

High Static Pressure Duct Type

MMD-UP0721HP-UL
MMD-UP0961HP-UL



Contents

1.	Specifications	3
2.	Dimensions	4
3.	Center of gravity	6
4.	Piping diagram	7
5.	Wiring diagram	8
6.	Electrical current characteristics	9
7.	Sensible capacity table	10
8.	Fan characteristic	12
9.	Sound data	15
10.	Accessories	17

1. Specifications

Concealed Duct High Static Pressure Type

Model name			MMD-	UP0721HP-UL	UP0961HP-UL	
Cooling capacity ...Note 1			(kBtu/h)	72.0	96.0	
Heating capacity ...Note 1			(kBtu/h)	81.0	108.0	
Electrical	Power supply			1phase 60Hz 230V (208/230V)		
characteristics	Running current (208V / 230V)			(A)	3.10 / 2.80	4.15 / 3.75
(factory setting)	Power consumption			(W)	540 / 540	790 / 790
	Starting current			(A)	8.63 / 7.80	8.63 / 7.80
Appearance				Zinc hot dipping steel plate		
Dimension	Unit	Height	(inch)	17.6		
		Width	(inch)	55.1		
		Depth	(inch)	35.4		
	Packing	Height	(inch)	21.2		
		Width	(inch)	69.2		
		Depth	(inch)	40.8		
Total weight	Unit			(lbs)	218	
	Packed unit			(lbs)	265	
Heat exchanger				Finned tube		
Soundproof / Heat-insulating material				Polyethylene foam		
Fan unit	Fan			Centrifugal fan		
	Standard air flow (Med./Low)			(cfm)	2235 (1885 / 1470)	2825 (2470 / 2060)
	Motor output			(kW)	1.0	
	External static pressure (factory setting)			(In WG)	0.6	
	External static pressure range			(In WG)	0.20 - 0.33 - 0.47 - <0.60> - 0.74 - 0.87 - 1.00 (7steps)	
Air filter				TCB-LK2801DP-UL (Sold separately as accessories)		
Controller				Remote control		
Connecting pipe	Gas side			(inch)	7/8"	
	Liquid side			(inch)	1/2"	
	Drain port			(inch)	VP25(Polyvinyl chloride tube: External Dia. 1-1/4 Internal Dia.1)	
Sound pressure level (High/Med./Low) ...Note 2 (factory setting)			(dB(A))	44 / 40 / 36	46 / 42 / 38	
Sound power level (High/Med./Low)			(dB(A))	79 / 75 / 71	81 / 77 / 73	

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 16'5"(5m) of main piping and 8'2"(2.5m) of branch piping connected with 0 meter height.

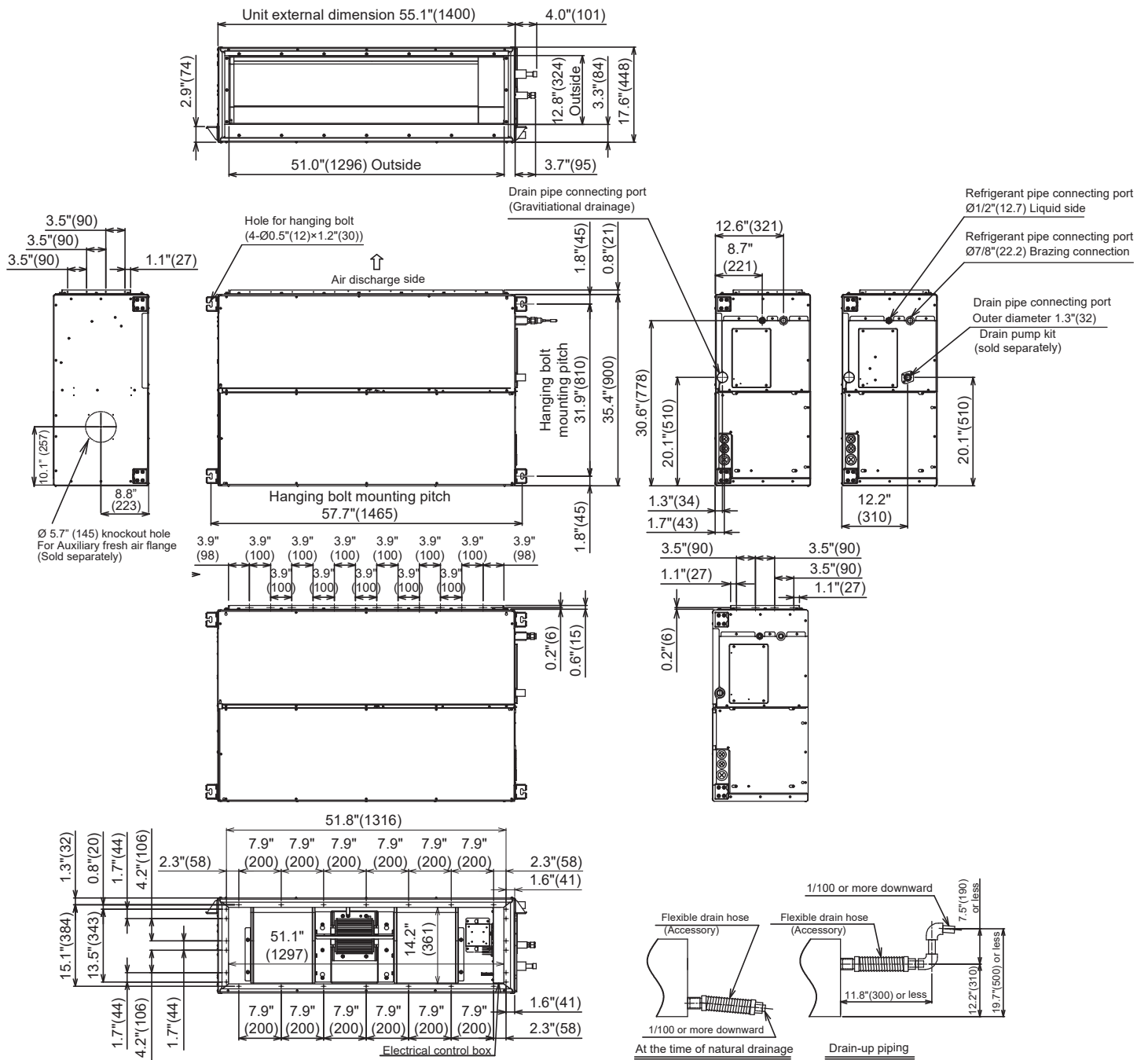
Note 2 : The sound level are measured in an anechoic chamber in accordance with JIS B 8616

Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

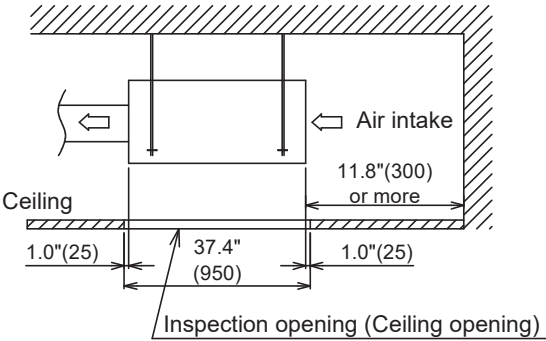
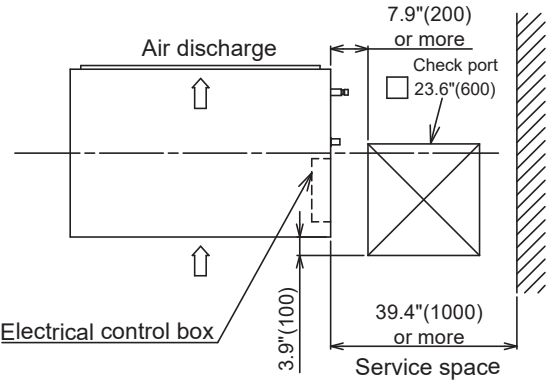
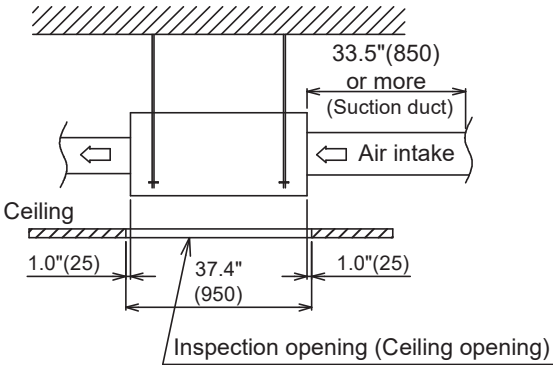
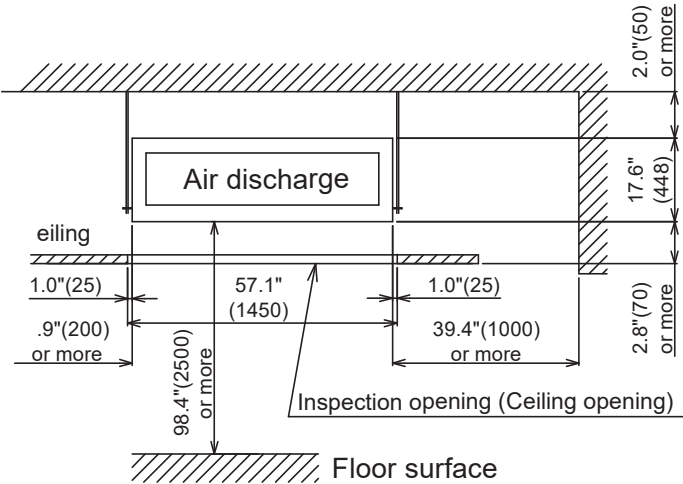
Note : Rated conditions Cooling: Indoor air temperature 80 ° DB/67 ° WB, Outdoor air temperature 95 ° DB
Heating: Indoor air temperature 70 ° DB, Outdoor air temperature 47 ° DB/43 ° WB

2. Dimension

MMD-UP*___1HP-UL (*072 / 096)



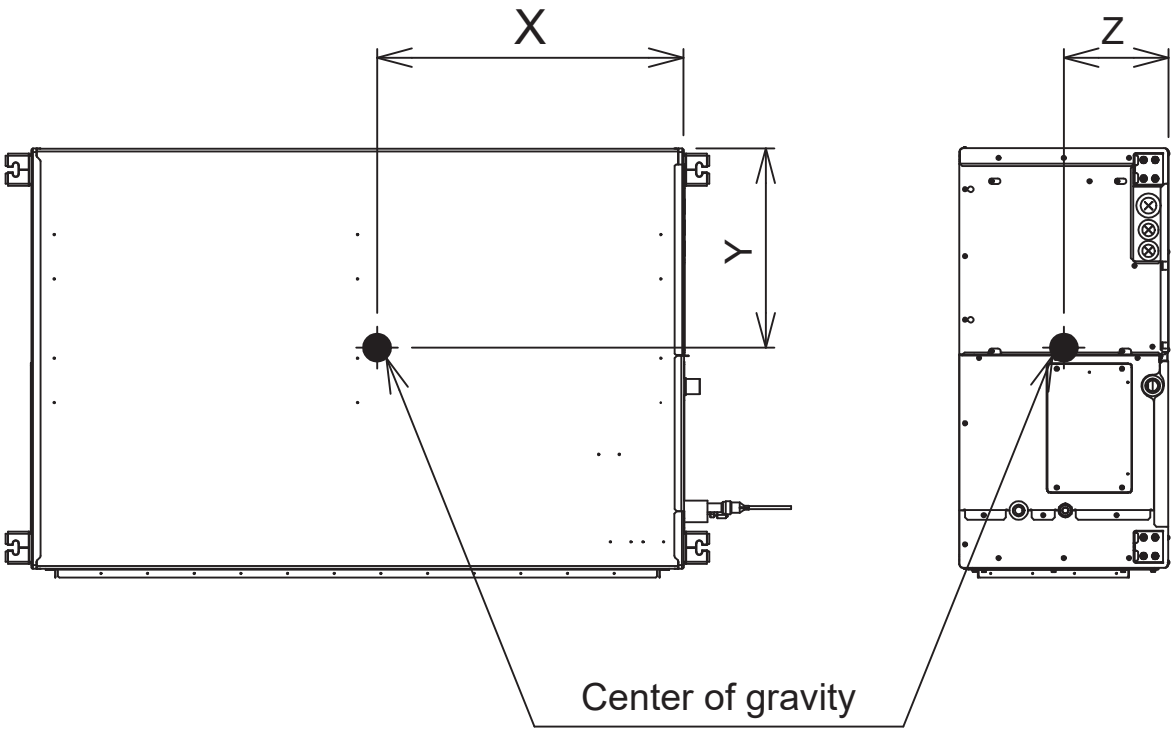
MMD-UP*__1HP-UL (*072 / 096)



(unit : in(mm))

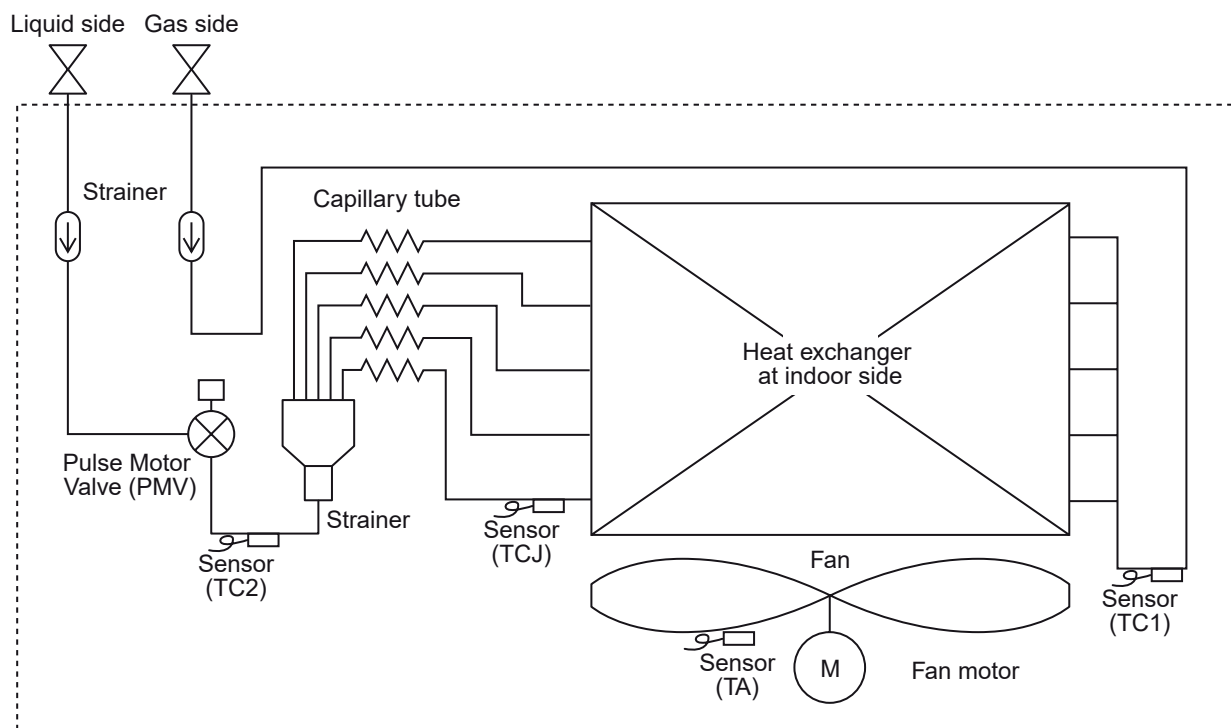
3. Center of gravity

Model name	X (in)	Y (in)	Z (in)	Total weight (lbs)
MMD-UP0721HP-UL	26.2	17.1	8.7	214
MMD-UP0961HP-UL				



4. Piping diagram

MMD-UP*__1HP-UL (*072 / 096)

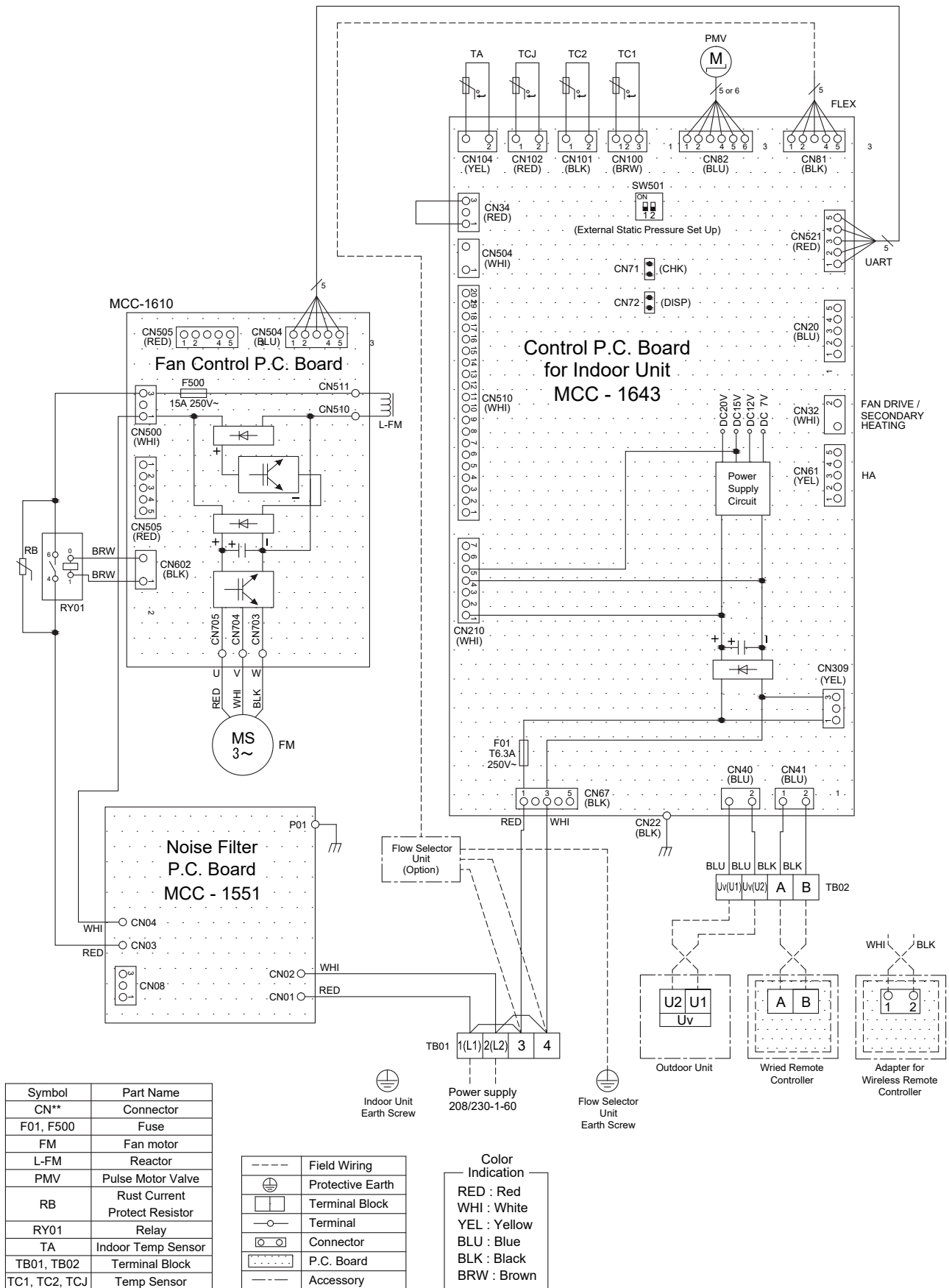


Explanation of functional parts in indoor unit

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

5. Wiring diagram

MMD-UP*__1HP-UL (*072 / 096)



6. Electrical characteristics

Type	Model	Nominal Voltage (V-Ph-Hz)	Voltage Range (V)		Power consumption kW	FLA A	MCA A	MOCP A
			Min	Max				
High Static Ducted type	MMD-UP0721HP-UL	208/230-1-60	187	253	0.54 / 0.54	4.6	5.7	15
	MMD-UP0961HP-UL	208/230-1-60	187	253	0.79 / 0.79	5.9	7.4	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
072	41	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	45	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	50	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	54	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	57	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	61	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	64	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	68	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	70	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	73	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	77	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	81	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	84	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	88	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	91	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	95	59110	53240	65380	56710	69840	60230	72000	60050	74160	60050	78480	59490	82080	58120
	99	57400	51700	63480	55070	67810	58480	69910	58310	72010	58310	76200	57760	79700	56430
	102	56040	50470	61980	53760	66210	57100	68260	56930	70300	56930	74400	56400	77810	55100
	106	54500	49090	60280	52290	64390	55530	66380	55370	68380	55370	72360	54850	75680	53590
	109	53020	47760	58650	50870	62650	54030	64580	53860	66520	53860	70400	53360	73630	52130
096	41	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
	45	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
	50	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
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	81	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
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	91	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
	95	78820	71500	87170	76140	93120	80870	96000	80630	98880	80620	104640	79880	109440	78030
	99	76530	69430	84640	73930	90420	78520	93220	78290	96010	78280	101610	77560	106270	75770
	102	74720	67780	82640	72180	88280	76660	91010	76440	93740	76430	99200	75730	103750	73970
	106	72670	65920	80370	70200	85860	74560	88510	74340	91170	74330	96480	73650	100900	71940
	109	70700	64140	78190	68300	83530	72540	86110	72330	88700	72320	93860	71650	98170	69990

Heating capacity table

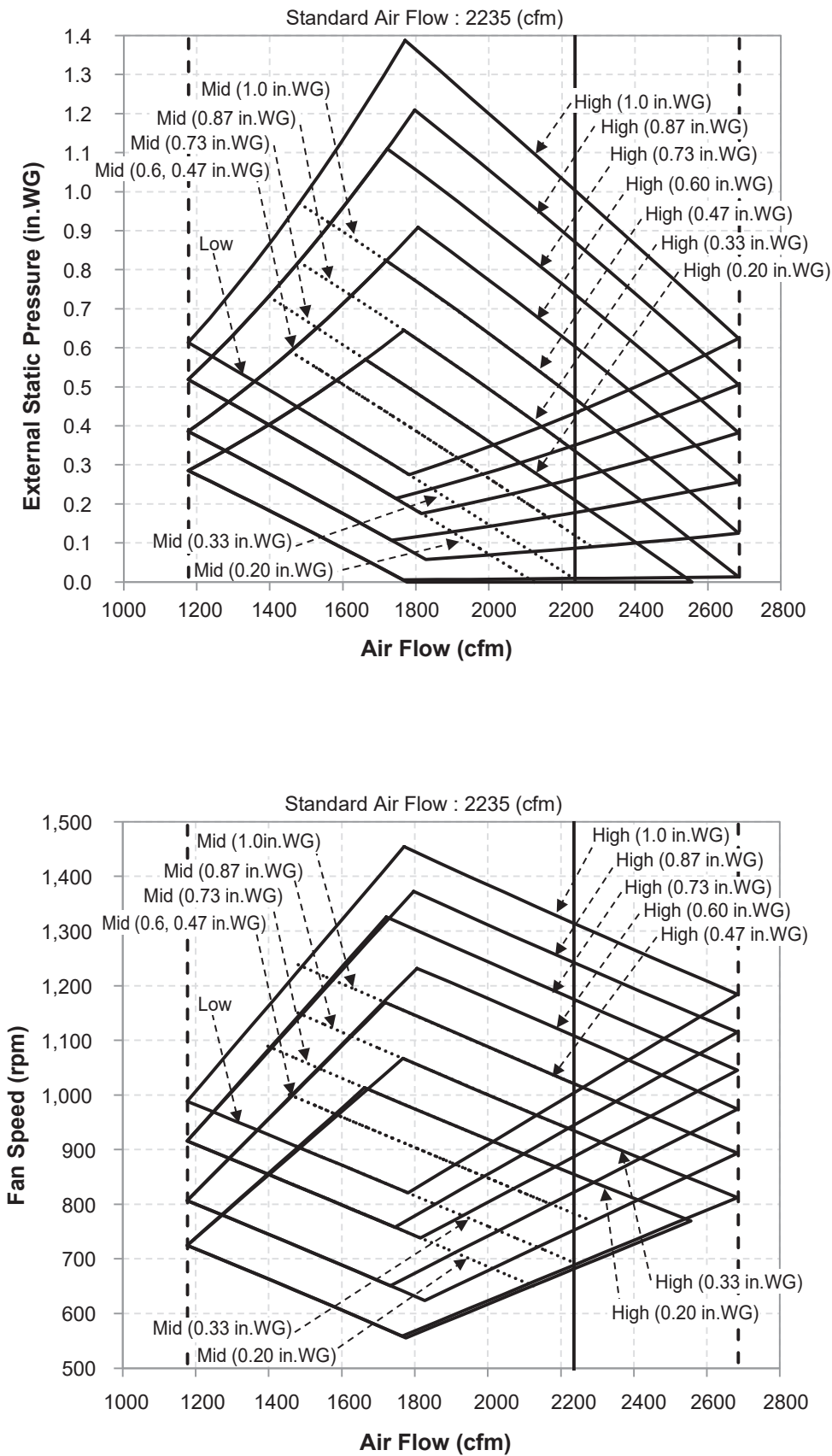
	Indoor air temperature °FDB					
Fahrenheit (°F)	62	65	68	70	72	75
Celsius (°C)	16.7	18.3	20	21.1	22.2	23.9
	Total capacity (TC) (kBtu/h)					
MMD-UP0721HP-UL	84.6	83.4	81.9	81.0	79.8	78.3
MMD-UP0961HP-UL	112.8	111.2	109.2	108.0	106.4	104.4

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.

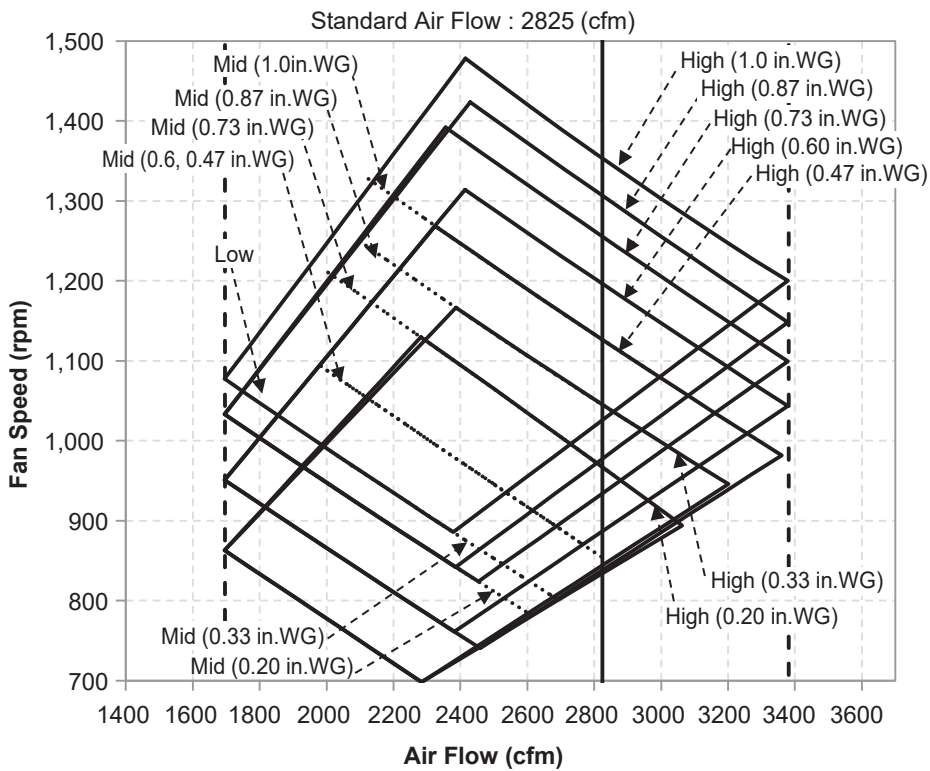
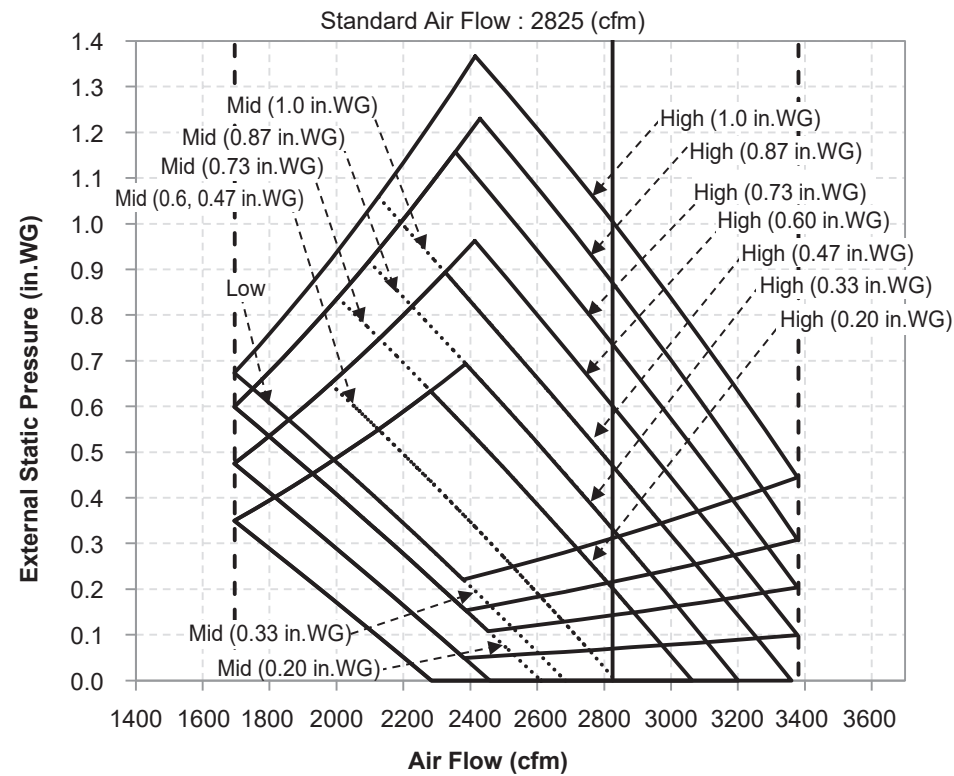
Notes: 2. This is the capacity table of rated heating test condition of Outdoor 47°F Dry Bulb / 43°F Wet Bulb.

8. Fan characteristics

MMD-UP0721HP-UL



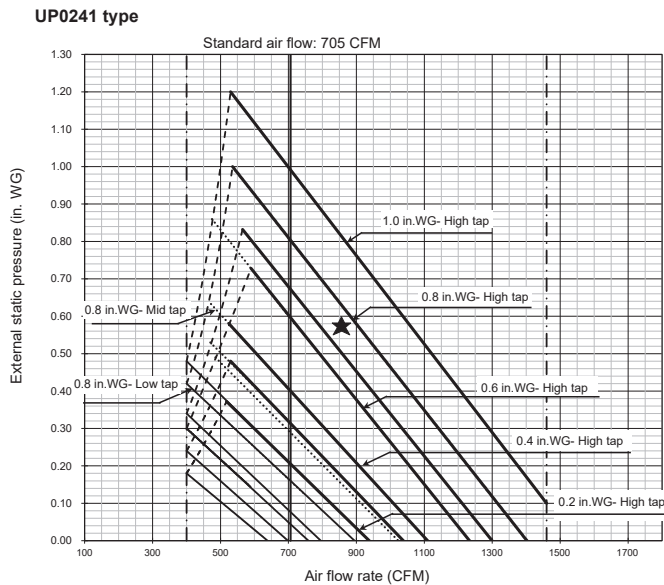
MMD-UP0961HP-UL



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.



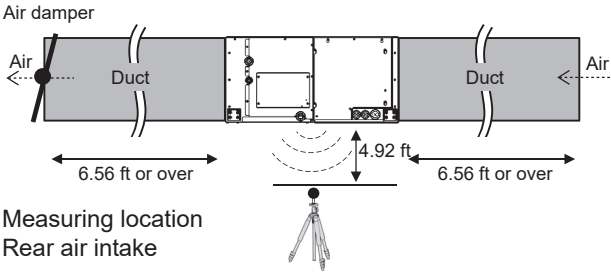
NOTE

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.

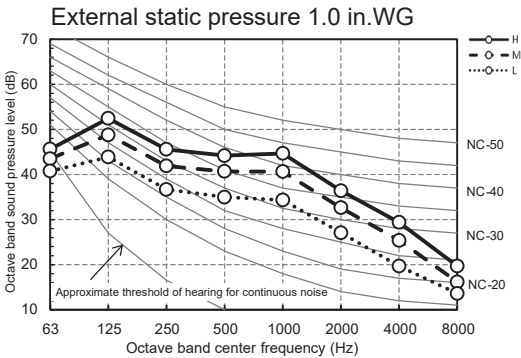
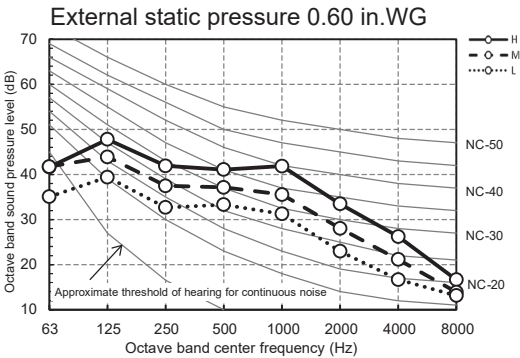
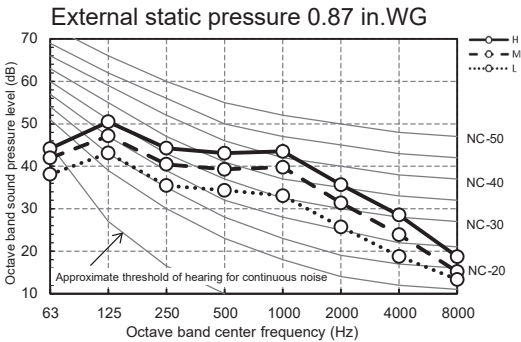
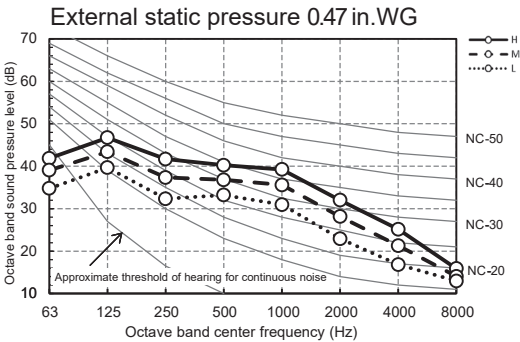
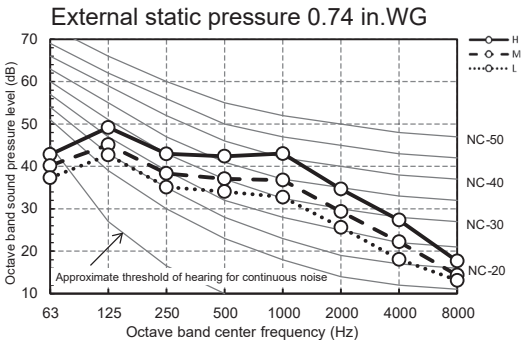
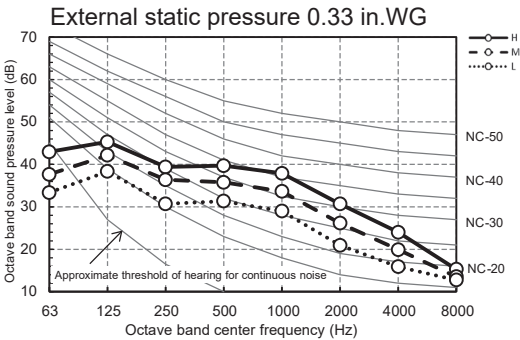
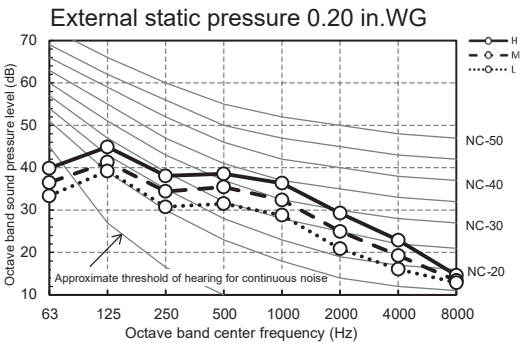
Supply air volume for medium and low fan speed tap is also set by remote controller. It will follow the dotted line fan curve in the graph.

9. Sound data

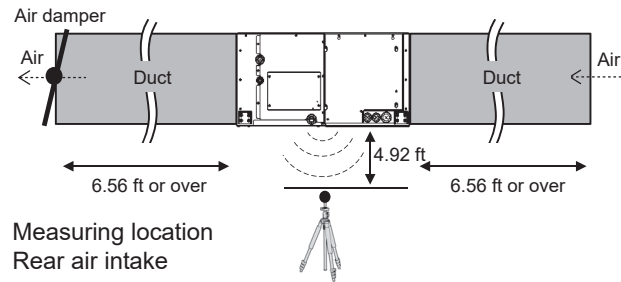
MMD-UP0721HP-UL



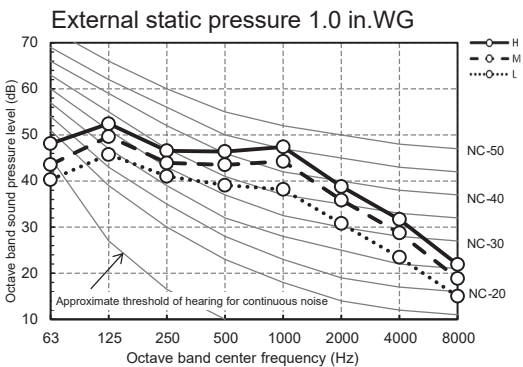
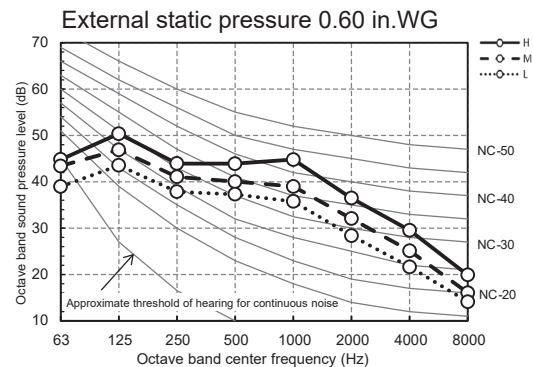
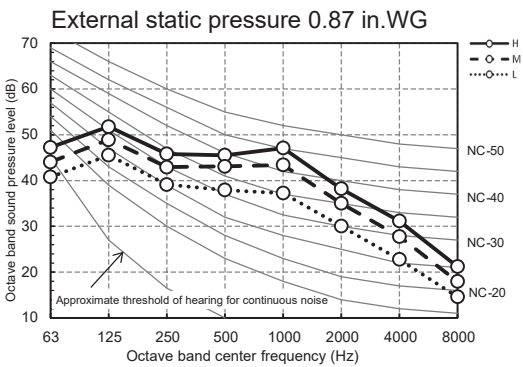
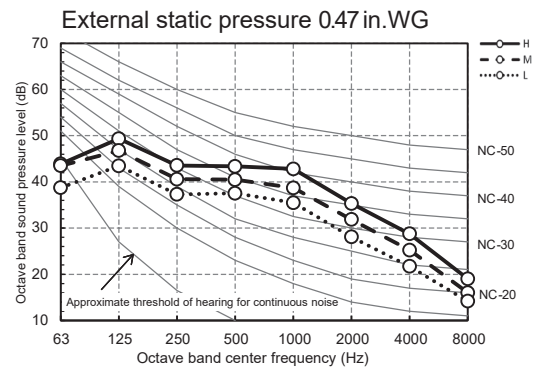
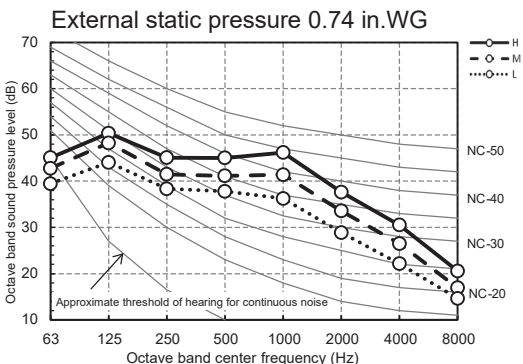
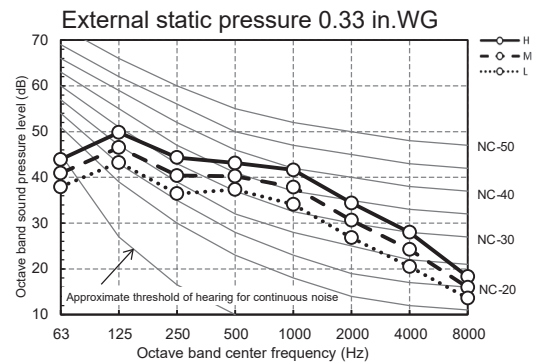
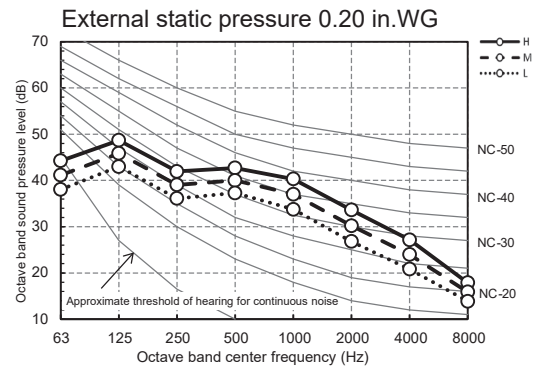
ESP (in.WG)	Sound Pressure Level (dBA)		
	H	M	L
0.20	42.5	38.5	34.5
0.33	43.0	39.0	35.0
0.47	43.5	39.5	35.5
0.60	44.0	40.0	36.0
0.74	45.0	41.0	37.0
0.87	46.0	42.0	38.0
1.00	47.0	43.0	39.0



MMD-UP0961HP-UL

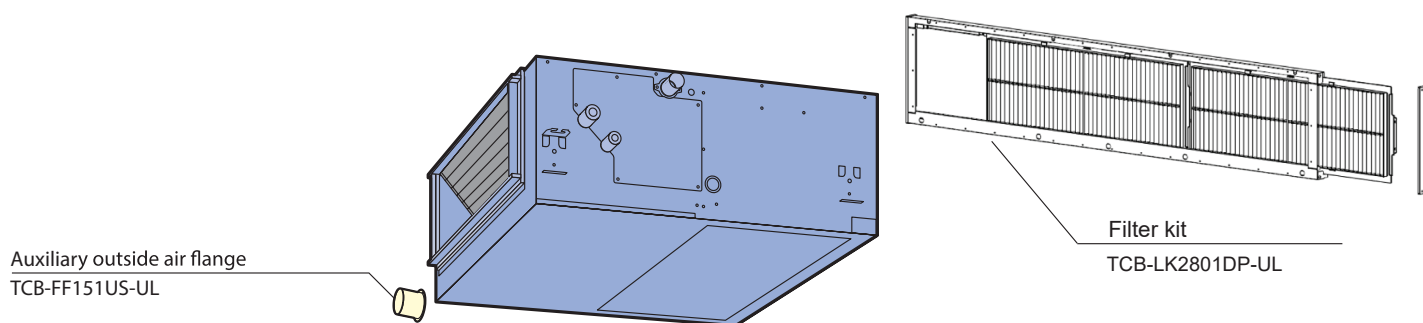


ESP (in.WG)	Sound Pressure Level (dBA)		
	H	M	L
0.20	44.5	40.5	36.5
0.33	45.0	41.0	37.0
0.47	45.5	41.5	37.5
0.60	46.0	42.0	38.0
0.74	47.0	43.0	39.0
0.87	48.0	44.0	40.0
1.00	49.0	45.0	41.0

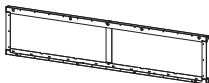
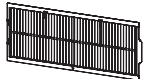


10. Accessories

Option Parts	Model Name	Applicable FCU
1.Filter Kit	TCB-LK2801DP-UL	MMD-UP0721 / 0961HP-UL
2.Auxiliary outside air flange	TCB-FF151US-UL	MMD-UP0721 / 0961HP-UL



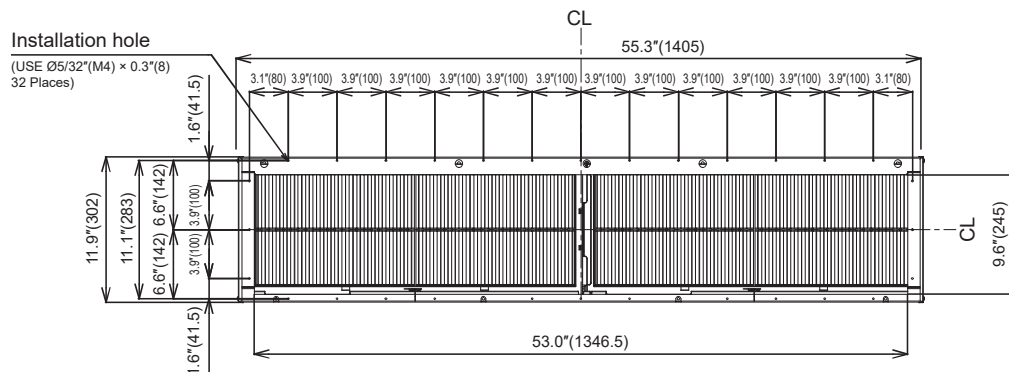
Below parts are included.

Parts name	Model : TCB-LK2801DP-UL	Quantity
(1) Frame fix plate		2
(2) Filter frame		1
(3) Filter		2
(4) Cover		2
(5) Screw	Ø5/32"(M4) × 0.3"(8L) 	8
(6) Screw	Ø13/64"(M5) × 0.3"(8L) 	4
(7) Screw	Ø13/64"(M5) × 0.6"(16L) 	18
(8) Seal material		1
(9) Seal material	0.4"(10t) × 1.0"(25) × 1.4"(35) 	2
(10) Seal material	0.4"(10t) × 0.8"(20) × 1.0"(25) 	2
(11) Installation manual	This manual	1

1.Filter Kit (TCB-LK2801DP-UL)

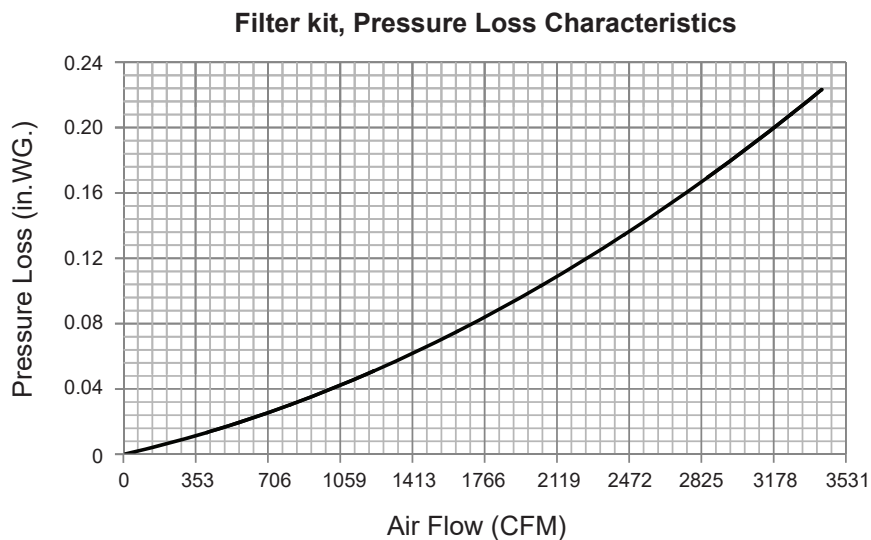
Arrangement

Referring to the following dimension, manufacture duct at the local site.



External Pressure Loss Characteristic

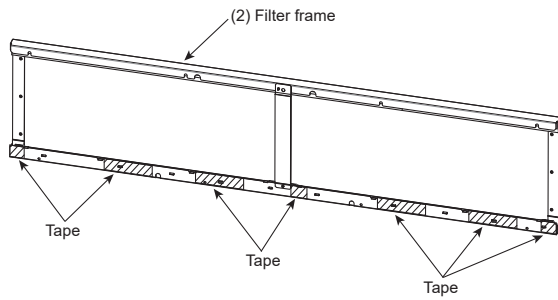
When you use these “Filter kit”, pressure-loss characteristics depends on Air Flow.



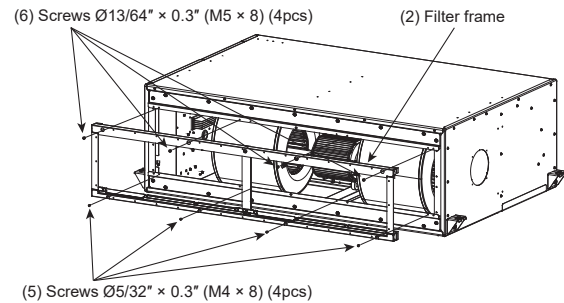
How to install

1. Peel off the tape fixing the filter rail.

And check if the claw of the filter rail is not taken off.



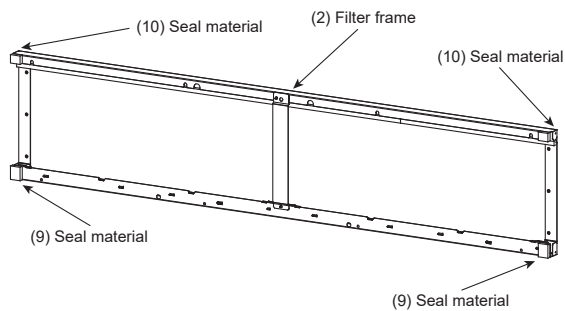
4. Install (2) Filter frame.



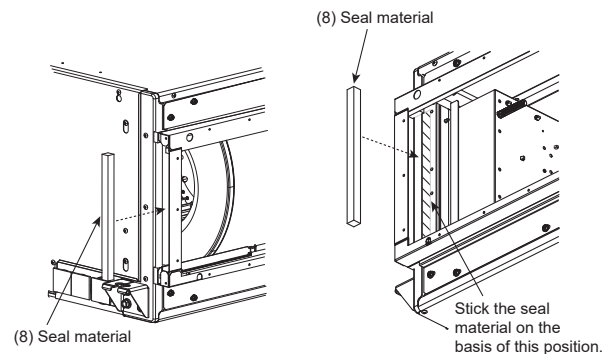
- The filter frame gets one having black mold parts (filter rail) in the lower direction at the time of the installation of indoor unit.

2. Install (9) (10) Seal material.

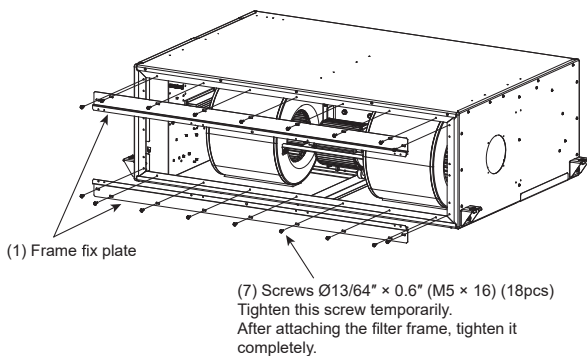
Fit the seal material to the corner and paste it.



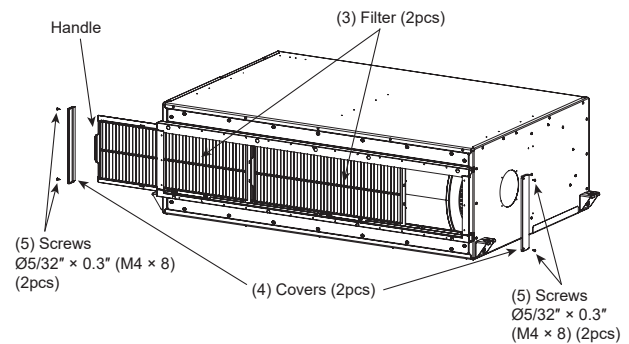
5. Install (8) Seal material.



3. Install (1) Frame fix plate.



6. Install (3) Filter and (4) Cover.



- For the filter direction, the insertion direction is the handle side as the above picture.
- Please confirm that two pieces of filters are connected.
- Please attach the cover with both side.

NOTE

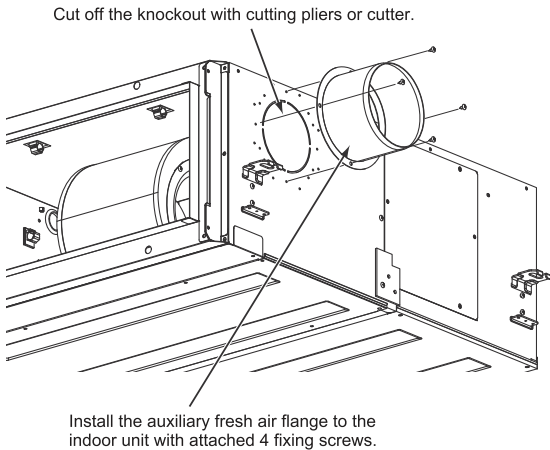
- When you use too long screws at attach a suction duct (local procured), you can not remove the filters by attack the screws.
- Be sure to check if the filter can be attached and removed after the attachment.

2.Auxiliary outside air flange (TCB-FF151US-UL)

Arrange a flexible duct (locally procured).
It is necessary to install auxiliary outside air flange.

INSTALLATION PROCEDURE

- 1 Using the knockout of the indoor unit, as a marker, cut off the steel plate with cutting pliers or cutter.
- 2 Install the auxiliary fresh air flange to the indoor unit with attached 4 fixing screws.



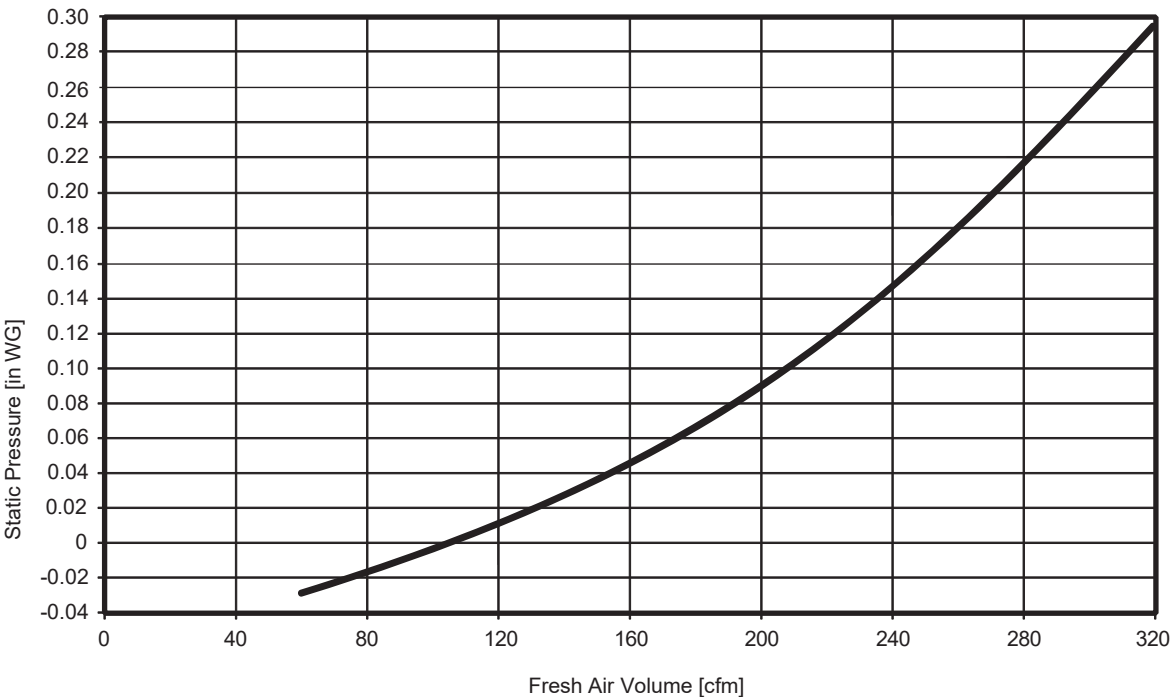
 CAUTION

The outside air shall be conditioned by heat reclaim ventilator or similar.
Emsure the outside air volume is determined so that mixed suction air and outside air maintain the operating temperature.
Recommended conditioned air temperature is 53.6°F (12°C) to 86°F (30°C)
however, make a outside air volume within 10% of standard.

Model name	MMD-	UP072	UP096
Standard air flow	(CFM)	2237	2825

Provide an air filter in outside air duct. (Outside air doesn't pass through the filter of indoor unit.)
Besure to insulate outside air duct
Please wire for inter-lock with fan of indoor unit.

MMD-UP0721HP-UL, MMD-UP0961HP-UL



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