

Engineering Data

Fresh Air Intake Indoor Unit Type

Indoor Unit

MMD-AP0481HFE
MMD-AP0721HFE
MMD-AP0961HFE



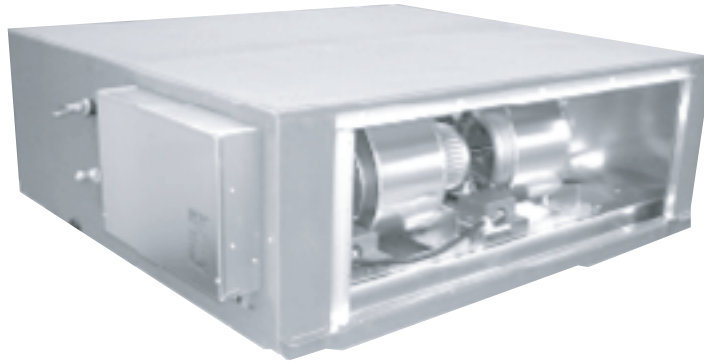
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2. Specifications
3. Dimensions
4. Center of gravity
5. Electrical current characteristics
6. Wiring diagrams
7. Fan characteristics
8. Sound characteristics (NC Curve)

1. System summary

■ Fresh Air Intake Indoor Unit Type

1. Outline of fresh air intake unit



- **Type: Concealed Duct High Static Pressure type**

Three models (5HP, 8HP, 10HP) are prepared.

- **Connectable outdoor unit**

Three series (MMY-MAPXXXXT8, MAPXXXXHT8, MAPXXXXHT7) of Cooling/Heating selecting Super module multi type outdoor unit.

- **Corresponding system**

Corresponds to a system in which there are the fresh air intake units and the indoor air conditioners.

(For the fresh air intake units, up to 2 units for one system and also within 30% to capacity of the connectable indoor air conditioners are allowed.)

- **Definition**

The fresh air intake unit means an air controller for taken-in fresh air.

Intake of the fresh air often influences on the system so that the normal control of the air conditioner becomes difficult or gives a large load upon air controller and cooling performance.

Therefore it is frequently adopted to handle the fresh air to a certain condition before the fresh air will enter in the main air conditioner.

This handling device is called a fresh air intake unit.

NOTE:

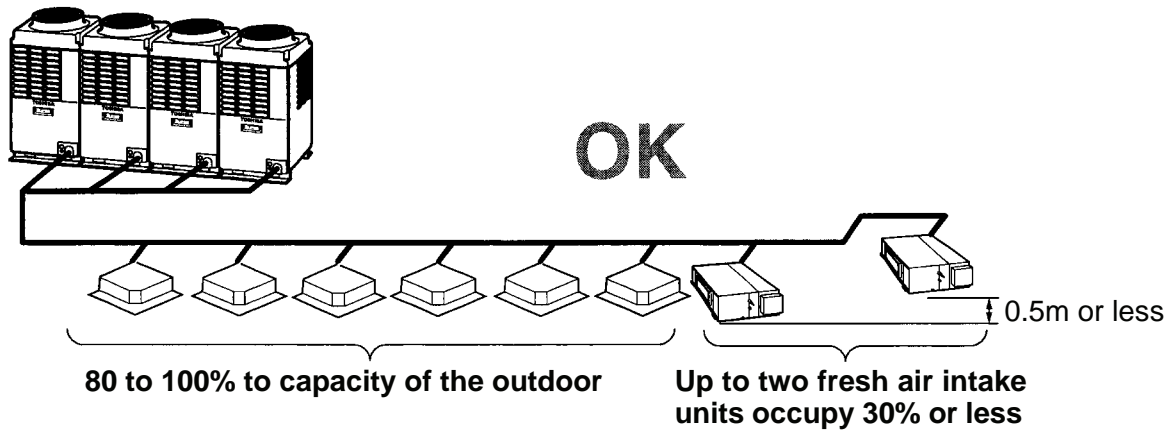
The Fresh Air Intake unit is an air conditioner provided to handle the fresh air load and is not to control the room temperature. For correspondence to the load of the indoor air controller, set an air conditioner separately.

1. System summary

■ Fresh Air Intake Indoor Unit Type

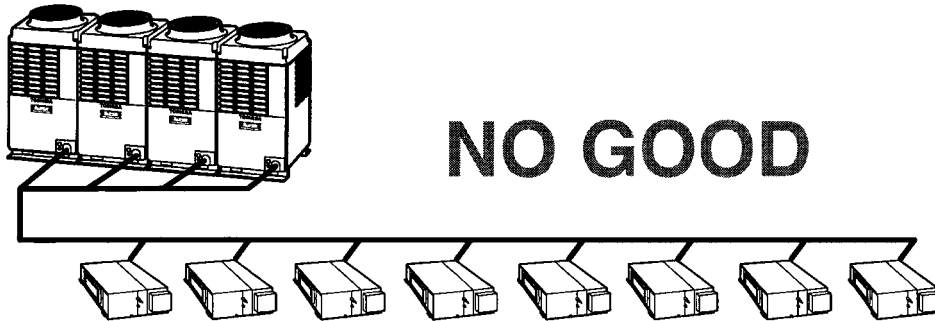
2. System able to be combined

The fresh air intake unit is connectable to S-MMS (Super Modular Multi system).
However this is not connectable to S-HRM (Super Heat Recovery Multi system).

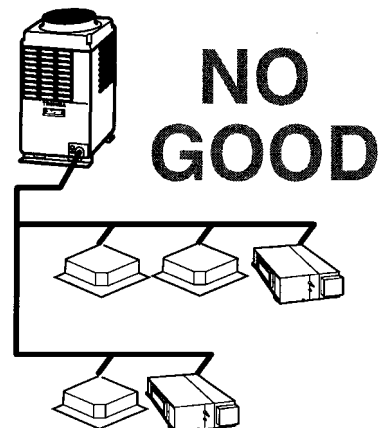
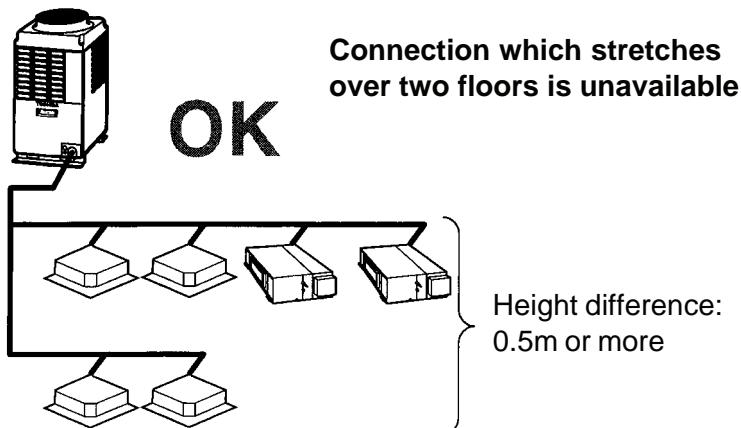


Keep the height difference between the fresh air intake units to 0.5m or less.

- The fresh air intake unit is usually used together with the indoor units on one line of the multi system. The fresh air intake unit only cannot be connected.



- The total capacity of the indoor units and the fresh air intake units is restricted to 80% to 100% against the capacity of the outdoor units. (This restriction should be strictly kept for correct control of the refrigerant.)
- Up to two fresh air intake units can be connected on one line of the multi system. The allowable total capacity of the two fresh air intake units shall be 30% or less against the total capacity of the indoor units (including the fresh air intake units).

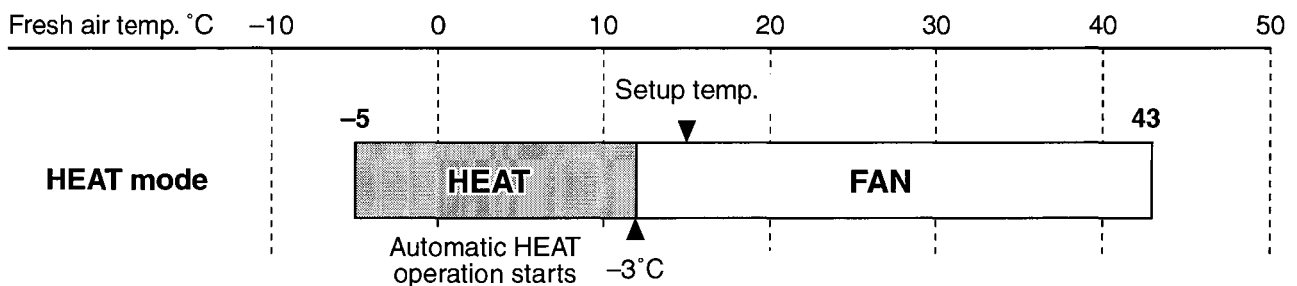
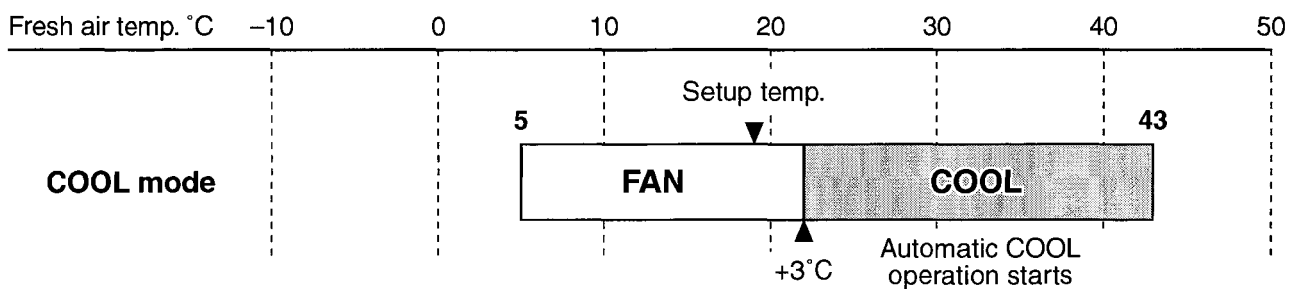


1. System summary

■ Fresh Air Intake Indoor Unit Type

3. Use Conditions

- In COOL mode, if temperature of the fresh air is under the setup temp. +3°C, FAN status is automatically made. When temperature of the fresh air is under 19°C, FAN status is also made regardless of the setup temperature.
- In HEAT mode, if temperature of the fresh air is over the setup temp. -3°C, FAN status is automatically made. When temperature of the fresh air is over 15°C, FAN status is also made regardless of the setup temperature.



• Operable mode and discharge temp setup range

Operation mode	At shipment from factory	Setup range
COOL	18°C	16 to 27°C
HEAT	25°C	16 to 27°C

• Special mentions

1. The fan operation of the Fresh Air Intake unit stops during defrosting. However the fan operation is enabled to continue by selection.
2. When a central controller is used, divide zone setup of indoor air conditioner and fresh air intake unit.
3. The standard is to control the discharge temperature. However the priority is given to the capacity control for the indoor air conditioner in a system in which the normal indoor air conditioner concurrently operated.
4. The fresh air intake unit cannot be connected with remote controller group of the indoor air conditioner.
5. In heating operation, if the temperature is below -5°C, the operation stops automatically. (FAN stop) (To protect the refrigerant cycle)
6. In cooling operation, if the temperature is below 5°C, the operation stops automatically. (FAN stop)

2. Specifications

■ Fresh Air Intake Indoor Unit Type

50Hz

Model name		MMD-AP0481HFE	MMD-AP0721HFE	MMD-AP0961HFE
Cooling/Heating capacity (Note 1) (kW)		14.0/8.9	22.4/13.9	28.0/17.4
Electrical characteristics	Power supply	1 phase 50Hz 230V (220-240V)		
	Running current (A)	1.43	2.52	2.73
	Power consumption (kW)	0.28	0.45	0.52
	Starting current (A)	3.50	7.00	7.00
Outer dimension	Main unit	Height (mm)	492	
		Width (mm)	892	1,392
		Depth (mm)	1,262	
Total weight	Main unit (kg)	93	144	
Heat exchanger		Finned tube		
Soundproof / Heat-insulating material		Non-flammable insulation		
Fan unit	Fan		Centrifugal fan	
	Standard air flow (m ³ /h)	1,080	1,680	2,100
	Motor (W)	160	160 x 2	
	External static pressure (factory setting)	210	165	190
	External static pressure	170-210-230	140-165-180	160-190-205
	Air flow limit (m ³ /h)	756	1,176	1,470
	Lower limit/Upper limit			
Air filter		Option or field supply		
Controller		Wired remote controller		
Connecting pipe	Gas pipe (mm)	15.9	22.2	
	Liquid pipe (mm)	9.5	12.7	
	Drain pipe	R1		
Sound pressure level (Note 2) (High/Med./Low) (dB(A))		45/43/41	46/45/44	
Sound power level (High/Med./Low) (dB(A))		65/63/61	66/65/64	
Operation range	Cooling (Note 3) (°C)	5 - 43		
	Heating (Note 4) (°C)	-5 - 43		

* The setting temperature is 16 - 27°C(standard FCU...18 - 29°C).

* An option humidifier is not available with Fresh Air Intake Indoor unit.

* Height difference between Fresh Air Intake Indoor units must be within 0.5m.

Height difference between Fresh Air Intake Indoor unit and standard FCU must be within 30m.

Note 1: Rated conditions Cooling : Outdoor air temperature 33°C DB/28°C WB setting temperature 18°C
 Heating : Outdoor air temperature 0°C DB/-2.9°C WB setting temperature 18°C
 Piping : Length 7.5m / Height 0m

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 large than the indicated values due to the effects of external sound.

Note 3: * When supply air temperature is "setting temperature + 3°C" or less, Fresh Air Intake unit operates as FAN mode.

* When supply air temperature is 19°C or less, Fresh Air Intake Indoor unit operates as FAN mode.

Note 4: * When supply air temperature is "setting temperature - 3°C" or over, Fresh Air Intake unit operates as FAN mode.

2. Specifications

■ Fresh Air Intake Indoor Unit Type

60Hz

Model name		MMD-AP0481HFE	MMD-AP0721HFE	MMD-AP0961HFE
Cooling/Heating capacity (Note 1) (kW)		14.0/8.9	22.4/13.9	28.0/17.4
Electrical characteristics	Power supply	1 phase 60Hz 220V		
	Running current (A)	1.66	2.75	3.12
	Power consumption (kW)	0.34	0.55	0.65
	Starting current (A)	3.40	6.80	6.80
Outer dimension	Main unit	Height (mm)	492	
		Width (mm)	892	1,392
		Depth (mm)	1,262	
Total weight	Main unit (kg)	93	144	
Heat exchanger		Finned tube		
Soundproof / Heat-insulating material		Non-flammable insulation		
Fan unit	Fan		Centrifugal fan	
	Standard air flow (m ³ /h)	1,080	1,680	2,100
	Motor (W)	160	160 x 2	
	External static pressure (factory setting)	215	210	180
	External static pressure	115-215-260	150-210-235	80-180-220
	Air flow limit (m ³ /h)	1,188	1,848	2,310
	Lower limit/Upper limit			
Air filter		Option or field supply		
Controller		Wired remote controller		
Connecting pipe	Gas pipe (mm)	15.9	22.2	
	Liquid pipe (mm)	9.5	12.7	
	Drain pipe	R1		
Sound pressure level (Note 2) (High/Med./Low) (dB(A))		45/43/41	46/45/44	
Sound power level (High/Med./Low) (dB(A))		65/63/61	66/65/64	
Operation range	Cooling (Note 3) (°C)	5 - 43		
	Heating (Note 4) (°C)	-5 - 43		

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 Piping : Length 7.5m / Height 0m

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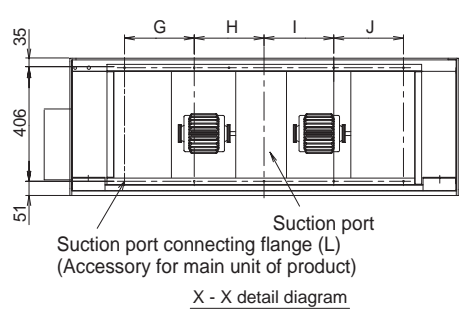
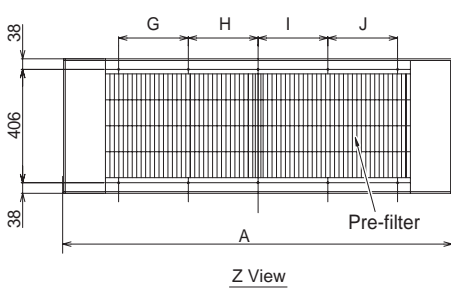
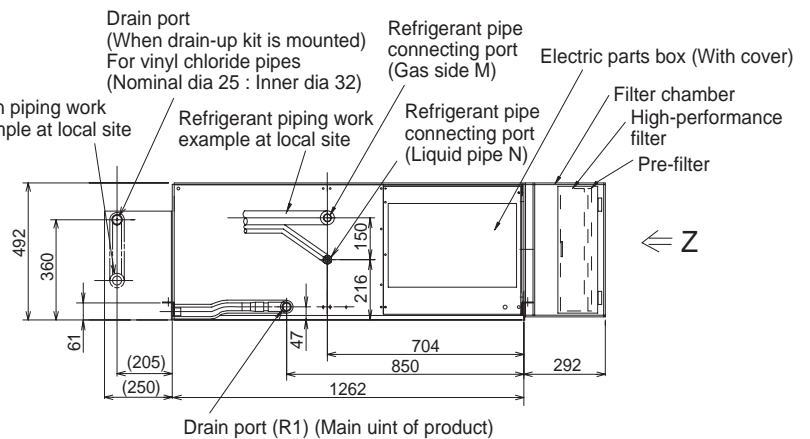
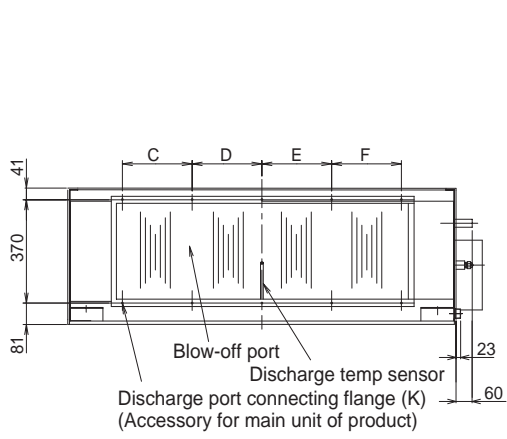
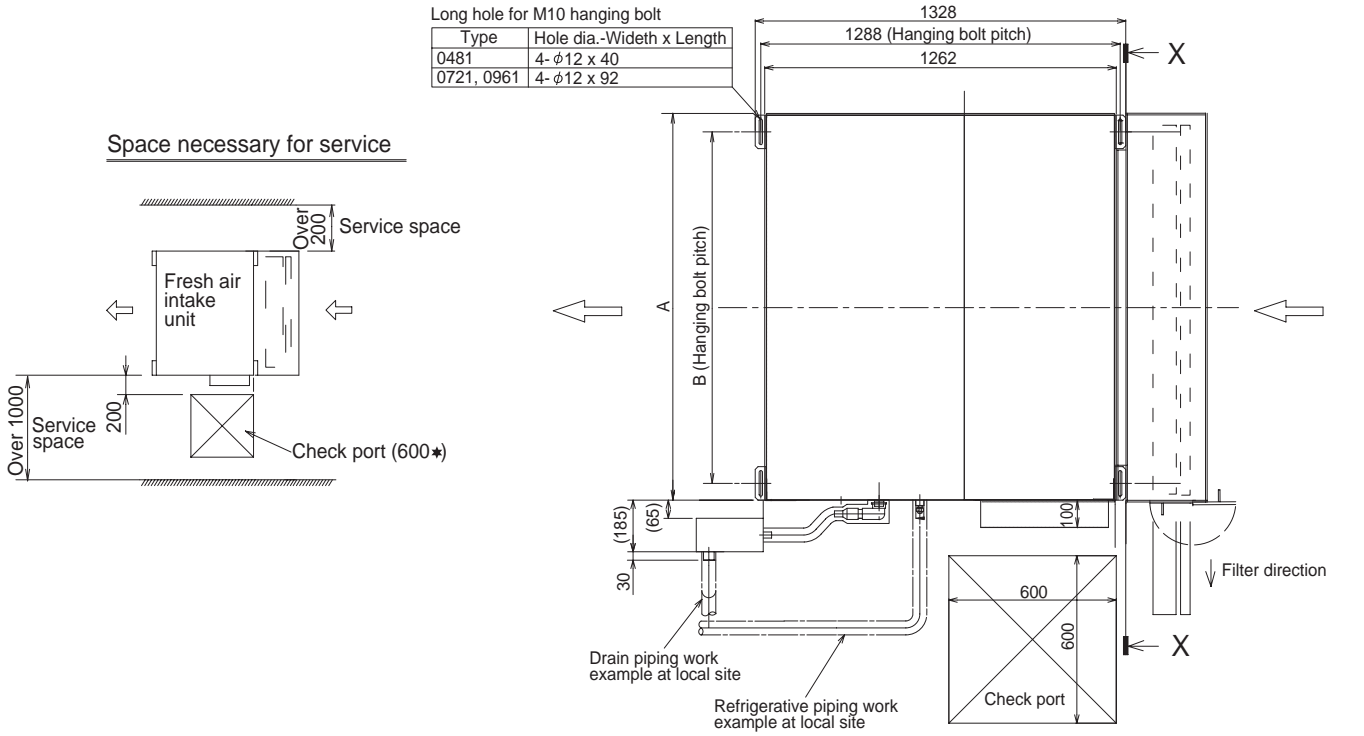
Note 3: * When supply air temperature is "setting temperature + 3°C" or less, Fresh Air Intake unit operates as FAN mode.

* When supply air temperature is 19°C or less, Fresh Air Intake Indoor unit operates as FAN mode.

Note 4: * When supply air temperature is "setting temperature - 3°C" or over, Fresh Air Intake unit operates as FAN mode.

3. Dimensions

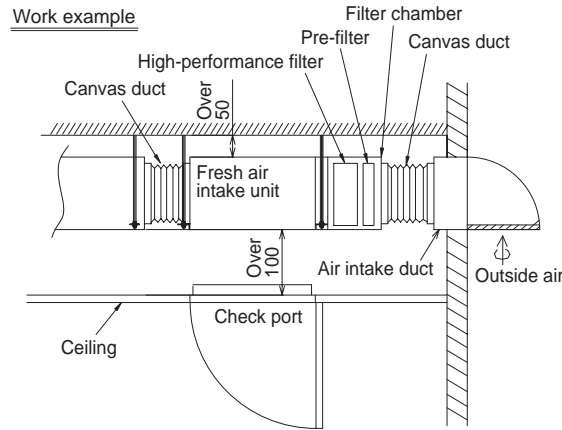
■ Fresh Air Intake Indoor Unit Type (MMD-AP***HFE)



AP0961HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	φ22.2 brazing	φ12.7 flare
AP0721HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	φ22.2 brazing	φ12.7 flare
AP0481HFE	892	810	215	107.5	107.5	215	—	250	250	—	8-M6	6-M6	φ15.9 flare	φ9.5 flare
Model MMD-	A	B	C	D	E	F	G	H	I	J	K	L	M	N

3. Dimensions

■ Fresh Air Intake Indoor Unit Type (MMD-AP***HFE)



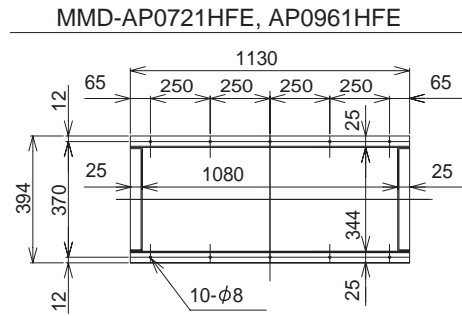
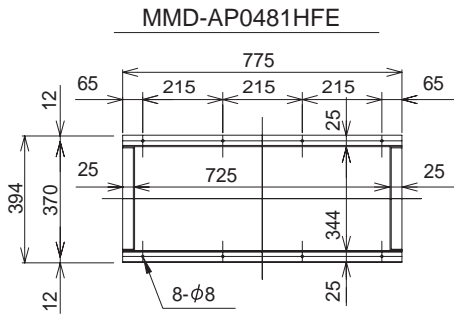
<Installation Notice>

- 1 The check port should be 600 x 600mm.
- 2 A slope the piping outside of the unit downward at 1/100.
Be sure to do heat insulating to the connecting part with the indoor unit. In complete heat insulating may cause dewing.
- 3 Check the water drainage is surely performed at the trial operation.
- 4 Do not install the air conditioner in a salty place such as seaside area and a place where sulfurous gas generated such as in a spa.
- 5 Please clean the drain plate before the season of cooling air conditioning.
Water overflows from the drain plate when the drain plate and the drain port are dirty, and the ceiling might be wet.
- 6 The air filter is not built into the Fresh Air intake indoor unit.
Please remove the dust that enters from air by installing optional Filter chamber, Pre-filter, and High Efficiency Filter.
If no air filter is installed, dust will collect in the heat exchanger, which may cause the air conditioner to fail or to leak. (local procure)
- 7 Place where the unit can be installed horizontally.
- 8 Set the canvas duct at air inlet port and air supply port. It is to avoid conveyance of vibration, abnormal resonance sound and also to make easy the disassembly of the main unit in service time.
- 9 Be sure to connect the wire and connection cable while matching the terminal.
Please refer to the wiring diagram for details.
- 10 Please note that the size is different because of MMD-AP0481HFE and MMD-AP0721HFE/MMD-AP0961HFE in the electric part box.
- 11 The heat insulator is pasted to externals of the main body of the product. (Bottom board thickness : 16mm, other thickness : 6mm)
- 12 Be sure to set the duct at air filter with descending inclination because the suction duct of the this unit is exposed to outdoors and therefore rainwater, leaves and birds are easy to enter in if it is set horizontally.
Attaching wire netting and others to end of the suction duct is also recommended.
- 13 Set the air inlet duct at descending inclination so that water can be drained even if rainwater enters in.
- 14 The balloon entrance connection flange and the inhalation mouth connection flange are installed in the main body of the product.
Please use it detaching it when you connect the duct.
Please obtain Filter chamber directly in the main body of the product when you install Filter chamber and obtain installation Air intake port connecting flange for C side of A.
- 15 Connect the ducts directly so that the ducts do not weight on the main unit.
Moreover, please do not damage, and do not knock down air supply temperature sensor when you connect the air supply duct.
- 16 Be sure to apply heat insulation for the duct to prevent dewing.
Especially, when it is inhaled to heat it, the be dewy on the surface of the outside of the duct because cold air enters.
Please put the heat insulator.
- 17 When installing the drain pump and filter chamber sold separately, refer to attachment installation manual.

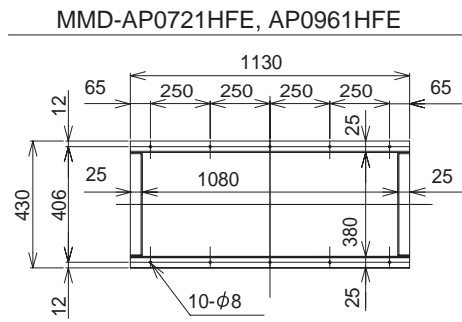
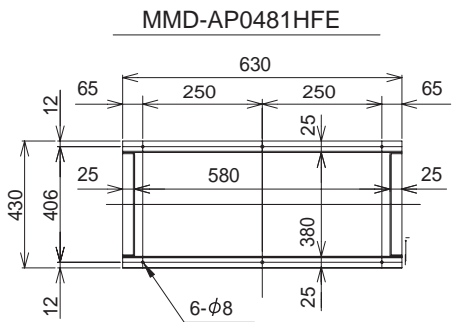
3. Dimensions

■ Fresh Air Intake Indoor Unit Type (MMD-AP***HFE)

Discharge port connecting flange



Suction port connecting flange

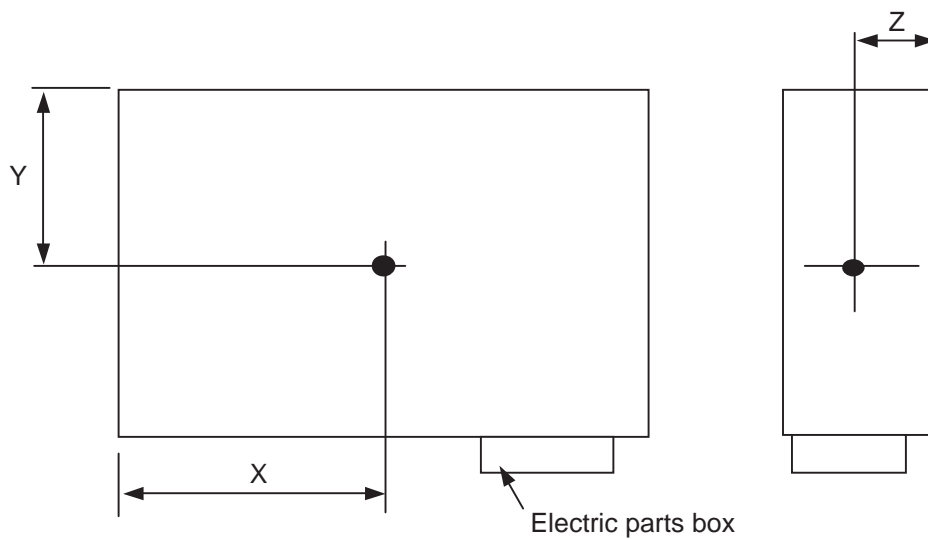


NOTE 1)
 The left figure shows MMD-AP0721HFE / AP0961HFE.
 For MMD-AP0481HFE, one fan motor and one fan are provided.

4. Center of gravity

■ Fresh Air Intake Indoor Unit Type

Model name MMD-	X (mm)	Y (mm)	Z (mm)	Weight (kg)
AP0481HFE	670	480	220	93
AP0721HFE	670	770	220	144
AP0961HFE				



5. Electrical current characteristics

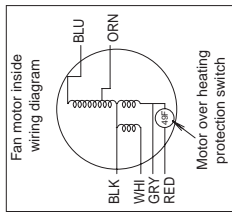
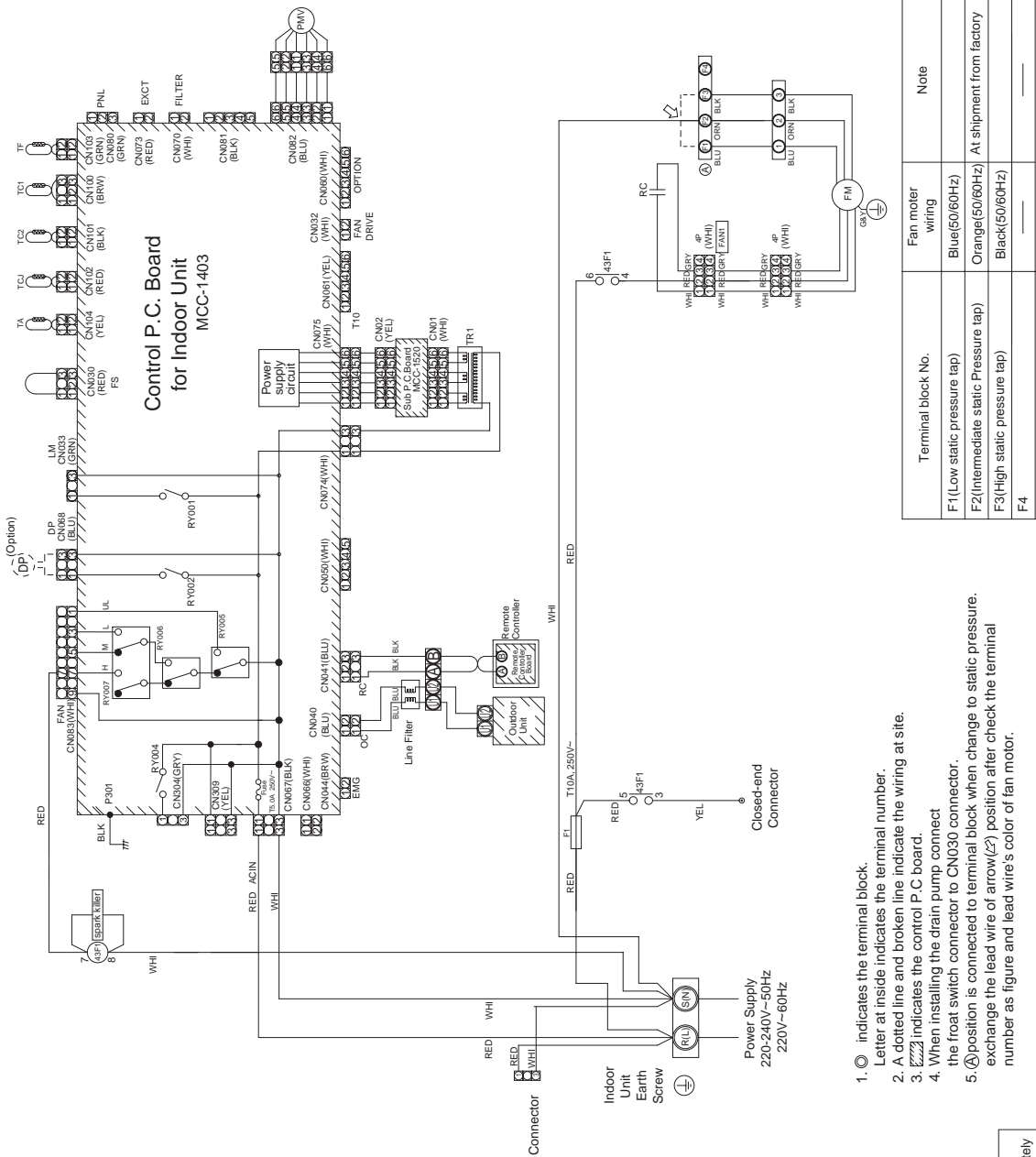
■ Fresh Air Intake Indoor Unit Type

Model name	Model name	Nominal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power supply	
			Min.	Max.	kW	FLA	MCA	MOCP
S-MMS(50Hz)	MMD-AP0481HFE	230-1-50	198	264	0.16	0.28	0.35	15
	MMD-AP0721HFE		198	264	0.16 x 2	0.45	0.56	15
	MMD-AP0961HFE		198	264	0.16 x 2	0.52	0.65	15
S-MMS(60Hz)	MMD-AP0481HFE	220-1-60	198	264	0.16	0.34	0.43	15
	MMD-AP0721HFE		198	264	0.16 x 2	0.55	0.69	15
	MMD-AP0961HFE		198	264	0.16 x 2	0.65	0.81	15

6. Wiring diagrams

■ Fresh Air Intake Indoor Unit Type (5HP)

MMD-AP0481HFE



COLOR IDENTIFICATION

RED :	RED
WHI :	WHITE
YEL :	YELLOW
BLU :	BLUE
BLK :	BLACK
GRY :	GRAY
PNK :	PINK
ORN :	ORANGE
BRW :	BROWN
G&Y :	GREEN&YELLOW

Symbol	Parts Name
FM	Fan Motor
RC	Running Capacitor
TR1	Transformer
TA	Intake air temp. sensor
TF	Blow temp. sensor
TC1,TC2,TCJ	Temp sensor
RY005-007	Fan Motor Control Relay
RY002	Drain Control Relay
PMV	Pulse Motor Valve
F1	Fuse for Fan Motor
43F1	Fan Motor Control Relay
DP	Drain Pump Motor
FS	Float Switch

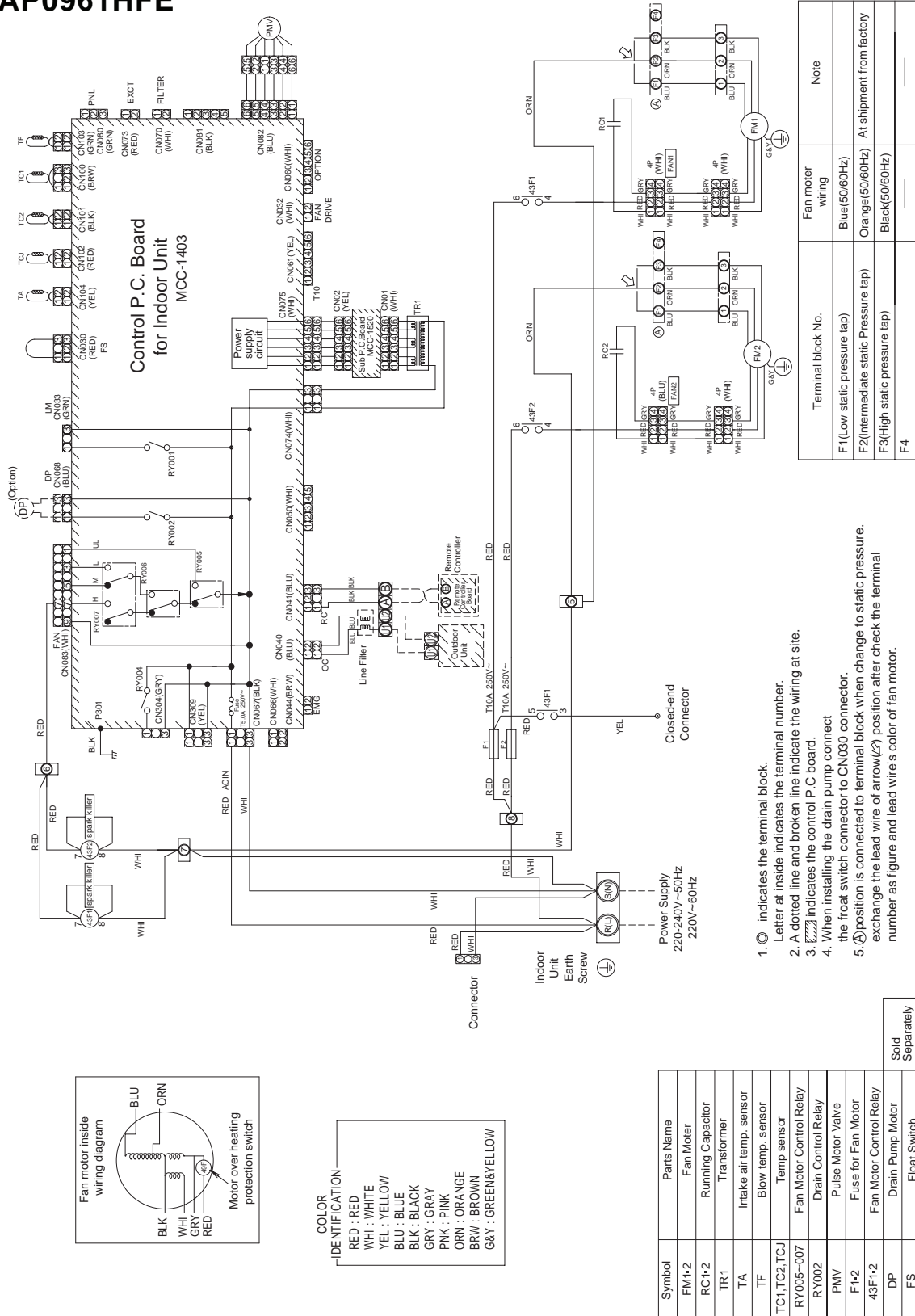
Terminal block No.	Fan motor wiring	Note
F1 (Low static pressure tap)	Blue(50/60Hz)	At shipment from factory
F2 (Intermediate static pressure tap)	Orange(50/60Hz)	
F3 (High static pressure tap)	Black(50/60Hz)	
F4		

- ⊙ indicates the terminal block. Letter at inside indicates the terminal number.
- A dotted line and broken line indicate the wiring at site.
- ⊚ indicates the control P.C board.
- When installing the drain pump connect the frost switch connector to CN030 connector.
- ⊚ position is connected to terminal block when change to static pressure. exchange the lead wire of arrow(⊚) position after check the terminal number as figure and lead wire's color of fan motor.

6. Wiring diagrams

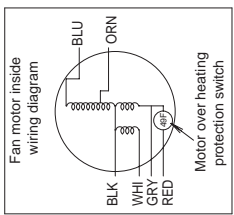
■ Fresh Air Intake Indoor Unit Type (8-10HP)

MMD-AP0721HFE
MMD-AP0961HFE



Terminal block No.	Fan motor wiring	Note
F1(Low static pressure tap)	Blue(50/60Hz)	At shipment from factory
F2(Intermediate static Pressure tap)	Orange(50/60Hz)	
F3(High static pressure tap)	Black(50/60Hz)	
F4		

- ⊙ indicates the terminal block.
- A dotted line and broken line indicate the wiring at site.
- ⚡ indicates the control P.C board.
- When installing the drain pump connect the float switch connected to CN030 connector.
- ⚡ position is connected to terminal block when change to static pressure. exchange the lead wire of arrow(↔) position after check the terminal number as figure and lead wire's color of fan motor.



7. Fan characteristics

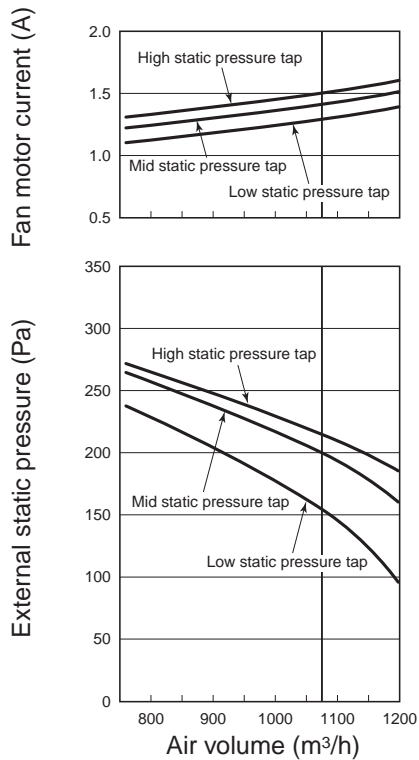
■ Fresh Air Intake Indoor Unit Type

<220V>

50Hz

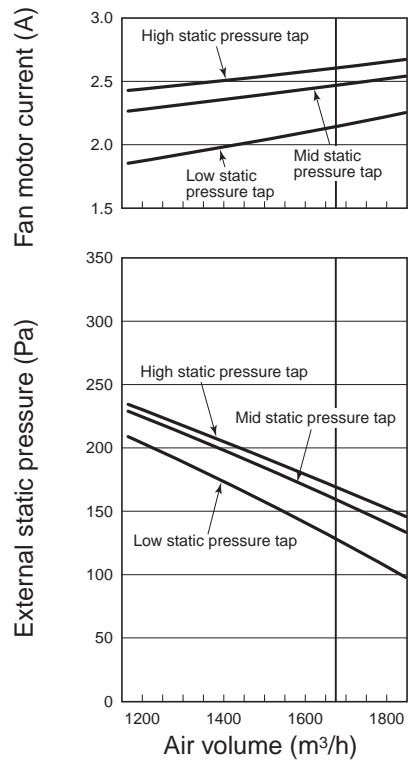
MMD-AP0481HFE (5HP)

Standard air volume: 1080m³/h



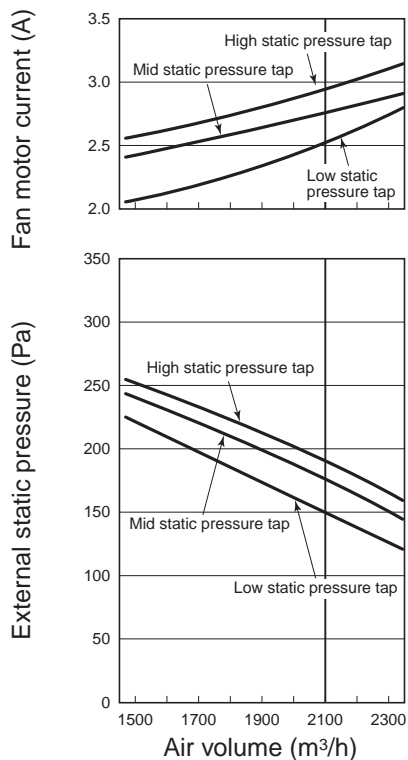
MMD-AP0721HFE (8HP)

Standard air volume: 1680m³/h



MMD-AP0961HFE (10HP)

Standard air volume: 2100m³/h



7. Fan characteristics

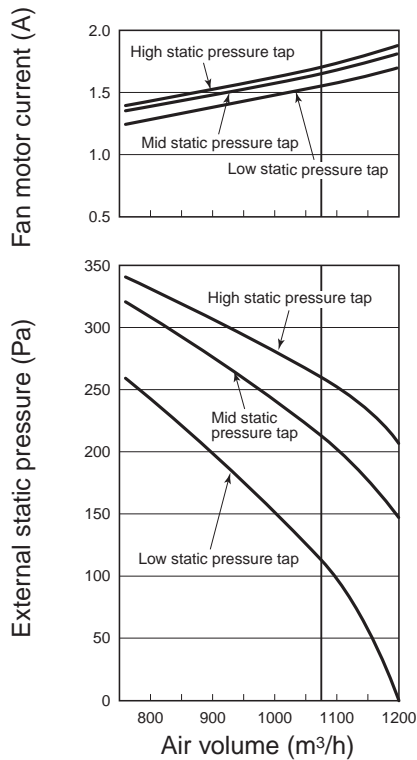
■ Fresh Air Intake Indoor Unit Type

<220V>

60Hz

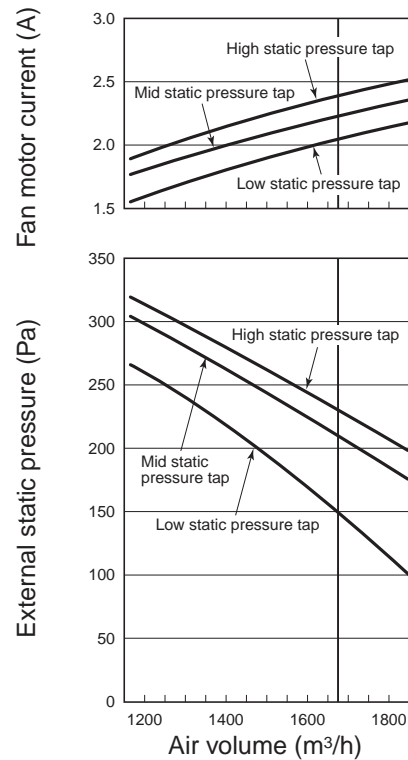
MMD-AP0481HFE (5HP)

Standard air volume: 1080m³/h



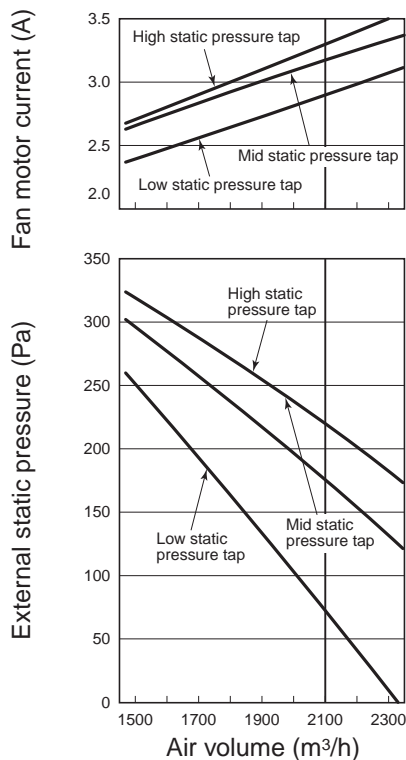
MMD-AP0721HFE (8HP)

Standard air volume: 1680m³/h



MMD-AP0961HFE (10HP)

Standard air volume: 2100m³/h



7. Fan characteristics

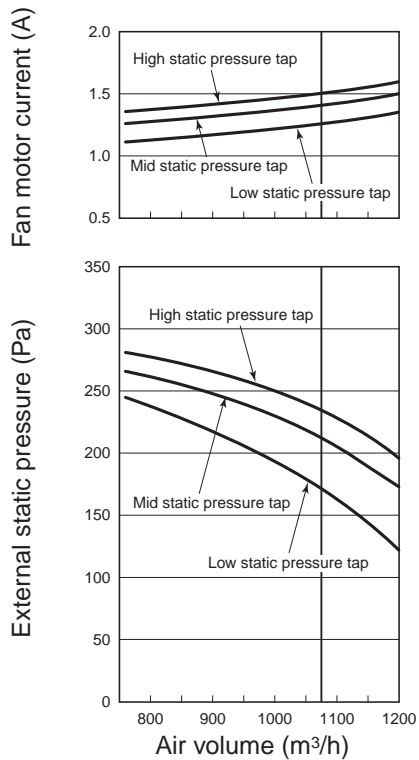
■ Fresh Air Intake Indoor Unit Type

<230V>

50Hz

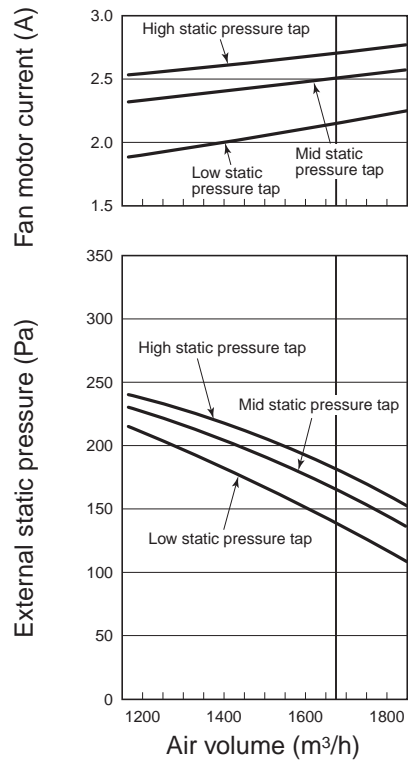
MMD-AP0481HFE (5HP)

Standard air volume: 1080m³/h



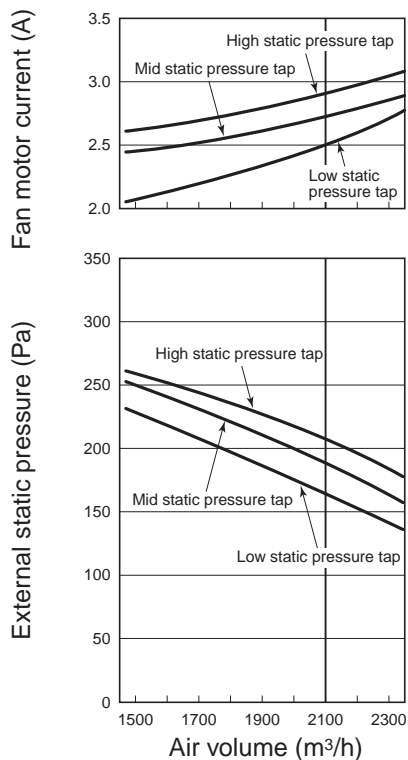
MMD-AP0721HFE (8HP)

Standard air volume: 1680m³/h



MMD-AP0961HFE (10HP)

Standard air volume: 2100m³/h



7. Fan characteristics

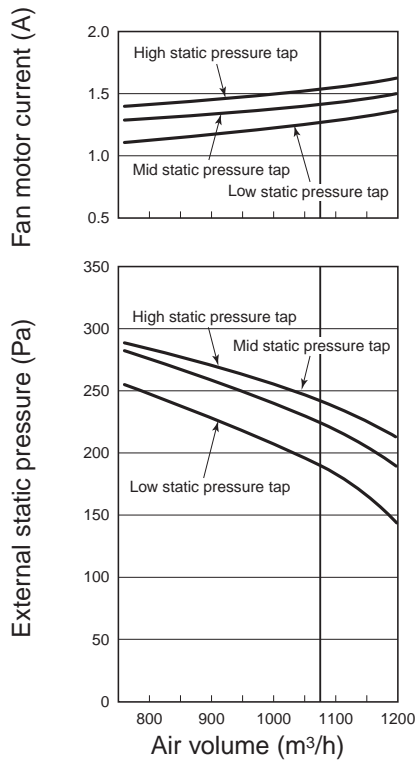
■ Fresh Air Intake Indoor Unit Type

<240V>

50Hz

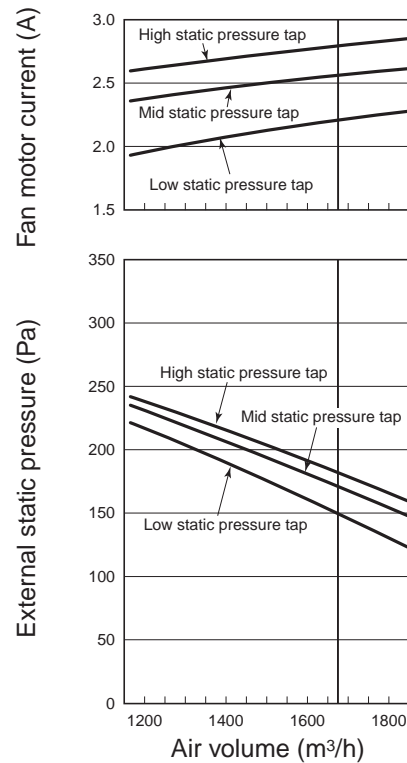
MMD-AP0481HFE (5HP)

Standard air volume: 1080m³/h



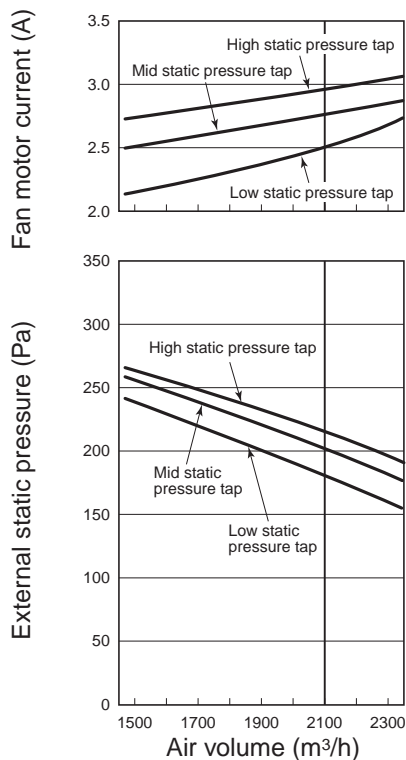
MMD-AP0721HFE (8HP)

Standard air volume: 1680m³/h



MMD-AP0961HFE (10HP)

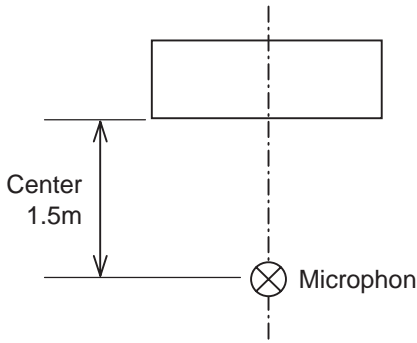
Standard air volume: 2100m³/h



8. Sound characteristics (NC Curve)

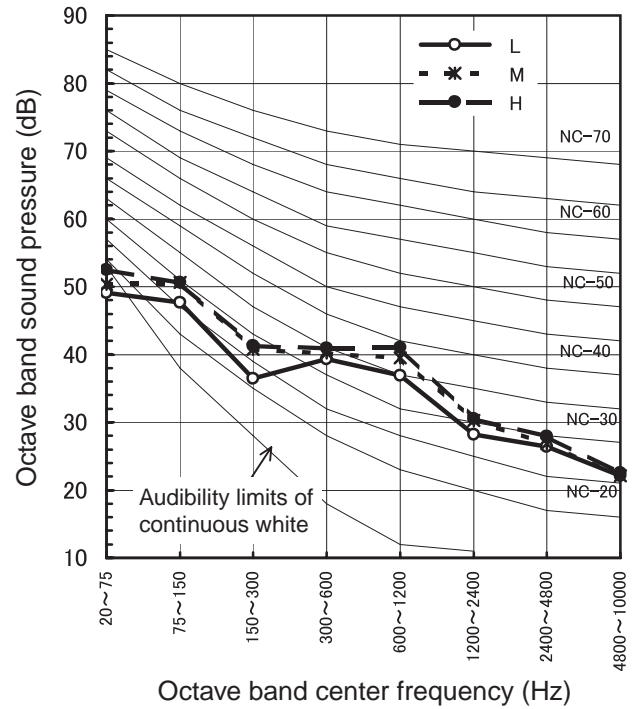
■ Fresh Air Intake Indoor Unit Type

Measuringing



MMD-AP0481HFE

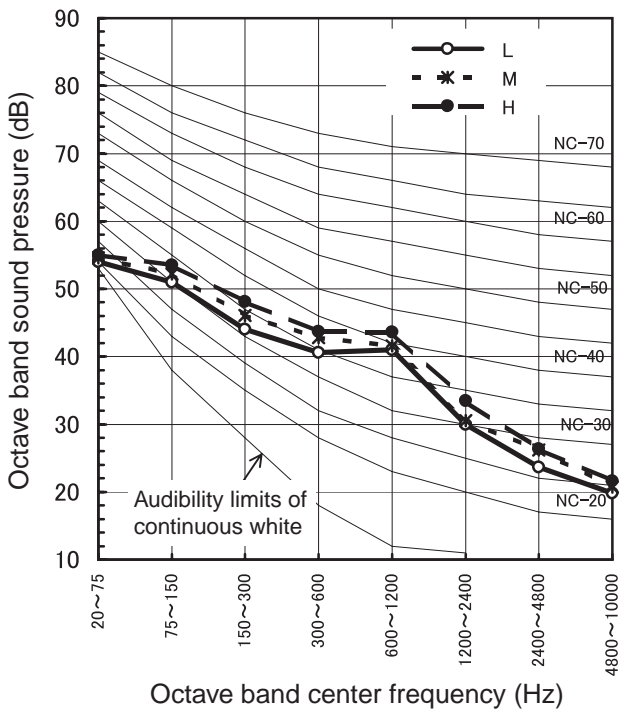
Fan tap	H	M	L
Sound pressure level (dB(A))	45	43	41



MMD-AP0721HFE

MMD-AP0961HFE

Fan tap	H	M	L
Sound pressure level (dB(A))	46	45	44



Fresh Air Intake Indoor Unit Type Engineering Data

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TOSHIBA CARRIER CORPORATION