

Slim duct Type

MMD-UP0031SPHY-E
MMD-UP0051SPHY-E
MMD-UP0071SPHY-E
MMD-UP0091SPHY-E
MMD-UP0121SPHY-E
MMD-UP0151SPHY-E
MMD-UP0181SPHY-E
MMD-UP0241SPHY-E
MMD-UP0271SPHY-E



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Allocation standard of model name

M	M	D	-	U	P	*	*	*	*	S	P	H	Y	-	E
MM		VRF FCU (PMV included)													
Type of mounting															
D		Duct													
-		Dash (or hyphen)													
Communication															
U		TU2C-link													
Refrigerant															
P		R410A/R407C													
***		Capacity													
Development series number															
Type of mounting															
S		Slim duct													
P		Include drain pump FCU													
System															
H		Cooling/Heating													
Factory															
Y		China													
-		Dash (or hyphen)···In case of no codes after #17, "-" will not be used When model name has over 18 characters, "-" will not be used.													
Classification Code for Destination															
E		Corresponding to European standard and energy saving certification													

1. Specifications

Slim Duct Type

MODEL NAME				MMD-	UP0031SPHY-E	UP0051SPHY-E	UP0071SPHY-E	UP0091SPHY-E	UP0121SPHY-E
Cooling / Heating Capacity (*1)				kW	0.9 / 1.0	1.7 / 1.9	2.2 / 2.5	2.8 / 3.2	3.6 / 4.0
Electrical characteristics (50 / 60Hz)	Power supply				1 phase 220-240V~50Hz / 208-230V~60Hz				
	Factory setting	Running current	50Hz / 60Hz	A	0.34 / 0.36	0.36 / 0.37	0.40 / 0.42	0.42 / 0.44	0.44 / 0.46
		Power consumption	50Hz / 60Hz	kW	0.018 / 0.018	0.020 / 0.020	0.026 / 0.026	0.029 / 0.029	0.031 / 0.031
		Starting current	50Hz / 60Hz	A	0.60 / 0.63	0.62 / 0.65	0.69 / 0.73	0.73 / 0.77	0.77 / 0.81
	Standard ESP (*2)	Running current	50Hz / 60Hz	A	0.37 / 0.39	0.40 / 0.41	0.46 / 0.48	0.48 / 0.50	0.52 / 0.54
		Power consumption	50Hz / 60Hz	kW	0.024 / 0.024	0.026 / 0.026	0.035 / 0.035	0.038 / 0.038	0.043 / 0.043
		Starting current	50Hz / 60Hz	A	0.65 / 0.69	0.69 / 0.73	0.81 / 0.85	0.84 / 0.88	0.90 / 0.95
Appearance				Zinc hot dipping steel plate					
Dimension (mm)		Height		mm	210				
		Width		mm	700				
		Depth		mm	450				
Total Weight				kg	15				
Heat exchanger				Finned tube					
Soundproof / Heat-insulating material				Polyethylene foam + Polyurethane foam					
Fan				Centrifugal fan (Sirocco fan)					
Airflow		Standard		m³/h	410	450	540	570	600
		Mid+		m³/h	390	430	500	530	550
		Mid		m³/h	370	410	460	500	520
		Low+		m³/h	360	390	430	460	470
		Low		m³/h	350	380	400	420	440
Motor output				W	50				
External Static Pressure (*Factory setting)				Pa	10*- 20 - 30 - 40 - 50 (5 steps)				
Controller				Remote controller					
Air filter				Standard filter (Long life filter)					
Connecting pipe		Gas side		mm	φ9.5				
		Liquid side		mm	φ6.4				
Drain port (Nominal dia. mm)				25 (Polyvinyl chloride tube)					
Sound pressure level <Factory setting>		Under air inlet	High	dBA	37	39	41	42	44
			Mid+	dBA	36	38	40	41	42
			Mid	dBA	35	37	39	40	40
			Low+	dBA	34	35	38	38	39
			Low	dBA	32	34	35	36	37
		Back air inlet	High	dBA	29	30	31	32	33
			Mid+	dBA	28	29	30	31	32
			Mid	dBA	27	28	29	29	30
			Low+	dBA	26	27	28	28	29
			Low	dBA	25	26	26	26	27
Sound power level <Factory setting>		High	dBA	46	49	52	54	54	
		Mid+	dBA	45	47	51	52	51	
		Mid	dBA	44	46	49	50	50	
		Low+	dBA	43	45	47	48	48	
		Low	dBA	42	44	45	46	46	

MODEL NAME			MMD-	UP0031SPHY-E	UP0051SPHY-E	UP0071SPHY-E	UP0091SPHY-E	UP0121SPHY-E
Sound pressure level <Standard external static pressure (*2)>	Under air inlet	High	dBA	39	41	43	44	46
		Mid+	dBA	38	40	42	43	44
		Mid	dBA	37	39	41	42	42
		Low+	dBA	36	37	40	40	41
		Low	dBA	34	36	37	38	39
	Back air inlet	High	dBA	31	32	33	34	35
		Mid+	dBA	30	31	32	33	34
		Mid	dBA	29	30	31	31	32
		Low+	dBA	28	29	30	30	31
		Low	dBA	27	28	28	28	29
Sound power level <Standard external static pressure (*2)>			High	dBA	51	53	54	57
			Mid+	dBA	50	52	52	56
			Mid	dBA	49	51	49	53
			Low+	dBA	48	49	48	51
			Low	dBA	47	48	46	49

Note

(*1) Rated conditions Cooling : Indoor 27 degC Dry Bulb / 19 degC Wet Bulb, Outdoor 35 degC Dry Bulb.
Heating : Indoor 20 degC Dry Bulb, Outdoor 7 degC Dry Bulb / 6 degC Wet Bulb.
Based on equivalent piping length of 7.5 m and piping height difference of 0 m.

(*2) Standard external static pressure UP003~018:30Pa, UP024~027:40Pa

Slim Duct Type

MODEL NAME				MMD-	UP0151SPHY-E	UP0181SPHY-E	UP0241SPHY-E	UP0271SPHY-E
Cooling / Heating Capacity (*1)				kW	4.5 / 5.0	5.6 / 6.3	7.1 / 8.0	8.0 / 9.0
Electrical characteristics (50 / 60Hz)	Power supply				1 phase 220-240V~50Hz / 208-230V~60Hz			
	Factory setting	Running current	50Hz / 60Hz	A	0.47 / 0.49	0.53 / 0.56	0.69 / 0.73	0.74 / 0.78
		Power consumption	50Hz / 60Hz	kW	0.035 / 0.035	0.044 / 0.044	0.067 / 0.067	0.072 / 0.072
		Starting current	50Hz / 60Hz	A	0.82 / 0.86	0.92 / 0.97	1.21 / 1.27	1.30 / 1.36
	Standard ESP (*2)	Running current	50Hz / 60Hz	A	0.54 / 0.57	0.60 / 0.63	0.83 / 0.87	0.88 / 0.93
		Power consumption	50Hz / 60Hz	kW	0.046 / 0.046	0.054 / 0.054	0.086 / 0.086	0.092 / 0.092
		Starting current	50Hz / 60Hz	A	0.95 / 0.99	1.04 / 1.10	1.45 / 1.53	1.54 / 1.62
Appearance				Zinc hot dipping steel plate				
Dimension (mm)		Height		mm	210			
		Width		mm	900		1100	
		Depth		mm	450			
Total Weight				kg	18		21	
Heat exchanger				Finned tube				
Soundproof / Heat-insulating material				Polyethylene foam + Polyurethane foam				
Fan				Centrifugal fan (Sirocco fan)				
Airflow		Standard		m³/h	690	780	1080	1140
		Mid+		m³/h	660	760	1010	1060
		Mid		m³/h	640	730	950	980
		Low+		m³/h	590	690	900	940
		Low		m³/h	550	650	860	910
Motor output				W	94			
External Static Pressure (*Factory setting)				Pa	10*- 20 - 30 - 40 - 50 (5 steps)			
Controller				Remote controller				
Air filter				Standard filter (Long life filter)				
Connecting pipe		Gas side		mm	φ12.7		φ15.9	
		Liquid side		mm	φ6.4		φ9.5	
Drain port (Nominal dia. mm)				25 (Polyvinyl chloride tube)				
Sound pressure level <Factory setting>		Under air inlet	High	dBA	42	44	47	48
			Mid+	dBA	40	43	46	47
			Mid	dBA	39	42	44	45
			Low+	dBA	38	41	43	44
			Low	dBA	37	39	41	43
		Back air inlet	High	dBA	33	34	36	37
			Mid+	dBA	31	33	35	36
			Mid	dBA	30	32	33	34
			Low+	dBA	29	31	32	33
			Low	dBA	28	29	30	32
Sound power level <Factory setting>		High	dBA	52	56	60	61	
		Mid+	dBA	51	55	58	59	
		Mid	dBA	50	54	56	58	
		Low+	dBA	49	52	55	56	
		Low	dBA	46	51	53	55	

MODEL NAME			MMD-	UP0151SPHY-E	UP0181SPHY-E	UP0241SPHY-E	UP0271SPHY-E
Sound pressure level <Standard external static pressure (*2)>	Under air inlet	High	dBA	45	46	50	51
		Mid+	dBA	43	45	49	50
		Mid	dBA	42	44	47	48
		Low+	dBA	40	43	46	47
		Low	dBA	39	41	44	46
	Back air inlet	High	dBA	35	36	39	40
		Mid+	dBA	34	35	38	39
		Mid	dBA	32	34	36	37
		Low+	dBA	31	33	35	36
		Low	dBA	30	31	33	35
Sound power level <Standard external static pressure (*2)>		High	dBA	55	57	64	65
		Mid+	dBA	54	56	63	64
		Mid	dBA	53	55	60	61
		Low+	dBA	52	54	59	60
		Low	dBA	49	52	58	59

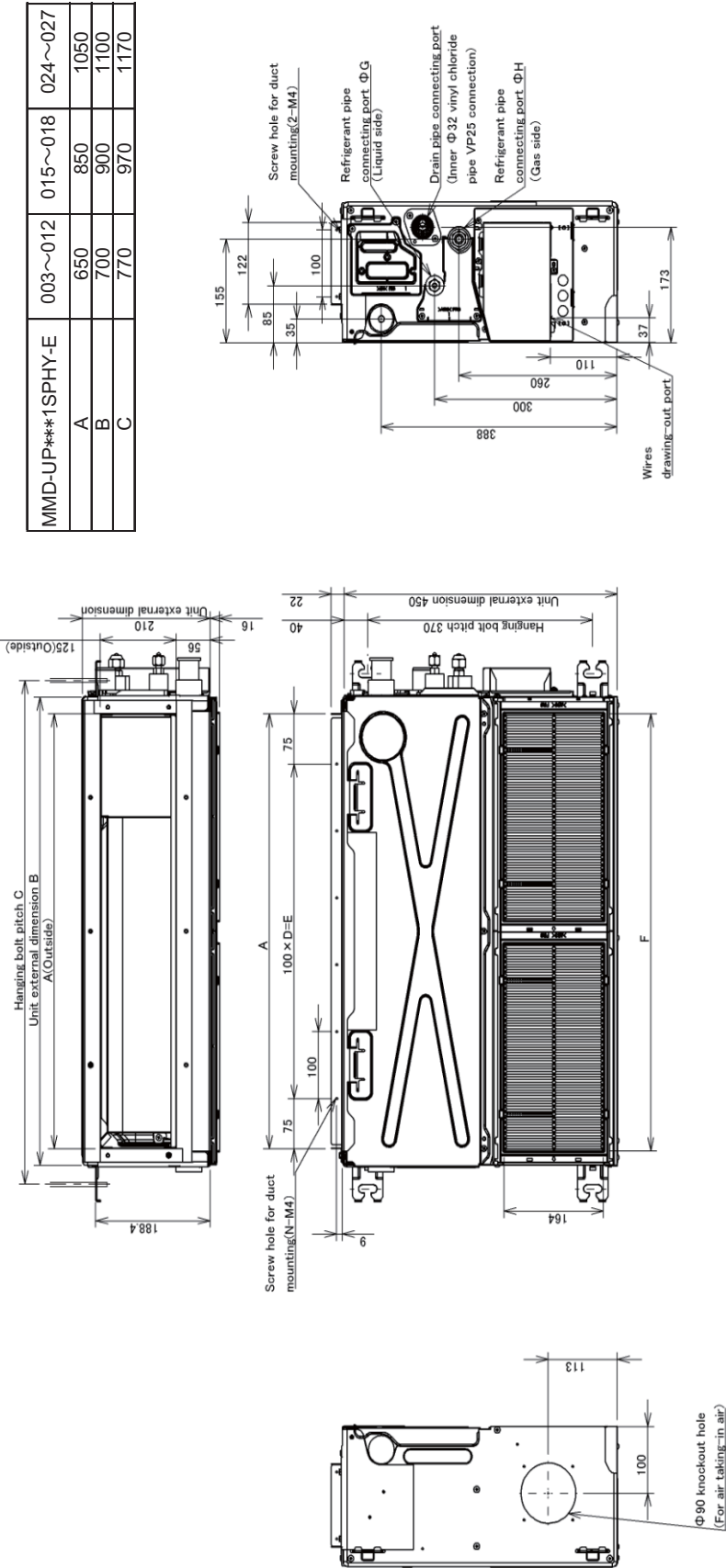
Note

(*1) Rated conditions Cooling : Indoor 27 degC Dry Bulb / 19 degC Wet Bulb, Outdoor 35 degC Dry Bulb.
 Heating : Indoor 20 degC Dry Bulb, Outdoor 7 degC Dry Bulb / 6 degC Wet Bulb.
 Based on equivalent piping length of 7.5 m and piping height difference of 0 m.

(*2) Standard external static pressure UP003~018:30Pa, UP024~027:40Pa

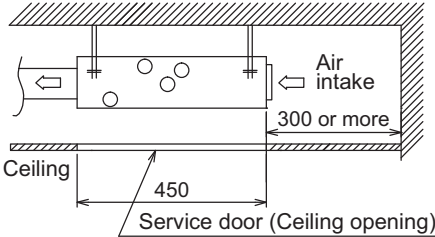
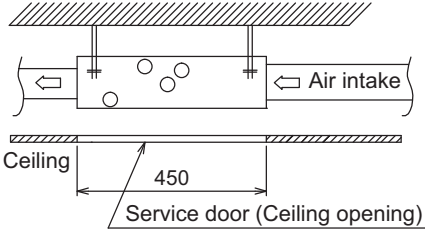
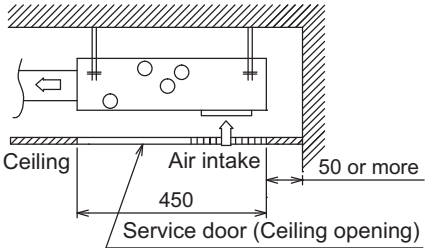
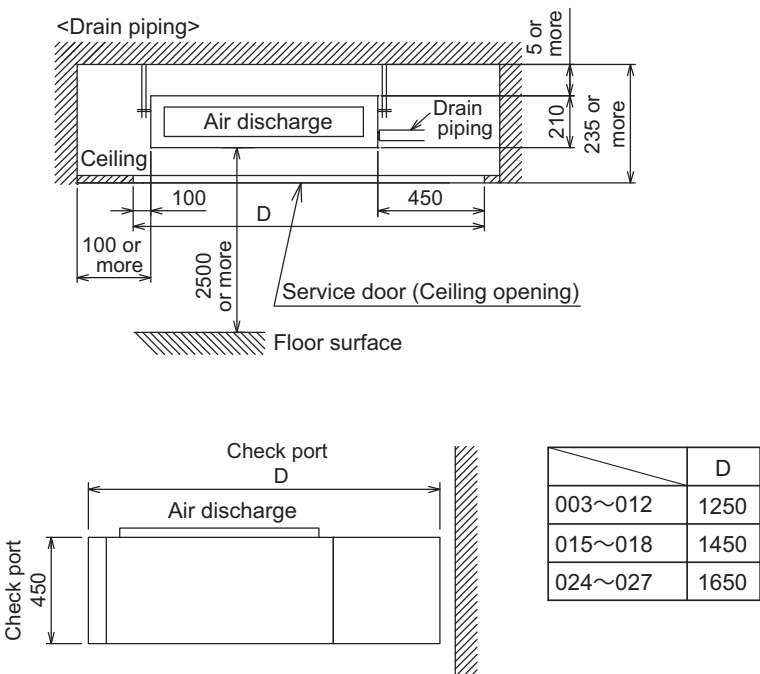
2. Dimensions

MMD-UP0031SPHY-E, MMD-UP0051SPHY-E, MMD-UP0071SPHY-E
MMD-UP0091SPHY-E, MMD-UP0121SPHY-E, MMD-UP0151SPHY-E
MMD-UP0181SPHY-E, MMD-UP0241SPHY-E, MMD-UP0271SPHY-E



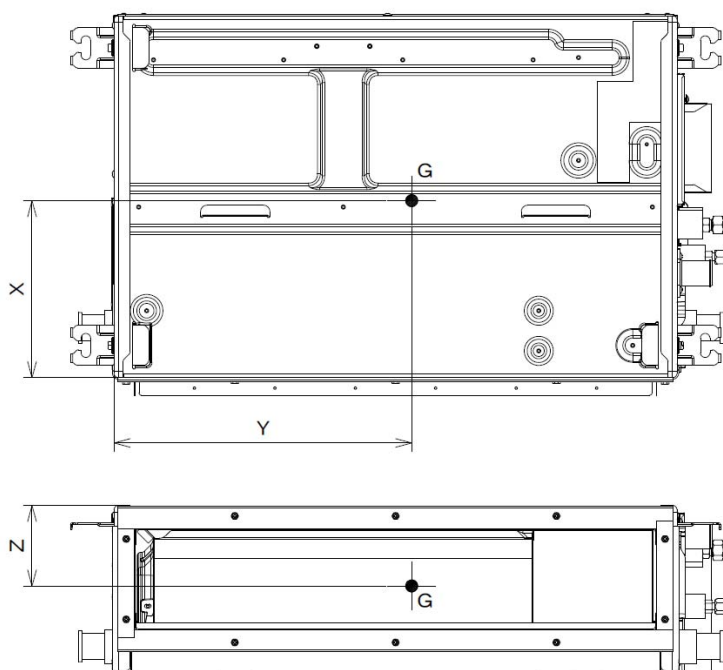
Space required for installation and servicing

(Unit: mm)

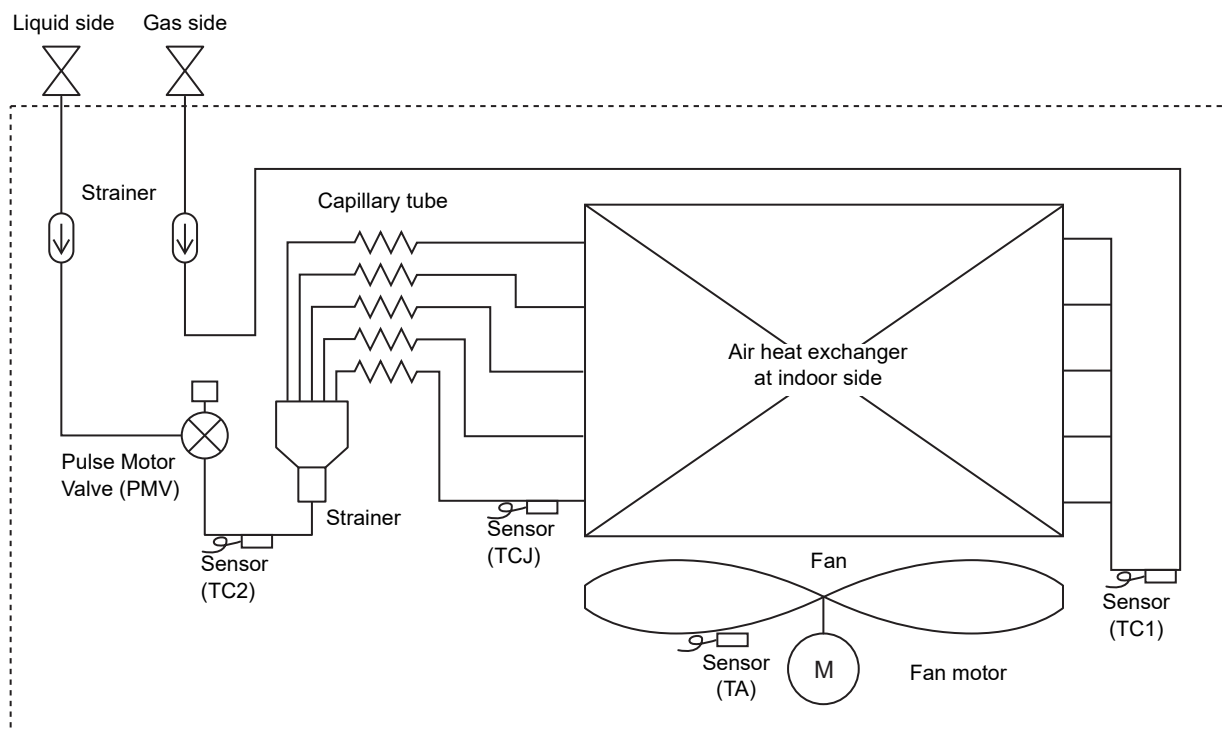


3. Center of gravity

Model name	X (mm)	Y (mm)	Z (mm)	Net weight (kg)
MMD-UP0031SPHY-E	230	360	110	15
MMD-UP0051SPHY-E				
MMD-UP0071SPHY-E				
MMD-UP0091SPHY-E				
MMD-UP0121SPHY-E				
MMD-UP0151SPHY-E	230	480	100	18 (19)
MMD-UP0181SPHY-E				
MMD-UP0241SPHY-E	230	580	100	21 (22)
MMD-UP0271SPHY-E				



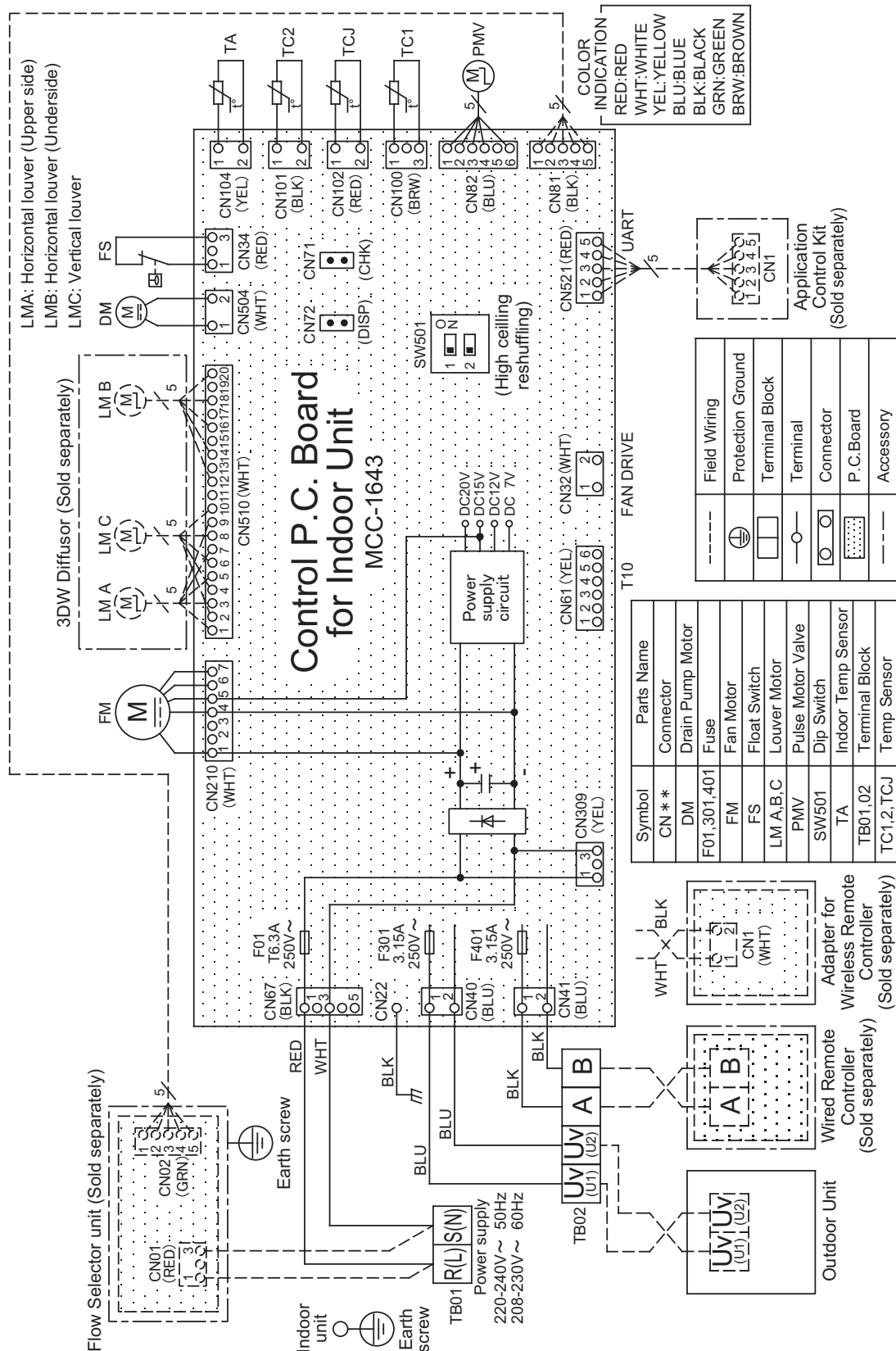
4. Piping diagram



Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN82 (6P): Blue) 1) Controls super heat in cooling operation 2) Controls sub 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): 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 sub cool in heating operation
	4. TCJ	(Connector CN102 (2P): Red) 1) Controls PMV super heat in cooling operation

5. Wiring diagram

MMD-UP0031SPHY-E, MMD-UP0051SPHY-E, MMD-UP0071SPHY-E, MMD-UP0091SPHY-E, MMD-UP0121SPHY-E, MMD-UP0151SPHY-E, MMD-UP0181SPHY-E, MMD-UP0241SPHY-E, MMD-UP0271SPHY-E



6. Electrical characteristics

50Hz

Type	Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
			Min.	Max.	kW	FLA	MCA	MOCP
Slim Duct Type	MMD-UP0031SPHY-E	230-1-50	198	264	0.050	0.39	0.49	15
	MMD-UP0051SPHY-E	230-1-50	198	264	0.050	0.41	0.51	15
	MMD-UP0071SPHY-E	230-1-50	198	264	0.050	0.46	0.57	15
	MMD-UP0091SPHY-E	230-1-50	198	264	0.050	0.48	0.60	15
	MMD-UP0121SPHY-E	230-1-50	198	264	0.050	0.51	0.63	15
	MMD-UP0151SPHY-E	230-1-50	198	264	0.094	0.54	0.67	15
	MMD-UP0181SPHY-E	230-1-50	198	264	0.094	0.61	0.76	15
	MMD-UP0241SPHY-E	230-1-50	198	264	0.094	0.80	1.00	15
	MMD-UP0271SPHY-E	230-1-50	198	264	0.094	0.85	1.06	15

60Hz

Type	Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
			Min.	Max.	kW	FLA	MCA	MOCP
Slim Duct Type	MMD-UP0031SPHY-E	220-1-60	198	242	0.050	0.41	0.52	15
	MMD-UP0051SPHY-E	220-1-60	198	242	0.050	0.43	0.54	15
	MMD-UP0071SPHY-E	220-1-60	198	242	0.050	0.48	0.60	15
	MMD-UP0091SPHY-E	220-1-60	198	242	0.050	0.50	0.63	15
	MMD-UP0121SPHY-E	220-1-60	198	242	0.050	0.53	0.66	15
	MMD-UP0151SPHY-E	220-1-60	198	242	0.094	0.56	0.70	15
	MMD-UP0181SPHY-E	220-1-60	198	242	0.094	0.64	0.80	15
	MMD-UP0241SPHY-E	220-1-60	198	242	0.094	0.84	1.05	15
	MMD-UP0271SPHY-E	220-1-60	198	242	0.094	0.89	1.12	15

MCA : Minimum Circuit Amps

FLA : Full Load Amps

MOCP : Maximum Overcurrent Protection (Amps)

kW : Fan motor Rated Output (kW)

7. Sensible capacity table

Slim Duct Type (MMD-UP_1SPHY-E)

unit size	outdoor air temp. CDB	indoor air temp.																	
		14.0CWB		15.0CWB		16.0CWB		17.0CWB		18.0CWB		19.0CWB		20.0CWB		22.0CWB		24.0CWB	
		20.0CDB		21.5CDB		23.0CDB		24.5CDB		26.0CDB		27.0CDB		28.0CDB		30.0CDB		32.0CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
003	10.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	12.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	14.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	16.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	18.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	20.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	21.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	23.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	25.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	27.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	29.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	31.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	33.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
	35.0	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.9	0.7	0.9	0.7	0.9	0.7	1.0	0.7	1.0	0.8
005	10.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	12.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	14.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	16.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	18.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	20.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	21.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	23.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	25.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	27.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	29.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	31.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	33.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
	35.0	1.4	1.0	1.5	1.1	1.5	1.1	1.6	1.2	1.6	1.2	1.7	1.2	1.8	1.3	1.9	1.3	1.9	1.4
007	10.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	12.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	14.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	16.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	18.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	20.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	21.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	23.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	25.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	27.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	29.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	31.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	33.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0
	35.0	1.8	1.5	1.9	1.5	2.0	1.6	2.1	1.7	2.1	1.7	2.2	1.8	2.3	1.8	2.4	1.9	2.5	2.0

TC : Total Capacity [kW]

SHC : Sensible Heat Capacity [kW]

Slim Duct Type (MMD-UP_1SPHY-E)

unit size	outdoor air temp. CDB	indoor air temp.																	
		14.0CWB		15.0CWB		16.0CWB		17.0CWB		18.0CWB		19.0CWB		20.0CWB		22.0CWB		24.0CWB	
		20.0CDB		21.5CDB		23.0CDB		24.5CDB		26.0CDB		27.0CDB		28.0CDB		30.0CDB		32.0CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
009	10.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	12.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	14.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	16.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	18.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	20.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	21.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	23.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	25.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	27.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	29.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	31.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	33.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.2	2.9	2.2	3.1	2.4	3.2	2.5
	35.0	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.1	2.7	2.1	2.8	2.1	2.9	2.2	3.1	2.4	3.2	2.5
	37.0	2.3	1.8	2.4	1.9	2.5	1.9	2.6	2.0	2.7	2.1	2.7	2.1	2.8	2.2	3.0	2.3	3.1	2.4
	39.0	2.2	1.7	2.3	1.8	2.4	1.9	2.5	2.0	2.6	2.0	2.7	2.1	2.8	2.2	2.9	2.3	3.1	2.4
012	10.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	12.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	14.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	16.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	18.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	20.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	21.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	23.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	25.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	27.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	29.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	31.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	33.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.7	2.9	3.9	3.1	4.1	3.2
	35.0	3.0	2.3	3.1	2.4	3.3	2.5	3.4	2.6	3.5	2.7	3.6	2.5	3.7	2.9	3.9	3.1	4.1	3.2
	37.0	2.9	2.3	3.1	2.4	3.2	2.5	3.3	2.6	3.4	2.7	3.5	2.8	3.6	2.8	3.8	3.0	4.0	3.1
	39.0	2.8	2.2	3.0	2.3	3.1	2.4	3.2	2.5	3.4	2.6	3.5	2.7	3.6	2.8	3.8	2.9	3.9	3.1
015	10.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	12.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	14.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	16.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	18.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	20.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	21.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	23.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	25.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	27.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	29.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	31.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	33.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6
	35.0	3.7	2.6	3.9	2.8	4.1	2.9	4.2	3.0	4.4	3.1	4.5	3.2	4.6	3.3	4.9	3.5	5.1	3.6

TC : Total Capacity [kW]

SHC : Sensible Heat Capacity [kW]

Slim Duct Type (MMD-UP_1SPHY-E)

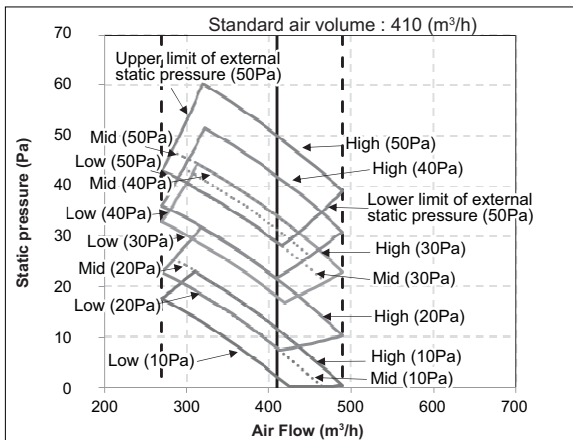
unit size	outdoor air temp. CDB	indoor air temp.																	
		14.0CWB		15.0CWB		16.0CWB		17.0CWB		18.0CWB		19.0CWB		20.0CWB		22.0CWB		24.0CWB	
		20.0CDB		21.5CDB		23.0CDB		24.5CDB		26.0CDB		27.0CDB		28.0CDB		30.0CDB		32.0CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
018	10.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	12.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	14.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	16.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	18.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	20.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	21.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	23.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	25.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	27.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	29.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	31.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	33.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
	35.0	4.6	3.2	4.8	3.4	5.1	3.5	5.3	3.7	5.4	3.8	5.6	3.9	5.8	4.0	6.1	4.2	6.4	4.4
024	10.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	12.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	14.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	16.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	18.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	20.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	21.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	23.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	25.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	27.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	29.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	31.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	33.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
	35.0	5.8	4.0	6.1	4.2	6.4	4.4	6.7	4.5	6.9	4.7	7.1	4.8	7.3	5.0	7.7	5.2	8.1	5.5
027	10.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	12.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	14.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	16.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	18.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	20.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	21.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	23.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	25.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	27.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	29.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	31.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	33.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2
	35.0	6.6	4.4	6.9	4.7	7.3	4.9	7.5	5.1	7.8	5.2	8.0	5.4	8.2	5.6	8.7	5.9	9.1	6.2

TC : Total Capacity [kW]

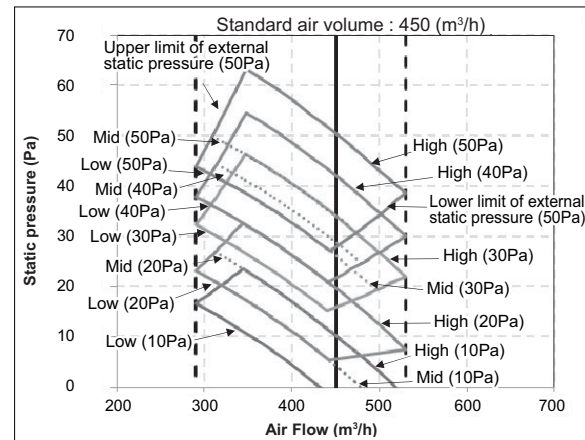
SHC : Sensible Heat Capacity [kW]

8. Fan characteristics

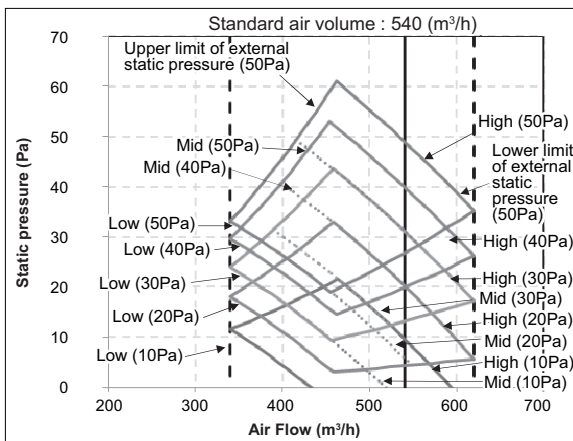
MMD-UP0031SPHY-E



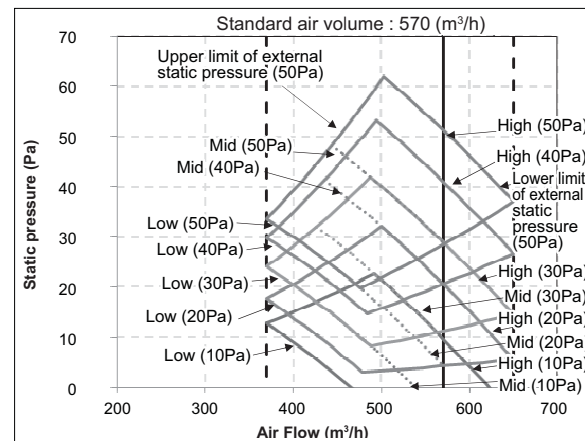
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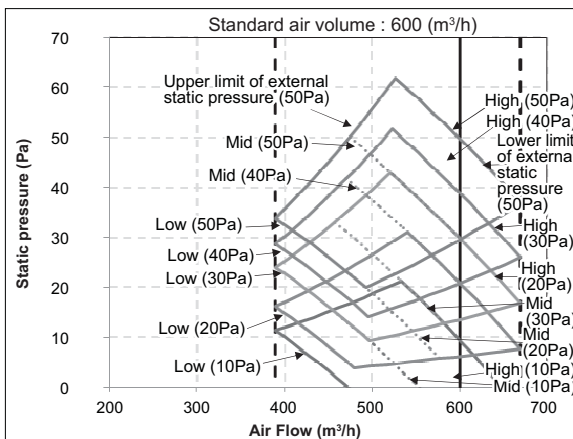
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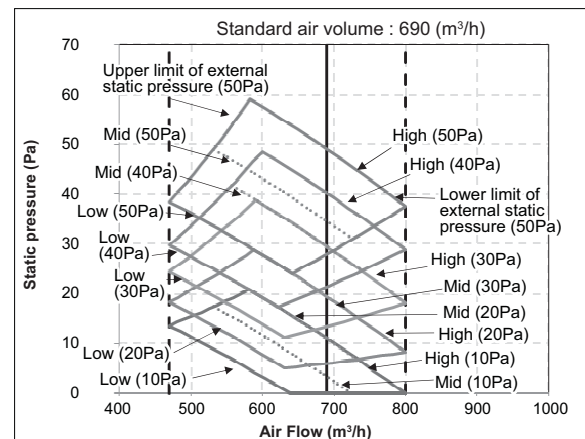
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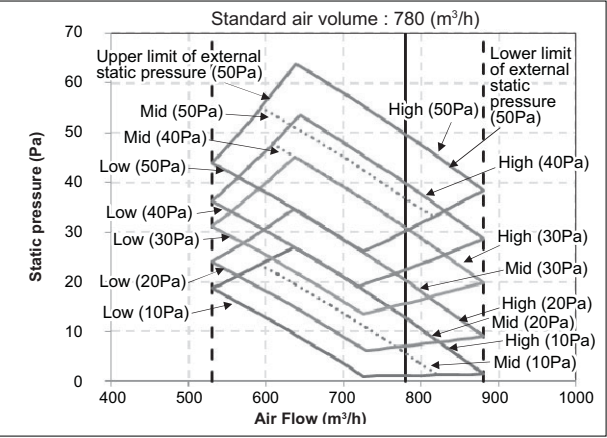
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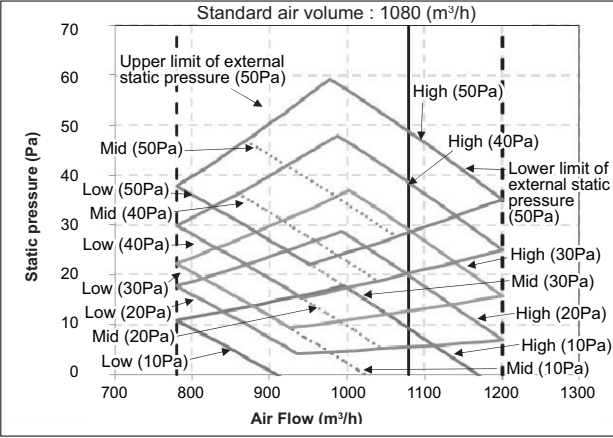
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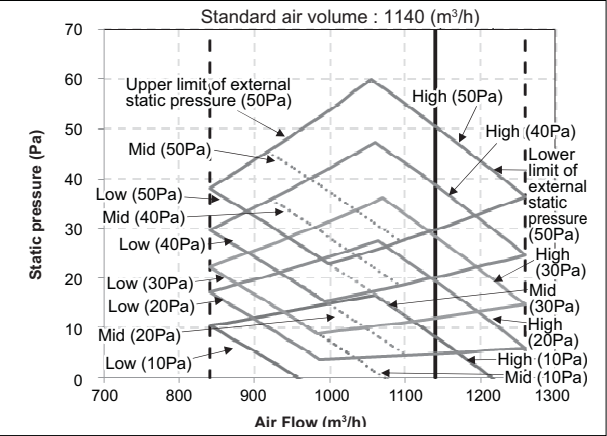
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MMD-UP0241SPHY-E



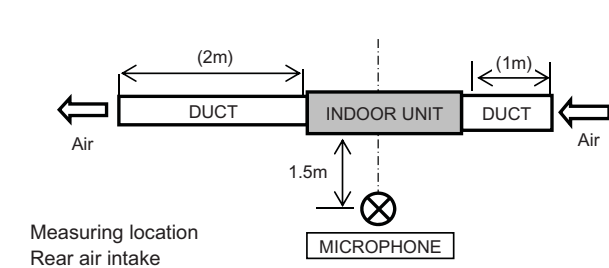
MMD-UP0271SPHY-E



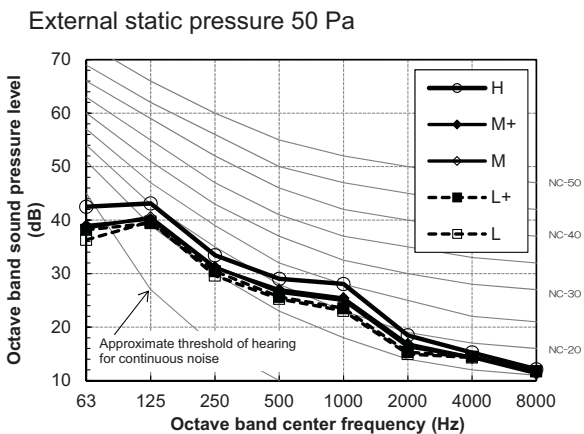
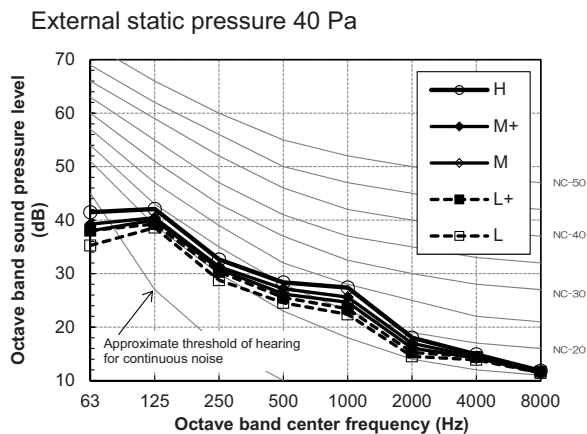
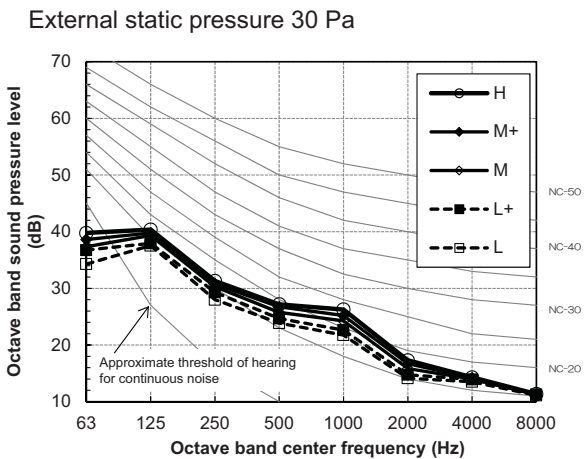
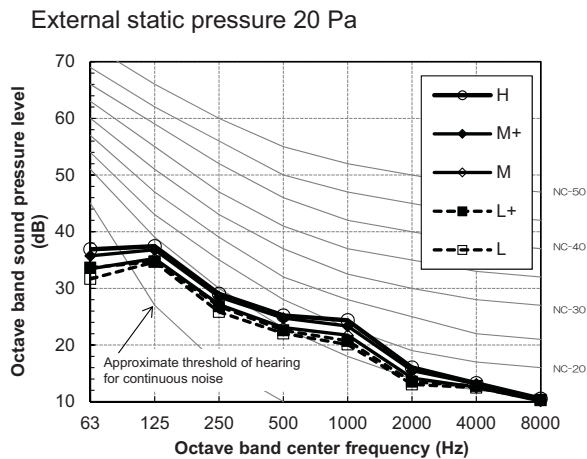
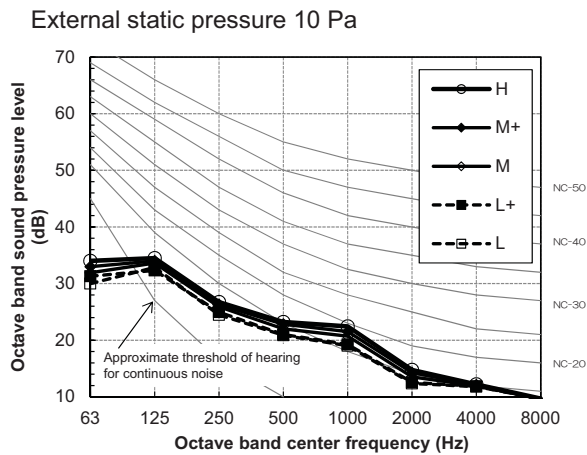
9. Sound data

Sound pressure spectrum

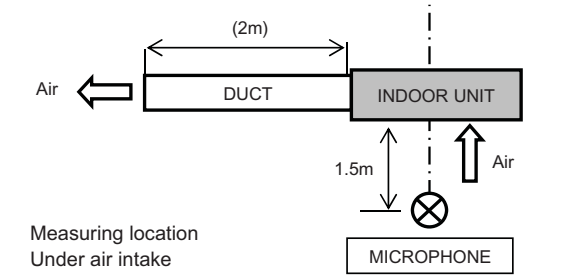
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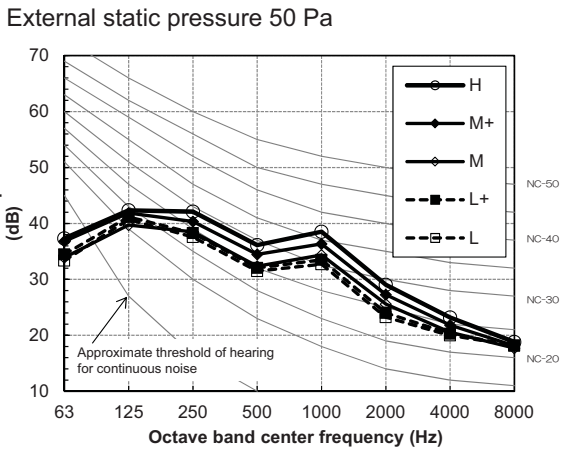
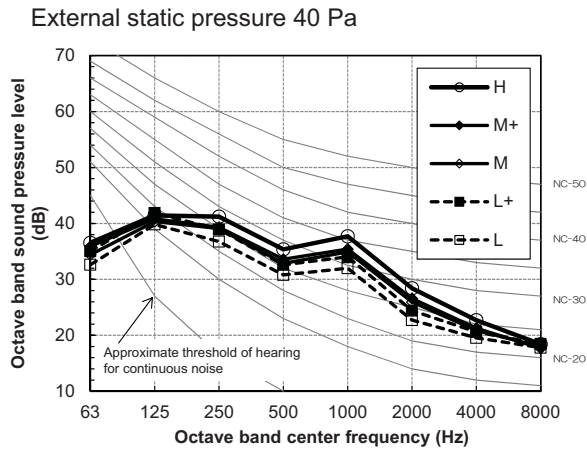
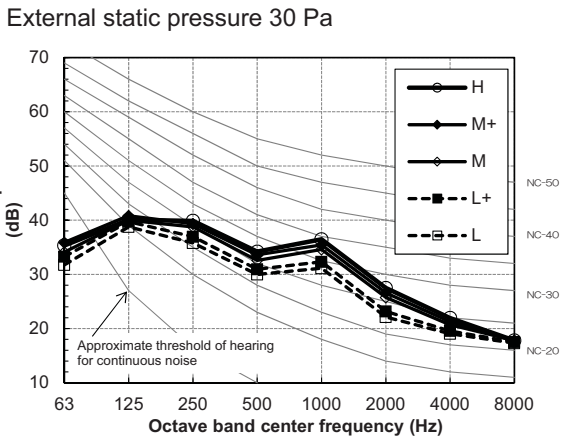
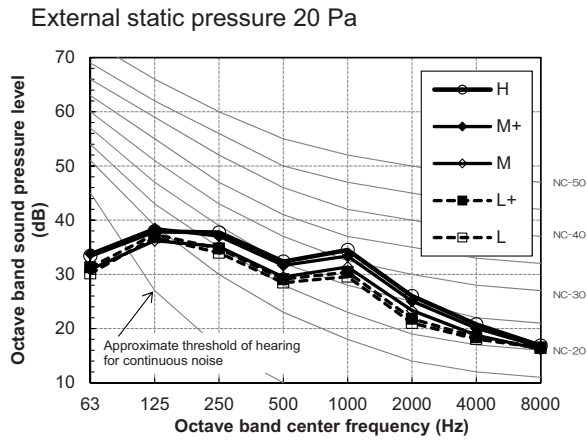
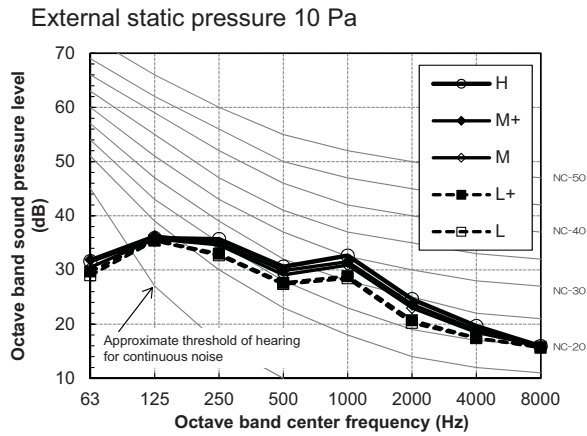
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	29	28	27	26	25
20	30	29	28	27	26
30	31	30	29	28	27
40	32	31	30	29	28
50	33	32	31	30	29



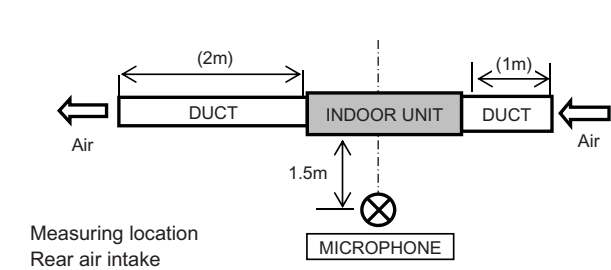
MMD-UP0031SPHY-E



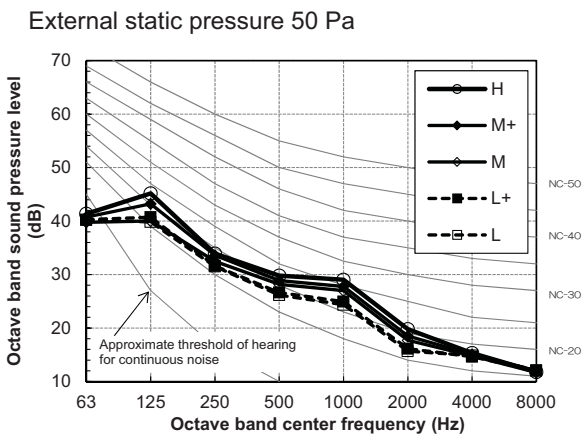
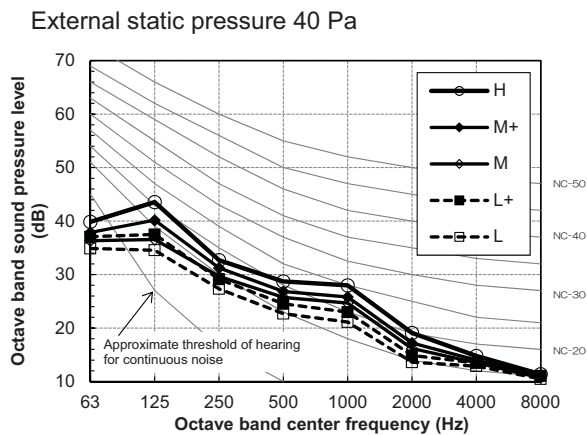
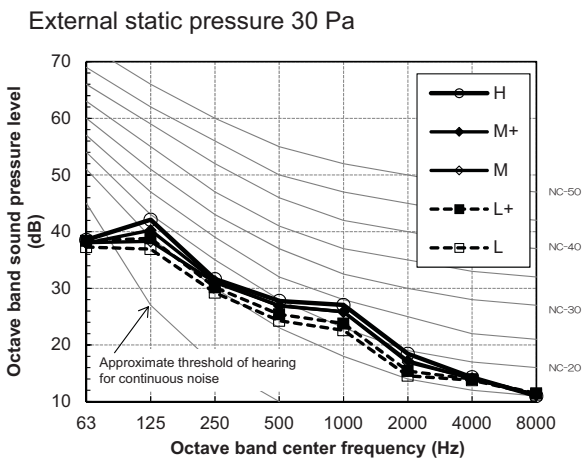
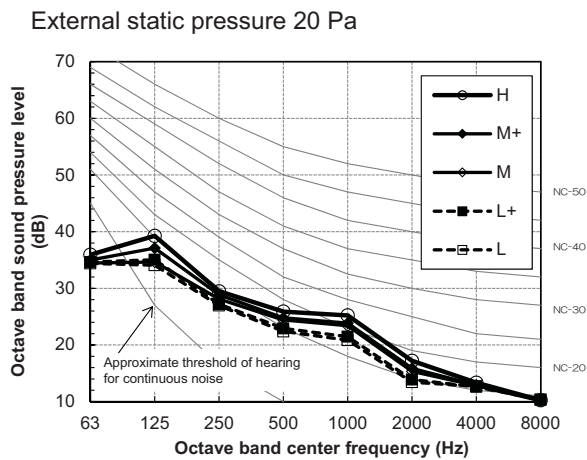
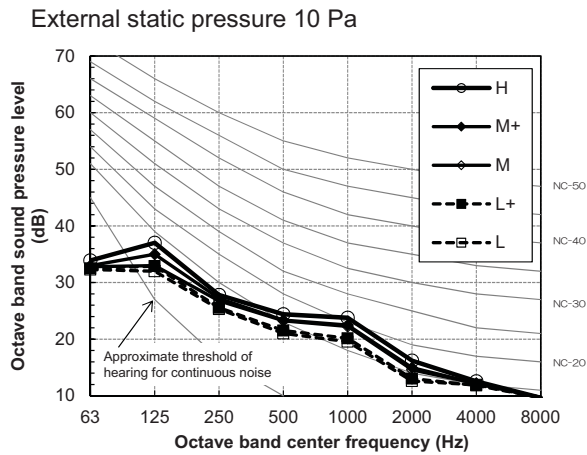
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	37	36	35	34	32
20	38	37	36	35	33
30	39	38	37	36	34
40	39	38	37	36	34
50	40	39	38	37	35



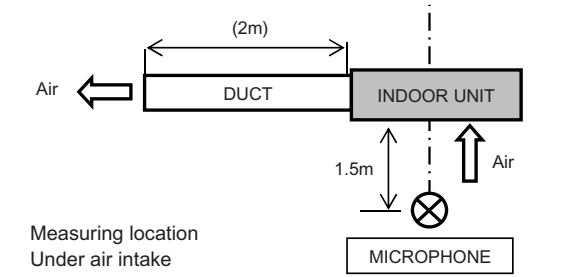
MMD-UP0051SPHY-E



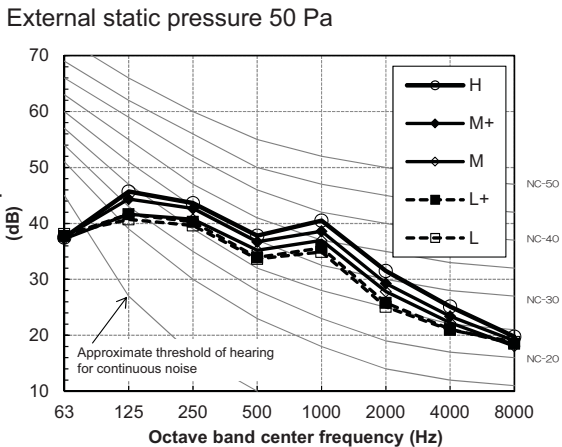
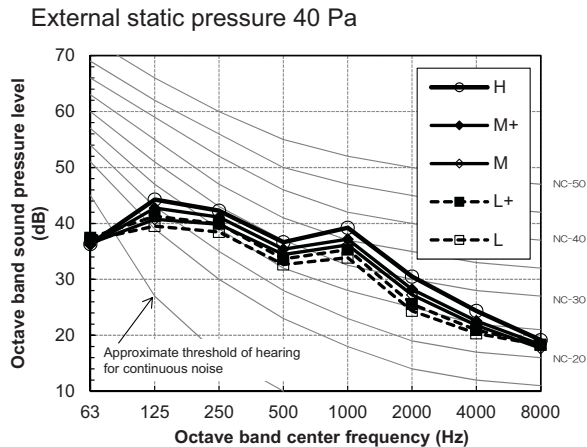
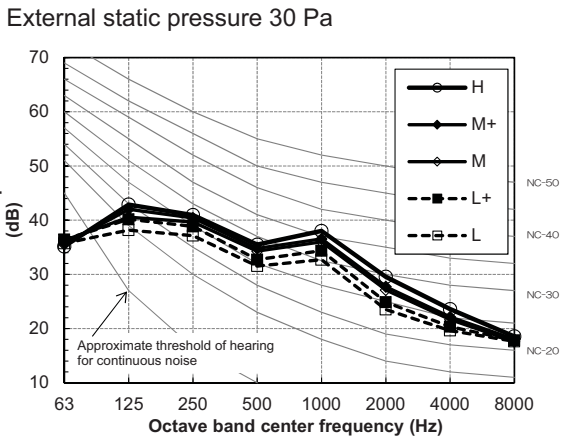
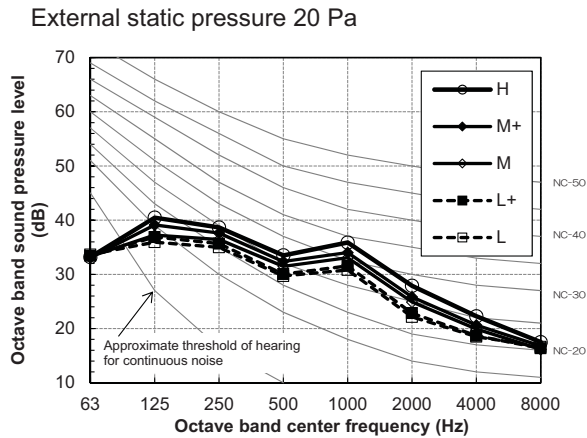
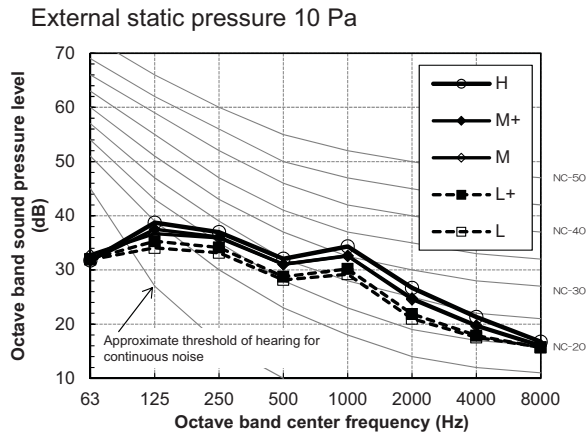
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	30	29	28	27	26
20	31	30	29	28	27
30	32	31	30	29	28
40	33	32	31	30	29
50	33	32	31	30	29



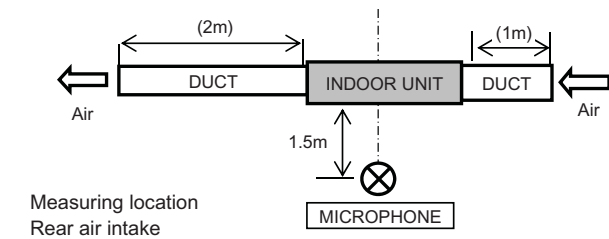
MMD-UP0051SPHY-E



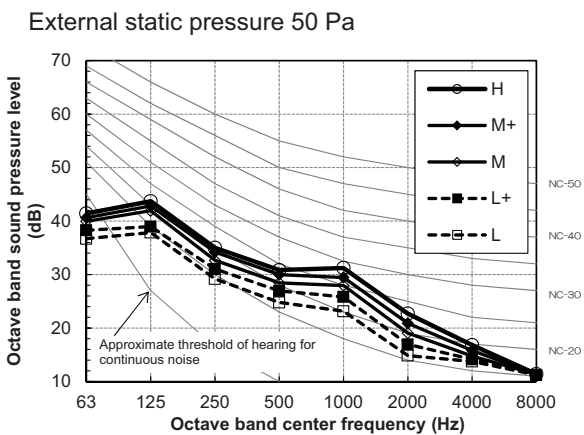
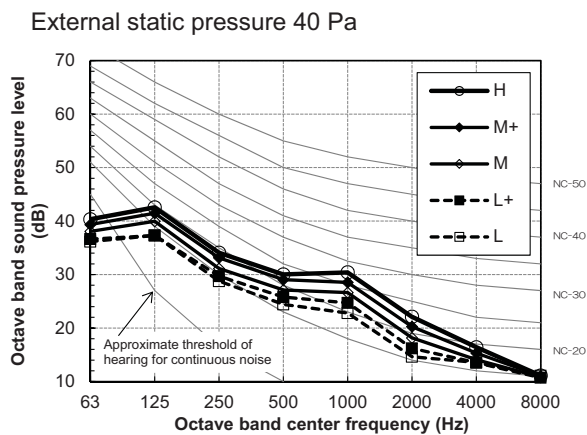
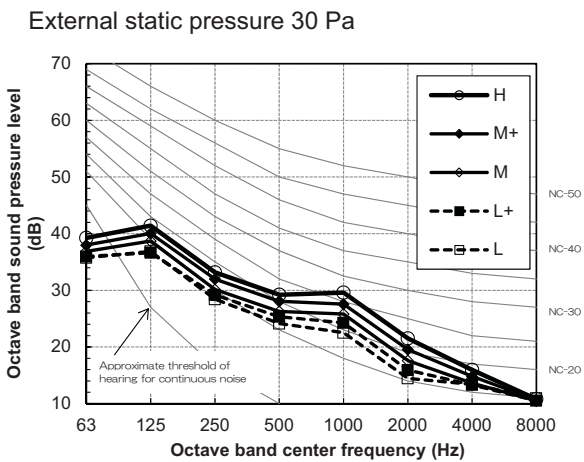
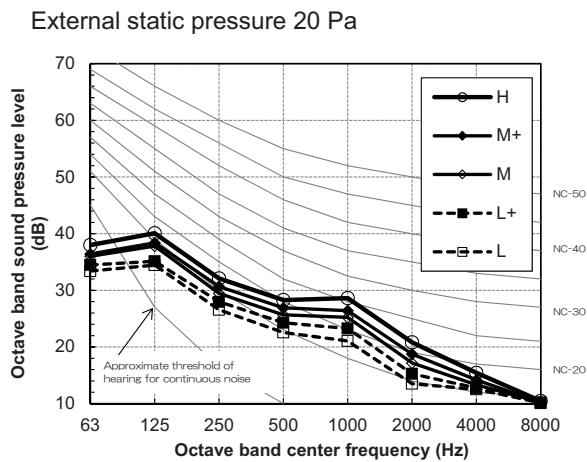
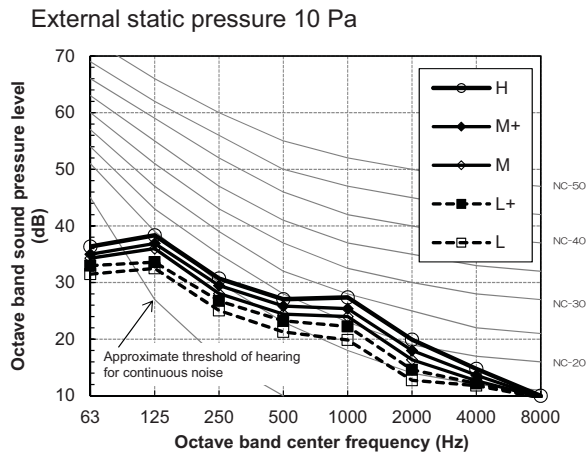
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	39	38	37	35	34
20	40	39	38	36	35
30	41	40	39	37	36
40	41	40	39	37	36
50	42	41	40	38	37



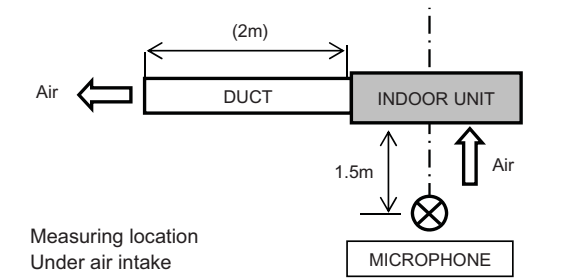
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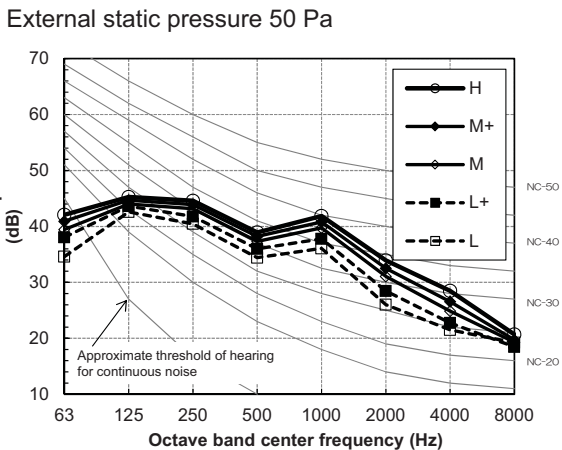
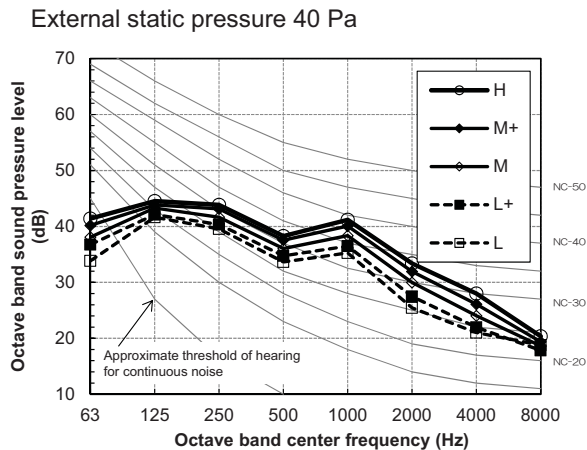
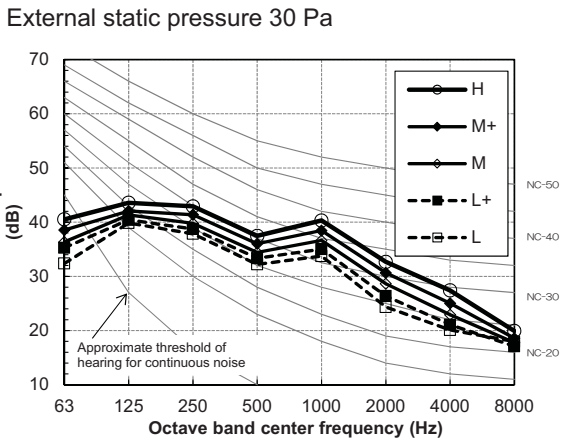
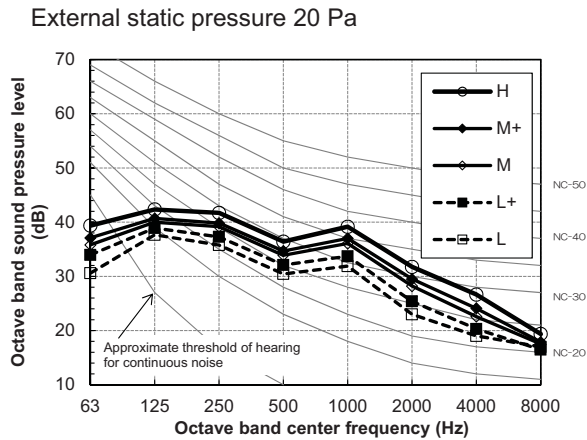
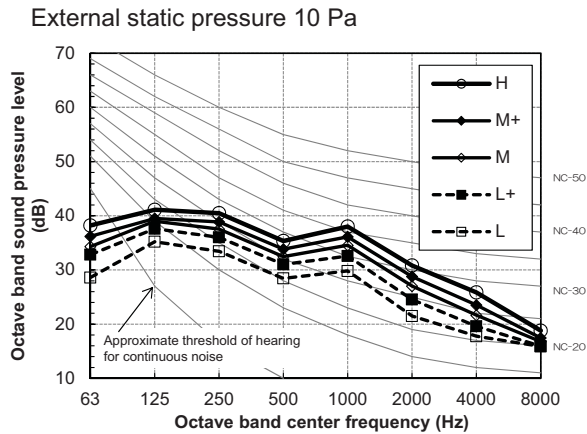
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	31	30	29	28	26
20	32	31	30	29	27
30	33	32	31	30	28
40	33	32	31	30	28
50	34	33	32	31	29



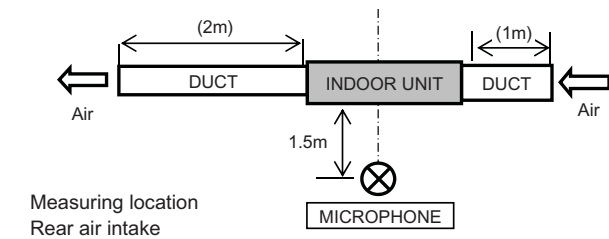
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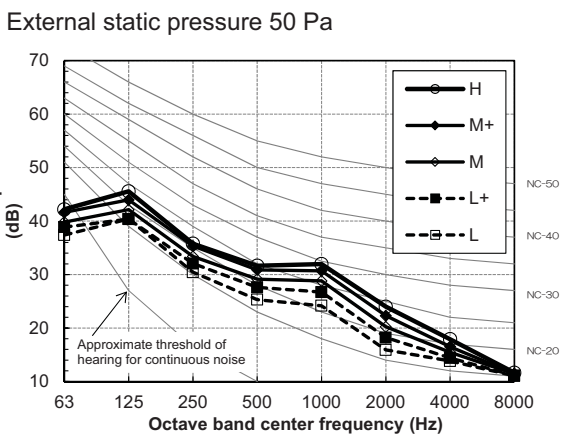
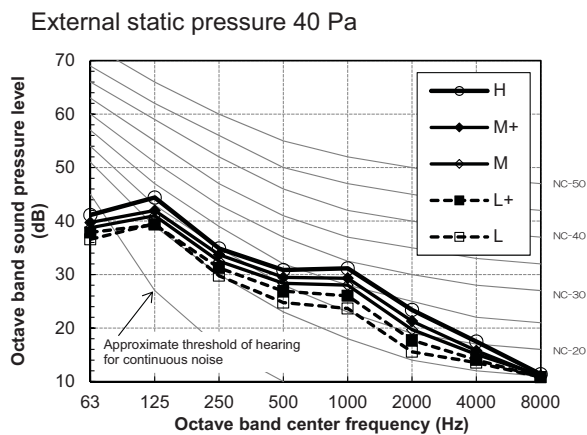
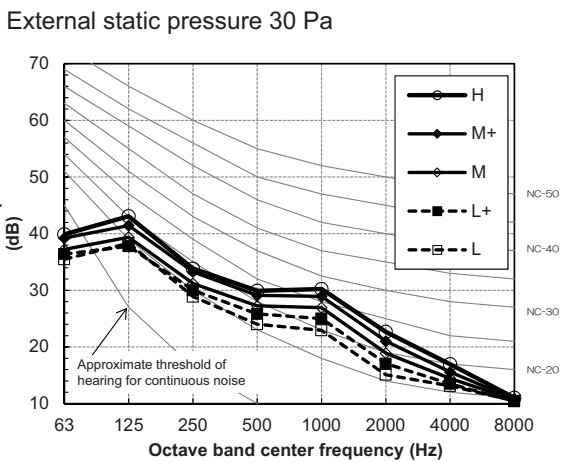
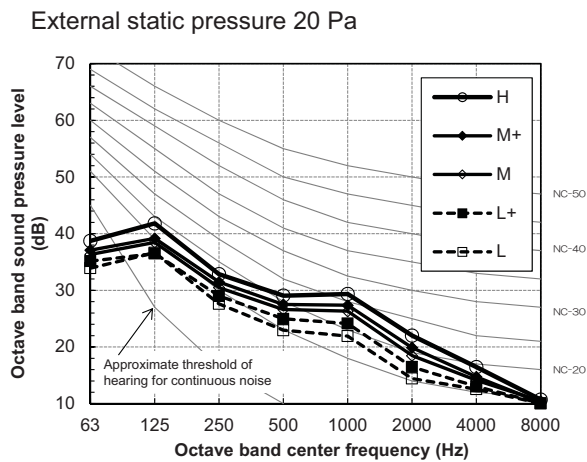
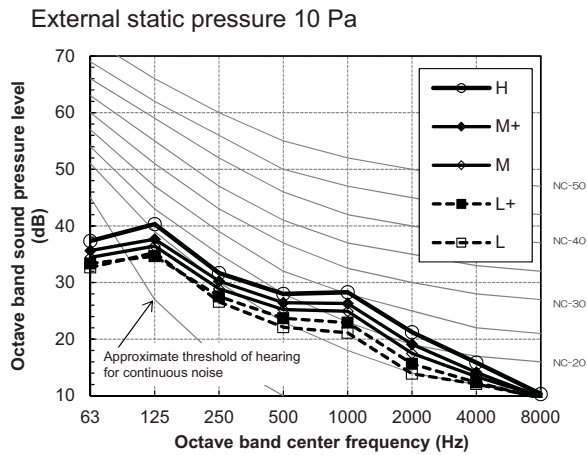
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	41	40	39	38	35
20	42	41	40	39	36
30	43	42	41	40	37
40	43	42	41	40	37
50	44	43	42	41	38



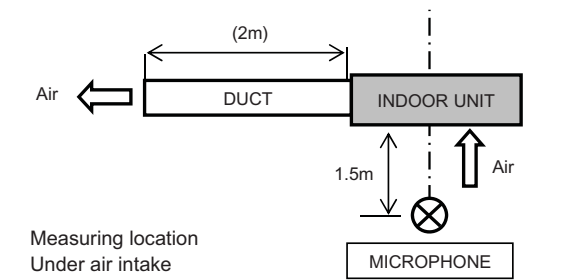
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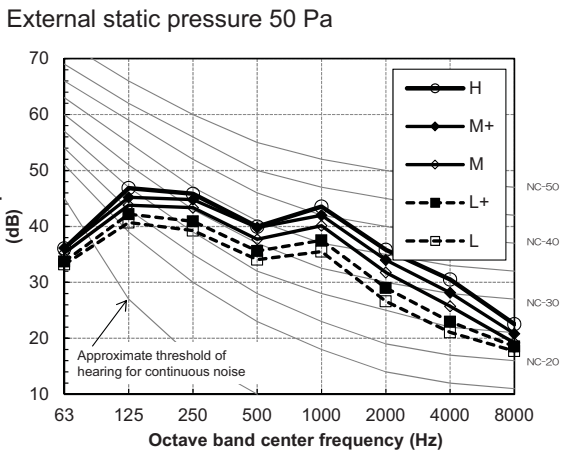
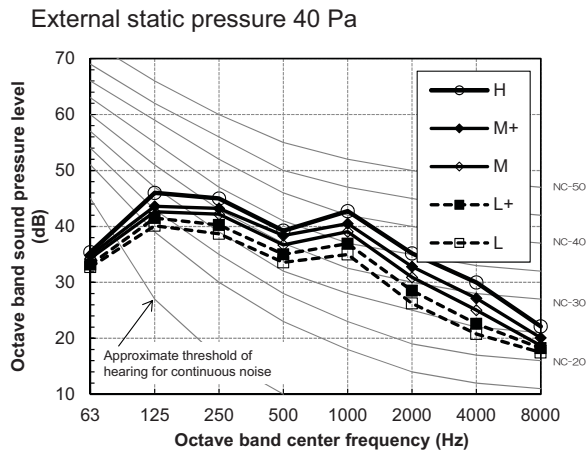
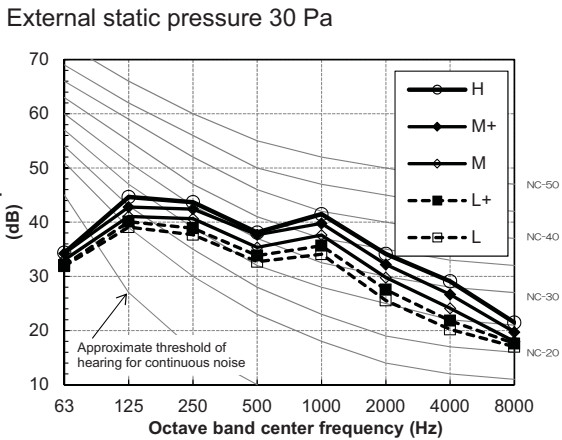
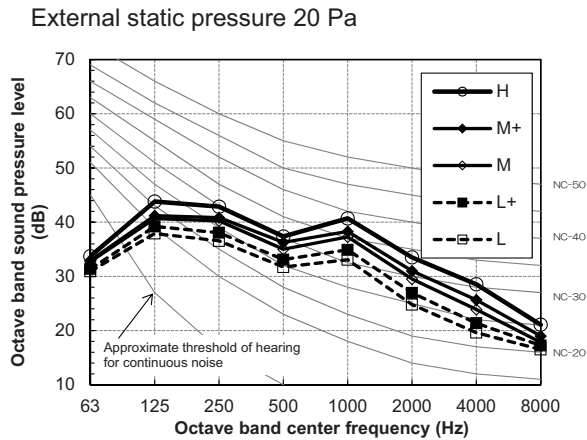
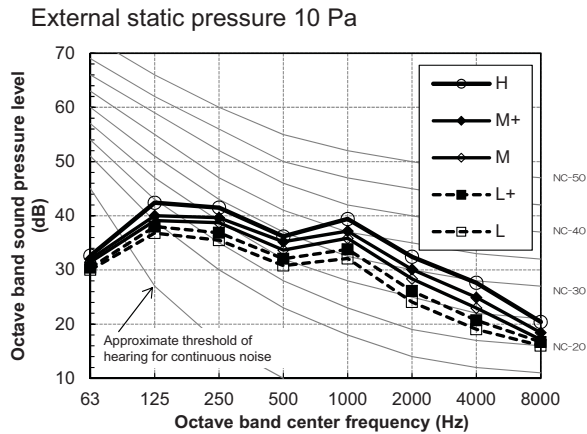
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	32	31	29	28	26
20	33	32	30	29	27
30	34	33	31	30	28
40	34	33	31	30	28
50	35	34	32	31	29



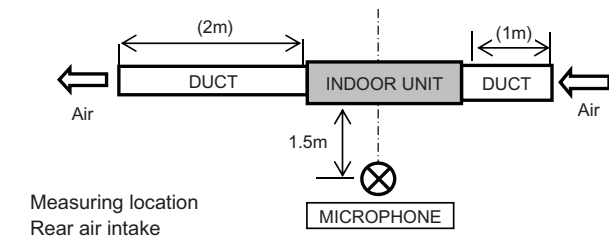
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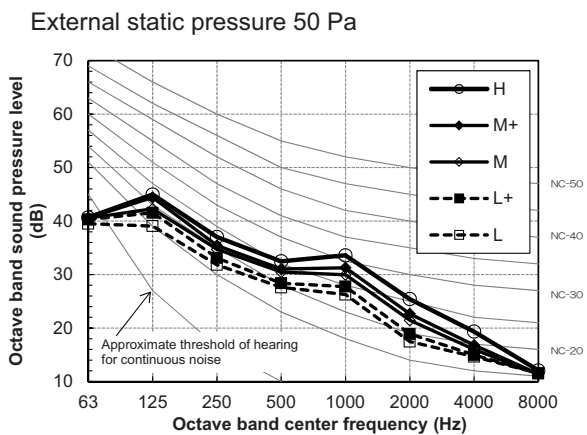
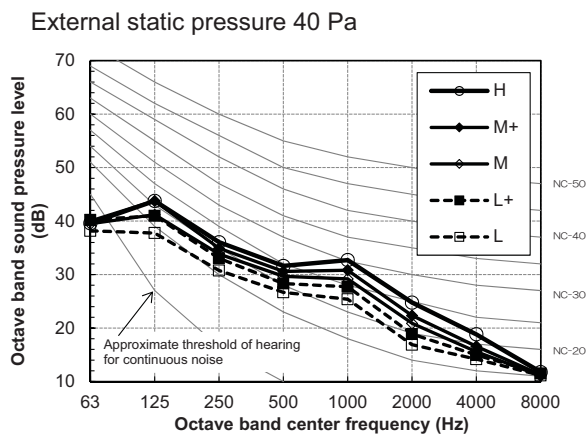
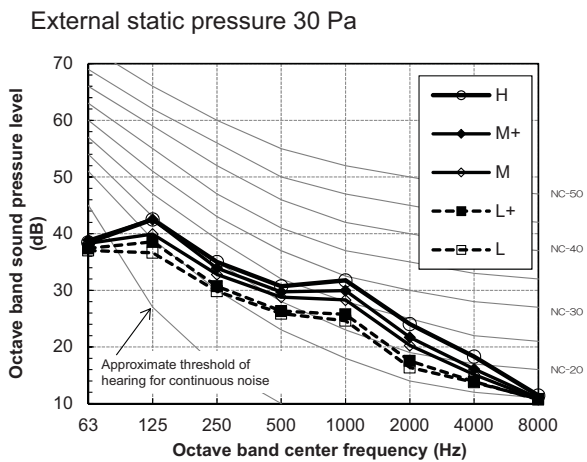
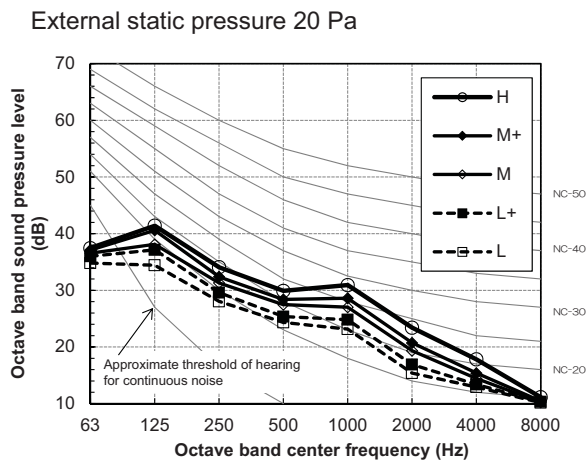
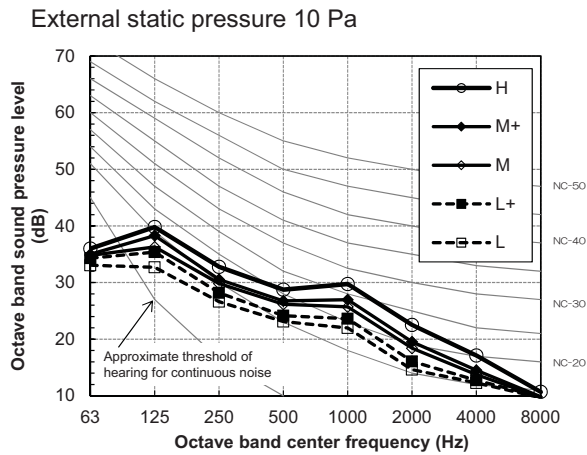
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	42	41	40	38	36
20	43	42	41	39	37
30	44	43	42	40	38
40	44	43	42	40	38
50	45	44	43	41	39



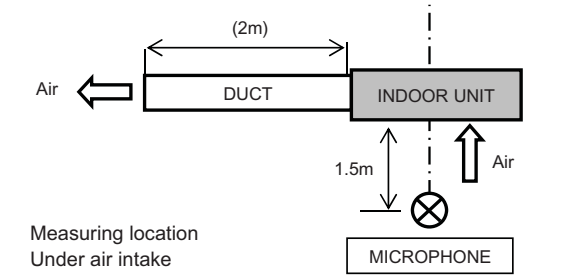
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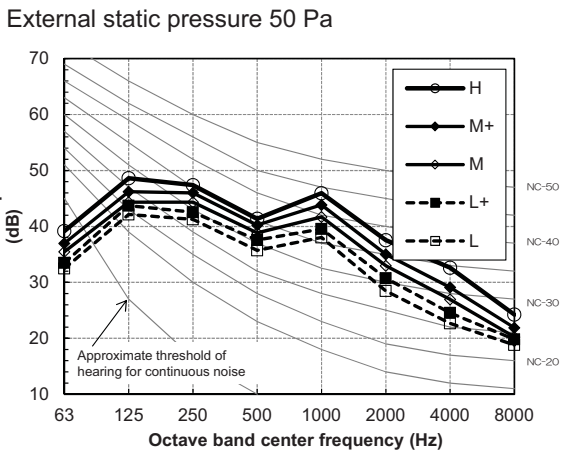
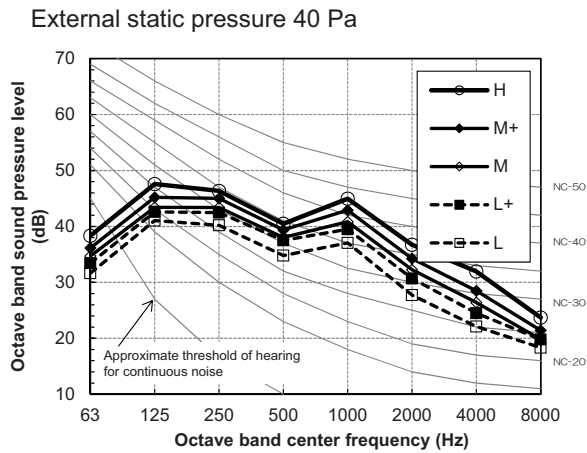
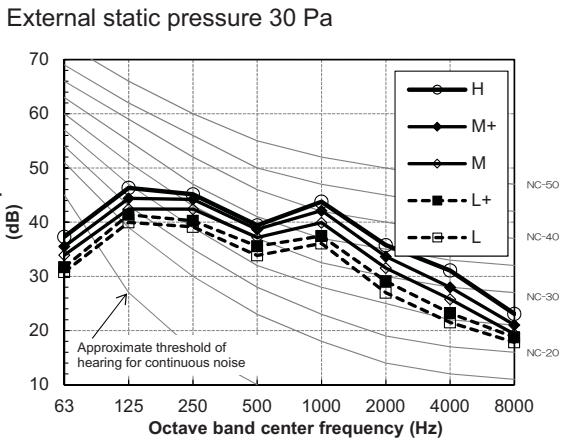
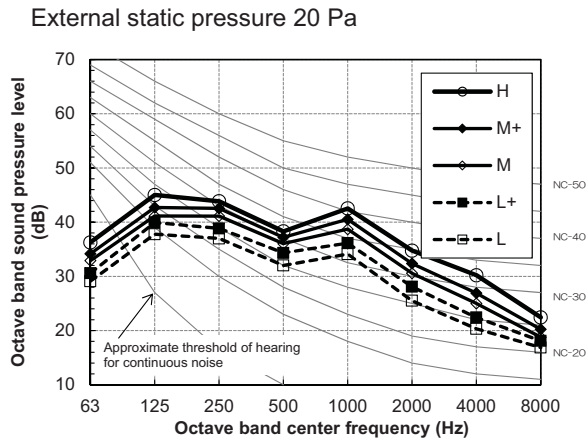
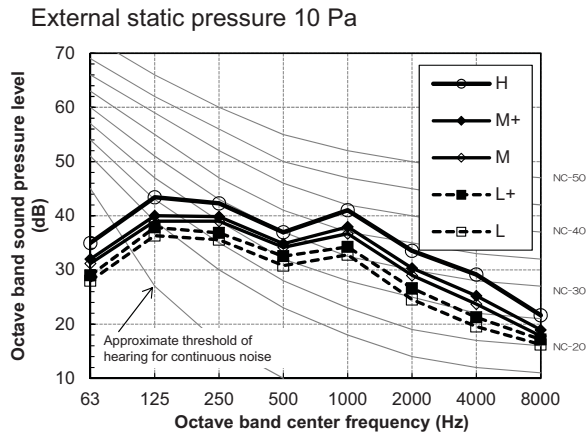
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	33	32	30	29	27
20	34	33	31	30	28
30	35	34	32	31	29
40	35	34	32	31	29
50	36	35	33	32	30



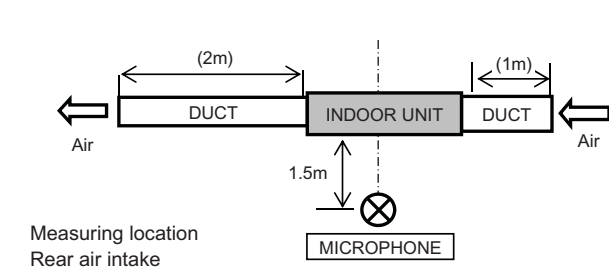
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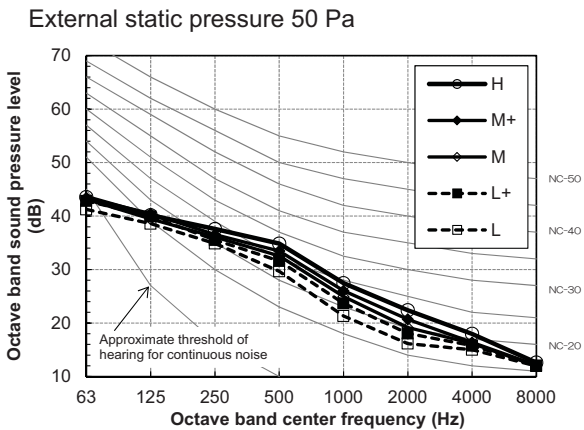
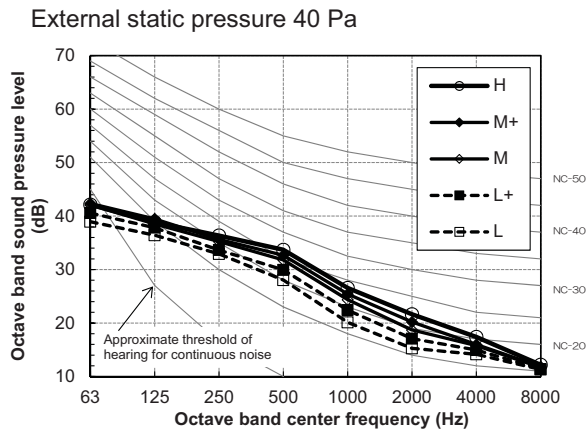
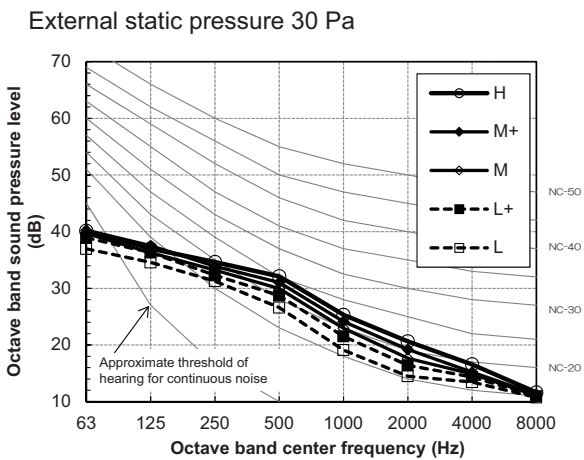
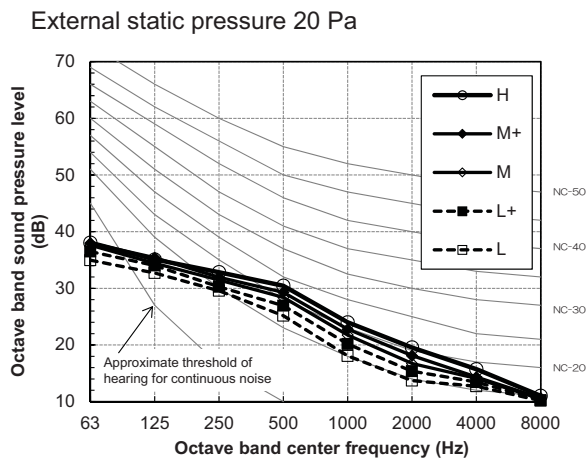
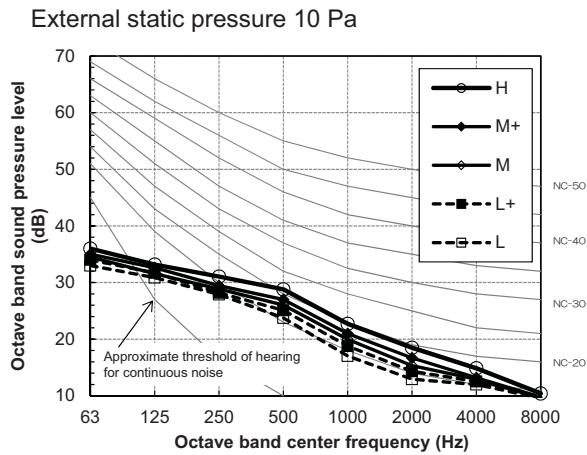
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	44	42	40	39	37
20	45	43	41	40	38
30	46	44	42	41	39
40	46	44	42	41	39
50	47	45	43	42	40



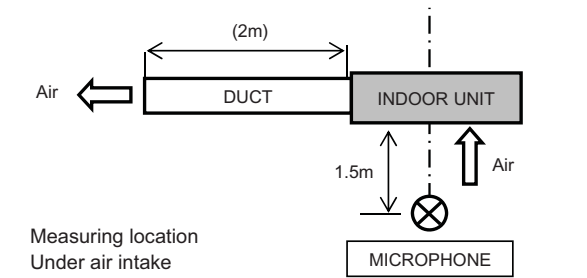
MMD-UP0151SPHY-E



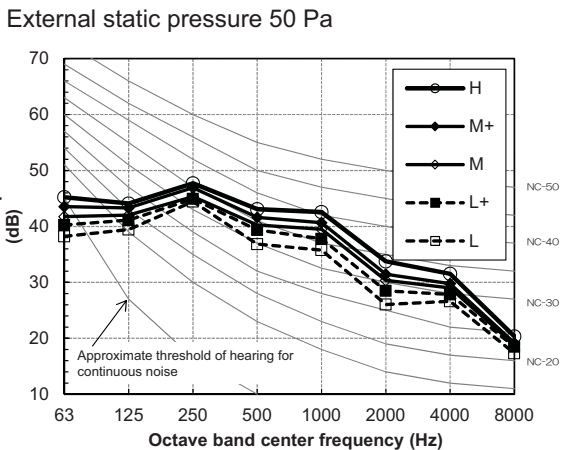
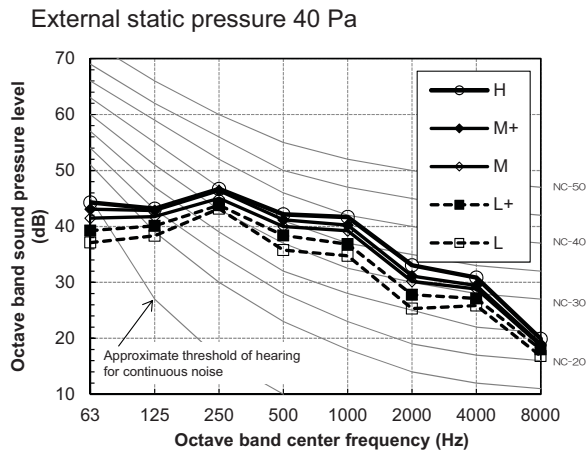
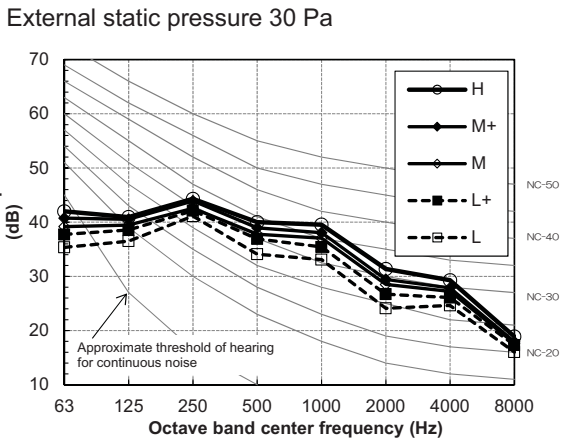
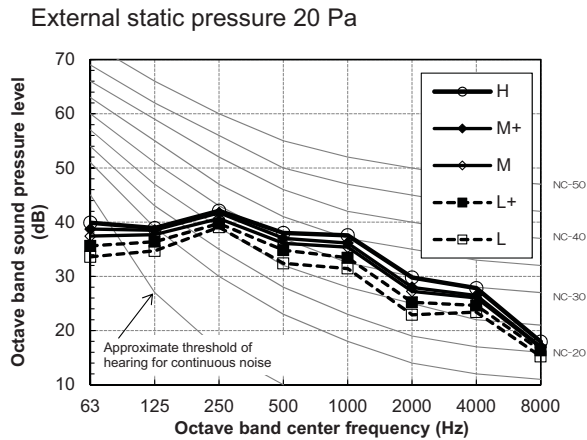
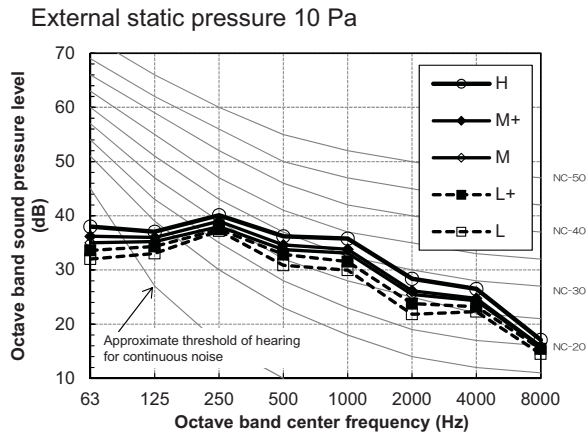
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	33	32	30	29	28
20	34	33	31	30	29
30	35	34	32	31	30
40	35	34	32	31	30
50	36	35	33	32	31



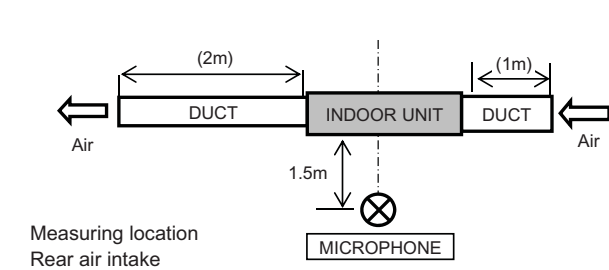
MMD-UP0151SPHY-E



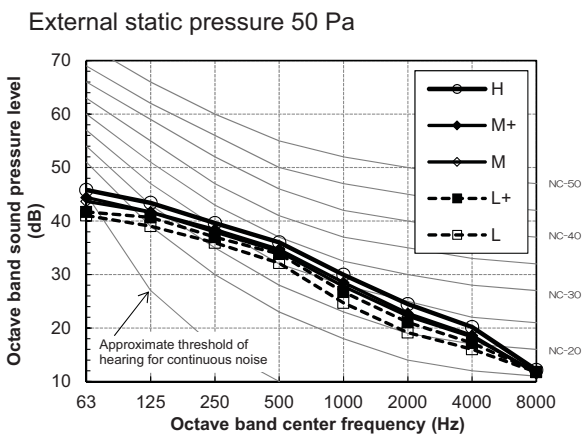
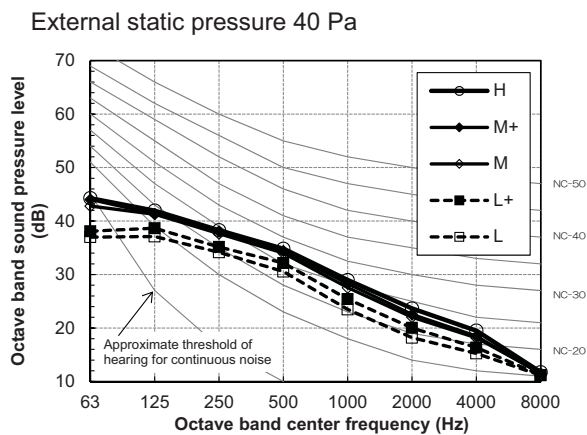
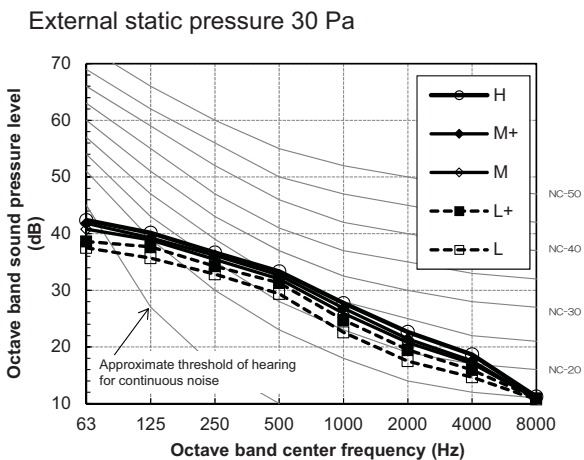
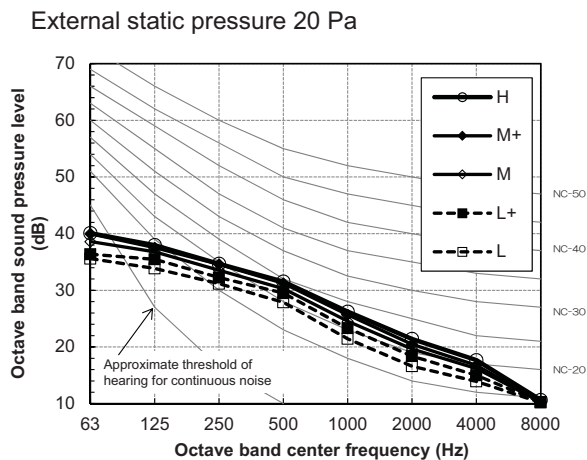
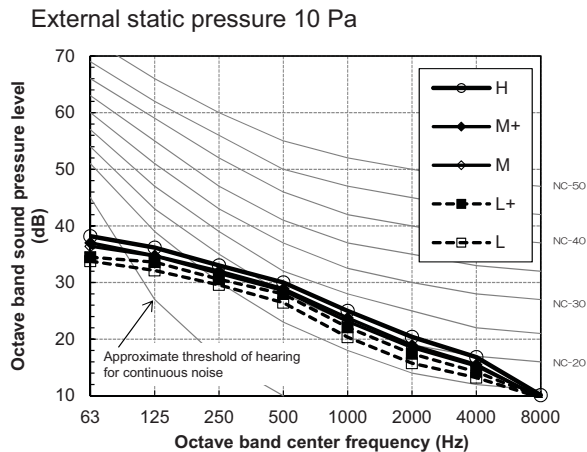
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	43	41	40	38	37
20	44	42	41	39	38
30	45	43	42	40	39
40	45	43	42	40	39
50	46	44	43	41	40



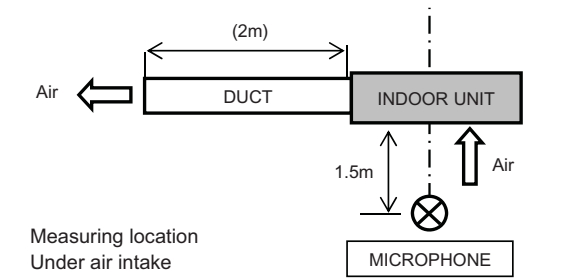
MMD-UP0181SPHY-E



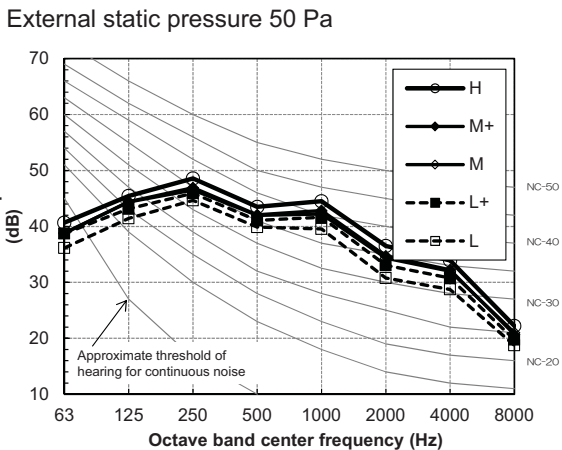
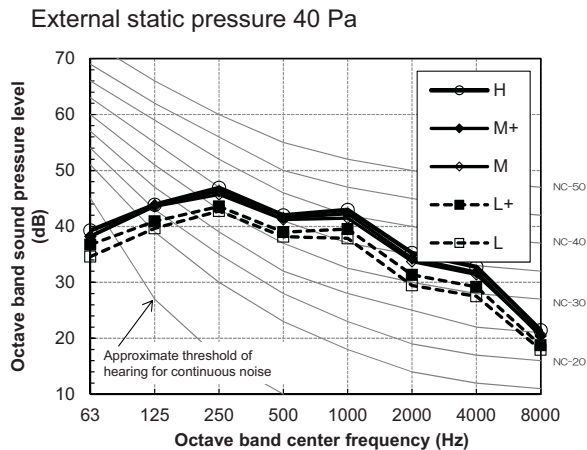
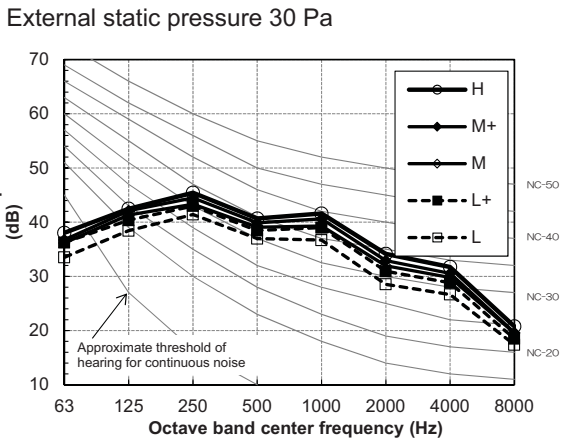
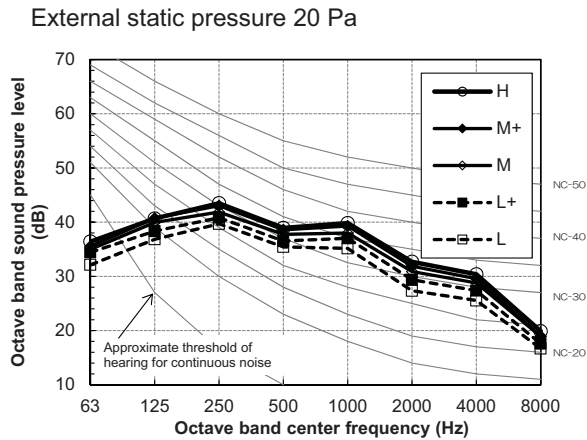
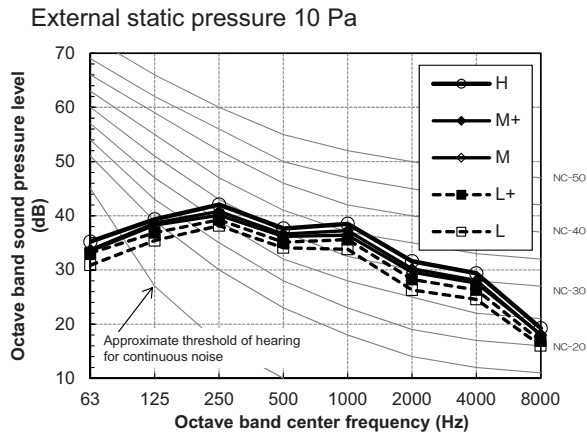
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	34	33	32	31	29
20	35	34	33	32	30
30	36	35	34	33	31
40	36	35	34	33	31
50	37	36	35	34	32



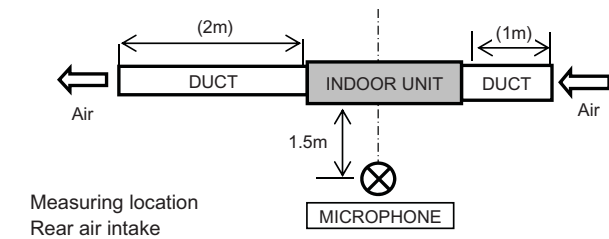
MMD-UP0181SPHY-E



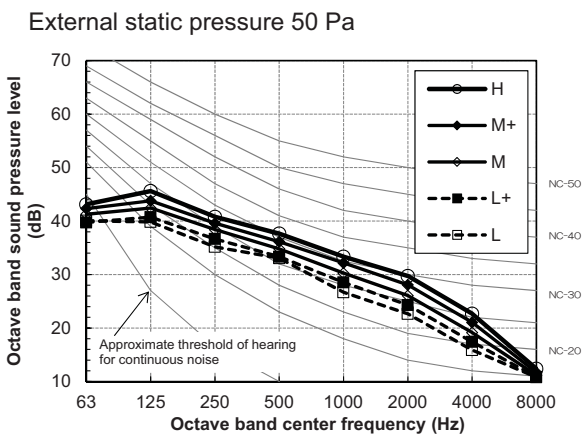
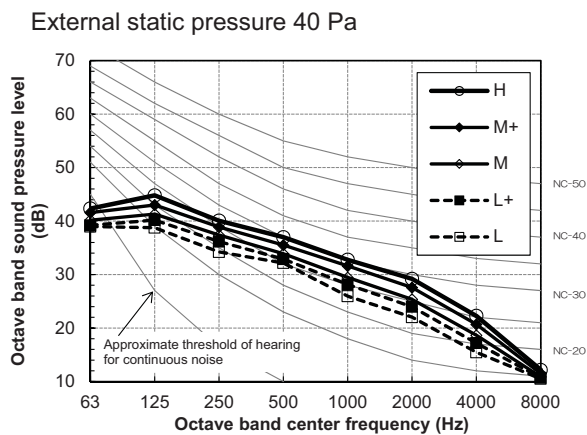
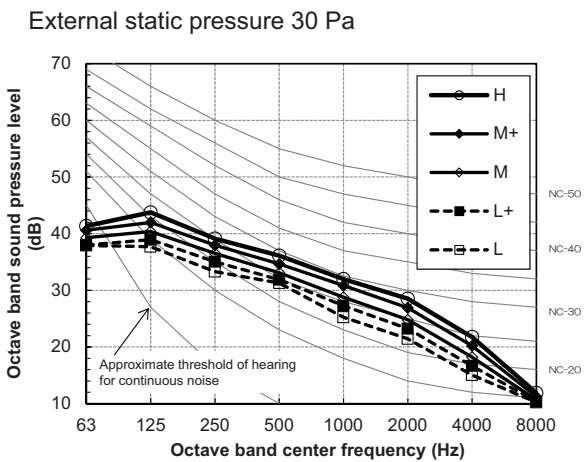
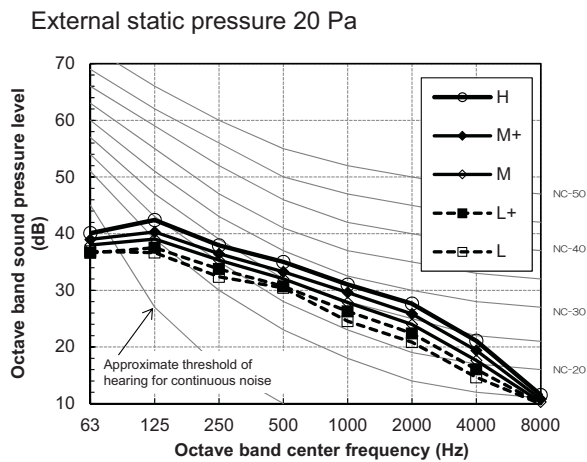
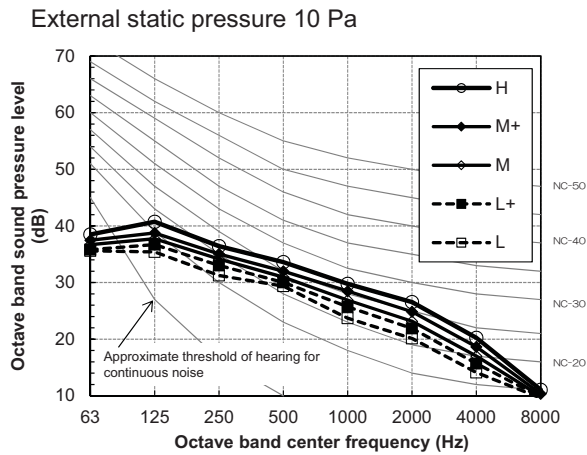
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	44	43	42	41	39
20	45	44	43	42	40
30	46	45	44	43	41
40	46	45	44	43	41
50	47	46	45	44	42



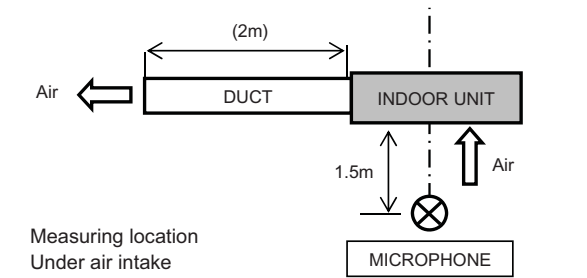
MMD-UP0241SPHY-E



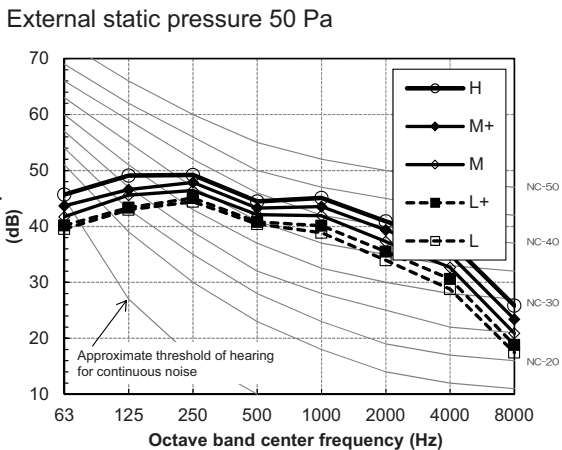
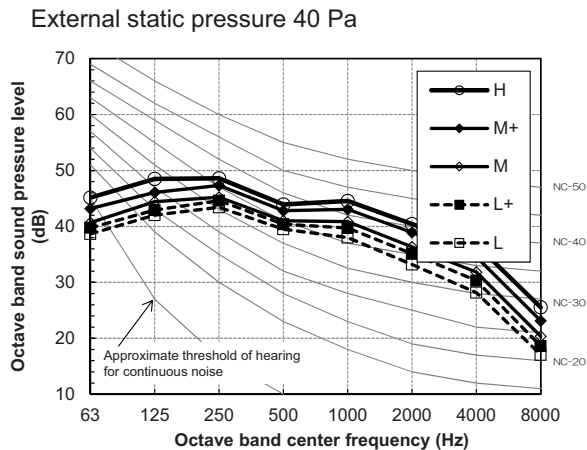
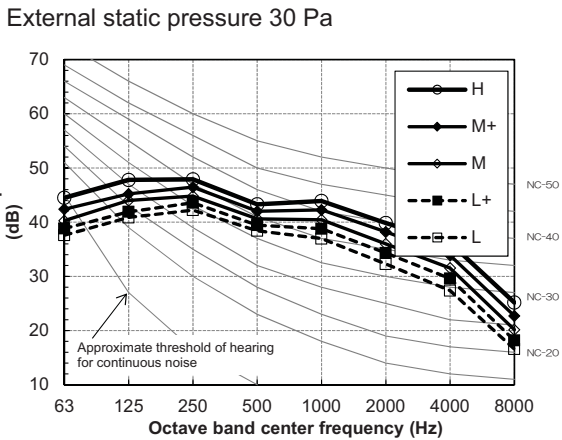
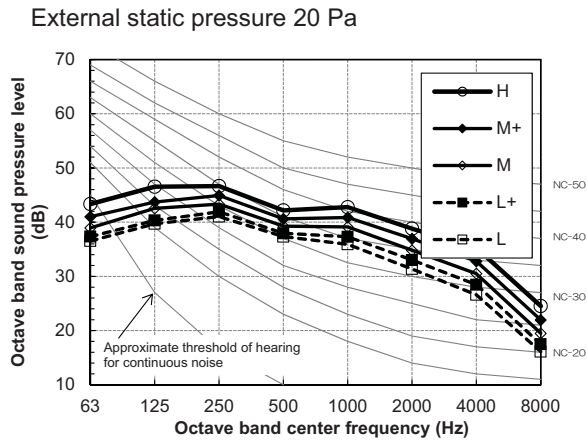
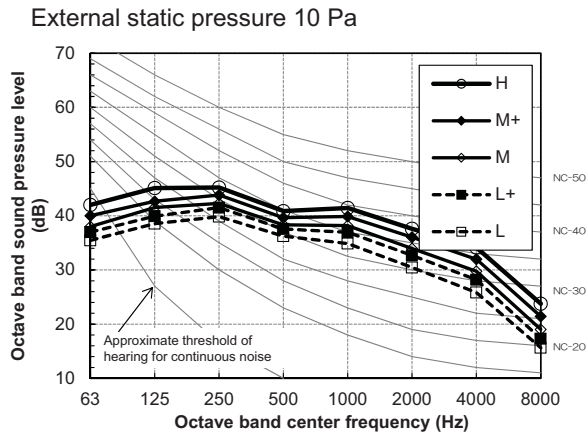
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	36	35	33	32	30
20	37	36	34	33	31
30	38	37	35	34	32
40	39	38	36	35	33
50	40	39	37	36	34



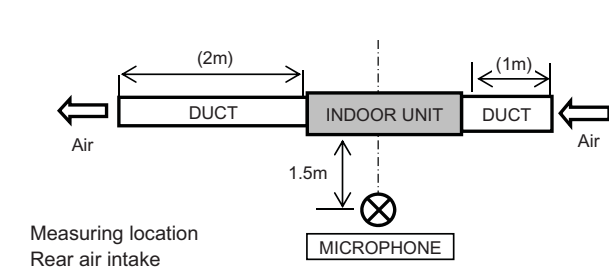
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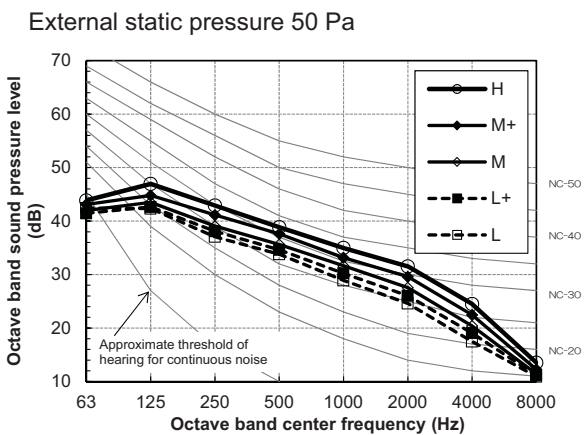
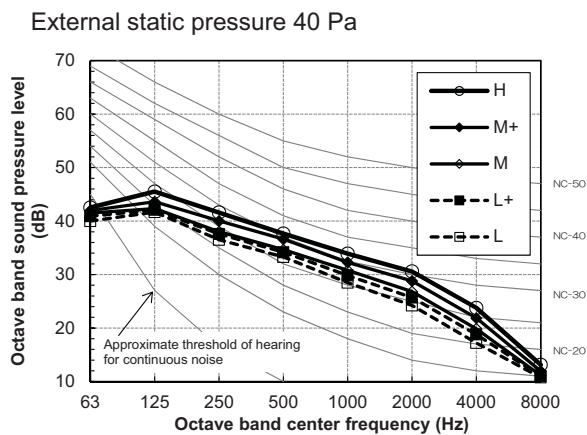
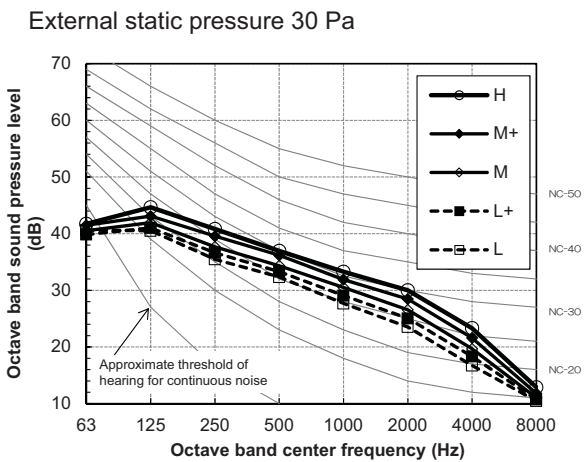
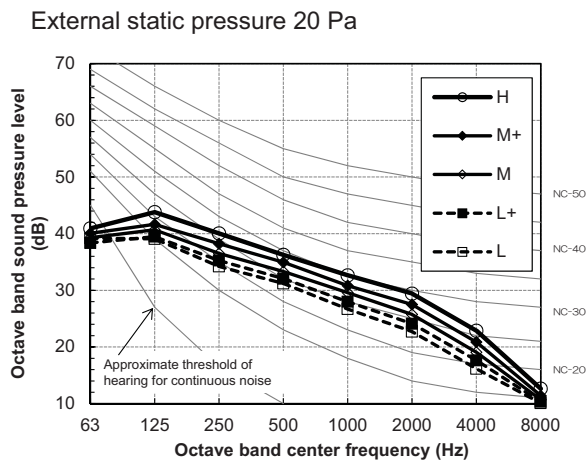
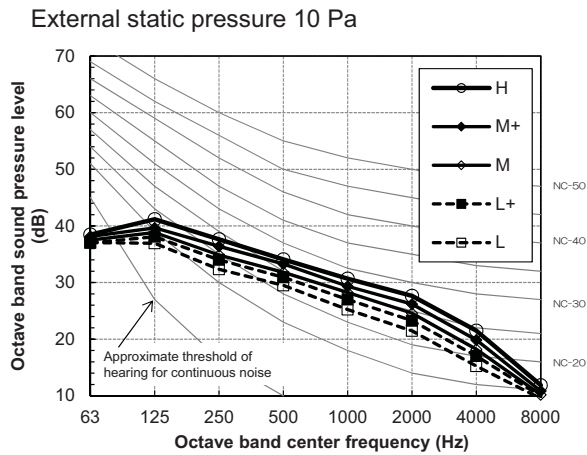
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	47	46	44	43	41
20	48	47	45	44	42
30	49	48	46	45	43
40	50	49	47	46	44
50	51	50	48	47	45



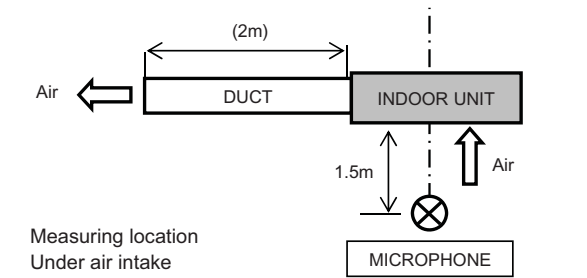
MMD-UP0271SPHY-E



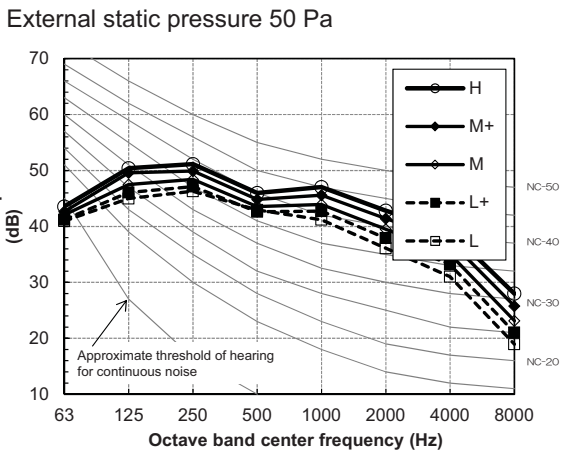
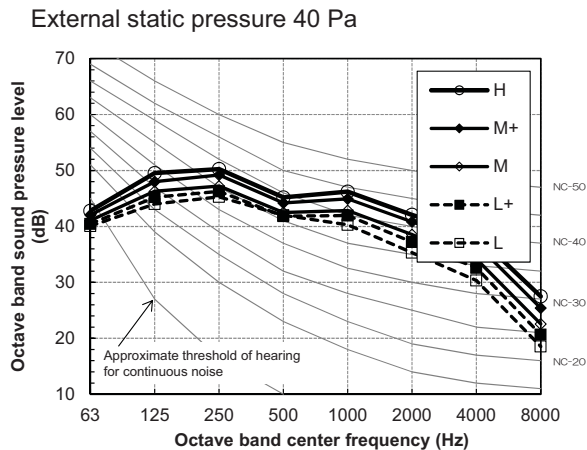
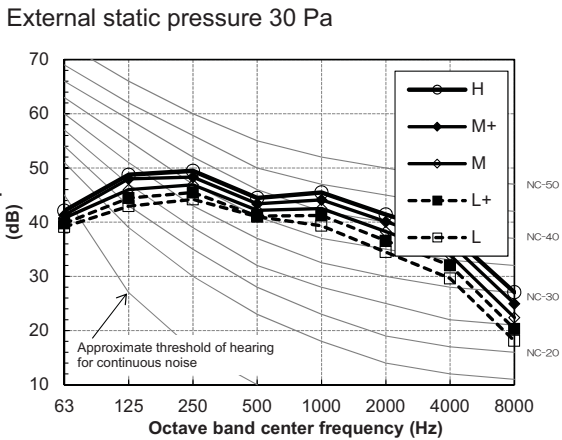
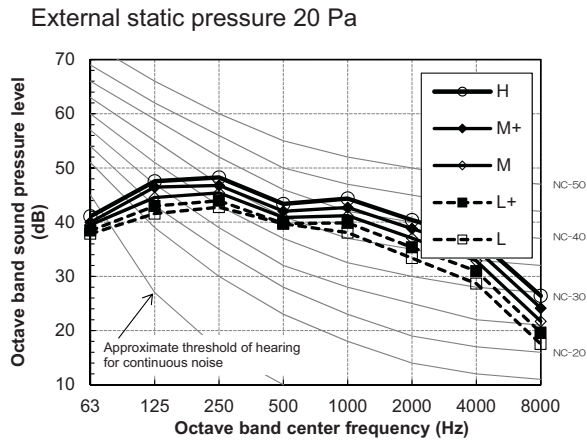
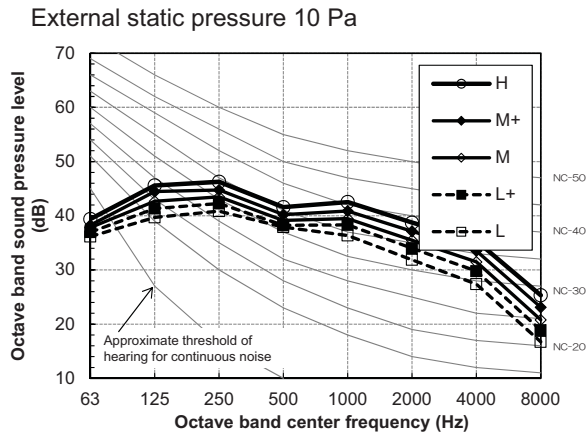
ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	37	36	34	33	32
20	38	37	35	34	33
30	39	38	36	35	34
40	40	39	37	36	35
50	41	40	38	37	36



MMD-UP0271SPHY-E

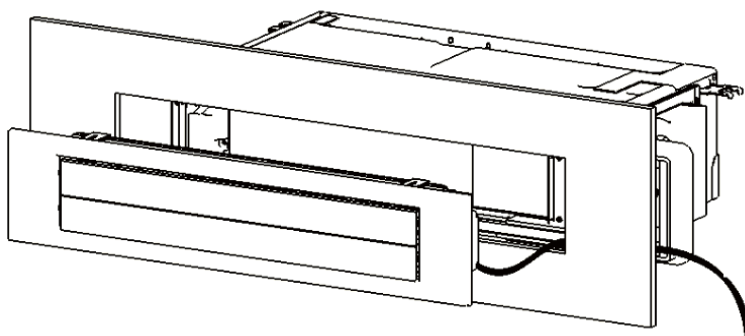


ESP (Pa)	Sound Pressure Level (dBA)				
	H	M+	M	L+	L
10	48	47	45	44	43
20	49	48	46	45	44
30	50	49	47	46	45
40	51	50	48	47	46
50	52	51	49	48	47



10. Accessories

Optional parts for compact slim duct

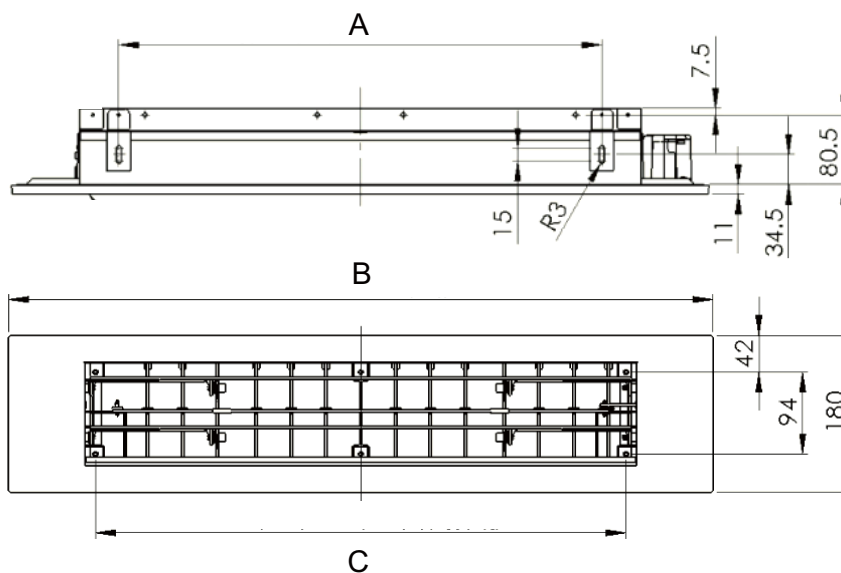


Optional parts list

Parts name	Model name	Applied model	Note
3DW Diffusor	TCB-TDL0141SDY-E	005 ~ 012 type	White (13 Gran White)
	TCB-TDL0181SDY-E	015 ~ 018 type	
	TCB-TDL0271SDY-E	024 ~ 027 type	

External dimension

(Unit: mm)



Model name	A	B	C
TCB-TDL0141SDY-E	561	810	610
TCB-TDL0181SDY-E	761	1010	810
TCB-TDL0271SDY-E	961	1210	1010

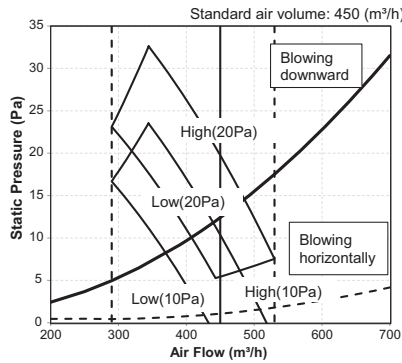
11. Reference

11-1. 3DW Diffusor

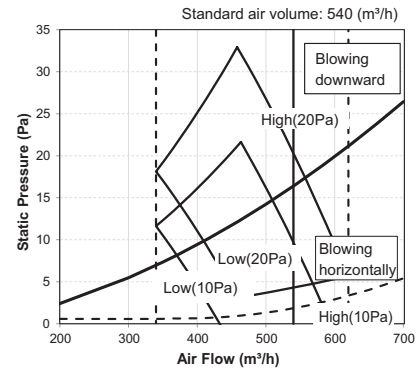
11-1-1. External pressure loss

*Refer to the Installation manual for details and notes

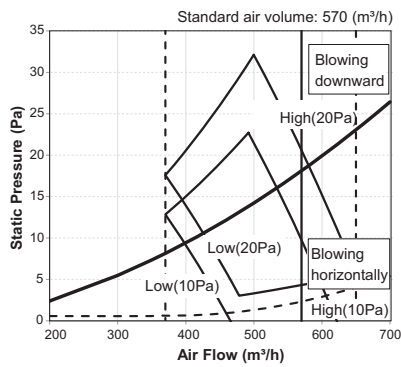
MMD-UP0051SPHY-E



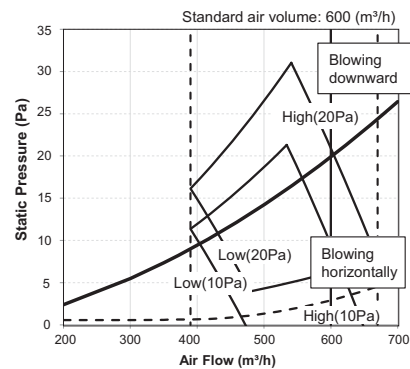
MMD-UP0071SPHY-E



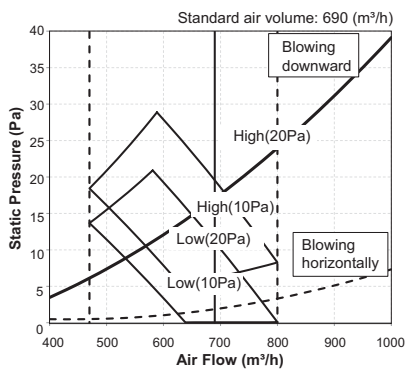
MMD-UP0091SPHY-E



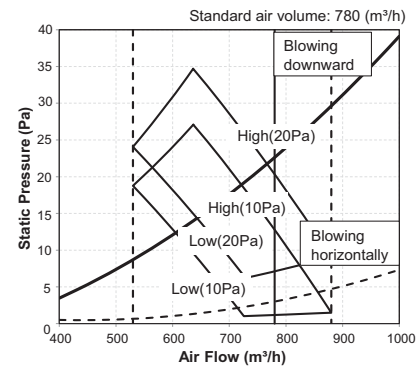
MMD-UP0121SPHY-E



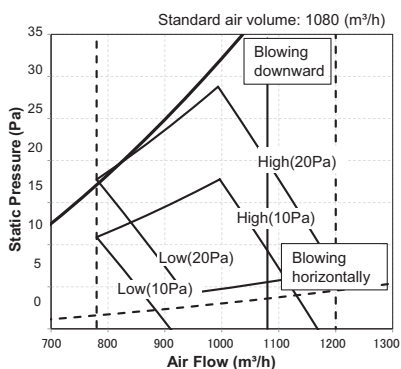
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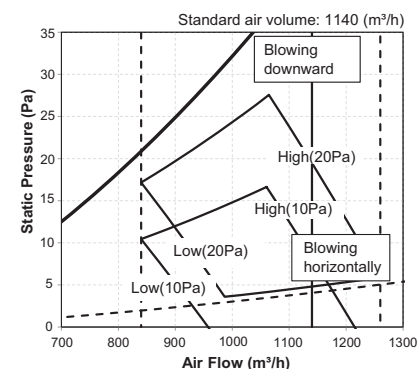
MMD-UP0181SPHY-E



MMD-UP0241SPHY-E



MMD-UP0271SPHY-E



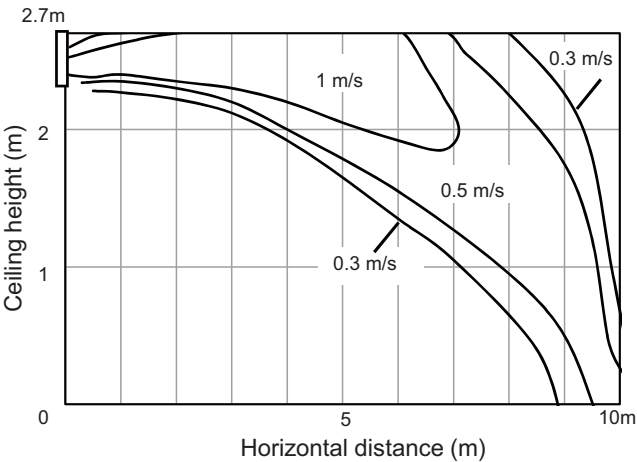
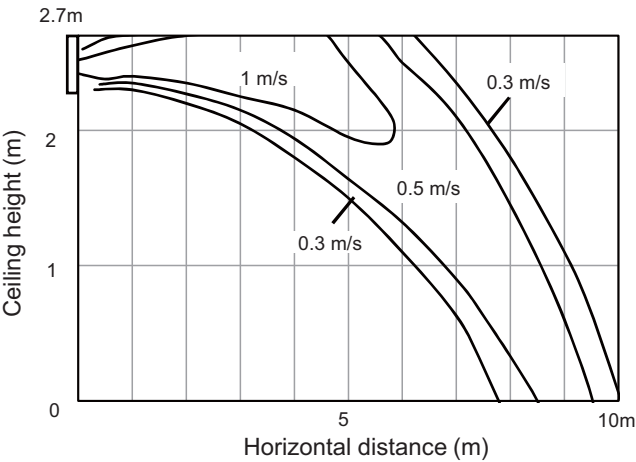
11-1-2. Air flow distance chart with 3DW Diffusor

*Refer to the Installation manual for details and notes

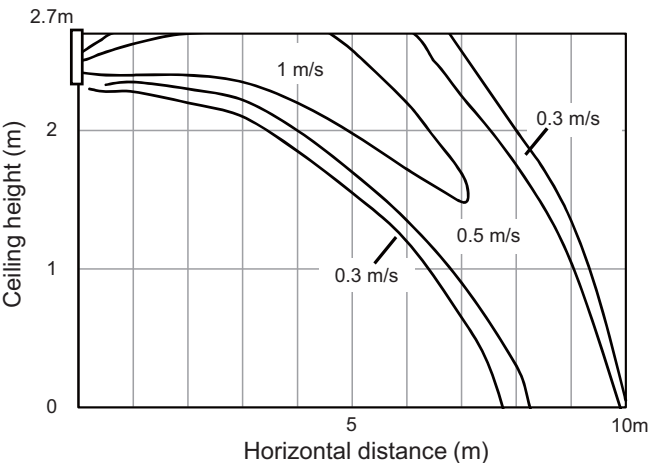
Cooling

MMD-UP0051SPHY-E, MMD-UP0071SPHY-E
MMD-UP0091SPHY-E

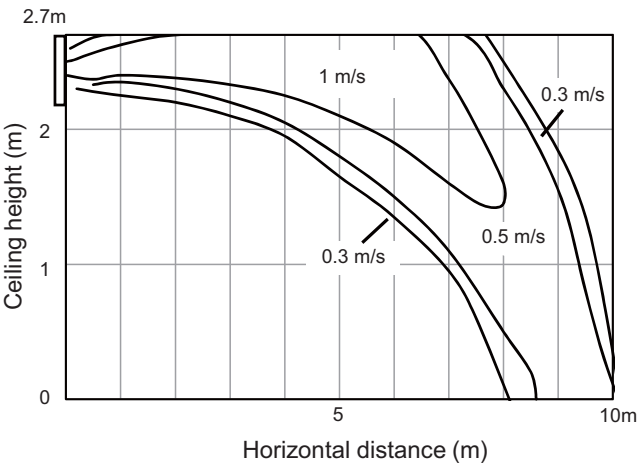
MMD-UP0121SPHY-E



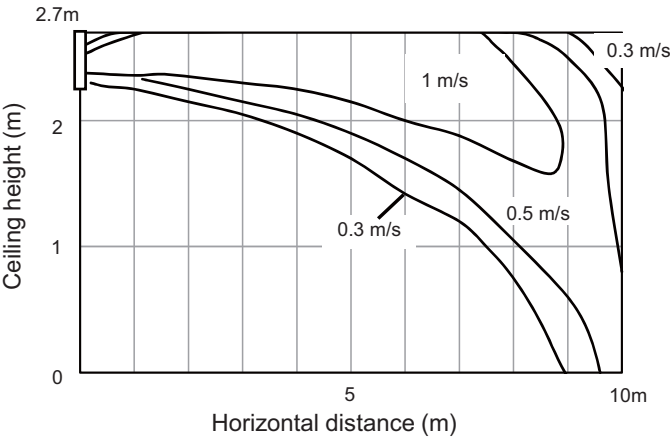
MMD-UP0151SPHY-E



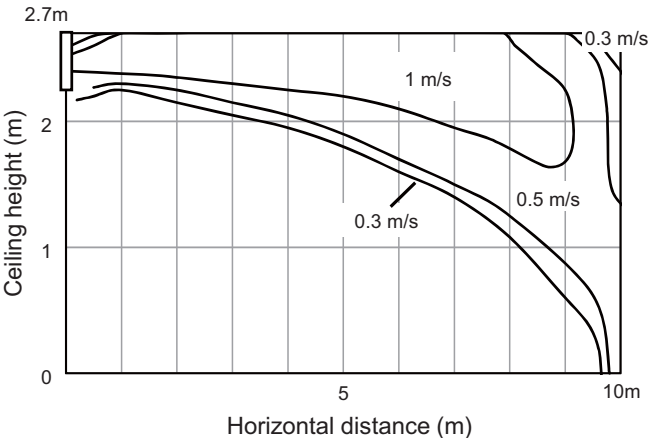
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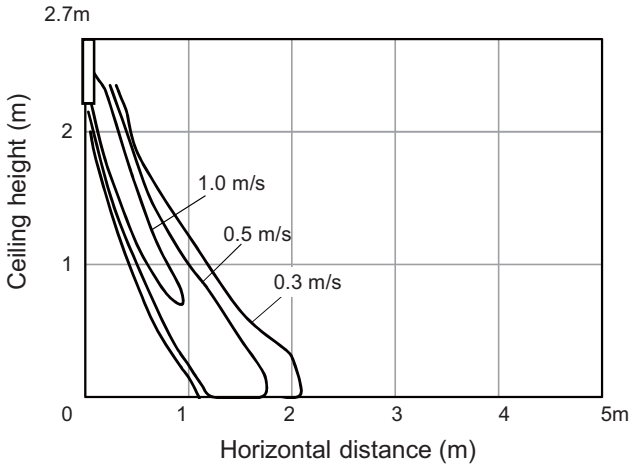
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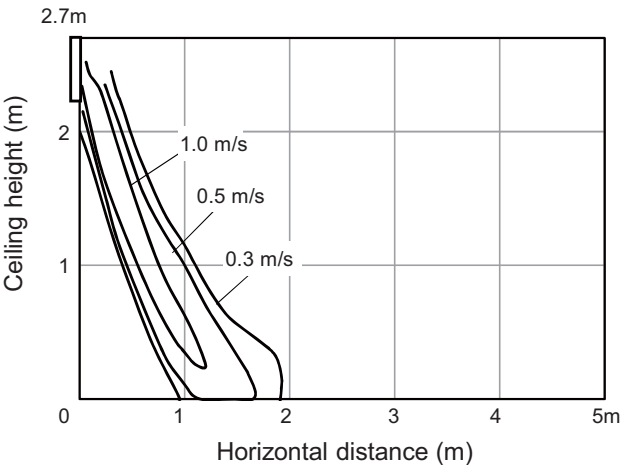
MMD-UP0271SPHY-E



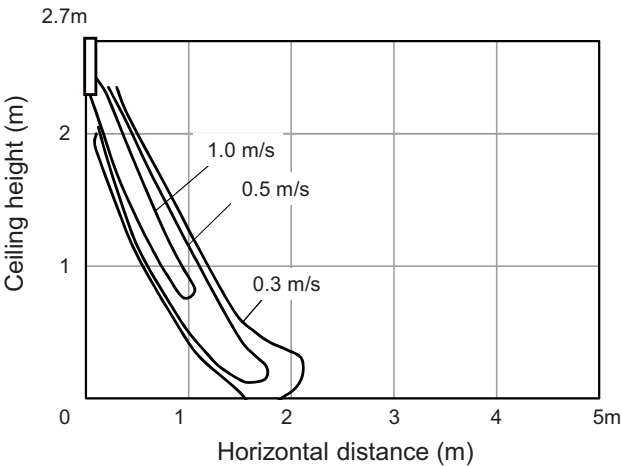
Heating
MMD-UP0051SPHY-E, MMD-UP0071SPHY-E
MMD-UP0091SPHY-E



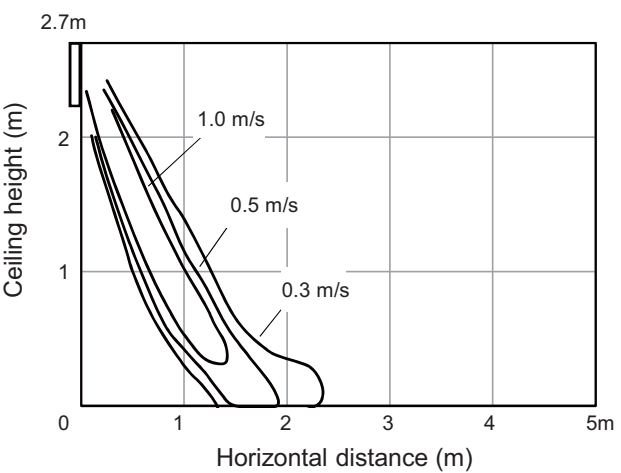
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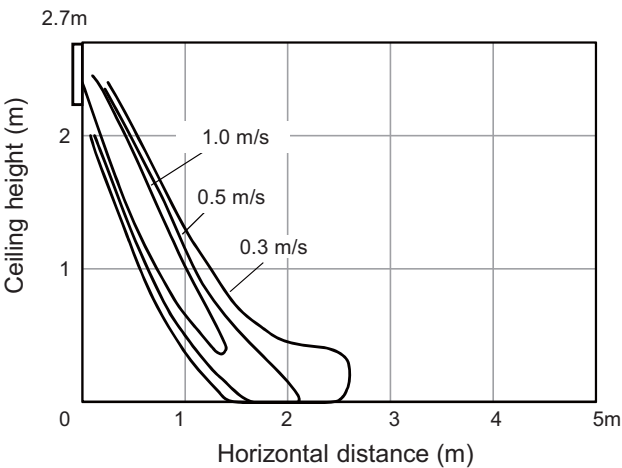
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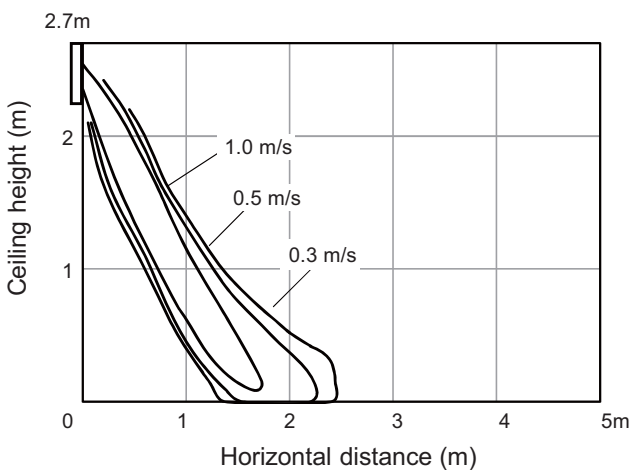
MMD-UP0181SPHY-E



MMD-UP0241SPHY-E



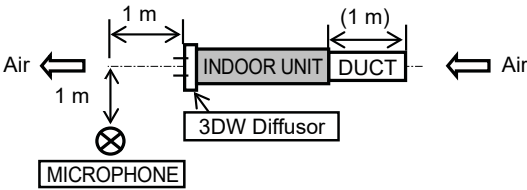
MMD-UP0271SPHY-E



11-1-3. Sound data with 3DW Diffusor

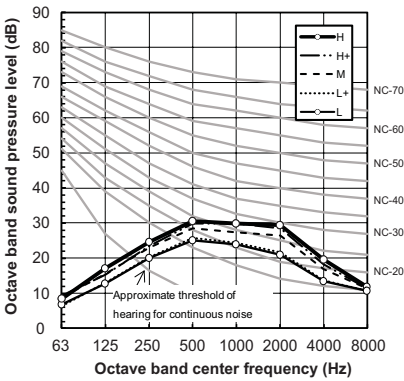
MMD-UP0051SPHY-E

Measuring location
Rear air intake



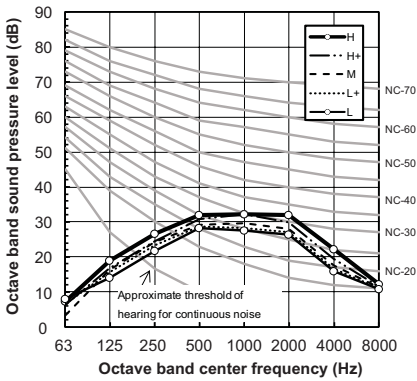
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	35	34	33	31	30



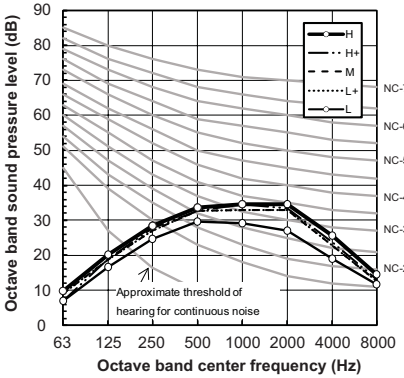
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	38	36	35	34	33



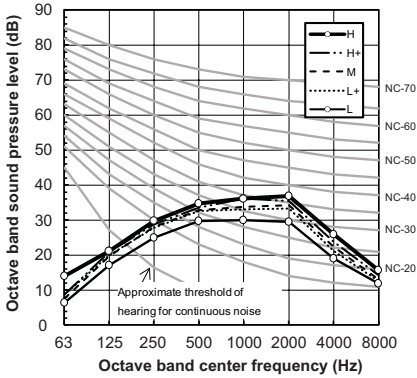
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	40	39	38	37	35



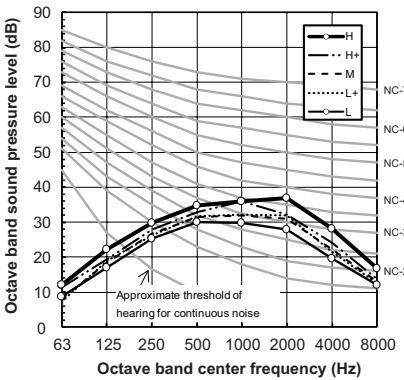
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	41	40	39	38	36



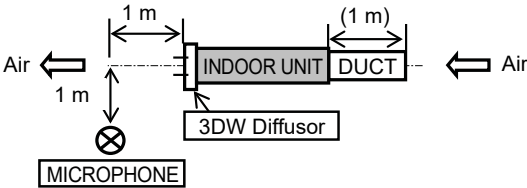
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	41	39	38	37	36



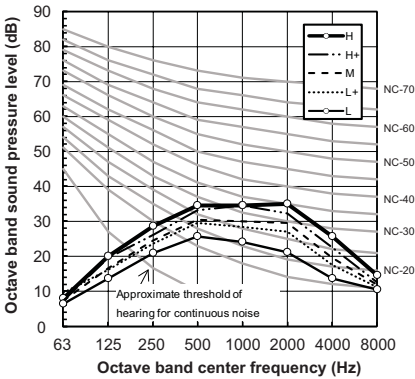
MMD-UP0071SPHY-E

Measuring location
Rear air intake



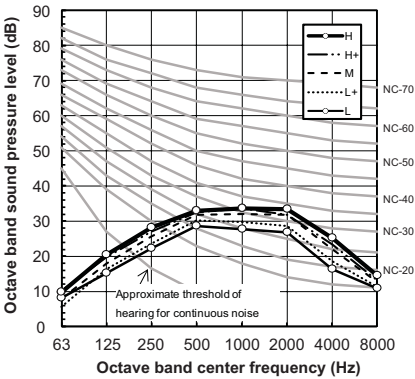
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	40	38	35	33	30



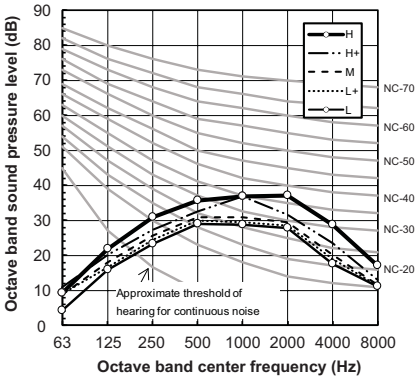
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	41	39	38	35	33



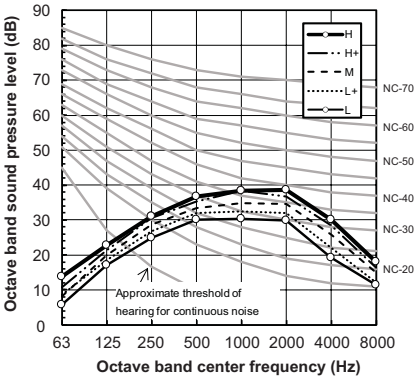
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	42	40	37	35	34



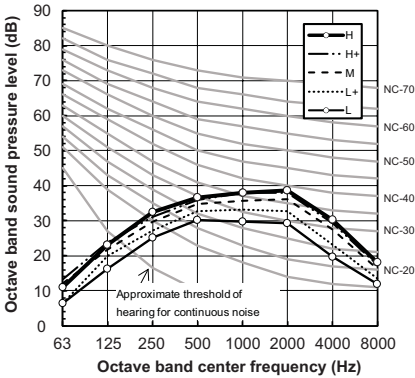
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	42	40	37	36



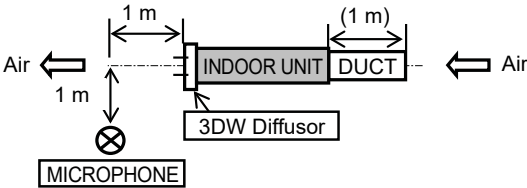
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	44	43	41	38	34



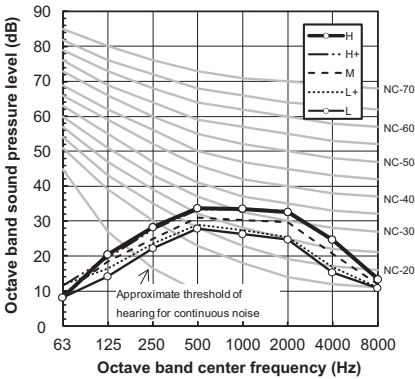
MMD-UP0091SPHY-E

Measuring location
Rear air intake



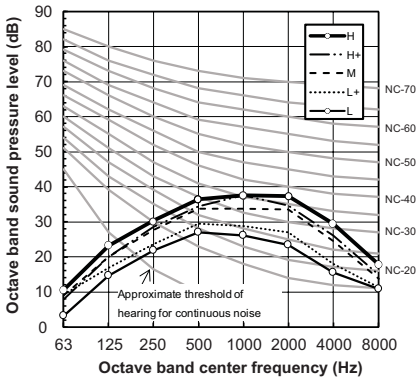
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	42	39	36	34	32



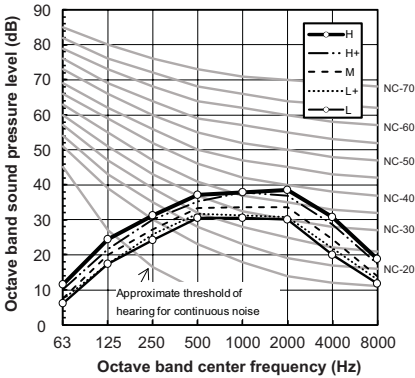
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	42	40	39	36	34



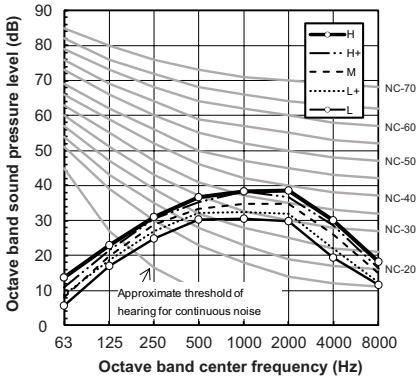
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	42	39	37	35



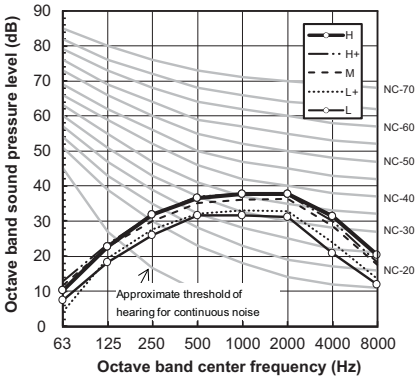
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	42	41	39	36



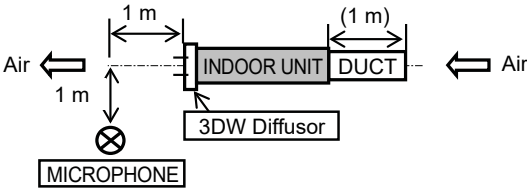
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	45	43	41	38	35



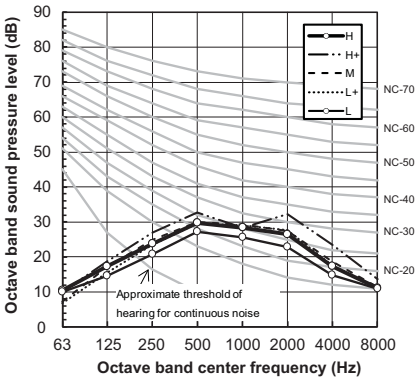
MMD-UP0121SPHY-E

Measuring location
Rear air intake



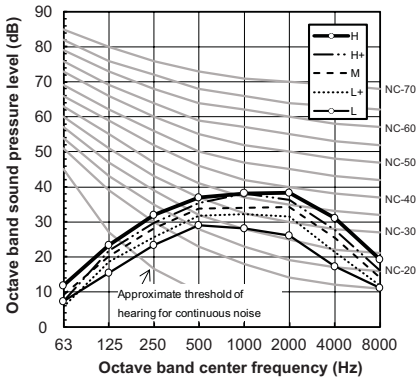
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	39	38	34	33



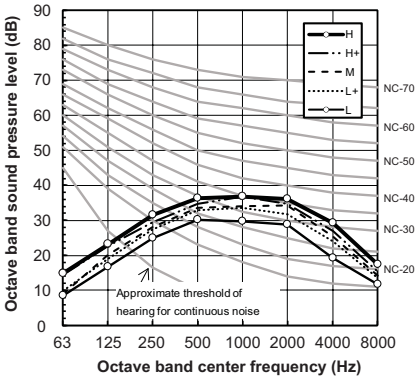
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	41	39	37	34



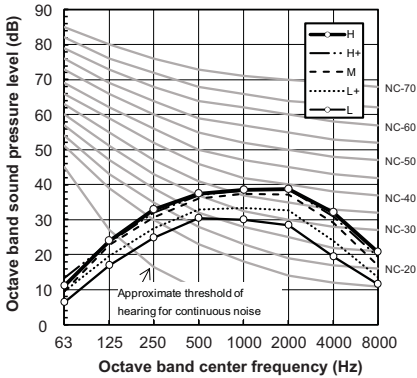
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	44	42	40	37	35



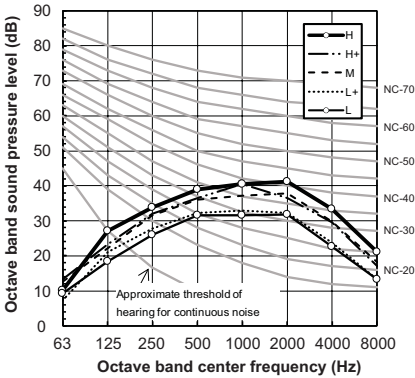
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	44	43	42	40	37



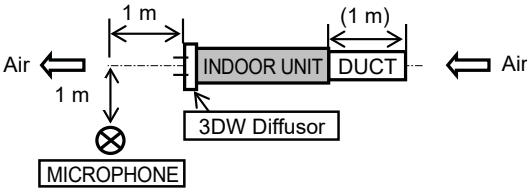
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	46	44	43	38	36



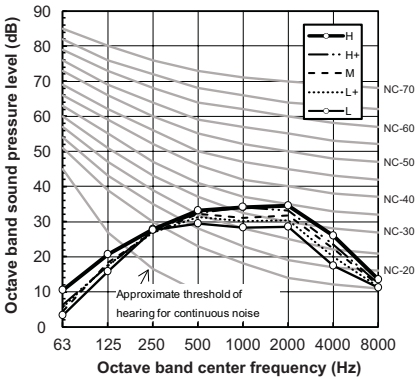
MMD-UP0151SPHY-E

Measuring location
Rear air intake



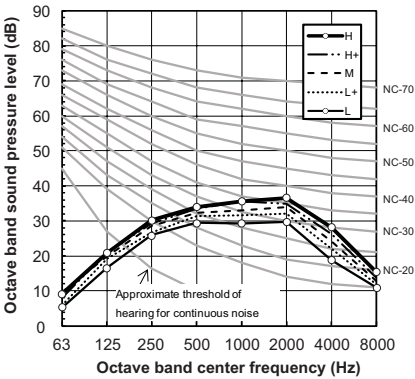
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	40	39	38	36	35



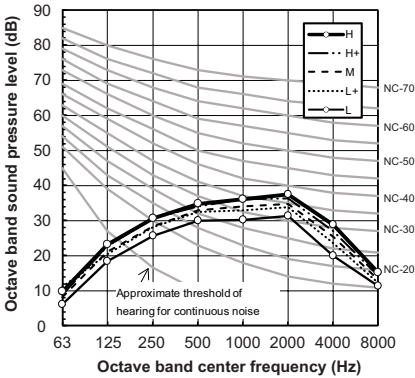
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	41	40	39	37	35



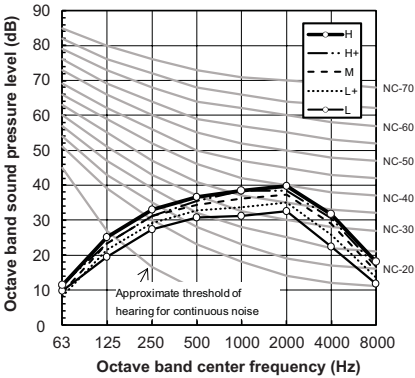
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	41	40	39	36



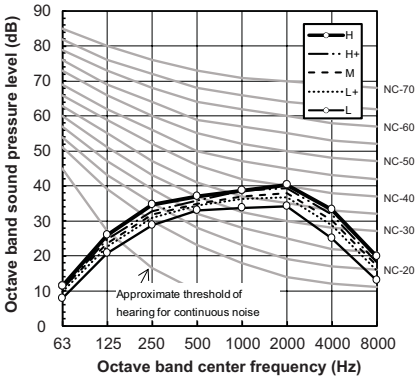
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	44	43	42	40	38



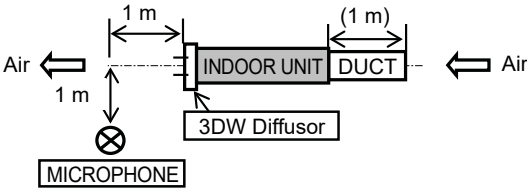
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	46	44	43	42	39



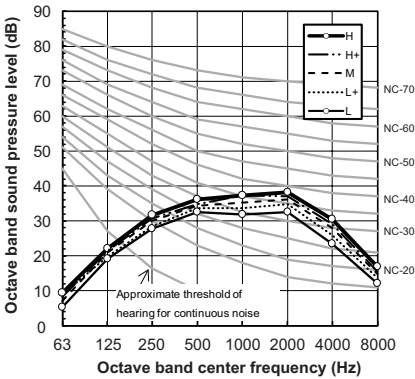
MMD-UP0181SPHY-E

Measuring location
Rear air intake



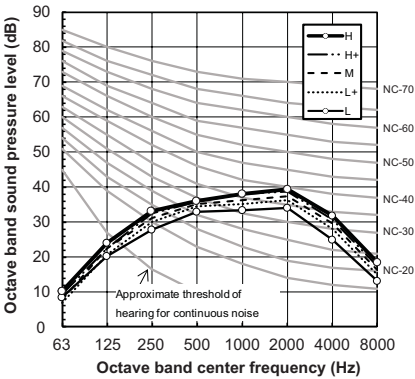
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	43	42	41	40	38



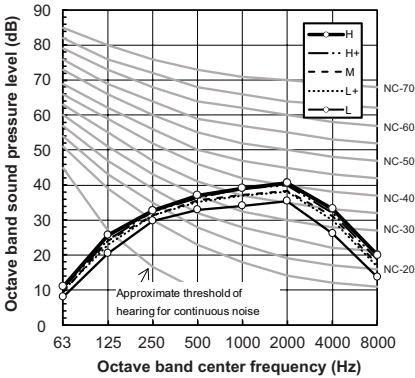
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	44	43	42	41	39



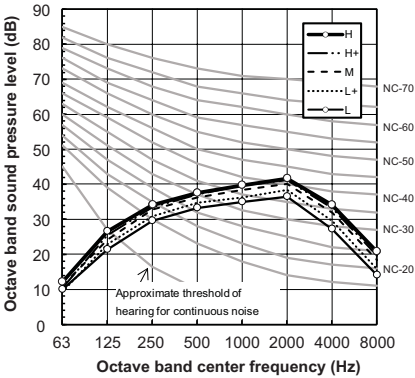
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	45	44	43	42	40



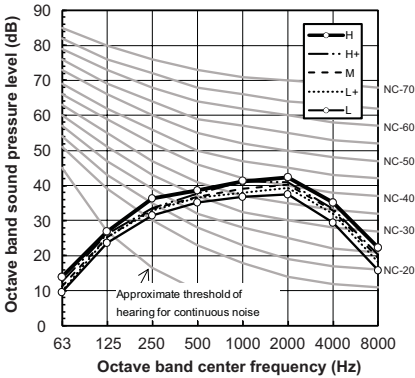
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	46	45	44	42	40



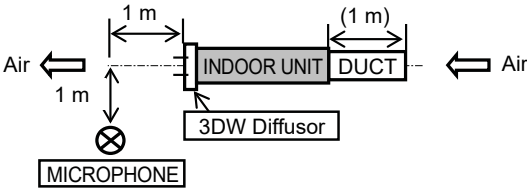
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	47	46	45	44	42



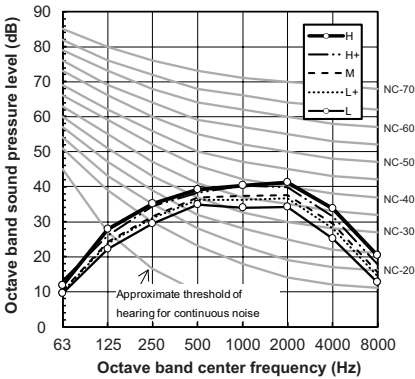
MMD-UP0241SPHY-E

Measuring location
Rear air intake



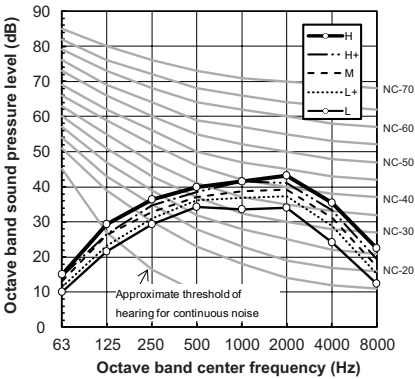
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	46	45	43	42	40



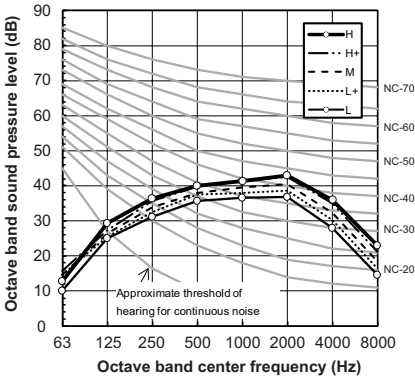
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	48	46	44	43	40



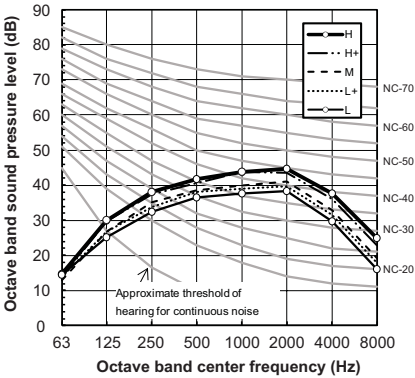
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	48	47	45	44	42



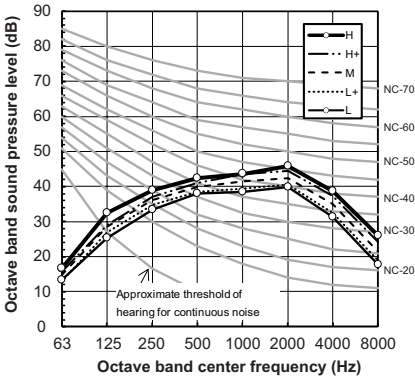
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	49	48	46	45	43



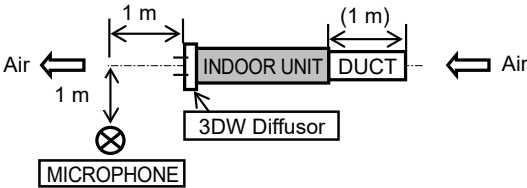
External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	50	49	47	45	44



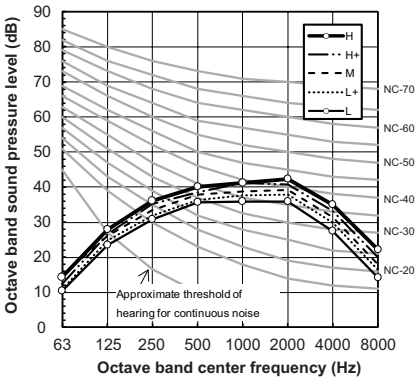
MMD-UP0271SPHY-E

Measuring location
Rear air intake



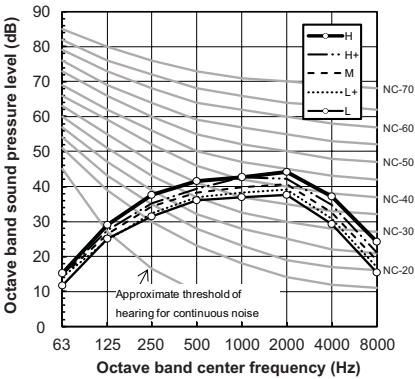
External static pressure 10 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	47	46	44	43	41



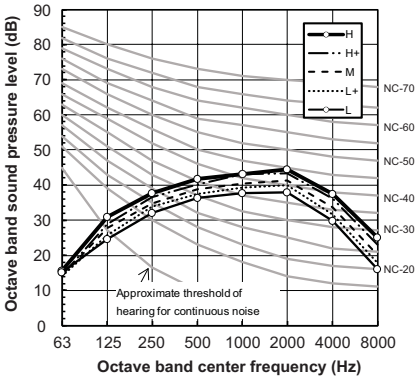
External static pressure 20 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	49	47	45	44	43



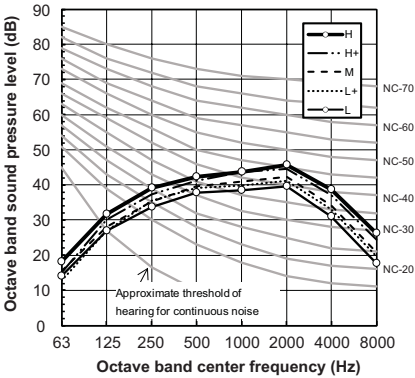
External static pressure 30 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	49	48	46	45	43



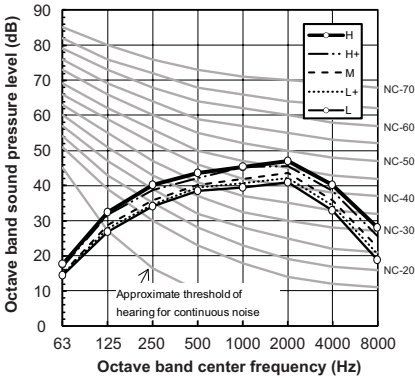
External static pressure 40 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	50	49	47	46	44



External static pressure 50 Pa

Fan tap	H	H+	M	L+	L
Sound pressure level (dB(A))	51	50	48	47	45



Slim duct Type Engineering Data Book

Model name:

MMD-UP_1SPHY-E

June, 2023

Toshiba Carrier Corporation