Refrigerant R410A
INVERTER

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL DATA

SINGLE INDOOR

AR∗A30LBTU
AR∗A36LBTU

OUTDOOR

AO∗A30LBTL AO∗A30LFTL
AO∗A36LBTL AO∗A36LFTL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

DUCT TYPE :

AR*A30LBTU
AR*A36LBTU

D2D_AR036E/02
2010.01.18

CONTENTS

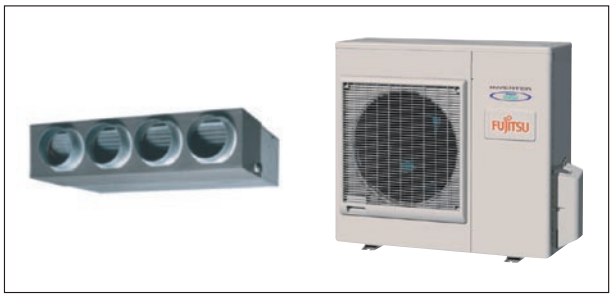
1. INDOOR UNIT

DUCT TYPE
AR∗A30-36L

1. FEATURE

■ MODEL:

INDOOR UNIT	OUTDOOR UNIT
AR∗A30LBTU	AO∗A30LBTL AO∗A30LFTL
AR∗A36LBTU	AO∗A36LBTL AO∗A36LFTL



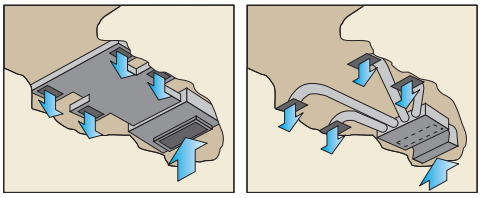
■ FEATURES

● Energy saving

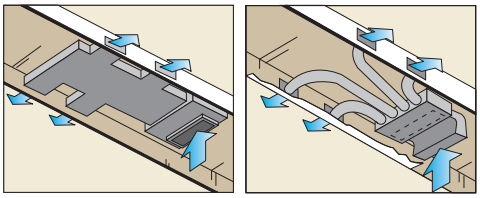
High energy saving was realized by making the indoor unit and outdoor unit fan motor and compressor all DC and optimal design of the refrigerant cycle. Rank A was achieved in European energy rank.

● Installation styles

Embedded in Ceiling

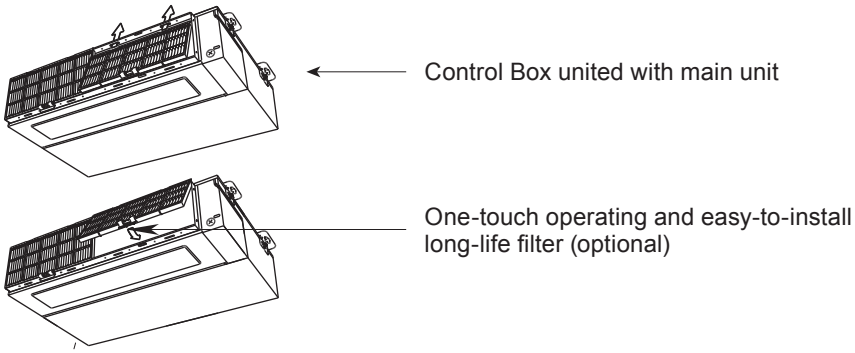


Hanging from Ceiling



● Slim & compact design

In the case of bottom suction type, as seen from lower rear part.

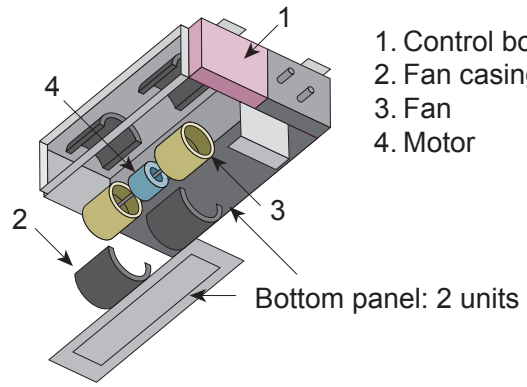


In addition to the slim height of 270 mm which is our sales point, further com pactification is attained by reducing 65 mm from the width with the flanking control box embedded inside the chassis.

DUCT TYPE
AR∗A30-36L

● Easy maintenance

In the case of rear suction type, as seen from lower rear part.



1. Control box
2. Fan casing
3. Fan
4. Motor

The motor and fan maintenance and dismounting can be made easily by removing the rear panel and lower part of the casing with the main chassis installed.

● Quiet operation

Quiet operation at *29dB(A) possible by quiet mode.

* See our measurement conditions page (01-19).

■ FUNCTION SETTING

● 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.

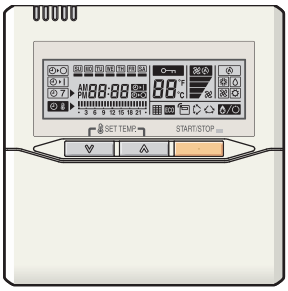
● Auto restart

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

DUCT TYPE
AR∗A30-36L

2. WIRED REMOTE CONTROLLER

■ 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.

● Simple function setting

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

● High performance and compact size

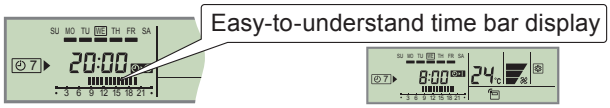
Three functions are combined in one unit.

Wired remote controller + Weekly timer + Setback timer

● Built-in timers

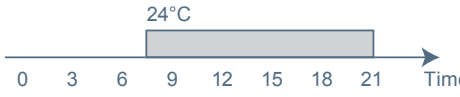
Weekly timer

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



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

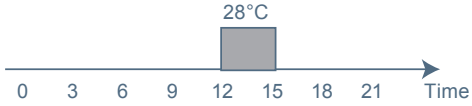
Screen after setup



Setback timer

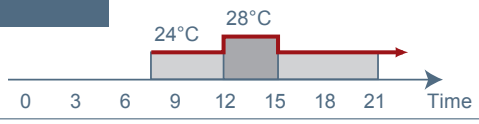
Possible to set temperature for two time spans and for each day of the week.

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

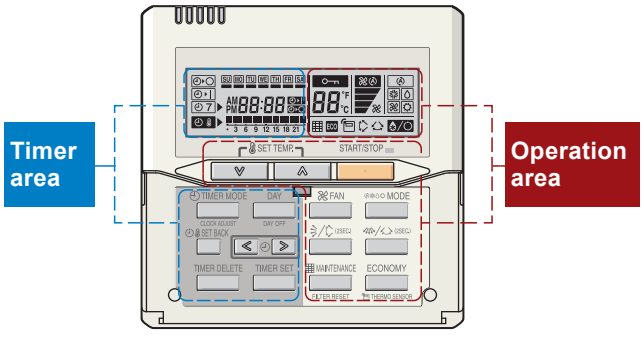


At "Weekly timer" + "Set back timer" setup

24°C → 28°C → 24°C



● Easy-to-understand operation

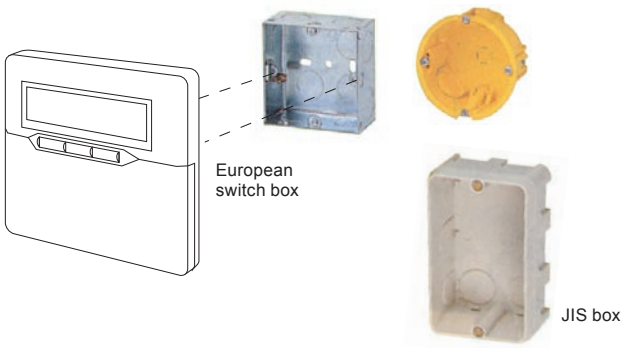


[Variable timer control]

The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

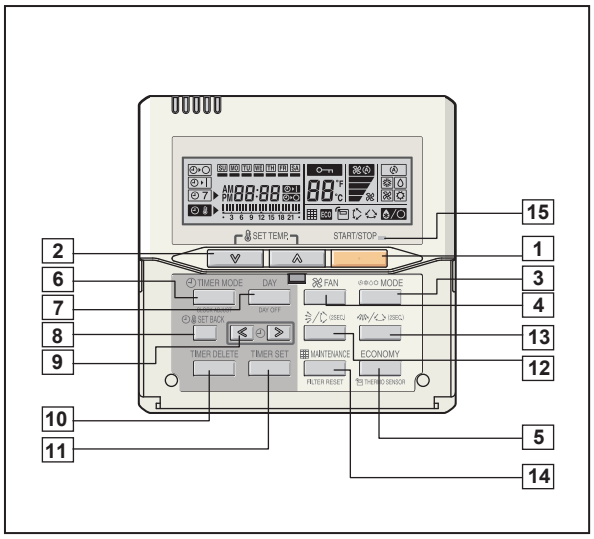
● Simple installation

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

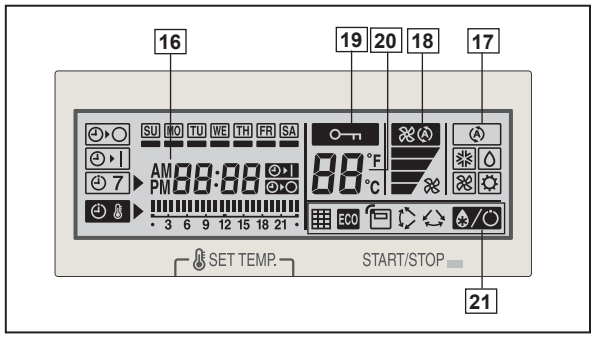


DUCT TYPE
AR∗A30-36L

■ 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**

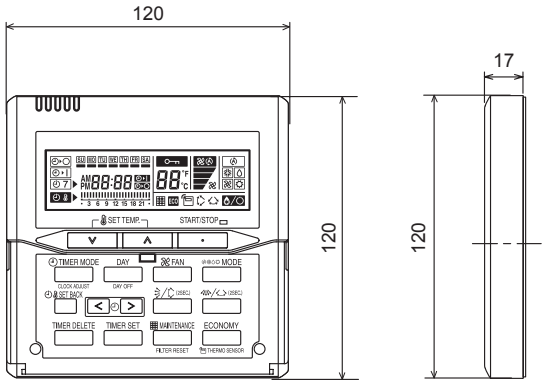
21 **Function display**

- Defrost display
- Thermo sensor display
- Economy display
- Vertical swing display
- Horizontal swing display
- Filter display

Functions will be different due to type of indoor unit.For details please see operation manual.

■ DIMENSION

[Unit : mm]



Front View　　Side View

■ SPECIFICATION

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

3. SPECIFICATIONS

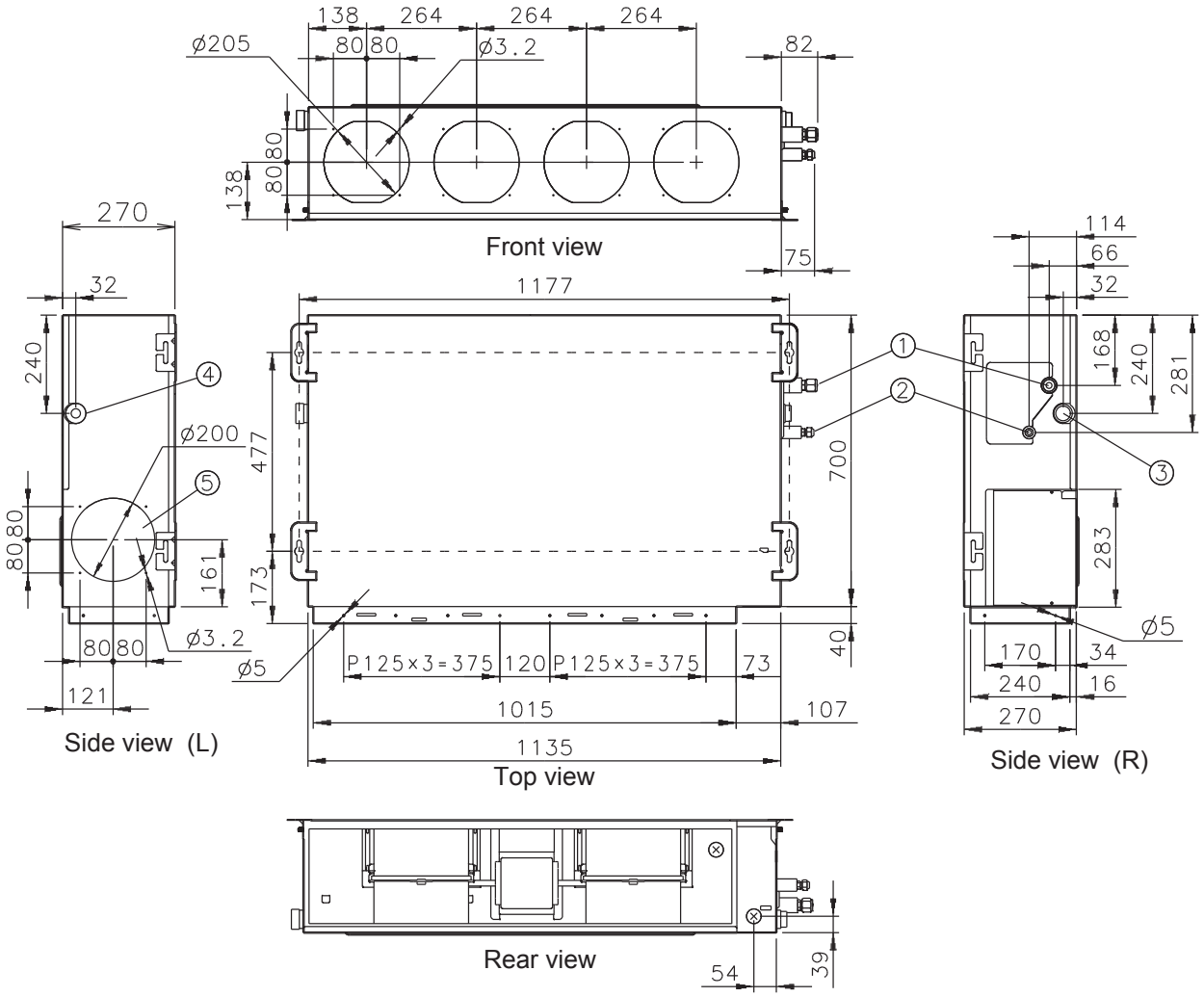
Type					DUCTED MODEL			
					INVERTER HEATPUMP			
Model name		Indoor unit			AR∗A30LBTU		AR∗A36LBTU	
		Outdoor unit			AO∗A30LBTL	AO∗A30LFTL	AO∗A36LBTL	AO∗A36LFTL
Power source					230V ~ 50Hz			
Available voltage range					198-264V ~ 50Hz			
European energy label				Cooling	A		A	
				Heating	A		A	
Capacity	Cooling	Rated		kW	8.50		9.40	
				BTU/h	29000		32100	
		Min-Max		kW	2.80 -10.00		2.80 -11.20	
				BTU/h	9500 -34100		9500 -38200	
	Heating	Rated		kW	10.00		11.20	
				BTU/h	34100		38200	
		Min-Max		kW	2.70 -11.20		2.70 -12.70	
				BTU/h	9200 -38200		9200 -43300	
Input power	Cooling	Rated		kW	2.65		2.93	
		Max.			3.88		4.56	4.22
	Heating	Rated			2.68		3.10	
		Max.			3.88		4.56	
Current	Cooling	Rated		A	11.6		12.8	
		*Max.			17.0		20.0	18.5
	Heating	Rated			11.7		13.6	
		*Max.			17.0		20.0	
EER		Cooling		kW/kW	3.21		3.21	
COP		Heating			3.73		3.61	
Moisture removal				l/h (pints/h)	2.5(5.3)		3.0 (6.3)	
Fan	Airflow rate	Cooling	High	m^3/h	1950		1950	
			Med		1620		1620	
			Low		1270		1270	
			Quiet		980		980	
		Heating	High		2100		2100	
			Med		1620		1620	
			Low		1270		1270	
			Quiet		980		980	
	Type × Q'ty				Sirocco × 2		Sirocco × 2	
	Motor output			W	197		197	
Recommended static pressure				Pa	30 to 150		30 to 150	
Sound pressure level		Cooling	High	dB(A)	42		42	
			Med		37		37	
			Low		32		32	
			Quiet		29		29	
		Heating	High		42		42	
			Med		37		37	
			Low		32		32	
			Quiet		29		29	
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 1000 × 39.9		294 × 1000 × 39.9	
		Fin pitch			1.40		1.40	
		Rows x Stages			3 × 14		3 × 14	
		Pipe type			Copper		Copper	
		Fin type			Aluminium		Aluminium	
Enclosure		Material			Steel		Steel	
		Colour			-		-	
Dimensions (H×W ×D)	Net			mm	270 × 1135 × 700		270 × 1135 × 700	
	Gross				300 × 1320 × 790		300 × 1320 × 790	
Weight	Net			kg(lb.)	40 (88)		40 (88)	
	Gross				47 (104)		47 (104)	
Connection pipe	Size	Liquid		mm	Ø 9.52 (Ø 3/8 in.)		Ø 9.52 (Ø 3/8 in.)	
		Gas			Ø 15.88 (Ø 5/8 in.)		Ø 15.88 (Ø 5/8 in.)	
	Method				Flare		Flare	
Operation range		Cooling		°C	18 to 32		18 to 32	
				%RH	80 or less		80 or less	
		Heating		°C	16 to 30		16 to 30	
Remote controller type					Wired		Wired	
Drain pipe	Material				Steel		Steel	
	Size			mm	Outer diameter : 38.0 / Inner diameter : 36.0		Outer diameter : 38.0 / Inner diameter : 36.0	

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 : 47 Pa
Pipe length : 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 poit and measure.
The maximum current and the maximum input value are the maximum value when operated within the operation (temperature)range.
*The maximum current is the total current of indoor unit and outdoor unit.

4. DIMENSIONS

■ MODEL: AR∗A30L, AR∗A36L

(Unit : mm)

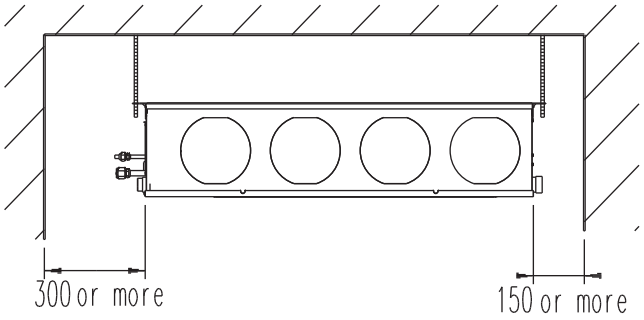


① Refrigerant piping flare connection (Gas)
② Refrigerant piping flare connection (Liquid)
③ Drain piping connection
④ Drain piping connection with cap.
⑤ Knock out hole for fresh air.

DUCT TYPE
AR∗A30-36L

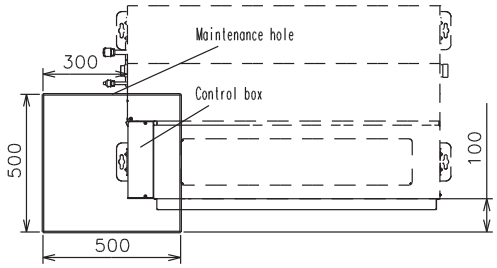
■ INSTALLATION PLACE

(Unit : mm)

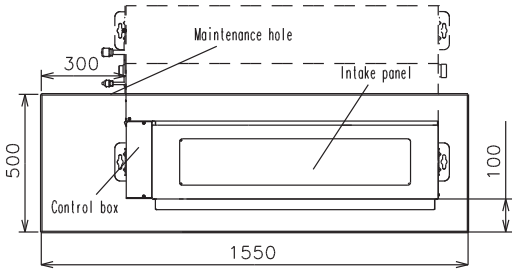


■ MAINTENANCE HOLE

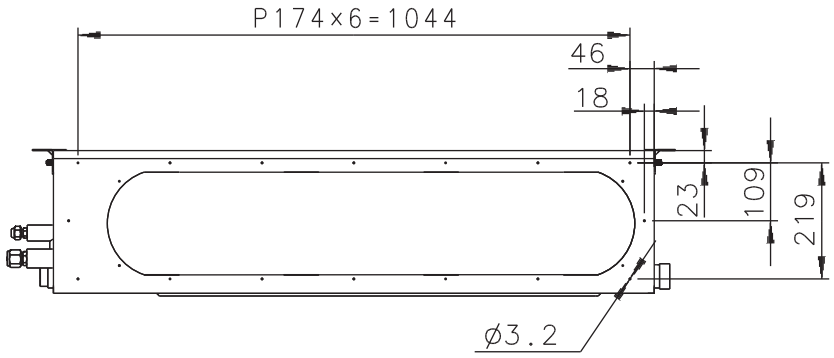
It shall be possible to install and remove the control box.



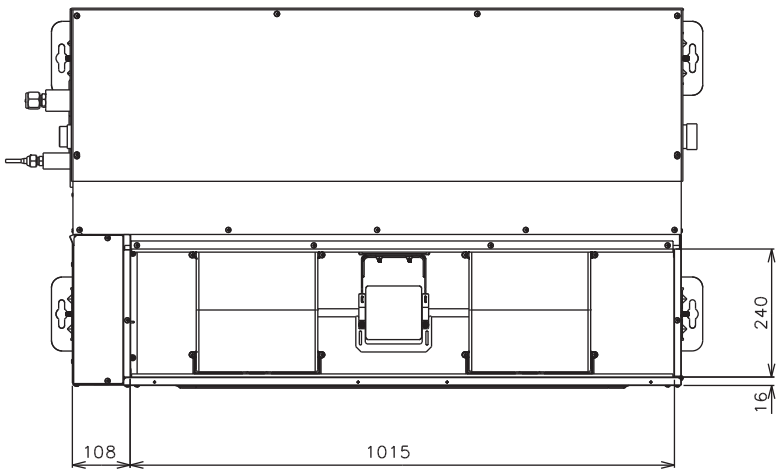
It shall be possible to install and remove the control box, fan units and filter.



■ WHEN USING A SQUARE DUCT

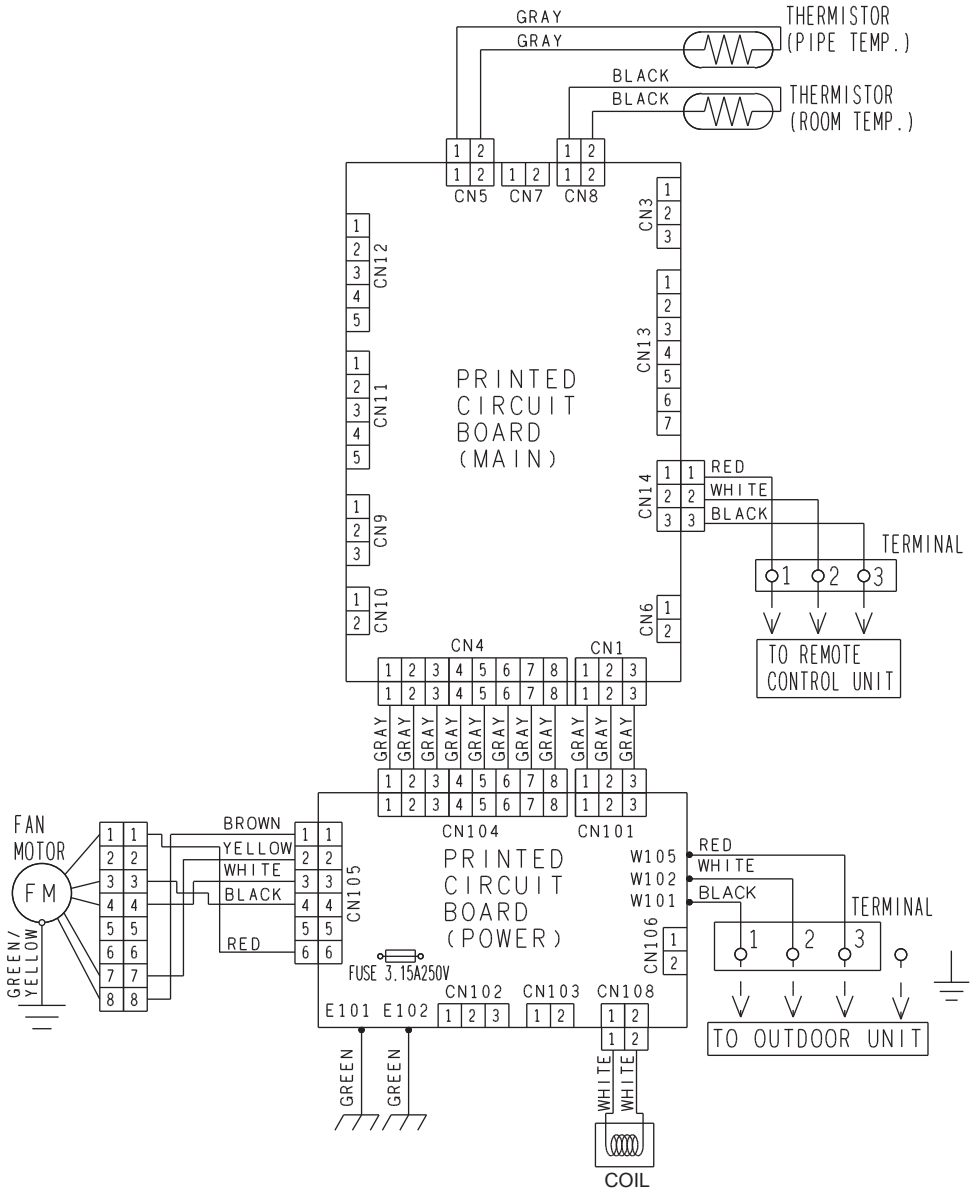


■ BOTTOM AIR INTAKE HOLE



5. WIRING DIAGRAMS

■ MODEL: AR∗A30L, AR∗A36L



DUCT TYPE
AR∗A30-36L

6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AR∗A30L

AFR	32.5

		Indoor temperature																			
	°CDB	18			21			23			25			27			29			32		
	°CWB	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
	-15	8.62	7.14	1.53	9.60	7.19	1.55	9.93	7.81	1.56	10.58	7.84	1.58	10.91	8.46	1.58	11.56	8.43	1.60	12.22	8.98	1.61
	-10	8.48	6.88	1.92	9.44	6.92	1.95	9.76	7.53	1.96	10.41	7.55	1.98	10.73	8.16	1.99	11.37	8.12	2.01	12.02	8.65	2.03
	0	8.08	6.82	2.43	9.00	6.86	2.47	9.30	7.46	2.48	9.92	7.49	2.51	10.22	8.08	2.52	10.84	8.05	2.55	11.45	8.58	2.57
	5	7.98	6.66	2.45	8.89	6.70	2.49	9.19	7.28	2.50	9.80	7.30	2.53	10.10	7.89	2.54	10.71	7.86	2.56	11.31	8.37	2.59
	10	7.94	6.76	2.47	8.84	6.80	2.51	9.14	7.40	2.52	9.75	7.42	2.54	10.05	8.01	2.56	10.65	7.98	2.58	11.25	8.50	2.61
	15	8.63	7.00	2.71	9.61	7.05	2.76	9.94	7.66	2.77	10.60	7.69	2.80	10.92	8.30	2.81	11.58	8.27	2.84	12.23	8.81	2.87
	20	9.64	7.34	3.23	10.74	7.38	3.28	11.11	8.02	3.30	11.84	8.05	3.33	12.21	8.69	3.35	12.94	8.66	3.38	13.67	9.22	3.41
	25	9.47	7.35	3.48	10.55	7.40	3.53	10.91	8.04	3.55	11.63	8.07	3.58	11.99	8.71	3.60	12.71	8.68	3.64	13.43	9.24	3.67
	30	8.78	7.17	3.53	9.78	7.21	3.59	10.11	7.84	3.61	10.78	7.86	3.64	11.11	8.49	3.66	11.78	8.46	3.70	12.45	9.01	3.73
	35	7.90	6.66	3.50	8.80	6.70	3.55	9.10	7.28	3.57	9.70	7.31	3.61	10.00	7.89	3.62	10.60	7.86	3.66	11.20	8.37	3.70
	40	6.00	5.54	3.04	6.68	5.58	3.08	6.91	6.06	3.10	7.37	6.08	3.13	7.60	6.57	3.15	8.05	6.54	3.18	8.51	6.97	3.21
	46	5.36	5.31	3.00	5.97	5.35	3.04	6.17	5.81	3.06	6.58	5.83	3.09	6.78	6.30	3.11	7.19	6.27	3.14	7.59	6.68	3.17

■ MODEL: AR∗A36L

AFR	32.5

		Indoor temperature																			
	°CDB	18			21			23			25			27			29			32		
	°CWB	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
	-15	8.70	6.96	1.57	9.70	7.00	1.59	10.03	7.61	1.60	10.69	7.63	1.61	11.02	8.24	1.62	11.68	8.21	1.64	12.34	8.74	1.65
	-10	8.55	6.80	1.94	9.53	6.84	1.97	9.85	7.44	1.98	10.50	7.47	2.00	10.83	8.06	2.01	11.48	8.03	2.03	12.13	8.55	2.05
	0	8.08	6.83	2.45	9.00	6.87	2.48	9.31	7.47	2.50	9.93	7.49	2.52	10.23	8.09	2.53	10.85	8.06	2.56	11.46	8.58	2.59
	5	8.07	6.73	2.48	8.99	6.77	2.52	9.29	7.36	2.53	9.90	7.38	2.56	10.21	7.97	2.57	10.82	7.94	2.60	11.44	8.46	2.62
	10	8.03	6.84	2.49	8.94	6.88	2.53	9.25	7.48	2.54	9.85	7.51	2.56	10.16	8.11	2.58	10.77	8.07	2.60	11.38	8.60	2.63
	15	8.63	7.01	2.73	9.62	7.05	2.77	9.94	7.66	2.79	10.60	7.69	2.82	10.93	8.30	2.83	11.58	8.27	2.86	12.24	8.81	2.89
	20	9.70	7.37	3.25	10.81	7.41	3.30	11.17	8.06	3.31	11.91	8.08	3.35	12.28	8.73	3.36	13.02	8.70	3.40	13.75	9.26	3.43
	25	9.55	7.39	3.60	10.64	7.43	3.65	11.00	8.08	3.67	11.72	8.11	3.71	12.09	8.75	3.73	12.81	8.72	3.76	13.54	9.29	3.80
	30	9.34	7.32	4.27	10.41	7.36	4.34	10.76	8.01	4.36	11.47	8.03	4.41	11.83	8.67	4.43	12.54	8.64	4.47	13.25	9.20	4.52
	35	8.85	7.23	4.30	9.86	7.27	4.36	10.19	7.91	4.39	10.86	7.93	4.43	11.20	8.57	4.45	11.87	8.53	4.50	12.54	9.09	4.54
	40	6.56	6.04	3.33	7.31	6.07	3.38	7.56	6.60	3.39	8.05	6.62	3.43	8.30	7.15	3.45	8.80	7.12	3.48	9.30	7.59	3.52
	46	5.90	5.87	3.20	6.57	5.91	3.25	6.79	6.42	3.26	7.24	6.44	3.29	7.46	6.96	3.31	7.91	6.93	3.34	8.36	7.38	3.38

AFR : Air flow rate (m^3/min)
TC : Total capacity (kW)
SHC : Sensible Heat capacity (kW)
PI : Power Input (kW)

DUCT TYPE
AR∗A30-36L

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AR∗A30L

AFR	35.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	8.26	3.46	8.07	3.53	7.87	3.61	7.67	3.68	7.48	3.75
	-10	-11	8.75	3.48	8.54	3.55	8.33	3.63	8.12	3.70	7.91	3.77
	-5	-7	9.56	3.54	9.34	3.61	9.11	3.68	8.88	3.76	8.65	3.83
	0	-2	10.15	3.54	9.91	3.62	9.66	3.69	9.42	3.76	9.18	3.84
	5	3	11.27	3.56	11.01	3.64	10.74	3.71	10.47	3.78	10.20	3.86
	7	6	11.76	3.54	11.48	3.61	11.20	3.68	10.92	3.76	10.64	3.83
	10	8	12.16	3.48	11.87	3.55	11.58	3.62	11.29	3.70	11.00	3.77
	15	10	10.86	2.67	10.60	2.72	10.34	2.78	10.08	2.83	9.82	2.88
	20	15	10.86	2.34	10.60	2.39	10.35	2.43	10.09	2.48	9.83	2.52
	24	18	11.30	2.32	11.03	2.37	10.76	2.42	10.49	2.47	10.22	2.51

■ MODEL: AR∗A36L

AFR	35.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	9.15	4.14	8.93	4.23	8.71	4.32	8.49	4.40	8.27	4.49
	-10	-11	9.88	4.17	9.65	4.25	9.41	4.34	9.18	4.43	8.94	4.51
	-5	-7	10.56	4.15	10.31	4.23	10.06	4.32	9.80	4.41	9.55	4.49
	0	-2	11.79	4.11	11.51	4.20	11.23	4.29	10.95	4.37	10.67	4.46
	5	3	12.91	4.05	12.60	4.14	12.29	4.22	11.98	4.31	11.68	4.39
	7	6	13.34	3.62	13.02	3.69	12.70	3.77	12.38	3.84	12.07	3.92
	10	8	13.65	3.49	13.32	3.56	13.00	3.63	12.67	3.70	12.35	3.78
	15	10	12.13	2.67	11.84	2.73	11.55	2.78	11.26	2.84	10.98	2.88
	20	15	12.07	2.34	11.79	2.39	11.50	2.44	11.21	2.49	10.92	2.53
	24	18	12.69	2.33	12.38	2.38	12.08	2.43	11.78	2.47	11.48	2.51

AFR : Air flow rate (m^3/min)
TC : Total capacity (kW)
PI : Power Input (kW)

DUCT TYPE
AR∗A30-36L

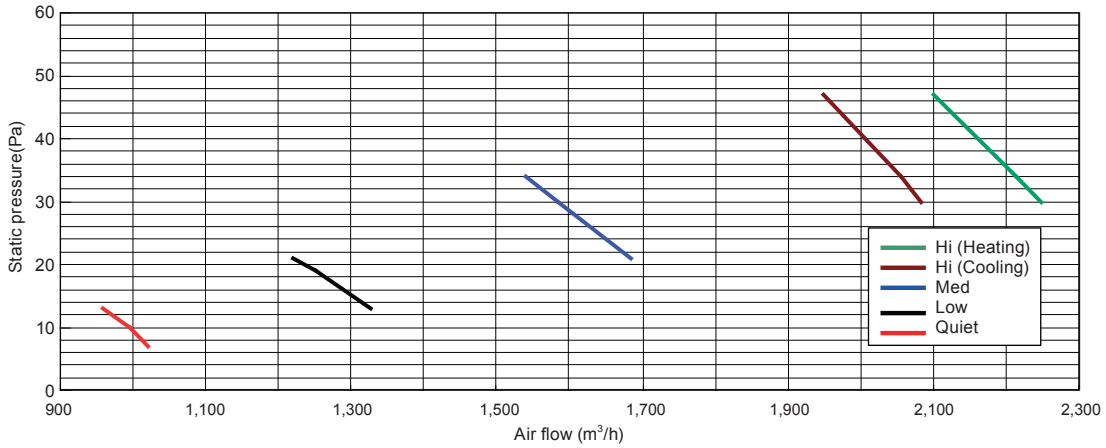
7. FAN PERFORMANCE AND CAPACITY

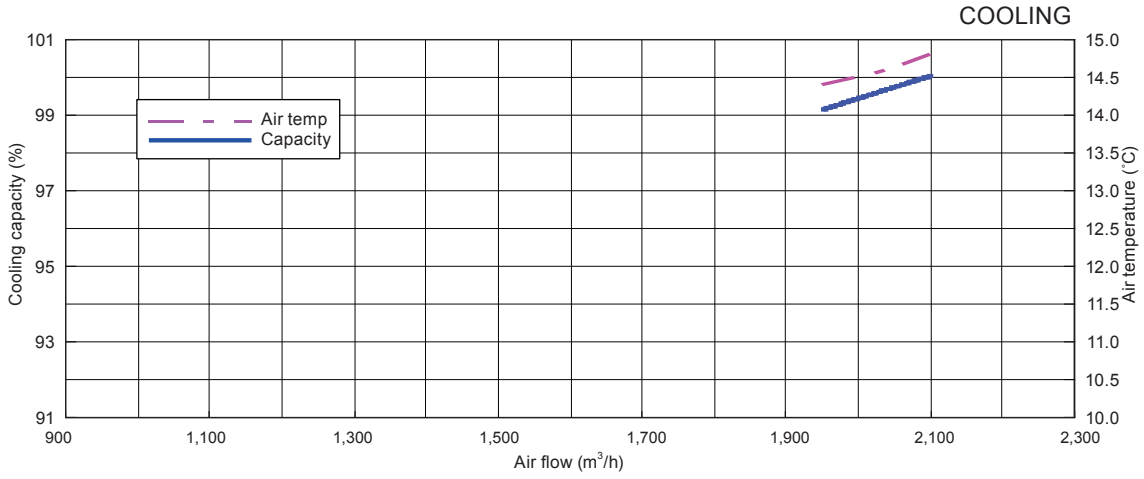
7-1. NORMAL MODE

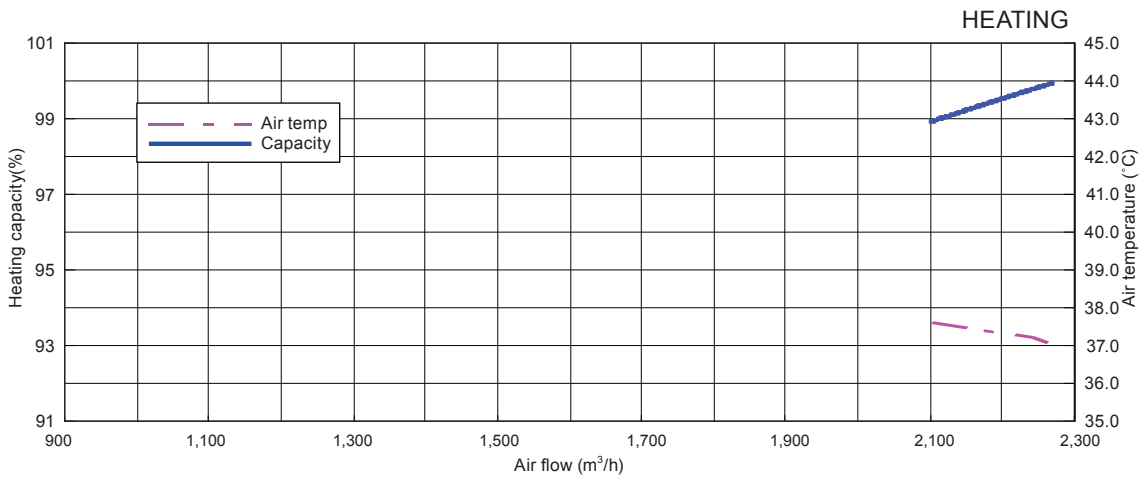
■ MODEL: AR∗A30L

			Static pressure (Pa)							
			7	10	13	19	21	30	34	47
FAN SPEED	Hi (Heating)	m^3/h	–	–	–	–	–	2250	2215	2100
		l/s	–	–	–	–	–	625	615	583
		CFM	–	–	–	–	–	1324	1304	1236
	Hi (Cooling)	m^3/h	–	–	–	–	–	2085	2055	1950
		l/s	–	–	–	–	–	579	571	542
		CFM	–	–	–	–	–	1227	1210	1148
	Med	m^3/h	–	–	–	–	1685	1585	1540	-
		l/s	–	–	–	–	468	440	428	-
		CFM	–	–	–	–	992	933	906	-
	Low	m^3/h	–	–	1325	1250	1220	-	-	-
		l/s	–	–	368	347	339	-	-	-
		CFM	–	–	780	736	718	-	-	-
	Quiet	m^3/h	1020	995	960	–	–	-	-	-
		l/s	283	276	267	–	–	-	-	-
		CFM	600	586	565	–	–	-	-	-

Q-h Characteristic curve





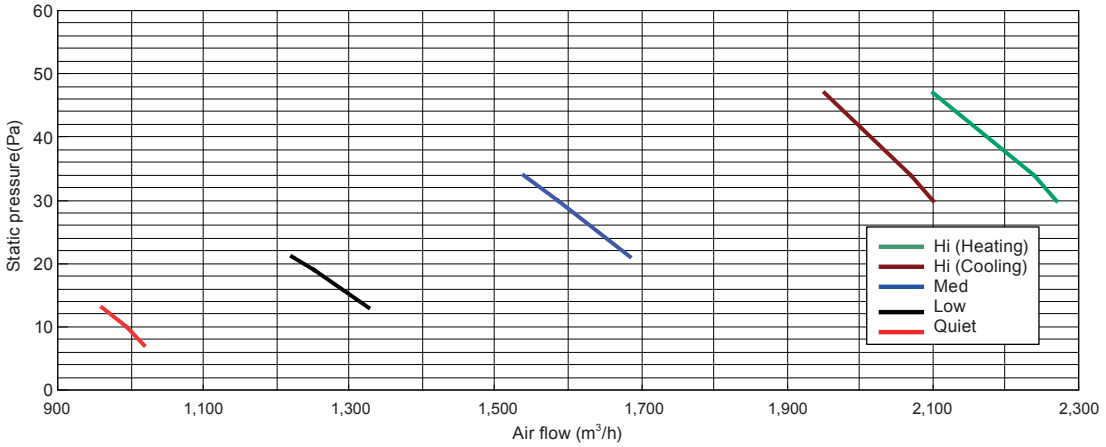


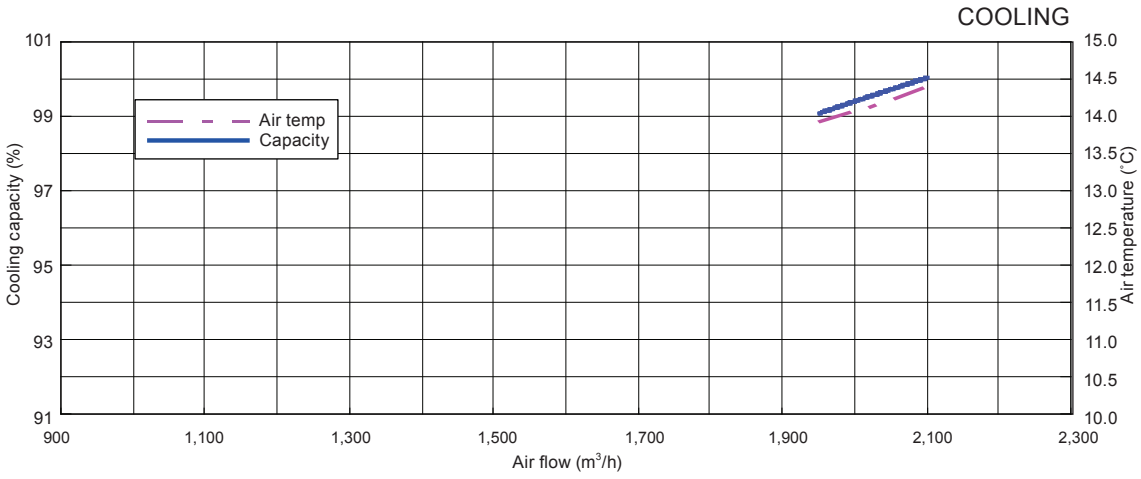
DUCT TYPE
AR∗A30-36L

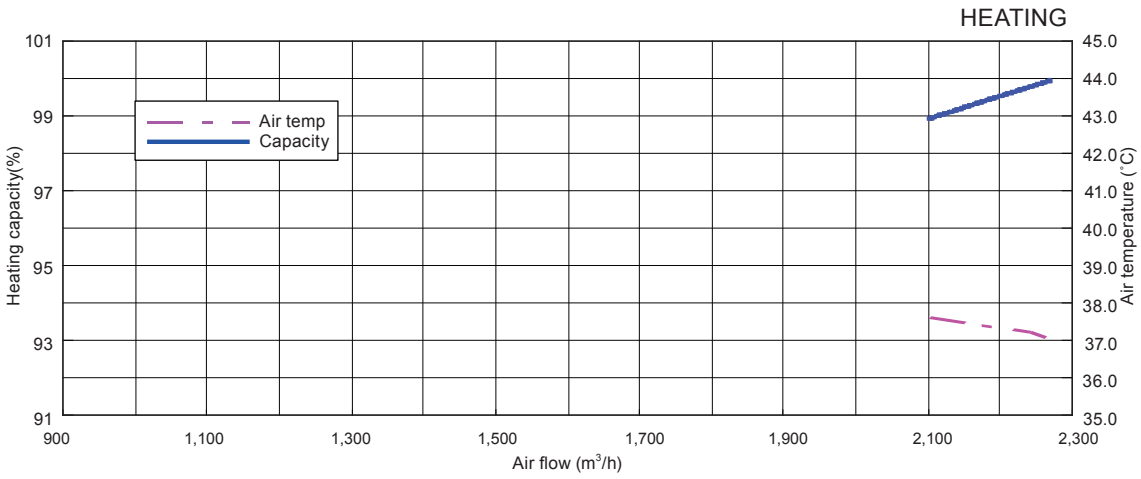
■MODEL: AR∗A36L

			Static pressure (Pa)							
			7	10	13	19	21	30	34	47
FAN SPEED	Hi (Heating)	m^3/h	-	-	-	-	-	2270	2240	2100
		l/s	-	-	-	-	-	631	622	583
		CFM	-	-	-	-	-	1336	1318	1236
	Hi (Cooling)	m^3/h	-	-	-	-	-	2100	2070	1950
		l/s	-	-	-	-	-	583	575	542
		CFM	-	-	-	-	-	1236	1218	1148
	Med	m^3/h	-	-	-	-	1685	1585	1540	-
		l/s	-	-	-	-	468	440	428	-
		CFM	-	-	-	-	992	933	906	-
	Low	m^3/h	-	-	1325	1250	1220	-	-	-
		l/s	-	-	368	347	339	-	-	-
		CFM	-	-	780	736	718	-	-	-
	Quiet	m^3/h	1020	995	960	-	-	-	-	-
		l/s	283	276	267	-	-	-	-	-
		CFM	600	586	565	-	-	-	-	-

Q-h Characteristic curve







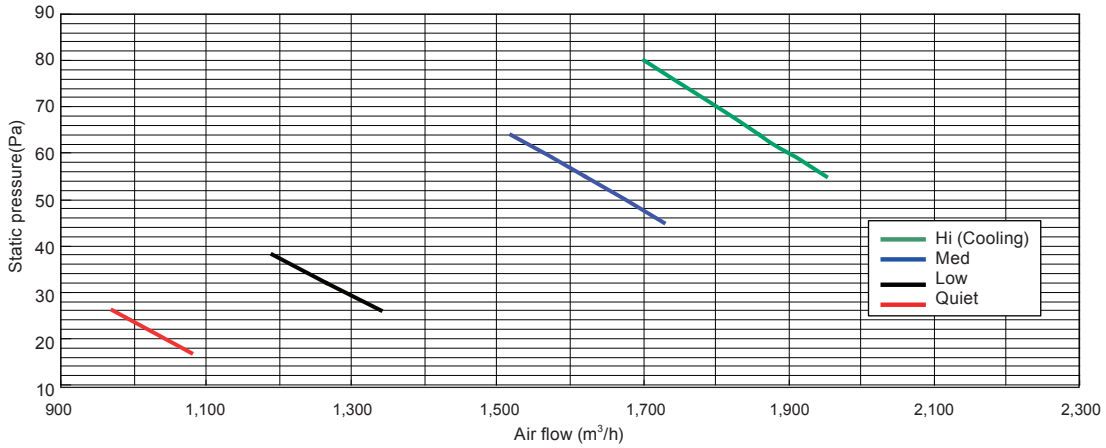
DUCT TYPE
AR∗A30-36L

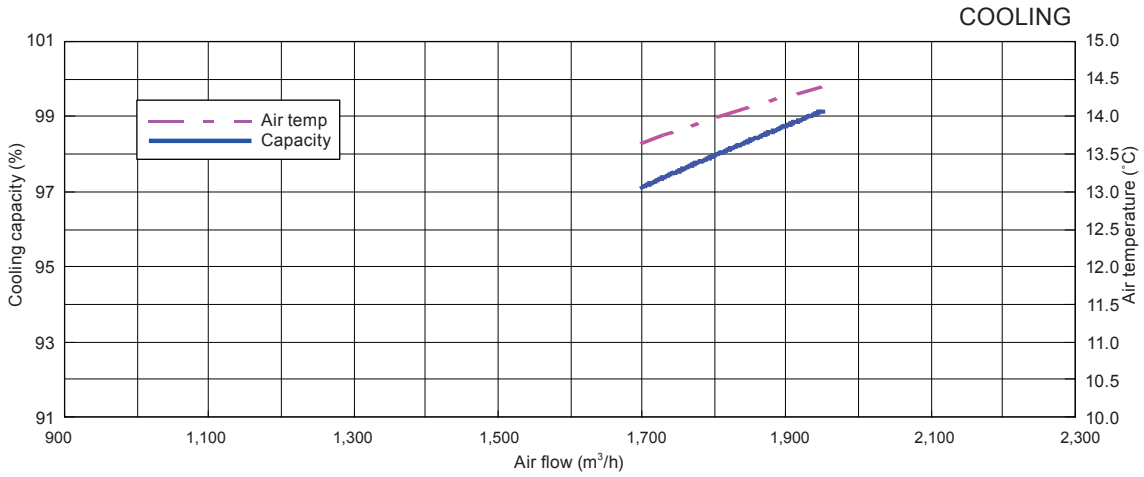
7-2. STATIC PRESSURE MODE 1

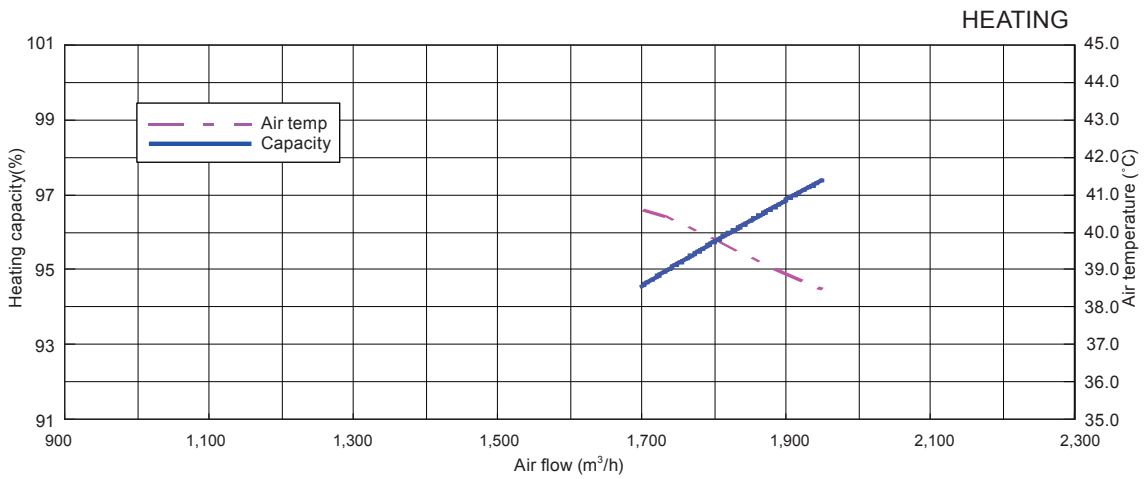
■ MODEL: AR∗A30L

			Static pressure (Pa)							
			17	26	32	38	45	55	64	80
FAN SPEED	Hi	m^3/h	-	-	-	-	-	1950	1860	1700
		l/s	-	-	-	-	-	542	517	472
		CFM	-	-	-	-	-	1148	1095	1001
	Med	m^3/h	-	-	-	-	1730	1620	1520	-
		l/s	-	-	-	-	481	450	422	-
		CFM	-	-	-	-	1018	953	895	-
	Low	m^3/h	-	1340	1265	1190	-	-	-	-
		l/s	-	372	351	331	-	-	-	-
		CFM	-	789	745	700	-	-	-	-
	Quiet	m^3/h	1080	970	-	-	-	-	-	-
		l/s	300	269	-	-	-	-	-	-
		CFM	636	571	-	-	-	-	-	-

Q-h Characteristic curve





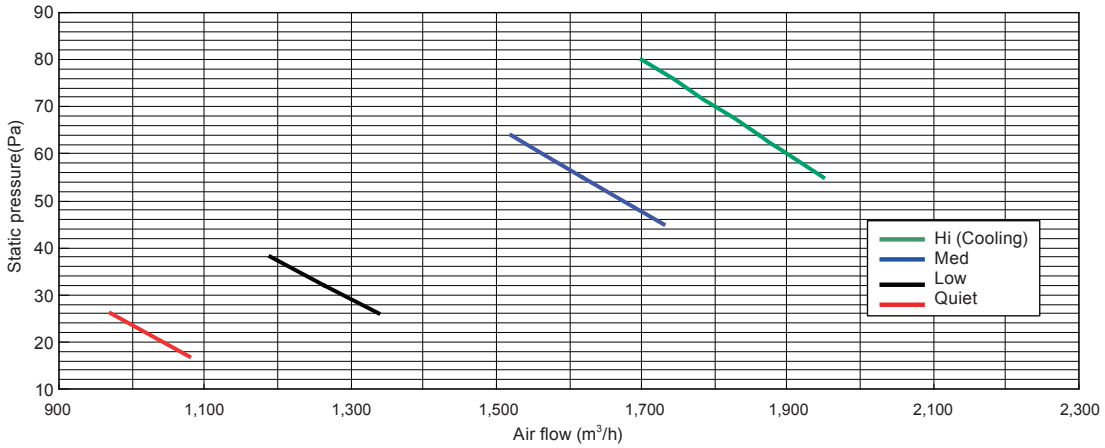


DUCT TYPE
AR∗A30-36L

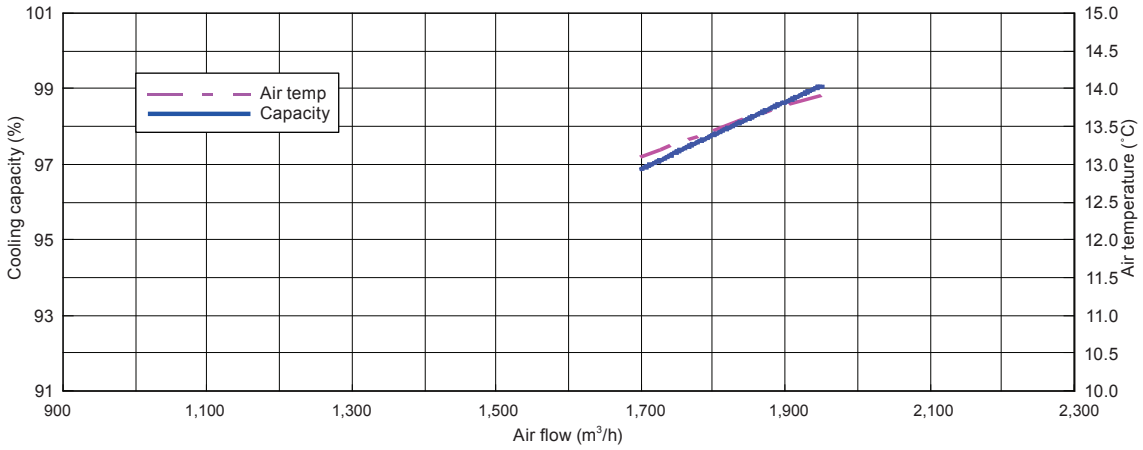
■ MODEL: AR∗A36L

			Static pressure (Pa)							
			17	26	32	38	45	55	64	80
FAN SPEED	Hi	m^3/h	-	-	-	-	-	1950	1860	1700
		l/s	-	-	-	-	-	542	517	472
		CFM	-	-	-	-	-	1148	1095	1001
	Med	m^3/h	-	-	-	-	1730	1620	1520	-
		l/s	-	-	-	-	481	450	422	-
		CFM	-	-	-	-	1018	953	895	-
	Low	m^3/h	-	1340	1265	1190	-	-	-	-
		l/s	-	372	351	331	-	-	-	-
		CFM	-	789	745	700	-	-	-	-
	Quiet	m^3/h	1080	970	-	-	-	-	-	-
		l/s	300	269	-	-	-	-	-	-
		CFM	636	571	-	-	-	-	-	-

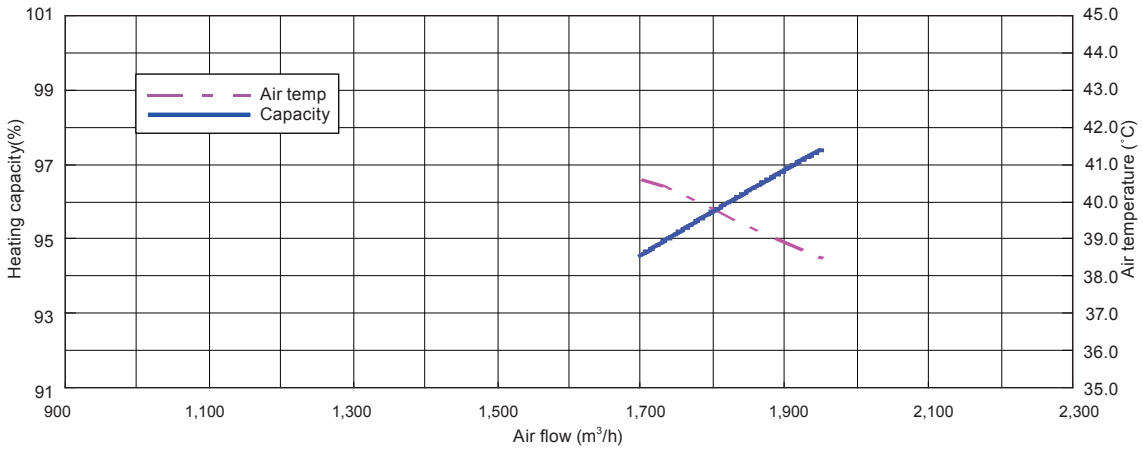
Q-h Characteristic curve



COOLING



HEATING



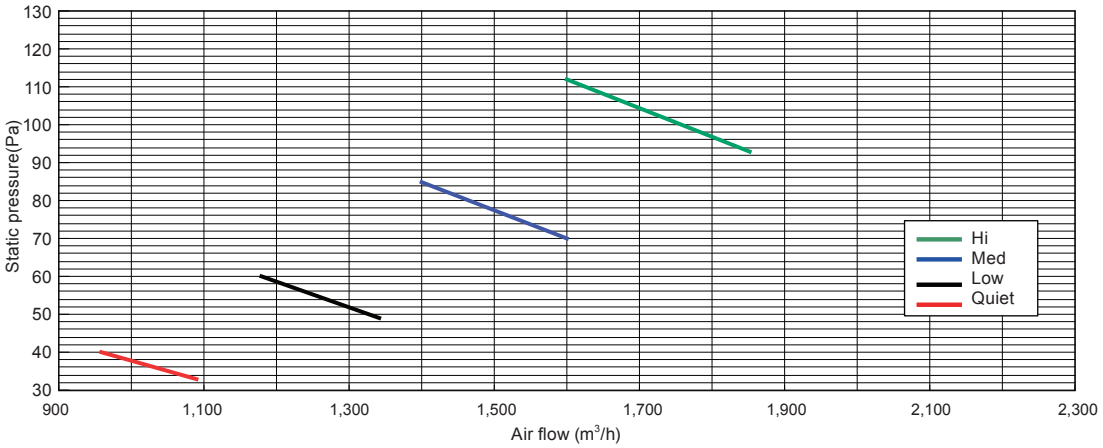
DUCT TYPE
AR∗A30-36L

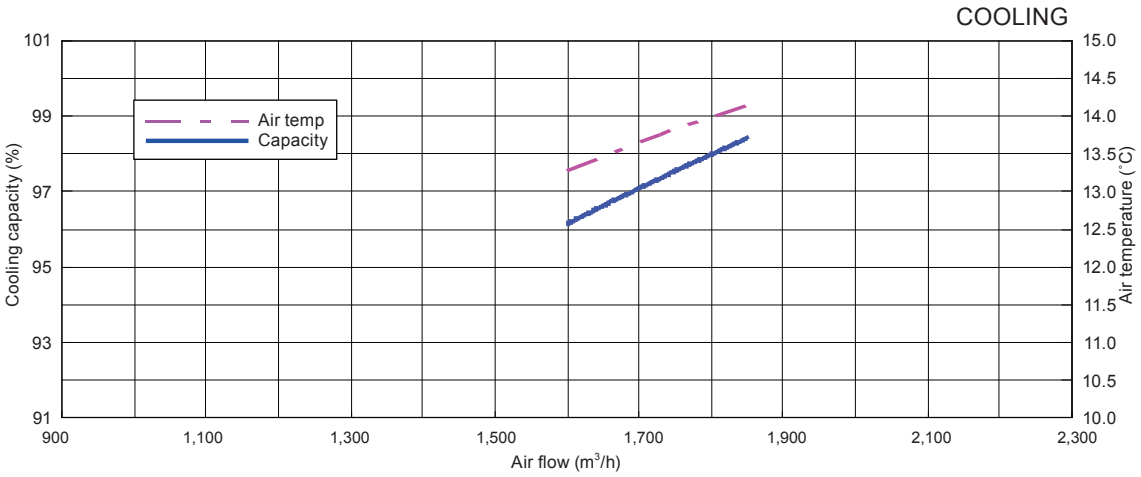
7-3. STATIC PRESSURE MODE 2

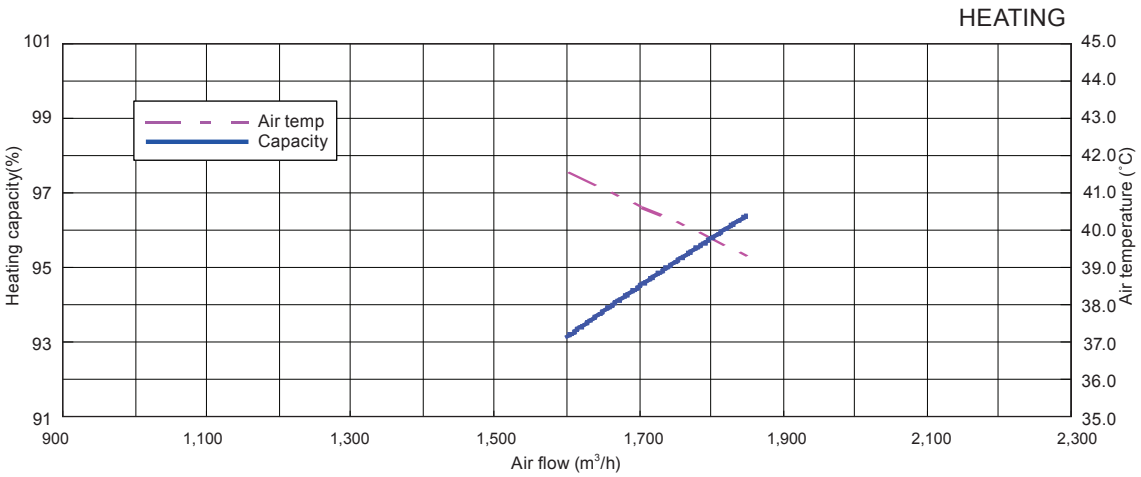
■ MODEL: AR∗A30L

			Static pressure (Pa)							
			33	40	49	60	70	85	93	112
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1850	1600
		l/s	-	-	-	-	-	-	514	444
		CFM	-	-	-	-	-	-	1089	942
	Med	m^3/h	-	-	-	-	1600	1400	-	-
		l/s	-	-	-	-	444	389	-	-
		CFM	-	-	-	-	942	824	-	-
	Low	m^3/h	-	-	1340	1180	-	-	-	-
		l/s	-	-	372	328	-	-	-	-
		CFM	-	-	789	695	-	-	-	-
	Quiet	m^3/h	1090	960	-	-	-	-	-	-
		l/s	303	267	-	-	-	-	-	-
		CFM	642	565	-	-	-	-	-	-

Q-h Characteristic curve





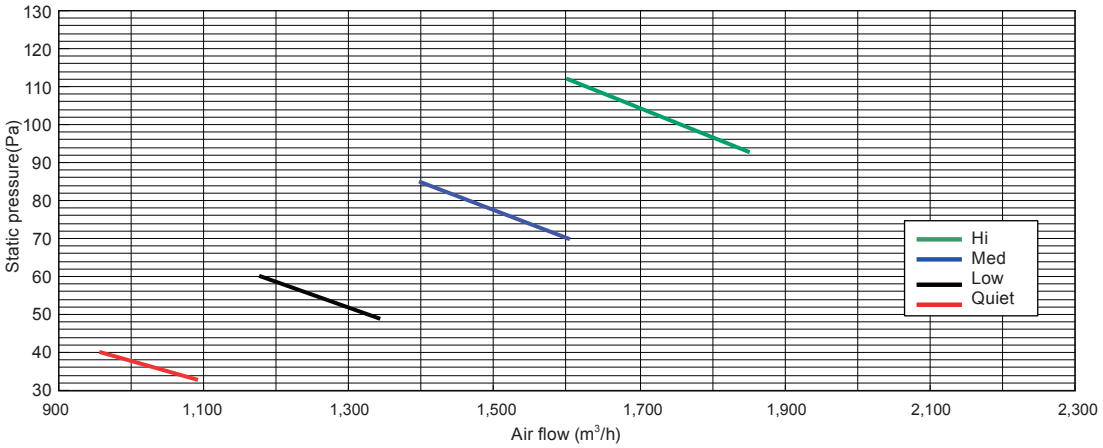


DUCT TYPE
AR∗A30-36L

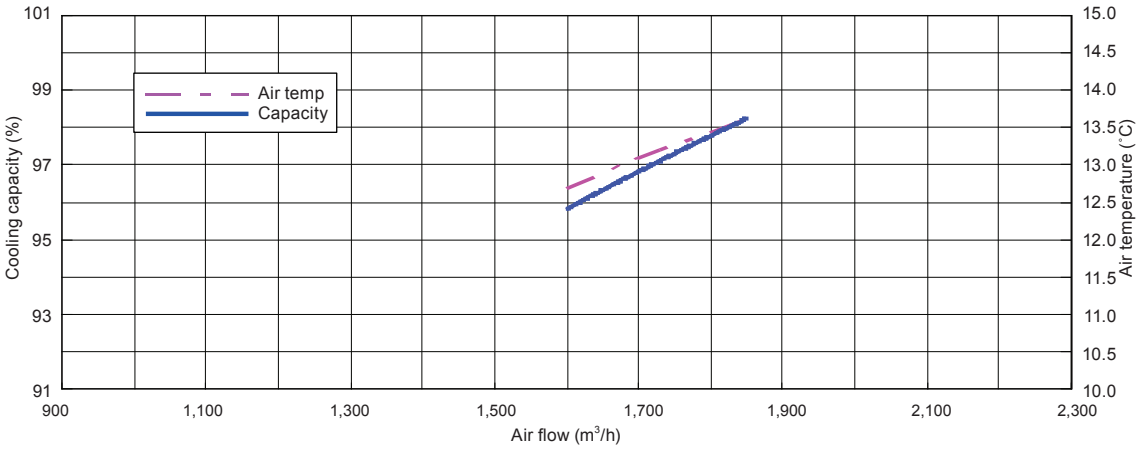
■MODEL: AR∗A36L

			Static pressure (Pa)							
			33	40	49	60	70	85	93	112
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1850	1600
		l/s	-	-	-	-	-	-	514	444
		CFM	-	-	-	-	-	-	1089	942
	Med	m^3/h	-	-	-	-	1600	1400	-	-
		l/s	-	-	-	-	444	389	-	-
		CFM	-	-	-	-	942	824	-	-
	Low	m^3/h	-	-	1340	1180	-	-	-	-
		l/s	-	-	372	328	-	-	-	-
		CFM	-	-	789	695	-	-	-	-
	Quiet	m^3/h	1090	960	-	-	-	-	-	-
		l/s	303	267	-	-	-	-	-	-
		CFM	642	565	-	-	-	-	-	-

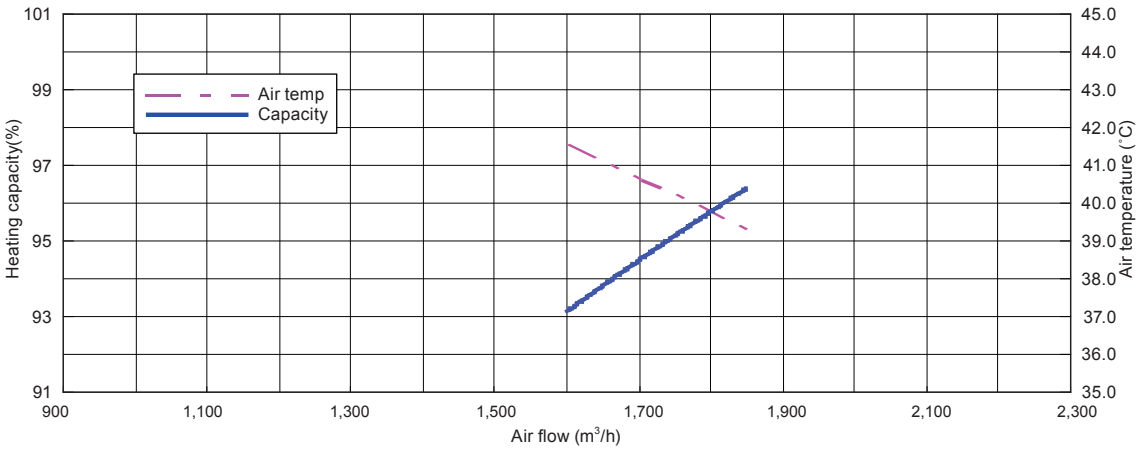
Q-h Characteristic curve



COOLING



HEATING



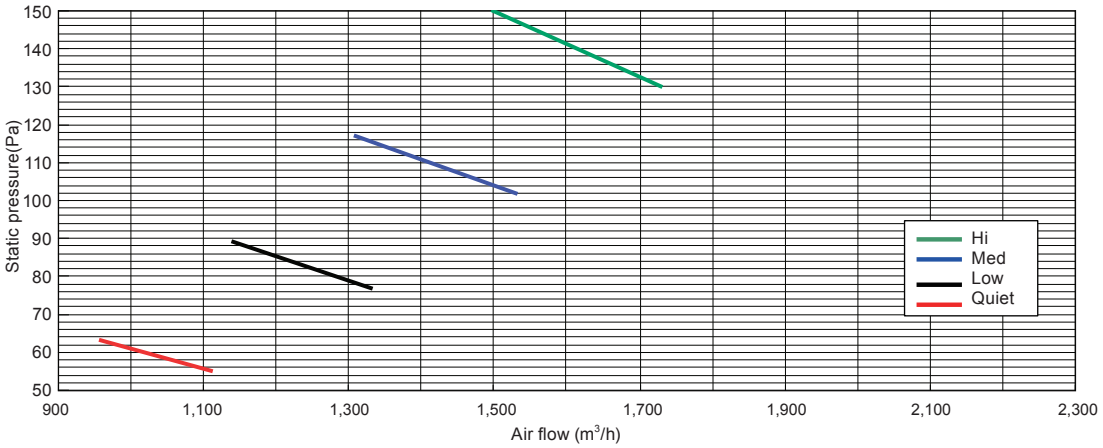
DUCT TYPE
AR∗A30-36L

7-4. STATIC PRESSURE MODE 3

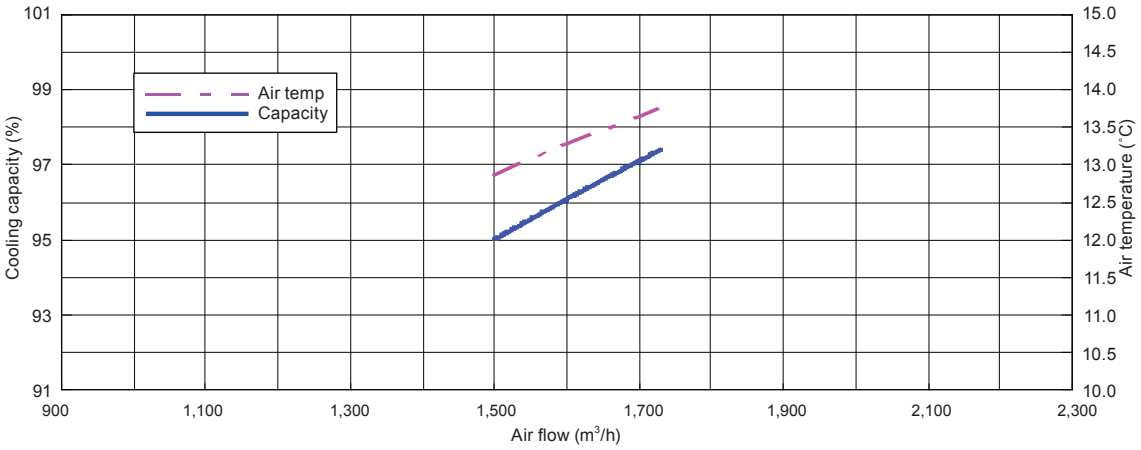
■ MODEL: AR∗A30L

			Static pressure (Pa)							
			55	63	77	89	102	117	130	150
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1730	1500
		l/s	-	-	-	-	-	-	481	417
		CFM	-	-	-	-	-	-	1018	883
	Med	m^3/h	-	-	-	-	1530	1310	-	-
		l/s	-	-	-	-	425	364	-	-
		CFM	-	-	-	-	901	771	-	-
	Low	m^3/h	-	-	1330	1140	-	-	-	-
		l/s	-	-	369	317	-	-	-	-
		CFM	-	-	783	671	-	-	-	-
	Quiet	m^3/h	1110	960	-	-	-	-	-	-
		l/s	308	267	-	-	-	-	-	-
		CFM	653	565	-	-	-	-	-	-

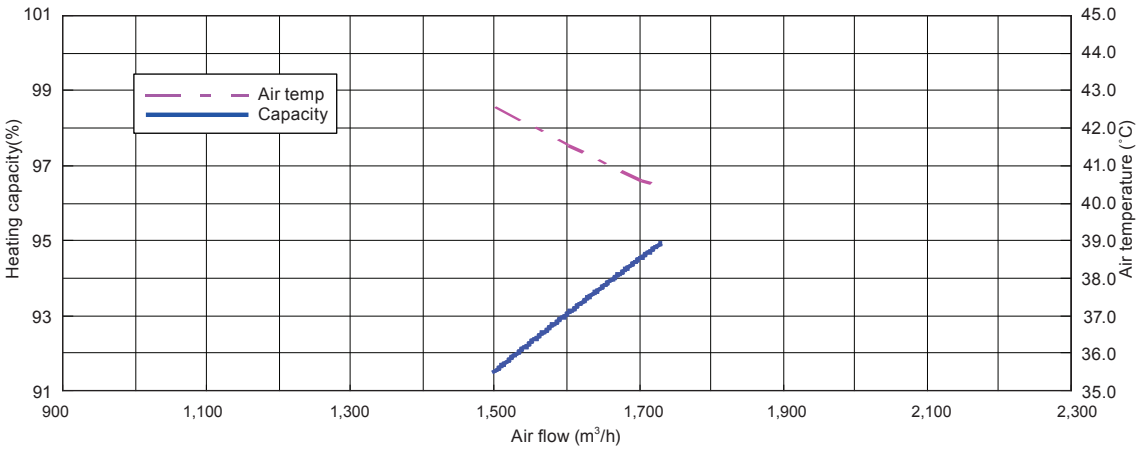
Q-h Characteristic curve



COOLING



HEATING

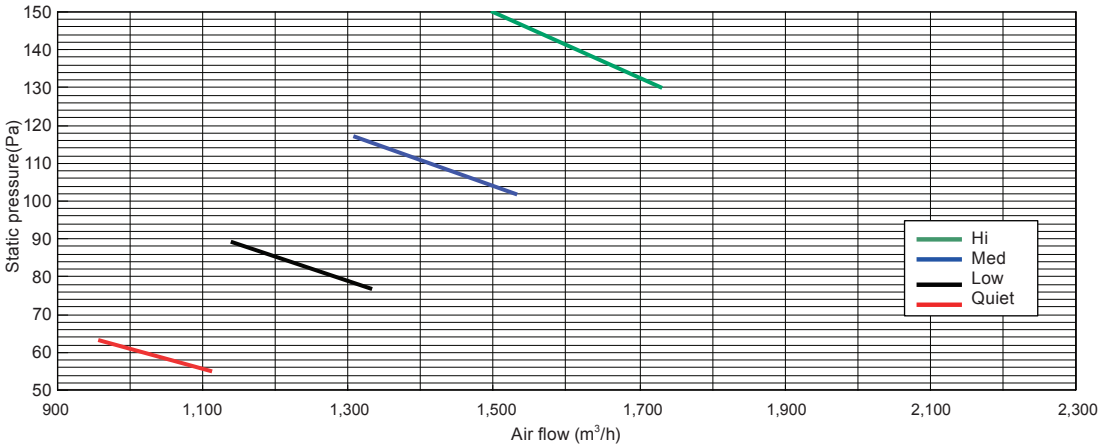


DUCT TYPE
AR∗A30-36L

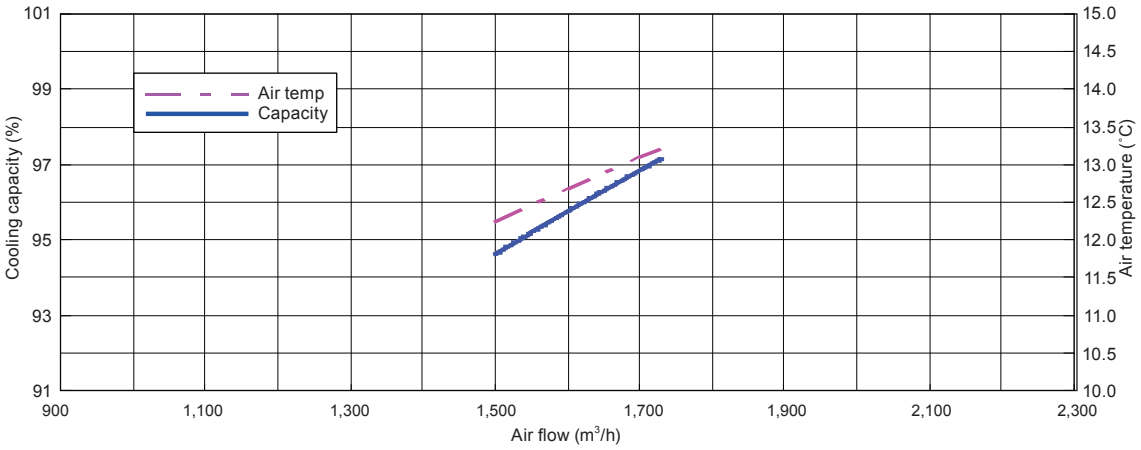
■MODEL: AR∗A36L

			Static pressure (Pa)							
			55	63	77	89	102	117	130	150
FAN SPEED	Hi	m^3/h	-	-	-	-	-	-	1730	1500
		l/s	-	-	-	-	-	-	481	417
		CFM	-	-	-	-	-	-	1018	883
	Med	m^3/h	-	-	-	-	1530	1310	-	-
		l/s	-	-	-	-	425	364	-	-
		CFM	-	-	-	-	901	771	-	-
	Low	m^3/h	-	-	1330	1140	-	-	-	-
		l/s	-	-	369	317	-	-	-	-
		CFM	-	-	783	671	-	-	-	-
	Quiet	m^3/h	1110	960	-	-	-	-	-	-
		l/s	308	267	-	-	-	-	-	-
		CFM	653	565	-	-	-	-	-	-

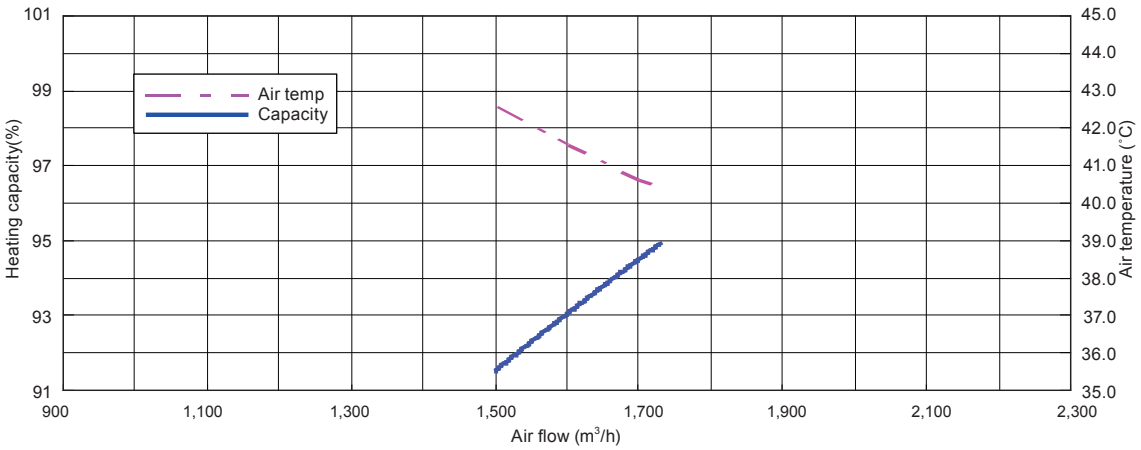
Q-h Characteristic curve



COOLING



HEATING



DUCT TYPE
AR∗A30-36L

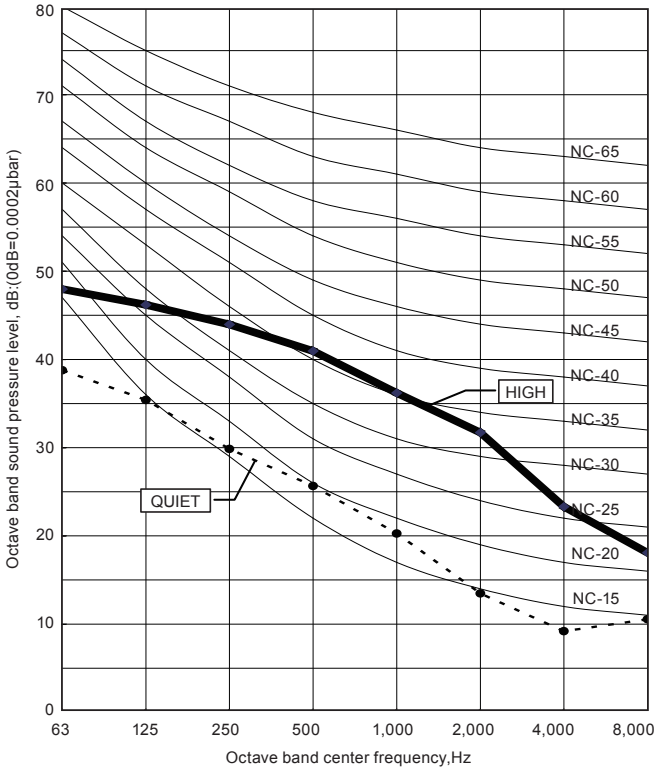
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

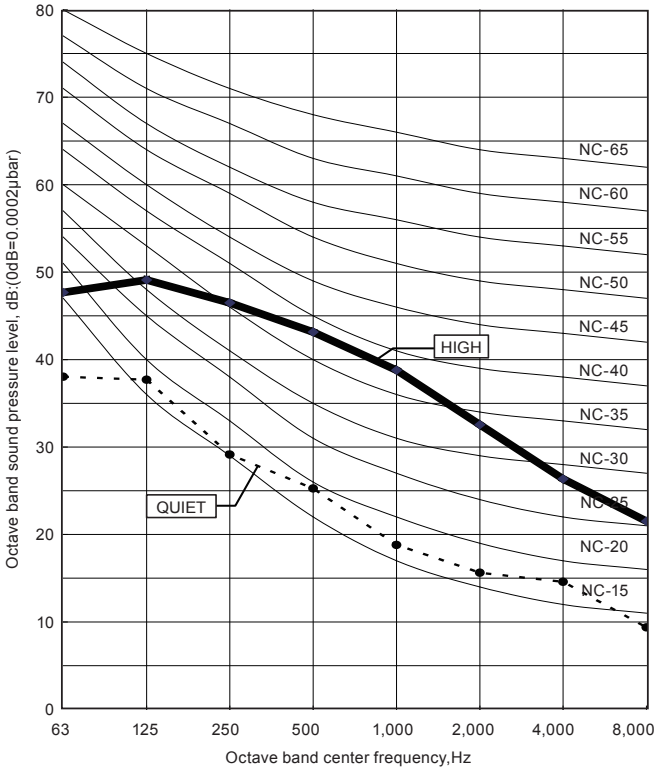
Condition
Static pressure : 47Pa
Static pressure mode : Normal

■ MODEL: AR∗A30L

● COOLING

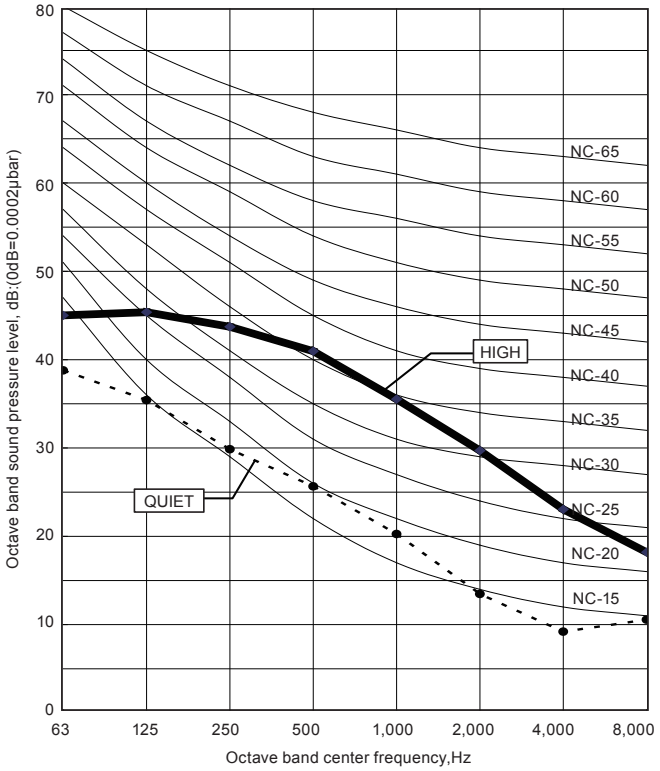


● HEATING

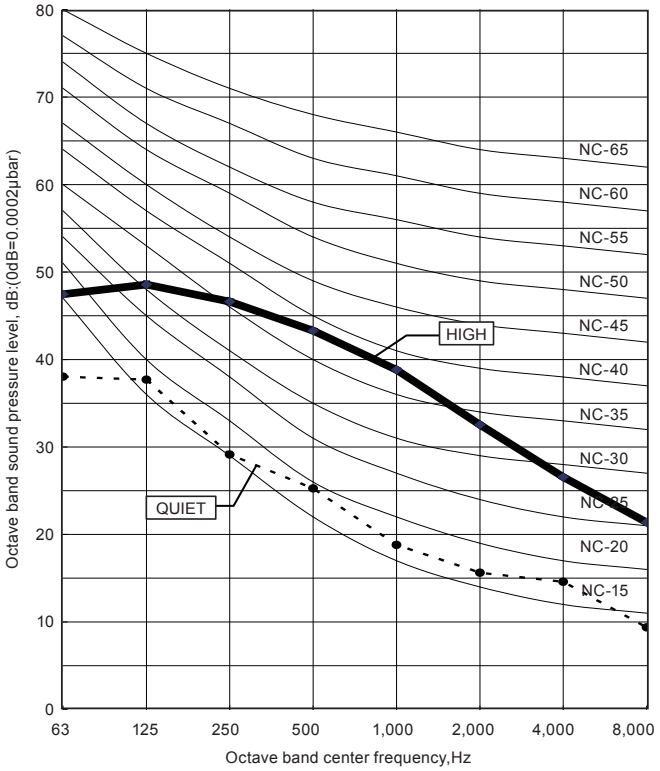


■ MODEL: AR∗A36L

● COOLING

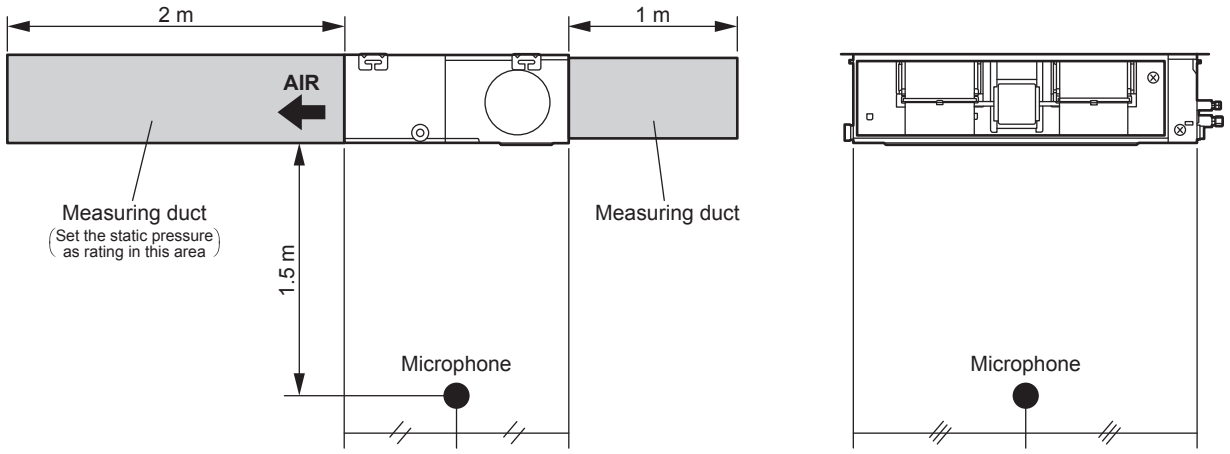


● HEATING



DUCT TYPE
AR∗A30-36L

8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model name			AR∗A30L	AR∗A36L
Power supply	Voltage	V	230 ~	
	Frequency	Hz	50	
Max. operating current		A	2.0	
Wiring spec.	Connection cable	mm^2	1.5 - 2.5	
	Limited wiring length	m	51	

DUCT TYPE
AR∗A30-36L

10. SAFETY DEVICES

	Protection form	Model	
		AR∗A30L	AR∗A36L
Circuit protection	Current fuse (PCB)	3.15A 250V	
Fan motor protection	Over current protection	1.90±0.24A	
	Thermal protection program	115±10°C OFF 90±10°C ON	

DUCT TYPE
AR∗A30-36L

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CN102	Control input (Operation/Stop)	—	See external input/output settings for details.
CN103	—	Operation status output	
CN6	—	Fresh air control output	
CN10	—	Auxiliary heater output	

11-1. EXTERNAL INPUT

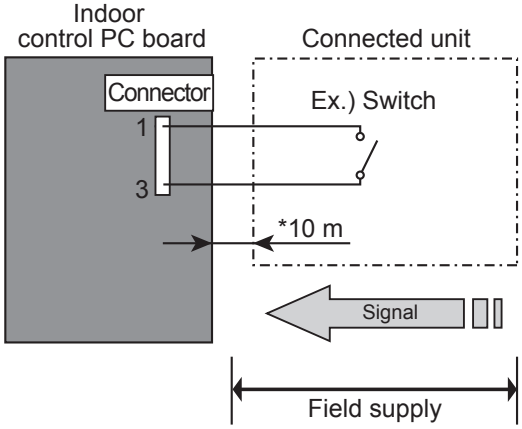
■ CONTROL INPUT (Operation/Stop)

The air conditioner can be remotely operated by means of the following on-site work.

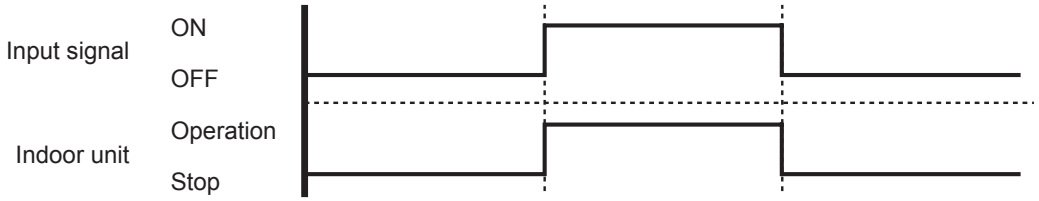
Operation is started at the following contents by adding the contact input of a commercial ON/OFF switch to a connector on the external control PC board and turning it ON.

	Initial starting after power turned on	Starting other than at the left
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Contact capacity : 12VDC or more, 15mA or more.
Please use the non-polar relays and switches.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External input)

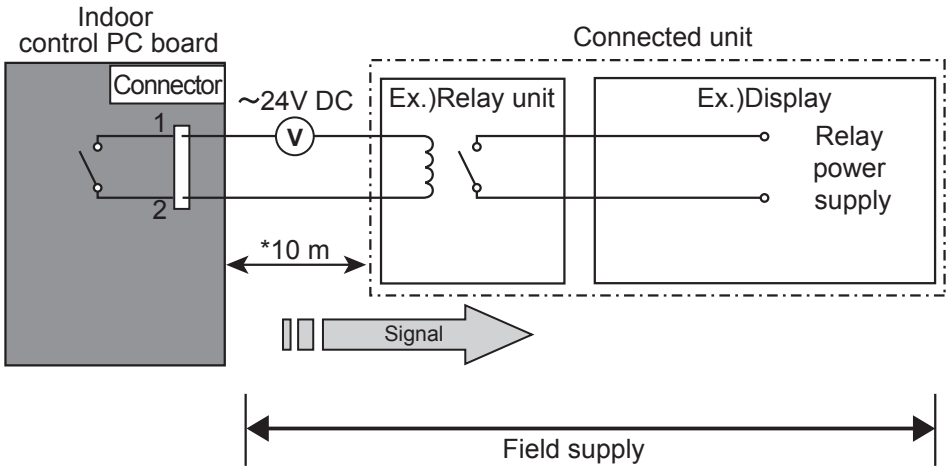
DUCT TYPE
AR∗A30-36L

11-2. EXTERNAL OUTPUT

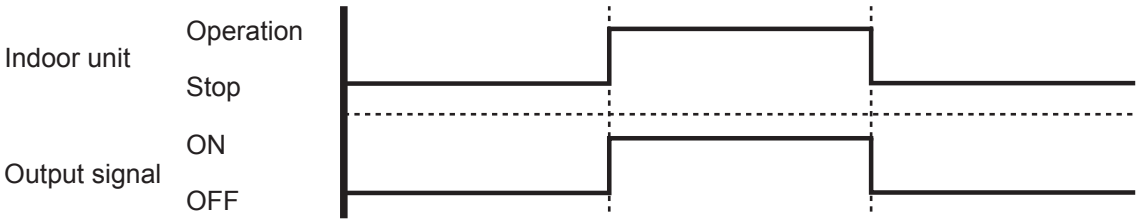
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External output)

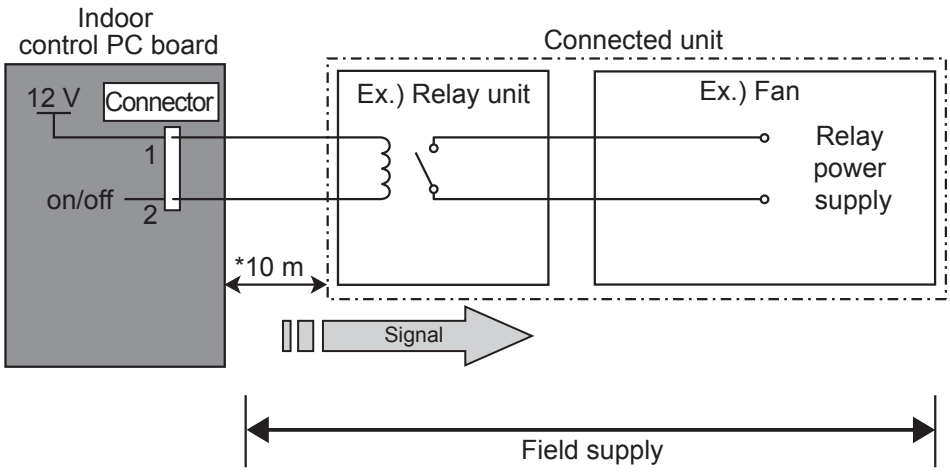
DUCT TYPE
AR∗A30-36L

■ FRESH AIR CONTROL OUTPUT

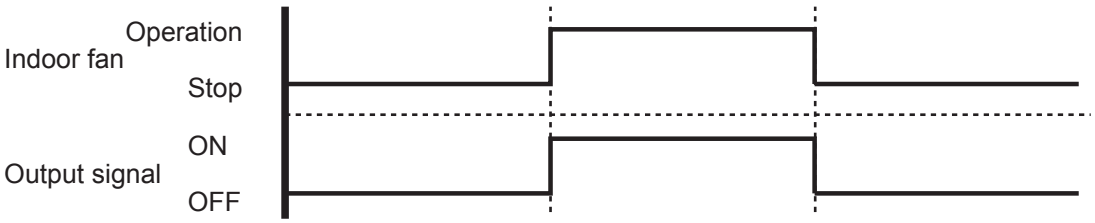
A signal linked to air conditioner indoor fan ON can be output.

* However, signal becomes OFF during cold air prevention control operation.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Fresh air output)

DUCT TYPE
AR∗A30-36L

■ AUXILIARY HEATER OUTPUT

A signal linked to heating operation, indoor fan ON, and compressor ON can be output.

*Output remains ON until the room temperature nears the set temperature.

When the room temperature reaches the set temperature, the output turns OFF. (Set temperature -1°C or more)

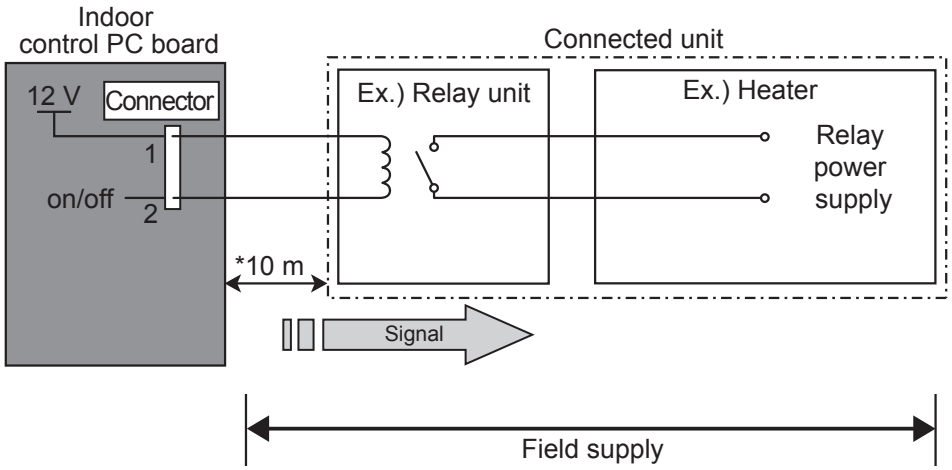
When the room temperature is substantially different than the set temperature, the output turns OFF. (Set temperature -10°C or less)

● Jumper wire (Indoor Unit)

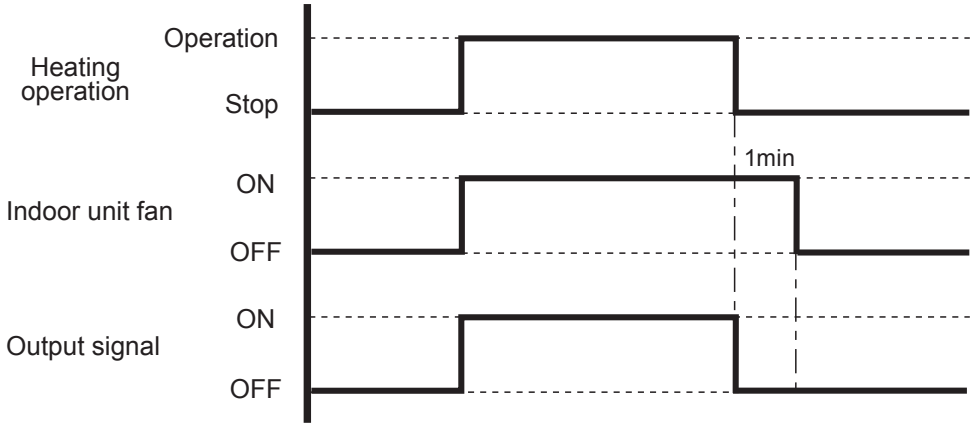
This is used to continue indoor unit fan operation for 1 minute after thermo OFF in heating mode.

1 minute delay control set by cutting jumper wire on PCB.

● Circuit diagram example



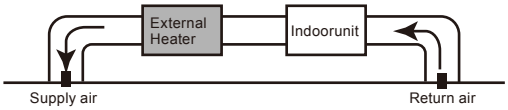
* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



CAUTION

Please locate external a heater between the indoor unit and the ductwork.

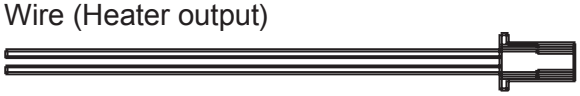
Please be sure to use delay control of a fan.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)



DUCT TYPE
AR∗A30-36L

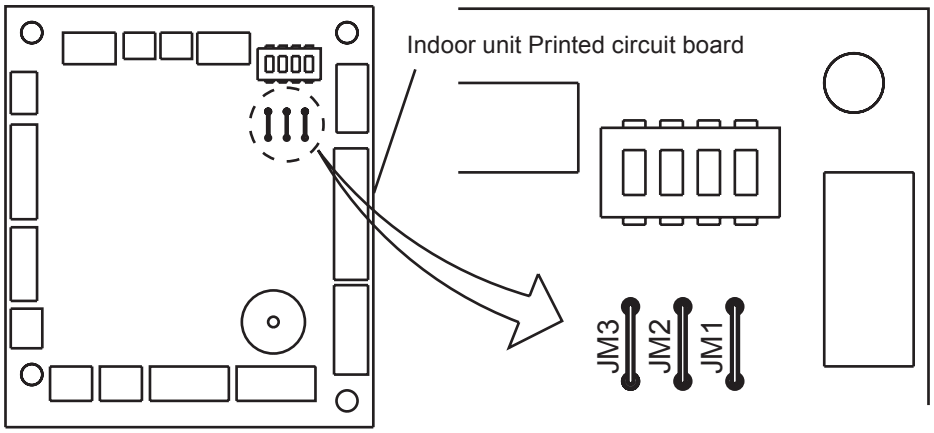
12. FUNCTION SETTING

12-1. INDOOR UNIT

INDOOR UNIT		
DIP SW	1	Forbidden
	2	
	3	
	4	
Jumper Wire	JM1	Remote control unit signal code
	JM2	
	JM3	Fan delay setting

■ SWITCH POSITION

MAIN PCB



■ JUMPER WIRE SETTING

Remote control unit signal code

Indoor unit setting **(◆··· Factory setting)**

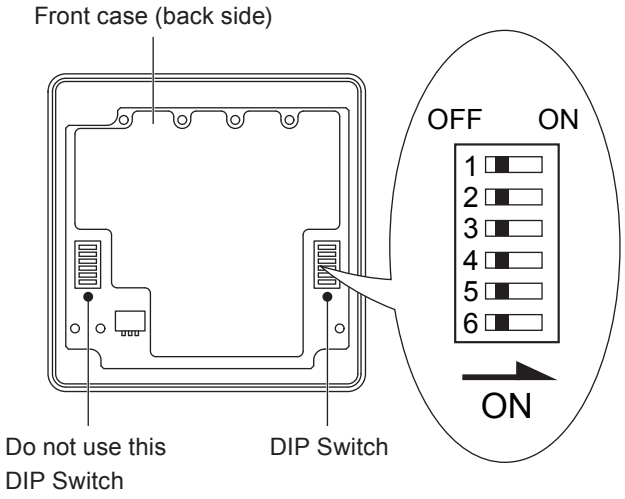
Jumper wire		Remote control unit signal code	
JM 1	JM 2		
Connect	Connect	A	◆
Disconnect	Connect	B	
Connect	Disconnect	C	
Disconnect	Disconnect	D	

DUCT TYPE
AR∗A30-36L

12-2. WIRED REMOTE CONTROLLER

DIP SW	1	Can not be used. (Do not change)
	2	Dual remote controller setting
	3	Can not be used. (Do not change)
	4	Can not be used. (Do not change)
	5	Can not be used. (Do not change)
	6	Memory backup setting

■ SWITCH POSITION



■ DIP SWITCH SETTING

1. Dual remote controller setting

Set the remote controller DIP switch No.2 according to the following table.

(◆··· Factory setting)

	Number of remote controller	Master unit	Slave unit
		DIP-SW No.2	DIP-SW No.2
◆	1 (Normal)	OFF	—
	2 (Dual)	OFF	ON

2. Memory backup setting

Set to ON to use batteries for the memory backup. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

(◆··· Factory setting)

	DIP-SW No.6	Memory backup
◆	OFF	Invalidity
	ON	Validity

DUCT TYPE
AR∗A30-36L

⚠CAUTION
• Confirm whether the wiring work for outdoor unit has been finished.
• Confirm whether the ccover for electric control box on the outdoor unit is close.

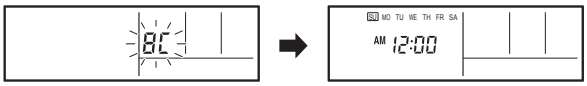
1. Turning on the power

(1) Check the remote controller wiring and DIP switch settings.

(2) Install the front case.
When installing the front case, connect the connector to the front case.

(3) Check the indoor and outdoor unit wiring and circuit board switch settings, and then turn on the indoor and outdoor units. After "8C" has flashed on the set temperature display for several seconds, the clock display will appear in the center of the remote controller display.

The clock display will appear in the center of the remote controller display.

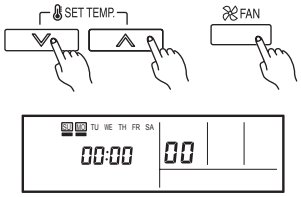


2. Function setting

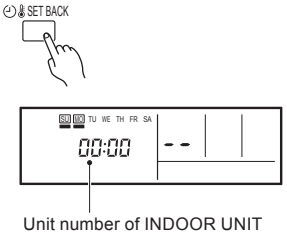
- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

Operation Method

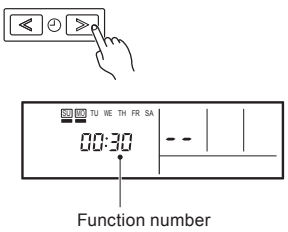
(1) Press the set temperature buttons (⩒) (⩓) and fan control button simultaneously for more than 5 seconds to enter the function setting mode.



(2) Press the SET BACK button to select the indoor unit number.

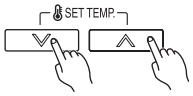


(3)Press the set time buttons to select the function number.



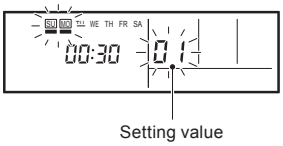
(4) Press the set temperature buttons (⩒) (⩓) to select the setting value.

The display flashes as shown to the right during setting value selection.



(5) Press the TIMER SET button to confirm the setting. Press the TIMER SET button for a few seconds until the setting value stops flashing.

If the setting value display changes or if “- -” is displayed when the flashing stops, the setting value has not been set correctly. (An invalid setting value may have been selected for the indoor unit.)



(6) Repeat steps 2 to 5 to perform additional settings. Press the set temperature buttons (⩒) (⩓) and fan control button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.

(7) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

Setting the Static Pressure

Setting Description	Function Number	Setting Value
Normal	21	00
High static pressure 1		01
High static pressure 2		02
High static pressure 3		03

Determine the wind volume in each mode i.e., applicable range of static pressure, refering to “1-7. FAN PERFORMANCE AND CAPACITY”. (The unit is factory-set to "00".)

Setting the Cooler Room Temperature Correction

- Depending on the installed environment, the room temperature sensor may require a correction. The settings may be selected as shown in the table below. (The unit is factory-set to “00”.)

Setting Description	Function Number	Setting Value
Standard	30	00
Lower control		01

Setting the Heater Room Temperature Correction

- Depending on the installed environment, the room temperature sensor may require a correction. The settings may be changed as shown in the table below. (The unit is factory-set to “00”.)

Setting Description	Function Numbe	Setting Value
Standard	31	00
Lower control		01
Slightly warmer control		02
Warmer control		03

DUCT TYPE
AR∗A30-36L

Setting Other Functions

- The following settings are also possible, depending on the operating conditions. (The unit is factory-set to “00”.)

Auto Restart

Setting Description	Function Number	Setting Value
Yes	40	00
No		01

Indoor Room Temperature Sensor Switching Function (Wired remote controller only)

Setting Description	Function Number	Setting Value
No	42	00
Yes		01

- If setting value is “00”, room temperature is controlled by the indoor unit temperature sensor.
- If setting value is “01”, room temperature is controlled by either indoor unit temperature sensor or remote control unit sensor.

Setting record

- Record any changes to the settings in the following table.

Setting	Setting Value
Static pressure	
Cooler room temperature correction	
Heater room temperature correction	
Auto restart	
Indoor room temperature sensor switching function	

After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

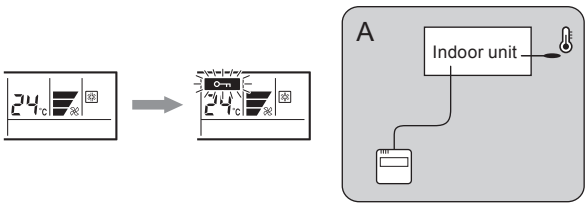
3. Setting the room temperature detection location

The detection location of the room temperature can be selected from the following two examples. Choose the detection location that is best for the installation location.

A. Indoor unit setting (factory setting)

The room temperature is detected by the indoor unit temperature sensor.

(1) When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.

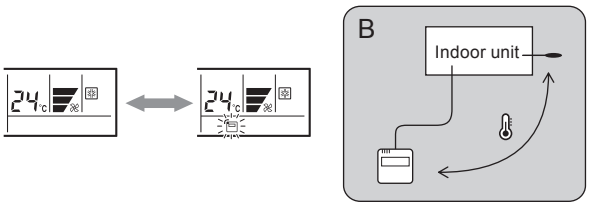


B. Indoor unit/remote controller setting (room temperature sensor selection)

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.

(1) Enable the room temperature sensor selection in FUNCTION SETTING, which will be described later.

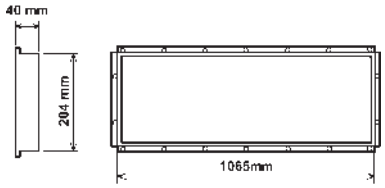
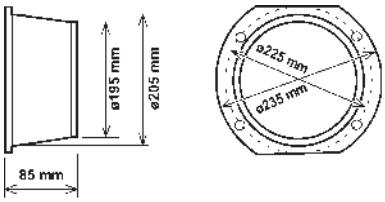
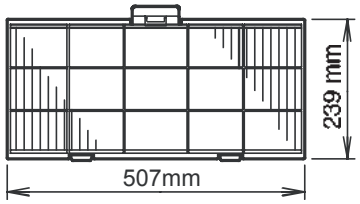
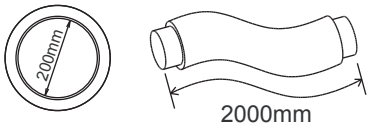
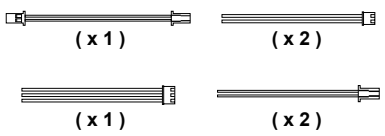
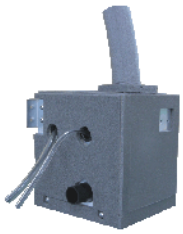
(2) Press the THERMO SENSOR button for 5 seconds or more to select the temperature sensor of the indoor unit or the remote controller.



NOTE

If the function to change the temperature sensor is used as shown in examples A (other than example B), be sure to lock the detection location.
If the function is locked, the lock display will flash when the THERMO SENSOR button is pressed.

13. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Square flange	UTD-SF045T	Both the **Square flange** and the **Round flange** can be selected. **Round flange** is also used when the fresh air duct is installed
	Round flange	UTD-RF204	
	Long-life filter	UTD-LF25NA	**Long-life filter** can be mounted to the indoor unit.
	Flexible duct	UTD-RD202	Connect to **Round flange** and used at fan and fresh air ducts.
	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. (Set of 6)
	IR Receiver Unit	UTY - LRH∗1	Unit control is performed by wireless remote controller.
	Drain Pump Unit	UTZ - PX1NBA	Optional drain lift up mechanism allows more flexible installation.

2. OUTDOOR UNIT

SINGLE TYPE :

AO*A30LBTL
AO*A30LFTL
AO*A36LBTL
AO*A36LFTL

D2D_AO022E/02
2010.01.18

CONTENTS

2. OUTDOOR UNIT

1. SPECIFICATIONS

Type				INVERTER HEATPUMP	
Model name				AO∗A30LBTL	AO∗A36LBTL
Power source				230V ~ 50Hz	
Available voltage range				198-264V ~ 50Hz	
Starting current			A	15.0	15.0
Fan	Airflow rate	Cooling	m^3/h	3600	4000
		Heating		3800	3800
	Type × Q'ty			Propeller × 1	
	Motor output		W	103	103
Sound pressure level		Cooling	dB(A)	53	54
		Heating		55	55
Heat exchanger type		Dimensions (H × W × D)	mm	798 × 900 × 36.4	798 × 900 × 36.4
		Fin pitch		1.30	1.30
		Rows x Stages		2 × 38	2 × 38
		Pipe type		Copper	
		Fin type		Aluminium	
Compressor	Type × Q'ty			Twin Rotary × 1	
	Motor output		W	1700	
Refrigerant		Type		R410A	
		Charge	g	2100	
Refrigerant oil		Type		PVE	
Enclosure		Material		Steel sheet	
		Colour		BEIGE Approximate colour of MUNSELL 10YR 7.5/1.0	
Dimensions (H×W×D)	Net		mm	830 × 900 × 330	
	Gross			970 × 1050 × 445	
Weight	Net		kg (lb.)	62 (136)	
	Gross			70 (154)	
Connection pipe	Size	Liquid	mm	Ø 9.52 (Ø 3/8 in.)	
		Gas		Ø 15.88 (Ø 5/8 in.)	
	Method			Flare	
	Max. length		m	50(chargeless:20)	50(chargeless:20)
	Max. height difference			30	30
Operation range		Cooling	˚C	-15 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 : 5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

OUTDOOR UNIT
AO∗A30-36L

Type				INVERTER HEATPUMP	
Model name				AO∗A30LFTL	AO∗A36LFTL
Power source				230V ~ 50Hz	
Available voltage range				198-264V ~ 50Hz	
Starting current			A	15.0	15.0
Fan	Airflow rate	Cooling	m^3/h	3600	3800
		Heating		3600	3800
	Type × Q'ty			Propeller × 1	
	Motor output		W	100	100
Sound pressure level		Cooling	dB(A)	53	54
		Heating		55	55
Heat exchanger type		Dimensions (H × W × D)	mm	798 × 900 × 36.4	798 × 900 × 36.4
		Fin pitch		1.30	1.30
		Rows x Stages		2 × 38	2 × 38
		Pipe type		Copper	
		Fin type		Aluminium	
Compressor	Type × Q'ty			Twin Rotary × 1	
	Motor output		W	2100	
Refrigerant		Type		R410A	
		Charge	g	2100	
Refrigerant oil		Type		POE (RB68)	
Enclosure		Material		Steel sheet	
		Colour		BEIGE Approximate colour of MUNSELL 10YR 7.5/1.0	
Dimensions (H×W×D)	Net		mm	830 × 900 × 330	
	Gross			970 × 1050 × 445	
Weight	Net		kg (lb.)	61 (135)	
	Gross			68 (150)	
Connection pipe	Size	Liquid	mm	Ø 9.52 (Ø 3/8 in.)	
		Gas		Ø 15.88 (Ø 5/8 in.)	
	Method			Flare	
	Max. length		m	50(chargeless:20)	50(chargeless:20)
	Max. height difference			30	30
Operation range		Cooling	˚C	-15 to 46	
		Heating		-15 to 24	

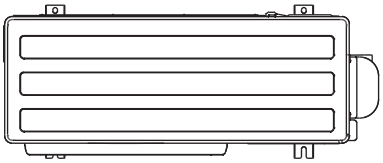
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB/24 °CWB.
Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB/6 °CWB.
Pipe length : 5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

OUTDOOR UNIT
AO∗A30-36L

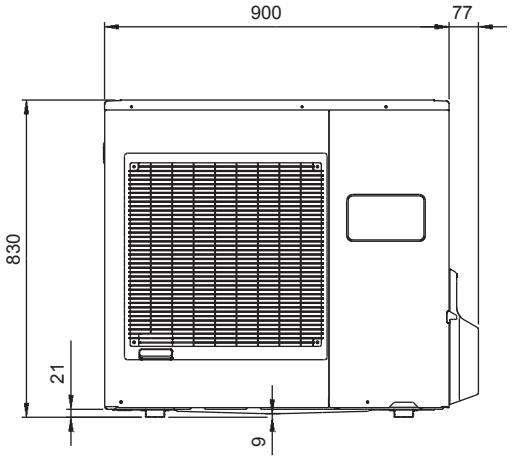
2. DIMENSIONS

■ MODEL: AO∗A30LB, AO∗A36LB, AO∗A30LF, AO∗A36LF

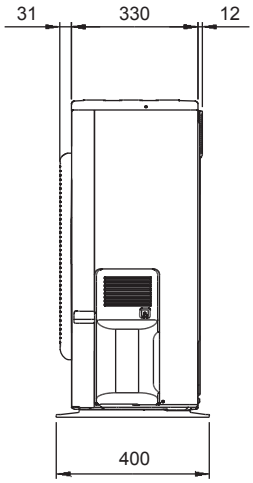
(Unit : mm)



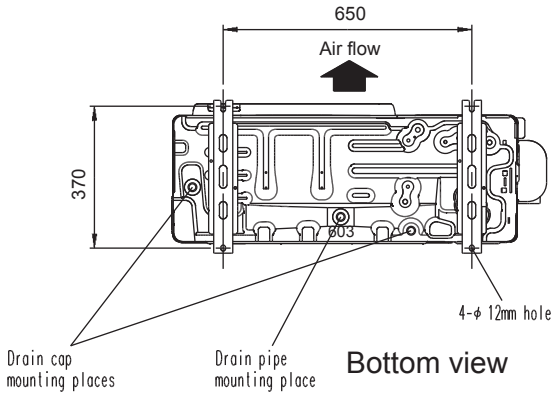
Top view



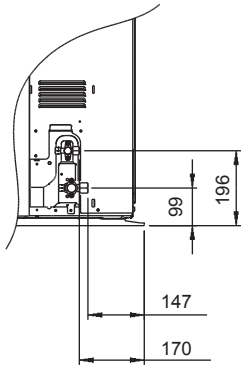
Front view



Side view

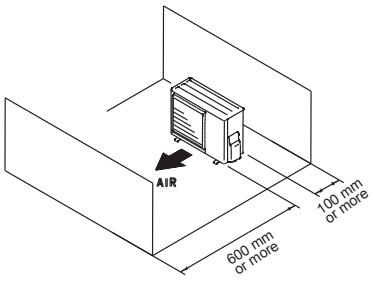


Bottom view

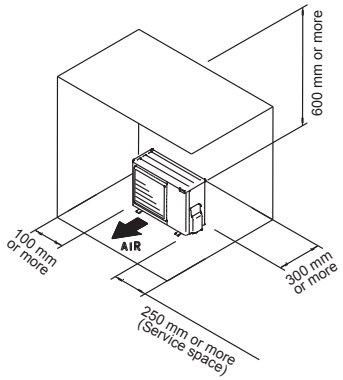


■ INSTALLATION PLACE

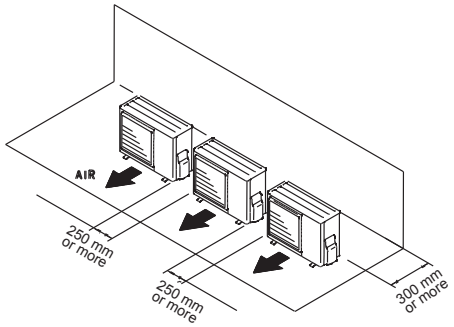
When there are obstacles at the back or front sides.



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

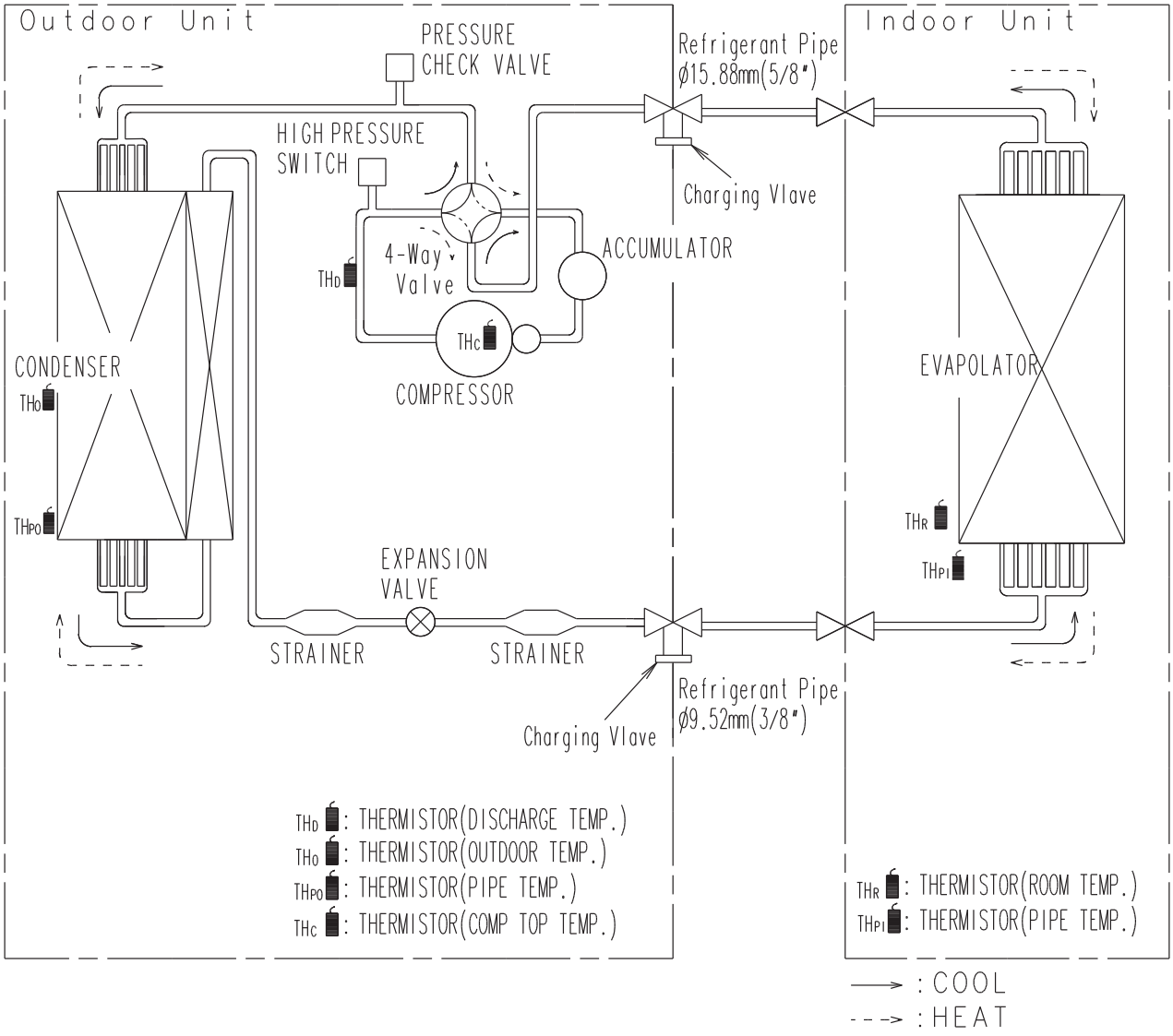


When there are obstacles at the back, side with the installation of more than one unit.

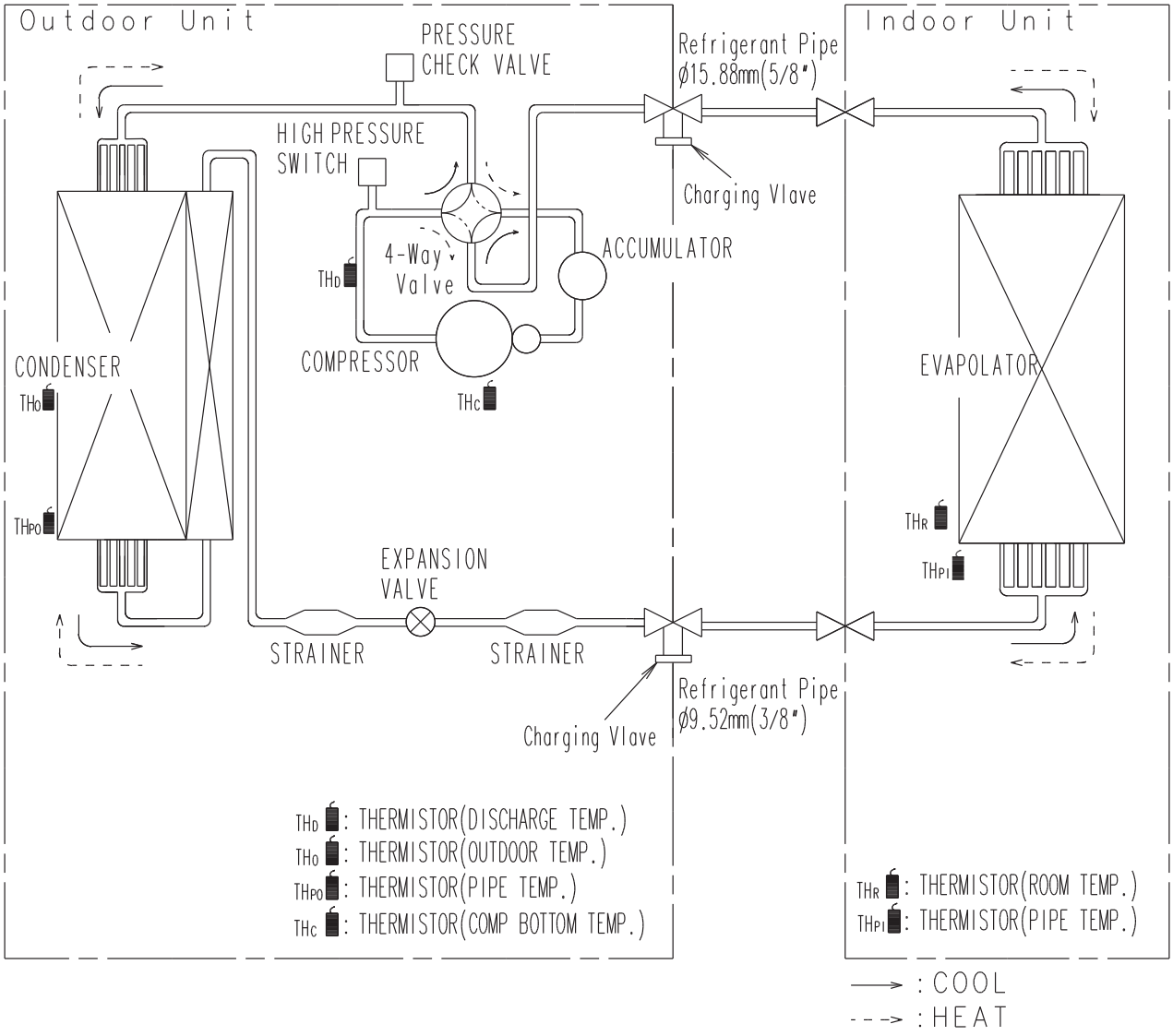


3. REFRIGERANT CIRCUIT

■ MODEL: AO∗A30LB, AO∗A36LB

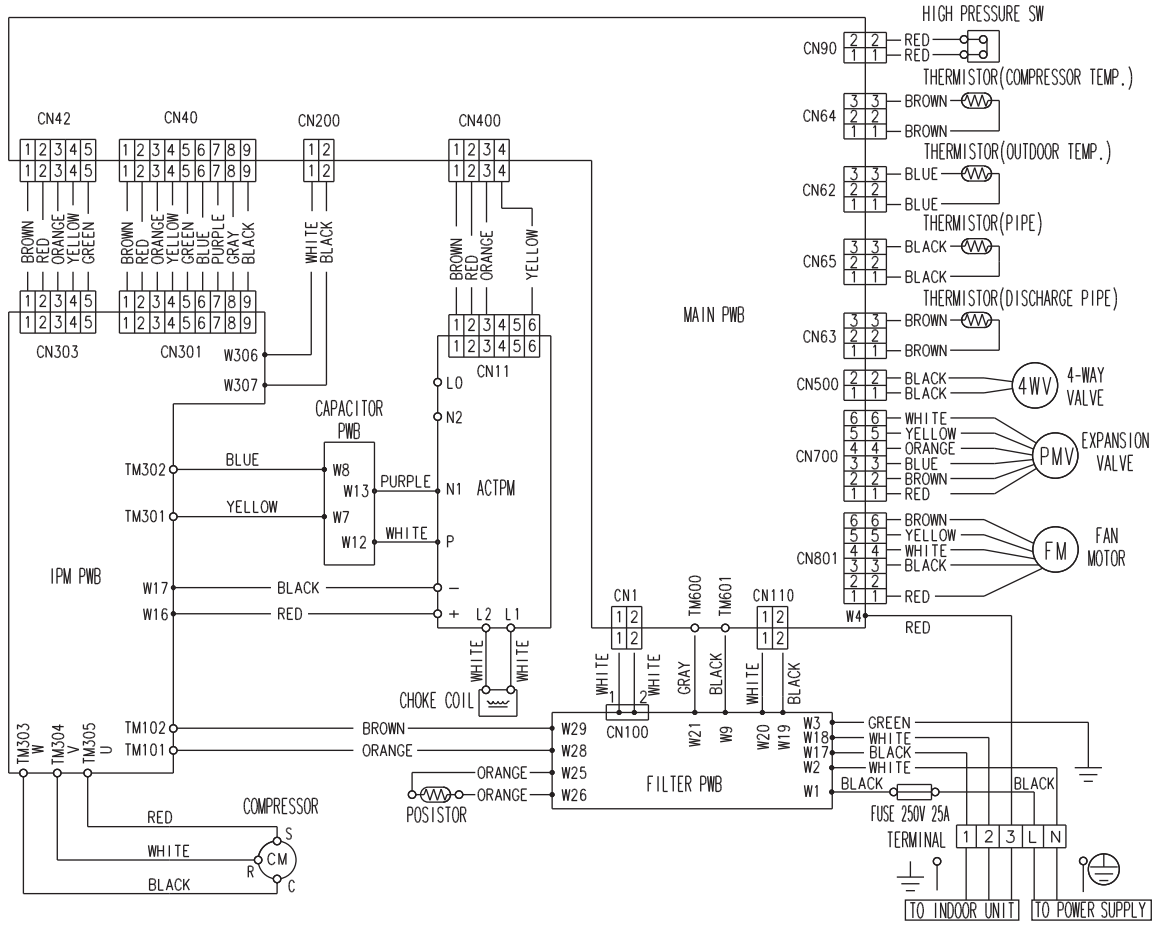


■ MODEL: AO∗A30LF, AO∗A36LF

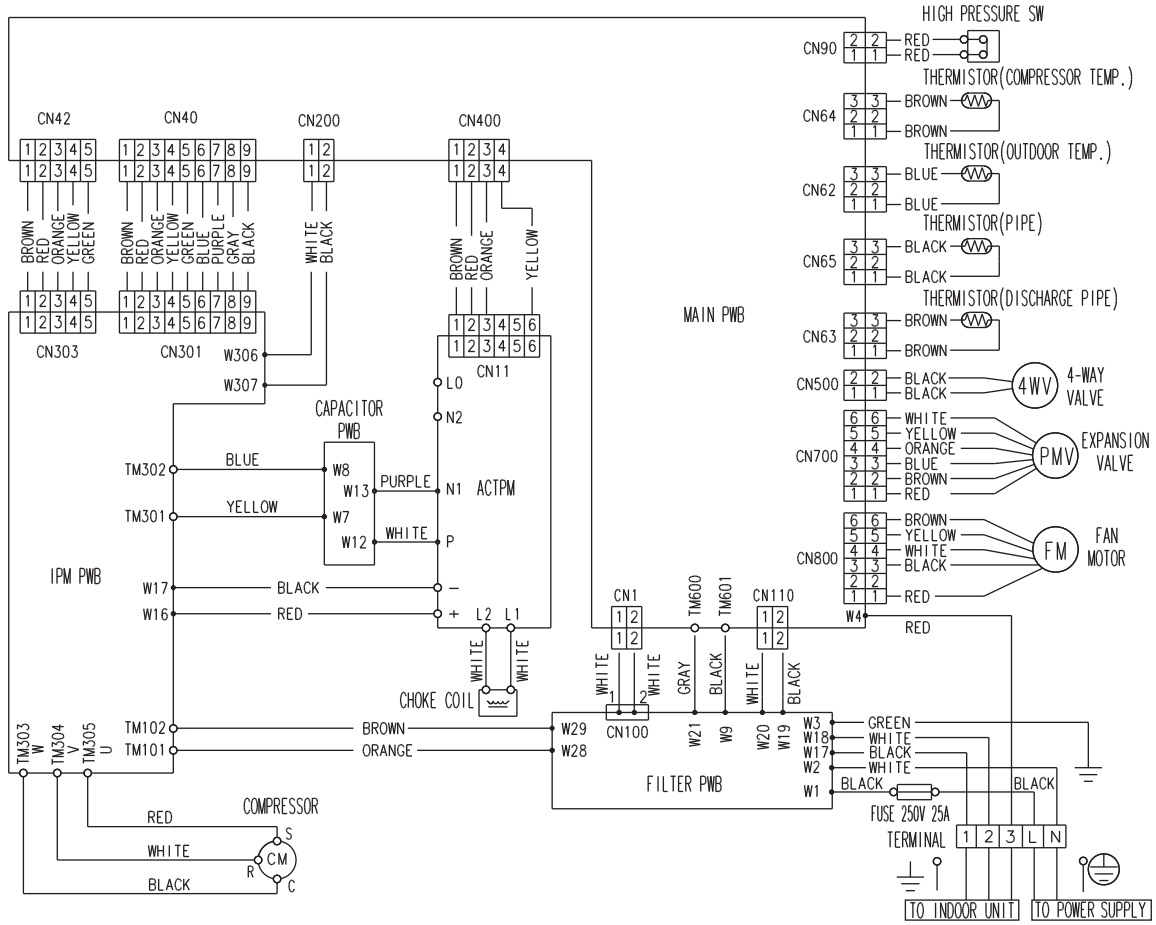


4. WIRING DIAGRAMS

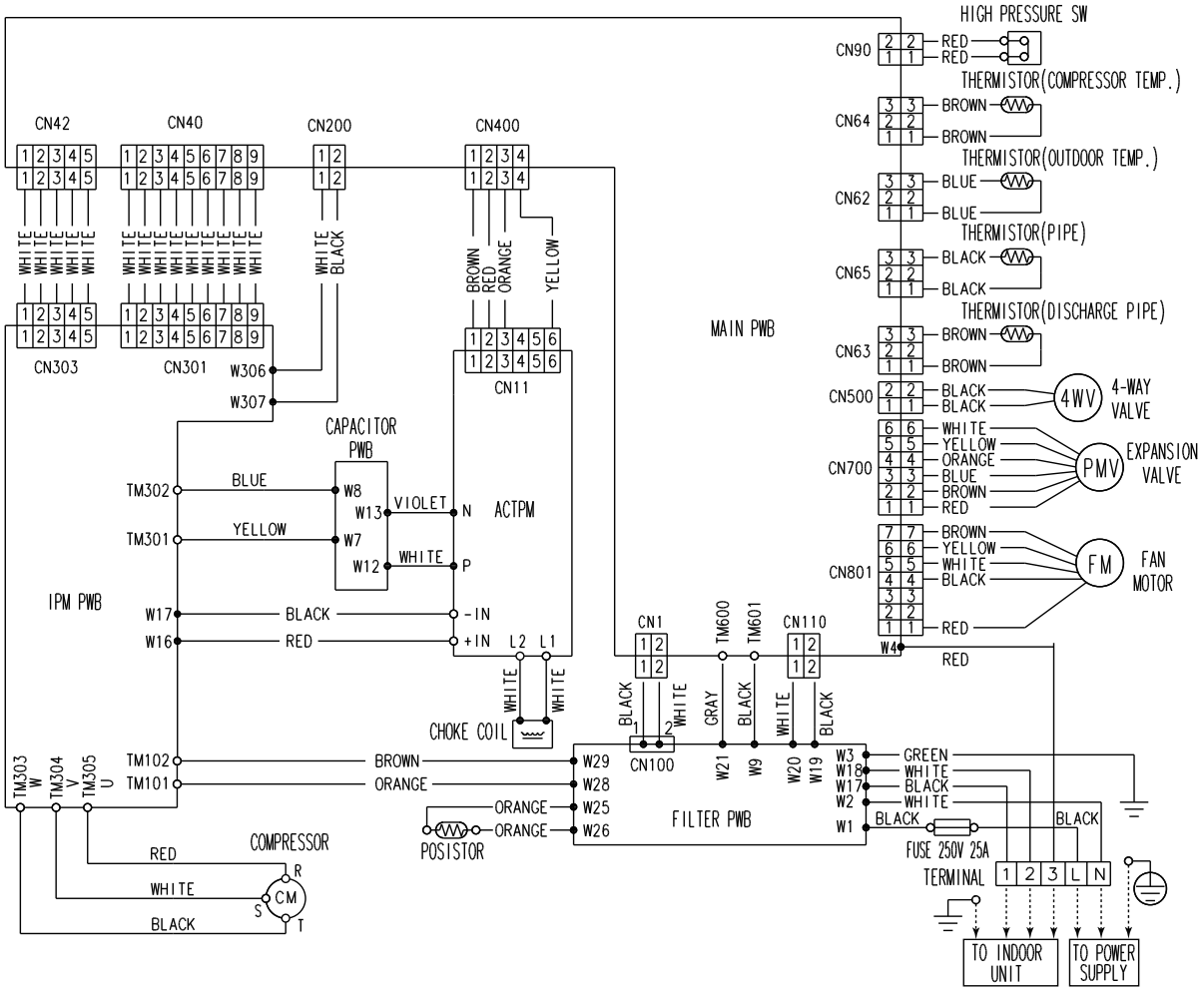
■ MODEL: AO*A30LB, AO*36LB



■MODEL: AO*A30LF



■MODEL: AO*A36LF



5. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DEFFERENCE

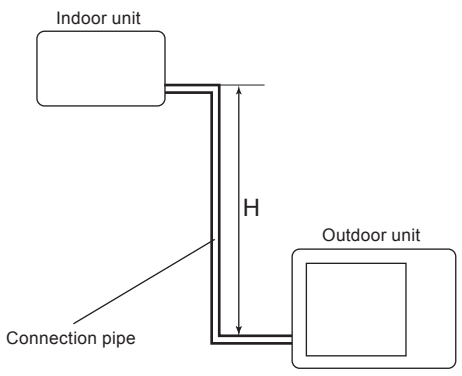
This table is created using the maximum capacity.

■ MODEL: AO∗A30LB, AO∗A30LF

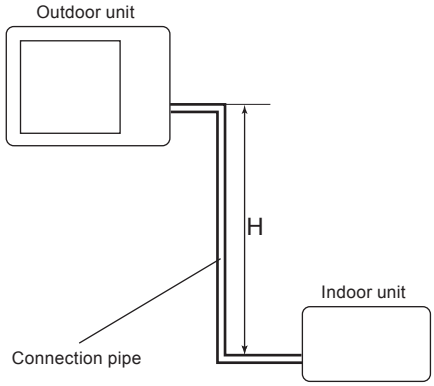
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit	30	-	-	-	-	0.908	0.894	0.876
		20	-	-	-	0.935	0.923	0.909	0.891
		10	-	-	0.968	0.951	0.938	0.924	0.906
		7.5	-	0.982	0.972	0.954	0.942	0.928	0.909
		5	0.992	0.986	0.976	0.958	0.946	0.932	0.913
		0	1.000	0.994	0.983	0.966	0.954	0.939	0.920
	∗2 Indoor unit is under than outdoor unit	-5	1.000	0.994	0.983	0.966	0.954	0.939	0.920
		-7.5	-	0.994	0.983	0.966	0.954	0.939	0.920
		-10	-	-	0.983	0.966	0.954	0.939	0.920
		-20	-	-	-	0.966	0.954	0.939	0.920
		-30	-	-	-	-	0.954	0.939	0.920

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit	30	-	-	-	-	0.931	0.914	0.899
		20	-	-	-	0.954	0.931	0.914	0.899
		10	-	-	0.990	0.954	0.931	0.914	0.899
		7.5	-	0.991	0.990	0.954	0.931	0.914	0.899
		5	1.000	0.991	0.990	0.954	0.931	0.914	0.899
		0	1.000	0.991	0.990	0.954	0.931	0.914	0.899
	∗2 Indoor unit is under than outdoor unit	-5	0.995	0.986	0.986	0.949	0.926	0.909	0.895
		-7.5	-	0.983	0.983	0.946	0.924	0.907	0.892
		-10	-	-	0.981	0.944	0.921	0.904	0.890
		-20	-	-	-	0.935	0.912	0.895	0.881
		-30	-	-	-	-	0.903	0.886	0.872

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

OUTDOOR UNIT
AO∗A30-36L

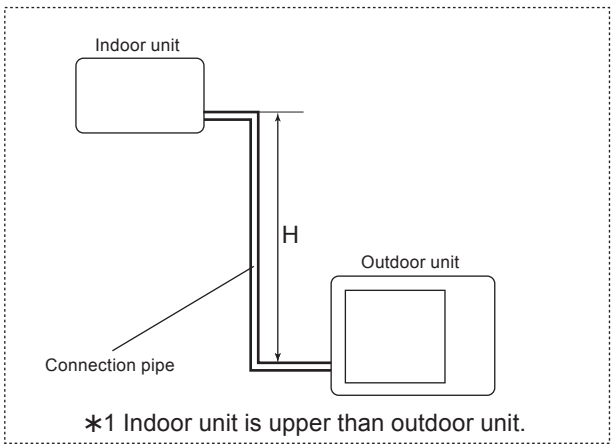
This table is created using the maximum capacity.

■ MODEL: AO∗A36LB, AO∗A36LF

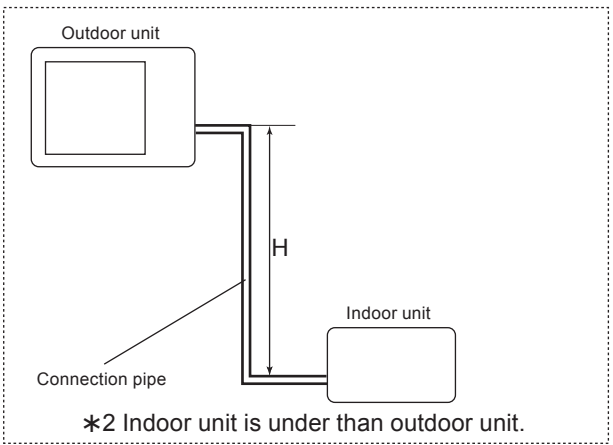
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit	30	-	-	-	-	0.908	0.894	0.876
		20	-	-	-	0.935	0.923	0.909	0.891
		10	-	-	0.968	0.951	0.938	0.924	0.906
		7.5	-	0.982	0.972	0.954	0.942	0.928	0.909
		5	0.992	0.986	0.976	0.958	0.946	0.932	0.913
		0	1.000	0.994	0.983	0.966	0.954	0.939	0.920
	∗2 Indoor unit is under than outdoor unit	-5	1.000	0.994	0.983	0.966	0.954	0.939	0.920
		-7.5	-	0.994	0.983	0.966	0.954	0.939	0.920
		-10	-	-	0.983	0.966	0.954	0.939	0.920
		-20	-	-	-	0.966	0.954	0.939	0.920
		-30	-	-	-	-	0.954	0.939	0.920

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit	30	-	-	-	-	0.931	0.914	0.899
		20	-	-	-	0.954	0.931	0.914	0.899
		10	-	-	0.990	0.954	0.931	0.914	0.899
		7.5	-	0.991	0.990	0.954	0.931	0.914	0.899
		5	1.000	0.991	0.990	0.954	0.931	0.914	0.899
		0	1.000	0.991	0.990	0.954	0.931	0.914	0.899
	∗2 Indoor unit is under than outdoor unit	-5	0.995	0.986	0.986	0.949	0.926	0.909	0.895
		-7.5	-	0.983	0.983	0.946	0.924	0.907	0.892
		-10	-	-	0.981	0.944	0.921	0.904	0.890
		-20	-	-	-	0.935	0.912	0.895	0.881
		-30	-	-	-	-	0.903	0.886	0.872

Height difference H



∗1 Indoor unit is upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

6. ADDITIONAL CHARGE CALCULATION

■ MODEL: AO∗A30LB, AO∗A36LB, AO∗A30LF, AO∗A36LF

Refrigerant type		R410A
Refrigerant amount	g	2100

● REFRIGERANT CHARGE

Pipe length	m	~ 20	30	40	50	40g/m
Additional charge	g	0 (Chargeless)	+400	+800	+1200	

OUTDOOR UNIT
AO∗A30-36L

7. AIR FLOW

■ MODEL: AO∗A30LB

● COOLING

Number of rotations (r.p.m)	Air flow	
850	m^3/h	3600
	l/s	1000
	CFM	2119

● HEATING

Number of rotations (r.p.m)	Air flow	
900	m^3/h	3800
	l/s	1056
	CFM	2236

■ MODEL: AO∗A36LB

● COOLING

Number of rotations (r.p.m)	Air flow	
950	m^3/h	4000
	l/s	1111
	CFM	2354

● HEATING

Number of rotations (r.p.m)	Air flow	
900	m^3/h	3800
	l/s	1056
	CFM	2236

OUTDOOR UNIT
AO∗A30-36L

OUTDOOR UNIT
AO∗A30-36L

■ MODEL: AO∗A30LF

● COOLING

Number of rotations (r.p.m)	Air flow	
850	m^3/h	3600
	l/s	1000
	CFM	2119

● HEATING

Number of rotations (r.p.m)	Air flow	
900	m^3/h	3600
	l/s	1000
	CFM	2119

■ MODEL: AO∗A36LF

● COOLING

Number of rotations (r.p.m)	Air flow	
950	m^3/h	3800
	l/s	1056
	CFM	2236

● HEATING

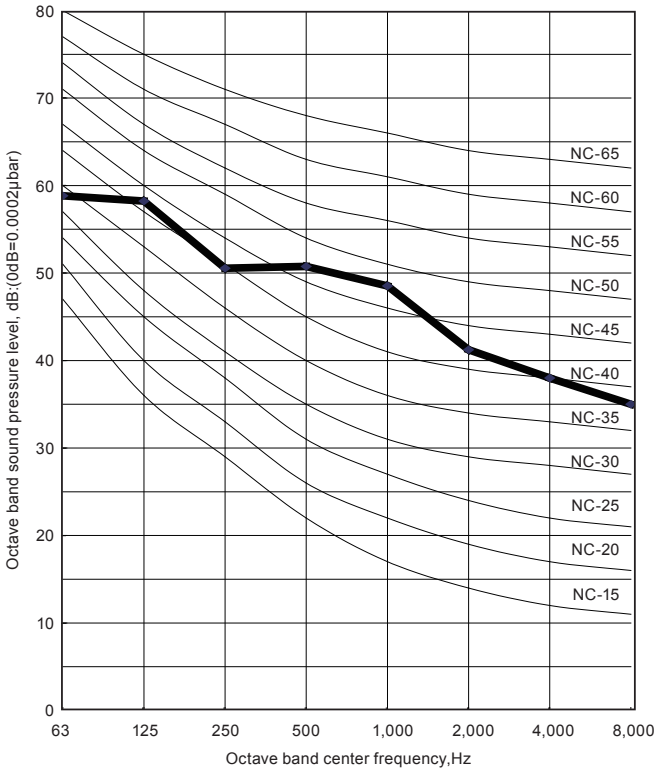
Number of rotations (r.p.m)	Air flow	
900	m^3/h	3800
	l/s	1056
	CFM	2236

8. OPERATION NOISE

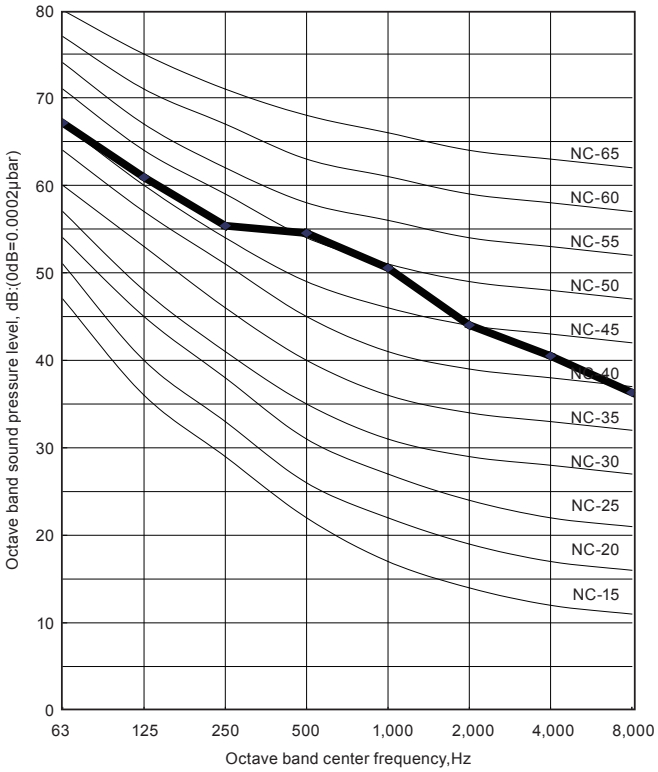
8-1. NOISE LEVEL CURVE

■ MODEL: AO∗A30LB, AO∗A30LF

● COOLING

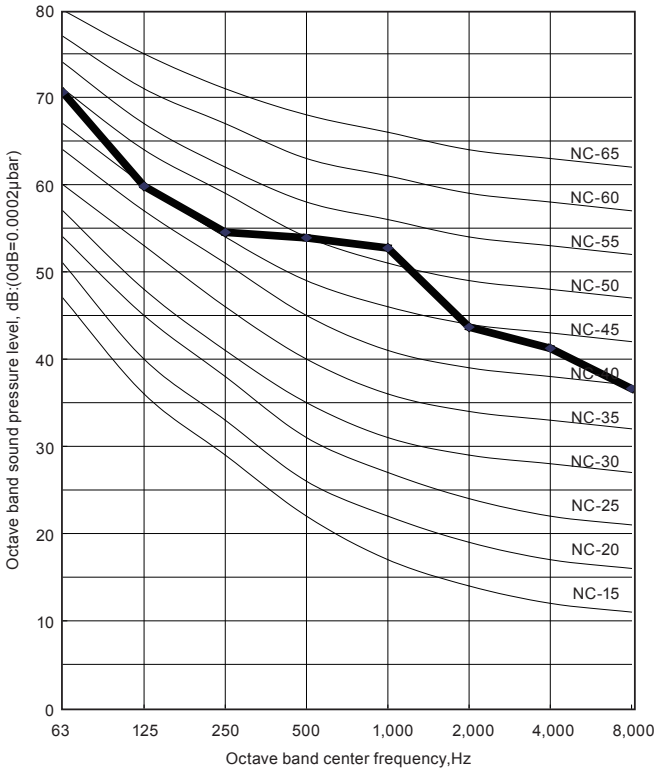


● HEATING

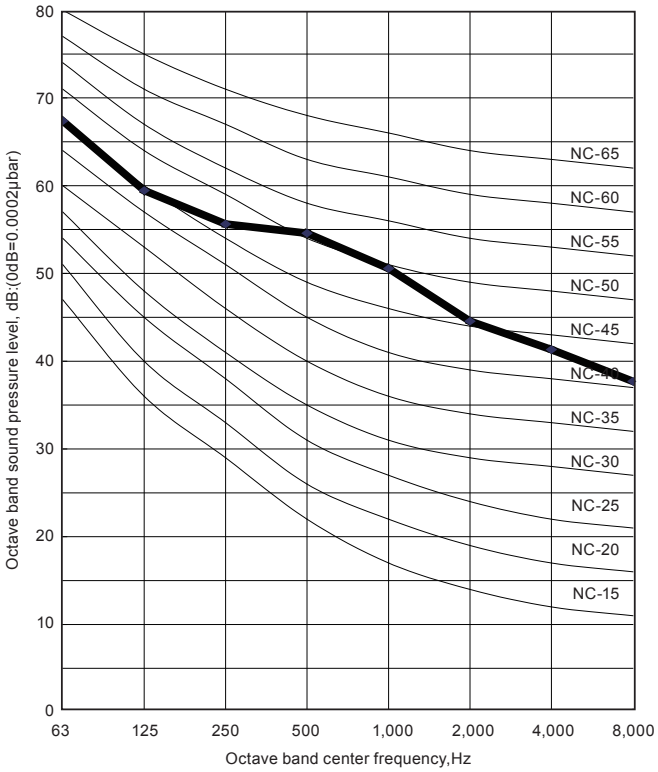


■ MODEL: AO∗A36LB, AO∗A36LF

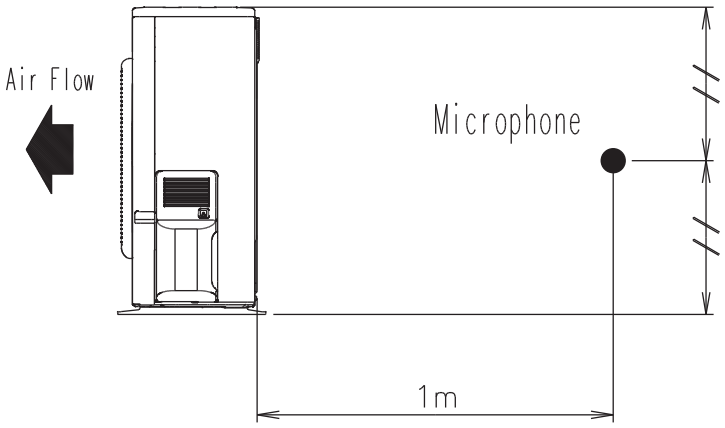
● COOLING

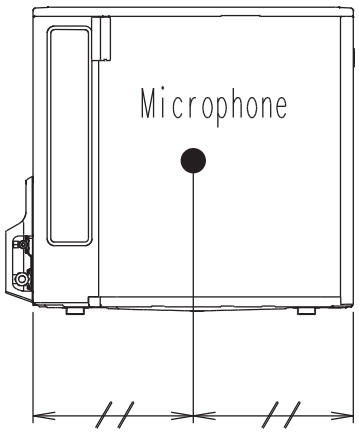


● HEATING



8-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
AO∗A30-36L

9. ELECTRIC CHARACTERISTICS

Model name			AO∗A30LB AO∗A30LF	AO∗A36LB AO∗A36LF
Power supply	Voltage	V	230 ~	
	Frequency	Hz	50	
*1) Max. operating current		A	17.0	20.0
Starting current		A	15.0	
*2) Wiring spec.	Main fuse (Circuit breaker) current	A	30	
	Power cable	mm^2	5.3 - 6.0	
	*3)Limited wiring length	m	21	18

*1) The maximum current is the total current of indoor unit and outdoor unit.

*2) Wiring spec.
Selected sample
(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

*3) 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

	Protection form	Model	
		AO∗A30LB AO∗A30LF	AO∗A36LB AO∗A36LF
Circuit protection	Current fuse (NEAR THE TERMINAL)	25A 250V	
	Current fuse (FILTER PRINTED CIRCUIT BOARD)	10A 250V	
	Current fuse (MAIN PRINTED CIRCUIT BOARD)	3.15A 250V	
Fan motor protection	Thermal protection program	OFF : 140±20°C ON : 110±20°C	
High Pressure Protection	Pressure Switch	OFF : 4.2±0.1MPa ON : 3.2±0.15MPa	
Compressor protection	Thermal protection program (COMPRESSOR TEMP.)	OFF : 120°C ON : 80°C	
	Thermal protection program (DISCHARGE TEMP.)	OFF : 110°C ON : After 7 minutes	

OUTDOOR UNIT
AO∗A30-36L