

AIR CONDITIONER

Wall mounted type

DESIGN & TECHNICAL MANUAL

INDOOR



ASHH07KNCH
ASHH09KNCH
ASHH12KNCH

OUTDOOR



AOHH07KNCA
AOHH09KNCA
AOHH12KNCA

FUJITSU GENERAL LIMITED

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Part 1. INDOOR UNIT

WALL MOUNTED TYPE:

ASHH07KNCH

ASHH09KNCH

ASHH12KNCH

1. Specifications

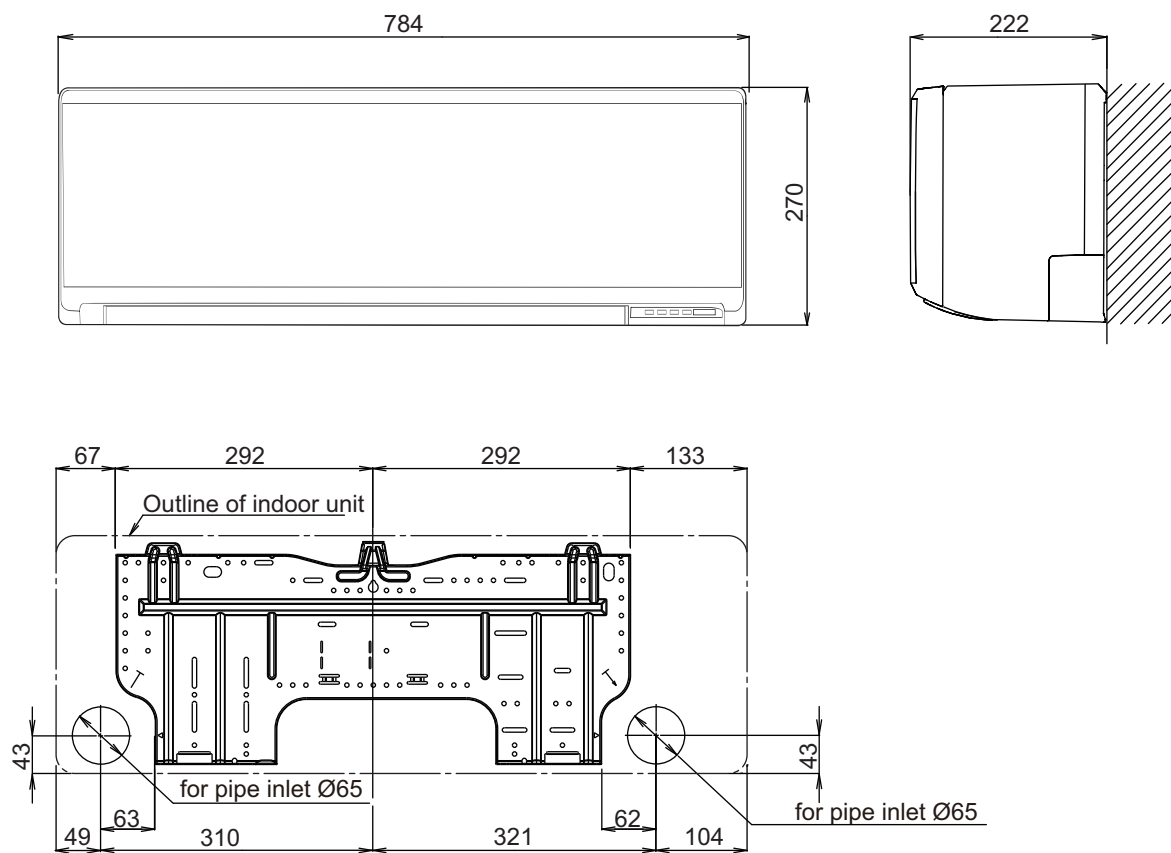
Type				Wall mounted			
				Inverter, Heat pump			
Model name				ASHH07KNCH	ASHH09KNCH	ASHH12KNCH	
Power supply intake				Outdoor unit			
System power supply		Voltage		230			
		Frequency		50			
		Available voltage range		198—264			
Indoor unit power supply (from outdoor unit)			V	230			
Capacity	Cooling	Rated	kW	2.0	2.5	3.4	
			Btu/h	6,800	8,500	11,600	
		Min.—Max.	kW	0.9—2.9	0.9—3.1	0.9—3.8	
			Btu/h	3,100—9,900	3,100—10,600	3,100—13,000	
	Heating	Rated	kW	2.5	2.8	3.8	
			Btu/h	8,500	9,600	13,000	
		Min.—Max.	kW	0.9—3.4	0.9—4.0	0.9—4.8	
			Btu/h	3,100—11,600	3,100—13,600	3,100—16,400	
Input power	Cooling	Rated	kW	0.5	0.74	1.05	
				Min.—Max.	0.25—1.02	0.25—1.12	0.25—1.34
		Heating		Rated	0.58	0.70	1.02
					Min.—Max.	0.25—0.99	0.25—1.24
	Fan	HIGH	W	18.0	22.0	23.0	
				MED	15.0	17.0	18.0
				LOW	12.0		14.0
				QUIET	8.0		
Current	Cooling	Rated	A	3.0	3.6	5.0	
	Heating			3.1	3.6	5.1	
Energy efficiency class		Cooling		A++			
		Heating (Average)		A+			
Pdesign	Cooling		kW	2.0	2.5	3.4	
	Heating (Average)			2.3	2.4	2.5	
SEER	Cooling		kWh/kWh	7.8	7.4	7.0	
SCOP	Heating (Average)			4.4			
Annual energy consumption		QCE		90	118	170	
		QHE (Average)		731	763	795	
EER	Cooling		kW/kW	4.00	3.38	3.24	
COP	Heating			4.31	4.00	3.73	
Sensible capacity	Cooling		kW	1.64	2.11	2.65	
Power factor	Cooling		%	72	89	91	
	Heating			81	85	87	
Moisture removal			L/h (pints/h)	1.0 (1.8)		1.4 (2.5)	
Maximum operating current*1		Cooling		A	6.5		
		Heating			9.0		
Fan	Airflow rate	Cooling	HIGH	m³/h	530	580	600
			MED		460	500	520
			LOW		390		440
			QUIET		250		
		Heating	HIGH		580		600
			MED		500		520
			LOW		420		440
			QUIET		280		
	Type × Qty		Crossflow fan × 1				
	Motor output			W	27		
Sound pressure level*2		Cooling	HIGH	dB (A)	36	38	40
			MED		33	35	36
			LOW		29		32
			QUIET		20		
		Heating	HIGH		38		39
			MED		33		35
			LOW		30		31
			QUIET		22		
Sound power level		Cooling	HIGH	dB (A)	51	53	55
Heating		52				53	
Heat exchanger		Dimensions (H × W × D)		mm	Main 1: 210 × 600 × 26.6 Main 2: 112 × 600 × 20		
		Fin pitch			Main 1: 1.2 Main 2: 1.1		
		Rows × Stages		Main 1: 2 × 10 Main 2: 2 × 7			
		Pipe type		Copper tube			
		Fin type		Aluminum			
		Material		Polystyrene			
Enclosure		Color		White Approximate color of Munsell N9.25/			
		Net		270 × 784 × 222			
Dimensions (H × W × D)		Gross		279 × 864 × 334			
		Net		9.0			
Weight		Gross		12.0			
		Size		mm (in)	Ø6.35 (Ø1/4)		
Liquid		Ø9.52 (Ø3/8)					
Gas		Flare					
Drain hose		Material		Polypropylene + High-density polyethylene			
		Tip diameter		Ø13.8 (I.D.), Ø15.0 to Ø16.8 (O.D.)			
Operation range		Cooling	°C	18 to 32			
			%RH	80 or less			
Heating		°C	16 to 30				
			Remote controller				
Wireless (Option: Mobile app*3 [AIRSTAGE Mobile])							

Type	Wall mounted		
	Inverter, Heat pump		
Model name	ASHH07KNCH	ASHH09KNCH	ASHH12KNCH
NOTES: - 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/—°CWB, and outdoor temperature of 7°CDB/6°CWB. - Pipe length: 5.0 m, Height difference: 0 m. (Between outdoor unit and indoor unit.) - Protective function might work when using it outside the operation range. *1: Maximum operating current is the total current of the indoor unit and the outdoor unit. *2: Sound pressure level: - Measured values in manufacturer's anechoic chamber. - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here. *3: Available on Google Play™ store or on App Store®. Optional WLAN Adapter is also required. For details, refer to the setting manual. - This data is based on EN 14511 standard.			

2. Dimensions

2-1. Models: ASHH07KNCH, ASHH09KNCH, and ASHH12KNCH

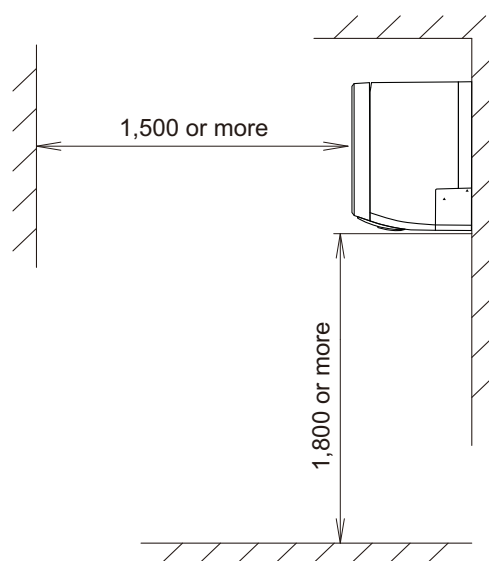
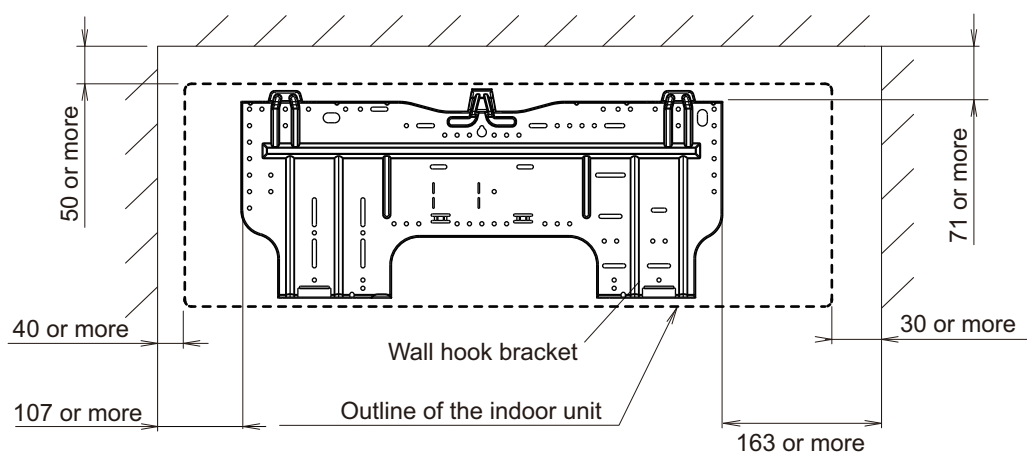
Unit: mm



■ Installation space requirement

Provide sufficient installation space for product safety.

Unit: mm

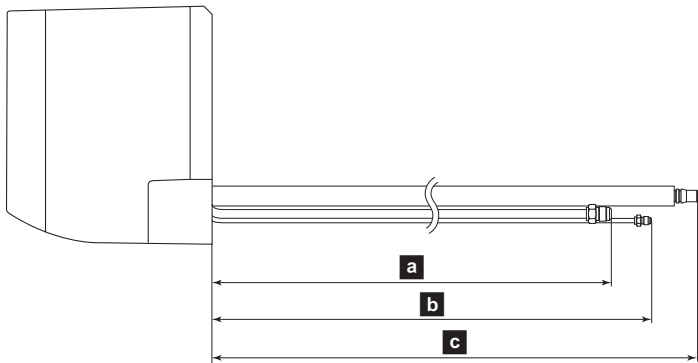


2-2. Pipe exit length from the rear

Design the system considering the length of the pipes or hose exiting from the rear of the indoor unit.

NOTE: Detailed shapes of the indoor unit and the tip of each pipe or hose may vary depending on the model.

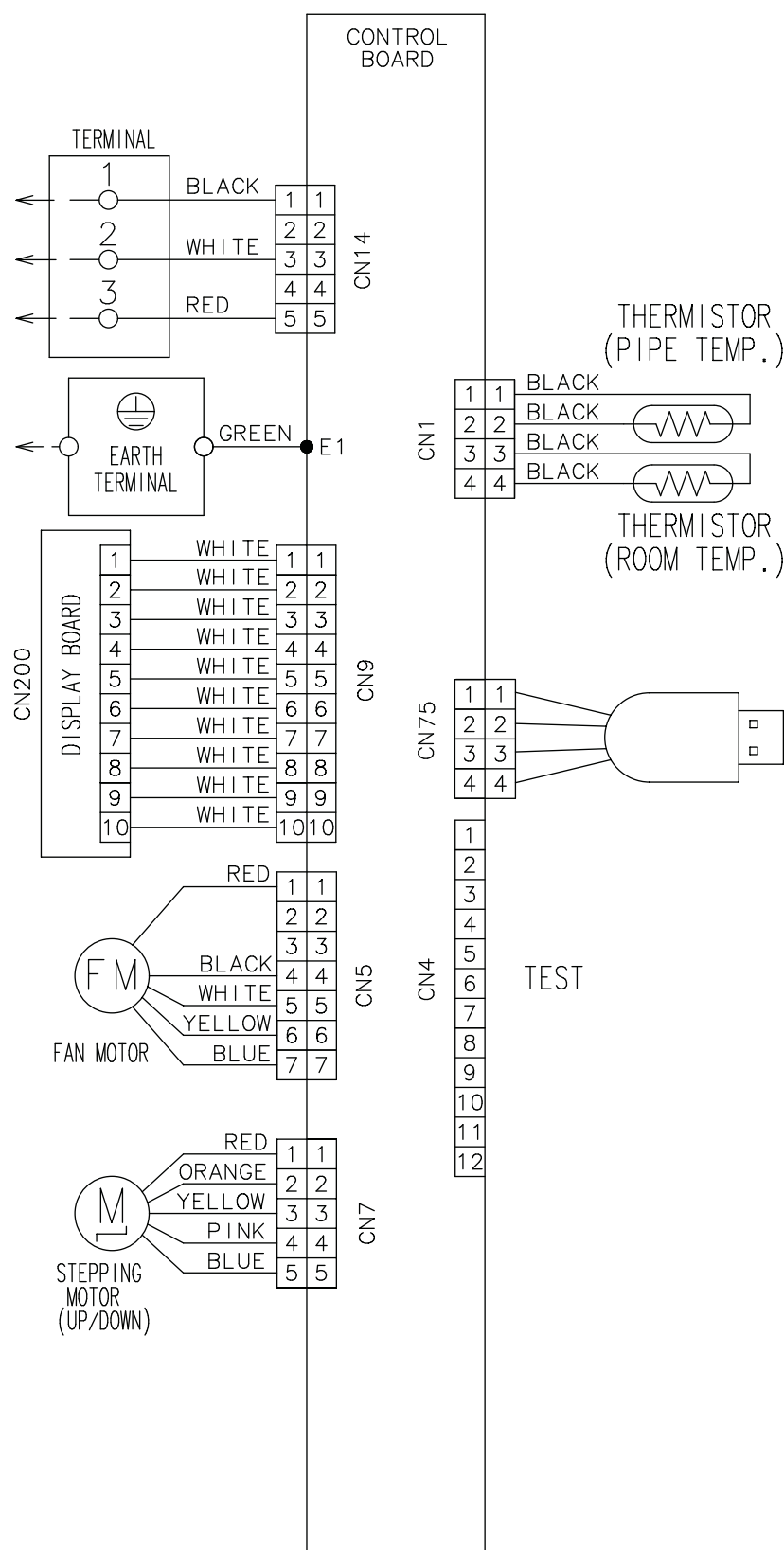
Unit: mm



Model name	Approximate length		
	a Gas pipe	b Liquid pipe	c Drain hose
ASHH07-12KNCH	380	430	485

3. Wiring diagrams

3-1. Models: ASHH07KNCH, ASHH09KNCH, and ASHH12KNCH



4. Capacity table

Capacity tables show each of following values calculated based on the outdoor temperature and the indoor temperature, under given Airflow Rate (AFR):

For cooling capacity: Total Capacity (TC), Sensible Heat Capacity (SHC), and Input Power (IP)

For heating capacity: Total Capacity (TC) and Input Power (IP)

4-1. Cooling capacity

■ Model: ASHH07KNCH

AFR				m³/h						530												
Outdoor temperature		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
		kW			kW			kW			kW			kW			kW			kW		
	-10	1.30	1.30	0.20	1.89	1.55	0.42	1.92	1.66	0.45	2.12	1.76	0.39	2.32	1.85	0.34	2.41	1.87	0.35	2.53	1.91	0.38
	0	1.32	1.32	0.20	1.92	1.57	0.42	1.95	1.68	0.44	2.15	1.77	0.38	2.35	1.87	0.33	2.44	1.89	0.35	2.57	1.92	0.37
	5	1.29	1.29	0.21	1.88	1.54	0.45	1.90	1.66	0.47	2.10	1.75	0.41	2.30	1.84	0.36	2.39	1.87	0.37	2.51	1.90	0.40
	10	1.26	1.26	0.23	1.83	1.52	0.48	1.86	1.63	0.50	2.05	1.73	0.44	2.25	1.82	0.38	2.33	1.84	0.40	2.45	1.87	0.43
	15	1.23	1.23	0.24	1.79	1.50	0.51	1.82	1.61	0.54	2.00	1.70	0.47	2.19	1.79	0.40	2.27	1.82	0.42	2.40	1.85	0.45
20	1.50	1.43	0.23	2.01	1.58	0.32	2.07	1.70	0.32	2.21	1.69	0.33	2.33	1.84	0.33	2.44	1.81	0.33	2.66	1.91	0.34	
25	1.43	1.38	0.27	1.91	1.52	0.38	1.98	1.64	0.38	2.10	1.63	0.38	2.22	1.78	0.39	2.33	1.74	0.39	2.54	1.84	0.39	
30	1.36	1.32	0.31	1.82	1.46	0.43	1.88	1.58	0.44	2.00	1.56	0.44	2.11	1.71	0.44	2.21	1.67	0.45	2.41	1.77	0.45	
35	1.29	1.27	0.35	1.72	1.40	0.49	1.78	1.51	0.49	1.90	1.50	0.50	2.00	1.64	0.50	2.10	1.60	0.50	2.29	1.69	0.51	
40	1.22	1.22	0.36	1.62	1.44	0.52	1.72	1.55	0.52	1.81	1.54	0.52	1.89	1.68	0.52	2.01	1.64	0.52	2.16	1.74	0.52	
45	1.13	1.13	0.39	1.50	1.40	0.56	1.59	1.51	0.56	1.68	1.49	0.56	1.75	1.63	0.56	1.86	1.60	0.56	2.00	1.69	0.56	
50	0.99	0.99	0.42	1.32	1.32	0.58	1.40	1.40	0.58	1.48	1.48	0.58	1.55	1.55	0.58	1.64	1.64	0.58	1.77	1.77	0.58	

■ Model: ASHH09KNCH

AFR					m³/h					580														
Outdoor temperature		Indoor temperature																						
	°CDB	18			21			23			25			27			29			32				
	°CWB	12			15			16			18			19			21			23				
	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP		
		kW			kW			kW			kW			kW			kW			kW				
	-10	1.54	1.54	0.39	2.25	1.88	0.82	2.28	2.01	0.87	2.52	2.12	0.76	2.75	2.24	0.66	2.85	2.27	0.69	3.01	2.31	0.73		
	0	1.62	1.62	0.35	2.36	1.92	0.74	2.39	2.06	0.78	2.64	2.18	0.69	2.89	2.29	0.59	3.00	2.32	0.62	3.16	2.36	0.66		
	5	1.59	1.59	0.37	2.31	1.90	0.78	2.35	2.04	0.82	2.59	2.16	0.72	2.84	2.27	0.62	2.94	2.30	0.65	3.10	2.34	0.70		
	10	1.56	1.56	0.39	2.27	1.88	0.82	2.30	2.02	0.87	2.54	2.13	0.76	2.78	2.25	0.66	2.88	2.28	0.69	3.04	2.32	0.73		
	15	1.53	1.53	0.41	2.22	1.86	0.86	2.26	2.00	0.91	2.49	2.11	0.80	2.72	2.22	0.69	2.82	2.25	0.72	2.97	2.29	0.77		
20	1.87	1.78	0.37	2.51	1.97	0.52	2.59	2.12	0.52	2.76	2.10	0.53	2.91	2.29	0.53	3.05	2.25	0.54	3.33	2.37	0.54			
25	1.78	1.73	0.42	2.39	1.91	0.59	2.47	2.06	0.59	2.63	2.05	0.60	2.77	2.23	0.60	2.91	2.19	0.60	3.17	2.31	0.61			
30	1.69	1.68	0.47	2.27	1.86	0.65	2.35	2.00	0.66	2.50	1.99	0.66	2.64	2.17	0.67	2.77	2.13	0.67	3.02	2.25	0.68			
35	1.61	1.61	0.52	2.15	1.81	0.72	2.23	1.95	0.73	2.37	1.93	0.73	2.50	2.11	0.74	2.62	2.06	0.74	2.86	2.18	0.76			
40	1.54	1.54	0.56	2.05	1.80	0.81	2.17	1.94	0.81	2.30	1.92	0.81	2.40	2.10	0.81	2.54	2.05	0.81	2.74	2.17	0.81			
45	1.43	1.43	0.61	1.90	1.74	0.87	2.01	1.87	0.87	2.13	1.85	0.87	2.22	2.02	0.87	2.35	1.98	0.87	2.54	2.09	0.87			
50	1.16	1.16	0.65	1.66	1.66	0.78	1.76	1.76	0.78	1.86	1.86	0.78	1.94	1.94	0.78	2.06	2.06	0.78	2.22	2.22	0.78			

■ Model: ASHH12KNCH

AFR					m³/h					600														
Outdoor temperature		Indoor temperature																						
	°CDB	18			21			23			25			27			29			32				
	°CWB	12			15			16			18			19			21			23				
	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP		
		kW			kW			kW			kW			kW			kW			kW				
	-10	1.85	1.85	0.36	2.69	2.18	0.75	2.73	2.33	0.80	3.02	2.46	0.70	3.30	2.60	0.60	3.42	2.63	0.63	3.61	2.67	0.67		
	0	1.79	1.79	0.39	2.60	2.13	0.82	2.64	2.29	0.86	2.92	2.42	0.76	3.19	2.55	0.65	3.31	2.58	0.68	3.48	2.62	0.73		
	5	1.88	1.88	0.33	2.73	2.19	0.70	2.77	2.34	0.74	3.06	2.48	0.65	3.34	2.61	0.56	3.47	2.64	0.59	3.65	2.69	0.63		
	10	1.96	1.96	0.28	2.85	2.24	0.59	2.90	2.40	0.62	3.20	2.54	0.54	3.50	2.67	0.47	3.63	2.71	0.49	3.82	2.76	0.52		
	15	2.05	2.05	0.37	2.98	2.29	0.78	3.03	2.46	0.82	3.34	2.60	0.72	3.66	2.74	0.62	3.79	2.77	0.65	3.99	2.82	0.70		
20	2.45	2.17	0.54	3.29	2.40	0.75	3.40	2.59	0.76	3.62	2.57	0.77	3.82	2.80	0.77	4.00	2.74	0.78	4.37	2.90	0.79			
25	2.36	2.14	0.61	3.17	2.36	0.84	3.28	2.54	0.85	3.49	2.52	0.86	3.68	2.75	0.87	3.86	2.69	0.87	4.21	2.85	0.88			
30	2.27	2.10	0.67	3.05	2.32	0.93	3.15	2.50	0.94	3.36	2.48	0.95	3.54	2.70	0.96	3.71	2.65	0.96	4.05	2.80	0.98			
35	2.19	2.06	0.73	2.93	2.27	1.02	3.03	2.45	1.03	3.22	2.43	1.04	3.40	2.65	1.05	3.57	2.60	1.05	3.89	2.74	1.08			
40	2.01	1.94	0.77	2.67	2.14	1.10	2.83	2.31	1.10	2.99	2.29	1.10	3.13	2.50	1.10	3.32	2.45	1.10	3.57	2.58	1.10			
45	1.74	1.74	0.78	2.32	1.98	1.11	2.46	2.14	1.11	2.60	2.12	1.11	2.71	2.31	1.11	2.88	2.26	1.11	3.10	2.39	1.11			
50	1.44	1.44	0.77	1.58	1.58	0.78	1.67	1.67	0.78	1.76	1.76	0.78	1.84	1.84	0.78	1.95	1.95	0.78	2.11	2.11	0.78			

4-2. Heating capacity

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

■ Model: ASHH07KNCH

AFR			m³/h				580					
			Indoor temperature									
			16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	°CDB	°CWB	kW		kW		kW		kW		kW	
	-15	-16	1.96	0.87	1.96	0.88	1.96	0.88	1.92	0.91	1.88	0.93
	-10	-11	2.45	0.92	2.43	0.93	2.38	0.93	2.33	0.96	2.28	0.98
	-5	-7	2.94	0.96	2.91	0.97	2.80	0.98	2.74	1.01	2.68	1.03
	0	-2	3.36	1.00	3.32	1.02	3.21	1.06	3.08	1.06	3.01	1.08
	5	3	3.38	0.91	3.32	0.93	3.24	0.99	3.06	0.97	2.99	0.99
	7	6	3.54	0.91	3.48	0.93	3.40	0.99	3.21	0.97	3.13	0.99
	10	8	3.71	0.92	3.65	0.94	3.56	1.00	3.36	0.98	3.29	1.00
15	10	3.88	0.92	3.82	0.95	3.72	1.00	3.51	0.98	3.43	1.00	
20	15	4.31	0.93	4.24	0.96	4.13	1.01	3.90	0.99	3.69	0.91	
24	18	4.55	0.94	4.47	0.97	4.36	1.02	4.12	1.00	3.79	0.86	

■ Model: ASHH09KNCH

AFR			m³/h				580					
			Indoor temperature									
			16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
			kW		kW		kW		kW		kW	
Outdoor temperature	°CDB	°CWB	2.11	0.94	2.11	0.95	2.11	0.95	2.07	0.98	2.03	1.00
	-15	-16	2.60	0.97	2.59	0.99	2.53	0.99	2.48	1.02	2.43	1.04
	-10	-11	3.10	1.01	3.06	1.03	2.95	1.04	2.89	1.06	2.82	1.09
	-5	-7	3.52	1.05	3.47	1.07	3.36	1.11	3.23	1.11	3.16	1.13
	0	-2	3.93	1.09	3.87	1.11	3.77	1.18	3.56	1.16	3.48	1.18
	5	3	4.14	1.13	4.07	1.16	4.00	1.24	3.78	1.21	3.69	1.24
	7	6	4.44	1.18	4.36	1.21	4.28	1.30	4.04	1.27	3.95	1.30
	10	8	4.27	1.05	4.20	1.08	4.12	1.16	3.90	1.13	3.81	1.16
15	10	5.01	1.25	4.92	1.25	4.65	1.24	4.47	1.21	4.16	1.11	
20	15	5.13	1.25	5.04	1.25	4.73	1.19	4.43	1.10	4.12	1.00	
24	18											

■ Model: ASHH12KNCH

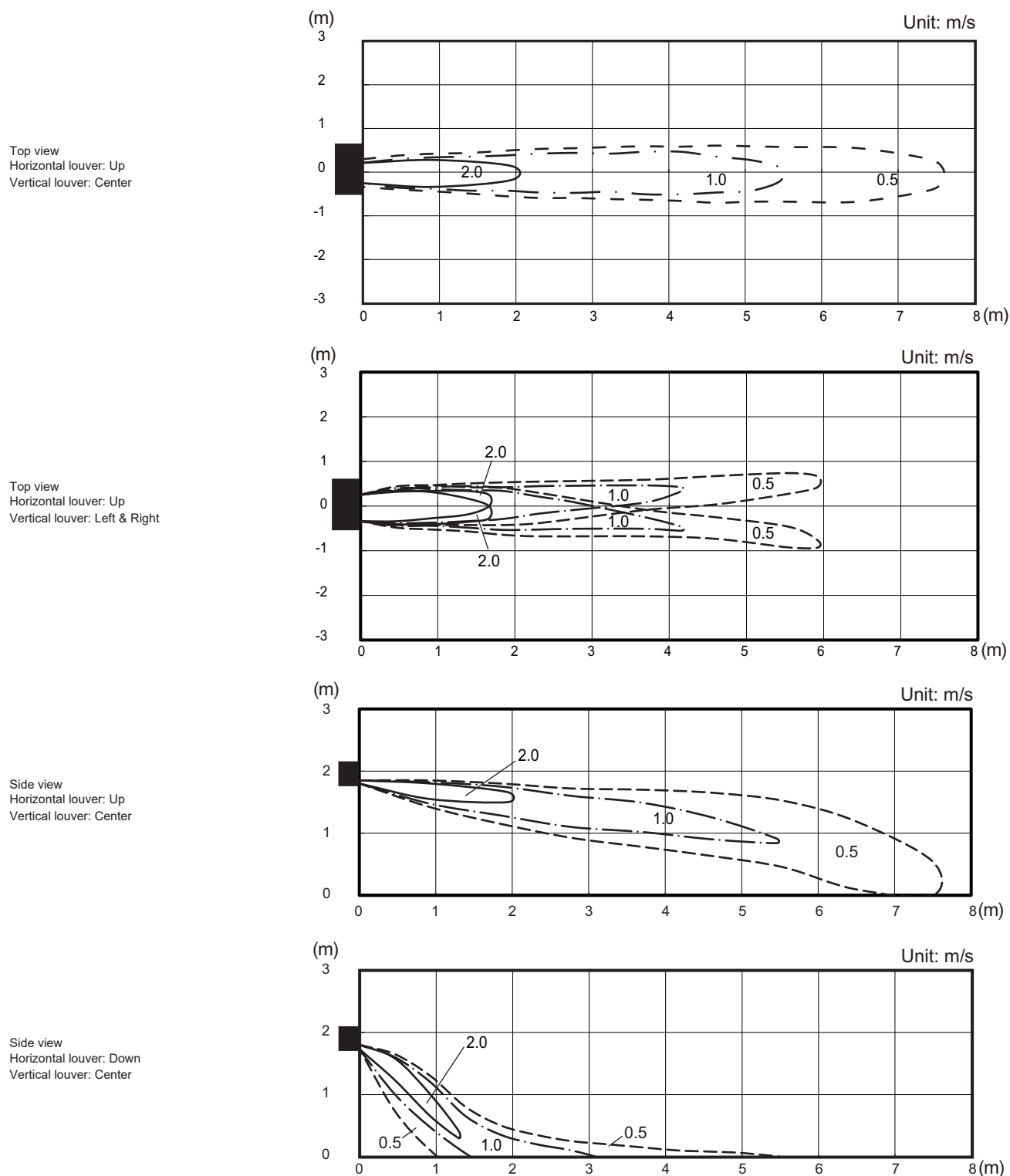
AFR			m³/h				600					
			Indoor temperature									
			16		18		20		22		24	
			TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	°CDB	°CWB	kW		kW		kW		kW		kW	
	-15	-16	2.60	1.07	2.60	1.08	2.60	1.08	2.55	1.11	2.50	1.14
	-10	-11	3.16	1.14	3.14	1.16	3.07	1.17	3.01	1.20	2.94	1.23
	-5	-7	3.71	1.22	3.67	1.24	3.53	1.25	3.46	1.28	3.39	1.31
	0	-2	4.27	1.29	4.21	1.32	4.08	1.37	3.92	1.37	3.83	1.40
	5	3	4.83	1.36	4.75	1.40	4.63	1.48	4.37	1.45	4.27	1.48
	7	6	4.97	1.40	4.88	1.44	4.80	1.54	4.63	1.46	4.46	1.44
	10	8	5.38	1.43	5.28	1.48	5.25	1.61	4.70	1.37	4.52	1.36
15	10	5.25	1.31	5.15	1.29	5.12	1.40	4.70	1.25	4.51	1.23	
20	15	5.28	1.18	5.18	1.16	4.90	1.15	4.71	1.12	4.38	1.03	
24	18	5.46	1.16	5.36	1.16	5.03	1.10	4.71	1.02	4.38	0.93	

5. Fan performance

5-1. Air velocity distributions

■ Model: ASHH07KNCH

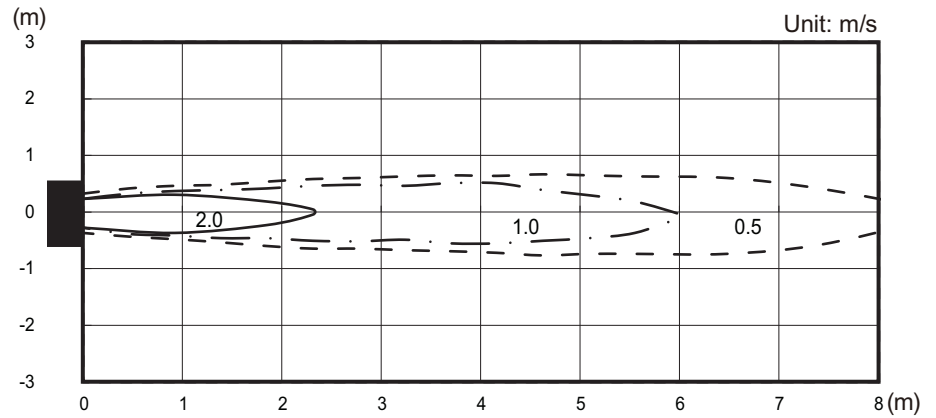
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN



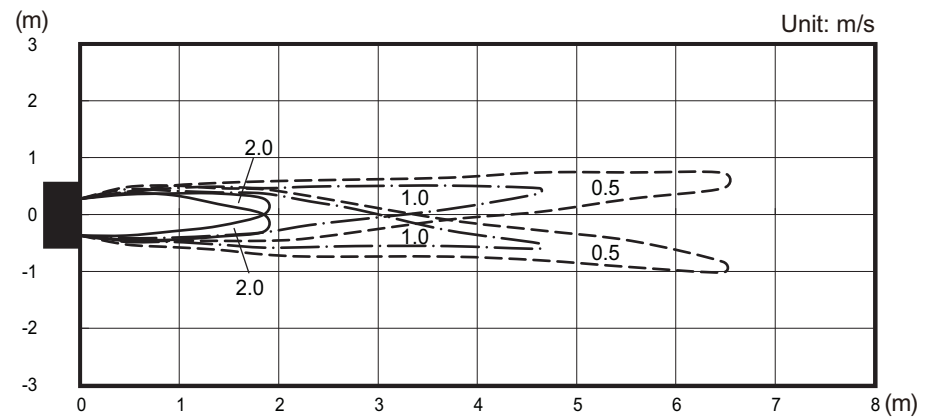
Models: ASHH09KNCH and ASHH12KNCH

Measuring conditions	Fan speed HIGH	Operation mode FAN
----------------------	-------------------	-----------------------

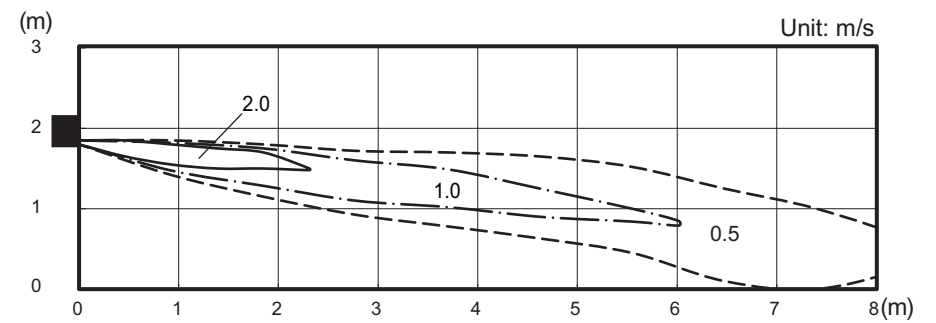
Top view
Horizontal louver: Up
Vertical louver: Center



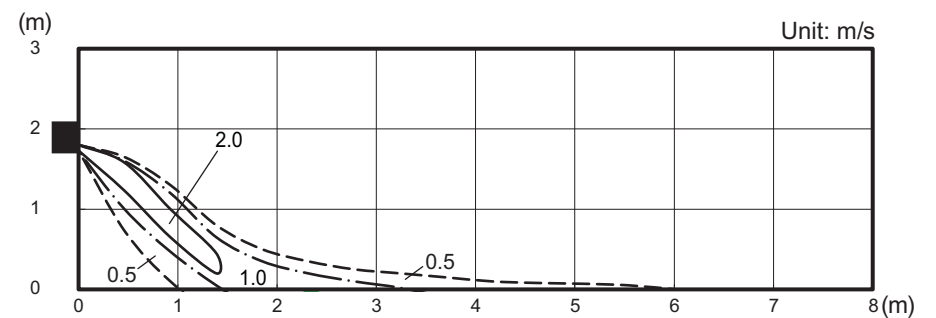
Top view
Horizontal louver: Up
Vertical louver: Left & Right



Side view
Horizontal louver: Up
Vertical louver: Center



Side view
Horizontal louver: Down
Vertical louver: Center



5-2. Airflow

■ Model: ASHH07KNCH

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	530
	l/s	147
	CFM	312
MED	m ³ /h	460
	l/s	128
	CFM	271
LOW	m ³ /h	390
	l/s	108
	CFM	230
QUIET	m ³ /h	250
	l/s	69
	CFM	147

● Heating

Fan speed	Airflow	
HIGH	m ³ /h	580
	l/s	161
	CFM	341
MED	m ³ /h	500
	l/s	139
	CFM	294
LOW	m ³ /h	420
	l/s	117
	CFM	247
QUIET	m ³ /h	280
	l/s	78
	CFM	165

■ Model: ASHH09KNCH

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	580
	l/s	161
	CFM	341
MED	m ³ /h	500
	l/s	139
	CFM	294
LOW	m ³ /h	390
	l/s	108
	CFM	230
QUIET	m ³ /h	250
	l/s	69
	CFM	147

● Heating

Fan speed	Airflow	
HIGH	m ³ /h	580
	l/s	161
	CFM	341
MED	m ³ /h	500
	l/s	139
	CFM	294
LOW	m ³ /h	420
	l/s	117
	CFM	247
QUIET	m ³ /h	280
	l/s	78
	CFM	165

■ Model: ASHH12KNCH

● Cooling

Fan speed	Airflow	
HIGH	m ³ /h	600
	l/s	167
	CFM	353
MED	m ³ /h	520
	l/s	144
	CFM	306
LOW	m ³ /h	440
	l/s	122
	CFM	259
QUIET	m ³ /h	250
	l/s	69
	CFM	147

● Heating

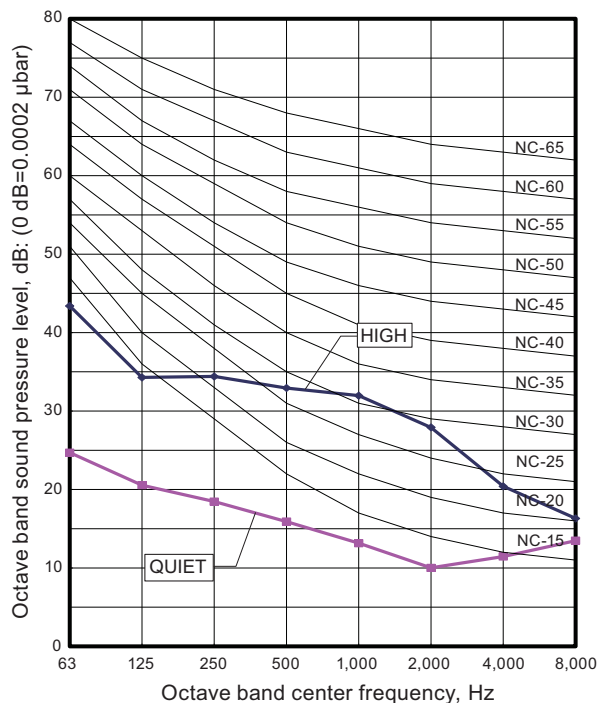
Fan speed	Airflow	
HIGH	m ³ /h	600
	l/s	167
	CFM	353
MED	m ³ /h	520
	l/s	144
	CFM	306
LOW	m ³ /h	440
	l/s	122
	CFM	259
QUIET	m ³ /h	280
	l/s	78
	CFM	165

6. Operation noise (sound pressure)

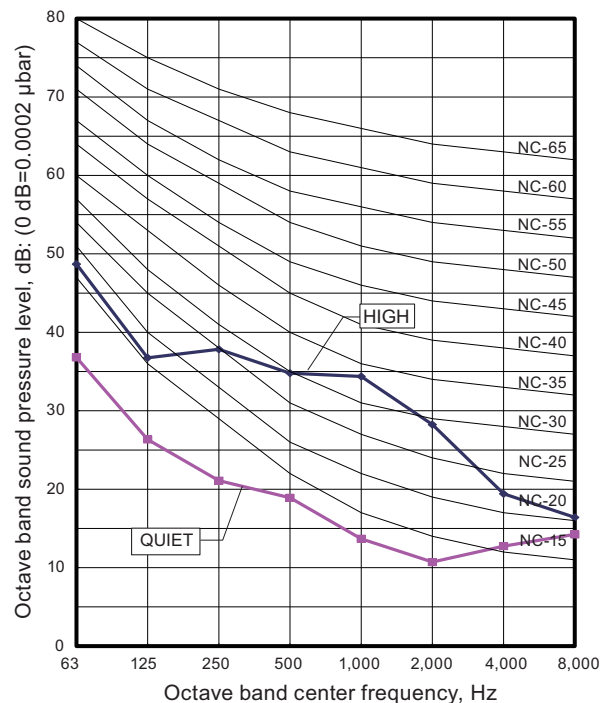
6-1. Noise level curve

■ Model: ASHH07KNCH

● Cooling

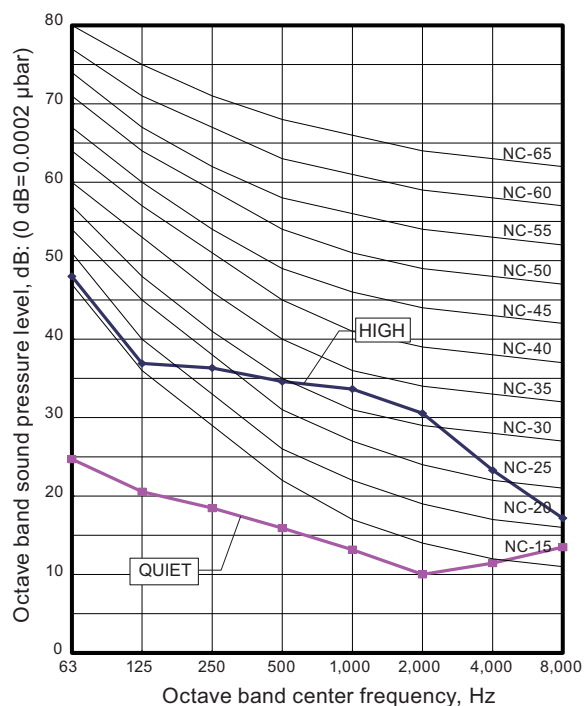


● Heating

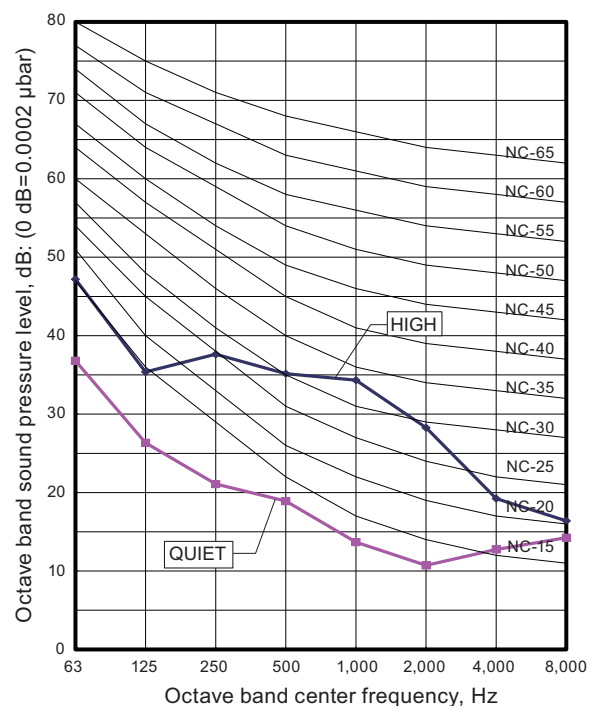


■ Model: ASHH09KNCH

● Cooling

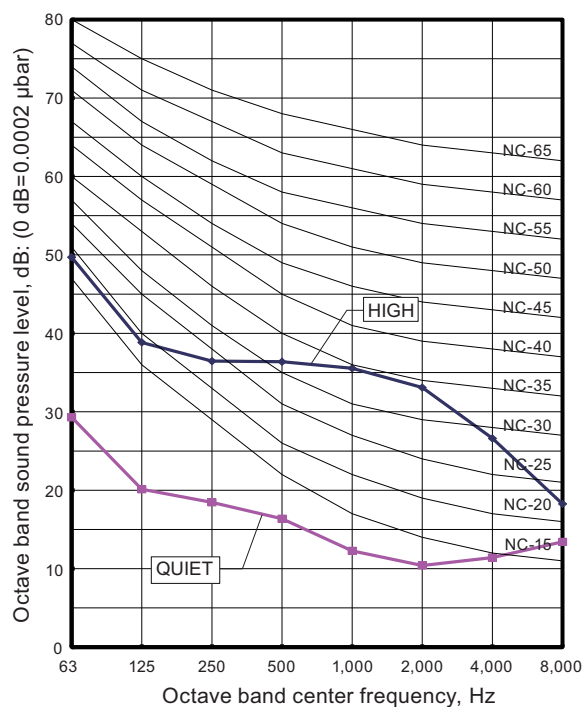


● Heating

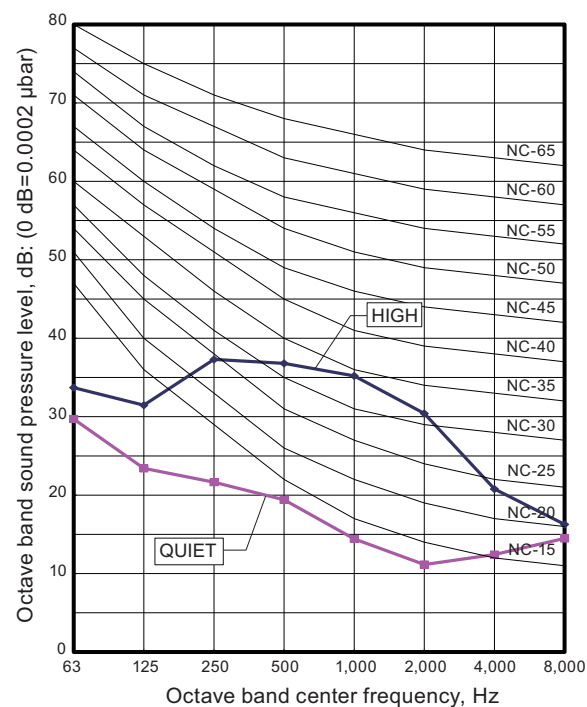


Model: ASHH12KNCH

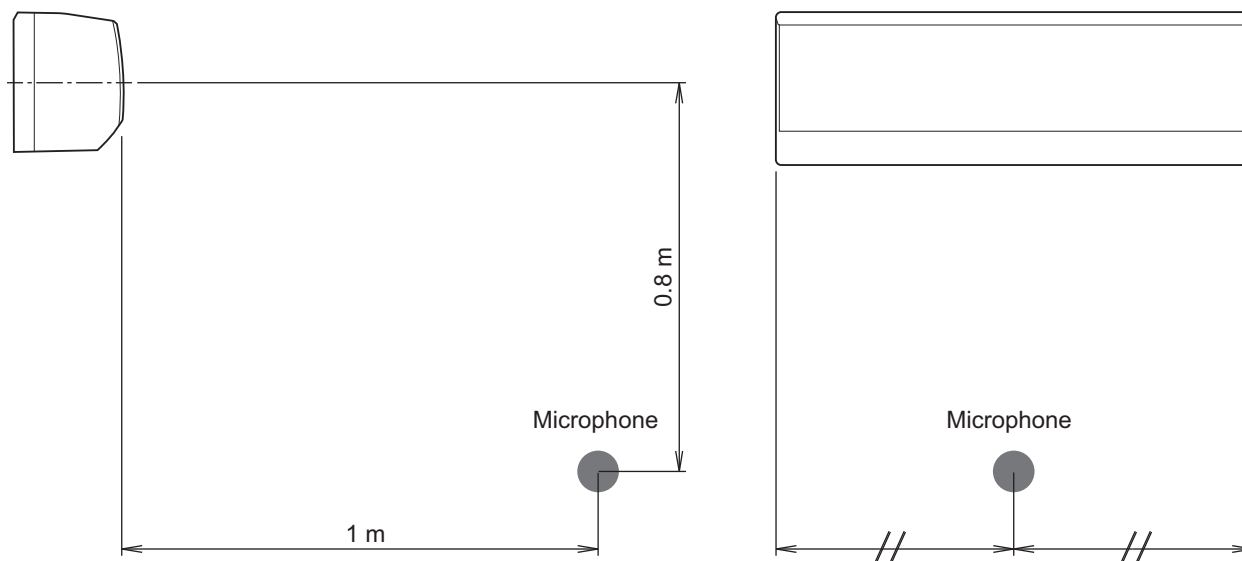
Cooling



Heating



6-2. Sound level check point



NOTE: Detailed shape of the actual indoor unit might be slightly different from the one illustrated above.

7. Safety devices

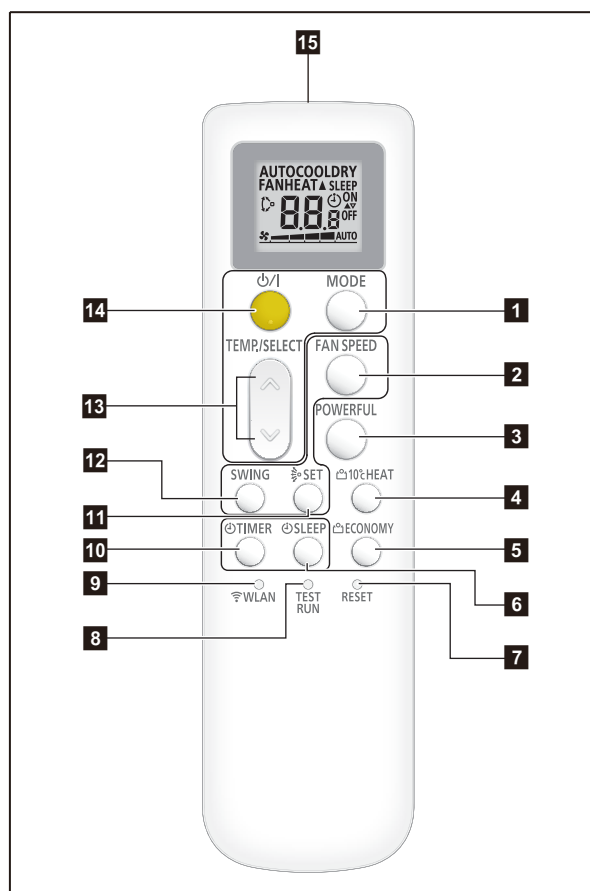
Type of protection	Protection form		Model		
			ASHH07KNCH	ASHH09KNCH	ASHH12KNCH
Circuit protection	Current fuse (PCB*)		250 V, 3.15 A		
Fan motor protection	Thermistor protection	Activate	More than 170°C Fan motor stop		
		Reset	145°C or less Fan motor restart		

*PCB: Printed Circuit Board

8. Remote controller

8-1. Wireless remote controller

Overview



1 MODE button

- Switches operation mode (AUTO, COOL, DRY, FAN, and HEAT).
- Starts/ends the remote controller custom code (max. 4 types) change.

2 FAN SPEED button

- Press the FAN SPEED button while the air conditioner is operating, to control fan speed.

3 POWERFUL button

4 10 °C HEAT button

5 ECONOMY button

6 SLEEP TIMER button

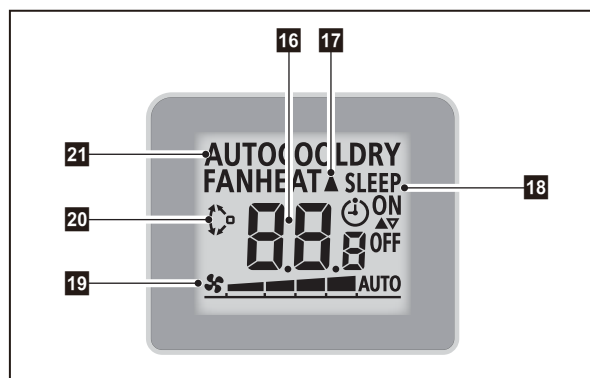
7 RESET button

8 TEST RUN button

- Used only when installing the air conditioner, and should not be used under normal conditions, as it will cause the indoor unit's thermostat malfunction.
- If this button is pressed during normal operation, the indoor unit will switch to test operation mode, and the operation indicator lamp and the timer indicator lamp on the indoor unit will begin to flash simultaneously.
- To stop the test operation mode, press the START/STOP button. Then, the air conditioner stops the operation.

NOTE: If the service check mode starts unintentionally and “- -” appears on the remote controller display, press the START/STOP button to end this operation.

Display panel



9 WLAN button

- Starts the wireless LAN setting.

10 TIMER button

11 SET button (Up/down airflow)

12 SWING button

13 TEMP./SELECT button

- Adjusts the setting temperature.
- Adjusts the value of the timer settings.
- Sets the remote controller code.

14 START/STOP button

15 Signal transmitter

16 Temperature and time indicator

- Displays set temperature.
- In timer setting, it displays the timer time. After finishing the timer setting, set temperature will reappear.

17 Signal transmit indicator

18 Timer mode indicator

19 Fan speed indicator

20 Swing indicator

21 Operating mode indicator

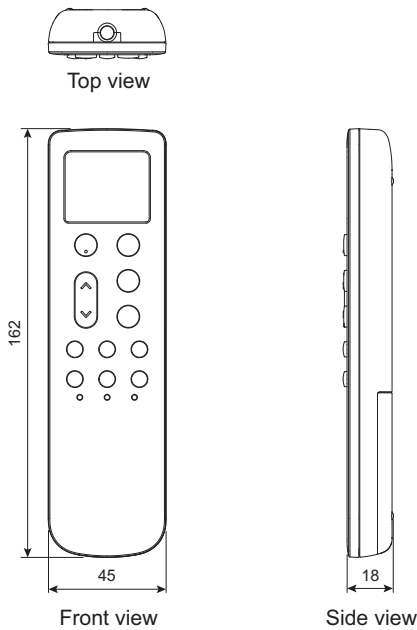
NOTES:

- Functions may differ by type of the indoor unit. For details, refer to the operation manual.
- This figure depicts all indicators that the remote controller can display on the screen for the functional explanation. In actual operation, the remote controller shows only the indicators that are appropriate for the current process.

Specifications

Controller

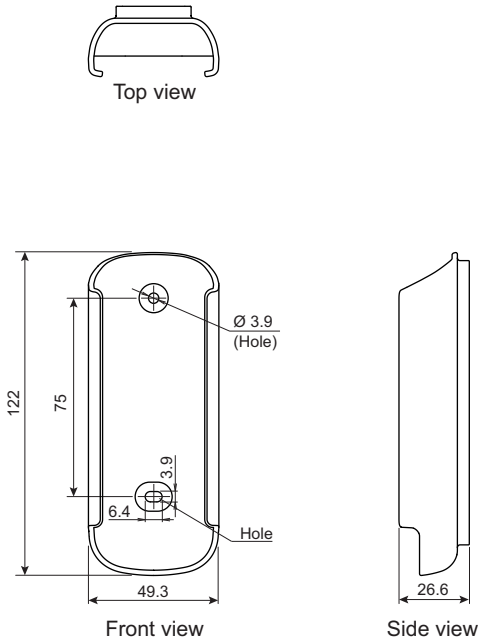
Unit: mm



Size (H × W × D)	mm	162 × 45 × 18
Weight	g	65.5 (without batteries)

Holder

Unit: mm



Size (H × W × D)	mm	122 × 49.3 × 26.6
Weight	g	23.5

9. Function settings

To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

9-1. Function settings by using remote controller

Some function settings can be changed on the remote controller. After confirming the setting procedure and the content of each function setting, select appropriate functions for your installation environment.

■ Setting procedure by using wireless remote controller

The function number and the associated setting value are displayed on the LCD of the remote controller. Follow the instructions written in the local setup procedure supplied with the remote controller, and select appropriate setting according to the installation environment.

Before connecting the power supply of the indoor unit, reconfirm following items:

- Piping air tight test and vacuuming have been performed firmly.
- There is no wiring mistake.

Then, connect the power supply of the indoor unit.

Entering function setting mode:

While pressing the FAN SPEED button and TEMP./SELECT (^) button simultaneously, press the RESET button to enter the function setting mode.

STEP 1: Setting the remote controller custom code

Use the following steps to select the custom code of the remote controller. (The signal is correctly sent and received only when the custom codes of the air conditioner and the remote controller match.)

The custom codes that are set through this process are applicable only to the signal in the function setting.

For details on how to set the custom codes through the normal process, refer to ["Custom code setting for wireless remote controller"](#) on page 25.

1. Press the TEMP./SELECT (^) (✓) buttons to change the custom code between $\overline{A} \rightarrow \overline{b} \rightarrow \overline{c} \rightarrow \overline{d}$. Match the code on the display to the air conditioner custom code. (Initially set to $\overline{A}$.) If the custom code does not need to be selected, press the MODE button, and proceed to **STEP 2**.
2. Press the MODE button to accept the custom code, and proceed to **STEP 2**.



NOTES:

- The air conditioner custom code is set to $\overline{A}$ prior to shipment.
- The remote controller resets to custom code $\overline{A}$ when the batteries on the remote controller are replaced. If you use a custom code other than code $\overline{A}$, reset the custom code after replacing the batteries.
- If you do not know the air conditioner custom code setting, try each of the custom codes ($\overline{A} \rightarrow \overline{b} \rightarrow \overline{c} \rightarrow \overline{d}$) until you find the code that operates the air conditioner.

STEP 2: Selecting the function number and setting value

1. Press the TEMP./SELECT (∧) (∨) buttons to select the function number. To switch between the left and right digits, press the MODE button.
2. Press the FAN SPEED button to proceed the setting value. To return the function number selection, press the FAN SPEED button again.
3. Press the TEMP./SELECT (∧) (∨) buttons to select the setting value. To switch between the left and right digits, press the MODE button.
4. Press the TIMER button, and ϕ /I (START/STOP) button, in the order listed to confirm the settings.
5. Press the RESET button to cancel the function setting mode.
6. After completing the function setting, be sure to disconnect the power supply and then reconnect it.

Function number



Setting value

**⚠ CAUTION**

After disconnecting the power supply, wait 30 seconds or more before reconnecting it. The function setting will not become active unless the power supply is disconnected and then reconnected.

■ Contents of function setting

Each function setting listed in this section is adjustable in accordance with the installation environment.

NOTE: Setting will not be changed if invalid numbers or setting values are selected.

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	30/31	Room temperature control for indoor unit sensor
3)	40	Auto restart
4)	44	Remote controller custom code
5)	49	Indoor unit fan control for energy saving for cooling

1) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

Function number	Setting value	Setting description	Factory setting
11	00	Standard (400 hours)	
	01	Long interval (1,000 hours)	
	02	Short interval (200 hours)	
	03	No indication	◆

2) Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required. Select the appropriate control setting according to the installed environment.

The temperature of the room temperature sensor is corrected as follows:

Corrected temp. = Temp. of the room temp. sensor - Correction temp. value

Example of correction:

When the temperature of the room temp. sensor is 26°C and the setting value is "03" (-1.0°C), corrected temp. will be 27°C (26°C - [-1.0°C]).

The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).

Function number		Setting value	Setting description	Factory setting
30 (For cooling)	31 (For heating)	00	Standard setting	◆
		01	No correction 0.0°C	
		02	-0.5°C	More cooling Less heating
		03	-1.0°C	
		04	-1.5°C	
		05	-2.0°C	
		06	-2.5°C	
		07	-3.0°C	
		08	-3.5°C	
		09	-4.0°C	
		10	+0.5°C	Less cooling More heating
		11	+1.0°C	
		12	+1.5°C	
		13	+2.0°C	
		14	+2.5°C	
		15	+3.0°C	
		16	+3.5°C	
		17	+4.0°C	

3) Auto restart

Enables or disables automatic restart after a power interruption.

Function number	Setting value	Setting description	Factory setting
40	00	Enable	◆
	01	Disable	

NOTE: Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

4) Remote controller custom code

(Only for wireless remote controller)

The indoor unit custom code can be changed. Select the appropriate custom code.

Function number	Setting value	Setting description	Factory setting
44	00	A	◆
	01	B	
	02	C	
	03	D	

5) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

Function number	Setting value	Setting description	Factory setting
49	00	Disable	
	01	Enable	
	02	Remote controller	◆

00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.

01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.

02: Enable or disable this function by remote controller setting.

NOTE: Set to "00" or "01" when connecting a remote controller that cannot set the Fan control for energy saving function or connecting a network converter. To confirm if the remote controller has this setting, refer to the operating manual of each remote controller.

9-2. Custom code setting for wireless remote controller

To interconnect the air conditioner and the wireless remote controller, assignment of the custom code for the wireless remote controller is required.

NOTE: Air conditioner cannot receive a signal if the air conditioner has not been set for the custom code.

When 2 or more air conditioners are installed in a room, and the remote controller is operating an air conditioner other than the one you wish to set, change the custom code of the remote controller to operate only the air conditioner you wish to set. (4 selections possible.)

Confirm the setting of the remote controller custom code and the function setting. If these do not match, the remote controller cannot be used to operate for the air conditioner.

1. Press the ϕ/I (START/STOP) button until the indicators on the remote controller turn off.
2. Press the MODE button for at least 5 seconds to display the current custom code. (Initially set to $\overline{A}$.)
3. Press the TEMP./SELECT ($\wedge$) ($\vee$) buttons to change the custom code between $\overline{A} \rightarrow \overline{b} \rightarrow \overline{c} \rightarrow \overline{d}$. Match the code on the display to the air conditioner custom code. (Initially set to $\overline{A}$.)
4. Press the MODE button again to return to the original display. The custom code will be changed.

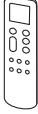
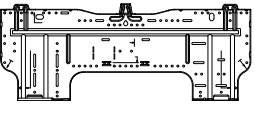
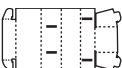
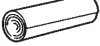


NOTES:

- If no button is pressed within 30 seconds after the custom code is displayed, the system returns to the original display. In this case, start again from step 1.
- The air conditioner custom code is set to $\overline{A}$ prior to shipment. To change the custom code, contact your retailer.
- If you do not know the assigned code for the air conditioner, try each of the custom code ($\overline{A} \rightarrow \overline{b} \rightarrow \overline{c} \rightarrow \overline{d}$) until you find the code which operates the air conditioner.

10. Accessories

10-1. Models: ASHH07KNCH, ASHH09KNCH, and ASHH12KNCH

Part name	Exterior	Qty	Part name	Exterior	Qty
Operation manual		1	Self-tapping screw (Large)		5
Installation manual		1	Self-tapping screw (Small)		2
Remote controller		1	Wall hook bracket		1
Battery		2	Remote controller holder		1
Installation spacer		1	Cloth tape		1

11. Optional parts

11-1. Others

Exterior	Part name	Model name	Summary
	Air Cleaning Filter	UTR-FA16-5	Air Cleaning Filter can be mounted to the indoor unit. (For antibacterial)
	WLAN Adapter	UTY-TFSXH3	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. Appropriate application for each region is required to use this option. For details, contact FGL sales company. Connecting point: CN75 on Main PCB via USB connector

Part 2. OUTDOOR UNIT

SINGLE TYPE:

AOHH07KNCA

AOHH09KNCA

AOHH12KNCA

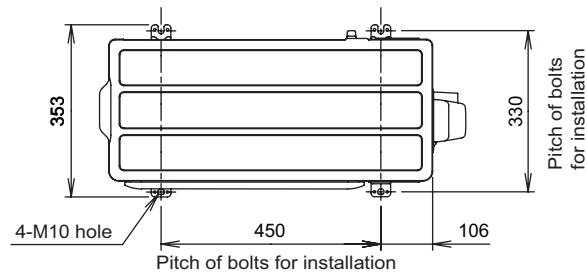
1. Specifications

Type				Inverter, Heat pump		
Model name				AOHH07KNCA	AOHH09KNCA	AOHH12KNCA
Power supply				230 V~ 50 Hz		
Power supply intake				Outdoor unit		
Available voltage range				198—264 V		
Starting current			A	3.1	3.6	5.1
Fan	Airflow rate	Cooling	m³/h	1,430		1,460
		Heating		1,390		1,360
	Type × Qty			Propeller fan × 1		
	Motor output		W	23		
Sound pressure level*		Cooling	dB (A)	43	44	49
		Heating		44	45	49
Sound power level		Cooling	dB (A)	53	56	60
		Heating		54	56	61
Heat exchanger type		Dimensions (H × W × D)	mm	504 × 650 × 18.2		504 × 630 × 36.4
		Fin pitch	FPI	1.3		
		Rows × Stages		1 × 24		2 × 24
		Pipe type		Copper tube		
		Fin type		Type (Material)	Aluminum	
			Surface treatment	Blue fin		
Compressor		Type		DC rotary		
		Motor output	W	538		615
Refrigerant		Type (Global warming potential)		R32 (675)		
		Charge	g	570		650
Refrigerant oil		Type		VG74		
		Amount	cm³	240		
Enclosure		Material		Steel sheet		
		Color		Beige		
				Approximate color of Munsell 10YR 7.5/1.0		
Dimensions (H × W × D)		Net	mm	541 × 663 × 290		
		Gross		596 × 798 × 369		
Weight		Net	kg	22		24
		Gross		24		27
Connection pipe	Size	Liquid	mm (in)	Ø6.35 (Ø1/4)		
		Gas		Ø9.52 (Ø3/8)		
	Method			Flare		
	Pre-charge length		m	15		
	Max. length			20		
	Max. height difference			15		
Operation range		Cooling	°C	-10 to 50		
		Heating		-15 to 24		
Drain hose		Material		Polypropylene		
		Tip diameter	mm	φ13.0(I.D.), φ16.0 to φ16.8(O.D.)		
NOTES: - 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/ —°CWB, and outdoor temperature of 7°CDB/6°CWB). - Pipe length: 5 m, Height difference: 0 m. (Between outdoor unit and indoor unit.) - Protective function might work when using it outside the operation range. *: Sound pressure level - Measured values in manufacturer's semi-anechoic chamber. - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.						

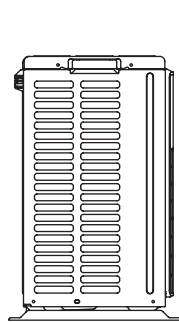
2. Dimensions

2-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA

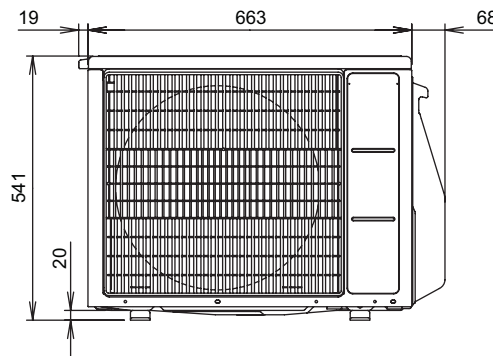
Unit: mm



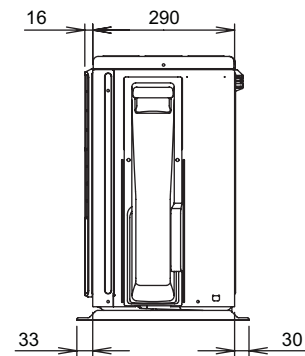
Top view



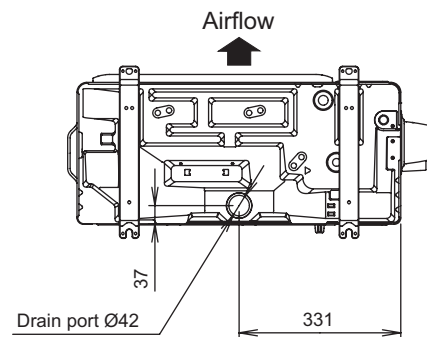
Side view



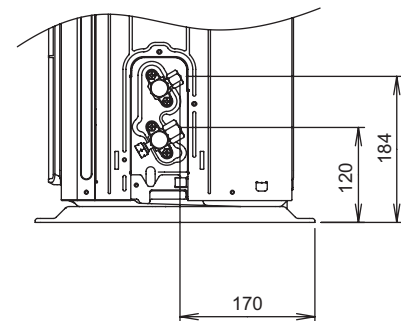
Front view



Side view



Bottom view



Side view (Valve part)

3. Installation space

3-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA

■ Space requirement

Provide sufficient installation space for product safety.

⚠ CAUTION

Keep the space shown in the installation examples.

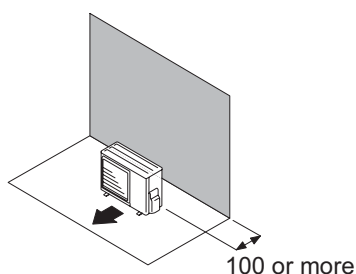
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

● Single outdoor unit installation

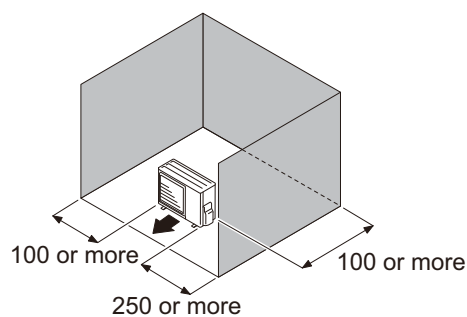
- When the upper space is open:

Unit: mm

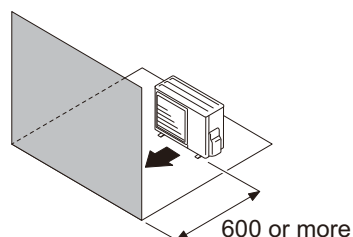
Obstacles at rear only



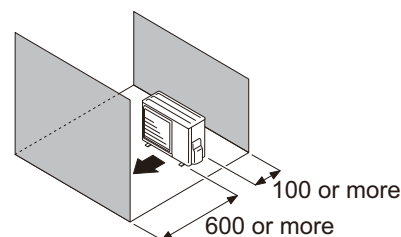
Obstacles at rear and sides



Obstacles at front



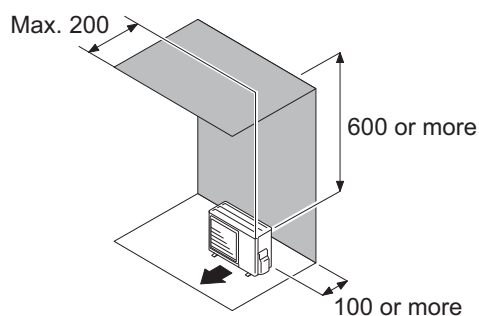
Obstacles at front and rear



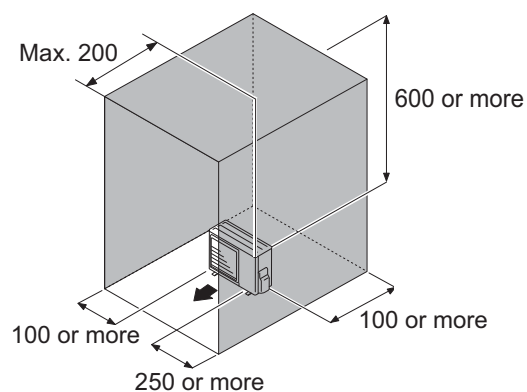
- When an obstruction in the upper space:

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



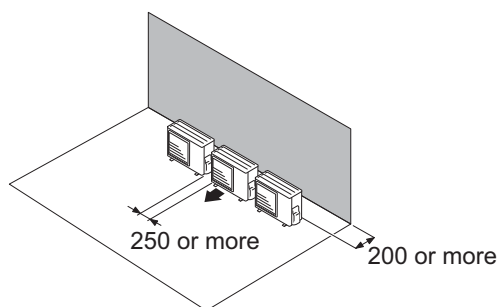
● Multiple outdoor unit installation

- Provide at least 250 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for piping.
- No more than 3 units must be installed side by side.
When 4 units or more are arranged in a line, provide the space as shown in the following example **“When an obstruction in the upper space:”**.

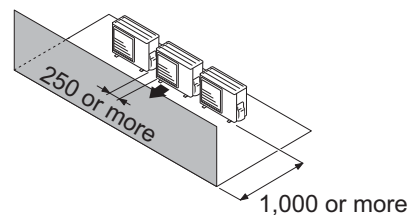
- **When the upper space is open:**

Unit: mm

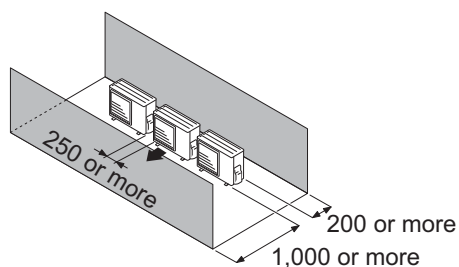
Obstacles at rear only



Obstacles at front only



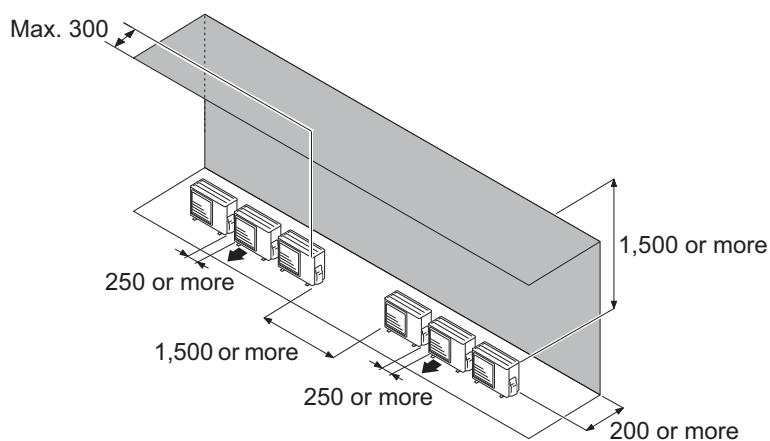
Obstacles at front and rear



- **When an obstruction in the upper space:**

Unit: mm

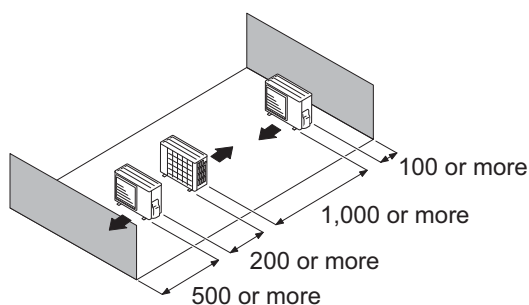
Obstacles at rear and above.



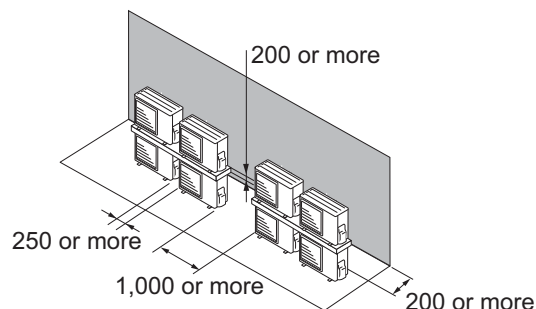
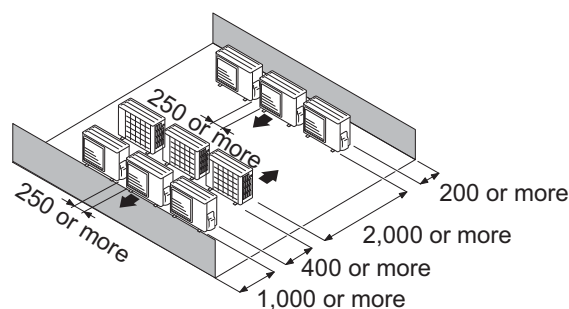
● Outdoor units installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

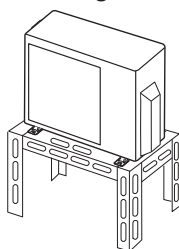


NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

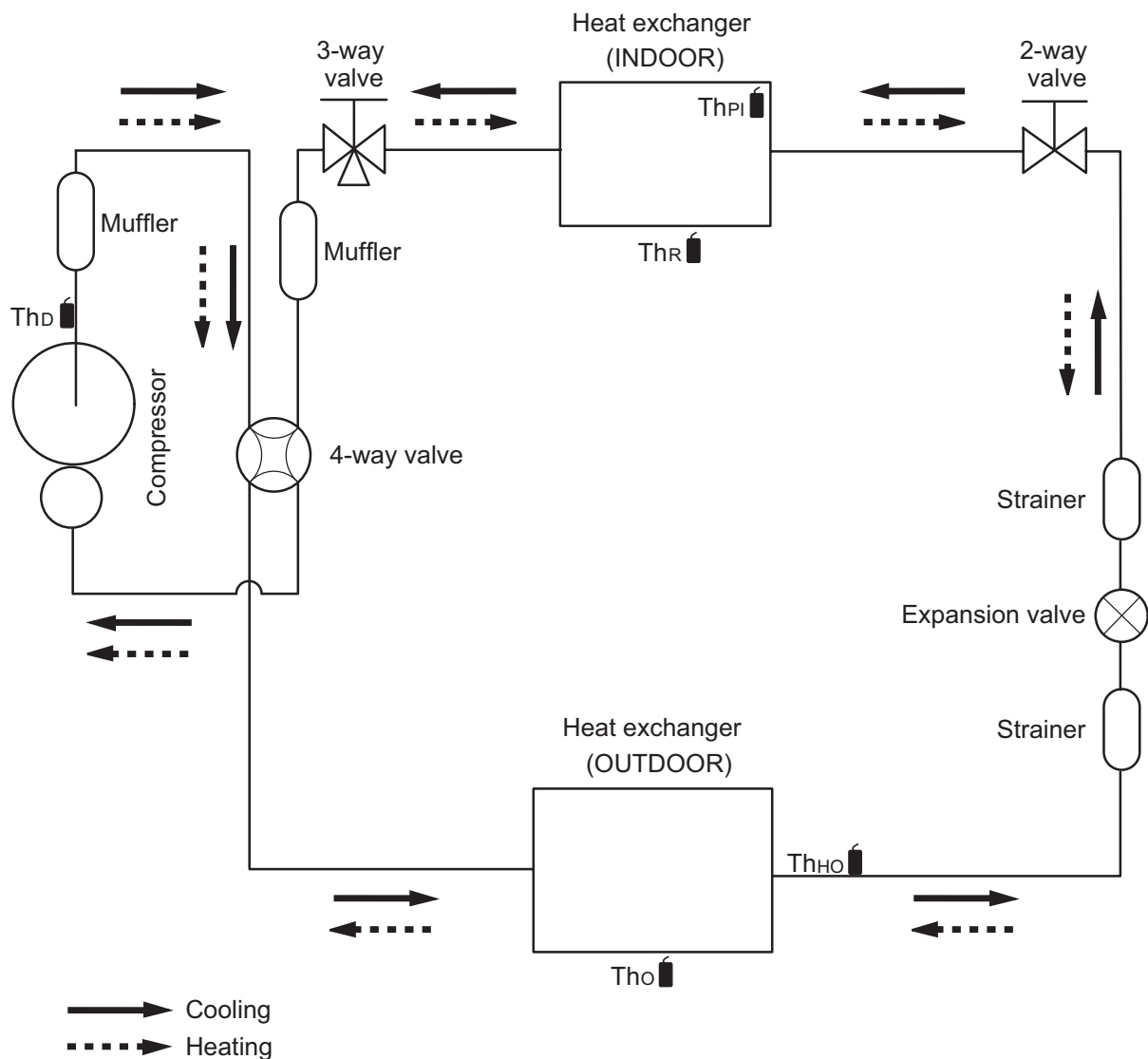
⚠ CAUTION

- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.



4. Refrigerant circuit

4-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA



Th_D : Thermistor (Discharge temperature)

Th_O : Thermistor (Outdoor temperature)

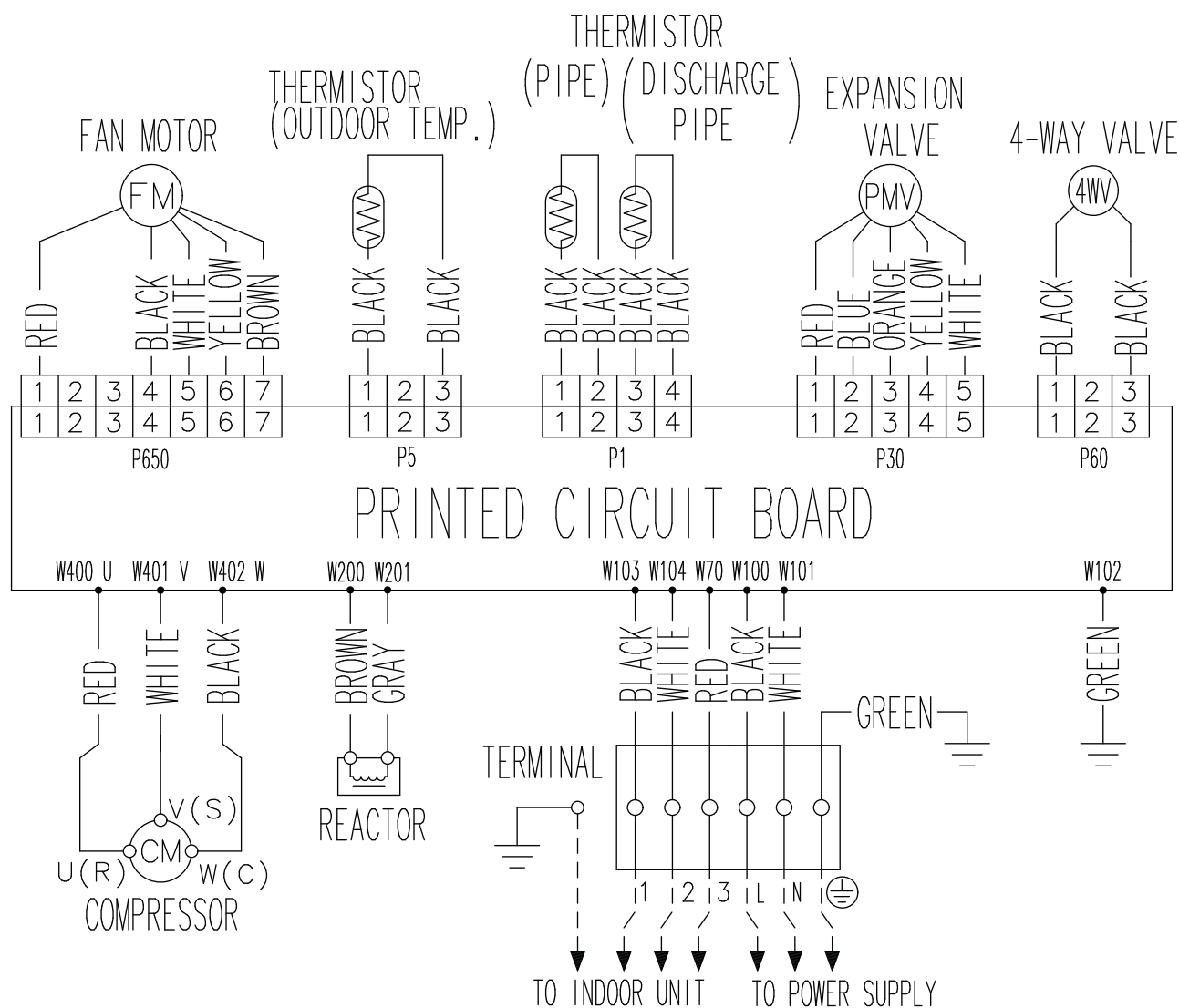
Th_{HO} : Thermistor (Heat exchanger out temperature)

Th_{PI} : Thermistor (Pipe temperature)

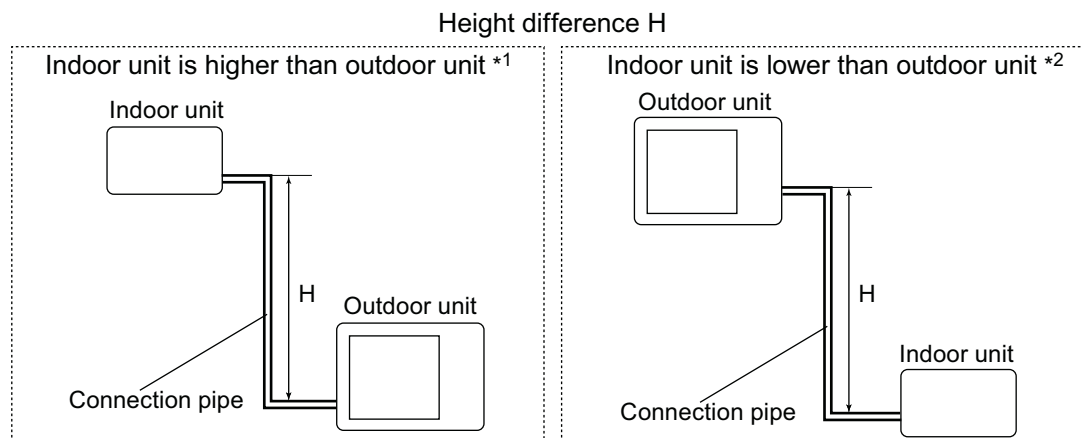
Th_R : Thermistor (Room temperature)

5. Wiring diagrams

5-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA



6. Capacity compensation rate for pipe length and height difference



6-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA

NOTE: Values mentioned in the table are calculated based on the maximum capacity.

COOLING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.872	0.910
		10	—	—	0.961	0.886	0.925
		7.5	—	0.979	0.965	0.890	0.929
		5	0.992	0.983	0.969	0.893	0.933
		0	1.000	0.991	0.976	0.901	0.940
	Indoor unit is lower than outdoor unit *2	-5	1.000	0.991	0.976	0.901	0.940
		-7.5	—	0.991	0.976	0.901	0.940
		-10	—	—	0.976	0.901	0.940
		-15	—	—	—	0.901	0.940

HEATING			Pipe length (m)				
			5	7.5	10	15	20
Height difference H (m)	Indoor unit is higher than outdoor unit *1	15	—	—	—	0.832	0.822
		10	—	—	0.917	0.832	0.822
		7.5	—	0.961	0.917	0.832	0.822
		5	1.000	0.961	0.917	0.832	0.822
		0	1.000	0.961	0.917	0.832	0.822
	Indoor unit is lower than outdoor unit *2	-5	0.955	0.956	0.912	0.828	0.818
		-7.5	—	0.954	0.910	0.826	0.816
		-10	—	—	0.908	0.824	0.814
		-15	—	—	—	0.815	0.805

7. Additional charge calculation

7-1. Models: AOHH07KNCA and AOHH09KNCA

Refrigerant type		R32
Factory charge amount	g	570

■ Refrigerant charge

Total pipe length	m	15 or less	20 (Max.)	20 g/m
Additional charge amount	g	0	100	

7-2. Model: AOHH12KNCA

Refrigerant type		R32
Factory charge amount	g	650

■ Refrigerant charge

Total pipe length	m	15 or less	20 (Max.)	20 g/m
Additional charge amount	g	0	100	

8. Airflow

8-1. Model: AOHH07KNCA

● Cooling

m ³ /h	1,430
l/s	397
CFM	842

● Heating

m ³ /h	1,390
l/s	386
CFM	818

8-2. Model: AOHH09KNCA

● Cooling

m ³ /h	1,430
l/s	397
CFM	842

● Heating

m ³ /h	1,390
l/s	386
CFM	818

8-3. Model: AOHH12KNCA

● Cooling

m ³ /h	1,460
l/s	406
CFM	859

● Heating

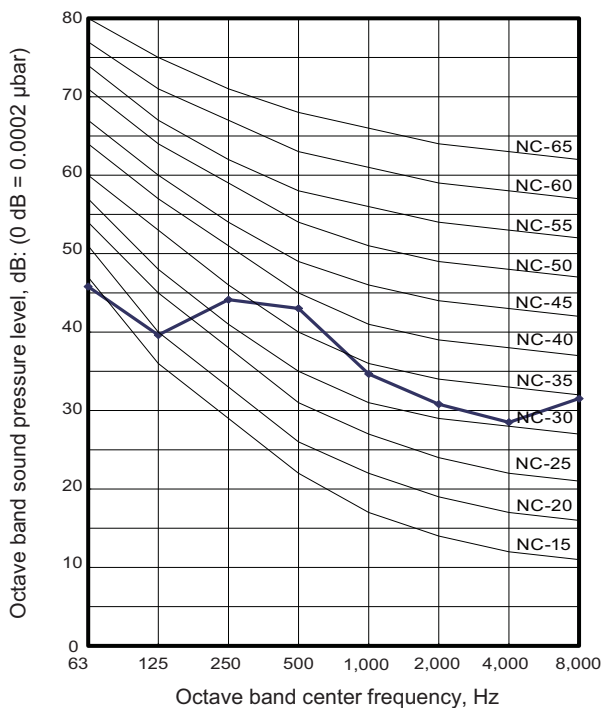
m ³ /h	1,360
l/s	378
CFM	800

9. Operation noise (sound pressure)

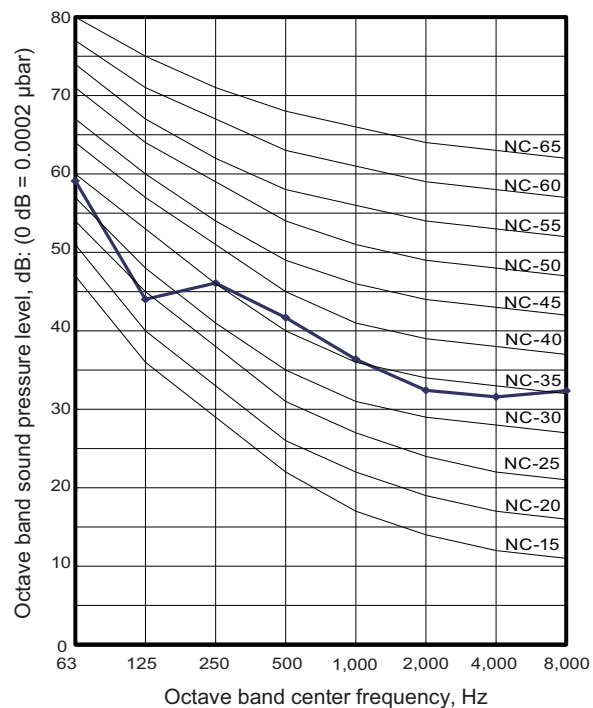
9-1. Noise level curve

■ AOHH07KNCA

● Cooling

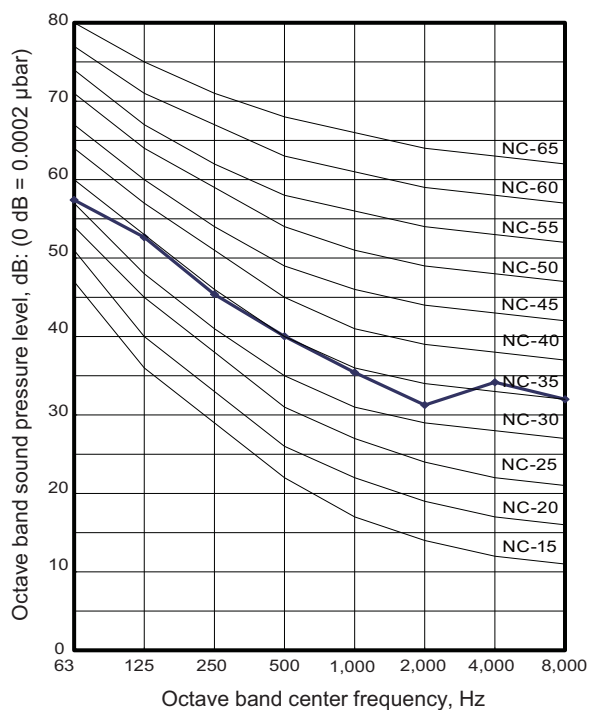


● Heating

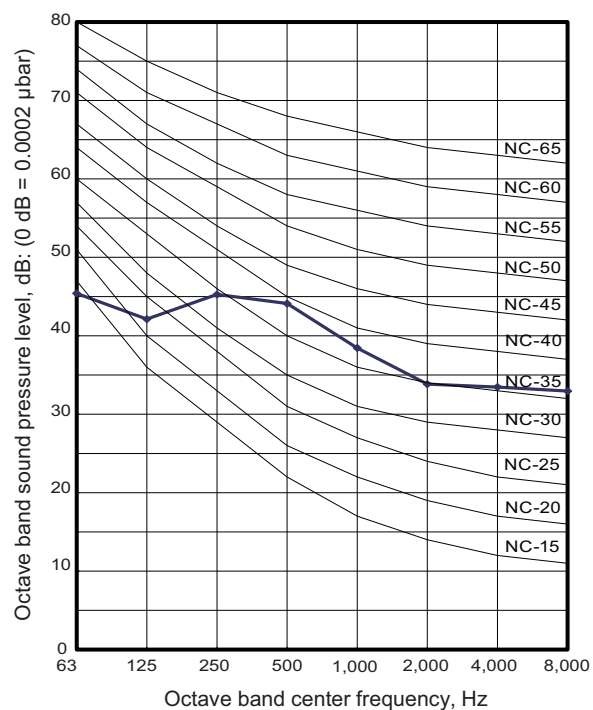


■ AOHH09KNCA

● Cooling

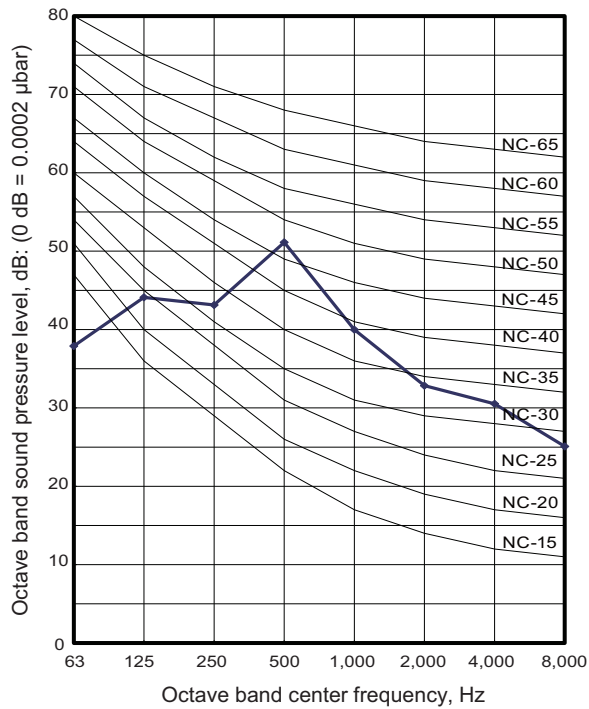


● Heating

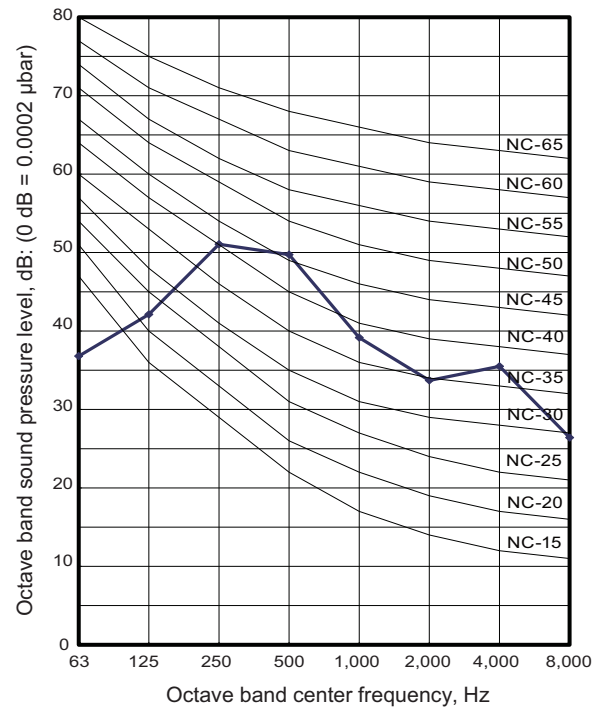


■ AOHH12KNCA

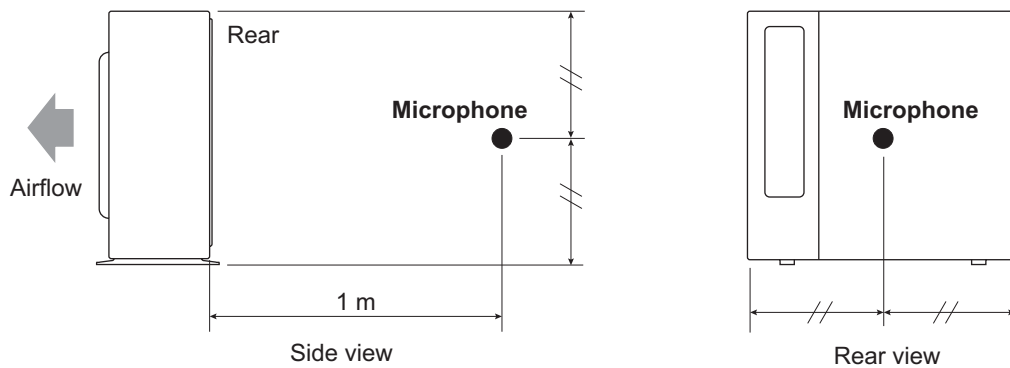
● Cooling



● Heating



9-2. Sound level check point



NOTE: Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.

10. Electrical characteristics

Model name				AOHH07KNCA	AOHH09KNCA	AOHH12KNCA
Power supply	Voltage		V	230		
	Frequency		Hz	50		
Max operating current* ¹			A	9.0		
Starting current			A	3.1	3.6	5.1
Wiring spec.* ²	Circuit breaker current		A	10		
	Power cable		mm ²	1.5		
	Connection cable* ³	Cross-sectional area	mm ²	1.5		
		Limited wiring length	m	21		

NOTES:

- *1: Maximum operating current is the total current of the indoor unit and the outdoor unit.
- *2: Selected sample based on Japan Electrotechnical Standards and Codes Committee E0005. As the regulations of wire size and circuit breaker differ in each country or region, select appropriate devices complied to the regional standard.
- *3: Limit voltage drop to less than 2%. If voltage drop is 2% or more, increase cable conductor size.

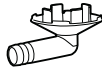
11. Safety devices

Type of protection	Protection form		Model		
			AOHH07KNCA	AOHH09KNCA	AOHH12KNCA
Circuit protection	Current fuse (PCB*)		250 V, 20 A		
			250 V, 5 A		
Fan motor protection	Thermal protection program	Activate	85—122°C Fan motor stop		
		Reset	77—114°C Fan motor restart		
Compressor protection	Thermal protection program (Discharge temp.)	Activate	110°C Compressor stop		
		Reset	After 7 minutes Compressor restart		
	Thermal protection program (Outdoor temp.) (Only in COOL and DRY mode)	Activate	COOL or DRY: -15°C Compressor stop		
		Reset	COOL or DRY: -10°C Compressor restart		

*PCB: Printed Circuit Board

12. Accessories

12-1. Models: AOHH07KNCA, AOHH09KNCA, and AOHH12KNCA

Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1	Drain pipe		1