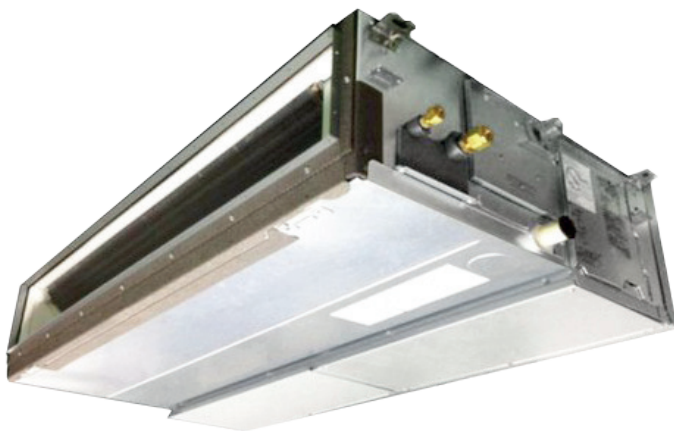


High Static Pressure Duct Type

MMD-UP0241HP-UL
MMD-UP0301HP-UL
MMD-UP0361HP-UL
MMD-UP0481HP-UL
MMD-UP0541HP-UL



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1. Specifications

Model name		MMD-	UP0241HP-UL	UP0301HP-UL	UP0361HP-UL	UP0481HP-UL	UP0541HP-UL
Cooling capacity		kBtu/h	24.0	30.0	36.0	48.0	54.0
Heating capacity		kBtu/h	27.0	34.0	40.0	54.0	60.0
Electrical charastaristics	Power supply		230V (208/230V) - 1phase - 60Hz				
	Running current	[A]	1.66	1.92	2.24	2.47	2.8
	Power consumption	(kW)	0.255	0.295	0.350	0.385	0.435
	Starting current	[A]	1.96	2.22	2.84	3.07	3.60
Appearance			Zinc hot dipping steel plate				
Outer dimension	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		(lbs)	80	80	98	98	98
Heat exchangere			Finned tube				
Soundproof / Heat-insulation material			Polyethylene foam				
Fan unit	Fan		Centrifugal fan (Sirocco fan)				
	Standard air flow (H/M/L)	(cfm)	705 / 570 / 470	885 / 795 / 705	1130 / 920 / 790	1235 / 1025 / 835	1415 / 1200 / 975
	Motor output	(W)	250	250	350	350	350
External static pressure (default) (*2)		in WG	0.8"	0.8"	0.8"	0.8"	0.8"
External static pressure (*2)		in WG	1.0"	1.0"	1.0"	1.0"	1.0"
Air filter			TCB-LK801DP-UL(Sold separately as accessories)		TCB-LK1401DP-UL (Sold separately as accessories)		
Controller (*1)			Wired or infrared remote controller				
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	(in)	VP25 (Polyvinyl Chloride Tube)				
Sound pressure level (H/M/L)		dB(A)	45 / 35 / 30	50 / 46 / 43	51 / 46 / 41	52 / 47 / 42	53 / 49 / 44
Sound power level (High)		dB(A)	67	72	72	75	76
Operating Range (*2)	Cooling	(°F)	41 ~ 109				
	Heating	(°F)	14 ~ 109				

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

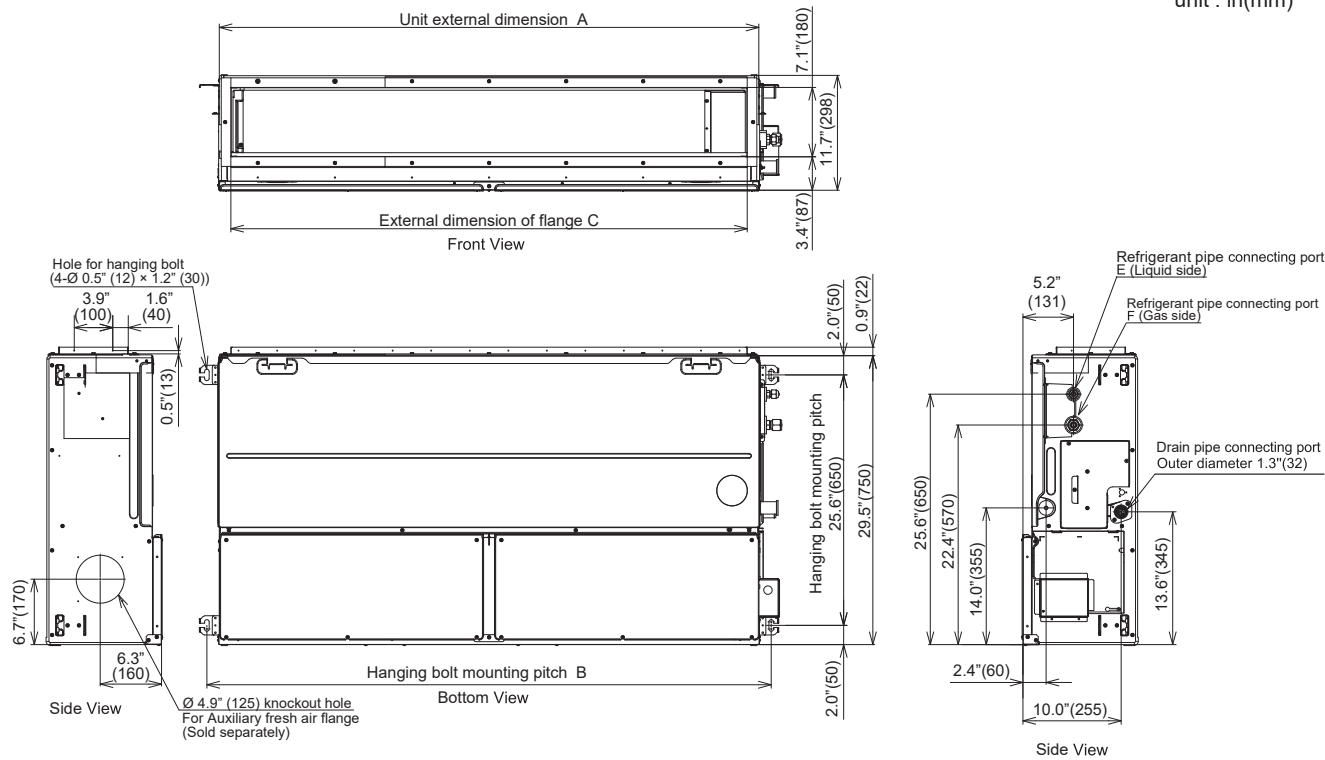
(*1) Controller are sold separately.

(*2) Non attached filter

2. Dimension

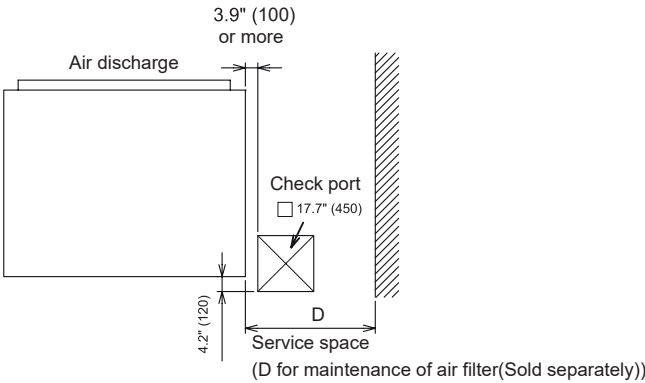
MMD-UP*__1HP-UL (*024 / 030 / 036 / 048 / 054)

unit : in(mm)



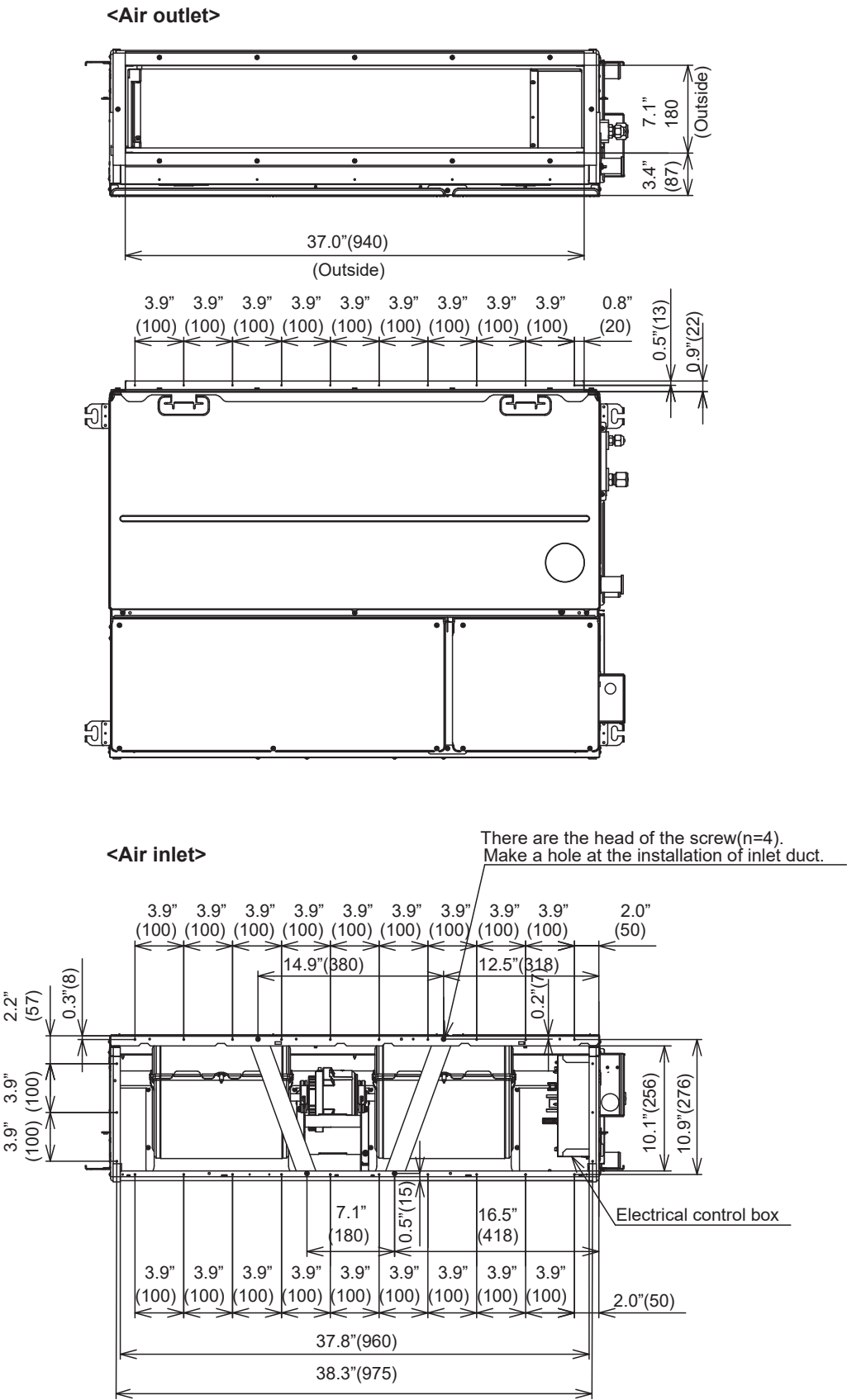
▼ Dimension

Model : MMD-UP*__1HP-UL	A	B	C	E	F
024 / 030	39.4" (1000)	41.9" (1065)	37.0" (940)	Ø 3/8" (9.5)	Ø 5/8" (15.9)
036 / 048 / 054	55.1" (1400)	57.7" (1465)	52.8" (1340)	Ø 3/8" (9.5)	Ø 5/8" (15.9)



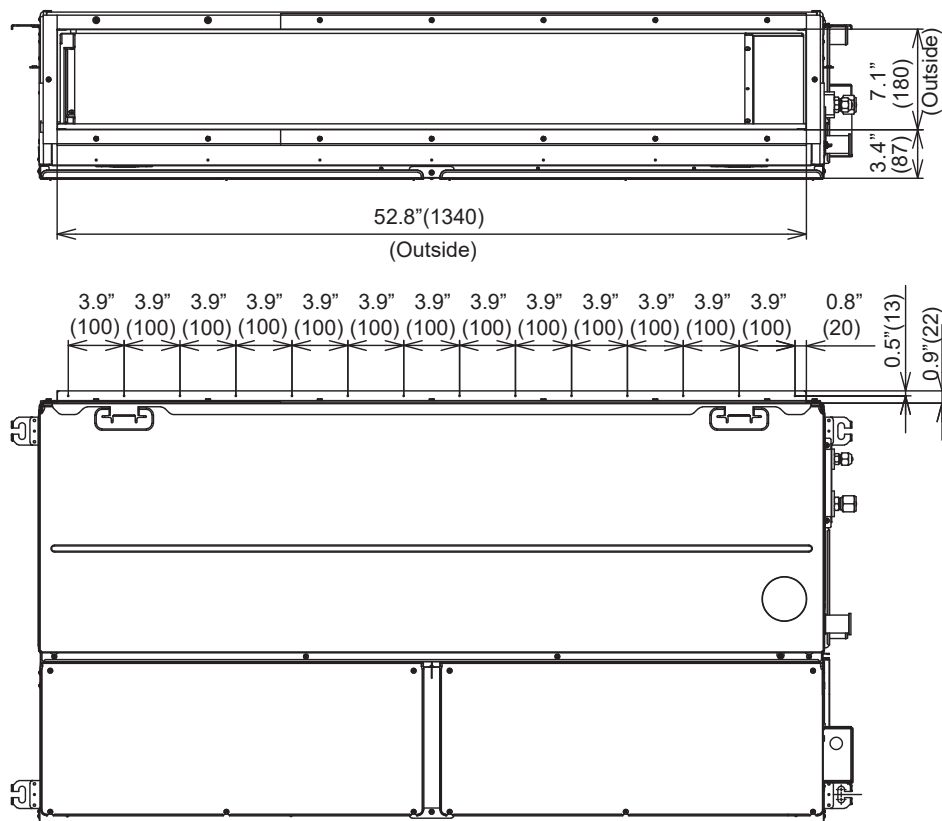
Model : MMD-UP*__1HP-UL	D
024 / 030	19.7" (500)
036 / 048 / 054	27.6" (700)

MMD-UP*__1HP-UL (*024 / 030)



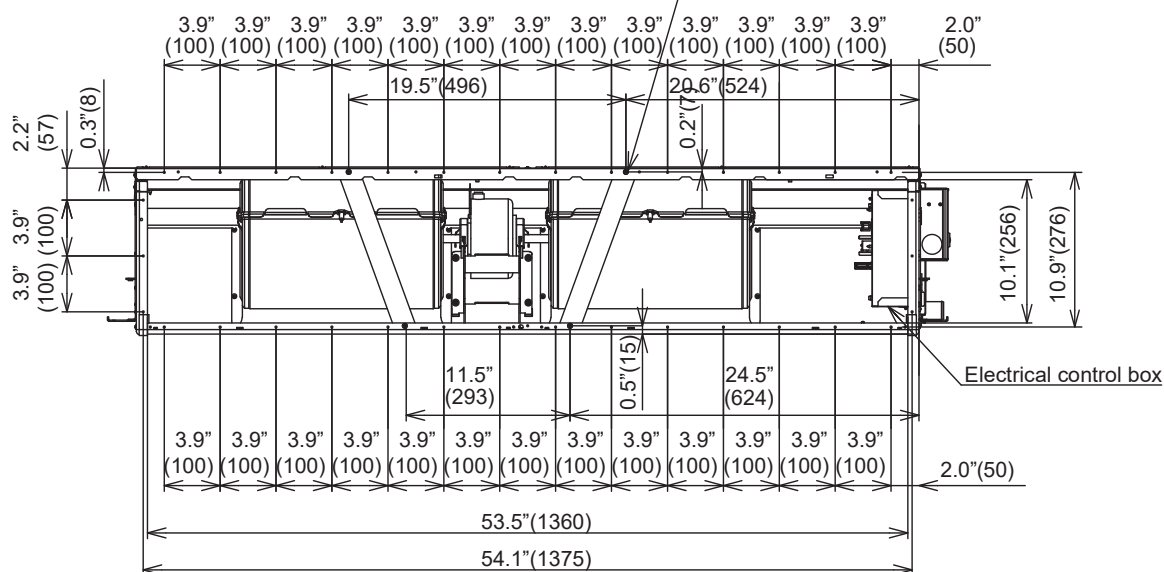
MMD-UP*__1HP-UL (*036 / 048 / 054)

<Air outlet>



<Air inlet>

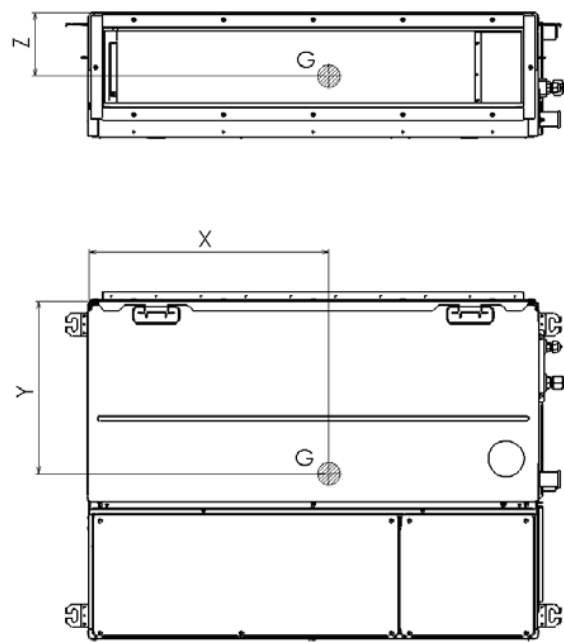
There are the head of the screw(n=4).
Make a hole at the installation of inlet duct.



unit : in(mm)

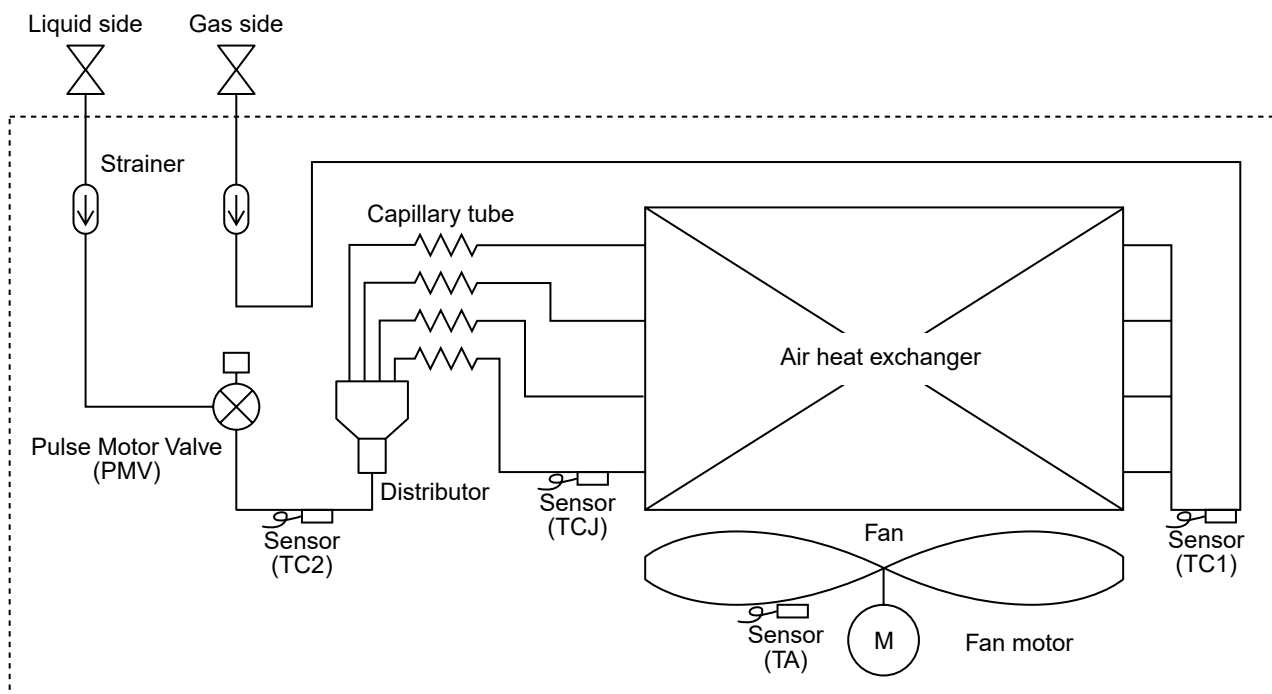
3. Center of gravity

Model name	X (in)	Y (in)	Z (in)	Total weight (lbs)
MMD-UP0241HP-UL	21.1	15.2	5.6	80
MMD-UP0301HP-UL				
MMD-UP0361HP-UL	29.3	15.2	5.6	98
MMD-UP0481HP-UL				
MMD-UP0541HP-UL				



4. Piping diagram

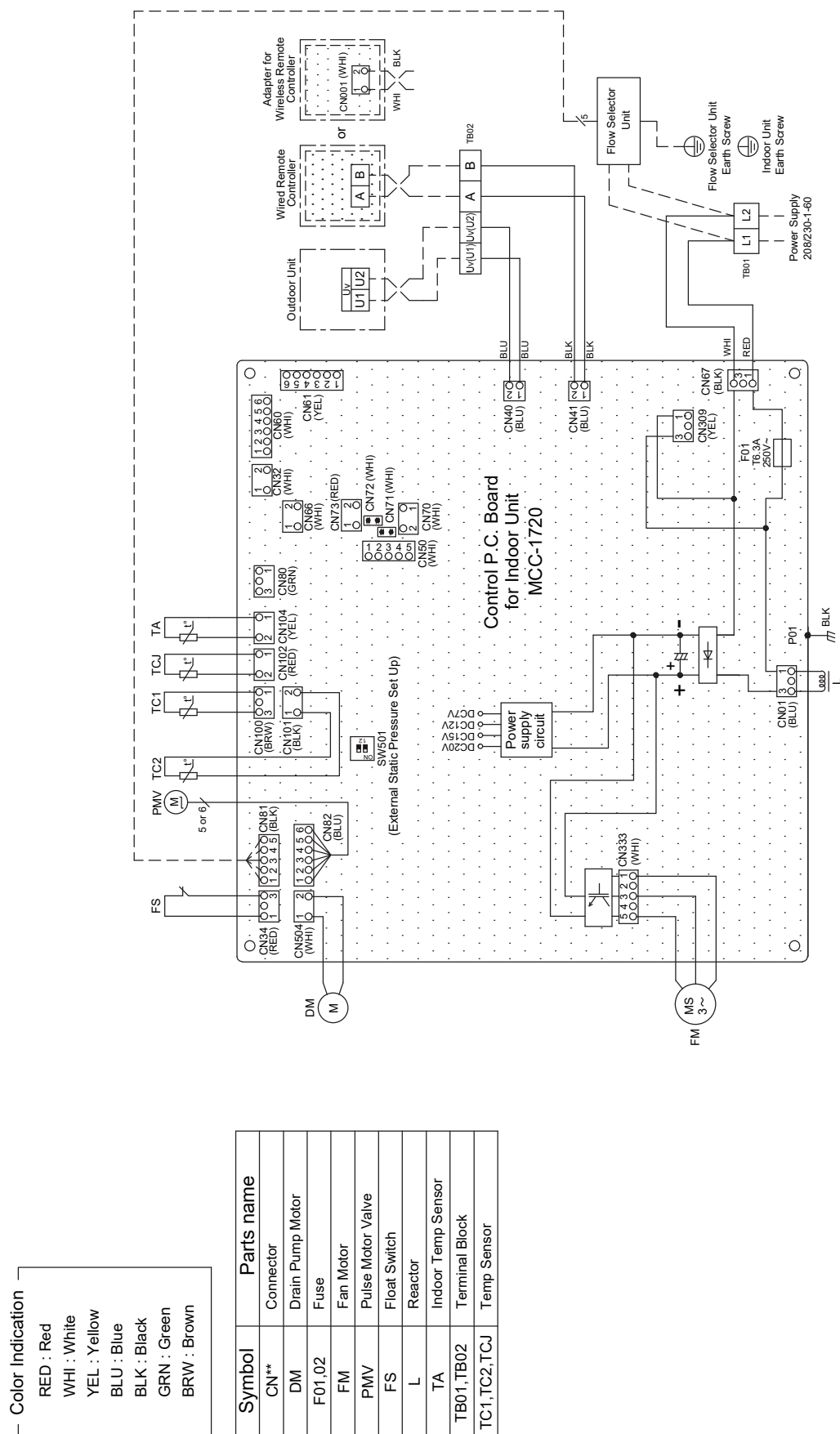
MMD-UP*__1HP-UL (*024 / 030 / 036 / 048 / 054)



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-UP*___1HP-UL (*024 / 030 / 036 / 048 / 054)



1. Broken line indicates the wiring at site. Long dashed short dashed line indicates the accessories.
2.  indicates the terminal block.
3.  indicates the connection terminal.
4.  indicates the protection ground.
5.  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-UP0241HP-UL	208/230-1-60	187	253	2.07	2.59	15
	MMD-UP0301HP-UL	208/230-1-60	187	253	2.39	2.99	15
	MMD-UP0361HP-UL	208/230-1-60	187	253	2.75	3.44	15
	MMD-UP0481HP-UL	208/230-1-60	187	253	3.10	3.88	15
	MMD-UP0541HP-UL	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-UP*__1HP-UL)

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	41	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	45	19700	17020	21790	18130	23280	19260	24000	19200	24720	19200	26160	19020	27360	18580
	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
	106	18160	15690	20090	16720	21460	17760	22130	17700	22790	17700	24120	17540	25230	17130
	109	17670	15270	19550	16260	20880	17280	21530	17220	22170	17220	23470	17060	24540	16670
030	41	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	45	24630	21280	27240	22660	29100	24070	30000	24000	30900	24000	32700	23780	34200	23230
	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
	106	22710	19620	25120	20890	26830	22190	27660	22130	28490	22130	30150	21930	31530	21420
	109	22090	19090	24430	20330	26100	21590	26910	21530	27720	21530	29330	21330	30680	20840
036	41	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	45	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
	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
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	64	29560	25540	32690	27200	34920	28890	36000	28800	37080	28800	39240	28530	41040	27870
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	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
	106	27250	23550	30140	25080	32200	26640	33190	26550	34190	26550	36180	26300	37840	25700
	109	26520	22910	29320	24400	31320	25910	32290	25830	33260	25830	35200	25590	36810	25000

TC: Total Capacity [Btu/h]

SHC: Sensible Heat Capacity [Btu/h]

High Static Pressure Duct Type (MMD-UP*___1HP-UL)

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
048	41	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	38040	54720	37160
	45	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	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	32810	54720	37160
	57	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	61	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	64	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	68	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	70	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	73	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	77	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	81	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	84	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	88	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	54720	37160
	91	39410	34050	43580	36260	46560	38510	48000	38400	49440	38400	52320	32810	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
	106	36340	31390	40180	33430	42930	35510	44260	35400	45580	35400	48240	35070	50450	34260
	109	35350	30540	39090	32530	41760	34540	43060	34440	44350	34440	46930	34120	49080	33330
054	41	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	45	44330	38300	49030	40790	52380	43330	54000	43200	55620	43200	58860	42800	61560	41810
	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
	106	40870	35310	45210	37610	48290	39950	49790	39830	51280	39830	54270	39460	56760	38550
	109	39760	34360	43980	36590	46980	38870	48440	38750	49890	38750	52800	38390	55220	37500

TC: Total Capacity [Btu/h]

SHC: Sensible Heat Capacity [Btu/h]

Heating capacity table

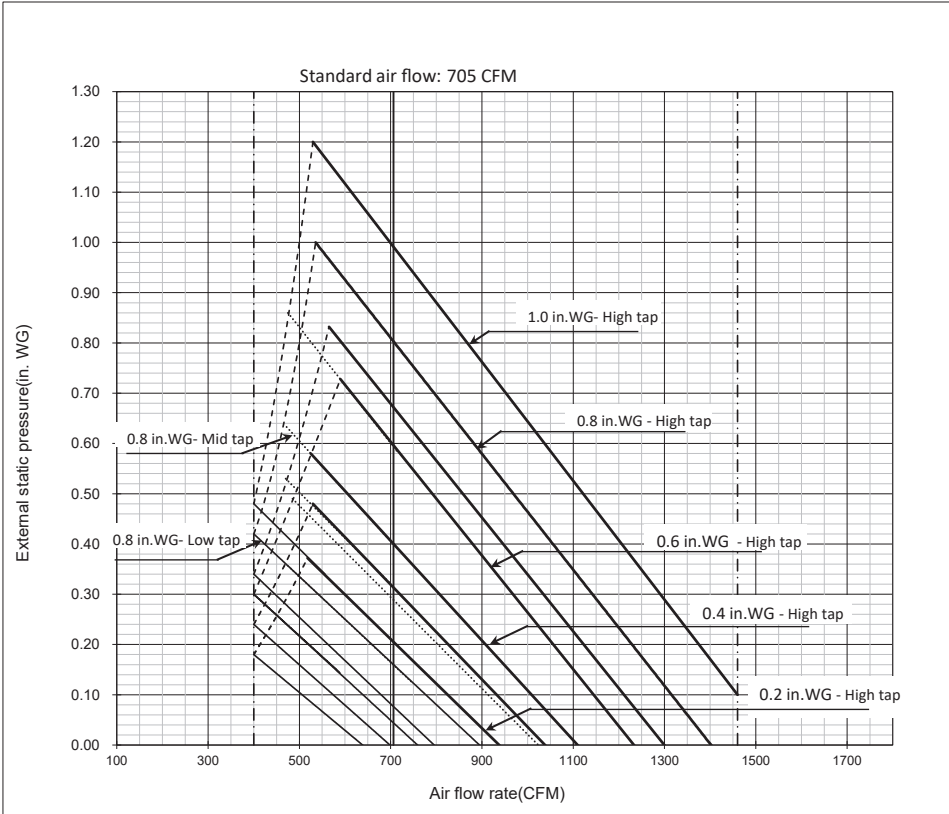
	Indoor air temp. °FDB					
Fahrenheit(°F)	62	65	68	70	72	75
Celsius(°C)	16.7	18.3	20	21.1	22.2	23.9
	Total capacity (TC) (kBtu/h)					
MMD-UP0241HP-UL	28.2	27.8	27.3	27.0	26.6	26.1
MMD-UP0301HP-UL	35.5	35.0	34.4	34.0	33.6	32.9
MMD-UP0361HP-UL	41.8	41.2	40.5	40.0	39.5	38.6
MMD-UP0481HP-UL	56.4	55.6	54.7	54.0	53.3	52.2
MMD-UP0541HP-UL	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.

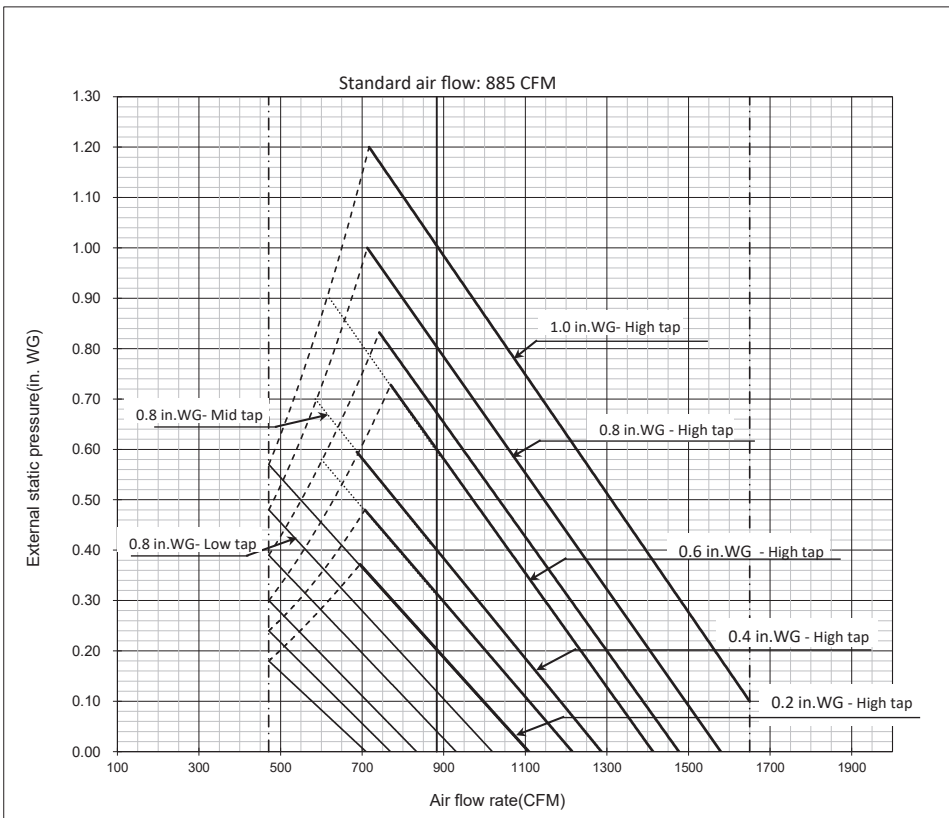
Notes: 2. This is the capacity table of rated heating test condition of Outdoor 47°F Dry Bulb / 43°F Wet Bulb.

8. Fan characteristics

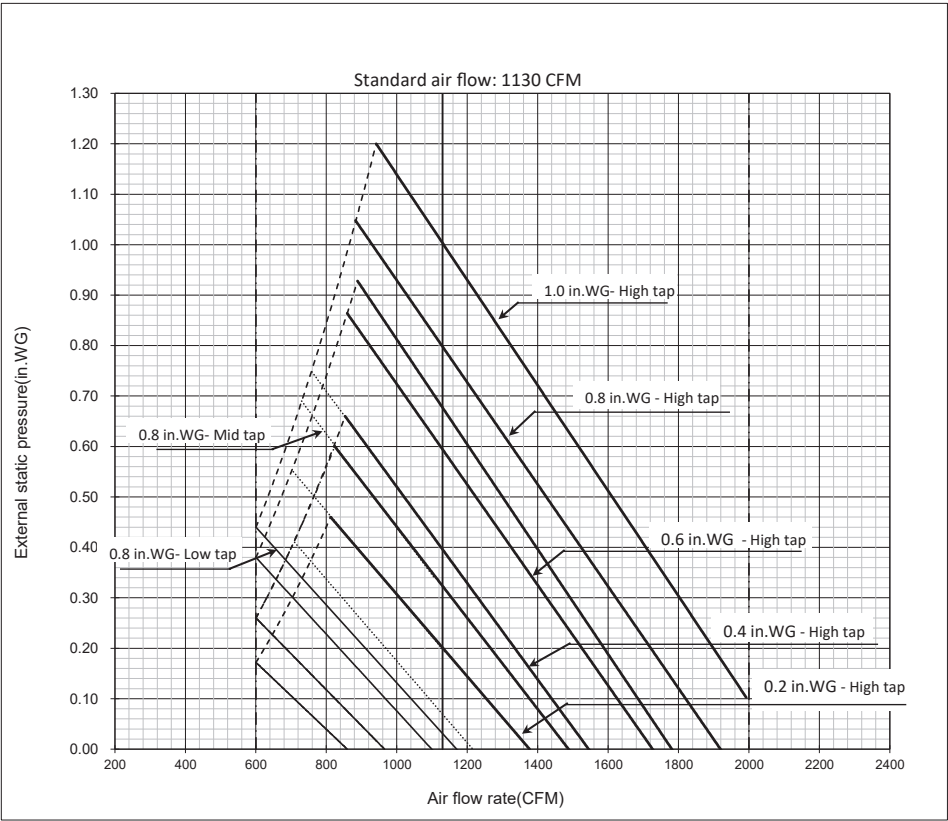
MMD-UP0241HP-UL



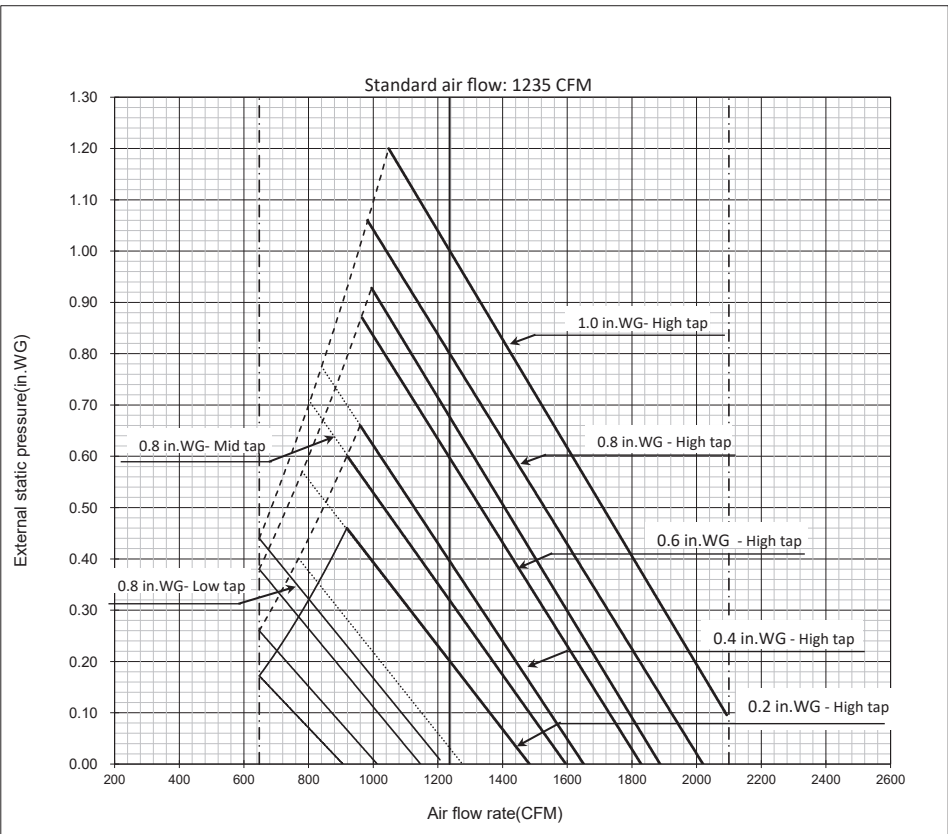
MMD-UP0301HP-UL



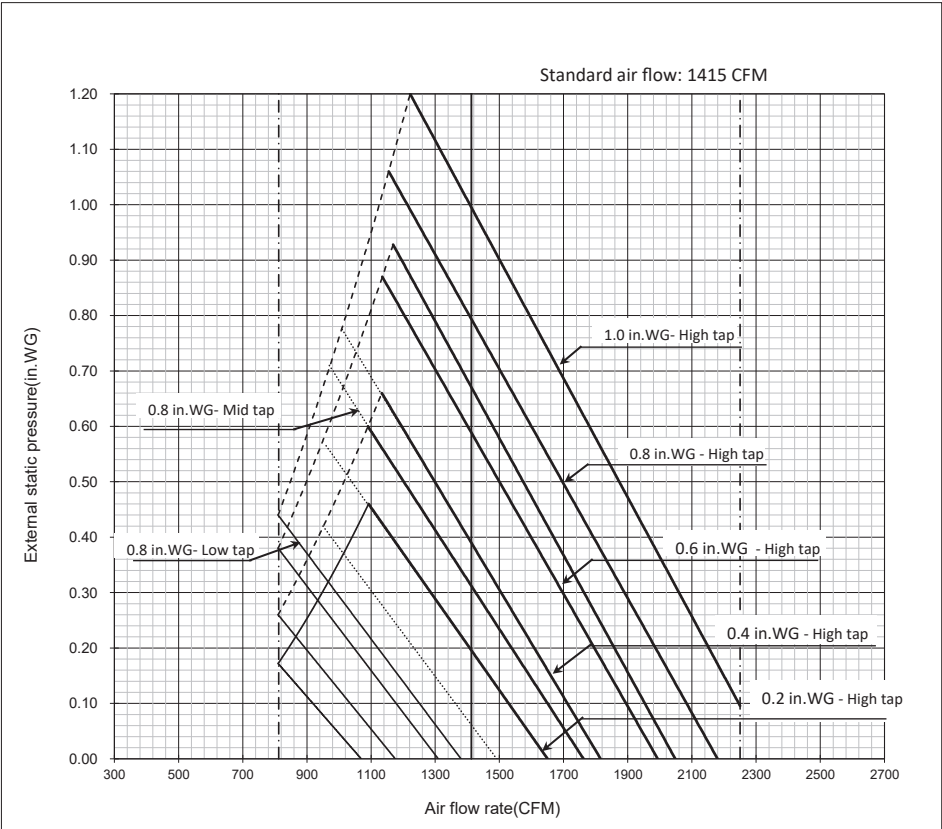
MMD-UP0361HP-UL



MMD-UP0481HP-UL



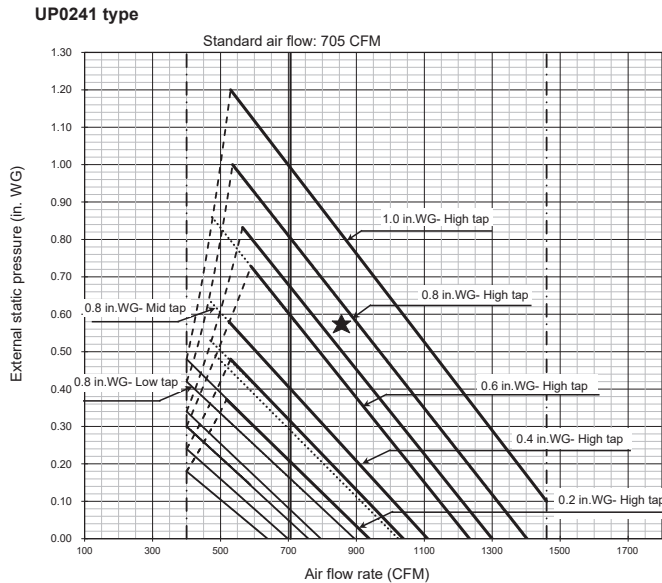
MMD-UP0541HP-UL



The concealed high static pressure 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

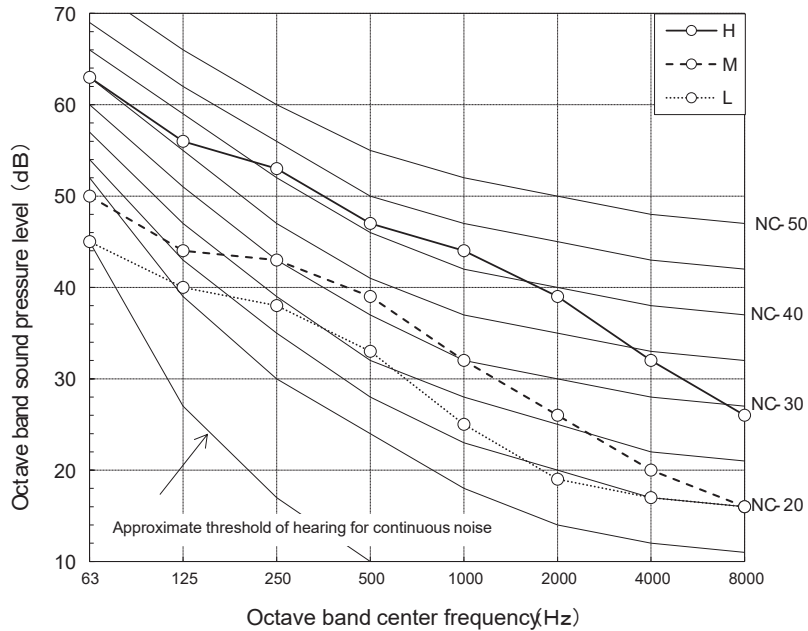
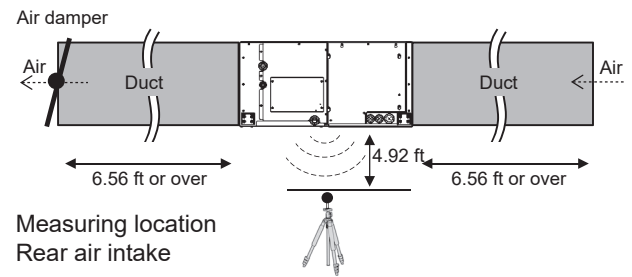
Supply air CFM will follow the solid line fan curve shown in the above graph if there is any change in the external static pressure.

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

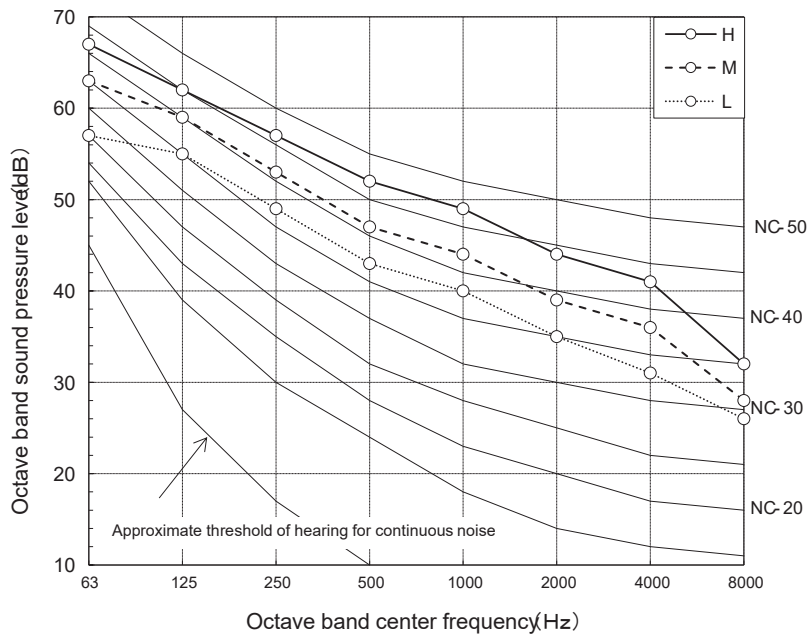
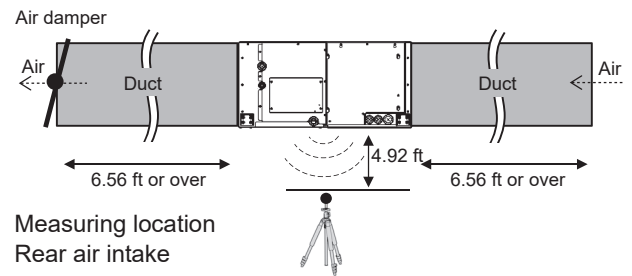
MMD-UP0241HP-UL

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



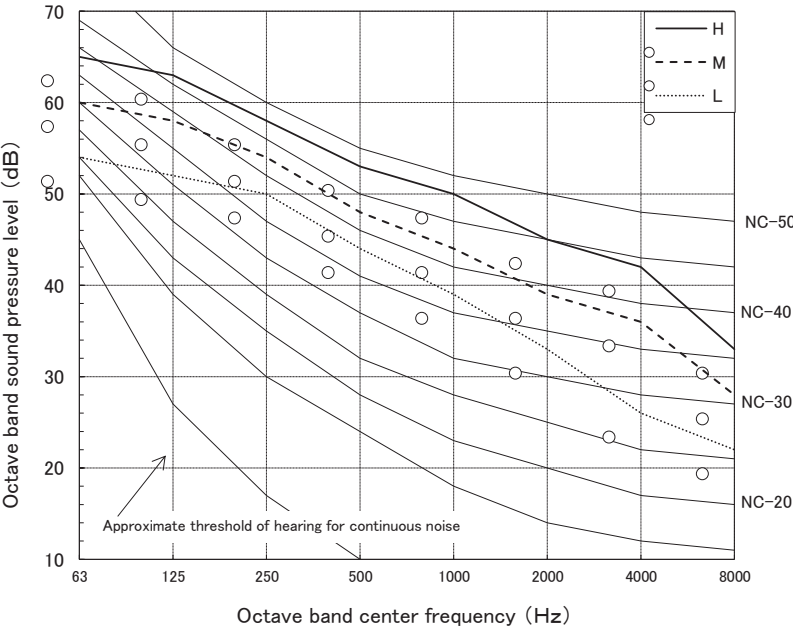
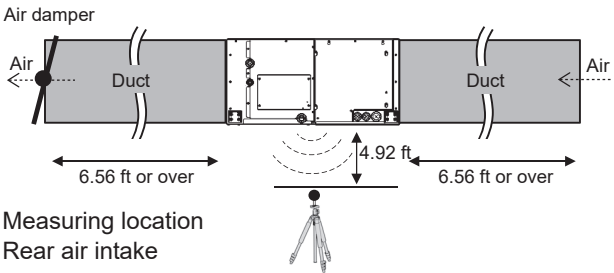
MMD-UP0301HP-UL

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



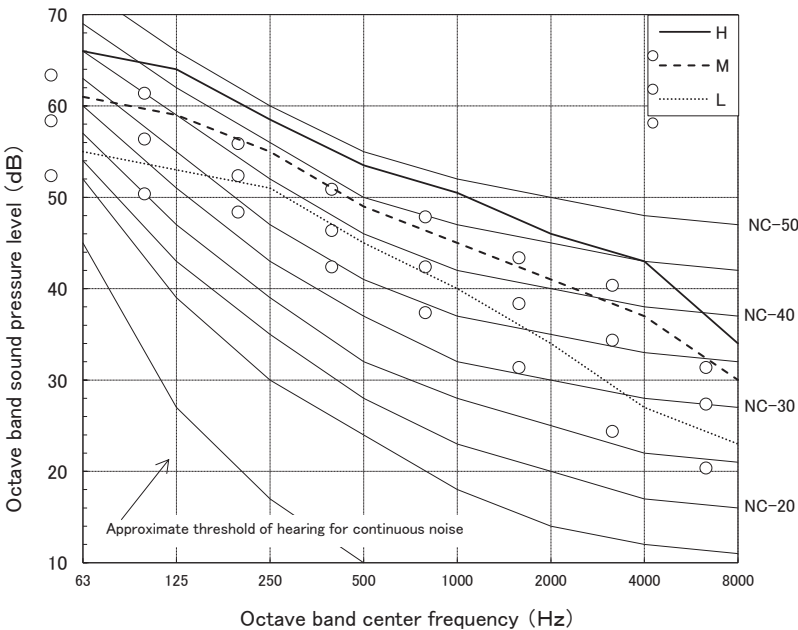
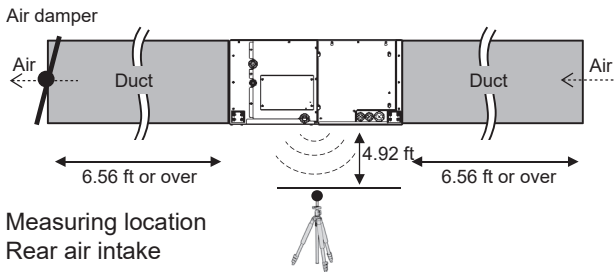
MMD-UP0361HP-UL

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



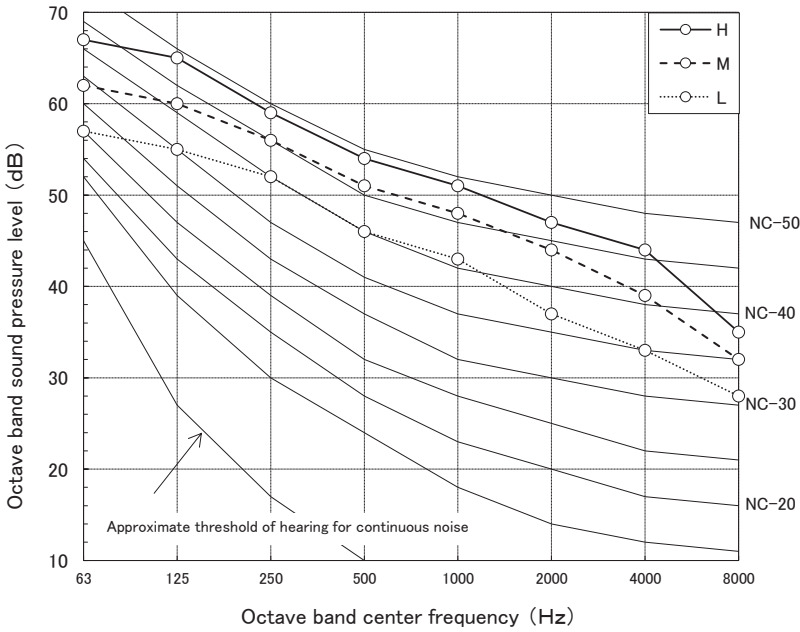
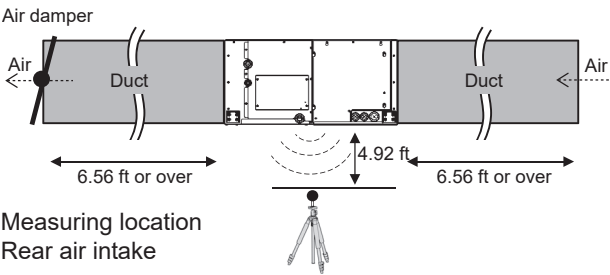
MMD-UP0481HP-UL

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



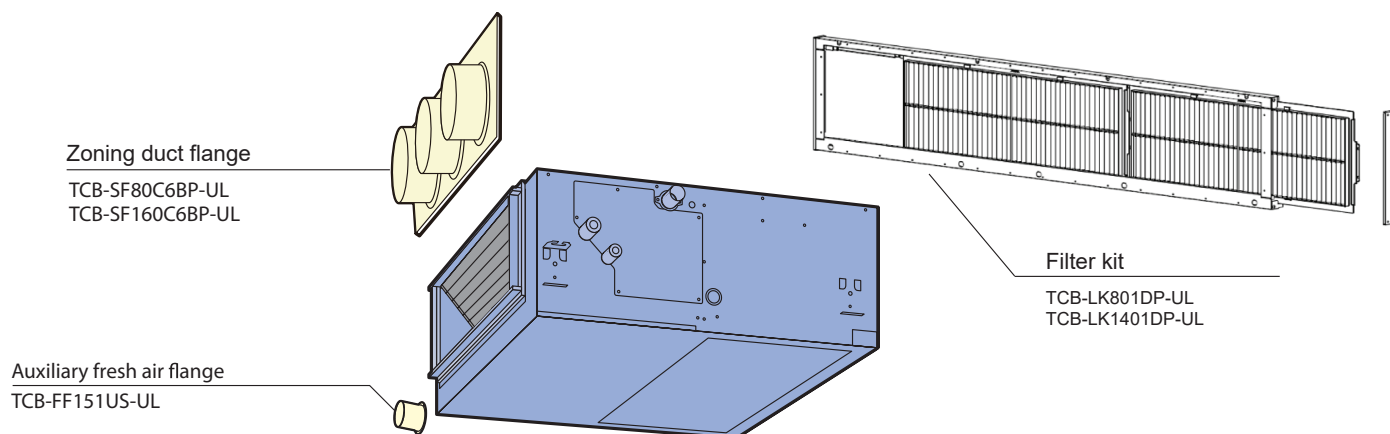
MMD-UP0541HP-UL

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



10. Accessories

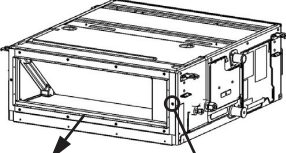
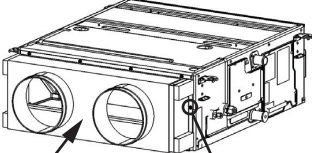
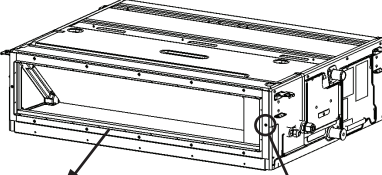
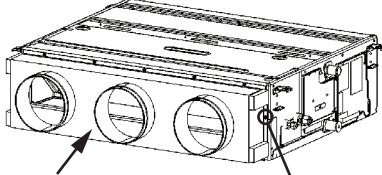
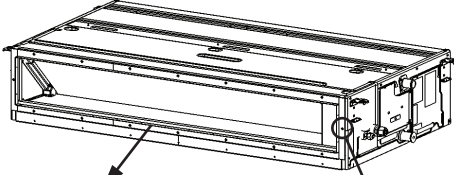
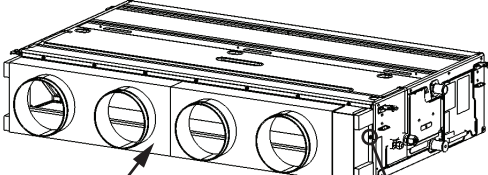
Option Parts	Model Name	Applicable FCU
Filter Kit	TCB-LK801DP-UL	MMD-UP0241 / 0301HP-UL
	TCB-LK1401DP-UL	MMD-UP0361 / 0481 / 0541HP-UL
Zoning duct flange	TCB-SF80C6BP-UL	MMD-UP0241 / 0301HP-UL
	TCB-SF160C6BP-UL	MMD-UP0361 / 0481 / 0541HP-UL
Auxiliary fresh air flange	TCB-FF151US-UL	For all Duct type



Below parts are included.

Parts name	Model: TCB-LK801DP-UL		Model: TCB-LK1401DP-UL	
	Form	Quantity	Form	Quantity
(1) Flange		1		1
(2) Filter		2		2
(3) Cover		2		2
(4) Screw	Ø5/32"(4 mm) × 0.3"(8 mm) 	8	Ø5/32"(4 mm) × 0.3"(8 mm) 	8
(5) Screw	Ø13/64"(5 mm) × 0.3"(8 mm) 	4	Ø13/64"(5 mm) × 0.3"(8 mm) 	4

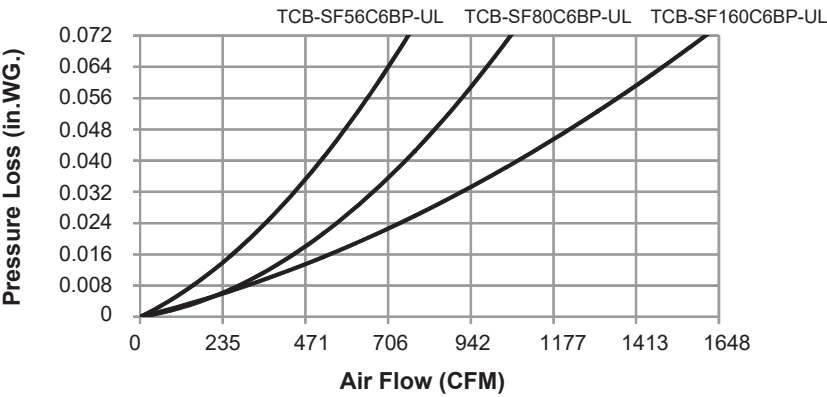
Appendix

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

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 Presure type, pressure-loss characteristics depends on Air Flow.



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