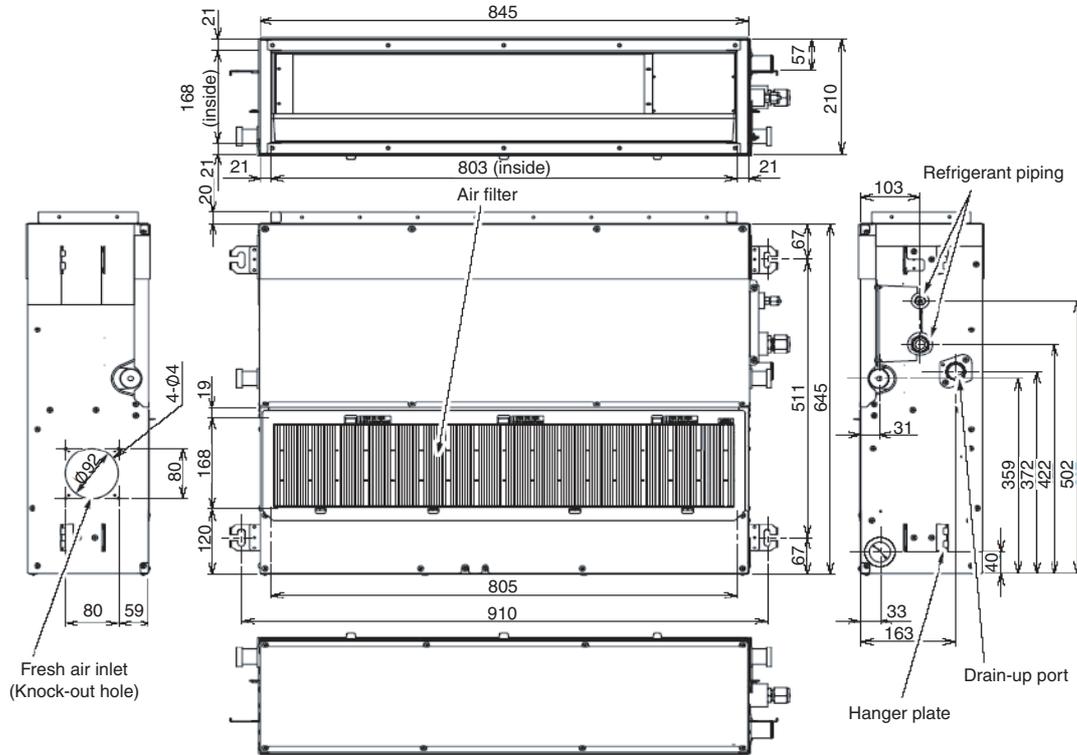
Note 2 : The sound level are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

2-6. Slim Duct Type

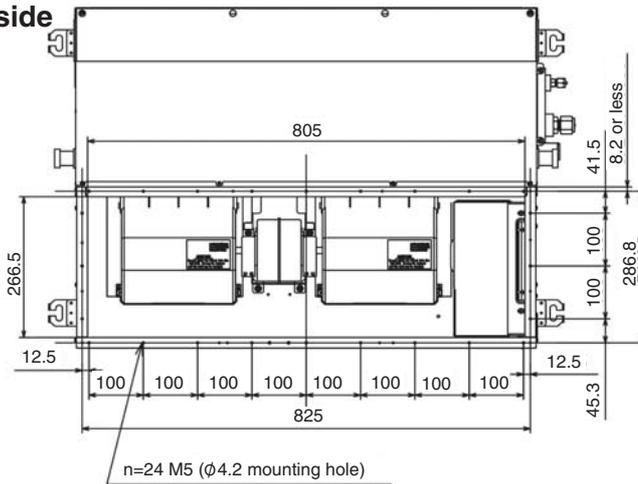
• Dimension

MMD-AP0071SPH, AP0091SPH, AP0121SPH, AP0151SPH, AP0181SPH

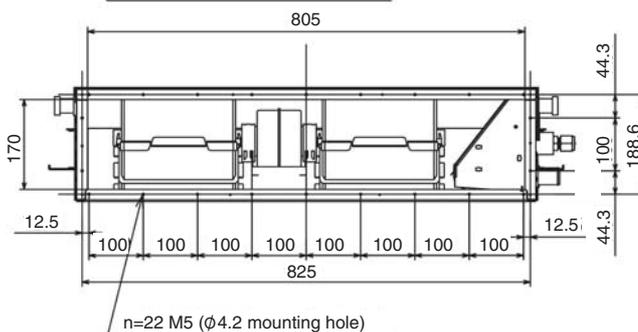


Air inlet connecting flange (Field supply)

Underside

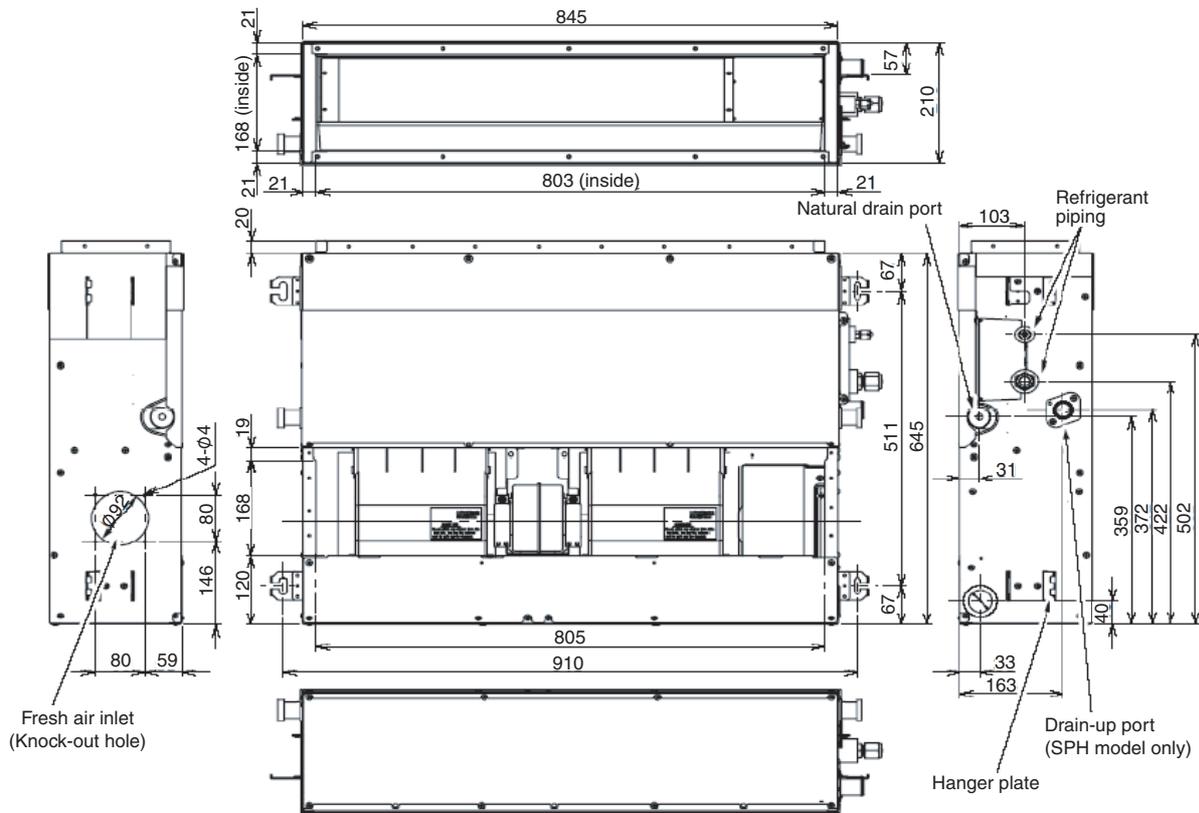


Rears



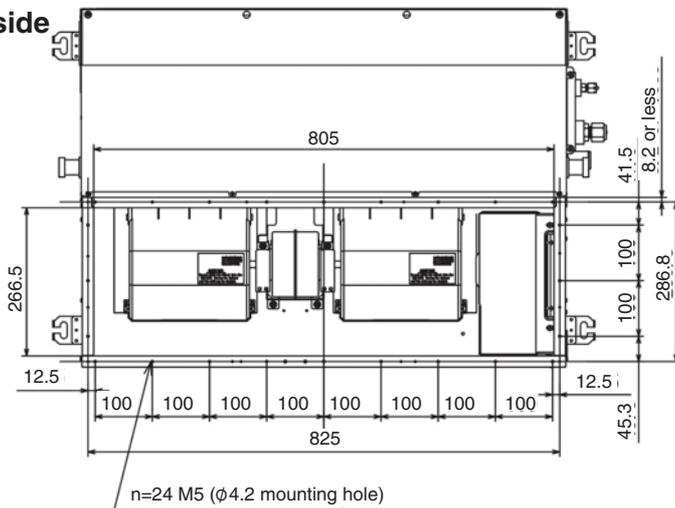
- Wired remote controller
RBC-AMT31E
- Simple wired remote controller
RBC-AS21E2
- Wireless remote controller kit
TCB-AX21E2
- Weekly timer application
RBC-AMT31E and RBC-EXW21E2

**MMD-AP007SPH-C, AP0091SPH-C, AP0121SPH-C, AP0151SPH-C, AP0181SPH-C,
MMD-AP0071SH-C, AP0091SH-C, AP0121SH-C, AP0151SH-C, AP0181SH-C**

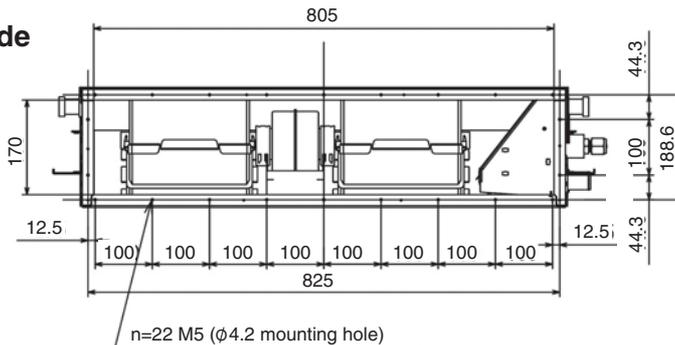


Air inlet connecting flange (Field supply)

Underside



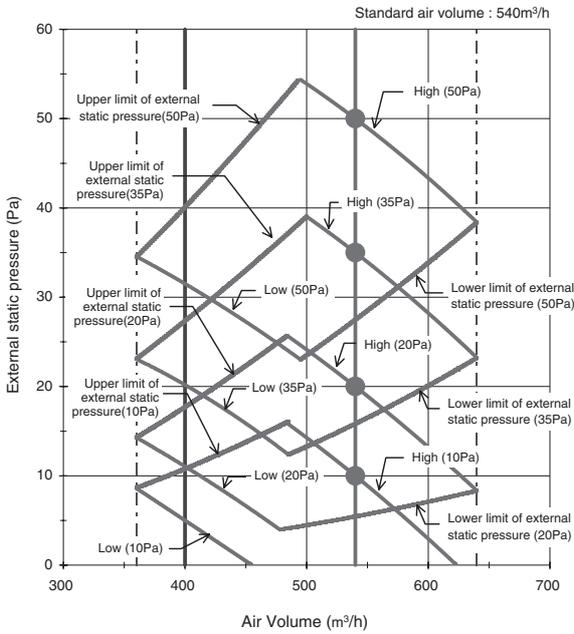
Rearside



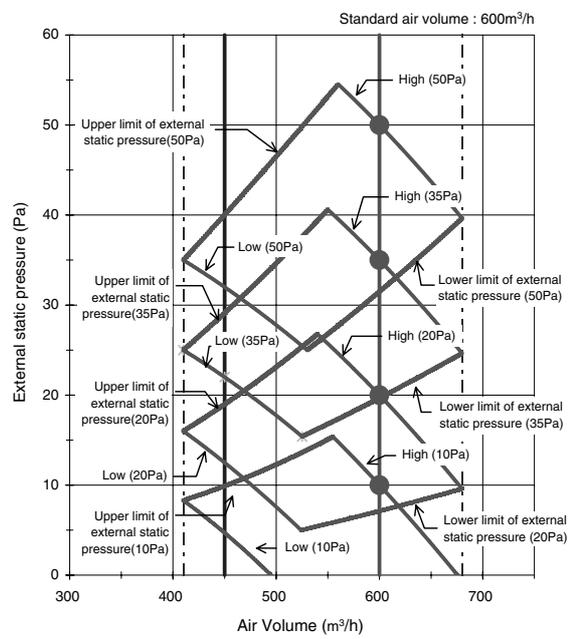
- **Wired remote controller RBC-AMT31E**
- **Simple wired remote controller RBC-AS21E2**
- **Wireless remote controller kit TCB-AX21E2**
- **Weekly timer application RBC-AMT31E and RBC-EXW21E2**

2-6. Slim Duct Type Fan characteristic

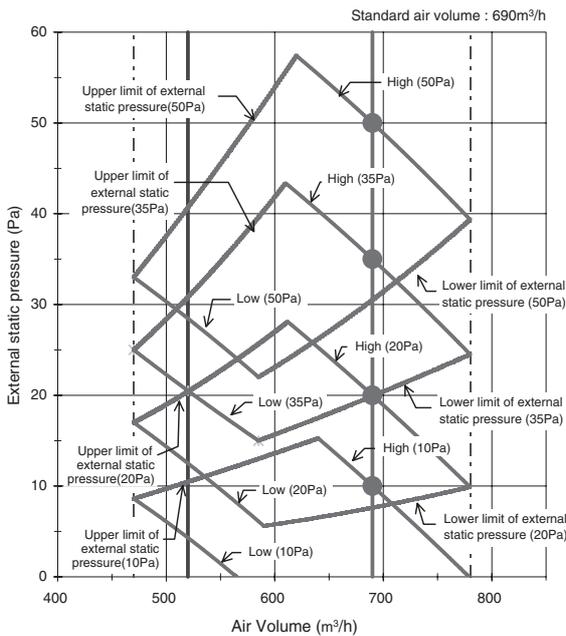
MMD-AP0071SPH
MMD-AP0091SPH



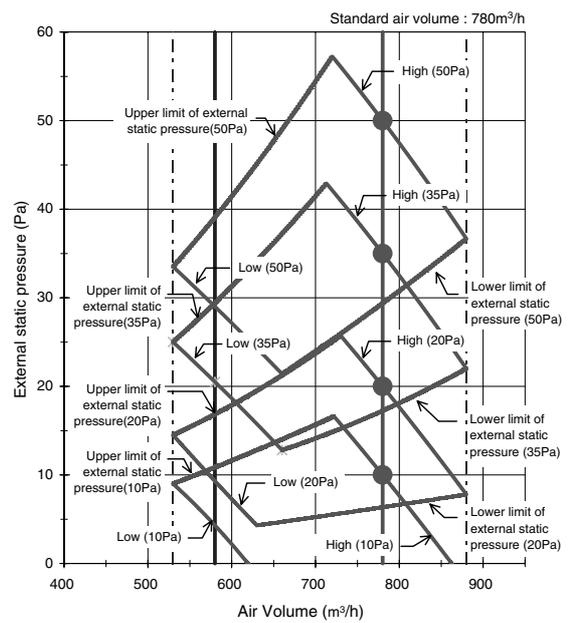
MMD-AP0121SPH



MMD-AP0151SPH

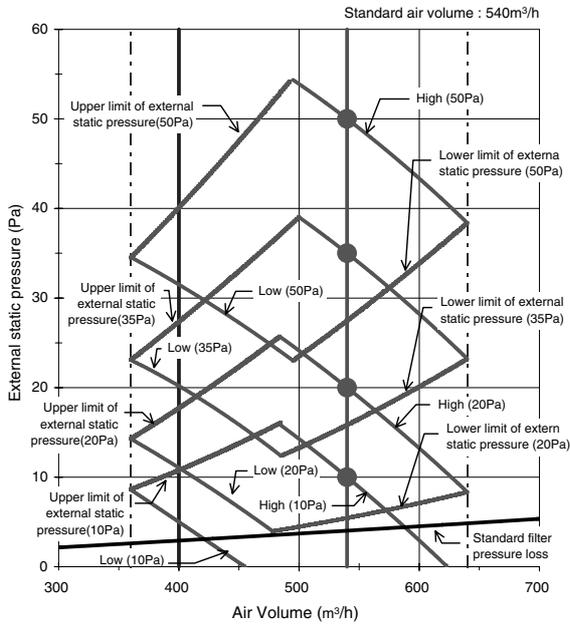


MMD-AP0181SPH

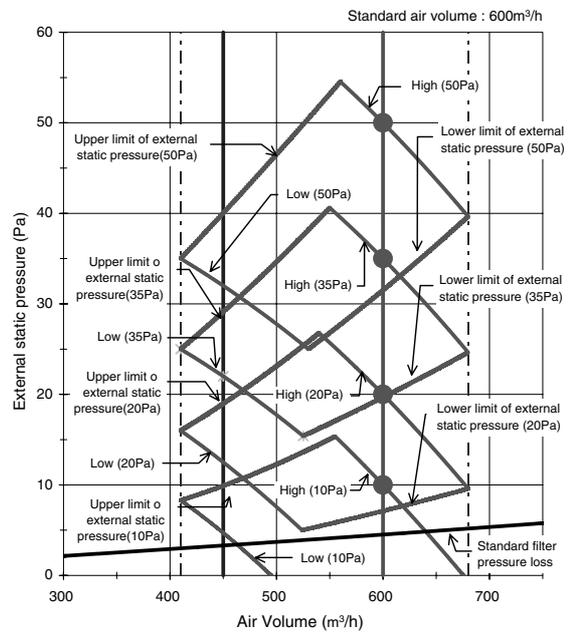


2-6. Slim Duct Type (Filter attached)

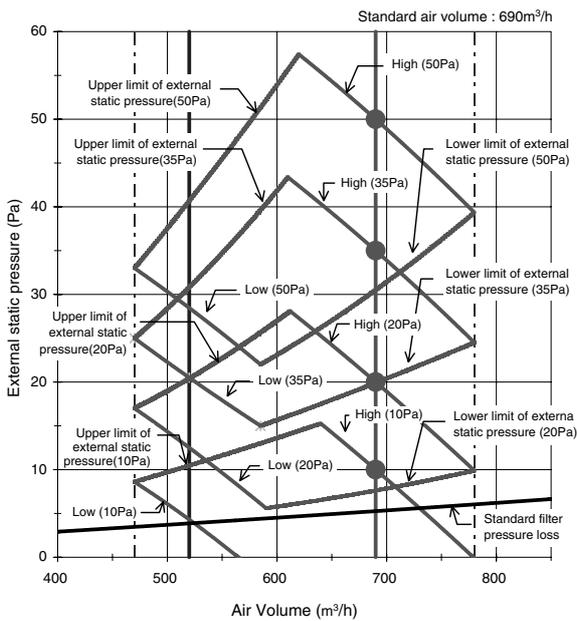
MMD-AP0071SPH
MMD-AP0091SPH



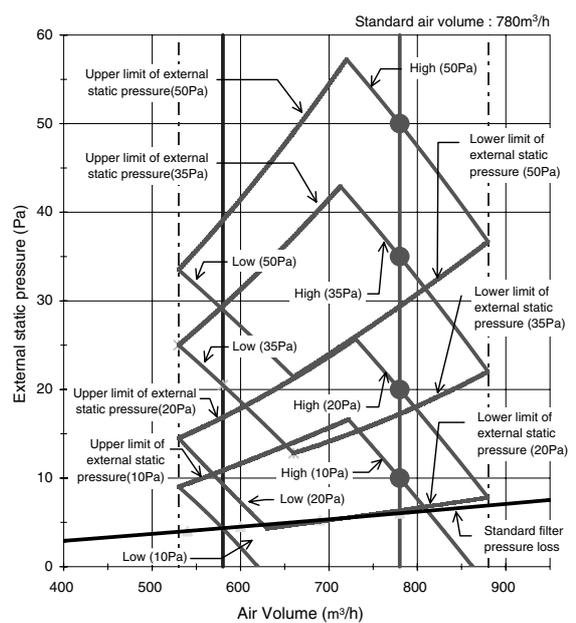
MMD-AP0121SPH



MMD-AP0151SPH

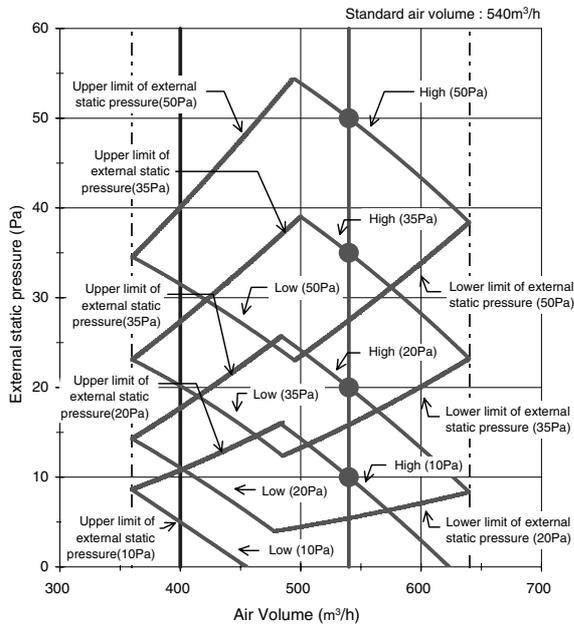


MMD-AP0181SPH

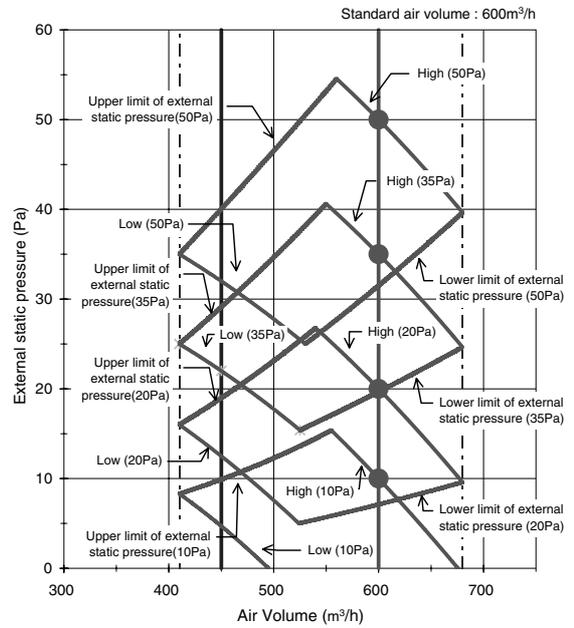


2-6. Slim Duct Type CHINA model (Filter attached)

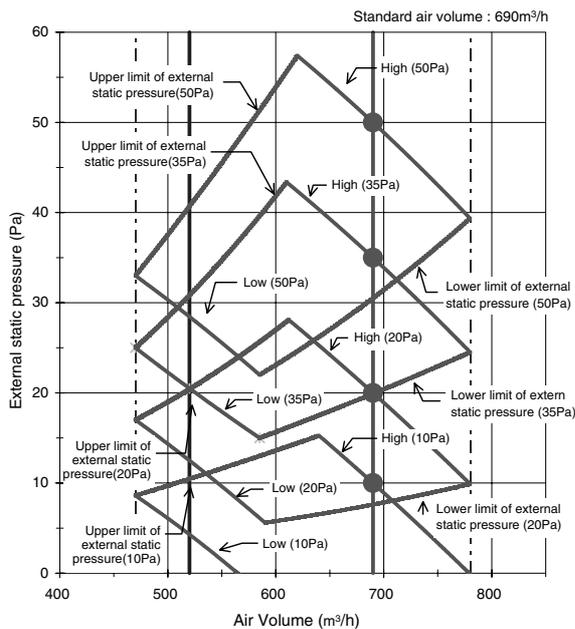
MMD-AP0071SPH-C, SH-C
MMD-AP0091SPH-C, SH-C



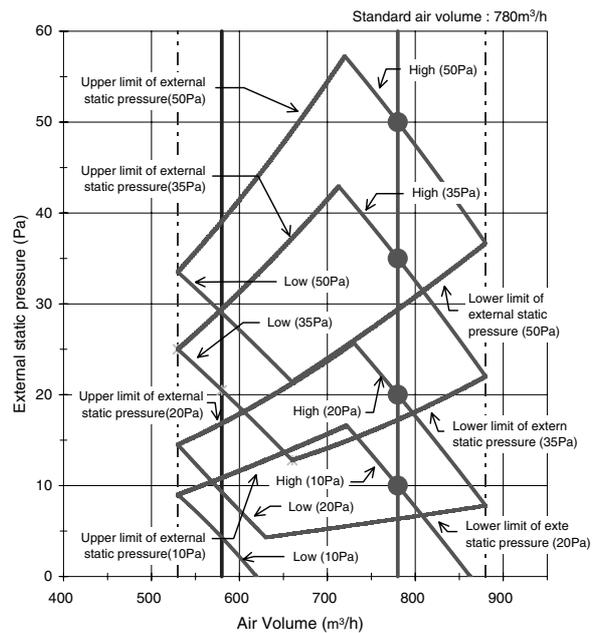
MMD-AP0121SPH-C, SH-C



MMD-AP0151SPH-C, SH-C



MMD-AP0181SPH-C, SH-C



2-7. Concealed Duct High Static Pressure Type

Appearance



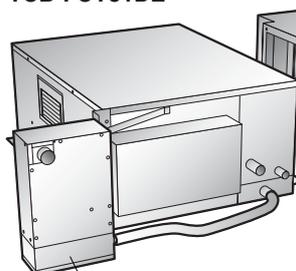
Standard accessories

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

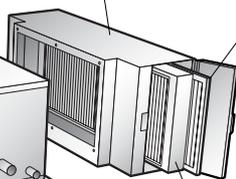
TCB-FCY21DE, TCB-FCY31DE
TCB-FCY51DE



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% (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% (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% (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 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 (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	(m ³ /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 Lower limit/Upper limit	(m ³ /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)	∅12.7	∅15.9				
	Liquid side	(mm)	∅6.4	∅9.5				
	Drain port (Nominal dia. mm)	25 (One side of male screw)						
Sound pressure level(Note 2) (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 (m ³ /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 Lower limit/Upper limit (m ³ /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)		∅12.7	∅15.9			
	Liquid side (mm)		∅6.4	∅9.5			
	Drain port (Nominal dia. mm)		25 (One side of male screw)				
Sound pressure level(Note 2) (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.

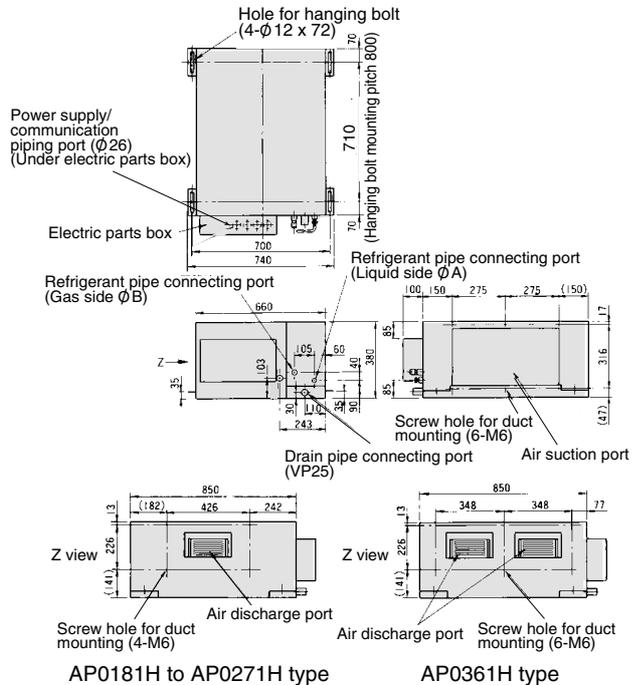
Note : Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

2-7. Concealed Duct High Static Pressure Type

• Dimension

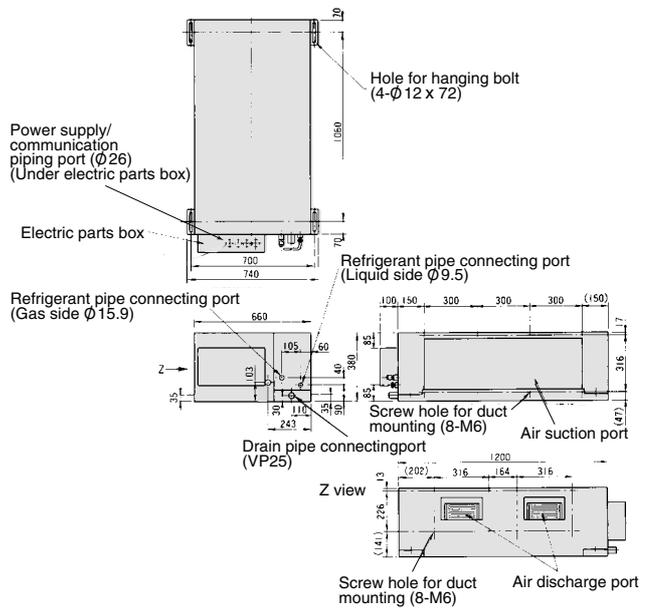
MMD-AP0181H, AP0241H, AP0271H, AP0361H, AP0481H

MMD-AP0181H to AP0361H



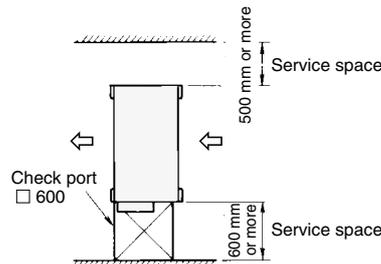
AP0361H type

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

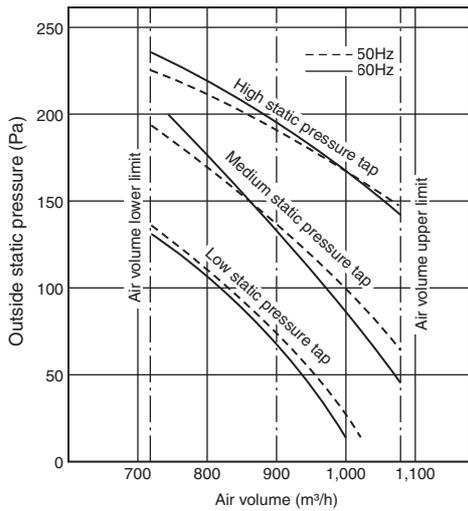
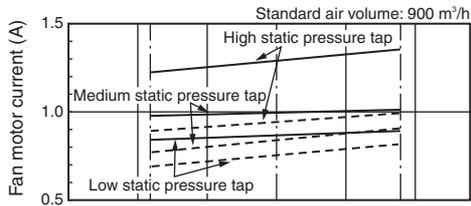


- Wired remote controller RBC-AMT31E
- Simple wired remote controller RBC-AS21E2
- Wireless remote controller kit TCB-AX21E2
- Weekly timer application RBC-AMT31E and RBC-EXW21E2

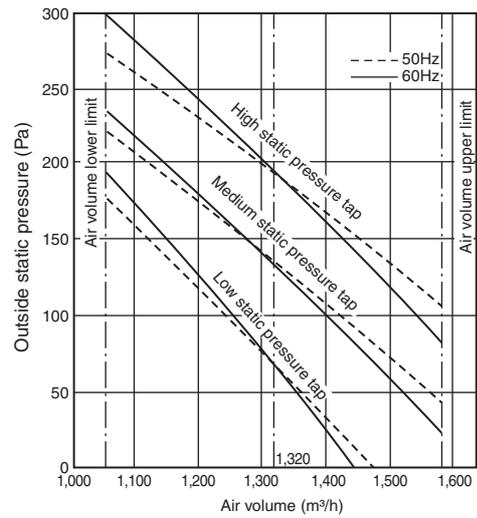
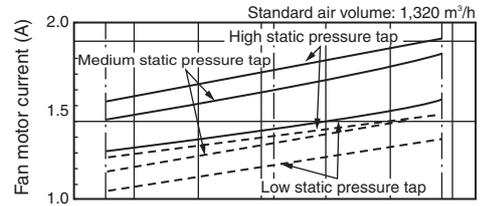
Note: All dimensions are in mm.

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

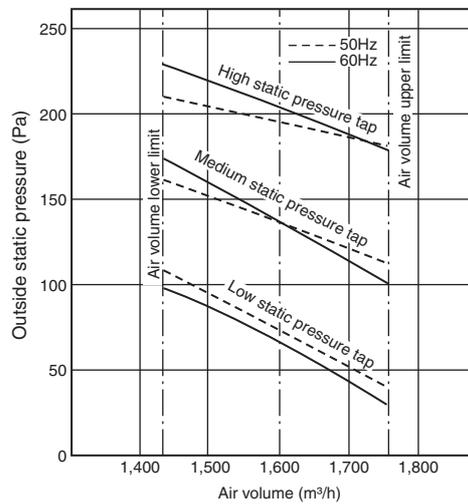
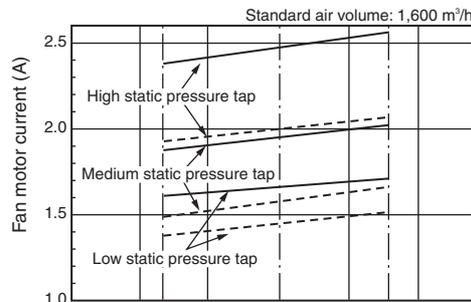
MMD-AP0181H



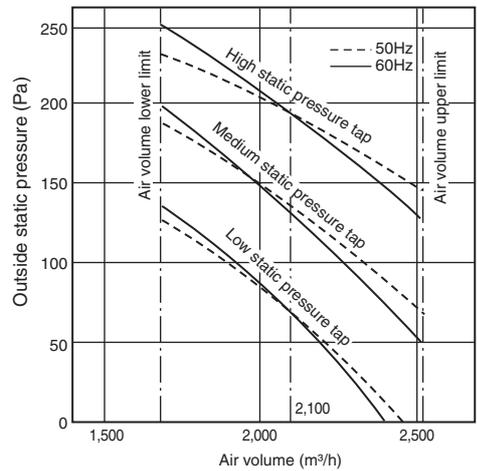
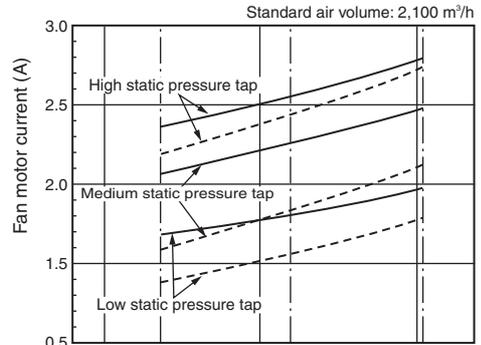
MMD-AP0241H, AP0271H



MMD-AP0361H

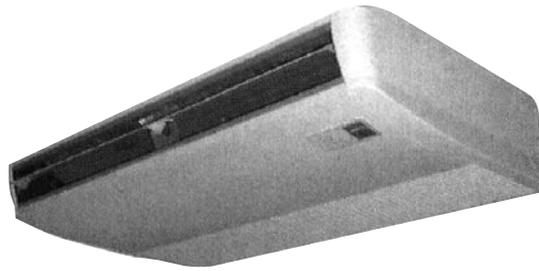


MMD-AP0481H



2-8. Under ceiling Type

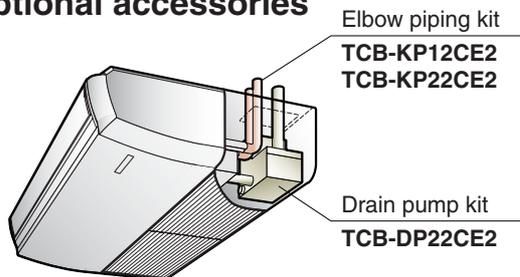
Appearance



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



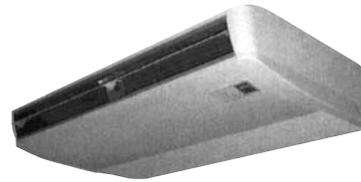
Parts Name	Model name	Applied Model	Notes	Remarks
Drain Pump Kit	TCB-DP22CE2	MMC-AP0151/0181H	Stand-up 600 or less (from bottom face of ceiling)	Use with TCB-KP12CE
		MMC-AP0241H/0271/0361H/0481H		Use with TCB-KP22CE
Elbow Piping Kit	TCB-KP12CE2	MMC-AP0151/0181H	Needed when Drain Pump Kid is used	
	TCB-KP22CE2	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)	(m ³ /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)	∅ 12.7		∅ 15.9			
	Liquid side	(mm)	∅ 6.4		∅ 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						

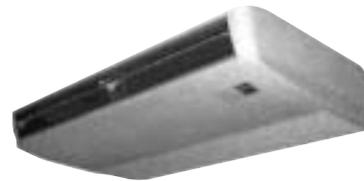
Note 1 : The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.

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) (m ³ /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.

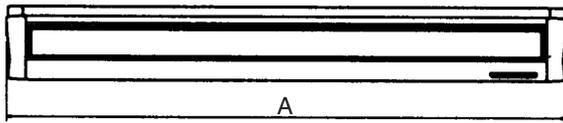
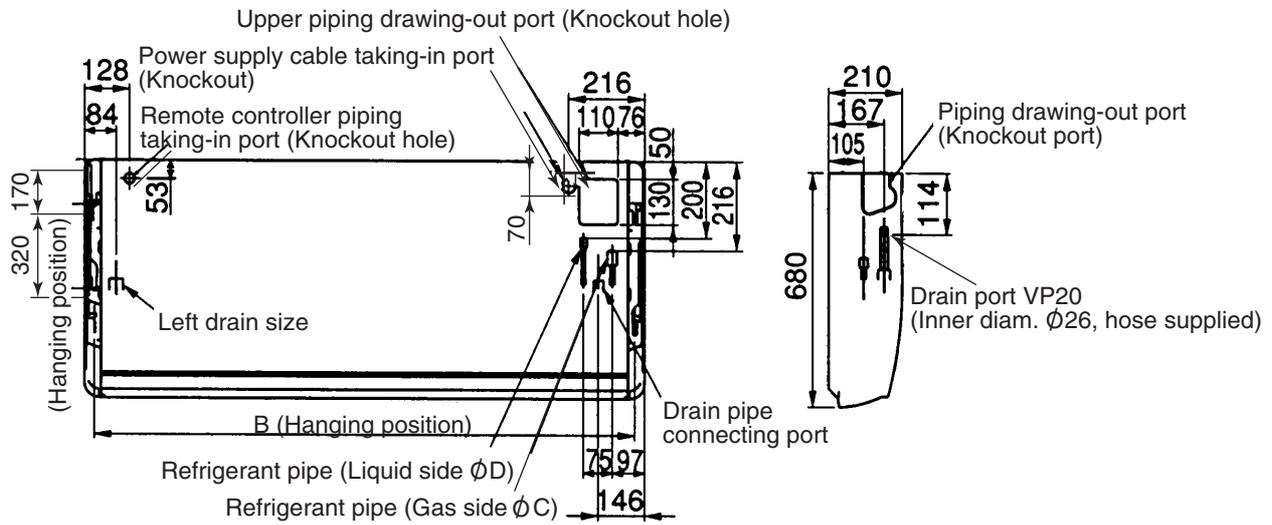
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

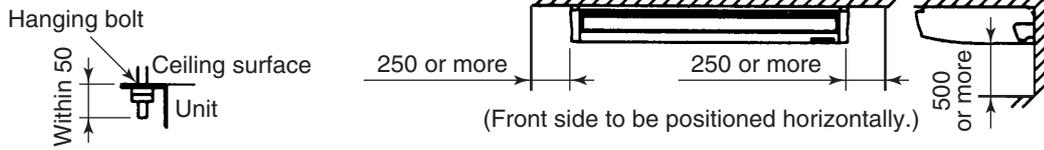
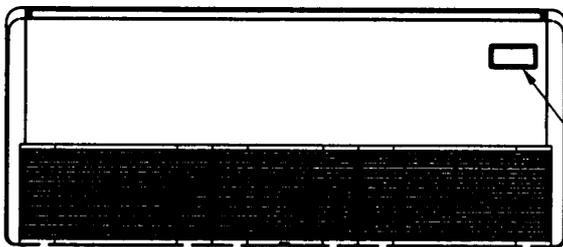
2-8. Under Ceiling Type

• Dimension

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

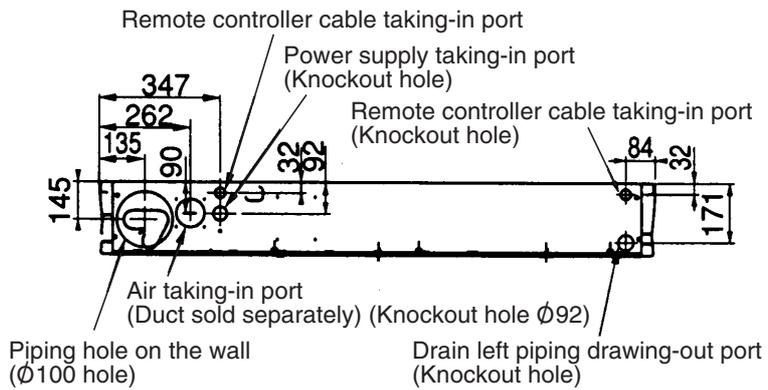


Model MMC-	A	B	C	D
AP0151H, AP0181H	910	855	12.7	6.4
AP0241H, AP0271H	1180	1125	15.9	9.5
AP0361H, AP0481H	1595	1540	15.9	9.5



Space required for installation and servicing

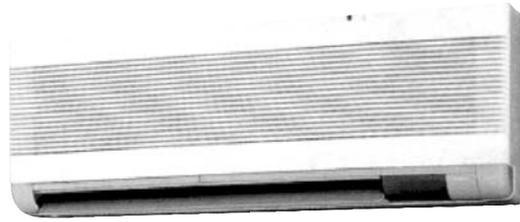
- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Wireless remote controller kit**
TCB-AX22CE2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2



Note: All dimensions are in mm.

2-9. High Wall (1series) Type

Appearance

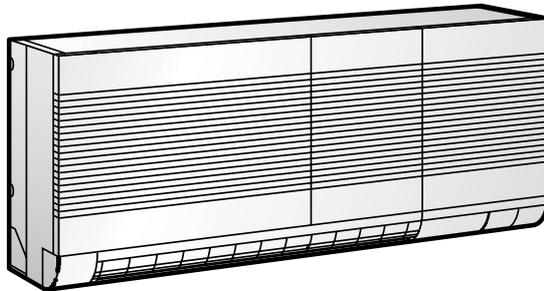


Standard accessories

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 $\varnothing 5.1 \times 45 \ell$	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				

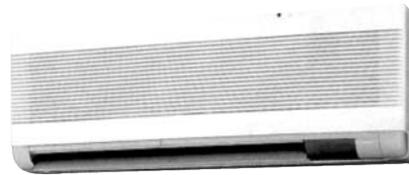
Optional accessories



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)	(m ³ /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)	∅ 9.5		∅ 12.7		∅ 15.9	
	Liquid side	(mm)	∅ 6.4				∅ 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) (m ³ /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)	Ø9.5			Ø12.7		Ø15.9	
	Liquid side (mm)	Ø6.4			Ø9.5			
	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.

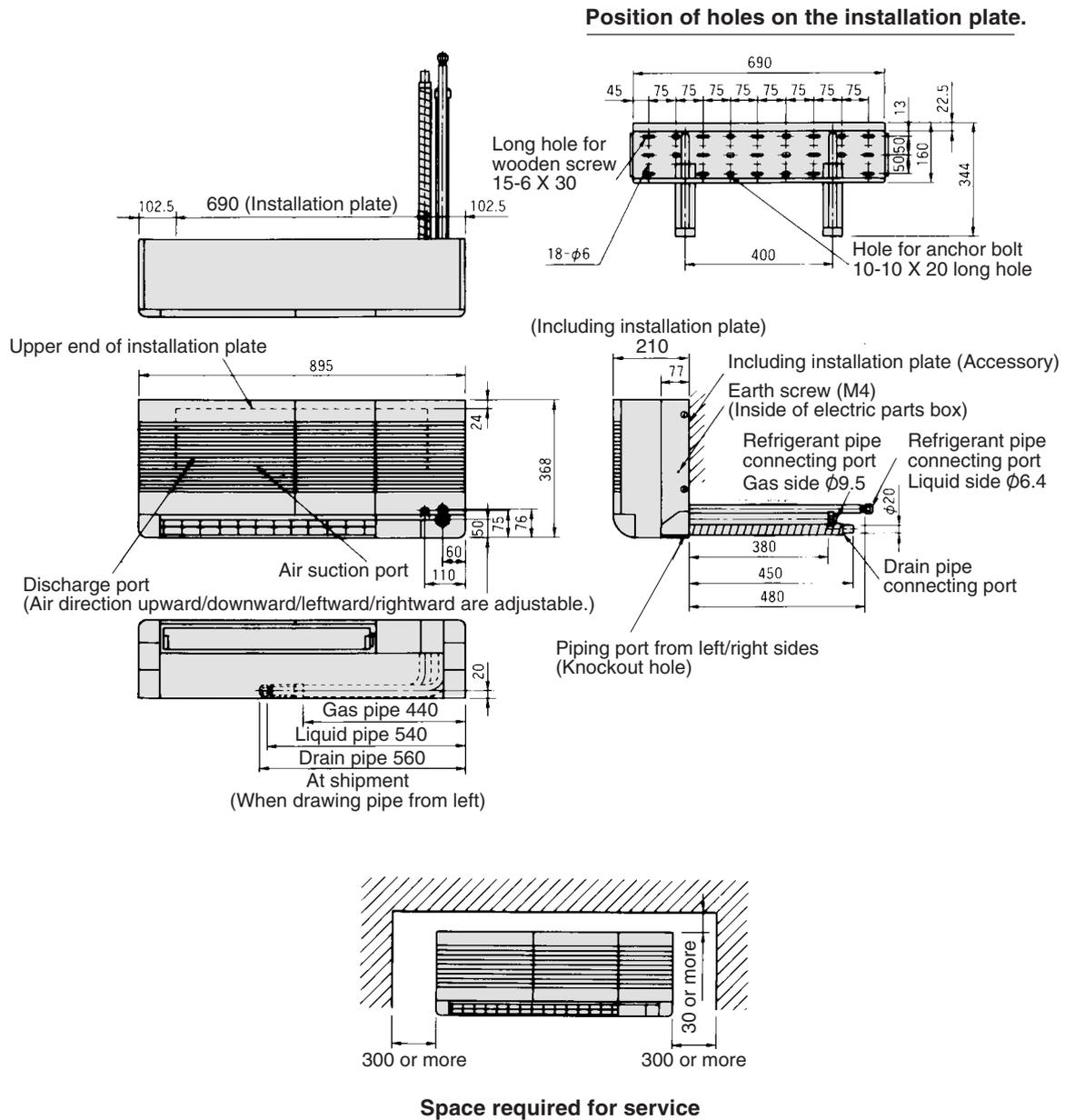
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

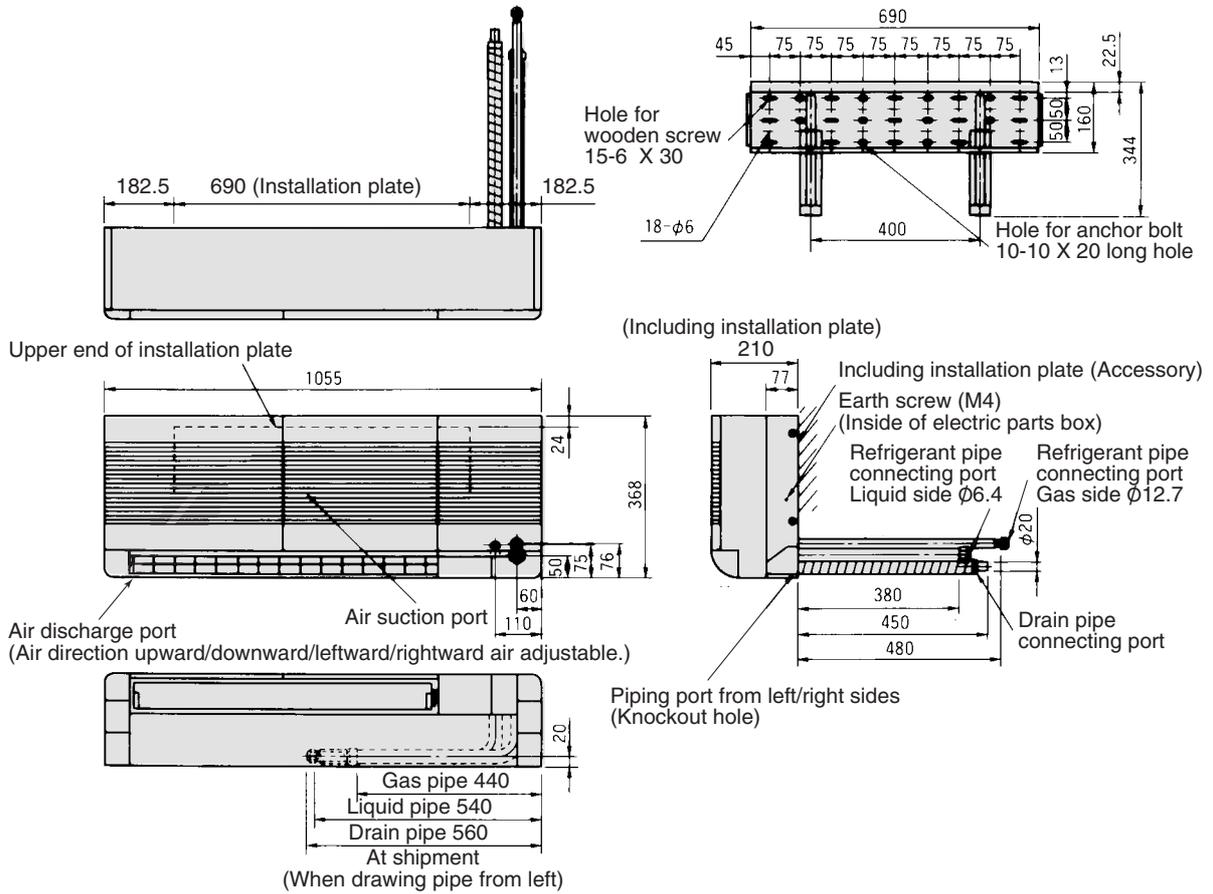
MMK-AP0071H, AP0091H, AP0121H



- **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-AP0151H, AP0181H

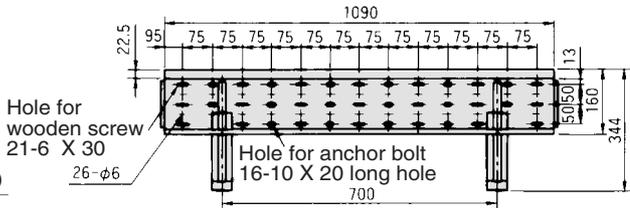
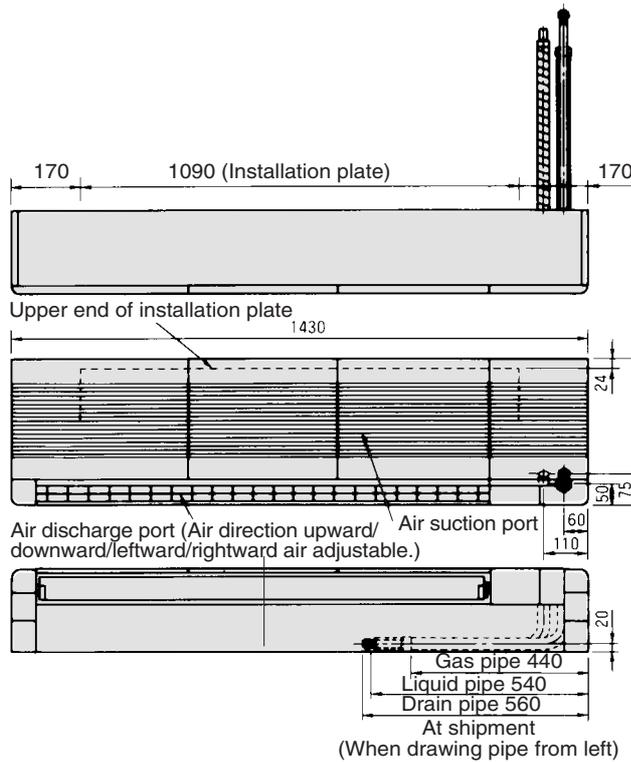


- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Wireless remote controller kit**
TCB-AX21E2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2

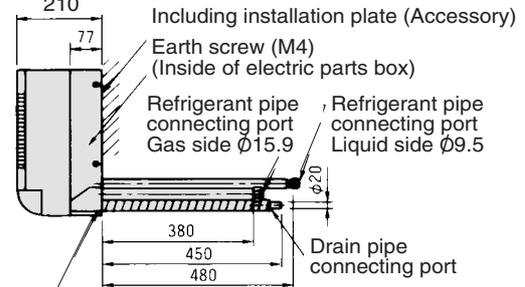
Note: All dimensions are in mm.

MMK-AP0241H

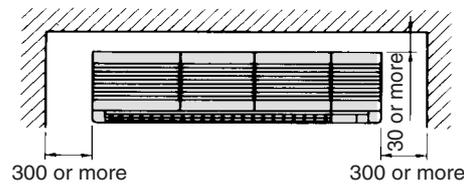
Position of holes on the installation plate



(Including installation plate)



Piping port from left/right sides (Knockout hole)



Space required for service

- **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

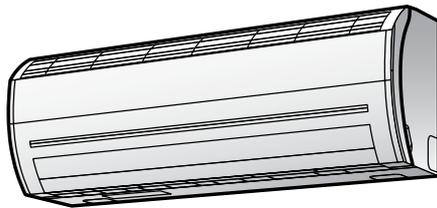


Standard accessories

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 ³ /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)	∅9.5		
	Liquid side	(mm)	∅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)	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.

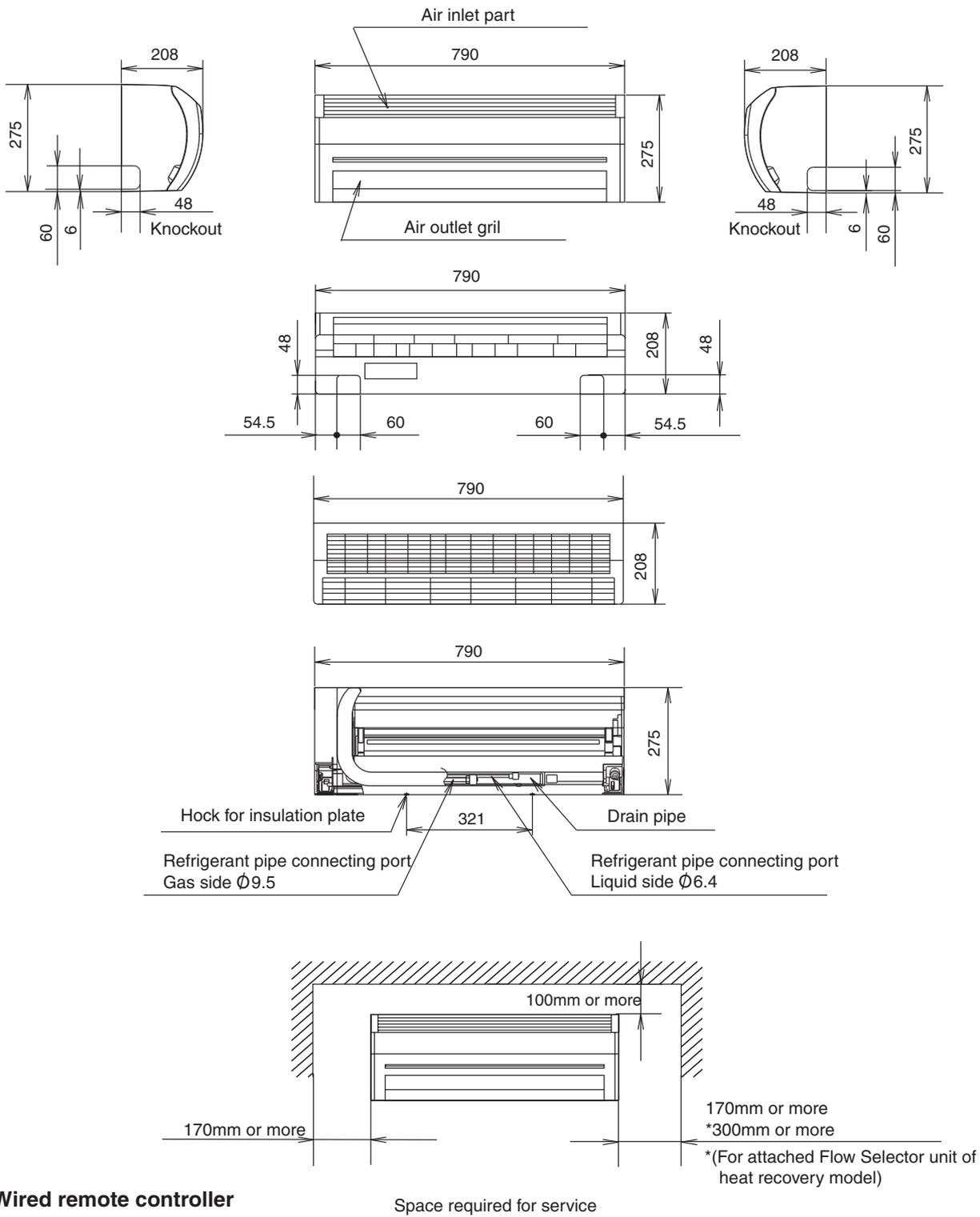
Note 3 : Wireless remote controller is packed with indoor unit.
Wired remote controller (RBC-AMT31E, RBC-AS21E2) can be also connected.

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

• Dimension

MMK-AP0072H, AP0092H, AP0122H

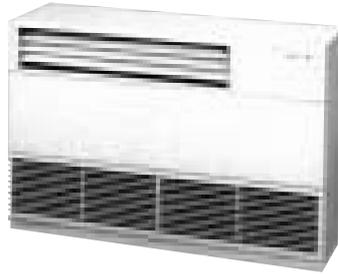


- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2

Note: All dimensions are in mm.

2-11. Floor Standing Cabinet Type

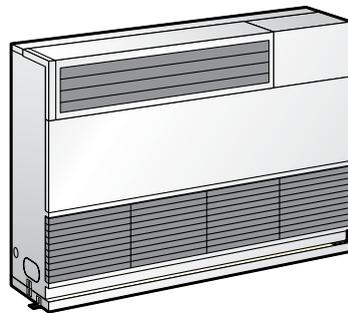
Appearance



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				

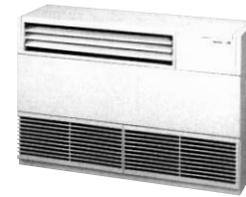
Optional accessories



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)	(m ³ /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)	(m ³ /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.

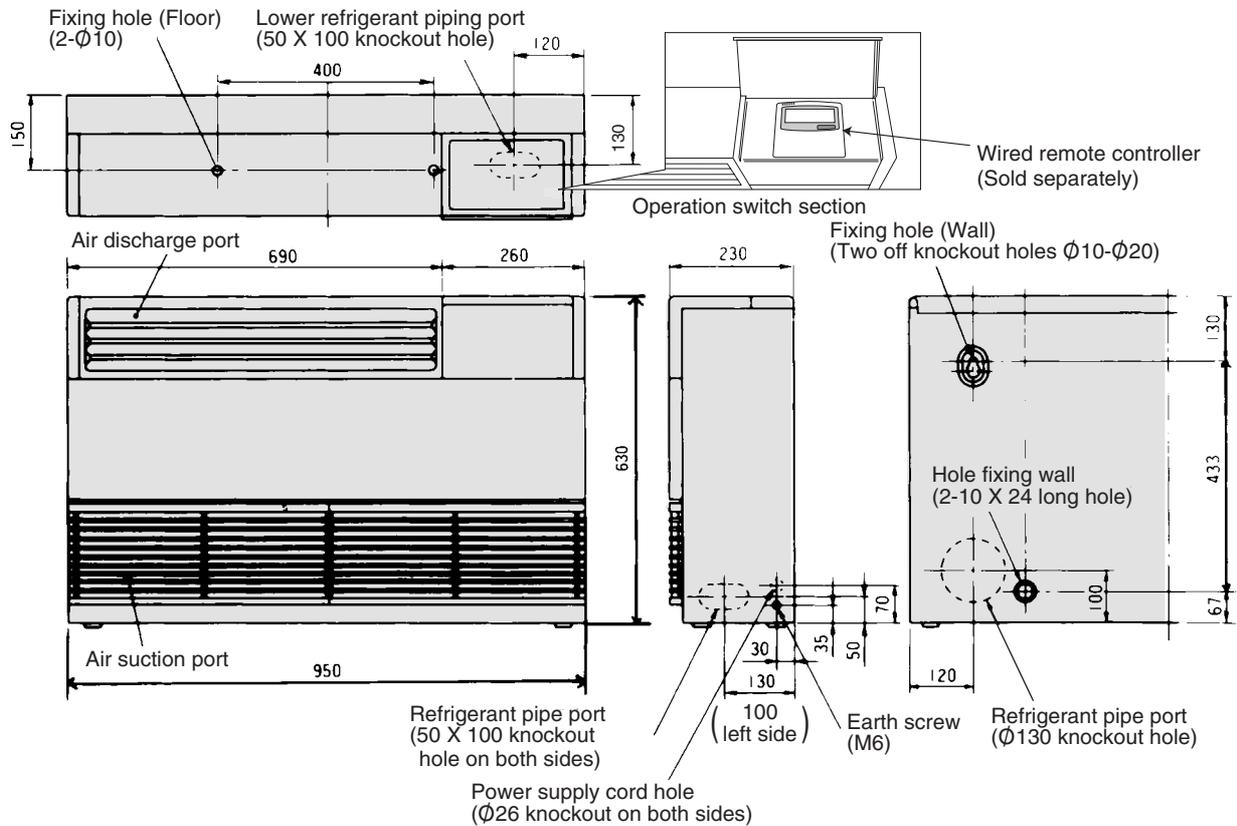
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

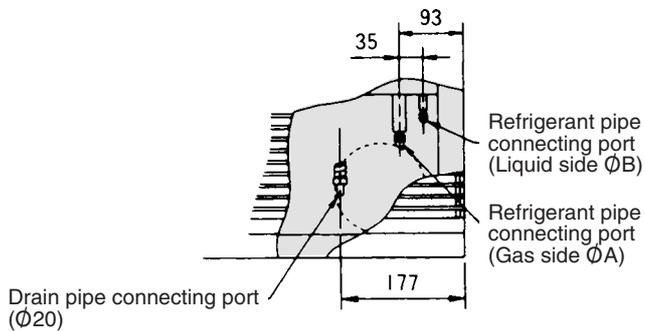
• Dimension

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

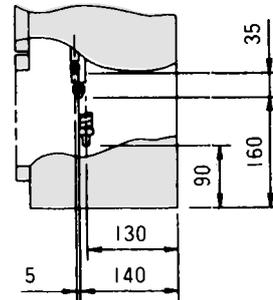


Dimensions

Model MML-	A	B
AP0071H, AP0091H, AP0121H	Φ 9.5	Φ 6.4
AP0151H, AP0181H	Φ 12.7	Φ 6.4
AP0241H	Φ 15.9	Φ 9.5

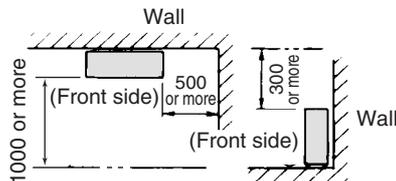


- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Wireless remote controller kit**
TCB-AX21E2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2



Space required for service
Figure shows piping at the left side

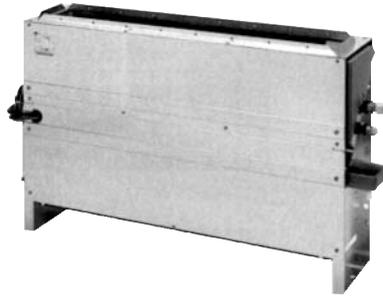
Positional drawing
of piping



Note: All dimensions are in mm.

2-12. Floor Standing Concealed Type

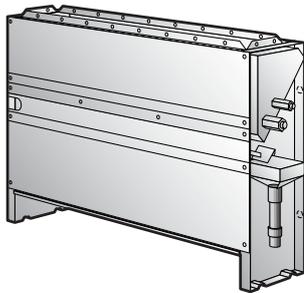
Appearance



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)				

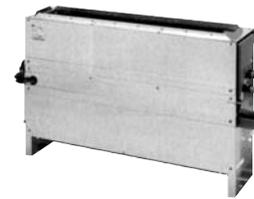
Optional accessories



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)

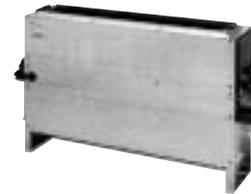
Model name		MML-	AP0071BH	AP0091BH	AP0121BH	AP0151BH	AP0181BH	AP0241BH	
Cooling/Heating capacity (Note 1)		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	
Electrical characteristics	Power supply	1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.)							
	Running current	(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)	(m ³ /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)	(m ³ /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.

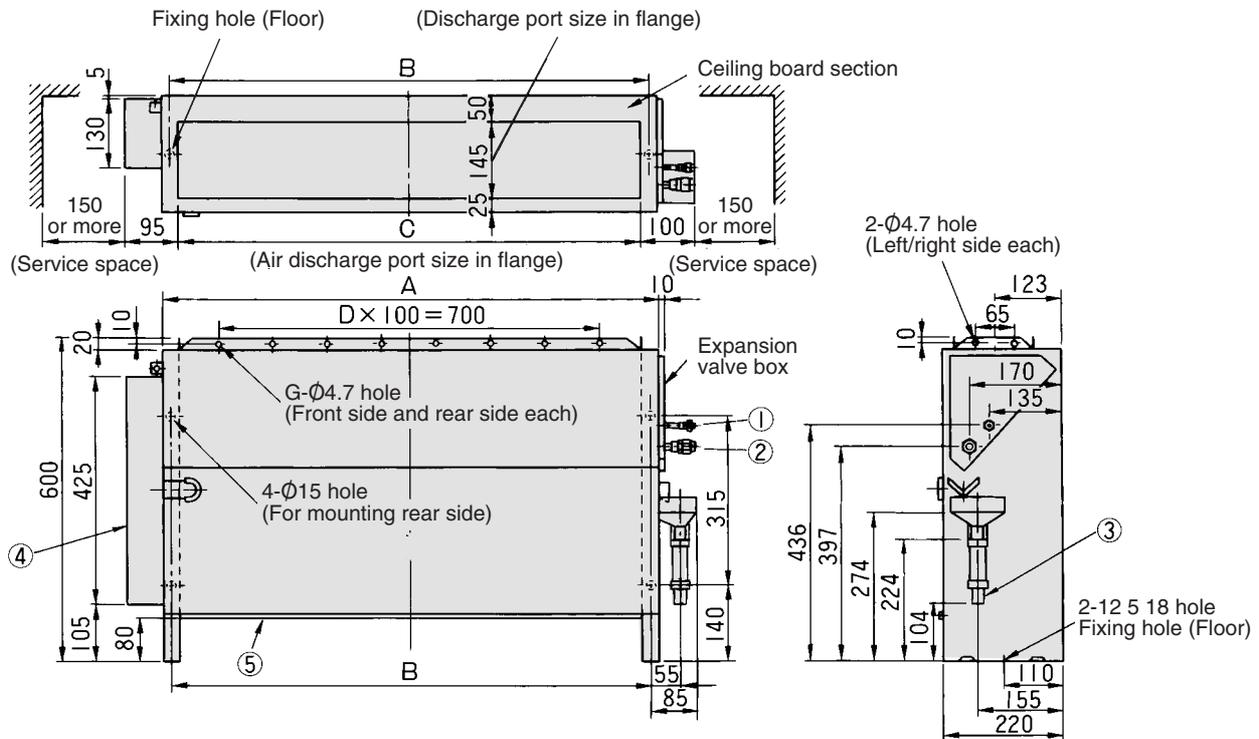
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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 (Earth terminal on the inside)
⑤	Air filter

Dimensions

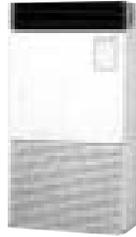
Model MML-	A	B	C	D	E	F	G
AP0071BH, AP0091BH, AP0121BH	610	580	550	4	6.4	9.5	5
AP0151BH, AP0181BH	910	880	850	7		12.7	8
AP0241BH					9.5	15.9	

- 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

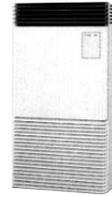
Optional accessories



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		
	Power consumption (kW)	0.150		0.190		0.280		
	Power factor (%)	97		94		95		
	Starting current (A)	0.90		1.10		1.70		
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) (m ³ /h)	900/780/660		1,200/1,020/840		1,920/1,680/1,380		
	Motor (W)	37		63		110		
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		
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		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)	(m ³ /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.

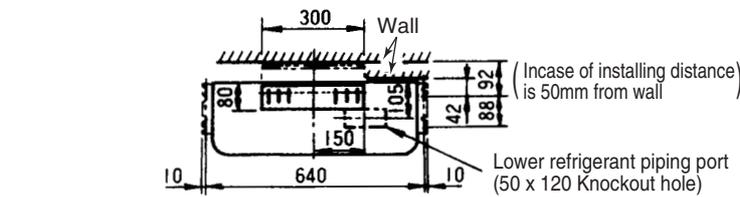
Note 2 : The sound levels are measured in an anechoic chamber in accordance with JIS B8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

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

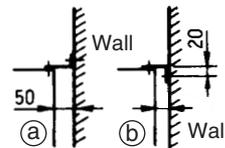
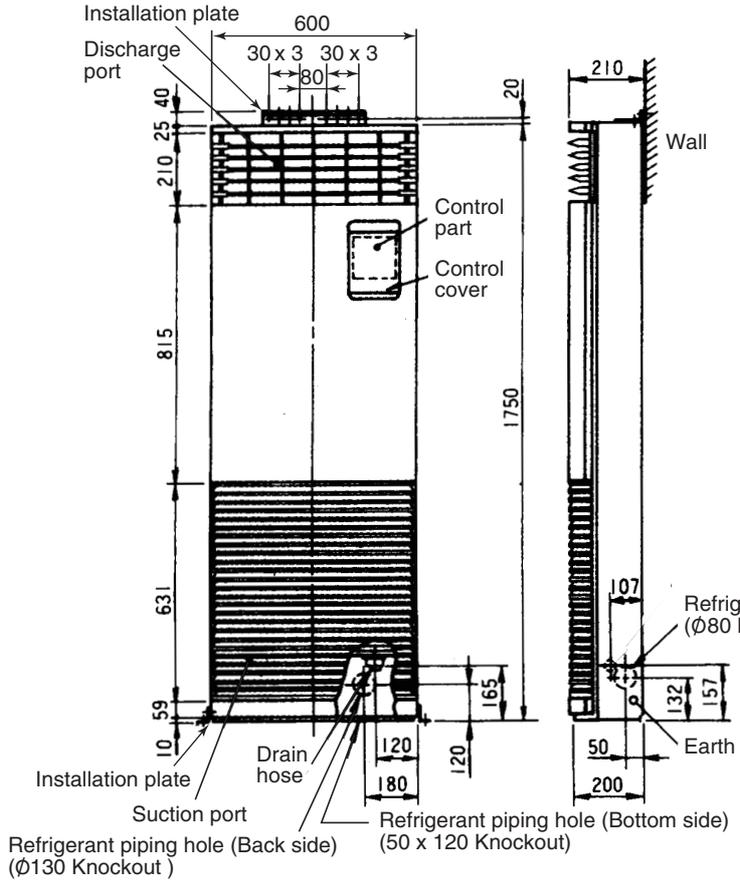
• Dimension

MMF-AP0151H, AP0181H, AP0241H, AP0271H

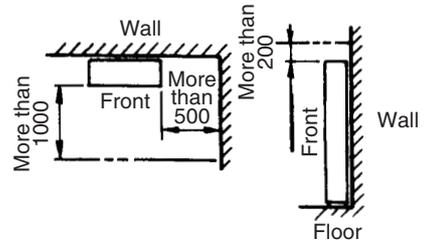


Dimensions

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

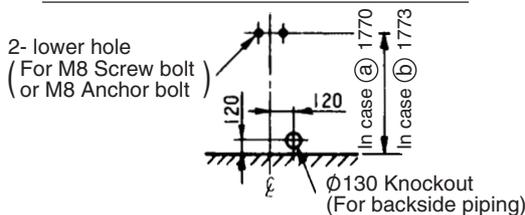


Space required for service (In case of right side piping)

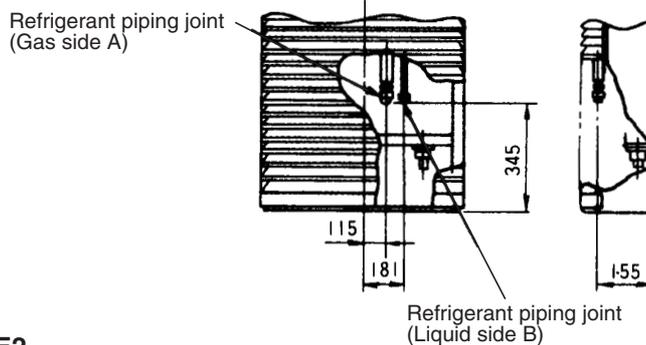


- **Wired remote controller**
RBC-AMT31E
- **Simple wired remote controller**
RBC-AS21E2
- **Wireless remote controller kit**
TCB-AX21E2
- **Weekly timer application**
RBC-AMT31E and RBC-EXW21E2

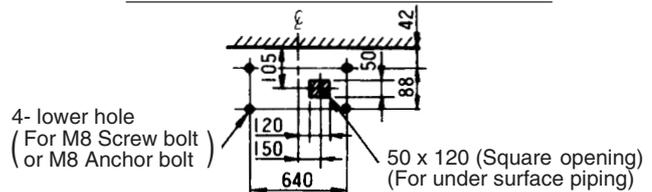
Details of hole for back side piping



Refrigerant piping position

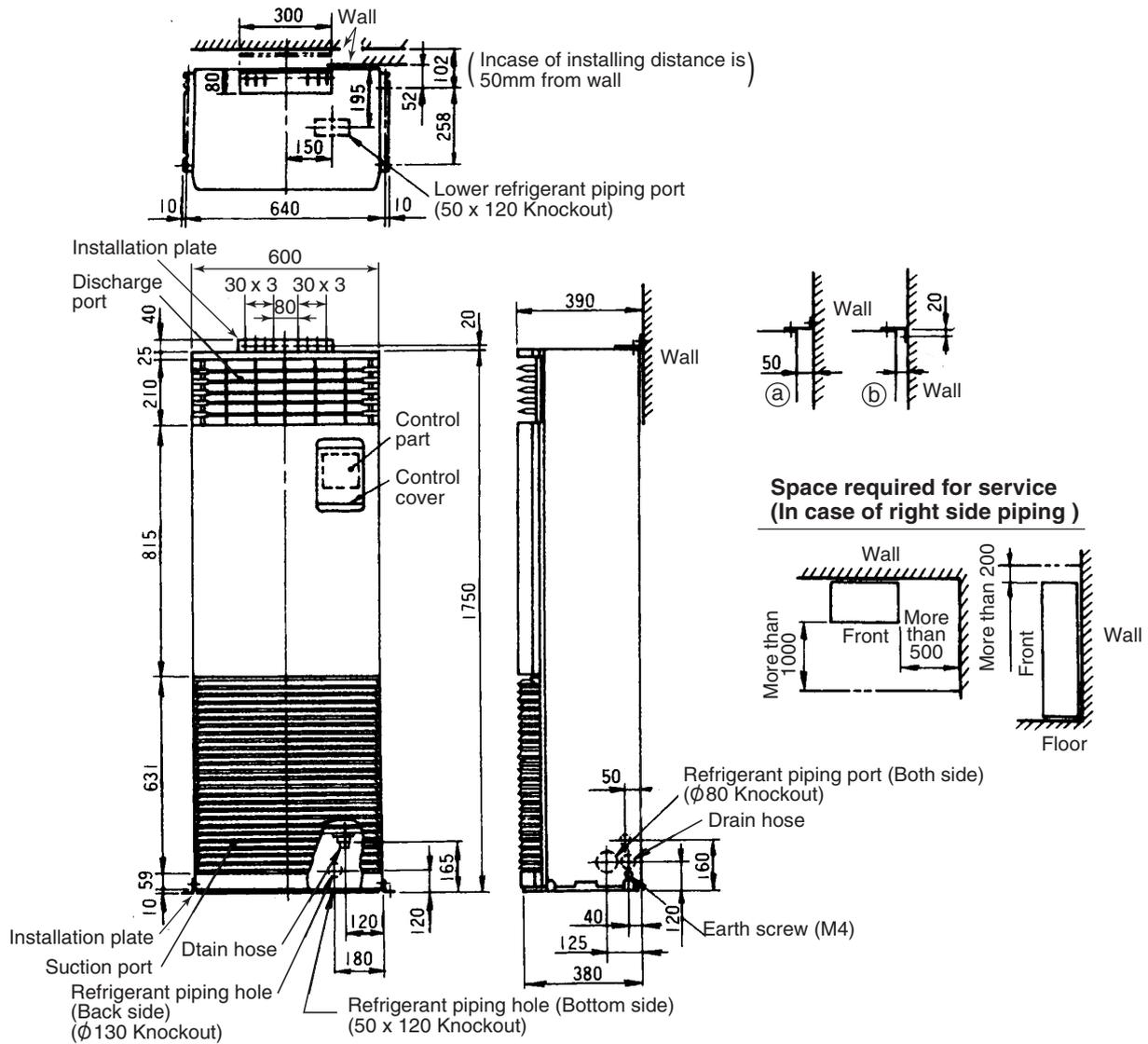


Details of hole for lower side piping

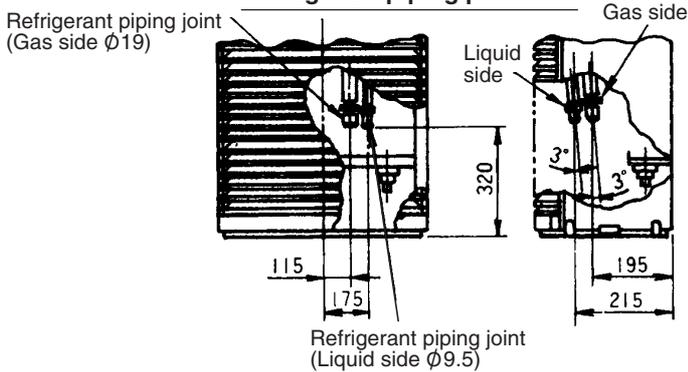


Note: All dimensions are in mm.

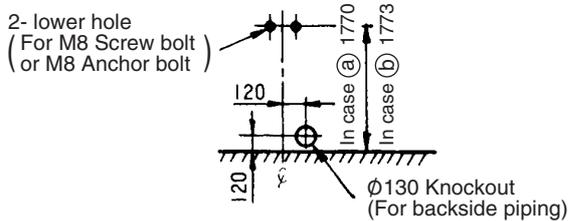
MMF-AP0361H, AP0481H



Refrigerant piping position

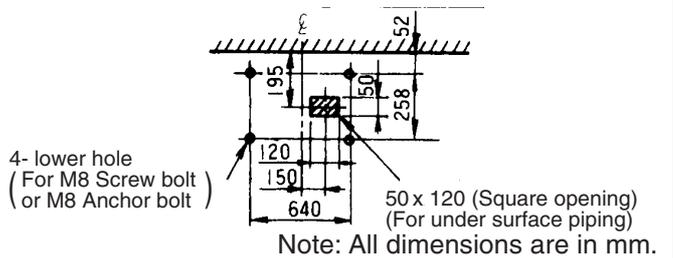


Details of hole for back side piping



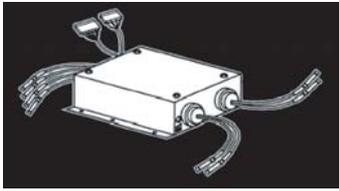
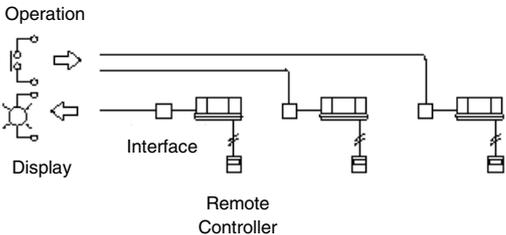
- Wired remote controller RBC-AMT31E
- Simple wired remote controller RBC-AS21E2
- Wireless remote controller kit TCB-AX21E2
- Weekly timer application RBC-AMT31E and RBC-EXW21E2

Details of hole for lower side piping

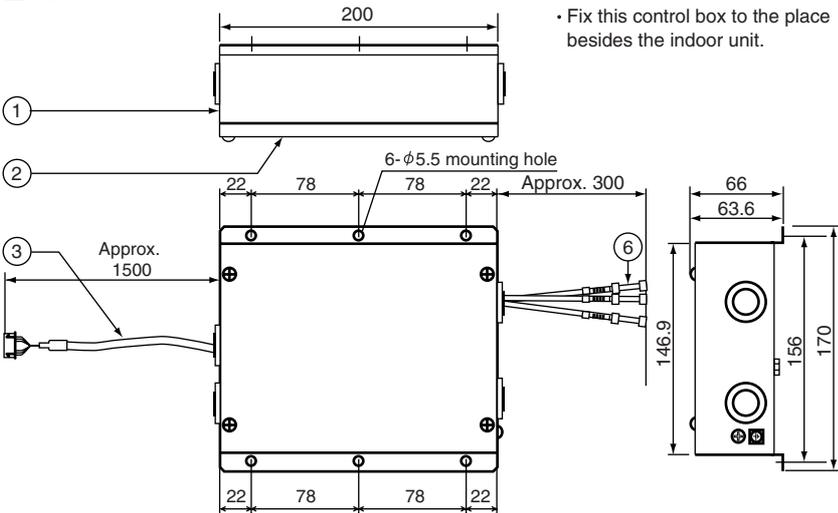
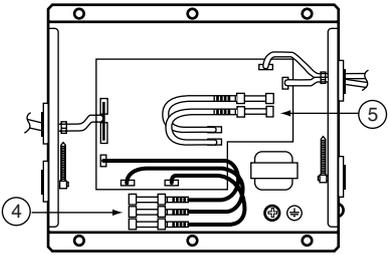


2-14. Application controls of indoor units

[1] Remote location ON/OFF control box

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

• Dimension

■ Outside view		■ Inside view	
 <p>• Fix this control box to the place besides the indoor unit.</p>			
<p>Note : All dimensions are in mm</p>			
<p>(NOTE) Do not install the accessory parts at the following locations.</p> <ol style="list-style-type: none"> 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 ²	
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		
		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

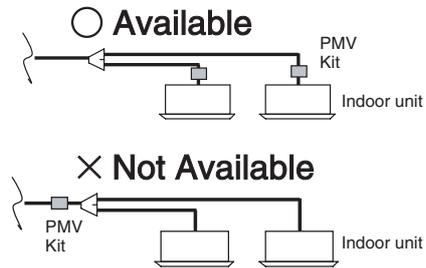
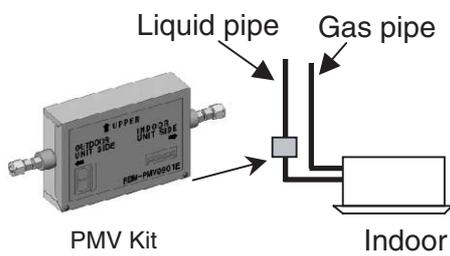
3-3. Dimensions.....3-3

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

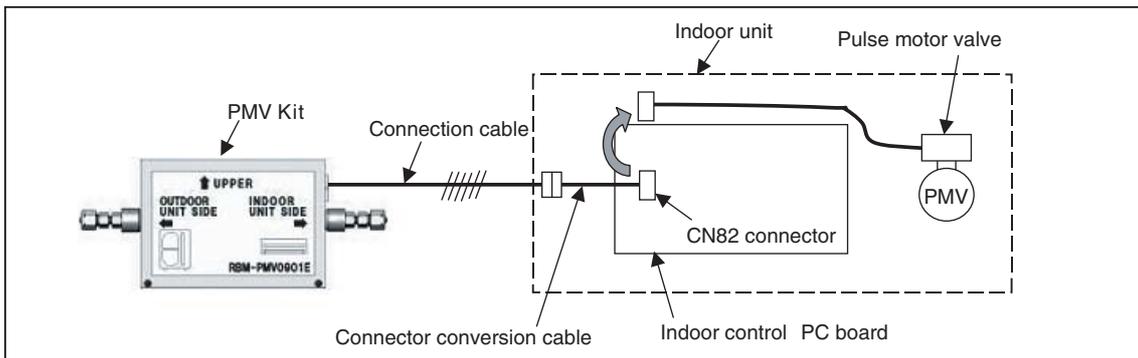


NOTE
 Don't connect two or more indoor units to one PMV kit. Arrange one indoor unit and one PMV kit set to 1 by 1.

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

3-2. Wiring connections

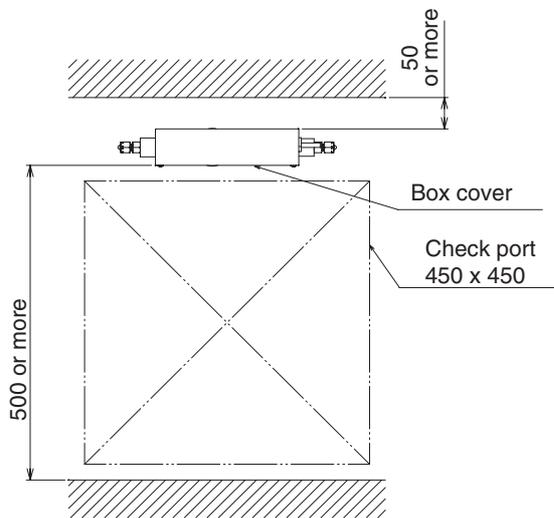
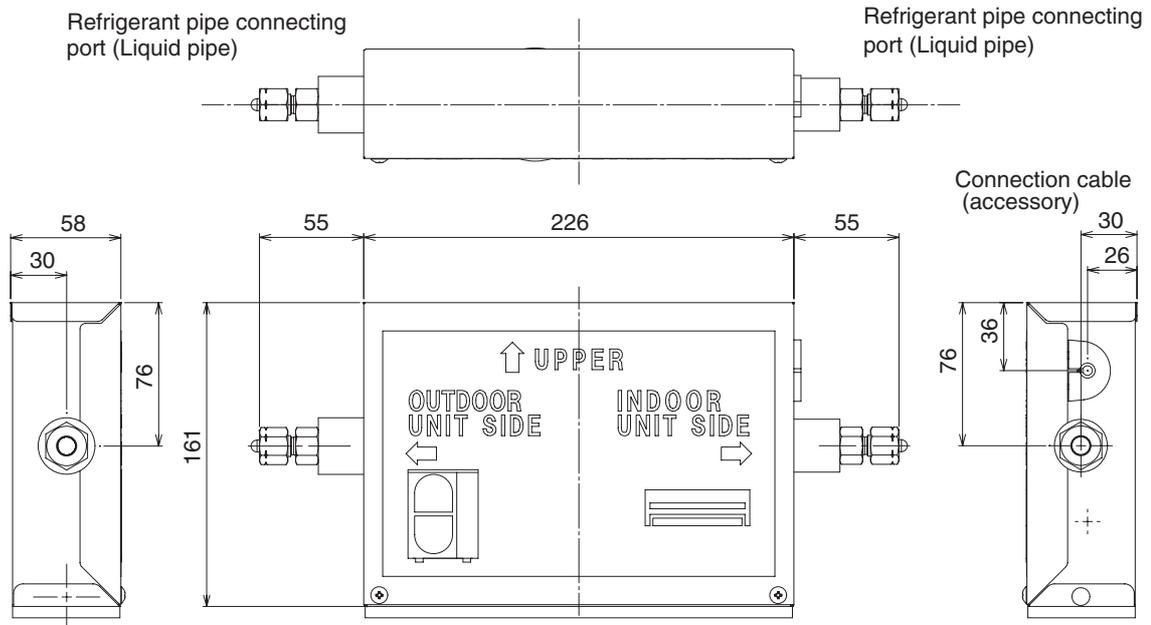
Be sure to use the attached connection cable (10m).



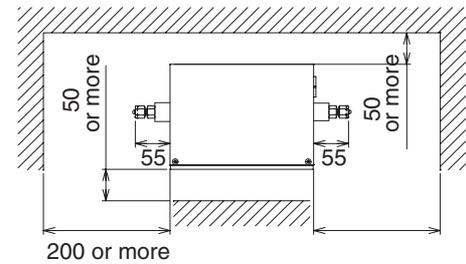
3-3. Dimension

• PMV Kit

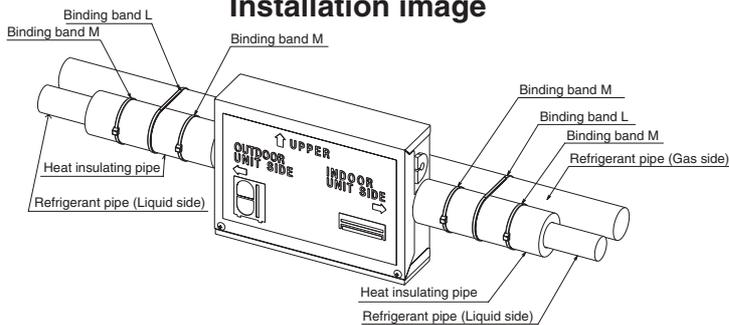
RBM-PMV0361E, RBM-PMV0901E



RBM-PMV0361E, PMV0901E

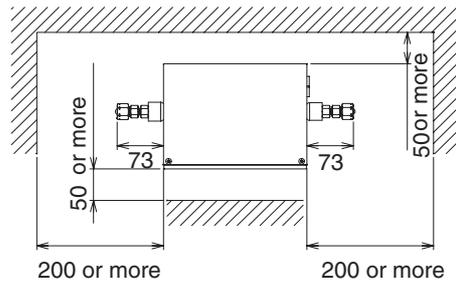


Installation image



RBM-PMV0901E

(When attached joint are used) 200 or more



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	MMY-MCY-MAP0501HT	MMY-MCY-MAP0601HT	
Outdoor unit type		Inverter unit			
Cooling capacity (*1)		12.1	14.0	15.5	
Standard heating capacity (*1)		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 (m ³ /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 (mm)	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 Total wire length(indoor unit- indoor unit/ indoor unit-outdoor unit control wiring, central control wiring)		Shield wire 1.25mm ² 2cores, up to 1000m Shield wire 2.0mm ² 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)		12.1	14.0	15.5	
Standard heating capacity (*1)		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 (m ³ /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		
Real length between FMV Kit and indoor unit (m)		Outdoor unit is lower than indoor unit : 20			
Control wiring Total wire length(indoor unit- indoor unit/ indoor unit-outdoor unit control wiring, central control wiring)		Shield wire 1.25mm ² 2cores, up to 1000m Shield wire 2.0mm ² 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.

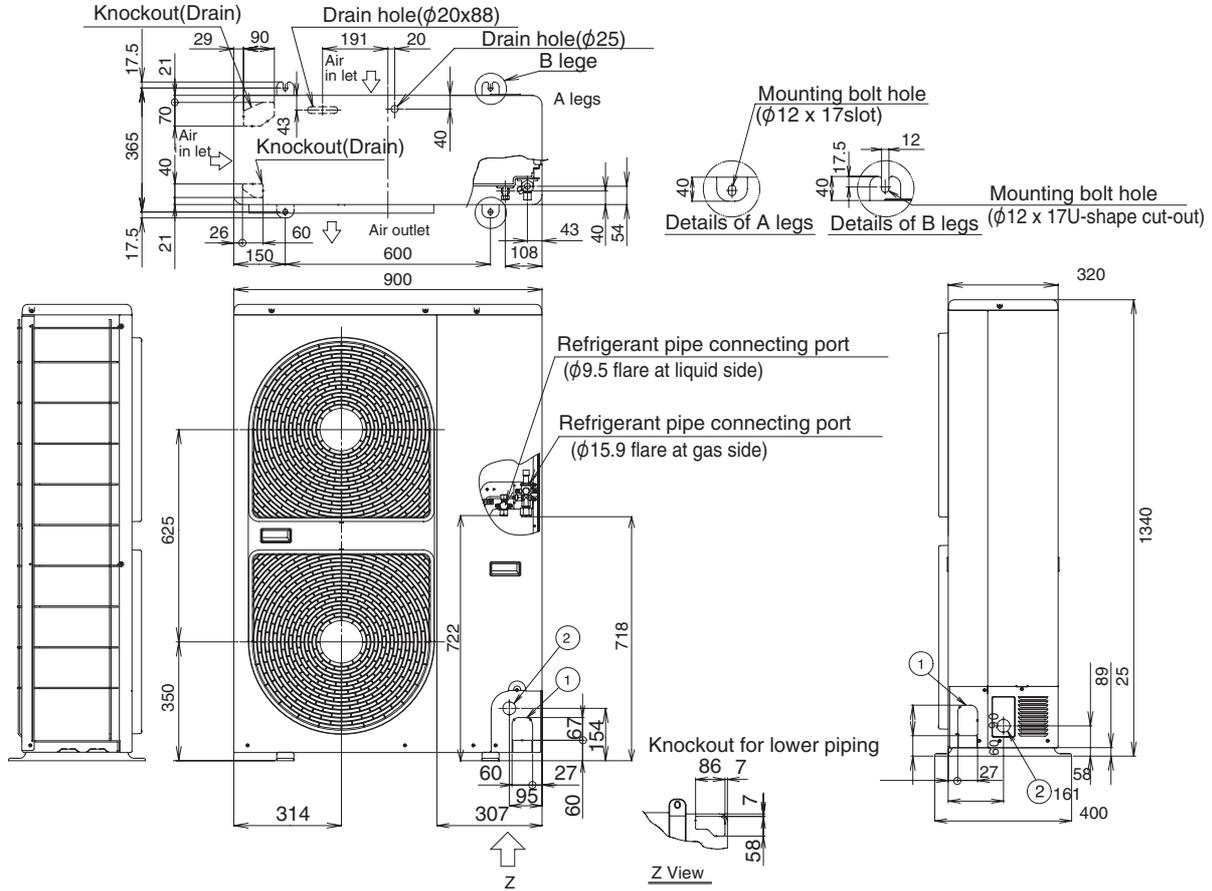
*4 : The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

*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

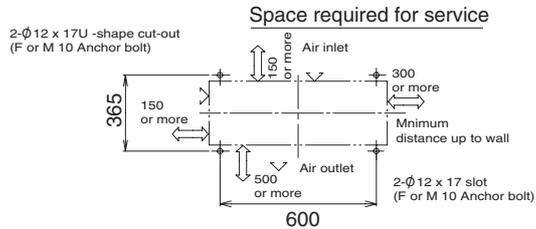
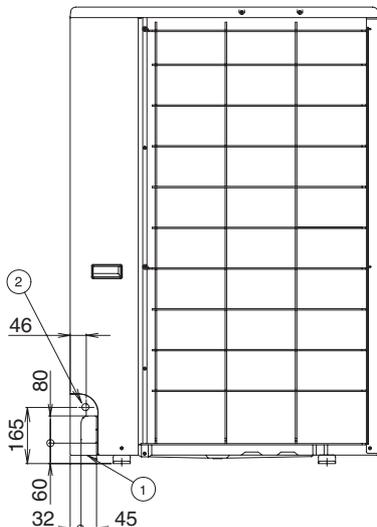
**MCY-MAP0401HT, MCY-MAP0501HT, MCY-MAP0601HT,
MCY-MAP0401HT2D, MCY-MAP0501HT2D, MCY-MAP0601HT2D**



Name	Notes
① Control wiring and piping hole	—
② Power supply wiring hole	Knockout hole $\phi 38$

Diameter of refrigerant pipe

Model name	Gas side	Liquid side
MCY-MAP0401HT*	$\phi 15.9$ (Flare)	$\phi 9.5$ (Flare)
MCY-MAP0501HT*	$\phi 15.9$ (Flare)	$\phi 9.5$ (Flare)
MCY-MAP0601HT*	$\phi 19.1$ (Blazing connection with attached joint socket)	$\phi 9.5$ (Flare)



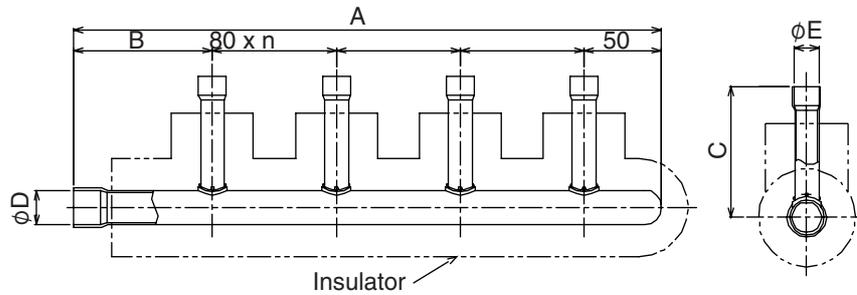
Note: All dimensions are in mm.

4-2. Branching joints and headers

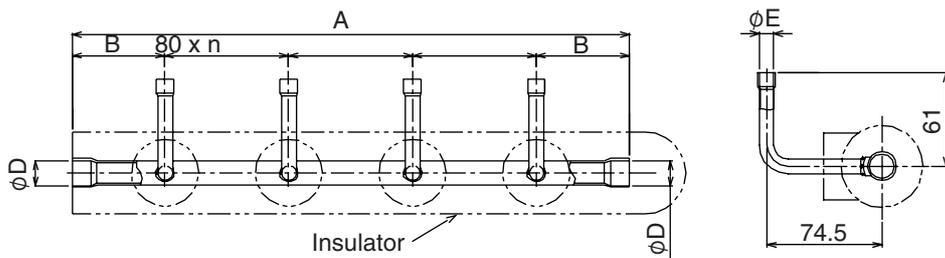
Branch header

RBM-HY1043E, HY1083E

Gas side



Liquid side



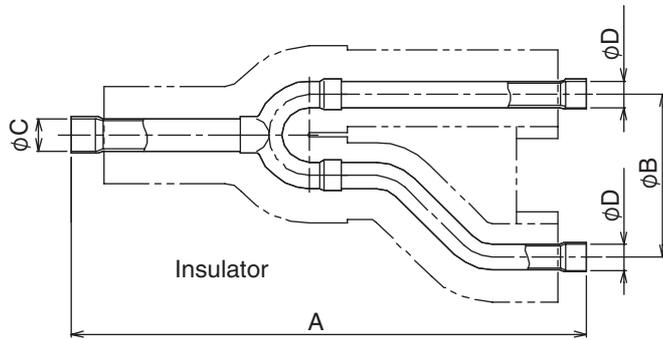
Model		A	B	C	ØD	ØE	n	Accessory socket x Q'ty
RBM-HY1043E	Gas side	380	90	83.6	22.2	15.9	3	⑥ x 4, ⑨ x 4, ⑭ x 1, ⑱ x 1, ⑰ x 1
	Liquid side	360	60	—	15.9	9.5	3	① x 4, ⑥ x 1, ⑨ x 1
RBM-HY1083E	Gas side	700	90	83.6	22.2	15.9	7	⑥ x 8, ⑨ x 8, ⑭ x 1, ⑱ x 1 ⑰ x 1
	Liquid side	680	60	—	15.9	9.5	7	① x 8, ⑥ x 1,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

Note: All dimensions are in mm.

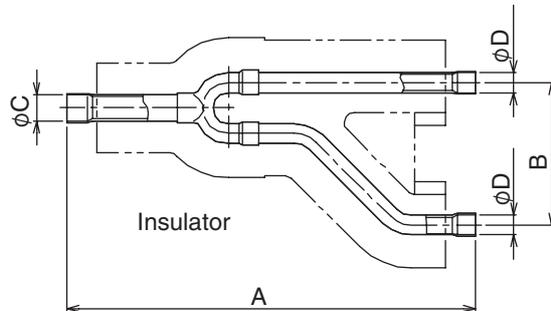
Y-shape branch joint

RBM-BY53E, BY103E

Gas side



Liquid side

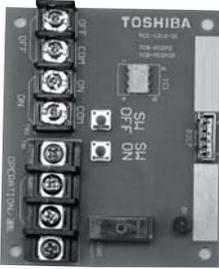
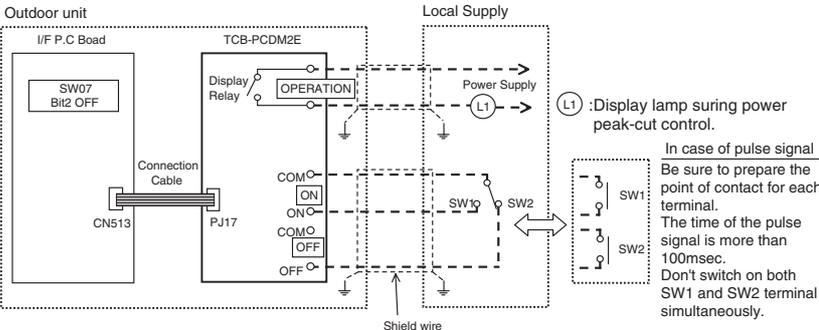


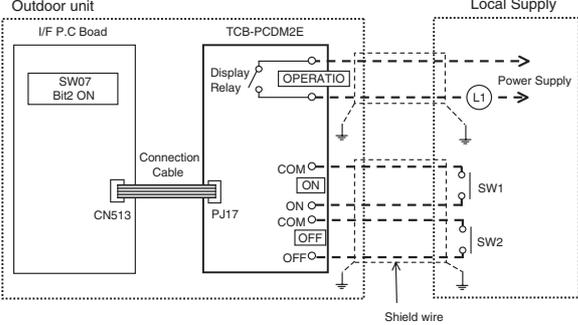
Model		A	B	ØC	ØD	Accessory socket x Q'ty
RBM-BY53E	Gas side	250	80	15.9	12.7	⑤ x 2, ⑤④ x 2, ⑨ x 1, ⑤① x 1
	Liquid side	200	70	12.7	9.5	① x 2, ⑤ x 1
RBM-BY103E	Gas side	350	80	22.2	19.1	⑦ x 1, ⑩ x 1, ⑬ x 2, ⑱ x 1, ⑤② x 2, ⑦⑦ x 1, ⑧⑨ x 1
	Liquid side	250	80	15.9	12.7	② x 1, ⑤ x 2, ⑥ x 1, ⑨ x 1, ⑤④ x 1

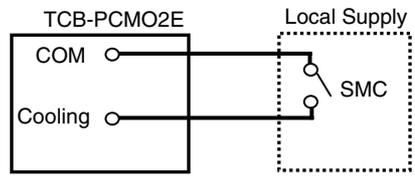
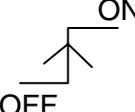
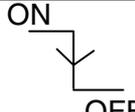
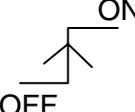
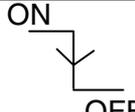
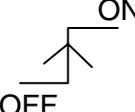
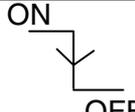
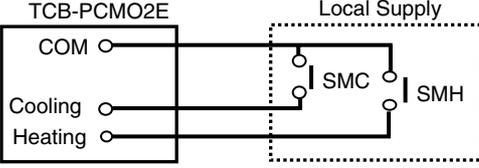
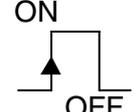
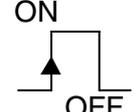
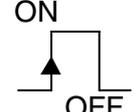
Note: All dimensions are in mm.

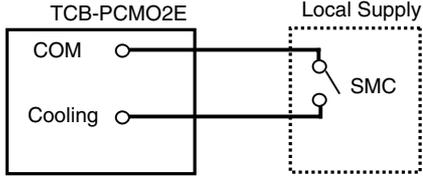
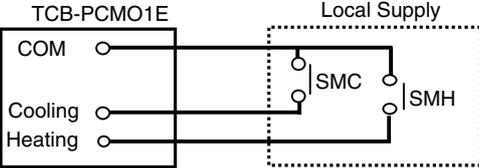
4-3. Application controls of outdoor unit

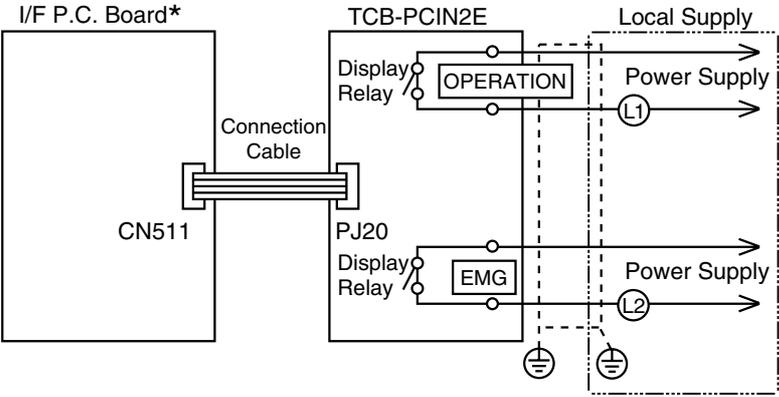
Note : The P.C. boards of outdoor unit (TCB-PCDM2E, TCB-PCMO2E, TCB-PCIN2E) can be installed up to two boards.

Model Name	Appearance	Function																											
TCB-PCDM2E	 <p>Size : 71 x 85</p>	<h4>Power peak-cut control</h4> <p>■ Feature The upper limit capacity and current of the outdoor unit is restricted based on the demand request signal from outside.</p> <p>■ Normal current</p> <table border="1" data-bbox="595 701 1414 752"> <thead> <tr> <th>Outdoor unit capacity type</th> <th>MCY-</th> <th>0401 type</th> <th>0501 type</th> <th>0601 type</th> </tr> </thead> <tbody> <tr> <td>Normal current (Maxim running current)</td> <td></td> <td>25A</td> <td>28A</td> <td>31A</td> </tr> </tbody> </table> <p>■ Wiring</p> <table border="1" data-bbox="595 837 1366 936"> <thead> <tr> <th></th> <th>Length</th> <th>Size</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>Input wiring</td> <td>Up to 500m</td> <td>2-core or 3-core, 0.75mm²</td> <td>Shield wire</td> </tr> <tr> <td rowspan="2">Output wiring</td> <td>Up to 200m</td> <td>2-core, 0.75mm² *</td> <td rowspan="2">Shield wire</td> </tr> <tr> <td>Up to 400m</td> <td>2-core, 1.5mm² *</td> </tr> </tbody> </table> <p style="text-align: right;">* In conformity with design 60245 IEC 87</p>	Outdoor unit capacity type	MCY-	0401 type	0501 type	0601 type	Normal current (Maxim running current)		25A	28A	31A		Length	Size	Type	Input wiring	Up to 500m	2-core or 3-core, 0.75mm ²	Shield wire	Output wiring	Up to 200m	2-core, 0.75mm ² *	Shield wire	Up to 400m	2-core, 1.5mm ² *			
	Outdoor unit capacity type	MCY-	0401 type	0501 type	0601 type																								
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	<h4>Application</h4> <p>* Install this optional P.C. board in the inverter assembly of the outdoor unit.</p>	<p>■ Function / Electric wiring diagram Two type control can be selected by setting SW07 on the interface P.C. board of the outdoor unit.</p> <p>[Standard function]</p>  <p>SW07-Bit2 OFF</p> <table border="1" data-bbox="595 1592 1414 1693"> <thead> <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> </thead> <tbody> <tr> <td>OFF</td> <td>ON</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>0% (stop)</td> <td>0% (stop)</td> <td>Up to 60%</td> <td>Up to 80%</td> <td>ON</td> </tr> </tbody> </table> <p>⚠ CAUTION)</p> <ul style="list-style-type: none"> • 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. 	Input		SW07-Bit1 OFF		SW07-Bit1 ON		Display Relay (L1)	SW1	SW2	Capacity	Current	Capacity	Current	OFF	ON	100% (Normal)	100% (Normal)	100% (Normal)	100% (Normal)	OFF	ON	OFF	0% (stop)	0% (stop)	Up to 60%	Up to 80%	ON
Input		SW07-Bit1 OFF		SW07-Bit1 ON		Display Relay (L1)																							
SW1	SW2	Capacity	Current	Capacity	Current																								
OFF	ON	100% (Normal)	100% (Normal)	100% (Normal)	100% (Normal)	OFF																							
ON	OFF	0% (stop)	0% (stop)	Up to 60%	Up to 80%	ON																							

Model Name	Appearance	Function																																									
TCB-PCDM2E		<p>[Expansion function]</p>  <p>SW07-Bit2 ON</p> <table border="1" data-bbox="571 891 1420 1041"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>CAUTION</p> <ul style="list-style-type: none"> • Be sure to prepare non voltage continuous point of contact for each terminal. • Display Relay capacity of "OPERATION" <ul style="list-style-type: none"> 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. 	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																																					

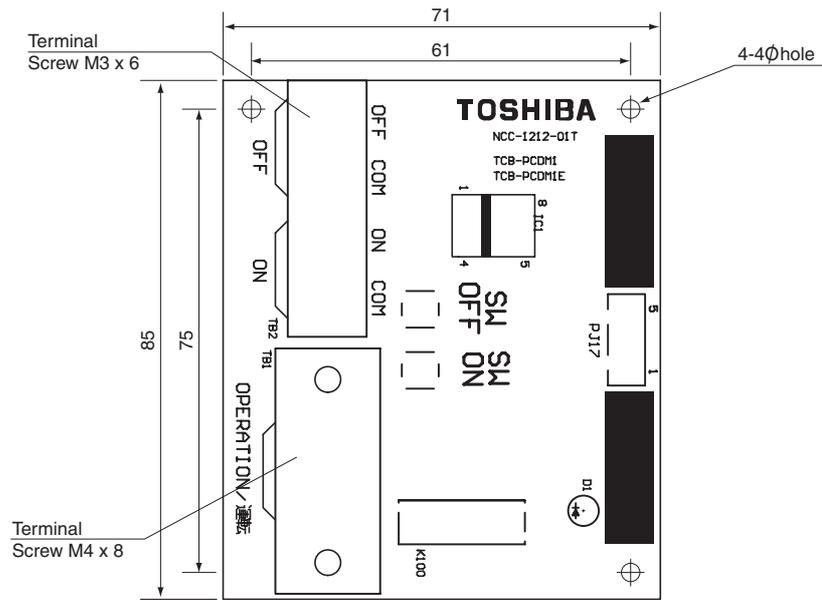
Model Name	Appearance	Function								
TCB-PCMO2E	 <p>Size : 55.5 x 60</p>	<p>[2] Snowfall fan control</p> <ul style="list-style-type: none"> ● Feature Outdoor fan is operated by the snowfall signal from outside. ● Function  <p>TCB-PCMO2E</p> <p>Local Supply</p> <p>COM</p> <p>Cooling</p> <p>SMC</p> <p>SMC : Cooling mode select input (switch)</p> <table border="1" data-bbox="582 683 1236 974"> <thead> <tr> <th>Terminal</th> <th>Input signal</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SMC</td> <td>ON </td> <td>Snowfall fan control (Operates outdoor fan.)</td> </tr> <tr> <td>OFF </td> <td>Usual operation</td> </tr> </tbody> </table> <p>This control is activated when a 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)</p>	Terminal	Input signal	Operation	SMC	ON 	Snowfall fan control (Operates outdoor fan.)	OFF 	Usual operation
	Terminal	Input signal	Operation							
SMC	ON 	Snowfall fan control (Operates outdoor fan.)								
	OFF 	Usual operation								
<p style="text-align: center;">Application</p> <p>*Install this optional P.C. board in the inverter assembly of the outdoor unit.</p>	<p>[3] External master ON/OFF control</p> <ul style="list-style-type: none"> ● Feature The outdoor unit starts or stops the system. ● Function  <p>TCB-PCMO2E</p> <p>Local Supply</p> <p>COM</p> <p>Cooling</p> <p>Heating</p> <p>SMC</p> <p>SMH</p> <p>SMC : Input signal for start SMH : Input signal for stop</p> <table border="1" data-bbox="582 1556 1236 1848"> <thead> <tr> <th>Terminal</th> <th>Input signal</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>SMC</td> <td>ON </td> <td>Starts all indoor units.</td> </tr> <tr> <td>SMH</td> <td>ON </td> <td>Stops all indoor units.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Ensure terminal contacts are securely fixed. <p>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.)</p>	Terminal	Input signal	Operation	SMC	ON 	Starts all indoor units.	SMH	ON 	Stops all indoor units.
Terminal	Input signal	Operation								
SMC	ON 	Starts all indoor units.								
SMH	ON 	Stops all indoor units.								

Model Name	Appearance	Function								
TCB-PCMO2E	 <p>Size : 55.5 x 60</p>	<p>[4] Night operation (Sound reduction) control</p> <p>● Feature Sound level can be reduced by restricting the compressor and fan speeds.</p> <p>● Function</p>  <p>SMC : Cooling mode designated input switch</p> <table border="1" data-bbox="582 817 1236 1108"> <thead> <tr> <th>Terminal</th> <th>Input signal</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SMC</td> <td>ON </td> <td>Night operation control</td> </tr> <tr> <td>OFF </td> <td>Usual Operation</td> </tr> </tbody> </table> <p>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).</p>	Terminal	Input signal	Operation	SMC	ON 	Night operation control	OFF 	Usual Operation
	Terminal	Input signal	Operation							
SMC	ON 	Night operation control								
	OFF 	Usual Operation								
<p style="text-align: center;">Application</p> <p>*Install this optional P.C. board in the inverter assembly of the outdoor unit.</p>	<p>[5] Operation mode selection control</p> <p>● Feature This control can restrict the selectable operation mode.</p> <p>● Function</p>  <p>SMC : Cooling mode designated input switch SMH : Heating mode designated input switch</p> <table border="1" data-bbox="582 1792 1236 1948"> <thead> <tr> <th>SMC</th> <th>SMH</th> <th>Selected operation mode</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF</td> <td>Only cooling mode permitted</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Only heating mode permitted</td> </tr> </tbody> </table> <p>Ensure terminal contacts are securely fixed.</p>	SMC	SMH	Selected operation mode	ON	OFF	Only cooling mode permitted	OFF	ON	Only heating mode permitted
SMC	SMH	Selected operation mode								
ON	OFF	Only cooling mode permitted								
OFF	ON	Only heating mode permitted								

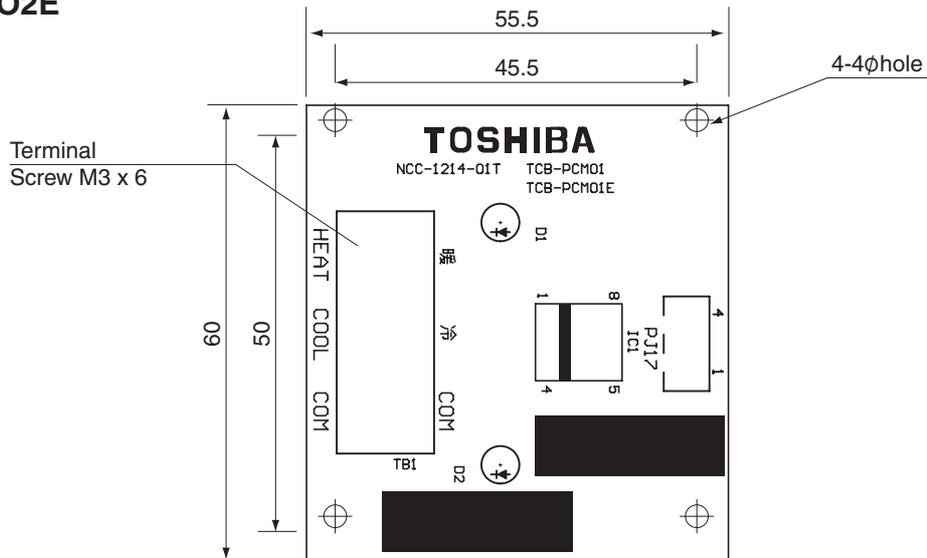
Model Name	Appearance	Function
TCB-PCIN2E	 <p>Size : 73.0 x 79</p>	<p>[6] Error / Operation output control</p>  <p>① : Operation monitoring lamp ② : Error monitoring lamp</p> <ul style="list-style-type: none"> • Ensure terminal contacts are securely fixed. • Display Relay capacity of "OPERATION" and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

Dimension

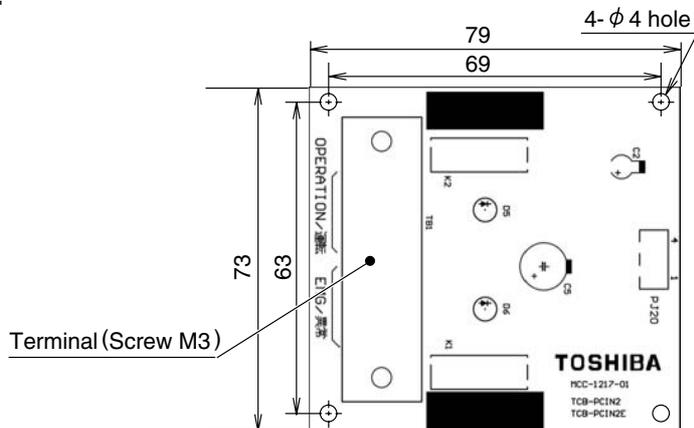
TCB-PCDM2E



TCB-PCMO2E



TCB-PCIN2E

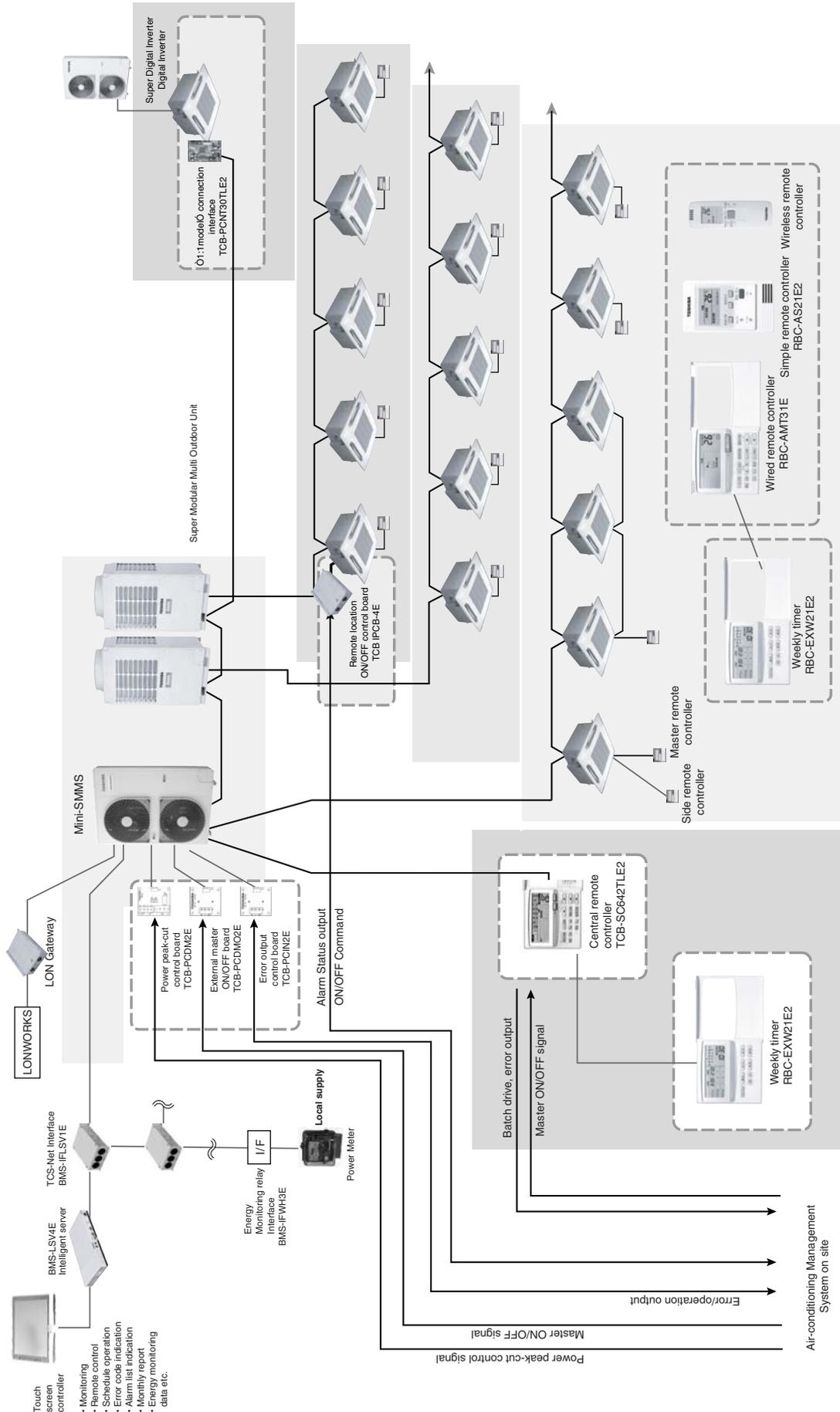


5. Controls

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

5. Controls

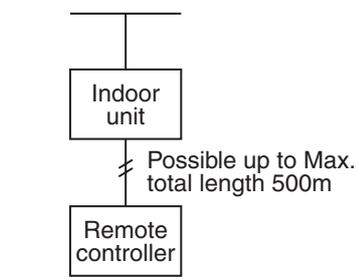
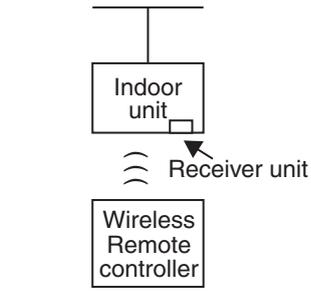
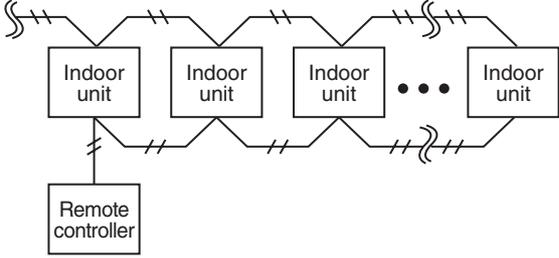
Outline of application Control

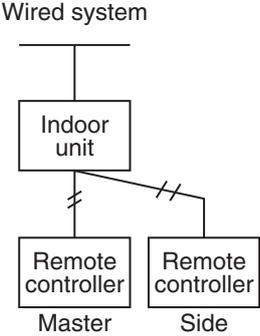
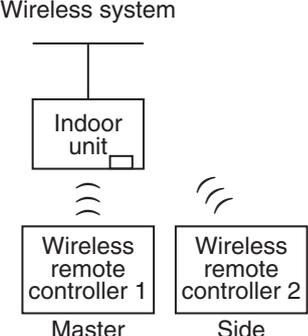
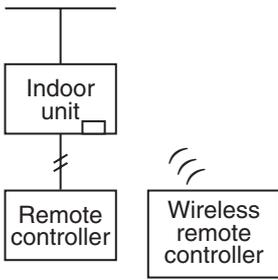
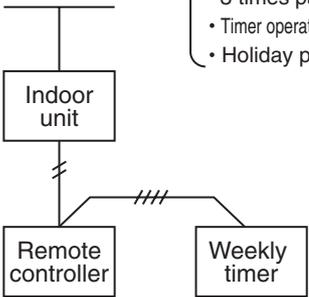


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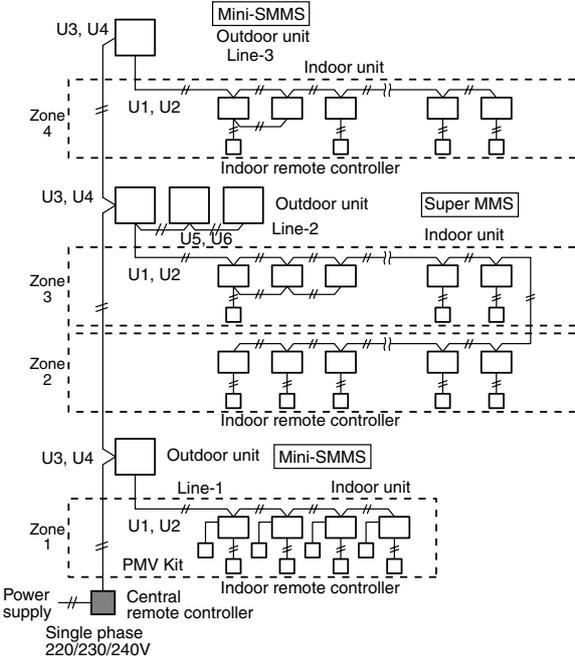
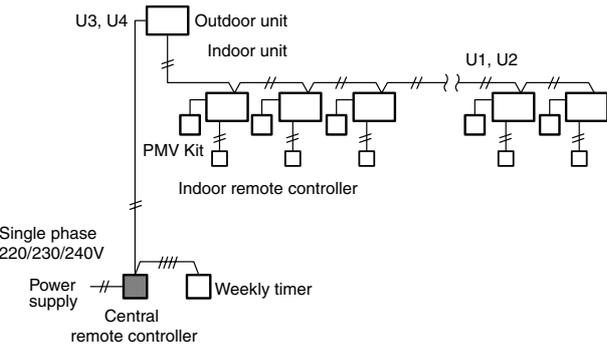
5-1. Control devices

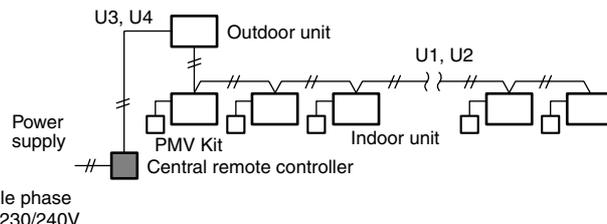
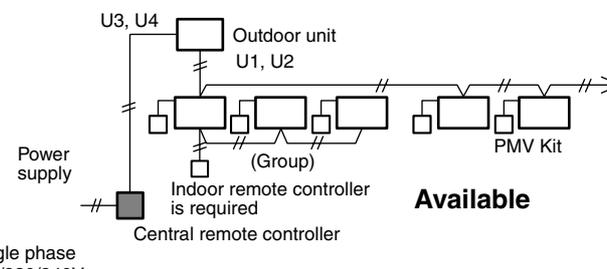
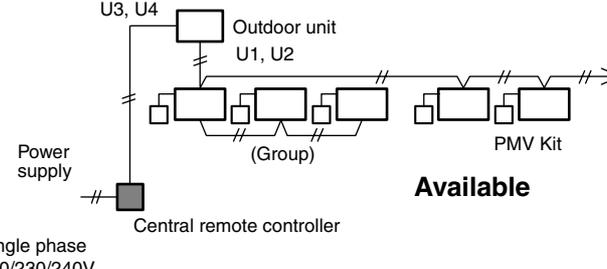
5-1-1. Applications for indoor remote controller

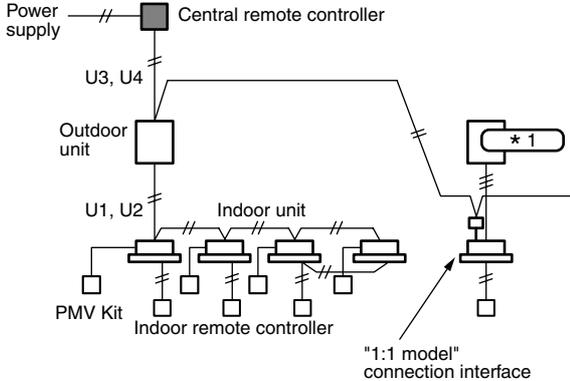
	Basic function	System diagram	Model
<p>1-1</p> <p>Individual control</p> <p>[Air conditioner is individually operated at a distance.]</p>		<p style="text-align: center;">Main remote controller</p>  <p style="text-align: center;">Wireless remote controller</p> 	<ul style="list-style-type: none"> • Wired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

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

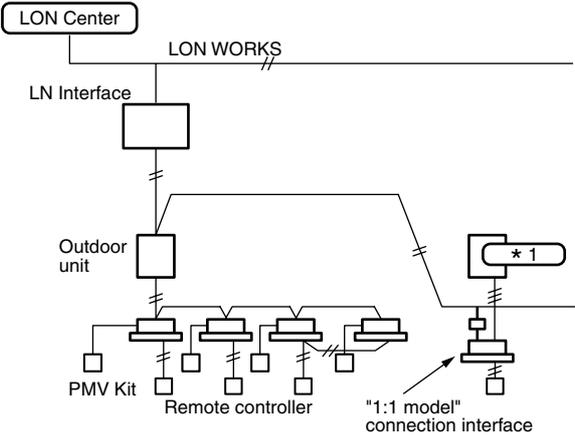
5-1-2. Application controls for central remote controller

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

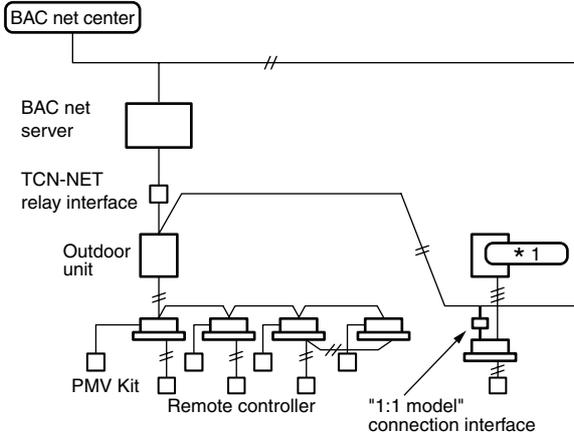
	Basic function	System diagram	Model
2-3	Central remote controller without indoor remote controller	 <p>Single phase 220/230/240V</p> <p>(Even when grouping operation is performed by connecting multiple indoor units to 1 line, the indoor remote controller is required.)</p> <p>Example of grouping operation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

	Basic function	System diagram	Model
2-4	Central management control with "1 : 1 model"	 <p>The diagram illustrates a central management control system. At the top, a 'Central remote controller' is connected to a 'Power supply'. Below it, an 'Outdoor unit' (labeled U3, U4) is connected to the central controller. The outdoor unit is further connected to an 'Indoor unit' (labeled U1, U2). This indoor unit is connected to several 'Indoor remote controller' units, which are each connected to a 'PMV Kit'. A separate '1:1 model' connection interface is shown connected to the outdoor unit. A note at the bottom of the diagram states: '* TOSHIBA Digital Inverter System and Super Digital Inverter System'.</p>	<ul style="list-style-type: none"> • Central remote controller TCB-SC642TLE2 TCB-SC163TLE2 • "1 : 1 model" connection interface TCB-PCNT30TLE2 [RAV-SM560KRT-E, SM800KRT-E are not compatible to connect] • Indoor remote controller • Wired remote controller RBC-AMT31E • Simple remote controller RBC-AS21E2

5-1-3. Application control for network

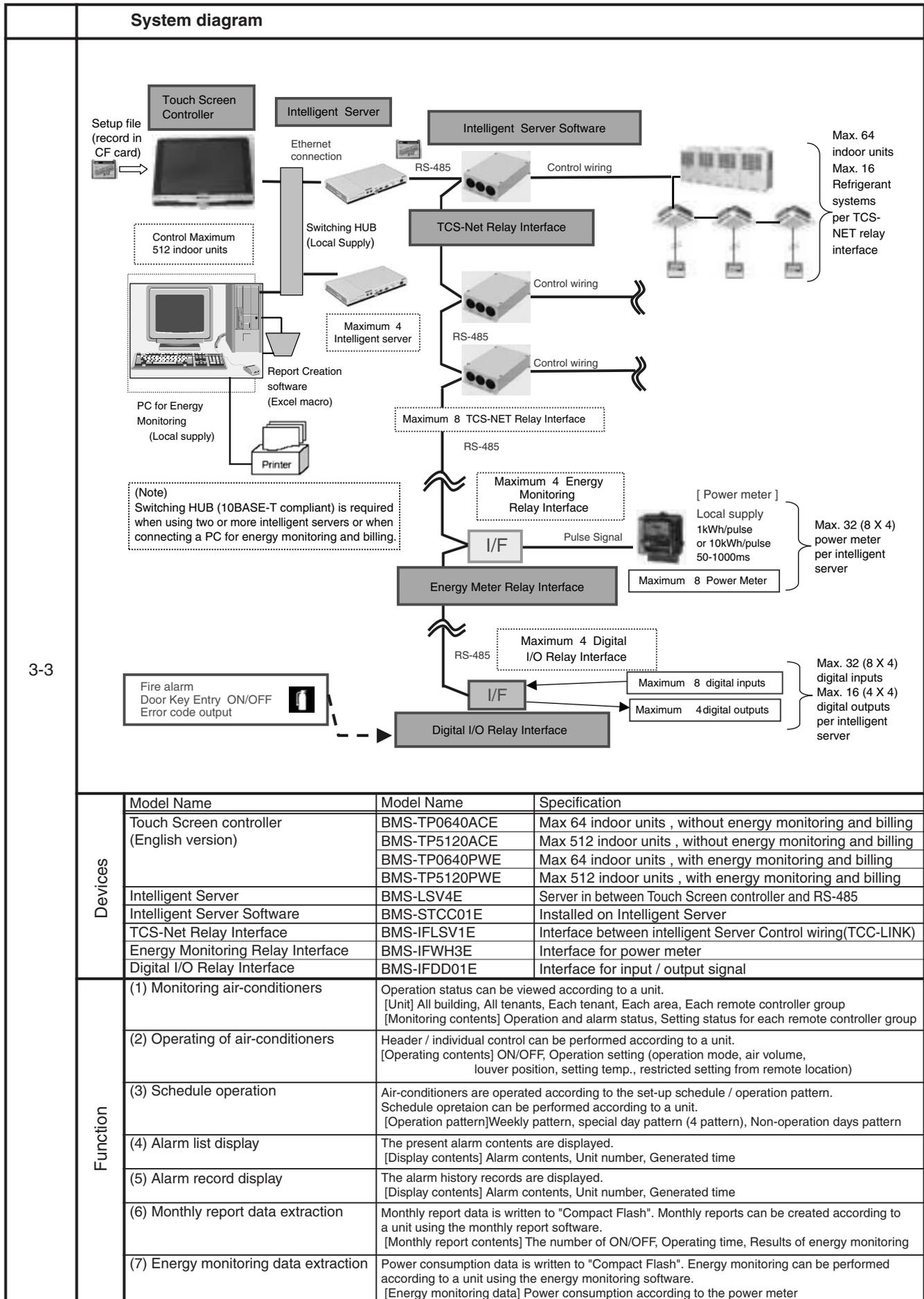
	Basic function	System diagram	Model
<p>3-1</p>	<p>LONWORKS® (*1)</p>	 <p>*1 TOSHIBA Digital Inverter System and Super Digital Inverter System</p> <p>The LONWORKS interface should be connected between a building management computer and a Mini-SMMS / Super HRM / Super MMS system. Max. 64 indoor units are connectable per interface.</p>	<ul style="list-style-type: none"> • LN interface TCB-IFLN640TLE • "1 : 1 model" connection interface TCB-PCNT30TLE2 [RAV-SM560KRT-E, SM800KRT-E are not compatible to connect] Indoor remote controller • Wired remote controller RBC-AMT31E <li style="text-align: center;">or • Simple remote controller RBC-AS21E2

*1) LONWORKS : Registered trademark Echelon corporation.

	Basic function	System diagram	Model
<p>3-2</p>	<p>BACnet® (*1)</p>	 <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"> • BACnet server BMS-LSV4E • BACnet server software XXX-XXXXXX • TCS-Net Relay Interface BMS-IFLSV1E • "1 model" connection interface TCB-PCNT30TLE2 [RAV-SM560KRT-E, SM800KRT-E are not compatible to connect.] • Indoor remote controller • Wired remote controller RBC-AMT31E • Simple remote controller RBC-AS21E2

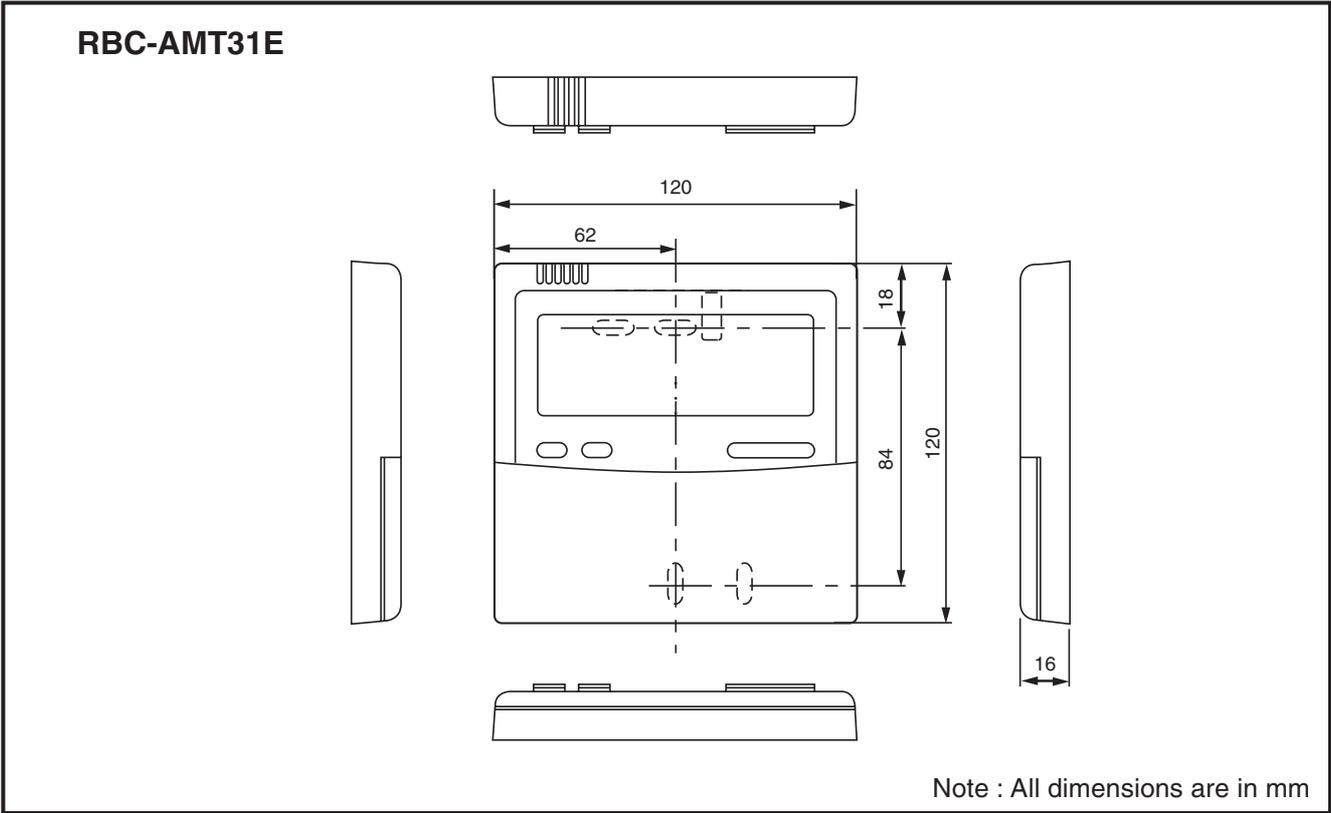
*1) BACnet™: ANSI/ASHRAE 135-1995, A Data Communication Protocol for Building Automation and Control Networks.

Touch screen controller system

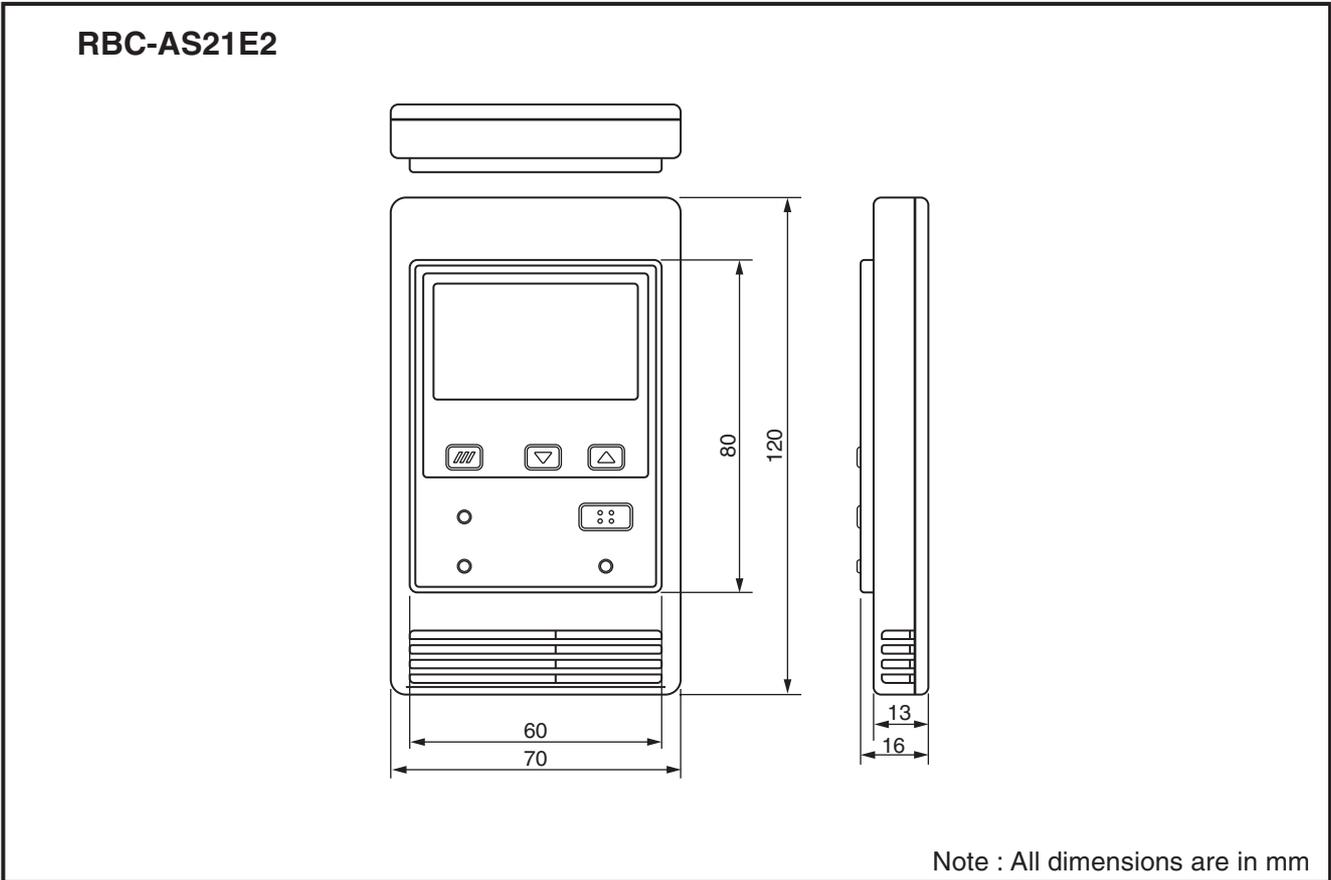


5-2. Controller dimensions

- **Wired remote controller**

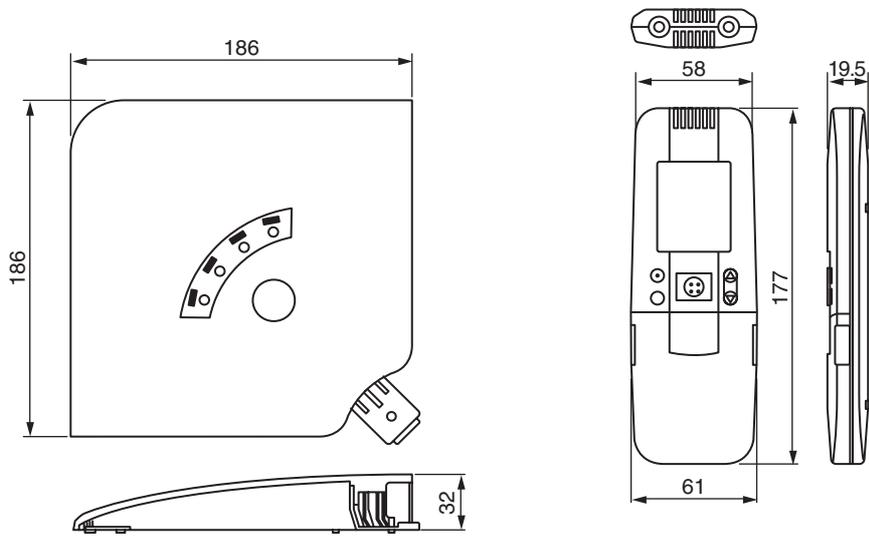


- **Simple remote controller**



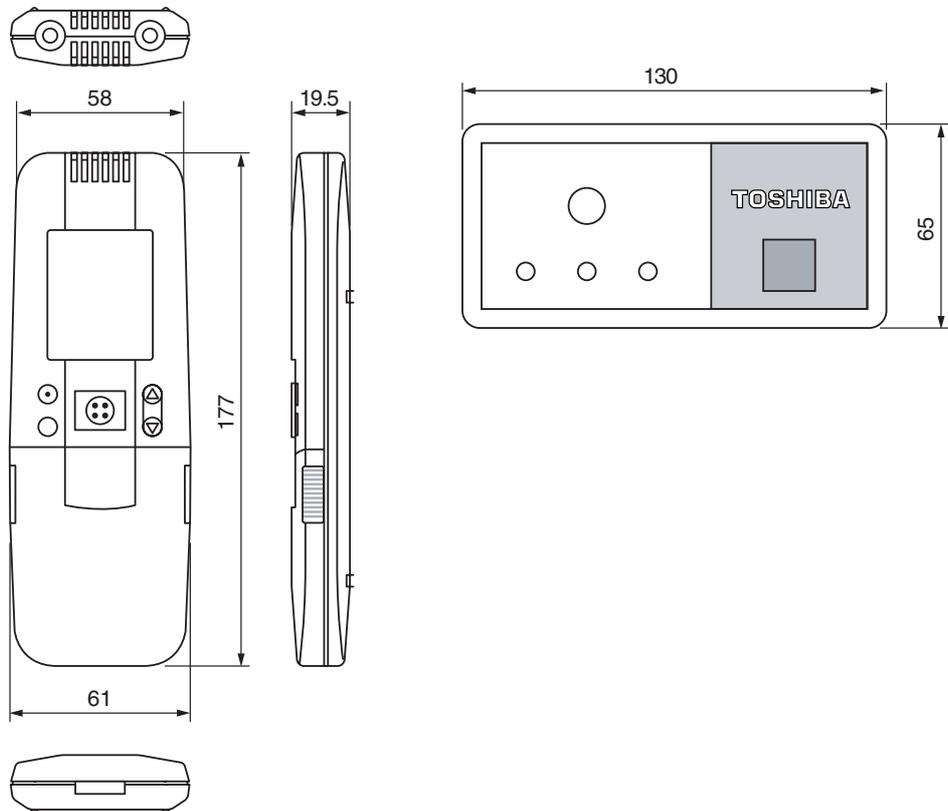
•Wireless remote controller kit

TCB-AX21U (W)-E2



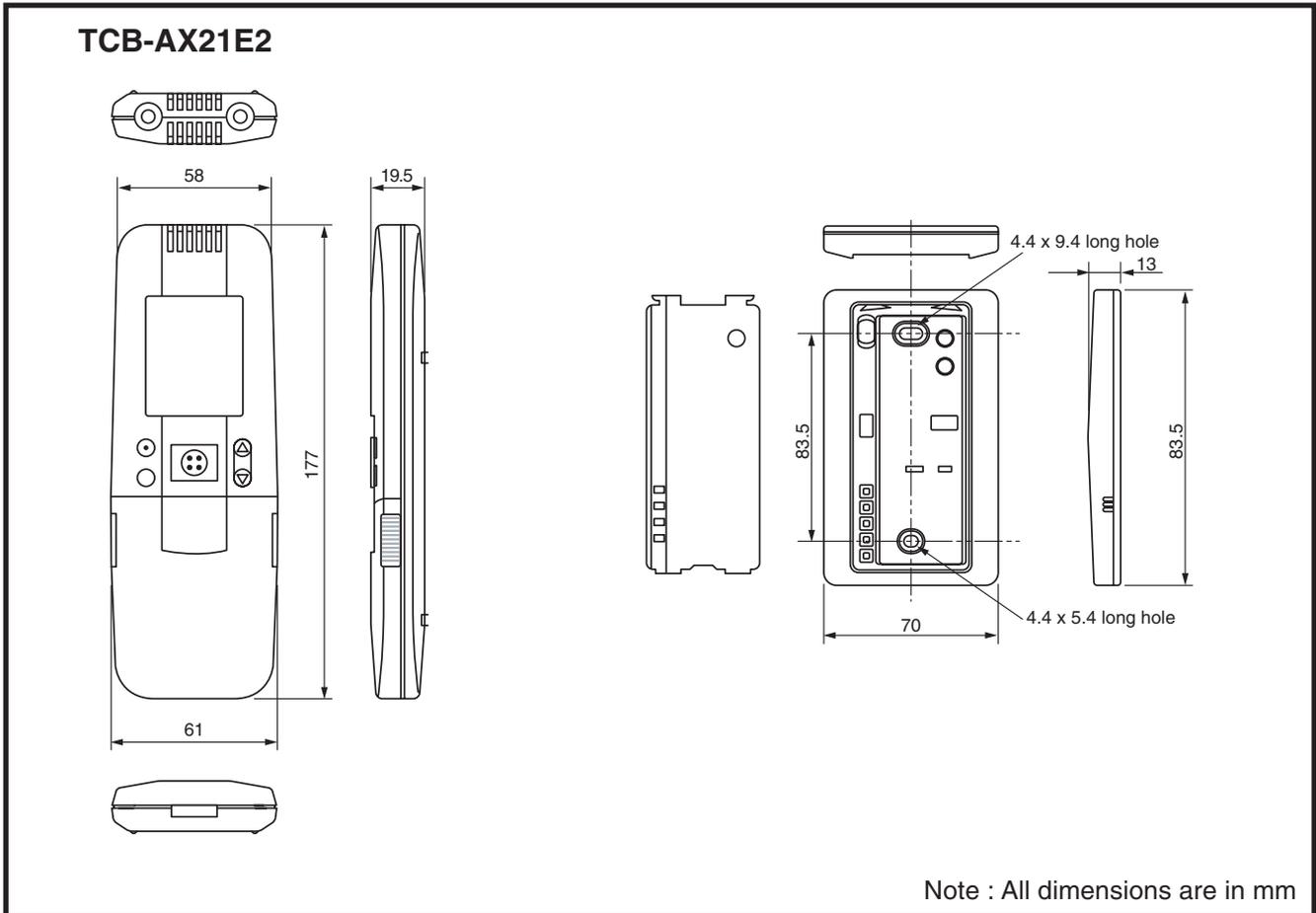
Note : All dimensions are in mm

RBC-AX22CE2

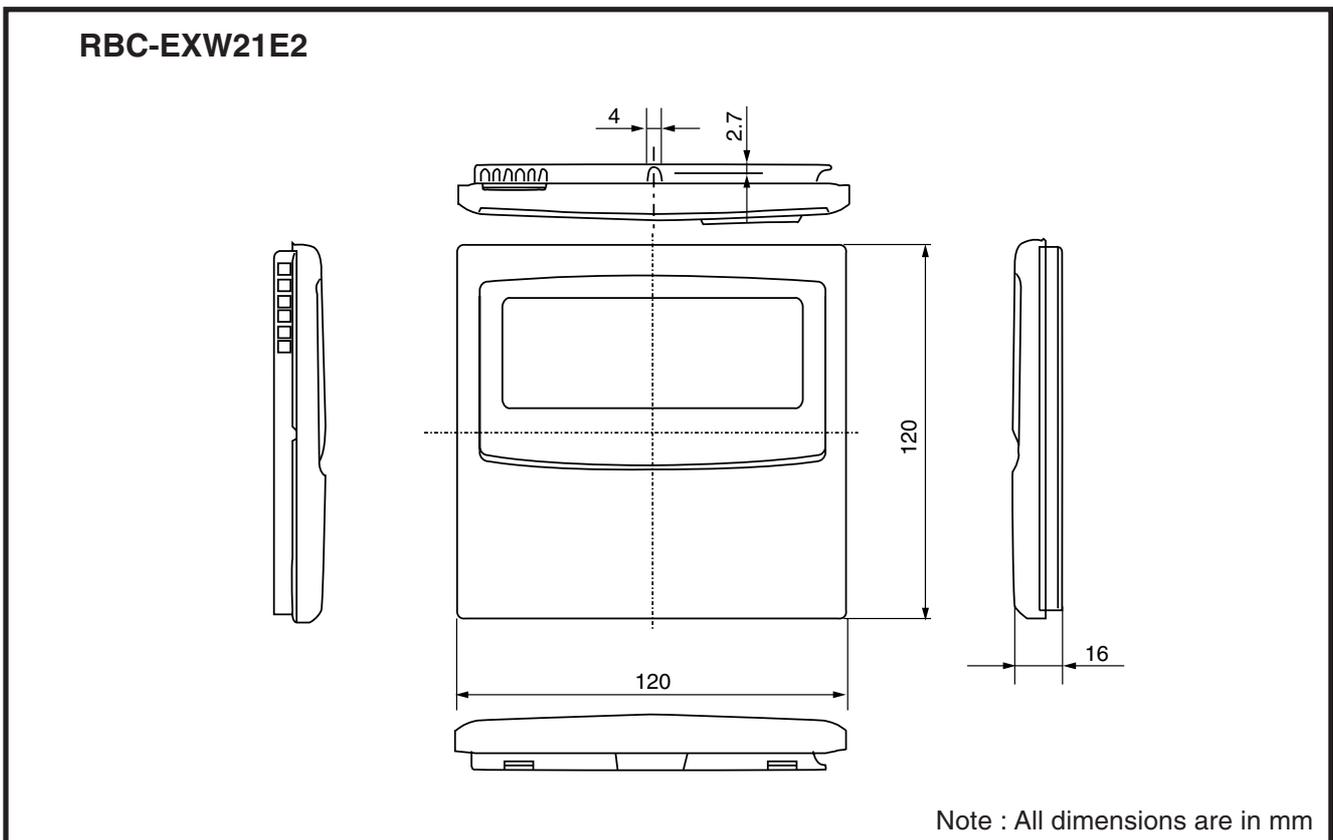


Note : All dimensions are in mm

• Wireless remote controller kit

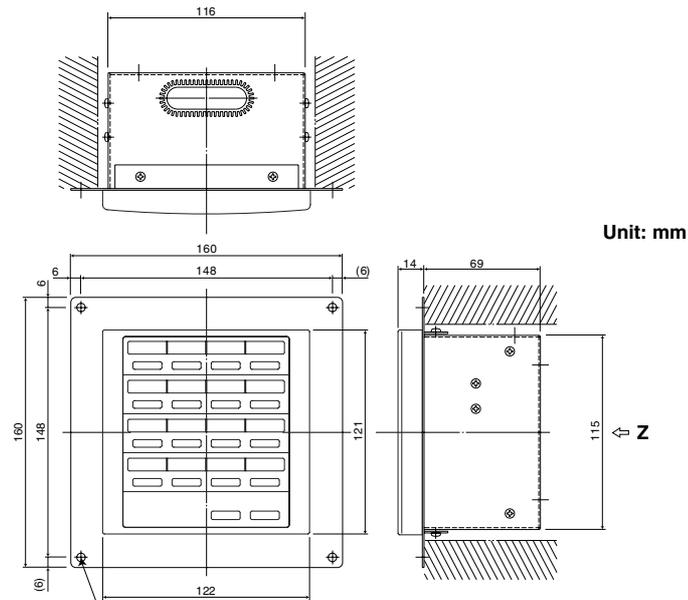


• Weekly timer



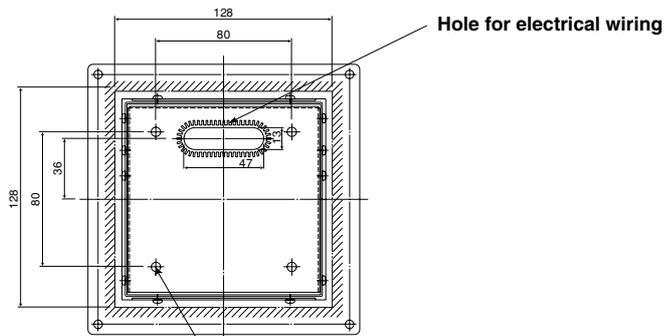
•ON-OFF controller

TCB-CC163TLE2



Unit: mm

4- ϕ 5 diameter holes
(for mounting)

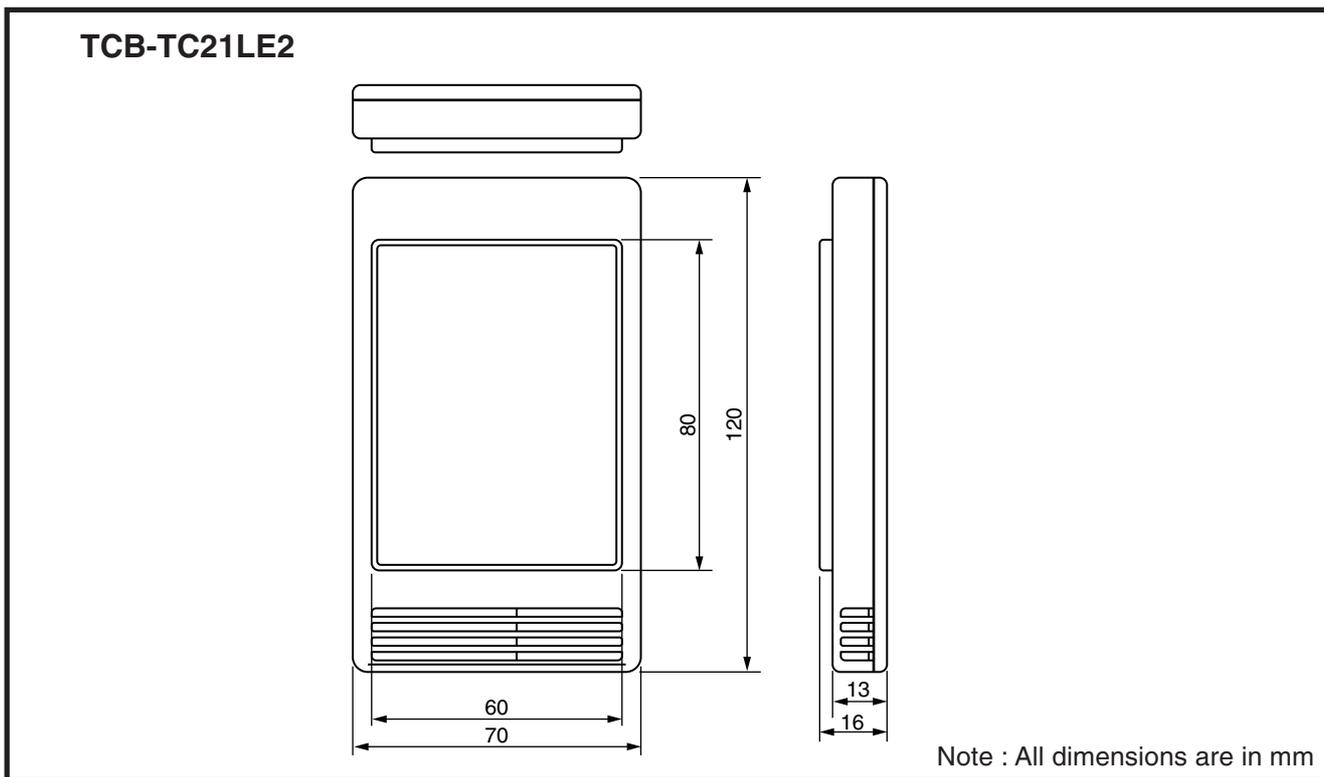


4- ϕ 5.5 diameter holes (for mounting)

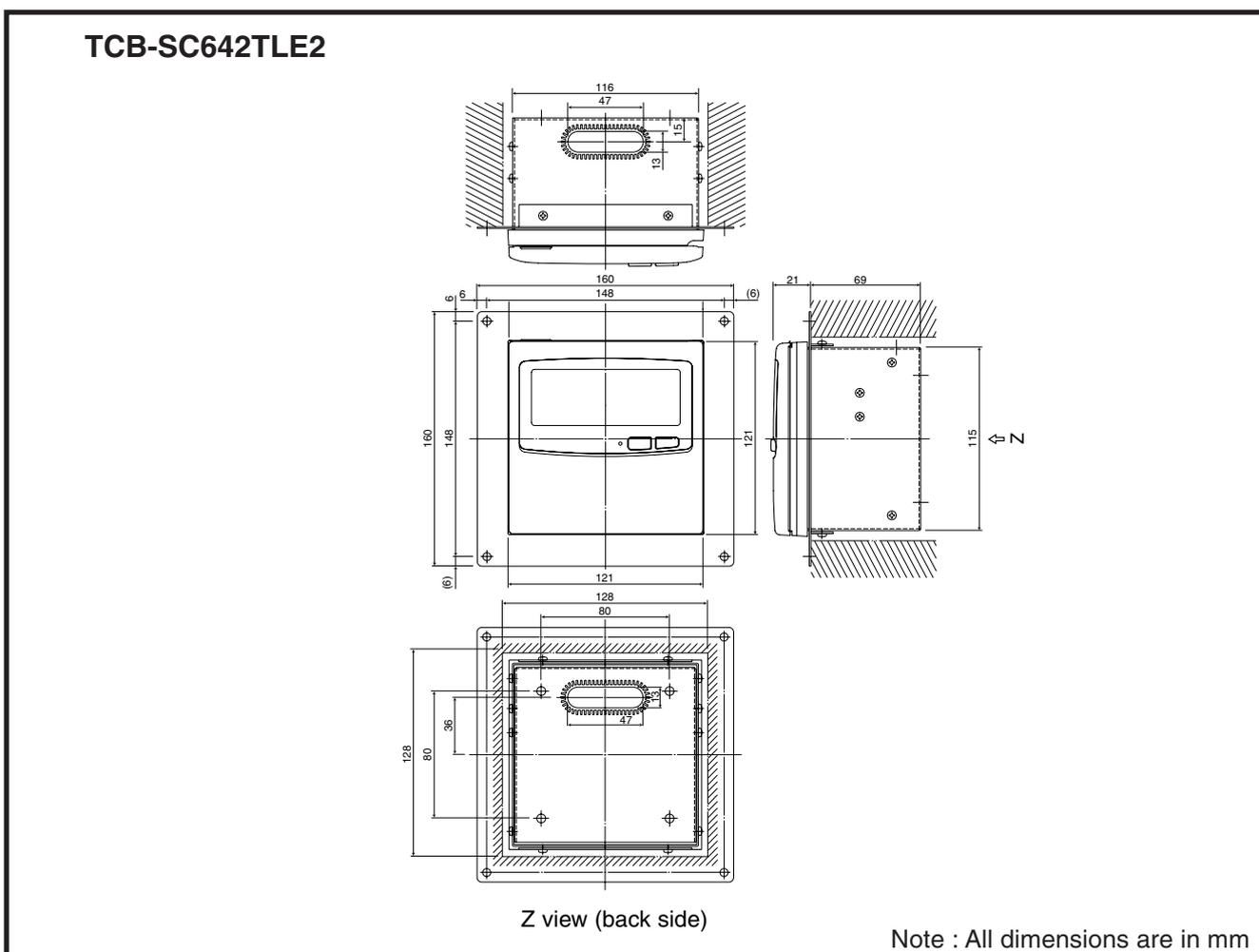
Z-view (back side)

Note : All dimensions are in mm

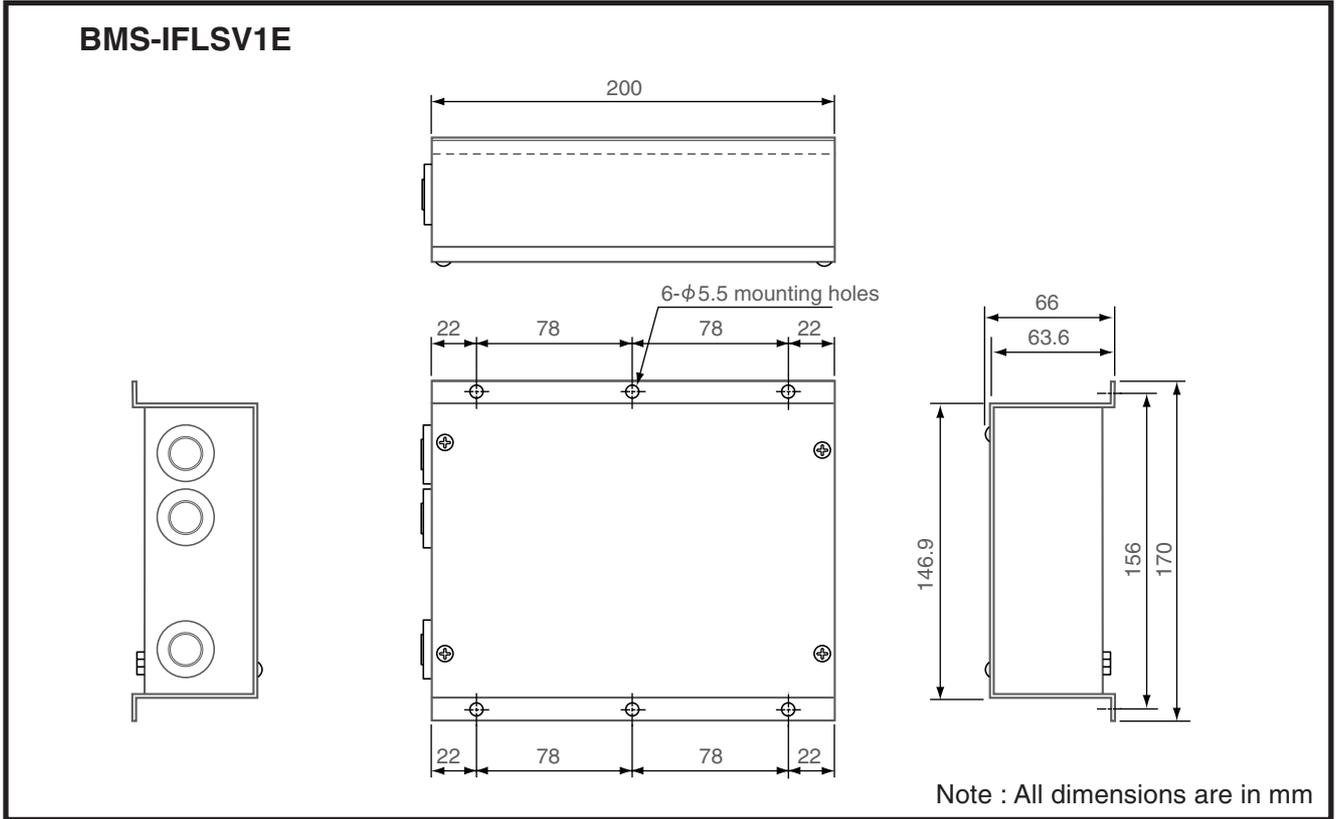
• Remote sensor



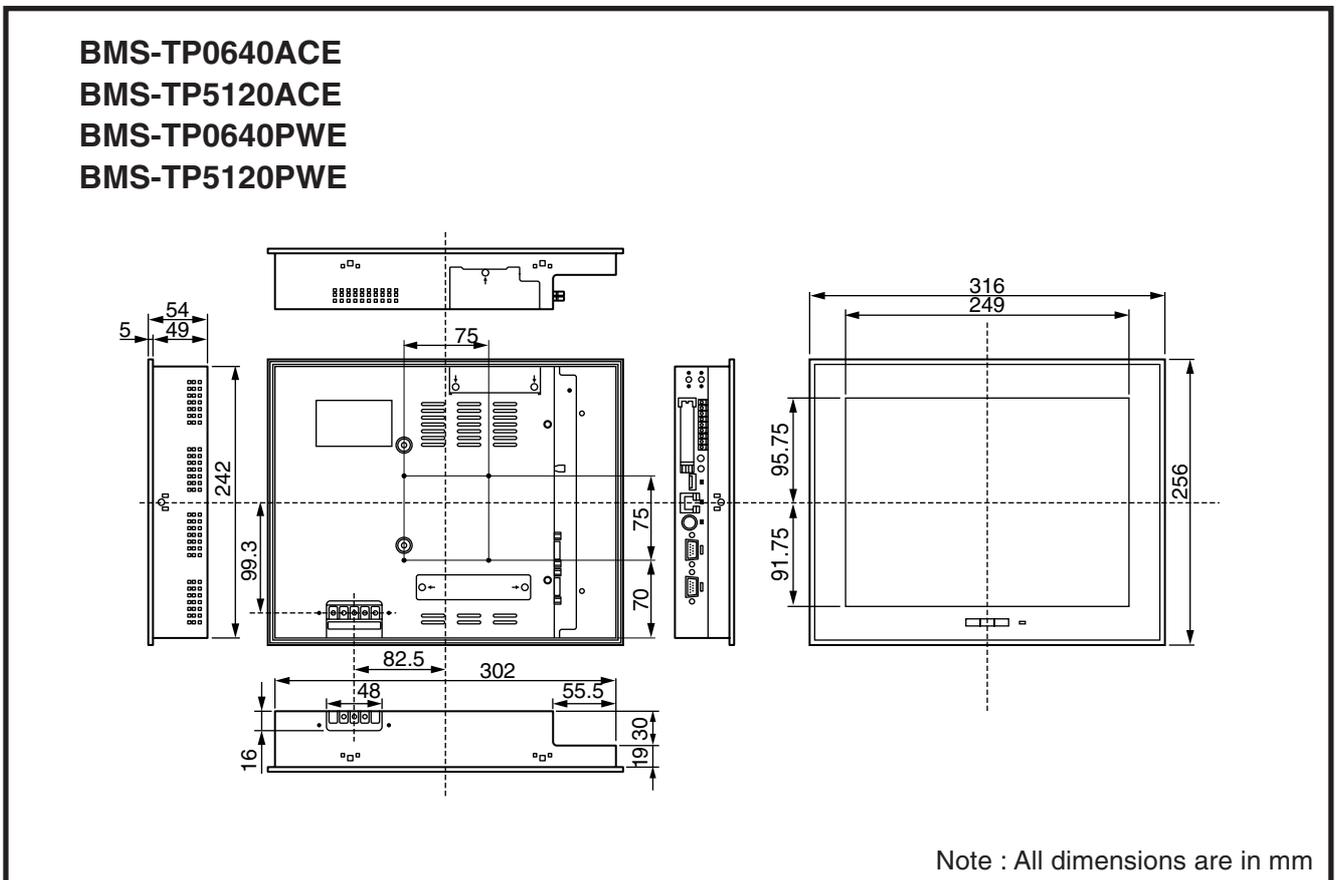
• Central remote controller



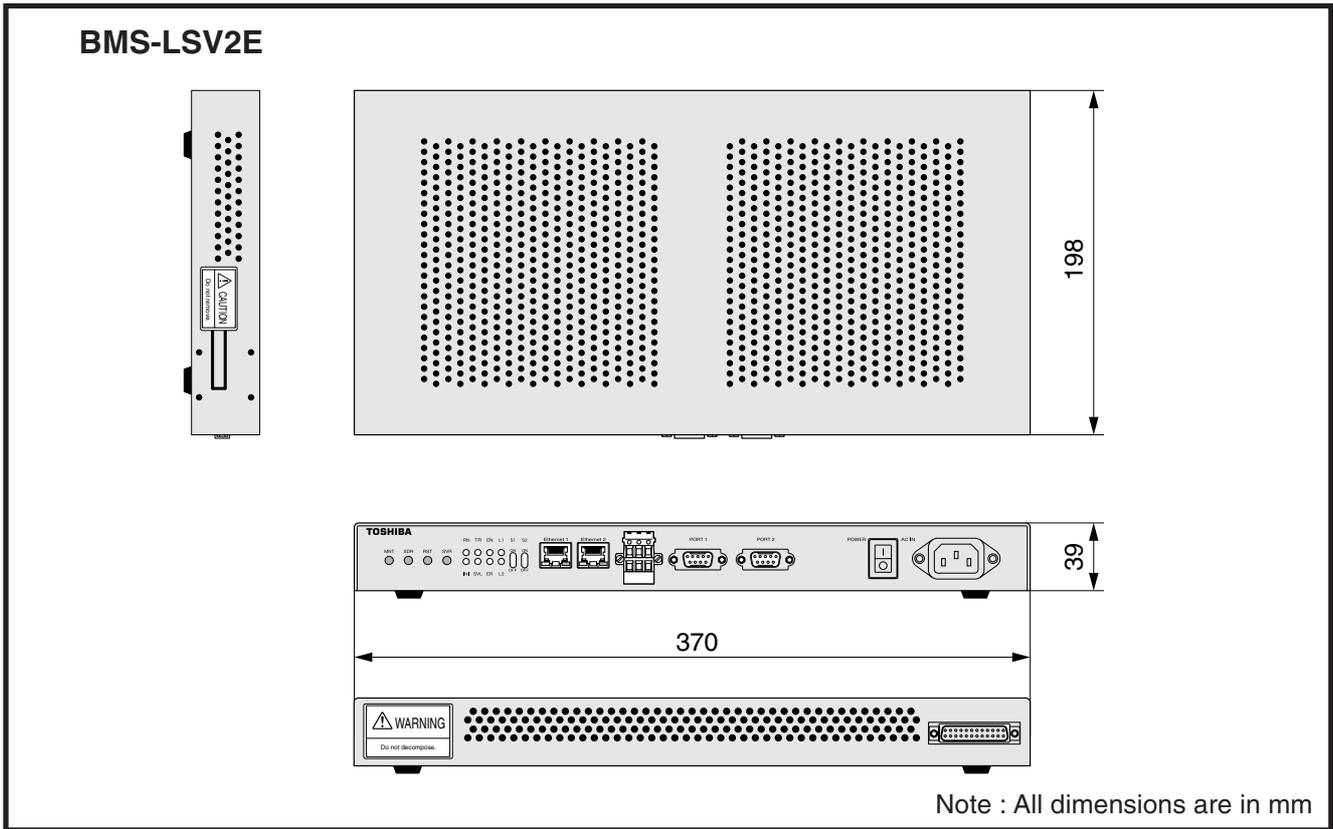
• TCS-Net relay interface



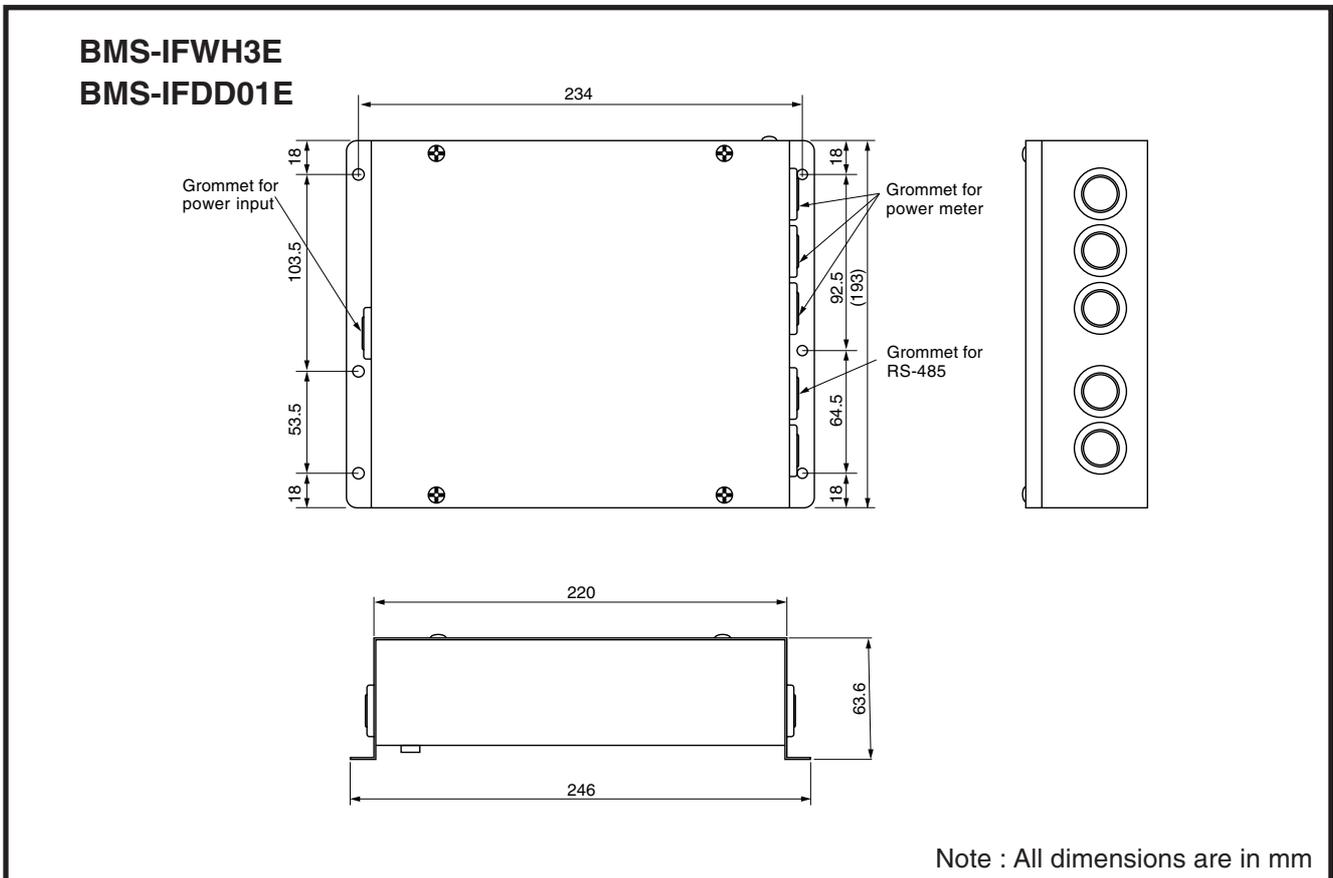
• Touch screen controller



• Intelligent server

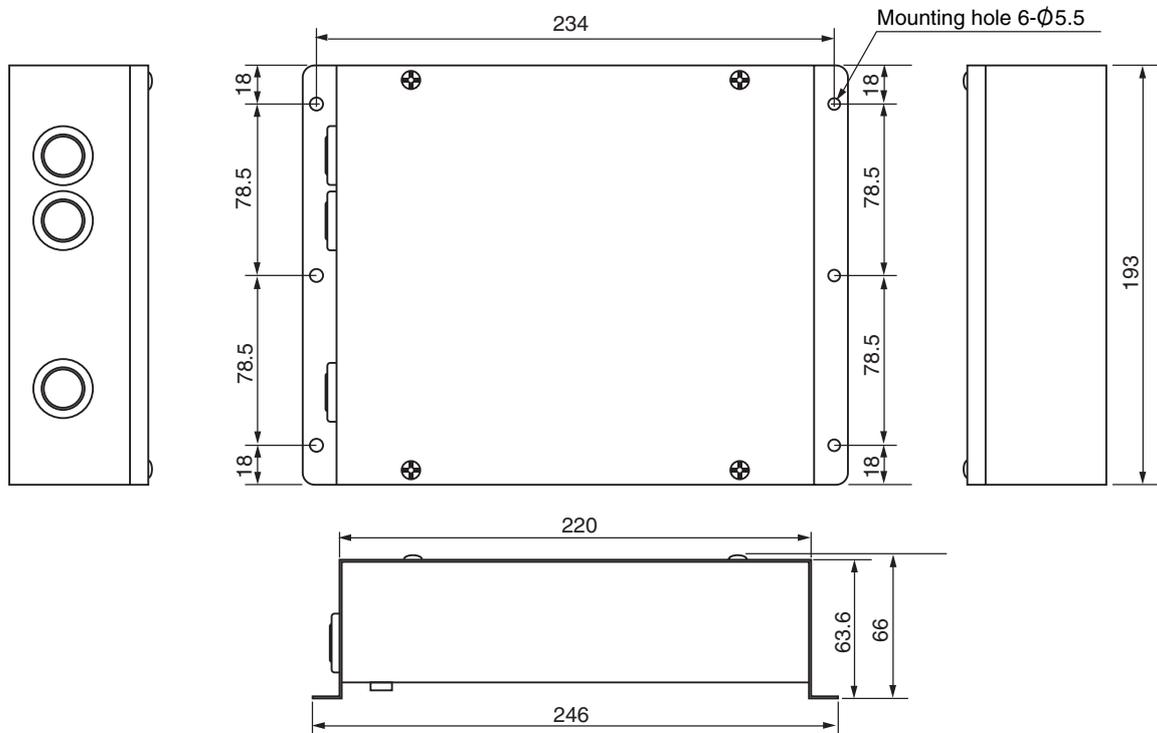


• Energy monitoring relay interface/Digital I/O relay interface



• LON GATEWAY

TCB-IFLN640TLE



Note : All dimensions are in mm

TOSHIBA CARRIER CORPORATION
2 CHOME 12-32, KONAN, MINATOKU, TOKYO, 108-0075, JAPAN