

High Static Pressure Duct Type

MMD-AP0246HPUL
MMD-AP0306HPUL
MMD-AP0366HPUL
MMD-AP0486HPUL
MMD-AP0546HPUL



Contents

1. Specifications
2. Dimensions
3. Center of gravity
4. Piping diagram
5. Wiring diagram
6. Electrical current characteristics
7. Sensible capacity table
8. Fan characteristics
9. Sound data
10. Accessories

1. Specifications

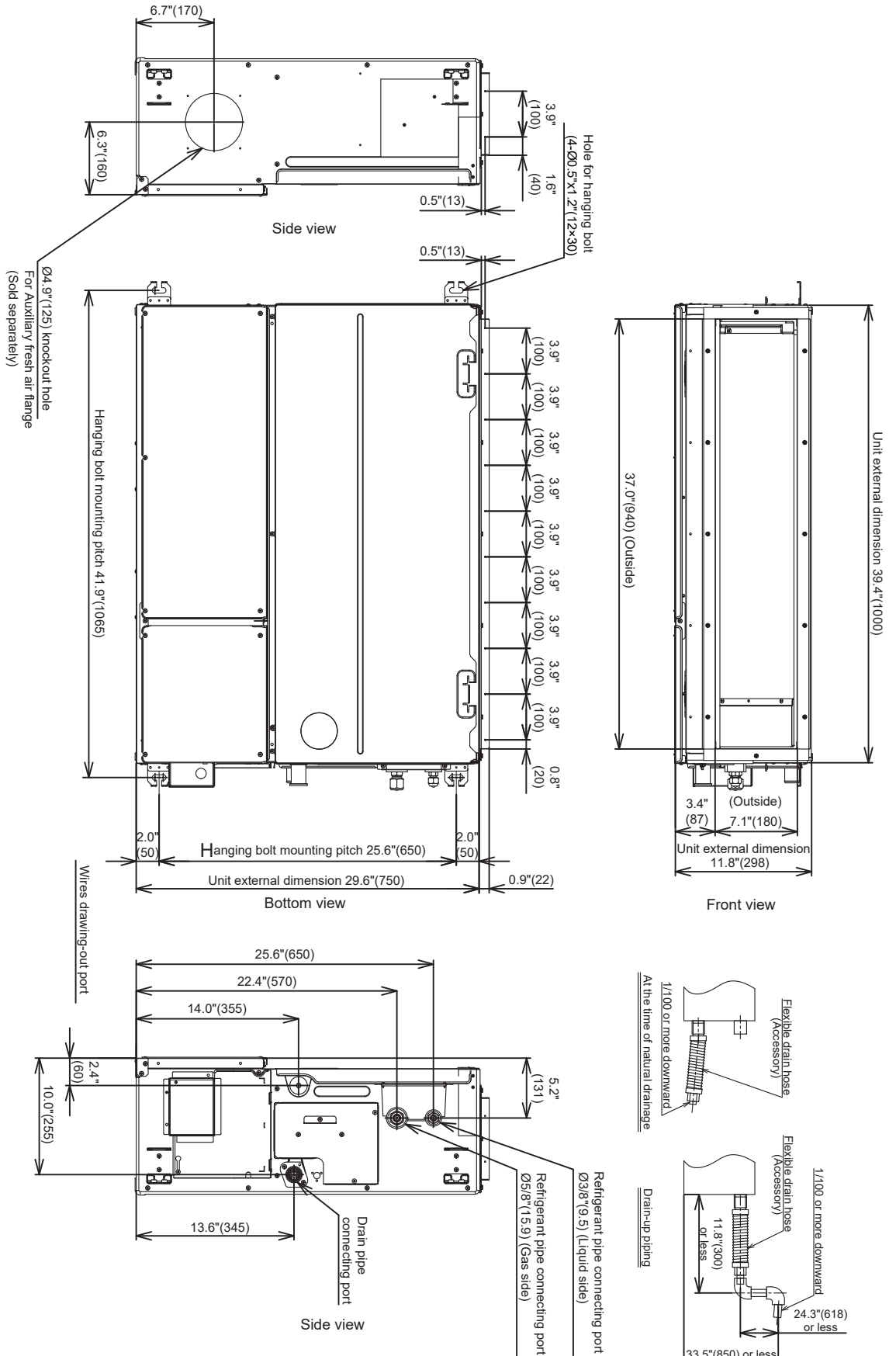
Model name		MMD-	AP0246HPUL	AP0306HPUL	AP0366HPUL	AP0486HPUL	AP0546HPUL
Power supply		1 ph 60Hz 230V (208 / 230V)					
Cooling capacity (*1)		kBtu/h	24.0	30.0	36.0	48.0	54.0
Sensible cooling capacity		kBtu/h	19.2	24.0	28.8	38.4	43.2
Heating capacity (*1)		kBtu/h	27.0	34.0	40.0	54.0	60.0
Power consumption		(kW)	0.255	0.295	0.350	0.385	0.435
FCU dimension	Main unit	Height (in)	11.8	11.8	11.8	11.8	11.8
		Width (in)	39.4	39.4	55.2	55.2	55.2
		Depth (in)	29.6	29.6	29.6	29.6	29.6
Total weight	Main unit	(lbs)	80	80	98	98	98
External static pressure (default)		in WG	0.8"	0.8"	0.8"	0.8"	0.8"
External static pressure		in WG	1.0"	1.0"	1.0"	1.0"	1.0"
Heat exchangere		Finned tube					
Soundproof / Heat-insulation material		Polyethylene foam					
Fan		Centrifugal fan					
Air flow volume	Indoor unit (H/M/L)	(cfm)	706 / 571 / 471	883 / 795 / 706	1130 / 918 / 789	1236 / 1024 / 836	1413 / 1200 / 977
Sound pressure	Indoor unit (H/M/L)	dB(A)	45 / 35 / 30	50 / 46 / 43	51 / 46 / 41	52 / 47 / 42	53 / 49 / 44
Motor output		(W)	250	250	350	350	350
Flare Connections	Gas side	(in)	5/8	5/8	5/8	5/8	5/8
	Liquid side	(in)	3/8	3/8	3/8	3/8	3/8
Drain pipe		VP25 (Polyvinyl Chloride Tube: Dia. 1-1/4 Internal Dia. 1)					
Operating Range for SMMS-I, SMMS-e	Cooling	(°F)	41 ~ 109				
	Heating	(°F)	14 ~ 109				

(*1) Rated testing conditions Cooling : Indoor air temperature 80°F Dry Bulb / 67°F Wet Bulb, Outdoor 95°F Dry Bulb

Heating : Indoor air temperature 70°F Dry Bulb, Outdoor 47°F Dry Bulb / 43°F Wet Bulb

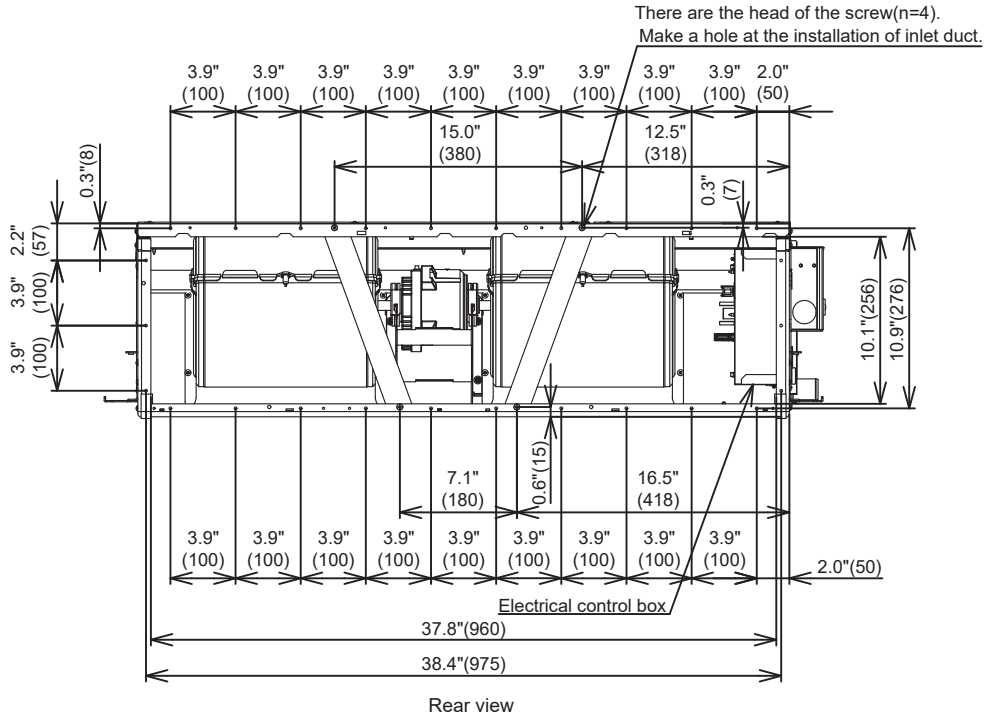
2. Dimension

MMD-AP0246HPUL / AP0306HPUL

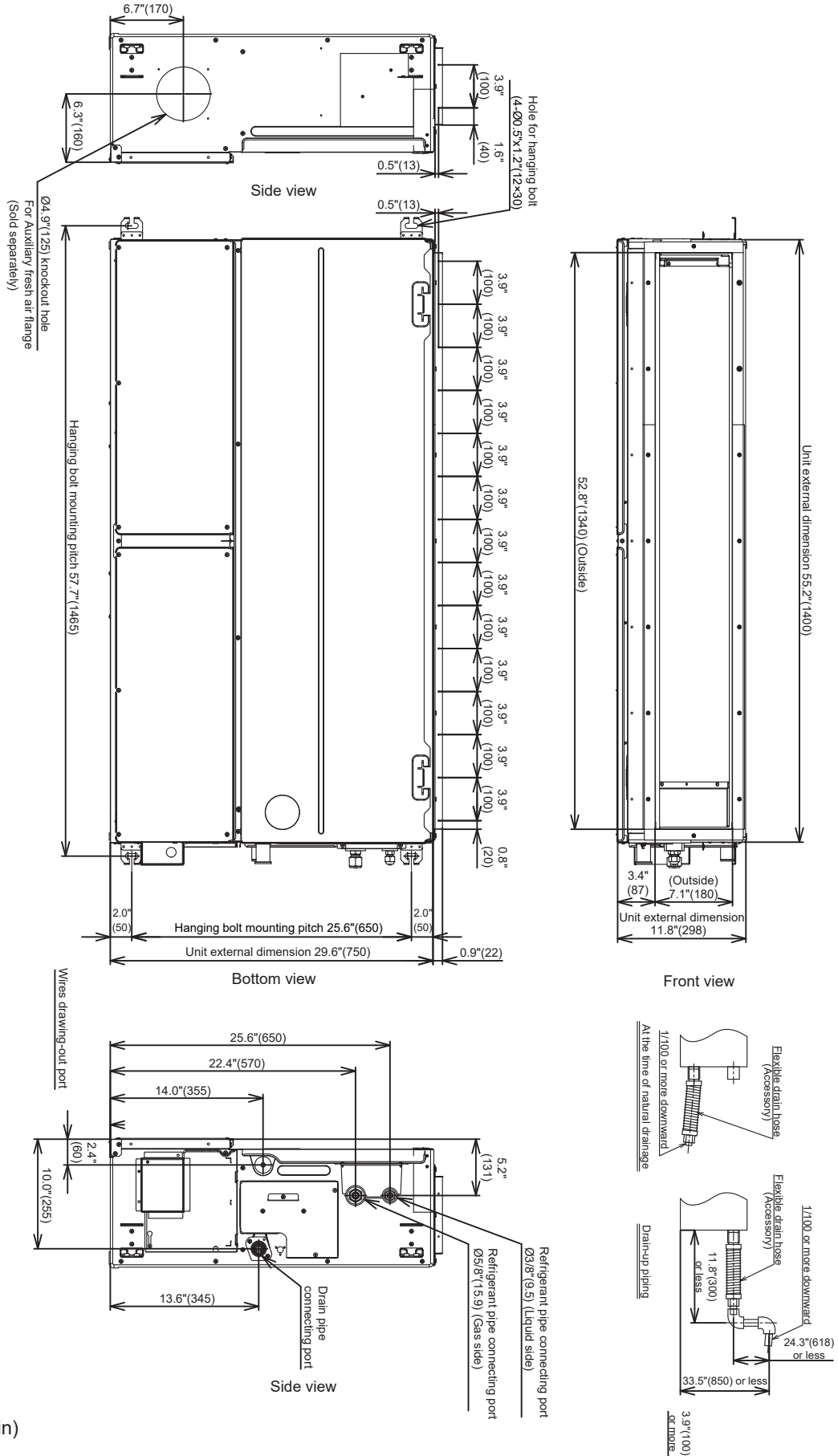


(unit : in)

For duct design MMD-AP024* / 030*

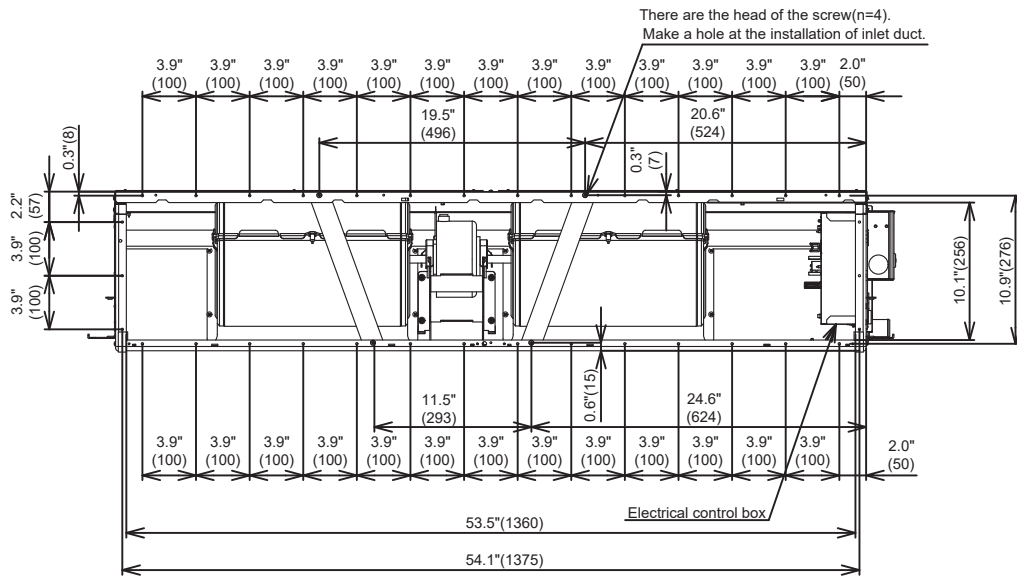


MMD-AP0366HPUL / AP0486HPUL / AP0546HPUL



(unit : in)

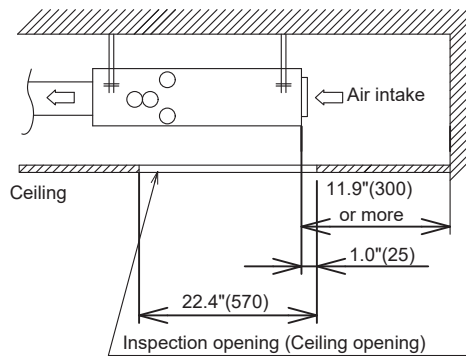
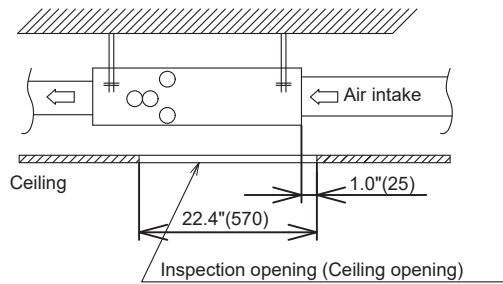
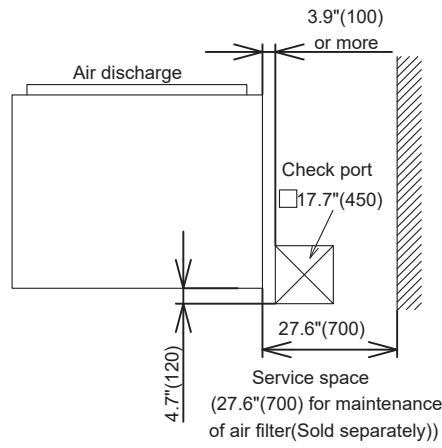
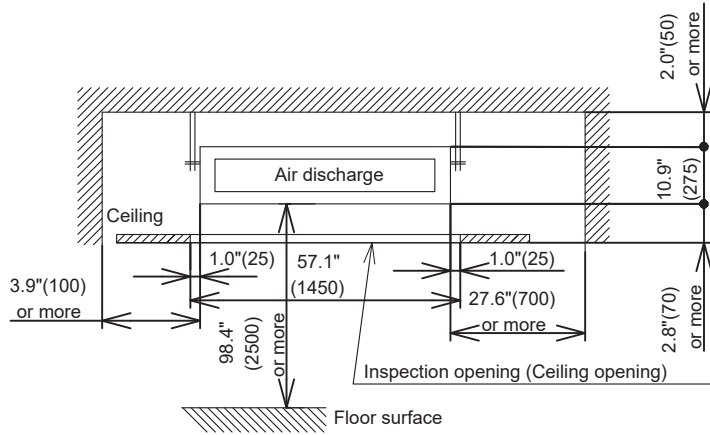
For duct design MMD-AP036* / 048* / 054*



Rear view

(unit : in)

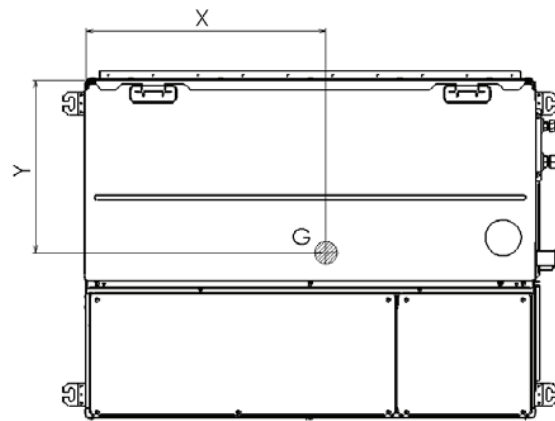
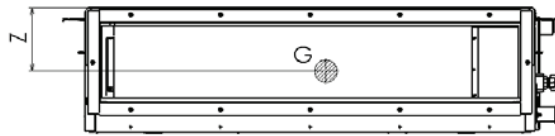
Space required for installation and servicing



(unit : in)

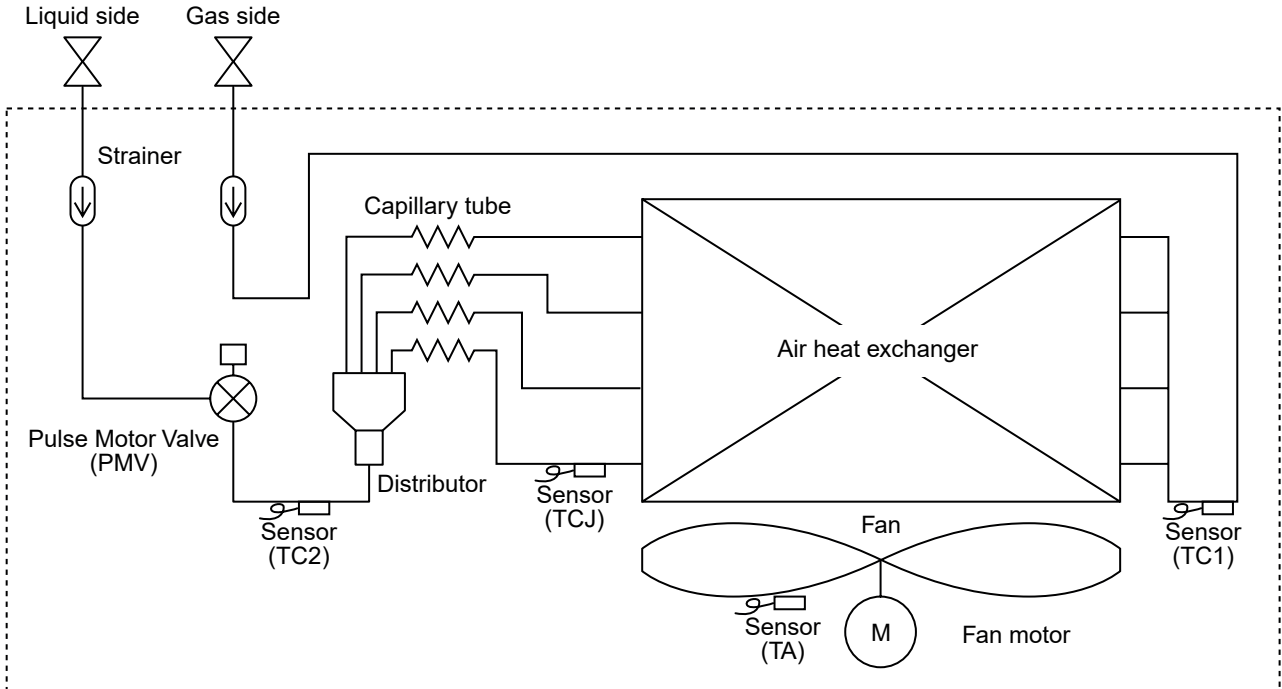
3. Center of gravity

Model name	X (in)	Y (in)	Z (in)	Total weight (lbs)
MMD-AP0246HPUL	21.1	15.2	5.6	80
MMD-AP0306HPUL				
MMD-AP0366HPUL	29.3	15.2	5.6	98
MMD-AP0486HPUL				
MMD-AP0546HPUL				



4. Piping diagram

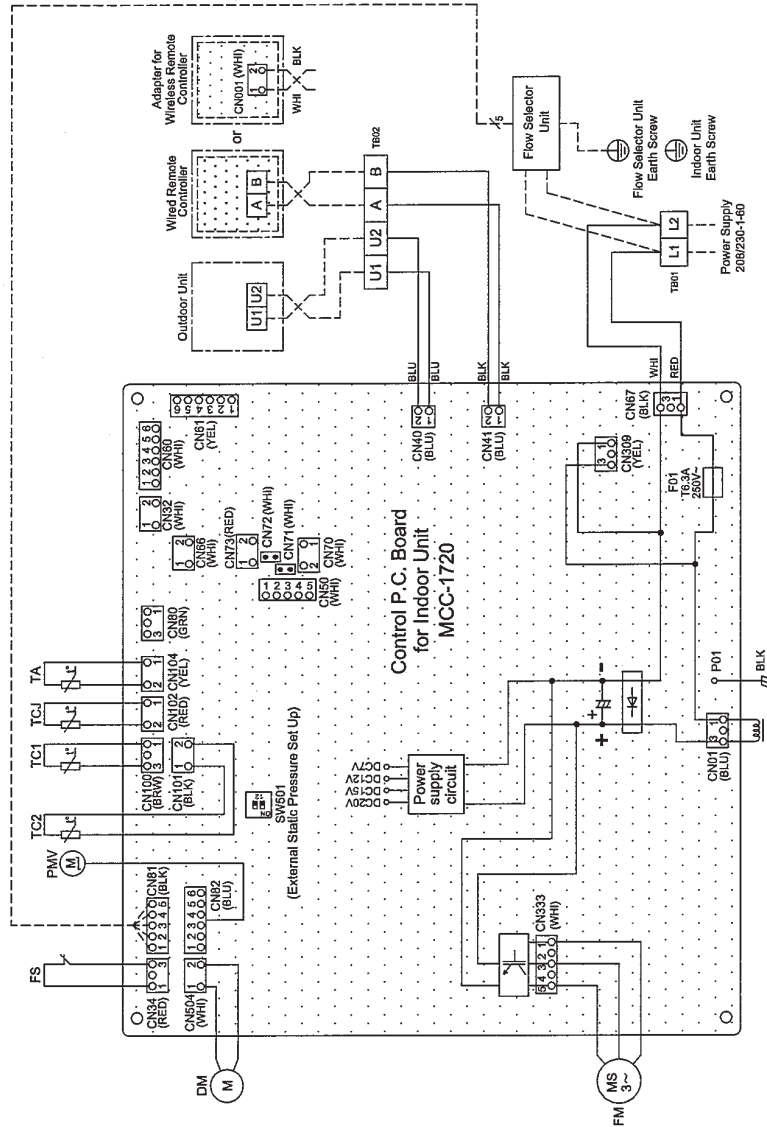
MMD-AP0246HPUL / AP0306HPUL / AP0366HPUL / AP0486HPUL / AP0546HPUL



Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls under cool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. sensor	1. TA	(Connector CN104 (2P): White) 1) Detects indoor suction temperature
	2. TC1	(Connector CN100 (3P): Brown) 1) Controls PMV super heat in cooling operation
	3. TC2	(Connector CN101 (2P): Blue) 1) Controls PMV under cool in heating operation
	4. TCJ	(Connector CN102 (2P): Yellow) 1) Controls PMV super heat in cooling operation

5. Wiring diagram

MMD-AP0246HPUL / AP0306HPUL / AP0366HPUL / AP0486HPUL / AP0546HPUL



Color Indication

- RED : Red
- WHI : White
- YEL : Yellow
- BLU : Blue
- BLK : Black
- GRN : Green
- BRW : Brown

Symbol	Parts name
CN**	Connector
DM	Drain Pump Motor
F01,02	Fuse
FM	Fan Motor
PMV	Pulse Motor Valve
FS	Float Switch
L	Reactor
TA	Indoor Temp Sensor
TB01, TB02	Terminal Block
TC1, TC2, TCJ	Temp Sensor

1. Broken line indicate the wiring at site. Long dashed short dashed line indicate the accessories.
2. indicates the terminal block.
3. indicates the connection terminal.
4. indicates the protection ground.
4. indicates the control P.C. board.

6. Electrical characteristics

Type	Model name	Normal Voltage (V-Ph-Hz)	Voltage Range (V)		FLA	MCA	MOCP
			Min.	Max.	A	A	A
High Static Ducted Type	MMD-AP0246HPUL	208/230-1-60	187	253	2.07	2.59	15
	MMD-AP0306HPUL	208/230-1-60	187	253	2.39	2.99	15
	MMD-AP0366HPUL	208/230-1-60	187	253	2.75	3.44	15
	MMD-AP0486HPUL	208/230-1-60	187	253	3.10	3.88	15
	MMD-AP0546HPUL	208/230-1-60	187	253	3.46	4.33	15

MCA : Minimum Circuit (Amps)

FLA : Full load (Amps)

MOCP : Maximum Overcurrent Protection (Amps)

7. Sensible capacity table

High Static Pressure Duct Type (MMD-AP***6HPUL)

unit size	outdoor air temp. °FDB	Indoor air temp.													
		59 °FWB		61 °FWB		64 °FWB		67 °FWB		68 °FWB		72 °FWB		75 °FWB	
		71 °FDB		73 °FDB		77 °FDB		80 °FDB		82 °FDB		86 °FDB		90 °FDB	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	
024	50	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	54	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	57	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	61	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	64	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	68	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	70	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	73	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	77	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	81	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	84	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	88	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	91	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
95	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580	
99	19130	16530	21160	17600	22600	18700	23300	18640	24000	18640	25400	18470	26570	18040	
102	18680	16130	20660	17190	22070	18260	22750	18200	23430	18200	24800	18030	25940	17610	
030	50	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	54	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	57	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	61	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	64	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	68	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	70	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	73	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	77	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	81	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	84	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	88	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	91	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
95	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230	
99	23920	20660	26450	22000	28260	23370	29130	23300	30000	23300	31750	23090	33210	22560	
102	23350	20170	25820	21480	27590	22820	28440	22750	29290	22750	31000	22540	32420	22020	
036	50	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	54	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	57	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	61	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	64	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	68	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	70	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	73	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	77	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	81	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	84	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	88	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	91	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
95	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870	
99	28700	24800	31740	26410	33910	28050	34960	27960	36000	27960	38100	27700	39850	27060	
102	28020	24210	30990	25790	33100	27390	34130	27300	35150	27300	37200	27050	38910	26420	
048	50	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	54	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	57	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	61	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	64	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	68	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	70	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	73	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	77	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	81	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	84	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	88	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	91	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
95	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160	
99	38270	33060	42320	35210	45210	37390	46610	37290	48010	37290	50800	36940	53130	36080	
102	37360	32280	41310	34370	44140	36510	45500	36400	46870	36400	49600	36060	51870	35230	

TC: Total Capacity [Btu/h]
SHC: Sensible Heat Capacity [Btu/h]

High Static Pressure Duct Type (MMD-AP***6HPUL)

unit size	outdoor air temp. °FDB	Indoor air temp.													
		59 °FWB		61 °FWB		64 °FWB		67 °FWB		68 °FWB		72 °FWB		75 °FWB	
		71 °FDB		73 °FDB		77 °FDB		80 °FDB		82 °FDB		86 °FDB		90 °FDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
054	50	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	54	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	57	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	61	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	64	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	68	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	70	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	73	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	77	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	81	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	84	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	88	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	91	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	95	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
99	43040	37190	47610	39610	50860	42070	52430	41950	54010	41950	57150	41560	59770	40600	
102	42020	36310	46480	38670	49660	41080	51190	40950	52730	40950	55800	40570	58360	39640	

TC: Total Capacity [Btu/h]

SHC: Sensible Heat Capacity [Btu/h]

Heating capacity table

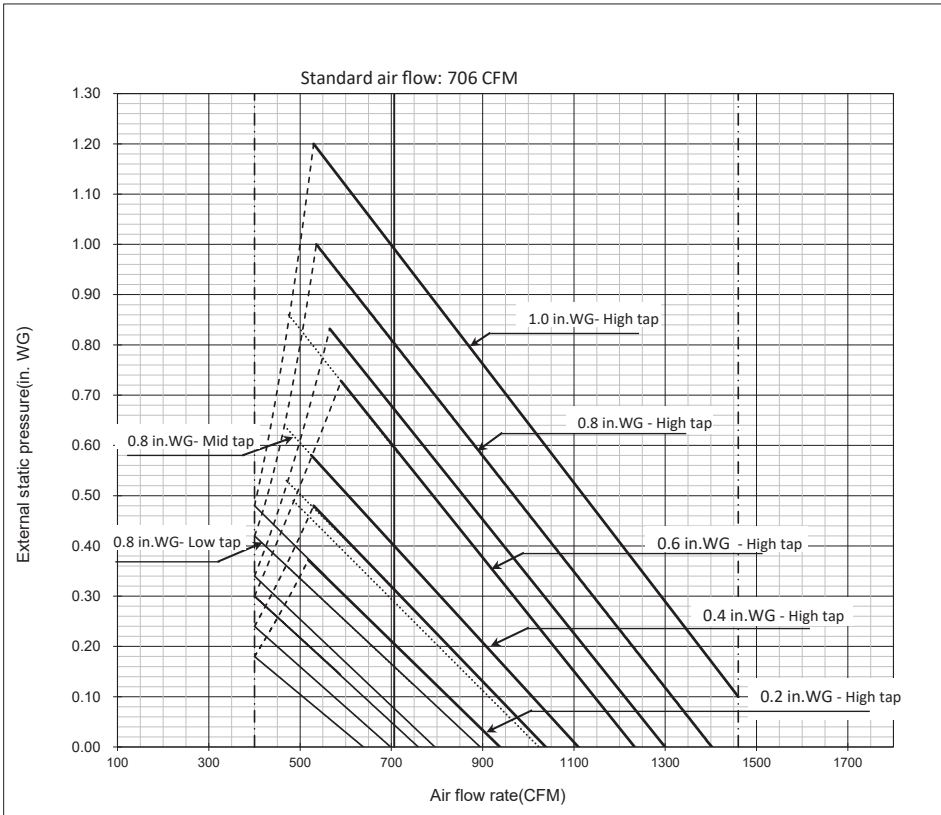
	Indoor air temp. °FDB					
Fahrenheit(°F)	62	65	68	70	72	75
Celsius(°C)	16.7	18.3	20	21.1	22.2	23.9
	Total capacity (TC) (kBtu/h)					
MMD-AP0246HPUL	28.2	27.8	27.3	27.0	26.6	26.1
MMD-AP0306HPUL	35.5	35.0	34.4	34.0	33.6	32.9
MMD-AP0366HPUL	41.8	41.2	40.5	40.0	39.5	38.6
MMD-AP0486HPUL	56.4	55.6	54.7	54.0	53.3	52.2
MMD-AP0546HPUL	62.7	61.8	60.7	60.0	59.2	58.0

Notes: 1. These capacity tables can be used when selecting a VRF indoor unit. The actual capacity of the VRF system depends on factors such as the selected model of outdoor units, outdoor air temperature and piping length. Please confirm that the corrected capacity of the VRF system satisfies the required heat load.

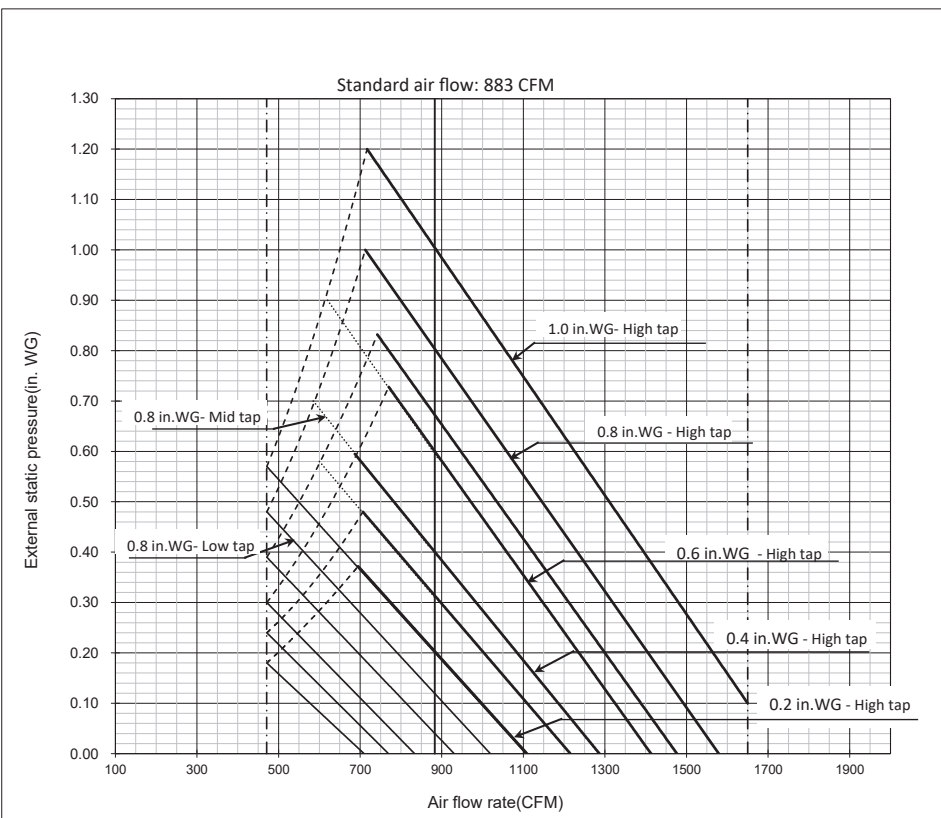
Notes: 2. This is the capacity table of rated heating test condition of Outdoor 47°F Dry Bulb / 43°F Wet Bulb.

8. Fan characteristics

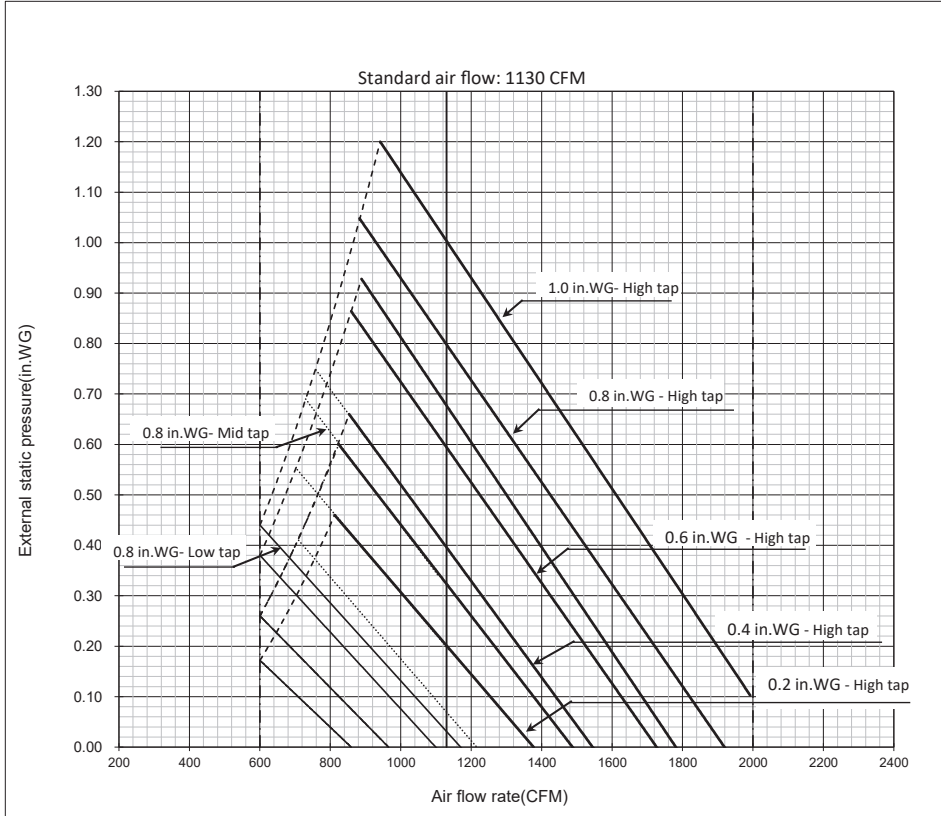
MMD-AP0246HPUL



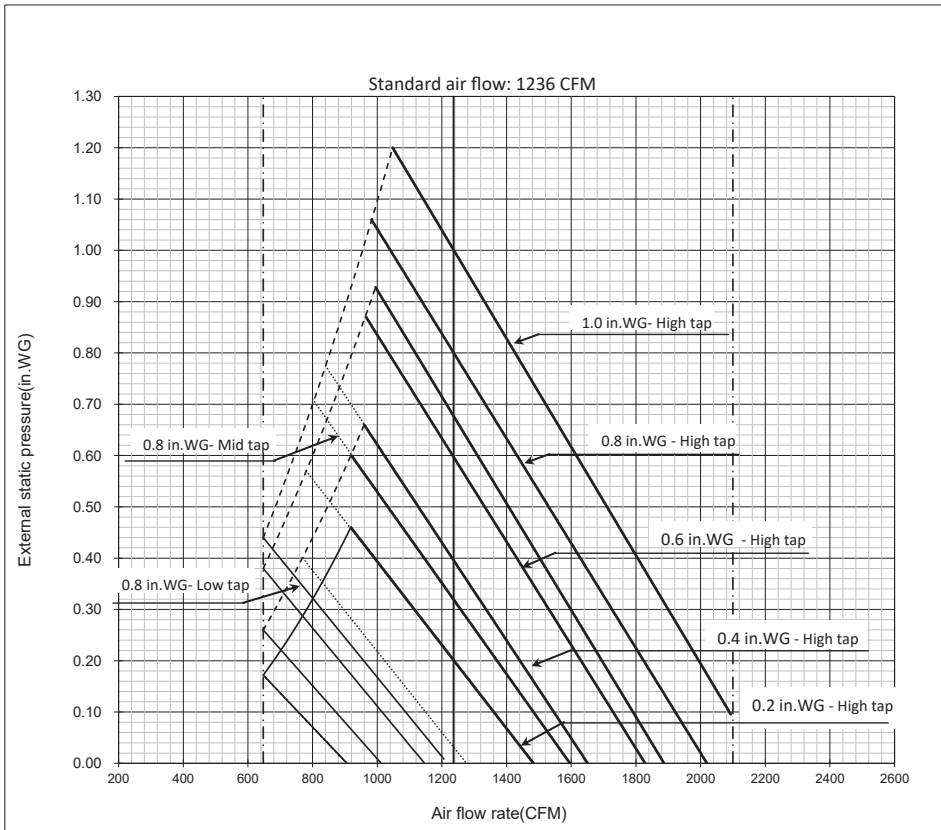
MMD-AP0306HPUL



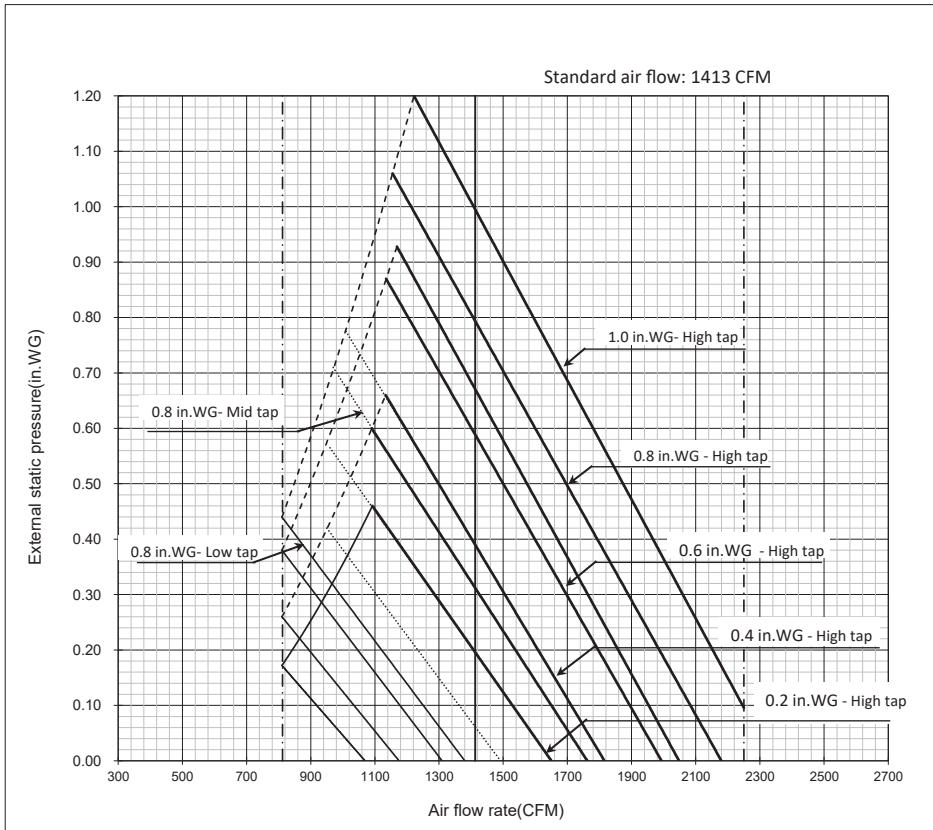
MMD-AP0366HPUL



MMD-AP0486HPUL

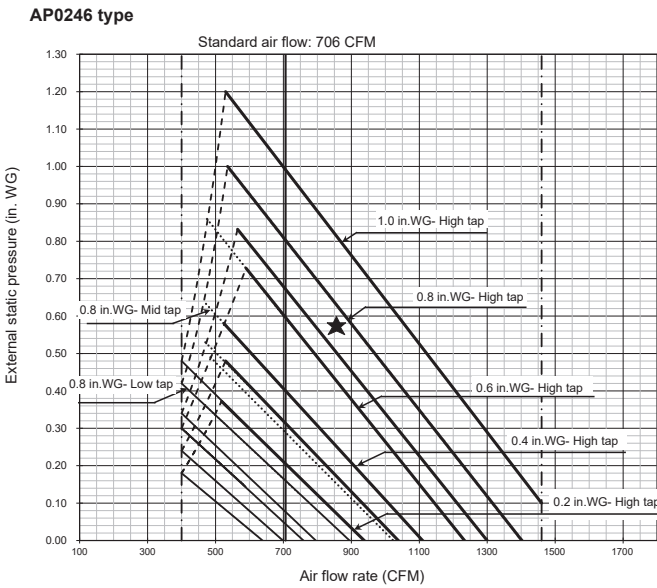


MMD-AP0546HPUL



The concealed duct unit has 7 steps of static pressure (0.2 - 1 in.WG) adjustment to meet the installation site requirements / conditions. With these steps there are different speed fan taps associated to select correct air flow. For meeting the site requirement / conditions, make sure the external static pressure and air flow are determined. Plot the external static pressure and air flow on the below graph to determine the right speed fan step setting.

For example : Job site requirement is to deliver 870 CFM at 0.56 in.WG external static pressure. Using the below graph, external static pressure on vertical axis and air flow on horizontal axis, the star mark indicates the job site requirement. The star mark is below 0.8 in.WG high speed fan tap line, which means the unit needs to be set to 0.8 in.WG external static pressure with high speed fan tap. Please follow the process described in application controls of this manual for set up external static pressure.



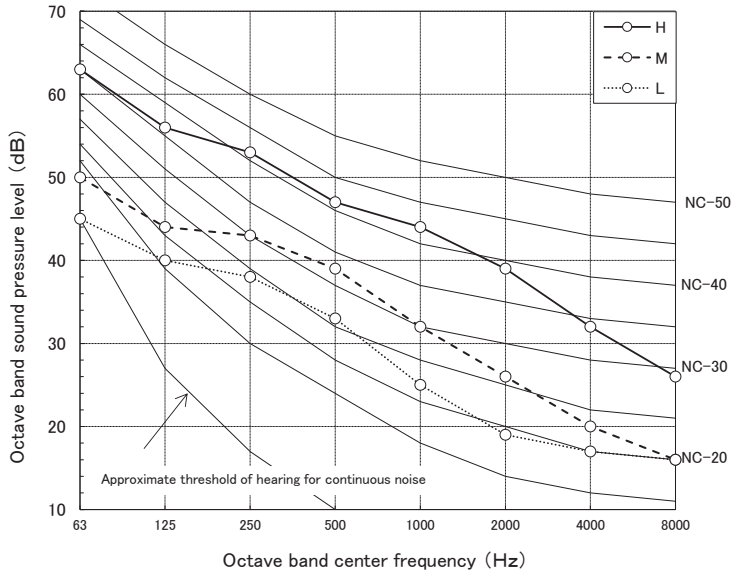
NOTE

Supply air CFM will follow the solid line fan curve shown in the above graph if there is any change in the external static pressure. Supply air volume for medium and low fan speed tap is also set by remote controller. It will follow the dotted line fan curve in the graph.

9. Sound data

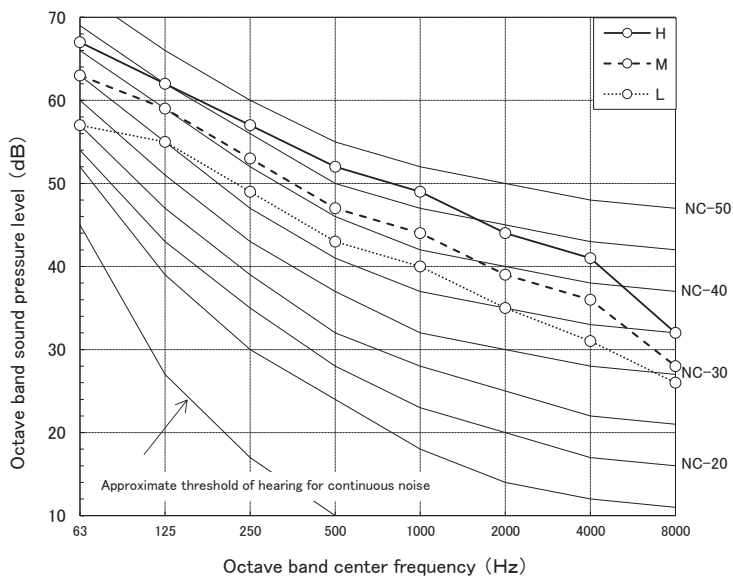
MMD-AP0246HPUL

Fan tap	H	M	L
Sound pressure level (dB(A))	45	35	30



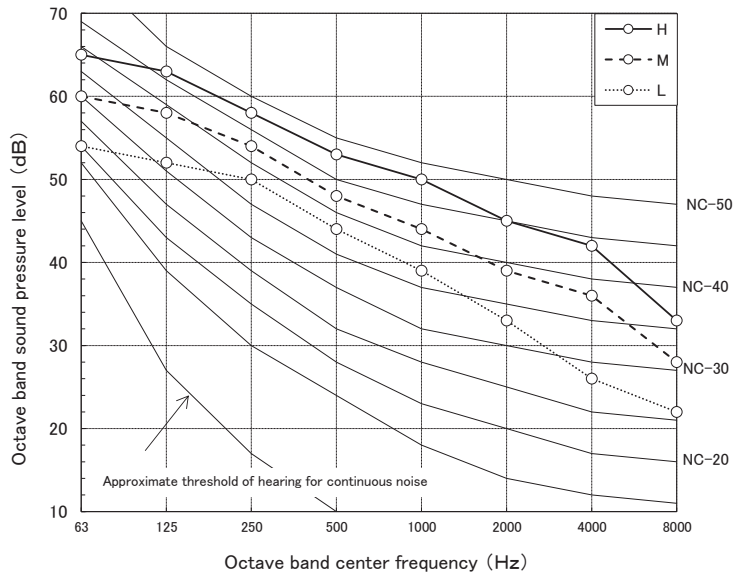
MMD-AP0306HPUL

Fan tap	H	M	L
Sound pressure level (dB(A))	50	46	43



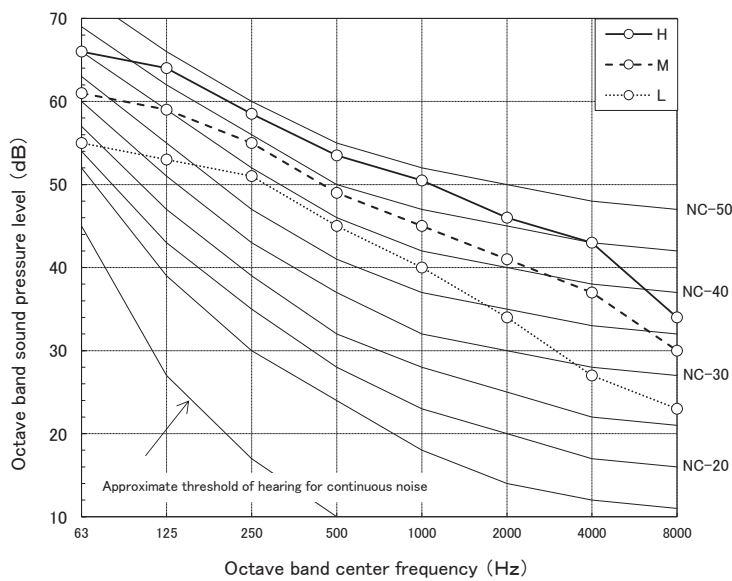
MMD-AP0366HPUL

Fan tap	H	M	L
Sound pressure level (dB(A))	51	46	41



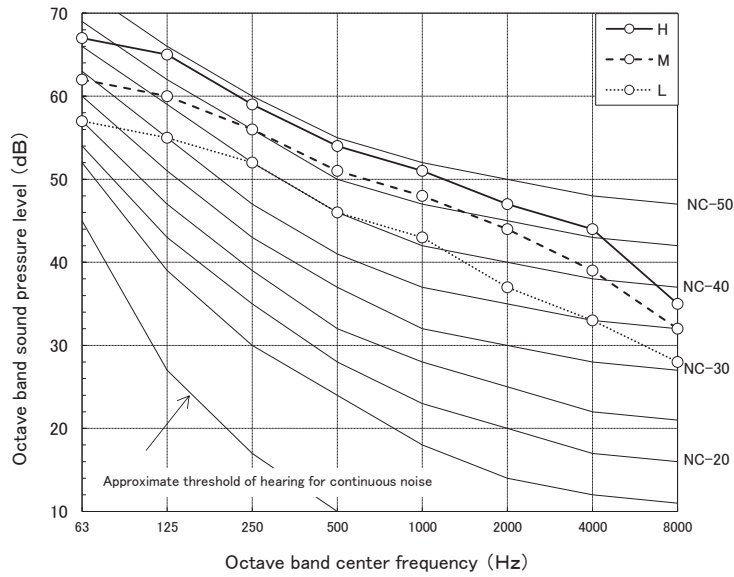
MMD-AP0486HPUL

Fan tap	H	M	L
Sound pressure level (dB(A))	52	47	42



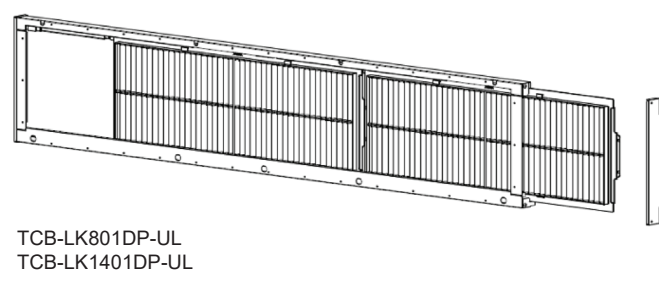
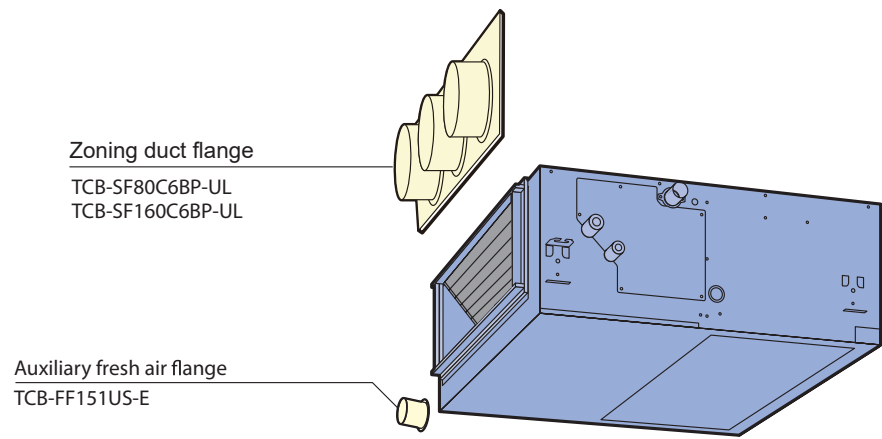
MMD-AP0546HPUL

Fan tap	H	M	L
Sound pressure level (dB(A))	53	49	44

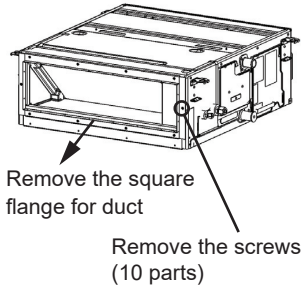
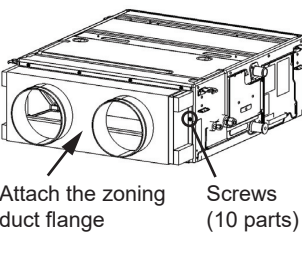
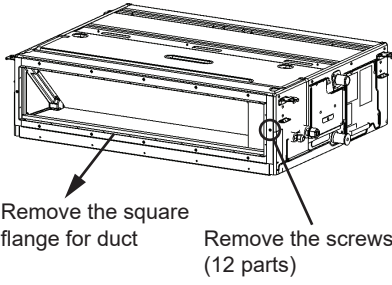
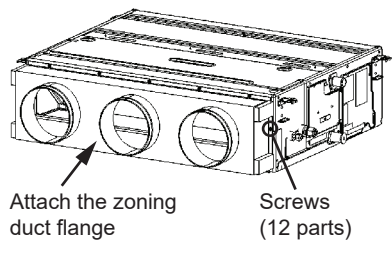
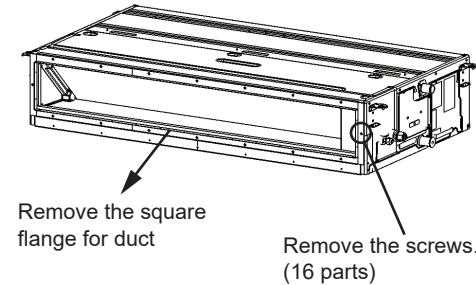
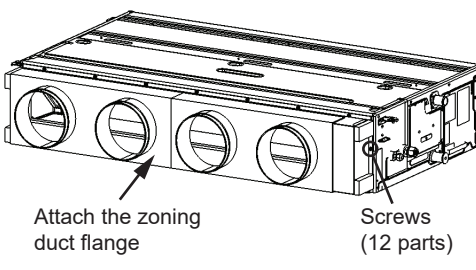


10. Accessories

Option Parts	Model Name	Applicable FCU
Filter Kit	TCB-LK801DP-UL	MMD-AP0246/0306HPUL
	TCB-LK1401DP-UL	MMD-AP0366/0486/0546HPUL
Zoning duct flange	TCB-SF80C6BP-UL	MMD-AP0246/0306HPUL
	TCB-SF160C6BP-UL	MMD-AP0366/0486/0546HPUL
Auxiliary fresh air flange	TCB-FF151US-E	For Duct type



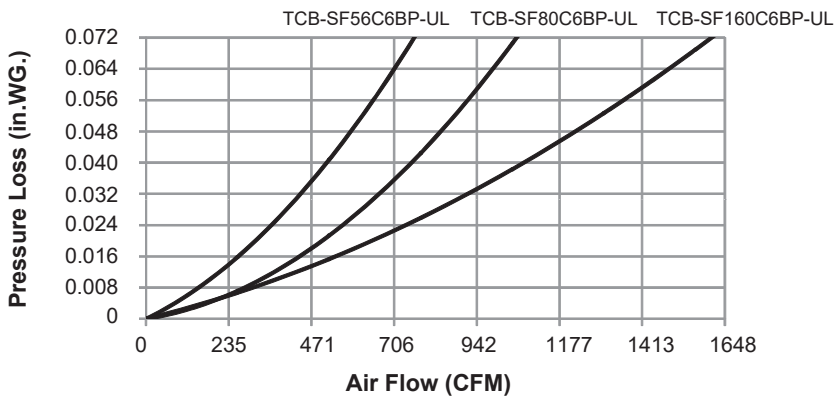
Appendix

Zoning duct flange TCB-SF56C6BP-UL	Zoning duct flange TCB-SF80C6BP-UL	Zoning duct flange TCB-SF160C6BP-UL
 <p>Remove the square flange for duct</p> <p>Remove the screws. (10 parts)</p>  <p>Attach the zoning duct flange</p> <p>Screws (10 parts)</p>	 <p>Remove the square flange for duct</p> <p>Remove the screws. (12 parts)</p>  <p>Attach the zoning duct flange</p> <p>Screws (12 parts)</p>	 <p>Remove the square flange for duct</p> <p>Remove the screws. (16 parts)</p>  <p>Attach the zoning duct flange</p> <p>Screws (12 parts)</p>

Remove screws on square flange for duct of indoor unit and attach the zoning duct flange with the screw.

External pressure loss characteristic

When you use these "Zoning duct flange" with Concealed Duct Type and High Static Pressure type, pressure-loss characteristics depends on Air Flow.



TOSHIBA CARRIER (THAILAND) CO.,LTD.

144/9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi,
Amphur Muang, Pathumthani 12000, Thailand

Copyright © 2020 TOSHIBA CARRIER (THAILAND), All Rights Reserved

Notice : Toshiba is committed to continuously improving its products to ensure the highest quality and reliability standard, and to meet local regulations and market requirements. All features and specifications are subject to change without prior notice.
