

HEAT RECOVERY VENTILATION UNIT

Concealed microcomputer control type

VN-U00151SY-E/TR
VN-U00251SY-E/TR
VN-U00351SY-E/TR
VN-U00501SY-E/TR
VN-U00651SY-E/TR
VN-U00801SY-E/TR
VN-U01001SY-E/TR



Contents

1. Specifications
2. Construction views
3. Wiring diagrams
4. Electrical characteristics
5. Fan characteristics
6. Sound data (NC Curve)
7. Sound data (Sound power spectrum)
8. Accessory

1. Specifications

Concealed microcomputer control type

Item	Model No.		VN-U0***1SY-E/TR						
	Fan Speed		015	025	035	050	065	080	100
Power Supply			220-240 V, 50 Hz / 208-230 V, 60 Hz						
Power consumption (W)	Heat Exchange Mode	Extra high	56	75	152	174	306	328	541
		High	43	57	92	105	176	196	291
		Medium	35	39	59	60	96	114	151
		Low	28	29	39	51	55	62	74
	Bypass Mode	Extra high	56	75	152	174	306	328	541
		High	45	62	92	114	191	215	320
		Medium	37	41	59	64	105	126	165
		Low	29	30	39	54	58	67	80
Current (A)	Heat Exchange Mode	Extra high	0.61	0.77	1.17	1.32	2.16	2.26	3.48
		High	0.47	0.61	0.75	0.85	1.33	1.43	2.04
		Medium	0.40	0.42	0.48	0.51	0.78	0.86	1.12
		Low	0.32	0.32	0.32	0.43	0.46	0.48	0.57
	Bypass Mode	Extra high	0.61	0.77	1.17	1.32	2.16	2.26	3.48
		High	0.51	0.67	0.75	0.93	1.46	1.59	2.25
		Medium	0.43	0.45	0.48	0.55	0.86	0.95	1.24
		Low	0.34	0.34	0.32	0.47	0.50	0.53	0.63
Maximum running Current (A)	Heat Exchange Mode	Extra high	0.61	0.77	1.17	1.32	2.16	2.26	3.48
		High	0.47	0.61	0.75	0.85	1.33	1.43	2.04
		Medium	0.40	0.42	0.48	0.51	0.78	0.86	1.12
		Low	0.32	0.32	0.32	0.43	0.46	0.48	0.57
	Bypass Mode	Extra high	0.61	0.77	1.17	1.32	2.16	2.26	3.48
		High	0.51	0.67	0.75	0.93	1.46	1.59	2.25
		Medium	0.43	0.45	0.48	0.55	0.86	0.95	1.24
		Low	0.34	0.34	0.32	0.47	0.50	0.53	0.63
Air Volume (m³/h)		Extra high	150	250	350	500	650	800	1000
		High	120	210	280	400	520	640	800
		Medium	95	145	210	300	390	480	600
		Low	73	100	140	260	260	320	400
Net supply air flow (m³/h)		Extra high	137	228	319	455	592	728	910
		High	110	192	255	364	474	583	728
		Medium	85	130	187	267	348	437	546
		Low	65	89	125	232	232	292	364
External Static Pressure (Pa)	Heat Exchange Mode	Extra high	90	75	160	125	150	145	170
		High	60	53	100	80	100	92	110
		Medium	43	30	57	45	58	53	60
		Low	26	16	26	39	29	28	30
	Bypass Mode	Extra high	90	75	160	125	150	145	170
		High	60	53	100	80	100	92	110
		Medium	43	30	57	45	58	53	60
		Low	26	16	26	39	29	28	30
Sound pressure level (dB(A)) Under side	Heat Exchange Mode	Extra high	28.0	28.0	34.0	36.0	39.0	39.0	41.0
		High	25.0	27.0	31.0	31.0	35.0	35.0	38.0
		Medium	22.0	24.0	26.0	27.0	30.0	30.0	33.0
		Low	20.0	20.0	21.0	25.0	24.0	23.0	24.0
	Bypass Mode	Extra high	28.0	28.0	34.0	36.0	39.0	39.0	41.0
		High	26.0	27.0	31.0	32.0	36.0	36.0	39.0
		Medium	23.0	25.0	26.0	28.0	31.0	31.0	34.0
		Low	21.0	21.0	21.0	26.0	25.0	24.0	25.0

Item	Model No. Fan Speed		VN-U0***1SY-E/TR						
			015	025	035	050	065	080	100
Sound pressure level (dB(A)) blowing out	Heat Exchange Mode	Extra high	36.0	38.0	45.0	47.0	50.0	52.0	56.0
		High	33.0	36.0	42.0	43.0	47.0	47.0	51.0
		Medium	30.0	29.0	35.0	37.0	41.0	41.0	44.0
		Low	26.0	23.0	26.0	36.0	33.0	33.0	34.0
	Bypass Mode	Extra high	36.0	38.0	45.0	47.0	50.0	52.0	56.0
		High	34.0	36.0	42.0	44.0	48.0	48.0	52.0
		Medium	31.0	30.0	35.0	38.0	42.0	42.0	45.0
		Low	27.0	24.0	26.0	37.0	34.0	34.0	35.0
Sound power level (dB(A)) Under side	Heat Exchange Mode	Extra high	43.0	43.0	49.0	51.0	54.0	54.0	56.0
		High	40.0	42.0	46.0	46.0	50.0	50.0	53.0
		Medium	37.0	39.0	41.0	42.0	45.0	45.0	48.0
		Low	35.0	35.0	36.0	40.0	39.0	38.0	39.0
	Bypass Mode	Extra high	43.0	43.0	49.0	51.0	54.0	54.0	56.0
		High	41.0	42.0	46.0	47.0	51.0	51.0	54.0
		Medium	38.0	40.0	41.0	43.0	46.0	46.0	49.0
		Low	36.0	36.0	36.0	41.0	40.0	39.0	40.0
Temperature exchange Efficiency (%)	average	Extra high	77.0	75.0	74.0	74.0	70.0	72.5	70.5
		High	80.0	76.0	75.0	74.5	72.0	74.5	71.0
		Medium	81.0	78.5	79.5	76.0	74.5	80.5	76.0
		Low	81.5	80.5	83.5	77.0	76.0	88.5	84.0
	for heating	Extra high	83.0	80.0	81.0	79.0	77.0	78.0	78.0
		High	83.5	80.5	81.5	79.5	77.5	79.0	78.5
		Medium	84.5	82.0	84.0	80.0	78.0	84.0	80.0
		Low	85.0	84.0	87.0	80.5	79.0	91.0	87.0
	for cooling	Extra high	71.0	70.0	67.0	69.0	63.0	67.0	63.0
		High	76.5	71.5	68.5	69.5	66.5	70.0	63.5
		Medium	77.5	75.0	75.0	72.0	71.0	77.0	72.0
		Low	78.0	77.0	80.0	73.5	73.0	86.0	81.0
Enthalpy exchange Efficiency (%)	for heating	Extra high	76.0	75.0	73.0	73.0	70.0	73.0	72.0
		High	80.0	76.0	76.0	74.0	72.0	74.0	73.0
		Medium	81.0	78.0	80.0	75.0	74.0	80.0	75.0
		Low	82.0	81.0	84.0	76.0	76.0	88.0	83.0
	for cooling	Extra high	66.0	65.0	64.0	64.0	60.0	64.0	62.0
		High	73.0	68.0	67.0	66.0	62.0	67.0	63.0
		Medium	75.0	71.0	71.0	68.0	66.0	73.0	68.0
		Low	77.0	75.0	76.0	69.0	69.0	81.0	77.0
Net supply air flow ratio (%)		Extra high	91	91	91	91	91	91	91
		High	91	91	91	91	91	91	91
		Medium	89	89	89	89	89	91	91
		Low	89	89	89	89	89	91	91
External dimensions (Length × Width × Height) (mm)			778 × 735 × 278		880 × 880 × 305	920 × 1020 × 337		1130 × 1230 × 386	
Product weight (kg)			29	29	40	47	47	63	63
Applicable duct nominal diameter (mm)			Ø100	Ø150	Ø150	Ø200	Ø200	Ø250	Ø250

*1 Air volume can be changed over to high (extra high) mode, medium mode or low mode.

*2 Sound pressure level is measured 1.5 m below the center of the unit.

*3 Sound pressure level is the value which was measured at the acoustic room.

*4 Actually, sound pressure levels become higher than this value depending on the operating conditions, reflected sound and peripheral noise.

*5 When the temperature of the outdoor air is below -10°C, the unit runs the prevent cold draft mode (the ventilator for air supply drives in low mode)

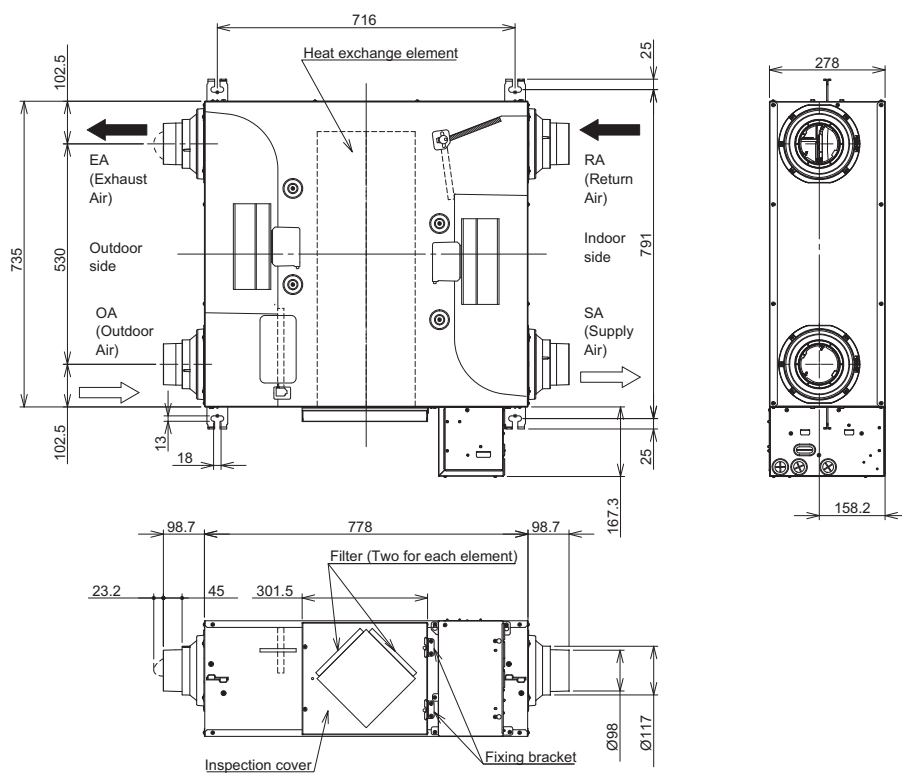
The unit cannot run when the temperature of the outdoor air is below -20°C.

The ventilator for air supply stops running and ventilator for air exhaust also stops depending on the settings.

2. Construction views

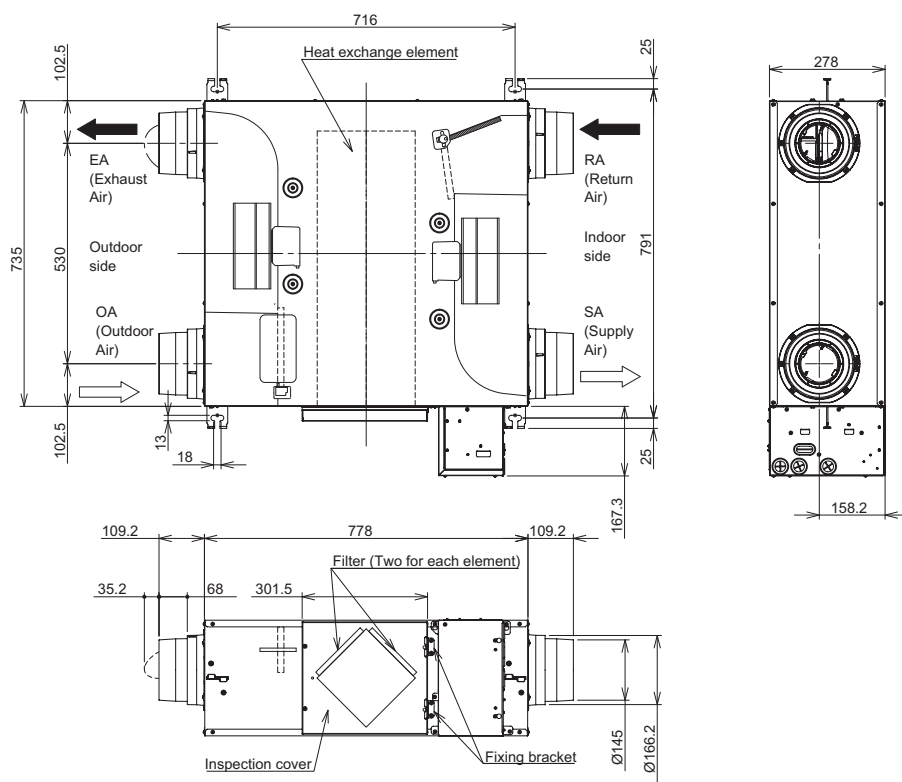
VN-U00151SY*

Unit: mm



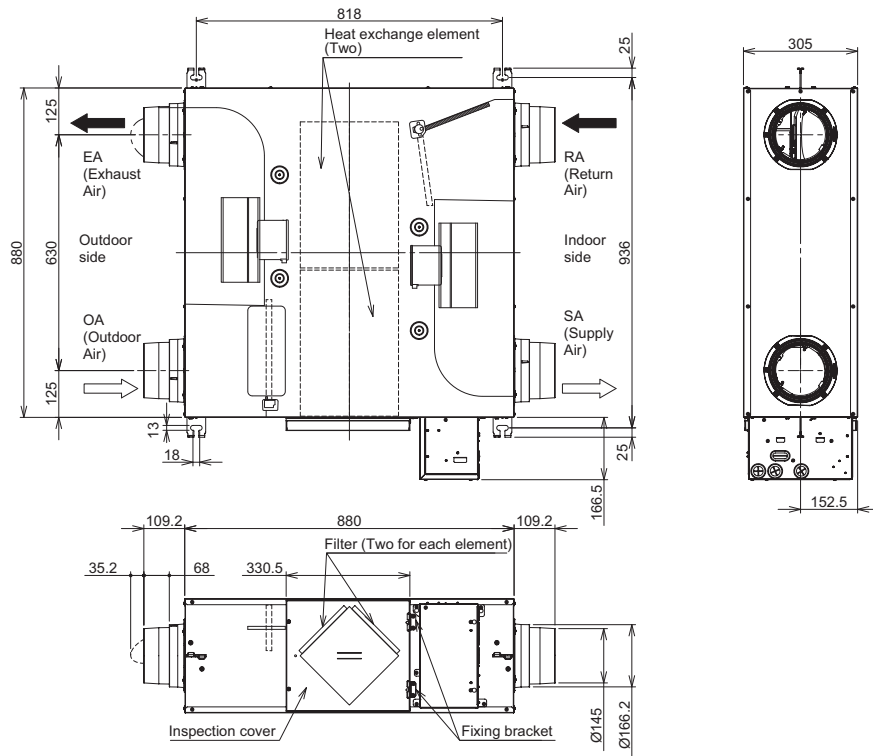
VN-U00251SY*

Unit: mm



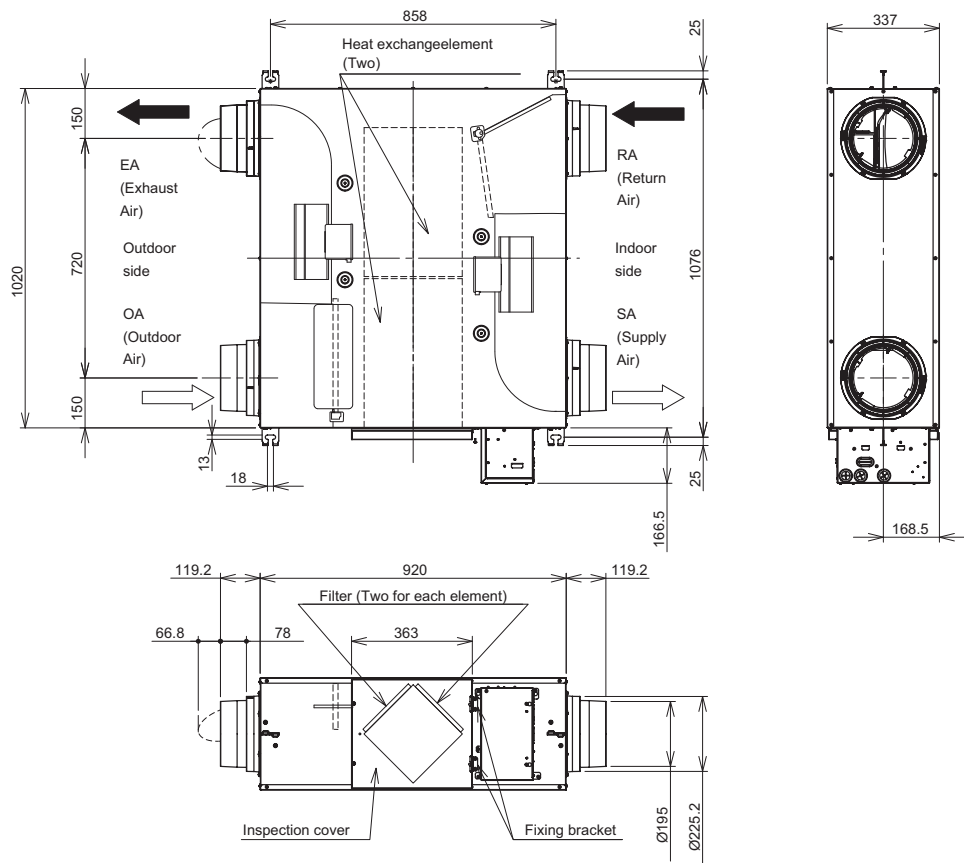
VN-U00351SY*

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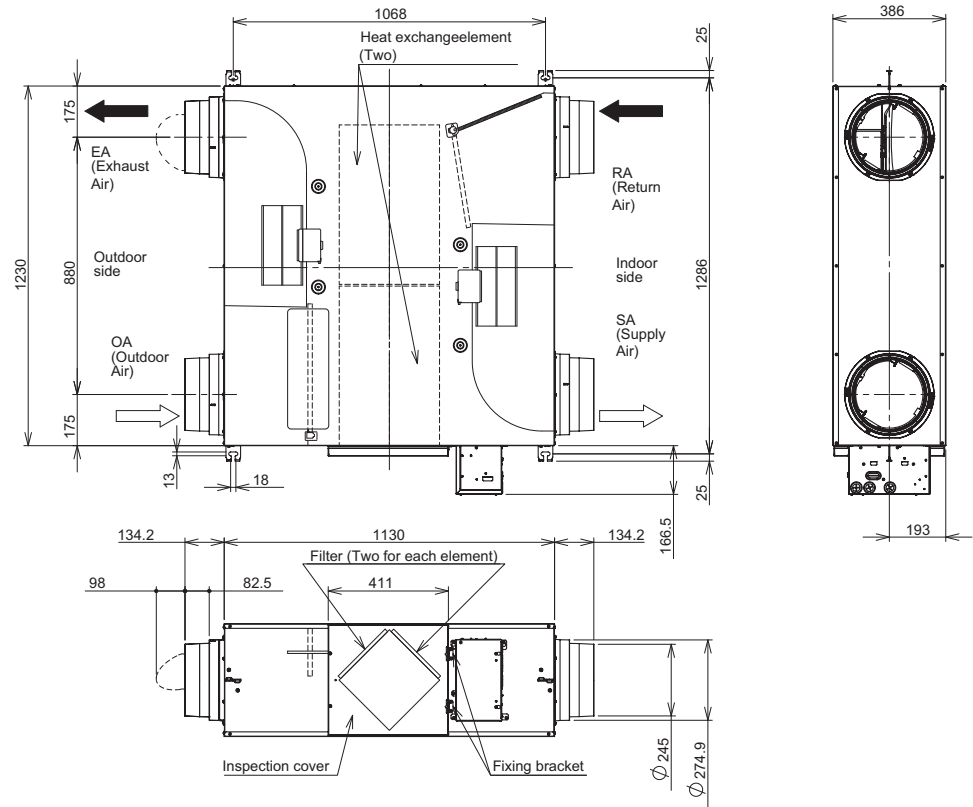
VN-U00501SY*, VN-U00651SY*

Unit: mm



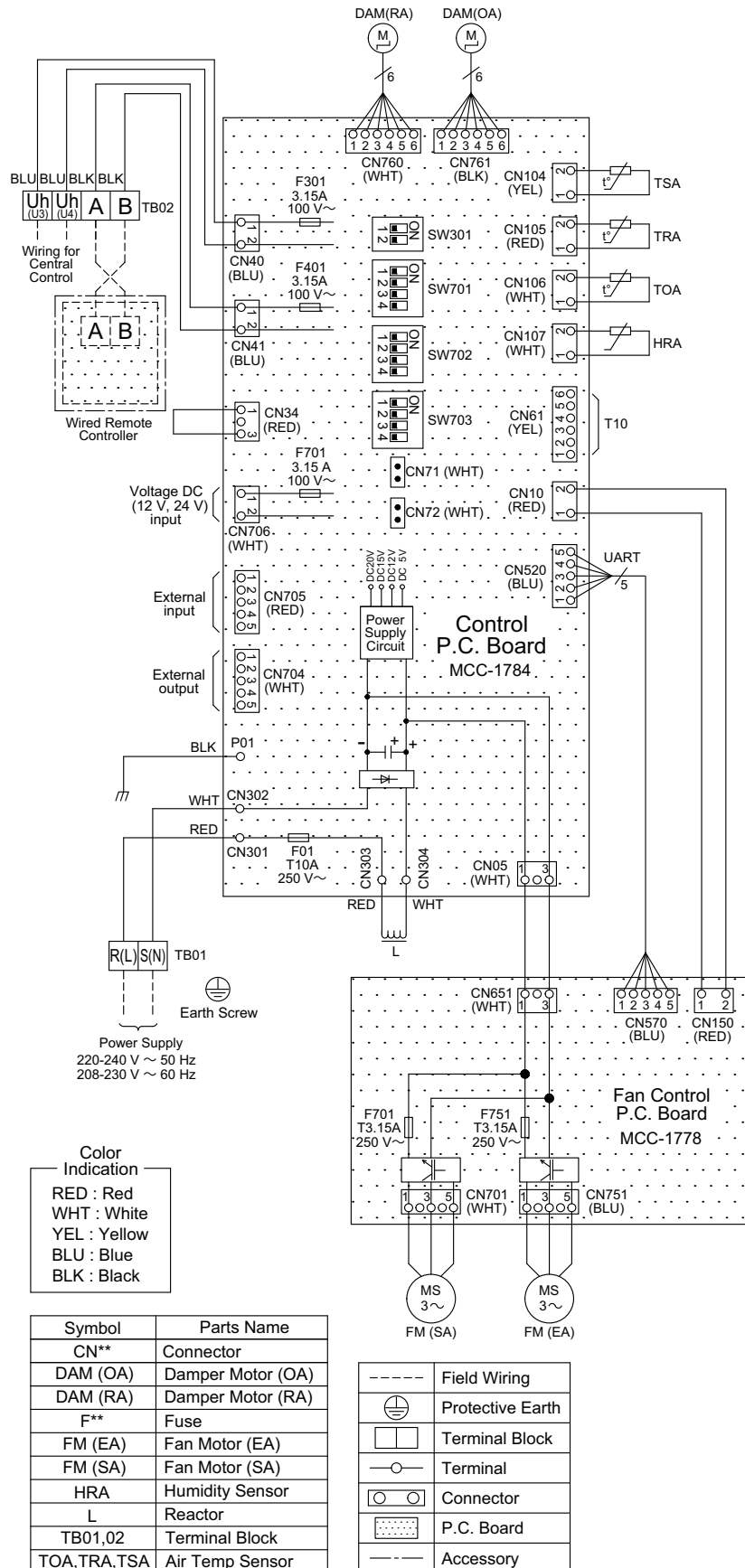
VN-U00801SY*, VN-U01001SY*

Unit: mm



3. Wiring diagrams

VN-U00151SY-E/TR, VN-U00251SY-E/TR, VN-U00351SY-E/TR, VN-U00501SY-E/TR, VN-U00651SY-E/TR,
VN-U00801SY-E/TR, VN-U01001SY-E/TR



4. Electrical characteristics

50 Hz

Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
		Min.	Max.	kW	FLA	MCA	MOCP
VN-U00151SY-E/TR	230-1-50	198	264	0.060 × 2	0.61	0.76	15
VN-U00251SY-E/TR	230-1-50	198	264	0.060 × 2	0.77	0.96	15
VN-U00351SY-E/TR	230-1-50	198	264	0.150 × 2	1.20	1.50	15
VN-U00501SY-E/TR	230-1-50	198	264	0.150 × 2	1.32	1.65	15
VN-U00651SY-E/TR	230-1-50	198	264	0.150 × 2	2.16	2.70	15
VN-U00801SY-E/TR	230-1-50	198	264	0.250 × 2	2.45	3.06	15
VN-U01001SY-E/TR	230-1-50	198	264	0.250 × 2	3.60	4.50	15

60 Hz

Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
		Min.	Max.	kW	FLA	MCA	MOCP
VN-U00151SY-E/TR	220-1-60	187	253	0.060 × 2	0.62	0.78	15
VN-U00251SY-E/TR	220-1-60	187	253	0.060 × 2	0.79	0.99	15
VN-U00351SY-E/TR	220-1-60	187	253	0.150 × 2	1.25	1.56	15
VN-U00501SY-E/TR	220-1-60	187	253	0.150 × 2	1.35	1.68	15
VN-U00651SY-E/TR	220-1-60	187	253	0.150 × 2	2.21	2.77	15
VN-U00801SY-E/TR	220-1-60	187	253	0.250 × 2	2.56	3.20	15
VN-U01001SY-E/TR	220-1-60	187	253	0.250 × 2	3.76	4.70	15

↑

Fan Motor: 2 pcs/unit

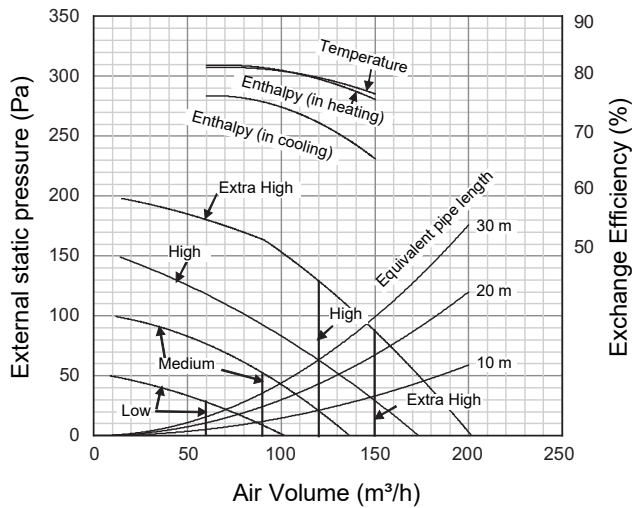
MCA : Minimum Circuit Amps
 MOCP : Maximum Overcurrent Protection (Amps)
 FLA : Full Load Amps
 kW : Fan Motor Rated Output (kW)

5. Fan characteristics

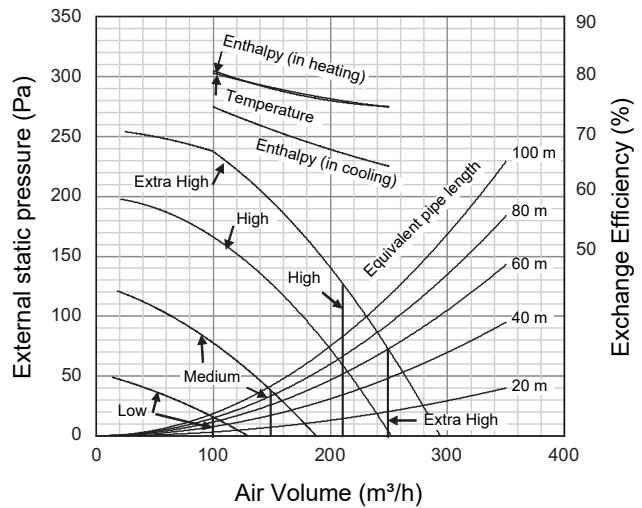
P-Q Curve

* When friction coefficient of pipe (duct): $\lambda = 0.02$

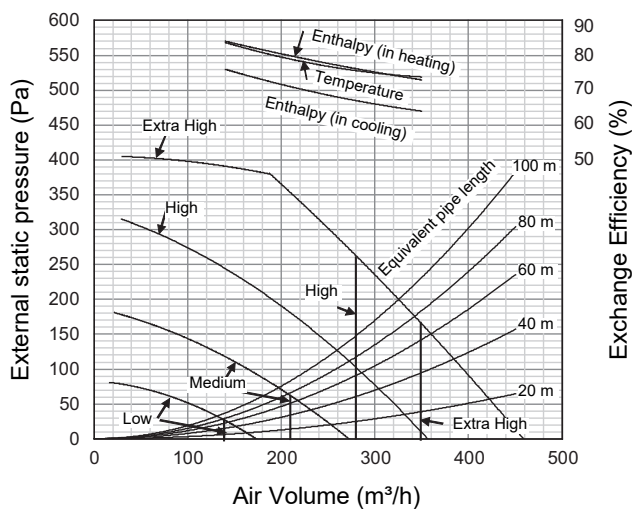
150 m³/h



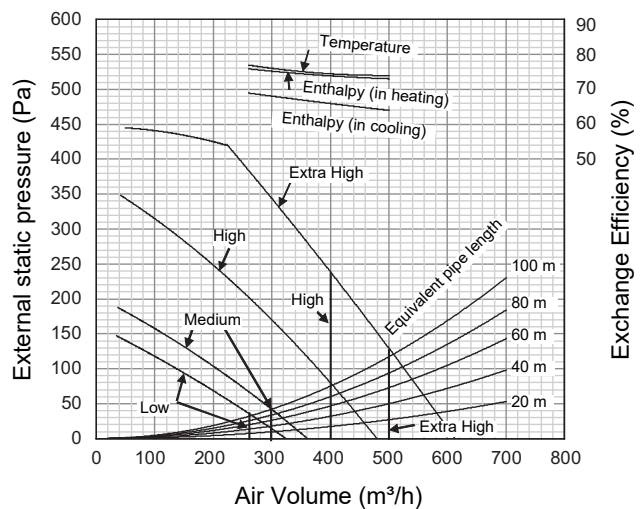
250 m³/h



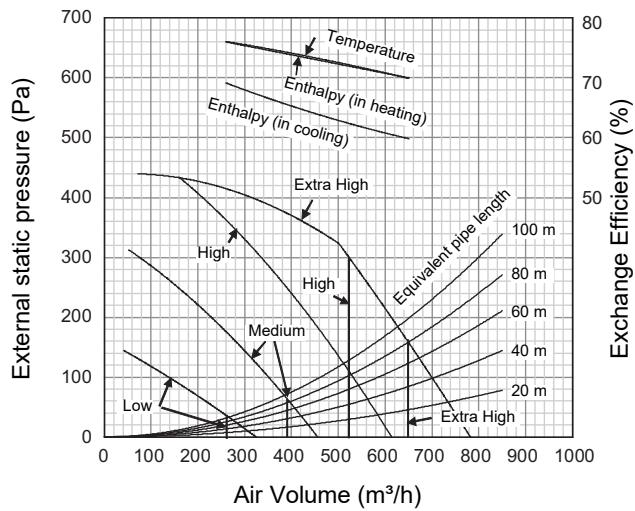
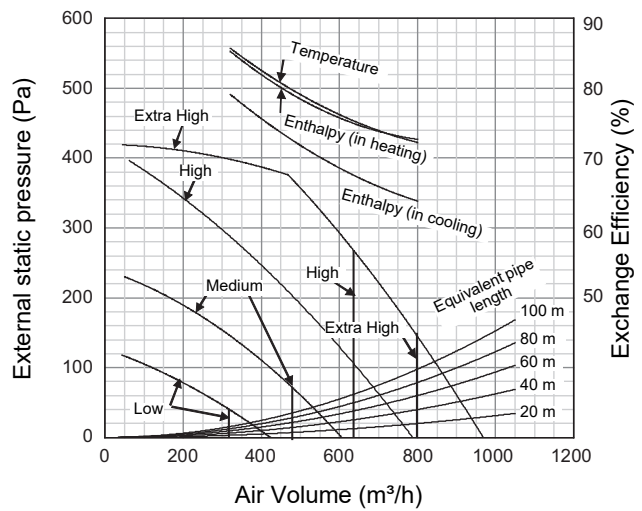
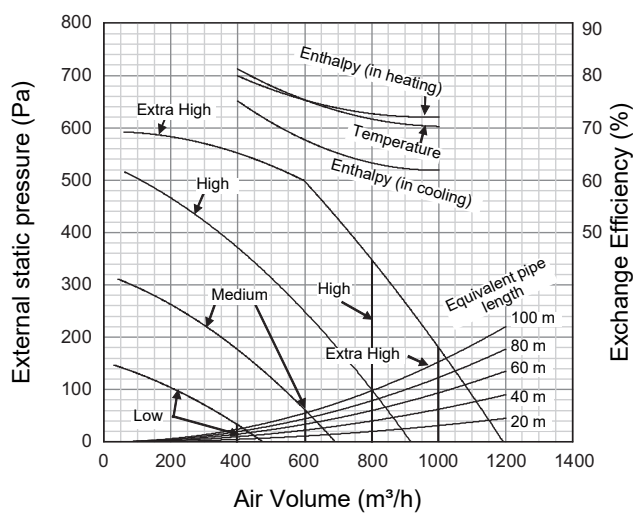
350 m³/h



500 m³/h

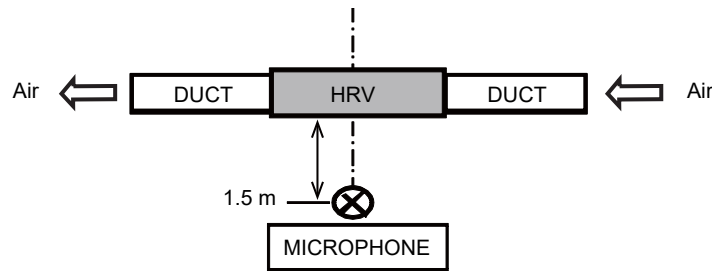


P-Q Curve

* When friction coefficient of pipe (duct): $\lambda = 0.02$ **650 m³/h****800 m³/h****1000 m³/h**

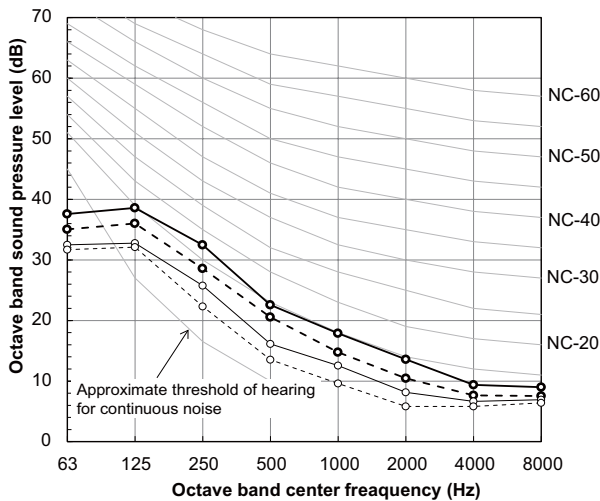
6. Sound data (NC Curve)

Measuring location



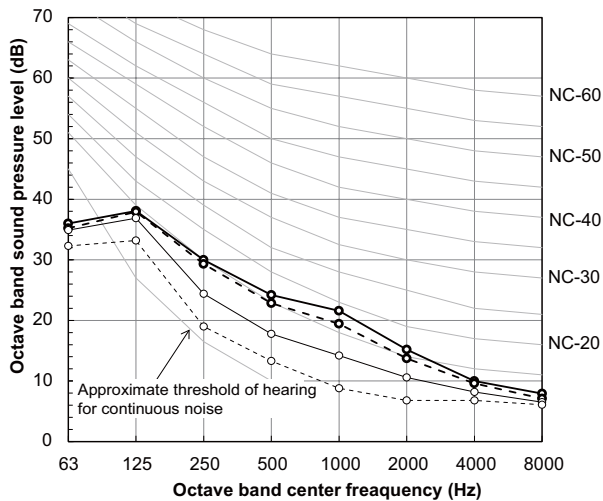
VN-U00151SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	28.0	25.0	22.0	20.0



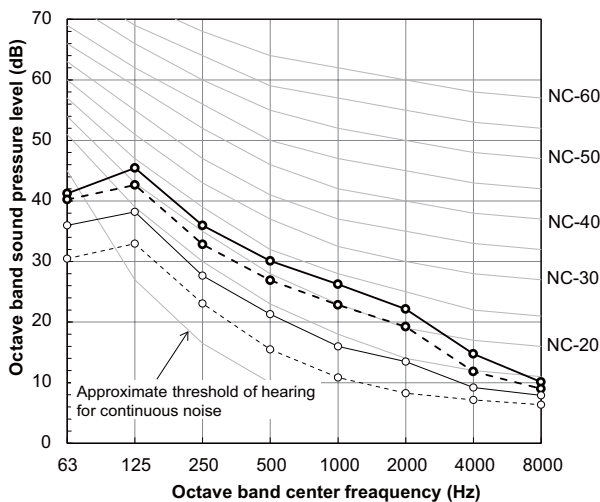
VN-U00251SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	28.0	27.0	24.0	20.0



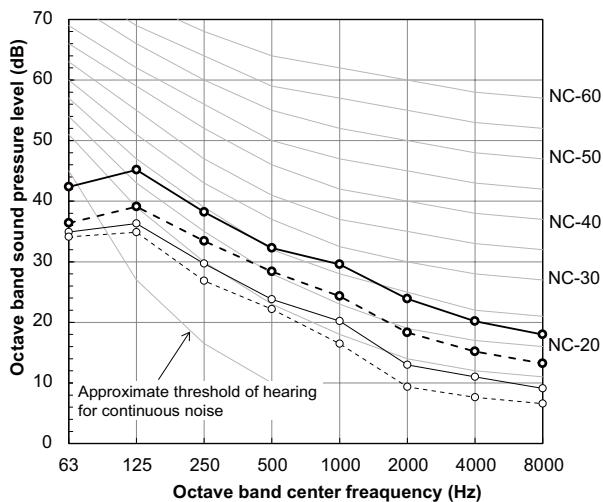
VN-U00351SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	34.0	31.0	26.0	21.0

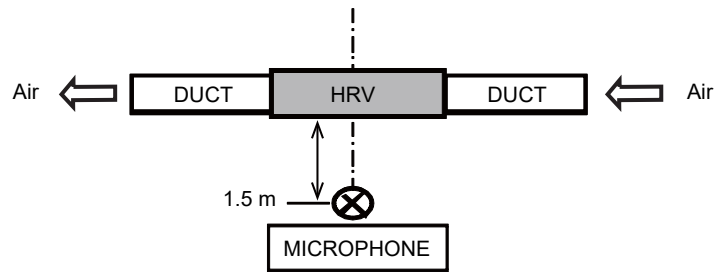


VN-U00501SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	36.0	31.0	27.0	25.0

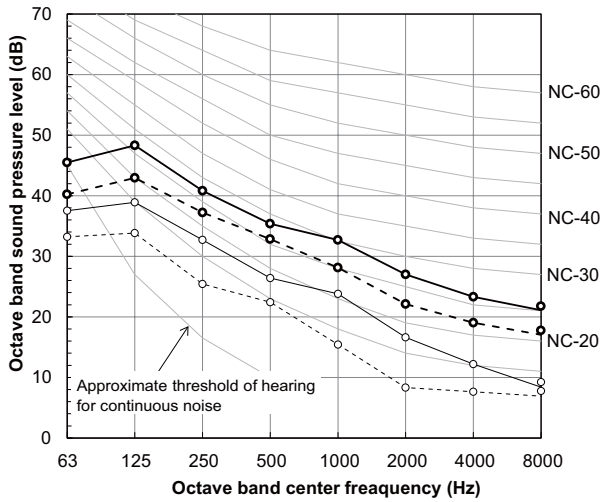


Measuring location



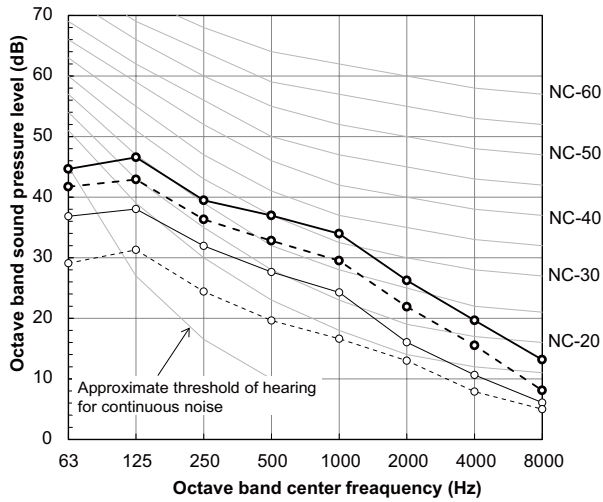
VN-U00651SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	39.0	35.0	30.0	24.0



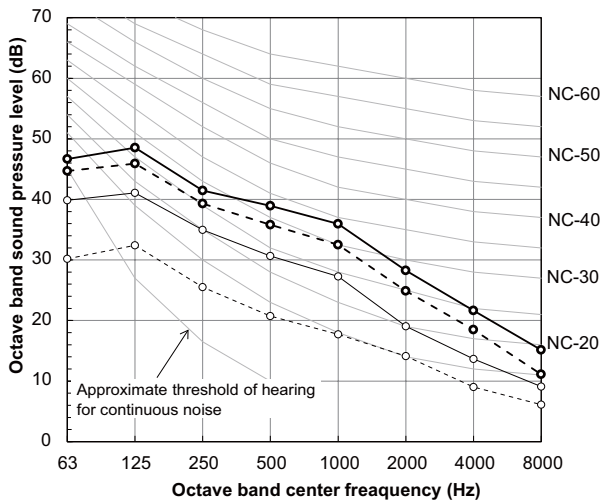
VN-U00801SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	39.0	35.0	30.0	23.0

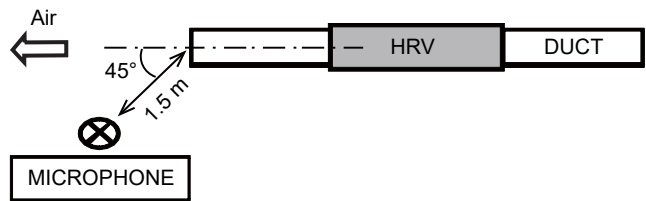


VN-U01001SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	41.0	38.0	33.0	24.0

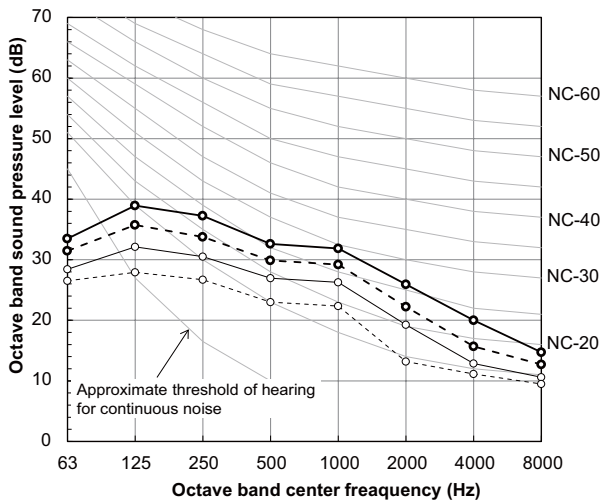


Measuring location



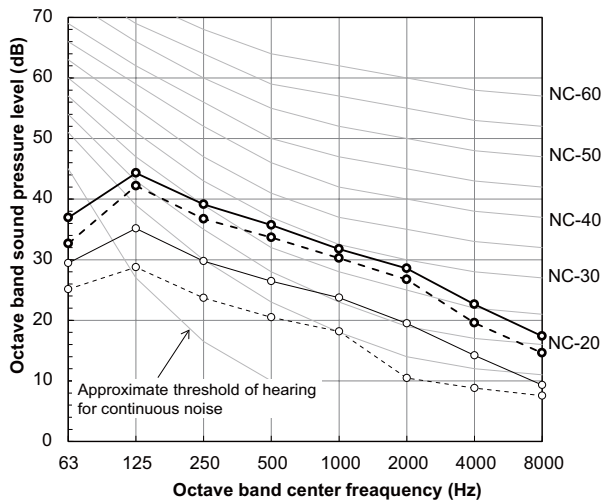
VN-U00151SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	36.0	33.0	30.0	26.0



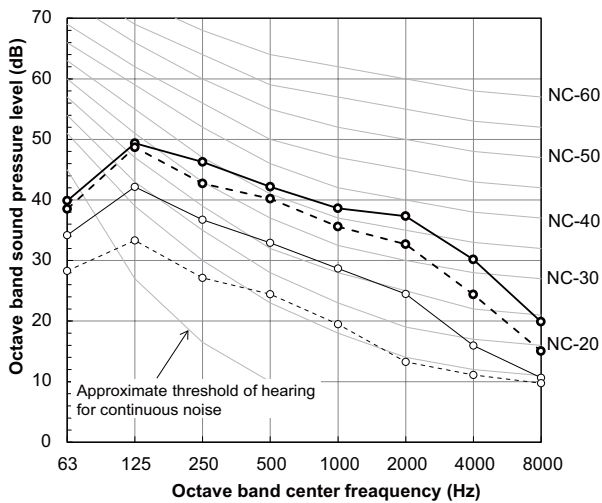
VN-U00251SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	38.0	36.0	29.0	23.0



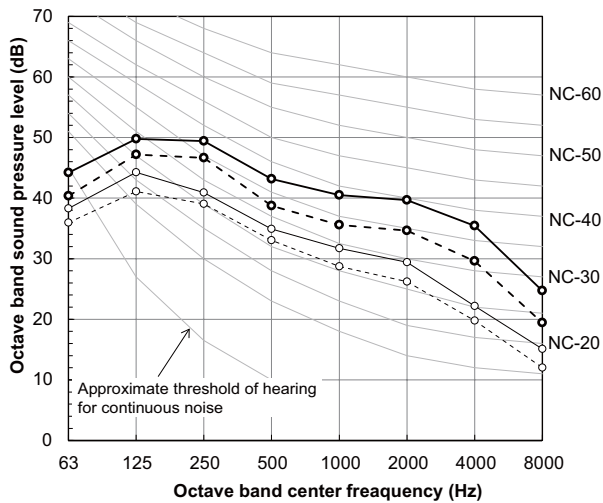
VN-U00351SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	45.0	42.0	35.0	26.0

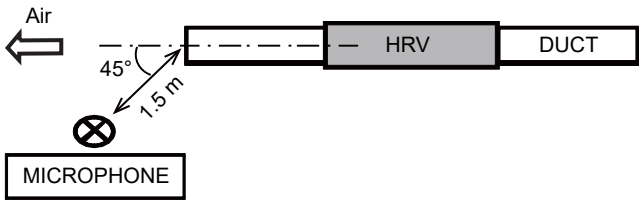


VN-U00501SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	47.0	43.0	37.0	36.0

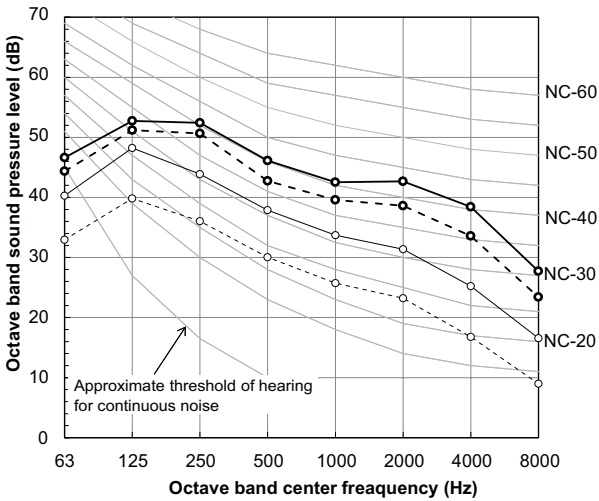


Measuring location



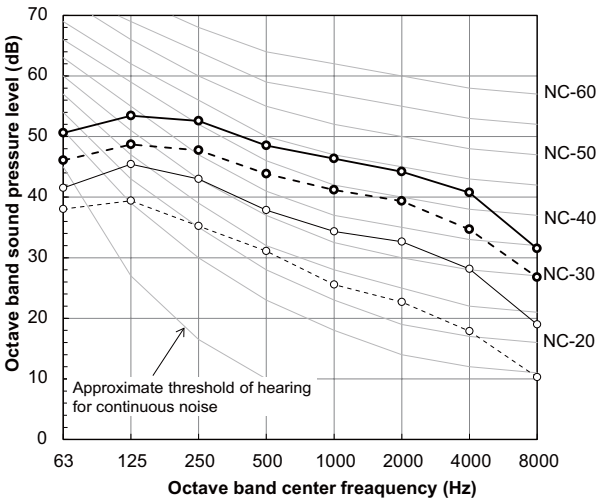
VN-U00651SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	50.0	47.0	41.0	33.0



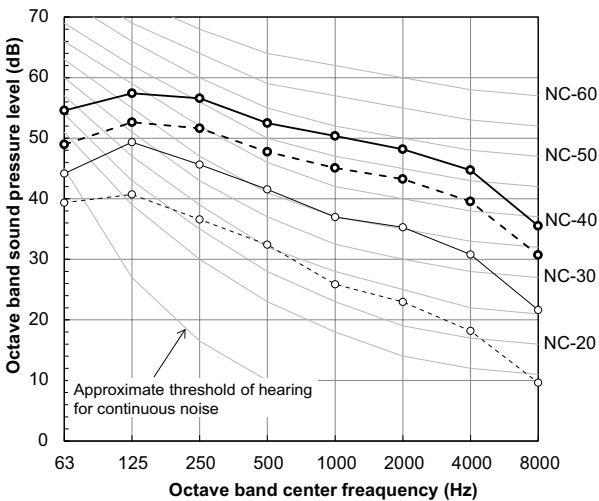
VN-U00801SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	52.0	47.0	41.0	33.0



VN-U01001SY-E/TR

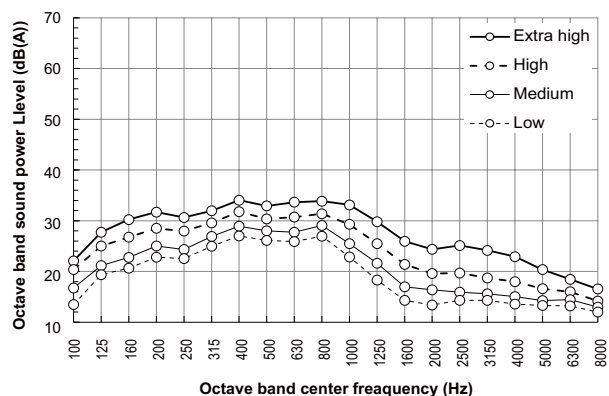
Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	56.0	51.0	44.0	34.0



7. Sound data (Sound power spectrum)

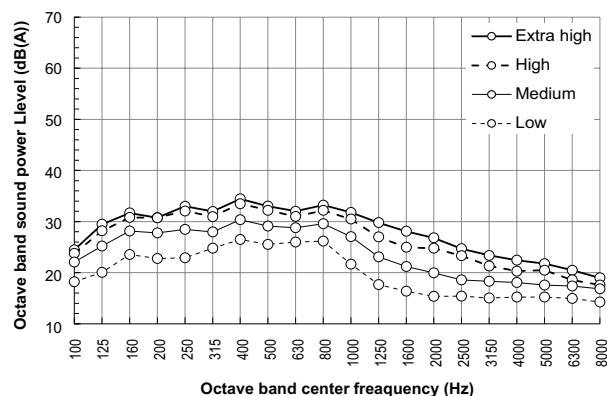
VN-U00151SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	43.0	40.0	37.0	35.0



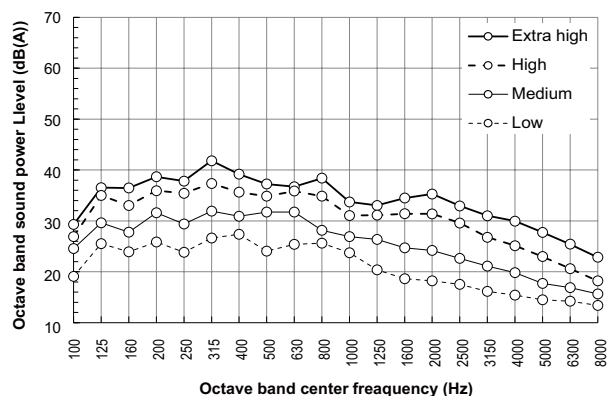
VN-U00251SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	43.0	42.0	39.0	35.0



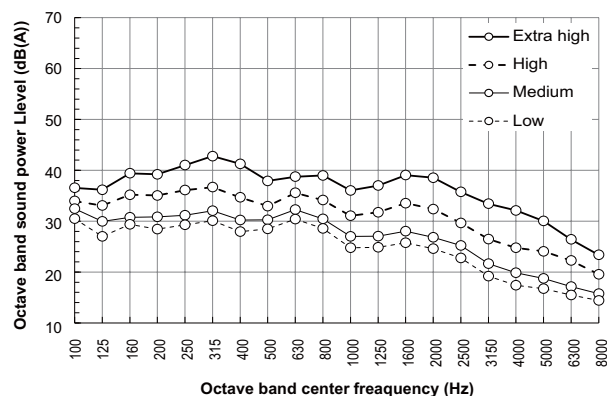
VN-U00351SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	49.0	46.0	41.0	36.0



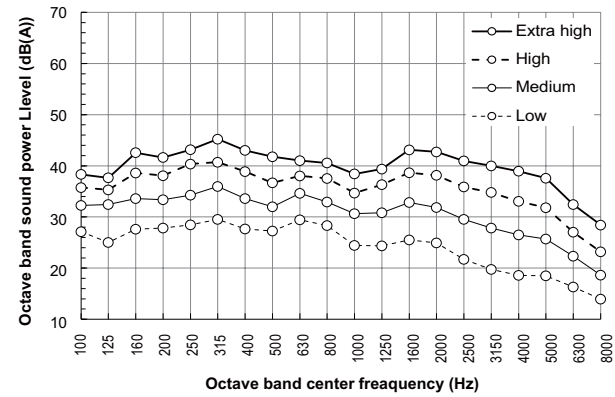
VN-U00501SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	51.0	46.0	42.0	40.0



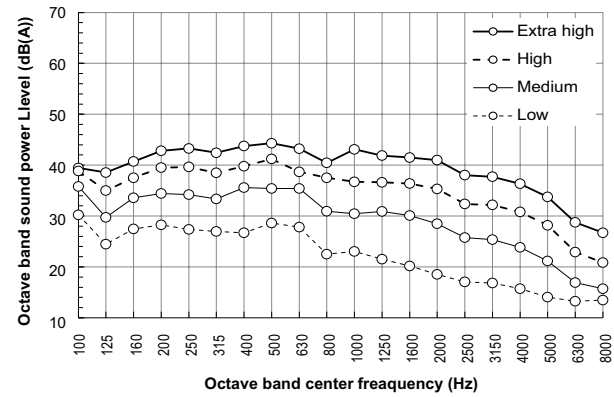
VN-U00651SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	54.0	50.0	45.0	39.0



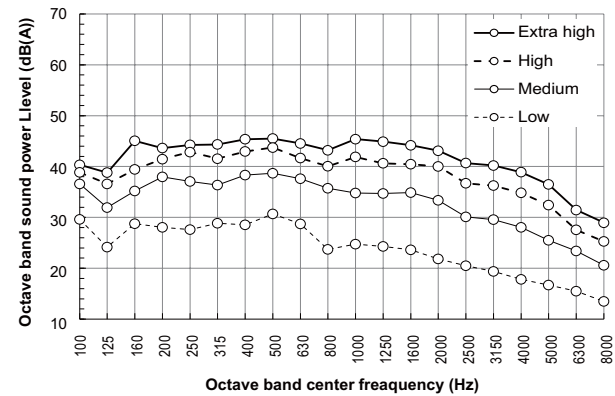
VN-U00801SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	54.0	50.0	45.0	38.0



VN-U01001SY-E/TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dB(A))	56.0	53.0	48.0	39.0

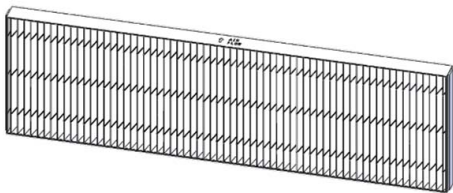
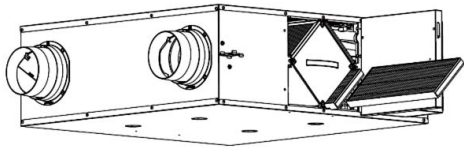


8. Accessory

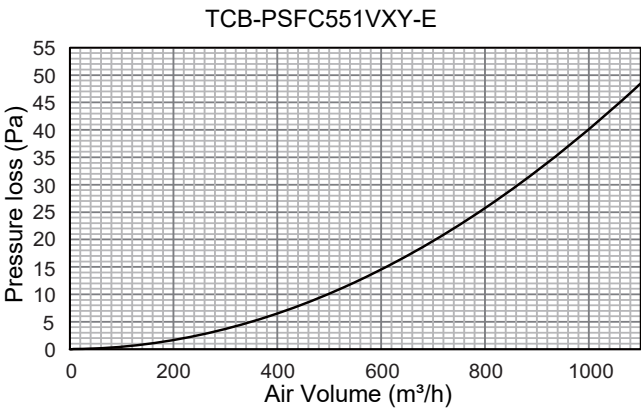
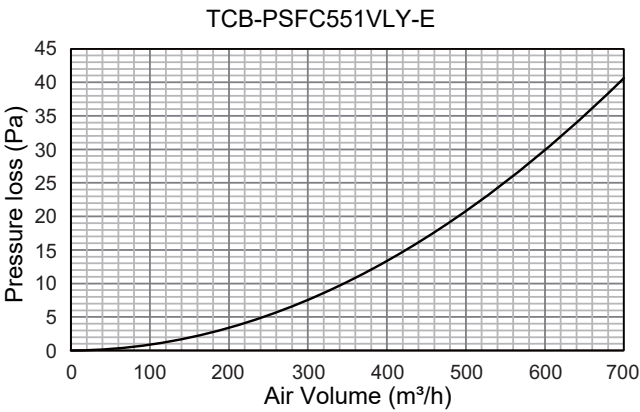
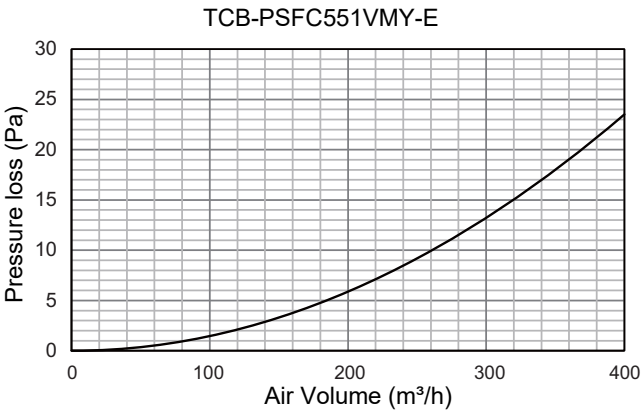
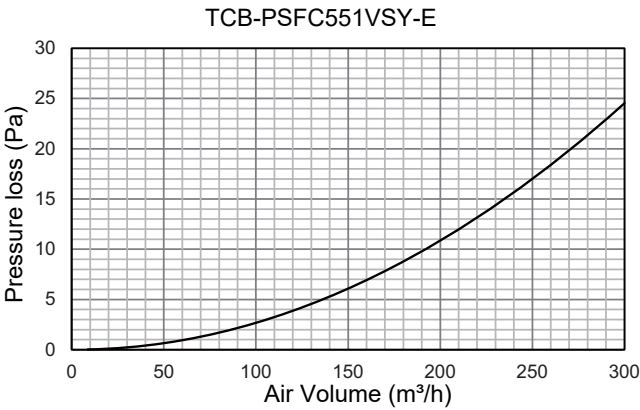
Optional filter

Parts name	specification	Filter model	Applied model	Air Volume (m³/h)	*Initial pressure loss (Pa)
		TCB-PSFC551***-E	VN-U***1SY-E/TR		
High Efficiency Filter	ePM1 55%	VSY	015	150	6
			025	250	17
		VMY	035	350	18
			050	500	21
		VLY	065	650	35
			080	800	26
		VXY	100	1000	40

* For fan speed is Extra high

Filter model	Filter shape	Attached shape on the HRV unit
TCB-PSFC551***-E (***: VSY, VMY, VLY, VXY)		

External pressure loss characteristic



HEAT RECOVERY VENTILATION UNIT

Model name:

VN-U_1SY-E/TR

May, 2023

Toshiba Carrier Corporation