

Slim Ducted type

MMD-AP0074SPH2UL

MMD-AP0094SPH2UL

MMD-AP0124SPH2UL

MMD-AP0154SPH2UL

MMD-AP0184SPH2UL



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1. Specifications

Slim Ducted type



Model name			MMD-	AP0074SPH2UL	AP0094SPH2UL	AP0124SPH2UL	AP0154SPH2UL	AP0184SPH2UL
Cooling Capacity			kBtu/h	7.5	9.5	12	15.4	18
Heating Capacity			kBtu/h	8.5	10.5	13.5	17	20
Electrical characteristics	Power supply		230 V (208/230 V) 1phase 60 Hz					
	Power consumption	kW	0.043	0.043	0.048	0.061	0.071	
Appearance			Zinc hot dipping steel plate					
Dimension	Unit	Height	In	8.3				
		Width	In	33.3				
		Depth	In	25.4				
	Packing	Height	In	10.5				
		Width	In	41				
		Depth	In	30.3				
Total weight	Unit	lbs	49				51	
	Packed unit	lbs	57				60	
Heat exchanger			Finned tube					
Fan unit	Fan		Centrifugal fan					
	Standard air flow (High/Mid/Low)		cfm	318/276/235		353/306/265	406/353/306	459/400/341
	Motor		W	60	60	60	60	60
	External static pressure (*1)		In WG	0.08 (Factory default) - 0.14 -0.20	0.08 (Factory default) - 0.14 -0.20	0.08 (Factory default) - 0.14 -0.20	0.08 (Factory default) - 0.14 -0.20	0.08 (Factory default) - 0.14 -0.20
Air filter			Field supply					
Connecting pipe	Gas side		In	3/8"	3/8"	3/8"	1/2"	1/2"
	Liquid side		In	1/4"	1/4"	1/4"	1/4"	1/4"
	Drain port (Nominal dia.)		In	VP25(Polyvinyl chloride tube: External Dia.1-1/4 Internal Dia.1)				
Sound pressure level (*2) (High/Mid/Low)	Under air intake	dB(A)	39/36/33			41/38/35	41/38.5/35	44.5/41/37.5
	Back air intake	dB(A)	31/30/28			32.5/31.5/28.5	34.5/33.5/30	37/34/32
Option parts	Auxiliary fresh air flange		TCB-FF101URUL					

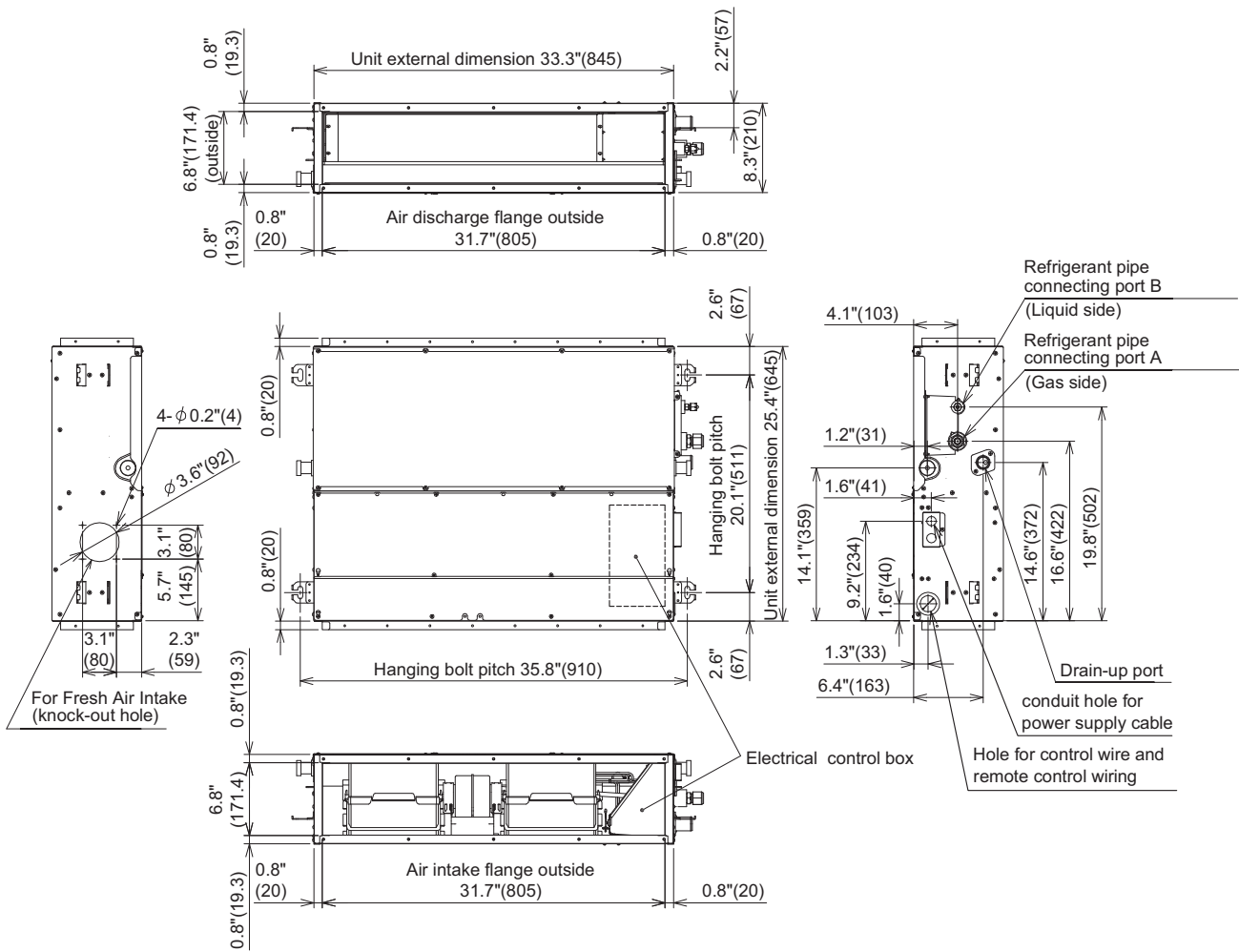
Note

(*1) Non attached filter

(*2) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

2. Dimensions

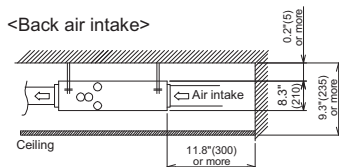
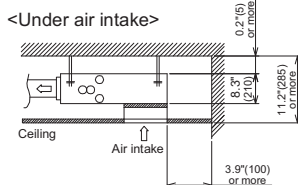
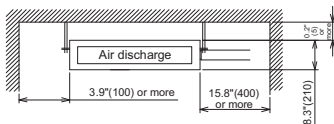
MMD-AP0074SPH2UL, AP0094SPH2UL, AP0124SPH2UL, AP0154SPH2UL, AP0184SPH2UL



Installation space

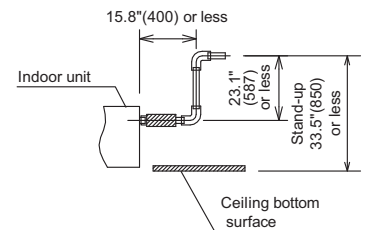
Note)

- Indoor unit does not have air filter inside.
So be sure to set an air filter(local arrangements) in the position maintained easily such as a air intake grille
(If there is no air filter, dusts are blocked in the air heat exchanger and it may cause failure or water leak in air-conditioner.)
- Leave sufficient space to remove the air filter when you attach it.



Unit: in (mm)

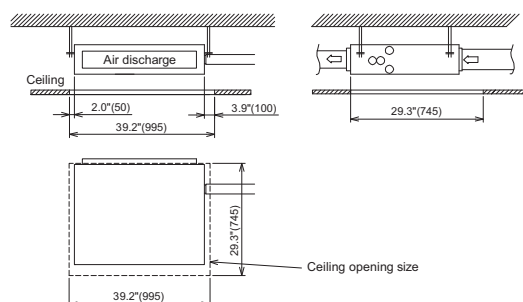
Model MMD-	A	B
AP0074SPH2UL AP0094SPH2UL AP0124SPH2UL	Ø3/8" (9.5)	Ø1/4" (6.4)
AP0154SPH2UL AP0184SPH2UL	Ø1/2" (12.7)	Ø1/4" (6.4)



Drain-up standing-up size

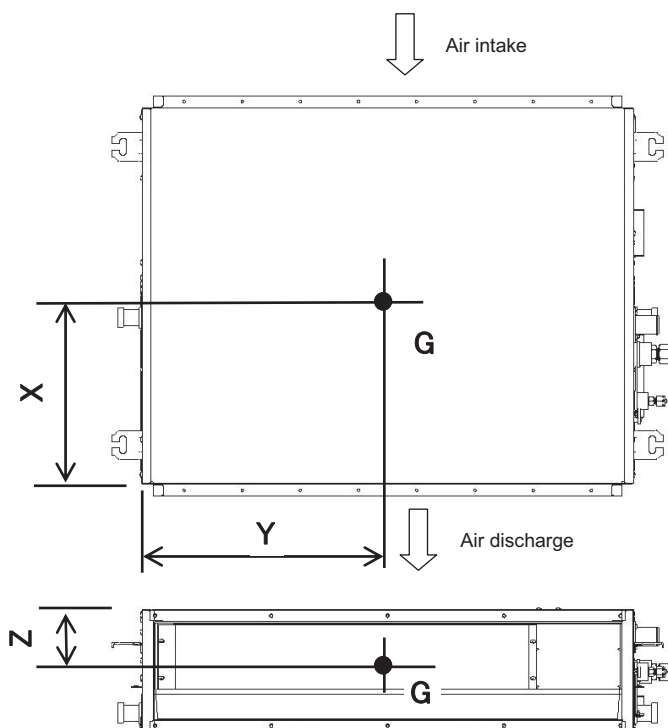
Note)
As ABS is used for the drain discharge port of the main unit, the vinyl chlor paste cannot be used.
Use the flexible hose (Band fix) included in the package.

Service space

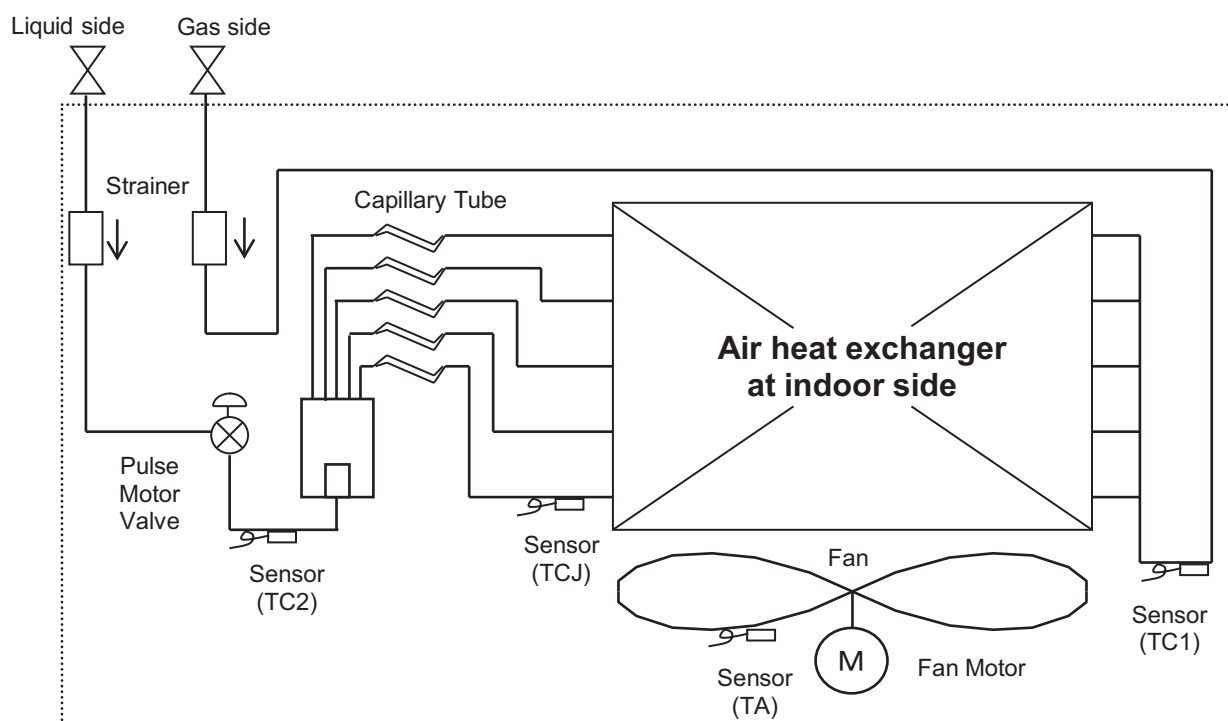


3. Center of gravity

Model name	X (In)	Y (In)	Z (In)	Total weight (lbs)
MMD-AP0074SPH2UL MMD-AP0094SPH2UL MMD-AP0124SPH2UL	12.4	18.5	4.3	49
MMD-AP0154SPH2UL MMD-AP0184SPH2UL	12.4	18.1	4.3	51

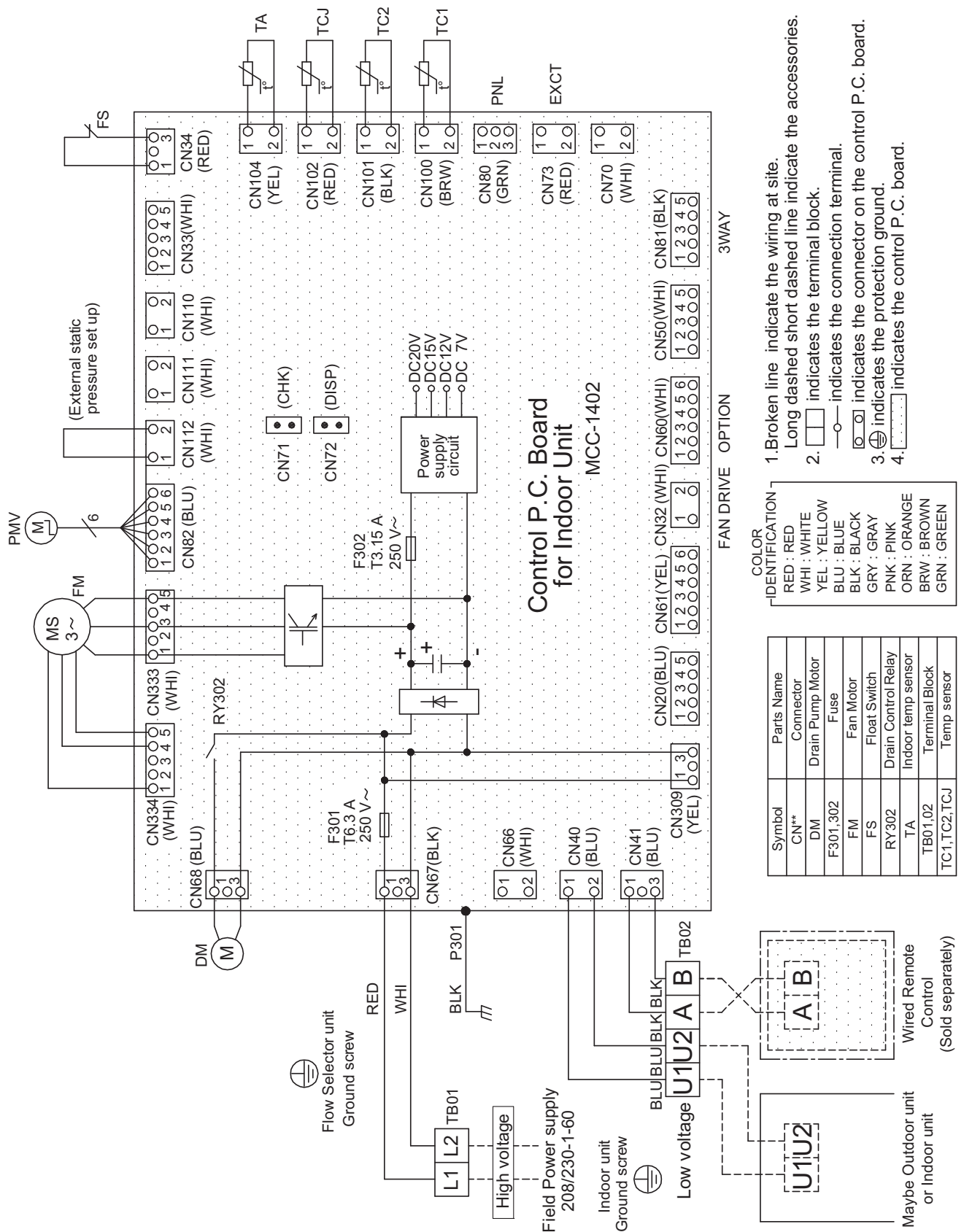


4. Piping diagram



5. Wiring diagram

MMD-AP0074SPH2UL, AP0094SPH2UL, AP0124SPH2UL, AP0154SPH2UL, AP0184SPH2UL



6. Electrical current characteristics

Type	Model	Nominal Voltage (V-Ph-Hz)	Voltage Range (V)		Power consumption kW	FLA A	MCA A	MOCP A
			Min	Max				
Slim Ducted type	MMD-AP0074SPH2UL	208/230-1-60	187	253	0.043	0.58	0.73	15
	MMD-AP0094SPH2UL	208/230-1-60	187	253	0.043	0.58	0.73	15
	MMD-AP0124SPH2UL	208/230-1-60	187	253	0.048	0.60	0.75	15
	MMD-AP0154SPH2UL	208/230-1-60	187	253	0.061	0.70	0.88	15
	MMD-AP0184SPH2UL	208/230-1-60	187	253	0.071	0.80	1.00	15

MCA: Minimum Circuit Amps

FLA: Full Load Amps

MOCP: Maximum Overcurrent Protection (Amps)

7. Sensible capacity table

Slim Ducted type (MMD-AP__4SPH2UL)

TC: Total capacity [Btu/h] SHC: Sensible capacity [Btu/h]

unit size	outdoor air temp. °FDB	indoor air temp.													
		59 °FDB		61 °FDB		64 °FDB		67 °FDB		68 °FDB		72 °FDB		75 °FDB	
		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
007	50	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	54	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	57	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	61	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	64	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	68	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	70	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	73	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	77	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	81	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	84	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	88	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	91	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
	95	6380	5560	6680	5720	7100	5950	7500	6140	7630	6160	8110	6080	8450	5850
009	99	6190	5400	6490	5550	6890	5780	7280	5960	7410	5980	7870	5900	8200	5680
	102	6050	5270	6330	5420	6730	5640	7110	5820	7230	5840	7690	5760	8010	5550
	50	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	54	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	57	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	61	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	64	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	68	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	70	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
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	77	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	81	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	84	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	88	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
012	91	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	95	8090	6470	8460	6640	9000	6920	9500	7130	9660	7150	10270	7060	10700	6800
	99	7860	6280	8210	6450	8740	6720	9220	6920	9380	6940	9970	6860	10390	6600
	102	7670	6130	8020	6290	8530	6560	9010	6760	9160	6780	9740	6690	10140	6450
	50	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	54	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	57	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	61	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	64	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	68	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
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	91	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	95	10210	7550	10690	7760	11360	8070	12000	8330	12210	8360	12980	8250	13510	7940
	99	9910	7330	10380	7530	11030	7840	11650	8090	11860	8120	12600	8010	13120	7710
	102	9680	7160	10130	7360	10770	7650	11380	7900	11580	7930	12310	7820	12810	7530

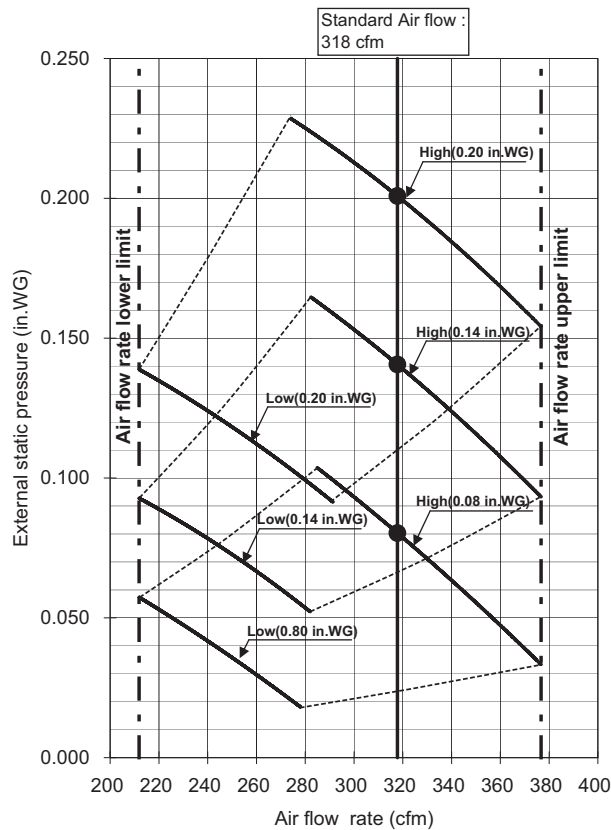
Slim Ducted type (MMD-AP__4SPH2UL)

TC: Total capacity [Btu/h] SHC: Sensible capacity [Btu/h]

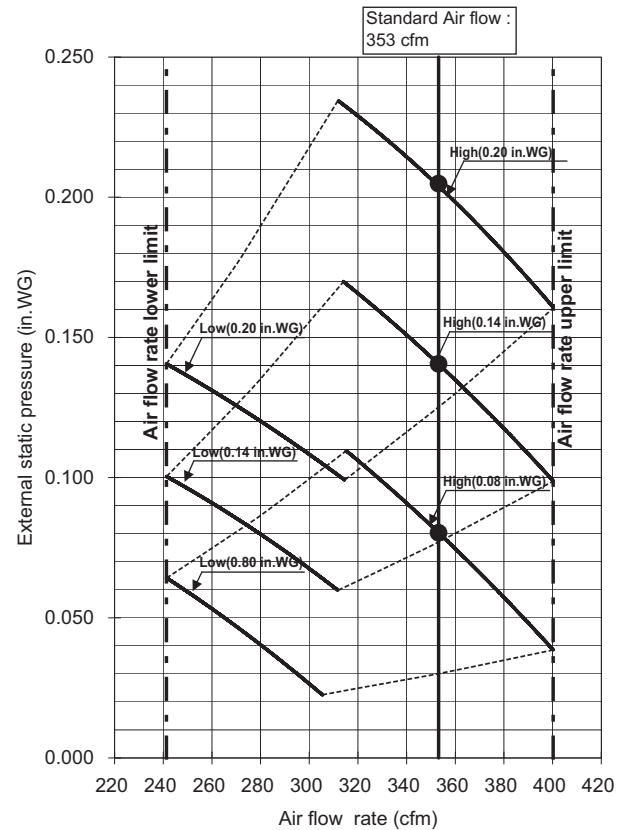
unit size	outdoor air temp. °FDB	indoor air temp.													
		59 °FWB		61 °FWB		64 °FWB		67 °FWB		68 °FWB		72 °FWB		75 °FWB	
		71 °FDB		73 °FDB		77 °FDB		80 °FDB		82 °FDB		86 °FDB		90 °FDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
015	50	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	54	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	57	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	61	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	64	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	68	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	70	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	73	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	77	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	81	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	84	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	88	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	91	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	95	13110	9930	13710	10200	14580	10610	15400	10950	15660	10980	16660	10840	17340	10430
	99	12730	9640	13310	9900	14160	10300	14950	10630	15210	10660	16180	10530	16840	10130
	102	12430	9410	13000	9670	13820	10060	14600	10380	14850	10410	15790	10280	16440	9890
018	50	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	54	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	57	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
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	70	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	73	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
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	81	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	84	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	88	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	91	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	95	15320	11370	16030	11680	17040	12150	18000	12540	18310	12580	19470	12420	20270	11950
	99	14880	11040	15570	11340	16550	11800	17480	12180	17780	12220	18910	12060	19680	11600
	102	14520	10780	15200	11070	16150	11520	17060	11890	17360	11930	18460	11770	19220	11330

8. Fan characteristics (No filter)

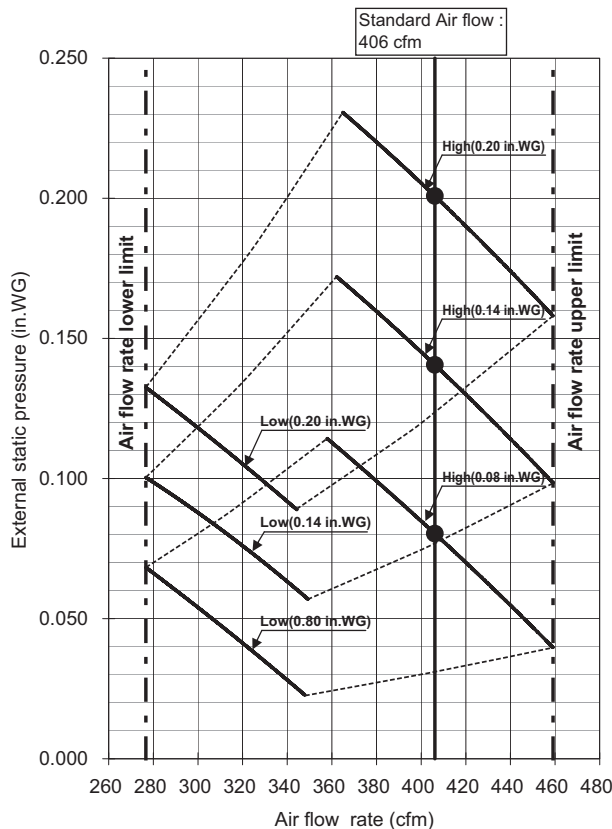
MMD-AP0074SPH2UL, AP0094SPH2UL



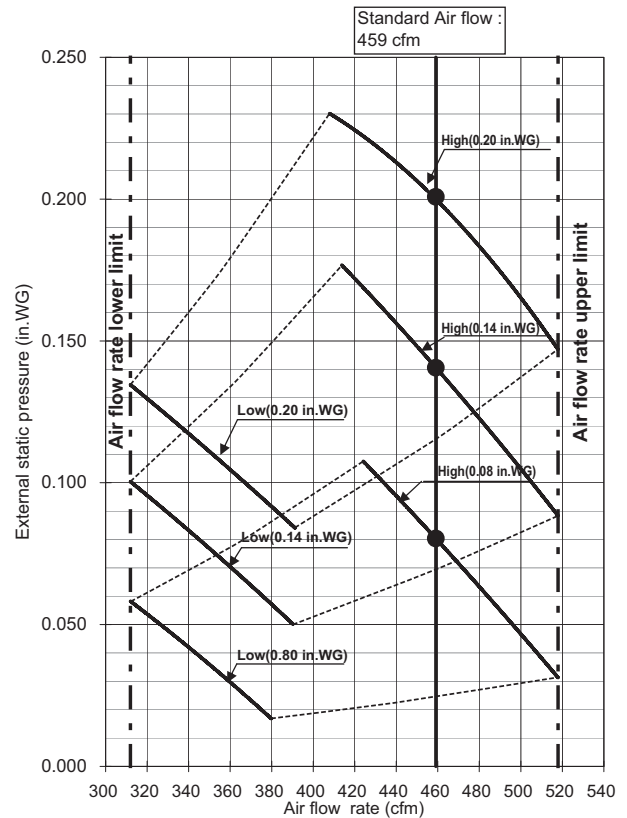
MMD-AP0124SPH2UL



MMD-AP0154SPH2UL



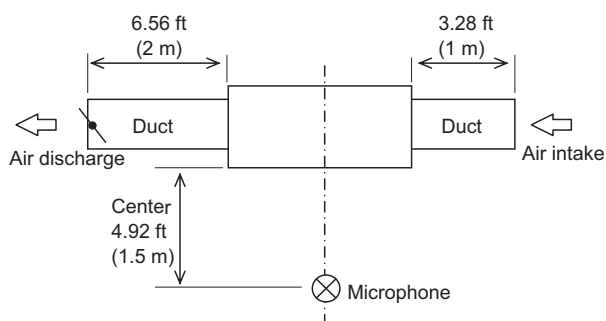
MMD-AP0184SPH2UL



9. Sound data

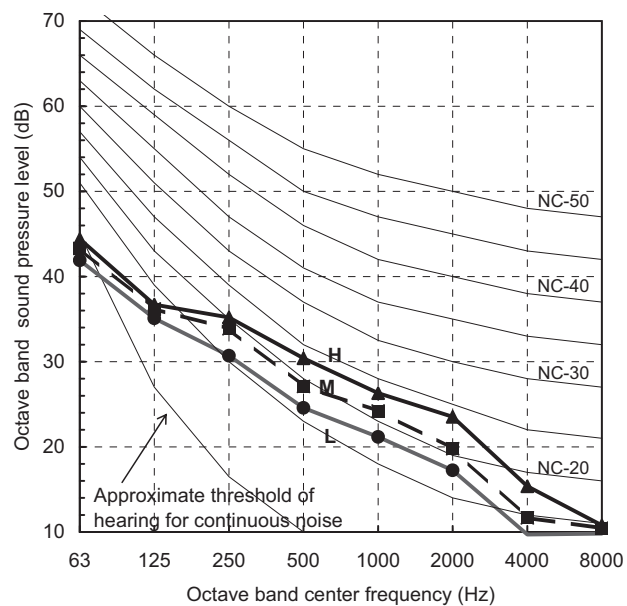
MMD-AP0074SPH2UL, MMD-AP0094SPH2UL

[Measuring location] Back air intake



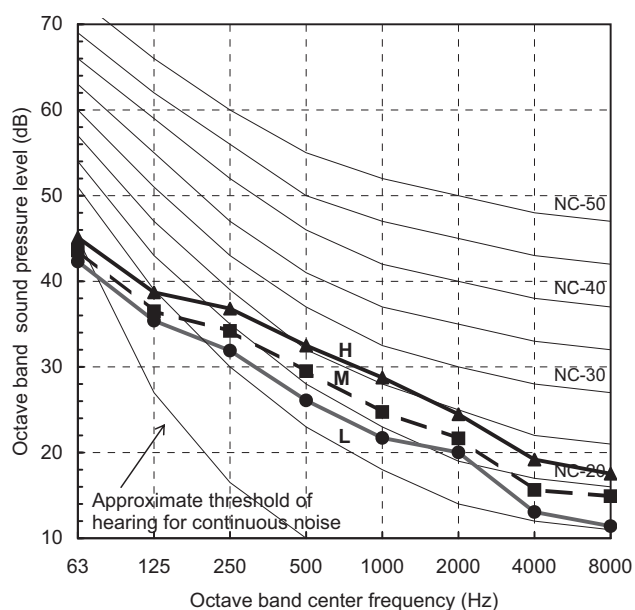
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	31	30	28



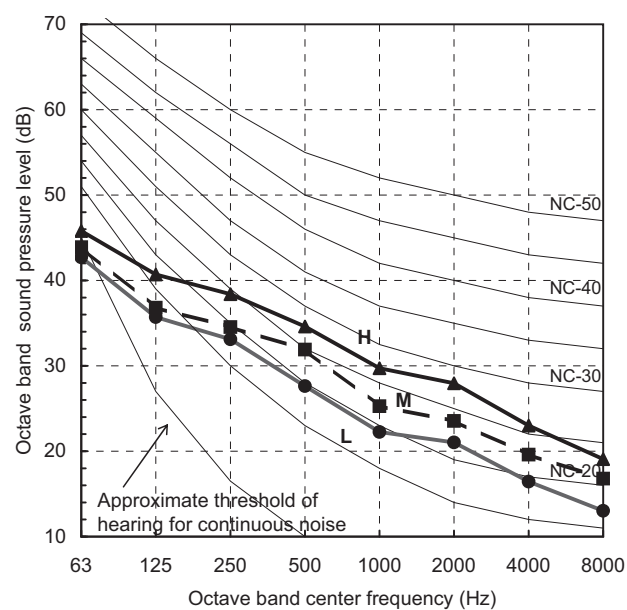
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	32	31	29



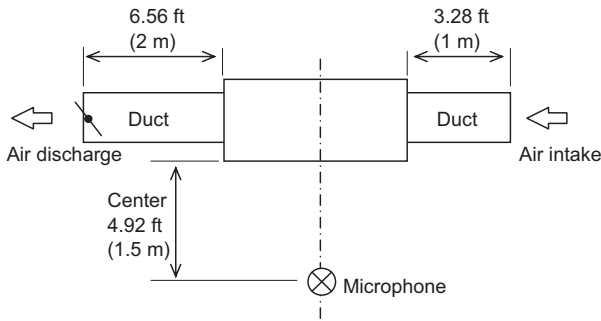
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	33	32	30



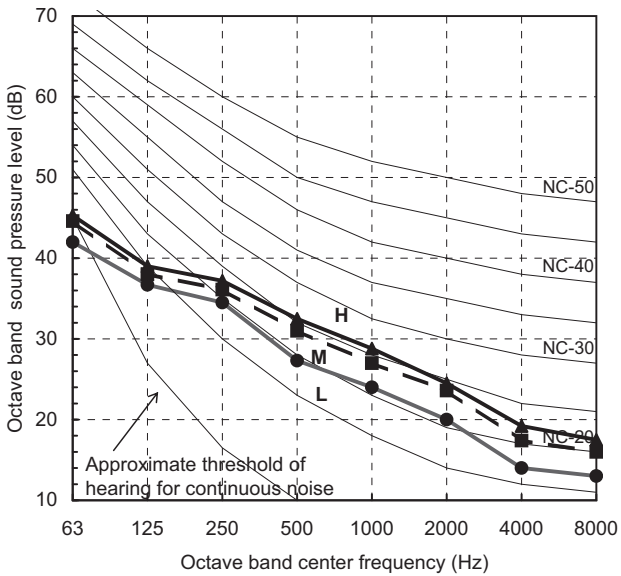
MMD-AP0124SPH2UL

[Measuring location] Back air intake



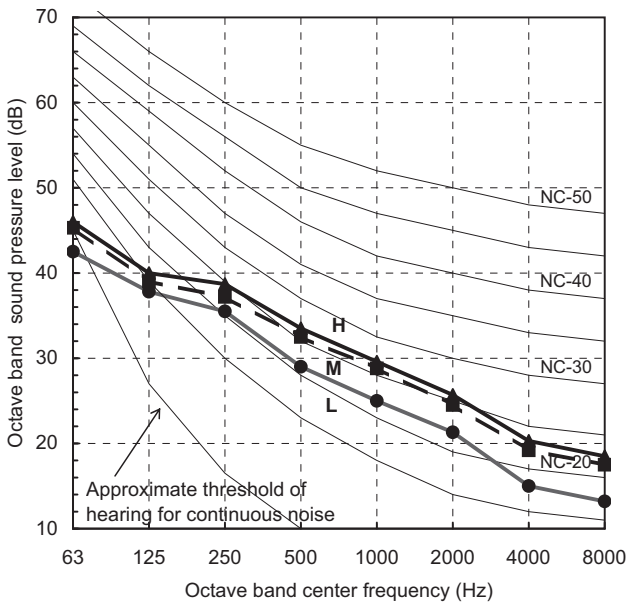
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	32.5	31.5	28.5



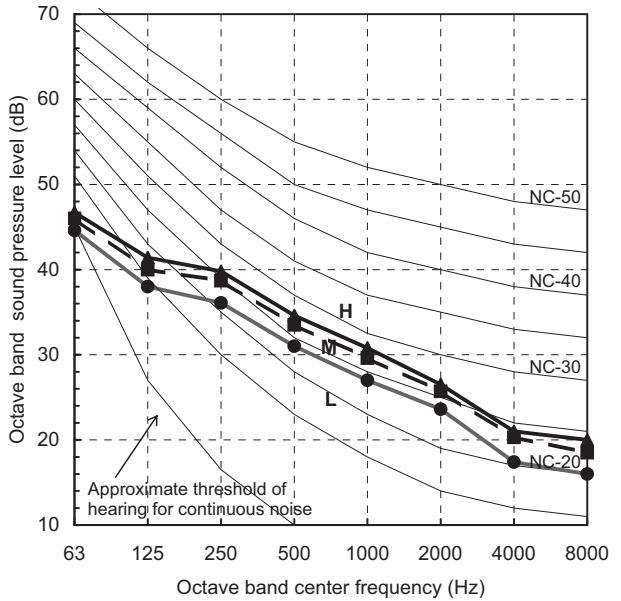
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	33.5	32.5	28.5



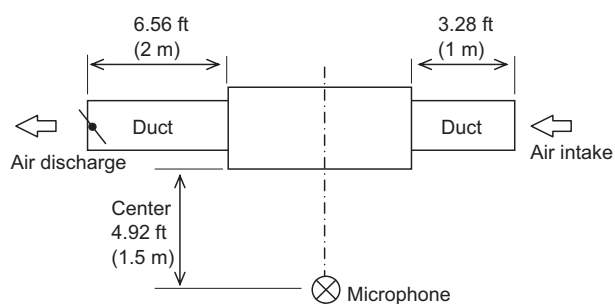
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	32	30	28



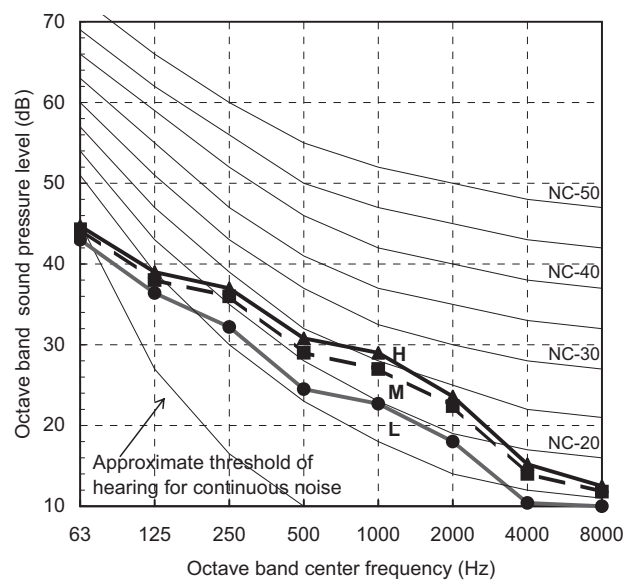
MMD-AP0154SPH2UL

[Measuring location] Back air intake



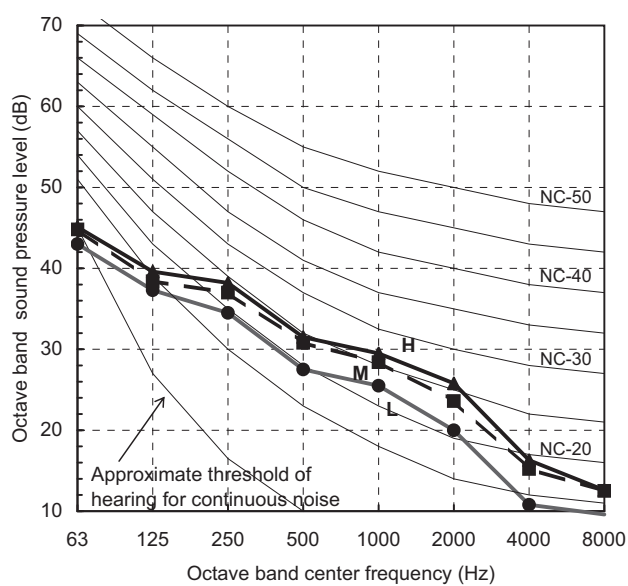
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	34.5	33.5	30



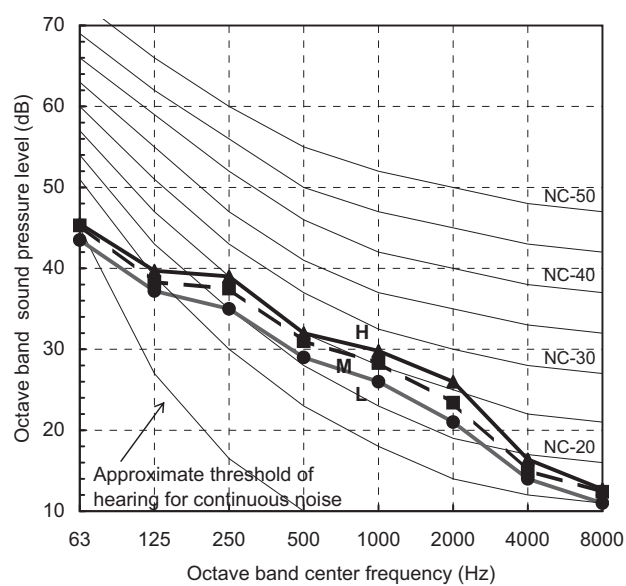
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	35.5	34.5	31



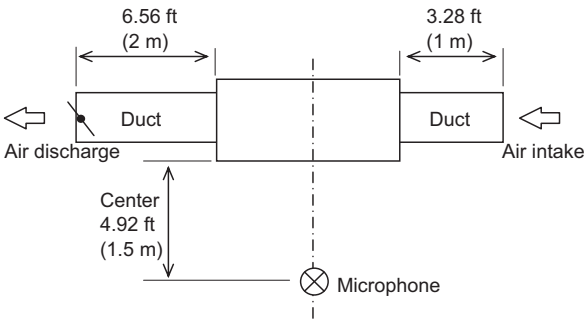
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	36.5	35.5	32



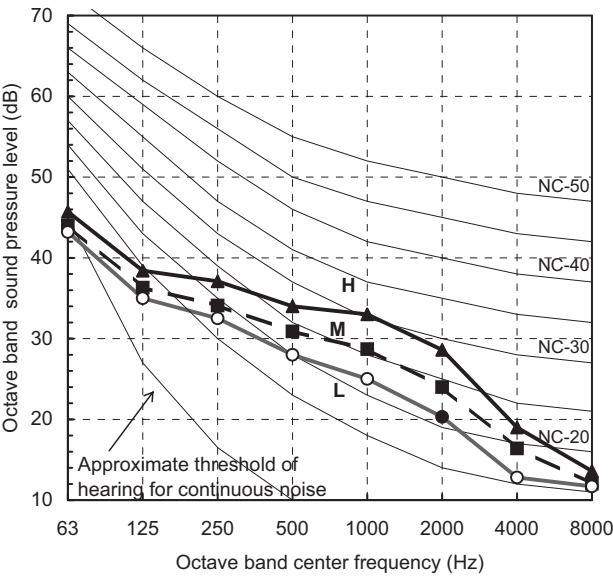
MMD-AP0184SPH2UL

[Measuring location] Back air intake



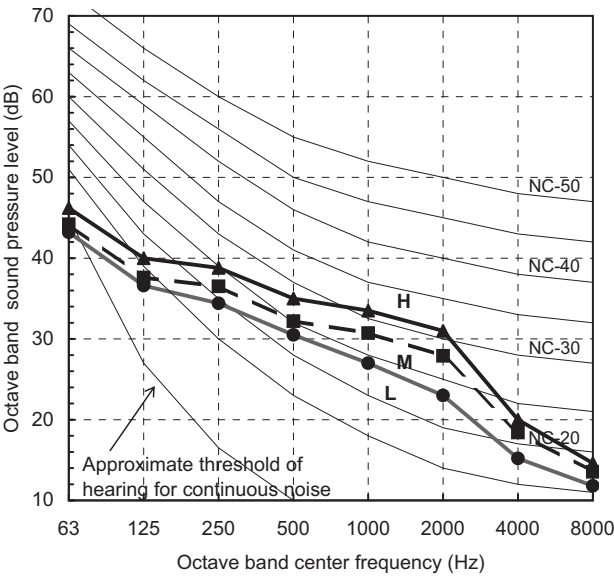
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	37	34	32



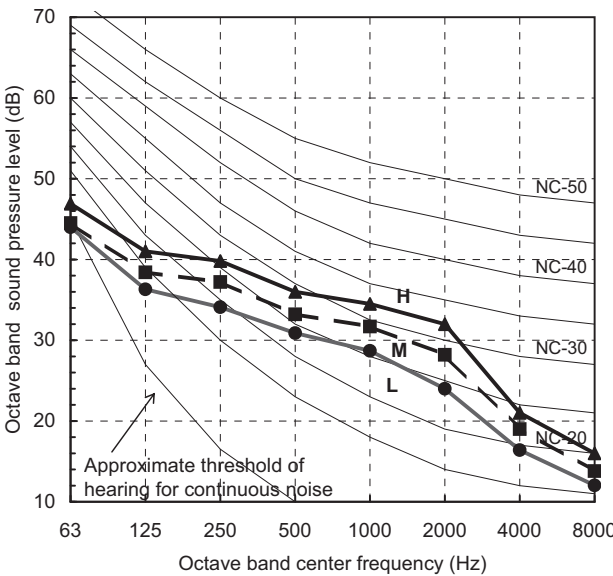
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	38	35	33



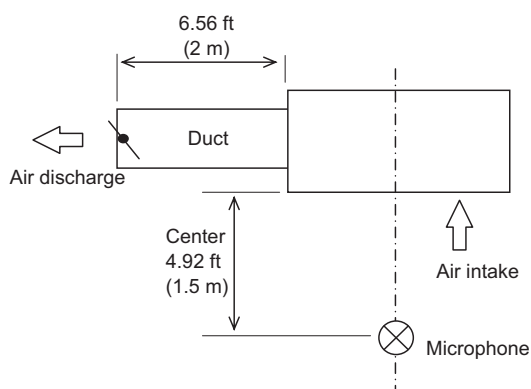
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	39	36	34



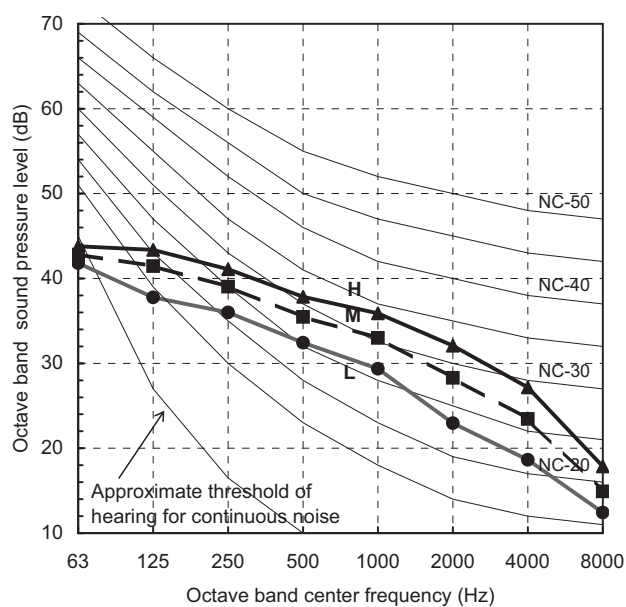
MMD-AP0074SPH2UL, MMD-AP0094SPH2UL

[Measuring location] Under air intake



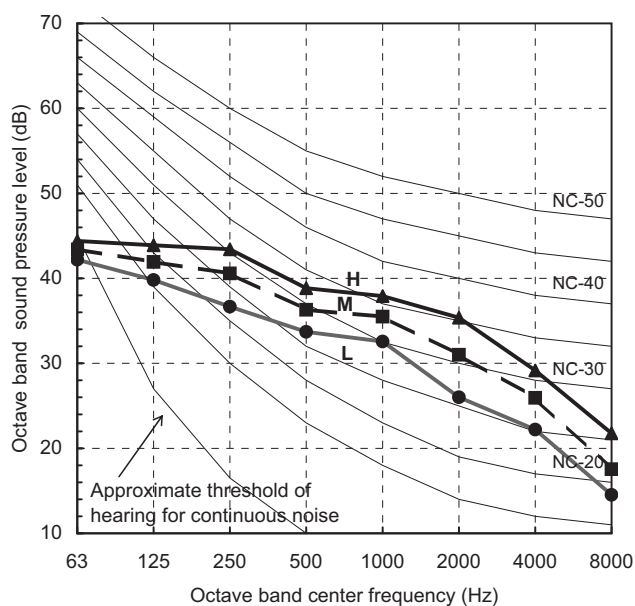
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	39	36	33



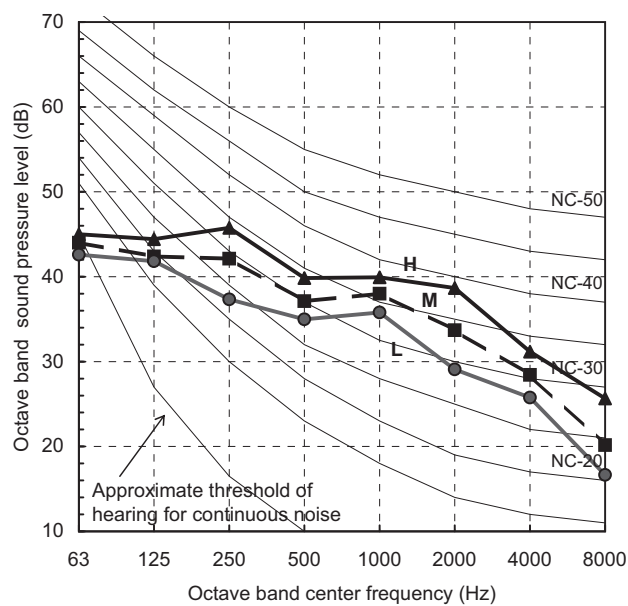
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	41	38	35



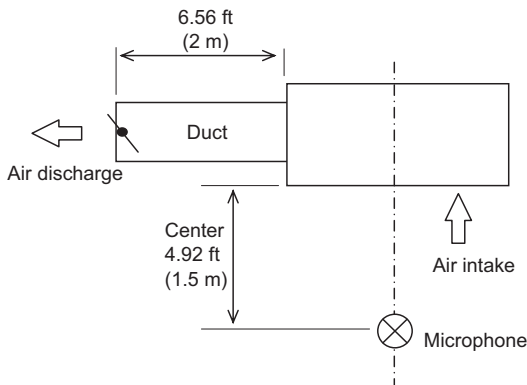
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	43	41	37



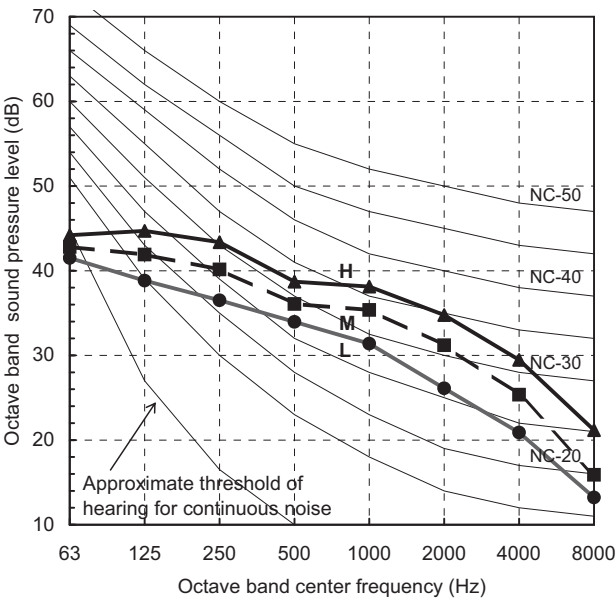
MMD-AP0124SPH2UL

[Measuring location] Under air intake



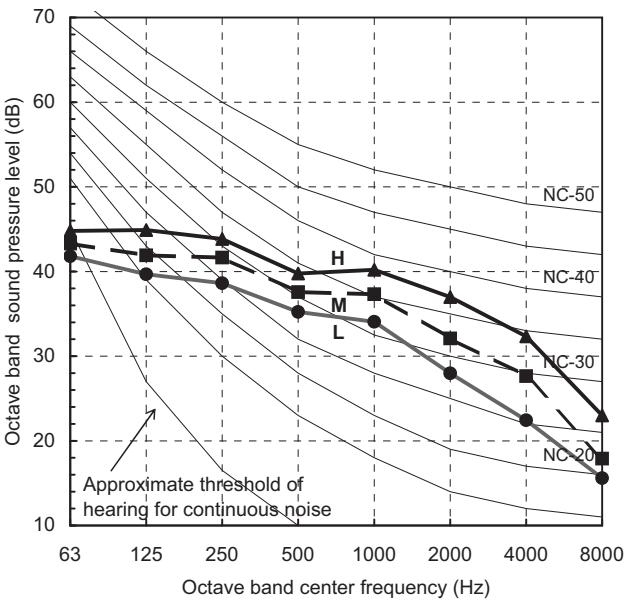
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	41	38	35



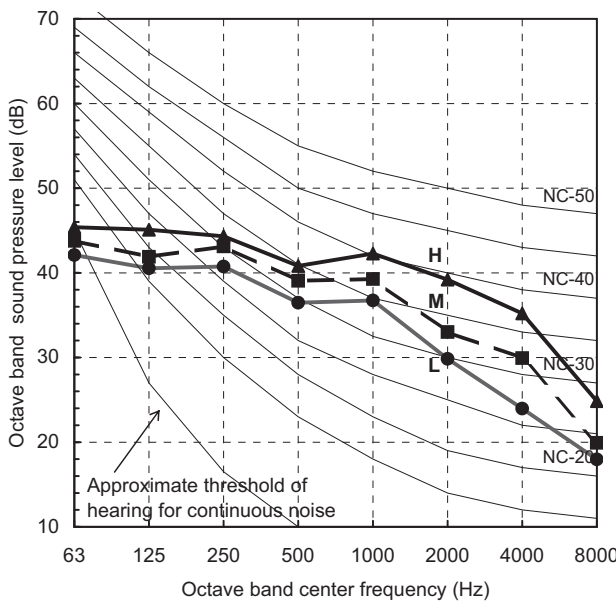
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	43	40	37



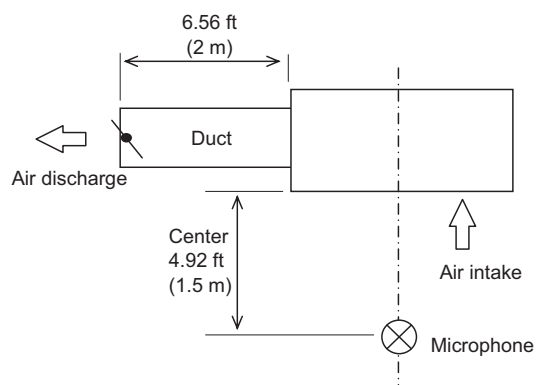
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	45	42	39



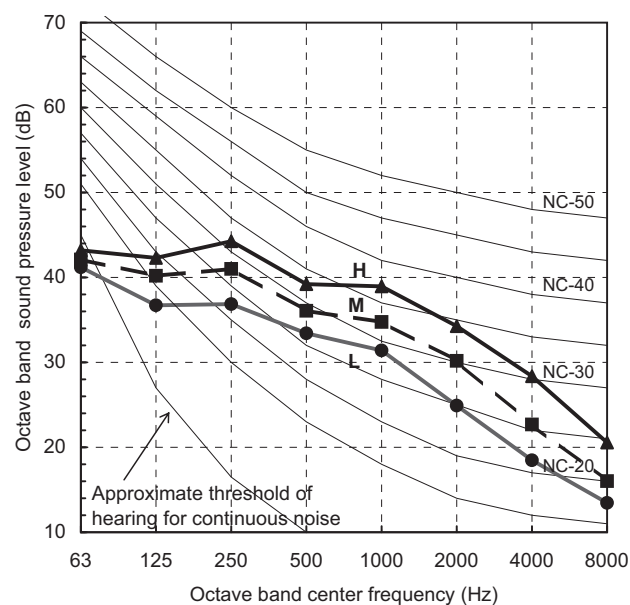
MMD-AP0154SPH2UL

[Measuring location] Under air intake



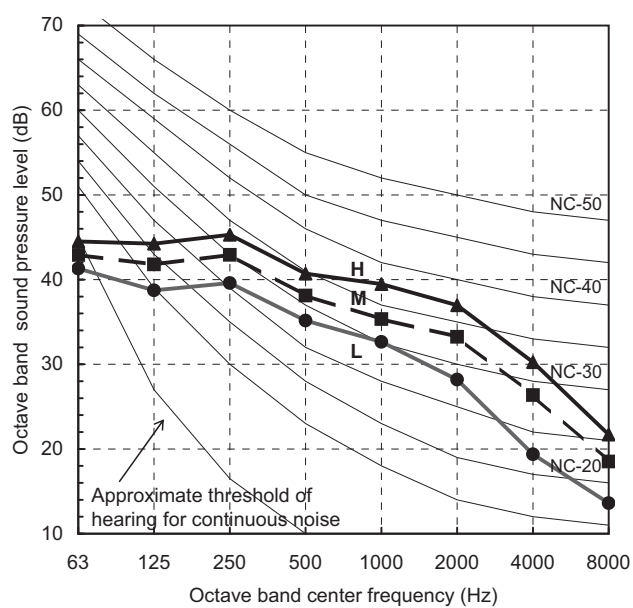
[External static pressure 20 Pa]

Fan tap			
Sound pressure level (dB(A))	41	38.5	35



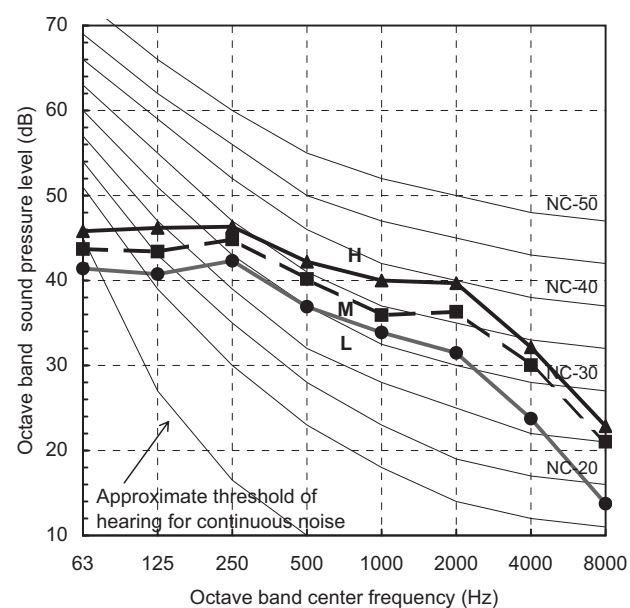
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	43	40.5	37



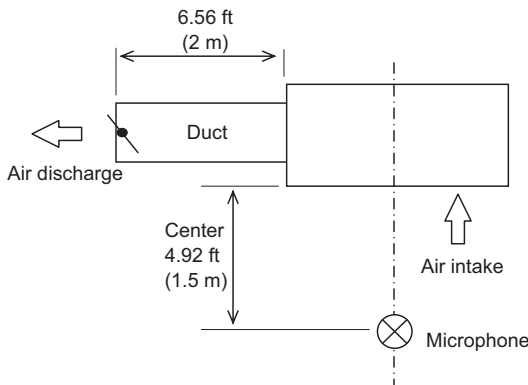
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	45	42.5	39



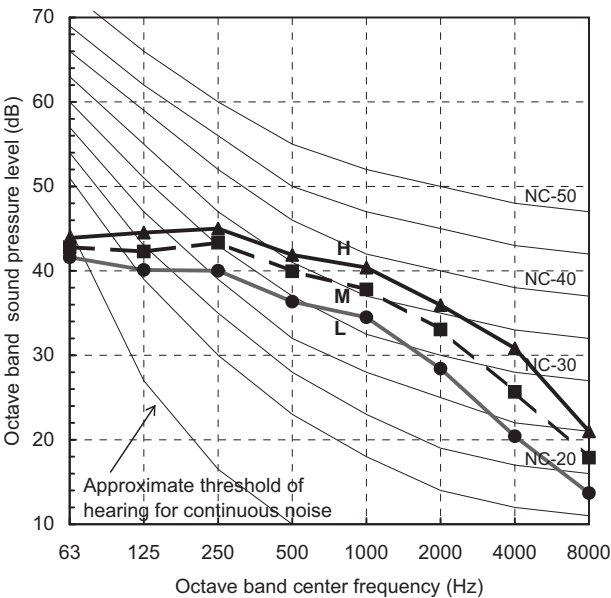
MMD-AP0184SPH2UL

[Measuring location] Under air intake



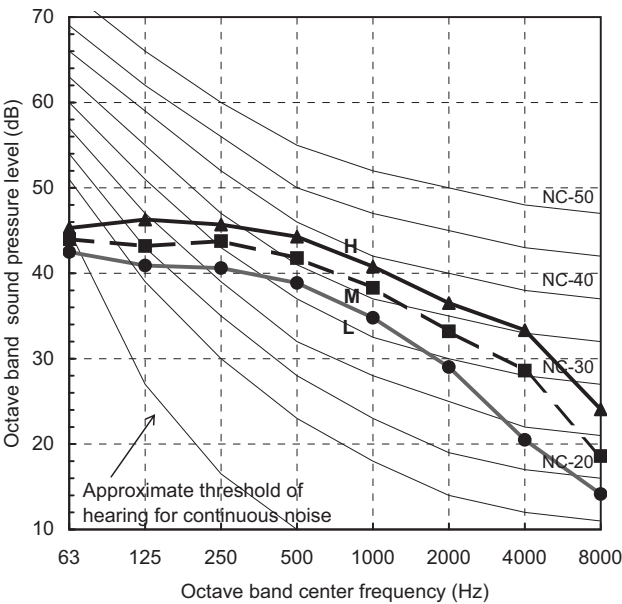
[External static pressure 20 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	44.5	41	37.5



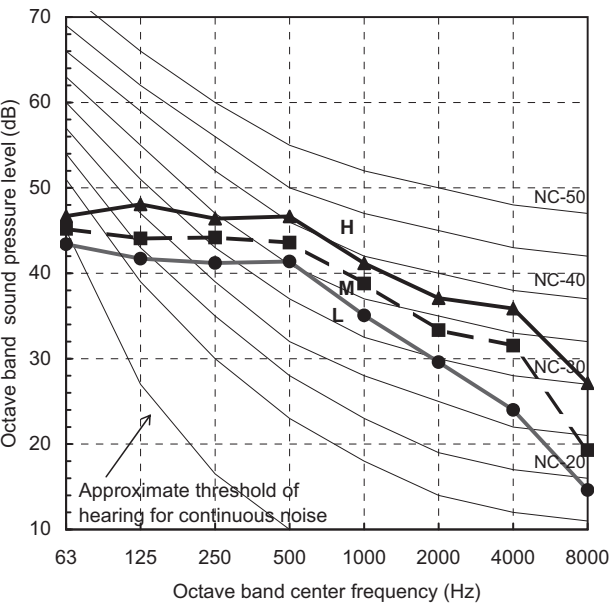
[External static pressure 35 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	45.5	43	39



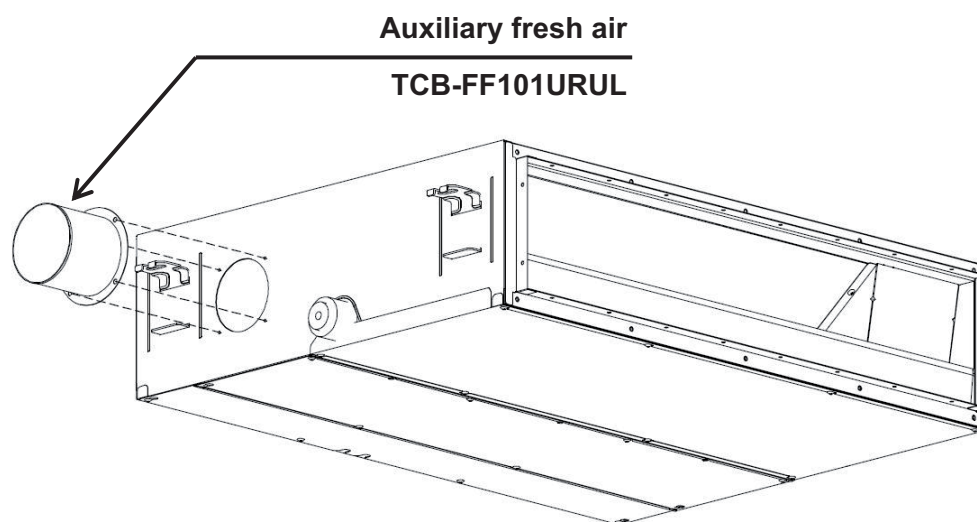
[External static pressure 50 Pa]

Fan tap	H	M	L
Sound pressure level (dB(A))	47	45	41



10. Accessories

Optional part for Slim Ducted type



Parts Name	Model Name	Applied Model	Note
Auxiliary fresh air flange	TCB-FF101URUL	MMD-AP0074 to 0184SPH2UL	For Fresh Air Intake by using the knockout hole (dia.=3.94")

11. Reference

11-1 Fresh Air Intake

MMD-AP0074SPH2UL, AP0094SPH2UL, AP0124SPH2UL

Caution

The fresh air shall be conditioned by heat reclaim ventilator or similar.

Ensure the fresh air flow rate is determined so that mixed suction air and fresh air maintain the operating temperature .

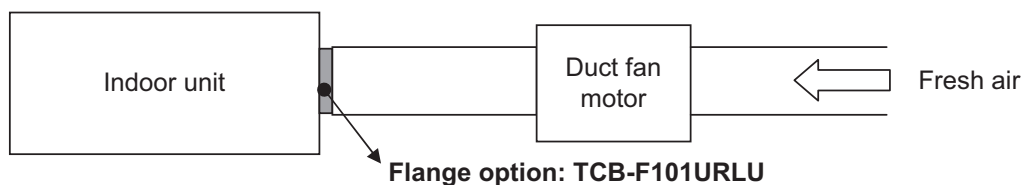
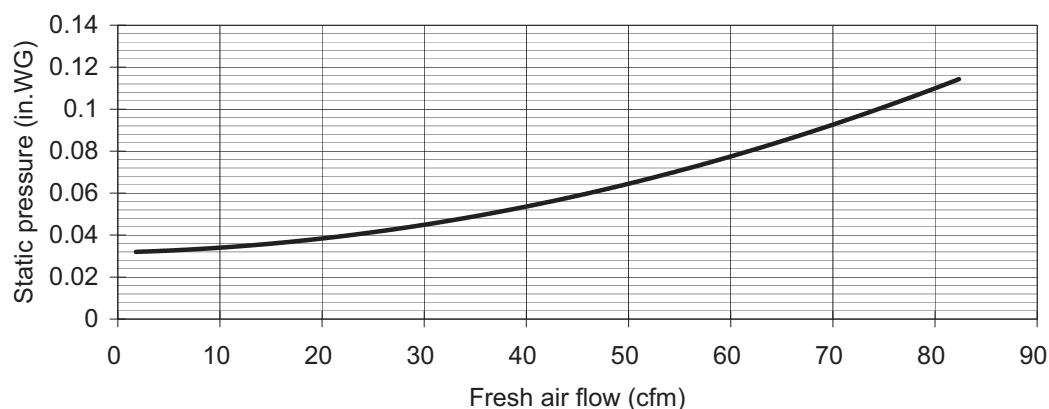
- *1 Recommended conditioned air temperature is 53.6 °F to 86 °F.
However, make a fresh air flow rate within 20 % of standard.

Model name	Standard air flow (cfm)
MMD-AP0074SPH2UL	318
MMD-AP0094SPH2UL	318
MMD-AP0124SPH2UL	353

Install a air filter within the fresh air duct. (Fresh air does not pass through the filter of Indoor unit.)

Insulate the fresh air duct.

Electrically connect the fan of the Heat exchanger unit and the Indoor unit to a single isolator.



Inter - lock circuit

Connect the driving relay of the duct fan (DC 12V) between 1 and 6 on the indoor P.C. board.

(Rated current of the relay for duct fan should be up to 75 mA.)

After installation, carry out a test run to check that the duct fan of the indoor unit start/stop simultaneously.

(Carry out the test run following the installation manual of the indoor unit.)

MMD-AP0154SPH2UL, AP0184SPH2UL

Caution

The fresh air shall be conditioned by heat reclaim ventilator or similar.

Ensure the fresh air flow rate is determined so that mixed suction air and fresh air maintain the operating temperature .

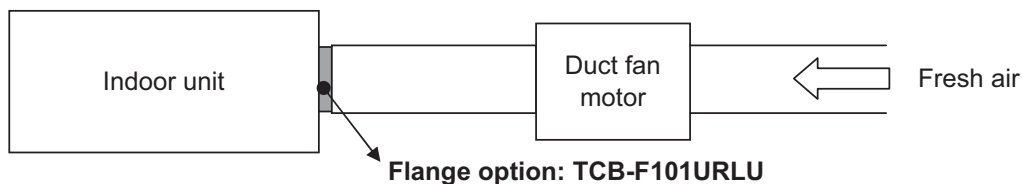
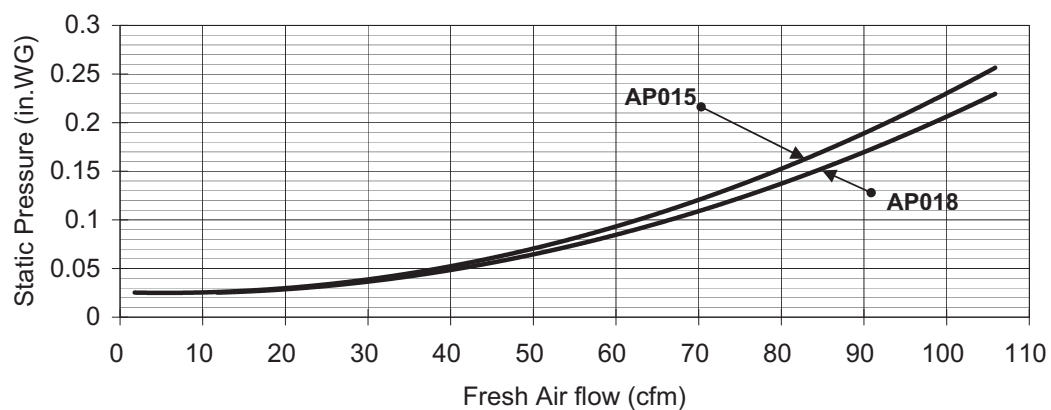
- *1 Recommended conditioned air temperature is 53.6 °F to 86 °F.
However, make a fresh air flow rate within 20 % of standard.

Model name	Standard air flow (cfm)
MMD-AP0154SPH2UL	406
MMD-AP0184SPH2UL	459

Install a air filter within the fresh air duct. (Fresh air does not pass through the filter of Indoor unit.)

Insulate the fresh air duct.

Electrically connect the fan of the Heat exchanger unit and the Indoor unit to a single isolator.



Inter - lock circuit

Connect the driving relay of the duct fan (DC 12V) between 1 and 6 on the indoor P.C. board.
(Rated current of the relay for duct fan should be up to 75 mA.)

After installation, carry out a test run to check that the duct fan of the indoor unit start/stop simultaneously.

(Carry out the test run following the installation manual of the indoor unit.)

[illegible]

[illegible]

[illegible]

Slim Ducted type Engineering Data Book

Model name:

MMD-AP___4SPH2UL

March, 2016 First Edition

TOSHIBA CARRIER CORPORATION