

Digital Inverter 1 series 8 & 10HP

High static duct type

Indoor unit

RAV-RM2241DTP-E2

RAV-RM2801DTP-E2

Outdoor unit

RAV-GM2241AT8-A

RAV-GM2801AT8-A

Contents

1. Line up	3
2. Indoor unit (High static duct type).....	4
2-1. Specifications	5
2-2. Dimension	6
2-3. Center of gravity	8
2-4. Wiring diagram.....	9
2-5. Refrigerant cycle.....	10
2-6. Electrical characteristics	11
2-7. Sensible capacity table	12
2-8. Part load data	13
2-9. Sound data	17
2-10. Fan characteristics	19
2-11. Accessories.....	20
2-12. Reference	21
3. Outdoor unit	22
3-1. Specifications	23
3-2. Dimension	24
3-3. Center of gravity	25
3-4. Wiring diagram.....	26
3-5. Refrigerant cycle.....	27
3-6. Sound data	28
3-7. Capacity correction	30
3-8. Refrigerant piping design	31

1. Line up

System

		RAV-GM2241AT8-A	RAV-GM2801AT8-A
High static duct	RAV-RM2241DTP-E2	✓	-
	RAV-RM2801DTP-E2	-	✓

Accessories

Type	Model name
Long life filter Kit	TCB-LK2801DP-E
Drain pump Kit	TCB-DP40DPE

2. Indoor unit (High static duct type)

- 2-1. Specifications**
- 2-2. Dimension**
- 2-3. Center of gravity**
- 2-4. Wiring diagram**
- 2-5. Refrigerant cycle**
- 2-6. Electrical characteristics**
- 2-7. Sensible capacity table**
- 2-8. Part load data**
- 2-9. Sound data**
- 2-10. Fan characteristics**
- 2-11. Accessories**
- 2-12. Reference**

2-1. Specifications

High static duct type

(50 Hz)

Model name	Indoor unit		RAV-	RM2241DTP-E2	RM2801DTP-E2
	Outdoor unit		RAV-	GM2241AT8-A	GM2801AT8-A
Refrigerant				R32	
Power supply				3 phase 380 - 415 V 50 Hz	
Cooling capacity ...Note 1			(kW)	20.0 <4.6 - 22.4>	24.0 <4.6 - 27.0>
Heating capacity ...Note 1			(kW)	22.4 <4.6 - 25.0>	27.0 <4.6 - 31.5>
Cooling	Power consumption		(kW)	6.20	7.98
	EER ...Note 2			3.23	3.01
	AEER			3.17	2.97
Heating	Power consumption		(kW)	5.71	7.52
	COP ...Note 2			3.92	3.59
	ACOP			3.85	3.54
Indoor unit					
Outer dimension	Main unit	Height	(mm)	448	
		Width	(mm)	1400	
		Depth	(mm)	900	
	Total weight		(kg)	97	
Standard air flow			H / M / L (m³/h)	3800 / 3200 / 2500	4800 / 4200 / 3500
External static pressure	Standard (Upper - Lower)	(factory setting)	(Pa)	150 (250 - 50)	
Sound pressure level	H		(dB)	44	46
Sound power level	H		(dB)	79	81
Outdoor unit					
Air Flow			(m³/h)	9150	10890
Outer dimension	Main unit	Height	(mm)	1550	
		Width	(mm)	1010	
		Depth	(mm)	370	
	Total weight		(kg)	142	
Pipe	Min. length		(m)	5.0	
	Max. total length		(m)	100.0	
Flare Connections	Gas side		(mm)	15.9	
	Liquid side		(mm)	12.7	
Sound pressure level	Cooling / Heating ...Note 3		(dB)	58 / 60	61 / 63
Sound power level	Cooling / Heating		(dB)	76 / 76	78 / 80
Operating Range	Cooling		(°C)	-15 / 46	
	Heating		(°C)	-27 / 15	

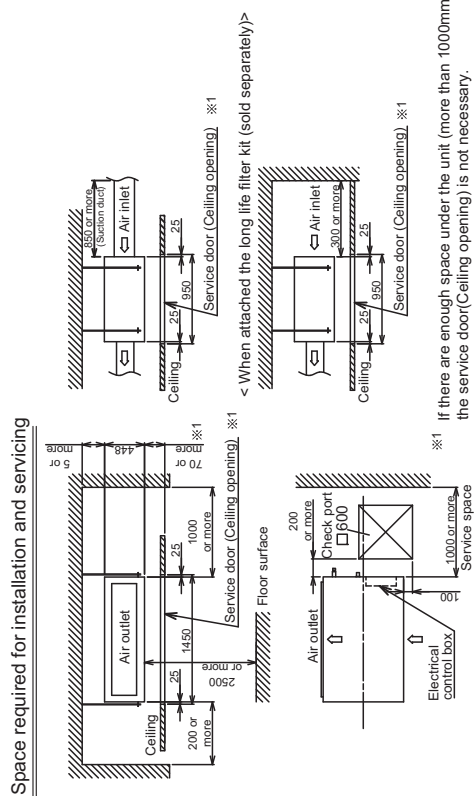
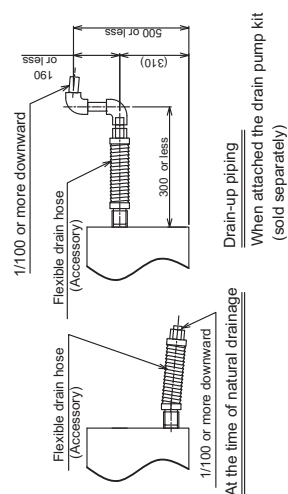
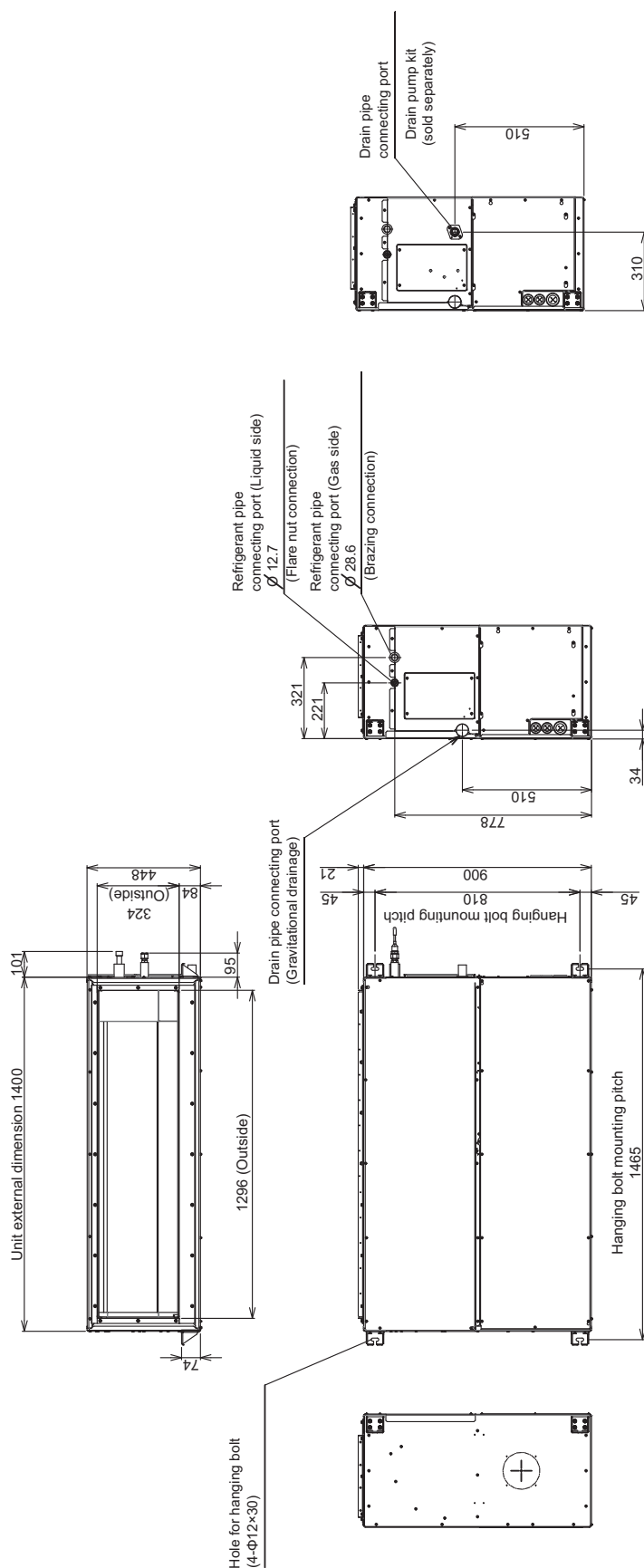
Note 1: The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 7.5 m piping connected with 0 meter height.

Note 2: The EER and COP are measured under conditions specified by BS EN14511 (2013)
External static pressure is different from factory setting.

Note 3: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

Note: Rated conditions Cooling: Indoor air temperature 27°C DB / 19°C WB, Outdoor air temperature 35°C DB
Heating: Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB / 6°C WB

2-2. Dimension

RAV-RM2241DTP-E2, RAV-RM2801DTP-E2

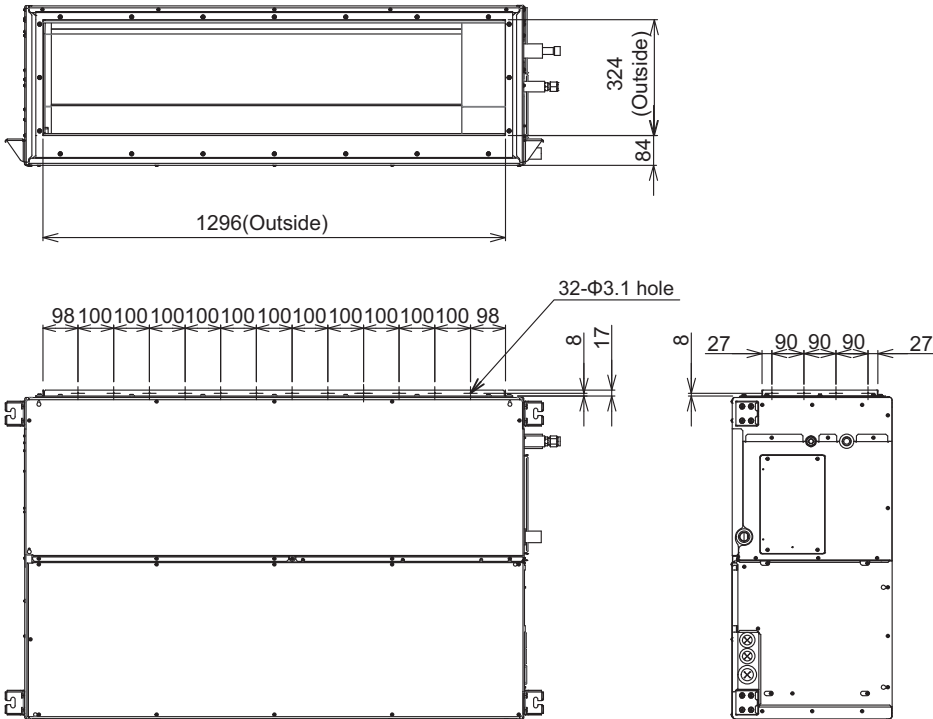
(Unit: mm)

If there are enough space under the unit (more than 1000mm) the service door(Ceiling opening) is not necessary.

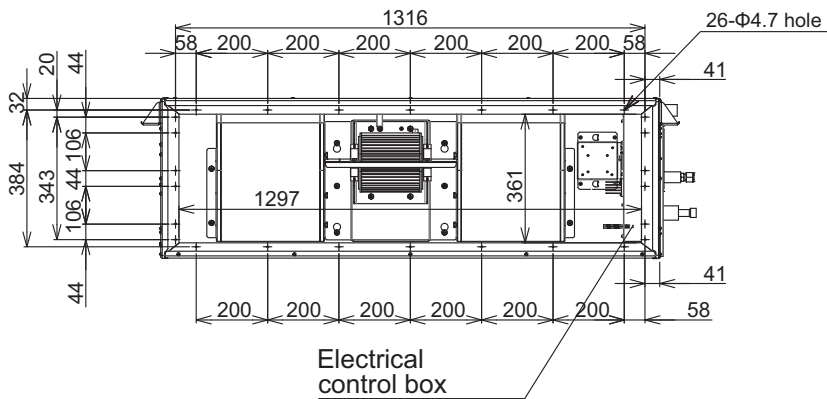
RAV-RM2241DTP-E2, RAV-RM2801DTP-E2

Duct arrangement

<Air outlet>



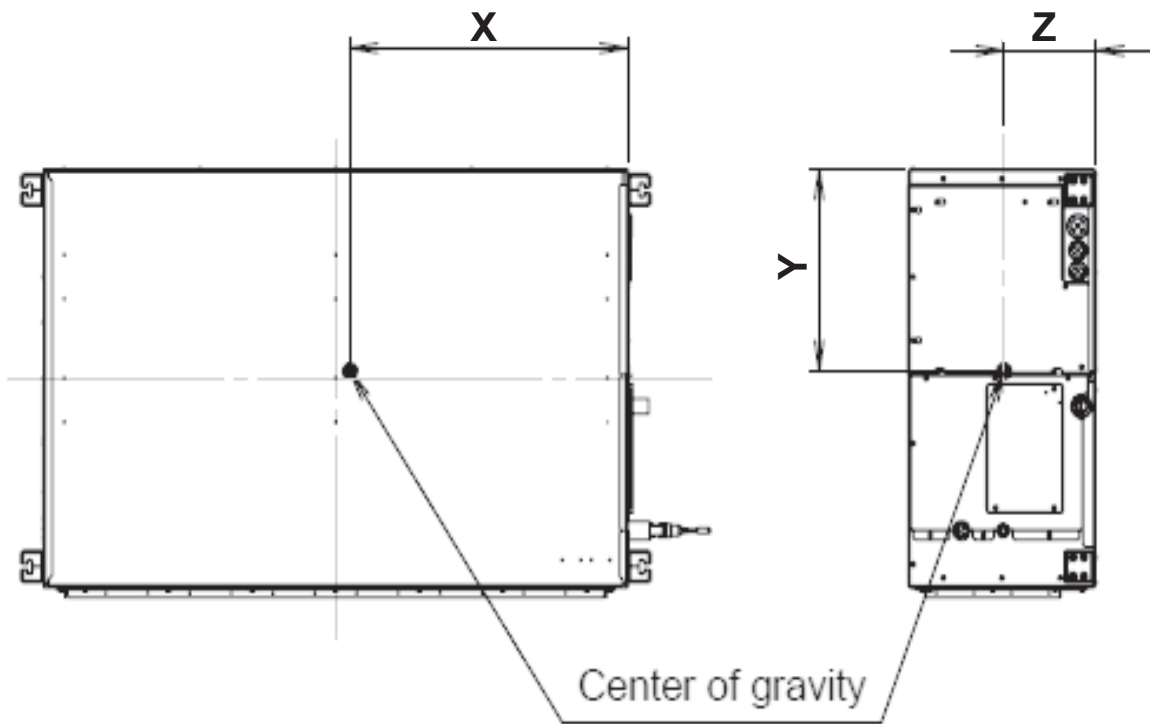
<Air inlet>



(Unit: mm)

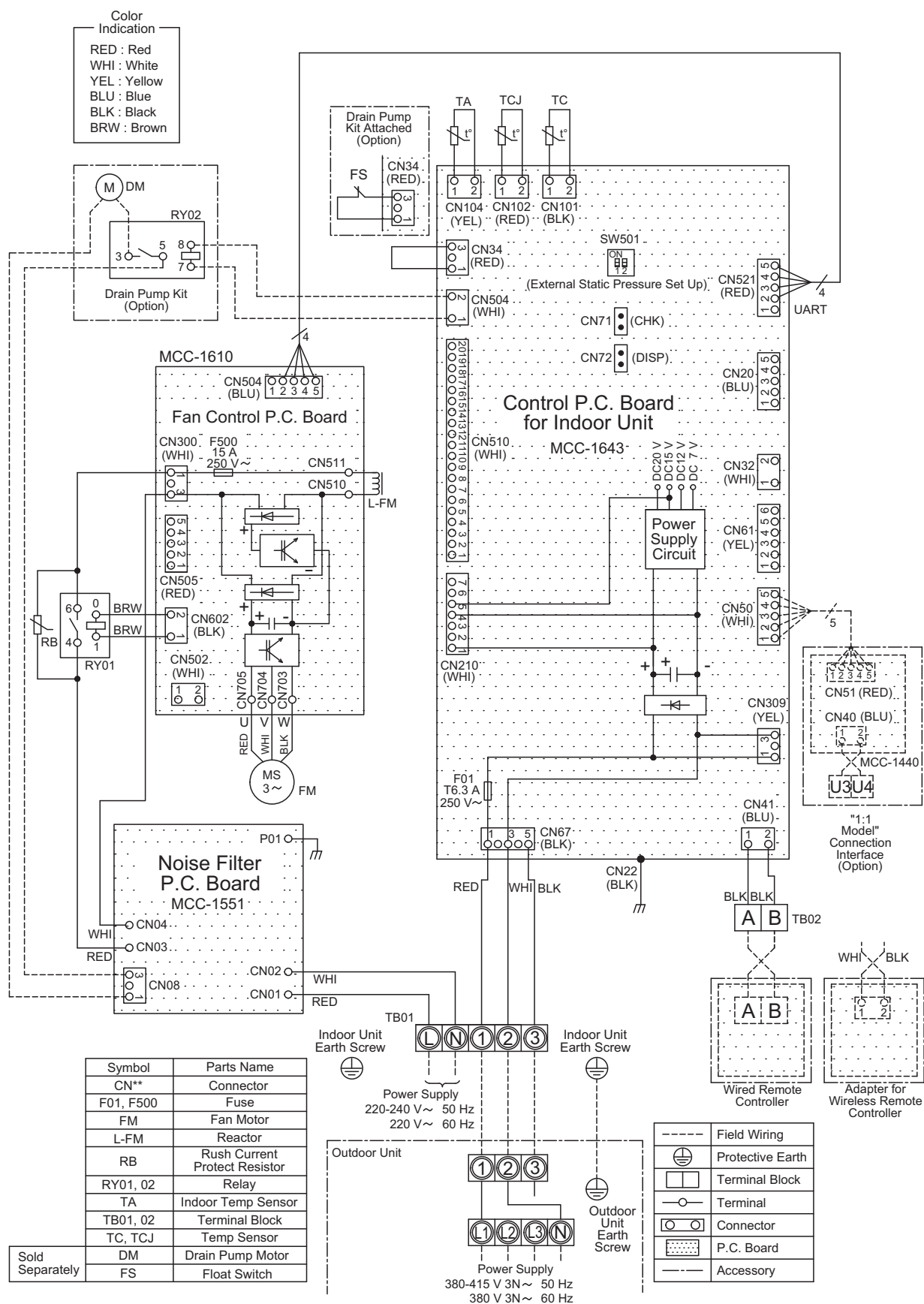
2-3. Center of gravity

Model name	X (mm)	Y (mm)	Z (mm)	Total weight (kg)
RAV-RM2241DTP-E2	665	435	220	97
RAV-RM2801DTP-E2				



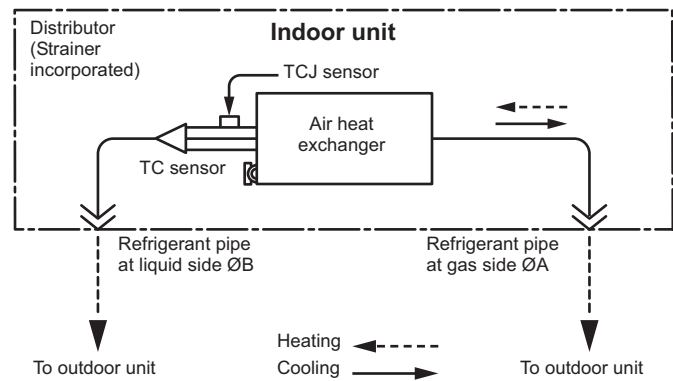
2-4. Wiring diagram

RAV-RM2241DTP-E2, RAV-RM2801DTP-E2



2-5. Refrigerant cycle

RAV-RM2241DTP-E2, RAV-RM2801DTP-E2



Dimension table

Indoor unit	Outer diameter of refrigerant pipe	
	Gas side ØA	Liquid side ØB
RM224, RM280 type	28.6	12.7

2-6. Electrical characteristics

50 Hz

Model	Nominal Voltage (V-Ph-Hz)	Voltage Range		Fan Motor		Power Supply	
		Min	Max	kW	FLA	MCA	MOCP
RAV-RM2241DTP-E2	230-1-50	198	264	1.000	4.1	5.2	15
RAV-RM2801DTP-E2	230-1-50	198	264	1.000	5.3	6.6	15

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

2-7. Sensible capacity table

RAV-RM2241DTP-E2 / RAV-GM2241AT8-A

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
224	10.0	21.7	16.2	22.9	16.7	23.8	17.1	25.0	17.5	25.9	17.9	26.1	18.4	26.4	18.7	29.5	19.2	30.1	19.6
	12.0	21.2	16.1	22.4	16.6	23.3	16.9	24.4	17.3	25.6	17.7	25.5	18.2	26.0	18.5	28.7	19.0	29.5	19.4
	14.0	20.7	16.0	21.9	16.4	22.8	16.7	23.9	17.1	25.0	17.5	25.0	17.9	25.6	18.3	28.0	18.8	28.9	19.2
	16.0	20.4	15.8	21.4	16.2	22.3	16.5	23.4	16.9	24.4	17.3	24.4	17.7	25.1	18.1	27.3	18.6	28.3	19.0
	18.0	20.0	15.6	20.9	16.0	21.8	16.3	22.8	16.7	23.8	17.1	23.9	17.5	24.7	17.9	26.6	18.4	27.8	18.7
	20.0	19.7	15.5	20.4	15.8	21.3	16.1	22.3	16.5	23.1	16.9	23.4	17.3	24.3	17.7	25.9	17.2	27.2	18.6
	21.0	19.3	15.4	20.2	15.7	21.1	16.0	22.1	16.4	22.8	16.8	23.0	17.1	24.1	17.5	25.5	18.0	26.9	18.4
	23.0	18.9	15.2	19.7	15.5	20.6	15.8	21.5	16.3	22.2	16.6	22.5	16.9	23.7	17.4	24.8	17.8	26.3	18.2
	25.0	18.5	15.1	19.2	15.4	20.1	15.7	21.0	16.0	21.6	16.4	21.9	16.7	23.2	17.1	24.0	17.6	25.7	18.0
	27.0	17.8	14.9	18.7	15.3	19.6	15.5	20.5	15.8	21.0	16.2	20.9	16.4	22.8	16.9	23.3	17.2	25.1	17.8
	29.0	17.6	14.7	18.2	15.1	19.0	15.4	19.9	15.6	20.4	15.9	20.8	16.1	22.4	16.6	22.6	17.1	24.6	17.6
	31.0	17.2	14.6	17.7	14.9	18.5	15.2	19.4	15.4	19.8	15.7	20.2	16.0	21.9	16.5	22.0	17.0	24.0	17.4
	33.0	16.7	14.5	17.2	14.7	18.0	15.0	18.9	15.2	19.2	15.4	19.7	15.7	21.2	16.2	21.5	16.7	23.4	17.2
	35.0	16.3	14.4	16.7	14.5	17.5	14.8	18.3	15.0	18.6	15.2	19.0	15.4	20.4	16.0	21.1	16.5	22.8	17.0
	37.0	15.9	14.2	16.2	14.4	17.0	14.6	17.8	14.8	17.9	15.0	18.5	15.3	19.7	15.8	20.7	16.3	22.3	16.8
	39.0	15.5	14.0	15.7	14.2	16.5	14.4	17.3	14.6	17.3	14.8	18.0	15.0	19.0	15.5	20.3	15.8	21.7	16.6

RAV-RM2801DTP-E2 / RAV-GM2801AT8-A

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
280	10.0	25.5	20.1	26.7	20.6	27.6	21.0	28.8	21.4	29.7	21.8	29.9	22.3	30.2	22.6	33.3	23.1	33.9	23.5
	12.0	25.0	20.0	26.2	20.5	27.1	20.8	28.2	21.2	29.4	21.6	29.3	22.1	29.8	22.4	32.5	22.9	33.3	23.3
	14.0	24.5	19.9	25.7	20.3	26.6	20.6	27.7	21.0	28.8	21.4	28.8	21.8	29.4	22.2	31.8	22.7	32.7	23.1
	16.0	24.2	19.7	25.2	20.1	26.1	20.4	27.2	20.8	28.2	21.2	28.2	21.6	28.9	22.0	31.1	22.5	32.1	22.9
	18.0	23.8	19.5	24.7	19.9	25.6	20.2	26.6	20.6	27.6	21.0	27.7	21.4	28.5	21.8	30.4	22.3	31.6	22.7
	20.0	23.5	19.4	24.2	19.7	25.1	20.0	26.1	20.4	26.9	20.8	27.2	21.2	28.1	21.6	29.7	21.1	31.0	22.5
	21.0	23.1	19.3	24.0	19.6	24.9	19.9	25.9	20.3	26.6	20.7	26.8	21.0	27.9	21.4	29.3	21.9	30.7	22.3
	23.0	22.7	19.1	23.5	19.4	24.4	19.7	25.3	20.2	26.0	20.5	26.3	20.8	27.5	21.3	28.6	21.7	30.1	22.1
	25.0	22.3	19.0	23.0	19.3	23.9	19.6	24.8	19.9	25.4	20.3	25.7	20.6	27.0	21.0	27.8	21.5	29.5	21.9
	27.0	21.6	18.8	22.5	19.2	23.4	19.4	24.3	19.7	24.8	20.1	24.7	20.3	26.6	20.8	27.1	21.1	28.9	21.7
	29.0	21.4	18.6	22.0	19.0	22.8	19.3	23.7	19.5	24.2	19.8	24.6	20.0	26.2	20.5	26.4	21.0	28.4	21.5
	31.0	21.0	18.5	21.5	18.8	22.3	19.1	23.2	19.3	23.6	19.6	24.0	19.9	25.7	20.4	25.8	20.9	27.8	21.3
	33.0	20.5	18.4	21.0	18.6	21.8	18.9	22.7	19.1	23.0	19.3	23.5	19.6	25.0	20.1	25.3	20.6	27.2	21.1
	35.0	20.1	18.3	20.5	18.4	21.3	18.7	22.1	18.9	22.4	19.1	22.5	19.3	24.2	19.9	24.9	20.4	26.6	20.9
	37.0	19.7	18.1	20.0	18.3	20.8	18.5	21.6	18.7	21.7	18.9	22.3	19.2	23.5	19.7	24.5	20.2	26.1	20.7
	39.0	19.3	17.9	19.5	18.1	20.3	18.3	21.1	18.5	21.1	18.7	21.8	18.9	22.8	19.4	24.1	19.7	25.5	20.5

TC: Total capacity [kW]

SHC: Sensible capacity [kW]

2-8. Part load data

Combination

Indoor unit : RAV-RM2241DTP-E2

Outdoor unit : RAV-GM2241AT8-A

	Cooling		Heating	
	Capacity Q (W)	Power consumption W (W)	Capacity Q (W)	Power consumption W (W)
MINIMUM	4600	1270	4600	1270
RATING	20000	6200	22400	5710

Cooling

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
46	Q	17270	15510	13750	11990	10390	10390	10390	10390	10390	10390
	W	9190	8070	7090	6220	5390	5390	5390	5390	5390	5390
43	Q	18010	16190	14360	12530	10880	10880	10880	10880	10880	10880
	W	8340	7270	6340	5520	4760	4760	4760	4760	4760	4760
40	Q	18760	16870	14980	13080	11370	11370	11370	11370	11370	11370
	W	7510	6480	5600	4830	4140	4140	4140	4140	4140	4140
35	Q	20000	18000	16000	14000	12000	10000	8000	6000	4600	4600
	W	6200	5310	4500	3760	3090	2500	1980	1540	1270	1270
30	Q	21080	19000	16910	14820	12730	10650	8560	6470	5010	5010
	W	4980	4330	3730	3180	2680	2220	1810	1450	1220	1220
25	Q	22300	20100	17910	15720	13530	11330	9140	6950	5410	5410
	W	3840	3350	2910	2510	2150	1830	1550	1320	1180	1180
20	Q	23720	21400	19070	16750	14420	12100	9770	7450	5820	5820
	W	2790	2430	2120	1840	1610	1430	1280	1180	1130	1130

Heating

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	26640	24660	22690	20710	18730	16750	14780	12800	10820	8840
	W	6930	6370	5820	5250	4690	4140	3580	3010	2460	1900
15	Q	25010	23030	21060	19080	17100	15120	13140	11170	9190	7210
	W	6460	5920	5390	4850	4310	3780	3250	2710	2180	1640
10	Q	23380	21400	19420	17450	15470	13490	11510	9530	7560	5580
	W	5990	5480	4960	4460	3950	3430	2920	2410	1900	1390
7	Q	22400	20420	18440	16470	14490	12510	10530	8560	6580	4600
	W	5710	5220	4710	4220	3720	3220	2720	2230	1730	1270
5	Q	21750	19770	17790	15810	13840	11860	9880	7900	5930	3950
	W	5680	5170	4670	4160	3660	3150	2650	2140	1630	1130
2	Q	17690	16040	14390	12740	11090	9440	7790	7790	7790	7790
	W	5640	5150	4680	4190	3720	3230	2750	2750	2750	2750
0	Q	16530	15060	13590	12110	10640	9170	7700	7700	7700	7700
	W	5500	5040	4570	4100	3640	3170	2710	2710	2710	2710
-5	Q	13780	12900	12010	11130	10250	9360	9360	9360	9360	9360
	W	5150	4770	4390	4010	3630	3240	3240	3240	3240	3240
-7	Q	12730	12040	11350	10670	8400	8400	8400	8400	8400	8400
	W	4950	4560	4170	3780	3550	3550	3550	3550	3550	3550
-10	Q	12450	11710	10970	10230	7130	7130	7130	7130	7130	7130
	W	4820	4440	4070	3690	3440	3440	3440	3440	3440	3440
-15	Q	12210	11380	10540	9710	5430	5430	5430	5430	5430	5430
	W	4650	4290	3940	3580	3260	3260	3260	3260	3260	3260
-20	Q	8910	8210	7520	6820	4140	4140	4140	4140	4140	4140
	W	4230	3940	3640	3340	3090	3090	3090	3090	3090	3090
-27	Q	4770	4380	3990	3610	3220	2830	2830	2830	2830	2830
	W	3780	3550	3320	3090	2860	2630	2630	2630	2630	2630

Combination

Indoor unit : RAV-RM2241DTP-E2

Outdoor unit : RAV-GM2241AT8-A

	Cooling		Heating	
	Capacity Q (W)	Power consumption W (W)	Capacity Q (W)	Power consumption W (W)
MINIMUM	4600	1270	4600	1270
Night operation*	11980	3090	15230	3910

* When outside air temperature is 40°C or more, the night operation does not operate.

Cooling

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
46*	Q	17270	15510	13750	11990	10390	10390	10390	10390	10390	10390
	W	9190	8070	7090	6220	5390	5390	5390	5390	5390	5390
43*	Q	18010	16190	14360	12530	10880	10880	10880	10880	10880	10880
	W	8340	7270	6340	5520	4760	4760	4760	4760	4760	4760
40*	Q	18760	16870	14980	13080	11370	11370	11370	11370	11370	11370
	W	7510	6480	5600	4830	4140	4140	4140	4140	4140	4140
35	Q	11980	11980	11980	11980	11980	10000	8000	6000	4600	4600
	W	3090	3090	3090	3090	3090	2500	1980	1540	1270	1270
30	Q	12760	12760	12760	12760	12760	10650	8560	6470	5010	5010
	W	2680	2680	2680	2680	2680	2220	1810	1450	1220	1220
25	Q	13570	13570	13570	13570	13570	11330	9140	6950	5410	5410
	W	2160	2160	2160	2160	2160	1830	1550	1320	1180	1180
20	Q	14500	14500	14500	14500	14500	12100	9770	7450	5820	5820
	W	1620	1620	1620	1620	1620	1430	1280	1180	1130	1130

Heating

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	18120	18120	18120	18120	17230	16750	14780	12800	10820	8840
	W	4520	4520	4520	4520	4270	4140	3580	3010	2460	1900
15	Q	17010	17010	17010	17010	16350	15120	13140	11170	9190	7210
	W	4280	4280	4280	4280	4110	3780	3250	2710	2180	1640
10	Q	15900	15900	15900	15900	15470	13490	11510	9530	7560	5580
	W	4060	4060	4060	4060	3950	3430	2920	2410	1900	1390
7	Q	15230	15230	15230	15230	14490	12510	10530	8560	6580	4600
	W	3910	3910	3910	3910	3720	3220	2720	2230	1730	1270
5	Q	14790	14790	14790	14790	13840	11860	9880	7900	5930	3950
	W	3900	3900	3900	3900	3660	3150	2650	2140	1630	1130
2	Q	12030	12030	12030	12030	11090	9440	7790	7790	7790	7790
	W	3990	3990	3990	3990	3720	3230	2750	2750	2750	2750
0	Q	11240	11240	11240	11240	10640	9170	7700	7700	7700	7700
	W	3830	3830	3830	3830	3640	3170	2710	2710	2710	2710
-5	Q	9370	9370	9370	9370	9360	9360	9360	9360	9360	9360
	W	3650	3650	3650	3650	3240	3240	3240	3240	3240	3240
-7	Q	8660	8660	8660	8660	8400	8400	8400	8400	8400	8400
	W	3580	3580	3580	3580	3550	3550	3550	3550	3550	3550
-10	Q	8470	8470	8470	8470	7130	7130	7130	7130	7130	7130
	W	3470	3470	3470	3470	3440	3440	3440	3440	3440	3440
-15	Q	8300	8300	8300	8300	5430	5430	5430	5430	5430	5430
	W	3300	3300	3300	3300	3260	3260	3260	3260	3260	3260
-20	Q	6060	6060	6060	6060	4140	4140	4140	4140	4140	4140
	W	3120	3120	3120	3120	3090	3090	3090	3090	3090	3090
-27	Q	3240	3240	3240	3240	3220	2830	2830	2830	2830	2830
	W	2870	2870	2870	2870	2860	2630	2630	2630	2630	2630

Combination

Indoor unit : RAV-RM2801DTP-E2

Outdoor unit : RAV-GM2801AT8-A

	Cooling		Heating	
	Capacity Q (W)	Power consumption W (W)	Capacity Q (W)	Power consumption W (W)
MINIMUM	4600	1270	4600	1270
RATING	24000	7980	27000	7520

Cooling

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
46	Q	14060	14060	14060	14060	13550	12040	12040	12040	12040	12040
	W	5760	5760	5760	5760	5490	4700	4700	4700	4700	4700
43	Q	22080	20030	17760	15490	13890	12140	12140	12140	12140	12140
	W	9080	8080	7130	6180	5270	4490	4490	4490	4490	4490
40	Q	22730	20600	18280	15970	14240	12250	12250	12250	12250	12250
	W	8680	7740	6830	5930	5060	4280	4280	4280	4280	4280
35	Q	24000	21600	19200	16800	14400	12000	9600	7200	4800	4600
	W	7980	6970	6000	5090	4240	3430	2680	1970	1320	1270
30	Q	24900	22440	19980	17520	15060	12600	10140	7680	5220	5010
	W	7350	6420	5540	4710	3920	3190	2500	1860	1270	1220
25	Q	25980	23440	20890	18350	15800	13260	10710	8170	5620	5410
	W	6690	5850	5050	4300	3600	2930	2320	1740	1210	1170
20	Q	27070	24440	21810	19180	16550	13930	11300	8670	6040	5820
	W	6030	5270	4570	3900	3270	2680	2130	1620	1160	1120

Heating

Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	38130	34620	31110	27600	24090	20590	17080	14330	11590	8840
	W	8740	7970	7220	6460	5690	4940	4180	3410	2660	1890
15	Q	33850	30640	27440	24240	21040	17830	14630	12160	9680	7210
	W	8260	7530	6800	6060	5330	4580	3850	3110	2380	1630
10	Q	29570	26670	23770	20880	17980	15080	12190	9980	7780	5580
	W	7800	7090	6370	5660	4950	4230	3520	2810	2100	1380
7	Q	27000	24570	21870	19180	16480	13790	11950	9500	7050	4600
	W	7520	6820	6120	5420	4730	4020	3330	2630	1920	1270
5	Q	25290	22700	20110	17510	14920	12330	9740	7810	5880	3950
	W	7340	6640	5950	5270	4570	3890	3190	2500	1820	1120
2	Q	22720	20210	17690	15180	12660	10140	7790	7790	7790	7790
	W	7060	6330	5620	4890	4180	3460	2740	2740	2740	2740
0	Q	21010	18770	16530	14280	12040	9800	7700	7700	7700	7700
	W	6860	6170	5480	4790	4090	3390	2700	2700	2700	2700
-5	Q	16730	15260	13780	12310	10840	9360	9360	9360	9360	9370
	W	6400	5760	5130	4500	3870	3230	3230	3230	3230	3230
-7	Q	15020	13870	12730	11580	10440	8400	8400	8400	8400	8400
	W	6210	5570	4930	4280	3640	3070	3070	3070	3070	3070
-10	Q	14920	13690	12450	11220	9980	7130	7130	7130	7130	7130
	W	6050	5420	4800	4190	3570	3000	3000	3000	3000	3000
-15	Q	14760	13480	12210	10930	9650	5430	5430	5430	5430	5430
	W	5840	5240	4640	4040	3440	2890	2890	2890	2890	2890
-20	Q	11230	10070	8910	7750	6590	4140	4140	4140	4140	4140
	W	5200	4710	4210	3720	3240	2780	2780	2780	2780	2780
-27	Q	6280	5530	4770	4010	3260	2830	2830	2830	2840	2840
	W	4540	4160	3770	3390	3010	2620	2620	2620	2620	2620

Combination**Indoor unit : RAV-RM2801DTP-E2****Outdoor unit : RAV-GM2801AT8-A**

	Cooling		Heating	
	Capacity Q (W)	Power consumption W (W)	Capacity Q (W)	Power consumption W (W)
MINIMUM	4600	1270	4600	1270
Night operation*	12190	3490	15550	4490

* When outside air temperature is 40°C or more, the night operation does not operate.

Cooling

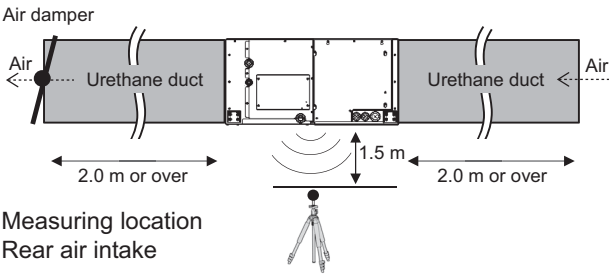
Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
46*	Q	14060	14060	14060	14060	13550	12040	12040	12040	12040	12040
	W	5760	5760	5760	5760	5490	4700	4700	4700	4700	4700
43*	Q	22080	20030	17760	15490	13890	12140	12140	12140	12140	12140
	W	9080	8080	7130	6180	5270	4490	4490	4490	4490	4490
40*	Q	22730	20600	18280	15970	14240	12250	12250	12250	12250	12250
	W	8680	7740	6830	5930	5060	4280	4280	4280	4280	4280
35	Q	12190	12190	12190	12190	12190	12000	9600	7200	4800	4600
	W	3490	3490	3490	3490	3490	3430	2680	1970	1320	1270
30	Q	12800	12800	12800	12800	12800	12600	10140	7680	5220	5010
	W	3250	3250	3250	3250	3250	3190	2500	1860	1270	1220
25	Q	13470	13470	13470	13470	13470	13260	10710	8170	5620	5410
	W	2990	2990	2990	2990	2990	2930	2320	1740	1210	1170
20	Q	14150	14150	14150	14150	14150	13930	11300	8670	6040	5820
	W	2730	2730	2730	2730	2730	2680	2130	1620	1160	1120

Heating

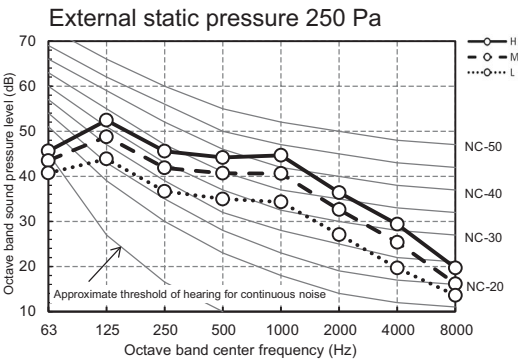
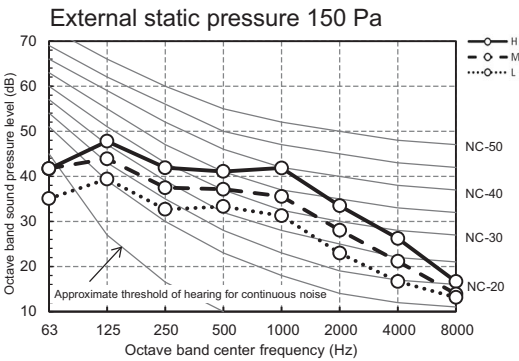
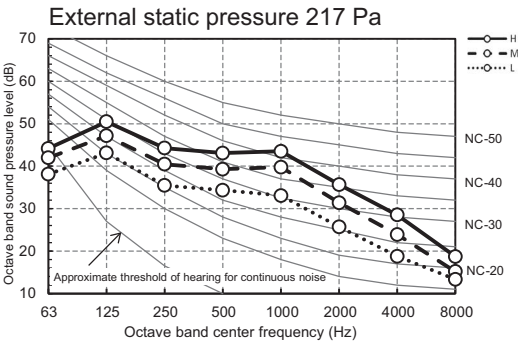
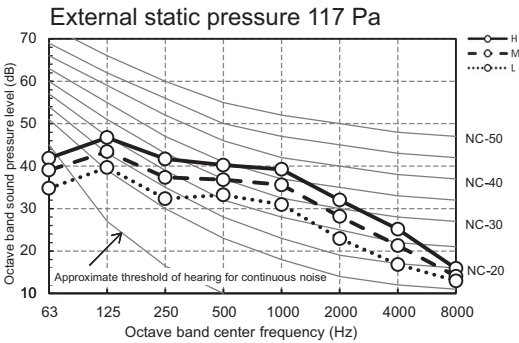
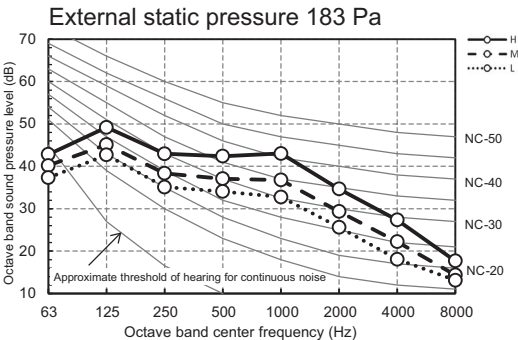
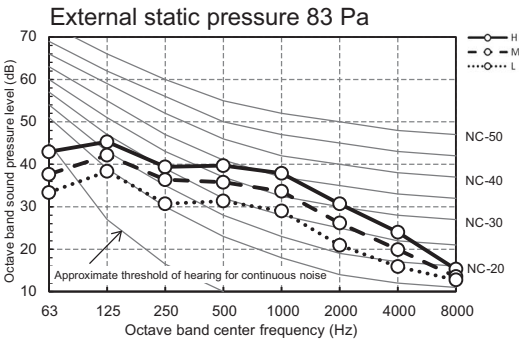
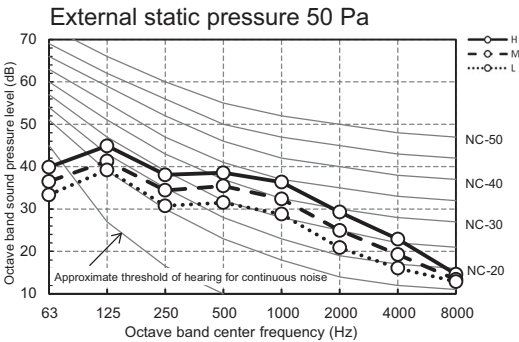
Outdoor temperature (°C)		Load(%)									
		100	90	80	70	60	50	40	30	20	10
20	Q	21960	21960	21960	21960	21960	20590	17080	14330	11590	8840
	W	5230	5230	5230	5230	5230	4940	4180	3410	2660	1890
15	Q	19500	19500	19500	19500	19500	17830	14630	12160	9680	7210
	W	4970	4970	4970	4970	4970	4580	3850	3110	2380	1630
10	Q	17030	17030	17030	17030	17030	15080	12190	9980	7780	5580
	W	4710	4710	4710	4710	4710	4230	3520	2810	2100	1380
7	Q	15550	15550	15550	15550	15550	13790	11950	9500	7050	4600
	W	4490	4490	4490	4490	4490	4020	3330	2630	1920	1270
5	Q	14570	14570	14570	14570	14570	12330	9740	7810	5880	3950
	W	4480	4480	4480	4480	4480	3890	3190	2500	1820	1120
2	Q	13090	13090	13090	13090	13090	10140	7790	7790	7790	7790
	W	4300	4300	4300	4300	4300	3460	2740	2740	2740	2740
0	Q	12100	12100	12100	12100	12100	9800	7700	7700	7700	7700
	W	4110	4110	4110	4110	4110	3390	2700	2700	2700	2700
-5	Q	9640	9640	9640	9640	9640	9360	9360	9360	9360	9370
	W	3970	3970	3970	3970	3970	3230	3230	3230	3230	3230
-7	Q	8650	8650	8650	8650	8650	8400	8400	8400	8400	8400
	W	3910	3910	3910	3910	3910	3070	3070	3070	3070	3070
-10	Q	8590	8590	8590	8590	8590	7130	7130	7130	7130	7130
	W	3820	3820	3820	3820	3820	3000	3000	3000	3000	3000
-15	Q	8500	8500	8500	8500	8500	5430	5430	5430	5430	5430
	W	3680	3680	3680	3680	3680	2890	2890	2890	2890	2890
-20	Q	6470	6470	6470	6470	6470	4140	4140	4140	4140	4140
	W	3540	3540	3540	3540	3540	2780	2780	2780	2780	2780
-27	Q	3620	3620	3620	3620	3620	2830	2830	2830	2840	2840
	W	3330	3330	3330	3330	3330	2620	2620	2620	2620	2620

2-9. Sound data

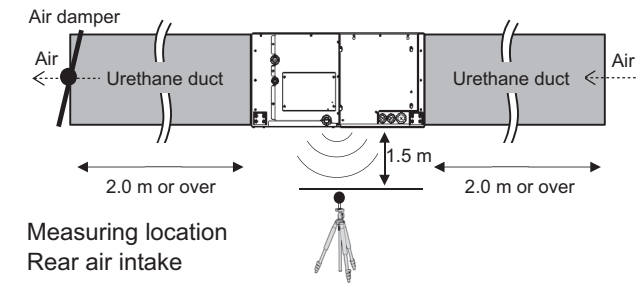
RAV-RM2241DTP-E2



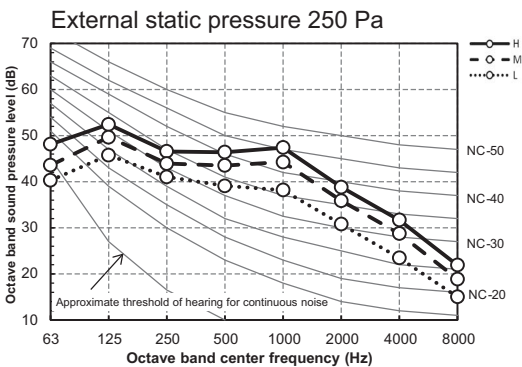
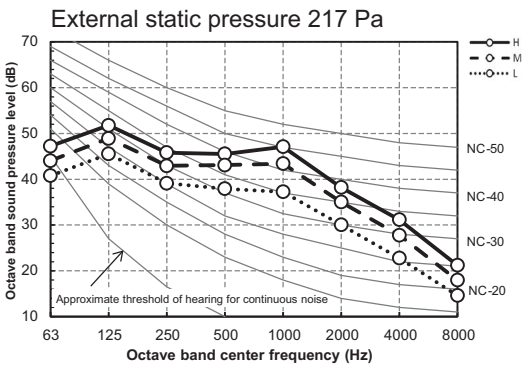
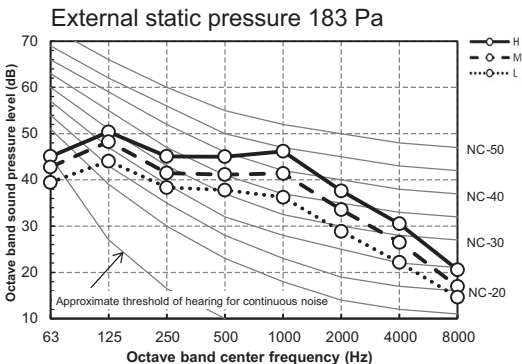
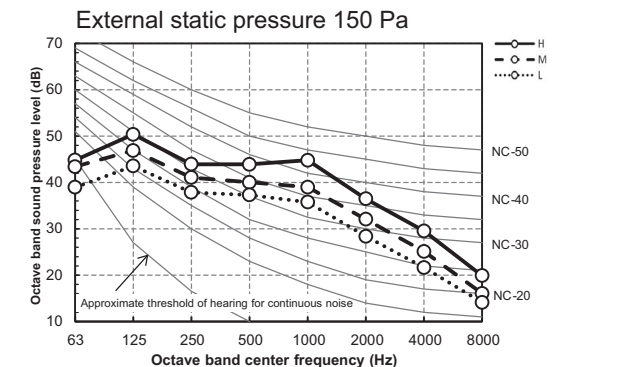
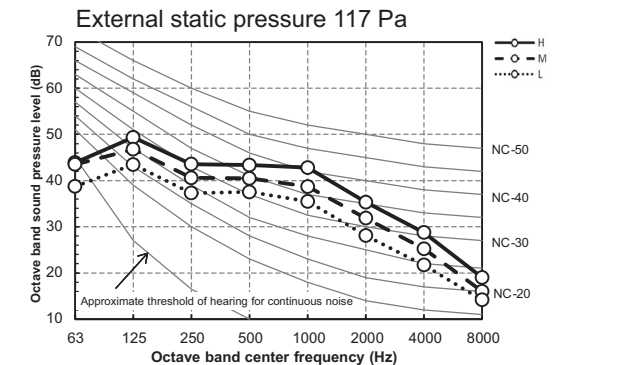
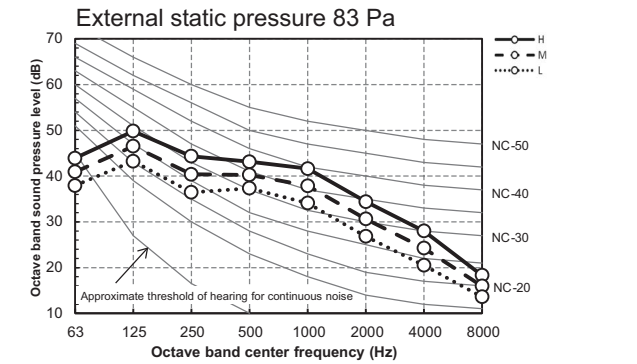
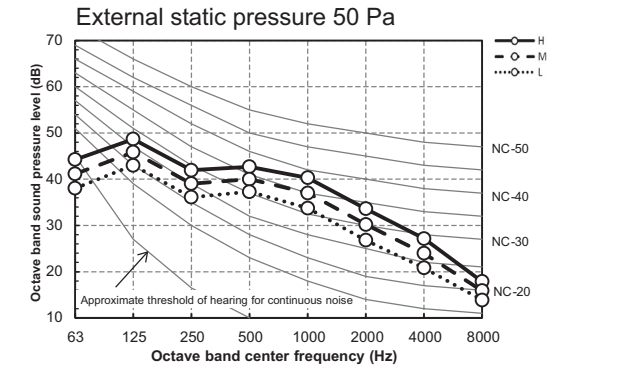
ESP (Pa)	Sound Pressure Level (dBA)		
	H	M	L
50	42.5	38.5	34.5
83	43.0	39.0	35.0
117	43.5	39.5	35.5
150	44.0	40.0	36.0
183	45.0	41.0	37.0
217	46.0	42.0	38.0
250	47.0	43.0	39.0



RAV-RM2801DTP-E2

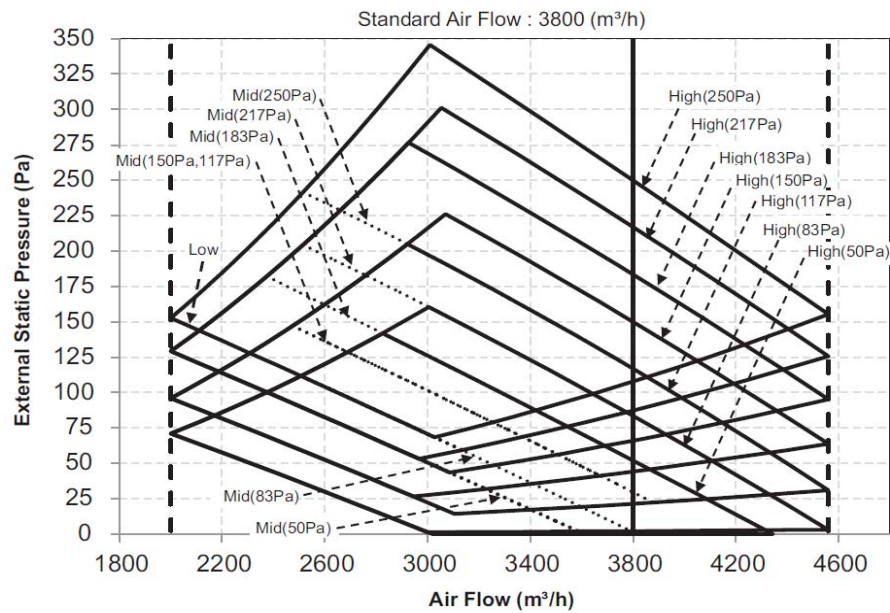


ESP (Pa)	Sound Pressure Level (dBA)		
	H	M	L
50	44.5	40.5	36.5
83	45.0	41.0	37.0
117	45.5	41.5	37.5
150	46.0	42.0	38.0
183	47.0	43.0	39.0
217	48.0	44.0	40.0
250	49.0	45.0	41.0

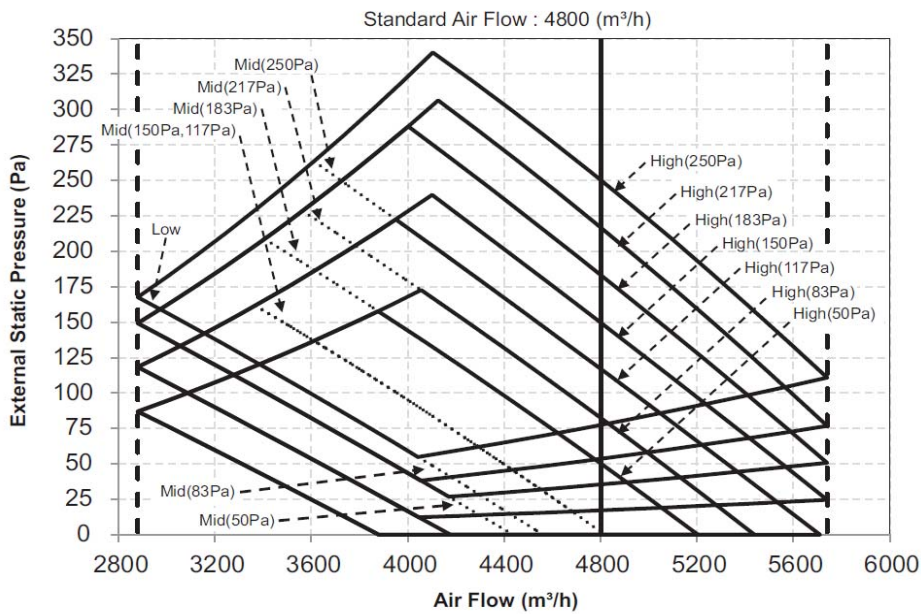


2-10. Fan characteristics

RAV-RM2241DTP-E2



RAV-RM2801DTP-E2

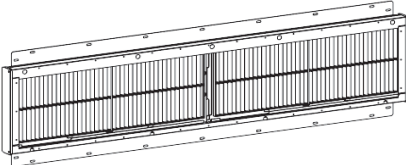
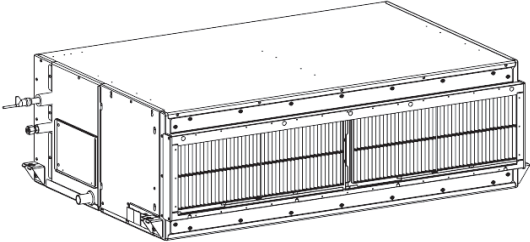
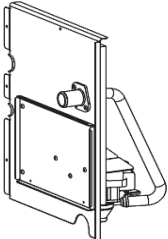
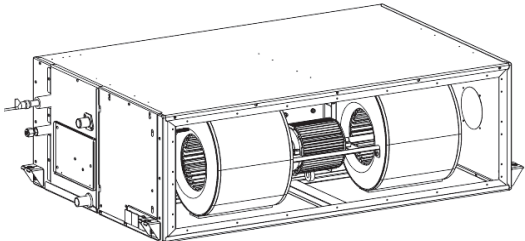


2-11. Accessories

List

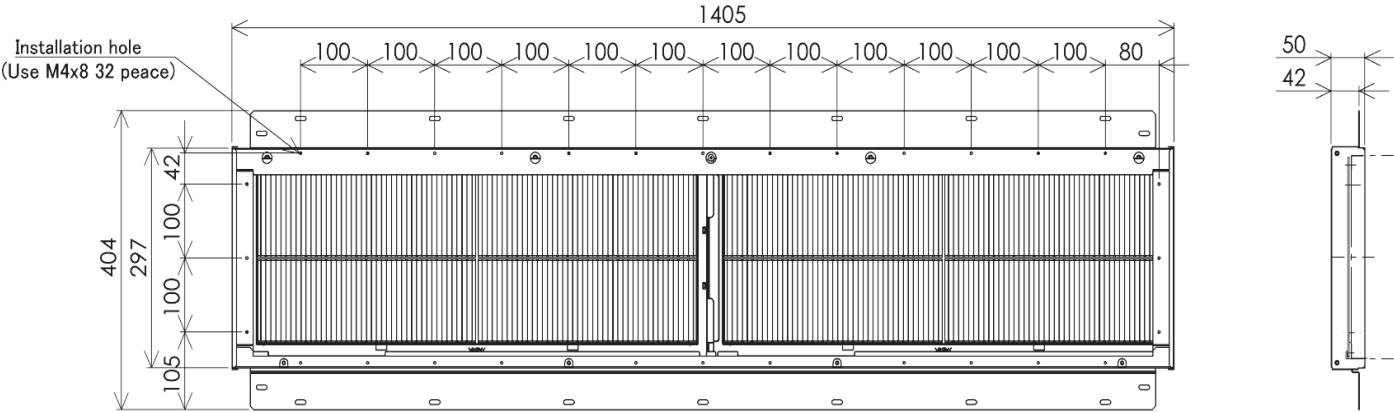
Parts name	Model name	Applied model
Long life filter Kit	TCB-LK2801DP-E	RAV-RM2241, 2801DTP-E2
Drain pump Kit	TCB-DP40DPE	RAV-RM2241, 2801DTP-E2

Shape

Model name	Shape	Attached shape on the duct unit
TCB-LK2801DP-E		
TCB-DP40DPE		

External dimension

TCB-LK2801D-E



2-12. Reference

Caution for implementing the fresh air intake on site.

Caution

1. Be sure to provide air return.
2. The fresh air shall be treated by heat reclaim ventilator or the like.
3. Recommended treated air temperature is 12°C to 30°C.
4. Be sure to decide the fresh air volume so that mixed suction air with fresh air keep operating temperature.
Provide an air filter in fresh air way to prevent sucking dust.
5. Be sure to insulate the fresh air duct.
6. When using the Booster fan, you must do the interlock wiring with the fan of the indoor unit.
7. Due to the Ta sensor (Indoor suction temperature sensor) becomes not able to detect the correct indoor temperature, switch it to the remote controller sensor control.
(Refer to the installation manual of the indoor unit or manual of the remote controller.)

Characteristics between air volume of fresh air

Up to 10% fresh air intake ratio is available by using the booster fan.

fresh air intake ratio = (fresh air volume) / (total air volume) × 100%

Inter - lock circuit

When do the interlock wiring, the Application control kit (TCB-PCUC1E) sold separately is necessary.

Refer to the installation manual of the Application control kit (TCB-PCUC1E), and use the function of "FAN OUTPUT".

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

(Implement the test run following to the installation manual of the indoor unit.)

3. Outdoor unit

- 3-1. Specifications**
- 3-2. Dimension**
- 3-3. Center of gravity**
- 3-4. Wiring diagram**
- 3-5. Refrigerant cycle**
- 3-6. Sound data**
- 3-7. Capacity correction**
- 3-8. Refrigerant piping design**

3-1. Specifications

Model name		Outdoor unit		RAV-GM2241AT8-A		RAV-GM2801AT8-A		
Power supply				3 phase 380-415, 50 Hz (Power exclusive to outdoor is required)				
Compressor	Type			Hermetic compressor				
	Motor		kW	5.6		5.6		
	Pole			4		4		
Refrigerant charged			kg	5.0		5.0		
Refrigerant control				Pulse motor valve				
Additional refrigerant charge			g/m	80		80		
Pipe	Max		m	100		100		
	Min		m	5		5		
	Height difference	Outdoor lower		m	30		30	
		Outdoor Height		m	30		30	
	Charge less length		m	30		30		
	Drain port			VP25				
Outer dimension	Height		mm	1,550		1,550		
	Width		mm	1,010		1,010		
	Depth		mm	370		370		
Appearance				Silky shade (Munsell 1Y8.5/0.5)				
Total weight			kg	142		142		
Heat exchanger				Finned tube				
Fan unit	Fan			Propeller fan				
	Standard air flow		m ³ /min	153		182		
	Motor		W	200+200		200+200		
Connecting pipe (Outdoor unit side)	Gas side		mm	28.6		28.6		
	Liquid side		mm	12.7		12.7		
Sound pressure level	Cooling/Heating		dB(A)	58/60		61/63		
	Night operation Cooling/Heating		dB(A)	45/45		45/45		
Sound power level	Cooling/Heating		dB(A)	76/76		78/80		
	Night operation Cooling/Heating		dB(A)	64/63		64/63		
Outside air temperature cooling			°C	-15 to 46				
Outside air temperature heating			°C	-27 to 15				

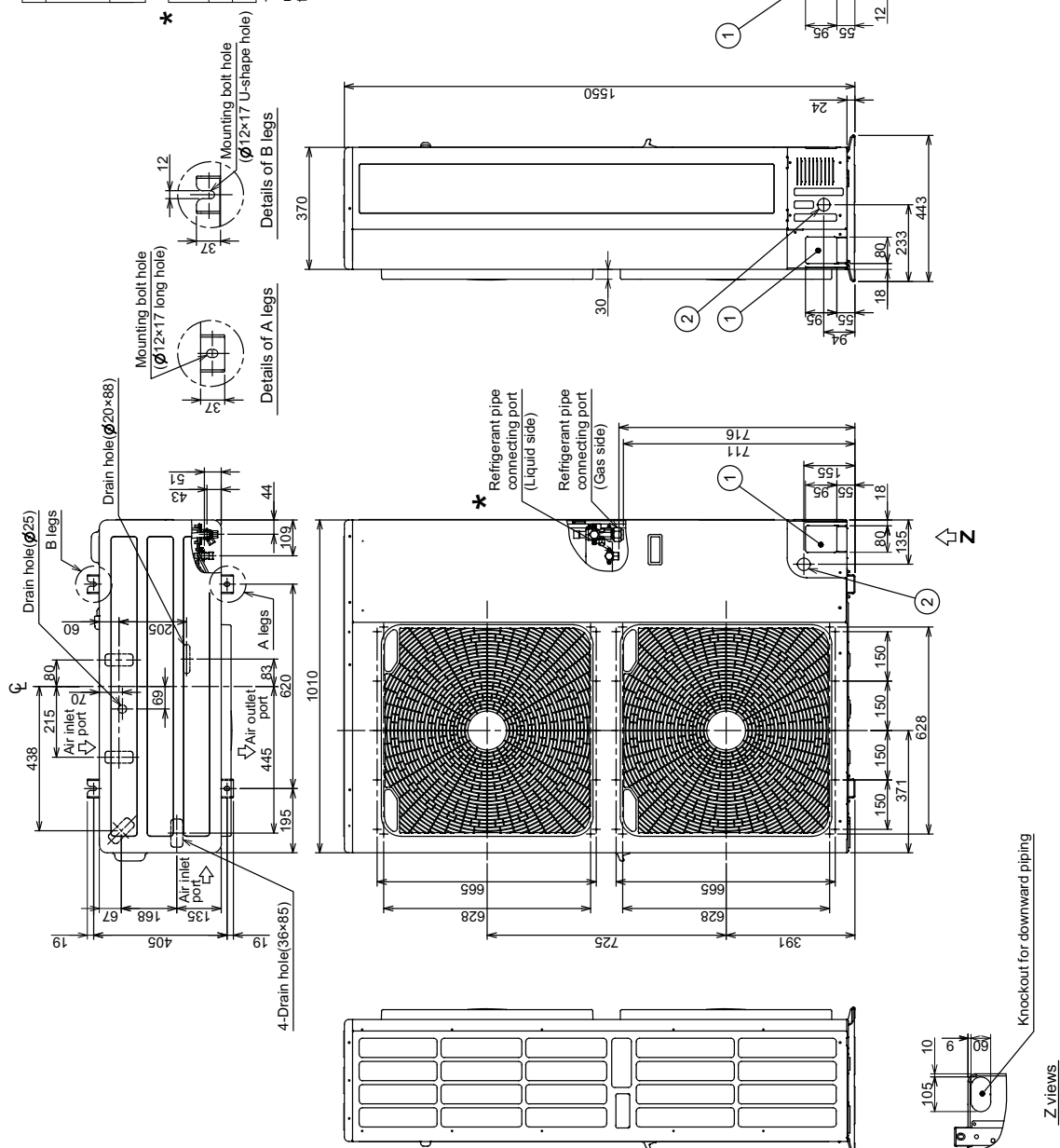
3-2. Dimension

RAV-GM2241AT8-A, RAV-GM2801AT8-A

	Name	Note
①	Refrigerant piping hole Indoor/Outdoor Unit connecting wire inlet hole	Knockout hole
②	Power supply inlet hole	Ø38 Knockout hole

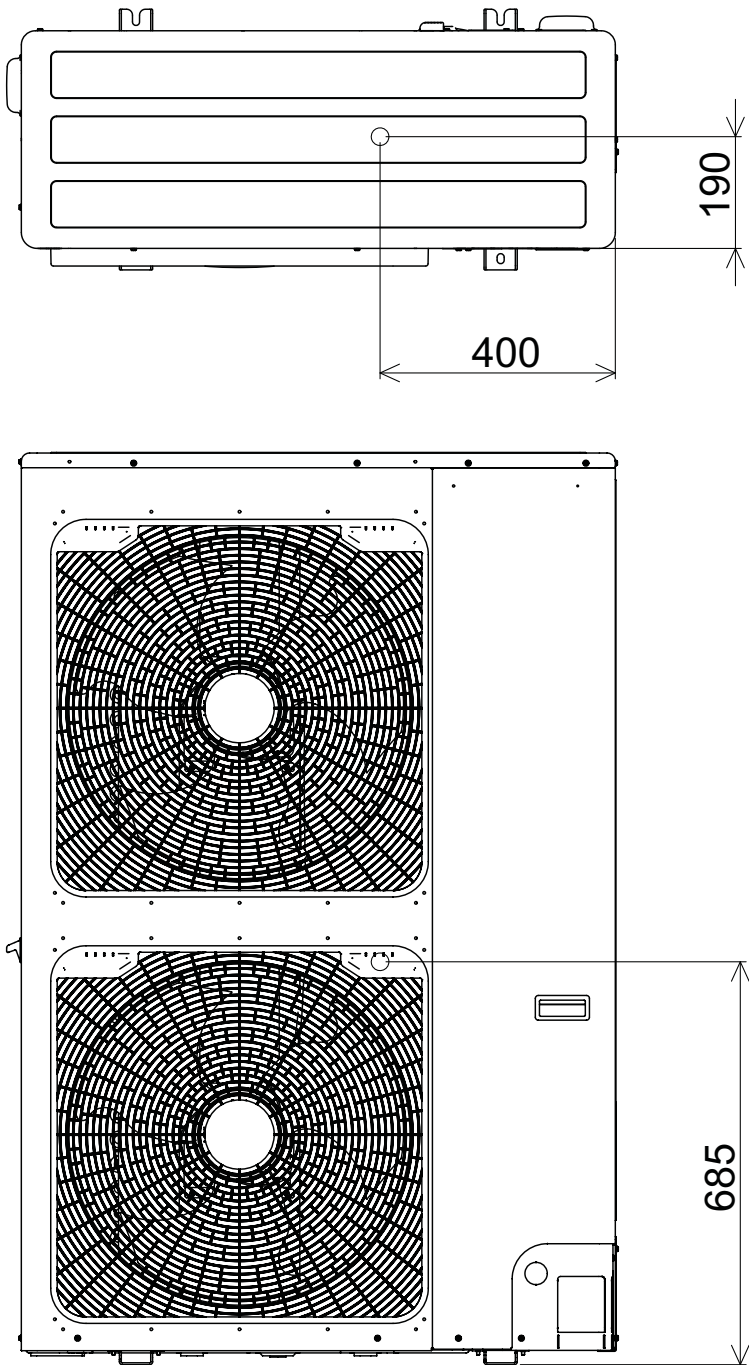
Diameter of pipe connecting port		Diameter of connecting pipe	
Liquid side	Gas side	Liquid side	Gas side
ø 12.7	ø 19.1	ø 12.7	ø 28.6

The diameter of ball valve connecting port on the outdoor unit is $\phi 19.1$, and therefore please use the accessory joint for installation.



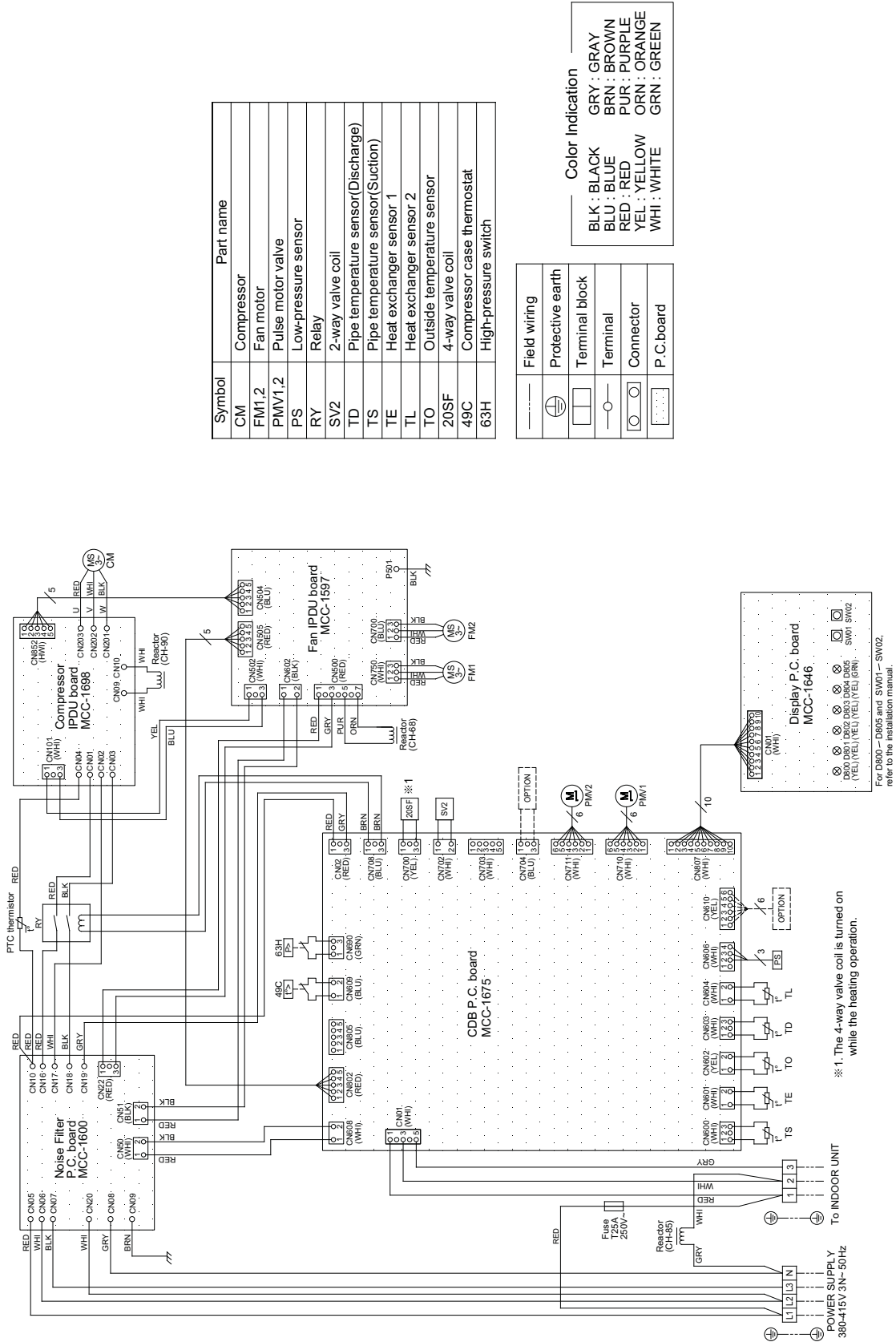
3-3. Center of gravity

RAV-GM2241AT8-A, RAV-GM2801AT8-A



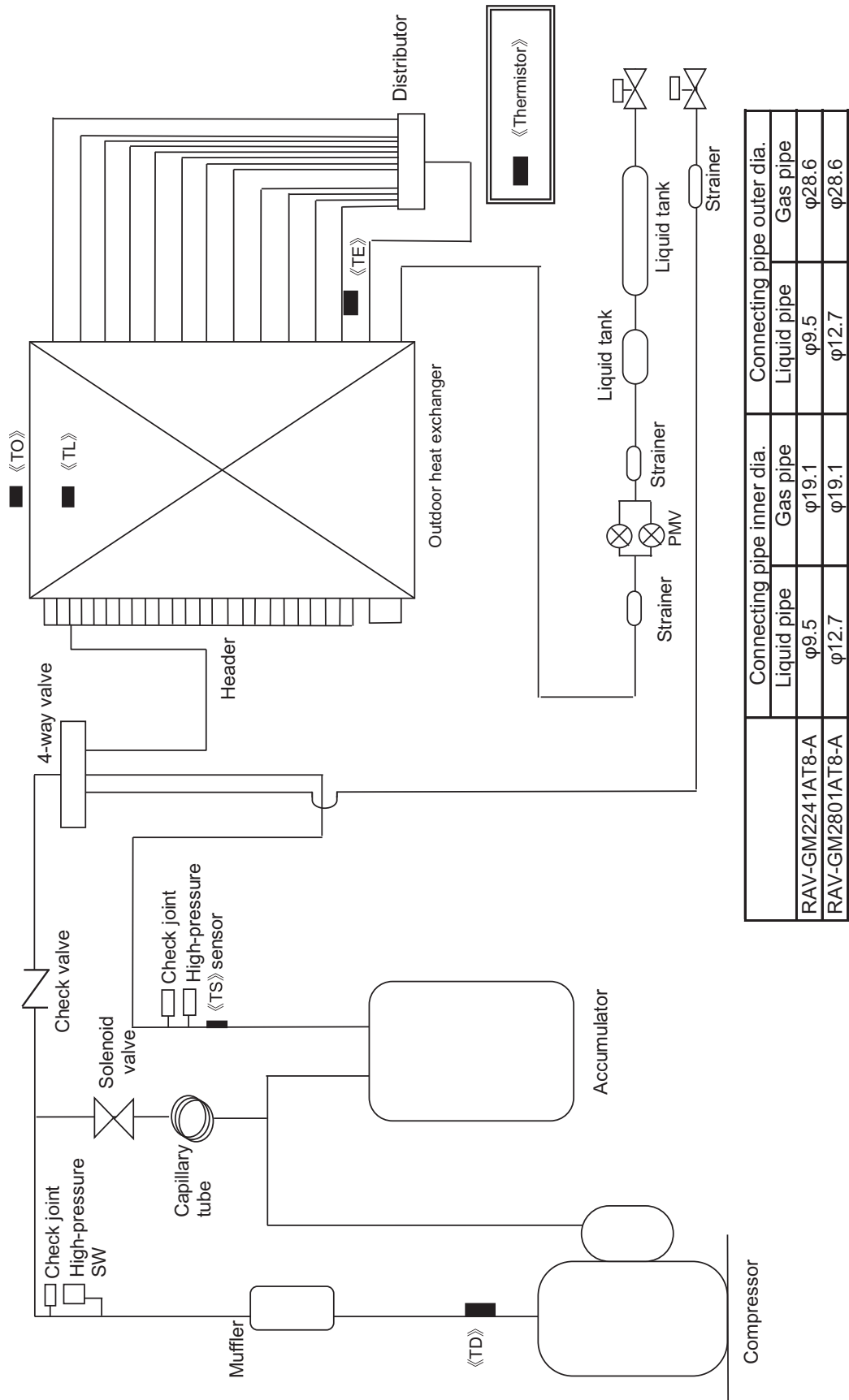
3-4. Wiring diagram

RAV-GM2241AT8-A, RAV-GM2801AT8-A



3-5. Refrigerant cycle

RAV-GM2241AT8-A, RAV-GM2801AT8-A



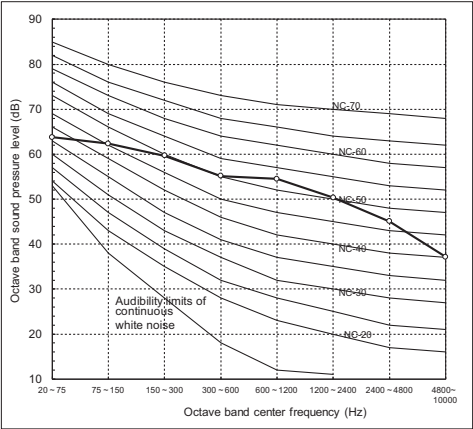
3-6. Sound data

3-6-1. NC Curve

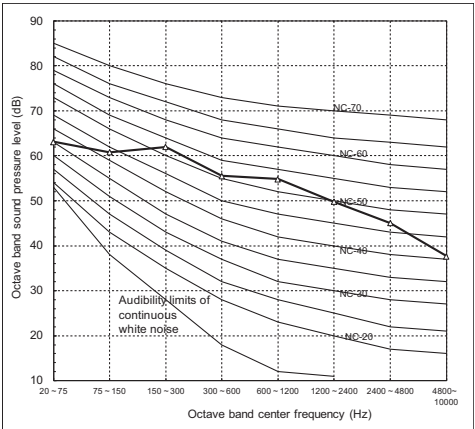
RAV-GM2241AT8-A

Sound pressure level (dB(A))	Cooling	Heating
	58	60

Cooling



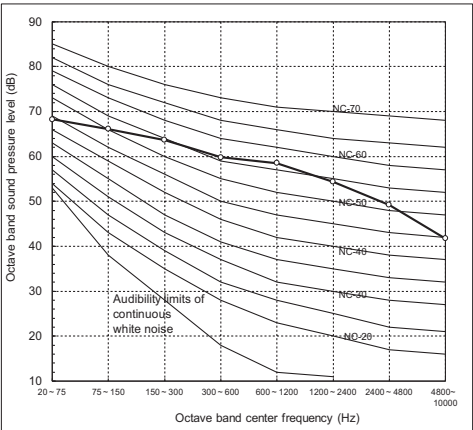
Heating



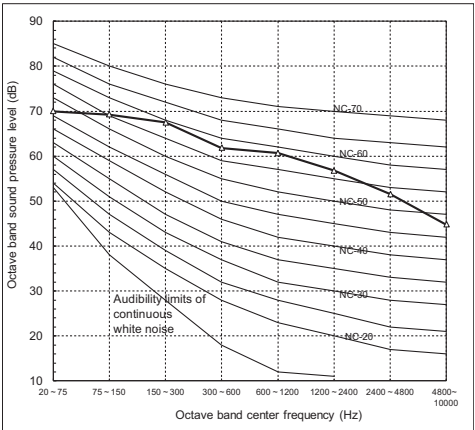
RAV-GM2801AT8-A

Sound pressure level (dB(A))	Cooling	Heating
	61	63

Cooling



Heating

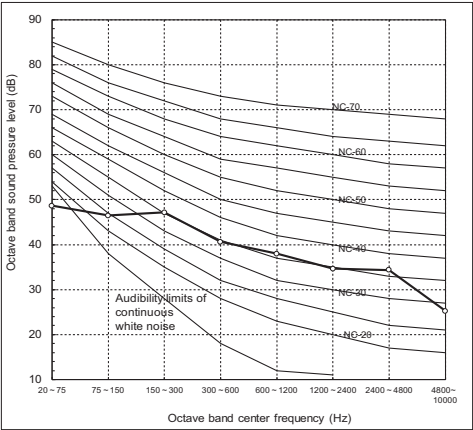


Night Operation

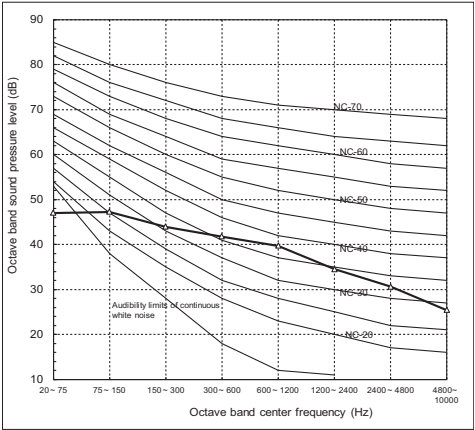
RAV-GM2241AT8-A, RAV-GM2801AT8-A

Sound pressure level (dB(A))	Cooling	Heating
	45	45

Cooling



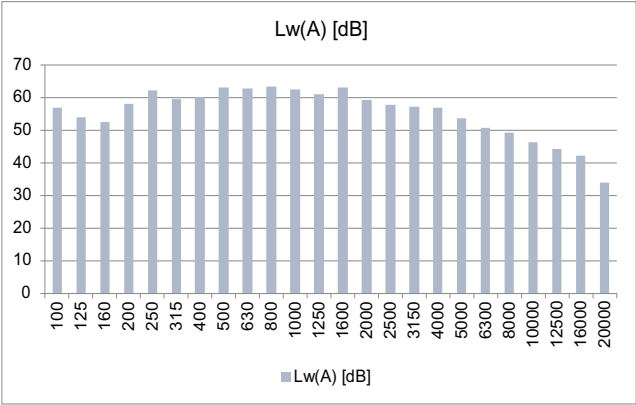
Heating



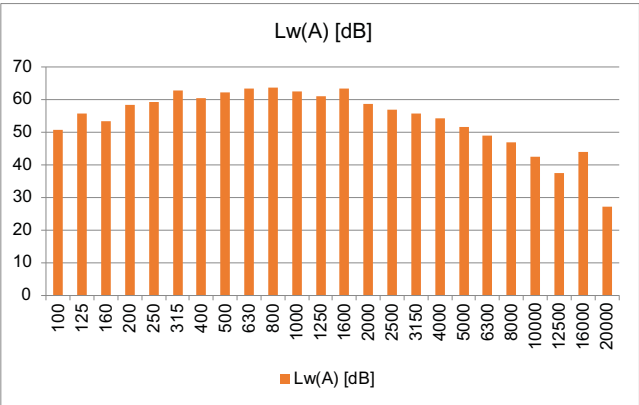
3-6-2. Sound power spectrum

RAV-GM2241AT8-A

Cooling

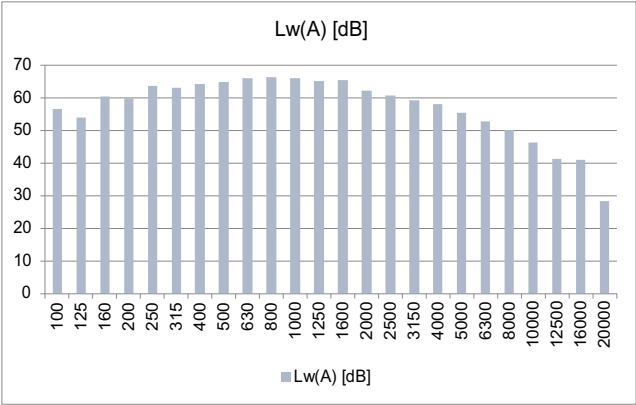


Heating

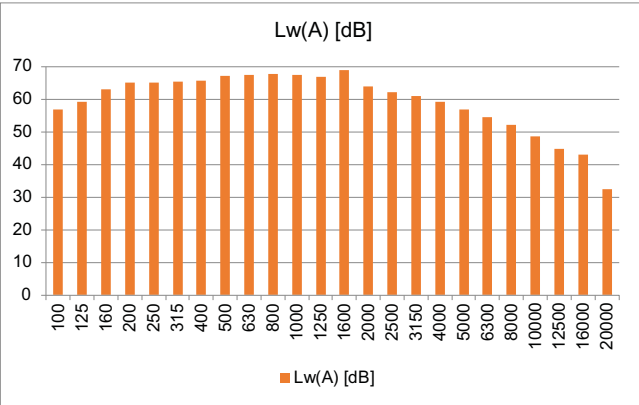


RAV-GM2801AT8-A

Cooling



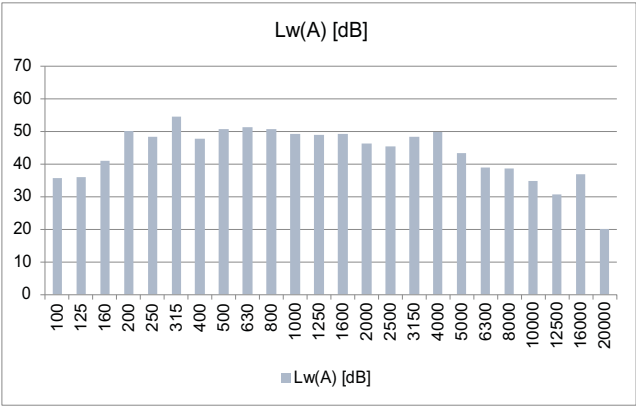
Heating



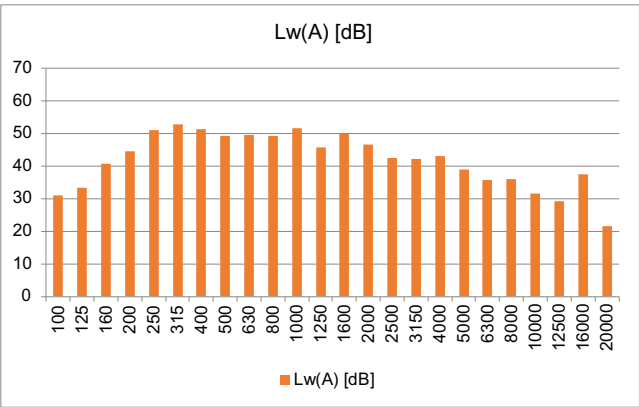
Night Operation

RAV-GM2241AT8-A, RAV-GM2801AT8-A

Cooling

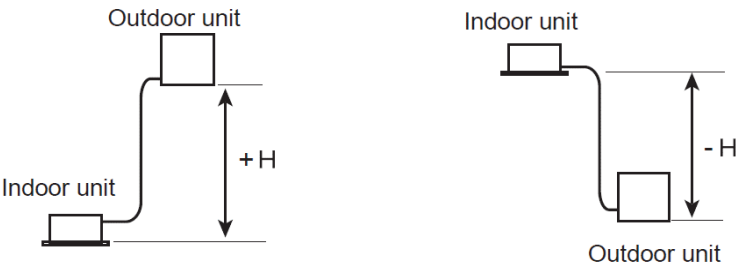


Heating

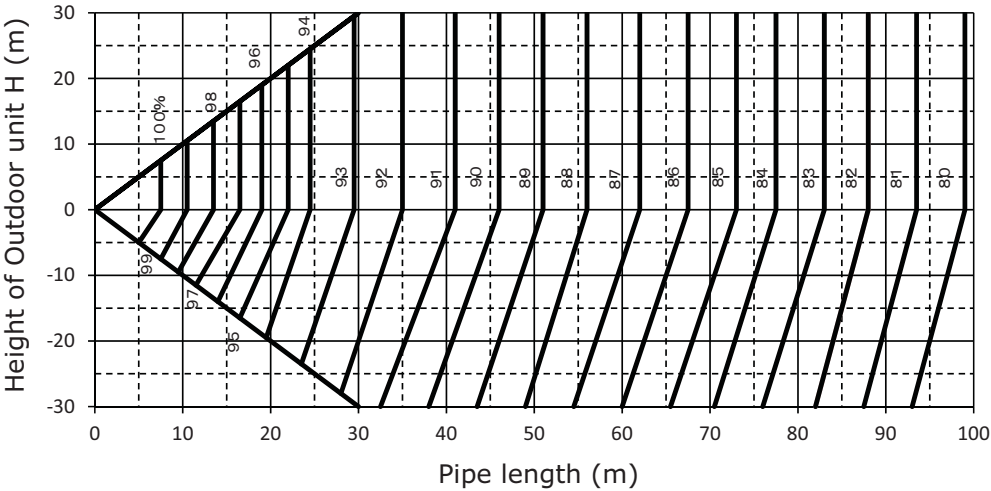


3-7. Capacity correction

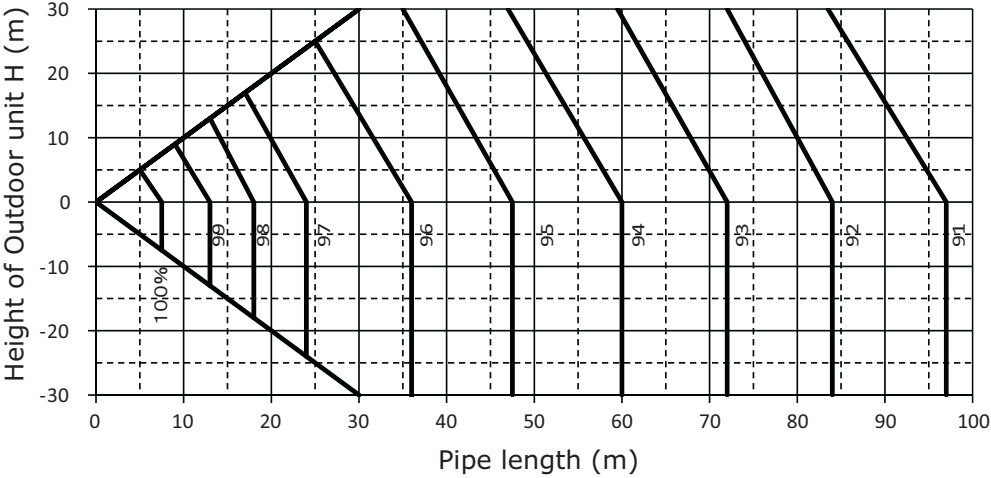
Connecting pipe length and lift difference between indoor units vs. capacity correction value



[Cooling]



[Heating]



3-8. Refrigerant piping design

Piping connection with different diameter

- Piping connection with different diameter is possible under the below restraint conditions.
- Maximum pipe length is determined by the combination of liquid pipe diameter and gas pipe diameter.

Liquid pipe	Ø12.7 (standard)			
Gas pipe	Ø22.2 (1-size smaller)		Ø28.6 (standard)	
Pipe length	Max. pipe length	Pre-charged	Max. pipe length	Pre-charged
2241	100 m	30 m	100 m	30 m
2801	100 m	30 m	100 m	30 m



Normal piping size



The cooling capacity is lower since the diameter of gas pipe is smaller than standard one.

Liquid pipe	Ø15.9 (1-size larger)			
Gas pipe	Ø22.2 (1-size smaller)		Ø28.6 (standard)	
Pipe length	Max. pipe length	Pre-charged	Max. pipe length	Pre-charged
2241	70 m	20 m	70 m	20 m
2801	70 m	20 m	70 m	20 m

The cooling capacity is lower since the diameter of gas pipe is smaller than standard one.

Unit	Gas pipe	Pipe length (m)	7.5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100
2241	Ø22.2	Rate of decrease capacity	92 to 91%	91 to 89%	89 to 87%	87 to 86%	86 to 84%	84 to 81%	81 to 79%	79 to 77%	77 to 75%	77 to 75%
2801												

Digital Inverter / High static duct 8 & 10HP Engineering Data Book

Model name:

RAV-RM___1DTP-E2 / RAV-GM___1AT8-A

November, 2021

Toshiba Carrier Corporation