

Hisense

Qingdao Hisense Hitachi Air-conditioning Systems Co.,Ltd.

Add: Hisense Information Industry Park 218,Qianwangang
Road, Qingdao Economic Development Zone,China
Tel:+86-532-80879968 **Fax:**+86-532-80875929
Http: //www.hisensehitachi.com
E-mail: export@hisensehitachi.com

Specifications in this catalogue are subject to change without notice,in order that Hisense may bring the latest innovations to their customers.

Hisense

INDOOR UNITS Technical Catalog

TC2 2017003E

Hisense



Inverter-Driven Multi-Split
Central Air Conditioning
Heat Pump System

INDOOR UNITS

Technical Catalog

- Technical Data -

Series

<Indoor Units>

- Ceiling Ducted Type (Low Static Pressure)
- Ceiling Ducted Type (High Static Pressure)
- Low-Height Ceiling Ducted Type
- DC Low Height Ducted Type
- Slim Ceiling Ducted Type
- 4-Way Cassette Type
- Mini 4-Way Cassette Type
- Ceiling & Floor Type
- Wall Mounted Type
- Floor Concealed Type
- All Fresh Air Indoor Unit
- 2-Way Cassette Type
- 1-Way Cassette Type
- Console Type

IMPORTANT NOTICE

- Hisense pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- Hisense cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards. The following standards may be applicable if local regulations are not available. British Standard, BS4434 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

▲ DANGER

: Immediate hazards which WILL result in severe personal injury or death.

▲ WARNING

: Hazards or unsafe practices which COULD result in severe personal injury or death.

▲ CAUTION

: Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

NOTE

: Useful information for operation and/or maintenance.

- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of Hisense.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well as for other models.
- This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.

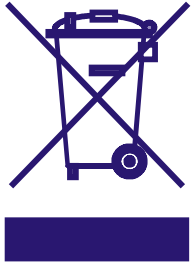
Temperature (°C)

		Maximum	Minimum
Cooling Operation	Indoor	32 DB/23 WB	21 DB/15 WB
	Outdoor	43 DB	-5 DB
Heating Operation	Indoor	27 DB	15 DB
	Outdoor	15 WB	-20WB

DB: Dry Bulb, WB: Wet Bulb

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

IMPORTANT NOTICE



Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage.
Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.

Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.

Please contact your local agent, as the occasion arises.

Hisense's liability shall not cover defects arising from the alteration performed by a customer without Hisense's consent in a written form.

Safety Summary

DANGER

- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Do not open the service cover or access the indoor or outdoor units without turning OFF the main power supply.

WARNING

- Refrigerant leakage can cause difficulty with breathing due to insufficient air.
If leakage occurs, turn OFF the main switch, put out fire at once and contact your service contractor.
- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If earth leakage breaker (ELB) or fuse is often activated, stop the system and contact your service contractor.

CAUTION

- The appliance is not to be used by children or person with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised that they do not play with the appliance.
- The appliance should not be installed in the laundry.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
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Technical Data

1. Connectable Outdoor Units and Working Range

1.1 Connectable Outdoor Units

Hi-Flexi M Series	AVWT-86/96/114U(6/7/9)SR	Hi-Flexi X Series -Heat Pump System	AVWT-76/96UESRX
	AVWT-136/154U(6/7/9)SS		AVWT-114/136/154UESSX
	AVWT-182~460U(6/7/9)SZ		AVWT-172~460UESZX
Hi-Flexi R Series	AVWT-76/96/114FE(7/9)SR	Multi-Function System	AFW-38/48/54U4SC
	AVWT-136/154/170FE(7/9)SS	Hi-Flexi C Series	AVW-76/96/114UESR
	AVWT-1190~510FE(7/9)SZ		AVW-76/96/114U7SR
Hi-Flexi X Series -Cooling only System	AVWT-76/96TESRX		AVW-76/96/114U9SR
	AVWT-114/136/154TESSX	Hi-Flexi G+ Series	AVWT-76~114UK/8SNA
	AVWT-172/460TESZX		AVWT-136~170UK/8STA
Hi-Flexi M Series -Water Source	AVWW-28/38/48/54UC(2)SA		AVWT-190~212UK/8S1A
	AVWW-76~190UE(7)SB		AVWT-232~840UK/8SZA
Hi-Flexi L Series	AVW-38/48/54UC(2)SC	Hi-Flexi G Series	AVWT-76/96/114UE(7)SRG
	AVW-48/54UE(7)SC		AVWT-136/154/170UE(7)SSG
Hi-Flexi E Series	AVW-28/34/43UC(2)SB		AVWT-190~510UE(7)SZG
	AVW-43UE(7)SB		

1.2 Working Range

Power Supply

Working Voltage: 90% to 110% of the Rated Voltage

Voltage Imbalance: Within a 3% Deviation from Each Voltage at the Main Terminal of Indoor Unit Starting

Voltage: Higher than 85% of the Rated Voltage

Temperature Range

The temperature range are given in the following table (Except for All Fresh Air Indoor Unit).

		Cooling Operation	Heating Operation
Indoor Temperature:	Minimum	21℃ DB/15.0℃ WB	15℃ DB
	Maximum	32℃ DB/23.0℃ WB	27℃ DB
Outdoor Temperature:	Minimum	-5℃ DB *	-20℃ WB *
	Maximum	43℃ DB *	15℃ WB *

For All Fresh Air Indoor Unit

		Cooling Operation	Heating Operation
Outdoor Temperature:	Minimum	20℃ DB *	-7℃ WB *
	Maximum	43℃ DB *	15℃ WB *

*: The temperature may change depending on the outdoor units.

2. Necessary Tools

Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	12	Charging Cylinder
2	Phillips Screwdriver	13	Gauge Manifold
3	Vacuum Pump	14	Cutter for Wires
4	Refrigerant Gas Hose	15	Gas Leak Detector
5	Megohmmeter	16	Leveller
6	Copper Pipe Bender	17	Clamper for Solderless Terminals
7	Manual Water Pump	18	Hoist (for Indoor Unit)
8	Pipe Cutter	19	Ammeter
9	Brazing Kit	20	Voltage Meter
10	Hexagon Wrench	21	Wrench
11	Spanner		

NOTE

About vacuum pump, gas hose, charging cylinder, gauge manifold, please use suitable equipments for R410A respectively. Do not mix other refrigerant.

3. Transportation and Handling

3.1 Transportation

Transport the product as close to the installation location as practical before unpacking.

CAUTION

Do not put any material on the product.

3.2 Handling of Indoor Unit

WARNING

Do not put any foreign material into the indoor unit and check to ensure that none exists in the indoor unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

CAUTION

Be careful not to damage on insulation materials of unit's surface when lifting.

4. Indoor Unit Installation

DANGER

Do not install the indoor unit in a flammable environment to avoid fire or an explosion.

WARNING

- Check to ensure that the ceiling slab is strong enough. If not strong enough, the indoor unit may fall down on you.
- Do not install the indoor unit outdoors. If installed outdoors, an electric hazard or electric leakage will occur.

It is recommended that indoor units be installed higher than 2.5 meters from the floor level.

5. Ceiling ducted type(AVD)

5.1 General Data

Indoor Unit Type		Ceiling Ducted Type (Low Static Pressure)				
Model	AC 1φ, 220-240V/50Hz	AVD-07UXCSAL	AVD-09UXCSAL	AVD-12UXCSAL	AVD-14UXCSAL	AVD-17UXCSBL
Power Supply	AC 1φ, 220V/60Hz	AVD-07UX2SAL	AVD-09UXC2AL	AVD-12UX2SAL	AVD-14UX2SAL	AVD-17UX2SBL
Nominal Cooling Capacity *1)	kW	2.3	2.9	3.8	4.4	5.2
	kcal/h	2,000	2,500	3,300	3,800	4,500
	Btu/h	7,800	9,900	13,000	15,000	17,700
Nominal Cooling Capacity *2)	kW	2.2	2.8	3.6	4.3	5.0
	kcal/h	1,900	2,400	3,100	3,700	4,300
	Btu/h	7,500	9,600	12,300	14,700	17,100
Cooling Power Consumption	kW	0.11	0.11	0.15	0.15	0.15
Nominal Heating Capacity	kW	2.8	3.3	4.2	4.9	5.6
	kcal/h	2,400	2,800	3,600	4,200	4,800
	Btu/h	9,600	11,300	14,300	16,700	19,100
Heating Power Consumption	kW	0.11	0.11	0.15	0.15	0.15
Sound Pressure Level (Overall A Scale)	dB	30-26-24	30-26-24	32-30-28	32-30-28	33-31-29
Outer Dimensions	Height	mm (in.)	270 (10-5/8)	270 (10-5/8)	270 (10-5/8)	270 (10-5/8)
	Width	mm (in.)	650+75 (25-9/16+2-15/16)	650+75 (25-9/16+2-15/16)	650+75 (25-9/16+2-15/16)	900+75 (35-7/16+2-15/16)
	Depth	mm (in.)	720 (28-3/8)	720 (28-3/8)	720 (28-3/8)	720 (28-3/8)
Net Weight	kg	25	25	25	25	34
	(lbs.)	(55)	(55)	(55)	(55)	(75)
Refrigerant	—	R410A(Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan						
Air Flow Rate (Hi/Me/Lo)	m³/h (cfm)	480/420/360 (283/247/212)	480/420/360 (283/247/212)	780/660/540 (459/388/212)	780/660/540 (459/388/212)	900/780/660 (530/459/358)
External Pressure *3)	Pa	30	30	30	30	30
Connections		Flare-Nut Connection (with Flare Nuts)				
Refrigerant Piping						
	Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)
Gas Line	mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ15.88 (5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.21	0.21	0.21	0.21	0.27

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

- The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

Indoor Unit Type		Ceiling Ducted Type (Low Static Pressure)				
Model	AC 1φ, 220-240V/50Hz	AVD-18UXCSBL	AVD-22UXCSBL	AVD-24UXCSBL	AVD-27UXCSCL	AVD-30UXCSCL
Power Supply	AC 1φ, 220V/60Hz	AVD-18UX2SBL	AVD-22UX2SBL	AVD-24UX2SBL	AVD-27UX2SCL	AVD-30UX2SCL
Nominal Cooling Capacity *1)	kW	5.8	6.5	7.3	8.7	9.3
	kcal/h	5,000	5,600	6,300	7,500	8,000
	Btu/h	19,800	22,200	24,900	29,700	31,700
Nominal Cooling Capacity *2)	kW	5.6	6.3	7.1	8.4	9.0
	kcal/h	4,800	5,400	6,100	7,200	7,700
	Btu/h	19,100	21,500	24,200	28,700	30,700
Cooling Power Consumption	kW	0.15	0.15	0.19	0.30	0.30
Nominal Heating Capacity	kW	6.5	7.5	8.5	9.6	10.0
	kcal/h	5,600	6,500	7,300	8,300	8,600
	Btu/h	22,200	25,600	29,000	32,800	34,100
Heating Power Consumption	kW	0.15	0.15	0.19	0.30	0.30
Sound Pressure Level (Overall A Scale)	dB	33-31-29	34-32-30	34-32-30	38-34-30	38-34-30
Outer Dimensions Height	mm (in.)	270 (10-5/8)	270 (10-5/8)	270 (10-5/8)	350 (13-3/4)	350 (13-3/4)
Width	mm	900+75	900+75	900+75	900+75	900+75
	(in.)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)
Depth	mm	720	720	720	800	800
	(in.)	(28-3/8)	(28-3/8)	(28-3/8)	(31-1/2)	(31-1/2)
Net Weight	kg	34	34	34	44	44
	(lbs.)	(75)	(75)	(75)	(97)	(97)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan Air Flow Rate (Hi/Me/Lo)	m³/h (cfm)	900/780/660 (530/459/388)	960/840/720 (565/494/424)	960/840/720 (565/494/424)	1550/1350/1150 (911/794/676)	1550/1350/1150 (911/794/676)
External Pressure *3)	Pa	30	30	30	60	60
Connections		Flare-Nut Connection (with Flare Nuts)				
Refrigerant Piping Liquid Line	mm	Φ6.35	Φ9.53	Φ9.53	Φ9.53	Φ9.53
	(in.)	(1/4)	(3/8)	(3/8)	(3/8)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ15.88	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.27	0.27	0.27	0.38	0.38

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
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6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

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With Discharge Duct (2.0m) and Return Duct (1.0m).

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In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

- The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

Indoor Unit Type		Ceiling Ducted Type (Low Static Pressure)				
Model	AC 1φ, 220-240V/50Hz	AVD-38UXCSCL	AVD-48UXCSDL	AVD-54UXCSDL	AVD-76UX6SEL *4)	AVD-96UX6SFL *4)
Power Supply	AC 1φ, 220V/60Hz	AVD-38UX2SCL	AVD-48UX2SDL	AVD-54UX2SDL	AVD-76UX7SEL *5)	AVD-96UX7SFL *5)
Nominal Cooling Capacity *1)	kW	11.6	14.5	16.5	23.2	28.6
	kcal/h	10,000	12,500	14,200	20,000	24,600
	Btu/h	39,600	49,500	56,300	79,200	97,600
Nominal Cooling Capacity *2)	kW	11.2	14.2	16.0	22.4	28.0
	kcal/h	9,600	12,200	13,800	19,300	24,100
	Btu/h	38,200	48,500	54,600	76,500	95,600
Cooling Power Consumption	kW	0.30	0.43	0.43	0.95	1.12
Nominal Heating Capacity	kW	13.0	16.3	18.0	25.0	31.5
	kcal/h	11,200	14,000	15,500	21,500	27,100
	Btu/h	44,400	55,600	61,400	85,300	107,500
Heating Power Consumption	kW	0.30	0.43	0.43	0.95	1.12
Sound Pressure Level (Overall A Scale)	dB	39-35-31	41-38-33	43-39-34	50	52
Outer Dimensions	Height	mm (in.)	350 (13-3/4)	350 (13-3/4)	350 (13-3/4)	470 (18-1/2)
	Width	mm (in.)	900+75 (35-7/16+2-15/16)	1,300+75 (51-3/16+2-15/16)	1,300+75 (51-3/16+2-15/16)	1,060 (41-3/4)
	Depth	mm (in.)	800 (31-1/2)	800 (31-1/2)	800 (31-1/2)	1,120 (44-1/2)
Net Weight	kg	44	56	56	94	106
	(lbs.)	(97)	(123)	(123)	(207)	(234)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan						
Air Flow Rate (Hi/Me/Lo)	m³/h (cfm)	1550/1350/1150 (911/794/676)	2150/1800/1500 (1,264/1,058/882)	2200/1900/1500 (1,294/1,117/882)	3480 (2048)	4320 (2542)
External Pressure *3)	Pa	60	60	60	100	100
Connections		Flare-Nut Connection (with Flare Nuts)			Brazing	
Refrigerant Piping						
Liquid Line	mm (in.)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ19.05 (3/4)	Φ22.2 (7/8)
Condensate Drain	—	VP25	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.38	0.52	0.52	0.90	1.06

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

4. *4) AC 3φ, 380~415V/50Hz, *5) AC 3φ, 380V/60Hz

Indoor Unit Type		Ceiling Ducted Type (High Static Pressure)				
Model	AC 1φ, 220V/50Hz	AVD-07UXCSAH	AVD-09UXCSAH	AVD-12UXCSAH	AVD-14UXCSAH	AVD-17UXCSBH
Power Supply	AC 1φ, 220V/60Hz	AVD-07UX2SAH	AVD-09UXC2AH	AVD-12UX2SAH	AVD-14UX2SAH	AVD-17UX2SBH
Nominal Cooling Capacity *1)	kW	2.3	2.9	3.8	4.4	5.2
	kcal/h	2,000	2,500	3,300	3,800	4,500
	Btu/h	7,800	9,900	13,000	15,000	17,700
Nominal Cooling Capacity *2)	kW	2.2	2.8	3.6	4.3	5.0
	kcal/h	1,900	2,400	3,100	3,700	4,300
	Btu/h	7,500	9,600	12,300	14,700	17,100
Cooling Power Consumption	kW	0.11	0.11	0.15	0.15	0.15
Nominal Heating Capacity	kW	2.8	3.3	4.2	4.9	5.6
	kcal/h	2,400	2,800	3,600	4,200	4,800
	Btu/h	9,600	11,300	14,300	16,700	19,100
Heating Power Consumption	kW	0.11	0.11	0.15	0.15	0.15
Sound Pressure Level (Overall A Scale)	dB	33-31-29	33-31-29	33-31-29	33-31-29	34-32-30
Outer Dimensions	Height	mm (in.)	270 (10-5/8)	270 (10-5/8)	270 (10-5/8)	270 (10-5/8)
	Width	mm (in.)	650+75 (25-9/16+2-15/16)	650+75 (25-9/16+2-15/16)	650+75 (25-9/16+2-15/16)	900+75 (35-7/16+2-15/16)
	Depth	mm (in.)	720 (28-3/8)	720 (28-3/8)	720 (28-3/8)	720 (28-3/8)
Net Weight	kg	25	25	25	25	34
	(lbs.)	(55)	(55)	(55)	(55)	(75)
Refrigerant	—	R410A(Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan Air Flow Rate (Hi/Me/Lo)	m ³ /h	480/420/360	480/420/360	780/660/540	780/660/540	900/780/660
	(cfm)	(283/247/212)	(283/247/212)	(459/388/212)	(459/388/212)	(530/459/358)
External Pressure *3)	Pa	50(80)	50(80)	50(80)	50(80)	50(80)
Connections Refrigerant Piping	Flare-Nut Connection (with Flare Nuts)					
	Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)
	Gas Line	mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ15.88 (5/8)
	Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.21	0.21	0.21	0.21	0.27

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

Indoor Unit Type		Ceiling Ducted Type (High Static Pressure)				
Model	AC 1φ, 220-240V/50Hz	AVD-18UXCSBH	AVD-22UXCSBH	AVD-24UXCSBH	AVD-27UXCSCH	AVD-30UXCSCH
Power Supply	AC 1φ, 220V/60Hz	AVD-18UX2SBH	AVD-22UX2SBH	AVD-24UX2SBH	AVD-27UX2SCH	AVD-30UX2SCH
Nominal Cooling Capacity *1)	kW	5.8	6.5	7.3	8.7	9.3
	kcal/h	5,000	5,600	6,300	7,500	8,000
	Btu/h	19,800	22,200	24,900	29,700	31,700
Nominal Heating Capacity *2)	kW	5.6	6.3	7.1	8.4	9.0
	kcal/h	4,800	5,400	6,100	7,200	7,700
	Btu/h	19,100	21,500	24,200	28,700	30,700
Cooling Power Consumption	kW	0.15	0.15	0.19	0.30	0.30
Nominal Heating Capacity	kW	6.5	7.5	8.5	9.6	10.0
	kcal/h	5,600	6,500	7,300	8,300	8,600
	Btu/h	22,200	25,600	29,000	32,800	34,100
Heating Power Consumption	kW	0.15	0.15	0.19	0.30	0.30
Sound Pressure Level (Overall A Scale)	dB	34-32-30	36-34-32	36-34-32	41-39-34	41-39-34
Outer Dimensions						
Height	mm	270	270	270	350	350
	(in.)	(10-5/8)	(10-5/8)	(10-5/8)	(13-3/4)	(13-3/4)
Width	mm	900+75	900+75	900+75	900+75	900+75
	(in.)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)	(35-7/16+2-15/16)
Depth	mm	720	720	720	800	800
	(in.)	(28-3/8)	(28-3/8)	(28-3/8)	(31-1/2)	(31-1/2)
Net Weight	kg	34	34	34	44	44
	(lbs.)	(75)	(75)	(75)	(97)	(97)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan						
Air Flow Rate (Hi/Me/Lo)	m³/h	900/780/660	960/840/720	960/840/720	1600/1400/1150	1600/1400/1150
	(cfm)	(530/459/388)	(565/494/424)	(565/494/424)	(941/823/676)	(941/823/676)
External Pressure *3)	Pa	50(80)	50(80)	50(80)	120(90)	120(90)
Connections		Flare-Nut Connection (with Flare Nuts)				
Refrigerant Piping Liquid Line	mm	Φ6.35	Φ9.53	Φ9.53	Φ9.53	Φ9.53
	(in.)	(1/4)	(3/8)	(3/8)	(3/8)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ15.88	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.27	0.27	0.27	0.38	0.38

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

Indoor Unit Type		Ceiling Ducted Type (High Static Pressure)				
Model	AC 1φ, 220-240V/50Hz	AVD-38UXCSCH	AVD-48UXCSDH	AVD-54UXCSDH	AVD-76UX6SEH *4)	AVD-96UX6SFH *4)
Power Supply	AC 1φ, 220V/60Hz	AVD-38UX2SCH	AVD-48UX2SDH	AVD-54UX2SDH	AVD-76UX7SEH *5)	AVD-96UX7SFH *5)
Nominal Cooling Capacity *1)	kW	11.6	14.5	16.5	23.2	28.6
	kcal/h	10,000	12,500	14,200	20,000	24,600
	Btu/h	39,600	49,500	56,300	79,200	97,600
Nominal Heating Capacity *2)	kW	11.2	14.2	16.0	22.4	28.0
	kcal/h	9,600	12,200	13,800	19,300	24,100
	Btu/h	38,200	48,500	54,600	76,500	95,600
Cooling Power Consumption	kW	0.30	0.43	0.43	1.08	1.34
Nominal Heating Capacity	kW	13.0	16.3	18.0	25.0	31.5
	kcal/h	11,200	14,000	15,500	21,500	27,100
	Btu/h	44,400	55,600	61,400	85,300	107,500
Heating Power Consumption	kW	0.30	0.43	0.43	1.08	1.34
Sound Pressure Level (Overall A Scale)	dB	43-40-36	44-41-36	45-42-48	52	54
Outer Dimensions						
Height	mm (in.)	350 (13-3/4)	350 (13-3/4)	350 (13-3/4)	470 (18-1/2)	470 (18-1/2)
Width	mm (in.)	900+75 (35-7/16+2-15/16)	1,300+75 (51-3/16+2-15/16)	1,300+75 (51-3/16+2-15/16)	1,060 (41-3/4)	1,250 (49-1/4)
Depth	mm (in.)	800 (31-1/2)	800 (31-1/2)	800 (31-1/2)	1,120 (44-1/12)	1,120 (44-1/12)
Net Weight	kg (lbs.)	44 (97)	56 (123)	56 (123)	94 (207)	106 (234)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan						
Air Flow Rate (Hi/Me/Lo)	m³/h (cfm)	1600/1400/1150 (941/823/676)	2100/1750/1450 (1,235/1,029/853)	2150/1900/1620 (1,264/1,117/953)	3480 (2048)	4320 (2542)
External Pressure *3)	Pa	120(90)	120(90)	120(90)	220	220
Connections		Flare-Nut Connection (with Flare Nuts)			Brazing	
Refrigerant Piping						
Liquid Line	mm (in.)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ19.05 (3/4)	Φ22.2 (7/8)
Condensate Drain	—	VP25	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.38	0.52	0.52	0.90	1.06

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

4. *4) AC 3φ, 380~415V/50Hz, *5) AC 3φ, 380V/60Hz

Indoor Unit Type		Ceiling Ducted Type (High Static Pressure)	
Model	AC 1φ, 208~230V/60Hz	AVD-76UX2SFH	AVD-96UX2SFH
Power Supply			
Nominal Cooling Capacity *1)	kW	23.2	28.6
	kcal/h	20,000	24,600
	Btu/h	79,200	97,600
Nominal Cooling Capacity *2)	kW	22.4	28.0
	kcal/h	19,300	24,100
	Btu/h	76,500	95,600
Cooling Power Consumption	kW	1.42	1.46
Nominal Heating Capacity	kW	25.0	31.5
	kcal/h	21,500	27,100
	Btu/h	85,300	107,500
Heating Power Consumption	kW	1.42	1.46
Sound Pressure Level (Overall A Scale)	dB	52	54
Outer Dimensions			
Height	mm (in.)	470 (18-1/2)	470 (18-1/2)
Width	mm (in.)	1,250 (49-1/4)	1,250 (49-1/4)
Depth	mm (in.)	1,120 (44-1/12)	1,120 (44-1/12)
Net Weight	kg (lbs.)	118 (259)	118 (259)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)	
Indoor Fan			
Air Flow Rate (Hi/Me/Lo)	m³/h (cfm)	4000 (2353)	4320 (2541)
External Pressure *3)	Pa	240	200
Connections		Brazing	
Refrigerant Piping			
Liquid Line	mm (in.)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ19.05 (3/4)	Φ22.2 (7/8)
Condensate Drain	—	VP25	VP25
Approximate Packing Measurement	m³	1.06	1.06

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

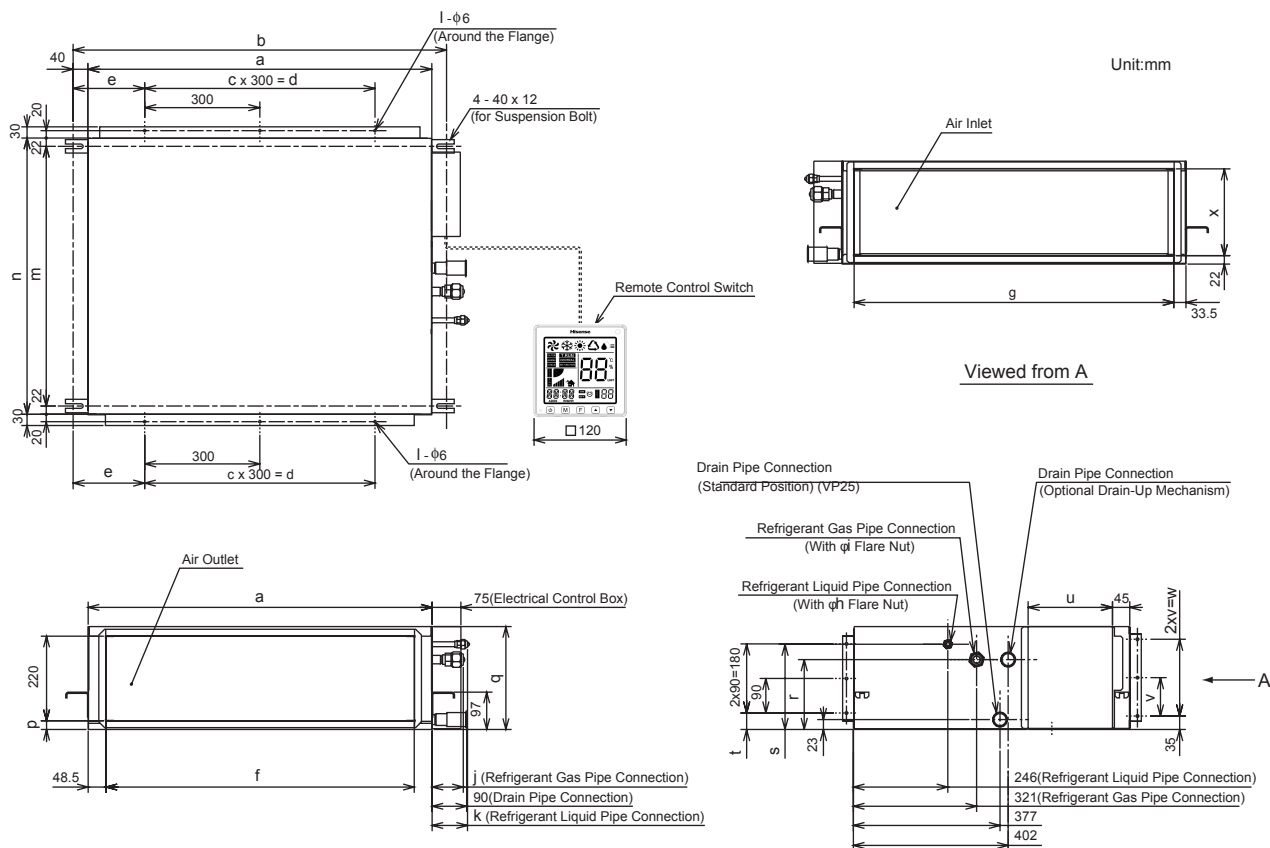
In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

3. The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.

5.2 Dimensional Data

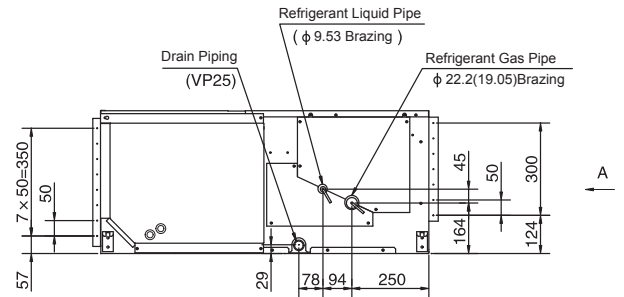
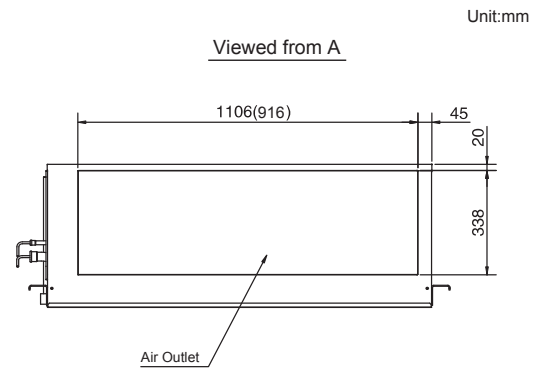
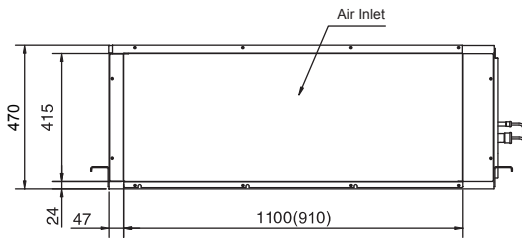
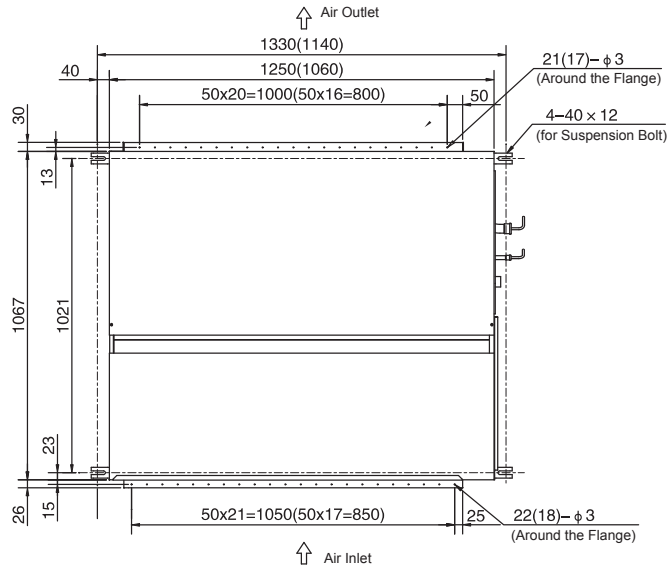
Models: AVD- 07~54*



Dimension Model	a	b	c	d	e	f	g	h	i	j	k	l
07~14	650	730	1	300	215	553	583	6.35	12.7	70	92	10
17/18	900	980	2	600	190	803	833	6.35	15.88	77	92	12
22/24	900	980	2	600	190	803	833	9.53	15.88	77	95	12
27/30	900	980	2	600	190	803	833	9.53	15.88	78	95	12
38	900	980	2	600	190	803	833	9.53	15.88	81	95	12
48/54	1300	1380	3	900	240	1203	1233	9.53	15.88	81	95	14

Dimension Model	m	n	p	q	r	s	t	u	v	w	x
07~24	676	720	23	270	182	222	43	220	100	200	226
27~54	756	800	103	350	204	244	123	300	140	280	306

Models: AVD-76/96*,AVD-76UX 2SFH,AVD-96UX 2SFH



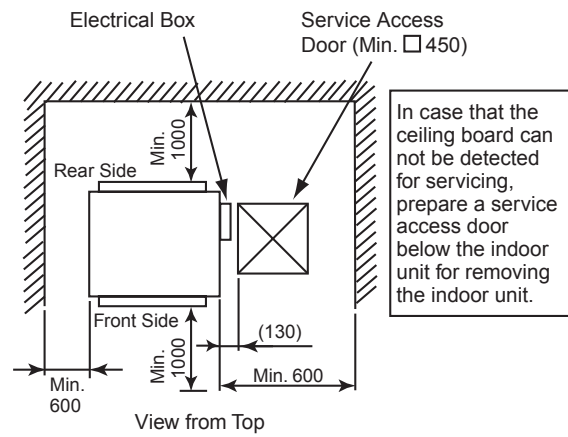
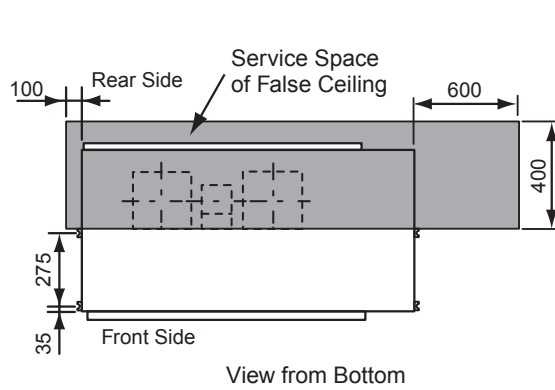
NOTES: Data in the bracket is for AVD-76* model.

Data of AVD-76UX2SFH ,AVD-96UX2SFH and AVD-96* is the same.

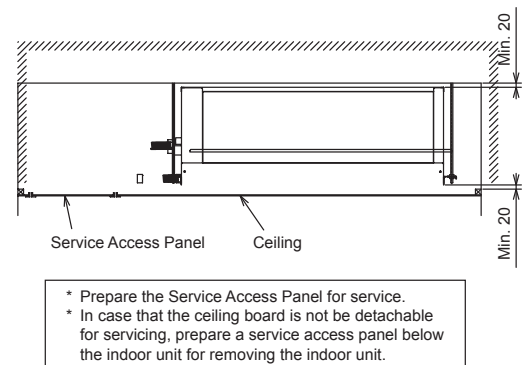
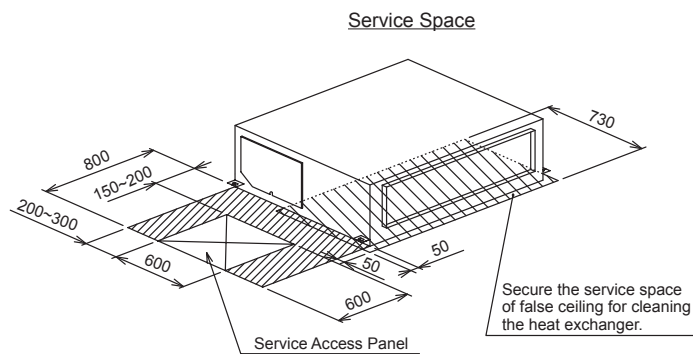
5.3 Selection Data

- Operation Space

Models:AVD-07~54*



Models: AVD-76/96*



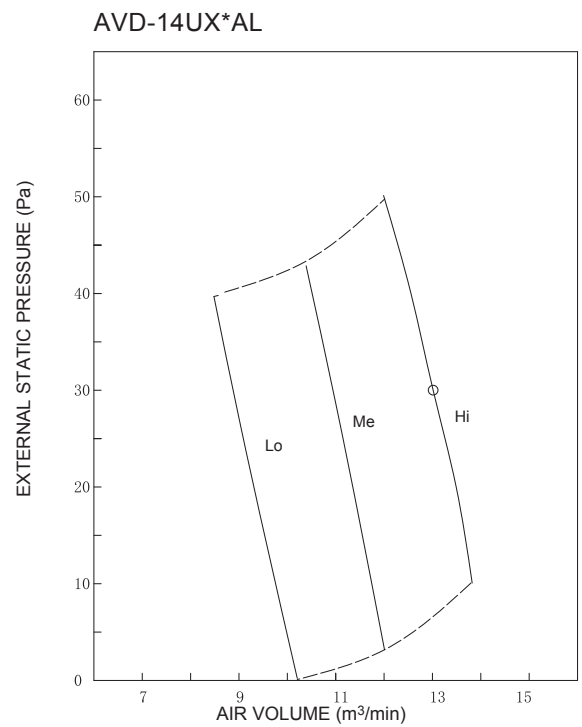
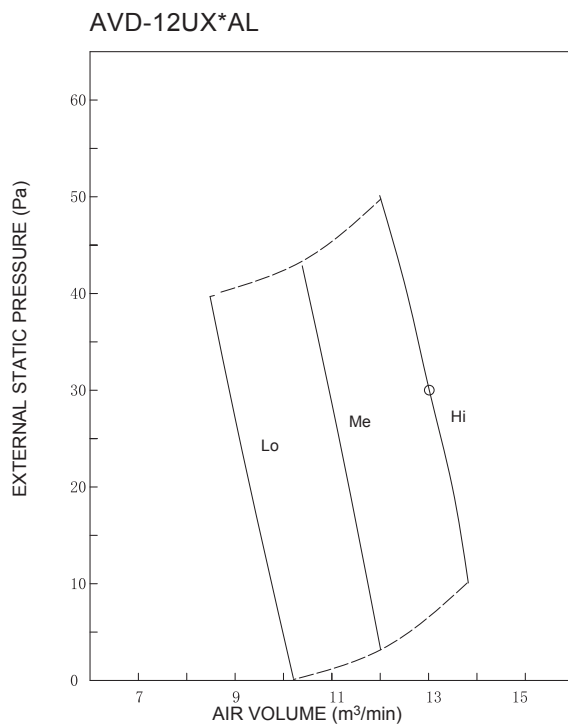
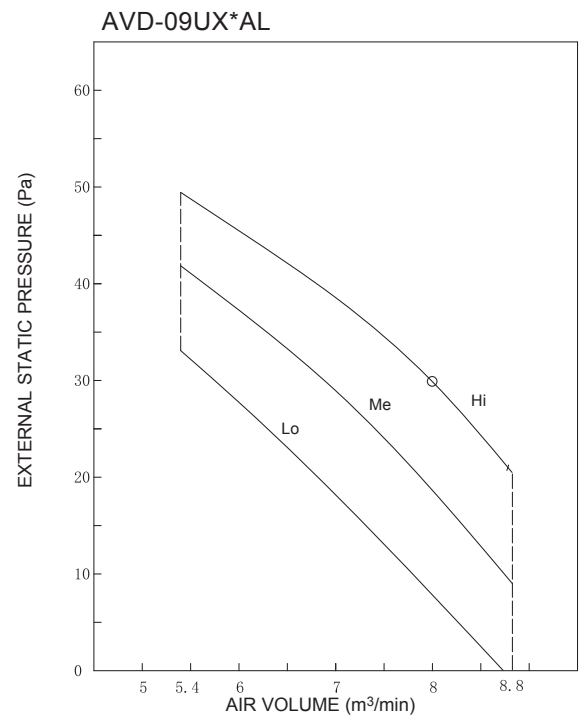
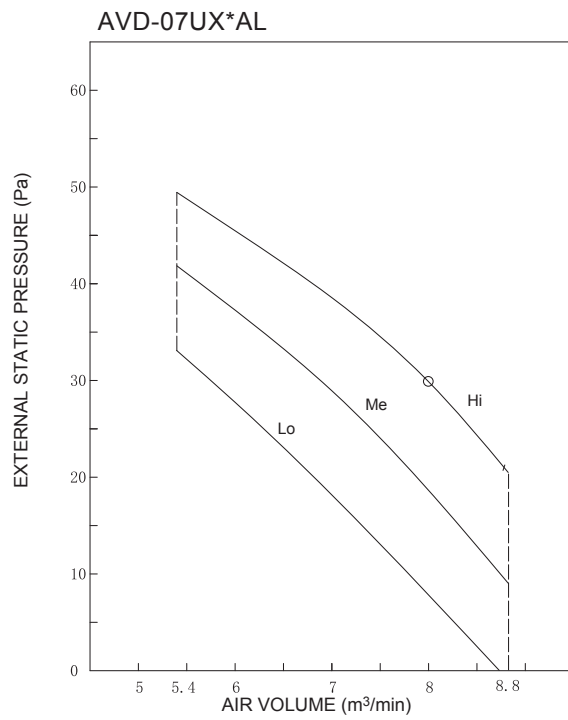
- Sensible Heat Factor (SHF)

The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

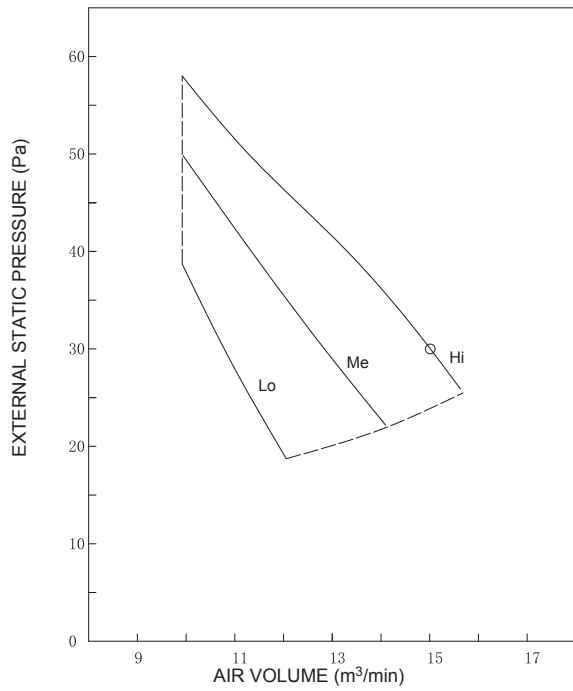
Indoor Unit Model	SHF		
	Hi	Me	Lo
AVD-07*	0.81	0.69	0.68
AVD-09*	0.81	0.69	0.68
AVD-12*	0.73	0.69	0.65
AVD-14*	0.73	0.69	0.65
AVD-17*	0.75	0.71	0.68
AVD-18*	0.74	0.70	0.67
AVD-22*	0.71	0.69	0.67
AVD-24*	0.70	0.68	0.66
AVD-27*	0.70	0.68	0.66
AVD-30*	0.70	0.68	0.66
AVD-38*	0.72	0.69	0.62
AVD-48*	0.71	0.68	0.62
AVD-54*	0.70	0.68	0.63
AVD-76* (76UX2SFH)	0.71 (0.80)	—	—
AVD-96* (96UX2SFH)	0.70 (0.82)	—	—

● Fan Performance

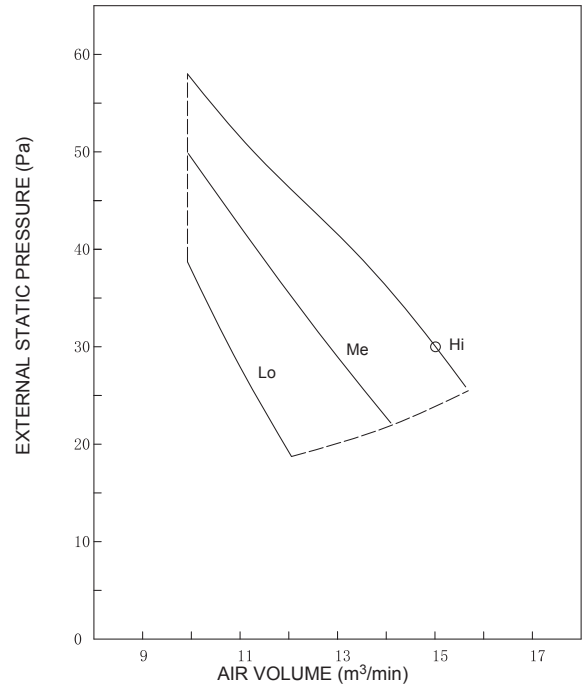
Ceiling Ducted Type (Low Static Pressure)



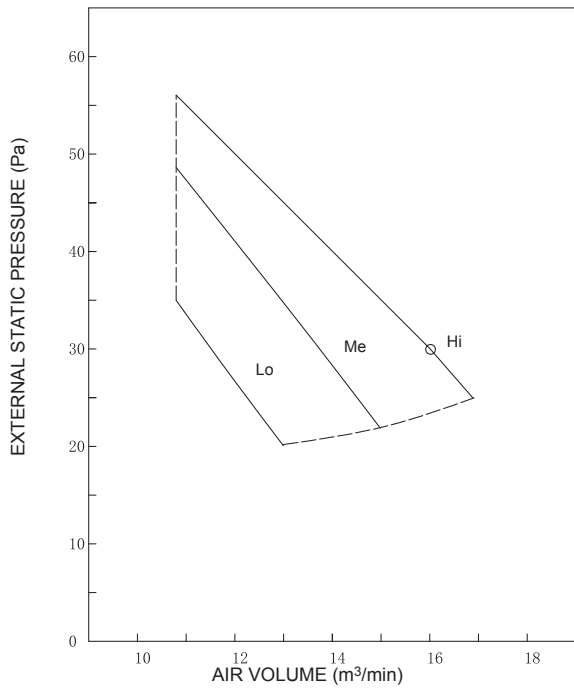
AVD-17UX*BL



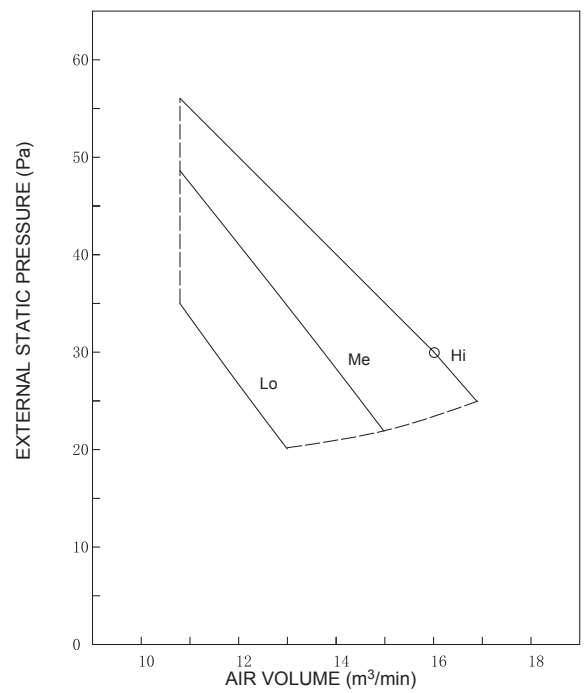
AVD-18UX*BL



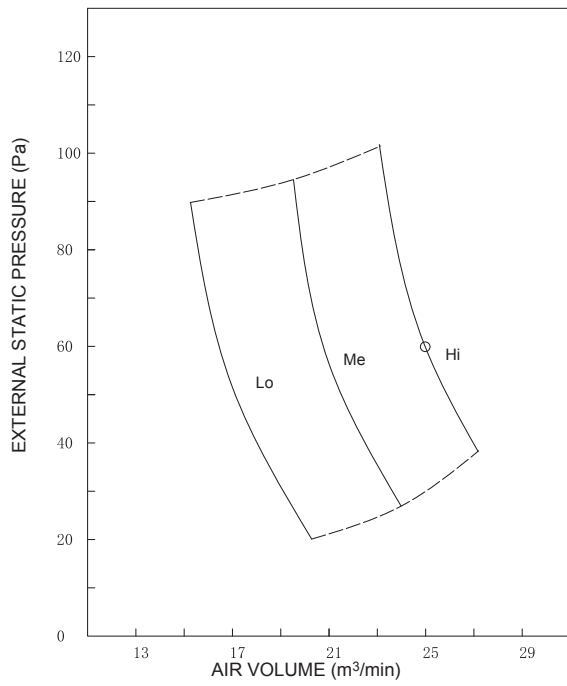
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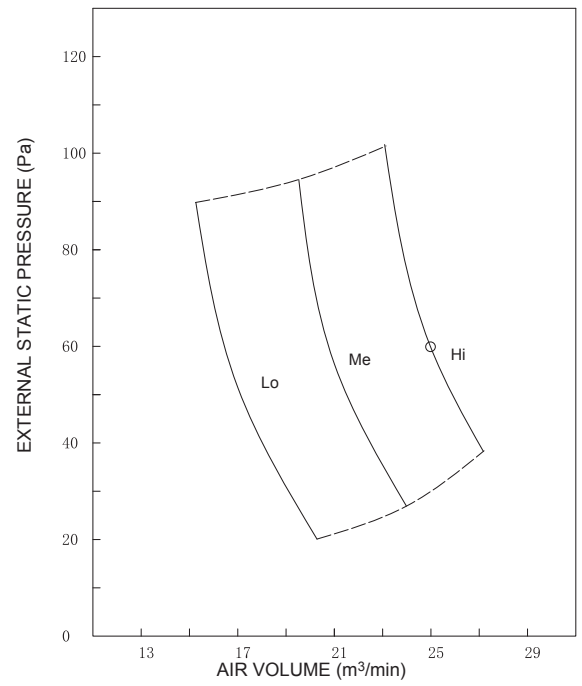
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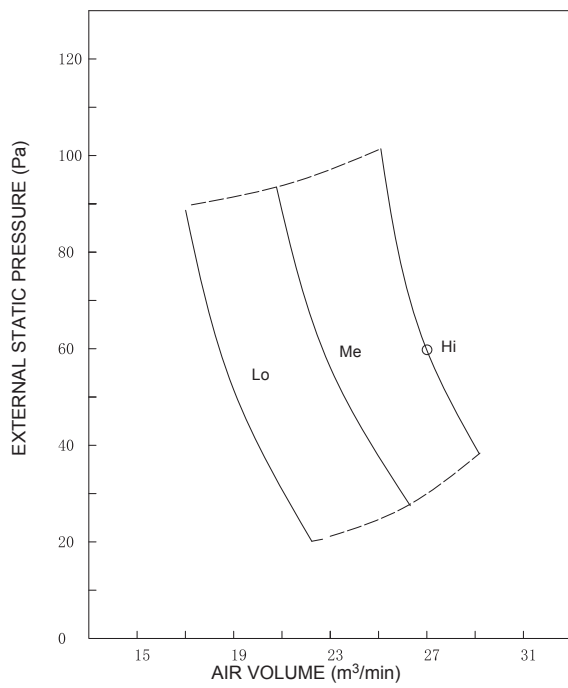
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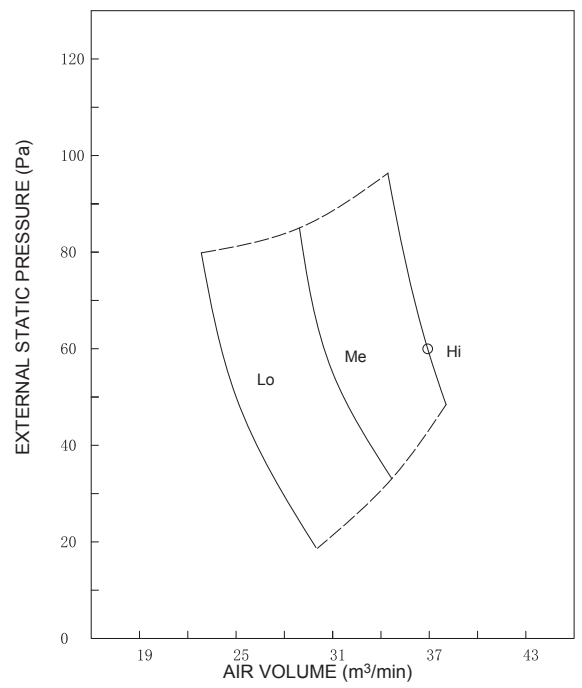
AVD-30UX*CL



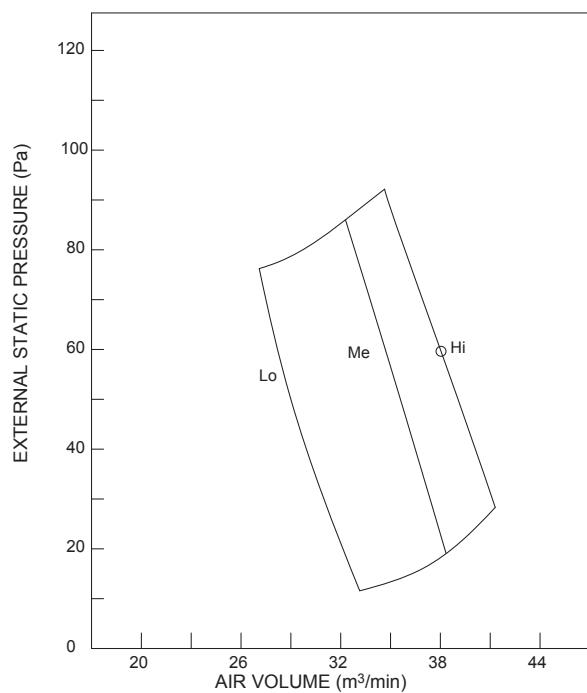
AVD-38UX*CL



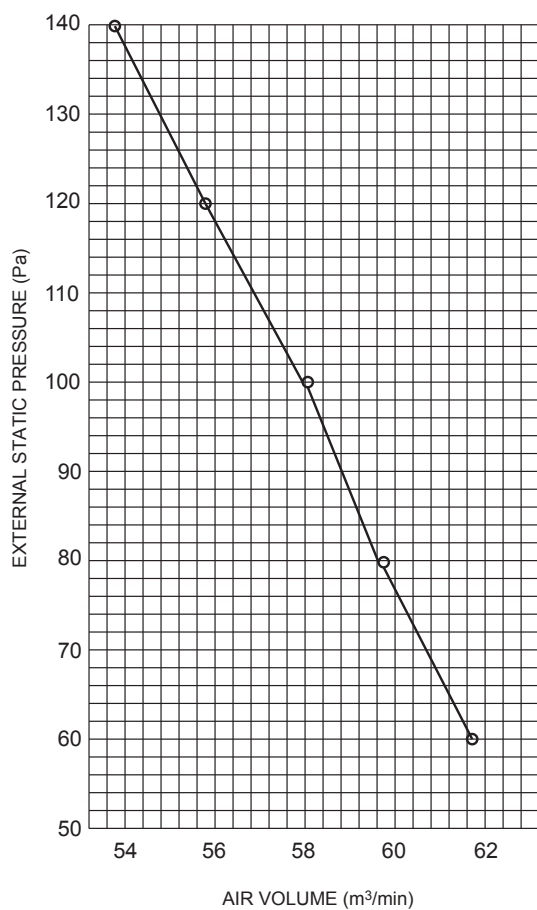
AVD-48UX*DL



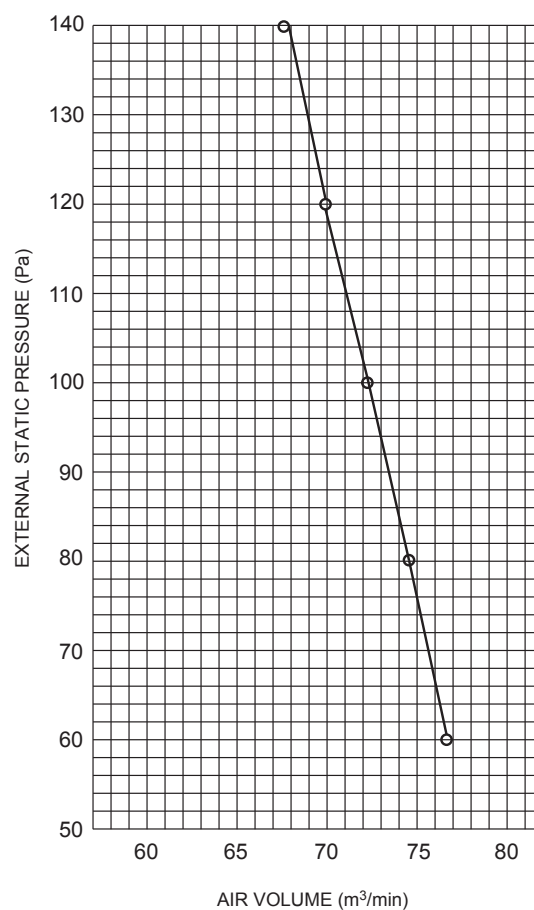
AVD-54UX*DL



AVD-76UX6(7)SEL

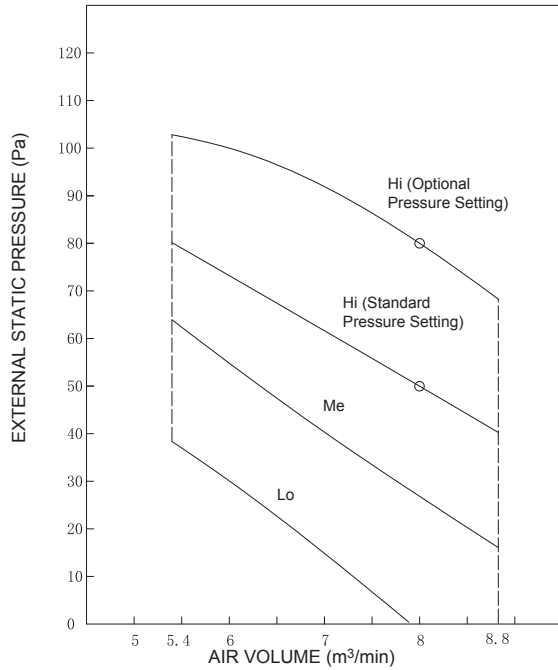


AVD-96UX6(7)SFL

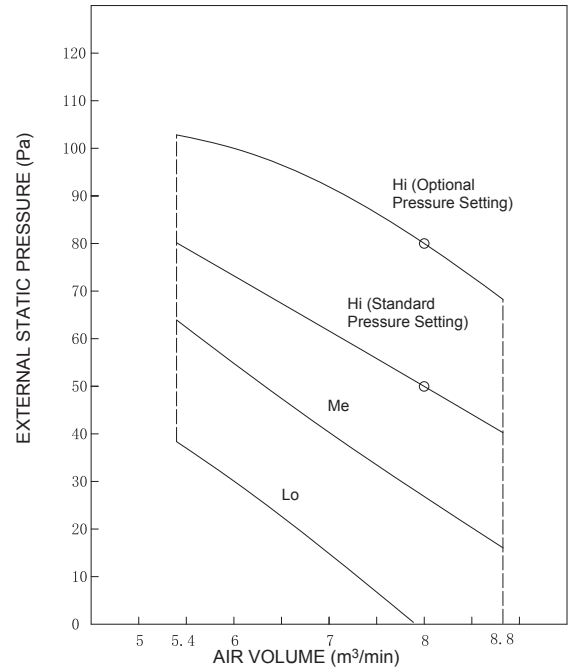


Ceiling Ducted Type (High Static Pressure)

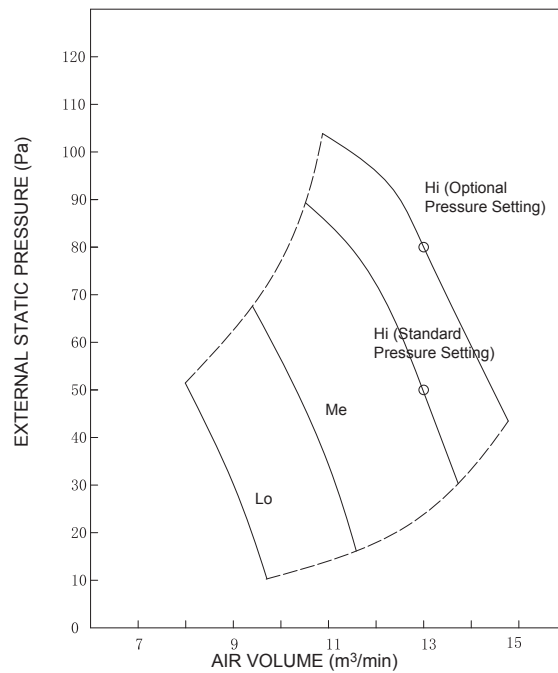
AVD-07UX*AH



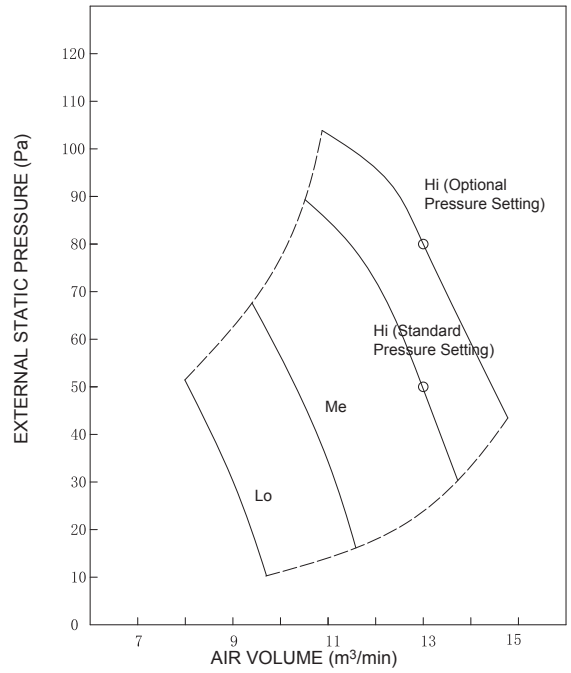
AVD-09UX*AH



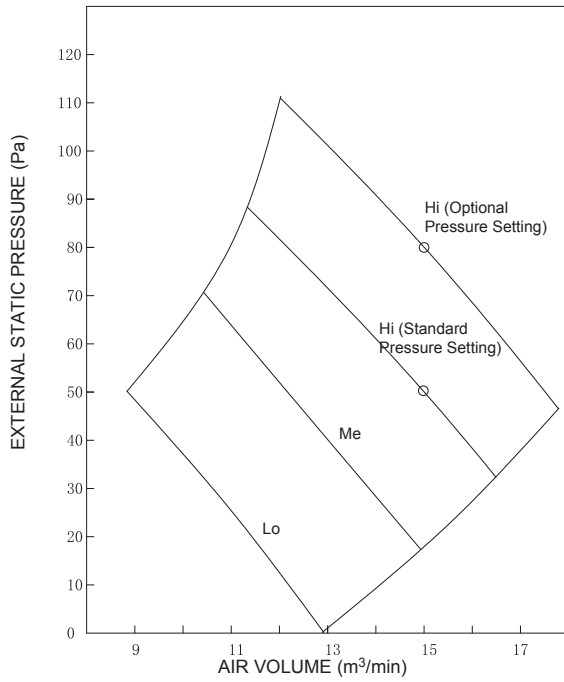
AVD-12UX*AH



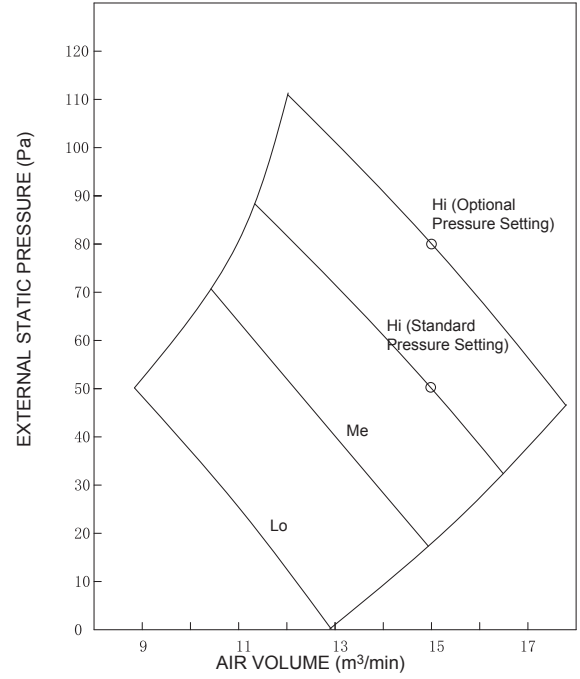
AVD-14UX*AH



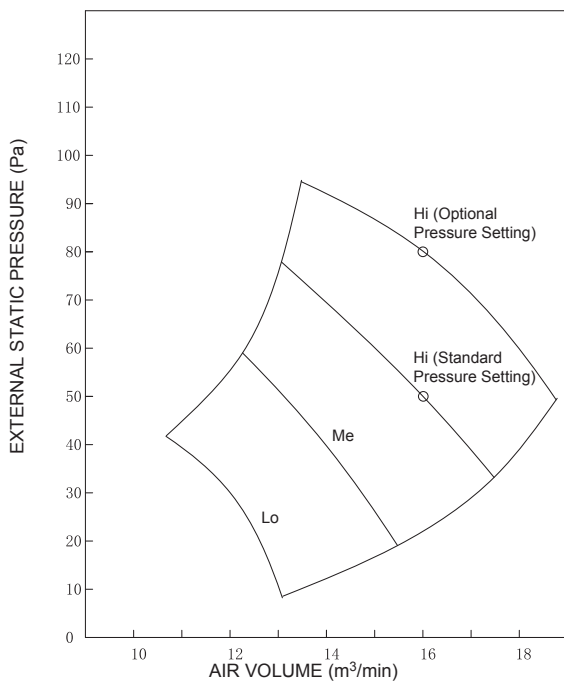
AVD-17UX*BH



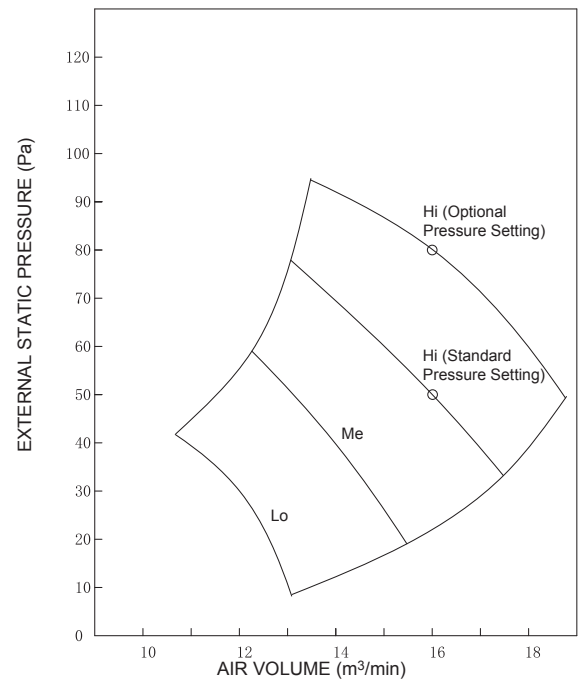
AVD-18UX*BH



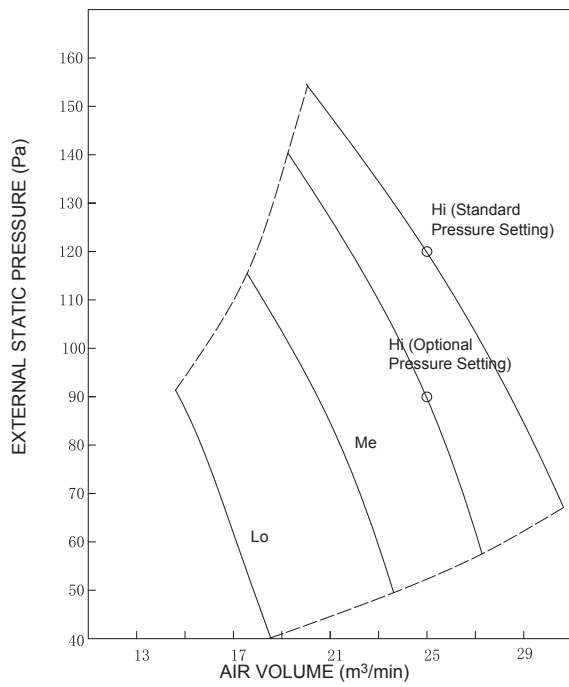
AVD-22UX*BH



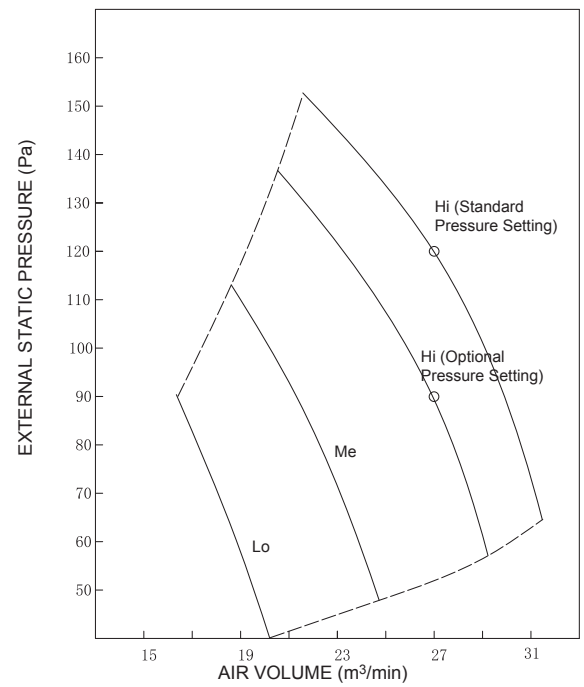
AVD-24UX*BH



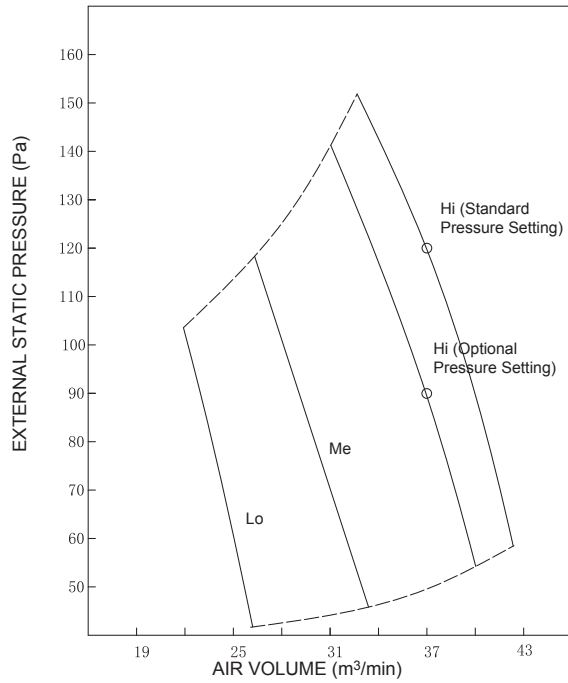
AVD-27/30UX*CH



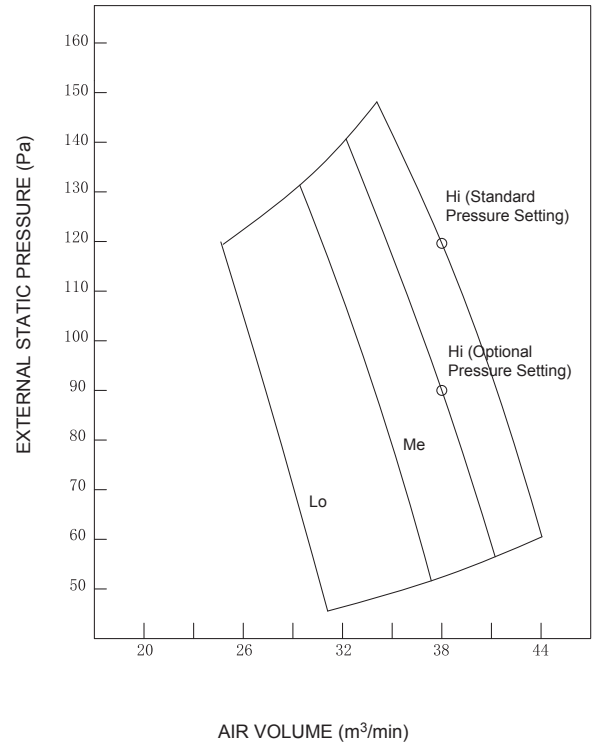
AVD-38UX*CH

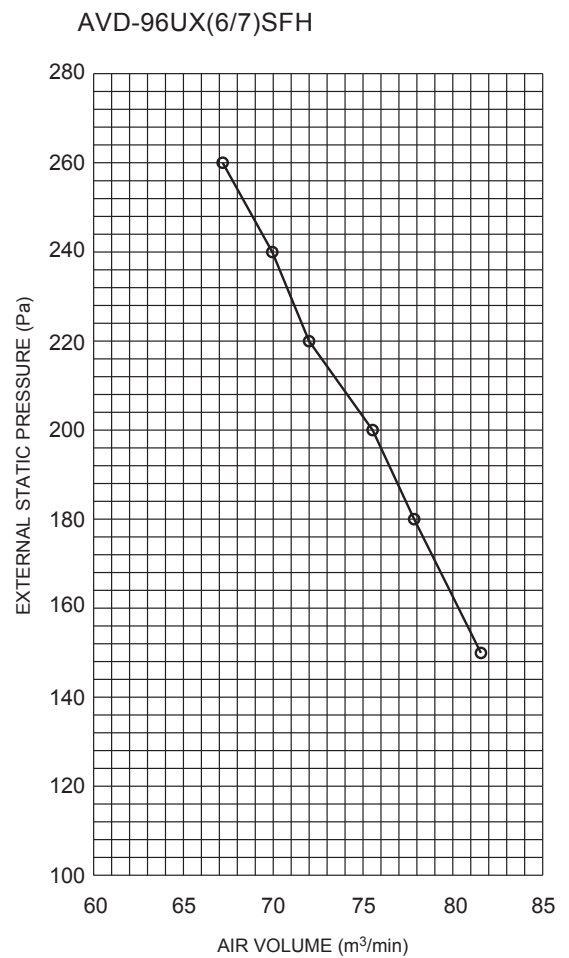
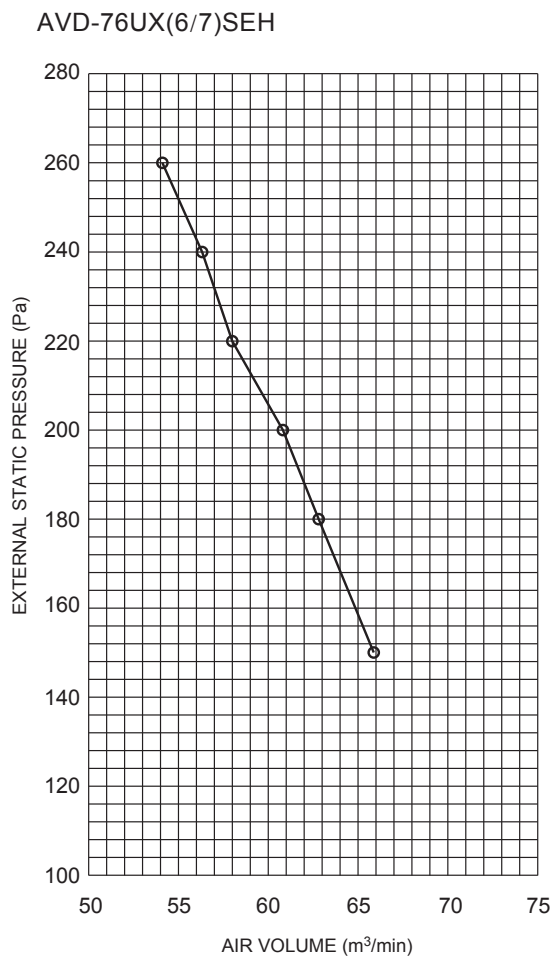
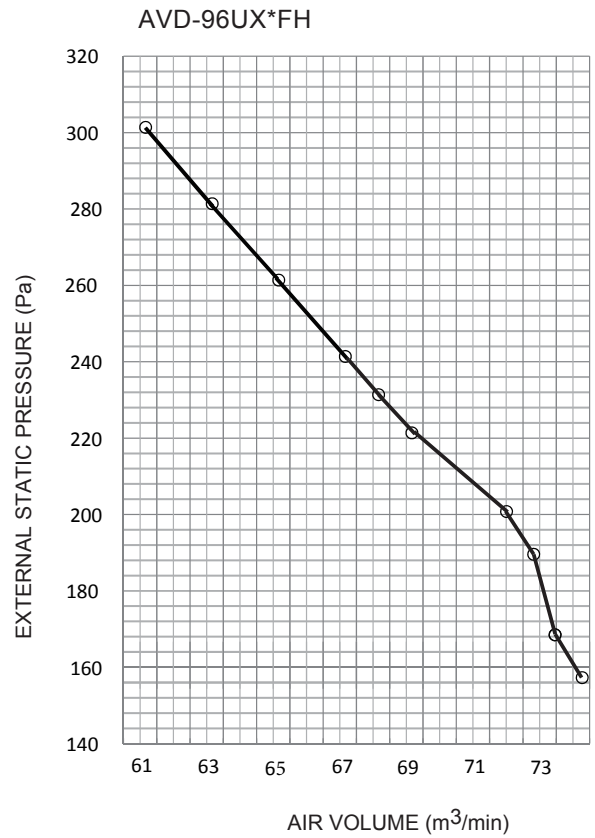
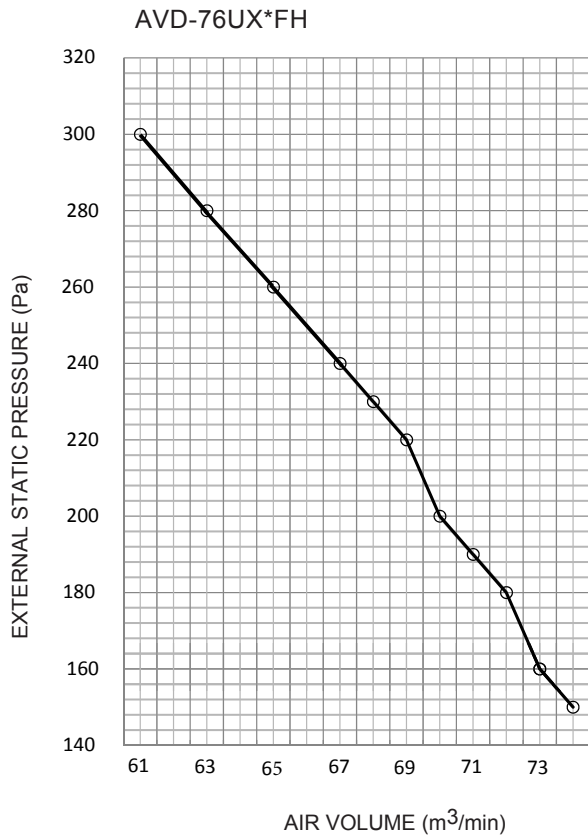


AVD-48UX*DH



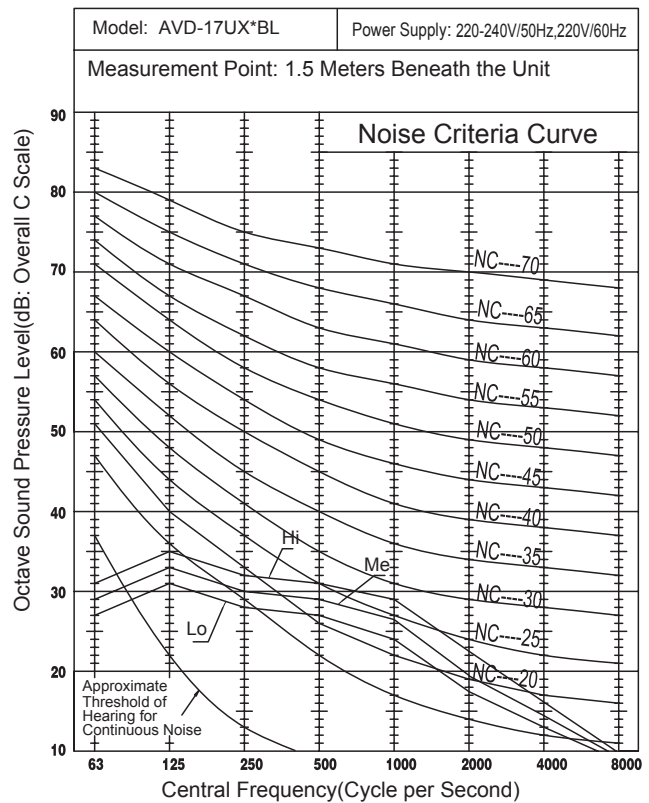
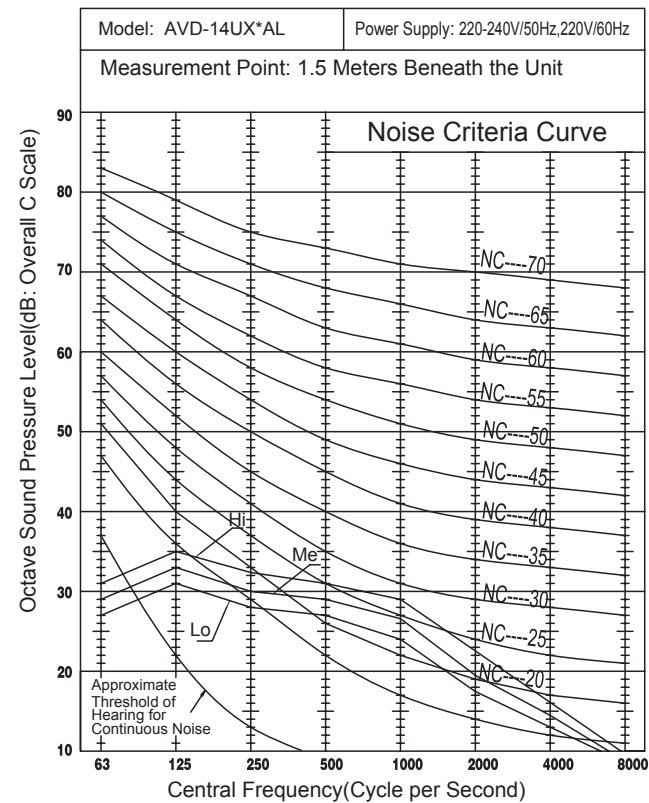
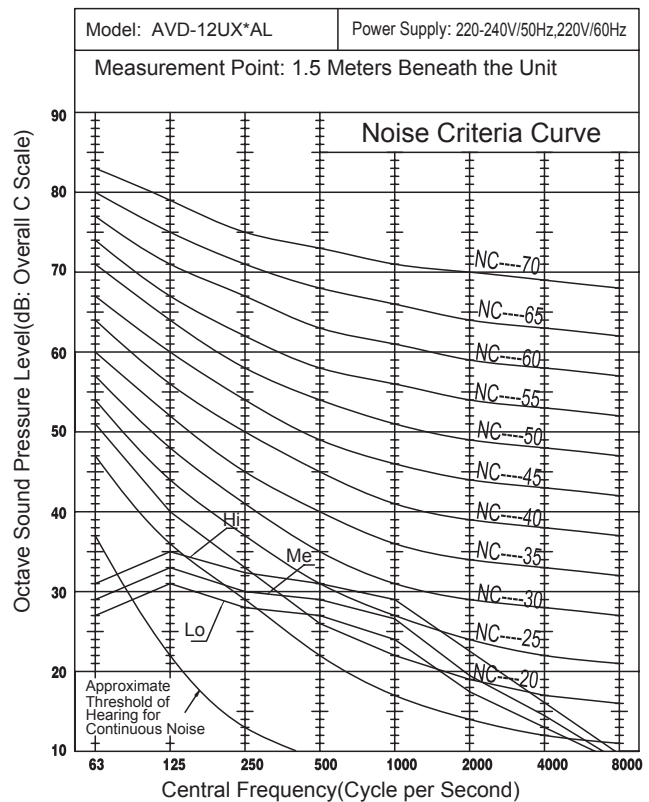
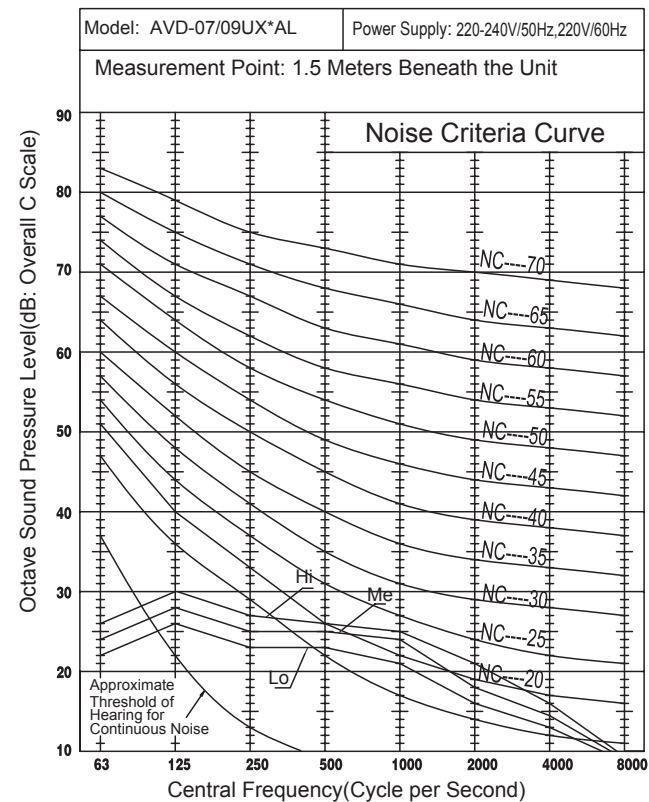
AVD-54UX*DH

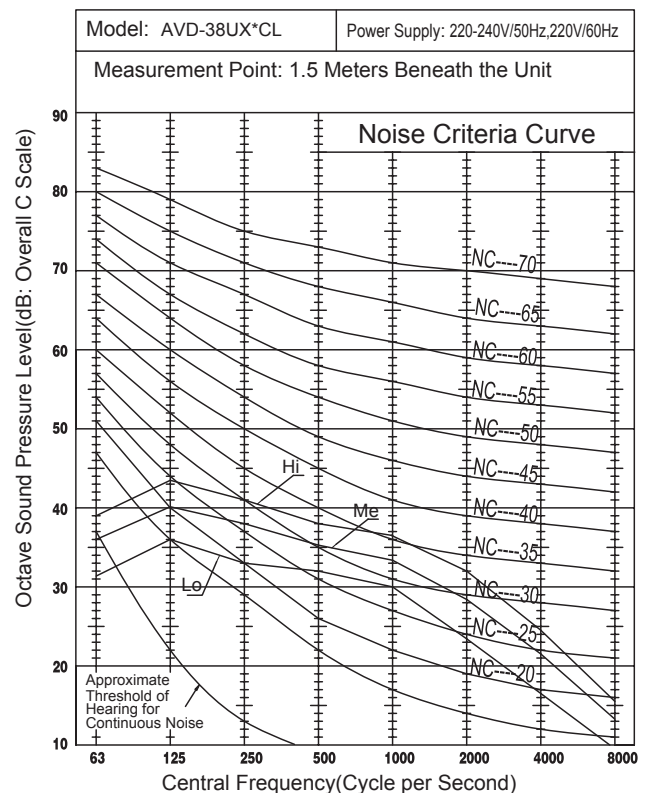
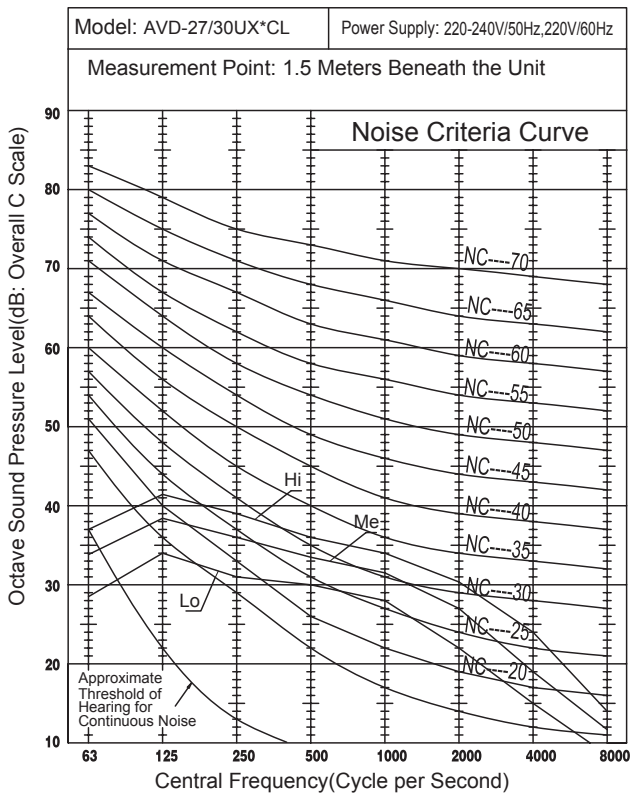
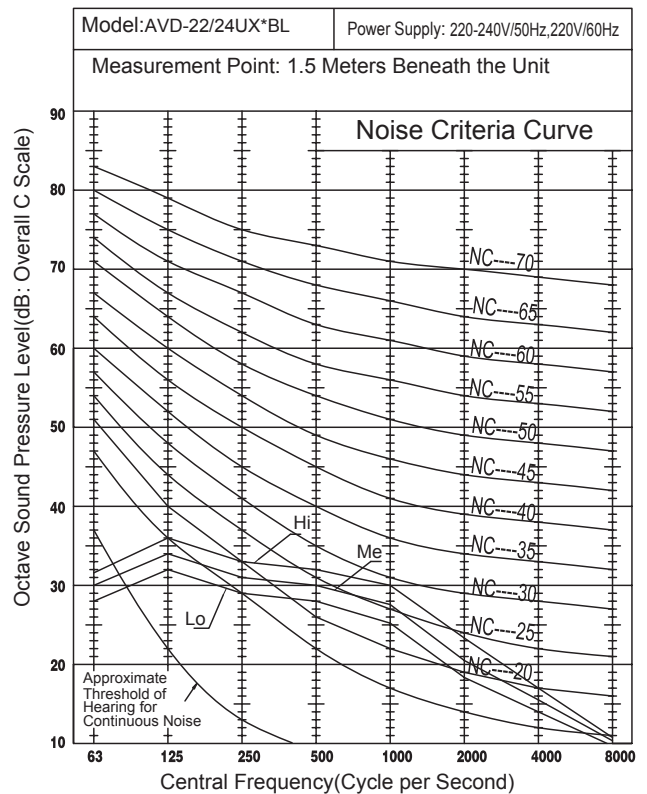
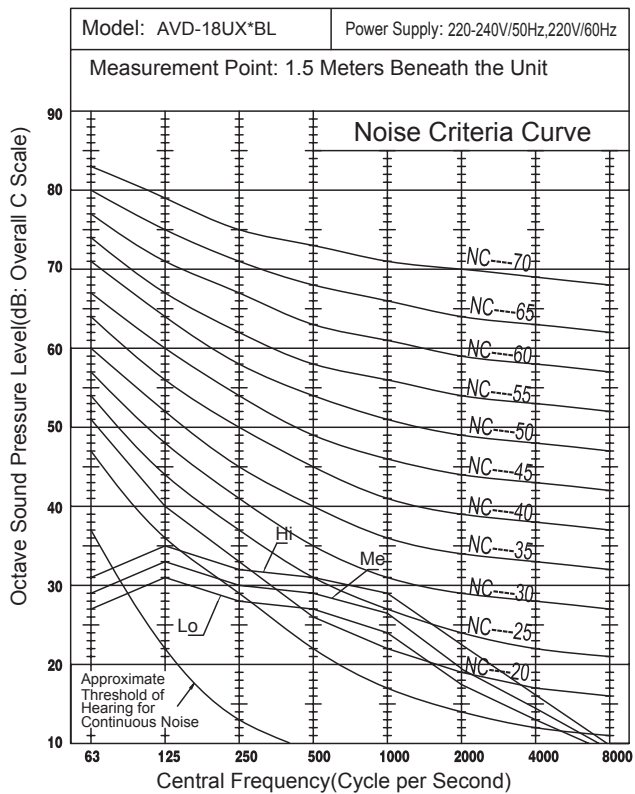


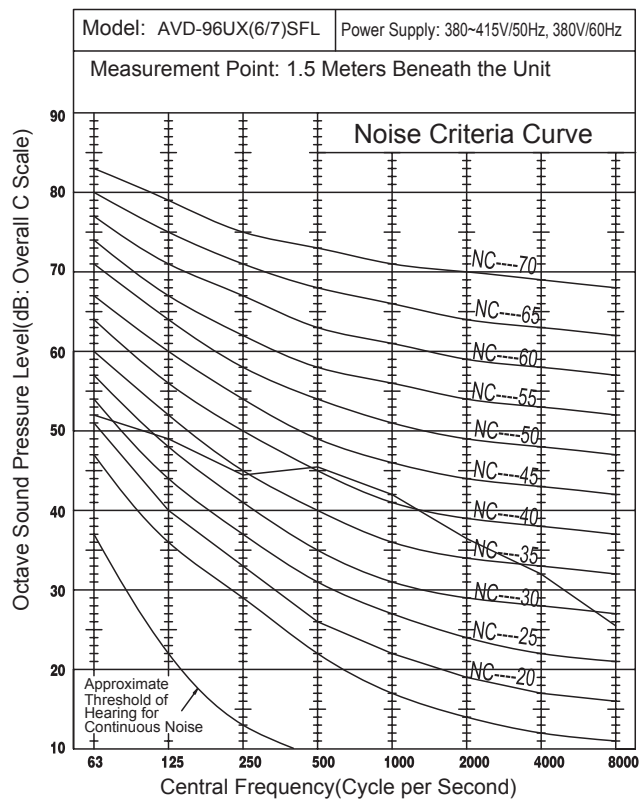
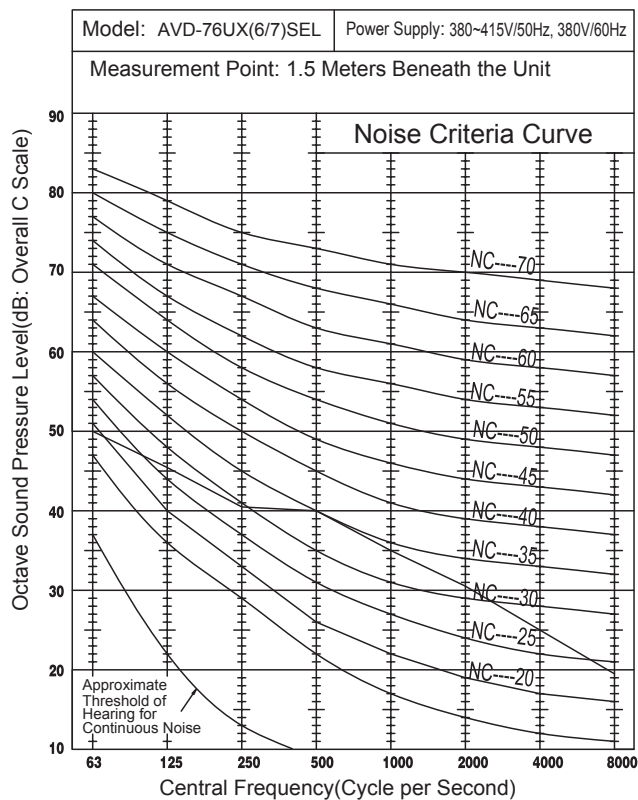
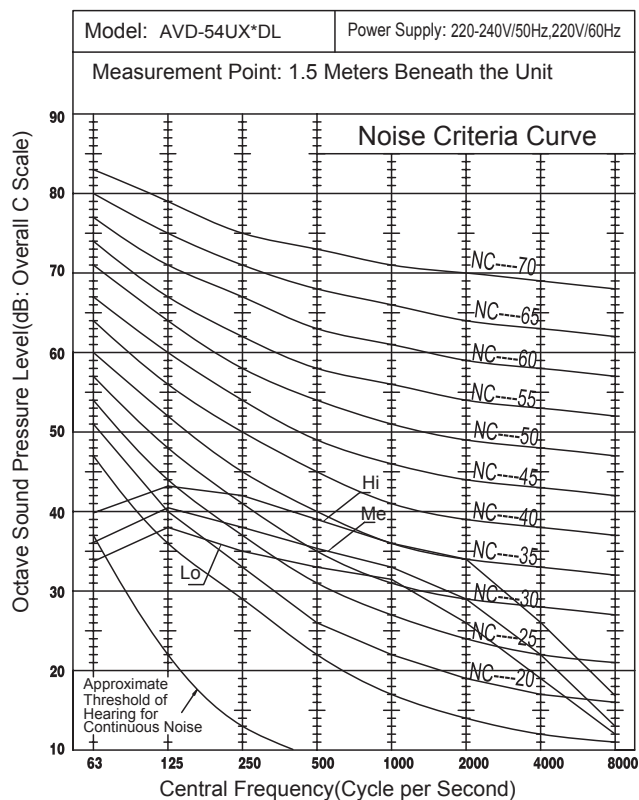
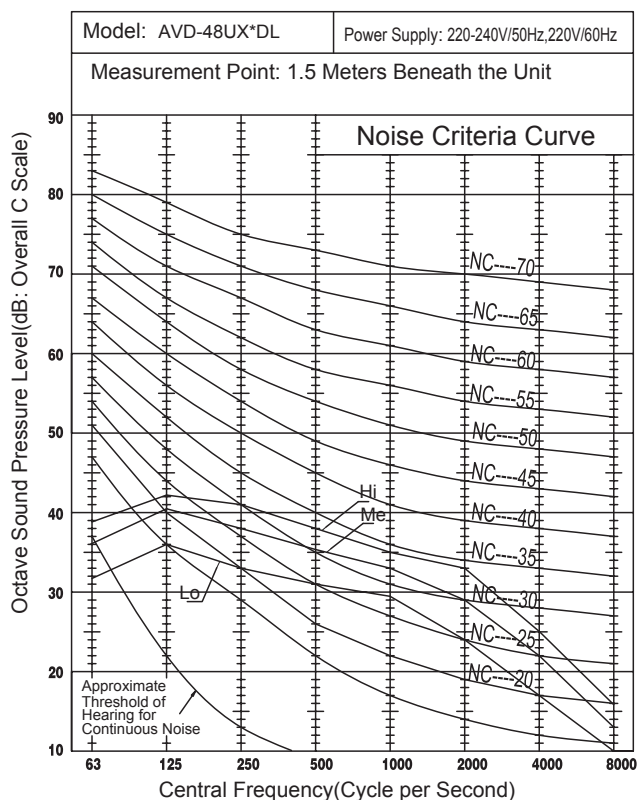


Sound Data

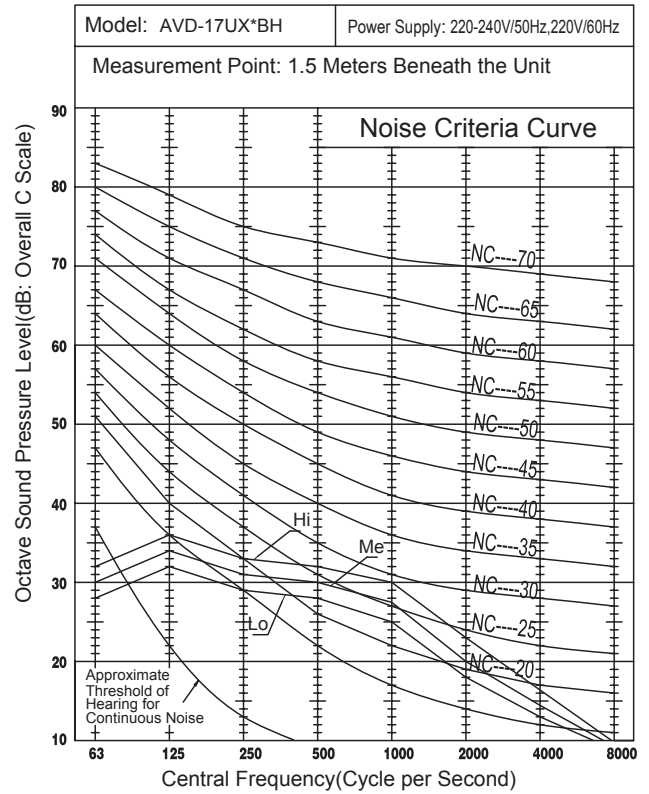
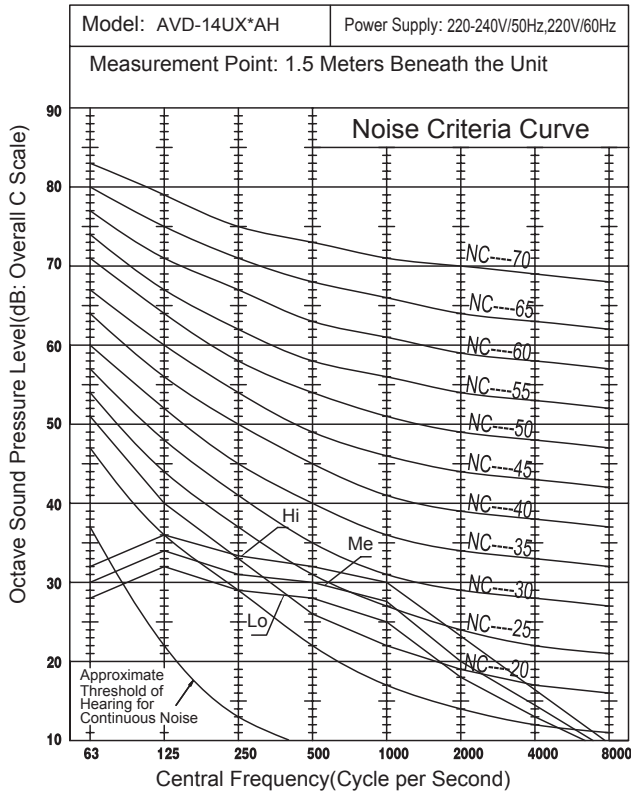
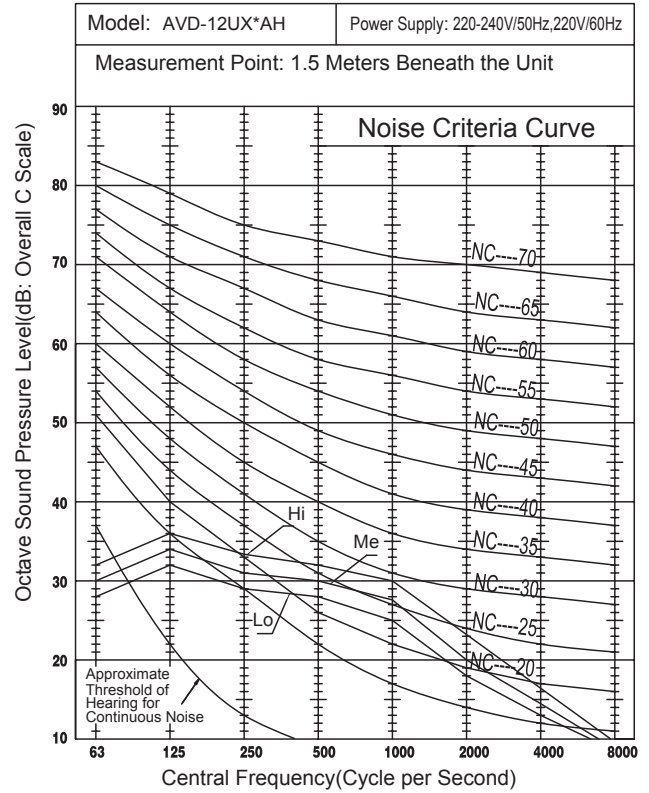
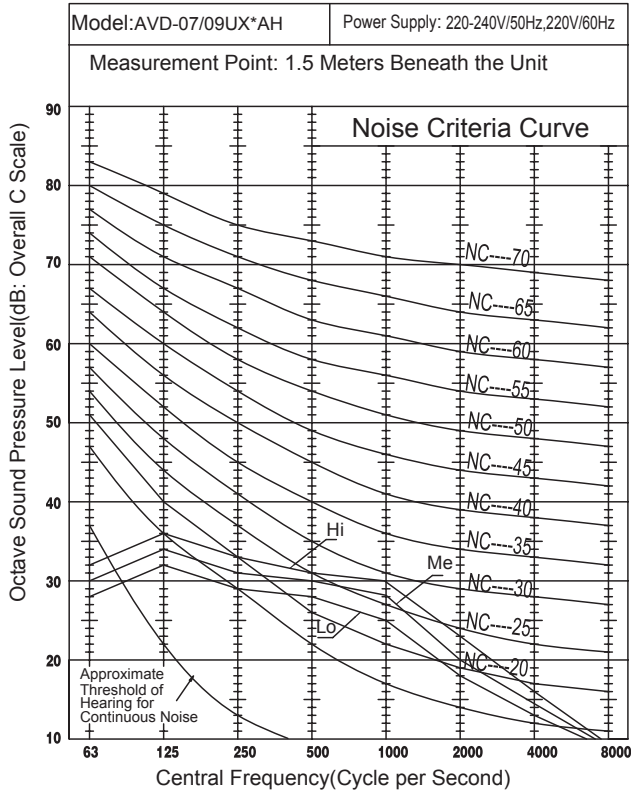
Ceiling Ducted Type (Low Static Pressure)

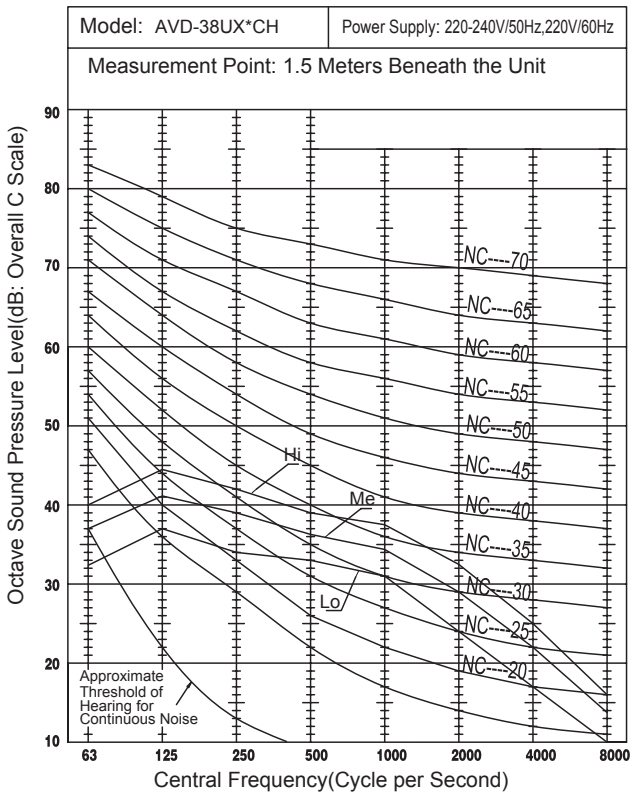
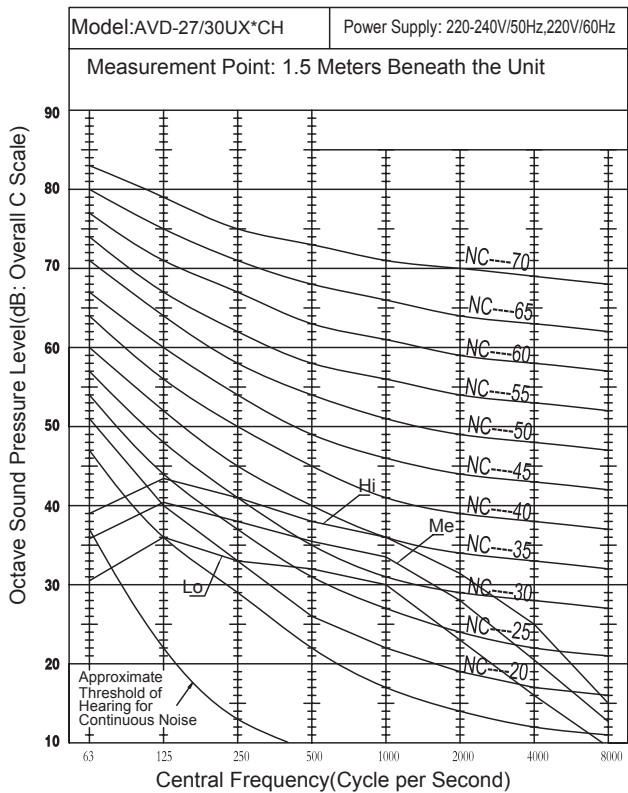
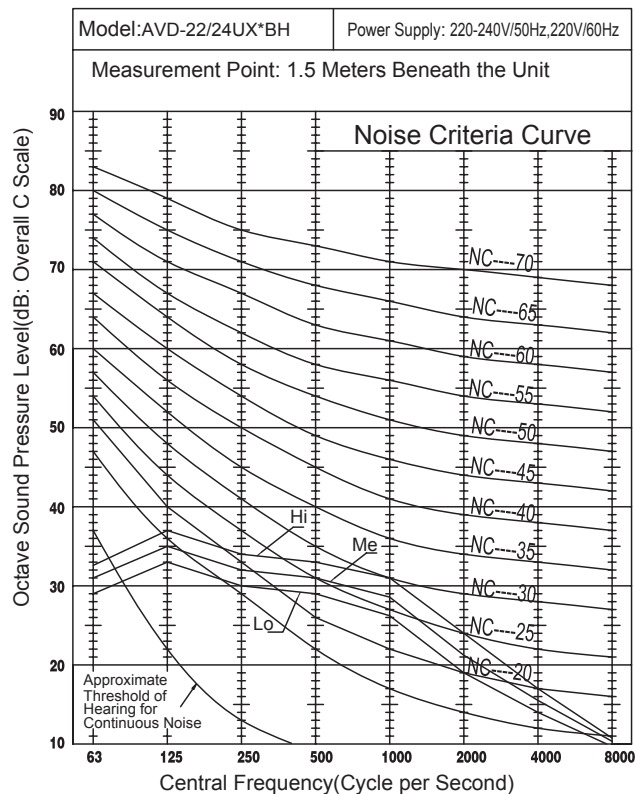
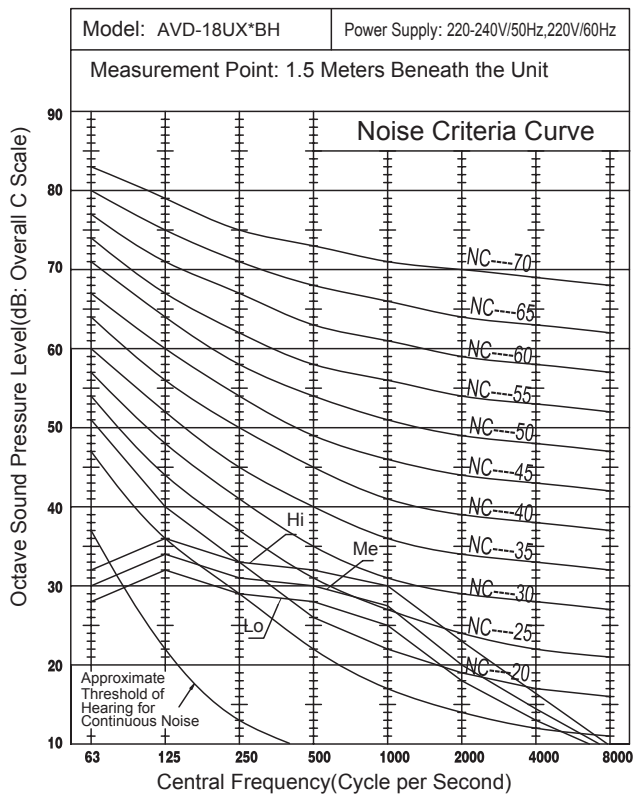


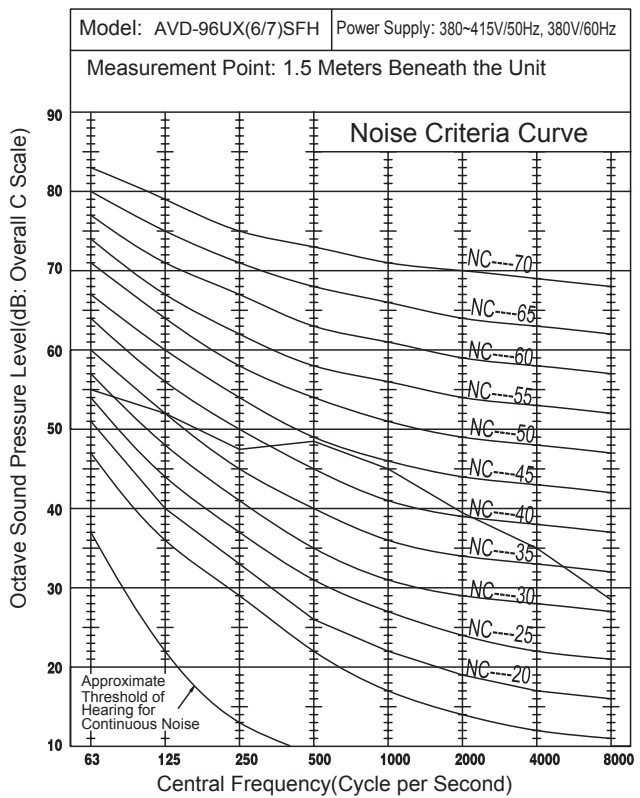
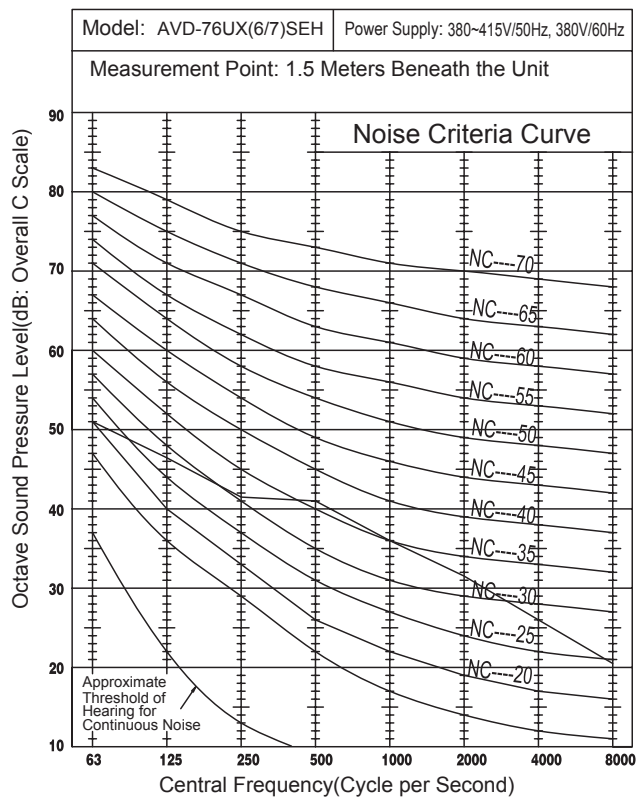
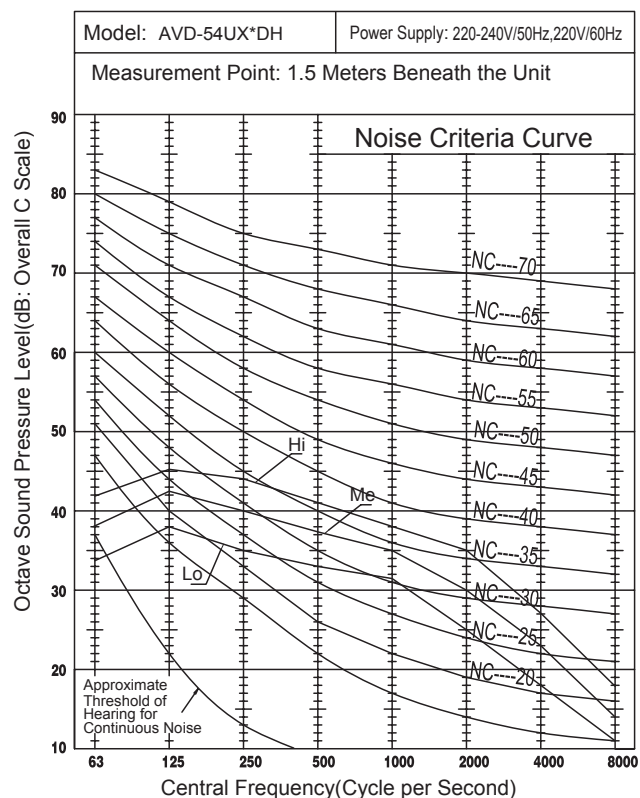
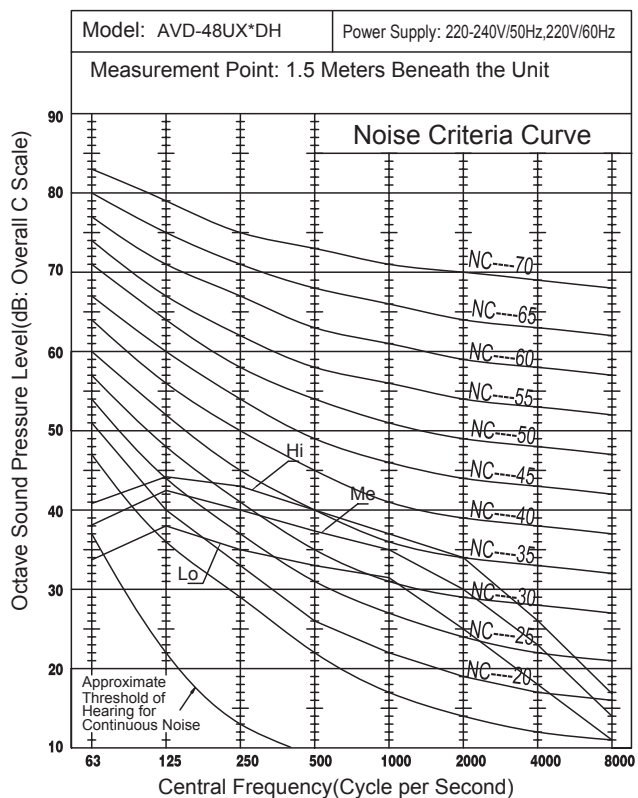


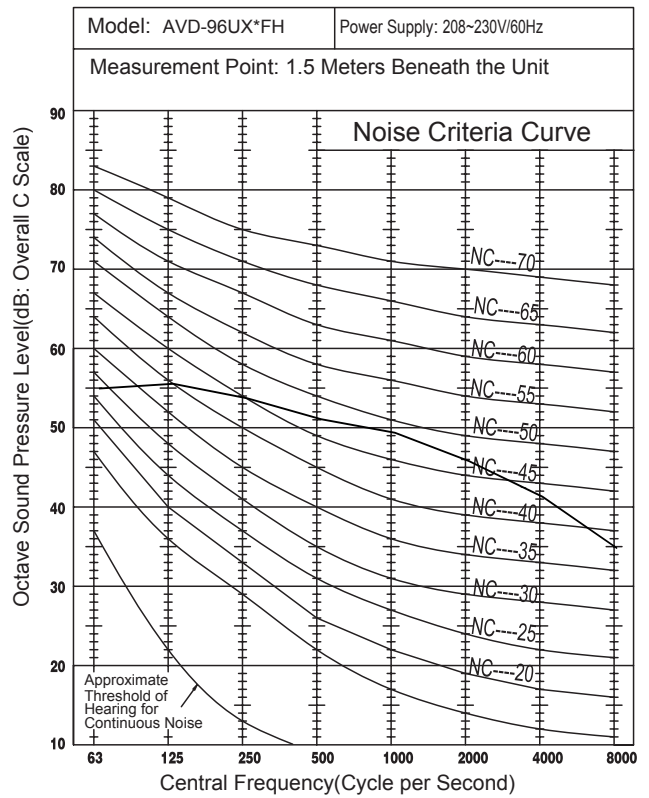
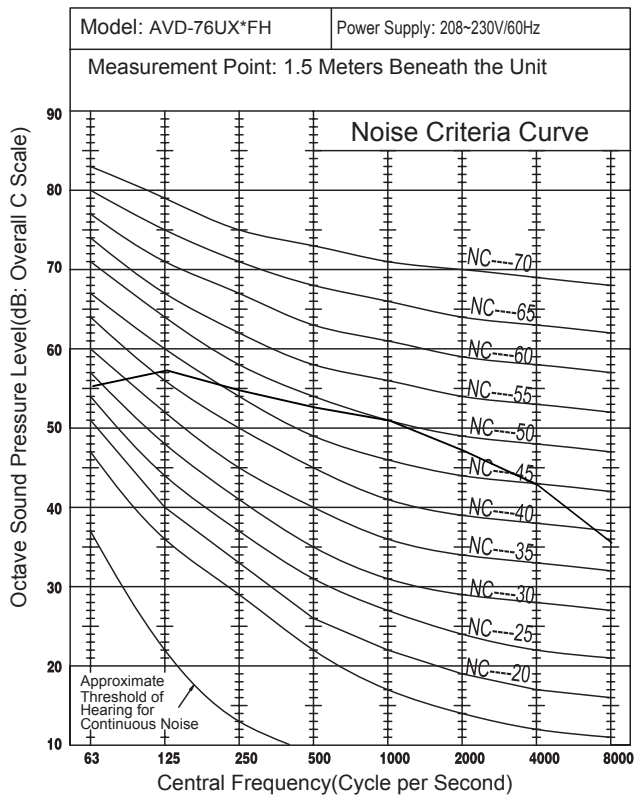


Ceiling Ducted Type (High Static Pressure)









5.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVD-07UX*AL	AVD-09UX*AL	AVD-12UX*AL	AVD-14UX*AL	AVD-17UX*BL
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	–	2	2	3	3	2
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.14	0.14	0.14	0.14	0.21
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	1	1	1	1	2
Outer Diameter	mm	186	186	186	186	186
Revolution (220V)	rpm	890/755/635	890/755/635	1,050/900/750	1,050/900/750	990/835/700
Nominal Air Flow	m ³ /h	480/420/360	480/420/360	780/660/540	780/660/540	900/780/660
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	–	PSC (Permanent Split Capacitor)				
Nominal Output	W	20	20	40	40	45
Quantity	–	1	1	1	1	1
Insulation Class	–	B	B	B	B	B

Model		AVD-18UX*BL	AVD-22UX*BL	AVD-24UX*BL	AVD-27UX*CL	AVD-30UX*CL
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	–	2	3	3	2	2
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.21	0.21	0.21	0.29	0.29
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	2	2	2	2	2
Outer Diameter	mm	186	186	186	204	204
Revolution (220V)	rpm	990/835/700	990/835/700	990/835/700	1,170/1,000/825	1,170/1,000/825
Nominal Air Flow	m ³ /h	900/780/660	960/840/720	960/840/720	1550/1350/1150	1550/1350/1150
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	–	PSC (Permanent Split Capacitor)				
Nominal Output	W	45	45	45	100	100
Quantity	–	1	1	1	1	1
Insulation Class	–	B	B	B	B	B

Indoor Heat Exchanger and Fan

Model		AVD-38UX*CL	AVD-48UX*DL	AVD-54UX*DL	AVD-76UX*EL	AVD-96UX*FL
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	9.53	9.53
Rows	–	3	3	3	3	3
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.6	1.9	1.9
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.29	0.46	0.46	0.51	0.62
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	2	2	2	2	2
Outer Diameter	mm	204	204	204	280	280
Revolution (220V)	rpm	1,170/1,000/825	1,190/1,005/835	1,200/980/850	1,250	1,270
Nominal Air Flow	m ³ /h	1550/1350/1150	2150/1800/1500	2200/1900/1500	3480	4320
Indoor Fan Motor		Drip-Proof Type Enclosure PSC				
Starting Method	–	(Permanent Split Capacitor)				
Nominal Output	W	100	140	180	500	630
Quantity	–	1	1	1	1	1
Insulation Class	–	B	F	F	F	F

Model		AVD-07UX*AH	AVD-09UX*AH	AVD-12UX*AH	AVD-14UX*AH	AVD-17UX*BH
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	–	2	2	3	3	2
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.14	0.14	0.14	0.14	0.21
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	1	1	1	1	2
Outer Diameter	mm	186	186	186	186	186
Revolution (220V)	rpm	890/755/635	890/755/635	1050/900/750	1050/900/750	990/835/700
Nominal Air Flow	m ³ /h	480/420/360	480/420/360	780/660/540	780/660/540	900/780/660
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	–	PSC (Permanent Split Capacitor)				
Nominal Output	W	35	35	80	80	75
Quantity	–	1	1	1	1	1
Insulation Class	–	B	B	B	B	B

Indoor Heat Exchanger and Fan

Model		AVD-18UX*BH	AVD-22UX*BH	AVD-24UX*BH	AVD-27UX*CH	AVD-30UX*CH
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	–	2	3	3	2	2
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.21	0.21	0.21	0.29	0.29
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	2	2	2	2	2
Outer Diameter	mm	186	186	186	204	204
Revolution (220V)	rpm	990/835/700	990/835/700	990/835/700	1170/1000/825	1170/1000/825
Nominal Air Flow	m ³ /h	900/780/660	960/840/720	960/840/720	1600/1400/1150	1600/1400/1150
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	–	PSC (Permanent Split Capacitor)				
Nominal Output	W	75	75	75	120	120
Quantity	–	1	1	1	1	1
Insulation Class	–	B	B	B	F	F

Model		AVD-38UX*CH	AVD-48UX*DH	AVD-54UX*DH	AVD-76UX*EH	AVD-96UX*FH
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	9.53	9.53
Rows	–	3	3	3	3	3
Fin Material		Aluminum				
Pitch	mm	1.8	1.8	1.6	1.9	1.9
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.29	0.46	0.46	0.51	0.62
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	–	2	2	2	2	2
Outer Diameter	mm	204	204	204	280	280
Revolution (220V)	rpm	1170/1000/825	1190/1005/835	1200/980/850	1250*	1270*
Nominal Air Flow	m ³ /h	1600/1400/1150	2100/1750/1450	2150/1800/1550	3480	4320
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	–	PSC (Permanent Split Capacitor)				
Nominal Output	W	120	200	250	650	990
Quantity	–	1	1	1	1	1
Insulation Class	–	F	F	F	F	F

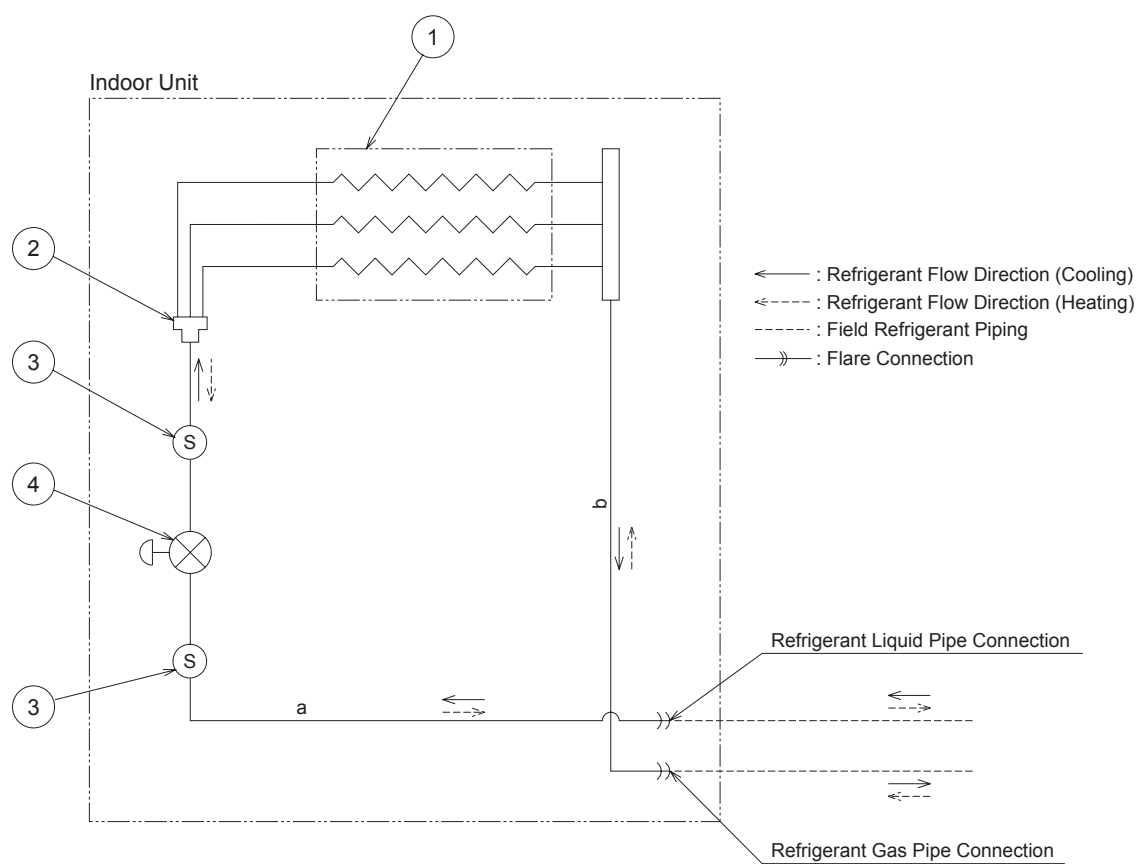
*: For 380V

Model		AVD-76UX2SFH	AVD-96UX2SFH
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube	
Tube Material		Copper Tube	
Outer Diameter	mm	9.53	9.53
Rows	–	3	3
Fin Material		Aluminum	
Pitch	mm	1.8	1.9
Maximum Operating Pressure	MPa	4.15	4.15
Total Face Area	m ²	0.56	0.62
Number of Coil/Unit	–	1	1
Indoor Fan		Multi-Blade Centrifugal Fan	
Number/Unit	–	2	2
Outer Diameter	mm	250	250
Revolution (220V)	rpm	1320	1320
Nominal Air Flow	m ³ /h	4000	4320
Indoor Fan Motor		Drip-Proof Type Enclosure	
Starting Method	–	PSC (Permanent Split Capacitor)	
Nominal Output	W	530+530	530+530
Quantity	–	2	2
Insulation Class	–	F	F

5.5 Control System

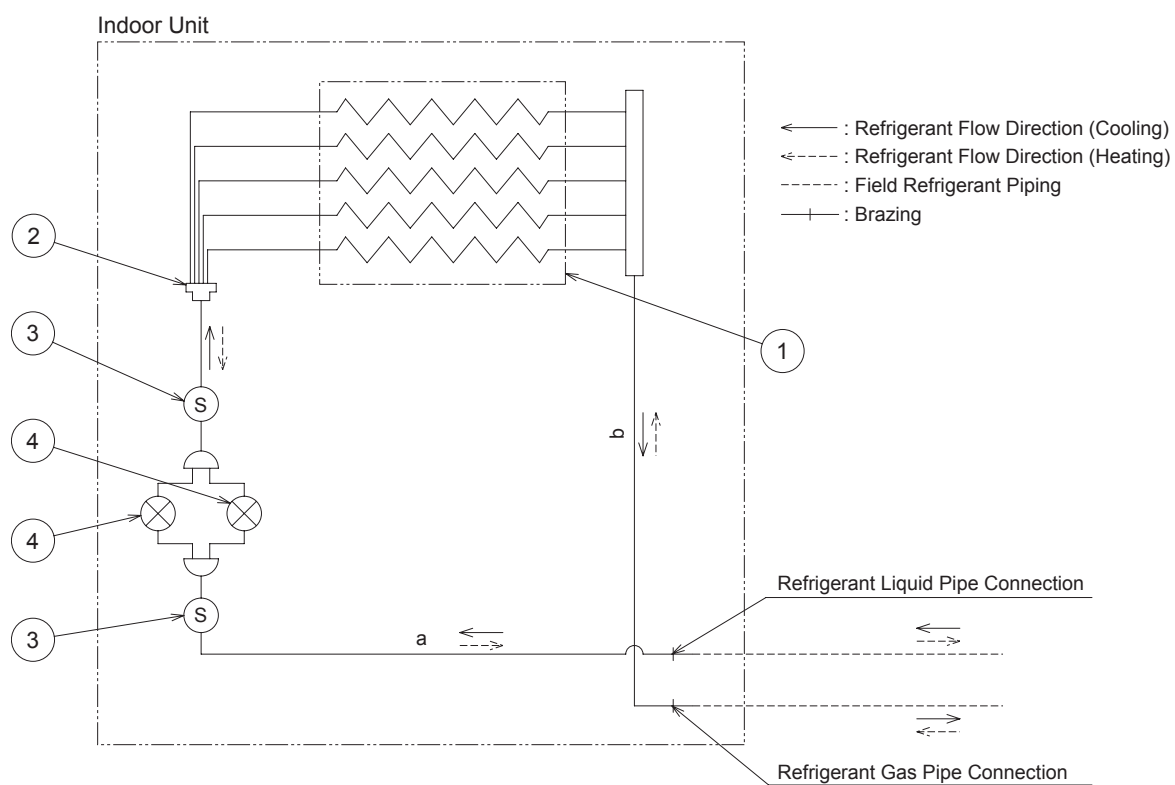
Refrigeration Cycle

For Ceiling Ducted Type (05~54 Model)



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

For Ceiling Ducted Type (76 and 96 Model)



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

5.6 Electrical Data

< 50 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Ceiling Ducted Type (Low Static Pressure)	AVD-07UXCSAL	220~240	1	50	264	198	1	0.53	0.11
	AVD-09UXCSAL							0.53	0.11
	AVD-12UXCSAL							0.75	0.15
	AVD-14UXCSAL							0.75	0.15
	AVD-17UXCSBL							0.77	0.15
	AVD-18UXCSBL							0.77	0.15
	AVD-22UXCSBL							0.77	0.15
	AVD-24UXCSBL							0.96	0.19
	AVD-27UXCSCL							1.55	0.30
	AVD-30UXCSCL							1.55	0.30
	AVD-38UXCSCL							1.55	0.30
	AVD-48UXCSDL							2.19	0.43
	AVD-54UXCSDL							2.19	0.43
	AVD-76UXCSEL	380~415	3	50	457	342	3	1.71	0.95
	AVD-96UXCSFL							2.03	1.12
Ceiling Ducted Type (High Static Pressure)	AVD-07UXCSAH	220~240	1	50	264	198	1	0.53	0.11
	AVD-09UXCSAH							0.53	0.11
	AVD-12UXCSAH							0.75	0.15
	AVD-14UXCSAH							0.75	0.15
	AVD-17UXCSBH							0.77	0.15
	AVD-18UXCSBH							0.77	0.15
	AVD-22UXCSBH							0.77	0.15
	AVD-24UXCSBH							0.96	0.19
	AVD-27UXCSCH							1.55	0.30
	AVD-30UXCSCH							1.55	0.30
	AVD-38UXCSCH							1.55	0.30
	AVD-48UXCSDH							2.19	0.43
	AVD-54UXCSDH							2.19	0.43
	AVD-76UXCSEH	380~415	3	50	457	342	3	1.96	1.03
	AVD-96UXCSFH							2.43	1.28

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (ϕ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

< 60 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Ceiling Ducted Type (Low Static Pressure)	AVD-07UX2SAL	220	1	60	242	198	1	0.53	0.1
	AVD-09UX2SAL							0.53	0.1
	AVD-12UX2SAL							0.75	0.14
	AVD-14UX2SAL							0.75	0.14
	AVD-17UX2SBL							0.77	0.14
	AVD-18UX2SBL							0.77	0.14
	AVD-22UX2SBL							0.77	0.14
	AVD-24UX2SBL							0.96	0.18
	AVD-27UX2SCL							1.55	0.29
	AVD-30UX2SCL							1.55	0.29
	AVD-38UX2SCL							1.55	0.29
	AVD-48UX2SDL							2.19	0.41
	AVD-54UX2SDL							2.19	0.41
	AVD-76UX7SEL	380	3	60	418	342	3	1.71	0.9
	AVD-96UX7SFL							2.03	1.07
Ceiling Ducted Type (High Static Pressure)	AVD-07UX2SAH	220	1	60	242	198	1	0.53	0.1
	AVD-09UX2SAH							0.53	0.1
	AVD-12UX2SAH							0.75	0.14
	AVD-14UX2SAH							0.75	0.14
	AVD-17UX2SBH							0.77	0.14
	AVD-18UX2SBH							0.77	0.14
	AVD-22UX2SBH							0.77	0.14
	AVD-24UX2SBH							0.96	0.18
	AVD-27UX2SCH							1.55	0.29
	AVD-30UX2SCH							1.55	0.29
	AVD-38UX2SCH							1.55	0.29
	AVD-48UX2SDH							2.19	0.41
	AVD-54UX2SDH							2.19	0.41
	AVD-76UX7SEH	380	3	60	418	342	3	1.96	1.03
	AVD-96UX7SFH							2.43	1.28
	AVD-76UX2SFH	208~230	1	60	253	187	1	6.62	1.42
	AVD-96UX2SFH							6.8	1.46

VOL: Rated Unit Power Supply Voltage (Plated)(V)
 PH: Phase (φ)
 HZ: Frequency (Hz)

RNC: Running Current (A)
 IPT: Input (kW)

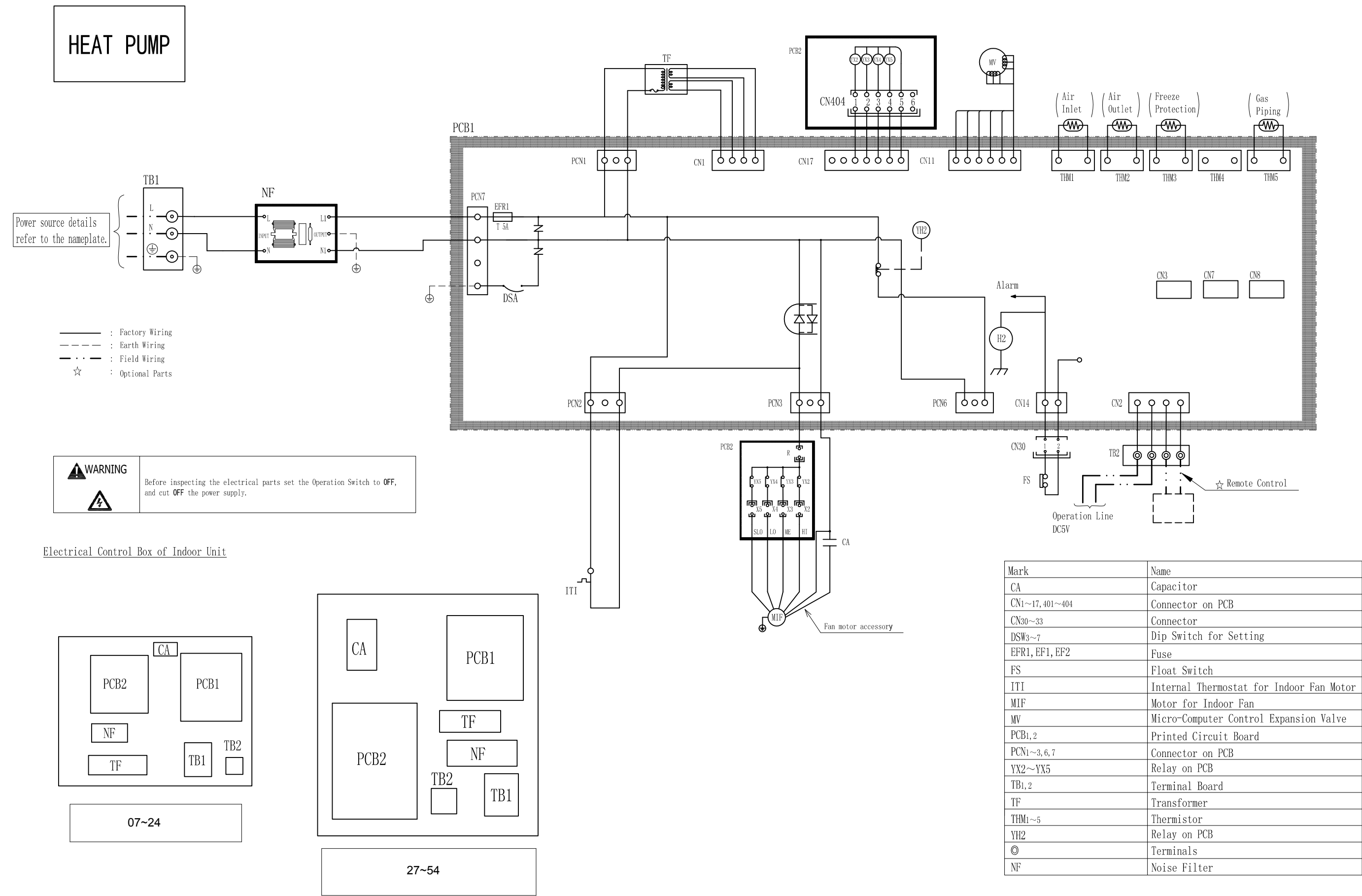
Safety and Control Device Setting

Indoor Unit

Model		AVD-07~96*	
For Evaporator Fan Motor Thermostat	°C 130 ± 5 °C 83 ± 15		
For Control Circuit Fuse Capacity	A	5	
Freeze Protection Thermostat	°C 0 °C 14		
Thermostat Differential	°C	2	

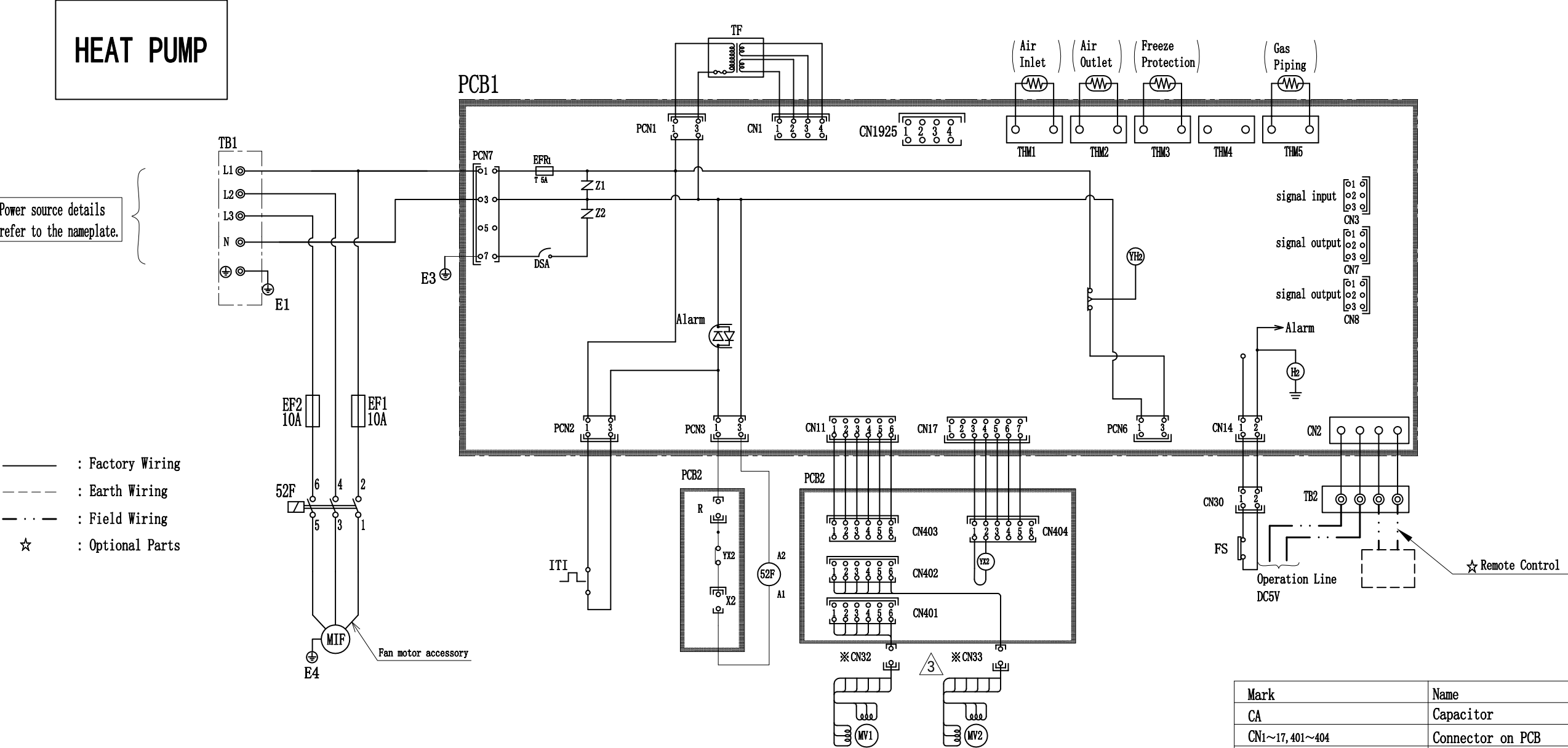
5.7 Electrical Wiring Diagram

Model: AVD-07~54*L



Electrical Wiring Diagram

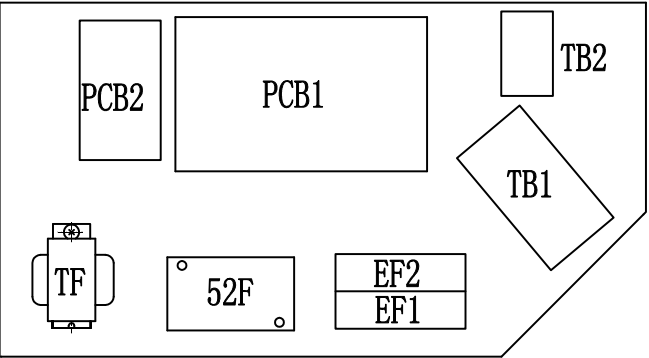
Model: AVD-76~96*



Mark	Name
CA	Capacitor
CN1~17, 401~404	Connector on PCB
CN30~33	Connector
DSW3~7	Dip Switch for Setting
EFR1, EF1, EF2	Fuse
FS	Float Switch
ITI	Internal Thermostat for Indoor Fan Motor
MIF	Motor for Indoor Fan
MV	Micro-Computer Control Expansion Valve
PCB1, 2	Printed Circuit Board
PCN1~3, 6, 7	Connector on PCB
YX2	Relay on PCB
TB1, 2	Terminal Board
TF	Transformer
THM1~5	Thermistor
YH2	Relay on PCB
◎	Terminals
52F	Contactor
EF1~EF2	Fuse

3 ☆: Optional, no impact on the performance of air conditioning.

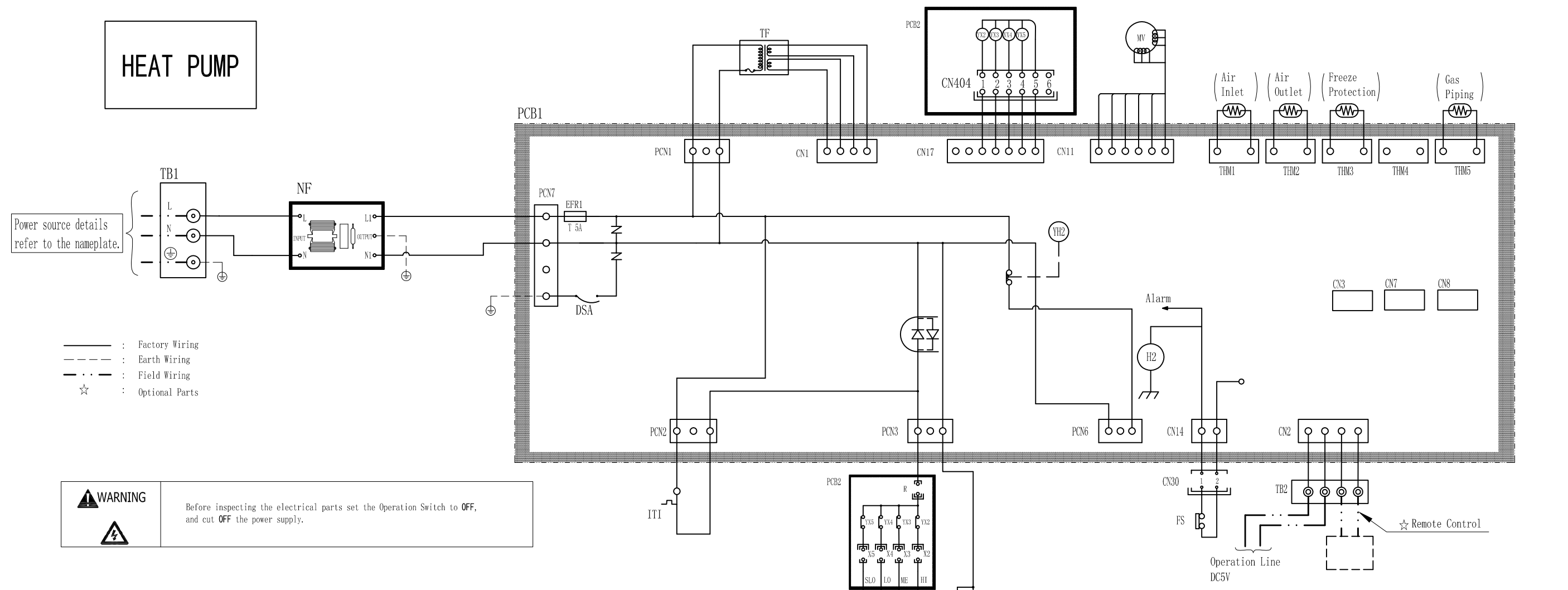
Electrical Control Box of Indoor Unit



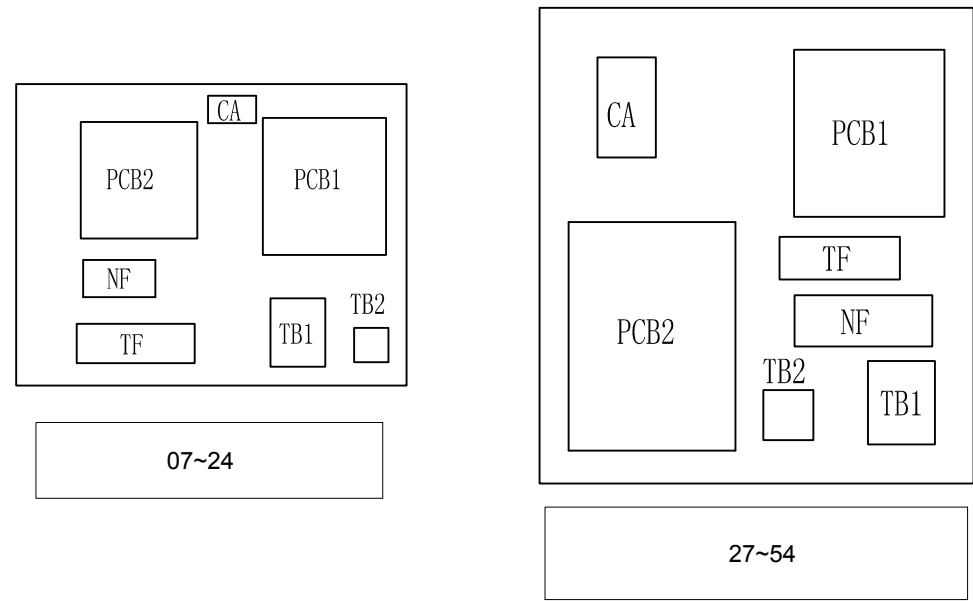
Note :
1. All the field wiring and equipment must comply with local codes.

Electrical Wiring Diagram

Model: AVD-07~54*H



Electrical Control Box of Indoor Unit



Static pressure

MODELS	No.1 Static pressure (Before Shipment)	No.2 Static pressure
07~24	50Pa	80Pa
27~54	120Pa	90Pa

Mark	Name
CA	Capacitor
CN1~17, 401~404	Connector on PCB
CN30~33	Connector
DSW3~7	Dip Switch for Setting
EFR1, EF1, EF2	Fuse
FS	Float Switch
ITI	Internal Thermostat for Indoor Fan Motor
MIF	Motor for Indoor Fan
MV	Micro-Computer Control Expansion Valve
PCB1,2	Printed Circuit Board
PCN1~3, 6, 7	Connector on PCB
YX2~YX5	Relay on PCB
TB1,2	Terminal Board
TF	Transformer
THM1~5	Thermistor
YH2	Relay on PCB
◎	Terminals
NF	Noise Filter

5.8 Indoor Unit Optional Parts

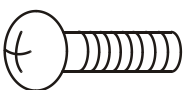
Optional Parts		Applied Indoor Unit Type	
Type	Model	Ceiling Ducted Type (Low Static Pressure)	Ceiling Ducted Type (High Static Pressure)
Wire Remote Control Switch	HYXE-F01H	●	●
	HYXE-G01H	●	●
	HYXE-VA011	●	●
	HYXE-J01H	●	●
	HYXE-M01H	●	●
	HYXE-S01H	●	●
Wireless Remote Control Switch	HYE-L01	●	●
	HYE-W01	●	●
Wireless Receiver Kit	HYRE-V01H	●	●
	HYRE-T01H		
	HYRE-V02H		
	HYRE-X01H		
7 Day Timer	HYDE-E01H	●	●
Control Station	HYJE-H01H	●	●
	HYJE-D02H	●	●
	HYJ-J01H	●	●
	HCCS-H128H2C1YM	●	●
	HCCS-H128H2C1NM	●	●
	HCCS-H247R4C1E		
	HCCS-H128H2C2NM	●	●
Interface for Building Control	HC-A64BNP	●	●
	HCPC-H2M1C	●	●
Drain Pump	HPS-162#E	●	●
	HPS-132#E	●	●
	HPS-151#E	●	●
Long Life filter	HF-224L-FE		●8-10HP
	HF-280L-FE		●8-10HP
	HF-40L-ZFE		
3D Air Swing	HP-DB-NK		
	HP-EB-NK		

5.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

For Model: AVD-07~54*

Table Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Washer 	8	For Unit Suspension
Screw 	16	For Fixing Flanges
Hose Clamp 	1	For Drain Hose Connection

For Model: AVD-76~96*

Table Factory-Supplied Accessories

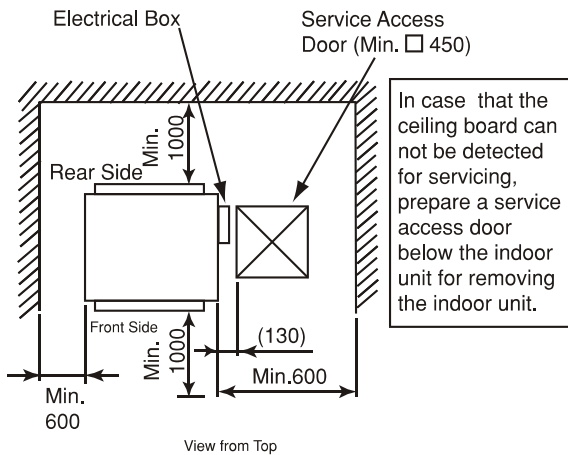
Accessory	Q'ty	Purpose
Washer 	8	For Unit Suspension
Hose Clamp 	1	For Drain Hose Connection
Insulation (26 IDx105) 	1	For Refrigerant Liquid Piping
Insulation (28 IDx85) 	1	For Refrigerant Gas Piping
Cord Clamp 	8	For Fixing Thermal Insulation for Refrigerant Pipings

5.10 Installation

5.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig.

AVD-07~54*



AVD-76~96*

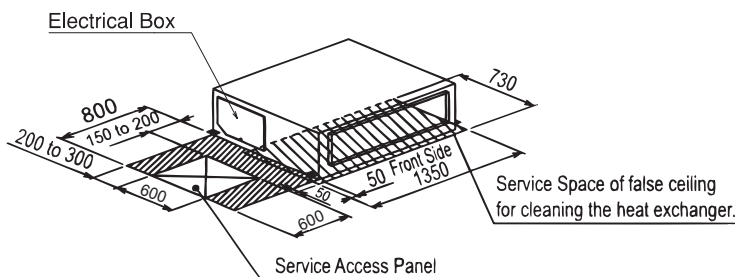


Fig. Operation and Installation Space

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.

The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.

(A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch

- (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

! WARNING

Check to ensure that the number of below is within 0.3kg/m^3 . Otherwise it may cause danger situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.

$$\frac{(\text{Total Refrigerant Quantity per one Outdoor Unit})}{(\text{Volume of the room where this Indoor Unit is installed.})} \leq 0.3\text{kg/m}^3$$

In detail, refer to the Installation Manual for outdoor unit

5.10.2 Installation

- Suspension Bolts

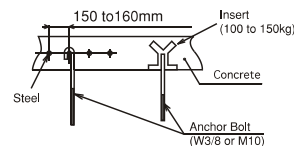
Step 1

Select final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.

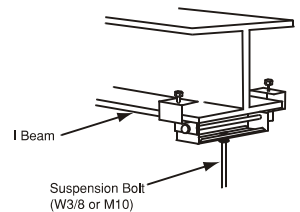
Step 2

Mount suspension bolts, as shown in Fig.

- For Concrete Slab



- For Steel Beam



- For Wooden Beam Suspension

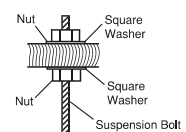
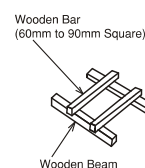
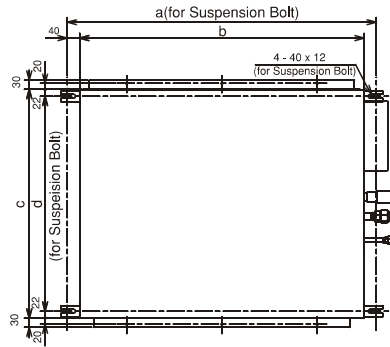


Fig. Mounting of Suspension Bolts

- Marking of the Positions of the Sling Bolts and Piping Connections

- (1) Mark the positions of the sling bolts, refrigerant piping connections and drain connection.
- (2) Installation dimensions are shown below

AVD-07~54*



Model	a	b	c	d
07 ~ 14	730	650	720	676
17 ~ 24	980	900	720	676
27 ~ 38	980	900	800	756
48 ~ 54	1,380	1,300	800	756

AVD-76~96*

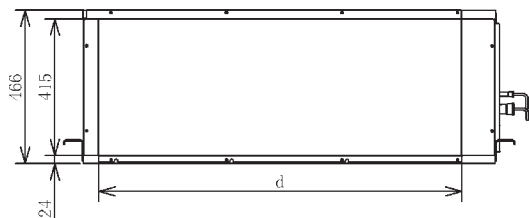
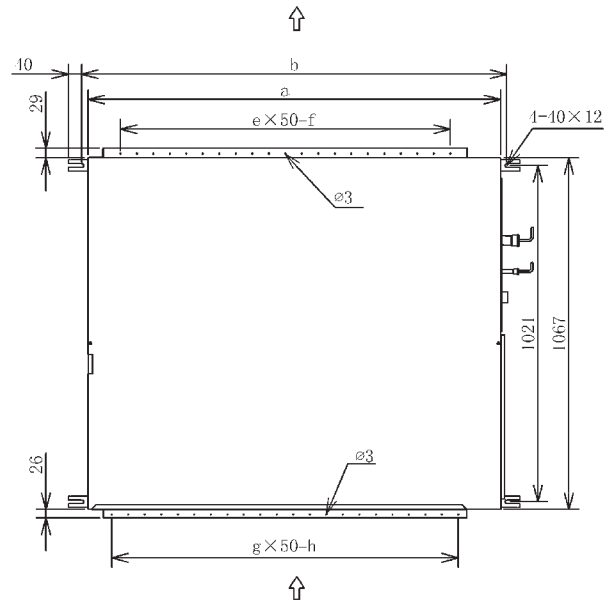
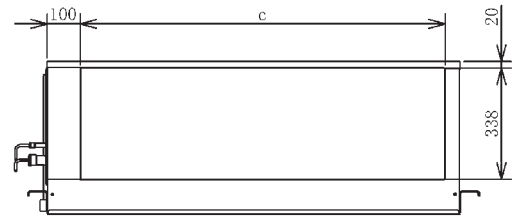


Fig. Suspension Bolts

AVD-76~96UX2SFH

Model(10 ³ Btu/h)	a	b	c	d	e	f	g	h
76	1250	1288	1106	1100	20	1000	21	1050
96								

AVD-76~96UX(6/7)S(E/F)(L/H)

Model ³ (10 Btu/h)	a	b	c	d	e	f	g	h
76	1060	1098	916	910	16	800	17	850
96	1250	1288	1106	1100	20	1000	21	1050

- Mounting the Indoor Unit

Hang the indoor unit as shown in

Field-Supplied Parts

*Sling Bolts 4-M10 or W3/8

*Nut 8-M10 or W3/8

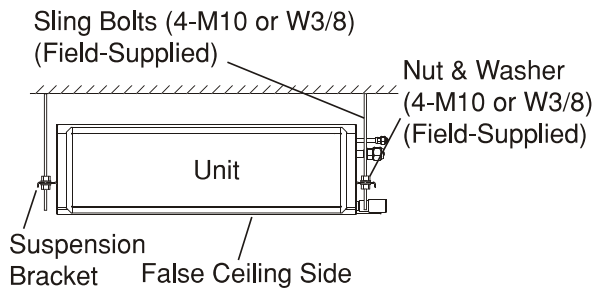


Fig. Hanging Indoor Unit

(1) How to put Nuts or Sling Bolts

Put nuts on each of the four hanging bolts, as shown in Fig.

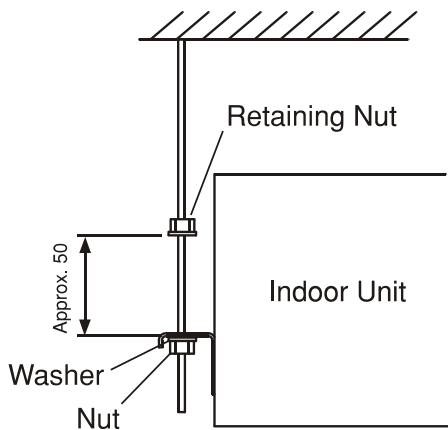


Fig. Sling Bolts and Nut

(2) Hanging the Indoor Unit

- * Hook suspension bracket to the nut and washer of each hanging bolt, as shown, starting at the opposite side to service cover side.
- * After checking that the nut and washer are correctly fixed by the retainers of the suspension bracket, hook the suspension bracket of the service cover side to the nut and washer.
(Put the sling bolts away from the unit when hooking.)

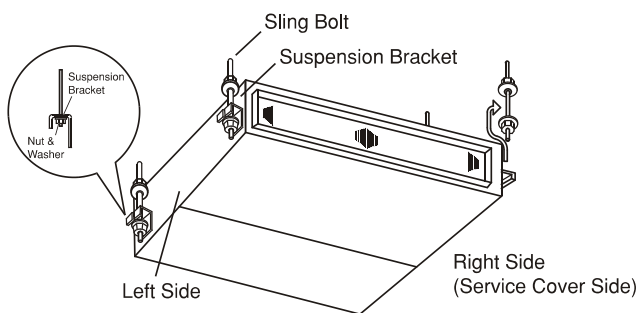


Fig. Hanging Indoor Unit

● Adjusting of the Unit Level

- (1) Check to ensure that the foundation is flat, taking into account the maximum foundation gradient.

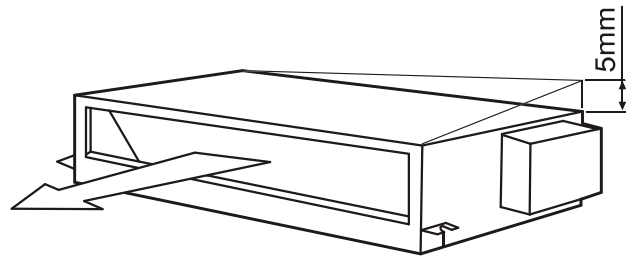


Fig. Foundation Gradient

- (2) The unit should be installed so that the rear side of the unit is slightly (0mm~5mm) lower than the front side, in order to avoid the incorrect position of the drain discharge.
- (3) Tighten the bolts of the sling nuts with the suspension brackets after adjustment is completed.

Special plastic paint must be applied to the bolts in order to prevent them from loosening.

NOTE

Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.

● Connecting Supply Duct

- (1) The supply duct should be connected with the indoor unit through canvas ducts, in order to avoid abnormal sound vibration (Refer to below Fig). The unit is equipped with a pre-drilled duct flange for the supply duct connection.
- (2) Attach the vibration proof rubber to Sling Bolt in order to avoid abnormal sound vibration.
- (3) Duct material should be non-flammable material.
- (4) Perform the heat insulation work over the duct for dew protection.

CAUTION

- If a lower sound level is further required, install silencer (field-supplied).
 - Design duct arrangement as “Unit External Static Pressure=Pressure Drop of Duct+Pressure Drop of Air Outlet and Air Inlet”.
- If duct design is not appropriate, big sound and splash will occur.

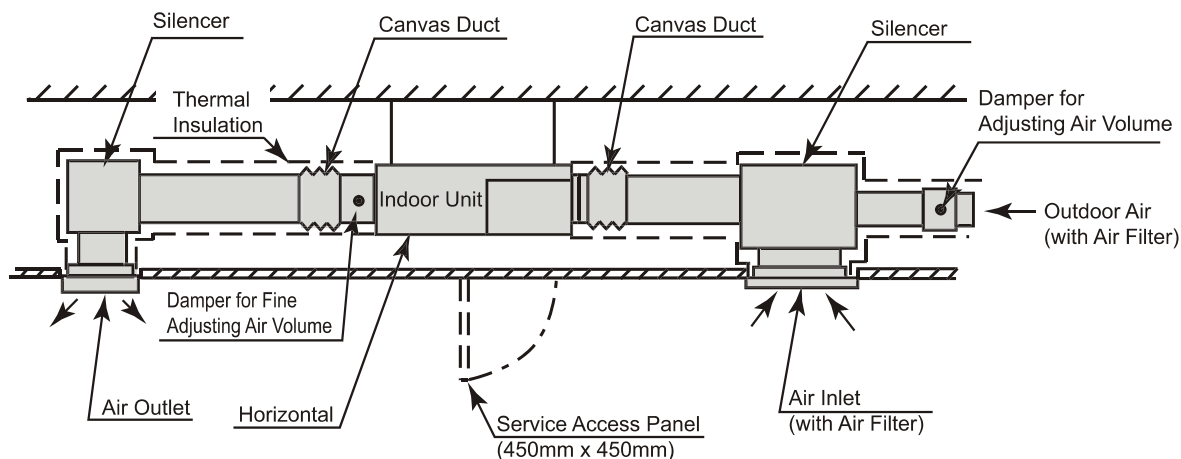


Fig. Connecting Supply Duct

5.10.3 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

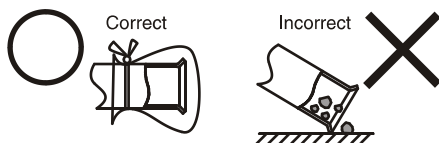
● Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper tubes making sure there is no dust and moisture inside the tubes.
Before connecting pipes, blow the inside of the tubes with nitrogen or dry air, to remove any dust or foreign materials.

● Piping Connection

⚠ CAUTION

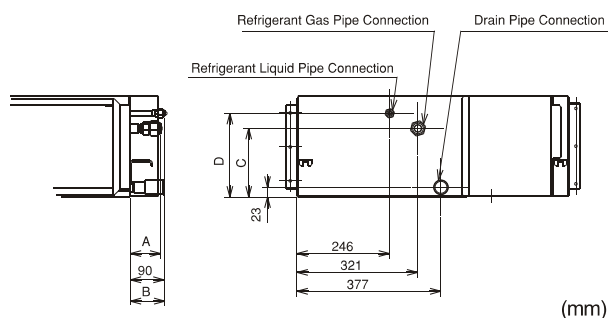
- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- An excess or a shortage of refrigerant is the main cause of trouble to the units.
Charge the correct refrigerant quantity.

Position of piping connection is shown below.

AVD-07~54*



Model	A	B	C	D
07 ~ 14	70	92	182	222
17 ~ 18	77	92	182	222
22 ~ 24	77	95	202	222
27 ~ 38	78	95	202	244
48 ~ 54	78	95	202	244

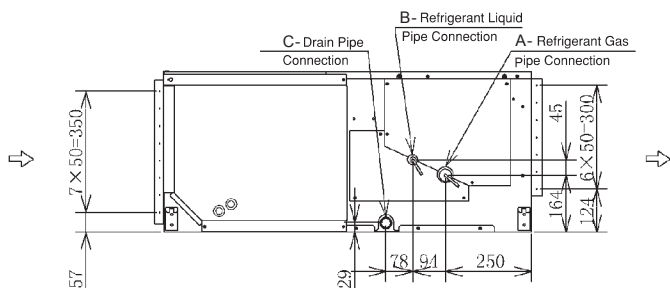
Fig. Position of Piping Connection

NOTE

The position of the drain pipe connection is as shown in the above figure, and the lower connection hole shall be closed with the rubber plug.

Model	Gas Piping	Liquid Piping
07 ~ 14	φ12.7 (1/2)	φ6.35 (1/4)
17 ~ 18	φ15.88 (5/8)	φ6.35 (1/4)
22 ~ 30	φ15.88 (5/8)	φ9.53 (3/8)
38 ~ 54	φ19.05 (3/4)	φ9.53 (3/8)

AVD-76~96*

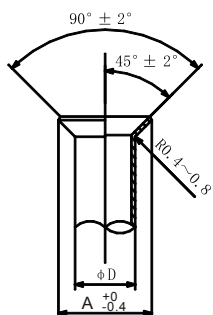


Model (10 ³ Btu/h)	A	B	C
76	φ 19.05(3/4)	φ 9.53(3/8)	VP 25
96	φ 22.2(7/8)	φ 9.53(3/8)	

Fig. Position of Piping Connection

※ Flaring Dimension

Perform the flaring work as shown below.

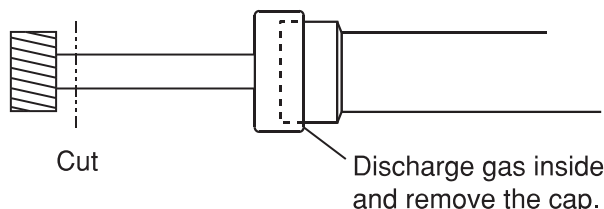


Diameter φD	A +0/-0.4	
	R410A	R407C
6.35	9.1	9.0
9.53	13.2	13.0
12.7	16.6	16.2
15.88	19.7	19.4
19.05	(*)	23.3

(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe(with a flare).

CAUTION

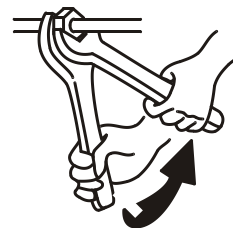
- Cut the pipe end before blazing to remove the cap, and discharge gas inside the pipe. If not discharged, blazing material will be blown off.



- Pay attention so that the flame does not come into contact with the main body itself.

AVD-07~54*

- When tightening the flare nut, use two spanners as shown below.



Pipe Size	Tightening Torque (N.m)
φ6.35mm	20
φ9.53mm	40
φ15.88mm	80
φ19.05mm	100

Fig. Tightening Work of Flare Nut

- After connecting the refrigerant piping, seal the refrigerant pipes by using the Field - supplied insulation material as shown in Fig below.

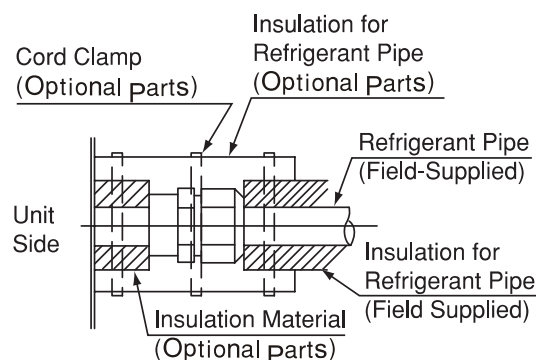


Fig. Insulation on Pipes

- Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit. In relation to the additional refrigerant quantity, refer to "Common".

AVD-76~96*

- When brazing the refrigerant pipes, be sure to blaze, after covering the part with shown below a wet cloth to the insulation pipes of the units in order to prevent the thermistors on liquid and gas pipes from damaging by heating.

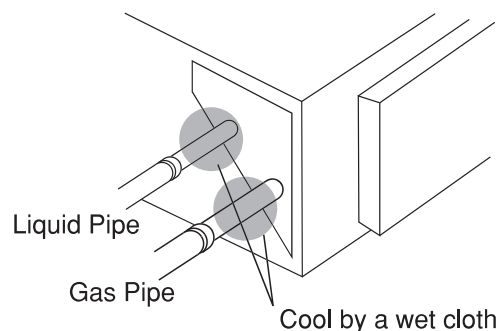


Fig. Blazing Pipes

- After brazing, insulate the pipes after checking that there is no leakage. At that time, be sure to cover the space between two insulating peaces by insulation pipe (factory-supplied accessory).

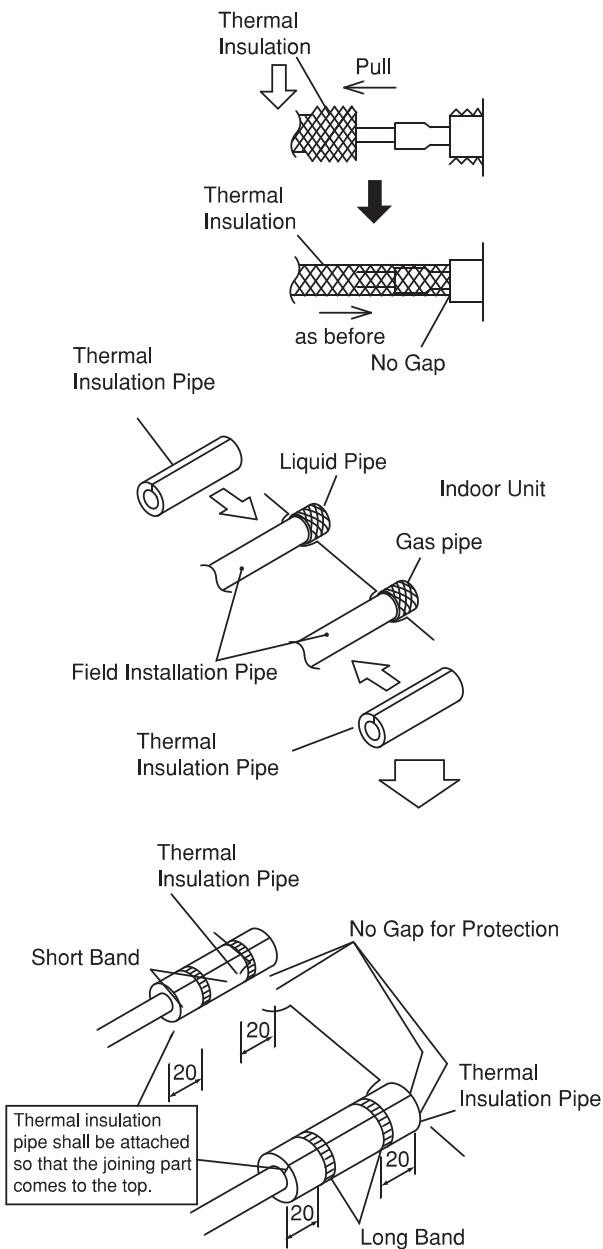


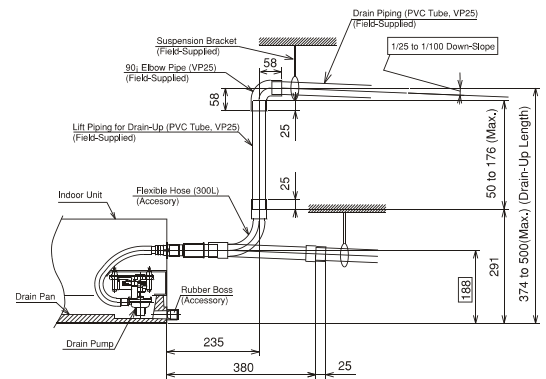
Fig. Insulating Pipes

- Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

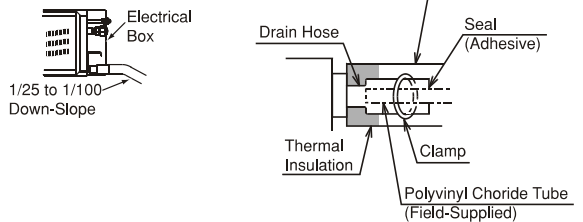
5.10.4 Drain Piping

- The position of the drain piping connection is shown below.
- Prepare polyvinyl chloride pipe with a 32mm outer diameter.
- Fasten the tube to the drain hose with the adhesive agent and the field-supplied clamp. The drain piping must be performed with a DOWN-SLOPE pitch of 1/25 to 1/100.
- Insulate the drain pipe after connecting the drain hose.

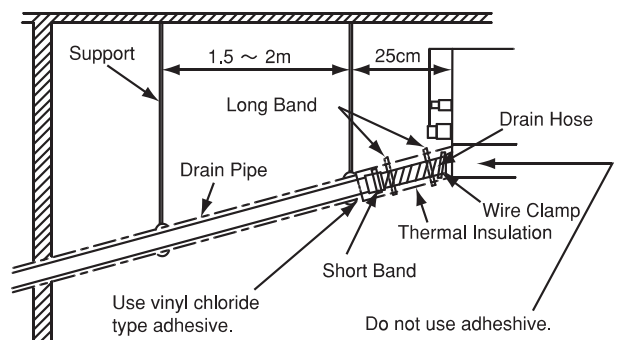
07-14 10^3 Btu/h



17-54 10^3 Btu/h



76-96 10^3 Btu/h



- Do not connect the drain-hose to the drain outlet pipe of indoor unit BY ADHESIVE.
If used, the servicing of drain-up mechanism is not available, and drain outlet pipe of indoor unit may be cracked due to invasion of the adhesive.
But other pipe connecting part, use vinyl chloride type adhesive.

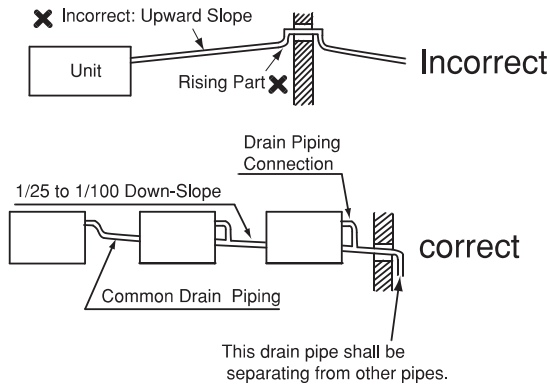


Fig. Drain Piping

NOTE

When the relative humidity of inlet or ambient air exceeds 80%, apply an (field-supplied) auxiliary drain pan beneath the indoor unit as shown below.

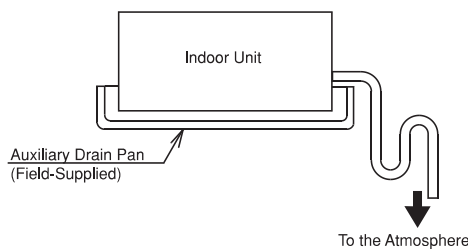


Fig. Auxiliary Drain Pan

NOTE

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.

- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.

Checking with the Float Switch

- Switch ON the power supply.
- Pour 2 or 2.5 liters of water into the drain pan.
- Check to ensure that the water flows smoothly or whether no water leakage occurs. When water cannot be found at the end of the drain piping, pour another 2 liters of water into the drain.

5.10.5 Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur
- Tighten screws according to the following torque.

M3.5: 1.2 N-m

M5: 2.0~2.4 N-m

! CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.

● General Check

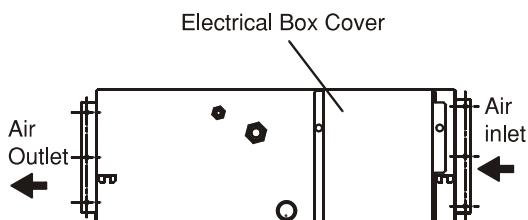
- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog ". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires.
If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

● Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown below.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp inside the electrical box.

AVD-07~54*



Remove the fixing screws for electrical box cover.

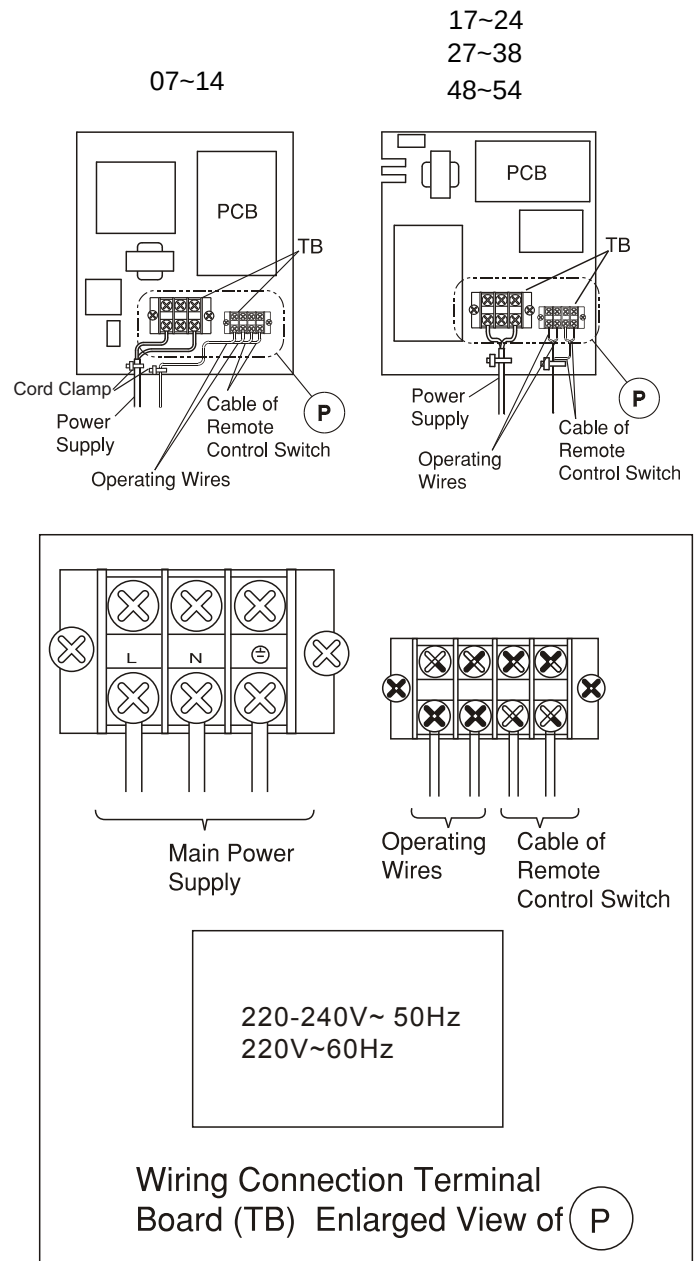


Fig. Electrical Wiring Connection

Static Pressure Electrical Wiring Connection

Model	Static/Pressure(Pa)	
AVD-07~24*L	30(*)	
AVD-07~54*L	60(*)	
AVD-07~24*H	50(*)/80	
	Printed	1(*)/2
AVD-27~54*H	120(*)/90	
	Printed	1(*)/2
AVD-76~96UX(6/7)SFL	100(*)	
AVD-76~96UX(6/7)SFH	220(*)	
AVD-76UX2SFH	240(*)	
AVD-96UX2SFH	200(*)	

*: Before Shipment

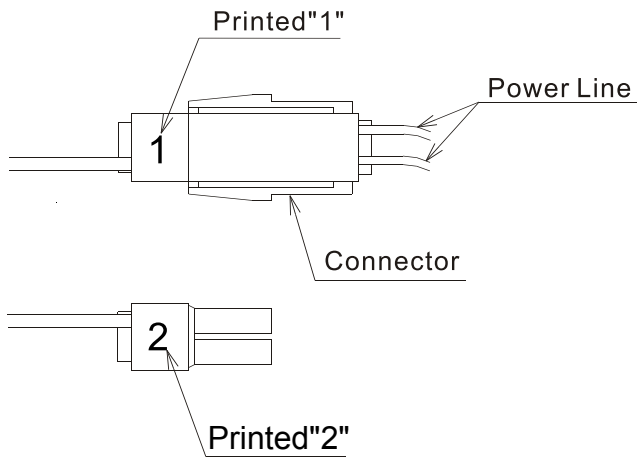
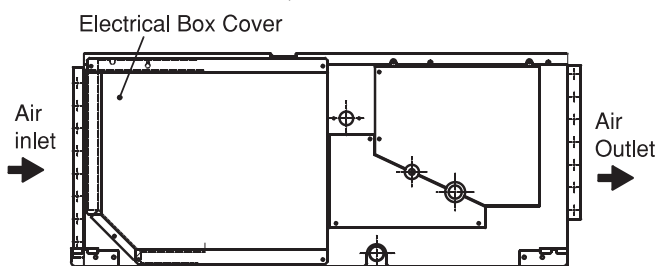


Fig. Static Pressure of Change

AVD-76~96UX2SFH, AVD-76~96UX6SE/FL/H



Remove the fixing screws for electrical box cover.

AVD-76~96UX(6/7)S(E/F)(L/H)

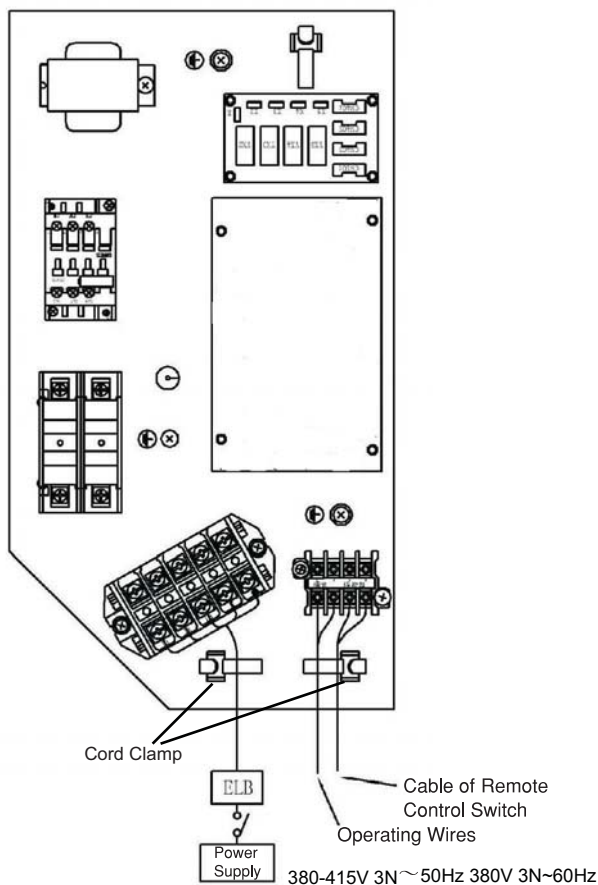


Fig. Electrical Wiring Connection

AVD-76~96UX2SFH

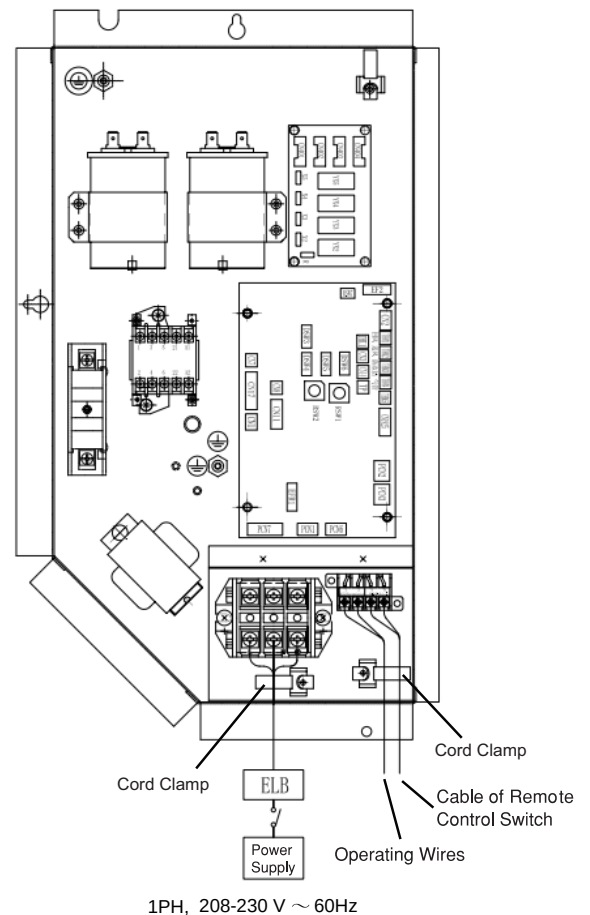


Fig. Electrical Wiring Connection

5.10.6 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

! WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

5.10.7 Common

- Field Minimum Wire Sizes for Power Source

! WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials with sealing materials.

AVD-07~54*

Field Minimum Wire Sizes for Power Source

Mode	MCA	Power Source Cable Size EN60 335-1 *1	Transmitting Cable Size EN60 335-1 *1
AVD-07~09*	1.1A	2.5mm ²	0.75mm ²
AVD-12~14*	1.5A		
AVD-17~22*	1.6A		
AVD-24*	1.9A		
AVD-27~38*	3.0A		
AVD-48~54*	4.2A		
AVD-76~96UX(6/7)*	10A	4.0mm ²	0.75mm ²
AVD-76~96UX2SFH	11A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60 335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

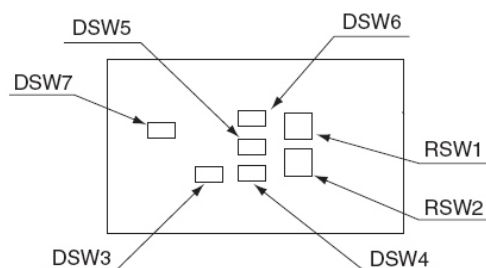
Selection According to EN60 335-1

Current (A)	Wire Size (mm ²)
I ≤ 3	2.5
3 < I ≤ 6	2.5
6 < I ≤ 10	2.5
10 < I ≤ 16	4
16 < I ≤ 25	6
25 < I ≤ 32	10
32 < I ≤ 50	16
50 < I ≤ 63	25
63 < I	※ 1

- ※1 In the case that current exceeds 63A, do not connect cables in series.

● Setting of Dip Switches

(A) Position of Dip Switches



- (B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

① Unit No. Setting (RSW1&DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numbering must start from "1" for every outdoor unit.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
	Setting Position 	
Before shipment, DSW6 and RSW1 are set to "0". Max. 64 units are available to set when all the equipment to be connected are corresponding to Hi-NET. Max. 16 units when the units corresponding/non-corresponding to Hi-NET are combined.		
		Set No.1 Pin ON

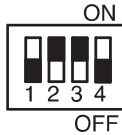
② Setting of (DSW3&DSW4)

AVD-07~54*

- Unit Model Code Setting(DSW4)
No setting is required.
Setting the model code of the indoor unit.



AVD-76~96*

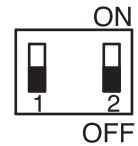


- Capacity Code Setting (DSW3)
No setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

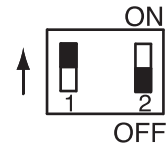
Capacity	07	09	12	14	17	18	22
Setting Position							
Capacity	24	27	30	38	48	54	76
Setting Position							
Capacity	96						
Setting Position							

④ DSW7

* Factory Setting



* No.1 Pin: Fuse Recover
When fuse is cut,
turn No.1 Pin ON.



NOTE

- The "■" mark indicates position of dip switches.
Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

③ Refrigerant Cycle No. Setting

Setting is required.

Setting position before shipment is all OFF.

Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
	Setting Position 	
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to HI-NET. Max. 16 cycles when the units corresponding/non-corresponding to HI-NET are combined.		Set All Pins OFF
		RSW2

6. Low-Height Ceiling Ducted Type(AVE)

6.1 General Data

Indoor unit		Low-height Ceiling Ducted Type				
Model Power supply	AC 1φ, 220~240V/50Hz	AVE-05HCFRL	AVE-07HCFRL	AVE-09HCFRL	AVE-12HCFRL	AVE-15HCFRL
Nominal Cooling Capacity	kW	1.7	2.2	2.8	3.6	4.5
	kcal/h	1500	1900	2400	3100	3900
	Btu/h	5800	7500	9600	12300	15300
Nominal Heating Capacity	kW	1.9	2.5	3.2	4.0	5.0
	kcal/h	1700	2100	2700	3450	4300
	Btu/h	6500	8500	11300	13600	17100
Cooling Power Consumption	kW	0.05	0.05	0.07	0.07	0.08
Heating Power Consumption	kW	0.05	0.05	0.07	0.07	0.08
Cooling Operating Current	A	0.25	0.25	0.35	0.35	0.38
Heating Operating Current	A	0.25	0.25	0.35	0.35	0.38
Noise Level(Hi/Me/Lo)	Sound Pressure-dB(A)	29/24/22	29/24/22	35/25/23	35/25/23	36/25/23
Outer Dimensions	H(mm)	192	192	192	192	192
	W(mm)	700	700	700	700	910
	D(mm)	447	447	447	447	447
Net Weight	kg	16	16	17	17	21
Air Flow Rate(Lo/Me/Hi)	m³/h	282/330/420	282/330/420	288/342/540	288/342/540	330/378/720
Motor Power	W	14	14	29	29	35
Piping Connections		Flare-nut Connection(with Flare Nuts)				
Liquid Line	mm	Ø6.35	Ø6.35	Ø6.35	Ø6.35	Ø6.35
Gas Line	mm	Ø12.7	Ø12.7	Ø12.7	Ø12.7	Ø12.7
Condensate Drain		VP25(Outer Diameter Ø32mm)				
Approximate Packing Measurement	m³	0.15	0.15	0.15	0.15	0.18
External Pressure	Pa	10(10-30)				

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)
 Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)
 Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.4 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

In case of the power source of 240V, the sound pressure level increases by about 1 dB.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

- The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.
- The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.

Indoor unit		Low-height Ceiling Ducted Type			
Model Power supply	AC 1φ, 220~240V/50Hz	AVE-17HCFRL	AVE-19HCFRL	AVE-22HCFRL	AVE-24HCFRL
Nominal Cooling Capacity	kW	5.0	5.6	6.3	7.1
	kcal/h	4300	4800	5400	6100
	Btu/h	17100	19100	21500	24200
Nominal Heating Capacity	kW	5.6	6.3	7.1	8.0
	kcal/h	4800	5400	6100	6800
	Btu/h	19100	21500	24200	27300
Cooling Power Consumption	kW	0.08	0.10	0.12	0.12
Heating Power Consumption	kW	0.08	0.10	0.12	0.12
Cooling Operating Current	A	0.38	0.46	0.57	0.57
Heating Operating Current	A	0.38	0.46	0.57	0.57
Noise Level(Hi/Me/Lo)	Sound Pressure-dB(A)	36/25/23	35/25/23	39/26/25	39/26/25
Outer Dimensions	H(mm)	192	192	192	192
	W(mm)	910	1180	1180	1180
	D(mm)	447	447	447	447
Net Weight	kg	21	25	26	26
Air Flow Rate(Lo/Me/Hi)	m ³ /h	330/378/720	462/480/810	522/558/1080	522/558/1080
Motor Power	W	35	40	60	60
Piping Connections		Flare-nut Connection(with Flare Nuts)			
Liquid Line	mm	Ø6.35	Ø6.35	Ø9.53	Ø9.53
Gas Line	mm	Ø12.7	Ø15.88	Ø15.88	Ø15.88
Condensate Drain		VP25(Outer Diameter Ø32mm)			
Approximate Packing Measurement	m ³	0.18	0.22	0.22	0.22
External Pressure	Pa	10(10-30)			

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
Outdoor Air Inlet Temperature: 6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.
1.4 Meter Beneath the Unit.
With Discharge Duct (2.0m) and Return Duct (1.0m).
Voltage of the power source for the indoor fan motor is 220V.
In case of the power source of 240V, the sound pressure level increases by about 1 dB.
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
- The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.
- The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.

Indoor unit		Low-height Ceiling Ducted Type				
Model Power supply	DC 1φ, 220~240V/50Hz(60Hz)	AVE-05HJFDL	AVE-07HJFDL	AVE-09HJFDL	AVE-12HJFDL	AVE-15HJFDL
Nominal Cooling Capacity	kW	1.7	2.2	2.8	3.6	4.5
	kcal/h	1500	1900	2400	3100	3900
	Btu/h	5800	7500	9600	12300	15300
Nominal Heating Capacity	kW	1.9	2.5	3.2	4.0	5.0
	kcal/h	1700	2100	2700	3450	4300
	Btu/h	6500	8500	11300	13600	17100
Cooling Power Consumption	kW	0.03	0.03	0.05	0.05	0.06
Heating Power Consumption	kW	0.03	0.03	0.05	0.05	0.06
Cooling Operating Current	A	0.32	0.32	0.43	0.43	0.50
Heating Operating Current	A	0.32	0.32	0.43	0.43	0.50
Noise Level	Sound Pressure-dB(A)	28/27/26 /24/23/21	28/27/26 /24/23/21	35/32/32 /30/26/23	35/32/32 /30/26/23	35/32/32 /30/26/23
Outer Dimensions	H(mm)	192	192	192	192	192
	W(mm)	700	700	700	700	910
	D(mm)	447	447	447	447	447
Net Weight	kg	16	16	17	17	20
Air Flow Rate	m³/h	288/318/342/ 366/390/420	288/318/342/ 366/390/420	312/354/402/ 438/486/540	312/354/402/ 438/486/540	330/408/486/ 564/648/720
Motor Power	W	40	40	40	40	40
Piping Connections		Flare-nut Connection(with Flare Nuts)				
Liquid Line	mm	Ø6.35	Ø6.35	Ø6.35	Ø6.35	Ø6.35
Gas Line	mm	Ø12.7	Ø12.7	Ø12.7	Ø12.7	Ø12.7
Condensate Drain		VP25(Outer Diameter Ø32mm)				
Approximate Packing Measurement	m³	0.15	0.15	0.15	0.15	0.18
External Pressure	Pa	10(0-10-30)				

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.
1.4 Meter Beneath the Unit.
With Discharge Duct (2.0m) and Return Duct (1.0m).
Voltage of the power source for the indoor fan motor is 220V.
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
- The data for external pressure *3) indicates "Standard Pressure Setting values when a filter is not used.
- The above air flow rate and noise level are tested without filter screen.

Indoor unit		Low-height Ceiling Ducted Type			
Model Power supply	DC 1φ, 220~240V/50Hz(60Hz)	AVE-17HJFDL	AVE-19HJFDL	AVE-22HJFDL	AVE-24HJFDL
Nominal Cooling Capacity	kW	5.0	5.6	6.3	7.1
	kcal/h	4300	4800	5400	6100
	Btu/h	17100	19100	21500	24200
Nominal Heating Capacity	kW	5.6	6.3	7.1	8.0
	kcal/h	4800	5400	6100	6800
	Btu/h	19100	21500	24200	27300
Cooling Power Consumption	kW	0.06	0.06	0.09	0.09
Heating Power Consumption	kW	0.06	0.06	0.09	0.09
Cooling Operating Current	A	0.50	0.50	0.75	0.75
Heating Operating Current	A	0.50	0.50	0.75	0.75
Noise Level	Sound Pressure-dB(A)	35/32/32/30/26/23	35/32/30/28/25/23	38/36/35/33/31/24	38/36/35/33/31/24
Outer Dimensions	H(mm)	192	192	192	192
	W(mm)	910	1180	1180	1180
	D(mm)	447	447	447	447
Net Weight	kg	20	24	24	24
Air Flow Rate	m³/h	330/408/486/ 564/648/720	462/528/600/ 672/750/810	522/630/738/ 858/966/1080	522/630/738/ 858/966/1080
Motor Power	W	40	60	60	60
Piping Connections		Flare-nut Connection(with Flare Nuts)			
Liquid Line	mm	Ø6.35	Ø6.35	Ø9.53	Ø9.53
Gas Line	mm	Ø12.7	Ø15.88	Ø15.88	Ø15.88
Condensate Drain		VP25(Outer Diameter Ø32mm)			
Approximate Packing Measurement	m³	0.18	0.22	0.22	0.22
External Pressure	Pa	10(0-10-30)			

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.4 Meter Beneath the Unit.

With Discharge Duct (2.0m) and Return Duct (1.0m).

Voltage of the power source for the indoor fan motor is 220V.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

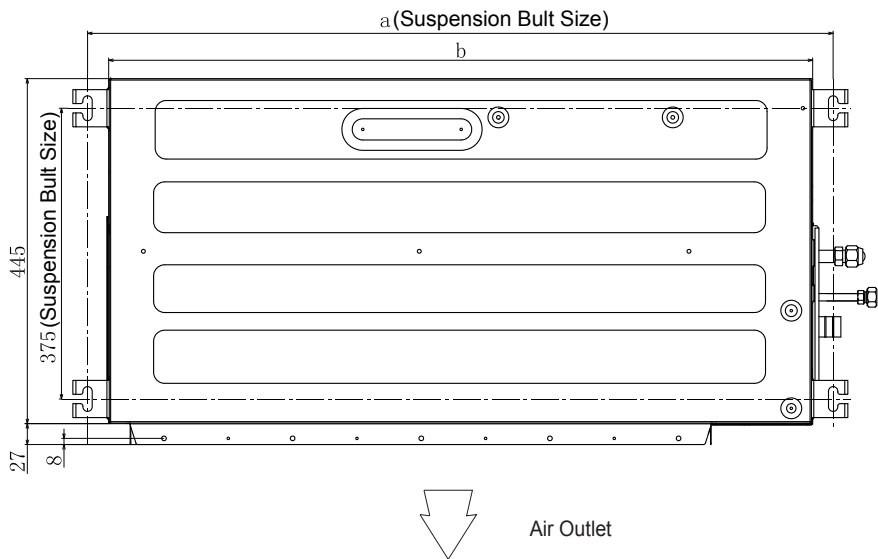
- The data for external pressure *3) indicates *Standard Pressure Setting values when a filter is not used.

- The above air flow rate and noise level are tested without filter screen.

6.2 Dimensional Data

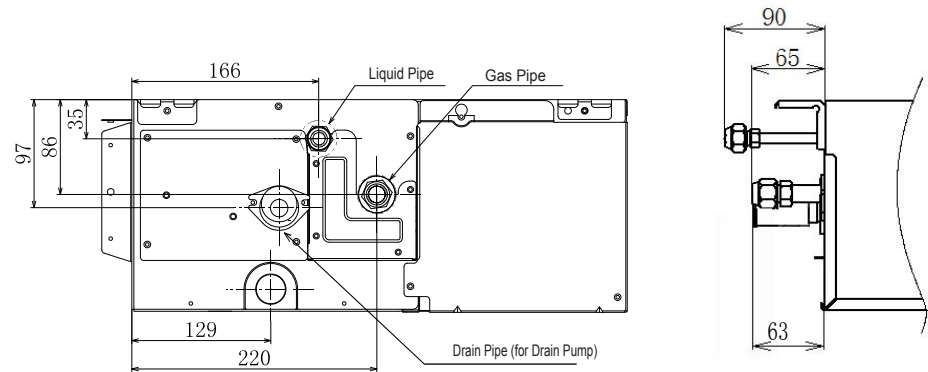
■ Low-Height Ceiling Ducted Type

Models: AVE-05~24*



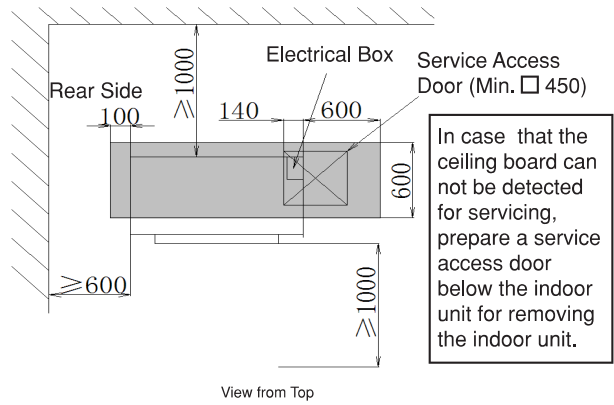
Unit:mm

Model	a	b
05 ~ 12	751	695
15 ~ 17	962	906
19 ~ 24	1232	1176



6.3 Selection Data

Models: AVE-05~24*



● Sensible Heat Factor (SHF)

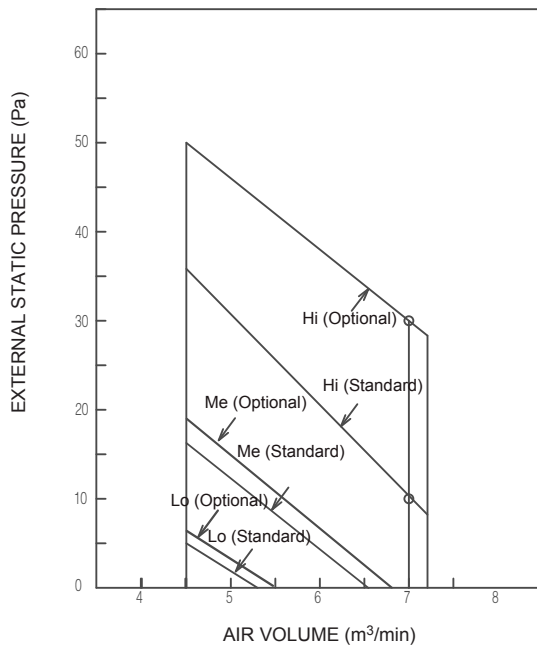
The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVE-05HCFRL	0.82	0.72	0.70
AVE-07HCFRL	0.82	0.72	0.70
AVE-09HCFRL	0.81	0.69	0.68
AVE-12HCFRL	0.77	0.72	0.68
AVE-15HCFRL	0.75	0.71	0.67
AVE-17HCFRL	0.75	0.71	0.67
AVE-19HCFRL	0.74	0.70	0.67
AVE-22HCFRL	0.72	0.70	0.68
AVE-24HCFRL	0.70	0.68	0.66

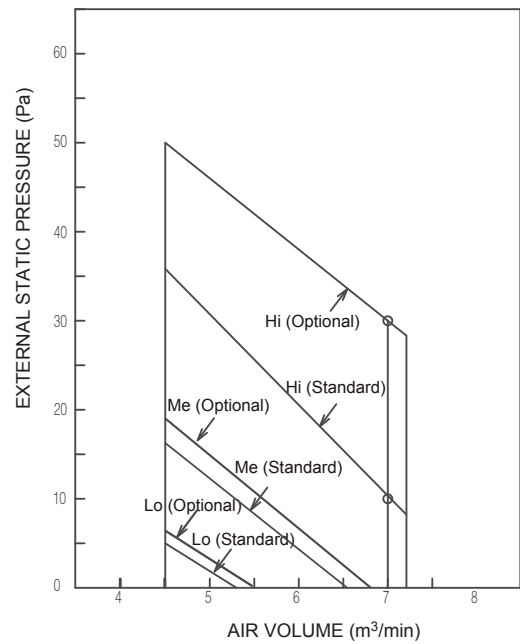
Indoor Unit Model	SHF					
	SHi	Hi	Me	Lo	SLo	Night Shift
AVE-05HJFDL	0.72	0.72	0.68	0.65	0.64	0.63
AVE-07HJFDL	0.72	0.72	0.68	0.65	0.64	0.63
AVE-09HJFDL	0.73	0.72	0.67	0.65	0.63	0.61
AVE-12HJFDL	0.72	0.68	0.67	0.65	0.63	0.61
AVE-15HJFDL	0.72	0.67	0.66	0.64	0.62	0.60
AVE-17HJFDL	0.72	0.67	0.65	0.64	0.62	0.60
AVE-19HJFDL	0.71	0.66	0.64	0.63	0.62	0.60
AVE-22HJFDL	0.71	0.65	0.64	0.63	0.62	0.60
AVE-24HJFDL	0.71	0.63	0.62	0.61	0.61	0.59

● Fan Performance

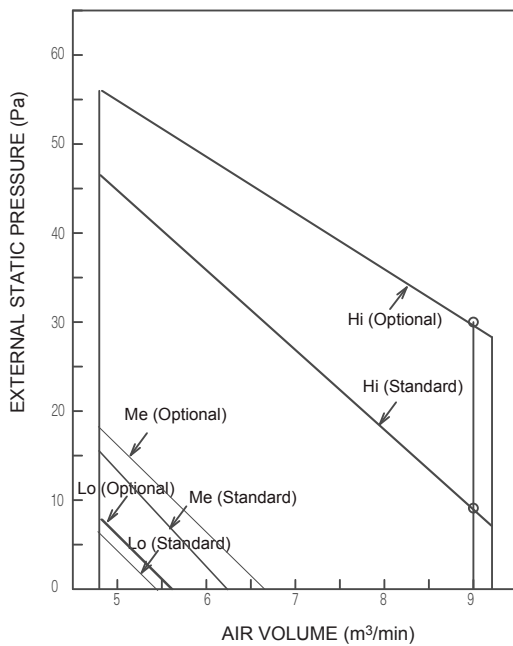
AVE-05HCFRL



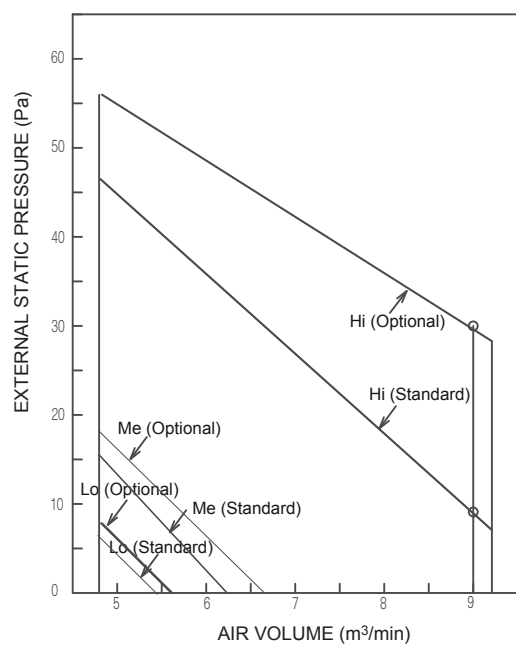
AVE-07HCFRL



AVE-09HCFRL

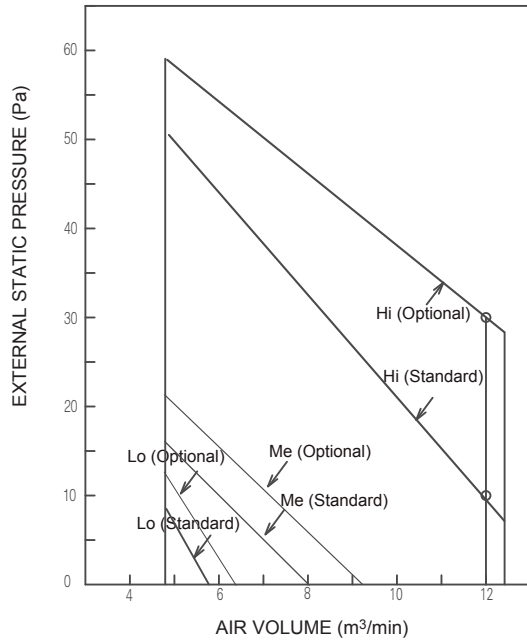


AVE-12HCFRL

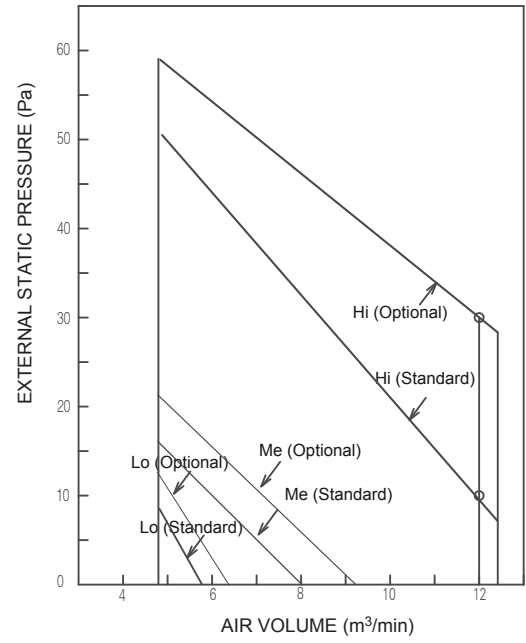


The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.

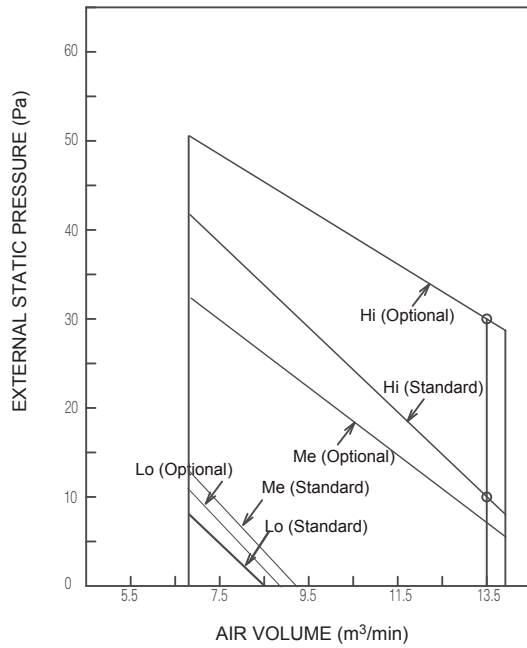
AVE-15HCFRL



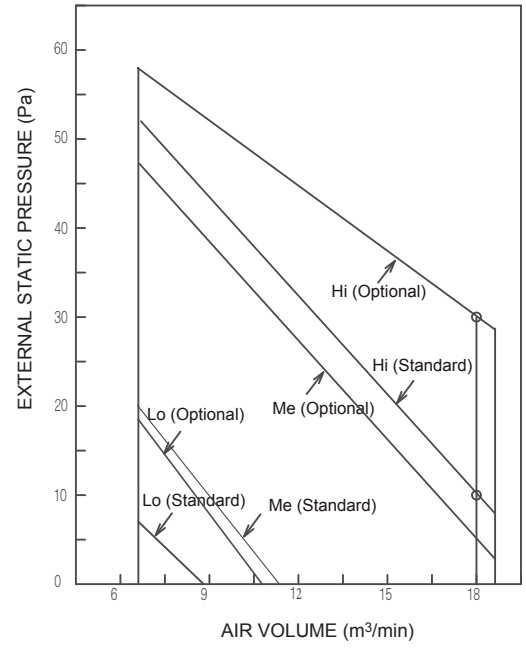
AVE-17HCFRL



AVE-19HCFRL

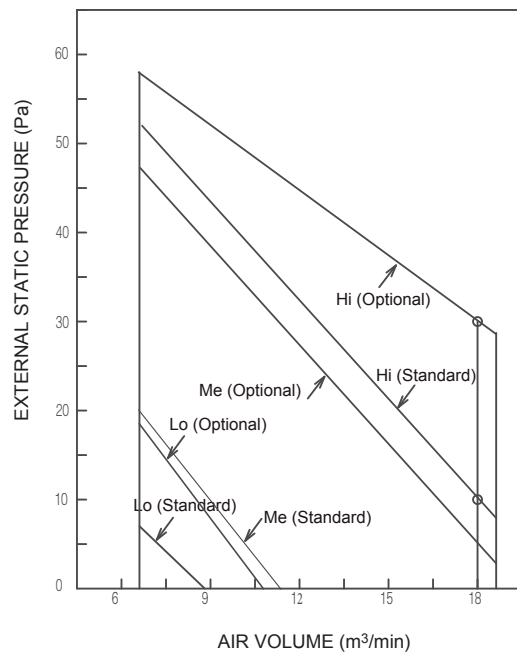


AVE-22HCFRL

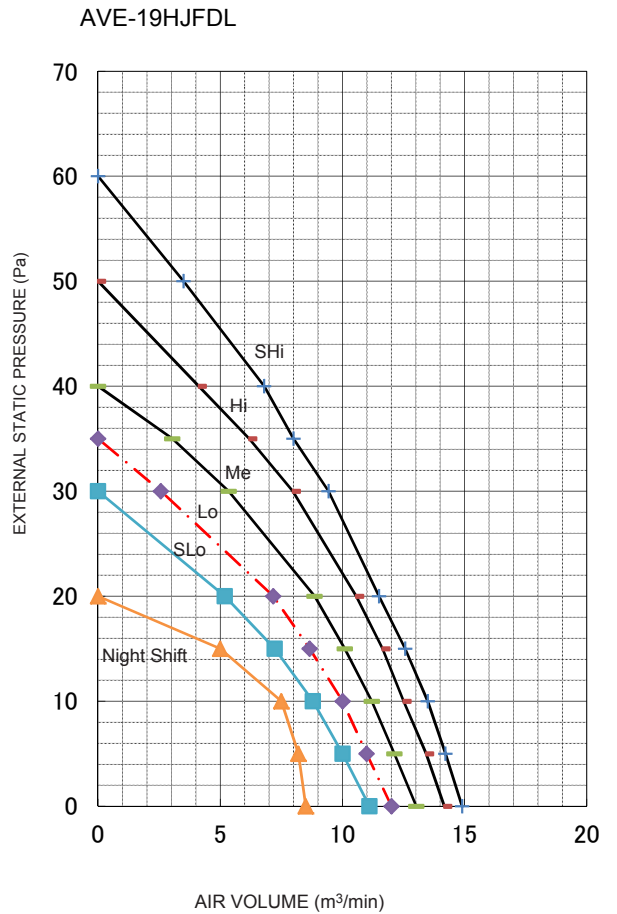
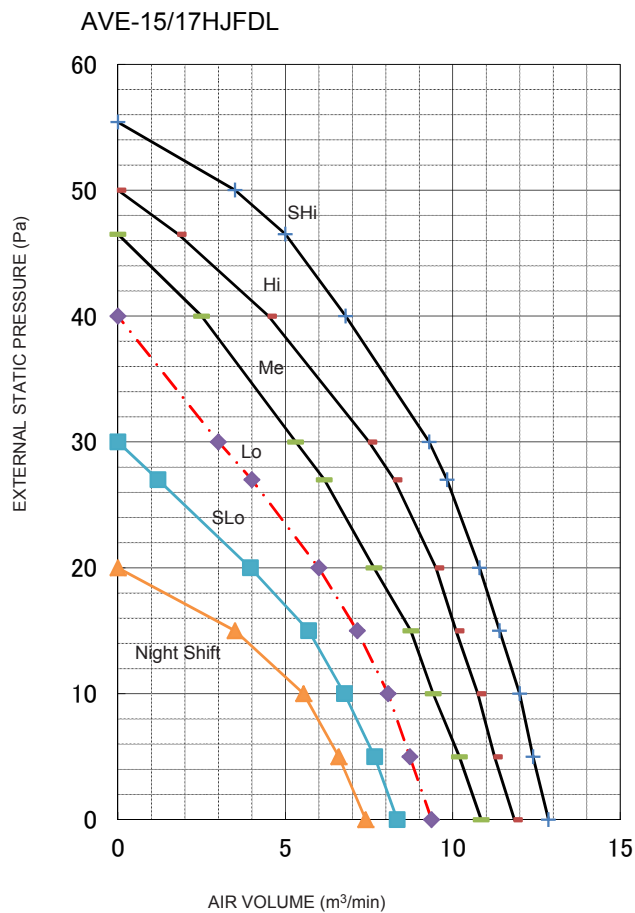
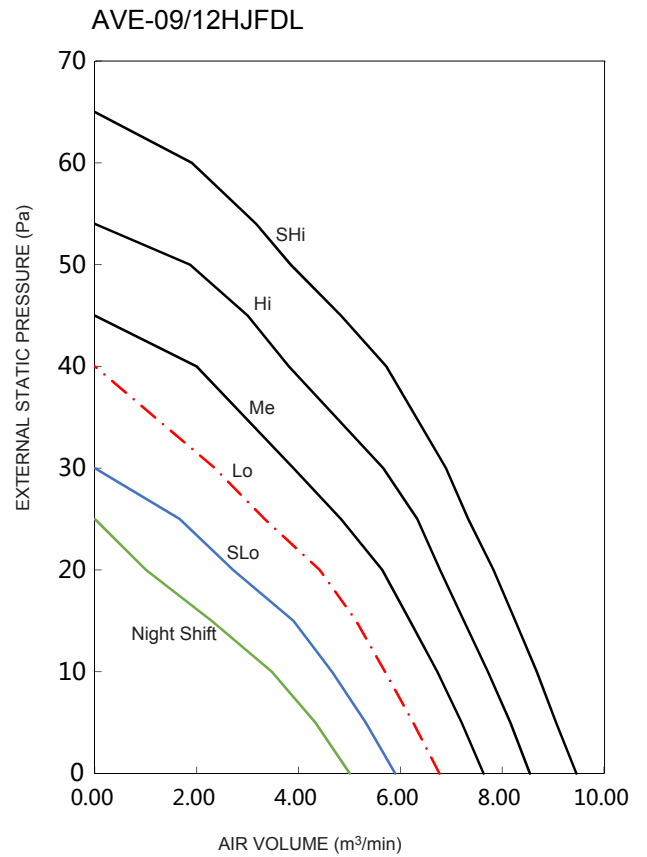
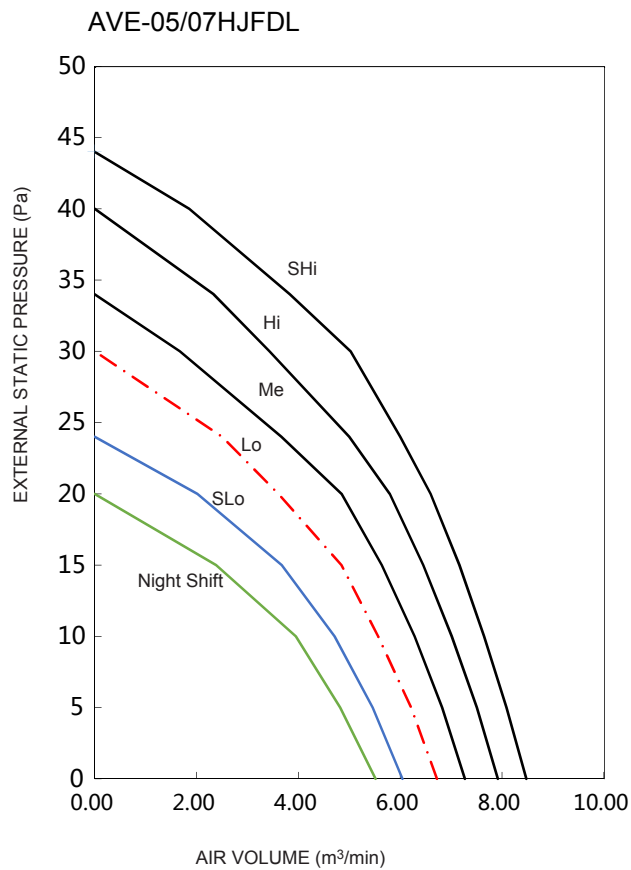


The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.

AVE-24HCFRL

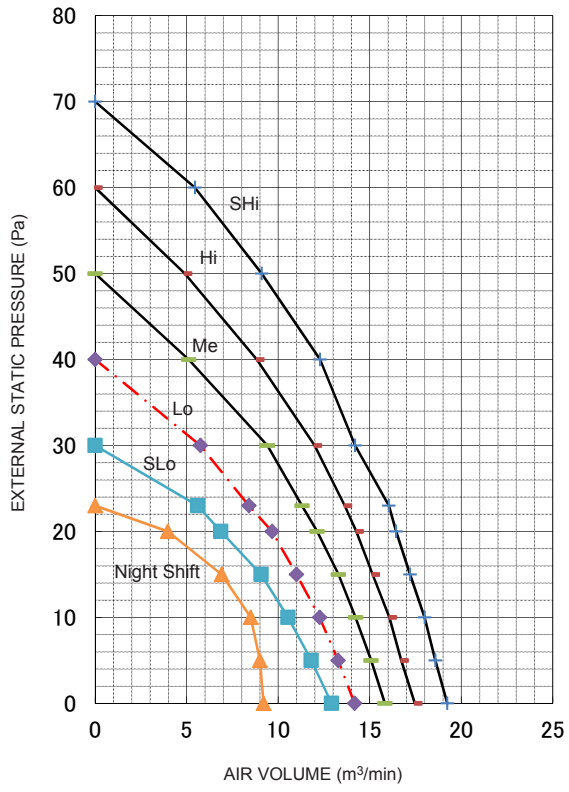


The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.



The above air flow rate and noise level are tested without filter screen.

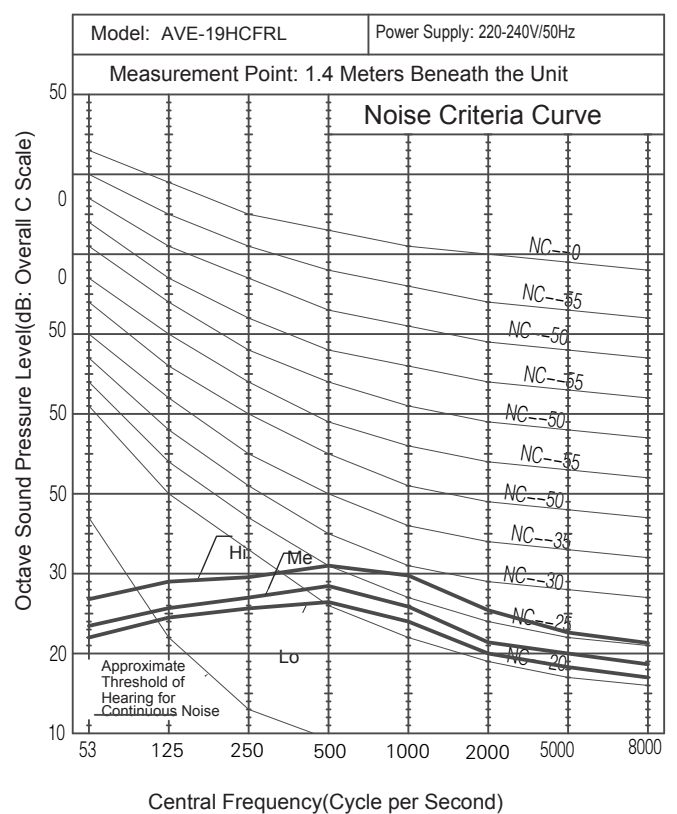
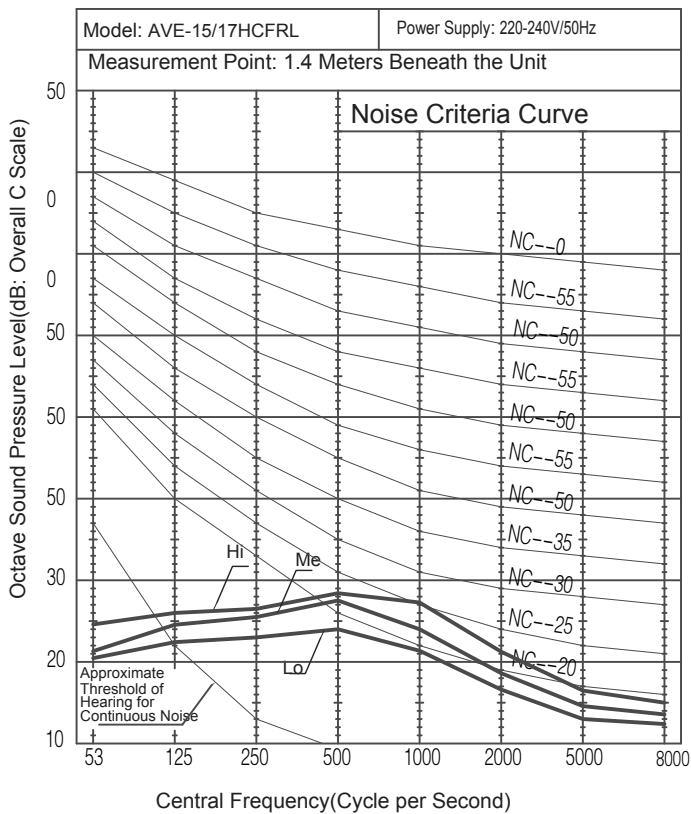
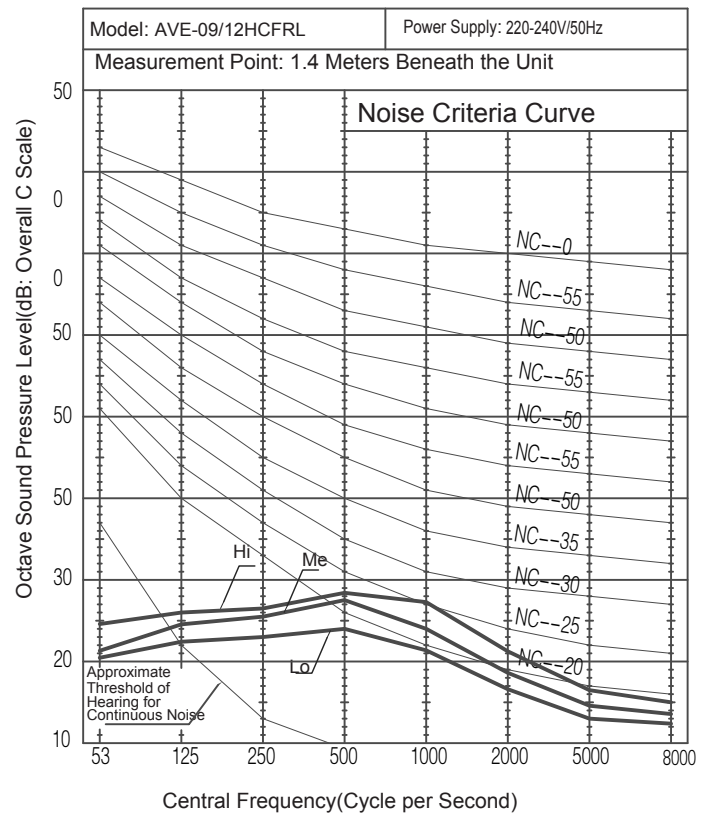
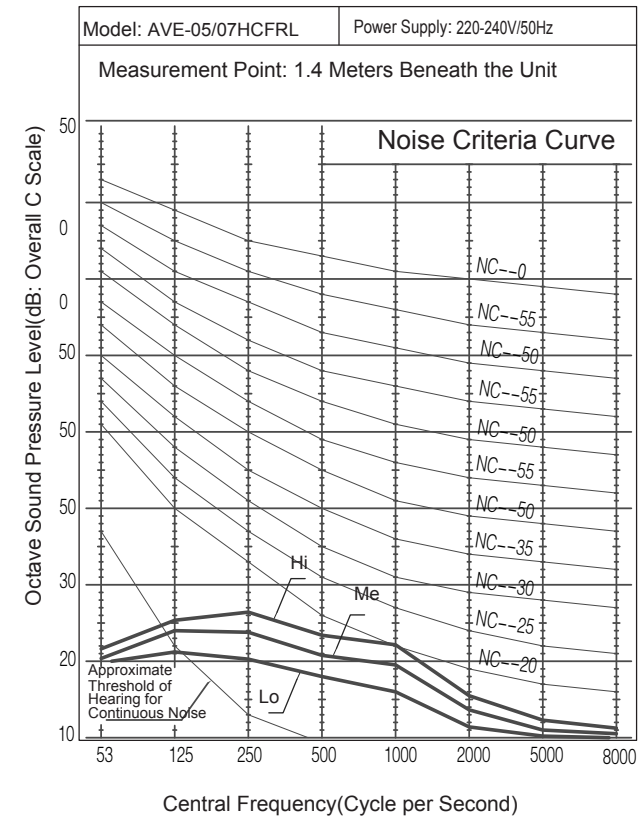
AVE-22/24HJFDL



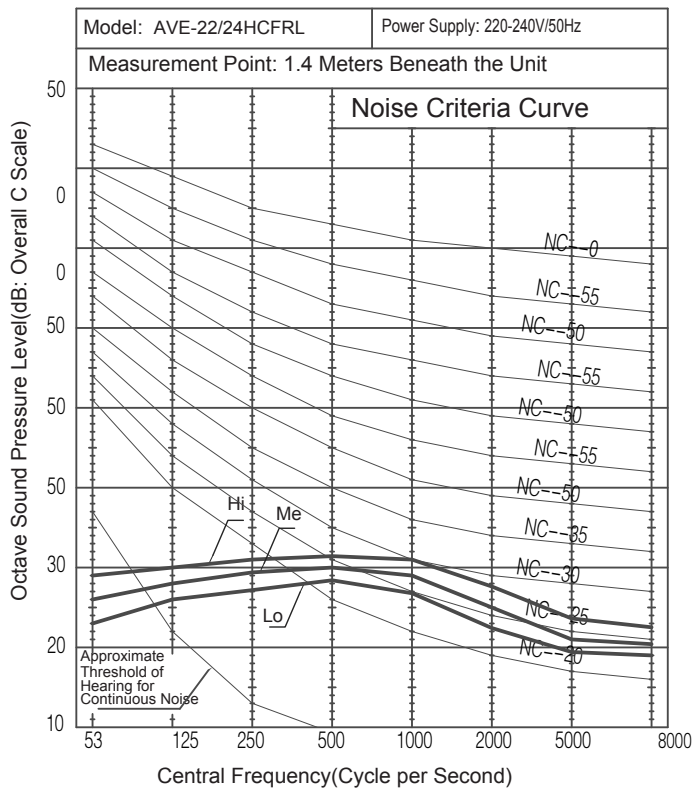
The above air flow rate and noise level are tested without filter screen.

● Sound Data

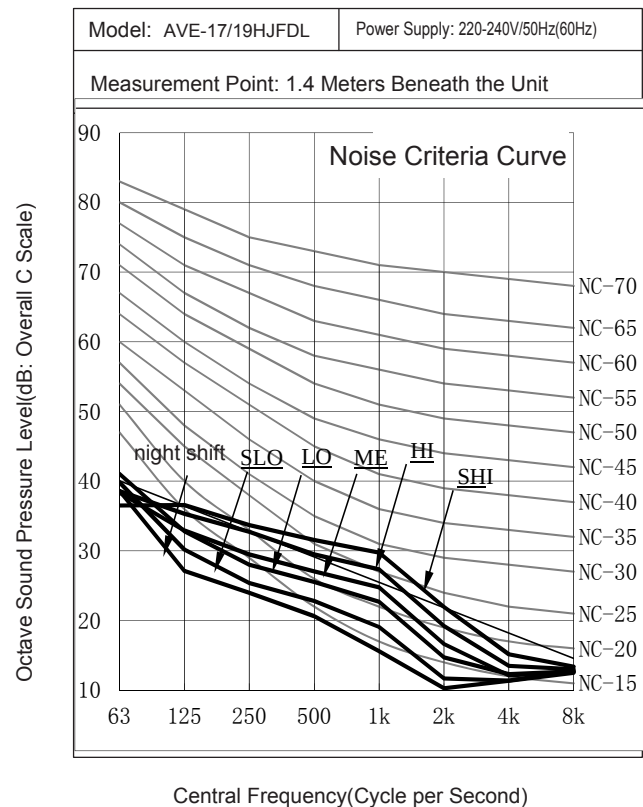
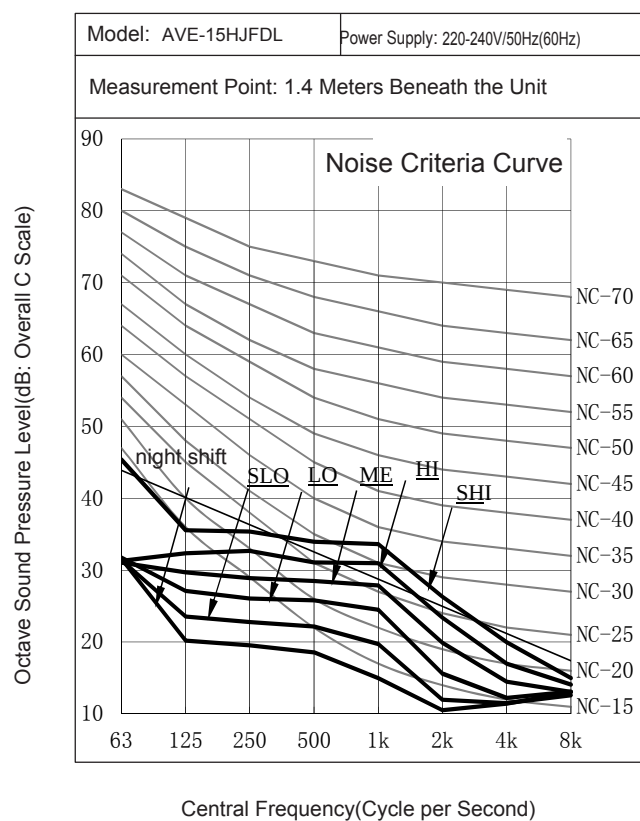
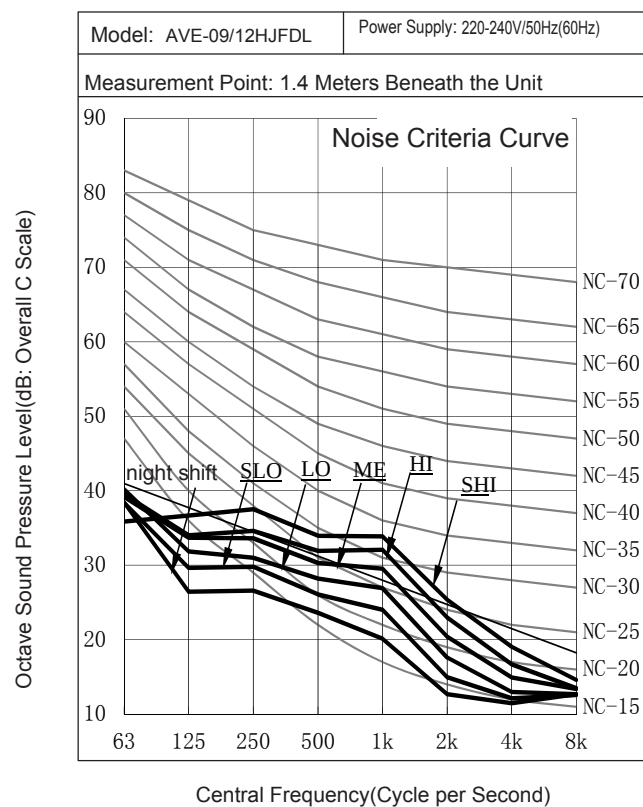
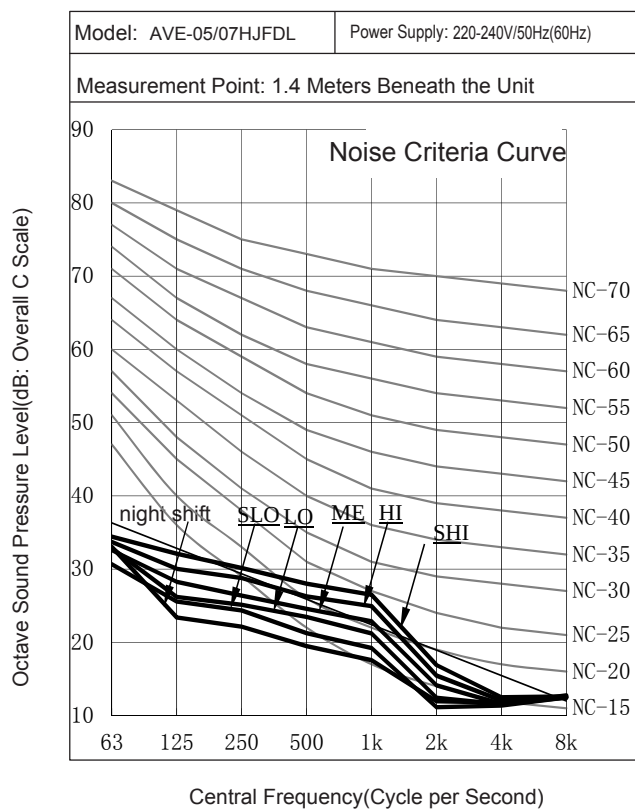
Low-height Ceiling Duct Type



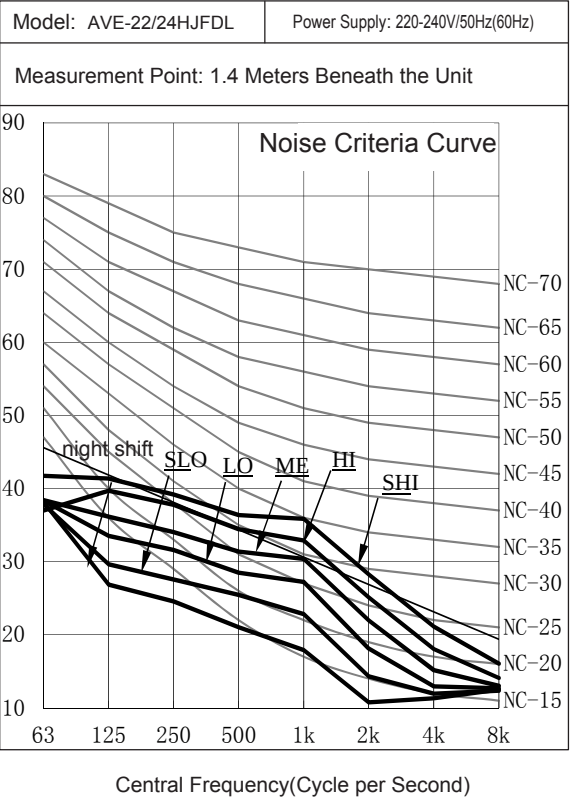
The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.



The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.



The above air flow rate and noise level are tested without filter screen.



The above air flow rate and noise level are tested without filter screen.

6.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVE-05HCFRL	AVE-07HCFRL	AVE-09HCFRL	AVE-12HCFRL	AVE-15HCFRL
Heat Exchanger Type	—	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	—	2	2	3	3	3
Fin Material		Aluminum				
Pitch	mm	1.6	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.14	0.14	0.14	0.14	0.15
Number of Coil/Unit	—	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	—	2	2	2	2	2
Outer Diameter	mm	134	134	134	134	134
Revolution (220V)	rpm	910/750/650	910/750/650	1120/765/680	1120/765/680	1180/700/640
Nominal Air Flow	m ³ /min	7/5.5/4.7	7/5.5/4.7	9/5.7/4.8	9/5.7/4.8	12/6.3/5.5
Indoor Fan Motor		Drip-Proof Type Enclosure				
Starting Method	—	PSC (Permanent Split Capacitor)				
Nominal Output	W	15	15	28	28	35
Quantity	—	1	1	1	1	1
Insulation Class	—	B	B	B	B	B

Model		AVE-17HCFRL	AVE-19HCFRL	AVE-22HCFRL	AVE-24HCFRL
Heat Exchanger Type	—	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	—	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.15	0.20	0.20	0.20
Number of Coil/Unit	—	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	—	2	3	3	3
Outer Diameter	mm	134	134	134	134
Revolution (220V)	rpm	1180/700/640	1020/680/640	1290/730/700	1290/730/700
Nominal Air Flow	m ³ /min	12/6.3/5.5	13.5/8/7.7	18/9.3/8.7	18/9.3/8.7
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	—	PSC (Permanent Split Capacitor)			
Nominal Output	W	35	40	65	65
Quantity	—	1	1	1	1
Insulation Class	—	B	B	B	B

The above air flow rate and noise level are tested with AC 220V power supply and without filter screen.

Indoor Heat Exchanger and Fan

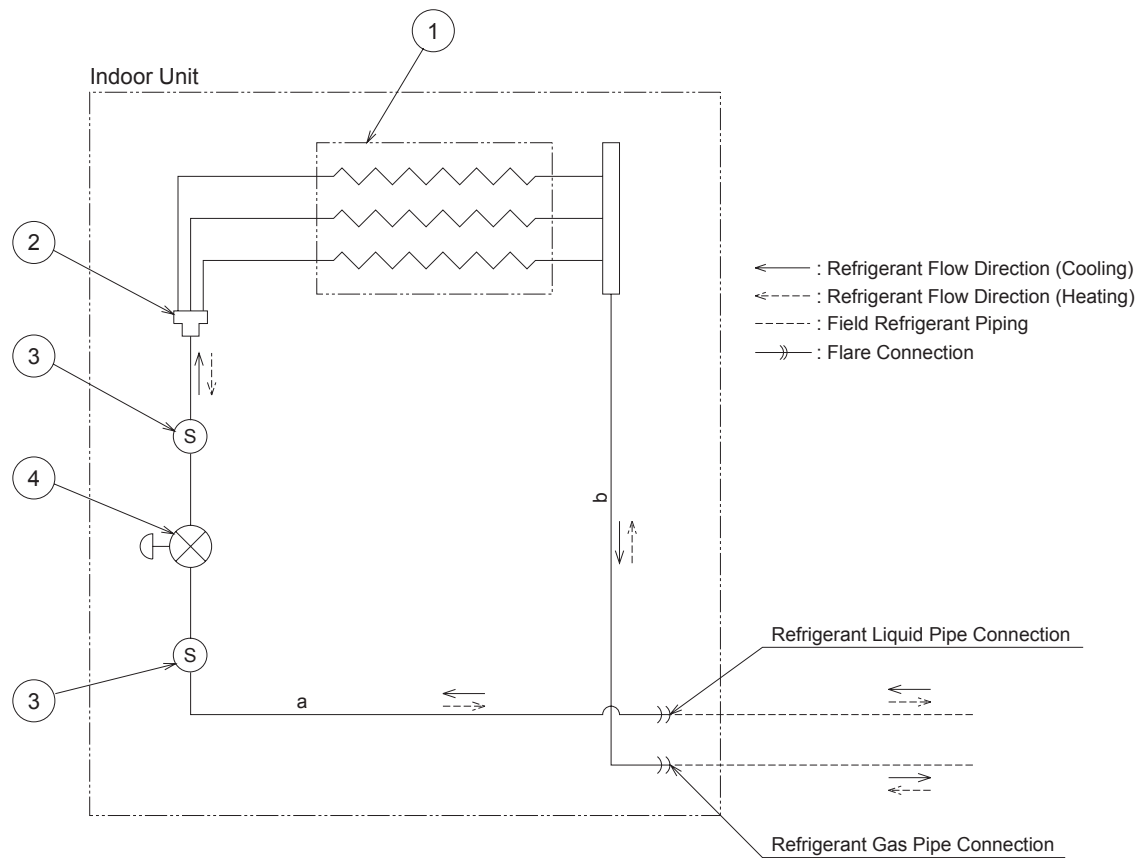
Model		AVE-05HJFDL	AVE-07HJFDL	AVE-09HJFDL	AVE-12HJFDL	AVE-15HJFDL
Heat Exchanger Type	—	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	—	2	2	3	3	3
Fin Material		Aluminum				
Pitch	mm	1.6	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.14	0.14	0.14	0.14	0.15
Number of Coil/Unit	—	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan				
Number/Unit	—	2	2	2	2	2
Outer Diameter	mm	134	134	134	134	134
Revolution (220V)	rpm	867/820/773 725/678/631	867/820/773 725/678/631	1150/1067/984 /901/818/735	1150/1067/984 /901/818/735	1138/1034/928 /822/716/610
Nominal Air Flow	m ³ /min	7/6.5/6.1 5.7/5.3/4.8	7/6.5/6.1 5.7/5.3/4.8	9/8.1/7.3/6.7 /5.9/5.2	9/8.1/7.3/6.7 /5.9/5.2	12/10.8/9.4 /8.1/6.8/5.5
Indoor Fan Motor		IP20				
Starting Method	—	Control software				
Nominal Output	W	40	40	40	40	40
Quantity	—	1	1	1	1	1
Insulation Class	—	E	E	E	E	E

Model		AVE-17HJFDL	AVE-19HJFDL	AVE-22HJFDL	AVE-24HJFDL
Heat Exchanger Type	—	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	—	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.15	0.2	0.2	0.2
Number of Coil/Unit	—	1	1	1	1
Indoor Fan		Centrifugal Fan			
Number/Unit	—	2	3	3	3
Outer Diameter	mm	134	134	134	130
Revolution	rpm	1138/1034/928 /822/716/610	991/917/844 /771/698/625	1222/1110/1000 890/780/670	1222/1110/1000 890/780/670
Nominal Air Flow	m ³ /min	12/10.8/9.4 /8.1/6.8/5.5	13.5/12.5/11.2 /10/8.8/7.7	18/16.1/14.3 12.3/10.5/8.7	18/16.1/14.3 12.3/10.5/8.7
Indoor Fan Motor		IP20			
Starting Method	—	Control software			
Nominal Output	W	40	60	60	60
Quantity	—	1	1	1	1
Insulation Class	—	E	E	E	E

The above air flow rate and noise level are tested without filter screen.

6.5 Refrigeration Cycle

05~24Model



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

6.6 Electrical Data

< 50 Hz >

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor	
		VOL	PH	HZ	Maximum	Minimum	RNC	IPT
Low-Height Ceiling Ducted Type	AVE-05HCFRL	220~240	1	50	264	198	0.25/0.25	0.05/0.05
	AVE-07HCFRL						0.25/0.25	0.05/0.05
	AVE-09HCFRL						0.35/0.35	0.07/0.07
	AVE-12HCFRL						0.35/0.35	0.07/0.07
	AVE-15HCFRL						0.38/0.38	0.08/0.08
	AVE-17HCFRL						0.38/0.38	0.08/0.08
	AVE-19HCFRL						0.46/0.46	0.10/0.10
	AVE-22HCFRL						0.57/0.57	0.12/0.12
	AVE-24HCFRL						0.57/0.57	0.12/0.12

< 50 Hz >, < 60 Hz >

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor	
		VOL	PH	HZ	Maximum	Minimum	RNC	IPT
DC Low Height Ducted Type	AVE-05HJFDL	220~240	1	50/60	264	198	0.32/0.32	0.03/0.03
	AVE-07HJFDL						0.32/0.32	0.03/0.03
	AVE-09HJFDL						0.43/0.43	0.05/0.05
	AVE-12HJFDL						0.43/0.43	0.05/0.05
	AVE-15HJFDL						0.50/0.50	0.06/0.06
	AVE-17HJFDL						0.50/0.50	0.06/0.06
	AVE-19HJFDL						0.50/0.50	0.06/0.06
	AVE-22HJFDL						0.75/0.75	0.09/0.09
	AVE-24HJFDL						0.75/0.75	0.09/0.09

VOL: Rated Unit Power Supply Voltage (Plated)(V)
 PH: Phase (φ)
 HZ: Frequency (Hz)

RNC: Running Current (A)
 IPT: Input (kW)

Safety and Control Device Setting

Indoor Unit

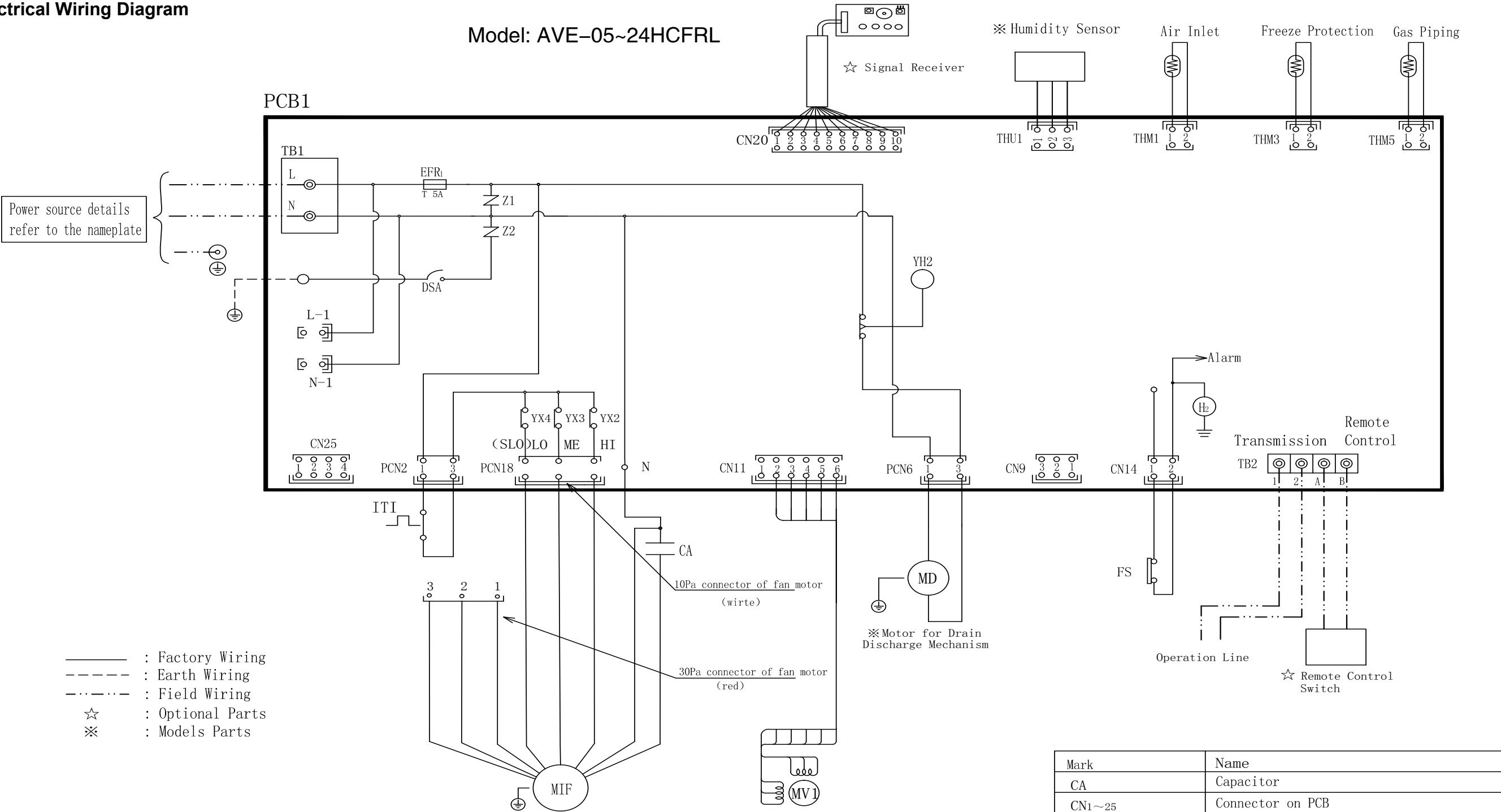
Low-Height Ceiling Ducted Type

Indoor Unit Capacity (kBtu/h)			05~24
Temperature Controller on Fan Motor of Indoor Unit	Cut-out Cut-in	°C °C	130 ± 5 83 ± 15
Capacity of Fuse on Indoor Unit Control Circuit		A	5
Freeze Protection Temperature	Cut-out Cut-in	°C °C	0 14
Set Temperature Difference		°C	2

DC Low Height Ducted Type

Indoor Unit Capacity (kBtu/h)			05~24
Capacity of Fuse on Indoor Unit Control Circuit		A	5
Freeze Protection Temperature	Cut-out Cut-in	°C °C	0 14
Set Temperature Difference		°C	2

6.7 Electrical Wiring Diagram



Note :

1. All the field wiring and equipment must comply with local codes.

WARNING

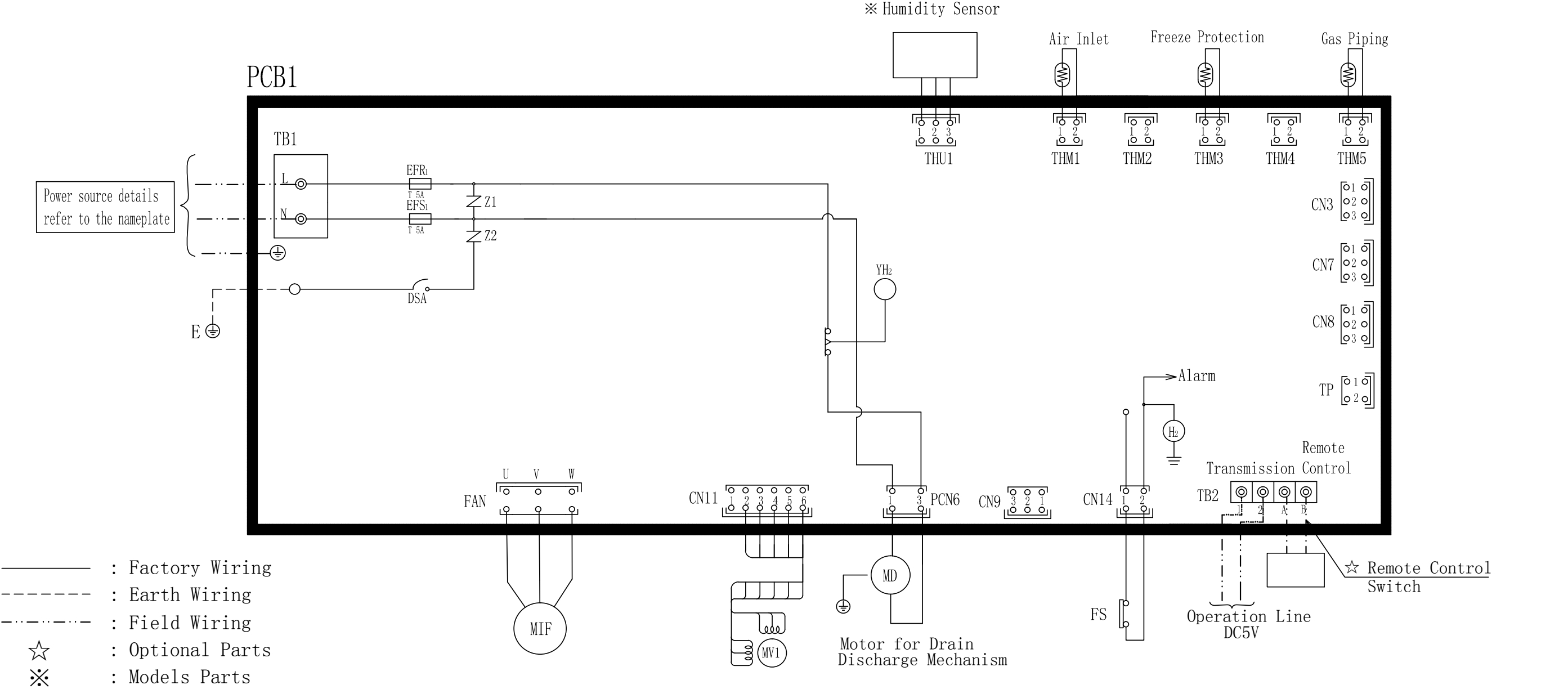
Before inspecting the electrical parts set the Operation Switch to **OFF**, and cut **OFF** the power supply.

LED Instruction		
Mark	Colour	Function
LED1	Red	RCS transimission
LED3	Yellow	Indoor&Outdoor unit transimission
LED4	Red	Power Supply
LED6	Yellow	UART transimission

Mark	Name
CA	Capacitor
CN1~25	Connector on PCB
EFR1	Fuse
FS	Float Switch
ITI	Internal Thermostat for Indoor Fan Motor
MIF	Motor for Indoor Fan
MV	Micro-Computer Control Expansion Valve
PCB1	Printed Circuit Board
PCN2, 6, 18	Connector on PCB
YX2~YX4, RLY1, 2	Relay on PCB
TB1, 2	Terminal Board
THM1, 3, 5	Thermistor
YH2	Relay on PCB
◎	Terminals
MD	Motor for Drain Discharge Mechanism

Electrical Wiring Diagram

Model: AVE-05~24HJFDL



Mark	Name
PCB1	Printed Circuit Board
CN	Connector on PCB
DSW, RSW	Dip Switch for Setting
EFR1, EFS1	Fuse
FS	Float Switch
MIF	Motor for Indoor Fan
MV1	Micro-Computer Control Expansion Valve
PCN	Connector on PCB
TB1, 2	Terminal Board
MD	Motor for Drain Discharge Mechanism
THM1~5	Thermistor
YH2	Relay on PCB
◎	Terminals



WARNING

Before inspecting the electrical parts set the Operation Switch to **OFF**, and cut **OFF** the power supply.

Note :

1. All the field wiring and equipme must comply with local codes.

6.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type	
Type	Model	Low-Height Ceiling Ducted Type	DC Low Height Ducted Type
Wire Remote Control Switch	HYXE-VA01	Y	Y
	HYXE-J01H	Y	Y
	HYXE-J01H1	Y	Y
	HYXE-J01H2	Y	Y
	HYXE-M01H	Y	Y
	HYXE-S01H	Y	Y
	HYXM-VB01	Y	Y
	HYXM-VB01#01	Y	Y
Wireless Remote Control Switch	HYE-W01	Y	Y
Wireless Receiver Kit	HYRE-V02H	Y	Y
Hi-motion	HCM-S01E	Y	Y
Control Station	HYJE-H01H	Y	Y
	HYJM-S01H	Y	Y
	HYJ-J01H	Y	Y
	HCCS-H128H2C1YM	Y	Y
	HCCS-H128H2C1NM	Y	Y
	HCCS-H247R4C1E	Y	Y
Connect PAC to Control Controller	HCPC-H2M1C	Y	Y
Water Source Switch Box	HCHS-N06X	Y	Y
	HCHS-N10X	Y	Y
	HCHM-N04X	Y	Y
	HCHM-N08X	Y	Y
	HCHM-N12X	Y	Y
	HCHM-N16X	Y	Y
3D Air Swing	HP-DB-NA	Y	Y
	HP-EB-NA	Y	Y
Humidity Sensor	HCHR-S01E	Y	Y

Note:

- 1.If you want to use Hi-motion in the system, the wired Controller you can choose is listed as follows: HYXM-VB01 and HYXM-VB01#01;
- 2.When the Air Conditioner and window linkage function is used in the system, the sensor must be connected to the pin2 and pin3 of CN3, so you can only use the i2 input function;

3. When the Air Conditioner and window linkage function is used in the system, the remote controller you can choose is limited to the range as follow:

Optional Parts		Applied Indoor Unit With Window and Air Conditioner Linkage Function	
Type	Model	Low-Height Ceiling Ducted Type	DC Low Height Ducted Type
Wire Remote Control Switch	HYXE-VA01	Y	Y
	HYXE-J01H	Y	Y
	HYXE-J01H1	Y	Y
	HYXE-J01H2	Y	Y
	HYXE-M01H	N	N
	HYXE-S01H	N	N
	HYXM-VB01	Y	Y
	HYXM-VB01#01	Y	Y
Wireless Remote Control Switch	HYE-W01	Y	Y
Wireless Receiver Kit	HYRE-V02H	N	N

6.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

Table Factory-Supplied Accessories

AVE-05~24*

Accessory	Q'ty	Purpose
Washer 	8	For Unit Suspension
Screw 	8	For Fixing Flanges
Hose Clamp 	1	For Drain Hose Connection
Wire Clamp 	2	For Power Cord and Communication Cable
Accessory Bag for Magnetic Ring 	1	Arranged around the Power Cord of Outdoor Unit
Drain Pipe 	1	For Drain Hose Connection

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

6.10 Install

6.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown Section 6.3 Selection Data
- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

Pay attention to the following points when the

- indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

6.10.2 Installation and Repair of Filter Screen

6.10.2.1 Installation of Filter Screen

- (1) As shown in the figure below, remove the filter screen fastening screw;
- (2) Draw the filter screen down until the upper rib gets out of the slot;
- (3) Pull out the left and right ribs of filter screen out of the machine, and take out the filter screen;
- (4) Clean and reinstall the filter screen following the reverse steps of its removal.

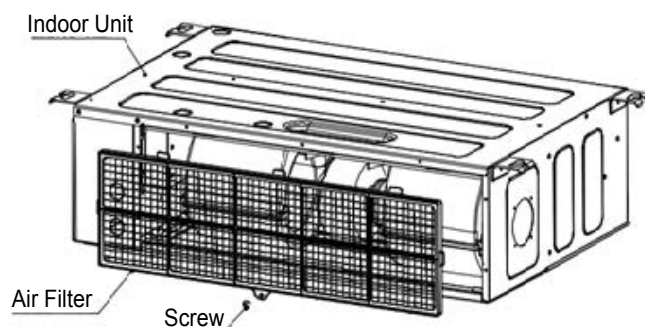


Fig. 6.1 Installation of Filter Screen

6.10.2.2 Maintenance and Servicing of Filter Screen

Take down the filter screen from the machine during maintenance, and remove the dust with dust collector or water. To remove stubborn dirt, please dissolve neutral detergent in cold water, and clean the screen therein. Take out the well cleaned filter screen, dry and reinstall it. Depending on local air quality, please clean the filter screen every 3 months operation of air conditioner.

6.10.3 Indoor Unit Installation

6.10.3.1 Suspension Bolts

- (1) Decide upon appropriate mounting position and orientation by carefully taking into consideration the piping, wiring and repair.
- (2) Fig. 6.2 shows how to install suspension bolts.

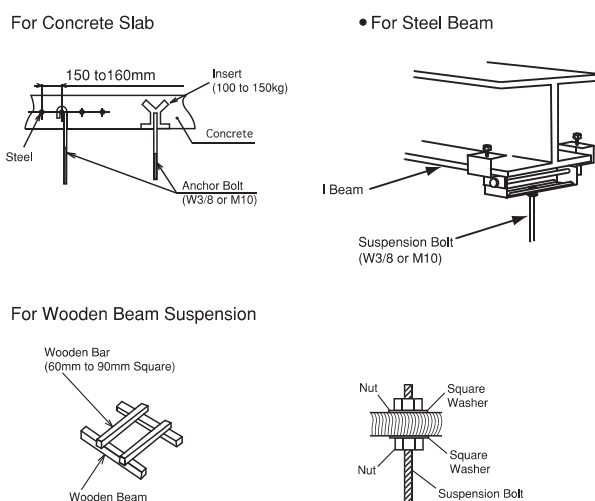
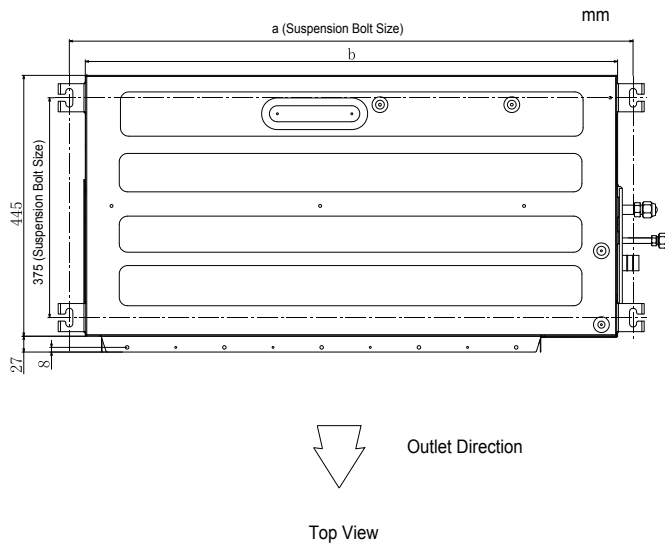


Fig. 6.2 Mounting of Suspension Bolts

6.10.3.2 Suspension Bolt and Pipe Connection Points

(1) Indicate the location of suspension bolt, and the connection points of refrigerant pipe and drain pipe.

(2) Installation dimensions are shown in Fig. 6.3.



Indoor Unit Capacity (kBtu/h)	a	b
05 ~ 12	751	695
15 ~ 17	962	906
19 ~ 24	1232	1176

Fig. 6.3 Suspension Bolt

(1) How to Install Suspension Bolt and Nut
Mount nuts to the four bolts as shown in Fig. 6.5.

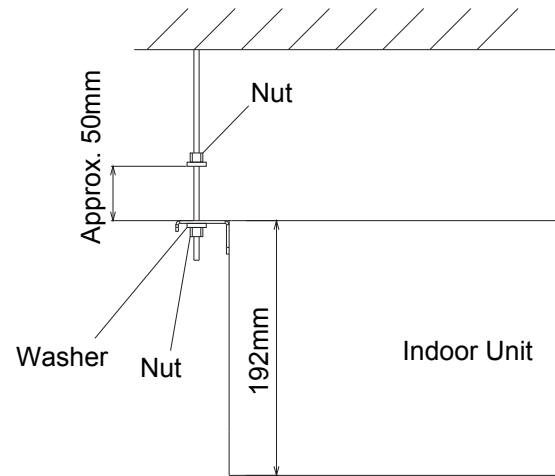


Fig. 6.5 Suspension Bolts and Nuts

(2) Installation of Indoor Unit

* Place the left bracket on the nut and washer of suspension bolt as shown in the figure below.

* Make sure the left bracket is properly placed on the nut and washer, and put the right bracket of indoor unit on the nut and washer.

(The suspension bolt can be slightly shifted for the placement of indoor unit.)

6.10.3.3 Installation of Indoor Unit

Indoor unit is installed as shown in Fig.6.4
Installation of Field-Supplied Parts

Suspension Bolt 4-M10 or W3/8
Nut 8-M10 or W3/8
Washer 8-M10 or W3/8

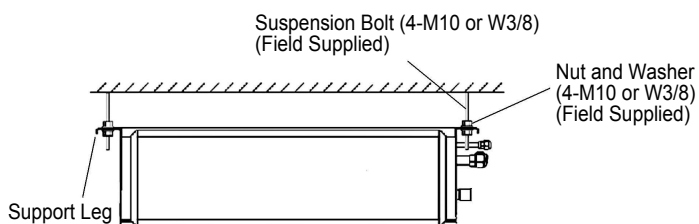


Fig. 6.4 Installation of Indoor Unit

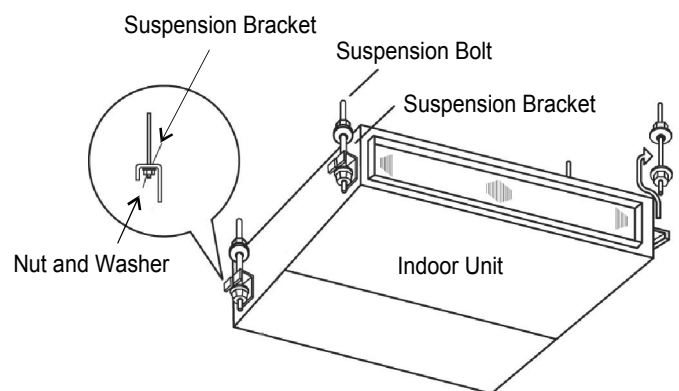


Fig. 6.6 Handling Method

6.10.3.4 Leveling of Indoor Unit

(1) Check to ensure the top surface is level, and measure the max. top surface inclination degree.

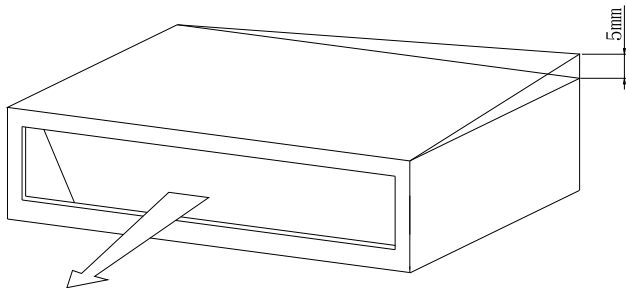


Fig. 6.7 Top Surface Inclination Degree

(2) As shown in Fig. 6.7, the rear part of indoor unit is slightly lower than its front part (by 0~5mm) so as to facilitate drainage.

(3) Tighten the suspension nut upon completion of adjustment. It's essential to apply thread locking agent to avoid nut looseness.



Please cover the machine with plastic cloth during installation so as to keep it clean.

6.10.3.5 Air Duct Connection

● Connection of Air Duct for Indoor Unit without Electric Heating

Air duct is connected to indoor unit via canvas hose to effectively isolate noise and vibration.

<Example>

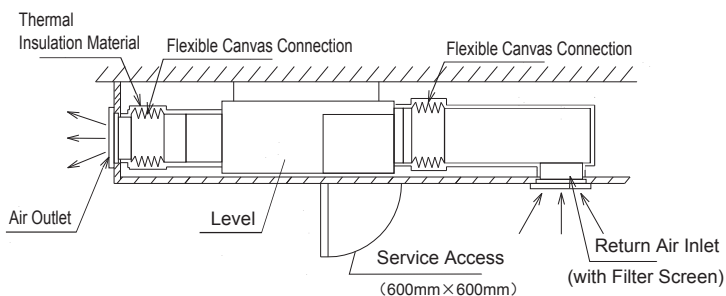


Fig. 6.8 Air Duct Connection

6.11. Refrigerant Piping Work



Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that nitrogen be used for these tests.

6.11.1 Piping Materials

(1) Prepare field-supplied copper pipes.

(2) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

(3) Select copper pipes based on Fig. 6.10.

6.11.2 Piping Connection

(1) Piping connection points are shown in Figs. 6.9 and 6.10.

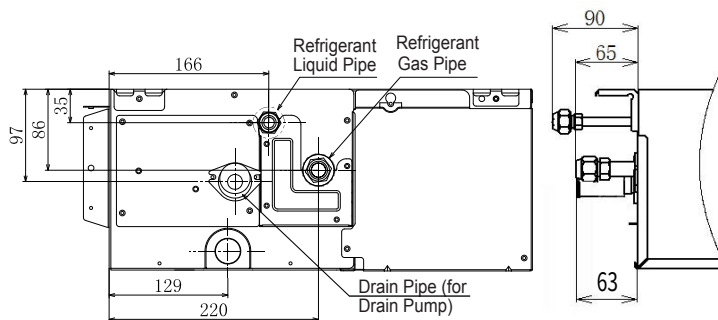
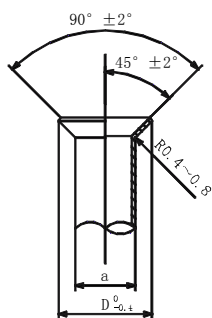


Fig. 6.9 Piping Connection Points

Indoor Unit Capacity (kBtu/h)	mm(in.)	
	Gas Pipe	Liquid Pipe
05~17	φ 12.7 (1/2) ※	φ 6.35 (1/4)
19	φ 15.88 (5/8) ※	φ 6.35 (1/4)
22, 24	φ 15.88 (5/8) ※	φ 9.53 (3/8)

Fig. 6.10 Pipe Size

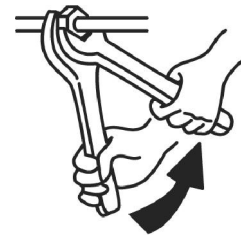
※ Since the nut cap connected at gas pipe is designed exclusively for R410A, the piping flaring connected for off-factory installation is adjusted as compared with R22 and R407C. Please perform the processing operation based on the dimensions shown below: (See Fig. 6.11)



Unit: mm(in.)			
Outside Diameter of Piping (a)		φ 12.7 (1/2)	φ 15.88 (5/8)
Outside Diameter of Flaring (D)	R22 , R407C	16.2	19.4
	R410A	16.6	19.7

Fig. 6.11 Flaring

(2) As shown in Fig. 6.12, two spanners shall be used for tightening the nut.



Pipe Size (mm)	Tightening Torque (N·m)
φ 6.35	20
φ 9.53	40
φ 12.7	60
φ 15.88	80

Fig. 6.12 Nut Tightening Torque

(3) Insulate the refrigeration piping with field-supplied insulating pipe upon completion of refrigerant pipe connection. See Fig. 6.13.

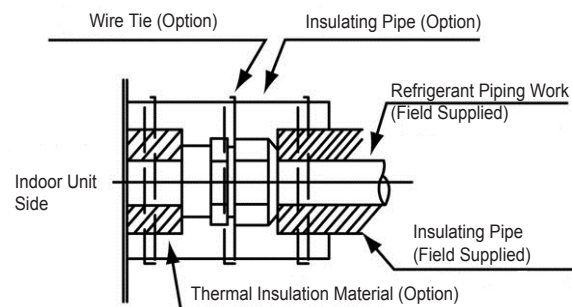
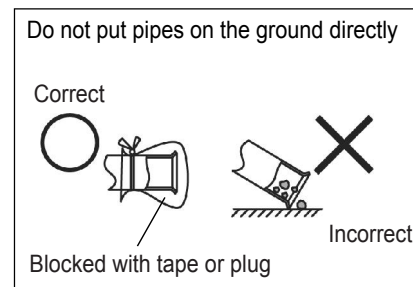


Fig. 6.13 Thermal Insulation of Pipes



- Cap the end of pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



(4) Discharging and Charging Refrigerant
Follow the Installation & Maintenance Manual for outdoor unit.



Excessive and inadequate refrigerant is a leading cause of system anomaly. Please inject the right amount of refrigerant.

6.11.3 Drain Pipe

- (1) See Fig. 6.14 for connection point of drain pipe.
- (2) Find a PVC pipe with an outside diameter of 32mm.
- (3) Fix the PVC pipe to drain pipe through adhesive and factory-supplied clamp. The downward inclination of drain pipe is 1/25~1/100.
- (4) Make thermal insulation after the proper connection of drain pipe.

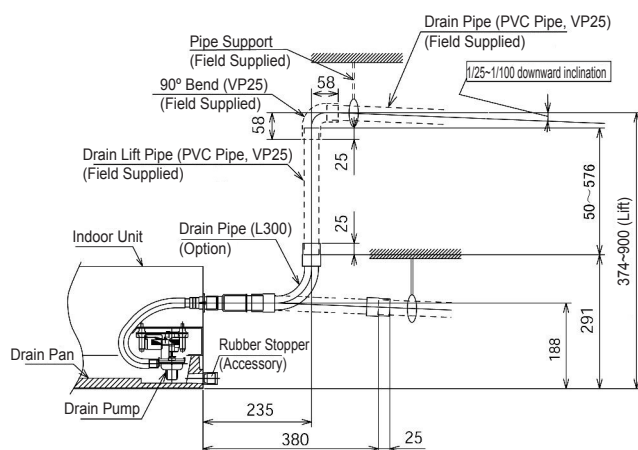


Fig. 6.14 Drain Pipe



Where the relative humidity of air inlet or ambient air exceeds 80%, an auxiliary drain pan shall be fabricated at installation site and placed under the indoor unit, as shown in Fig. 6.15.

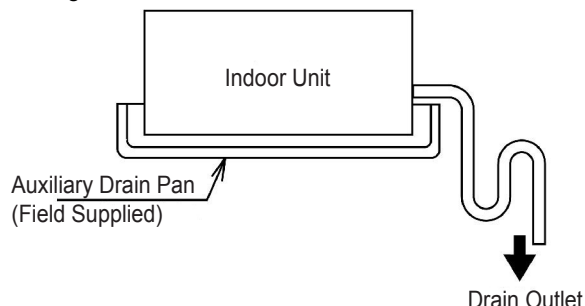


Fig. 6.15 Drain Pan



- (1) The drain pipe installed shall slope down; otherwise, the condensate may flow back and leak into the room when the indoor unit is turned off.
- (2) The drain pipe shall not be connected with sewage pipe or other drain pipes.
- (3) Where the main drain is connected to other indoor units, each indoor unit must be higher than the main. Select drain pipes in ample size depending on the refrigerating capacity and quantity of indoor units.
- (4) Check if water flows without obstruction following the procedure shown below after the proper connection of wires and drain pipes.
 - a. Turn on the power
 - b. Fill the drain pan with 2L or 2.5L of water.
 - c. Check and ensure the water flows without obstruction and no leakage exists. Pour 2L of water if no water flows out of pipe end.

6.12 Electrical Wiring



- Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for at least 3 minutes before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor and outdoor fans have stopped before electrical wiring or a periodical check.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If no protection is arranged, rats may gnaw at unprotected parts and at the worst, a fire will arise.
- Avoid the contact of wires with the refrigerant piping, sheet metal edges and electrical components in unit. Otherwise, the wire may be damaged or even cause fire.
- Use ELB with medium sensing rate (earth leakage breaker with action time being equal to 0.1 seconds or less). The failure to do so may result in electric shock or fire.
- The wires must be firmly secured. External force applied to terminals may cause a fire.
- Never connect the power terminal block for air conditioner to power cord. At the indoor unit side of air conditioner, power wiring can be extended through a power distribution box. Be sure to calculate the wiring capacity carefully, since excessively low wiring capacity may frequently cause fire.
- Do not start the system before all check points are thoroughly checked.



- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of wired control using the cord clamp inside the electric box.
- Tighten screws to the following torques.

M4:	1.0~1.3	N·m
M5:	2.0~2.4	N·m
M6:	4.0~5.0	N·m
M8:	9.0~11.0	N·m
M10:	18.0~23.0	N·m

6.12.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog I". Make sure the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.

6.12.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig.6.18.

- (1) Fix the wire clamp body and its nuts to the wiring hole of electric box using a torque of 1.0~1.2N.m.
- (2) Connect the cable of wired control to the connectors on the printed circuit board in electric box through the wire clamp and wiring hole.
- (3) Connect power cord and the communication cables of indoor and outdoor units to corresponding terminals of electric box in the same way.
- (4) Upon completion of electrical wiring, the wire clamp nut shall be manually tightened to block condensate and insects.
- (5) The external static pressure of the indoor unit is 10Pa, while the 10Pa plug (white) of motor is connected to base board PCBN18 terminal at delivery. To set the external static pressure to 30Pa, please connect the 30Pa plug (red) of motor to the base board PCBN18 terminal. See Figs. 6.16 and 6.17.

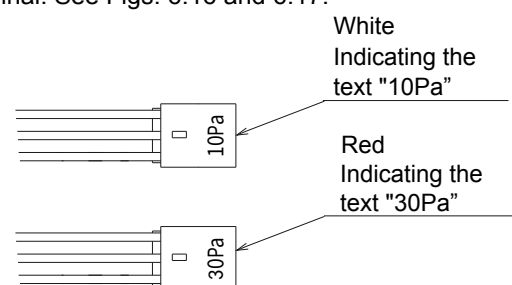


Fig. 6.16 Switching between external static pressures of 10Pa and 30Pa

Enlarged view of ① part in Fig. 6.18

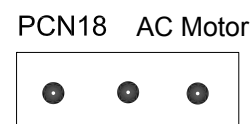
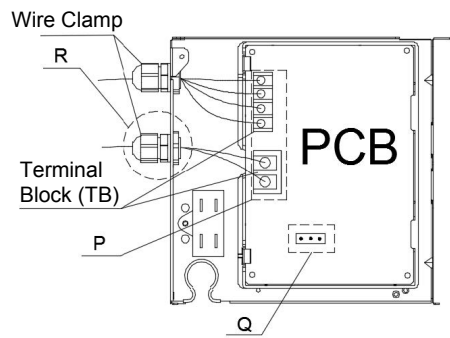
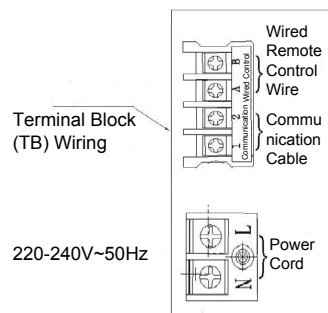


Fig. 6.17 Motor terminal location diagram



AVE-05~24HCFRL

Enlarged View of P Part



AVE-05~24HJFDL

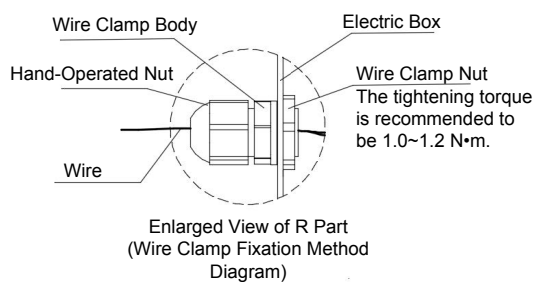
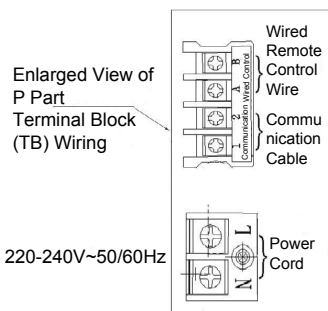


Fig. 6.18 Wiring Connection

6.13 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.



WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

6.14 Common

Field Minimum Wire Sizes for Power Source



WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

Field Minimum Wire Sizes for Power Source

Indoor Unit Capacity (kBtu/h)	Power Supply	Max. Current	Power Cord Specifications	Signal Wire Specifications
05~07HCFRL 09~12HCFRL 15~17HCFRL 19HCFRL 22~24HCFRL	220-240V~50Hz	0.46A 0.65A 0.70A 0.85A 1.05A	2.5mm ²	0.75mm ²
05~07HJFDL 09~12HJFDL 15~17HJFDL 19HJFDL 22~24HJFDL	220-240V~50/ 60Hz	0.40A 0.54A 0.63A 0.63A 0.94A		
Total Current (A)		Cable for Permanent Wiring (mm ²)		※1 DO NOT connect wires in series when the current exceeds 63A.
I ≤ 6		2.5		
6<I ≤ 10		2.5		
10<I ≤ 16		2.5		
16<I ≤ 25		4		
25<I ≤ 32		6		
32<I ≤ 40		10		
40<I ≤ 63		16		
63<I		※1		

Note:

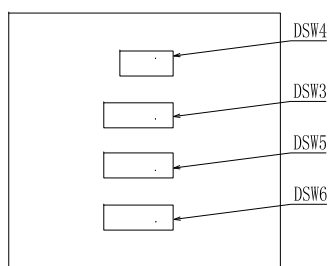
- (1) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.
- (2) Refer to relevant standards for above-noted power cord size.
- (3) Where power cord is connected through junction box, be sure to determine the total current and choose wires based on the table above.
- (4) As a minimum, the chosen power cord shall be compliant with requirements on neoprene sheathed wire #57 as stated in IEC60245-1, while the power cord shall be made from copper conductor.
- (5) The wiring specifications for weak-current communication circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.
- (6) A switch that guarantees all-pole disconnection shall be installed between power supply and air conditioning unit. The contact spacing of such switch shall not be less than 3mm.
- (7) Once the power cord is damaged, the dealer or the professionals from designated maintenance department must be contacted in a timely manner for repair and replacement.
- (8) For the installation of power cord, the ground wire must be longer than the current-carrying conductor.

6.15 Setting of DIP Switch

AVE-05~24HCFL

(1) DIP switch must be set with power sources of the indoor and outdoor units in OFF state. Otherwise, the settings are invalid.

(2) The location of DIP switch is shown in the figure below



(3) The PCB of indoor unit is furnished with 4 DIP switches that must be set based on the following requirements before test run. The system must not be started before the completion of DIP setup.

(a) All indoor units must be numbered (DSW6) as shown in the figure below. The outdoor unit numbering must start with "0".

Setting Method 1	DSW6 (Setting 0~63)	Ex.) Set machine No. 16
	Note: 8421 coding method	No. 5 is ON

DSW6 is set to "0" before delivery; up to 64 indoor units can be connected with.

(b) Capacity Code Setting (DSW3)

No setup is required.

The code is set before delivery. This switch is used to set the capacity of indoor unit.

(c) Model Code Setting (DSW4)

No setup is required.

For the models that are not installed or set up for DSW4, the software is set to "1&4 ON" by default.

(d) Cooling System Code No. Setting (DSW5)

The setup is needed. All are set to OFF before delivery.

Refrigerant System Setting

Setting Method 1	DSW5 (Setting 0~63)	Ex.) Set system No. 5

DSW5 is set to "0" before delivery; up to 64 indoor units can be connected with.

Note:

Symbol "■" indicates the location of DIP switch.

The position indicated in the diagram is in the factory-set state.

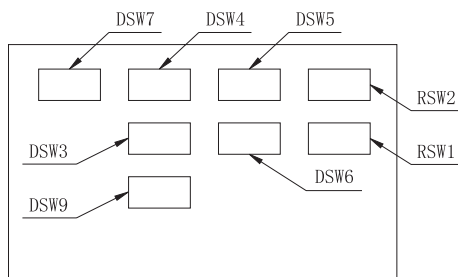


The power supply shall be turned off before the setup of DIP switch. Otherwise, the settings will be invalid.

AVE-05~24HJFDL

(1) DIP switch must be set with power sources of the indoor and outdoor units in OFF state. Otherwise, the settings are invalid.

(2) The location of DIP switch is shown in the figure below



(3) The PCB of indoor unit is furnished with 2 rotary switches and 6 DIP switches that must be set based on the following requirements before test run. The system must not be started before the completion of DIP setup.

(a) All indoor units must be numbered (RSW1&DSW6) as shown in the figure below. The outdoor unit numbering must start with "0".

Indoor Unit Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set machine No. 16
		DSW6 No.1 is ON RSW1 Setting 6
DSW6 and RSW1 are set to "0" before delivery. When Hi-NET is used, up to 64 indoor units can be connected. When Hi-NET is not used, up to 16 indoor units can be connected.		

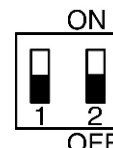
- (b) Capacity Code Setting (DSW3)
No setup is required.
The code is set before delivery. This switch is used to set the capacity of indoor unit.
- (c) Model Code Setting (DSW4)
No setup is required. The code is set before delivery.
- (d) Cooling System Code No. Setting (RSW2&DSW5)
The setup is needed. All are set to OFF before delivery.

Refrigerant System Setting

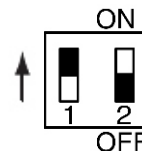
DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set system No. 5
		DSW5 All set to OFF RSW2 Setting 5
DSW5 and RSW2 are set to "0" before delivery. When Hi-NET is used, up to 64 indoor units can be connected. When Hi-NET is not used, up to 16 indoor units can be connected.		

(e) Safety Reset (DSW7)

* Factory setting.



* Once strong current is accidentally connected to Terminals 1 and 2 of TB2, the PCB fuse will be blown. Then, it's necessary to correct the wiring and then set switch No. 1 to ON.



Note:

Symbol "■" indicates the location of DIP switch. The position indicated in the diagram is in the factory-set state.



The power supply shall be turned off before the setup of DIP switch. Otherwise, the settings will be invalid.

6.16 Setting of External Static Pressure

Performing external static pressure setup ("C5") on wired remote control can change the static pressure. Please refer to the Installation & Maintenance Manual for wired remote control.

Indoor Unit Capacity (kBtu/h)	External Static Pressure	Wired Remote Control Setting
05~24HJFDL	0Pa	02
	10Pa	00 (Factory Setting)
	30Pa	01

7. 4-Way Cassette Type

7.1 General Data

Indoor Unit Type		4-Way Cassette Type			
Model	AC 1φ 220-240V ~50Hz/60Hz	AVBC-09HJFKA	AVBC-12HJFKA	AVBC-15HJFKA	AVBC-19HJFKA
Power Supply					
Nominal Cooling Capacity *1)	kW	2.8	3.6	4.5	5.6
	kcal/h	2,400	3,100	3,900	4,800
	Btu/h	9,600	12,300	15,400	19,100
Nominal Cooling Capacity *2)	kW	2.9	3.8	4.6	5.8
	kcal/h	2,500	3,300	4,000	5,000
	Btu/h	9,900	13,000	15,700	19,800
Cooling Power Consumption	kW	0.02	0.03	0.03	0.04
Nominal Heating Capacity	kW	3.2	4.0	5.0	6.3
	kcal/h	2,800	3,400	4,300	5,400
	Btu/h	10,900	13,700	17,100	21,500
Heating Power Consumption	kW	0.02	0.03	0.03	0.04
Sound Pressure Level (Overall A Scale)	dB	26/26/27/28/28/30	26/27/28/29/29/32	26/27/29/29/31/33	26/28/28/30/31/34
Outer Dimensions					
Height	mm	238	238	238	238
Width	mm	840	840	840	840
Depth	mm	840	840	840	840
Net Weight	kg	20	20	21	21
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Slo/Lo/Me/Hi/HH1/HH2)	m ³ /h	528/600/648/720 /804/900	546/648/708/768 /840/1020	672/762/816/894 /960/1260	750/816/930/954 /1050/1320
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)
Gas Line	mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.27	0.27	0.27	0.27
Adaptable Panel Model	—	HP-G-NK			
Color	—	Neutral White			
Outer Dimensions					
Height	mm	47	47	47	47
Width	mm	950	950	950	950
Depth	mm	950	950	950	950
Net Weight	kg	5.7	5.7	5.7	5.7
Approximate Packing Measurement	m ³	0.11	0.11	0.11	0.11

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)
 Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)
 Piping Length: 7.5 Meters
 Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		4-Way Cassette Type			
Model	AC 1ϕ 220-240V ~50Hz/60Hz	AVBC-22HJFKA	AVBC-24HJFKA	AVBC-27HJFKA	AVBC-30HJFKA
Power Supply					
Nominal Cooling Capacity *1)	kW kcal/h Btu/h	6.3 5,400 21,500	7.1 6,100 24,200	8.0 6,900 27,300	9.0 7,700 30,700
Nominal Cooling Capacity *2)	kW kcal/h Btu/h	6.5 5,600 22,200	7.3 6,300 24,900	8.3 7,100 28,300	9.3 8,000 31,700
Cooling Power Consumption	kW	0.06	0.07	0.06	0.06
Nominal Heating Capacity	kW kcal/h Btu/h	7.1 6,100 24,200	8.0 6,900 27,300	9.0 7,700 30,700	10.0 8,600 34,100
Heating Power Consumption	kW	0.06	0.07	0.06	0.06
Sound Pressure Level (Overall A Scale)	dB	28/29/31/32/33/36	28/29/31/32/33/36	30/31/33/35/36/37	30/31/33/35/36/37
Outer Dimensions					
Height	mm (in.)	238	238	288	288
Width	mm (in.)	840	840	840	840
Depth	mm (in.)	840	840	840	840
Net Weight	kg (lbs.)	23	23	26	26
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Slo/Lo/Me/Hi/HH1/HH2)	m³/h	780/906/1020/1098 /1200/1560	882/978/1080/1146 /1260/1620	924/1008/1122/1218 /1320/1620	966/1062/1176/1242 /1380/1620
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ12.7 (1/2)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ15.88 (5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.27	0.27	0.31	0.31
Adaptable Panel Model	—	HP-G-NK			
Color	—	Neutral White			
Outer Dimensions					
Height	mm	47	47	47	47
Width	mm	950	950	950	950
Depth	mm	950	950	950	950
Net Weight	kg	5.7	5.7	5.7	5.7
Approximate Packing Measurement	m³	0.11	0.11	0.11	0.11

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
Outdoor Air Inlet Temperature: 6°C WB (43°F WB)

Piping Length: 7.5 Meters

Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		4-Way Cassette Type		
Model	AC 1ϕ 220-240V ~50Hz/60Hz	AVBC-38HJFKA	AVBC-48HJFKA	AVBC-54HJFKA
Power Supply				
Nominal Cooling Capacity *1)	kW kcal/h Btu/h	11.2 9,600 38,200	14.0 12,000 47,800	16.0 13,800 54,600
Nominal Cooling Capacity *2)	kW kcal/h Btu/h	11.6 10,000 39,600	14.3 12,300 48,800	16.5 14,200 56,300
Cooling Power Consumption	kW	0.13	0.13	0.13
Nominal Heating Capacity	kW kcal/h Btu/h	12.5 10,800 42,700	16.0 13,800 54,600	18.0 15,500 61,400
Heating Power Consumption	kW	0.13	0.13	0.13
Sound Pressure Level (Overall A Scale)	dB	33/34/36/38/40/42	34/36/38/40/44/46	36/38/40/41/44/46
Outer Dimensions				
Height	mm	288	288	288
Width	mm	840	840	840
Depth	mm	840	840	840
Net Weight	kg	26	26	26
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)		
Indoor Fan				
Air Flow Rate (Slo/Lo/Me/Hi/HH1/HH2)	m³/h	1176/1344/1488/1644 /1800/2220	1344/1452/1632/1776 /2010/2220	1428/1536/1734/1842 /2040/2220
Connections		Flare-Nut Connection (with Flare Nuts)		
Refrigerant Piping				
Liquid Line	mm (in.)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ15.88 (5/8)
Condensate Drain	—	VP25	VP25	VP25
Approximate Packing Measurement	m³	0.31	0.31	0.31
Adaptable Panel Model	—	HP-G-NK		
Color	—	Neutral White		
Outer Dimensions				
Height	mm	47	47	47
Width	mm	950	950	950
Depth	mm	950	950	950
Net Weight	kg	5.7	5.7	5.7
Approximate Packing Measurement	m³	0.11	0.11	0.11

NOTES:

1. The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

2. The sound pressure level is based on following conditions.

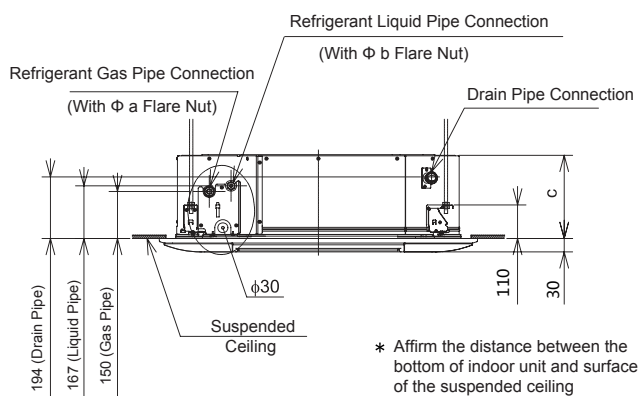
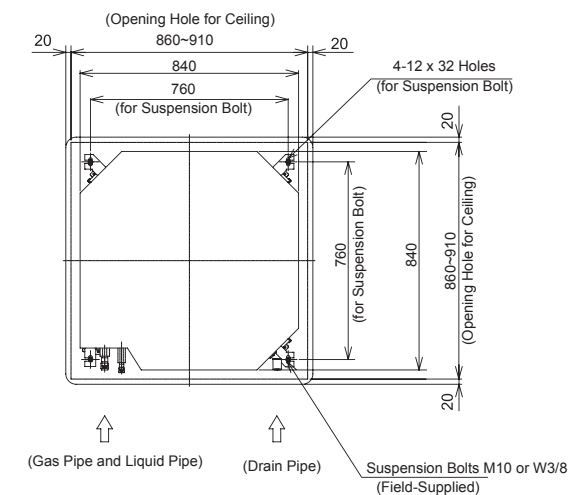
1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

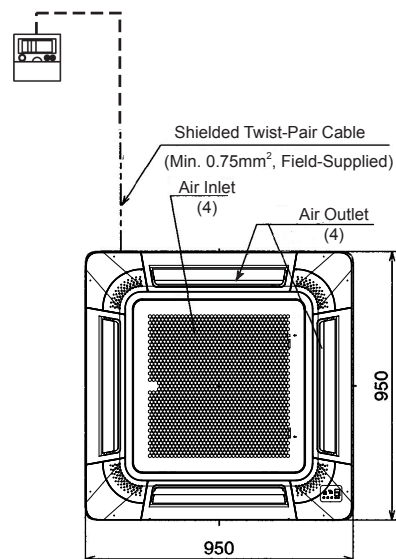
7.2 Dimensional Data

Models: AVBC-09~54HJFKA

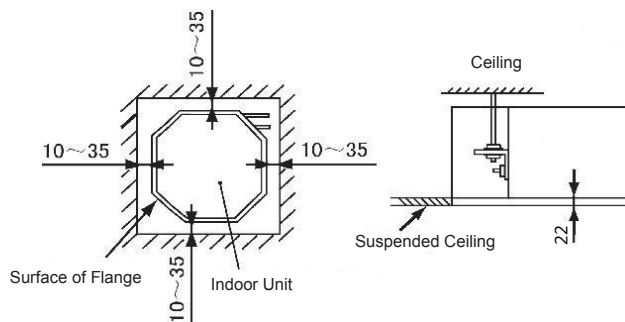
Unit:mm



Wired Remote Control Switch
Field-Supplied



Model	d	e	f
AVBC-09HJFKA	12.7	6.35	260
AVBC-12HJFKA	12.7	6.35	260
AVBC-15HJFKA	12.7	6.35	260
AVBC-19HJFKA	12.7	6.35	260
AVBC-22HJFKA	12.7	6.35	260
AVBC-24HJFKA	15.88	9.53	260
AVBC-27HJFKA	15.88	9.53	310
AVBC-30HJFKA	15.88	9.53	310
AVBC-38HJFKA	15.88	9.53	310
AVBC-48HJFKA	15.88	9.53	310
AVBC-54HJFKA	15.88	9.53	310



7.3 Selection Data

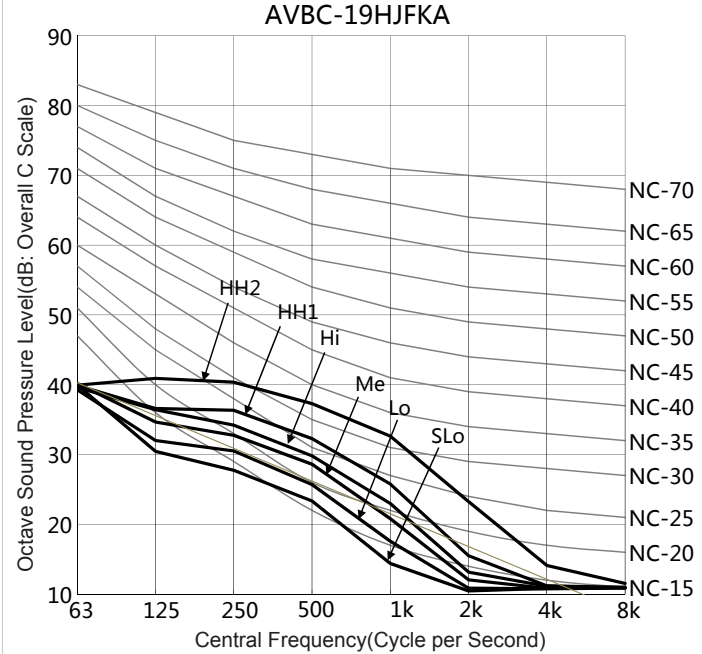
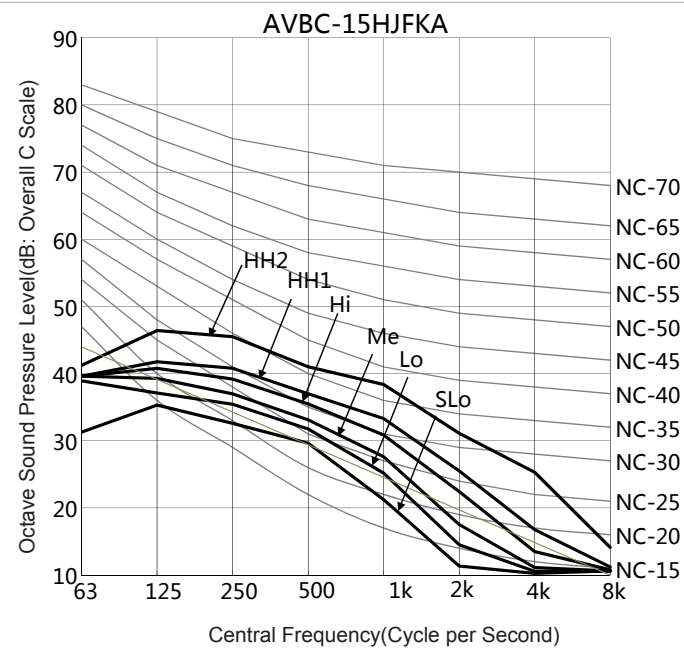
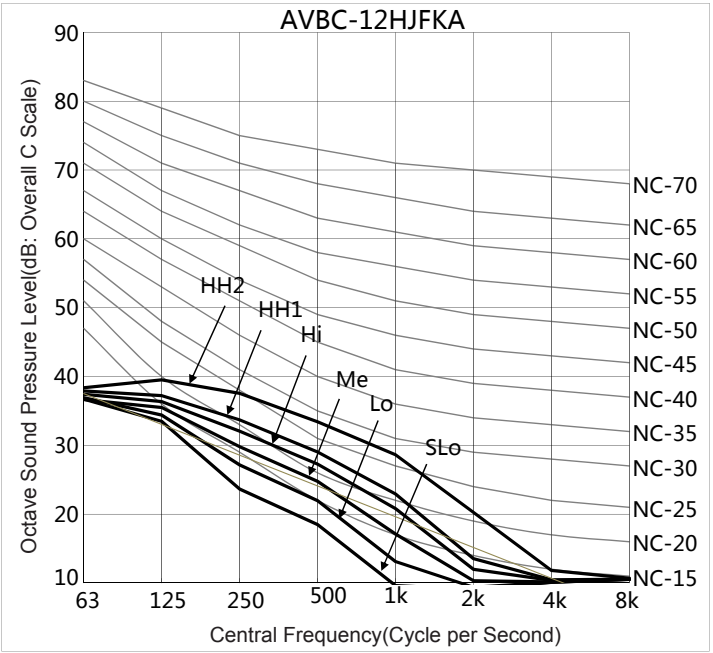
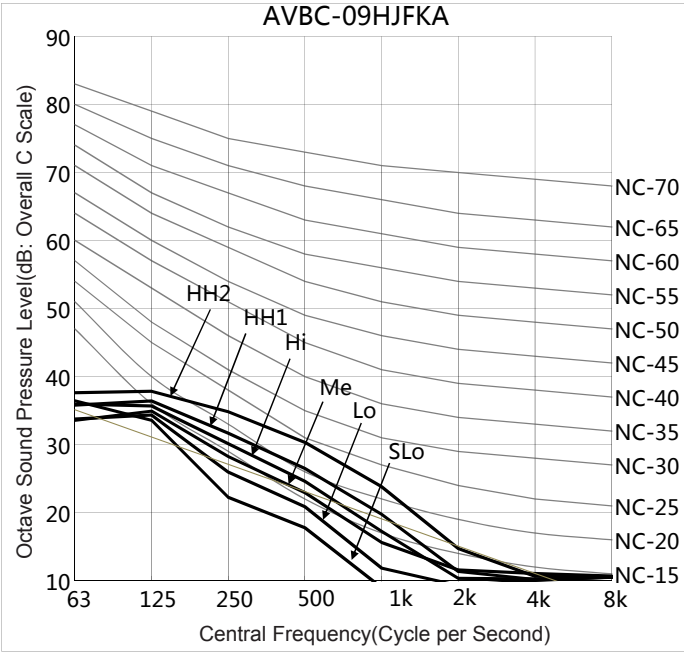
7.3.1 Sensible Heat Factor (SHF)

Indoor Unit Model	SHF					
	HH2	HH1	HI	ME	LO	SLO
AVBC-09HJFKA	0.80	0.77	0.75	0.73	0.70	0.68
AVBC-12HJFKA	0.78	0.76	0.74	0.73	0.72	0.69
AVBC-15HJFKA	0.77	0.75	0.73	0.70	0.69	0.67
AVBC-19HJFKA	0.78	0.76	0.75	0.69	0.67	0.65
AVBC-22HJFKA	0.74	0.72	0.70	0.67	0.65	0.63
AVBC-24HJFKA	0.73	0.71	0.69	0.67	0.65	0.63
AVBC-27HJFKA	0.79	0.76	0.72	0.69	0.67	0.65
AVBC-30HJFKA	0.79	0.76	0.72	0.68	0.66	0.64
AVBC-38HJFKA	0.78	0.75	0.72	0.67	0.65	0.61
AVBC-48HJFKA	0.74	0.70	0.68	0.65	0.63	0.60
AVBC-54HJFKA	0.73	0.69	0.67	0.63	0.61	0.60

7.3.2 Sound Data

Noise Criteria Curve

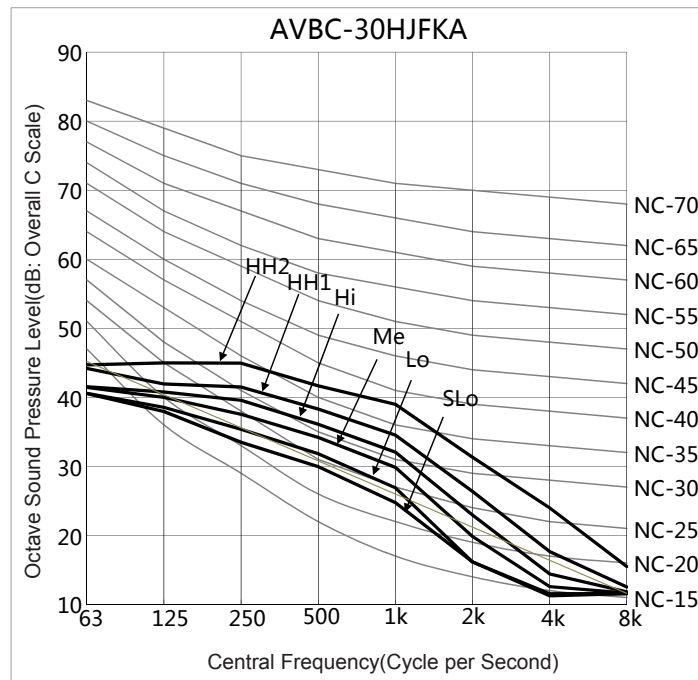
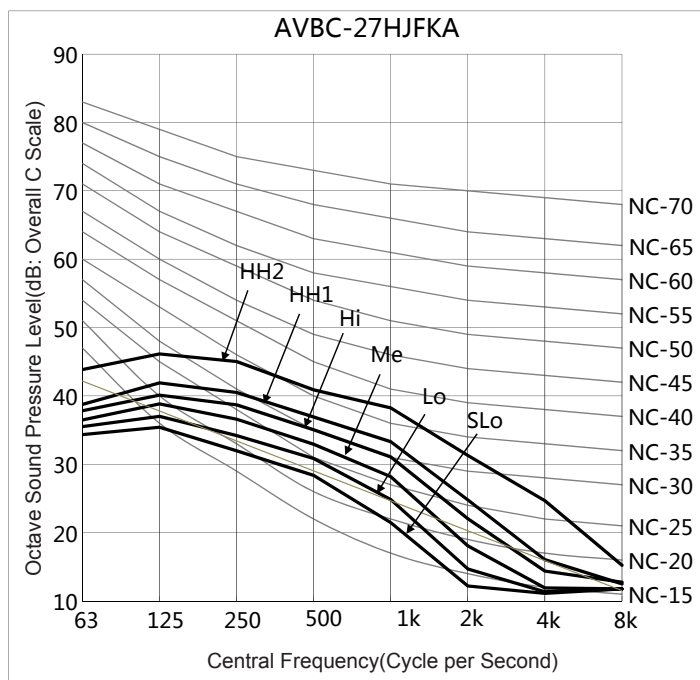
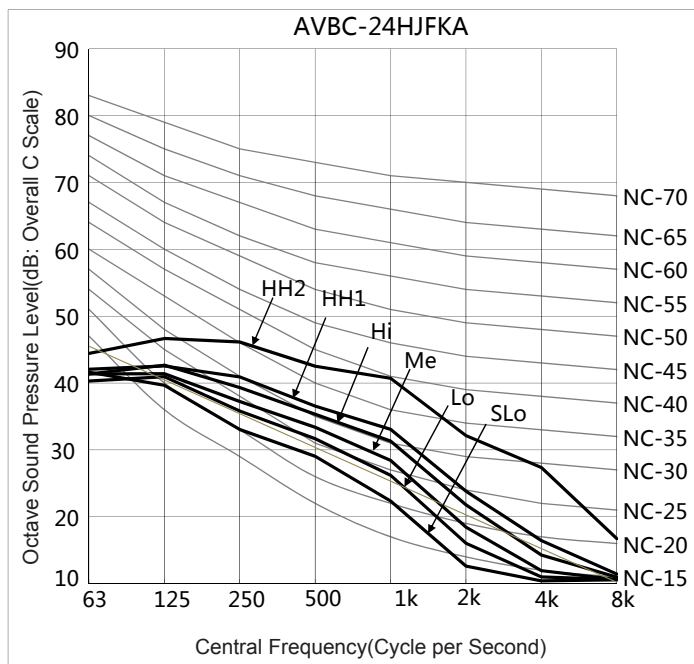
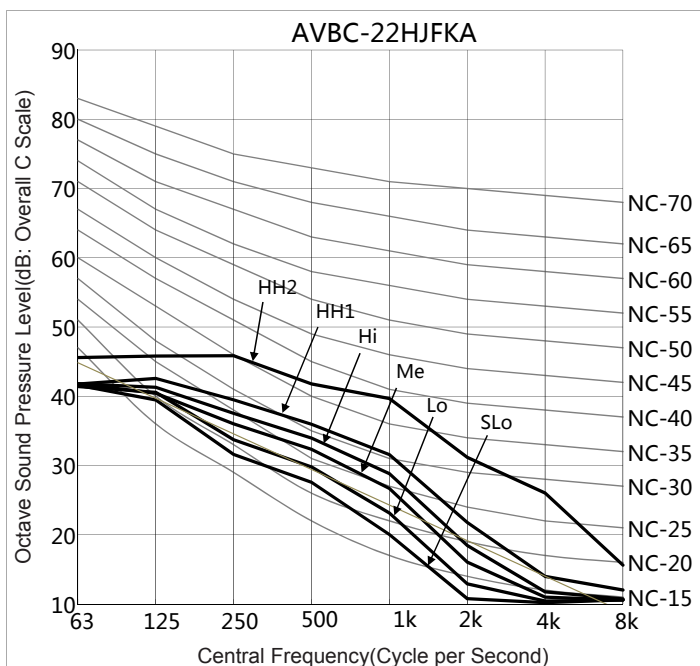
Measurement Point: 1.5 Meters Beneath the Unit Power Supply: 220-240V~50Hz/60Hz



Sound Data

Noise Criteria Curve

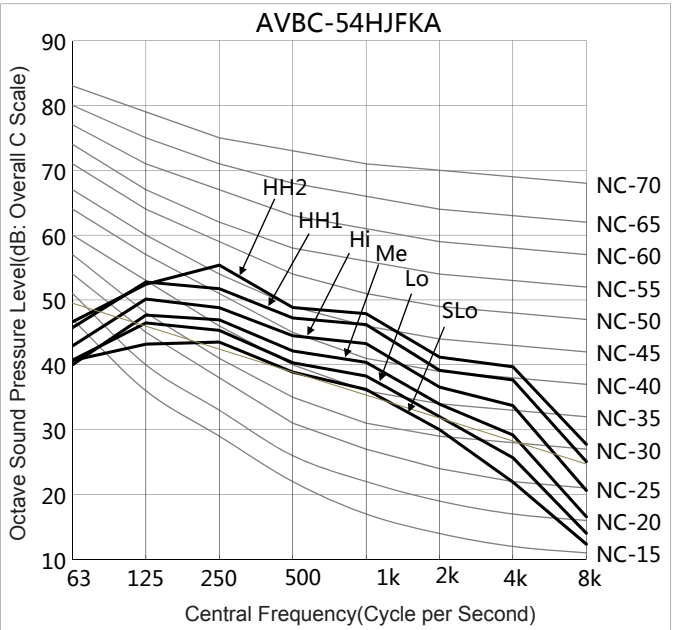
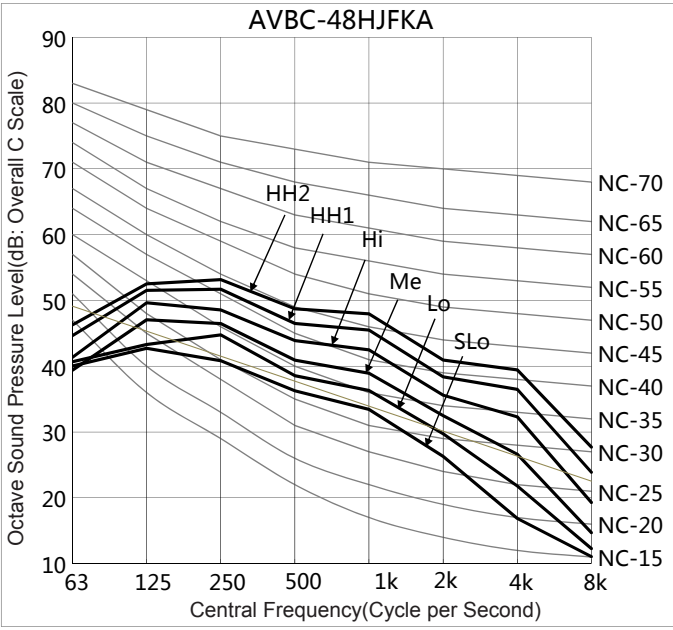
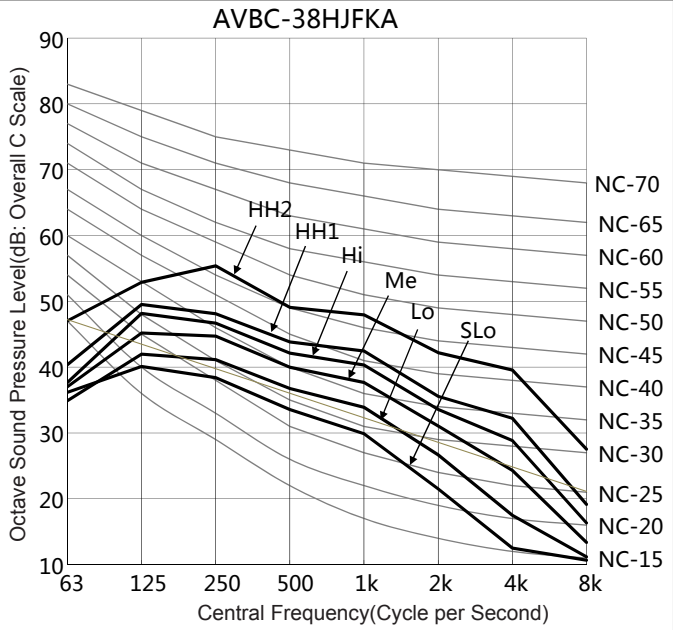
Measurement Point: 1.5 Meters Beneath the Unit Power Supply: 220-240V~50Hz/60Hz



Sound Data

Noise Criteria Curve

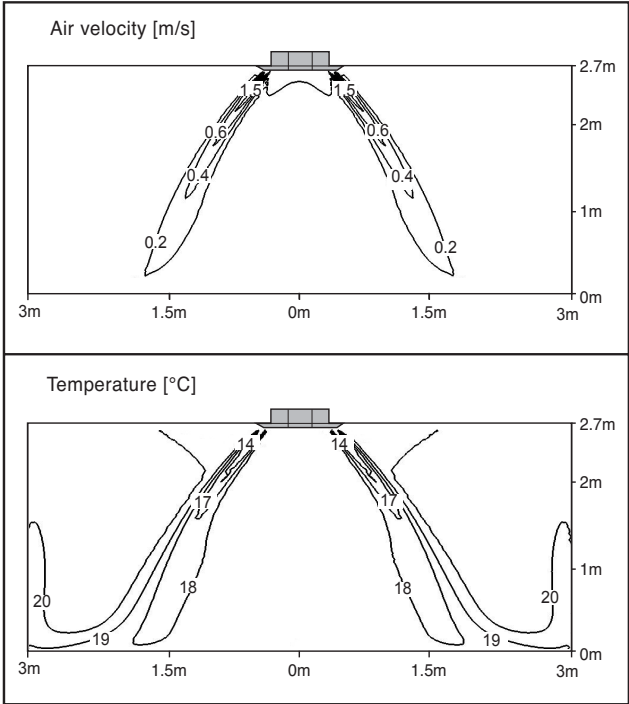
Measurement Point: 1.5 Meters Beneath the Unit Power Supply: 220-240V~50Hz/60Hz



AVBC-09HJFKA,AVBC-12HJFKA

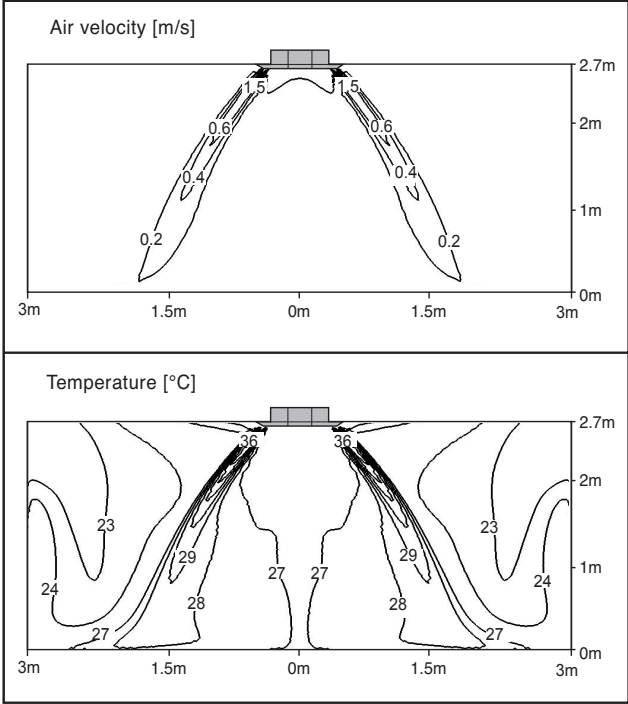
Cooling

Discharge angle: 45°



Heating

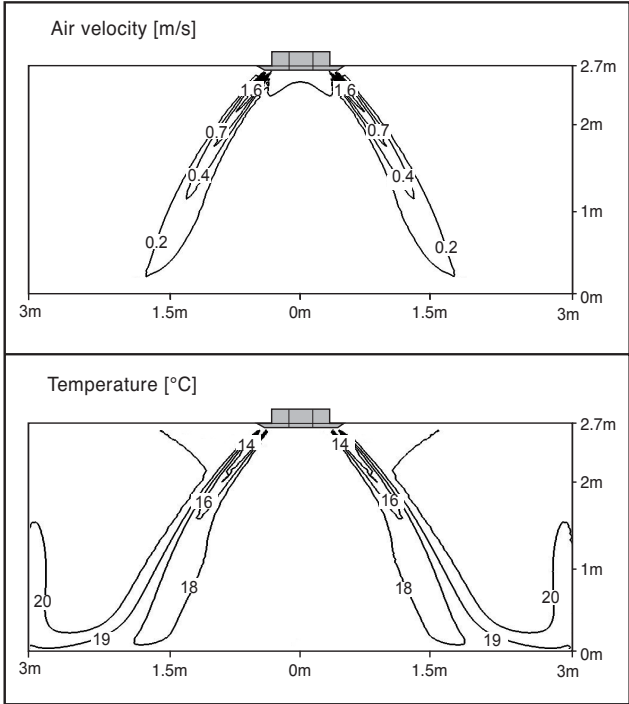
Discharge angle: 45°



AVBC-15HJFKA

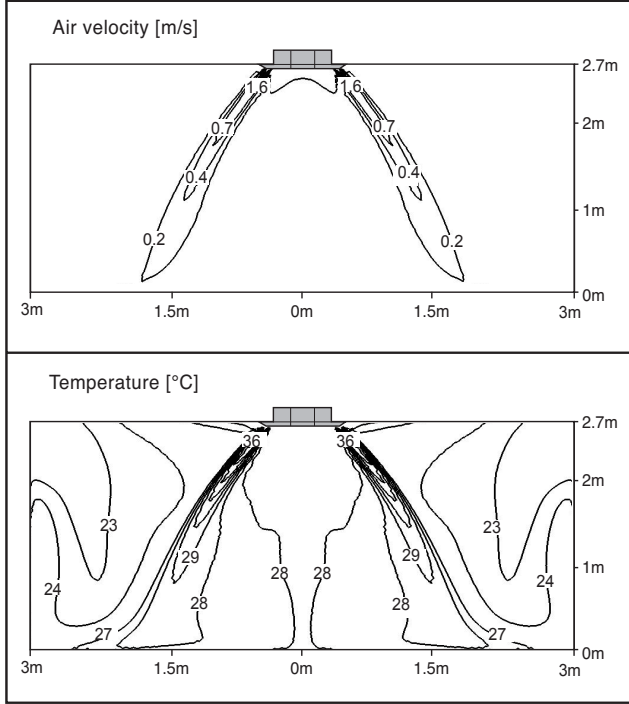
Cooling

Discharge angle: 45°



Heating

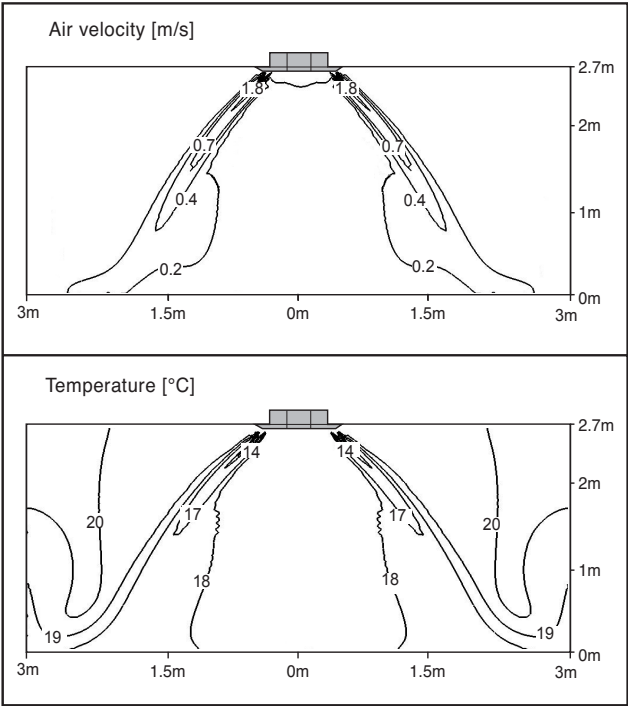
Discharge angle: 45°



AVBC-19HJFKA,AVBC-22HJFKA

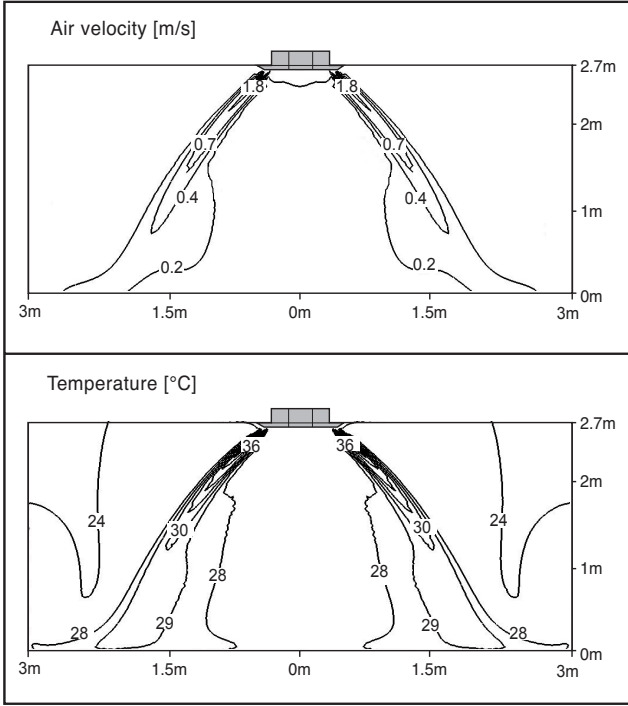
Cooling

Discharge angle: 45°



Heating

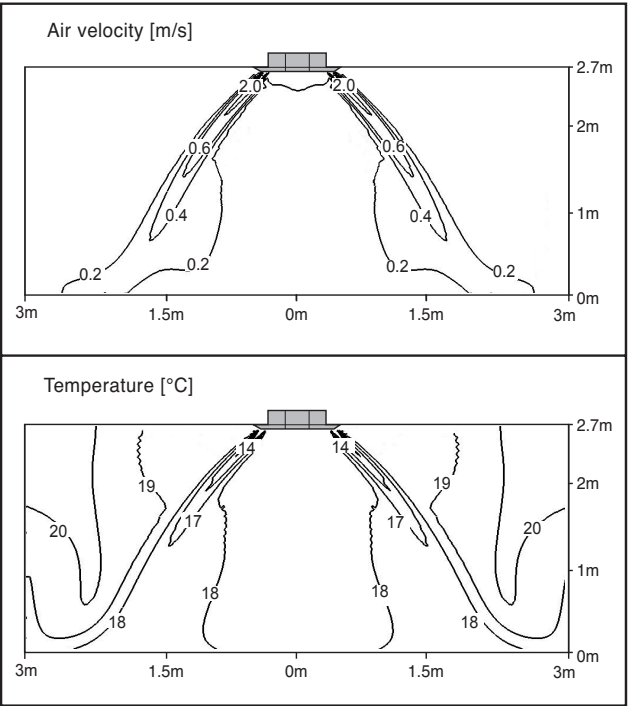
Discharge angle: 45°



AVBC-24HJFKA

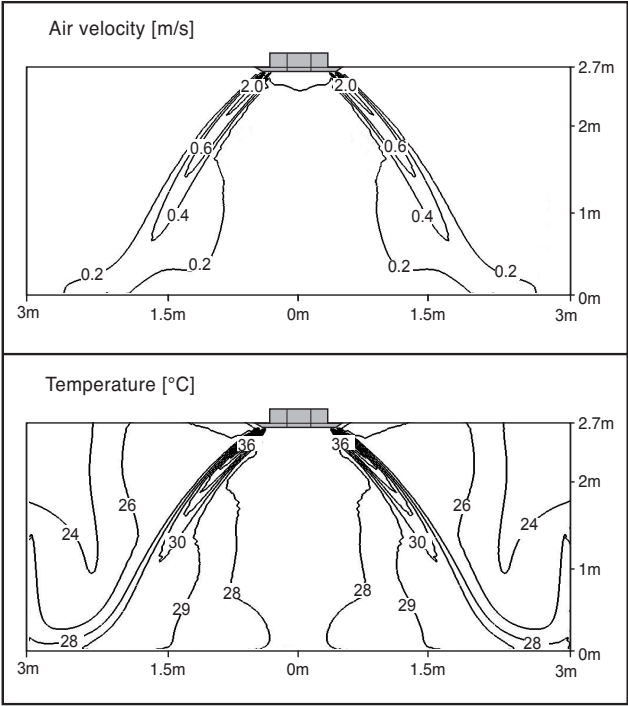
Cooling

Discharge angle: 45°



Heating

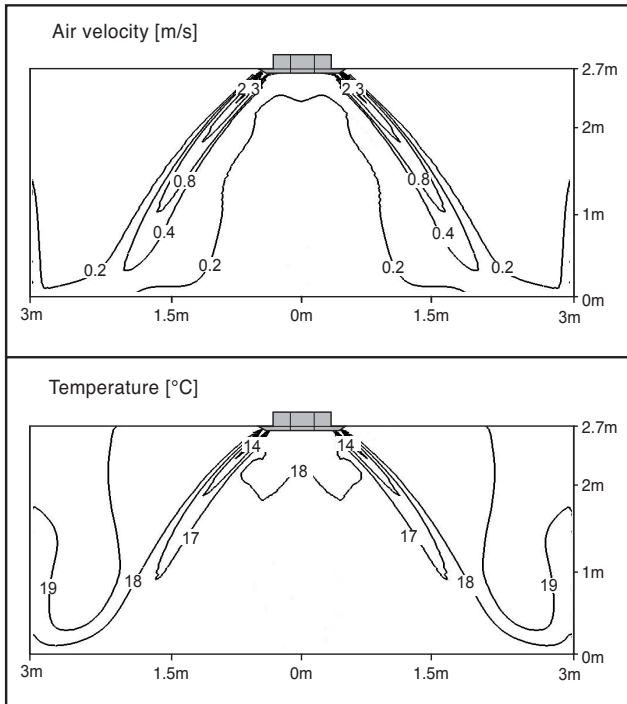
Discharge angle: 45°



AVBC-27HJFKA

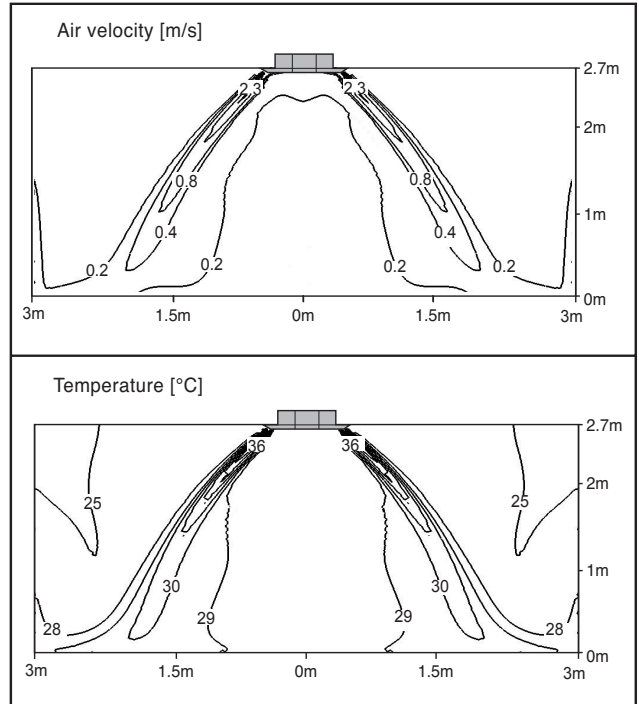
Cooling

Discharge angle: 45°



Heating

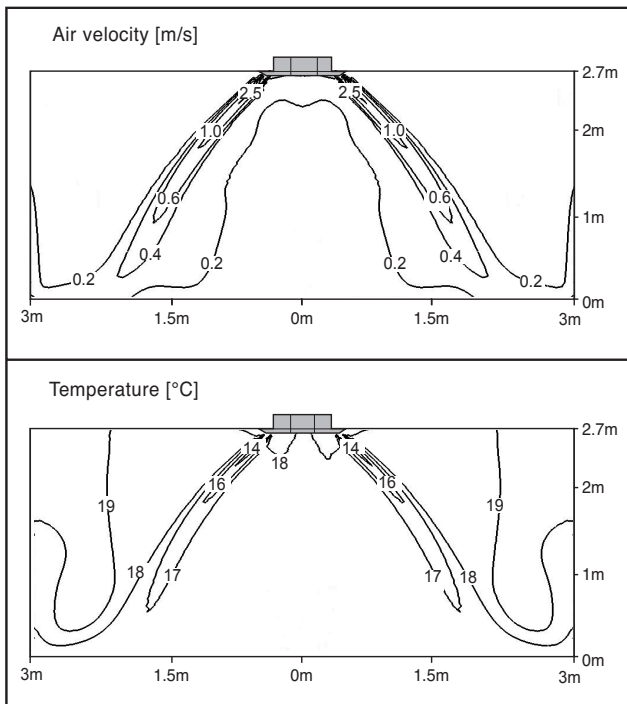
Discharge angle: 45°



AVBC-30HJFKA,AVBC-38HJFKA

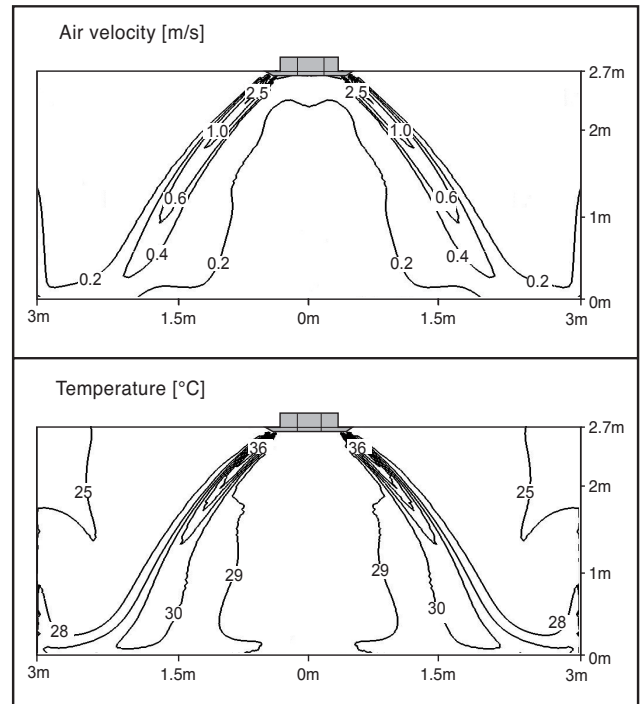
Cooling

Discharge angle: 45°



Heating

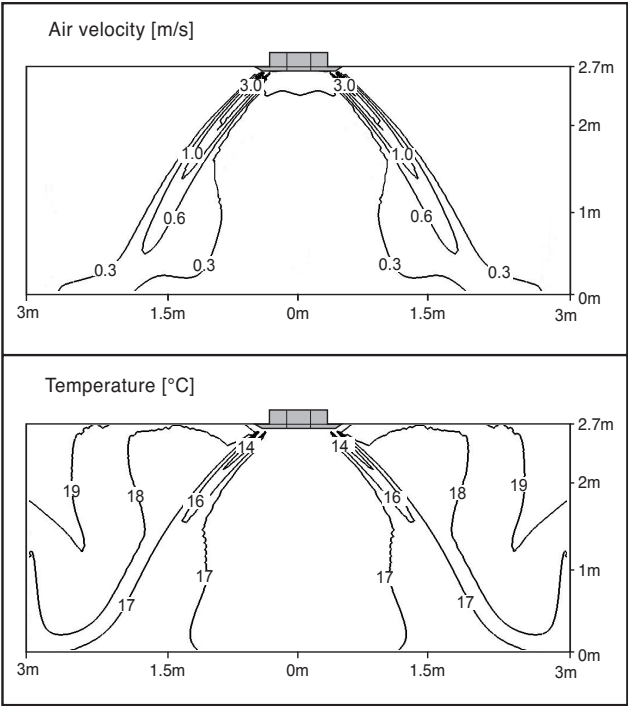
Discharge angle: 45°



AVBC-48HJFKA,AVBC-54HJFKA

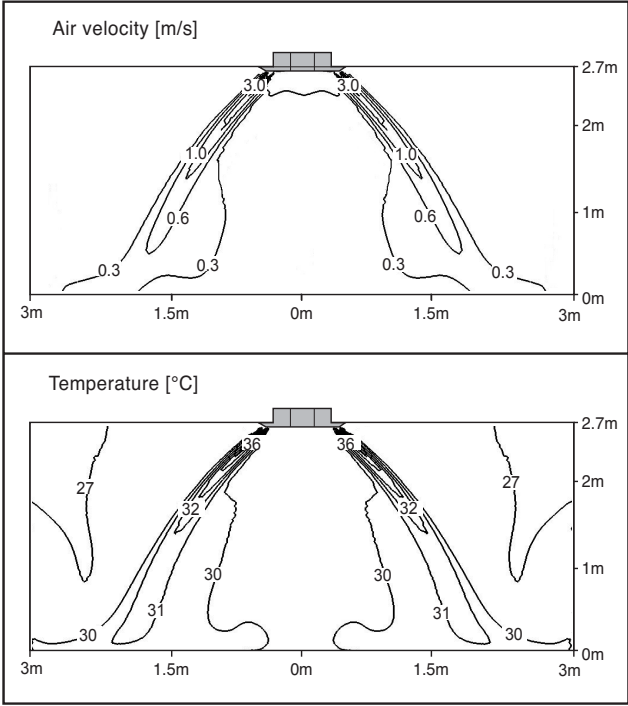
Cooling

Discharge angle: 45°



Heating

Discharge angle: 45°



7.3.3 Component Data

Indoor Heat Exchanger and Fan

Model		AVBC--09*	AVBC--12U*	AVBC--15*	AVBC--19*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	5.0	5.0	5.0	5.0
Rows	–	2	2	2	2
Fin Material		Aluminum			
Pitch	mm	1.3	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.29	0.29	0.41	0.41
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	1	1
Outer Diameter	mm	490	490	490	490
Revolution (220V-240V)	rpm	398/350/328 /305/281/257	443/394/351 /327/297/267	477/394/368 /341/315/288	481/395/370 /344/318/292
Nominal Air Flow	m ³ /h	900/804/720 /648/600/528	1020/840/768 /708/648/546	1260/960/894 /816/762/672	1320/1050/954 /930/816/750
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	DC Driven			
Nominal Output	W	57	57	57	57
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Model		AVBC--22*	AVBC--24*	AVBC--27*	AVBC--30*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	5.0	5.0	5.0	5.0
Rows	–	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.3	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.41	0.41	0.53	0.53
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	1	1
Outer Diameter	mm	490	490	490	490
Revolution (220V-240V)	rpm	593/471/438 /405/372/339	608/491/459 426/396/366	575/491/458 /425/392/359	575/511/472 /433/403/373
Nominal Air Flow	m ³ /h	1560/1200/1146 /1080/978/882	1620/1260/1146 /1080/978/882	1620/1320/1218 /1122/1008/924	1620/1380/1242 /1176/1062/966
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	DC Driven			
Nominal Output	W	57	57	57	57
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Indoor Heat Exchanger and Fan

Model		AVBC--38*	AVBC--48*	AVBC--54*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	5.0	5.0	5.0
Rows	–	3	3	3
Fin Material		Aluminum		
Pitch	mm	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.53	0.53	0.53
Number of Coil/Unit	–	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan		
Number/Unit	–	1	1	1
Outer Diameter	mm	490	490	490
Revolution (220V-240V)	rpm	774/651/603 /555/499/443	774/711/645 /579/533/487	774/732/667 /601/564/527
Nominal Air Flow	m ³ /h	2220/1800/1644 /1488/1344/1176	2220/2010/1776 /1632/1452/1344	2220/2040/1842 /1734/1536/1428
Indoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method	–	DC Driven		
Nominal Output	W	127	127	127
Quantity	–	1	1	1
Insulation Class	–	E	E	E

7.3.4 Electrical Data

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor	
		VOL	PH	Hz	Maximum	Minimum	RNC Cooling/Heating	IPT Cooling/Heating
4-Way Cassette Type	AVBC-09HJFKA	220-240	1	50/60	264	198	0.17/0.17	0.014/0.014
	AVBC-12HJFKA						0.27/0.27	0.024/0.024
	AVBC-15HJFKA						0.37/0.37	0.024/0.024
	AVBC-19HJFKA						0.37/0.37	0.034/0.034
	AVBC-22HJFKA						0.57/0.57	0.054/0.054
	AVBC-24HJFKA						0.67/0.67	0.064/0.064
	AVBC-27HJFKA						0.57/0.57	0.054/0.054
	AVBC-30HJFKA						0.57/0.57	0.054/0.054
	AVBC-38HJFKA						1.17/1.07	0.124/0.124
	AVBC-48HJFKA						1.17/1.07	0.124/0.124
	AVBC-54HJFKA						1.17/1.07	0.124/0.124

VOL: Rated Unit Power Supply Voltage (Plated)(V)
 PH: Phase (φ)
 HZ: Frequency (Hz)

RNC: Running Current (A)
 IPT: Input (kW)

7.3.5 Safety and Control Device Setting

Indoor Unit

Model		AVBC-09~54HJFKA	
For Control Circuit Fuse Capacity	A	5	
Freeze Protection Thermostat	Cut-Out °C	0	
	Cut-In °C	14	
Thermostat Differential	°C	2	

7.4 Electrical Wiring Diagram

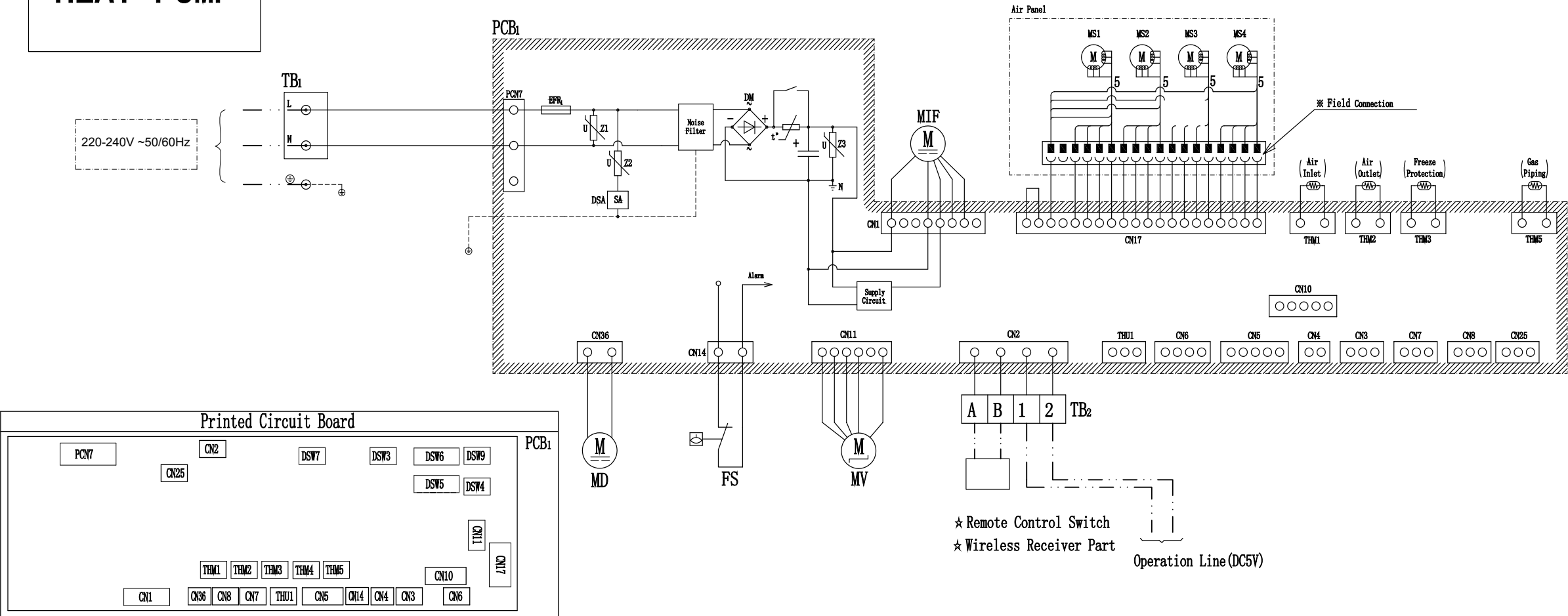
Model: AVBC-09~54HJFKA

HEAT PUMP

ELECTRICAL WIRING DIAGRAM

WARNING

Before inspecting the electrical parts set the Operation Switch to OFF, and cut OFF the power supply.



- Factory Wiring
- Earth Wiring
- Field Wiring
- Optional Parts
- Field Connection

Note :
1. All the field wiring and equipment must comply with local codes.

Mark	Name
TB1,2	Terminal Board
PCB	Printed Circuit Board
PCN	Connector on PCB
CN1~38	Connector on PCB
DSW1~9	Dip Switch for Setting
MV	Micro-Computer Control Expansion Valve
MIF	Motor for Indoor Fan
MS1~4	Motor for Automatic Swing Louver
MD	Motor for Drain Discharge Mechanism
FS	Float Switch
THM1~6	Thermistor
EFR1, EFS1	Fuse
Z1,2,3	Surge Absorber
DM	Diode Module
⊙	Terminals

★ Remote Control Switch
★ Wireless Receiver Part
Operation Line (DC5V)

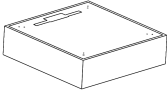
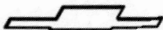
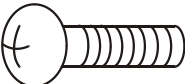
7.5 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	4-Way Cassette Type
Wire Remote Control Switch	HYXE-VA01	•
	HYXM-VB01 HYXM-VB01#01	•
	HYXE-J01H HYXE-J01H1	•
	HYXE-M01H	•
	HYXE-J01H2	•
Wireless Remote Control Switch	HYE-W01	•
Fresh Air Inlet	HFL-56CSA	•
Wireless Receiver Kit	HYRE-T03H	•
Motion Sensor	HCM-01E	•
7 Day Timer	HYDE-E01H	•
Humidity sensor	HCHR-S01H	•
Control Station	HYJE-D02H	•
	HYJM-S01H	•
	HYJ-J01H	•
	HCCS-H128H2C1YM	•
	HCCS-H128H2C1NM	•
Anion Generator	HJK-ELZA	•
Interface for Building Control	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

• means optional.

7.6 Factory-Supplied Accessories

Table Factory-Supplied Accessories

Accessory		Q'ty	Purpose
Paper Pattern (Carton Board)		1	For Adjusting Space of False Ceiling Opening and Position of the Unit
Level Scaler (Cut and Take Out it from the Carton Board)		1	
Cross Recessed Head Screws (M6)		4	For Fitting Paper Pattern
Washer with Insulation Material (M10)		4	For Unit Installation
Washer (M10)		4	
Drain Hose		1	For Drain Hose Connection
Hose Clamp		1	
Insulation (22ID)		1	For Refrigerant Piping Connection
Insulation (28ID)		1	
Cord Clamp		2	For Fixing Remote Control Switch Wiring, Louver Sensor and Insulation of Piping
Cord Clamp		6	
Packing (5Tx50x200)		1	For Covering Wiring Connection
Packing (5Tx270x270)		1	For Covering Drain Connection

Panel (optional): HP-G-NK

7.7 Installtion

7.7.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig. below.
- Provide a service access door near the unit piping connection area on the ceiling.
- Check to ensure that the ceiling has a sufficient strength to hang the indoor unit.
- Check the ceiling surface is flat for the air panel installation work.

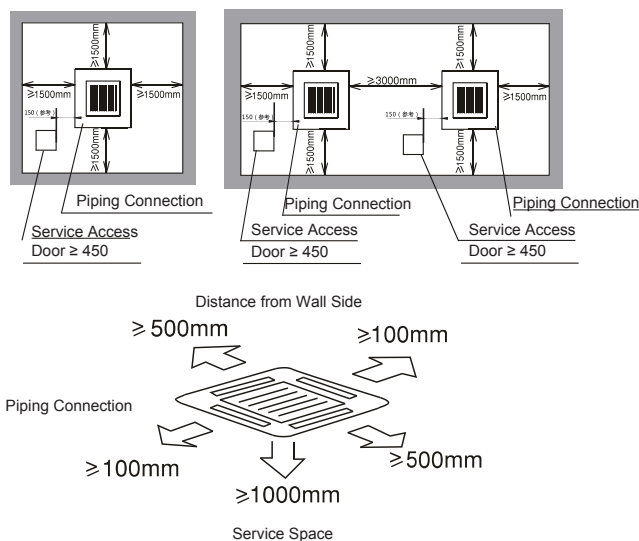


Fig. Space around Indoor Unit

- Select the installation location as follows:
(A) Minimum Space
(B) Down Slope Pitch of Drain Piping: 1/25~1/100

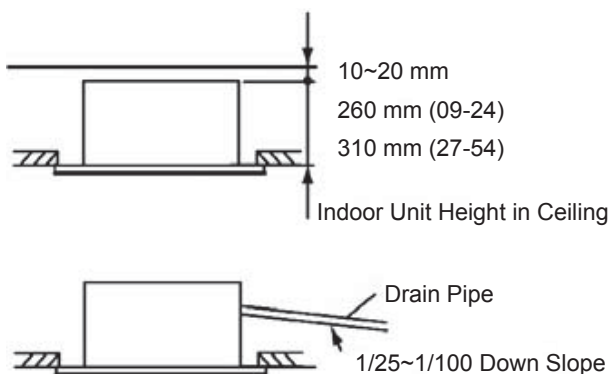
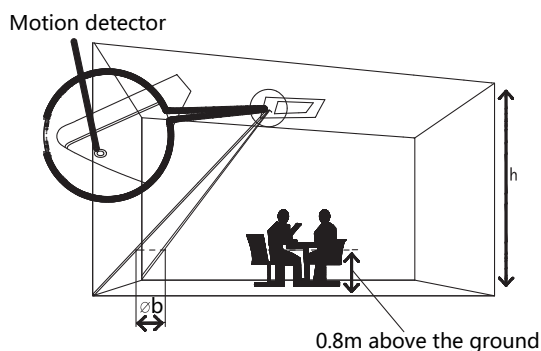
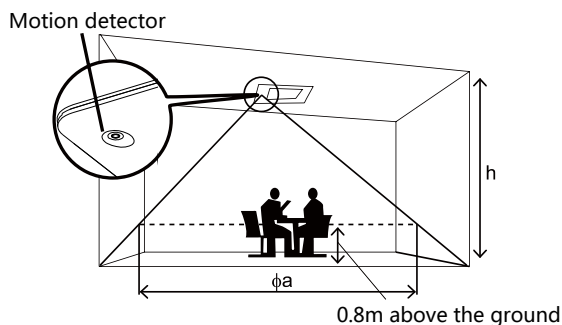


Fig. Installation Location of Indoor Unit

- The figure on the right shows the sensing area of motion detector when the motion detector in panel is in service.

Mounting height h of indoor unit (m)	Approx. 2.7m	Approx. 3.0m	Approx. 4.2m
Sensing area Φa of motion detector (m)	Approx. 5.4m	Approx. 6.3m	Approx. 8.0m
Sensing area Φb of motion detector (m)	Approx. 3.0m	Approx. 3.4m	Approx. 4.3m



- The indoor unit must be installed at an appropriate location so that the indoor temperature can be evenly distributed.
- There should be no obstruction of air flow at the vent.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit. Once the oil deposits on the heat exchanger, it may impair the performance of indoor unit and cause damage to plastic parts therein.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Install the remote control switch in an iron box. Arrange the remote control cable in an iron tube. Ground the iron box and iron tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

7.7.2 Installation

7.7.2.1 Opening of False Ceiling and Suspension Bolts

- (1) Select appropriate location and direction for installation of indoor unit, and determine its location. Pay careful attention to the space for the piping, wiring and maintenance.
- (2) Cut out the area for the indoor unit in the false ceiling and install suspension bolts, as shown in Fig. below.

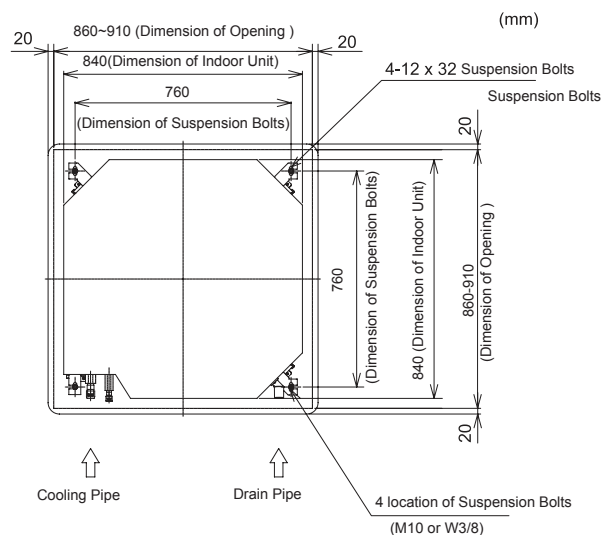


Fig. Opening of False Ceiling and Suspension Bolts

- (3) Ensure that the ceiling is horizontally level; otherwise, proper drainage flow would be impossible.
- (4) Strengthen the opening parts of the ceiling.
- (5) Mount suspension bolts, as shown in the figure.

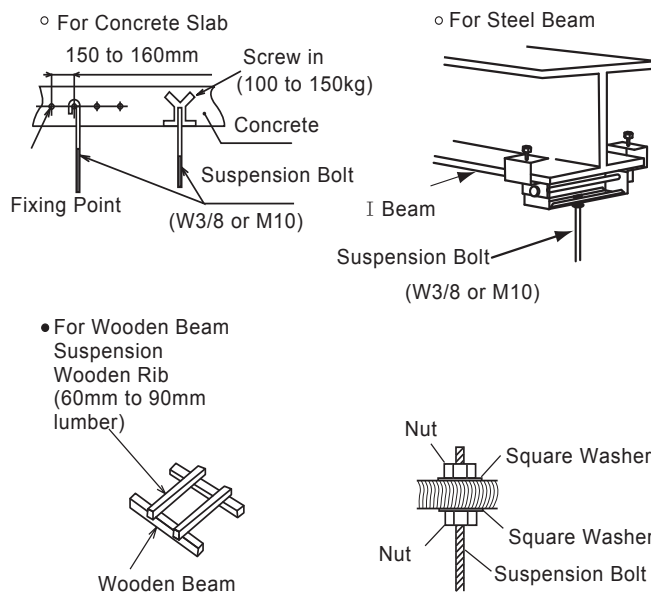
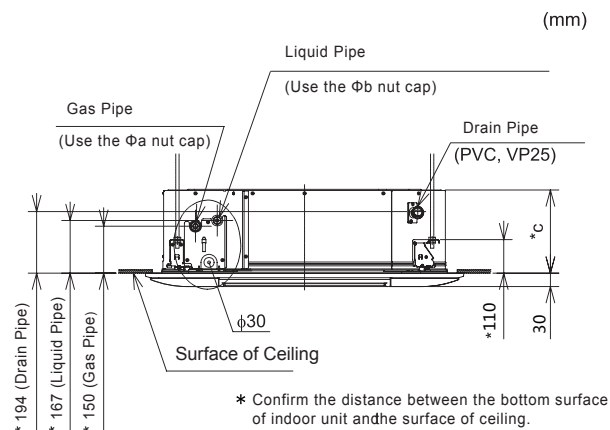


Fig. Mounting the Suspension Bolts

7.7.2.2 Mounting Position of the Indoor Unit



unit	a	b	c
09	12.7	6.35	260
12	12.7	6.35	260
15	12.7	6.35	260
19	12.7	6.35	260
22	12.7	6.35	260
24	15.88	9.53	260
27	15.88	9.53	310
30	15.88	9.53	310
38	15.88	9.53	310
48	15.88	9.53	310
54	15.88	9.53	310

Fig. Mounting Suspension Bracket

7.7.3 Mounting the Indoor Unit

- (1) Mount nuts and washers to the suspension bolts.

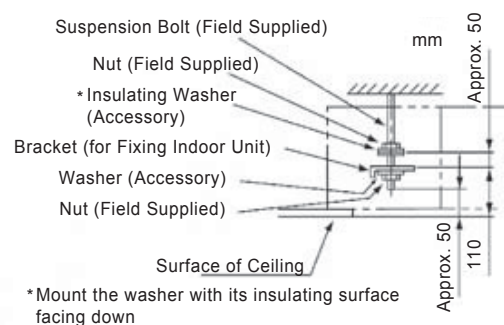


Fig. Mounting Nuts and Washers

- (2) Lift the indoor unit by hoist, and do not put any force on the water pan.

- (3) Secure the indoor unit using the nuts, washers.

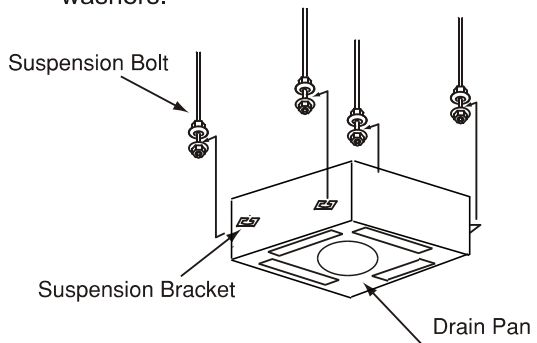


Fig. Mounting the Indoor Unit

NOTE

If a false ceiling has already been installed, complete all piping and wiring work inside the ceiling before hooking-up the indoor unit.

7.7.4 Adjusting the Space between Indoor Unit and False Ceiling Opening

CAUTION

- Check the level of the drain pan using a water level to avoid incorrect operation of the drain discharge mechanism in the indoor unit. The drain piping side of the indoor unit must be approximately 5mm lower than the other part.
- Tighten the nuts of the suspension brackets after the adjustment is completed. Apply **LOCK-TIGHT paint*** to the bolts and nuts in order to prevent them from loosening. If not done, abnormal noises or sounds may occur and the indoor unit may fall down.

LOCK-TIGHT paint*: Paint the lock bolts and nuts

- (1) The pattern board for installation is in the packing carton. Please cut it off.

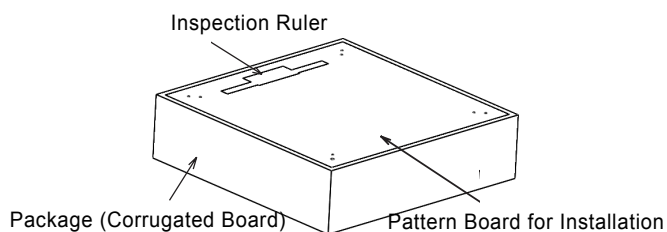
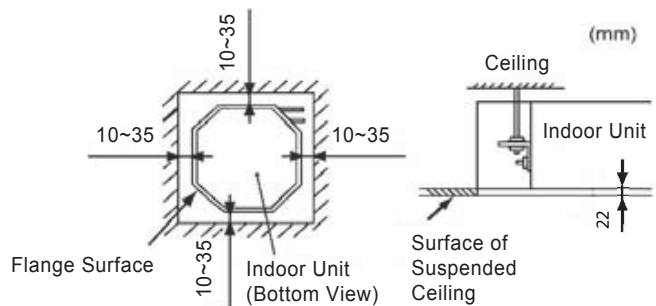
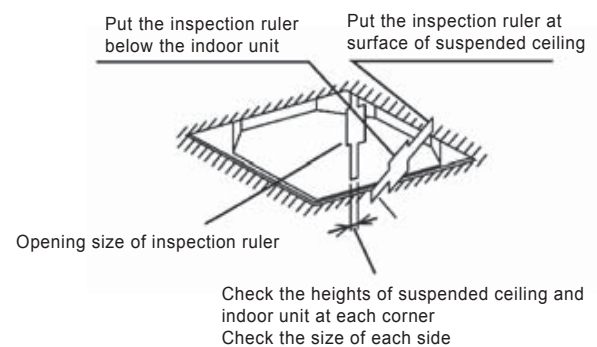


Fig. Mounting Indoor Unit

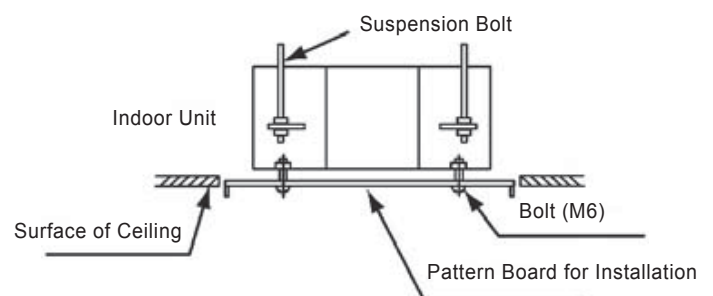
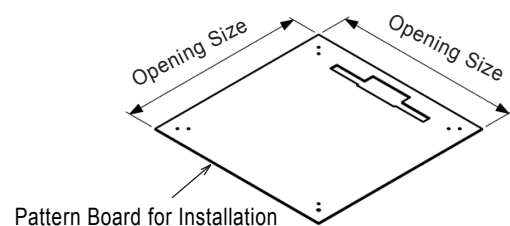
- (2) Adjust the indoor unit to the correct position using the factory-supplied inspection ruler



- (a) For suspended ceiling with panel installed



- (b) For ceiling without panel



Installation Details for Air Panel

- The details of installation work for air panel shall be according to the Installation Manual.
- Check to ensure the proper connection of connectors between the indoor unit and air panel.

7.8. Refrigeration Piping

DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These gases are extremely dangerous and can cause an explosion. It is recommended nitrogen be used for those tests.

7.8.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select copper pipes based on Fig. below.
- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign matters before connecting pipes.

Unit: mm (in.)

Capacity of indoor unit(10 ³ BTU)	Gas Pipe	Liquid Pipe
09~22	Φ12.7(1/2) ※	Φ6.35(1/4)
24~54	Φ15.88(5/8) ※	Φ9.53(3/8)

7.8.2 Piping Connection

- (1) The connection point and diameter of piping are shown in Figs below.

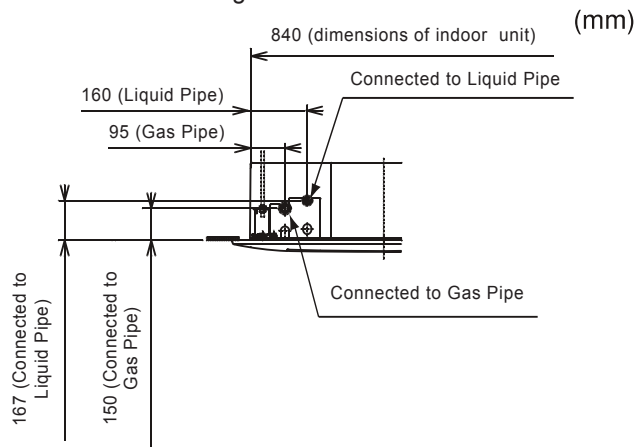
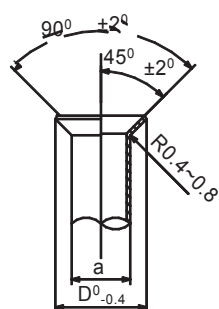


Fig. Pipe Connection Points

※ Since the nut cap connected at gas pipe is designed exclusively for R410A, the piping flaring connected for off-factory installation is adjusted as compared with R22 and R407C. Please perform the processing operation based on the dimensions shown below: (See Fig.)

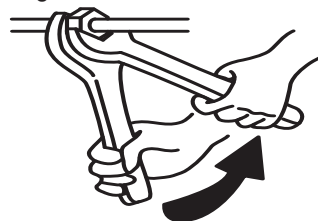


Unit: mm (in.)

Outside Diameter of Piping (a)		Φ12.7 (1/2)	Φ15.88 (5/8)
Outside Diameter of Flaring (D)	R22, R407C	16.2	19.4
	R410A	16.6	19.7

Fig. Flaring

- (2) As shown in Fig. two spanners shall be used for tightening the nut



Pipe Size	Tightening Torque (N.m)
Φ6.35	20
Φ9.53	40
Φ12.7	60
Φ15.88	80
Φ19.05	100

Fig. Nut tightening torque

- (3) Insulate the refrigeration piping with field-supplied insulating pipe upon completion of refrigerant pipe connection. See Fig.

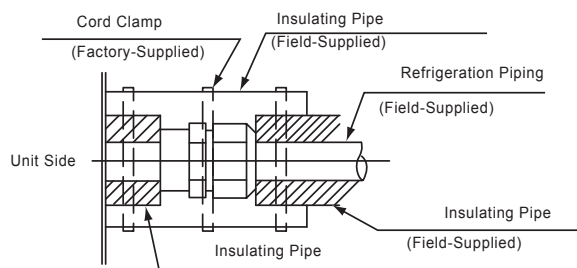
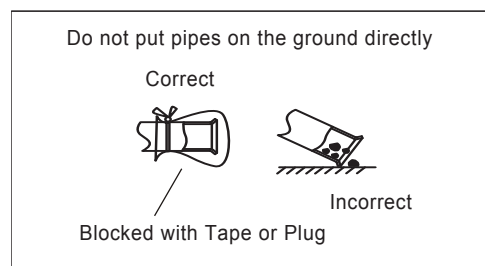


Fig. Insulation on Pipes

CAUTION

- Cap the end of the pipe when the pipe is to penetrate a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape arranged at the end of the pipe.



- (4) Discharging and Charging Refrigerant
Follow the Installation & Maintenance Manual for outdoor unit.

7.9 Drain Piping



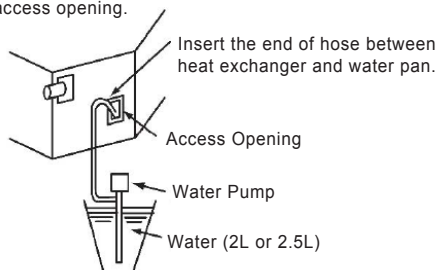
- The drain pipe installed shall slope down; otherwise, the condensate may flow back and leak into the room units, each indoor unit must be higher than the main. Select drain pipes in ample size depending on the refrigerating capacity and quantity of indoor units. when the indoor unit is turned off.
- The drain pipe shall not be connected with sewage pipe or other drain pipes.
- Where the main drain is connected to other indoor
- Check if water flows without obstruction following the procedure shown below after the proper connection of wires and drain pipes.

A. Turn on the power.

B.Fill the water pan with 2L or 2.5L of water.

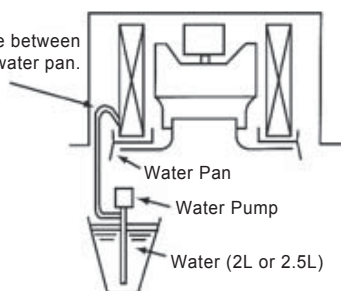
C. Check and ensure the water flows without obstruction and no leakage exists. Pour 2L of water if no water flows out of pipe end.

- Inject water via access opening.
-
- Insert the end of hose between heat exchanger and water pan.
- Access Opening
- Water Pump
- Water (2L or 2.5L)



- Inject water via air outlet.

Insert the end of hose between heat exchanger and water pan.



- (1) The position of the drain pipe connection is shown below.

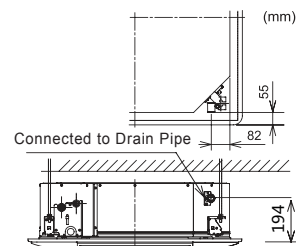


Fig. Position of Drain Pipe Connection

- (2) Prepare a polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tubing to the drain hose with the adhesive agent and the factory-supplied clamp. The drain piping must be performed with a down-slope pitch of 1/25 to 1/100.

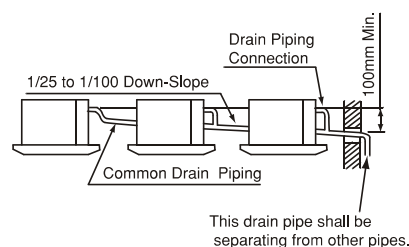
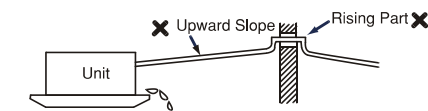
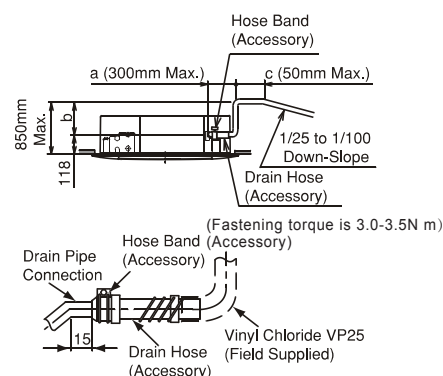
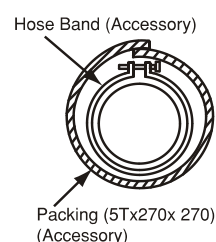


Fig. Drain Piping

- The total length of a+b+c shall be within 1,100mm.
- In case of lifting the drain pipe at the outlet part, perform the drain piping work as shown in the above figure.

- (4) Insulate the drain pipe after connecting the drain hose.



CAUTION

Where the relative humidity of air inlet or ambient air exceeds 80%, an auxiliary water pan shall be fabricated at installation site and placed under the indoor unit, as shown in Fig. below.

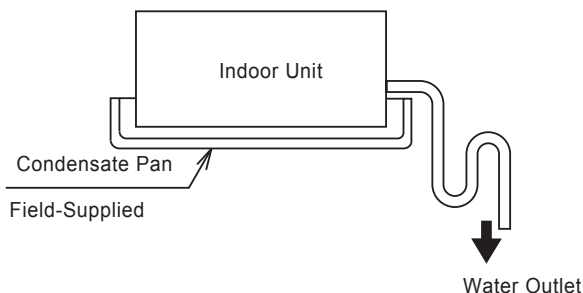


Fig. Auxiliary Water Pan

7.10 Electrical Wiring

WARNING

- Turn OFF the main power switches to the indoor unit and outdoor unit before electrical wiring or periodical check, and wait for at least three minutes.
- Check to ensure the indoor and outdoor fans have stopped before electrical wiring or periodical check.
- Protect the wires, drain pipes, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts, which may lead to a fire.

CAUTION

- Wrap the wires with adhesive tape or other materials and plug the wiring connection hole with seal material to protect the product from any condensate water or insects.
- The electrical box entrance hole shall be designed with wire clamp that must be tightened to address tension requirements when penetrated by wires.
- Secure the remote controller wire in electrical box with wire tie.
- Tighten screws to the following torques.

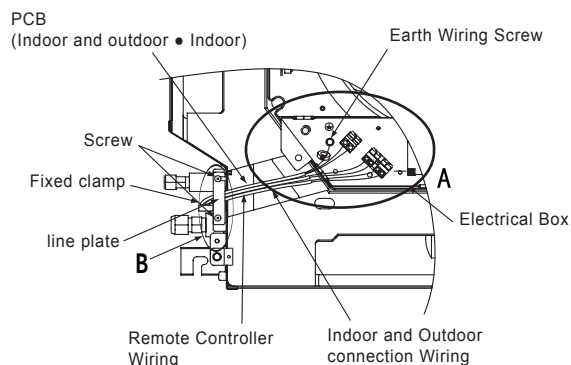
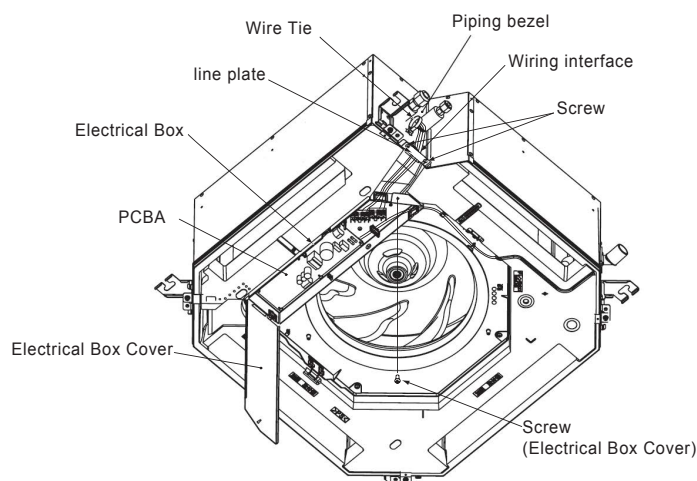
7.10.1 General Check

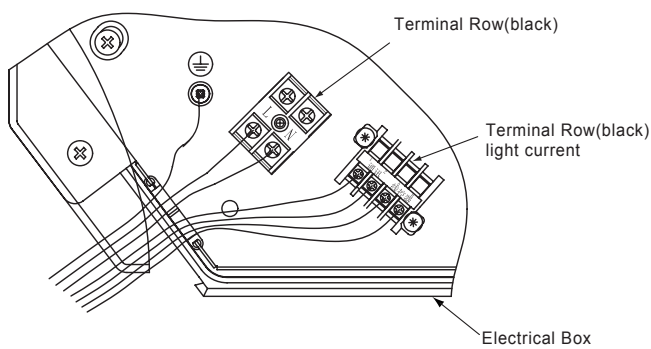
- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) comply with the National Electrical Code.
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage. The system can't be started in the case of excessively low supply voltage.
- (3) Check the power capacity.
- (4) Ensure the ground wire is connected.

7.10.2 Electrical Wiring Connection

The electrical wiring connection for indoor unit is shown in Fig. below.

- (1) Connect transmission wiring to the PBC in electrical box through the connection hole on electrical box.
- (2) Connect the power wiring and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in electrical box.





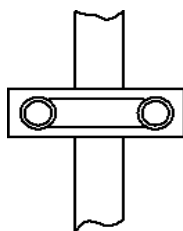
A larger Image

⚠ CAUTION

- Wiring is connected to the terminal row, be sure to use wire tie binding, wiring must be placed in the chute, to prevent the squeeze, a fire.

Power cord fastening method :

1. Clamp the power cord through the solid thread, as shown in the figure on the right.
2. The fixing clamp is mounted on the piping plate and the screw is scrim.



B larger Image

Fig. Electrical Wiring Connection for Indoor Unit

■ To provide the minimum size of the power cord in the field, please follow the relevant national laws.

Capacity of indoor unit (10 ³ BTU)	power source	Maximum Current	Power Cord Size	Communication Wire Size
09~30	220V-240V~50/60Hz	1.0A	2.5mm ²	0.75mm ²
38~54		1.8A		
Totle Current (A)		Power Cord(mm ²)		※1 In the case that current exceeds 63A, do not connect cables in series.
I≤6		2.5		
6<I≤10		2.5		
10<I≤16		2.5		
16<I≤25		4		
25<I≤32		6		
32<I≤40		10		
40<I≤63		16		
63<I		※1		

Note:

- (1) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.
- (2) Refer to relevant standards for above-noted power cord size.
- (3) Where power cord is connected through junction box in series, be sure to determine the total current and choose wires based on the table above.
- (4) As a minimum, the chosen power cord shall be compliant with requirements on neoprene sheathed wire #57 as stated in IEC60245-1, while the power cord shall be made from copper conductor.
- (5) The wiring specifications for weak-current communication circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.
- (6) A switch that can ensure all-pole disconnection shall be installed between power supply and air conditioning unit in such a manner that the contact spacing shall not be less than 3mm.
- (7) Once the power cord is damaged, the dealer or the professionals from designated maintenance department must be contacted in a timely manner for repair and replacement.
- (8) For the installation of power cord, the ground wire must be longer than the current-carrying conductor.

7.11 Test Run

Test run should be performed according to the Installation & Maintenance Manual.



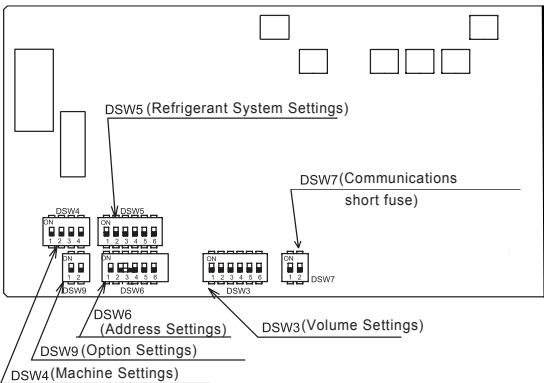
- Do not operate the system until all the check points are cleared.
- (A) Check to ensure the electrical resistance between terminal and ground is more than 1 MΩ. If this is not the case, do not operate the system until the electrical leakage is found and repaired.
- (B) Check to ensure the stop valves of outdoor unit are fully opened, and then start the system.
- (C) Check to ensure the switch on main power source has been ON for more than 4 hours to warm the compressor by heater.
- Pay attention to the following items while the system is running.
- (A) Do not touch any of the parts by hand at the discharge gas side, since the temperatures of compressor chamber and the pipes at the discharge side are higher than 90°C.
- (B) DO NOT PUSH THE BUTTON OF THE AC CONTACTOR. It will cause a serious accident.

7.12 Common

7.12.1 Field Operation

7.12.1.1 Setting of Dip Switches

- (1) DIP switch must be set with power sources of the indoor and outdoor units in OFF state. Otherwise, the settings are invalid.
- (2) The DIP switches are located as shown in the figure below.



- (3) 6 dip switches are arranged on the PCB of indoor unit, and must be set based on the following instructions before test run. The system shall not be started before the completion of dip switch setup.

- (a) Address of indoor units (DSW6): All indoor units must be numbered in sequence based on the diagram below. Outdoor units must be numbered from "0".

	DSW6 (Setting 0~63)	Ex.) Set address No.16
Setting Method	1 2 3 4 5 6 ON OFF Note: 8421 coding method	1 2 3 4 5 6 ON OFF No.5 is ON

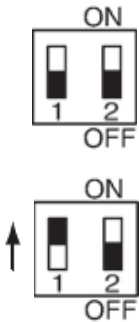
- (b) Refrigeration system cycle No. (DSW5) is required to be set. All are set to OFF before shipment.

	DSW5 (Setting 0~63)	Ex.) Set system No.16
Setting Method 2	1 2 3 4 5 6 ON OFF Note: 8421 coding method	1 2 3 4 5 6 ON OFF No.5 is ON

- (c) Safety reset (DSW7)

*Factory settings

Once strong current is accidentally connected to Terminals 1 and 2 of TB2, the PCB fuse will be blown. In such a case, it's essential to correct the wiring and then to set switch No. 1 to ON position.



Note:

Symbol "■" indicates the location of DIP switch. The position indicated in the diagram is in the factory-set state.

CAUTION

The power supply shall be turned off before the setup of DIP switch. Otherwise, the settings will be invalid.

7.12.1.2 Setting of Fan Speed

The air volume can be changed by performing external static pressure setup ("C5") on wired controller. Please refer to the wired controller Installation & Maintenance Manual.

Height of Ceiling		Setting of Wire Controller
09~24	27~54	
2.7m max.	3.2m max.	C5=00
2.7~3.0m	3.2~3.6m	C5=01
3.0~3.5m	3.6~4.2m	C5=02

8. Mini 4-Way Cassette Type

8.1 General Data

Indoor unit		Mini 4-Way Cassette Type		
Model Power supply	AC 1φ, 220~ 240V/50Hz(60Hz)	AVC-05HJFA	AVC-07HJFA	AVC-09HJFA
	kW	1.5	2.2	2.8
Nominal Cooling Capacity	kcal/h	1300	1900	2400
	Btu/h	5100	7480	9520
	kW	2.0	2.5	3.3
Nominal Heating Capacity	kcal/h	1700	2100	2800
	Btu/h	6800	8500	11220
Cooling Power Consumption	kW	0.014	0.014	0.014
Heating Power Consumption	kW	0.014	0.014	0.014
Cooling Operating Current	A	0.15	0.15	0.15
Heating Operating Current	A	0.15	0.15	0.15
Noise Level(Slo/Lo/Me/Hi)	Sound Pressure- dB(A)	26/28/29/30	26/28/29/30	26/28/30/32
	H(mm)	215	215	215
Outer Dimensions	W(mm)	570	570	570
	D(mm)	570	570	570
Net Weight	kg	14.5	14.5	14.8
Air Flow Rate(Slo/Lo/Me/Hi)	m ³ /h	335/370/390/430	335/370/390/430	350/390/430/470
Motor Power	W	57	57	57
Piping Connections		Flare-nut Connection(with Flare Nuts)		
Liquid Line	mm	φ6.35	φ6.35	φ6.35
Gas Line	mm	φ12.7	φ12.7	φ12.7
Condensate Drain		VP25(Outer Diameter Ø32mm)		
Approximate Packing Measurement	m ³	0.142	0.142	0.142
Standard Accessories		Suspension Drackets		
Panel Model		HPE-D-NK		
Cabinet Color		Neutral White		
	H(mm)	37	37	37
Outer Dimensions	W(mm)	620	620	620
	D(mm)	620	620	620
Net Weight	kg	2.7	2.7	2.7
Packing Volume	m ³	0.046	0.046	0.046

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)
 Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)
 Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.
 1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor unit		Mini 4-Way Cassette Type			
Model	Power supply	AVC-12HJFA	AVC-15HJFA	AVC-17HJFA	AVC-19HJFA
	AC 1φ, 220~ 240V/50Hz(60Hz)				
	kW	3.6	4.5	5.0	5.6
Nominal Cooling Capacity	kcal/h	3100	3800	4300	4800
	Btu/h	12240	15300	17000	19040
Nominal Heating Capacity	kW	4.2	5.0	5.6	6.3
	kcal/h	3600	4300	4800	5400
	Btu/h	14280	17000	19040	21420
Cooling Power Consumption	kW	0.016	0.022	0.030	0.040
Heating Power Consumption	kW	0.016	0.022	0.030	0.040
Cooling Operating Current	A	0.16	0.23	0.30	0.39
Heating Operating Current	A	0.16	0.23	0.30	0.39
Noise Level(Slo/Lo/Me/Hi)	Sound Pressure- dB(A)	26/29/32/34	28/31/36/38	31/36/39/42	34/38/42/45
	H(mm)	215	215	215	215
Outer Dimensions	W(mm)	570	570	570	570
	D(mm)	570	570	570	570
Net Weight	kg	14.8	15.8	15.8	15.8
Air Flow Rate(Slo/Lo/Me/Hi)	m³/h	350/390/430/490	400/424/524/560	424/524/570/660	480/560/650/750
Motor Power	W	57	57	57	57
Piping Connections		Flare-nut Connection(with Flare Nuts)			
Liquid Line	mm	φ6.35	φ6.35	φ6.35	φ6.35
Gas Line	mm	φ12.7	φ12.7	φ12.7	φ12.7
Condensate Drain		VP25(Outer Diameter Ø32mm)			
Approximate Packing Measurement	m³	0.142	0.142	0.142	0.142
Standard Accessories		Suspension Drackets			
Panel Model		HPE-D-NK			
Cabinet Color		Neutral White			
	H(mm)	37	37	37	37
Outer Dimensions	W(mm)	620	620	620	620
	D(mm)	620	620	620	620
Net Weight	kg	2.7	2.7	2.7	2.7
Packing Volume	m³	0.046	0.046	0.046	0.046

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)
 Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)
 Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

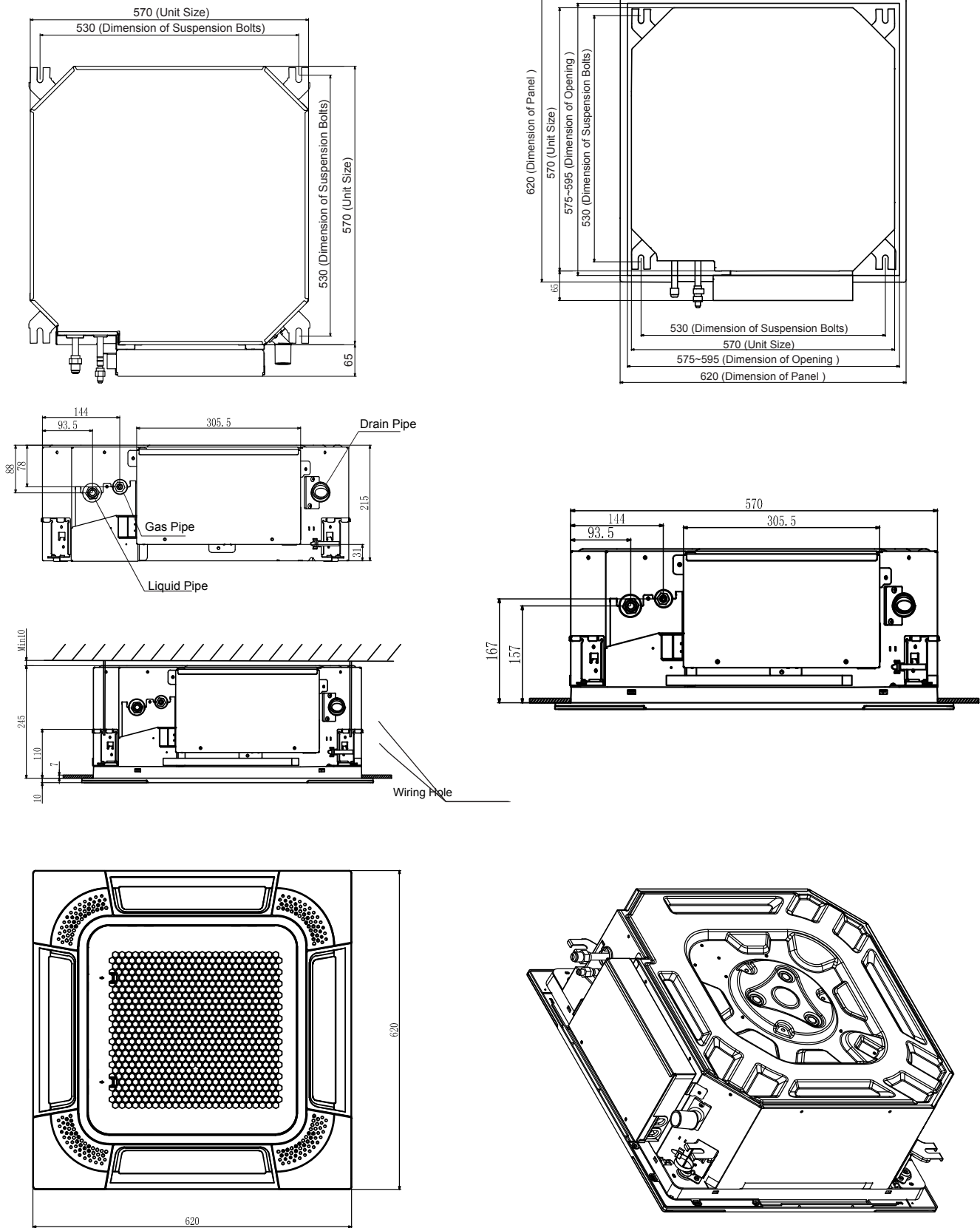
1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

8.2 Dimensional Data

Models: AVC-05~19*

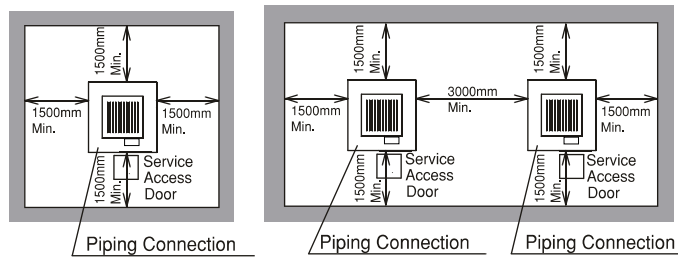
Unit:mm



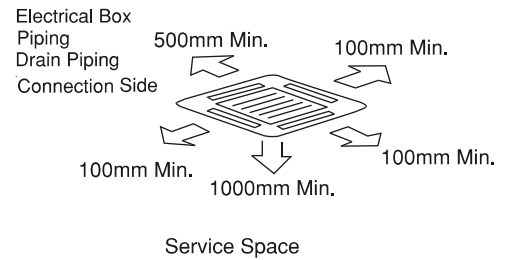
8.3 Selection Data

● Service Space

Models: AVC-05~19*



Distance from Wall Side



● Sensible Heat Factor (SHF)

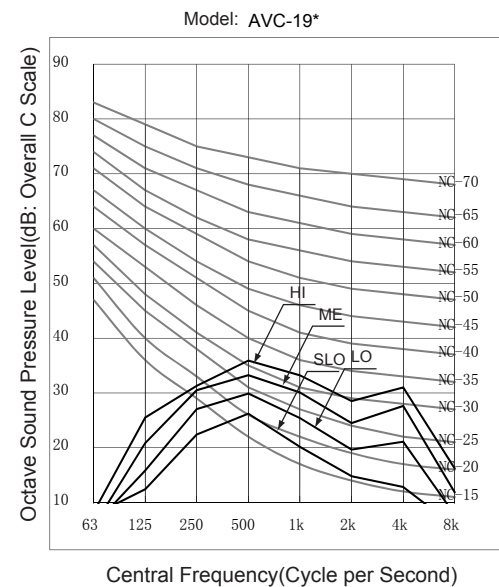
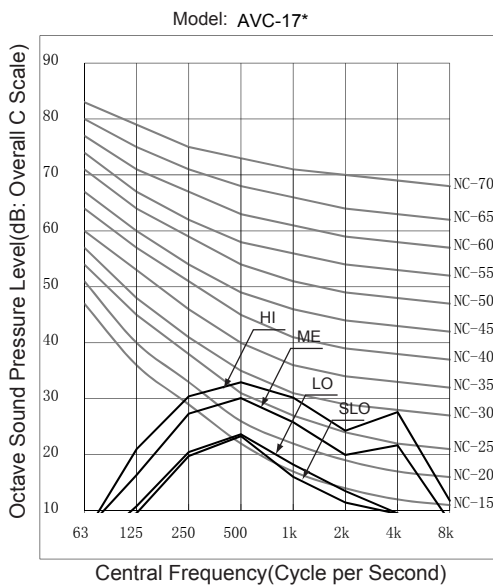
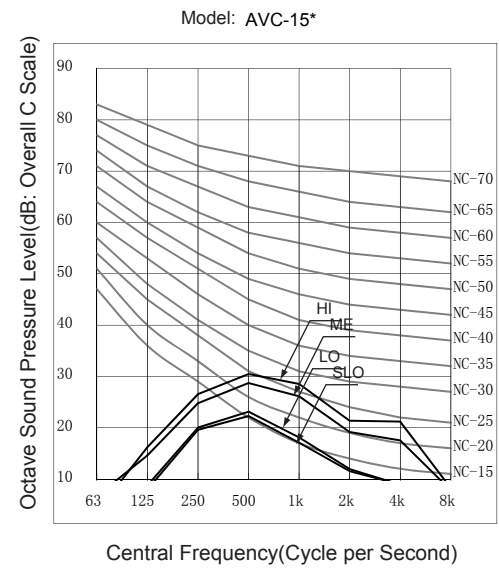
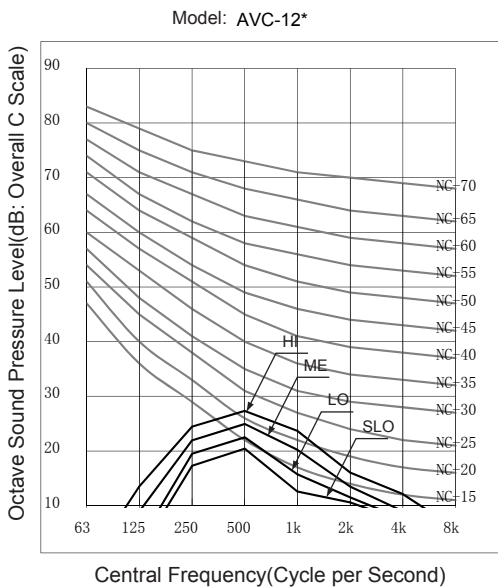
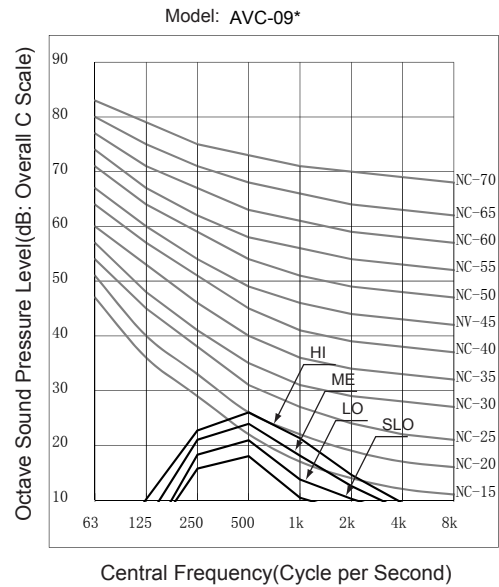
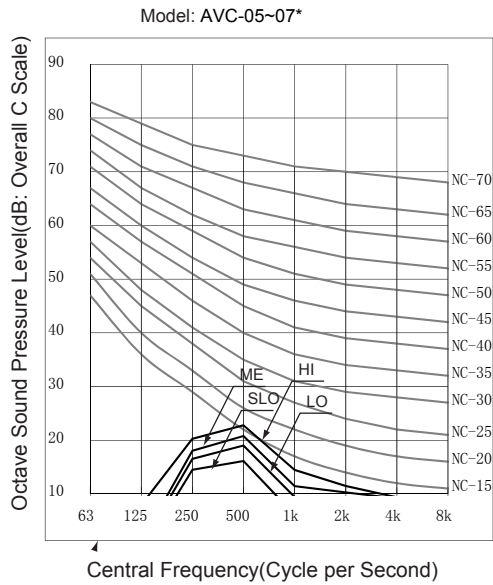
The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF			
	HI	ME	LO	SLO
AVC-05*	0.70	0.68	0.68	0.68
AVC-07*	0.70	0.68	0.68	0.68
AVC-09*	0.64	0.62	0.62	0.62
AVC-12*	0.64	0.62	0.62	0.62
AVC-15*	0.63	0.61	0.61	0.61
AVC-17*	0.63	0.61	0.61	0.61
AVC-19*	0.63	0.61	0.61	0.61

● Sound Data

Noise Criteria Curve

Measurement Point: 1.5 Meters Beneath the Unit Power Supply: 220-240V~50Hz/60Hz

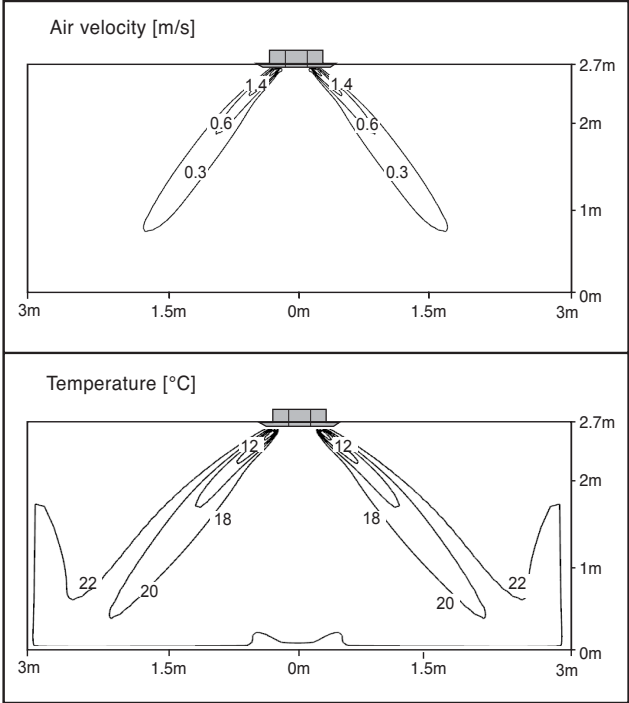


● Temperature Data

AVC-05*

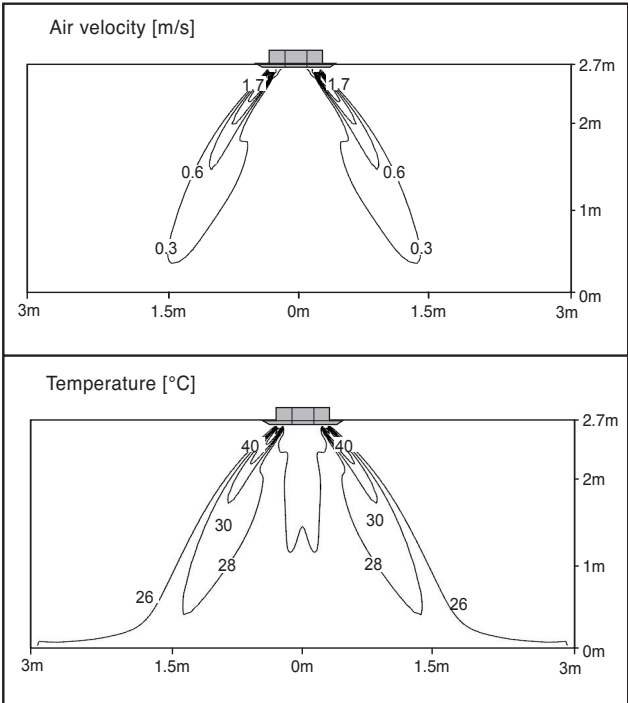
Cooling

Discharge angle: 40°



Heating

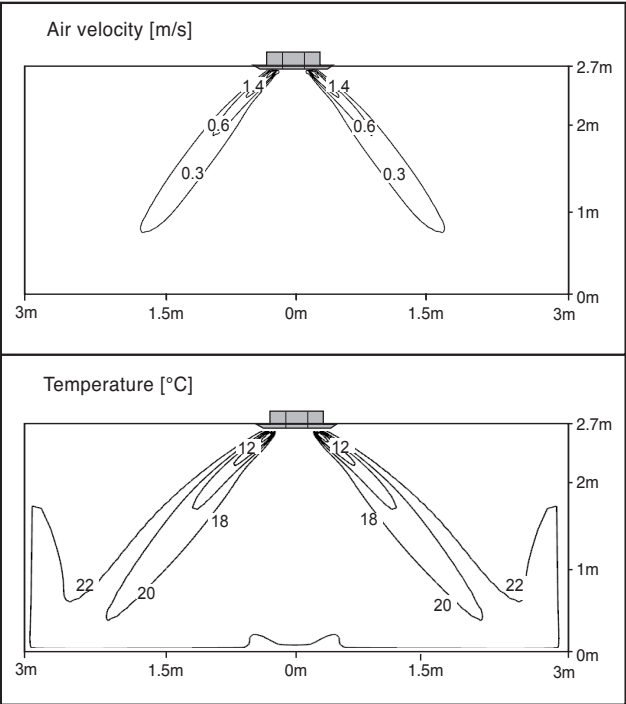
Discharge angle: 50°



AVC-07*

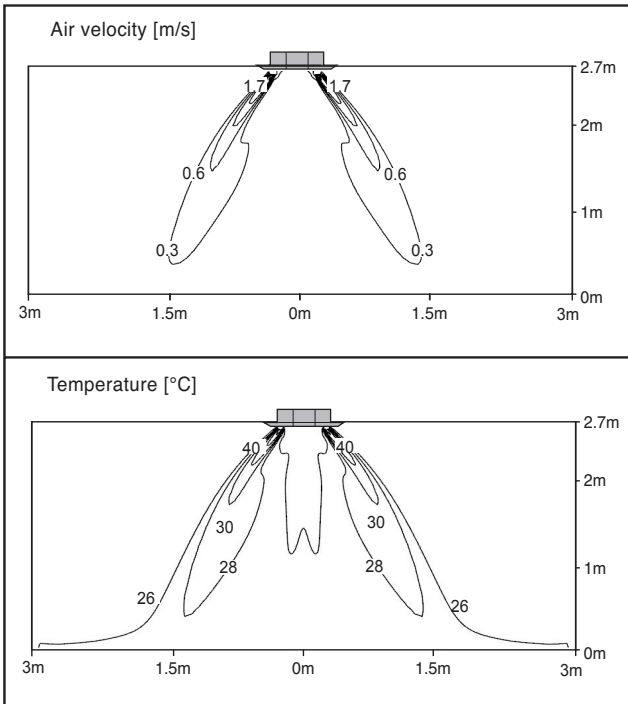
Cooling

Discharge angle: 40°



Heating

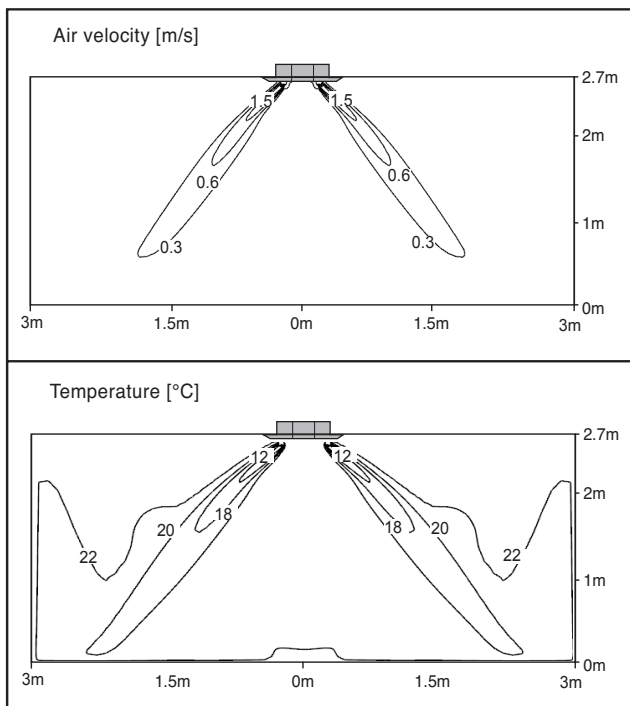
Discharge angle: 50°



AVC-09*

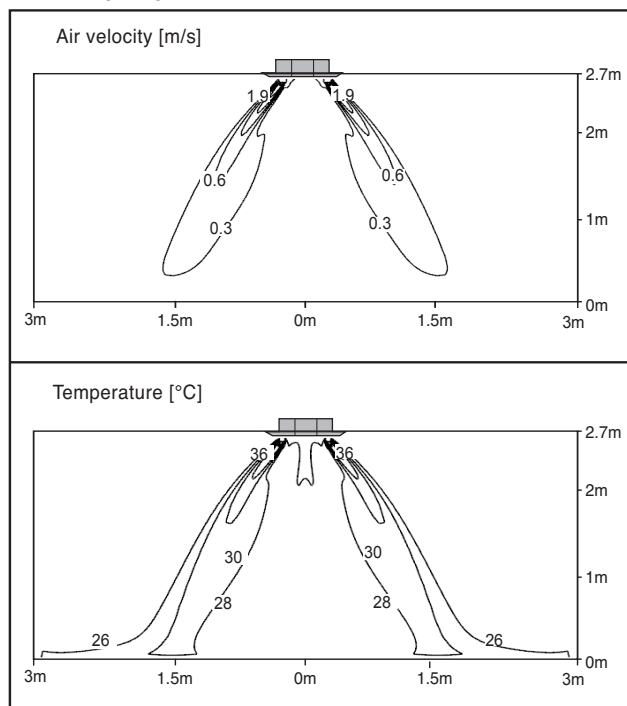
Cooling

Discharge angle: 40°



Heating

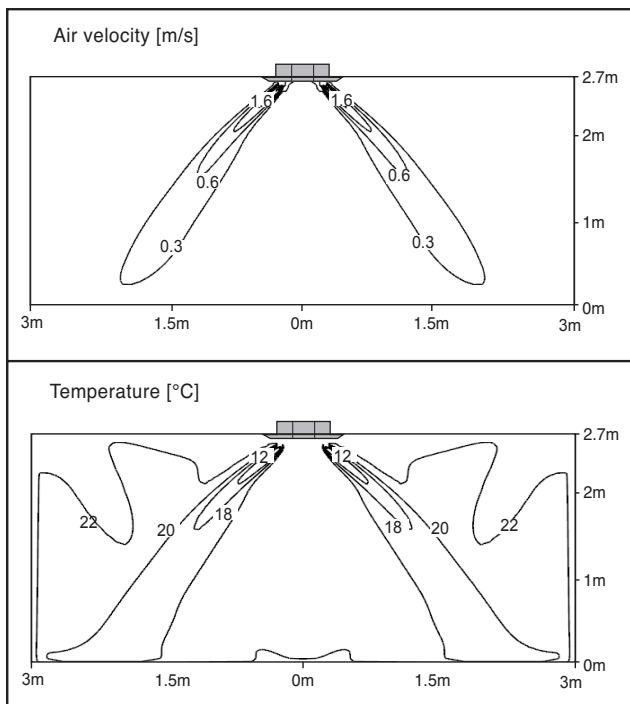
Discharge angle: 50°



AVC-12*

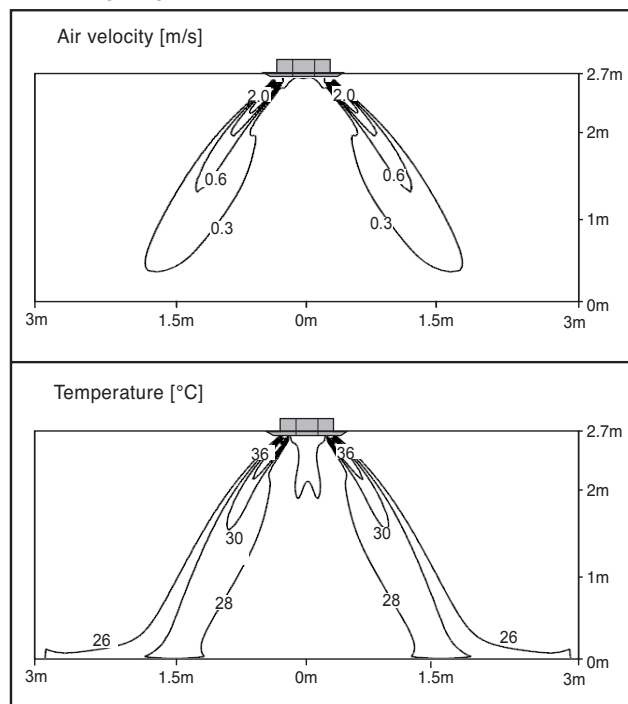
Cooling

Discharge angle: 40°



Heating

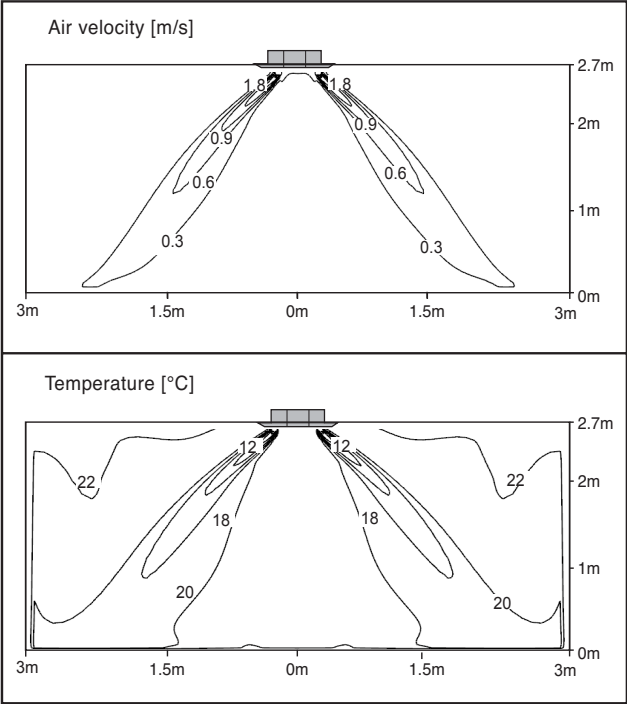
Discharge angle: 50°



AVC-15*

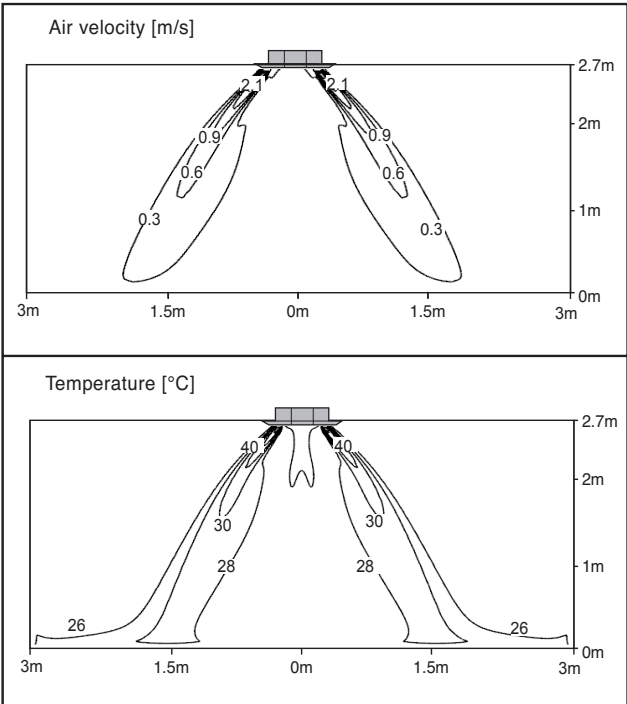
Cooling

Discharge angle: 40°



Heating

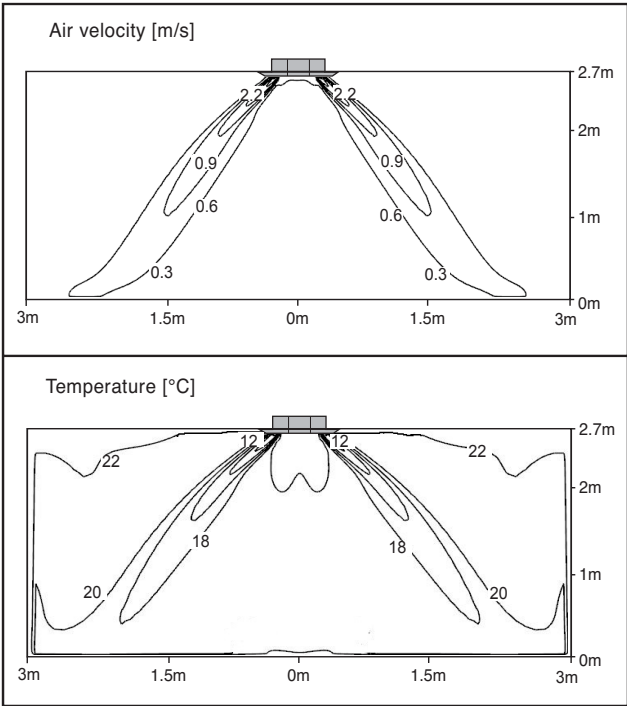
Discharge angle: 50°



AVC-17*

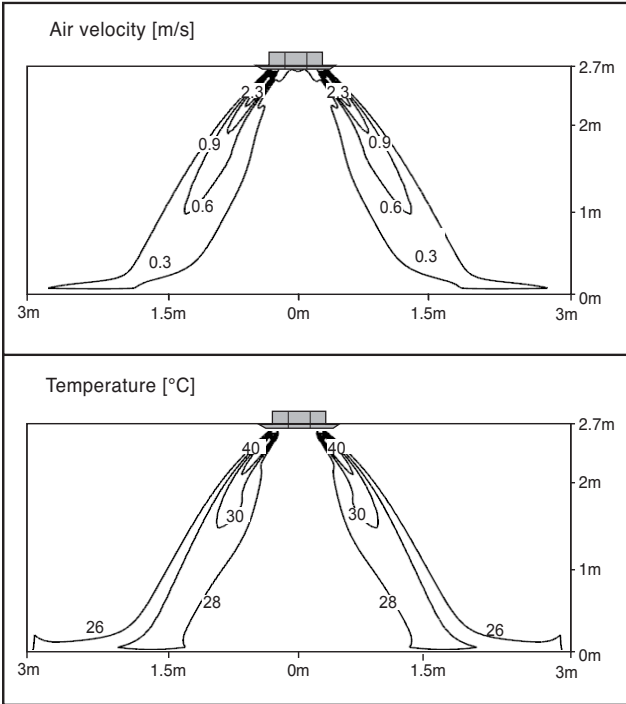
Cooling

Discharge angle: 40°



Heating

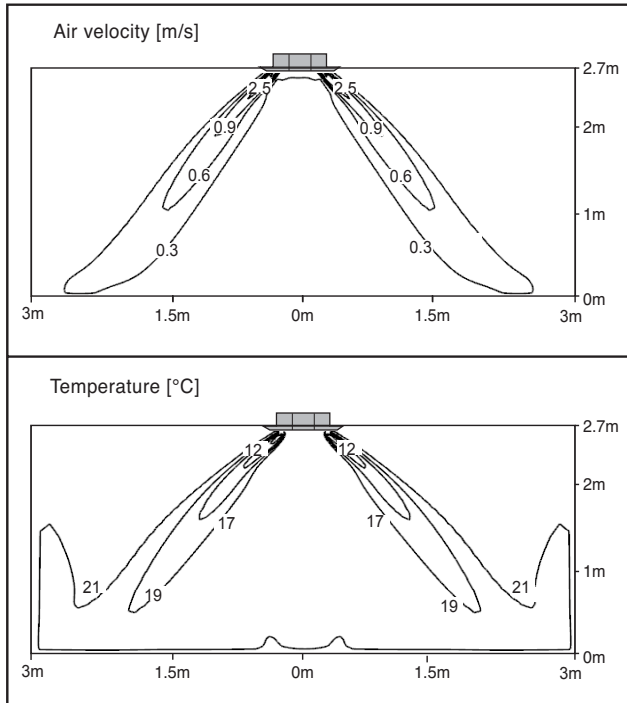
Discharge angle: 50°



AVC-19*

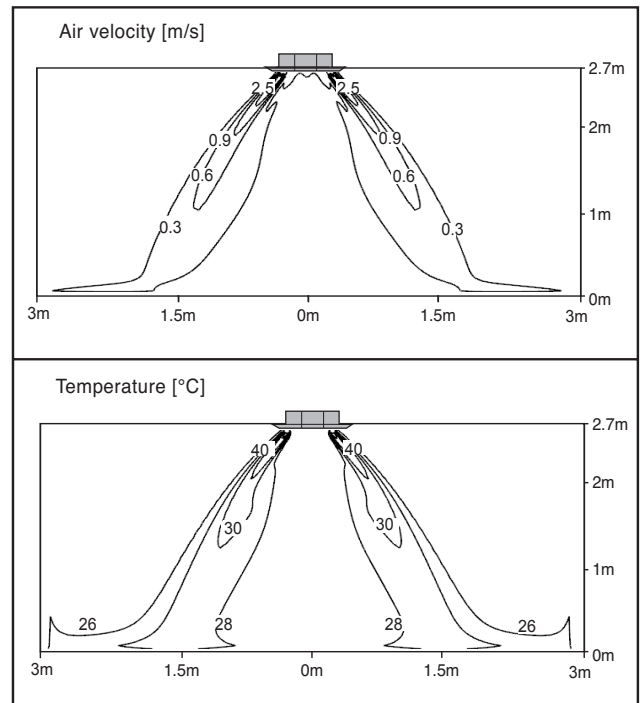
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°

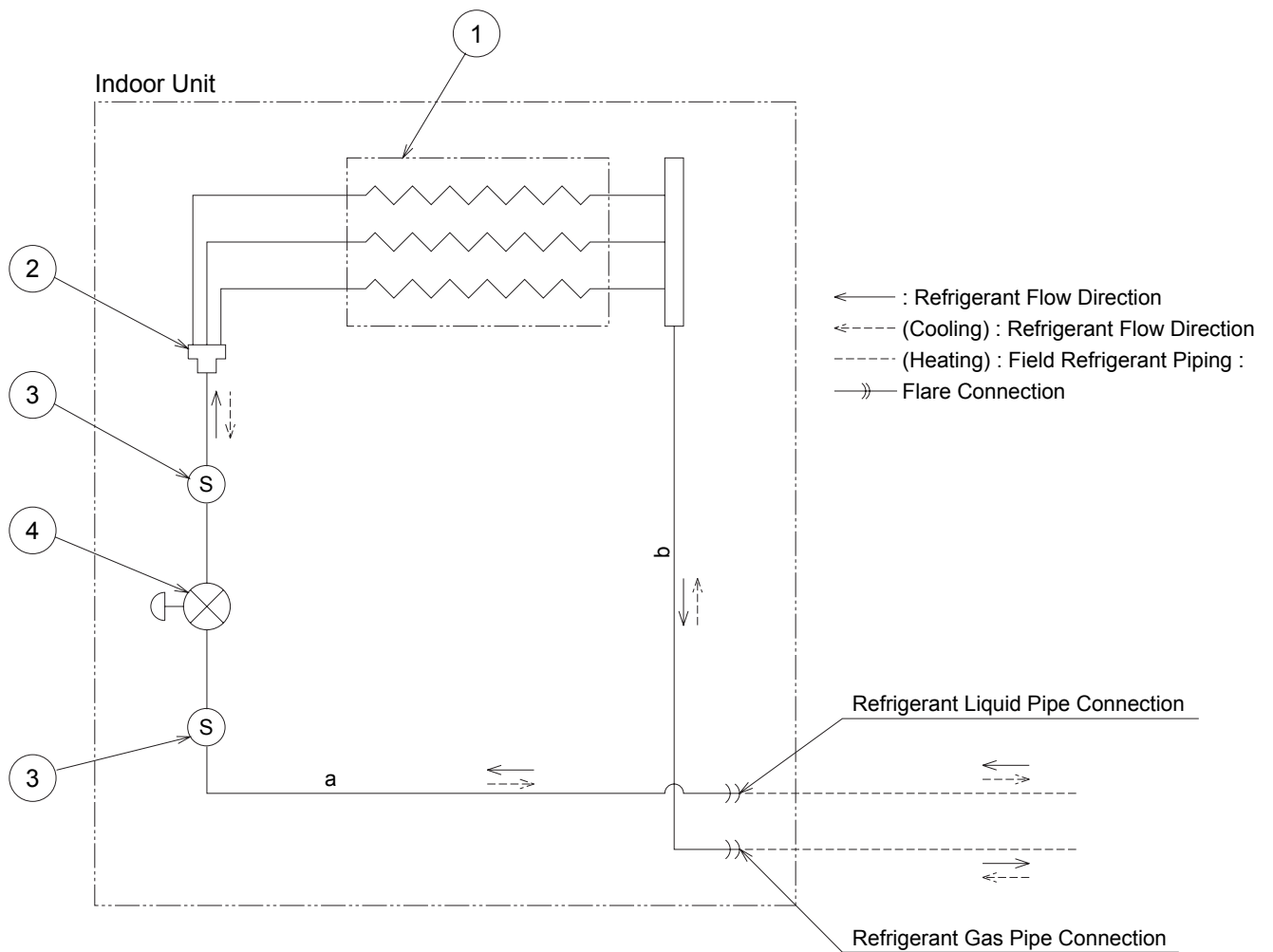


8.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVC-05*	AVC-07*	AVC-09*	AVC-12*	AVC-15*	AVC-17*	AVC-19*
Heat Exchanger Type	—	Multi-Pass Cross Finned Tube						
Tube Material		Copper Tube						
Outer Diameter	mm	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Rows	—	2	2	2	2	3	3	3
Fin Material		Aluminum						
Pitch	mm	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Maximum Operating Pressure	Mpa	4.15	4.15	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.17	0.17	0.20	0.20	0.20	0.20	0.20
Number of Coil/Unit	—	1	1	1	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan						
Number/Unit	—	1	1	1	1	1	1	1
Outer Diameter	mm	322	322	322	322	322	322	322
Revolution(220V) (Slo/Lo/Me/Hi)	rpm	400/435/460/500	400/435/460/500	400/435/480/515	420/450/500/550	480/515/600/650	500/600/650/740	560/650/740/830
Nominal Air Flow (Slo/Lo/Me/Hi)	m ³ /h	335/370/390/430	335/370/390/430	350/390/430/470	350/390/430/490	400/424/524/560	424/524/570/660	480/560/650/750
Indoor Fan Motor		Drip-Proof Type Enclosure						
Starting Method	—	DC Driven						
Nominal Output	W	57	57	57	57	57	57	57
Quantity	—	1	1	1	1	1	1	1
Insulation Class	—	E	E	E	E	E	E	E

8.5 Refrigeration Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

8.6 Electrical Data

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor	
		VOL	PH	HZ	Maximum	Minimum	RNC	IPT
Mini 4-Way Cassette Type	AVC-05*	220~240	1	50/60	264	198	0.25	0.08
	AVC-07*						0.25	0.08
	AVC-09*						0.25	0.08
	AVC-12*						0.25	0.08
	AVC-14*						0.25	0.08
	AVC-17*						0.25	0.08
	AVC-19*						0.25	0.08

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

Safety and Control Device Setting

Indoor Unit

Model			AVC-05~19*
For Evaporator Fan			
Motor Thermostat	Cut-Out	°C	100 ± 5
	Cut-In	°C	90 ± 15
For Control Circuit			
Fuse Capacity		A	5
Freeze Protection			
Thermostat	Cut-Out	°C	0
	Cut-In	°C	14
Thermostat		°C	
Differential			2

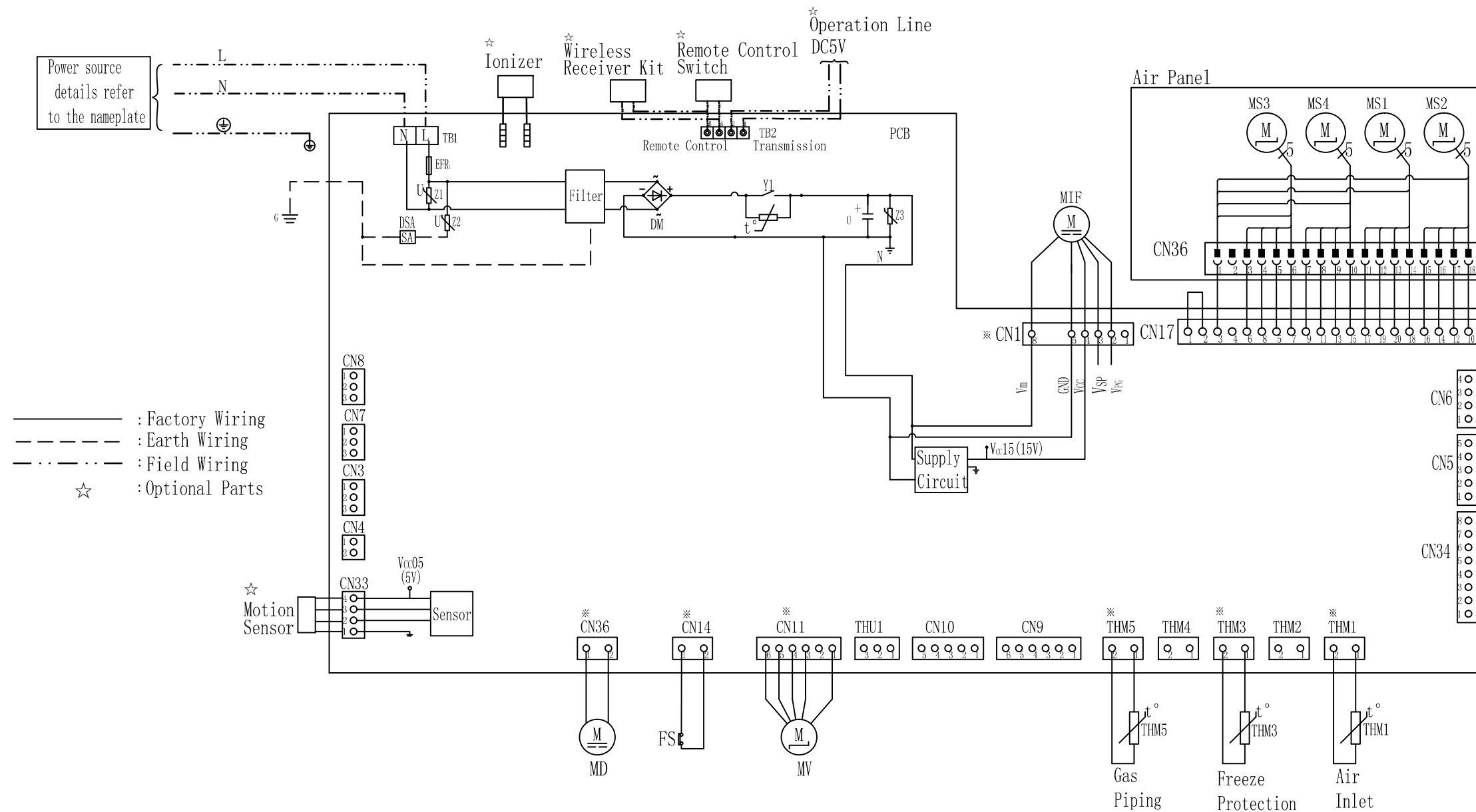
8.7 Electrical Wiring Diagram

HEAT PUMP

Model: AVC-05~19*



Before inspecting the electrical parts set the Operation Switch to OFF , and cut OFF the power supply.
--



Mark	Name
PCB	Printed Circuit Board
EF _R	Fuse
MF	Motor for Indoor Fan
MD	Motor for Drain Discharge Mechanism
MS _{1~4}	Motor for Automatic Swing Louver
MV	Micro-Computer Control Expansion Valve
FS	Float Switch
THM _{1,3,5}	Thermistor
Z _{1,2,3}	Varistor
DSA	Discharge Tube
DM	Rectifier Module

Note :

1. All the field wiring and equipment must comply with local codes.

8.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	mini 4-Way Cassette Type
Wire Remote Control Switch	HYXE-VA01	•
	HYXE-VB01	•
	HYXE-J01H	•
	HYXE-M01H	•
	HYXE-K01H	•
Wireless Remote Control Switch	HYE-W01	•
Duct Adapter	HFL-56CSA	•
Wireless Receiver Kit	HYRE-Z01H	•
Motion Sensor	HPS-MACN	•
7 Day Timer	HYDE-E01H	•
Control Station	HYJE-D01H	•
	HYJE-D02H	•
	HYJE-H01H	•
	HYJ-J01H	•
	HYJM-S01H	•
Anion Generator	HJK-ELZA	•
Interface for Building Control	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

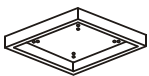
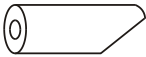
8.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Table : Factory-Supplied Accessories

Accessory		Q'ty	Purpose
Pattern Board (Carton Board)		1	For Adjusting Space of False Ceiling Opening and Position of the Unit
Washer (M10)		8	For Unit Installation
Drain Hose		1	For Drain Hose Connection
Hose Clamp		1	
Insulation (12ID)		1	For Refrigerant Piping Connection
Insulation (25ID)		1	
Cord Clamp		8	For Fixing Insulation of Piping
Bolt		2	_____
Sealing Gasket		2	_____

8.10 Installtion

8.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig. below.
- Provide a service access door near the unit piping connection area on the ceiling.
- Check to ensure that the ceiling has a sufficient strength to hang the indoor unit.
- Check the ceiling surface is flat for the air panel installation work.

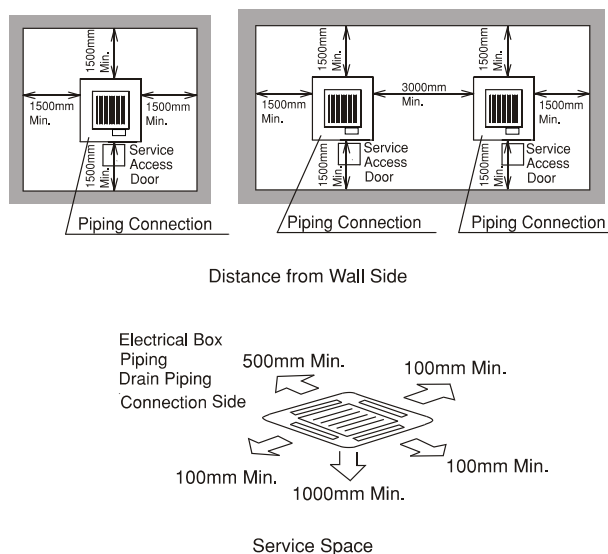


Fig. Space around Indoor Unit

- Select the installation location as follows:
 - (A) Minimum Space
 - (B) Down Slope Pitch of Drain Piping: 1/25~1/100

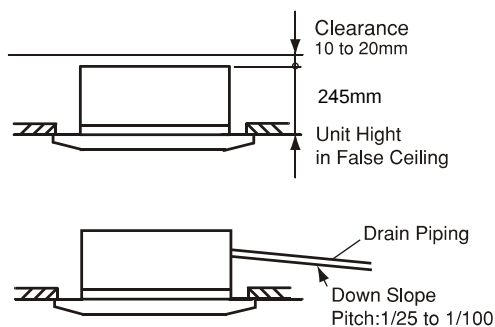


Fig. Installation Location of Indoor Unit

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
It is recommended that the indoor unit be installed 2.5 meters from the floor level. If the unit is installed higher, it is also recommended that the Fan Motor Speed-up Setting so that uniform air distribution is available.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit.
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.

- (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment. In an application where the indoor unit is to be utilized under such environmental conditions, it is recommended that the corrosion-proof type unit be used.

! WARNING

Check to ensure that the number of below is within $0.3\text{kg}/\text{cm}^3$. Otherwise it may cause danger situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.

$$\frac{(\text{Total Refrigerant Quantity per one Outdoor Unit})}{(\text{Volume of the room where this Indoor Unit is installed.})} \leq 0.3\text{kg}/\text{m}^3$$

In detail, refer to the Installation Manual for outdoor unit.

8.10.2 Installation

● Opening of False Ceiling and Suspension Bolts

- (1) Determine the final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Cut out the area for the indoor unit in the false ceiling and install suspension bolts, as shown in Fig. below.

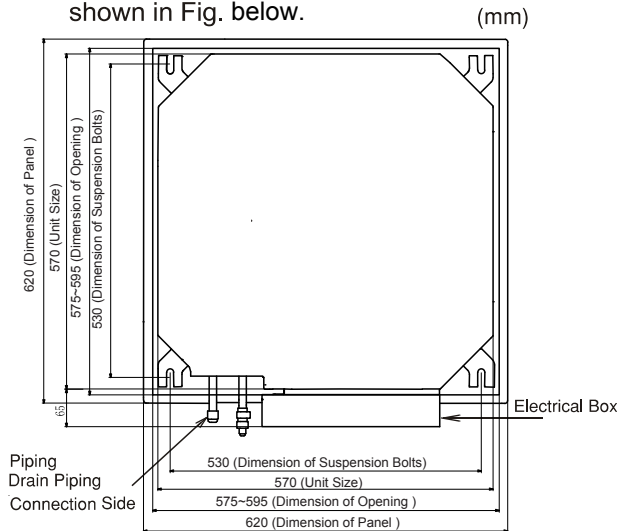
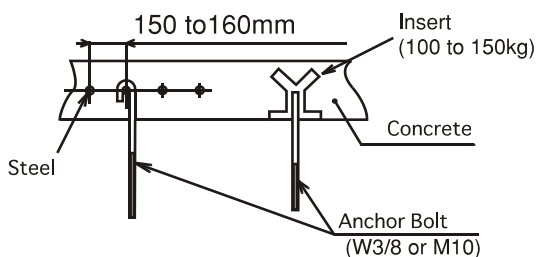


Fig. Opening of False Ceiling and Suspension Bolts

- (3) Check to ensure that the ceiling is horizontally level, otherwise drainage can not flow.
- (4) Strengthen the opening parts of the false ceiling.
- (5) Mount suspension bolts, as shown in Fig. below.

• For Concrete Slab



• For Steel Beam

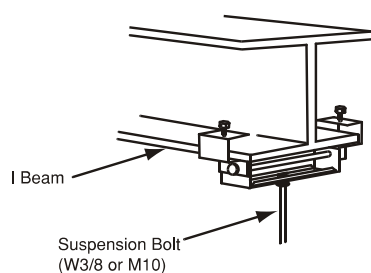


Fig. Mounting the Suspension Bolts

● Mounting Position of the Indoor Unit

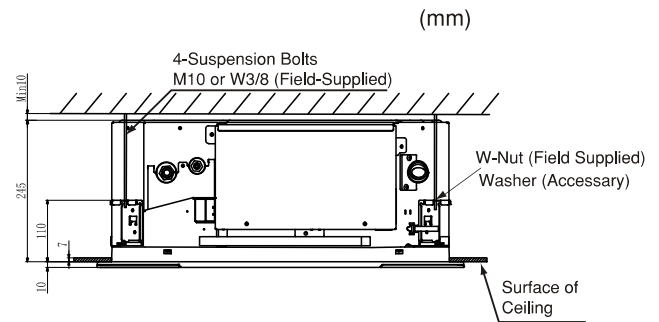


Fig. Mounting Position

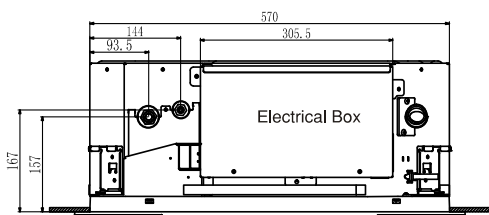


Fig. Indoor Unit and Air Panel

● Mounting the Indoor Unit

- (1) Mount the nuts and washers to the suspension bolts.

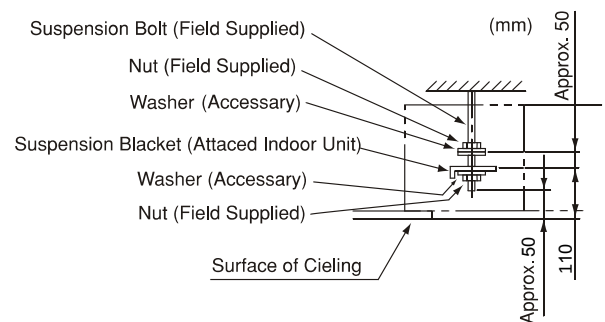


Fig. Mounting Nuts and Washers

- (2) Lift the Indoor Unit by hoist, and do not put any force on the drain pan.

- (3) Secure the indoor unit using the nuts, washers.

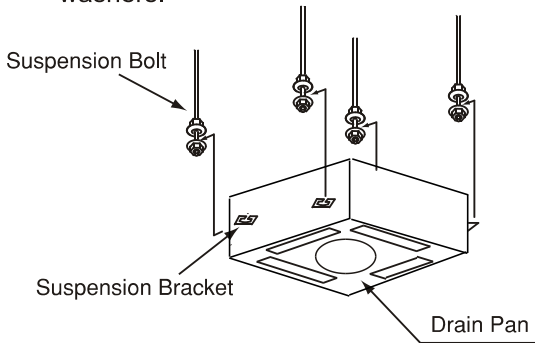


Fig. Mounting the Indoor Unit

NOTE

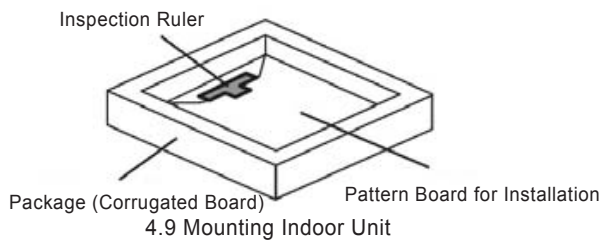
If a false ceiling has already been installed, complete all piping and wiring work inside the ceiling before hooking-up the indoor unit.

CAUTION

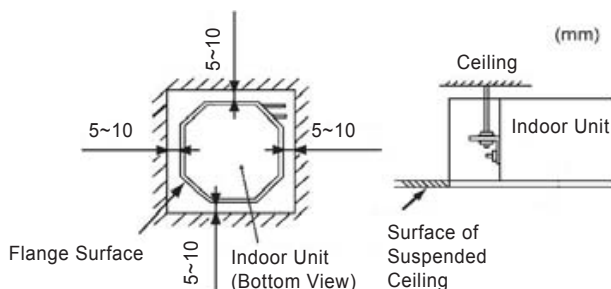
- Check the level of the drain pan using a water level to avoid incorrect operation of the drain discharge mechanism in the indoor unit. The drain piping side of the indoor unit must be approximately 5mm lower than the other part.
- Tighten the nuts of the suspension brackets after the adjustment is completed. Apply LOCK-TIGHT paint* to the bolts and nuts in order to prevent them from loosening. If not done, abnormal noises or sounds may occur and the indoor unit may fall down.

LOCK-TIGHT paint*: Paint the lock bolts and nuts.

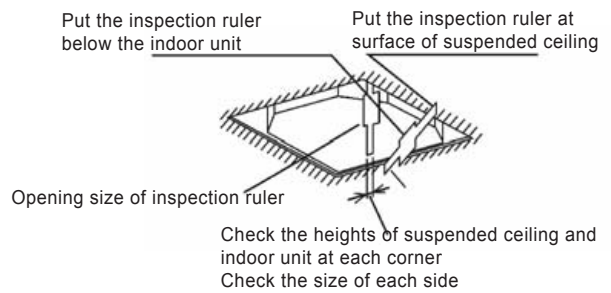
- (1) The pattern board for installation is in the packing carton. Please cut it off.



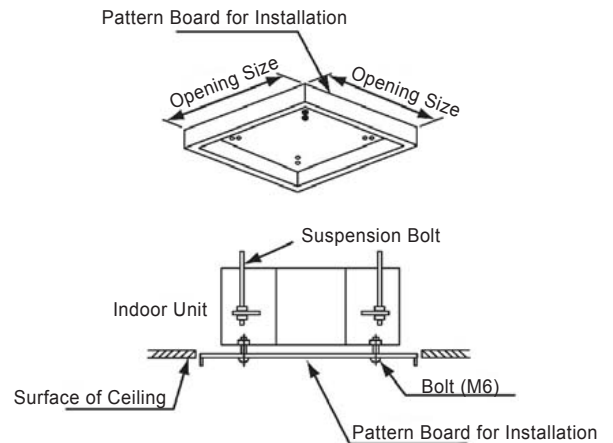
- (2) Adjust the indoor unit to the correct position using the factory-supplied inspection ruler



- (a) For suspended ceiling with panel installed



- (b) For ceiling without panel



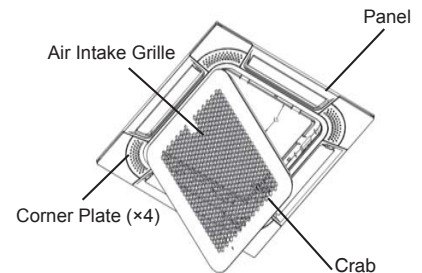
Installation Details for Air Panel

- The details of installation work for air panel shall be according to the Installation Manual.
- Check to ensure that the connection of connectors between the indoor unit and the air panel.

(1) Removing Air Intake Grille from Air Panel

Step 1

Remove the air intake grille. Push the grab of air intake grille away in the direction of arrow as shown in the figure, and open the air intake grille until its angle to panel surface is approx. 45°.



* Slide the knobs toward the allow direction

Fig. Method for Removal of Air Intake Grille

NOTE

- * Do not touch the air louver during installation work.
- * Do not try to remove the grille while it is at an angle of 90° from the surface of the air panel.

Step 2

Hold the slope while putting up the air intake grille.

Step 3

Draw the air intake grille out forward.

(2) Installing Air Panel

Step 1

Remove the corner plate. Pull part ① in the direction of arrow shown in the figure below to remove the corner plate.

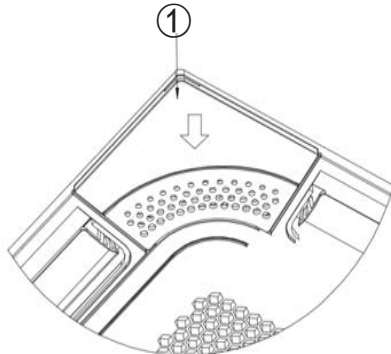


Fig. 2.2

Step 2

Please adjust and align the point indicating "Ref. Pipe Refrigerant Piping" on panel to the refrigerant piping of indoor unit.

Step 3

Please fasten the panel to the suspension leg of indoor unit through long screws (M6, cross) delivered as panel accessories.

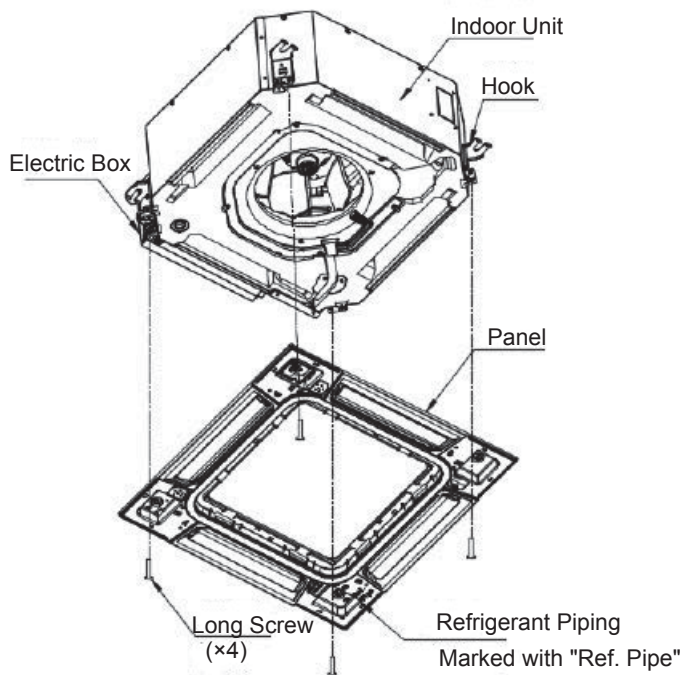


Fig. Installation

Step 4

Make sure the distance between bottom surfaces of indoor unit and ceiling is 30mm (see Fig 2.4 below).

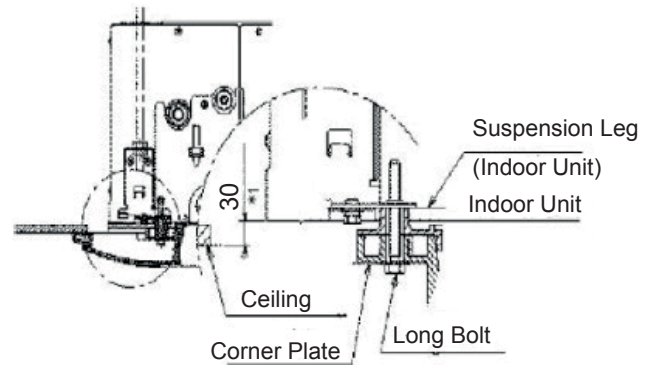
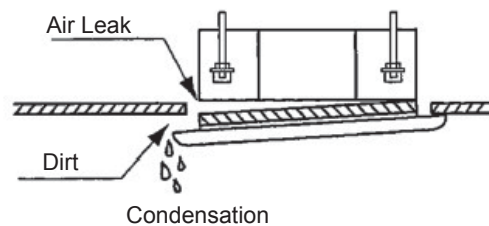


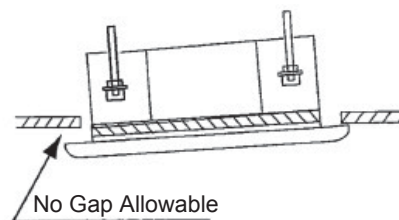
Fig. Side View of Panel

CAUTION

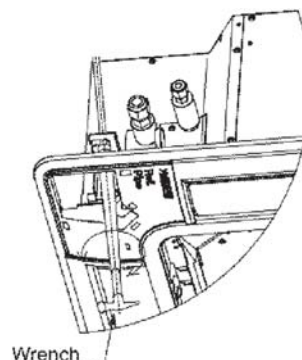
- Fasten the long bolts. The inadequate fastening of long bolts for panel may result in the defects shown in the figure below.



- Please adjust the body height of indoor unit if there is still a gap between panel and ceiling after the adequate fastening of long bolts for panel.



- The indoor unit body height can be directly adjusted via the corner hole of properly fastened panel provided that the indoor unit body levelness and drain pipe, etc. are not affected.

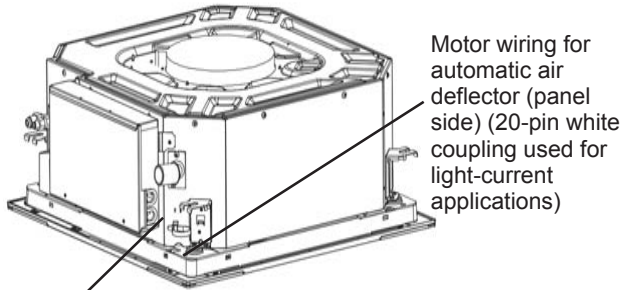


- ※ Please note that excessive adjustment of body height may cause water to run out of water pan.

8.10.3 Wiring of Panel

Step 1

The panel is designed with the coupling shown in the figure below. Tear off the adhesive tape fixing the coupling, lead it out and connect it to the body coupling as shown in the figure below.



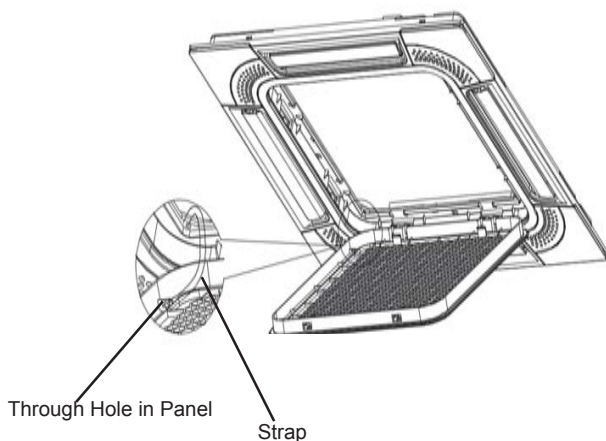
Motor wiring for automatic air deflector (body side) (20-pin white coupling used for light-current applications)

CAUTION

Please turn power off before the connection of coupling, since the connection of coupling without power supply turned off may result in malfunction of auto-turning louver.

Step 2

Install the air intake grille upon completion of wiring. Mount the strap hook of part ① in panel hole during installation as described in Section 2.2. The air intake grille can be installed in any of the 4 directions by rotating it. Where several indoor units are installed simultaneously, the air intake grille installation direction can be freely selected.



8.10.4 Test Run

The installed panel shall be subjected to test run as per the Installation & Maintenance Manual.

8.10.5 Louver Adjustment

Step 1

Please turn on main power supply.

Step 2

Please press the "ON/OFF" key on remote control to bring the machine into operation.

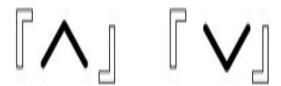
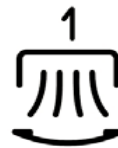
Step 3

Press "V" or "^" key, and select  (Auto Swing). The louver begins to swing automatically. Press the key again, and the louver will stop swinging.

Step 4

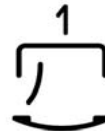
LCD screen shows the location of louver in real time.

(Auto Swing)



Continuous Change of Position

(Louver position fixed)



Show Location of Louver

CAUTION

- Appropriate air flow direction is dependent on the mounting position, room structure, and furnishings, etc. Please adjust the air flow direction in the case of poor refrigeration or heating effect.
- The louver location displayed on LCD may be different from its actual location. The louver location shall be set based on the location displayed on LCD when the louver angle is fixed.
- The louver will not stop immediately when auto swing is stopped by pressing "V" or "^" key.
- Refrigeration in a space where the humidity is higher than 80% may result in condensation on panel and louver.

8.11 Refrigeration Piping



Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These gases are extremely dangerous and can cause an explosion. It is recommended nitrogen be used for those tests.

8.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign matters before connecting pipes.
- (3) Select copper pipes based on the figure below.

8.11.2 Piping Connection

- (1) The connection point and diameter of piping are shown in the figure below.

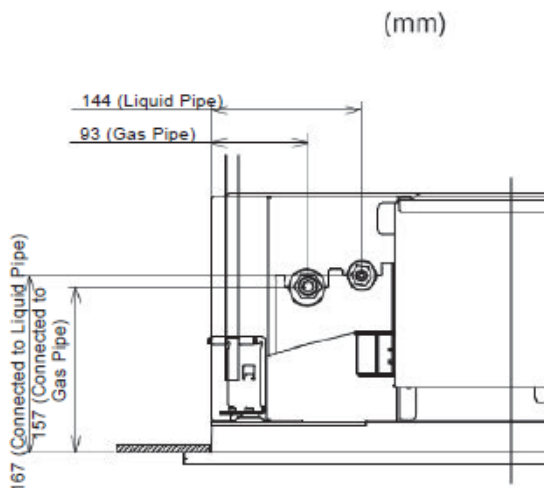


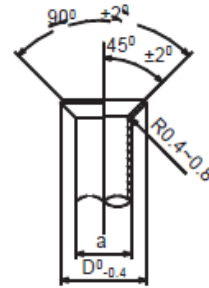
Fig. Pipe Connection Points

Unit: mm (in.)

Capacity of Indoor Unit (10 ³ BTU)	Gas Pipe	Liquid Pipe
05~19	Φ12.7(1/2) ※	Φ6.35(1/4)

Fig. Pipe Diameter

※ Since the nut cap connected at gas pipe is designed exclusively for R410A, the piping flaring connected for off-factory installation is adjusted as compared with R22 and R407C. Please perform the processing operation based on the dimensions shown below: (See the figure below)



Unit: mm (in.)

Outside Diameter of Piping (a)	Φ12.7 (1/2)	Φ15.88 (5/8)
Outside Diameter of Flaring (D)	R410A 16.6	19.7

Fig. Flaring

- (2) As shown in the figure below, two spanners shall be used for tightening the nut



Pipe Size	Tightening Torque (N.m)
Φ6.35	20
Φ9.53	40
Φ12.7	60
Φ15.88	80
Φ19.05	100

Fig. Nut tightening torque

- (3) Insulate the refrigeration piping with field-supplied insulating pipe upon completion of refrigerant pipe connection. See the figure below.

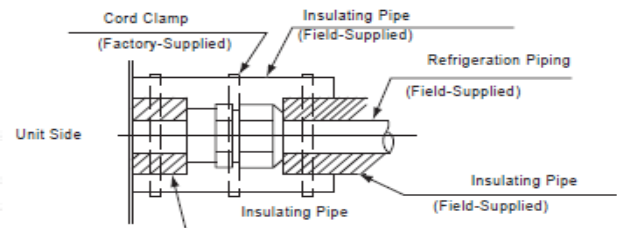
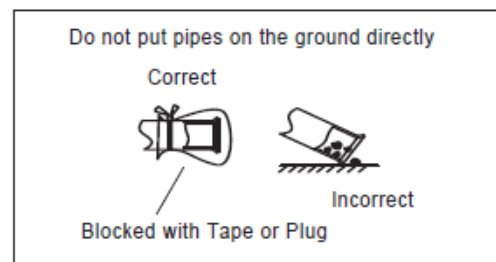


Fig. Insulation on Pipes



- Cap the end of the pipe when the pipe is to penetrate a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape arranged at the end of the pipe.



(4) Discharging and Charging Refrigerant

Follow the Installation & Maintenance Manual for outdoor unit.



Excessive and inadequate refrigerant is a leading cause of system anomaly. Please inject the right amount of refrigerant.

8.12. Drain Pipe

- (1) The position of the drain pipe connection is shown in the figure below.
- (2) Prepare a polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tubing to the drain hose with the adhesive agent and the factory-supplied clamp. The drain pipe must be performed with a down-slope pitch of 1/25 to 1/100.

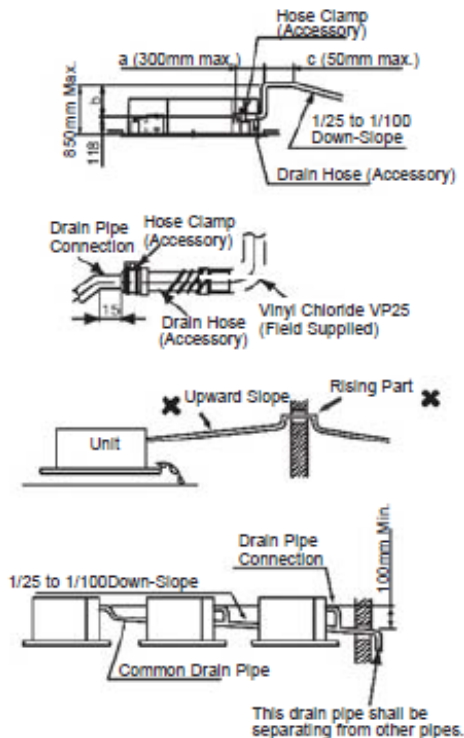


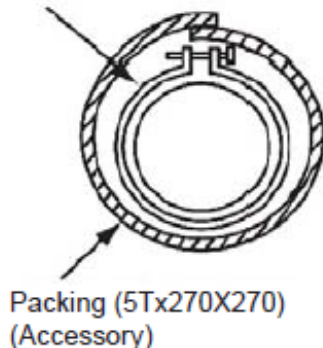
Fig. Drain Pipe

*The total length a+b+c shall be $\leq 1,100$ mm.

*In case of lifting the drain pipe at the outlet part, perform the drain piping work as shown in the figure above.

- (4) Insulate the drain pipe after connecting the drain hose.

Hose Clamp (Accessory)



Packing (5Tx270X270)
(Accessory)

CAUTION

Where the relative humidity of air inlet or ambient air exceeds 80%, an auxiliary water pan shall be fabricated at installation site and placed under the indoor unit, as shown in the figure below.

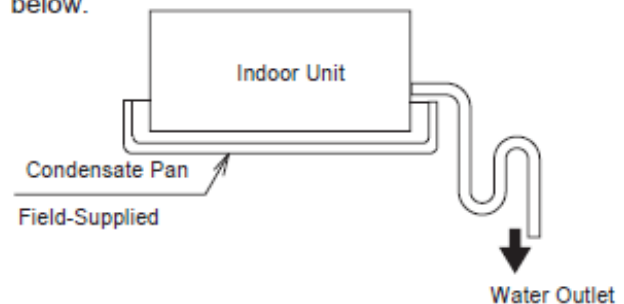


Fig. Auxiliary Water Pan

CAUTION

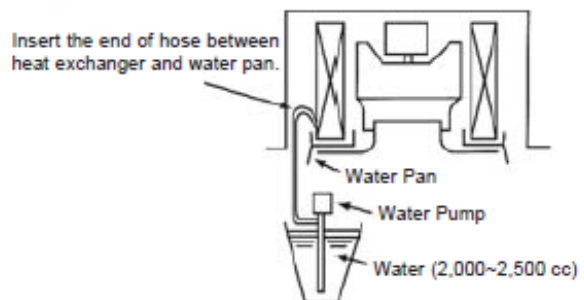
- (1) The drain pipe installed shall slope down; otherwise, the condensate may flow back and leak into the room when the indoor unit is turned off.
- (2) The drain pipe shall not be connected with sewage pipe or other drain pipes.
- (3) Where the main drain is connected to other indoor units, each indoor unit must be higher than the main. Select drain pipes in ample size depending on the refrigerating capacity and quantity of indoor units.
- (4) Check if water flows without obstruction following the procedure shown below after the proper connection of wires and drain pipes.

a. Turn on the power.

b. Fill the water pan with 1.5L or 2L of water.

c. Check and ensure the water flows without obstruction and no leakage exists. Pour 1.5L of water if no water flows out of pipe end.

• Inject water via air outlet.



8.13. Wiring

WARNING

- Turn OFF the main power switches to the indoor unit and outdoor unit before electrical wiring or periodical check, and wait for at least three minutes.
- Check to ensure the indoor and outdoor fans have stopped before electrical wiring or periodical check.
- Protect the wires, drain pipes, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts, which may lead to a fire.
- Avoid the contact of wires with the refrigerant piping, sheet metal edges and electrical components in unit. Otherwise, the wires may get damaged or even cause a fire.
- Use ELB with medium sensing rate (earth leakage breaker with action time being equal to 0.1 seconds or less). The failure to do so may result in electric shock or fire.
- The wires must be firmly secured. External force applied to terminals may cause a fire.
- Never connect the power terminal block for air conditioner to power cord. At the indoor unit side of air conditioner, power wiring can be extended through a power distribution box. Be sure to calculate the wiring capacity carefully, since excessively low wiring capacity may frequently cause fire.
- Do not start the system before all check points are thoroughly checked.

CAUTION

- Wrap the wires with adhesive tape or other materials and plug the wiring connection hole with seal material to protect the product from any condensate water or insects.
- The electrical box entrance hole shall be designed with wire clamp that must be tightened to address tension requirements when penetrated by wires.
- Secure the remote controller wire in electrical box with wire tie.
- Tighten screws to the following torques.

M4: 1.0~1.3 N·m

M5: 2.0~2.4 N·m

M6: 4.0~5.0 N·m

M8: 9.0~11.0 N·m

M10: 18.0~23.0 N·m

8.13.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) comply with the National Electrical Code.
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage. The system can't be started in the case of excessively low supply voltage.
- (3) Check the power capacity.
- (4) Ensure the ground wire is connected.
- (5) Install the main switch with a space of 3.5mm or more between phases.

8.13.2 Electrical Wiring Connection

The electrical wiring connection for indoor unit is shown in the figure.

- (1) Connect transmission wiring to the PBC in electrical box through the connection hole on electrical box.
- (2) Connect the power wiring and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in electrical box.
- (4) Tightly clamp the wires with wire tie in the electrical box.
- (5) Upon completion of wiring connection, seal the wire interface with sealing material to keep condensate water and insects off.



For the minimum size of field-supplied power cord, please refer to Section 8.13.

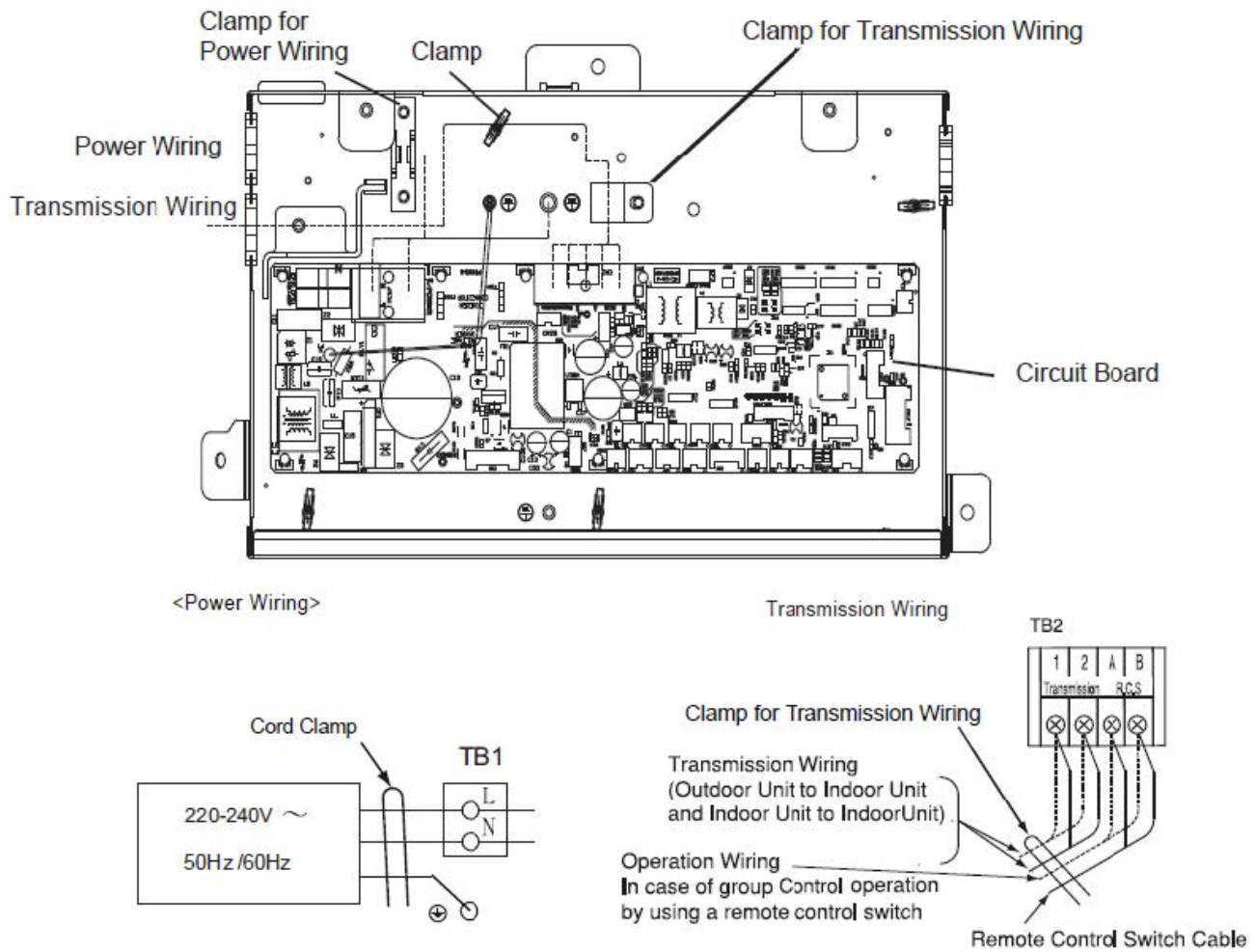


Fig. Electrical Wiring Connection for Indoor Unit

Specifications of Power Cords for Field Connection, Electrical Parameters of Indoor Unit, and Wire Size

Capacity of indoor Unit (kBtu/h)	Power Source	Maximum Current	Power Cord Size	Communication Wire Size
05~07	220V-240V ~ 50/60HZ	0.20A	2.5mm ²	0.75mm ²
09		0.20A		
12		0.30A		
15		0.35A		
17		0.42A		
19		0.56A		
Total Current (A)		Power Cord (mm ²)		※1 In the case that current exceeds 63A, do not connect cables in series.
I≤6		2.5		
6 < I≤10		2.5		
10 < I≤16		2.5		
16 < I≤25		4		
25 < I≤32		6		
32 < I≤40		10		
40 < I≤63		16		
63 < I		※1		

Note:

- (1) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.
- (2) Refer to relevant standards for above-noted power cord size.
- (3) Where power cord is connected through junction box in series, be sure to determine the total current and choose wires based on the table above.
- (4) As a minimum, the chosen power cord shall be compliant with requirements on neoprene sheathed wire #57 as stated in IEC60245-1, while the power cord shall be made from copper conductor.
- (5) The wiring specifications for weak-current communication circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.

8.14 Test Run

Test run should be performed according to the Installation & Maintenance Manual.

WARNING

- Do not operate the system until all the check points are cleared.
 - (A) Check to ensure the electrical resistance between terminal and ground is more than 1 MΩ. If this is not the case, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure the stop valves of outdoor unit are fully opened, and then start the system
 - (C) Check to ensure the switch on main power source has been ON for more than 4 hours to warm the compressor by heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the temperatures of compressor chamber and the pipes at the discharge side are higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE AC CONTACTOR. It will cause a serious accident.

• Protection & Control Devices

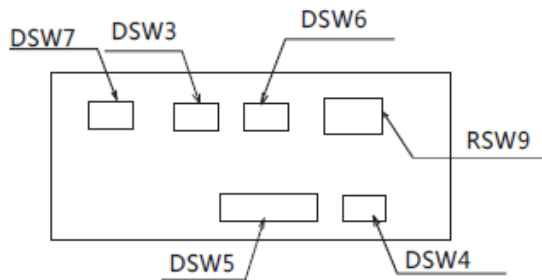
Indoor Unit

Capacity of Indoor Unit (kBtu/h)		05~19
Capacity of Fuse on Indoor Unit Control Circuit	A	5
Freeze Protection Temperature	Cut-out °C	0
	Cut-in °C	14
Set Temperature Difference	°C	2

8.15 Field Operation

8.15.1 Setting of Dip Switches

- (1) DIP switch must be set with power sources of the indoor and outdoor units in OFF state. Otherwise, the settings are invalid.
- (2) The DIP switches are located as shown in the figure below.



- (3) 6 dip switches are arranged on the PCB of indoor unit, and must be set based on the following instructions before test run. The system shall not be started before the completion of dip switch setup.

- (a) Address of indoor units (DSW6): All indoor units must be numbered in sequence based on the diagram below. Outdoor units must be numbered from "0".

Setting Method	DSW6 (Setting 0~63)	Ex.) Set address No.16
	Note: 8421 coding method	No.5 is ON

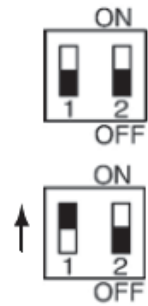
- (b) Refrigeration system cycle No. (DSW5) is required to be set. All are set to OFF before shipment.

Setting Method	DSW5 (Setting 0~63)	Ex.) Set system No.16
	Note: 8421 coding method	No.5 is ON

- (c) Safety reset (DSW7)

*Factory settings

Once strong current is accidentally connected to Terminals 1 and 2 of TB2, the PCB fuse will be blown. In such a case, it's essential to correct the wiring and then to set switch No. 1 to ON position.



Note:

Symbol "■" indicates the location of DIP switch. The position indicated in the diagram is in the factory-set state.

CAUTION

The power supply shall be turned off before the setup of DIP switch. Otherwise, the settings will be invalid.

8.15.2 Setting of Fan Speed

The air volume can be changed by performing external static pressure setup ("C5") on wired controller. Please refer to the wired controller Installation & Maintenance Manual.

Height of Ceiling	Setting of Wire Controller
05~19	
2.7m max.	C5=00
2.7~3.0m	C5=01
3.0~3.5m	C5=02

8.16 Filter Cleaning

CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

8.16.1 Taking Out the Filter

The indication, "FILTER" is shown on the display of the remote control switch after approximately 1,200 hour operation.

Take out the air filter according to the following steps.

Step 1

Remove the air intake grille. Push the grab of air intake grille away in the direction of arrow as shown in the figure, and open the air intake grille until its angle to panel surface is approx. 45°.

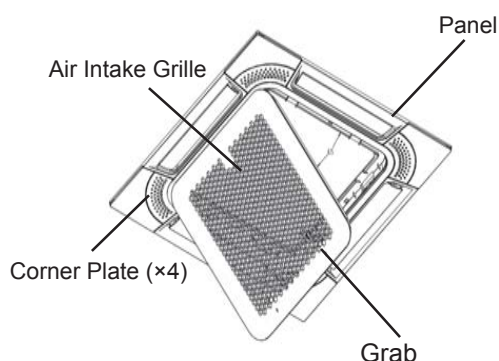


Fig. Method for Removal of Air Intake Grille

CAUTION

Please don't attempt to pull out the air intake grille when its angle to panel surface is 90°.

Step 2

Hold the slope while putting up the air intake grille.

Step 3

Draw the air intake grille out forward.

8.16.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

8.16.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

8.17 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

● **Refrigerant Flow Sound**

While the system is being started or stopped, sound from the refrigerant flow may be heard.

NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.

8.17.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

8.17.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

8.17.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

8.17.4 This is Not Abnormal

● **Smells from Indoor Unit**

Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.

● **Sound from Deforming Parts**

During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.

● **Steam from Outdoor Heat Exchanger**

During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.

● **Dew on Air Panel**

When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.

9. Ceiling & Floor Type (AVV)

9.1 General Data

Indoor Unit Type		Ceiling & Floor Type			
Model Power Supply	AC 1φ, 220-240V/50Hz	AVV-17URSCA	AVV-18URSCA	AVV-22URSCA	AVV-24URSCA
	AC 1φ, 220V/60Hz	AVV-17UR2SA	AVV-18UR2SA	AVV-22UR2SA	AVV-24UR2SA
Nominal Cooling Capacity *1)	kW	5.2	5.8	6.5	7.3
	kcal/h	4,500	5,000	5,600	6,300
	Btu/h	17,700	19,800	22,200	24,900
Nominal Cooling Capacity *2)	kW	5.0	5.6	6.3	7.1
	kcal/h	4,300	4,800	5,400	6,100
	Btu/h	17,100	19,100	21,500	24,200
Cooling Power Consumption	kW	0.04	0.04	0.07	0.07
Nominal Heating Capacity	kW	5.6	6.5	7.5	8.5
	kcal/h	4,800	5,600	6,500	7,300
	Btu/h	19,100	22,200	25,600	29,000
Heating Power Consumption	kW	0.04	0.04	0.07	0.07
Sound Pressure Level (Ceiling Type) (Overall A Scale)	dB	39-35-30	39-35-30	45-41-37	45-41-37
Sound Pressure Level (Floor Type) (Overall A Scale)	dB	43-38-35	43-38-35	48-44-40	48-44-40
Outer Dimensions Height	mm	230	230	230	230
	(in.)	(9)	(9)	(9)	(9)
Width	mm	990	990	990	990
	(in.)	(39)	(39)	(39)	(39)
Depth	mm	680	680	680	680
	(in.)	(26-3/4)	(26-3/4)	(26-3/4)	(26-3/4)
Net Weight	kg	31	31	32	32
	(lbs.)	(68)	(68)	(70)	(70)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Hi/Me/Lo)	m ³ /h (cfm)	780/660/540 (459/389/318)	780/660/540 (459/389/318)	966/840/678 (569/495/399)	966/840/678 (569/495/399)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping Liquid Line	mm	Φ6.35	Φ6.35	Φ9.53	Φ9.53
	(in.)	(1/4)	(1/4)	(3/8)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.31	0.31	0.31	0.31

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.0 Meter Beneath the Unit. 1.0 Meter from Discharge Grille.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

When bottom air inlet is adopted, sound pressure will increase according to factors such as installation mode and the room structure.

Indoor Unit Type		Ceiling & Floor Type			
Model Power Supply	AC 1φ, 220-240V/50Hz	AVV-27URSCB	AVV-30URSCB	AVV-38URSCB	AVV-48URSCC
	AC 1φ, 220V/60Hz	AVV-27UR2SB	AVV-30UR2SB	AVV-38UR2SB	AVV-48UR2SC
Nominal Cooling Capacity *1)	kW	8.7	9.3	11.6	14.5
	kcal/h	7,500	8,000	10,000	12,500
	Btu/h	29,700	31,700	39,600	49,500
Nominal Cooling Capacity *2)	kW	8.4	9.0	11.2	14.2
	kcal/h	7,200	7,700	9,600	12,200
	Btu/h	28,700	30,700	38,200	48,500
Cooling Power Consumption	kW	0.07	0.08	0.13	0.16
Nominal Heating Capacity	kW	9.6	10.0	13.0	16.3
	kcal/h	8,300	8,600	11,200	14,000
	Btu/h	32,800	34,100	44,400	55,600
Heating Power Consumption	kW	0.07	0.08	0.13	0.16
Sound Pressure Level (Ceiling Type) (Overall A Scale)	dB	43-39-34	45-40-36	51-46-40	50-46-42
Sound Pressure Level (Floor Type) (Overall A Scale)	dB	46-41-37	48-43-39	54-49-43	55-50-46
Outer Dimensions Height	mm	230	230	230	230
	(in.)	(9)	(9)	(9)	(9)
Width	mm	1285	1285	1285	1580
	(in.)	(50-3/5)	(50-3/5)	(50-3/5)	(62-1/5)
Depth	mm	680	680	680	680
	(in.)	(26-3/4)	(26-3/4)	(26-3/4)	(26-3/4)
Net Weight	kg	39	40	41	47
	(lbs.)	(86)	(88)	(90)	(103)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Hi/Me/Lo)	m ³ /h (cfm)	1092/912/732 (643/537/431)	1164/978/798 (685/576/470)	1488/1230/978 (876/724/576)	1980/1680/1380 (1166/989/812)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping Liquid Line	mm	Φ9.53	Φ9.53	Φ9.53	Φ9.53
	(in.)	(3/8)	(3/8)	(3/8)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.40	0.40	0.40	0.48

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)
Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

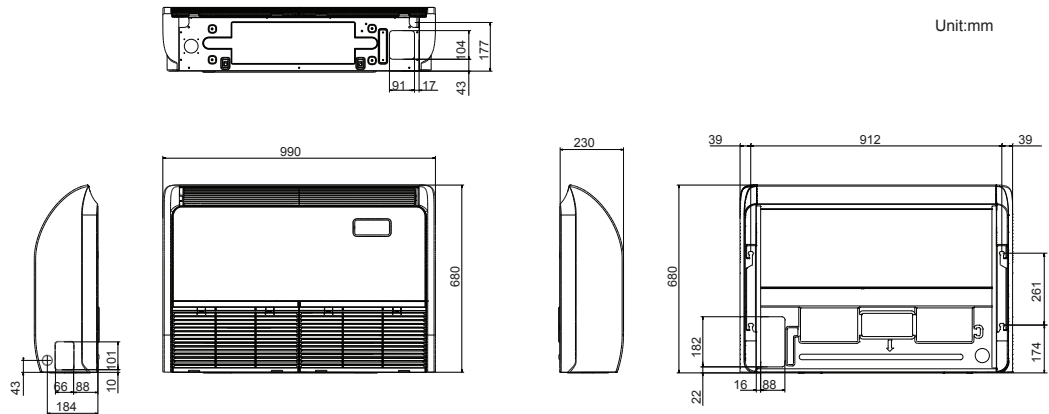
1.0 Meter Beneath the Unit. 1.0 Meter from Discharge Grille.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

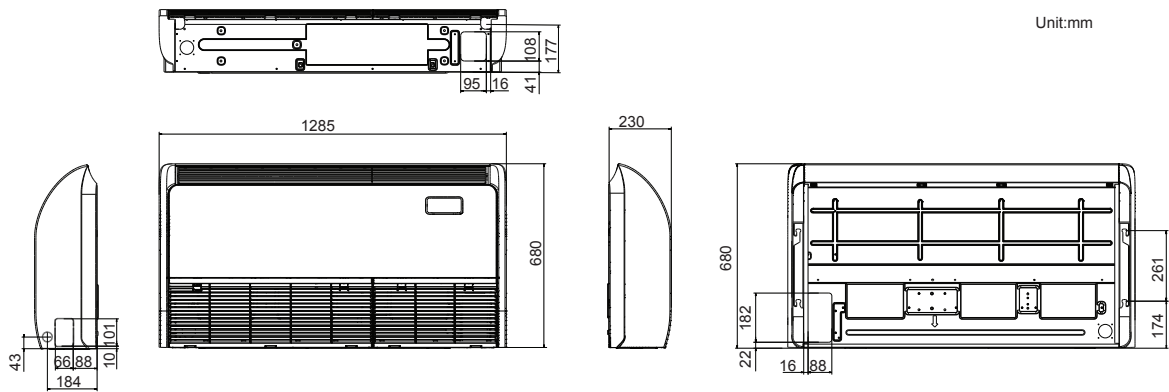
When bottom air inlet is adopted, sound pressure will increase according to factors such as installation mode and the room structure.

9.2 Dimensional Data

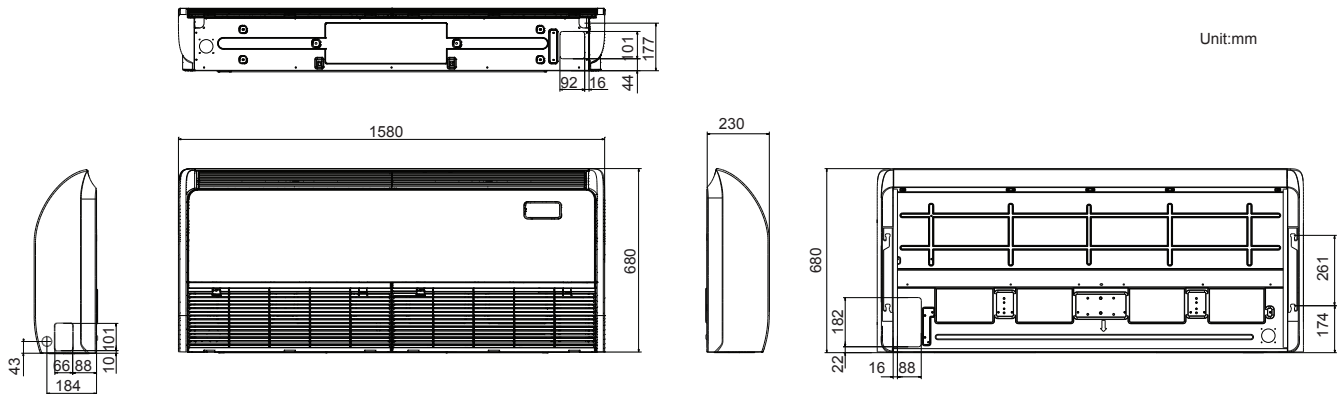
Models: AVV-17~24*



Models: AVV-27~38*

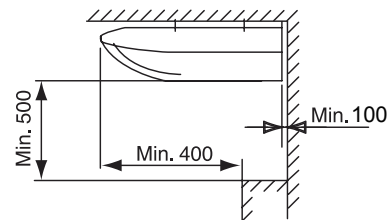
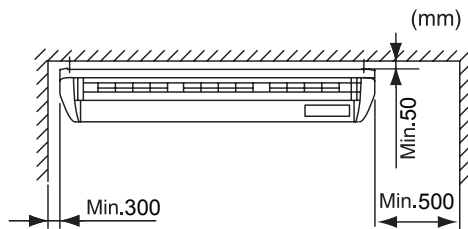


Models: AVV-48*



9.3 Selection Data

- Service Space
Models: AVV-17~48*

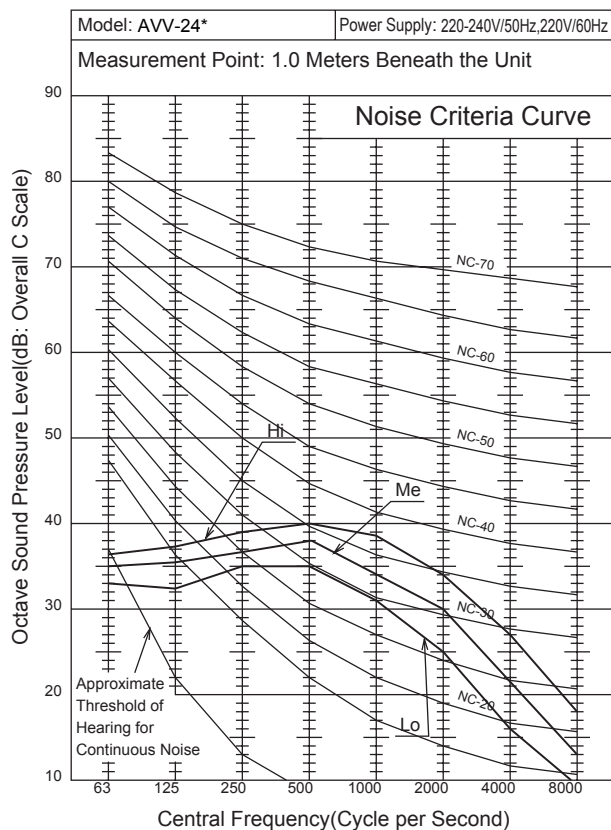
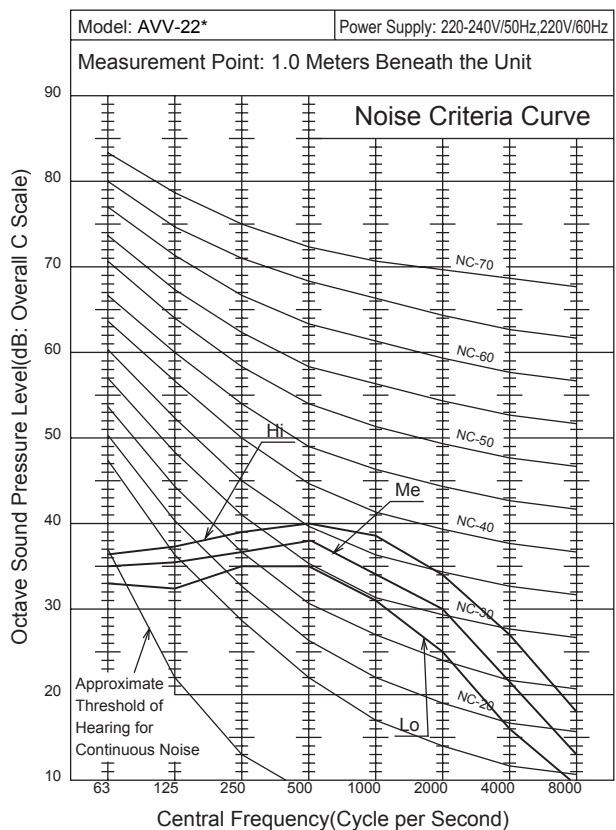
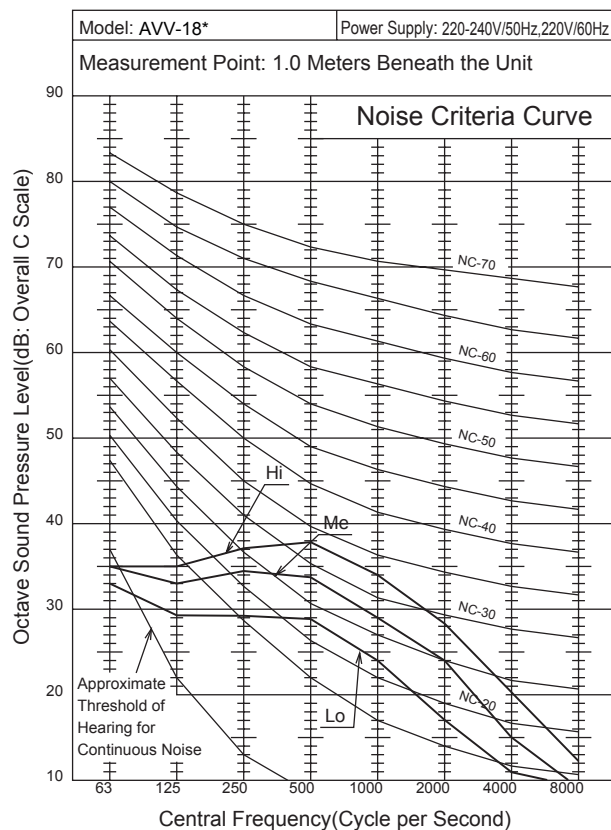
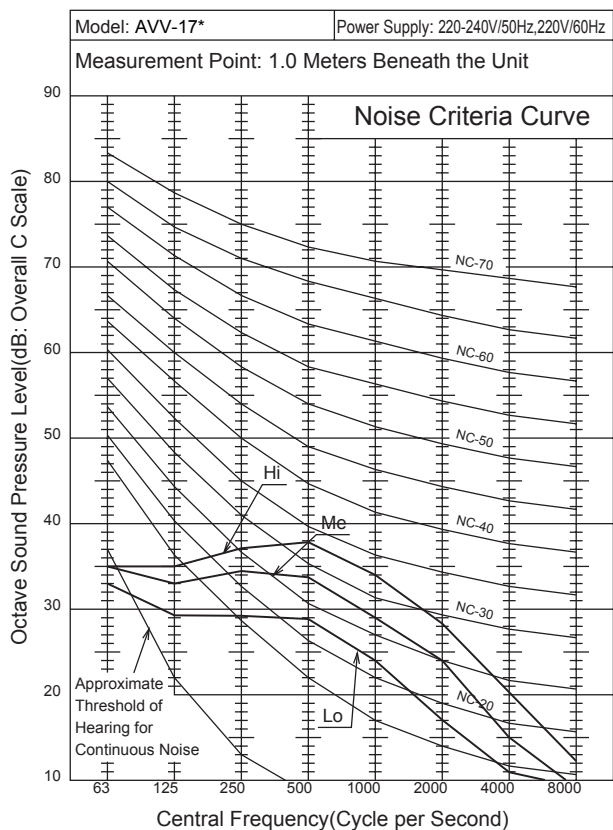


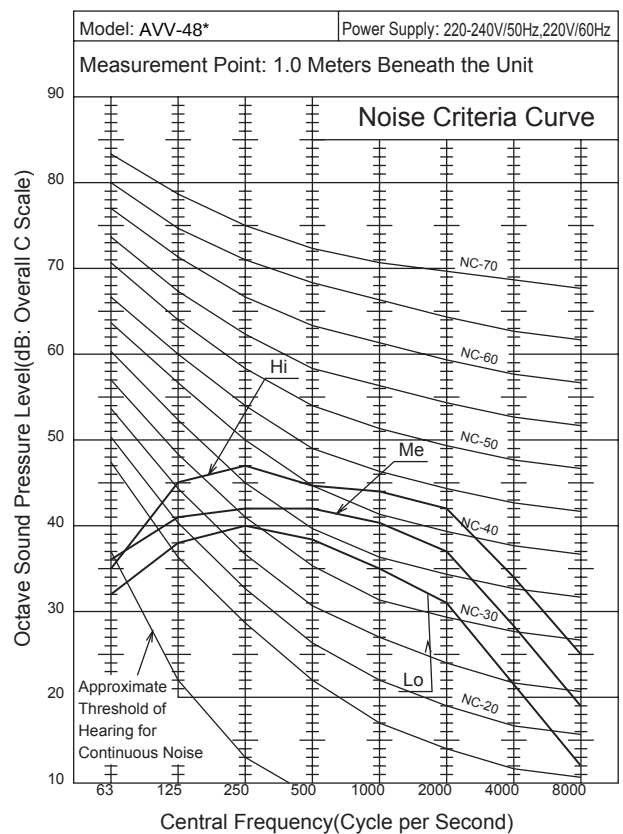
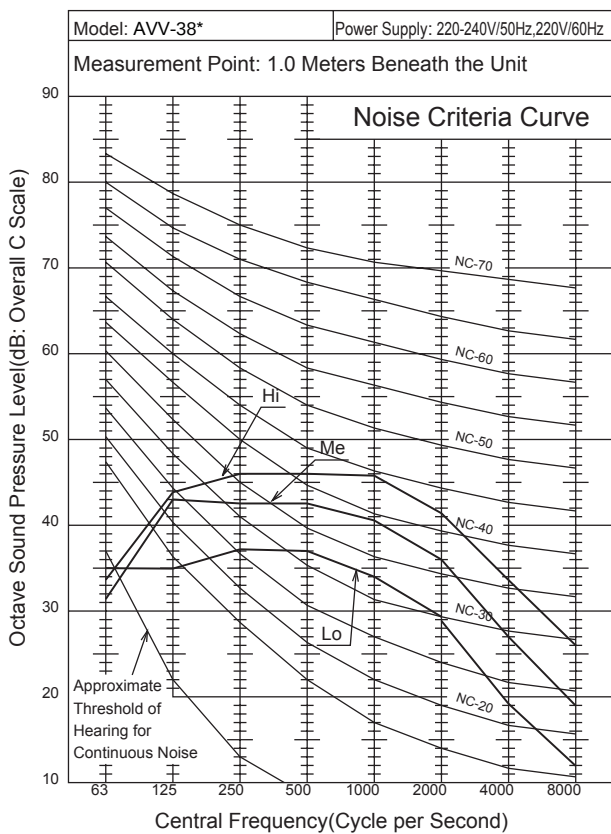
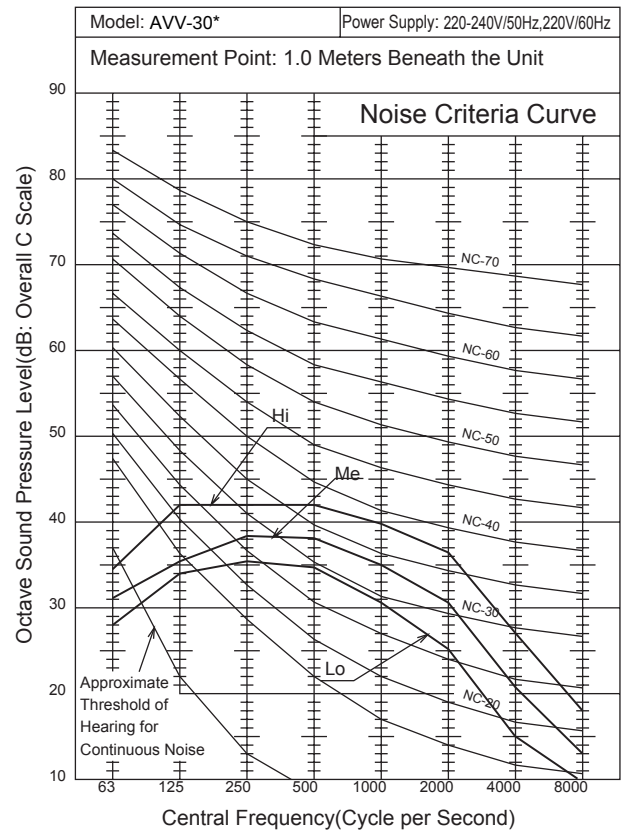
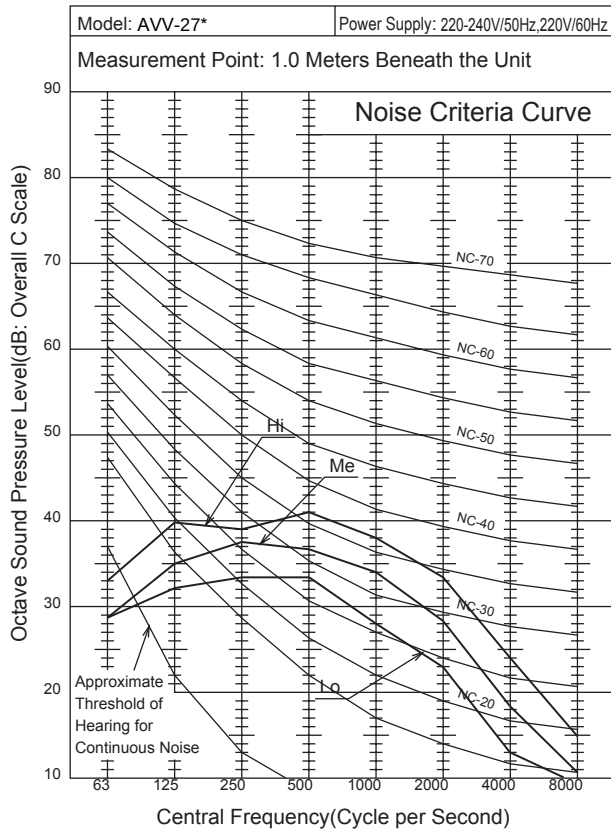
- Sensible Heat Factor (SHF)

The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVV-17*	0.71	0.68	0.64
AVV-18*	0.71	0.68	0.64
AVV-22*	0.73	0.69	0.66
AVV-24*	0.73	0.69	0.66
AVV-27*	0.74	0.69	0.65
AVV-30*	0.76	0.71	0.68
AVV-38*	0.75	0.70	0.66
AVV-48*	0.76	0.72	0.69

● Sound Data





9.4 Component Data

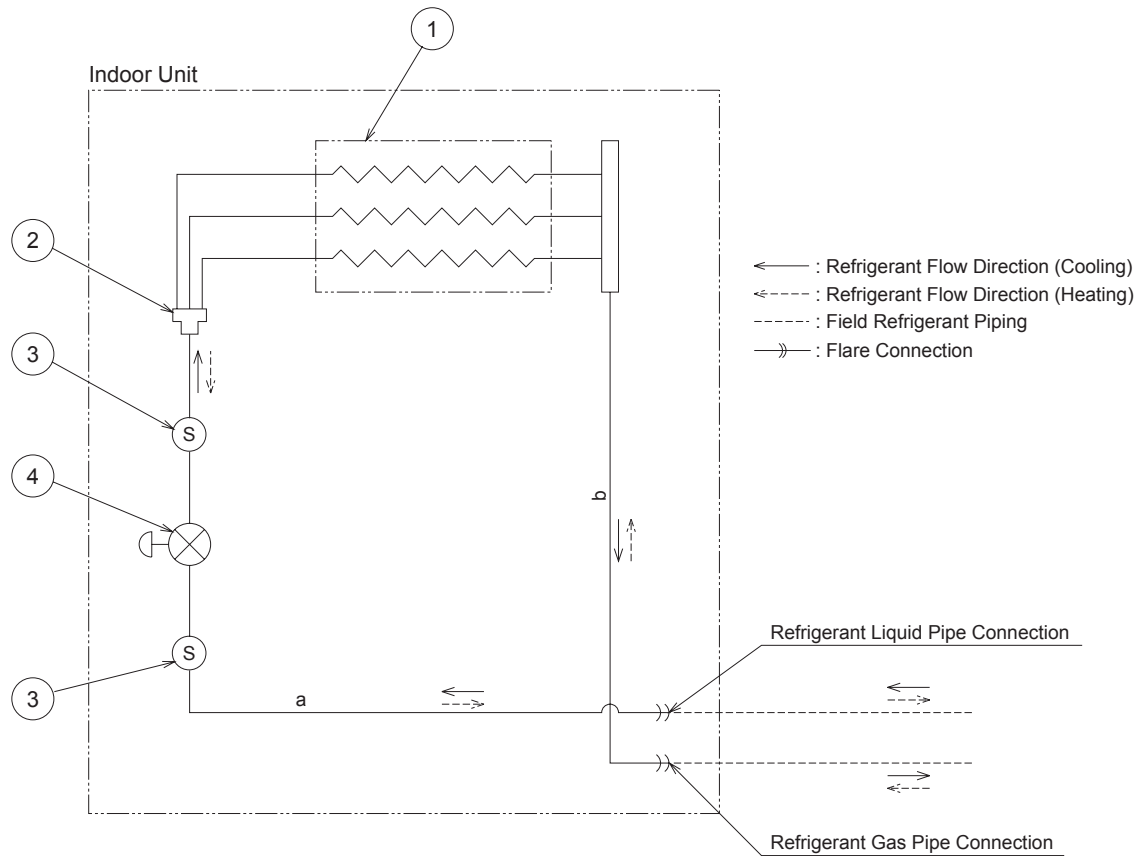
Indoor Heat Exchanger and Fan

Model		AVV-17*	AVV-18*	AVV-22*	AVV-24*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.22	0.22	0.22	0.22
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	2	2	2	2
Outer Diameter	mm	161	161	161	161
Revolution (220V)	rpm	850/745/630	850/745/630	1035/910/800	1035/910/800
Nominal Air Flow	m ³ /h	780/660/540	780/660/540	966/840/678	966/840/678
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	DC Driven			
Nominal Output	W	40	40	100	100
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Indoor Heat Exchanger and Fan

Model		AVV-27*	AVV-30*	AVV-38*	AVV-48*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.30	0.30	0.30	0.39
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	3	3	3	4
Outer Diameter	mm	161	161	161	161
Revolution (220V)	rpm	920/790/660	980/835/720	1210/1010/835	1200/1045/890
Nominal Air Flow	m ³ /h	1092/912/732	1164/978/798	1488/1230/978	1980/1680/1380
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	DC Driven			
Nominal Output	W	140	140	140	181
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

9.5 Refrigeration Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

9.6 Electrical Data

< 50 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Ceiling & Floor Type	AVV-17URSCA	220~240	1	50	264	198	1	0.18	0.04
	AVV-18URSCA							0.18	0.04
	AVV-22URSCA							0.32	0.07
	AVV-24URSCA							0.32	0.07
	AVV-27URSCB							0.32	0.07
	AVV-30URSCB							0.36	0.08
	AVV-38URSCB							0.59	0.13
	AVV-48URSCC							0.73	0.16

< 60 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Ceiling & Floor Type	AVV-17UR2SA	220	1	60	242	198	1	0.18	0.04
	AVV-18UR2SA							0.18	0.04
	AVV-22UR2SA							0.32	0.07
	AVV-24UR2SA							0.32	0.07
	AVV-27UR2SB							0.32	0.07
	AVV-30UR2SB							0.36	0.08
	AVV-38UR2SB							0.59	0.13
	AVV-48UR2SC							0.73	0.16

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

Safety and Control Device Setting

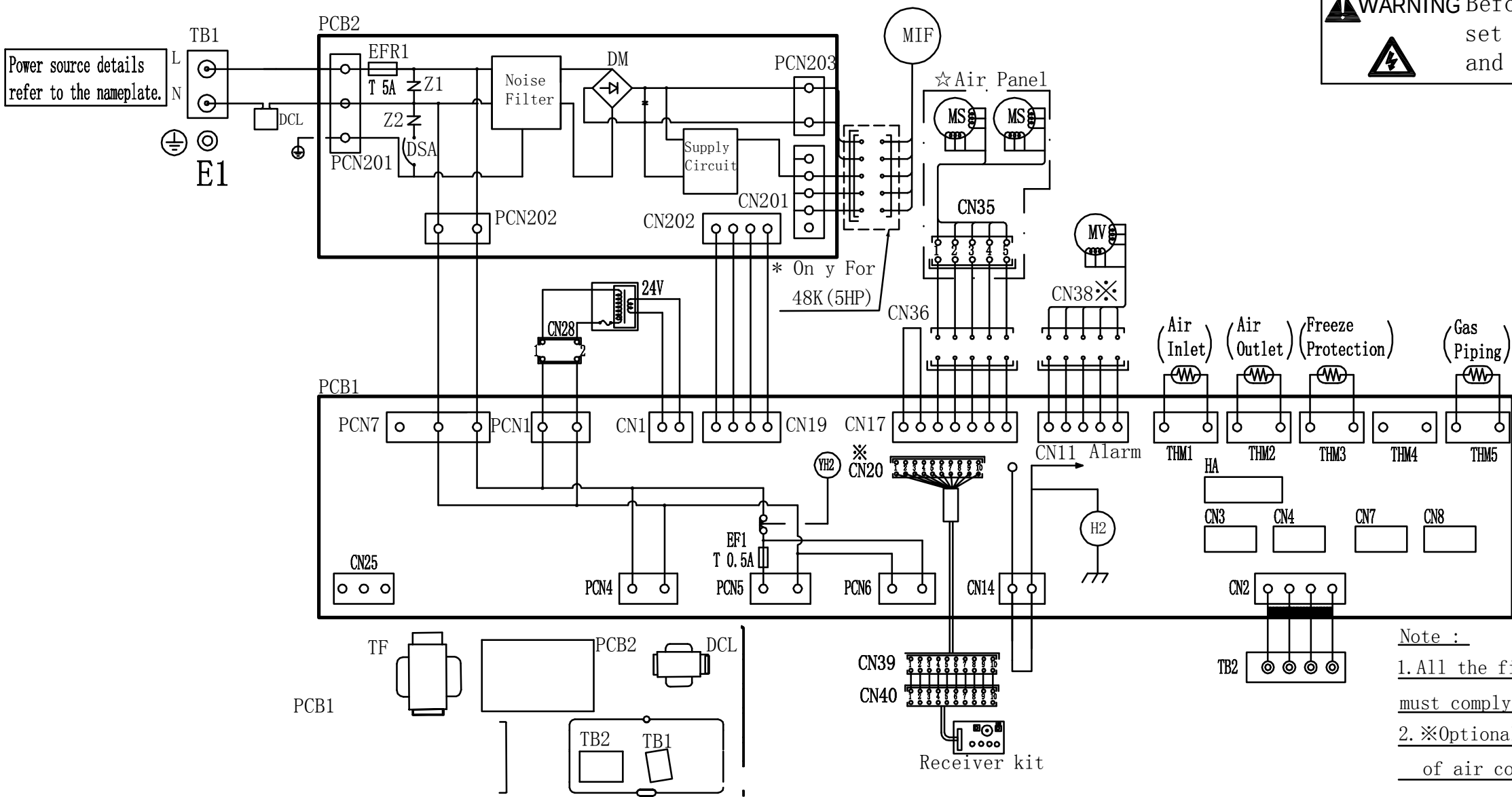
Indoor Unit

Model		AVV-17~48*	
For Evaporator Fan Motor Thermostat	Cut-Out	°C	130 ± 5
	Cut-In	°C	83 ± 15
For Control Circuit Fuse Capacity		A	5
Freeze Protection Thermostat	Cut-Out	°C	0
	Cut-In	°C	14
Thermostat Differential		°C	2

9.7 Electrical Wiring Diagram

Model: AVV-17~48*

HEAT PUMP



WARNING Before inspecting the electrical parts set the Operation Switch to **OFF**, and cut **OFF** the power supply.

Mark	Name
CN _{1~26, 39~203}	Connector on PCB
CN _{27~38}	Connector
C	Capacitor
DSW _{3, 5}	Dip Switch for Setting
DCL	Reactor
EF	Fuse
MIF	Motor for Indoor Fan
MS	Motor for Automatic Swing Louver
MV	Micro-Computer Control Expansion Valve
PCB _{1, 2}	Printed Circuit Board
PCN _{1~203}	Connector on PCB
RSW	Rortaly Switch
TB _{1, 2}	Terminal Board
TF	Transformer
YH2	Relay on PCB
⊙	Terminals

Note :
1. All the field wiring and equipment must comply with local codes.
2. ※Optional, no impact on the performance of air conditioning.

9.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	Ceiling & Floor Type
Wire Remote Control Switch	HYXE-F01H	•
	HYXE-G01H	•
	HYXE-A01H#01	•
	HYXE-J01H	•
	HYXE-M01H	•
Wireless Remote Control Switch	HYE-L01	
	HYE-W01	• Standard Option
Wireless Receiver Kit	HYRE-V01H	
	HYRE-T01H	
	HYRE-V02H	
	HYRE-X01H	
7 Day Timer	HYDE-E01H	•
Control Station	HYJE-H01H	•
	HYJE-D02H	•
	HYJ-J01H	•
	HCCS-H128H2C1YM	•
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	•
Interface for Building Control	HC-A64BNP	•
	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

9.9 Factory-Supplied Accessories

- To avoid damage to the resin covers, before lifting or moving the indoor unit, put a cloth on the resin covers.

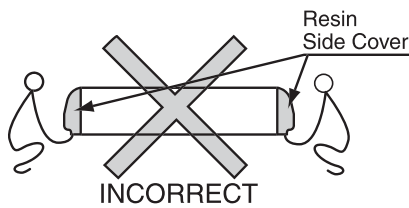
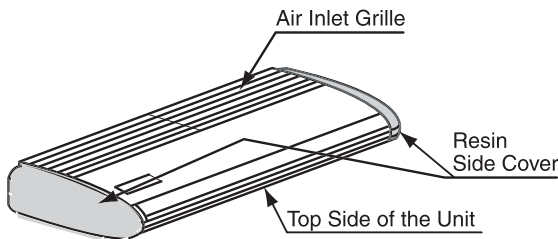


Fig. Side Covers

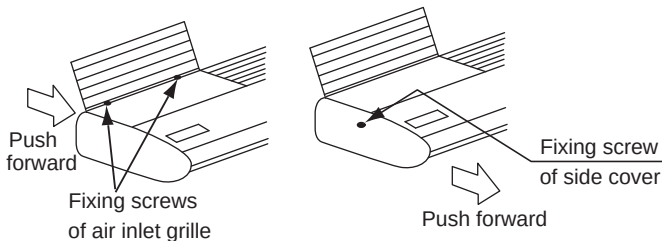
- Remove the air inlet grille and resin side cover before installation.

Remove the air inlet grille

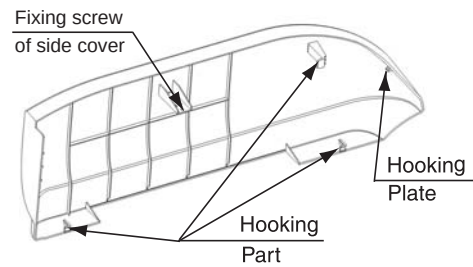
- Open the air inlet grille after removing screw covers and fixing screws as is shown in Fig. below.
- Remove fixing screws of air inlet grille .
- Carefully push the air inlet grille away from the mounting plate of indoor unit.
- Remove the air inlet grille .

Remove the resin side cover

- Remove fixing screw of side cover.
- Carefully push the side cover away from the indoor unit approximately 10mm forward.
- Remove the resin side cover .



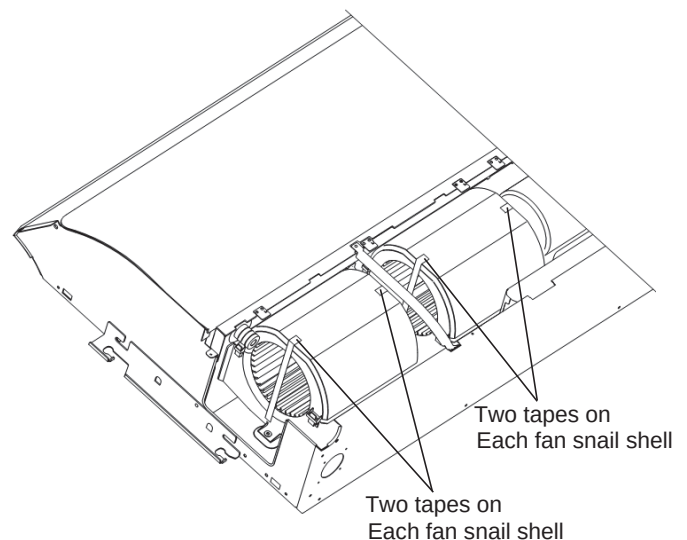
Removing the air inlet grille and resin side cover



Inside of resin side cover
The three hooking parts and one hooking plate should be mounted when recovering resin side cover

Fig. Removing the air inlet grille and resin side cover

- Remove the fixing adhesive tape on the fan snail shell and outer panel before installation. The tape is just used for fixing during transportation.



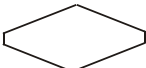
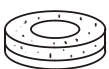
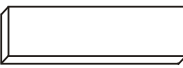
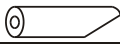
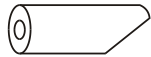
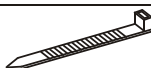
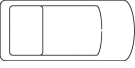
- The mechanism of the automatic swing louver is utilized. Do not move the swing louver by hand or other objects. This can damage the mechanism of the automatic swing louver.

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

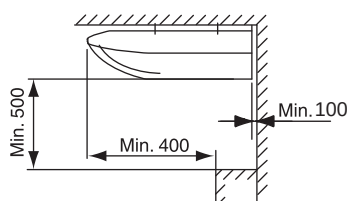
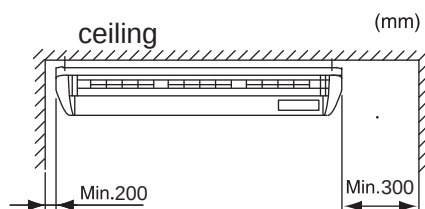
Table Factory-Supplied Accessories

Accessory		Q'ty	Purpose
Pattern Board (Carton Board)		1	For Adjusting Space and Position of the Unit
Washer with Insulation Material (M10)		4	For Unit Installation
Washer (M10)		4	
Drain Hose		1	For Drain Hose Connection
Hose Clamp		2	
Clamp of Drain Pipe Connection		1	
Drain Pipe Connection		1	
Packing (10T×38×165)		1	For Covering Clamp of Drain Pipe Connection
Insulation (22ID)		1	For Refrigerant Piping Connection
Insulation (28ID)		1	
Cord Clamp		6	For Fixing Remote Control Switch Wiring and Insulation of Piping
Cord Clamp		2	
Packing (5T×50×200)		1	For Covering Wiring Connection
Packing (5T×270×270)		1	For Covering Drain Connection
Wireless Remote Control Switch		1	For Controlling the Unit

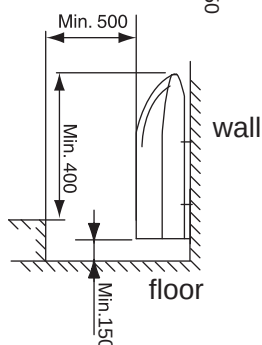
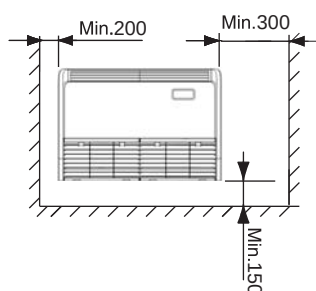
9.10 Installation

9.10.1 Initial Check

- Install the indoor unit with a proper clearance around the indoor unit with a proper clearance working space, as shown below.



For ceiling installation



For wall mounted installation

Fig. Operation and Maintenance Space

- Check to ensure that the ceiling or wall has a sufficient strength to hang the indoor unit.
- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.

- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit.

The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

! WARNING

Check to ensure that the number of below is within $0.3\text{kg}/\text{cm}^3$. Otherwise it may cause danger situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.

$$\frac{(\text{Total Refrigerant Quantity per one Outdoor Unit})}{(\text{Volume of the room where this Indoor Unit is installed.})} \leq 0.3\text{kg}/\text{m}^3$$

In detail, refer to the Installation Manual for outdoor unit.

9.10.2 Installtion

● Mounting of Suspension Bolts

Step1

Select final location and installation direction of the indoor unit paying careful attention to the space for the piping,wiring and maintenance.

Step2

Mount suspension bolts,as shown in Fig.below.

*For Concrete Slab *For Steel Beam

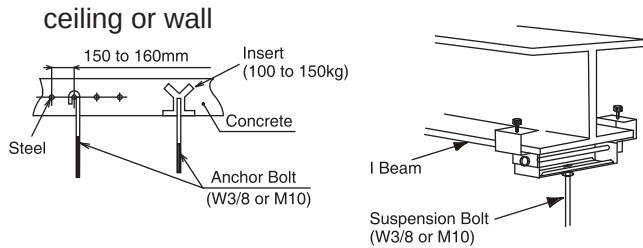


Fig. Mounting of Suspension Bolts

● Installation Pattern

- (1) Pattern Board for installation is in the packing carton of indoor unit.
Use it to decide an installation location and direction of the unit.
- (2) Press the Pattern Board tightly onto the surface , draw out the hole position for suspension bolts with a pencil.

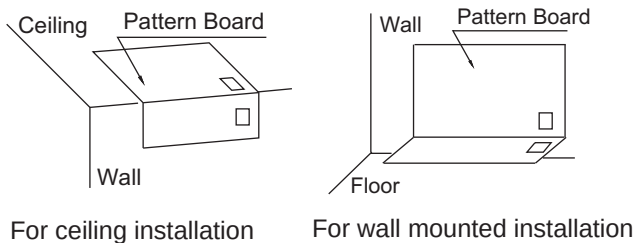


Fig. Pattern Board

● Mounting Position of the Indoor Unit

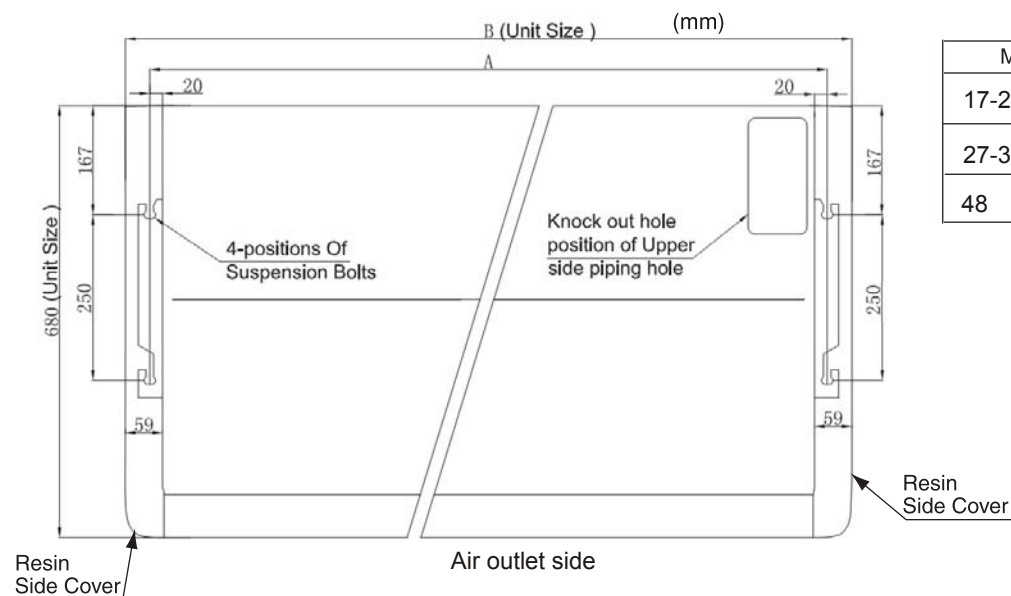
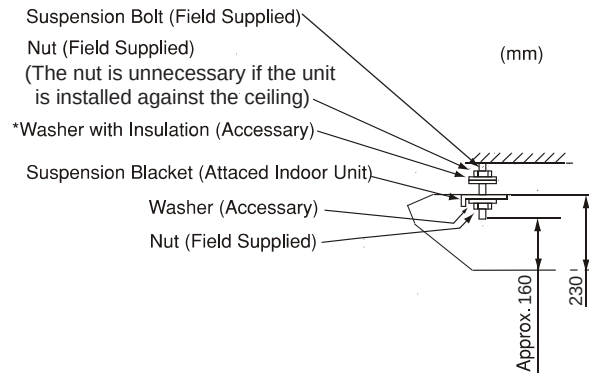


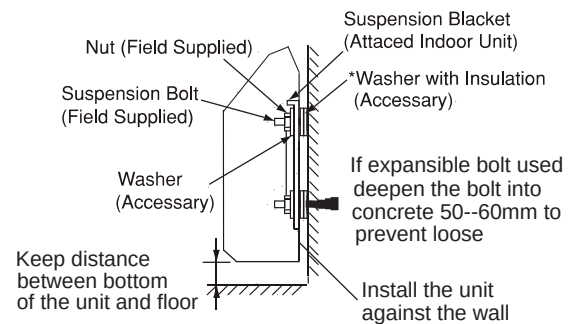
Fig. Mounting Position

● Mounting the Indoor Unit

- (1) Mount the nuts and washers to the suspension bolts.



For ceiling installation



For wall mounted installation

Fig. Mounting Nuts and Washers

- (2) Lift the Indoor Unit by hoist, and do not put any force on the resin covers.
- (3) Secure the indoor unit using the nuts, washers.

Model	A	B
17-24	912	990
27-38	1207	1285
48	1502	1580

(4) Adjusting of the Unit Level

- (1) Check to ensure that the foundation is flat, taking into account the maximum foundation gradient.

For ceiling installation

The unit should be installed so that the rear side of the unit is slightly (Min. 10mm) lower than the front side, in order to avoid the incorrect position of the drain discharge.

The unit should be installed so that the drain piping connection side of the unit is slightly (Min. 10mm) lower than the other side, in order to avoid the incorrect position of the drain discharge.

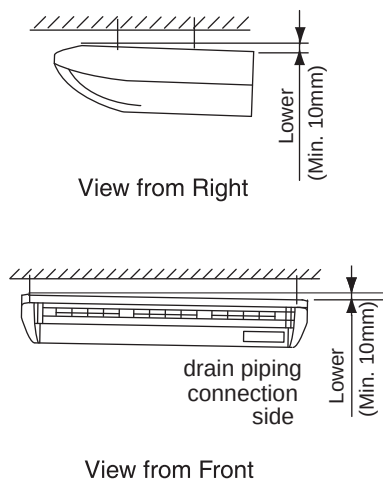


Fig. Inclination of Unit for Drain
for ceiling installation

For wall mounted installation

The unit should be installed so that the bottom of rear side inclines towards the wall slightly. (Min. 10mm)

The unit should be installed horizontal viewed from front.

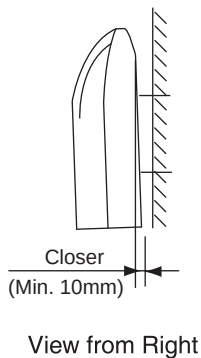


Fig. Inclination of Unit for Drain
for wall mounted installation

- (2) Tighten the bolts of the sling nuts with the suspension brackets after adjustment is completed.

9.11 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

9.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

Table Piping Size

mm (in.)		
Model	Gas Piping	Liquid Piping
17-18	φ15.88 (5/8)	φ6.35 (1/4)
22-30	φ15.88 (5/8)	φ9.53 (3/8)
38-48	φ15.88 (5/8)	φ9.53 (3/8)

- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

9.11.2 Piping Connection

- (1) Position of piping connection is shown in Fig.

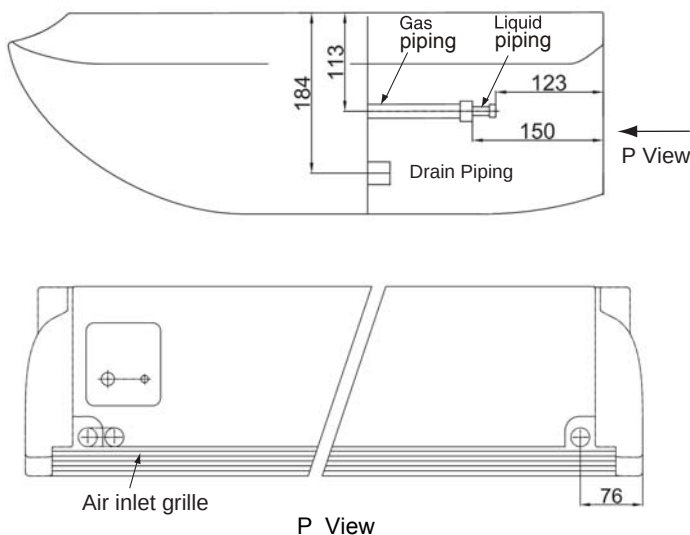
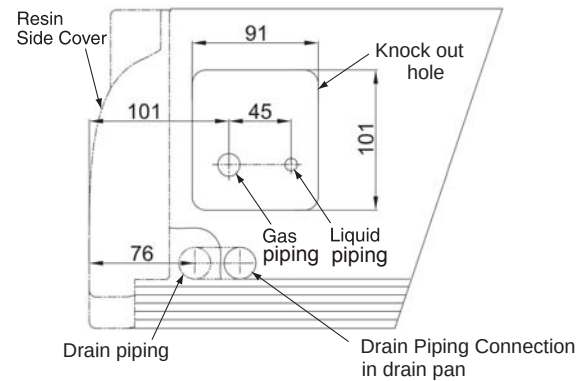
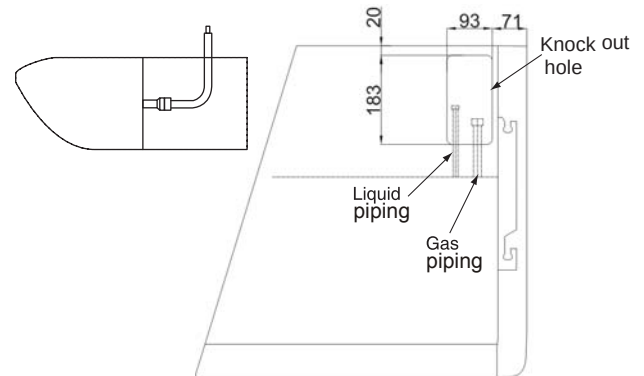


Fig. Piping Connection of indoor Unit

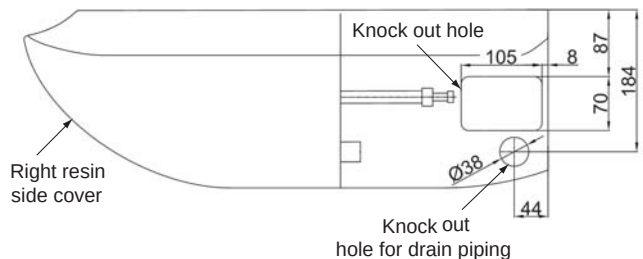
(A) Piping from Backward Side



(B) Piping from Upper Side



(C) Piping from Right Side Cover

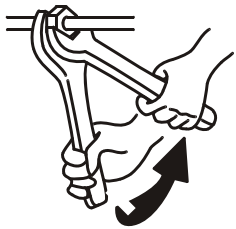


- (2) Piping work should be performed from the bottom side of the unit. Open the air inlet grille and remove the resin side cover before the piping work.

NOTE

Cut out the knock-out hole along the groove in the Right Side Cover using saw blade to avoid sharp edges if piping from right side. Seal the clearance around pipes with seal material to prevent ingress of dirt and protect wires from damage by sharp edge after piping and wiring.

- (3) When tightening the flare nut, use two spanners as shown in Fig. below.

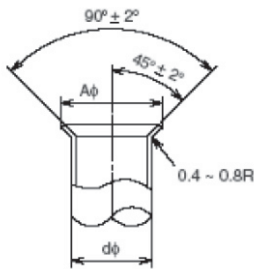


Pipe Size	Tightening Torque (N.m)
φ6.35mm	20
φ9.53mm	40
φ15.88mm	80
φ19.05mm	100

Fig. Tightening Work of Flare Nut

※ Flaring Dimension

Perform the flaring work as shown below.



Diameter φd	A $\begin{smallmatrix} +0 \\ -0.4 \end{smallmatrix}$	
	R410A	R407C
6.35	9.1	9.0
9.53	13.2	13.0
12.7	16.6	16.2
15.88	19.7	19.4
19.05	(*)	23.3

(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe (with a flare).

- (4) After connecting the refrigerant piping, seal the refrigerant pipes by using the factory-supplied insulation material as shown below.

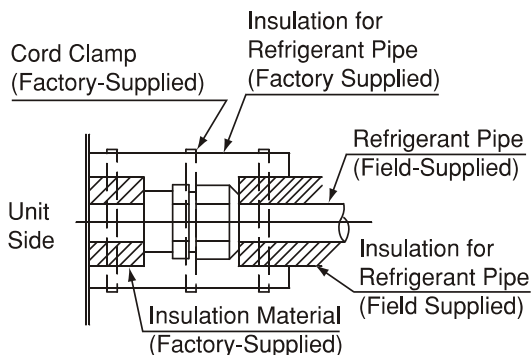
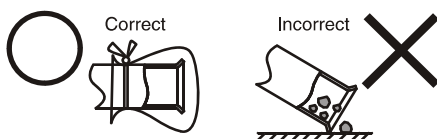


Fig. Insulation on Pipes

CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- (5) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

9.12 Drain Piping

CAUTION

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the indoor unit and leakage into the room will occur when the system operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly.

The standard direction of drain piping connection is right side as viewed from the discharge grilles. However, it can be performed from the left side when the left side connection is required due to the building construction.

- (1) For Right Side Connection

- Insert the Drain Pipe Connection into Drain Boss with clamp until the connection reaches the end of the drain pan.
- Insert the Drain Hose and Drain Pipe with clamps sequentially until reaching the end.
- Tighten the screw for the hose clamp in order to hold the hose around the drain connection without any leakage of drain water as shown below.
- Insulate the drain hose around the hose clamp to prevent any condensation as shown below.

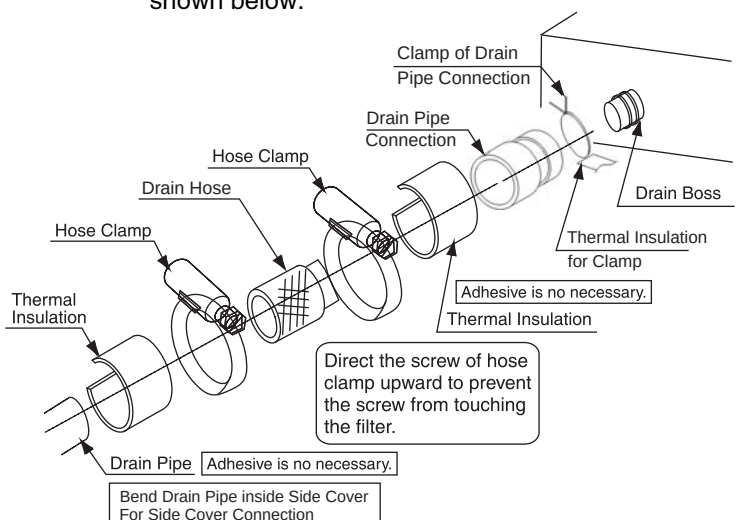


Fig. Connecting Drain Piping

(2) For Left Side Connection

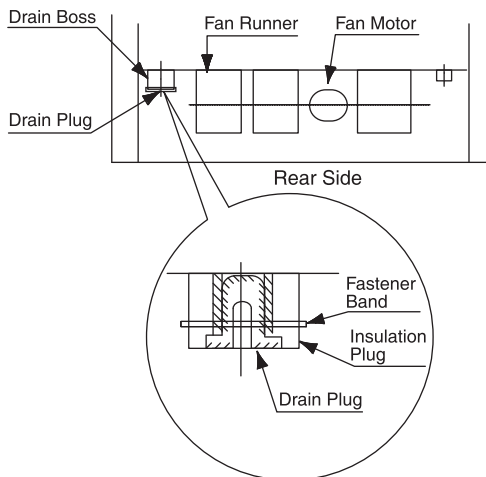


Fig. Drain Plug

Remove the drain plug of the left-side drain boss as indicated in the following procedure

- (A) Cut the fastener.
- (B) Remove the insulation material.
- (C) Remove the drain plug.
- (D) Insert the drain plug into the right-side drain boss by using a driver as shown below.

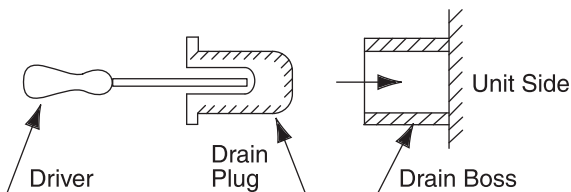


Fig. Inserting Drain Plug

- (E) After inserting the drain plug into the right-side drain boss, seal the jointed part by using a water-proof chloride type sealing material and secure it with fastener.

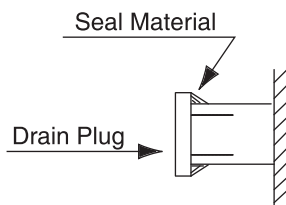


Fig. Sealing Joint Part

- (F) Wrap the insulation material around the drain connection.
- (G) Connect the drain hose to the left-side drain connection as the same as the right side drain connection procedure.

(3) Connecting a Drain Piping

- (A) Prepare a polyvinyl chloride (P. V. C) tube with an outer diameter of 32mm. (VP25)
- (B) Pay attention to the position of the drain pipe. Keep the down-slope, 1/25 to 1/100. Do not create an upper slope or rise for the drain piping.
- (C) Seal the connecting part of the drain pipe by using the water-proof chloride type sealing material.
- (D) Wrap the insulation material around the connecting part perfectly.
- (E) Fasten the drain pipe to the connecting part with the factory-supplied clamp.

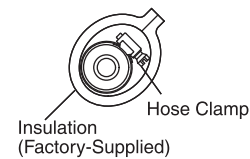
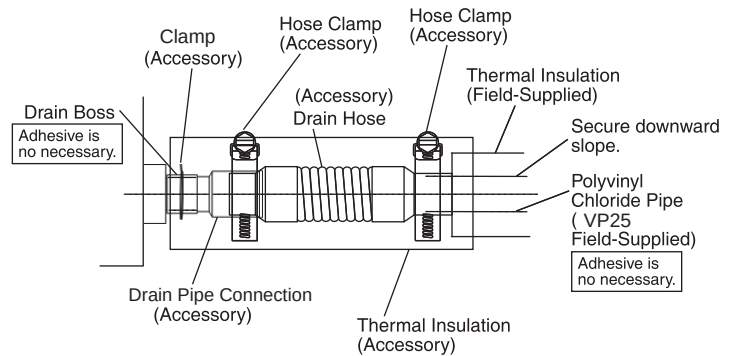


Fig. Wrapping Insulation Material

- (F) Do not connect the drain pipes with sanitary or sewage or any other drainage pipe.
- (G) When installing the pipe, do not tie the drain pipe and refrigerant pipe together.
- (H) After completing the drain pipe work, pour water into the drain pan and check to ensure that water can flow smoothly.

Common

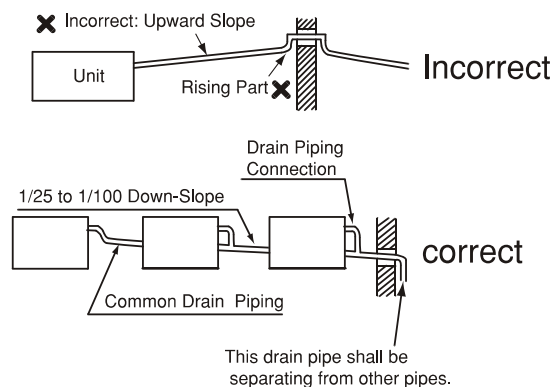


Fig. Drain Piping

9.13 Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Tighten screws according to the following torque.
 - M3.5: 1.2 N-m
 - M5: 2.0~2.4 N-m

! CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.

9.13.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

9.13.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig below.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the terminals inside the electrical box through the connecting hole.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp.

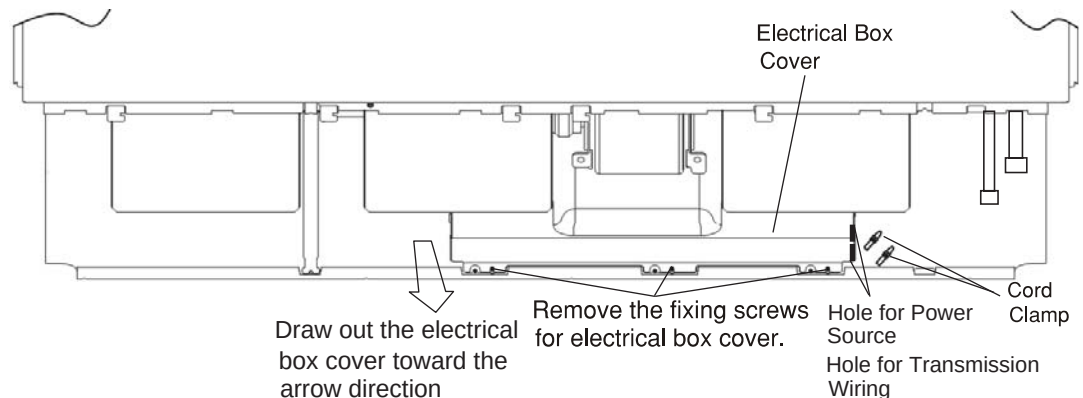


Fig. Remove electrical box cover

The edge of electrical box cover should be embedded in electrical box.

The edge should not cut wiring in electrical box.

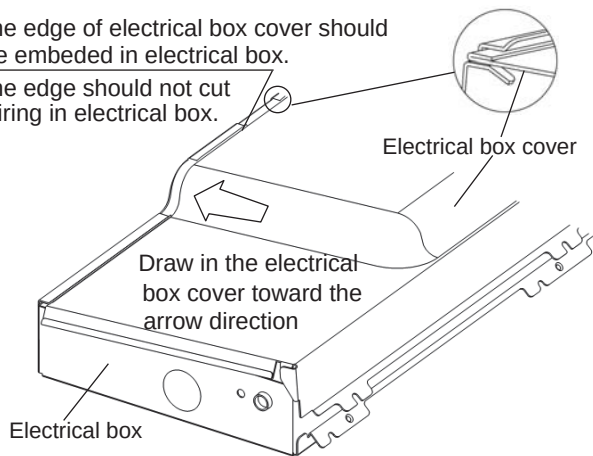
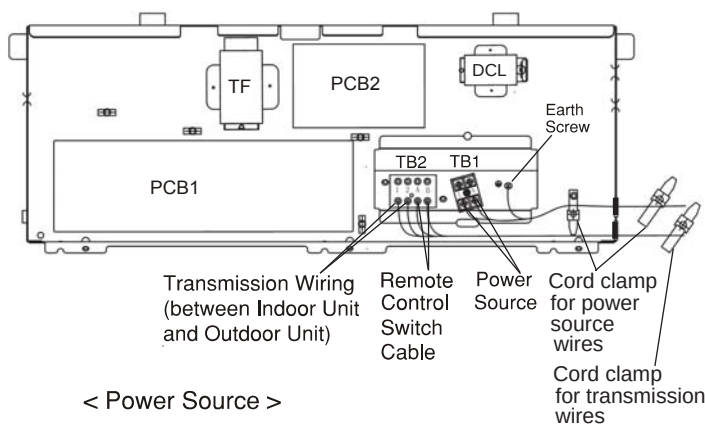
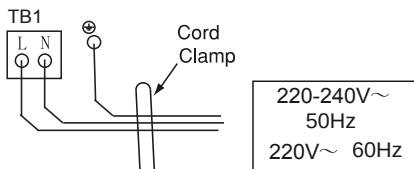


Fig. Recover electrical box cover



< Power Source >



< Transmission Wiring >

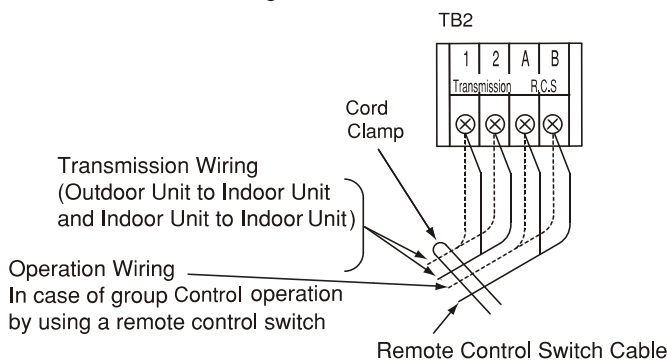


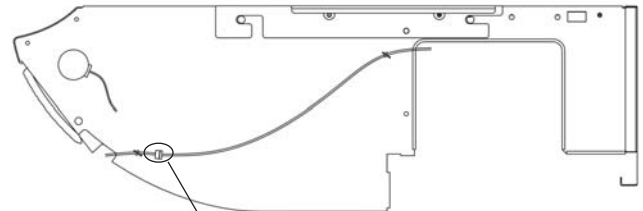
Fig. Electrical Wiring Connection for Indoor Unit

CAUTION

Before electrical wiring work, turn OFF the power source. If the connectors are connected without turning OFF the power source, the auto-swing louver can not activate.

NOTE

Wired Remote Control Switch and Wireless Remote Control Switch can not be used simultaneously. If Wired Remote Control Switch is connected, Disconnect Wireless Receiver Wiring on the right side as viewed from the discharge grilles (refrigerant piping connection side).



Remove the right resin side cover and Disconnect Wireless Receiver wiring (10-Pole Connector)

Fig. Disconnect Wireless Receiver wiring

9.14 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

9.15 Common

9.15.1 Field Minimum Wire Sizes for Power Source

! WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

Field Minimum Wire Sizes for Power Source

Model	Power Source	MCA	Power Source Cable Size EN60335-1 *1	Transmitting Cable Size EN60335-1 *1
17-18	220-240V ~ 50Hz	0.75A	2.5mm ²	0.75mm ²
22-24		1.00A		
27		1.00A		
30		1.10A		
38	220V ~ 60Hz	1.98A		
48		2.25A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

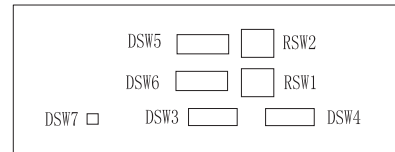
Selection According to EN60 335-1

Current (A)	Wire Size (mm ²)
I ≤ 3	2.5
3 < I ≤ 6	2.5
6 < I ≤ 10	2.5
10 < I ≤ 16	4
16 < I ≤ 25	6
25 < I ≤ 32	10
32 < I ≤ 50	16
50 < I ≤ 63	25
63 < I	※ 1

- ※ 1 In the case that current exceeds 63A, do not connect cables in series.

9.15.2 Setting of Dip Switches

(A) Position of Dip Switches



(B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(1) Unit No. Setting (RSW1 & DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numbering must start from "1" for every outdoor unit.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit DSW6
Before shipment, DSW6 and RSW1 are set to "0". Max. 64 units are available to set when all the equipment to be connected are corresponding to Hi-net. Max. 16 units when the units corresponding/non-corresponding to Hi-net are combined.		
		Set No.1 Pin ON

(2) Unit Mode Code Setting (DSW4)

No setting is required.

Setting the model code of the indoor unit.



(3) Capacity Code Setting (DSW3)

NO setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Capacity × 10 ³ Btu/h	17	18	22	24	27	30
Setting Position						
Capacity × 10 ³ Btu/h	38	48				
Setting Position						

- (4) Refrigerant Cycle No. Setting (RSW2 & DSW5)
Setting is required.
Setting positions before shipment are all OFF.

Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to Hi-net. Max. 16 cycles when the units corresponding/non-corresponding to Hi-net are combined.		Set All Pins OFF Set at "5"

- (5) Fuse Recover (DSW7)

* Factory Setting

* In the case of applying high voltage to the terminal 1, 2 of TB2, the fuse (0.5A) on the PCB is cut.

In such a case, firstly connect the wiring to TB2, and then turn on NO.1 pin.



NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

9.16 Setting of Automatic Swing Louver

Common

When the SWING LOUVER switch is pressed, the swing louver starts its operation.

When "■" is moving, it indicates the operation of the louver continuously. When the swinging operation of the louver is not required, press the SWING LOUVER switch again. The louver is stopped at an angle indicated by the direction of this mark "■".

NOTE

- There exists a time lag between the actual outlet air angle and the liquid crystal indication.
- When the SWING LOUVER switch is pressed, the louver will not stop immediately. The louver will move one extra swing at the next.
- During the cases in item (A), the louvers are fixed automatically. However, indication of the louvers is changed at setting before.

(A) Outlet air angle is fixed at horizontal position during start-up of heating operation and defrosting operation and when thermostat is ON.
When the outlet air temperature reaches higher than approximately 30°C, swinging of louvers is started.
- During the defrosting operation, fan stops running.

CAUTION

Do not turn the air louver by hand. If moved, the louver mechanism will be damaged.

9.17 Filter Cleaning

CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

9.17.1 Taking Out the Filter

The indication, "FILTER" is shown on the display of the remote control switch after approximately 1,200 hour operation.

Take out the air filter according to the following steps.

Step 1

Open the air inlet grille after removing screw covers and fixing screws.

Step 2

Take out the air filter from the air inlet grille by supporting the air grille and lifting the air filter after detaching the filter from clips.

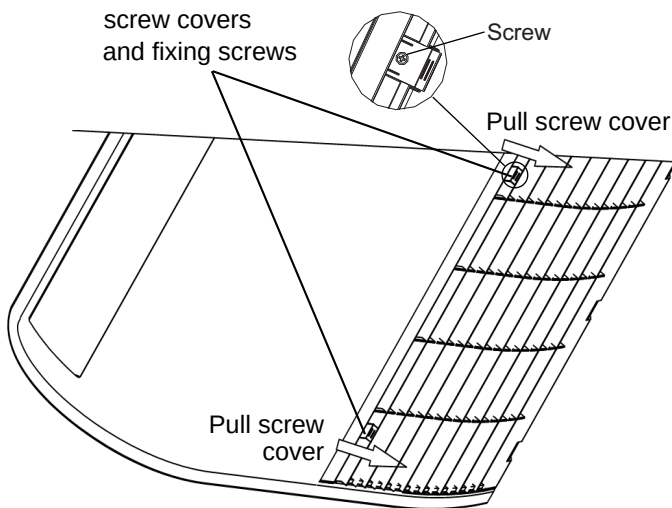


Fig.9.17.2 Open the air inlet grille

9.17.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

9.17.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

9.18 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

9.18.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

9.18.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

9.18.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

9.18.4 This is Not Abnormal

- **Smells from Indoor Unit**
Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.
- **Dew on Air Panel**
When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.
- **Refrigerant Flow Sound**
While the system is being started or stopped, sound from the refrigerant flow may be heard.

NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.

10. Wall Mounted Type

10.1 General Data

Indoor Unit Type		Wall Mounted Type				
Model	AC 1φ, 220-240V/50Hz	AVS-07URCSAB(A/B)	AVS-09URCSAB(A/B)	AVS-12URCSAB(A/B)	AVS-14URCSAB(A/B)	AVS-17URCSAB(A/B)
Power Supply	AC 1φ, 220V/60Hz	AVS-07UR2SAB(A/B)	AVS-09UR2SAB(A/B)	AVS-12UR2SAB(A/B)	AVS-14UR2SAB(A/B)	AVS-17UR2SAB(A/B)
Nominal Cooling Capacity *1)	kW	2.3	2.9	3.8	4.2	5.2
	kcal/h	2,000	2,500	3,300	3,600	4,500
	Btu/h	7,800	9,900	13,300	14,400	17,700
Nominal Cooling Capacity *2)	kW	2.2	2.8	3.6	4.0	5.0
	kcal/h	1,900	2,400	3,100	3,400	4,300
	Btu/h	7,500	9,600	12,300	13,700	17,100
Cooling Power Consumption (50Hz/60Hz)	kW	0.50/0.55	0.50/0.55	0.60/0.65	0.60/0.65	0.65/0.75
Nominal Heating Capacity	kW	2.5	3.3	4.0	4.5	5.6
	kcal/h	2,150	2,800	3,400	3,900	4,800
	Btu/h	8,500	11,300	13,700	15,300	19,100
Heating Power Consumption (50Hz/60Hz)	kW	0.50/0.55	0.50/0.55	0.60/0.65	0.60/0.65	0.65/0.75
Sound Pressure Level (Overall A Scale)	dB	39-34-32-28	39-34-32-28	43-39-32-28	43-39-32-28	45-40-34-29
Cabinet Color	—	White				
Outer Dimensions	Height	mm (in.)	315 (12-2/5)	315 (12-2/5)	315 (12-2/5)	315 (12-2/5)
	Width	mm (in.)	960 (37-4/5)	960 (37-4/5)	960 (37-4/5)	960 (37-4/5)
	Depth	mm (in.)	230 (9)	230 (9)	230 (9)	230 (9)
Net Weight	kg (lbs.)	13.5 (17)	13.5 (17)	13.5 (17)	13.5 (17)	13.5 (17)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)				
Indoor Fan						
Air Flow Rate (Hi/Me/Lo)	m ³ /h (cfm)	660/590/520/460 (388/347/306/271)	660/590/520/460 (388/347/306/271)	830/660/520/460 (488/388/306/271)	830/660/520/460 (488/388/306/271)	900/750/590/460 (529/441/347/271)
Connections		Flare-Nut Connection (with Flare Nuts)				
Refrigerant Piping						
	Liquid Line	mm (in.)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)	6.35 (1/4)
Gas Line						
	mm (in.)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)
Condensate Drain	—	VP16	VP16	VP16	VP16	VP16
Approximate Packing Measurement	m ³	0.17	0.17	0.17	0.17	0.17
Standard Accessories	—	Wall Mounting Bracket				

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature:

27°C DB (80°F DB)

*1) 19.5°C WB (67°F WB)

*2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature:

35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature:

20°C DB (68°F DB)

Outdoor Air Inlet Temperature:

7°C DB (45°F DB)

6°C WB (43°F WB)

Piping Length: 7.5 Meters

Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1 meter beneath the unit and 1 meter from inlet grille.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		Wall Mounted Type		
Model	AC 1Φ, 220-240V/50Hz	AVS-18URCSBB(A/B)	AVS-22URCSBB(A/B)	AVS-24URCSBB(A/B)
Power Supply	AC 1Φ, 220V/60Hz	AVS-18UR2SBB(A/B)	AVS-22UR2SBB(A/B)	AVS-24UR2SBB(A/B)
Nominal Cooling Capacity *1)	kW	5.8	6.5	7.3
	kcal/h	5,000	5,600	6,300
	Btu/h	19,800	22,200	24,900
Nominal Cooling Capacity *2)	kW	5.6	6.3	7.1
	kcal/h	4,800	5,400	6,100
	Btu/h	19,100	21,500	24,200
Cooling Power Consumption (50Hz/60Hz)	kW	0.54/0.65	0.62/0.74	0.72/0.83
Nominal Heating Capacity	kW	6.3	7.1	8.0
	kcal/h	5,400	6,100	6,900
	Btu/h	21,500	24,200	27,300
Heating Power Consumption (50Hz/60Hz)	kW	0.62/0.75	0.72/0.83	0.82/0.91
Sound Pressure Level (Overall A Scale)	dB	41-37-34-30	44-41-36-31	46-43-38-33
Cabinet Color	—	White		
Outer Dimensions	Height	mm	315	315
		(in.)	(12-2/5)	(12-2/5)
		mm	1120	1120
Width		(in.)	(44)	(44)
		mm	230	230
Depth		(in.)	(9)	(9)
		kg	16.0	16.0
Net Weight	(lbs.)	(20)	(20)	(20)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)		
Indoor Fan	m³/h (Hi/Me/ Lo /SLo)	893/782/671/582	1006/893/716/621	1122/984/804/649
Air Flow Rate		525/460/395/342	(592/525/421/365)	(660/579/473/382)
(Hi/Me/ Lo /SLo)				
Connections		Flare-Nut Connection (with Flare Nuts)		
Refrigerant Piping				
Liquid Line	mm	9.53	9.53	9.53
	(in.)	(3/8)	(3/8)	(3/8)
Gas Line	mm	15.88	15.88	15.88
	(in.)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP16	VP16	VP16
Approximate Packing Measurement	m³	0.19	0.19	0.19
Standard Accessories	—	Wall Mounting Bracket		

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
*1) 19.5°C WB (67°F WB)
*2) 19.0°C WB (66.2°F WB)
Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

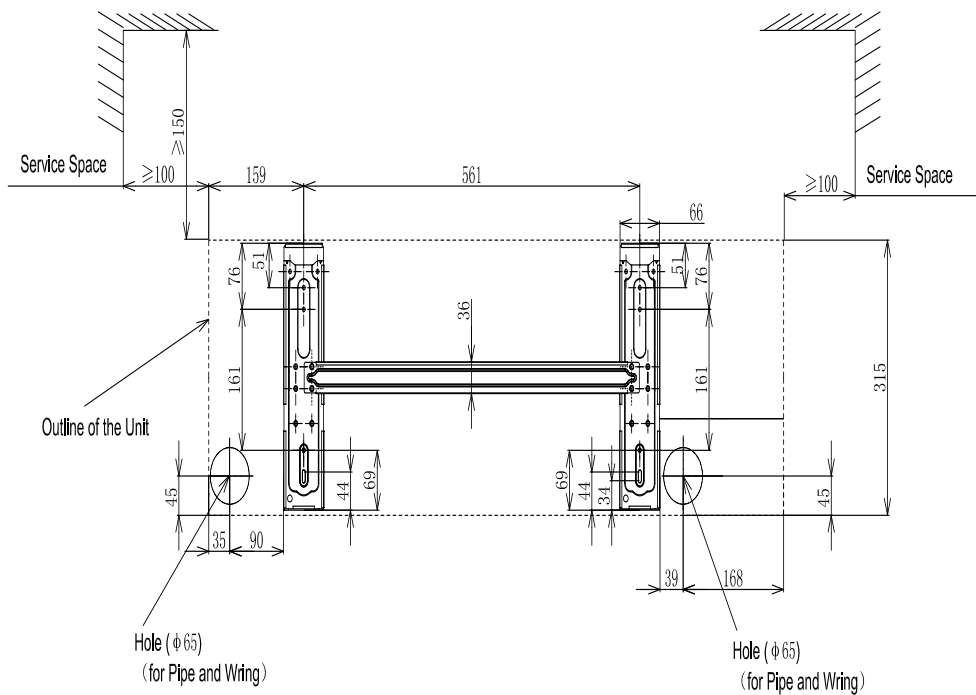
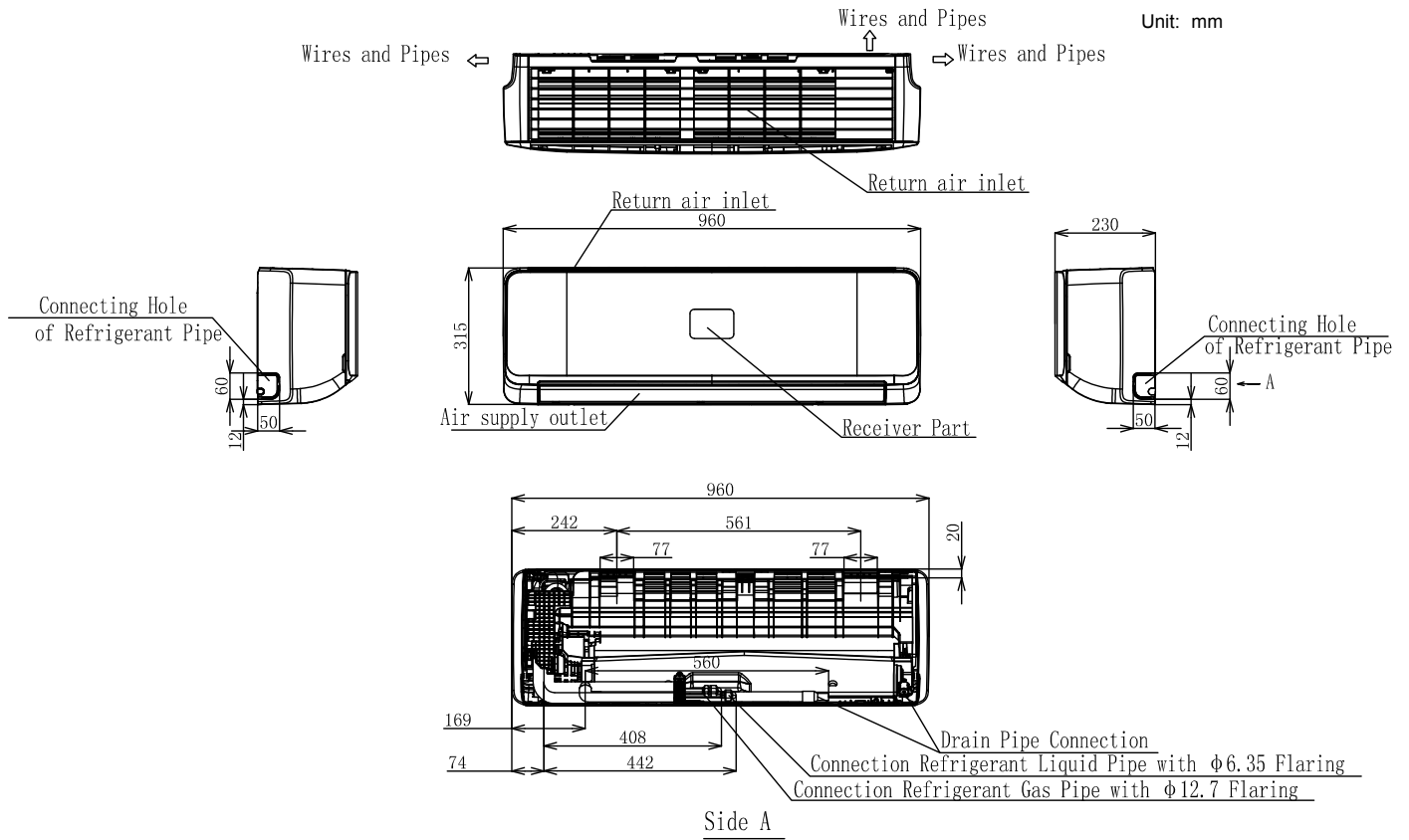
- The sound pressure level is based on following conditions.

1 meter beneath the unit and 1 meter from inlet grille.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

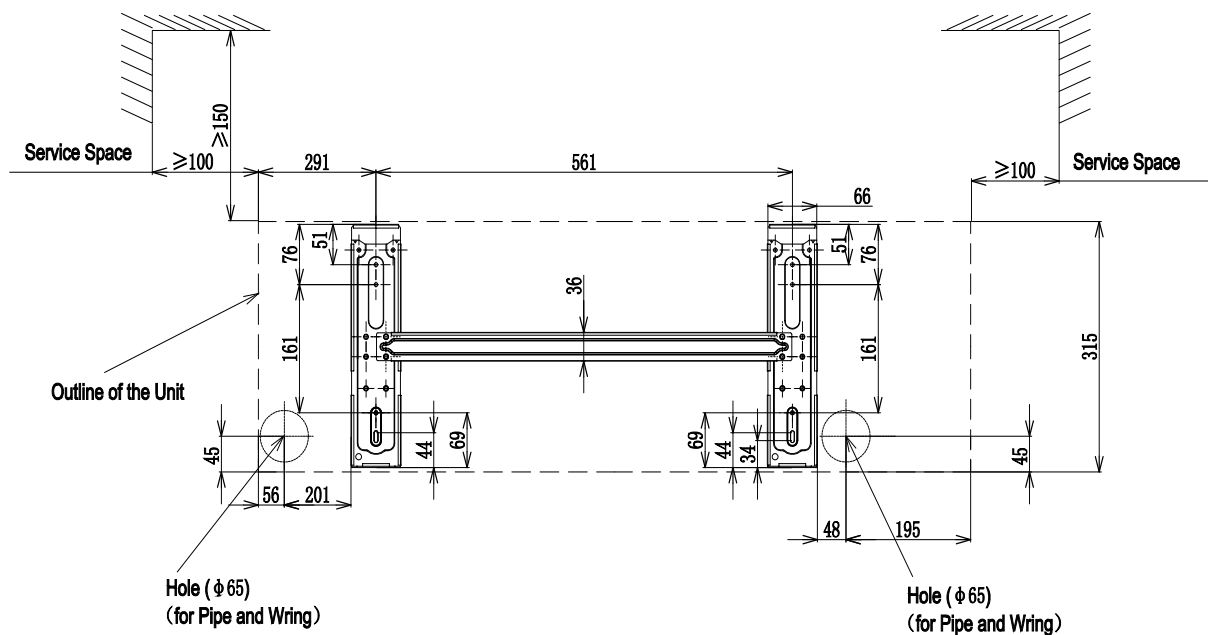
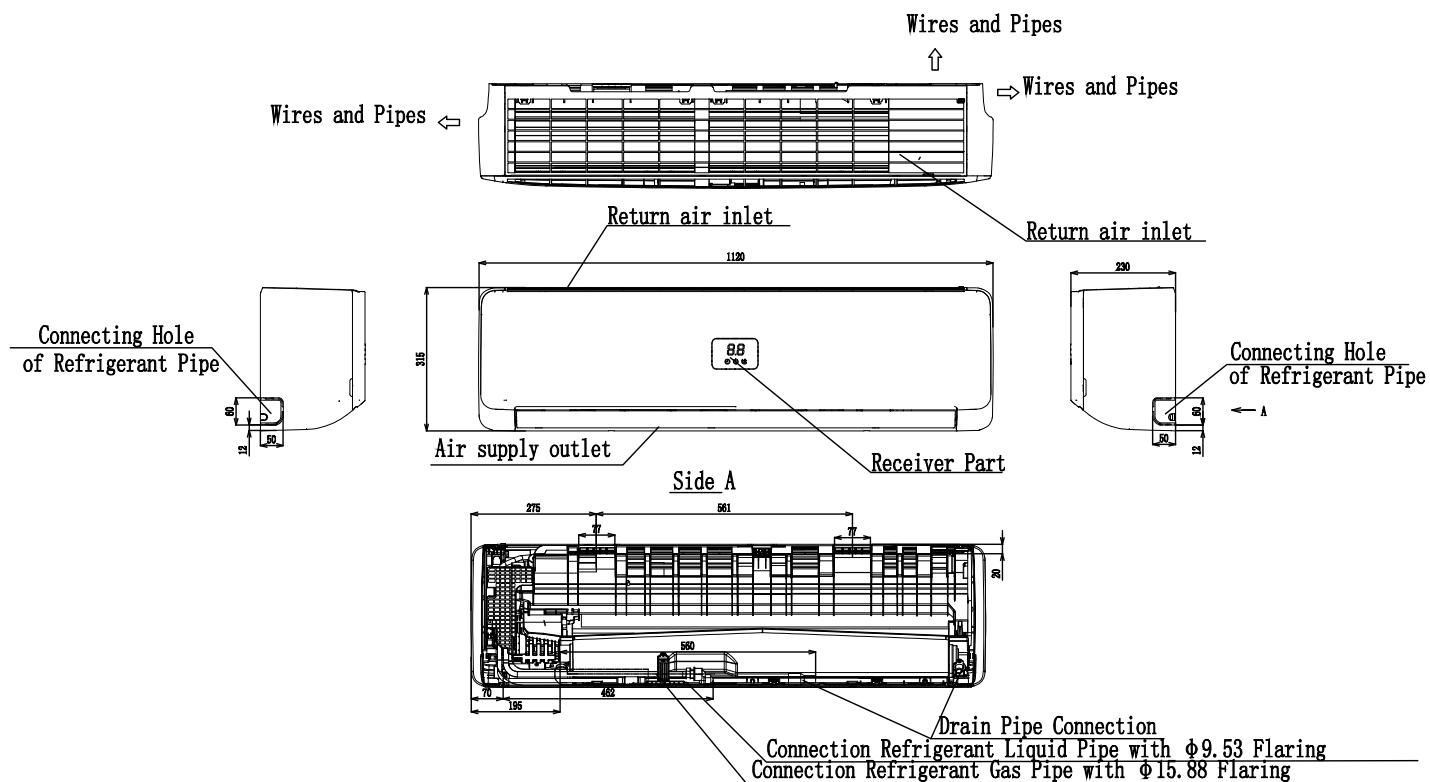
10.2 Dimensional Data

Models: AVS-07~17*



Models: AVS-18~24*

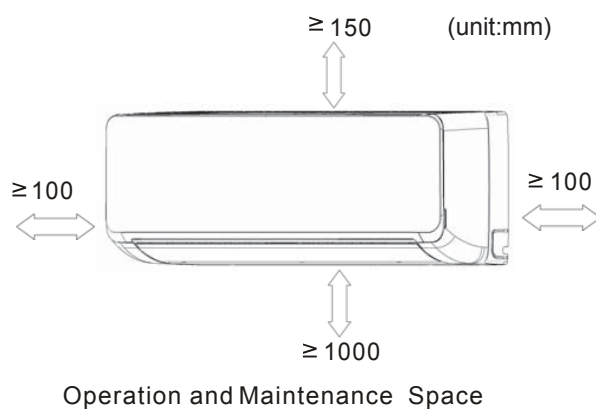
Unit: mm



10.3 Selection Data

- Service Space

Models:AVS-07~24*

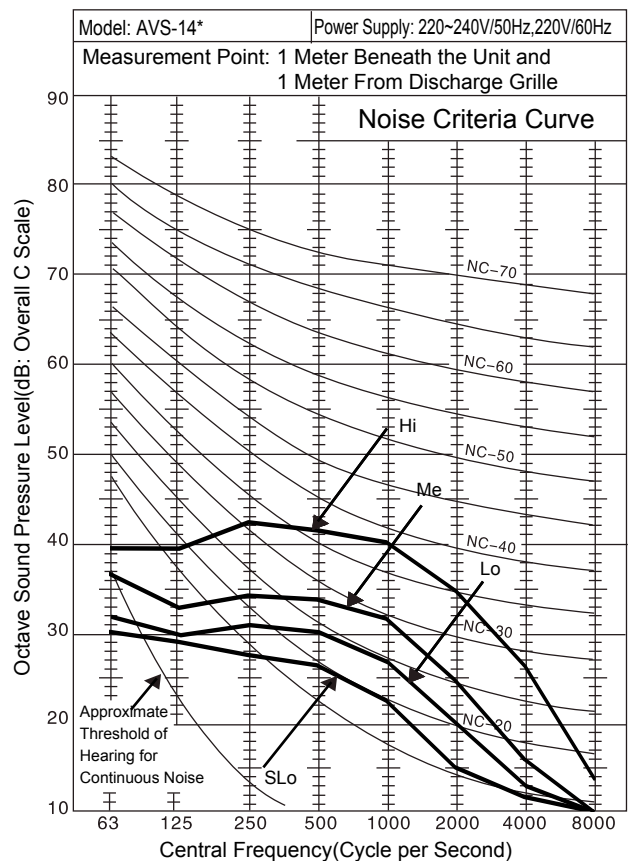
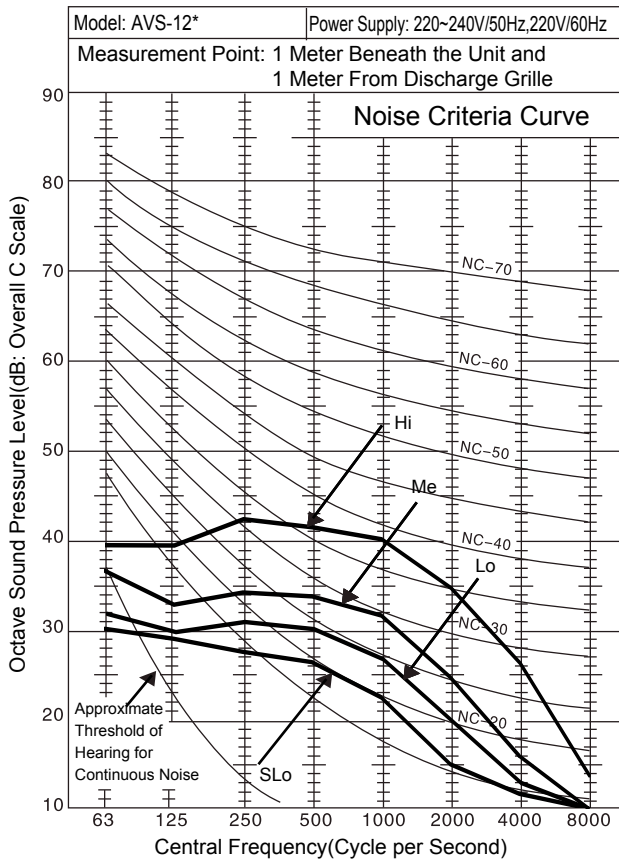
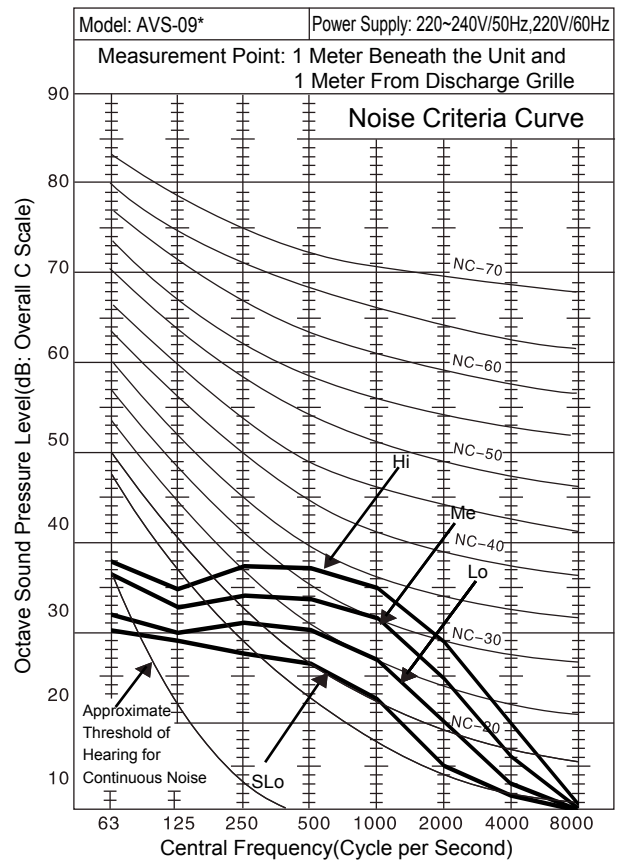
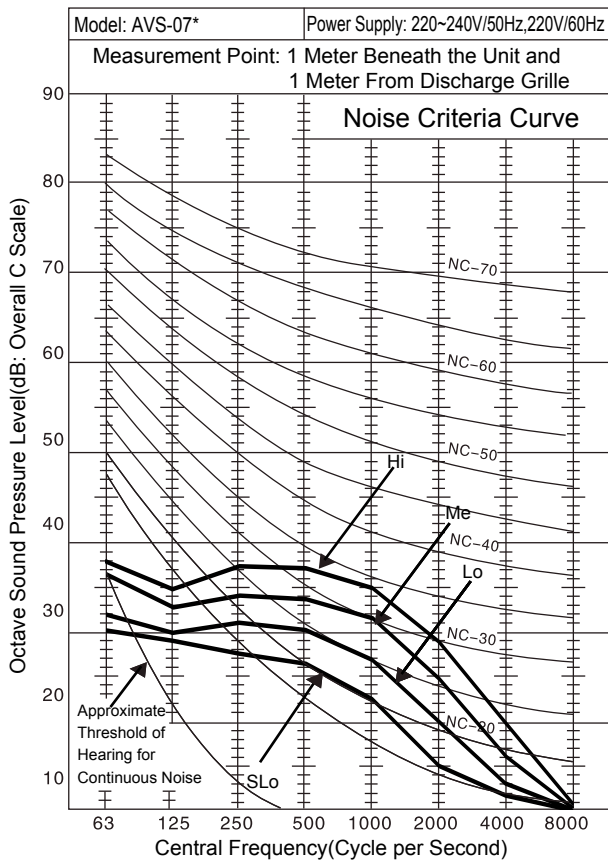


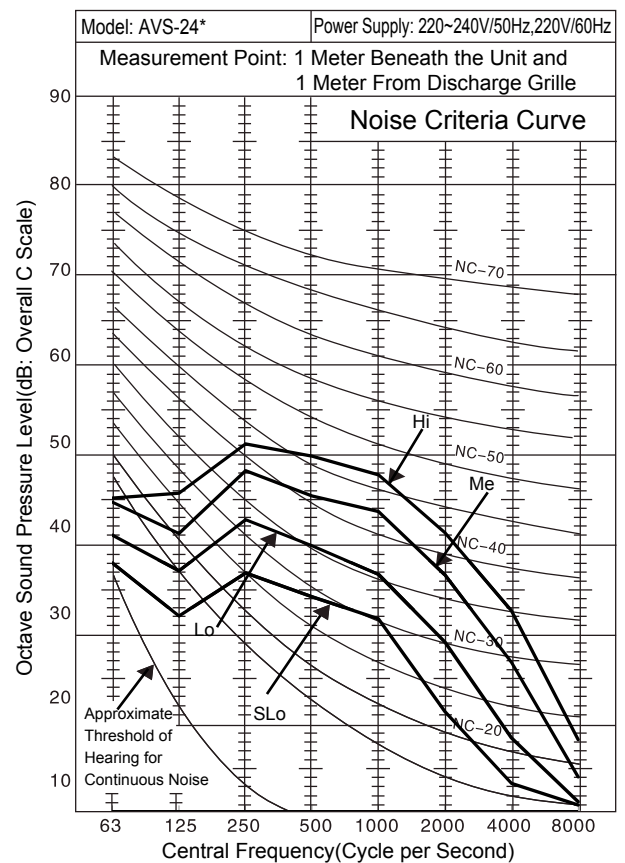
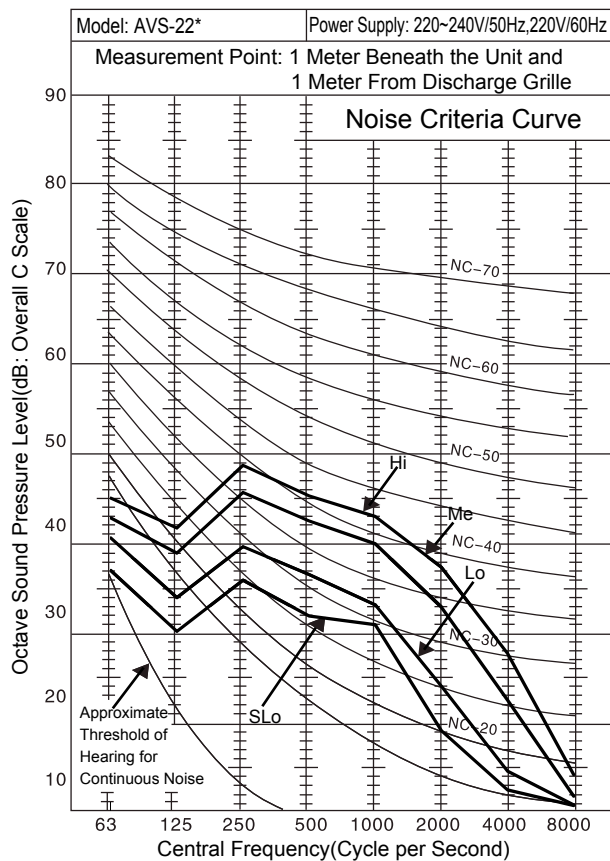
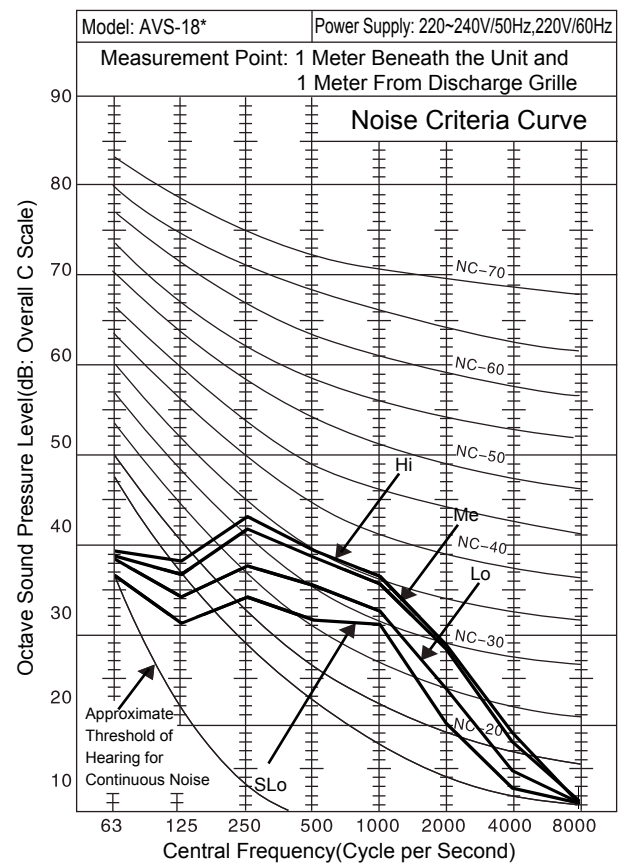
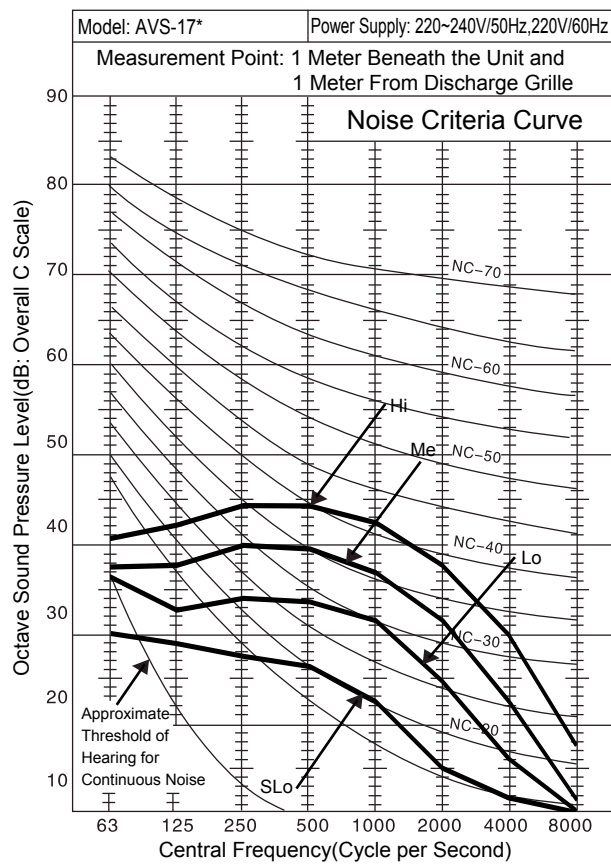
- Sensible Heat Factor (SHF)

The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVS-07*	0.78	0.74	0.71
AVS-09*	0.78	0.74	0.71
AVS-12*	0.73	0.72	0.70
AVS-14*	0.73	0.72	0.70
AVS-17*	0.69	0.68	0.67
AVS-18*	0.69	0.68	0.67
AVS-22*	0.71	0.69	0.68
AVS-24*	0.73	0.71	0.69

● Sound Data



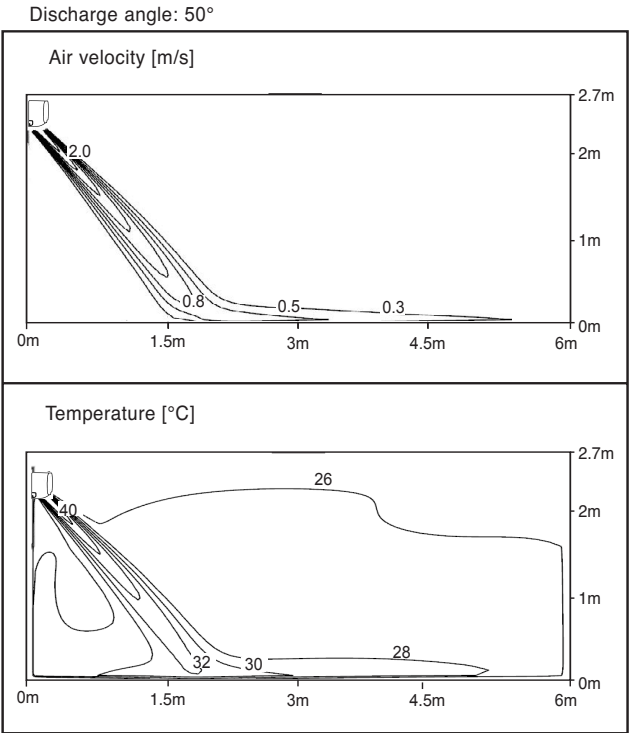
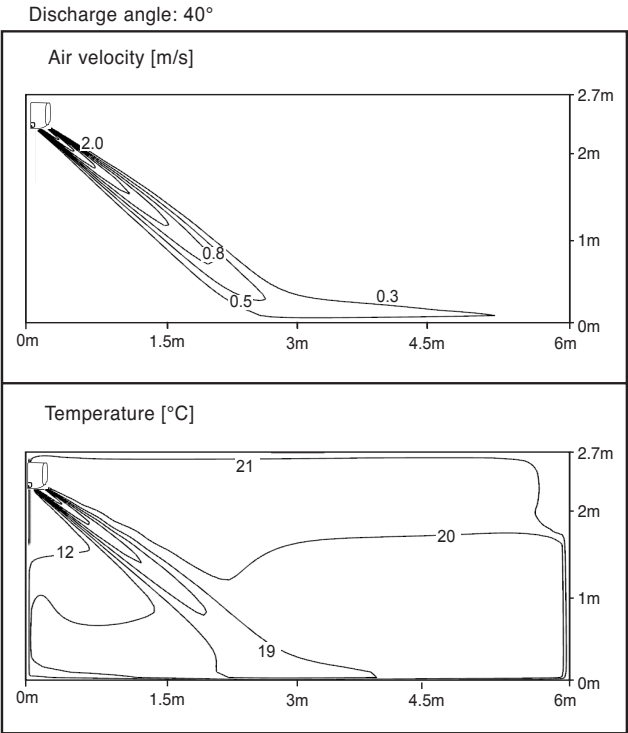


● Temperature Data

AVS-07URCSAB(A/B)

Cooling

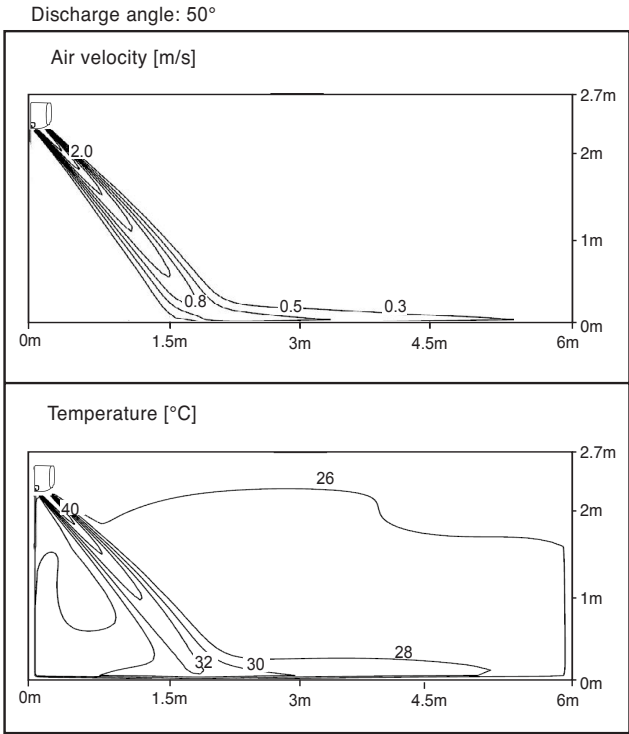
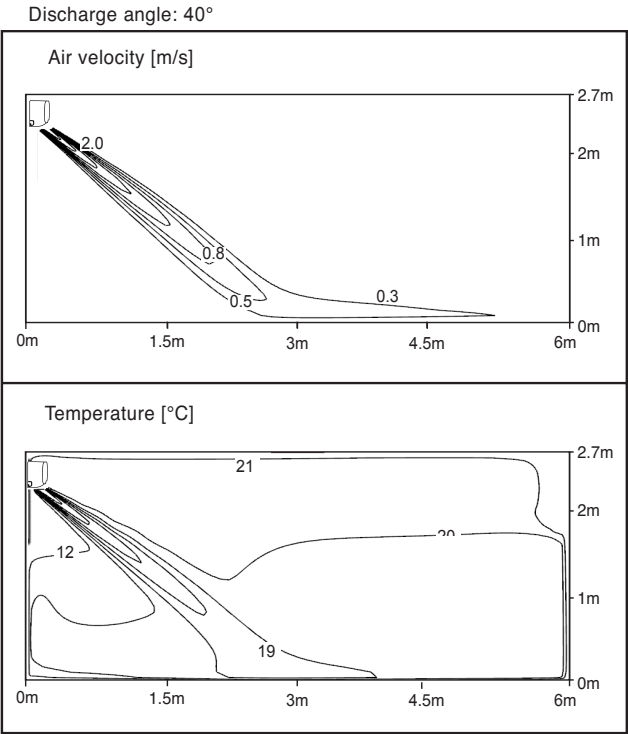
Heating



AVS-09URCSAB(A/B)

Cooling

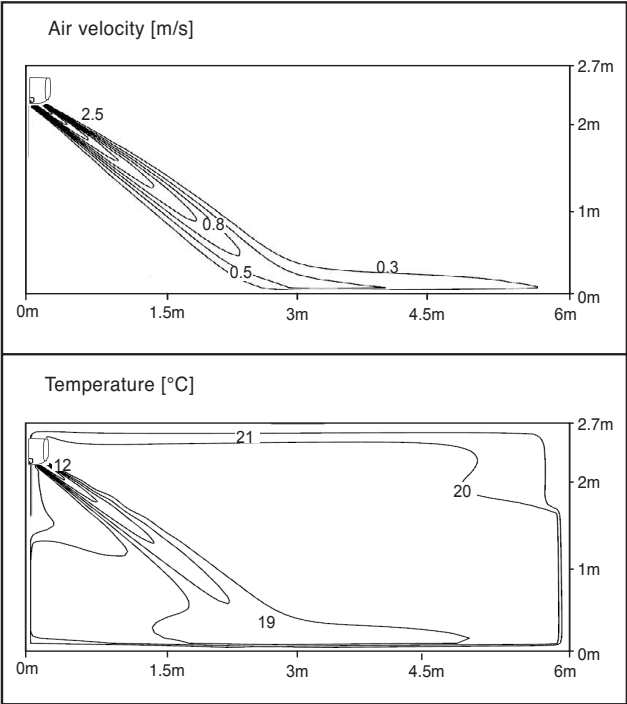
Heating



AVS-12URCSAB(A/B)

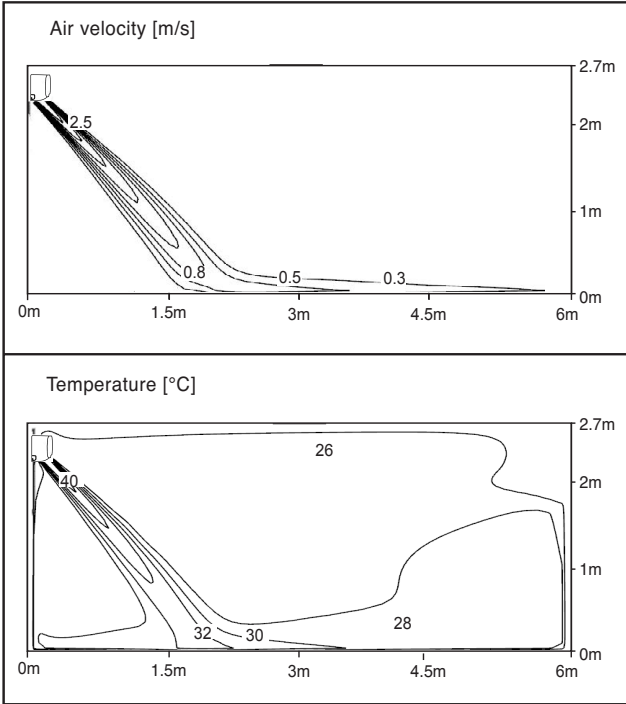
Cooling

Discharge angle: 40°



Heating

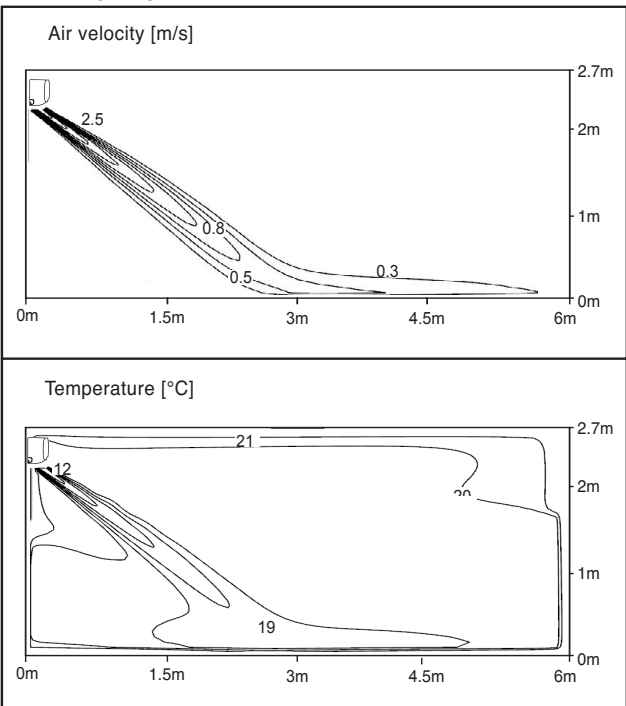
Discharge angle: 50°



AVS-14URCSAB(A/B)

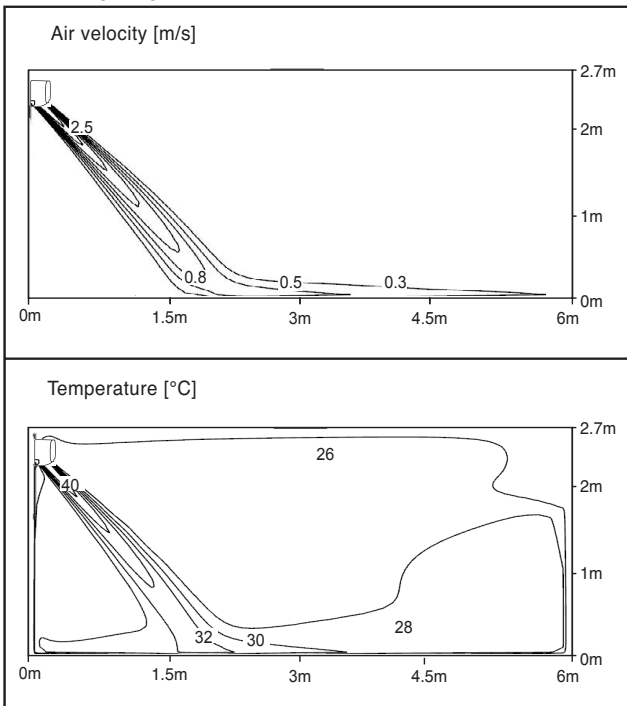
Cooling

Discharge angle: 40°



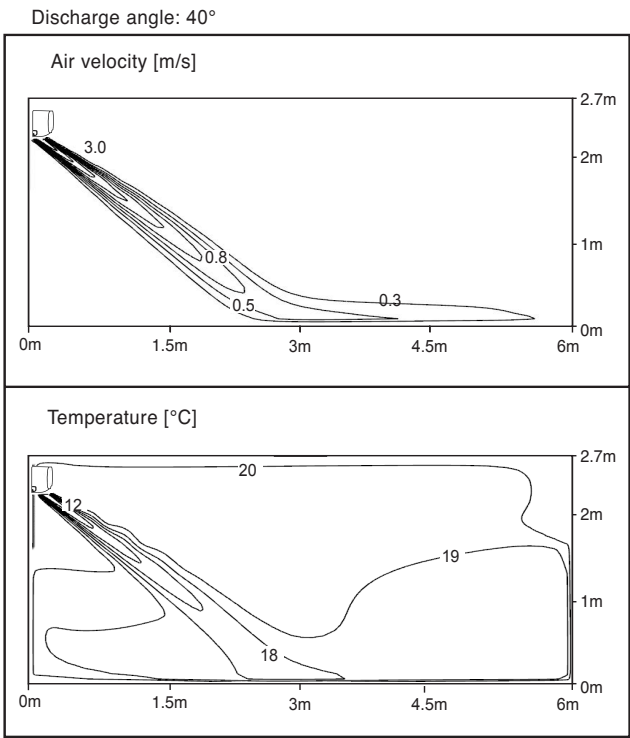
Heating

Discharge angle: 50°

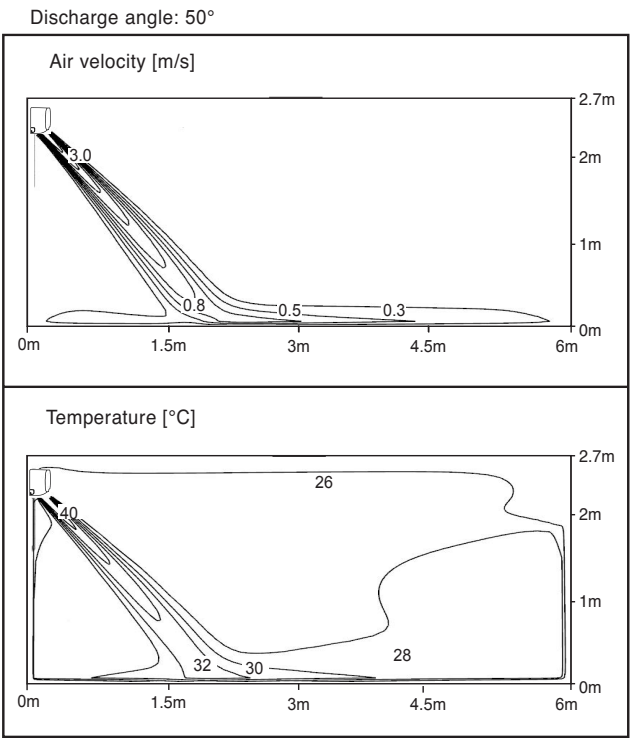


AVS-17URCSAB(A/B)

Cooling

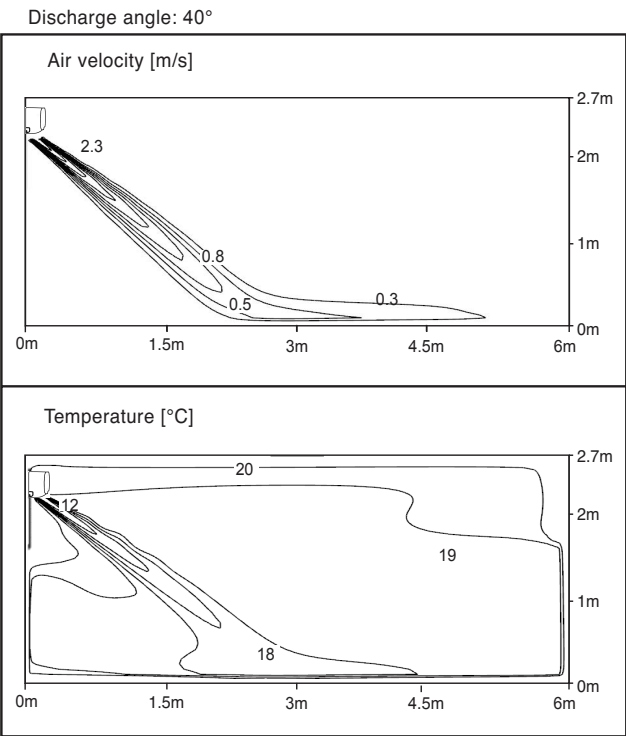


Heating

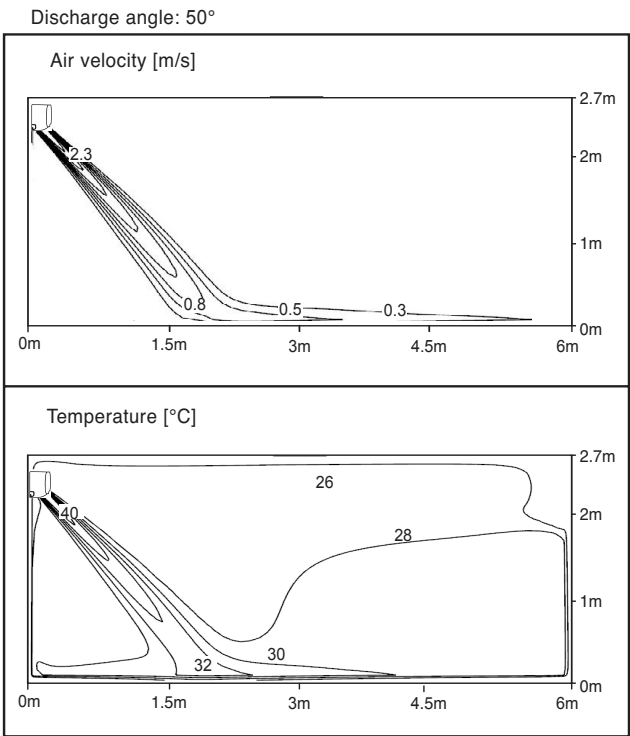


AVS-18URCSAB(A/B)

Cooling



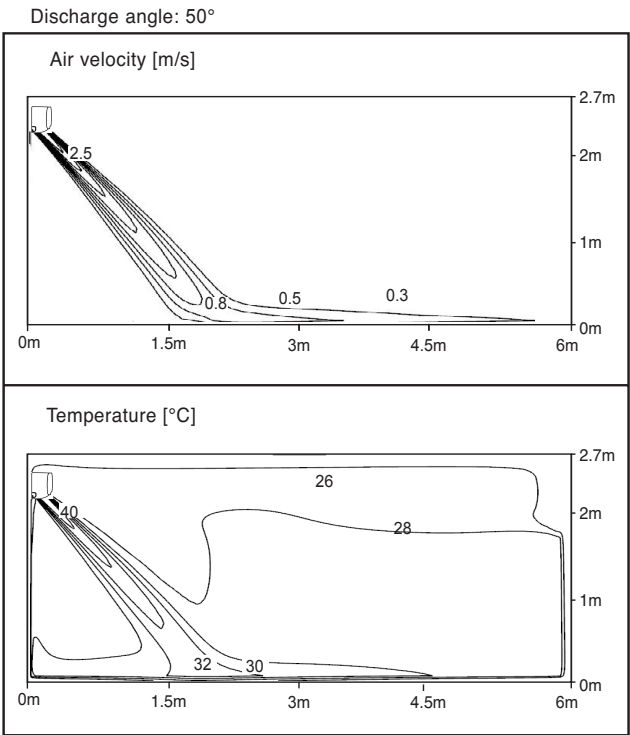
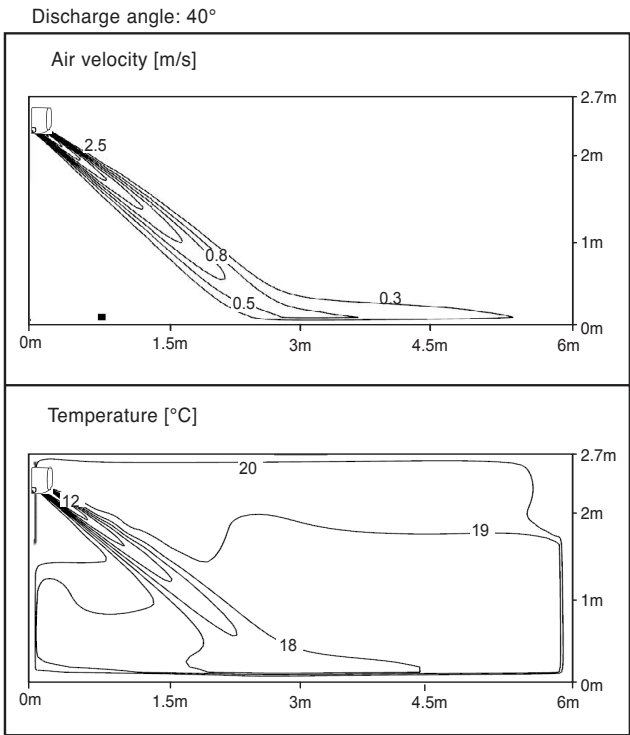
Heating



AVS-22URCSAB(A/B)

Cooling

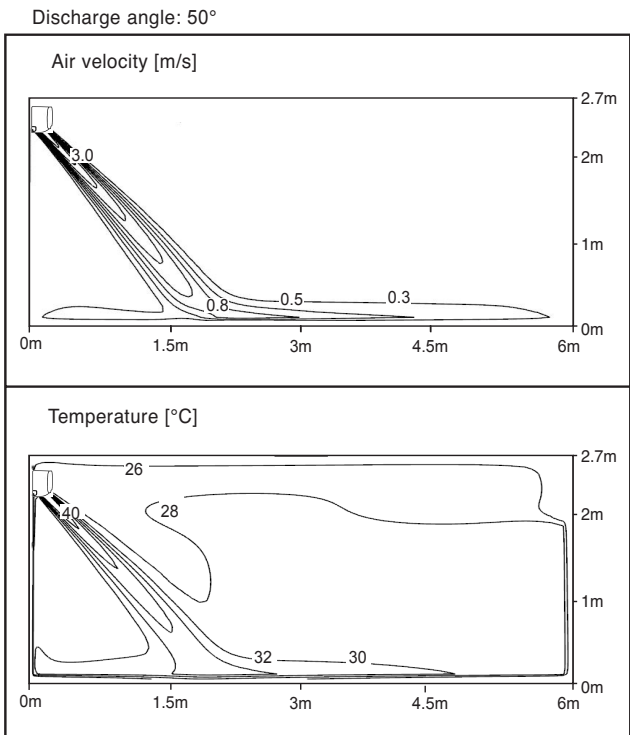
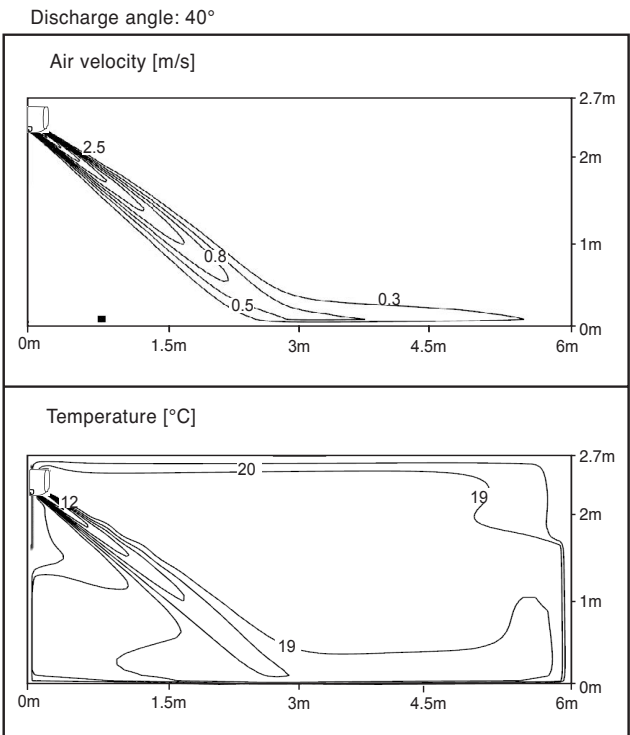
Heating



AVS-24URCSAB(A/B)

Cooling

Heating



10.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVS-07UR*BA(B)	AVS-09UR*BA(B)	AVS-12UR*BA(B)	AVS-14UR*BA(B)	AVS-17UR*BA(B)
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube				
Tube Material		Copper Tube				
Outer Diameter	mm	7.0	7.0	7.0	7.0	7.0
Rows	–	2	2	2	2	2
Fin Material		Aluminum				
Pitch	mm	1.65	1.65	1.65	1.65	1.65
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.24	0.24	0.24	0.24	0.24
Number of Coil/Unit	–	1	1	1	1	1
Indoor Fan		Tubular Fan				
Number/Unit	–	1	1	1	1	1
Outer Diameter	mm	107	107	107	107	107
Revolution (220V)	rpm	1000/900/800/700	1000/900/800/700	1160/1000/800/700	1160/1000/800/700	1240/1060/900/700
Nominal Air Flow	m ³ /h	660/590/520/460	660/590/520/460	830/660/520/460	830/660/520/460	900/750/590/460
Indoor Fan Motor		Drip-Proof Type Enclosure PSC				
Starting Method	–	(Permanent Split Capacitor)				
Nominal Output	W	35	35	35	35	35
Quantity	–	1	1	1	1	1
Insulation Class	–	E	E	E	E	E

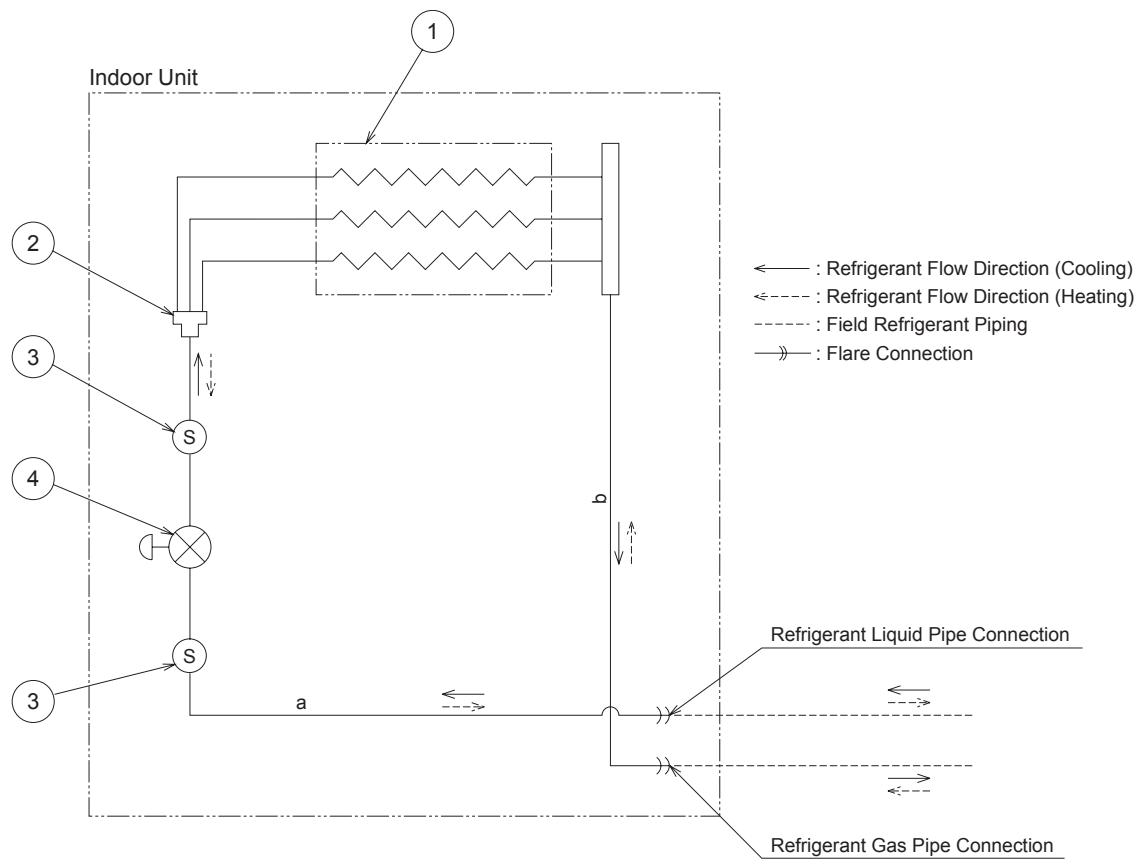
Indoor Heat Exchanger and Fan

Model		AVS--18URC*	AVS--22URC*	AVS--24URC*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	7.0	7.0	7.0
Rows	–	2	2	2
Fin Material		Aluminum		
Pitch	mm	1.65	1.65	1.65
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.33	0.33	0.33
Number of Coil/Unit	–	1	1	1
Indoor Fan		Tubular Fan		
Number/Unit	–	1	1	1
Outer Diameter	mm	100	100	100
Revolution (220V)	rpm	1000/910/820/750	1100/1000/840/750	1200/1080/920/780
Nominal Air Flow	m ³ /h	893/782/671/582	1006/893/716/621	1122/984/804/649
Indoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method	–	PSC (Permanent Split Capacitor)		
Nominal Output	W	50	50	50
Quantity	–	1	1	1
Insulation Class	–	E	E	E

Indoor Heat Exchanger and Fan

Model		AVS--18UR2*	AVS--22UR2*	AVS--24UR2*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	7.0	7.0	7.0
Rows	–	2	2	2
Fin Material		Aluminum		
Pitch	mm	1.65	1.65	1.65
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.33	0.33	0.33
Number of Coil/Unit	–	1	1	1
Indoor Fan		Tubular Fan		
Number/Unit	–	1	1	1
Outer Diameter	mm	100	100	100
Revolution (220V)	rpm	1000/910/820/750	1100/1000/840/750	1200/1080/920/780
Nominal Air Flow	m ³ /h	893/782/671/582	1006/893/716/621	1122/984/804/649
Indoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method	–	PSC (Permanent Split Capacitor)		
Nominal Output	W	50	50	50
Quantity	–	1	1	1
Insulation Class	–	E	E	E

10.5 Refrigeration Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

10.6 Electrical Data

< 50 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Wall Mounted Type	AVS-07URCSAB(A/B)	220~240	1	50	264	198	1	0.4	0.05
	AVS-09URCSAB(A/B)							0.4	0.05
	AVS-12URCSAB(A/B)							0.45	0.06
	AVS-14URCSAB(A/B)							0.45	0.06
	AVS-17URCSAB(A/B)							0.5	0.065
	AVS-18URCSBB(A/B)							0.41	0.062
	AVS-22URCSBB(A/B)							0.41	0.072
	AVS-24URCSBB(A/B)							0.41	0.082

< 60 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Wall Mounted Type	AVS-07UR2SAB(A/B)	220	1	60	264	198	1	0.4	0.05
	AVS-09UR2SAB(A/B)							0.4	0.05
	AVS-12UR2SAB(A/B)							0.45	0.06
	AVS-14UR2SAB(A/B)							0.45	0.06
	AVS-17UR2SAB(A/B)							0.5	0.065
	AVS-18UR2SBB(A/B)							0.41	0.062
	AVS-22UR2SBB(A/B)							0.41	0.072
	AVS-24UR2SBB(A/B)							0.41	0.082

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

Safety and Control Device Setting

Model		AVS-07~24*	
For Evaporator Fan Motor Thermostat	Cut-Out	°C	130 ± 5
	Cut-In	°C	83 ± 15
For Control Circuit Fuse Capacity	A		5
Freeze Protection Thermostat	Cut-Out	°C	0
	Cut-In	°C	14
Thermostat Differential	°C		2

10.7 Electrical Wiring Diagram

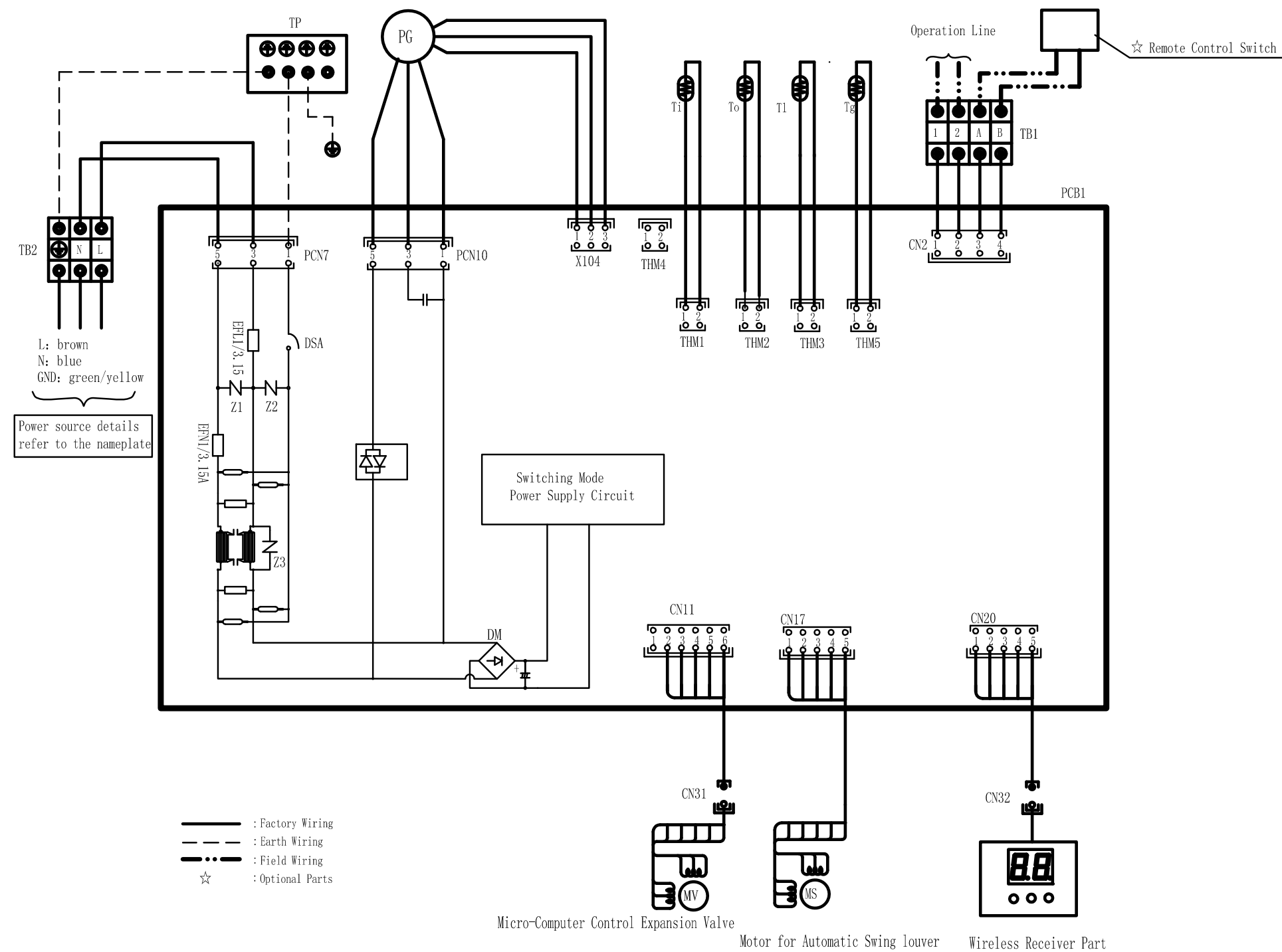
Model: AVS-09~24*

⚠

WARNING

⚡

Before inspecting the electrical parts set the Operation Switch to OFF, and cut OFF the power supply!



Mark	Name
CN2, CN11, CN17, CN20, X104	Connector on PCB
CN31, CN32	Connector
DSW3, DSW4	Dip Switch for Setting
EFL1, EFN1	Fuse
MS	Motor for Automatic Swing louver
MV	Micro-Computer Control Expansion Valve
PG	Motor for Indoor Fan
PCN7, PCN10	Connector on PCB
PCB1	Printed Circuit Board
TB1, TB2	Terminal Board
TP	Terminal Plate for GND
THM1~5	Thermistor
Z1~3	Surge Absorber
◎	Terminals

SW	TYPE	AVS-07*	AVS-09*	AVS-12*	AVS-14*	AVS-17*	AVS-18*	AVS-22*	AVS-24*
DSW3									
DSW4									

Note :

1. All the field wiring and equipment must comply with local codes.

10.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	Wall Mounted Type
Wire Remote Control Switch	HYXE-F01H	•
	HYXE-G01H	•
	HYXE-A01H#01	•
	HYXE-J01H	•
	HYXE-M01H	•
Wireless Remote Control Switch	HYE-L01	•
	HYE-W01	• Standard Option
Wireless Receiver Kit	HYRE-V01H	
	HYRE-T01H	
	HYRE-V02H	
	HYRE-X01H	
7 Day Timer	HYDE-E01H	•
Control Station	HYJE-H01H	•
	HYJE-D02H	•
	HYJ-J01H	•
	HCCS-H128H2C1YM	•
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	•
Interface for Building Control	HC-A64BNP	•
	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

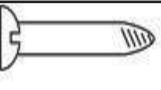
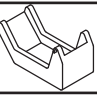
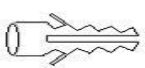
10.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Fig . Factory-Supplied Accessories

Accessory	Quantity	Purpose
Mounting Bracket 	1	For Mounting Indoor Unit
Wireless Remote Control Switch 	1	For Control the Indoor Unit
Screw φ 4.0 × 40L 	6	For Mounting Bracket
Screw Cover 	3	Cover screw hole
Thermal Insulation Pipe 	1	For Refrigerant Pipe
Plug 	6	For Mounting Bracket

10.10 Installation

10.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig.

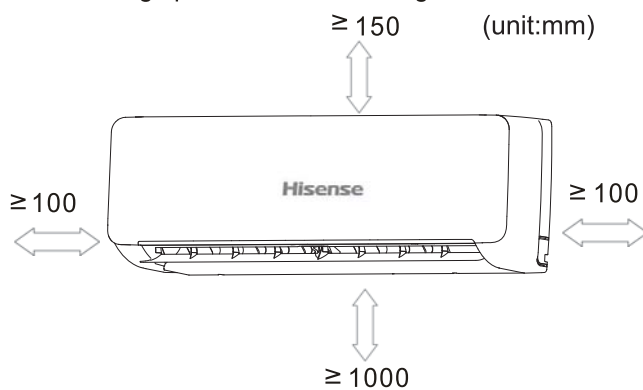


Fig. Operation and Maintenance Space

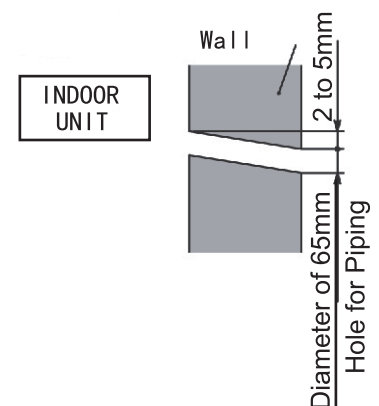


Fig. Hole for Piping on the Wall

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.

The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

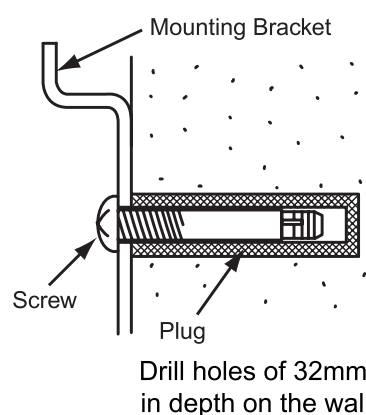
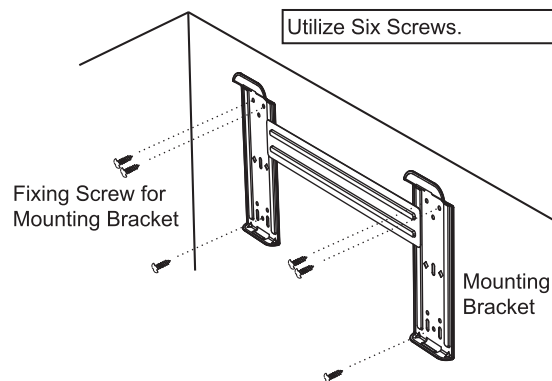


Fig. Mounting on Concrete Wall or Concrete Block Wall

10.10.2 Installation

The dimensions of the mounting bracket and the unit installation are indicated in Fig.

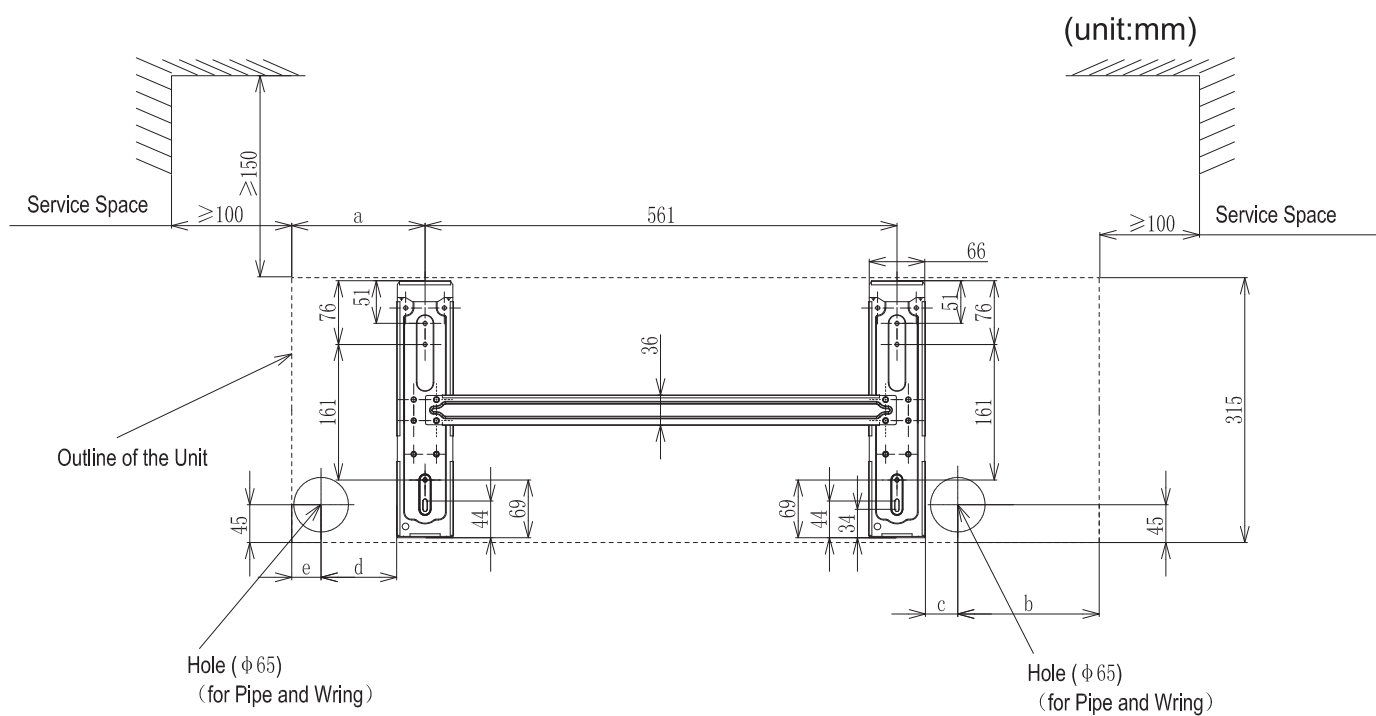
● Mounting Bracket onto Wall

When the mounting bracket is directly attached to a wood wall or a concrete wall, check to ensure of 2000N.

Mounting on a Concrete Wall or a Concrete Block Wall: Attach the mounting bracket to the wall with anchor bolts as shown below.

NOTE

The mounting bracket should be installed so that the side of drain piping connected is slightly (about 3mm) lower than the other side, in order to avoid the incorrect position of the drain discharge.
(Drain piping connection can be performed both right side and left side of the unit.)



Model (KBtu/h)	a	b	c	d	e
07~17	159	168	39	90	35
18~24	291	195	48	201	56

Fig. Mounting Bracket

10.10.3 Mounting the Indoor Units

Hook the indoor unit to the mounting bracket, maintaining the indoor unit upright.

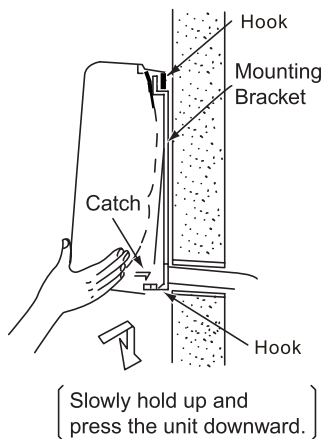


Fig. Mounting of the Indoor Units

CAUTION

Check to ensure that the unit is completely hooked onto the mounting bracket. If not, it may drop from the bracket, resulting in a serious accident.

- (1) The side of the drain pipe is downward-sloping 2 degrees or 3 degrees in the process of the unit installation.
- (2) Check the drainage of the drain pan through water overflow test.

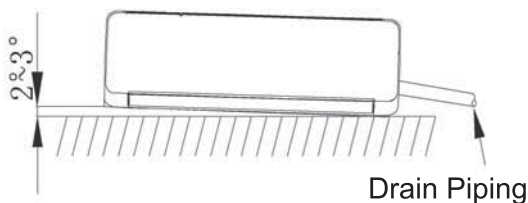
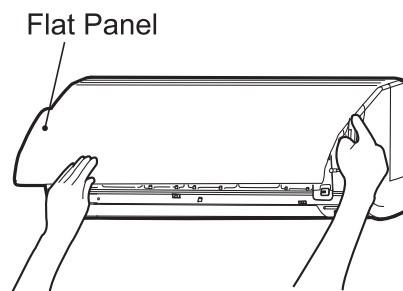
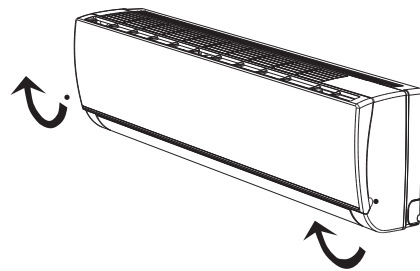


Fig. Slop angle of the Indoor Units

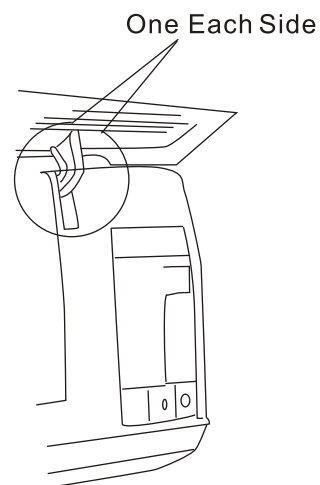
10.10.4 Removing Flat Panel

In order to connect the refrigerant piping, wiring and to check drain water flow, removing the flat panel is needed. Perform these work according to the following instructions. Pay attention to the resin components not to scratch.

- (1) Hold both sides of the flat panel and open it, and pull the right arm toward the inner side. Slightly close the flat panel and pull it, then remove the flat panel.

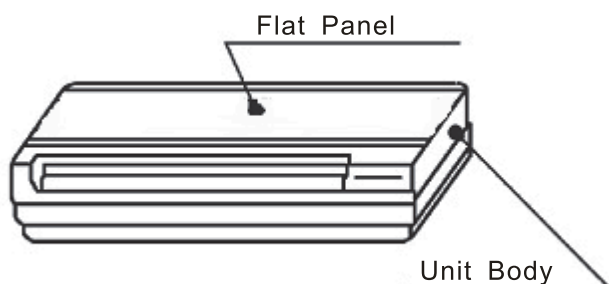


- (2) Pay attention to the junction of grille from each side, to prevent breaking off.



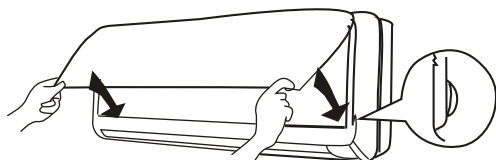
⚠ CAUTION

When removing flat panel, do not apply strong forces by hitting, etc. It may break the unit body.

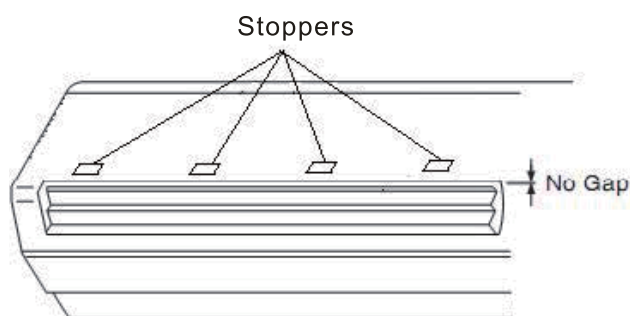


10.10 Install Flat Panel

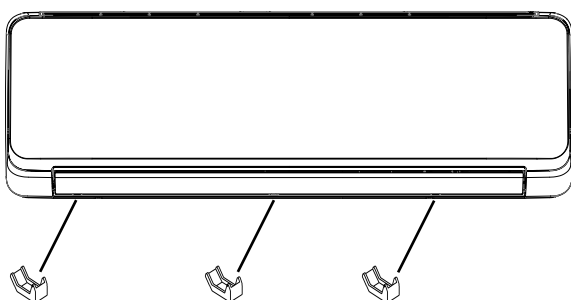
- (1) Press flat panel down, make the two joints of the flat panel tightly fasten.



- (2) There are four stoppers inside of the flat panel. Check to ensure that there is no gap between flat panel and unit body.



- (3) Put three screws cover into the screw hole in the air outlet.



⚠ CAUTION

Any gap will lead to leak or frost.

10.11 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

10.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

unit:mm(in.)		
Model(KBtu/h)	Gas pipe	Liquid pipe
07~17	φ12.7(1/2)	φ6.35(1/4)
18~24	φ15.88(5/8)	φ9.53(3/8)

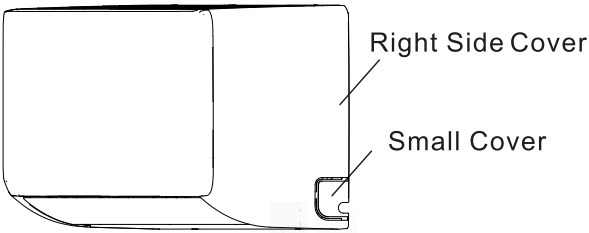
- (3) Select clean copper pipes making sure there is no dust and moisture inside the tubes. Before connecting pipes, blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials.

10.11.2 Piping Connection

- (1) Position of piping connection is shown below.
- (2) Piping Direction for the Indoor Unit :Three directions of piping connection to the indoor unit can be performed; to the rear side, the right side and the left side of the unit, respectively. Therefore, most appropriate piping for a room can be selected.

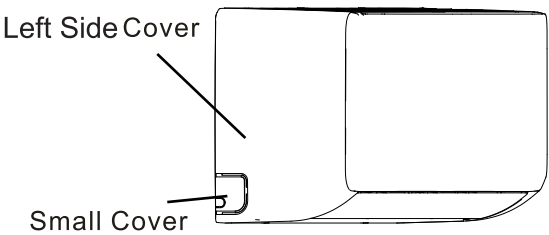
●Right Side Piping

Take off the small cover from right side.



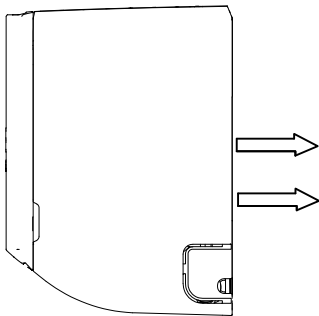
● Left Side Piping

Take off the small cover from left side.



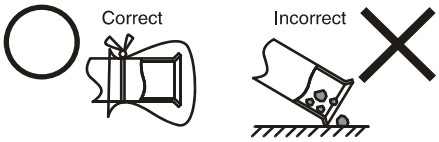
● Rear Side Piping

Bend pipe backwards directly.



CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- When bending the pipes, firmly fix the pipe at the heat exchanger side.

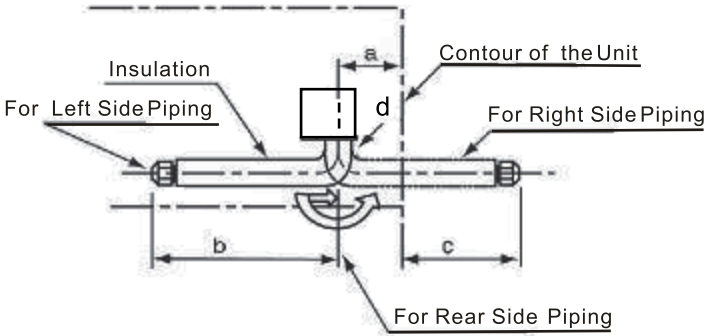


Fig. Liquid pipe

(unit:mm)

Model(KBtu/h)	a	b	c	d
07~17	64	437	373	10R
18~24	60	464	404	20R

- Bend the gas pipe at the flexible pipe part.

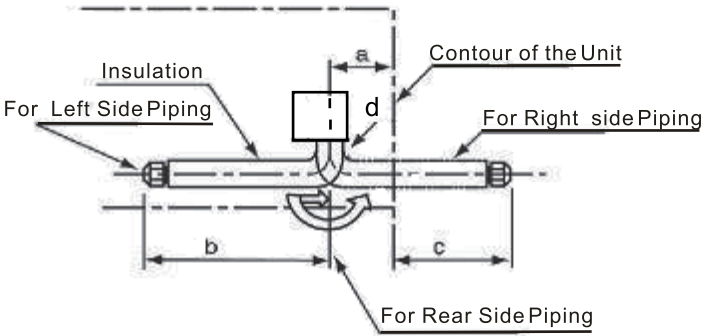
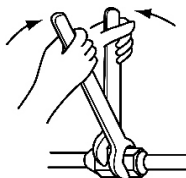


Fig. Gas pipe

(unit:mm)

Model(KBtu/h)	a	b	c	d
07~17	78	396	318	20R
18~24	76	431	355	25R

(3) When tightening the flare nut, use two spanners as shown below.



Pipe Diameter	Torque(N.m)
φ6.35	20
φ9.53	40
φ12.7	60
φ15.88	80

Fig. Tightening Work of Flare Nut

(4) Insulate the refrigerant pipes as shown below.

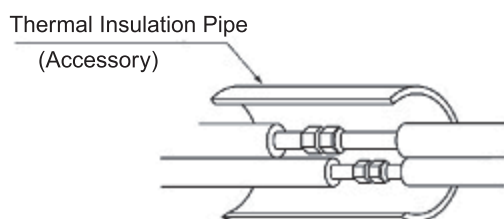


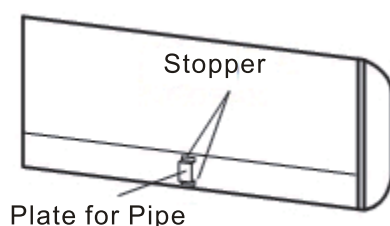
Fig. Insulation on pipes

(5) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

CAUTION

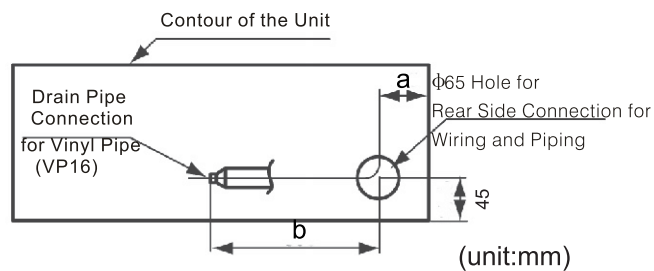
An excess or a shortage of refrigerant is the main cause of trouble to the units. Charge the correct refrigerant quantity.

(6) Fix the plate of pipes (factory-supplied) as shown below.



10.12 Drain Piping

(1) The standard direction of drain piping connection is right side as viewed from the discharge grilles. However, it can be performed from the left side or rear side.



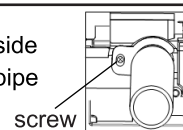
Model(KBtu/h)	a	b
07~17	168	600
18~24	195	600

Fig. Direction of Drain Piping

(2) when the left-side drain pipe connection is performed, remove the drain plug of left-side, and then attach this plug to the right-side in order to change drain piping connection from right-side to left-side.

(A) Draw out the drain plug and drain pipe

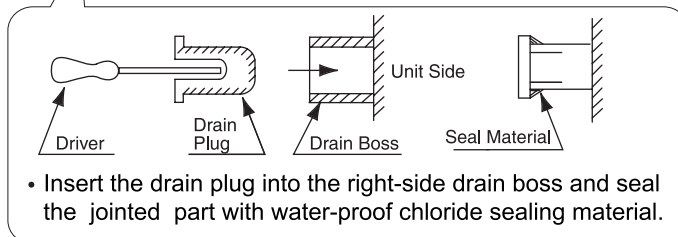
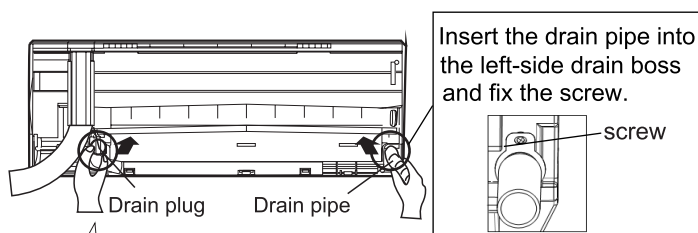
- Remove the fixing screw for right-side drain pipe and draw out the drain pipe from drain boss.



- Please use pliers to pull out the drain plug for left-side. (This is an easier way to remove the drain cap).



(B) Insert the drain plug and drain pipe



- Insert the drain plug into the right-side drain boss and seal the jointed part with water-proof chloride sealing material.

CAUTION

Insufficient insert may result in water leakage.

- (3) Provide a vinyl chloride pipe, VP20.
- (4) Connect a drain piping as shown in Fig. 6.2.
Use adhesive tape for connecting the drain pipe.

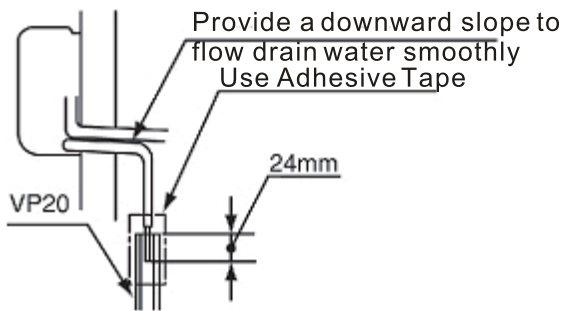


Fig. 6.2 Connection of Drain Piping

- (5) Pour water into the drain pan and check to ensure that water can flow smoothly.

⚠ CAUTION

- Do not connect the drain pipes with sanitary or sewage or any other drainage pipe.
- When installing the pipe, do not tie the drain pipe and refrigerant pipe together.
- Pay attention to the thickness of the insulation when the left side piping is performed. If it is too thick, piping cannot be installed in the unit.

⚠ CAUTION

- (1) Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.
- (2) Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- (3) When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.

10.13 Electrical Wiring

⚠ WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.

⚠ CAUTION

- Tighten screws according to the following torque.
M3.5: 1.2 N·m
M5: 2.0 to 2.4 N·m
- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.

10.13.1 General Check

- (1) Make sure that the field-supplied electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog". Make sure that the components comply with National Electrical Code (NEC).
- (2) Use shielded twist pair cable for control cable between outdoor unit and indoor unit, control cable between indoor units and remote control switch.
- (3) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (4) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (5) Check to ensure that the earth wire is connected.
- (6) PowerSource Main Switch.
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

10.13.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig.

- (1) Connect the cable of an optional remote control switch to A, B terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the wires between the indoor unit and the outdoor unit to 1,2 terminals of the terminal board inside the electrical box through the connecting hole in the cabinet.
- (3) The power supply and earth wires have been connected in the factory. Please connect to the power circuit with a ELB(Fig.Wiring Connection).
- (4) Tightly clamp the wires using the cord clamp.

CAUTION

- ELB must be connected to the power circuit. If not, it may be danger.
- Apply the specified screw for terminal board (M4 for TB2 and M3.5 for TB1) and fasten the screw firmly.

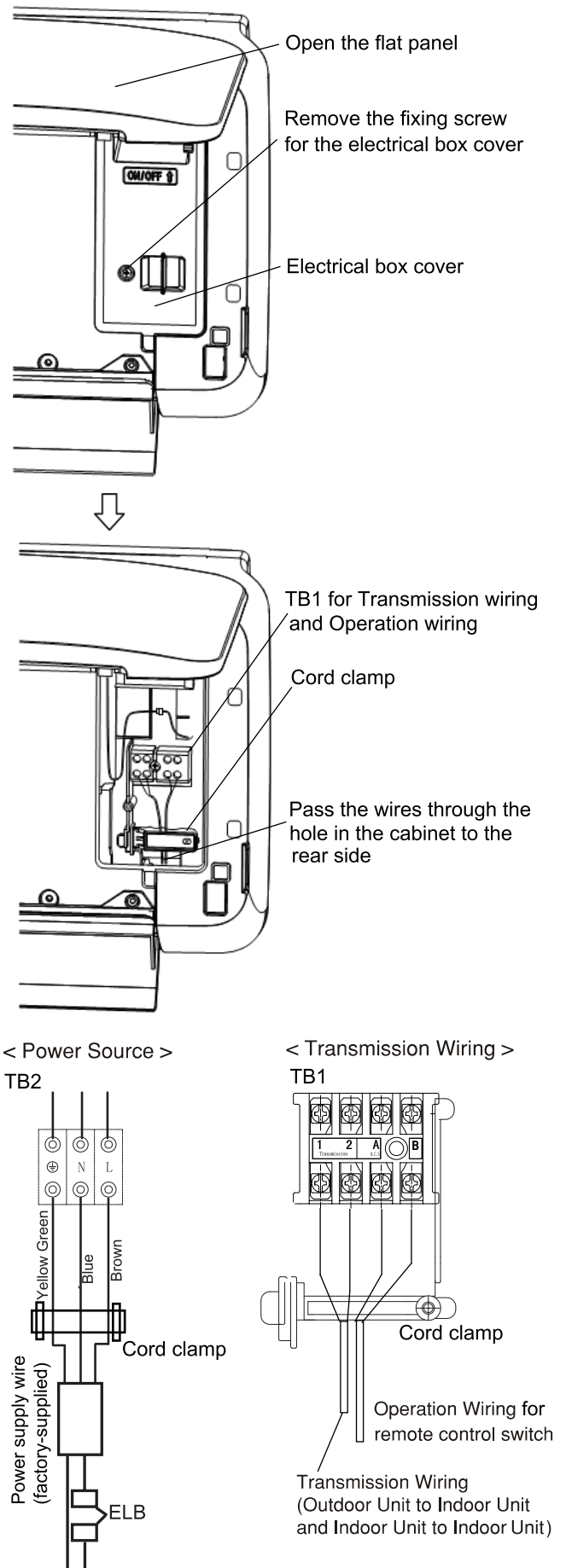
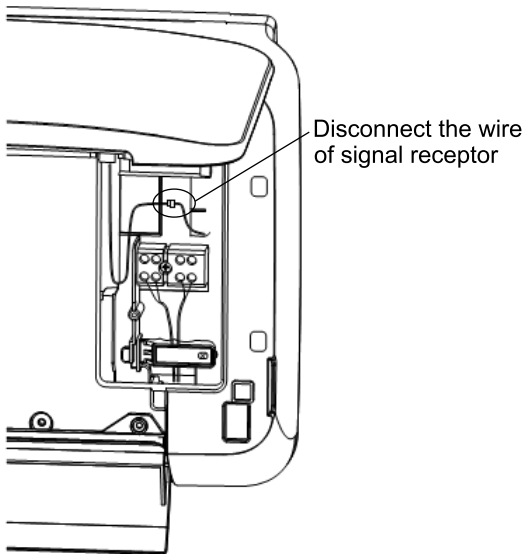


Fig. Wiring Connection

NOTE

Wired Remote Control Switch and Wireless Remote Control Switch can not be used simultaneously. If Wired Remote Control Switch is connected, Disconnect the wire of signal receptor in the electrical box.



- Pay attention to the following items while the system is running.

- (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
- (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

10.15 Common

10.15.1 Field Minimum Wire Sizes for Power Source

! WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.

Model	Power Source	Rated Current	Power Source Cable Size EN60335-1*1	Transmitting Cable Size EN60335-1*1
07~09	220-240V~ 50Hz	0.40A	2.5mm ²	0.75mm ²
12~14		0.45A		
17		0.50A		
18		0.72A		
22~24		0.76A		

10.14 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

! WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

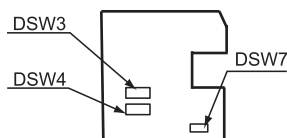
Current (A)	Wire Size (mm ²)
$I \leq 3$	2.5
$3 < I \leq 6$	2.5
$6 < I \leq 10$	2.5
$10 < I \leq 16$	4
$16 < I \leq 25$	6
$25 < I \leq 32$	10
$32 < I \leq 50$	16
$50 < I \leq 63$	25
$63 < I$	※1

- ※1 In the case that current exceeds 63A, do not connect cables in series.

10.15.2 Setting of Dip Switches

(A) Position of Dip Switches

PCB for Indoor unit PCB1



(B) The PCB in the indoor unit is equipped with 2 types of dip switches and rotary switch. Before testing unit, set these dip switches according to the following instructions.

Unless these dip switches are set in the field, the unit can not be operated.

(1) Capacity Code Setting(DSW3)

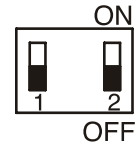
No setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Horsepower	07	09	12	14
Setting Position	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF
Horsepower	17	18	22	24
Setting Position	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF	ON 1 2 3 4 OFF

(2) Fuse Recover(DSW7)

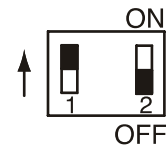
No setting is required.

Setting position before shipment is all OFF.



*In the case of applying high voltage to the terminal 1, 2 of TB2, the fuse (0.5A) on the PCB is cut.

In such a case, firstly connect the wiring to TB2, and then turn on NO.1 pin.



NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

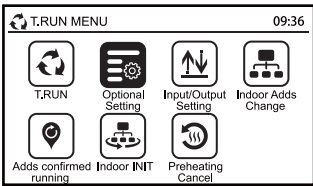
CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

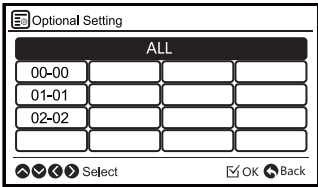
10.15.3 Setting the Filter Indication Interval

The FILTER indication interval on the remote control switch can be set approximately 100, 1,200 or 2,500 hours (factory setting: 1200 hours). If 100, 1,200 or 2,500 hours interval is required, follow the instructions below.

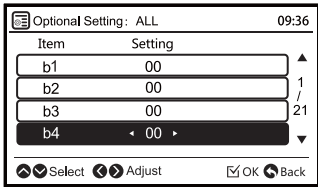
- (1) Press and hold "Menu" and "Return" simultaneously for at least 3 seconds during the normal mode (when unit is not operated) .The test run menu will be displayed.
- (2) Select "Optional Setting" from the test run menu pressing "Enter".



- (3) Select the indoor unit by pressing "Up", "Down", "Left", "Right" and press "Enter".
(This screen is NOT displayed when the number of indoor unit connected with the remote control switch is 1(one). In this case,(4) will be displayed.)



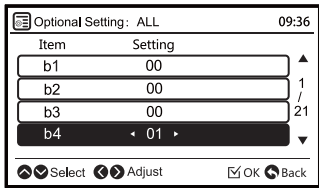
- (4) Press "Up", "Down" and select the item.



- (5) Press "<", ">" and change the setting.

FILTER Indication Interval				
Approx. 100 hr.	Approx. 1,200 hr.	Approx. 1,200 hr.	Approx. 2,500 hr.	No. Indication
b4 01	b4 00(*)	b4 02	b4 03	b4 04

(*): Standard

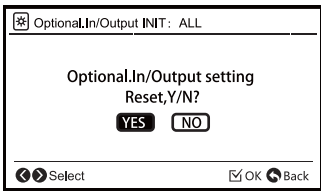


- (6) Press "Enter" so that the confirmation screen will be displayed.

- (7) Select "Yes" and press "Enter". The test run menu will be displayed after the setting is confirmed. If "NO" is pressed, the screen will return to (4).

- (8) Press "Return" on the test run menu to return to the normal mode.

To set other units, press "Return" at (4) (5) so that the screen will return to (3). (If the number of indoor unit connected with the remote control switch is 1 (one), the screen will return to (1).)



10.15.4 Indoor Unit Address

● Indoor Unit Address Change

This function changes the address (refrigerant cycle number and indoor unit number) of indoor units.

(1) Press and hold "□" (menu) and "↩" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

(2) Select "Indoor Adds Change" from the test run menu pressing " $\wedge \vee < >$ " and "☑".

(3) Select the indoor unit by pressing " $\wedge \vee < >$ " and press "☑".

*Indoor units which are not supporting "Indoor Adds Change" function can not be selected.

(4) Determine the new indoor unit address.

Press " $\wedge \vee < >$ " to switch the refrigerant cycle number and address in range of 00-63.

To display confirmation screen press "☑".

* "R.N No.99" is used temporarily address only when all the cycle numbers and unit numbers are in use (occupied).

If "R.N No.99" is used temporarily, the address must be changed within the standard range of 00-63.

(5) The confirmation screen will be displayed. Select "Yes" and press "☑" to start address change process. Result will be displayed in seconds. If "No" is pressed, the screen will go to (6).

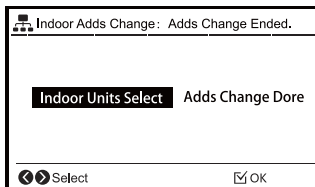
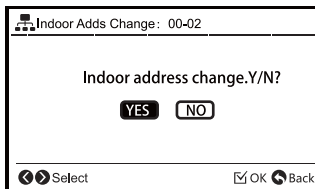
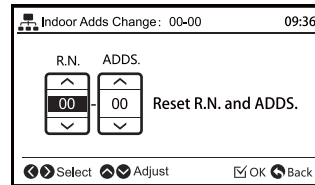
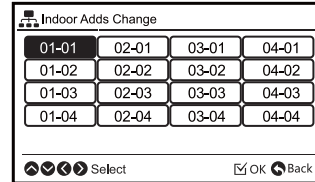
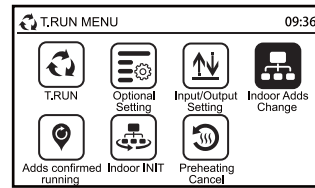
*When the process successfully completes, "Adds Change Ended" will be displayed.

Otherwise the process has been failed. Check the setting and contents again.

(6) To change the address for another indoor unit, select "Indoor Units Select" and press "☑", the screen will return to (3). To finish this function select "Adds Change Done" and press "☑".

*If "Indoor Adds Change" is successfully completed, connection check will be started automatically.

(7) Turn OFF the power supply of the indoor units for 3-5 minutes. Wait until the remote control switches display turn off, and turn ON the power supply of indoor units again.



NOTE

"Indoor Adds Change" is not available when the control of 2 remote control switches (main and sub) are used.

Do not operate from the central controlling devices while "Indoor Adds Change" is performed by the remote control switch.

This function should not be used if there is a Central Control in the HI-NET.

● Address Check Operation

This function is used to check the relation between the indoor unit and I.U. address. This operation is effective when multiple indoor units are connected to the remote control switch and address of the certain unit is unknown.

(1) Press and hold "□" (menu) and "↩" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

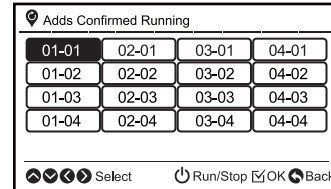
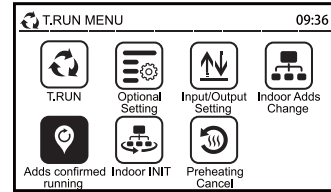
(2) Select "Adds confirmed running" from the test run menu pressing "∧ ∨ < >" and "☑".

(3) Select the indoor unit by pressing "∧ ∨ < >".

(4) To start operation of the indoor unit selected in (3) press "⏻" (run/stop). To return to (3) screen press "⏻" (run/stop) while indoor units is operated.

* Repeat (3)-(4) until desired indoor unit address is confirmed.

(5) To return to the test run menu press "↩" (return) while indoor unit is not operated.



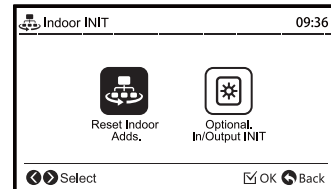
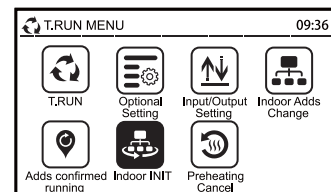
● Indoor Unit Address Initialization

This function initializes the indoor unit address that has been changed by "Indoor Adds Change" function or set by the automatic address allocation. Initializing the address will be changed to the dip switch setting.

(1) Press and hold "□" (menu) and "↩" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.

(2) Select "Indoor INIT" from the test run menu pressing "< > ∧ ∨" and "☑".

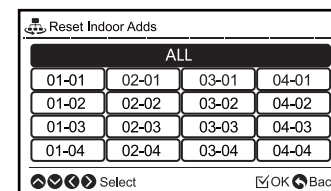
(3) Select the "Reset Indoor Adds" by pressing "∧ ∨" and press "☑".



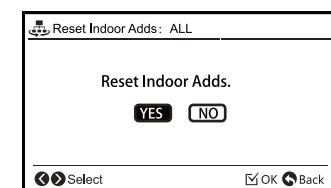
(4) Select the indoor unit by pressing "∧ ∨ < >" and press "☑". The confirmation screen will be displayed.

*Indoor units which are not supporting "Reset Indoor Adds" function can not be selected.

The address of indoor unit that does not support "Reset Indoor Adds" function will not be initialized even when "All" is specified.



(5) Select "Yes" and press "☑" to start the address initialization process.



*If the address initialization is successfully completed, connection check will be started automatically.

10.16 Setting of Automatic Swing Louver

When the " SWING " switch is pressed, the swing louver starts its operation. When "  " is moving, it indicates the operation of the louver continuously. When the swinging operation of the louver is not required, press the " SWING " switch again. The louver is stopped at an angle indicated by the direction of this mark "  ".

NOTE

1. There exists a time lag between the actual angle of the louver and the liquid crystal indication.
2. When the " SWING " switch is pressed, the louver will not stop immediately. The louver will move one extra swing at the next.
3. During the cases in item (A), the louvers are fixed automatically.
However, indication of the louvers is changed at setting before.
(A) Discharge air angle is fixed at horizontal position during start-up of heating operation and defrosting operation and when thermostat is ON.
When the outlet air temperature reaches higher than approximately 30°C, swinging of louvers is started.
4. During the defrosting operation, fan stops running.

CAUTION

**Do not turn the air louver by hand.
If moved, the louver mechanism will
be damaged.**

10.17 Automatic Control

The system is equipped with the following functions.

- **Three Minute Guard (Enforced Stoppage)**
The compressor remains off for at least 3 minutes once it has stopped. If the system is started within approximately 3 minutes after it has stopped, the RUN indicator is activated. However, the cooling operation or the heating operation remains off and does not start until after 3 minutes has elapsed.
- **Three Minute Guard (Enforced Operation)**
If all indoor units of the system are Thermo-OFF within approximately 3 minutes after compressor has started, compressor is operated during 3 minutes continuously. However, if all indoor units of the system are stopped by remote control switch, compressor is stopped.
- **Oil Return Operation**
If an indoor unit is stopped more than 2 hours continuously, this function is operated during a few minutes.
It has this function to prevent to accumulate in the heat exchanger of stoppage indoor unit at cooling operation.
- **Frost Prevention During Cooling Operation**
When the indoor unit is operated at low discharge air temperature, the cooling operation may be changed to fan operation for a while to avoid frost formation on the indoor heat exchanger.
- **Hot Start During Heating Operation**
To prevent cold air discharge in the room, the fan speed is controlled from the slow position and the low position and then to the set position according to the discharge air temperature. At this time the louver is fixed horizontally.
- **Slow Air Control During Defrosting Operation**
When the outdoor unit is performing the automatic defrosting operation, the indoor fan is stopped and the louver is fixed horizontally.
- **Cooling of Indoor Unit**
When the heating operation is stopped, the indoor fan operation is maintained at the slow position for the maximum of 2 minutes to lower temperature of the inside unit.
- **Automatic Defrosting Cycle**
When the heating operation is stopped by pressing RUN/STOP switch, frosting on the outdoor unit is checked and the defrosting operation may be performed for the maximum of 10 minutes.
- **Prevention of Overload Operation**
When the outdoor temperature is high during heating operation, heating operation is stopped due to activation of the outdoor thermistor until the temperature becomes low.

10.18 Filter Cleaning

⚠ CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchange against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

10.18.1 Taking Out the Filter

The indication, "FILTER" is shown on the display of the remote control switch after approximately 1,200 hour operation.

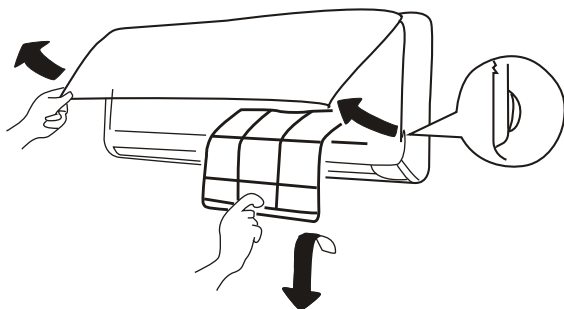
Take out the air filter according to the following steps.

Step 1

Open the air inlet grille.

Step 2

Take out the air filter from the air inlet grille.



10.18.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

⚠ CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

10.18.3 Reset of Filter Indication

After cleaning the air filter, press the "FILTER RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

10.19 Troubleshooting

⚠ CAUTION

- **When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.**
- **When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.**

10.19.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

10.19.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

10.19.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

10.19.4 This is Not Abnormal

- **Smells from Indoor Unit**
Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.
- **Dew on Air Panel**
When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.
- **Refrigerant Flow Sound**
While the system is being started or stopped, sound from the refrigerant flow may be heard.

11. Floor Concealed Type(AVH)

11.1 General Data

Indoor Unit Type		Floor Concealed Type			
Model	AC 1φ, 220-240V/50Hz	AVH-09UXCSAA	AVH-14UXCSAA	AVH-18UXCSBA	AVH-24UXCSBA
Power Supply	AC 1φ, 220V/60Hz	AVH-09UX2SAA	AVH-14UX2SAA	AVH-18UX2SBA	AVH-24UX2SBA
Nominal Cooling Capacity *1)	kW	2.9	4.1	5.8	7.3
	kcal/h	2,500	3,500	5,000	6,300
	Btu/h	9,900	14,000	19,800	24,900
Nominal Cooling Capacity *2)	kW	2.8	4.3	5.6	7.1
	kcal/h	2,400	3,700	4,800	6,100
	Btu/h	9,600	14,700	19,100	24,200
Cooling Power Consumption	kW	0.05	0.08	0.09	0.12
Nominal Heating Capacity	kW	3.3	4.9	6.5	8.5
	kcal/h	2,800	4,200	5,600	7,300
	Btu/h	11,300	16,700	22,200	29,000
Heating Power Consumption	kW	0.05	0.08	0.09	0.12
Sound Pressure Level (Overall A Scale)	dB	34-31-27	40-36-34	41-36-32	44-40-36
Cabinet Color	—	—			
Outer Dimensions	Height	mm	620	620	620
		(in.)	(24-7/16)	(24-7/16)	(24-7/16)
	Width	mm	900	900	1170
		(in.)	(35-2/5)	(35-2/5)	(46)
Depth	mm	202	202	202	202
	(in.)	(8)	(8)	(8)	(8)
Net Weight	kg	18	22	26	27
	(lbs.)	(40)	(48)	(57)	(59)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Hi/Me/Lo)	m ³ /h (cfm)	510/450/380 (300/265/223)	620/540/480 (365/318/282)	890/740/630 (523/435/370)	980/830/710 (576/488/417)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping	Liquid Line	mm	φ6.35	φ6.35	φ6.35
		(in.)	(1/4)	(1/4)	(1/4)
Gas Line	mm	φ12.7	φ12.7	φ15.88	φ15.88
		(in.)	(1/2)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.19	0.19	0.23	0.23

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
 *1) 19.5°C WB (67°F WB)
 *2) 19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
 Outdoor Air Inlet Temperature: 7°C DB (45°F DB)
 6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

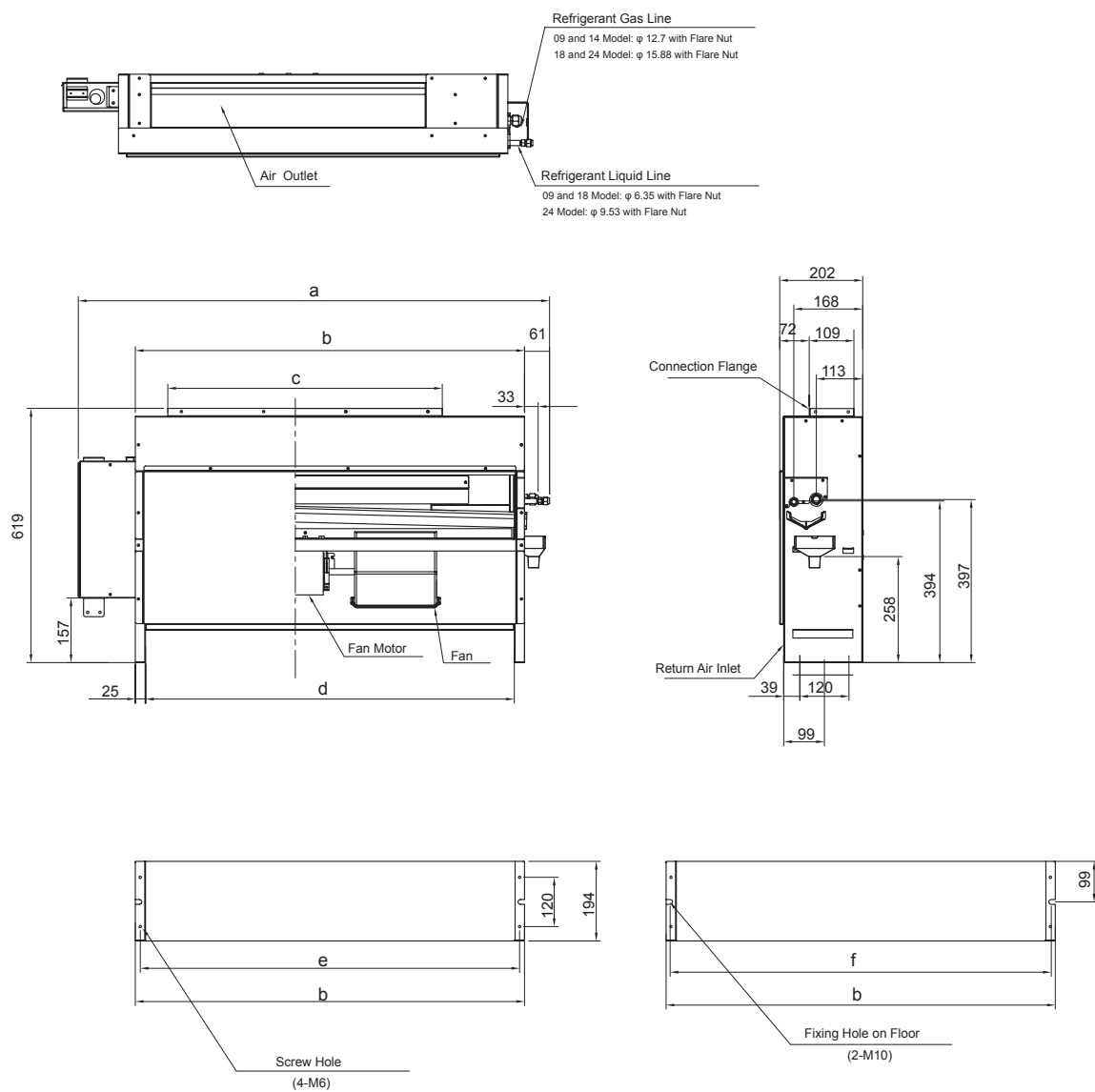
- The sound pressure level is based on following conditions.

1 meter beneath the unit and 1 meter from inlet grille.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

11.2 Dimensional Data

Models: AVH-09~24*



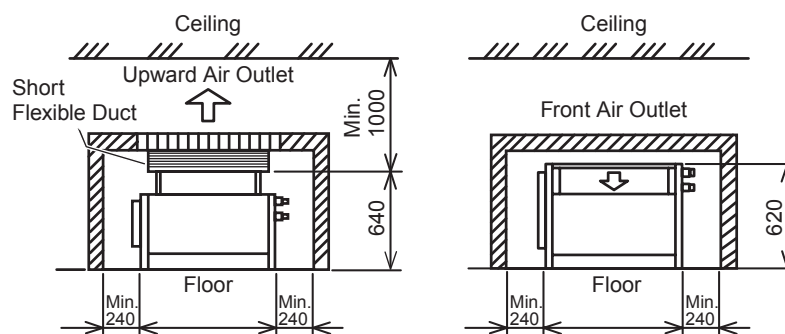
Unit : mm

Model	Dimension	a	b	c	d	e	f
AVH-09*		1154	948	669	898	924	928
AVH-14*		1154	948	669	898	924	928
AVH-18*		1424	1218	939	1168	1194	1198
AVH-24*		1424	1218	939	1168	1194	1198

11.3 Selection Data

- Service Space

Models: AVH-09~24*



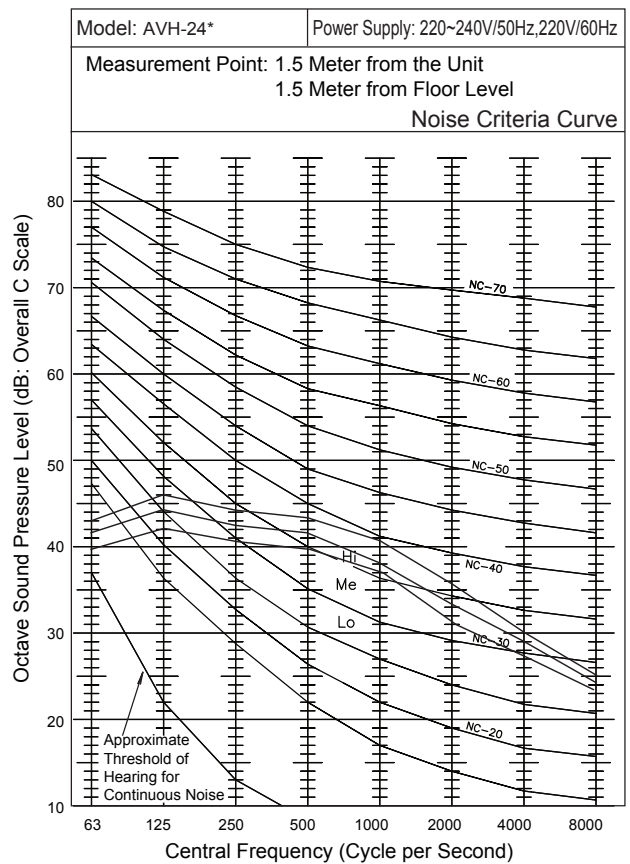
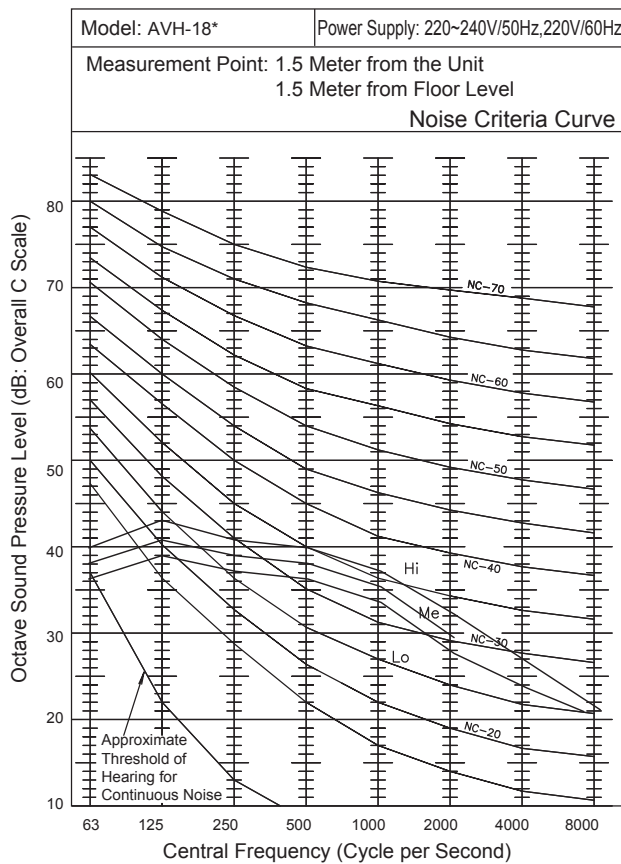
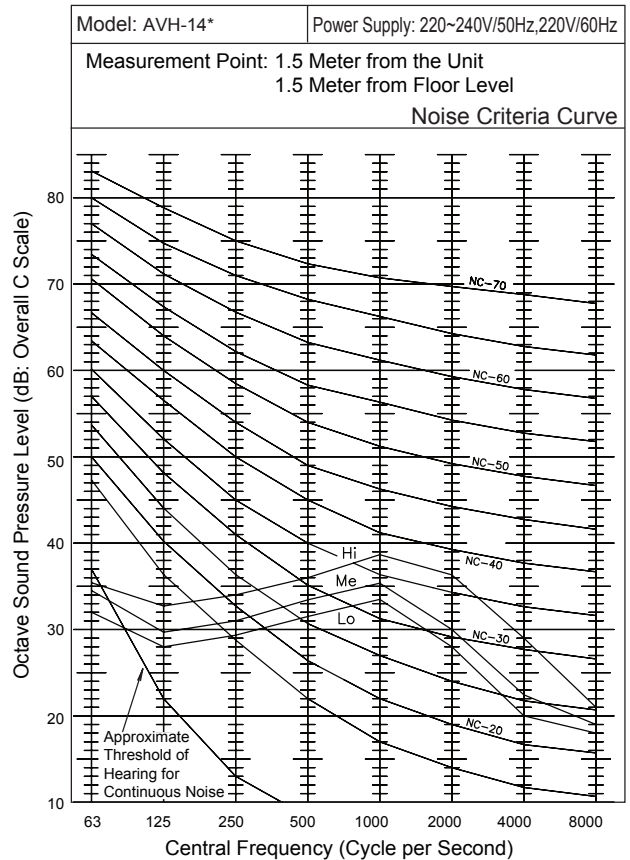
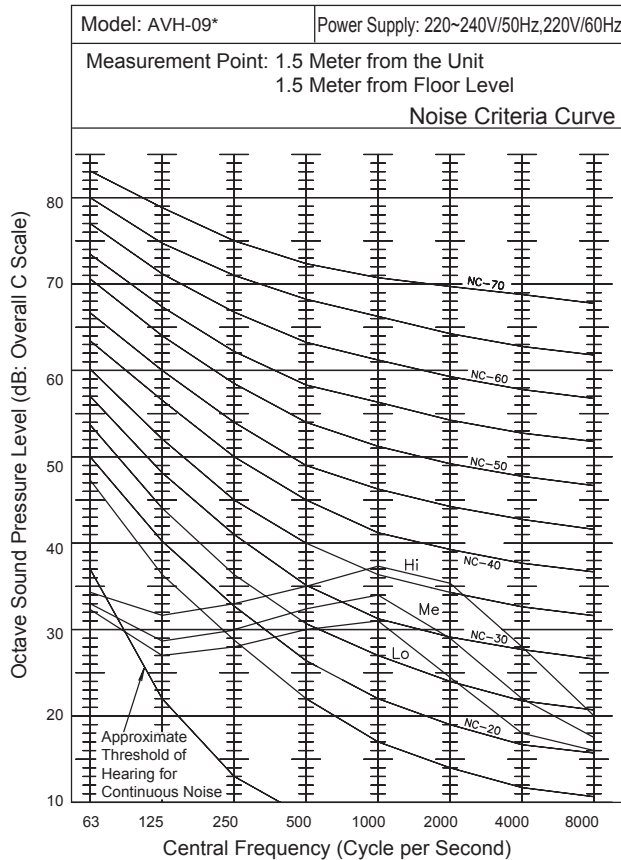
Service Space

- Sensible Heat Factor (SHF)

The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVH-09*	0.81	0.69	0.68
AVH-14*	0.75	0.71	0.67
AVH-18*	0.70	0.70	0.67
AVH-24*	0.68	0.68	0.66

● Sound Data



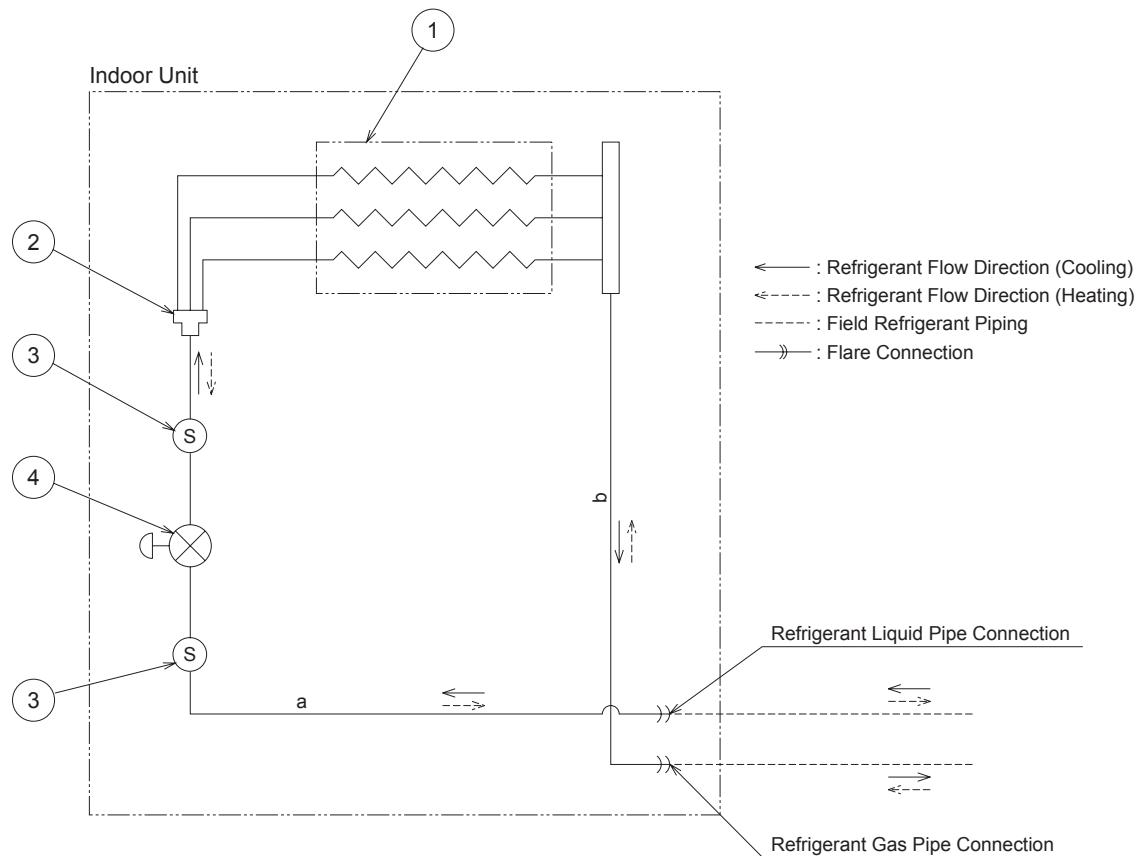
11.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVH--09*	AVH--14*	AVH--18*	AVH--24*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	2	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.13	0.13	0.18	0.18
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	1	1
Outer Diameter	mm	130	130	130	130
Revolution (220V)	rpm	475/420/340	585/485/440	630/515/450	640/525/460
Nominal Air Flow	m ³ /h	510/450/380	620/540/480	890/740/630	980/830/710
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	PSC (Permanent Split Capacitor)			
Nominal Output	W	20	35	40	50
Quantity	–	1	1	1	1
Insulation Class	–	B	B	B	B

11.5 Refrigeration Cycle

Floor Concealed Type



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

11.6 Electrical Data

< 50 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Floor Concealed Type	AVH-09UXCSAA	220~240	1	50	264	198	1	0.25	0.05
	AVH-14UXCSAA							0.40	0.08
	AVH-18UXCSBA							0.43	0.09
	AVH-24UXCSBA							0.55	0.12

< 60 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
Floor Concealed Type	AVH-09UX2SAA	220	1	60	242	198	1	0.25	0.05
	AVH-14UX2SAA							0.40	0.08
	AVH-18UX2SBA							0.43	0.09
	AVH-24UX2SBA							0.55	0.11

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

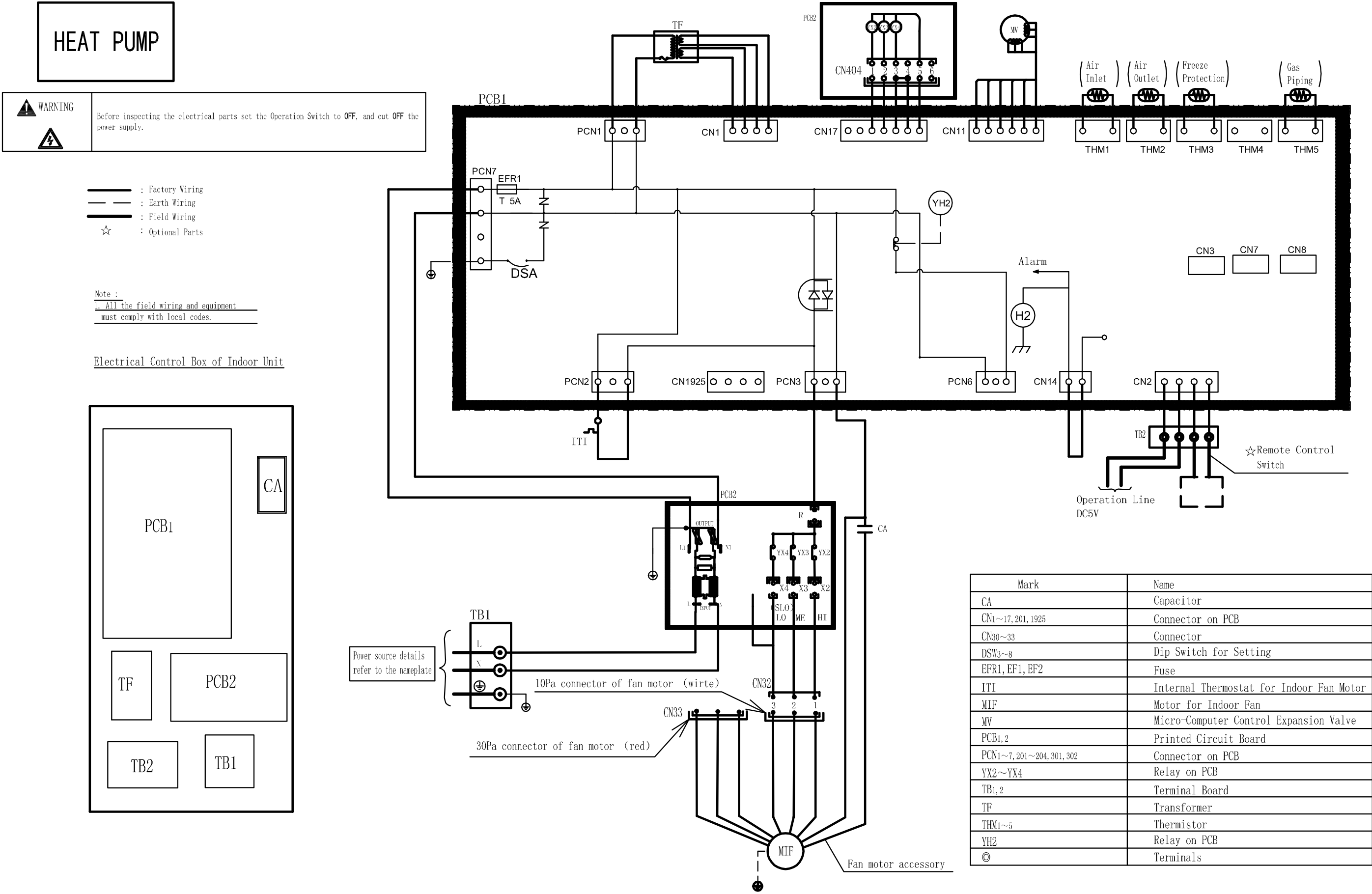
Safety and Control Device Setting

Indoor Unit

Model			09~24
For Evaporator Fan Motor			
Thermostat	Cut-Out	°C	130 ± 5
	Cut-In	°C	83 ± 15
For Control Circuit Fuse Capacity			
			A
Freeze Protection			
Thermostat	Cut-Out	°C	0
	Cut-In	°C	14
Thermostat Differential			
			°C
			2

11.7 Electrical Wiring Diagram

Model: AVH-09~24*



11.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	Floor Concealed Type
Wire Remote Control Switch	HYXE-F01H	•
	HYXE-G01H	•
	HYXE-A01H#01	•
	HYXE-J01H	•
	HYXE-M01H	•
Wireless Remote Control Switch	HYE-L01	•
	HYE-W01	•
Wireless Receiver Kit	HYRE-V01H	•
	HYRE-T01H	
	HYRE-V02H	
	HYRE-X01H	
7 Day Timer	HYDE-E01H	•
Control Station	HYJE-H01H	•
	HYJE-D02H	•
	HYJ-J01H	•
	HCCS-H128H2C1YM	•
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	•
Interface for Building Control	HC-A64BNP	•
	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

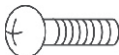
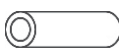
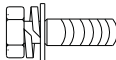
11.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Table Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Washer 	2	For Unit Suspension
Screw 	8	For Fixing Flanges
Insulation 	1	For Refrigerant Liquid Piping
Insulation 	1	For Refrigerant Gas Piping
Cord Clamp 	10	For Fixing Thermal Insulation for Refrigerant Piping
Adjustable Bolt 	4	For Adjust The Height

11.10 Installation Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space.
- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.

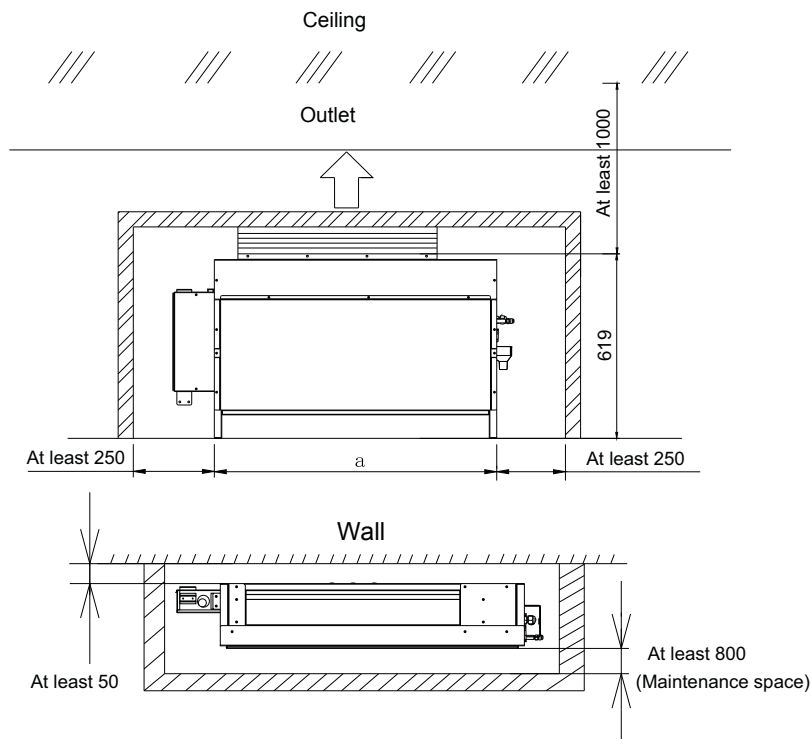
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

11.11 Installation

11.11.1 Suspension Bolts

Select final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.



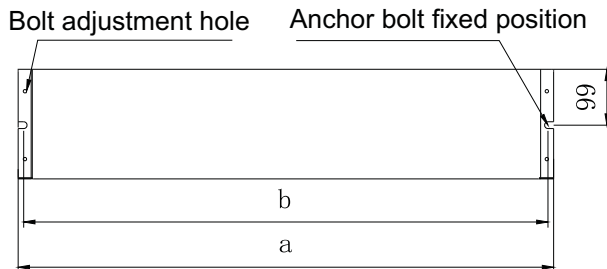
Size

Model	a
09~14	948
18~24	1218

Fig. Suspension Bolts

11.11.2 Hanging the IndoorUnit

Prevent the subversion of the machine.
The method for ground installation is shown below.
Fix the unit with bolt in the specified location as shown below.



Size

Model	b
09~14	924
18~24	1194

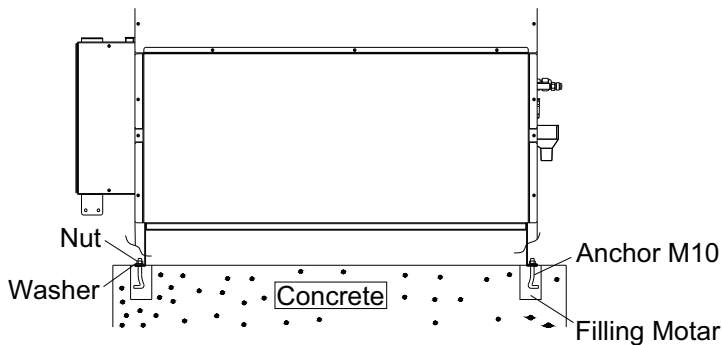


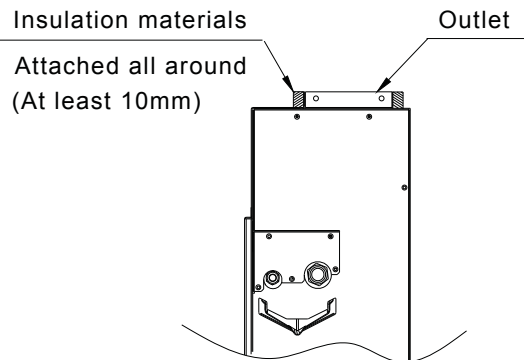
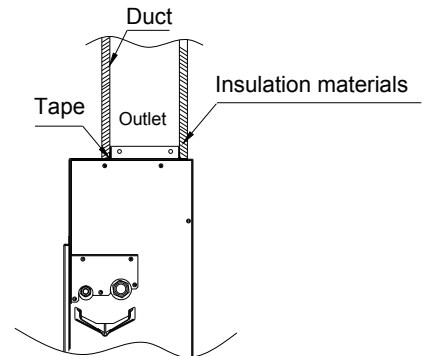
Fig. Installation Method

NOTE

Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.

11.11.3 Connecting Supply Duct

The supply duct should be inserted onto the root of the unit outlet. Thermal insulation should be done and the junction with the unit should be sealed with aluminum foil tape. Insulation materials should be attached all around the outlet preventing the condensation, when there is no duct connected.



11.12 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

11.12.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper tubes making sure there is no dust and moisture inside the tubes.
Before connecting pipes, blow the inside of the tubes with nitrogen or dry air, to remove any dust or foreign materials.

11.12.2 Piping Connection

- (1) Position of piping connection is shown below.

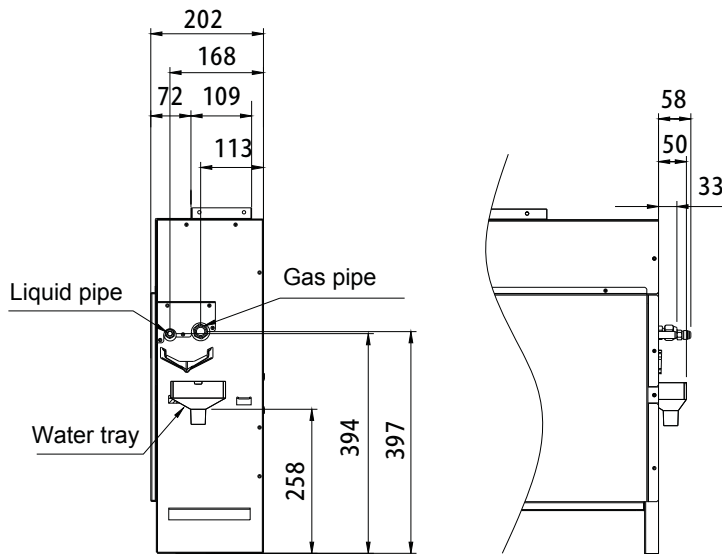
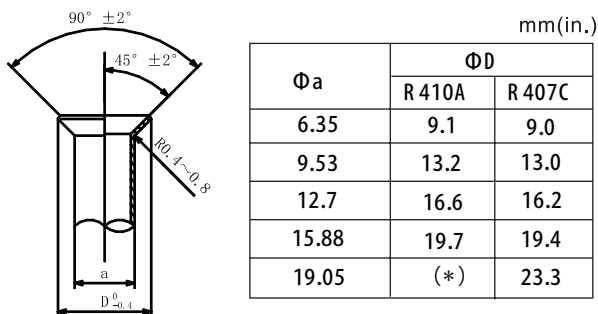


Fig. 5.1

Model	mm(in.)	
	Gas Piping	Liquid Piping
09~14	φ 12.7(1/2)	φ 6.35(1/4)
18	φ 15.88(5/8)	φ 6.35(1/4)
24	φ 15.88(5/8)	φ 9.53(3/8)

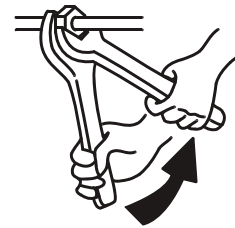
※ Flaring Dimension

Perform the flaring work as shown below.



(*) It is impossible to perform the flaring work with 1/2H material. In this case, use an accessory pipe (with a flare).

- (2) When tightening the flare nut, use two spanners as shown below.



Pipe Size	Tightening Torque (N.m)
φ6.35mm	20
φ9.53mm	40
φ12.7mm	60
φ15.88mm	80

Fig. Tightening Work of Flare Nut

- (3) After connecting the refrigerant piping, seal the refrigerant pipes by using the factory-supplied insulation material as shown below.

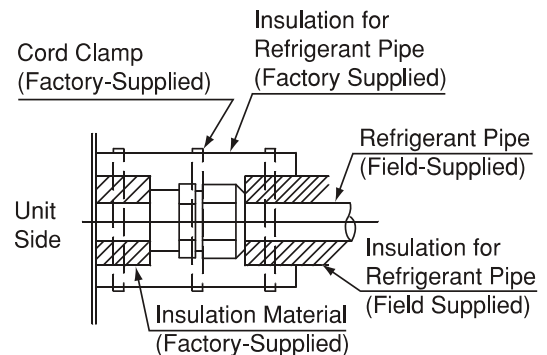
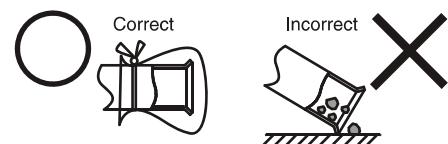


Fig. Insulation on Pipes

CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- (4) Evacuation and refrigerant charging procedures should be performed according to installation & Maintenance Manual of the outdoor unit.
In relation to the additional refrigerant quantity, refer to Common.

CAUTION

- An excess or a shortage of refrigerant is the main cause of trouble to the units.
Charge the correct refrigerant quantity.

11.13 Drain Piping

- (1) The position of the drain piping connection is shown below.
- (2) Prepare polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tube to the drain hose with the adhesive agent and the factory-supplied clamp. The drain piping must be performed with a DOWN-SLOPE pitch of 1/25 to 1/100.
- (4) Insulate the drain pipe after connecting the drain hose.

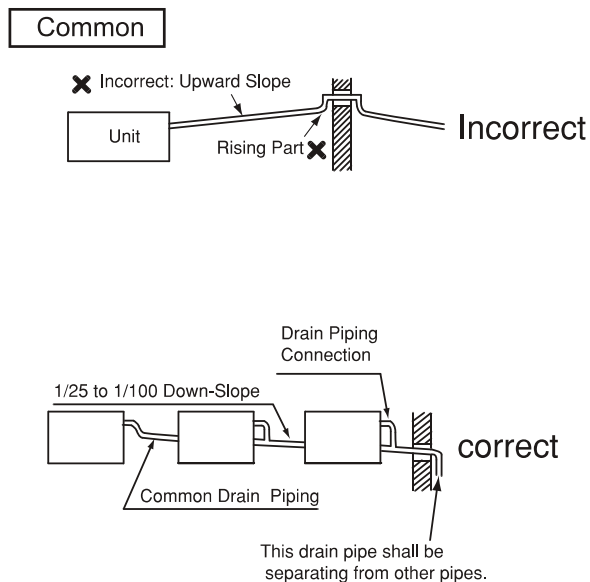
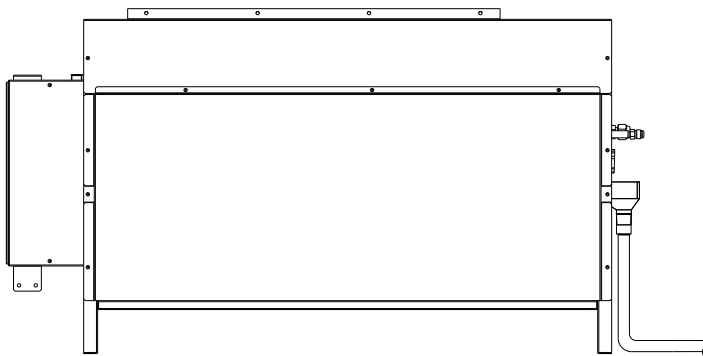


Fig. Drain Piping

NOTE

- (1) Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.
- (2) Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- (3) When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- (4) After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.
Checking with the Float Switch
 - a. Switch ON the power supply.
 - b. Pour 2 or 2.5 liters of water into the drain pan.
 - c. Check to ensure that the water flows smoothly or whether no water leakage occurs. When water cannot be found at the end of the drain piping, pour another 2 liters of water into the drain.

11.14 Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.

! CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.

- **Tightly secure the wires with the cord clamp inside the indoor unit.**
- **Secure the cable of the remote control switch using the cord clamp inside the electrical box.**

11.14.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog I". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires.
If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) **Power Source Main Switch**
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

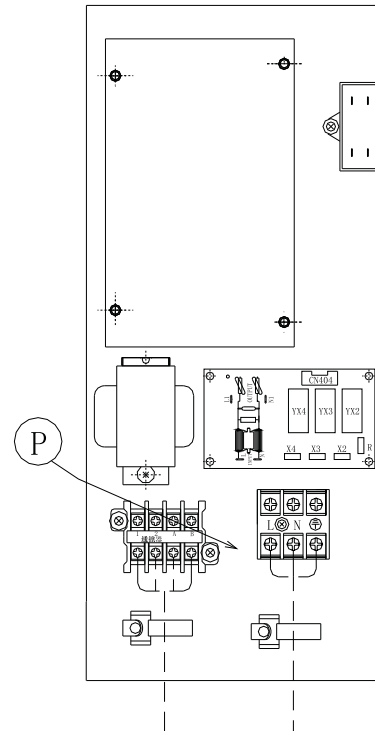
11.14.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown below.

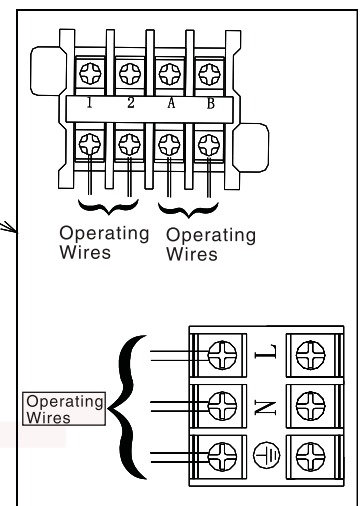
- (1) As shown below, cut a cross in the centre of the rubber washer at the wire connecting hole.
- (2) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (3) Connect the power supply and earth wires to the terminals in the electrical box.
- (4) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (5) Tightly clamp the wires using the cord clamp inside the electrical box.
- (6) After the connection, plug the wiring connection hole with the seal material (with cover) to protect the product from any condensate water or insects.



Fig. Rubber Washer



Wiring Connection Terminal Board (TB) Enlarged View of P



220-240V~ 50Hz
220V~60Hz

Fig Electrical Wiring Connection

11.15 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

! WARNING

- **Do not operate the system until all the check points have been cleared.**
 - (A) **Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.**

- (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
- (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

Current (A)	Wire Size (mm ²)
1≤3	2.5
3<1≤6	2.5
6<1≤10	2.5
10<1≤16	4
16<1≤25	6
25<1≤32	10
32<1≤50	16
50<1≤63	25
63<1	※1

※1 In the case that current exceeds 63A, do not connect cables in series.

11.16 Common

11.16.1 Field Minimum Wire Sizes for Power Source



- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

Field Minimum Wire Sizes for Power Source

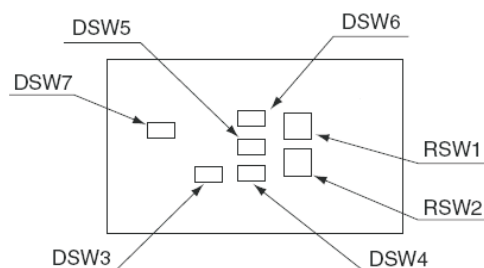
Model	MCA	Power Source Cable Size	Transmitting Cable Size
		EN 60335-1 *1	EN 60335-1 *1
09	0.46A	2.5mm ²	0.75mm ²
14	0.56A		
18	0.70A		
24	0.83A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN 60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.

11.16.2 Setting of Dip Switches

- (1) Turn OFF all the power supply to the indoor and the outdoor units before Dip Switch setting. If not, the setting is invalid.
- (2) The Dip Switch positions are as follows.



- (3) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.
 - (a) Unit No. Setting (RSW1 & DSW6) Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
	Setting Position Set by inserting Slotted screwdriver into the groove	Set No.1 Pin ON RSW1 Set at "6"
Before shipment, DSW6 and RSW1 are set to "0". Max.64 units are available to set when all the equipment to be connected are corresponding to Hi-NET. Max.16 units when the units corresponding/non-corresponding to Hi-NET are combined.		

(b) Capacity Code Setting (DSW3)

No setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Capacity	09	14	18	24
Setting Position				

(c) Unit Model Code Setting (DSW4)

No setting is required.
Setting the model code of the indoor unit.



(d) Refrigerant Cycle No. Setting (RSW2&DSW5)

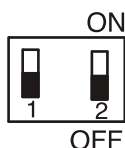
Setting is required. Setting positions before shipment are all OFF.

Refrigerant Cycle No. Setting

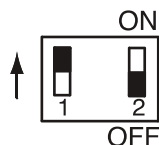
DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle DSW5
Before shipment, DSW5 and RSW2 are set to "0". Max.64 cycles are available to set when all the equipment to be connected are corresponding to Hi-NET. Max.16 cycles when the units corresponding/ non-corresponding to Hi-NET are combined.	Setting Position Set by inserting Slotted screwdriver into the groove Set All Pins OFF RSW2 Set at "5"	

(e) Fuse Recover (DSW7)

* Factory Setting



*In the case of applying high voltage to the terminal 1,2 of TB2, the fuse(0.5A) on the PCB, is cut.
In such a case, firstly connect the wiring to TB2, and then turn on No.1 pin.



NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

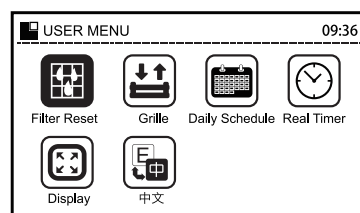
CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

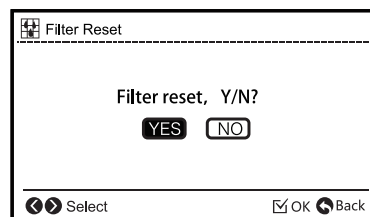
11.16.3 FILTER SIGN RESET

This function is used to turn off the filter sign indication.

- Select "Filter Reset" from the menu and press "↵". The confirmation screen will be displayed.



- Select "Yes" by pressing ">" or "<" and press "↵". The indication of "■" will be turned OFF and the screen will return to the normal mode.



11.17 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

11.17.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

11.17.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

11.17.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

11.17.4 This is Not Abnormal

- **Smells from Indoor Unit**
Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.
- **Refrigerant Flow Sound**
While the system is being started or stopped, sound from the refrigerant flow may be heard.

12. All Fresh Air Indoor Unit(AVA)

12.1 General Data

Indoor Unit Type		All Fresh Air Indoor Unit			
Model	AC 1φ, 220-240V/50Hz	AVA-30UXCSCH-70	AVA-48UXCSQH-108	AVA-76UXCSRH-168	AVA-96UXCSRH-210
Power Supply	AC 1φ, 220V/60Hz	AVA-30UX2SCH-70	AVA-48UX2SQH-108	AVA-76UX2SRH-168	AVA-96UX2SRH-210
Nominal Cooling Capacity	kW	9.0	14.0	22.4	28.0
	kcal/h	7,700	12,000	19,300	24,100
	Btu/h	30,700	47,800	76,500	95,600
Cooling Power Consumption	kW	0.15	0.33	0.49	0.51
Nominal Heating Capacity	kW	8.6	13.7	21.9	24.5
	kcal/h	7,400	11,800	18,800	21,100
	Btu/h	29,400	46,800	74,700	83,600
Heating Power Consumption	kW	0.15	0.33	0.49	0.51
Sound Pressure Level (Overall A Scale)	dB	32	43	45	46
Outer Dimensions	Height	mm (in.)	370 (14-1/2)	486 (19-1/7)	486 (19-1/7)
Width	mm	920	1,320	1,270	1,270
	(in.)	(36-1/5)	(52)	(50)	(50)
Depth	mm	800	800	1,069	1,069
	(in.)	(31-1/2)	(31-1/2)	(42)	(42)
Net Weight	kg	46	60	97	97
	(lbs.)	(101)	(132)	(213)	(213)
Refrigerant	—	R410A(Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Hi/Me/Lo)	m ³ /h	660	1080	1680	2100
	(cfm)	(388)	(635)	(988)	(1235)
External Pressure	Pa	60(120)	200	220	220
Connections		Flare-Nut Connection (with Flare Nuts)		Brazing	
Refrigerant Piping	Liquid Line	mm (in.)	Φ9.53 (3/8)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ19.05	Φ22.2
	(in.)	(5/8)	(5/8)	(3/4)	(7/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.38	0.52	1.09	1.09

NOTES:

- The nominal cooling capacity and heating capacity are based on following conditions:

Cooling Operation Conditions

Outdoor Air Inlet Temperature: 33°C DB 28°C WB

Heating Operation Conditions

Outdoor Air Inlet Temperature: 0 °C DB -2.9°C WB

Piping Length: 7.5 Meters Piping Lift: 0 Meter

(Heating capacity is tested when defrosting is not available)

- The sound pressure level is based on following conditions.
1.5 Meter Beneath the Unit.
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
- An air filter with dust collection efficiency more than 50% needs to be attached to the duct system of the suction side at site.
- When the resistance of the field-supplied duct is small, it may cause abnormal stoppage, malfunction, spraying water, etc. due to excessive air flow. And the duct, which is to be connected to this unit, shall be insulated for dew protection.
- All fresh air indoor unit is for processing fresh air load and not for stabilizing the room temperature. For adjusting the air conditioning load of the room, the additional air conditioner is required.
- This unit shall be connected to Hi-Flexi outdoor unit. In case of connecting this unit with other indoor units in the same refrigerant cycle, calculate the capacity of this unit as 13.5kW(3HP), 21.0kW(5HP), 33.6kW(8HP), 42.0kW(10HP).
- When outdoor unit is connected only with all fresh air indoor unit, the configuration rate is 100%.
- Under cooling mode, when outdoor temperature is lower than 20 °C, the system will automatically shift to ventilation operation;
Under heating mode, when outdoor temperature is higher than 15 °C, the system will automatically shift to ventilation operation;
In case inlet temperature is below -5 °C, All Fresh Air Indoor Unit will stop.

Indoor Unit Type		All Fresh Air Indoor Unit			
Model	AC 3φ, 380-415V/50Hz	AVA-114UX6SRH-300	AVA-154UX6SSH-400	AVA-190UX6STH-500	AVA-190UX6STH-600
Power Supply	AC 3φ, 380V/60Hz	AVA-114UX7SRH-300	AVA-154UX7SSH-400	AVA-190UX7STH-500	AVA-190UX7STH-600
Nominal Cooling Capacity	kW	33.5	45.0	56.0	56.0
	kcal/h	28,800	38,700	48,200	48,200
	Btu/h	114,300	153,600	191,100	191,100
Cooling Power Consumption	kW	0.74	1.12	1.33	1.62
Nominal Heating Capacity	kW	26.8	36.0	44.8	44.8
	kcal/h	23,000	31,000	38,500	38,500
	Btu/h	91,500	122,900	152,900	152,900
Heating Power Consumption	kW	0.74	1.12	1.33	1.62
Sound Pressure Level (Overall A Scale)	dB	56	61	64	66
Outer Dimensions	Height	mm (in.)	486 (19-1/7)	635 (25)	735 (29)
	Width	mm (in.)	1,270 (50)	1,950 (76-4/5)	1,950 (76-4/5)
	Depth	mm (in.)	1,069 (42)	805 (31-7/10)	805 (31-7/10)
Net Weight	kg	97	196	222	222
	(lbs.)	(213)	(431)	(488)	(488)
Refrigerant	—	R410A(Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate (Hi/Me/Lo)	m ³ /h	3000	4000	5000	6000
	(cfm)	(1764)	(635)	(2940)	(3528)
External Pressure	Pa	220	300	300	300
Connections		Brazing			
Refrigerant Piping					
	Liquid Line	mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ15.88 (5/8)
Gas Line	mm (in.)	Φ25.4 (1)	Φ25.4 (1)	Φ28.6 (1-1/8)	Φ28.6 (1-1/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	1.09	1.84	2.06	2.06

NOTES:

- The nominal cooling capacity and heating capacity are based on following conditions:

Cooling Operation Conditions

Outdoor Air Inlet Temperature: 33°C DB 28°C WB

Heating Operation Conditions

Outdoor Air Inlet Temperature: 0 °C DB -2.9°C WB

Piping Length: 7.5 Meters

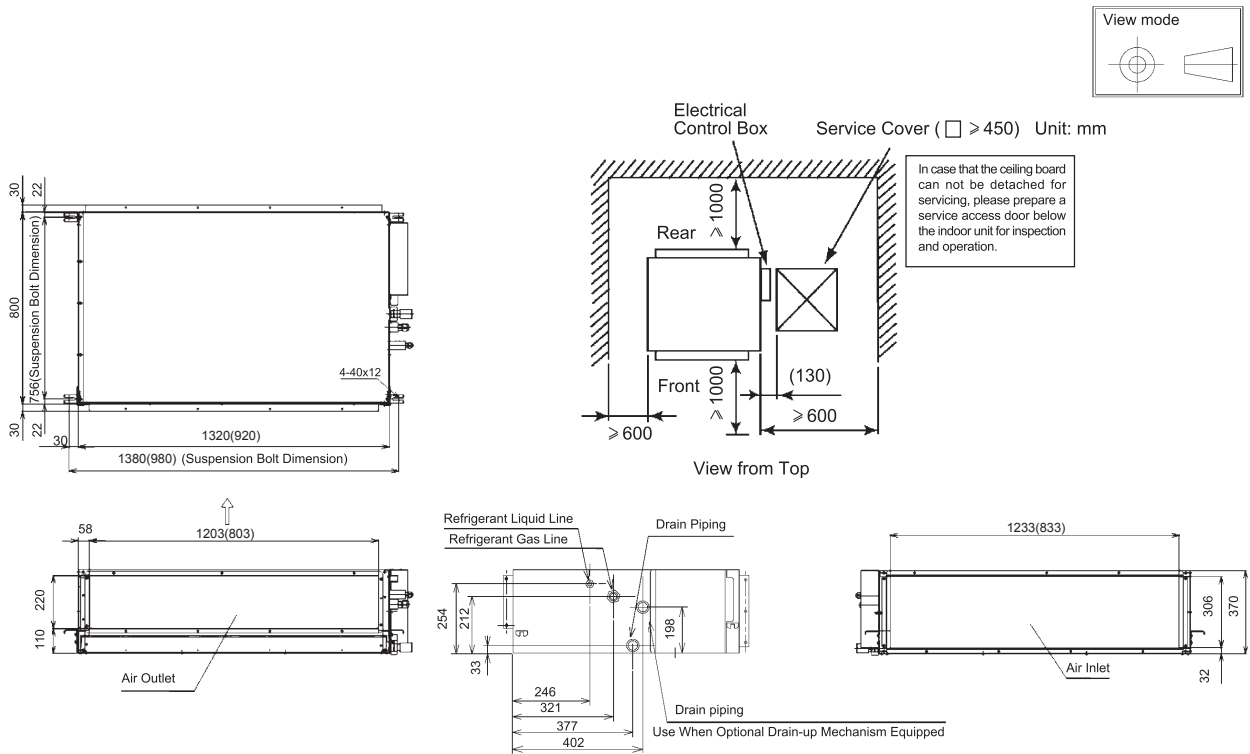
Piping Lift: 0 Meter

(Heating capacity is tested when defrosting is not available)

- The sound pressure level is based on following conditions.
1.5 Meter Beneath the Unit.
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.
- An air filter with dust collection efficiency more than 50% needs to be attached to the duct system of the suction side at site.
- When the resistance of the field-supplied duct is small, it may cause abnormal stoppage, malfunction, spraying water, etc. due to excessive air flow. And the duct, which is to be connected to this unit, shall be insulated for dew protection.
- All fresh air indoor unit is for processing fresh air load and not for stabilizing the room temperature. For adjusting the air conditioning load of the room, the additional air conditioner is required.
- All fresh air indoor unit (12HP~20HP) only can be connected with Hi-Flexi outdoor unit one to one.
- Under cooling mode, when outdoor temperature is lower than 20 °C, the system will automatically shift to ventilation operation;
Under heating mode, when outdoor temperature is higher than 15 °C, the system will automatically shift to ventilation operation;
In case inlet temperature is below -5 °C, All Fresh Air Indoor Unit will stop.

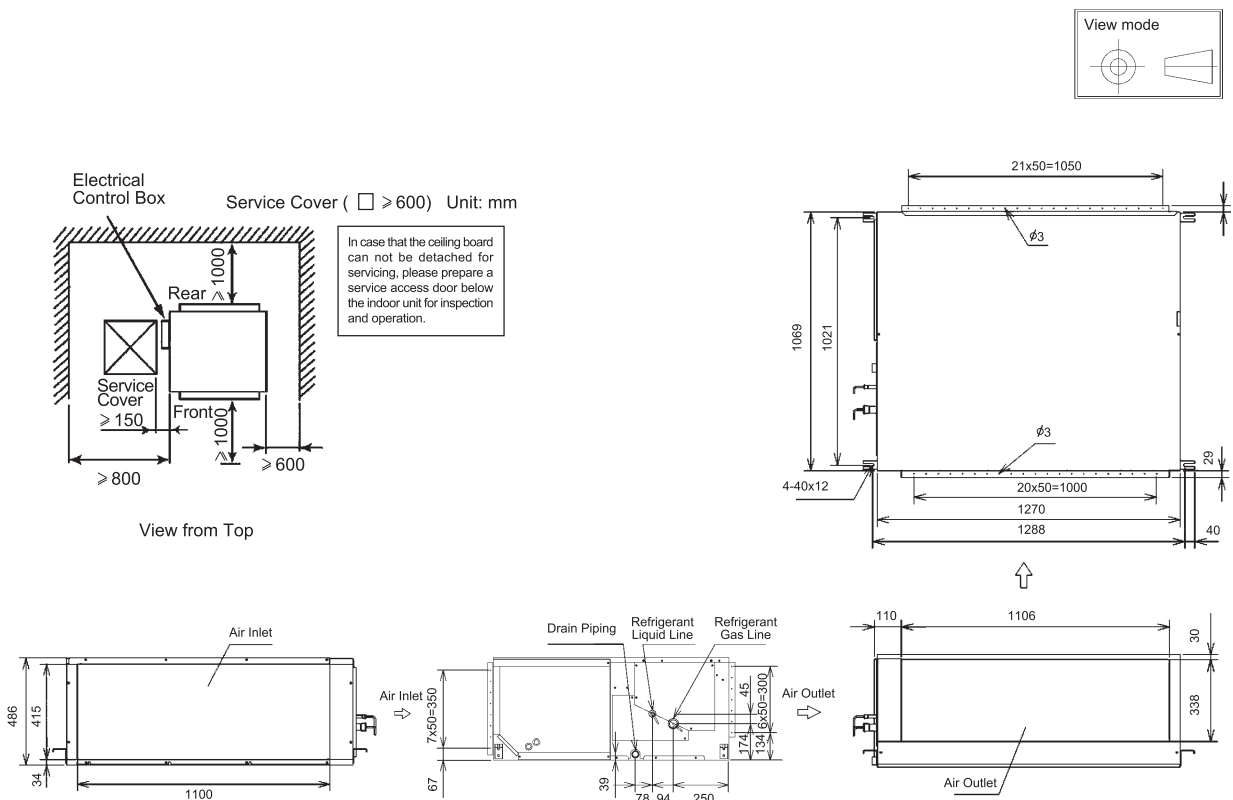
12.2 Dimensional Data

Models: AVA-30~48*

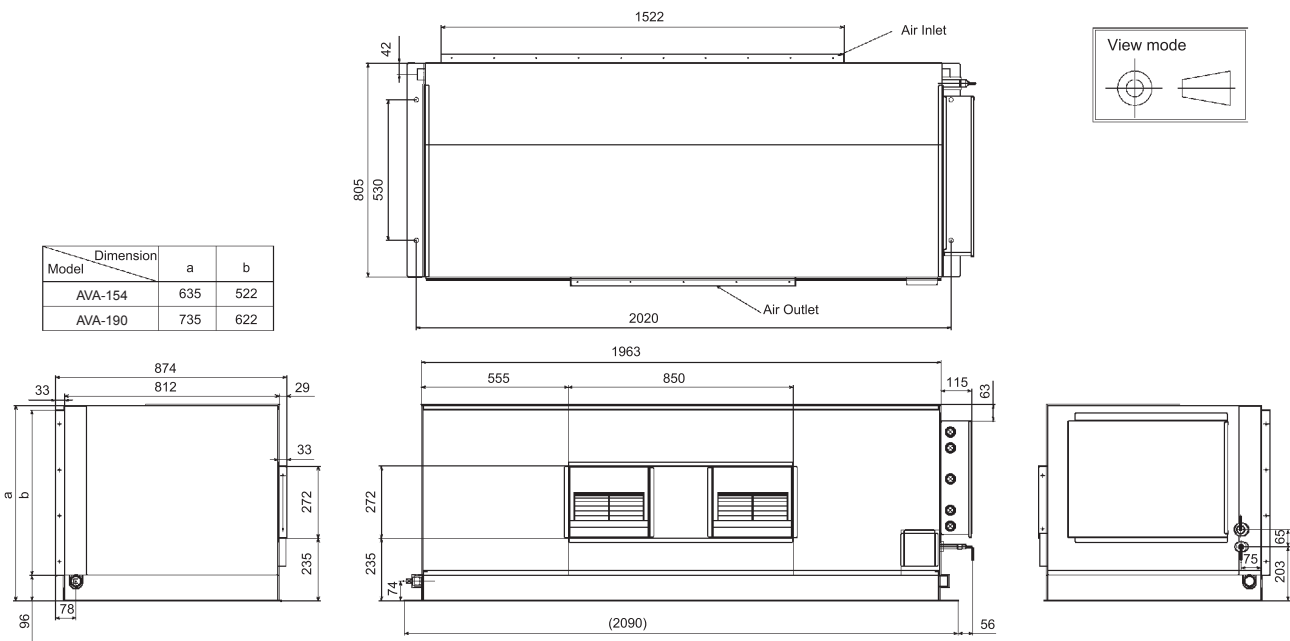


NOTE: Data in bracket is for Model: AVA-30*

Models: AVA-76~114*



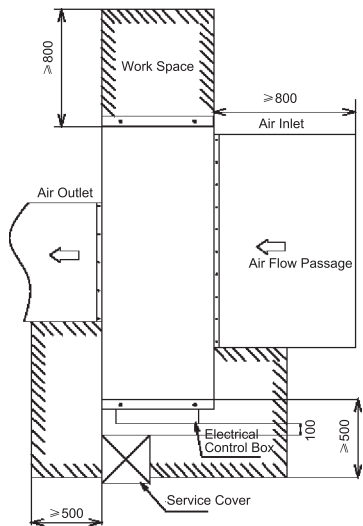
Models: AVA-154~190*



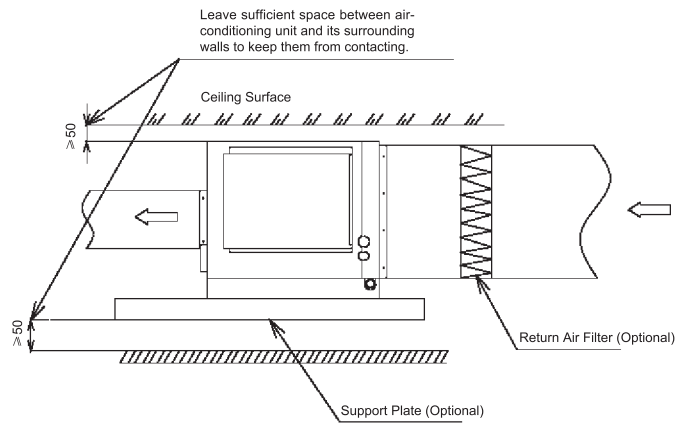
12.3 Selection Data

- Service Space

Models: AVA-30~190*



Unit: mm

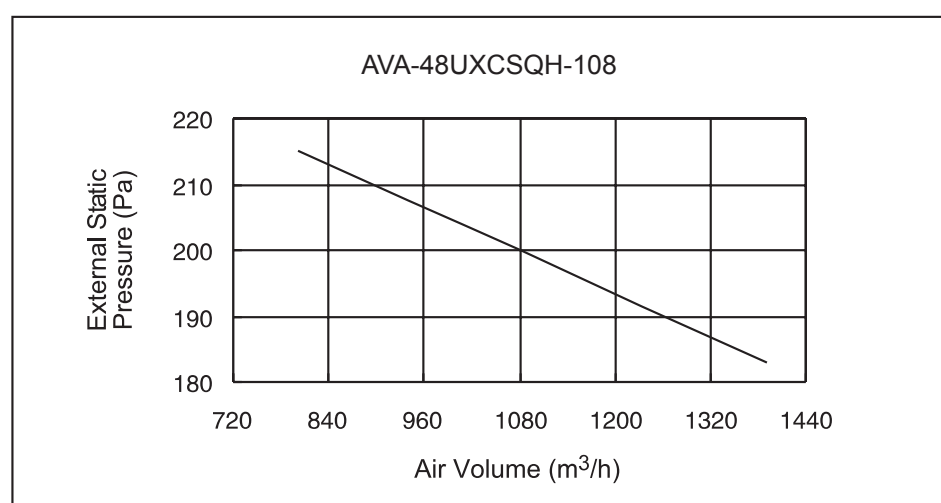
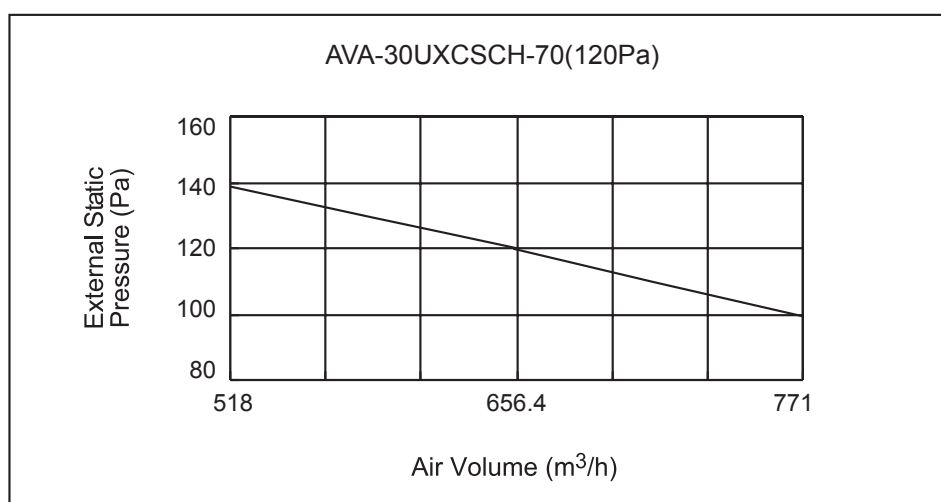
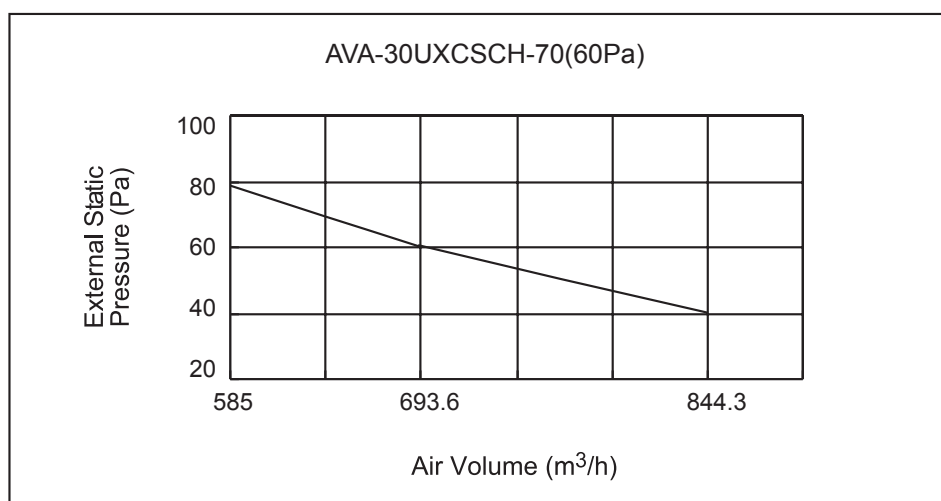


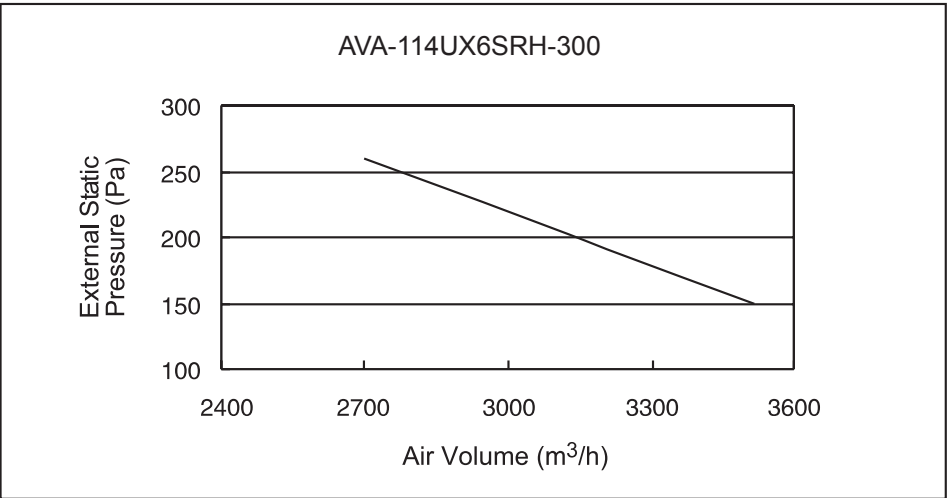
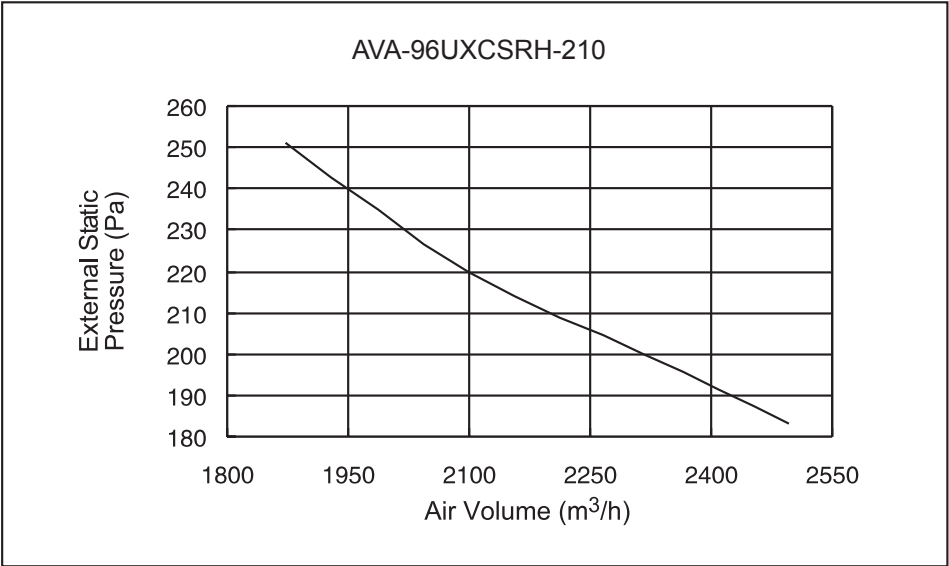
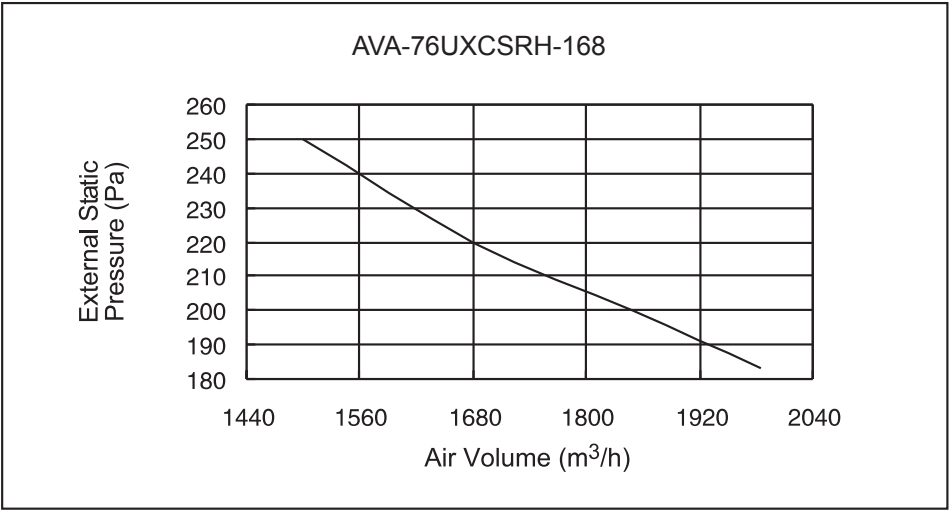
- Sensible Heat Factor (SHF)

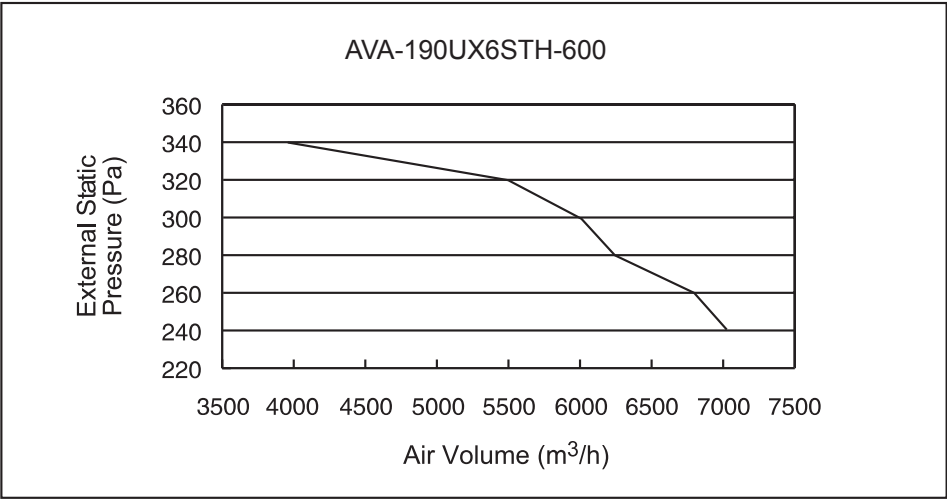
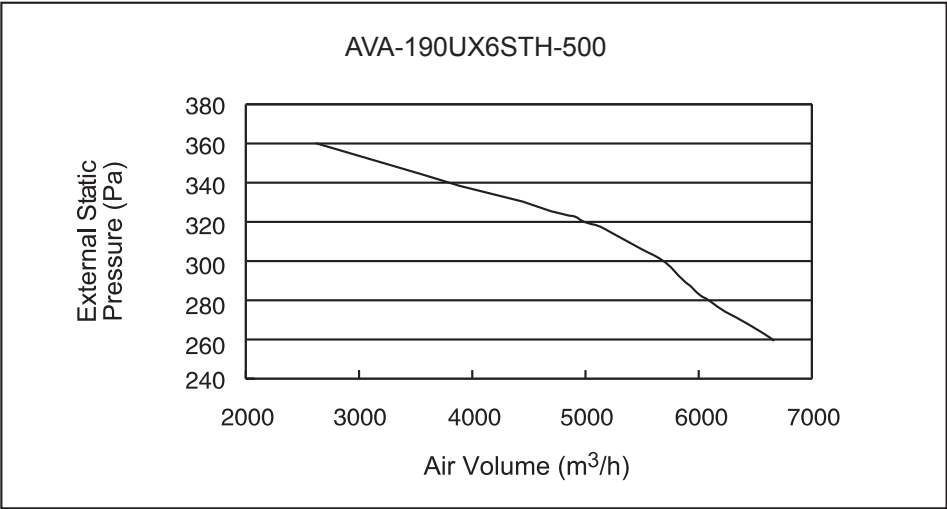
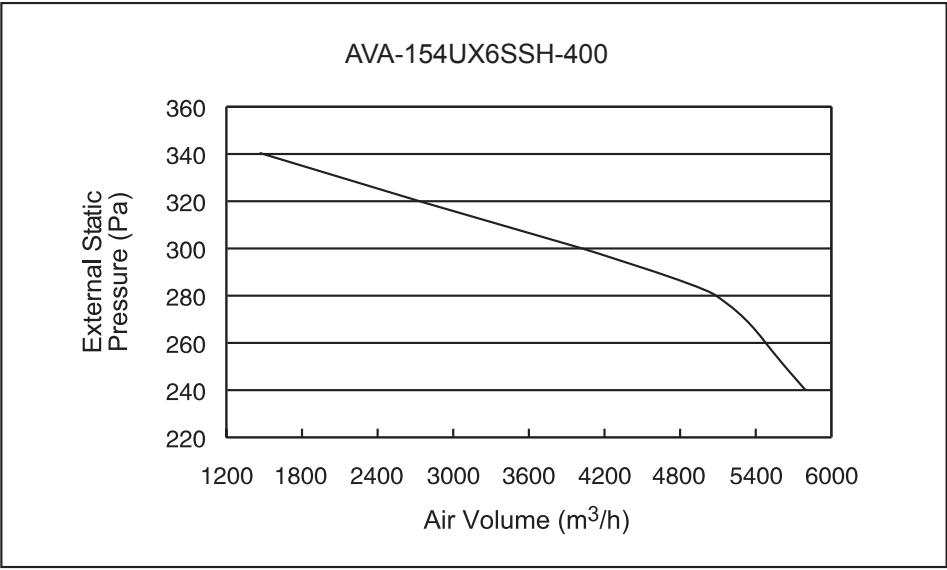
The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVA-30*	0.43	—	—
AVA-48*	0.42	—	—
AVA-76*	0.41	—	—
AVA-96*	0.40	—	—
AVA-114*	0.40	—	—
AVA-154*	0.42	—	—
AVA-190*-500	0.41	—	—
AVA-190*-600	0.41	—	—

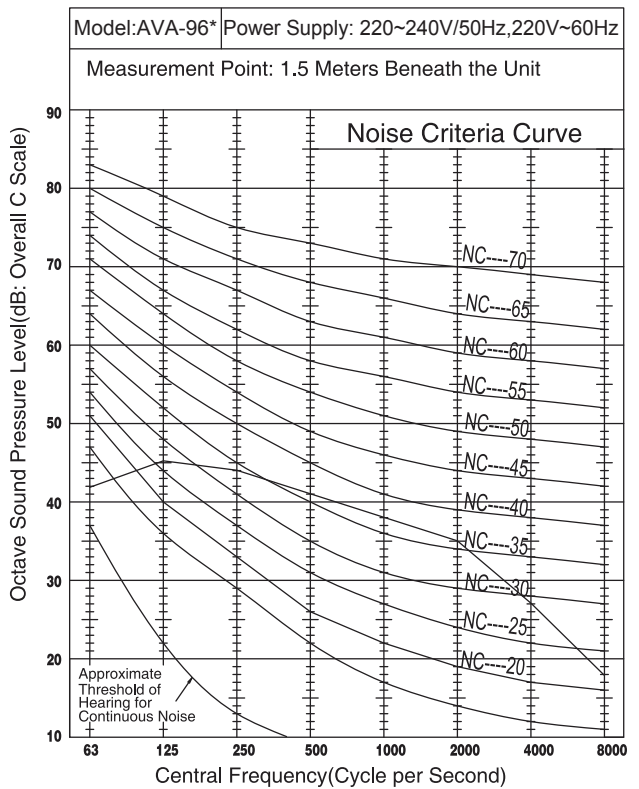
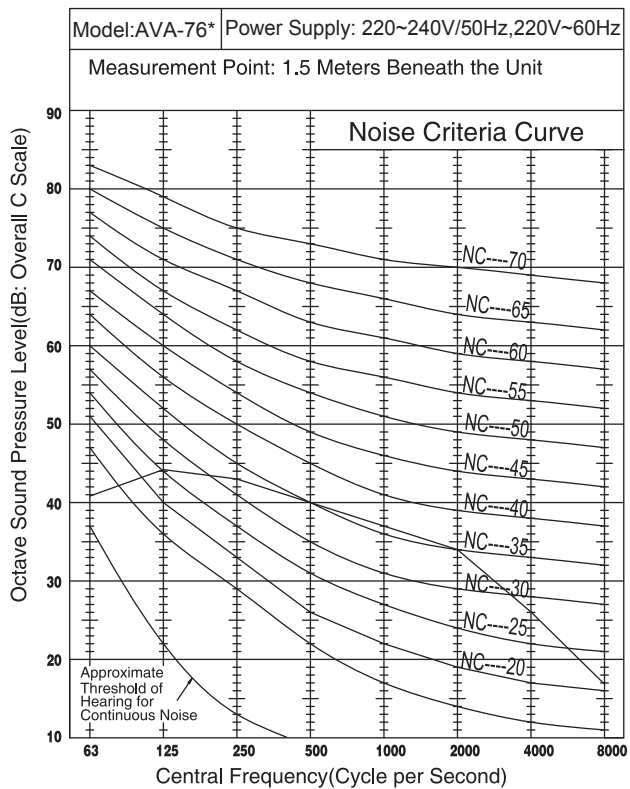
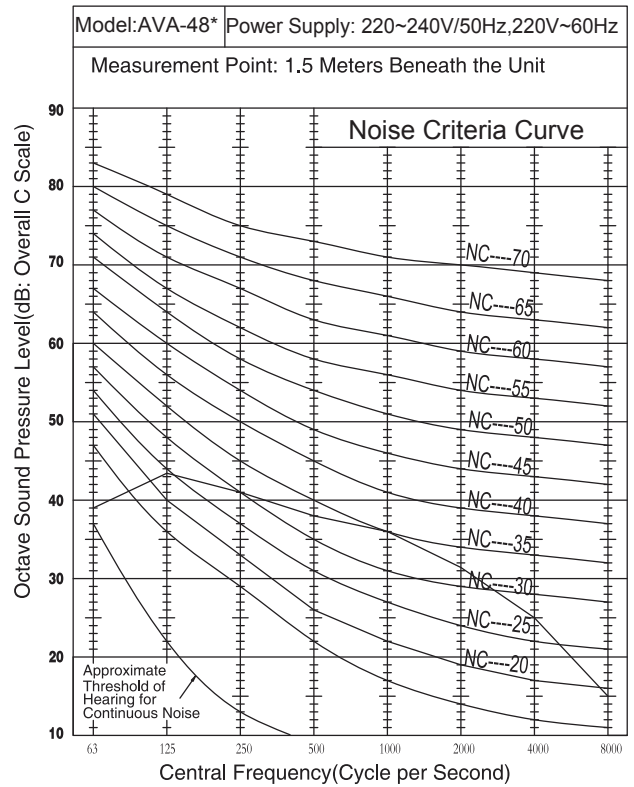
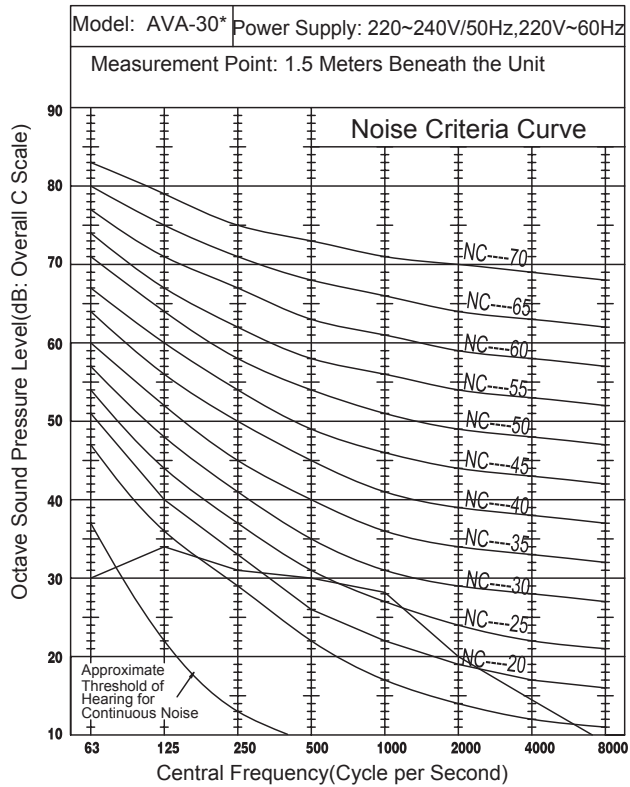
- Fan Performance

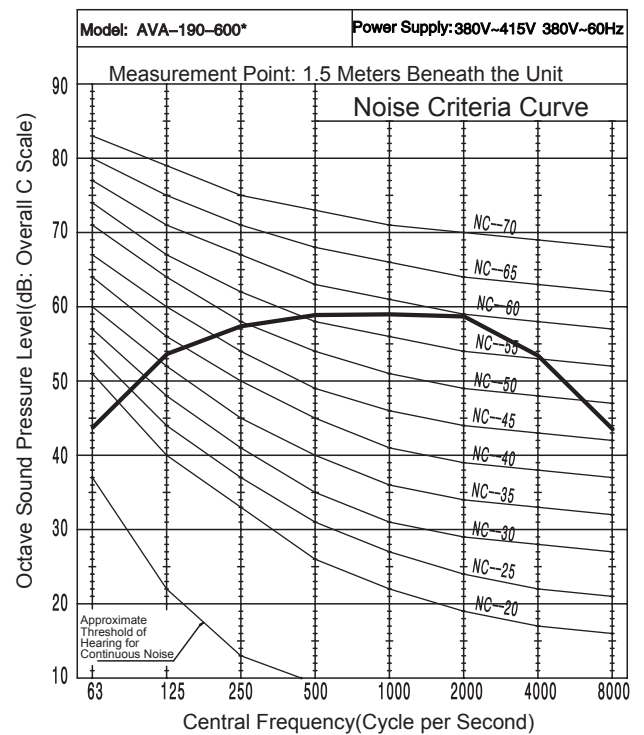
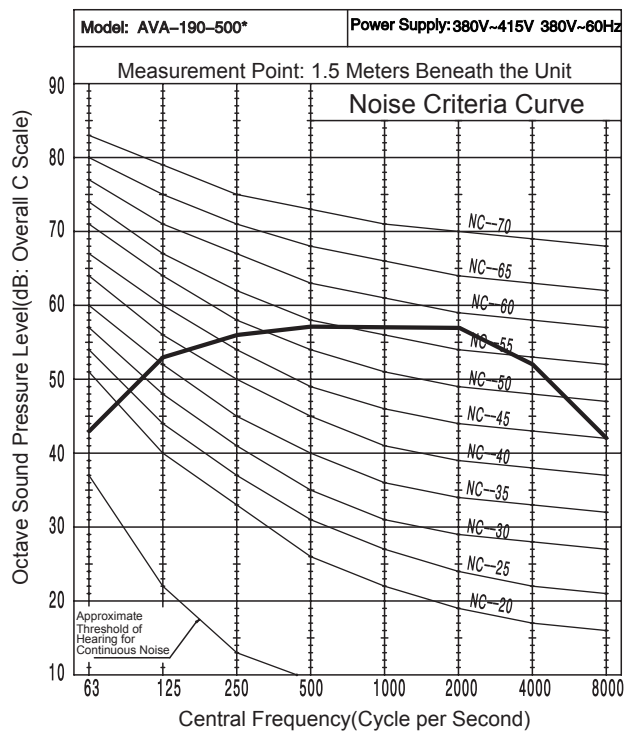
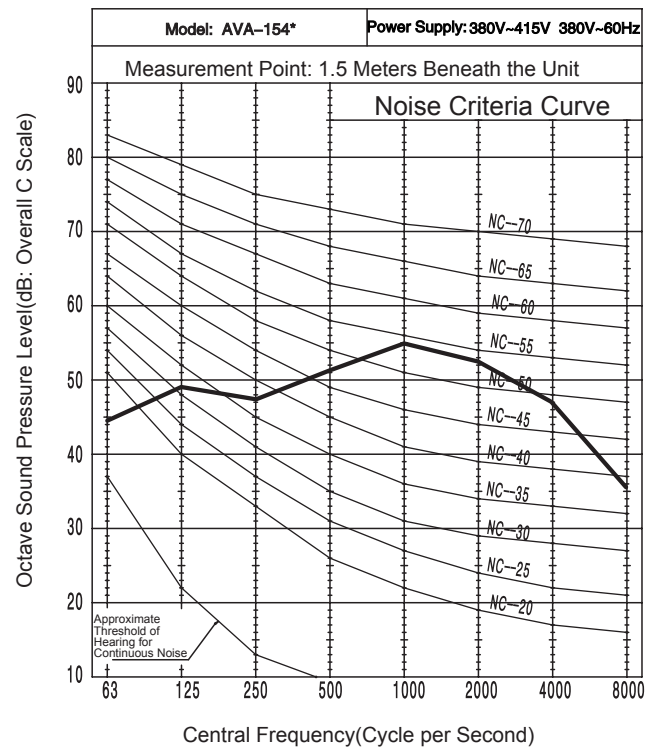
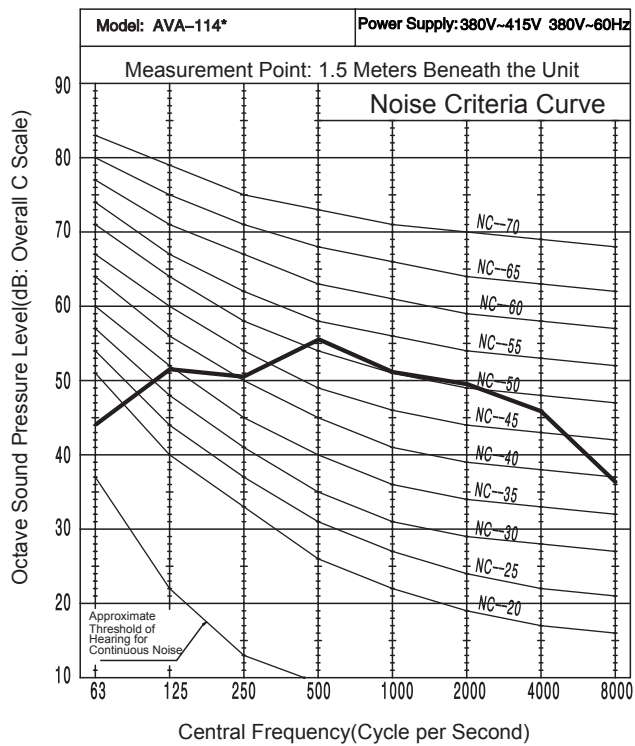






- Sound Data





12.4 Component Data

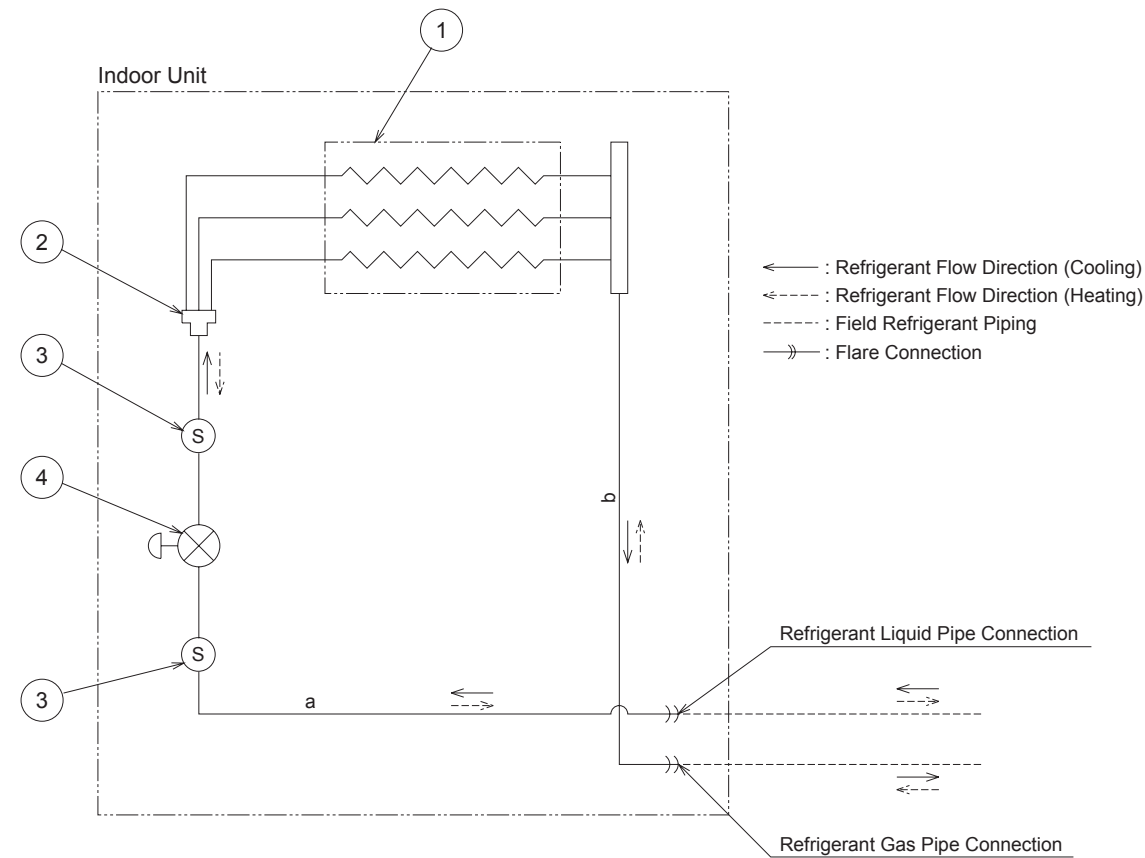
Indoor Heat Exchanger and Fan

Model		AVA-30*	AVA-48*	AVA-76*	AVA-96*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	9.53	9.53
Rows	–	2	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.294	0.46	0.56	0.62
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	2	2
Outer Diameter	mm	200.4	200.4	227.4	227.4
Revolution (220V)	rpm	800	1,310	1,220	1,270
Nominal Air Flow	m ³ /h	660	1080	1,680	2,100
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	PSC (Permanent Split Capacitor)			
Nominal Output	W	60	180	140	180
Quantity	–	1	1	2	2
Insulation Class	–	F	F	F	F

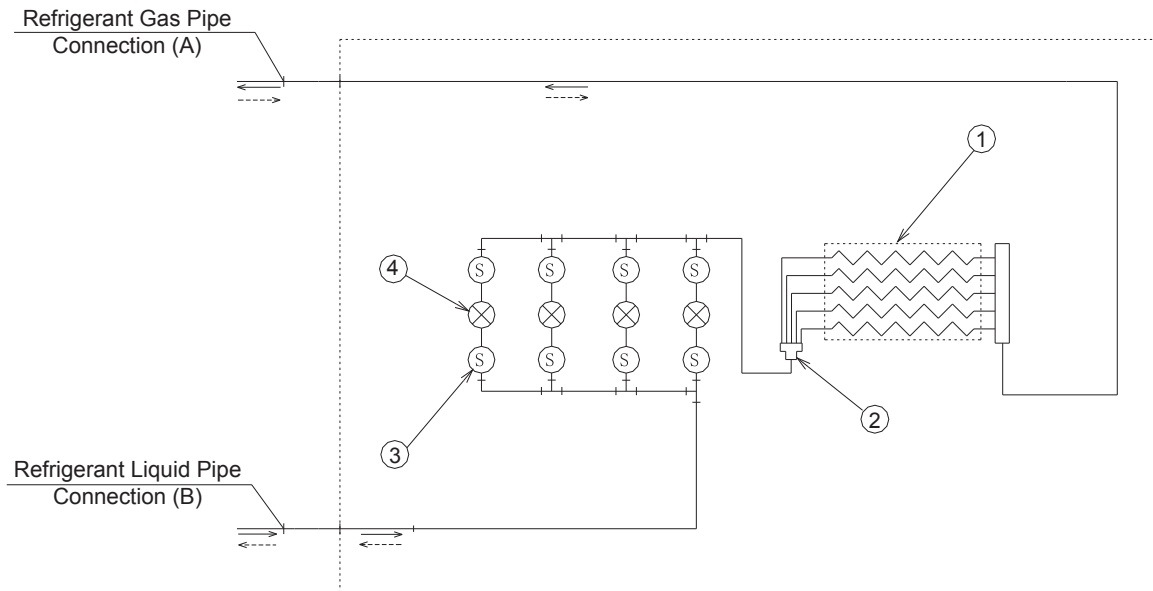
Model		AVA-114*	AVA-154*	AVA-190*-500	AVA-190*-600
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	9.53	9.53	9.53	9.53
Rows	–	3	3	3	3
Fin Material		Aluminum			
Pitch	mm	1.8	1.8	1.8	1.8
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.62	0.94	1.11	1.11
Number of Coil/Unit	–	1	1	1	1
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	1	1
Outer Diameter	mm	254.5	387	387	387
Revolution (380V)	rpm	1,200	1,400	1,400	1,420
Nominal Air Flow	m ³ /h	3,000	4,000	5,000	6,000
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	PSC (Permanent Split Capacitor)			
Nominal Output	W	600	1100	1500	2200
Quantity	–	1	1	1	1
Insulation Class	–	F	F	F	F

12.5 Refrigeration Cycle

AVA-30~114*



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve



- : Refrigerant Flow Direction (Cooling)
 - - - - - : Refrigerant Flow Direction (Heating)
 - - - - - : Field Refrigerant Piping
 —+— : Brazing or Flare-nut Connection

Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

12.6 Electrical Data

Indoor Unit

< 50 Hz >

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
All Fresh Air Indoor Unit	AVA-30UXCSCH-70	220~240	1	50	264	198	1	0.65	0.15
	AVA-48UXCSQH-108							1.45	0.33
	AVA-76UXCSRH-168							2.25	0.49
	AVA-96UXCSRH-210							2.35	0.51
	AVA-114UX6SRH-300	380~415	3	50	456	342	3	1.47	0.74
	AVA-154UX6SSH-400							1.92	1.12
	AVA-190UX6STH-500							2.45	1.33
	AVA-190UX6STH-600							2.96	1.62

Indoor Unit

< 60 Hz >

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
All Fresh Air Indoor Unit	AVA-30UXCSCH-70	220	1	60	242	198	1	0.14	0.65
	AVA-48UXCSQH-108							0.31	1.45
	AVA-76UXCSRH-168							0.61	2.79
	AVA-96UXCSRH-210							0.71	3.25
	AVA-114UX6SRH-300	380	3	60	418	342	3	0.70	1.47
	AVA-154UX6SSH-400							1.07	1.92
	AVA-190UX6STH-500							1.27	2.45
	AVA-190UX6STH-600							1.54	2.96

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

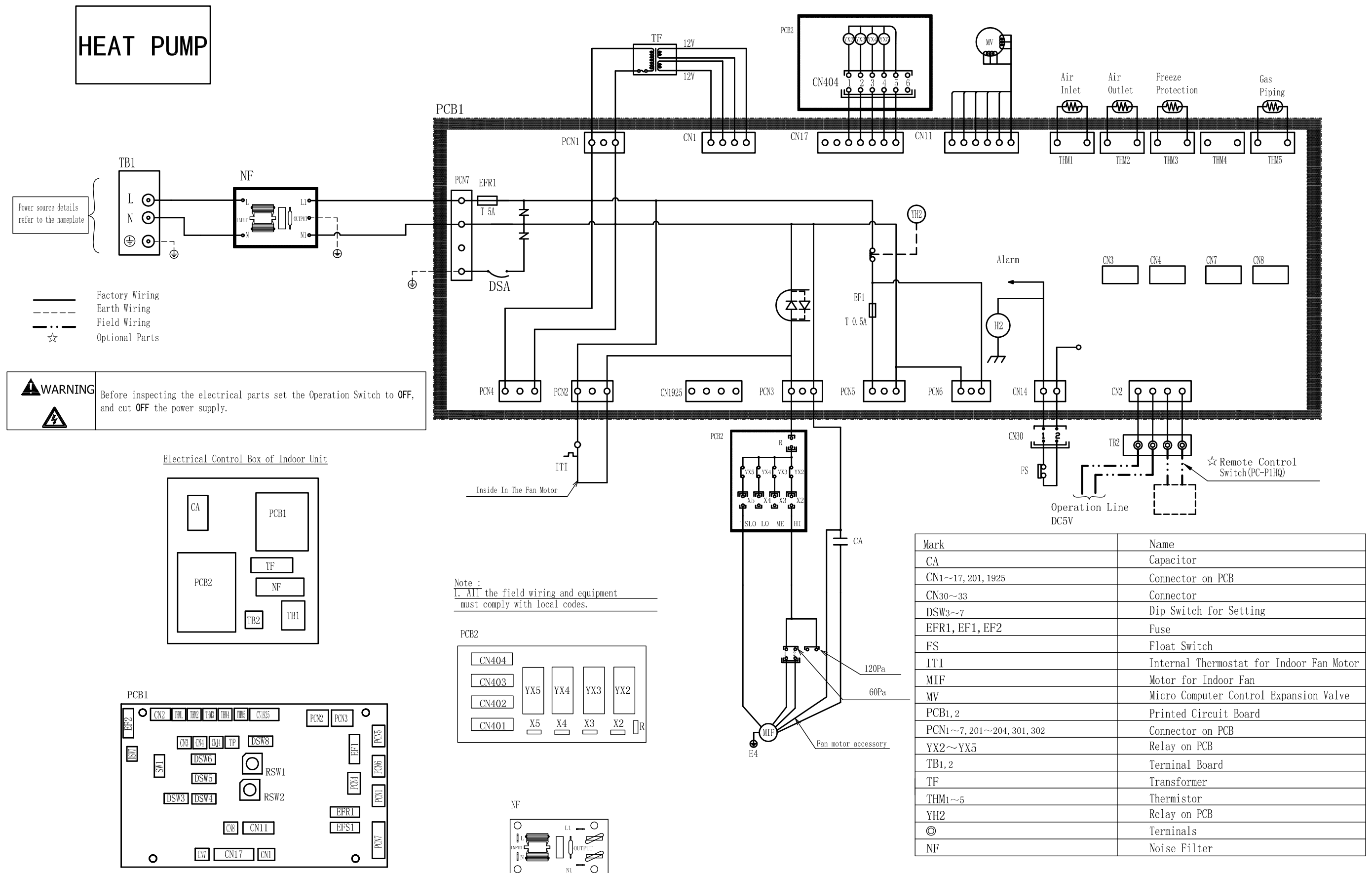
● Safety and Control Device Setting

Indoor Unit

Model			AVA-30~96*	AVA-114~190*
For Evaporator Fan Motor Thermostat	Cut-Out	°C	130±5	145±5
	Cut-In	°C	83±15	80±15
For Control Circuit Fuse Capacity		A	5	5
Freeze Protection Thermostat	Cut-Out	°C	0	0
	Cut-In	°C	14	14
Thermostat Differential		°C	2	2

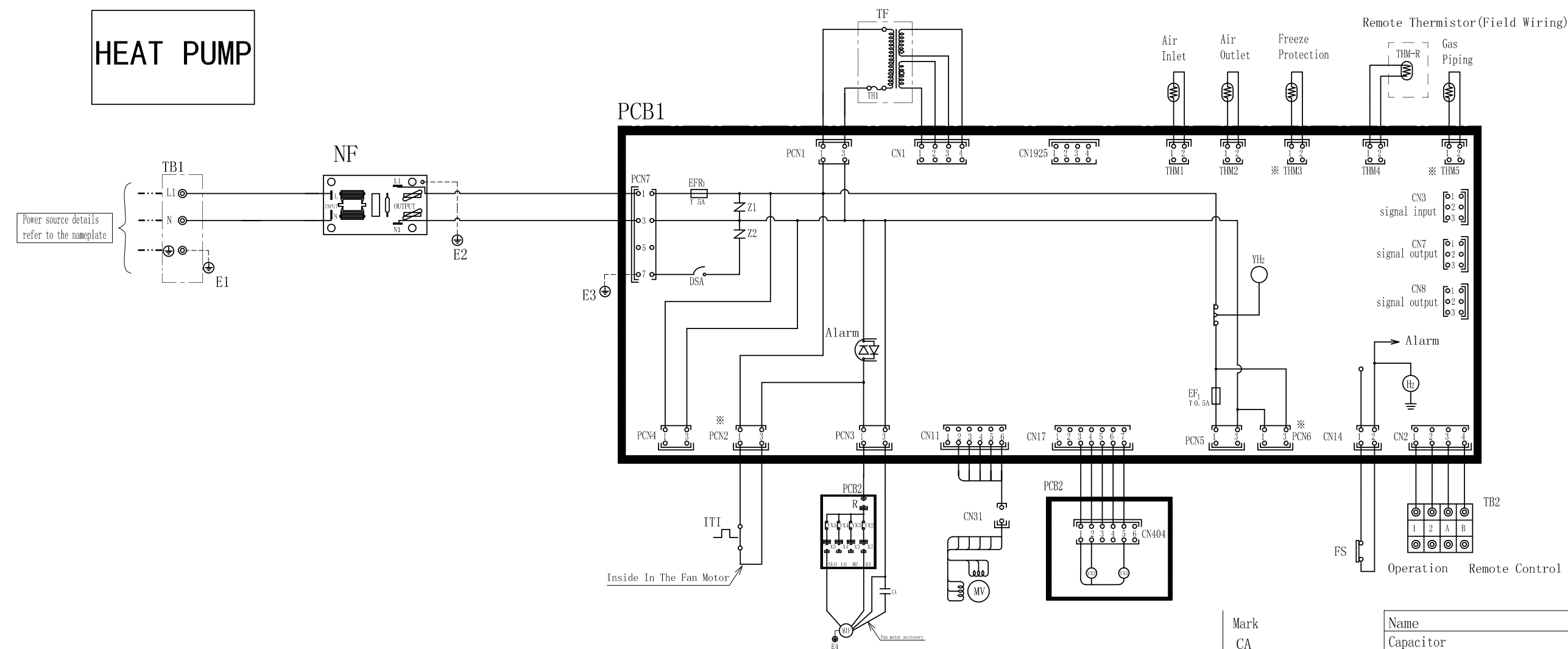
12.7 Electrical Wiring Diagram

Model: AVA-30*



Electrical Wiring Diagram

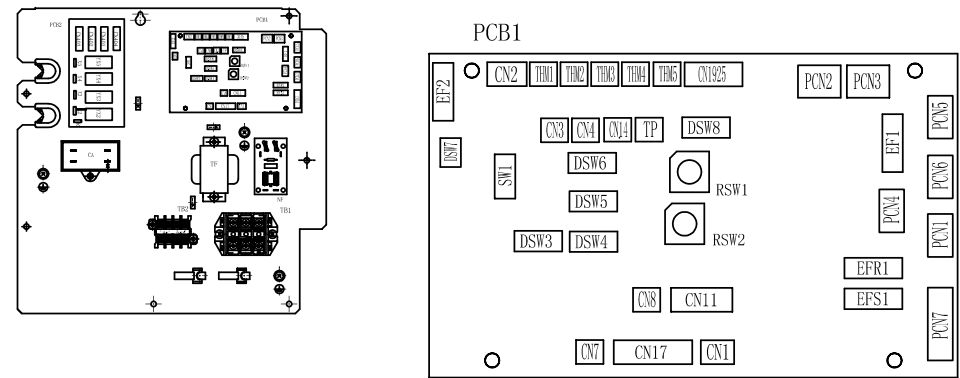
Model: AVA-48*



WARNING

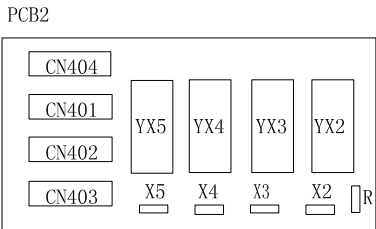
Before inspecting the electrical parts set the Operation Switch to **OFF**, and cut **OFF** the power supply.

Electrical Control Box of Indoor Unit



- : Factory Wiring
- : Earth Wiring
- · - · : Field Wiring
- ☆ : Optional Parts

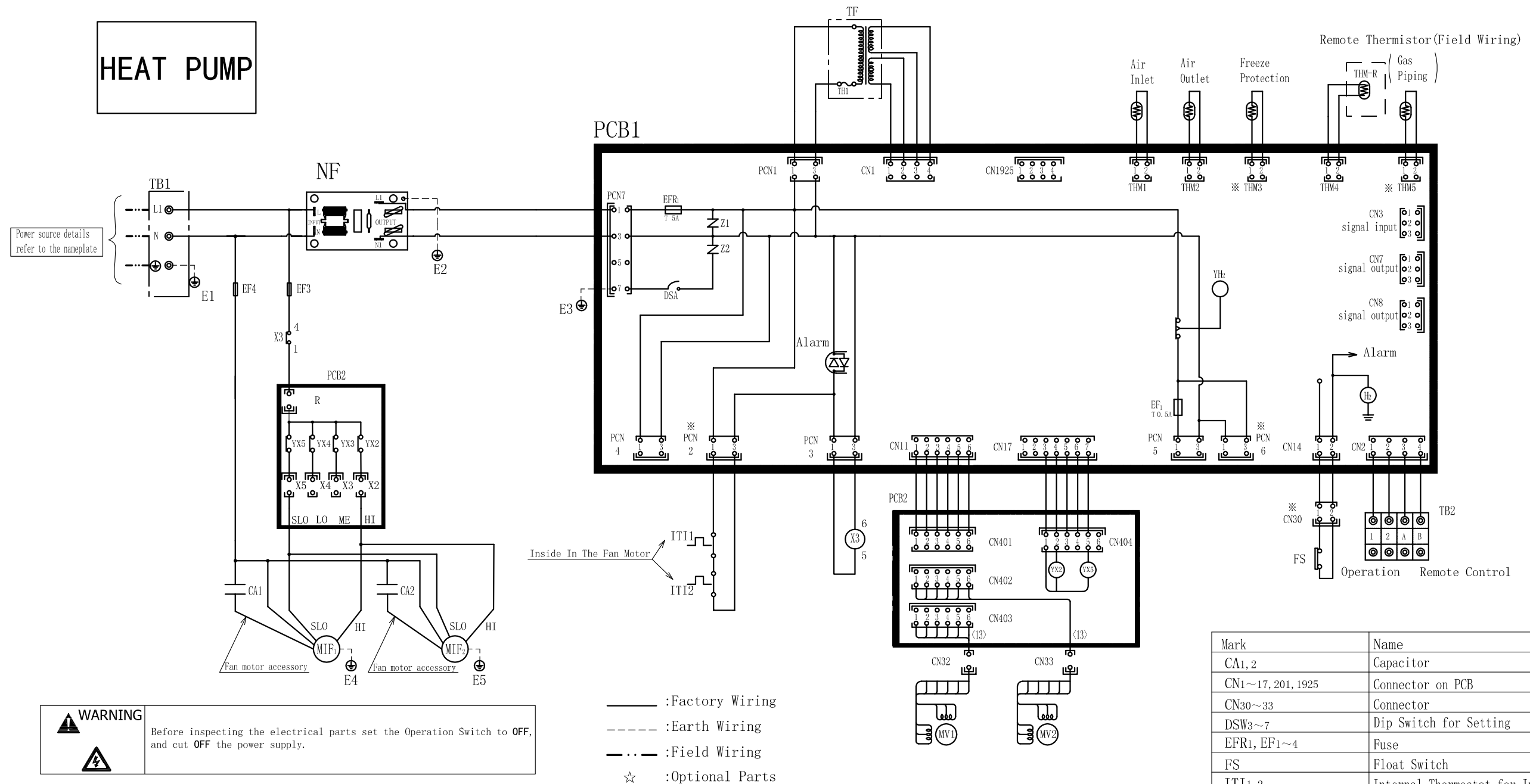
Note :
1. All the field wiring and equipment must comply with local codes.



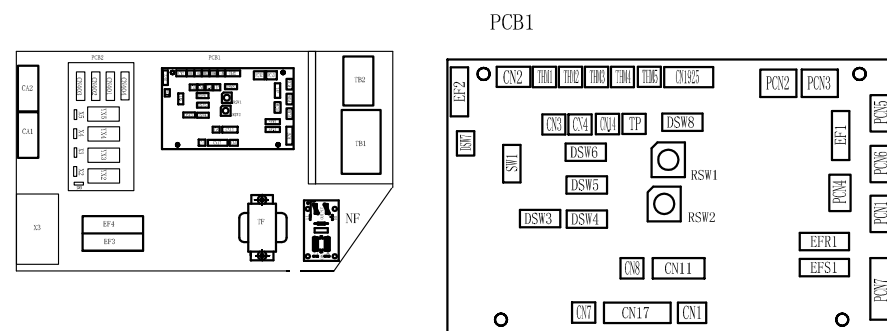
Mark	Name
CA	Capacitor
CN1~17, 404, 1925	Connector on PCB
CN31	Connector
DSW3~7	Dip Switch for Setting
EFR1, EF1, EF2	Fuse
FS	Float Switch
ITI	Internal Thermostat for Indoor Fan Motor
MIF	Motor for Indoor Fan
MV	Micro-Computer Control Expansion Valve
PCB1, 2	Printed Circuit Board
PCN1~7, 201~204, 301, 302	Connector on PCB
YX2~5	Relay on PCB
TB1, 2	Terminal Board
TF	Transformer
THM1~5	Thermistor
YH2	Relay on PCB
◎	Terminals
NF	Noise Filter

Electrical Wiring Diagram

Model: AVA-76~96*

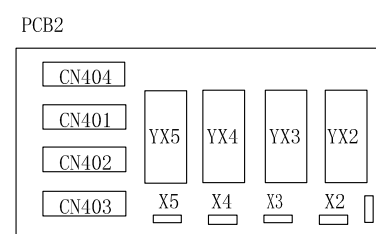


Electrical Control Box of Indoor Unit



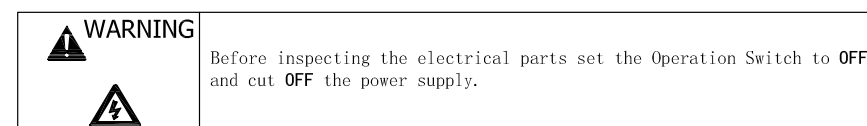
Note :

1. All the field wiring and equipment must comply with local codes.



Mark	Name
CA1, 2	Capacitor
CN1 $\sim$ 17, 201, 1925	Connector on PCB
CN30 $\sim$ 33	Connector
DSW3 $\sim$ 7	Dip Switch for Setting
EF1, EF1 $\sim$ 4	Fuse
FS	Float Switch
ITI1, 2	Internal Thermostat for Indoor Fan Motor
MIF1, 2	Motor for Indoor Fan
MV1, 2	Micro-Computer Control Expansion Valve
PCB1, 2	Printed Circuit Board
PCN1 $\sim$ 7, 201 $\sim$ 204, 301, 302	Connector on PCB
YX2 $\sim$ 5	Relay on PCB
TB1, 2	Terminal Board
TF	Transformer
THM1 $\sim$ 5	Thermistor
YH2	Relay on PCB
◎	Terminals
X3	Relay
NF	Noise Filter

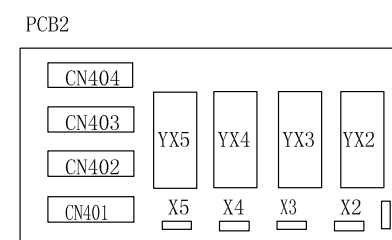
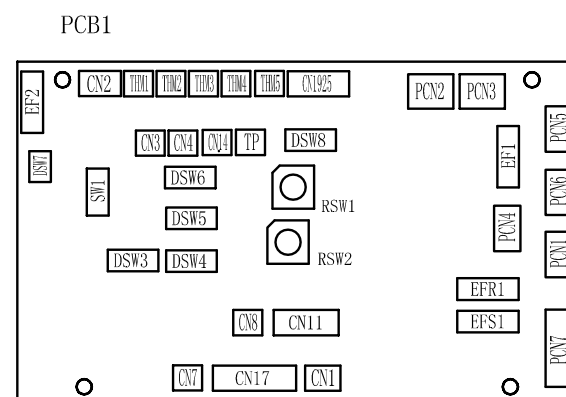
Model: AVA-114*



The diagram illustrates a system architecture. A central rectangular block labeled 'PCB1' is connected to several other components:

- To its left is a vertical rectangle labeled 'PCB2'.
- To its top right is a small vertical rectangle labeled 'TB2'.
- To its bottom right is a tilted rectangle labeled 'TB1'.
- Below it is a component labeled '52F' with two circular ports.
- Below '52F' is a stack of two rectangular blocks labeled 'EF2' and 'EF1'.

 A thick diagonal line runs from the bottom right corner towards the center, separating the components on the right (TB2, TB1) from those on the left (PCB2, 52F, EF2, EF1).



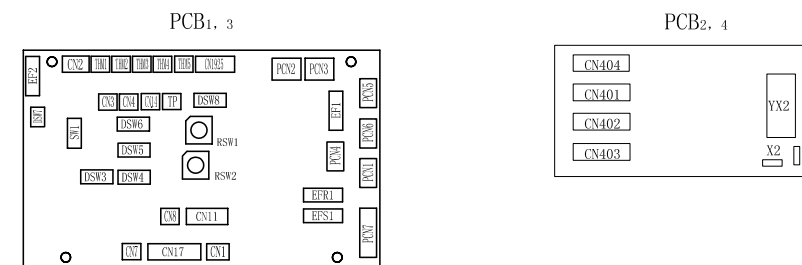
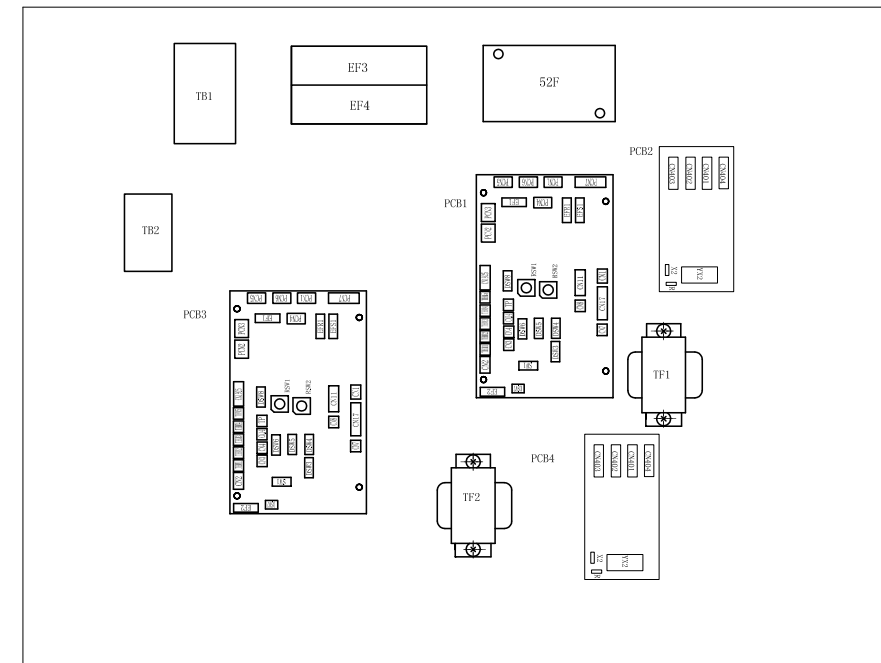
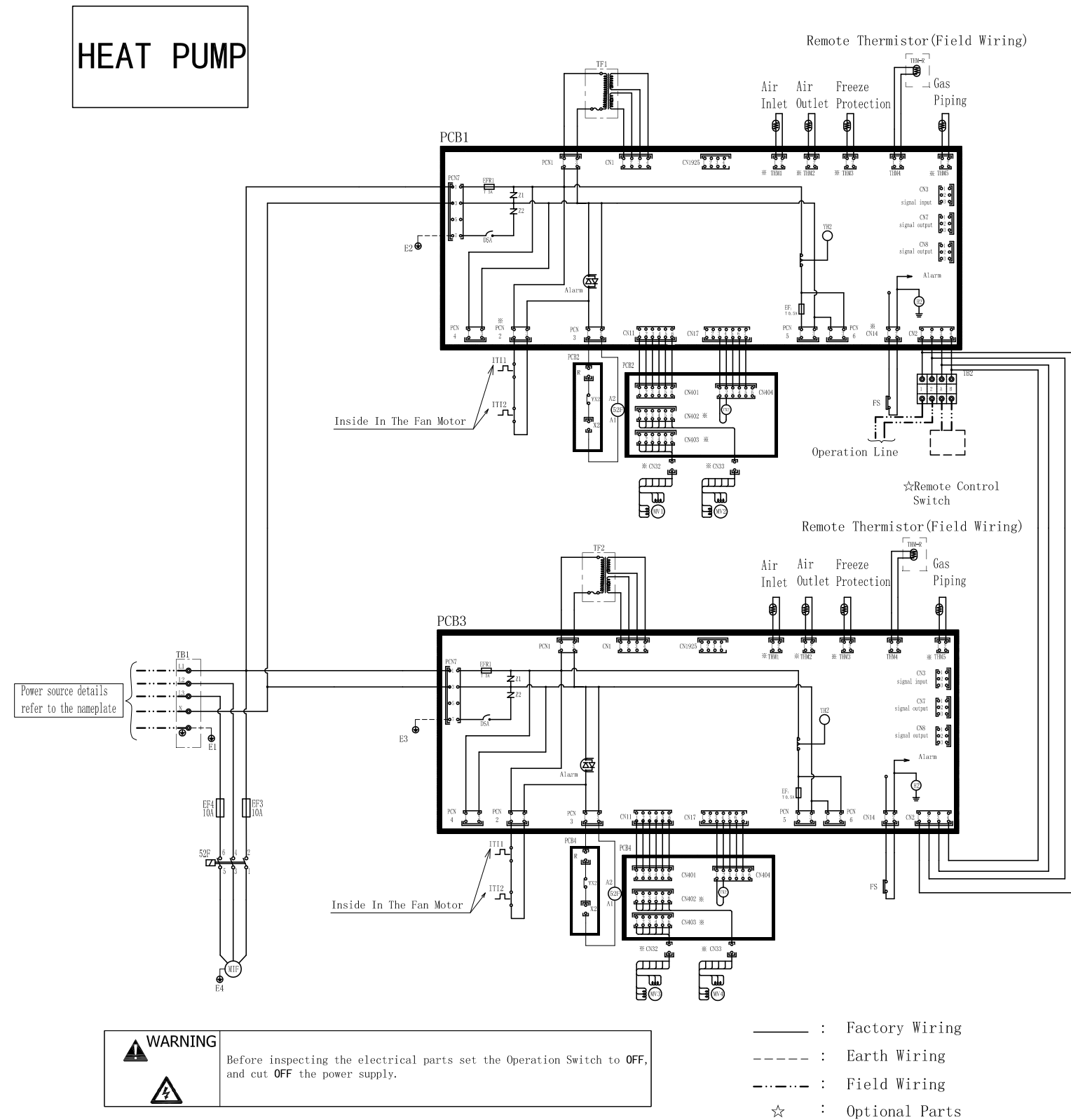
Note :

1. All the field wiring and equipment must comply with local codes.

Mark	Name
CA	Capacitor
CN1~17, 201, 1925	Connector on PCB
CN30~33	Connector
DSW3~7	Dip Switch for Setting
EFR1, EF1~2	Fuse
FS	Float Switch
ITI	Internal Thermostat for Indoor Fan Motor
MIF	Motor for Indoor Fan
MV	Micro-Computer Control Expansion Valve
PCB1,2	Printed Circuit Board
PCN1~7, 201~204, 301, 302	Connector on PCB
YX2	Relay on PCB
TB1,2	Terminal Board
TF	Transformer
THM1~5	Thermistor
YH2	Relay on PCB
◎	Terminals
52F	Contactoer
FF1~EF2	Noise Filter

Electrical Wiring Diagram

Model: AVA-154*~190*



Mark	Name
TB _{1,2}	Terminal Board
PCB _{1~4}	Printed Circuit Board
EF _i , EFR _i	Fuse
CN _{32,33}	Connector
MIF	Motor for Indoor Fan
ITI	Internal Thermostat for Indoor Fan Motor
MV	Micro-Computer Control Expansion Valve
FS	Dip Switch for Setting
TF _{1,2}	Transformer
THM _{1~5}	Thermistor
THM-R	Remote Thermistor
Z _{1,2}	Voltage Dependent Resistor
DSA	Discharge Tube
EF _A , EF _i	Fuse for Motor

Note :
1. All the field wiring and equipment must comply with local codes.

12.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	All Fresh Air Indoor Unit
Wire Remote Control Switch	HYXE-F01H	•
	HYXE-G01H	
	HYXE-A01H#01	•
	HYXE-J01H	•
	HYXE-M01H	•
Wireless Remote Control Switch	HYE-L01	•
	HYE-W01	•
Wireless Receiver Kit	HYRE-V01H	•
	HYRE-T01H	
	HYRE-V02H	
	HYRE-X01H	
7 Day Timer	HYDE-E01H	•
Control Station	HYJE-H01H	•
	HYJE-D02H	•
	HYJ-J01H	•
	HCCS-H128H2C1YM	•
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	•
Interface for Building Control	HC-A64BNP	•
	HCPC-H2M1C	•
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

12.9 Factory–Supplied Accessories

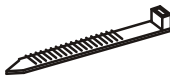
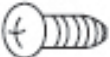
Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Model: AVA-30*~114*

Table Factory-Supplied Accessories

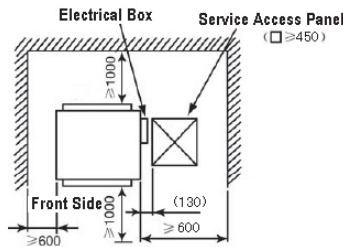
Accessory		Q'ty	Purpose
Washer		8	For Unit Suspension
Hose Clamp		1	For Drain Hose Connection
Insulation (26 IDx105)		1	For Refrigerant Liquid Piping
Insulation (28 IDx85)		1	For Refrigerant Gas Piping
Cord Clamp 	Only for 30~48kBtu/h	5	For Fixing Thermal Insulation for Refrigerant Pipings
	Only for 76~114kBtu/h	2	
Cord Clamp 	Only for 30~48kBtu/h	5	For Fixing Thermal Insulation for Refrigerant Pipings
	Only for 76~114kBtu/h	6	
Remote Temperature Sensor		1	For Detection Indoor Temperature
Screw (M4)		1	For Fixing Temperature Sensor
Screw (M4)	Only for 30~48kBtu/h 	16	For Unit Suspension

12.10 Installation For Model(30~114)

12.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown below.

Model:30~48



Model:76~114

unit:mm

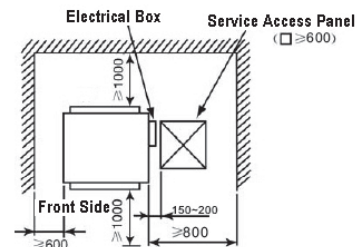


Fig. Operation and Installation Space

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.

The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.

- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

12.10.2 Installation

• Suspension Bolts

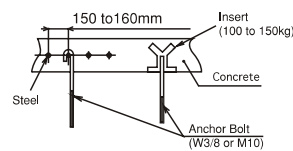
Step 1

Select final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.

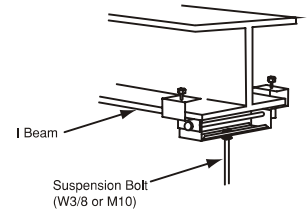
Step 2

Mount suspension bolts, as shown in Fig. 4.2

• For Concrete Slab



• For Steel Beam



• For Wooden Beam Suspension

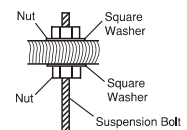
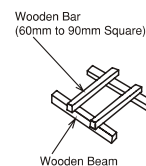


Fig. Mounting of Suspension Bolts

- Marking of the Positions of the Sling Bolts and Piping Connections
- (1) Mark the positions of the sling bolts, refrigerant piping connections and drain connection.
 - (2) Installation dimensions are shown in Fig

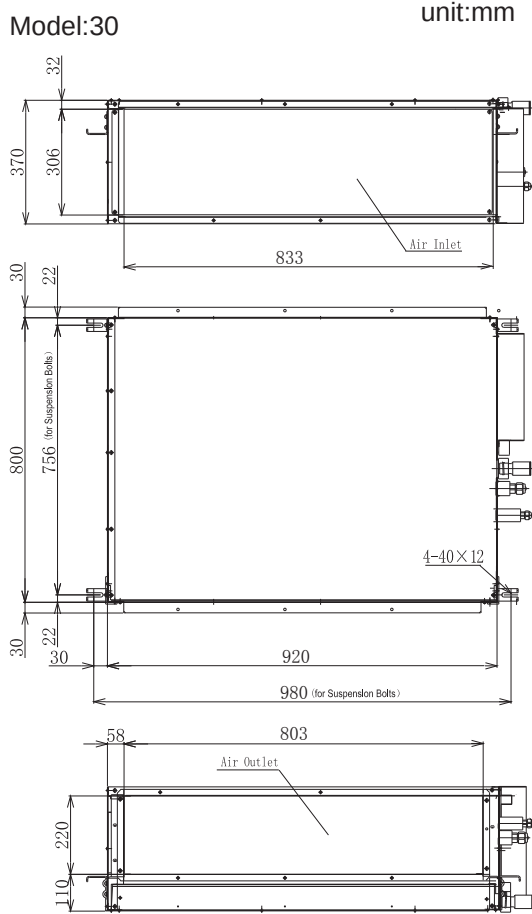


Fig. (1) Sling Bolts

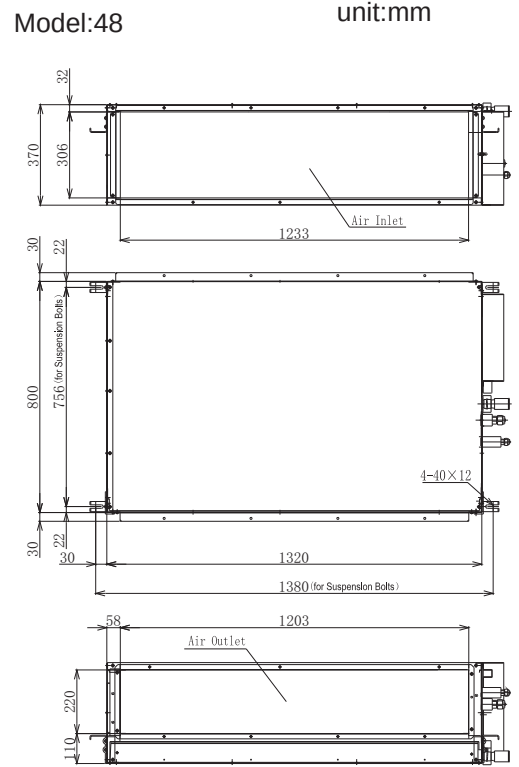


Fig. (2) Sling Bolts

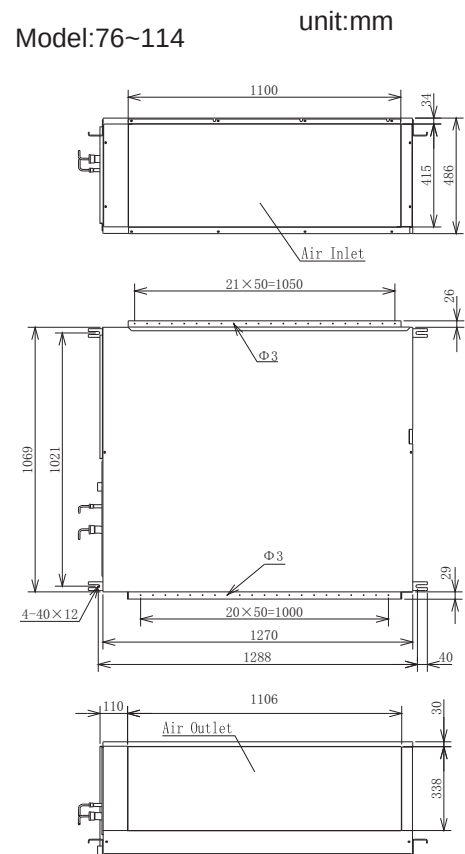


Fig. (3) Sling Bolts

- Mounting the Indoor Unit

Hang the indoor unit as shown below.

Field-Supplied Parts

*Sling Bolts 4-M10 or W3/8

*Nut 8-M10 or W3/8

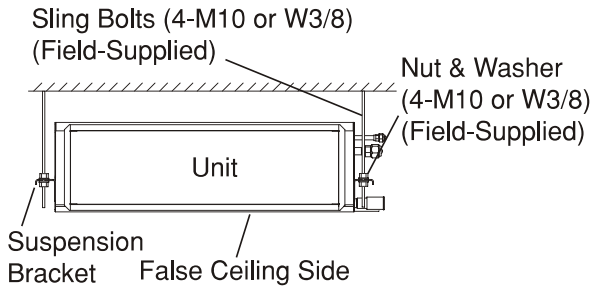


Fig. Hanging Indoor Unit

(1) How to put Nuts or Sling Bolts

Put nuts on each of the four hanging bolts, as shown below.

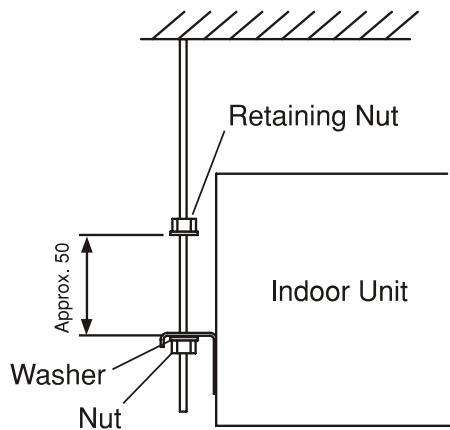


Fig. Sling Bolts and Nut

(2) Hanging the Indoor Unit

- * Hook suspension bracket to the nut and washer of each hanging bolt, as shown, starting at the opposite side to service cover side.
- * After checking that the nut and washer are correctly fixed by the retainers of the suspension bracket, hook the suspension bracket of the service cover side to the nut and washer.

(Put the sling bolts away from the unit when hooking.)

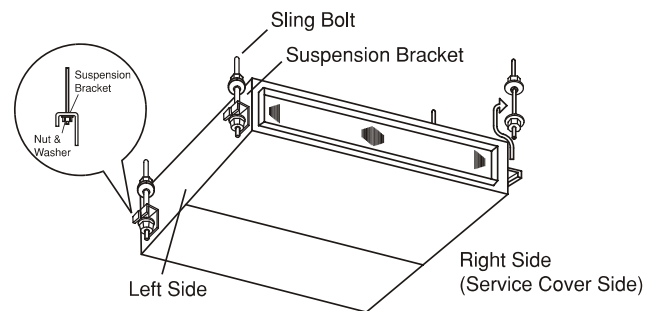


Fig. Hanging Indoor Unit

- Adjusting of the Unit Level

- (1) Check to ensure that the foundation is flat, taking into account the maximum foundation gradient.

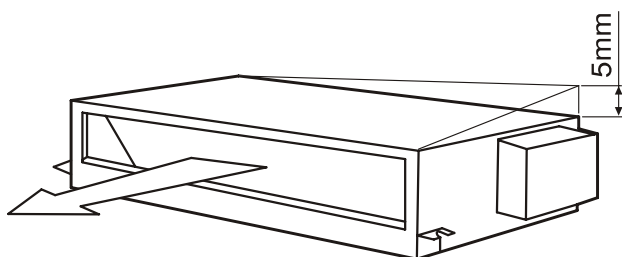


Fig. 4.7 Foundation Gradient

- (2) The unit should be installed so that the rear side of the unit is slightly (0mm~5mm) lower than the front side, in order to avoid the incorrect position of the drain discharge.
- (3) Tighten the bolts of the sling nuts with the suspension brackets after adjustment is completed.

Special plastic paint must be applied to the bolts in order to prevent them from loosening.

NOTE

Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.

- Connecting Supply Duct

- (1) The supply duct should be connected with the indoor unit through canvas ducts, in order to avoid abnormal sound vibration (Refer to Fig.). The unit is equipped with a pre-drilled duct flange for the supply duct connection.
- (2) Attach the vibration proof rubber to Sling Bolt in order to avoid abnormal sound vibration.
- (3) Duct material should be non-flammable material.
- (4) Perform the heat insulation work over the duct for dew protection.

CAUTION

- If a lower sound level is further required, install silencer (field-supplied).
- Design duct arrangement as “Unit External Static Pressure=Pressure Drop of Duct+Pressure Drop of Air Outlet and Air Inlet”.

If duct design is not appropriate, big sound and splash will occur.

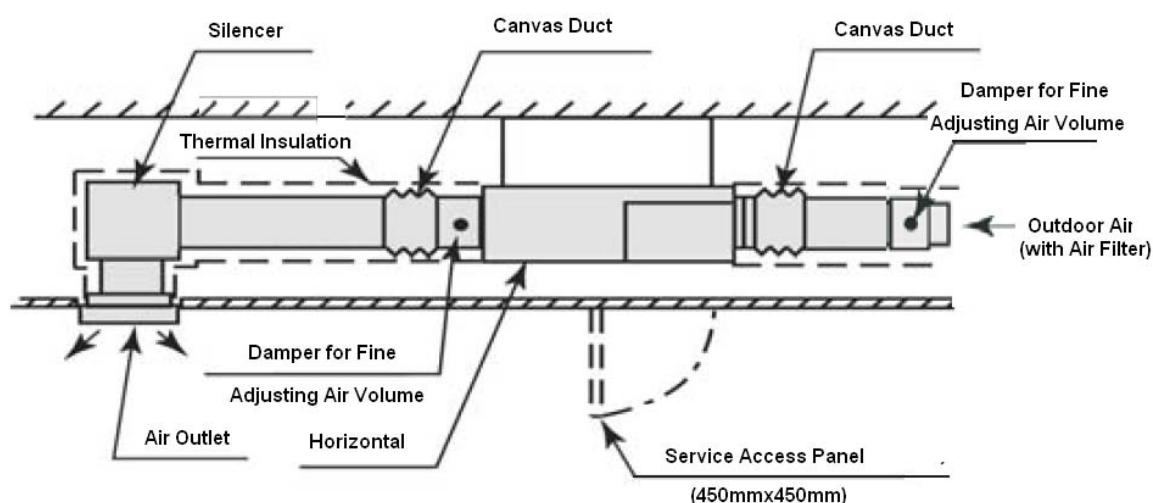


Fig. Duct Connection

12.11 Refrigerant Piping Work For Model(30~114)

⚠ DANGER

Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

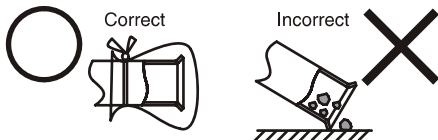
12.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper tubes making sure there is no dust and moisture inside the tubes.
Before connecting pipes, blow the inside of the tubes with nitrogen or dry air, to remove any dust or foreign materials.

12.11.2 Piping Connection

⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- An excess or a shortage of refrigerant is the main cause of trouble to the units.
Charge the correct refrigerant quantity.
- (1) Position of piping connection is shown below.

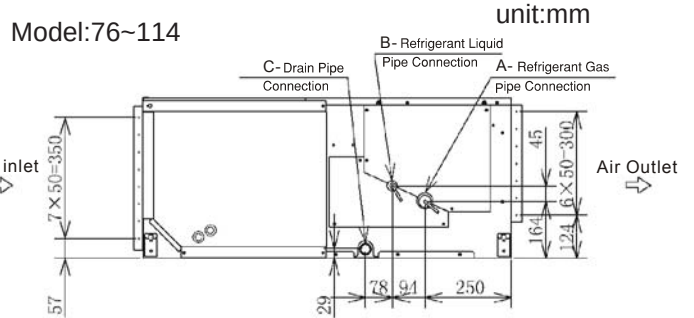
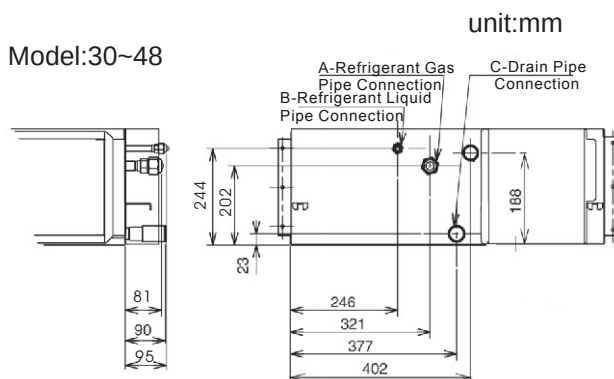
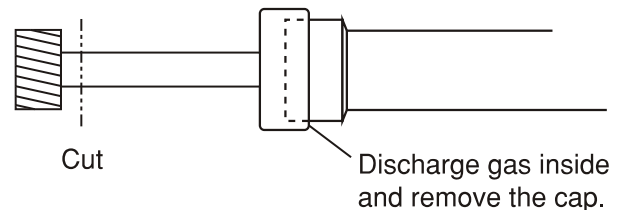


Fig. Position of Piping Connection

MODEL	A	B	C
30	15.88(5/8)	9.53(3/8)	VP 25
48	15.88(5/8)	9.53(3/8)	
76	19.05(3/4)	9.53(3/8)	
96	22.2(7/8)	9.53(3/8)	
114	25.4(1)	12.7(1/2)	

⚠ CAUTION

- Cut the pipe end before blazing to remove the cap, and discharge gas inside the pipe.
If not discharged, blazing material will be blown off.



- Pay attention so that the flame does not come into contact with the main body itself.

- (2) When brazing the refrigerant pipes, be sure to blaze, after covering the part with shown below a wet cloth to the insulation pipes of the units in order to prevent the thermistors on liquid and gas pipes from damaging by heating.

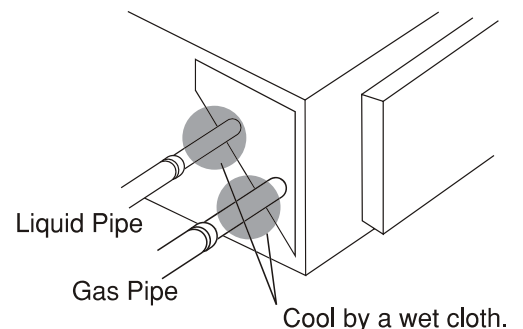


Fig. Blazing Pipes

- (3) After brazing, insulate the pipes after checking that there is no leakage. At that time, be sure to cover the space between two insulating peaces by insulation pipe (factory-supplied accessory).

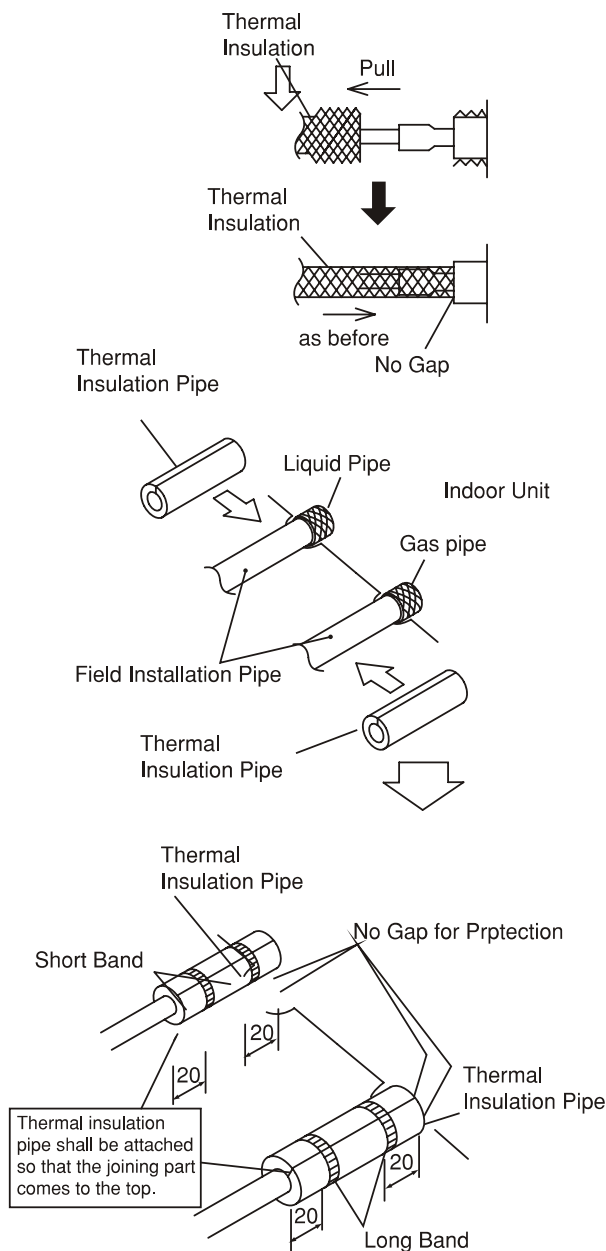
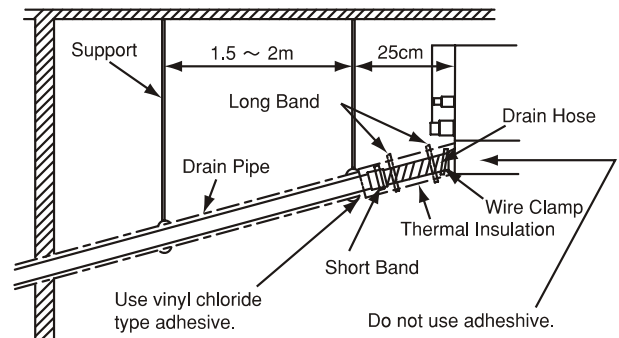


Fig. Insulating Pipes

- (4) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit. In relation to the additional refrigerant quantity, refer to "Common".

12.12 Drain Piping For Model(30~114)

- (1) The position of the drain piping connection is shown below.
- (2) Prepare polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tube to the drain hose with the adhesive agent and the factory-supplied clamp. The drain piping must be performed with a DOWN-SLOPE pitch of 1/25 to 1/100.
- (4) Insulate the drain pipe after connecting the drain hose.



- Do not connect the drain-hose to the drain outlet pipe of indoor unit BY ADHESIVE. If used, the servicing of drain-up mechanism is not available, and drain outlet pipe of indoor unit may be cracked due to invasion of the adhesive. But other pipe connecting part, use vinyl chloride type adhesive.

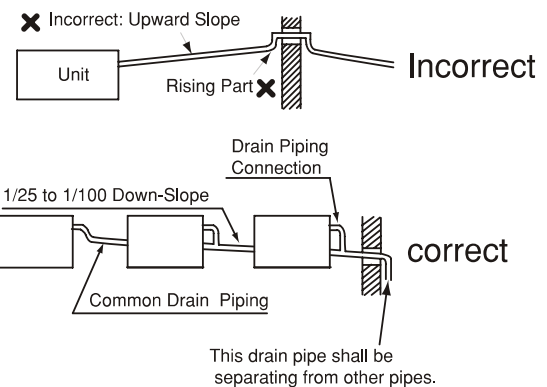


Fig. Drain Piping

NOTE

When the relative humidity of inlet or ambient air exceeds 80%, apply an (field-supplied) auxiliary drain pan beneath the indoor unit as shown below.

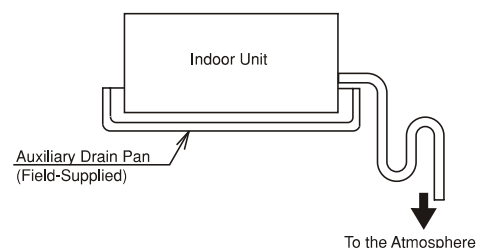


Fig. Auxiliary Drain Pan

NOTE

- (1) Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the unit and leakage to the room will occur when the unit operation is stopped.
- (2) Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- (3) When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- (4) After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.
Checking with the Float Switch
 - a. Switch ON the power supply.
 - b. Pour 2 or 2.5 liters of water into the drain pan.
 - c. Check to ensure that the water flows smoothly or whether no water leakage occurs. When water cannot be found at the end of the drain piping, pour another 2 liters of water into the drain.

12.13 Electrical Wiring For Model(30~114)

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Tighten screws according to the following torque.
 - M3.5: 1.2 N·m
 - M5: 2.0~2.4 N·m

! CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.

- **Tightly secure the wires with the cord clamp inside the indoor unit.**
- **Secure the cable of the remote control switch using the cord clamp inside the electrical box.**

12.13.1 General Check

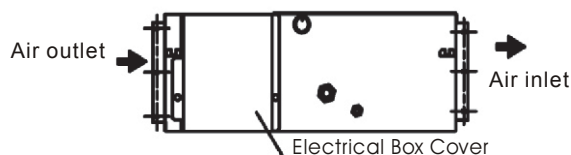
- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires.
If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

12.13.2 Electrical Wiring Connection

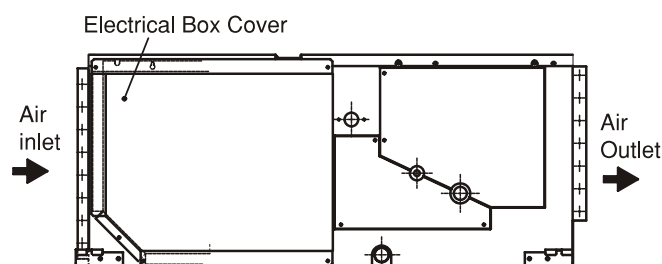
The electrical wiring connection for the indoor unit is shown below.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp inside the electrical box.

Model:30~48



Model:76~114



Remove the fixing screws for electrical box cover.

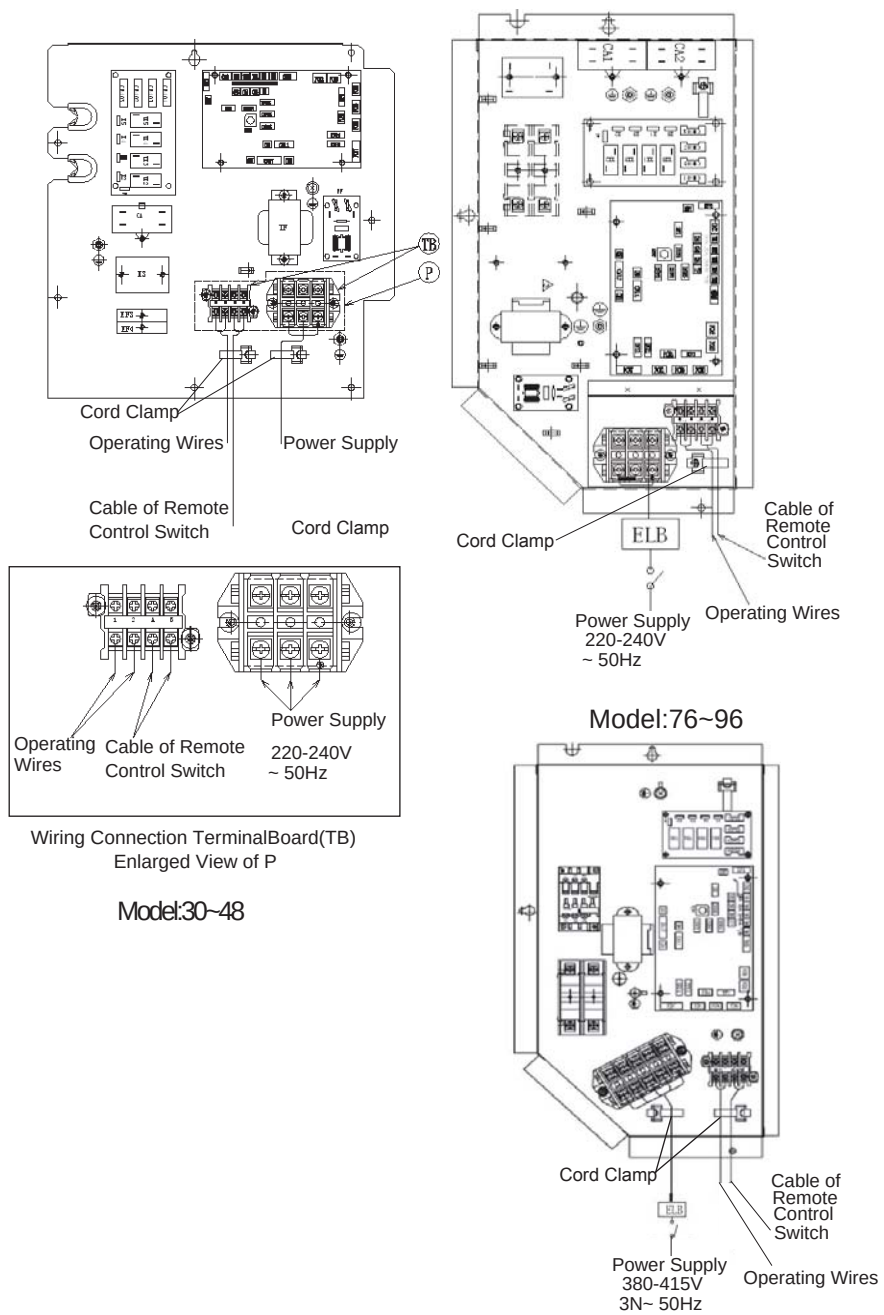


Fig. Electrical Wiring Connection Model:114

12.14 Common (For Model 30~114)

12.14.1 Field Minimum Wire Sizes for Power Source

WARNING

- Use an ELB(Electric Leakage Breaker).If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube,and Completely seal the end of conduit tube with sealing materials.

Model	Power Source	MCA	Power Source Cable Size	Transmtting Cable Size
			EN60335-1 *1	EN60335-1 *1
30	220- 240V ~ 50Hz 220V~60Hz	1.2A	2.5mm ²	0.75mm ²
48		2.5A	2.5mm ²	0.75mm ²
76		5.2A	2.5mm ²	0.75mm ²
96		6.0A	2.5mm ²	0.75mm ²
114	380-415V 3N~ 50Hz 380V~60Hz	2.7A	2.5mm ²	0.75mm ²

12.15 Factory-Supplied Accessories(For Model 154~190)

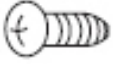
Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Model: AVA-154*~190*

Table Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Remote Temperature Sensor 	1	For Detection Indoor Temperature (Including Two Remote Temperature Sensors)
Screw(m4) 	2	For Fixing Temperature Sensor

12.16 Installation (For Model 154~190)

12.16.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown below.

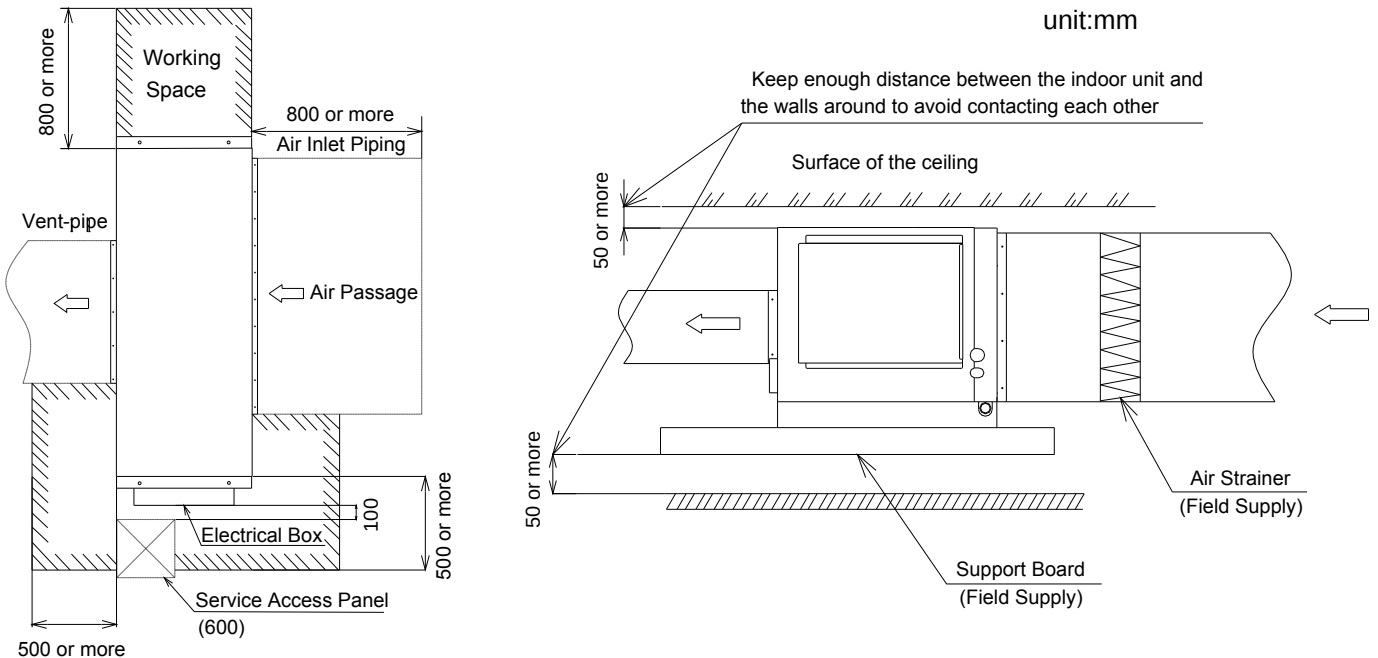


Fig. Operation and Installation Space

- The indoor unit is not designed for the places that need quiet environment. Install the indoor unit in the places like equipment rooms that do not bring noise problems.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machine shop or kitchen where vapor from oil or its mist flows to the indoor unit.
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.
- Install the service access panel at the same side with the electrical box in order to maintain and service conveniently.
- The indoor unit can not control the temperature.
- Do not install the indoor unit in places like the place or hot spring where the environment is saliferous and corrosive.

12.16.2 Installation

- Suspension bolts

- (1) Select final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Using suspension bolts to install the indoor unit. Check the ceiling whether is strong enough to support the indoor unit. Please reinforce the ceiling before installation if it is not safe.
- (3) Install the indoor unit 2.5 meters higher from the floor level, when exposed outdoor.
- (4) Strainer(Field Supply) must be installed in the pipeline. Make sure the outdoor air through the strainer

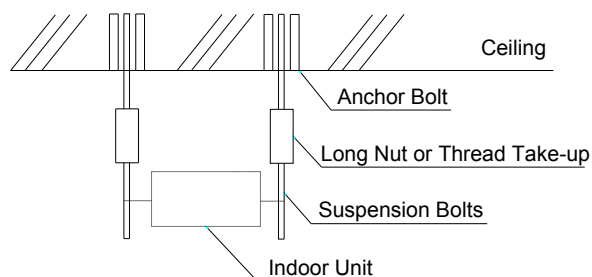


Fig. Mounting of Suspension Bolts

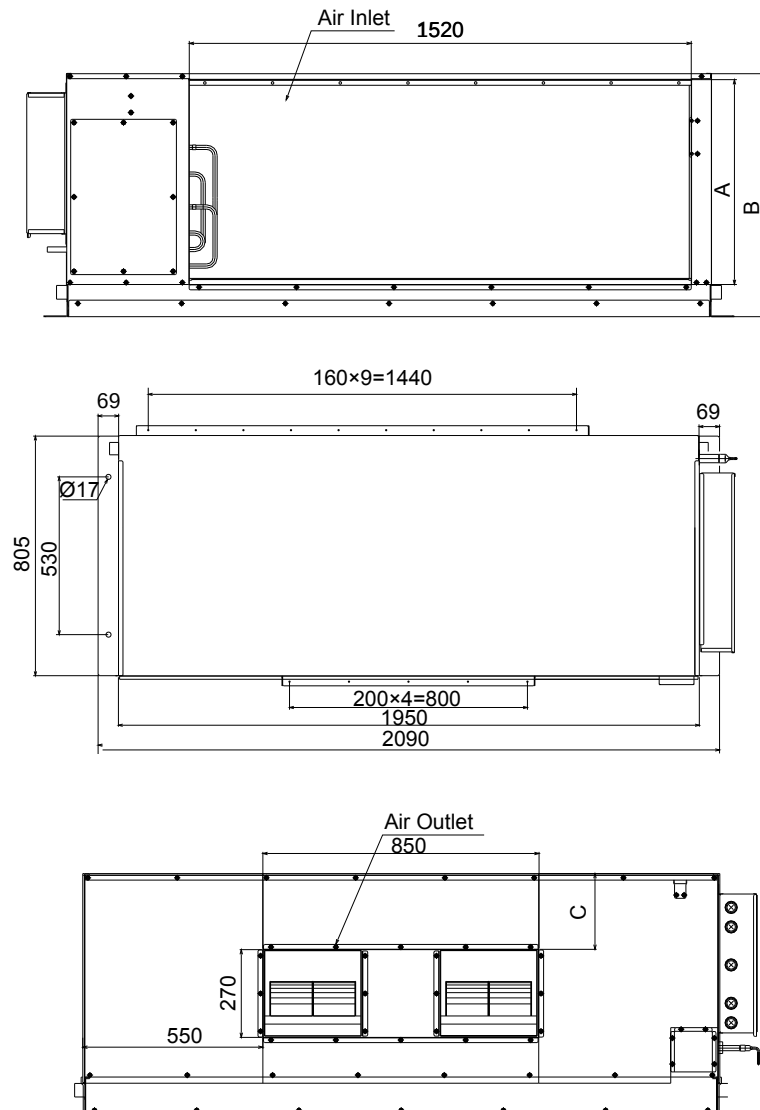


Fig. Sling Bolts

- Marking of the Positions of the Sling Bolts and Piping Connections
- (1) Mark the positions of the sling bolts, refrigerant piping connections and drain connection.
 - (2) Installation dimensions are shown in Fig .

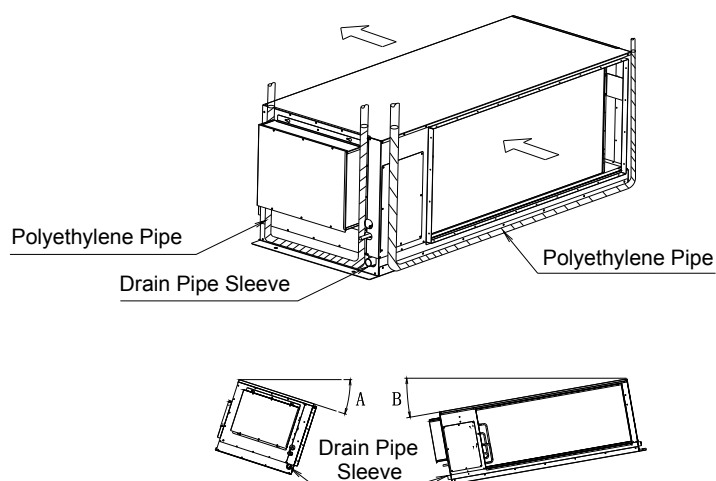
MODEL	A	B	C
154	520	635	130
190	620	735	230

● Hanging Indoor Unit

- Install the indoor unit and the support board using bolts (M12) as shown below.
- Adjust the indoor unit installed to the preconcerted height.
- Hook the suspension bracket to the nut and washer of each hanging bolt.
- Check to ensure the indoor unit is horizontally.
- If the indoor unit is not horizontal, it may cause a leakage.
- Adjust the angle of the indoor unit using the gradienter or polyethylene pipe.
- Screw down the nuts.
- Tighten the bolts of the sling nuts with the suspension brackets after Adjustment is completed.
Special plastic paint must be applied to the bolts in order to prevent them from loosening.

NOTE

Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.



A: 0~14mm, B: 0~36mm

Fig Installation Methods

(2) Hanging the Indoor Unit

- * Hook suspension bracket to the nut and washer of each hanging bolt, as shown, starting at the opposite side to service cover side.
- * After checking that the nut and washer are correctly fixed by the retainers of the suspension bracket, hook the suspension bracket of the service cover side to the nut and washer.

(Put the sling bolts away from the unit when hooking.)

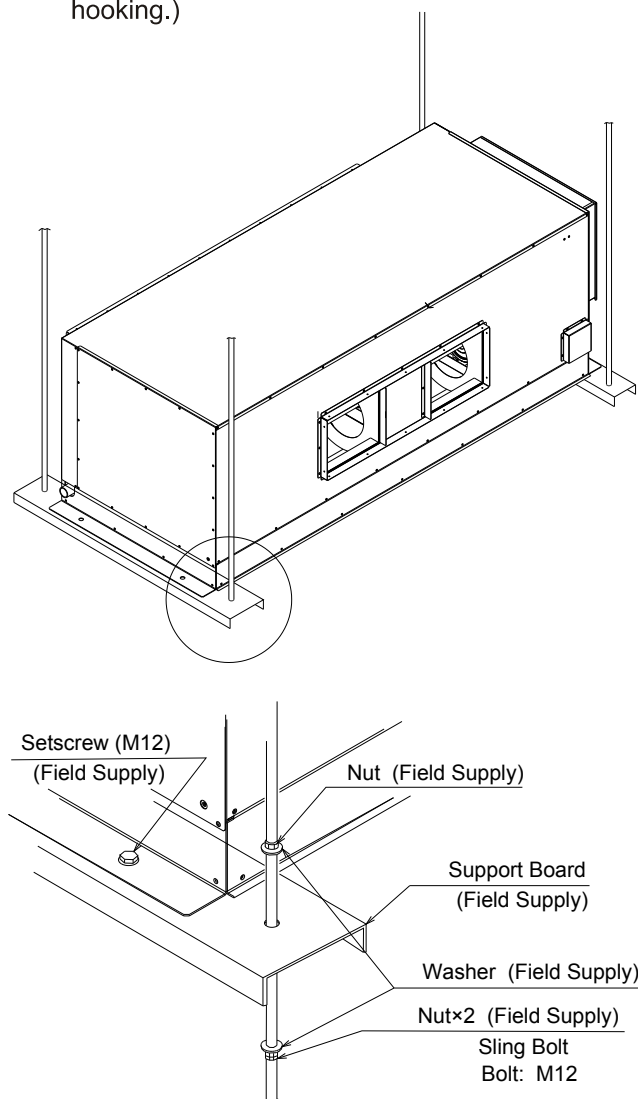


Fig Hanging Methods

- Connecting Supply Duct
- Connect the duct as follows.

<Air Inlet>

- Connect the duct with flange inlet together.
- Seal the joints between the flange inlet and duct using the aluminum adhesive tape.

<Air Outlet>

- Connect the duct with flange outlet together.
- Seal the joints between the flange outlet and duct using the aluminum adhesive tape.
- Connect the flange outlet with the indoor unit together using screws.

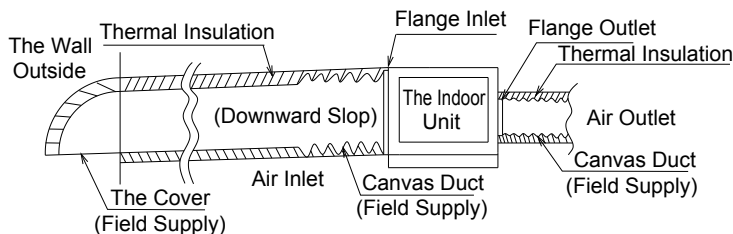


Fig. Duct Connection

CAUTION

- The strainer is not standard, install it in the air inlet piping.
- Ensure the air inlet piping downward to avoid a seep.
- Ensure the air outside can be inhaled, or the indoor unit will not work.
- Perform the heat insulation work over the duct for dew protection.
- When metallic duct and other wire netting are used, ensure the duct is insulative from the walls.
- When welding the duct, do not leave residue on the indoor unit.

12.17 Refrigerant Piping Work (For Model 154~190)

⚠ DANGER

Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

12.17.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper tubes making sure there is no dust and moisture inside the tubes.
Before connecting pipes, blow the inside of the tubes with nitrogen or dry air, to remove any dust or foreign materials.
- (3) Position of piping connection is shown below.

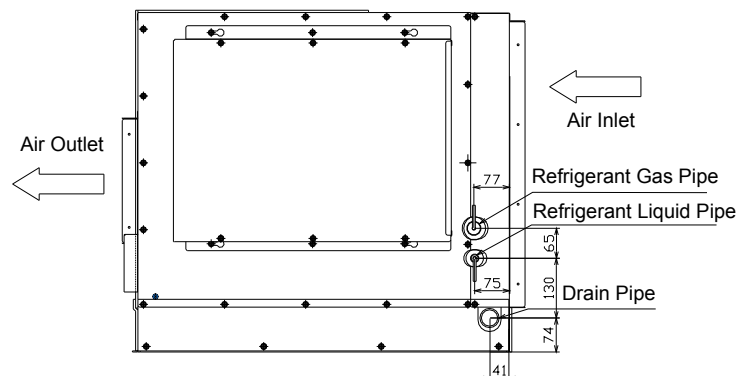
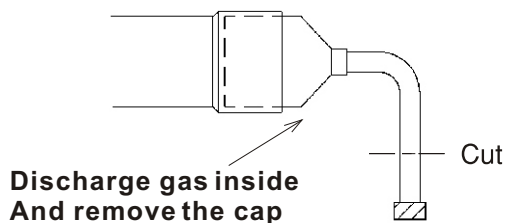


Fig. Position of Piping Connection

mm(in.)			
MODEL	Gas Pipe	Liquid Pipe	Drain Pipe
154	φ 25.4 (1/1)	φ 12.7 (1/2)	Rp1 screw thread
190	φ 28.6 (9/8)	φ 15.88 (5/8)	

CAUTION

- Cut the pipe end before blazing to remove the cap, and discharge gas inside the pipe. If not discharged, blazing material will be blown off.



- Pay attention so that the flame does not come into contact with the main body itself.

- (2) When brazing the refrigerant pipes, be sure to blaze, after covering the part with shown below a wet cloth to the insulation pipes of the units in order to prevent the thermistors on liquid and gas pipes from damaging by heating.

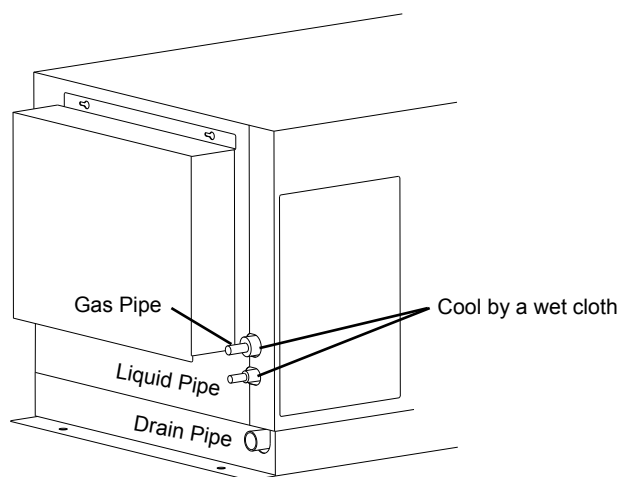


Fig. Blazing Pipes

- (3) After blazing, insulate the pipes after checking that there is no leakage. At that time, be sure to cover the space between two insulating peaces by insulation pipe (factory-supplied accessory).

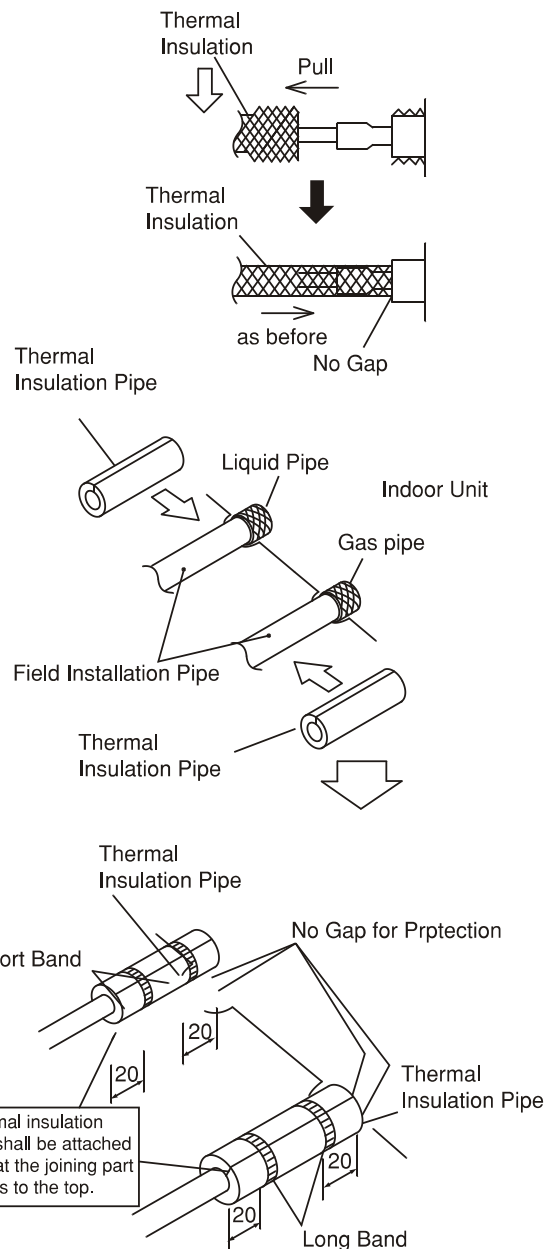


Fig. Insulating Pipes

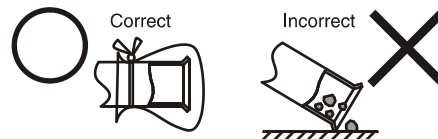
- (4) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit. In relation to the additional refrigerant quantity, refer to "Common".

12.17.2 Piping Connection

CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- An excess or a shortage of refrigerant is the main cause of trouble to the units. Charge the correct refrigerant quantity.

- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



12.18 Drain Piping

The drain pipe must be installed as the following figure to avoid bring scales due to the congeal and leakage.

- The positon of the drain piping connection is shown below.
- The drain pipe can be installed at the left or right side of the exit of the drain pipe.The plug can be removed to invert into any side.
- The drain pipe should be as short as possible for the best effect.The pipe must be performed with a DOWN-SLOP PITCH to ensure that water flows smoothly.
- Make sure the drain pipe thermal insulated.
- Install a trap at the drain outlet,because it will bring splash or smell without it.
- Keep the drain pipe flat in order to clean the sediment.
- Seal another drain pipe ,do up it using thermal insulation .

- Do not connect the drain pipe with Sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units please install as follows.
- Pour some water into the drain pan in order to test wether the water flows smoothly.
- Open the cover ,pour about one litre of water, test the draining status.

NOTE

When the relative humidity of inlet or ambient air exceeds 80%, apply an (field-supplied) auxiliary drain pan beneath the indoor unit as shown below.

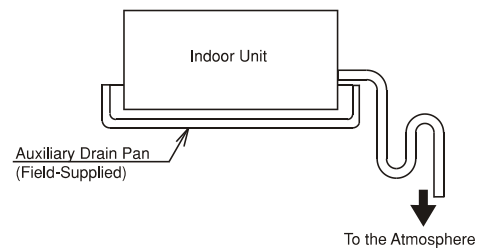


Fig. Auxiliary Drain Pan

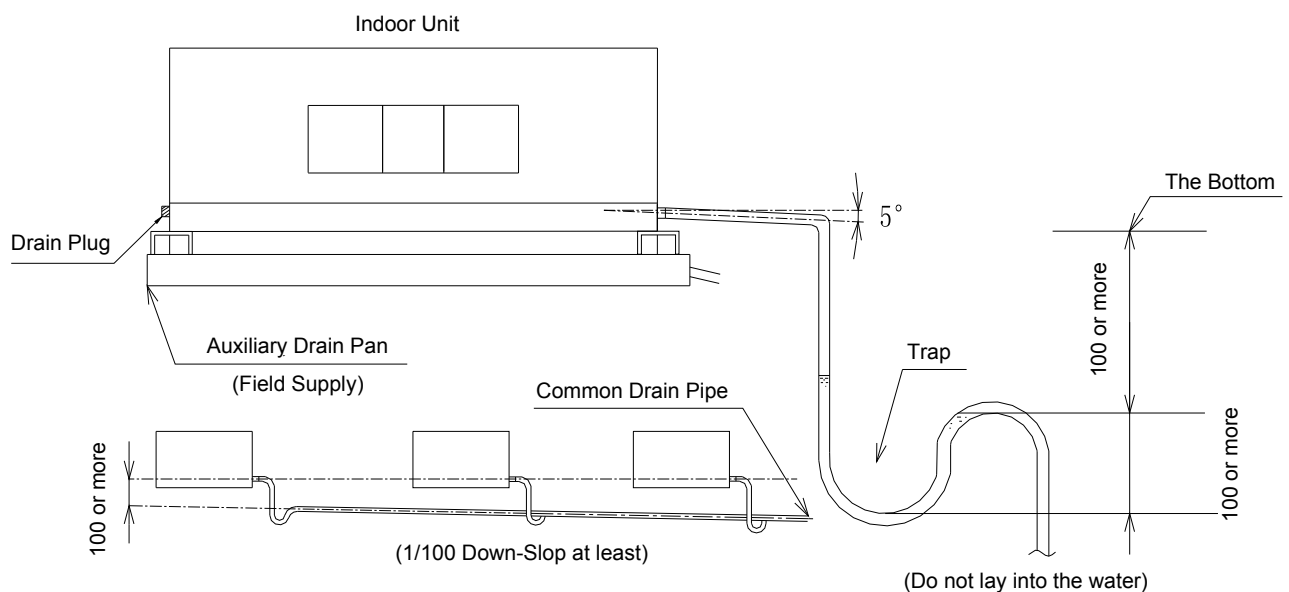


Fig. Drain Piping

12.19 Electrical Wiring

- All the materials and components should comply with local statutes.
- Only brass wires are allowed.
- Connect electrical wires referring to the circuit diagram.
- All the connection must be operated by professionals.
- Install a breaker that can cut off the whole system.
- Grounded resistance must be less than $100\ \Omega$.
- Connect the ground wire.
- If the fan reverse, adjust the phase.

WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.

CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.
- The electrical wires should not contact with gas pipe or liquid pipe. Make sure the pipe system insulated completely.
Make sure that the electrical wires are not nipped into the electrical box or maintenance cover.
- ⚠ Do not connect the remote control unit wires with the power supply wires together, or it may cause an abnormality.
- ⚠ Do not connect different standard wires to the same terminal.

- **Don not connect cable of remote control switch and operating wires with power supply and earth wires together. Keep 50MM away from each other.**
- **Use appointed wires, and ensure the terminal fixed.**

12.19.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog I". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

12.19.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown below.

Cut out the center of the rubber bushing in the wiring connection hole, as shown below.

Connect the cable of the remote control switch to the connectors inside the electrical box through the connecting hole in the cabinet.

Connect the power supply and earth wires to the terminals in the electrical box.

Tightly clamp the wires using the cord clamp inside the electrical box.

Seal the wiring connection hole after running the cables with the seal material to protect the unit from condensate water or insects.

Connect the wires between the indoor unit and outdoor unit to the terminals in the electrical box.

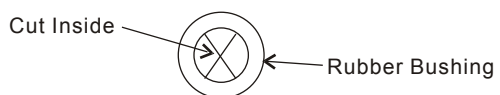


Fig. Rubber Bushing

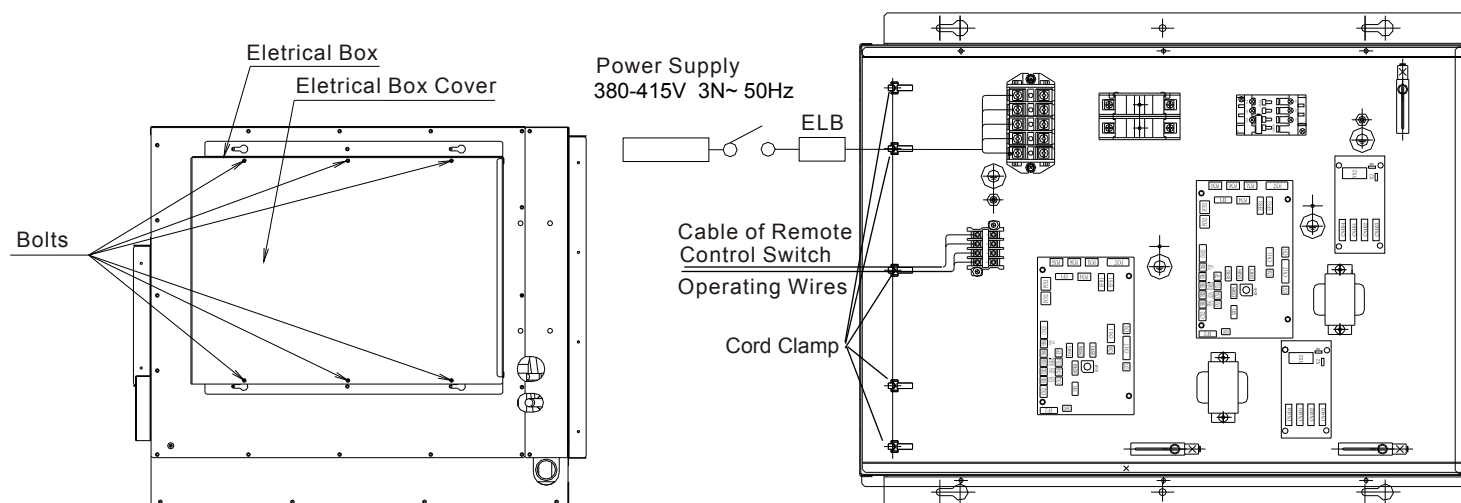


Fig. Electrical Wiring Connection

Field Minimum Wire Sizes for Power Source

Model	Maximum Current	Power Source Cable Size	Transmitting Cable Size
		EN60 335-1*1	EN60 335-1*1
AVA-154UX6SSH-400	3.48A	2.5mm ²	0.75mm ²
AVA-190UX6STH-500	4.46A	2.5mm ²	0.75mm ²
AVA-190UX6STH-600	5.46A	2.5mm ²	0.75mm ²

12.20 Test Run(For Model:154~190)

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.



WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

NOTES:

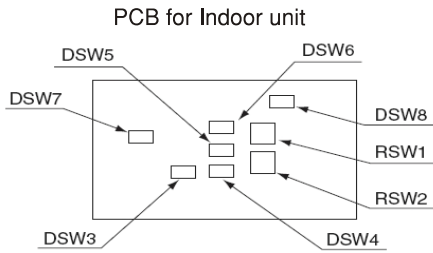
- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Current (A)	Wire Size (mm ²)
I≤3	2.5
3<I≤ 6	2.5
6<I≤10	2.5
10<I≤16	4
16<I≤25	6
25<I≤32	10
32<I≤50	16
50<I≤63	25
63<I	※1

- ※1 In the case that current exceeds 63A, do not connect cables in series.

12.20.1 Setting of Dip Switches

(1) Position of Dip Switches



- (2) The PCB in the indoor unit is equipped with 8 types of dip switches and rotary switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(a) Unit No. Setting (DSW6&RSW1)

Setting is required. Set the unit No. of all indoor units respectively and serially, by following setting position shown in the table below. Numbering must start from "0" for every outdoor unit.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
Before shipment, DSW6 and RSW1 are set to "0". Max. 64 units are available to set when all the equipment to be connected are corresponding to HI-NET. Max. 16 units when the units corresponding/non-corresponding to HI-NET are combined.		

(b) Capacity Code Setting (DSW3)

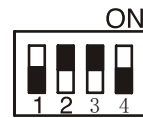
No setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Model	30	48
Setting Position		
	1, 2 ON	1 ON

Model	76、154	96~114、190
Setting Position		
	1, 2, 3, 4 ON	2, 3, 4 ON

(c) Unit Model Code Setting (DSW4)

No setting is required.



(d) Refrigerant Cycle No. Setting (DSW5&RSW2)

Setting is required.

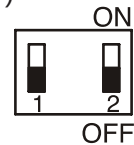
Setting position before shipment is all OFF.

Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to HI-NET. Max. 16 cycles when the units corresponding/non-corresponding to HI-NET are combined.		Set All Pins OFF Set at "5"

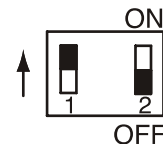
(e) Fuse Recover (DSW7)

* Factory Setting



* No.1 Pin: Fuse Recover

When fuse is cut, turn No.1 Pin ON.



(f) Optional Function Setting (DSW8)

No setting is required.

Setting position before shipment is all OFF.



13. 2-Way Cassette Type(AVL)

13.1 General Data

Indoor Unit Type		2-Way Cassette Type			
Model		AVL-07UXJSGA	AVL-09UXJSGA	AVL-12UXJSGA	AVL-14UXJSGA
Power Supply		AC 1ϕ, 220-240V/50Hz AC 1ϕ, 220V/60Hz			
Nominal Cooling Capacity	kW	2.2	2.8	3.6	4.5
	kcal/h	1,900	2,400	3,100	3,900
	Btu/h	7,500	9,600	12,300	15,400
Cooling Power Consumption	kW	0.02	0.02	0.02	0.03
Nominal Heating Capacity	kW	2.8	3.3	4.0	5.0
	kcal/h	2,400	2,800	3,400	4,300
	Btu/h	9,600	11,300	13,700	17,100
Heating Power Consumption	kW	0.02	0.02	0.02	0.03
Sound Pressure Level (Overall A Scale)	dB	32--30-29-27	33-30-29-28	34-31-30-28	40-37-34-32
Outer Dimensions	Height	298 (11-3/4)	298 (11-3/4)	298 (11-3/4)	298 (11-3/4)
	Width	860 (33-7/8)	860 (33-7/8)	860 (33-7/8)	860 (33-7/8)
	Depth	630 (24-13/16)	630 (24-13/16)	630 (24-13/16)	630 (24-13/16)
Net Weight	kg	22	22	22	24
	(lbs.)	(48)	(48)	(48)	(53)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate	m ³ /h (cfm)	600/510/432/360 (353/300/254/212)	660/564/492/396 (388/332/289/233)	720/630/534/450 (424/371/314/265)	900/792/690/594 (530/466/406/350)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)	Φ6.35 (1/4)
Gas Line	mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.27	0.27	0.27	0.27
Adaptable Panel Model	—	HP-C-NA			
Color	—	Silk White			
Outer Dimensions	Height	30 (1-3/16)	30 (1-3/16)	30 (1-3/16)	30 (1-3/16)
	Width	1100 (43-5/16)	1100 (43-5/16)	1100 (43-5/16)	1100 (43-5/16)
	Depth	710 (27-15/16)	710 (27-15/16)	710 (27-15/16)	710 (27-15/16)
Net Weight	kg	7.5	7.5	7.5	7.5
	(lbs.)	(17)	(17)	(17)	(17)
Approximate Packing Measurement	m ³	0.10	0.10	0.10	0.10

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters

Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		2-Way Cassette Type			
Model		AVL-18UXJSGA	AVL-24UXJSGA	AVL-27UXJSGA	AVL-30UXJSGA
Power Supply		AC 1ϕ, 220-240V/50Hz		AC 1ϕ, 220V/60Hz	
Nominal Cooling Capacity	kW	5.6	7.1	8.4	9.0
	kcal/h	4,800	6,100	7,200	7,700
	Btu/h	19,100	24,200	28,700	30,700
Cooling Power Consumption	kW	0.04	0.05	0.07	0.08
Nominal Heating Capacity	kW	6.5	8.0	9.0	10.0
	kcal/h	5,600	6,800	7,700	8,600
	Btu/h	22,200	27,300	30,700	34,100
Heating Power Consumption	kW	0.04	0.05	0.07	0.08
Sound Pressure Level (Overall A Scale)	dB	42-39-36-33	45-42-39-36	47-44-40-36	49-46-42-37
Outer Dimensions	Height	298 (11-3/4)	298 (11-3/4)	298 (11-3/4)	298 (11-3/4)
	Width	860 (33-7/8)	860 (33-7/8)	860 (33-7/8)	860 (33-7/8)
	Depth	630 (24-13/16)	630 (24-13/16)	630 (24-13/16)	630 (24-13/16)
Net Weight	kg	24	24	24	24
	(lbs.)	(53)	(53)	(53)	(53)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan					
Air Flow Rate	m ³ /h (cfm)	1020/894/780/672 (601/526/459/594)	1140/984/858/738 (671/579/505/435)	1260/1104/936/756 (742/650/551/445)	1320/1158/978/786 (777/682/576/463)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping					
	Liquid Line	mm (in.)	Φ6.35 (1/4)	Φ9.53 (3/8)	Φ9.53 (3/8)
Gas Line	mm (in.)	Φ12.7 (1/2)	Φ15.88 (5/8)	Φ15.88 (5/8)	Φ15.88 (5/8)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.27	0.27	0.27	0.27
Adaptable Panel Model	—	HP-C-NA			
Color	—	Silk White			
Outer Dimensions	Height	mm (in.)	30 (1-3/16)	30 (1-3/16)	30 (1-3/16)
	Width	mm (in.)	1100 (43-5/16)	1100 (43-5/16)	1100 (43-5/16)
Depth	mm (in.)	710 (27-15/16)	710 (27-15/16)	710 (27-15/16)	710 (27-15/16)
	Net Weight	kg (lbs.)	7.5 (17)	7.5 (17)	7.5 (17)
Approximate Packing Measurement	m ³	0.10	0.10	0.10	0.10

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		2-Way Cassette Type		
Model		AVL-38UX.JSHA	AVL-48UX.JSHA	AVL-54UX.JSHA
Power Supply		AC 1ϕ, 220-240V/50Hz AC 1ϕ, 220V/60Hz		
Nominal Cooling Capacity	kW	11.2	14.0	16.0
	kcal/h	9,600	12,000	13,800
	Btu/h	38,000	47,700	54,600
Cooling Power Consumption	kW	0.09	0.11	0.12
Nominal Heating Capacity	kW	13.0	16.0	18.0
	kcal/h	11,200	13,800	15,500
	Btu/h	44,000	54,600	61,400
Heating Power Consumption	kW	0.09	0.11	0.12
Sound Pressure Level (Overall A Scale)	dB	46-44-40-38	48-45-42-38	49-46-43-40
Outer Dimensions Height	mm	298	298	298
	(in.)	(11-3/4)	(11-3/4)	(11-3/4)
Width	mm	1420	1420	1420
	(in.)	(55-7/8)	(55-7/8)	(55-7/8)
Depth	mm	630	630	630
	(in.)	(24-13/16)	(24-13/16)	(24-13/16)
Net Weight	kg	39	39	39
	(lbs.)	(86)	(86)	(86)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)		
Indoor Fan Air Flow Rate	m ³ /h	1800/1584/1386/1188	2100/1848/1614/1266	2220/1950/1704/1446
	(cfm)	(1060/933/816/670)	(1237/1088/950/746)	(1307/1148/1003/852)
Connections		Flare-Nut Connection (with Flare Nuts)		
Refrigerant Piping Liquid Line	mm	Φ9.53	Φ9.53	Φ9.53
	(in.)	(3/8)	(3/8)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.41	0.41	0.41
Adaptable Panel Model	—	HP-F-NA		
Color	—	Silk White		
Outer Dimensions Height	mm	30	30	30
	(in.)	(1-3/16)	(1-3/16)	(1-3/16)
Width	mm	1660	1660	1660
	(in.)	(65-3/8)	(65-3/8)	(65-3/8)
Depth	mm	710	710	710
	(in.)	(27-15/16)	(27-15/16)	(27-15/16)
Net Weight	kg	10.5	10.5	10.5
	(lbs.)	(23)	(23)	(23)
Approximate Packing Measurement	m ³	0.15	0.15	0.15

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

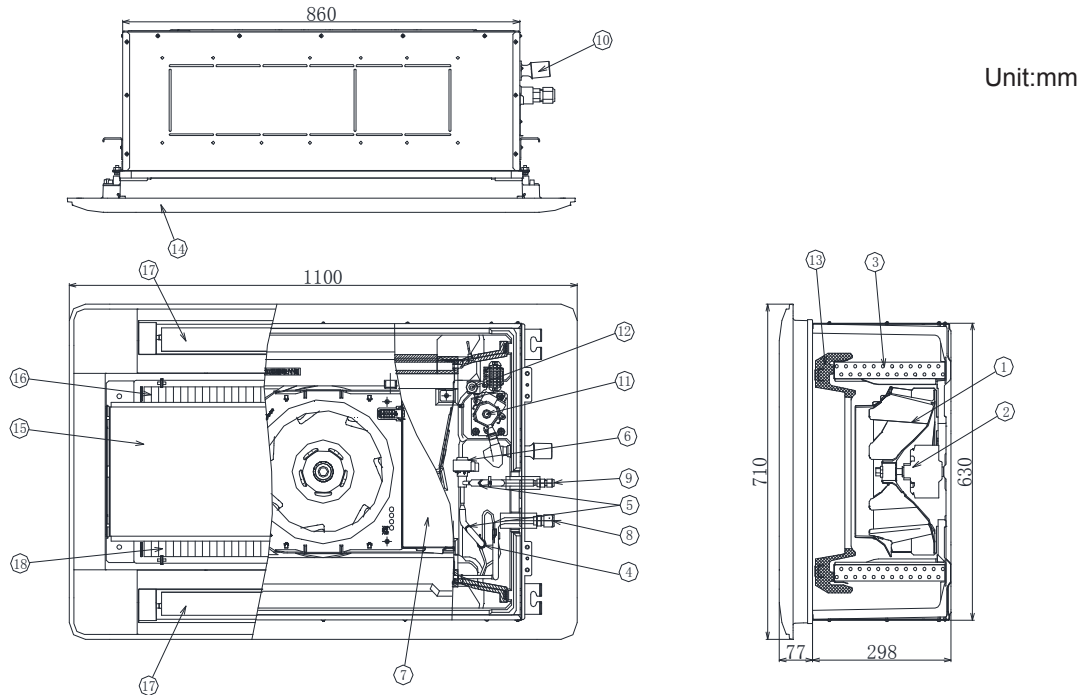
- The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

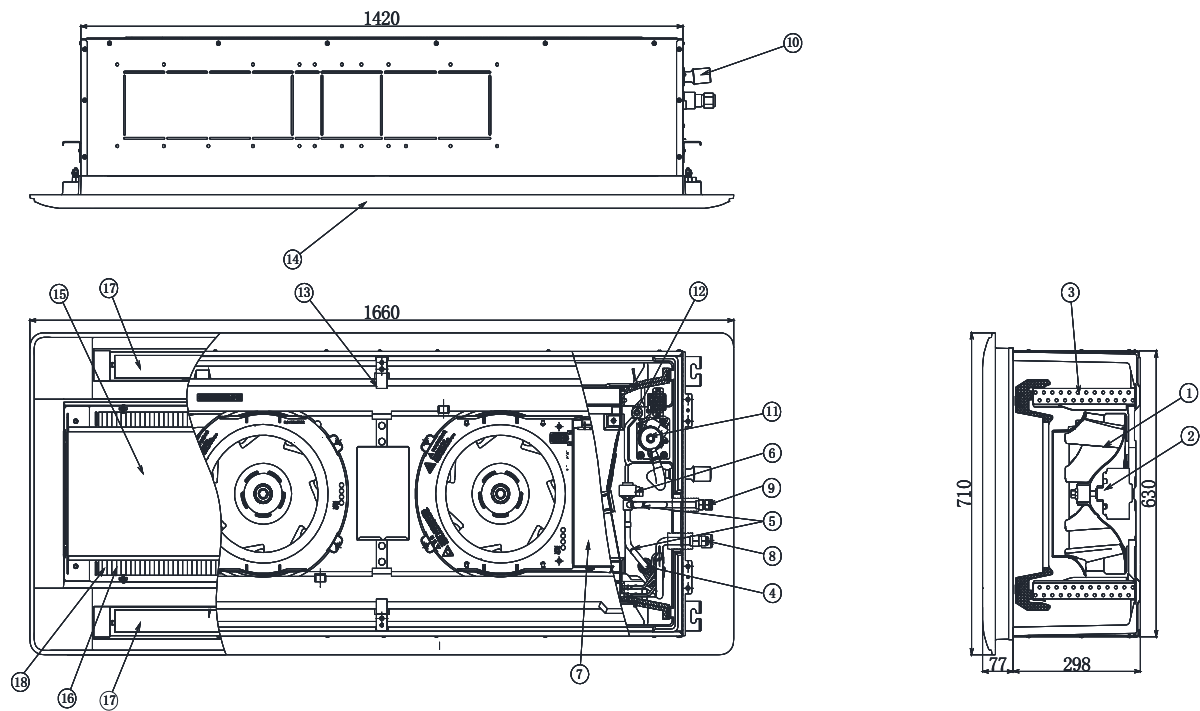
The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

13.2 Dimensional Data

● AVL-07~30*



● AVL-38~54*



No.	Name	Remark
1	Turbo Fan	
2	Motor	
3	Heat exchanger	
4	Distributor	
5	Filter	
6	EXP. VALVE	
7	Power source	
8	Refrigerant Gas Pipe Connection	with ϕ a Flare Nut
9	Refrigerant Liquid Pipe Connection	with ϕ b Flare Nut
10	Drain Pipe Connection	VP25
11	Pump	
12	Float SW	
13	Water connecting plate	
14	Panel P-AP90DNA with Model 07~30 P-AP160DNA with Model 38~54	Optional
15	Air Inlet grille	
16	Air filter	
17	Air Outlet	
18	Air Inlet	

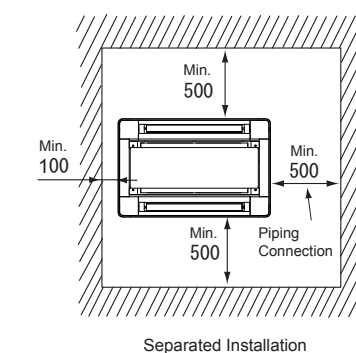
Model	a	b
07	12.7	6.35
09	12.7	6.35
12	12.7	6.35
14	12.7	6.35
18	12.7	6.35
24	15.88	9.53
27	15.88	9.53
30	15.88	9.53
38	15.88	9.53
48	15.88	9.53
54	15.88	9.53

13.3 Selection Data

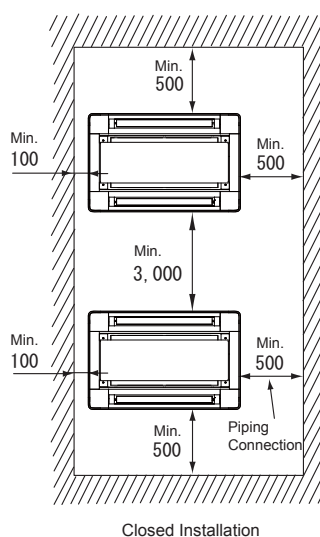
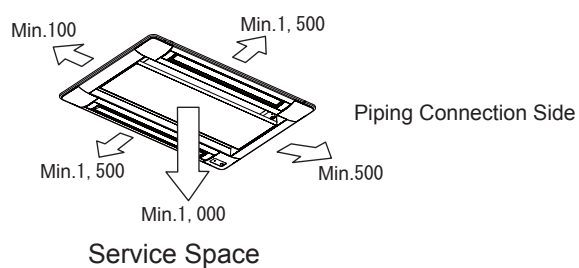
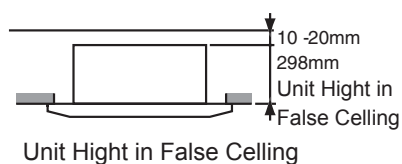
● Service Space

AVL-07~54*

Unit:mm



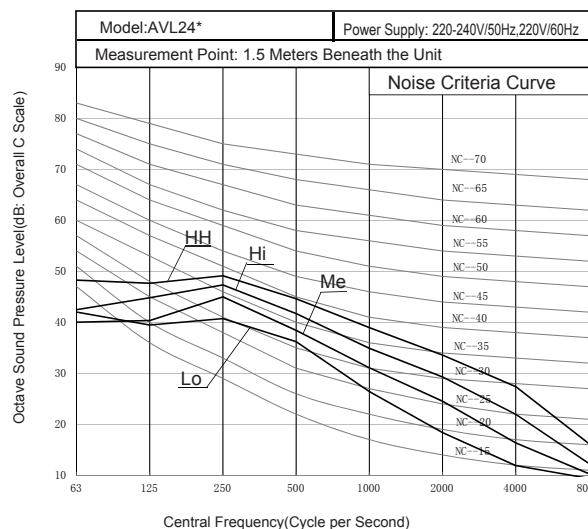
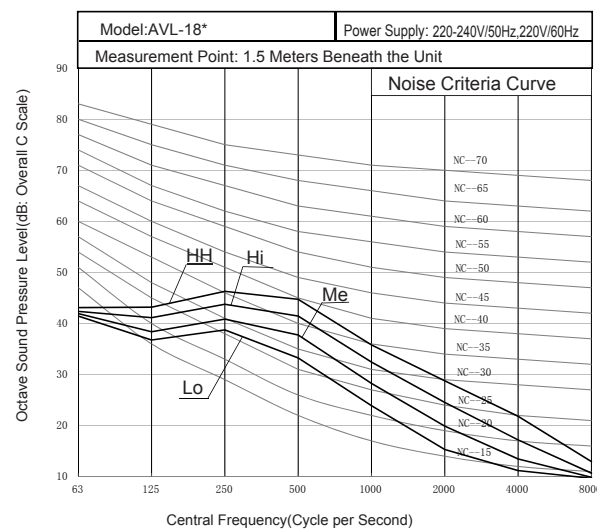
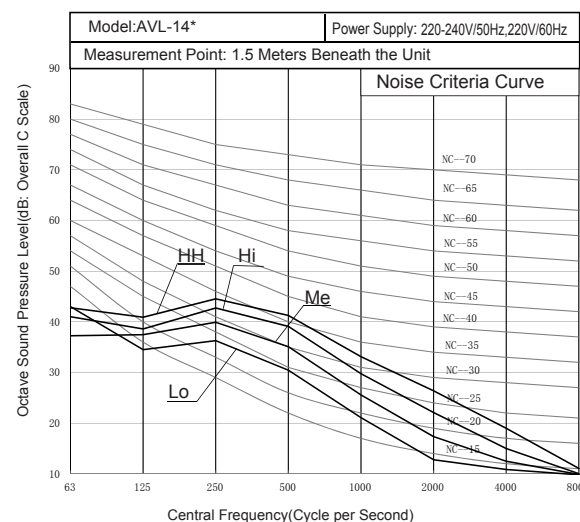
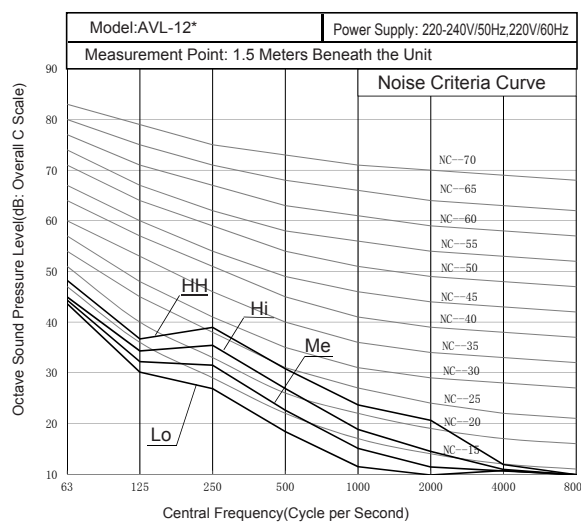
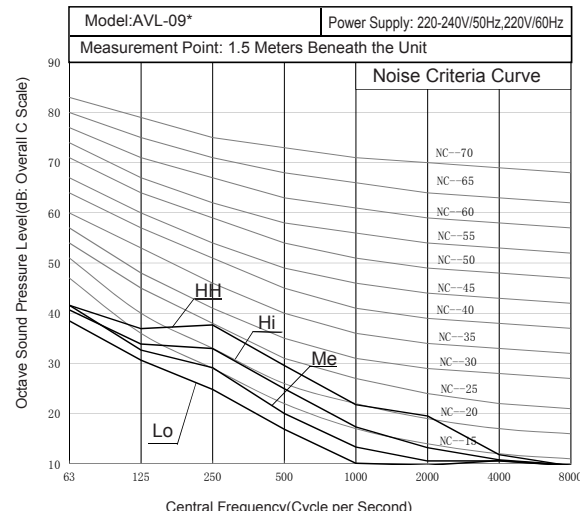
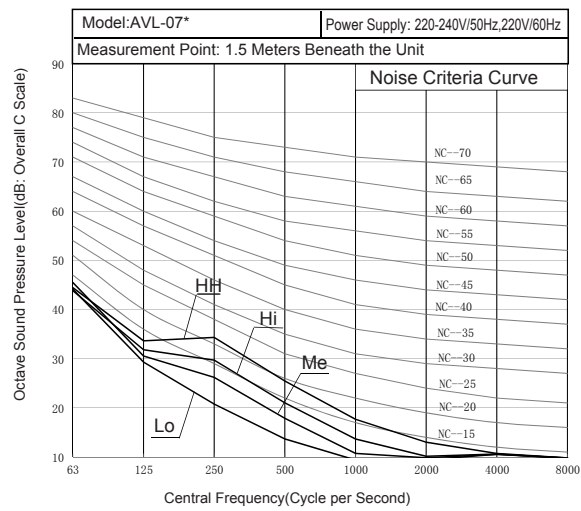
distance from wall side

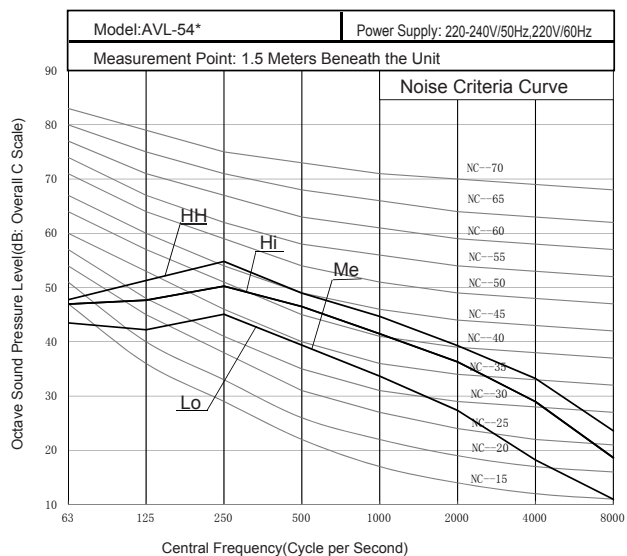
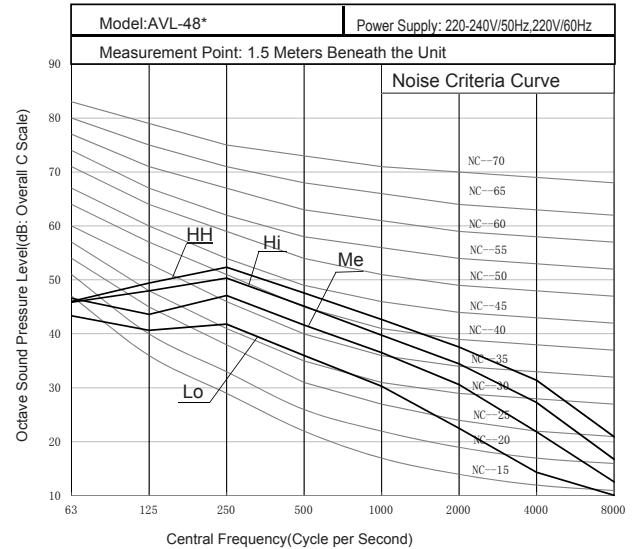
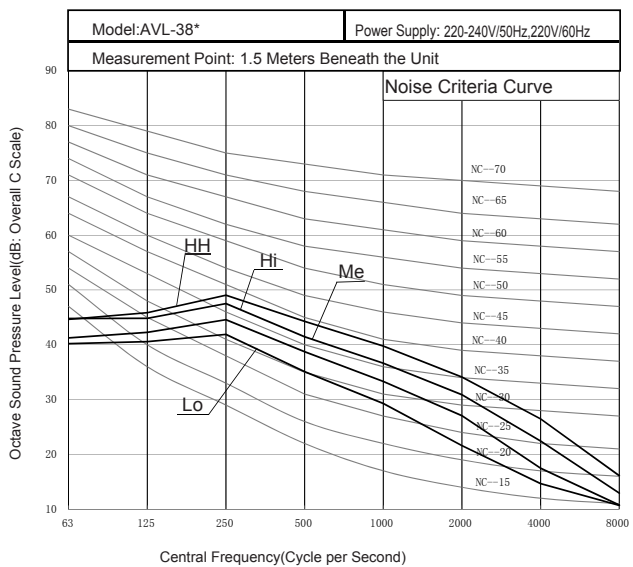
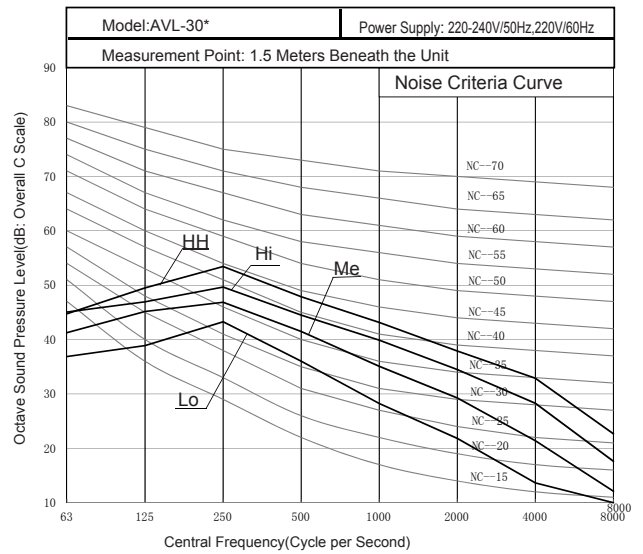
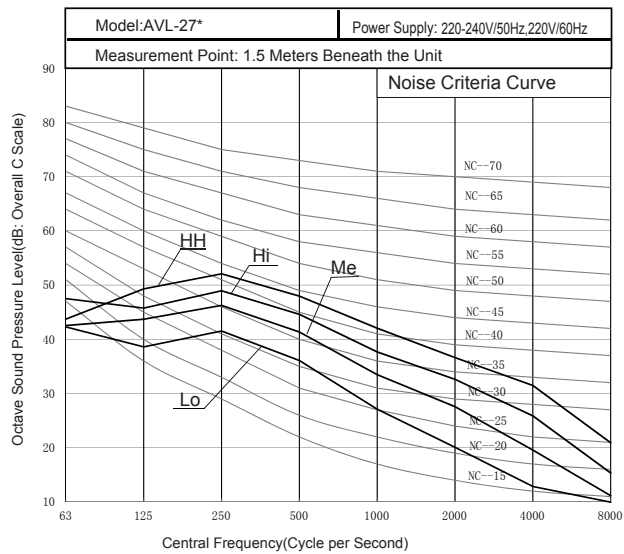


■ Sensible Heat Factor (SHF)

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVL-07*	0.85	0.78	0.75
AVL-09*	0.58	0.78	0.75
AVL-12*	0.75	0.71	0.68
AVL-14*	0.73	0.69	0.66
AVL-18*	0.75	0.67	0.65
AVL-24*	0.74	0.67	0.65
AVL-27*	0.74	0.67	0.65
AVL-30*	0.73	0.67	0.65
AVL-38*	0.73	0.67	0.65
AVL-48*	0.69	0.67	0.65
AVL-54*	0.69	0.67	0.65

● Sound Data



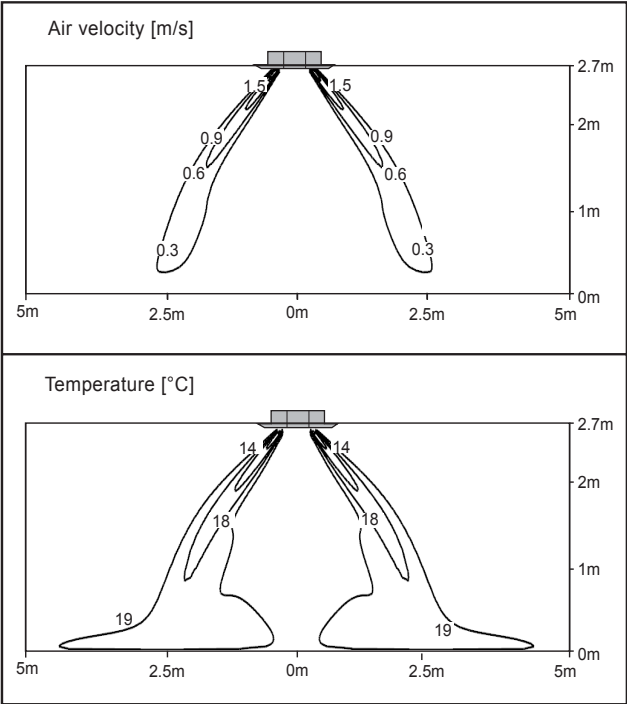


● Temperature Data

AVL-07UXJSGA

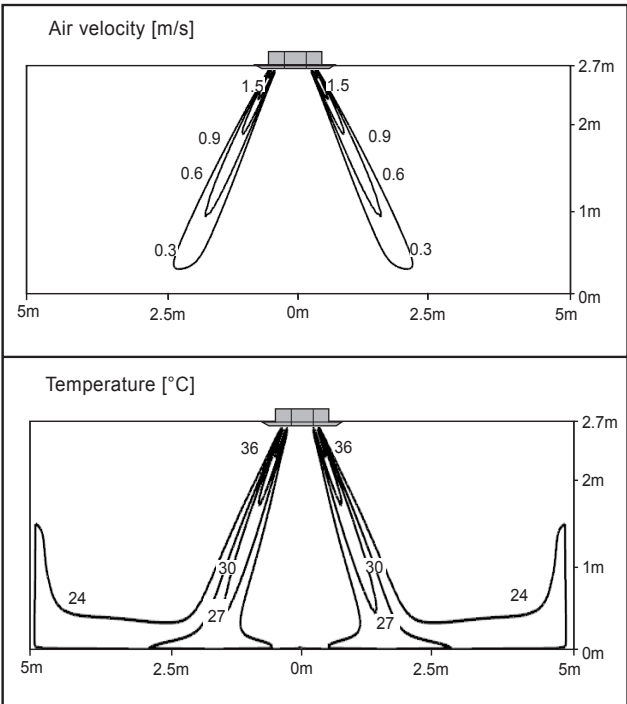
Cooling

Discharge angle: 40° Air Flow rate: 600m³/h



Heating

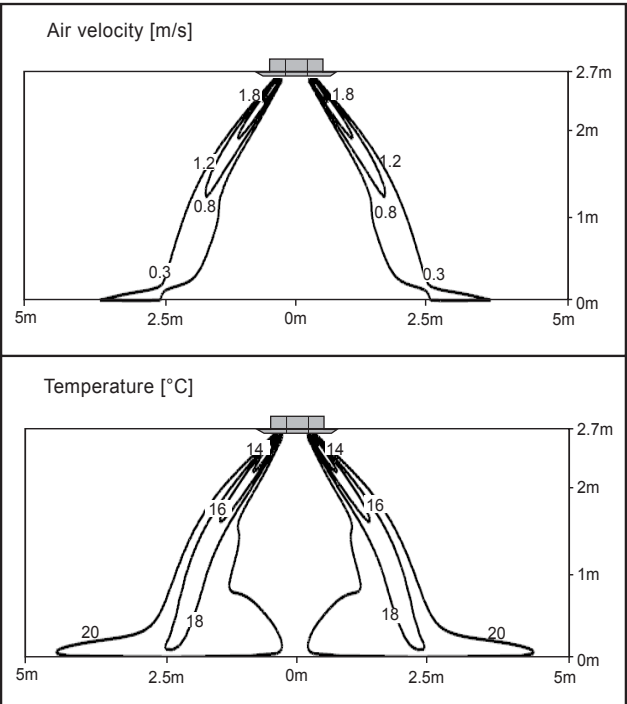
Discharge angle 60° Air Flow rate: 600m³/h



AVL-09UXJSGA

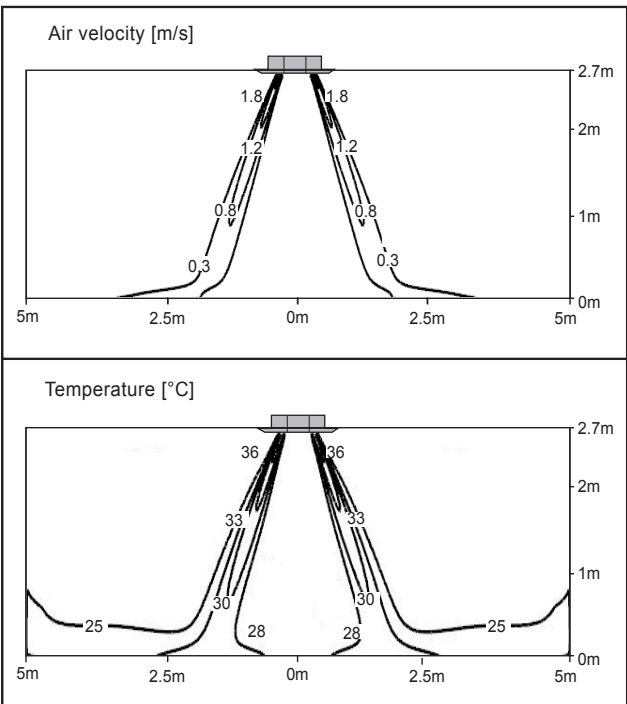
Cooling

Discharge angle: 40° Air Flow rate: 660m³/h



Heating

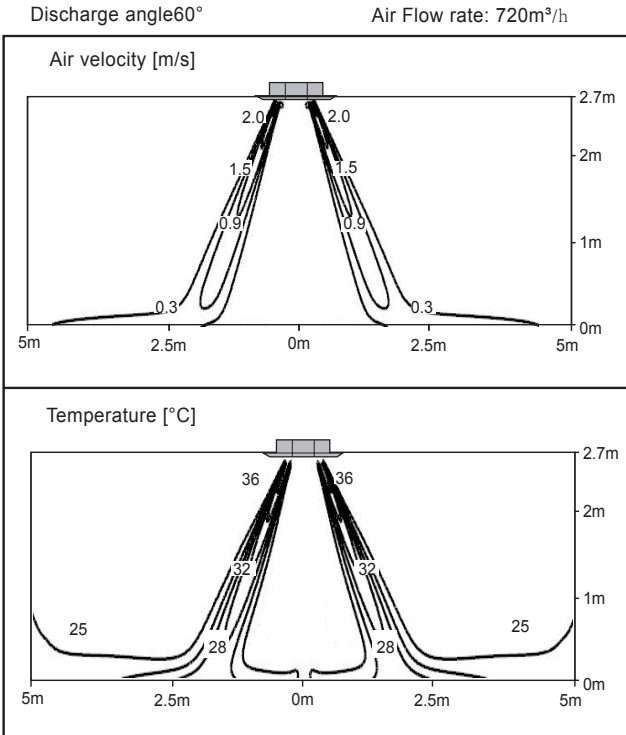
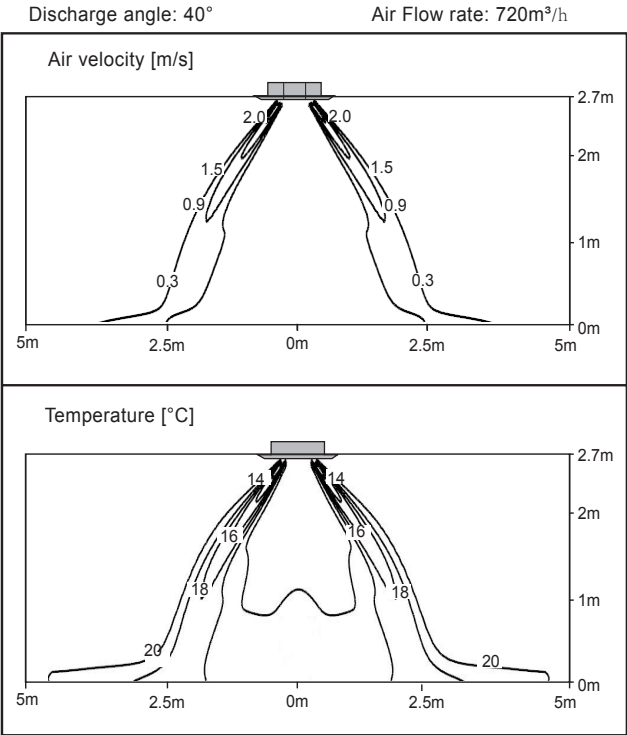
Discharge angle: 46° Air Flow rate: 660m³/h



AVL-12UXJSGA

Cooling

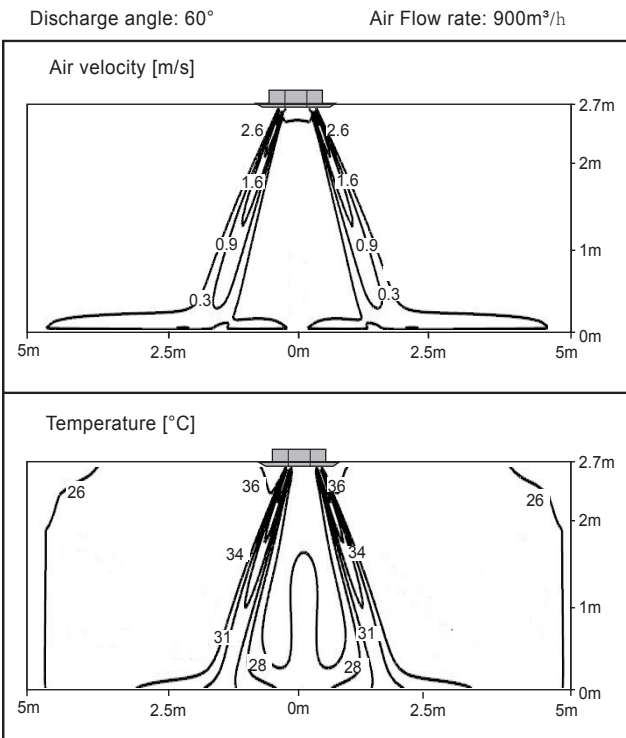
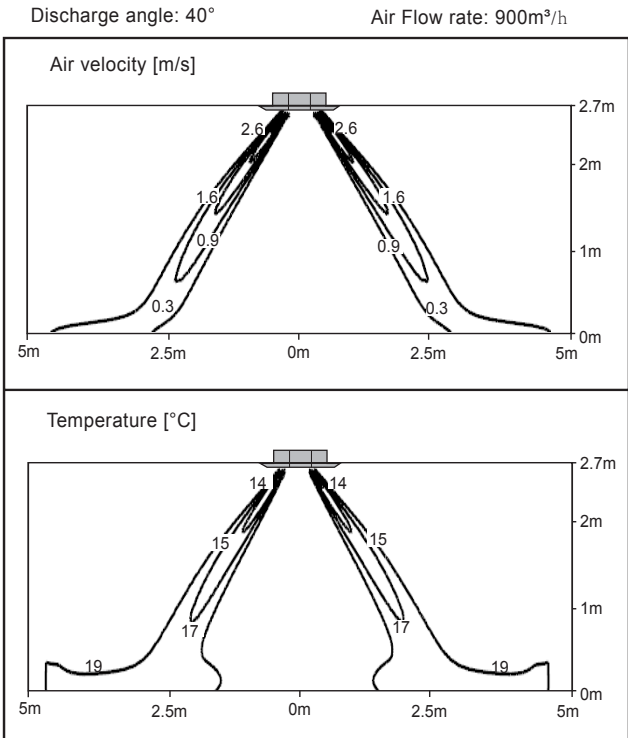
Heating



AVL-14UXJSGA

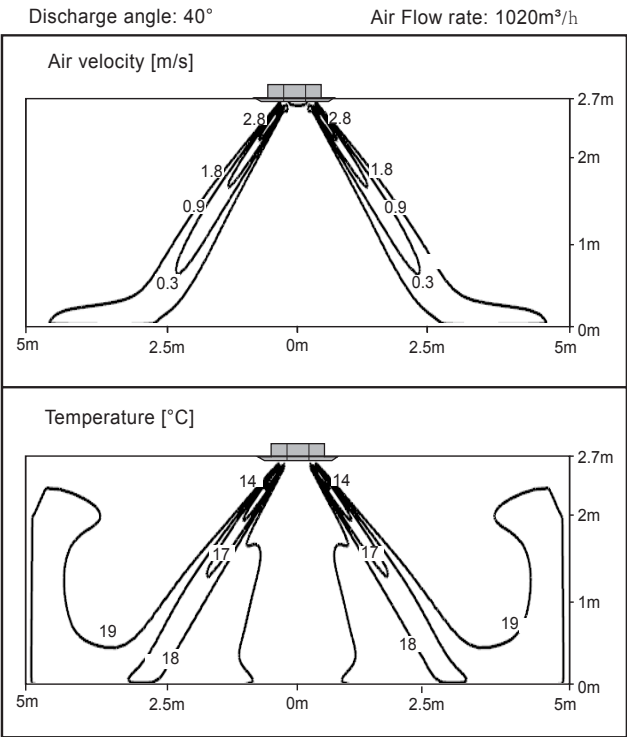
Cooling

Heating

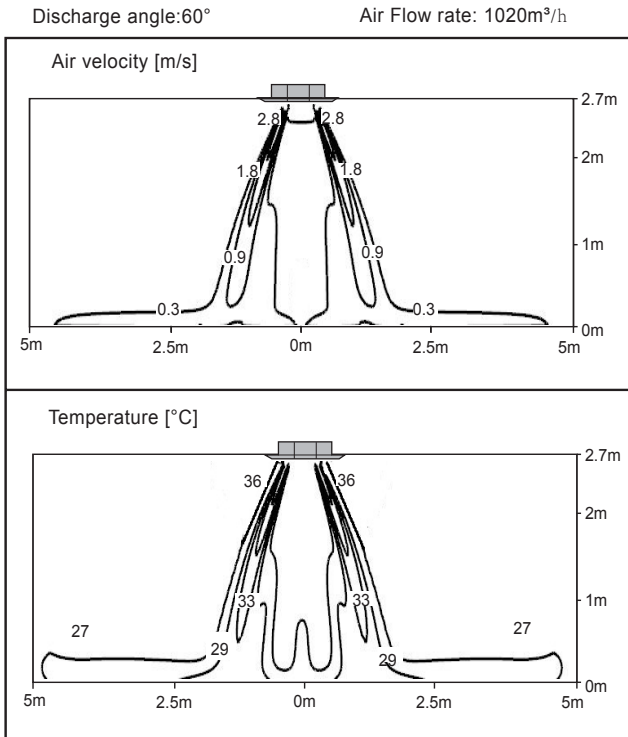


AVL-18UXJSGA

Cooling

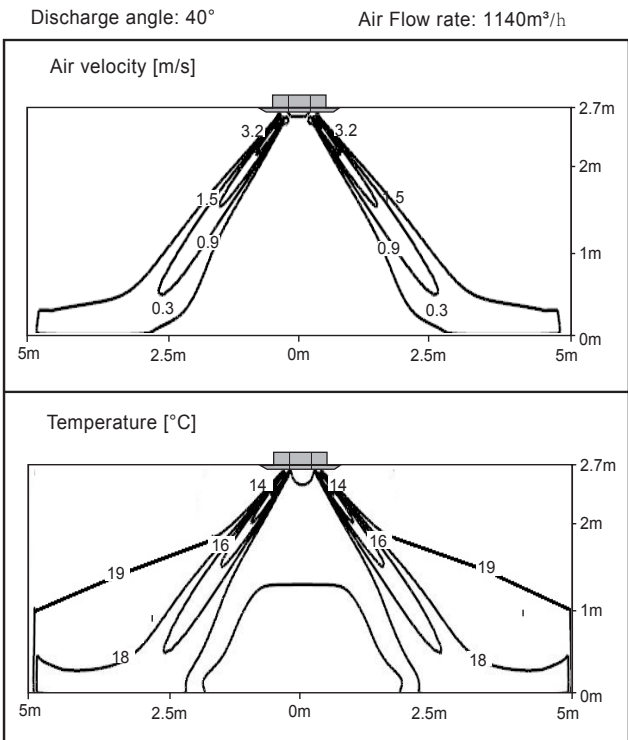


Heating

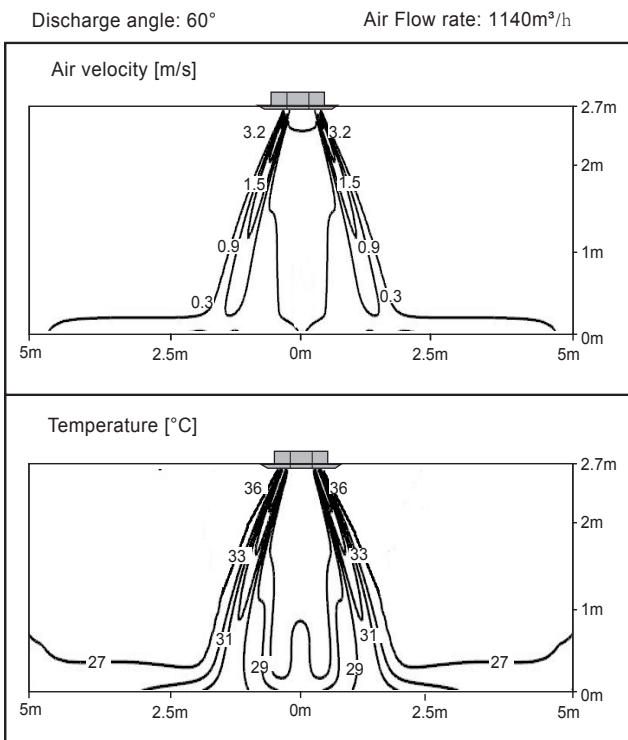


AVL-24UXJSGA

Cooling



Heating

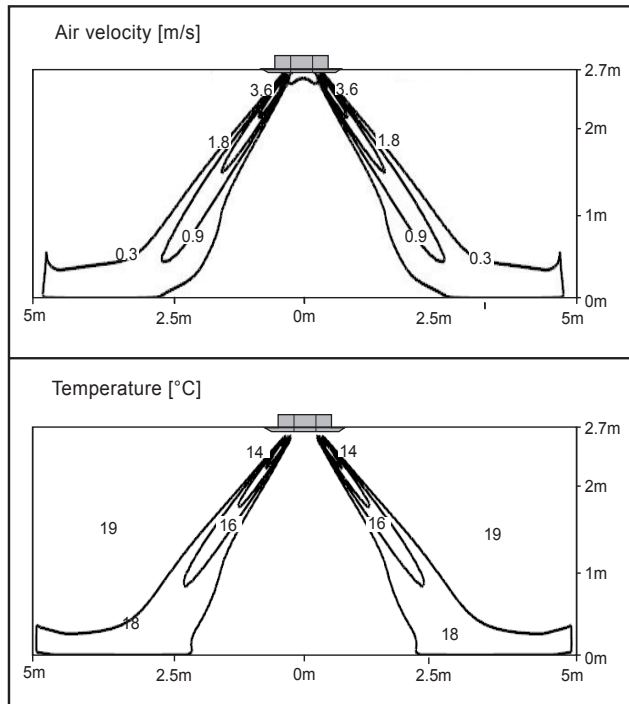


AVL-27UXJSGA

Cooling

Discharge angle: 40°

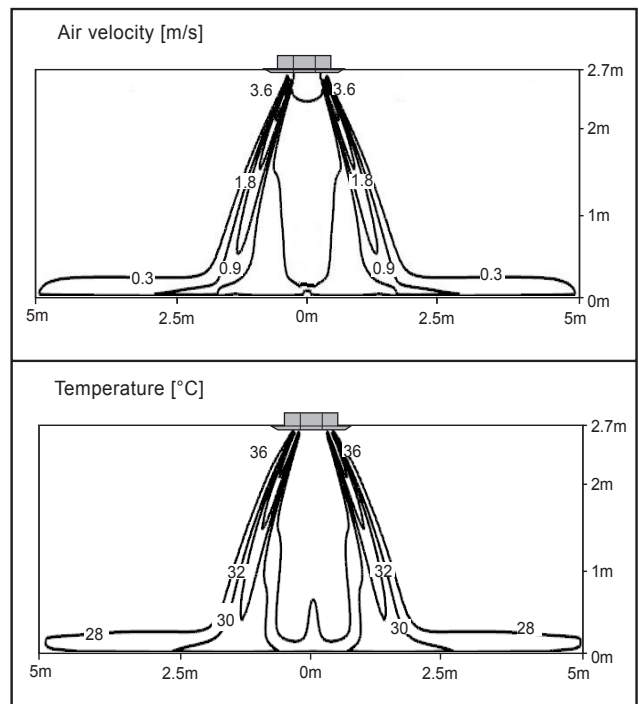
Air Flow rate: 1260m³/h



Heating

Discharge angle: 60°

Air Flow rate: 1260m³/h

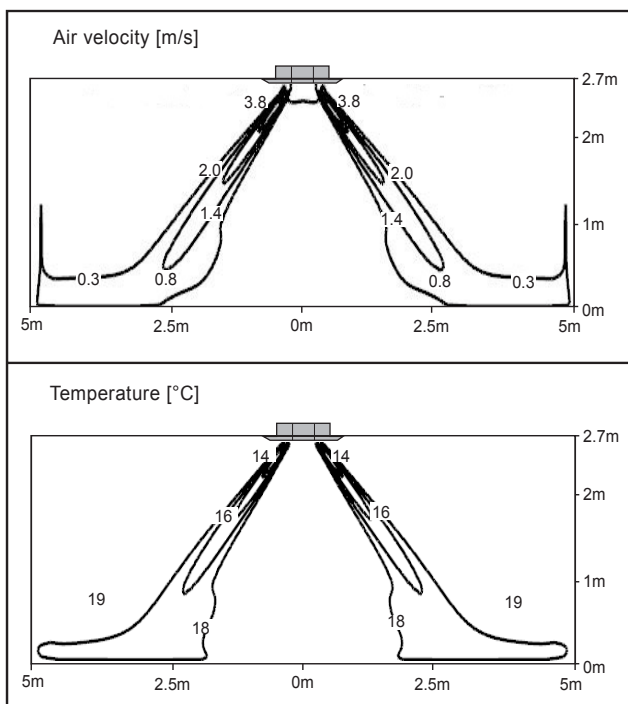


AVL-30UXJSGA

Cooling

Discharge angle: 40°

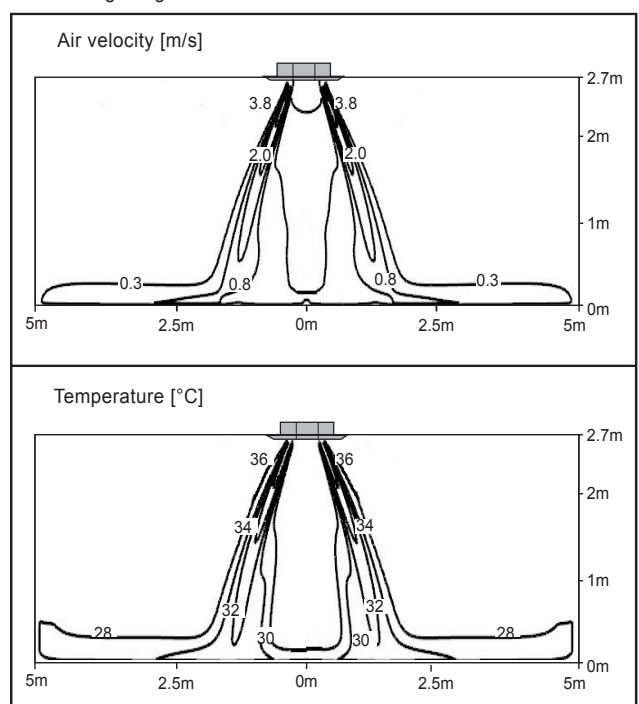
Air Flow rate: 1320m³/h



Heating

Discharge angle: 60°

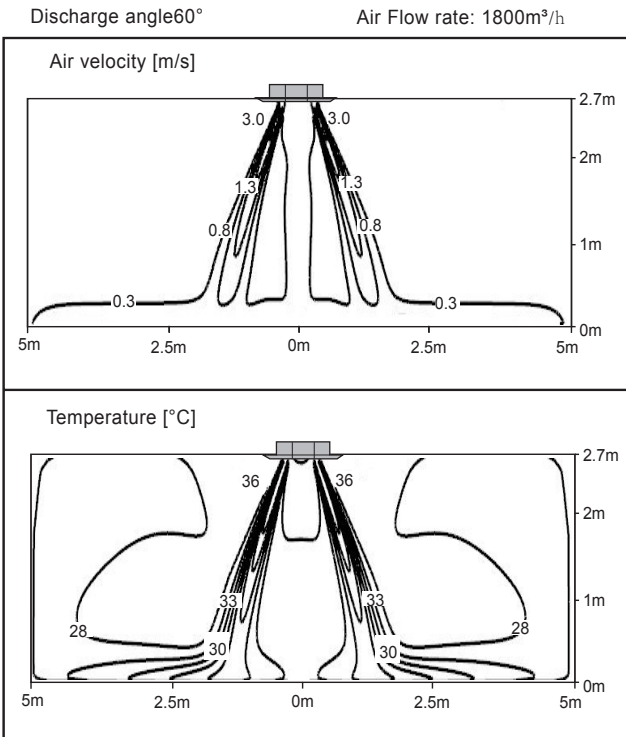
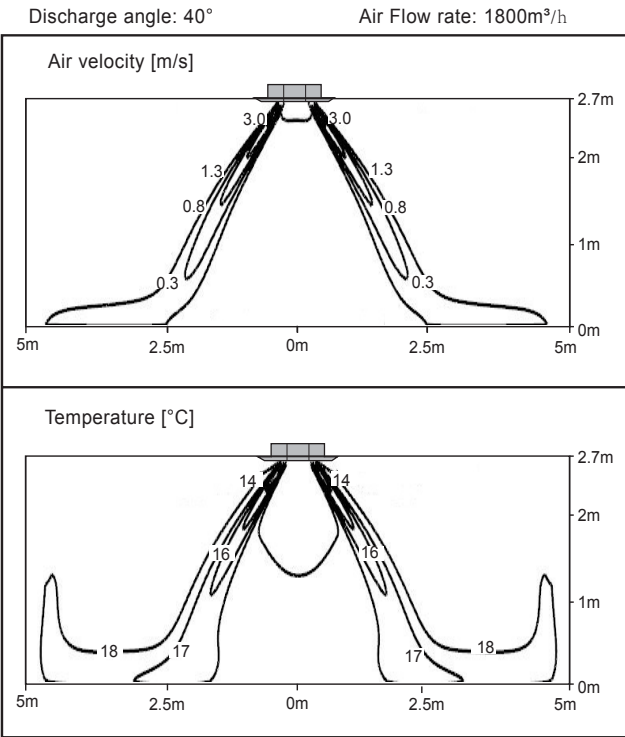
Air Flow rate: 1320m³/h



AVL-38UXJSGA

Cooling

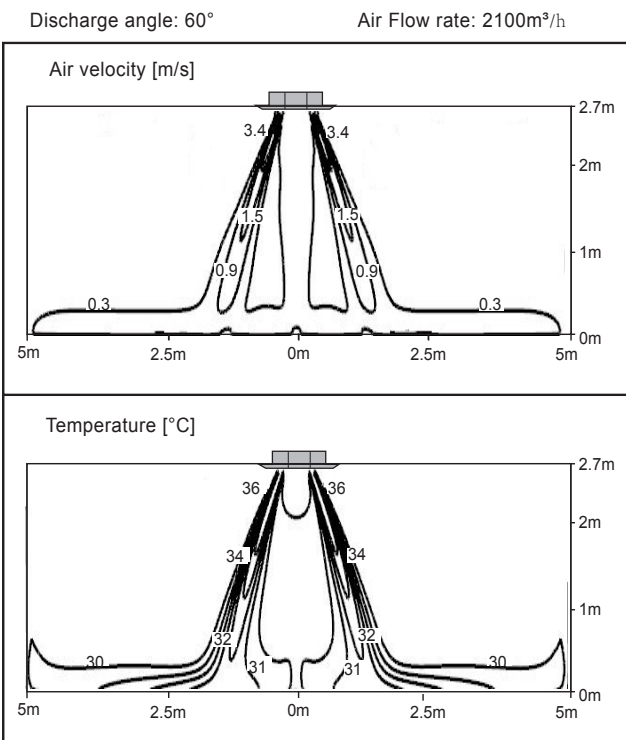
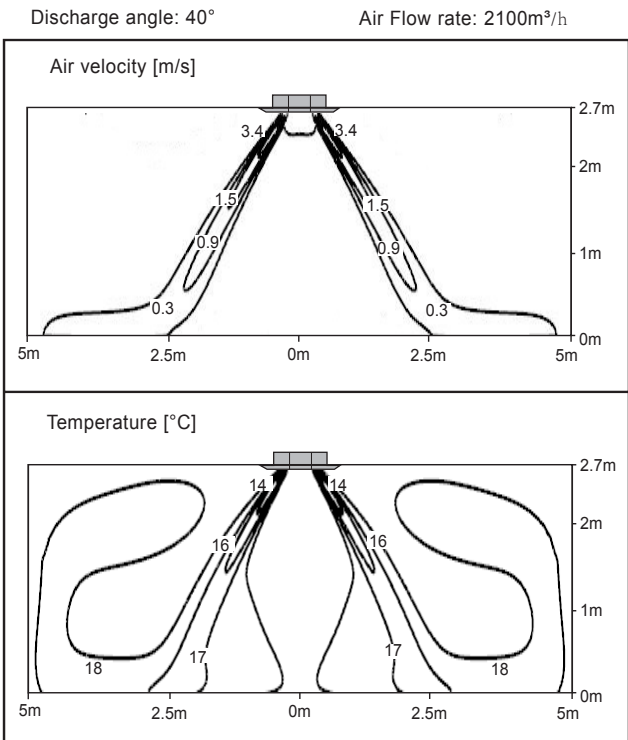
Heating



AVL-48UXJSGA

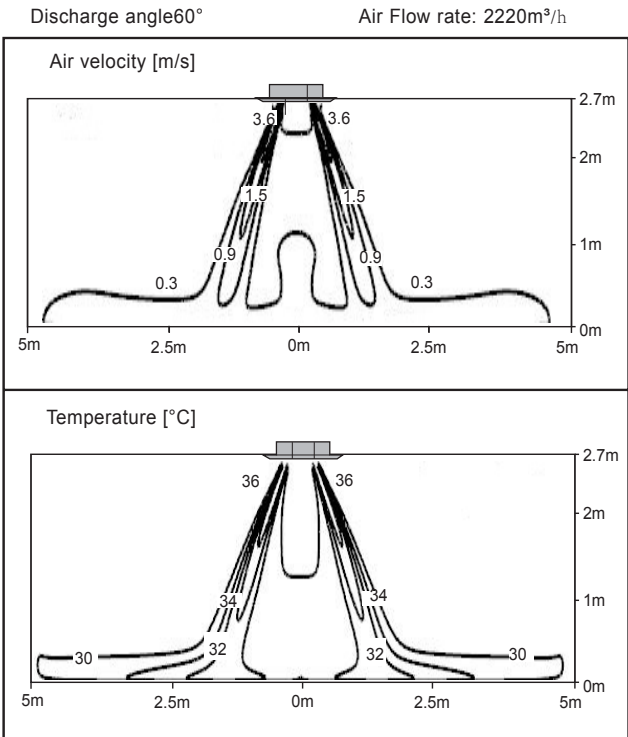
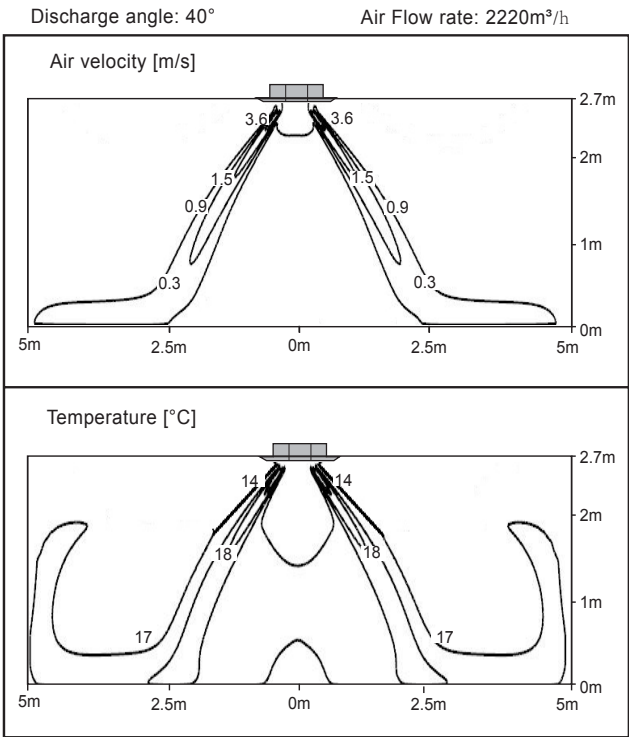
Cooling

Heating



Cooling

Heating



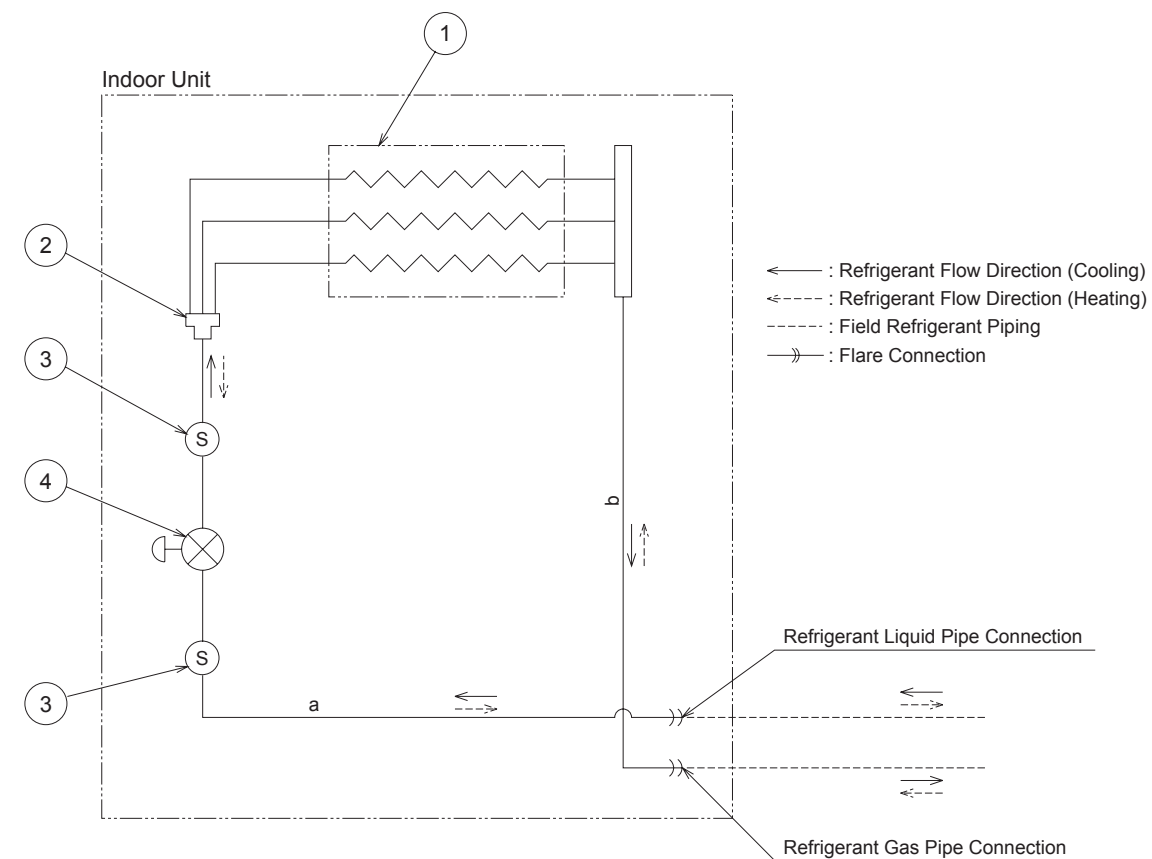
13.4 Component Data

Model		AVL-07*	AVL-09*	AVL-12*	AVL-14*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	10	10	10	12
Fin Material		Aluminum			
Pitch	mm	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.30	0.30	0.30	0.36
Number of Coil/Unit	–	1	1	1	2
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	1	1	1	1
Outer Diameter	mm	360	360	360	360
Revolution	rpm	384/342/304/265	419/370/328/286	454/402/356/311	584/522/463/408
Nominal Air Flow	m ³ /h	600/528/432/360	660/576/504/396	720/630/552/450	900/792/690/594
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	PSC (Permanent Split Capacitor)			
Nominal Output	W	57	57	57	57
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Model		AVL-18*	AVL-24*	AVL-27*	AVL-30*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	12	12	12	12
Fin Material		Aluminum			
Pitch	mm	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.36	0.36	0.36	0.36
Number of Coil/Unit	–	2	2	2	2
Indoor Fan		Multi-Blade Centrifugal Fan			
Number/Unit	–	2	1	1	1
Outer Diameter	mm	360	360	360	360
Revolution	rpm	636/567/505/439	713/633/560/491	792/702/605/501	827/733/629/519
Nominal Air Flow	m ³ /h	1020/870/780/672	1140/984/858/738	1260/1104/936/756	1320/1158/978/786
Indoor Fan Motor		Drip-Proof Type Enclosure			
Starting Method	–	PSC (Permanent Split Capacitor)			
Nominal Output	W	57	57	57	57
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Model		AVL-38*	AVL-48*	AVL-54*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	7.0	7.0	7.0
Rows	–	12	12	12
Fin Material		Aluminum		
Pitch	mm	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.61	0.61	0.61
Number of Coil/Unit	–	4	4	4
Indoor Fan		Multi-Blade Centrifugal Fan		
Number/Unit	–	2	2	2
Outer Diameter	mm	360	360	360
Revolution	rpm	675(/607)/ 606(/545)/ 543(/488)/ 479(/431)	771(/694)/ 690(/621)/ 615(/554)/ 504(/454)	809(/728)/ 723(/651)/ 644(/580)/ 562(/506)
Nominal Air Flow	m ³ /h	1800/1584/1386/1188	2100/1848/1614/1266	2220/1950/1704/1446
Indoor Fan Motor		Drip-Proof Type Enclosure		
Starting Method	–	PSC (Permanent Split Capacitor)		
Nominal Output	W	57+57	57+57	57+57
Quantity	–	2	2	2
Insulation Class	–	E	E	E

13.5 Refrigeration Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

13.6 Electrical Data

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
2-Way Cassette Type	AVL-07*	220~ 240V	1	50	264	198	1	0.17/0.17	0.014/0.014
	AVL-09*							0.17/0.17	0.014/0.014
	AVL-12*							0.17/0.17	0.014/0.014
	AVL-14*							0.27/0.27	0.024/0.024
	AVL-18*							0.37/0.37	0.034/0.034
	AVL-24*							0.47/0.47	0.044/0.044
	AVL-27*							0.67/0.67	0.064/0.064
	AVL-30*							0.67/0.67	0.074/0.074
	AVL-38*							0.77/0.77	0.084/0.084
	AVL-48*							0.97/0.97	0.104/0.104
	AVL-54*							1.07/1.07	0.114/0.114

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

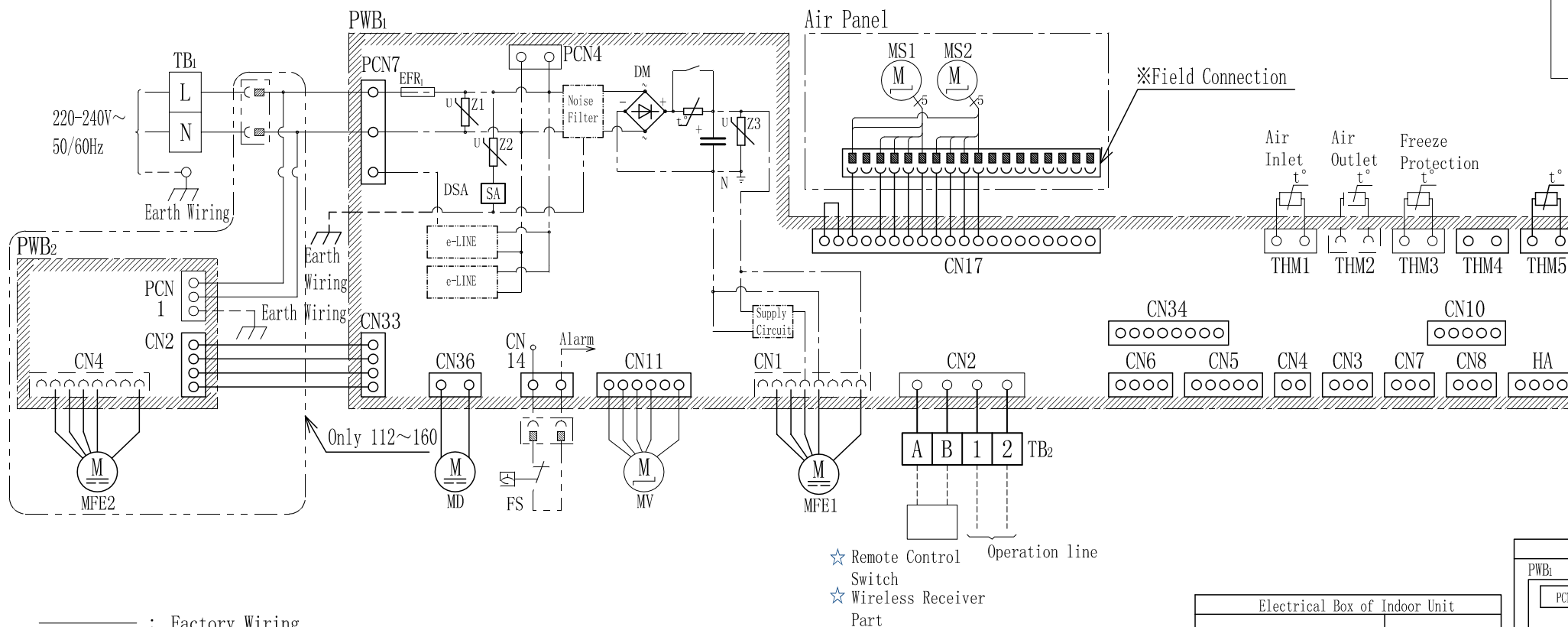
Safety and Control Device Setting

Model		AVL-07~54*	
For Control Circuit Fuse Capacity	A	5	
Freeze Protection Thermostat	°C	0	
Cut-Out	°C	14	
Cut-In	°C		
Thermostat Differential	°C	2	

13.7 Electrical Wiring Diagram

Models: AVL-07~54*

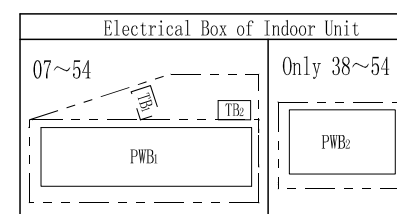
HEAT PUMP



—————	:	Factory Wiring
-----	:	Earth Wiring
——— - ——	:	Field Wiring
※	:	Field Connection
☆	:	Optional Parts

Note:
1. All the field wiring and equipment
must comply with local codes.

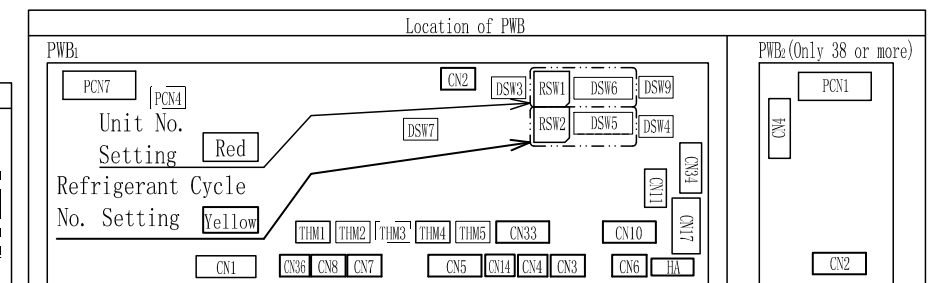
- ★ Remote Control Operation line
- ★ Switch
- ★ Wireless Receiver
- ★ Part



Before inspecting the electrical parts set the Operation Switch to **OFF**, and cut **OFF** the power supply.

Mark	Name	Remark
TB _{1.2}	Terminal Board	
PWB _{1.2}	PCB	
PCN ₄	Connector(Power)	(Green)
CN ₅	Connector(Input Signal)	(White)
CN ₄	Connector(Input Signal)	(Green)
CN ₅	Connector(Motor)	(White)
CN ₆	Connector	(White)
CN ₇	Connector(Output Signal)	(Green)
CN ₈	Connector(Output Signal)	(Black)
CN ₁₀	Connector(Sensor)	(Red)
CN ₃₃	Connector(PWB ₂)	(Blue)
CN ₃₄	Connector(Pannel)	(White)
HA	Connector(Remote Control)	(White)
RSW ₁	Rotary Switch(Unit No. Setting)	(Red)
RSW ₂	Rotary Switch (Refrigerant Cycle No. Setting)	(Yellow)
DSW ₃	Dip Switch(Capacity Code Setting)	

Mark	Name	Remark
DSW ₄	Dip Switch(Unit Mode Code Setting)	
DSW ₅	Dip Switch (Refrigerant Cycle No. Setting)	Yellow
DSW ₆	Dip Switch(Unit No. Setting)	Red
DSW ₇	Dip Switch(Fuse Recover)	
DSW ₈	Dip Switch	
MV	Micro-Computer Control Expansion Valve	
MFE _{1,2}	Motor(Indoor Unit)	
MS _{1,2}	Motor for Automatic Swing Louver	
MD	Motor for Drain Discharge Mechanism	DC
FS	Float Switch	
THM _{1~5}	Thermistor	
EF _{R1, S1}	Fuse	
Z _{1~3}	Resistance	
DA	Discharge Tube	
DM	Diode Module	



H7C05648A

13.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	2-Way Cassette Type
Wire Remote Control Switch	HYXE-F01H	
	HYXE-G01H	
	HYXE-A01H#01	
	HYXE-J01H	
	HYXE-M01H	•
Wireless Remote Control Switch	HYE-L01	
	HYE-W01	•
Wireless Receiver Kit	HYRE-V01H	
	HYRE-T01H	
	HYRE-V02H	•
	HYRE-X01H	
7 Day Timer	HYDE-E01H	
Control Station	HYJE-H01H	
	HYJE-D02H	
	HYJ-J01H	
	HCCS-H128H2C1YM	
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	
Interface for Building Control	HC-A64BNP	
	HCPC-H2M1C	
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

13.9 Factory-Supplied Accessories

NOTE

- Before installing indoor units, firstly take down the air grille, and get the factory-supplies accessories out from the indoor unit, or the unit will be damaged.
- After taking out the accessories, install the air grille again using the same screws.

It is recommended that indoor units be installed higher than 2.3 meters from the floor level.

● Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

Air Panel(optional)

Indoor Unit	Panel Selected
07~30	HP-C-NA
38~54	HP-F-NA

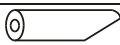
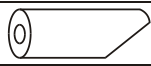
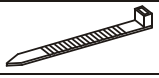
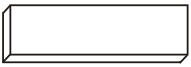
NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

WARNING

After checking the accessories, make sure the air grille is installed on the unit again, or it may cause a serious accident.

Table Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Washer with Insulation Material 	4	For Unit Installation
Washer 	4	
Drain Hose 	1	For Drain Hose Connection
Hose Clamp 	1	
Insulation (small) 	1	For Refrigerant Piping Connection
Insulation (big) 	1	
Cord Clamp (small) 	6	For Fixing Remote Control Switch Wiring, Louver Sensor and Insulation of Piping
Cord Clamp (big) 	2	
Packing (big) 	1	For Covering Wiring Connection
Packing (small) 	1	For Covering Drain Connection
Cable Clamp 	2	For Power Wiring and Transmission Wiring

13.10 Installation

13.10.1 Instal Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown below.
- Provide a service access door near the unit piping connection area on the ceiling.
- Check to ensure that the ceiling has a sufficient strength to hang the indoor unit.
- Check the ceiling surface is flat for the air panel installation work.

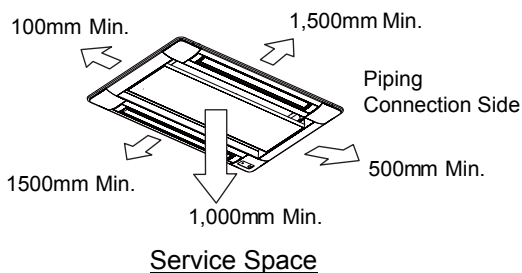
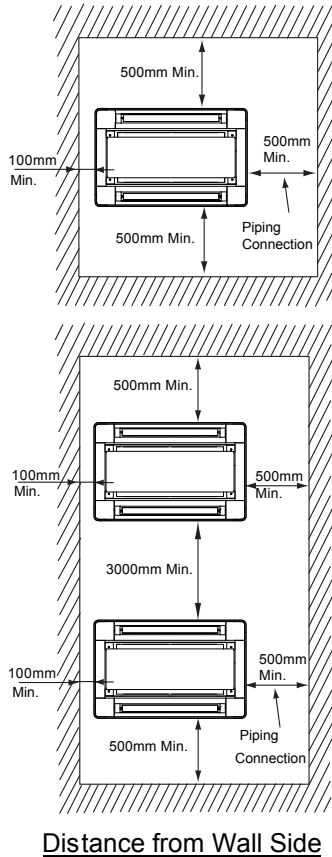


Fig. Space around Indoor Unit

- Select the installation location as follows:
 - (A) Minimum Space
 - (B) Down Slope Pitch of Drain Piping: 1/25~1/100

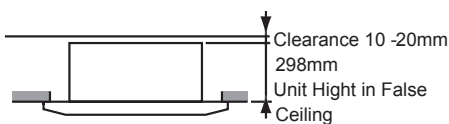


Fig. Installation Location of Indoor Unit

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit. The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment. In an application where the indoor unit is to be utilized under such environmental conditions, it is recommended that the corrosion-proof type unit be used.

! WARNING

Check to ensure that the number of below is within 0.3kg/cm³. Otherwise it may cause danger situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.

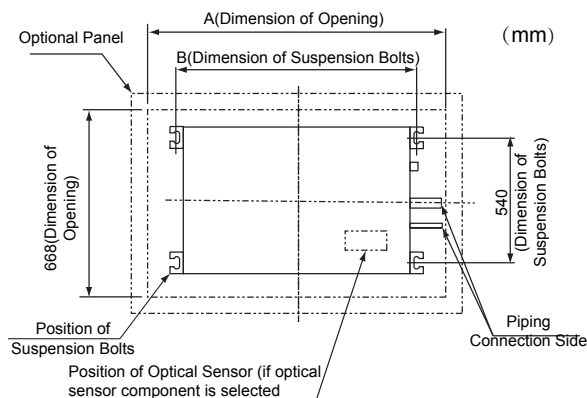
$$\frac{(\text{Total Refrigerant Quantity per one Outdoor Unit})}{(\text{Volume of the room where this Indoor Unit is installed.})} \leq 0.3\text{kg/m}^3$$

In detail, refer to the Installation Manual for outdoor unit.

13.10.2 Installation

- Opening of False Ceiling and Suspension Bolts

- (1) Determine the final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Cut out the area for the indoor unit in the false ceiling and install suspension bolts, as shown below.



Unit: mm

Model	A	B
07~30	1048	910
38~54	1608	1470

Fig. Opening of False Ceiling and Suspension Bolts

- (3) Check to ensure that the ceiling is horizontally level, otherwise drainage can not flow.
- (4) Strengthen the opening parts of the false ceiling.
- (5) Mount suspension bolts, as shown below.

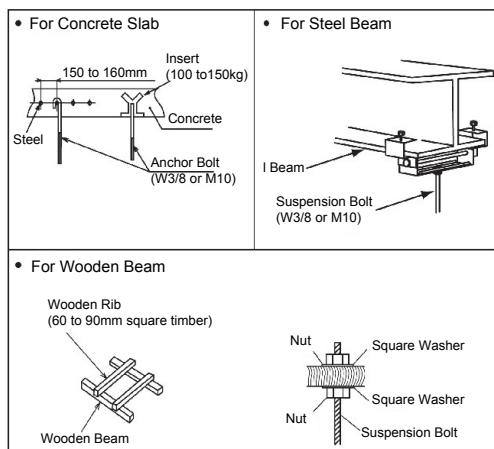
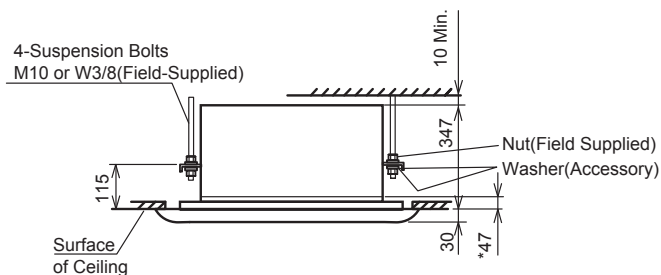


Fig. Mounting the Suspension Bolts

- Mounting Position of the Indoor Unit



*indicates the dimension between lower face of indoor unit and surface of ceiling.

Fig. Mounting Position

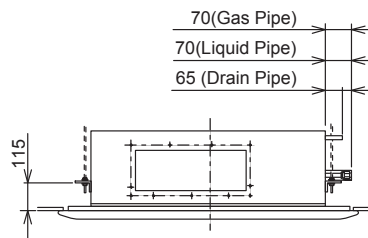
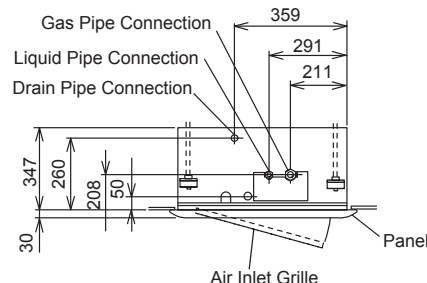


Fig. Indoor Unit and Air Panel

13.10.3 Mounting the Indoor Units

- (1) Mount the nuts and washers to the suspension bolts.

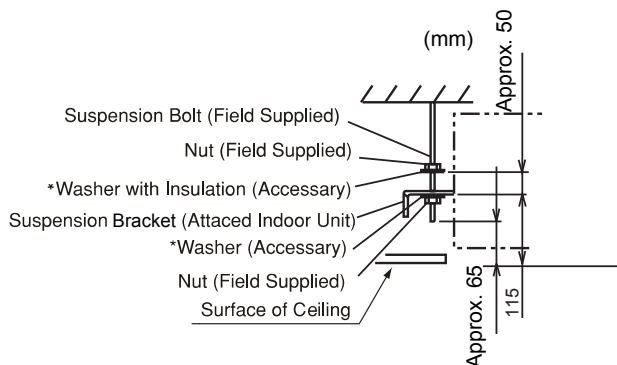


Fig. Mounting Nuts and Washers

* Put the washer so that the surface with insulation can faces downwards.

- (2) Lift the Indoor Unit by hoist, and do not put any force on the drain pan.

- (3) Secure the indoor unit using the nuts, washers.

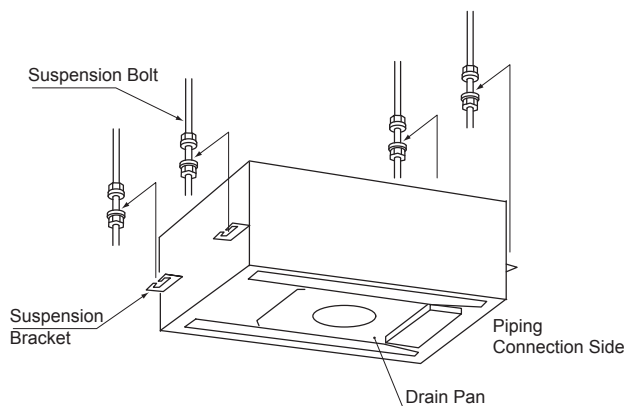


Fig. Mounting the Indoor Unit

NOTE

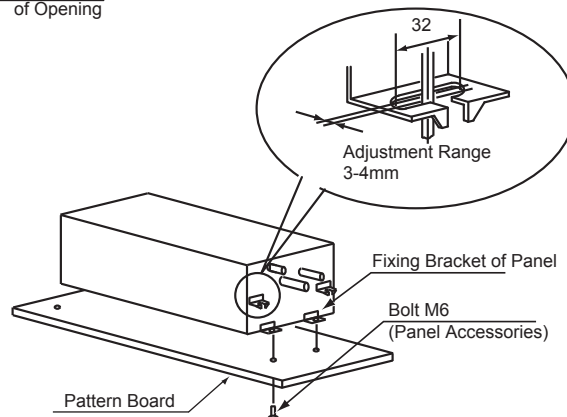
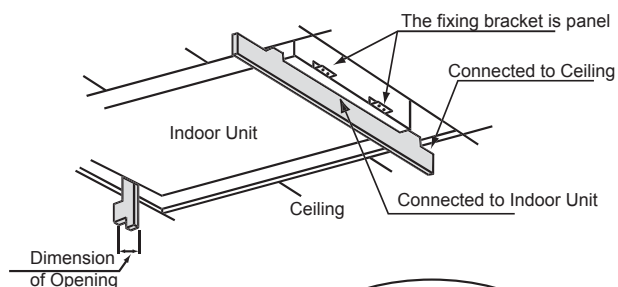
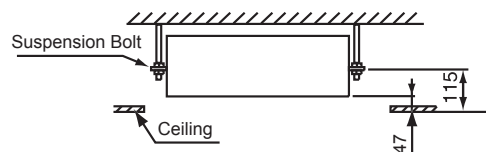
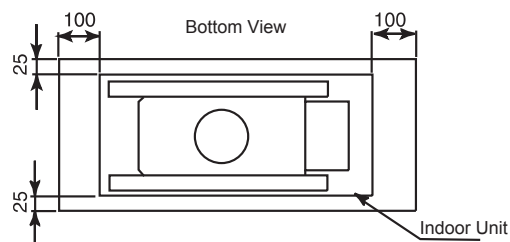
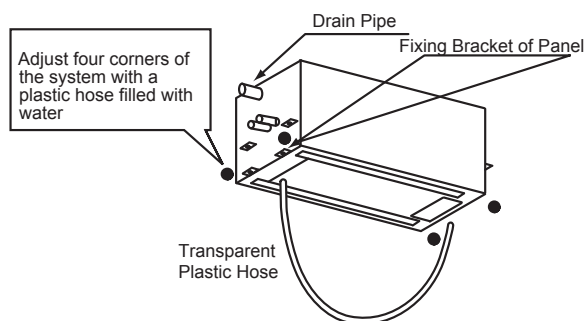
If a false ceiling has already been installed, complete all piping and wiring work inside the ceiling before hooking-up the indoor unit.

- Adjusting the Space between Indoor Unit and False Ceiling Opening

CAUTION

- Check the level of the drain pan using a water level to avoid incorrect operation of the drain discharge mechanism in the indoor unit. The drain piping side of the indoor unit must be approximately 5mm lower than the other part.
- Tighten the nuts of the suspension brackets after the adjustment is completed. Apply **LOCK-TIGHT paint*** to the bolts and nuts in order to prevent them from loosening. If not done, abnormal noises or sounds may occur and the indoor unit may fall down.

LOCK-TIGHT paint*: Paint the lock bolts and nuts. Adjust the indoor unit to the correct position while checking with the checking scales (factory-supplied).



Installation Details for Air Panel

- The details of installation work for air panel shall be according to the Installation Manual for Air Panel.
- Check to ensure that the connection of connectors between the indoor unit and the air panel.

13.11 Refrigerant Piping Work

⚠ DANGER

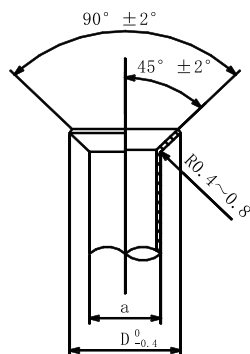
Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

13.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

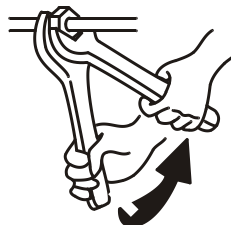
mm (in.)		
Model	Gas Piping	Liquid Piping
07 ~ 18	φ12.7 (1/2) ※	φ6.35 (1/4)
24~54	φ15.88 (5/8) ※	φ9.53 (3/8)

- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.



		mm(in.)	
Pipe Diameter (a)		φ 12.7 (1/2)	φ 15.88 (5/8)
Flaring Diameter (D)	R22, R407C	16.2	19.4
	R410A	16.6	19.7

- (2) When tightening the flare nut, use two spanners as shown below.



Pipe Size	Tightening Torque (N.m)
φ6.35mm	20
φ9.53mm	40
φ12.7mm	60
φ15.88mm	80

Fig. Tightening Work of Flare Nut

- (3) After connecting the refrigerant piping, seal the refrigerant pipes by using the factory-supplied insulation material as shown below.

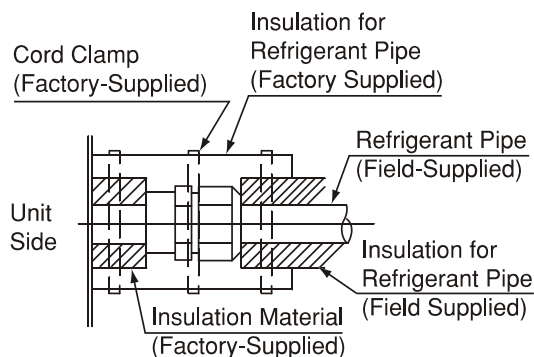


Fig. Insulation on Pipes

13.11.2 Piping Connection

- (1) Position of piping connection is shown below. (Indoor Unit)

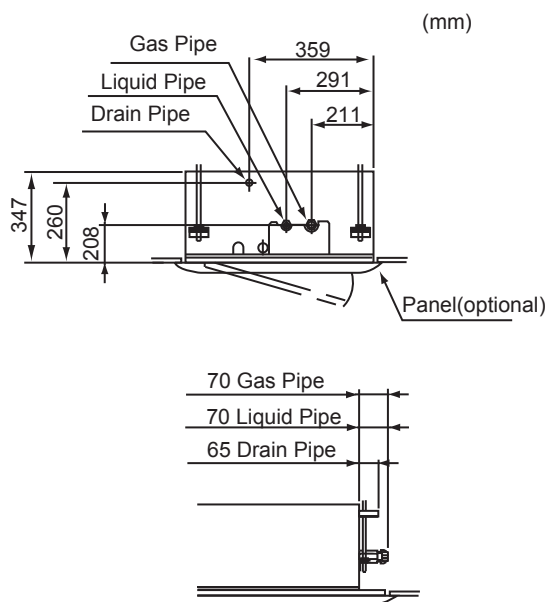


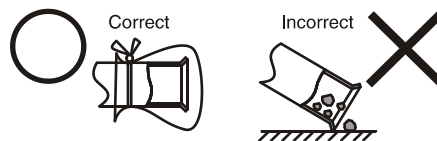
Fig. Position of Piping Connection

※ Flaring Dimension

Perform the flaring work as shown below.

⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



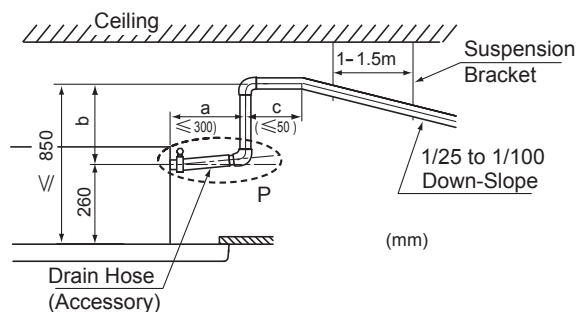
- (4) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

13.12 Drain Piping

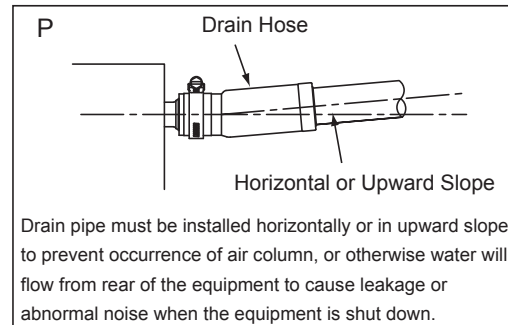
CAUTION

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the indoor unit and leakage into the room will occur when the system operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.
- Checking with the Float Switch
 - (A) Switch ON the power supply .
 - (B) Pour 1.5 or 2.5 liters of water into the drain pan.
 - (C) Check to ensure that the water flows smoothly or whether no water leakage occurs.
When water cannot be found at the end of the drain piping, pour another 1.5 or 2.5 liters of water into the drain.
 - (D) Switch ON the power supply and press the RUN/STOP button.

- (1) The position of the drain pipe connection is shown section 13.11.2.
- (2) Prepare a polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tubing to the drain hose with the adhesive agent and the factory-supplied clamp. The drain piping must be performed with a down-slope pitch of 1/25 to 1/100.



- The total length of a+b+c shall be within 950mm.



- (a) Use the drain pipe and hose clamp provided by the manufacturer.
- (b) Do not impose too much force on the pipe joint to prevent damage to it.
- (c) Do not use any bent or twisted pipe, which may cause leakage.
- (d) Complete insert the drain pipe provided by the manufacturer, or otherwise leakage may be caused.

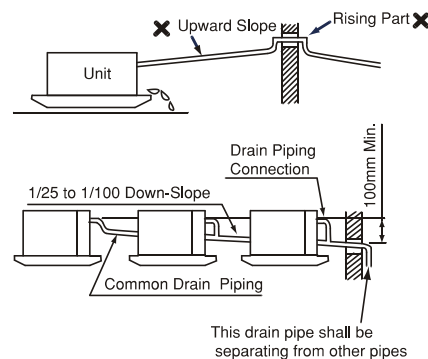
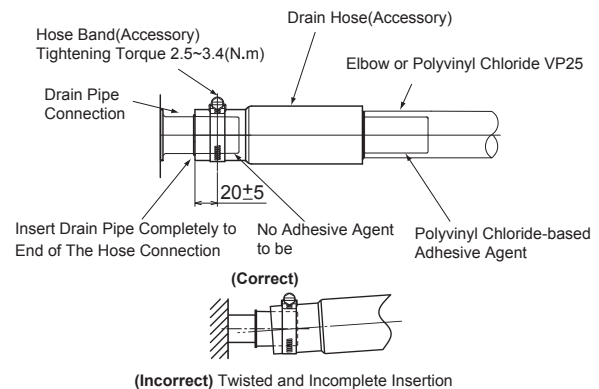
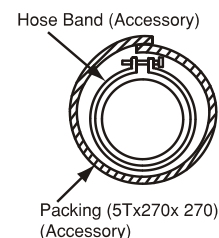


Fig. Drain Piping

- In case of lifting the drain pipe at the outlet part, perform the drain piping work as shown in the above figure.

- (4) Insulate the drain pipe after connecting the drain hose.



13.13 Electrical Wiring

WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for at least 3 minutes before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Avoid any wire from contacting with Refrigerant tube, edge of metal plate and electrical part in the equipment, or otherwise the wire may be damaged or even thereby cause fire.
- ELB with intermediate induction rate (with shorter than 0.1 second or fewer) shall be used, or otherwise electric shock or fire may be caused.
- Wire shall be fixed securely, since external force imposed to the connecting terminal may make it loose and thereby cause fire.
- Do not use the power terminal strip used for the air conditioner to sub-connect any power cable, but use power branch box to sub-connect power wire at indoor unit side instead, and be sure to calculate wire capacity, or otherwise too low capacity may cause fire.
- The system shall not be started until all inspections have been performed properly.

CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.
- Tighten screws according to the following torque.

M3.5:1.2 N.m
M6:2.0~2.4 N.m

13.13.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog I". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

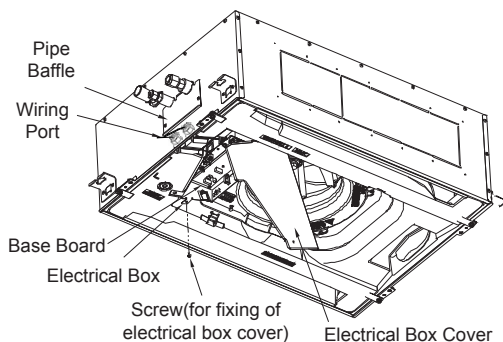
13.13.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown next page. The intermediate connection between the indoor unit and the air panel should be referred to in the "Installation Manual for Air Panel".

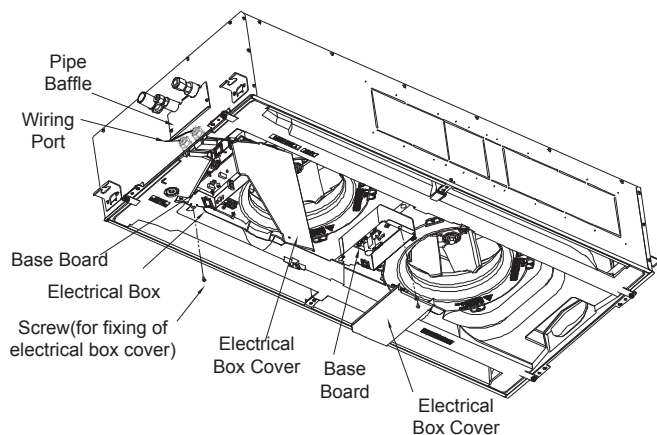
- (1) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp.

■ Field Minimum Wire Sizes for Power Source

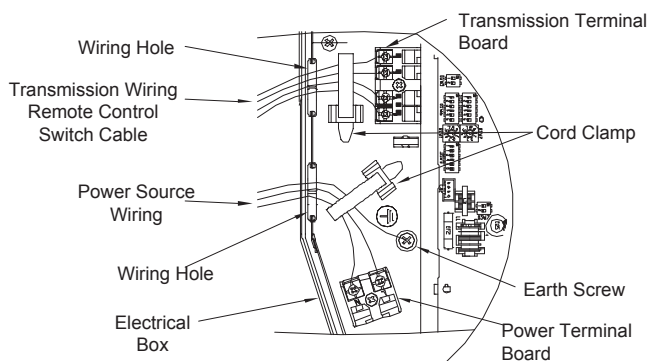
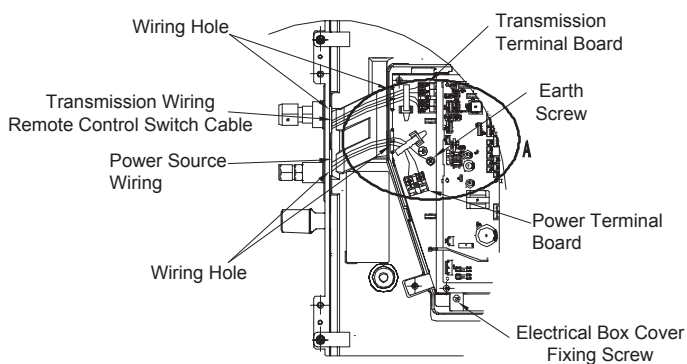
Refer to the item "13.15 Common".



07~30



38~54



Zoom-in View of Part A

Fig. Electrical Wiring Connection for Indoor Unit

- Remove electrical box cover (by loosening one screw (A)).
- Loosen two screws (B) on electrical box component and pull out the component.
- Fix the wire harness from connecting port to electrical box with cord clamp to prevent it from scratched by edge of container of other component.
- Mount a magnetic ring to the communication wire, which shall be wound by three circles around the wire and then fixed with cord clamp provided in the accessory bag.
- Upon completion of wiring, mount electrical box, and take care not to press any wire.

CAUTION

•After wire is connected to terminal board, be sure to fix it with cord clamp and lay the wire in cable tray to prevent it from being squeezed and fire caused thereby.

13.14 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

WARNING

- Do not operate the system until all the check points have been cleared.
 - Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

13.15 Common

13.15.1 Field Minimum Wire Sizes for Power Source

! WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

Field Minimum Wire Sizes for Power Source

Model	MCA	Power Source Cable Size	Transmitting Cable Size
		EN60 335-1 *1	EN60 335-1 *1
07 ~ 30	0.9A	2.5mm ²	0.75mm ²
38 ~ 54	1.8A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

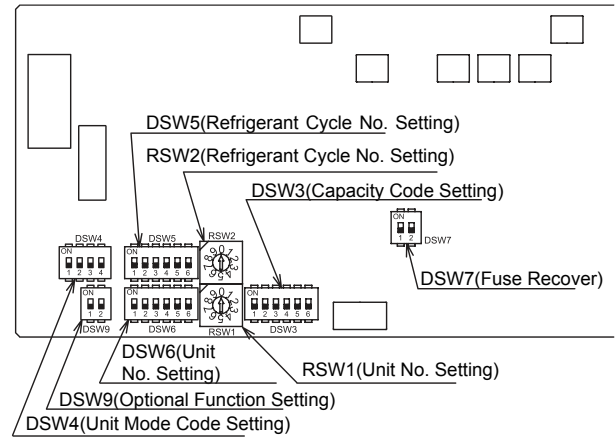
Selection According to EN60 335-1

Current (A)	Wire Size (mm ²)
I ≤ 3	2.5
3 < I ≤ 6	2.5
6 < I ≤ 10	2.5
10 < I ≤ 16	4
16 < I ≤ 25	6
25 < I ≤ 32	10
32 < I ≤ 50	16
50 < I ≤ 63	25
63 < I	※1

- ※1 In the case that current exceeds 63A, do not connect cables in series.

13.15.2 Setting of Dip Switches

(A) Position of Dip Switches



- (B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(1) Unit No. Setting (RSW1 & DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numbering must start from "0" for every outdoor unit.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit DSW6
Before shipment, DSW6 and RSW1 are set to "0". Max.64 units are available to set when all the equipment to be connected are corresponding to Hi-NET. Max.16 units when the units corresponding/non-corresponding to Hi-NET are combined.		
		Set No.1 Pin ON Set at "6"

(2) Unit Mode Code Setting (DSW4)

No setting is required.

(3) Capacity Code Setting (DSW3)

NO setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

(4) Refrigerant Cycle No.Setting(RSW2&DSW5)

Setting is required.

Setting positions before shipment are all OFF.

Refrigerant Cycle No. Setting

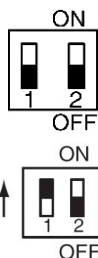
DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
		
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to HI-NET. Max. 16 cycles when the units corresponding/ non-corresponding to HI-NET are combined.	Setting Position Set by inserting slotted screwdriver into the groove.	Set All Pins OFF 

(5) Fuse Recover (DSW7)

*Factory Setting

*In the case of applying high voltage
to the terminal 1,2 of TB2,the fuse
on the PCB ,is cut.

In such a case ,firstly connect the wiring to ↑
TB2,and then turn on NO.1 pin.

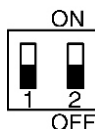


(6) Optional Function Setting(DSW9)

No setting is required

Setting positions before shipment are all OFF

Setting the model code



NOTE

- The "■" mark indicates position of dip switches.
Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF
power source and set the position of the dip
switches. If the switches are set without
turning OFF the power source, the switches
can not function.

13.16 Setting of Automatic Swing Louver

When the SWING LOUVER switch is pressed,
the swing louver starts its operation.

When "■" is moving, it indicates the
operation of the louver continuously. When the
swinging operation of the louver is not required,
press the SWING LOUVER switch again. The
louver is stopped at an angle indicated by the
direction of this mark "■".

NOTE

- There exists a time lag between the actual
outlet air angle and the liquid crystal indication.
- When the SWING LOUVER switch is pressed,
the louver will not stop immediately. The louver
will move one extra swing at the next.
- During the cases in item (A), the louvers are
fixed automatically.
However, indication of the louvers is changed
at setting before.
(A) Outlet air angle is fixed at horizontal position
during start-up of heating operation and
defrosting operation and when
thermostat is ON.
When the outlet air temperature reaches
higher than approximately 30°C, swinging
of louvers is started.
- During the defrosting operation, fan stops
running.

CAUTION

Do not turn the air louver by hand. If moved,
the louver mechanism will be damaged.

13.17 Filter Cleaning

CAUTION

Do not operate the system without the air filter
to protect the indoor unit heat exchanger
against being clogged.

Turn OFF the main power switch before taking out
the filter. (The previous operation mode may
appear.)

13.17.1 Taking Out the Filter

The indication, "FILTER" is shown on the display
of the remote control switch after approximately
1,200 hour operation.

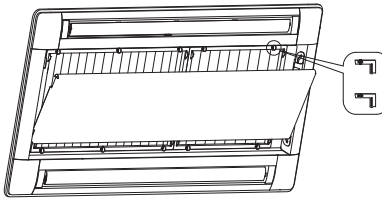
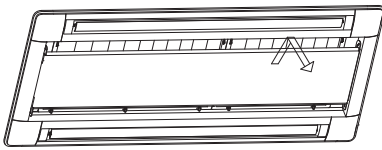
Take out the air filter according to the following
steps.

Step 1

Remove the air returning decorative plate with
both hands,as shown below.

Step 2

Turn the buttons along edges of filter screen to
make them parallel to the slot, and then remove
the screen.



13.17.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

13.17.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

13.18 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

13.18.1 If Trouble Still Remains ...

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

13.18.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

13.18.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

13.18.4 This is Not Abnormal

- **Smells from Indoor Unit**
Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.
- **Dew on Air Panel**
When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.
- **Refrigerant Flow Sound**
While the system is being started or stopped, sound from the refrigerant flow may be heard.

NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.

14. 1-Way Cassette Type(AVY)

14.1 General Data

Indoor Unit Type		1-Way Cassette Type			
Model		AVY-07UXJSJA	AVY-09UXJSJA	AVY-12UXJSJA	AVY-14UXJSJA
Power Supply		AC 1ϕ, 220-240V/50Hz		AC 1ϕ, 220V/60Hz	
Nominal Cooling Capacity	kW	2.2	2.8	3.6	4.5
	kcal/h	1,900	2,400	3,100	3,900
	Btu/h	7,500	9,600	12,300	15,400
Cooling Power Consumption	kW	0.02	0.02	0.03	0.03
Nominal Heating Capacity	kW	2.5	3.2	4.0	5.0
	kcal/h	2,200	2,800	3,400	4,300
	Btu/h	8,500	11,000	13,600	17,100
Heating Power Consumption	kW	0.02	0.03	0.04	0.04
Sound Pressure Level					
Nominal Cooling	dB	30/29/28/27/27/26	32/31/30/29/28/27	37/35/34/32/30/28	41/37/34/33/31/30
Nominal Heating	dB	33/32/31/30/29/28	35/34/32/31/29/28	40/36/35/33/30/29	43/39/35/33/31/29
Outer Dimensions Height	mm	192	192	192	192
	(in.)	(7-9/16)	(7-9/16)	(7-9/16)	(7-9/16)
Width	mm	910	910	910	910
	(in.)	(35-13/16)	(35-13/16)	(35-13/16)	(35-13/16)
Depth	mm	470	470	470	470
	(in.)	(18-1/2)	(18-1/2)	(18-1/2)	(18-1/2)
Net Weight	kg	19	19	20	20
	(lbs.)	(42)	(42)	(44)	(44)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)			
Indoor Fan Air Flow Rate	m ³ /h (cfm)	372/354/336/306/288/276 (219/208/198/180/170/163)	396/372/336/306/288/276 (233/219/198/180/170/163)	498/438/408/372/336/306 (293/258/240/219/198/180)	600/498/408/378/342/312 (353/293/240/223/201/184)
Connections		Flare-Nut Connection (with Flare Nuts)			
Refrigerant Piping Liquid Line	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
	(in.)	(1/4)	(1/4)	(1/4)	(1/4)
Gas Line	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7
	(in.)	(1/2)	(1/2)	(1/2)	(1/2)
Condensate Drain	—	VP25	VP25	VP25	VP25
Approximate Packing Measurement	m ³	0.19	0.19	0.19	0.19
Adaptable Panel Model	—	HP-D-NA			
Color	—	Neutral White			
Outer Dimensions Height	mm	55	55	55	55
	(in.)	(2-3/16)	(2-3/16)	(2-3/16)	(2-3/16)
Width	mm	1100	1100	1100	1100
	(in.)	(43-5/16)	(43-5/16)	(43-5/16)	(43-5/16)
Depth	mm	550	550	550	550
	(in.)	(21-5/8)	(21-5/8)	(21-5/8)	(21-5/8)
Net Weight	kg	5	5	5	5
	(lbs.)	(11)	(11)	(11)	(11)
Approximate Packing Measurement	m ³	0.10	0.10	0.10	0.10

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

Indoor Unit Type		1-Way Cassette Type	
Model		AVY-18UXJSKA	AVY-24UXJSKA
Power Supply		AC 1ϕ, 220-240V/50Hz	AC 1ϕ, 220V/60Hz
Nominal Cooling Capacity	kW	5.6	7.1
	kcal/h	4,800	6,100
	Btu/h	19,100	24,200
Cooling Power Consumption	kW	0.04	0.08
Nominal Heating Capacity	kW	6.3	8.0
	kcal/h	5,400	6,900
	Btu/h	21,500	27,300
Heating Power Consumption	kW	0.05	0.10
Sound Pressure Level			
Nominal Cooling	dB	40/38/35/33/32/31	46/42/40/37/34/32
Nominal Heating	dB	41/39/36/35/33/31	48/46/43/40/37/33
Outer Dimensions			
Height	mm	192	192
	(in.)	(7-9/16)	(7-9/16)
Width	mm	1180	1180
	(in.)	(46-7/16)	(46-7/16)
Depth	mm	470	470
	(in.)	(18-1/2)	(18-1/2)
Net Weight	kg	24	24
	(lbs.)	(53)	(53)
Refrigerant	—	R410A (Nitrogen-Charged for Corrosion-Resistance)	
Indoor Fan			
Air Flow Rate	m ³ /h	726/594/528/492/468/396	936/756/672/594/504/426
	(cfm)	(427/350/311/290/275/233)	(551/445/396/350/297/251)
Connections		Flare-Nut Connection (with Flare Nuts)	
Refrigerant Piping Liquid Line	mm	Φ6.35	Φ9.53
	(in.)	(1/4)	(3/8)
Gas Line	mm	Φ15.88	Φ15.88
	(in.)	(5/8)	(5/8)
Condensate Drain	—	VP25	VP25
Approximate Packing Measurement	m ³	0.24	0.24
Adaptable Panel Model	—	HP-E-NA	
Color	—	Neutral White	
Outer Dimensions			
Height	mm	55	55
	(in.)	(2-3/16)	(2-3/16)
Width	mm	1370	1370
	(in.)	(53-15/16)	(53-15/16)
Depth	mm	550	550
	(in.)	(21-5/8)	(21-5/8)
Net Weight	kg	6	6
	(lbs.)	(13)	(13)
Approximate Packing Measurement	m ³	0.12	0.12

NOTES:

- The nominal cooling capacity is the combined capacity of the Hisense standard split system.

Cooling Operation Conditions

Indoor Air Inlet Temperature: 27°C DB (80°F DB)
19.0°C WB (66.2°F WB)

Outdoor Air Inlet Temperature: 35°C DB (95°F DB)

Heating Operation Conditions

Indoor Air Inlet Temperature: 20°C DB (68°F DB)
7°C DB (45°F DB)
6°C WB (43°F WB)

Piping Length: 7.5 Meters

Piping Lift: 0 Meter

- The sound pressure level is based on following conditions.

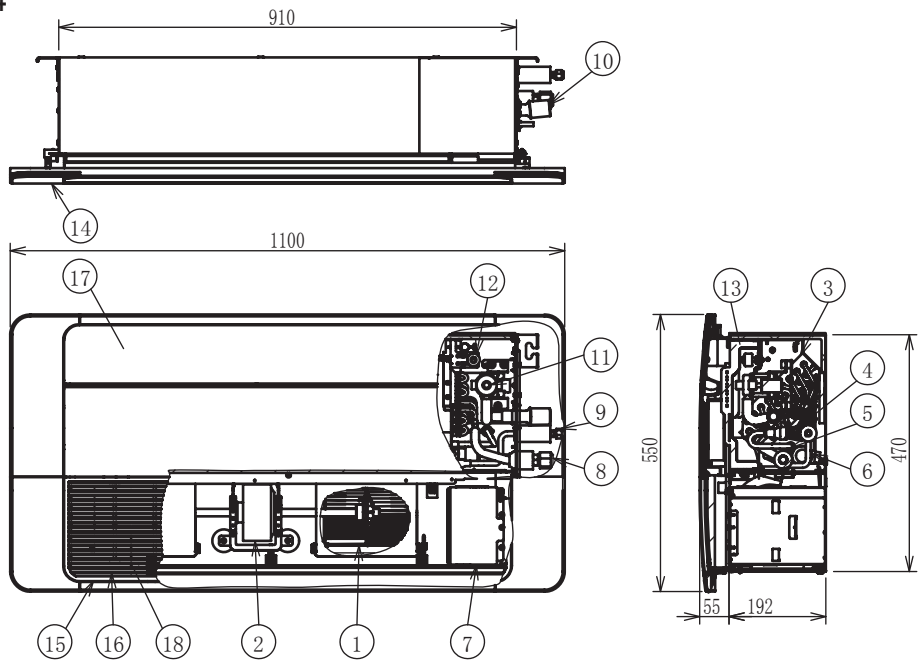
1.5 Meters Beneath the Unit.

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration in the field.

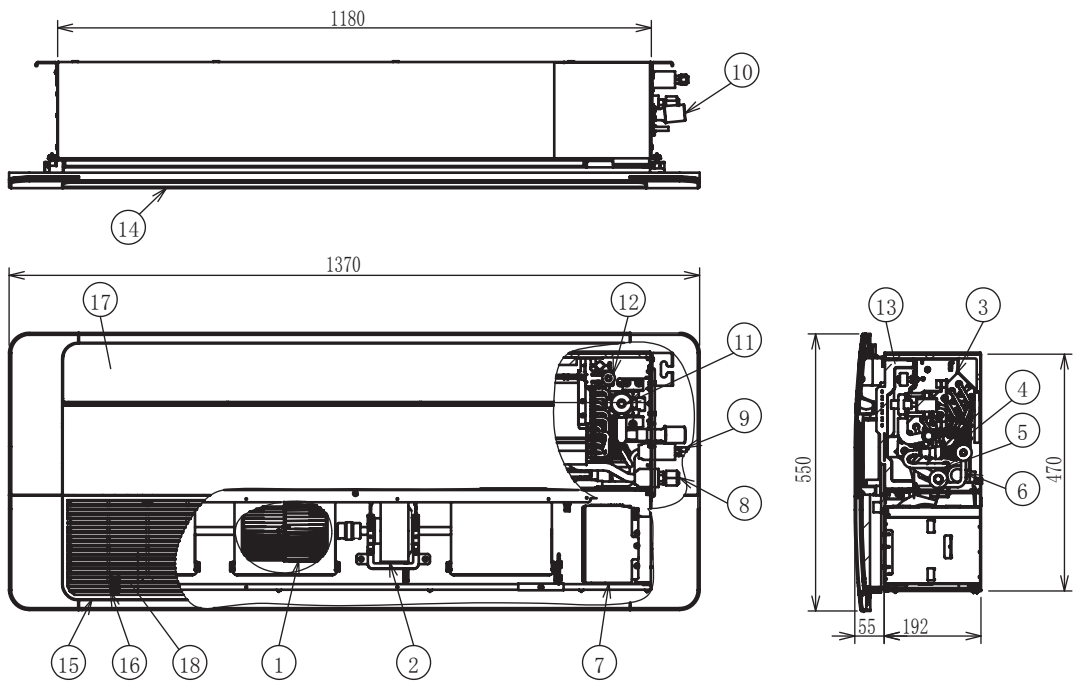
14.2 Dimensional Data

Model : 07~14

Unit:mm



Model : 18~24



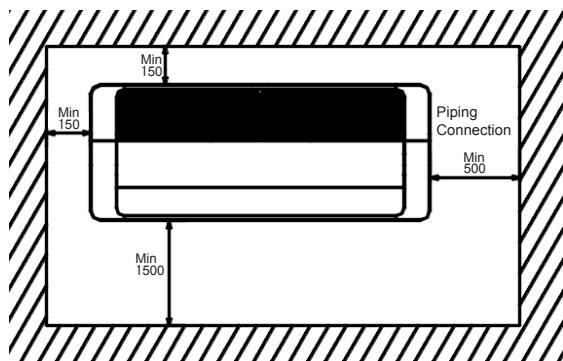
No.	Name	Remark
1	Turbo Fan	
2	Motor	
3	Heat Exchanger	
4	Distributor	
5	Filter	
6	EXP. VALVE	
7	Power Source	
8	Refrigerant Gas Pipe Connection	with ϕ a Flare Nut
9	Refrigerant Liquid Pipe Connection	with ϕ b Flare Nut
10	Drain Pipe Connection	VP25
11	Pump	
12	Float SW	
13	Water Connecting Plate	
14	Panel P-N45SNKQA with Model 07~14 P-N71SNKQA with Model 18~24	Optional
15	Air Inlet Grille	
16	Air Filter	
17	Air Outlet	
18	Air Inlet	

Model	a	b
07	12.7	6.35
09	12.7	6.35
12	12.7	6.35
14	12.7	6.35
18	15.88	6.35
24	15.88	9.53

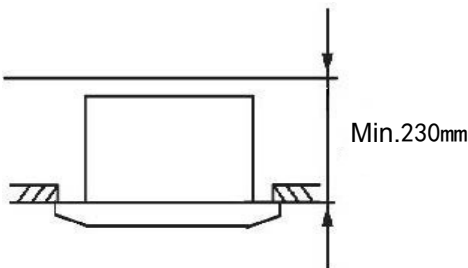
14.3 Selection Data

● Service Space

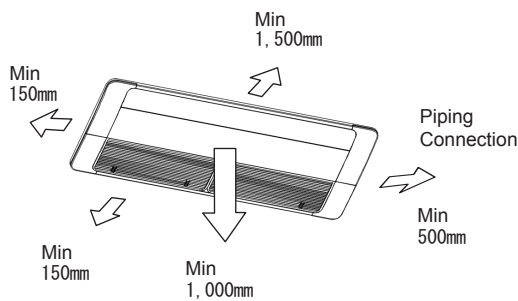
Unit:mm



distance from wall side



Unit Hight in False Ceiling

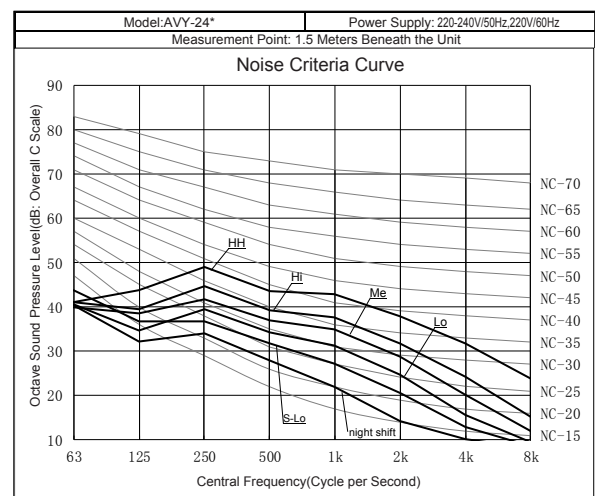
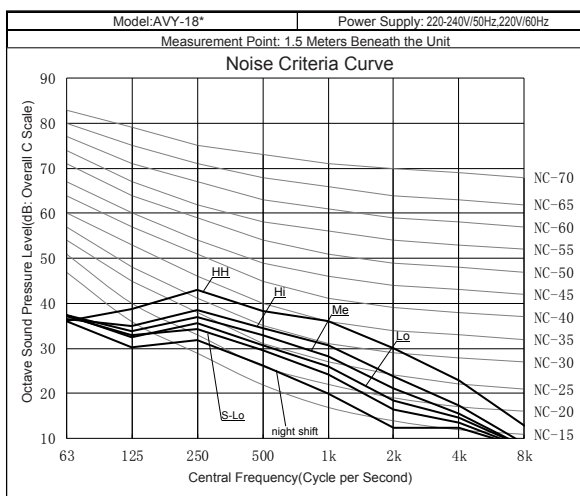
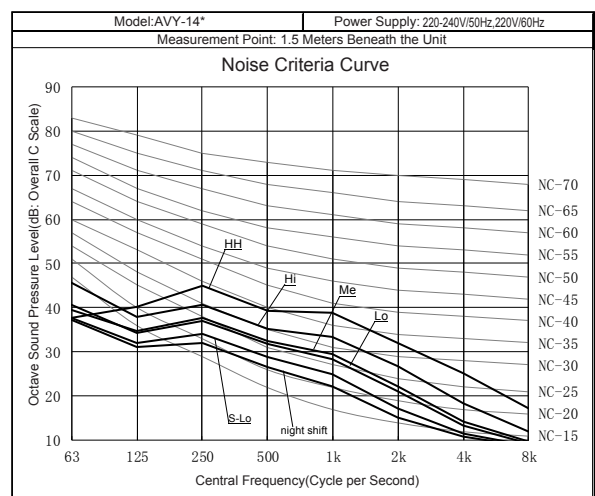
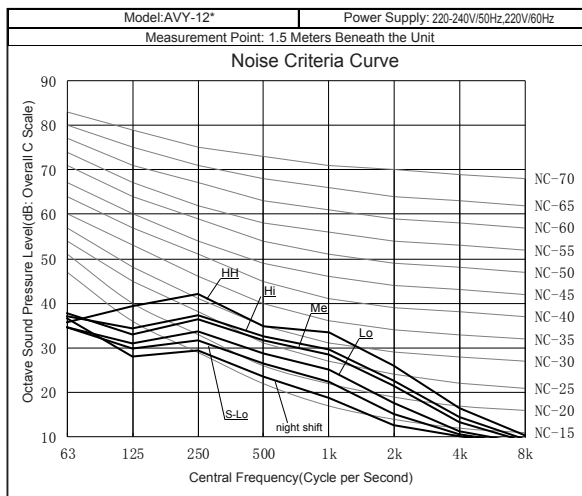
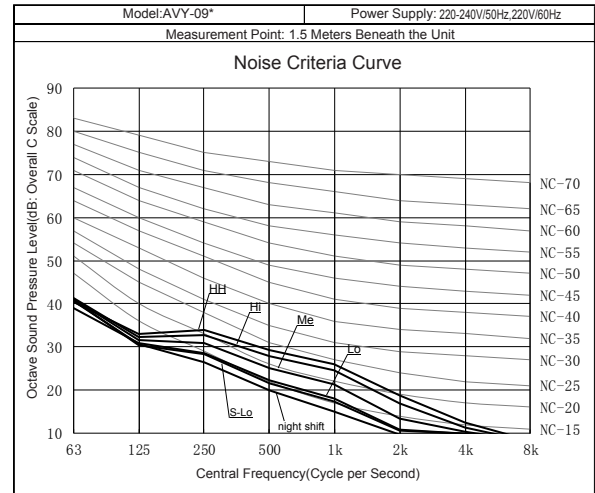
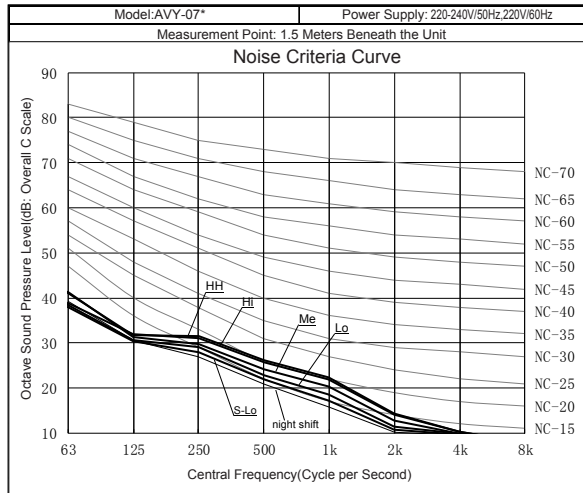


Service Space

● Sensible Heat Factor (SHF)

Indoor Unit Model	SHF		
	Hi	Me	Lo
AVY-07*	0.82	0.72	0.67
AVY-09*	0.81	0.69	0.60
AVY-12*	0.77	0.72	0.68
AVY-14*	0.75	0.71	0.67
AVY-18*	0.74	0.70	0.67
AVY-24*	0.70	0.68	0.68

- Sound Data



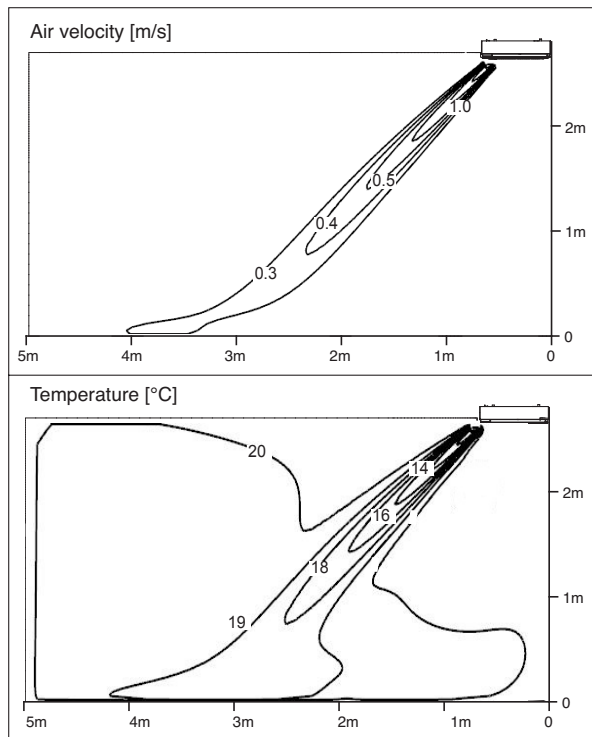
- **Temperature Data**

AVY-07UXJSJA

Cooling

Discharge angle: 40°

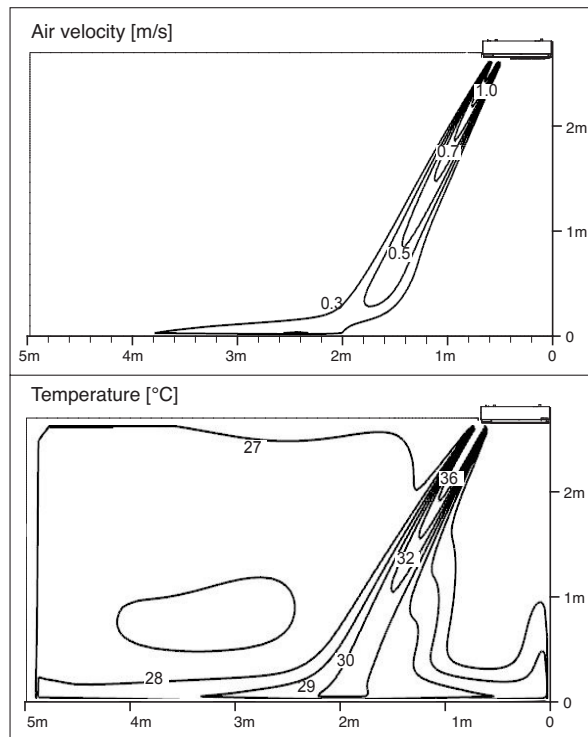
Air Flow rate: 372m³/h



Heating

Discharge angle: 60°

Air Flow rate: 372m³/h

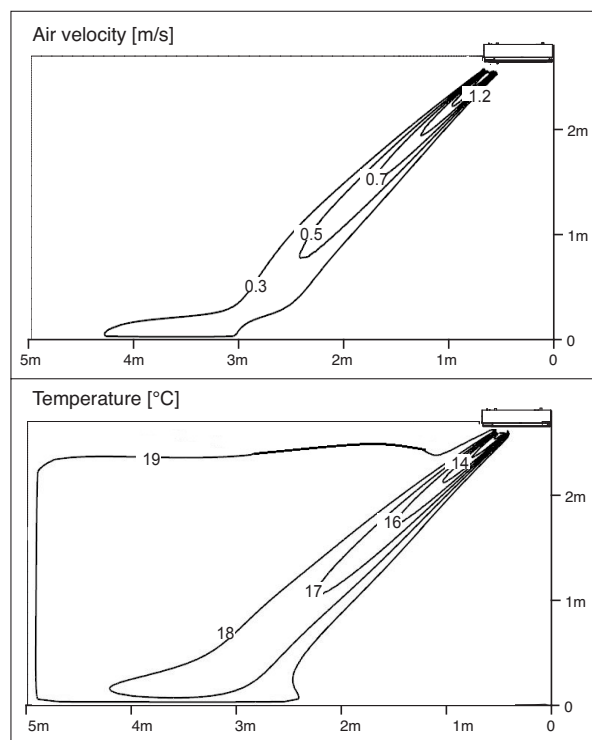


AVY-09UXJSJA

Cooling

Discharge angle: 40°

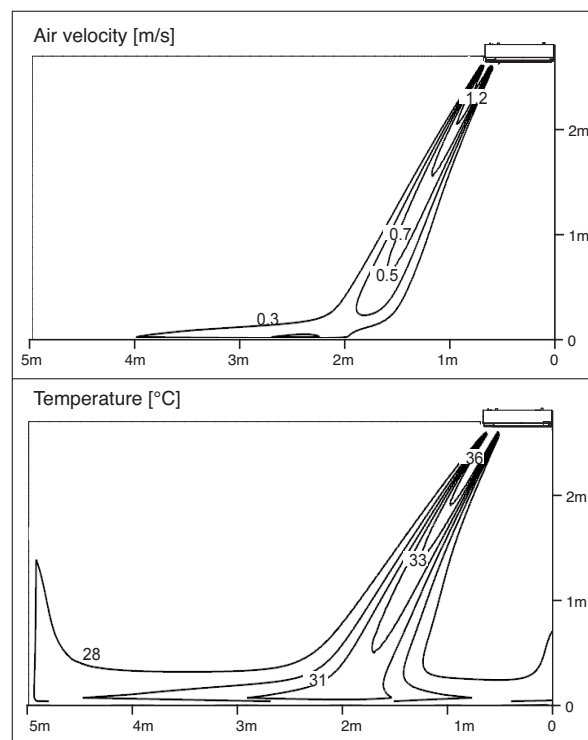
Air Flow rate: 396m³/h



Heating

Discharge angle: 60°

Air Flow rate: 396m³/h



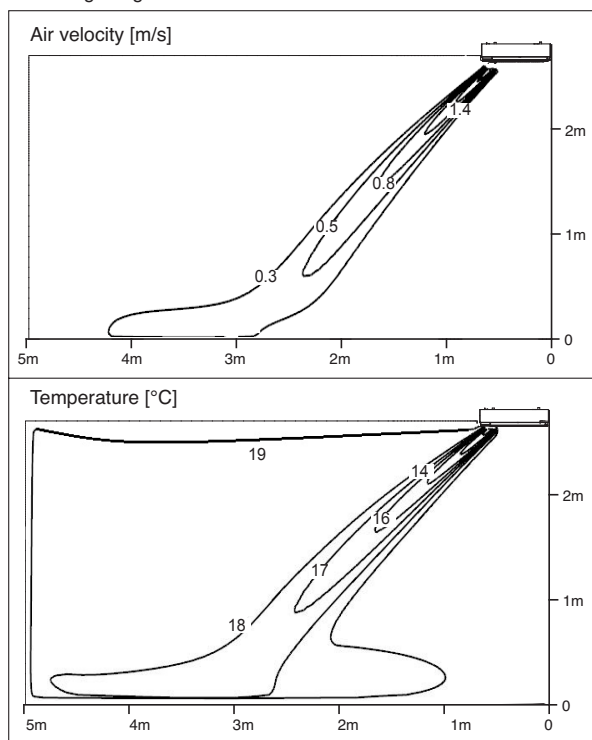
Note: The standard setup height is 2.7m. Shown here is the measurement distribution at the ceiling height of 2.7m
Fan operating mode is high.

AVY-012UXJSJA

Cooling

Discharge angle: 40°

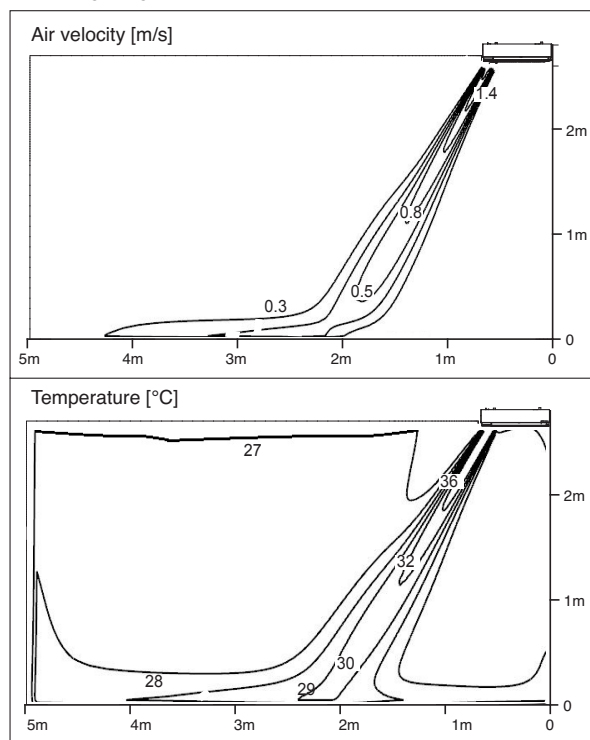
Air Flow Rate: 498m³/h



Heating

Discharge angle: 60°

Air Flow Rate: 498m³/h

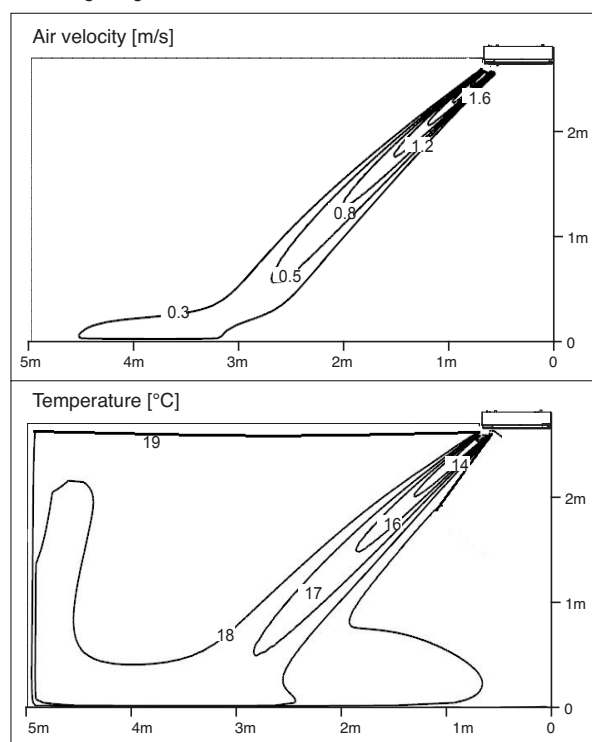


AVY-14UXJSJA

Cooling

Discharge angle: 40°

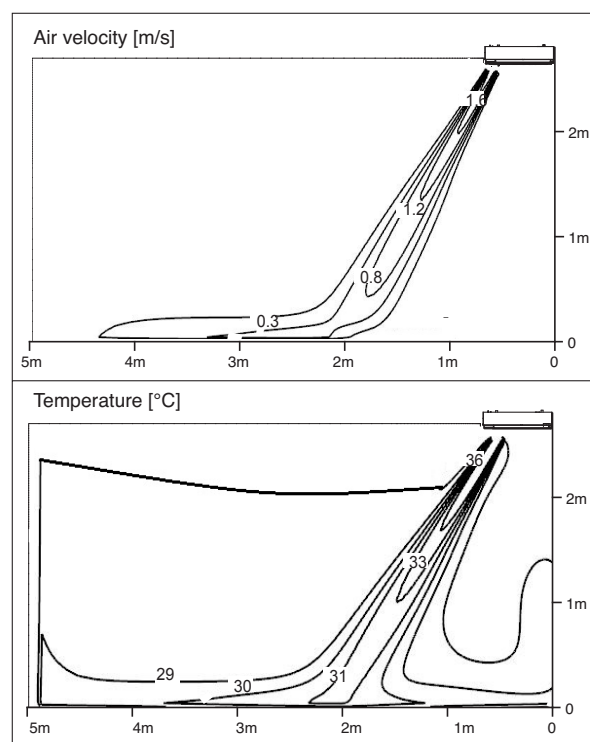
Air Flow Rate: 600m³/h



Heating

Discharge angle: 60°

Air Flow Rate: 600m³/h



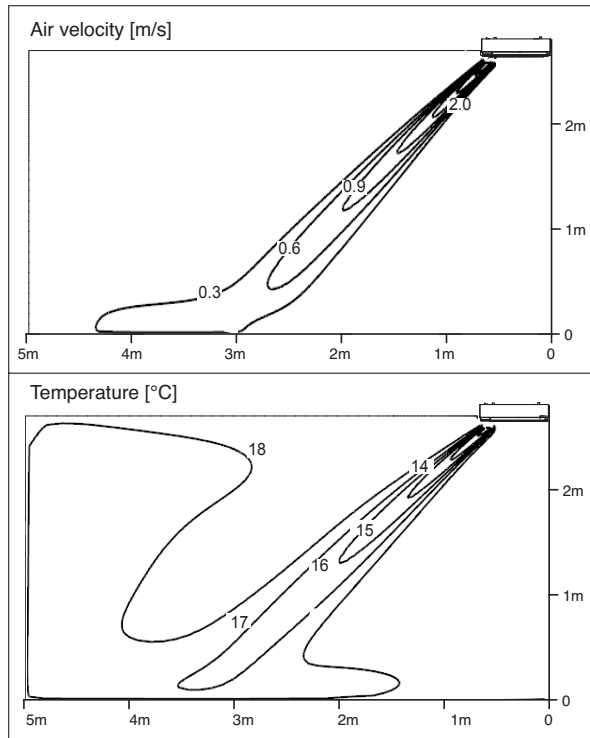
Note: The standard setup height is 2.7m. Shown here is the measurement distribution at the ceiling height of 2.7m
Fan operating mode is high.

AVY-18UXJSJA

Cooling

Discharge angle: 50°

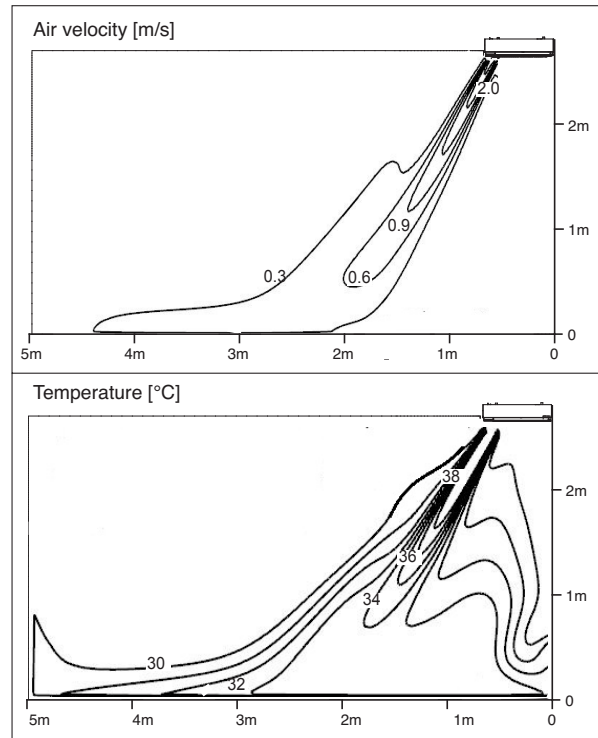
Air Flow Rate: 726m³/h



Heating

Discharge angle: 60°

Air Flow Rate: 726m³/h

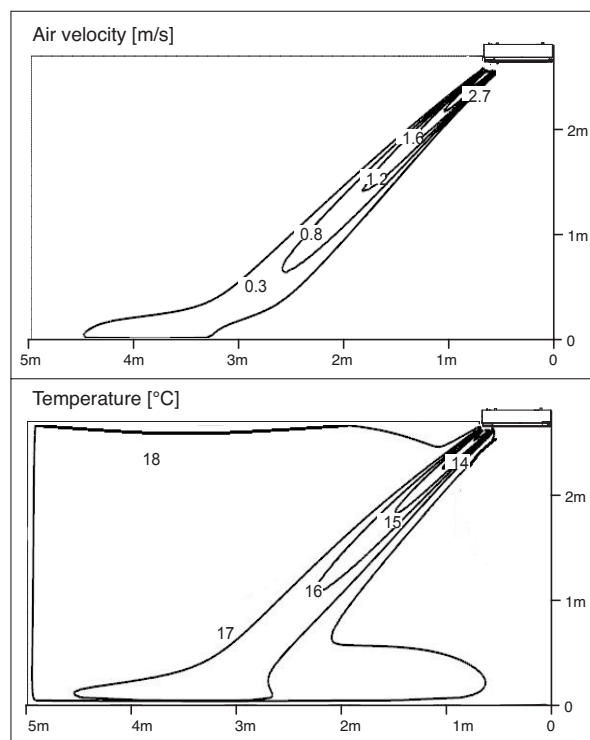


AVY-24UXJSJA

Cooling

Discharge angle: 40°

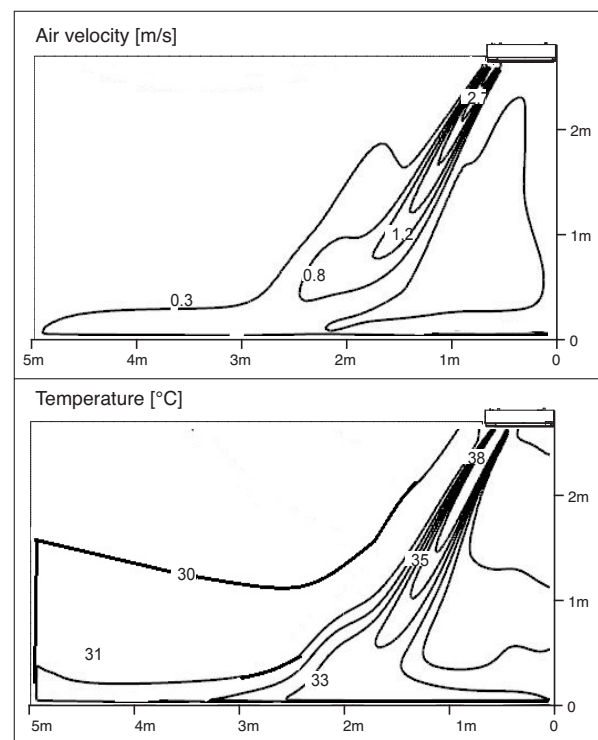
Air Flow Rate: 936m³/h



Heating

Discharge angle: 60°

Air Flow Rate: 936m³/h



Note: The standard setup height is 2.7m. Shown here is the measurement distribution at the ceiling height of 2.7m
Fan operating mode is high.

14.4 Component Data

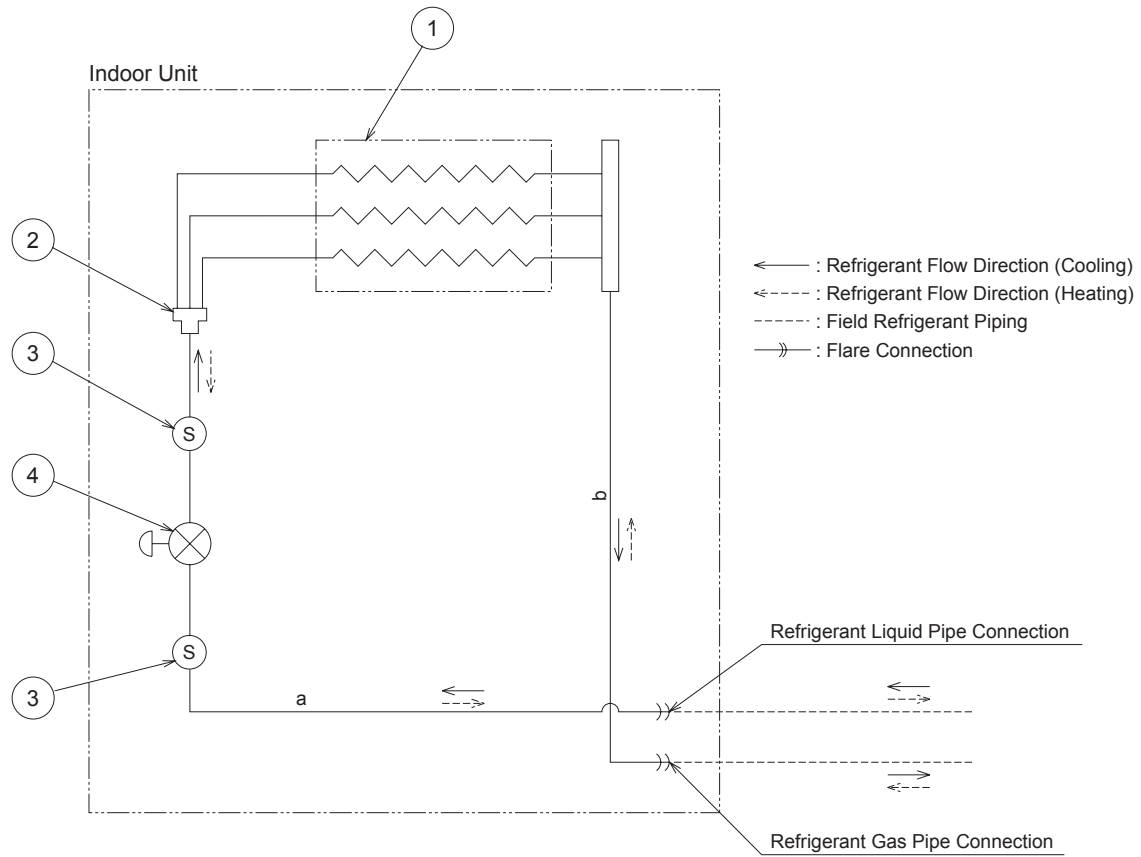
Indoor Heat Exchanger and Fan

Model		AVY-07*	AVY-09*	AVY-12*	AVY-14*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube			
Tube Material		Copper Tube			
Outer Diameter	mm	7.0	7.0	7.0	7.0
Rows	–	2	2	3	3
Fin Material		Aluminum			
Pitch	mm	1.6	1.6	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15	4.15	4.15
Total Face Area	m ²	0.15	0.15	0.15	0.15
Number of Coil/Unit	–	1	1	1	2
Indoor Fan		Centrifugal Fan			
Number/Unit	–	2	2	2	2
Outer Diameter	mm	130	130	130	130
Revolution	rpm	705/687/660/ 633/608/586	786/740/687/ 633/608/586	1100/934/887/ 820/750/687	1250/1059/934/ 887/820/750
Nominal Air Flow	m ³ /h	372/354/336/ 306/288/276	396/372/336/ 306/288/276	498/438/408/ 372/336/306	600/498/408/ 378/342/312
Indoor Fan Motor		IP20			
Starting Method	–	Control software			
Nominal Output	W	40	40	40	40
Quantity	–	1	1	1	1
Insulation Class	–	E	E	E	E

Model		AVY-18*	AVY-24*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube	
Tube Material		Copper Tube	
Outer Diameter	mm	7.0	7.0
Rows	–	3	3
Fin Material		Aluminum	
Pitch	mm	1.6	1.6
Maximum Operating Pressure	MPa	4.15	4.15
Total Face Area	m ²	0.2	0.2
Number of Coil/Unit	–	1	1
Indoor Fan		Centrifugal Fan	
Number/Unit	–	3	3
Outer Diameter	mm	130	130
Revolution	rpm	1159/980/890/ 843/803/710	1440/1196/1080/ 980/855/750
Nominal Air Flow	m ³ /h	726/594/528/ 492/468/396	936/756/672/ 594/504/426
Indoor Fan Motor		IP20	
Starting Method	–	Control software	
Nominal Output	W	60	60
Quantity	–	1	1
Insulation Class	–	E	E

14.5 Refrigeration Cycle

05~24Model



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

14.6 Electrical Data

< 50 Hz >

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Fan Motor		
		VOL	PH	HZ	Maximum	Minimum	PH	RNC	IPT
1-Way Cassette Type	AVY-07*	220 ~240/ 220V	1	50/60	264	198	1	0.17/0.17	0.014/0.014
	AVY-09*							0.17/0.27	0.014/0.024
	AVY-12*							0.27/0.37	0.024/0.034
	AVY-14*							0.37/0.47	0.034/0.044
	AVY-18*							0.37/0.47	0.034/0.044
	AVY-24*							0.57/0.67	0.074/0.094

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (ϕ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

Safety and Control Device Setting

Model		AVY-07~24*	
For Control Circuit Fuse Capacity	A	5	
Freeze Protection Thermostat	°C	0	
Cut-Out	°C	14	
Cut-In	°C	2	
Thermostat Differential	°C	2	

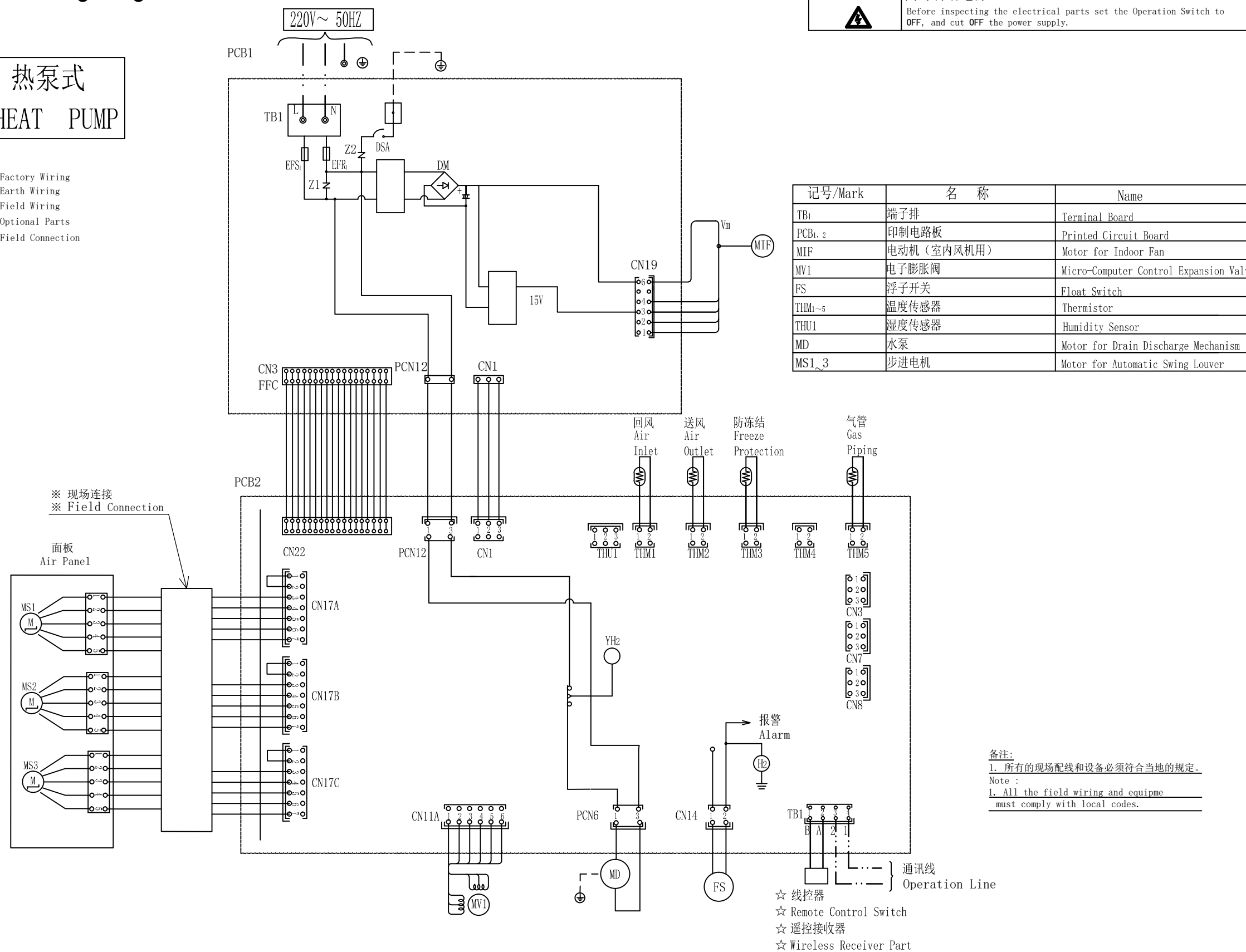
(型 号: AVY-07~24*)
MODELS:

电气接线图
14.7 Electrical Wiring Diagram

热泵式
HEAT PUMP

- : 工厂配线 Factory Wiring
 --- : 地线 Earth Wiring
 - - - : 现场配线 Field Wiring
 ☆ : 选配件 Optional Parts
 ※ : 现场连接 Field Connection

WARNING 警告
 在检查电气元件时, 把运行开关设定在关 (OFF) 上, 同时切断电源。
 Before inspecting the electrical parts set the Operation Switch to OFF, and cut OFF the power supply.



记号/Mark	名 称	Name
TB1	端子排	Terminal Board
PCB1. 2	印制电路板	Printed Circuit Board
MIF	电动机 (室内风机用)	Motor for Indoor Fan
MV1	电子膨胀阀	Micro-Computer Control Expansion Valve
FS	浮子开关	Float Switch
THM1~5	温度传感器	Thermistor
THU1	湿度传感器	Humidity Sensor
MD	水泵	Motor for Drain Discharge Mechanism
MS1~3	步进电机	Motor for Automatic Swing Louver

备注:
 1. 所有的现场配线和设备必须符合当地的规定。
 Note :
 1. All the field wiring and equipment must comply with local codes.

- ☆ 线控器
 ☆ Remote Control Switch
 ☆ 遥控接收器
 ☆ Wireless Receiver Part

14.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	1-Way Cassette Type
Wire Remote Control Switch	HYXE-F01H	
	HYXE-G01H	
	HYXE-A01H#01	
	HYXE-J01H	
	HYXE-M01H	●
Wireless Remote Control Switch	HYE-L01	
	HYE-W01	●
Wireless Receiver Kit	HYRE-V01H	
	HYRE-T01H	
	HYRE-V02H	
	HYRE-X01H	●
7 Day Timer	HYDE-E01H	
Control Station	HYJE-H01H	
	HYJE-D02H	
	HYJ-J01H	
	HCCS-H128H2C1YM	
	HCCS-H128H2C1NM	
	HCCS-H247R4C1E	
	HCCS-H128H2C2NM	
Interface for Building Control	HC-A64BNP	
	HCPC-H2M1C	
Drain Pump	HPS-162#E	
	HPS-132#E	
	HPS-151#E	
Long Life filter	HF-224L-FE	
	HF-280L-FE	
	HF-40L-ZFE	
3D Air Swing	HP-DB-NK	
	HP-EB-NK	

14.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

Air Panel(optional)

Indoor Unit	Panel Selected
07~14	HP-D-NA
18~24	HP-E-NA

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

WARNING

After checking the accessories, make sure the air grille is installed on the unit again, or it may cause a serious accident.

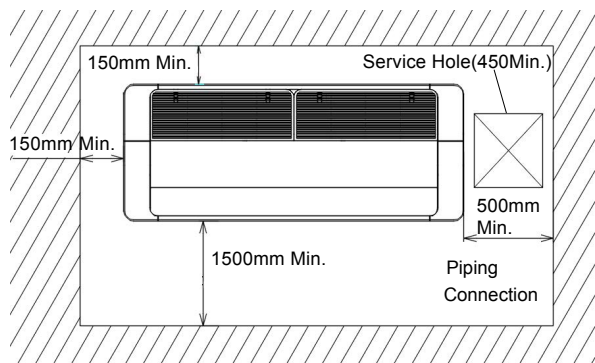
Table Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Screw 	8	For Unit Installation
Washer 	8	
Drain Hose 	1	For Drain Hose Connection
Hose Clamp 	1	
Magnet Ring 	1	
Cord Clamp 	1	For Fixing Magnet Ring

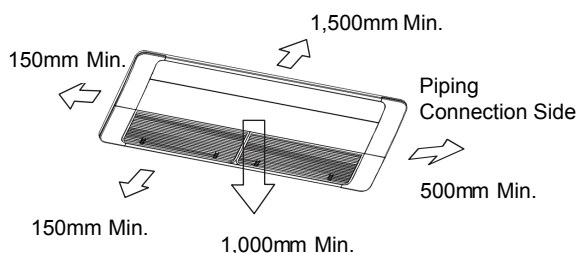
14.10 Installation

14.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown below.
- Provide a service access door near the unit piping connection area on the ceiling.
- Check to ensure that the ceiling has a sufficient strength to hang the indoor unit.
- Check the ceiling surface is flat for the air panel installation work.



Distance From Wall Side



Service Space

Fig. Space around Indoor Unit

- Select the installation location as follows:
 - (A) Minimum Space
 - (B) Down Slope Pitch of Drain Piping:
1/25~1/100

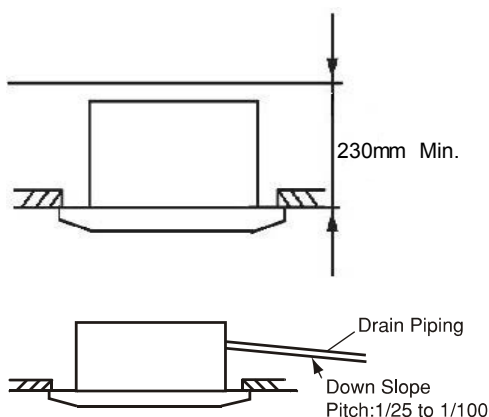


Fig. Installation Location of Indoor Unit

- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit.
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment. In an application where the indoor unit is to be utilized under such environmental conditions, it is recommended that the corrosion-proof type unit be used.

! WARNING

Check to ensure that the number of below is within 0.3kg/cm³. Otherwise it may cause danger situation if the refrigerant in the Outdoor Unit leaks into the room where this Indoor Unit is installed.

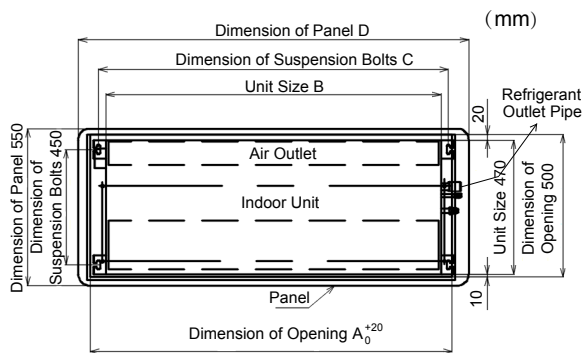
$$\frac{(\text{Total Refrigerant Quantity per one Outdoor Unit})}{\left(\frac{\text{Volume of the room where this Indoor Unit is installed.}}{\text{Indoor Unit is installed.}} \right)} \leq 0.3 \text{ kg/m}^3$$

In detail, refer to the Installation Manual for outdoor unit.

14.10.2 Installation

- Opening of False Ceiling and Suspension Bolts

- (1) Determine the final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Cut out the area for the indoor unit in the false ceiling and install suspension bolts, as shown below.



Model	Sizes	A	B	C	D
AVY-07UXJSJA AVY-09UXJSJA AVY-12UXJSJA AVY-14UXJSJA		1000	910	958	1100
AVY-18UXJSKA AVY-24UXJSKA		1270	1180	1228	1370

Fig. Opening of False Ceiling and Suspension Bolts

- (3) Check to ensure that the ceiling is horizontally level, otherwise drainage can not flow.
- (4) Strengthen the opening parts of the false ceiling.
- (5) Mount suspension bolts, as shown below.

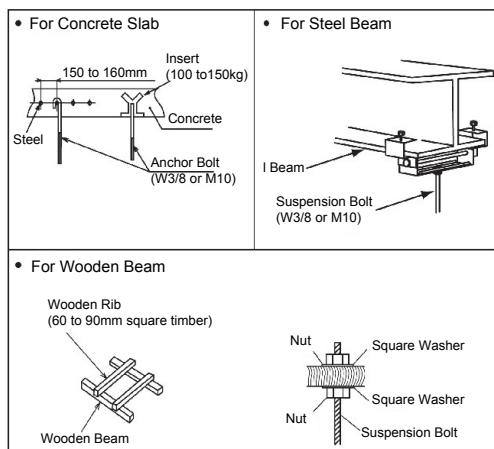


Fig. Mounting the Suspension Bolts

14.10.3 Mounting the Indoor Units

- (1) Mount the nuts and washers to the suspension bolts.

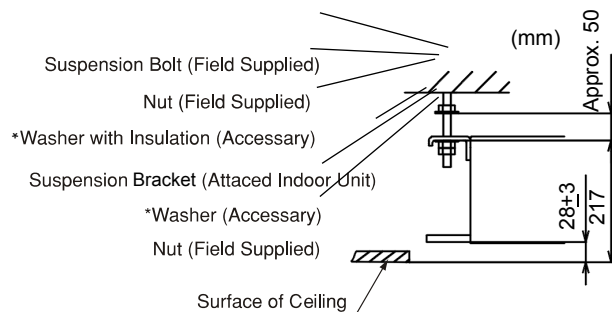


Fig. Mounting Nuts and Washers

- * Put the washer so that the surface with insulation can face downwards.
- (2) Lift the Indoor Unit by hoist, and do not put any force on the drain pan.
 - (3) Use a gradienter or transparent plastic hose filled with water to level the two directions of indoor unit, length and width sides.

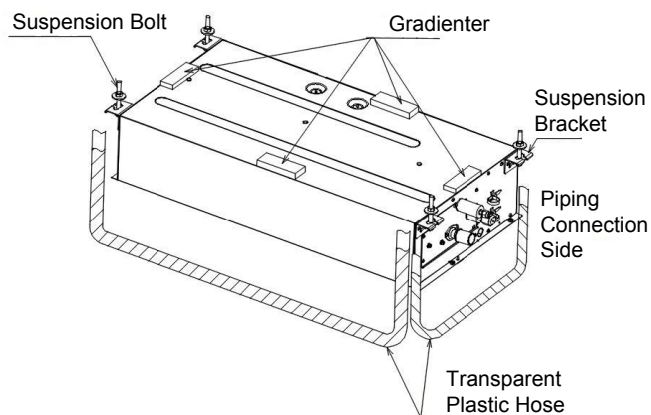


Fig. Mounting the Indoor Unit

CAUTION

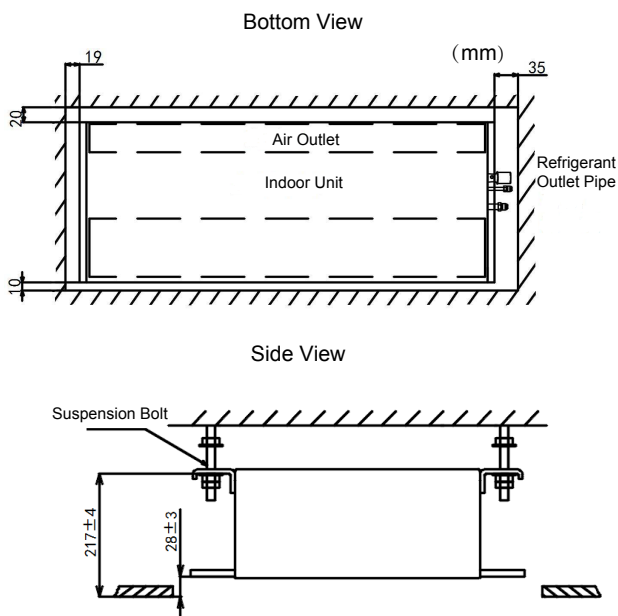
If indoor unit is installed in a position inclined to the reverse direction, it may cause false operation of float switch and there result in leakage.

- (4) Secure the indoor unit using the nuts, washers.

NOTE

If a false ceiling has already been installed, complete all piping and wiring work inside the ceiling before hooking-up the indoor unit.

- Adjusting the Space between Indoor Unit and False Ceiling Opening

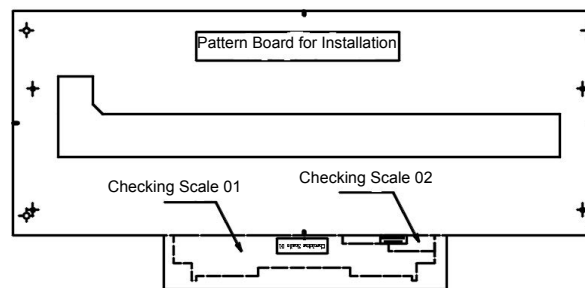


CAUTION

- Check the level of the drain pan using a water level to avoid incorrect operation of the drain discharge mechanism in the indoor unit. The drain piping side of the indoor unit must be approximately 5mm lower than the other part.
- Tighten the nuts of the suspension brackets after the adjustment is completed. Apply LOCK-TIGHT paint* to the bolts and nuts in order to prevent them from loosening. If not done, abnormal noises or sounds may occur and the indoor unit may fall down.

LOCK-TIGHT paint*: Paint the lock bolts and nuts. Adjust the indoor unit to the correct position while checking with the checking scales (factory-supplied).

- (1) Pattern Board for Installation is provided in the packing, please cut it off.



- (2) Adjust the distance between indoor unit and ceiling.
Adjust the indoor unit to a proper position with the checking scale provided by the factory

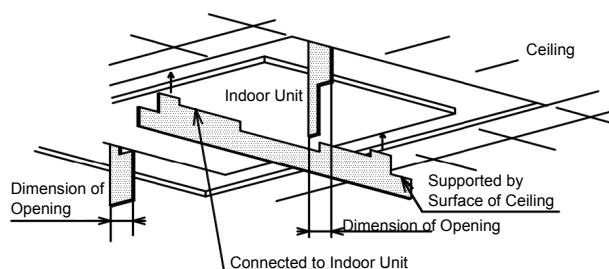
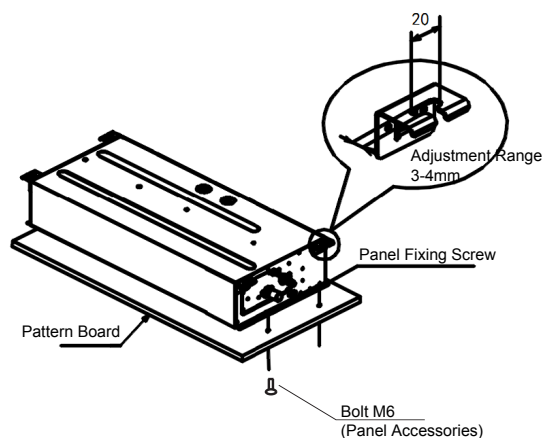


Fig. Adjustment of Distance to Indoor Unit

- (3) Cutting the Ceiling

Mount ceiling opening to the indoor unit with screws (four) by using Pattern Board. Cut the ceiling based on opening dimension of the pattern board and mount the panel.



After installation is completed, remove the pattern board off the ceiling.

Installation Details for Air Panel

- The details of installation work for air panel shall be according to the Installation Manual for Air Panel.
- Check to ensure that the connection of connectors between the indoor unit and the air panel.

14.11 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

14.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

Model	mm (in.)	
	Gas Piping	Liquid Piping
07 ~ 14	φ12.7 (1/2) ※	φ6.35 (1/4)
18	φ15.88 (5/8) ※	φ6.35 (1/4)
24	φ15.88 (5/8) ※	φ9.53 (3/8)

- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

14.11.2 Piping Connection

- (1) Position of piping connection is shown below. (Indoor Unit)

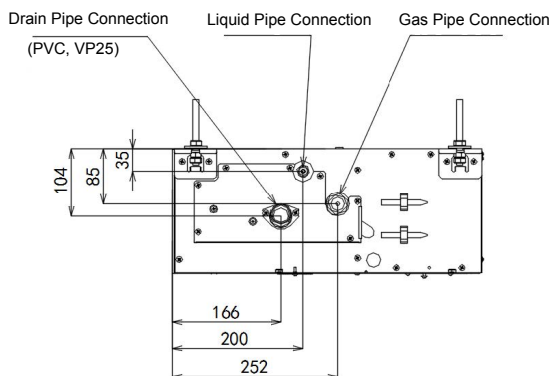
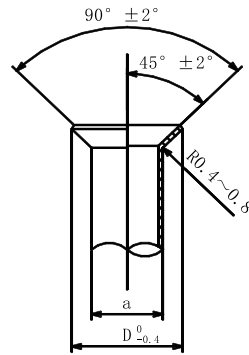


Fig. Position of Piping Connection

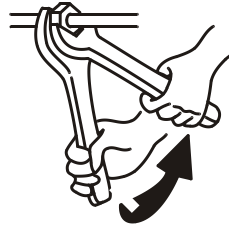
※ Flaring Dimension

Perform the flaring work as shown below.



		mm(in.)	
Pipe Diameter (a)		φ 12.7 (1/2)	φ 15.88 (5/8)
Flaring Diameter (D)	R22, R407C	16.2	19.4
	R410A	16.6	19.7

- (2) When tightening the flare nut, use two spanners as shown below.



Pipe Size	Tightening Torque (N.m)
φ6.35mm	20
φ9.53mm	40
φ12.7mm	60
φ15.88mm	80

Fig. Tightening Work of Flare Nut

- (3) After connecting the refrigerant piping, seal the refrigerant pipes by using the factory-supplied insulation material as shown below.

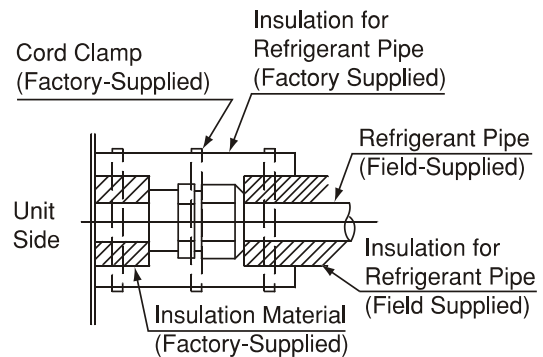
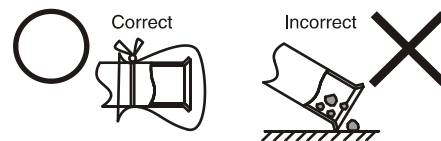


Fig. Insulation on Pipes

⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



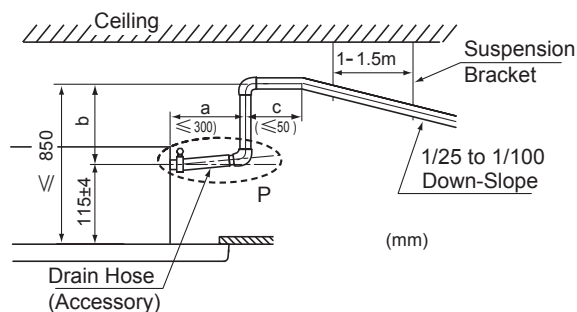
- (4) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

14.12 Drain Piping

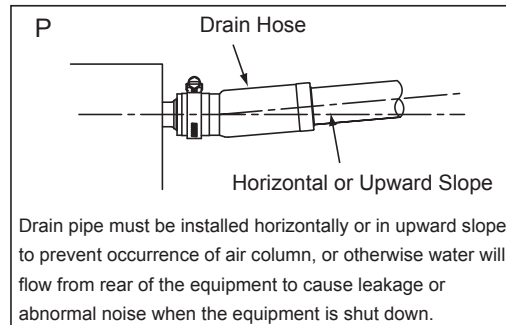
CAUTION

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the indoor unit and leakage into the room will occur when the system operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure.
- Checking with the Float Switch
 - (A) Switch ON the power supply.
 - (B) Pour 2 or 2.5 liters of water into the drain pan.
 - (C) Check to ensure that the water flows smoothly or whether no water leakage occurs.
When water cannot be found at the end of the drain piping, pour another 2 liters of water into the drain.
 - (D) Switch ON the power supply and press the RUN/STOP button.

- (1) The position of the drain pipe connection is shown below.
- (2) Prepare a polyvinyl chloride pipe with a 32mm outer diameter.
- (3) Fasten the tubing to the drain hose with the adhesive agent and the factory-supplied clamp. The drain piping must be performed with a down-slope pitch of 1/25 to 1/100.



- The total length of a+b+c shall be within 950mm.



- (a) Use the drain pipe and hose clamp provided by the manufacturer.
- (b) Do not impose too much force on the pipe joint to prevent damage to it.
- (c) Do not use any bent or twisted pipe, which may cause leakage.
- (d) Complete insert the drain pipe provided by the manufacturer, or otherwise leakage may be caused.

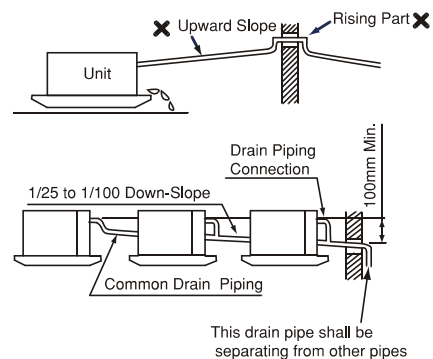
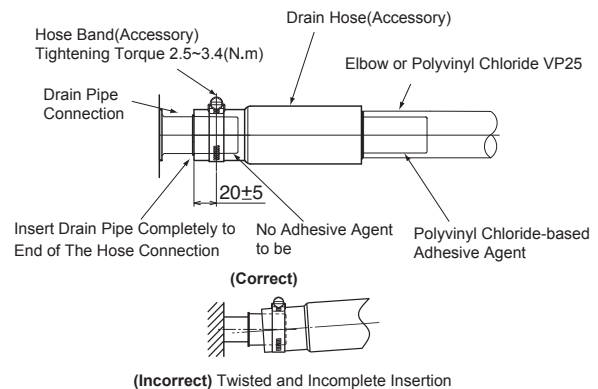
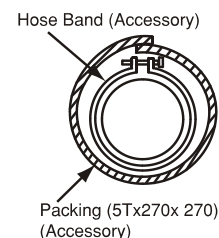


Fig. Drain Piping

- In case of lifting the drain pipe at the outlet part, perform the drain piping work as shown in the above figure.
- (4) Insulate the drain pipe after connecting the drain hose.



14.13 Electrical Wiring

WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for at least 3 minutes before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Avoid any wire from contacting with Refrigerant tube, edge of metal plate and electrical part in the equipment, or otherwise the wire may be damaged or even thereby cause fire.
- ELB with intermediate induction rate (with shorter than 0.1 second or fewer) shall be used, or otherwise electric shock or fire may be caused.
- Wire shall be fixed securely, since external force imposed to the connecting terminal may make it loose and thereby cause fire.
- Do not use the power terminal strip used for the air conditioner to sub-connect any power cable, but use power branch box to sub-connect power wire at indoor unit side instead, and be sure to calculate wire capacity, or otherwise too low capacity may cause fire.
- The system shall not be started until all inspections have been performed properly.

CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.
- Tighten screws according to the following torque.

M4:1.0~1.3 N.m
M5:2.0~2.4 N.m
M6:4.0~5.0 N.m
M8:9.0~11.0 N.m
M10:18.0~23.0 N.m

14.13.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalog I". Make sure that the components comply with National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

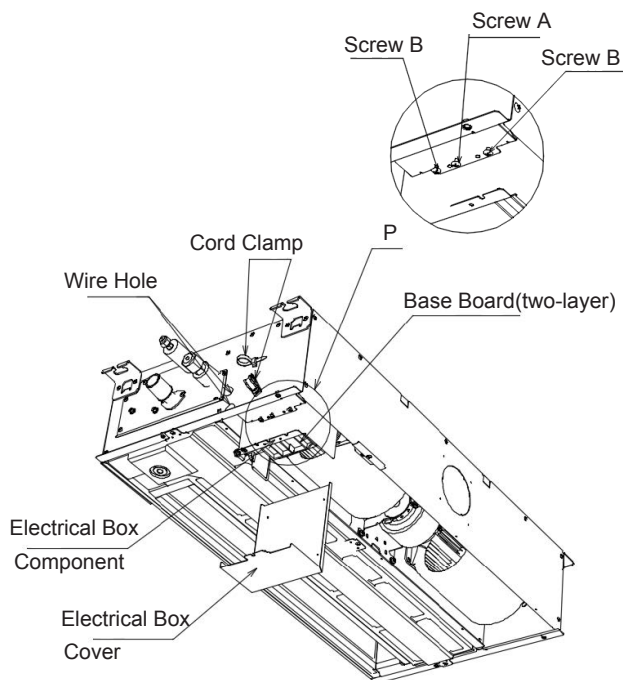
14.13.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown below. The intermediate connection between the indoor unit and the air panel should be referred to in the "Installation Manual for Air Panel".

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp.

■ Field Minimum Wire Sizes for Power Source

Refer to the item "14.15 Common".

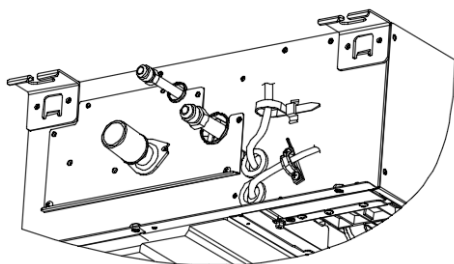


- (a) Remove electrical box cover (by loosening one screw (A)).
- (b) Loosen two screws (B) on electrical box component and pull out the component.
- (c) Fix the wire harness from connecting port to electrical box with cable clamp to prevent it from scratched by edge of container of other component.
- (d) Mount a magnetic ring to the communication wire, which shall be wound by three circles around the wire and then fixed with cord clamp provided in the accessory bag.
- (e) Upon completion of wiring, mount electrical box, and take care not to press any wire.

⚠ CAUTION

•After wire is connected to terminal board, be sure to fix it with cord clamp and lay the wire in cable tray to prevent it from being squeezed and fire caused thereby.

Transmission Wiring



Power Source Wiring

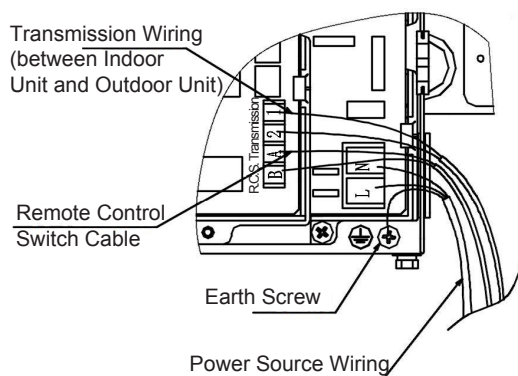


Fig. Electrical Wiring Connection for Indoor Unit

14.14 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

⚠ WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.
- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

14.15 Common

14.15.1 Field Minimum Wire Sizes for Power Source

! WARNING

- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

Field Minimum Wire Sizes for Power Source

Model	MCA	Power Source Cable Size	Transmitting Cable Size
		EN60 335-1 *1	EN60 335-1 *1
07~09	0.3A	2.5mm ²	0.75mm ²
12 ~ 14	0.4A		
18	0.5A		
24	0.8A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

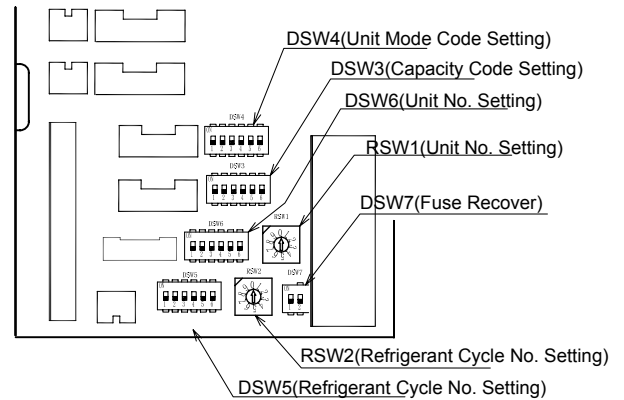
Selection According to EN60 335-1

Current (A)	Wire Size (mm ²)
I ≤ 3	2.5
3 < I ≤ 6	2.5
6 < I ≤ 10	2.5
10 < I ≤ 16	4
16 < I ≤ 25	6
25 < I ≤ 32	10
32 < I ≤ 50	16
50 < I ≤ 63	25
63 < I	※1

- ※1 In the case that current exceeds 63A, do not connect cables in series.

14.15.2 Setting of Dip Switches

(A) Position of Dip Switches



- (B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(1) Unit No. Setting (RSW1 & DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numbering must start from "0" for every outdoor unit.

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
Before shipment, DSW6 and RSW1 are set to "0". Max. 64 units are available to set when all the equipment to be connected are corresponding to Hi-NET. Max. 16 units when the units corresponding/non-corresponding to Hi-NET are combined.		Set No.1 Pin ON Set at "6"

(2) Unit Mode Code Setting (DSW4)

No setting is required.

Setting the model code of the indoor unit.



(3) Capacity Code Setting (DSW3)

NO setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

Capacity ×10 Btu/h	07	09	12
Setting Position	ON OFF	ON OFF	ON OFF
Capacity ×10 Btu/h	14	18	24
Setting Position	ON OFF	ON OFF	ON OFF

(4) Refrigerant Cycle No. Setting (RSW2 & DSW5)

Setting is required.

Setting positions before shipment are all OFF.

Refrigerant Cycle No. Setting

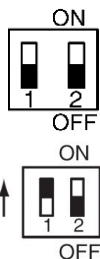
DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No. 5 Cycle
ON OFF	Setting Position Set by inserting slotted screwdriver into the groove.	DSW5 Set All Pins OFF RSW2 Set at "5"
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to HI-NET. Max. 16 cycles when the units corresponding/ non-corresponding to HI-NET are combined.		

(5) Fuse Recover (DSW7)

*Factory Setting

*In the case of applying high voltage
to the terminal 1, 2 of TB2, the fuse
on the PCB, is cut.

In such a case, firstly connect the wiring to ↑
TB2, and then turn on NO.1 pin.



NOTE

- The "■" mark indicates position of dip switches.
Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF
power source and set the position of the dip
switches. If the switches are set without
turning OFF the power source, the switches
can not function.

14.16 Setting of Automatic Swing Louver

When the SWING LOUVER switch is pressed,
the swing louver starts its operation.

When "■" is moving, it indicates the
operation of the louver continuously. When the
swinging operation of the louver is not required,
press the SWING LOUVER switch again. The
louver is stopped at an angle indicated by the
direction of this mark "■".

NOTE

- There exists a time lag between the actual
outlet air angle and the liquid crystal indication.
- When the SWING LOUVER switch is pressed,
the louver will not stop immediately. The louver
will move one extra swing at the next.
- During the cases in item (A), the louvers are
fixed automatically.
However, indication of the louvers is changed
at setting before.
(A) Outlet air angle is fixed at horizontal position
during start-up of heating operation and
defrosting operation and when
thermostat is ON.
When the outlet air temperature reaches
higher than approximately 30°C, swinging
of louvers is started.
- During the defrosting operation, fan stops
running.

CAUTION

Do not turn the air louver by hand. If moved,
the louver mechanism will be damaged.

14.17 Filter Cleaning

CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

14.17.1 Taking Out the Filter

The indication, "FILTER" is shown on the display of the remote control switch after approximately 1,200 hour operation.

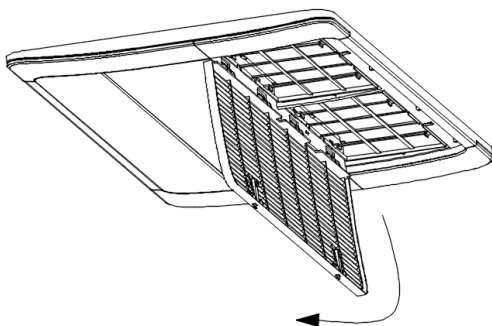
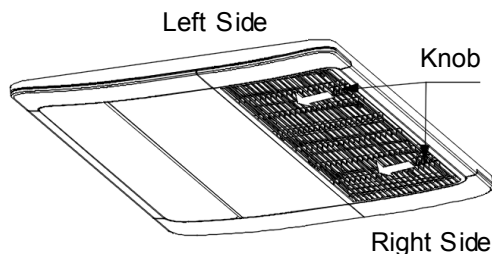
Take out the air filter according to the following steps.

Step 1

Open the air inlet grille after pushing the two knobs as shown by the arrow mark.

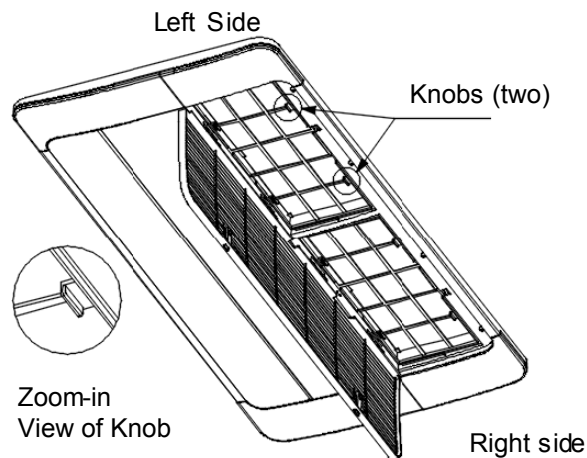
Step 2

Take out the air filter from the air inlet grille by supporting the air grille and lifting the air filter after detaching the filter from hinges.



Note:

There are two grilles on the panel of HP-E-NA, which should be removed respectively.



Remove the other filter screen in the same way.

14.17.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

14.17.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

14.18 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

14.18.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

14.18.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

14.18.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

14.18.4 This is Not Abnormal

- **Smells from Indoor Unit**
Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.
- **Sound from Deforming Parts**
During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.
- **Steam from Outdoor Heat Exchanger**
During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.
- **Dew on Air Panel**
When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.
- **Refrigerant Flow Sound**
While the system is being started or stopped, sound from the refrigerant flow may be heard.

NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.

15. Console Type

15.1 General Data

Indoor unit	Console Type						
Model Power Supply	AC 1φ, 220~240V /50Hz(60Hz)	AVK-05HJFCAA	AVK-07HJFCAA	AVK-09HJFCAA	AVK-12HJFCAA	AVK-15HJFCAA	AVK-17HJFCAA
Nominal Cooling Capacity	kW	1.5	2.2	2.8	3.6	4.5	5.0
	kcal/h	1300	1900	2400	3100	3800	4300
	Btu/h	5100	7500	9600	12300	15300	17000
Nominal Heating Capacity	kW	2.0	2.5	3.3	4.2	5.0	5.6
	kcal/h	1700	2100	2800	3600	4300	4800
	Btu/h	6800	8500	11200	14300	17000	19100
Cooling Power Consumption	kW	0.01	0.011	0.012	0.014	0.018	0.023
Heating Power Consumption	kW	0.01	0.011	0.012	0.014	0.018	0.023
Cooling Operating Current	A	0.16	0.17	0.18	0.2	0.21	0.24
Heating Operating Current	A	0.16	0.17	0.18	0.2	0.21	0.24
Fan	Type × Qty	Turbo Fan × 1					
	External Static Pressure - Pa	0	0	0	0	0	0
	Air Flow Rate (SLo/Lo/Me /Hi/HH1/HH2) -m³/h	270/282/306 /318/342/360	318/336/360 /384/420/444	336/360/384 /420/444/480	318/342/372 /408/456/492	384/396/432 /468/510/540	438/474/510 /540/582/606
Noise Level (SLo/Lo/Me/Hi/HH1/HH2)	Sound Pressure-dB(A)	24/26/28/29/30/32	26/27/29/31/32/34	27/29/31/32/35/36	27/29/31/34/36/39	32/33/35/37/39/41	36/37/39/41/43/44
Motor	Type	DC	DC	DC	DC	DC	DC
	Output-W	30	30	30	30	30	30
Cabinet Color	—	Pure White					
Fuse Rating	A	3.15A					
Net Weight	kg	16.1	16.1	16.1	17.4	17.4	17.4
Net Outer Dimensions	WxHxD-mm	700x630x225	700x630x225	700x630x225	700x630x225	700x630x225	700x630x225
Gross weight	kg	21.1	21.1	21.1	22.4	22.4	22.4
Packing Dimensions	WxHxD-mm	790x725x315	790x725x315	790x725x315	790x725x315	790x725x315	790x725x315
Packing Volume	m³	0.18	0.18	0.18	0.18	0.18	0.18
Piping Connections	—	Flare-nut Connection(with Flare Nuts)					
Liquid Line	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Gas Line	mm	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7
Condensate Drain	mm	Outer Diameter φ18					
Air filter	—	PET Long Life Filter	PET Long Life Filter	PET Long Life Filter	PET Long Life Filter	PET Long Life Filter	PET Long Life Filter
Optional Accessories	Hi-Motion	HCM-S01E	HCM-S01E	HCM-S01E	HCM-S01E	HCM-S01E	HCM-S01E
	Humidity Sensor	HCHR-S01E	HCHR-S01E	HCHR-S01E	HCHR-S01E	HCHR-S01E	HCHR-S01E

1、The nominal cooling capacity and heating capacity are based on following conditions:

Cooling Operation Conditions:

Indoor Air Inlet Temperature:27℃DB(80°F DB),19.0℃WB(66.2°FWB)

Outdoor Air Inlet Temperature:35℃DB(95°F DB)

Piping Length:7.5 Meters Piping Lift:0 Meter

Heating Operation Conditions:

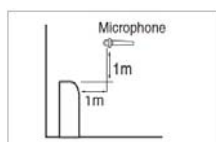
Indoor Air Inlet Temperature:20℃DB(68°F DB)

Outdoor Air Inlet Temperature:7℃DB(45°F DB),6℃WB(43°F WB)

2、The sound pressure level is based on following conditions:

It is measured in anechoic room.Operation noise differs with operation and ambient conditions.

Location of Microphone:



Notes of console indoor unit connection:

1、If the capacity of connected outdoor unit is not larger than 6HP(AVW-54*), the console indoor unit can run normally.

2、If the capacity of connected outdoor unit is larger than 6HP(AVW-54*). The following restrictions must be observed.

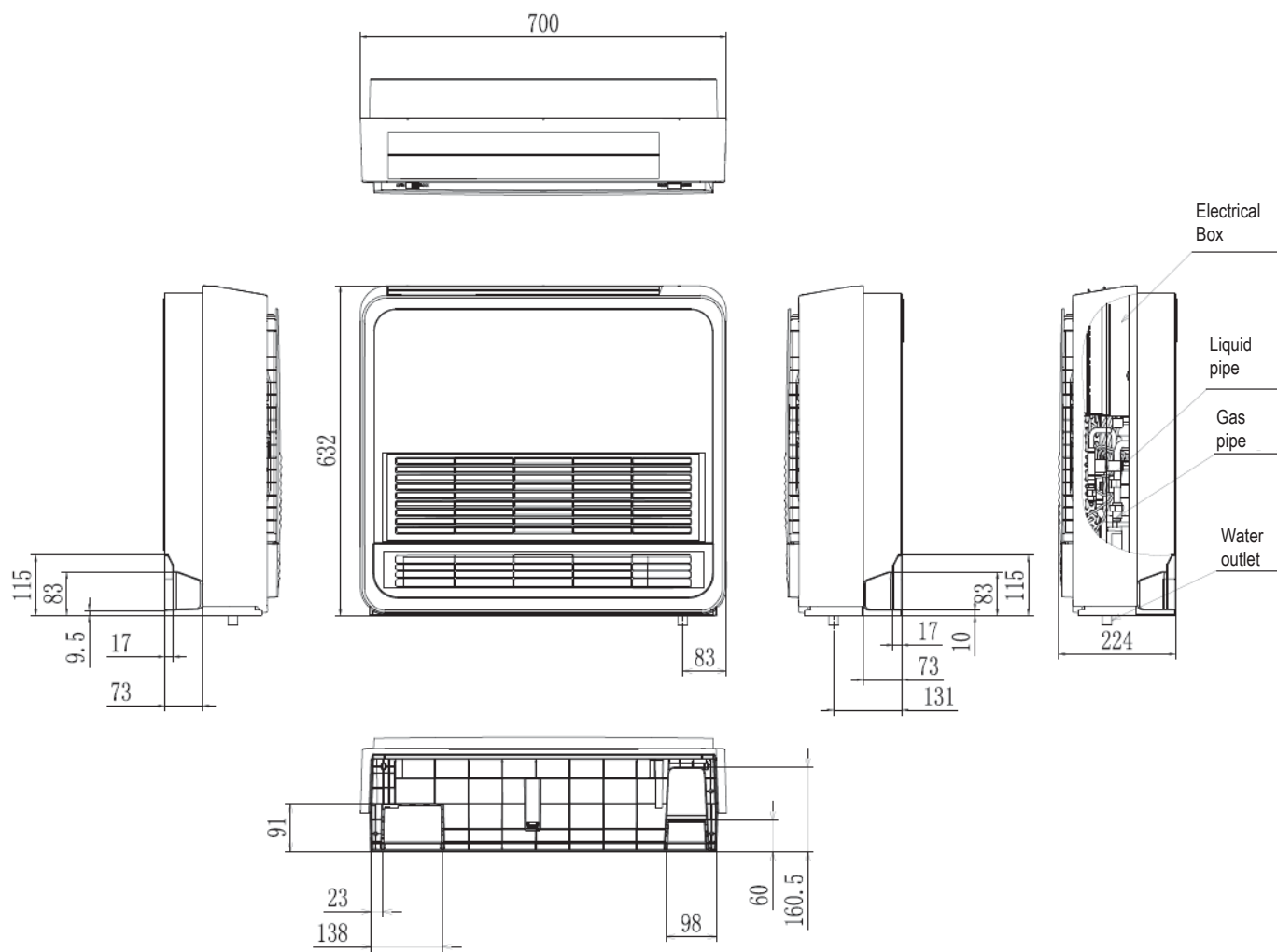
If the console indoor unit is running, the total capacity of the running indoor unit must be larger than 1HP(2.8kW or 9kBtu/h).

The requirements must be guaranteed. If not, it might cause condensation phenomenon on upper air louvre.

15.2 Dimensional Data

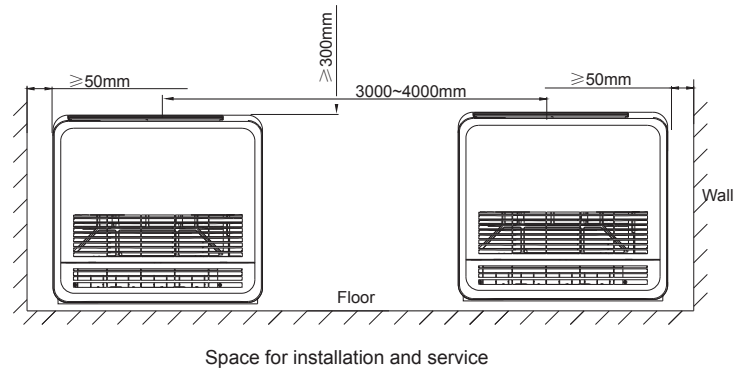
Models: AVK-05~17*

unit: mm



15.3 Selection Data

- Service Space Models:
AVK-05~17*



- Sensible Heat Factor (SHF)

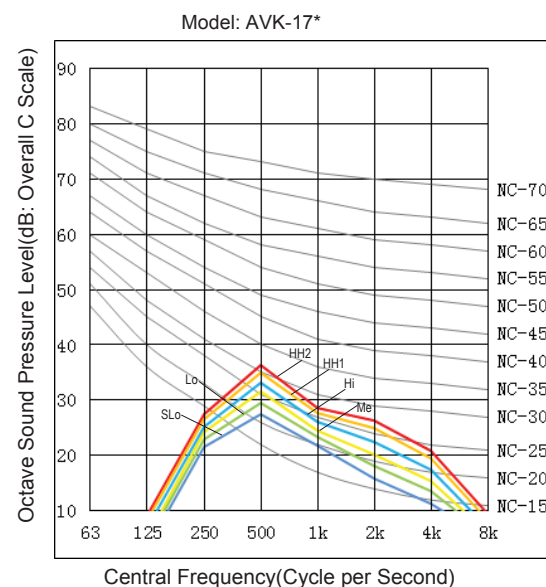
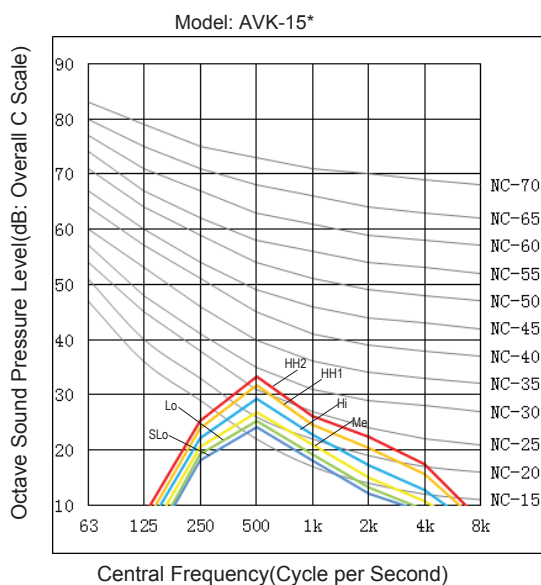
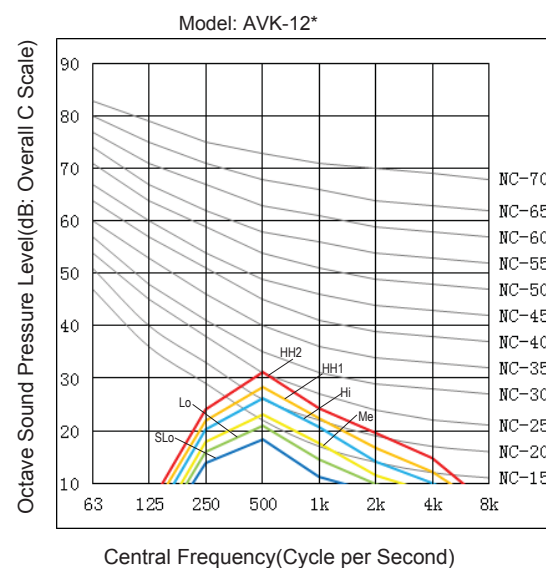
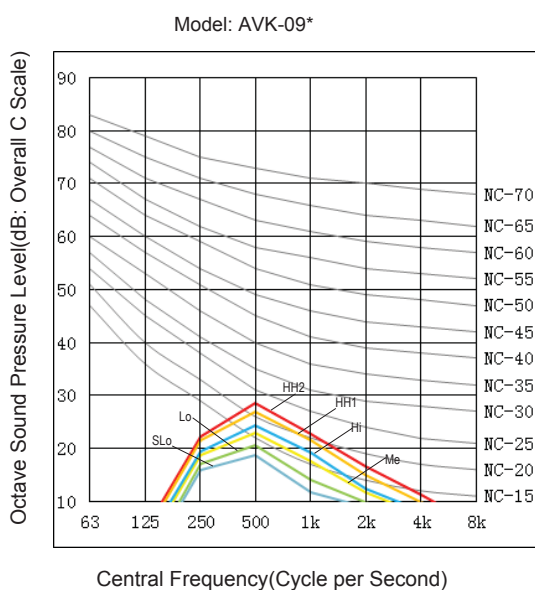
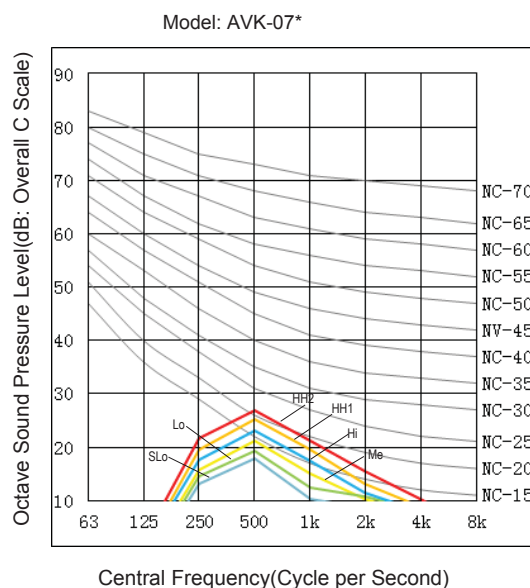
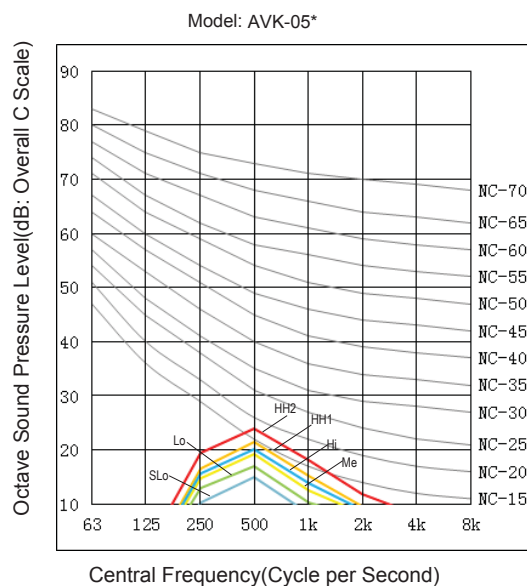
The sensible heat factor of indoor units at each fan speed (Hi, Me, Lo) is given in the below.

Indoor Unit Model	SHF					
	HH2	HH1	HI	ME	LO	SLO
AVK-05*	0.66	0.64	0.62	0.60	0.58	0.56
AVK-07*	0.66	0.64	0.62	0.60	0.58	0.56
AVK-09*	0.66	0.64	0.62	0.60	0.58	0.56
AVK-12*	0.65	0.63	0.61	0.59	0.57	0.55
AVK-15*	0.65	0.63	0.61	0.59	0.57	0.55
AVK-17*	0.65	0.63	0.61	0.59	0.57	0.55

● Sound Data

Measurement Point: 1Meters From the Unit Service Cover Surface and 1 Meters From Floor Level.

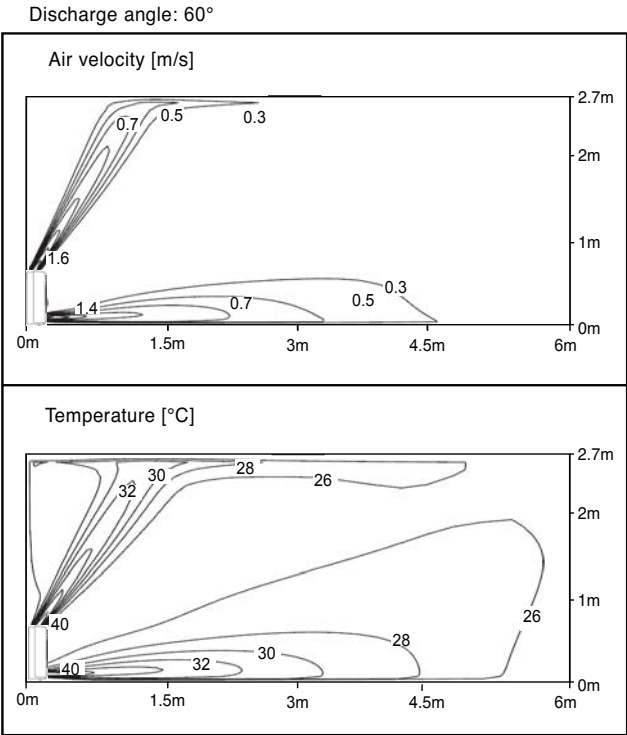
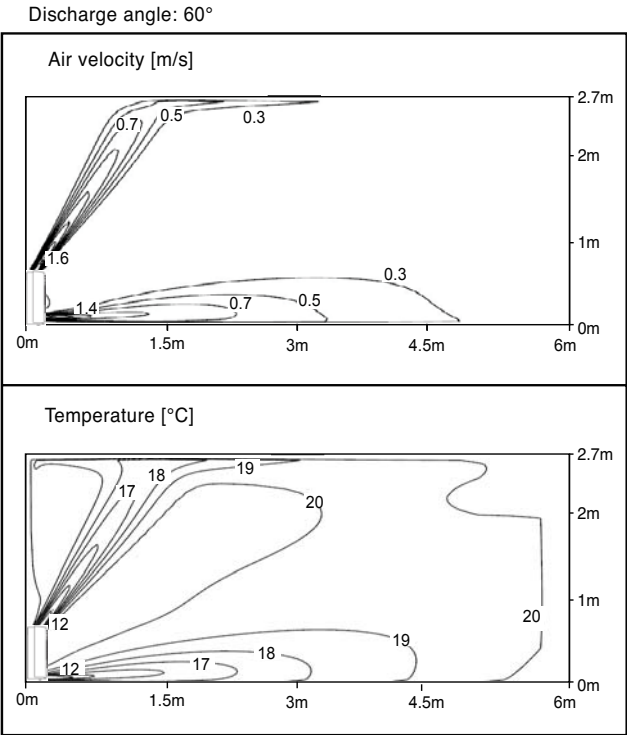
Power Supply: 220-240V~50Hz/60Hz



AVK-05*

Cooling

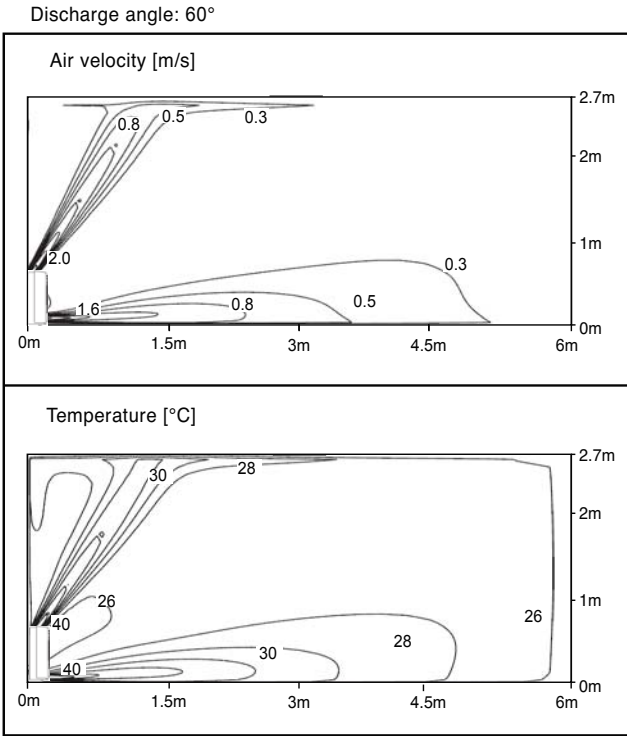
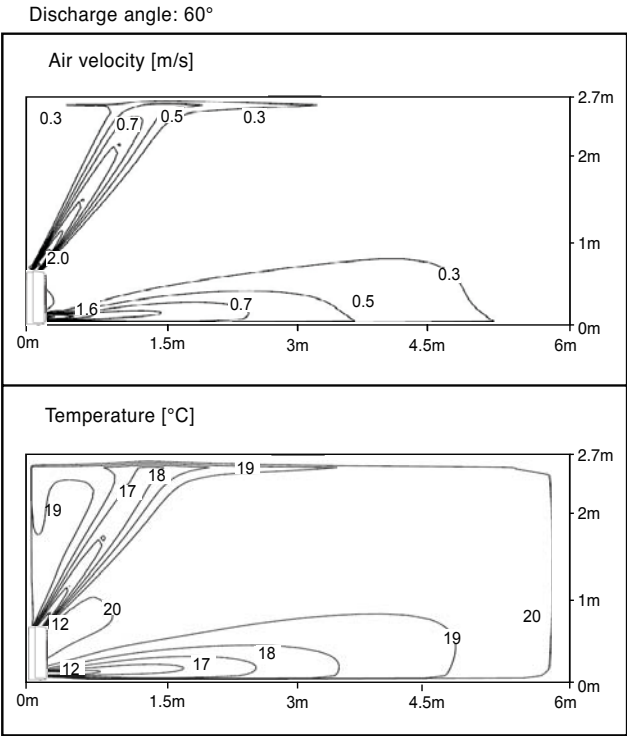
Heating



AVK-07*

Cooling

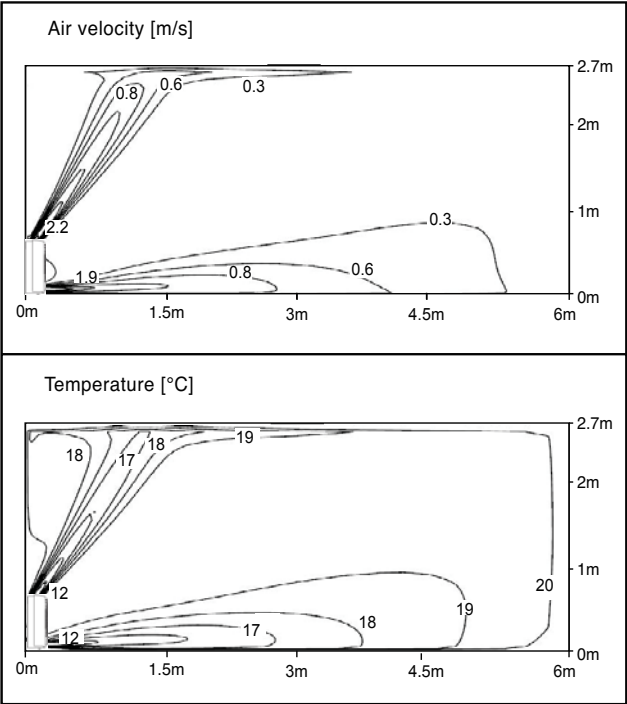
Heating



AVK-09*

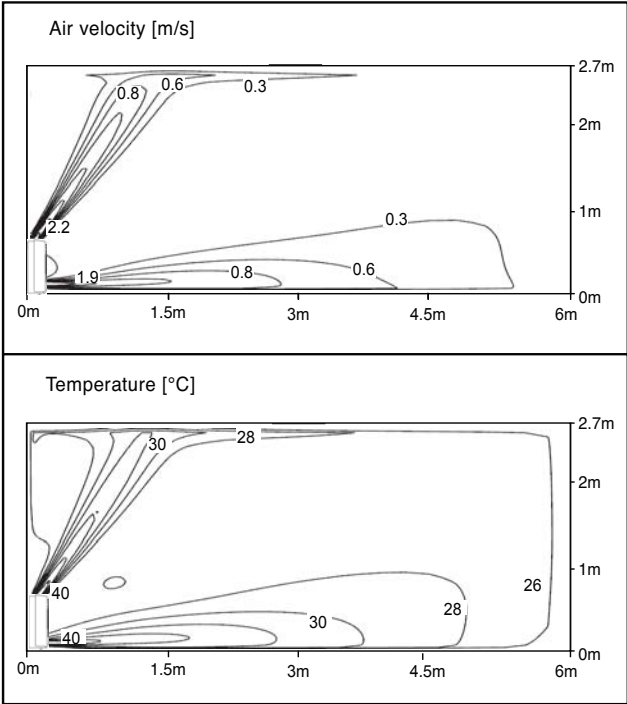
Cooling

Discharge angle: 60°



Heating

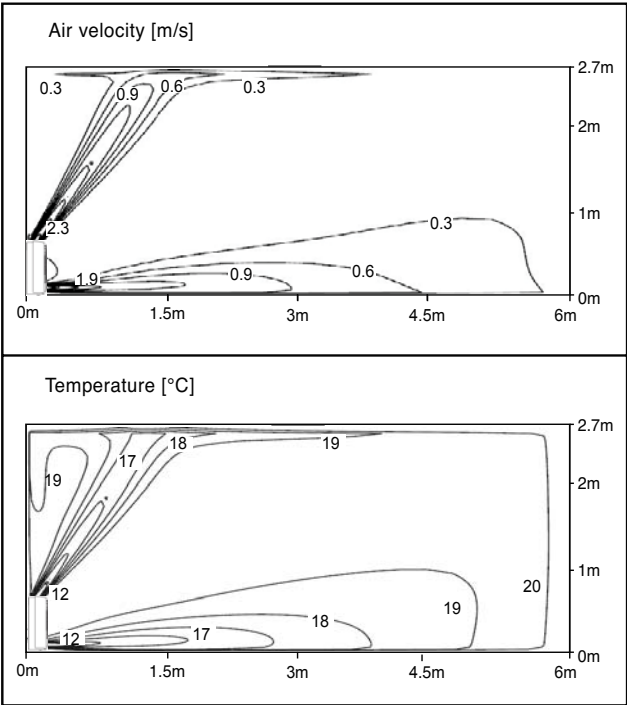
Discharge angle: 60°



AVK-12*

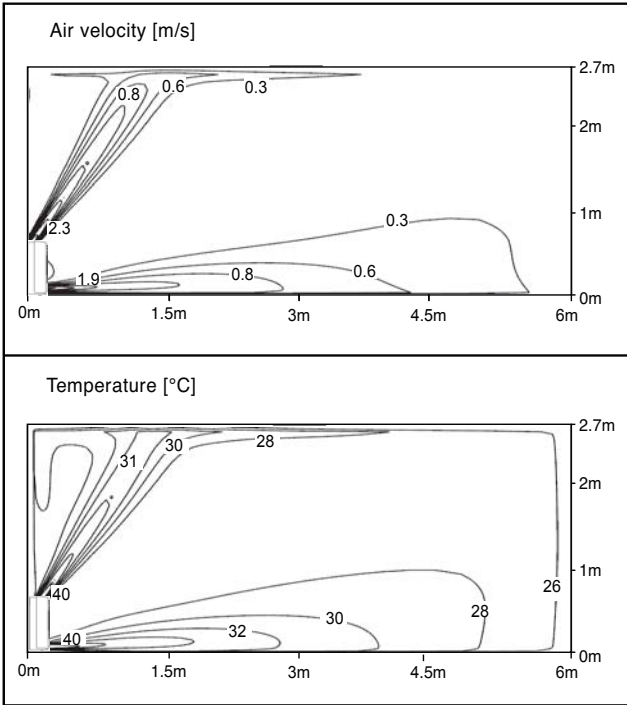
Cooling

Discharge angle: 60°



Heating

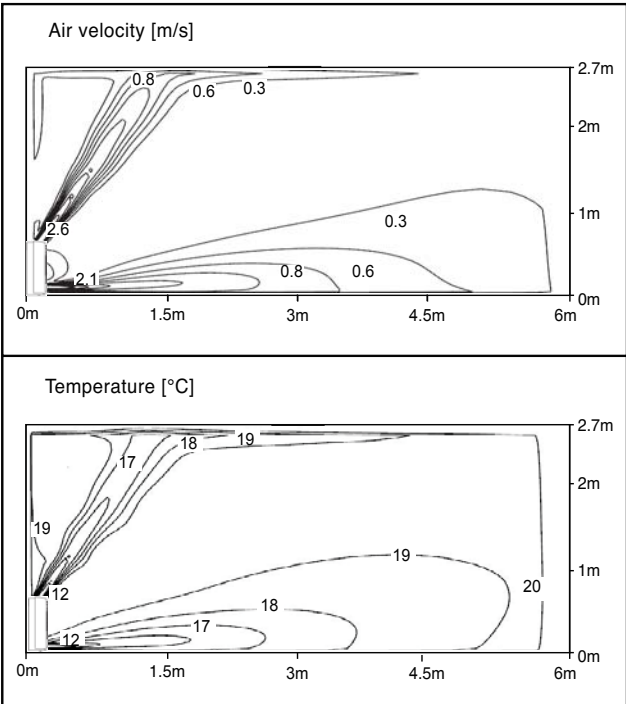
Discharge angle: 60°



AVK-15*

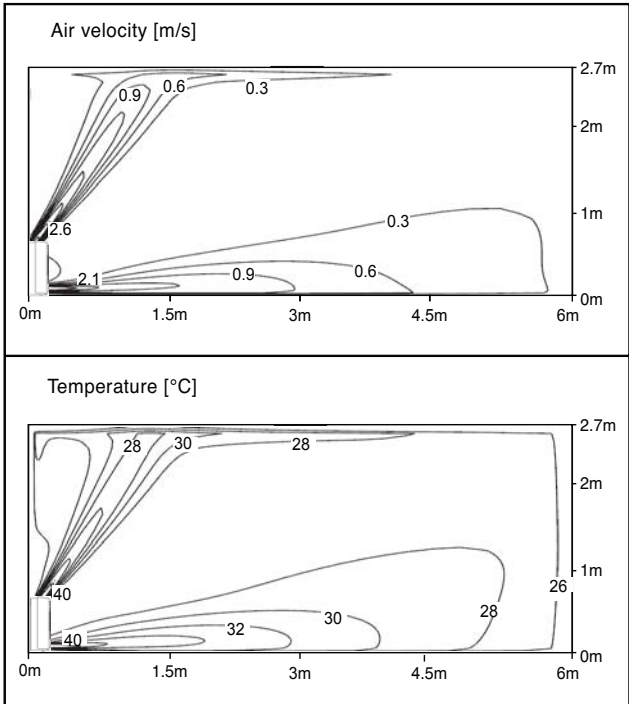
Cooling

Discharge angle: 60°



Heating

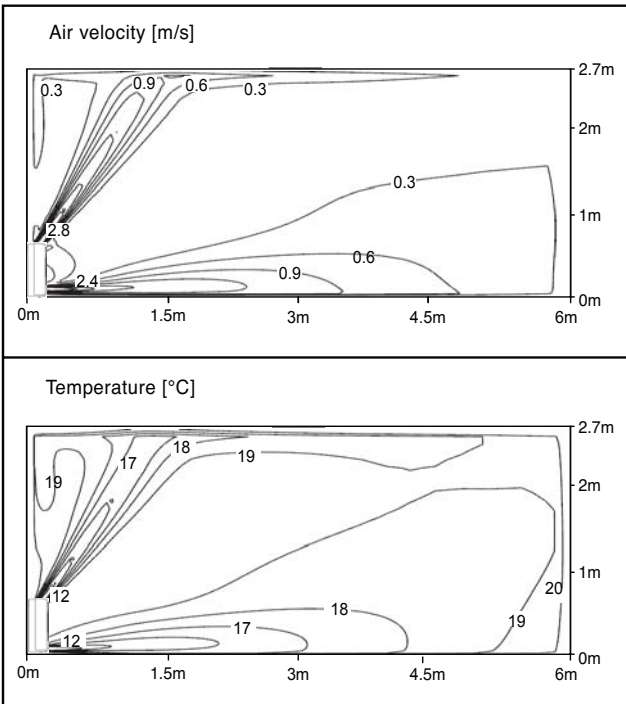
Discharge angle: 60°



AVK-17*

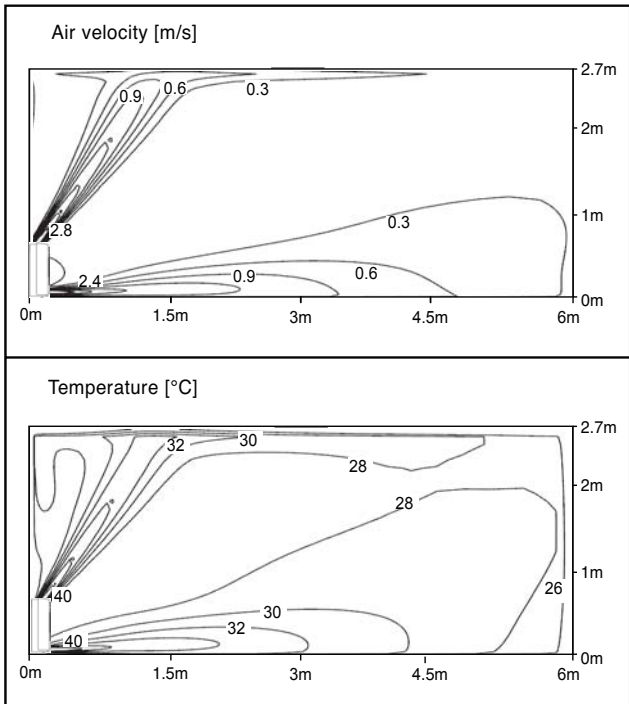
Cooling

Discharge angle: 60°



Heating

Discharge angle: 60°



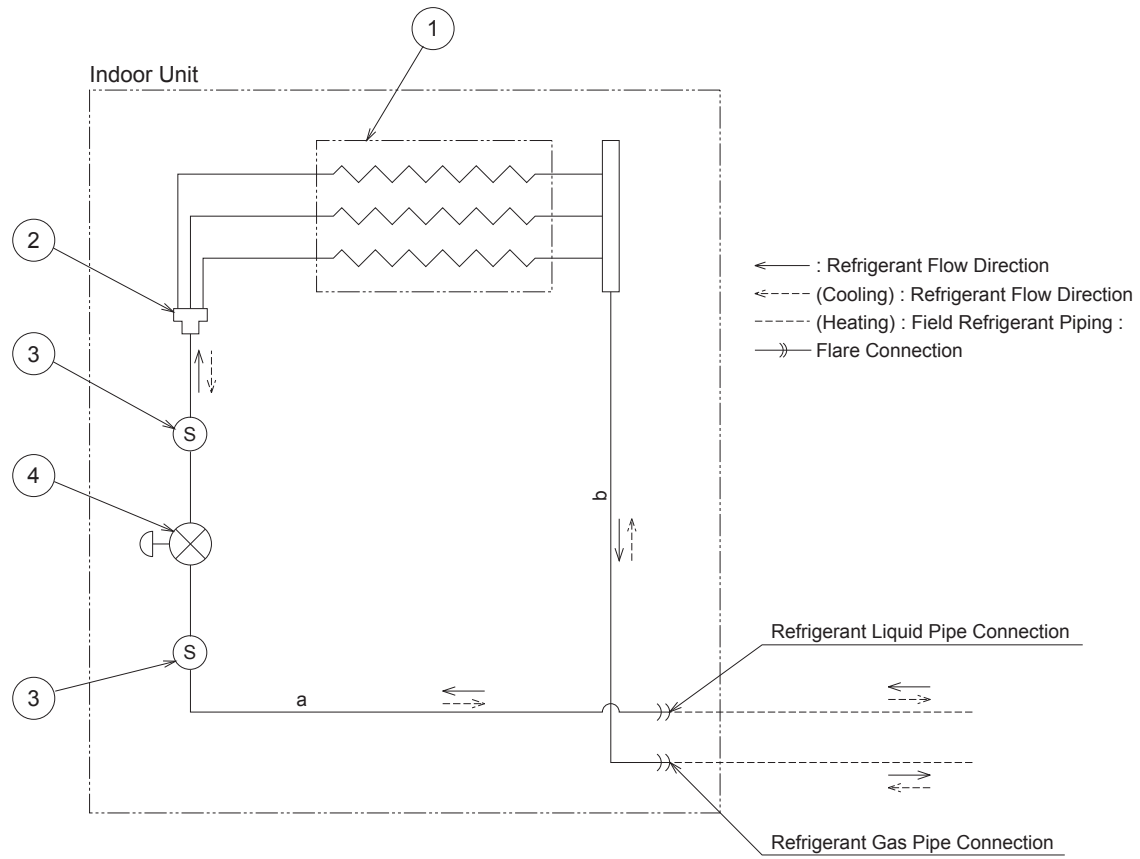
15.4 Component Data

Indoor Heat Exchanger and Fan

Model		AVK-05*	AVK-07*	AVK-09*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	5.0	5.0	5.0
Rows	–	2	2	2
Fin Material		Aluminum		
Pitch	mm	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.125	0.195	0.195
Number of Coil/Unit	–	1	1	1
Indoor Fan		Turbo Fan		
Number/Unit	–	1	1	1
Outer Diameter	mm	370	370	370
Nominal Air Flow	m ³ /h	270/282/306/318/342/360	318/336/360/384/420/444	336/360/384/420/444/480
Indoor Fan Motor		DC motor		
Starting Method	–	(Soft starting)		
Nominal Output	W	30	30	30
Quantity	–	1	1	1
Insulation Class	–	B	B	B

Model		AVK-12*	AVK-15*	AVK-17*
Heat Exchanger Type	–	Multi-Pass Cross Finned Tube		
Tube Material		Copper Tube		
Outer Diameter	mm	5.0	5.0	5.0
Rows	–	3	3	3
Fin Material		Aluminum		
Pitch	mm	1.3	1.3	1.3
Maximum Operating Pressure	MPa	4.15	4.15	4.15
Total Face Area	m ²	0.195	0.195	0.195
Number of Coil/Unit	–	1	1	1
Indoor Fan		Turbo Fan		
Number/Unit	–	1	1	1
Outer Diameter	mm	370	370	370
Nominal Air Flow	m ³ /h	318/342/372/408/456/492	384/396/432/468/510/540	438/474/510/540/582/606
Indoor Fan Motor		DC motor		
Starting Method	–	(Soft starting)		
Nominal Output	W	30	30	30
Quantity	–	1	1	1
Insulation Class	–	B	B	B

15.5 Refrigeration Cycle



Mark	Part Name
1	Heat Exchanger
2	Distributor
3	Strainer
4	Micro-Computer Control Expansion Valve

15.6 Electrical Data

Indoor Unit

Model		Unit Main Power			Applicable Voltage		Indoor Unit	
		VOL	PH	Hz	Maximum	Minimum	RNC	IPT
Console Indoor Unit	AVK-05*	220~240	1	50/60	264	198	0.16	0.01
	AVK-07*						0.17	0.011
	AVK-09*						0.18	0.012
	AVK-12*						0.2	0.014
	AVK-15*						0.21	0.018
	AVK-17*						0.24	0.023

VOL: Rated Unit Power Supply Voltage (Plated)(V)

PH: Phase (φ)

HZ: Frequency (Hz)

RNC: Running Current (A)

IPT: Input (kW)

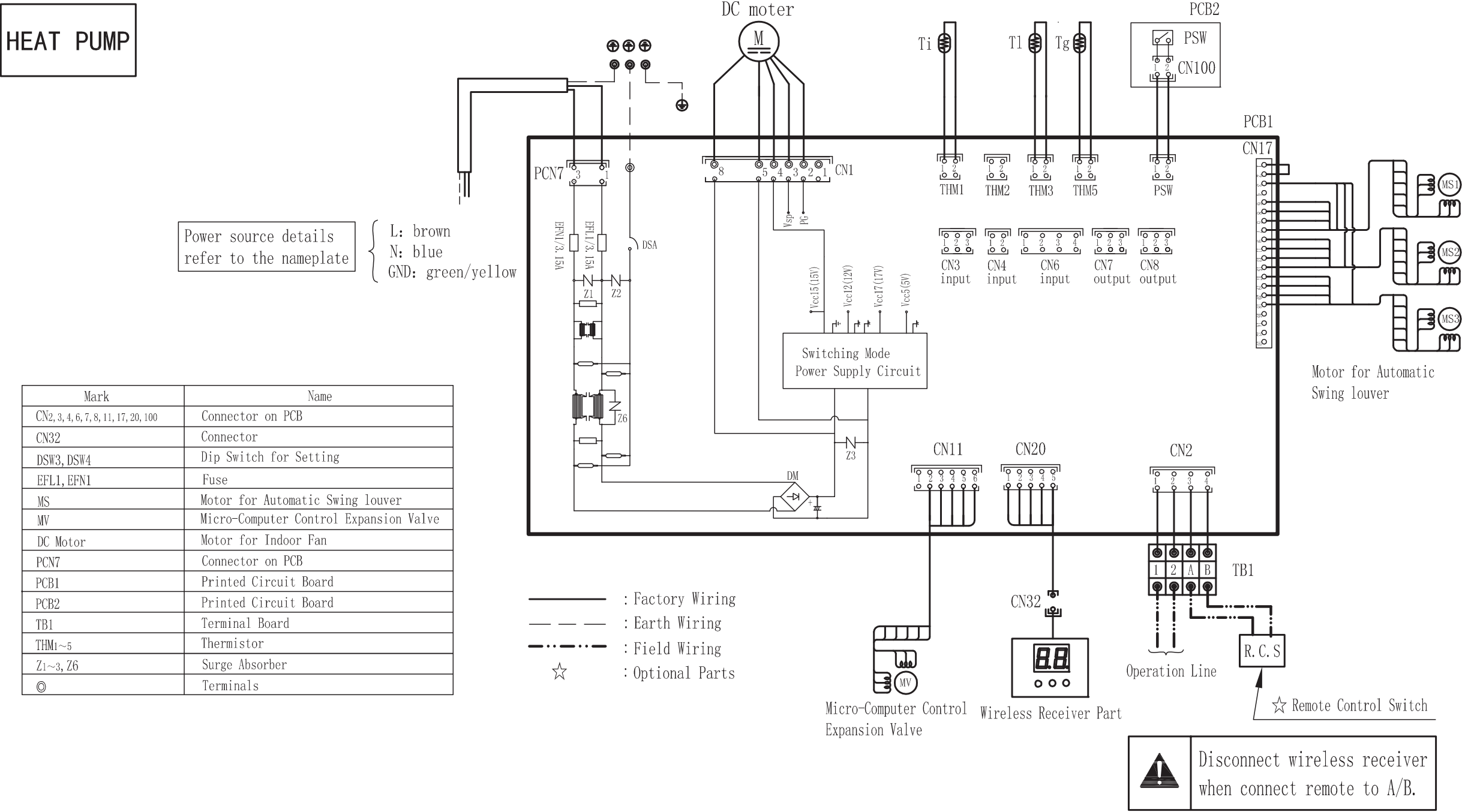
Safety and Control Device Setting

Indoor Unit

Model			AVK-05~17*
For Evaporator Fan Motor Thermostat	Cut-Out	°C	110±5
	Cut-In	°C	92±5
For Control Circuit Fuse Capacity		A	3.15
Freeze Protection Thermostat	Cut-Out	°C	0
	Cut-In	°C	14
Thermostat Differential		°C	2

15.7 Electrical Wiring Diagram

Model: AVK-05~17*



⚠ WARNING

⚡

Before inspecting the electrical parts, set the Operation Switch to OFF and cut OFF the power supply!

Note :

1. All the field wiring and equipment must comply with local codes.

15.8 Indoor Unit Optional Parts

Optional Parts		Applied Indoor Unit Type
Type	Model	Console Type
Wire Remote Control Switch	HYXE-J01H	●
	HYXE-J01H1	●
	HYXE-J01H2	●
	HYXE-VA01	●
	HYXE-M01H	●
	HYXM-VB01	●
	HYXM-VB01#01	●
Wireless Remote Control Switch	HYE-W01	●(standard)
Humidity Sensor	HCHR-S01E	●
Motion Detector	HCM-S01E	●
7 Day Timer	HYDE-E01H	●
Control Station	HYJ-J01H	●
	HYJM-S01H	●
	HCCS-H128H2C1YM	●
	HCCS-H128H2C1NM	●
	HYJE-H01H (Hi-MIT)	●(APP)
Interface for Building Control	HCPC-H2M1C	●
Switch Box	HCH-160D	●
	HCH-280D	●

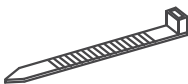
15.9 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Table: Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Installation Template 	1	For Unit Hanging And Adjustment
Pipe Insulation 	1	For Refrigerant Piping Connection
Wire Tie 	4	For Fixing electric Wiring and Insulation of Piping
Mounting Plate 	1	For Wall Install
Wireless Remote Control 	1	For Controlling the Unit
Wire Tie 	1	For fixing the magnetic ring
Magnetic Ring 	1	For resisting EMI

15.10 Installation

15.10.1 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in below Fig. 15.1.
- Select the suitable areas to install the unit under approval of the user.
- The air passage is not blocked.
- Condensate can drain properly.
- The wall is strong enough to bear the weight of the indoor unit. If there is a risk that the wall is not strong enough, reinforce the wall before installing the unit.
- Sufficient clearance for maintenance and servicing is ensured.
- When plural indoor units are installed nearby, keep them away for more than 3-4m.

Space for installation and service

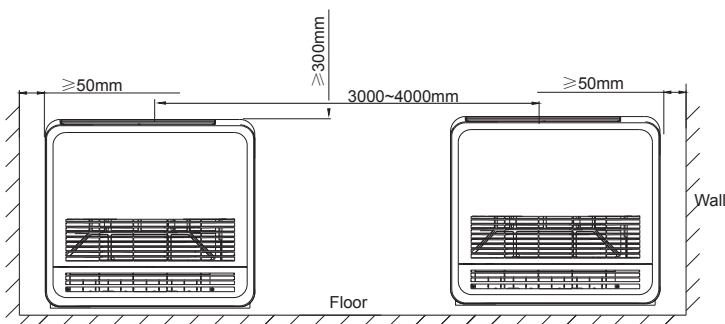


Fig. Space for installation and service

- Check to ensure that the **wall** has a sufficient strength to hang the indoor unit.
- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
 - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
 - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
 - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
 - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

15.10.2 Exposed Installation

Installation Template

- (1) Template Board for installation is in the packing carton of indoor unit. Use it to decide an installation location and direct on on the unit.
- (2) Press the Template Board tightly onto the surface draw out the hole position for suspension bolts with a pencil.
- (3) Drill a hole (65mm in diameter) in the spot indicated by "○" symbol in installation template as below.
- (4) The location of the hole is different depending on which side of the pipe is taken out.
- (5) Allow space around the pipe for an easier indoor unit pipe connection.

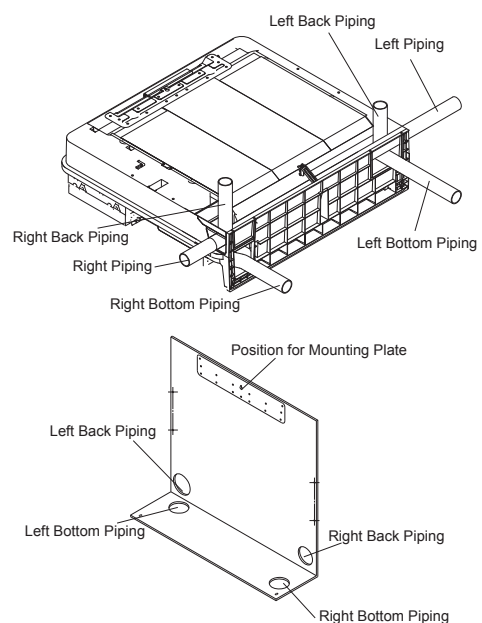
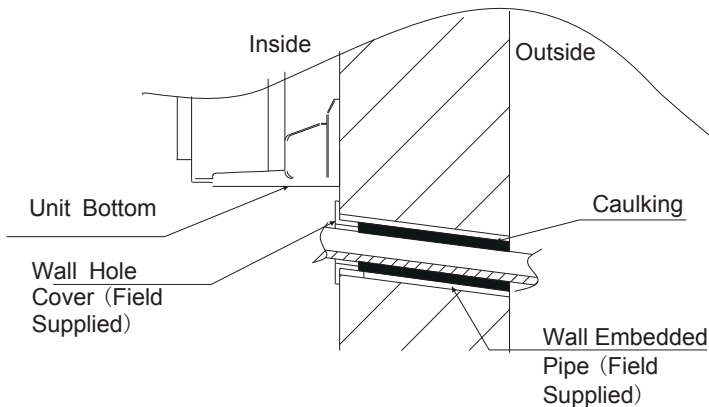
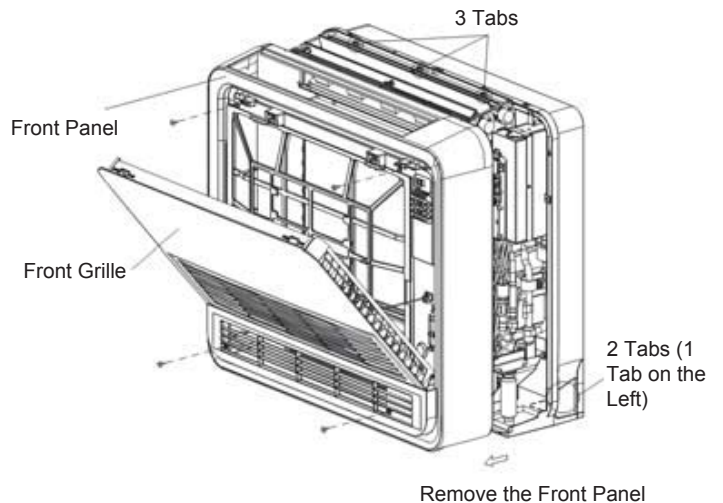


Fig.15.1 Installation Template

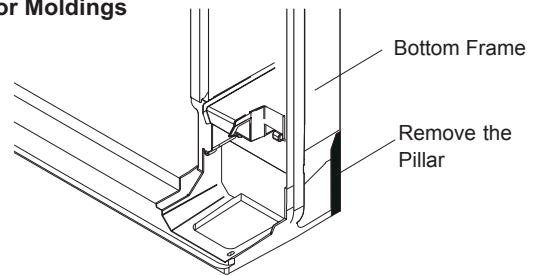
15.10.3 Boring a wall hole and installing wall embedded pipe

- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.

- (1) Bore a feed-through hole of 65mm in the wall so it has a down slope toward the outside.
- (2) Insert a wall pipe into the hole.
- (3) Insert a wall cover into wall pipe.
- (4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.



For Moldings

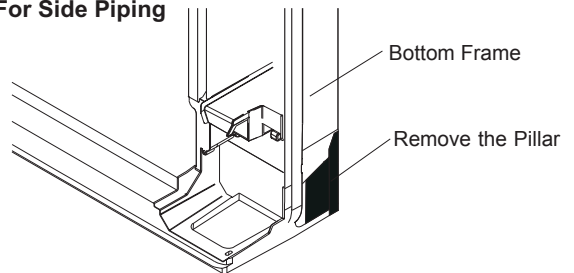


15.10.4 Installing indoor unit

Preparation

- Open the front grille, remove the 4 screws and dismount the front panel while pulling it forward.
- Follow the procedure below when removing the slit portions.
 - **For Moldings**
 - Remove the pillars. (Remove the slit portions on the bottom frame using nippers.)
 - **For Side Piping**
 - Remove the slit portions on the bottom frame using nippers.

For Side Piping



CAUTION

- . When you choose the left piping, you only need to remove the left pillars.
- . When you choose the right piping, you only need to remove the right pillars.

15.10.5 Installing styles

Floor and wall installation

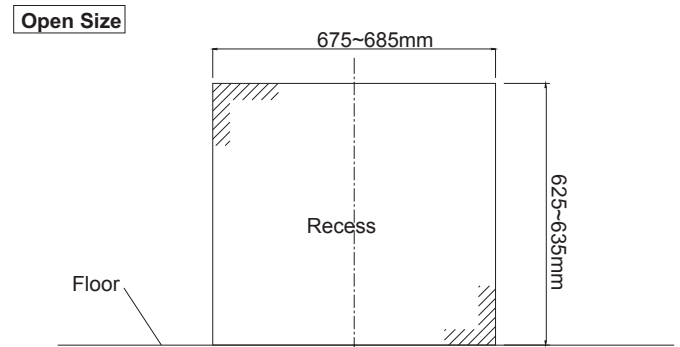
- Secure using 6 screws for floor installations.(Do not forget to secure to the wall behind.)
 - For wall installation, secure the mounting plate using 5 screws and the indoor unit using 4 screws.
 - The mounting plate should be installed on a wall which can support the weight of the indoor unit.
- (1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
 - (2) Secure the mounting plate to the wall with screws.
 - (3) Once refrigerant piping and drain piping connections are completed, fill in the gap of the through hole with putty. A gap can lead to condensation on the refrigerant pipe and drain pipe, and the entry of insects into the unit.
 - (4) Attach the front panel and front grille in the original positions once all connections are completed.

15.10.6 Half Concealed Installation

Only items peculiar to this installation method are given here.

Wall Recess

- Drill a wall recess of the size shown in the illustration on the right.

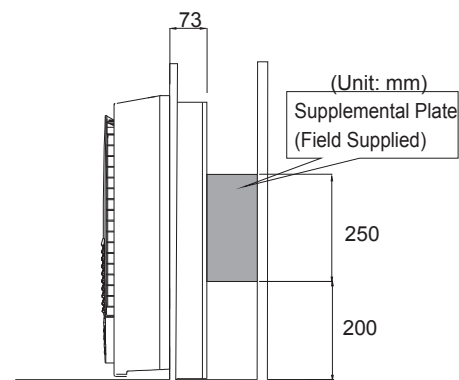
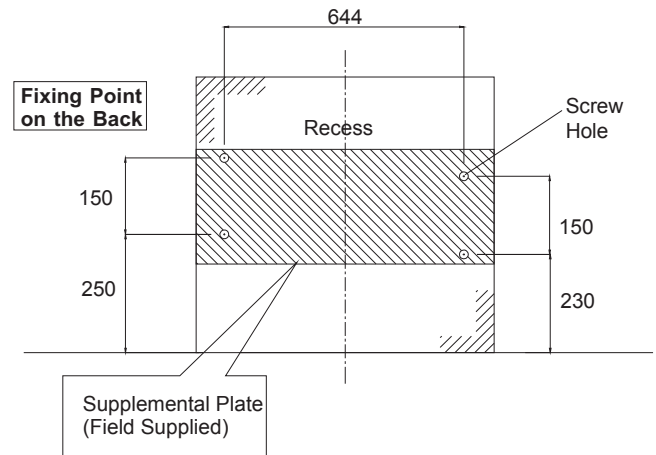


Installation of supplemental plate

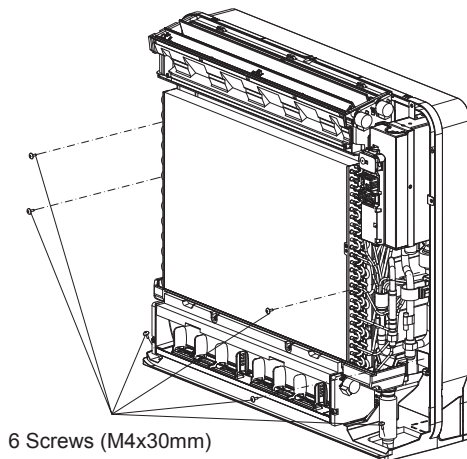
- The rear of the unit can be fixed with screws at the points shown in the illustration below.

Be sure to install the supplemental plate in accordance with the depth of the inner wall.

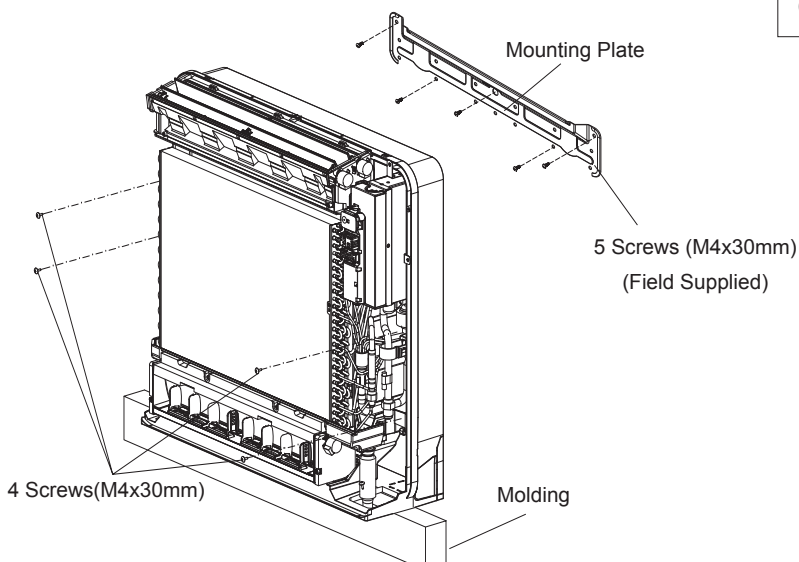
Unit: mm



Floor Installation



Wall Installation

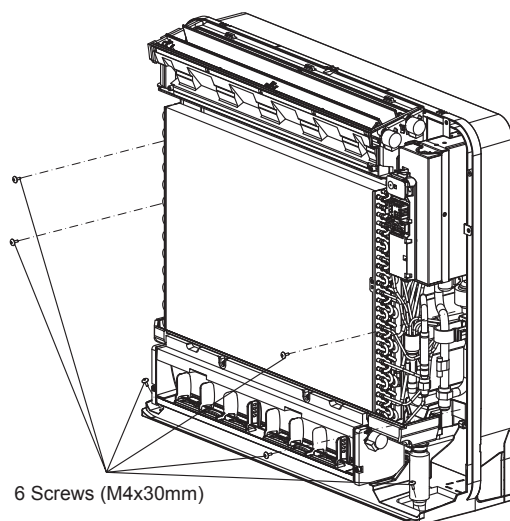


 CAUTION

- The supplemental plate for installing the main unit must be used, or there will be a gap between the unit and the wall.

Installation of indoor unit

- (1) Remove the front panel.
- (2) Attach the indoor unit to the wall and secure using screws in 6 locations (M4x30mm).



 CAUTION

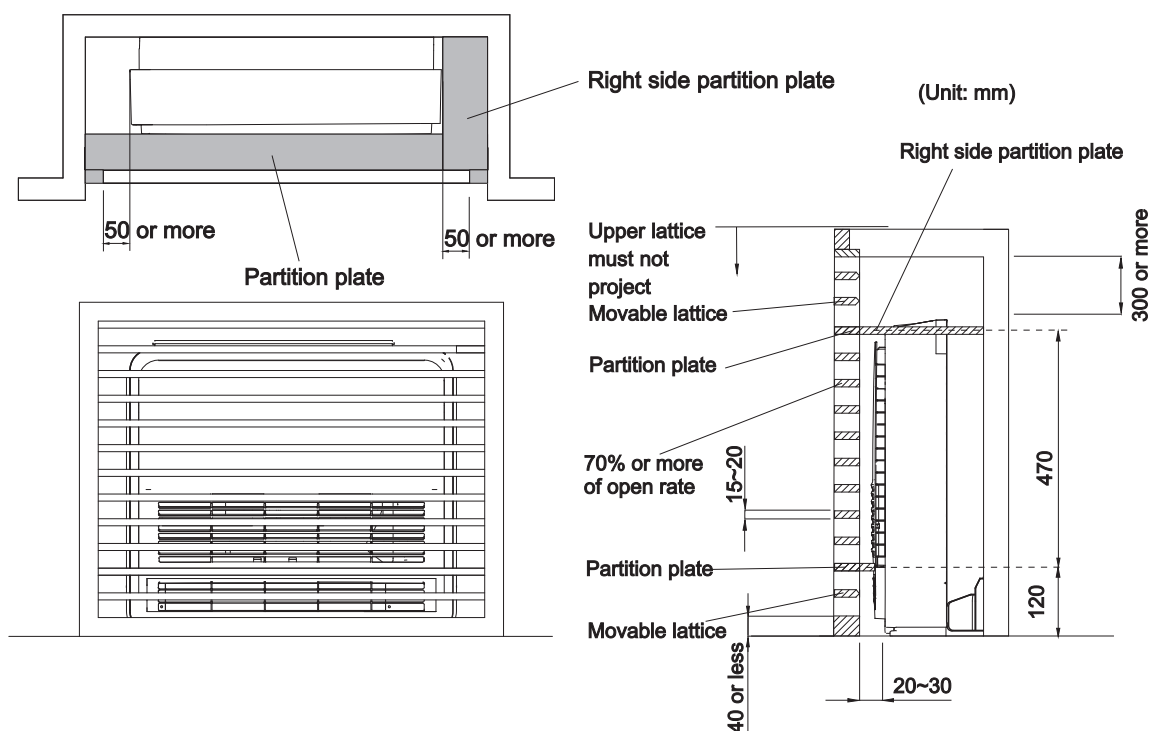
- Use drain pan edge for horizontal projection of the indoor unit.
- Install the indoor unit parallel with wall.

15.10.7 Concealed Installation

Only items peculiar to this installation method are given here.

Install the unit according to the instructions below. Failure to do so may cause both cooling and heating failure and the condensation inside the house.

- (1) Allow enough space between the main unit and ceiling not to obstruct the flow of cool/warm air.
- (2) Place a partition plate between outlet and inlet sections.
- (3) Place a partition plate on the right side.
- (4) Change the angle of upper air outlet louver to enable successful air output.
- (5) Use a movable lattice at the air outlet to allow the adjustment of cool/warm air flow direction.
- (6) Lattice size should be 70% or more of open rate.

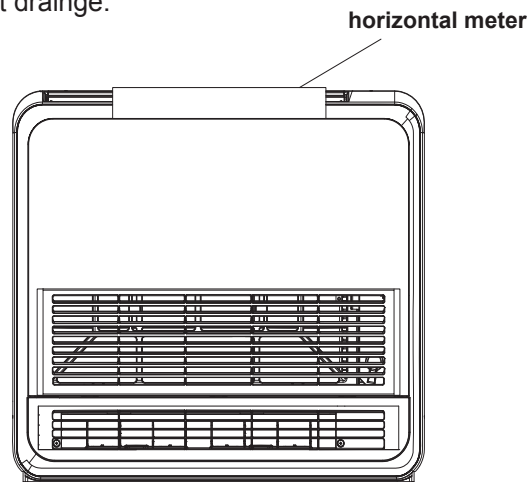


15.10.8 Installation Check

The levelness of installed machine must be corrected with a level.

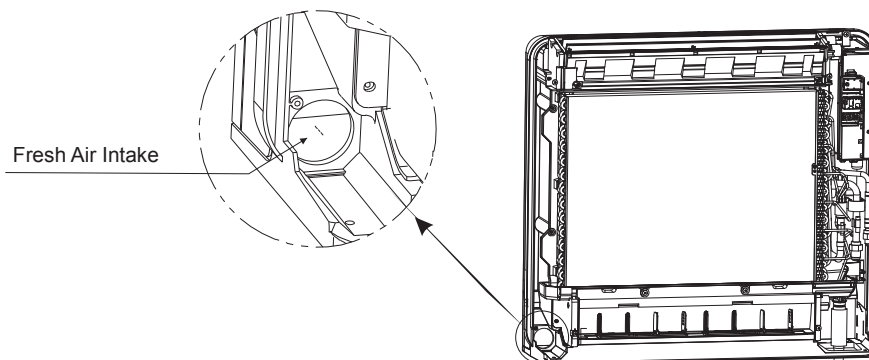


- The machine shall in no case be inclined opposite to the drain opening of water pan, since this may lead to inefficient drainage.



15.10.9 Fresh Air Intake

The unit refreshes your house with a pipe through the Fresh Air Intake.



15.11 Refrigerant Piping Work

⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

15.11.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

Piping Size			mm (in.)
Model	Gas Piping	Liquid Piping	
05-17	Φ12.7(1/2)	Φ6.35(1/4)	

- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

15.11.2 Piping Connection

- (1) The connection positions of the pipe are shown in the figure below.

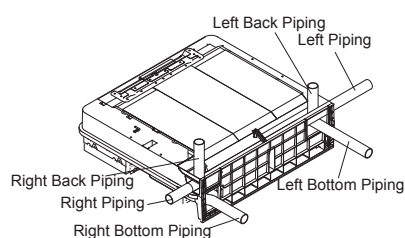


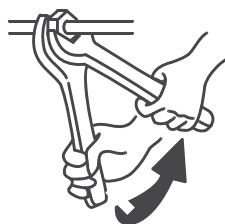
Fig. The Connection Positions of the Tube

NOTE

Cut out the knock-out hole along the groove in the cover using saw blade to avoid sharp edges if piping from right side.

Seal the clearance around pipes with seal material to prevent ingress of dirt and protect wires from damage by sharp edge after piping and wiring .

- (2) When tightening the flare nut, use two spanners as shown in Fig. 5.2.

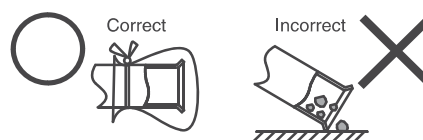


Pipe Size	Tightening Torque (N.m)
Φ6.35mm	20
Φ9.53mm	40
Φ12.7mm	60
Φ15.88mm	80
Φ19.05mm	100

Fig. Tightening Work of Flare Nut

⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- (3) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the indoor unit.

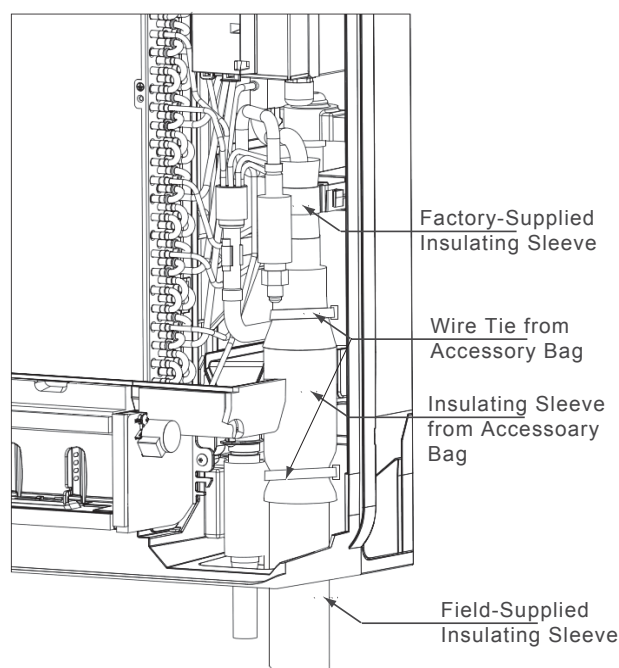


Fig. Banding Method for Gas Pipe Insulating Sleeve

The factory-supplied and field-supplied insulating sleeves must be wrapped with the insulating sleeve from accessory bag, which must be then tied tightly with two wire ties as shown in the figure above. Failure to do so may cause the condensate to damage the floor, which is likely to result in customer complaints.

15.12 Drain Piping

- (1) Use commercial rigid polyvinyl chloride pipe
(outer diameter 26mm, inner diameter 20mm)
for drain pipe.
- (2) The drain hose (315mm long) are supplied with
the indoor unit.
- (3) The drain pipe should be inclined downward at
a gradient at least 1/100 so that water will flow
smoothly without any accumulation. (Should not be
trap.)
- (4) Insert the drain hose to this depth (50mm or more)
so it won't be pulled out of the drain pipe.
- (5) Insulate the indoor drain pipe with 10mm or more of
insulation material to prevent condensation.
- (6) Remove the air filters and pour some water
(approximately 1000cc) into the drain pan to check
if the water flows smoothly.



CAUTION

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the indoor unit and leakage into the room will occur when the system operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly.
- Water accumulating in the drain piping can cause the drain to clog.
- Do not twist or bend the drain hose, so that excessive force is not applied to it. Failure to do so may cause water leakage.

15.13 Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Tighten screws according to the following torque.

M3.5: 1.2 N·m

! CAUTION

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.

15.13.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within $\pm 10\%$ of the rated voltage.
- (3) Check the capacity of the electrical wires.
If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch

Install a multi-pole main switch with a space of 3.5mm or more between each phase.

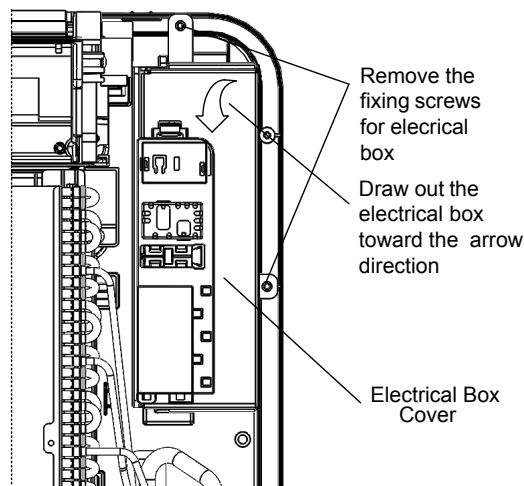


Fig. Remove electrical box

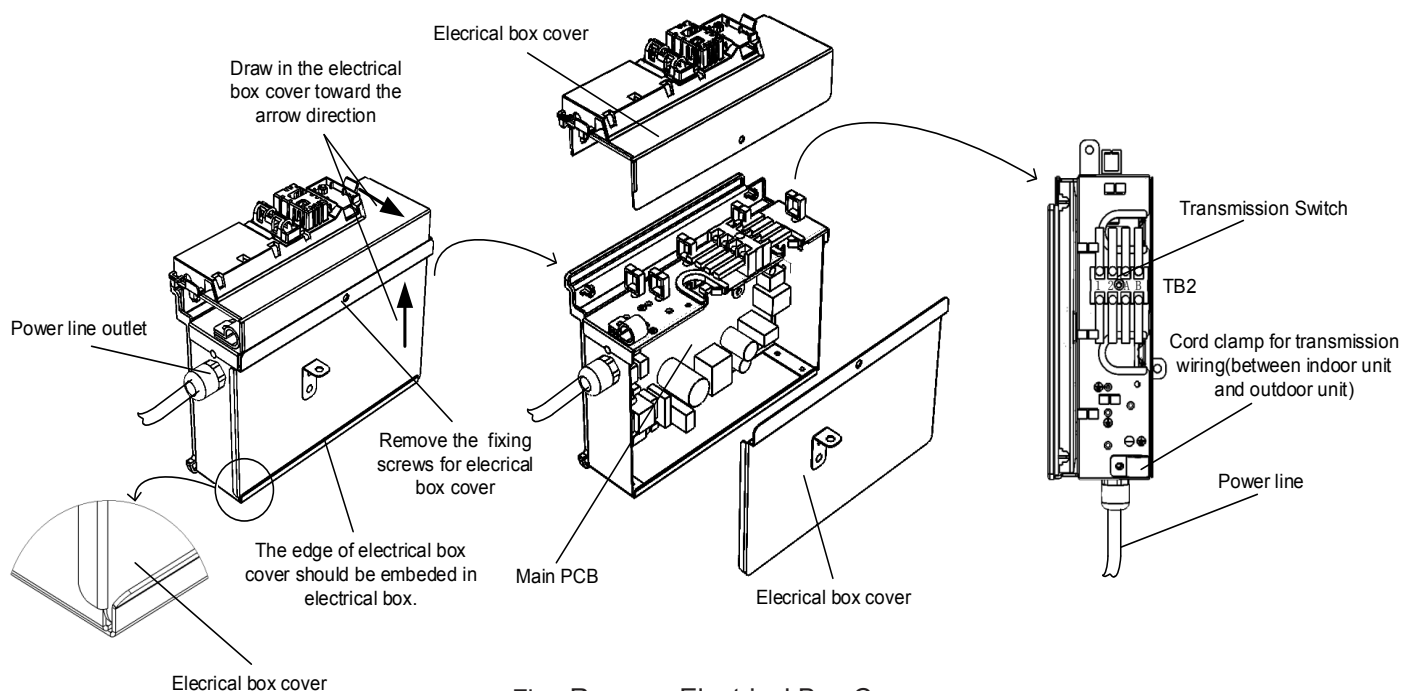


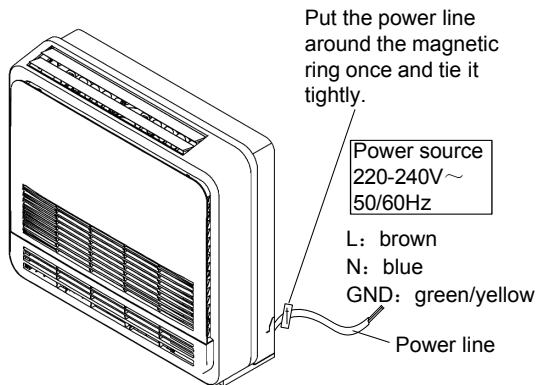
Fig. Remove Electrical Box Cover

15.13.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in the figure below.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the terminals inside the electrical box through the connecting hole.
- (2) The power supply and earth wires have been connected in the factory. Please connect to the power circuit with a **ELB**(the figure below)
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp.
- (5) Take out magnet ring and wire tie from accessory bag, put the power line around the magnetic ring once and tie it tightly.

< Power Source >



< Transmission Wiring >

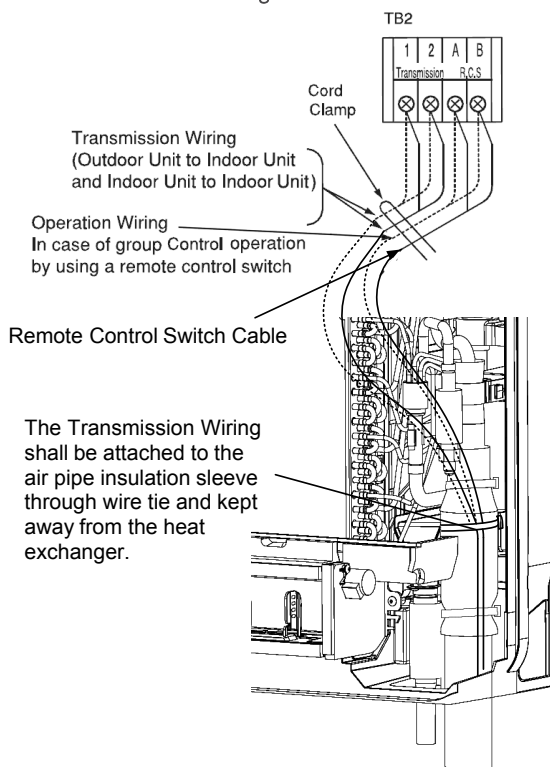


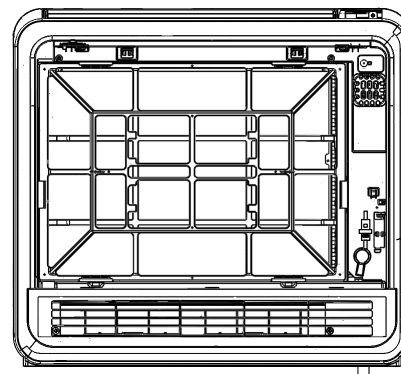
Fig. Electrical Wiring Connection for Indoor Unit

CAUTION

Before electrical wiring work, turn **OFF** the power source. If the connectors are connected without turning **OFF** the power source, the auto-swing louver can not activate.

NOTE

Wired Remote Control Switch and Wireless Remote Control Switch can not be used simultaneously. If Wired Remote Control Switch is connected, Disconnect Wireless Receiver Wiring on the left side as viewed from the discharge grilles



Remove the plastic cover
and disconnect wireless
receiver wiring

Fig. Disconnect Wireless Receiver wiring

15.14 Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

WARNING

- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
 - (C) Check to ensure that the switch on the main power source has been **ON** for more than 12 hours, to warm the compressor oil by the crankcase heater.

- Pay attention to the following items while the system is running.
 - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
 - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

15.15 Common

15.15.1 Field Minimum Wire Sizes for Power Source



- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

According to EN 60335-1	
Current (A)	Wire Size (mm ²)
$i \leq 6$	2.5
$6 < i \leq 10$	2.5
$10 < i \leq 16$	2.5
$16 < i \leq 25$	4
$25 < i \leq 32$	6
$32 < i \leq 40$	10
$40 < i \leq 63$	16
$63 < i$	※ 1

※ 1 In the case that current exceeds 63A, do not connect cables in series.

Field Minimum Wire Sizes for Power Source

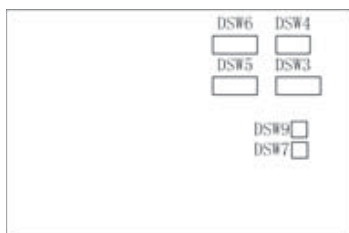
Model	Power Source	Maximum Current	Power Source Cable Size	Transmitting Cable Size
			EN60335-1 *1	EN60335-1 *1
05	220-240V ~ 50/60Hz	0.20A	2.5mm ²	0.75mm ²
07		0.21A		
09		0.23A		
12		0.25A		
15		0.27A		
17		0.30A		

NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

15.15.2 Setting of Dip Switches

(A) Position of Dip Switches

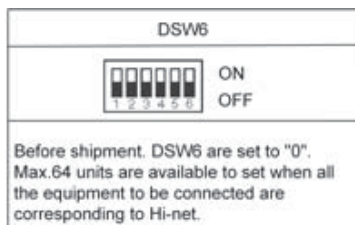


(B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

(1) Unit No. Setting(DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numberring must start from "1" for every outdoor unit

Unit No. Setting



Method for DIP Setup refer to (6)

(2) Unit Mode Code Setting(DSW4)

No setting is required.

Setting the model code of the indoor unit.



(3) Capacity Code Setting(DSW3)

NO setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

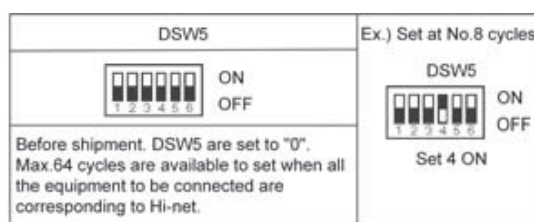
TYPE	05	07	09
DSW3	 1. 3. 5 ON	 1. 3. 4 ON	 3. 4 ON
	12	15	17
	 1. 2. 4 ON	 1. 4 ON	 4 ON

(4) Refrigerant Cycle No. Setting(DSW5)

Setting is required.

Setting positions before shipment are all OFF.

Refrigerant Cycle No. Setting



(5) Fuse Recover (DSW7)

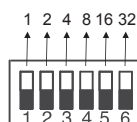
*Factory Setting

*In the case of applying high voltage to the terminal 1, 2 of TB2, the fuse (0.5A) on the PCB is cut.

In such a case, firstly connect the wiring to TB2, and then turn on NO. 1 pin.



(6) Example of Method for DIP Setup



NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

CAUTION

Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.

15.16 Filter Cleaning

CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

15.16.1 Filter Removal and Installation

The indication, "FILTER" is shown on the display of the remote control switch after approximately 300 hour operation.

The indication, "FC" is shown on the display panel.

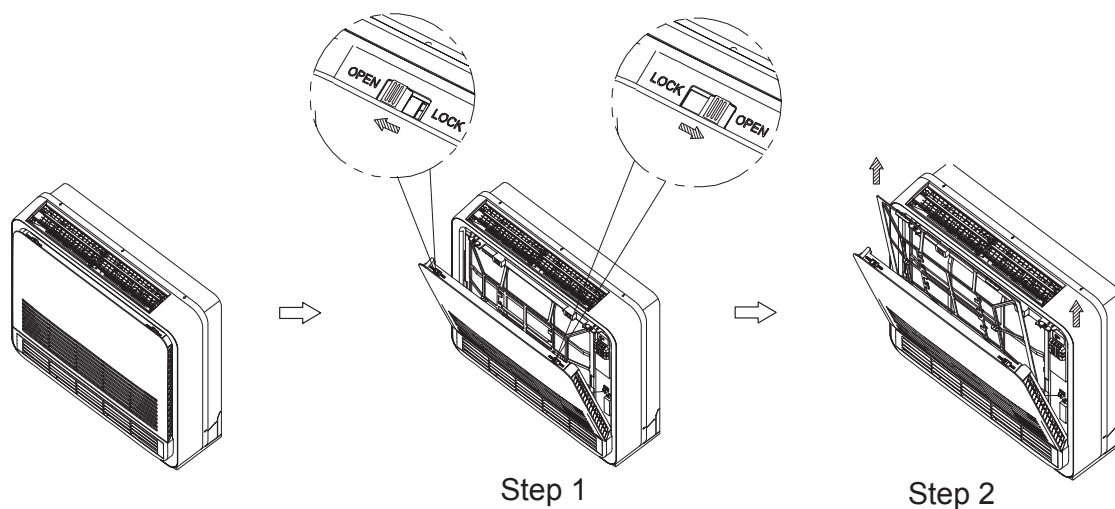
Take out the air filter according to the following steps.

● Removal Procedure

Take out the air filter in the following steps.

Step1: Slide until the 2 stoppers click into place as shown.

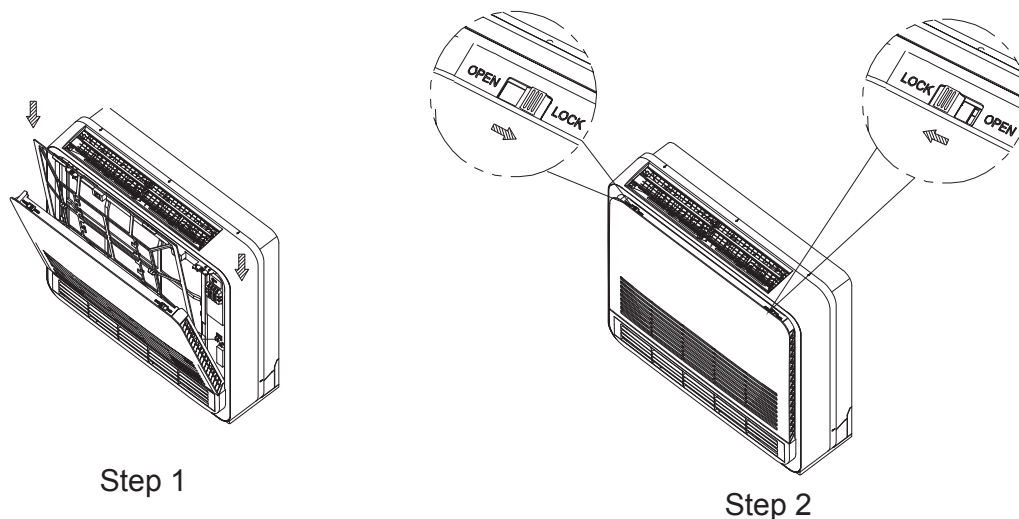
Step2: Open the front grill and take out the air filter from the front panel.



● Installation Procedure

Step1: Insert the filter to the panel and aim the bottom hooks. Make sure the top hooks are locked.

Step2: Close the front grill and slide until the 2 stoppers click into place as shown.



15.16.2 Clean the Filter

Clean the air filter according to the following steps.

Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

CAUTION

Do not use hot water higher than approximately 40°C.

Step 2

Dry the air filter in the shade after shaking off moisture.

15.16.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

15.17 Troubleshooting

CAUTION

When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.

When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.

15.17.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

15.17.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

15.17.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

15.17.4 This is Not Abnormal

● Smells from Indoor Unit

Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.

● Sound from Deforming Parts

During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.

● Steam from Outdoor Heat Exchanger

During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.

● Dew on Air Panel

When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.

● Refrigerant Flow Sound

While the system is being started or stopped, sound from the refrigerant flow may be heard.

NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.