

INDOOR UNIT

1. DUCT TYPE :

AR *A12LATN

AR *A14LATN

1. FEATURE

■ **MODEL :**
AR*A12LATN, AR*A14LATN



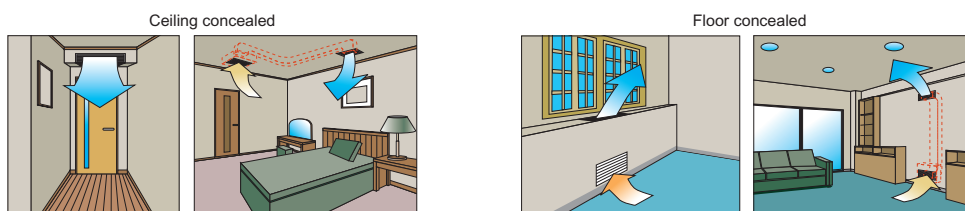
■ FEATURES

● Energy saving

High energy saving was realized by making the indoor unit and outdoor unit fan motor and compressor all DC and optimal design of the refrigerant cycle. Rank A was achieved in European energy rank.

● Universal design indoor unit

Since vertical and horizontal installation is possible, and the intake direction can also be selected from two directions, flexible installation is possible.



● Thin and compact indoor unit

● Quiet operation

Quiet operation possible by quiet mode.

12 type	14 type
*26 dB(A)	*27 dB(A)

* See our measurement conditions page (01-18).

● Static pressure mode setting

Air flow, noise, etc. can be used under the optimum conditions by selecting the static pressure mode matched to the installation conditions.

● Room temperature adjustment correction

Suitable room temperature control is performed by changing the room temperature correction value by simple remote control operation to match the conditions under which the air conditioner is installed.

● Auto restart

The units restart automatically when the current was returned even when there was a power interruption during operation.

2. COMBINATION

2-1. OUTDOOR UNIT

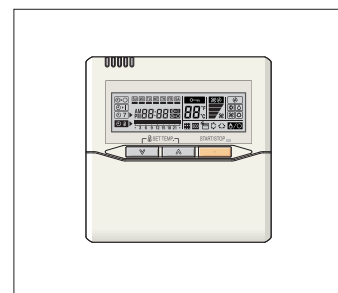
■ MODEL : AO *A12LACL, AO *A14LACL



2-2. REMOTE CONTROLLER

2-2-1. WIRED REMOTE CONTROLLER

■ MODEL : UTB- *UD



CAUTION

Remote controller is not supplied with the indoor unit.
Separate purchase is necessary.

3. SPECIFICATIONS

Type			DUCTED MODEL			
			INVERTER HEATPUMP			
Model name			AR * A12LATN	AR * A14LATN		
Power source			230V~ 50Hz			
Available voltage range			198-264V ~ 50Hz			
European energy label			Cooling	A	A	
			Heating	A	A	
Capacity	Cooling	Rated	kW	3.5	4.3	
			BTU/h	11950	14650	
		Min.-Max.	kW	0.9 - 4.4	0.9 - 5.4	
			BTU/h	3100 - 15000	3100 - 18400	
	Heating	Rated	kW	4.1	5.0	
			BTU/h	14000	17050	
Min.-Max.		kW	0.9 - 5.7	0.9 - 6.5		
		BTU/h	3100 - 19400	3100 - 22100		
Input power	Cooling	*Max.	kW	1.05	1.33	
				1.73	2.07	
	Heating	*Max.		1.11	1.34	
				2.30	2.88	
Current	Cooling	*Max.	A	4.6	5.8	
				7.5	9.0	
	Heating	*Max.		4.9	5.9	
				10.0	12.5	
EER		Cooling	kW/kW	3.33	3.21	
COP		Heating		3.69	3.71	
Moisture removal			l/h (pints/h)	1.3 (2.3)	1.5 (2.6)	
Fan	Airflow rate	Cooling	m ³ /h	High	720	820
				Med	630	720
				Low	560	610
				Quiet	480	550
		Heating		High	720	820
				Med	630	720
				Low	560	610
				Quiet	480	550
	Type × Q'ty			Sirocco × 2		
	Motor output			W		60
Recommended static pressure			Pa		0 to 90	
Sound pressure level	Cooling	dB(A)	High	32	33	
			Med	30	31	
			Low	28	29	
			Quiet	26	27	
	Heating		High	32	33	
			Med	30	31	
			Low	28	29	
			Quiet	26	27	
Heat exchanger type	Dimensions (H × W × D)		mm	294 × 700 × 26.6	294 × 700 × 39.9	
	Fin pitch			1.30	1.30	
	Rows x Stages			2 × 14	3 × 14	
	Pipe type		Copper			
	Fin type		Aluminium			
Enclosure		Material			Steel	
		Colour			-	
Dimensions (H×W ×D)	Net		mm	217 × 953 × 595		
	Gross			324 × 1075 × 686		
Weight	Net		kg(lb.)	23 (51)	23 (51)	
	Gross			27 (60)	27 (60)	
Connection pipe	Size	Liquid	mm	φ 6.35 (φ 1 / 4 in.)		
		Gas		φ 9.52 (φ 3 / 8 in.)	φ 12.70 (φ 1 / 2 in.)	
	Method			Flare		
Operation range	Cooling	°C	18 to 32			
		%RH	80 or less			
	Heating	°C	30 or less			
Remote controller type			Wired			
Drain pipe	Material		PS			
	Size		mm			Outer diameter : 26.0 / Inner diameter : 21.5

Note :

Specifications are based on the following conditions.

Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB/24 °CWB.

Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB/6 °CWB.

Standard static pressure : 0 Pa

Pipe length : 7.5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

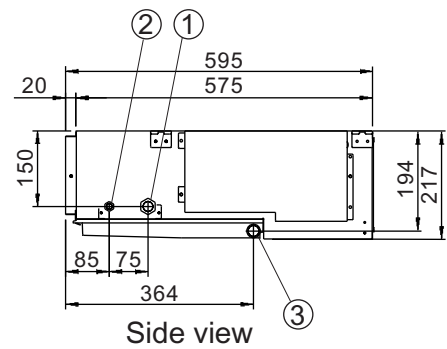
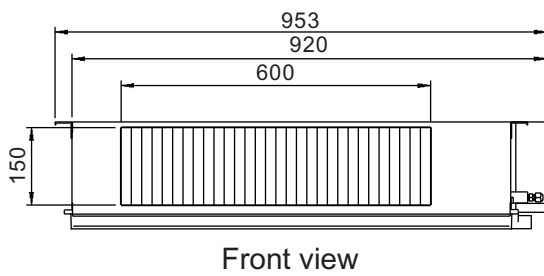
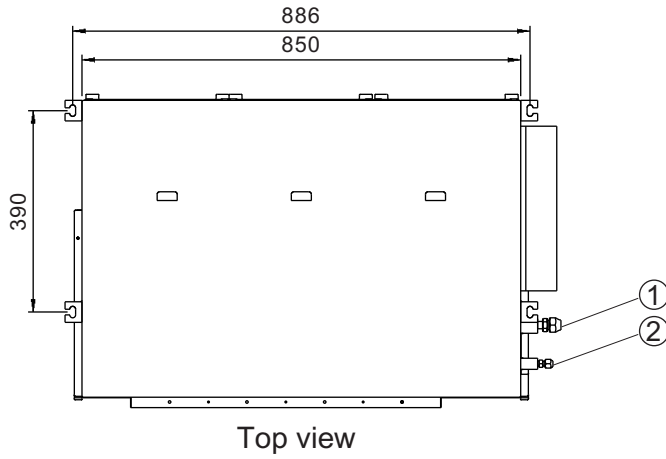
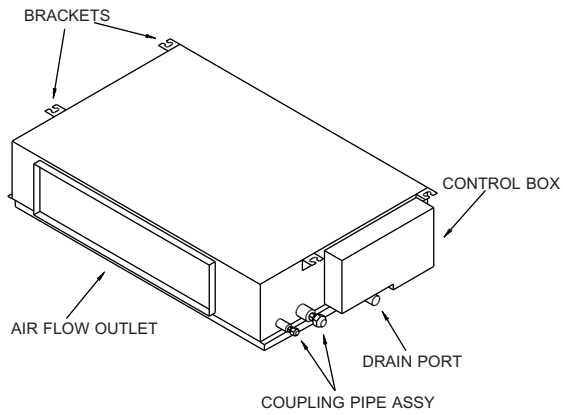
Sound pressure level : Install a 2m duct to the outlet port and a 1m duct to the suction port and measure.

*The maximum current and the maximum input value are the maximum values when operated within the operation (temperature) range.

4. DIMENSIONS

■ MODEL : AR*A12L, AR*A14L

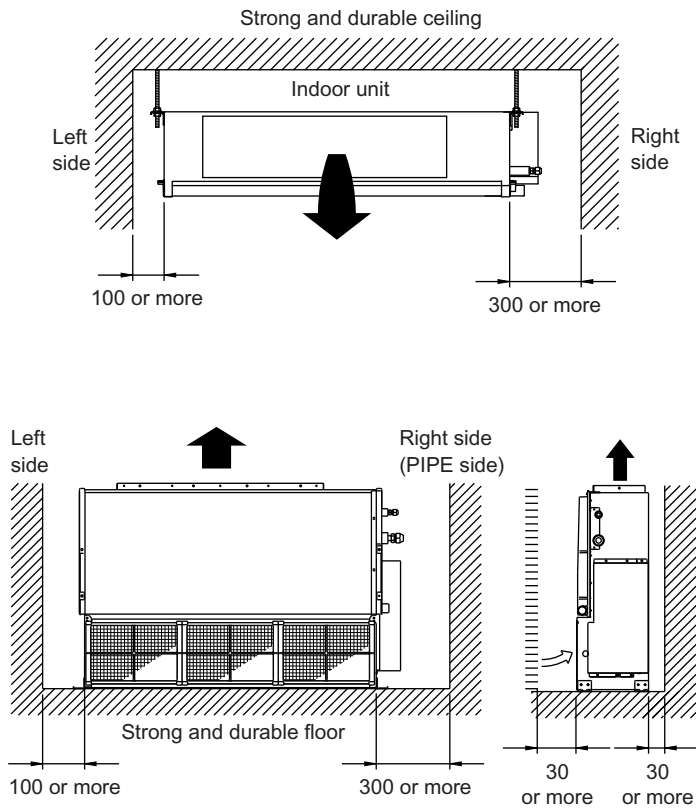
(Unit : mm)



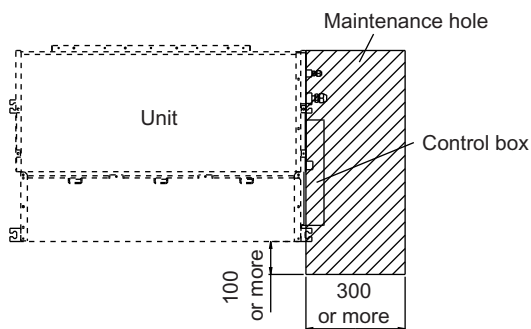
- ① Refrigerant piping flare connection (Gas)
- ② Refrigerant piping flare connection (Liquid)
- ③ Drain piping connection

■ MOUNTING POSITION

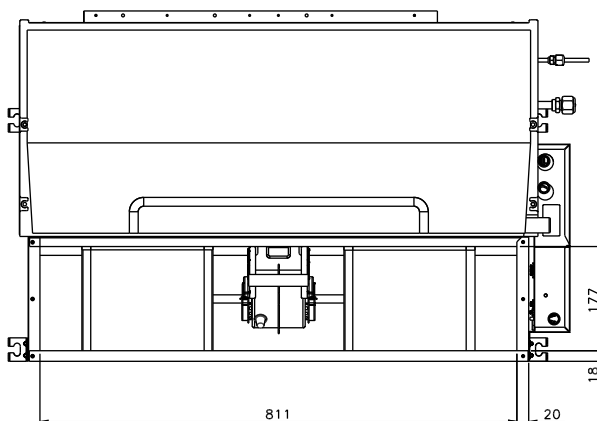
(Unit : mm)



■ MAINTENANCE HOLE

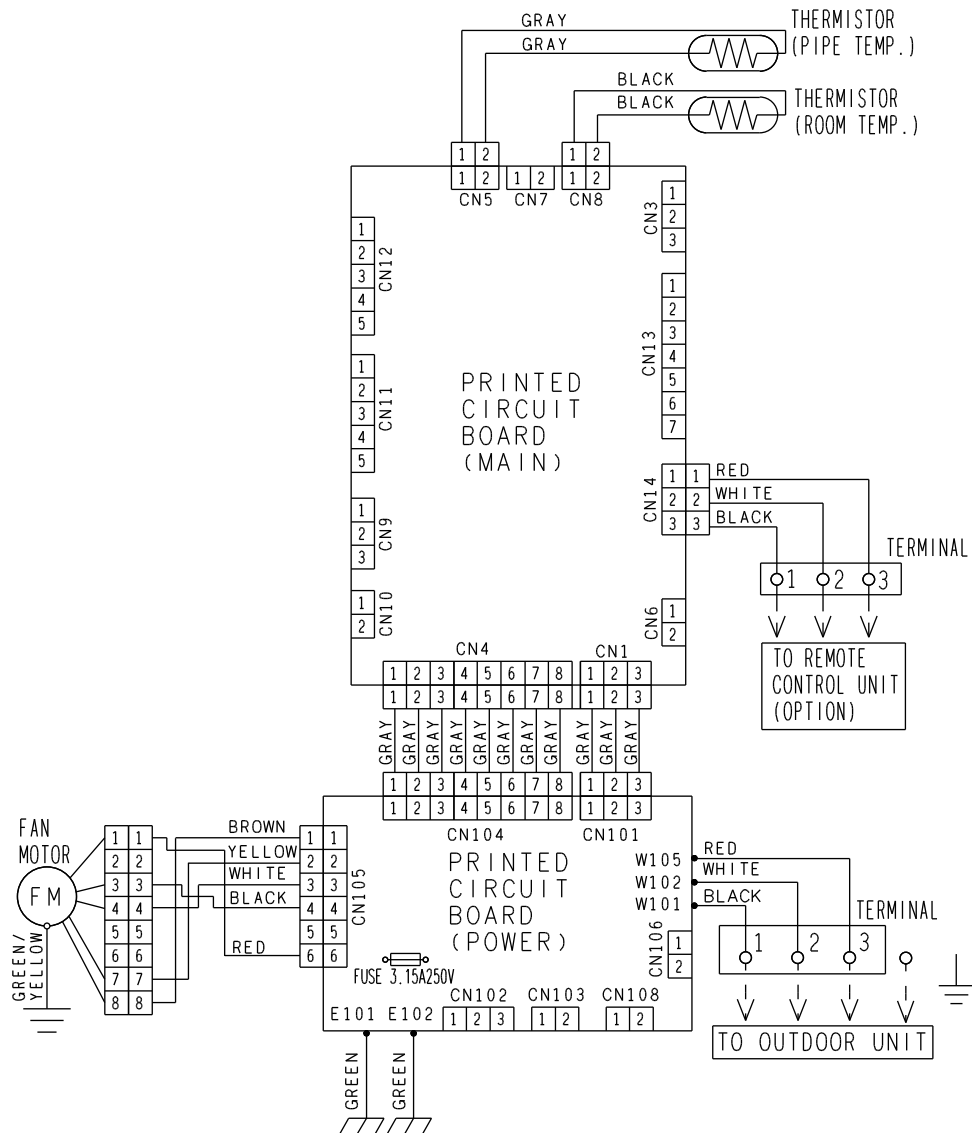


■ BOTTOM AIR INTAKE HOLE



5. WIRING DIAGRAMS

■ MODEL : AR*A12L, AR*A14L



6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■ MODEL : AR*A12L

AFR	12.2
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		Indoor temperature																				
		18			21			23			25			27			29			32		
		12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-10	3.52	3.13	0.31	3.92	3.15	0.31	4.05	3.42	0.32	4.32	3.43	0.32	4.46	3.70	0.32	4.72	3.69	0.32	4.99	3.93	0.33
	0	3.33	3.00	0.51	3.71	3.02	0.52	3.84	3.28	0.52	4.09	3.29	0.53	4.22	3.55	0.53	4.47	3.54	0.54	4.73	3.77	0.54
	5	3.33	3.00	0.49	3.71	3.02	0.50	3.84	3.28	0.50	4.09	3.29	0.51	4.22	3.55	0.51	4.47	3.54	0.52	4.73	3.77	0.52
	10	3.33	2.99	0.45	3.71	3.01	0.46	3.84	3.27	0.46	4.09	3.29	0.46	4.21	3.55	0.47	4.47	3.53	0.47	4.72	3.76	0.48
	15	3.22	2.92	0.55	3.59	2.94	0.56	3.71	3.19	0.56	3.95	3.20	0.57	4.08	3.46	0.57	4.32	3.44	0.58	4.57	3.67	0.58
	20	4.20	3.60	1.29	4.68	3.63	1.31	4.84	3.94	1.32	5.16	3.95	1.33	5.32	4.27	1.34	5.64	4.25	1.35	5.95	4.53	1.36
	25	4.03	3.49	1.44	4.49	3.51	1.46	4.64	3.81	1.47	4.95	3.83	1.48	5.10	4.13	1.49	5.41	4.11	1.51	5.71	4.38	1.52
	30	3.80	3.32	1.53	4.23	3.34	1.56	4.37	3.63	1.56	4.66	3.64	1.58	4.81	3.93	1.59	5.09	3.92	1.60	5.38	4.17	1.62
	35	3.48	3.10	1.54	3.88	3.12	1.57	4.01	3.39	1.57	4.27	3.40	1.59	4.40	3.67	1.60	4.67	3.65	1.61	4.93	3.89	1.63
	40	2.93	2.72	1.31	3.26	2.74	1.33	3.37	2.98	1.33	3.59	2.99	1.35	3.70	3.22	1.35	3.93	3.21	1.37	4.15	3.42	1.38
46	2.16	2.20	1.01	2.40	2.21	1.03	2.48	2.40	1.03	2.65	2.41	1.04	2.73	2.60	1.05	2.89	2.59	1.06	3.06	2.76	1.07	

■ MODEL : AR*A14L

AFR	13.7
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		Indoor temperature																				
		18			21			23			25			27			29			32		
		12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-10	4.06	3.64	0.36	4.52	3.67	0.36	4.68	3.98	0.36	4.99	4.00	0.37	5.14	4.32	0.37	5.45	4.30	0.37	5.76	4.58	0.38
	0	3.97	3.58	0.42	4.42	3.60	0.43	4.57	3.91	0.43	4.87	3.92	0.43	5.03	4.24	0.44	5.33	4.22	0.44	5.63	4.50	0.44
	5	3.84	3.49	0.53	4.28	3.51	0.54	4.43	3.81	0.54	4.72	3.82	0.54	4.87	4.13	0.55	5.16	4.11	0.55	5.45	4.38	0.56
	10	3.70	3.38	0.63	4.12	3.40	0.64	4.26	3.70	0.64	4.54	3.71	0.65	4.68	4.01	0.65	4.96	3.99	0.66	5.24	4.25	0.67
	15	3.75	3.42	0.55	4.18	3.44	0.56	4.32	3.74	0.56	4.60	3.75	0.57	4.75	4.05	0.57	5.03	4.03	0.58	5.32	4.30	0.58
	20	4.78	4.17	1.20	5.32	4.19	1.22	5.51	4.56	1.22	5.87	4.57	1.24	6.05	4.94	1.24	6.41	4.92	1.26	6.78	5.24	1.27
	25	4.56	4.01	1.35	5.08	4.03	1.37	5.25	4.38	1.38	5.60	4.40	1.39	5.77	4.75	1.40	6.12	4.73	1.41	6.47	5.04	1.43
	30	4.33	3.84	1.50	4.82	3.86	1.52	4.98	4.20	1.53	5.31	4.21	1.55	5.48	4.55	1.55	5.81	4.53	1.57	6.13	4.82	1.59
	35	4.27	3.79	1.78	4.75	3.81	1.81	4.91	4.15	1.82	5.24	4.16	1.84	5.40	4.49	1.85	5.72	4.47	1.87	6.05	4.77	1.88
	40	3.12	2.97	1.27	3.47	2.99	1.29	3.59	3.25	1.29	3.83	3.26	1.31	3.95	3.52	1.31	4.18	3.50	1.33	4.42	3.73	1.34
46	2.22	2.34	0.96	2.47	2.35	0.98	2.56	2.56	0.98	2.73	2.56	0.99	2.81	2.77	1.00	2.98	2.76	1.01	3.15	2.94	1.02	

AFR : Air flow rate (m³/min)

TC : Total capacity (kW)

SHC : Sensible Heat capacity (kW)

PI : Power Input (kW)

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■ MODEL : AR*A12L

AFR	12.2
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		Indoor temperature										
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-15	-16	3.41	1.87	3.32	1.91	3.24	1.95	3.16	1.99	3.08	2.03
	-10	-11	4.16	1.87	4.06	1.91	3.96	1.95	3.86	1.99	3.76	2.03
	-5	-7	4.76	2.15	4.65	2.19	4.53	2.24	4.42	2.28	4.26	2.30
	0	-2	5.43	2.22	5.30	2.27	5.17	2.30	4.92	2.30	4.70	2.30
	5	3	5.91	2.21	5.77	2.26	5.63	2.30	5.37	2.30	5.14	2.30
	7	6	5.99	2.06	5.84	2.10	5.70	2.15	5.56	2.19	5.42	2.23
	10	8	6.20	2.04	6.06	2.08	5.91	2.12	5.76	2.16	5.61	2.21
	15	10	6.39	2.01	6.24	2.05	6.09	2.09	5.93	2.14	5.78	2.18
	20	15	6.42	1.78	6.27	1.81	6.12	1.85	5.96	1.89	5.81	1.92
24	18	6.46	1.76	6.31	1.79	6.15	1.83	6.00	1.87	5.84	1.90	

■ MODEL : AR*A14L

AFR	13.7
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		Indoor temperature										
		°CDB	16		18		20		22		24	
Outdoor temperature	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	-15	-16	4.35	2.16	4.25	2.21	4.14	2.25	4.04	2.30	3.94	2.34
	-10	-11	4.92	2.16	4.80	2.21	4.68	2.25	4.56	2.30	4.45	2.34
	-5	-7	5.48	2.39	5.35	2.44	5.22	2.49	5.09	2.54	4.96	2.59
	0	-2	6.29	2.56	6.14	2.61	5.99	2.67	5.84	2.72	5.69	2.77
	5	3	7.04	2.74	6.88	2.80	6.71	2.85	6.46	2.87	6.17	2.87
	7	6	6.83	2.35	6.66	2.40	6.50	2.45	6.34	2.49	6.18	2.54
	10	8	7.08	2.40	6.91	2.45	6.74	2.50	6.57	2.55	6.40	2.60
	15	10	6.71	2.06	6.55	2.10	6.39	2.14	6.23	2.19	6.07	2.23
	20	15	6.28	1.64	6.13	1.67	5.98	1.71	5.83	1.74	5.68	1.78
24	18	6.47	1.64	6.32	1.68	6.16	1.71	6.01	1.75	5.85	1.78	

AFR : Air flow rate (m³/min)

TC : Total capacity (kW)

PI : Power Input (kW)

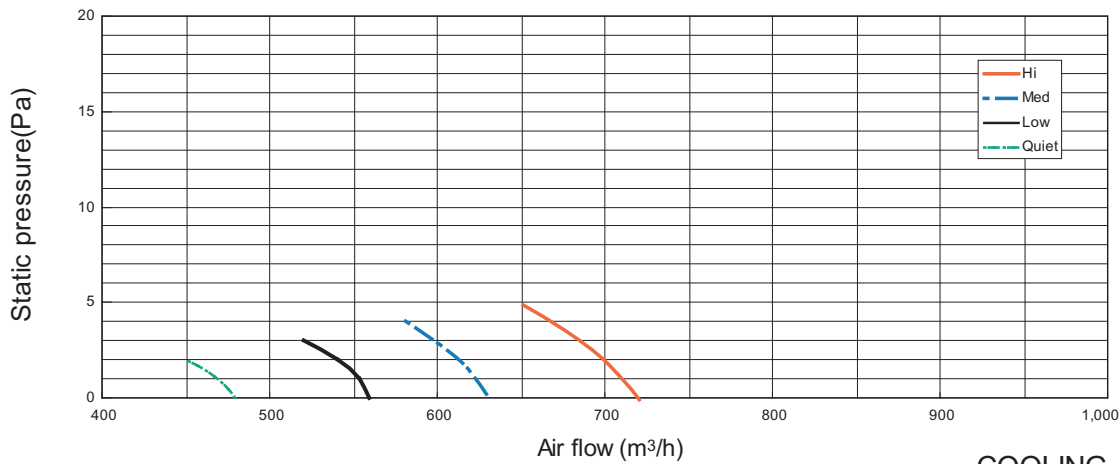
7. FAN PERFORMANCE AND CAPACITY

7-1. NORMAL MODE

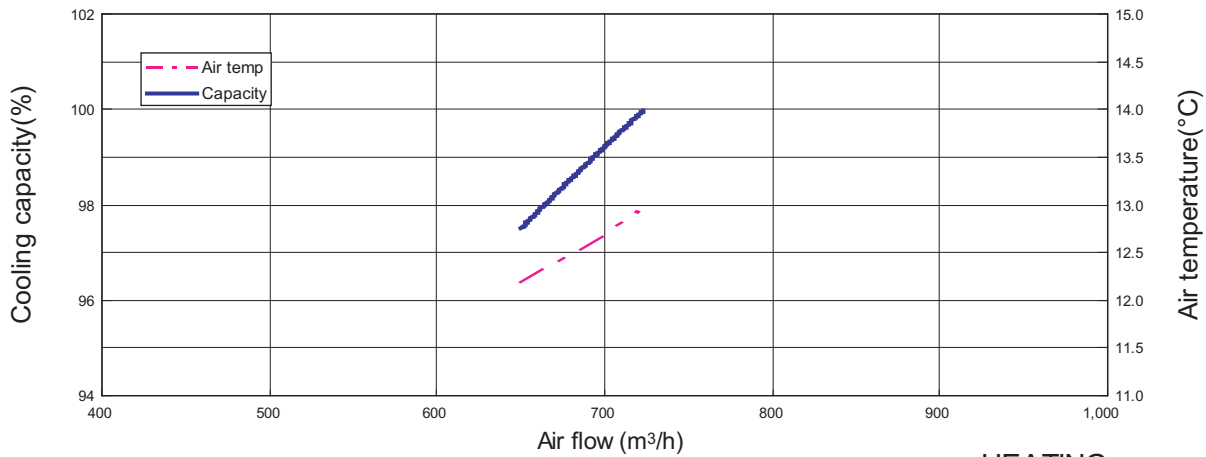
■ MODEL : AR*A12L

			Static pressure (Pa)					
			0	1	2	3	4	5
Fan speed	Hi	m ³ /h	720	710	700	685	670	650
		l/s	200	197	194	190	186	181
		CFM	424	418	412	403	394	383
	Med	m ³ /h	630	623	613	597	580	-
		l/s	175	173	170	166	161	-
		CFM	371	367	361	351	341	-
	Low	m ³ /h	560	553	540	520	-	-
		l/s	156	154	150	144	-	-
		CFM	330	325	318	306	-	-
	Quiet	m ³ /h	480	470	450	-	-	-
		l/s	133	131	125	-	-	-
		CFM	283	277	265	-	-	-

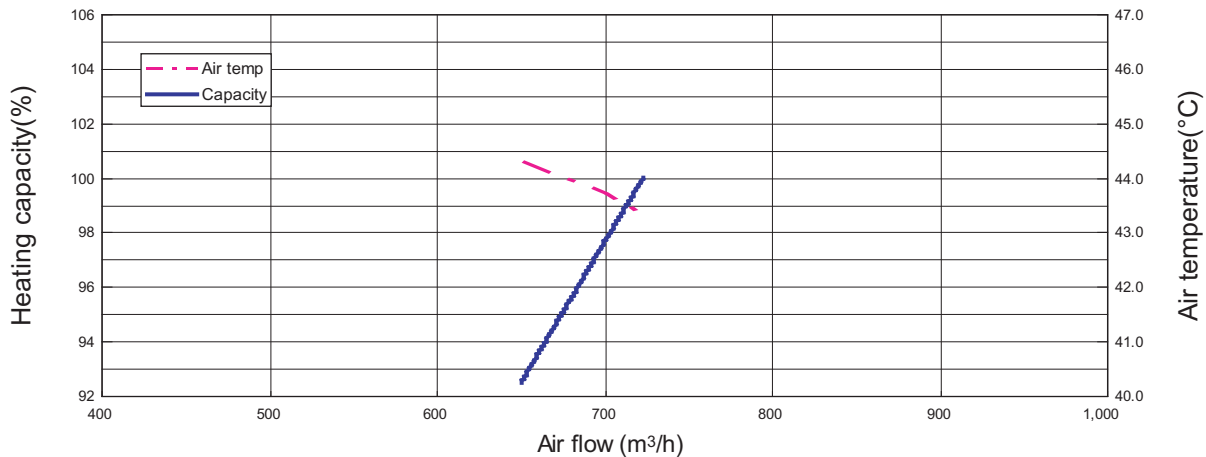
Q-h Characteristic curve



COOLING



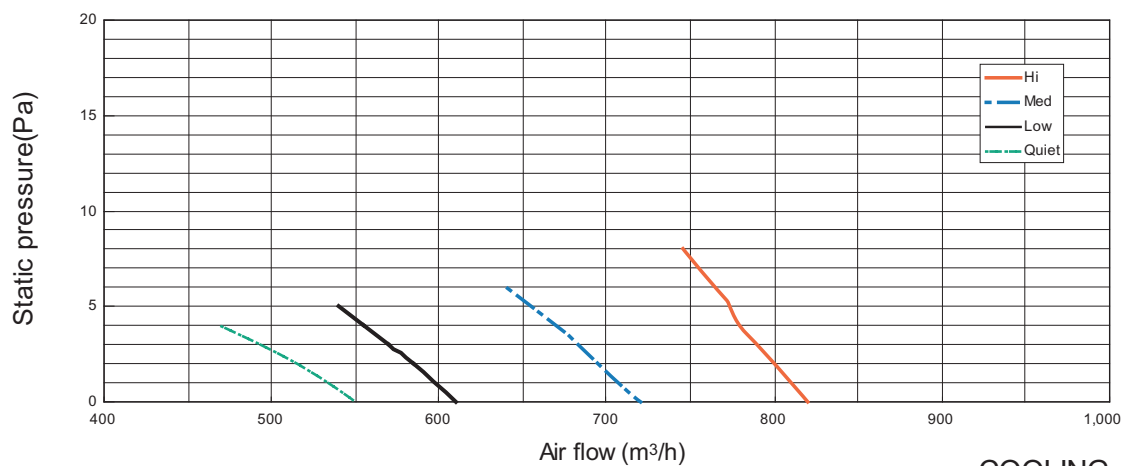
HEATING



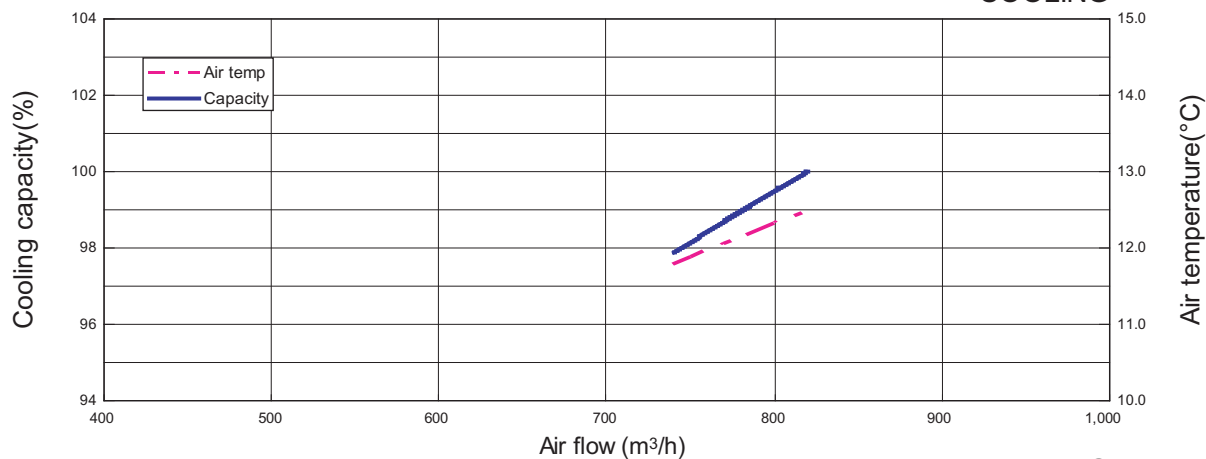
MODEL : AR*A14L

			Static pressure (Pa)							
			0	2	3	4	5	6	7	8
Fan speed	Hi	m ³ /h	820	800	790	780	773	763	754	745
		l/s	228	222	219	217	215	212	209	207
		CFM	483	471	465	459	455	449	444	438
	Med	m ³ /h	720	693	683	670	655	640	-	-
		l/s	200	193	190	186	182	178	-	-
		CFM	424	408	402	394	386	377	-	-
	Low	m ³ /h	610	584	570	555	540	-	-	-
		l/s	169	162	158	154	150	-	-	-
		CFM	359	344	335	327	318	-	-	-
	Quiet	m ³ /h	550	514	493	470	-	-	-	-
		l/s	153	143	137	131	-	-	-	-
		CFM	324	303	290	277	-	-	-	-

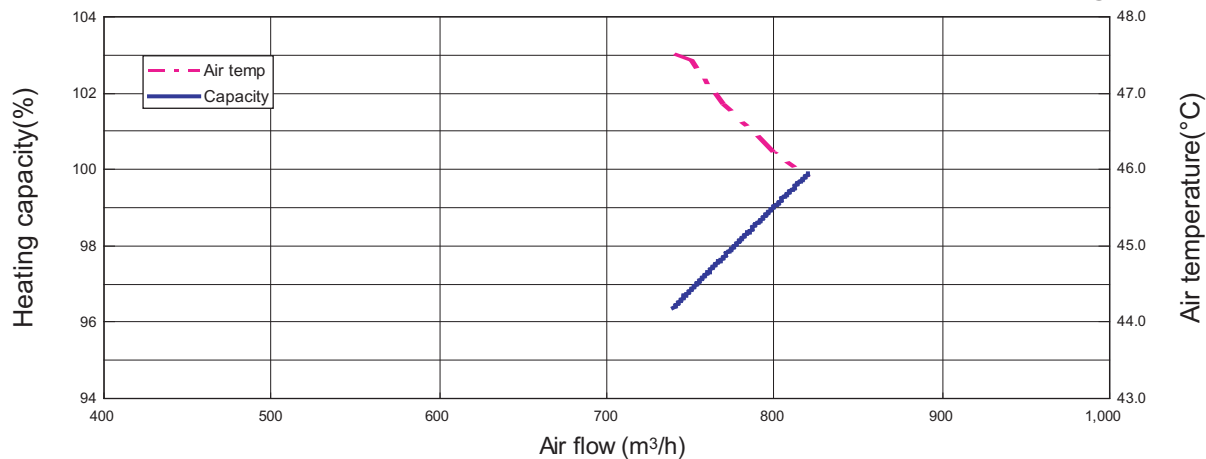
Q-h Characteristic curve



COOLING



HEATING

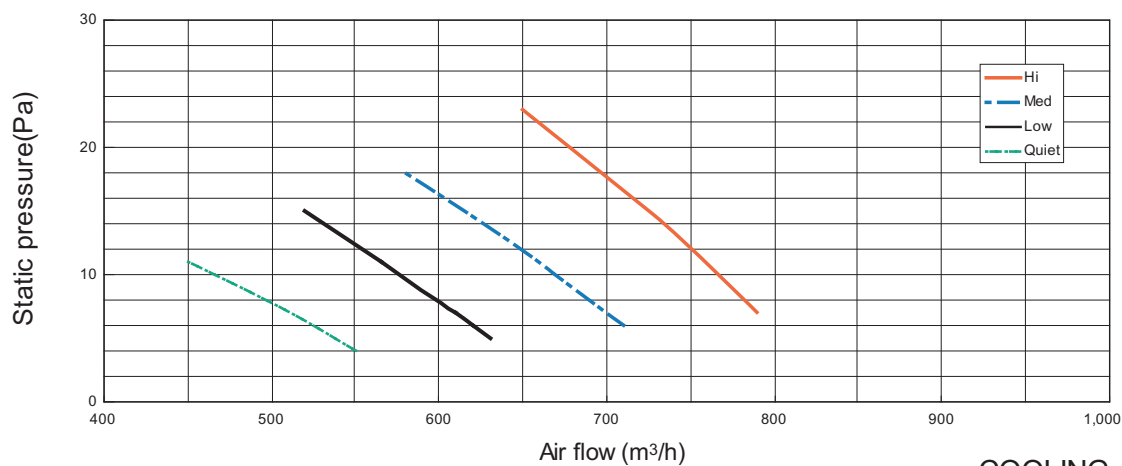


7-2. STATIC PRESSURE MODE 1

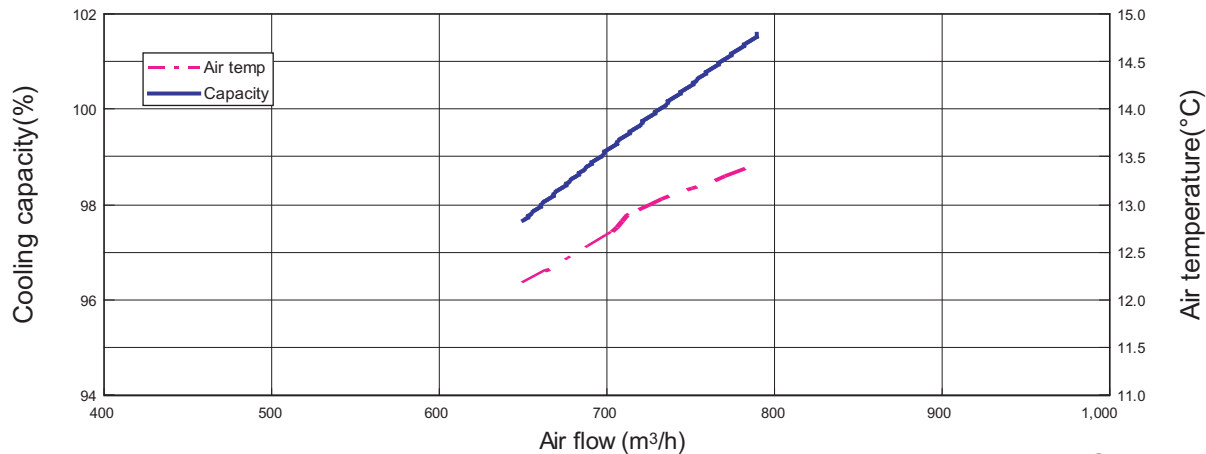
MODEL : AR*A12L

		Static pressure (Pa)								
		4	5	6	7	11	15	18	23	
Fan speed	Hi	m ³ /h	-	-	-	790	760	725	700	650
		l/s	-	-	-	219	211	201	194	181
		CFM	-	-	-	465	447	427	412	383
	Med	m ³ /h	-	-	710	700	660	615	580	-
		l/s	-	-	197	194	183	171	161	-
		CFM	-	-	418	412	388	362	341	-
	Low	m ³ /h	-	630	620	610	565	520	-	-
		l/s	-	175	172	169	157	144	-	-
		CFM	-	371	365	359	333	306	-	-
	Quiet	m ³ /h	550	538	524	513	450	-	-	-
		l/s	153	149	146	143	125	-	-	-
		CFM	324	317	308	302	265	-	-	-

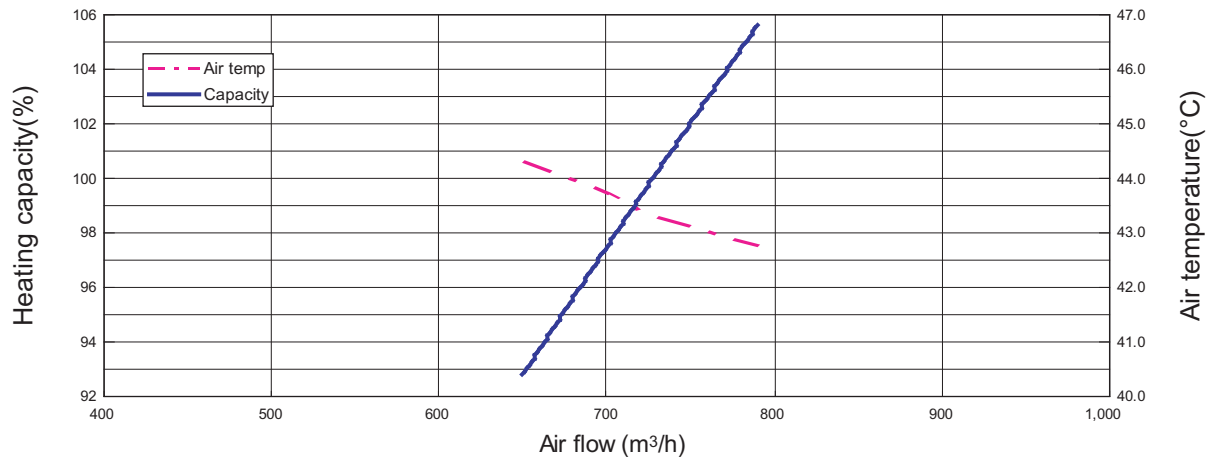
Q-h Characteristic curve



COOLING



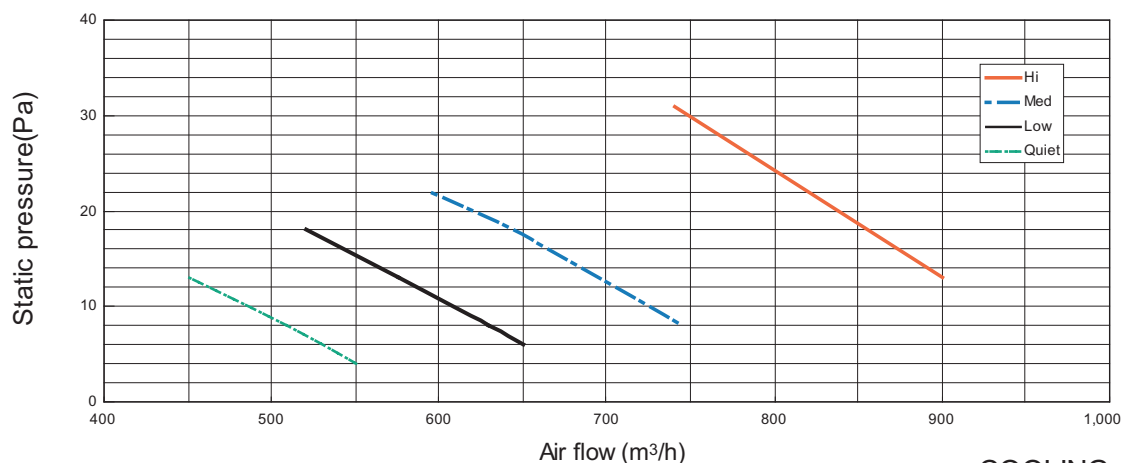
HEATING



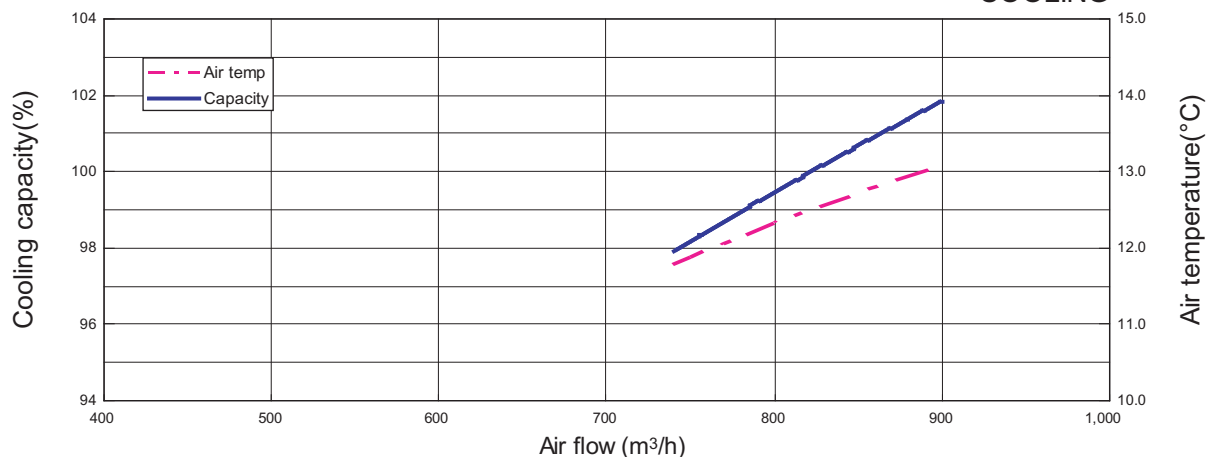
MODEL : AR*A14L

		Static pressure (Pa)								
		4	6	8	13	18	22	25	31	
Fan speed	Hi	m ³ /h	-	-	-	900	854	820	795	740
		l/s	-	-	-	250	237	228	221	206
		CFM	-	-	-	530	503	483	468	436
	Med	m ³ /h	-	-	745	695	642	595	-	-
		l/s	-	-	207	193	178	165	-	-
		CFM	-	-	438	409	378	350	-	-
	Low	m ³ /h	-	650	630	575	520	-	-	-
		l/s	-	181	175	160	144	-	-	-
		CFM	-	383	371	338	306	-	-	-
	Quiet	m ³ /h	550	530	508	450	-	-	-	-
		l/s	153	147	141	125	-	-	-	-
		CFM	324	312	299	265	-	-	-	-

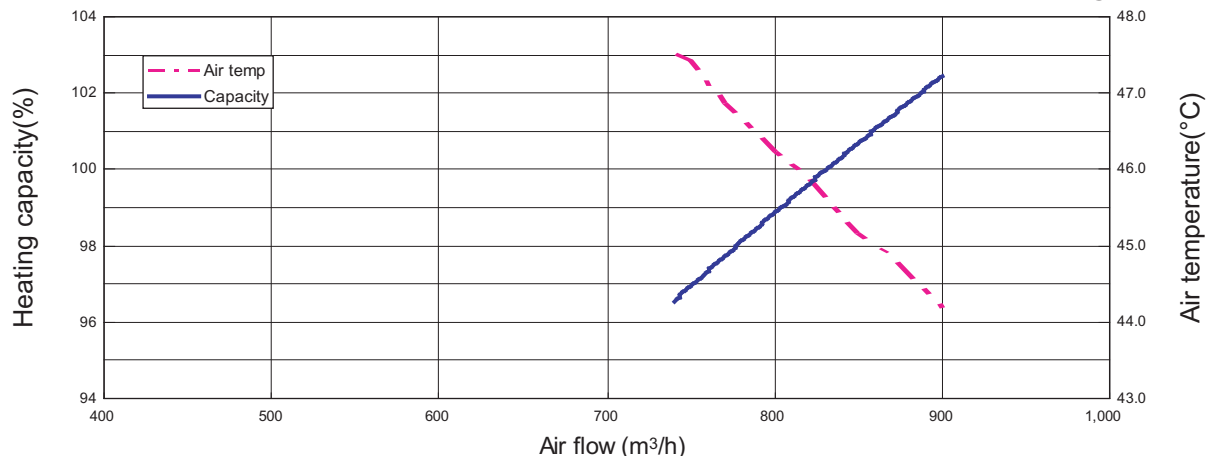
Q-h Characteristic curve



COOLING



HEATING

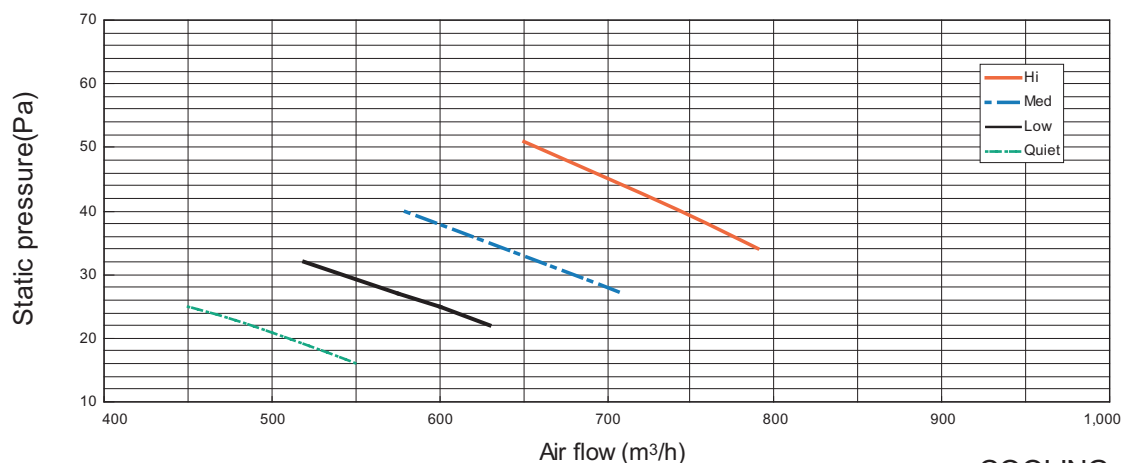


7-3. STATIC PRESSURE MODE 2

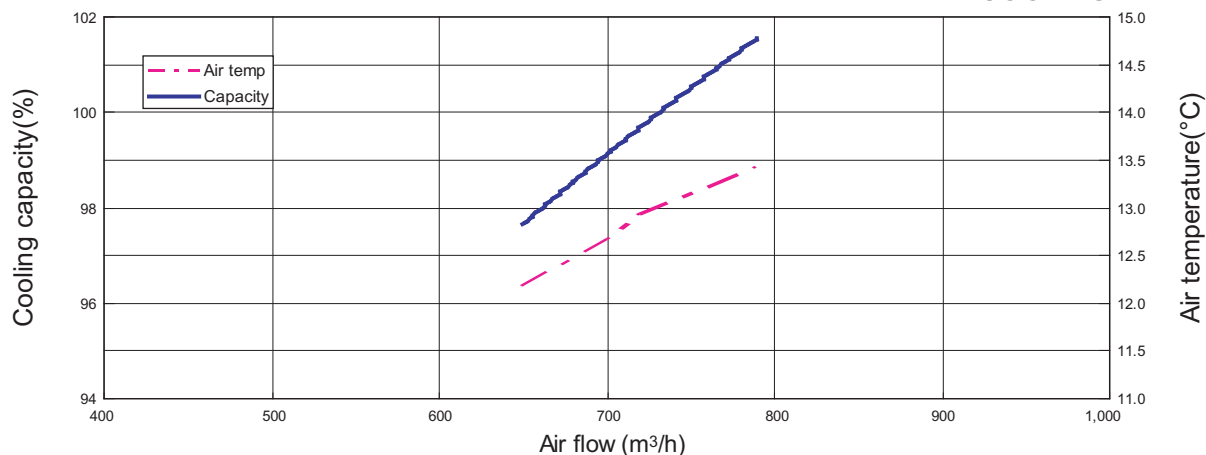
MODEL : AR*A12L

			Static pressure (Pa)							
			16	22	25	27	32	34	40	51
Fan speed	Hi	m ³ /h	-	-	-	-	-	790	745	650
		l/s	-	-	-	-	-	219	207	181
		CFM	-	-	-	-	-	465	438	383
	Med	m ³ /h	-	-	-	710	660	640	580	-
		l/s	-	-	-	197	183	178	161	-
		CFM	-	-	-	418	388	377	341	-
	Low	m ³ /h	-	630	600	575	520	-	-	-
		l/s	-	175	167	160	144	-	-	-
		CFM	-	371	353	338	306	-	-	-
	Quiet	m ³ /h	550	488	450	-	-	-	-	-
		l/s	153	136	125	-	-	-	-	-
		CFM	324	287	265	-	-	-	-	-

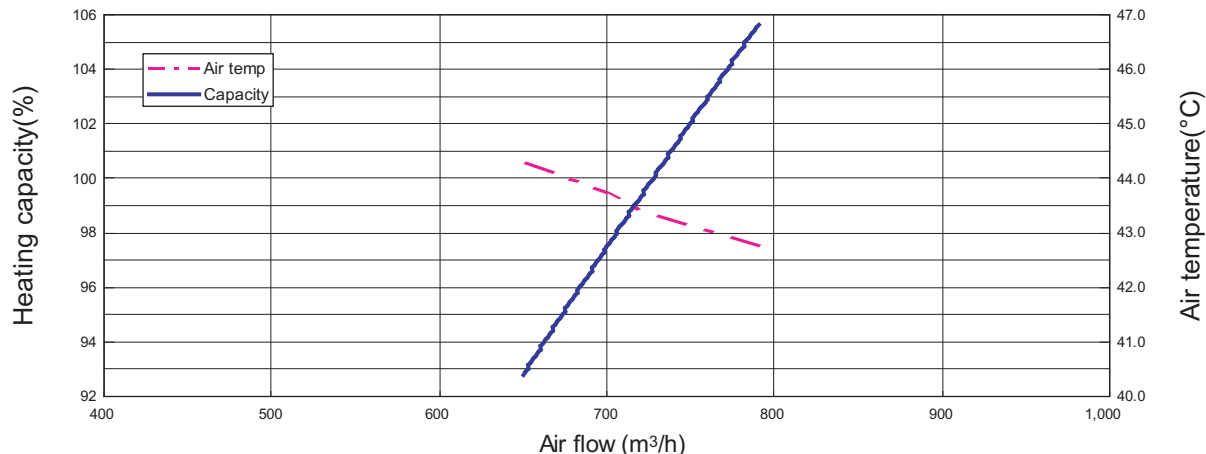
Q-h Characteristic curve



COOLING



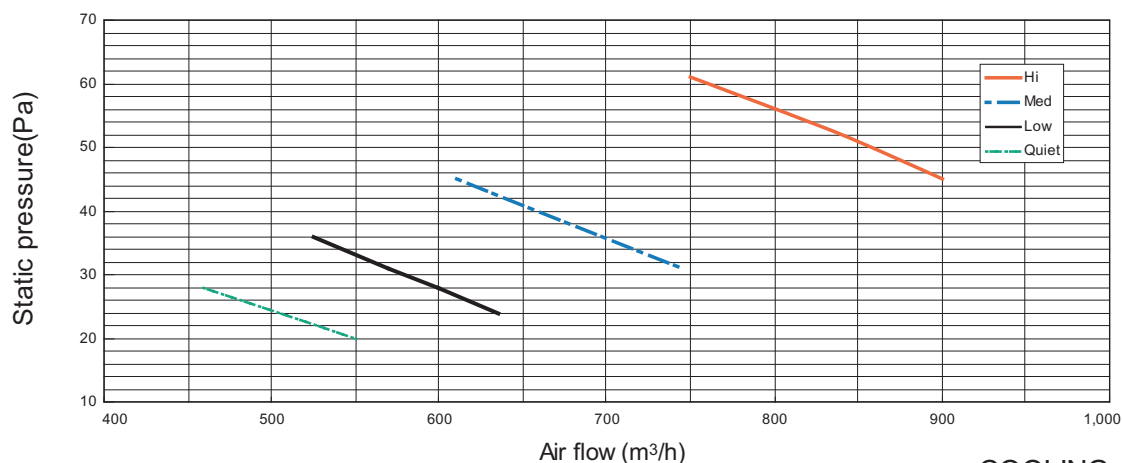
HEATING



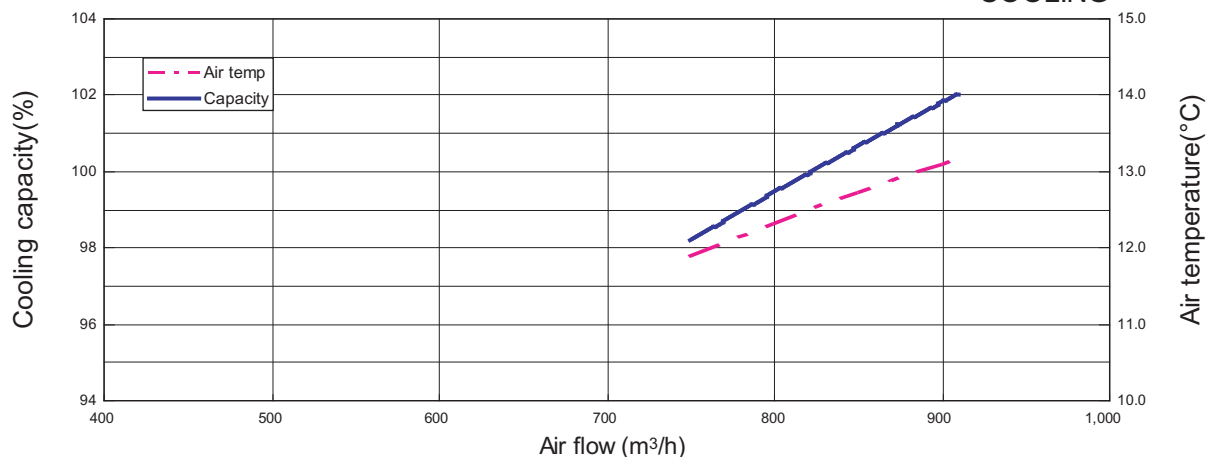
MODEL : AR*A14L

		Static pressure (Pa)								
		20	24	28	31	36	45	53	61	
Fan speed	Hi	m ³ /h	-	-	-	-	-	900	830	750
		l/s	-	-	-	-	-	250	231	208
		CFM	-	-	-	-	-	530	489	441
	Med	m ³ /h	-	-	-	745	697	610	-	-
		l/s	-	-	-	207	194	169	-	-
		CFM	-	-	-	438	410	359	-	-
	Low	m ³ /h	-	635	600	570	525	-	-	-
		l/s	-	176	167	158	146	-	-	-
		CFM	-	374	353	335	309	-	-	-
	Quiet	m ³ /h	550	505	460	-	-	-	-	-
		l/s	153	140	128	-	-	-	-	-
		CFM	324	297	271	-	-	-	-	-

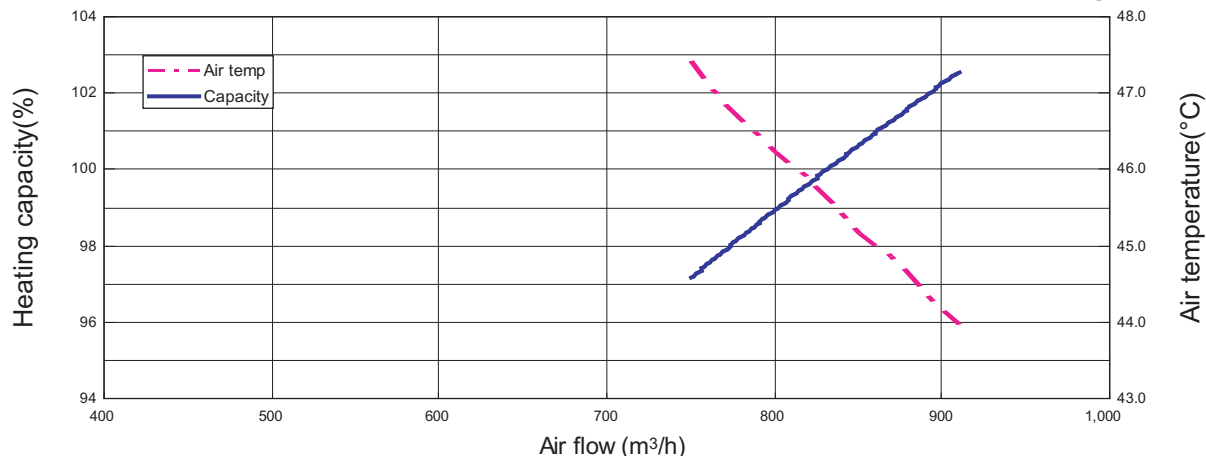
Q-h Characteristic curve



COOLING



HEATING

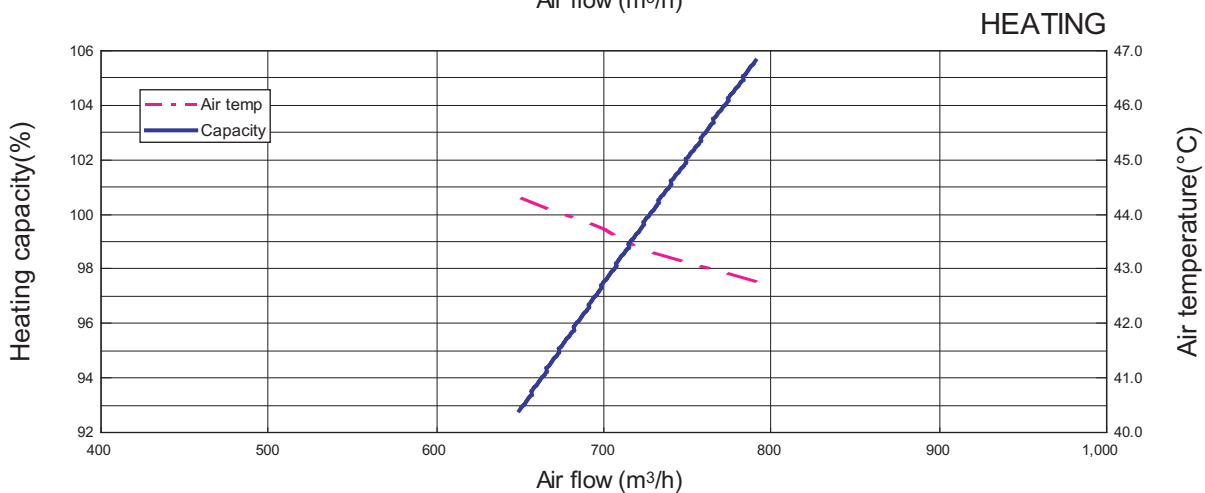
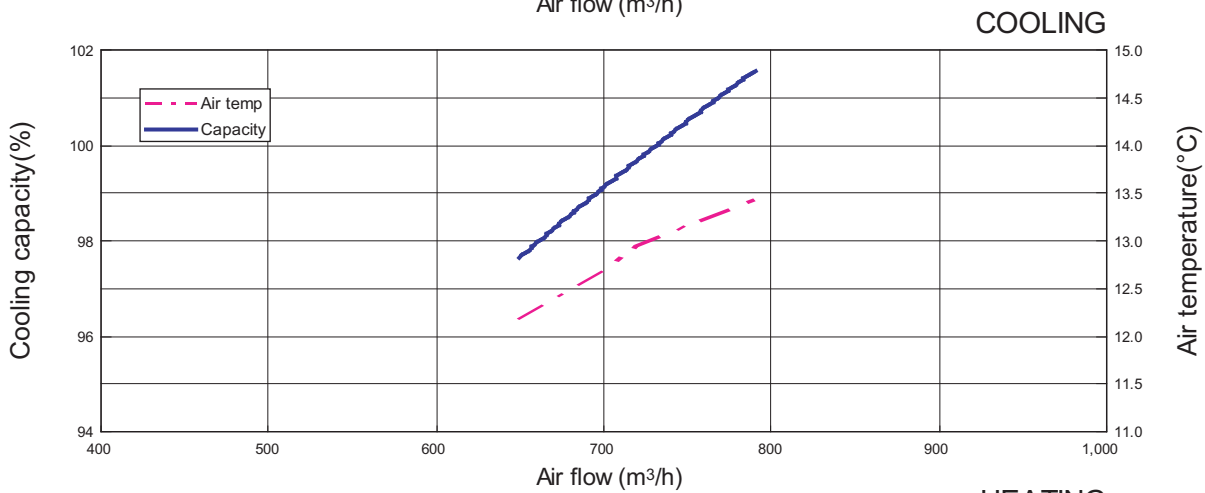
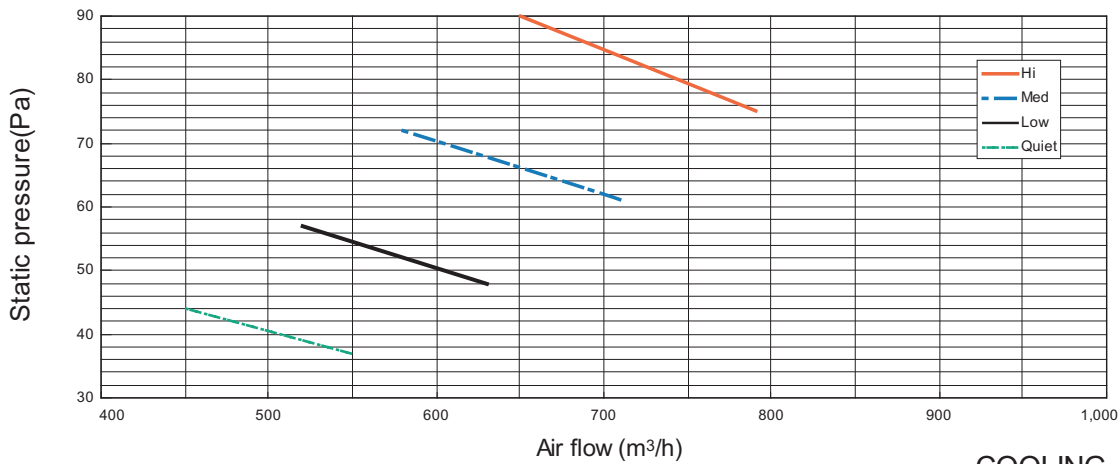


7-4. STATIC PRESSURE MODE 3

MODEL : AR*A12L

			Static pressure (Pa)							
			37	44	48	57	61	72	75	90
Fan speed	Hi	m ³ /h	-	-	-	-	-	-	790	650
		l/s	-	-	-	-	-	-	219	181
		CFM	-	-	-	-	-	-	465	383
	Med	m ³ /h	-	-	-	-	710	580	-	-
		l/s	-	-	-	-	197	161	-	-
		CFM	-	-	-	-	418	341	-	-
	Low	m ³ /h	-	-	630	520	-	-	-	-
		l/s	-	-	175	144	-	-	-	-
		CFM	-	-	371	306	-	-	-	-
	Quiet	m ³ /h	550	450	-	-	-	-	-	-
		l/s	153	125	-	-	-	-	-	-
		CFM	324	265	-	-	-	-	-	-

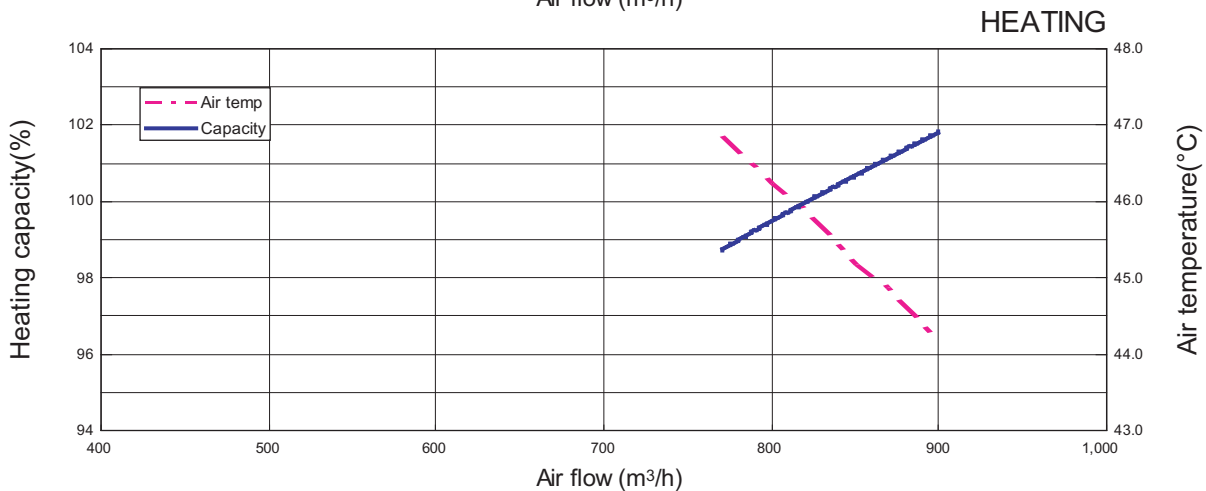
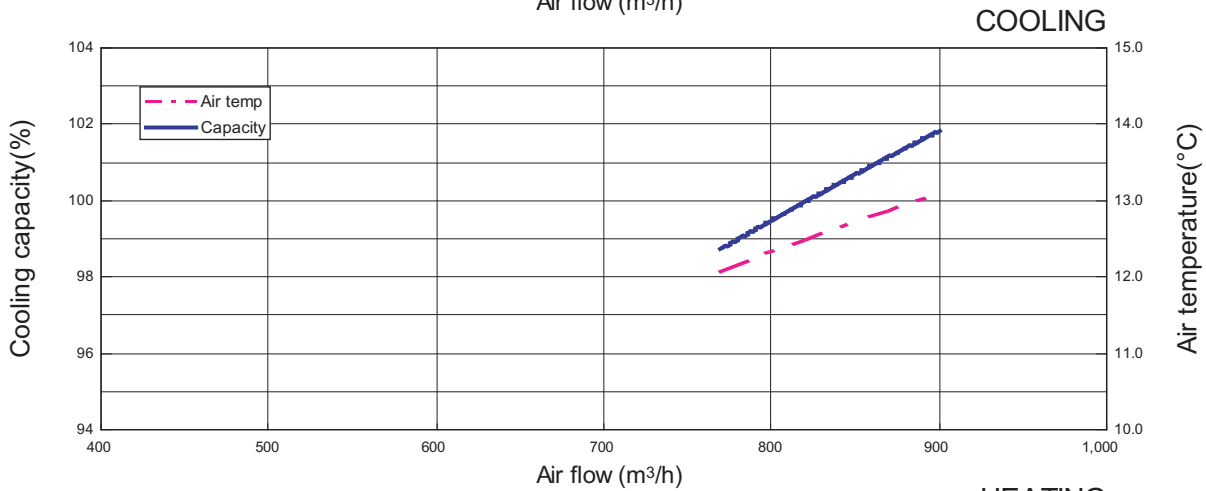
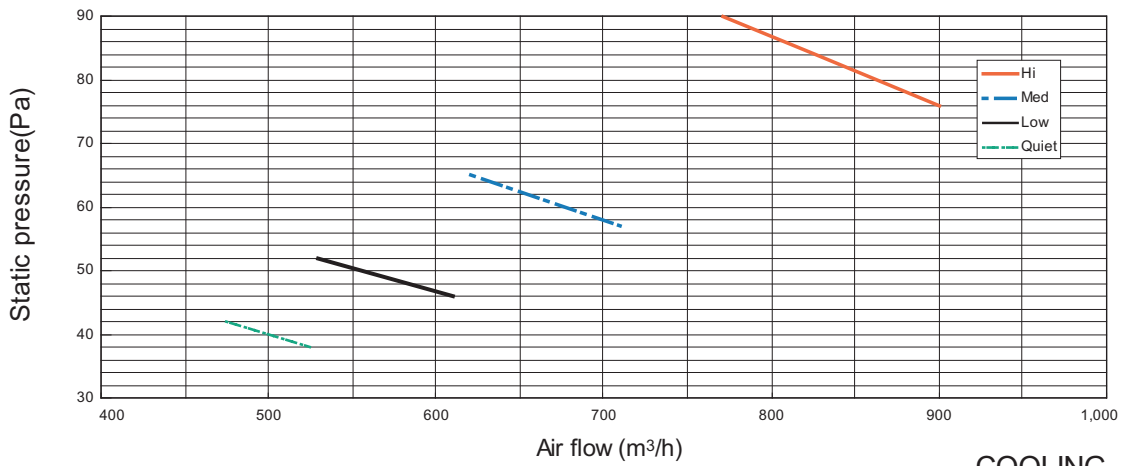
Q-h Characteristic curve



MODEL : AR*A14L

		Static pressure (Pa)								
		38	42	46	52	57	65	76	90	
Fan speed	Hi	m ³ /h	-	-	-	-	-	-	900	770
		l/s	-	-	-	-	-	-	250	214
		CFM	-	-	-	-	-	-	530	453
	Med	m ³ /h	-	-	-	-	710	620	-	-
		l/s	-	-	-	-	197	172	-	-
		CFM	-	-	-	-	418	365	-	-
	Low	m ³ /h	-	-	610	530	-	-	-	-
		l/s	-	-	169	147	-	-	-	-
		CFM	-	-	359	312	-	-	-	-
	Quiet	m ³ /h	525	475	-	-	-	-	-	-
		l/s	146	132	-	-	-	-	-	-
		CFM	309	280	-	-	-	-	-	-

Q-h Characteristic curve



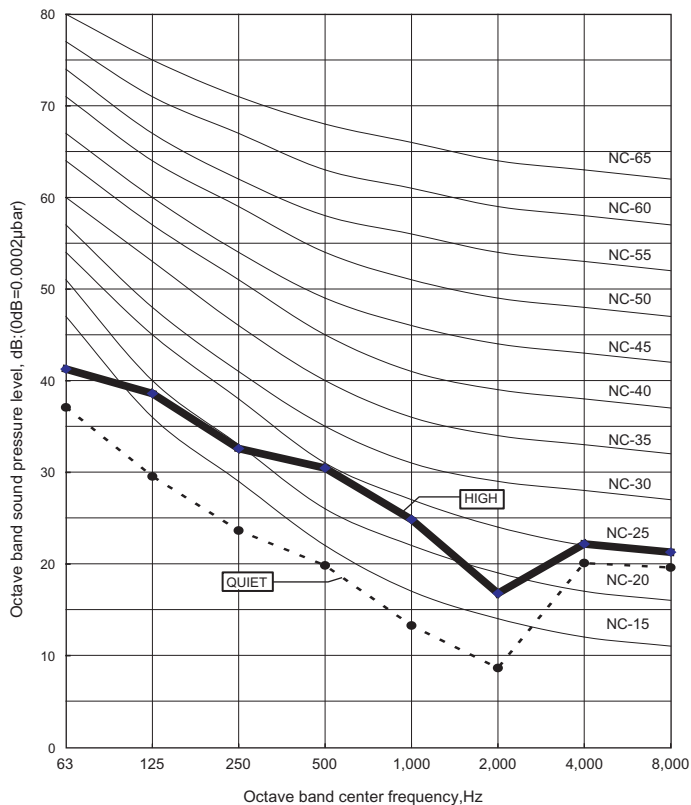
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

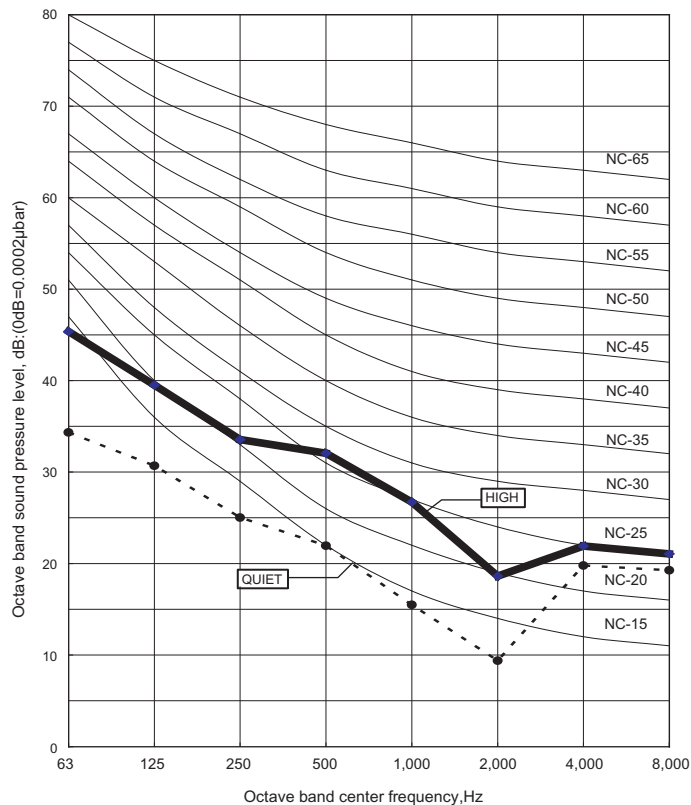
Condition
 Static pressure : 0Pa
 Static mode : Normal

COOLING

● MODEL : AR*A12L

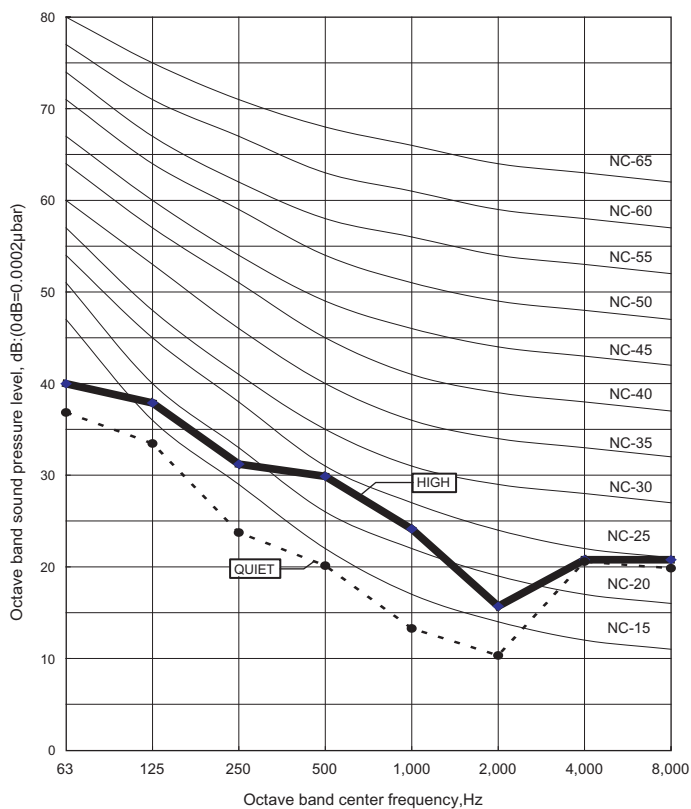


● MODEL : AR*A14L

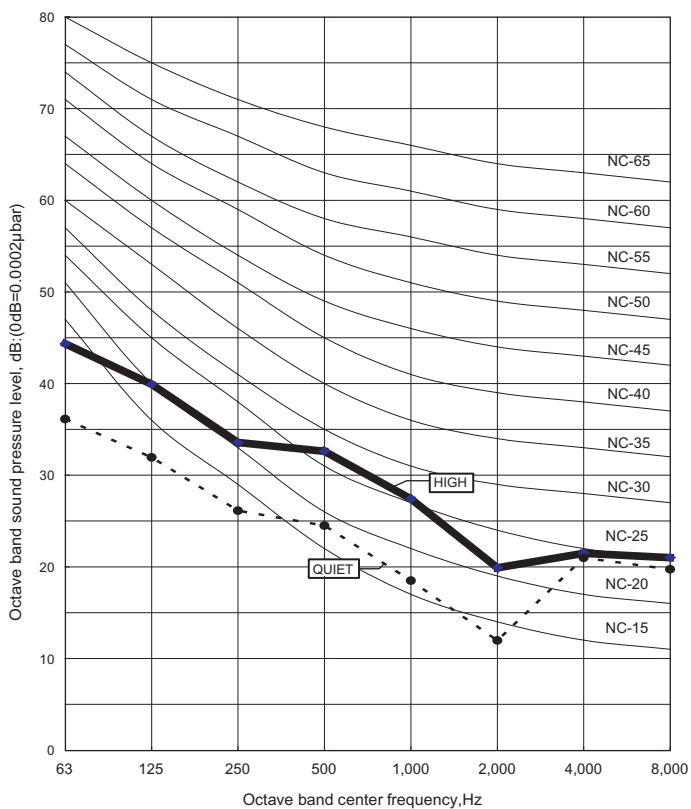


HEATING

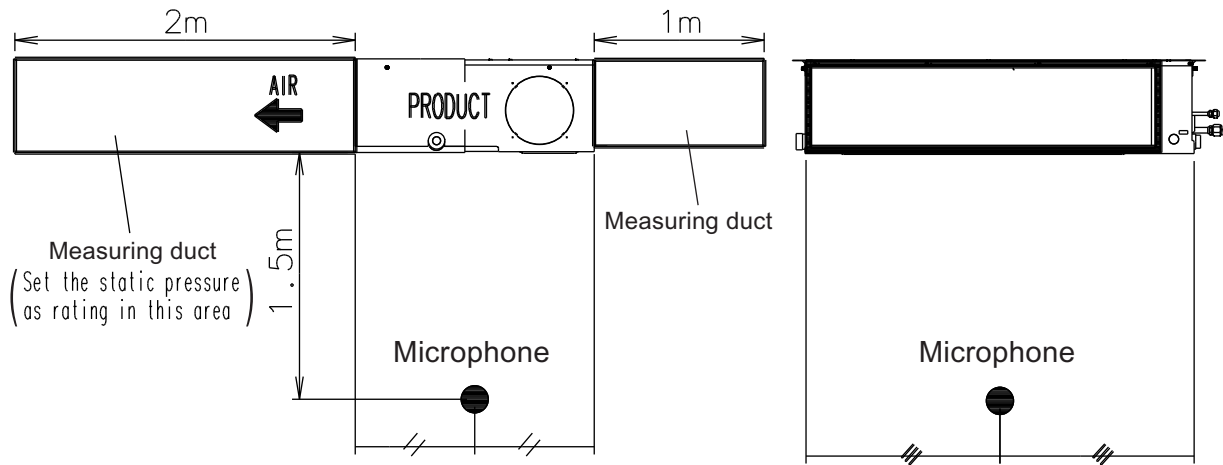
● MODEL : AR*A12L



● MODEL : AR*A14L



8-2. SOUND LEVEL CHECK POINT



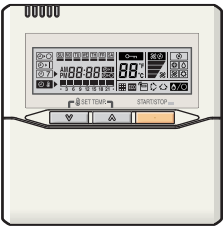

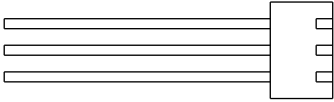
9. ELECTRIC CHARACTERISTICS

Model name			AR * A12L	AR * A14L
Power supply	Voltage	V	230 ~	
	Frequency	Hz	50	
Max. operating current (Indoor unit)		A	0.3	0.5
Wiring spec. (Indoor unit to outdoor unit)	Connection cable	mm ²	1.5 - 2.5	
	Limited wiring length	m	26	

10. SAFETY DEVICES

	Protection form	Model	
		AR * A12L	AR * A14L
Circuit protection	Current fuse (PCB)	3.15A 250V	
Fan motor protection	Thermal protection program	140±20°C OFF 110±20°C ON	

11. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB- *UD	Unit control is performed by wired remote controller .
	Remote Sensor	UTD-RS100	New amenity space can be offered by installing the Remote sensor in the remote controller.
	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board.

OUTDOOR UNIT

2. SINGLE TYPE :

AO * A12LA CL

AO * A14LA CL

1. SPECIFICATIONS

Type			INVERTER HEATPUMP			
Model name			AO * A12LA CL	AO * A14LA CL		
Power source			230V~ 50Hz			
Available voltage range			198-264V~ 50Hz			
Starting current		A	4.9	5.9		
Fan	Airflow rate	Cooling	1780	1910		
		Heating	1630	1740		
	Type × Q'ty	Propeller × 1				
Motor output		W	54			
Sound pressure level		Cooling	47	49		
		Heating	48	49		
Heat exchanger type		Dimensions (H × W × D)	546 × 876 × 18.2 546 × 842 × 18.2			
		Fin pitch	1.30			
		Rows x Stages	2 × 26			
		Pipe type	Copper			
		Fin type	Aluminium			
Compressor		Type × Q'ty	Twin Rotary × 1			
		Motor output	W	1100		
Refrigerant		Type	R410A			
		Charge	g	1150	1250	
Refrigerant oil		Type	POE			
Enclosure		Material	Steel sheet			
		Colour	Beige (10YR7.5/1.0NN)			
Dimensions (H × W × D)		Net	578 × 790 × 300			
		Gross	648 × 910 × 380			
Weight		Net	40 (88)	40 (88)		
		Gross	44 (97)	44 (97)		
Connection pipe		Size	Liquid	φ 6.35 (φ 1/4 in.)		
			Gas	φ 9.52 (φ 3/8 in.)	φ 12.70 (φ 1/2 in.)	
		Method		Flare		
		Max. length		25 (chargeless : 15)		
		Max. height difference		15		
Operation range		Cooling	-10 to 46			
		Heating	-15 to 24			

Note :

Specifications are based on the following conditions.

Cooling : Indoor temperature of 27°CDB/19°CWB. and outdoor temperature of 35°CDB/24°CWB.

Heating : Indoor temperature of 20°CDB/15°CWB. and outdoor temperature of 7°CDB/6°CWB.

Pipe length : 7.5 m, Height difference : 0 m. (Outdoor unit - Indoor unit)

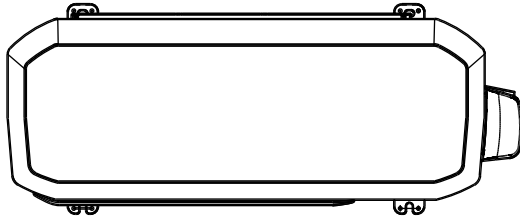
2. DIMENSIONS

■ MODEL : AO*A12L, AO*A14L

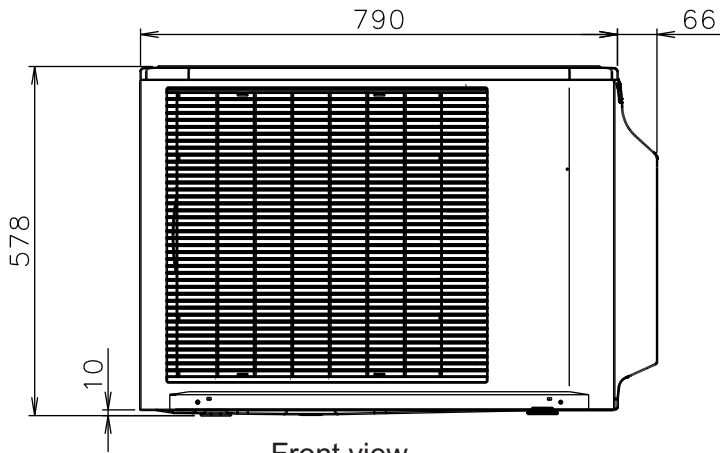
(Unit : mm)

OUTDOOR UNIT
AO*A12-14L

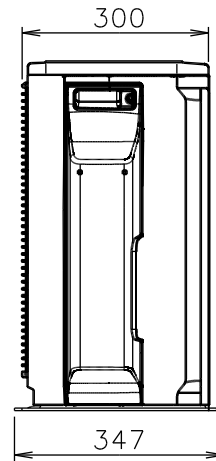
OUTDOOR UNIT
AO*A12-14L



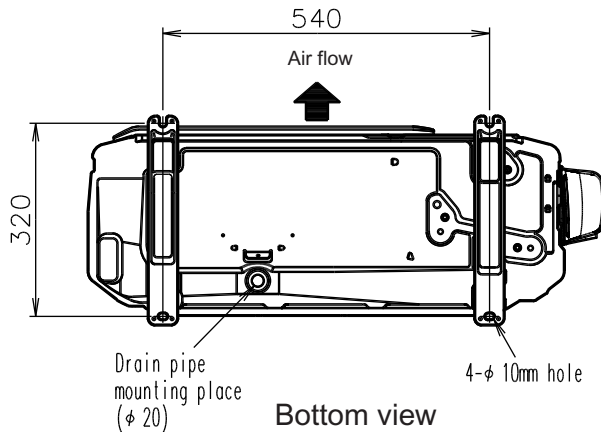
Top view



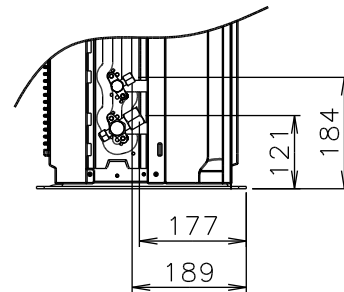
Front view



Side view



Bottom view

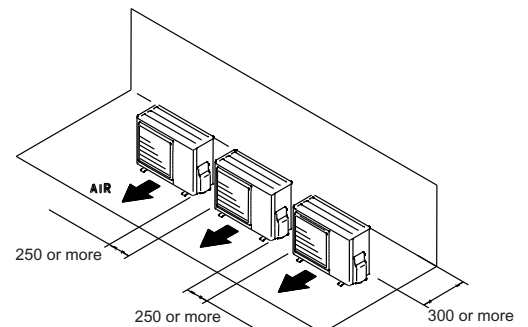
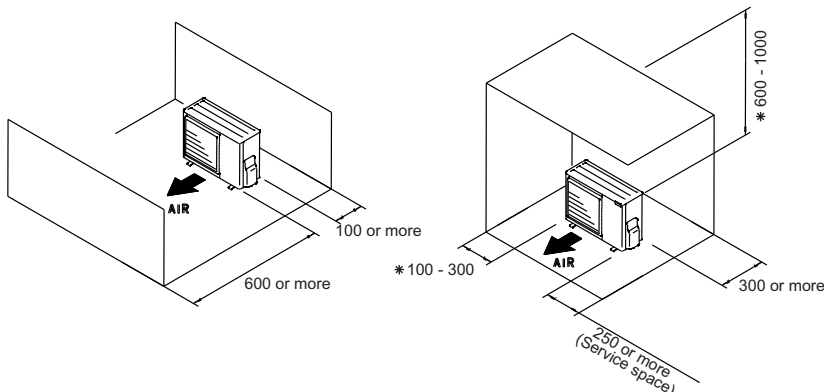


■ MOUNTING POSITION

When there are obstacles at the back or front sides.

When there are obstacles at the back, side(s), and top.

When there are obstacles at the back, side with the installation of more than one unit.



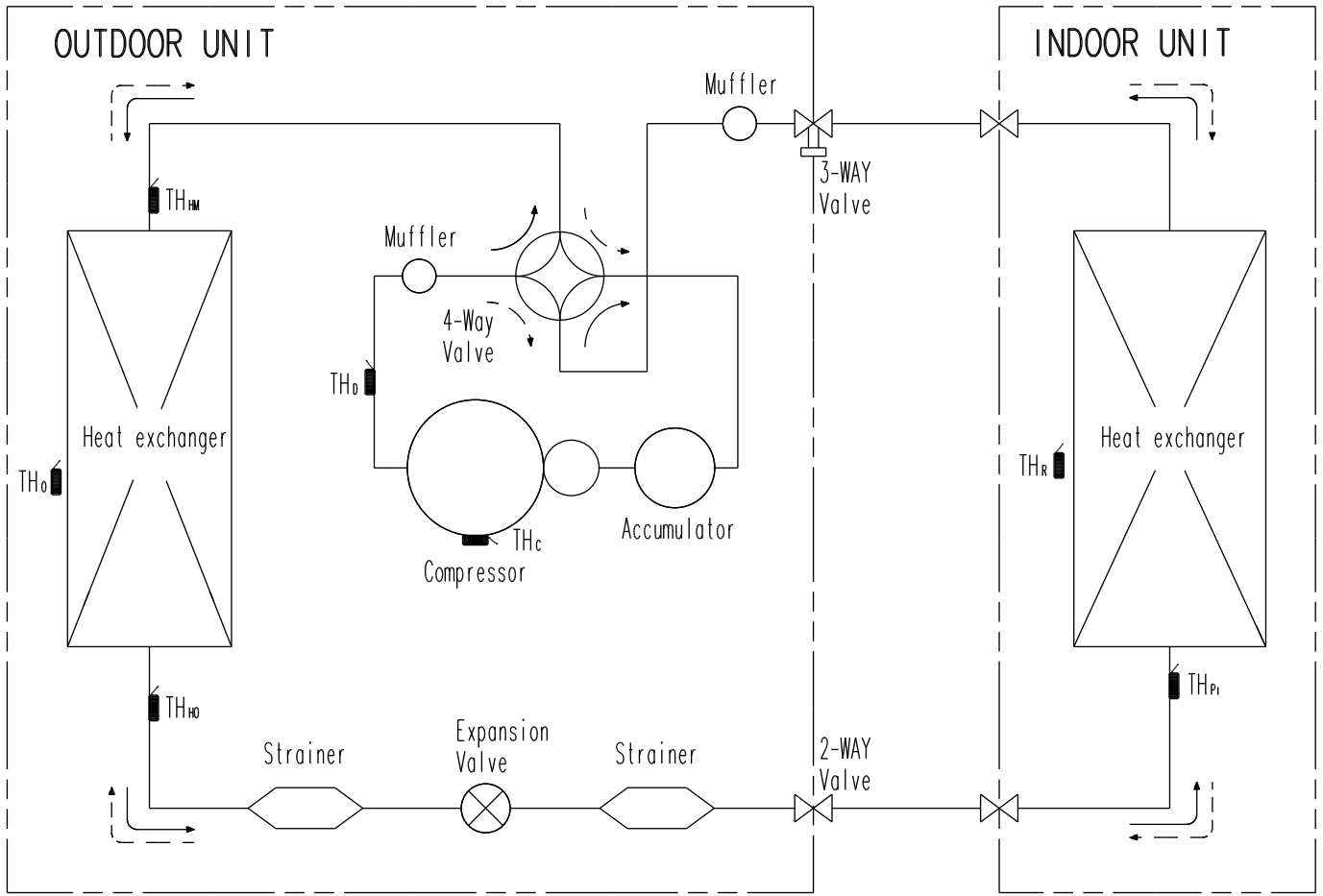
* If the space is larger that is stated, the condition will be the same as that are no obstacles.

3. REFRIGERANT CIRCUIT

■ MODEL : AO*A12L, AO*A14L

OUTDOOR UNIT
AO*A12-14L

OUTDOOR UNIT
AO*A12-14L

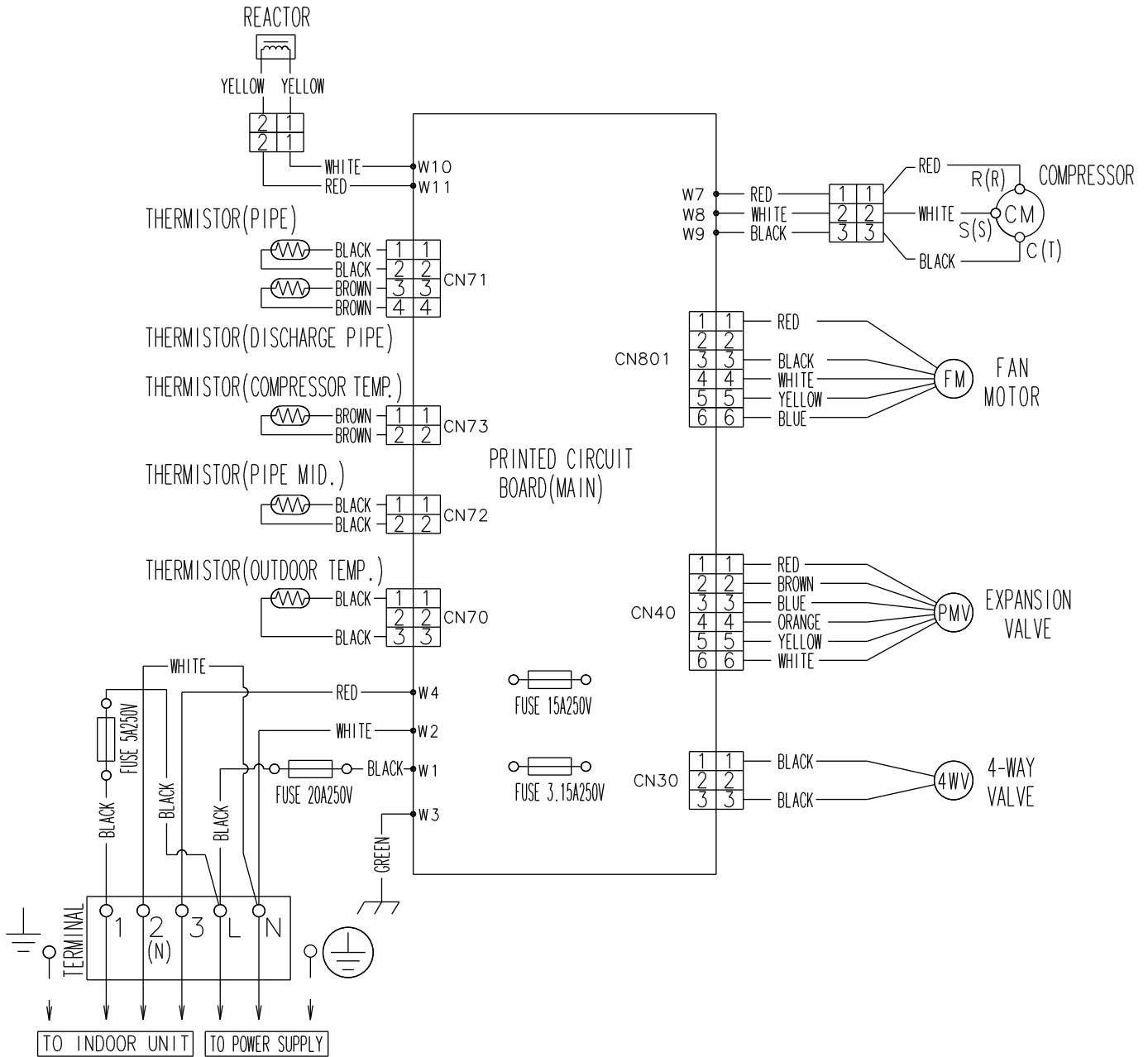


4. WIRING DIAGRAMS

■ MODEL : AO*A12L, AO*A14L

OUTDOOR UNIT
AO*A12-14L

OUTDOOR UNIT
AO*A12-14L



5. COEFFICIENT OF COMPENSATION FOR PIPE LENGTH AND HEIGHT DIFFERENCE

This table is created using the maximum capacity.

■ MODEL : AO*A12L

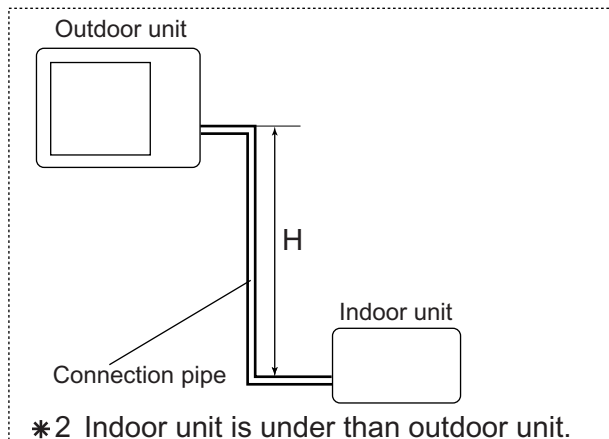
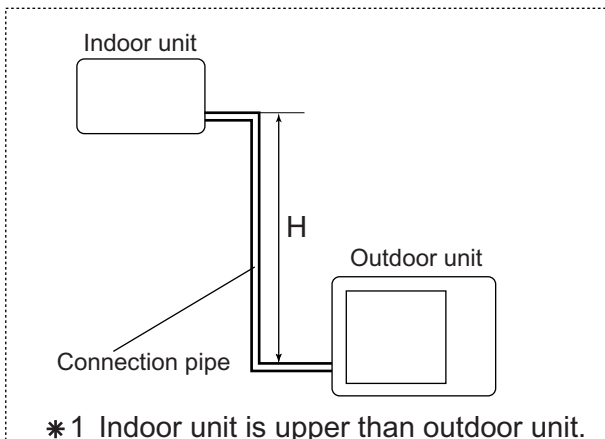
OUTDOOR UNIT
AO*A12-14L

OUTDOOR UNIT
AO*A12-14L

COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.903	0.894	0.867
		10	-	-	0.964	0.918	0.909	0.881
		7.5	-	0.988	0.968	0.922	0.912	0.885
		5	1.018	0.992	0.972	0.925	0.916	0.888
	0		1.026	1.000	0.980	0.933	0.923	0.895
	* 2 Indoor unit is under than outdoor unit	-5	1.026	1.000	0.980	0.933	0.923	0.895
		-7.5	-	1.000	0.980	0.933	0.923	0.895
		-10	-	-	0.980	0.933	0.923	0.895
-15		-	-	-	0.933	0.923	0.895	

HEATING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.943	0.916	0.896
		10	-	-	1.010	0.943	0.916	0.896
		7.5	-	1.000	1.010	0.943	0.916	0.896
		5	0.954	1.000	1.010	0.943	0.916	0.896
	0		0.954	1.000	1.010	0.943	0.916	0.896
	* 2 Indoor unit is under than outdoor unit	-5	0.949	0.995	1.005	0.939	0.912	0.892
		-7.5	-	0.993	1.002	0.936	0.909	0.890
		-10	-	-	0.999	0.934	0.907	0.887
-15		-	-	-	0.925	0.898	0.878	

Height difference H



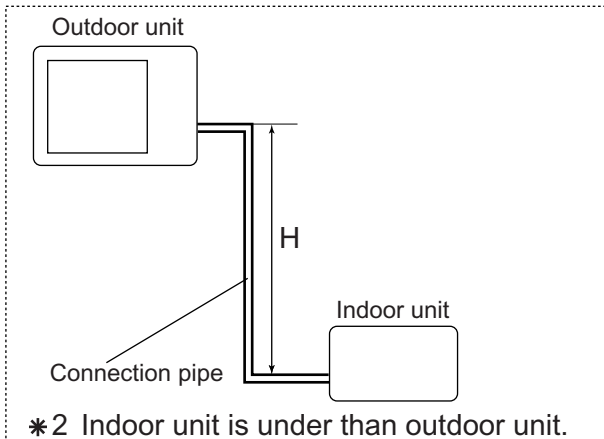
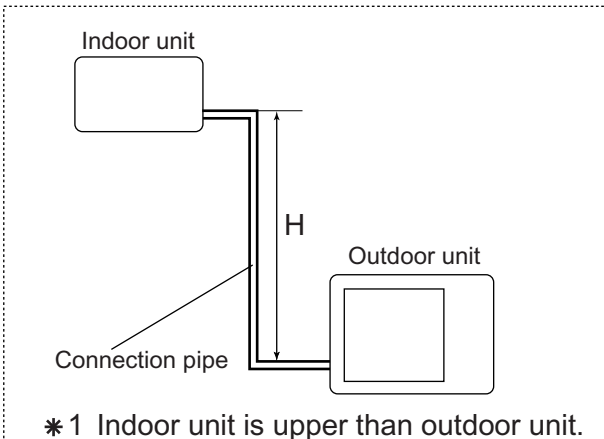
This table is created using the maximum capacity.

■ **MODEL : AO*A14L**

COOLING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.953	0.950	0.947
		10	-	-	0.983	0.968	0.966	0.962
		7.5	-	0.988	0.987	0.972	0.970	0.966
		5	0.992	0.992	0.991	0.976	0.974	0.970
	* 2 Indoor unit is under than outdoor unit	0	1.000	1.000	0.999	0.984	0.982	0.978
		-5	1.000	1.000	0.999	0.984	0.982	0.978
		-7.5	-	1.000	0.999	0.984	0.982	0.978
		-10	-	-	0.999	0.984	0.982	0.978
		-15	-	-	-	0.984	0.982	0.978

HEATING			Pipe length (m)					
			5	7.5	10	15	20	25
Height difference H (m)	* 1 Indoor unit is upper than outdoor unit.	15	-	-	-	0.918	0.891	0.862
		10	-	-	0.981	0.918	0.891	0.862
		7.5	-	1.000	0.981	0.918	0.891	0.862
		5	0.994	1.000	0.981	0.918	0.891	0.862
	* 2 Indoor unit is under than outdoor unit	0	0.994	1.000	0.981	0.918	0.891	0.862
		-5	0.989	0.995	0.976	0.914	0.886	0.858
		-7.5	-	0.993	0.974	0.912	0.884	0.856
		-10	-	-	0.972	0.909	0.882	0.854
		-15	-	-	-	0.900	0.873	0.845

Height difference H



6. ADDITIONAL CHARGE CALCULATION

■ MODEL : AO*A12L

Refrigerant type	R410A	
Refrigerant amount	g	1150

● REFRIGERANT CHARGE

Pipe length	m	~ 15	20	25	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	

■ MODEL : AO*A14L

Refrigerant type	R410A	
Refrigerant amount	g	1250

● REFRIGERANT CHARGE

Pipe length	m	~ 15	20	25	20g/m
Additional charge	g	0 (Chargeless)	+100	+200	

7. AIR FLOW

■ MODEL : AO*A12L

● COOLING

Number of rotations (r.p.m)	Air flow	
	770	m ³ /h
l/s		494
CFM		1048

● HEATING

Number of rotations (r.p.m)	Air flow	
	700	m ³ /h
l/s		453
CFM		959

■ MODEL : AO*A14L

● COOLING

Number of rotations (r.p.m)	Air flow	
	820	m ³ /h
l/s		531
CFM		1124

● HEATING

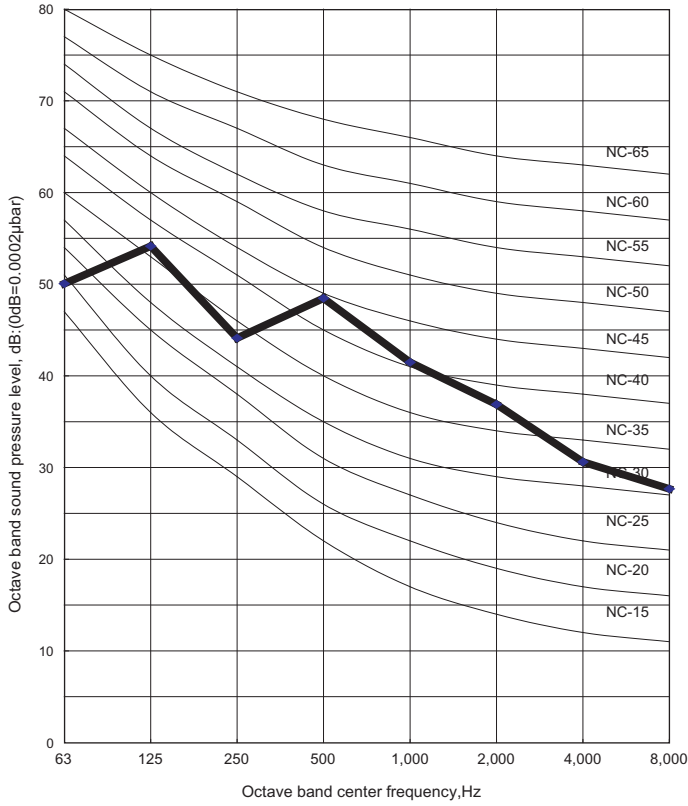
Number of rotations (r.p.m)	Air flow	
	750	m ³ /h
l/s		483
CFM		1024

8. OPERATION NOISE

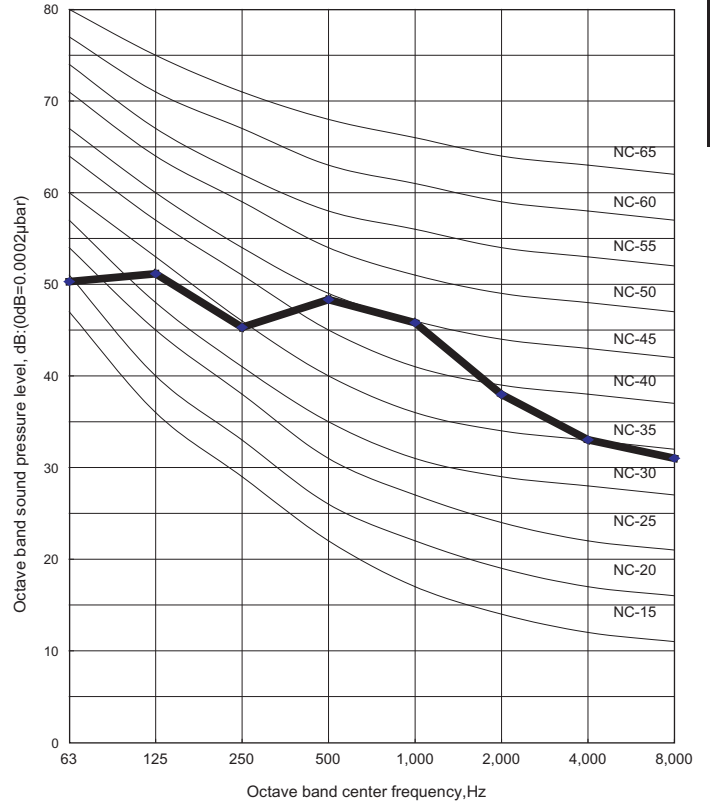
8-1. NOISE LEVEL CURVE

COOLING

MODEL : AO*A12L

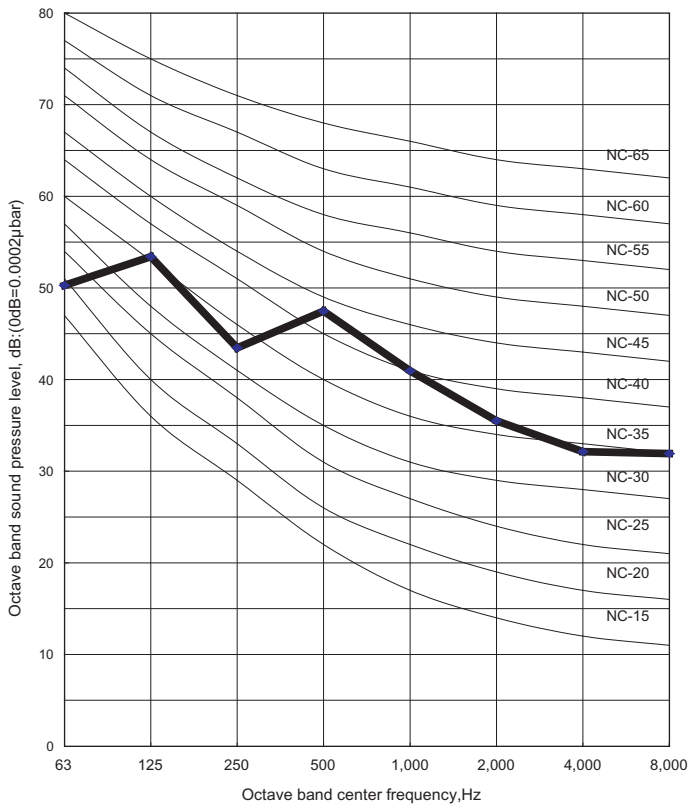


MODEL : AO*A14L

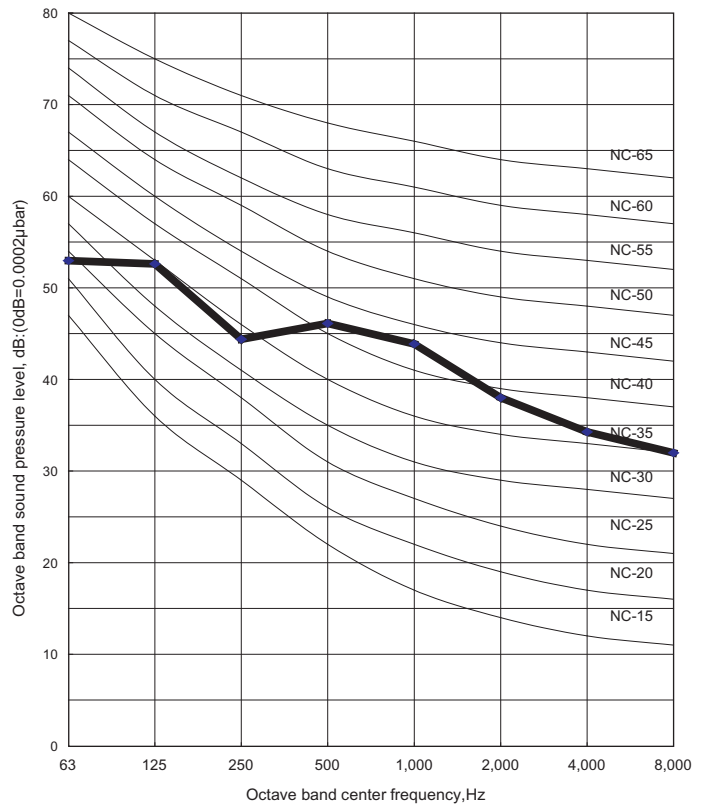


HEATING

MODEL : AO*A12L



MODEL : AO*A14L

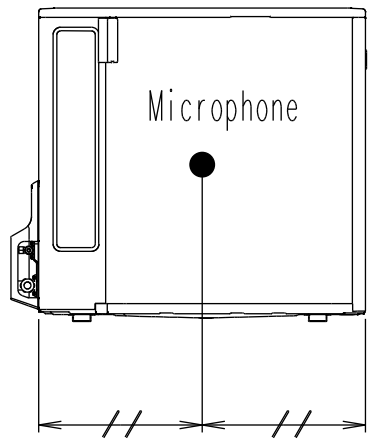
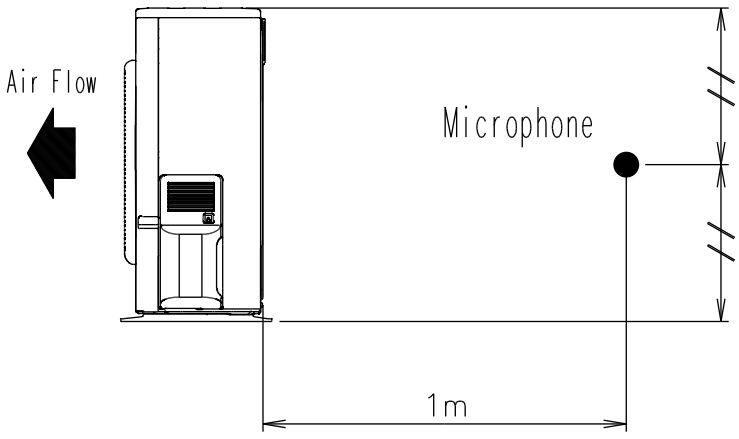


OUTDOOR UNIT
AO*A12-14L

OUTDOOR UNIT
AO*A12-14L

8-2. SOUND LEVEL CHECK POINT

OUTDOOR UNIT
AO*#A12-14L



OUTDOOR UNIT
AO*#A12-14L

9. ELECTRIC CHARACTERISTICS

Model Name			AO * A12L	AO * A14L
Power Supply	Voltage	V	230~	
	Frequency	Hz	50	
Max Operating Current		A	10.0	12.5
Starting Current		A	4.9	5.9
*1) Wiring Spec.	Main Fuse (Circuit breaker) Current	A	25	25
	Power Cable	mm ²	3.5 - 4.0	
	*2) Limited wiring length	m	36	28

*1) Wiring Spec.

Selected Sample

(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

*2) Limited Wiring length

This is the wiring length in case voltage descent is less than 2%.

When the wiring length becomes long, please select the wiring of a more larger diameter.

10. SAFETY DEVICES

OUTDOOR UNIT
AO*A12-14L

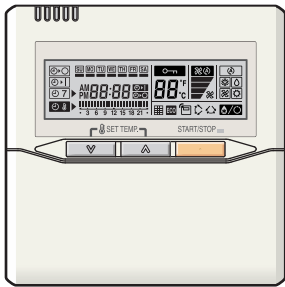
OUTDOOR UNIT
AO*A12-14L

	Protection form	Model	
		AO * A12L	AO * A14L
Circuit protection	Current fuse (NEAR THE TERMINAL)	20A 250V	
		5A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	15A 250V	
		3.15A 250V	
Fan motor protection	Thermal protection program	OFF : 100 ⁺¹⁵ ₋₁₀ °C ON : 95 ⁺¹⁵ ₋₁₀ °C	
Compressor protection	Thermal protection program (COMPRESSOR TEMP.)	OFF : 110°C ON : After 40 minutes	
	Thermal protection program (DISCHARGE TEMP.)	OFF : 110°C ON : After 7 minutes	

REMOTE CONTROLLER

3. WIRED REMOTE CONTROLLER : UTB - *UD

FEATURES



- * Various timer setup (ON / OFF / WEEKLY) are possible.
- * Equipped with weekly timer as standard function. (2 times Start / Stop per day for a week)
- * When setting up a timer, operation mode and a temperature setup can be changed.
- * When a failure occurs, the error code is displayed. (Maximum of 16)
- * Error indication. (A maximum of 16 error histories are memorizable.)
- * Up to 16 indoor units can be simultaneously controlled.
- * Economy operation are possible.
- * Easy installation with a slim shape with no bulge in the back.
- * The room temperature can be controlled by being detected the temperature accurately with built-in thermo sensor.

REMOTE CONTROLLER
UTB-*/UD

REMOTE CONTROLLER
UTB-*/UD

Simple function setting

Setting of the air conditioner selection function is performed by remote controller.

High performance and compact size

Three functions are combined in one unit.



Built-in timers

Weekly timer

Possible to set ON/OFF time to operate twice each day of the week.

Easy-to-understand time bar display

Screen after setup

Setup screen example
(Set to Wednesday: 8:00 to 20:00.)

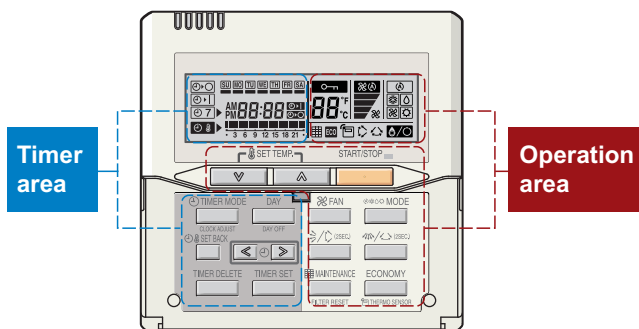
Setback timer

Possible to set temperature for two time spans and for each day of the week.

Setup screen example
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)

At "Weekly timer" + "Set back timer" setup

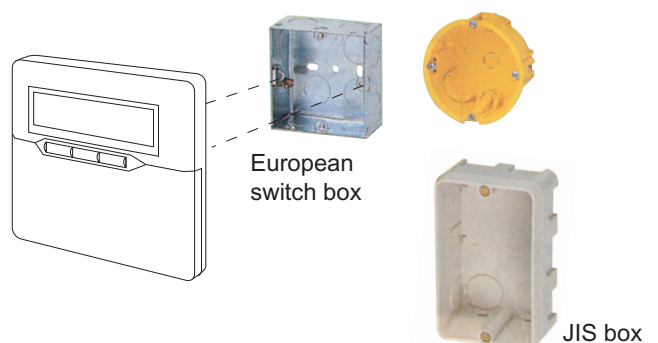
Easy-to-understand operation



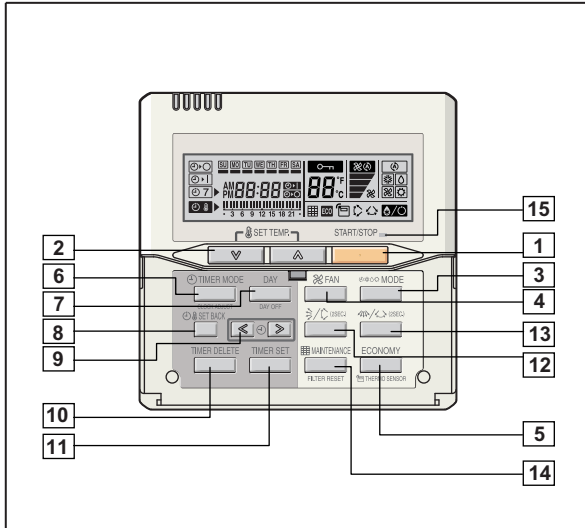
[Variable timer control]
The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

Simple installation

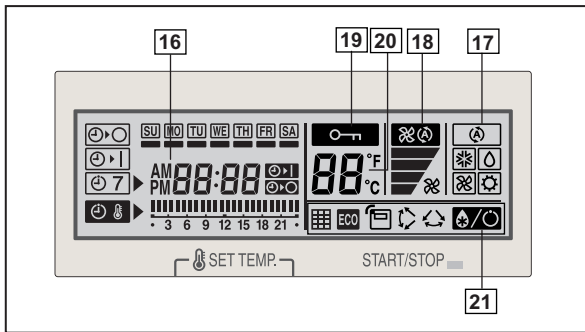
Components are compatible with standard switch boxes. Flat back construction allows equipment to be installed wherever it is needed.



FUNCTIONS

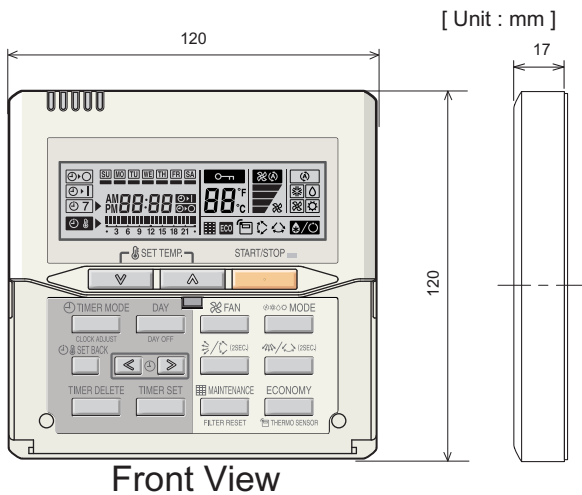


Display panel



- 1 **START/STOP button**
Pressed to start and stop operation.
- 2 **Set temperature button**
Selects the setting temperature.
- 3 **Master control button**
Selects the operating mode(AUTO, HEAT, FAN, COOL, DRY).
- 4 **Fan control button**
Selects the fan speed (AUTO, QUIET, LOW, MED, HIGH).
- 5 **Economy button**
Turns the economy efficient mode on and off.
- 6 **Timer mode (CLOCK ADJUST) button**
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER)
Set the current time.
- 7 **Day (DAY OFF) button**
Temporarily cancels of one day timer.
- 8 **Set back button**
Pressed to select the set back timer.
- 9 **Set time button**
Pressed to set time.
- 10 **Delete button**
The schedule of a weekly timer is deleted.
- 11 **Set button**
Sets the date, hour, minute and on-off time.
- 12 **Vertical airflow direction and swing button**
Push for two seconds to change the swing mode.
- 13 **Horizontal airflow direction and swing button**
Push for two seconds to change the swing mode.
- 14 **Filter button**
- 15 **Operation lamp**
Lights during operation and when the timer is on.
- 16 **Timer and clock display**
- 17 **Operation mode display**
- 18 **Fan speed display**
- 19 **Operation lock display**
- 20 **Temperature display**
- 21 **Function display**
 - Defrost display
 - Thermo sensor display
 - Economy display
 - Vertical swing display
 - Horizontal swing display
 - Filter display

DIMENSION



SPECIFICATION

SIZE (H x W x D mm)	120 x 120 x 17
WEIGHT (g)	160
CABLE LENGTH (m)	10
POWER (V)	12