Heat Recovery Ventilation Unit with DX Coil

MMD-UPV0501HY-E / MMD-UPV0801HY-E / MMD-UPV1001HY-E
MMD-UPV0501HY-TR / MMD-UPV0801HY-TR / MMD-UPV1001HY-TR

Contents

1. Specifications

Item	Model No. / Fan Speed		MMD-UPV***1HY-E/-TR		
			050	080	100
Type	Function		Cooling and heating dual purpose type		
	Unit configuration		Discrete type		
Power Supply (V)			220 - 240 V~, 50 Hz / 208 - 230 V~, 60 Hz		
Equivalent HP			1.0	1.7	2.0
Refrigerant			R32, R410A		
Outdoor air thermal load handling capacity	cooling capacity (kW) (*1)		4.10 (1.30)	6.56 (2.06)	8.25 (2.32)
	heating capacity (kW) (*1)		5.53 (2.33)	8.61 (3.61)	10.92 (4.32)
Power consumption (W)	Heat Exchange Mode	(Extra high)	250	477	558
		High	215	368	540
		Medium	145	192	350
		Low	38	74	96
	Bypass Mode	(Extra high)	250	477	558
		High	215	382	557
		Medium	145	200	364
		Low	38	74	96
Current (A)	Heat Exchange Mode	(Extra high)	1.52	2.80	3.20
		High	1.35	2.21	3.11
		Medium	0.94	1.22	2.11
		Low	0.31	0.53	0.65
	Bypass Mode	(Extra high)	1.52	2.80	3.20
		High	1.35	2.29	3.19
		Medium	0.94	1.26	2.19
		Low	0.31	0.53	0.65
Maximum running Current (A)	Heat Exchange Mode	(Extra high)	1.52	2.80	3.20
		High	1.35	2.21	3.11
		Medium	0.94	1.22	2.11
		Low	0.31	0.53	0.65
	Bypass Mode	(Extra high)	1.52	2.80	3.20
		High	1.35	2.29	3.19
		Medium	0.94	1.26	2.19
		Low	0.31	0.53	0.65
Air Volume (m³/h) (*2)		(Extra high)	500	800	950
		High	500	800	950
		Medium	430	600	800
		Low	220	350	430
Air Volume Limit (m³/h) (Extra high, High, Med)		lower limit	330	480	640
		upper limit	600	960	1140
net supply air flow (m³/h)		(Extra high)	455	728	865
		High	455	728	865
		Medium	383	546	728
		Low	196	319	392
External Static Pressure (Pa)	Heat Exchange Mode	(Extra high)	220	220	185
		High	170	130	160
		Medium	125	75	115
		Low	35	27	30
	Bypass Mode	(Extra high)	220	220	185
		High	170	130	160
		Medium	125	75	115
		Low	35	27	30
Sound pressure level (dB(A)) (*3) 下面 Underside	Heat Exchange Mode	(Extra high)	39.0	43.0	43.0
		High	37.0	38.5	42.0
		Medium	34.0	33.5	39.5
		Low	24.0	23.0	25.5
	Bypass Mode	(Extra high)	39.0	43.0	43.0
		High	37.0	39.5	42.5
		Medium	34.0	34.5	40.5
		Low	24.0	23.0	25.5

Item	Model No. / Fan Speed		MMD-UPV***1HY-E/-TR		
			050	080	100
Sound pressure level (dB(A)) 吹出 blowing out	Heat Exchange Mode	(Extra high)	50.5	55.5	56.0
		High	49.0	52.5	55.5
		Medium	45.0	46.0	52.0
		Low	33.0	33.0	37.0
	Bypass Mode	(Extra high)	50.5	55.5	56.0
		High	49.0	53.5	55.5
		Medium	45.0	47.0	53.0
		Low	33.0	33.0	37.0
Sound power level (dB(A)) 下面 Underside	Heat Exchange Mode	(Extra high)	54.0	58.0	58.0
		High	52.0	53.5	57.0
		Medium	49.0	48.5	54.5
		Low	39.0	38.0	40.5
	Bypass Mode	(Extra high)	54.0	58.0	58.0
		High	52.0	54.5	57.5
		Medium	49.0	49.5	55.5
		Low	39.0	38.0	40.5
Temperature exchange Efficiency (%)	average	(Extra high)	74.0	72.5	70.5
		High	74.0	72.5	70.5
		Medium	74.5	75.0	71.0
		Low	78.0	86.5	82.0
	for heating	(Extra high)	79.0	78.0	78.0
		High	79.0	78.0	78.0
		Medium	79.5	79.0	78.5
		Low	81.0	89.0	85.0
	for cooling	(Extra high)	69.0	67.0	63.0
		High	69.0	67.0	63.0
		Medium	69.5	71.0	63.5
		Low	75.0	84.0	79.0
Enthalpy exchange Efficiency (%)	for heating	(Extra high)	73.0	73.0	72.0
		High	73.0	73.0	72.0
		Medium	73.5	75.0	73.0
		Low	77.0	86.0	81.0
	for cooling	(Extra high)	64.0	64.0	62.0
		High	64.0	64.0	62.0
		Medium	65.0	68.0	63.0
		Low	70.0	79.0	75.0
net supply air flow ratio (%)		(Extra high)	91	91	91
		High	91	91	91
		Medium	89	91	91
		Low	89	91	91
overall efficiency (η) Lot11			39.0	35.0	38.8
Frame			SGCC-Z08		
Motor			Brushless DC motor (E type)		
Fan			PP resin + GF 20%		
Heat exchanger			Special paper + SGCC-Z12		
Filter			Nonwoven fabric		
Adapter			ABS resin		
External dimensions			1360 × 1020 × 386	1593 × 1230 × 386	
Product weight (kg)			66	85	85
Applicable duct nominal diameter (mm)			Φ200	Φ250	Φ250
Shape			Corrugated board Package		
Dimensions (Length × Width × Height) (mm)			1698 × 1340 × 502	1932 × 1550 × 502	
Weight (kg)			83	105	105
No. of stacked boxes			4	4	4

Sound pressure level is less than 70 dBA.

* When the temperature of the outdoor air is below -10°C, the unit runs the prevent cold draft mode (SA fan operates intermittently).
SA fan does not drive when the temperature of the outdoor air is below -20°C.

* 1 The number in ( ) indicates the heat collected by Air to Air heat exchange.

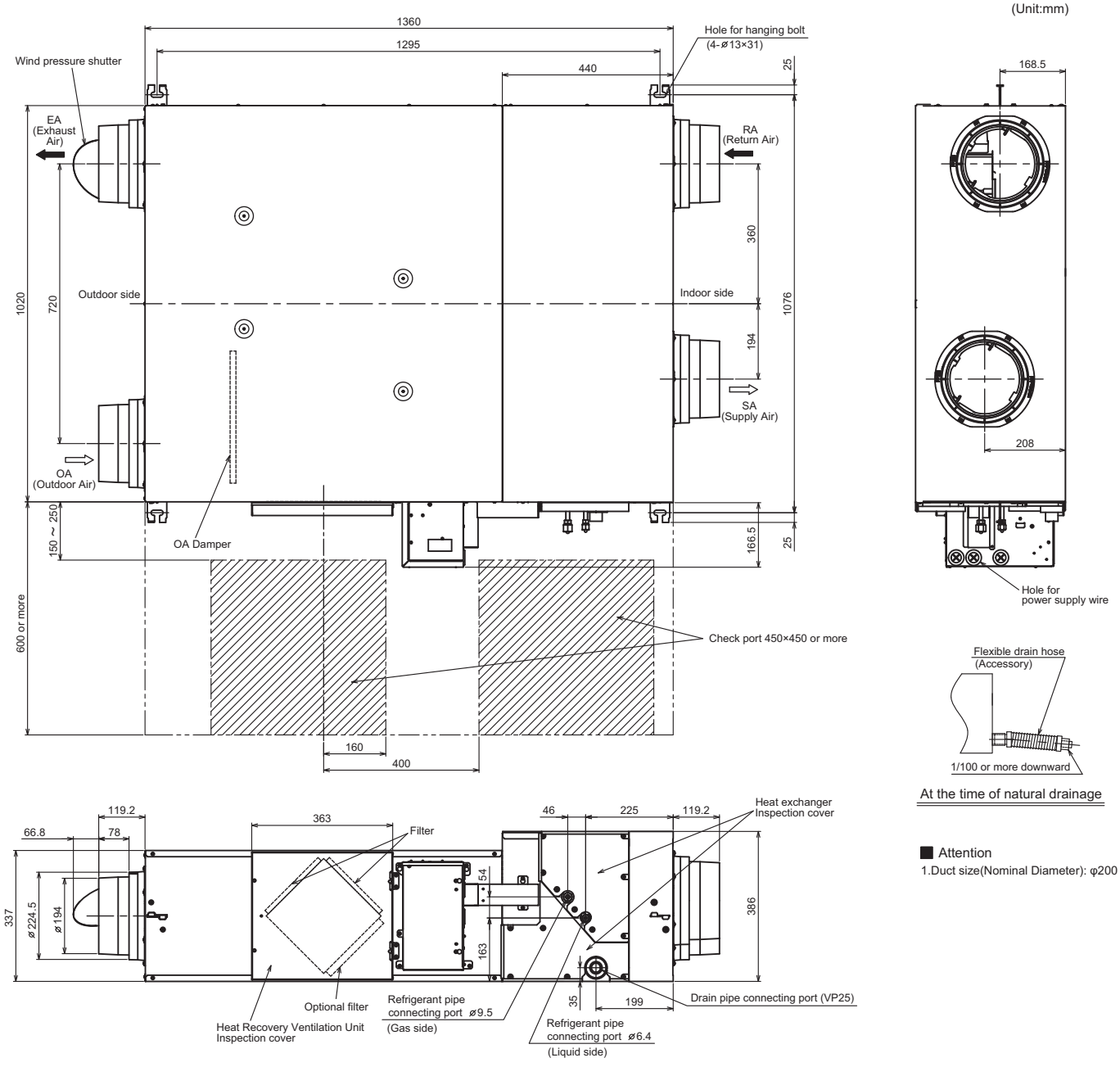
* 2 Air volume can be changed over to high (extra high) mode, medium mode or low mode.
When Supply air is “Low”, HRV unit with DX Coil is thermostat off (Fan mode) for device protection.

* 3 Sound pressure level is measured 1.5 m below the center of the unit.
Sound pressure level is the value which was measured at the acoustic room.
Actually, sound pressure levels become higher than this value depending on the operating conditions, reflected sound and peripheral noise.

2. Dimensions

MMD-UPV0501HY-E/-TR

(Unit:mm)

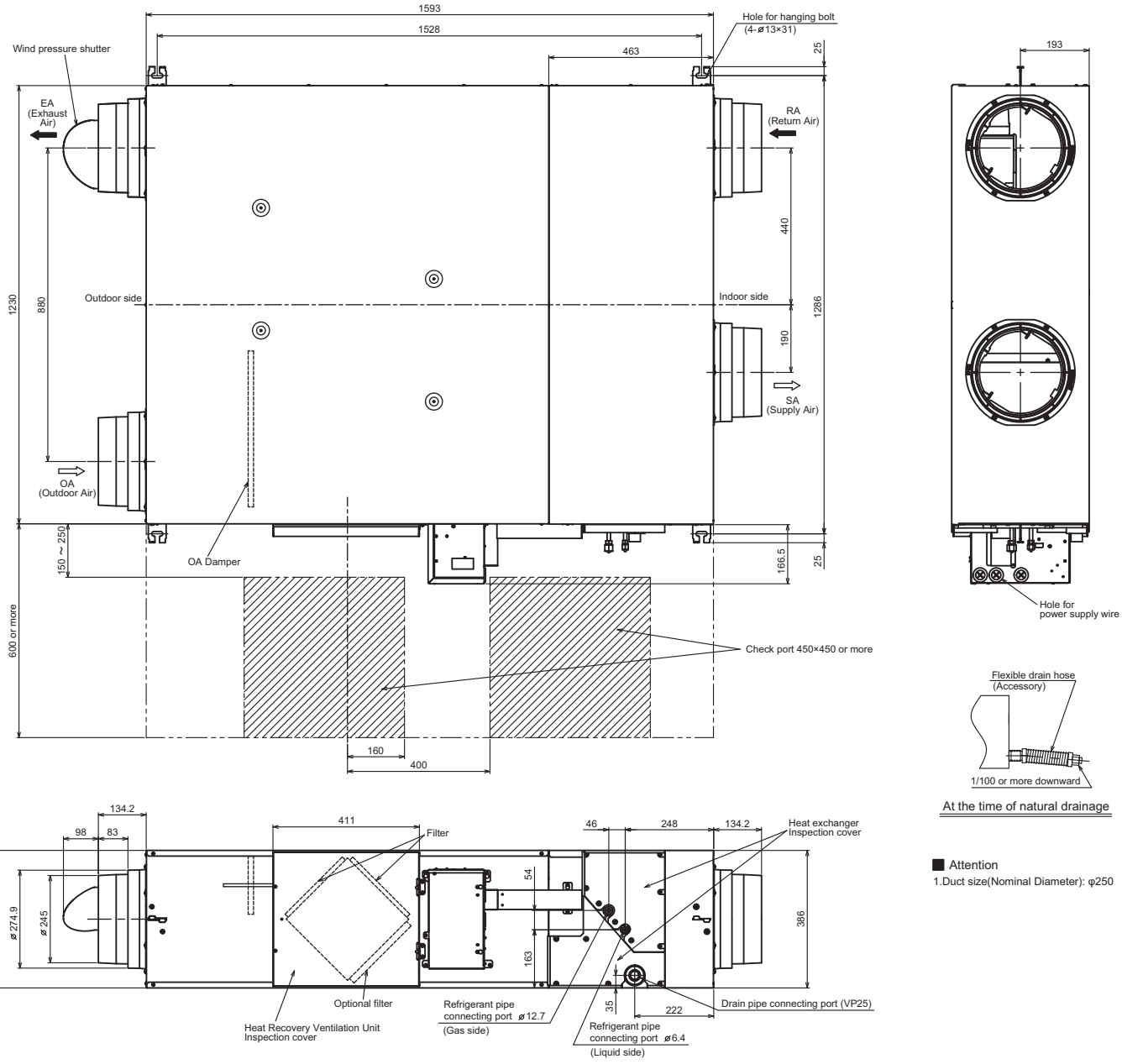


■ Attention

1.Duct size(Nominal Diameter): φ200

MMD-UPV0801HY-E/-TR, MMD-UPV1001HY-E/-TR

(Unit:mm)

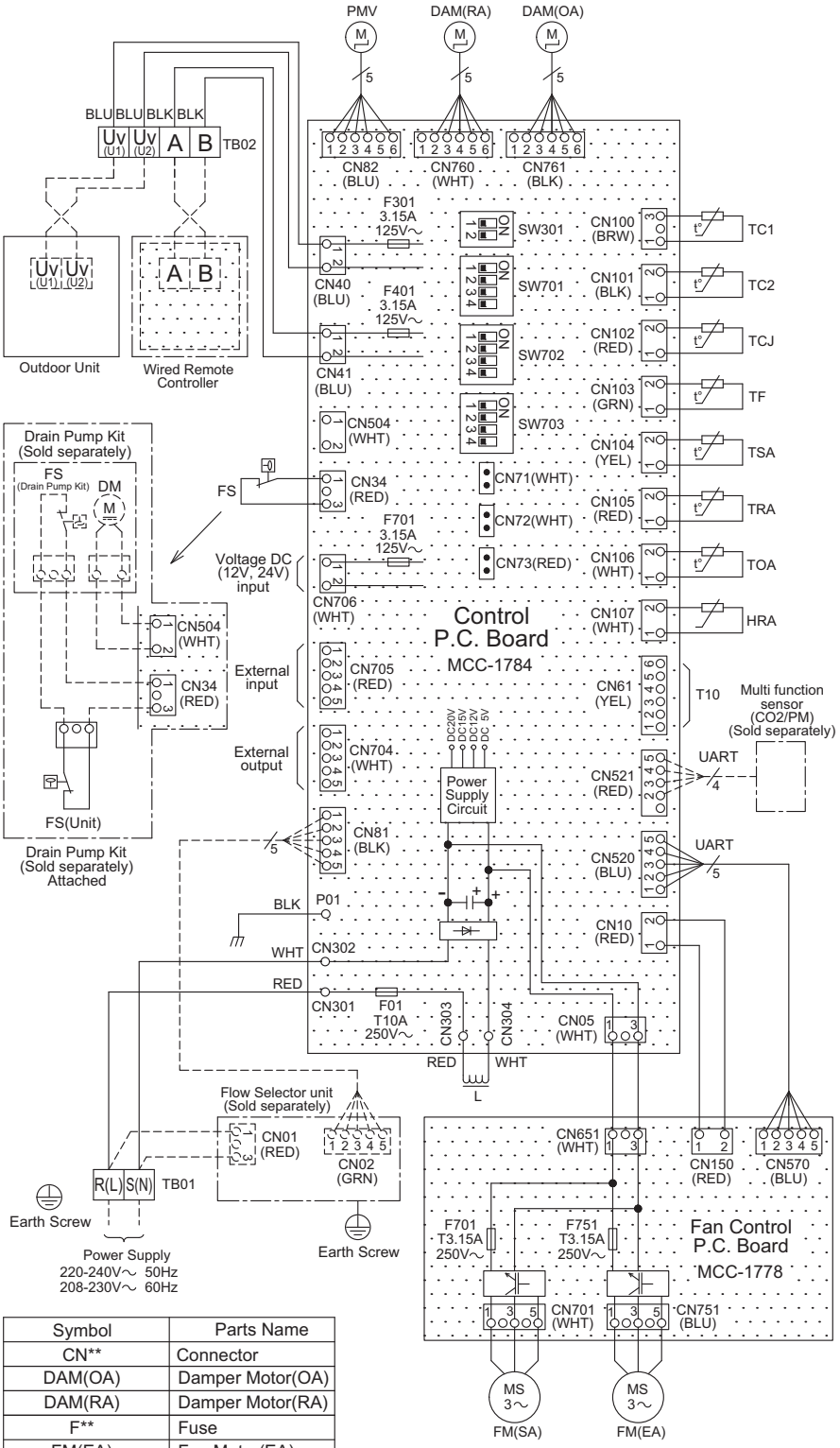


■ Attention

1.Duct size(Nominal Diameter): φ250

3. Wiring Diagrams

MMD-UPV0501HY-E/-TR, MMD-UPV0801HY-E/-TR, MMD-UPV1001HY-E/-TR



Symbol	Parts Name
CN**	Connector
DAM(OA)	Damper Motor(OA)
DAM(RA)	Damper Motor(RA)
F**	Fuse
FM(EA)	Fan Motor(EA)
FM(SA)	Fan Motor(SA)
FS	Float Switch
HRA	Humidity Sensor
L	Reactor
PMV	Pulse Motor Valve
SW**	Dip Switch
TB01,02	Terminal Block
TC1,TC2,TCJ	Temp Sensor
TF,TOA,TRA,TSA	Air Temp Sensor
DM (Sold separately)	Drain Pump

----	Field Wiring
⏚	Protective Earth
▭	Terminal Block
—o—	Terminal
▭	Connector
▭	P.C.Board
—-—	Accessory

Color Indication

RED : Red
WHT : White
YEL : Yellow
BLU : Blue
BLK : Black
BRW : Brown
GRN : Green

4. Electrical characteristics

50 Hz

Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
		Min	Max	kW	FLA	MCA	MOCP
MMD-UPV0501HY-E / -TR	230-1-50	198	264	0.150 ×2	1.75	2.19	15
MMD-UPV0801HY-E / -TR	230-1-50	198	264	0.250 ×2	3.22	4.03	15
MMD-UPV1001HY-E / -TR	230-1-50	198	264	0.250 ×2	3.68	4.60	15

60 Hz

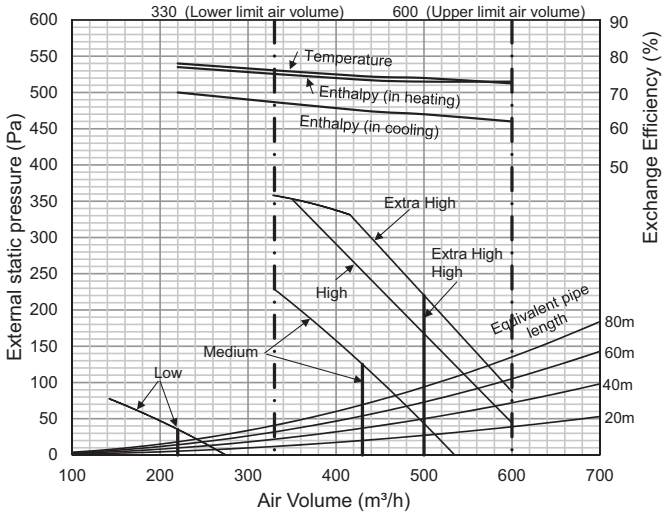
Model name	Normal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
		Min	Max	kW	FLA	MCA	MOCP
MMD-UPV0501HY-E / -TR	220-1-60	187	253	0.150 ×2	1.83	2.29	15
MMD-UPV0801HY-E / -TR	220-1-60	187	253	0.250 ×2	3.37	4.21	15
MMD-UPV1001HY-E / -TR	220-1-60	187	253	0.250 ×2	3.85	4.81	15

↑
Fan Motor: 2 pcs/unit

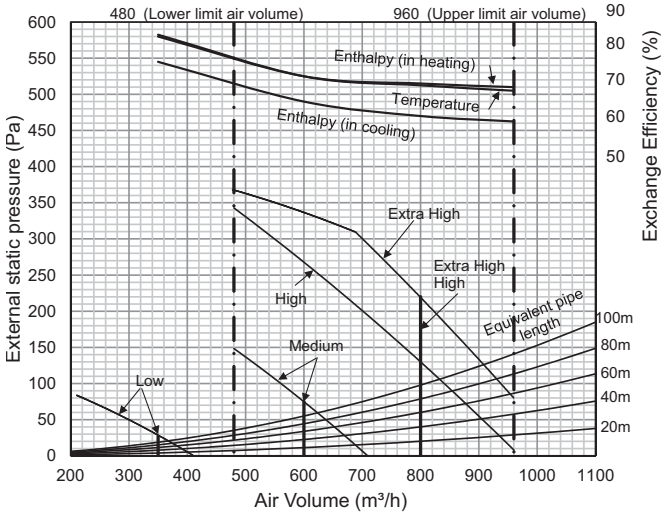
MCA : Minimum Circuit Amps
MOCP : Maximum Overcurrent Protection (Amps)
FLA : Full Load Amps
kW : Fan Motor Rated Output (kW)

5. Performance PQ characteristic curve

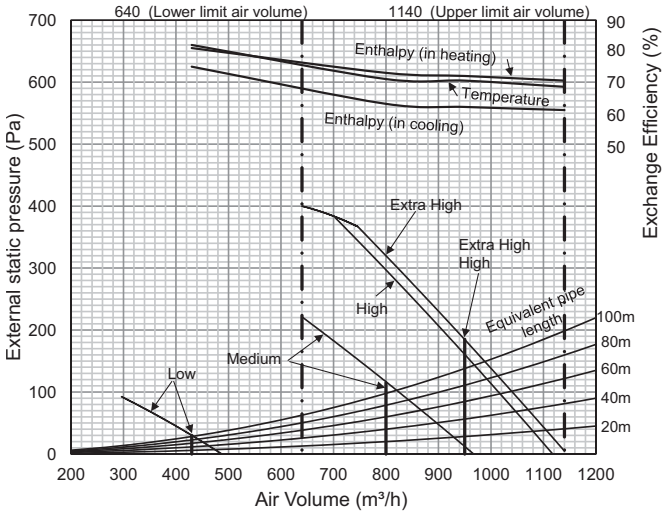
MMD-UPV0501HY-E/-TR



MMD-UPV0801HY-E/-TR

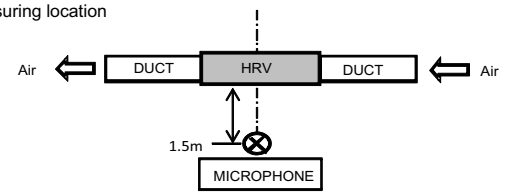


MMD-UPV1001HY-E/-TR



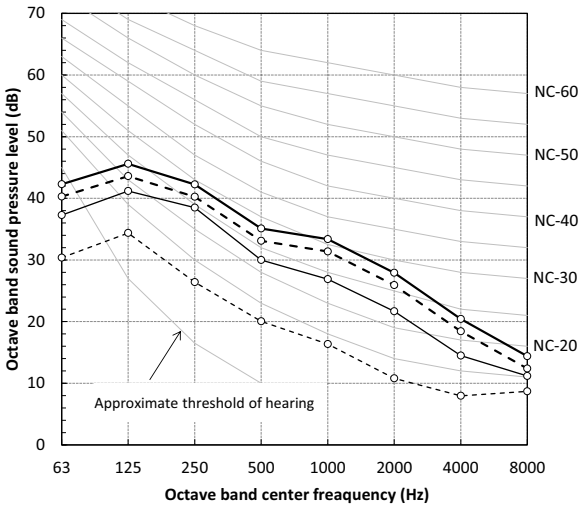
6. Sound data (NC Curve)

Measuring location



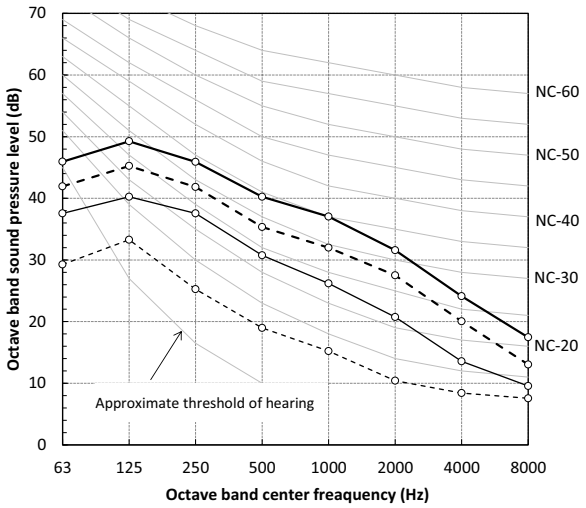
MMD-UPV0501HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	39.0	37.0	34.0	24.0



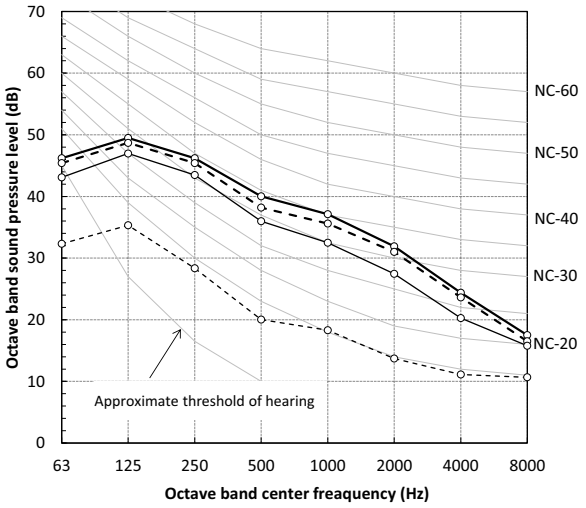
MMD-UPV0801HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	43.0	38.5	33.5	23.0

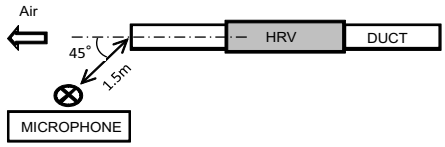


MMD-UPV1001HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	43.0	42.0	39.5	25.5

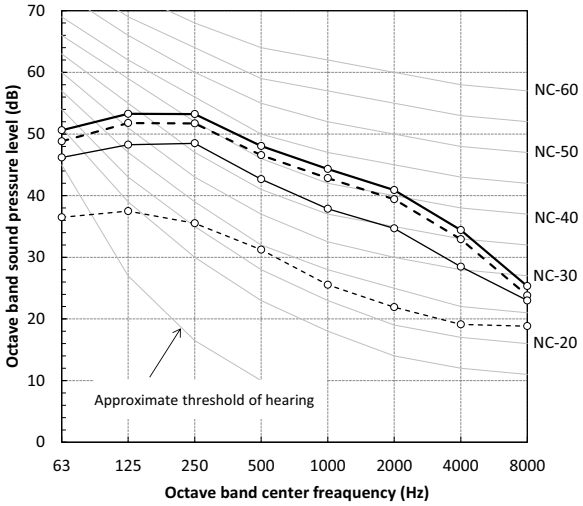


Measuring location



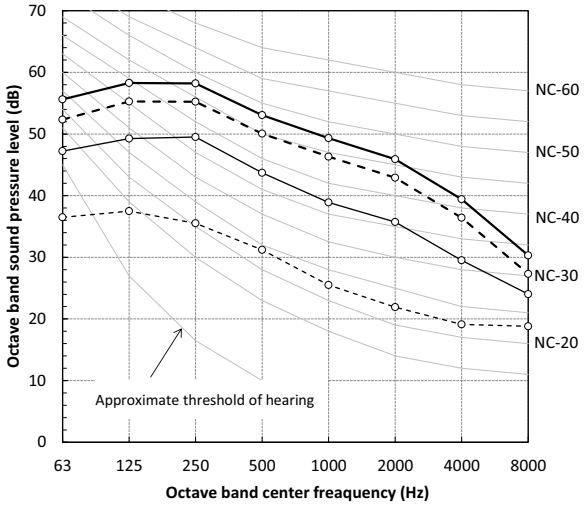
MMD-UPV0501HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	50.5	49.0	45.0	33.0



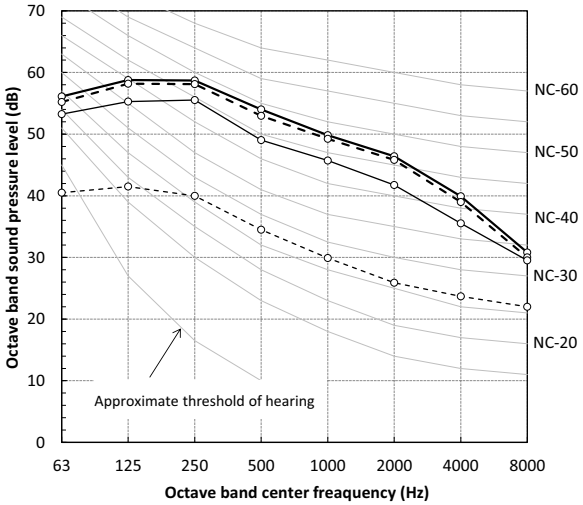
MMD-UPV0801HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	55.5	52.5	46.0	33.0



MMD-UPV1001HY-E / -TR

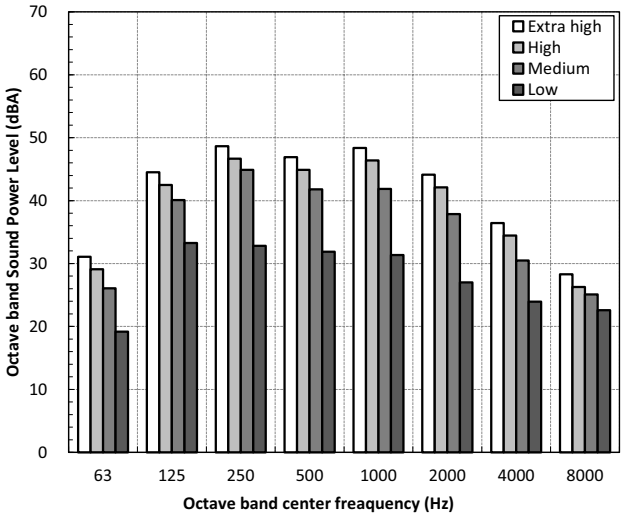
Fan tap	Extra high	High	Medium	Low
Sound pressure (dBA)	56.0	55.5	52.0	37.0



7. Sound data (Sound power spectrum)

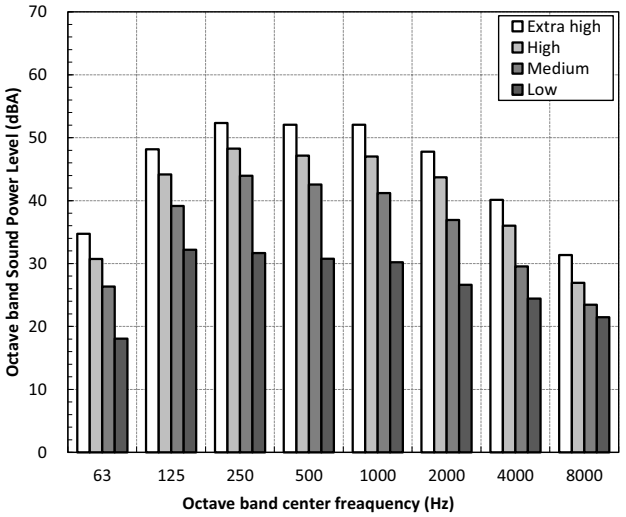
MMD-UPV0501HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound Power Level (dBA)	54.0	52.0	49.0	39.0



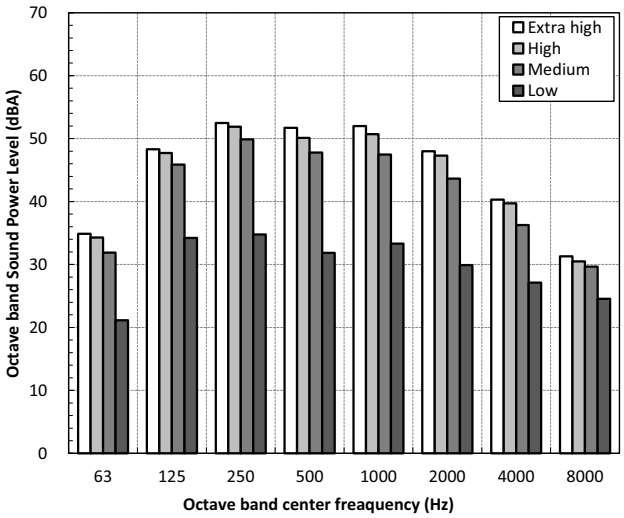
MMD-UPV0801HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound Power Level (dBA)	58.0	53.5	48.5	38.0



MMD-UPV1001HY-E / -TR

Fan tap	Extra high	High	Medium	Low
Sound Power Level (dBA)	58.0	57.0	54.5	40.5



8. Options

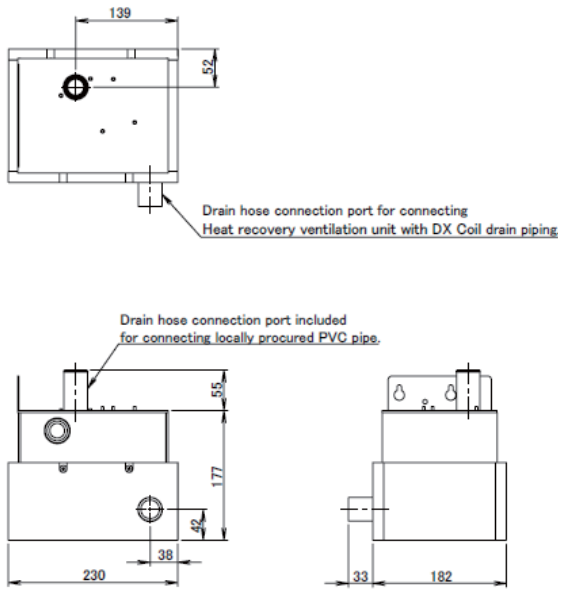
8-1. Option List

Options	Model name
Drain pump kit	TCB-DP40HE-E
Multi function sensor (CO^2/PM)	TCB-SFMCA1V-E
Connector for CN60	TCB-KBCN60OPE
Connector for CN61	TCB-KBCN61HAE
Connector for CN70	TCB-KBCN70OAE
Connector for CN73	TCB-KBCN73DEE
Connector for CN80	TCB-KBCN80EXE
Connector for CN610	TCB-KBCN610V-E
Connector for CN704	TCB-KBCN704V-E
Connector for CN705	TCB-KBCN705V-E
Connector for CN706	TCB-KBCN706V-E
High Performance Filter (ePM1 55%) for 050	TCB-PSFC551VLY-E
High Performance Filter (ePM1 55%) for 080/100	TCB-PSFC551VXY-E

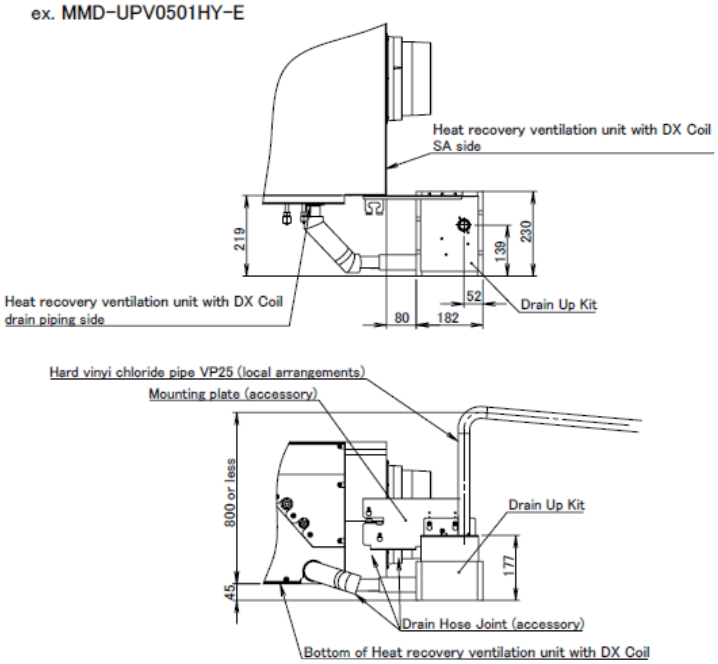
Caution: High Performance filter is not installed at factory default.

8-2. Drain pump kit: TCB-DP40HE-E

External dimensions



Heat recovery ventilation unit with DX Coil installation diagram
ex. MMD-UPV0501HY-E



8-3. External Input and Output signals availability

No.	Connector No.	PIN No.	Function	Connector (sold separately)
1	**CN60** (Operation status signal output)	1	DC12 V (COM)	TCB-KBCN60OPE
		2	Defrost output	
		3	Thermostat ON output	
		4	Cooling output	
		5	Heating output	
		6	Fan output	
2	**CN61** (Leaving-ON prevention control)	1	ON/OFF input	TCB-KBCN61HAE
			Fire alarm input	
			Notice code input	
			Ventilation fan speed input	
		2	0 V (COM)	
		3	Prohibition of remote controller operation input	
		4	Operation output	
		5	DC12 V (COM)	
		6	Alarm output	
3	**CN70** (Option error input)	1	Filter display input	TCB-KBCN70OAE
			External error input	
			Humidifier input	
		2	0 V (COM)	
4	**CN73** (Demand control input)	1	Fire alarm input	TCB-KBCN73DEE
			Fire alarm input	
			Notice code input	
			Humidifier ON/ OFF input	
		2	0 V (COM)	

No.	Connector No.	PIN No.	Function	Connector (sold separately)
5	**CN80** (Outside error input)	1	DC12 V (COM)	TCB-KBCN80EXE
		2	-	
		3	Outside error input	
6	**CN610** (Option output)	1	Cold air detection output	TCB-KBCN610V-E
		2		
		3		
7	**CN704** (External output)	1	DC12 V (COM)	TCB-KBCN704V-E
		2	ON output (Supply fan)	
		3	DC12 V (COM)	
		4	External damper output	
		5	Alarm output	
			Bypass mode output	
8	**CN705** (External input)	1	DC12 V (COM)	TCB-KBCN705V-E (or NRB-1HE)
		2	Prohibition of remote controller operation input	
		3	Ventilation fan speed input	
		4	Ventilation mode input	
		5	ON/OFF input * Non-voltage	
			ON/OFF linked	
			ON linked	
			OFF linked	
9	**CN706** (External input)	1	ON/OFF input * With DC12 or DC24 voltage	TCB-KBCN706V-E (or NRB-1HE)
		2	0 V (COM)	
			ON/OFF linked	
			ON linked	
			OFF linked	

8-4. Various ventilation operation

The following ventilation operations are available.

1) Delayed operation
   The operation of the Heat recovery ventilation unit will be delayed by 10 to 60 min in 10 min steps.
2) 24-hour ventilation
   The Heat recovery ventilation unit will works continuously even airconditioning system is turned off.
3) Nighttime heat purge
   Nighttime heat purge exhausts hot air in the room by bypass mode and reduces the cooling load in the morning.
4) Automatic ventilation mode
   The ventilation mode will be switched automatically depending on the operation status of the Air conditioner (cooling, heating, dry, fan, or temperature setting) and the information from RA and OA temperature sensors in the unit.

8-5. Restriction of operation

The following operation will **NOT** be available when Remote controller other than RBC-AMSU52-E / AWSU52-E is used.
1) Low air volume, 2) unbalance fan speed at low speed and 3) Automatic ventilation fan speed.

Heat Recovery Ventilation Unit with DX Coil

November 2024

Carrier Japan Corporation