



EDMT282249

R-32

Engineering Data

SkyAir

Heat Pump 50 / 60 Hz

FCA + RZCA Series



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1. External Appearance

Indoor unit



FCA-AVMK

Wired remote controller



BRC1H81W7 (white)



BRC1H81S7 (silver)



BRC1E63

Wireless remote controller



BRC7M634F (fresh white)
BRC7M634K (black)



Signal receiver unit

Outdoor unit



RZCA18AVMK



RZCA24AVMK
RZCA30AVMK
RZCA36AVMK



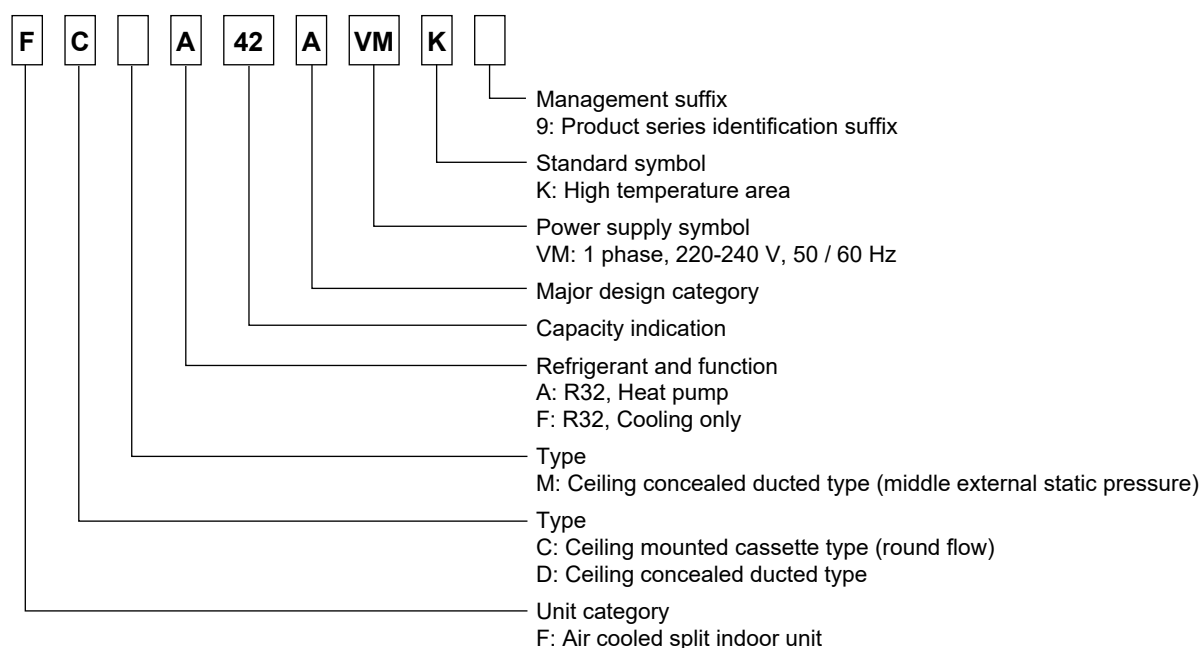
RZCA42AYMK

2. Model Name and Power Supply

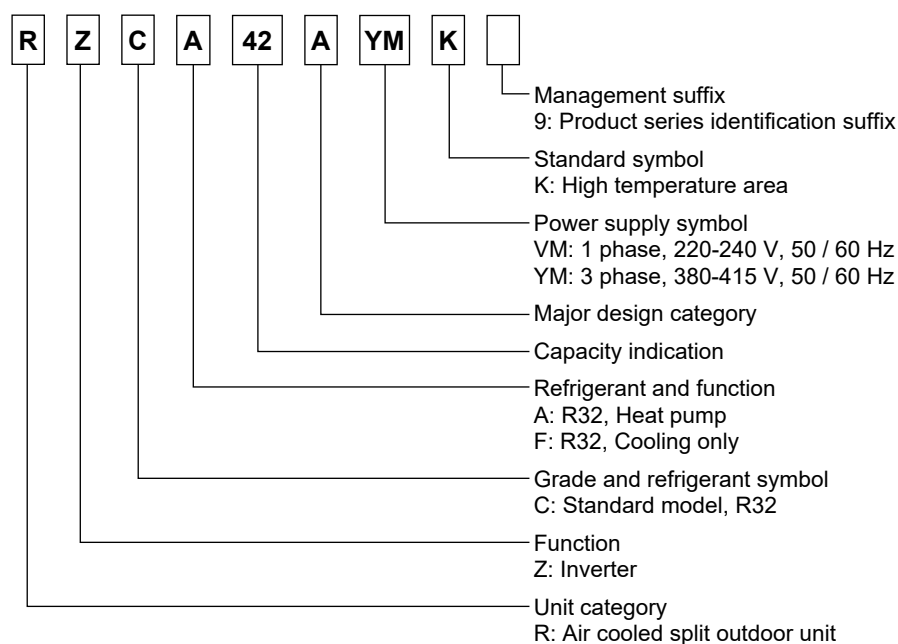
Indoor unit		Outdoor unit	Power supply intake	
Type	Model name	Model name	Indoor unit (Separate-power-supply required)	Outdoor unit
Ceiling mounted cassette type (round flow)	FCA18AVMK	RZCA18AVMK	—	1 phase, 220-240 V, 50 / 60 Hz
	FCA24AVMK	RZCA24AVMK		
	FCA30AVMK	RZCA30AVMK		
	FCA36AVMK	RZCA36AVMK		
	FCA42AVMK	RZCA42AYMK		3 phase, 380-415 V, 50 / 60 Hz

3. Nomenclature

Indoor unit



Outdoor unit



4. Specifications

Model	Indoor unit		FCA18AVMK RZCA18AVMK		FCA24AVMK RZCA24AVMK	
	Outdoor unit					
Power supply	Indoor unit		—		—	
	Outdoor unit		1 phase, 220-240 V, 50 / 60 Hz		1 phase, 220-240 V, 50 / 60 Hz	
Cooling capacity ★1, ★2	T1/50 Hz	Btu/h	18,000		24,000	
		kW	5.28		7.03	
Power input		kW	1.195		1.550	
EER		(Btu/h)/W	15.06		15.48	
Cooling capacity ★1, ★2	T1/60 Hz	Btu/h	18,000		24,000	
		kW	5.28		7.02	
Power input		kW	1.195		1.550	
EER		(Btu/h)/W	15.05		15.50	
Cooling capacity ★1, ★2	T3/50 Hz	Btu/h	17,100		22,800	
		kW	5.01		6.68	
Power input		kW	1.560		2.050	
EER		(Btu/h)/W	10.96		11.12	
Cooling capacity ★1, ★2	T3/60 Hz	Btu/h	17,100		22,800	
		kW	5.01		6.69	
Power input		kW	1.560		2.050	
EER		(Btu/h)/W	10.95		11.10	
Cooling capacity ★1, ★2	T4/50 Hz	Btu/h	15,300		19,200	
		kW	4.48		5.63	
Power input		kW	1.600		1.920	
EER		(Btu/h)/W	9.56		10.00	
Heating capacity ★1, ★2	H1/50 Hz	Btu/h	20,700		27,600	
		kW	6.07		8.09	
Power input		kW	1.320		2.150	
COP		W/W	4.60		3.76	
Heating capacity ★1, ★2	H1/60 Hz	Btu/h	20,700		27,600	
		kW	6.05		8.10	
Power input		kW	1.320		2.150	
COP		W/W	4.60		3.75	
Indoor unit			FCA18AVMK		FCA24AVMK	
Colour			—		—	
Dimensions	H × W × D mm		256 × 840 × 840		298 × 840 × 840	
Coil	Type		Cross fin coil		Cross fin coil	
Fan	Type		Turbo fan		Turbo fan	
	Motor output		53		106	
	Airflow rate		(H)23 (HM)21 (M)18.5 (ML)16 (L)13.5		(H)34.5 (HM)31 (M)27.5 (ML)24 (L)20	
	External static pressure		Pa		—	
Sound pressure level ★3	Cooling		(H)39.0 (HM)36.0 (M)33.5 (ML)31.0 (L)28.5		(H)45.0 (HM)43.0 (M)39.0 (ML)36.0 (L)34.0	
	Heating		(H)39.0 (HM)36.0 (M)33.5 (ML)31.0 (L)28.5		(H)45.0 (HM)43.0 (M)39.0 (ML)36.0 (L)34.0	
Air filter			—		—	
Mass			22		25	
Piping connections	Liquid		mm φ9.5 (flare)		mm φ9.5 (flare)	
	Gas		mm φ15.9 (flare)		mm φ15.9 (flare)	
	Drain		mm VP25 (I.D.φ25 × O.D.φ32)		mm VP25 (I.D.φ25 × O.D.φ32)	
Remote controller (option)	Wired	Madoka	BRC1H81W7 (white) / BRC1H81S7 (silver)		BRC1H81W7 (white) / BRC1H81S7 (silver)	
		Navigation	BRC1E63 (ESMA 20 Deg set print not available)		BRC1E63 (ESMA 20 Deg set print not available)	
	Wireless	Heat pump	BRC7M634F (fresh white) / BRC7M634K (black)		BRC7M634F (fresh white) / BRC7M634K (black)	
Decoration panel (option)	Model		BYCQ125EEF9 (sensing panel) / BYCQ125EAF9 (standard panel)		BYCQ125EEF9 (sensing panel) / BYCQ125EAF9 (standard panel)	
	Colour		Fresh white		Fresh white	
	Dimensions	H × W × D mm	50 × 950 × 950		50 × 950 × 950	
	Air filter		Resin net (with mould resistance)		Resin net (with mould resistance)	
	Mass		kg 5.5		kg 5.5	
Outdoor unit			RZCA18AVMK		RZCA24AVMK	
Colour			Ivory white		Ivory white	
Dimensions	H × W × D mm		595 × 845 × 300		990 × 940 × 320	
Coil	Type		Cross fin coil		Cross fin coil	
Compressor	Type		Hermetically sealed swing type		Hermetically sealed swing type	
	Motor output		kW 1.3		kW 3.3	
Fan	Type		Propeller fan		Propeller fan	
	Motor output		W 64		W 200	
	Airflow rate		m³/min 45		m³/min 73	
Sound pressure level ★3	Cooling		dB(A) 51		dB(A) 51	
	Heating		dB(A) 52		dB(A) 53	
	Night quiet mode		dB(A) 44		dB(A) 49	
Mass			kg 43		kg 78	
Piping connections	Liquid		mm φ9.5 (flare)		mm φ9.5 (flare)	
	Gas		mm φ15.9 (flare)		mm φ15.9 (flare)	
	Drain		mm φ18 (hole)		mm φ26 (hole)	
Safety devices			High pressure switch, Fuse, OL protection		High pressure switch, Fuse, OL protection	
Capacity step	%		Compressor revolution speed control (inverter type)		Compressor revolution speed control (inverter type)	
Refrigerant control			Electronic expansion valve		Electronic expansion valve	
Ref. piping	Max. length		m 50		m 50	
	Max. height difference		m 30		m 30	
Refrigerant	Type		R32		R32	
	Charge	kg	1.3 (charged for 15 m)		2.9 (charged for 30 m)	
Ref. oil	Model		Refer to the nameplate of compressor		Refer to the nameplate of compressor	
	Charge	L	0.65		1.35	
Drawing No.	Specification		C: 3D144335C		C: 3D144335C	

Note:

★1. The above data is based on the conditions shown in the table below.

Condition	Indoor DB (°C)	Indoor WB (°C)	Outdoor DB (°C)	Main standard	Reference standard
T1/T3-60 Hz	27	19	35	Saudi SASO 2663:2021	ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2019	ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	ISO 13253 (2017)
H1-50 Hz	20	15	7 (DB), 6 (WB)		ISO 13253 (2017)
H1-60 Hz	20	15	7 (DB), 6 (WB)	Saudi SASO 2663:2021	ISO 13253 (2017)

★2. Capacities are net, including a deduction for cooling for indoor fan motor heat & including an addition for heating for indoor fan motor heat.

★3. The operation sound is measured in anechoic chamber. If it is measured under the actual installation conditions, it is normally over the set value due to the environmental noise and sound reflection.

Model	Indoor unit		FCA30AVMK		FCA36AVMK	
	Outdoor unit		RZCA30AVMK		RZCA36AVMK	
Power supply	Indoor unit		—		—	
	Outdoor unit		1 phase, 220-240 V, 50 / 60 Hz		1 phase, 220-240 V, 50 / 60 Hz	
Cooling capacity ★1, ★2	T1/50 Hz	Btu/h	30,000		36,000	
		kW	8.79		10.55	
Power input		kW	2.120		2.820	
EER		(Btu/h)/W	14.15		12.77	
Cooling capacity ★1, ★2	T1/60 Hz	Btu/h	30,000		36,000	
		kW	8.80		10.55	
Power input		kW	2.120		2.820	
EER		(Btu/h)/W	14.15		12.75	
Cooling capacity ★1, ★2	T3/50 Hz	Btu/h	27,000		30,800	
		kW	7.91		8.97	
Power input		kW	2.670		3.580	
EER		(Btu/h)/W	10.11		8.60	
Cooling capacity ★1, ★2	T3/60 Hz	Btu/h	27,000		30,800	
		kW	7.90		9.05	
Power input		kW	2.670		3.580	
EER		(Btu/h)/W	10.10		8.60	
Cooling capacity ★1, ★2	T4/50 Hz	Btu/h	22,500		25,200	
		kW	6.59		7.39	
Power input		kW	2.370		2.910	
EER		(Btu/h)/W	9.49		8.66	
Heating capacity ★1, ★2	H1/50 Hz	Btu/h	34,500		41,400	
		kW	10.11		12.13	
Power input		kW	2.750		4.160	
COP		W/W	3.68		2.92	
Heating capacity ★1, ★2	H1/60 Hz	Btu/h	34,500		41,400	
		kW	10.10		12.15	
Power input		kW	2.750		4.160	
COP		W/W	3.70		2.90	
Indoor unit			FCA30AVMK		FCA36AVMK	
Colour			—		—	
Dimensions	H × W × D	mm	298 × 840 × 840		298 × 840 × 840	
Coil	Type		Cross fin coil		Cross fin coil	
Fan	Type		Turbo fan		Turbo fan	
	Motor output		106		106	
	Airflow rate		(H)34.5 (HM)31 (M)27.5 (ML)24 (L)20		(H)36.5 (HM)33 (M)29 (ML)25 (L)21	
	External static pressure		Pa		—	
Sound pressure level ★3	Cooling		(H)45.0 (HM)43.0 (M)40.0 (ML)37.0 (L)35.0		(H)46.0 (HM)44.0 (M)41.0 (ML)37.0 (L)33.0	
	Heating		(H)45.0 (HM)43.0 (M)40.0 (ML)37.0 (L)35.0		(H)46.0 (HM)44.0 (M)41.0 (ML)37.0 (L)33.0	
Air filter		—		—		
Mass		kg	25		31	
Piping connections	Liquid		φ9.5 (flare)		φ9.5 (flare)	
	Gas		φ15.9 (flare)		φ15.9 (flare)	
	Drain		VP25 (I.D.φ25 × O.D.φ32)		VP25 (I.D.φ25 × O.D.φ32)	
Remote controller (option)	Wired	Madoka	BRC1H81W7 (white) / BRC1H81S7 (silver)		BRC1H81W7 (white) / BRC1H81S7 (silver)	
		Navigation	BRC1E63 (ESMA 20 Deg set print not available)		BRC1E63 (ESMA 20 Deg set print not available)	
	Wireless	Heat pump	BRC7M634F (fresh white) / BRC7M634K (black)		BRC7M634F (fresh white) / BRC7M634K (black)	
Decoration panel (option)	Model		BYCQ125EEF9 (sensing panel) / BYCQ125EAF9 (standard panel)		BYCQ125EEF9 (sensing panel) / BYCQ125EAF9 (standard panel)	
	Colour		Fresh white		Fresh white	
	Dimensions	H × W × D	mm 50 × 950 × 950		50 × 950 × 950	
	Air filter		Resin net (with mould resistance)		Resin net (with mould resistance)	
	Mass		kg	5.5		5.5
Outdoor unit			RZCA30AVMK		RZCA36AVMK	
Colour			Ivory white		Ivory white	
Dimensions	H × W × D	mm	990 × 940 × 320		990 × 940 × 320	
Coil	Type		Cross fin coil		Cross fin coil	
Compressor	Type		Hermetically sealed swing type		Hermetically sealed swing type	
	Motor output		kW 3.3		3.3	
Fan	Type		Propeller fan		Propeller fan	
	Motor output		W 200		200	
	Airflow rate		m³/min 73		73	
Sound pressure level ★3	Cooling		dB(A) 52		52	
	Heating		dB(A) 54		54	
	Night quiet mode		dB(A) 49		49	
Mass		kg	78		78	
Piping connections	Liquid		mm φ9.5 (flare)		φ9.5 (flare)	
	Gas		mm φ15.9 (flare)		φ15.9 (flare)	
	Drain		mm φ26 (hole)		φ26 (hole)	
Safety devices			High pressure switch, Fuse, OL protection		High pressure switch, Fuse, OL protection	
Capacity step		%	Compressor revolution speed control (inverter type)		Compressor revolution speed control (inverter type)	
Refrigerant control			Electronic expansion valve		Electronic expansion valve	
Ref. piping	Max. length		m 50		50	
	Max. height difference		m 30		30	
Refrigerant	Type		R32		R32	
	Charge		kg 2.9 (charged for 30 m)		2.9 (charged for 30 m)	
Ref. oil	Model		Refer to the nameplate of compressor		Refer to the nameplate of compressor	
	Charge		L 1.35		1.35	
Drawing No.	Soecification		C: 3D144335C		C: 3D144335C	

Note:

★1. The above data is based on the conditions shown in the table below.

Condition	Indoor DB (°C)	Indoor WB (°C)	Outdoor DB (°C)	Main standard	Reference standard
T1/T3-60 Hz	27	19	35	Saudi SASO 2663:2021	ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2019	ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	ISO 13253 (2017)
H1-50 Hz	20	15	7 (DB), 6 (WB)		ISO 13253 (2017)
H1-60 Hz	20	15	7 (DB), 6 (WB)	Saudi SASO 2663:2021	ISO 13253 (2017)

★2. Capacities are net, including a deduction for cooling for indoor fan motor heat & including an addition for heating for indoor fan motor heat.

★3. The operation sound is measured in anechoic chamber. If it is measured under the actual installation conditions, it is normally over the set value due to the environmental noise and sound reflection.

Model	Indoor unit		Outdoor unit		FCA42AVMK
	Indoor unit		Outdoor unit		RZCA42AYMK
Power supply					—
					3 phase, 380-415 V, 50 / 60 Hz
Cooling capacity ★1, ★2	T1/50 Hz	Btu/h			42,000
		kW			12.31
Power input		kW			3.290
EER		(Btu/h)/W			12.77
Cooling capacity ★1, ★2	T1/60 Hz	Btu/h			42,000
		kW			12.30
Power input		kW			3.290
EER		(Btu/h)/W			12.75
Cooling capacity ★1, ★2	T3/50 Hz	Btu/h			35,700
		kW			10.46
Power input		kW			3.900
EER		(Btu/h)/W			9.15
Cooling capacity ★1, ★2	T3/60 Hz	Btu/h			35,600
		kW			10.45
Power input		kW			3.900
EER		(Btu/h)/W			9.15
Cooling capacity ★1, ★2	T4/50 Hz	Btu/h			31,500
		kW			9.23
Power input		kW			3.520
EER		(Btu/h)/W			8.95
Heating capacity ★1, ★2	H1/50 Hz	Btu/h			48,300
		kW			14.16
Power input		kW			4.400
COP		W/W			3.22
Heating capacity ★1, ★2	H1/60 Hz	Btu/h			48,300
		kW			14.15
Power input		kW			4.400
COP		W/W			3.20
Indoor unit					FCA42AVMK
Colour					—
Dimensions	H × W × D	mm			298 × 840 × 840
Coil	Type				Cross fin coil
Fan	Type				Turbo fan
	Motor output		W		106
	Airflow rate		m³/min		(H)36.5 (HM)33 (M)29 (ML)25 (L)21
	External static pressure		Pa		—
Sound pressure level ★3	Cooling	dB(A)			(H)46.0 (HM)44.0 (M)41.0 (ML)37.0 (L)34.0
	Heating	dB(A)			(H)46.0 (HM)44.0 (M)41.0 (ML)37.0 (L)34.0
Air filter					—
Mass			kg		31
Piping connections	Liquid	mm			φ9.5 (flare)
	Gas	mm			φ15.9 (flare)
	Drain	mm			VP25 (I.D.φ25 × O.D.φ32)
Remote controller (option)	Wired	Madoka			BRC1H81W7 (white) / BRC1H81S7 (silver)
		Navigation			BRC1E63 (ESMA 20 Deg set print not available)
	Wireless	Heat pump			BRC7M634F (fresh white) / BRC7M634K (black)
Decoration panel (option)	Model				BYCQ125EEF9 (sensing panel) / BYCQ125EAF9 (standard panel)
	Colour				Fresh white
	Dimensions	H × W × D	mm		50 × 950 × 950
	Air filter				Resin net (with mould resistance)
	Mass		kg		5.5
Outdoor unit					RZCA42AYMK
Colour					Ivory white
Dimensions	H × W × D	mm			870 × 1,100 × 520
Coil	Type				Cross fin coil
Compressor	Type				Hermetically sealed swing type
	Motor output		kW		3.3
Fan	Type				Propeller fan
	Motor output		W		234
	Airflow rate		m³/min		87
Sound pressure level ★3	Cooling	dB(A)			56
	Heating	dB(A)			56
	Night quiet mode	dB(A)			52
Mass			kg		95
Piping connections	Liquid	mm			φ9.5 (flare)
	Gas	mm			φ15.9 (flare)
	Drain	mm			φ26 (hole)
Safety devices					High pressure switch, Fuse, OL protection
Capacity step		%			Compressor revolution speed control (inverter type)
Refrigerant control					Electronic expansion valve
Ref. piping	Max. length		m		50
	Max. height difference		m		30
Refrigerant	Type				R32
	Charge		kg		3.6 (charged for 25 m)
Ref. oil	Model				Refer to the nameplate of compressor
	Charge		L		1.35
Drawing No.	Specification				C: 3D144335C

Note:

★1. The above data is based on the conditions shown in the table below.

Condition	Indoor DB (°C)	Indoor WB (°C)	Outdoor DB (°C)	Main standard	Reference standard
T1/T3-60 Hz	27	19	35	Saudi SASO 2663:2021	ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2019	ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	ISO 13253 (2017)
H1-50 Hz	20	15	7 (DB), 6 (WB)		ISO 13253 (2017)
H1-60 Hz	20	15	7 (DB), 6 (WB)	Saudi SASO 2663:2021	ISO 13253 (2017)

★2. Capacities are net, including a deduction for cooling for indoor fan motor heat & including an addition for heating for indoor fan motor heat.

★3. The operation sound is measured in anechoic chamber. If it is measured under the actual installation conditions, it is normally over the set value due to the environmental noise and sound reflection.

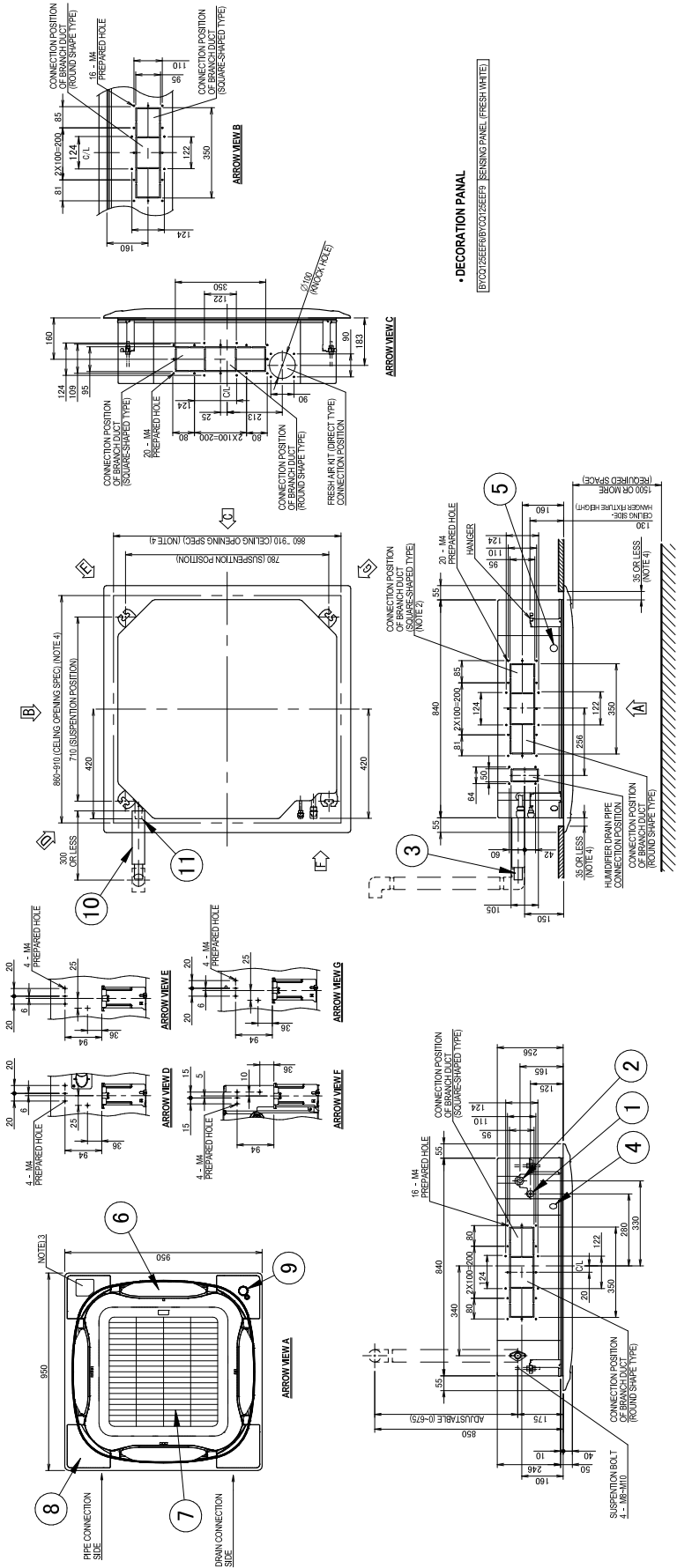
5. Dimensions

5.1 Indoor Unit

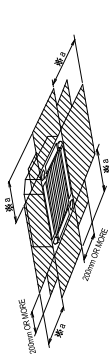
5.1.1 FCA (with Standard Panel with Sensing Sensor)

FCA18AVMK

Unit: mm



• INSTALLATION SPACE

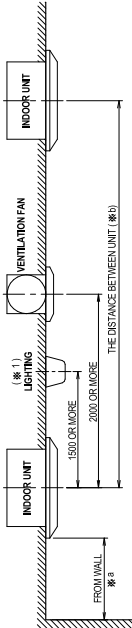


※ The necessary space is 500 mm or more when the air-couler is blocked with the accessory. Moreover when the corner areas are blocked (both right and left of the blocked air outlet), the necessary space is 200 mm or more. The necessary space is 2000 mm or more when the necessary space is 2000 mm or more.

11	DRAIN HOSE CONNECTION PORT	VP20 (OD 28)
10	DRAIN HOSE (ACCESSORY)	LOCAL CONNECTION (OD 32, 33, 34) FOR THAI ONLY (OUTLET)
9	SENSOR	HUMAN DETECT FLOOR TEMP SENSOR
8	CORNER DECORATION COVER	
7	SUCTION GRILLE	
6	AIR OUTLET	
5	CONNECTION WIRING (TYPE THAT NOT EXPOSE TO CEILING SURFACE)	
4	POSSIBLE CONNECTION AND A UNIT WIRING CONNECTION	
3	DRAIN PIPE CONNECTION	VP25 (OD 32, OD 34) FOR THAI ONLY
2	GAS PIPE CONNECTION	Ø 5.5 (FLARE CONNECTION)
1	LIQUID PIPE CONNECTION	Ø 5.5 (FLARE CONNECTION)
		REMARK

6. Please do not place the thing been damp and troubled under an indoor unit, when the case where humidity is 80% or more, and the drain outlet are closed up and the air filter are dry, user may fail.

7. If put vent hole, lighting, equipment near the air flow disturb equipment, ceiling surface may get dirty, therefore shall install following to diagram as below.



8. For fixing position of human detection and temp sensor will be follow to diagram instruction (can not change position).

Model	FCA18AVMK, FCA18AVMK, FCA18AVMK
Valid	1500-2000
Occulation	5000 or more
air flow	1500 or more
	4000 or more

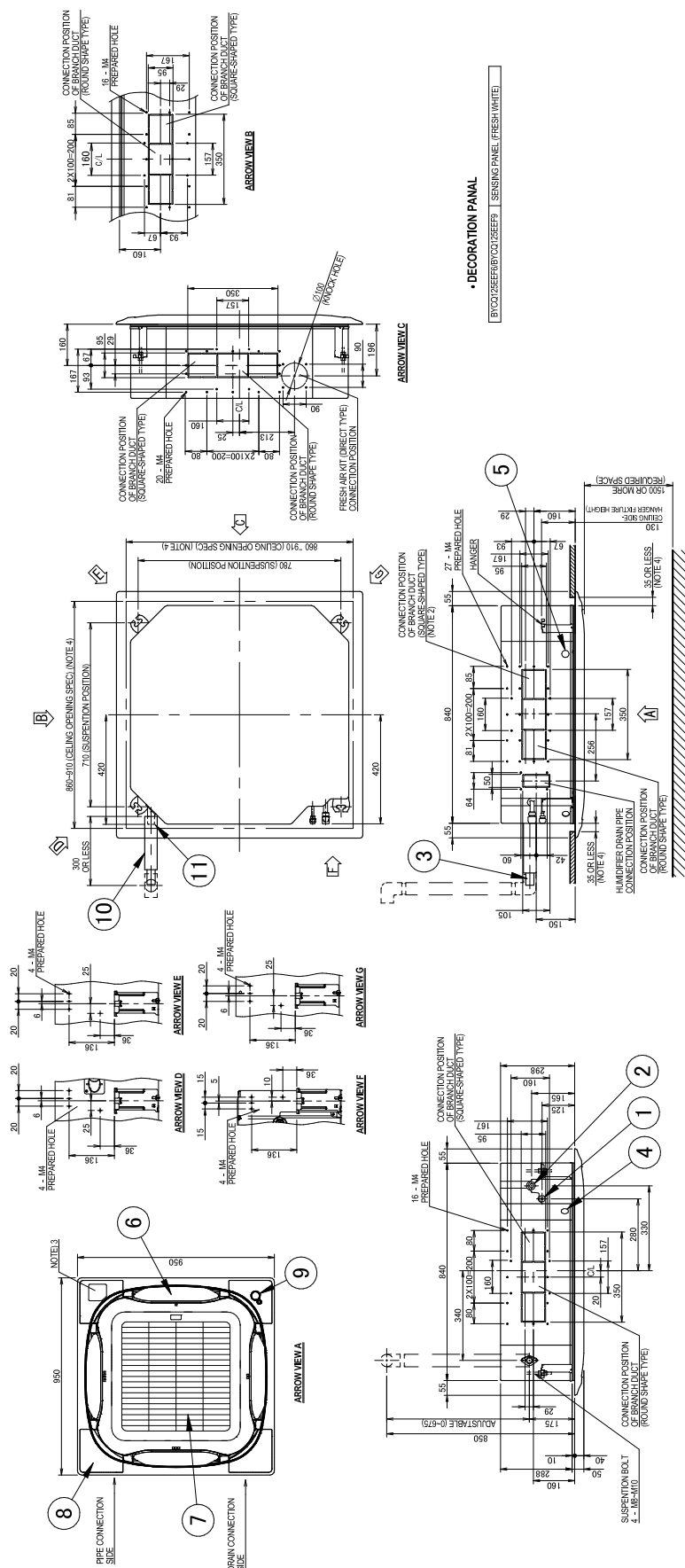
(NOTE)

1. Sticking location for Manufacturer's label
Manufacturer's label for Indoor unit : Suction grille inner side's electric components box's lid surface.
Manufacturer's label for Decoration panel : Corner decoration cover inner surface.
2. In case of having option part built-in, please refer outside drawing of option part.
Natural evaporative type humidifier.....No Need
Air purifier unit.....No Need
Branch duct chamber.....No Need
Branch duct.....(both angle duct + circle duct)
3. In case of using wireless remote controller, this position will be a signal receiver.
Refer to the drawing of wireless remote controller in detail.
4. Though the installation is acceptable up to maximum of 0.10 mm square ceiling opening, keep the clearance of 55mm or less between the indoor unit and the ceiling opening so that the panel overlap allowance can be ensured.
5. When the temperature and humidity in the ceiling exceed 30°C and 80% RH or the fresh air is introduced into the ceiling or the unit continues 24 hour operation, an additional insulation (thickness 10mm or more of glasswool or polyethylene foam) is required.

3D123098B

FCA24AVMK / FCA30AVMK / FCA36AVMK / FCA42AVMK

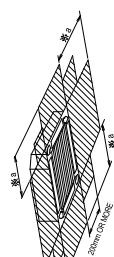
Unit: mm



(NOTE)

1. Sticking location or Manufacturer's label
 Manufacturer's label for indoor unit
 Section grille, name, serial, electric
 components look at surface.
 Manufacturer's label for decoration panel
 Decoration panels cover entire decoration
 cover inner surface.
2. In case of having option part built-in, please offer inside drawing of option part.
 Fresh air intake H.....inspection hole.....Need
 Natural exhalation type humidifier.....inspection hole.....Need
 Air purifier unit.....inspection hole.....No Need
 Ionizer.....inspection hole.....No Need
 Brand dust chamber.....inspection hole.....No Need
 (both angle dust + circle dust)
3. In case of using wireless remote controller, this position will be a signal receiver.
 Refer to the drawing of wireless remote controller in detail.
4. Opening distance is acceptable up to maximum of 910 mm square ceiling
 opening. Keep the installation of 50mm or less between the indoor unit and
 the ceiling opening so that the panel opening allowance can be enough.
 When the opening and humidity in the ceiling exceeds 30°C and 80% RH
 or the fresh air is introduced into the ceiling of the unit continues 24 hour
 (in the case of ceiling type), the ceiling must be made of concrete, masonry or
 polyethylene film is required.

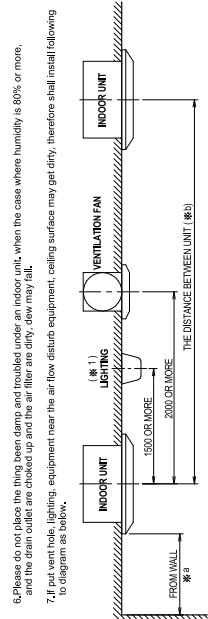
INSTALLATION SPACE



- The necessary space is 500 mm or more when the air-outlet is blocked with the accessory. Moreover when the corner areas are blocked (both right and left of the blocked air outlet), the necessary space is 200 mm or more.
- When the air-outlet is close to the wall surface (both side of the air-outlet), the recommend space is 2000 mm or more.

11	DRAIN HOSE CONNECTION PORT	VP26 (OD 2026)
10	SENSOR HOSE (ACCESSORY)	VP26 (OD 2026) (AIR CONNECTION ONLY)
9	SENSOR	HUMAN DETECT FLOOR TEMP SENSOR
8	CORNER DECORATION COVER	
7	SUCTION GRILLE	7 Suction grille
6	AIR OUTLET	
5	CONNECTION WIRING /	
4	REMOTE CONTROL WIRING CONNECTION	
3	POWER-SOURCE WIRING	
2	AND A UNIT WIRING CONNECTION	
1	DRAIN PIPE CONNECTION	VP26 (OD 2026, OD 2024 FOR THAI ONLY)
2	GAS PIPE CONNECTION	D 153 (FLARE CONNECTION)
1	LIQUID PIPE CONNECTION	D 9.5 (FLARE CONNECTION)

※ 1) Lighting is targeted for exposed type (inverse fuji-shape etc.), for embedded type (type that not expose to ceiling surface), there is no restriction.



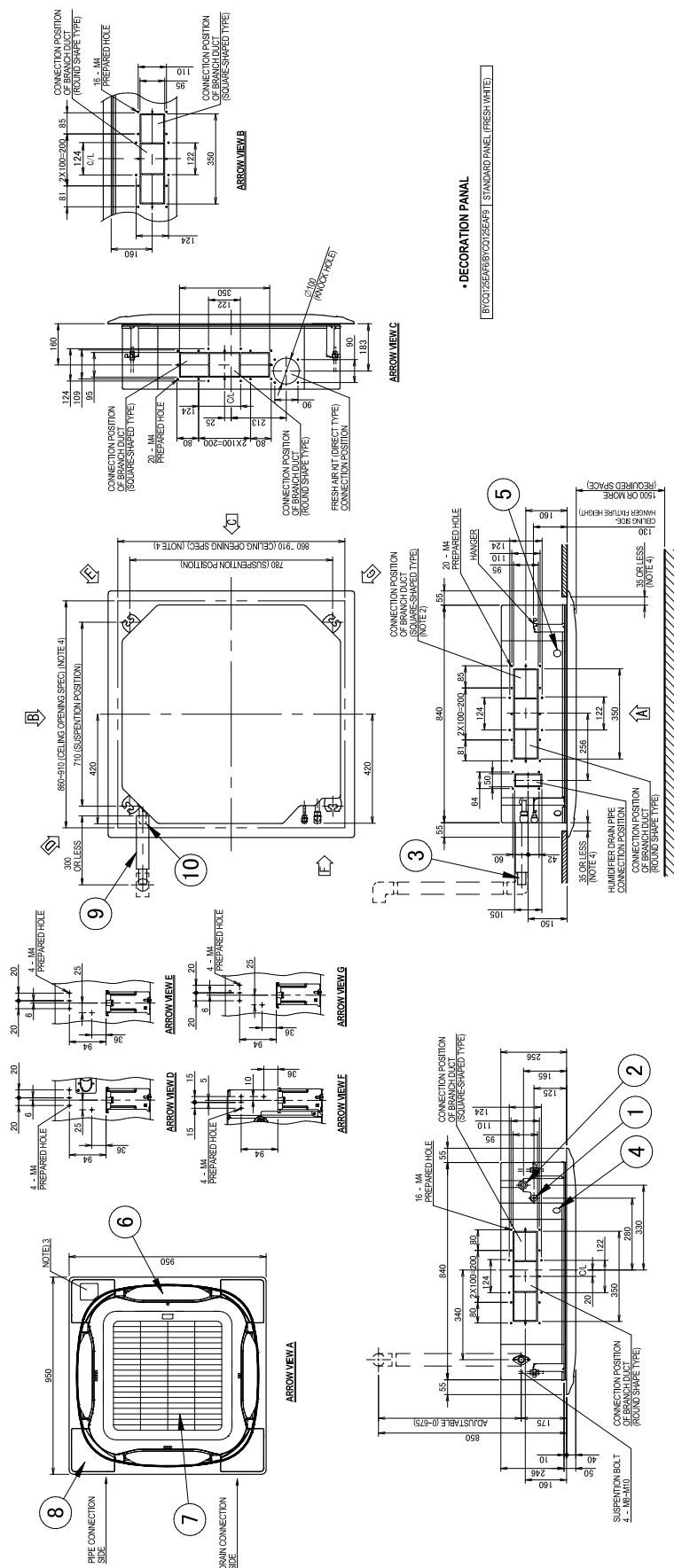
Model	Valid	Invalid
FCMF90, 100, 125, 140ARV16	※a	※b
FCVF90, 100, 125, 140ARV16FCA24-42MMK	※a	※b

5. When the temperature and humidity in the ceiling exceed 30°C and 80% RH or the fresh air is induced into the ceiling or the unit continues 24 hour operation, an additional insulation (thickness 10mm or more of glasswool or polyethylene form) is required.

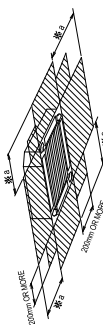
3D123099B

5.1.2 FCA (with Standard Panel) FCA18AVMK

Unit: mm



INSTALLATION SPACE

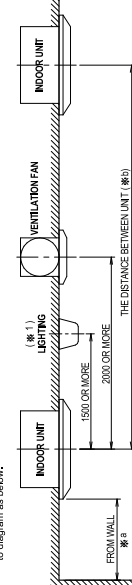


- The necessary space is 500 mm or more when the air-outlet is blocked with the accessory. Moreover when the corner areas are blocked (both right and left of the blocked air outlet), the necessary space is 200 mm or more.
- When the air-outlet is close to the wall surface (both side of the air-outlet), the recommend space is 2000 mm or more.

10	DRAIN HOSE CONNECTION PORT	VP25 (10.026)
9	DRAIN HOSE (ACCESSORY)	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
8	CORNER DECORATION COVER	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
7	SUCTION GRILLE	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
6	ARE OUTLET	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
5	CONNECTION WIRING	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
4	POWER-SOURCE WIRING	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
3	DRAIN PIPE CONNECTION	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
2	GAS PIPE CONNECTION	VP25 (10.026) 0.64 (1/4") (AN) (GALL)
1	LIQUID PIPE CONNECTION	VP25 (10.026) 0.64 (1/4") (AN) (GALL)

Please do not place the thing been damp and troubled under an indoor unit, when the case where humidity is 80% or more, and the drain outlet are choked up and the air filter are dirty, dew may fall.

and the drain outlet are blocked up and the air filter are dirty, new may fail.



Model		FCV50,71ARV16, FCM50,71ARV16 FCA/BAMK
Circulation air flow	※a	1500-5000
	Valid ※b	5000 or more
	※a	1500 or more
	Invalid	

Lighting is targeted for exposed type (inverse fuji-shape etc.), for embedded type (type that not expose to ceiling surface), there is no restriction.

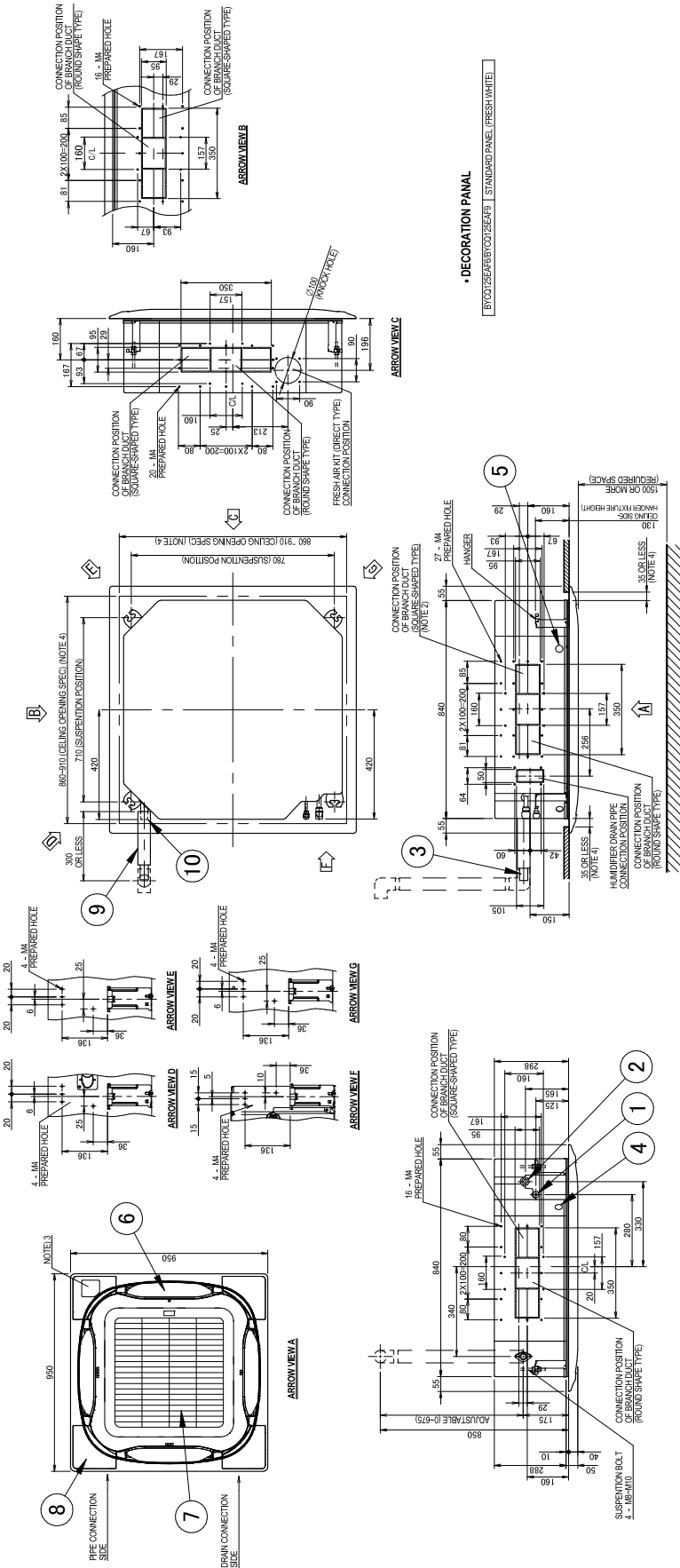
(NOTE)

1. Stacking location or Manufacturer's label
 Manufacturer's label for indoor unit
 Suction grille, main cable, electric
 components, top of indoor unit
 Manufacturer's label for Decoration panel
 Decoration panels, corner decoration
 panel, main surface,
2. In case of having option part built-in, please refer outside drawing of option parts
- | | | |
|---|----------------------|---------|
| Natural air intake M..... |Inspection hole | Need |
| Outdoor evaporator type humidifier..... |Inspection hole | Need |
| Air purifier unit..... |Inspection hole | No Need |
| Water filter..... |Inspection hole | No Need |
| Brand duct clamped..... |Inspection hole | No Need |
- (both angle duct + duct duct)
- In case of using wireless remote controller, this position will be a signal receiver.
 Refer to the drawing of wireless remote controller in detail.
3. Though the installation is acceptable up to maximum of 910 mm square ceiling opening, keeping the clearance of 50mm or less between the indoor unit and the ceiling opening so that the panel covering allowance can be ensured.
4. When the temperature and humidity in the ceiling exceeds 30°C and 80% RH or the fresh air is introduced into the ceiling of the unit continues 24 hour (or more) continuously, the ceiling must be made of 10mm or more of gasketed (or polyethylene form) is required.

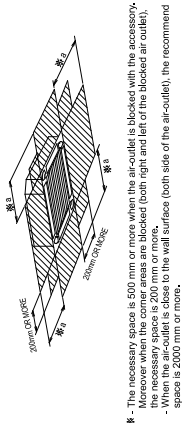
3D123100A

FCA24AVMK / FCA30AVMK / FCA36AVMK / FCA42AVMK

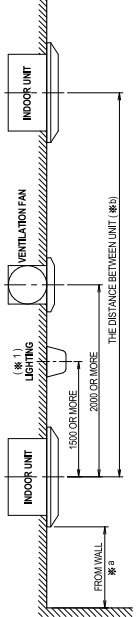
Unit: mm



• INSTALLATION SPACE



6. Please do not place the thing been damp and troubled under an indoor unit, when the case where humidity is 80% or more, and the drain outlet are choked up and the air filter and dry, dew may fall.
7. If put vent hole, lighting, equipment near the air flow disturb equipment, ceiling surface may get dirty, therefore shall install following diagram as below.



Model	FCA24AVMK FCA30AVMK FCA36AVMK FCA42AVMK
Valid	1500-2000
Invalid	7000 or more 1500 or more 4000 or more

(※ 1) Lighting is targeted for exposed type (inverse full-shape etc.), for embedded type (type that not expose to ceiling surface), there is no restriction.

- NOTE)
1. Suction location for Manufacturer's label
: Suction grille inner side's electric component box's lid surface.
Manufacturer's label for indoor unit
: Decoration panel's corner decoration cover inner surface.
 2. In case of having option part built-in, please refer outside drawing of option part.
Natural evaporative type humidifier.....No Need
Air purifier unit.....No Need
High efficiency filter unit.....No Need
Both high efficiency filter unit and air purifier unit.....No Need
Both high efficiency filter unit and air purifier unit (both angle duct・circle duct).....No Need
Refer to the drawing of wireless remote controller, this position will be a signal receiver.
 3. In case of using wireless remote controller, this position will be a signal receiver.
Refer to the drawing of wireless remote controller in detail.
 4. Though this installation is acceptable up to maximum of 510 mm square ceiling, the ceiling opening so that the panel overlap allowance can be ensured.
When the temperature and humidity in the ceiling exceed 30°C and 60% RH or the fresh air is introduced into the ceiling or the unit continues 24 hour operation, an additional insulation (thickness 10mm or more of glasswool or polystyrene foam) is required.
 5. When the temperature and humidity in the ceiling exceed 30°C and 60% RH or the fresh air is introduced into the ceiling or the unit continues 24 hour operation, an additional insulation (thickness 10mm or more of glasswool or polystyrene foam) is required.

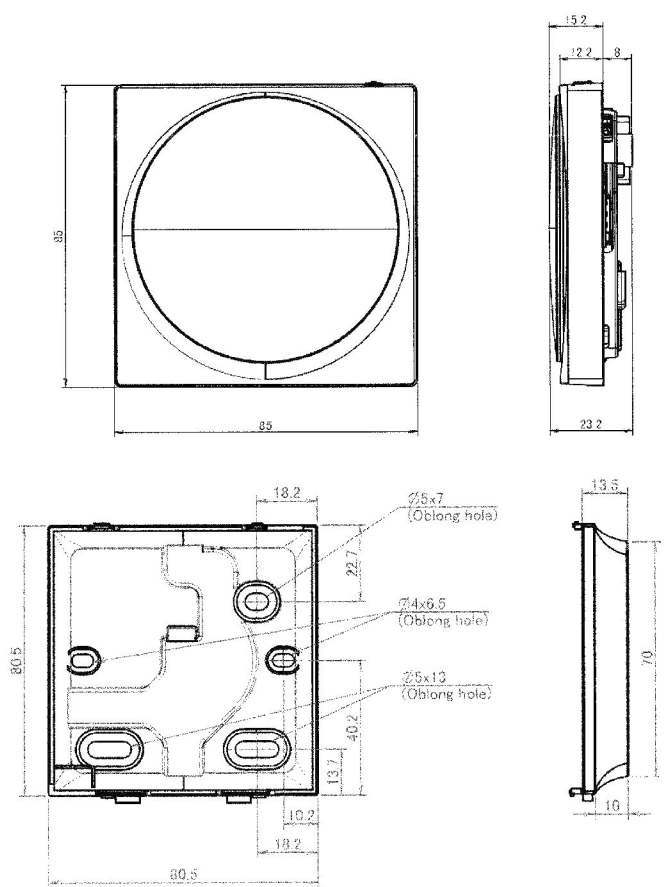
ITEM	PART NAME	REMARK
10	DRAIN HOSE CONNECTION PORT (VP20 (OD 22.6))	
9	DRAIN HOSE (ACCESSORY)	
8	CORNER DECORATION COVER	
7	SUCTION GRILLE	
6	AIR OUTLET	
5	CONNECTION WIRING	
4	REMOTE CONTROL WIRING CONNECTION (INVERSE FULL-SHAPE ETC.), FOR EMBEDDED TYPE (TYPE THAT NOT EXPOSE TO CEILING SURFACE), THERE IS NO RESTRICTION.	
3	DRAIN PIPE CONNECTION	
2	GAS PIPE CONNECTION	
1	LIQUID PIPE CONNECTION	

3D123101B

5.2 Wired Remote Controller

BRC1H81W7 (white) / BRC1H81S7 (silver)

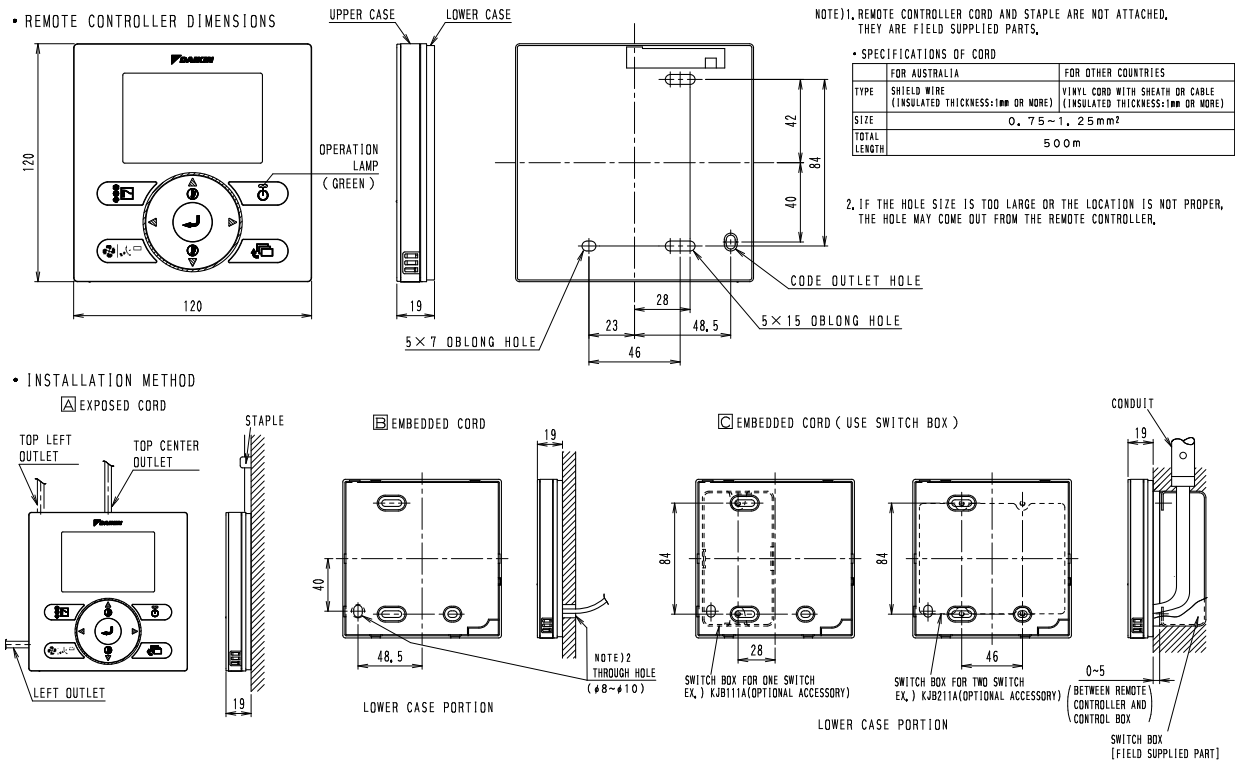
Unit: mm



4D113609A

BRC1E63

Unit: mm

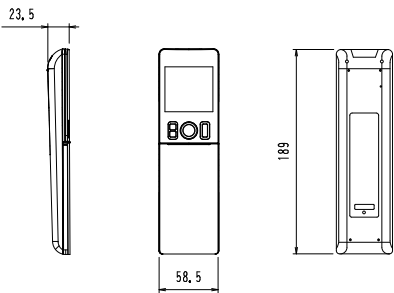


3D106191

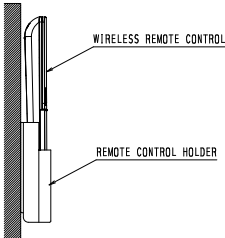
5.3 Wireless Remote Controller

BRC7M634F (fresh white) / BRC7M634K (black)

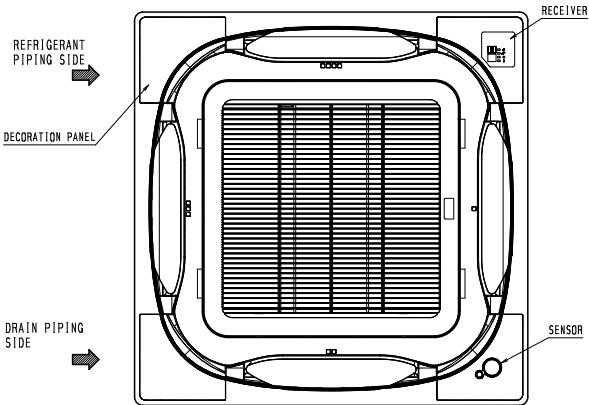
• REMOTE CONTROLLER DIMENSIONS



• REMOTE CONTROLLER HOLDER
INSTALLATION PROCEDURE
< INSTALLATION TO WALL SURFACE >



• RECEIVER INSTALLATION PROCEDURE



• RECEIVER DETAIL



• WIRELESS REMOTE CONTROLLER KIT FOR EACH DECORATION PANEL

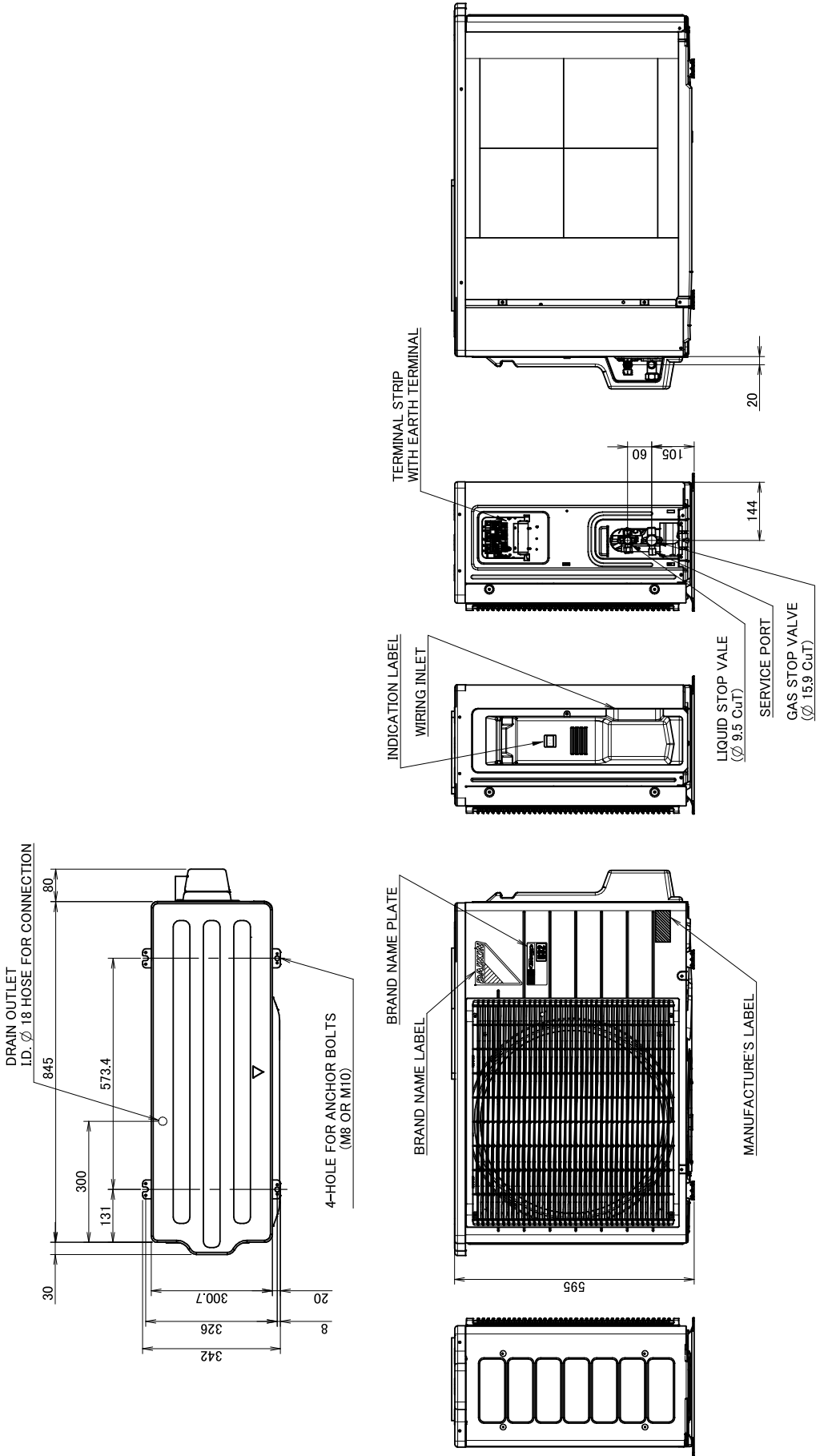
WIRELESS REMOTE CONTROLLER KIT	DECORATION PANEL	
BRC7M634F, BRC7M634K, BRC7M635F, BRC7M635K	BYCQ125EEF, BYCQ125EAF, BYCQ125EAPF,	BYCQ125EEK, BYCQ125EAK, BYCQ125EASF

3D106230

5.4 Outdoor Unit

RZCA18AVMK

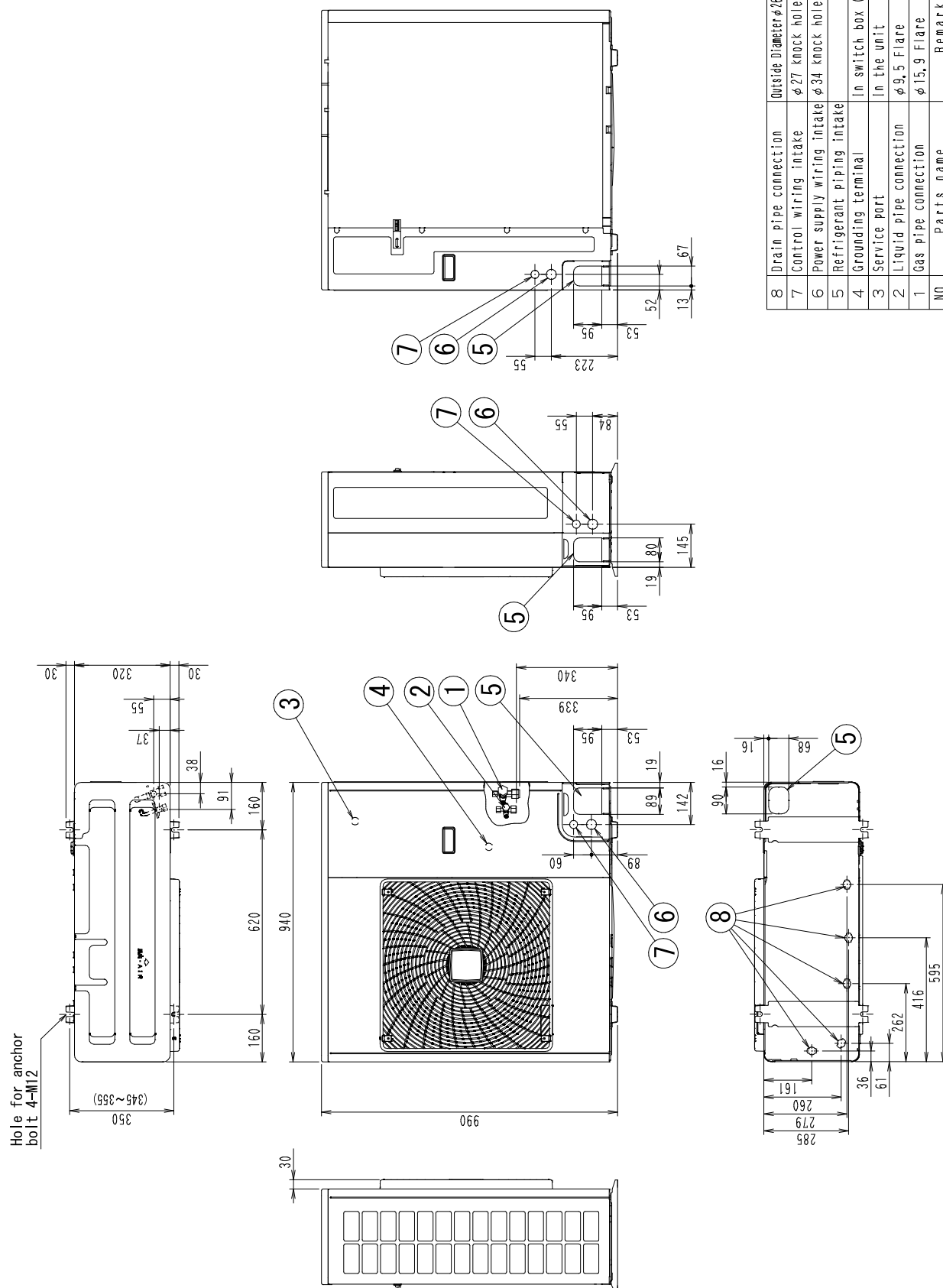
Unit: mm



3D113200C

RZCA24AVMK / RZCA30AVMK / RZCA36AVMK

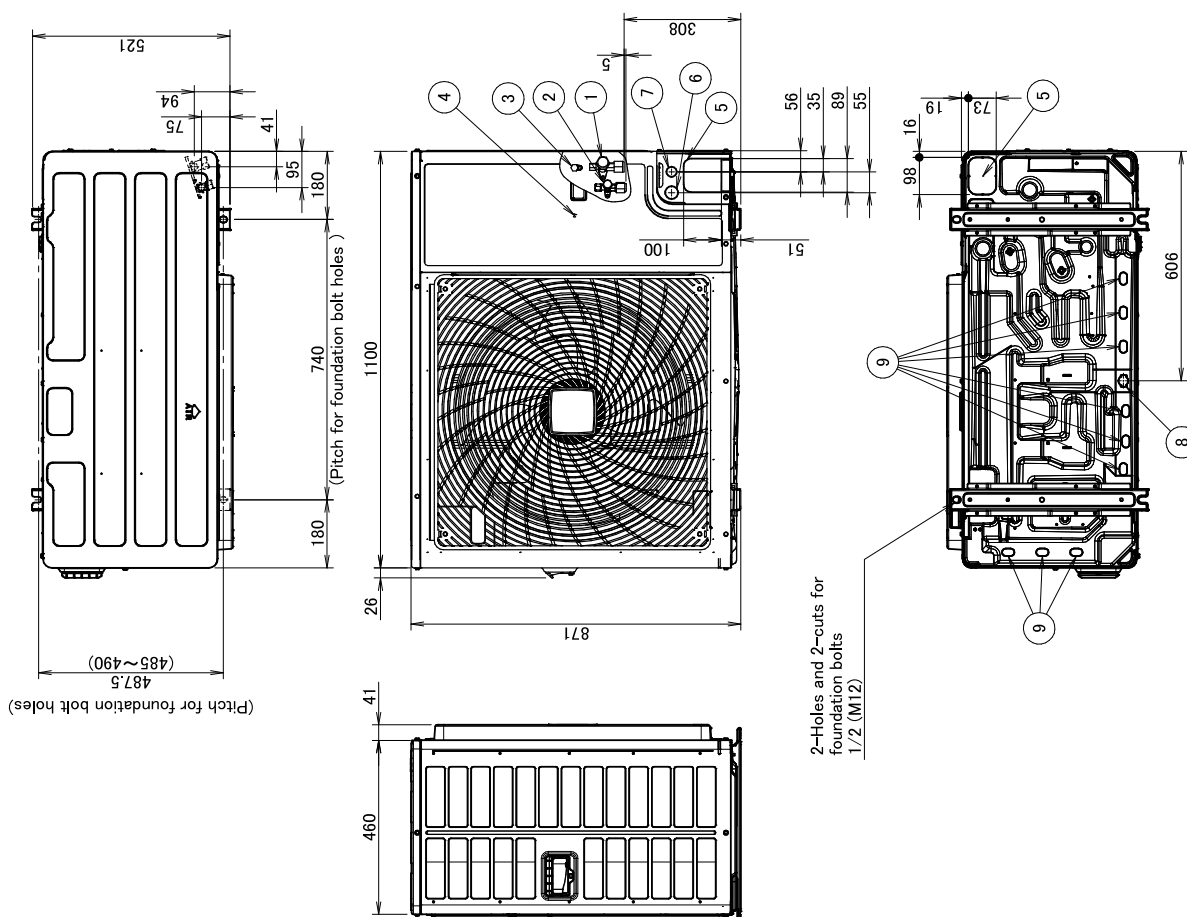
Unit: mm



3D124797B

RZCA42AYMK

Unit: mm



No.	Parts name	Remark
1	Gas pipe connection	Ø 15.9 mm brazing connection
2	Liquid pipe connection	Ø 9.5 mm flare connection
3	Automatic refrigerant charge port	Ø 7.9 mm flare connection
4	Grounding terminal	Inside of unit (M5)
5	Pipe routing hole	
6	Power supply routing hole	Ø 34 mm
7	Transmission wire routing hole	Ø 27 mm
8	Drain socket connection	Ø 27 mm hole for connection with drain socket
9	Drain plug connection	See note 3

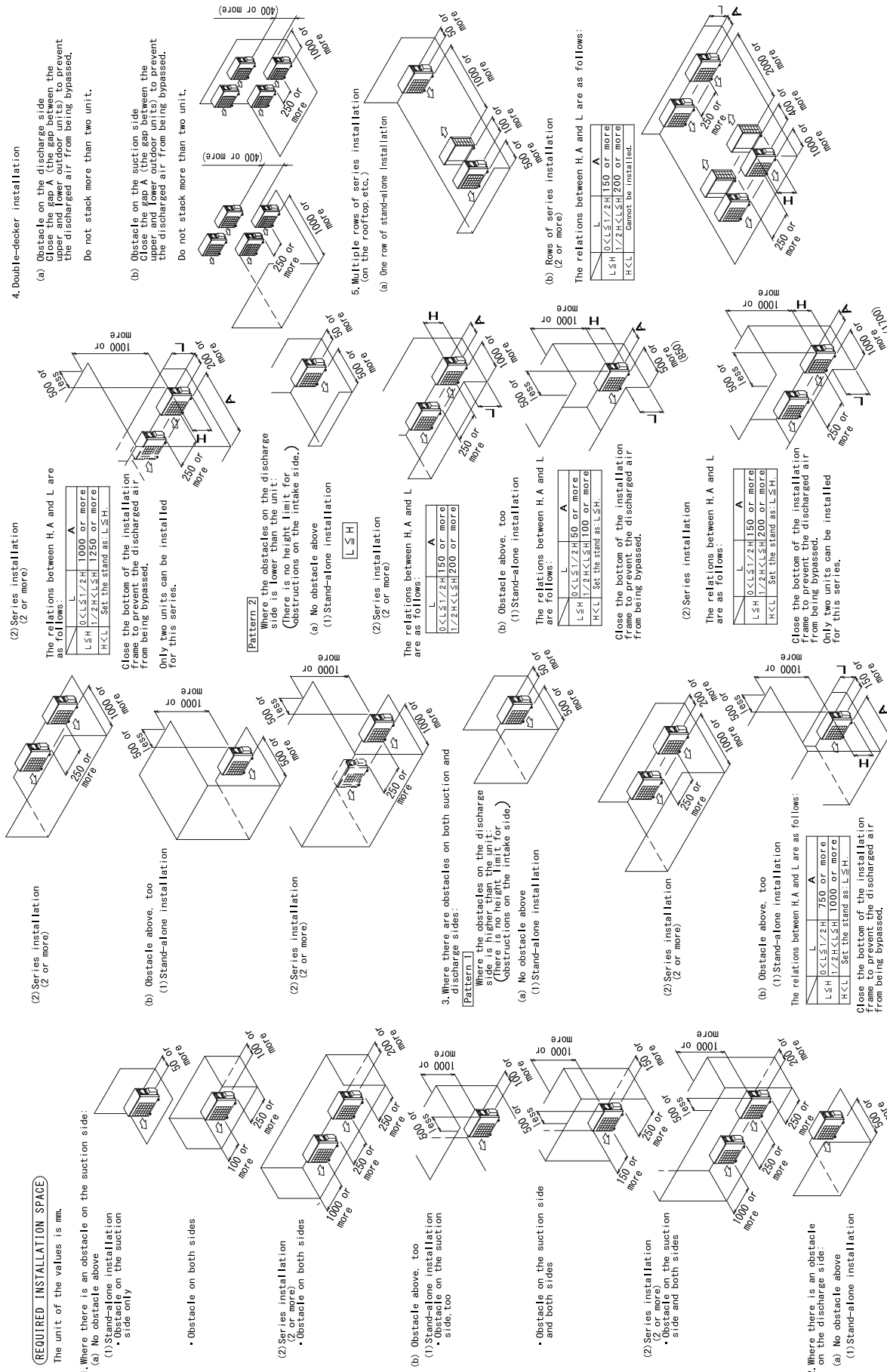
Notes:

- Notes:
1. Item 5 to 7 knock out hole.
 2. When conducting concentrated drain piping work, attach the drain plugs.
 3. For RZA48/54AYMK, auxiliary pipes will be attached with outdoor to use upper field pipe size.

3D140665A

6. Installation Service Space

RZCA18AVMK



RZCA24AVMK / RZCA30AVMK / RZCA36AVMK

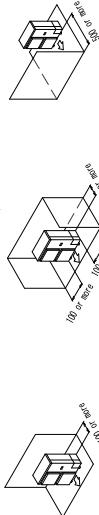
INSTALLATION SERVICE SPACE

STAND-ALONE INSTALLATION

(The measure of these values is "mm".)

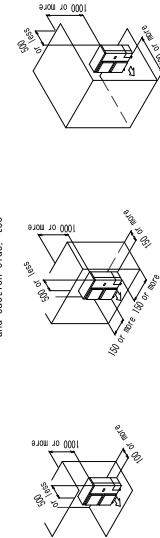
No obstacle above

- (1) Obstacle on the suction side only
- (2) Obstacle on both sides and suction side, too
- (3) Obstacle on the discharge side only



Obstacle above, too

- (1) Obstacle on the suction side, too
- (2) Obstacle on both sides and suction side, too
- (3) Obstacle on the discharge side only, too



When there are obstacles on both suction and discharge sides

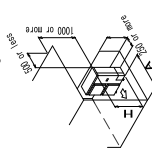
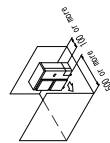
Pattern 1 When the obstacles on the discharge side is higher than the unit

- (1) No obstacle above
(There is no limit for the height of obstructions on the suction side.)
- (2) Obstacle above, too
(The relations between H, A and L are as follows.)

L	A
$L \leq 1/2 H$	750 or more
$L \leq H$	1000 or more
$L > H$	Set the stand as : $L \leq H$

As for A, it is same as $L \leq H$

(※) Close the bottom of the installation frame to prevent the discharged air from being bypassed.



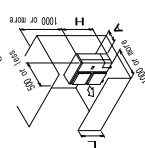
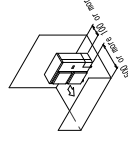
Pattern 2 When the obstacle on the discharge side is lower than the unit

- (1) No obstacle above, too
(There is no limit for the height of obstructions on the suction side.)
- (2) Obstacle above, too
(The relations between H, A and L are as follows.)

L	A
$L \leq 1/2 H$	100 or more
$L \leq H$	200 or more
$L > H$	Set the stand as : $L \leq H$

As for A, it is same as $L \leq H$

(※) Close the bottom of the installation frame to prevent the discharged air from being bypassed.

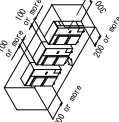


SERIES INSTALLATION (2 OR MORE)

(※) In side extraction, please provide the space of piping.
(The measure of these values is "mm".)

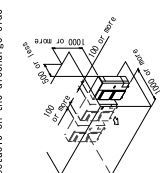
No obstacle above

- (1) Obstacle on the suction side and both sides
- (2) Obstacle on the discharge side only



Obstacle above, too

- (1) Obstacle on the discharge side



When there are obstacles on both suction and discharge sides

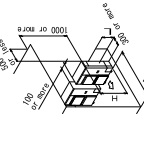
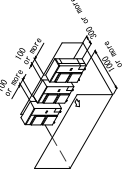
Pattern 1 When the obstacles on the discharge side is higher than the unit

- (1) No obstacle above
(There is no limit for the height of obstructions on the suction side.)
- (2) Obstacle above, too
(The relations between H, A and L are as follows.)

L	A
$L \leq 1/2 H$	1000 or more
$L \leq H$	1250 or more
$L > H$	Set the stand as : $L \leq H$

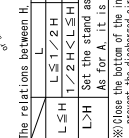
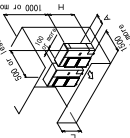
As for A, it is same as $L \leq H$

(※) Close the bottom of the installation frame to prevent the discharged air from being bypassed.
Unit of series installation is 2 unit.



Pattern 2 When the obstacle on the discharge side is lower than the unit

- (1) No obstacle above, too
(There is no limit for the height of obstructions on the suction side.)
- (2) Obstacle above, too
(The relations between H, A and L are as follows.)



The relations between H, A and L are as follows.

L	A
$L \leq 1/2 H$	250 or more
$L \leq H$	300 or more
$L > H$	Set the stand as : $L \leq H$

As for A, it is same as $L \leq H$

(※) Close the bottom of the installation frame to prevent the discharged air from being bypassed.
Unit of series installation is 2 unit.

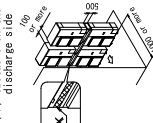
DOUBLE-DECKER INSTALLATION

(The measure of these values is "mm".)

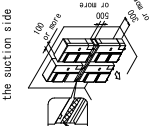
No obstacle above

- (※) Do not stack more than two unit;
• The drain piping construction size of upper side outdoor unit is needed about 100mm.
• The drain piping construction size of lower side outdoor unit is needed about 100mm.
(※) : the gap between the upper and lower outdoor units.
• In side extraction, please provide the space of piping.

- (1) Obstacle on the discharge side



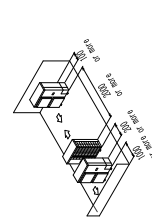
- (2) Obstacle on the suction side



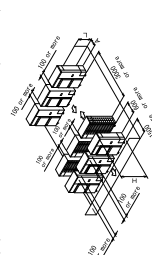
MULTIPLE ROWS OF SERIES INSTALLATION (ON THE ROOFTOP, ETC.)

(The measure of these values is "mm".)

- (1) One row of stand-alone installation



- (2) Rows of series installation (2 or more)



The relations between H, A and L are as follows.

L	A
$L \leq 1/2 H$	250 or more
$L \leq H$	300 or more
$L > H$	Can not be installed

3D124795B

RZCA42AYMK

Suction side

In the illustration below, the service space at the suction side is based on 35°C DB and cooling operation. Foresee more space in the following cases:

- When the suction side temperature regularly exceeds this temperature.
- When the heat load of the outdoor units is expected to regularly exceed the maximum operating capacity.

Discharge side

Take refrigerant piping work into account when positioning the units. If your layout does not match with any of the layouts below, contact your dealer.

Single unit (Single row of units)

	A-E	Hb Hd Hu	a	b	c	d	e	e	e
	B	-	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100
	A,B,C	-	≥ 100(!)	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100
	B,E	-	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100
	A,B,C,E	-	≥ 150(!)	≥ 150	≥ 150	≥ 150	≥ 1000	≥ 1000	≥ 500
	D	-	≥ 150(!)	≥ 150	≥ 150	≥ 150	≥ 1000	≥ 1000	≥ 500
	D,E	-	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
	B,D	Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000	≥ 1000	≥ 500
		Hb>Hu	≥ 100	≥ 100	≥ 100	≥ 100	≥ 1000		

A,B,C,D Obstacles (walls/baffle plates)

E Obstacle (roof)

a,b,c,d,e Minimum service space between the unit and obstacles A, B, C, D and E

ea Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B

eb Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D

Hu Height of the unit

Hb,Hd Height of obstacles B and D

1 Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.

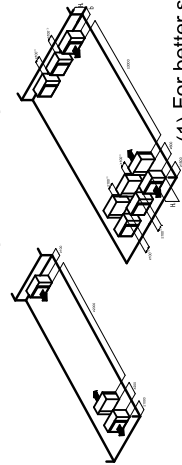
2 Maximum two units can be installed.

⊘ Not allowed

p. 1

Multiple rows of units (Multiple rows of units)

Multiple rows of units (Multiple rows of units)



Hb Hu	b (mm)
Hb ≤ 1/2 Hu	b ≥ 250
1/2 Hu < Hb ≤ Hu	b ≥ 300
Hb > Hu	⊘

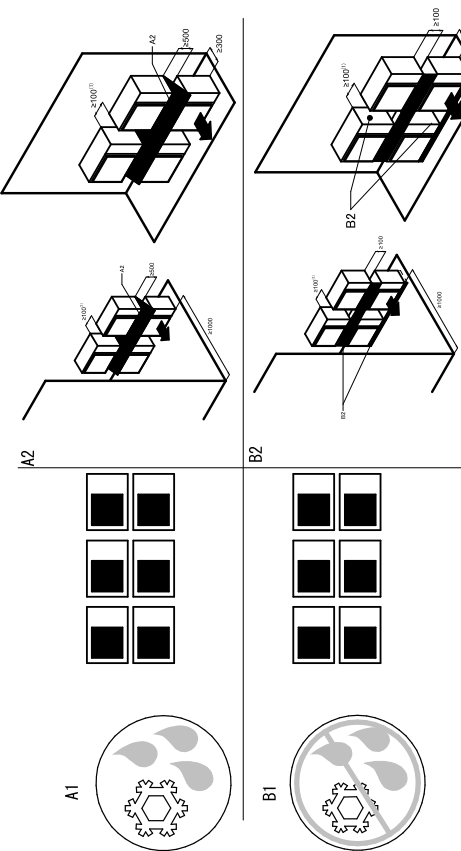
(1) For better serviceability, use a distance ≥250 mm
⊘ Not allowed

p. 2

Stacked units (max. 2 levels) (Stacked units (max. 2 levels))



Stacked units (max. 2 levels) (Stacked units (max. 2 levels))



(1) For better serviceability, use a distance ≥250 mm

A1=>A2 (A1) If there is danger of drainage dripping and freezing between the upper and lower units...

(A2) Then install a roof between the upper and lower units. Install the upper unit high enough above the lower unit to prevent ice buildup at the upper unit's bottom plate.

B1=>B2 (B1) If there is no danger of drainage dripping and freezing between the upper and lower units...

(B2) Then it is not required to install a roof, but seal the gap between the upper and lower units to prevent discharged air from flowing back to the suction side through the bottom of the unit.

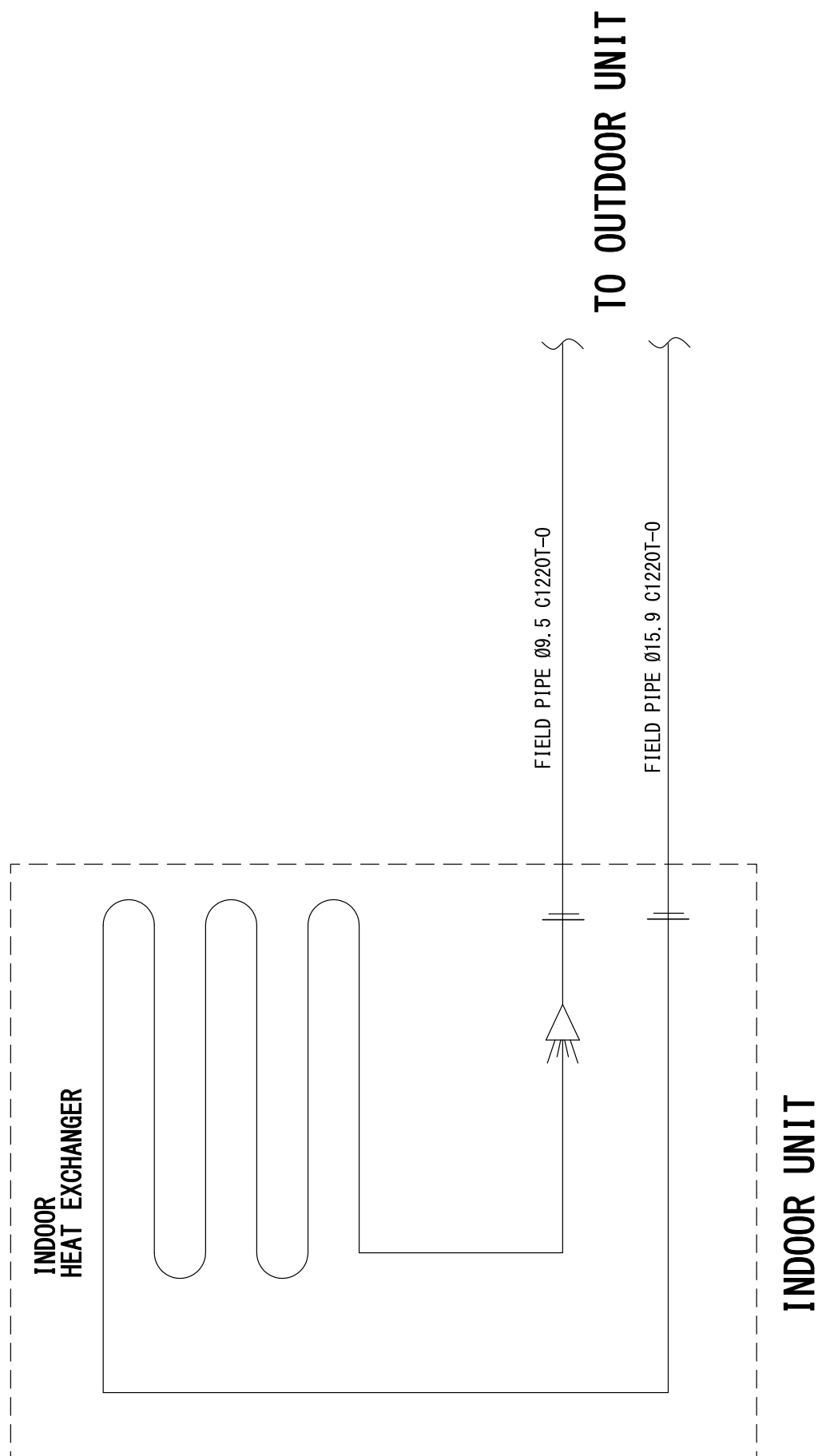
p. 3

3D133041B

7. Piping Diagrams

7.1 Indoor Unit

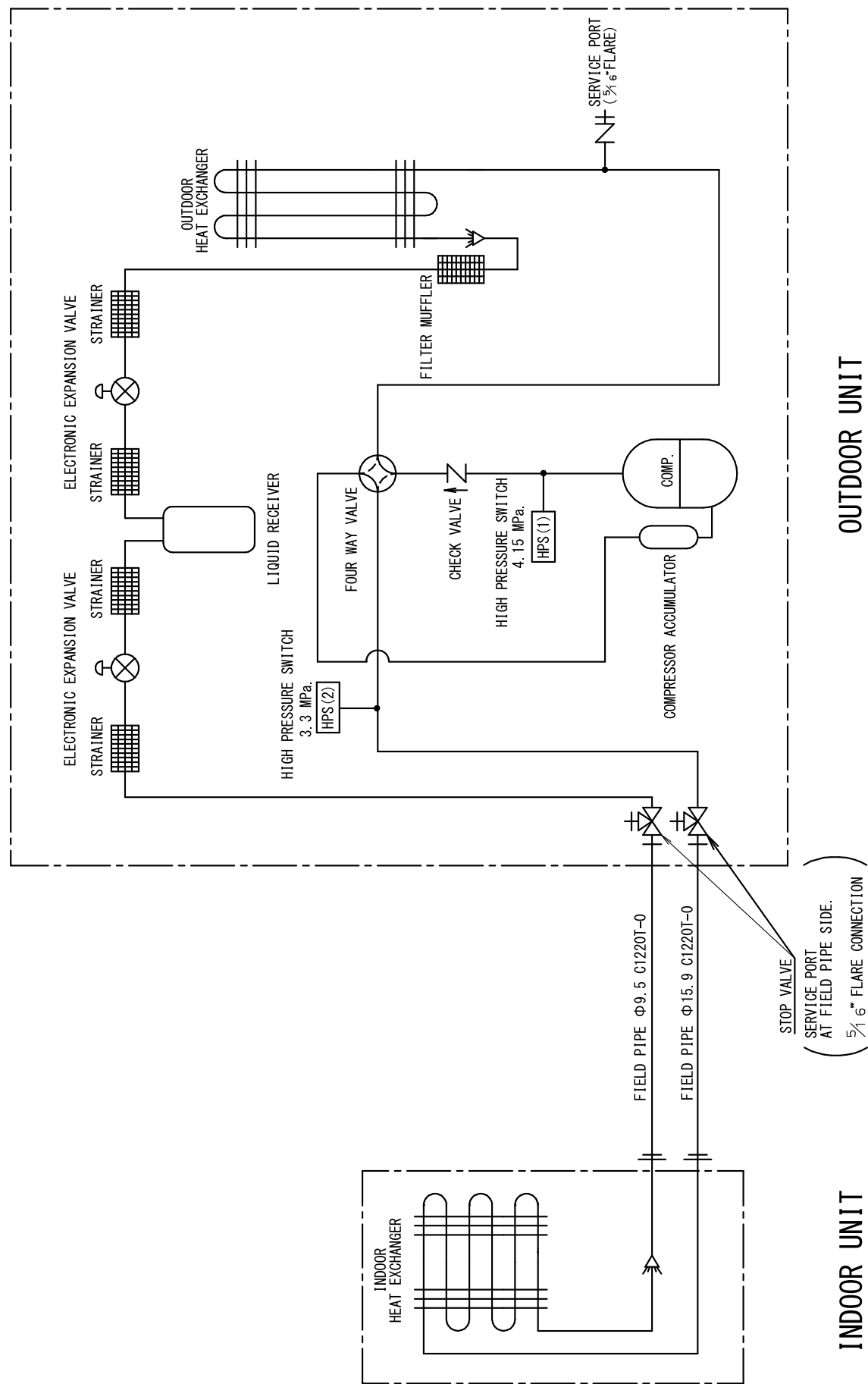
FCA18AVMK / FCA24AVMK / FCA30AVMK / FCA36AVMK / FCA42AVMK



3D119900F

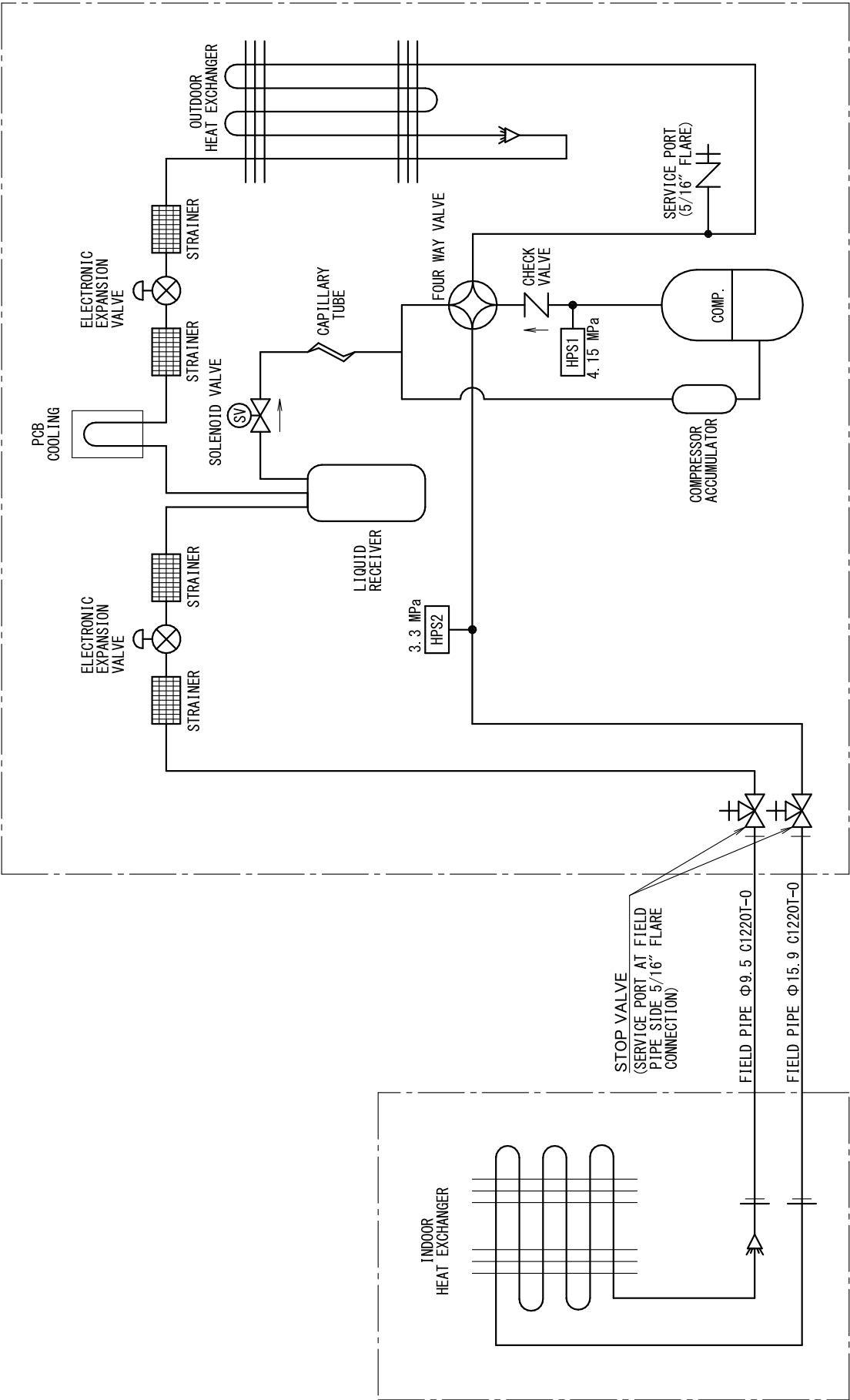
7.2 Outdoor Unit

RZCA18AVMK



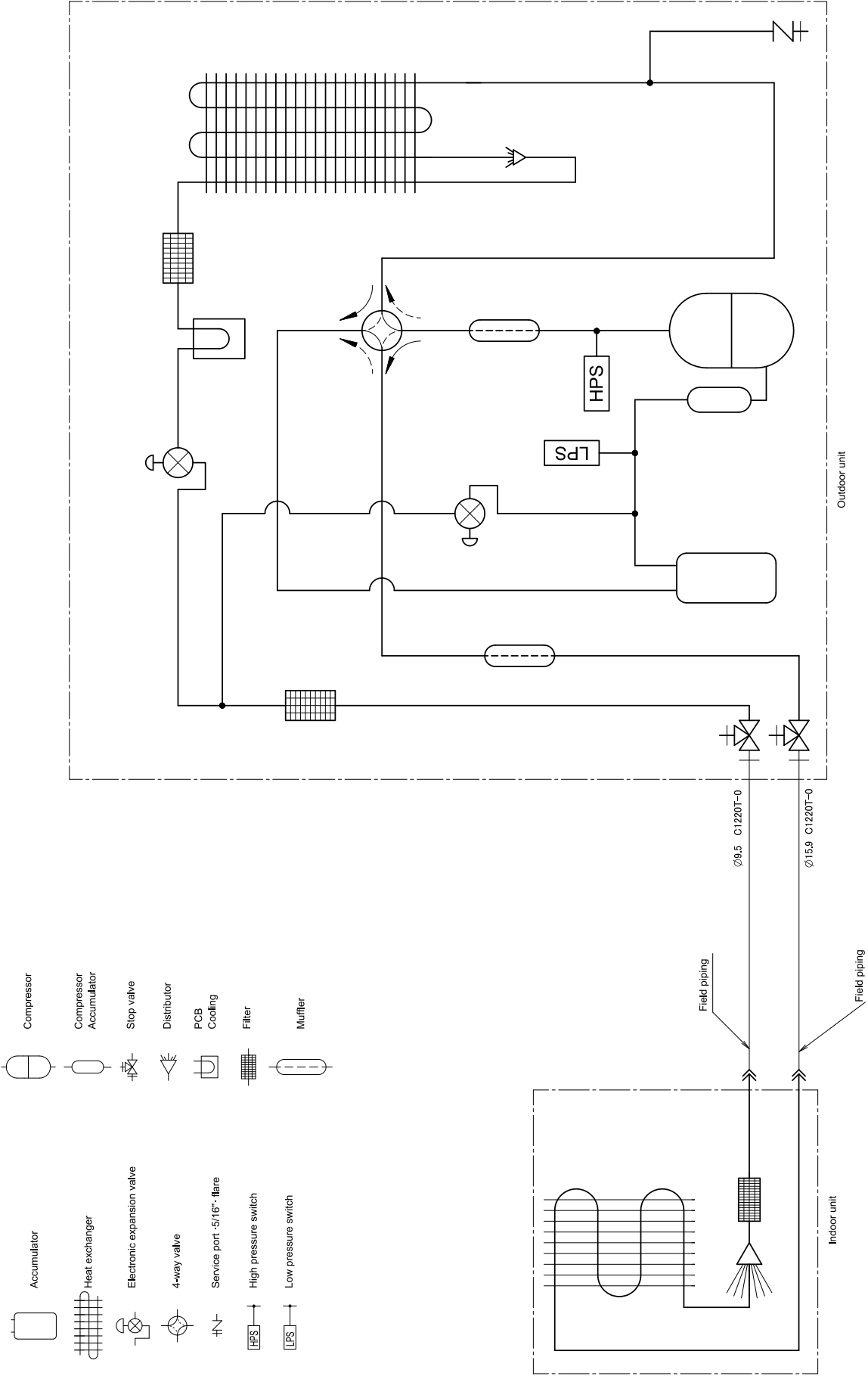
3D141509A

RZCA24AVMK / RZCA30AVMK / RZCA36AVMK



3D141510A

RZCA42AYMK

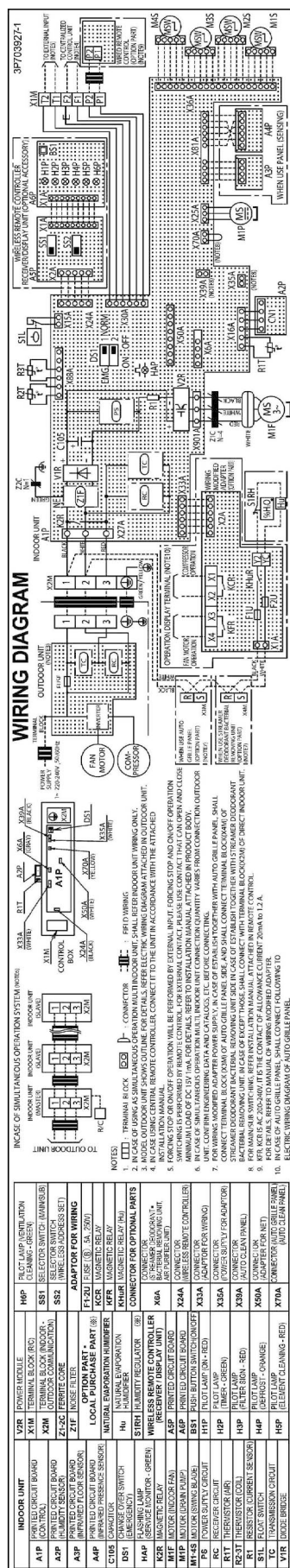


3D145670

8. Wiring Diagrams

8.1 Indoor Unit

FCA18AVMK / FCA24AVMK / FCA30AVMK / FCA36AVMK / FCA42AVMK

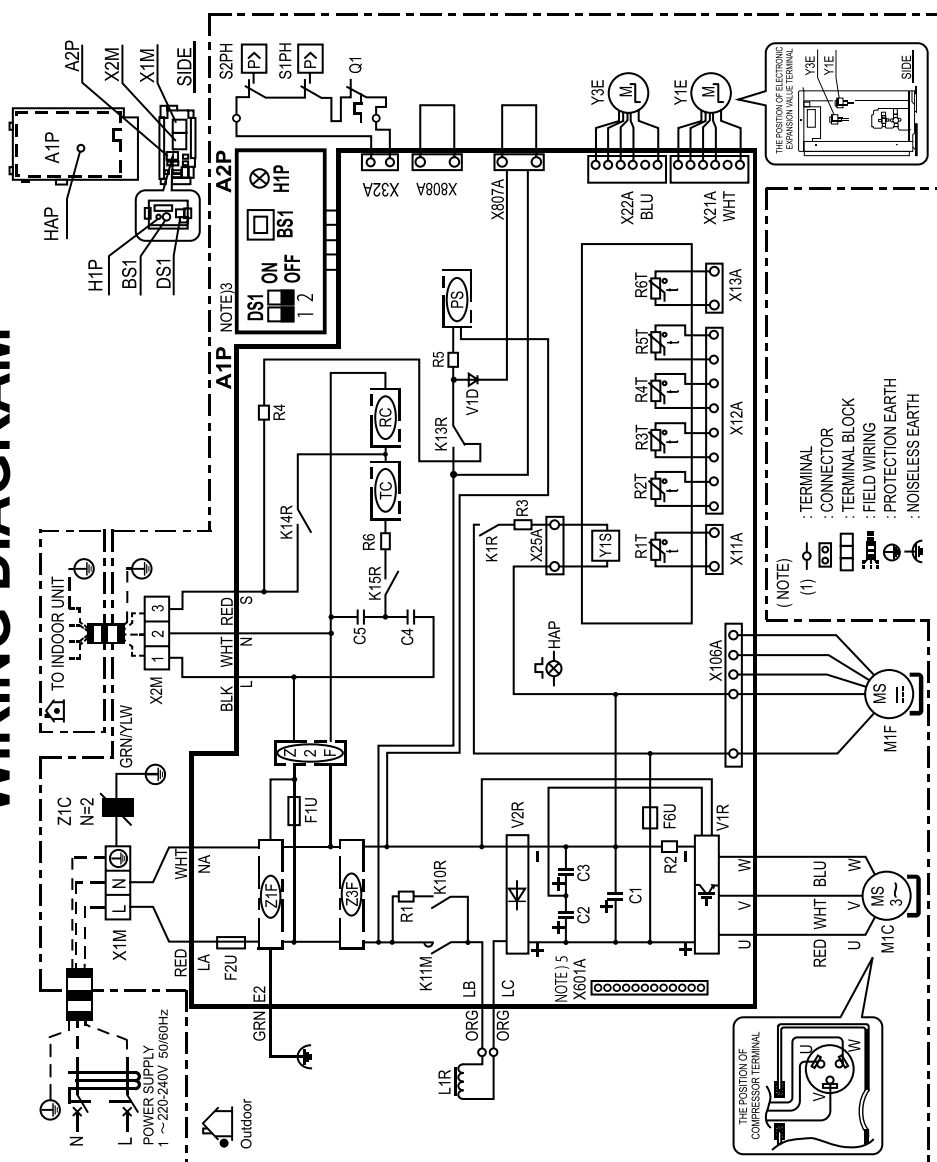


3P703927

8.2 Outdoor Unit

RZCA18AVMK

WIRING DIAGRAM



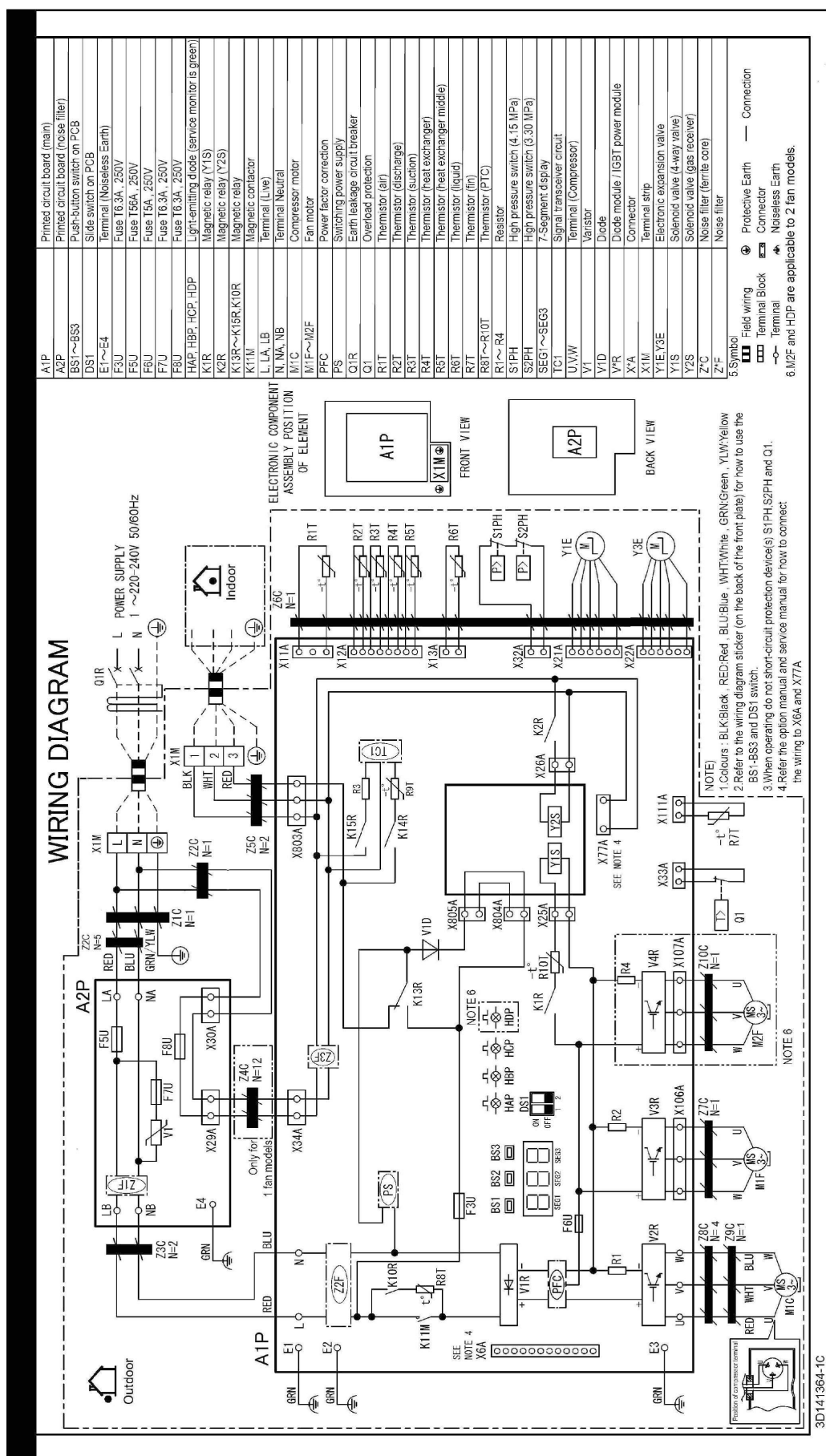
2) COLOURS : BLK : BLACK, RED : RED, BLU : BLUE, WHT : WHITE, GRN : GREEN, YLW : YELLOW, ORG : ORANGE
3) FOR THE METHOD OF DS1 SETTING, PLEASE CONFIRM BY SERVICE MANUAL. FACTORY DEFAULT SETTING IS ALL SETTING AS OFF.
4) WHEN OPERATING DO NOT SHORT-CIRCUIT PROTECTION DEVICE(S) S1PH, S2PH AND Q1.
5) REFER THE COMBINATION TABLE AND OPTION MANUAL FOR HOW TO CONNECT THE WIRING TO X801A.

3D141363-1

SYMBOL	NAME
A1P	PRINTED CIRCUIT BOARD(MAIN)
A2P	PRINTED CIRCUIT BOARD(INDICATION)
BS1	PUSH BUTTON SWITCH ON PCB (FORCED DEFROST / PUMP DOWN)
C1,C2,C3,C4,C5	CAPACITOR
DS1	SLIDE SWITCH ON PCB
F1U	FUSE (T 6.3A,250V)
F2U	FUSE
F6U	FUSE(T 3.15A,250V)
HAP	FLASHING LAMP(SERVICE MONITOR:GREEN)
H1P	PILOT LAMP (SERVICE MONITOR:RED)
K11M	MAGNETIC CONTACTOR
K1R	MAGNETIC RELAY
K10R	MAGNETIC RELAY
K13R~K15R	MAGNETIC RELAY
Q1	OVERLOAD PROTECTOR
L1R	REACTOR
M1C	COMPRESSOR MOTOR
M1F	FAN MOTOR
PS	SWITCHING POWER SUPPLY
R1~R6	RESISTOR
R1T	THERMISTOR(AIR)
R2T	THERMISTOR(DISCHARGE PIPE)
R3T	THERMISTOR(SUCTION PIPE)
R4T	THERMISTOR(H/E DISTRIBUTE PIPE)
R5T	THERMISTOR(COIL MIDDLE)
R6T	THERMISTOR(LIQUID PIPE)
RC	RECEIVER
S1PH	HIGH PRESSURE SWITCH(4.15MPa.)
S2PH	HIGH PRESSURE SWITCH(3.30MPa.)
TC	TRANSMITTER
V1D	DIODE
V1R	IGBT POWER MODULE
V2R	DIODE BRIDGE
X601A	CONNECTOR (DEMAND ADAPTOR)
X1M	TERMINAL BLOCK
X2M	TERMINAL BLOCK (INDOOR-OUTDOOR TRANSMISSION)
Y1E	ELECTRONIC EXPANSION VALVE
Y3E	ELECTRONIC EXPANSION VALVE
Y1S	FOUR WAY VALVE COIL
Z1F~Z3F	NOISE FILTER
Z1C	FERRITE CORE

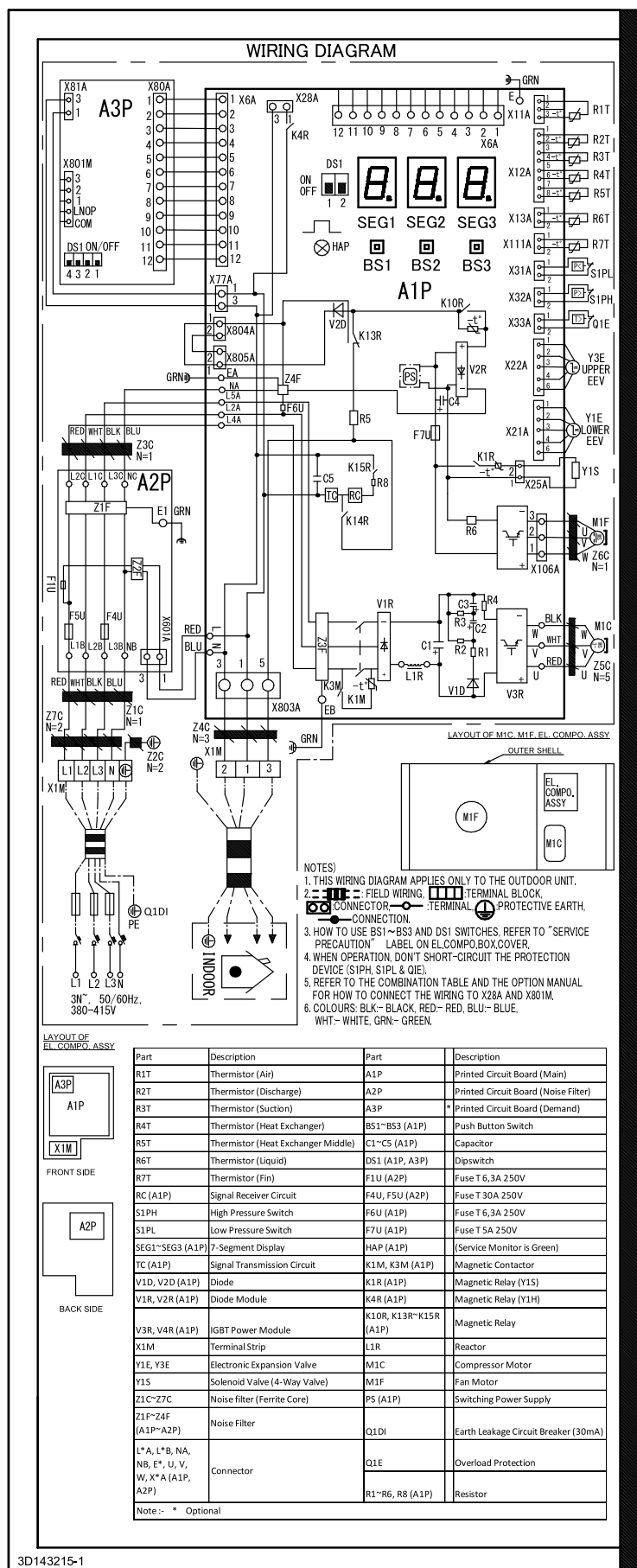
3D141363A

RZCA24AVMK / RZCA30AVMK / RZCA36AVMK



3D141364C

RZCA42AYMK



9. Field Wiring

FCA18AVMK + RZCA18AVMK
FCA24AVMK + RZCA24AVMK
FCA30AVMK + RZCA30AVMK
FCA36AVMK + RZCA36AVMK

- NOTE:-
1.

2.

3.

4.

5.

6.

7.

8.

9.

10.
- LINE VOLTAGE WIRING.

CONTROL CIRCUIT WIRING

ALL WIRING COMPONENTS AND MATERIALS TO BE PROCURED ON THE SITE.

MUST COMPLY WITH THE APPLICABLE LOCAL AND NATIONAL CODES.

USE COPPER CONDUCTOR ONLY.

SEE WIRING DIAGRAMS.

FOR DETAILS OF MAIN SWITCH FOR SAFETY.

INSTALL FUSE AND MAIN SWITCH FOR SAFETY.

ALL FIELD WIRING AND COMPONENTS MUST BE PROVIDED BY A LICENSED ELECTRICIAN.

UNIT SHALL BE GROUNDED IN COMPLIANCE WITH THE APPLICABLE LOCAL AND NATIONAL CODES.

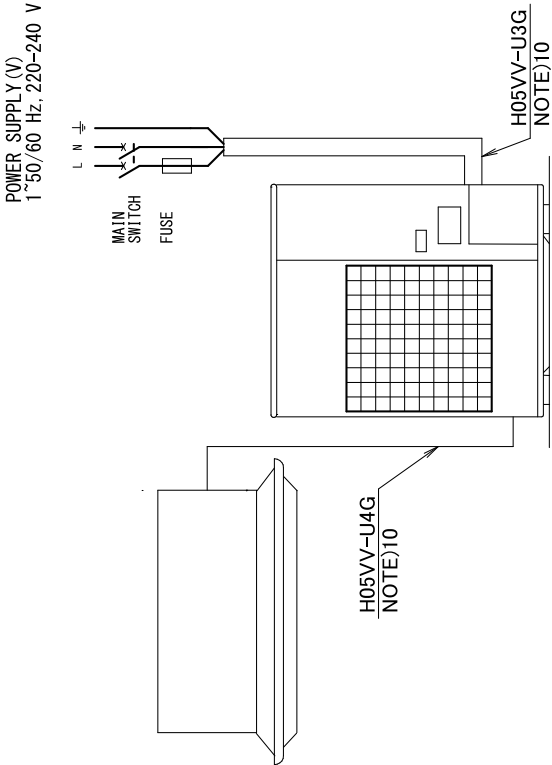
WIRING SHALL INCLUDE ALL DETAILS FOR CONNECTIONS GUIDES ONLY AND ARE NOT INTENDED FOR

DRYING. INCLUDE ALL DETAILS FOR SPECIFIC INSTALLATION.

NEVER SHARE A COMMON POWER SOURCE WITH OTHER EQUIPMENTS.

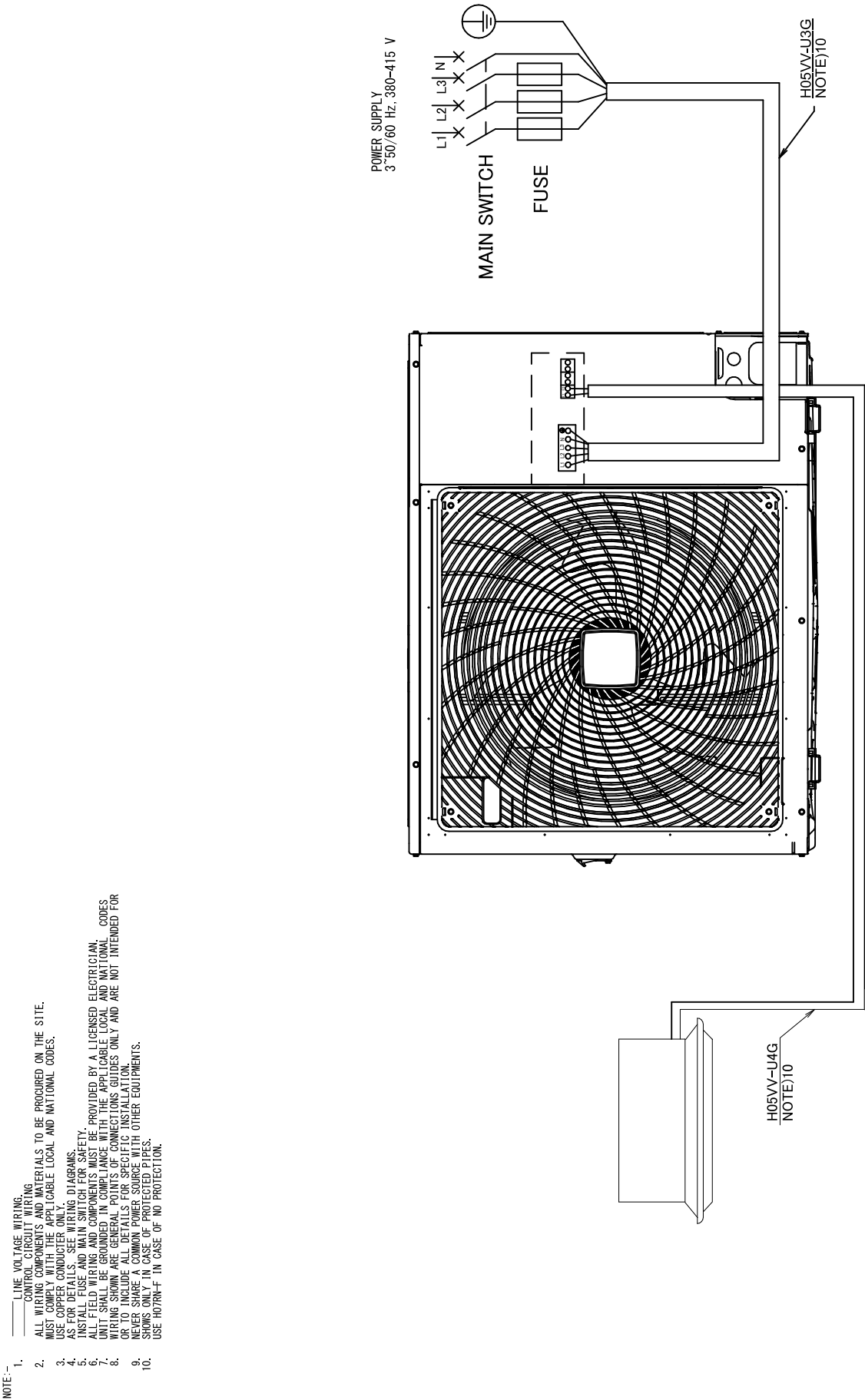
SHOWS ONLY IN CASE OF PROTECTED TYPES.

USE H07RN-F IN CASE OF NO PROTECTION.



3D144295

FCA42AVMK + RZCA42AYMK



3D144294

10. Electric Characteristics

FCA18AVMK + RZCA18AVMK

FCA24AVMK + RZCA24AVMK

FCA30AVMK + RZCA30AVMK

FCA36AVMK + RZCA36AVMK

FCA42AVMK + RZCA42AYMK

Unit Combination		Outdoor Unit										Indoor Unit		
		Power Supply				Comp			OFM			Power Supply		IFM
Indoor	Outdoor	Hz; Voltz	Voltage range	MCA	TOCA	MFA	MSC	RLA	kW	FLA	Hz; Voltz	Voltage range	kW	FLA
FCA18AVMK	RZCA18AVMK	50/60; 220-240	Max 50/60 Hz 264V Min 50/60 Hz 198V	17.7	17.7	20	-	15.1	0.064	0.3	50/60; 220-240 Max 50/60 Hz 264V Min 50/60 Hz 198V		0.053	0.6
FCA24AVMK	RZCA24AVMK			29.6	29.6	32	-	24	0.200	1.0			0.106	1.7
FCA30AVMK	RZCA30AVMK			29.6	29.6	32	-	24	0.200	1.0			0.106	1.7
FCA36AVMK	RZCA36AVMK			29.6	29.6	32	-	24	0.200	1.0			0.106	1.7
FCA42AVMK	RZCA42AVMK	50/60; 380-415	Max 50/60 Hz 457V Min 50/60 Hz 342V	18.0	18.0	20	-	13	0.234	1.4			0.106	1.7

SYMBOLS :

MCA : Min. Circuit Amps. (A)
 TOCA : Total Over-current Amps. (A)
 MFA : Max. Fuse Amps. (A)
 MSC : Max. Current during the starting Compressor. (A)
 RLA : Rated Load Amps. (A)
 OFM : Outdoor Fan Motor
 IFM : Indoor Fan Motor
 FLA : Full Load Amps. (A)
 kW : Fan Motor Rated Output (W)

NOTES :

1. RLA is based on the following conditions.
Indoor temp. 27°CDB/19°CWB
Outdoor temp. 35°CDB.
2. Maximum allowable voltage variation between phases is 2%.
3. Select wire size based on the larger value of MCA.
4. Instead of fuse use circuit breaker.

3D144330

11.Capacity Tables

11.1 Capacity Tables

FCA18AVMK + RZCA18AVMK

Notes :

1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.

2. On the Figure the mark with □ show the max. Once at standard conditions. However the max. Capacity is not guaranteed except at standard condition.

3. On the tables □ show rated capacity and rated coefficient of power input.

4. SHC = SHC correction for other dry bulb.
 $SHC = SHC_{AFR} \times (1 - BF) \times (DB - EDB)$

5. Add SHC to SHC.

6. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m

7. Coefficient of power input is the percentage when the rated value is defined as 1.00.

8. Air flow rate and (BF) are tabulated below.
(Pair)

	FCA18AVMK
AFR (BF)	23 (0.18)

	FCA18AVMK
Cooling	1,195

9. Rate power input of each model is tabulated below.
(Pair)

	FCA18AVMK
Cooling	1,195

Symbols :

AFR : Air flow rate
(m³ /min)

BF : By pass factor
(°c WB)

EDB : Entering wet bulb temp.
(°c DB)

TC : Total cooling capacity
(kW)

SHC : Sensible heat capacity
(kW)

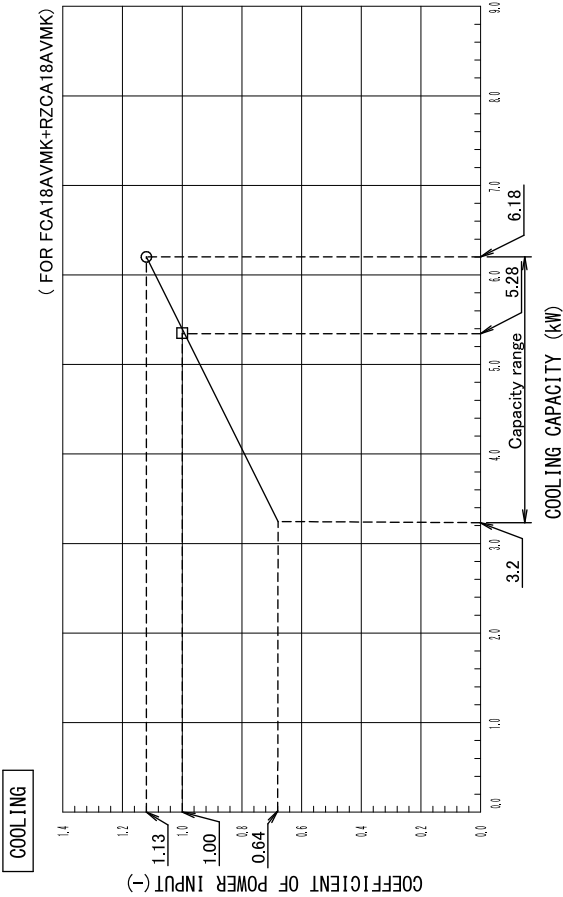
PI : Power input
(kW)

CPI : (Comp.+indoor+outdoor fan motor).
Coefficient of power input
(-)

Caution :

TC and SHC are shown by kW.

C: 3D144339



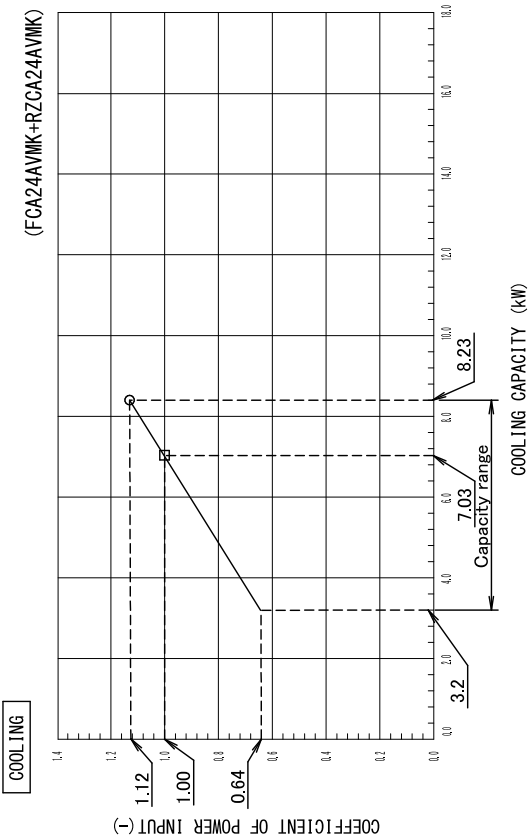
(FOR FCA18AVMK)

COOLING

Unit Combination: FCA18AVMK+RZCA18AVMK																																	
AFR (CFM)		EWB	EDB	Outdoor Ambient Temperature, DB																													
				30°C (86°F)						35°C (95°F)						40°C (104°F)						46°C (115°F)						48°C (118°F)					
				TC		SC		PI		TC		SC		PI		TC		SC		PI		TC		SC		PI		TC		SC		PI	
				kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh
	17°C (62.5°F)	21°C	5.09	17.37	3.20	10.94	1.09	4.90	1.19	11.69	3.43	16.72	4.90	16.31	3.18	10.86	1.35	4.45	1.57	3.46	11.80	1.54	3.88	13.25	4.21	10.95	1.59	3.88	13.25	4.21	10.95	1.59	
		24°C	5.13	17.50	4.11	14.03	1.09	4.94	1.19	16.86	4.41	15.05	4.82	16.45	4.15	14.03	1.35	4.57	1.57	3.46	11.80	1.54	4.15	14.15	4.07	13.89	1.59	4.15	14.15	4.07	13.89	1.59	
		27°C	5.32	18.15	4.71	16.06	1.09	5.16	1.19	17.61	5.00	17.04	5.05	17.23	4.64	15.84	1.35	4.92	1.68	4.76	16.24	1.56	4.48	15.29	4.39	14.98	1.60	4.48	15.29	4.39	14.98	1.60	
		30°C	5.67	19.35	5.01	17.08	1.09	5.50	1.19	18.77	5.33	18.18	5.40	18.43	4.95	16.89	1.37	5.29	1.80	4.51	17.44	1.58	4.82	16.46	4.72	16.12	1.61	4.82	16.46	4.72	16.12	1.61	
		24°C	5.43	18.53	3.50	11.95	1.09	5.24	1.19	17.88	3.76	12.82	1.19	5.11	17.44	3.50	11.95	1.36	4.77	16.27	3.87	13.21	1.55	4.32	14.74	3.61	12.31	1.60	4.32	14.74	3.61	12.31	1.60
812	19°C (66°F)	27°C	81°F	5.47	18.66	4.42	15.08	1.09	5.28	18.02	4.75	16.21	1.19	5.15	17.57	4.44	15.16	1.36	5.01	17.09	4.76	16.24	1.56	4.48	15.29	4.39	14.98	1.60	4.48	15.29	4.39	14.98	1.60
		30°C	86°F	5.67	19.35	5.02	17.12	1.09	5.50	18.77	5.33	18.18	1.20	5.40	18.43	4.95	16.89	1.37	5.29	18.04	5.11	17.44	1.58	4.82	16.46	4.72	16.12	1.61	4.82	16.46	4.72	16.12	1.61
		33°C	91°F	6.02	20.54	5.33	18.18	1.09	5.85	19.96	5.67	19.34	1.20	5.75	19.62	5.27	17.99	1.38	5.65	19.30	5.47	18.65	1.59	5.17	17.63	5.07	17.30	1.61	5.17	17.63	5.07	17.30	1.61
		27°C	81°F	5.96	20.34	3.50	11.95	1.09	5.76	19.65	3.76	12.82	1.20	5.63	19.21	5.27	17.92	1.35	5.25	17.92	3.88	13.25	1.57	4.78	16.30	3.62	12.35	1.61	4.78	16.30	3.62	12.35	1.61
		30°C	86°F	6.00	20.47	4.41	15.05	1.09	5.79	19.76	4.75	16.21	1.20	5.66	19.31	4.44	15.16	1.37	5.29	18.04	5.11	17.44	1.58	4.82	16.46	4.72	16.12	1.61	4.82	16.46	4.72	16.12	1.61
	22°C (72°F)	33°C	91°F	6.02	20.54	5.32	18.14	1.09	5.85	19.96	5.67	19.34	1.20	5.75	19.62	5.27	17.99	1.38	5.65	19.30	5.47	18.65	1.59	5.17	17.63	5.07	17.30	1.61	5.17	17.63	5.07	17.30	1.61
		35°C	95°F	6.26	21.36	5.54	18.89	1.09	6.09	20.78	5.90	20.14	1.21	5.98	20.40	5.27	18.74	1.38	5.91	20.16	5.71	19.48	1.60	5.41	18.45	5.30	18.09	1.62	5.41	18.45	5.30	18.09	1.62

C: 3D144339

FCA24AVMK + RZCA24AVMK



- Notes :
1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 2. On the Figure the mark with $\bigcirc$ show the max. Onces at standard conditions.
 3. On the Figure the mark with $\square$ show rated capacity and rated coefficient of power input.
 4. On the tables $\square$ show rated capacity and rated coefficient of power input.
 5. SHC = SHC correction for other dry bulb.
 $SHC = 0.02 \times \Delta T / (t_m / \min) \times (1 - BF) \times (DB - EDB)$
 6. Add SHC to SHC.
 7. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 8. Coefficient of power input is the percentage when the rated value is defined as 1.00.
 9. The valve contains less than 5% error according to indoor unit type.
 10. Heating capacity include the drop of frost formation.
 11. Air flow rate and (BF) are tabulated below.

	FCA24AVMK
AFR (BF)	34.5 (0.18)

10. Rate power input of each model is tabulated below.

	FCA24AVMK
Cooling	1.55

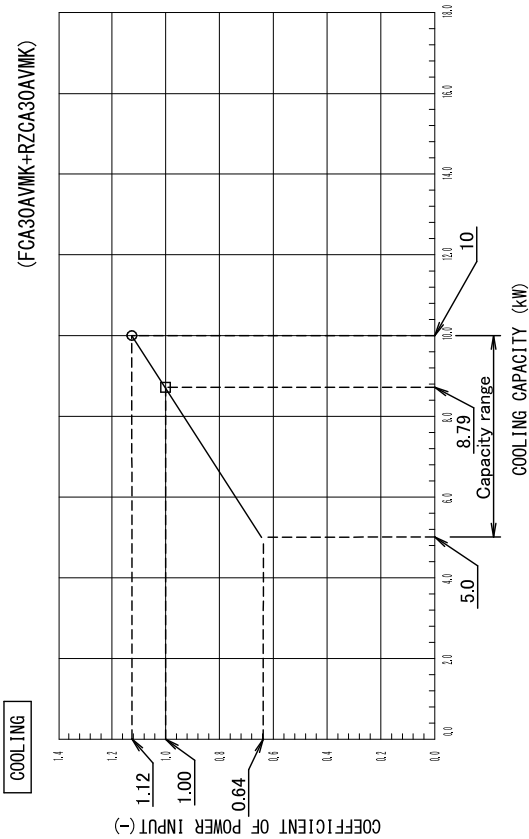
- Symbols :
- AFR : Air flow rate (m³ / min)
 - BF : By pass factor
 - EDB : Entering wet bulb temp. (°C WB)
 - TC : Total cooling capacity (kW)
 - SHC : Sensible heat capacity (kW)
 - PI : Power input (Comp. indoor-outdoor fan motor).
 - CPI : Coefficient of power input.

Caution :
TC and SHC are shown by kW.

COOLING		(FOR FCA24AVMK)																									
Unit Combination: FCA24AVMK+RZCA24AVMK																											
Piping Length: 7.5 m Height Difference: 0 m																											
AFR (CFM)	EWB	EDB	Outdoor Ambient Temperature, DB																								
			30°C (86°F)				35°C (95°F)				40°C (104°F)				46°C (115°F)				48°C (118°F)								
			TC	Mbh	kW	PI	SC	Mbh	kW	PI	TC	Mbh	kW	PI	SC	Mbh	kW	PI	TC	Mbh	kW	PI	SC	Mbh	kW	PI	
1218	17°C (62.5°F)	21°C	6.78	23.12	4.27	14.56	1.42	6.52	22.26	4.56	15.56	1.55	6.36	21.72	4.24	14.46	1.75	5.93	20.23	4.61	15.73	2.03	4.88	16.66	4.03	13.76	1.91
		24°C	6.83	23.31	5.47	18.68	1.42	6.58	22.44	5.87	20.03	1.55	6.42	21.90	5.47	18.68	1.76	6.10	20.80	5.97	20.38	2.03	5.21	17.79	5.11	17.45	1.91
		27°C	7.08	24.17	6.27	21.39	1.42	6.87	23.44	6.65	22.69	1.55	6.72	22.94	6.18	21.09	1.76	6.56	22.37	6.35	21.65	2.05	5.63	19.21	5.52	18.83	1.92
		30°C	7.55	25.76	6.67	22.74	1.42	7.32	24.99	7.09	24.20	1.56	7.19	24.53	6.59	22.49	1.79	7.05	24.05	6.82	23.26	2.07	6.06	20.68	5.94	20.26	1.93
		24°C	7.23	24.67	4.66	15.92	1.42	6.98	23.81	5.00	17.07	1.55	6.80	23.22	4.66	15.92	1.77	6.36	21.69	5.16	17.61	2.04	5.43	18.52	4.53	15.47	1.92
1218	19°C (66°F)	27°C	7.28	24.85	5.89	20.08	1.42	7.03	23.99	6.33	21.59	1.55	6.86	23.40	5.92	20.18	1.77	6.68	22.79	6.35	21.65	2.05	5.63	19.21	5.52	18.83	1.92
		30°C	7.55	25.76	6.68	22.79	1.42	7.32	24.99	7.09	24.20	1.56	7.19	24.53	6.59	22.49	1.79	7.05	24.05	6.82	23.26	2.07	6.06	20.68	5.94	20.26	1.93
		33°C	8.02	27.35	7.09	24.20	1.42	7.79	26.58	7.55	25.76	1.56	7.66	26.12	7.02	23.95	1.80	7.54	25.73	7.29	24.87	2.09	6.49	22.16	6.37	21.74	1.93
		27°C	7.94	27.08	4.66	15.92	1.42	7.67	26.17	5.00	17.07	1.56	7.50	25.58	4.66	15.92	1.79	7.00	23.89	5.18	17.67	2.06	6.00	20.49	4.55	15.52	1.93
		30°C	7.99	27.26	5.87	20.03	1.42	7.71	26.30	6.33	21.59	1.56	7.54	25.71	5.92	20.18	1.79	7.05	24.05	6.82	23.26	2.07	6.06	20.68	5.94	20.26	1.93
1218	22°C (72°F)	33°C	8.02	27.35	7.08	24.15	1.42	7.79	26.58	7.55	25.76	1.56	7.66	26.12	7.02	23.95	1.80	7.54	25.73	7.29	24.87	2.09	6.49	22.16	6.37	21.74	1.93
		35°C	8.33	28.44	7.37	25.15	1.42	8.11	27.67	7.86	26.81	1.57	7.96	27.17	7.31	24.95	1.80	7.88	26.88	7.61	25.97	2.10	6.80	23.19	6.66	22.73	1.95

C: 3D144341

FCA30AVMK + RZCA30AVMK



- Notes :
1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 2. On the Figure the mark with $\bigcirc$ show the max. Onces at standard conditions.
 3. On the Figure the mark with $\square$ show rated capacity and rated coefficient of power input.
 4. On the tables $\square$ show rated capacity and rated coefficient of power input.
 5. SHC is based on each EWB and EDB.
 $SHC = 0.02 \times AFR \times (m^3/min) \times (1 - BF) \times (DB - EDB)$
 6. Add SHC to SHC.
 7. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 8. Coefficient of power input is the percentage when the rated value is defined as 1.00.
 9. The valve contains less than 5% error accoding to indoor unit type.
 10. Heating capacity include the drop of frost formation.
 11. Air flow rate and (BF) are tabulated below.
(Pair)

	FCA30AVMK
AFR (BF)	34.5 (0.18)

10. Rate power input of each model is tabulated below.
(Pair)

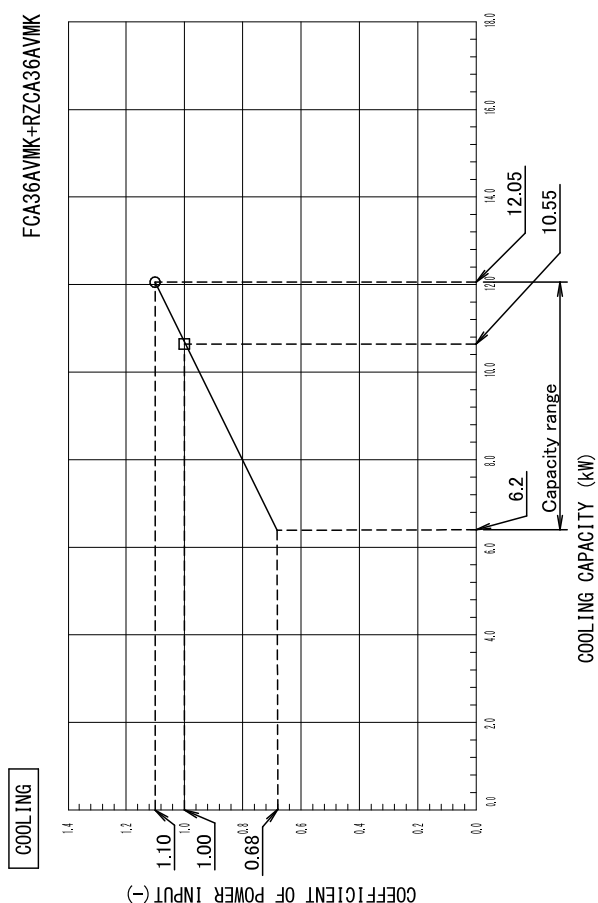
	FCA30AVMK
Cooling	2.12

- Symbols :
- AFR : Air flow rate (m³ /min)
 - BF : By pass factor
 - EWB : Entering wet bulb temp. (°C WB)
 - EDB : Entering dry bulb temp. (°C DB)
 - TC : Total cooling/heating capacity (kW)
 - SHC : Sensible heat capacity (kW)
 - PI : Power input (kW)
 - CPI : (Comp.-indoor-outdoor fan motor). Coefficient of power input (°)

Caution :
TC and SHC are shown by kW.

(FOR FCA30AVMK)

FCA36AVMK + RZCA36AVMK



Notes :

1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
2. On the Figure the mark with ☐ show the max. Onces at standard conditions.
3. On the Figure the mark with ☐ show rated capacity and rated coefficient of power input. However the max. Capacity is not guaranteed except at standard condition.
4. On the tables ☐ show rated capacity and rated coefficient of power input.
5. SHC* is based on each EWB and EDB.
$$SHC = SHC \text{ correction for other dry bulb} \\ = 0.02 \times AFR(m^3/min) \times (1 - BF) \times (DB - EDB)$$
6. Add SHC to SHC*.
7. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
8. Coefficient of power input is the percentage when the rated value is defined as 100.
9. The valve contains less than 5% error according to indoor unit type.
10. Heating capacity include the drop of frost formation.
11. Air flow rate and (BF) are tabulated below.
(Pair)

AFR (BF)	FCA36A/VMK
	36.5 (0.18)

10. Rate power input of each model is tabulated below.

	FCA36AVMK
Cooling	2.82

Symbols :		(m ³ /min)
AFR: Air flow rate		
BF : By pass factor		
EWB : Entering wet bulb temp.	(°C WB)	
EDB : Entering dry bulb temp.	(°C DB)	
TC : Total cooling/heating capacity	(kW)	
SHC : Sensible heat capacity	(kW)	
PI : Power input	(kW)	
CPI : Coefficient of power input,	(Comp.+indoor+outdoor fan motor).	(-)

Caution :
TC and SHC are shown by kW.

C: 3D144343

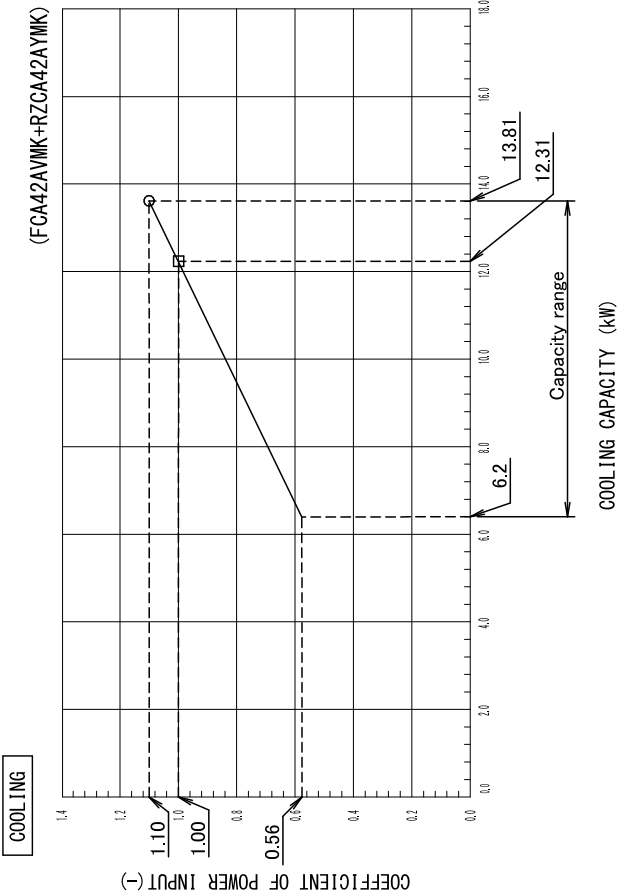
(FOR FCA36AVMK)

COOLING

Unit Combination: FCA36AVMK+RZCA36AVMK																																
		Outdoor Ambient Temperature, DB																														
AFR (CFM)	EWB	EDB	30°C (86°F)						35°C (95°F)						40°C (104°F)						46°C (115°F)						48°C (118°F)					
			TC		SC		PI		TC		SC		PI		TC		SC		PI		TC		SC		PI		TC		SC		PI	
			kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh	kW	Mbh
1289	17°C (62.5°F)	21°C	10.17	34.70	5.79	19.77	2.57	9.79	33.41	6.19	21.14	2.82	9.55	32.59	5.75	19.64	3.19	7.96	27.16	5.86	19.98	3.54	6.41	21.86	5.08	17.33	2.89	2.89	2.89	2.89	2.89	2.89
		24°C	10.25	34.98	7.43	25.36	2.57	9.87	33.68	7.97	27.20	2.82	9.63	32.86	7.43	25.36	3.21	8.19	27.93	7.59	25.89	3.54	6.84	23.35	6.44	21.97	2.89	2.89	2.89	2.89	2.89	
		27°C	10.63	36.27	8.51	29.04	2.57	10.31	35.18	9.03	30.82	2.82	10.09	34.43	8.39	28.63	3.21	8.81	30.04	8.06	27.51	3.58	7.39	25.72	6.95	23.70	2.91	2.91	2.91	2.91	2.91	
		30°C	11.33	38.66	9.05	30.88	2.57	10.99	37.50	9.63	32.86	2.84	10.79	36.82	8.95	30.54	3.25	9.46	32.30	8.66	29.55	3.62	7.96	27.15	7.47	25.50	2.93	2.93	2.93	2.93	2.93	
		24°C	10.85	37.02	6.33	21.61	2.57	10.47	35.73	6.79	23.18	2.82	10.21	34.84	6.33	21.61	3.23	8.54	29.13	6.56	22.37	3.56	7.13	24.31	5.71	19.48	2.91	2.91	2.91	2.91	2.91	
19°C (66°F)	27°C	81°F	10.93	37.29	7.99	27.27	2.57	10.55	36.00	8.59	29.32	2.82	10.29	35.11	8.03	27.41	3.23	8.97	30.61	8.06	27.51	3.58	7.39	25.22	6.95	23.70	2.91	2.91	2.91	2.91	2.91	
	30°C	86°F	11.33	38.66	9.07	30.95	2.57	10.99	37.50	9.63	32.86	2.84	10.79	36.82	8.95	30.54	3.25	9.46	32.30	8.66	29.55	3.62	7.96	27.15	7.47	25.50	2.93	2.93	2.93	2.93	2.93	
	33°C	91°F	12.03	41.04	9.63	32.86	2.57	11.69	39.88	10.25	34.98	2.84	11.49	39.70	9.53	32.52	3.27	10.12	34.55	9.26	31.59	3.64	8.52	29.09	8.02	27.38	2.93	2.93	2.93	2.93	2.93	
	27°C	81°F	11.91	40.63	6.33	21.61	2.57	11.51	39.27	6.79	23.18	2.84	11.25	38.38	6.33	21.61	3.25	9.40	32.08	8.68	27.45	3.60	7.88	26.89	5.73	19.54	2.93	2.93	2.93	2.93	2.93	
	30°C	86°F	11.99	40.91	7.97	27.20	2.57	11.57	39.48	8.59	29.32	2.84	11.31	38.59	8.03	27.41	3.25	9.46	32.30	8.66	29.55	3.62	7.96	27.15	7.47	25.50	2.93	2.93	2.93	2.93	2.93	
22°C (72°F)	33°C	91°F	12.03	41.04	9.61	32.79	2.57	11.69	39.88	10.25	34.98	2.84	11.49	39.70	9.53	32.52	3.27	10.12	34.55	9.26	31.59	3.64	8.52	29.09	8.02	27.38	2.93	2.93	2.93	2.93	2.93	
	35°C	95°F	12.51	42.68	10.01	34.16	2.57	12.17	41.52	10.67	36.41	2.86	11.95	40.77	9.93	33.88	3.27	10.58	36.10	9.67	33.00	3.66	8.92	30.44	8.39	28.62	2.95	2.95	2.95	2.95	2.95	

C: 3D144343

FCA42AVMK + RZCA42AYMK



- Notes :
1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 2. On the Figure the mark with $\square$ show the max. Once at standard conditions.
However the max. Capacity is not guaranteed except at standard condition.
 3. On the tables $\square$ show rated capacity and rated coefficient of power input.
 4. SHC^* is based on each EWB and EDB.
 $SHC^* = SHC \text{ correction for other dry bulb.}$
 $= 0.02 \times AFR(m^3/min) \times (1 - BF) \times (DB^* - EDB)$
Add SHC to SHC^* .
 5. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 6. Coefficient of power input is the percentage when the rated value is defined as 1.00.
 7. The valve contains less than 5% error acoding to indoor unit type.
 8. Heating capacity include the drop of frost formation.
 9. Air flow rate and (BF) are tabulated below.
(Pair)

FCA42AVMK	
AFR (BF)	36.5 (0.18)

10. Rate power input of each model is tabulated below.
(Pair)

FCA42AVMK	
Cooling	3.29

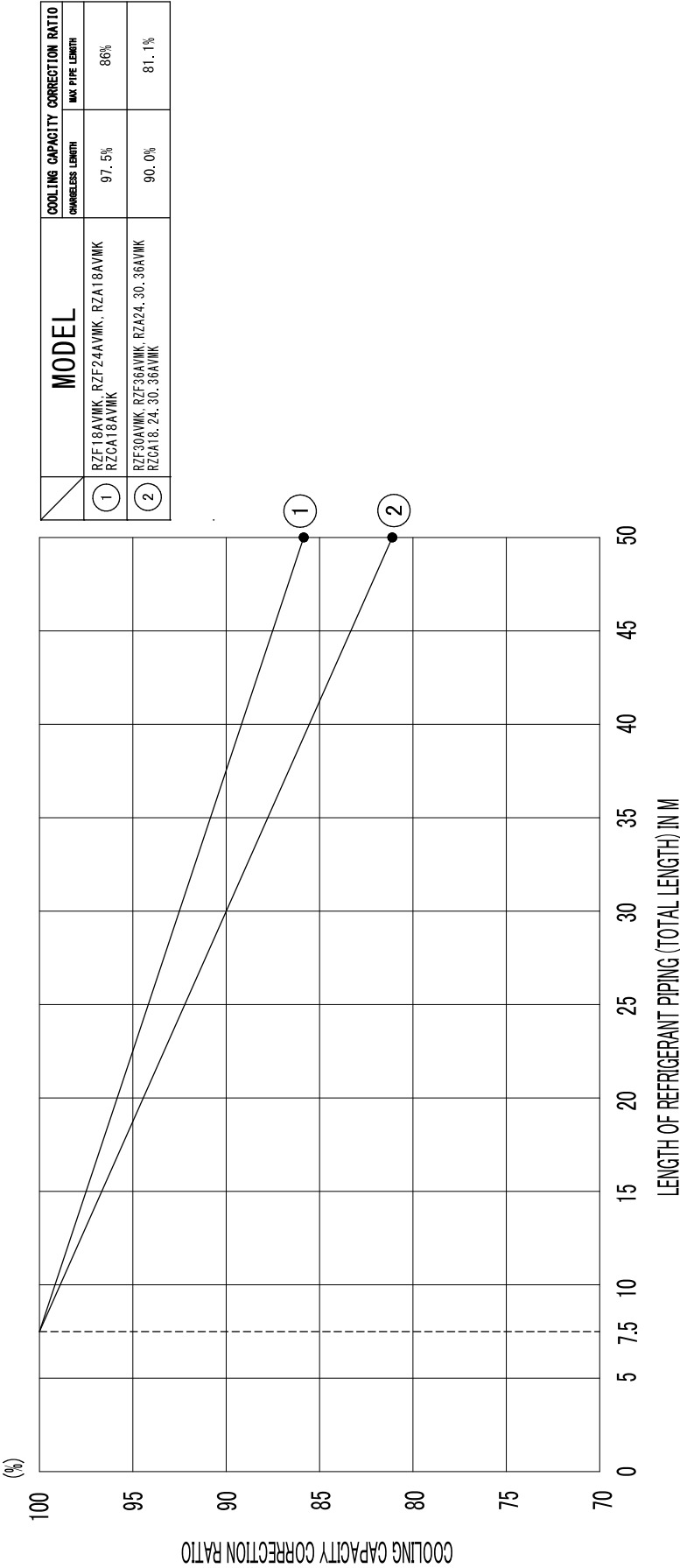
- Symbols :
- AFR : Air flow rate (m³/min)
 - BF : By pass factor
 - EWB : Entering wet bulb temp. (°C WB)
 - EDB : Entering dry bulb temp. (°C DB)
 - TC : Total cooling(heating) capacity (kW)
 - SHC : Sensible heat capacity (kW)
 - PI : Power input (kW)
 - GPI : (Comp.+indoor+outdoor fan motor).
 - CPI : Coefficient of power input. (-)
- Caution :
- TC and SHC are shown by kW.

COOLING		(FOR FCA42AVMK)																									
Unit Combination: FCA42AVMK+RZCA42AYMK																											
Piping Length: 7.5 m																											
Height Difference: 0 m																											
AFR (CFM)	EWB	EDB	Outdoor Ambient Temperature, DB																								
			30°C (86°F)			35°C (95°F)			40°C (104°F)			46°C (115°F)			48°C (118°F)												
			TC	Mbh	kW	PI	TC	Mbh	kW	PI	TC	Mbh	kW	PI	TC	Mbh	kW	PI									
17°C (62.5°F)	21°C	70°F	11.87	40.49	6.76	23.07	3.00	11.42	38.98	7.23	24.66	3.29	11.14	37.2	22.91	3.72	9.28	31.67	6.83	23.30	3.49	8.00	27.31	6.34	21.64	3.49	
	24°C	75°F	11.96	40.81	8.67	29.59	3.00	11.52	39.30	9.30	31.74	3.29	11.24	38.34	8.67	29.59	3.74	9.55	32.57	8.85	30.19	3.85	8.55	29.16	8.04	27.44	3.49
	27°C	81°F	12.40	42.32	9.93	33.89	3.00	12.03	41.05	10.54	35.96	3.29	11.77	40.17	9.79	33.41	3.74	10.27	35.03	9.40	32.08	3.90	9.23	31.49	8.68	29.60	3.52
	30°C	86°F	13.22	45.11	10.56	36.04	3.00	12.82	43.75	11.24	38.34	3.31	12.59	42.96	10.44	35.64	3.79	11.04	37.66	10.10	34.46	3.95	9.94	33.91	9.34	31.86	3.55
	24°C	75°F	12.66	43.20	7.39	25.22	3.00	12.22	41.69	7.93	27.05	3.29	11.91	40.65	7.39	25.22	3.77	9.96	33.97	7.65	26.09	3.88	8.90	30.37	7.13	24.32	3.52
1289	27°C	81°F	12.75	43.51	9.33	31.82	3.00	12.31	42.00	10.03	34.21	3.29	12.01	40.97	9.37	31.98	3.77	10.46	35.69	9.40	32.08	3.90	9.23	31.49	8.68	29.60	3.52
	30°C	86°F	13.22	45.11	10.58	36.12	3.00	12.82	43.75	11.24	38.34	3.31	12.59	42.96	10.44	35.64	3.79	11.04	37.66	10.10	34.46	3.95	9.94	33.91	9.34	31.86	3.55
	33°C	91°F	14.04	47.89	11.24	38.34	3.00	13.64	46.54	11.96	40.81	3.31	13.41	45.74	11.12	37.95	3.81	11.81	40.29	10.80	36.84	3.97	10.65	36.33	10.02	34.19	3.55
	27°C	81°F	13.90	47.41	7.39	25.22	3.00	13.43	45.82	7.93	27.05	3.31	13.13	44.79	7.39	25.22	3.79	10.96	37.41	7.67	26.17	3.92	9.84	33.59	7.15	24.41	3.55
	30°C	86°F	13.99	47.73	9.30	31.74	3.00	13.50	46.06	10.03	34.21	3.31	13.20	45.03	9.37	31.98	3.79	11.04	37.66	10.10	34.46	3.95	9.94	33.91	9.34	31.86	3.55
22°C (72°F)	33°C	91°F	14.04	47.89	11.21	38.26	3.00	13.64	46.54	11.96	40.81	3.31	13.41	45.74	11.12	37.95	3.81	11.81	40.29	10.80	36.84	3.97	10.65	36.33	10.02	34.19	3.55
	35°C	95°F	14.59	49.80	11.68	39.86	3.00	14.20	48.45	12.45	42.48	3.34	13.94	47.57	11.59	39.54	3.81	12.34	42.09	11.28	38.48	3.99	11.14	38.02	10.48	35.75	3.57

11.2 Capacity Correction Factor by the Length of Refrigerant Piping

RZCA18AVMK / RZCA24AVMK / RZCA30AVMK / RZCA36AVMK

The capacity of the unit has to be corrected in accordance with the length of refrigerant piping.
(The distance between the indoor unit and the outdoor unit)

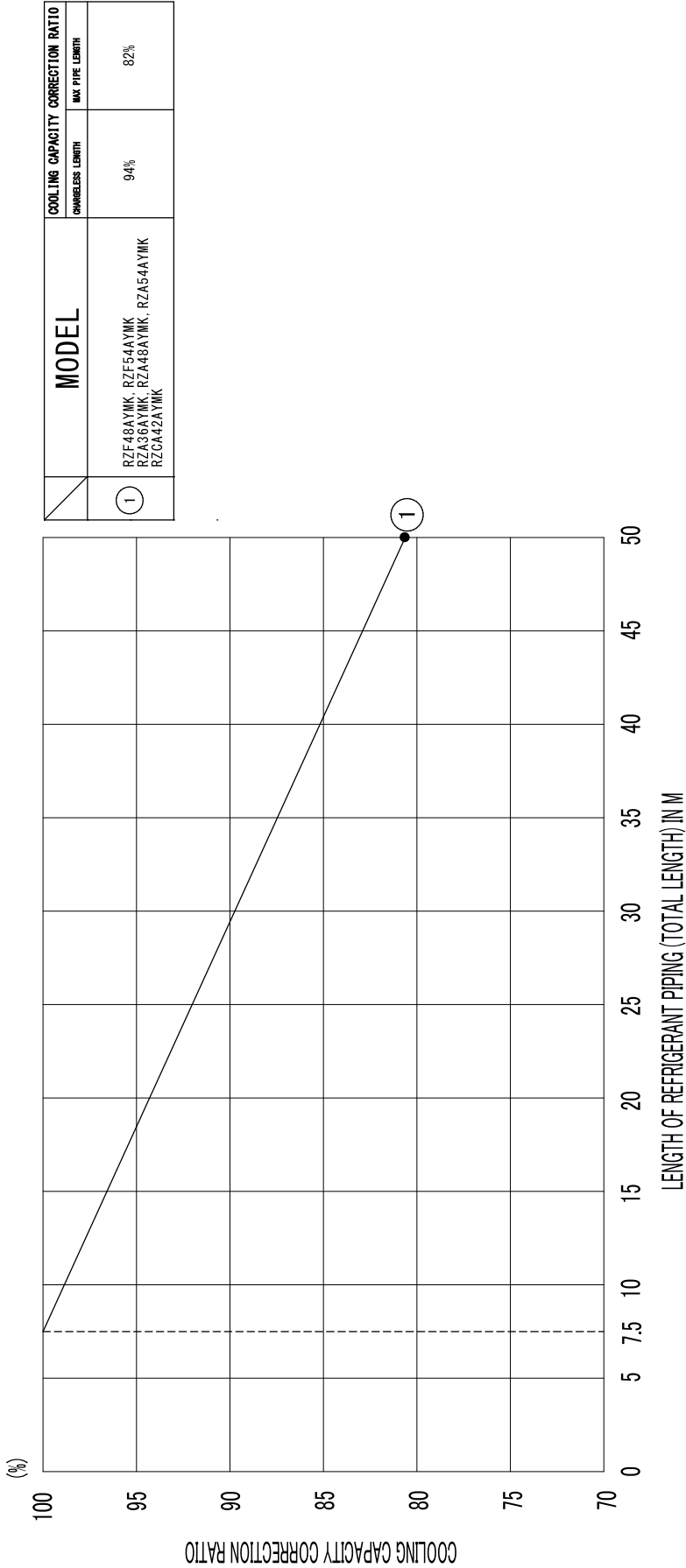


- NOTES :
1. — LINE : CORRECTION RATIO FOR COOLING CAPACITY
 2. THE CORRECTION RATIO REMAINS THE SAME WHETHER THE OUTDOOR UNIT IS TO BE INSTALLED ABOVE OR BELOW THE INDOOR UNIT.
 3. CALCULATION METHOD FOR COOLING CAPACITY
CAPACITY = COOLING CAPACITY OBTAINED FROM THE CAPACITY TABLE x COOLING CAPACITY CORRECTION RATIO.
 4. YOU CANNOT EXTEND THE REFRIGERANT PIPING EXCEEDING THE LIMIT SHOWN ABOVE.
 5. FOR CHARGELESS LENGTH & MAX. PIPE LENGTH OF EACH MODEL, REFER THE SPECIFICATION.

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RZCA42AYMK

The capacity of the unit has to be corrected in accordance with the length of refrigerant piping.
(The distance between the indoor unit and the outdoor unit)

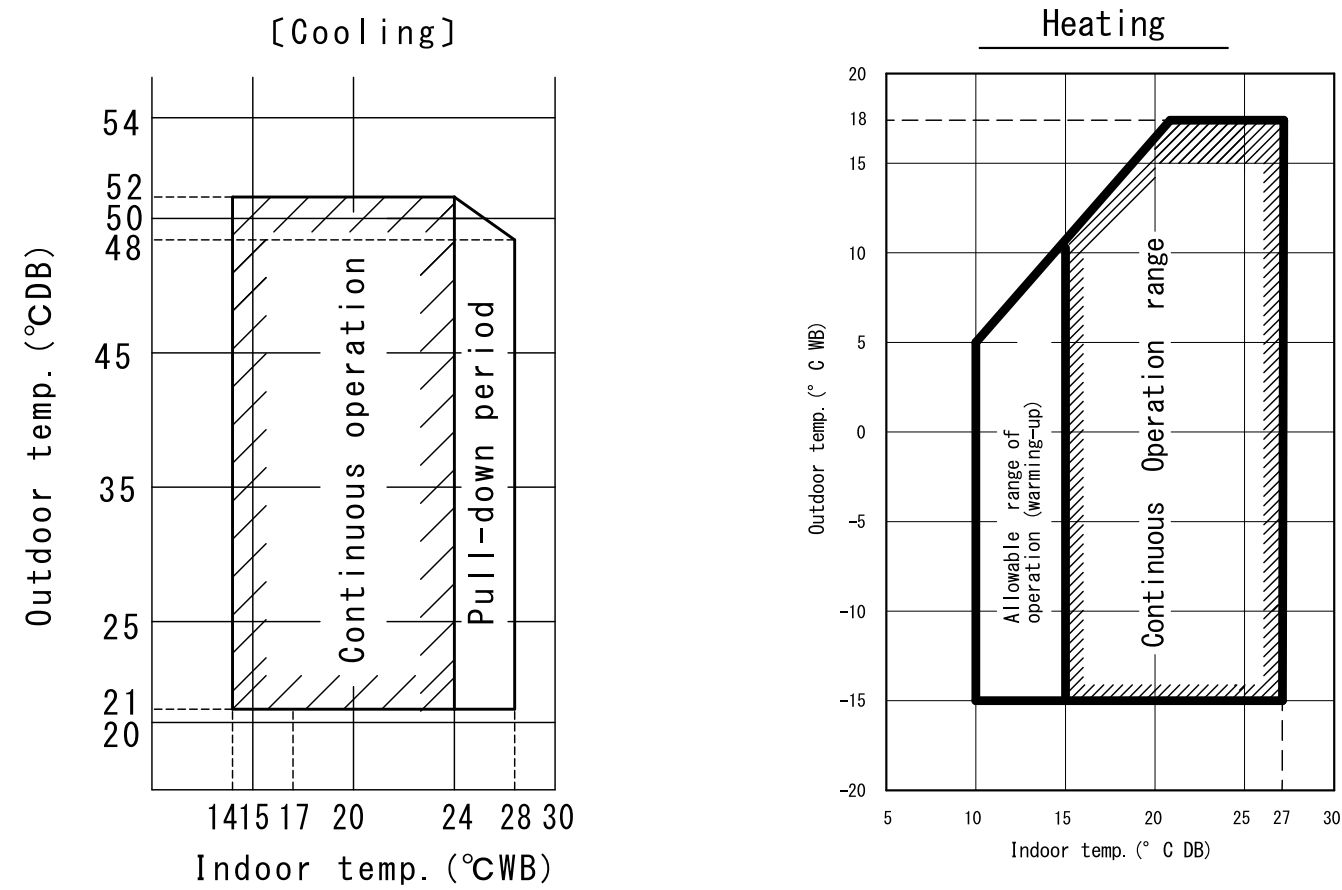


- NOTES :
- 1. — LINE : CORRECTION RATIO FOR COOLING CAPACITY
 - 2. THE CORRECTION RATIO REMAINS THE SAME WHETHER THE OUTDOOR UNIT IS TO BE INSTALLED ABOVE OR BELOW THE INDOOR UNIT.
 - 3. CALCULATION METHOD FOR COOLING CAPACITY
CAPACITY = COOLING CAPACITY OBTAINED FROM THE CAPACITY TABLE x COOLING CAPACITY CORRECTION RATIO.
 - 4. YOU CANNOT EXTEND THE REFRIGERANT PIPING EXCEEDING THE LIMIT SHOWN ABOVE
 - 5. FOR CHARGELESS LENGTH & MAX. PIPE LENGTH OF EACH MODEL, REFER THE SPECIFICATION.

3D133073C

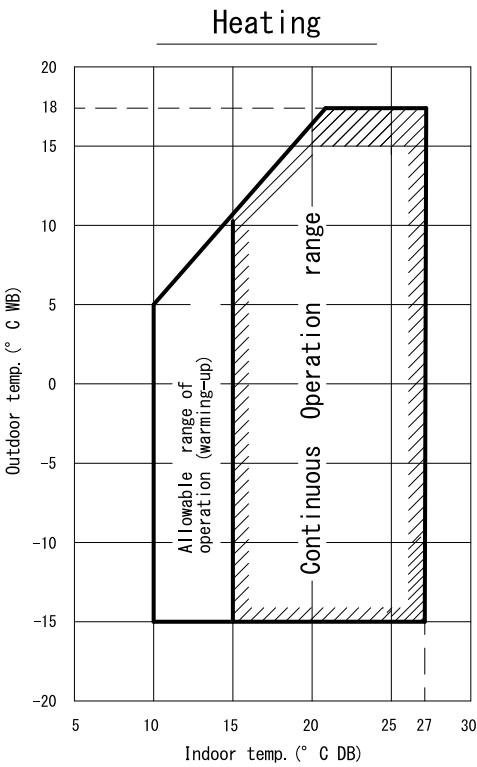
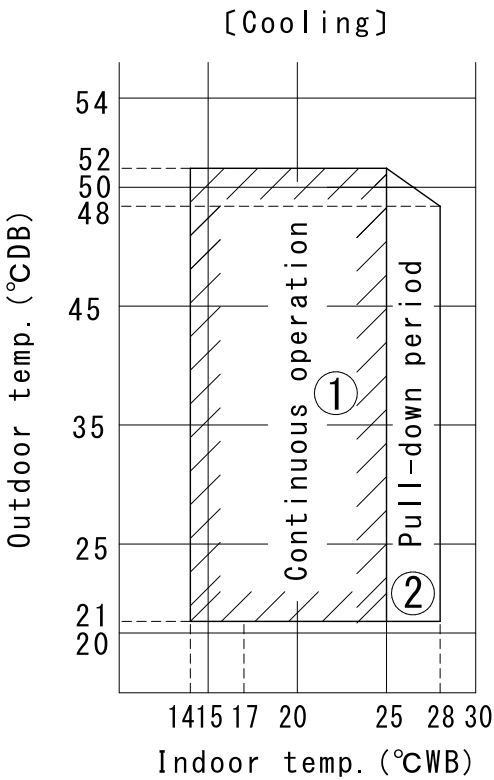
12.Operation Limits

RZCA18AVMK / RZCA24AVMK / RZCA30AVMK / RZCA36AVMK



RZCA42AYMK

- ① Operation range
- ② Pull-down operation range
- ③ Warm-up operation range



Notes

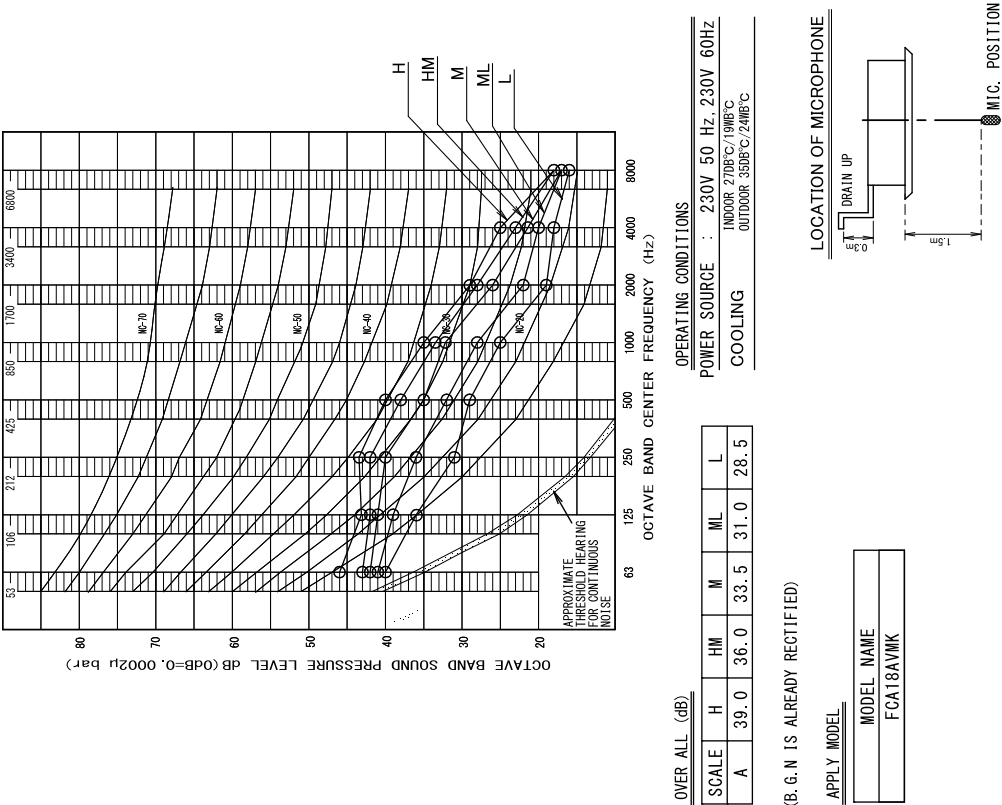
1. Depending on operation and installation conditions, the indoor unit can change over to freeze-up operation (indoor de-icing).

2. To reduce the freeze-up operation (indoor de-icing) frequency, it is recommended to install the outdoor unit in a location not exposed to wind.

3. If the unit is selected to operate at ambient temperature < -5°C for -5 days or more, with relative humidity of 100%, it is required to install the optional bottom plate heater.

13.Sound Level

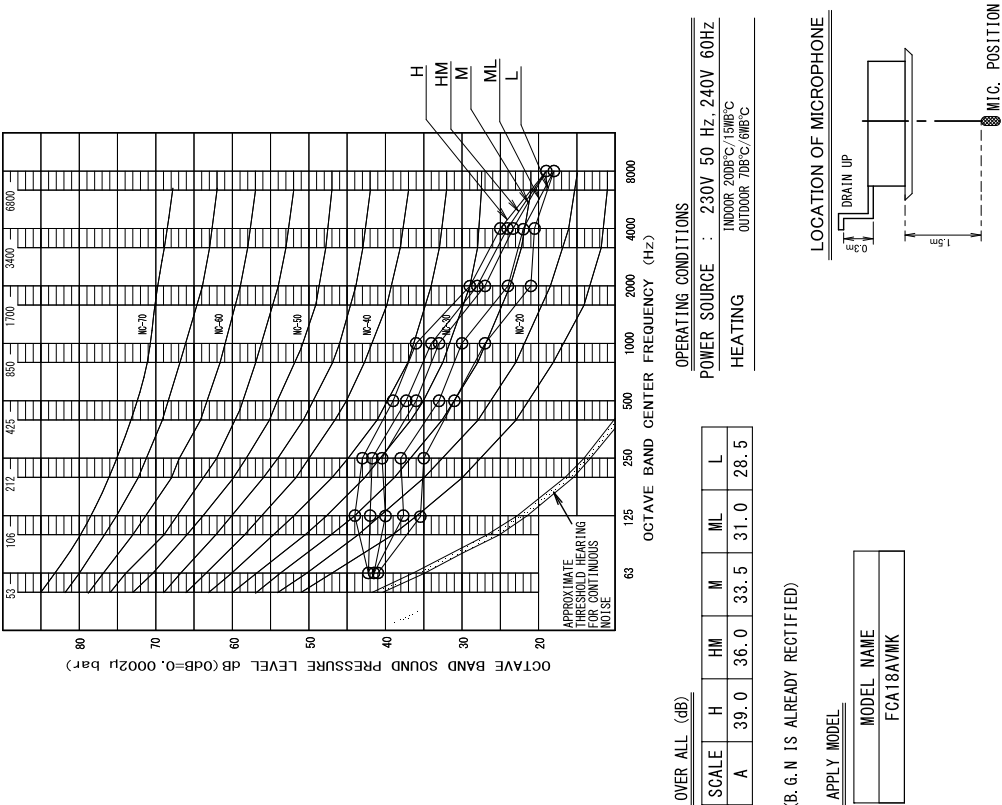
13.1 Indoor Unit
FCA18AVMK (cooling)



NOTE : Operation noise differ with operation and ambient conditions

4D144697

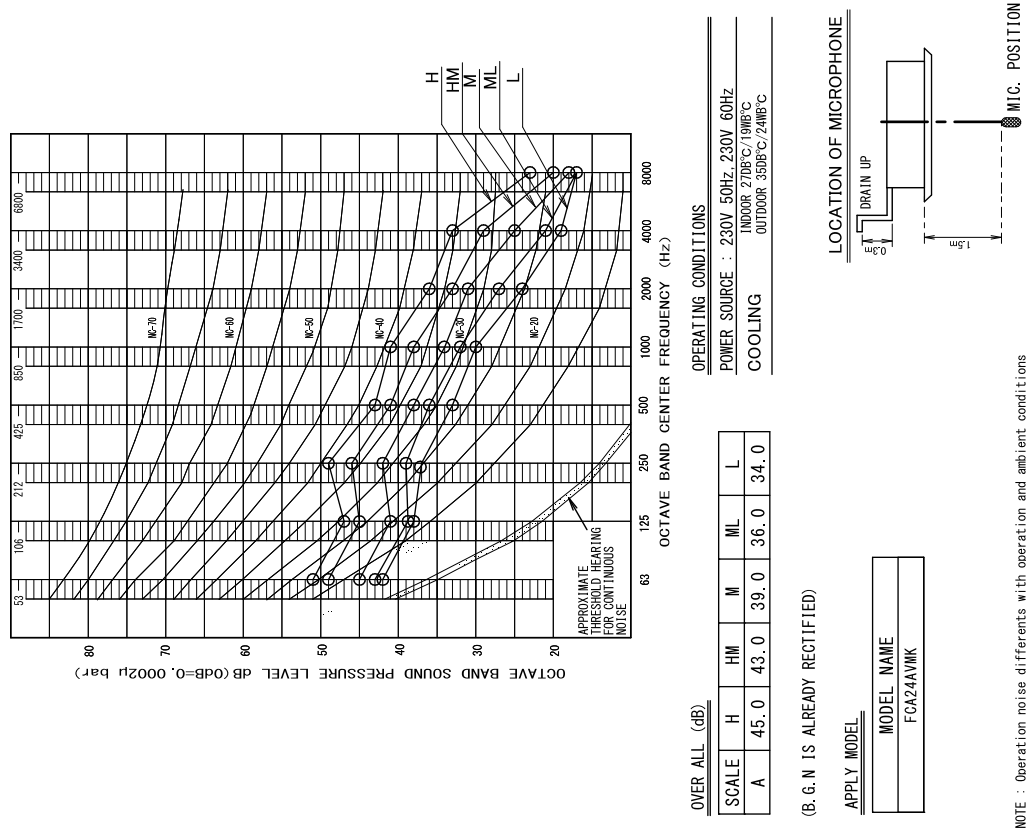
FCA18AVMK (heating)



NOTE : Operation noise differ with operation and ambient conditions

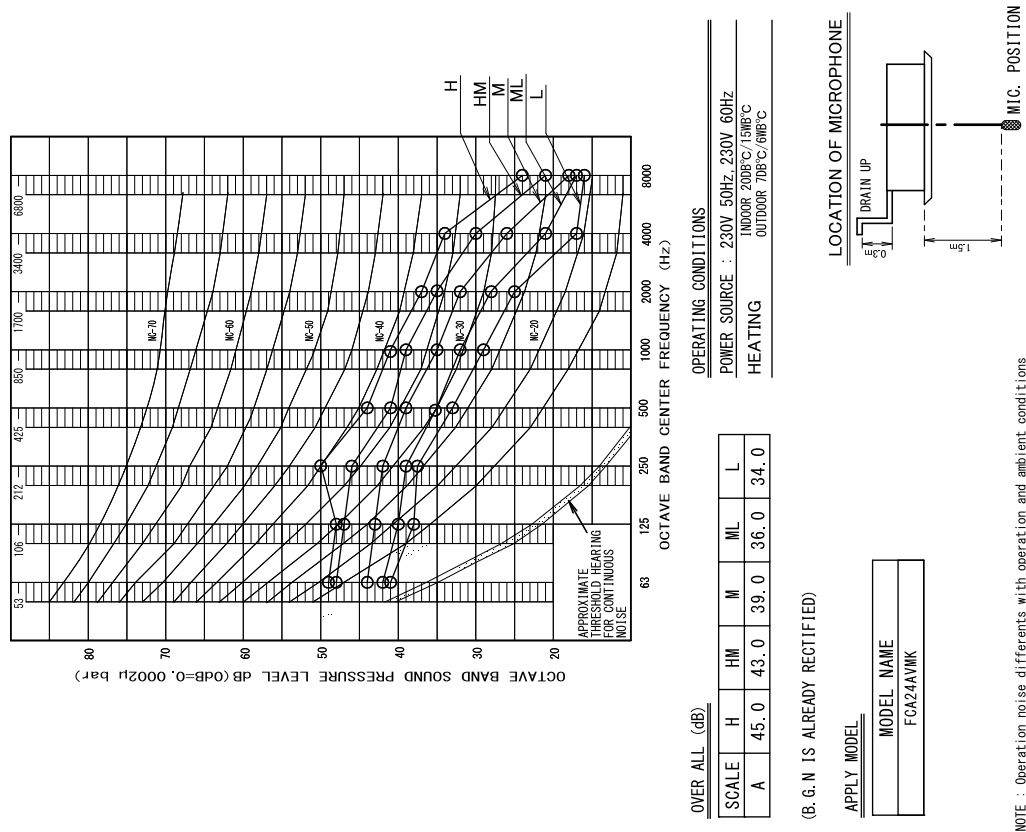
4D144700

FCA24AVMK (cooling)



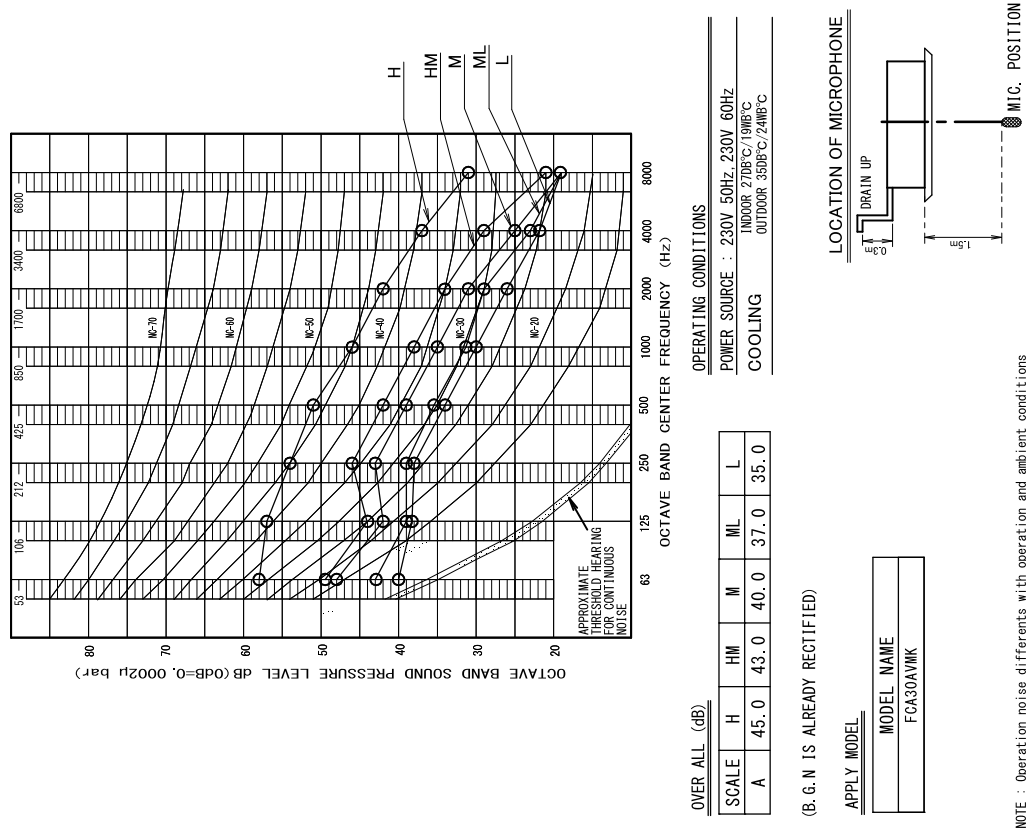
4D144718

FCA24AVMK (heating)



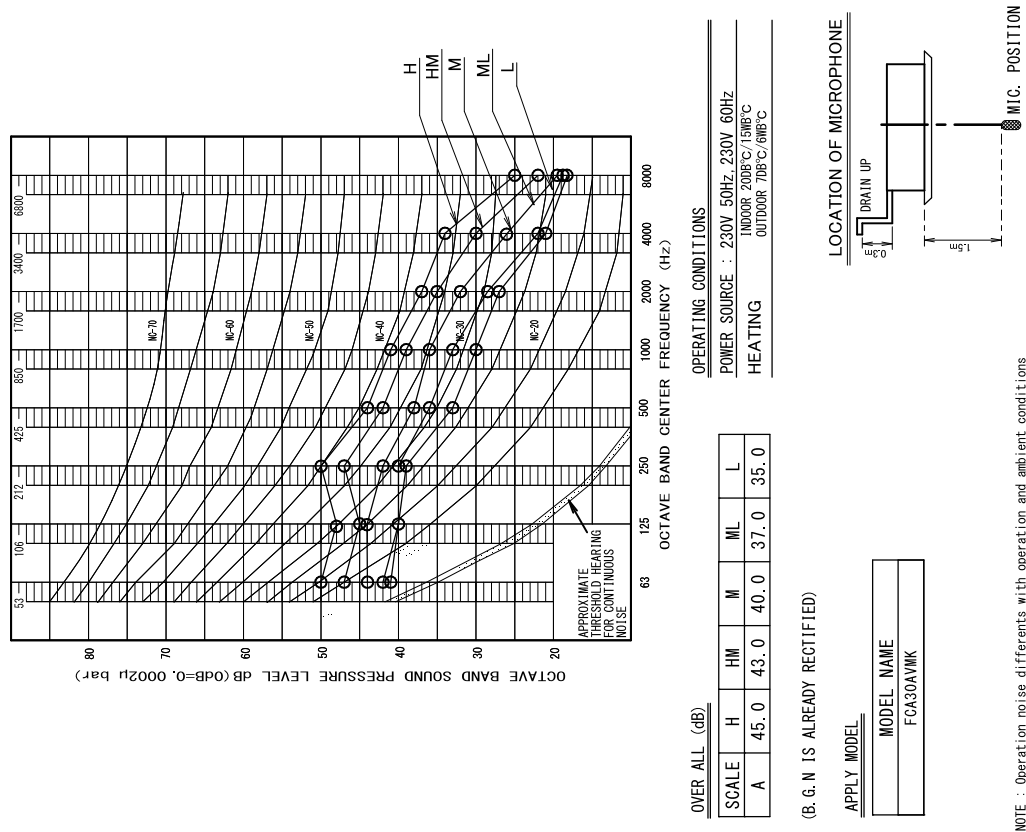
4D144719

FCA30AVMK (cooling)



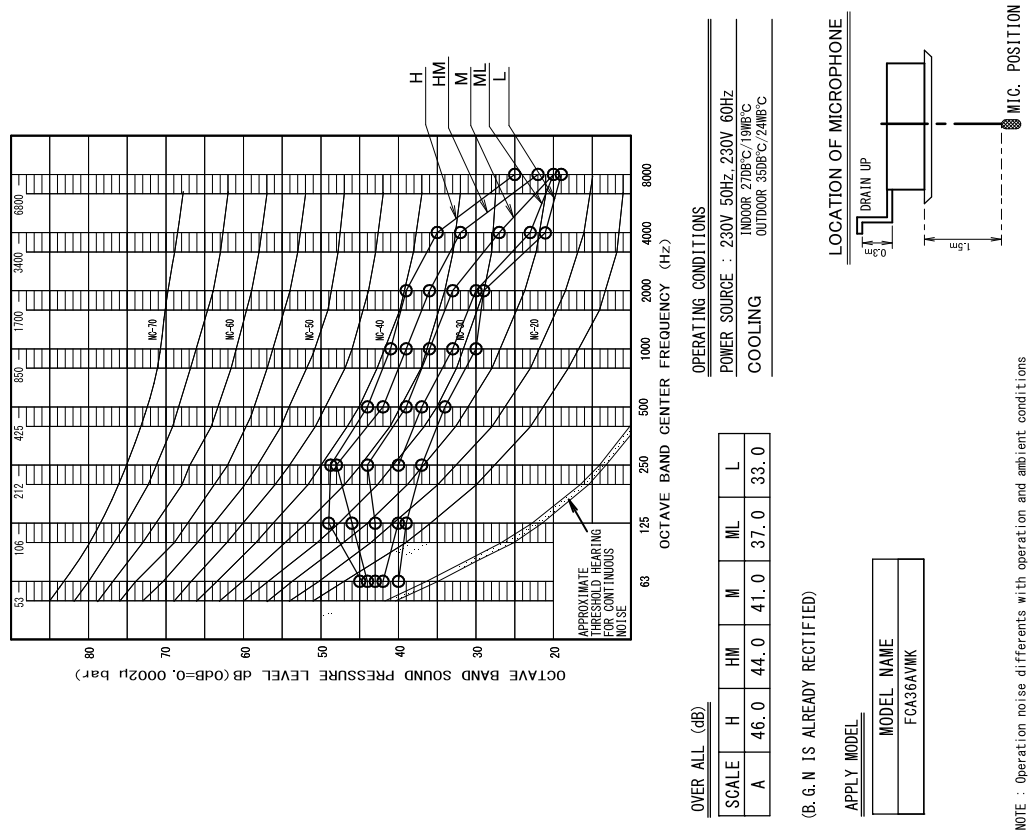
4D144691

FCA30AVMK (heating)

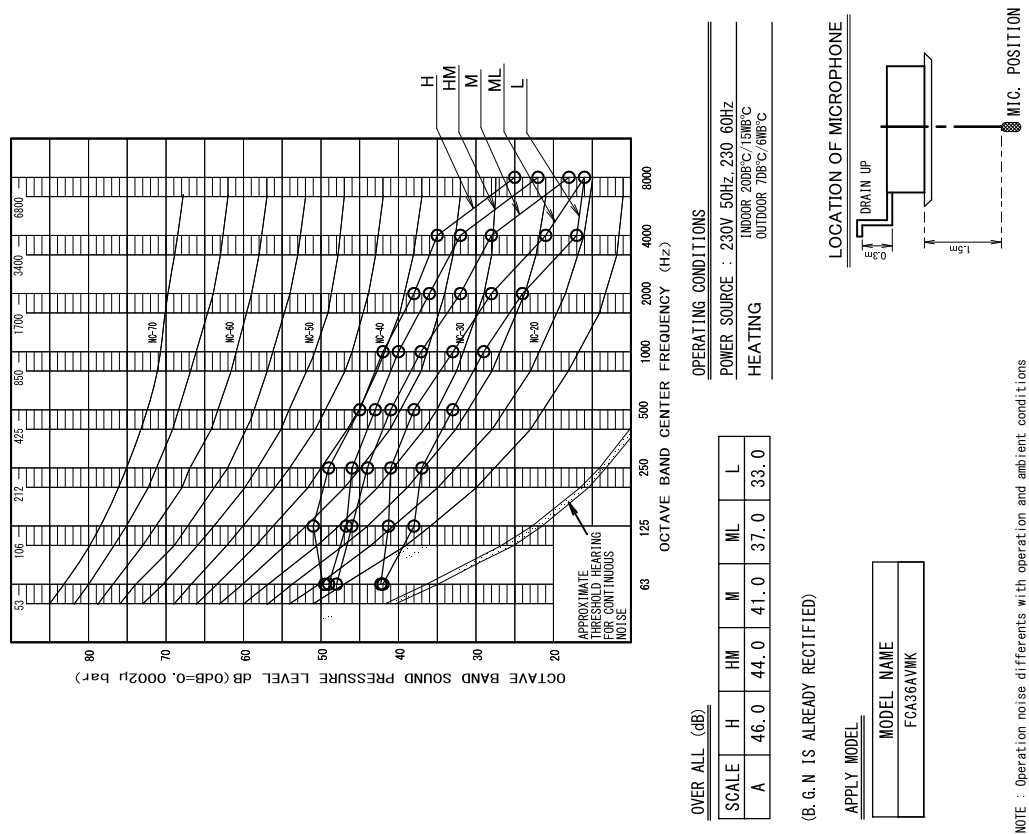


4D144693

FCA36AVMK (cooling)



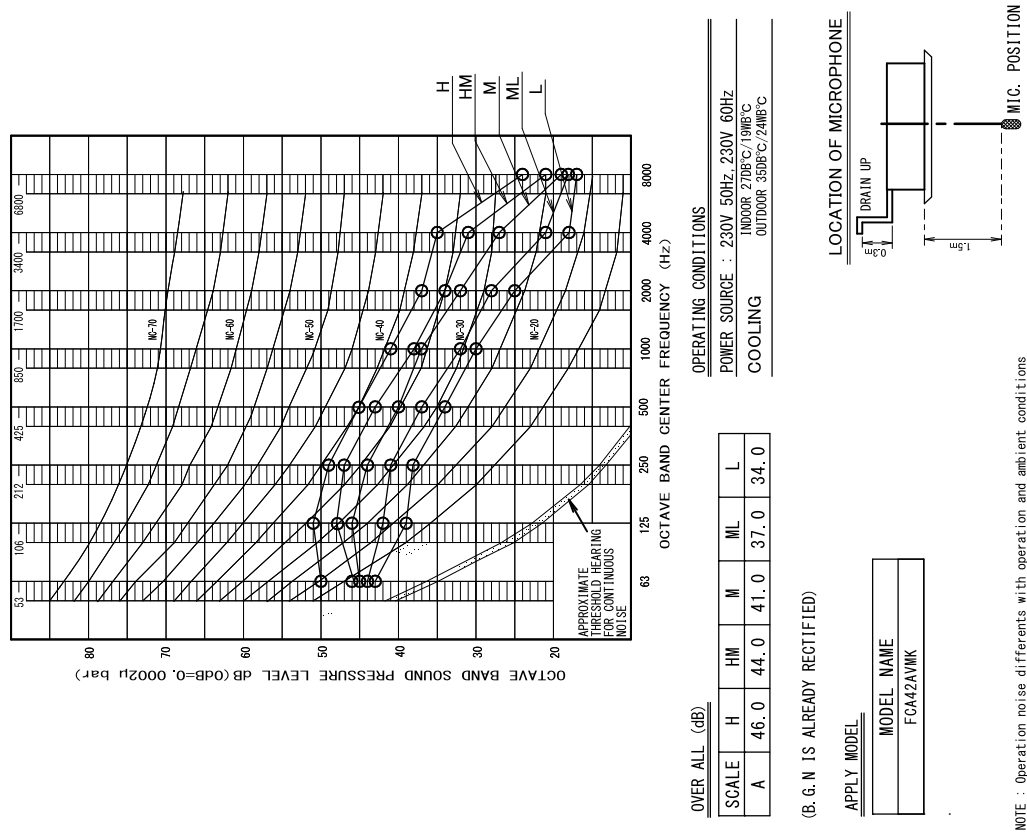
FCA36AVMK (heating)



4D144710

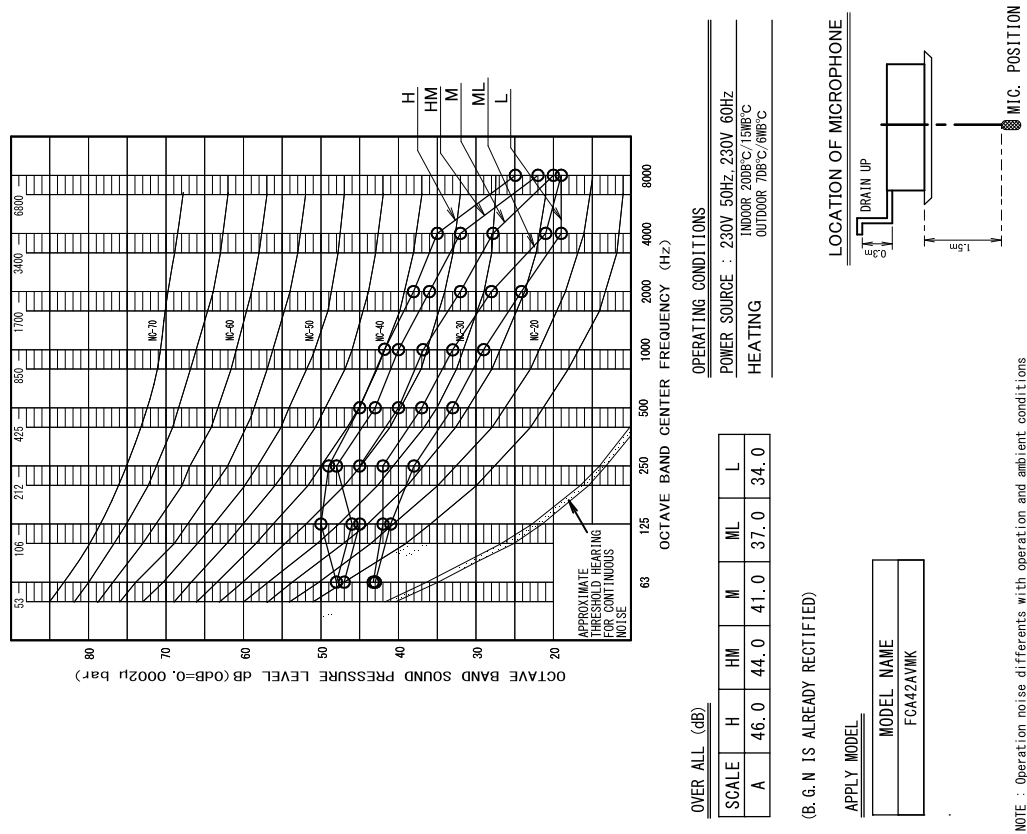
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FCA42AVMK (cooling)



4D144701

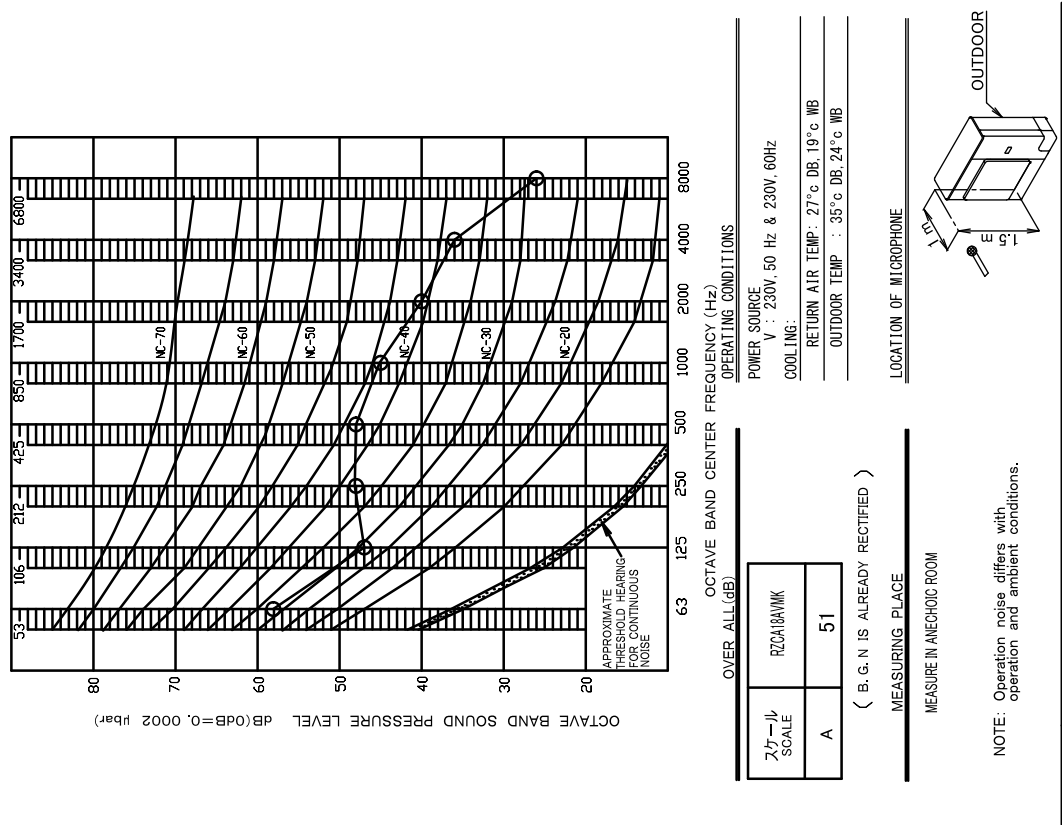
FCA42AVMK (heating)



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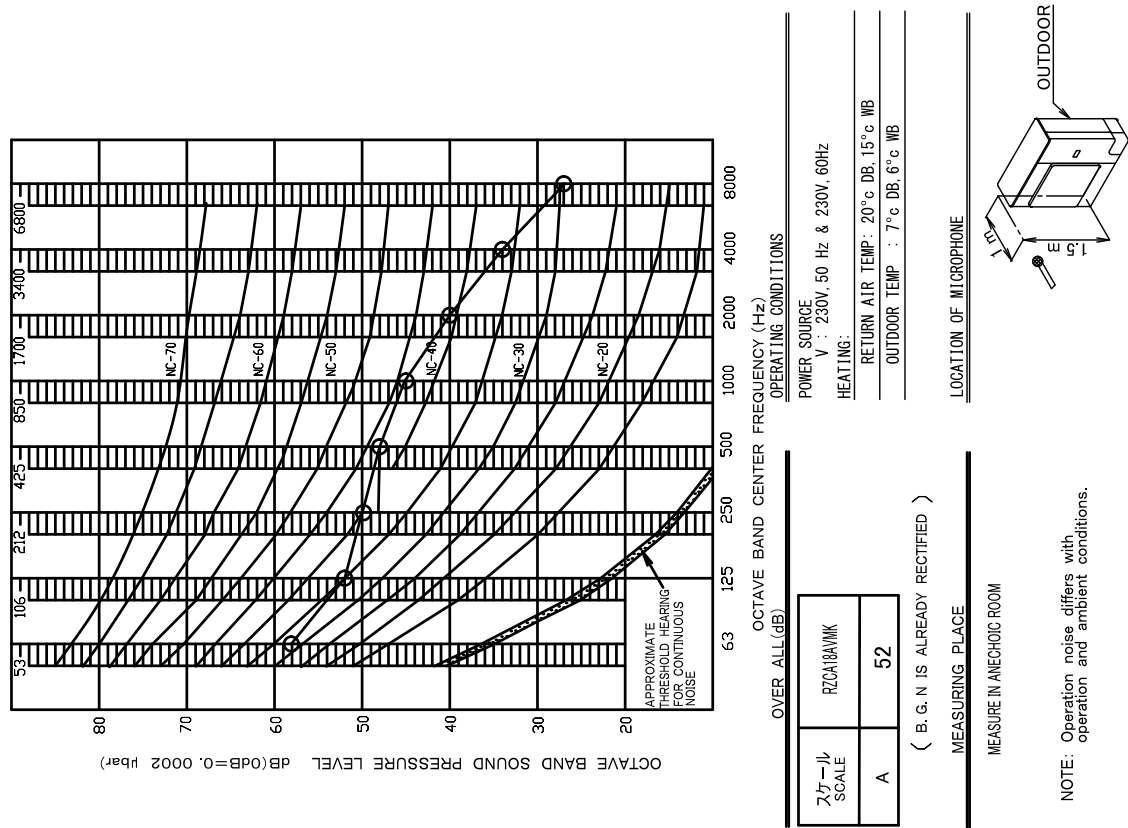
13.2 Outdoor Unit

RZCA18AVMK (cooling)



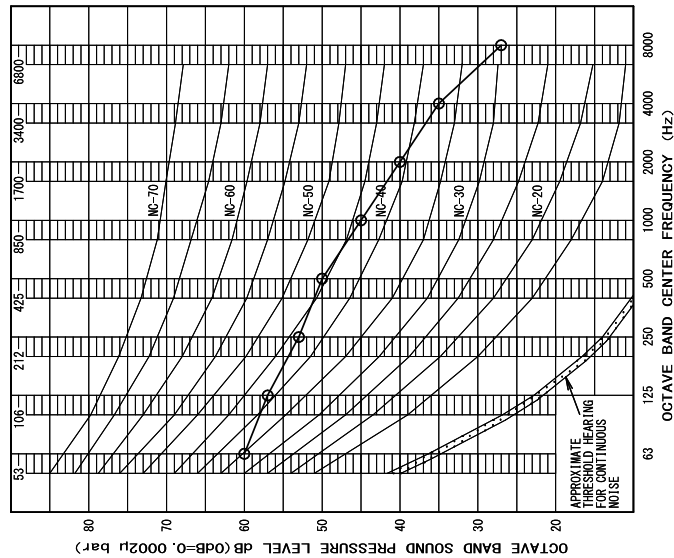
4D144353A

FCA18AVMK (heating)

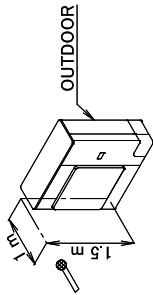


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RZCA24AVMK (cooling)

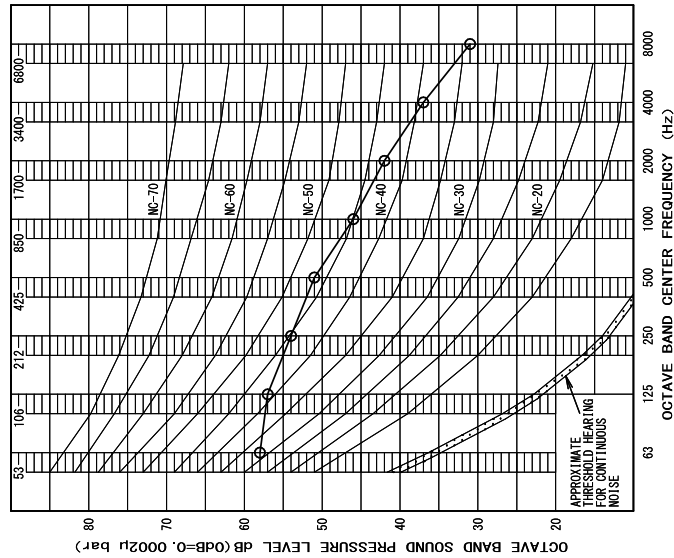


OVER ALL (dB)	
SCALE A	V MODEL 51
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz 400V 60Hz	
COOLING	
INDOOR : 27°c DB, 19°c WB	
OUTDOOR : 35°c DB, 24°c WB	
LOCATION OF MICROPHONE	

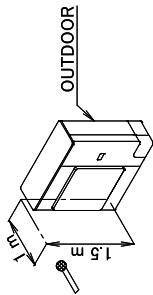


NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

RZCA24AVMK (heating)



OVER ALL (dB)	
SCALE A	V MODEL 53
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz 400V 60Hz	
HEATING	
INDOOR : 20°c DB, 15°c WB	
OUTDOOR : 7°c DB, 6°c WB	
LOCATION OF MICROPHONE	

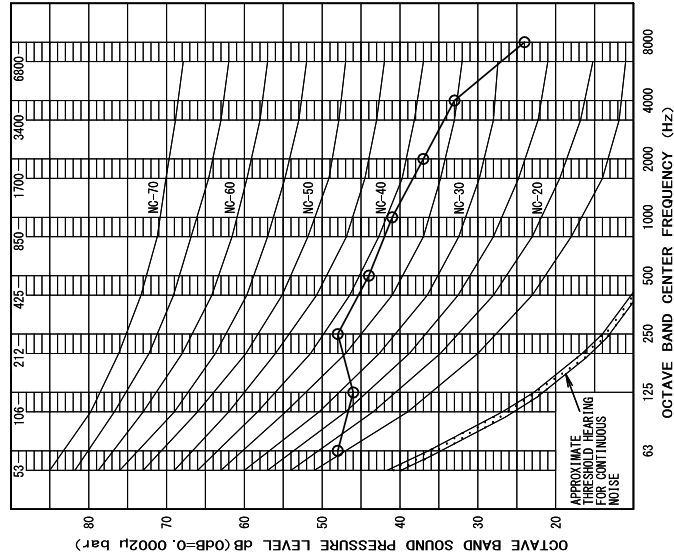


NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

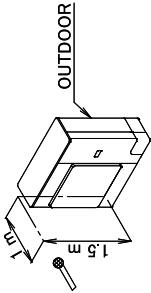
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RZCA30AVMK (cooling)



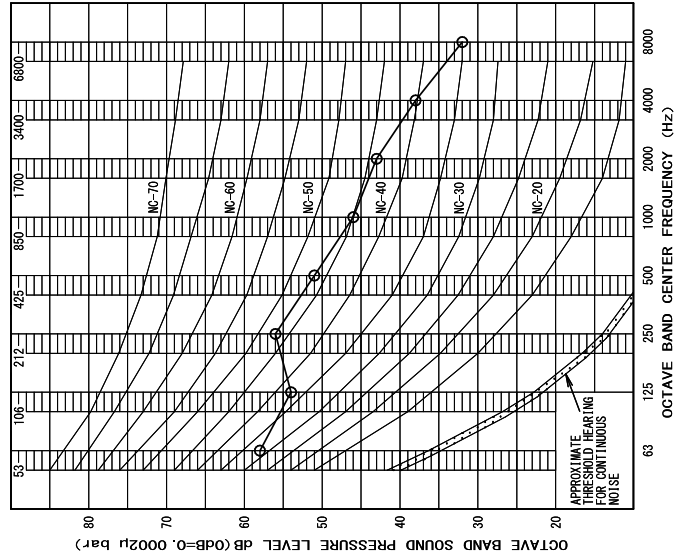
OVER ALL (dB)	
SCALE A	V MODEL 52
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz, 400V 60Hz	
COOLING	
INDOOR : 27°c DB, 19°c WB	
OUTDOOR : 35°c DB, 24°c WB	
LOCATION OF MICROPHONE	



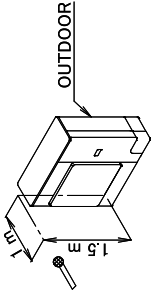
NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

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RZCA30AVMK (heating)



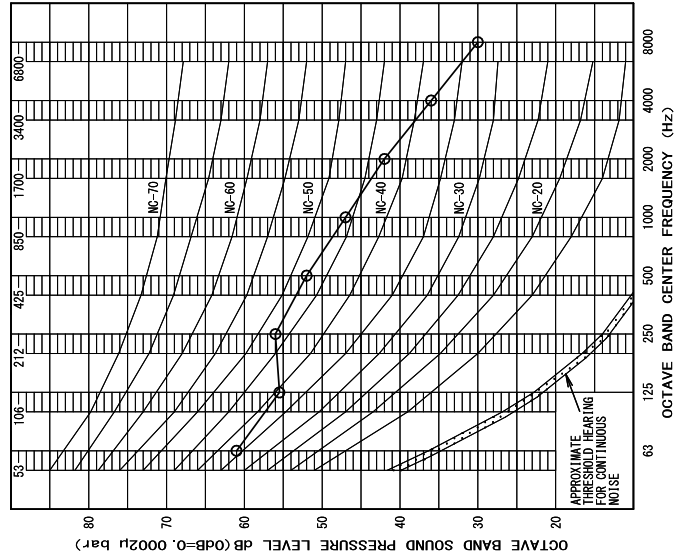
OVER ALL (dB)	
SCALE A	V MODEL 54
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz, 400V 60Hz	
HEATING	
INDOOR : 20°c DB, 15°c WB	
OUTDOOR : 7°c DB, 6°c WB	
LOCATION OF MICROPHONE	



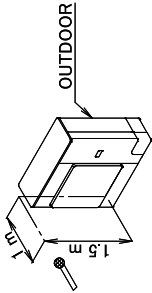
NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

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RZCA36AVMK (cooling)

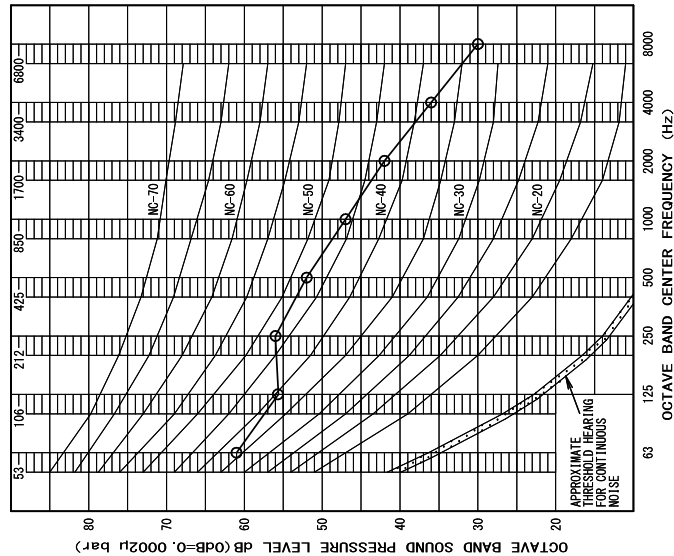


OVER ALL (dB)	
SCALE A	V MODEL 52
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz 400V 60Hz	
COOLING	
INDOOR : 27°c DB, 19°c WB	
OUTDOOR : 35°c DB, 24°c WB	
LOCATION OF MICROPHONE	

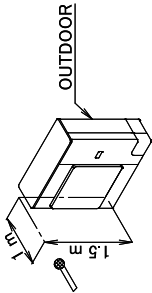


NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

RZCA36AVMK (heating)



OVER ALL (dB)	
SCALE A	V MODEL 54
(B. G. N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz 230V 60Hz	
Y : 400V 50Hz 400V 60Hz	
HEATING	
INDOOR : 20°c DB, 15°c WB	
OUTDOOR : 7°c DB, 6°c WB	
LOCATION OF MICROPHONE	

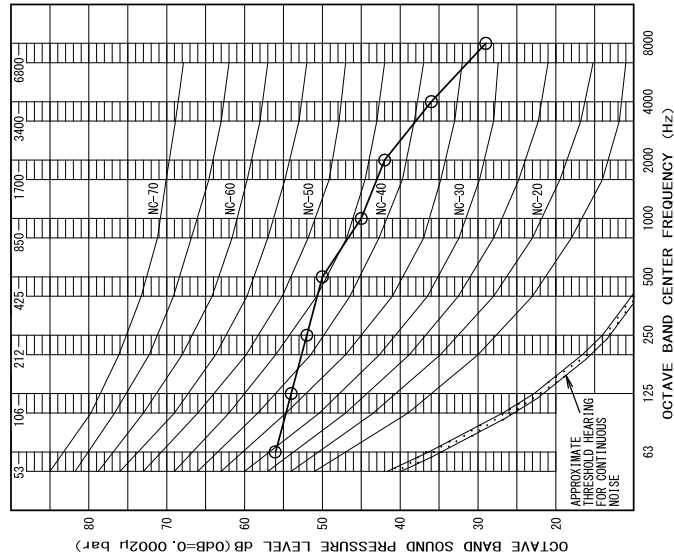


NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

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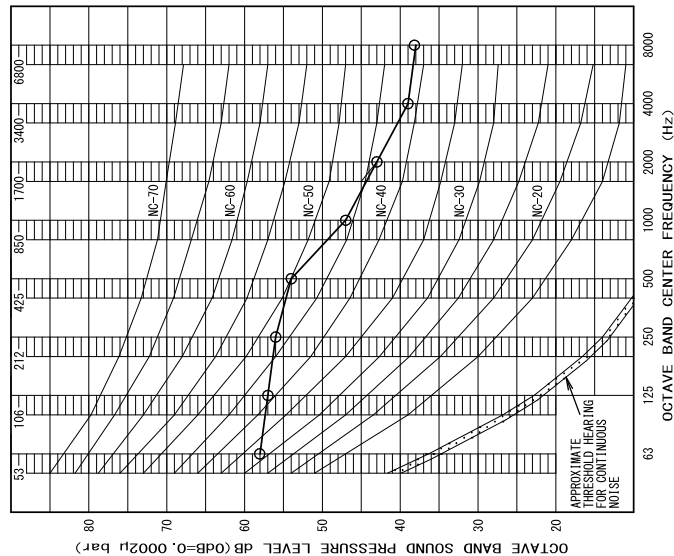
4D144685

RZCA42AYMK (cooling)



OVER ALL (dB)		OPERATING CONDITIONS	
SCALE A	V MODEL	POWER SOURCE	
	56	V : 230V 50Hz, 230V 60Hz	
(B. G. N IS ALREADY RECTIFIED)		Y : 400V 50Hz, 400V 60Hz	
MEASURING PLACE		INDOOR : 27°c DB, 19°c WB	
		OUTDOOR : 35°c DB, 24°c WB	
ANECHOIC CHAMBER		LOCATION OF MICROPHONE	
NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER. IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS, IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE AND SOUND REFLECTION.			

RZCA42AYMK (heating)



OVER ALL (dB)		OPERATING CONDITIONS	
SCALE A	V MODEL	POWER SOURCE	
	56	V : 230V 50Hz, 230V 60Hz	
(B. G. N IS ALREADY RECTIFIED)		Y : 400V 50Hz, 400V 60Hz	
MEASURING PLACE		INDOOR : 20°c DB, 15°c WB	
		OUTDOOR : 7°c DB, 6°c WB	
ANECHOIC CHAMBER		LOCATION OF MICROPHONE	
NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER. IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS, IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE AND SOUND REFLECTION.			

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14. Accessories

14.1 Indoor Unit

Optional accessories

Name of option		Remark		Model	
				FCA18AVMK	FCA24AVMK FCA30AVMK FCA36AVMK FCA42AVMK
Decoration panel	Standard panel	Fresh white		BYCQ125EAF9	
	Standard panel with sensing sensor	Fresh white		BYCQ125EEF9	
Sealing material of air discharge outlet		For usage of 3-, 4-way flow		KDBH551C160	
		For usage of 2-way flow		KDBH552C160	
Panel spacer				KDB55J160F	
Fresh air intake kit		Chamber type (Note 1, 2, 7)	Without T-duct joint	KDDP55C160 [KDDP55C160-1, KDDP55C160-2]	
			With T-duct joint	KDDP55C160K [KDDP55C160-1, KDDP55C160K2]	
		Direct installation type (Note 3)		KDDP55X160A	
High-efficiency filter unit (including filter chamber)		(Colorimetric method 65%)		KAF556D80	KAF556D160
		(Colorimetric method 90%)		KAF557D80	KAF557D160
Replacement high-efficiency filter (Note 4)		(Colorimetric method 65%)		KAF552D80	KAF552D160
		(Colorimetric method 90%)		KAF553D80	KAF553D160
Filter chamber				KDDFP55C160	
High performance prefilter (MERV 8 filter)				BAF552A160	
Replacement long-life filter				KAF5511D160	
Ultra long-life filter unit (including filter chamber)				KAF555D160	
Replacement ultra long-life filter (Note 4)				KAF550D160	
Branch duct chamber				KDJP55C80	KDJP55C160
Insulation kit for high humidity (Note 4)				KDTP55K80B	KDTP55K160B
Remote controller		Wireless type	Heat pump	BRC7M634F (fresh white) / BRC7M634K (black)	
		Wired type (Note 8)	Madoka	BRC1H81W7 (white) / BRC1H81S7 (silver)	
			Navigation	BRC1E63 (ESMA 20 Deg set print not available)	
Central remote controller (Note 5)				DCS302CA61	
Unified ON/OFF controller (Note 5)				DCS301BA61	
Schedule Timer (Note 5)				DST301BA61	
intelligent Touch controller (Note 5)				DCS601C51	
Adaptor for wiring (Note 6)				BRP11B62	
Wiring adaptor for electrical appendices (Note 6)				KRP4AA53	
Installation box for adaptor PCB				KRP1H98A	
Remote sensor (for indoor temperature)				BRC501A-5	
Wireless LAN connecting adaptor				BRP072C42-1	
Digital input adaptor (Note 6)				BRP7A52	

C: 3D144981B

Note:

- When installing a fresh air intake kit (chamber type), two air outlet corners are closed.
- It is recommended that the volume of outdoor air introduced through the kit is limited to 10% of the maximum airflow rate of the indoor unit. Introducing higher quantities will increase the operating sound and may also influence temperature sensing.
- The volume of fresh air for direct installation type is approximately 1% of the indoor unit airflow. The chamber type is recommended when more fresh air is necessary.
- Filter chamber is required in case temperature / humidity inside ceiling may get over 30°C, 80% RH.
- The indoor unit is equipped standardly with the interface adaptor for SkyAir series. An option is unnecessary.
- Installation box for adaptor PCB (KRP1H98A) is necessary.
- Please order using the names of both components instead of set name.
- Wiring for wired remote controller should be obtained locally.

14.2 Outdoor Unit

Item	Model		
	RZCA18AVMK	RZCA24AVMK RZCA30AVMK RZCA36AVMK	RZCA42AYMK
Central drain plug	KKP014A4	KKPJ5H280	BKP2082A41
Fixture for preventing overturning	—	KKTP5B112	—
Wire fixture for preventing overturning	—	K-KYZP15C	—
Demand adaptor	KRP58M6	KRP58M51 + EKMKSA2	—
Air direction adjustment grille	KPW937F4	KPW5G112	—

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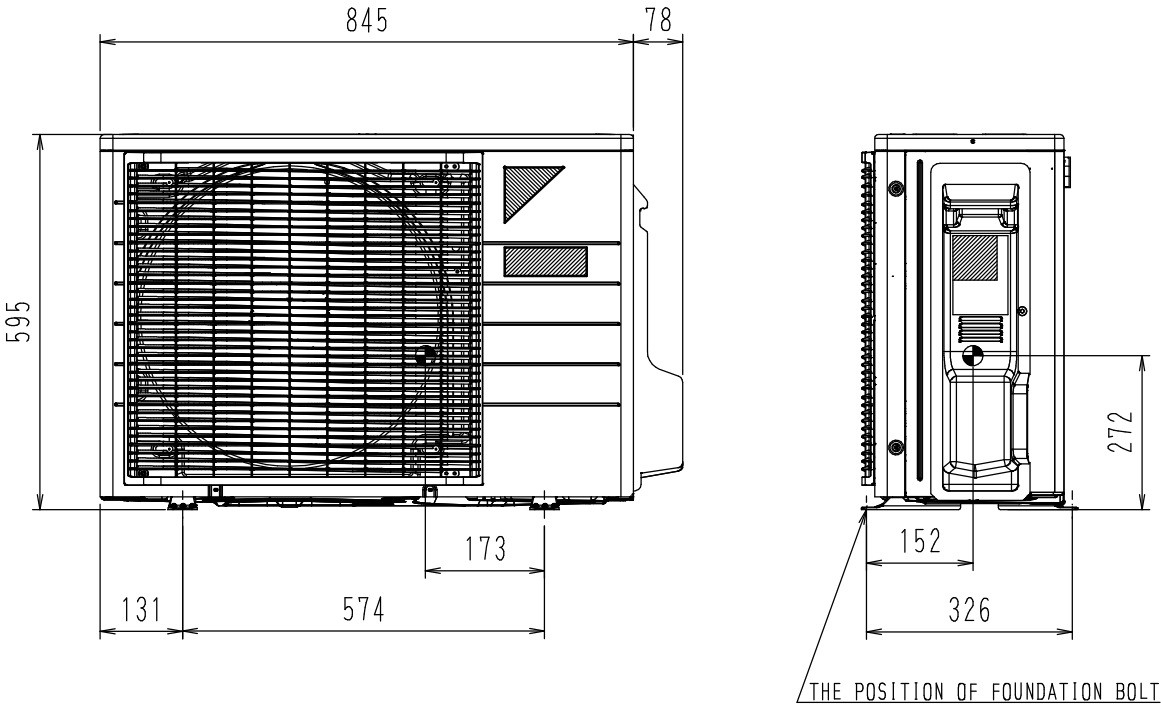
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1. Centre of Gravity

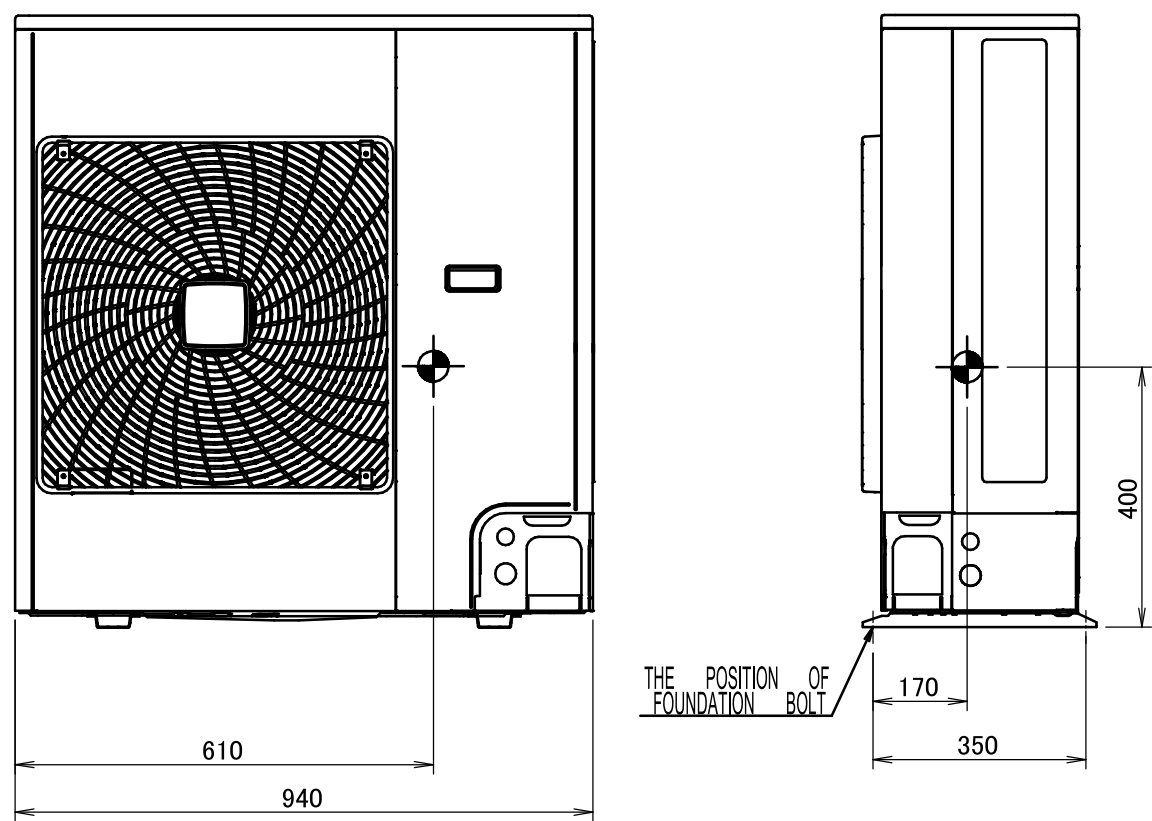
RZCA18AVMK

Unit: mm



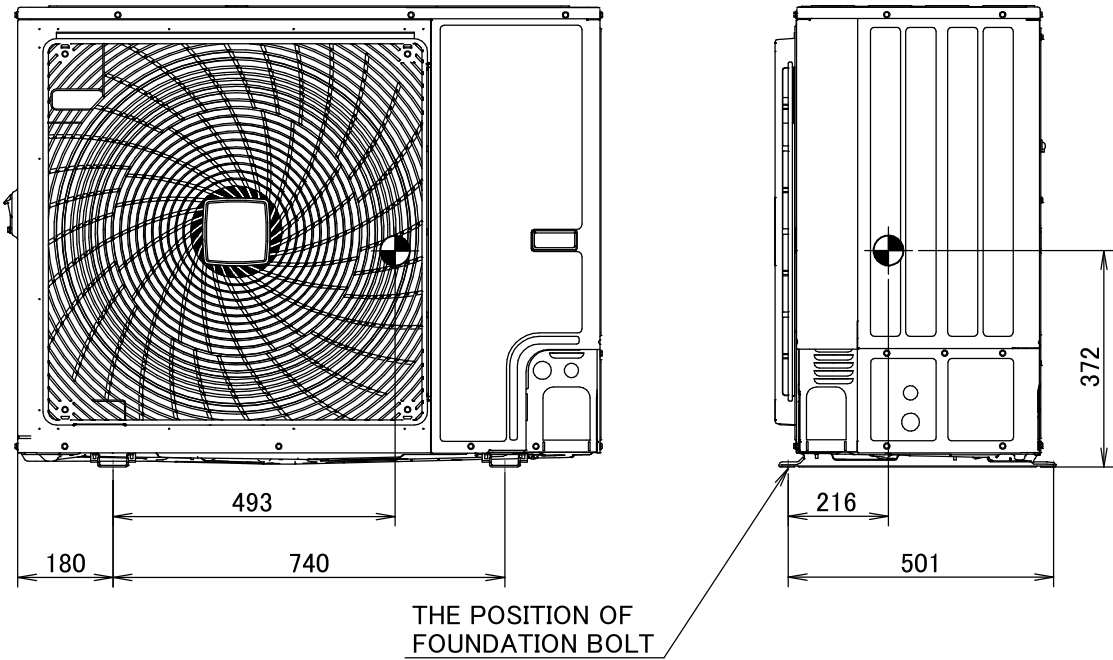
RZCA24AVMK / RZCA30AVMK / RZCA36AVMK

Unit: mm



RZCA42AYMK

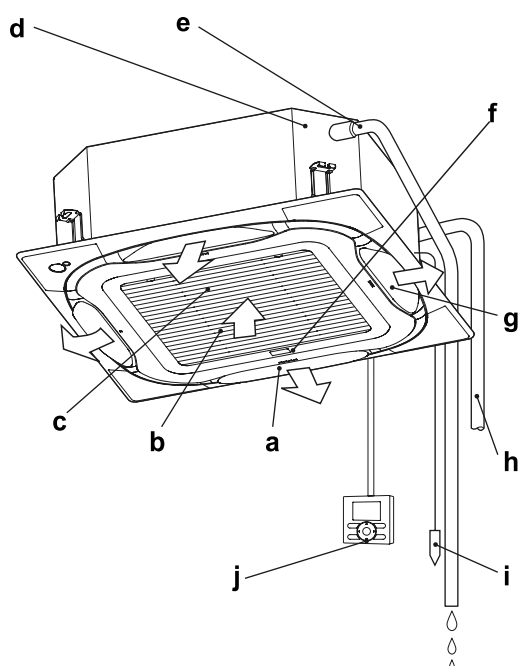
Unit: mm



2. Installation of Indoor Unit

2.1 FCA18AVMK

2.1.1 Names and Functions of Parts



a	Air outlet
b	Suction grille
c	Air filter (Inside suction grille)
d	Drain discharge device (built-in) Discharges indoor moisture removed during the cooling operation.
e	Drain pipe
f	Brand name logo
g	Horizontal blade (At air outlet)
h	Refrigerant piping Transmission wiring
i	Earth wiring (Note) (Note) It is a wiring to let electricity flow from the indoor unit to the earth for prevention of electric shocks or a fire in case of emergency.
j	Remote control (Operation part) The remote controller may not be needed depending on the system configuration.

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2.1.2 Installation

DAIKIN

SPLIT SYSTEM AIR CONDITIONER INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

FCA18AVMK

Page No.

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INSTALLATION MANUAL OF OUTDOOR	33-53

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1. SAFETY PRECAUTIONS



Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

Please read these "SAFETY PRECAUTIONS" carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.

This air conditioner comes under the term "appliances not accessible to the general public".

Please instruct the customer on how to operate the unit and keep it maintained.

Also, inform customers that they should store this installation manual along with the operation manual for future reference.

Meaning of WARNING and CAUTION notices.



WARNING Failure to follow these instructions properly may result in personal injury or loss of life.



CAUTION Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.



WARNING

- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Failure to do so during installation work may result in the unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or overheating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into contact with fire.
- After completing installation, check for refrigerant gas leakage.
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- Be sure to switch off the unit before touching any electrical parts.
- Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.
- Be sure to earth the air conditioner.
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead.
Imperfect earthing may result in electric shocks or fire.
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks or fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Do not allow children to climb on the outdoor unit and avoid placing objects on the unit.
Injury may result if the unit becomes loose and falls.
- The appliance must be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odour.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- When flared joints are reused indoors, the flare part shall be re-fabricated.

CAUTION

- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation.
Improper drain piping may result in indoor water leakage and property damage.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit as far away from fluorescent lamps as possible.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Install in a machine room that is free of moisture. The unit is designed for indoor use.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - A. Clean and dry
Strict measures must be taken to keep impurities (including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - B. Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere.
- Do not install the air conditioner in the following locations:
 1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).
Plastic parts will deteriorate, parts may fall off and water leakage could result.
 2. Where corrosive gas, such as sulphurous acid gas, is produced.
Corroding of copper pipes or soldered parts may result in refrigerant leakage.
 3. Near machinery emitting electromagnetic radiation.
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
 4. Where flammable gas may leak, where there is carbon fibre or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Important information regarding the refrigerant used.
This product contains fluorinated greenhouse gases covered by the Kyoto protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675*
⁽¹⁾GWP = global warming potential
- The refrigerant quantity is indicated on the unit name plate.
*This value is based on F gas regulation (824/2006).

2. BEFORE INSTALLATION

Do not exert pressure on the resin parts when opening the unit or when moving it after opening. Be sure to check the type of R32 refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)

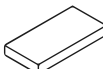
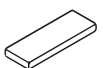
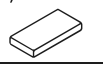
- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger bracket without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Do not dispose of any parts necessary for installation until the installation is complete.
- In order to protect the indoor unit from damage, use packing materials to protect the unit after carrying until the installation starts.
- When selecting installation site, refer to the paper pattern.
- Do not use the unit in locations with high salt content in the air such as beachfront property, locations where the voltage fluctuates such as factories, or in automobiles or marine vessels.
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

2-1. ACCESSORIES

Check the following accessories are included with your unit.

(Do not dispose of any parts necessary for installation until the installation is completed.)

Name	(1) Drain hose	(2) Metal clamp	(5) Paper pattern for installation	(7) Washer fixing plate	Insulation for fitting
Quantity	1 pc.	1 pc.	1 pc.	4 pcs.	1 each
Shape			Upper part of packing 		(8) For gas pipe  (9) For liquid pipe 

Name	Sealing pad			Installation guide	(Other)
Quantity	1 each	1 pc.	1 pc.	1 pc.	
Shape	(10) Large  (11) Medium-1  (12) Medium-2 	(13) Small 	(14) 	(15) 	

2-2. OPTIONAL ACCESSORIES

- The optional decoration panel and remote controller are required for this indoor unit. **(Refer to Table 1, 2)** (However, the remote controller is not required for the slave unit of a simultaneous operation system.)
- Check that the decoration panel is prepared.
(For the installation of the decoration panel, refer to the installation manual attached to the decoration panel.)

Table 1

Unit model	Optional decoration panel
FCA18AVMK	BYCQ125EEF9 BYCQ125EAF9
	Color : Fresh White / Black

NOTE

- If you wish to use a optional decoration panel that is not listed in “**Table 1**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.
- These are two types of remote controllers: wired and wireless. Select a remote controller from **Table 2** according to customer request and install in an appropriate place.
(For the installation of the remote controller, refer to the installation manual attached to the remote controller.)

Table 2

Remote controller			
Wired type			BRC1E63
Wireless type	Cooling only	Remote	BRC91A152
		Receiver kit	BRC7M632F-6

NOTE

- If you wish to use a remote controller that is not listed in “**Table 2**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.

FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

1. Items to be checked after completion of work

Items to be checked	If not properly done, what is likely to occur	Check
Are the indoor unit and outdoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
Is the outdoor unit fully installed?	The unit may malfunction or the components burn out.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate water may drip.	
Does drainage flow smoothly?	Condensate water may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	It may result in electric shock.	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	It may result in insufficient cooling.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

2. Items to be checked at time of delivery

* Also review the "1. SAFETY PRECAUTIONS"

Items to be checked	Check
Has the field setting done (as necessary)?	
Did you attach the control box lid, the air filter, and suction grille?	
Does the cold air blow properly during the cooling operation?	
Did you explain about operations while showing the instruction manual to your customer?	
Did you hand the instruction manual over to your customer?	

Points for explanation about operations

The items with **⚠ WARNING** and **⚠ CAUTION** marks in the instruction manual are the items pertaining to possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the instruction manual.

2-3. NOTE TO THE INSTALLER

Be sure to instruct customers how to properly operate the unit (especially cleaning filters, operating different functions, and adjusting the temperature) by having them carry out operations themselves while looking at the manual.

3. SELECTING INSTALLATION SITE

⟨Hold the unit by the 4 lifting lugs when opening the box and moving it, and do not exert pressure on to any other part piping (refrigerant, drain, etc.) or plastic parts.

If the temperature or humidity inside the ceiling might rise above 30°C or RH 80%, respectively, use the high-humidity kit (sold separately) or add extra insulation to the main unit body.

Use glass wool or polyethylene foam as insulation and make sure it is at least 10 mm thick and fits inside the ceiling opening.⟩

The direction this product blows can be selected. However, a separately sold shut-off material kit is needed in order to make the unit blow in two, three, or four (corner shut-off) directions.

(1) Select an installation location with the customer's approval which matches the following conditions.

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- Where the ceiling is strong enough to bear the indoor unit weight.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where there is no risk of flammable gas leakage.
- Where piping between indoor and outdoor units is possible within the allowable limit.

(Refer to the installation manual for the outdoor unit.)

[Space required for installation]

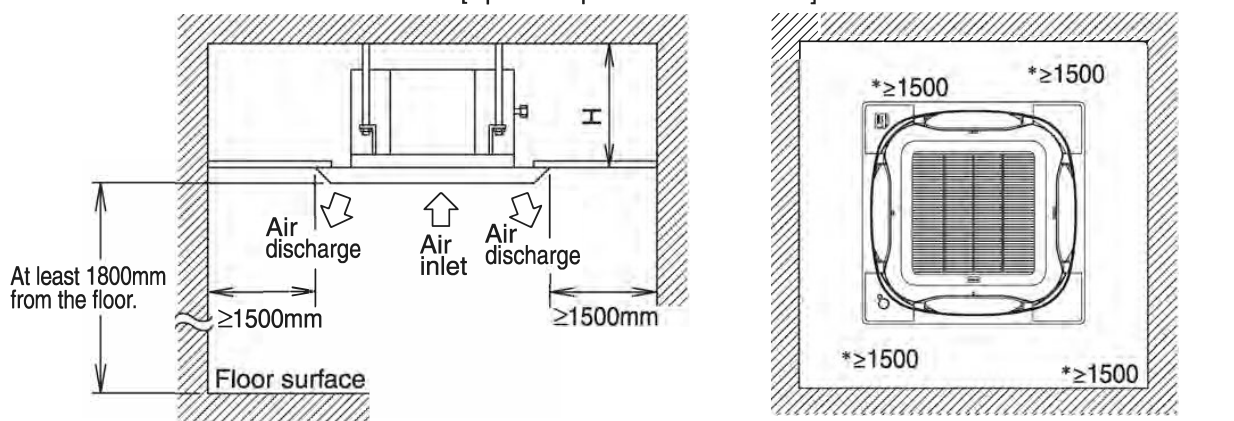


Fig. 1

(unit : mm)

Model	H(mm)
	BYCQ125EEF9 BYCQ125EAF9
FCA18AVMK	261

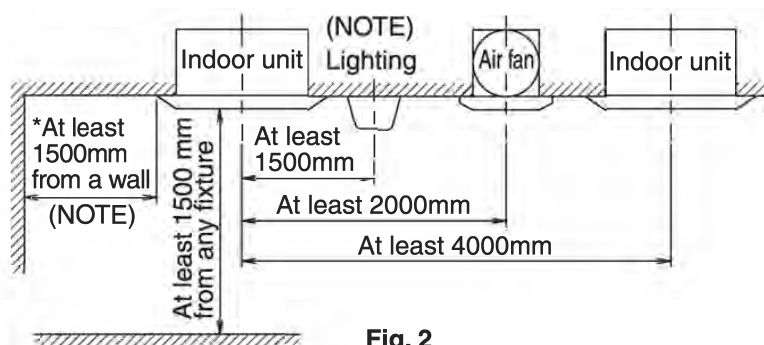


Fig. 2

NOTE

- The “*” marked space is at least 500 mm wide if the air outlet is closed. In case of also closed corner area (corner area of both left right direction for closing air outlet), it is 200 mm or more.

CAUTION

- Any vents, light fixtures, or other appliances which may disturb the airflow might cause the top side to become dirty if located too nearby, so follow **Fig. 2** when installing.
Note)
 - This restriction applies to the exposed type lighting, but does not apply to the recessed type (which does not protrude below the ceiling line).
 - For how to set the airflow direction (including airflow block) with the horizontal blade, refer to “Individual Airflow Direction” in the operation manual attached to the remote controller.
- Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)
- If installing the wireless kit, the distance of the signal sent from the remote controller might be shorter if there are fluorescent lights which are electrically started (such as with inverters, rapid starters, etc.) in the room. The indoor unit should be installed as far away from fluorescent lights as possible.

(2) Ceiling height

This product can be installed in ceilings up to 3.5 m high (4.2 m high for the 24, 30, and 36).

If the ceiling height is 2.7 m (3.2 m for the 24, 30, and 36) or more, field settings will have to be made with the remote controller. See “11. FIELD SETTING” for details.

(3) Air direction

The air direction shown in **Fig. 3** is an example.

Select the appropriate number of directions according to the shape of the room and the location of the unit. (Field settings have to be made using the remote controller and the outlet vents have to be shut off if two, three, or four (corner shut-off) directions are selected. See the shut-off materials (sold separately) installation manual for details.)

- (4) Use suspension bolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using suspension bolts. (The spacing of the installation is shown on the “paper pattern for installation (5)”.)

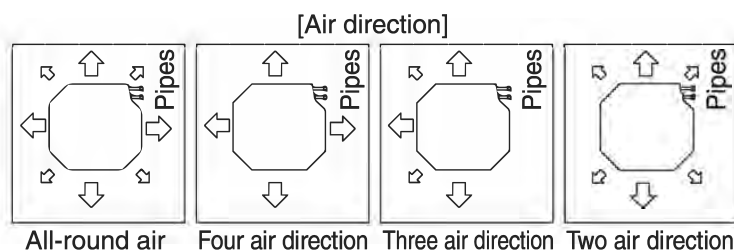


Fig. 3

4. PREPARATION BEFORE INSTALLATION

(1) Relation of ceiling opening to unit and suspension bolt position.

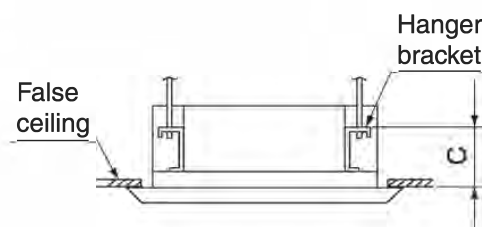
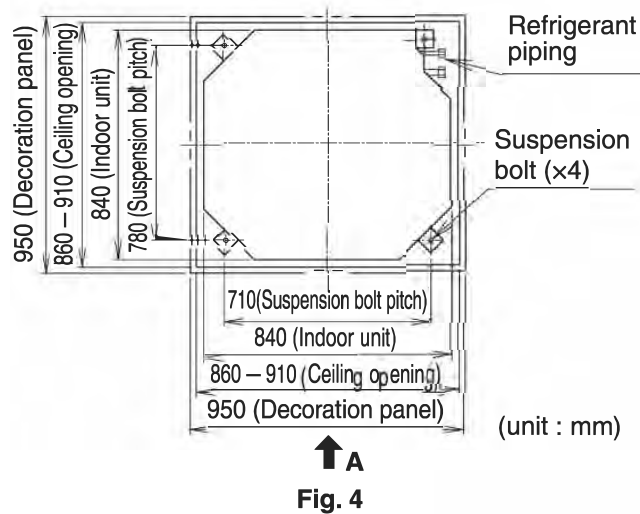


Fig. 5

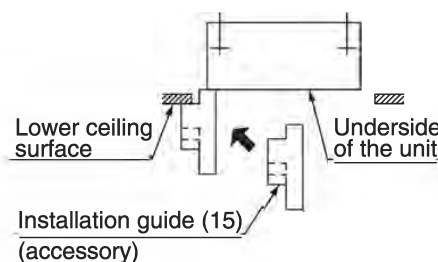
Decoration Panel	BYCQ125EEF9 BYCQ125EAF9
C (mm)	125~130

■ Use the installation guide (15) (delivered with the unit) for exact vertical positioning of the unit.

Apply the short side of the cut-out section in case of standard grille.

<BYCQ125EEF9>

<BYCQ125EAF9>



■ **Installation is possible when ceiling opening dimensions is as follows.**

- When installing the unit within the frame for fixing false ceiling.

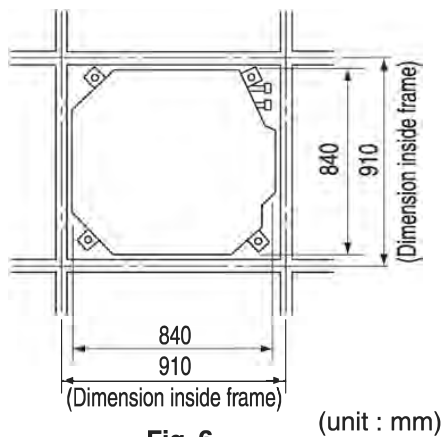


Fig. 6

(unit : mm)

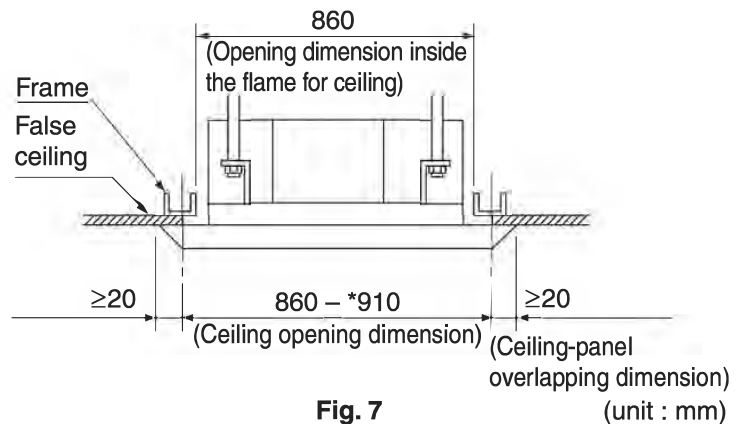


Fig. 7

NOTE

- Installation is possible with a ceiling dimension of 910 mm (marked with *). However, to achieve a ceiling-panel overlapping dimension of 20 mm, the spacing between the ceiling and the unit should be 35 mm or less. If the spacing between ceiling and the unit is over 35 mm, attach ceiling material to ■ part or recover the ceiling.

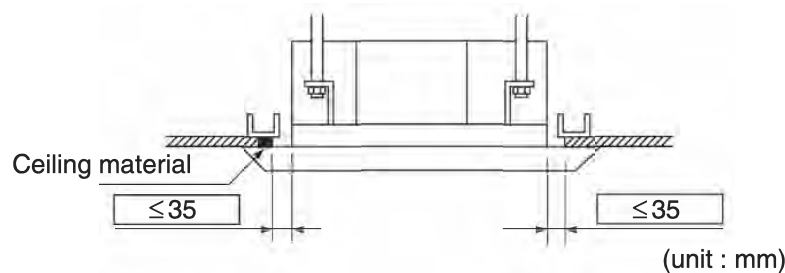


Fig. 8

(2) Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (5) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor-outdoor unit casing outlet. Refer to “6. REFRIGERANT PIPING WORK”, “7. DRAIN PIPING WORK” and “8. ELECTRIC WIRING WORK”.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

(3) Install the suspension bolts.

- Use M8 or M10 bolts for hanging the indoor unit. Use a hole-in anchor for existing ceilings, and a sunken insert, sunken anchor or other field supplied parts for new ceilings to reinforce the ceiling to bear the weight of the unit. Adjust clearance (50 – 100 mm) from the ceiling before proceeding further.

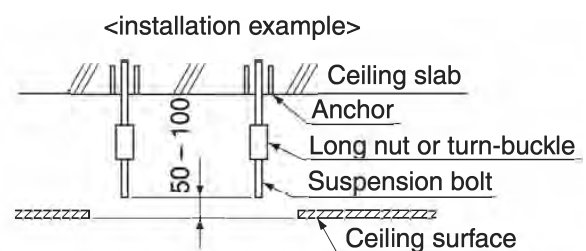


Fig. 9

(unit : mm)

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

5.1 FOR NEW CEILINGS

(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. **(Refer to Fig.10)**
The washer fixing plate (7) will prevent the washer from falling. **(Refer to Fig.11)**

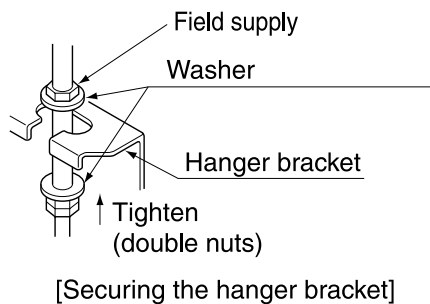


Fig. 10

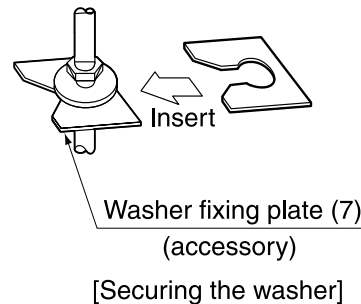


Fig. 11

(1-2) Refer to the paper pattern for installation (5) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation. The center of the unit is indicated on the triangular mark to the unit bottom and on the paper pattern for installation.
- Fix the paper pattern to the unit with screws (6) (×4).
- Ceiling height is shown on the side of the paper pattern for installation (5). Adjust the height of the unit according to this indication.

Please perform one of the following, as the shape of the paper pattern for installation differs according to the model.

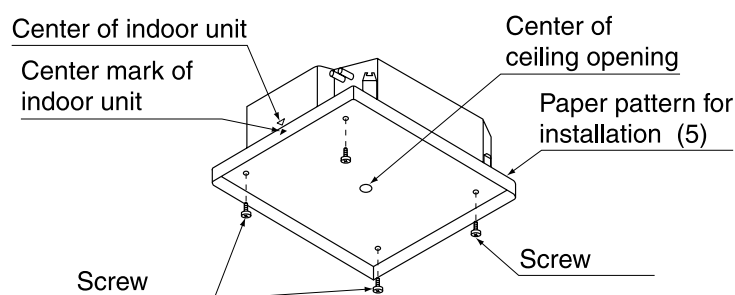


Fig. 12

[Installation of paper pattern for installation-optional]

<Ceiling work>

(1-3) Adjust the unit to the right position for installation.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)”.)

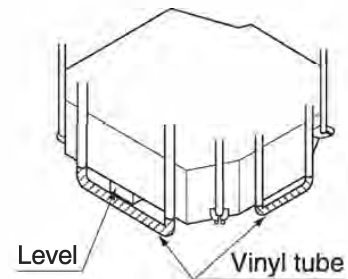
- Using the installation guide (15) allows you to check the positions from the underside of the unit to the lower ceiling surface.

(1-4) Check the unit is horizontally level. (Refer to Fig.13)

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.

— ⚠ CAUTION —

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.
(If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)



[Maintaining horizontality]

Fig. 13**(1-5) Remove the washer fixing plate (7) used for preventing the washer for hanger (3) from dropping and tighten the upper side nut.****(1-6) Remove the paper pattern for installation (5).****5.2 FOR EXISTING CEILINGS****(2-1) Install the indoor unit temporarily.**

Perform step (1-1) in (1) For new ceilings.

(2-2) Adjust the height and position of the unit.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)” and (1-3) in (1) For new ceilings.)

(2-3) Perform steps (1-4), (1-5) in (1) For new ceilings.**— ⚠ CAUTION —**

- **Install the indoor unit leveled.**

If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of a float switch and results in water leakage.

- **Attach nuts on the upper and lower side of hanger.**

If there is no upper nut and the lower nut is over-tightened, the hanger and the top plate will deform and cause abnormal sound.

- **Do not insert materials other than that specified into the clearance between the hanger and the washer for hanger (3).**

Unless the washers are properly attached, the hanging bolts may come off from the hanger.

— ⚠ WARNING —**The indoor unit must be securely installed on a place that can withstand the mass.**

If the strength is insufficient, the indoor unit may fall down and cause injuries.

6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R32. (Unless the refrigerant is R32, the normal operation cannot be expected.)

⚠ WARNING

When flared joints are reused indoors, the flare part shall be re-fabricated.

⚠ CAUTION

This air conditioner is a dedicated model for new refrigerant R32. Make sure to meet the requirements shown below and carry out installation work.

- Use dedicated piping cutters and flaring tools for R32 and R410A.
 - When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
 - Use only the flare nuts attached to the air conditioner. If other flare nuts are used, it may cause refrigerant leakage.
 - To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the pipings.
- Do not mix substance other than the specified refrigerant such as air into the refrigeration circuit.**
If the refrigerant leaks during the work, ventilate the room.

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the pipings to the air conditioner, make sure to use a spanner and a torque wrench as shown in Fig. 14.
- For the dimension of flared part and the tightening torque, refer to the Table 3.

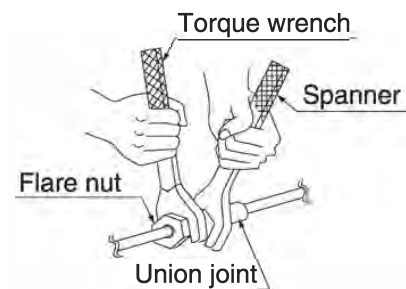


Fig. 14

- When making a flare connection, coat the flared inner surface only with ether oil or ester oil. (Refer to Fig. 15)
- Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

Coat the flared inner surface only with ether oil or ester oil

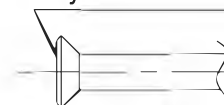


Fig. 15

Table 3

Piping size (mm)	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 6.4	15.7 ± 1.5	8.9 ± 0.2	
φ 9.5	36.3 ± 3.6	13.0 ± 0.2	
φ 12.7	54.9 ± 5.4	16.4 ± 0.2	
φ 15.9	68.6 ± 6.8	19.5 ± 0.2	

⚠ CAUTION

Do not have oil adhere to the screw fixing part of resin parts.

If oil adheres, it may weaken the strength of screwed part.

Do not tighten flare nuts too tight.

If a flare nut cracks, the refrigerant may leak.

- If there is no torque wrench, use **Table 4** as a rule of thumb.
When tightening a flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases.
From that position, tighten the nut additionally the angle shown in **Table 4**.
After the work is finished, check securely that there is no gas leak.
If the nut is not tightened as instructed, it may cause slow refrigerant leak and result in malfunction (such as does not cool or heat).

Table 4

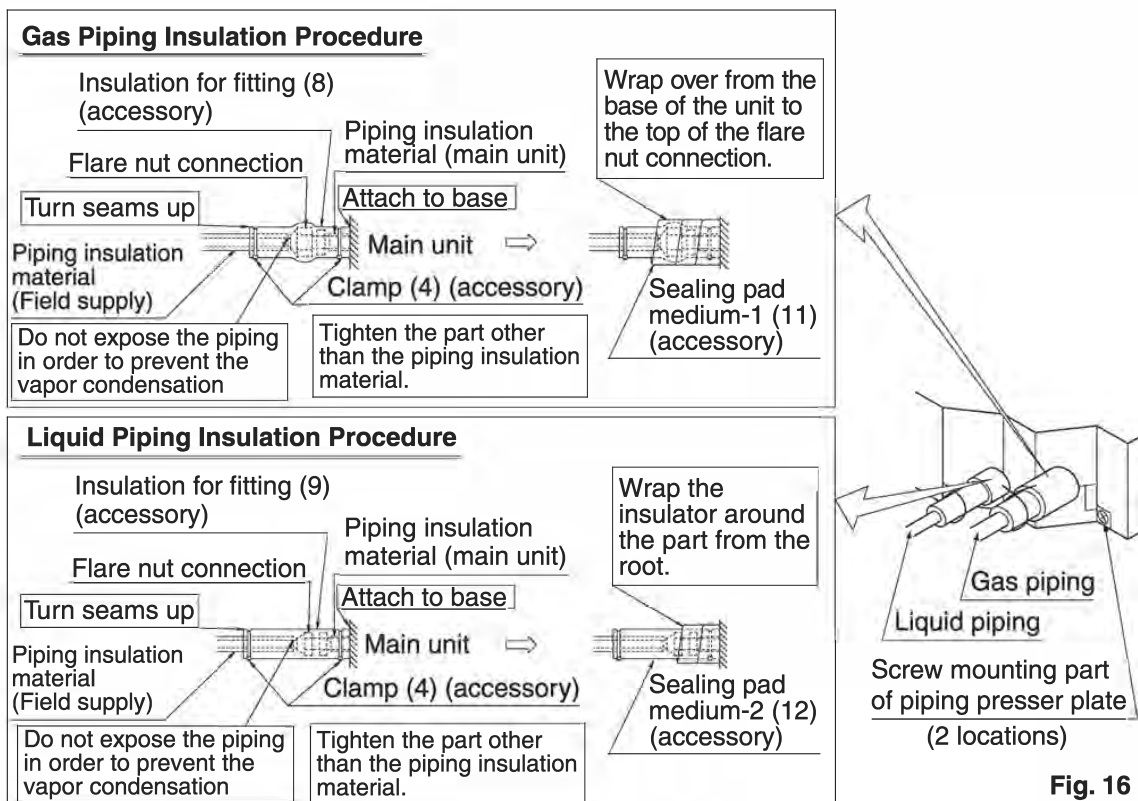
Piping size (mm)	Tightening angle	Recommended arm length of tool used
φ 6.4	60° - 90°	approx. 150 mm
φ 9.5	60° - 90°	approx. 200 mm
φ 12.7	30° - 60°	approx. 250 mm
φ 15.9	30° - 60°	approx. 300 mm

⚠ CAUTION

Insulation of field piping must be carried out up to the connection inside the casing.

If the piping is exposed to the atmosphere, it may cause sweating, burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

- After leak test, referring to **Fig. 16**, insulate both the gas and liquid piping connection with the attached joint insulating for fitting (8) and (9) to prevent the pipings from getting exposed.
Then, tighten the both ends of insulating material with the clamp (4).
- Wrap the sealing material (Medium-1, 2) (11) (12) around the joint insulating for fitting (8) and (9) (flare nut section), both the gas and liquid piping.
- Make sure to bring the seam of joint insulating for fitting (8) and (9) to the top.

**Fig. 16**

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 17). Then, carry out brazing (NOTE 2). After all the brazing works are finished, carry out flare connection with the indoor unit. (Refer to Fig. 16)

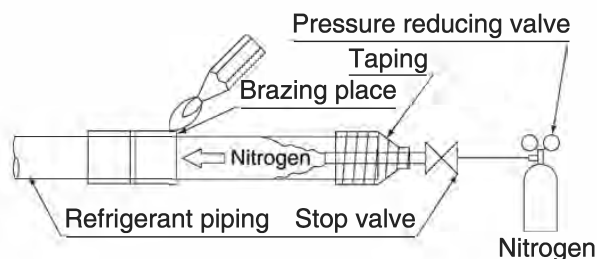


Fig. 17

NOT E

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping.
Use phosphor copper brazing filler metal (BCuP-2: JISZ3264/B-Cu93P-710/795: ISO 3677) that does not require flux.
(If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
3. When carrying out leakage test of refrigerant piping and the indoor unit after the installation of indoor unit is finished, confirm the connecting outdoor unit installation manual for test pressure.
Refer to also the outdoor unit installation manual or technical document for refrigerant piping.
4. In case of refrigerant shortage due to forgetting additional refrigerant charge etc., it will result in malfunction such as does not cool or does not heat.
Refer to the outdoor unit installation manual or technical document for refrigerant piping.

CAUTION

Do not use antioxidant when brazing piping.

It may result in malfunction of components and clogging of piping due to residue.

7. DRAIN PIPING WORK

(1) Rig drain piping

- As for drain work, perform piping in such a manner that water can be drained properly.
- Employ a pipe with either the same diameter or with the diameter larger (excluding the raising section) than that of the connecting pipe (PVC pipe, nominal diameter 25 mm, outside diameter 32 mm).
- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If the drain pipe cannot be sufficiently set on a slope, execute the drain raising piping.
- To keep the drain pipe from sagging, space hanging wires every 1 to 1.5 m.

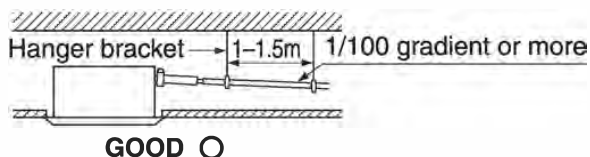


Fig. 18-1

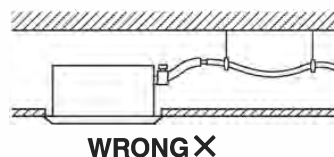


Fig. 18-2

CAUTION

Water accumulating in the drainage piping can cause the drain to clog.

- Use the attached drain hose (1) and Metal clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the metal clamp securely within the portion of a white tape of the hose-inserted tip. Tighten the metal clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached sealing pad (10) over the Metal clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

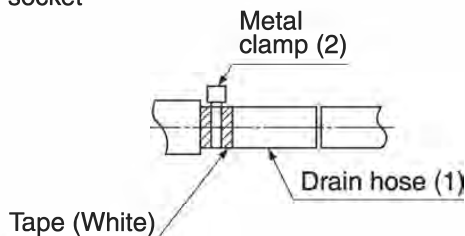


Fig. 19

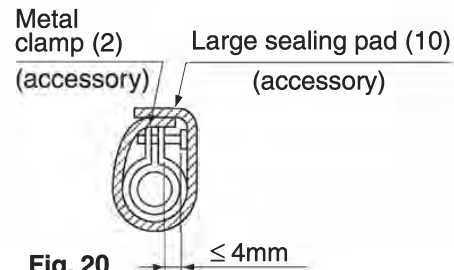


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 675 mm.
The drain pump of this unit has a high delivery flow rate. Therefore, the higher the drain raising height is, the lower the sound of draining will be. For this reason, a minimum drain raising height of 300 mm is recommended.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.

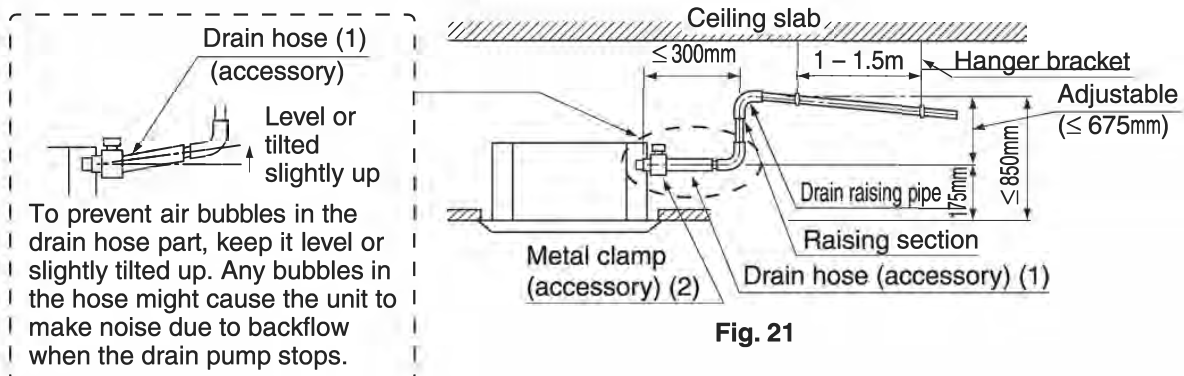


Fig. 21

NOTE

- To ensure no excessive pressure is applied to the included drain hose (1), do not bend or twist when installing. (This may cause leakage.)
- If converging multiple drain pipes, install according to the procedure shown below.

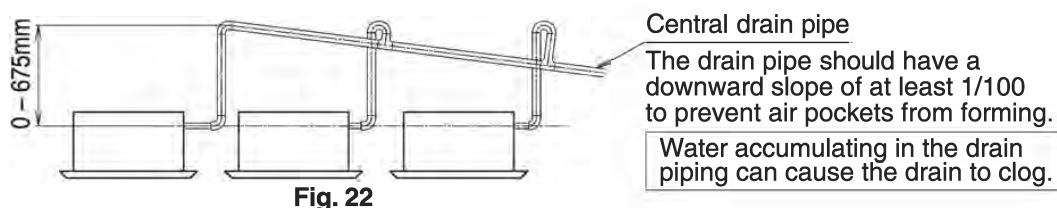


Fig. 22

- As for the size of central drain pipe, select the size that meet the capacity of indoor units to be connected. (Refer to the technical document)
- At replacement with new indoor unit, use the attached new drain hose (1) and the metal clamp (2). If an old drain hose or a metal clamp is used, it may cause water leakage.



CAUTION

Drain piping connections

- Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

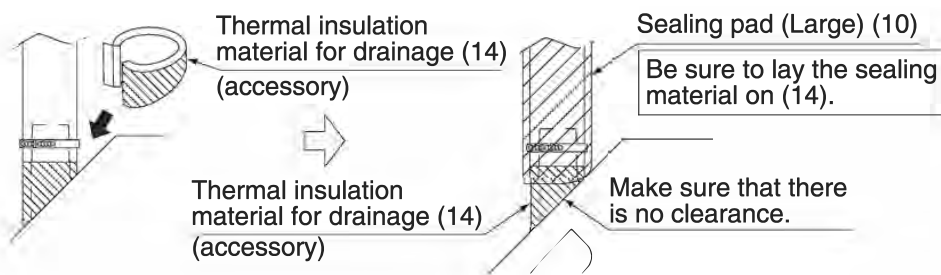
(2) After piping work is finished, check if drainage flows smoothly.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Add approximately 1L of water slowly from the air outlet and check drainage flow. (Refer to Fig.23)
- Check drainage flow during COOL running, explained under “12. TEST OPERATION”.
- Refer to the figure on the following after checking the draining of water, and mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.

— ⚠ CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.



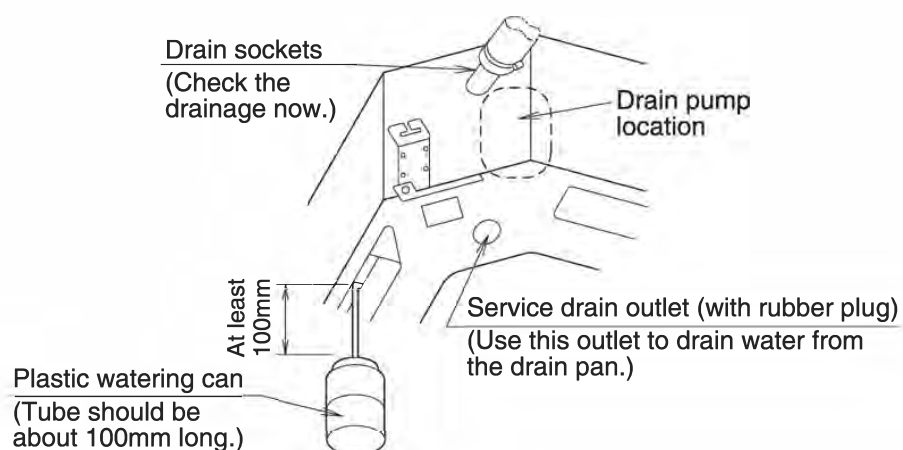
WHEN ELECTRIC WIRING WORK IS NOT FINISHED

— ⚠ CAUTION —

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following after the test run is complete.
- Remove the control box lid. Connect the single phase power supply (SINGLE PHASE 230V) to connections No.1 and No.2 on the terminal block for wiring the units. Do not connect to No.3 of the terminal block for wiring the units. (The drain pump will not operate.) Connect the earth wire firmly. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power.
- Put approximately 1L of water into the drain pan through the blow-off mouth on the left-hand side of the drain socket. Make sure not to pour water over the drain pump or any electric parts including those of the drain pump.
- When the power is turned on, the drain pump will operate and you can check the draining of water through the transparent part of the drain socket. (The drain pump will stop automatically in 10 minutes.) After checking the draining of water, mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.
- After confirming drainage (Fig. 23, Fig. 24), turn off the power and remove the power supply.
- Attach the control box lid as before.

— ⚠ CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.
- Do not touch the electronic ports other than the terminal block.



<Adding water through air discharge outlet>
[Method of adding water]

Fig. 23

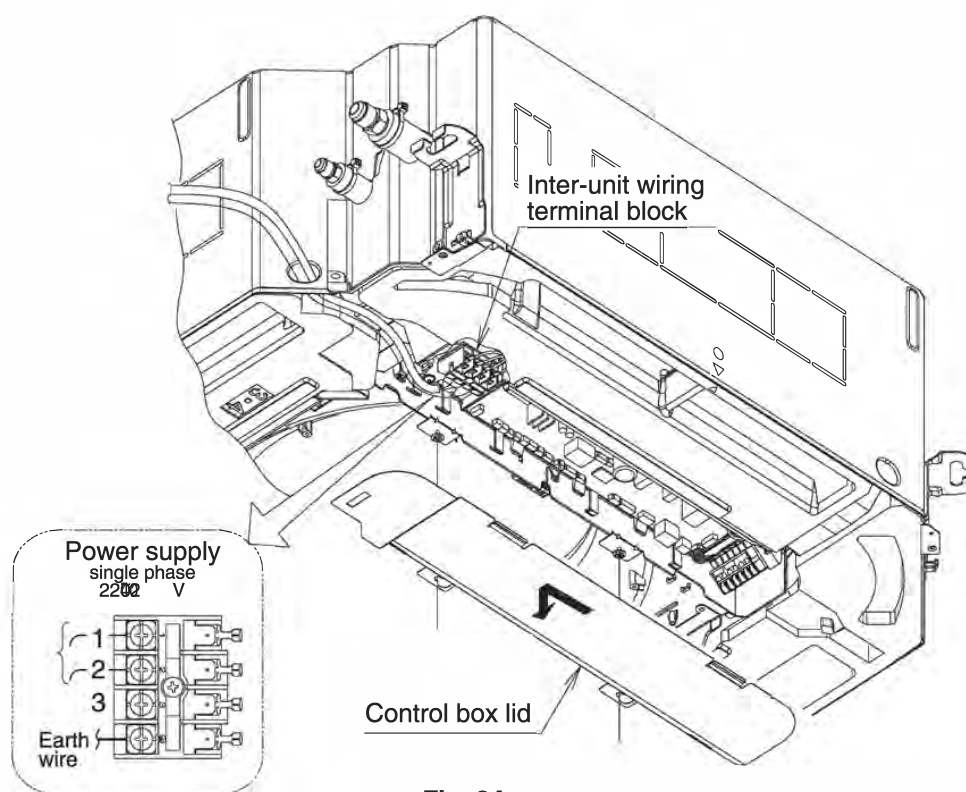


Fig. 24

8. ELECTRIC WIRING WORK

• Electric wiring work must be conducted by electrician authorized by power companies. (Only licensed electrician can conduct electric work and earth connections.)

- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Be sure to install an earth leakage circuit breaker to the outdoor unit.

(This installation of an earth leakage circuit breaker is mandatory for the prevention of electric shocks and fire disasters.)

- Make sure that 2200V is specified wiring between the indoor and outdoor units and between indoor units.
- Do not turn on the power supply (of the indoor unit) until all the installation work is completed.
- Be sure to ground the air conditioner.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Do not connect the earth wire to gas pipes, plumbing pipes, lightning rods, or telephone earth wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Plumbing pipes: no earth effect if hard vinyl piping is used.
 - Telephone earth wires or lightning rods: might cause abnormally high electric potential in the earth during lightning storms.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- Never connect the power supply wire to the terminal block for remote controller wire, or otherwise the entire system may be damaged.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.

• Specifications for field wire

Refer to the installation manual attached to the outdoor unit regarding the detail of standard accessories for the outdoor unit.

The remote control cord should be procured locally. Refer to the **Table 5** when preparing one.

Wiring specifications are shown on the condition that the wiring has a voltage drop of 2%.

Table 5

	Wire	Size (mm ²)	Length
Wiring the units	H05VV – U4G (NOTE 1, 2)	2.5	–
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500m *

*This will be the total extended length in the system when doing group control.

NOTE

1. Shows only in case of protected pipes. Use H07RN-F in case of no protection.
2. Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
3. Vinyl cord with sheath or cable (Insulated thickness : 1 mm or more)

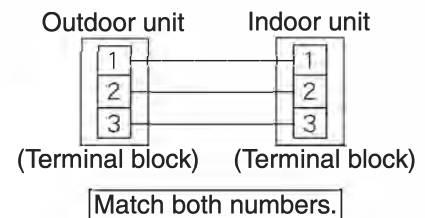
Connection of wiring between units, earth wire and for the remote controller cord (Refer to Fig. 26)

• Wiring the units and earth wire

Remove the control box lid and connect wires of matching number to the terminal block for wiring the units (4 P) inside. And connect the earth wire to the earth terminal. In doing this, pull the wires inside through the hole and fix the wires securely with the included clamp (4).

• Remote controller cords

Remove the control box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (4 P) (no polarity). Securely fix the remote controller cord with the included clamp (4).



How to connect the connection pipe

CAUTION

- Never connect the power supply wiring to the terminal block for wiring the units (4P). If may damage the total system.
- Do not connect the remote controller to the wrong terminal block.

- Protect the wire and the wiring through hole area for wirings of the transmission, earth and the remote controller in order to prevent the intrusion of water and small animals into the air conditioner after the system is wired.
- Cut the sealing pad - small (13) into two pieces and wrap each wiring with each piece.
- Seal the clearance around the wirings with putty or thermal insulation material (field supply). (If insects and small animals get into the indoor unit, short circuiting may occur inside the control box.)
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any do get in, they could cause short circuits in the control box.)
- Outside the machine, separate the weak wiring (remote controller cord) and strong wiring (interunit, earth, and other power wiring) at least 50 mm so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

[Processing method of wiring through hole]

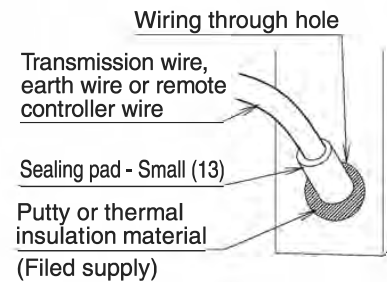


Fig. 25

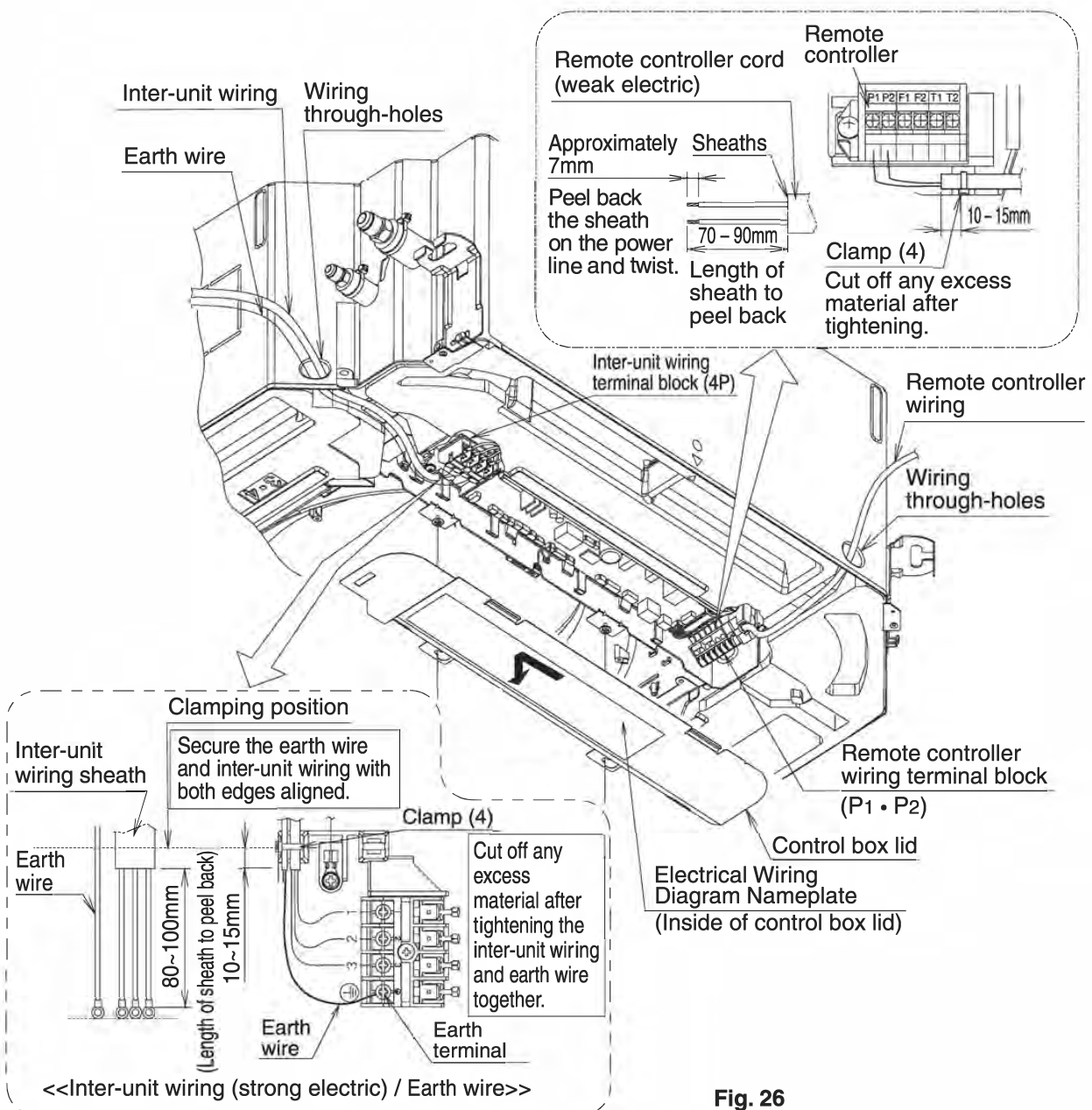


Fig. 26

⚠ CAUTION

- Shape the wires and attach the control box lid securely so that wires will not be caught. (Caught wires and risen lid may cause an electric shock or fire.)

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block.

In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.

(Refer to Fig. 27)

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.) (Refer to Fig. 28)
- When connecting wires of the same gauge, connect them according to. (Refer to Fig. 28)
- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that external forces are not applied to the terminals.

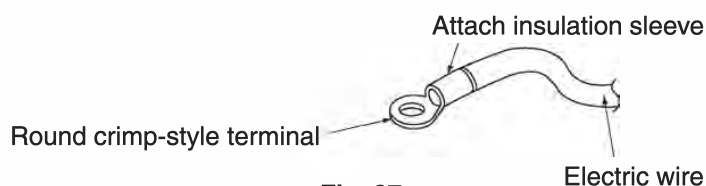
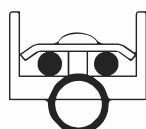


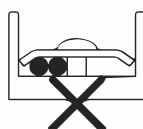
Fig. 27

Connect wires of the same gauge to both side. (GOOD)



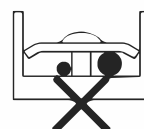
Good

Do not connect wires of the same gauge to one side. (WRONG)



Wrong

Do not connect wires of different gauges. (WRONG)



Wrong

Fig. 28

Tightening torque for the terminal screws.

- Use the correct screw driver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.

Refer to the table below for the tightening torque of the terminal screws.

Tightening torque (N·m)	
Terminal block for remote controller	0.88±0.08
Terminal block for wiring the units	1.47±0.14
Earth terminal	1.47±0.14

- If the strand wire is used, do not solder it. (Abnormal heating may occur if the wirings are not tightened securely.)

9. WIRING EXAMPLE

⚠ CAUTION

Be sure to install an earth leakage breaker to the outdoor unit.
Installation of an earth leakage breaker is mandated to avoid electric shocks or fire.

For the wiring of outdoor units, refer to the installation manual attached to the outdoor units.

Confirm the system type.

- **Pair type:** 1 remote controller controls 1 indoor unit. (standard system) (Refer to Fig. 29)
- **Simultaneous operation system:** 1 remote controller controls 2 indoor unit (2 indoor units operates equally). (Refer to Fig.30)
- **Group control:** 1 remote controller controls up to 16 indoor units. (All indoor units operate according to the remote controller) (Refer to Fig. 31)
- **2 remote controllers control:** 2 remote controllers control 1 indoor unit. (Refer to Fig. 33)

Pair type

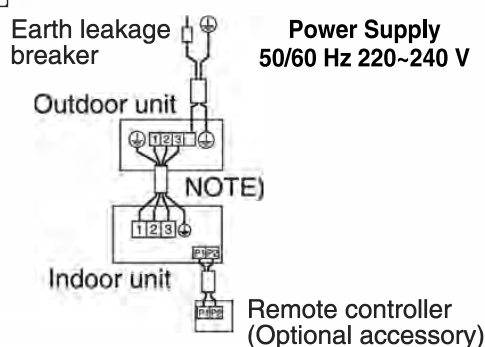


Fig. 29

Standard wiring accessories

Single-phase supply	Indoor unit		
	Earth wire (copper)	Connection wire between indoor unit and outdoor unit	
		Minimum thickness	Length
	$\geq 2.0 \text{ mm}^2$ $\phi 1.6$	2.0 mm^2 $\phi 1.6$	$\leq 50 \text{ m}$

* For wiring length of indoor outdoor connection wiring will be changed depends on connect model, quantity, power size. For details, please refer engineer guide.

Simultaneous operation system

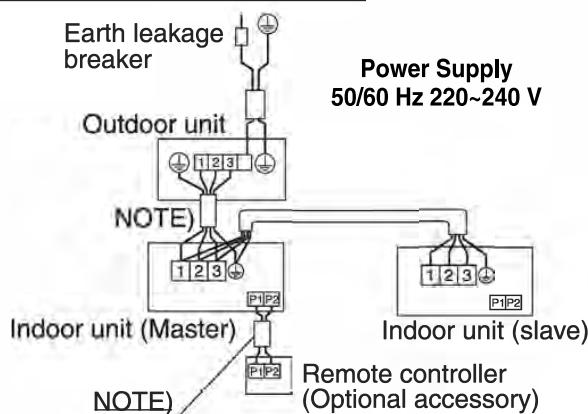


Fig. 30

Simultaneous operation system

- Connect the remote controller only to the master unit.
 - The remote controller needs to be wired only to the master unit, it does not need to be connected to the slave units through transition wiring. (Do not connect transition wiring to the slave units.)
 - The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
 - The length of wiring between the indoor unit and the outdoor unit varies depending on the connected model, the number of connected units, and the maximum piping length.
- For details, refer to the technical documents.

Group control

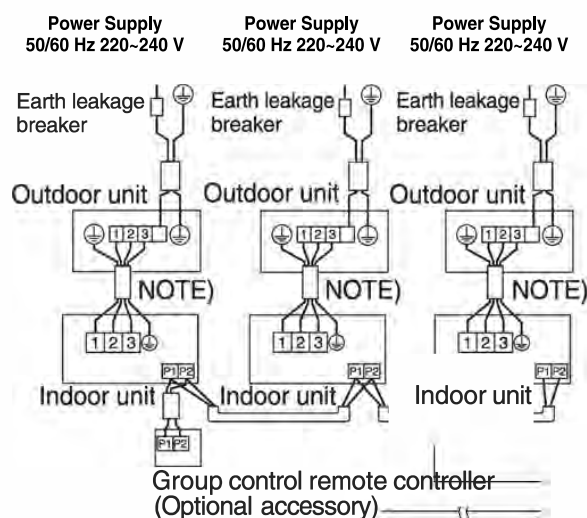


Fig. 31

Wire		Size (mm ²)	Length
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500 m *

When implementing group control

- When using as a pair unit or as a parent unit for simultaneous operation multi, you may simultaneous start/stop (group) control up to 16 unit with the remote controller.
- In this case, all the indoor units in the group will operate in accordance with the group control remote controller.
- Select a remote controller which matches as many of the functions (airflow direction, etc.) in the group as possible.

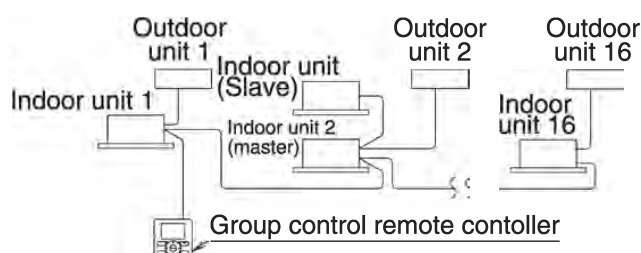
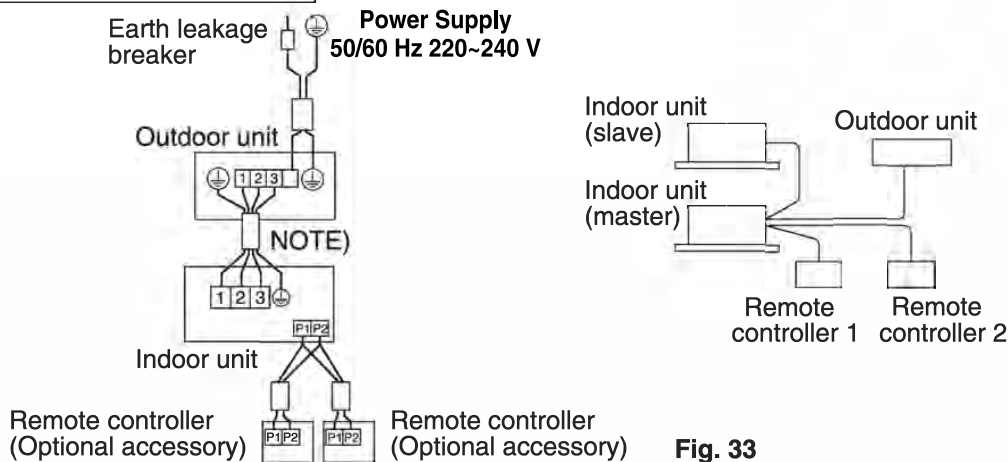


Fig. 32

Wiring Method

- (1) Remove the control box lid. (See “8. ELECTRIC WIRING WORK”.)
- (2) Cross-wire the terminal block for remote controller (P₁, P₂) inside the control box. (There is no polarity.) (Refer to Fig. 30 and Table 5)

2 remote controllers control**Fig. 33****Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)**

- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- Remove the control box lid.
- Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X1M) for the remote controller in the control box. (There is no polarity.) (Refer to Fig.33 and Table 5)

NOTE

- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- In case of simultaneous operation and group control, perform the remote controller wiring to the master unit when connecting to the simultaneous operation system. (wiring to the slave unit is unnecessary)
- For group control remote controller, choose the remote controller that suits the indoor unit which has the most functions (as attached swing flap)

10. INSTALLATION OF THE DECORATION PANEL

<If test operation is required before installation of the decoration panel, "11. FIELD SETTING" and "12. TEST OPERATION" can be carried out before "10. INSTALLATION OF THE DECORATION PANEL".>

- Refer to the installation manual attached to the decoration panel.
- After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.
- When making a test run before installation of the decoration panel, be sure to check the operation of the swing flap after the installation.

11. FIELD SETTING

<<Refer to also the installation manual attached to the outdoor unit.>>

⚠ CAUTION

Before carrying out field setting, check the items mentioned in the clause 2 “1. Items to be checked after completion of work” on page 4.

- Check if all the installation and piping works for the air conditioner are completed.
- Check if the control box lids of the air conditioner are closed.

< FIELD SETTING FOR WIRED REMOTE >

<<After turn on the power supply, carry out field setting from the remote controller according to the installation state.>>

- Carry out setting at 3 places, “Mode No.”, “FIRST CODE No.” and “SECOND CODE No.”.
The settings shown by “ ” in the table indicate those when shipped from the factory.
- The method of setting procedure and operation is shown in the installation manual attached to the remote controller.
(Note) Though setting of “Mode No.” is carried out as a group, if you intend to carry out individual setting by each indoor unit or confirmation after setting, carry out setting with the Mode No. shown in the parenthesis ().
- In case of remote control, for changeover of input to FORCED OFF or to ON/OFF OPERATION.
[1] Enter into the field setting mode with the remote controller.
[2] Select Mode No. “12”.
[3] Set the FIRST CODE No. to “1”.
[4-1] For FORCE OFF, set the SECOND CODE No. to “01”.
[4-2] For ON/OFF OPERATION, set the SECOND CODE No. to “02”.
(It is set to FORCE OFF when shipped from the factory.)
- Ask your customer to keep the manual attached to the remote controller together with the operation manual.
- Do not carry out settings other than those shown in the table.

NOTE: For wireless remote field setting kindly refer the Remote manual.

11-1 SETTING CEILING HEIGHT

- Set the SECOND CODE No. according to the ceiling height as shown in the **Table 6**.

Table 6

		FCA-AVMK	Mode No. Note) 1	FIRST CODE No.	SECOND CODE No.
		18 type			
Ceiling height (m)	Standard · All round outlet	≤2.7	13 (23)	0	01
	High ceiling 1	2.7 - 3			02
	High ceiling 2	3 - 3.5			03

Note:

1. “Mode No.” setting is done in a batch for the group.
To make or confirm settings for an individual unit, set the internal mode number in parentheses.
2. The figure of the ceiling height is for the all round outlet.
For the settings for four-direction (part of corner closed off), three-direction and two-direction outlets, see the installation manual and technical guide supplied with the separately sold closure material kit.

11-2 SETTING AIR DISCHARGE DIRECTION

- Refer to the installation manual attached to the sealing material of air discharge outlet sold separately and engineering data book, for ceiling height settings for four-direction (part of corner closed off) and three-direction.
(The SECOND CODE No. is factory set to “01” (all round outlet) before shipping.)

11-3 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

- For setting when attaching an optional accessory, refer to the installation manual attached to the optional accessory.

11-4 WHEN USING WIRELESS REMOTE CONTROLLER

- When using a wireless remote controller, it is necessary to set the wireless remote controller address. Refer to the installation manual attached to the wireless remote controller.

11-5 SETTING FAN SPEED DURING THERMOSTAT OFF

- Set the fan speed according to the using environment after consultation with your customer.
- When the fan speed is changed, explain the set fan speed to your customer.

Table 7

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
Fan operates / stops during thermo OFF (Cooling · heating)	Operates	11 (21)	2	01
	Stops			02
Fan speed during cooling thermostat OFF	(Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	(Extra low)	12 (22)	3	01
	Setting			02

11-6 SETTING FILTER SIGN

- A message to inform the air filter cleaning time will be indicated on the remote controller.
- Set the SECOND CODE No. shown in the **Table 8** according to the amount of dust or pollution in the room.
- Though the indoor unit is equipped with the long life filter, it is necessary to periodically clean the filter to avoid clogging of the filter. Please also explain the set time to the customer.
- The periodical filter cleaning time can be shortened depending on the environment.

Table 8

Contamination	Hours until indication	Mode No.	FIRST CODE No.	SECOND CODE No.
Normal	Approx. 2500 hrs	10 (20)	0	01
More contaminated	Approx. 1250 hrs			02
With indication			3	01
No indication*				02

* Use "No indication" setting when cleaning indication is not necessary such as the case of periodical cleaning being carried out.

11-7 SETTING NUMBER OF THE CONNECTED INDOOR UNITS AS SIMULTANEOUS OPERATION SYSTEM

- When using in simultaneous operation system mode, change the SECOND CODE No. as shown in **Table 9**.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

Table 9

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Pair system (1 unit)	11 (21)	0	01
Simultaneous operation system (2-unit)			02
Simultaneous operation system (3-unit)			03
Double twin multi (4-unit)			04

11-8 SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING

It is easier if the optional remote controller is used when setting the slave unit.

< Procedure >

- Perform the following procedure when setting the master and slave unit separately.
- “ ” in the tables indicates factory settings.

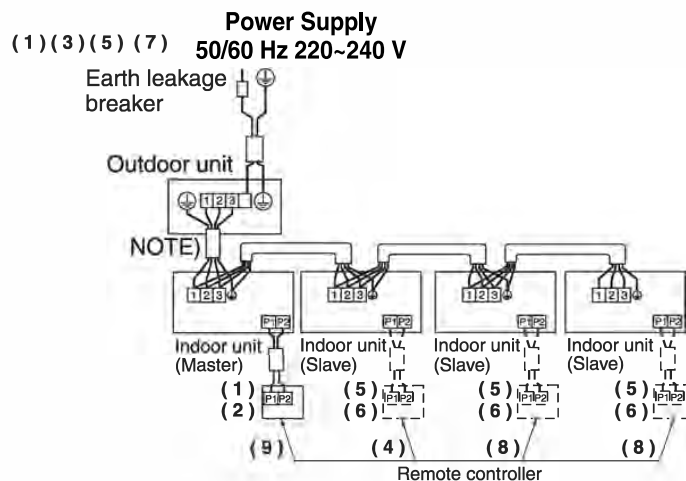
(Note) The “Mode No.” is set on a group basis. To individually set a Mode No. for each indoor unit or confirm the settings, set the Mode No. in the parenthesis.

- (1) Change the SECOND CODE No. to “02”, individual setting, so that the slave unit can be individually set.

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Unified setting	11 (21)	1	01
Individual setting			02

- (2) Perform field setting (Refer to 11-1 to 11-5) for the master unit.
 (3) Turn off the main power supply switch after (2) is finished.
 (4) Detach remote controller from the master unit and connect it to the slave unit.
 (5) Turn on the main power supply switch again, and as in (1), change the SECOND CODE No. to “02”, individual setting.
 (6) Perform field setting (Refer to 11-1 to 11-4) for the slave unit.
 (7) Turn off the main power supply switch after (6) is finished.
 (8) If there is more than one slave unit, repeat steps (4) to (7).
 (9) Detach the remote controller from the slave unit after the setting, and reattach to the master unit.
 This is the end of the setting procedure.

* You do not need to rewire the remote controller from the master unit if the optional remote controller for slave unit is used. (However, remove the wiring attached to the remote controller terminal block of the master unit.) After the slave unit setting, remove the remote controller wiring, and rewire the remote controller to the master unit. (The indoor unit does not operate properly when two or more remote controllers are attached to the unit in the simultaneous operation system mode.)

**NOTE**

- Terminal numbers of outdoor and indoor units must be matched.

12. TEST OPERATION

CAUTION

When performing field setting or test operation without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

<Complete all the “1. Items to be checked after the installation work is completed” on page 4. Please also refer to the installation manual attached to outdoor unit.>

Refer to the section of “FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.”.

- After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct test operation accordingly to protect the unit.
- Check that the outdoor unit has been wired properly.
- Check that the control box lid of the indoor unit is closed and that the outer plate and piping cover of the outdoor unit are closed as well.
- Clean the decoration panel and interior of the indoor unit on completion of refrigerant piping, drain piping, and electric wiring work.
- Refer to the installation manual of the outdoor unit, and perform the test operation of the air conditioner.
- If the decoration panel is mounted at the time of test operation, check the operation of the swing flap of the decoration panel.
- If the interior finishing work has been still on the way on completion of test operation, explain to the customer not to operate the air conditioner for the protection of the indoor unit until the interior finishing work is completed.
If the air conditioner is operated, substances generated from the paint and glue of the interior finishing will contaminate the indoor unit, thus resulting in water splashing or leakage.
- If an error occurs and the air conditioner does not operate, refer to the troubleshooting information provided in the installation manual attached with remote controller.

NOTE

- If a malfunction is preventing operation, refer to the malfunction diagnoses.

12-1 CAUTIONS FOR SERVICING

With the power on. Troubles can be monitored on the remote controller.

- If the air conditioner does not operate normally after installing the air conditioner, a malfunction shown in the table below may happen.

Remote controller display	Malfunction
No display	• Power supply trouble or Open phase connection • Wrong wiring between indoor and outdoor unit • Indoor PC board faulty • Wrong remote controller connection wiring • Remote controller faulty • Fuse faulty

*After turning on the power, the maximum is 90 seconds, although it will only display "Checking the connection. Please stand by". This is not a problem, and it will be set for 90 seconds.

** For fault diagnosis for BRC1H model remote controller should be performed while referring to the indoor operation manual.

12-2 MALFUNCTION CODE LIST

- For places where the Malfunction code is left blank, the “” indication is not displayed. Though the system continues operating, be sure to inspect the system and make repairs as necessary.
- Depending on the type of indoor or outdoor unit, the Malfunction code may or may not be displayed.

Code	Malfunction/Remarks
A0	Safety device operates
A1	Indoor unit's PC board faulty
A3	Drain water level abnormal
A6	Indoor fan motor overloaded, overcurrent or locked
A8	Fan PCB power supply error
AF	Humidifier faulty
AH	Air cleaner faulty
	Only the air cleaner does not function.
AJ	Type set improper
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
C1	Indoor PCB (Master) - indoor PCB (Slave) transmission defect
C4	Sensor (R2T) for heat exchanger temperature is fault
C5	Sensor (R3T) for heat exchanger temperature is fault
C6	Fan PCB setting defect
C9	Sensor for suction air temperature is fault
CC	Humidity sensor abnormal
CE	Human detection / floor temperature sensor error
CJ	Sensor for remote controller is fault
	The remote controller thermistor does not function, but the system thermo run is possible.
E0	Action of safety device (outdoor unit)
E1	Outdoor unit's PC board faulty
E3	High pressure abnormal (outdoor unit)
E4	Low pressure abnormal (outdoor unit)
E5	Compressor motor lock malfunction
E7	Outdoor fan motor lock malfunction
	Outdoor fan instantaneous overcurrent malfunction
E9	Electronic expansion valve faulty (outdoor unit)
EA	Error from defect of change 4 way valve (outdoor)
F3	Discharge pipe temperature abnormal (outdoor unit)
H3	High pressure switch faulty (outdoor unit)
H4	Low pressure switch faulty (outdoor unit)
H7	Outdoor motor position signal malfunction
H9	Outdoor air thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
JA	Discharge pipe pressure sensor faulty (outdoor unit)
JC	Suction pipe pressure sensor faulty (outdoor unit)
J1	Pressure sensor system error (batch) (outdoor unit)
J2	Power sensor system error (outdoor unit)
J3	Discharge pipe thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J5	Suction pipe thermistor faulty (outdoor unit)
J6	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.

J7	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J8	Liquid piping temperature sensor system error (outdoor unit)
J9	Intake temperature sensor error (outdoor unit)
L1	Inverter system error (outdoor unit)
L3	Reactor thermister error (outdoor)
L4	Overheated heat-radiating fin (outdoor unit)
	Inverter cooling defect.
L5	Instantaneous overcurrent (outdoor unit)
	Possible earth fault or short circuit in the compressor motor.
L8	Electric thermal (outdoor unit)
	Possible electrical overload in the compressor or cut line in the compressor motor.
L9	Stall prevention (outdoor unit)
	Compressor possibly locked.
LC	Transmission malfunction between the outdoor control units' inverters (outdoor unit)
P1	Open-phase (outdoor unit)
P3	P-board temperature sensor malfunction (outdoor unit)
P4	Heat-radiating fin temperature sensor malfunction (outdoor unit)
P6	DC output current error (outdoor)
PJ	Type set improper (outdoor unit)
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
U0	Suction pipe temperature abnormal
U1	Reverse phase
	Reverse two phase of the L1, L2 and L3 leads.
U2	Power source voltage malfunction (outdoor unit)
	Includes the defect in 52C.
U4 UF	Transmission error (indoor unit – outdoor unit)
	Wrong wiring between indoor and outdoor units or malfunction of the PC board mounted on the indoor and the outdoor units.
U5	Transmission error (indoor unit – remote controller)
	Transmission is improper between the indoor unit and the remote controller.
U8	Malfunction in transmission between main and sub remote controls. (Malfunction in sub remote controller.)
UA	Miss setting for multi system
	Setting is wrong for selector switch of multi - system. (see switch SS2 on the main unit's PC board)
UC	Central control address overlapping
UE	Transmission defect (indoor - centralizing)
UJ	Peripheral equipment transmission fault

— CAUTION —

- Refer to “**2. Items to be checked at time of delivery**” on page 4 upon completion of the test run and make sure that all the items are checked.
- If the customer's interior work has not been finished on completion of the test run, explain the customer not to operate the air conditioner. This is essential until the interior work is finished so as to protect the product. Substances generated from paints and adhesives used for the interior work may contaminate the product if the unit is operated.

— To test run Contractors —

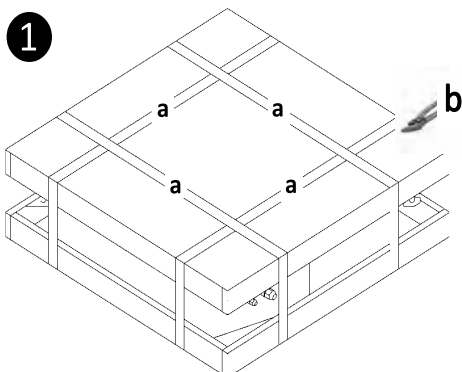
When delivering the product to the customer after the test run is completed, check that the control box lid, the air filter and the suction grille are mounted. In addition, explain to the customer regarding the state (ON/OFF) of the power supply breaker.

13. TECHNICAL DATA

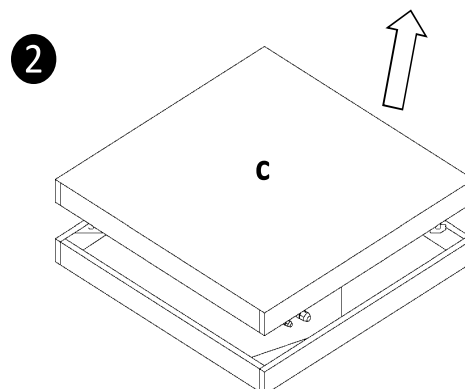
		IDU/ODU		
Model		FCA18AVMK / RZCA18AVMK		
Rated Power Supply	Ph/V	1/220-240		
Unit Dimensions (HXWxD)	mm	256*840*840/595*845*300		
Net Weight	kg	22/43		
Packing Dimensions (HXWxD)	mm	258*875*880/680*1035*410		
Gross Weight	kg	26/44		
Testing Condition		Cooling		Heating
		T1	T3	H1
		50Hz/230V	50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	18000	17100	20700
Power Input	Watt	1195	1560	1320
EER	(BTU/Hr)/Watt	15.06	10.96	-----
	W/W	-----	-----	4.60
Current	A	5.8	7.5	6.4
Refrigerant Type/Qty	R32/Kg	R32/1.3 Kg		
Annual Energy Consumption (Kwh)		3226.00	3120.00	-----
Power Factor		0.9		
Manufacturer's Name		Daikin Air Conditioning India Pvt. Ltd.		
Country of Origin		India		

14. UNPACKING & PACKING OF THE INDOOR UNIT

14-1. UNIT UNPACKING

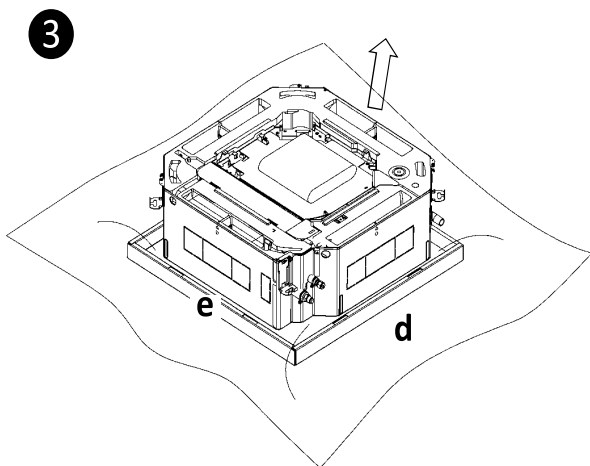


- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

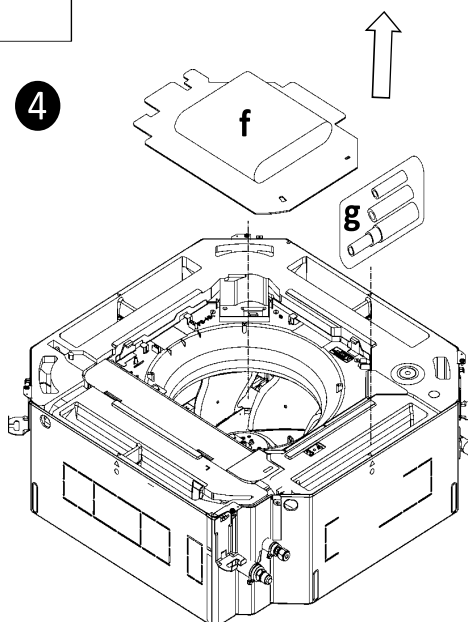


- Remove top corrugated cardboard sheet (c) & EPS from the unit by pulling it up as shown in figure.

- a) Strap
- b) Strap cutter
- c) Top corrugated cardboard sheet with EPS
- d) Product cover
- e) Bottom corrugated cardboard sheet with EPS
- f) Pad
- g) Accessories set

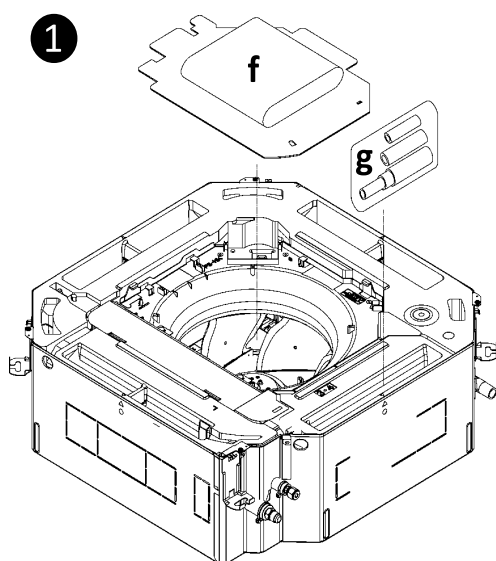


- Unfold the Product Cover (d) and pull the unit up, then remove the Sheet Cover (d) and Bottom corrugated cardboard sheet(e).

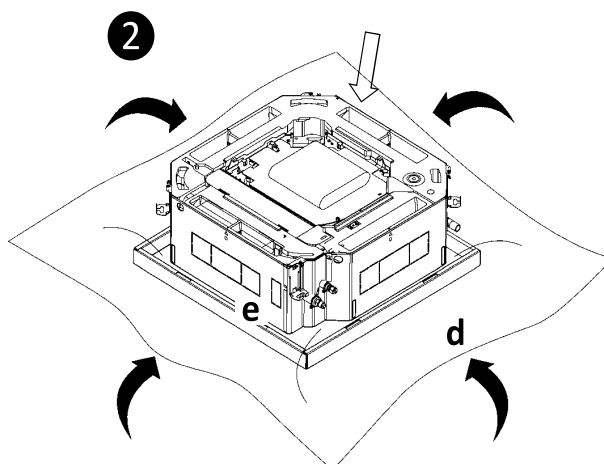


- Put the pad (f) and accessories kit (g) off the product as shown in figure.

14-2. UNIT PACKING

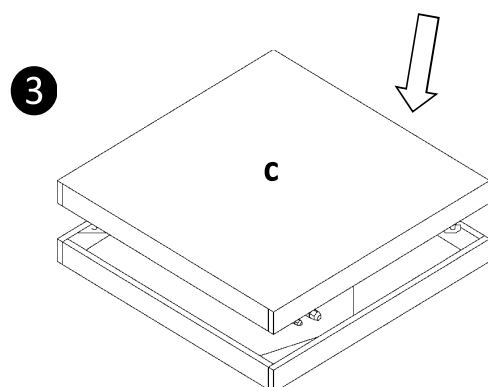


- Put the pad (f) and accessories kit (g) on the product as shown in figure.

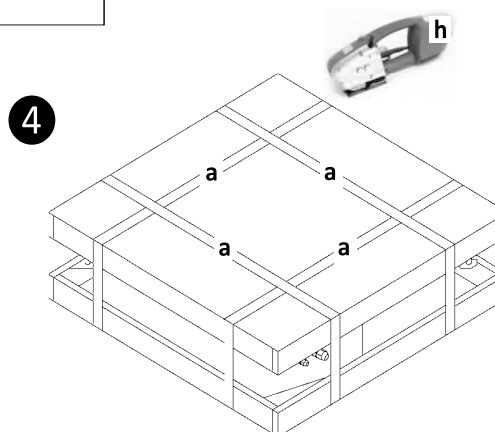


- Put the product on the bottom corrugated cardboard sheet with EPS Pad and product cover. Then fold the product cover on the product.

- | | |
|----|--|
| a) | Strap |
| b) | Strap cutter |
| c) | Top corrugated cardboard sheet with EPS |
| d) | Product cover |
| e) | Bottom corrugated cardboard sheet with EPS |
| f) | Pad |
| g) | Accessories set |
| h) | Strap fixer |



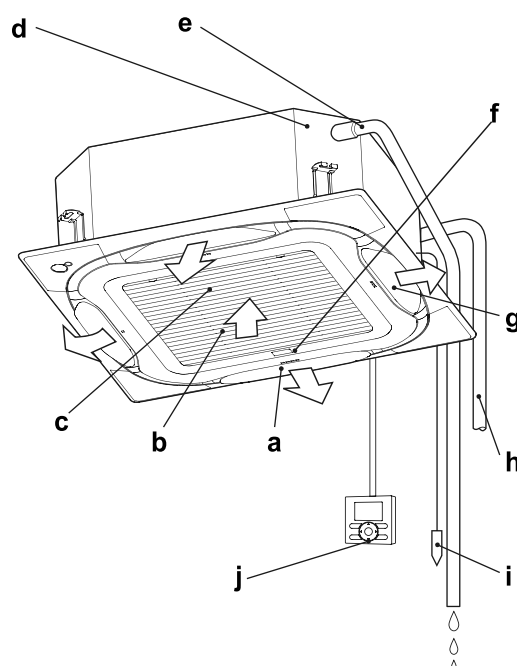
- Put the top corrugated cardboard sheet (c) & EPS on the product as shown in figure.



- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

2.2 FCA24AVMK / FCA30AVMK / FCA36AVMK

2.2.1 Names and Functions of Parts



a	Air outlet
b	Suction grille
c	Air filter (Inside suction grille)
d	Drain discharge device (built-in) Discharges indoor moisture removed during the cooling operation.
e	Drain pipe
f	Brand name logo
g	Horizontal blade (At air outlet)
h	Refrigerant piping Transmission wiring
i	Earth wiring (Note) (Note) It is a wiring to let electricity flow from the indoor unit to the earth for prevention of electric shocks or a fire in case of emergency.
j	Remote control (Operation part) The remote controller may not be needed depending on the system configuration.

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2.2.2 Installation

DAIKIN

SPLIT SYSTEM AIR CONDITIONER

INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES
FCA24AVMK, FCA30AVMK, FCA36AVMK

INSTALLATION MANUAL OF INDOOR 1-32

INSTALLATION MANUAL OF OUTDOOR 33-53

CONTENTS

1. SAFETY PRECAUTIONS.....	1
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3. SELECTING INSTALLATION SITE	5
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6. REFRIGERANT PIPING WORK	11
7. DRAIN PIPING WORK	13
8. ELECTRIC WIRING WORK	17
9. WIRING EXAMPLE	20
10. INSTALLATION OF THE DECORATION PANEL	22
11. FIELD SETTING	23
12. TEST OPERATION	26
13. TECHNICAL DATA	30
14. UNPACKING & PACKING OF THE INDOOR.....	31

1. SAFETY PRECAUTIONS



Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

Please read these "SAFETY PRECAUTIONS" carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.

This air conditioner comes under the term "appliances not accessible to the general public".

Please instruct the customer on how to operate the unit and keep it maintained.

Also, inform customers that they should store this installation manual along with the operation manual for future reference.

Meaning of WARNING and CAUTION notices.

⚠ WARNING Failure to follow these instructions properly may result in personal injury or loss of life.

⚠ CAUTION Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

⚠ WARNING

- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Failure to do so during installation work may result in the unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or overheating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into contact with fire.
- After completing installation, check for refrigerant gas leakage.
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- Be sure to switch off the unit before touching any electrical parts.
- Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.
- Be sure to earth the air conditioner.
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead.
Imperfect earthing may result in electric shocks or fire.
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks or fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Do not allow children to climb on the outdoor unit and avoid placing objects on the unit.
Injury may result if the unit becomes loose and falls.
- The appliance must be stored in a room without continuously operating ignition sources
(for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odour.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- When flared joints are reused indoors, the flare part shall be re-fabricated.



CAUTION

- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation.
Improper drain piping may result in indoor water leakage and property damage.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit as far away from fluorescent lamps as possible.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Install in a machine room that is free of moisture. The unit is designed for indoor use.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - A. Clean and dry
Strict measures must be taken to keep impurities (including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - B. Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere.
- Do not install the air conditioner in the following locations:
 1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).
Plastic parts will deteriorate, parts may fall off and water leakage could result.
 2. Where corrosive gas, such as sulphurous acid gas, is produced.
Corroding of copper pipes or soldered parts may result in refrigerant leakage.
 3. Near machinery emitting electromagnetic radiation.
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
 4. Where flammable gas may leak, where there is carbon fibre or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Important information regarding the refrigerant used.
This product contains fluorinated greenhouse gases covered by the Kyoto protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675*
⁽¹⁾GWP = global warming potential
- The refrigerant quantity is indicated on the unit name plate.
*This value is based on F gas regulation (824/2006).

2. BEFORE INSTALLATION

Do not exert pressure on the resin parts when opening the unit or when moving it after opening. Be sure to check the type of R32 refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)

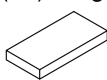
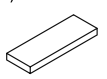
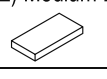
- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger bracket without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Do not dispose of any parts necessary for installation until the installation is complete.
- In order to protect the indoor unit from damage, use packing materials to protect the unit after carrying until the installation starts.
- When selecting installation site, refer to the paper pattern.
- Do not use the unit in locations with high salt content in the air such as beachfront property, locations where the voltage fluctuates such as factories, or in automobiles or marine vessels.
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

2-1. ACCESSORIES

Check the following accessories are included with your unit.

(Do not dispose of any parts necessary for installation until the installation is completed.)

Name	(1) Drain hose	(2) Metal clamp	(5) Paper pattern for installation	(7) Washer fixing plate	Insulation for fitting
Quantity	1 pc.	1 pc.	1 pc.	4 pcs.	1 each
Shape			Upper part of packing 		(8) For gas pipe  (9) For liquid pipe 

Name	Sealing pad			Installation guide	(Other)
Quantity	1 each	1 pc.	1 pc.	1 pc.	
Shape	(10) Large  (11) Medium-1  (12) Medium-2 	(13) Small 	(14) 	(15) 	

2-2. OPTIONAL ACCESSORIES

- The optional decoration panel and remote controller are required for this indoor unit. **(Refer to Table 1, 2)** (However, the remote controller is not required for the slave unit of a simultaneous operation system.)
- Check that the decoration panel is prepared.
(For the installation of the decoration panel, refer to the installation manual attached to the decoration panel.)

Table 1

Unit model	Optional decoration panel
FCA24.30.36AVMK	BYCQ125EEF9 BYCQ125EAF9
	Color : Fresh White

NOTE

- If you wish to use a optional decoration panel that is not listed in “**Table 1**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.
- These are two types of remote controllers: wired and wireless. Select a remote controller from **Table 2** according to customer request and install in an appropriate place.
(For the installation of the remote controller, refer to the installation manual attached to the remote controller.)

Table 2

Remote controller			
Wired type			BRC1H82W/ BRC1H82S/ BRC1H82K
Wireless type	Cooling only	Remote	Refer to Catalogue

Note - For Remote options, refer remote catalogue attached with the remote controller.

NOTE

- If you wish to use a remote controller that is not listed in “**Table 2**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.

FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

1. Items to be checked after completion of work

Items to be checked	If not properly done, what is likely to occur	Check
Are the indoor unit and outdoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
Is the outdoor unit fully installed?	The unit may malfunction or the components burn out.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate water may drip.	
Does drainage flow smoothly?	Condensate water may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	It may result in electric shock.	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	It may result in insufficient cooling.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

2. Items to be checked at time of delivery

* Also review the "1. SAFETY PRECAUTIONS"

Items to be checked	Check
Has the field setting done (as necessary)?	
Did you attach the control box lid, the air filter, and suction grille?	
Does the cold air blow properly during the cooling operation?	
Did you explain about operations while showing the instruction manual to your customer?	
Did you hand the instruction manual over to your customer?	

Points for explanation about operations

The items with **⚠ WARNING** and **⚠ CAUTION** marks in the instruction manual are the items pertaining to possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the instruction manual.

2-3. NOTE TO THE INSTALLER

Be sure to instruct customers how to properly operate the unit (especially cleaning filters, operating different functions, and adjusting the temperature) by having them carry out operations themselves while looking at the manual.

3. SELECTING INSTALLATION SITE

⟨Hold the unit by the 4 lifting lugs when opening the box and moving it, and do not exert pressure on to any other part piping (refrigerant, drain, etc.) or plastic parts.

If the temperature or humidity inside the ceiling might rise above 30°C or RH 80%, respectively, use the high-humidity kit (sold separately) or add extra insulation to the main unit body.

Use glass wool or polyethylene foam as insulation and make sure it is at least 10 mm thick and fits inside the ceiling opening.⟩

The direction this product blows can be selected. However, a separately sold shut-off material kit is needed in order to make the unit blow in two, three, or four (corner shut-off) directions.

(1) Select an installation location with the customer's approval which matches the following conditions.

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- Where the ceiling is strong enough to bear the indoor unit weight.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where there is no risk of flammable gas leakage.
- Where piping between indoor and outdoor units is possible within the allowable limit.

(Refer to the installation manual for the outdoor unit.)

[Space required for installation]

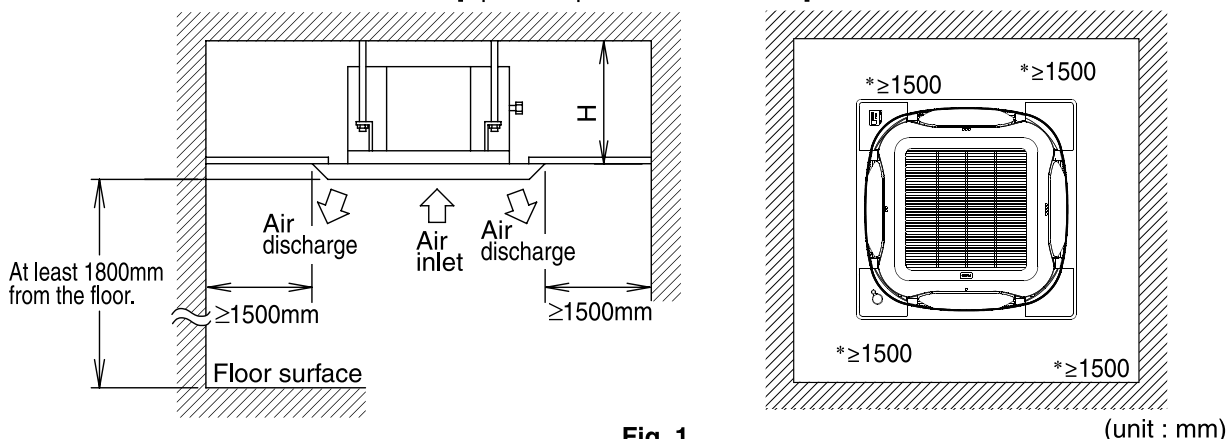


Fig. 1

(unit : mm)

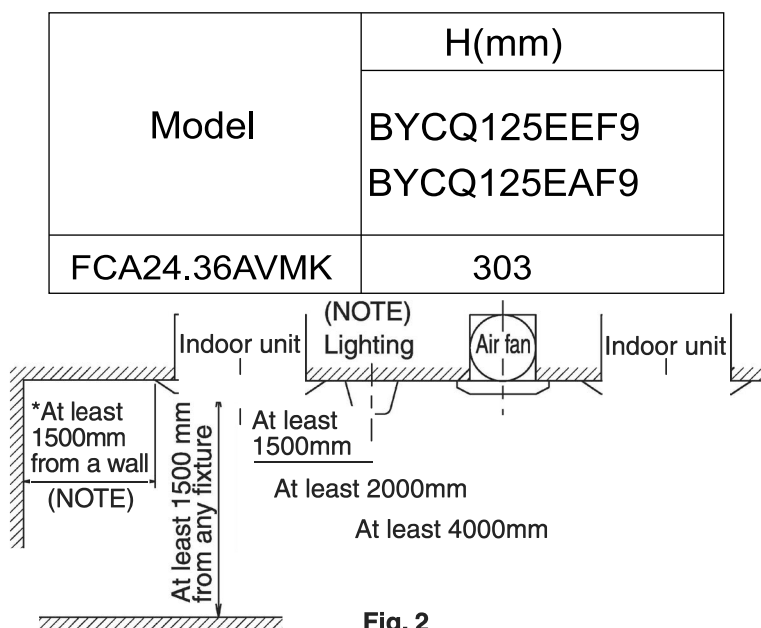


Fig. 2

NOTE

- The “*” marked space is at least 500 mm wide if the air outlet is closed. In case of also closed corner area (corner area of both left right direction for closing air outlet), it is 200 mm or more.

CAUTION

- Any vents, light fixtures, or other appliances which may disturb the airflow might cause the top side to become dirty if located too nearby, so follow **Fig. 2** when installing.
Note)
 - This restriction applies to the exposed type lighting, but does not apply to the recessed type (which does not protrude below the ceiling line).
 - For how to set the airflow direction (including airflow block) with the horizontal blade, refer to “Individual Airflow Direction” in the operation manual attached to the remote controller.
- Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)
- If installing the wireless kit, the distance of the signal sent from the remote controller might be shorter if there are fluorescent lights which are electrically started (such as with inverters, rapid starters, etc.) in the room. The indoor unit should be installed as far away from fluorescent lights as possible.

(2) Ceiling height

This product can be installed in ceilings up to 3.5 m high (4.2 m high for the 24, 30, and 36). If the ceiling height is 2.7 m (3.2 m for the 24, 30, and 36) or more, field settings will have to be made with the remote controller. See “11. FIELD SETTING” for details.

(3) Air direction

The air direction shown in **Fig. 3** is an example.

Select the appropriate number of directions according to the shape of the room and the location of the unit. (Field settings have to be made using the remote controller and the outlet vents have to be shut off if two, three, or four (corner shut-off) directions are selected. See the shut-off materials (sold separately) installation manual for details.)

- (4) Use suspension bolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using suspension bolts. (The spacing of the installation is shown on the “paper pattern for installation (5)”.)

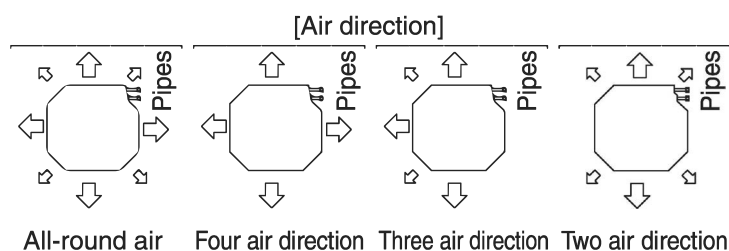


Fig. 3

4. PREPARATIONS BEFORE INSTALLATION

(1) Relation of ceiling opening to unit and suspension bolt position.

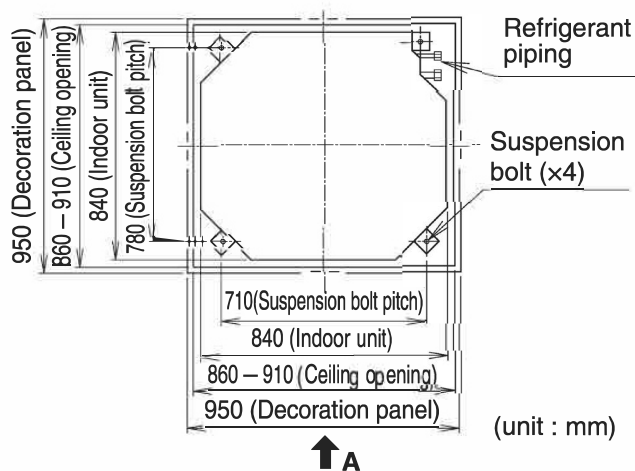
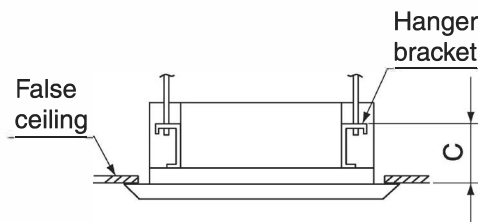


Fig. 4



View as seen from A

Fig. 5

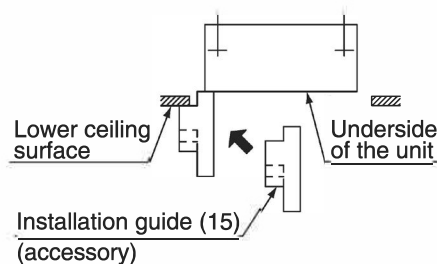
Decoration Panel	BYCQ125EEF9 BYCQ125EAF9
C (mm)	125~130

■ Use the installation guide (15) (delivered with the unit) for exact vertical positioning of the unit.

Apply the short side of the cut-out section in case of standard grille.

<BYCQ125EEF9>

<BYCQ125EAF9>



■ **Installation is possible when ceiling opening dimensions is as follows.**

- When installing the unit within the frame for fixing false ceiling.

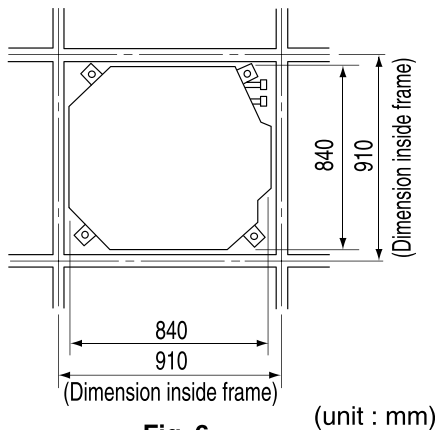


Fig. 6

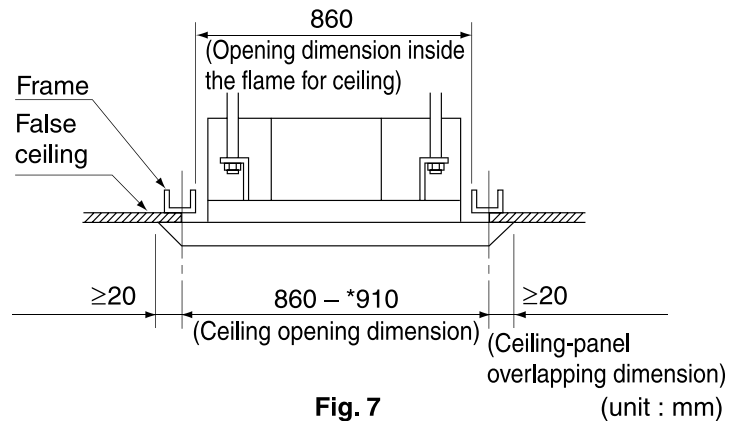


Fig. 7

NOTE

- Installation is possible with a ceiling dimension of 910 mm (marked with *). However, to achieve a ceiling-panel overlapping dimension of 20 mm, the spacing between the ceiling and the unit should be 35 mm or less. If the spacing between ceiling and the unit is over 35 mm, attach ceiling material to ■ part or recover the ceiling.

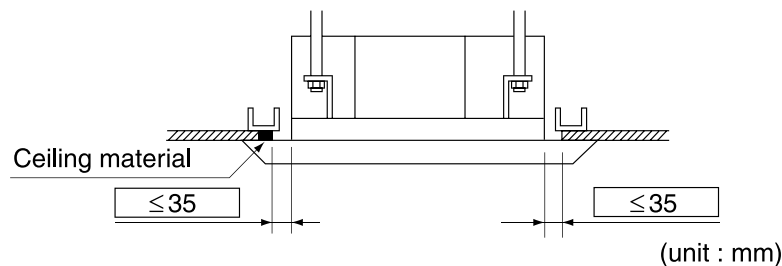


Fig. 8

(2) Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (5) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor-outdoor unit casing outlet. Refer to “6. REFRIGERANT PIPING WORK”, “7. DRAIN PIPING WORK” and “8. ELECTRIC WIRING WORK”.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

(3) Install the suspension bolts.

- Use M8 or M10 bolts for hanging the indoor unit. Use a hole-in anchor for existing ceilings, and a sunken insert, sunken anchor or other field supplied parts for new ceilings to reinforce the ceiling to bear the weight of the unit. Adjust clearance (50 – 100 mm) from the ceiling before proceeding further.

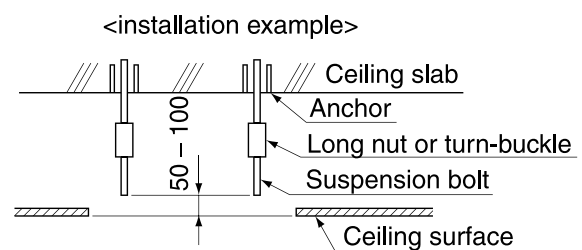


Fig. 9

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

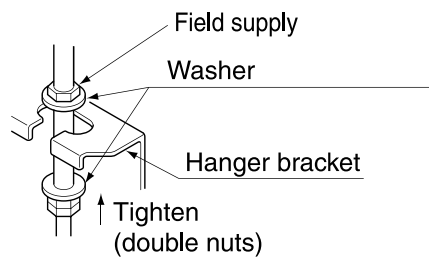
Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

5.1 FOR NEW CEILINGS

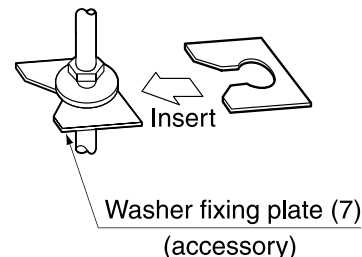
(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. **(Refer to Fig.10)**
The washer fixing plate (7) will prevent the washer from falling. **(Refer to Fig.11)**



[Securing the hanger bracket]

Fig. 10



[Securing the washer]

Fig. 11

(1-2) Refer to the paper pattern for installation (5) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation. The center of the unit is indicated on the triangular mark to the unit bottom and on the paper pattern for installation.
- Fix the paper pattern to the unit with screws (6) (×4).
- Ceiling height is shown on the side of the paper pattern for installation (5). Adjust the height of the unit according to this indication.

Please perform one of the following, as the shape of the paper pattern for installation differs according to the model.

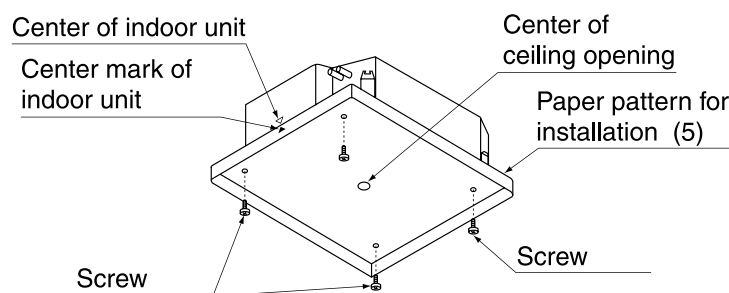


Fig. 12

[Installation of paper pattern for installation-optional]

<Ceiling work>

(1-3) Adjust the unit to the right position for installation.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)”.)

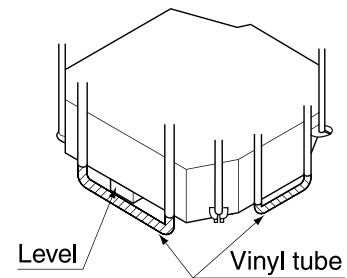
- Using the installation guide (15) allows you to check the positions from the underside of the unit to the lower ceiling surface.

(1-4) Check the unit is horizontally level. (Refer to Fig.13)

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.

— ⚠ CAUTION —

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.
(If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)



[Maintaining horizontality]

Fig. 13**(1-5) Remove the washer fixing plate (7) used for preventing the washer for hanger (3) from dropping and tighten the upper side nut.****(1-6) Remove the paper pattern for installation (5).****5.2 FOR EXISTING CEILINGS****(2-1) Install the indoor unit temporarily.**

Perform step (1-1) in (1) For new ceilings.

(2-2) Adjust the height and position of the unit.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)” and (1-3) in (1) For new ceilings.)

(2-3) Perform steps (1-4), (1-5) in (1) For new ceilings.**— ⚠ CAUTION —**

- **Install the indoor unit leveled.**

If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of a float switch and results in water leakage.

- **Attach nuts on the upper and lower side of hanger.**

If there is no upper nut and the lower nut is over-tightened, the hanger and the top plate will deform and cause abnormal sound.

- **Do not insert materials other than that specified into the clearance between the hanger and the washer for hanger (3).**

Unless the washers are properly attached, the hanging bolts may come off from the hanger.

— ⚠ WARNING —**The indoor unit must be securely installed on a place that can withstand the mass.**

If the strength is insufficient, the indoor unit may fall down and cause injuries.

6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R32. (Unless the refrigerant is R32, the normal operation cannot be expected.)

⚠ WARNING

When flared joints are reused indoors, the flare part shall be re-fabricated.

⚠ CAUTION

This air conditioner is a dedicated model for new refrigerant R32. Make sure to meet the requirements shown below and carry out installation work.

- Use dedicated piping cutters and flaring tools for R32 and R410A.
 - When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
 - Use only the flare nuts attached to the air conditioner. If other flare nuts are used, it may cause refrigerant leakage.
 - To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the pipings.
- Do not mix substance other than the specified refrigerant such as air into the refrigeration circuit. If the refrigerant leaks during the work, ventilate the room.

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the pipings to the air conditioner, make sure to use a spanner and a torque wrench as shown in Fig. 14.
- For the dimension of flared part and the tightening torque, refer to the Table 3.

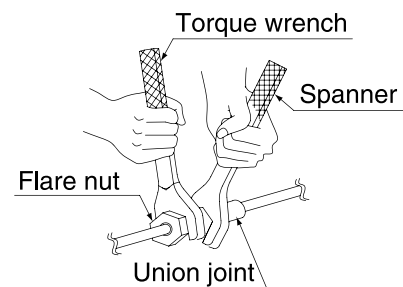


Fig. 14

- When making a flare connection, coat the flared inner surface only with ether oil or ester oil. (Refer to Fig. 15) Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

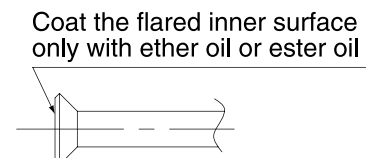


Fig. 15

Table 3

Piping size (mm)	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 6.4	15.7 ± 1.5	8.9 ± 0.2	
φ 9.5	36.3 ± 3.6	13.0 ± 0.2	
φ 12.7	54.9 ± 5.4	16.4 ± 0.2	
φ 15.9	68.6 ± 6.8	19.5 ± 0.2	

⚠ CAUTION

Do not have oil adhere to the screw fixing part of resin parts.

If oil adheres, it may weaken the strength of screwed part.

Do not tighten flare nuts too tight.

If a flare nut cracks, the refrigerant may leak.

- If there is no torque wrench, use **Table 4** as a rule of thumb.
When tightening a flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases.
From that position, tighten the nut additionally the angle shown in **Table 4**.
After the work is finished, check securely that there is no gas leak.
If the nut is not tightened as instructed, it may cause slow refrigerant leak and result in malfunction (such as does not cool or heat).

Table 4

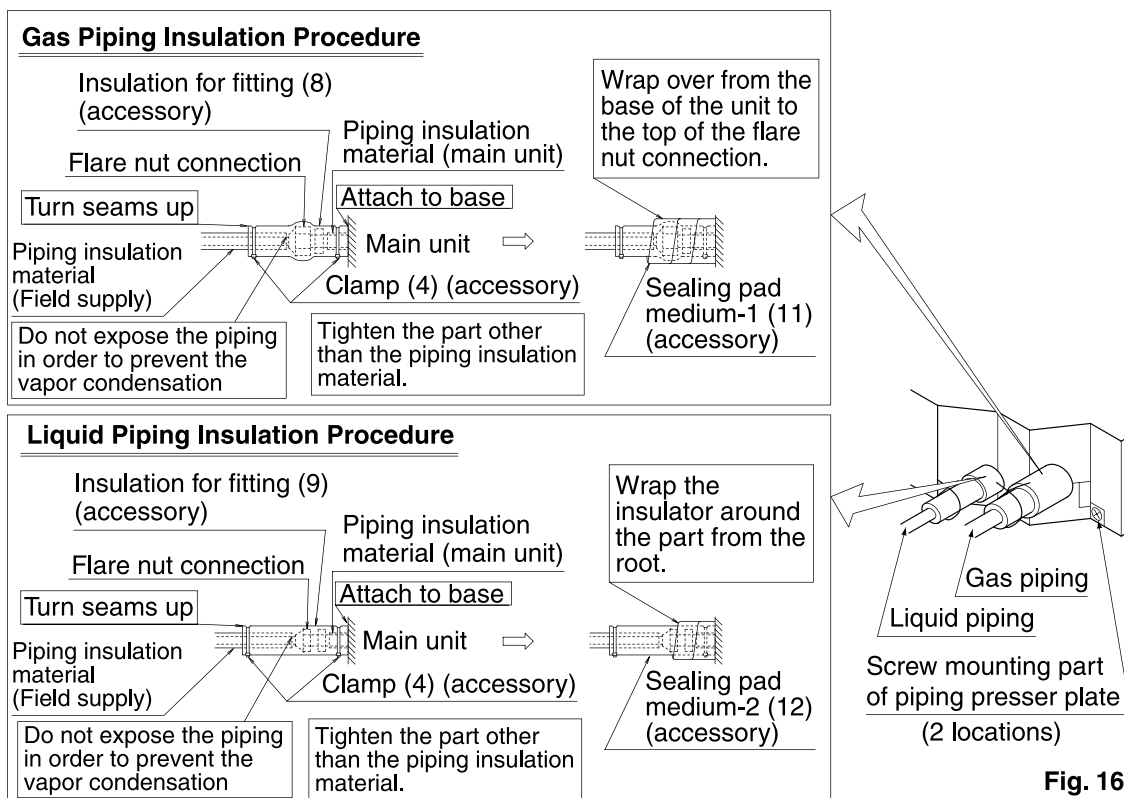
Piping size (mm)	Tightening angle	Recommended arm length of tool used
φ 6.4	60° - 90°	approx. 150 mm
φ 9.5	60° - 90°	approx. 200 mm
φ 12.7	30° - 60°	approx. 250 mm
φ 15.9	30° - 60°	approx. 300 mm

⚠ CAUTION

Insulation of field piping must be carried out up to the connection inside the casing.

If the piping is exposed to the atmosphere, it may cause sweating, burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

- After leak test, referring to **Fig. 16**, insulate both the gas and liquid piping connection with the attached joint insulating for fitting (8) and (9) to prevent the pipings from getting exposed.
Then, tighten the both ends of insulating material with the clamp (4).
- Wrap the sealing material (Medium-1, 2) (11) (12) around the joint insulating for fitting (8) and (9) (flare nut section), both the gas and liquid piping.
- Make sure to bring the seam of joint insulating for fitting (8) and (9) to the top.



- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 17). Then, carry out brazing (NOTE 2). After all the brazing works are finished, carry out flare connection with the indoor unit. (Refer to Fig. 16)

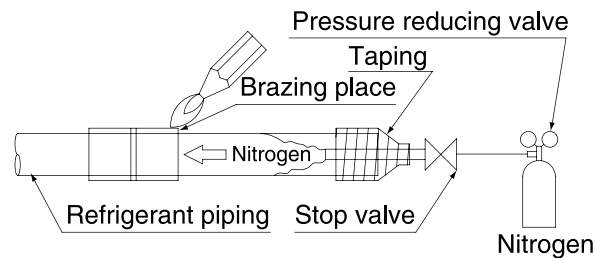


Fig. 17

NOTE

- The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
- Do not use flux when brazing refrigerant piping.
Use phosphor copper brazing filler metal (BCuP-2: JISZ3264/B-Cu93P-710/795: ISO 3677) that does not require flux.
(If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
- When carrying out leakage test of refrigerant piping and the indoor unit after the installation of indoor unit is finished, confirm the connecting outdoor unit installation manual for test pressure.
Refer to also the outdoor unit installation manual or technical document for refrigerant piping.
- In case of refrigerant shortage due to forgetting additional refrigerant charge etc., it will result in malfunction such as does not cool or does not heat.
Refer to the outdoor unit installation manual or technical document for refrigerant piping.

CAUTION

Do not use antioxidant when brazing piping.

It may result in malfunction of components and clogging of piping due to residue.

7. DRAIN PIPING WORK

(1) Rig drain piping

- As for drain work, perform piping in such a manner that water can be drained properly.
- Employ a pipe with either the same diameter or with the diameter larger (excluding the raising section) than that of the connecting pipe (PVC pipe, nominal diameter 25 mm, outside diameter 32 mm).
- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If the drain pipe cannot be sufficiently set on a slope, execute the drain raising piping.
- To keep the drain pipe from sagging, space hanging wires every 1 to 1.5 m.

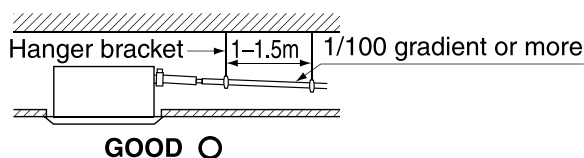


Fig. 18-1

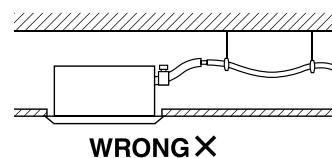


Fig. 18-2

CAUTION

Water accumulating in the drainage piping can cause the drain to clog.

- Use the attached drain hose (1) and Metal clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the metal clamp securely within the portion of a white tape of the hose-inserted tip. Tighten the metal clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached sealing pad (10) over the Metal clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

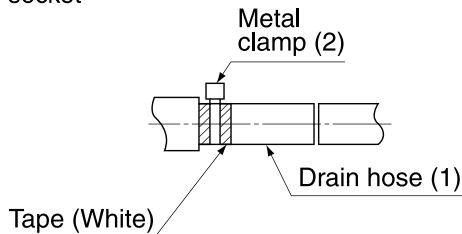


Fig. 19

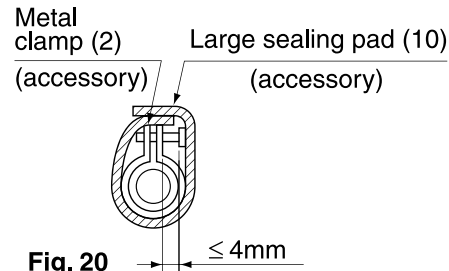


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 675 mm.
The drain pump of this unit has a high delivery flow rate. Therefore, the higher the drain raising height is, the lower the sound of draining will be. For this reason, a minimum drain raising height of 300 mm is recommended.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.

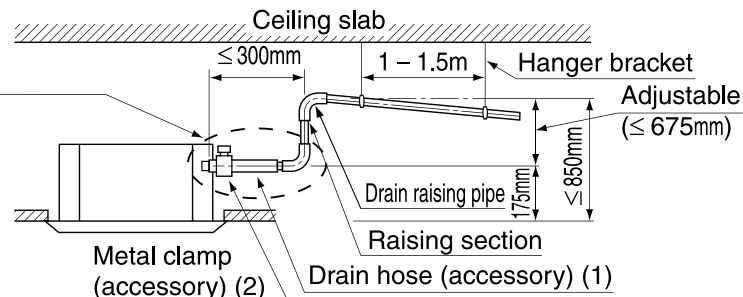
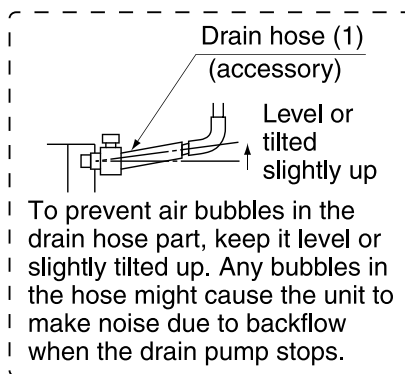


Fig. 21

NOTE

- To ensure no excessive pressure is applied to the included drain hose (1), do not bend or twist when installing. (This may cause leakage.)
- If converging multiple drain pipes, install according to the procedure shown below.

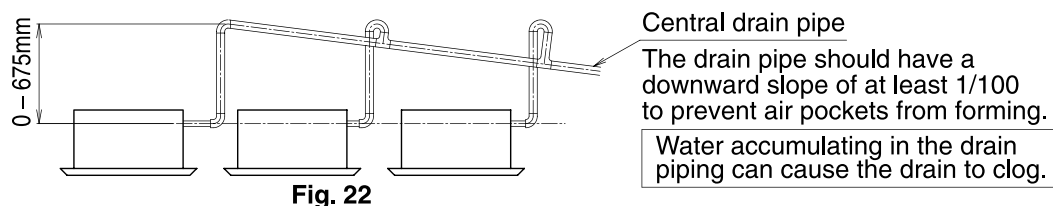


Fig. 22

- As for the size of central drain pipe, select the size that meet the capacity of indoor units to be connected. (Refer to the technical document)
- At replacement with new indoor unit, use the attached new drain hose (1) and the metal clamp (2). If an old drain hose or a metal clamp is used, it may cause water leakage.



CAUTION

Drain piping connections

- Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

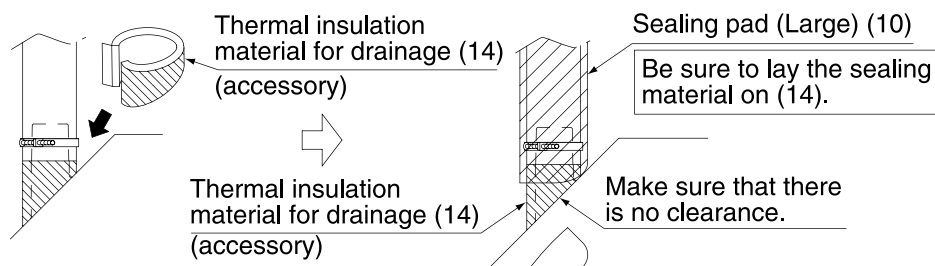
(2) After piping work is finished, check if drainage flows smoothly.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Add approximately 1L of water slowly from the air outlet and check drainage flow. (Refer to Fig.23)
- Check drainage flow during COOL running, explained under “12. TEST OPERATION”.
- Refer to the figure on the following after checking the draining of water, and mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.

— ⚠ CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.



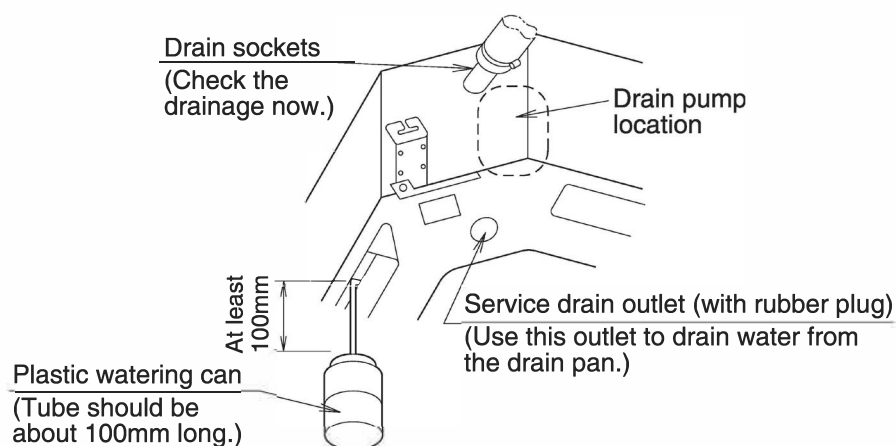
WHEN ELECTRIC WIRING WORK IS NOT FINISHED

— ⚠ CAUTION —

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following after the test run is complete.
- Remove the control box lid. Connect the single phase power supply (SINGLE PHASE 230V) to connections No.1 and No.2 on the terminal block for wiring the units. Do not connect to No.3 of the terminal block for wiring the units. (The drain pump will not operate.) Connect the earth wire firmly. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power.
- Put approximately 1L of water into the drain pan through the blow-off mouth on the left-hand side of the drain socket. Make sure not to pour water over the drain pump or any electric parts including those of the drain pump.
- When the power is turned on, the drain pump will operate and you can check the draining of water through the transparent part of the drain socket. (The drain pump will stop automatically in 10 minutes.) After checking the draining of water, mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.
- After confirming drainage (Fig. 23, Fig. 24), turn off the power and remove the power supply.
- Attach the control box lid as before.

— ⚠ CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.
- Do not touch the electronic ports other than the terminal block.



<Adding water through air discharge outlet>
[Method of adding water]

Fig. 23

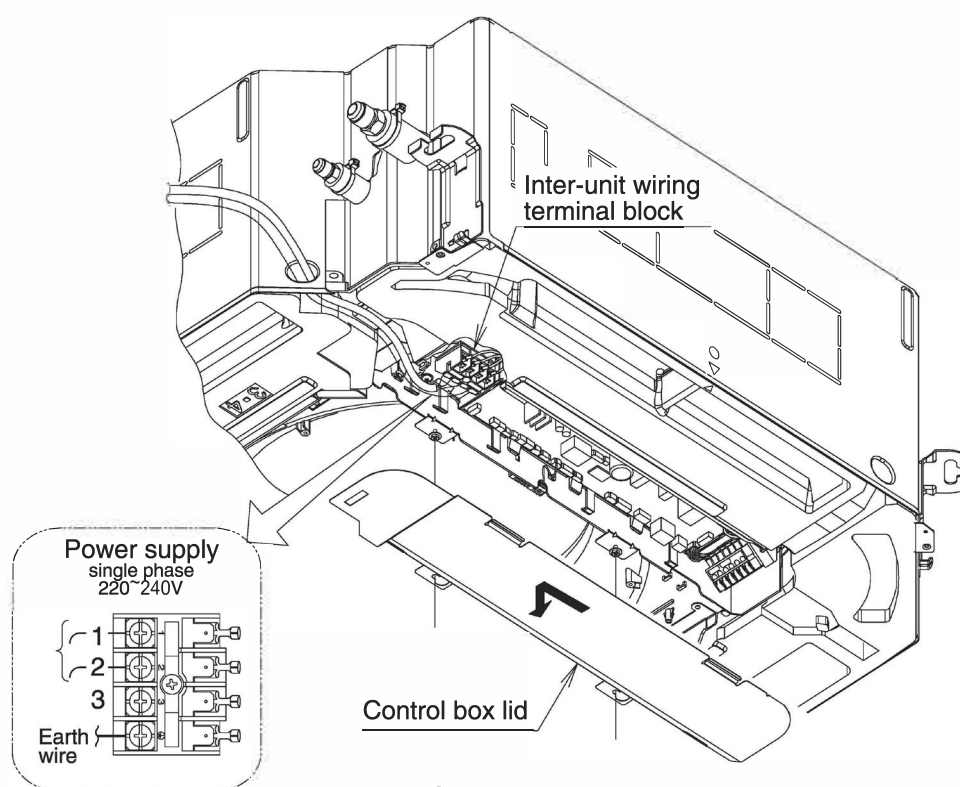


Fig. 24

8. ELECTRIC WIRING WORK

- Electric wiring work must be conducted by electrician authorized by power companies. (Only licensed electrician can conduct electric work and earth connections.)
- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Be sure to install an earth leakage circuit breaker to the outdoor unit.

(This installation of an earth leakage circuit breaker is mandatory for the prevention of electric shocks and fire disasters.)

- Make sure that 230~240V is specified wiring between the indoor and outdoor units and between indoor units.
- Do not turn on the power supply (of the indoor unit) until all the installation work is completed.
- Be sure to ground the air conditioner.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Do not connect the earth wire to gas pipes, plumbing pipes, lightning rods, or telephone earth wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Plumbing pipes: no earth effect if hard vinyl piping is used.
 - Telephone earth wires or lightning rods: might cause abnormally high electric potential in the earth during lightning storms.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- Never connect the power supply wire to the terminal block for remote controller wire, or otherwise the entire system may be damaged.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.

• Specifications for field wire

Refer to the installation manual attached to the outdoor unit regarding the detail of standard accessories for the outdoor unit.

The remote control cord should be procured locally. Refer to the **Table 5** when preparing one.

Wiring specifications are shown on the condition that the wiring has a voltage drop of 2%.

Table 5

	Wire	Size (mm ²)	Length
Wiring the units	H05VV – U4G (NOTE 1, 2)	2.5	–
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500m *

*This will be the total extended length in the system when doing group control.

NOTE

1. Shows only in case of protected pipes. Use H07RN-F in case of no protection.
2. Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
3. Vinyl cord with sheath or cable (Insulated thickness : 1 mm or more)

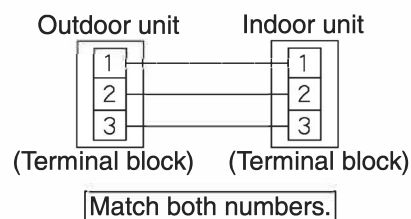
Connection of wiring between units, earth wire and for the remote controller cord (Refer to Fig. 26)

• Wiring the units and earth wire

Remove the control box lid and connect wires of matching number to the terminal block for wiring the units (4 P) inside. And connect the earth wire to the earth terminal. In doing this, pull the wires inside through the hole and fix the wires securely with the included clamp (4).

• Remote controller cords

Remove the control box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (4 P) (no polarity). Securely fix the remote controller cord with the included clamp (4).



How to connect the connection pipe

CAUTION

- Never connect the power supply wiring to the terminal block for wiring the units (4P). If may damage the total system.
- Do not connect the remote controller to the wrong terminal block.

- Protect the wire and the wiring through hole area for wirings of the transmission, earth and the remote controller in order to prevent the intrusion of water and small animals into the air conditioner after the system is wired.
- Cut the sealing pad - small (13) into two pieces and wrap each wiring with each piece.
- Seal the clearance around the wirings with putty or thermal insulation material (field supply). (If insects and small animals get into the indoor unit, short circuiting may occur inside the control box.)
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any do get in, they could cause short circuits in the control box.)
- Outside the machine, separate the weak wiring (remote controller cord) and strong wiring (interunit, earth, and other power wiring) at least 50 mm so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

[Processing method of wiring through hole]

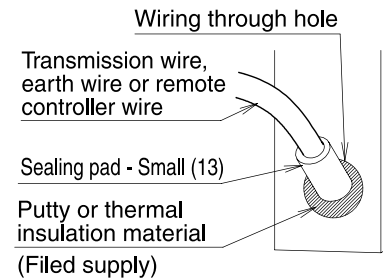


Fig. 25

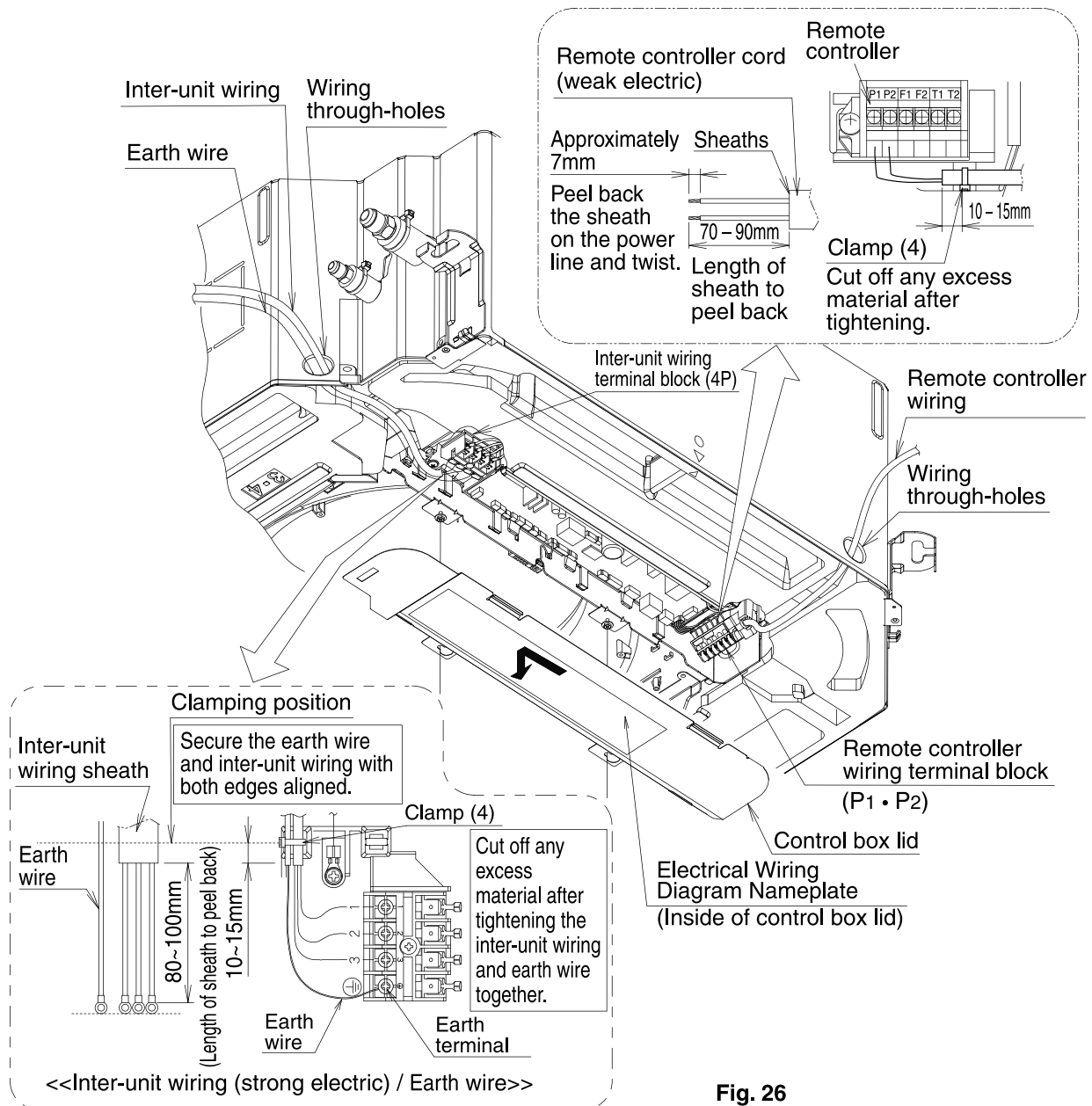


Fig. 26

— CAUTION —

- Shape the wires and attach the control box lid securely so that wires will not be caught.
(Caught wires and risen lid may cause an electric shock or fire.)

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block.

In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.

(Refer to Fig. 27)

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.) (Refer to Fig. 28)
- When connecting wires of the same gauge, connect them according to. (Refer to Fig. 28)
- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that external forces are not applied to the terminals.

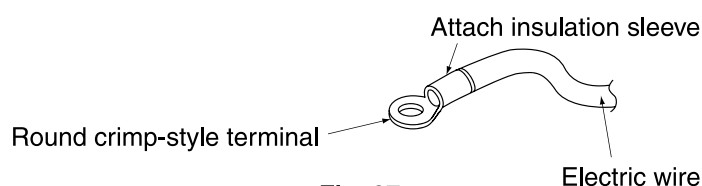
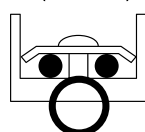


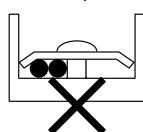
Fig. 27

Connect wires of the same gauge to both side. (GOOD)



Good

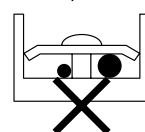
Do not connect wires of the same gauge to one side. (WRONG)



Wrong

Fig. 28

Do not connect wires of different gauges. (WRONG)



Wrong

Tightening torque for the terminal screws.

- Use the correct screw driver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.

Refer to the table below for the tightening torque of the terminal screws.

Tightening torque (N·m)	
Terminal block for remote controller	0.88±0.08
Terminal block for wiring the units	1.47±0.14
Earth terminal	1.47±0.14

- If the strand wire is used, do not solder it. (Abnormal heating may occur if the wirings are not tightened securely.)

9. WIRING EXAMPLE

⚠ CAUTION

Be sure to install an earth leakage breaker to the outdoor unit.
Installation of an earth leakage breaker is mandated to avoid electric shocks or fire.

For the wiring of outdoor units, refer to the installation manual attached to the outdoor units.

Confirm the system type.

- **Pair type:** 1 remote controller controls 1 indoor unit. (standard system) (Refer to Fig. 29)
- **Simultaneous operation system:** 1 remote controller controls 2 indoor unit (2 indoor units operates equally). (Refer to Fig.30)
- **Group control:** 1 remote controller controls up to 16 indoor units. (All indoor units operate according to the remote controller) (Refer to Fig. 31)
- **2 remote controllers control:** 2 remote controllers control 1 indoor unit. (Refer to Fig. 33)

Pair type

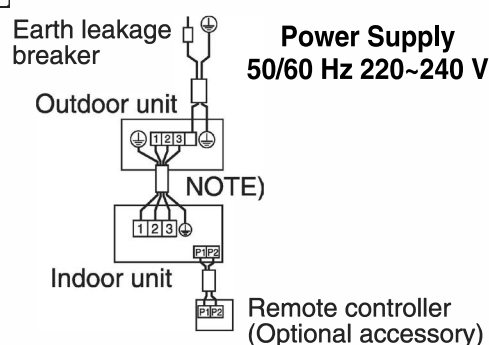


Fig. 29

Standard wiring accessories

Single-phase supply	Indoor unit		
	Earth wire (copper)	Connection wire between indoor unit and outdoor unit	
		Minimum thickness	Length
	$\geq 2.0 \text{ mm}^2$ $\phi 1.6$	2.0 mm^2 $\phi 1.6$	$\leq 50 \text{ m}$

* For wiring length of indoor outdoor connection wiring will be changed depends on connect model, quantity, power size. For details, please refer engineer guide.

Simultaneous operation system

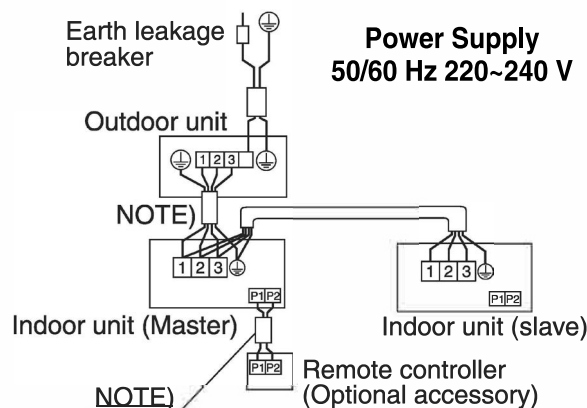


Fig. 30

Simultaneous operation system

- Connect the remote controller only to the master unit.
 - The remote controller needs to be wired only to the master unit, it does not need to be connected to the slave units through transition wiring. (Do not connect transition wiring to the slave units.)
 - The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
 - The length of wiring between the indoor unit and the outdoor unit varies depending on the connected model, the number of connected units, and the maximum piping length.
- For details, refer to the technical documents.

Group control

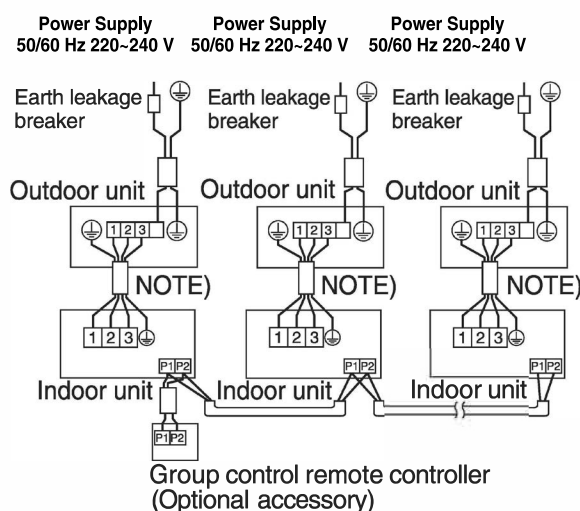


Fig. 31

	Wire	Size (mm ²)	Length
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500 m *

When implementing group control

- When using as a pair unit or as a parent unit for simultaneous operation multi, you may simultaneous start/stop (group) control up to 16 unit with the remote controller.
- In this case, all the indoor units in the group will operate in accordance with the group control remote controller.
- Select a remote controller which matches as many of the functions (airflow direction, etc.) in the group as possible.

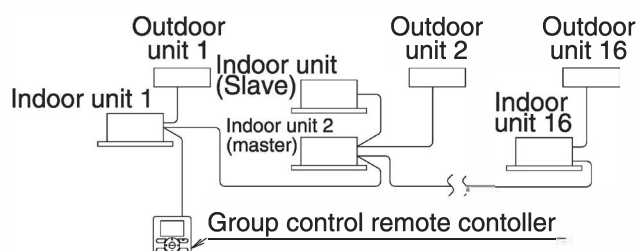
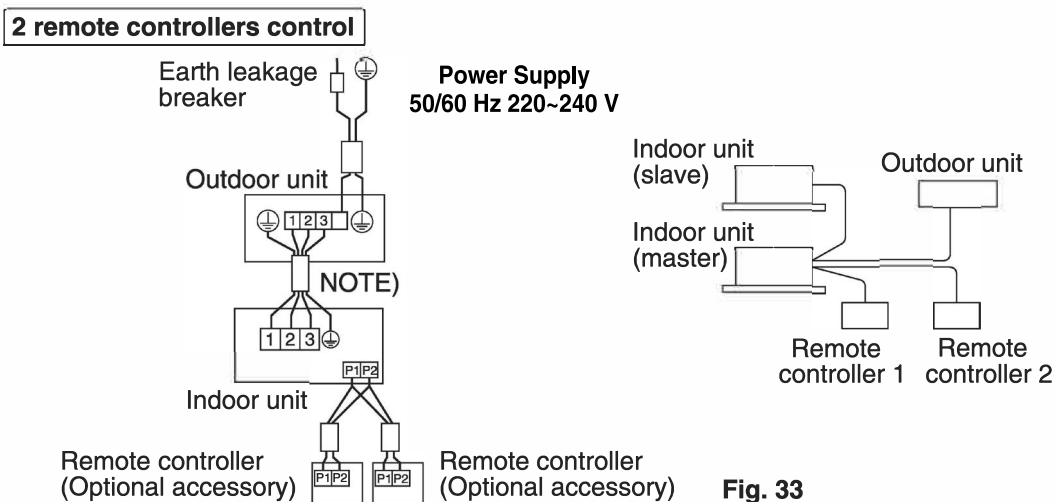


Fig. 32

Wiring Method

- (1) Remove the control box lid. (See “8. ELECTRIC WIRING WORK”.)
- (2) Cross-wire the terminal block for remote controller (P₁, P₂) inside the control box. (There is no polarity.) (Refer to Fig. 30 and Table 5)



Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)

- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- Remove the control box lid.
- Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X1M) for the remote controller in the control box. (There is no polarity.) (Refer to Fig.33 and Table 5)

NOTE

- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- In case of simultaneous operation and group control, perform the remote controller wiring to the master unit when connecting to the simultaneous operation system. (wiring to the slave unit is unnecessary)
- For group control remote controller, choose the remote controller that suits the indoor unit which has the most functions (as attached swing flap)

10. INSTALLATION OF THE DECORATION PANEL

<If test operation is required before installation of the decoration panel, "11. FIELD SETTING" and "12. TEST OPERATION" can be carried out before "10. INSTALLATION OF THE DECORATION PANEL".>

- Refer to the installation manual attached to the decoration panel.
- After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.
- When making a test run before installation of the decoration panel, be sure to check the operation of the swing flap after the installation.

11. FIELD SETTING

<<Refer to also the installation manual attached to the outdoor unit.>>

⚠ CAUTION

Before carrying out field setting, check the items mentioned in the clause 2 “1. Items to be checked after completion of work” on page 4.

- Check if all the installation and piping works for the air conditioner are completed.
- Check if the control box lids of the air conditioner are closed.

< FIELD SETTING FOR WIRED REMOTE >

<<After turn on the power supply, carry out field setting from the remote controller according to the installation state.>>

- Carry out setting at 3 places, “Mode No.”, “FIRST CODE No.” and “SECOND CODE No.”.
The settings shown by “ ” in the table indicate those when shipped from the factory.
- The method of setting procedure and operation is shown in the installation manual attached to the remote controller.
(Note) Though setting of “Mode No.” is carried out as a group, if you intend to carry out individual setting by each indoor unit or confirmation after setting, carry out setting with the Mode No. shown in the parenthesis ().
- In case of remote control, for changeover of input to FORCED OFF or to ON/OFF OPERATION.
[1] Enter into the field setting mode with the remote controller.
[2] Select Mode No. “12”.
[3] Set the FIRST CODE No. to “1”.
[4-1] For FORCE OFF, set the SECOND CODE No. to “01”.
[4-2] For ON/OFF OPERATION, set the SECOND CODE No. to “02”.
(It is set to FORCE OFF when shipped from the factory.)
- Ask your customer to keep the manual attached to the remote controller together with the operation manual.
- Do not carry out settings other than those shown in the table.

NOTE: For wireless remote field setting kindly refer the Remote manual.

11-1 SETTING CEILING HEIGHT

- Set the SECOND CODE No. according to the ceiling height as shown in the **Table 6**.

Table 6

		FCA-AVMK	Mode No. Note) 1	FIRST CODE No.	SECOND CODE No.
		24.30.36 type			
Ceiling height (m)	Standard · All round outlet	≤3.2	13 (23)	0	01
	High ceiling 1	3.2 - 3.6			02
	High ceiling 2	3.6 - 4.2			03

Note:

1. “Mode No.” setting is done in a batch for the group.
To make or confirm settings for an individual unit, set the internal mode number in parentheses.
2. The figure of the ceiling height is for the all round outlet.
For the settings for four-direction (part of corner closed off), three-direction and two-direction outlets, see the installation manual and technical guide supplied with the separately sold closure material kit.

11-2 SETTING AIR DISCHARGE DIRECTION

- Refer to the installation manual attached to the sealing material of air discharge outlet sold separately and engineering data book, for ceiling height settings for four-direction (part of corner closed off) and three-direction.
(The SECOND CODE No. is factory set to “01” (all round outlet) before shipping.)

11-3 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

- For setting when attaching an optional accessory, refer to the installation manual attached to the optional accessory.

11-4 WHEN USING WIRELESS REMOTE CONTROLLER

- When using a wireless remote controller, it is necessary to set the wireless remote controller address. Refer to the installation manual attached to the wireless remote controller.

11-5 SETTING FAN SPEED DURING THERMOSTAT OFF

- Set the fan speed according to the using environment after consultation with your customer.
- When the fan speed is changed, explain the set fan speed to your customer.

Table 7

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
Fan operates / stops during thermo OFF (Cooling · heating)	Operates	11 (21)	2	01
	Stops			02
Fan speed during cooling thermostat OFF	(Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	(Extra low)	12 (22)	3	01
	Setting			02

11-6 SETTING FILTER SIGN

- A message to inform the air filter cleaning time will be indicated on the remote controller.
- Set the SECOND CODE No. shown in the **Table 8** according to the amount of dust or pollution in the room.
- Though the indoor unit is equipped with the long life filter, it is necessary to periodically clean the filter to avoid clogging of the filter. Please also explain the set time to the customer.
- The periodical filter cleaning time can be shortened depending on the environment.

Table 8

Contamination	Hours until indication	Mode No.	FIRST CODE No.	SECOND CODE No.
Normal	Approx. 2500 hrs	10 (20)	0	01
More contaminated	Approx. 1250 hrs			02
With indication			3	01
No indication*				02

* Use "No indication" setting when cleaning indication is not necessary such as the case of periodical cleaning being carried out.

11-7 SETTING NUMBER OF THE CONNECTED INDOOR UNITS AS SIMULTANEOUS OPERATION SYSTEM

- When using in simultaneous operation system mode, change the SECOND CODE No. as shown in **Table 9**.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

Table 9

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Pair system (1 unit)	11 (21)	0	01
Simultaneous operation system (2-unit)			02
Simultaneous operation system (3-unit)			03
Double twin multi (4-unit)			04

11-8 SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING

It is easier if the optional remote controller is used when setting the slave unit.

< Procedure >

- Perform the following procedure when setting the master and slave unit separately.
- " " in the tables indicates factory settings.

(Note) The "Mode No." is set on a group basis. To individually set a Mode No. for each indoor unit or confirm the settings, set the Mode No. in the parenthesis.

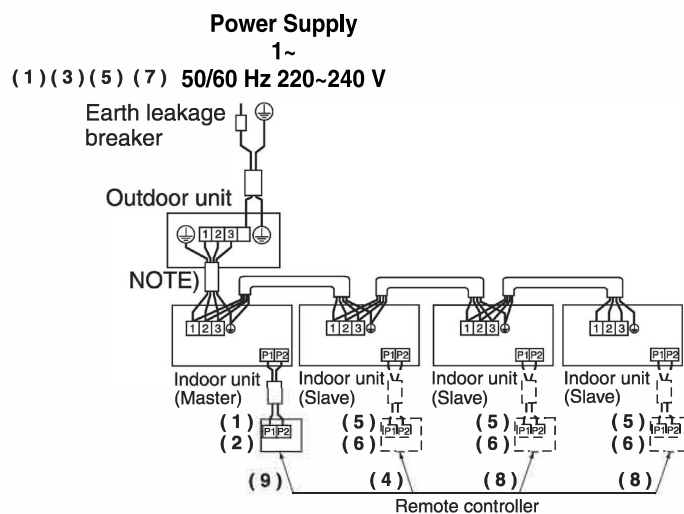
(1) Change the SECOND CODE No. to "02", individual setting, so that the slave unit can be individually set.

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Unified setting	11 (21)	1	01
Individual setting			02

- (2) Perform field setting (Refer to 11-1 to 11-5) for the master unit.
- (3) Turn off the main power supply switch after (2) is finished.
- (4) Detach remote controller from the master unit and connect it to the slave unit.
- (5) Turn on the main power supply switch again, and as in (1), change the SECOND CODE No. to "02", individual setting.
- (6) Perform field setting (Refer to 11-1 to 11-4) for the slave unit.
- (7) Turn off the main power supply switch after (6) is finished.
- (8) If there is more than one slave unit, repeat steps (4) to (7).
- (9) Detach the remote controller from the slave unit after the setting, and reattach to the master unit.

This is the end of the setting procedure.

* You do not need to rewire the remote controller from the master unit if the optional remote controller for slave unit is used. (However, remove the wiring attached to the remote controller terminal block of the master unit.) After the slave unit setting, remove the remote controller wiring, and rewire the remote controller to the master unit. (The indoor unit does not operate properly when two or more remote controllers are attached to the unit in the simultaneous operation system mode.)

**NOTE**

- Terminal numbers of outdoor and indoor units must be matched.

12. TEST OPERATION



CAUTION

When performing field setting or test operation without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

<Complete all the “1. Items to be checked after the installation work is completed” on page 4. Please also refer to the installation manual attached to outdoor unit.>

Refer to the section of “FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.”

- After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct test operation accordingly to protect the unit.
- Check that the outdoor unit has been wired properly.
- Check that the control box lid of the indoor unit is closed and that the outer plate and piping cover of the outdoor unit are closed as well.
- Clean the decoration panel and interior of the indoor unit on completion of refrigerant piping, drain piping, and electric wiring work.
- Refer to the installation manual of the outdoor unit, and perform the test operation of the air conditioner.
- If the decoration panel is mounted at the time of test operation, check the operation of the swing flap of the decoration panel.
- If the interior finishing work has been still on the way on completion of test operation, explain to the customer not to operate the air conditioner for the protection of the indoor unit until the interior finishing work is completed.
If the air conditioner is operated, substances generated from the paint and glue of the interior finishing will contaminate the indoor unit, thus resulting in water splashing or leakage.
- If an error occurs and the air conditioner does not operate, refer to the troubleshooting information provided in the installation manual attached with remote controller.

NOTE

- If a malfunction is preventing operation, refer to the malfunction diagnoses.

12-1 CAUTIONS FOR SERVICING

With the power on. Troubles can be monitored on the remote controller.

- If the air conditioner does not operate normally after installing the air conditioner, a malfunction shown in the table below may happened.

Remote controller display	Malfunction
No display	• Power supply trouble or Open phase connection • Wrong wiring between indoor and outdoor unit • Indoor PC board faulty • Wrong remote controller connection wiring • Remote controller faulty • Fuse faulty

*After turning on the power, the maximum is 90 seconds, although it will only display "Checking the connection. Please stand by". This is not a problem, and it will be set for 90 seconds.

** For fault diagnosis for BRC1H model remote controller should be performed while referring to the indoor operation manual.

12-2 MALFUNCTION CODE LIST

- For places where the Malfunction code is left blank, the “” indication is not displayed. Though the system continues operating, be sure to inspect the system and make repairs as necessary.
- Depending on the type of indoor or outdoor unit, the Malfunction code may or may not be displayed.

Code	Malfunction/Remarks
A0	Safety device operates
A1	Indoor unit's PC board faulty
A3	Drain water level abnormal
A6	Indoor fan motor overloaded, overcurrent or locked
A8	Fan PCB power supply error
AF	Humidifier faulty
AH	Air cleaner faulty
	Only the air cleaner does not function.
AJ	Type set improper
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
C1	Indoor PCB (Master) - indoor PCB (Slave) transmission defect
C4	Sensor (R2T) for heat exchanger temperature is fault
C5	Sensor (R3T) for heat exchanger temperature is fault
C6	Fan PCB setting defect
C9	Sensor for suction air temperature is fault
CC	Humidity sensor abnormal
CE	Human detection / floor temperature sensor error
CJ	Sensor for remote controller is fault
	The remote controller thermistor does not function, but the system thermo run is possible.
E0	Action of safety device (outdoor unit)
E1	Outdoor unit's PC board faulty
E3	High pressure abnormal (outdoor unit)
E4	Low pressure abnormal (outdoor unit)
E5	Compressor motor lock malfunction
E7	Outdoor fan motor lock malfunction
	Outdoor fan instantaneous overcurrent malfunction
E9	Electronic expansion valve faulty (outdoor unit)
EA	Error from defect of change 4 way valve (outdoor)
F3	Discharge pipe temperature abnormal (outdoor unit)
H3	High pressure switch faulty (outdoor unit)
H4	Low pressure switch faulty (outdoor unit)
H7	Outdoor motor position signal malfunction
H9	Outdoor air thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
JA	Discharge pipe pressure sensor faulty (outdoor unit)
JC	Suction pipe pressure sensor faulty (outdoor unit)
J1	Pressure sensor system error (batch) (outdoor unit)
J2	Power sensor system error (outdoor unit)
J3	Discharge pipe thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J5	Suction pipe thermistor faulty (outdoor unit)
J6	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.

J7	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J8	Liquid piping temperature sensor system error (outdoor unit)
J9	Intake temperature sensor error (outdoor unit)
L1	Inverter system error (outdoor unit)
L3	Reactor thermister error (outdoor)
L4	Overheated heat-radiating fin (outdoor unit)
	Inverter cooling defect.
L5	Instantaneous overcurrent (outdoor unit)
	Possible earth fault or short circuit in the compressor motor.
L8	Electric thermal (outdoor unit)
	Possible electrical overload in the compressor or cut line in the compressor motor.
L9	Stall prevention (outdoor unit)
	Compressor possibly locked.
LC	Transmission malfunction between the outdoor control units' inverters (outdoor unit)
P1	Open-phase (outdoor unit)
P3	P-board temperature sensor malfunction (outdoor unit)
P4	Heat-radiating fin temperature sensor malfunction (outdoor unit)
P6	DC output current error (outdoor)
PJ	Type set improper (outdoor unit)
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
U0	Suction pipe temperature abnormal
U1	Reverse phase
	Reverse two phase of the L1, L2 and L3 leads.
U2	Power source voltage malfunction (outdoor unit)
	Includes the defect in 52C.
U4 UF	Transmission error (indoor unit – outdoor unit)
	Wrong wiring between indoor and outdoor units or malfunction of the PC board mounted on the indoor and the outdoor units.
U5	Transmission error (indoor unit – remote controller)
	Transmission is improper between the indoor unit and the remote controller.
U8	Malfunction in transmission between main and sub remote controls. (Malfunction in sub remote controller.)
UA	Miss setting for multi system
	Setting is wrong for selector switch of multi - system. (see switch SS2 on the main unit's PC board)
UC	Central control address overlapping
UE	Transmission defect (indoor - centralizing)
UJ	Peripheral equipment transmission fault

⚠ CAUTION

- Refer to “2. Items to be checked at time of delivery” on page 4 upon completion of the test run and make sure that all the items are checked.
- If the customer's interior work has not been finished on completion of the test run, explain the customer not to operate the air conditioner. This is essential until the interior work is finished so as to protect the product. Substances generated from paints and adhesives used for the interior work may contaminate the product if the unit is operated.

⚠ To test run Contractors

When delivering the product to the customer after the test run is completed, check that the control box lid, the air filter and the suction grille are mounted. In addition, explain to the customer regarding the state (ON/OFF) of the power supply breaker.

13. TECHNICAL DATA

		IDU/ODU		
Model		FCA42AVMK / RZCA42AYMK		
Rated Power Supply	Ph/V	1/220-240		
Unit Dimensions (HXWxD)	mm	298*840*840/990*940*320		
Net Weight	kg	25/78		
Packing Dimensions (HXWxD)	mm	300*875*880/1130*1000*400		
Gross Weight	kg	29/86		
Testing Condition		Cooling		Heating
		T1	T3	H1
		50Hz/230V	50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	24000	22800	27600
Power Input	Watt	1550	2050	1730
EER	(BTU/Hr)/Watt	15.48	11.12	-----
	W/W	-----	-----	4.68
Current	A	7.5	9.9	8.4
Refrigerant Type/Qty	R32/Kg	R32/1.3kg		
Annual Energy Consumption (Kwh)		4185.00	41000.00	-----
Power Factor		0.9		
Manufacturer's Name		Daikin Air Conditioning India Pvt. Ltd.		
Country of Origin		India		

For 24AVMK

		IDU/ODU		
Model		FCA30AVMK/RZCA30AVMK		
Rated Power Supply	Ph/V	1/220-240		
Unit Dimensions (HXWxD)	mm	298*840*840/990*940*320		
Net Weight	kg	25/78		
Packing Dimensions (HXWxD)	mm	300*875*880/1130*1000*400		
Gross Weight	kg	29/86		
Testing Condition		Cooling		Heating
		T1	T3	H1
		50Hz/230V	50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	30000	27000	34500
Power Input	Watt	2120	2670	2420
EER	(BTU/Hr)/Watt	14.15	10.11	-----
	W/W	-----	-----	4.18
Current	A	10.2	12.9	11.7
Refrigerant Type/Qty	R32/Kg	R32/1.3kg		
Annual Energy Consumption (Kwh)		5724.00	5340.00	-----
Power Factor		0.9		
Manufacturer's Name		Daikin Air Conditioning India Pvt. Ltd.		
Country of Origin		India		

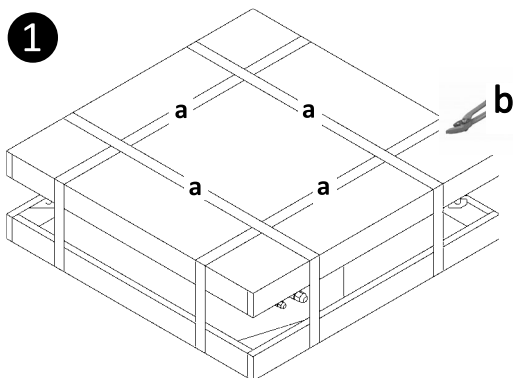
For 30AVMK

		IDU/ODU		
Model		FCA30AVMK/RZCA30AVMK		
Rated Power Supply	Ph/V	1/220-240		
Unit Dimensions (HXWxD)	mm	298*840*840/990*940*320		
Net Weight	kg	25/78		
Packing Dimensions (HXWxD)	mm	300*875*880/1130*1000*400		
Gross Weight	kg	29/86		
Testing Condition		Cooling		Heating
		T1	T3	H1
		50Hz/230V	50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	36000	30800	41400
Power Input	Watt	2820	3580	4160
EER	(BTU/Hr)/Watt	12.77	8.60	-----
	W/W	-----	-----	2.92
Current	A	13.6	17.3	20.1
Refrigerant Type/Qty	R32/Kg	R32/1.3kg		
Annual Energy Consumption (Kwh)		7614.00	7160.00	-----
Power Factor		0.9		
Manufacturer's Name		Daikin Air Conditioning India Pvt. Ltd.		
Country of Origin		India		

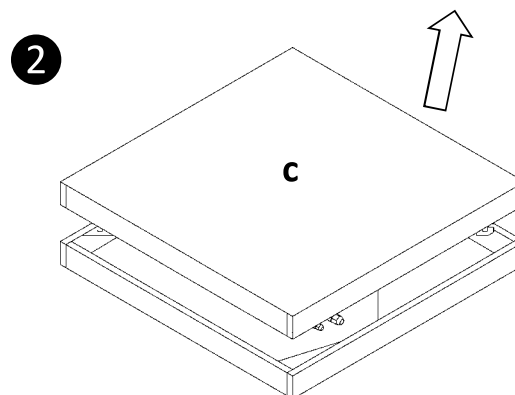
For 36AVMK

14. UNPACKING & PACKING OF THE INDOOR

14-1. UNPACKING

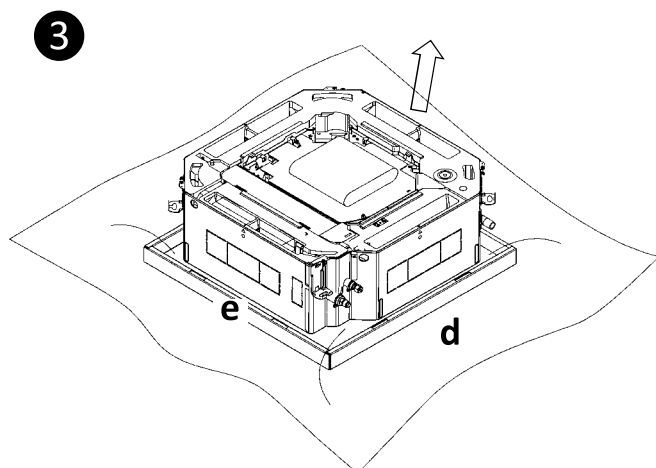


- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

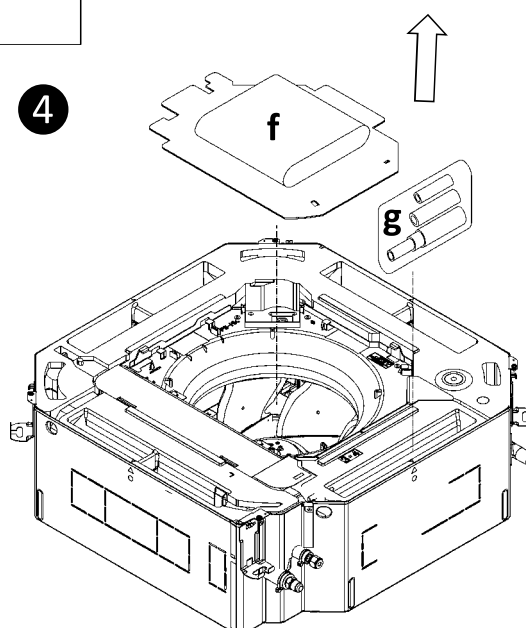


- Remove top corrugated cardboard sheet (c) & EPS from the unit by pulling it up as shown in figure.

- a) Strap
- b) Strap cutter
- c) Top corrugated cardboard sheet with EPS
- d) Product cover
- e) Bottom corrugated cardboard sheet with EPS
- f) Pad
- g) Accessories set

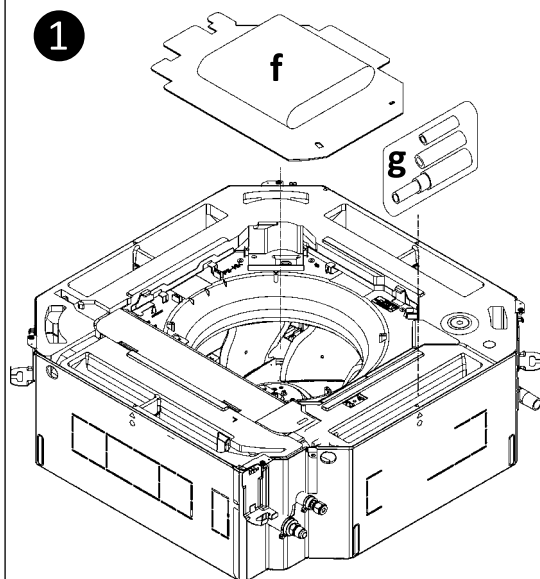


- Unfold the Product Cover (d) and pull the unit up, then remove the Sheet Cover (d) and Bottom corrugated cardboard sheet(e).

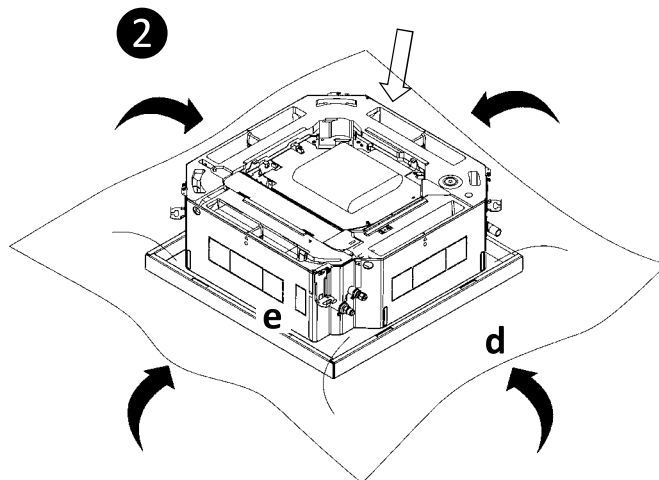


- Put the pad (f) and accessories kit (g) off the product as shown in figure.

14-2. PACKING

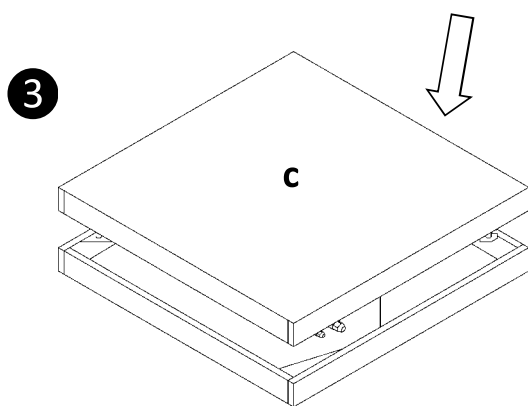


- Put the pad (f) and accessories kit (g) on the product as shown in figure.

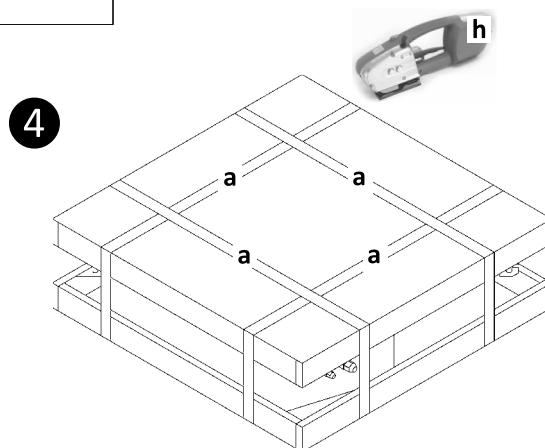


- Put the product on the bottom corrugated cardboard sheet with EPS Pad and product cover. Then fold the product cover on the product.

- a) Strap
- b) Strap cutter
- c) Top corrugated cardboard sheet with EPS
- d) Product cover
- e) Bottom corrugated cardboard sheet with EPS
- f) Pad
- g) Accessories set
- h) Strap fixer



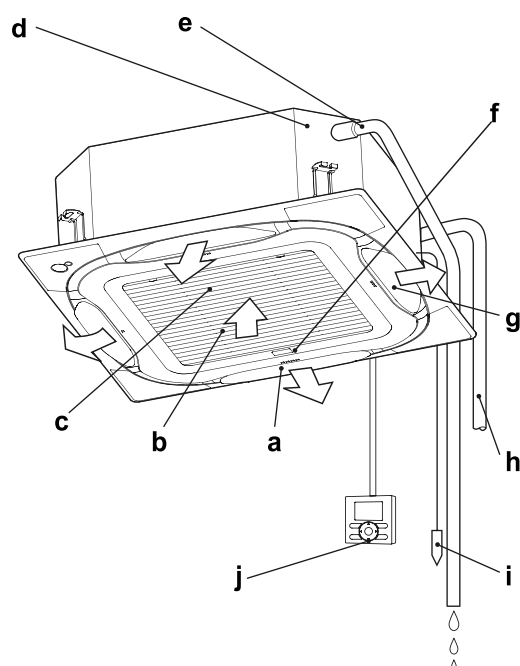
- Put the top corrugated cardboard sheet (c) & EPS on the product as shown in figure.



- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

2.3 FCA42AVMK

2.3.1 Names and Functions of Parts



a	Air outlet
b	Suction grille
c	Air filter (Inside suction grille)
d	Drain discharge device (built-in) Discharges indoor moisture removed during the cooling operation.
e	Drain pipe
f	Brand name logo
g	Horizontal blade (At air outlet)
h	Refrigerant piping Transmission wiring
i	Earth wiring (Note) (Note) It is a wiring to let electricity flow from the indoor unit to the earth for prevention of electric shocks or a fire in case of emergency.
j	Remote control (Operation part) The remote controller may not be needed depending on the system configuration.

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2.3.2 Installation

DAIKIN

SPLIT SYSTEM AIR CONDITIONER

INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.
NEW REFRIGERANT (R32) SERIES
FCA42AVMK

Page No.

 INSTALLATION MANUAL OF INDOOR 1-32
 INSTALLATION MANUAL OF OUTDOOR 33-49

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1. SAFETY PRECAUTIONS



Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

Please read these "SAFETY PRECAUTIONS" carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.

This air conditioner comes under the term "appliances not accessible to the general public".

Please instruct the customer on how to operate the unit and keep it maintained.

Also, inform customers that they should store this installation manual along with the operation manual for future reference.

Meaning of WARNING and CAUTION notices.



WARNING Failure to follow these instructions properly may result in personal injury or loss of life.



CAUTION Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.



— **WARNING** —

- Ask your dealer or qualified personnel to carry out installation work.
Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injury.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Failure to do so during installation work may result in the unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or overheating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into contact with fire.
- After completing installation, check for refrigerant gas leakage.
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- Be sure to switch off the unit before touching any electrical parts.
- Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.
- Be sure to earth the air conditioner.
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead.
Imperfect earthing may result in electric shocks or fire.
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks or fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Do not allow children to climb on the outdoor unit and avoid placing objects on the unit.
Injury may result if the unit becomes loose and falls.
- The appliance must be stored in a room without continuously operating ignition sources
(for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odour.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- When flared joints are reused indoors, the flare part shall be re-fabricated.



CAUTION

- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate piping to prevent condensation.
Improper drain piping may result in indoor water leakage and property damage.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radios to prevent picture interference and noise.
(Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit as far away from fluorescent lamps as possible.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Install in a machine room that is free of moisture. The unit is designed for indoor use.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - A. Clean and dry
Strict measures must be taken to keep impurities (including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - B. Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere.
- Do not install the air conditioner in the following locations:
 1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).
Plastic parts will deteriorate, parts may fall off and water leakage could result.
 2. Where corrosive gas, such as sulphurous acid gas, is produced.
Corroding of copper pipes or soldered parts may result in refrigerant leakage.
 3. Near machinery emitting electromagnetic radiation.
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.
 4. Where flammable gas may leak, where there is carbon fibre or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Important information regarding the refrigerant used.
This product contains fluorinated greenhouse gases covered by the Kyoto protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675*
⁽¹⁾GWP = global warming potential
- The refrigerant quantity is indicated on the unit name plate.
*This value is based on F gas regulation (824/2006).

2. BEFORE INSTALLATION

Do not exert pressure on the resin parts when opening the unit or when moving it after opening. Be sure to check the type of R32 refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)

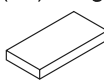
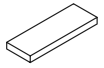
- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger bracket without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Do not dispose of any parts necessary for installation until the installation is complete.
- In order to protect the indoor unit from damage, use packing materials to protect the unit after carrying until the installation starts.
- When selecting installation site, refer to the paper pattern.
- Do not use the unit in locations with high salt content in the air such as beachfront property, locations where the voltage fluctuates such as factories, or in automobiles or marine vessels.
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

2-1. ACCESSORIES

Check the following accessories are included with your unit.

(Do not dispose of any parts necessary for installation until the installation is completed.)

Name	(1) Drain hose	(2) Metal clamp	(5) Paper pattern for installation	(7) Washer fixing plate	Insulation for fitting
Quantity	1 pc.	1 pc.	1 pc.	4 pcs.	1 each
Shape			Upper part of packing 		(8) For gas pipe  (9) For liquid pipe 

Name	Sealing pad			Installation guide	(Other)
Quantity	1 each	1 pc.	1 pc.	1 pc.	
Shape	(10) Large  (11) Medium-1  (12) Medium-2 	(13) Small 	(14) 	(15) 	

2-2. OPTIONAL ACCESSORIES

- The optional decoration panel and remote controller are required for this indoor unit. **(Refer to Table 1, 2)** (However, the remote controller is not required for the slave unit of a simultaneous operation system.)
- Check that the decoration panel is prepared.
(For the installation of the decoration panel, refer to the installation manual attached to the decoration panel.)

TABLE 1

Unit model	Optional decoration panel
FCA42AVMK	BYCQ125EEF9 BYCQ125EAF9
	Color : Fresh White

NOTE

- If you wish to use a optional decoration panel that is not listed in “**Table 1**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.
- These are two types of remote controllers: wired and wireless. Select a remote controller from **Table 2** according to customer request and install in an appropriate place.
(For the installation of the remote controller, refer to the installation manual attached to the remote controller.)

TABLE 2

Remote controller			
Wired type			BRC1H82W/ BRC1H82S/ BRC1H82K
Wireless type	Cooling only	Remote	Refer to Catalogue

Note - For Remote options, refer remote catalogue attached with the remote controller.

NOTE

- If you wish to use a remote controller that is not listed in “**Table 2**” on page 4, select a suitable remote controller after consulting catalogs and technical materials.

FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

1. Items to be checked after completion of work

Items to be checked	If not properly done, what is likely to occur	Check
Are the indoor unit and outdoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
Is the outdoor unit fully installed?	The unit may malfunction or the components burn out.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate water may drip.	
Does drainage flow smoothly?	Condensate water may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	It may result in electric shock.	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	It may result in insufficient cooling.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

2. Items to be checked at time of delivery

* Also review the "1. SAFETY PRECAUTIONS"

Items to be checked	Check
Has the field setting done (as necessary)?	
Did you attach the control box lid, the air filter, and suction grille?	
Does the cold air blow properly during the cooling operation?	
Did you explain about operations while showing the instruction manual to your customer?	
Did you hand the instruction manual over to your customer?	

Points for explanation about operations

The items with **⚠ WARNING** and **⚠ CAUTION** marks in the instruction manual are the items pertaining to possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the instruction manual.

2-3. NOTE TO THE INSTALLER

Be sure to instruct customers how to properly operate the unit (especially cleaning filters, operating different functions, and adjusting the temperature) by having them carry out operations themselves while looking at the manual.

3. SELECTING INSTALLATION SITE

⟨Hold the unit by the 4 lifting lugs when opening the box and moving it, and do not exert pressure on to any other part piping (refrigerant, drain, etc.) or plastic parts.

If the temperature or humidity inside the ceiling might rise above 30°C or RH 80%, respectively, use the high-humidity kit (sold separately) or add extra insulation to the main unit body.

Use glass wool or polyethylene foam as insulation and make sure it is at least 10 mm thick and fits inside the ceiling opening.⟩

The direction this product blows can be selected. However, a separately sold shut-off material kit is needed in order to make the unit blow in two, three, or four (corner shut-off) directions.

(1) Select an installation location with the customer's approval which matches the following conditions.

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- Where the ceiling is strong enough to bear the indoor unit weight.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where there is no risk of flammable gas leakage.
- Where piping between indoor and outdoor units is possible within the allowable limit.

(Refer to the installation manual for the outdoor unit.)

[Space required for installation]

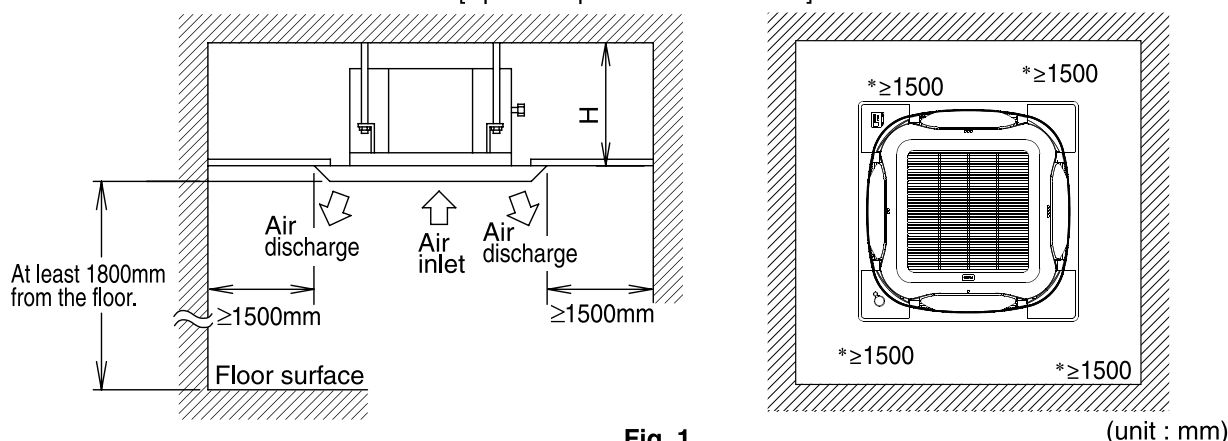


Fig. 1

(unit : mm)

Model	H(mm)
	BYCQ125EEF9 BYCQ125EAF9
FCA42AVMK	303

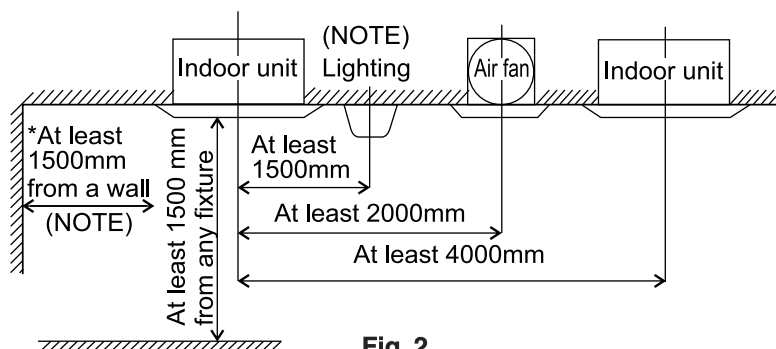


Fig. 2

NOTE

- The “*” marked space is at least 500 mm wide if the air outlet is closed. In case of also closed corner area (corner area of both left right direction for closing air outlet), it is 200 mm or more.

CAUTION

- Any vents, light fixtures, or other appliances which may disturb the airflow might cause the top side to become dirty if located too nearby, so follow **Fig. 2** when installing.
Note)
 - This restriction applies to the exposed type lighting, but does not apply to the recessed type (which does not protrude below the ceiling line).
 - For how to set the airflow direction (including airflow block) with the horizontal blade, refer to “Individual Airflow Direction” in the operation manual attached to the remote controller.
- Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)
- If installing the wireless kit, the distance of the signal sent from the remote controller might be shorter if there are fluorescent lights which are electrically started (such as with inverters, rapid starters, etc.) in the room. The indoor unit should be installed as far away from fluorescent lights as possible.

(2) Ceiling height

This product can be installed in ceilings up to 3.5 m high (4.2 m high for the 24, 30, and 36). If the ceiling height is 2.7 m (3.2 m for the 24, 30, and 36) or more, field settings will have to be made with the remote controller. See “11. FIELD SETTING” for details.

(3) Air direction

The air direction shown in **Fig. 3** is an example.

Select the appropriate number of directions according to the shape of the room and the location of the unit. (Field settings have to be made using the remote controller and the outlet vents have to be shut off if two, three, or four (corner shut-off) directions are selected. See the shut-off materials (sold separately) installation manual for details.)

- (4) Use suspension bolts for installation. Check if the location for the installation is strong enough to support the weight of the unit, reinforce it if necessary, and install using suspension bolts. (The spacing of the installation is shown on the “paper pattern for installation (5)”.)

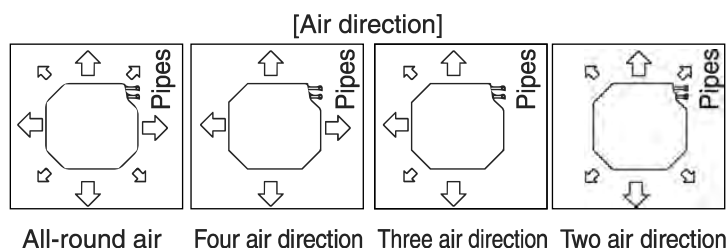
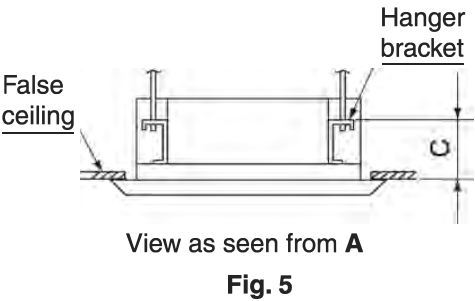
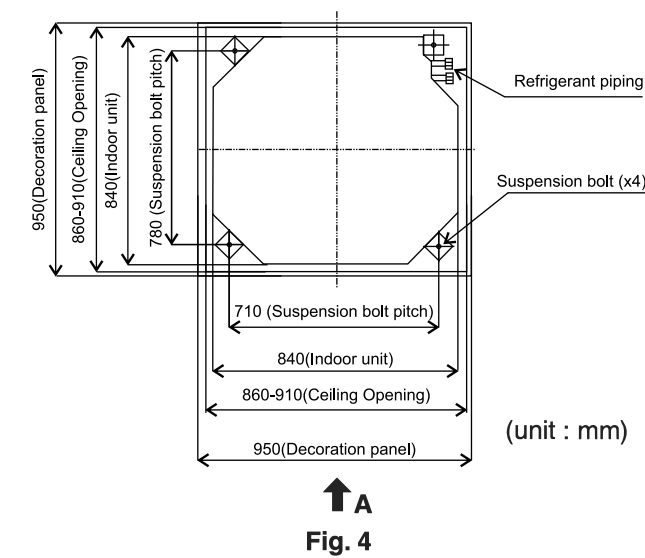


Fig. 3

4. PREPARATION BEFORE INSTALLATION

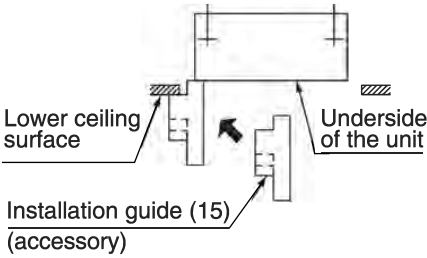
(1) Relation of ceiling opening to unit and suspension bolt position.



Decoration Panel	BYCQ125EEF9 BYCQ125EAF9
C (mm)	125~130

■ Use the installation guide (15) (delivered with the unit) for exact vertical positioning of the unit.

Apply the short side of the cut-out section
in case of standard grille.
<BYCQ125EEF9>
<BYCQ125EAF9>



■ **Installation is possible when ceiling opening dimensions is as follows.**

- When installing the unit within the frame for fixing false ceiling.

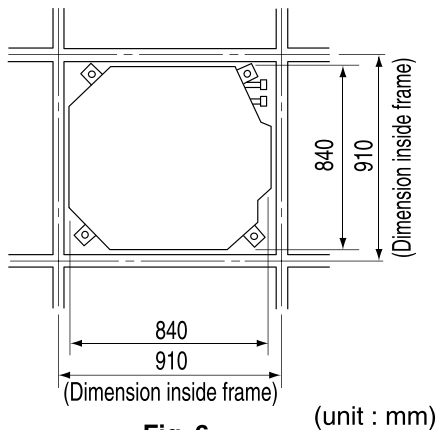


Fig. 6

(unit : mm)

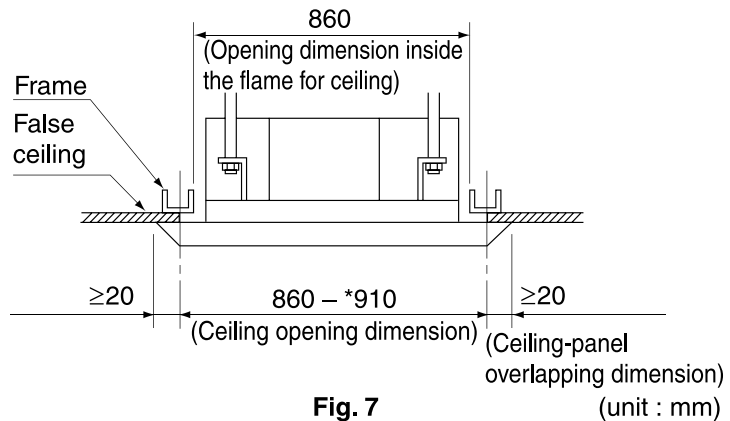


Fig. 7

(unit : mm)

NOTE

- Installation is possible with a ceiling dimension of 910 mm (marked with *). However, to achieve a ceiling-panel overlapping dimension of 20 mm, the spacing between the ceiling and the unit should be 35 mm or less. If the spacing between ceiling and the unit is over 35 mm, attach ceiling material to ■ part or recover the ceiling.

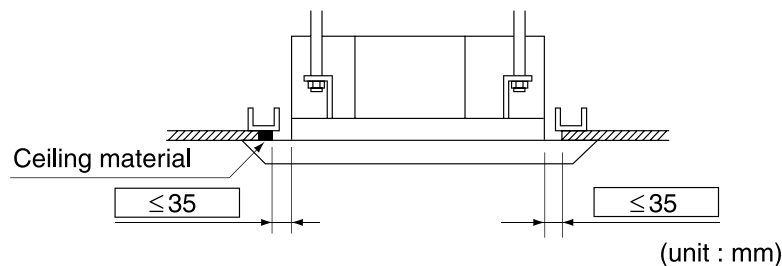


Fig. 8

(unit : mm)

(2) Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (5) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor-outdoor unit casing outlet. Refer to “6. REFRIGERANT PIPING WORK”, “7. DRAIN PIPING WORK” and “8. ELECTRIC WIRING WORK”.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

(3) Install the suspension bolts.

- Use M8 or M10 bolts for hanging the indoor unit. Use a hole-in anchor for existing ceilings, and a sunken insert, sunken anchor or other field supplied parts for new ceilings to reinforce the ceiling to bear the weight of the unit. Adjust clearance (50 – 100 mm) from the ceiling before proceeding further.

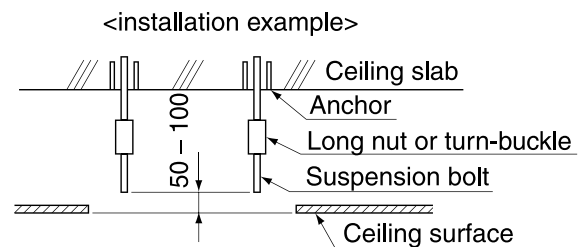


Fig. 9

(unit : mm)

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

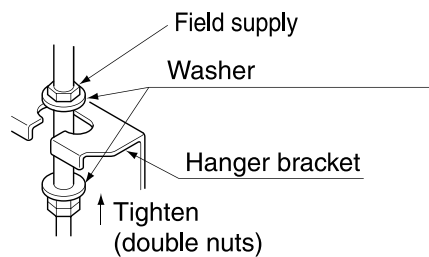
Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air inlet component kit and branch duct before installing the unit.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

5.1 FOR NEW CEILINGS

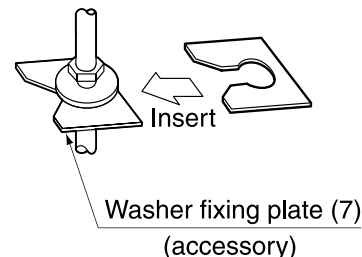
(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. **(Refer to Fig.10)**
The washer fixing plate (7) will prevent the washer from falling. **(Refer to Fig.11)**



[Securing the hanger bracket]

Fig. 10



[Securing the washer]

Fig. 11

(1-2) Refer to the paper pattern for installation (5) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation. The center of the unit is indicated on the triangular mark to the unit bottom and on the paper pattern for installation.
- Fix the paper pattern to the unit with screws (6) (×4).
- Ceiling height is shown on the side of the paper pattern for installation (5). Adjust the height of the unit according to this indication.

Please perform one of the following, as the shape of the paper pattern for installation differs according to the model.

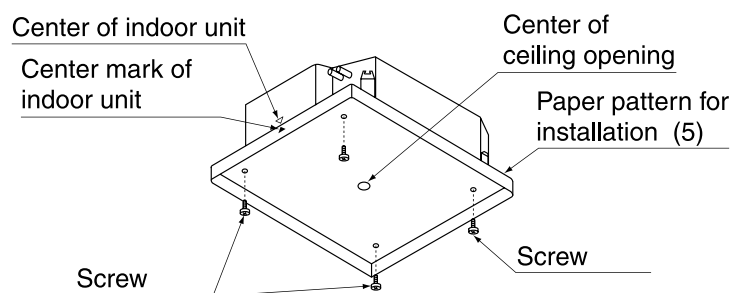


Fig. 12

[Installation of paper pattern for installation-optional]

<Ceiling work>

(1-3) Adjust the unit to the right position for installation.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)”.)

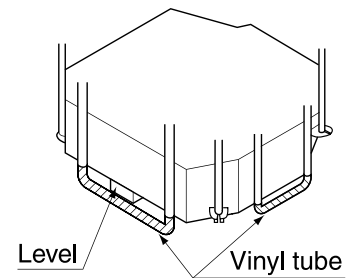
- Using the installation guide (15) allows you to check the positions from the underside of the unit to the lower ceiling surface.

(1-4) Check the unit is horizontally level. (Refer to Fig.13)

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.

— ⚠ CAUTION —

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a level or a water-filled vinyl tube.
(If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)



[Maintaining horizontality]

Fig. 13**(1-5) Remove the washer fixing plate (7) used for preventing the washer for hanger (3) from dropping and tighten the upper side nut.****(1-6) Remove the paper pattern for installation (5).****5.2 FOR EXISTING CEILINGS****(2-1) Install the indoor unit temporarily.**

Perform step (1-1) in (1) For new ceilings.

(2-2) Adjust the height and position of the unit.

(Refer to “4. PREPARATIONS BEFORE INSTALLATION-(1)” and (1-3) in (1) For new ceilings.)

(2-3) Perform steps (1-4), (1-5) in (1) For new ceilings.**— ⚠ CAUTION —**

- **Install the indoor unit leveled.**
If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of a float switch and results in water leakage.
- **Attach nuts on the upper and lower side of hanger.**
If there is no upper nut and the lower nut is over-tightened, the hanger and the top plate will deform and cause abnormal sound.
- **Do not insert materials other than that specified into the clearance between the hanger and the washer for hanger (3).**
Unless the washers are properly attached, the hanging bolts may come off from the hanger.

— ⚠ WARNING —

The indoor unit must be securely installed on a place that can withstand the mass.
If the strength is insufficient, the indoor unit may fall down and cause injuries.

6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R32. (Unless the refrigerant is R32, the normal operation cannot be expected.)

⚠ WARNING

When flared joints are reused indoors, the flare part shall be re-fabricated.

⚠ CAUTION

This air conditioner is a dedicated model for new refrigerant R32. Make sure to meet the requirements shown below and carry out installation work.

- Use dedicated piping cutters and flaring tools for R32 and R410A.
 - When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
 - Use only the flare nuts attached to the air conditioner. If other flare nuts are used, it may cause refrigerant leakage.
 - To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the pipings.
- Do not mix substance other than the specified refrigerant such as air into the refrigeration circuit. If the refrigerant leaks during the work, ventilate the room.

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the pipings to the air conditioner, make sure to use a spanner and a torque wrench as shown in Fig. 14.
- For the dimension of flared part and the tightening torque, refer to the Table 3.

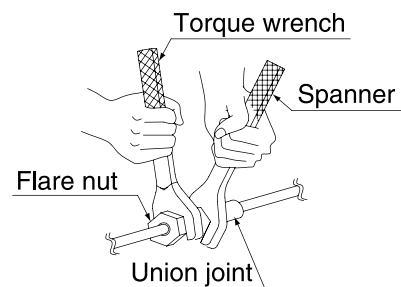


Fig. 14

- When making a flare connection, coat the flared inner surface only with ether oil or ester oil. (Refer to Fig. 15) Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

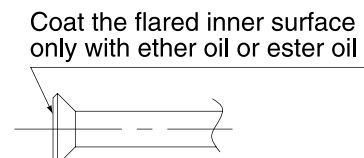


Fig. 15

Table 3

Piping size (mm)	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 6.4	15.7 ± 1.5	8.9 ± 0.2	
φ 9.5	36.3 ± 3.6	13.0 ± 0.2	
φ 12.7	54.9 ± 5.4	16.4 ± 0.2	
φ 15.9	68.6 ± 6.8	19.5 ± 0.2	

⚠ CAUTION

Do not have oil adhere to the screw fixing part of resin parts.

If oil adheres, it may weaken the strength of screwed part.

Do not tighten flare nuts too tight.

If a flare nut cracks, the refrigerant may leak.

- If there is no torque wrench, use **Table 4** as a rule of thumb.
When tightening a flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases.
From that position, tighten the nut additionally the angle shown in **Table 4**.
After the work is finished, check securely that there is no gas leak.
If the nut is not tightened as instructed, it may cause slow refrigerant leak and result in malfunction (such as does not cool or heat).

Table 4

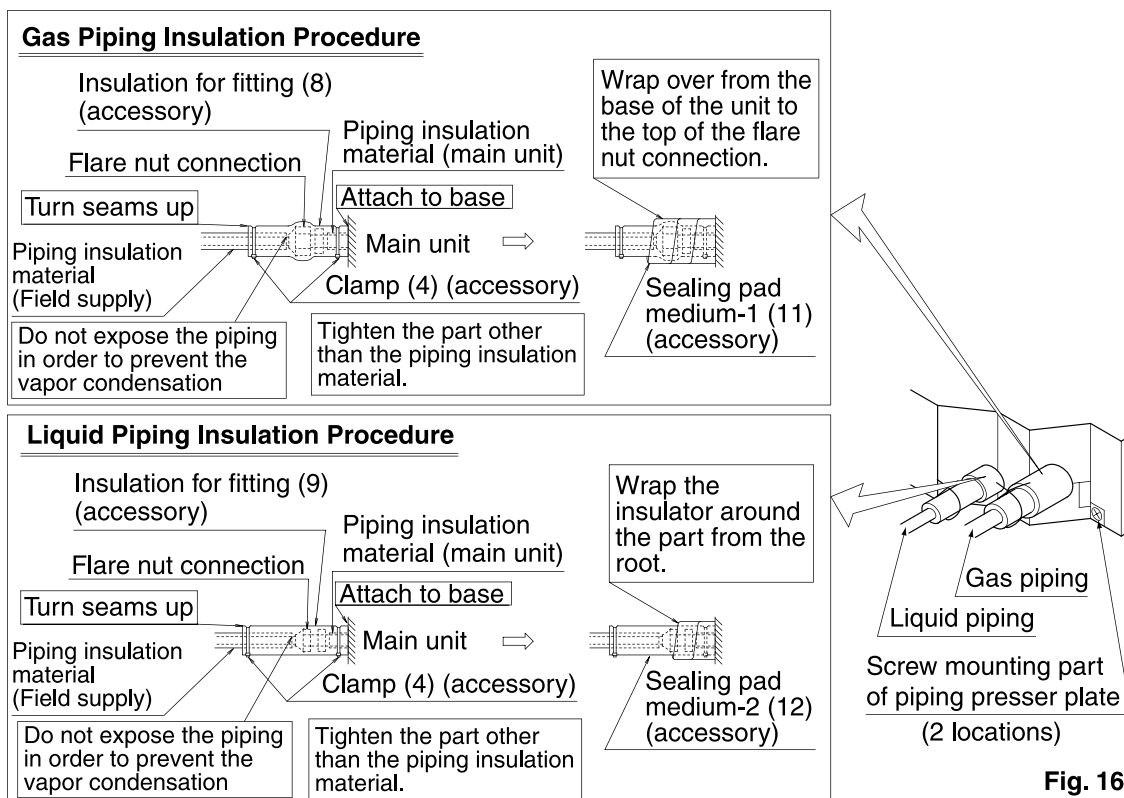
Piping size (mm)	Tightening angle	Recommended arm length of tool used
φ 6.4	60° - 90°	approx. 150 mm
φ 9.5	60° - 90°	approx. 200 mm
φ 12.7	30° - 60°	approx. 250 mm
φ 15.9	30° - 60°	approx. 300 mm

⚠ CAUTION

Insulation of field piping must be carried out up to the connection inside the casing.

If the piping is exposed to the atmosphere, it may cause sweating, burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

- After leak test, referring to **Fig. 16**, insulate both the gas and liquid piping connection with the attached joint insulating for fitting (8) and (9) to prevent the pipings from getting exposed.
Then, tighten the both ends of insulating material with the clamp (4).
- Wrap the sealing material (Medium-1, 2) (11) (12) around the joint insulating for fitting (8) and (9) (flare nut section), both the gas and liquid piping.
- Make sure to bring the seam of joint insulating for fitting (8) and (9) to the top.

**Fig. 16**

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 17). Then, carry out brazing (NOTE 2). After all the brazing works are finished, carry out flare connection with the indoor unit. (Refer to Fig. 16)

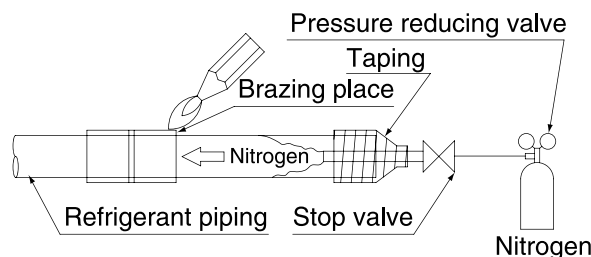


Fig. 17

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping.
Use phosphor copper brazing filler metal (BCuP-2: JISZ3264/B-Cu93P-710/795: ISO 3677) that does not require flux.
(If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
3. When carrying out leakage test of refrigerant piping and the indoor unit after the installation of indoor unit is finished, confirm the connecting outdoor unit installation manual for test pressure.
Refer to also the outdoor unit installation manual or technical document for refrigerant piping.
4. In case of refrigerant shortage due to forgetting additional refrigerant charge etc., it will result in malfunction such as does not cool or does not heat.
Refer to the outdoor unit installation manual or technical document for refrigerant piping.

CAUTION

Do not use antioxidant when brazing piping.

It may result in malfunction of components and clogging of piping due to residue.

7. DRAIN PIPING WORK

(1) Ring drain piping

- As for drain work, perform piping in such a manner that water can be drained properly.
- Employ a pipe with either the same diameter or with the diameter larger (excluding the raising section) than that of the connecting pipe (PVC pipe, nominal diameter 25 mm, outside diameter 32 mm).
- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If the drain pipe cannot be sufficiently set on a slope, execute the drain raising piping.
- To keep the drain pipe from sagging, space hanging wires every 1 to 1.5 m.

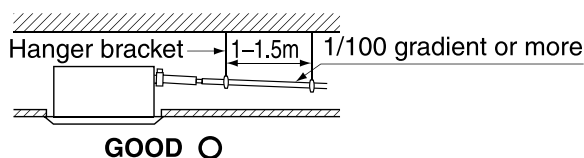


Fig. 18-1

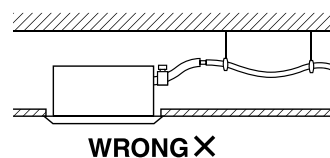


Fig. 18-2

CAUTION

Water accumulating in the drainage piping can cause the drain to clog.

- Use the attached drain hose (1) and Metal clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the metal clamp securely within the portion of a white tape of the hose-inserted tip. Tighten the metal clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached sealing pad (10) over the Metal clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

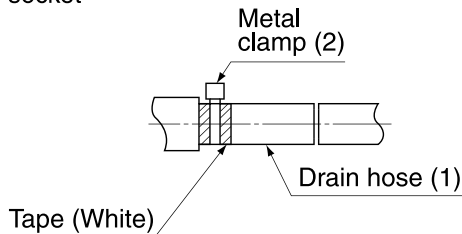


Fig. 19

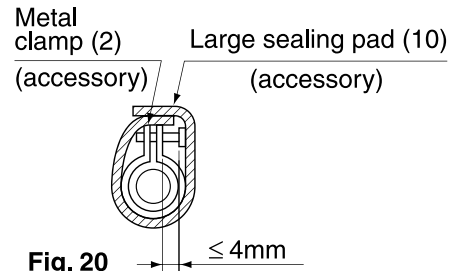


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 675 mm.
The drain pump of this unit has a high delivery flow rate. Therefore, the higher the drain raising height is, the lower the sound of draining will be. For this reason, a minimum drain raising height of 300 mm is recommended.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.

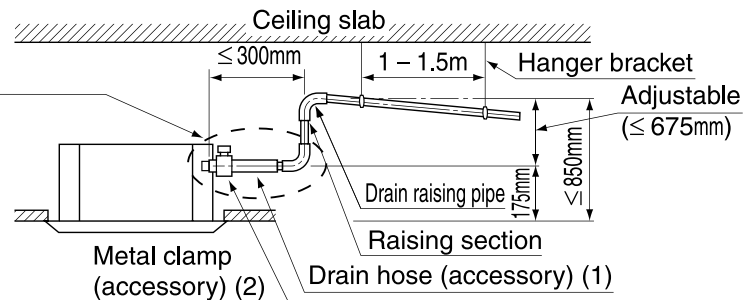
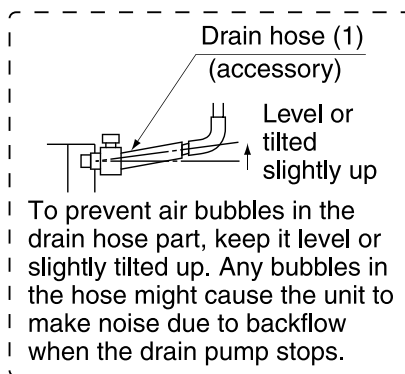


Fig. 21

NOTE

- To ensure no excessive pressure is applied to the included drain hose (1), do not bend or twist when installing. (This may cause leakage.)
- If converging multiple drain pipes, install according to the procedure shown below.

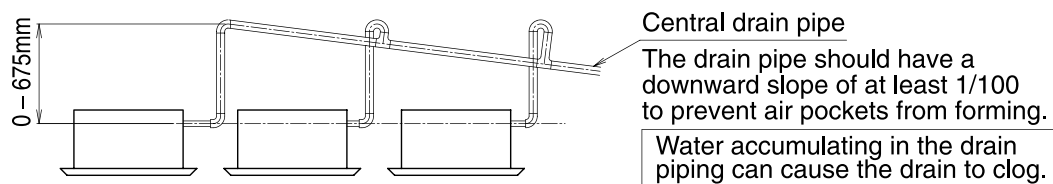


Fig. 22

- As for the size of central drain pipe, select the size that meet the capacity of indoor units to be connected. (Refer to the technical document)
- At replacement with new indoor unit, use the attached new drain hose (1) and the metal clamp (2). If an old drain hose or a metal clamp is used, it may cause water leakage.



CAUTION

Drain piping connections

- Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

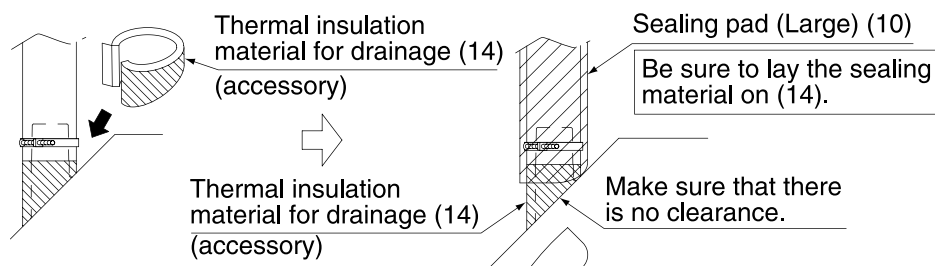
(2) After piping work is finished, check if drainage flows smoothly.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Add approximately 1L of water slowly from the air outlet and check drainage flow. (Refer to Fig.23)
- Check drainage flow during COOL running, explained under “12. TEST OPERATION”.
- Refer to the figure on the following after checking the draining of water, and mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.

— CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.



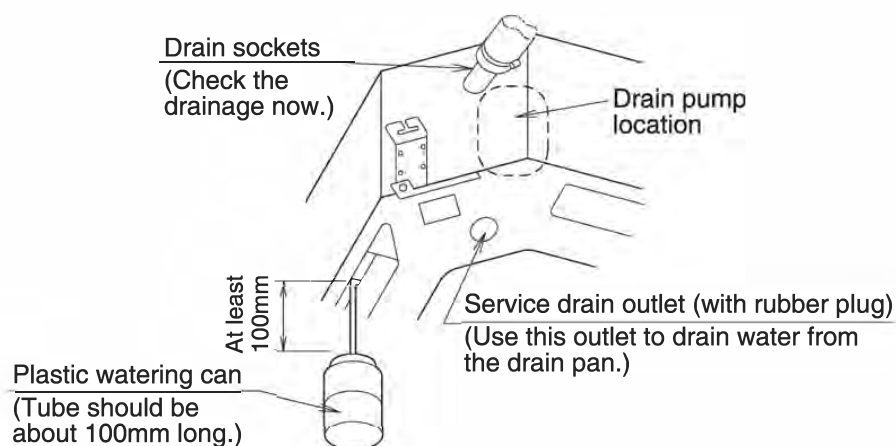
WHEN ELECTRIC WIRING WORK IS NOT FINISHED

— CAUTION —

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following after the test run is complete.
- Remove the control box lid. Connect the single phase power supply (SINGLE PHASE 230V) to connections No.1 and No.2 on the terminal block for wiring the units. Do not connect to No.3 of the terminal block for wiring the units. (The drain pump will not operate.) Connect the earth wire firmly. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power.
- Put approximately 1L of water into the drain pan through the blow-off mouth on the left-hand side of the drain socket. Make sure not to pour water over the drain pump or any electric parts including those of the drain pump.
- When the power is turned on, the drain pump will operate and you can check the draining of water through the transparent part of the drain socket. (The drain pump will stop automatically in 10 minutes.) After checking the draining of water, mount the thermal insulation material for drainage (14) and thermal insulate the drain socket.
- After confirming drainage (Fig. 23, Fig. 24), turn off the power and remove the power supply.
- Attach the control box lid as before.

— CAUTION —

- Do not apply external force to the float switch.
This may result in a malfunction.
- Do not touch the electronic ports other than the terminal block.



<Adding water through air discharge outlet>
[Method of adding water]

Fig. 23

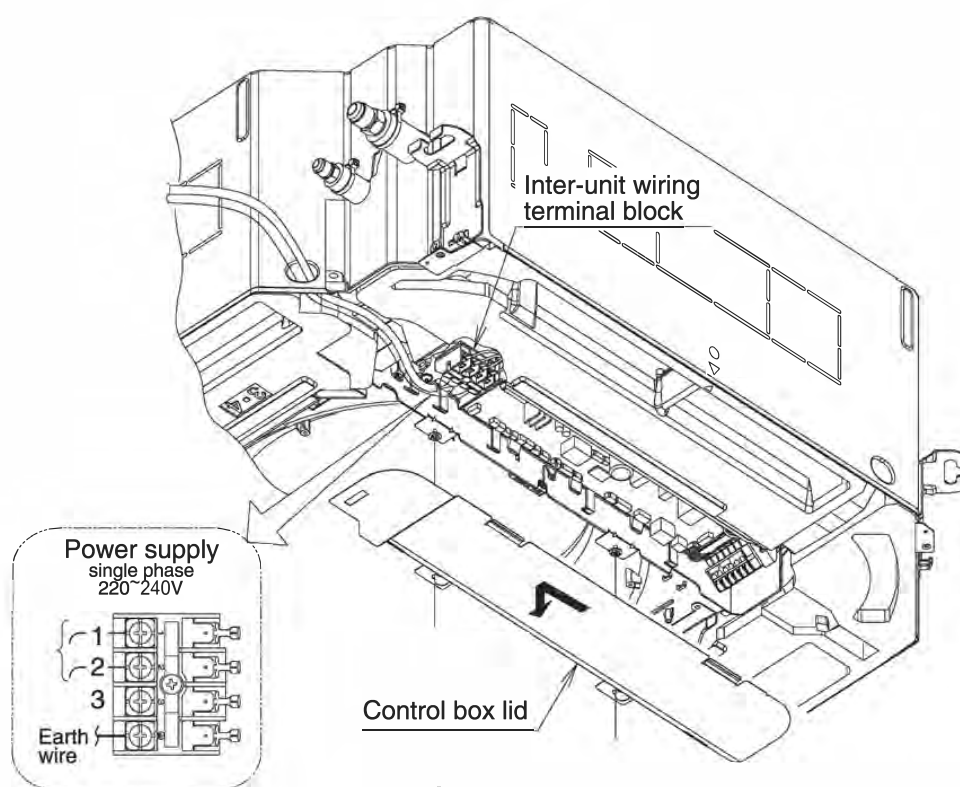


Fig. 24

8. ELECTRIC WIRING WORK

- Electric wiring work must be conducted by electrician authorized by power companies. (Only licensed electrician can conduct electric work and earth connections.)
- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Be sure to install an earth leakage circuit breaker to the outdoor unit.

(This installation of an earth leakage circuit breaker is mandatory for the prevention of electric shocks and fire disasters.)

- Make sure that 230~240V is specified wiring between the indoor and outdoor units and between indoor units.
- Do not turn on the power supply (of the indoor unit) until all the installation work is completed.
- Be sure to ground the air conditioner.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Do not connect the earth wire to gas pipes, plumbing pipes, lightning rods, or telephone earth wires.
 - Gas pipes: might cause explosions or fire if gas leaks.
 - Plumbing pipes: no earth effect if hard vinyl piping is used.
 - Telephone earth wires or lightning rods: might cause abnormally high electric potential in the earth during lightning storms.
- For electric wiring work, refer to also "WIRING DIAGRAM" attached to the control box lid.
- Never connect the power supply wire to the terminal block for remote controller wire, or otherwise the entire system may be damaged.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- Do not touch the printed circuit board ASSY during the wiring work. Otherwise, it may cause damage.

• Specifications for field wire

Refer to the installation manual attached to the outdoor unit regarding the detail of standard accessories for the outdoor unit.

The remote control cord should be procured locally. Refer to the **Table 5** when preparing one.

Wiring specifications are shown on the condition that the wiring has a voltage drop of 2%.

TABLE 5

	Wire	Size (mm ²)	Length
Wiring the units	H05VV – U4G (NOTE 1, 2)	2.5	–
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500m *

*This will be the total extended length in the system when doing group control.

NOTE

1. Shows only in case of protected pipes. Use H07RN-F in case of no protection.
2. Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
3. Vinyl cord with sheath or cable (Insulated thickness : 1 mm or more)

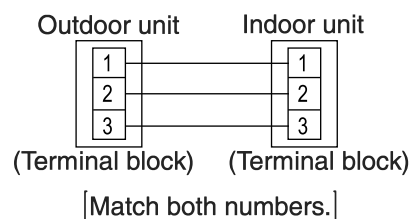
Connection of wiring between units, earth wire and for the remote controller cord (Refer to Fig. 26)

• Wiring the units and earth wire

Remove the control box lid and connect wires of matching number to the terminal block for wiring the units (4 P) inside. And connect the earth wire to the earth terminal. In doing this, pull the wires inside through the hole and fix the wires securely with the included clamp (4).

• Remote controller cords

Remove the control box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (4 P) (no polarity). Securely fix the remote controller cord with the included clamp (4).



How to connect the connection pipe

CAUTION

- Never connect the power supply wiring to the terminal block for wiring the units (4P). If may damage the total system.
- Do not connect the remote controller to the wrong terminal block.

- Protect the wire and the wiring through hole area for wirings of the transmission, earth and the remote controller in order to prevent the intrusion of water and small animals into the air conditioner after the system is wired.
- Cut the sealing pad - small (13) into two pieces and wrap each wiring with each piece.
- Seal the clearance around the wirings with putty or thermal insulation material (field supply). (If insects and small animals get into the indoor unit, short circuiting may occur inside the control box.)
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any do get in, they could cause short circuits in the control box.)
- Outside the machine, separate the weak wiring (remote controller cord) and strong wiring (interunit, earth, and other power wiring) at least 50 mm so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

[Processing method of wiring through hole]

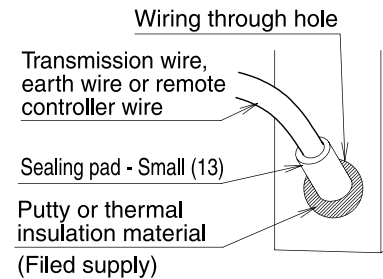


Fig. 25

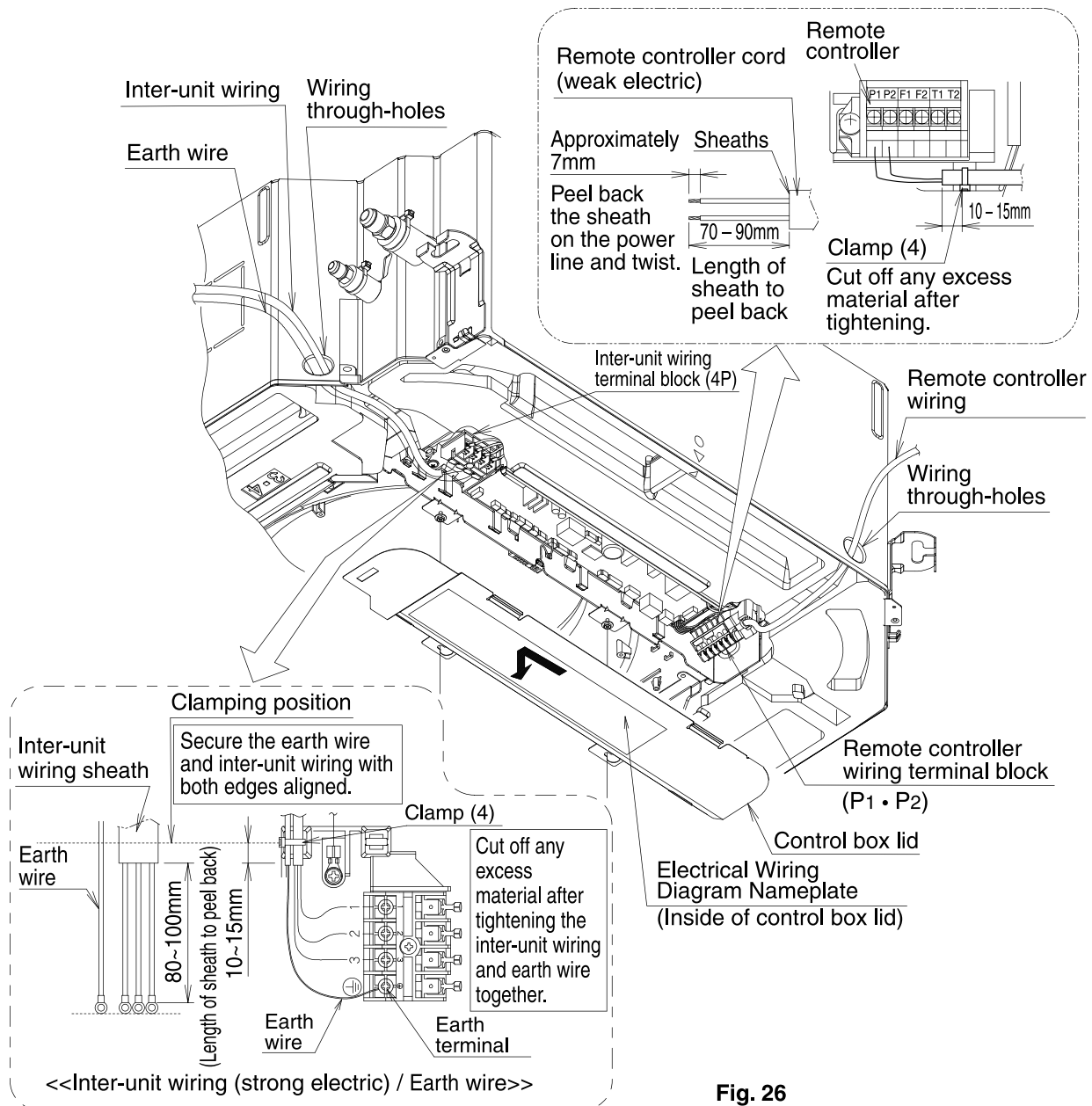


Fig. 26

— CAUTION —

- Shape the wires and attach the control box lid securely so that wires will not be caught.
(Caught wires and risen lid may cause an electric shock or fire.)

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block.

In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.

(Refer to Fig. 27)

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.) (Refer to Fig. 28)
- When connecting wires of the same gauge, connect them according to. (Refer to Fig. 28)
- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that external forces are not applied to the terminals.

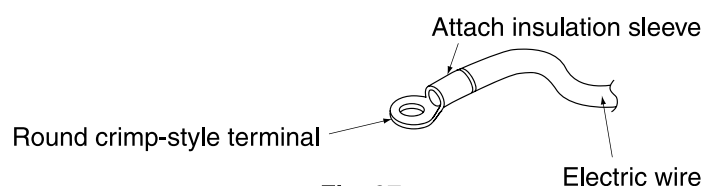
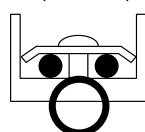


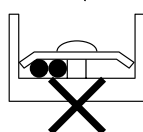
Fig. 27

Connect wires of the same gauge to both side. (GOOD)



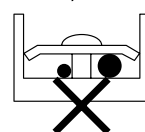
Good

Do not connect wires of the same gauge to one side. (WRONG)



Wrong

Do not connect wires of different gauges. (WRONG)



Wrong

Fig. 28

Tightening torque for the terminal screws.

- Use the correct screw driver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.

Refer to the table below for the tightening torque of the terminal screws.

Tightening torque (N·m)	
Terminal block for remote controller	0.88±0.08
Terminal block for wiring the units	1.47±0.14
Earth terminal	1.47±0.14

- If the strand wire is used, do not solder it. (Abnormal heating may occur if the wirings are not tightened securely.)

9. WIRING EXAMPLE

⚠ CAUTION

Be sure to install an earth leakage breaker to the outdoor unit.
Installation of an earth leakage breaker is mandated to avoid electric shocks or fire.

For the wiring of outdoor units, refer to the installation manual attached to the outdoor units.

Confirm the system type.

- **Pair type:** 1 remote controller controls 1 indoor unit. (standard system) (Refer to Fig. 29)
- **Simultaneous operation system:** 1 remote controller controls 2 indoor unit (2 indoor units operates equally). (Refer to Fig.30)
- **Group control:** 1 remote controller controls up to 16 indoor units. (All indoor units operate according to the remote controller) (Refer to Fig. 31)
- **2 remote controllers control:** 2 remote controllers control 1 indoor unit. (Refer to Fig. 33)

Pair type

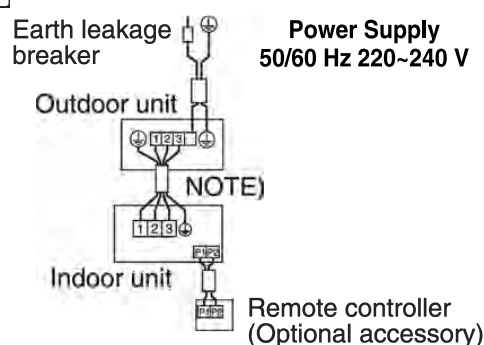


Fig. 29

Standard wiring accessories

Single-phase supply	Indoor unit		
	Earth wire (copper)	Connection wire between indoor unit and outdoor unit	
		Minimum thickness	Length
	$\geq 2.0 \text{ mm}^2$ $\phi 1.6$	2.0 mm^2 $\phi 1.6$	$\leq 50 \text{ m}$

* For wiring length of indoor outdoor connection wiring will be changed depends on connect model, quantity, power size. For details, please refer engineer guide.

Simultaneous operation system

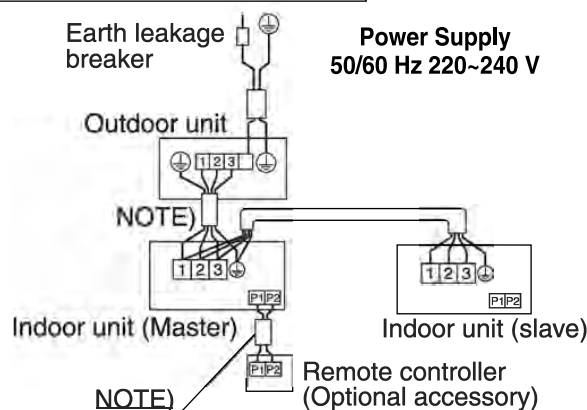


Fig. 30

Simultaneous operation system

- Connect the remote controller only to the master unit.
 - The remote controller needs to be wired only to the master unit, it does not need to be connected to the slave units through transition wiring. (Do not connect transition wiring to the slave units.)
 - The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
 - The length of wiring between the indoor unit and the outdoor unit varies depending on the connected model, the number of connected units, and the maximum piping length.
- For details, refer to the technical documents.

Group control

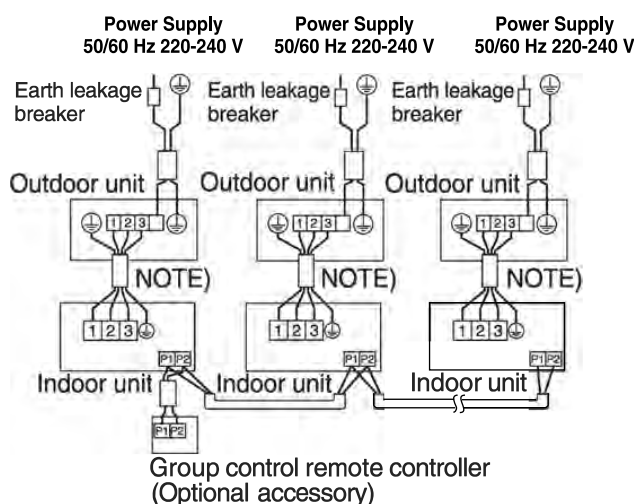


Fig. 31

	Wire	Size (mm ²)	Length
Remote controller cord	Vinyl cord with sheath or cable NOTE 3 (2 wire)	0.75 – 1.25	Max. 500 m *

When implementing group control

- When using as a pair unit or as a parent unit for simultaneous operation multi, you may simultaneous start/stop (group) control up to 16 unit with the remote controller.
- In this case, all the indoor units in the group will operate in accordance with the group control remote controller.
- Select a remote controller which matches as many of the functions (airflow direction, etc.) in the group as possible.

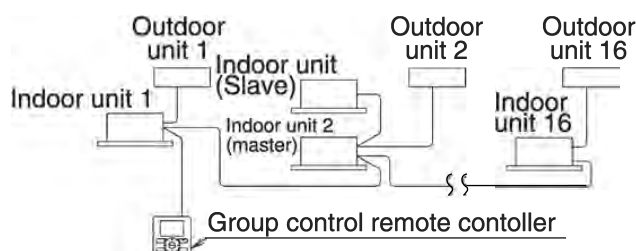
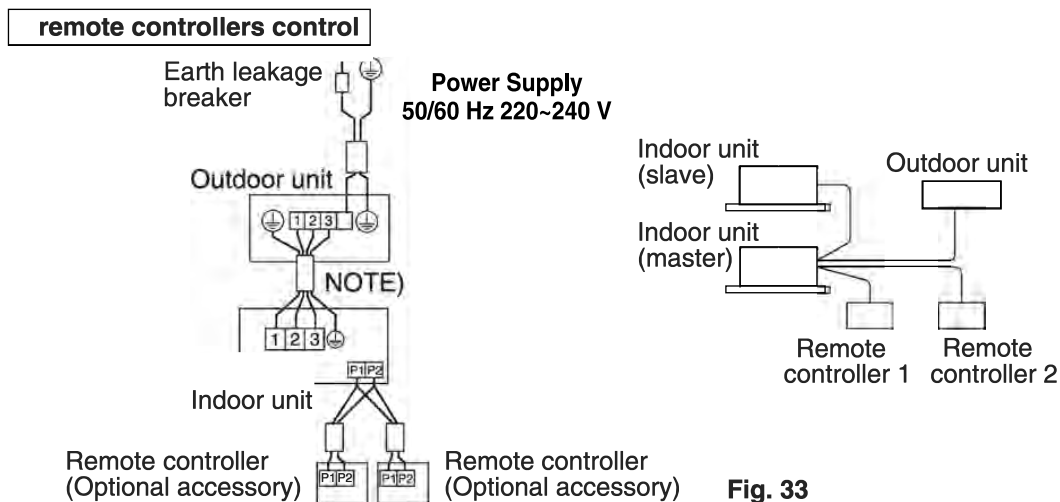


Fig. 32

Wiring Method

- (1) Remove the control box lid. (See “8. ELECTRIC WIRING WORK”.)
- (2) Cross-wire the terminal block for remote controller (P₁, P₂) inside the control box. (There is no polarity.) (Refer to Fig. 30 and Table 5)



Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)

- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- Remove the control box lid.
- Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X1M) for the remote controller in the control box. (There is no polarity.) (Refer to Fig.33 and Table 5)

NOTE

- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- In case of simultaneous operation and group control, perform the remote controller wiring to the master unit when connecting to the simultaneous operation system. (wiring to the slave unit is unnecessary)
- For group control remote controller, choose the remote controller that suits the indoor unit which has the most functions (as attached swing flap)

10. INSTALLATION OF THE DECORATION PANEL

<If test operation is required before installation of the decoration panel, "11. FIELD SETTING" and "12. TEST OPERATION" can be carried out before "10. INSTALLATION OF THE DECORATION PANEL".>

- Refer to the installation manual attached to the decoration panel.
- After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.
- When making a test run before installation of the decoration panel, be sure to check the operation of the swing flap after the installation.

11. FIELD SETTING

<<Refer to also the installation manual attached to the outdoor unit.>>

— CAUTION —

Before carrying out field setting, check the items mentioned in the clause 2 “1. Items to be checked after completion of work” on page 4.

- Check if all the installation and piping works for the air conditioner are completed.
- Check if the control box lids of the air conditioner are closed.

< FIELD SETTING FOR WIRED REMOTE >

<<After turn on the power supply, carry out field setting from the remote controller according to the installation state.>>

- Carry out setting at 3 places, “Mode No.”, “FIRST CODE No.” and “SECOND CODE No.”.
The settings shown by “” in the table indicate those when shipped from the factory.
- The method of setting procedure and operation is shown in the installation manual attached to the remote controller.
(Note) Though setting of “Mode No.” is carried out as a group, if you intend to carry out individual setting by each indoor unit or confirmation after setting, carry out setting with the Mode No. shown in the parenthesis ().
- In case of remote control, for changeover of input to FORCED OFF or to ON/OFF OPERATION.
[1] Enter into the field setting mode with the remote controller.
[2] Select Mode No. “12”.
[3] Set the FIRST CODE No. to “1”.
[4-1] For FORCE OFF, set the SECOND CODE No. to “01”.
[4-2] For ON/OFF OPERATION, set the SECOND CODE No. to “02”.
(It is set to FORCE OFF when shipped from the factory.)
- Ask your customer to keep the manual attached to the remote controller together with the operation manual.
- Do not carry out settings other than those shown in the table.

NOTE: For wireless remote field setting kindly refer the Remote manual.

11-1 SETTING CEILING HEIGHT

- Set the SECOND CODE No. according to the ceiling height as shown in the **Table 6**.

TABLE 6

		FCA-AVMK	Mode No. Note) 1	FIRST CODE No.	SECOND CODE No.
		42 type			
Ceiling height (m)	Standard · All round outlet	≤3.2	13 (23)	0	01
	High ceiling 1	3.2 - 3.6			02
	High ceiling 2	3.6 - 4.2			03

Note:

1. “Mode No.” setting is done in a batch for the group.
To make or confirm settings for an individual unit, set the internal mode number in parentheses.
2. The figure of the ceiling height is for the all round outlet.
For the settings for four-direction (part of corner closed off), three-direction and two-direction outlets, see the installation manual and technical guide supplied with the separately sold closure material kit.

11-2 SETTING AIR DISCHARGE DIRECTION

- Refer to the installation manual attached to the sealing material of air discharge outlet sold separately and engineering data book, for ceiling height settings for four-direction (part of corner closed off) and three-direction.
(The SECOND CODE No. is factory set to “01” (all round outlet) before shipping.)

11-3 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

- For setting when attaching an optional accessory, refer to the installation manual attached to the optional accessory.

11-4 WHEN USING WIRELESS REMOTE CONTROLLER

- When using a wireless remote controller, it is necessary to set the wireless remote controller address. Refer to the installation manual attached to the wireless remote controller.

11-5 SETTING FAN SPEED DURING THERMOSTAT OFF

- Set the fan speed according to the using environment after consultation with your customer.
- When the fan speed is changed, explain the set fan speed to your customer.

TABLE 7

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
Fan operates / stops during thermo OFF (Cooling · heating)	Operates	11 (21)	2	01
	Stops			02
Fan speed during cooling thermostat OFF	(Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	(Extra low)	12 (22)	3	01
	Setting			02

11-6 SETTING FILTER SIGN

- A message to inform the air filter cleaning time will be indicated on the remote controller.
- Set the SECOND CODE No. shown in the **Table 8** according to the amount of dust or pollution in the room.
- Though the indoor unit is equipped with the long life filter, it is necessary to periodically clean the filter to avoid clogging of the filter. Please also explain the set time to the customer.
- The periodical filter cleaning time can be shortened depending on the environment.

TABLE 8

Contamination	Hours until indication	Mode No.	FIRST CODE No.	SECOND CODE No.
Normal	Approx. 2500 hrs	10 (20)	0	01
More contaminated	Approx. 1250 hrs			02
With indication			3	01
No indication*				02

* Use "No indication" setting when cleaning indication is not necessary such as the case of periodical cleaning being carried out.

11-7 SETTING NUMBER OF THE CONNECTED INDOOR UNITS AS SIMULTANEOUS OPERATION SYSTEM

- When using in simultaneous operation system mode, change the SECOND CODE No. as shown in **Table 9**.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

TABLE 9

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Pair system (1 unit)	11 (21)	0	01
Simultaneous operation system (2-unit)			02
Simultaneous operation system (3-unit)			03
Double twin multi (4-unit)			04

11-8 SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING

It is easier if the optional remote controller is used when setting the slave unit.

< Procedure >

- Perform the following procedure when setting the master and slave unit separately.
- " " in the tables indicates factory settings.

(Note) The "Mode No." is set on a group basis. To individually set a Mode No. for each indoor unit or confirm the settings, set the Mode No. in the parenthesis.

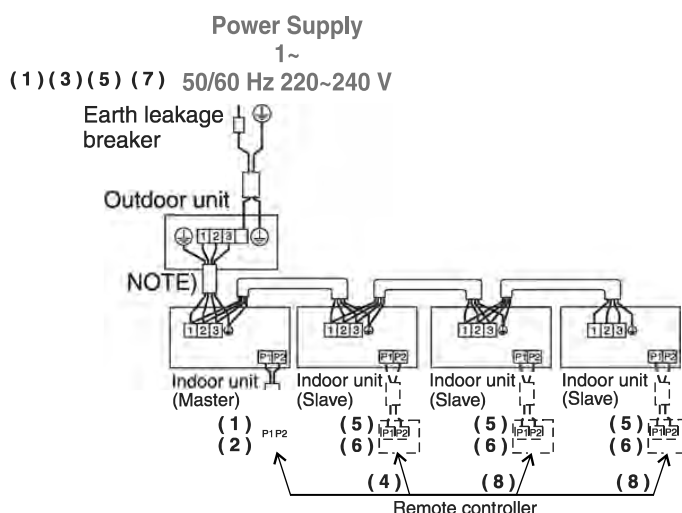
(1) Change the SECOND CODE No. to "02", individual setting, so that the slave unit can be individually set.

Setting	Mode No.	FIRST CODE No.	SECOND CODE No.
Unified setting	11 (21)	1	01
Individual setting			02

- (2) Perform field setting (Refer to 11-1 to 11-5) for the master unit.
- (3) Turn off the main power supply switch after (2) is finished.
- (4) Detach remote controller from the master unit and connect it to the slave unit.
- (5) Turn on the main power supply switch again, and as in (1), change the SECOND CODE No. to "02", individual setting.
- (6) Perform field setting (Refer to 11-1 to 11-4) for the slave unit.
- (7) Turn off the main power supply switch after (6) is finished.
- (8) If there is more than one slave unit, repeat steps (4) to (7).
- (9) Detach the remote controller from the slave unit after the setting, and reattach to the master unit.

This is the end of the setting procedure.

* You do not need to rewire the remote controller from the master unit if the optional remote controller for slave unit is used. (However, remove the wiring attached to the remote controller terminal block of the master unit.) After the slave unit setting, remove the remote controller wiring, and rewire the remote controller to the master unit. (The indoor unit does not operate properly when two or more remote controllers are attached to the unit in the simultaneous operation system mode.)

**NOTE**

- Terminal numbers of outdoor and indoor units must be matched.

12. TEST OPERATION

CAUTION

When performing field setting or test operation without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

<Complete all the “1. Items to be checked after the installation work is completed” on page 4. Please also refer to the installation manual attached to outdoor unit.>

Refer to the section of “FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.”

- After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct test operation accordingly to protect the unit.
- Check that the outdoor unit has been wired properly.
- Check that the control box lid of the indoor unit is closed and that the outer plate and piping cover of the outdoor unit are closed as well.
- Clean the decoration panel and interior of the indoor unit on completion of refrigerant piping, drain piping, and electric wiring work.
- Refer to the installation manual of the outdoor unit, and perform the test operation of the air conditioner.
- If the decoration panel is mounted at the time of test operation, check the operation of the swing flap of the decoration panel.
- If the interior finishing work has been still on the way on completion of test operation, explain to the customer not to operate the air conditioner for the protection of the indoor unit until the interior finishing work is completed.
If the air conditioner is operated, substances generated from the paint and glue of the interior finishing will contaminate the indoor unit, thus resulting in water splashing or leakage.
- If an error occurs and the air conditioner does not operate, refer to the troubleshooting information provided in the installation manual attached with remote controller.

NOTE

- If a malfunction is preventing operation, refer to the malfunction diagnoses.

12-1 CAUTIONS FOR SERVICING

With the power on. Troubles can be monitored on the remote controller.

- If the air conditioner does not operate normally after installing the air conditioner, a malfunction shown in the table below may happened.

Remote controller display	Malfunction
No display	• Power supply trouble or Open phase connection • Wrong wiring between indoor and outdoor unit • Indoor PC board faulty • Wrong remote controller connection wiring • Remote controller faulty • Fuse faulty

*After turning on the power, the maximum is 90 seconds, although it will only display "Checking the connection. Please stand by". This is not a problem, and it will be set for 90 seconds.

** For fault diagnosis for BRC1H model remote controller should be performed while referring to the indoor operation manual.

12-2 MALFUNCTION CODE LIST

- For places where the Malfunction code is left blank, the “” indication is not displayed. Though the system continues operating, be sure to inspect the system and make repairs as necessary.
- Depending on the type of indoor or outdoor unit, the Malfunction code may or may not be displayed.

Code	Malfunction/Remarks
A0	Safety device operates
A1	Indoor unit's PC board faulty
A3	Drain water level abnormal
A6	Indoor fan motor overloaded, overcurrent or locked
A8	Fan PCB power supply error
AF	Humidifier faulty
AH	Air cleaner faulty
	Only the air cleaner does not function.
AJ	Type set improper
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
C1	Indoor PCB (Master) - indoor PCB (Slave) transmission defect
C4	Sensor (R2T) for heat exchanger temperature is fault
C5	Sensor (R3T) for heat exchanger temperature is fault
C6	Fan PCB setting defect
C9	Sensor for suction air temperature is fault
CC	Humidity sensor abnormal
CE	Human detection / floor temperature sensor error
CJ	Sensor for remote controller is fault
	The remote controller thermistor does not function, but the system thermo run is possible.
E0	Action of safety device (outdoor unit)
E1	Outdoor unit's PC board faulty
E3	High pressure abnormal (outdoor unit)
E4	Low pressure abnormal (outdoor unit)
E5	Compressor motor lock malfunction
E7	Outdoor fan motor lock malfunction
	Outdoor fan instantaneous overcurrent malfunction
E9	Electronic expansion valve faulty (outdoor unit)
EA	Error from defect of change 4 way valve (outdoor)
F3	Discharge pipe temperature abnormal (outdoor unit)
H3	High pressure switch faulty (outdoor unit)
H4	Low pressure switch faulty (outdoor unit)
H7	Outdoor motor position signal malfunction
H9	Outdoor air thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
JA	Discharge pipe pressure sensor faulty (outdoor unit)
JC	Suction pipe pressure sensor faulty (outdoor unit)
J1	Pressure sensor system error (batch) (outdoor unit)
J2	Power sensor system error (outdoor unit)
J3	Discharge pipe thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J5	Suction pipe thermistor faulty (outdoor unit)
J6	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.

J7	Heat exchanger thermistor faulty (outdoor unit)
	Equipment operation in response to errors will vary according to model.
J8	Liquid piping temperature sensor system error (outdoor unit)
J9	Intake temperature sensor error (outdoor unit)
L1	Inverter system error (outdoor unit)
L3	Reactor thermister error (outdoor)
L4	Overheated heat-radiating fin (outdoor unit)
	Inverter cooling defect.
L5	Instantaneous overcurrent (outdoor unit)
	Possible earth fault or short circuit in the compressor motor.
L8	Electric thermal (outdoor unit)
	Possible electrical overload in the compressor or cut line in the compressor motor.
L9	Stall prevention (outdoor unit)
	Compressor possibly locked.
LC	Transmission malfunction between the outdoor control units' inverters (outdoor unit)
P1	Open-phase (outdoor unit)
P3	P-board temperature sensor malfunction (outdoor unit)
P4	Heat-radiating fin temperature sensor malfunction (outdoor unit)
P6	DC output current error (outdoor)
PJ	Type set improper (outdoor unit)
	Capacity data is wrongly preset. Or there is nothing programmed in the data hold IC.
U0	Suction pipe temperature abnormal
U1	Reverse phase
	Reverse two phase of the L1, L2 and L3 leads.
U2	Power source voltage malfunction (outdoor unit)
	Includes the defect in 52C.
U4 UF	Transmission error (indoor unit – outdoor unit)
	Wrong wiring between indoor and outdoor units or malfunction of the PC board mounted on the indoor and the outdoor units.
U5	Transmission error (indoor unit – remote controller)
	Transmission is improper between the indoor unit and the remote controller.
U8	Malfunction in transmission between main and sub remote controls. (Malfunction in sub remote controller.)
UA	Miss setting for multi system
	Setting is wrong for selector switch of multi - system. (see switch SS2 on the main unit's PC board)
UC	Central control address overlapping
UE	Transmission defect (indoor - centralizing)
UJ	Peripheral equipment transmission fault

⚠ CAUTION

- Refer to “2. Items to be checked at time of delivery” on page 4 upon completion of the test run and make sure that all the items are checked.
- If the customer's interior work has not been finished on completion of the test run, explain the customer not to operate the air conditioner. This is essential until the interior work is finished so as to protect the product. Substances generated from paints and adhesives used for the interior work may contaminate the product if the unit is operated.

⚠ To test run Contractors

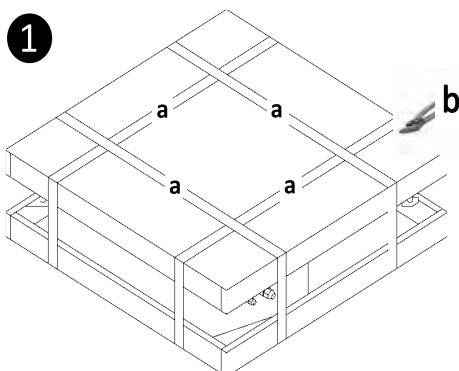
When delivering the product to the customer after the test run is completed, check that the control box lid, the air filter and the suction grille are mounted. In addition, explain to the customer regarding the state (ON/OFF) of the power supply breaker.

13. TECHNICAL DATA

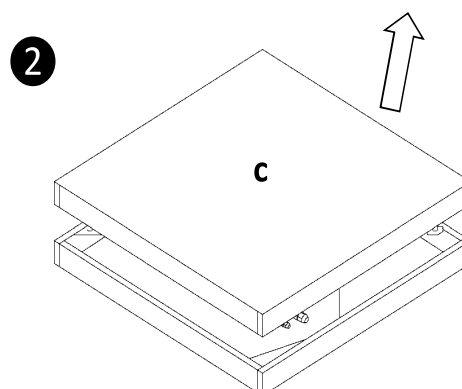
		IDU/ODU		
Model		FCA42AVMK / RZCA42AYMK		
Rated Power Supply	Ph/V	3/380-415		
Unit Dimensions (HXW XD)	mm	298*840*840/870*1100*520		
Net Weight	kg	25/95		
Packing Dimensions (HXW XD)	mm	300*875*880/1010*1190*560		
Gross Weight	kg	29/105		
Testing Condition		Cooling		Heating
		T1	T3	H1
		50Hz/230V	50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	42000	35700	48300
Power Input	Watt	3290	3900	4400
EER	(BTU/Hr)/Watt	12.77	9.15	-----
	W/W	-----	-----	3.22
Current	A	9.1	10.8	12.2
Refrigerant Type/Qty	R32/Kg	R32/3.60 Kg		
Annual Energy Consumption (Kwh)		8883.00	7800.00	-----
Power Factor		0.9		
Manufacturer's Name		Daikin Air Conditioning India Pvt. Ltd.		
Country of Origin		India		

14. UNPACKING & PACKING OF THE INDOOR UNIT

14-1. UNIT UNPACKING

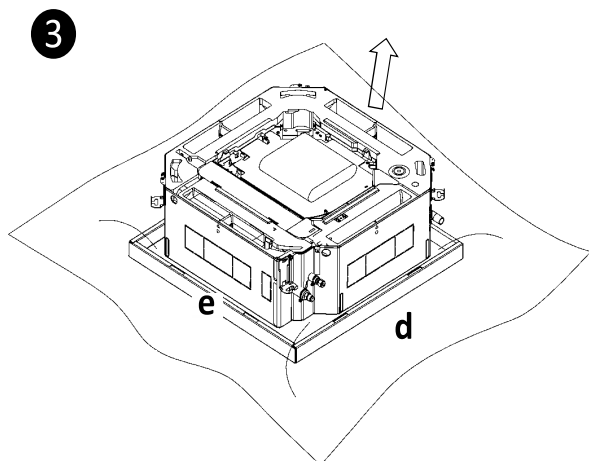


- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

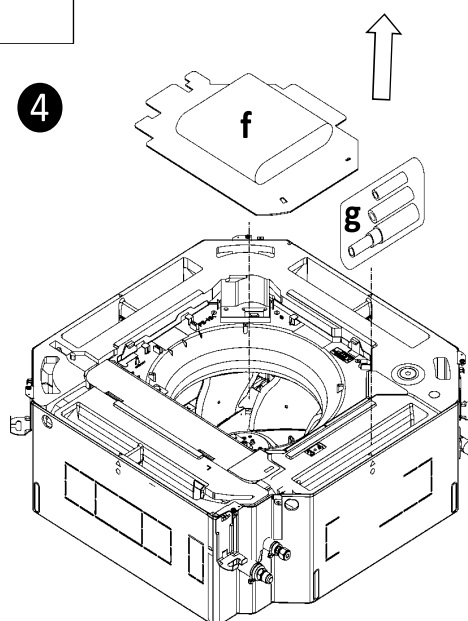


- Remove top corrugated cardboard sheet (c) & EPS from the unit by pulling it up as shown in figure.

- a) Strap
- b) Strap cutter
- c) Top corrugated cardboard sheet with EPS
- d) Product cover
- e) Bottom corrugated cardboard sheet with EPS
- f) Pad
- g) Accessories set

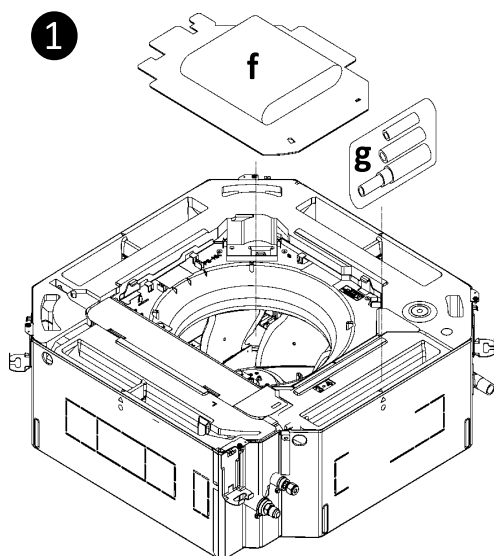


- Unfold the Product Cover (d) and pull the unit up, then remove the Sheet Cover (d) and Bottom corrugated cardboard sheet(e).

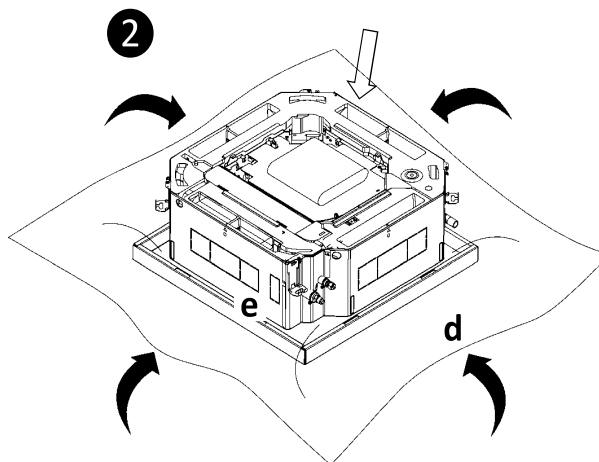


- Put the pad (f) and accessories kit (g) off the product as shown in figure.

14-2. UNIT PACKING

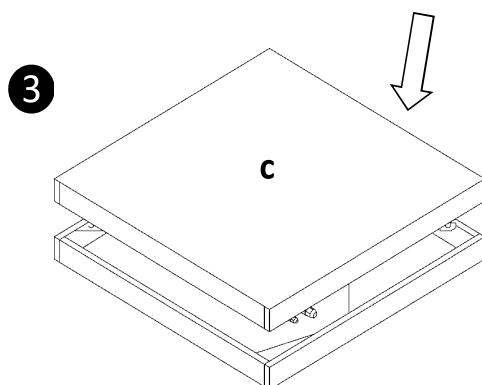


- Put the pad (f) and accessories kit (g) on the product as shown in figure.

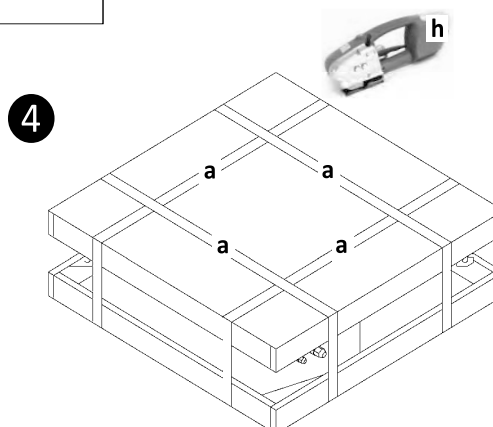


- Put the product on the bottom corrugated cardboard sheet with EPS Pad and product cover. Then fold the product cover on the product.

- | | |
|----|--|
| a) | Strap |
| b) | Strap cutter |
| c) | Top corrugated cardboard sheet with EPS |
| d) | Product cover |
| e) | Bottom corrugated cardboard sheet with EPS |
| f) | Pad |
| g) | Accessories set |
| h) | Strap fixer |



- Put the top corrugated cardboard sheet (c) & EPS on the product as shown in figure.



- Cut all the straps (a) from the unit using strap cutter (b) as shown in figure.

3. Installation of Outdoor Unit

3.1 RZCA18AVMK

DAIKIN

SPLIT SYSTEM AIR CONDITIONER

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

RZCA18AVMK

Note :  Read the precautions in this manual carefully before operating the unit.
 This appliance is filled with R32.

CONTENTS

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WARNING THERE IS A RISK OF EXPLOSION OR FIRE

- Do not mix air in the refrigerating cycle during pump down operation.
- Do not use oxygen for air tight test.
- Do not use refrigerant other than the specified one or flammable material (e.g. propane) in the refrigerant cycle. They may cause over pressure in the refrigerating cycle and result in explosion, fire or injury. Our company assumes no responsibility for failure or malfunction caused by filling or mixing of anything other than the specified refrigerant.

CAUTION ABOUT ISOLATING RESISTANCE OF COMPRESSOR

If refrigerant accumulates in the compressor after completing installation, the insulation resistance can drop, but if it at least 1 MΩ, then the unit will not break down.

- Connect the power supply to the unit and after 6 hours check if the insulation resistance of the compressor rises. (Energize and heat the compressor to vaporize the refrigerant accumulated in the compressor.)
- If the earth leakage breaker actuates, check if the earth leakage breaker is equipped with a device to cope with high harmonics. To prevent wrong actuation of the earth leakage breaker due to the inverter, make sure to adopt an earth leakage breaker equipped with a device to cope with high harmonics.

- Please make sure to confirm that R32 (new refrigerant) is used in installation work in advance.
(It may not operate normally, if refrigerant type is different.)
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - Clean and dry
Strict measures must be taken to keep impurities (Including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere. Therefore, sealing tightness is particularly important in installation.
Carefully read the chapter **5 REFRIGERANT PIPING WORK** and strictly observe the correct procedures.
- The design pressure of this unit : High/Low pressure area are shown in the right table.
The refrigerant piping is a high pressure area,
Use the refrigerant piping which supports the design pressure.
The piping specifications, please refer to chapter **5 REFRIGERANT PIPING WORK**
- Be sure to connect the indoor unit, which is dedicated to R32. See the catalog for indoor unit models which can be connected.
(Normal operation is not possible when connected to other units.)

Outdoor Unit	Design Pressure	
	High	4.15
RZCA18AVMK	Low	3.30

(Units: MPa)

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

- This manual classifies the precautions into WARNINGS and CAUTIONS.
Be sure to follow all the precautions below. They are all important for ensuring safety.

 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly.
Given the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual.
In particular, make sure to explain with regard to "SAFETY PRECAUTIONS" and "Not malfunction of the air conditioner".
Ask the user to keep this manual and the operation manual together in a handy place for future reference.
- This air conditioner comes under the term "appliances not accessible to the general public".

WARNING

- Ask your local dealer or qualified personnel to carry out installation work.
Improper installation may result in water leakage, electric shocks or a fire.
- Perform installation work in accordance with this installation manual.
Improper installation may result in water leakage, electric shocks or a fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage.
When the indoor unit is installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen deficiency.
- Be sure to use only the specified parts and accessories for installation work.
Failure to use the specified parts may result in the air conditioner fall down, water leakage, electric shocks, a fire, etc.
- Install the air conditioner on a foundation that can withstand its mass.
Insufficient strength may result in the air conditioner fall down and causing injury.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as the air conditioner falling.
- Make certain that all electric work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit. In addition, even if the wiring is short, make sure to use a wiring that has sufficient length and never connect additional wiring to make the length sufficient. Insufficient capacity of the power supply circuit or improper electric construction may lead to electric shocks or a fire.
(note 1) Applicable legislation means "All international, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain."
- Earth the air conditioner.
Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
Incomplete earthing may cause electric shocks or a fire.
- Be sure to install an earth leakage circuit breaker.
Failure to do so may cause electric shocks or a fire.
- The appliance must be stored in a room without continuously operating ignition sources (for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odor.
- Comply with national gas regulations.
- Be sure to switch off the unit before touching any electrical parts.
Touching a live part may result in electric shocks.
- Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring. Incomplete connection or fixing may cause overheating terminals or fire.
- When wiring between the outdoor and indoor units, and wiring the power supply, from the wiring orderly so that the structural parts such as a cover can be securely fastened.
If the cover is not in place, electric shocks or a fire may be caused.
- Do not add wiring. It may result in heat generation. Electric shocks or fire.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- If refrigerant gas leaks during installation work, ventilate the area immediately.
Toxic gas may be produced if refrigerant gas comes into contact with a fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas.
Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.
- Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do not stand on the outdoor unit or put things on it.
The unit may fall down or drop, and cause accidents.
- Do not charge any refrigerant into the refrigeration cycle other than the designated refrigerant.
It may cause an explosion or a fire due to leakage or a burst due to abnormally high pressure in the refrigeration cycle.
- Do not extend wiring on the way.
It may cause heat generation, electric shocks or fire.
- At the installation work, install the refrigerant piping firmly before operating the compressor.
If the compressor is operated without installing firmly and the service valve is in open condition, it sucks the air, etc., and the pressure inside the refrigerant circle becomes abnormally high. It may cause injury and breakage.
- At pump down work, stop the compressor before removing the refrigerant piping.
If removing the refrigerant piping when the compressor is operated with its service valve in open condition, it sucks the air, etc., and the pressure inside the refrigerant circle become abnormally high, which may cause injury and breakage.
- The appliance (RZCA18AVMK) shall be installed operated and stored in a room with floor area larger 1.84 m².
- When flared joints are reused, the flare part shall be re-fabricated.



**CAUTION**

- Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation. Improper drain piping may cause water leakage, make the furniture get wet.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radio to prevent picture interference and noise. (Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Do not install the air conditioner in places such as following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen.
Resin parts may deteriorate, and cause them to fall out or water to leak.
 2. Where corrosive gas, such as sulfurous acid gas, is produced.
Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
 3. Where there is machinery which emits electromagnetic waves.
Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
 4. Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remain around the air conditioner, it may cause ignition.
 5. The place that the vibration or the voltage fluctuation give influence. Vehicles, vessels, etc.
The vibration may cause a damage and the voltage fluctuation may cause an abnormal operation.
 6. Where small animals may build a nest, fallen leaves are accumulated, or weeds are overgrown.
If small animals touch the electrical parts inside, this may cause malfunction, smoke or a fire.

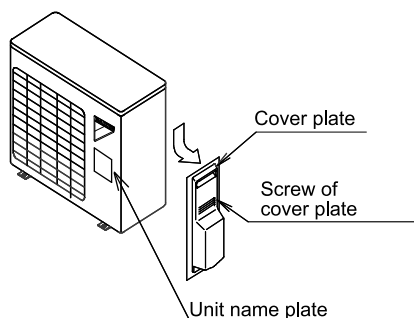
■ Important information regarding the refrigerant used
This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675
• ⁽¹⁾GWP = global warming potential
The refrigerant quantity is indicated on the unit name plate.

1 BEFORE INSTALLATION

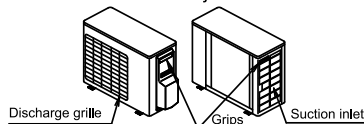
<DO NOT THROW AWAY ACCESSORIES FOR INSTALLATION>

CAUTION

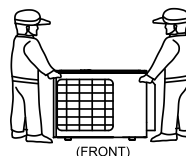
- Read these instructions carefully before installation.
For installation of the indoor unit, refer to the indoor unit installation manual.

RZCA18AVMK**HANDLING**

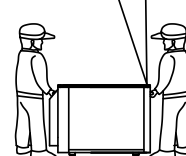
As shown in the figure, bring the unit slowly by grabbing the left and right grips.
(Take care not to let hands or objects come in contact with rear fins.)



Place your hands on the corner instead of holding the suction inlet in the side of the casing, otherwise the casing could be deformed.



(FRONT)



(BACK)

INSTALLATION CONSTRUCTION ACCESSORIES

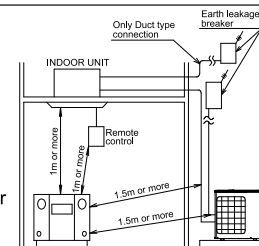
Be sure only to use accessories made by DAIKIN which are specifically designed for use with the equipment.

CAUTION

Work in a team of at least two people when carrying the outdoor unit

2 SELECTING INSTALLATION SITE (1/2)

- (1) Select the installation location that meets the following conditions and get approval of the customer.
 - Places where there is no risk of flammable gas leakage.
 - Places where the outdoor unit does not bother next-door neighbors.
 - Safe places which can withstand the unit's mass and vibration and where the air conditioner can be installed level.
 - Places that are well-ventilated and where servicing space can be well ensured.
The minimum required space is shown in chapter ③ **INSTALLATION SERVICE SPACE**
 - Where the piping length between the indoor and the outdoor units is ensured within the allowable piping length. Please see chapter ⑤ **REFRIGERANT PIPING WORK**
 - Do not allow wind from the same direction to blow frequently toward the outlet or inlet of the outdoor unit. If the wind is likely to blow as mentioned above, make sure to keep a sufficient service space and install a wind protective shield.



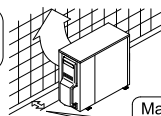
Inverter air conditioners may cause noise to occur in electrical appliances. As shown in the right drawing, select an installation site well away from radios, PCs, and stereos.
Especially in the areas where the incoming signal strength is weak, keep the indoor remote controller 3 meter or more from electrical appliances. Put the power supply and transmission wiring in a metal piping and ground the metal piping.

2 SELECTING INSTALLATION SITE (2/2)

⚠ CAUTION

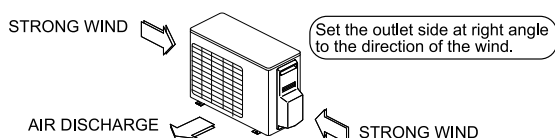
- 1) In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- 2) When installing the unit in a place exposed to strong wind, pay special attention to the following.
Strong winds of 5 m/sec or more blowing against the outdoor unit's air outlet causes short circuit (suction of discharge air) and this may have the following consequences:
 - Deterioration of the operational capacity.
 - Disruption of operation due to rise of high pressure.
 - When a strong wind blows continuously on the face of the unit, the fan can start rotating very fast until it breaks.
 Refer to the figures for installation of this unit in a place where the wind direction can be foreseen.
- 3) Following the installation place, it is expected that the influence of the strong wind is great.
 - The flat area which receives the adverse wind such as typhoon directly since there is no obstacles such as buildings and mountains. (Including coast line, shoreline of lake and mountain region.)
 - The installation place that no obstacles around the outdoor unit to prevent the adverse wind, for example, walls and buildings that are higher than the applicable outdoor unit, etc.
 Please take measures when installing especially on a rooftop.
 - Since the outdoor unit may fall down, attach the fixture for preventing overturning(option).

Turn the air discharge toward the building's wall fence or screen.



Make sure there is enough room to do the installation

STRONG WIND



Set the outlet side at right angle to the direction of the wind.

AIR DISCHARGE

STRONG WIND

- 4) Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
- 5) If the water drainage of the unit is not easy, please build up the unit on a foundation of concrete blocks, etc. (the height of the foundation should be maximum 150 mm).
- 6) If you install the unit on a frame, please install a waterproof plate within 150 mm of the underside of the unit in order to prevent the invasion of water from the lower direction.

3 INSTALLATION SERVICE SPACE (1/3)

- The installation servicing spaces shown in these drawings are based on the outdoor unit inlet area temperature of 35°C for COOLING operation.

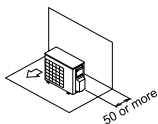
If the planned inlet area temperature exceeds 35°C(DB), or if the heat load of all outdoor units is increased significantly and exceeds the maximum operating capacity, secure a larger space than that indicated by the inlet dimensions in these drawings.

- For installation, consider both pedestrian and air flow paths and choose a suitable pattern from these drawings to match the space available field. (If the number of units to be installed exceeds the patterns in these drawings, consider there is no short-circuits.)
- Regarding the front space, position the units with consideration to the space required for the refrigerant piping work. (Consult your dealer if the work conditions do not match those in the drawings.)
- Secure appropriate space when using a side piping outlet.

STAND-ALONE INSTALLATION

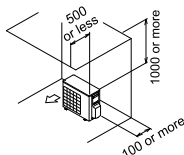
No Obstacle above

- 1) Obstacle on the suction side only



Obstacle above, too

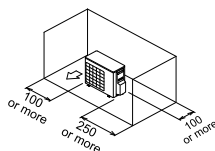
- 1) Obstacle on the suction side, too



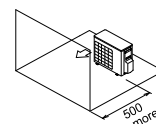
- To secure service space, more than 250 mm of each products at right side in needed.

(Units: mm)

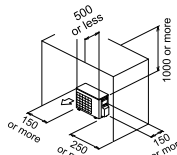
- 2) Obstacle on both sides and suction side, too



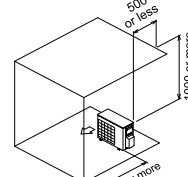
- 3) Obstacle on the discharge side only



- 2) Obstacle on both sides and suction side, too



- 3) Obstacle on the discharge side only, too



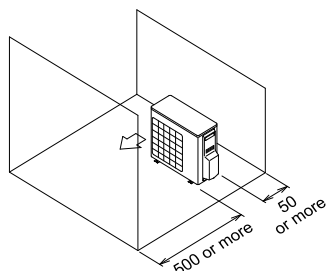
3 INSTALLATION SERVICE SPACE (2/3)

When there are obstacles on both suction and discharge sides

- To secure service space, (Units: mm)
more than 250 mm of each
products at right side is needed.

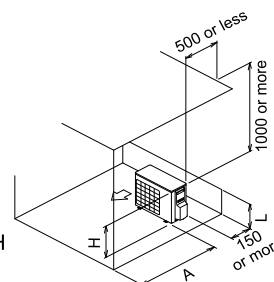
Pattern 1 When the obstacles on the discharge side is higher than the unit

- 1) No obstacle above (There is no limit for the height of obstructions on the suction side.)
- 2) Obstacle above, too
The relations between H, A and L are as follows.



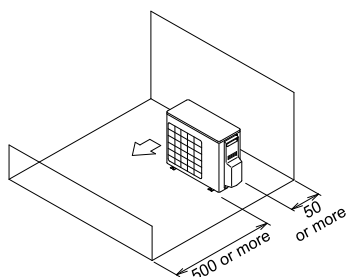
	L	A
$L \leq H$	$L \leq 0.5H$	750 or more
	$0.5H < L \leq H$	1000 or more
$L > H$	Set the stand as: $L \leq H$	

- ※ - Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is until 2 unit only.
- In case of more than dimension in (), It is no need to establish the stand although $L > H$



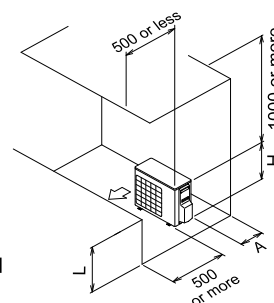
Pattern 2 When the obstacle on the discharge side is lower than the unit

- 1) No obstacle above (There is no limit for the height of obstructions on the suction side.)
- 2) Obstacle above, too
The relations between H, A and L are as follows.



	L	A
$L \leq H$	$L \leq 0.5H$	50 or more
	$0.5H < L \leq H$	100 or more
$L > H$	Set the stand as: $L \leq H$	

- ※ - Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is until 2 unit only.
- In case of more than dimension in (), It is no need to establish the stand although $L > H$

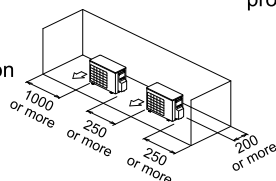


SERIES INSTALLATION (2 OR MORE)

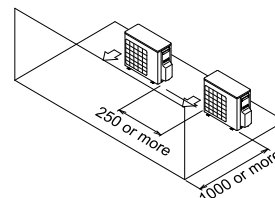
- ※ Inside extraction, please provide the space of piping. (Units: mm)
- To secure service space, more than 250 mm of each products at right side is needed.

No obstacle above

- 1) Obstacle on the suction side and both sides

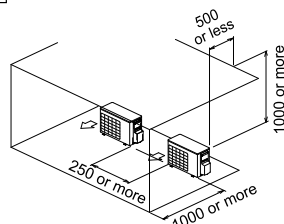


- 2) Obstacle on the discharge side only

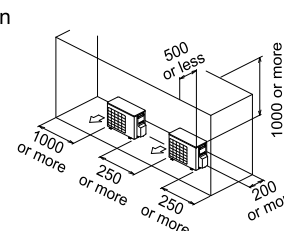


Obstacle above, too

- 1) Obstacle on the discharge side



- 2) Obstacle on the suction side and both sides



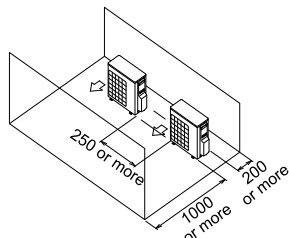
3 INSTALLATION SERVICE SPACE (3/3)

When there are obstacles on both suction and discharge sides

- To secure service space, more than 250 mm of each products at right side is needed.

Pattern 1 When the obstacles on the discharge side is higher than the side unit

1) No obstacle above (There is no limit for the height of obstructions on the suction side.)

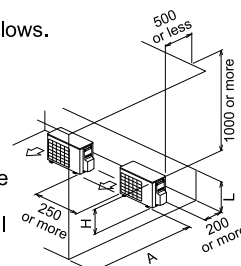


2) Obstacle above, too

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 0.5H$	1000 or more
	$0.5H < L \leq H$	1250 or more
$L > H$	Set the stand as: $L \leq H$	

- ※ - Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is until 2 unit only.
- In case of more than dimension in (), It is no need to establish the stand although $L > H$



Pattern 2 When the obstacle on the discharge side is lower than the unit

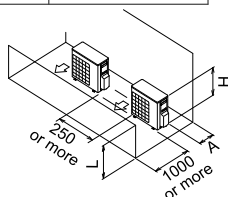
1) No obstacle above (There is no limit for the height of obstructions on the suction side.)

2) Obstacle above, too

(Units: mm)

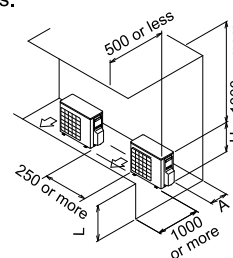
The relations between H, A and L are as follows. The relations between H, A and L are as follows.

L	A
$L \leq 0.5H$	150 or more
$0.5H < L \leq H$	200 or more



	L	A
$L \leq H$	$L \leq 0.5H$	150 or more
	$0.5H < L \leq H$	200 or more
$L > H$	Set the stand as: $L \leq H$	

- Close the bottom of the stand to prevent the discharged air from being bypassed.
- The limitation of facilities connection is until 2 unit only.
- In case of more than dimension in (), It is no need to establish the stand although $L > H$

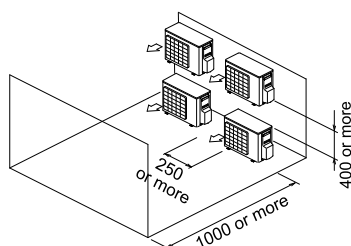


DOUBLE-DECKER INSTALLATION

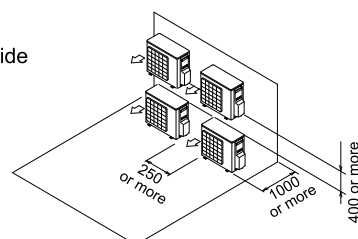
- Do not stack more than two unit.
- The drain piping construction size of upper side outdoor unit is needed about 100 mm.
- In side extraction, please provide the space of piping.

(Units: mm)

1) Obstacle on the discharge side

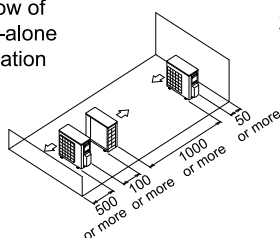


2) Obstacle on the suction side



MULTIPLE ROWS OF SERIES INSTALLATION (ON THE ROOFTOP, ETC.)

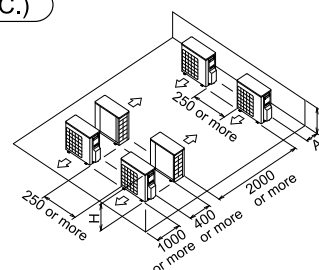
1) One row of stand-alone installation



2) Rows of series installation (2 or more)

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 0.5H$	150 or more
	$0.5H < L \leq H$	200 or more
$L > H$	Can not be installed	



4 PRECAUTIONS ON INSTALLATION

- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- In accordance with the foundation drawing in Fig. 1, fix the unit securely by means of the foundation bolts. (Prepare 4 sets of M12 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20 mm from the foundation surface.
- Fix the outdoor unit to the foundation bolts using nuts with resin washers. (See the left-hand of Fig. 1 drawing)
If the coating on the fastening area is stripped off, the nuts rust easily.

<Drain pipe disposal>

- If drain pipe disposal from the outdoor unit causes trouble, (for example, if the drain water may splash on people) provide the drain piping by using of the drain plug (optional).
- Then, coat the area around the bored holes with rust preventive coating to cover the metal exposure.
- Make sure the drain works properly.

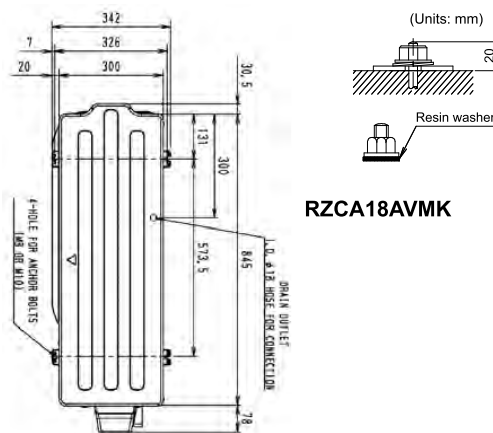


Fig : 1 BOTTOM VIEW

5 REFRIGERANT PIPING WORK (1/4)

CAUTION

To plumbing person

- Important information regarding the refrigerant used. This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.
GWP (global warming potential) of R32 refrigerant type = 675.
- Use R32 as additional for charging.
- Do not use flux when brazing refrigerant piping.
Use phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/B-Cu93P-710/795:ISO 3677) that does not require flux.
(If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
- After chapter 7 CHARGING REFRIGERANT is completed, be sure to open the stop valves before performing 9 LOCAL SETUP.
(Operating the unit with the valve shut will break the compressor.)

«Precaution when reuse existed refrigerant pipe»

Please keep below points in order to reuse existed pipe, failure may caused if have a fault.

- Below are pipes shall always make new construction, do not reuse piping.
 - When removed from indoor unit or outdoor unit for a long time.
(Moisture entry to internal pipe, wastes entry can be occurred.)
 - When copper tube is corroded.
 - When pipe thickness is insufficient (refer to 5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH)
 - Do not reuse flare for refrigerant leak protection, please make flare processing.
 - Do not reuse flare nut, please use flare nut in product accessories.
 - Make sure to do refrigerant leak check in case there is brazing area while perform field piping.
 - If insulation is deteriorate, make sure to exchange to new one.

5-1 INSTALLATION TOOLS

Be sure to use the dedicated tools to ensure sufficient pressure resistance and prevent the entry of any impurities.

Manifold gauge	To ensure sufficient pressure resistance and prevent the entry of any impurities (mineral oils such as Suniso oil and liquids), use the R410A or R32 dedicated item (the screw specifications for R410A or R32 differ).
Charging hose	
Vacuum pump	Be extremely careful not to flow the pump oil backward to inside the piping when the pump is stopped. Use a pump which enables vacuuming to -0.1 MPa(-755mmHg) of the gauge pressure.

5-2 SELECTION OF PIPING MATERIAL

- Use the piping whose inside and outside are clean and with no harmful substances for use such as sulphur, oxide, dust, dust from cutting, grease, or liquid (contamination) is attached.
- For the refrigerant piping, use the following material.
Material: Deoxidised phosphorous seamless copper piping
Temper grade: Use piping with temper grade in function of piping diameter as listed in the table on section

5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

Size: Decide based on section 5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

Thickness: Comply with applicable legislation. The minimal piping thickness for R32 piping must be in accordance with the table on section

5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

- Be sure to perform piping work using measurements within the maximum allowable length and height difference described on section 5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

5 REFRIGERANT PIPING WORK (2/4)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

5-3 CARE OF PIPE

- Prevent contamination or moisture from getting into the piping.
- Pay special attention when running the copper piping through the through-hole or when leading the edge of the piping outside the room.
- Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

PLACE	INSTALLATION PERIOD	PROTECTION METHOD	PLACE	INSTALLATION PERIOD	PROTECTION METHOD
OUTDOOR	More than a month	Pinch the pipe	INDOOR	Unquestioned	Pinch or tape pipe
	Less than a month	Pinch or tape pipe			

5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH

- One way maximum allowable piping length means the maximum length of liquid side piping or gas side piping.
- Equivalent length is the pressure loss due to L joints, traps, and so on along the refrigerant piping converted to a straight piping length of the same size and added to the overall value.
Please see the Engineering Data for calculation of equivalent length.
- Please give the vertical interval between the indoor and outdoor as 20m or less.

CAUTION

This unit is chargeless specification. Due to chargeless length and allowable piping length will be different depend on field pipe size.

Piping bend radius

(Units : mm)

Piping diameter	Pipe thickness (material)	Bend radius
Ø 9.5mm	0.8 mm (C1220T-O, Type O)	30mm or more
Ø 15.9mm	1.0 mm (C1220T-O, Type O)	50mm or more

Refrigerant pipe size and chargeless length

Outdoor unit type	Liquid pipe size (type)	Chargeless length
RZCA18AVMK	Ø 9.5mm x t 0.8 mm (type O)	15m

WARNING

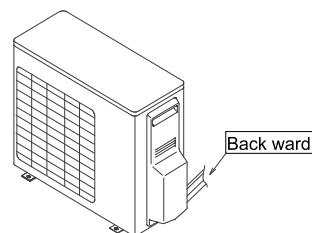
- When flared joints are reused in indoors, the flared part shall be re-fabricated.

CAUTION

- Use dedicated piping cutters and flaring tools for R410A or R32.
- When making a flare connection, apply ether or ester oil only to the flare inner surface.
- Use only the flare nuts attached to the unit. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination, dust or moisture from getting into the piping, take measures such as pinching or taping the piping.

5-5 CONSTRUCTION OF REFRIGERANT PIPING

- Field pipes can be installed in Back - side connection. <Fig.2>
- Do not allow any substances other than the specified refrigerant such as air to mix into the refrigerant circuit.



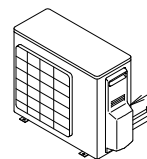
<Fig. 2>

5 REFRIGERANT PIPING WORK (3/4)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

PREVENTING FOREIGN OBJECTS FROM ENTERING

- Plug the pipe through-holes with putty or insulating material (field supply) to cover all gaps, as shown in the figure.
- Insects or small animals entering the outdoor unit may cause a short circuit in the electrical box.



Putty or insulation material (Field supply)
Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

CAUTIONS FOR HANDLING STOP VALVE

DO NOT OPEN THE STOP VALVE UNTIL **7 CHARGING REFRIGERANT** FINISHED.

- The stop valves for indoor-outdoor connecting piping are closed at shipment from the factory. The names of parts are shown in figure on the right.
- Since the side boards may be deformed if only a torque wrench is used when loosening or tightening flare nuts, always lock the stop valve with a wrenches and then use a torque wrench.

When tightening the flare of the stop valves, make sure to tighten by the rated torque. The rated torque is shown on **CAUTION FOR FLARE CONNECTION** (Following)

DO NOT APPLY FORCE ON THE VALVE CAP, THIS MAY RESULT IN A REFRIGERANT LEAK.

- For cooling operation under low ambient temperature or any other operation under low pressure, apply silicon pad or similar to prevent freezing of the gas stop valve flare nut (see figure).

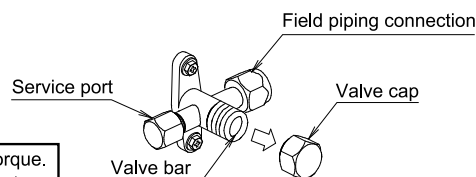
Freezing of the flare nut may cause refrigerant leak.

How to operate the stop valve

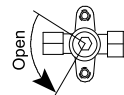
Use hexagonal wrenches 5mm.

Opening the valve 1. Place the hex wrench on the valve bar and turn counter-clockwise.
2. Stop when the valve bar no longer turns. (It is now open.)

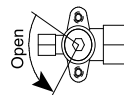
Closing the valve 1. Place the hex wrench on the valve bar and turn clockwise.
2. Stop when the valve bar no longer turns. (It is now close.)



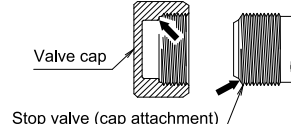
Silicon sealing pad
(Make sure there is no gap)



<Liquid side>



<Gas side>



CAUTIONS FOR HANDLING VALVE CAP

- A seal is attached to the point indicated by the arrow. Take care not to damage it.
- Be sure to tighten the valve cap securely after operating the valves.

	Valve size (mm)	Tightening torque(N·m)		Valve size (mm)	Tightening torque(N·m)
Liquid side	Ø9.5	23.0 ± 2	Gas side	Ø15.9	33.0 ± 3

CAUTIONS FOR HANDLING SERVICE PORT

- Always use a flexible charge hose with a push-rod and valve to enable recovery of remaining refrigerant in the charge hose.
- After the work, tighten the valve cap in place.
- Tightening torque: $12.7 \pm 1.2 \text{ N·m}$



Do not use a charging hose of which pressing stick is slipped out from the center. (It may cause refrigerant leakage due to deformation to the valve stem of the service port)

PRECAUTIONS FOR CONNECTING PIPING

- Take caution so that the refrigerant piping between the outdoor and indoor may not touch and sound proof cover and the plate as shown figure.
- If installing the outdoor unit higher than the indoor unit, caulk the space around insulation and tubes because condensation on the stop valves can seep through to the indoor unit side.

PRECAUTIONS REGARDING INSULATION

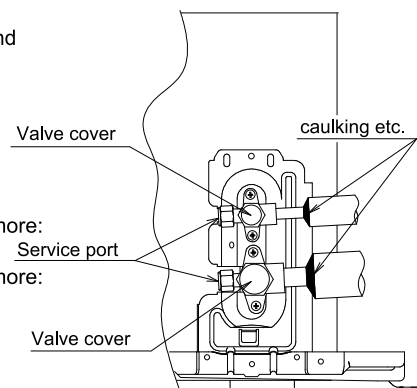
Enhance the insulation of the refrigerant piping according to the installation conditions. If this is not done, condensation may form on the surface of the insulation. Please refer to the target values shown below.

- When the temperature and humidity conditions are 30°C and RH 75% or more: thickness of the insulation is 15 mm or more.
- When the temperature and humidity conditions are 30°C and RH 80% or more: thickness of the insulation is 20 mm or more.

- Be sure to insulate the liquid and gas sides interunit piping. It may become the cause of refrigerant leakage if it is not insulated. (Be sure to use insulating material which can resistant.)



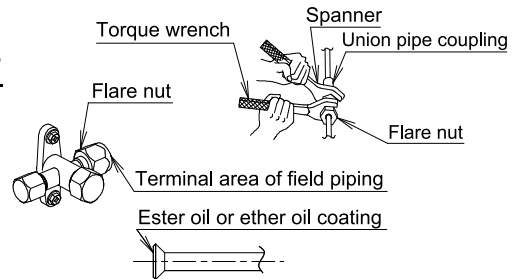
Insulation of interunit piping must be carried out up to the connection inside the casing. If the piping is exposed to the atmosphere, it may cause sweating or burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.



5 REFRIGERANT PIPING WORK (4/4)

CAUTION FOR FLARE CONNECTION

- Please be sure to remove a flare nut with a two-dish spanner, and to bind after connection of piping using a spanner and a torque wrench.
- Refer to the following table for a flare part processing size.
- When connecting the flare nut, apply refrigerating machine oil to the flare (inside) and at first screw the nut 3 or 4 turns by hand. Coat here with ether or ester oil.
- Refer to the table for the dimensions for processing flares and for the tightening torques. (Too much tightening will end up in splitting of the flare.)
- After completing the installation, carry out a gas leak inspection of the piping connections with nitrogen and such.



PIPING SIZE (mm)	TIGHTENING TORQUE	A DIMENSIONS FOR PROCESSING FLARES (mm)	FLARE SHAPE
Ø6.4	15.7 ± 1.5 N·m	8.9 ± 0.2	
Ø9.5	36.3 ± 3.6 N·m	13.0 ± 0.2	
Ø12.7	54.9 ± 5.4 N·m	16.4 ± 0.2	
Ø15.9	68.6 ± 6.8 N·m	19.5 ± 0.2	
Ø19.1	108.0 ± 10.8 N·m	23.8 ± 0.2	

- If a torque wrench is not available, be aware that the tightening torque may increase suddenly. Do not tighten nuts any further than to the angle as listed.
- When work is completed, be sure to check that there is no gas leakage.
 - ① A flare nut is bound tight with a spanner to the position whose torque with a bundle increases suddenly.
 - ② Only the angle of a right table is further bound tight from the position.

PIPING SIZE (mm)	FURTHER TIGHTENING ANGLE	RECOMMENDED ARM LENGTH OF TOOL
Ø6.4	60 to 90 degrees	About 150 mm
Ø9.5	60 to 90 degrees	About 200 mm
Ø12.7	30 to 60 degrees	About 250 mm
Ø15.9	30 to 60 degrees	About 300 mm
Ø19.1	20 to 35 degrees	About 450 mm

PRECAUTIONS WHEN BRAZING THE REFRIGERANT PIPINGS

<Do not reuse joint which have been used once already>

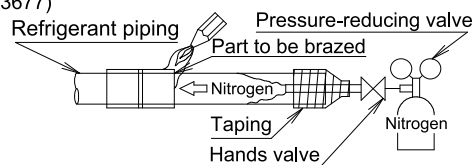
- When brazing the refrigerant piping, carry out brazing work (NOTE 2) after substituting nitrogen for air (flow nitrogen into the piping and substitute nitrogen for air (NOTE 1) (see the drawing below)).

NOTES

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping. Use phosphor copper brazing filler metal (BCuP-2: JIS Z 3264/B-Cu93P-710/795: ISO 3677) that does not require flux. (If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)



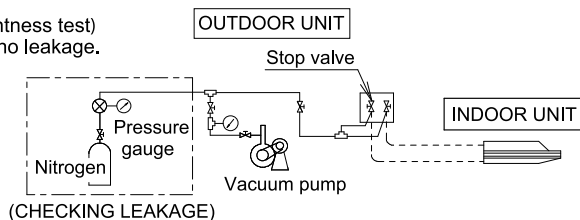
Do not use anti-oxidants when brazing the piping joints. (Residue can clog pipes and break equipment.)



6 AIRTIGHTNESS TEST AND AIR-PURGE

AIRTIGHTNESS TEST

- Perform a refrigerant leakage check using nitrogen gas (airtightness test) with the outdoor unit stop valve close, to make sure there are no leakage.
- For the airtightness test, raise the pressure to the design pressure in the high pressure section (4.17 MPa). For the airtightness test, the unit passes the test if the pressure in the high pressure section does not drop for 24 hours after increasing to the design pressure. A correction is required since the pressure decreases approx. 0.01Mpa when the ambient temperature of 1°C decreases.
- If the pressure drop is confirmed, perform the airtightness test again after checking and modifying the leakage points.



AIR-PURGE

- Evacuate by the vacuum pump for more than 2 hours until the internal pressure decreases below -0.1MP.
- After that, leave it with -0.1MPa or less for more than one hour and confirm that the value of vacuum gauges does not increase.
- If the value of vacuum gauge increases, there is moisture inside the refrigerant piping or there are leakage points. Perform evacuation again after checking and improving the leakage points.

NOTE

After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the outdoor unit is running.

7 CHARGING REFRIGERANT (1/2) < Be sure to use R32 as refrigerant. >

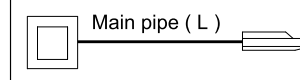
ADDITIONAL REFRIGERANT CHARGING

This model is chargeless type, so it is not necessary to charge additionally if pipe does not exceed the maximum allowable length without additional charge.

Please refer to the following table about the maximum allowable length without additional charge.

Liquid piping size	Length for which additional charging is not required
ø9.5mm x t 0.8mm	15m

ONE INDOOR UNIT TYPE(PAIR)



When piping length exceeds its of a top table,

or only when you perform recharging, Please be correctly charged according to the following.

For future servicing, please describe the amount of additional refrigerant charging, or the amount of recharging in the collective label in accessory set or back side of right side plate.

• In case of additional refrigerant charging

Please select the amount of additional refrigerant which suited piping length from the following table, and add it from the service port of liquid stop valve.

Outdoor units type	Liquid piping size	Length for which additional charging is not required	Length of piping exceeding the length for which additional charging is not required, R32 additional amount (kg)
			50m or less
RZCA18AVMK	ø9.5mm x t0.8mm	15m	0.875

• Total refrigerant charging (When recharging due to exchange compressor, etc.)

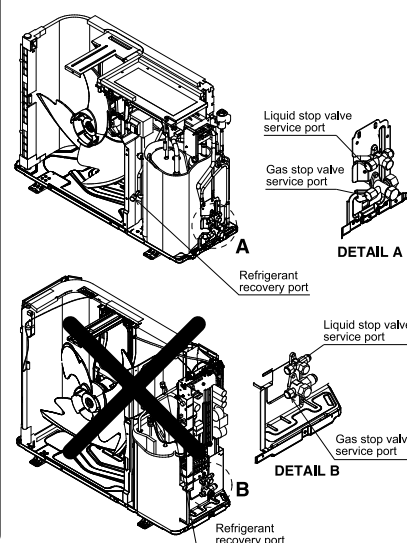
Please charge refrigerant base on pipe length mentioned on the following table.

Outdoor units type	Liquid piping size	Piping length, R32 complete additional amount (kg)		
		5m~15 m	30m or less	50m or less
RZCA18AVMK	ø9.5mm	1.30	1.675	2.175

When recharging refrigerant, follow the procedure below.

- ① In case of recharge refrigerant (cause of refrigerant leak) please follow suggestion below (reference detail from service guide)
 - In case of outdoor PCB (A1P) set refrigerant recovery mode at ON please press switch (BS1 for RZCA18AVMK) for 5 second.
- ② Shut down the power at least 1 minute after setting process (1) is performed.
 - If the power is turned on before the process (3) - (6) are completed, the refrigerant recovery mode is turned off and the refrigerant cannot be recovered or charged normally. If the power is turned on by necessary, turn on Refrigerant recovery mode again.
- ③ Recover the refrigerant from both the refrigerant recovery port and liquid stop valve service port (or gas stop valve service port) simultaneously until the pressure drops below 0.09MPa (gauge pressure: -0.011MPa) by using a refrigerant recovery machine.
- ④ Modify the leakage points.
- ⑤ Perform the airtightness test and air-purge accordance with (6)AIRTIGHTNESS TEST AND AIR-PURGE.
- ⑥ Charge the refrigerant from the service port of the liquid side stop valve when recharging refrigerant.

(Note) Do not turn on power during evacuation.
The motor may be damaged due to vacuum discharge.



Be sure to write down the additional amount of refrigerant charged or the entire amount re-charged on the precaution plate on the rear of the front panel, as this information is needed in case of after-sales service.

7 CHARGING REFRIGERANT (2/2)

Precautions when adding R32 • Before charging, check whether the cylinder has a siphon attached or not.

Charging a cylinder with an attached siphon



Stand the cylinder upright at charging.

(There is a siphon piping inside, so that cylinder need not be upside-down to charge with liquid.)

Charging other cylinders



Stand the cylinder upside-down and charge.

(Turn the cylinder upside-down at charging.)

- To prevent entry of any impurities and ensure sufficient pressure resistance, always use the special tools dedicated for R410A or R32.
- The refrigerant should be charged from the service port of the liquid side stop valve.



WARNING

To persons in charge of piping work

- Please be sure to open a stop valve after a refrigerant charging end (if it operates shut, a compressor will break down).
- After complete charging of refrigerant carry out refrigerant leak check and heat insulation work.
- Please do not emit a refrigerant into the atmosphere indiscriminately.

8 ELECTRICAL WIRING WORK (1/3)



WARNING

- Install the earth leakage circuit breaker. (A duty of installation of a earth leakage circuit breaker is imposed for an electric shock and fire accident prevention.
The inverter is provided in the air conditioner. In order to prevent malfunction of the earth leakage breaker itself, use a breaker resistant to higher harmonics).
- Electrical wiring must be carried out by qualified personnel.
- Before obtaining access to terminal devices, all supply circuits must be interrupted.



CAUTION

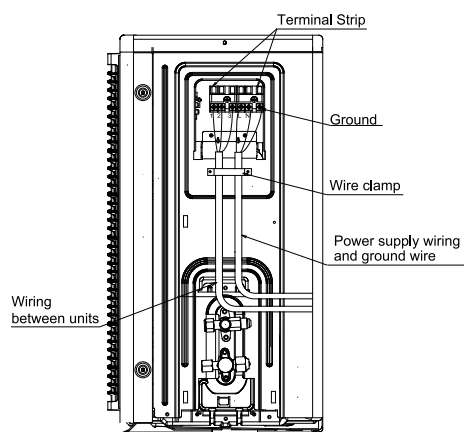
To the electrician

- Make sure to install a current balance type earth leakage breaker coping with high harmonics.
(This unit is equipped with an inverter device. Use an earth leakage breaker coping with high harmonics to prevent wrong actuation.)
- Do not run the unit until the refrigerant charging is complete. (Operating the unit before the completion will break the compressor.)
- Do not remove the thermistors or sensors when the power supply and transmission wiring are connected.
(Operating the unit with the thermistors and sensors removed will break the compressor.)
- Make certain that all electric wiring work is carried out by qualified personnel according to the applicable legislation and this installation manual, using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- An insufficient power supply capacity or improper electric work may lead to electric shocks or a fire.
- The wiring between the indoor unit and outdoor unit must be for 240V.
- For electric wiring work, refer to also the " WIRING DIAGRAM ".
- When doing the electrical wiring, always shut off the power source before working, and do not turn on the branch switch until all work is complete.
- Make sure to earth the air conditioner. Earthing resistance should be according to applicable legislation.
- Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
 - Gas piping.....Ignition or explosion may occur if the gas leaks.
 - Water piping.....Hard vinyl tubes are not effective earths.
 - Lightning conductor or telephone earth wiring.....Electric potential may rise abnormally if struck by a lightning bolt.
- The earth is needed in order to reduce the noise generated by the unit's inverter and influence on other appliances and to release the charged electric charge on the outdoor unit surface by leaked current.
- Do not install a phase advance capacitor for improvement of power factor. Since this unit is mounted with an inverter device, the effect of power factor improvement not only cannot be expected, but also there is a risk of the capacitor getting abnormally overheated due to harmonics.
- Be sure to use earth leakage breaker dedicated for earth leakage protection in combination with the load break switch with fuse or breaker for wiring.
- In case of three-phase. Machine, electric wiring must be connected in normal phase connection.
- For wiring, use the designated power supply wiring and connect firmly, then secure to prevent external force being exerted on the terminal attachment (power supply wiring, transmission wiring, earth wiring).
- Left-over wiring should not be wrapped and stuffed into the outdoor unit.
- To prevent the power wiring from being damaged by the knock hole edges, put it in a wiring piping or use insulated bush, etc. to protect it.
- To prevent the wiring from coming in contact with piping (particularly the high-pressure piping), secure it with the included clamping material as shown page 32.
- When wiring, form the wiring so that the front plate does not float and make sure the front plate is securely fastened.
- Fix the power supply wiring, the earth wiring and the transmission wiring by clamps as shown in the figure.

8 ELECTRICAL WIRING WORK (2/3)

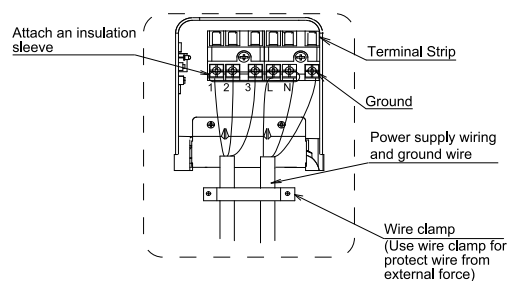
- As shown in the following figure, please fix power supply wiring, field wiring and ground wire by clamp material.

RZCA18AVMK



- Carry out insulated processing of attaching an insulated sleeve. Power supply wiring, wiring between units and ground tying with clamp as shown below.

⚠ Do not connect power supply to terminal block of transmission wiring. All system may get damaged.

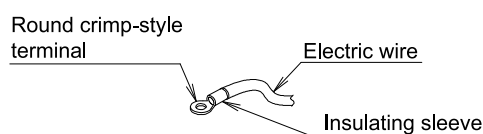


RZCA18AVMK

Connection of wiring

Precautions on wiring

- Use a round crimp-style terminal for connection to the power supply terminal board. In case it cannot be used due to unavoidable reasons, be sure to observe the following instruction.
- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)



8 ELECTRICAL WIRING WORK (3/3)

When connecting wires of the same gauge, connect them according to the below figure.

Connect wires
of the same
gauge to both sides



Do not connect
wires of different
gauges



Do not connect
wires of the same
gauge to one side



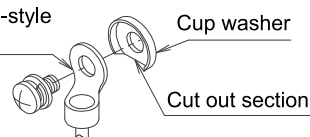
- Never use the stranded wiring which is soldered.
(Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws.
If an improper screw driver is used, it may damage the screw head and a proper tightening cannot be carried out.
- If a terminal is over tightened, it may be damaged. Refer to the table shown below for tightening torque of terminals.

Tightening torque (N•m)	
M4 (Wire between units terminal board)	1.50±0.30
M4 (Power supply terminal board)	1.50±0.30
M4 (Ground wire between units)	1.69±0.25
M5 (Ground wire between units)	3.55±0.50

Precautions on connecting terminal of grounding

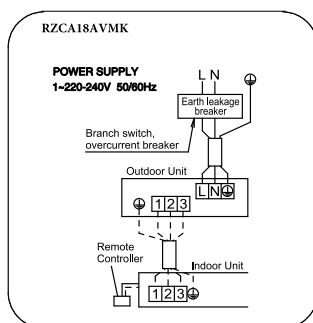
- Ground wiring should be taken out from the cut out section of a cup washer.
(Otherwise, contact of ground wiring is inadequate and it is ineffective.)

Ring type crimp-style
terminal



WIRING OF POWER SUPPLY AND THE UNITS

For details on the wiring of the indoor unit and wiring between units refer to the installation manual of the indoor unit.



• SPECIFICATIONS OF STANDARD WIRING COMPONENTS

Outdoor Unit	Power supply			Wire type of wiring between the units
	Recommended field fuse	Wire type (*)	Size	
RZCA18AVMK	20	H05VV-U3G	Wiring size and length must comply with local codes or [IEC 60335-1 (Table 11)]	H05VV-U4G2.5

(*) Only in protected piping, use H07RN-F when protected pipes are not used.

(Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57))

NOTES

1. Select and install the power supply wiring in accordance with [IEC 60335-1 (Table 11)] or local laws and regulations.
The maximum current of the outdoor and indoor units are shown on each name plate.
2. When installing wiring in a location that can easily come in contact with people, be sure to install an earth leakage breaker coping with high harmonics to prevent electric shock.
3. Breaker type and capacity shall be selected in accordance with local laws and regulations.

CAUTION

TO PERSONS INCHARGE OF ELECTRICAL WIRING WORK

- Do not operate the unit until the refrigerant charging is completed. (Running it before the piping is ready will break the compressor.)

9 CHECK ITEMS BEFORE TEST OPERATION AND FIELD SETTINGS

PRE-RUN CHECKS

	ITEM TO CHECK	CHECK
Power supply Wiring	Is the wiring as mentioned on the wiring diagram? make sure no wiring has been forgotten and that there are no missing phases or reverse phases.	
	Does wiring between units put in and changed in continuation installation?	
	Is the unit properly grounded?	
	Are any of the wiring attachment screws loose?	
	Is the insulation resistance at least 1MΩ? • Use a 500V mega-tester when measuring insulation • ※ Do not use a mega-tester to low voltage circuit except 220-240V.	
	Is an earth leakage circuit breaker used as a current operated type which is compatible to the higher harmonic wave?	
	Does the earth leakage circuit breaker have appropriate rated current?	
Refrigerant piping	Is the size of the piping appropriate?	
	Is the insulation material for the piping attached securely?	
	Are both the liquid and gas pipes insulated?	
	Are the stop valves for both the liquid side and the gas side open?	
Extra refrigerant	Did you write down the extra refrigerant and the refrigerant piping length?	
Indoor unit	Is the indoor unit fully installed? When the test run is started, the fan automatically begins turning.	



WARNING

- When a power supply is switched on, when you leave from the outdoor unit, be sure to close the cover plate.
(It becomes the cause of an electric shock).

In field setting for an outdoor unit, make sure to shut down the power and check that there is no residual voltage before start installing. (It may cause an electric shock.)

THE METHOD OF LOW NIGHT NOISE SETTING USING THE REMOTE CONTROLLER

The functions of the "Low Night Noise Setting" outdoor unit can be set by using the remote controller. During installation, make the field settings according to the description below, after the service inspection and repair. Mistakes in the setting could cause malfunctions.

HOW TO MAKE THE FIELD SETTINGS

Make the field setting according to "How to make the field settings" which come with the remote controller. The settings are set by switching between "Mode No.", "FIRST CODE No.", and "SECOND CODE No.".

CONTENT OF SETTINGS AND SETTING NUMBER

☐ : Factory settings

Mode NO.	FIRST CODE NO.	Description	SECOND CODE NO.				
			01	02	03	04	05
16 (26)	0	Night time low noise operation	☐	Automatic Low noise activation			
	1	Automatic low noise start and stop time			22h00 06h00	☐ 22h00 08h00	20h00 08h00
	2	High sensible cooling setting	☐		Server room setting	Anti-Frozent + Server room setting (combine)	

See the service manual for details on the content of the settings.

NOTES

- Settings are done in a batch for the group. For this reason, when performing group control* using the remote controller from one unit to set individual outdoor units, set each unit separately (for each connected indoor unit no.) using the mode number in parentheses. Checking after changing settings can also only be done using the mode numbers in parentheses. (For group batch control, the display will always read "01" even though the settings have been changed.) Furthermore, when performing control with two remote controllers*, field settings using a remote controller can only be done using the main remote controller.

* For details on controlling the units using the remote controllers, see applicable service manual.

- Do not set any values not shown in the table above.



CAUTION

- For settings other than the above, refer to the caution label or the service manual.
- Low night noise operation and demand operation using an external command requires a demand adapter PC board (option). For more details, refer to the manual supplied with the adapter.

10 TEST OPERATION

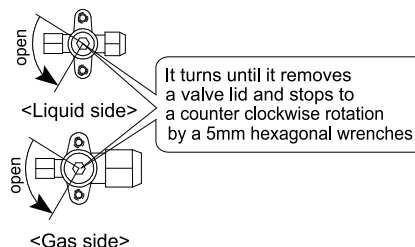
⚠ WARNING

- Never perform a test operation with the discharge piping thermistor(R2T) and suction piping thermistor(R3T) removed, as this might break the compressor.
- If the technician must leave the outdoor unit for some reason, switch places with another installation technician or close the plates. (It may cause electric shocks.)

HOW TO TEST OPERATION

After the indoor and outdoor unit installation, be sure to perform the test operation in accordance with the following procedure.

1. Open the stop valve cover and check that the liquid and gas sides of the stop valves are open.
<Be sure to close the front plate before the operation (there is a risk of electric shock)>
Note: After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the unit is run.
2. Attach the stop valve cover to the outdoor unit and turn the power on at least 6 hours before operating the outdoor unit to protect the compressor.
3. Set to COOLING operation with the remote controller.
4. Perform the test operation
 - When doing trial operation, it may take about 1 minute until the compressor begins to function, but this is not abnormal.
 - When using the system the first time after installation, even if heating operation is selected, cooling operation will take place for about 3 to 5 minutes.
Thereafter, it will change to heating operation, but this is not abnormal.
(In this case, the remote controller display will continue to display "heating operation.") This is in order to detect if someone has forgotten to open the stop valve during trial operation.
 - If the outside air temperature is about 24 C or more, even if HEATING operation is set, the system may not operate, but this is not abnormal.
5. Operate normally.
6. Confirm function of the indoor and outdoor units according to the operation manual.



MALFUNCTION DIAGNOSIS

- At the time of a test run, when the following malfunction code is displayed on remote control, the fault of installation construction can be considered.

Malfunction code	Installation error	Remedial action
[E3] [E5] [U0] [L8]	A failure of a stop valve to open	"Open" operation of a stop valve
[E3] [E5] [L4] [L8]	Closing of an air passage	Removing closing thing from air passage
[U1]	Missing phase, negative phase	2 Phase of power supply 3 Phase (L1, L2, L3 Phase) are replaced
[U2]	Power supply unbalancing	Unbalanced dissolution
[U4] [UF]	Incorrect connection of field wiring	Correction of wiring
[UA]	Connection of incompatible indoor unit	Connect appropriate indoor unit (Refer to the catalogue)
NO INDICATION	Mistake wiring or not connect wiring of power supply, indoor, outdoor, field wiring between indoor unit	To correct wiring or connect correctly

- When malfunction codes other than the above are displayed on remote control, considering that the failure of between an indoor and an outdoor unit may have.
For the malfunction codes, please refer to the indoor unit's installation manual or outdoor service manual.
(A malfunction code has what has a display according to the form of the interior of a room and an outdoor unit, and the thing which is not.)
- The followings can be considered causes when the breaker for power supply trips.
 - The capacity of a breaker for power supply is smaller than the required capacity of the leakage circuit breaker.
 - The leakage circuit breaker is not compatible to the higher harmonic wave.
- In case of already checking all equipment that not have any problem, but found air conditioner not cooling.
Please re-check Motor operate valve coil not tighten or remove for 1st checking. If normally please re-confirm problem following service manual to solve problem.

⚠ CAUTION

To persons incharge of piping work and electric work

- Please check having attached the front board and the piping cover after a test run end when giving production over to customer.

11 CAUTION (RZCA18AVMK)

THIS IS NECESSARY FOR AFTER SERVICE, SO PLEASE REQUEST CUSTOMER TO KEEP THIS MANUAL.

CAUTION (NEW REFRIGERANT (R32 SERIES))



Caution about electric shock when do service inspection

1. After intercept power supply, do not open outside panel for 10 minutes.
2. Follow manufacturing label on electric box cover, please take off outdoor fan motor connector to confirm voltage and body static electricity discharge.

General caution items when do service inspection

Caution to confirm compressor and fan motor running

Do not directly connect power input (3 Phase 50Hz) to compressor and fan motor. (If not connect to print board (PCB), compressor and fan motor will be burned out.)

Caution when recharge refrigerant

1. To prevent the mixing of impurities, pressure resistance and contamination mix, please use manifold gauge especially for R32.
2. Make sure to do Nitrogen blow if brazing when flare connection. Apply ether oil or ester oil at inside flare only.
3. Do air tight test at 4.17MPa.
4. Do dry vacuum, make sure to charge refrigerant in liquid condition from liquid side service port. (Compressor will be broken if charge from gas side service port.)

Caution when use outdoor PCB

Make sure to touch earth terminal and earthed metal before touch pcb, to prevent electric shock

Caution when break down diagnosis from letter code in remote control

Please refer to service guide or outdoor unit installation manual.

Charging refrigerant

Charging the system with refrigerant

(For more information such as calculation method of additional refrigerant charge, additional charge method, refrigerant charge caution, refer to the installation manual and technical Guide.

- For refrigerant charge, be sure to charge from the service port of the liquid side stop valve in liquid states. (If you charge from the service port of the gas side stop valve, it may break the compressor.)
- Never charge other than the specified refrigerant. (It may cause fire and bursting.)

Table 1. Chargeless piping length

Liquid piping size	Pipe length which is not required additional charging
φ 9.5mm x 10.8mm	15m

1. In case of additional refrigerant charging

Please add refrigerant amount according to the following table.

Outdoor	Liquid piping size	Pipe length which is not required additional charging	Piping length, R32 complete additional amount (kg)	
			+15m or less	+20m or less
RZCA18AVMK	φ 9.5 x 10.8mm	15m	1.675	2.175

2. Total refrigerant charging (Details please see service guide)

1. Please recover the refrigerant until becoming 0.09MPa (gauge pressure: -0.01MPa) or less by the refrigerant recovery machine from stop valve service port (liquid-gas side) at the same time.
2. Exchange service parts, modify leak point.
3. Perform airtightness test, air-purge.
Please refer installation manual of outdoor unit or service guide.
4. Charge refrigerant amount selected by table 2 from liquid stop valve service port.
Caution Do not turn on power during evacuation. The motor may be damaged due to vacuum discharge.

Table 2. Charge refrigerant amount (After a leak, etc...)

Outdoor	Liquid piping size	Piping length, R32 complete additional amount (kg)			
		5~10m	15m or less	30m or less	50m or less
RZCA18AVMK	φ 9.5 x 10.8mm	1.30	1.30	1.675	2.175

• Making a record of the added refrigerant charge amount

Be sure to record the piping length and added refrigerant charge amount or refrigerant recharge amount with an oil-based or other indelible marker so the figures will not fade over time. This information is necessary for after service and maintenance.

Liquid piping size	φ 9.5mm x 10.8mm
Refrigerant piping length	m
Additional refrigerant charging	kg
Recharge of refrigerant	kg

How to execute a pumping-down

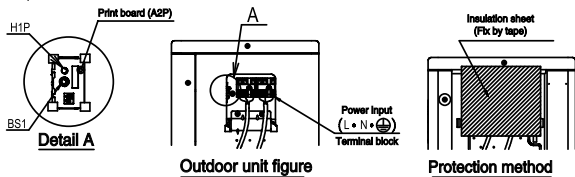
(for example, when moving or reinstalling an indoor or outdoor unit)

The outdoor unit is equipped with a high pressure switch to protect the compressor.
Caution Never short circuit the high pressure switch during pump-down operation.

- It is not allowed to let the refrigerant out into air.
- The refrigerant should be recovered completely.
- Although pumping-down operation allows most of the refrigerant to be recovered in a short period of time, some refrigerant will remain inside the indoor unit and the refrigerant piping. Using a refrigerant recovery machine, recover remaining refrigerant from the stop valve service port until the pressure falls to 0.09MPa (gauge pressure: -0.011MPa) or less.
- Be sure to execute the pumping-down before refrigerant piping and wiring is taking off.

For pumping-down operation

1. Please follow the [caution about electric shock when service inspection] which attached on Top panel (Caution: Do not take off the connector X106A)
2. To prevent electric shock, please protect power input terminal block by insulation sheet refer to below figure.
3. Turn on the power supply and carry out pumping-down operation according to the following procedure.



To prevent electric shock when inspection, protect by use insulation sheet on power input terminal block and print board (A2P)

For pumping-down operation

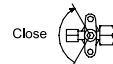
Do not remove the indoor unit until pump down operation finish.
(It is dangerous when indoor fan automatically starts the operation.)

Perform pumping-down operation using the following procedure

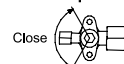
Procedure	Precaution
1 Confirm that stop valves both on the liquid and gas sides are open	-
2 Push the pumping-down (BS1) on the PC board of the outdoor unit for 5 seconds.	Compressor and outdoor unit fan will start operation automatically. Indoor fan may automatically start running. Pay attention to this.
3 Close the stop valve on the liquid side securely about 2 minutes after the compressor started operation. Once the compressor operation stops after 2 to 5 minutes, close the stop valve on the gas side securely.	• Do never leave the outdoor unit unattended with opened front plate when power supply is on. • In case the stop valve on the liquid side is not securely closed during compressor operation, pumping-down operation cannot be executed
4 Turn off the power supply.	When you work alone, carry out after closing the front plate. After turning the power supply off, remove the insulation sheet.

- If after finishing pumping-down operation the outdoor unit does not operate, even when the remote controller switched on, the remote controller may or may not indicate "U4". But it is not a malfunction.
- To force of operation, turn off the main power supply and turn it on again. Make sure that stop valves both on liquid and gas sides are open and be sure to operate the unit in cooling operation during test run.

Liquid stop valve



Gas stop valve



When installing and relocating, be sure to install the earth leakage breaker to protect from the electric shock disaster and fire due to leakage of electricity. For installing the earth leakage breaker, request to the qualified electrician.

How to confirm of running condition by LED

When the power supply turns "ON", you can check diagnosis of failure by service monitor (AP2) on the outdoor print board LED.

- LED light on
- LED flash
- LED light off
- Not relate with diagnosis

LED		(ITEM)
HAP (Green)	H1P (Red)	
●	●	Normal
●	—	Outdoor PCB defect (Note 1)
●	—	Power input abnormal or outdoor PCB defect (Note 2)
●	●	Protection device running (Note 3)

(NOTE 1) Power off for more than 5 seconds, power ON again, and confirm the diagnosis again.

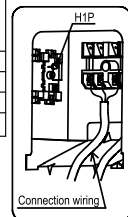
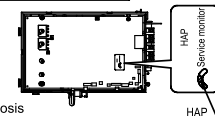
(NOTE 2) Power off for more than 5 seconds, take OFF connection wiring (indoor transmission) and power ON again. If after 10 seconds, outdoor PCB shows [HAP] it means indoor PCB defected.

(NOTE 3) There is phase interruption.

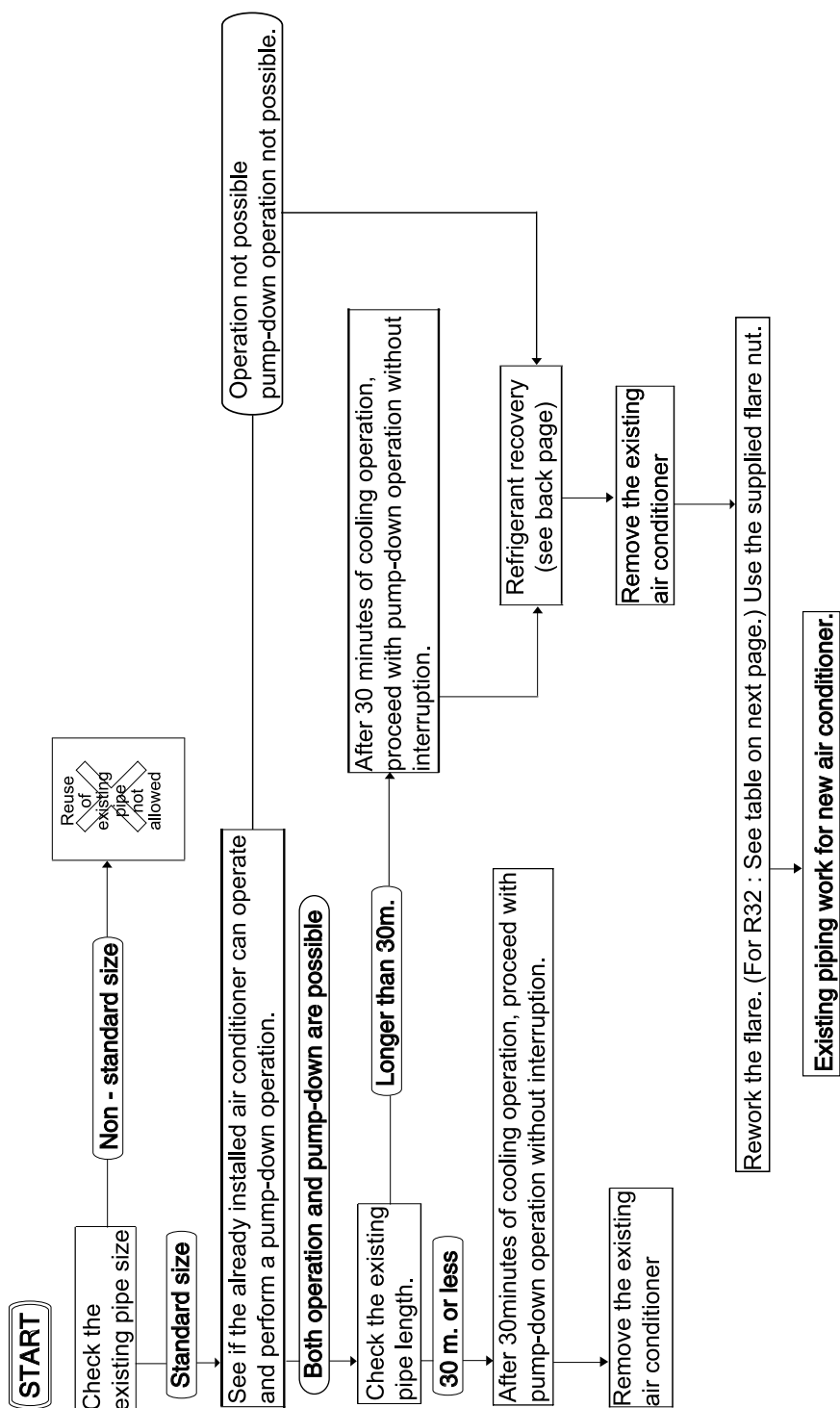
(NOTE 4) Previous abnormal history will be continuing display until power OFF. After inspection, please power OFF.

Caution about break down diagnosis by remote control letter code.

Please refer to service guide or outdoor unit installation manual.



12 HOW TO RE-USE THE EXISTING PIPING



(Note)

1. Clean the pipe if refrigerant leakage and unit has not service port on gas-liquid stop valve.
2. If indoor unit equipped with EV valve, open that valve before recovery refrigerant.
3. Maximum pipe length as per specified on next page.

PRECAUTIONS ON REFRIGERANT PIPING

- Clean pipe if existing air conditioner is [gas, oil heat pump type].
- Clean pipe if used compressor oil in existing air conditioner is other than [SUNISO, MS, HAB, Barrel freeze, JOMO, Ethereal oil, Ester oil].
- Clean pipe if existing indoor and outdoor unit is disconnected.
- Change new pipe if refrigerant leakage or it should adding refrigerant.
- Change new heat insulation if existing part is peeling off.

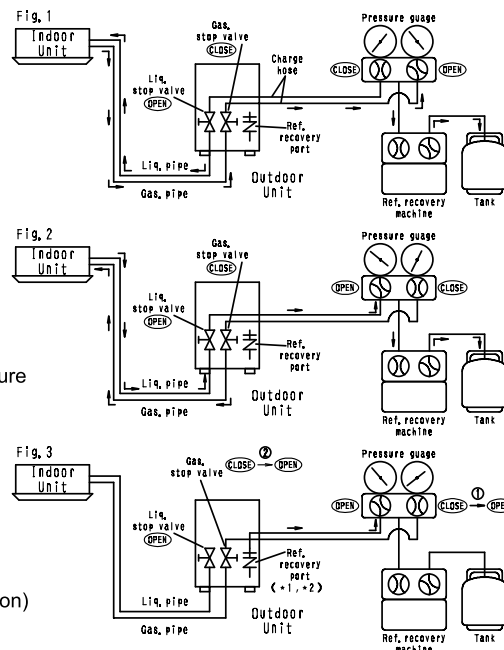
13 REFRIGERANT RECOVERY

[Working procedure]

- 1. Recovery retaining oil in existing pipe Approx. 1 min**
Close gas stop valve (liquid stop valve: open) and recovery refrigerant from gas stop valve port.(Fig.1)
- 2. Recovery retaining oil in existing liquid pipe Approx. 1 min**
Recovery refrigerant from liquid stop valve port. (Fig.2)
- 3. Recovery refrigerant in outdoor unit Approx. 2-3 min**
Recovery refrigerant from outdoor unit refrigerant recovery port *1 .(Fig.3)
- 4. Recovery refrigerant in accordance with Fluorocarbons Recovery and Destructive Law**
If refrigerant recovery port *2 pressure become lower than gas stop valve port pressure, refrigerant will recover at the simultaneous from the gas stop valve port, open gas stop valve (Fig.3- 1) gradually to avoid from pressure rising rapidly. (Fig.3- 2)
NOTE 1 Can be omit this procedure if there has no refrigerant recovery port simultaneously if there has no refrigerant recovery port.

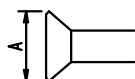
Retaining oil recovery amount improved
approx. 5 times from regular refrigerant
recovery method

(pipe length, height difference, pipe path etc. is difference by installation condition)



ABOUT FLARE PROCESSING

- Flare connection area of existed piping will cause processing deterioration, make sure to do newly re-processing.
- Flare processing [Unit: mm]



Piping outside diameter	A (+0, -0.4) For R32
ø 9.5	13.2
ø 15.9	19.7

- Please use flare nut which attached with product (Do not use existed flare nut)

- Flare nut [Unit: mm]



Piping outside diameter	B (+0, -0.6) For R32
ø 9.5	22
ø 15.9	29

REFRIGERANT PIPE SIZE TABLE

Outdoor Unit		Existing pipe size	9.5/15.9	Height difference	Design pressure (High pressure)
RZCA18AVMK	9.5/15.9	Standard pipe length	7.5m	Max 30m	4.15 MPa
		Max. pipe length	50m		
		Chargeless pipe length	15m		

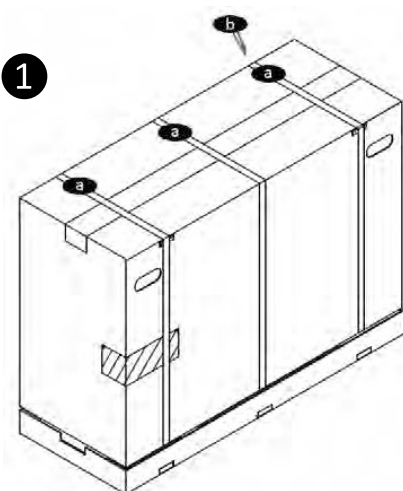
- Refer to the installation manual for details other than those mentioned above table such as additional refrigerant charge amount.
- Clean the existing piping if it length is exceed 30m.
- Clean the existing pipe if chargeless length is exceed limit of existing pipe pump down refrigerant recovery.

- Standard pipe (R32)

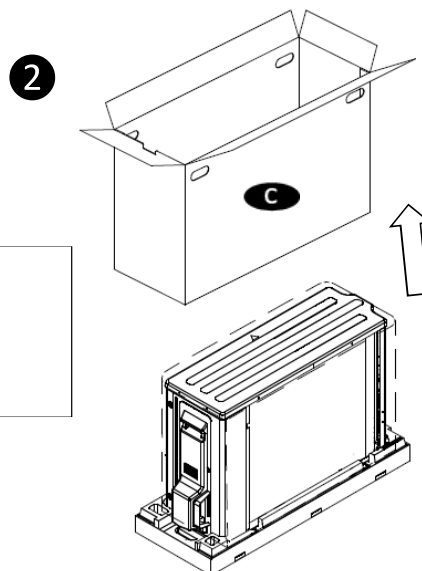
Pipe size (mm)	ø 9.5	ø 15.9
Thickness (mm)	t 0.8	t 1.0

14 UNPACKING & PACKING OF THE OUTDOOR UNIT

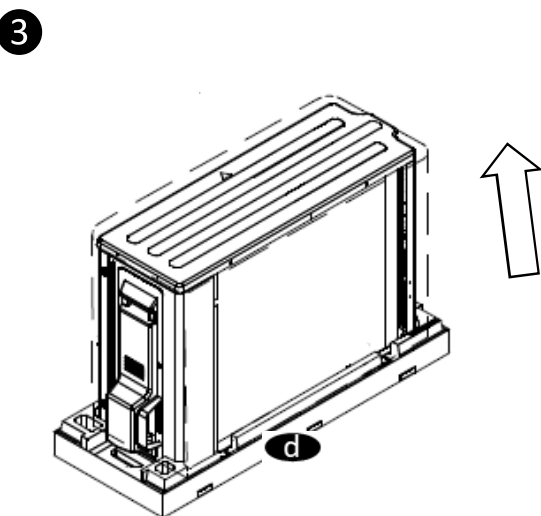
14-1 UNIT UNPACKING



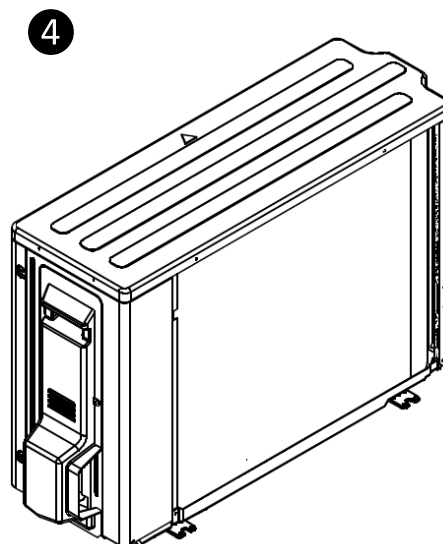
- Cut all the straps (a) from the unit using strap cutter(b) as shown in figure.



- Remove the cardboard box(c) from the unit after opening it and pulling it up as shown in figure.

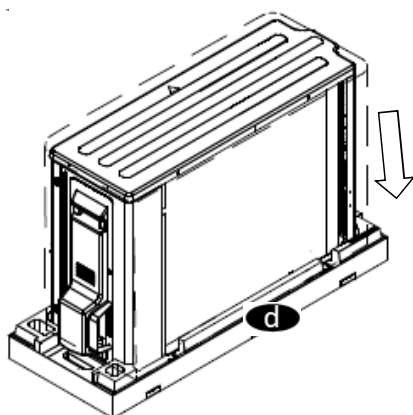


- Remove the bottom skid(d) with EPS by pulling the unit up, then remove the polythene product cover by pulling it up



14-2 UNIT PACKING

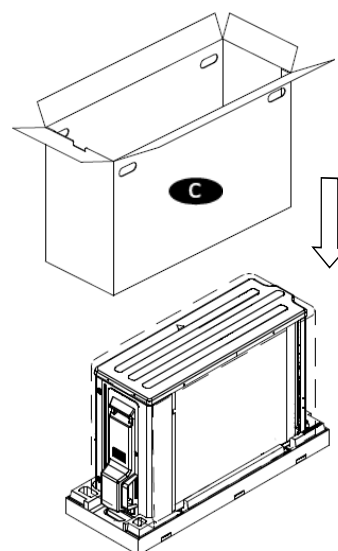
1



- a) Strap
- b) Strap Cutter
- c) Cardboard box
- d) Bottom Skid
- e) Portable strap fixing machine

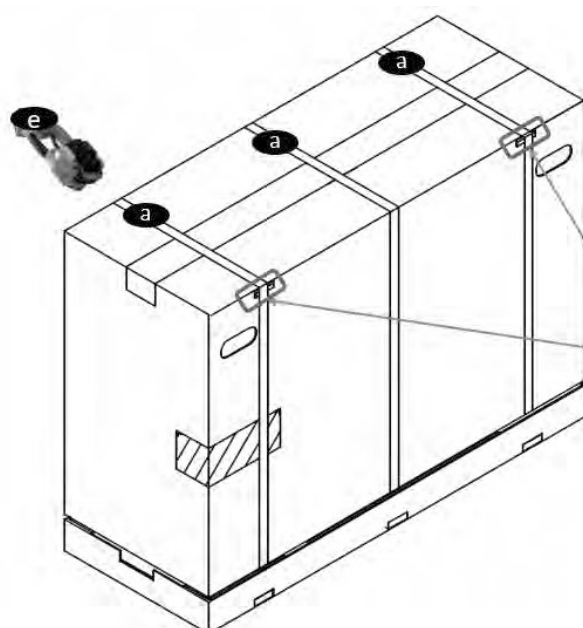
- Cover the unit with polythene product cover, then pick the unit up and settle it down on the bottom skid(d) as shown in figure.

2



- Put the cardboard box (c) upon the unit as shown in figure.

3



Reference for placing strap

- Fix the straps (a) on the unit by using portable strap fixing machine as shown in figure.(Use marked reference for placing straps)

3.2 RZCA24AVMK / RZCA30AVMK / RZCA36AVMK

DAIKIN


SPLIT SYSTEM AIR CONDITIONER INSTALLATION MANUAL <FOR OUTDOOR UNIT> READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES
RZCA24AVMK, RZCA30AVMK, RZCA36AVMK

Note : ⓘ Read the precautions in this manual carefully before operating the unit.
⚠ This appliance is filled with R32.

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⚠ WARNING THERE IS A RISK OF EXPLOSION OR FIRE

- Do not mix air in the refrigerating cycle during pump down operation.
 - Do not use oxygen for air tight test.
 - Do not use refrigerant other than the specified one or flammable material (e.g. propane) in the refrigerant cycle. They may cause over pressure in the refrigerating cycle and result in explosion, fire or injury.
- Our company assumes no responsibility for failure or malfunction caused by filling or mixing of anything other than the specified refrigerant.

⚠ CAUTION ABOUT ISOLATING RESISTANCE OF COMPRESSOR

If refrigerant accumulates in the compressor after completing installation, the insulation resistance can drop, but if it at least 1 MΩ, then the unit will not break down.

- Connect the power supply to the unit and after 6 hours check if the insulation resistance of the compressor rises. (Energize and heat the compressor to vaporize the refrigerant accumulated in the compressor.)
- If the earth leakage breaker actuates, check if the earth leakage breaker is equipped with a device to cope with high harmonics. To prevent wrong actuation of the earth leakage breaker due to the inverter, make sure to adopt an earth leakage breaker equipped with a device to cope with high harmonics.

- Please make sure to confirm that R32 (new refrigerant) is used in installation work in advance.
(It may not operate normally, if refrigerant type is different.)
- The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - Clean and dry
Strict measures must be taken to keep impurities (Including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere. Therefore, sealing tightness is particularly important in installation.
Carefully read the chapter **5 REFRIGERANT PIPING WORK** and strictly observe the correct procedures.
- The design pressure of this unit : High/Low pressure area are shown in the right table.
The refrigerant piping is a high pressure area,
Use the refrigerant piping which supports the design pressure.
The piping specifications, please refer to chapter **5 REFRIGERANT PIPING WORK**
- Be sure to connect the indoor unit, which is dedicated to R32. See the catalog for indoor unit models which can be connected.
(Normal operation is not possible when connected to other units.)

Outdoor Unit	Design Pressure	
RZCA24AVMK	High	4.15
RZCA30AVMK	Low	3.30
RZCA36AVMK		

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

- This manual classifies the precautions into WARNINGS and CAUTIONS.
Be sure to follow all the precautions below. They are all important for ensuring safety.

 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly.
Give the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual.
In particular, make sure to explain with regard to "SAFETY PRECAUTIONS" and "Not malfunction of the air conditioner".
Ask the user to keep this manual and the operation manual together in a handy place for future reference.
- This air conditioner comes under the term "appliances not accessible to the general public".

WARNING

- Ask your local dealer or qualified personnel to carry out installation work.
Improper installation may result in water leakage, electric shocks or a fire.
- Perform installation work in accordance with this installation manual.
Improper installation may result in water leakage, electric shocks or a fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage.
When the indoor unit is installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen deficiency.
- Be sure to use only the specified parts and accessories for installation work.
Failure to use the specified parts may result in the air conditioner fall down, water leakage, electric shocks, a fire, etc.
- Install the air conditioner on a foundation that can withstand its mass.
Insufficient strength may result in the air conditioner fall down and causing injury.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as the air conditioner fall down.
- Make certain that all electric work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit. In addition, even if the wiring is short, make sure to use a wiring that has sufficient length and never connect additional wiring to make the length sufficient. Insufficient capacity of the power supply circuit or improper electric construction may lead to electric shocks or a fire.
(note 1) Applicable legislation means "All international, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain."
- Earth the air conditioner.
Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
Incomplete earthing may cause electric shocks or a fire.
- Be sure to install an earth leakage circuit breaker.
Failure to do so may cause electric shocks or a fire.
- The appliance must be stored in a room without continuously operating ignition sources (for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odor.
- Comply with national gas regulations.
- Be sure to switch off the unit before touching any electrical parts.
Touching a live part may result in electric shocks.
- Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring. Incomplete connection or fixing may cause overheating terminals or fire.
- When wiring between the outdoor and indoor units, and wiring the power supply, from the wiring orderly so that the structural parts such as a cover can be securely fastened.
If the cover is not in place, electric shocks or a fire may be caused.
- Do not add wiring. It may result in heat generation. Electric shocks or fire.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32).
The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- If refrigerant gas leaks during installation work, ventilate the area immediately.
Toxic gas may be produced if refrigerant gas comes into contact with a fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas.
Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.
- Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do not stand on the outdoor unit or put things on it.
The unit may fall down or drop, and cause accidents.
- Do not charge any refrigerant into the refrigeration cycle other than the designated refrigerant.
It may cause over pressure in the refrigeration cycle and result in explosion, fire, and injury.
- Do not extend wiring on the way.
It may cause heat generation, electric shocks or fire.
- At the installation work, install the refrigerant piping firmly before operating the compressor.
If the compressor is operated without installing firmly and the service valve is in open condition, it sucks the air, etc., and the pressure inside the refrigerant circuit becomes abnormally high. It may cause injury and property damaged.
- At pump down work, stop the compressor before removing the refrigerant piping.
If removing the refrigerant piping when the compressor is operated with its service valve in open condition, it sucks the air, etc., and the pressure inside the refrigerant circle become abnormally high, which may cause injury and property damage.
- The appliance shall be installed operated and stored in a room with floor area larger than 3.68 m².
- When flared joints are reused, the flare part shall be re-fabricated.



⚠ CAUTIONS

- Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation. Improper drain piping may cause water leakage, make the furniture get wet.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radio to prevent picture interference and noise. (Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Do not install the air conditioner in places such as following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen. Resin parts may deteriorate, and cause them to fall out or water to leak.
 2. Where corrosive gas, such as sulfurous acid gas, is produced. Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
 3. Where there is machinery which emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
 4. Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remain around the air conditioner, it may cause ignition.
 5. The place that the vibration or the voltage fluctuation give influence. Vehicles, vessels, etc. The vibration may cause a damage and the voltage fluctuation may cause an abnormal operation.
 6. Where small animals may build a nest, fallen leaves are accumulated, or weeds are overgrown. If small animals touch the electrical parts inside, this may cause malfunction, smoke or a fire.

■ Important information regarding the refrigerant used
This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675
⁽¹⁾GWP = global warming potential
• The refrigerant quantity is indicated on the unit name plate.

1 BEFORE INSTALLATION

<DO NOT THROW AWAY ACCESSORIES THAT ARE REQUIRED FOR INSTALLATION.>

- 1 Carefully read these instructions before installation.
- For installation of the indoor unit, refer to the indoor unit installation manual.

< Transporting Unit >

As shown in the Fig.2, bring the unit slowly. (Take care not to let hands or things come in contact with rear fins.)

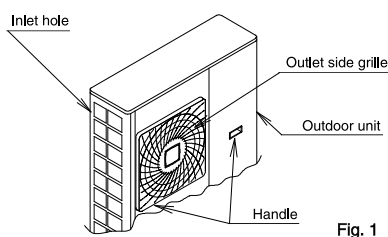


Fig. 1

< Installation Parts >

Always use accessory parts or those of designated specification as parts required for installation.

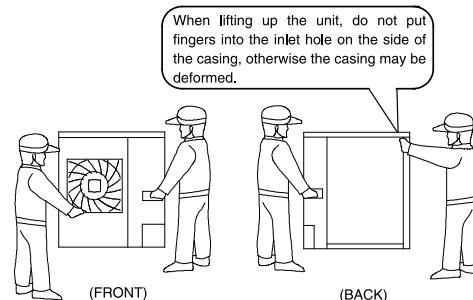


Fig. 2

< CAUTION >

- Work in a team of at least two people when carrying the outdoor unit

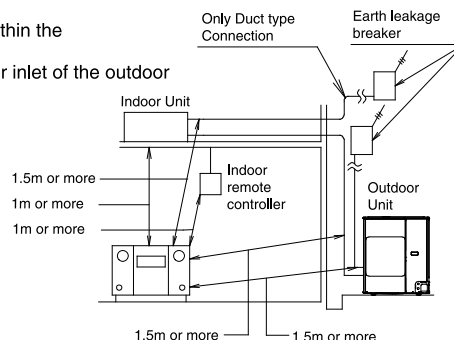
2 SELECTING INSTALLATION LOCATION (1/2)

- (1) Select the installation location that meets the following conditions and get approval of the customer.
- Places where is no risk of flammable gas leakage.
 - Places where the outdoor unit does not bother next-door neighbors.
 - Safe places where can withstand the unit's mass and vibration and where the air conditioner can be installed level.
 - Places where are well-ventilated and where servicing space can be well ensured.
The minimum required space is shown in chapter ③ INSTALLATION SERVICE SPACE
 - Where the piping length between the indoor and the outdoor units is ensured within the allowable piping length. (Please see chapter ⑤ REFRIGERANT PIPING WORK)
 - Do not allow wind from the same direction to blow frequently toward the outlet or inlet of the outdoor unit. If the wind is likely to blow as mentioned above, make sure to keep a sufficient service space and install a wind protective shield.



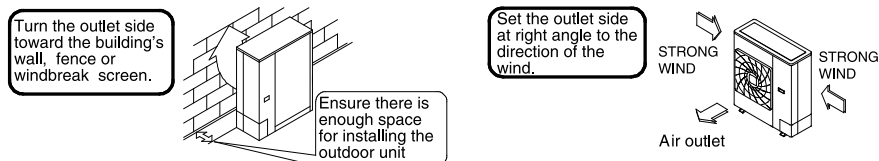
CAUTION

Inverter air conditioners may cause noise to occur in electrical appliances. As shown in the right drawing, select an installation site well away from radios, PCs, and stereos. Especially in the areas where the incoming signal strength is weak, keep the indoor remote controller 3 meter or more from electrical appliances. Put the power supply and transmission wiring in a metal piping and ground the metal piping.



2 SELECTING INSTALLATION LOCATION (2/2)

- (2) When installing the outdoor unit's in a place exposed to strong wind, pay special attention to the following.
5 m/sec or more strong wind blown against the outdoor unit's outlet side causes the outdoor unit to deteriorate in air volume and suck in the air blown out of its outlet side (short circuit), and the following effects may result.
- Performance is degraded.
 - Operation stop due to increase in pressure.
- If a very high fan strength is used continuously from the front of the outdoor unit outlet side, the fan might turn in reverse at high speed, and become damaged.
- (3) Following the installation place, it is expected that the influence of the strong wind is great.
- The flat area which receives the adverse wind such as typhoon directly since there is no obstacles such as buildings and mountains. (Including coast line, shoreline of lake and mountain region.)
 - The installation place that no obstacles around the outdoor unit to prevent the adverse wind, for example, walls and buildings that are higher than the applicable outdoor unit, etc.
Please take measures when installing especially on a rooftop.
 - Since the outdoor unit may fall down, attach the fixture for preventing overturning(option).



3 INSTALLATION SERVICE SPACE (1/3)

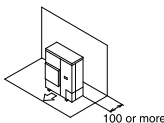
- The installation servicing spaces shown in these drawings are based on the outdoor unit inlet area temperature of 35°C for COOLING operation.
If the planned inlet area temperature exceeds 35°C(DB), or if the heat load of all outdoor units is increased significantly and exceeds the maximum operating capacity, secure a larger space than that indicated by the inlet dimensions in these drawings.
- For installation, consider both pedestrian and air flow paths and choose a suitable pattern from these drawings to match the space available field. (If the number of units to be installed exceeds the patterns in these drawings, consider there are no short-circuits.)
- Regarding the front space, position the units with consideration to the space required for the refrigerant piping work. (Consult your dealer if the work conditions do not match those in the drawings.)
- Secure appropriate space when using a side piping outlet.

3-1 INSTALLATION OF SINGLE UNIT

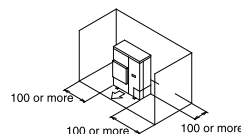
(Units: mm)

When nothing is obstructing the top

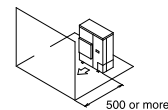
- (1) In case obstacles exist only in front of the inlet side.



- (2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.

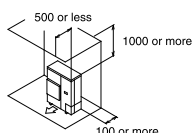


- (3) In case obstacles exist only in front of the outlet side.

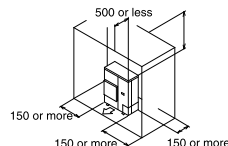


When something is obstructing the top

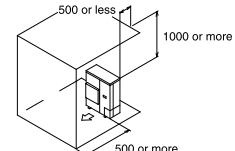
- (1) In case obstacles exist in front of the inlet side



- (2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.



- (3) In case obstacles exist only in front of the outlet side.



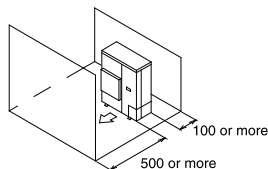
3 INSTALLATION SERVICE SPACE (2/3)

In case obstacles exist in front of both inlet and outlet sides

(Units: mm)

Pattern 1 When obstacles in front of the outlet side is higher than the outdoor unit.

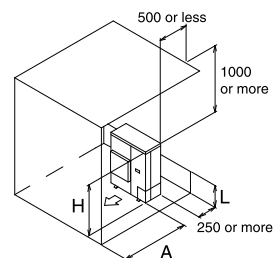
- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



- (2) When something is obstructing the top.
The relations between H, A and L are shown in the table below.

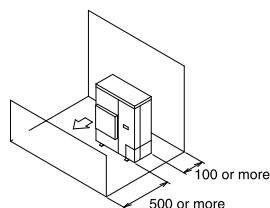
	L	A
$L \leq H$	$L \leq 0.5H$	750 or more
	$0.5H < L \leq H$	1000 or more
$L > H$	Set the frame to be $L \leq H$ Refer to the column of $L \leq H$ for A.	

Get the lower part of the frame sealed so that air from the outlet does not bypass.



Pattern 2 Where obstacles in front of the outlet side is lower than the outdoor unit

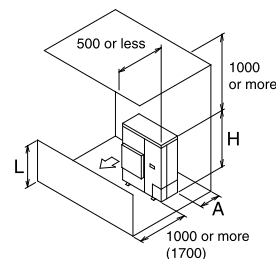
- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



- (2) When something is obstructing the top.
The relations between H, A and L are shown in the table below.

	L	A
$L \leq H$	$L \leq 0.5H$	100 or more
	$0.5H < L \leq H$	200 or more
$L > H$	Set the frame to be $L \leq H$ Refer to the column of $L \leq H$ for A.	

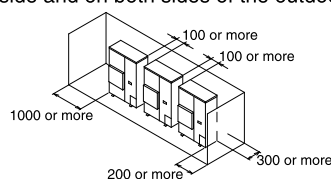
Get the lower part of the frame sealed so that air from the outlet does not bypass.
If the dimensions is () or more, you do not need to place the frame including the case of $L > H$.



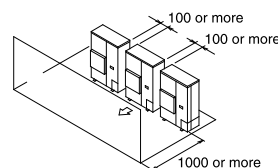
3-2 IN CASE OF INSTALLING MULTIPLE UNITS (2 UNITS OR MORE) IN LATERAL CONNECTION PER ROW (Units: mm)

When nothing is obstructing the top

- (1) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit

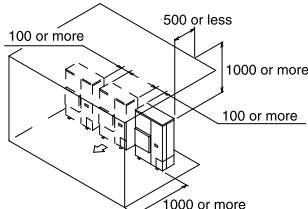


- (2) In case obstacles exist only in front of the outlet side

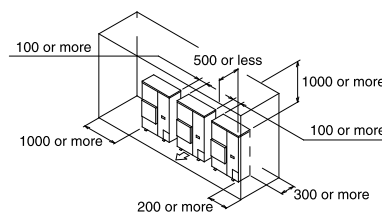


When something is obstructing the top

- (1) In case obstacles exist only in front of the outlet side



- (2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit



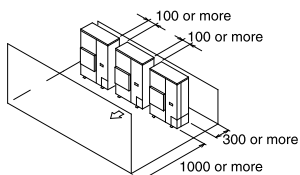
3 INSTALLATION SERVICE SPACE (3/3)

In case obstacles exist in front of both inlet and outlet sides

(Units: mm)

Pattern 1 When obstacles in front of the outlet side is higher than the outdoor unit.

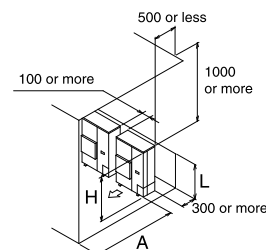
- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



- (2) When something is obstructing the top.
The relations between H, A and L are shown in the table below.

	L	A
$L \leq H$	$L \leq 0.5H$	1000 or more
	$0.5H < L \leq H$	1250 or more
$L > H$	Set the frame to be $L \leq H$ Refer to the column of $L \leq H$ for A.	

Get the lower part of the frame sealed so that air from the outlet does not bypass.
Only two units at most can be installed in series.

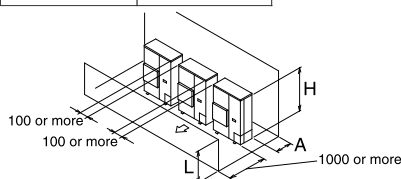


Pattern 2 Where obstacles in front of the outlet side is lower than the outdoor unit

- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)

The relations between H, A and L are shown in the table below.

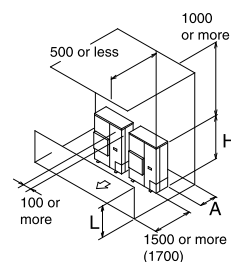
L	A
$L \leq 0.5H$	250 or more
$0.5H < L \leq H$	300 or more



- (2) When something is obstructing the top.
The relations between H, A and L are shown in the table below.

	L	A
$L \leq H$	$L \leq 0.5H$	250 or more
	$0.5H < L \leq H$	300 or more
$L > H$	Set the frame to be $L \leq H$ Refer to the column of $L \leq H$ for A.	

Get the lower part of the frame sealed so that air from the outlet does not bypass.
If the dimensions is () or more, you do not need to place the frame including the case of $L > H$.

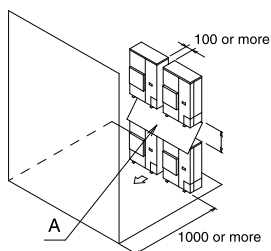


3-3 IN CASE OF STACKED INSTALLATION

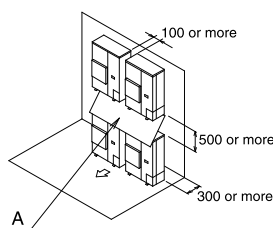
(Units: mm)

When nothing is obstructing the top

- (1) In case obstacles exist in front of the outlet side .



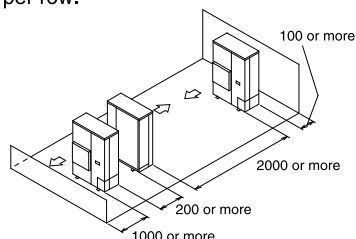
- (2) In case obstacles exist in front of the inlet side.



- Do not exceed two levels for stacked installation.
- Install a roof cover similar to A (field supply), as the outdoor units with downward drainage are prone to dripping.
- Install the upper-level outdoor unit so that its bottom frame is a sufficient height above the roof cover. This is to prevent the buildup of ice on the underside of the bottom frame. (A space of at least 500mm is recommended.)
- It is not necessary to install a roof cover if there is no danger of drain dripping. In this case, the space between the upper and lower outdoor units should be at least 100mm. (Close off the gap between the upper and lower units so there is no re-intake of discharged air.)

3-4 IN CASE OF MULTIPLE-ROW INSTALLATION (FOR ROOF TOP USE, ETC.)

- (1) In case of installing one unit per row.

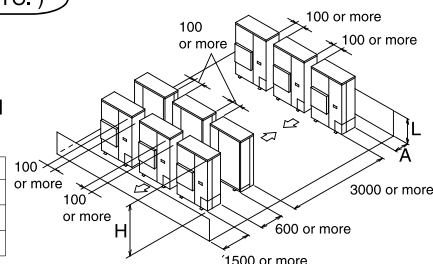


- (2) In case of installing multiple units (2 units or more) in lateral connection per row.

The relation of dimensions of H, A and L are as shown in the table below.

	L	A
$L \leq H$	$L \leq 0.5H$	250 or more
	$0.5H < L \leq H$	300 or more
$L > H$	Can not be installed	

- In case of side piping outlet, ensure a space sufficient for piping.



4 PRECAUTIONS ON INSTALLATION

<Drain work>

Potentially problematic locations for the outdoor unit drainage. In locations where, for example, drain may fall on passersby may cause passersby to slip over, install in enclosure (field supply) to prevent people approaching the outdoor unit.

Then, coat the area around the bored holes with rust preventive coating to cover the metal exposure.

- Make sure the drain works properly.

<Installation method of the outdoor unit>

- Check the strength and level of the installation ground so that the outdoor unit will not cause any operating vibration or noise after installed.

- In accordance with the foundation drawing in Fig. 3, fix the unit securely by means of the foundation bolts. (Prepare four sets of M12 foundation bolts, nuts and washers each which are available on the market.)

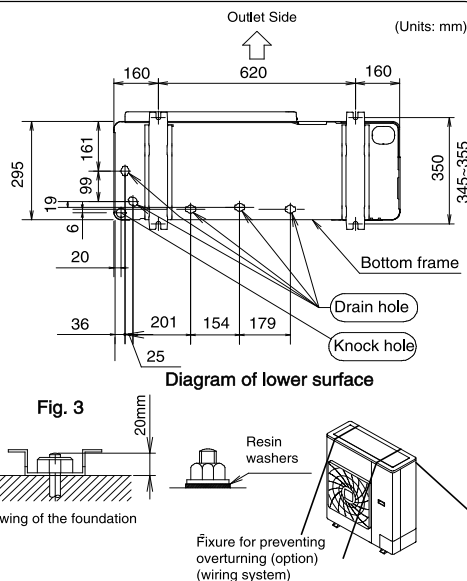
- It is best to screw in the foundation bolts until their length are 20 mm from the foundation surface.

- Fix the outdoor unit to the foundation bolts using nuts with resin washers. (See the right-hand drawing)

If the coating on the fastening area is stripped off, the nuts rust easily.

<Installation method of fixture for preventing overturning>

- If steps need to be taken to prevent the unit from tipping over. Use the fixture for preventing overturning (option).



5 REFRIGERANT PIPING WORK (1/5)

CAUTIONS

To plumbing persons

- Important information regarding the refrigerant used. This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere. GWP (global warming potential) of R32 refrigerant type = 675
- Use R32 as additional for charging.
- Do not use flux when brazing refrigerant piping. Use phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/B-Cu93P-710/795:ISO 3677) that does not require flux. (If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
- After chapter 7 CHARGING REFRIGERANT is completed, be sure to open the stop valves before performing 10 FIELD SETTINGS. (Operating the unit with the valve shut will break the compressor.)

《Precaution when reuse existed refrigerant pipe》

- Please keep below points in order to reuse existed pipe, failure may caused if have a fault.
- Below are pipes shall always make new construction, do not reuse piping.
 - When removed from indoor unit or outdoor unit for a long time. (Moisture entry to internal pipe, wastes entry can be occurred.)
 - When copper tube is corroded.
 - When pipe thickness is insufficient (refer to 5-4 REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH)
 - Do not reuse flare for refrigerant leak protection, please make flare processing.
 - Do not reuse flare nut, please use flare nut in product accessories.
 - Make sure to do refrigerant leak check in case there is brazing area while perform field piping.
 - If insulation is deteriorate, make sure to exchange to new one.

5-1 INSTALLATION TOOLS

Be sure to use the dedicated tools to ensure sufficient pressure resistance and prevent the entry of any impurities.

Manifold gauge	To ensure sufficient pressure resistance and prevent the entry of any impurities (mineral oils such as Suniso oil and liquids), use the R410A or R32 dedicated item (the screw specifications for R410A or R32 differ).
Charging hose	Be extremely careful not to flow the pump oil backward to inside the piping when the pump is stopped.
Vacuum pump	Use a pump which enables vacuuming to -0.1 MPa(-755mmHg) of the gauge pressure.

5-2 SELECTION OF PIPING MATERIAL

- Use the piping whose inside and outside are clean and with no harmful substances for use such as sulphur, oxide, dust, dust from cutting, grease, or liquid (contamination) is attached.
- For the refrigerant piping, use the following material.
Material: Deoxidised phosphorous seamless copper piping
Temper grade: Use piping with temper grade in function of piping diameter as listed in the table on section

5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

Size: Decide based on section 5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

Thickness: Comply with applicable legislation. The minimal piping thickness for R32 piping must be in accordance with the table on section

5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

- For the handling of the stop valves, see "precautions when the handling piping stop valves" on section

5-4 REFRIGERANT PIPING WORK

- Be sure to perform piping work using measurements within the maximum allowable length and height difference described on section

5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

5 REFRIGERANT PIPING WORK (2/5)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

5-3 PIPING PROTECTION

- Prevent contamination or moisture from getting into the piping.
- Pay special attention when running the copper piping through the through-hole or when leading the edge of the piping outside the room.
- Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

Location	WORK PERIOD	PROTECTION METHOD	Location	WORK PERIOD	PROTECTION METHOD
Outdoor	One month or more	Pinching	Indoor	N/A	Pinching or taping
	Less than one month	Pinching or taping			

5-4 REFRIGERANT PIPING SIZE AND ALLOWABLE PIPING LENGTH

CAUTION

This unit is chargeless specification. Due to chargeless length and allowable piping length will be different depend on field pipe size.

Piping bend radius

(Units : mm)

Piping diameter	Pipe thickness (material)	Bend radius
Ø 9.5mm	0.8 mm (C1220T-O, Type O)	30mm or more
Ø 15.9mm	1.0 mm (C1220T-O, Type O)	50mm or more

Refrigerant pipe size and chargeless length

Outdoor unit type	Liquid pipe size (type)	Chargeless length
RZCA24AVMK RZCA30AVMK RZCA36AVMK	Ø 9.5mm x t 0.8 mm (type O)	30m

- One way maximum allowable piping length means the maximum length of liquid side piping or gas side piping.
- Equivalent length is the pressure loss due to L joints, traps, and so on along the refrigerant piping converted to a straight piping length of the same size and added to the overall value.
Please see the Engineering Data for calculation of equivalent length.
- Please give the vertical interval between the indoor and outdoor as 20m or less.

Pair Connection Refrigerant piping size and one way maximum allowable piping length.

Outdoor unit type	Liquid pipe size (type)	Maximum allowable piping length (It is equivalent length in the inside)	Gas pipe size (type)	Maximum allowable piping length (It is equivalent length in the inside)
RZCA24AVMK RZCA30AVMK RZCA36AVMK	Ø 9.5mm x t 0.8 mm (type O)	50m (70m)	Ø 15.9mm x t 1.0 mm (type O)	50m (70m)



WARNING

- When flared joints are reused, the flared part shall be re-fabricated.



CAUTION

- Use dedicated piping cutters and flaring tools for R410A or R32.
- When making a flare connection, apply ether or ester oil only to the flare inner surface.
- Use only the flare nuts attached to the unit. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination, dust or moisture from getting into the piping, take measures such as pinching or taping the pipings.

5 REFRIGERANT PIPING WORK (3/5)

<Please refer to installation manual of indoor unit about indoor unit's refrigerant piping>

5-5 REFRIGERANT PIPING WORK

- The refrigerant piping is connectable in four directions. (See Fig. 4)
- Do not let anything other than the designated refrigerant (such as air or water) enter the refrigerant system.
- When connecting in a downward direction, open the knock out hole by making 4 round holes around the knock out hole by using a 6mm drill. (see Fig.5)
- Cutting out the two slits makes it possible to install as shown in Fig. 6 (Use metal saw to cut out the slits)

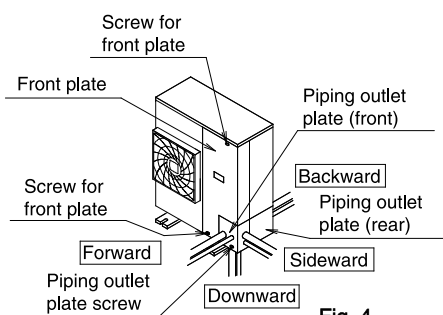


Fig. 4

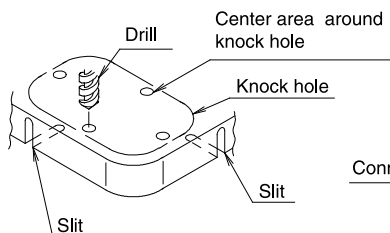


Fig. 5

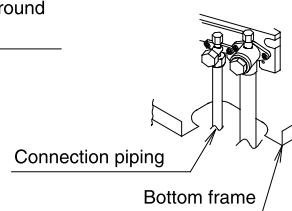
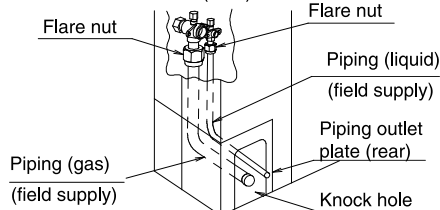


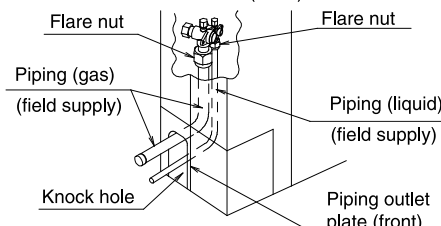
Fig. 6

- After knocking out the knock hole, it is recommended to apply repair paint to the edge and the surrounding end surfaces to prevent rusting.

Back side (rear) connection Remove the piping outlet plate (rear) for connection.



Side (lateral) connection Remove the piping outlet plate (front) for connection.



Prevention against small animals entering into the casing

Fill up the space with putty or thermal insulation(field supply)

Where the piping through as shown in Fig. 7.

(If small animals touch the electrical parts inside, this may cause malfunction, smoke or fire.)

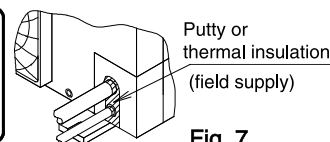


Fig. 7

PRECAUTIONS WHEN THE HANDLING PIPING STOP VALVES

DO NOT OPEN THE STOP VALVE UNTIL THE ⑦ CHARGING THE REFRIGERANT FINISHED

The names of the parts necessary for handling the piping stop valves for the indoor and outdoor units are described in Fig. 8. The valves are closed before shipment.

When tightening the flare of the stop valves, make sure to tighten by the rated torque. The rated torque is shown on (Precautions when tightening flare nuts) (following)

Applying force by exceeding the rated tightening torque may cause the sheet surface inside the stop valve to twist, the refrigerant to leak inside the valve, and the flare nut to break.



Prohibited

Do not apply force to the valve cap or the valve body when tightening the flare nut. (It may cause refrigerant leakage due to deformation of the valve body)

- When using the low outdoor temperature cooling mode etc., the pressure on the low pressure side might drop, so the flare nut on the stop valves should be sealed completely with silicon sealant or the like in order to prevent frost from forming on it (both gas and liquid sides). (Refer to Fig. 9)

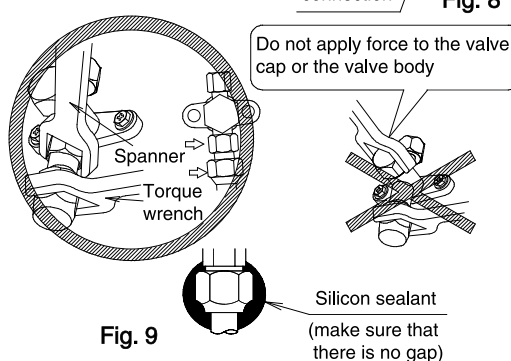


Fig. 9

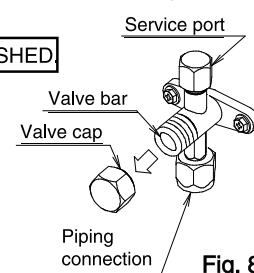


Fig. 8

5 REFRIGERANT PIPING WORK (4/5)

How to operate the stop valve (Refer to Fig. 10)

Use hexagonal wrenches 5mm.

To open:

1. Insert one hex-wrench onto the valve rod and turn counter-clockwise.
2. Stop when the valve rod no longer turns. It is now open.

To close:

1. Insert one hex-wrench on the valve rod and turn clockwise.
2. Stop when the valve rod no longer turns. It is now closed.

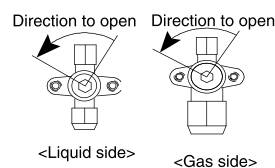


Fig. 10

PRECAUTIONS FOR HANDLING VALVE CAP

- A seal is attached to the point indicated by the arrow. Take care not to damage it.
- Be sure to tighten the valve cap securely after operating the valves.

	Valve size (mm)	Tightening torque(N•m)		Valve size (mm)	Tightening torque(N•m)
Liquid side	Ø9.5	22.0 ± 2	Gas side	Ø15.9	32.0 ± 3

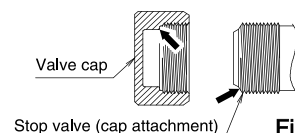


Fig. 11

PRECAUTIONS FOR HANDLING SERVICE PORT

- Use a push-rod provided charging hose for operation.
- Be sure to tighten the valve cap securely after operation.

Tightening torque(N•m)
32.0 ± 3



Do not use a charging hose of which pressing stick is slipped out from the center.
(It may cause refrigerant leakage due to deformation to the valve stem of the service port)

PRECAUTIONS FOR CONNECTING PIPING

- Take caution so that the refrigerant piping between the outdoor and indoor may not touch the compressor bolt and sound proof cover and the plate as shown Fig 12.
- If installing the outdoor unit higher than the indoor unit, caulk the space around insulation and tubes because condensation on the stop valves can seep through to the indoor unit side.

PRECAUTIONS REGARDING INSULATION

Enhance the insulation of the refrigerant piping according to the installation conditions. If this is not done, condensation may form on the surface of the insulation. Please refer to the target values shown below.

- When the temperature and humidity conditions are 30°C and RH 75% or more:
thickness of the insulation is 15 mm or more.
- When the temperature and humidity conditions are 30°C and RH 80% or more:
thickness of the insulation is 20 mm or more.

- Be sure to insulate the liquid and gas sides interunit piping.

It may become the cause of refrigerant leakage if it is not insulated.
(Be sure to use insulating material which can resistant.)



Insulation of interunit piping must be carried out up to the connection inside the casing.
If the piping is exposed to the atmosphere, it may cause sweating or burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

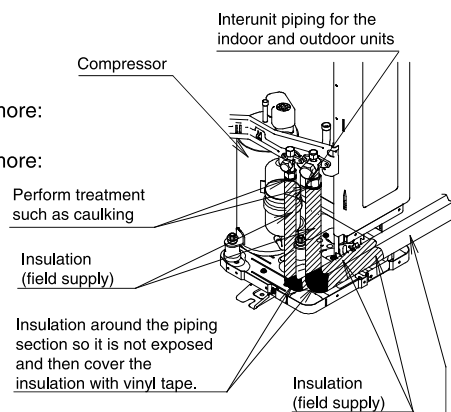
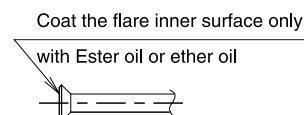
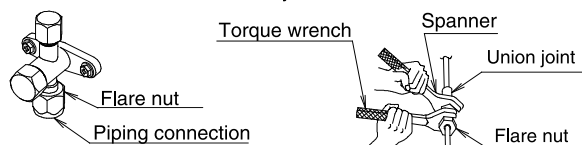


Fig. 12 Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

PRECAUTIONS WHEN TIGHTENING FLARE NUTS

- Be sure to remove the flare nuts with two spanners. Then after the piping connection, tighten them using a spanner and torque wrench.
- For the dimension of flared part, see the table 1.
- When making a flare connection, coat ether or ester oil only to the flare inner surface. Then, turn the nut 3 to 4 times with your hand and screw in the nut.



- For the tightening torque, see the table 1.
- After all the piping has been connected, use nitrogen to perform a refrigerant leakage test.

Table 1

PIPING SIZE (mm)	TIGHTENING TORQUE	A DIMENSIONS FOR PROCESSING FLARES (mm)	FLARE SHAPE
Ø6.4	16 ± 2 N•m	8.9 ± 0.2	Flare shape
Ø9.5	22 ± 2 N•m	13.0 ± 0.2	
Ø12.7	32 ± 2 N•m	16.4 ± 0.2	
Ø15.9	50 ± 2 N•m	19.5 ± 0.2	
Ø19.1	70 ± 2 N•m	23.8 ± 0.2	

Table 2

PIPING SIZE (mm)	FURTHER TIGHTENING ANGLE	RECOMMENDED ARM LENGTH OF TOOL
Ø6.4	60 to 90 degrees	About 150 mm
Ø9.5	60 to 90 degrees	About 200 mm
Ø12.7	30 to 60 degrees	About 250 mm
Ø15.9	30 to 60 degrees	About 300 mm
Ø19.1	20 to 35 degrees	About 450 mm

If there is no torque wrench, use table 2 as a rule of thumb. When tightening a flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases. From that position, tighten the nut additionally the angle shown in table 2. After the work is finished, check securely that there is no gas leakage. If the nut is not tightened as instructed, it may cause slow refrigerant leakage and result in malfunction(such as does not cool /heat).

5 REFRIGERANT PIPING WORK 5/5)

PRECAUTIONS WHEN BRAZING THE REFRIGERANT PIPINGS

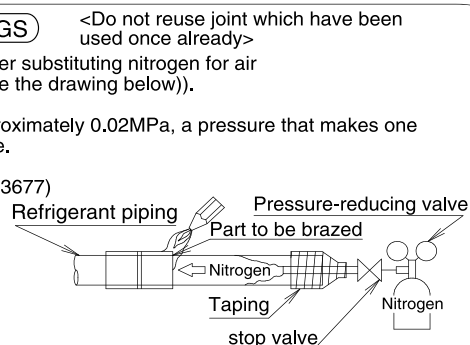
- When brazing the refrigerant piping, carry out brazing work (NOTE 2) after substituting nitrogen for air (flow nitrogen into the piping and substitute nitrogen for air (NOTE 1) (see the drawing below)).

NOTES

- The proper pressure for having nitrogen flow through the piping is approximately 0.02MPa, a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
- Do not use flux when brazing refrigerant piping. Use phosphor copper brazing filler metal (BCuP-2:JIS Z 3264/B-Cu93P-710/795:ISO 3677) that does not require flux. (If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)



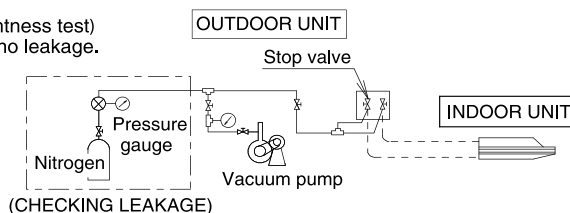
Do not use anti-oxidants when brazing the piping joints.
(Residue can clog pipes and break equipment.)



6 AIRTIGHTNESS TEST AND AIR-PURGE

AIRTIGHTNESS TEST

- Perform a refrigerant leakage check using nitrogen gas (airtightness test) with the outdoor unit stop valve close, to make sure there are no leakage.
- For the airtightness test, raise the pressure to the design pressure in the high pressure section (4.17 MPa). For the airtightness test, the unit passes the test if the pressure in the high pressure section does not drop for 24 hours after increasing to the design pressure. A correction is required since the pressure decreases approx. 0.01Mpa when the ambient temperature of 1°C decreases.
- If the pressure drop is confirmed, perform the airtightness test again after checking and modifying the leakage points.



AIR-PURGE

- Evacuate by the vacuum pump for more than 2 hours until the internal pressure decreases below -0.1MP.
- After that, leave it with -0.1MPa or less for more than one hour and confirm that the value of vacuum gauges does not increase.
- If the value of vacuum gauge increases, there is moisture inside the refrigerant piping or there are leakage points. Perform evacuation again after checking and improving the leakage points.

NOTE

- After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the outdoor unit is running.

7 CHARGING THE REFRIGERANT (1/2)

◀ Be sure to use R32 as refrigerant. ▶

7-1 PRECAUTIONS FOR ADDING REFRIGERANT

This unit does not require charging. So if the piping length is within the lengths shown in the table below, no additional refrigerant needs to be charged.

Liquid piping size	Length for which additional charging is not required
ø9.5mm x t 0.8mm	30m

In case where the piping length exceeds that shown in the left table or recharging needs to be performed, charge as described below.

Be sure to write down the additional amount of refrigerant charged or the entire amount recharged on the indications label to the back side of the front plate, after the unit installed.

7.2 ADDING REFRIGERANT

From the table below, select a refrigerant amount that is suitable for a piping length exceeding the length for which charging is actually needed. Then add the refrigerant from the service port of the liquid side stop valve.

Outdoor units type	Liquid piping size	Length for which additional charging is not required	Length of piping exceeding the length for which additional charging is not required, R32 additional amount (kg)		
			30m or less	40m or less	50m or less
RZCA24AVMK RZCA30AVMK RZCA36AVMK	ø9.5mm	30m		0.25	0.50

(Note) If the length of the refrigerant piping is within the range shown by , additional charge is not required.

7.3 COMPLETE RECHARGING OF THE REFRIGERANT (When recharging for compressor replacement, etc.)

Recharge the amount of refrigerant selected from the table below.

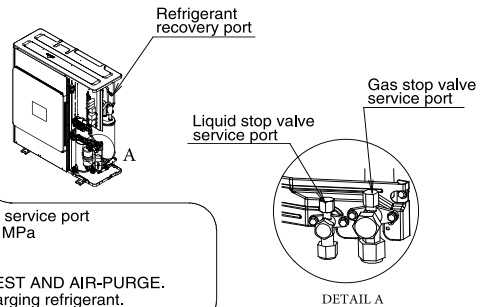
Outdoor units type	Liquid piping size	Piping length, R32 complete additional amount (kg)				
		10m or less	20m or less	30m or less	40m or less	50m or less
RZCA24AVMK, RZCA30AVMK	ø9.5mm	2.90	2.90	2.90	3.15	3.40
RZCA36AVMK	ø9.5mm	2.90	2.90	2.90	3.15	3.40

7 CHARGING THE REFRIGERANT (2/2)

When recharging refrigerant, follow the procedure below.

- In case of recharge refrigerant (cause of refrigerant leak) please follow suggestion below (reference detail from service guide)
 - In case of outdoor PCB (A1P) set refrigerant recovery mode at ON please press switch BS2 during 5 second.
 - In case remote was set refrigerant recovery mode ON please follow caution label that stucked at backside of front plate.
- Shut down the power at least 1 minute after setting process (1) is performed.
 - If the power is turned on before the process (3) - (6) are completed, the refrigerant recovery mode is turned off and the refrigerant cannot be recovered or charged normally. If the power is turned on by necessary, turn on refrigerant recovery mode again.
- Recover the refrigerant from both the refrigerant recovery port and liquid stop valve service port (or gas stop valve service port) simultaneously until the pressure drops below 0.09 MPa (gauge pressure: -0.011MPa) by using a refrigerant recovery machine.
- Modify the leakage points.
- Perform the airtightness test and air-purge accordance with (6) AIRTIGHTNESS TEST AND AIR-PURGE.
- Charge the refrigerant from the service port of the liquid side stop valve when recharging refrigerant. (Note) Do not turn on power during evacuation. The motor may be damaged due to vacuum discharge.

Be sure to write down the additional amount of refrigerant charged or the entire amount re-charged on the precaution plate on the rear of the front panel, as this information is needed in case of after-sales service.



Precautions when adding R32

- Before charging, check whether the cylinder has a siphon attached or not.

Charging a cylinder with an attached siphon

- Stand the cylinder upright at charging. (There is a siphon piping inside, so that cylinder need not be upside-down to charge with liquid.)

- To prevent entry of any impurities and ensure sufficient pressure resistance, always use the special tools dedicated for R410A or R32.
- The refrigerant should be charged from the service port of the liquid side stop valve.

Charging other cylinders

- Stand the cylinder upside-down and charge. (Turn the cylinder upside-down at charging.)

CAUTION

To plumbing persons

- After completing installation, be sure to open the valves. (Operating the unit with the valve shut will break the compressor).
- After complete charging of refrigerant carry out refrigerant leak check and heat insulation work. (Failure to carry out heat insulation work may result in leakage of water)
- Do not allow refrigerant to escape into the atmosphere recklessly for earth environment protection..

8 ELECTRICAL WIRING WORK (1/3)

WARNING

Make sure to install the earth leakage breaker.

(The earth leakage breaker is required in order to prevent electric shocks or a fire.)

- Electrical wiring must be carried out by qualified personnel.
- Before obtaining access to terminal devices, all supply circuits must be interrupted.

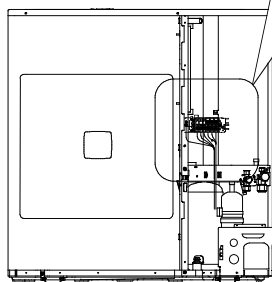
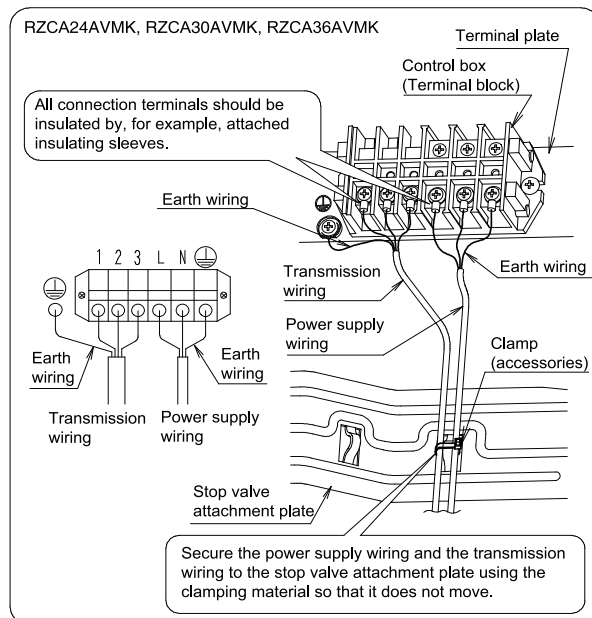
CAUTION

To the electrician

- Make sure to install a current balance type earth leakage breaker coping with high harmonics. (This unit is equipped with an inverter device. Use an earth leakage breaker coping with high harmonics to prevent wrong actuation.)
- Do not run the unit until the refrigerant charging is complete. (Operating the unit before the completion will break the compressor.)
- Do not remove the thermistors or sensors when the power supply and transmission wiring are connected. (Operating the unit with the thermistors and sensors removed will break the compressor.)
- Make certain that all electric wiring work is carried out by qualified personnel according to the applicable legislation and this installation manual, using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- An insufficient power supply capacity or improper electric work may lead to electric shocks or a fire.
- The wiring between the indoor unit and outdoor unit must be for 240V.
- For electric wiring work, refer to also the " WIRING DIAGRAM ".
- When doing the electrical wiring, always shut off the power source before working, and do not turn on the branch switch until all work is complete.
- Make sure to earth the air conditioner. Earthing resistance should be according to applicable legislation.
- Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring.
 - Gas piping.....Ignition or explosion may occur if the gas leaks.
 - Water piping.....Hard vinyl tubes are not effective earths.
 - Lightning conductor or telephone earth wiring..... Electric potential may rise abnormally if struck by a lightning bolt.
- The earth is needed in order to reduce the noise generated by the unit's inverter and influence on other appliances and to release the charged electric charge on the outdoor unit surface by leaked current.
- Do not install a phase advance capacitor for improvement of power factor. Since this unit is mounted with an inverter device, the effect of power factor improvement not only cannot be expected, but also there is a risk of the capacitor getting abnormally overheated due to harmonics.
- Be sure to use earth leakage breaker dedicated for earth leakage protection in combination with the load break switch with fuse or breaker for wiring.
- In case of three-phase. Machine, electric wiring must be connected in normal phase connection.
- For wiring, use the designated power supply wiring and connect firmly, then secure to prevent external force being exerted on the terminal attachment (power supply wiring, transmission wiring, earth wiring).
- Left-over wiring should not be wrapped and stuffed into the outdoor unit.
- To prevent the power wiring from being damaged by the knock hole edges, put it in a wiring piping or use insulated bush, etc. to protect it.
- To prevent the wiring from coming in contact with piping (particularly the high-pressure piping), secure it with the included clamping material as shown page 32.
- When wiring, form the wiring so that the front plate does not float and make sure the front plate is securely fastened.
- Fix the power supply wiring, the earth wiring and the transmission wiring by clamps as shown in the figure.

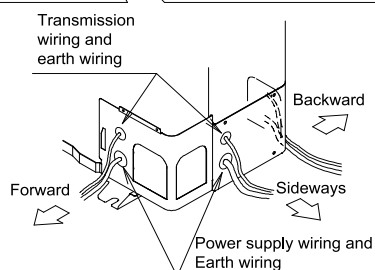
8 ELECTRICAL WIRING WORK (2/3)

- Please fix power supply wiring, transmission wiring, and earth wiring by clamp material as below figure.



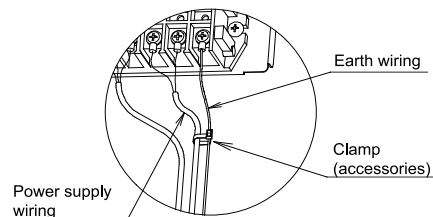
Direction for pulling out the wiring

- Plug the piping through-hole with putty or insulating material (field supply) so as not to leave any gap and prevent entry of small animals.
- Use the knock hole, on the front and side for the conduit (composite) operation.
- ✦ When punching knock hole remove pipe outlet plate from unit and open knock hole



When wiring, using single core wires for the earth wiring, tie the power supply wiring and the earth wiring by clamp material as shown in the right figure.

⚠ Do not connect power supply to terminal block of transmission wiring. All system may get damaged.



8 ELECTRICAL WIRING WORK (3/3)

Wiring connection method

Precautions when laying power supply wiring.

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or treat the wiring with insulation. (Refer to fig. 32)
- If it is inevitable to use ring type crimp style terminals, make sure to observe the following items. (Abnormal heating may occur if the wiring are not tightened securely.)

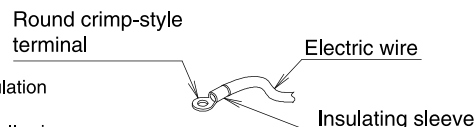


Fig. 13

Connection of 2 wirings of same must be carried out on both sides.



Connection of 2 wirings on one side is prohibited.



Connection of wirings of different sizes is prohibited.



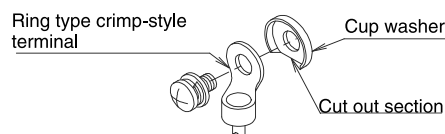
- Never use the stranded wiring which is soldered. (Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws. If an improper screw driver is used, it may damage the screw head and a proper tightening cannot be carried out.
- If a terminal is over tightened, it may be damaged. Refer to the table shown below for tightening torque of terminals.

Tightening torque (N·m)	
M4 (Wire between units terminal board)	1.50±0.30
M4 (Power supply terminal board)	1.50±0.30
M4 (Ground wire between units)	1.69±0.25
M5 (Ground wire between units)	3.55±0.50

Precautions when connecting the earth terminal

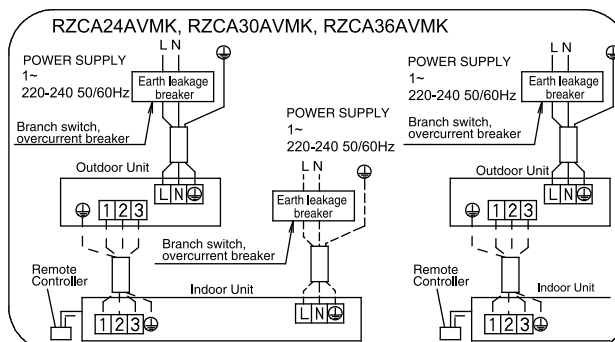


Conduct wiring so that the earth wiring comes out from the notched part of the cup washer. Otherwise, earth wiring contact will be insufficient and earth effect may be lost.



Specification for field supplied wiring

For the indoor unit wiring and transmission wiring (broken lines in the drawing), follow the instructions in the indoor unit's installation manual.



• SPECIFICATIONS OF STANDARD WIRING COMPONENTS

Outdoor Unit type	Power supply		Wire type of wiring between the units
	Wiring type (*)	Size	
RZCA24AVMK RZCA30AVMK RZCA36AVMK	H05VV-U3G	Wiring size and length must comply with local codes or [IEC 60335-1 (Table 11)]	H05VV-U4G2.5

(*) Only in protected piping, use H07RN-F when protected pipes are not used.

(Supply cords shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57))

NOTES

- Select and install the power supply wiring in accordance with [IEC 60335-1 (Table 11)] or local laws and regulations. The maximum current of the outdoor and indoor units are shown on each name plate.
- When installing wiring in a location that can easily come in contact with people, be sure to install an earth leakage breaker coping with high harmonics to prevent electric shock.
- Breaker type and capacity shall be selected in accordance with local laws and regulations.



To the electrician

- Do not operate the unit until the refrigerant charging is completely. (If it is operation before that, the compressor will be broken.)

9 CHECK ITEMS BEFORE TEST OPERATION AND FILED SETTING

PRE-RUN CHECKS

	ITEM TO CHECK	CHECK
Power supply Wiring	Is the wiring as mentioned on the wiring diagram? make sure no wiring has been forgotten and that there are no missing phases or reverse phases.	
	Does wiring between units put in and changed in continuation installation?	
	Is the unit properly grounded?	
	Are any of the wiring attachment screws loose?	
	Is the insulation resistance at least 1MΩ? • Use a 500V mega-tester when measuring insulation • ※ Do not use a mega-tester to low voltage circuit except 220-240V.	
	Is an earth leakage circuit breaker used as a current operated type which is compatible to the higher harmonic wave?	
	Does the earth leakage circuit breaker have appropriate rated current?	
Refrigerant piping	Is the size of the piping appropriate?	
	Is the insulation material for the piping attached securely? Are both the liquid and gas pipes insulated?	
	Are the stop valves for both the liquid side and the gas side open?	
Extra refrigerant	Did you write down the extra refrigerant and the refrigerant piping length?	
Indoor unit	Is the indoor unit fully installed? When the test run is started, the fan automatically begins turning.	



WARNING

- When a power supply is switched on, when you leave from the outdoor unit, be sure to close the cover plate.
(It becomes the cause of an electric shock).

In field setting for an outdoor unit, make sure to shut down the power and check that there is no residual voltage before start installing. (It may cause an electric shock.)

THE METHOD OF LOW NIGHT NOISE SETTING USING THE REMOTE CONTROLLER

The functions of the "Low Night Noise Setting" outdoor unit can be set by using the remote controller. During installation, make the field settings according to the description below, after the service inspection and repair. Mistakes in the setting could cause malfunctions.

HOW TO MAKE THE FIELD SETTINGS

Make the field setting according to "How to make the field settings" which come with the remote controller. The settings are set by switching between "Mode No.", "FIRST CODE No.", and "SECOND CODE No.".

CONTENT OF SETTINGS AND SETTING NUMBER

☐ : Factory settings

Mode NO.	FIRST CODE NO.	Description	SECOND CODE NO.				
			01	02	03	04	05
16 (26)	0	Night time low noise operation	☐	Automatic Low noise activation			
	1	Automatic low noise start and stop time			22h00 06h00	☐ 22h00 08h00	20h00 08h00
	2	High sensible cooling setting	☐		Server room setting	Anti-Frozent + Server room setting (combine)	

See the service manual for details on the content of the settings.

NOTES

- Settings are done in a batch for the group. For this reason, when performing group control* using the remote controller from one unit to set individual outdoor units, set each unit separately (for each connected indoor unit no.) using the mode number in parentheses. Checking after changing settings can also only be done using the mode numbers in parentheses. (For group batch control, the display will always read "01" even though the settings have been changed.) Furthermore, when performing control with two remote controllers*, field settings using a remote controller can only be done using the main remote controller.

* For details on controlling the units using the remote controllers, see applicable service manual.

- Do not set any values not shown in the table above.



CAUTION

- For settings other than the above, refer to the caution label or the service manual.
- Low night noise operation and demand operation using an external command requires a demand adapter PC board (option). For more details, refer to the manual supplied with the adapter.

10 TEST OPERATAON

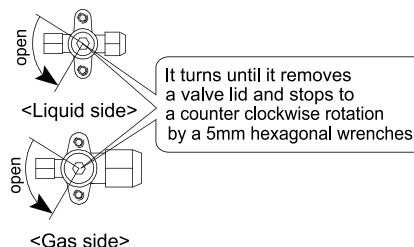
⚠ WARNING

- Never perform a test operation with the discharge piping thermistor(R2T) and suction piping thermistor(R3T) removed, as this might break the compressor.
- If the technician must leave the outdoor unit for some reason, switch places with another installation technician or close the plates. (It may cause electric shocks.)

HOW TO TEST OPERATION

After the indoor and outdoor unit installation, be sure to perform the test operation in accordance with the following procedure.

1. Open the stop valve cover and check that the liquid and gas sides of the stop valves are open.
<Be sure to close the front plate before the operation (there is a risk of electric shock)>
Note: After doing an air-purge with a vacuum pump, the refrigerant pressure may not rise even if the stop valves are opened. This is because the refrigerant piping path is closed off by the outdoor unit electronic expansion valve, etc. There are no problems if the unit is run.
2. Attach the stop valve cover to the outdoor unit and turn the power on at least 6 hours before operating the outdoor unit to protect the compressor.
3. Set to COOLING operation with the remote controller.
4. Perform the test operation
 - When doing trial operation, it may take about 1 minute until the compressor begins to function, but this is not abnormal.
 - When using the system the first time after installation, even if heating operation is selected, cooling operation will take place for about 3 to 5 minutes.
Thereafter, it will change to heating operation, but this is not abnormal.
(In this case, the remote controller display will continue to display "heating operation.") This is in order to detect if someone has forgotten to open the stop valve during trial operation.
 - If the outside air temperature is about 24°C or more, even if HEATING operation is set, the system may not operate, but this is not abnormal.
5. Operate normally.
6. Confirm function of the indoor and outdoor units according to the operation manual.



MALFUNCTION DIAGNOSIS

- At the time of a test run, when the following malfunction code is displayed on remote control, the fault of installation construction can be considered.

Malfunction code	Installation error	Remedial action
[E3] [E5] [U0] [L8]	A failure of a stop valve to open	"Open" operation of a stop valve
[E3] [E5] [L4] [L8]	Closing of an air passage	Removing closing thing from air passage
[U1]	Missing phase, negative phase	2 Phase of power supply 3 Phase (L1, L2, L3 Phase) are replaced
[U2]	Power supply unbalancing	Unbalanced dissolution
[U4] [UF]	Incorrect connection of field wiring	Correction of wiring
[UA]	Connection of incompatible indoor unit	Connect appropriate indoor unit (Refer to the catalogue)
NO INDICATION	Mistake wiring or not connect wiring of power supply, indoor, outdoor, field wiring between indoor unit	To correct wiring or connect correctly

- When malfunction codes other than the above are displayed on remote control, considering that the failure of between an indoor and an outdoor unit may have.
For the malfunction codes, please refer to the indoor unit's installation manual or outdoor service manual.
(A malfunction code has what has a display according to the form of the interior of a room and an outdoor unit, and the thing which is not.)
- The followings can be considered causes when the breaker for power supply trips.
 - The capacity of a breaker for power supply is smaller than the required capacity of the leakage circuit breaker.
 - The leakage circuit breaker is not compatible to the higher harmonic wave.
- In case of already checking all equipment that not have any problem, but found air conditioner not cooling.
Please re-check Motor operate valve coil not tighten or remove for 1st checking. If normally please re-confirm problem following service manual to solve problem.

⚠ CAUTION

To persons incharge of piping work and electric work

- Please check having attached the front board and the piping cover after a test run end when giving production over to customer.

11 CAUTION

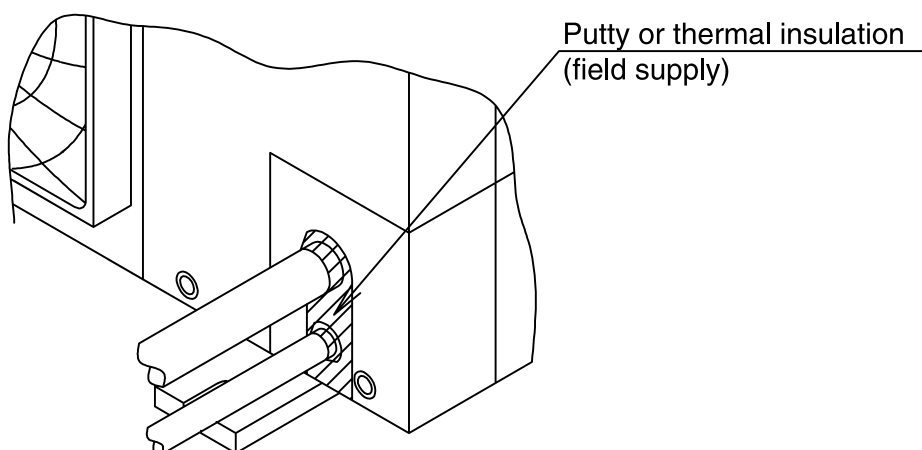
(RZCA24AVMK, RZCA30AVMK, RZCA36AVMK)

**CAUTION**

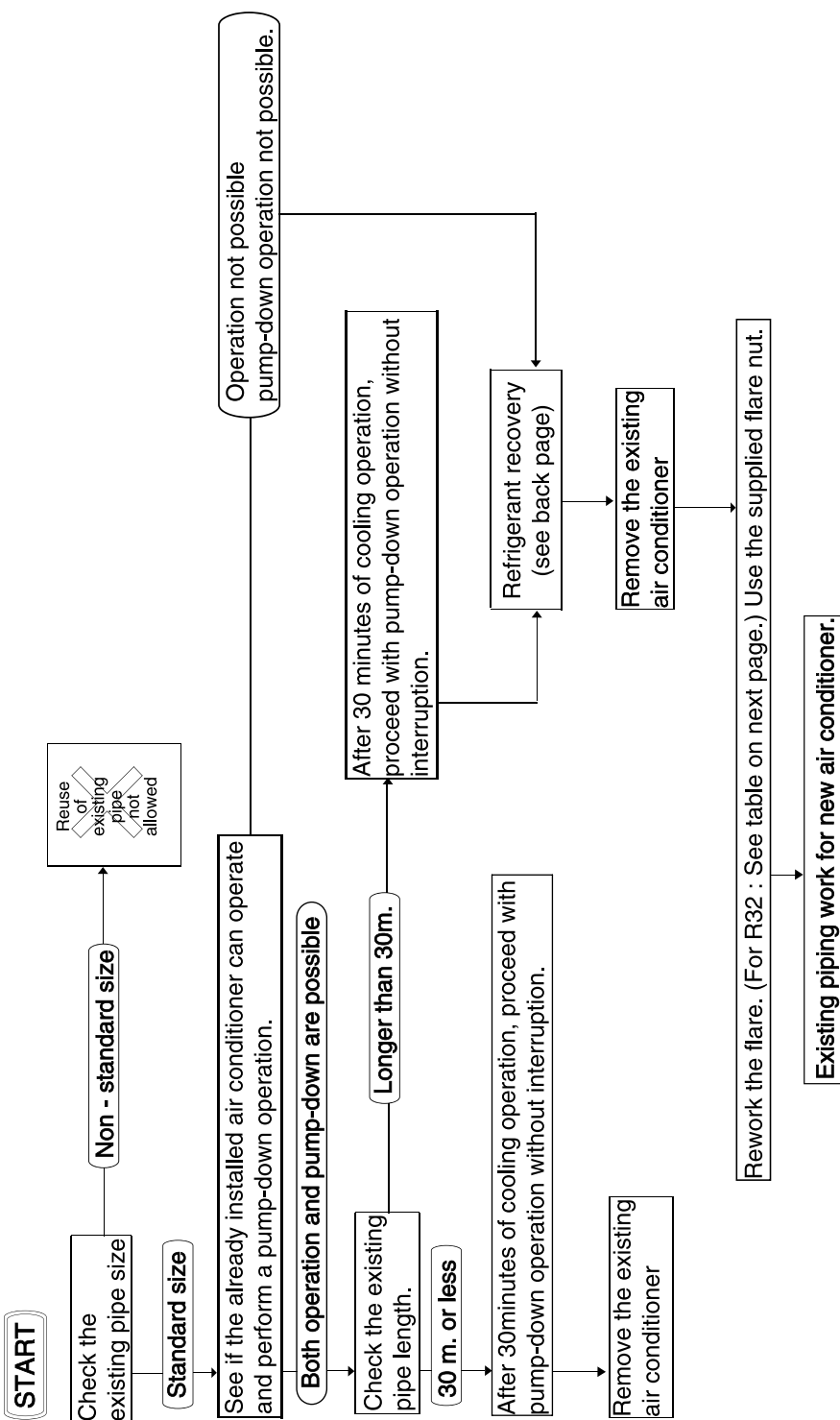
■ To those who carry out the piping work

Caution to be given when connecting pipes.

- Fill up the space with putty or thermal insulation (field supply) where the pipes through as shown below.
(If small animals like insects enter into the outdoor units, they may cause short circuit in the control box.)



12 HOW TO RE-USE THE EXISTING PIPING



PRECAUTIONS ON REFRIGERANT PIPING

- Clean pipe if existing air conditioner is heat pump type contains leftover oil.
- Clean pipe if used compressor oil in existing air conditioner is other than [SUNISO, MS, HAB, Barrel freeze, JOMO, Etheral oil, Ester oil]. Clean pipe if existing indoor and outdoor unit is disconnected.
- Change new pipe if refrigerant leakage or it should adding refrigerant.
- Change new heat insulation if existing part is peeling off.

(Note)

1. Clean the pipe if refrigerant leakage and unit has not service port on gas-liquid stop valve.
2. If indoor unit equipped with EV valve, open that valve before recovery refrigerant.
3. Maximum pipe length as per specified on next page.

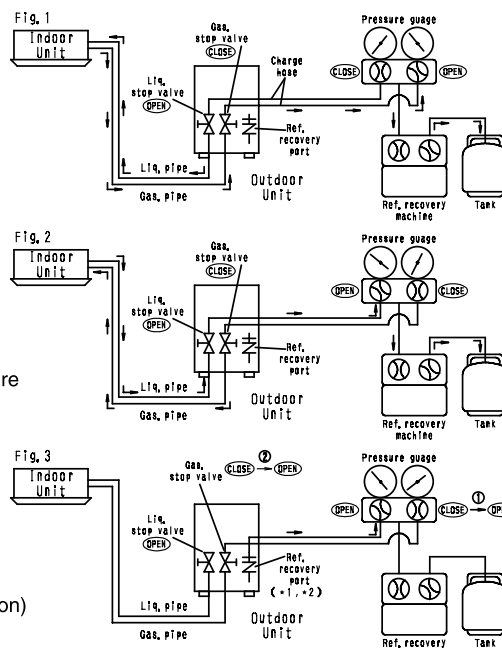
13 REFRIGERANT RECOVERY

[Working procedure]

- 1. Recovery retaining oil in existing pipe Approx. 1 min**
Close gas stop valve (liquid stop valve: open) and recovery refrigerant from gas stop valve port.(Fig.1)
- 2. Recovery retaining oil in existing liquid pipe Approx. 1 min**
Recovery refrigerant from liquid stop valve port. (Fig.2)
- 3. Recovery refrigerant in outdoor unit Approx. 2-3 min**
Recovery refrigerant from outdoor unit refrigerant recovery port *1. (Fig.3)
NOTE 1 Can be omit this procedure if there is no refrigerant recovery port
- 4. Recovery refrigerant in accordance with Fluorocarbons Recovery and Destructive Law**
If refrigerant recovery port *2 pressure become lower than gas stop valve port pressure, refrigerant will recover at the simultaneous from the gas stop valve port, open gas stop valve (Fig.3-1) gradually to avoid from pressure rising rapidly. (Fig.3-2)
NOTE 1 Can be omit this procedure if there has no refrigerant recovery port simultaneously if there has no refrigerant recovery port.

Retaining oil recovery amount improved approx. 5 times from regular refrigerant recovery method

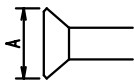
(pipe length, height difference, pipe path etc. is difference by installation condition)



ABOUT FLARE PROCESSING

- Flare connection area of existed piping will cause processing deterioration, make sure to do newly re-processing.

- Flare processing [Unit: mm]



Piping outside diameter	A (+0, -0.4) For R32
ø 9.5	13.2
ø 15.9	19.7

- Please use flare nut which attached with product (Do not use existed flare nut)

- Flare nut [Unit: mm]



Piping outside diameter	B (+0, -0.6) For R32
ø 9.5	22
ø 15.9	29

REFRIGERANT PIPE SIZE TABLE

Outdoor Unit		Existing pipe size	9.5/15.9	Height difference	Design pressure (High pressure)
RZCA24AVMK RZCA30AVMK RZCA36AVMK	9.5/15.9	Standard pipe length	7.5m	Max 30m	4.15 MPa
		Max. pipe length	50m		
		Chargeless pipe length	30m		

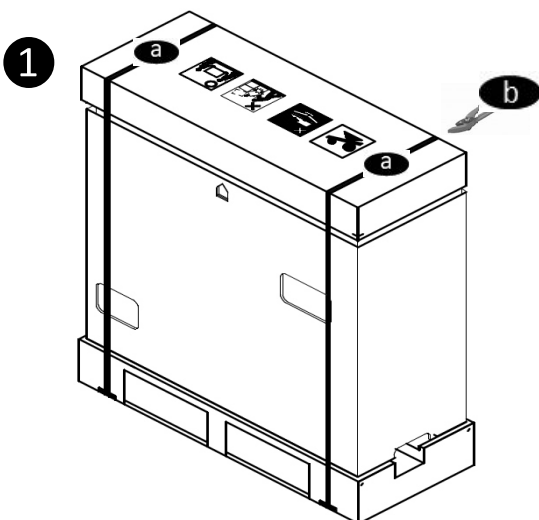
- Refer to the installation manual for details other than those mentioned above table such as additional refrigerant charge amount.
- Clean the existing piping if it length is exceed 30m.
- Clean the existing pipe if chargeless length is exceed limit of existing pipe pump down refrigerant recovery.

- Standard pipe (R32)

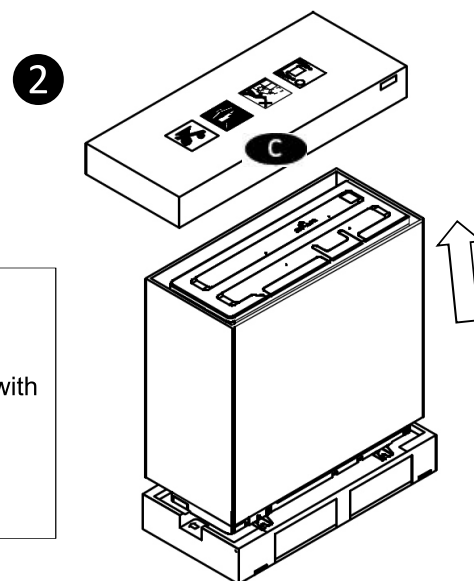
Pipe size (mm)	ø 9.5	ø 15.9
Thickness (mm)	t 0.8	t 1.0

14. UNPACKING & PACKING OF THE INDOOR

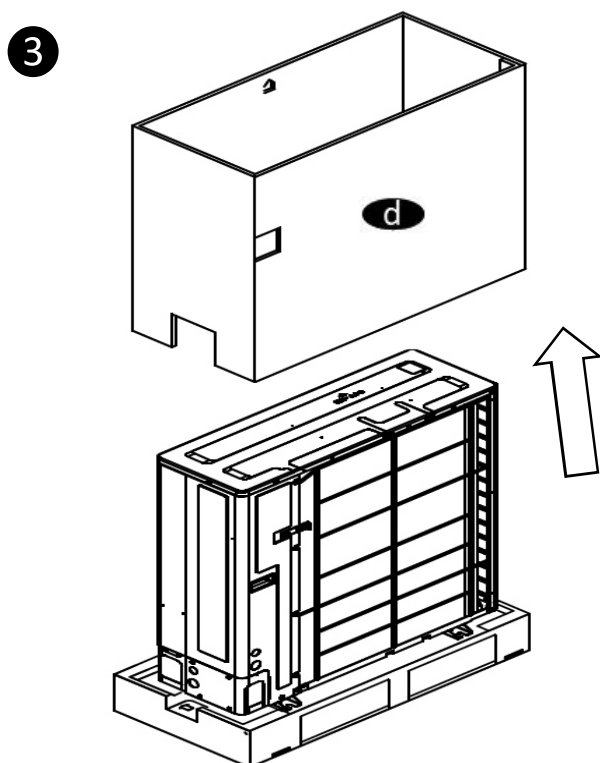
14-1. UNPACKING



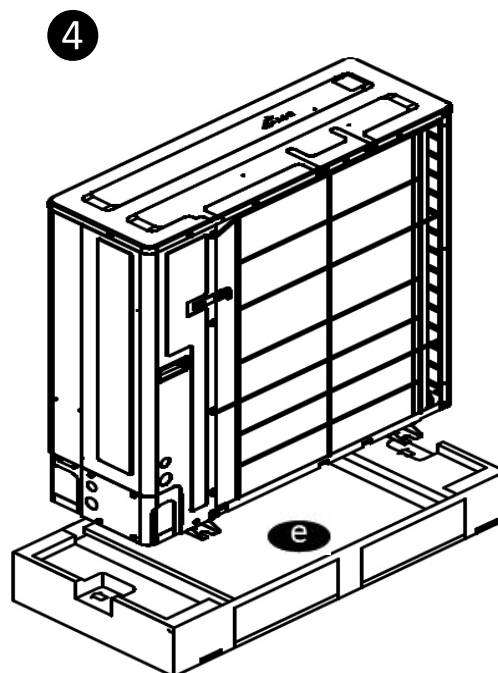
- Cut all the straps (a) from the unit using strap cutter(b) as shown in figure.



- Remove the Top corrugated cardboard sheet with EPS from the unit by pulling it up as shown in figure.



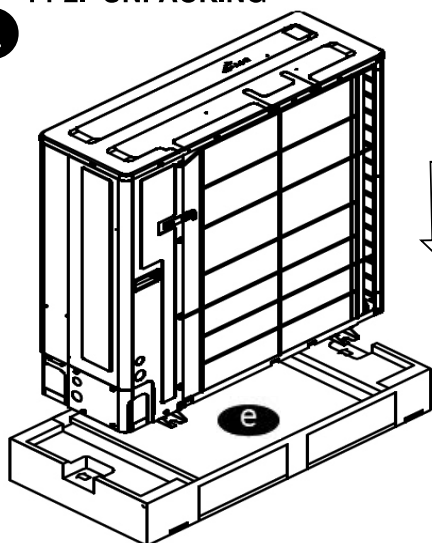
- Remove the cardboard box from the unit by pulling it up as shown in figure.



- Remove the bottom skid(d) with EPS by pulling the unit up, then remove the polythene product cover by pulling it up

14-2. UNPACKING

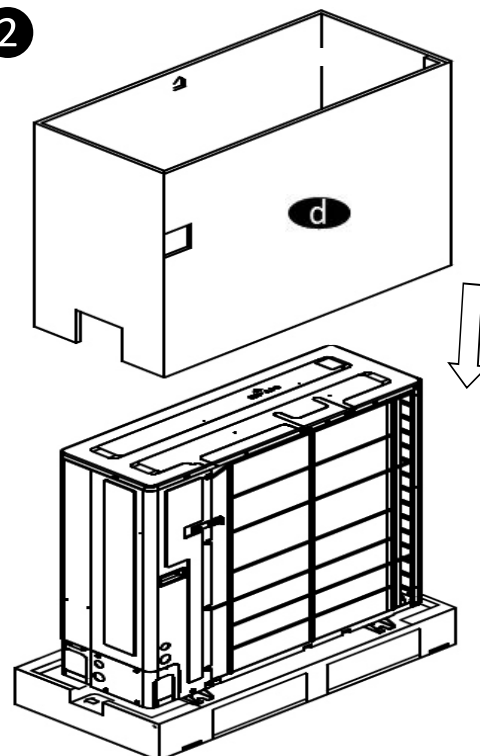
1



- a) Strap
- b) Strap Cutter
- c) Top corrugated cardboard sheet with EPS
- d) Cardboard Box
- e) Bottom Skid
- f) Portable strap fixing machine

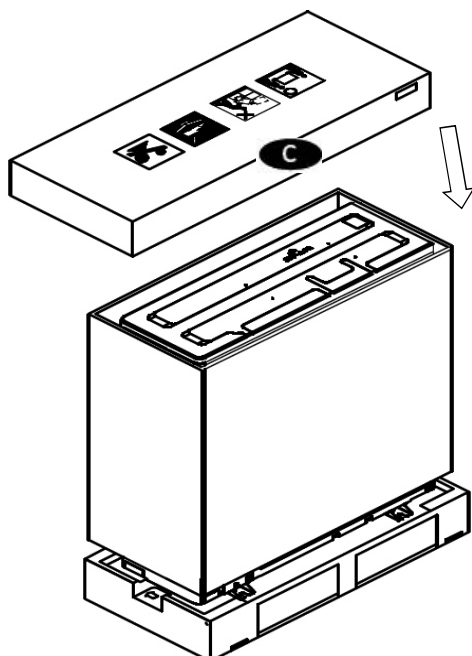
- Cover the unit with polythene product cover, then pick the unit up and settle it down on the bottom skid (e) as shown in figure.

2



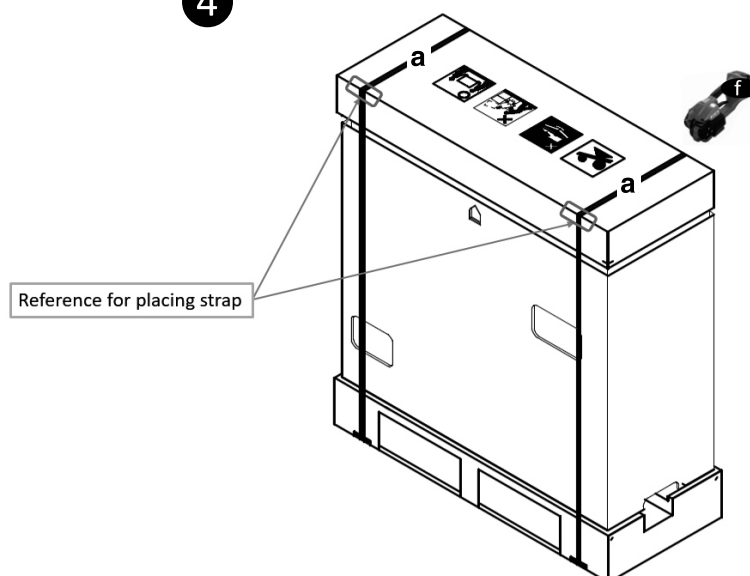
- Put the cardboard box (d) upon the unit as shown in figure.

3



- Put the top corrugated cardboard sheet and EPS (c) on the top of the unit as shown in figure.

4



Reference for placing strap

- Fix the straps (a) on the unit with help of strap fixing machine (f) as shown in figure. (Use marked reference for placing straps)

3.3 RZCA42AYMK



SPLIT SYSTEM AIR CONDITIONER

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES RZCA42AYMK

- Note : Read the precautions in this manual carefully before operating the unit.
 This appliance is filled with R32.

CONTENTS

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9 HOW TO RE-USE EXISTING PIPING	47
10 UNPACKING & PACKING INSTRUCTION OF THE OUTDOOR UNIT	48-49



WARNING THERE IS A RISK OF EXPLOSION OR FIRE

- Do not mix air in the refrigerating cycle during pump down operation.
- Do not use oxygen for air tight test.
- Do not use refrigerant other than the specified one or flammable material (e.g. propane) in the refrigerant cycle. They may cause over pressure in the refrigerating cycle and result in explosion, fire or injury.
Our company assumes no responsibility for failure or malfunction caused by filling or mixing of anything other than the specified refrigerant.



CAUTION ABOUT ISOLATING RESISTANCE OF COMPRESSOR

If refrigerant accumulates in the compressor after completing installation, the insulation resistance can drop, but if it at least 1 MΩ, then the unit will not break down.

- Connect the power supply to the unit and after 6 hours check if the insulation resistance of the compressor rises. (Energize and heat the compressor to vaporize the refrigerant accumulated in the compressor.)
- If the earth leakage breaker actuates, check if the earth leakage breaker is equipped with a device to cope with high harmonics. To prevent wrong actuation of the earth leakage breaker due to the inverter, make sure to adopt an earth leakage breaker equipped with a device to cope with high harmonics.

1. Please make sure to confirm that R32 (new refrigerant) is used in installation work in advance.
(It may not operate normally, if refrigerant type is different.)
2. The refrigerant R32 requires that strict precautions be observed for keeping the system clean, dry and tightly sealed.
 - Clean and dry
Strict measures must be taken to keep impurities (Including SUNISO oil and other mineral oils as well as moisture) out of the system.
 - Tightly sealed
R32 contains no chlorine, does not destroy the ozone layer and so does not reduce the earth's protection against harmful ultraviolet radiation. R32 will contribute only slightly to the greenhouse effect if released into the atmosphere. Therefore, sealing tightness is particularly important in installation.
Carefully read the **chapter 5 REFRIGERANT PIPING WORK** and strictly observe the correct procedures.
3. The design pressure of this unit : High/Low pressure area are shown in the right table.
The refrigerant piping is a high pressure area,
Use the refrigerant piping which supports the design pressure.
The piping specifications, please refer to chapter

Outdoor Unit	Design pressure	Cooling
RZCA42AYMK	High	4.15
	Low	3.30

5 REFRIGERANT PIPING WORK

4. Be sure to connect the indoor unit, which is dedicated to R32. See the catalog for indoor unit models which can be connected.
(Normal operation is not possible when connected to other units.)

(Units: MPa)

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

- This manual classifies the precautions into WARNINGS and CAUTIONS. Be sure to follow all the precautions below. They are all important for ensuring safety.

 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly. Give the user adequate instructions concerning the use and cleaning of the indoor unit according to the operation manual. In particular, make sure to explain with regard to "SAFETY PRECAUTIONS" and "Not malfunction of the air conditioner". Ask the user to keep this manual and the operation manual together in a handy place for future reference.
- This air conditioner comes under the term "appliances not accessible to the general public".

WARNING

- Ask your local dealer or qualified personnel to carry out installation work. Improper installation may result in water leakage, electric shocks or a fire.
- Perform installation work in accordance with this installation manual. Improper installation may result in water leakage, electric shocks or a fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the indoor unit is installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen deficiency.
- Be sure to use only the specified parts and accessories for installation work. Failure to use the specified parts may result in the air conditioner fall down, water leakage, electric shocks, a fire, etc.
- Install the air conditioner on a foundation that can withstand its mass. Insufficient strength may result in the air conditioner fall down and causing injury.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes. Improper installation may result in an accident such as the air conditioner fall down.
- Make certain that all electric work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit. In addition, even if the wiring is short, make sure to use a wiring that has sufficient length and never connect additional wiring to make the length sufficient. Insufficient capacity of the power supply circuit or improper electric construction may lead to electric shocks or a fire. (note 1) Applicable legislation means "All international, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain."
- Earth the air conditioner. Do not connect the earth wiring to gas or water piping, lightning conductor or telephone earth wiring. Incomplete earthing may cause electric shocks or a fire.
- Be sure to install an earth leakage circuit breaker. Failure to do so may cause electric shocks or a fire.
- The appliance must be stored in a room without continuously operating ignition sources (for example : open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerant may not contain an odor.
- Comply with national gas regulations.
- Be sure to switch off the unit before touching any electrical parts. Touching a live part may result in electric shocks.
- Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring. Incomplete connection or fixing may cause overheating terminals or fire.
- When wiring between the outdoor and indoor units, and wiring the power supply, from the wiring orderly so that the structural parts such as a cover can be securely fastened. If the cover is not in place, electric shocks or a fire may be caused.
- Do not add wiring. It may result in heat generation. Electric shocks or fire.
- When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure, it is free of air, and use only the specified refrigerant (R32). The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- If refrigerant gas leaks during installation work, ventilate the area immediately. Toxic gas may be produced if refrigerant gas comes into contact with a fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas. Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.
- Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do not stand on the outdoor unit or put things on it. The unit may fall down or drop, and cause accidents.
- Do not charge any refrigerant into the refrigeration cycle other than the designated refrigerant. It may cause over pressure in the refrigeration cycle and result in explosion, fire, and injury.
- Do not extend wiring on the way. It may cause heat generation, electric shocks or fire.
- At the installation work, install the refrigerant piping firmly before operating the compressor. If the compressor is operated without installing firmly and the service valve is in open condition, it sucks the air, etc., and the pressure inside the refrigerant circuit becomes abnormally high. It may cause injury and property damaged.
- At pump down work, stop the compressor before removing the refrigerant piping. If removing the refrigerant piping when the compressor is operated with its service valve in open condition, it sucks the air, etc., and the pressure inside the refrigerant circle become abnormally high, which may cause injury and property damage.
- The appliance shall be installed operated and stored in a room with floor area larger than 3.68 m².
- When flared joints are reused, the flare part shall be re-fabricated.



⚠ CAUTIONS

- Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation. Improper drain piping may cause water leakage, make the furniture get wet.
- Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radio to prevent picture interference and noise. (Depending on the incoming signal strength, a distance of 1 meter may not be sufficient to eliminate noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Disposal requirements
Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Do not install the air conditioner in places such as following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen.
Resin parts may deteriorate, and cause them to fall out or water to leak.
 2. Where corrosive gas, such as sulfurous acid gas, is produced.
Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
 3. Where there is machinery which emits electromagnetic waves.
Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
 4. Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled. If the gas should leak and remain around the air conditioner, it may cause ignition.
 5. The place that the vibration or the voltage fluctuation give influence. Vehicles, vessels, etc.
The vibration may cause a damage and the voltage fluctuation may cause an abnormal operation.
 6. Where small animals may build a nest, fallen leaves are accumulated, or weeds are overgrown.
If small animals touch the electrical parts inside, this may cause malfunction, smoke or a fire.

■ Important information regarding the refrigerant used
This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.
Refrigerant type: R32
GWP⁽¹⁾ value: 675
⁽¹⁾GWP = global warming potential
• The refrigerant quantity is indicated on the unit name plate.

1. ABOUT THE DOCUMENTATION

1-1. ABOUT THIS DOCUMENTATION

Target audience

Authorised installers



INFORMATION

This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**
 - Safety instructions that you **MUST** read before installing
 - Format: Paper (in the box of the outdoor unit)
- **Outdoor unit installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the outdoor unit)
- **Installer reference guide:**
 - Preparation of the installation, reference data,...

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

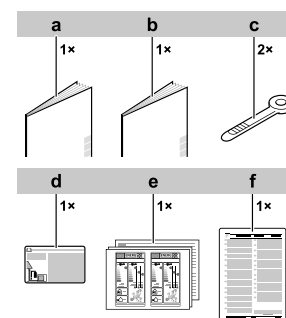
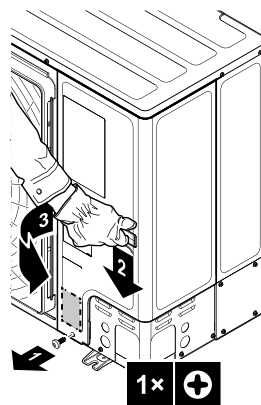
Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

2. ABOUT THE BOX

2-1. OUTDOOR UNIT

2-1.1 TO REMOVE THE ACCESSORIES FROM THE OUTDOOR UNIT



- a General safety precautions
- b Outdoor unit installation manual
- c Cable tie
- d Fluorinated greenhouse gases label
- e Energy label
- f Addendum (LOT21)

3. PREPARATION

3.1 PREPARING THE INSTALLATION SITE



WARNING

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

3.1.1 INSTALLATION SITE REQUIREMENTS OF THE OUTDOOR UNIT

Mind the spacing guidelines. See the "Technical data" chapter, and the figures on the inside of the front cover.



INFORMATION

The sound pressure level is less than 70 dBA.



CAUTION

Appliance not accessible to the general public, install it in a secured area, protected from easy access.

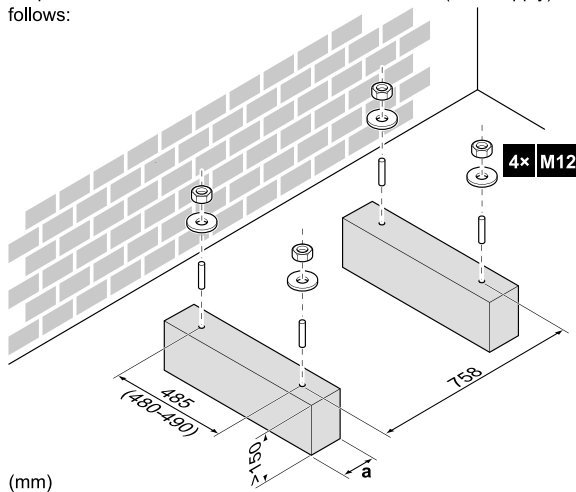
This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.

4. INSTALLATION & TECHNICAL DATA

4.1 MOUNTING THE OUTDOOR UNIT

4.1.1 TO PROVIDE THE INSTALLATION STRUCTURE

Prepare 4 sets of anchor bolts, nuts and washers (field supply) as follows:



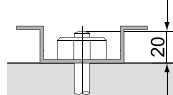
(mm)

a Make sure not to cover the drain holes of the bottom plate of the unit.



INFORMATION

The recommended height of the upper protruding part of the bolts is 20 mm.

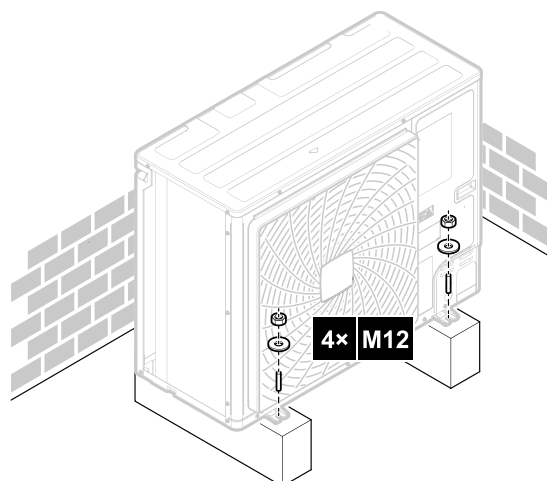


NOTICE

Fix the outdoor unit to the foundation bolts using nuts with resin washers (a). If the coating on the fastening area is stripped off, the metal can rust easily.



4.1.2 TO INSTALL THE OUTDOOR UNIT



4.1.3 TO PROVIDE DRAINAGE



INFORMATION

If necessary, you can use a drain pan (field supply) to prevent drain water from dripping.



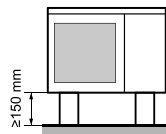
NOTICE

If the unit CANNOT be installed fully level, always make sure that the inclination is towards the backside of the unit. This is required to guarantee proper drainage.

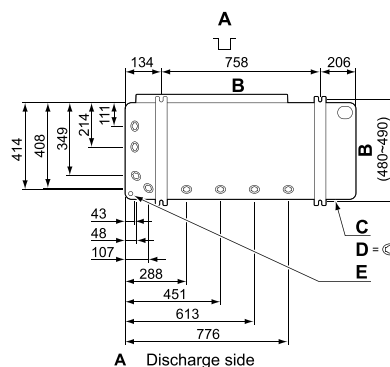


NOTICE

If drain holes of the outdoor unit are covered by a mounting base or by floor surface, raise the unit to provide a free space of more than 150 mm under the outdoor unit.



Drain holes (dimensions in mm)

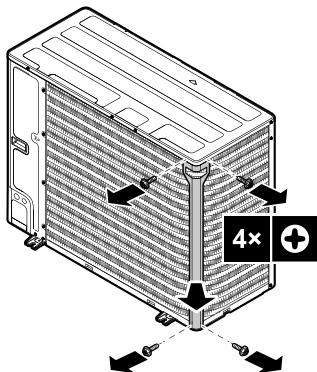


- B Distance between anchor points
- C Bottom frame
- D Drain holes
- E Knockout hole for snow

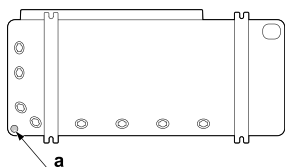
Snow

In regions with snowfall, snow might build up and freeze between the heat exchanger and the casing of the unit. This might decrease the operating efficiency. To prevent this:

- 1 Remove the beam structure (see figure below).



- 2 Remove the knockout hole (a) by tapping on the attachment points with a flat head screwdriver and a hammer.



- 3 Remove the burrs, and paint the edges and areas around the edges using repair paint to prevent rusting.



NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.



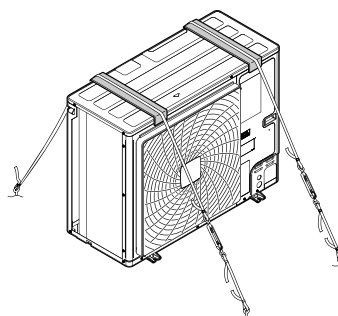
INFORMATION

We suggest to install the optional bottom plate heater (EKBPH140N7) when the unit is installed in cold climates.

4.1.4 TO PREVENT THE OUTDOOR UNIT FROM FALLING OVER

In case the unit is installed in places where strong wind can tilt the unit, take following measure:

- 1 Prepare 2 cables as indicated in the following illustration (field supply).
- 2 Place the 2 cables over the outdoor unit.
- 3 Insert a rubber sheet between the cables and the outdoor unit to prevent the cables from scratching the paint (field supply).
- 4 Attach the ends of the cables and tighten them.



4.2 CONNECTING THE REFRIGERANT PIPING



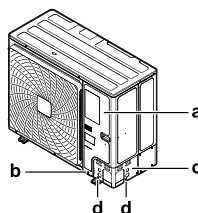
⚠ DANGER: RISK OF BURNING

4.2.1 TO CONNECT THE REFRIGERANT PIPING TO THE OUTDOOR UNIT

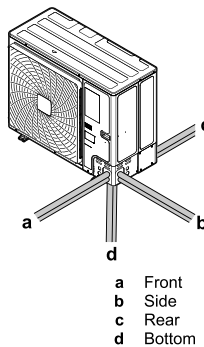
- **Piping length.** Keep field piping as short as possible.
- **Piping protection.** Protect the field piping against physical damage.

- 1 Do the following:

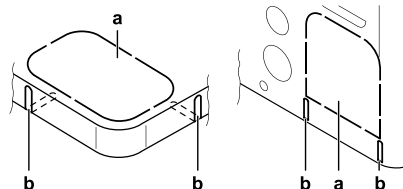
- Remove the service cover (a) with screw (b).
- Remove the piping intake plate (c) with screws (d).



- 2 Choose a piping route (a, b, c or d).



INFORMATION



- Remove the knockout hole (a) in the bottom plate or cover plate by tapping on the attachment points with a flat head screwdriver and a hammer.
- Optionally, cut out the slits (b) with a metal saw.

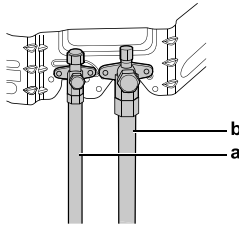
NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

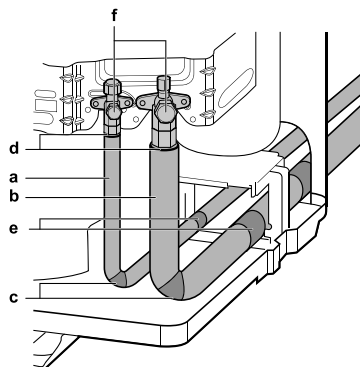
3 Do the following:

- Connect the liquid pipe (a) to the liquid stop valve.
- Connect the gas pipe (b) to the gas stop valve.



4 Do the following:

- Insulate the liquid piping (a) and the gas piping (b).
- Wind heat insulation around the curves, and then cover it with vinyl tape (c).
- Make sure the field piping does not touch any compressor components.
- Seal the insulation ends (sealant etc.) (d).
- Wrap the field piping with vinyl tape (e) to protect it against sharp edges

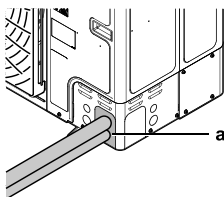


- 5 If the outdoor unit is installed above the indoor unit, cover the stop valves (f, see above) with sealing material to prevent condensed water on the stop valves from moving to the indoor unit.

NOTICE

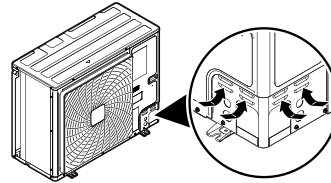
Any exposed piping might cause condensation.

- 6 Reattach the service cover and the piping intake plate.
- 7 Seal all gaps (example: a) to prevent snow and small animals from entering the system.



NOTICE

Do not block the air vents. This could affect air circulation inside the unit.



WARNING

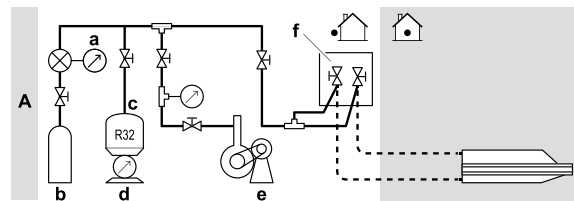
Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

NOTICE

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

4.3 CHECKING THE REFRIGERANT PIPING

4.3.1 CHECKING REFRIGERANT PIPING: SETUP



- A Setup in case of pair
a Pressure gauge
b Nitrogen
c Refrigerant
d Weighing scale
e Vacuum pump
f Stop valve

4.3.1 TO CHECK FOR LEAKS

NOTICE

Do NOT exceed the unit's maximum working pressure (see "PS High" on the unit name plate).

**NOTICE**

Make sure to use a recommended bubble test solution from your wholesaler. Do not use soap water, which may cause cracking of flare nuts (soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold), and/or lead to corrosion of flared joints (soap water may contain ammonia which causes a corrosive effect between the brass flare nut and the copper flare).

- 1 Charge the system with nitrogen gas up to a gauge pressure of at least 200 kPa (2 bar). It is recommended to pressurize to 3000 kPa (30 bar) in order to detect small leaks.
- 2 Check for leaks by applying the bubble test solution to all connections.
- 3 Discharge all nitrogen gas.

4.3.3 TO PERFORM VACUUM DRYING**NOTICE**

- Connect the vacuum pump to **both** the service port of the gas stop valve and the service port of the liquid stop valve to increase efficiency.
- Make sure that the gas stop valve and liquid stop valve are firmly closed before performing the leak test or vacuum drying.

- 1 Vacuum the system until the pressure on the manifold indicates -0.1 MPa (-1 bar).
- 2 Leave as is for 4-5 minutes and check the pressure:

If the pressure...	Then...
Does not change	There is no moisture in the system. This procedure is finished.
Increases	There is moisture in the system. Go to the next step.

- 3 Vacuum the system for at least 2 hours to a manifold pressure of -0.1 MPa (-1 bar).
- 4 After turning the pump OFF, check the pressure for at least 1 hour.
- 5 If you do NOT reach the target vacuum or CANNOT maintain the vacuum for 1 hour, do the following:
 - Check for leaks again.
 - Perform vacuum drying again.

**NOTICE**

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

4.4 CHARGING REFRIGERANT**4.4.1 ABOUT CHARGING REFRIGERANT**

The outdoor unit is factory charged with refrigerant, but in some cases the following might be necessary:

What	When
Charging additional refrigerant	When the total liquid piping length is more than specified (see later).
Completely recharging refrigerant	Example: ▪ When relocating the system. ▪ After a leak.

Charging additional refrigerant

Before charging additional refrigerant, make sure the outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying).

**INFORMATION**

Depending on the units and/or the installation conditions, it might be necessary to connect electrical wiring before you can charge refrigerant.

Typical workflow – Charging additional refrigerant typically consists of the following stages:

- 1 Determining if and how much you have to charge additionally.
- 2 If necessary, charging additional refrigerant.
- 3 Filling in the fluorinated greenhouse gases label, and fixing it to the inside of the outdoor unit.

Completely recharging refrigerant

Before completely recharging refrigerant, make sure the following is done:

- 1 All refrigerant is recovered from the system.
- 2 The outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying).
- 3 Vacuum drying on the outdoor unit's **internal** refrigerant piping is performed.

**NOTICE**

Before completely recharging, perform vacuum drying on the outdoor unit's **internal** refrigerant piping as well.

**NOTICE**

To perform vacuum drying or a complete recharge of the outdoor unit's internal refrigerant piping it is necessary to activate the vacuum mode (see "To activate/deactivate the vacuum mode field setting" on page 27) which will open required valves in the refrigerant circuit so the vacuuming process or recharge of refrigerant can be done properly.

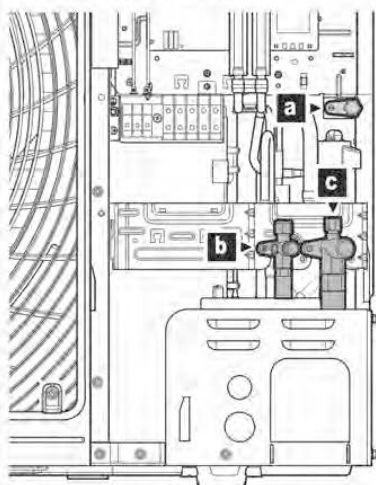
- Before vacuum drying or recharging, activate field setting "vacuum mode".
- After finishing vacuum drying or recharging, deactivate field setting "vacuum mode".

**WARNING**

Some sections of the refrigerant circuit may be isolated from other sections caused by components with specific functions (e.g. valves). The refrigerant circuit therefore features additional service ports for vacuuming, pressure relief or pressurizing the circuit.

In case it is required to perform **brazing** on the unit, ensure that there is no pressure remaining inside the unit. Internal pressures need to be released with ALL the service ports indicated on the figures below opened. The location is depending on model type.

Location of service ports:



- a Internal service port
- b Stop valve with service port (liquid)
- c Stop valve with service port (gas)

Typical workflow – Completely recharging refrigerant typically consists of the following stages:

- 1 Determining how much refrigerant to charge.
- 2 Charging refrigerant.
- 3 Filling in the fluorinated greenhouse gases label, and fixing it to the inside of the outdoor unit.

4.4.2 ABOUT THE REFRIGERANT

This product contains fluorinated greenhouse gases. Do NOT vent gases into the atmosphere.

Refrigerant type: R32

Global warming potential (GWP) value: 675



WARNING: FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



WARNING

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).



WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use cleaning materials or means to accelerate the defrosting process other than those recommended by the manufacturer.
- Be aware that the refrigerant inside the system is odourless.



WARNING

The refrigerant inside the unit is mildly flammable, but normally does NOT leak. If the refrigerant leaks in the room and comes in contact with fire from a burner, a heater, or a cooker, this may result in fire, or the formation of a harmful gas.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.

Do NOT use the unit until a service person confirms that the part from which the refrigerant leaked has been repaired.

4.4.3 PRECAUTIONS WHEN CHARGING REFRIGERANT

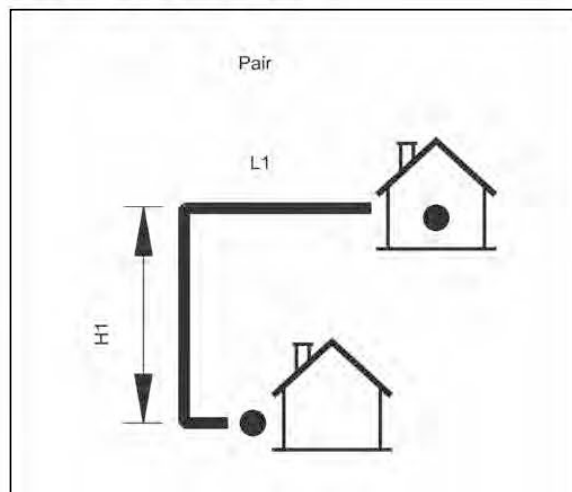


INFORMATION

Also read the precautions and requirements in the following chapters:

- General safety precautions
- Preparation

4.4.4 DEFINITIONS: l1, h1



- (a) Assume that the longest line in the illustration corresponds with the actual longest pipe, and the highest unit in the illustration corresponds with the actual highest unit.

L1 Main piping

H1 Height difference between the highest indoor unit and the outdoor unit

☐ indoor unit
☐ Refrigerant branch kit

4.4.5 CHARGING ADDITIONAL REFRIGERANT

To determine the additional refrigerant amount

To determine if adding additional refrigerant is necessary

If	Then
$L1 \leq \text{chargeless length}$ Charge less length= • 10 m (size-down) • 25 m (standard) • 15 m (size-up)	You do not have to add additional refrigerant.
$L1 > \text{chargeless length}$	You must add additional refrigerant. For future servicing, encircle the selected amount in the tables below.



INFORMATION

Piping length is the largest one-way length of liquid piping.

To determine the additional refrigerant amount (R in kg) (in case of pair)

Standard piping size					
L1:	25~30 m	30~35 m	35~40 m	40~45 m	45~50 m
R:	0.1 kg	0.3 kg	0.4 kg	0.5 kg	0.6 kg

(a) for 42

Charging refrigerant: Setup

See "4.3.1 Checking refrigerant piping: Setup"

To charge additional refrigerant



WARNING

Only use R32 as refrigerant. Other substances may cause explosions and accidents.

R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.

When charging refrigerant, ALWAYS use protective gloves and safety glasses.

Prerequisite: Before charging refrigerant, make sure the refrigerant piping is connected and checked (leak test and vacuum drying).

- 1 Connect the refrigerant cylinder to both the service port of the gas stop valve and the service port of the liquid stop valve.
- 2 Charge the additional refrigerant amount.
- 3 Open the stop valves.

4.4.6 COMPLETELY RECHARGING REFRIGERANT

To determine the complete recharge amount

To determine the complete recharge amount (kg) (in case of standard liquid pipe size)

Outdoor	Liquid Pipe	Length (m) ^(a)				
		3~25	25~30	30~35	35~40	40~50
RZCA42	3/8"	3.6	3.7	3.9	4.0	4.1

To determine the complete recharge amount (kg) (in case of size-down liquid pipe size)

Model	Length (m) ^(a)	
	3~10	
RZCA42	3~6	(a) Length=L1 (pair)

To activate/deactivate the vacuum mode field setting

Description

To perform vacuum drying or a complete recharge of the outdoor unit's internal refrigerant piping it is necessary to activate the vacuum mode which will open required valves in the refrigerant circuit so the vacuuming process or recharge of refrigerant can be done properly.

To activate vacuum mode:

Activating the vacuum mode is done by operating the push buttons BS* on the PCB (A1P) and reading the feedback from the 7-segment displays.

Operate the switches and push buttons with an insulated stick (such as a closed ball-point pen) to avoid touching of live parts.



When the unit is powered on and not running, hold down the BS1 pushbutton for 5 seconds.

Result: You will reach the setting mode, the 7 segment display will show '2 0 0'.

- 2 Press the BS2 button until you reach page 2-17.
- 3 When 2-17 is reached, press the BS3 button once.
- 4 Change the setting to '2' by pressing the BS2 button once.
- 5 Push the BS3 button once.
- 6 When the display is not blinking anymore, press the BS3 button again to activate vacuum mode.

To deactivate vacuum mode:

After charging or vacuuming the unit, please deactivate the vacuum mode:

- 7 Press the BS2 button until you reach page 2-17.
- 8 When 2-17 is reached, press the BS3 button once.
- 9 Change the setting to '1' by pressing the BS2 button once.
- 10 Push the BS3 button once.
- 11 When the display is not blinking anymore, press the BS3 button again to deactivate vacuum mode.
- 12 Press the BS1 button to leave the setting mode.

Make sure to reattach the electronic component box cover and to install the front cover after the job is finished.



NOTICE

Make sure that all outside panels, except for the service cover on the electrical component box, are closed while working.

Close the lid of the electrical component box firmly before turning on the power.

Charging refrigerant: Setup

See "4.3.1 Checking refrigerant piping: Setup"

To completely recharge refrigerant



WARNING

Only use R32 as refrigerant. Other substances may cause explosions and accidents.

R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.

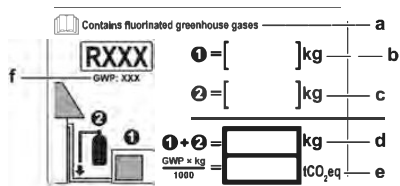
When charging refrigerant, ALWAYS use protective gloves and safety glasses.

Prerequisite: Before completely recharging refrigerant, make sure the system is pumped down, the outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying) and vacuum drying on the outdoor unit's **internal** refrigerant piping is performed.

- 1 If not already done (for vacuum drying of the unit), activate the vacuum mode (see "To activate/deactivate the vacuum mode field setting")
- 2 Connect the refrigerant cylinder to the service port of the liquid stop valve.
- 3 Open the liquid stop valve.
- 4 complete the Charge refrigerant amount.
- 5 Deactivate the vacuum mode (see "To activate/deactivate the vacuum mode field setting").
- 6 Open the gas stop valve.

4.4.7 TO FIX THE FLUORINATED GREENHOUSE GASES LABEL

1 Fill in the label as follows:



- If a multilingual fluorinated greenhouse gases label is delivered with the unit (see accessories), peel off the applicable language and stick it on top of a.
- Factory refrigerant charge: see unit name plate
- Additional refrigerant amount charged
- Total refrigerant charge
- Quantity of fluorinated greenhouse gases** of the total refrigerant charge expressed as tonnes CO₂ equivalent. GWP = Global warming potential



NOTICE

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg] / 1000

Use the GWP value mentioned on the refrigerant charge label. That GWP is based on the current legislation on fluorinated greenhouse gases. The GWP mentioned in the manual might be outdated.

- Fix the label on the inside of the outdoor unit. There is a dedicated place for it on the wiring diagram label.

4.5 CONNECTING THE ELECTRICAL WIRING



DANGER: RISK OF ELECTROCUTION



WARNING

ALWAYS use multicore cable for power supply cables.



CAUTION

For use of units in applications with temperature alarm settings it is recommended to foresee a delay of 10 minutes for signalling the alarm in case the alarm temperature is exceeded. The unit may stop for several minutes during normal operation for "defrosting the unit", or when in "thermostat stop" operation.



NOTICE

Follow the wiring diagram (delivered with the unit, located at the inside of the service cover).

Make sure the electrical wiring does NOT obstruct proper reattachment of the service cover.

Remove the service cover.

- Connect the interconnection cables and power supply as follows:

4.5.1 ABOUT ELECTRICAL COMPLIANCE

RZA36/48/54AYMK

Equipment complying with EN/IEC 61000-3-12 (European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.).

4.5.2 Guidelines when connecting the electrical wiring

Tightening torques

Item	Tightening torque (N·m)
M4 (X1M)	1.2~1.8
M4 (earth)	1.2~1.4
M5 (X1M)	2.0~3.0
M5 (earth)	2.4~2.9



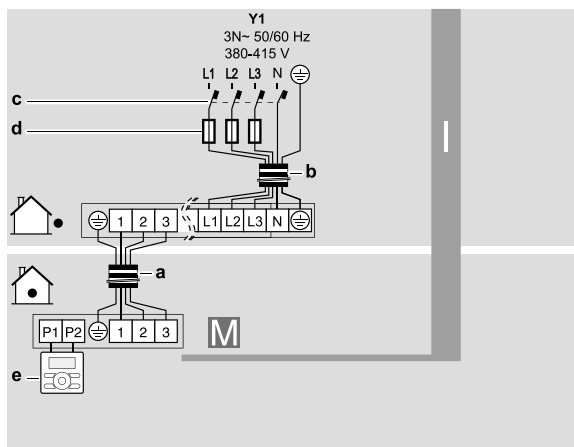
NOTICE

If limited space is available at the wire terminal, use bended crimp-style ring terminals.

4.5.3 SPECIFICATION OF STANDARD WIRING COMPONENTS.

Component		Y
		42
Power Supply Cable	MCA	15.4A
	Voltage Range	380~415 V
	Phase	3N~
	Frequency	50/60
	Wire Sizes & ELCB	Must Comply with applicable legislation
Interconnection cables		Minimum Cable section of 2.5 mm ² and applicable for 220-240V
Recommended Field Fuse		Min.20A

4.5.5 TO CONNECT THE ELECTRICAL WIRING ON THE OUTDOOR UNIT



I single system

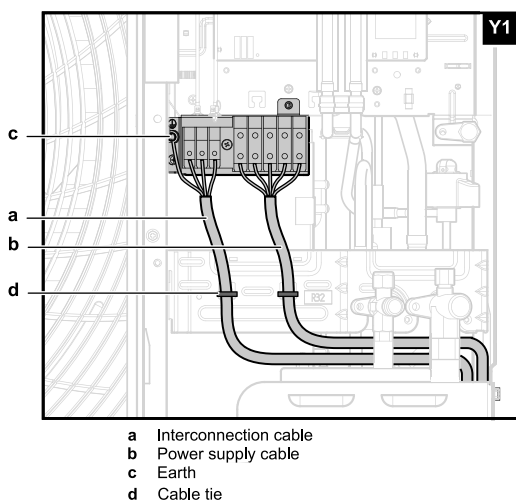
M Master

- a Interconnection cables
- b Power supply cable
- c Earth leakage circuit breaker
- d Fuse
- e User interface



INFORMATION

Some indoor units may need a separate power supply in order to guarantee maximum capacity. See the installation manual of the indoor unit.



- a Interconnection cable
- b Power supply cable
- c Earth
- d Cable tie

- 3 Fix the cables (power supply and interconnection cable) with a cable tie to the stop valve attachment plate and route the wiring according to the illustration above.
- 4 Choose a knockout hole and remove the knockout hole by tapping on the attachment points with a flat head screwdriver and a hammer.
- 5 Route the wiring through the frame and connect the wiring to the frame at the knockout hole.

Routing through the frame	Choose one of the 3 possibilities: a Power supply cable Note: Route the interconnection cable together with the refrigerant piping. See "4.6.1 To finish the outdoor unit installation"
Connecting to the frame	When cables are routed from the unit, a protection sleeve for the conduits (PG insertions) can be inserted at the knockout hole. When you do not use a wire conduit, protect the wires with vinyl tubes to prevent the edge of the knockout hole from cutting the wires. A Inside of the outdoor unit B Outside of the outdoor unit a Wire b Bush c Nut d Frame e Hose



NOTICE

Precautions when making knockout holes:

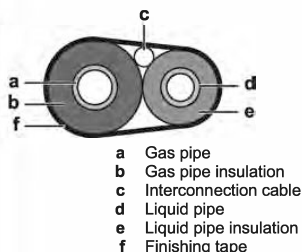
- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

- 6 Reattach the service cover.
- 7 Connect an earth leakage circuit breaker and fuse to the power supply line.

4.6 FINISHING THE OUTDOOR UNIT INSTALLATION

4.6.1 TO FINISH THE OUTDOOR UNIT INSTALLATION

- 1 Insulate and fix the refrigerant piping and interconnection cable as follows:



- 2 Install the service cover.

4.6.1 TO CHECK THE INSULATION RESISTANCE OF THE COMPRESSOR



NOTICE

If, after installation, refrigerant accumulates in the compressor, the insulation resistance over the poles can drop, but if it is at least 1 MΩ, then the unit will not break down.

- Use a 500 V mega-tester when measuring insulation.
- Do not use a mega-tester for low-voltage circuits.

- 1 Measure the insulation resistance over the poles.

If	Then
≥1 MΩ	Insulation resistance is OK. This procedure is finished.
<1 MΩ	Insulation resistance is not OK. Go to the next step.

- 2 Turn ON the power and leave it on for 6 hours.

Result: The compressor will heat up and evaporate any refrigerant in the compressor.

- 3 Measure the insulation resistance again.

5 COMMISSIONING

Please provide the eco design data according to (EU)2016/2281 to the customer. This data can be found in the installer reference guide or via the Daikin website.



NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If NOT, burning of the compressor might be the result.

5.1 CHECKLIST BEFORE COMMISSIONING

After the installation of the unit, first check the items listed below. Once all checks are fulfilled, the unit must be closed. Power-up the unit after it is closed.

☐	You read the complete installation instructions, as described in the installer reference guide .
☐	The indoor units are properly mounted.
☐	In case a wireless user interface is used: The indoor unit decoration panel with infrared receiver is installed.

☐	The outdoor unit is properly mounted.
☐	The following field wiring has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the outdoor unit ▪ Between the outdoor unit and the indoor unit (master) ▪ Between the indoor units
☐	There are NO missing phases or reversed phases .
☐	The system is properly earthed and the earth terminals are tightened.
☐	The fuses or locally installed protection devices are installed according to this document, and have NOT been bypassed.
☐	The power supply voltage matches the voltage on the identification label of the unit.
☐	There are NO loose connections or damaged electrical components in the switch box.
☐	The insulation resistance of the compressor is OK.
☐	There are NO damaged components or squeezed pipes on the inside of the indoor and outdoor units.
☐	There are NO refrigerant leaks .
☐	The correct pipe size is installed and the pipes are properly insulated.
☐	The stop valves (gas and liquid) on the outdoor unit are fully open.

5.2 TO PERFORM A TEST RUN

This task is only applicable when using the BRC1E62 or BRC1E63 user interface. When using any other user interface, see the installation manual or service manual of the user interface.



NOTICE

Do not interrupt the test run.



INFORMATION

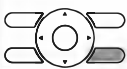
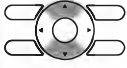
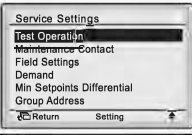
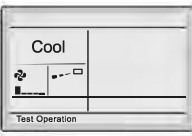
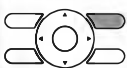
Backlight. To perform an ON/OFF action on the user interface, the backlight does not need to be lit. For any other action, it needs to be lit first. The backlight is lit for ±30 seconds when you press a button.

- 1 Perform introductory steps.

#	Action
1	Open the liquid stop valve and gas stop valve by removing the cap and turning counterclockwise with a hex wrench until it stops.
2	Close the service cover to prevent electric shocks.
3	Turn ON power for at least 6 hours before starting operation to protect the compressor.
4	On the user interface, set the unit to cooling operation mode.

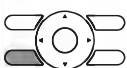
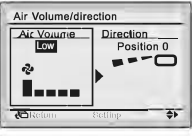
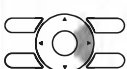
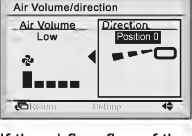
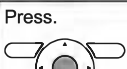
- 2 Start the test run (Applicable with BRC1E63)

#	Action	Result
1	Go to the home menu.	

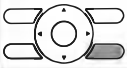
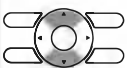
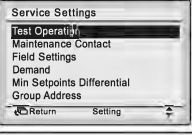
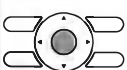
#	Action	Result
2	Press at least 4 seconds. 	The Service Settings menu is displayed.
3	Select Test Operation. 	
4	Press. 	Test Operation is displayed on the home menu. 
5	Press within 10 seconds. 	Test run starts.

3 Check operation for 3 minutes.

4 Check operation of the airflow direction (only applicable for indoor units with swing flaps).

#	Action	Result
1	Press. 	
2	Select Position 0. 	
3	Change the position 	If the airflow flap of the indoor unit moves, operation is OK. If not, operation is not OK.
4	Press. 	The home menu is displayed.

5 Stop the test run.

#	Action	Result
1	Press at least 4 seconds. 	The Service Settings menu is displayed.
2	Select Test Operation. 	
3	Press. 	The unit returns to normal operation, and the home menu is displayed.

Note - Test operation with BRC1H remote controller will follow the instruction manual attached with the remote controller

5.3 ERROR CODES WHEN PERFORMING A TEST RUN

If the installation of the outdoor unit has NOT been done correctly, the following error codes may be displayed on the user interface:

Error code	Possible cause
Nothing displayed (the currently set temperature is not displayed)	- The wiring is disconnected or there is a wiring error (between power supply and outdoor unit, between outdoor unit and indoor units, between indoor unit and user interface). - The fuse on the outdoor unit PCB has blown out.
E3, E4 or L8	- The stop valves are closed. - The air inlet or air outlet is blocked.
U1 or E7	There is a missing phase in case of three-phase power supply units. Note: Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.
L4	The air inlet or air outlet is blocked.
U0	The stop valves are closed.
U2	- There is a voltage imbalance. - There is a missing phase in case of three-phase power supply units. Note: Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.
U4 or UF	The inter-unit branch wiring is not correct.
UA	The outdoor and indoor unit are incompatible.

6 DISPOSAL

This unit uses hydrofluorocarbon. Contact your dealer when discarding this unit.



NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable legislation. Units MUST be treated at a specialised treatment facility for reuse, recycling and recovery.

7 SERVICE SPACE: OUTDOOR UNIT

Suction side	In the illustrations below, the service space at the suction side is based on 35°C DB and cooling operation. Foresee more space in the following cases: - When the suction side temperature regularly exceeds this temperature. - When the heat load of the outdoor units is expected to regularly exceed the maximum operating capacity.
Discharge side	Take refrigerant piping work into account when positioning the units. If your layout does not match with any of the layouts below, contact your dealer.

Single unit (□) | Single row of units (←→)

Multiple rows of units (↕)

Stacked units (max. 2 levels) (↑↓)

See figure 1 on the inside of the front cover.

- (1) For better serviceability, use a distance ≥ 250 mm
- A, B, C, D** Obstacles (walls/baffle plates)
- E** Obstacle (roof)
- a, b, c, d, e** Minimum service space between the unit and obstacles A, B, C, D and E
- e_B** Maximum distance between the unit and the edge of obstacle B
- e_D** Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
- H_U** Height of the unit
- H_B, H_D** Height of obstacles B and D
- 1** Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.
- 2** Maximum two units can be installed.
- ⊘ Not allowed

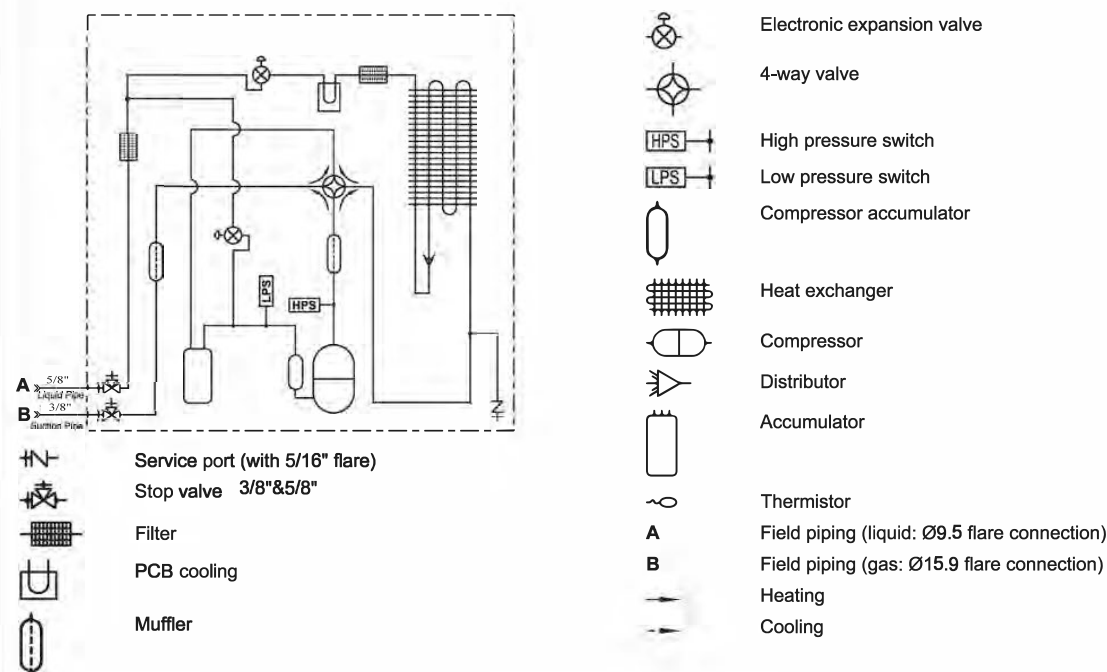
See figure 2 on the inside of the front cover.

- (1) For better serviceability, use a distance ≥ 250 mm

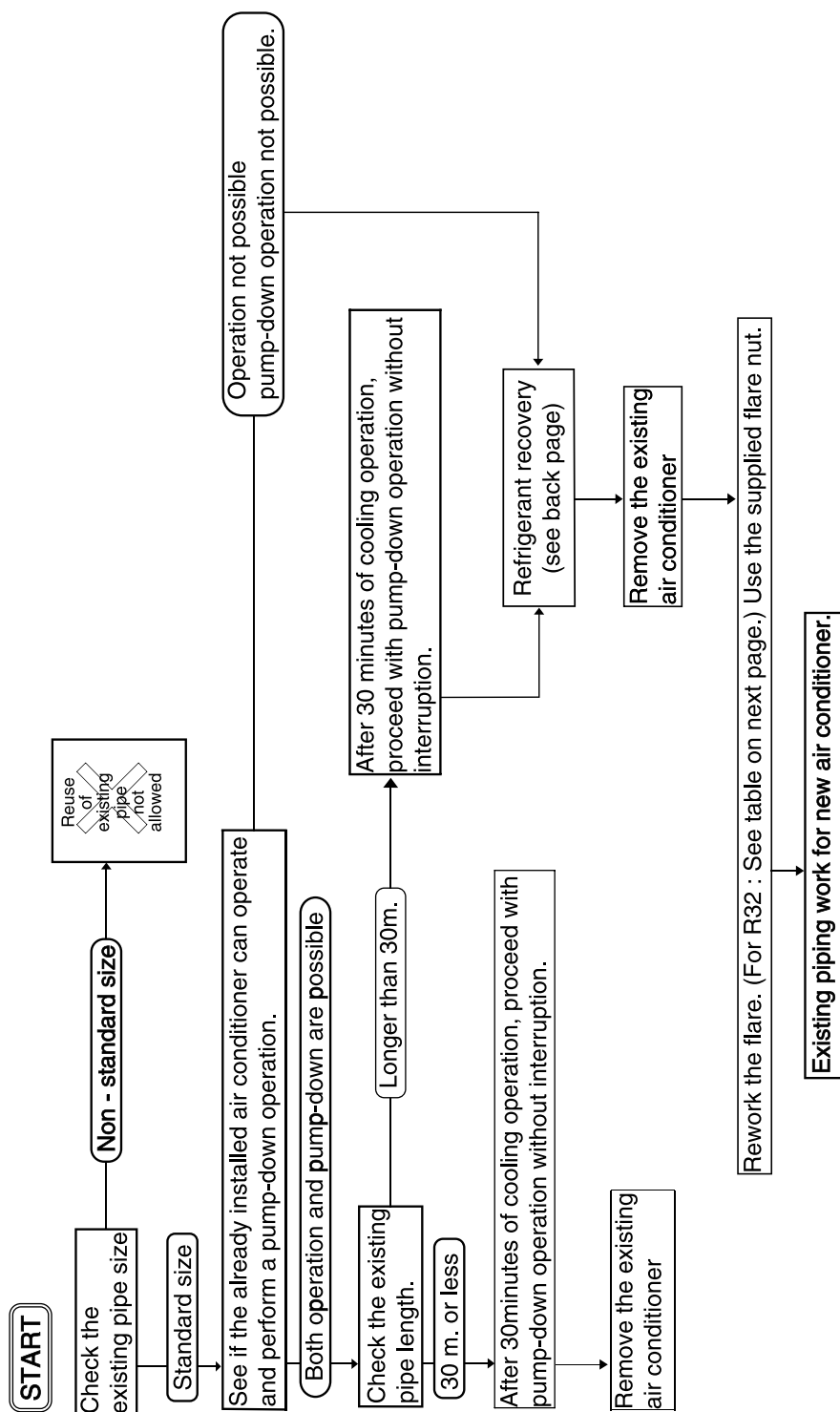
See figure 3 on the inside of the front cover.

- (1) For better serviceability, use a distance ≥ 250 mm
- A1⇒A2** (A1) If there is danger of drainage dripping and freezing between the upper and lower units...
(A2) Then install a **roof** between the upper and lower units. Install the upper unit high enough above the lower unit to prevent ice buildup at the upper unit's bottom plate.
- B1⇒B2** (B1) If there is no danger of drainage dripping and freezing between the upper and lower units...
(B2) Then it is not required to install a roof, but **seal the gap** between the upper and lower units to prevent discharged air from flowing back to the suction side through the bottom of the unit.

8 PIPING DIAGRAM: OUTDOOR UNIT



9 HOW TO RE-USE THE EXISTING PIPING



(Note)

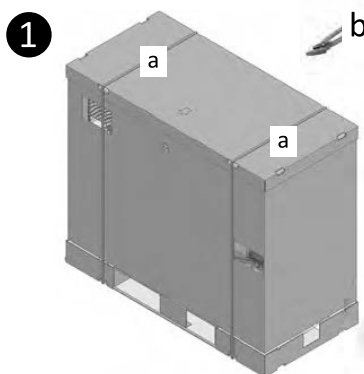
1. Clean the pipe if refrigerant leakage and unit has not service port on gas-liquid stop valve.
2. If indoor unit equipped with EV valve, open that valve before recovery refrigerant.
3. Maximum pipe length as per specified on next page.

PRECAUTIONS ON REFRIGERANT PIPING

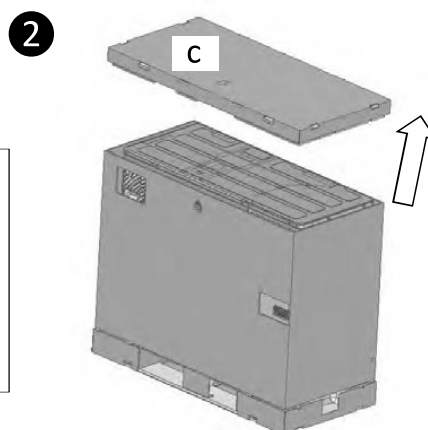
- Clean pipe if existing air conditioner is heat pump type contains leftover oil.
- Clean pipe if used compressor oil in existing air conditioner is other than [SUNISO, MS, HAB, Barrel freeze, JOMO, Ethereal oil, Ester oil]. Clean pipe if existing indoor and outdoor unit is disconnected.
- Change new pipe if refrigerant leakage or it should adding refrigerant.
- Change new heat insulation if existing part is peeling off.

10. UNPACKING & PACKING OF THE INDOOR

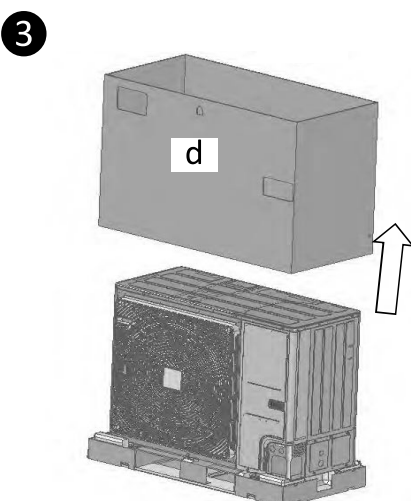
10-1. UNIT UNPACKING



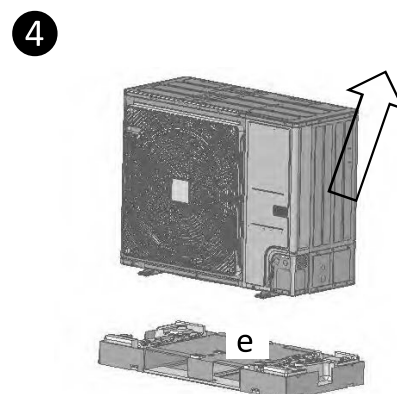
- Cut all the straps (a) from the unit using strap cutter(b) as shown in figure.



- Remove top corrugated cardboard sheet(c) & EPS from the unit by pulling it up as shown in figure.



- Remove the cardboard box (d) by pulling it up as shown in figure.

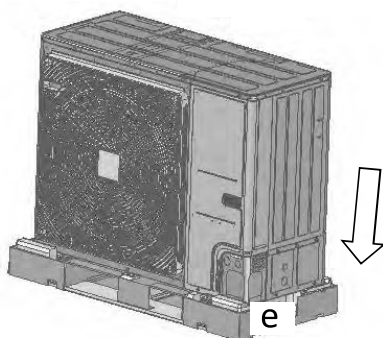


- Remove the polythene product cover & then remove the bottom skid (e) by pulling up the unit while installation of the unit as shown in figure

- a) Strap
- b) Strap Cutter
- c) Top corrugated cardboard sheet with EPS
- d) Cardboard box
- e) Bottom skid
- f) Strap fixer

10-1. UNIT PACKING

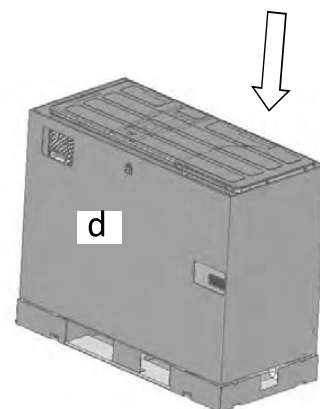
1



- Cover the unit with polythene product cover, then pick the unit up and settle it down on the bottom skid(e) as shown in figure.

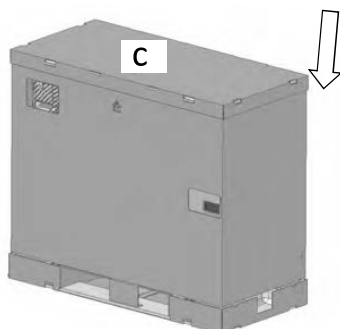
- a) Strap
b) Starp Cutter
c) Top corrugated cardboard sheet with EPS
d) Cardboard box
e) Bottom skid
f) Strap fixer

2



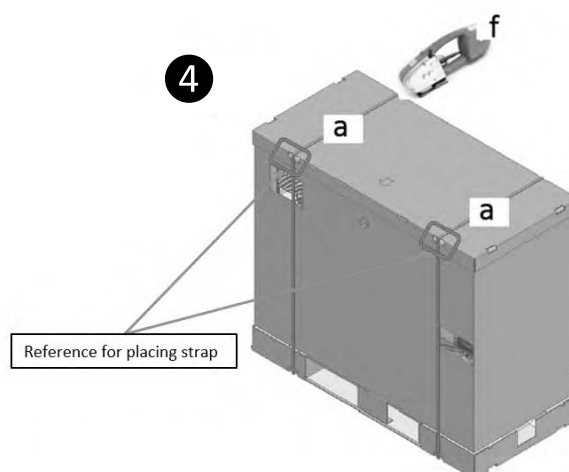
- Put the cardboard box (d) upon the unit as shown in figure.

3



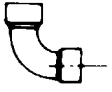
- Put the top corrugated cardboard sheet and EPS (c) on the top of the unit as shown in figure.

4



- Fix the straps (a) on the unit as shown in figure.
(Use marked reference for placing straps)

3.4 Equivalent Piping Length of Joints (Reference)

Pipe size (mm)	φ6.4	φ9.5	φ12.7	φ15.9	φ19.1	φ22.2	φ25.4	φ31.8	φ38.1
L-joints 	0.16	0.18	0.20	0.25	0.35	0.40	0.45	0.55	0.65

Warning

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the user's manual carefully before using this product. The user's manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.