

High Static Duct 8, 10HP — Digital Inverter —

Engineering Data Book

Indoor Unit

RAV-SM2242DT-E

RAV-SM2802DT-E

Outdoor Unit

RAV-SM2244AT8-A

RAV-SM2804AT8-A

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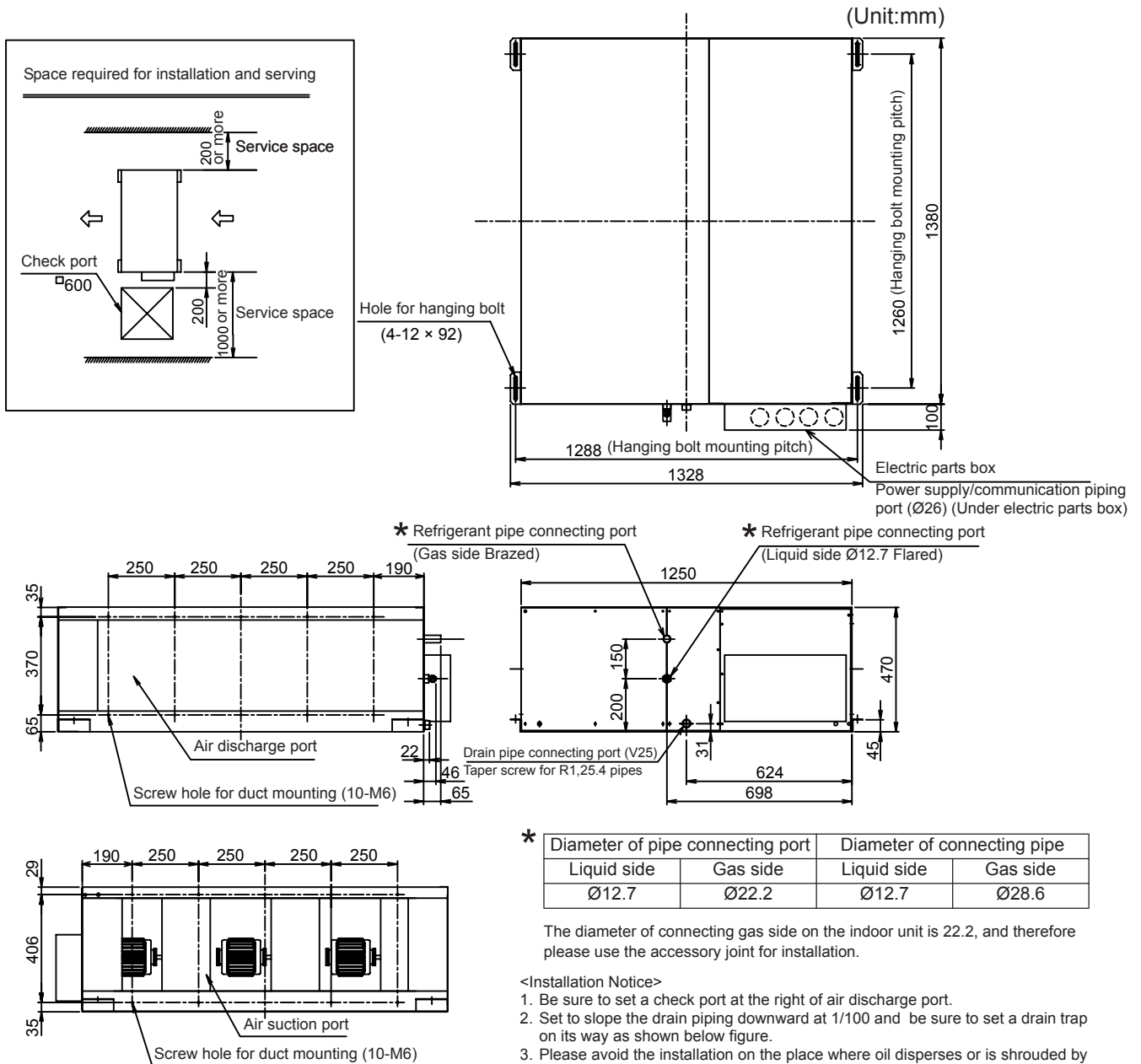
1-1. Specifications

Indoor Unit (Concealed Duct High Static Pressure Type)

Model		Indoor unit		RAV-SM2242DT-E	RAV-SM2802DT-E		
		Outdoor unit		RAV-SM2244AT8-A	RAV-SM2804AT8-A		
Cooling capacity (min.-max.)				(kW)	16.7 (9.8-22.4)	20.0 (9.8-27.0)	
Heating capacity (min.-max.)				(kW)	22.4 (9.8-27.0)	27.0 (9.8-31.5)	
Power supply				1 phase 230V (220-240V) 50Hz			
Electrical characteristics	Cooling	Running current(indoor unit)		(A)	5.25-4.81	5.25-4.81	
		Power input		(kW)	5.10	6.20	
		Power factor		(%)	97	97	
	Heating	Running current(indoor unit)		(A)	5.25-4.81	5.25-4.81	
		Power input		(kW)	6.49	8.15	
		Power factor		(%)	94	94	
			Maximum current(indoor unit)		(A)	15.00	15.00
Appearance		Main unit		Zinc hot dipping steel plate			
Outer dimension		Main unit	Height		(mm)	470	470
			Width		(mm)	1380	1380
			Depth		(mm)	1250	1250
Total weight		Main unit		(kg)	160	160	
Heat exchanger				Finned tube			
Fan unit		Fan		Centrifugal		Centrifugal	
		Standard air flow at Mid. Tap		(m3/h)	3600	4200	
		Motor		(W)	370 x 3	370 x 3	
Air filter				None (Local procure)		None (Local procure)	
Controller				(Sold Separately)			
Sound pressure level			H/M/L	(dB·A)	54	55	
Sound power level			H/M/L	(dB·A)	74	75	
Connecting pipe		Gas side		(mm)	28.6	28.6	
		Liquid side		(mm)	12.7	12.7	
		Drain port		(mm)	VP25		

1-2. Dimension

RAV-SM2242DT-E, RAV-SM2802DT-E



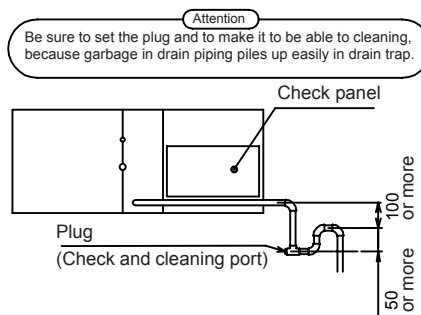
* Diameter of pipe connecting port

Diameter of pipe connecting port		Diameter of connecting pipe	
Liquid side	Gas side	Liquid side	Gas side
Ø12.7	Ø22.2	Ø12.7	Ø28.6

The diameter of connecting gas side on the indoor unit is 22.2, and therefore please use the accessory joint for installation.

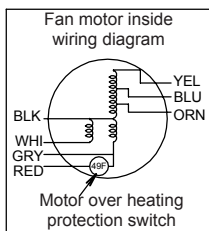
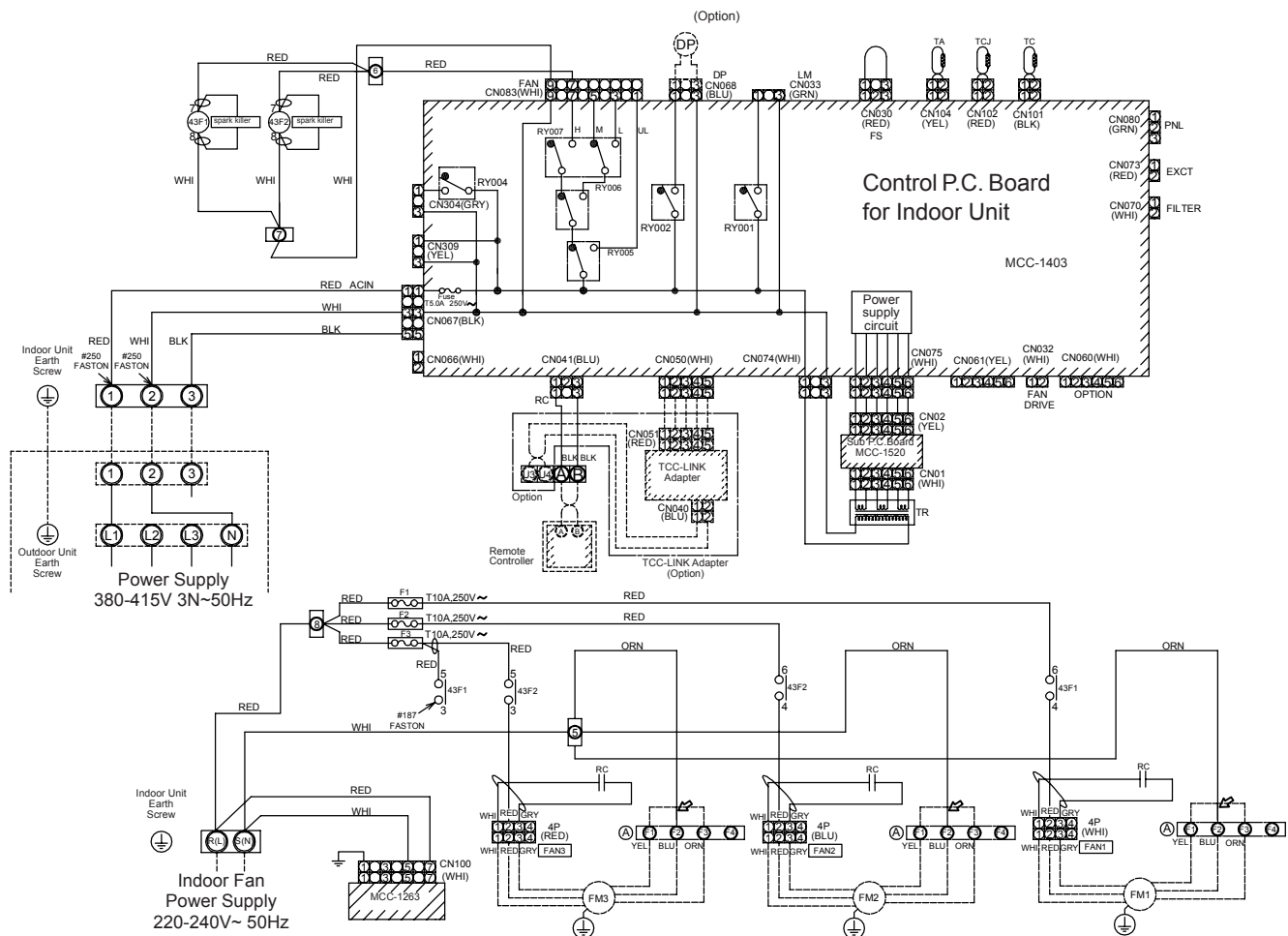
<Installation Notice>

1. Be sure to set a check port at the right of air discharge port.
2. Set to slope the drain piping downward at 1/100 and be sure to set a drain trap on its way as shown below figure.
3. Please avoid the installation on the place where oil disperses or is shrouded by oil smoke, such as kitchen or mechanical factory.
4. Indoor unit does not have air filter its inside. So be sure to set an air filter (local arrangements) in the position maintained easily such as a suction grills. (If there is no air filter, dusts are blocked in the air heat exchanger and it may cause failure or water leak in air-conditioner.)
5. Please hang the main unit horizontally.



1-3.Wiring Diagram

RAV-SM2242DT-E, RAV-SM2802DT-E



COLOR IDENTIFICATION
 RED:RED
 WHI:WHITE
 YEL:YELLOW
 BLU:BLUE
 BLK:BLACK
 GRY:GRAY
 PNK:PINK
 ORN:ORANGE
 GRN:GREEN
 BRW:BROWN

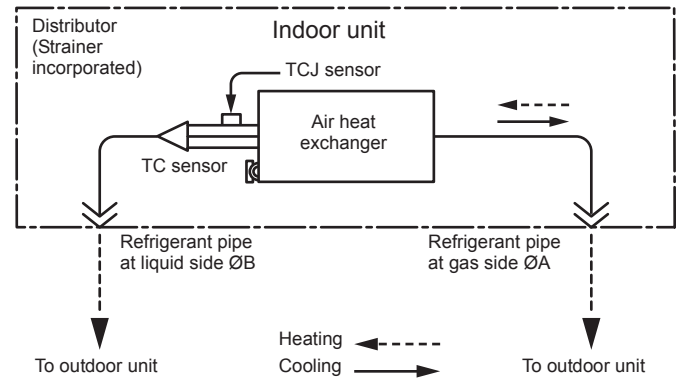
Terminal No.	Fan motor wiring	Static pressure Pa (mmAg)	Note
F ₁	YEL	69 (7)	
F ₂	BLU	137 (14)	Setting from factory
F ₃	ORN	196 (20)	

Symbol	Part Name	Symbol	Part Name
FM1~3	Fan Motor	RY002	Drain Control Relay
RC	Running Capacitor	RY001	Louver Control Relay
TR	Transformer	DP	Drain Pump Motor
TA	Indoor temp sensor	F1~3	Fuse for Fan Motor
TC, TCJ	Temp sensor	43F1, 43F2	Fan Motor Control Relay
RY005~007	Fan Motor Control Relay		

- ◎ indicates the terminal block. Letter at inside indicates the terminal number.
- A dotted line and broken line indicate the wiring at site.
- ▨ indicates the control P.C board.
- When installing the drain pump connect the float switch connector to CN030 connector.
- Ⓐ position is connected to terminal block when change to static pressure. Exchange the lead wire of arrow (↗) position after check the terminal number as figure and lead wire's color of fan motor.

1-4. Refrigerating Cycle Diagram

RAV-SM2242DT-E, RAV-SM2802DT-E



Dimension table

Indoor unit	Outer diameter of refrigerant pipe	
	Gas side ØA	Liquid side ØB
SM224, SM280 type	28.6	12.7

1-5. Sensible Capacity Table

High Static Pressure Duct Type Sensible Heat Capacity : RAV-SMxxxxDT-E

unit size	outdoor air temp. CDB	indoor air temp.																	
		14.0CWB 20.0CDB		15.0CWB 21.5CDB		16.0CWB 23.0CDB		17.0CWB 24.5CDB		18.0CWB 26.0CDB		19.0CWB 27.0CDB		20.0CWB 28.0CDB		22.0CWB 30.0CDB		24.0CWB 32.0CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
2242	10.0	17.4	12.1	18.3	12.7	19.2	13.3	19.9	13.8	20.6	14.3	21.2	14.7	21.8	15.1	23.1	16.0	24.1	16.8
	12.0	17.1	11.9	18.0	12.5	18.9	13.1	19.5	13.6	20.2	14.0	20.8	14.4	21.4	14.9	22.7	15.7	23.7	16.5
	14.0	16.8	11.7	17.7	12.3	18.6	12.9	19.2	13.3	19.9	13.8	20.5	14.2	21.0	14.6	22.3	15.5	23.3	16.2
	16.0	16.5	11.5	17.4	12.1	18.2	12.7	18.9	13.1	19.5	13.6	20.1	14.0	20.7	14.4	21.9	15.2	22.9	15.9
	18.0	16.2	11.3	17.1	11.8	17.9	12.4	18.5	12.9	19.2	13.3	19.7	13.7	20.3	14.1	21.5	14.9	22.5	15.6
	20.0	15.9	11.1	16.8	11.6	17.6	12.2	18.2	12.6	18.8	13.1	19.4	13.5	19.9	13.8	21.1	14.7	22.1	15.3
	21.0	15.8	11.0	16.6	11.5	17.4	12.1	18.0	12.5	18.6	13.0	19.2	13.3	19.8	13.7	20.9	14.5	21.9	15.2
	23.0	15.5	10.7	16.3	11.3	17.1	11.9	17.7	12.3	18.3	12.7	18.8	13.1	19.4	13.5	20.5	14.3	21.5	14.9
	25.0	15.2	10.5	16.0	11.1	16.8	11.6	17.4	12.1	18.0	12.5	18.5	12.8	19.0	13.2	20.1	14.0	21.1	14.6
	27.0	14.9	10.3	15.7	10.9	16.4	11.4	17.0	11.8	17.6	12.2	18.1	12.6	18.6	13.0	19.7	13.7	20.7	14.3
	29.0	14.6	10.1	15.4	10.7	16.1	11.2	16.7	11.6	17.3	12.0	17.8	12.3	18.3	12.7	19.4	13.4	20.2	14.1
	31.0	14.3	9.9	15.1	10.5	15.8	11.0	16.4	11.4	16.9	11.8	17.4	12.1	17.9	12.5	19.0	13.2	19.9	13.8
	33.0	14.0	9.7	14.7	10.2	15.5	10.8	16.0	11.1	16.6	11.5	17.1	11.9	17.5	12.2	18.6	12.9	19.4	13.5
	35.0	13.7	9.5	14.4	10.0	15.1	10.5	15.7	10.9	16.2	11.3	16.7	11.6	17.2	11.9	18.2	12.7	19.0	13.2
	37.0	13.4	9.3	14.1	9.8	14.8	10.3	15.4	10.7	15.9	11.0	16.4	11.4	16.8	11.7	17.8	12.4	18.6	12.9
	39.0	13.1	9.1	13.8	9.6	14.5	10.1	15.0	10.4	15.5	10.8	16.0	11.1	16.4	11.4	17.4	12.1	18.2	12.6

unit size	outdoor air temp. CDB	indoor air temp.																	
		14.0CWB 20.0CDB		15.0CWB 21.5CDB		16.0CWB 23.0CDB		17.0CWB 24.5CDB		18.0CWB 26.0CDB		19.0CWB 27.0CDB		20.0CWB 28.0CDB		22.0CWB 30.0CDB		24.0CWB 32.0CDB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
2802	10.0	20.8	14.4	21.9	15.1	23.0	15.9	23.8	16.4	24.6	17.0	25.4	17.5	26.1	18.0	27.6	19.1	28.9	19.9
	12.0	20.5	14.1	21.6	14.9	22.6	15.6	23.4	16.2	24.2	16.7	25.0	17.2	25.6	17.7	27.2	18.8	28.4	19.6
	14.0	20.1	13.9	21.2	14.6	22.2	15.3	23.0	15.9	23.8	16.4	24.5	16.9	25.2	17.4	26.7	18.4	27.9	19.3
	16.0	19.8	13.7	20.8	14.4	21.8	15.1	22.6	15.6	23.4	16.1	24.1	16.6	24.8	17.1	26.2	18.1	27.4	18.9
	18.0	19.4	13.4	20.4	14.1	21.4	14.8	22.2	15.3	23.0	15.8	23.6	16.3	24.3	16.8	25.7	17.8	26.9	18.6
	20.0	19.1	13.2	20.1	13.8	21.1	14.5	21.8	15.0	22.5	15.6	23.2	16.0	23.9	16.5	25.3	17.4	26.4	18.2
	21.0	18.9	13.0	19.9	13.7	20.9	14.4	21.6	14.9	22.3	15.4	23.0	15.9	23.7	16.3	25.1	17.3	26.2	18.1
	23.0	18.5	12.8	19.5	13.5	20.5	14.1	21.2	14.6	21.9	15.1	22.6	15.6	23.2	16.0	24.6	17.0	25.7	17.7
	25.0	18.2	12.5	19.1	13.2	20.1	13.9	20.8	14.3	21.5	14.8	22.1	15.3	22.8	15.7	24.1	16.7	25.2	17.4
	27.0	17.8	12.3	18.8	12.9	19.7	13.6	20.4	14.1	21.1	14.6	21.7	15.0	22.3	15.4	23.7	16.3	24.7	17.1
	29.0	17.5	12.1	18.4	12.7	19.3	13.3	20.0	13.8	20.7	14.3	21.3	14.7	21.9	15.1	23.2	16.0	24.2	16.7
	31.0	17.1	11.8	18.0	12.4	18.9	13.1	19.6	13.5	20.3	14.0	20.9	14.4	21.5	14.8	22.7	15.7	23.8	16.4
	33.0	16.8	11.6	17.7	12.2	18.5	12.8	19.2	13.2	19.8	13.7	20.4	14.1	21.0	14.5	22.3	15.4	23.3	16.1
	35.0	16.4	11.3	17.3	11.9	18.1	12.5	18.8	13.0	19.4	13.4	20.0	13.8	20.6	14.2	21.8	15.1	22.8	15.7
	37.0	16.1	11.1	16.9	11.7	17.7	12.2	18.4	12.7	19.0	13.1	19.6	13.5	20.2	13.9	21.3	14.8	22.3	15.4
	39.0	15.7	10.8	16.5	11.4	17.4	12.0	18.0	12.4	18.6	12.8	19.1	13.2	19.7	13.6	20.9	14.4	21.8	15.0

TC: Total Capacity [kW]
SHC: Sensible Heat Capacity [kW]

1-6. Part Load Performance

Indoor unit: RAV-SM2242DT-E

Outdoor unit: RAV-SM2244AT8-E

	Cooling		Heating	
	Capacity Q(W)	Power consumption W(W)	Capacity Q(W)	Power consumption W(W)
MINIMUM	9800	3260	9800	2570
RATING	16700	5100	22400	6490

Cooling

Outdoor temperature(℃)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
40	Q	15800	14220	12640	11060	9480	9270	9270	9270	9270	9270
	W	6450	5440	4550	3760	3500	3500	3500	3500	3500	3500
35	Q	16700	15030	13360	11690	10020	9800	9800	9800	9800	9800
	W	5100	4310	3600	3260	3260	3260	3260	3260	3260	3260
30	Q	17600	15840	14080	12320	10560	10330	10330	10330	10330	10330
	W	5570	4710	3930	3240	3020	3020	3020	3020	3020	3020
25	Q	18490	16640	14790	12940	11090	10850	10850	10850	10850	10850
	W	5140	4340	3630	3000	2790	2790	2790	2790	2790	2790
20	Q	19390	17450	15510	13570	11630	11380	11380	11380	11380	11380
	W	4720	3980	3330	2750	2560	2560	2560	2560	2560	2560

Heating

Outdoor temperature(℃)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	29900	26910	23920	20930	17940	14950	13080	13080	13080	13080
	W	7570	6370	5270	4290	3410	2630	3000	3000	3000	3000
15	Q	27010	24310	21610	18910	16210	13510	11820	11820	11820	11820
	W	7160	6020	4980	4060	3220	2480	2830	2830	2830	2830
10	Q	24530	22080	19620	17170	14720	12260	10730	10730	10730	10730
	W	6780	5710	4720	3850	3050	2350	2690	2690	2690	2690
7	Q	22400	20160	17920	15680	13440	11200	9800	9800	9800	9800
	W	6490	5460	4520	3680	2920	2250	2570	2570	2570	2570
5	Q	20900	18810	16720	14630	12540	10450	9140	9140	9140	9140
	W	6290	5290	4380	3570	2830	2180	2490	2490	2490	2490
2	Q	18730	16850	14980	13110	11240	9360	8190	8190	8190	8190
	W	5980	5030	4170	3390	2690	2070	2370	2370	2370	2370
0	Q	14630	13160	11700	10240	8780	7310	6400	6400	6400	6400
	W	5320	4470	3700	3010	2390	1840	2100	2100	2100	2100
-5	Q	14630	13160	11700	10240	8780	7310	6400	6400	6400	6400
	W	5320	4470	3700	3010	2390	1840	2100	2100	2100	2100
-7	Q	13750	12380	11000	9630	8250	6880	6020	6020	6020	6020
	W	5150	4340	3590	2920	2320	1790	2040	2040	2040	2040
-10	Q	12600	11340	10080	8820	7560	6300	5510	5510	5510	5510
	W	4940	4160	3440	2800	2220	1710	1960	1960	1960	1960
-15	Q	10620	9560	8490	7430	6370	5310	4650	4650	4650	4650
	W	4660	3920	3240	2640	2100	1610	1840	1840	1840	1840
-20	Q	8690	7820	6950	6080	5210	4350	3800	3800	3800	3800
	W	4380	3690	3050	2480	1970	1520	1730	1730	1730	1730

Indoor unit: RAV-SM2802DT-E

Outdoor unit: RAV-SM2804AT8-A

	Cooling		Heating	
	Capacity Q(W)	Power consumption W(W)	Capacity Q(W)	Power consumption W(W)
MINIMUM	9800	3360	9800	2570
RATING	20000	6200	27000	8150

Cooling

Outdoor temperature(° C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
40	Q	18920	17030	15140	13240	11350	9460	9270	9270	9270	9270
	W	8170	6630	5310	4180	3610	3610	3610	3610	3610	3610
35	Q	20000	18000	16000	14000	12000	10000	9800	9800	9800	9800
	W	6200	5030	4030	3360	3360	3360	3360	3360	3360	3360
30	Q	21080	18970	16860	14760	12650	10540	10330	10330	10330	10330
	W	7050	5720	4580	3600	3110	3110	3110	3110	3110	3110
25	Q	22140	19930	17710	15500	13280	11070	10850	10850	10850	10850
	W	6510	5280	4220	3330	2880	2880	2880	2880	2880	2880
20	Q	23220	20900	18580	16250	13930	11610	11380	11380	11380	11380
	W	5970	4840	3880	3050	2640	2640	2640	2640	2640	2640

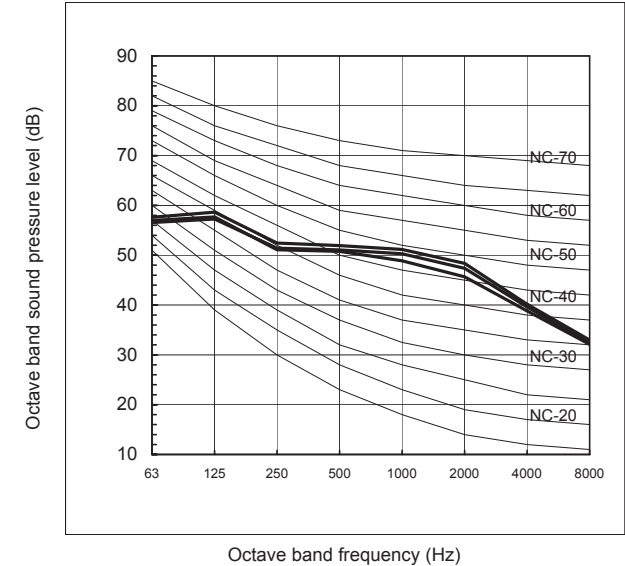
Heating

Outdoor temperature(° C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	36040	32430	28830	25220	21620	18020	14410	13080	13080	13080
	W	9510	8000	6630	5390	4280	3300	2600	3000	3000	3000
15	Q	32560	29300	26050	22790	19540	16280	13020	11820	11820	11820
	W	8990	7560	6260	5090	4050	3120	2460	2830	2830	2830
10	Q	29570	26610	23650	20700	17740	14780	11830	10730	10730	10730
	W	8520	7170	5940	4830	3840	2960	2330	2690	2690	2690
7	Q	27000	24300	21600	18900	16200	13500	10800	9800	9800	9800
	W	8150	6860	5680	4620	3670	2830	2230	2570	2570	2570
5	Q	25190	22670	20150	17630	15110	12600	10080	9140	9140	9140
	W	7900	6650	5500	4480	3560	2740	2160	2490	2490	2490
2	Q	22570	20310	18060	15800	13540	11290	9030	8190	8190	8190
	W	7510	6320	5240	4260	3380	2610	2060	2370	2370	2370
0	Q	17630	15870	14100	12340	10580	8820	7050	6400	6400	6400
	W	6670	5620	4650	3780	3010	2320	1830	2100	2100	2100
-5	Q	17630	15870	14100	12340	10580	8820	7050	6400	6400	6400
	W	6670	5620	4650	3780	3010	2320	1830	2100	2100	2100
-7	Q	16580	14920	13260	11600	9950	8290	6630	6020	6020	6020
	W	6470	5450	4510	3670	2910	2250	1770	2040	2040	2040
-10	Q	15180	13670	12150	10630	9110	7590	6070	5510	5510	5510
	W	6200	5220	4320	3520	2790	2150	1700	1960	1960	1960
-15	Q	12800	11520	10240	8960	7680	6400	5120	4650	4650	4650
	W	5850	4920	4080	3320	2630	2030	1600	1840	1840	1840
-20	Q	10480	9430	8380	7330	6290	5240	4190	3800	3800	3800
	W	5500	4630	3830	3120	2480	1910	1510	1730	1730	1730

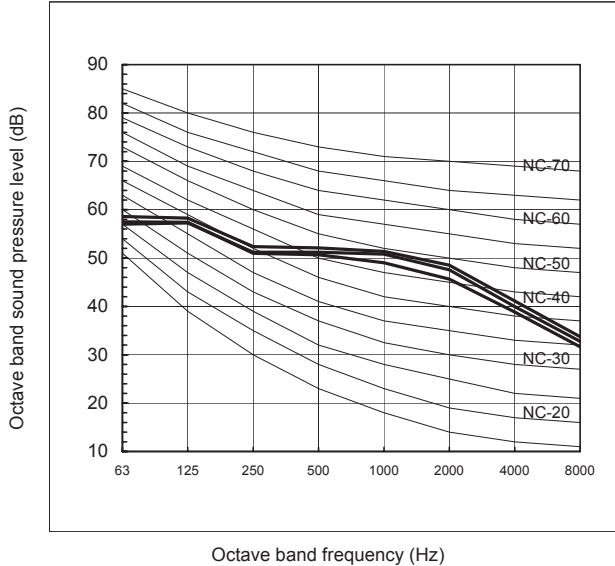
1-7. Sound Characteristics (NC Curve)

Model name	Measuring location	Sound pressure level (dB)
		H
RAV-SM2242DT-E	Under from unit 1.5 m (JIS Standard) Supply static duct Suction static duct 1.6 m 1.0 m 1.5 m	54
RAV-SM2802DT-E		55

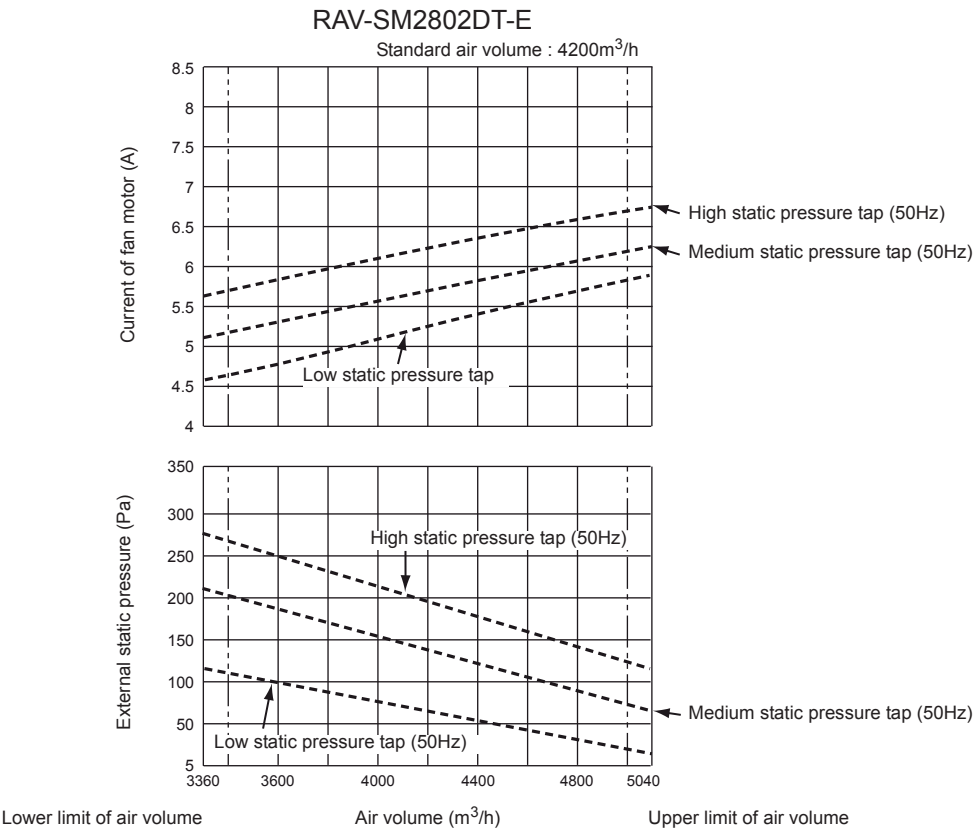
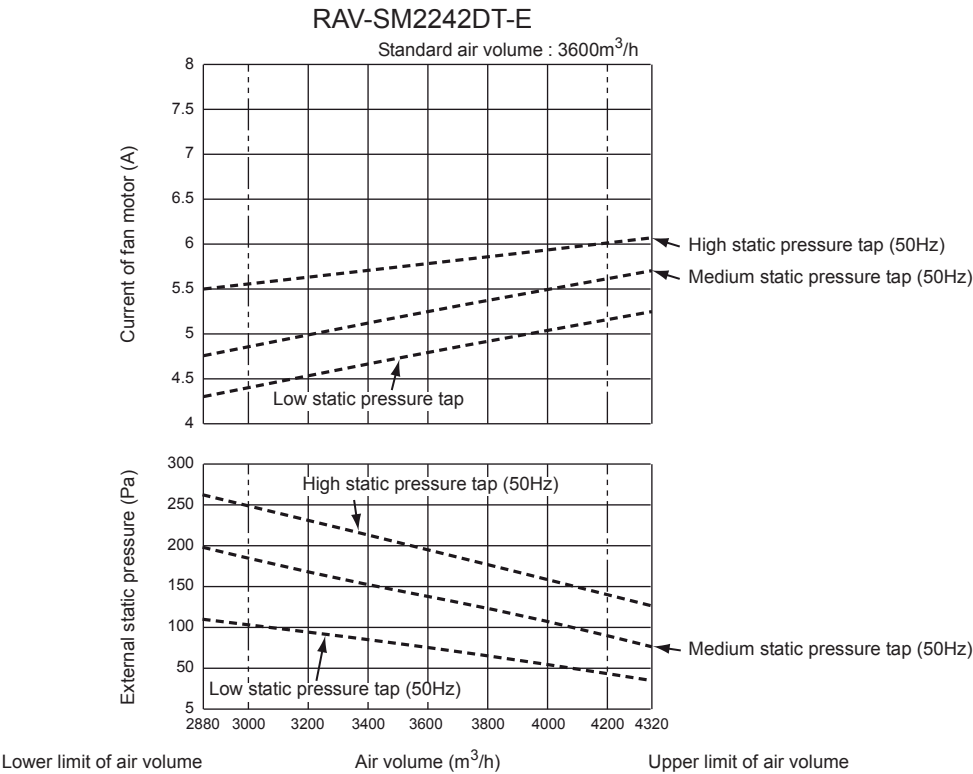
RAV-SM2242DT-E



RAV-SM2802DT-E



1-8. Fan Characteristics



2-1. Specifications

Outdoor Unit

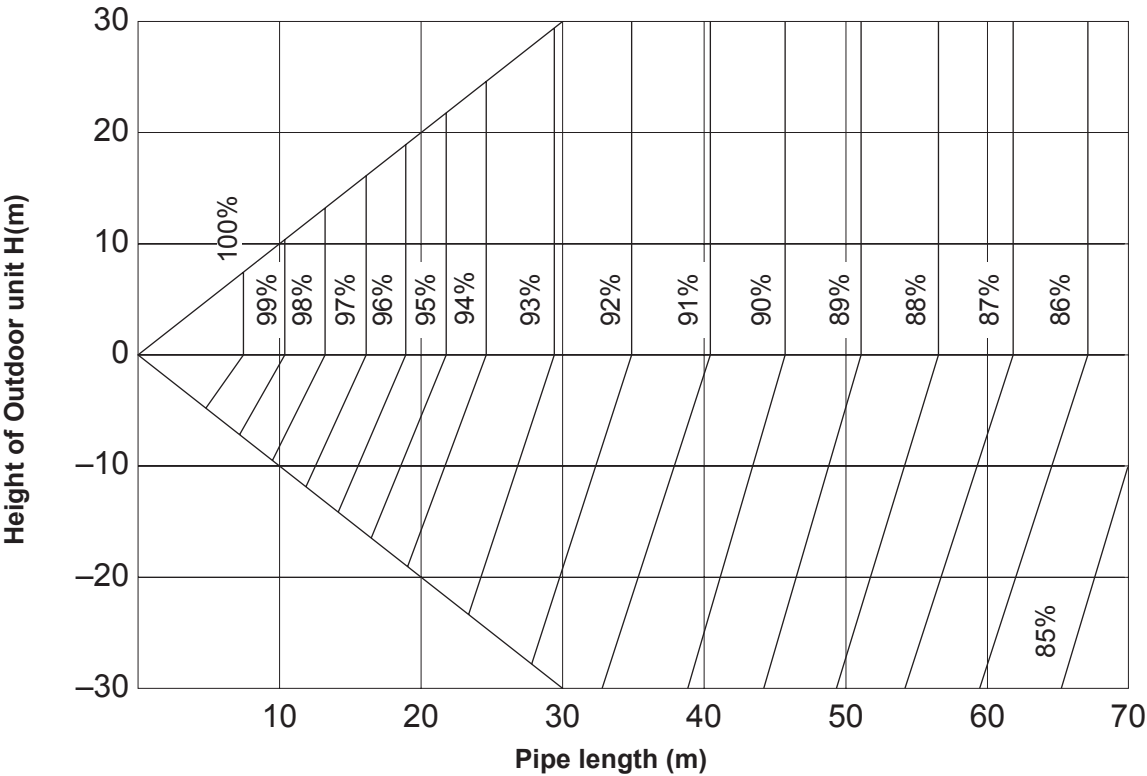
Model	Outdoor unit			RAV-SM2244AT8-A	RAV-SM2804AT8-A
Power supply				3 phase 380-415V 50Hz (Power exclusive to outdoor is required.)	
Compressor	Type			Hermetic compressor	
	Motor (kW)			3.75	3.75
	Pole			4	4
Refrigerant charged (kg)				5.9	5.9
Refrigerant control				Pulse motor valve	
Pipe	Standard length (m)			7.5	7.5
	Max. total length (m)			70	70
	Height difference	Outdoor lower (m)		30	30
		Outdoor higher (m)		30	30
Outer dimension	Height (mm)			1540	1540
	Width (mm)			900	900
	Depth (mm)			320	320
Appearance				Silky shade (Muncel 1Y8.5-0.5)	
Total weight (kg)				134	134
Heat exchanger				Finned tube	
Fan unit	Fan			Propeller fan	
	Standard air flow (m3/min)			133.3	150
	Motor (W)			100 + 100	100 + 100
Connecting pipe	Gas side (mm)			28.6	12.7
	Liquid side (mm)			28.6	12.7
Sound pressure level		Cooling/Heating (dB·A)		56/57	72/74
Sound power level		Cooling/Heating (dB·A)		57/58	74/75
Outside air temperature, cooling (C)				46 to -15C	
Outside air temperature, Heating (C)				15 to -20C	

2-2. Capacity Correction

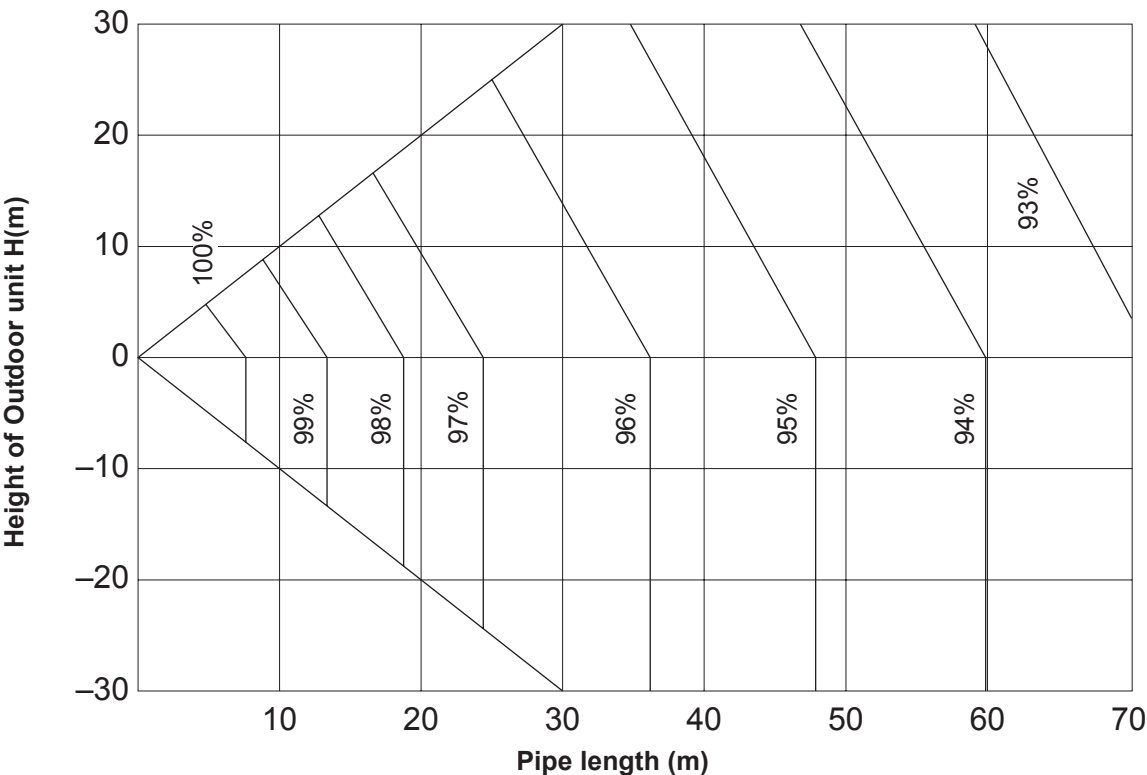
Connecting pipe length and lift difference between indoor units vs. capacity correction value

RAV-SM2244AT8-A, RAV-SM2804AT8-A

Cooling

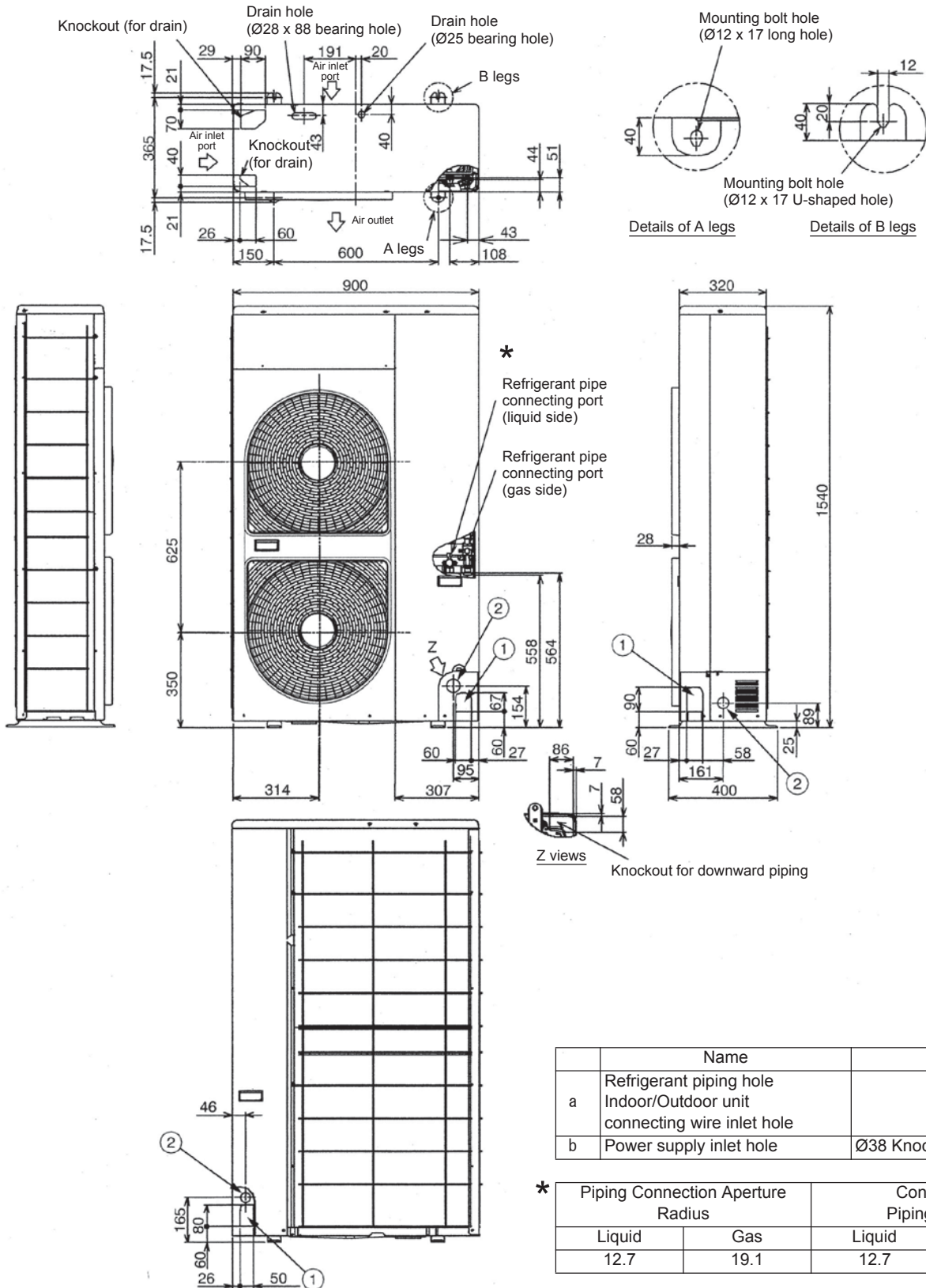


Heating

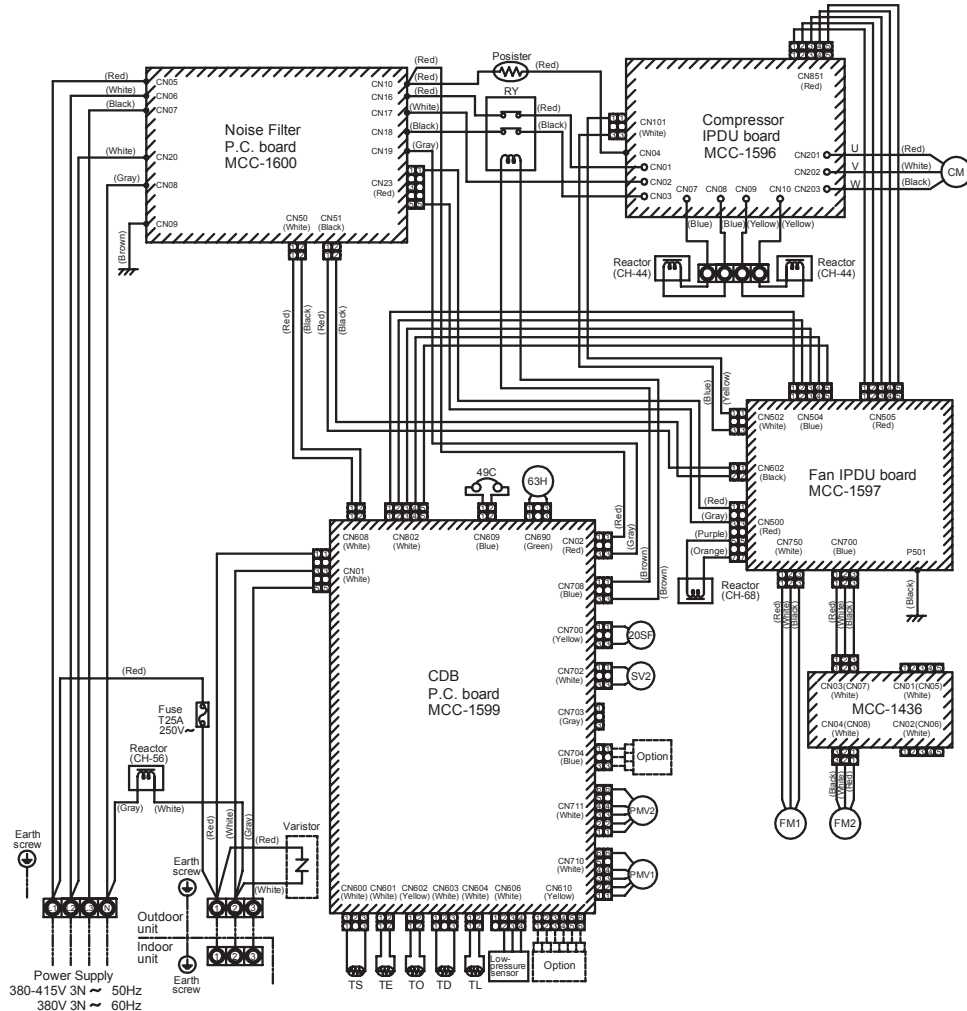


2-3. Dimension

RAV-SM2244AT8-A, RAV-SM2804AT8-A



RAV-SM2244AT8-A, RAV-SM2804AT8-A

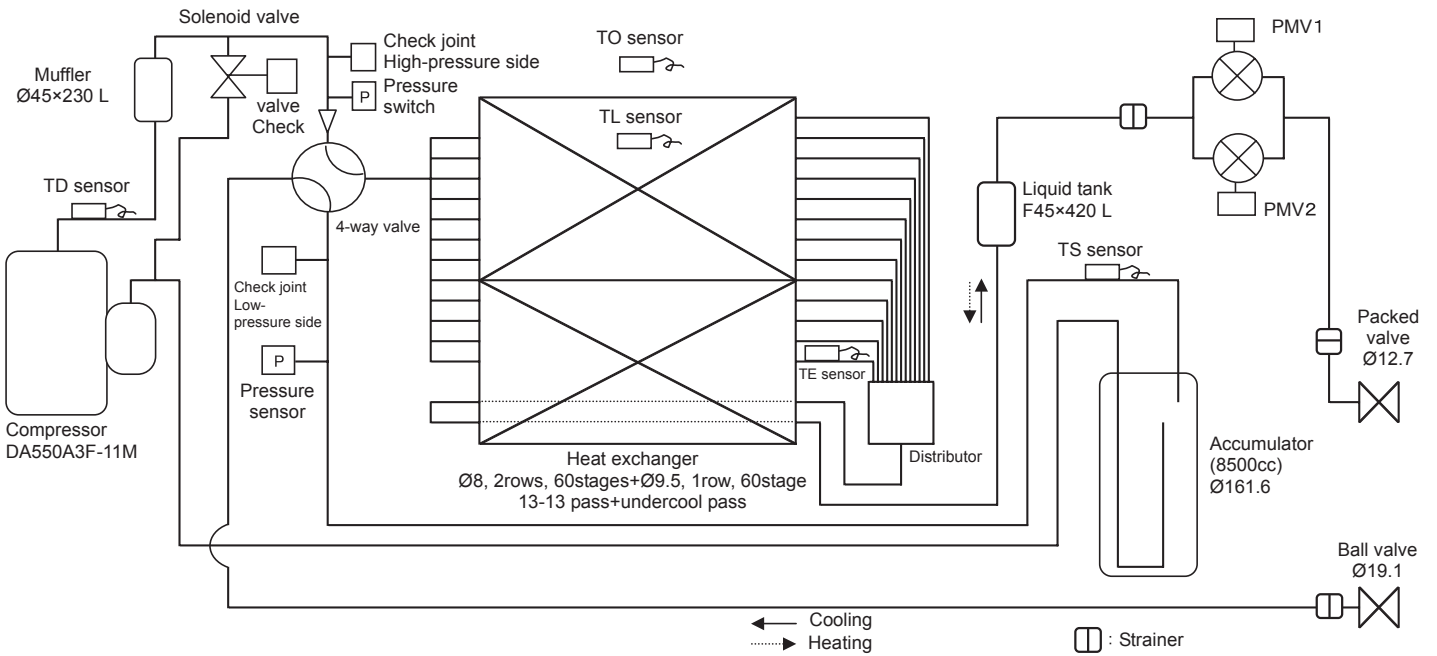


Symbol	Part Name	Symbol	Part Name
CM	Compressor	TO	Outside temperature sensor
FM1, 2	Fan motor	SV2	2-way valve coil
PMV1, 2	Pulse motor valve	20SF	4-way valve coil
TD	Pipe temperature sensor(Discharge)	49C	Compressor case thermostat
TS	Pipe temperature sensor(Suction)	63H	High-pressure switch
TE	Heat exchanger sensor 1	RY	Relay
TL	Heat exchanger sensor 2		

1. © indicates the terminal block. Alphanumeric characters in the cycle indicate the terminal No.
2. The two-dot chain line indicates the wiring procured locally.
3.  indicates the P.C. board.
4. For the indoor unit circuit, refer to the wiring diagram of the indoor unit.

2-5. Outdoor Unit refrigerating cycle diagram

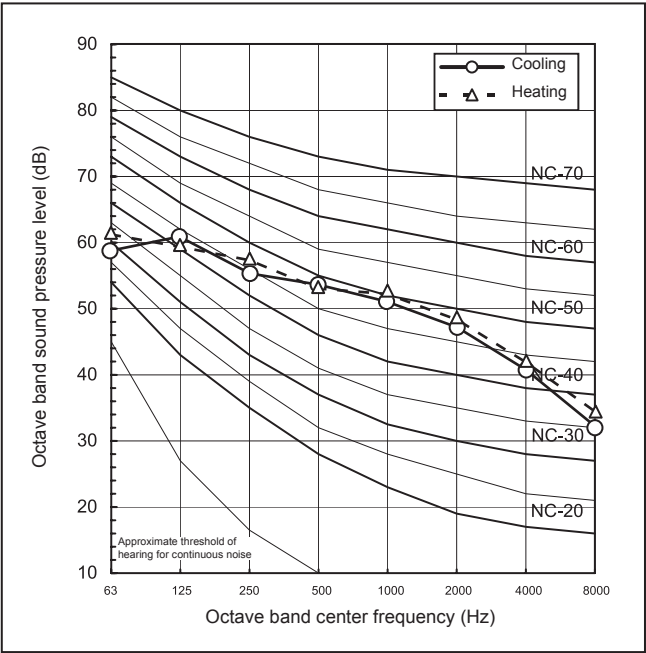
RAV-SM2244AT8-A, RAV-SM2804AT8-A



2-6. Sound Characteristics (NC Curve)

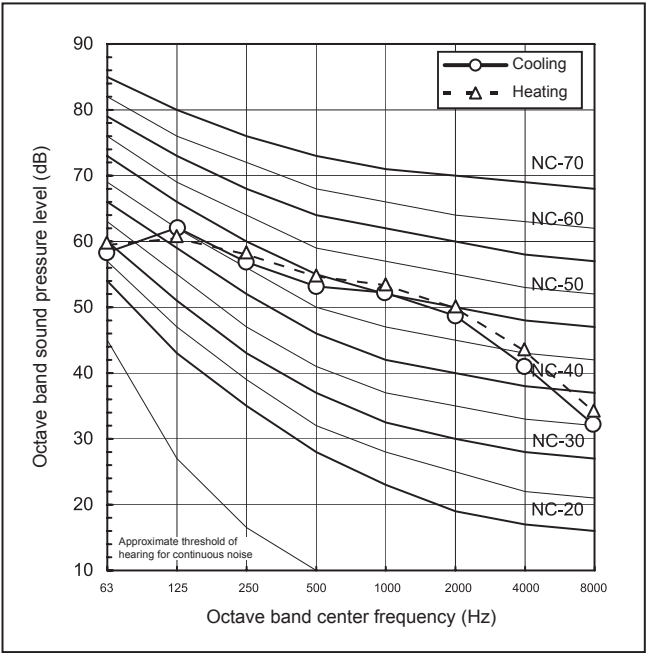
RAV-SM2244AT8-E

Sound pressure level (dB(A))	Cooling	Heating
	56	57



RAV-SM2804AT8-E

Sound pressure level (dB(A))	Cooling	Heating
	57	58



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