



EDMT282013B

R-32

Engineering Data

SkyAir

Cooling Only 50/60 Hz

FDMF-A + RZF-A



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1. SkyAir

FDMF-A + RZF-A

Model series

Class		18	24	30	36	48	54	Power supply, Standard
Indoor unit	FDMF	18A	24A	30A	36A	48A	54A	VMK
Outdoor unit	RZF	18A	24A	30A	36A	—	—	VMK
		—	—	—	—	48A	54A	YMK

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1. External Appearance

Indoor unit



FDMF-A

Wired remote controller



BRC1H81W7



BRC1H81S7

Wireless remote controller



BRC4C66
(for FDMF-A)



Signal receiver unit
(for FDMF-A)

Outdoor unit



RZF18AVMK
RZF24AVMK



RZF30AVMK
RZF36AVMK



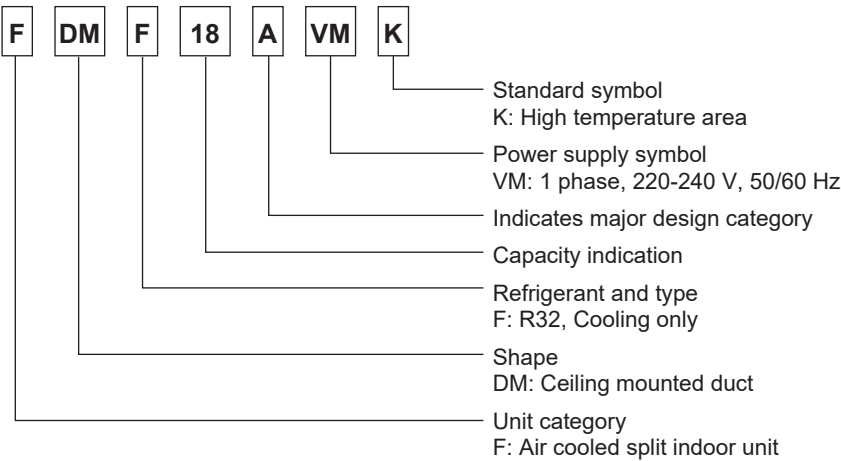
RZF48AYMK
RZF54AYMK

2. Model Name, Power Supply and Nomenclature

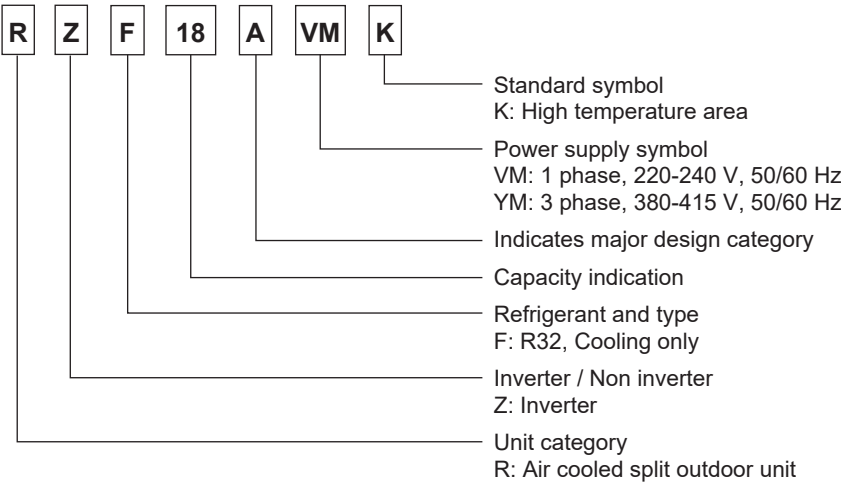
2.1 Model Name and Power Supply

Indoor unit		Outdoor unit	Power supply intake
Type	Model name	Model name	
Ceiling mounted duct type	FDMF18AVMK	RZF18AVMK	Indoor unit: 1 phase, 220-240 V, 50/60 Hz Outdoor unit: 1 phase, 220-240 V, 50/60 Hz
	FDMF24AVMK	RZF24AVMK	
	FDMF30AVMK	RZF30AVMK	
	FDMF36AVMK	RZF36AVMK	
	FDMF48AVMK	RZF48AYMK	Indoor unit: 1 phase, 220-240 V, 50/60 Hz Outdoor unit: 3 phase, 380-415 V, 50/60 Hz
	FDMF54AVMK	RZF54AYMK	

2.2 Nomenclature
Indoor unit



Outdoor unit



3. Specifications

FDMF-A (Ceiling mounted duct type)

Model	Indoor unit		FDMF18AVMK	FDMF24AVMK
	Outdoor unit		RZF18AVMK	RZF24AVMK
Power supply	Indoor unit		1 phase, 220-240 V, 50/60 Hz	1 phase, 220-240 V, 50/60 Hz
	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	1.385	1.935
EER		(Btu/h)/W	13.00	12.40
Cooling capacity ★1 ★2	T1/60 Hz	Btu/h	18,000	24,000
		kW	5.28	7.02
Power input		kW	1.385	1.935
EER		(Btu/h)/W	13.00	12.40
Cooling capacity ★1 ★2	T3/50 Hz	Btu/h	15,300	17,500
		kW	4.48	5.13
Power input		kW	1.700	1.650
EER		(Btu/h)/W	9.00	10.61
Cooling capacity ★1 ★2	T3/60 Hz	Btu/h	15,300	17,500
		kW	4.47	5.13
Power input		kW	1.700	1.650
EER		(Btu/h)/W	9.00	10.60
Cooling capacity ★1 ★2	T4/50 Hz	Btu/h	13,200	13,600
		kW	3.87	3.99
Power input		kW	1.400	1.300
EER		(Btu/h)/W	9.43	10.46
Indoor unit			FDMF18AVMK	FDMF24AVMK
Colour			—	—
Dimensions	H × W × D	mm	300 × 1,000 × 700	300 × 1,000 × 700
Coil	Type		Cross fin coil	Cross fin coil
Fan	Type		Sirocco fan	Sirocco fan
	Motor output	W	230	230
	Airflow rate (H/M/L)	m³/min	18/15/12.5	23/19.5/16
	External static pressure	Pa	Rated 30 (30-50) ★3	Rated 30 (30-50) ★3
Sound pressure level (H/M/L) ★4		dB(A)	33/29/26	38/36/34
Air filter			Nylon filter	Nylon filter
Mass		kg	34	35
Piping connections	Liquid	mm	φ9.5 (flare)	φ9.5 (flare)
	Gas	mm	φ15.9 (flare)	φ15.9 (flare)
	Drain	mm	VP25 (I.D.φ25 × O.D.φ32)	VP25 (I.D.φ25 × O.D.φ32)
Remote controller (option)	Wired		BRC1H81W7 / BRC1H81S7	BRC1H81W7 / BRC1H81S7
	Wireless		BRC4C66	BRC4C66
Outdoor unit			RZF18AVMK	RZF24AVMK
Colour			Ivory white	Ivory white
Dimensions	H × W × D	mm	595 × 845 × 300	595 × 845 × 300
Coil	Type		Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	1.3	1.3
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	60	60
	Airflow rate	m³/min	45	45
Sound pressure level ★4	Cooling	dB(A)	48	50
	Night quiet mode	dB(A)	44	44
Mass		kg	40	40
Piping connections	Liquid	mm	φ9.5 (flare)	φ9.5 (flare)
	Gas	mm	φ15.9 (flare)	φ15.9 (flare)
	Drain	mm	φ18 (hole)	φ18 (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	1.3 (charged for 15 m)	1.3 (charged for 15 m)
Ref. oil	Model		Refer to the nameplate of compressor	Refer to the nameplate of compressor
	Charge	L	0.395	0.395
Drawing No.	Specification		C: 3D125105C	C: 3D125105C
	Sound (indoor)		C: 4D125119	C: 4D125121
	Sound (outdoor)		C: 4D113222B	C: 4D113214B

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 2663:2018	SASO GSO ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2016	SASO GSO ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	SASO GSO ISO 13253 (2017)

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

★3. Initial setting is standard.

★4. 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.

FDMF-A (Ceiling mounted duct type)

Model	Indoor unit		FDMF30AVMK	FDMF36AVMK
	Outdoor unit		RZF30AVMK	RZF36AVMK
Power supply	Indoor unit		1 phase, 220-240 V, 50/60 Hz	1 phase, 220-240 V, 50/60 Hz
	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	34,000
		kW	8.79	9.96
Power input		kW	2.419	2.800
EER		(Btu/h)/W	12.40	12.14
Cooling capacity ★1 ★2	T1/60 Hz	Btu/h	30,000	34,000
		kW	8.80	9.95
Power input		kW	2.419	2.800
EER		(Btu/h)/W	12.40	12.15
Cooling capacity ★1 ★2	T3/50 Hz	Btu/h	25,500	29,000
		kW	7.47	8.50
Power input		kW	3.050	3.200
EER		(Btu/h)/W	8.36	9.06
Cooling capacity ★1 ★2	T3/60 Hz	Btu/h	25,600	29,000
		kW	7.50	8.50
Power input		kW	3.050	3.200
EER		(Btu/h)/W	8.40	9.05
Cooling capacity ★1 ★2	T4/50 Hz	Btu/h	20,600	20,600
		kW	6.04	6.04
Power input		kW	2.264	2.264
EER		(Btu/h)/W	9.10	9.10
Indoor unit			FDMF30AVMK	FDMF36AVMK
Colour			—	—
Dimensions	H × W × D	mm	300 × 1,400 × 700	300 × 1,400 × 700
Coil	Type		Cross fin coil	Cross fin coil
Fan	Type		Sirocco fan	Sirocco fan
	Motor output	W	300	300
	Airflow rate (H/M/L)	m³/min	32/27/22.5	40/34/28
	External static pressure	Pa	Rated 30 (30-80) ★3	Rated 50 (50-100) ★3
Sound pressure level (H/M/L) ★4		dB(A)	38/34/32	44/39/35
Air filter			Nylon filter	Nylon filter
Mass		kg	45	45
Piping connections	Liquid	mm	φ9.5 (flare)	φ9.5 (flare)
	Gas	mm	φ15.9 (flare)	φ15.9 (flare)
	Drain	mm	VP25 (I.D.φ25 × O.D.φ32)	VP25 (I.D.φ25 × O.D.φ32)
Remote controller (option)	Wired		BRC1H81W7 / BRC1H81S7	BRC1H81W7 / BRC1H81S7
	Wireless		BRC4C66	BRC4C66
Outdoor unit			RZF30AVMK	RZF36AVMK
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	1.6	1.6
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	200	200
	Airflow rate	m³/min	65	65
Sound pressure level ★4	Cooling	dB(A)	51	51
	Night quiet mode	dB(A)	45	45
Mass		kg	60	61
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	2.8 (charged for 30 m)	2.85 (charged for 30 m)
Ref. oil	Model		Refer to the nameplate of compressor	Refer to the nameplate of compressor
	Charge	L	0.425	0.425
Drawing No.	Specification		C: 3D125105C	C: 3D125105C
	Sound (indoor)		C: 4D125122	C: 4D125125
	Sound (outdoor)		C: 4D114024A	C: 4D114023A

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 2663:2018	SASO GSO ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2016	SASO GSO ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	SASO GSO ISO 13253 (2017)

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

★3. Initial setting is standard.

★4. 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.

FDMF-A (Ceiling mounted duct type)

Model	Indoor unit		FDMF48AVMK	FDMF54AVMK
	Outdoor unit		RZF48AYMK	RZF54AYMK
Power supply	Indoor unit		1 phase, 220-240 V, 50/60 Hz	1 phase, 220-240 V, 50/60 Hz
	Outdoor unit		3 phase, 380-415 V, 50/60 Hz	3 phase, 380-415 V, 50/60 Hz
Cooling capacity ★1 ★2	T1/50 Hz	Btu/h	48,000	54,000
		kW	14.07	15.83
Power input		kW	4.000	4.500
EER		(Btu/h)/W	12.00	12.00
Cooling capacity ★1 ★2	T1/60 Hz	Btu/h	48,000	54,000
		kW	14.07	15.83
Power input		kW	4.000	4.500
EER		(Btu/h)/W	12.00	12.00
Cooling capacity ★1 ★2	T3/50 Hz	Btu/h	42,000	47,000
		kW	12.30	13.78
Power input		kW	4.800	5.400
EER		(Btu/h)/W	8.75	8.70
Cooling capacity ★1 ★2	T3/60 Hz	Btu/h	42,000	47,000
		kW	12.30	13.78
Power input		kW	4.800	5.400
EER		(Btu/h)/W	8.75	8.70
Cooling capacity ★1 ★2	T4/50 Hz	Btu/h	41,000	43,000
		kW	12.00	12.60
Power input		kW	5.000	5.200
EER		(Btu/h)/W	8.20	8.30
Indoor unit			FDMF48AVMK	FDMF54AVMK
Colour			—	—
Dimensions	H × W × D	mm	400 × 1,500 × 800	400 × 1,500 × 800
Coil	Type		Cross fin coil	Cross fin coil
Fan	Type		Sirocco fan	Sirocco fan
	Motor output	W	300	300
	Airflow rate (H/M/L)	m³/min	45/41/37	45/41/37
	External static pressure	Pa	Rated 50 (50-100) ★3	Rated 50 (50-100) ★3
Sound pressure level (H/M/L) ★4		dB(A)	45/41/37	45/41/37
Air filter			Nylon filter	Nylon filter
Mass		kg	59	59
Piping connections	Liquid	mm	φ9.5 (flare)	φ9.5 (flare)
	Gas	mm	φ15.9 (flare)	φ15.9 (flare)
	Drain	mm	VP25 (I.D.φ25 × O.D.φ32)	VP25 (I.D.φ25 × O.D.φ32)
Remote controller (option)	Wired		BRC1H81W7 / BRC1H81S7	BRC1H81W7 / BRC1H81S7
	Wireless		BRC4C66	BRC4C66
Outdoor unit			RZF48AYMK	RZF54AYMK
Colour			Ivory white	Ivory white
Dimensions	H × W × D	mm	870 × 1,100 × 520	870 × 1,100 × 520
Coil	Type		Cross fin coil	Cross fin coil
Compressor	Type		Hermetically sealed swing type	Hermetically sealed swing type
	Motor output	kW	1.6	1.6
Fan	Type		Propeller fan	Propeller fan
	Motor output	W	234	234
	Airflow rate	m³/min	87	87
Sound pressure level ★4	Cooling	dB(A)	57	57
	Night quiet mode	dB(A)	52	52
Mass		kg	60	61
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, Low pressure switch, Fuse, OL protection	High pressure switch, Low 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	3.8 (charged for 15 m)	3.8 (charged for 15 m)
Ref. oil	Model		Refer to the nameplate of compressor	Refer to the nameplate of compressor
	Charge	L	1.35	1.35
Drawing No.	Specification		C: 3D133436A	C: 3D133436A
	Sound (indoor)		C: 4D133138	C: 4D133138
	Sound (outdoor)		C: 4D133075	C: 4D133075

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 2663:2018	SASO GSO ISO 13253 (2017)
T3-50 Hz	29	19	46	UAE.S 5010-5:2016	SASO GSO ISO 13253 (2017)
T4-50 Hz	26.6	19.4	48	KWS 1893:2018	SASO GSO ISO 13253 (2017)

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

★3. Initial setting is standard.

★4. 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.

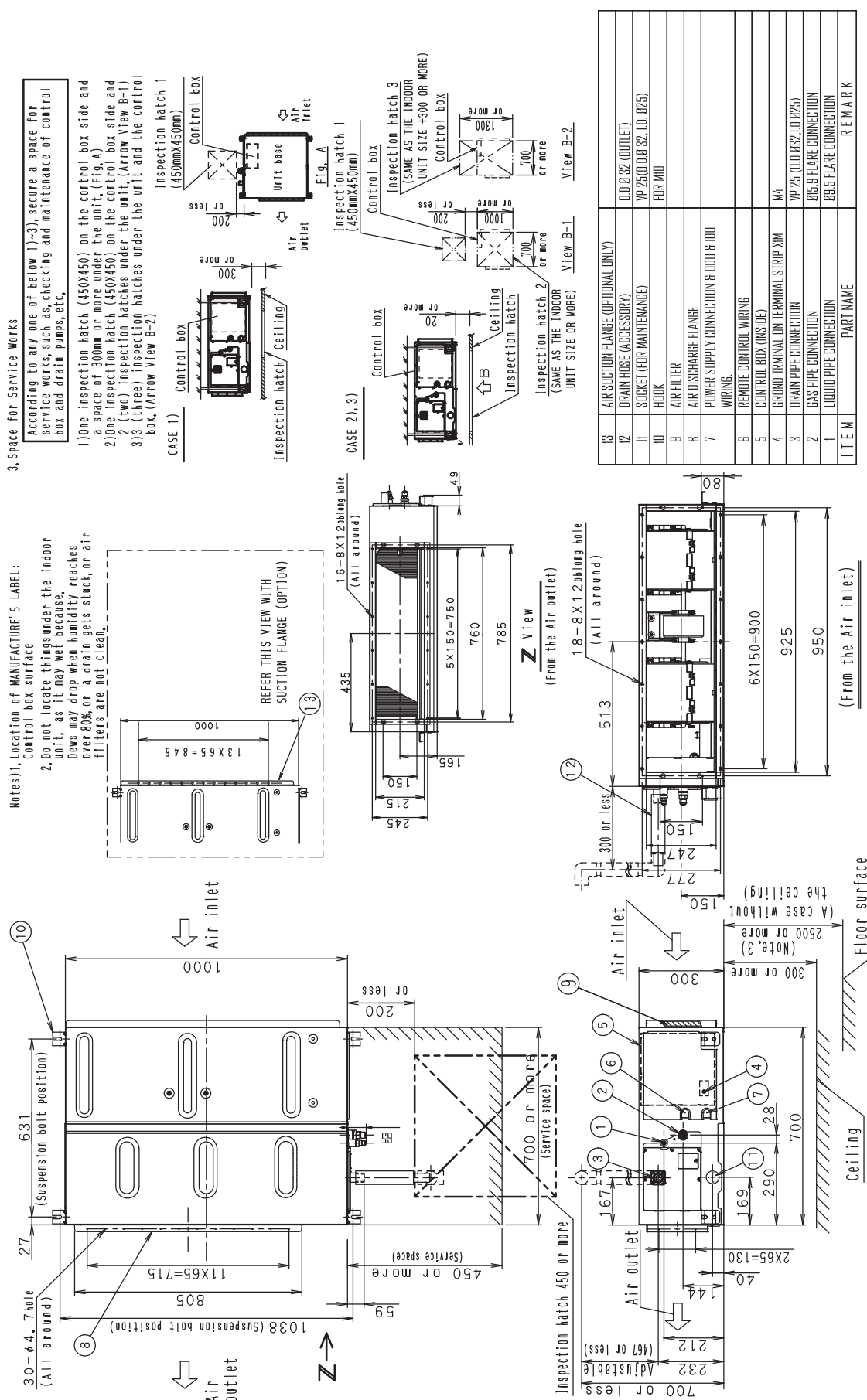
4. Dimensions and Service Space

4.1 Indoor Unit

4.1.1 FDMF-A

FDMF18AVMK / FDMF24AVMK

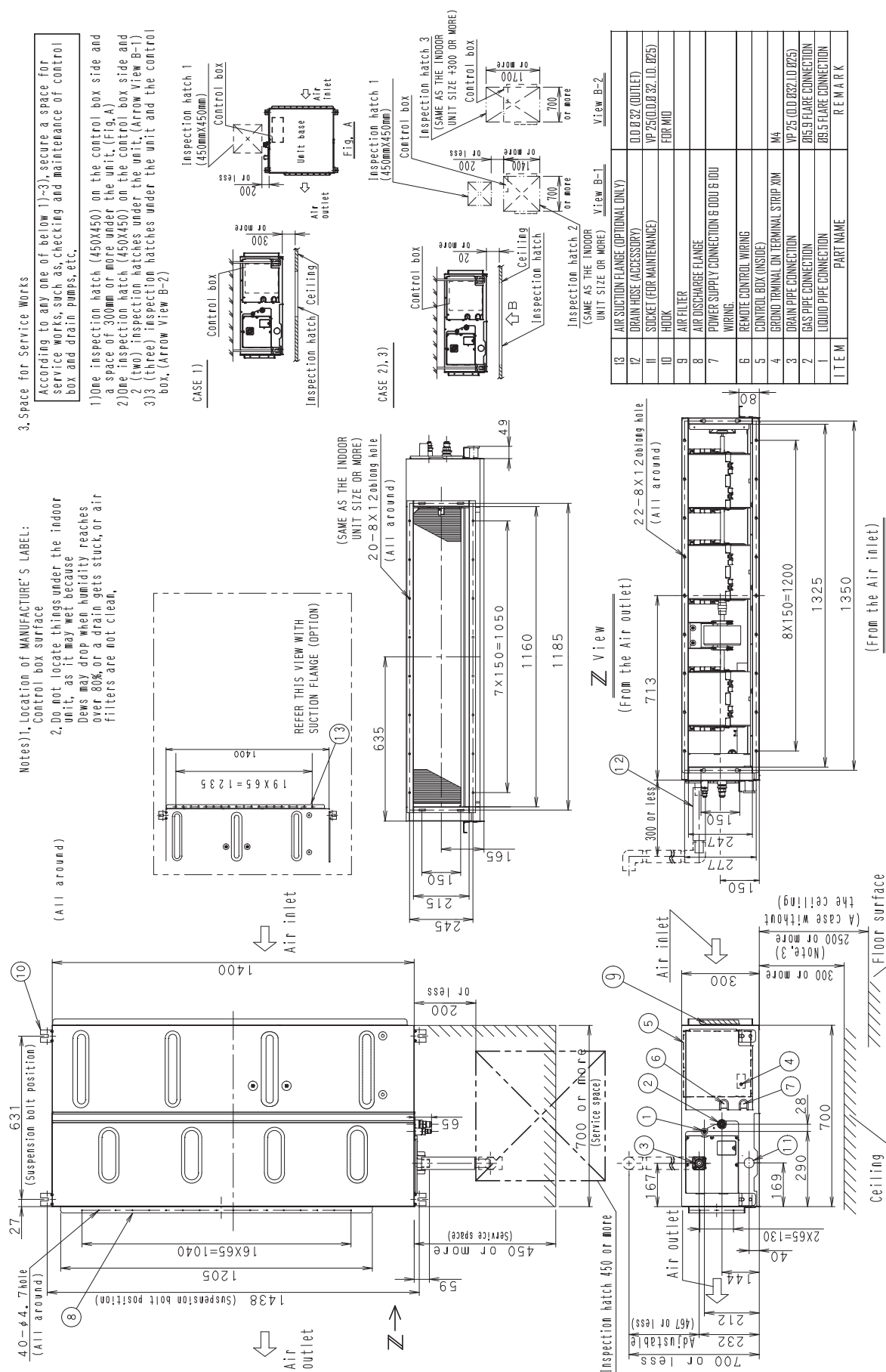
Unit: mm



3D119902A

FDMF30AVMK / FDMF36AVMK

Unit: mm



3D120002A

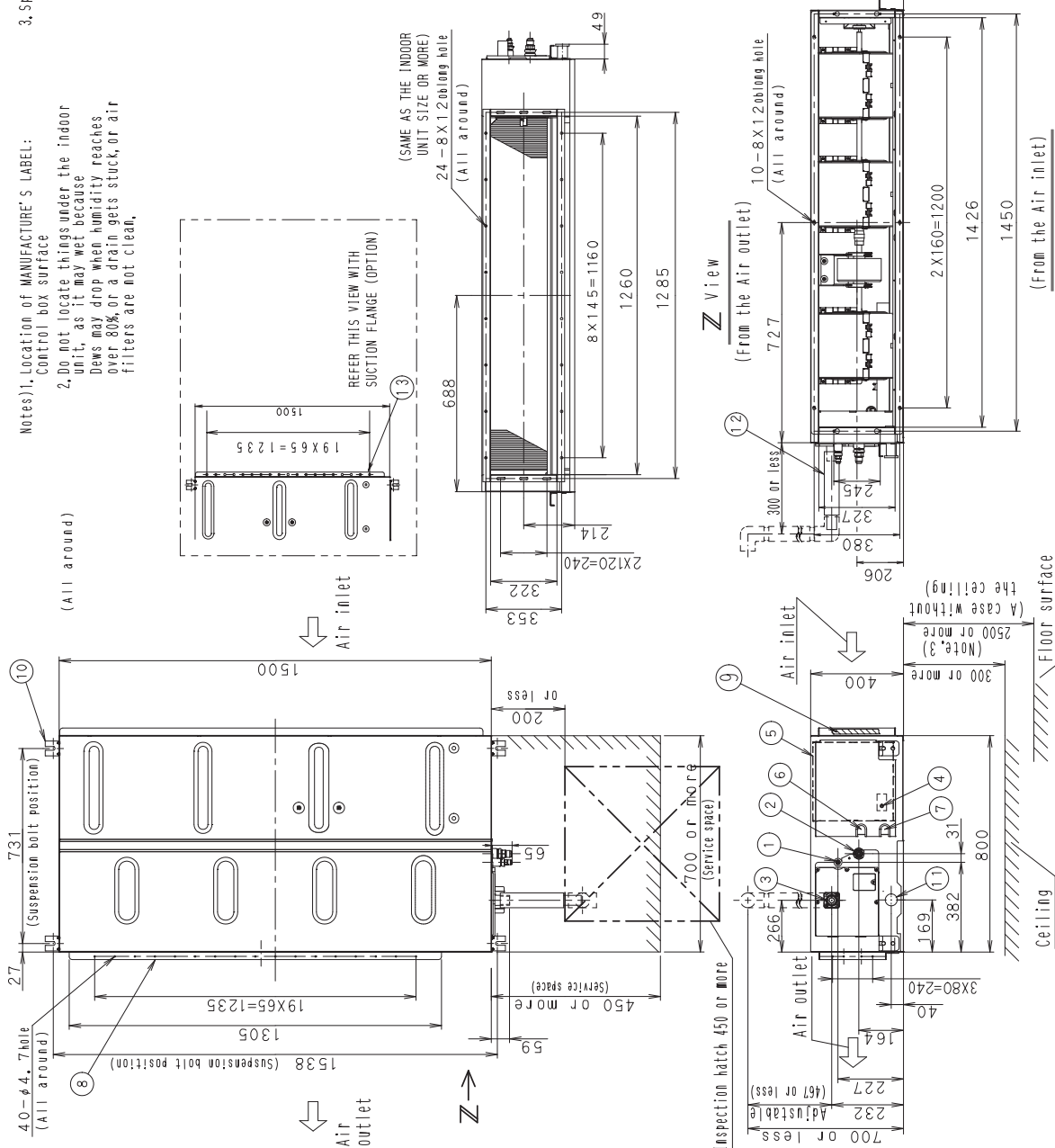
FDMF48AVMK / FDMF54AVMK

Unit: mm

3. Space for Service Works

According to any one of below 1)~3), secure a space for service works, such as, checking and maintenance of control box and drain pumps, etc,

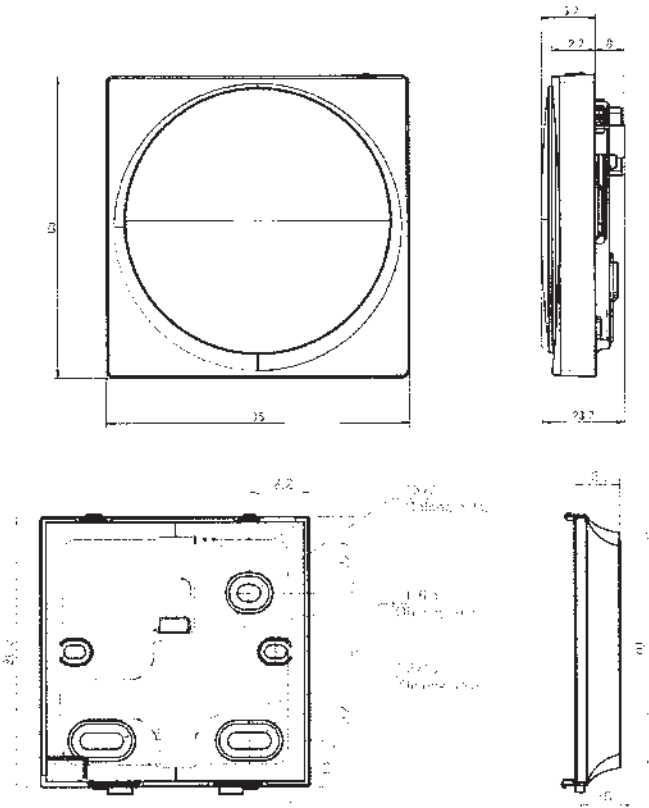
- 1) one inspection hatch (450x450) on the control box side and a space of 300mm or more under the unit. (Fig. A)
- 2) one inspection hatch (450x450) on the control box side and two inspection hatches under the unit. (Arrow View B-1)
- 3) three inspection hatches under the unit and the control box. (Arrow View B-2)



3D133430

4.2 Wired Remote Controller
BRC1H81W7 / BRC1H81S7

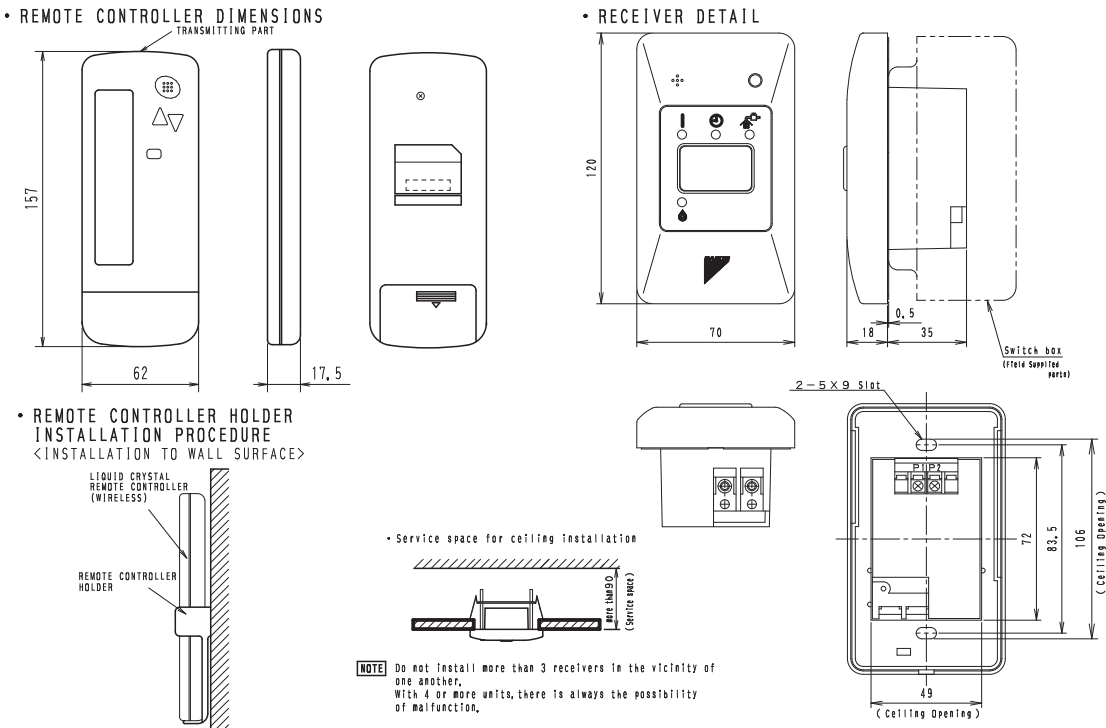
Unit: mm



4D113609A

4.3 Wireless Remote Controller
BRC4C66 (for FDMF-A)

Unit: mm

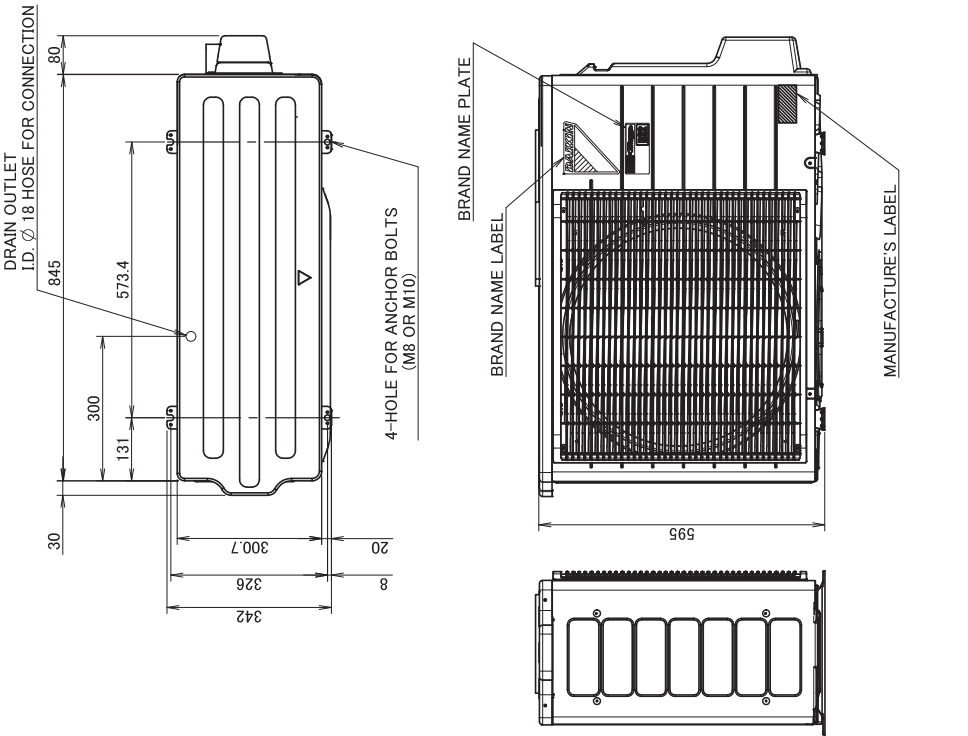


3D007898B

4.4 Outdoor Unit

RZF18AVMK / RZF24AVMK

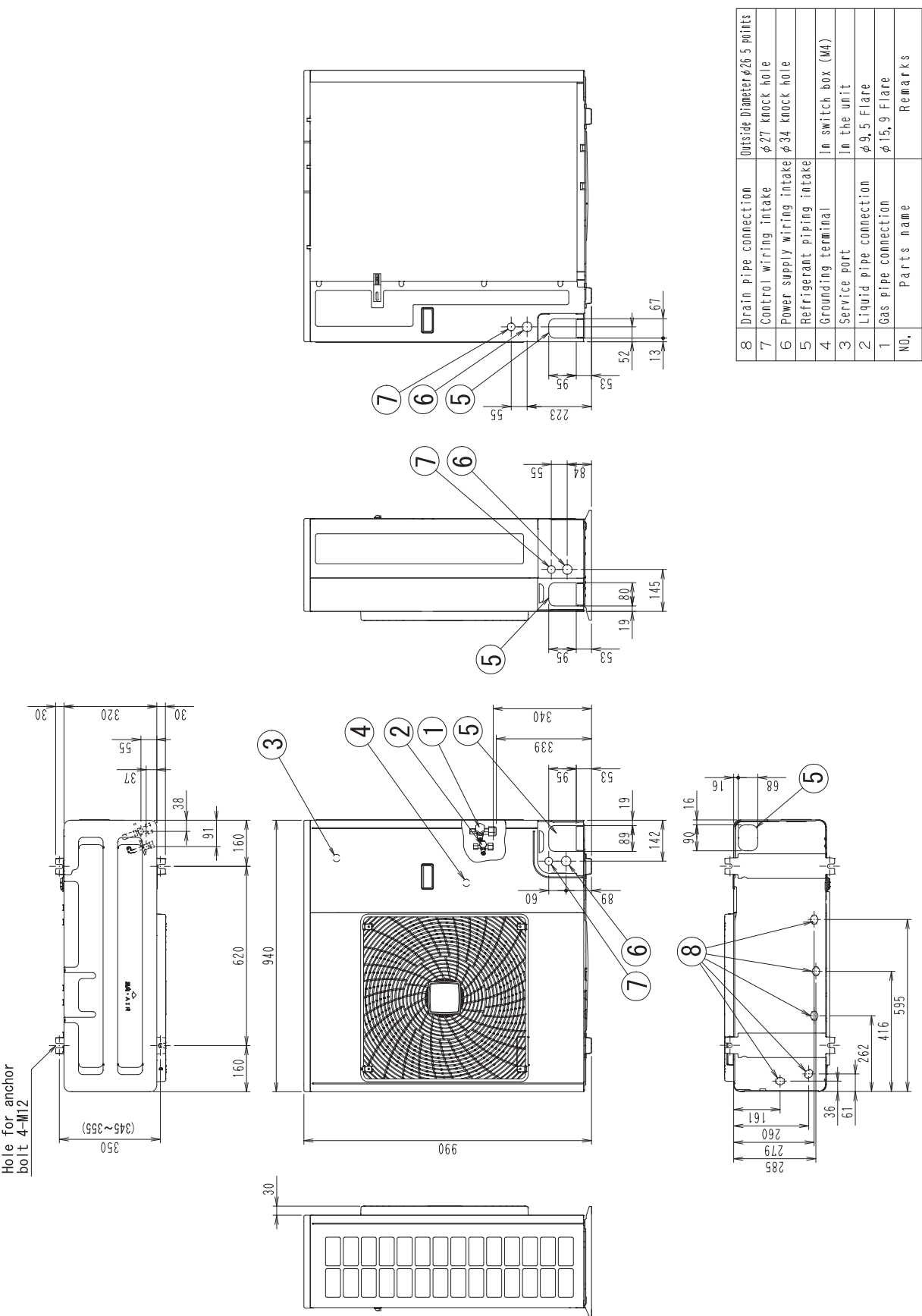
Unit: mm



3D113200A

RZF30AVMK / RZF36AVMK

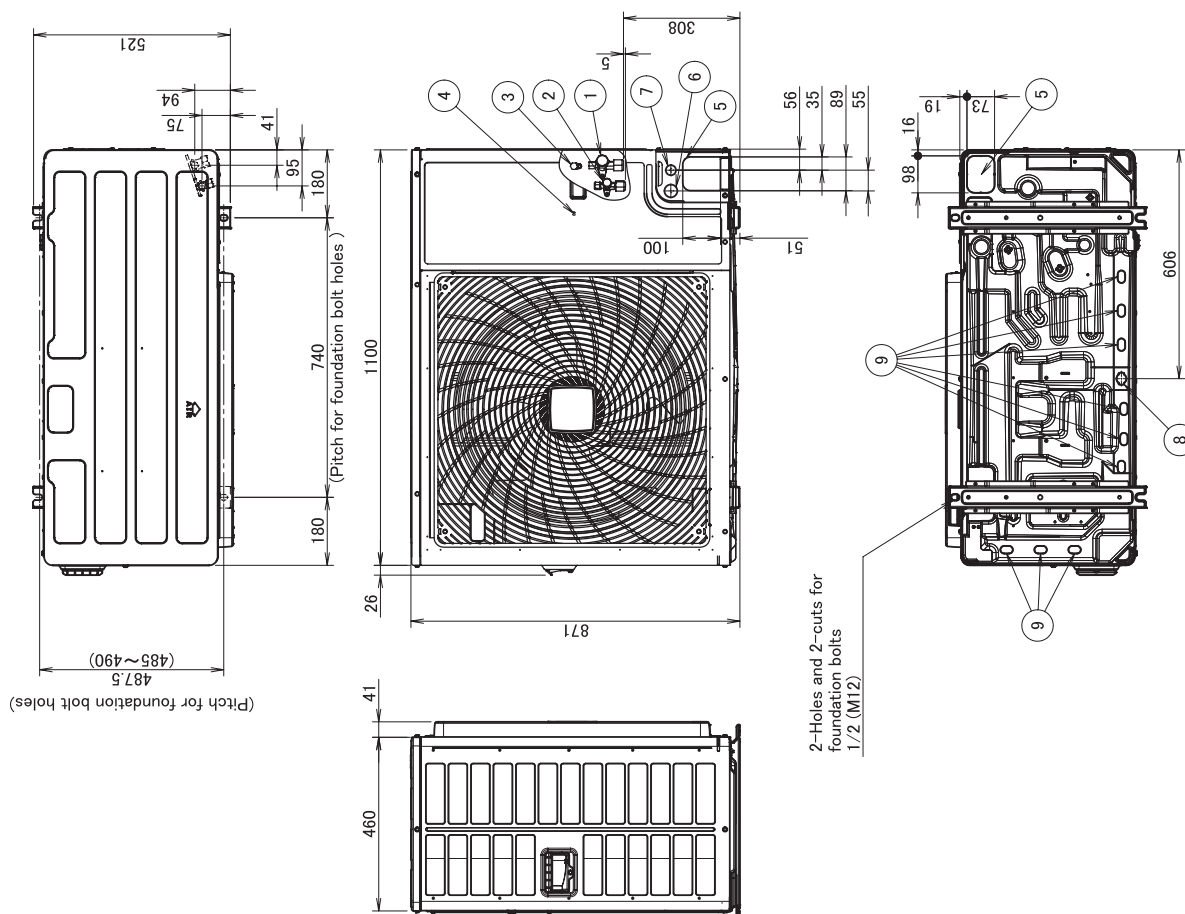
Unit: mm



3D124797

RZF48AYMK / RZF54AYMK

Unit: mm



No.	Parts name	Remark
1	Gas pipe connection	Ø 15.9 mm brazing connection (NOTE 2.)
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 installation Gas pipe for RX(Y)MG6ARV16 the pipe expander accessory ($\phi 15.9 \rightarrow \phi 19.1$) is required.
 3. When conducting concentrated drain piping work, attach the drain plugs.

3D133003

4.5 Installation Service Space

RZF18AVMK / RZF24AVMK

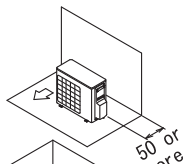
REQUIRED INSTALLATION SPACE

The unit of the values is mm.

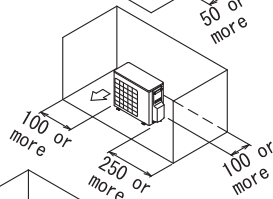
1. Where there is an obstacle on the suction side:

(a) No obstacle above

- (1) Stand-alone installation
- Obstacle on the suction side only

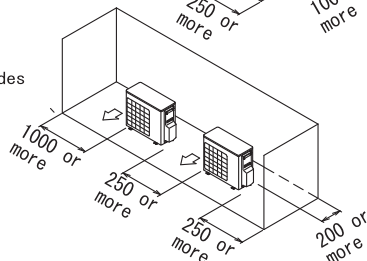


- Obstacle on both sides



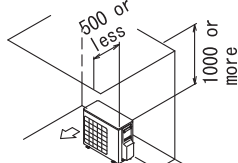
(2) Series installation (2 or more)

- Obstacle on both sides

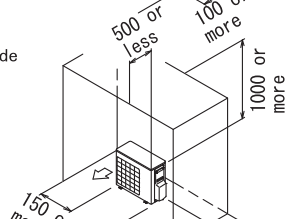


(b) Obstacle above, too

- (1) Stand-alone installation
- Obstacle on the suction side, too

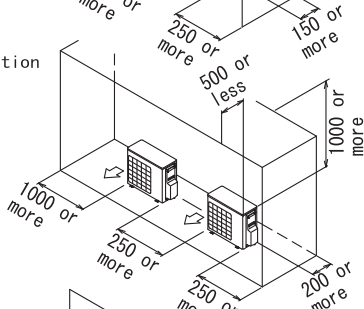


- Obstacle on the suction side and both sides



(2) Series installation (2 or more)

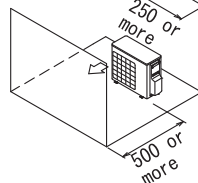
- Obstacle on the suction side and both sides



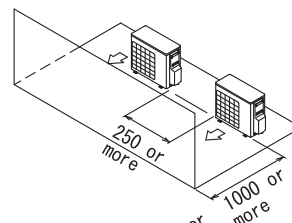
2. Where there is an obstacle on the discharge side:

(a) No obstacle above

- (1) Stand-alone installation

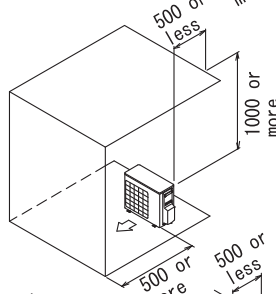


(2) Series installation (2 or more)

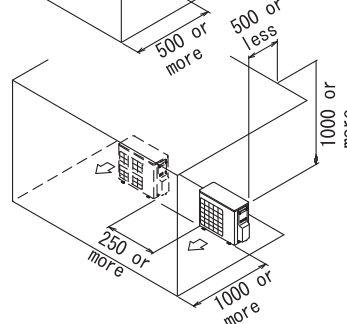


(b) Obstacle above, too

- (1) Stand-alone installation



(2) Series installation (2 or more)



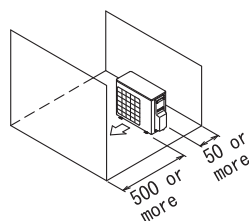
3. Where there are obstacles on both suction and discharge sides:

Pattern 1

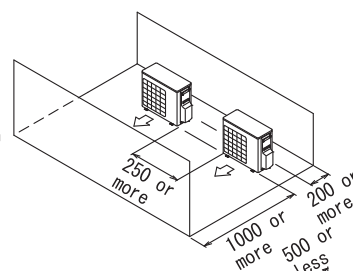
Where the obstacles on the discharge side is higher than the unit:
(There is no height limit for obstructions on the intake side.)

(a) No obstacle above

- (1) Stand-alone installation



(2) Series installation (2 or more)



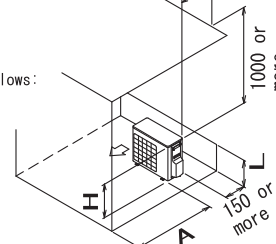
(b) Obstacle above, too

- (1) Stand-alone installation

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	750 or more
	$1/2 H < L \leq H$	1000 or more
$H < L$	Set the stand as: $L \leq H$.	

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



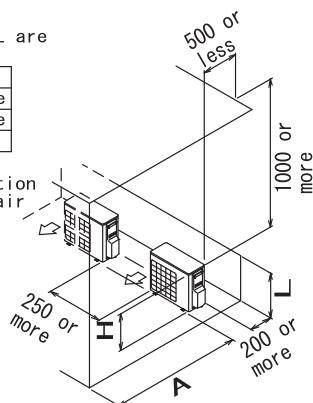
(2) Series installation (2 or more)

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	1000 or more
	$1/2 H < L \leq H$	1250 or more
$H < L$	Set the stand as: $L \leq H$.	

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

Only two units can be installed for this series.



Pattern 2

Where the obstacles on the discharge side is lower than the unit:
(There is no height limit for obstructions on the intake side.)

(a) No obstacle above

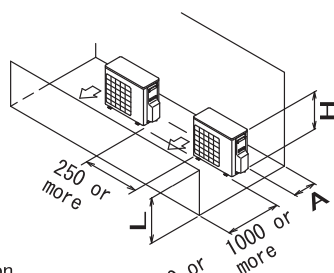
(1) Stand-alone installation

$$L \leq H$$

(2) Series installation
(2 or more)

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	150 or more
	$1/2 H < L \leq H$	200 or more
$H < L$	Set the stand as: $L \leq H$.	



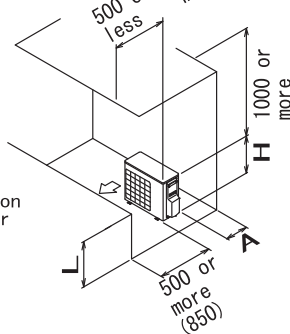
(b) Obstacle above, too

(1) Stand-alone installation

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	50 or more
	$1/2 H < L \leq H$	100 or more
$H < L$	Set the stand as: $L \leq H$.	

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



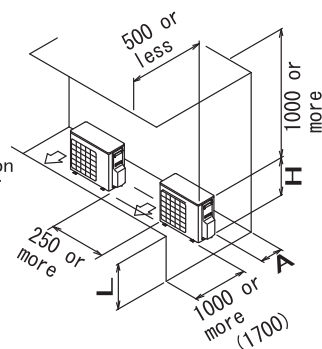
(2) Series installation

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	150 or more
	$1/2 H < L \leq H$	200 or more
$H < L$	Set the stand as: $L \leq H$.	

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

Only two units can be installed for this series.



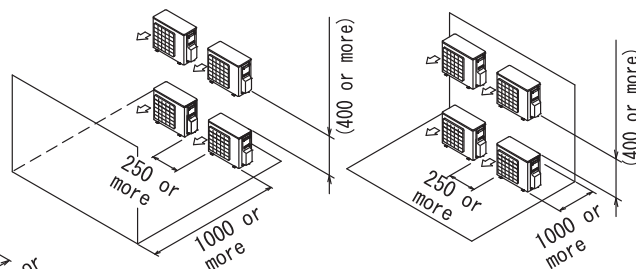
4. Double-decker installation

(a) Obstacle on the discharge side
Close the gap A (the gap between the upper and lower outdoor units) to prevent the discharged air from being bypassed.

Do not stack more than two unit.

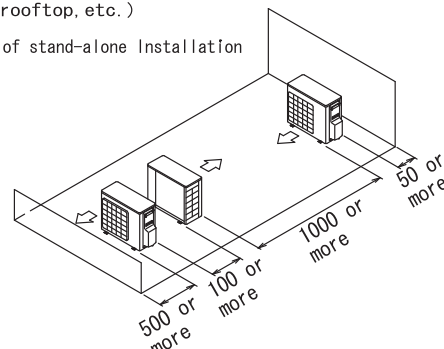
(b) Obstacle on the suction side
Close the gap A (the gap between the upper and lower outdoor units) to prevent the discharged air from being bypassed.

Do not stack more than two unit.



5. Multiple rows of series installation (on the rooftop, etc.)

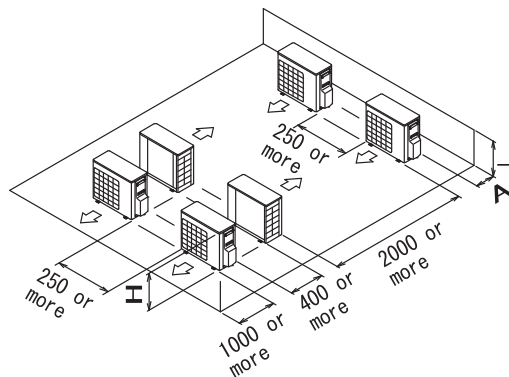
(a) One row of stand-alone Installation



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

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

	L	A
$L \leq H$	$0 < L \leq 1/2 H$	150 or more
	$1/2 H < L \leq H$	200 or more
$H < L$	Cannot be installed.	



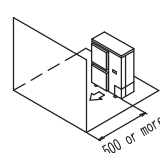
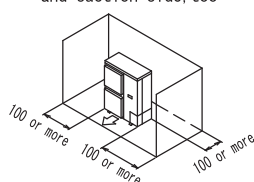
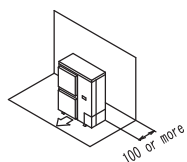
RZF30AVMK / RZF36AVMK

INSTALLATION SERVICE SPACE

STAND-ALONE INSTALLATION (The measure of these values is "mm".)

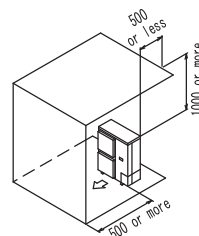
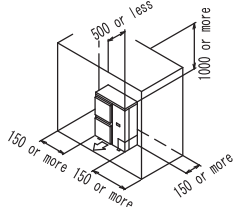
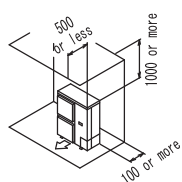
No obstacle above

- (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

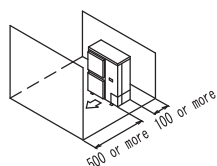
- (1) Obstacle on the suction side, too (2) Obstacle on both sides and suction side, too (3) Obstacle on the discharge side only, too



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.)

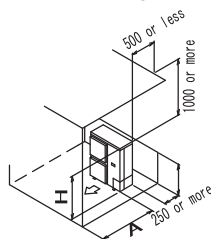


- (2) Obstacle above, too

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

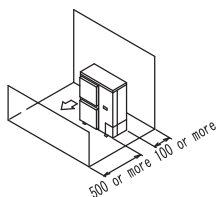
	L	A
$L \leq H$	$L \leq 1/2 H$	750 or more
	$1/2 H < L \leq H$	1000 or more
$L > H$	Set the stand as : $L \leq H$ As for A, it is same as $L \leq H$	

(※) 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
(There is no limit for the height of obstructions on the suction side.)

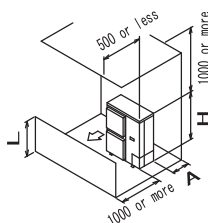


- (2) Obstacle above, too

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

	L	A
$L \leq H$	$L \leq 1/2 H$	100 or more
	$1/2 H < L \leq H$	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.

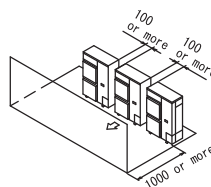
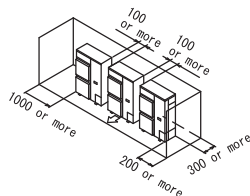


SERIES INSTALLATION (2 OR MORE)

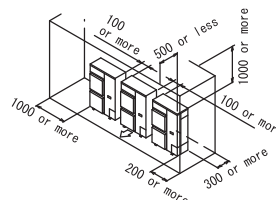
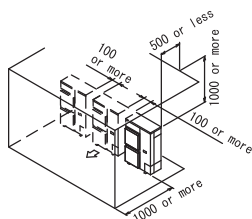
(※)・In side extraction, please provide the space of piping.
(The measure of these values is "mm".)

No obstacle above

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

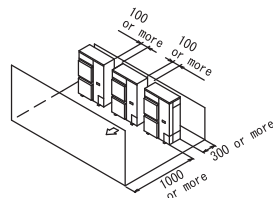
**Obstacle above, too**

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

**When there are obstacles on both suction and discharge sides**

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

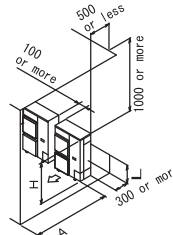
- (1) No obstacle above
(There is no limit for the height of obstructions on the suction side.)



- (2) Obstacle above, too
The relations between H, A and L are as follows.

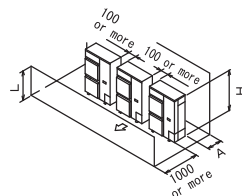
	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	1000 or more 1250 or more
$L > H$	Set the stand as : $L \leq H$ As for A, it is same as $L \leq H$	

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

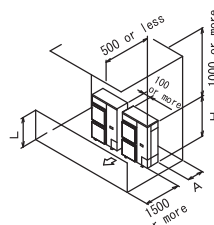


Pattern 2 When the obstacle on the discharge side is lower than the unit

- (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
$L \leq 1/2 H$	250 or more
$1/2 H < L \leq H$	300 or more

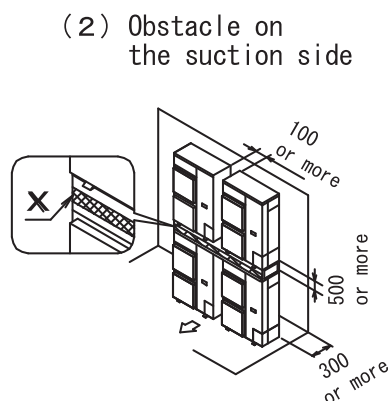
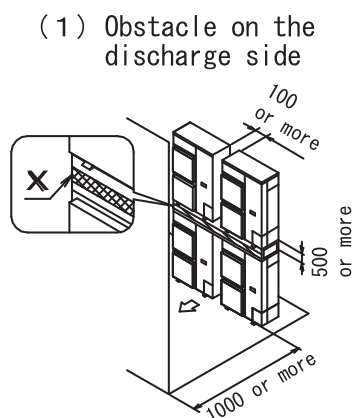
The relations between H, A and L are as follows.

	L	A
L ≤ H	L ≤ 1/2 H	250 or more
	1/2 H < L ≤ H	300 or more
L > H	Set the stand as : L ≤ H As for A, it is same as L ≤ H	

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

DOUBLE-DECKER INSTALLATION (The measure of these values is "mm".)

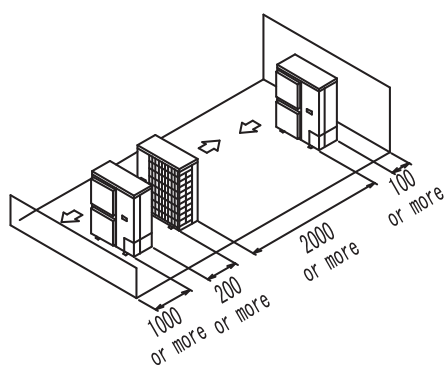
- (※) • Do not stack more than two unit.
 • The drain piping construction size of upper side outdoor unit is needed about 100mm.
 • Close "X" to prevent the discharged air from being bypassed
 ( : the gap between the upper and lower outdoor units).
 • In side extraction, please provide the space of piping.



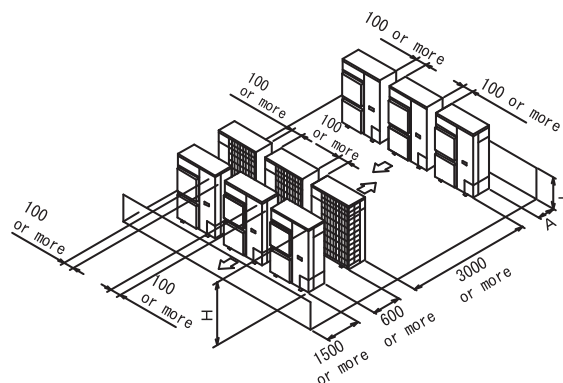
MULTIPLE ROWS OF SERIES INSTALLATION (ON THE ROOFTOP, ETC.)

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

RZF48AYMK / RZF54AYMK

Single unit () | Single row of units ()**Suction side**

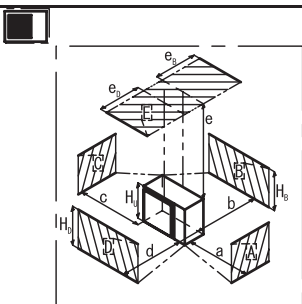
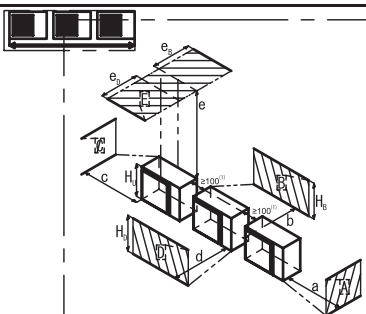
In the illustration below, the service space at the suction side is based on 35°C DB and cooling operation. Foresee more space in the following cases:

- 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	(mm)						
			a	b	c	d	e	e	e
	B	-		≥ 100					
	A,B,C	-	≥ 100 ⁽¹⁾	≥ 100	≥ 100				
	B,E	-		≥ 100			≥ 1000	°	≤500 °
	A,B,C,E	-	≥ 150 ⁽¹⁾	≥ 150	≥ 150		≥ 1000		≤500
	D	-				≥ 500			
	D,E	-				≥ 500	≥ 1000	≤500	
	B,D	Hd>Hu		≥ 100		≥ 500			
		Hd≤Hu		≥ 100		≥ 500			
	B,D,E	Hb≤½Hu		≥ 250		≥ 750	≥ 1000	≤500	
		½Hu>Hb≤Hu		≥ 250		≥ 1000	≥ 1000	≤500	
		Hb>Hu							
		Hd≤½Hu		≥ 100		≥ 1000	≥ 1000		≤500
		½Hu<Hd≤Hu		≥ 200		≥ 1000	≥ 1000		≤500
	A,B,C	-	≥ 200 ⁽¹⁾	≥ 300	≥ 1000				
	A,B,C,E	-	≥ 200 ⁽¹⁾	≥ 300	≥ 1000		≥ 1000		≤500
	D	-				≥ 1000			
	D,E	-				≥ 1000	≥ 1000	≤500	
	B,D	Hd>Hu		≥ 300		≥ 1000			
		Hd≤Hu							
		½Hu<Hd≤Hu		≥ 300		≥ 1500			
	B,D,E	Hb≤½Hu		≥ 300		≥ 1000	≥ 1000	≤500	
		½Hu<Hb≤Hu		≥ 300		≥ 1250	≥ 1000	≤500	
		Hb>Hu							
		Hd≤½Hu		≥ 250		≥ 1500	≥ 1000		≤500
		½Hu<Hd≤Hu		≥ 300		≥ 1500	≥ 1000		≤500

(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 E, in the direction of obstacle B

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

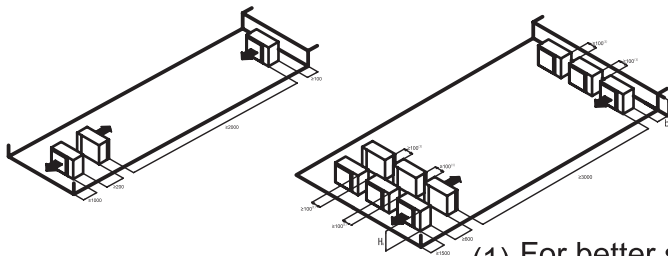
Hu Height of the unit

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.

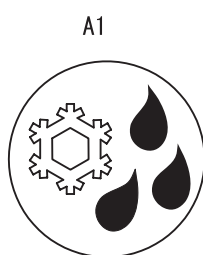
⊙ Not allowed

Multiple rows of units ()**Multiple rows of units** ()

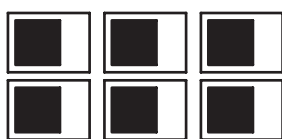
Hb Hu	b (mm)
$Hb \leq \frac{1}{2}Hu$	$b \geq 250$
$\frac{1}{2}Hu < Hb \leq Hu$	$b \geq 300$
$Hb > Hu$	⊘

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

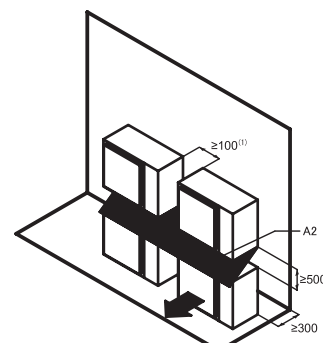
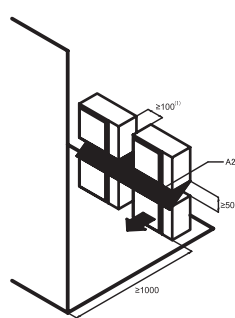
p. 2

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

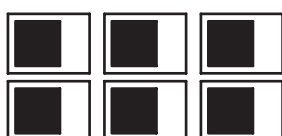
A1



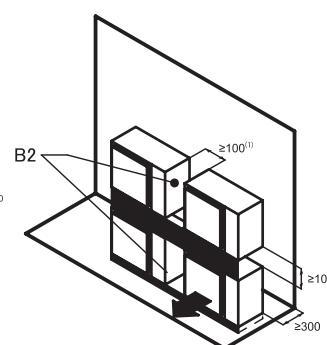
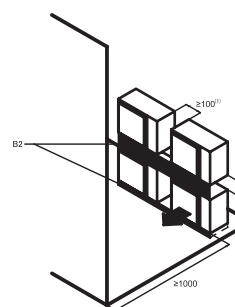
A2



B1



B2



(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.

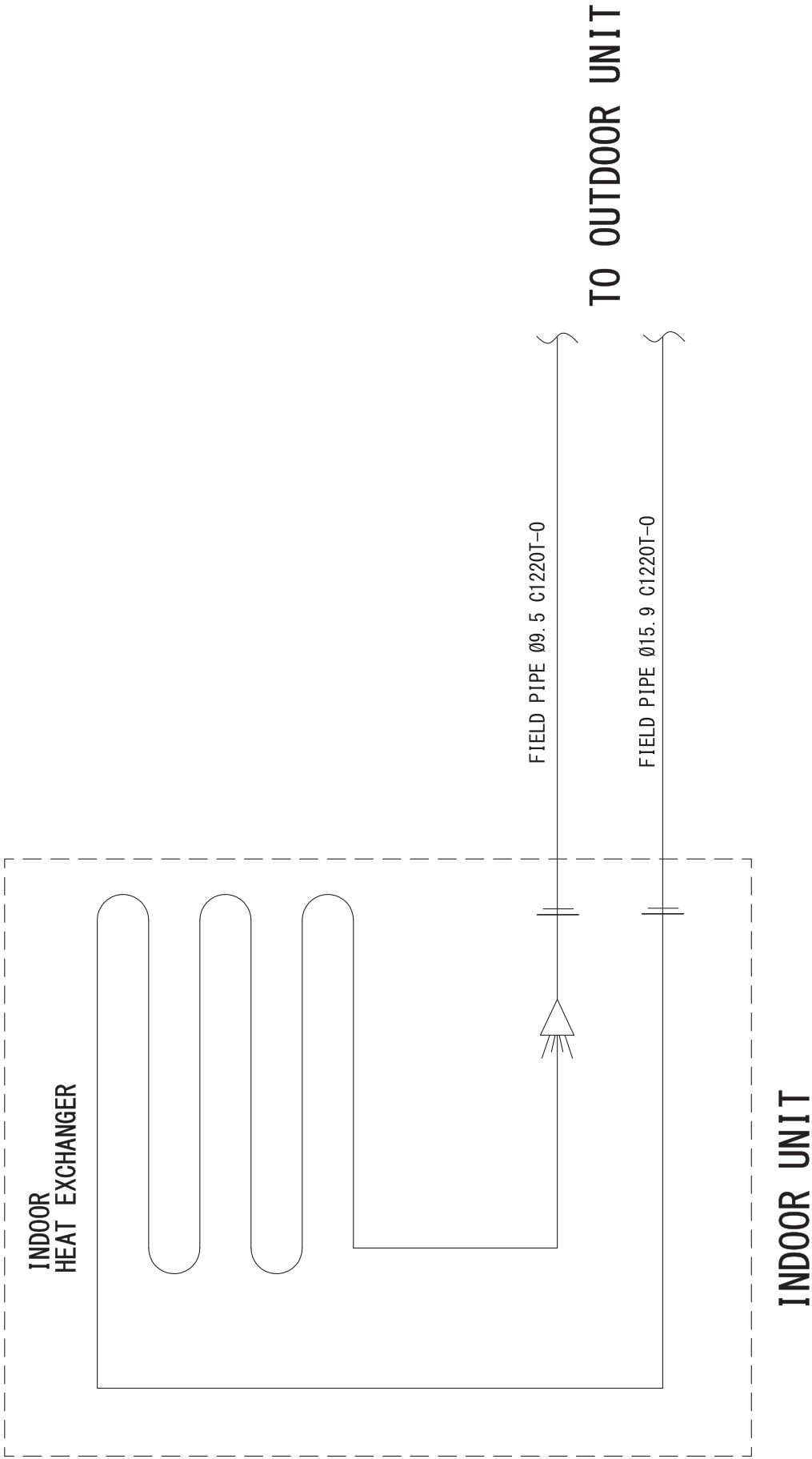
p. 3

3D133041

5. Piping Diagrams

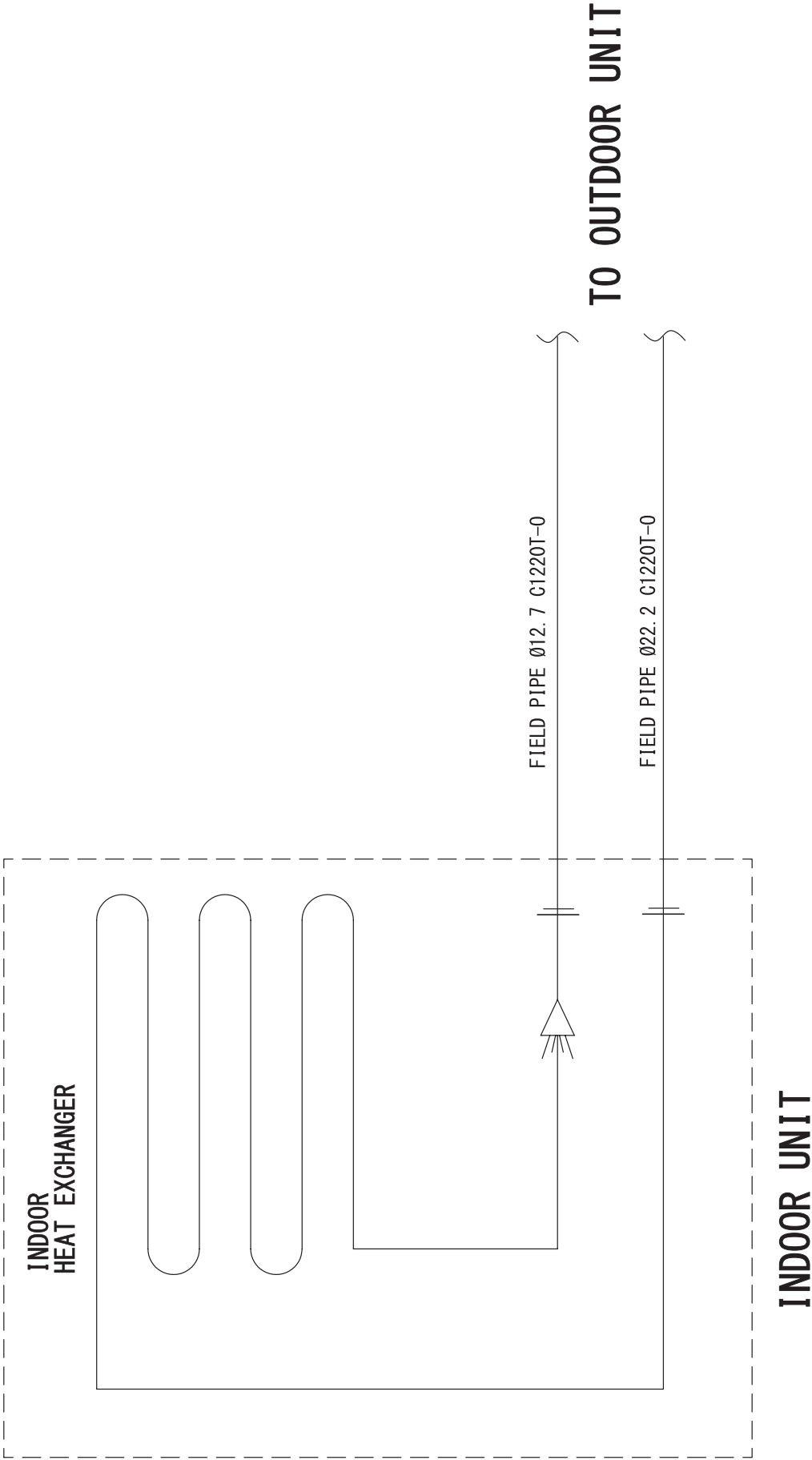
5.1 Indoor Unit

FDMF18AVMK / FDMF24AVMK / FDMF30AVMK / FDMF36AVMK



3D119900A

FDMF48AVMK / FDMF54AVMK

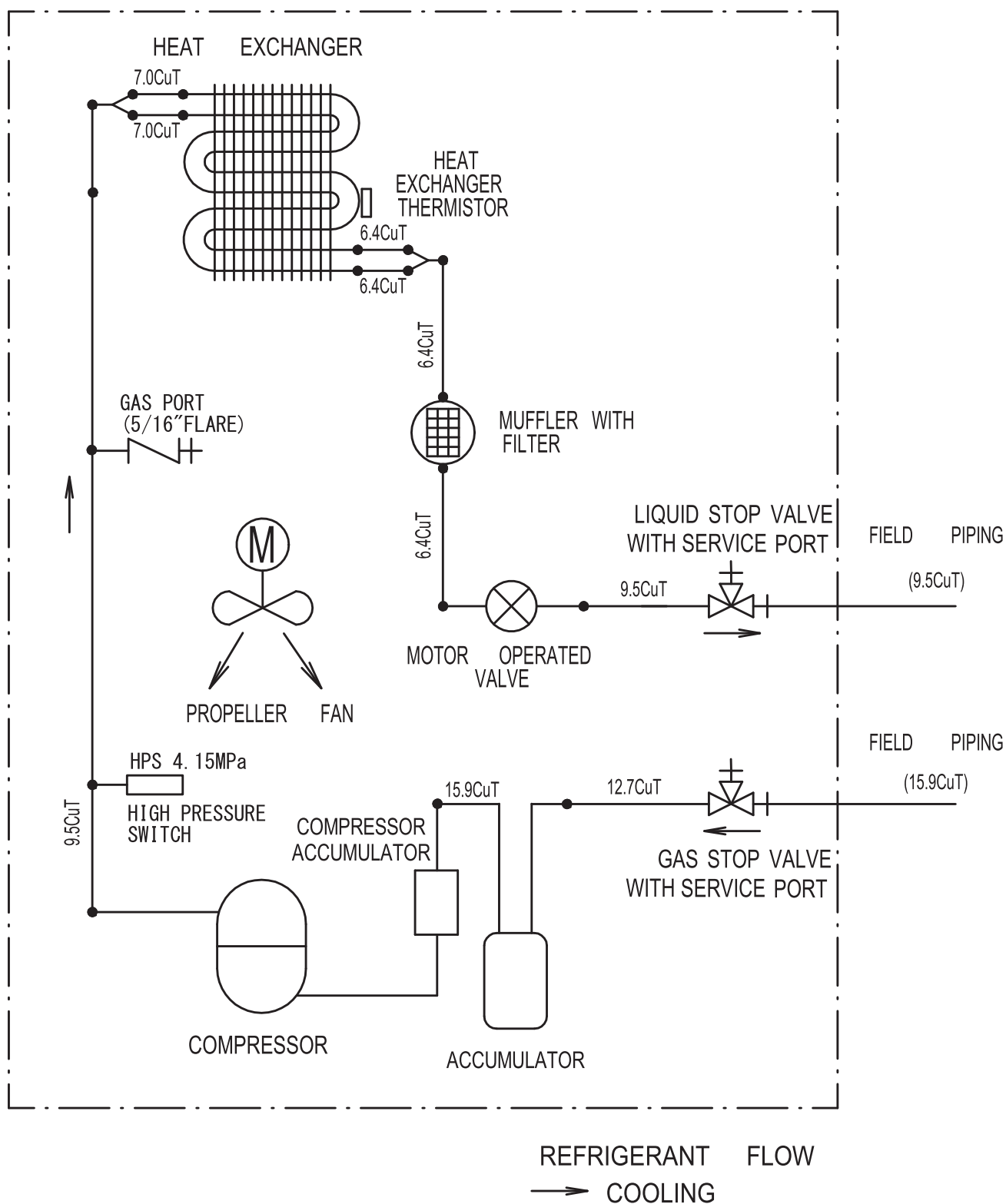


3D133386

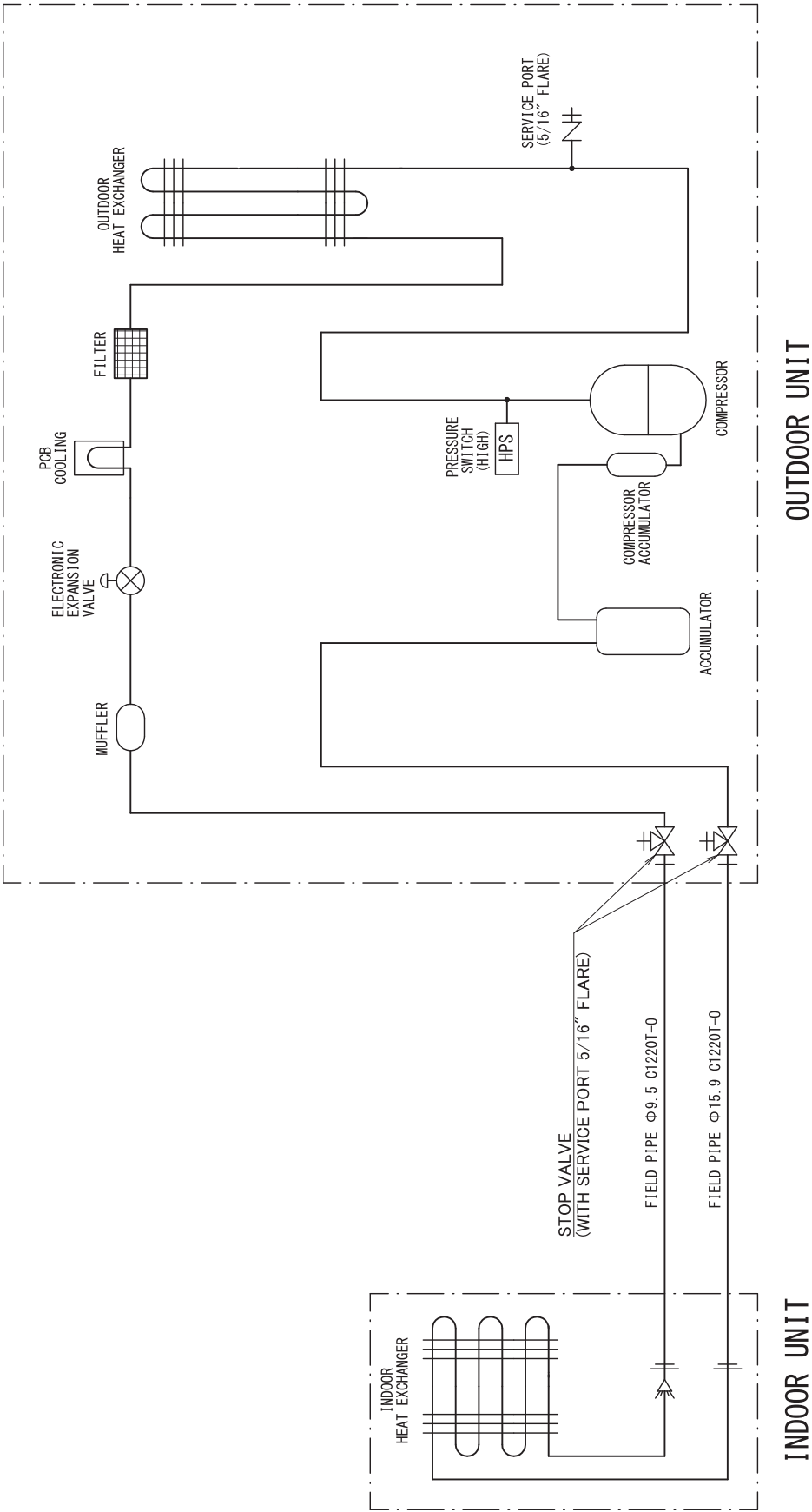
5.2 Outdoor Unit

RZF18AVMK / RZF24AVMK

OUTDOOR UNIT

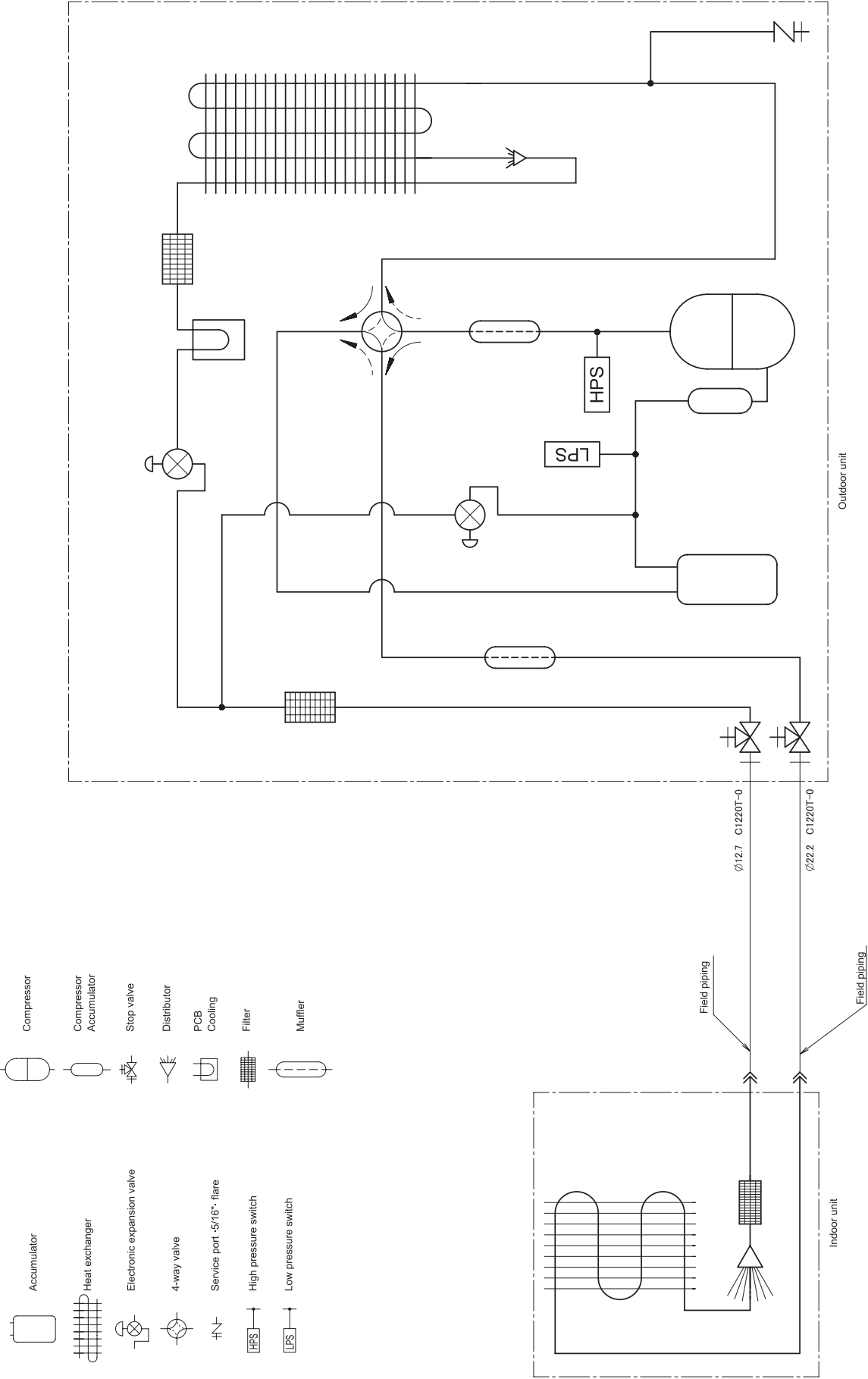


RZF30AVMK / RZF36AVMK



3D124736

RZF48AYMK / RZF54AYMK

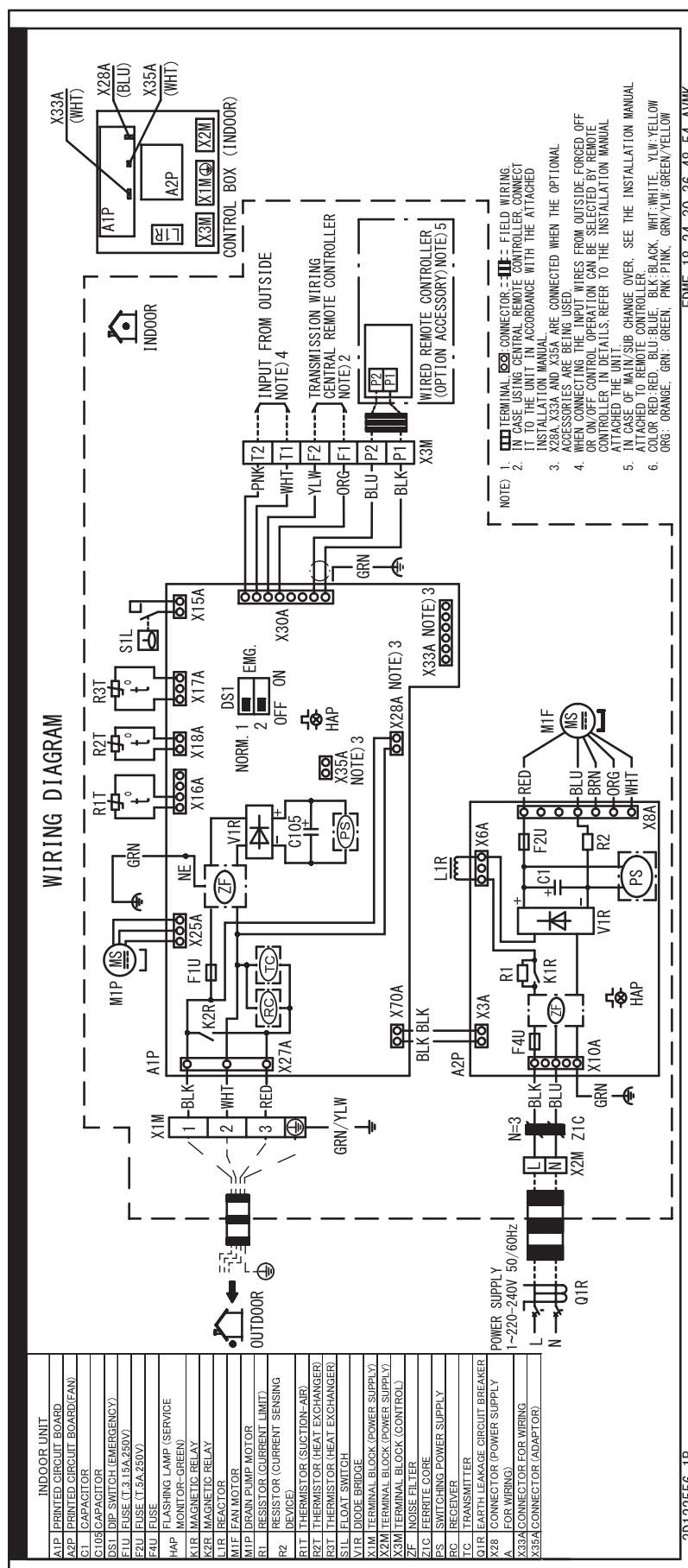


3D133005

6. Wiring Diagrams

6.1 Indoor Unit

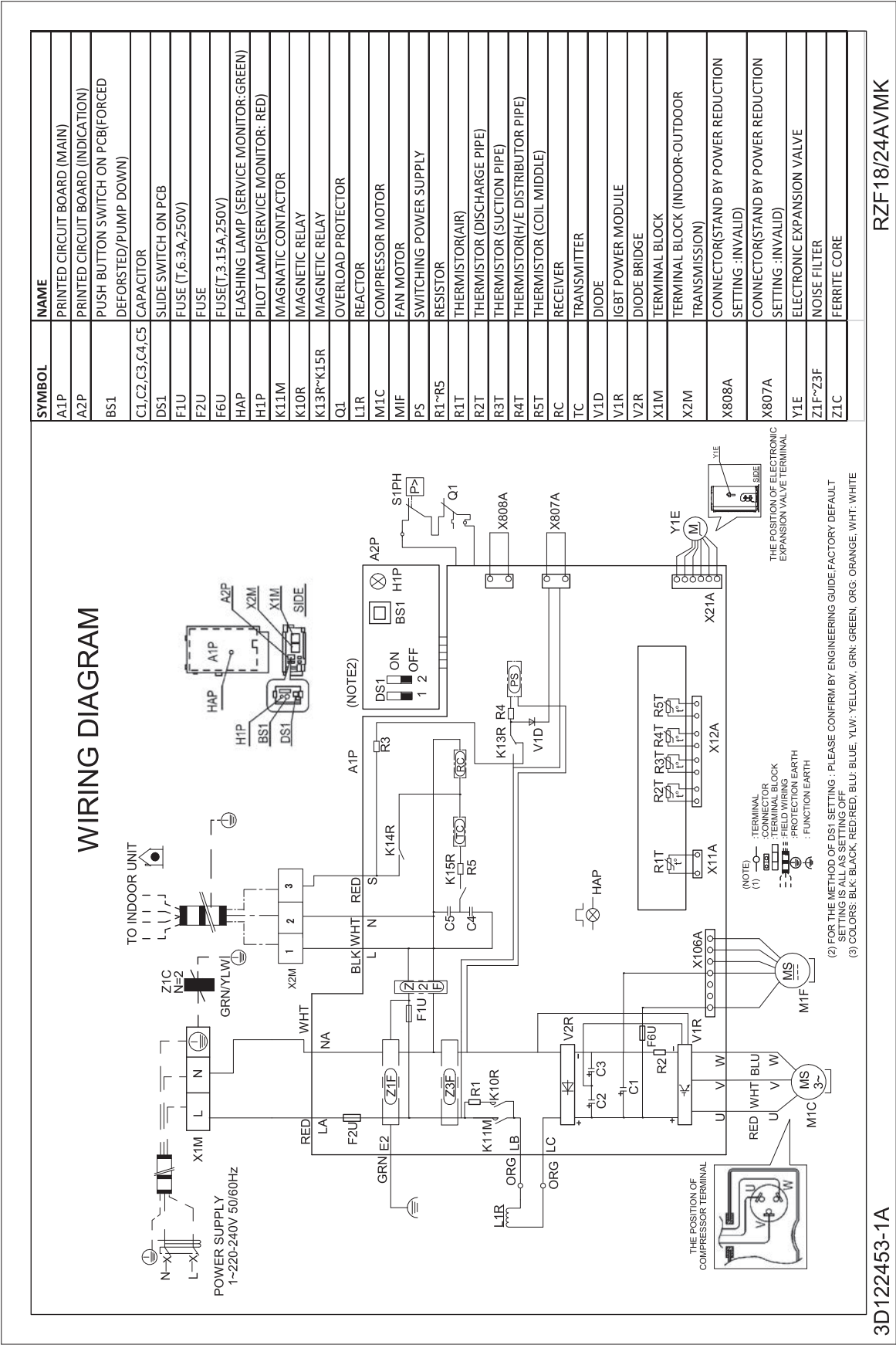
FDMF18AVMK / FDMF24AVMK / FDMF30AVMK / FDMF36AVMK / FDMF48AVMK / FDMF54AVMK



3D122556B

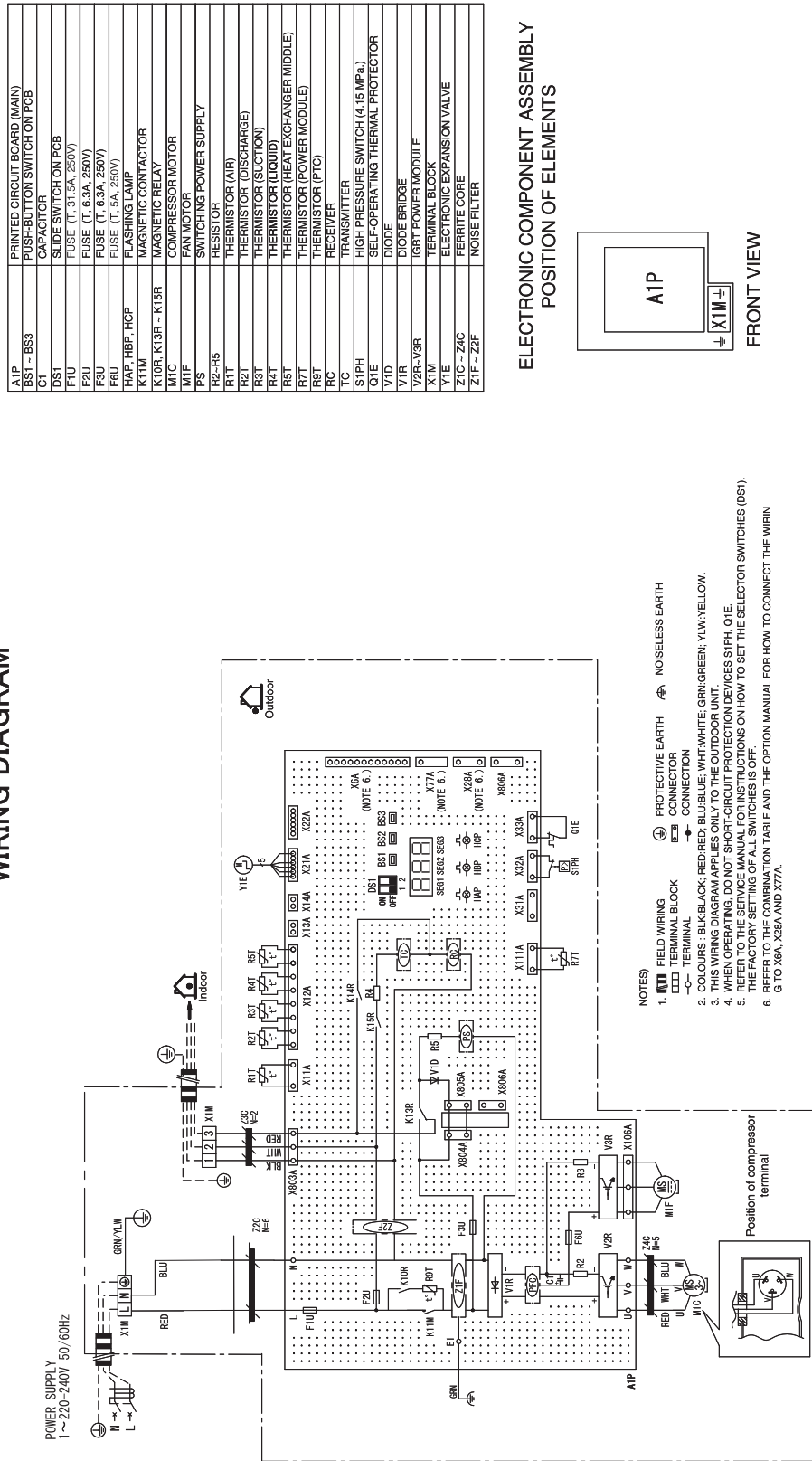
6.2 Outdoor Unit

RZF18AVMK / RZF24AVMK

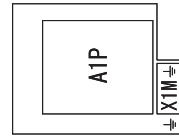


RZF30AVMK / RZF36AVMK

WIRING DIAGRAM



ELECTRONIC COMPONENT ASSEMBLY POSITION OF ELEMENTS



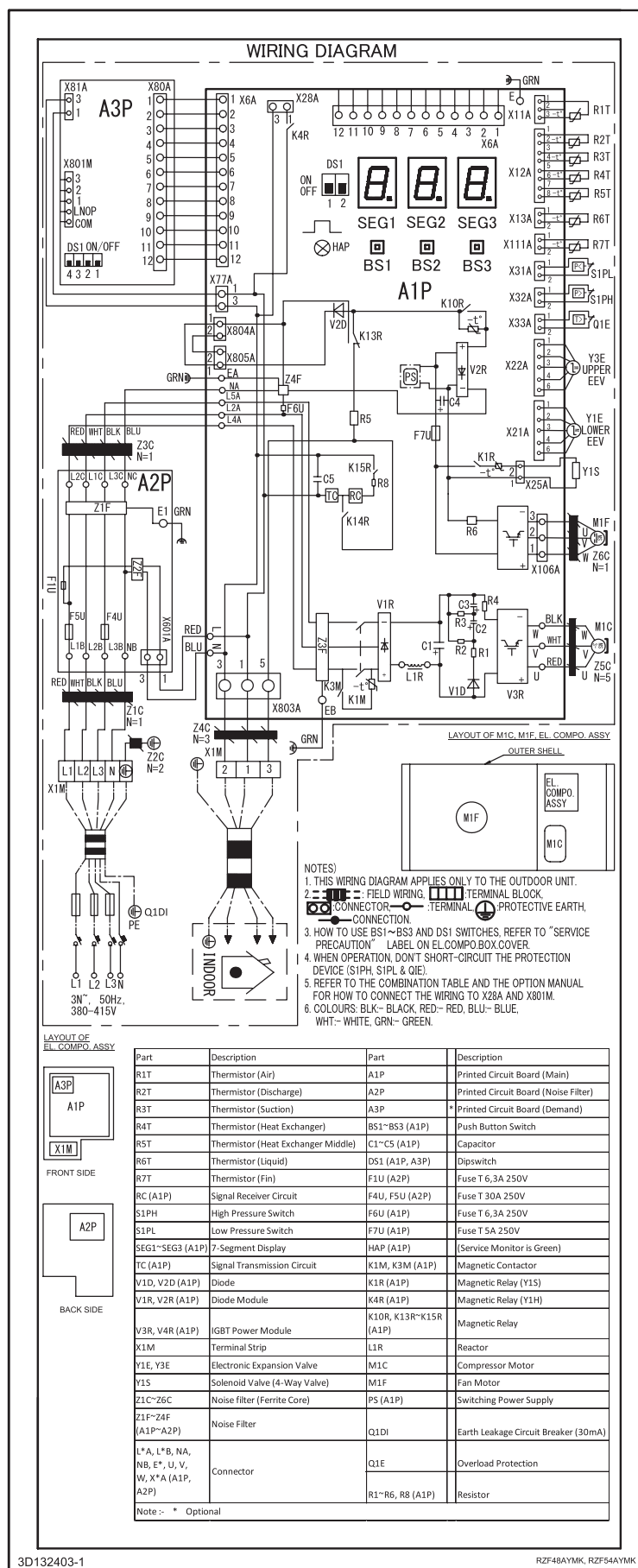
FRONT VIEW

3D122423-1B

RZF30/36AVMK

3D122423B

RZF48AYMK / RZF54AYMK



7. Field Wiring

FDMF18AVMK + RZF18AVMK

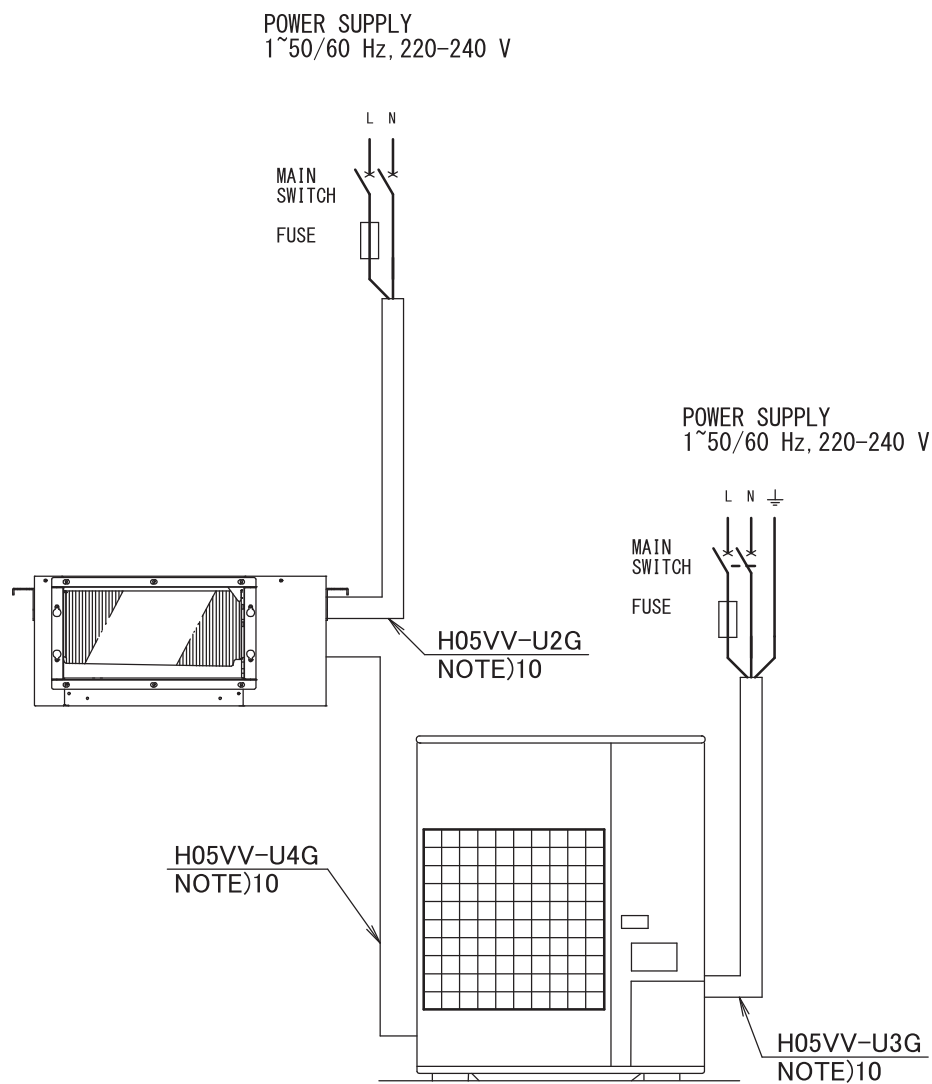
FDMF24AVMK + RZF24AVMK

FDMF30AVMK + RZF30AVMK

FDMF36AVMK + RZF36AVMK

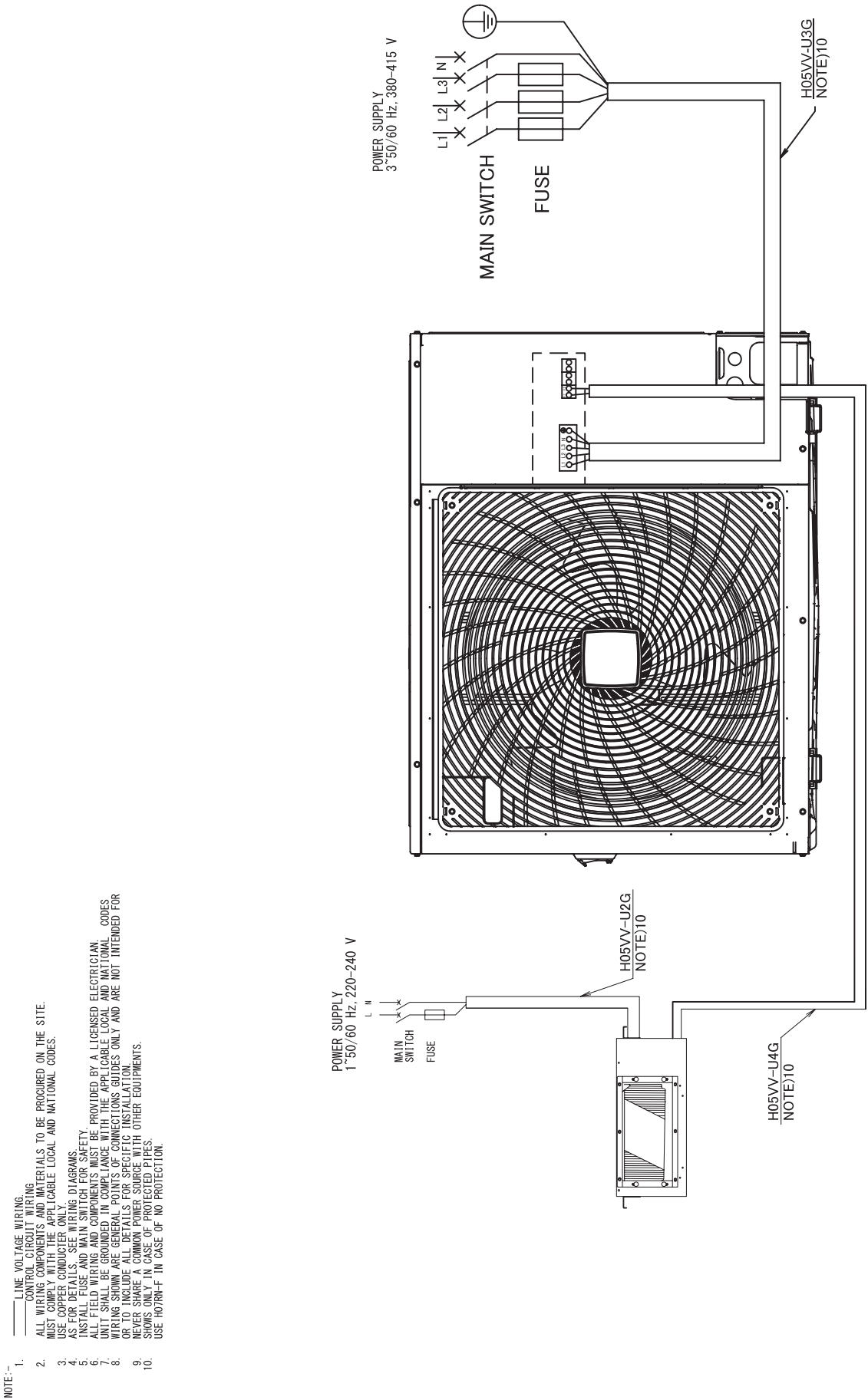
NOTE:-

1. — LINE VOLTAGE WIRING.
— CONTROL CIRCUIT WIRING
2. ALL WIRING COMPONENTS AND MATERIALS TO BE PROCURED ON THE SITE. MUST COMPLY WITH THE APPLICABLE LOCAL AND NATIONAL CODES.
3. USE COPPER CONDUCTOR ONLY.
4. AS FOR DETAILS, SEE WIRING DIAGRAMS.
5. INSTALL FUSE AND MAIN SWITCH FOR SAFETY.
6. ALL FIELD WIRING AND COMPONENTS MUST BE PROVIDED BY A LICENSED ELECTRICIAN.
7. UNIT SHALL BE GROUNDED IN COMPLIANCE WITH THE APPLICABLE LOCAL AND NATIONAL CODES.
8. WIRING SHOWN ARE GENERAL POINTS OF CONNECTIONS GUIDES ONLY AND ARE NOT INTENDED FOR OR TO INCLUDE ALL DETAILS FOR SPECIFIC INSTALLATION.
9. NEVER SHARE A COMMON POWER SOURCE WITH OTHER EQUIPMENTS.
10. SHOWS ONLY IN CASE OF PROTECTED PIPES.
USE H07RN-F IN CASE OF NO PROTECTION.



FDMF48AVMK + RZF48AYMK

FDMF54AVMK + RZF54AYMK



3D133385

8. Electric Characteristics

FDMF18AVMK + RZF18AVMK

FDMF24AVMK + RZF24AVMK

FDMF30AVMK + RZF30AVMK

FDMF36AVMK + RZF36AVMK

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	MCA	MFA	KW	FLA
FDMF18AVMK	RZF18AVMK			14.5	14.5	20	—	12.9	0.06	0.3			1.5	15	0.230	1.2
FDMF24AVMK	RZF24AVMK		Max 50/60 Hz 264 V Min 50/60 Hz 198 V	14.5	14.5	20	—	12.9	0.06	0.3		Max 50/60 Hz 264 V Min 50/60 Hz 198 V	1.8	15	0.230	1.4
FDMF30AVMK	RZF30AVMK	50/60; 220-240		25	25	32	—	22	0.200	1.0	50/60; 220-240		2.3	15	0.300	1.8
FDMF36AVMK	RZF36AVMK			25	25	32	—	22	0.200	1.0			2.9	15	0.300	2.3

Symbols:

MCA : Min. Circuit Amps. (A)
 TOCA : Total Over-current Amps. (A)
 MFA : Max. Fuse Amps (See note 7). (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.
 kW : Fan Motor Rated Output. (kW)

Note:

1.RLA is based on the following conditions

Cooling

Indoor temp. 27. 0°CDB / 19. 0°CWB

Outdoor temp. 35. 0°CDB

2.TOCA means the total value of each OC set.

3.Voltage range
Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.

4.For outdoor unit

MCA represents maximum input current.

MFA represents capacity which may accept MCA.

For indoor unit

MCA = 1.25 x FLA

MFA ≤ 4 x FLA

(Next lower standard fuse rating, minimum 15A)

5.Select wire size based on the larger value of MCA or TOCA. (Outdoor unit only)

6.MFA is used to select the circuit breaker and the ground fault circuit interruptor.
(earth leakage circuit breaker)

7.Instead of fuse, use circuit breaker.

3D124576

FDMF48AVMK + RZF48AYMK

FDMF54AVMK + RZF54AYMK

Unit Combination		Outdoor Unit						Indoor Unit							
		Power Supply						Power Supply							
		Hz; Voltz	Voltage range	MCA	TOCA	MFA	MSC	RLA	Kw	FLA					
Indoor	Outdoor	50/60; 380-415	Max 50/60 Hz 457V Min 50/60 Hz 342V	15.4	15.4	20	-	13	0.234	1.4	Voltage range Max 50/60 Hz 264V Min 50/60 Hz 198V				
FDMF48AVMK	RZF48AYMK			15.4	15.4	20	-	13	0.234	1.4					
FDMF54AVMK	RZF54AYMK														

Symbols:

MCA : Min. Circuit Amps. (A)
TOCA : Total Over—current Amps. (A)
MFA : Max. Fuse Amps (See note 7). (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.
kW : Fan Motor Rated Output. (kW)

Note:

1.RLA is based on the following conditions
Cooling Indoor temp. 27. 0°CDB / 19. 0°CWB
Outdoor temp. 35. 0°CDB
2.TOCA means the total value of each OC set.
3.Voltage range
Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.
4.For outdoor unit
MCA represents maximum input current.
MFA represents capacity which may accept MCA.
For indoor unit
MCA = 1.25 x FLA
MFA ≤ 4 x FLA
(Next lower standard fuse rating, minimum 15A)
5.Select wire size based on the larger value of MCA or TOCA. (Outdoor unit only)
6.MFA is used to select the circuit breaker and the ground fault circuit interruptor. (earth leakage circuit breaker)
7.Instead of fuse, use circuit breaker.

9. Capacity Tables

9.1 Capacity Tables

FDMF18AVMK + RZF18AVMK

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

2. On the Fig. A the mark with  show the max. Once at standard conditions.

3. Min-Max capacity data is based on T1 condition.

4. On the tables  show rated capacity at T1 condition.

5. SC* is based on each EWB and EDB.

6. SC = SC correction for other dry bulb.

7. Add SC to SC*.

8. Capacities are based on the following conditions.

9. Corresponding refrigerant piping length : 7.5 m

10. Level difference : 0 m

11. The valve contains less than 5% error accoding to indoor unit type.

12. Air flow rate and (BF) are tabulated below.

13. (Pair)

FDMF18AVMK	
AFR	18
(Hi)	(0.20)

9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.

FDMF18AVMK+ RZF18AVMK	
COOLING	1.385
(Hi)	

- Symbols :
- AFR : Air flow rate

BF : By pass factor

EWB : Entering wet bulb temp.

EDB : Entering dry bulb temp.

TC : Total cooling capacity

SC : Sensible capacity

PI : Power input

Mbh: 1000 BTU/Hr

(1 KW= 3.41214 Mbh)
- (m³ /min)

(°C WB)

(°C DB)

(kW)

(kW)

(kW)

(Comp.+indoor+outdoor fan motor).

Caution :
TC and SC are shown by kW.

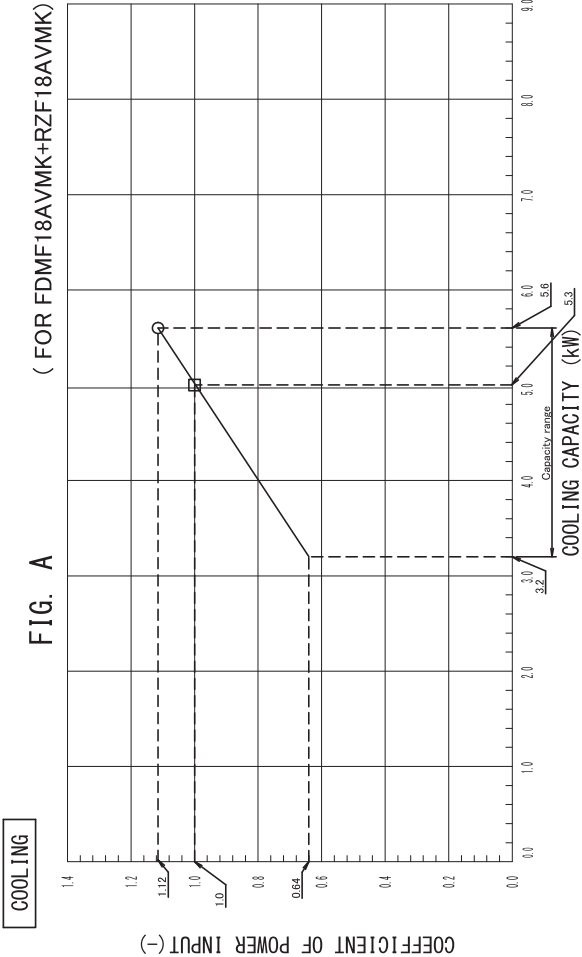
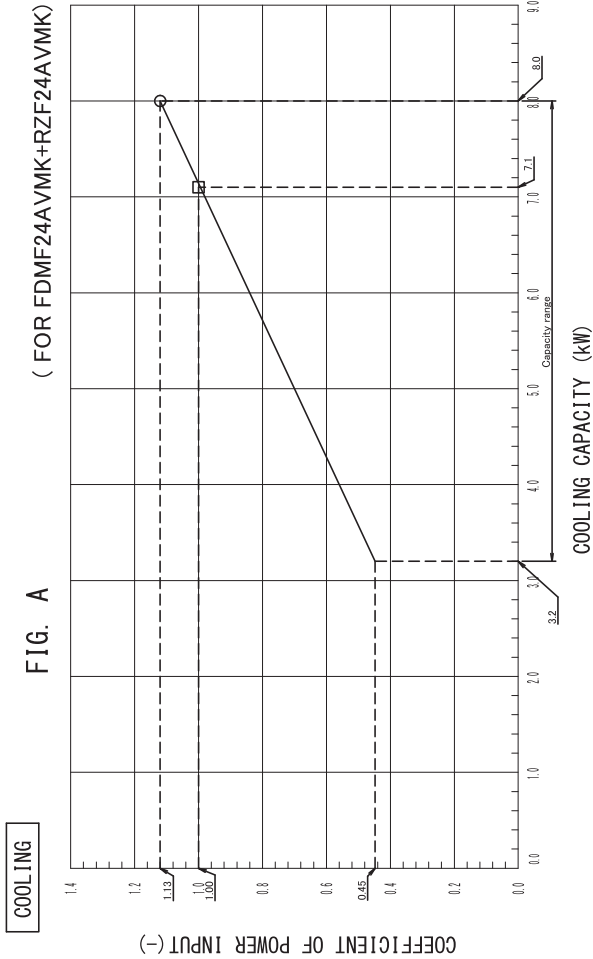


TABLE:

Unit Combination: FDM18AVMK+RZF18AVMK																										
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	kW	Mbh	PI	kW	Mbh	TC	kW	Mbh	SC	PI	kW	Mbh	TC	kW	Mbh	SC	PI	kW
17°C (62.5°F)	21°C	4.84	16.52	2.54	8.66	1.21	4.66	15.91	2.70	9.23	1.33	4.55	15.53	2.51	8.58	1.51	3.71	12.64	2.45	8.37	1.61	3.25	11.09	2.15	7.34	1.34
	24°C	4.86	16.59	3.17	10.82	1.21	4.69	15.99	3.40	11.60	1.33	4.57	15.60	3.17	10.81	1.51	3.73	12.71	3.27	11.15	1.61	3.33	11.38	2.84	9.69	1.34
	27°C	4.88	16.65	3.80	12.96	1.21	4.70	16.04	4.09	13.95	1.33	4.59	15.67	3.81	13.01	1.51	3.93	13.43	3.60	12.28	1.63	3.59	12.26	3.15	10.73	1.35
	30°C	5.13	17.52	4.11	14.02	1.21	4.99	17.02	4.37	14.92	1.34	4.89	16.70	4.06	13.86	1.53	4.21	14.38	3.86	13.16	1.64	3.86	13.16	3.38	11.52	1.36
	24°C	5.17	17.64	2.75	9.39	1.21	4.99	17.02	2.94	10.03	1.34	4.87	16.62	2.74	9.34	1.52	3.98	13.57	2.72	9.28	1.63	3.61	12.33	2.39	8.16	1.35
19°C (66°F)	27°C	5.19	17.71	3.38	11.54	1.21	5.01	17.09	3.63	12.40	1.34	4.89	16.67	3.39	11.57	1.53	3.99	13.62	3.49	11.90	1.63	3.63	12.38	3.08	10.51	1.35
	30°C	5.21	17.77	4.01	13.68	1.21	5.02	17.14	4.32	14.75	1.34	4.91	16.74	4.04	13.79	1.53	4.22	14.38	3.86	13.16	1.64	3.86	13.16	3.38	11.52	1.36
	33°C	5.44	18.56	4.35	14.85	1.22	5.30	18.07	4.64	15.83	1.34	5.20	17.73	4.31	14.72	1.54	4.50	15.36	4.12	14.05	1.66	4.13	14.08	3.61	12.32	1.36
	27°C	5.69	19.40	2.74	9.35	1.22	5.49	18.75	2.93	10.01	1.34	5.37	18.32	2.73	9.33	1.54	4.40	15.00	2.72	9.28	1.65	4.01	13.69	2.40	8.18	1.36
	30°C	5.70	19.46	3.37	11.51	1.22	5.51	18.80	3.63	12.37	1.34	5.39	18.38	3.39	11.56	1.54	4.41	15.06	3.49	11.92	1.65	4.03	13.74	3.09	10.54	1.36
22°C (72°F)	33°C	5.72	19.51	4.00	13.66	1.22	5.53	18.87	4.32	14.74	1.35	5.41	18.44	4.04	13.79	1.54	4.50	15.36	4.12	14.06	1.66	4.13	14.09	3.61	12.33	1.36
	35°C	5.73	19.54	4.42	15.08	1.22	5.54	18.89	4.77	16.29	1.35	5.41	18.45	4.47	15.25	1.54	4.69	16.02	4.30	14.66	1.67	4.31	14.71	3.77	12.87	1.37
	21°C	4.97	16.96	2.71	9.26	1.23	4.79	16.34	2.89	9.88	1.35	4.67	15.94	2.69	9.18	1.54	3.79	12.92	2.64	9.01	1.64	3.33	11.35	2.32	7.92	1.36
	24°C	5.00	17.08	3.44	11.72	1.23	4.82	16.45	3.69	12.56	1.35	4.70	16.04	3.44	11.73	1.54	3.82	13.04	3.54	12.09	1.64	3.48	11.88	3.05	10.39	1.36
	30°C	5.09	17.35	4.07	13.88	1.23	4.93	16.43	4.32	14.75	1.35	4.83	16.49	4.01	13.69	1.54	4.11	14.03	3.76	12.84	1.66	3.76	12.82	3.29	11.27	1.37
530	30°C	5.41	18.44	4.32	14.76	1.24	5.26	17.93	4.61	15.72	1.36	5.15	17.59	4.28	14.60	1.55	4.41	15.04	4.03	13.77	1.68	4.04	13.79	3.54	12.07	1.38
	24°C	5.31	18.13	2.96	10.09	1.24	5.12	17.48	3.16	10.80	1.36	5.00	17.07	2.95	10.06	1.55	4.06	13.86	2.94	10.05	1.66	3.69	12.60	2.59	8.85	1.37
	27°C	5.34	18.22	3.68	12.96	1.24	5.15	17.57	3.96	13.50	1.36	5.03	17.16	3.70	12.61	1.55	4.11	14.03	3.76	12.84	1.66	3.76	12.82	3.29	11.21	1.37
	30°C	5.41	18.46	4.33	14.77	1.24	5.26	17.94	4.61	15.72	1.36	5.15	17.59	4.28	14.60	1.55	4.41	15.05	4.03	13.77	1.68	4.04	13.79	3.54	12.07	1.38
	33°C	5.74	19.58	4.59	15.67	1.24	5.59	19.06	4.89	16.70	1.37	5.48	18.70	4.55	15.53	1.56	4.71	16.08	4.31	14.72	1.69	4.33	14.76	3.79	12.92	1.39
22°C (72°F)	27°C	5.83	19.89	2.95	10.06	1.24	5.63	19.21	3.16	10.76	1.37	5.50	18.78	2.94	10.05	1.57	4.49	15.31	2.95	10.06	1.68	4.10	13.98	2.60	8.89	1.38
	30°C	5.86	20.00	3.67	12.54	1.24	5.66	19.31	3.95	13.49	1.37	5.53	18.88	3.70	12.61	1.57	4.51	15.38	3.83	13.07	1.68	4.11	14.04	3.39	11.58	1.38
	33°C	5.88	20.07	4.39	14.99	1.24	5.68	19.38	4.75	16.19	1.37	5.55	18.95	4.44	15.16	1.57	4.71	16.09	4.31	14.72	1.69	4.33	14.77	3.79	12.92	1.39
	35°C	5.97	20.35	4.77	16.28	1.24	5.81	19.82	5.09	17.37	1.37	5.70	19.47	4.73	16.16	1.57	4.92	16.79	4.50	15.36	1.70	4.53	15.44	3.96	13.51	1.39
	21°C	5.09	17.38	2.90	9.89	1.26	4.90	16.73	3.10	10.56	1.38	4.78	16.31	2.88	9.82	1.56	3.86	13.16	2.84	9.69	1.67	3.39	11.56	2.50	8.52	1.39
17°C (62.5°F)	24°C	5.13	17.50	3.72	12.68	1.26	4.94	16.86	3.99	13.62	1.38	4.82	16.43	3.72	12.71	1.57	3.97	13.53	3.68	12.55	1.67	3.62	12.34	3.17	10.80	1.39
	27°C	5.32	18.16	4.26	14.53	1.26	5.16	17.60	4.52	15.43	1.38	5.05	17.25	4.20	14.31	1.57	4.27	14.56	4.20	14.32	1.71	4.21	14.35	3.68	12.56	1.41
	30°C	5.67	19.34	4.53	15.47	1.26	5.50	18.78	4.82	16.45	1.39	5.40	18.41	4.48	15.28	1.59	4.59	15.66	4.20	14.32	1.71	4.21	14.35	3.68	12.56	1.41
	24°C	5.43	18.54	3.17	10.83	1.26	5.24	17.87	3.40	11.60	1.38	5.11	17.45	3.17	10.81	1.58	4.14	14.12	3.18	10.86	1.68	3.77	12.85	2.81	9.59	1.40
	27°C	5.47	18.67	4.00	13.63	1.26	5.28	18.01	4.30	14.68	1.38	5.15	17.57	4.02	13.71	1.58	4.35	14.84	3.91	13.34	1.69	3.91	13.34	3.42	11.67	1.40
635	30°C	5.67	19.34	4.54	15.47	1.26	5.50	18.78	4.82	16.46	1.39	5.40	18.41	4.48	15.28	1.59	4.59	15.66	4.20	14.33	1.71	4.21	14.35	3.68	12.56	1.41
	33°C	6.02	20.55	4.82	16.44	1.26	5.85	19.97	5.13	17.50	1.39	5.75	19.61	4.77	16.28	1.60	4.91	16.76	4.49	15.33	1.72	4.51	15.40	3.95	13.47	1.41
	27°C	5.96	20.34	3.17	10.82	1.26	5.76	19.34	3.40	11.60	1.39	5.63	19.20	3.17	10.82	1.59	4.56	15.57	3.19	10.89	1.70	4.17	14.23	2.82	9.63	1.41
	30°C	6.00	20.46	3.99	13.63	1.26	5.79	19.75	4.30	14.68	1.39	5.66	19.31	4.02	13.73	1.59	4.59	15.67	4.20	14.32	1.71	4.21	14.36	3.68	12.56	1.41
	33°C	6.02	20.55	4.81	16.42	1.26	5.85	19.98	5.13	17.50	1.39	5.75	19.61	4.77	16.28	1.60	4.91	16.76	4.49	15.33	1.72	4.51	15.40	3.95	13.47	1.41
35°C	6.26	21.37	5.01	17.09	1.26	6.09	20.79	5.34	18.22	1.40	5.88	20.42	4.97	16.95	1.60	5.13	17.51	4.69	16.02	1.73	4.72	16.11	4.13	14.10	1.42	

C: 3D125853

FDMF24AVMK + RZF24AVMK



- Notes :
- 1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 - 2. On the Fig. A the mark with  show the max. Once at standard conditions. On the Fig. A the mark with  show rated capacity and rated coefficient of power input. However the max. Capacity is not guaranteed except at standard condition.
 - 3. Min-Max capacity data is based on T1 condition.
T1: IDU (27°EDB/19°EWB) & ODU (35°EDB/24°EWB)
 - 4. On the tables  show rated capacity and rated coefficient of power input.
 - 5. SC* is based on each EWB and EDB*
SC = SC correction for other dry bulb.
$$SC = 0.02 \times AFR(m^3/min) \times (1 - BF) \times (DB - EDB)$$
 - 6. Add SC to SC*
Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 - 7. The valve contains less than 5% error according to indoor unit type.
 - 8. Air flow rate and (BF) are tabulated below.

	FDMF24AVMK
AFR (HI)	23 (0.20)

- 9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.

	FDMF24AVMK+ RZF24AVMK
COOLING (kW)	1.935

Symbols :

AFR : Air flow rate (m³/min)

BF : By pass factor (°C WB)

EWB : Entering wet bulb temp. (°C DB)

EDB : Entering dry bulb temp. (kW)

TC : Total cooling capacity (kW)

SC : Sensible capacity (kW)

PI : Power input (Comp.+indoor+outdoor fan motor).

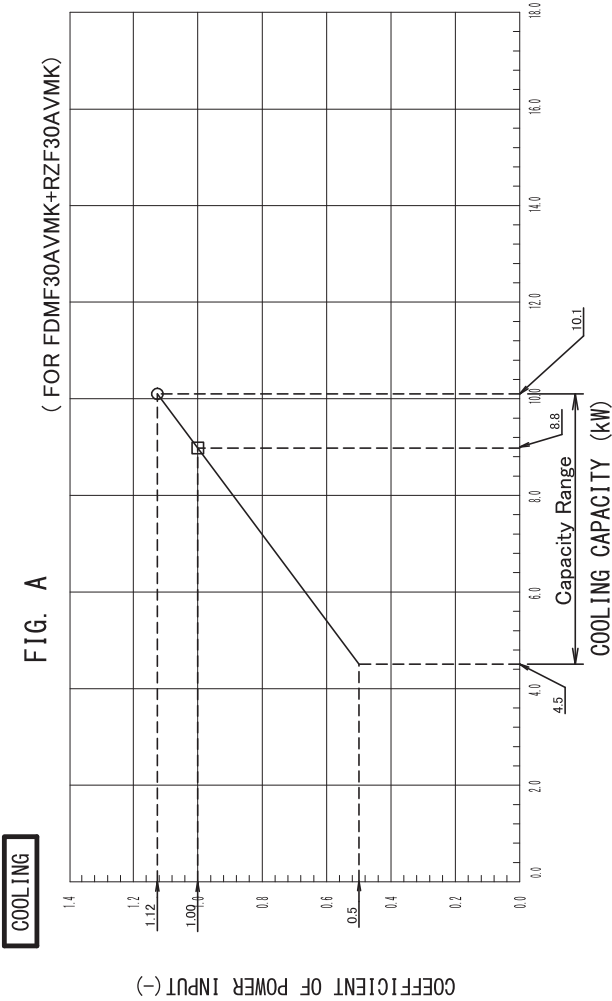
Mbh: 1000 BTU/Hr (1 KW= 3.41214 Mbh)

Caution :
TC and SC are shown by kW.

TABLE :

Unit Combination: FDMF24AV/MK+RZF24AV/MK																											
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	TC	Mbh	kW	PI				
17°C (62.6°F)	21°C	6.43	21.95	3.62	12.36	1.66	6.20	21.16	3.49	11.91	1.83	6.02	20.55	3.43	11.72	2.07	4.26	14.55	2.79	9.53	3.38	11.53	2.43	8.31	1.23		
	24°C	6.43	21.94	4.51	15.39	1.66	6.21	21.17	4.36	14.87	1.83	6.03	20.56	4.30	14.67	2.07	4.27	14.57	3.77	12.88	1.56	3.42	11.96	3.21	10.95	1.23	
	27°C	6.43	21.94	5.36	18.28	1.66	6.20	21.17	5.20	17.73	1.83	6.03	20.57	5.14	17.54	2.07	4.46	15.21	4.17	14.22	1.57	3.69	12.59	3.47	11.82	1.24	
	30°C	6.59	22.47	5.98	20.41	1.67	6.40	21.82	5.75	19.61	1.84	6.25	21.34	5.58	19.27	2.09	4.76	16.24	4.45	15.19	1.58	3.97	12.54	3.47	11.82	1.24	
	24°C	6.85	23.36	3.92	13.38	1.68	6.61	22.57	3.78	12.90	1.85	6.43	21.94	3.72	12.71	2.10	4.53	15.47	3.14	10.73	1.57	3.63	12.40	2.73	9.32	1.24	
	27°C	6.85	23.37	4.78	16.31	1.68	6.61	22.56	4.63	15.79	1.85	6.43	21.94	4.57	15.61	2.10	4.53	15.47	4.06	13.83	1.57	3.69	12.59	3.47	11.83	1.24	
19°C (66°F)	30°C	6.85	23.36	5.62	19.19	1.68	6.61	22.55	5.46	18.63	1.85	6.43	21.94	5.41	18.46	2.10	4.78	16.31	4.47	15.25	1.56	3.97	13.55	3.73	12.72	1.24	
	33°C	6.95	23.71	6.31	21.54	1.69	6.76	23.06	6.08	20.73	1.86	6.61	22.57	5.97	20.38	2.10	5.10	17.39	4.76	16.26	1.59	4.25	14.51	3.99	13.63	1.25	
	27°C	7.52	25.65	3.87	13.20	1.71	7.27	24.81	3.75	12.80	1.89	7.07	24.12	3.70	12.61	2.10	4.98	17.04	3.13	10.88	1.59	4.04	13.78	2.73	9.31	1.24	
	30°C	7.51	25.64	4.74	16.18	1.71	7.27	24.79	4.60	15.68	1.89	7.07	24.12	4.54	15.51	2.10	5.00	17.07	4.04	13.80	1.59	4.40	13.77	3.59	12.26	1.24	
	33°C	7.51	25.62	5.59	19.06	1.71	7.26	24.77	5.43	18.52	1.89	7.07	24.12	5.28	18.36	2.10	5.10	17.39	4.77	16.26	1.59	4.25	14.52	3.99	13.63	1.25	
	35°C	7.51	25.62	6.14	20.95	1.71	7.26	24.76	5.98	20.39	1.89	7.06	24.11	5.93	20.23	2.10	5.31	18.11	4.96	16.84	1.60	4.45	15.18	4.18	14.25	1.25	
690	21°C	6.66	22.73	3.95	13.48	1.69	6.42	21.92	3.80	12.98	1.87	6.23	21.27	3.74	12.76	2.13	4.38	14.95	3.05	10.42	1.58	3.46	11.79	2.69	9.17	1.25	
	24°C	6.67	22.77	4.97	16.96	1.70	6.43	21.94	4.81	16.41	1.87	6.25	21.32	4.75	16.21	2.13	4.39	15.00	4.21	14.35	1.59	3.59	12.25	3.37	11.50	1.26	
	27°C	6.68	22.81	5.98	20.40	1.70	6.44	21.99	5.79	19.76	1.87	6.29	21.46	5.68	19.39	2.13	4.70	16.05	4.40	15.01	1.60	3.88	13.25	3.65	12.44	1.26	
	30°C	6.68	22.81	6.40	21.84	1.71	6.84	23.33	6.15	20.97	1.89	6.68	22.80	6.03	20.59	2.13	5.04	17.18	4.71	16.06	1.61	4.18	14.27	3.93	13.40	1.27	
	24°C	7.09	24.21	4.28	14.60	1.71	6.84	23.35	4.13	14.09	1.89	6.65	22.69	4.07	13.89	2.13	4.64	15.82	3.47	11.85	1.60	3.72	12.68	3.04	10.37	1.26	
	27°C	7.10	24.23	5.29	18.06	1.71	6.85	23.38	5.13	17.51	1.89	6.66	22.72	5.08	17.32	2.13	4.71	16.08	4.41	15.03	1.60	3.88	13.25	3.65	12.44	1.26	
	30°C	6.80°F	7.11	24.27	6.30	21.48	1.72	6.86	23.41	6.12	20.88	1.89	6.68	22.81	6.04	20.60	2.13	5.04	17.21	4.72	16.09	1.61	4.18	14.27	3.93	13.40	1.27
	33°C	7.45	25.42	6.77	23.09	1.73	7.25	24.73	6.51	22.22	1.91	7.08	24.16	6.40	21.62	2.13	5.39	18.38	5.04	17.18	1.62	4.49	15.31	4.21	14.38	1.27	
	27°C	81°F	7.77	26.51	4.24	14.46	1.74	7.51	25.62	4.10	13.97	1.93	7.31	24.93	4.04	13.79	2.13	5.11	17.43	3.46	11.80	1.61	4.12	14.07	3.04	10.37	1.27
	30°C	86°F	7.78	26.55	5.26	17.94	1.74	7.51	25.64	5.10	17.40	1.93	7.31	24.95	5.05	17.22	2.13	5.12	17.48	4.54	15.50	1.62	4.18	14.27	3.93	13.40	1.27
	33°C	90°F	7.79	26.56	6.26	21.35	1.74	7.52	25.66	6.09	20.77	1.93	7.32	24.97	6.04	20.61	2.13	5.39	18.38	5.04	17.18	1.62	4.49	15.31	4.21	14.38	1.27
	35°C	95°F	7.79	26.58	6.92	23.61	1.74	7.52	25.68	6.74	23.00	1.93	7.36	25.10	6.64	22.67	2.13	5.61	19.15	5.25	17.91	1.63	4.70	16.02	4.41	15.05	1.27
812	21°C	70°F	6.83	23.32	4.22	14.41	1.74	6.58	22.46	4.07	13.88	1.91	6.39	21.81	4.00	13.67	2.16	4.47	15.24	3.29	11.23	1.62	3.51	11.99	2.92	9.96	1.29
	24°C	75°F	6.85	23.37	5.38	18.37	1.74	6.60	22.52	5.22	17.80	1.91	6.41	21.87	5.16	17.60	2.16	4.55	15.54	4.40	15.00	1.63	3.72	12.70	3.50	11.93	1.29
	27°C	81°F	6.98	23.81	6.34	21.63	1.74	6.77	23.09	6.08	20.75	1.92	6.60	22.53	5.96	20.35	2.16	4.89	16.70	4.58	15.61	1.64	4.03	13.74	3.78	12.90	1.30
	30°C	86°F	7.41	25.27	6.73	22.95	1.76	7.19	24.53	6.46	22.05	1.94	7.19	24.53	6.49	22.16	2.16	5.25	17.91	4.91	16.75	1.65	4.34	14.81	4.08	13.91	1.31
	24°C	75°F	7.27	24.82	4.60	15.69	1.76	7.01	23.93	4.44	15.15	1.93	6.81	23.25	4.38	14.95	2.16	4.72	16.11	3.77	12.87	1.64	3.78	12.89	3.32	11.33	1.30
	27°C	81°F	7.29	24.88	5.76	19.65	1.76	7.03	23.98	5.59	19.07	1.93	6.83	23.30	5.53	18.87	2.16	4.89	16.70	4.88	15.62	1.64	4.03	13.74	3.78	12.91	1.30
	30°C	86°F	7.41	25.27	6.73	22.95	1.76	7.19	24.54	6.46	22.05	1.94	7.02	23.95	6.34	21.63	2.16	5.25	17.90	4.91	16.74	1.65	4.34	14.82	4.08	13.91	1.31
	33°C	91°F	7.84	26.76	7.12	24.30	1.78	7.62	26.01	6.85	23.38	1.97	7.45	25.33	6.73	22.96	2.16	5.61	19.13	5.24	17.89	1.66	4.66	15.92	4.38	14.95	1.31
	27°C	81°F	7.96	27.16	4.56	15.56	1.78	7.69	26.24	4.41	15.05	1.97	7.48	25.41	4.35	14.96	2.16	5.19	17.71	3.76	12.63	1.65	4.19	14.28	3.32	11.34	1.30
	30°C	86°F	7.97	27.19	5.72	19.52	1.79	7.70	26.28	5.66	18.97	1.97	7.49	25.55	5.50	18.78	2.16	5.25	17.90	4.91	16.74	1.65	4.34	14.82	4.08	13.91	1.31
	33°C	91°F	7.98	27.23	6.87	23.43	1.79	7.71	26.31	6.69	22.83	1.97	7.50	25.58	6.64	22.66	2.16	5.60	19.12	5.47	18.67	1.67	4.67	15.92	4.38	14.96	1.31
	35°C	95°F	8.14	27.77	7.39	25.22	1.79	7.91	27.01	7.11	24.27	1.98	7.74	26.42	6.99	23.86	2.16	5.85	19.97	5.47	18.87	1.67	4.88	16.66	4.59	15.65	1.31

FDMF30AVMK + RZF30AVMK



- Notes :
1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 2. On the Fig. A the mark with show the max. Once at standard conditions.
 3. On the Fig. A the mark with show rated capacity and rated coefficient of power input. However the max. Capacity is not guaranteed except at standard condition.
 4. Min-Max capacity data is based on T1 condition.
T1: IDU (27°EDB/19°EWB) & ODU (35°EDB/24°EWB)
 5. On the tables show rated capacity at T1 condition.
 6. SC* is based on each EWB and EDB.
SC = SC correction for other dry bulb
= 0.02xAFR(m³/min)x(1-BF)x(DB*-EDB)
Add SC to SC*
 7. Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 8. The valve contains less than 5% error accoding to indoor unit type.
 9. Air flow rate and (BF) are tabulated below.

	FDMF30AVMK
AFR (HI)	32 (0.13)

9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.

	FDMF30AVMK+ RZF30AVMK
COOLING (HI)	2.419

- 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 capacity (kW)
 - SC : Sensible capacity (kW)
 - PI : Power input (kW)
 - Mbh: 1000 BTU/Hr (1 KW= 3.41214 Mbh)

Caution :
TC and SC are shown by kW.

TABLE:

Unit Combination: FDMF30AVMK+RZF30AVMK																												
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	SC	PI	kW	Mbh	kW	SC	PI	kW	Mbh	kW	SC	PI	kW	Mbh	kW	SC	PI						
795	17°C (62.6°F)	21°C	7.99	27.27	4.70	16.03	2.10	7.71	26.29	4.59	15.68	2.30	7.52	25.67	4.55	15.52	2.58	6.56	22.38	4.36	14.87	2.89	5.28	18.00	3.68	11.10	2.15	
		24°C	7.99	27.28	5.75	19.63	2.10	7.71	26.29	5.65	19.27	2.30	7.52	25.67	5.60	19.10	2.58	6.56	22.37	5.16	17.60	2.89	5.27	18.00	4.62	14.22	2.15	
		27°C	8.00	27.28	6.75	23.02	2.10	7.71	26.29	6.65	22.71	2.30	7.53	25.68	6.61	22.57	2.58	6.56	22.37	6.41	21.89	2.89	5.35	18.25	4.96	16.92	2.16	
		30°C	7.99	27.27	7.73	26.36	2.10	7.76	26.46	7.59	25.69	2.30	7.61	25.96	7.50	25.60	2.59	6.73	22.96	6.73	22.96	2.91	5.71	19.48	5.71	19.48	2.17	
		24°C	8.53	29.11	5.06	17.28	2.12	8.23	28.07	4.96	16.89	2.32	8.03	27.41	4.90	16.73	2.61	7.01	23.91	4.70	16.04	2.93	5.66	19.31	3.56	12.16	2.17	
	19°C (66°F)	21°C	8.53	29.10	6.08	20.74	2.12	8.22	28.06	5.98	20.39	2.32	8.04	27.42	5.93	20.24	2.61	7.01	23.91	5.73	19.56	2.93	5.66	19.31	3.56	12.16	2.17	
		30°C	8.67	29.09	7.06	24.11	2.12	8.22	28.06	6.98	23.82	2.32	8.03	27.41	6.94	23.69	2.61	7.01	23.91	6.75	23.03	2.93	5.71	19.49	5.28	18.06	2.17	
		33°C	9.1F	8.52	29.08	8.04	27.43	2.12	8.22	28.04	7.97	27.20	2.32	8.04	27.42	7.92	27.03	2.61	7.12	24.29	7.12	24.29	6.28	6.08	20.74	6.08	20.74	2.19
		27°C	8.1F	9.39	32.05	5.01	17.08	2.13	9.06	30.92	4.91	16.75	2.35	8.85	30.19	4.87	16.62	2.66	7.74	26.39	4.68	15.96	2.99	6.27	21.38	3.55	12.13	2.19
		30°C	8.6F	9.38	32.02	6.04	20.61	2.13	9.06	30.91	5.95	20.29	2.35	8.85	30.18	5.90	20.13	2.66	7.73	26.37	5.71	19.48	2.99	6.26	21.38	4.47	15.25	2.19
955	22°C (72°F)	33°C	9.1F	9.38	32.01	7.03	23.89	2.13	9.05	30.88	6.95	23.71	2.35	8.85	30.18	6.91	23.58	2.66	7.73	26.36	6.72	22.94	2.99	6.26	21.36	5.37	16.32	2.19
		35°C	9.5F	9.68	31.99	7.68	26.21	2.13	9.05	30.87	7.61	25.96	2.35	8.84	30.16	7.57	25.85	2.66	7.73	26.36	7.39	25.23	2.99	6.32	21.58	5.86	20.00	2.19
		21°C	7.0F	8.29	28.29	5.07	17.30	2.14	7.98	27.24	4.97	16.95	2.34	7.79	26.58	4.92	16.77	2.63	6.78	23.12	4.70	16.03	2.95	5.43	18.51	4.01	12.03	2.19
		24°C	7.5F	8.31	28.36	6.27	21.40	2.14	8.00	27.29	6.16	21.02	2.34	7.81	26.63	6.11	20.86	2.63	6.79	23.16	5.64	19.25	2.95	5.44	18.55	5.04	15.66	2.19
		27°C	8.1F	8.32	28.40	7.42	25.33	2.15	8.01	27.34	7.33	25.02	2.34	7.82	26.68	7.29	24.88	2.63	6.80	23.22	6.80	23.22	2.95	5.66	19.31	5.24	19.31	2.20
	17°C (62.6°F)	30°C	8.6F	8.51	29.04	8.31	28.35	2.15	8.28	28.25	8.10	27.64	2.35	8.12	27.70	8.00	27.31	2.65	7.17	24.47	7.17	24.47	2.98	6.05	20.63	6.05	20.63	2.22
		24°C	7.5F	8.64	30.17	5.48	18.70	2.16	8.51	29.05	5.36	18.29	2.36	8.31	28.36	5.31	18.11	2.66	7.24	24.71	5.10	17.40	2.98	5.81	19.84	3.89	13.26	2.21
		27°C	8.1F	8.86	30.23	6.65	22.68	2.16	8.53	29.12	6.55	22.34	2.36	8.33	28.41	6.50	22.18	2.66	7.25	24.74	6.29	21.47	2.99	5.63	19.88	4.95	16.88	2.21
		30°C	8.6F	8.87	30.27	7.80	26.61	2.16	8.55	29.16	7.72	26.33	2.36	8.34	28.44	7.67	26.19	2.66	7.26	24.79	7.26	24.79	2.99	6.05	20.64	5.61	20.64	2.22
		33°C	9.1F	8.99	30.68	8.78	29.95	2.16	8.76	29.88	8.57	29.23	2.37	8.59	29.31	8.47	28.90	2.68	7.60	25.93	7.60	25.93	3.01	6.45	22.01	6.45	22.01	2.23
1130	22°C (72°F)	27°C	8.1F	9.72	33.18	5.45	18.98	2.17	9.37	31.97	5.33	18.19	2.39	9.15	31.22	5.28	18.01	2.71	7.98	27.23	5.07	17.31	3.04	6.43	21.94	3.88	13.24	2.23
		30°C	8.6F	9.73	33.21	6.62	22.57	2.17	9.38	31.98	6.52	22.23	2.39	9.15	31.23	6.47	22.08	2.71	7.99	27.27	6.27	21.41	3.04	6.44	21.97	4.94	16.86	2.23
		33°C	9.1F	9.74	33.23	7.76	26.49	2.17	9.39	32.04	7.69	26.22	2.39	9.16	31.26	7.65	26.09	2.71	7.99	27.27	7.45	25.43	3.04	6.45	22.00	5.98	20.39	2.23
		35°C	9.5F	9.75	33.25	8.52	29.08	2.17	9.39	32.05	8.45	28.85	2.39	9.17	31.29	8.42	28.73	2.71	8.00	27.29	8.00	27.29	3.04	6.72	22.94	6.72	22.94	2.24
		21°C	7.0F	8.25	28.25	5.45	18.58	2.20	8.22	28.06	5.32	18.15	2.39	8.02	27.35	5.26	17.94	2.69	6.86	23.77	5.03	17.17	3.01	5.55	18.93	4.34	12.95	2.24
	17°C (62.6°F)	24°C	7.5F	8.58	29.28	6.79	23.16	2.20	8.25	28.14	6.68	22.78	2.39	8.04	27.44	6.63	22.61	2.69	6.99	23.84	6.13	20.91	3.01	5.57	19.00	5.16	17.11	2.25
		30°C	8.1F	8.60	29.35	8.11	27.67	2.20	8.27	28.23	8.02	27.37	2.39	8.08	27.57	7.97	27.18	2.70	7.11	24.26	7.11	24.26	3.02	5.93	20.24	5.93	20.24	2.26
		33°C	8.6F	9.01	30.75	8.80	30.01	2.21	8.76	29.88	8.57	29.23	2.41	8.58	29.27	8.46	28.85	2.72	7.57	25.81	7.57	25.81	3.06	6.35	21.68	6.35	21.68	2.27
		24°C	7.5F	9.12	31.13	5.89	20.69	2.21	8.77	29.93	5.77	19.68	2.41	8.55	29.18	5.71	19.49	2.72	7.44	25.38	5.49	18.74	3.05	5.95	20.30	4.21	14.37	2.26
		27°C	8.1F	9.15	31.21	7.23	24.65	2.21	8.79	30.01	7.12	24.30	2.41	8.58	29.27	7.08	24.15	2.72	7.46	25.46	6.86	23.42	3.05	5.97	20.36	5.43	19.98	2.26
1130	19°C (66°F)	30°C	8.6F	9.17	31.27	8.54	28.15	2.21	8.82	30.10	8.47	28.89	2.42	8.60	29.35	8.43	28.76	2.73	7.57	25.62	7.57	25.62	3.06	6.35	21.68	6.35	21.68	2.27
		33°C	9.1F	9.53	32.52	9.30	31.75	2.22	9.27	31.64	9.07	30.96	2.43	9.09	31.02	8.96	30.59	2.75	8.03	27.41	8.03	27.41	3.09	6.78	23.14	6.78	23.14	2.28
		27°C	8.1F	10.01	34.15	5.85	19.96	2.23	9.63	32.87	5.73	19.56	2.45	9.40	32.07	5.68	19.38	2.77	7.19	27.94	5.71	19.47	3.10	6.57	22.43	4.21	14.36	2.28
		30°C	8.6F	10.03	34.22	7.19	24.54	2.23	9.65	32.93	7.09	24.20	2.45	9.42	32.13	7.05	24.05	2.77	8.20	27.99	6.84	23.35	3.10	6.58	22.47	5.43	18.52	2.28
		33°C	9.1F	10.05	34.30	8.51	29.05	2.23	9.68	33.02	8.44	28.79	2.45	9.44	32.20	8.40	28.66	2.77	8.22	28.06	8.20	28.00	3.11	6.78	23.14	6.29	23.12	2.29
	22°C (72°F)	30°C	9.5F	10.06	34.33	9.39	32.02	2.23	9.69	33.06	9.32	31.82	2.45	9.45	32.25	9.29	31.71	2.77	8.35	28.49	8.35	28.49	3.11	7.07	24.14	7.07	24.14	2.29

FDMF36AVMK + RZF36AVMK

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

2. On the Fig. A the mark with  show the max. Once at standard conditions.

3. On the Fig. A the mark with  show rated capacity and rated coefficient of power input.

4. However the max. Capacity is not guaranteed except at standard condition.

5. T1: IDU (27°EDB/19°EWB) & ODU (35°EDB/24°EWB)

6. On the tables  show rated capacity at T1 condition.

7. SC* is based on each EWB and EDB.

8. SC = SC correction for other dry bulb.
= 0.02xAFR(m³/min)x(1-BF)x(DB*-EDB)

9. Add SC to SC*

10. Capacities are based on the following conditions.

11. Corresponding refrigerant piping length : 7.5 m

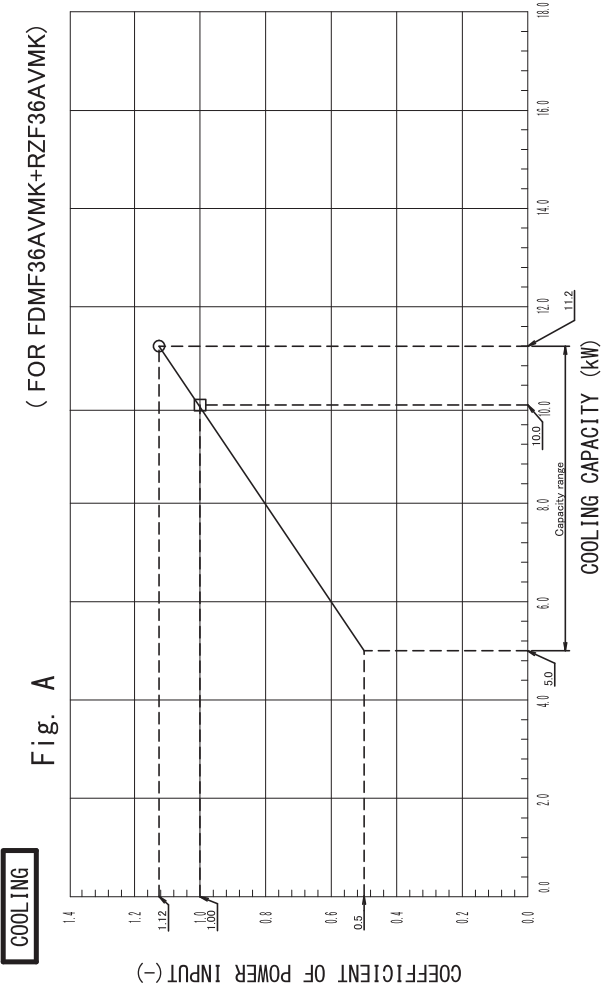
12. Level difference : 0 m

13. The valve contains less than 5% error acodig to indoor unit type.

14. Air flow rate and (BF) are tabulated below.

15. (Pair)

Fig. A (FOR FDMF36AVMK+RZF36AVMK)



	FDMF36AVMK
AFR (HI)	40 (0.13)

9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.

	FDMF36AVMK+RZF36AVMK
COOLING (KW)	2.800

- Symbols :
- AFR : Air flow rate

(m³/min)

BF : By pass factor

(°C WB)

EWB : Entering wet bulb temp.

(°C DB)

EDB : Entering dry bulb temp.

(kW)

TC : Total cooling capacity

(kW)

SC : Sensible capacity

(kW)

PI : Power input

(Comp.+indoor+outdoor fan motor).

Mbh: 1000 BTU/Hr

(1 KW= 3.41214 Mbh)

Caution :
TC and SC are shown by kW.

Table:

Unit Combination: FDMF36AVMK+RZF36AVMK																																	
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		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI					
				kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW					
990	17°C (62.6°F)	21°C	70°F	9.03	30.81	5.74	19.59	2.43	8.73	29.80	5.60	19.11	2.65	8.51	29.05	5.51	18.79	2.87	7.45	25.42	4.42	15.07	3.02	5.27	17.98	3.39	11.58	2.13					
		24°C	75°F	9.04	30.86	7.05	24.04	2.43	8.75	29.87	6.89	23.50	2.65	8.53	29.10	6.78	23.14	2.87	7.47	25.47	6.06	20.66	3.02	5.29	18.04	4.45	15.17	2.13					
		27°C	81°F	9.07	30.94	8.22	28.05	2.43	8.77	29.93	8.06	27.50	2.65	8.54	29.15	7.98	27.22	2.87	7.48	25.51	6.52	22.25	3.03	5.57	19.00	5.01	17.10	2.14					
		30°C	86°F	9.09	31.00	9.09	31.00	2.43	8.79	30.00	8.79	30.00	2.65	8.63	29.43	8.63	29.43	2.88	7.75	26.43	7.20	24.58	3.04	5.97	20.38	5.37	18.34	2.15					
	19°C (66°F)	24°C	75°F	9.62	32.81	6.18	21.10	2.45	9.31	31.76	6.05	20.63	2.67	9.09	31.00	5.96	20.35	2.90	7.97	27.18	4.78	16.30	3.06	5.67	19.34	3.76	12.83	2.15					
		27°C	81°F	9.63	32.87	7.43	25.35	2.45	9.33	31.83	7.27	24.82	2.67	9.10	31.05	7.18	24.50	2.90	7.98	27.24	5.83	19.90	3.06	5.68	19.39	4.81	16.42	2.15					
		30°C	86°F	9.65	32.94	8.60	29.35	2.45	9.34	31.88	8.44	28.81	2.67	9.11	31.09	8.37	28.56	2.91	8.00	27.28	6.87	23.45	3.06	5.97	20.38	5.38	18.34	2.15					
		33°C	91°F	9.67	32.99	9.67	32.99	2.45	9.36	31.94	9.36	31.94	2.67	9.12	31.13	9.12	31.13	2.91	8.21	28.01	7.63	26.05	3.07	6.38	21.78	5.75	19.60	2.16					
	22°C (72°F)	27°C	81°F	10.55	36.00	6.10	20.81	2.46	10.22	34.86	5.96	20.35	2.70	10.00	34.12	5.89	20.11	2.95	8.80	30.02	4.76	16.25	3.11	6.29	21.46	3.76	12.84	2.16					
		30°C	86°F	10.56	36.03	7.39	25.21	2.46	10.22	34.89	7.23	24.68	2.70	10.01	34.15	7.15	24.40	2.95	8.80	30.04	5.82	19.85	3.11	6.30	21.51	4.82	16.44	2.16					
		33°C	91°F	10.58	36.09	8.56	29.22	2.46	10.24	34.95	8.41	28.68	2.70	10.02	34.18	8.34	28.46	2.95	8.82	30.09	6.86	23.41	3.11	6.38	21.78	5.75	19.61	2.16					
		35°C	95°F	10.59	36.12	9.33	31.85	2.46	10.25	34.98	9.18	31.32	2.70	10.02	34.19	9.13	31.14	2.95	8.82	30.09	7.54	25.74	3.11	6.66	22.74	6.00	20.46	2.17					
1200	17°C (62.6°F)	21°C	70°F	9.36	31.94	6.19	21.14	2.50	9.05	30.86	6.05	20.64	2.72	8.81	30.07	5.96	20.33	2.95	7.69	26.24	4.75	16.20	3.10	5.40	18.43	3.67	12.54	2.20					
		24°C	75°F	9.39	32.05	7.63	26.04	2.50	9.08	30.98	7.46	25.46	2.72	8.84	30.18	7.37	25.13	2.95	7.72	26.34	6.60	22.51	3.10	5.43	18.52	4.88	16.66	2.20					
		27°C	81°F	9.43	32.18	8.99	30.68	2.50	9.12	31.11	8.82	30.11	2.72	8.87	30.27	8.75	29.84	2.95	7.74	26.41	7.17	24.47	3.10	5.85	19.96	5.26	17.96	2.21					
		30°C	86°F	9.61	32.79	9.61	32.79	2.50	9.35	31.92	9.35	31.92	2.73	9.18	31.33	9.18	31.33	2.97	8.23	28.07	7.65	26.10	3.13	6.28	21.43	5.65	19.29	2.22					
	19°C (66°F)	24°C	75°F	9.97	34.01	6.70	22.88	2.51	9.64	32.88	6.54	22.31	2.74	9.40	32.08	6.43	21.94	2.98	8.23	28.07	5.16	17.61	3.13	5.80	19.80	4.09	13.97	2.21					
		27°C	81°F	10.00	34.10	8.08	27.56	2.51	9.67	32.98	7.91	26.99	2.74	9.43	32.17	7.83	26.70	2.98	8.25	28.16	6.38	21.77	3.13	5.85	19.96	5.26	17.96	2.21					
		30°C	86°F	10.03	34.23	9.43	32.19	2.51	9.70	33.10	9.27	31.62	2.74	9.46	32.27	9.20	31.41	2.98	8.27	28.24	7.58	25.87	3.14	6.28	21.44	5.65	19.29	2.22					
		33°C	91°F	10.14	34.60	10.14	34.60	2.51	9.88	33.70	9.88	33.70	2.75	9.71	33.15	9.71	33.15	2.99	8.73	29.78	8.12	27.69	3.16	6.72	22.95	6.05	20.65	2.23					
	22°C (72°F)	27°C	81°F	10.92	37.24	6.62	22.60	2.53	10.56	36.02	6.49	22.15	2.77	10.32	35.23	6.40	21.82	3.02	9.07	30.94	5.15	17.56	3.18	6.43	21.95	4.10	14.00	2.22					
		30°C	86°F	10.94	37.33	8.04	27.42	2.53	10.58	36.11	7.87	26.86	2.77	10.35	35.32	7.80	26.60	3.02	9.09	31.00	6.37	21.72	3.18	6.46	22.03	5.32	18.16	2.22					
		33°C	91°F	10.98	37.45	9.39	32.06	2.53	10.61	36.21	9.23	31.49	2.77	10.38	35.40	9.18	31.31	3.03	9.11	31.08	7.57	25.83	3.18	6.73	22.95	6.05	20.66	2.23					
		35°C	95°F	10.99	37.50	10.29	35.11	2.53	10.63	36.28	10.13	34.55	2.77	10.39	35.45	10.09	34.42	3.03	9.12	31.11	8.37	28.55	3.18	7.03	23.98	6.32	21.58	2.23					
1400	17°C (62.6°F)	21°C	70°F	9.64	32.89	6.66	22.72	2.56	9.31	31.78	6.49	22.14	2.78	9.07	30.93	6.37	21.72	3.01	7.90	26.94	5.08	17.33	3.16	5.51	18.80	3.96	13.51	2.25					
		24°C	75°F	9.69	33.06	8.22	28.06	2.56	9.36	31.94	8.05	27.47	2.78	9.11	31.09	7.96	27.16	3.01	7.94	27.09	7.15	24.40	3.16	5.65	19.27	5.08	17.34	2.25					
		27°C	81°F	9.74	33.24	9.74	33.24	2.56	9.41	32.10	9.41	32.10	2.78	9.16	31.25	9.16	31.25	3.02	8.13	27.75	7.56	25.80	3.18	6.10	20.80	5.49	18.72	2.27					
		30°C	86°F	10.15	34.62	10.15	34.62	2.57	9.87	33.67	9.87	33.67	2.80	9.69	33.07	9.69	33.07	3.04	8.66	29.54	8.05	27.47	3.21	6.56	22.37	5.90	20.14	2.27					
	19°C (66°F)	24°C	75°F	10.26	35.00	7.18	24.49	2.57	9.91	33.82	7.00	23.90	2.80	9.68	33.01	6.90	23.54	3.04	8.44	28.81	5.55	18.94	3.20	5.92	20.19	4.44	15.15	2.26					
		27°C	81°F	10.31	35.17	8.74	29.81	2.57	9.96	33.99	8.56	29.22	2.80	9.71	33.12	8.49	28.96	3.05	8.48	28.94	6.94	23.68	3.20	6.10	20.81	5.49	18.73	2.27					
		30°C	86°F	10.35	35.33	10.28	35.09	2.57	10.01	34.14	10.01	34.14	2.80	9.75	33.28	9.75	33.28	3.05	8.66	29.54	8.05	27.47	3.21	6.56	22.37	5.90	20.14	2.27					
		33°C	91°F	10.72	36.58	10.72	36.58	2.57	10.43	35.60	10.43	35.60	2.81	10.26	35.02	10.26	35.02	3.07	9.21	31.41	8.56	29.21	3.24	7.03	23.99	6.33	21.59	2.28					
	22°C (72°F)	27°C	81°F	11.23	38.31	7.13	24.33	2.58	10.85	37.02	6.96	23.75	2.83	10.61	36.21	6.87	23.43	3.09	9.29	31.71	5.54	18.90	3.24	6.55	22.36	4.45	15.19	2.27					
		30°C	86°F	11.27	38.46	8.70	29.69	2.58	10.90	37.18	8.53	29.11	2.83	10.65	36.32	8.46	28.87	3.09	9.33	31.84	6.93	23.66	3.24	6.59	22.47	5.85	19.95	2.27					
		33°C	91°F	11.31	38.60	10.25	34.98	2.58	10.93	37.31	10.08	34.40	2.83	10.68	36.43	10.04	34.25	3.09	9.36	31.93	8.31	28.35	3.25	7.03	23.99	6.33	21.59	2.28					
		35°C	95°F	11.34	38.69	11.28	38.48	2.58	10.96	37.40	10.96	37.40	2.83	10.70	36.52	10.70	36.52	3.09	9.57	32.67	8.90	30.38	3.26	7.35	25.08	6.62	22.57	2.28					

C: 3D125858

FDMF48AVMK + RZF48AYMK

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

2. On the Fig. A the mark with  show the max. Once at standard conditions. On the Fig. A the mark with  show rated capacity and rated coefficient of power input. However the max. Capacity is not guaranteed except at standard condition.

3. Min-Max capacity data is based on T1 condition.

4. On the tables  show rated capacity at T1 condition.

5. SC* is based on each EWB and EDB.

6. SC = SC correction for other dry bulb.
 $SC = 0.02 \times AFR(m^3/min) \times (1 - BF) \times (DB^* - EDB)$

7. Add SC to SC*

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

9. The valve contains less than 5% error acoding to indoor unit type.

10. Air flow rate and (BF) are tabulated below.
- | | |
|------|------------|
| | FDMF48AVMK |
| AFR | 48 |
| (HI) | (0.8) |
9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.
- | | |
|---------|--------------------------|
| | FDMF48AVMK+
RZF48AYMK |
| COOLING | 4.020 |
| (KW) | |
- 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)

SC : Sensible capacity
(kW)

PI : Power input
(kW)

Mbh: 1000 BTU/Hr
(1 KW= 3.41214 Mbh)
- Caution :
TC and SC are shown by kW.
- Fig. A

(FOR FDMF48AVMK+RZF48AYMK)

Cooling Capacity (KW)	Coefficient of Power Input (-)	Condition
8.2	1.12	Max Capacity (Circle)
14.0	1.00	Rated Capacity (Square)
14.1	1.00	Rated Capacity (Circle)
16.0	1.00	Rated Capacity (Circle)
17.2	1.00	Rated Capacity (Circle)
- 45
- C: 3D133396

Table:

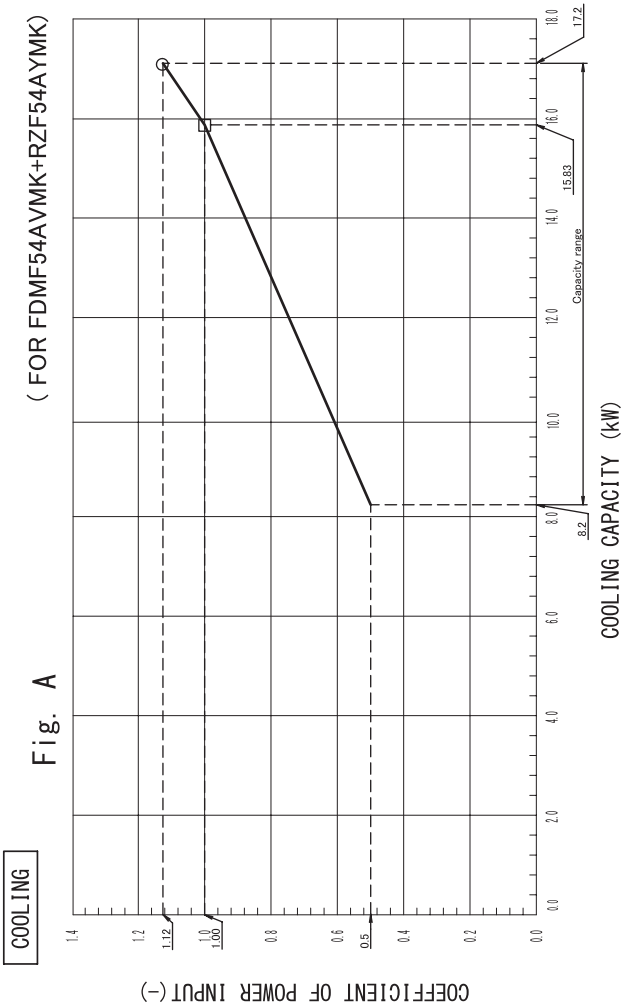
Unit Combination: FDMF48AVMK+RZF48AYMK

Piping Length: 7.5 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		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI					
				kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW					
1000	17°C (62.6°F)	21°C	70°F	13.10	44.71	8.34	28.47	3.54	12.57	42.90	8.01	27.32	3.75	11.99	40.90	7.63	26.05	3.98	11.23	38.30	7.15	24.39	4.53	11.04	37.67	7.03	23.99	4.74					
		24°C	75°F	13.18	44.97	10.42	35.57	3.54	12.65	43.16	10.00	34.14	3.76	12.06	41.16	9.54	32.56	3.98	11.31	38.59	8.95	30.52	4.53	11.12	37.95	8.80	30.02	4.74					
		27°C	81°F	13.44	45.85	12.67	43.23	3.54	12.99	44.33	12.25	41.79	3.76	12.49	42.62	11.77	40.18	3.98	11.84	40.40	11.16	38.08	4.53	11.60	39.57	10.93	37.31	4.75					
		30°C	86°F	14.23	48.55	13.89	47.39	3.54	13.79	47.06	13.46	45.94	3.76	13.28	45.31	12.96	44.23	3.99	12.61	43.03	12.31	42.00	4.55	12.37	42.20	12.07	41.20	4.76					
	19°C (66°F)	24°C	75°F	13.95	47.60	9.01	30.73	3.56	13.38	45.66	8.64	29.48	3.78	12.79	43.63	8.26	28.17	4.01	12.00	40.94	7.74	26.43	4.57	11.70	39.92	7.55	25.77	4.75					
		27°C	81°F	14.02	47.82	11.07	37.78	3.56	13.46	45.92	10.63	36.27	3.78	12.86	43.89	10.16	34.67	4.01	12.06	41.16	9.53	32.51	4.57	11.78	40.21	9.31	31.76	4.76					
		30°C	86°F	14.26	48.65	13.29	45.35	3.56	13.79	47.06	12.86	43.87	3.78	13.28	45.31	12.38	42.24	4.01	12.61	43.03	11.76	40.11	4.57	12.37	42.20	11.53	39.34	4.76					
		33°C	91°F	15.07	51.41	14.71	50.18	3.56	14.61	49.85	14.26	48.66	3.78	14.10	48.11	13.76	46.96	4.02	13.41	45.76	13.09	44.67	4.58	13.16	44.90	12.85	43.83	4.77					
	22°C (72°F)	27°C	81°F	15.25	52.04	8.92	30.42	3.57	14.65	49.98	8.56	29.22	3.81	14.01	47.79	8.19	27.94	4.06	13.16	44.90	7.69	26.25	4.62	12.85	43.85	7.51	25.64	4.77					
		30°C	86°F	15.32	52.26	10.98	37.47	3.57	14.71	50.20	10.55	36.00	3.81	14.07	48.01	10.09	34.43	4.06	13.23	45.16	9.49	32.38	4.62	12.91	44.05	9.26	31.58	4.77					
		33°C	91°F	15.39	52.52	13.04	44.48	3.57	14.78	50.42	12.52	42.71	3.81	14.13	48.20	11.97	40.83	4.06	13.41	45.76	11.36	38.76	4.62	13.17	44.93	11.15	38.06	4.77					
		35°C	95°F	15.67	53.47	14.62	49.88	3.57	15.19	51.82	14.17	48.34	3.81	14.65	49.98	13.66	46.63	4.06	13.96	47.63	13.02	44.44	4.62	13.70	46.74	12.78	43.61	4.78					
1250	17°C (62.6°F)	21°C	70°F	12.68	43.27	8.08	27.55	3.55	12.17	41.52	7.75	26.44	3.77	11.60	39.58	7.39	25.21	4.00	10.86	37.07	6.92	23.60	4.55	10.68	36.45	6.80	23.21	4.75					
		24°C	75°F	12.75	43.52	10.09	34.42	3.55	12.24	41.76	9.68	33.04	3.77	11.67	39.83	9.23	31.51	4.00	10.94	37.34	8.66	29.54	4.55	10.76	36.73	8.51	29.05	4.75					
		27°C	81°F	13.01	44.37	12.26	41.83	3.55	12.57	42.90	11.85	40.44	3.77	12.09	41.24	11.40	38.88	4.00	11.46	39.09	10.80	36.85	4.55	11.22	38.29	10.58	36.10	4.76					
		30°C	86°F	13.77	46.99	13.44	45.86	3.56	13.35	45.54	13.03	44.46	3.78	12.85	43.85	12.55	42.81	4.02	12.20	41.64	11.91	40.65	4.58	11.97	40.84	11.68	39.87	4.77					
	19°C (66°F)	24°C	75°F	13.50	46.06	8.72	29.74	3.56	12.95	44.19	8.36	28.53	3.79	12.38	42.23	7.99	27.26	4.03	11.61	39.61	7.50	25.57	4.58	11.32	38.63	7.31	24.94	4.76					
		27°C	81°F	13.56	46.28	10.71	36.56	3.56	13.02	44.44	10.29	35.10	3.79	12.45	42.47	9.83	33.55	4.03	11.67	39.83	9.22	31.47	4.58	11.40	38.91	9.01	30.74	4.76					
		30°C	86°F	13.80	47.08	12.86	43.88	3.56	13.35	45.54	12.44	42.45	3.79	12.85	43.85	11.98	40.88	4.03	12.20	41.64	11.38	38.82	4.59	11.97	40.84	11.16	38.07	4.77					
		33°C	91°F	14.58	49.75	14.23	48.56	3.57	14.14	48.24	13.80	47.09	3.80	13.64	46.56	13.32	45.45	4.05	12.98	44.28	12.67	43.23	4.61	12.74	43.45	12.43	42.42	4.78					
	22°C (72°F)	27°C	81°F	14.76	50.36	8.63	29.44	3.58	14.18	48.37	8.29	28.27	3.82	13.55	46.25	7.92	27.04	4.07	12.74	43.45	7.44	25.40	4.63	12.44	42.44	7.27	24.81	4.77					
		30°C	86°F	14.82	50.58	10.63	36.27	3.58	14.24	48.58	10.21	34.83	3.82	13.62	46.46	9.76	33.31	4.08	12.81	43.70	9.18	31.33	4.63	12.49	42.62	8.96	30.56	4.77					
		33°C	91°F	14.90	50.82	12.62	43.05	3.58	14.30	48.80	12.11	41.33	3.82	13.67	46.65	11.58	39.51	4.08	12.98	44.28	10.99	37.51	4.63	12.74	43.48	10.79	36.83	4.78					
		35°C	95°F	15.17	51.75	14.15	48.27	3.58	14.70	50.15	13.71	46.78	3.82	14.18	48.37	13.22	45.12	4.08	13.51	46.09	12.60	43.00	4.63	13.26	45.23	12.37	42.20	4.78					
1700	17°C (62.6°F)	21°C	70°F	14.09	48.08	8.97	30.61	3.61	13.52	46.13	8.61	29.38	4.00	12.89	43.98	8.21	28.01	4.40	12.07	41.18	7.69	26.23	4.81	11.87	40.50	7.56	25.79	5.00					
		24°C	75°F	14.17	48.35	11.21	38.25	3.61	13.60	46.41	10.76	36.71	4.00	12.97	44.26	10.26	35.01	4.40	12.16	41.49	9.62	32.82	4.82	11.96	40.81	9.46	32.28	5.00					
		27°C	81°F	14.45	49.31	13.62	46.48	3.62	13.97	47.67	13.17	44.94	4.00	13.43	45.83	12.66	43.20	4.42	12.73	43.44	12.00	40.95	4.86	12.47	42.55	11.76	40.11	5.05					
		30°C	86°F	15.30	52.21	14.94	50.96	3.62	14.83	50.60	14.48	49.40	4.00	14.28	48.73	13.94	47.56	4.46	13.56	46.27	13.24	45.17	4.91	13.30	45.38	12.98	44.30	5.05					
	19°C (66°F)	24°C	75°F	15.00	51.18	9.68	33.04	3.62	14.39	49.10	9.29	31.70	4.02	13.75	46.92	8.88	30.29	4.43	12.90	44.02	8.33	28.42	4.97	12.58	42.92	8.12	27.71	5.08					
		27°C	81°F	15.07	51.42	11.91	40.62	3.62	14.47	49.37	11.43	39.01	4.02	13.83	47.19	10.93	37.28	4.44	12.97	44.26	10.25	34.96	4.97	12.67	43.23	10.01	34.15	5.09					
		30°C	86°F	15.33	52.31	14.29	48.76	3.62	14.83	50.60	13.82	47.17	4.03	14.28	48.73	13.31	45.42	4.46	13.56	46.27	12.64	43.13	5.01	13.30	45.38	12.40	42.30	5.10					
		33°C	91°F	16.20	55.28	15.81	53.96	3.63	15.71	53.60	15.34	52.33	4.05	15.16	51.73	14.80	50.49	4.49	14.42	49.20	14.08	48.03	5.05	14.15	48.28	13.81	47.13	5.12					
	22°C (72°F)	27°C	81°F	16.40	55.96	9.59	32.71	3.63	15.75	53.74	9.21	31.42	4.05	15.06	51.39	8.80	30.04	4.48	14.15	48.28	8.27	28.22	5.04	13.82	47.16	8.08	27.57	5.13					
		30°C	86°F	16.47	56.20	11.81	40.29	3.63	15.82	53.98	11.34	38.70	4.05	15.13	51.63	10.85	37.02	4.49	14.23	48.55	10.20	34.81	5.04	13.88	47.36	9.95	33.96	5.13					
		33°C	91°F	16.55	56.47	14.02	47.83	3.63	15.89	54.22	13.46	45.92	4.05	15.19	51.83	12.87	43.90	4.49	14.42	49.20	12.21	41.68	5.05	14.16	48.32	11.99	40.92	5.15					
		35°C	95°F	16.85	57.49	15.72	53.64	3.63	16.33	55.72	15.23	51.98	4.06	15.75	53.74	14.69	50.14	4.51	15.01	51.22	14.00	47.78	5.08	14.73	50.26	13.74	46.89	5.18					

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FDMF54AVMK + RZF54AYMK



- Notes :
1. Ratings shown are net capacities which include a deduction for indoor fan motor heat.
 2. On the Fig. A the mark with ○ show the max. Once at standard conditions.
On the Fig. A the mark with □ show rated capacity and rated coefficient of power input.
However the max. Capacity is not guaranteed except at standard condition.
 3. Min-Max capacity data is based on T1 condition.
T1: IDU (27°EDB/19°EWB) & ODU (35°EDB/24°EWB)
 4. On the tables □ show rated capacity at T1 condition.
 5. SC* is based on each EWB and EDB.
SC = SC correction for other dry bulb.
 $SC = 0.02 \times AFR(m^3/min) \times (1 - BF) \times (DB^* - EDB)$
 6. Add SC to SC*.
Capacities are based on the following conditions.
Corresponding refrigerant piping length : 7.5 m
Level difference : 0 m
 7. The valve contains less than 5% error according to indoor unit type.
 8. Air flow rate and (BF) are tabulated below.
(Pair)

FDMF54AVMK	
AFR (HI)	49 (0.8)

9. Rated power input of each model is tabulated below for T1 condition. Please refer capacity table for other conditions.

FDMF54AVMK+ RZF54AYMK	
COOLING (kW)	4.270

- Symbols :
- AFR : Air flow rate (m³ /min)
 - BF : By pass factor (°C WB)
 - EWB : Entering wet bulb temp. (°C DB)
 - EDB : Entering dry bulb temp. (kW)
 - TC : Total cooling capacity (kW)
 - SC : Sensible capacity (kW)
 - PI : Power input (kW)
 - Mbh: 1000 BTU/Hr (Comp.+indoor+outdoor fan motor).
(1 KW= 3.41214 Mbh)
- Caution :
TC and SC are shown by kW.

Table:

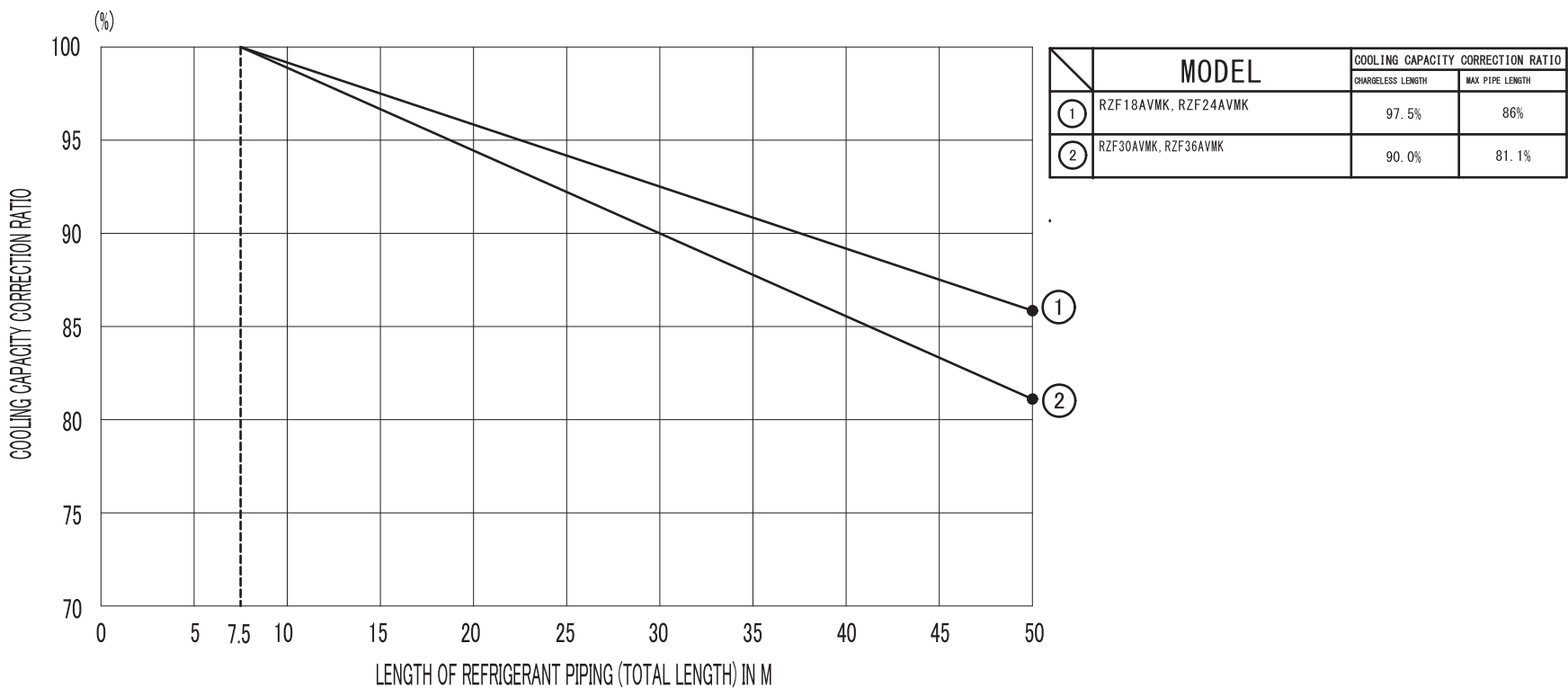
Unit Combination: FDMF54AVMK+RZF54AYMK																												
Piping Length: 7.5 m																												
AFR (CFM)	EWB	EDB	Outdoor Ambient Temperature, DB																									
			30°C (86°F)					35°C (95°F)					40°C (104°F)					46°C (115°F)					48°C (118°F)					
			TC		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI	TC		SC		PI	
			kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	kW	Mbh	kW	Mbh	kW	
1000	17°C (62.6°F)	21°C	70°F	14.22	48.51	9.05	30.89	3.72	13.64	46.55	8.69	29.64	3.92	13.01	44.38	8.28	28.26	4.12	12.18	41.56	7.76	26.46	4.62	11.98	40.87	7.63	26.02	5.12
		24°C	75°F	14.30	48.79	11.31	38.59	3.72	13.72	46.83	10.86	37.04	3.92	13.09	44.66	10.35	35.32	4.12	12.27	41.87	9.71	33.12	4.62	12.07	41.18	9.55	32.57	5.12
		27°C	81°F	14.58	49.75	13.75	46.90	3.72	14.10	48.10	13.29	45.35	3.92	13.55	46.24	12.78	43.59	4.12	12.85	43.83	12.11	41.32	4.62	12.58	42.93	11.86	40.48	5.12
		30°C	86°F	15.44	52.68	15.07	51.42	3.72	14.96	51.06	14.61	49.84	3.92	14.41	49.17	14.07	47.99	4.12	13.68	46.69	13.36	45.57	4.62	13.42	45.79	13.10	44.70	5.12
	19°C (66°F)	24°C	75°F	15.14	51.65	9.77	33.34	3.73	14.52	49.55	9.37	31.98	3.93	13.87	47.34	8.96	30.56	4.13	13.02	44.42	8.40	28.67	4.63	12.69	43.31	8.19	27.96	5.13
		27°C	81°F	15.21	51.89	12.01	40.99	3.73	14.60	49.82	11.53	39.36	3.93	13.96	47.62	11.02	37.62	4.13	13.09	44.66	10.34	35.28	4.63	12.78	43.62	10.10	34.46	5.13
		30°C	86°F	15.47	52.78	14.42	49.20	3.73	14.96	51.06	13.95	47.60	3.93	14.41	49.17	13.43	45.83	4.13	13.68	46.69	12.75	43.52	4.63	13.42	45.79	12.51	42.69	5.13
		33°C	91°F	16.35	55.78	15.96	54.45	3.73	15.85	54.09	15.47	52.80	3.93	15.30	52.20	14.93	50.95	4.13	14.55	49.65	14.20	48.46	4.63	14.28	48.72	13.94	47.56	5.13
	22°C (72°F)	27°C	81°F	16.55	56.47	9.67	33.01	3.75	15.89	54.23	9.29	31.70	3.95	15.20	51.85	8.88	30.31	4.15	14.28	48.72	8.35	28.48	4.65	13.95	47.58	8.15	27.82	5.15
		30°C	86°F	16.62	56.71	11.92	40.66	3.75	15.96	54.47	11.45	39.06	3.95	15.27	52.09	10.95	37.35	4.15	14.36	48.99	10.30	35.13	4.65	14.01	47.79	10.04	34.27	5.15
		33°C	91°F	16.70	56.98	14.15	48.27	3.75	16.03	54.71	13.58	46.34	3.95	15.33	52.30	12.98	44.30	4.15	14.55	49.65	12.32	42.05	4.65	14.29	48.75	12.10	41.30	5.15
		35°C	95°F	17.00	58.02	15.86	54.12	3.75	16.48	56.22	15.37	52.45	3.95	15.89	54.23	14.83	50.59	4.15	15.15	51.68	14.13	48.21	4.65	14.86	50.72	13.87	47.31	5.15
1250	17°C (62.6°F)	21°C	70°F	13.76	46.95	8.76	29.90	3.73	13.20	45.05	8.41	28.69	3.97	12.59	42.95	8.02	27.35	4.22	11.79	40.22	7.51	25.61	4.72	11.59	39.55	7.38	25.19	5.22
		24°C	75°F	13.84	47.21	10.95	37.35	3.73	13.28	45.31	10.51	35.85	3.97	12.67	43.22	10.02	34.18	4.22	11.87	40.52	9.39	32.05	4.72	11.68	39.85	9.24	31.52	5.22
		27°C	81°F	14.11	48.15	13.30	45.39	3.74	13.64	46.55	12.86	43.88	3.98	13.11	44.75	12.36	42.19	4.23	12.43	42.42	11.72	39.99	4.73	12.18	41.55	11.48	39.17	5.23
		30°C	86°F	14.94	50.98	14.58	49.76	3.74	14.48	49.41	14.14	48.23	3.98	13.94	47.58	13.61	46.45	4.23	13.24	45.18	12.93	44.10	4.73	12.99	44.32	12.68	43.26	5.23
	19°C (66°F)	24°C	75°F	14.65	49.98	9.46	32.27	3.74	14.05	47.95	9.07	30.95	3.98	13.43	45.81	8.67	29.58	4.23	12.60	42.98	8.13	27.75	4.73	12.28	41.92	7.93	27.06	5.23
		27°C	81°F	14.72	50.21	11.63	39.67	3.74	14.13	48.21	11.16	38.09	3.98	13.51	46.08	10.67	36.40	4.23	12.67	43.22	10.01	34.14	4.73	12.37	42.22	9.77	33.35	5.23
		30°C	86°F	14.97	51.08	13.95	47.61	3.74	14.48	49.41	13.50	46.06	3.98	13.94	47.58	13.00	44.35	4.23	13.24	45.18	12.34	42.12	4.73	12.99	44.32	12.11	41.31	5.23
		33°C	91°F	15.82	53.98	15.44	52.69	3.74	15.34	52.35	14.98	51.10	3.98	14.80	50.51	14.45	49.31	4.23	14.08	48.05	13.75	46.90	4.73	13.82	47.15	13.49	46.02	5.23
	22°C (72°F)	27°C	81°F	16.01	54.64	9.36	31.94	3.75	15.38	52.48	8.99	30.68	3.99	14.71	50.18	8.60	29.33	4.24	13.82	47.15	8.08	27.56	4.74	13.50	46.05	7.89	26.92	5.24
		30°C	86°F	16.08	54.88	11.53	39.35	3.76	15.45	52.71	11.08	37.80	4.00	14.77	50.41	10.59	36.15	4.25	13.90	47.41	9.96	34.00	4.75	13.55	46.25	9.72	33.16	5.25
		33°C	91°F	16.16	55.14	13.69	46.71	3.76	15.52	52.94	13.14	44.85	4.00	14.83	50.61	12.56	42.87	4.25	14.08	48.05	11.93	40.70	4.75	13.83	47.18	11.71	39.96	5.25
		35°C	95°F	16.45	56.14	15.35	52.38	3.76	15.95	54.41	14.88	50.76	4.00	15.38	52.48	14.35	48.96	4.25	14.66	50.01	13.67	46.66	4.75	14.38	49.08	13.42	45.79	5.25
1700	17°C (62.6°F)	21°C	70°F	15.29	52.16	9.74	33.22	3.78	14.67	50.05	9.34	31.87	4.19	13.99	47.72	8.91	30.39	4.61	13.10	44.69	8.34	28.46	5.04	12.88	43.94	8.20	27.98	5.34
		24°C	75°F	15.37	52.46	12.16	41.50	3.79	14.76	50.35	11.67	39.83	4.21	14.07	48.02	11.13	37.98	4.61	13.19	45.02	10.44	35.61	5.05	12.98	44.28	10.26	35.03	5.34
		27°C	81°F	15.68	53.50	14.78	50.43	3.81	15.16	51.72	14.29	48.76	4.21	14.57	49.72	13.74	46.87	4.65	13.81	47.13	13.02	44.43	5.12	13.53	46.17	12.76	43.52	5.42
		30°C	86°F	16.60	56.64	16.20	55.29	3.84	16.09	54.90	15.71	53.59	4.24	15.49	52.87	15.12	51.61	4.73	14.71	50.20	14.36	49.00	5.20	14.43	49.24	14.09	48.07	5.51
	19°C (66°F)	24°C	75°F	16.28	55.53	10.51	35.85	3.83	15.61	53.27	10.08	34.39	4.25	14.92	50.91	9.63	32.86	4.68	14.00	47.76	9.04	30.83	5.25	13.65	46.57	8.81	30.07	5.44
		27°C	81°F	16.35	55.79	12.92	44.08	3.85	15.70	53.57	12.40	42.32	4.27	15.01	51.20	11.85	40.45	4.72	14.07	48.02	11.12	37.93	5.28	13.75	46.91	10.86	37.06	5.48
		30°C	86°F	16.63	56.75	15.51	52.91	3.84	16.09	54.90	15.00	51.18	4.27	15.49	52.87	14.44	49.28	4.73	14.71	50.20	13.71	46.80	5.31	14.43	49.24	13.45	45.90	5.51
		33°C	91°F	17.58	59.98	17.16	58.55	3.85	17.05	58.16	16.64	56.77	4.29	16.45	56.13	16.06	54.79	4.76	15.65	53.39	15.27	52.11	5.35	15.35	52.39	14.99	51.14	5.56
	22°C (72°F)	27°C	81°F	17.79	60.72	10.40	35.49	3.85	17.09	58.31	9.99	34.09	4.29	16.34	55.75	9.55	32.59	4.75	15.35	52.39	8.98	30.62	5.34	14.99	51.16	8.77	29.91	5.54
		30°C	86°F	17.87	60.97	12.81	43.72	3.86	17.16	58.57	12.31	41.99	4.31	16.42	56.01	11.77	40.16	4.78	15.44	52.68	11.07	37.77	5.36	15.06	51.39	10.80	36.84	5.58
		33°C	91°F	17.96	61.27	15.21	51.90	3.86	17.24	58.83	14.60	49.83	4.31	16.48	56.24	13.96	47.63	4.78	15.65	53.39	13.25	45.22	5.38	15.36	52.42	13.01	44.40	5.59
		35°C	95°F	18.28	62.38	17.06	58.20	3.86	17.72	60.46	16.53	56.40	4.32	17.09	58.31	15.94	54.40	4.79	16.29	55.57	15.19	51.84	5.40	15.98	54.53	14.91	50.87	5.61

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9.2 Capacity Correction Factor by the Length of Refrigerant Piping

RZF18AVMK / RZF24AVMK / RZF30AVMK / RZF36AVMK

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)

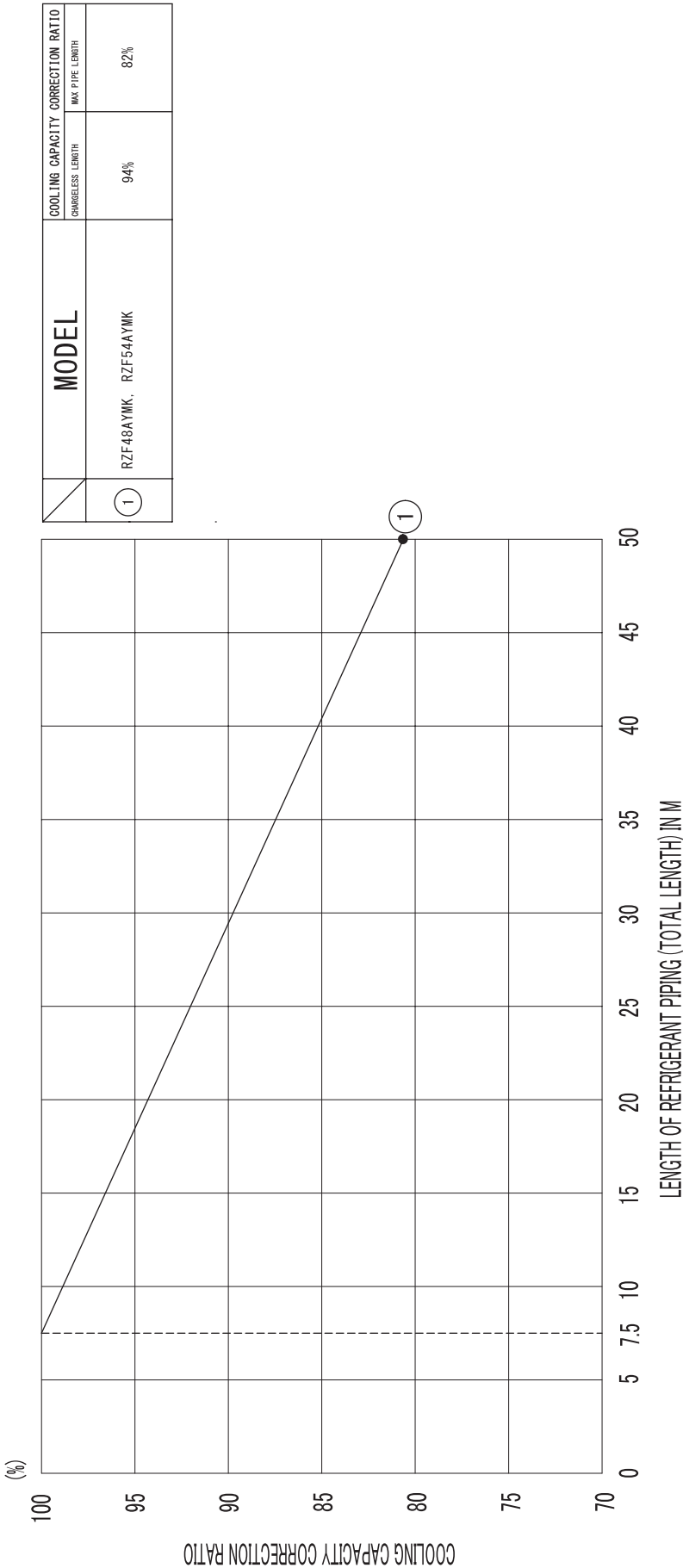


NOTES :

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

RZF48AYMK / RZF54AYMK

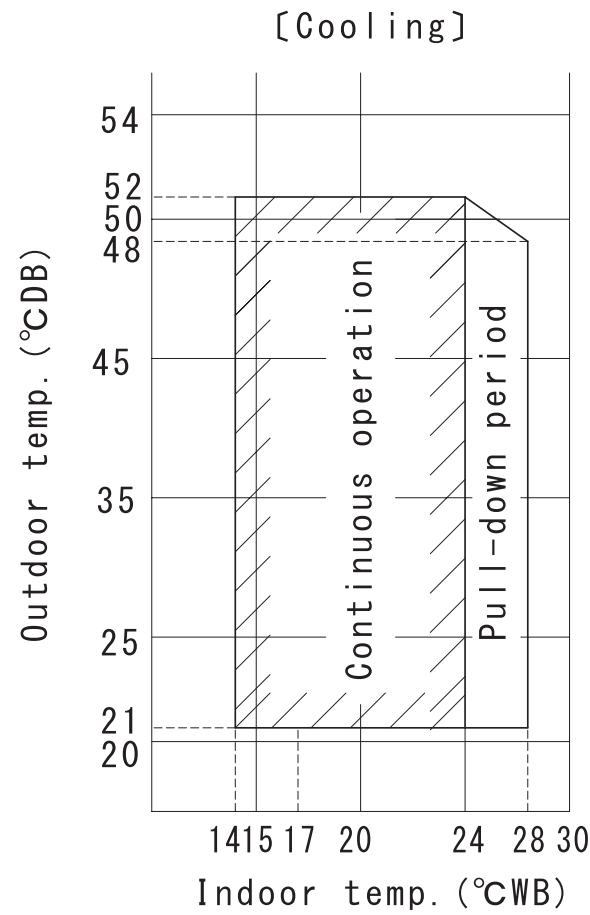
The capacity of the unit has to be corrected in accordance with the length of refrigerant piping.
(The distance between the indoor unit and the outdoor unit)



- 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.

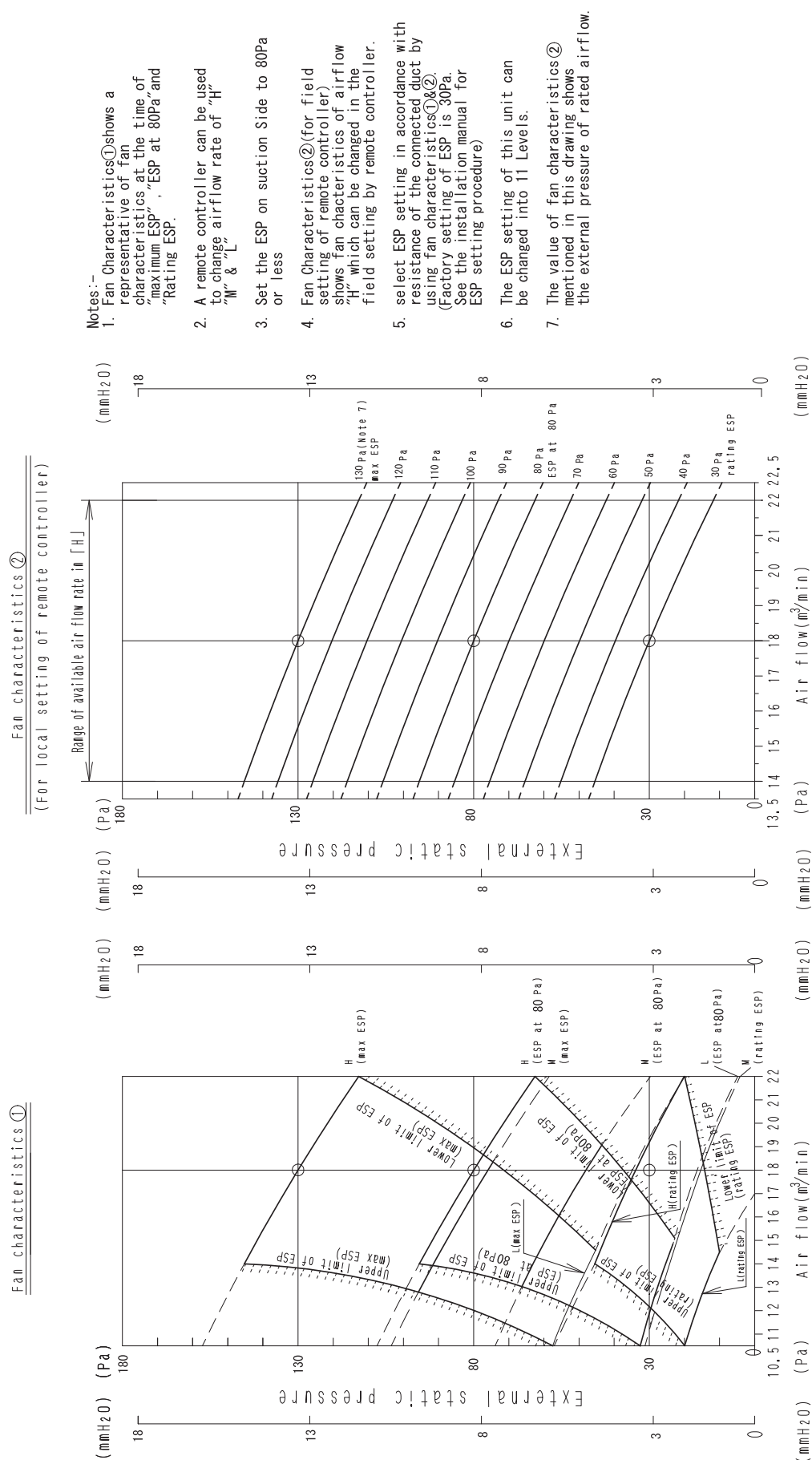
10.Operation Limits

RZF18AVMK / RZF24AVMK / RZF30AVMK / RZF36AVMK / RZF48AYMK / RZF54AYMK



3D124798A

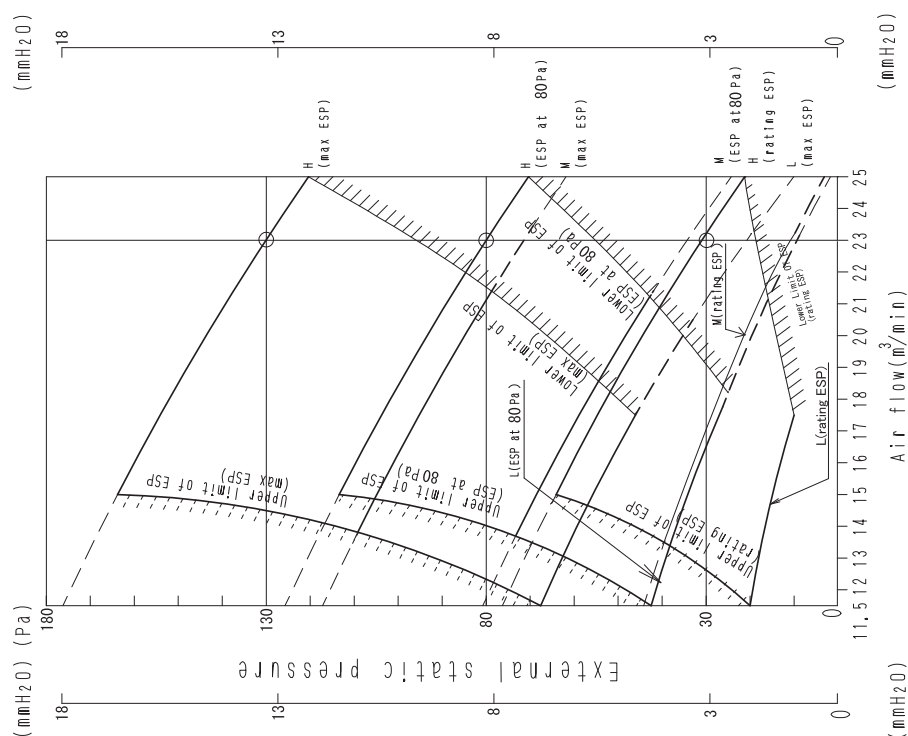
11.Fan Performance

FDMF18AVMK

3D125894

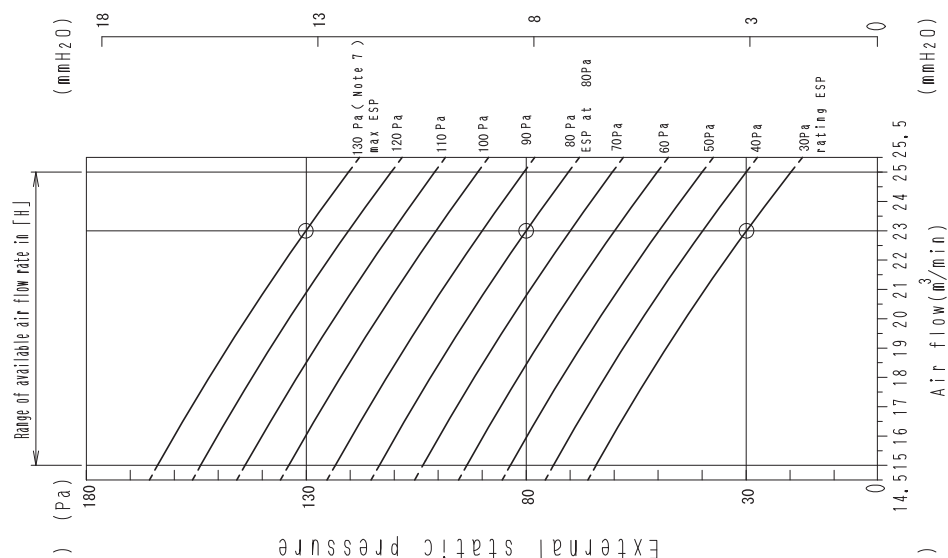
FDMF24AVMK

Fan characteristics ①



Fan characteristics ②

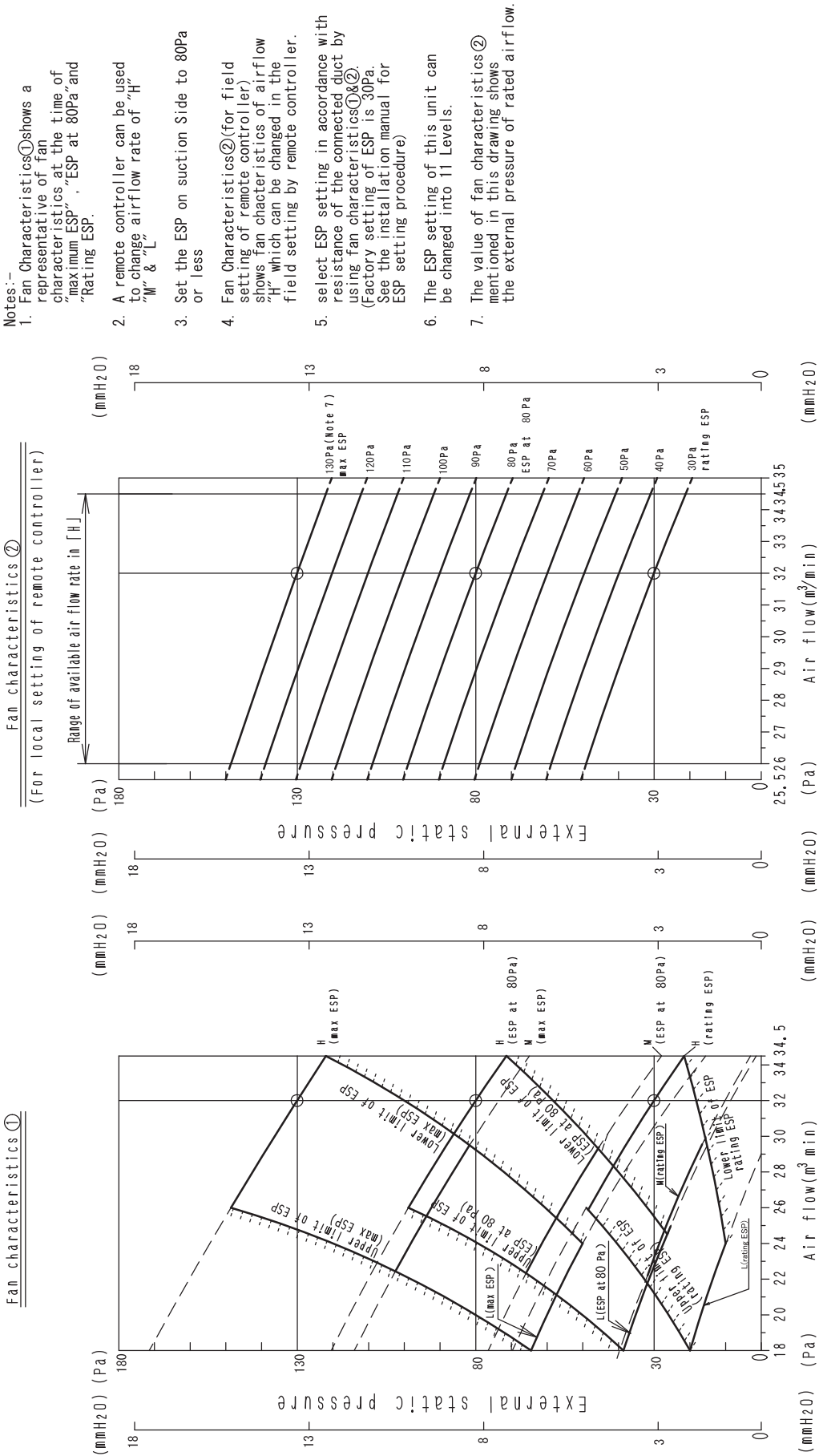
(For local setting of remote controller)



Notes:-

1. Fan Characteristics①shows a representative of fan characteristics at the time of "maximum ESP", "ESP at 80 Pa" and "Rating ESP".
2. A remote controller can be used to change airflow rate of "H", "M" & "L".
3. Set the ESP on suction Side to 80Pa or less
4. Fan Characteristics②(for field setting of remote controller) shows fan characteristics of "H" which can be changed in the field setting by remote controller.
5. select ESP setting in accordance with resistance of the connected duct by using fan characteristics①&②. (Factory setting of ESP is 30Pa. See the installation manual for ESP setting procedure)
6. The ESP setting of this unit can be changed into 11 Levels.
7. The value of fan characteristics② mentioned in this drawing shows the external pressure of rated airflow.

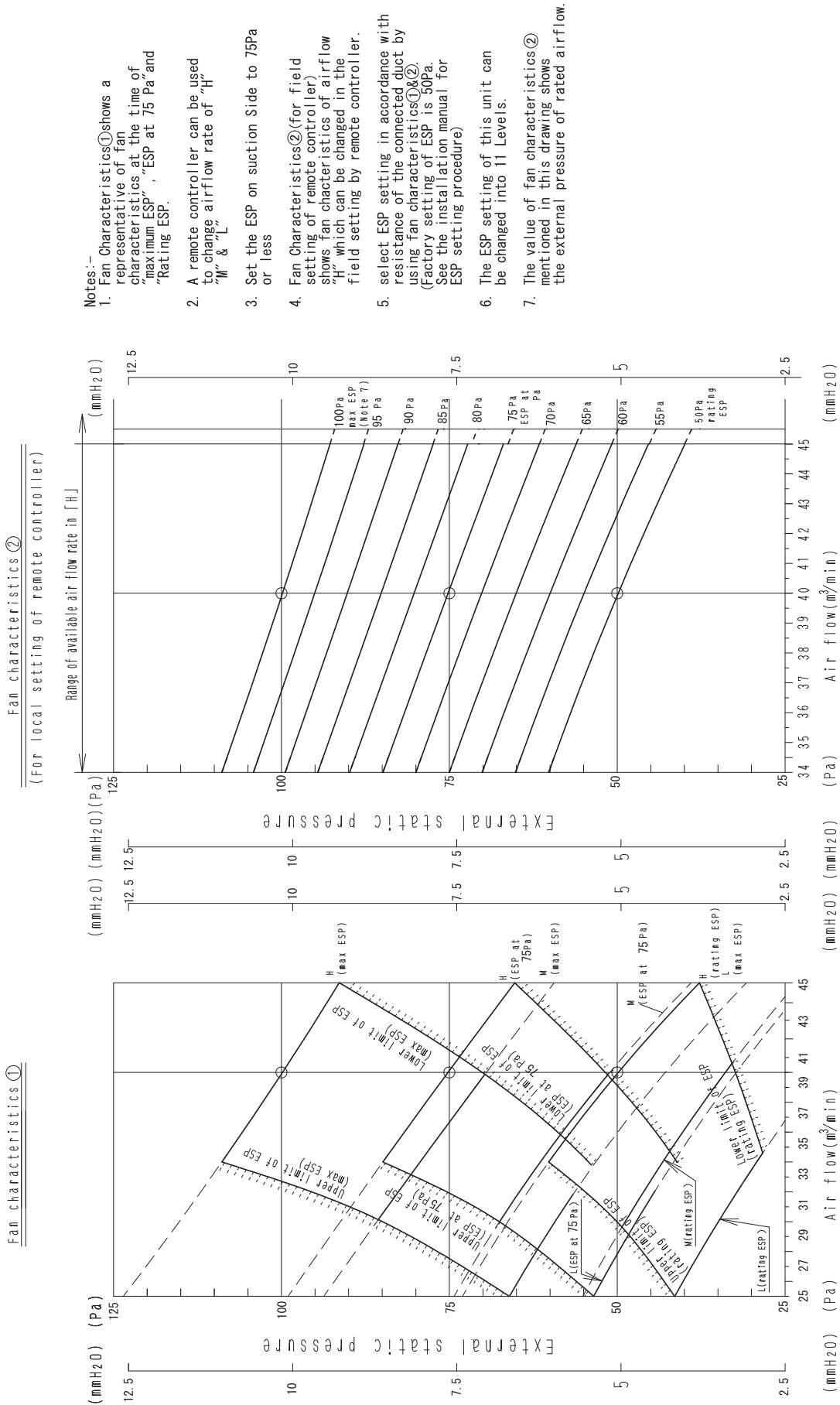
FDMF30AVMK

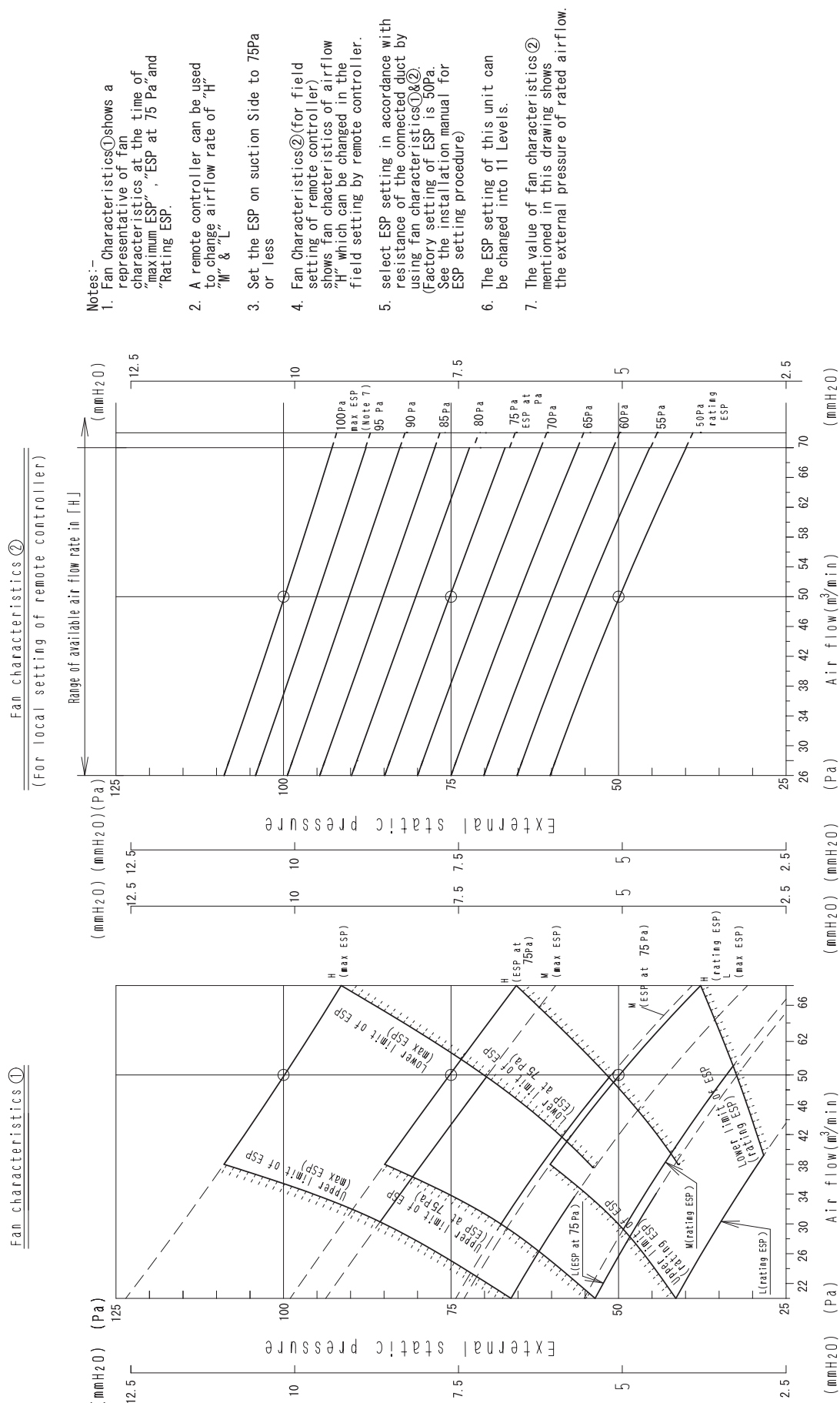


- Notes:-
- Fan Characteristics ① shows a representative of fan characteristics at the time of "maximum ESP", "ESP at 80Pa" and "Rating ESP".
 - A remote controller can be used to change airflow rate of "H" "M" & "L" or less
 - Set the ESP on suction Side to 80Pa or less
 - Fan Characteristics ② (for field setting of remote controller) shows fan characteristics of airflow "H" which can be changed in the field setting by remote controller.
 - select ESP setting in accordance with resistance of the connected duct by using fan characteristics ① & ②. (factory setting of ESP is 30Pa. See the installation manual for ESP setting procedure)
 - The ESP setting of this unit can be changed into 11 Levels.
 - The value of fan characteristics ② mentioned in this drawing shows the external pressure of rated airflow.

3D125893

FDMF36AVMK

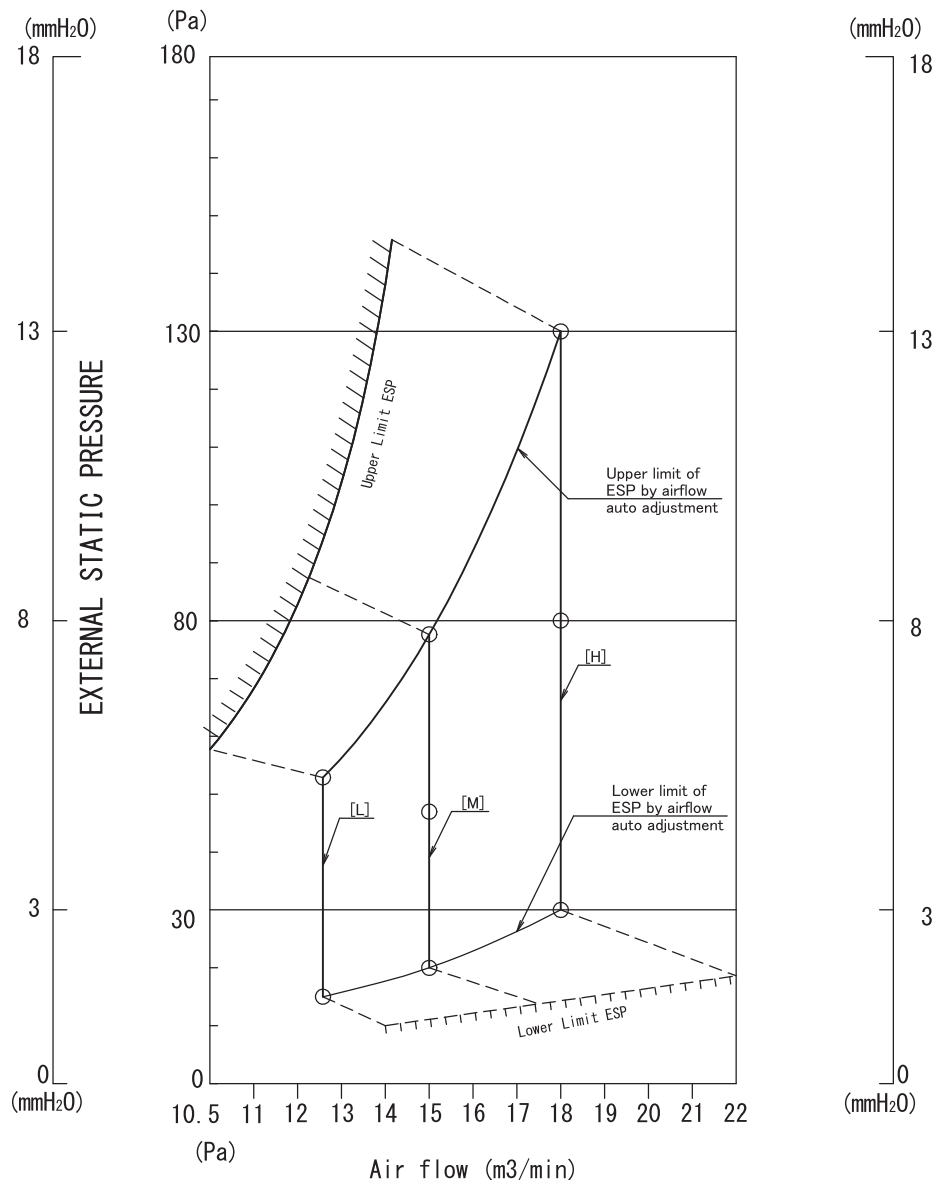


FDMF48AVMK / FDMF54AVMK

3D133439

12. Airflow Auto Adjustment Characteristics

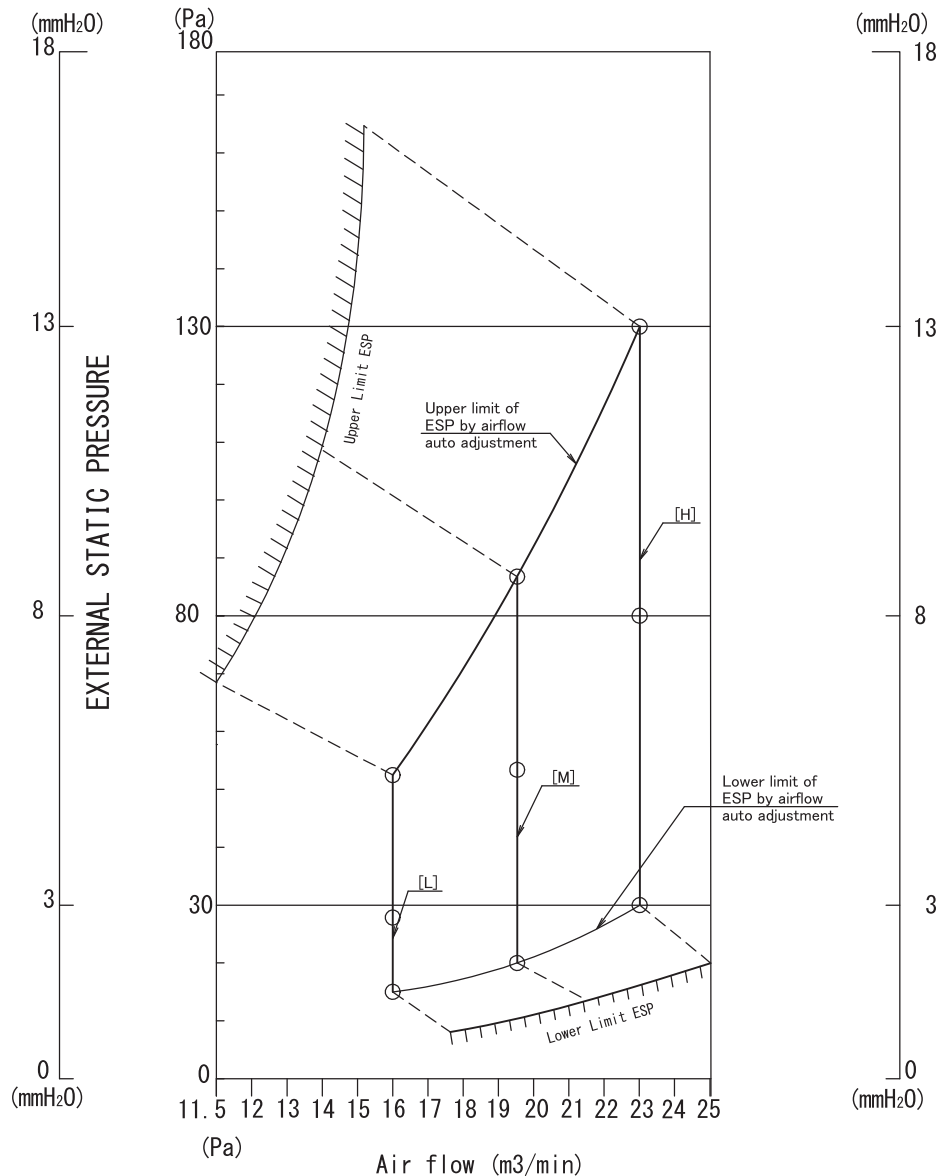
FDMF18AVMK



Notes:

1. This indoor unit has the "Automatic air flow rate adjustment" function, which automatically adjusts the air flow rate so as to be approximately in the range of $\pm 10\%$ of the rated value, at the time of installation.
2. After duct construction completion, please perform local setting "airflow auto adjustment" by remote controller.
3. About the local setting method of the "airflow auto adjustment" look at the installation manual which is attached to an indoor unit.
4. External static pressure that can adjust by "airflow auto adjustment" function is 30Pa-130Pa (when air flow is H).
5. If the unit is used beyond the range of the above-mentioned external static pressure, the air flow rate can not be well-adjusted automatically, and the unit will operate with the air flow rate different from the rated value.
6. This figure shows a fan characteristics at the time "H" "M" and "L".
7. The remote controller can be used to change "H" "M" and "L".
8. ESP: External Static Pressure.

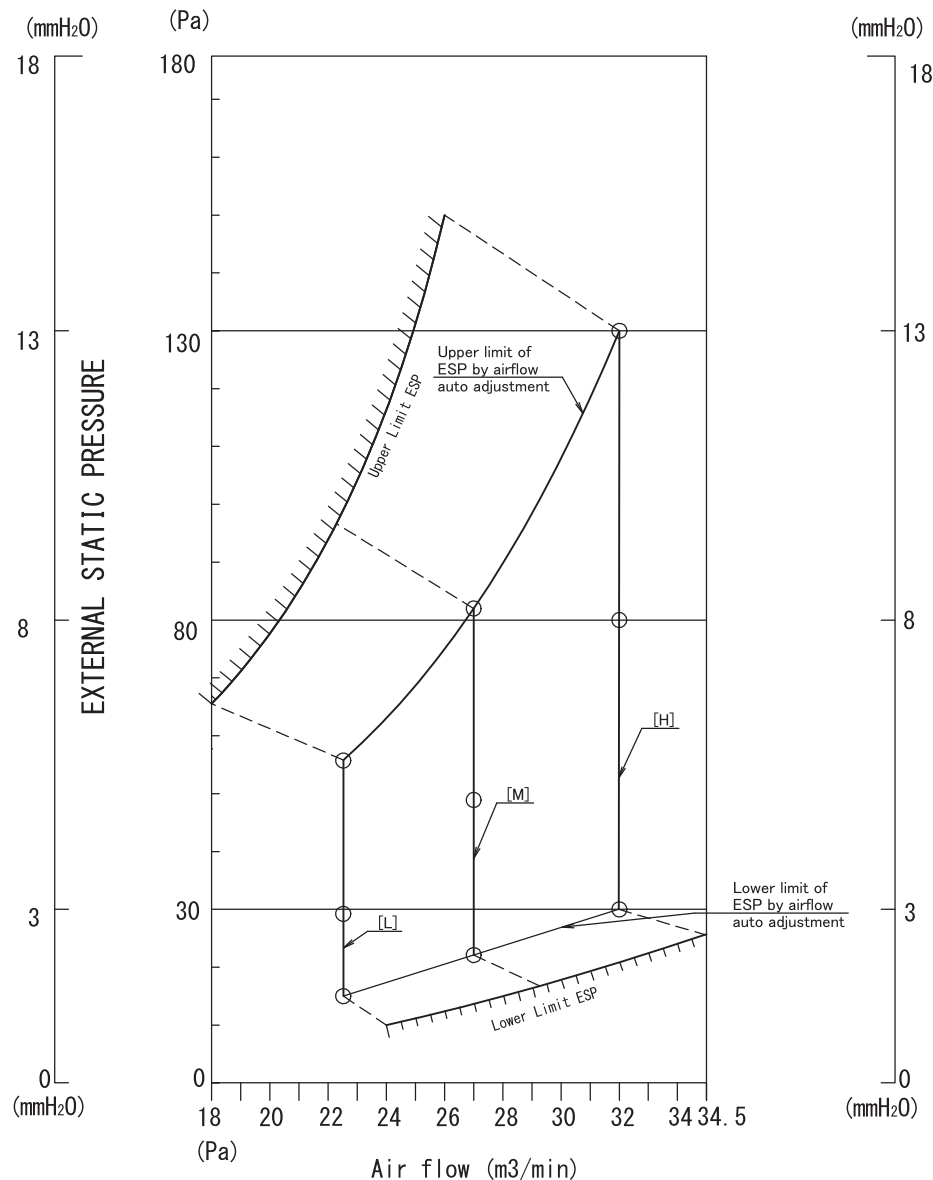
FDMF24AVMK



Notes:

1. This indoor unit has the "Automatic air flow rate adjustment" function, which automatically adjusts the air flow rate so as to be approximately in the range of $\pm 10\%$ of the rated value, at the time of installation.
2. After duct construction completion, please perform local setting "airflow auto adjustment" by remote controller.
3. About the local setting method of the "airflow auto adjustment" look at the installation manual which is attached to an indoor unit.
4. External static pressure that can adjust by "airflow auto adjustment" function is 30Pa-130Pa (when air flow is H).
5. If the unit is used beyond the range of the above-mentioned external static pressure, the air flow rate can not be well-adjusted automatically, and the unit will operate with the air flow rate different from the rated value.
6. This figure shows a fan characteristics at the time "H" "M" and "L".
7. The remote controller can be used to change "H" "M" and "L".
8. ESP: External Static Pressure.

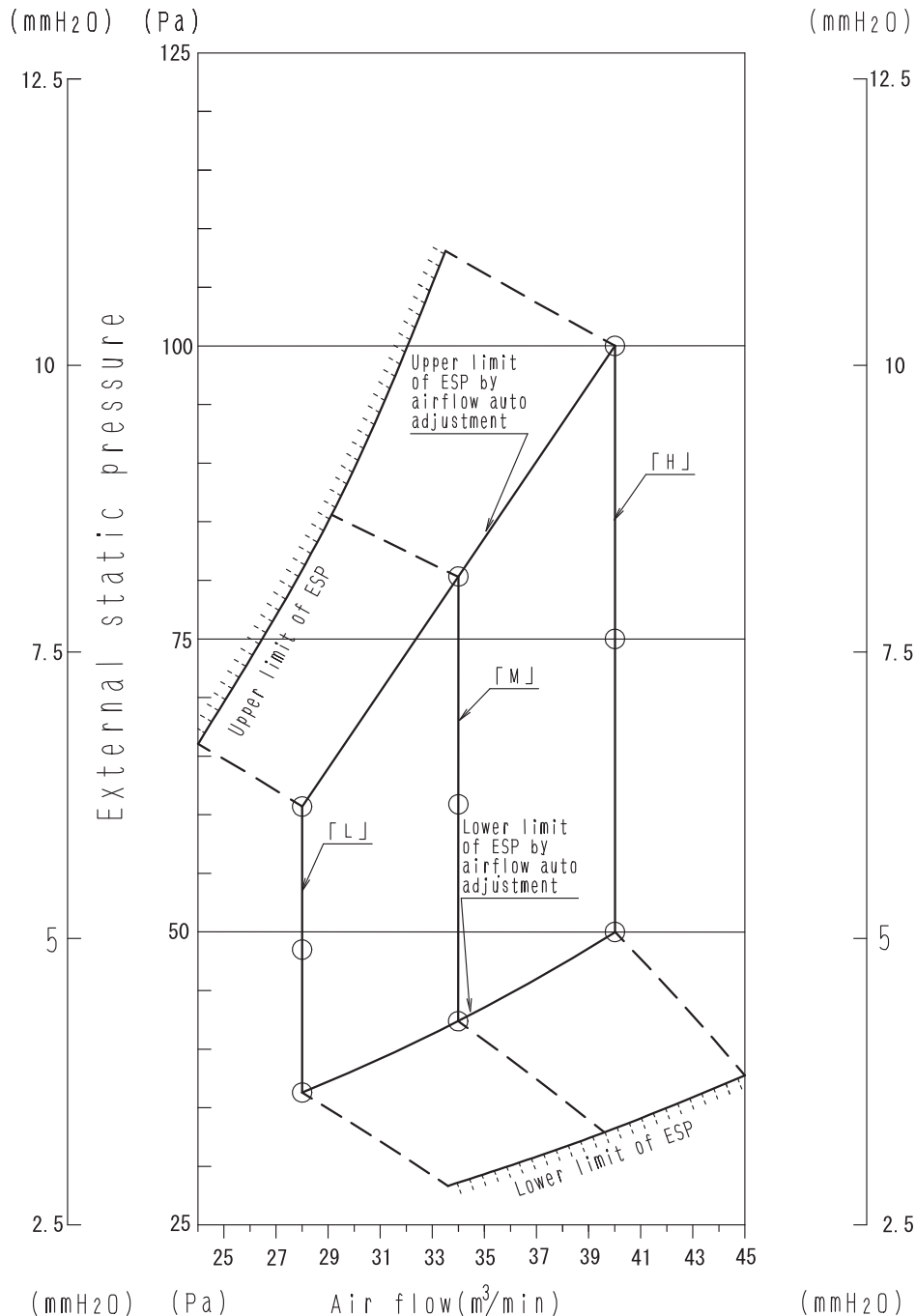
FDMF30AVMK



Notes:

1. This indoor unit has the "Automatic air flow rate adjustment" function, which automatically adjusts the air flow rate so as to be approximately in the range of $\pm 10\%$ of the rated value, at the time of installation.
2. After duct construction completion, please perform local setting "airflow auto adjustment" by remote controller.
3. About the local setting method of the "airflow auto adjustment" look at the installation manual which is attached to an indoor unit.
4. External static pressure that can adjust by "airflow auto adjustment" function is 30Pa-130Pa (when air flow is H).
5. If the unit is used beyond the range of the above-mentioned external static pressure, the air flow rate can not be well-adjusted automatically, and the unit will operate with the air flow rate different from the rated value.
6. This figure shows a fan characteristics at the time "H", "M" and "L".
7. The remote controller can be used to change "H", "M" and "L".
8. ESP: External Static Pressure.

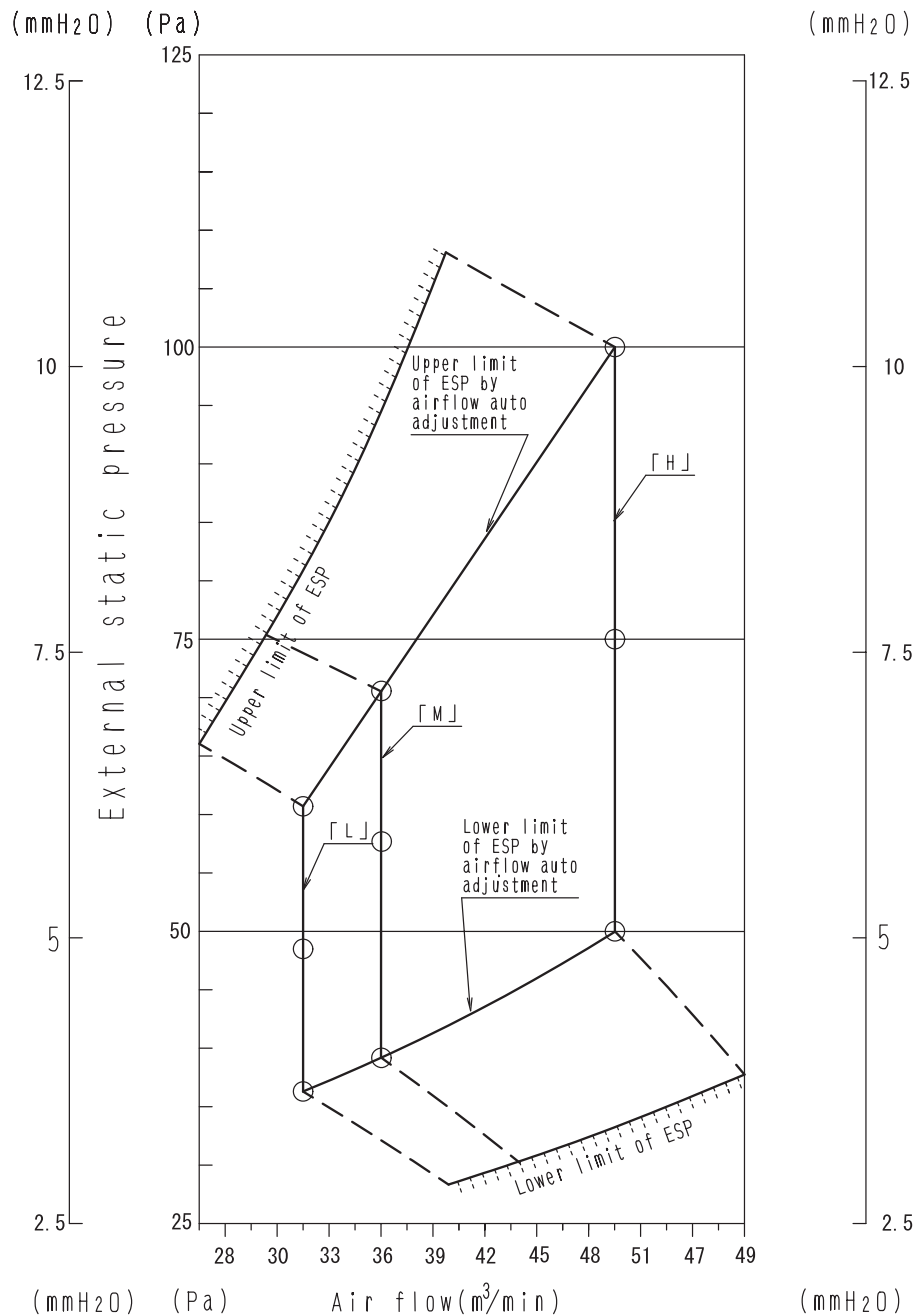
FDMF36AVMK



Notes:

1. This indoor unit has the "Automatic air flow rate adjustment" function, which automatically adjusts the air flow rate so as to be approximately in the range of $\pm 10\%$ of the rated value, at the time of installation.
2. After duct construction completion, please perform local setting "airflow auto adjustment" by remote controller.
3. About the local setting method of the "airflow auto adjustment" look at the installation manual which is attached to an indoor unit.
4. External static pressure that can adjust by "airflow auto adjustment" function is 50Pa-100Pa (when air flow is H).
5. If the unit is used beyond the range of the above-mentioned external static pressure, the air flow rate can not be well-adjusted automatically, and the unit will operate with the air flow rate different from the rated value.
6. This figure shows a fan characteristics at the time "H" "M" and "L".
7. The remote controller can be used to change "H" "M" and "L".
8. ESP: External Static Pressure.

FDMF48AVMK / FDMF54AVMK

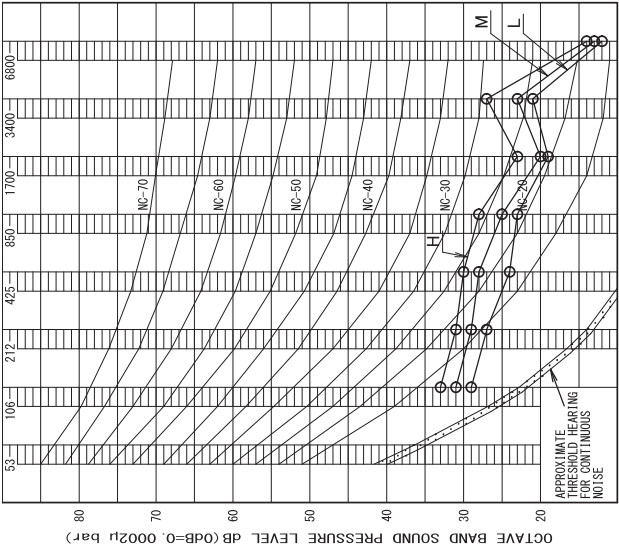


Notes:

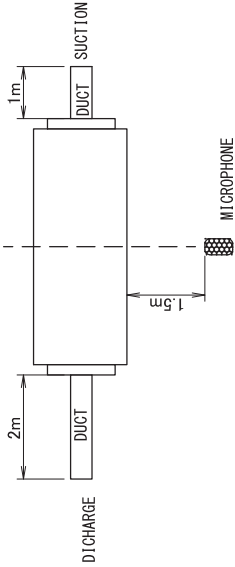
1. This indoor unit has the "Automatic air flow rate adjustment" function, which automatically adjusts the air flow rate so as to be approximately in the range of $\pm 10\%$ of the rated value, at the time of installation.
2. After duct construction completion, please perform local setting "airflow auto adjustment" by remote controller.
3. About the local setting method of the "airflow auto adjustment" look at the installation manual which is attached to an indoor unit.
4. External static pressure that can adjust by "airflow auto adjustment" function is 50Pa-100Pa (when air flow is H).
5. If the unit is used beyond the range of the above-mentioned external static pressure, the air flow rate can not be well-adjusted automatically, and the unit will operate with the air flow rate different from the rated value.
6. This figure shows a fan characteristics at the time "H", "M" and "L".
7. The remote controller can be used to change "H", "M" and "L".
8. ESP: External Static Pressure.

13.Sound Level

13.1 Indoor Unit
FDMF18AVMK



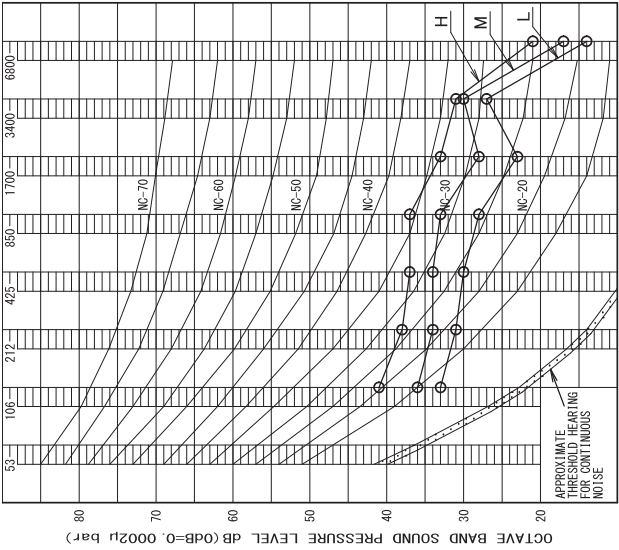
OVER ALL (dB)			
SCALE A	H	M	L
	33	29	26
(B.G.N IS ALREADY RECTIFIED)			
MEASURING PLACE			
ANECHOIC CHAMBER			
OPERATING CONDITIONS			
POWER SOURCE			
V : 230V, 50 Hz & 230V, 60Hz			
COOLING			
RETURN AIR TEMP : 27°c DB, 19°c WB			
OUTDOOR TEMP : 35°c DB, 24°c WB			
EXTERNAL STATIC PRESSURE			
30Pa			



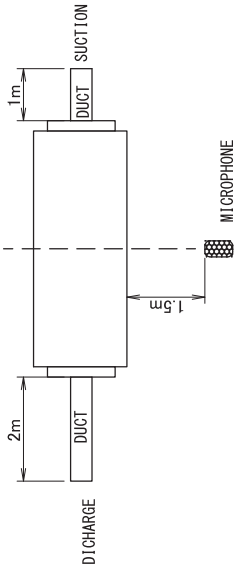
NOTE : OPERATION NOISE DIFFERS WITH OPERATION AND AMBIENT CONDITIONS.

4D125119

FDMF24AVMK



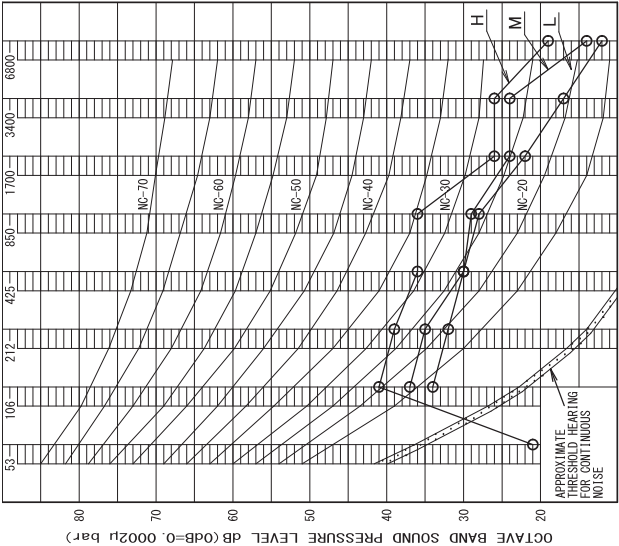
OVER ALL (dB)			
SCALE A	H	M	L
	38	36	34
(B.G.N IS ALREADY RECTIFIED)			
MEASURING PLACE			
ANECHOIC CHAMBER			
OPERATING CONDITIONS			
POWER SOURCE			
V : 230V, 50 Hz & 230V, 60Hz			
COOLING			
RETURN AIR TEMP : 27°c DB, 19°c WB			
OUTDOOR TEMP : 35°c DB, 24°c WB			
EXTERNAL STATIC PRESSURE			
30Pa			



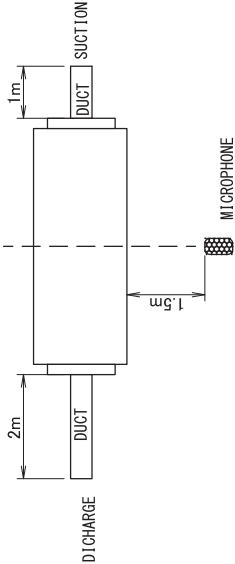
NOTE : OPERATION NOISE DIFFERS WITH OPERATION AND AMBIENT CONDITIONS.

4D125121

FDMF30AVMK



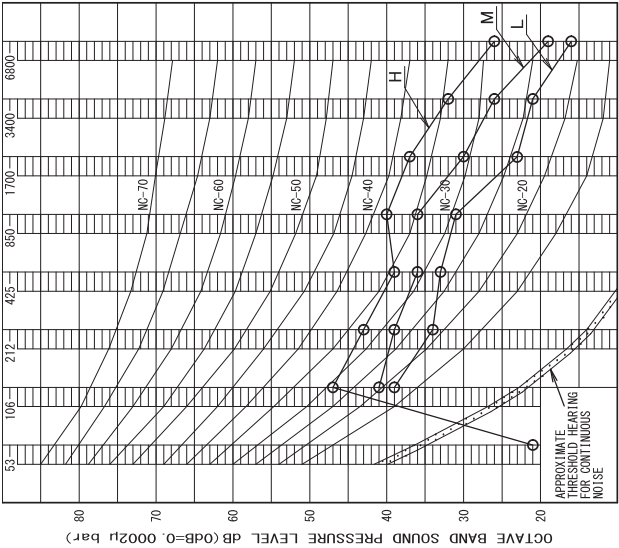
OVER ALL (dB)				
SCALE A	H	M	L	
	38	34	32	
(B.G.N IS ALREADY RECTIFIED)				
MEASURING PLACE				
ANECHOIC CHAMBER				
OPERATING CONDITIONS				
POWER SOURCE				
V : 230V, 50 Hz & 230V, 60Hz				
COOLING				
RETURN AIR TEMP : 27°c DB, 19°c WB				
OUTDOOR TEMP : 35°c DB, 24°c WB				
EXTERNAL STATIC PRESSURE				
30Pa				



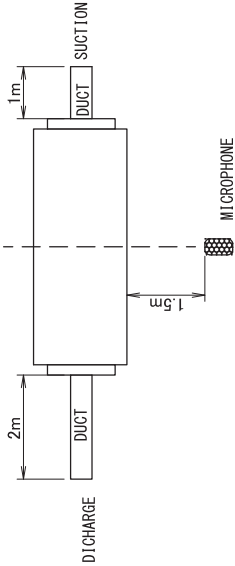
NOTE : OPERATION NOISE DIFFERS WITH OPERATION AND AMBIENT CONDITIONS.

4D125122

FDMF36AVMK



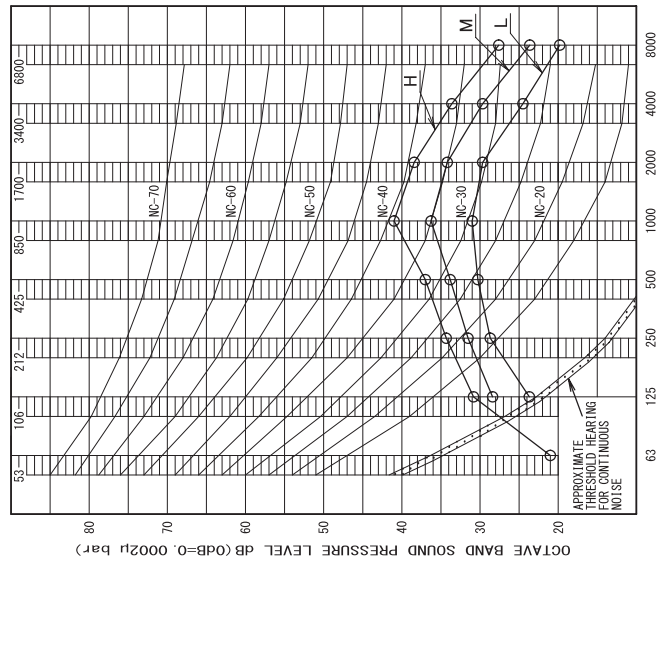
OVER ALL (dB)				
SCALE A	H	M	L	
	44	39	35	
(B.G.N IS ALREADY RECTIFIED)				
MEASURING PLACE				
ANECHOIC CHAMBER				
OPERATING CONDITIONS				
POWER SOURCE				
V : 230V, 50 Hz & 230V, 60Hz				
COOLING				
RETURN AIR TEMP : 27°c DB, 19°c WB				
OUTDOOR TEMP : 35°c DB, 24°c WB				
EXTERNAL STATIC PRESSURE				
50Pa				



NOTE : OPERATION NOISE DIFFERS WITH OPERATION AND AMBIENT CONDITIONS.

4D125125

FDMF48AVMK / FDMF54AVMK

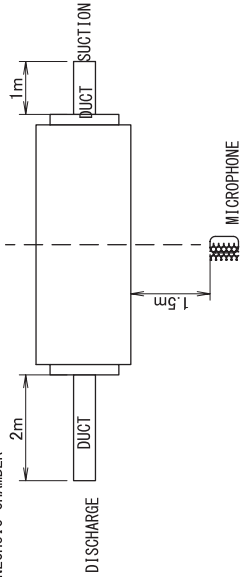


OVER ALL (dB)	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V, 50 Hz & 230V, 60Hz	
COOLING	
RETURN AIR TEMP : 27°c DB, 19°c WB	
OUTDOOR TEMP : 35°c DB, 24°c WB	
EXTERNAL STATIC PRESSURE	
50Pa	

SCALE A	45	41	37
	H	M	L

(B.G.N IS ALREADY RECTIFIED)

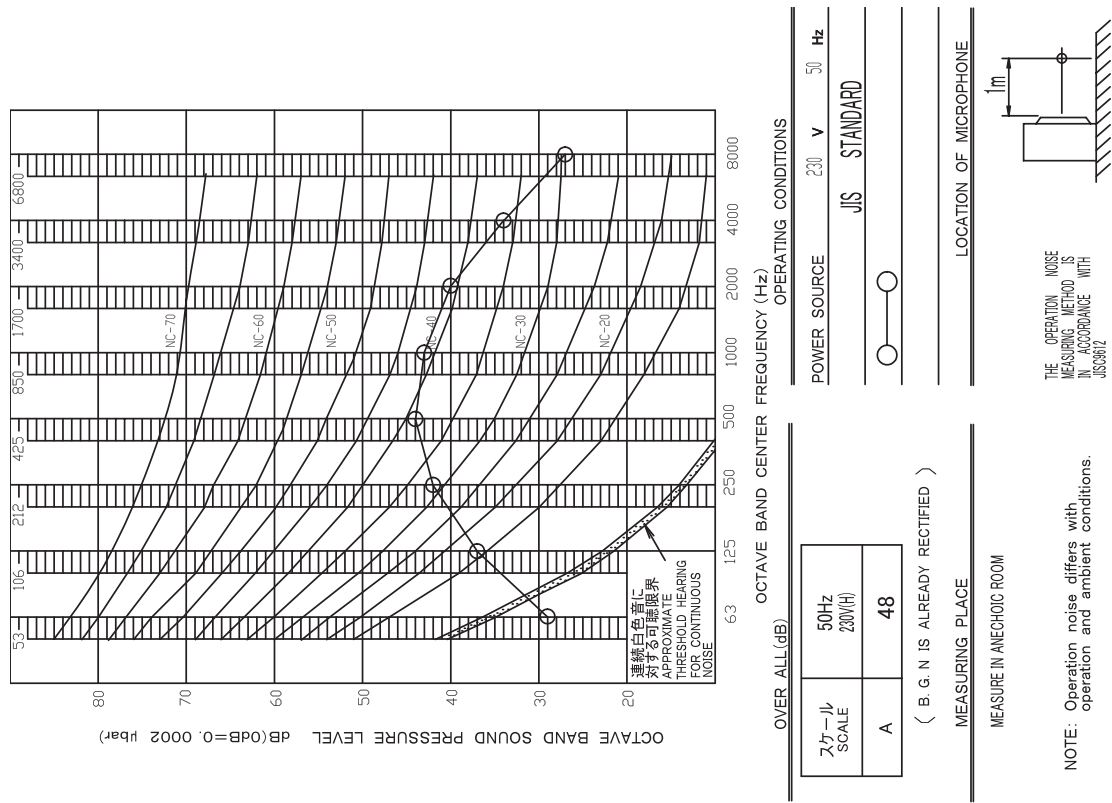
MEASURING PLACE
ANECHOIC CHAMBER



NOTE : OPERATION NOISE DIFFERS WITH OPERATION AND AMBIENT CONDITIONS.

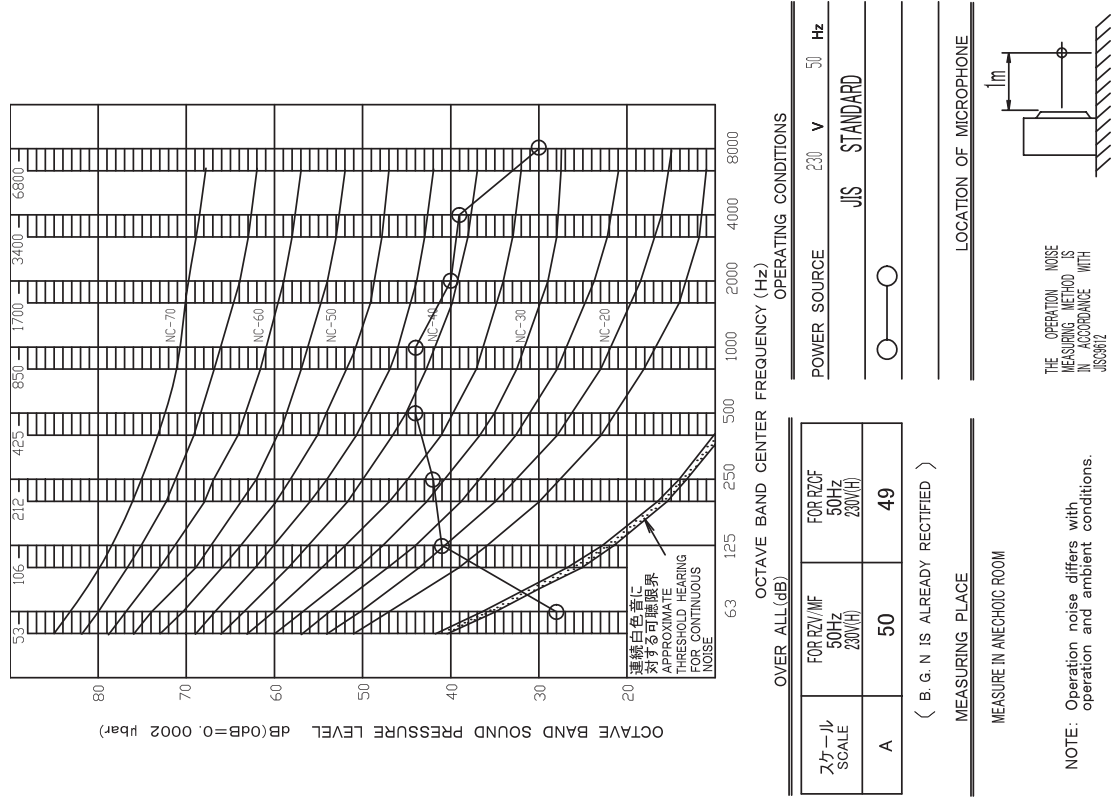
13.2 Outdoor Unit

RZF18AVMK



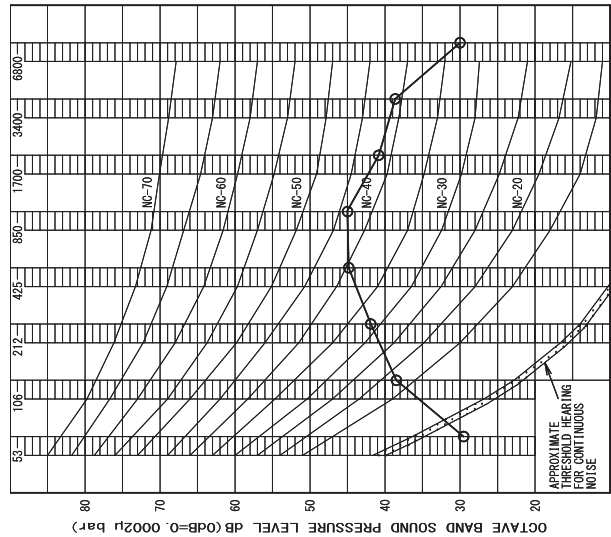
4D113222B

RZF24AVMK

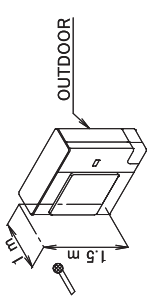


4D113214B

RZF30AVMK



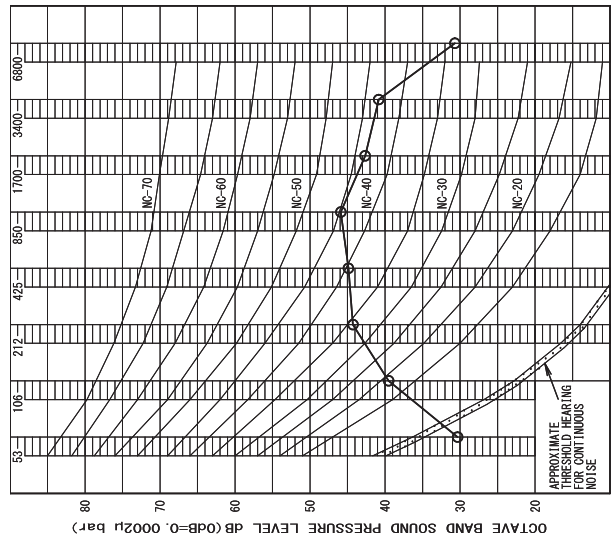
OVER ALL (dB)	
SCALE A	V MODEL 51
(B.G.N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz	
Y : 400V 50Hz	
INDOOR : 27°c DB, 19°c WB	
OUTDOOR : 35°c DB, 24°c WB	
LOCATION OF MICROPHONE	



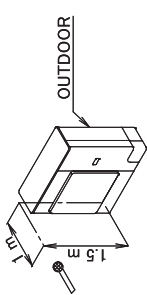
NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS,
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

4D114024A

RZF36AVMK



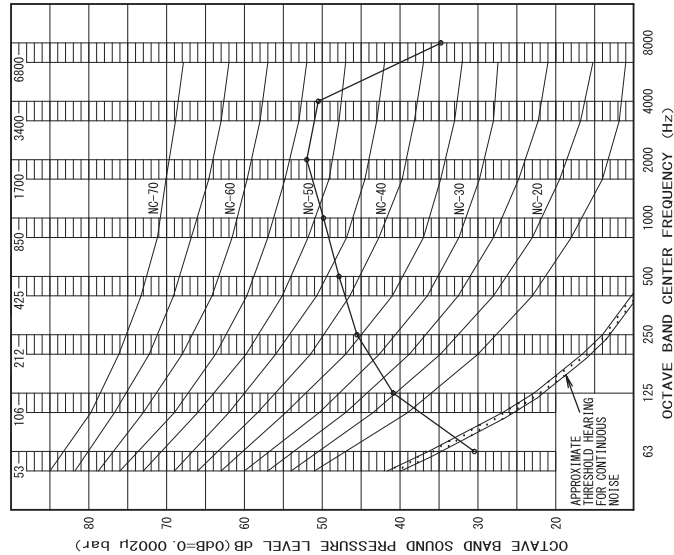
OVER ALL (dB)	
SCALE A	V MODEL 51
(B.G.N IS ALREADY RECTIFIED)	
MEASURING PLACE	
ANECHOIC CHAMBER	
OPERATING CONDITIONS	
POWER SOURCE	
V : 230V 50Hz	
Y : 400V 50Hz	
INDOOR : 27°c DB, 19°c WB	
OUTDOOR : 35°c DB, 24°c WB	
LOCATION OF MICROPHONE	



NOTE : THE OPERATING SOUND IS MEASURED IN ANECHOIC CHAMBER.
IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS,
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.

4D114023A

RZF48AYMK / RZF54AYMK



OVER ALL (dB)

SCALE A	V MODEL
	57

(B. G. N IS ALREADY RECTIFIED)

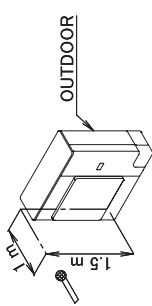
MEASURING PLACE

ANECHOIC CHAMBER

OPERATING CONDITIONS

POWER SOURCE
V : 230V 50Hz, 230V 60Hz
Y : 400V 50Hz, 400V 60Hz
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.
IF IT IS MEASURED UNDER THE ACTUAL INSTALLATION CONDITIONS,
IT IS NORMALLY OVER THE SET VALUE DUE TO ENVIRONMENTAL NOISE
AND SOUND REFLECTION.



14. Accessories

14.1 Indoor Unit

Optional accessories

Name of option	Remark	Model		
		FDMF18AVMK FDMF24AVMK	FDMF30AVMK FDMF36AVMK	FDMF48AVMK FDMF54AVMK
High-efficiency filter	65%	KAF372B80	KAF372B160	—
	90%	—	KAF373B160	—
Long-life replacement filter		KAF371B80	KAF371B160	—
Filter chamber		BDDF37A80-6	BDDF37A140-6	—
Suction flange		BDF37A80-6	BDF37A140-6	—
Service panel	Fresh white	KTBJ25K80F	KTBJ25K160F	—
Air discharge adaptor		KDAJ25K71A	KDAJ25K140A	—
Remote controller	Wireless type	BRC4C66		
	Wired type (Note 6)	BRC1H81W7 / BRC1H81S7		
Adaptor wiring		● BRP11B62		
Wiring adaptor for electrical appendices (2)		● KRP4AA51		
Remote sensor		BRCS01A-4		
Mounting plate for adaptor PCB (Note 1, 2, 3)		KRP4A98		
Central remote controller (Note 4)		DCS302CA61		
Unified ON/OFF controller (Note 4)		DCS301BA61		
Schedule timer (Note 4)		DST301BA61		
Intelligent Touch Controller (Note 4)		DCS601C51		

C: 3D115270F
C: 3D120007D
C: 3D124671A
C: 3D133394A

Note:

1. Mounting plate is necessary for each adaptor marked ●.
2. Up to 2 adaptors can be fixed for each mounting plate.
3. Only one mounting plate can be installed for each indoor unit.
4. The indoor unit is equipped standardly with the interface adaptor for SkyAir series. So it as an option is unnecessary.
5. Model FDMF18-54AVMK are cooling only.
6. Wiring for wired remote controller should be obtained locally.

14.2 Outdoor Unit

Item	Model		
	RZF18AVMK RZF24AVMK	RZF30AVMK RZF36AVMK	RZF48AYMK RZF54AYMK
Central drain plug	KKP014A4	KKPJ5G280	BKP2082A41
Fixture for preventing overturning	—	KKTP5B112	—
Wire fixture for preventing overturning	—	K-KYZP15C	—
Demand adaptor	—	KRP58M51 + EKMKA1	—

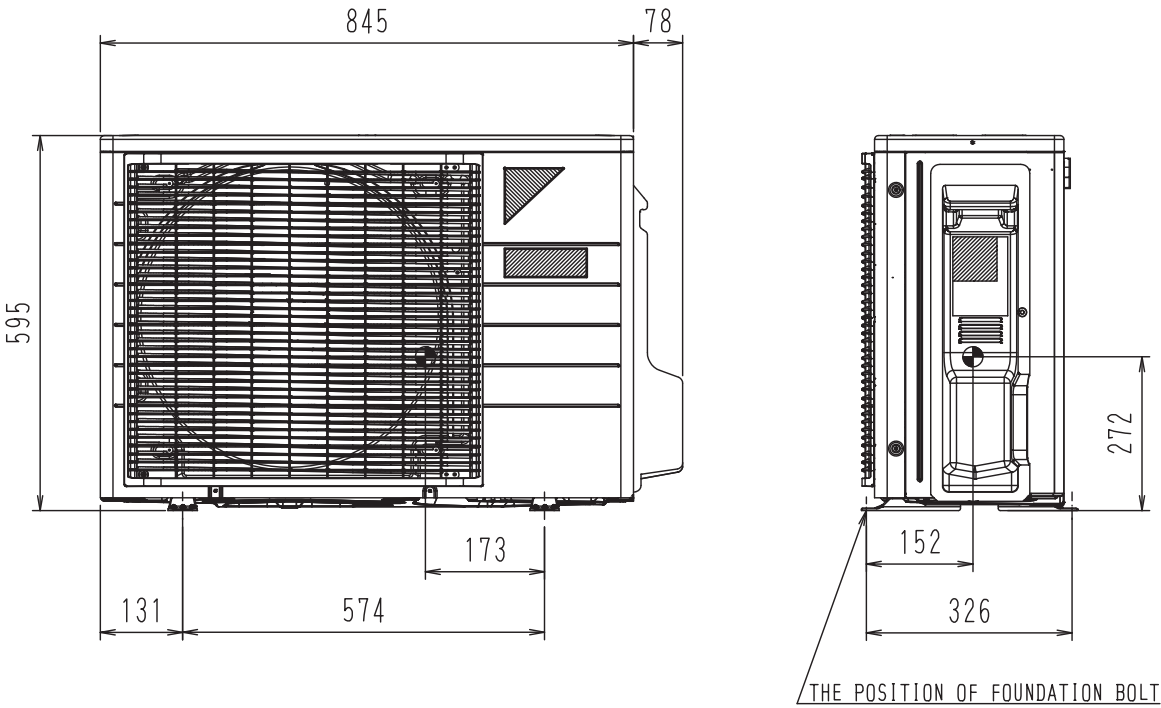
2. Installation of Indoor / Outdoor Unit

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1. Centre of Gravity

RZF18AVMK / RZF24AVMK

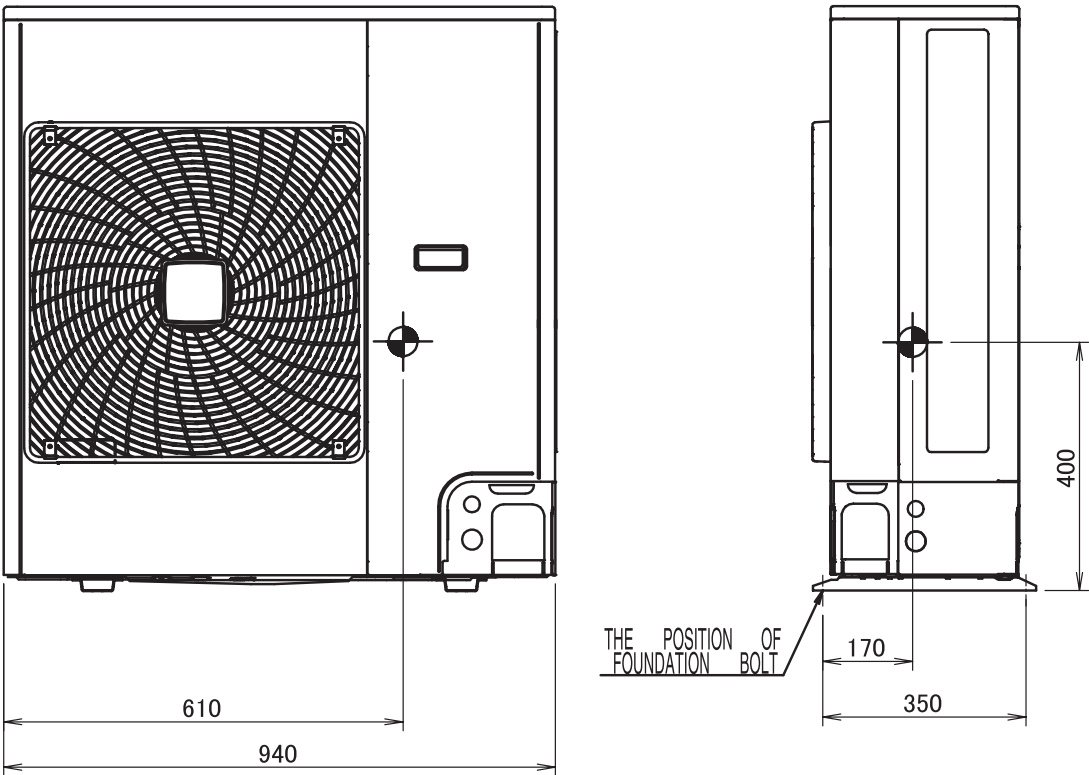
Unit: mm



4D102462E

RZF30AVMK / RZF36AVMK

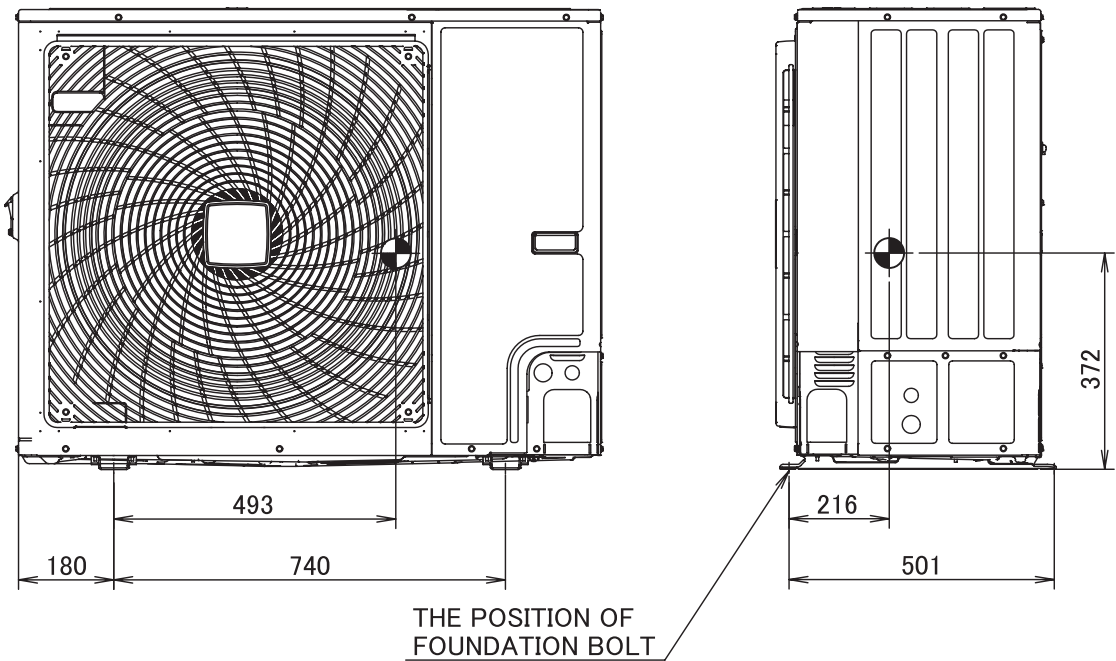
Unit: mm



4D115432A

RZF48AYMK / RZF54AYMK

Unit: mm

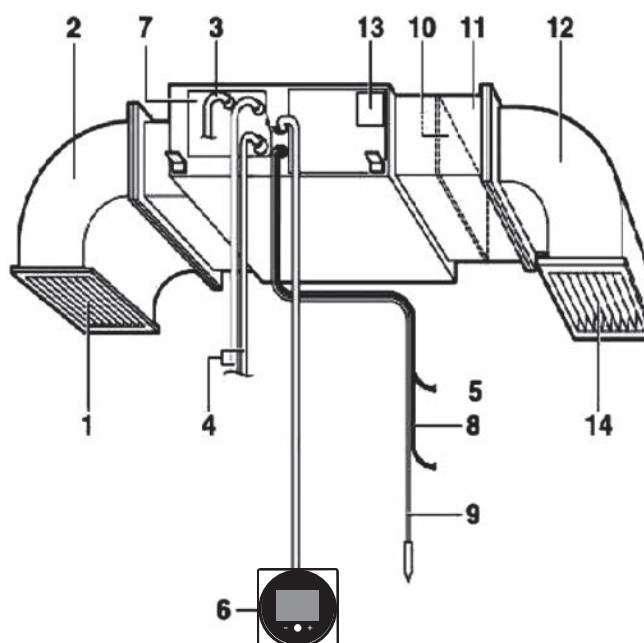


4D133148

2. Installation of Indoor Unit

2.1 FDMF18AVMK / FDMF24AVMK

2.1.1 Names and Functions of Parts



1	Air outlet (Field supply)
2	Exhaust duct (Field supply)
3	Drain pipe
4	Refrigerant piping
5	Wiring between indoor and outdoor unit
6	Remote controller (Sold separately)
7	Drain discharge device (built-in) Discharge indoor moisture removed during cooling operation.
8	Power line
9	Ground wire This wire releases electricity from the indoor unit to the ground in order to prevent electric shock or fire.
10	Air filter (inside filter chamber) (Sold separately)
11	Suction filter chamber (Sold separately)
12	Suction duct (Field supply)
13	Machine nameplate The nameplate is imprinted with the machine name and specifications.
14	Suction grille (Field supply)

2.1.2 Installation

DAIKIN

Split System Air Conditioner

INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

FDMF18AVMK, FDMF24AVMK

Page No.

INSTALLATION MANUAL OF INDOOR 1-18

INSTALLATION MANUAL OF OUTDOOR 19-37

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3. SELECTION OF INSTALLATION LOCATION.....	4
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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: 550 *

⁽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).

1. SAFETY PRECAUTIONS



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



This appliance is filled with R32.

Please read these "SAFETY CONSIDERATIONS" carefully before installing air conditioning unit and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation.

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.

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

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- 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. Ask the user to keep this manual in a handy place for future reference.



WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 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 refrigerants may not contain an odor.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- 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 air conditioner 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 falling 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 falling down and causing injury.
In addition, it may lead to vibration of indoor units and cause unpleasant chattering noise.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as air conditioner falling.
- Make certain that all electrical 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 electrical 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 breaker.
Failure to do so may cause electric shocks and a fire.
- Disconnect the power supply before touching the electric components.
If you touch the live part, you may get electric shocks.
- Make sure that all wiring is secure, using the specified wirings and ensuring that external forces do not act on the terminal connections or wirings.
Incomplete connection or fixing may cause an overheat or a fire.
- When wiring between the indoor and outdoor units and wiring the power supply, form the wirings orderly so that the control box lid can be securely fastened.
If the control box lid is not in place, overheating of the terminals, electric shocks or a fire may be caused.
- 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.
- 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.
- 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.
- When flared joints are reused, the flare part shall be refabricated.



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 air conditioner, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- Do not install the air conditioner in places such as the following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen.
Resin parts may deteriorate, and fall out or water may 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 fibre 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.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
 - Pay careful attention when transporting the product.
Carry the product by the handle sections indicated on the packaging material.
Do not hold the PP band since the PP band can become loose and may result in danger.
 - Do not touch the heat exchanger fins.
Inadvertently touching the fins can cause injury.
 - 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.
 - 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.
 - Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
 - 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.

2. BEFORE INSTALLATION

When unpacking the indoor unit or moving the unit after unpacked, hold the hangers (4 places) and do not apply force to other parts (particularly refrigerant piping, drain piping).

- Make sure to check in advance that the refrigerant to be used for installation work is R32.
(The air conditioner will not properly operate if a wrong refrigerant is used.)
- For installation of the outdoor unit, refer to the installation manual of the outdoor unit.
- Do not throw away the accessories until the installation work is completed.
- After the indoor unit is carried into the room, try to avoid the indoor unit from getting damaged, take measures to protect the indoor unit with packing materials.

- (1) Determine the route to carry the unit into the room.
- (2) Do not unpack the unit until it is carried to the installation location.

Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, to avoid damage or scratches to the indoor unit.

- Have the customer actually operate the air conditioner while looking at the operation manual.
Instruct the customer how to operate the air conditioner (particularly cleaning of the air filters, operation procedures and temperature adjustment).
- Do not use the air conditioner in a salty atmosphere such as coastal areas, vehicles, vessels or where voltage fluctuation is frequent such as factories.
- Take off static electricity from the body when carrying out wiring and the control box lid is removed.
The electric parts may get damaged.

2-1 ACCESSORIES

Check if the following accessories are attached to the indoor unit.

Table 1

Name	-	Insulation for fitting	Sealing pad	-	-	-
Quantity	1 each	1 each	-	-	-	-
Shape	 Metal clamp (1)	 Thin for liquid pipe (3)	 1 Pc. Large (Dark grey) (5)	 9 Pc. Clamp (7)	 2 Pc. Wire sealing material (9)	 2 Pc. Wire fixing screw (11)
	 Drain Hose (2)	 Thick for gas pipe (4)	 2 Pc. Middle (Dark grey) (6)	 4 Pc. Washer fixing plate (8)	 2 Pc. Wire fixing bracket (10)	 M4x8

2-2 OPTIONAL ACCESSORIES

- A remote controller is required for the indoor unit.
(No remote controllers are required for multi slave units in simultaneous multi operation.)
- Install the remote controller to the place where the customer has given consent.
Refer to the catalog for the applicable model.
(Refer to the installation manual attached to the remote controller for how to install.)

CARRY OUT THE WORK GIVING CAUTION TO THE FOLLOWING ITEMS AND AFTER THE WORK IS COMPLETED CHECK THESE AGAIN.

1. Items to be checked after the installation work is completed

Items to be checked	In case of defective	Check column
Are the indoor and outdoor units rigidly fixed?	Drop · vibration · noise	
Are the installation works of the outdoor and indoor units completed?	Does not operate · burnout	
Have you carried out a leakage test with the test pressure specified in the outdoor unit installation manual?	Does not cool.	
Is the insulation of refrigerant piping and drain piping completely carried out?	Water leakage	
Does the drain flow out smoothly?	Water leakage	
Is the power supply voltage identical to that stated in the manufacturer's label on the air conditioner?	Does not operate · burnout	
Are you sure that there is no wrong wiring or piping or no loose wiring?	Does not operate · burnout	
Is earthing completed?	Danger in case of leakage	
Are the sizes of electric wiring according to the specification?	Does not operate · burnout	
Are any of air outlets or inlets of the indoor and outdoor units blocked with obstacles? (It may lead to capacity drop due to fan speed drop or malfunction of equipment.)	Does not cool	
Is the external static pressure set correctly?	Does not cool	
Have you recorded the refrigerant piping length and the refrigerant charge amount added?	Refrigerant charge amount is not clear	

Make sure to recheck the items of "SAFETY PRECAUTIONS".

2. Items to be checked at delivery

Items to be checked	Check column
Have you carried out field setting? (if necessary)	
Are the control box lid, the air filter and the suction grille attached?	
Does the cool air discharge during the cooling operation? Does the indoor unit makes unpleasant sound during air discharge?	
Have you explained how to operate the air conditioner showing the operation manual to the customer?	
Have you explained the description of cooling, program dry and automatic (cooling) given in the operation manual to the customer?	
If you set the fan speed at thermostat OFF, did you explain the set fan speed to the customer.	
Have you handed the operation manual and the installation manual to the customer?	
Have you checked that there is no generation of abnormal noise (i.e. noise resulting from contamination or missing parts)?	
Is the printed circuit board switch not on the emergency (EMG.) side? The switch is factory set to the normal (NORM.) side.	
If an optional accessory is in use, did you check the operation of the optional accessory and make field settings as needed?	
Is the remote controller icon displayed? Is the remote controller connected to the master unit if the system is in simultaneous multi operation?	
Have you explained failure examples of	
3. SELECTION OF INSTALLATION LOCATION?	

Points of the operation explanation

In addition to the general usage, since the items in the operation manual with the ⚠ WARNING and ⚠ CAUTION marks are likely to result in human bodily injuries and property damages, it is necessary not only to explain these items to the customer but also to have the customer read them.
Furthermore, it is necessary to have the customer read through the troubleshooting items while explaining the above items.

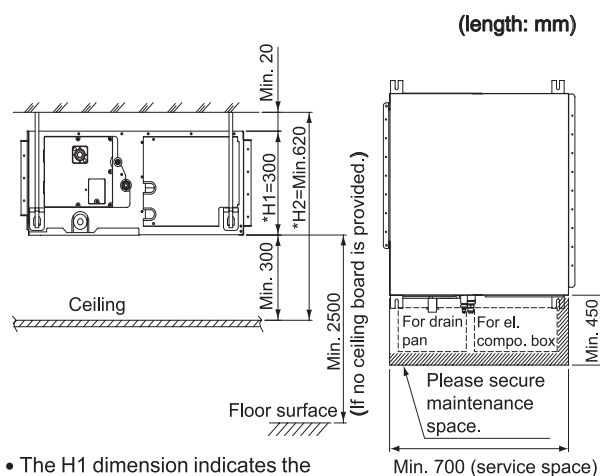
3. SELECTION OF INSTALLATION LOCATION

Hold the hangers at 4 locations to move the indoor unit when unpacking or after unpacked and do not apply force to the piping (refrigerant and drain) and air outlet flange. If the temperature and humidity in the ceiling is likely to exceed 30°C, RH80%, use the additional insulation stick to the indoor unit.

Use the insulation such as glass wool or polyethylene that has thickness of 10 mm or more. However, keep the insulated outside dimension smaller than the ceiling opening so that the unit may go through the opening at installation.

(1) Select the installation location that meets the following conditions and get approval of the customer.

- Where the cool and warm air spreads evenly in the room.
- Where there are no obstacles in the air passage.
- Where drainage can be ensured.
- Where the ceiling's lower surface is not remarkably inclined.
- Where there is sufficient strength to withstand the mass of the indoor unit. (If the strength is insufficient the indoor unit may vibrate and get in contact with the ceiling and generate unpleasant chattering noise.)
- Where a space sufficient for installation and service can be ensured.
- Where the piping length between the indoor and the outdoor units is ensured within the allowable length. (Refer to the installation manual of the outdoor unit.)
- Where there is no risk of flammable gas leak.



- The H1 dimension indicates the height of the product.
 - Determine the H2 dimension by maintaining a downward slope of at least 1/100 as specified in "7. DRAIN PIPING WORK".
- [Required installation place]
- The dimensions indicate the minimum required space of installation.

Fig. 1

<Failure example>

If there is an obstacle in the airflow path or proper installation space is not provided, the indoor unit will cause air volume reduction and take in air blown out of the indoor unit, thus resulting in performance degradation or turning the thermostat OFF frequently.

**CAUTION**

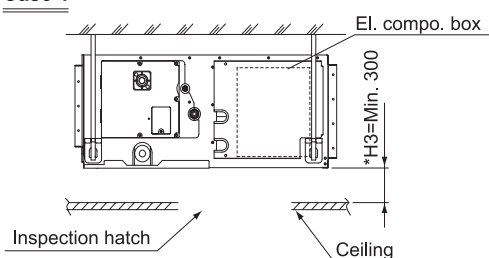
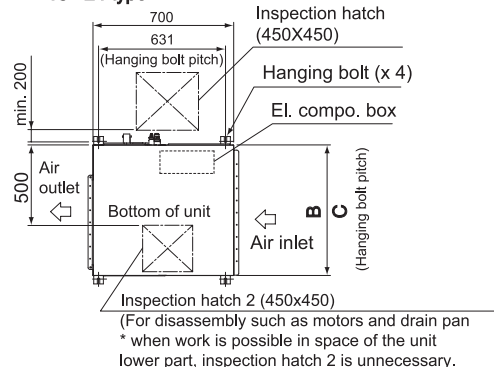
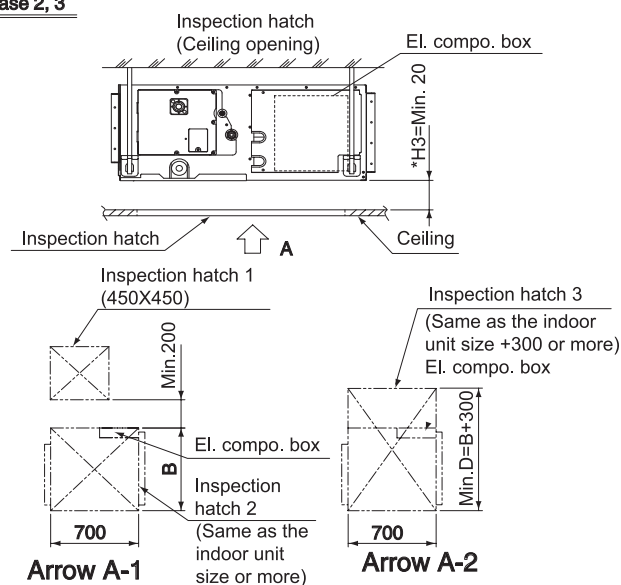
- Install the indoor and outdoor units, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor unit as far as possible from fluorescent lamps.

(2) Use hanging bolts for installation.

Investigate if the installation place can withstand the mass of the indoor unit and if necessary, hang the indoor unit with bolts after it is reinforced by beams etc.

4. PREPARATION BEFORE INSTALLATION**(1) Check the relation between location of the ceiling opening and the indoor unit hanging bolts.**

- Provide one of the following service spaces for the maintenance and inspection of the control box and drain pump or for other services.
 1. Inspection hatch 1 and 2 (450 × 450) for the el. compo. box and a minimum space of 300 mm at bottom of the product. (Refer Fig. 2-2)
 2. Inspection hatch 1 (450 × 450) on the control box side and inspection hatch 2 on the bottom of the product. (Fig. 2-3, arrow A-1)
 3. Inspection hatch 3 on the bottom of the product and on the bottom side of the control box, see direction view A-2 (Refer Fig. 2-3)

Case 1**Fig.2-1****• 18~ 24 type****Fig. 2-2****Case 2, 3****Fig. 2-3**

Model	B	C	D
18.24	1000	1038	1300

(All dimensions are in mm)

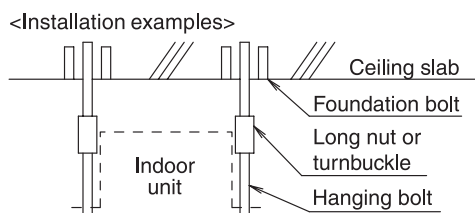
- (2) Mount canvas ducts to the air outlet and inlet so that the vibration of the indoor unit will not be transmitted to the ducts or ceiling. Furthermore, attach sound absorbing material (thermal insulation material) to the duct inner walls and anti-vibration rubber to the hanging bolts (refer to 8. DUCT WORK).
- (3) The indoor unit is set to standard external static pressure.
 - If external static pressure is higher or lower than the standard set value, the remote controller may be used to make on-site setting change in the external static pressure. Refer to 10. FIELD SETTING.

**(4) Open installation holes
(in the case of installation onto the existing ceiling).**

- Open the installation holes on the ceiling of the installation location, and work on the refrigerant piping, drain piping, remote controller wiring and wiring between the indoor and outdoor units to the piping connection port and wiring connection port of the indoor unit (refer to each piping and wiring procedure items).
- Ceiling framework reinforcement may be required in order to keep the ceiling horizontal and prevent ceiling vibration after opening the ceiling holes. For details, consult your building and upholstery work contractors.

(5) Install the hanging bolts.

- Use M10 bolts for hanging the indoor unit. Use hole-in anchors for the existing bolts and embedded inserts or foundation bolts for new bolts, and fix the indoor unit firmly to the building so that it may withstand the mass of the unit. In addition, adjust clearance (50 - 100 mm) from the ceiling in advance.



Note) Components shown in the figure above are all local procurement.

Fig. 3



CAUTION

- Secure a sufficient maintenance space for the drain pan and electrical components before installing the indoor unit.
- Secure a sufficient maintenance space for the filter chamber, and peripheral components before installing the indoor unit.

5. INSTALLATION OF INDOOR UNIT

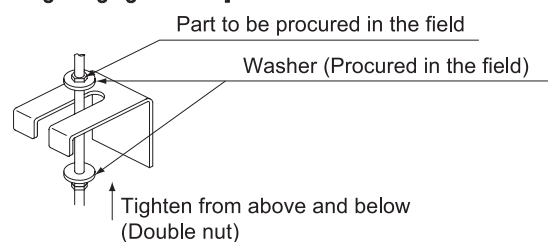
Depending on the optional parts, it may be easier to attach them before installing the indoor unit. Refer to also the installation manual attached to the optional parts.

For installation, use the attached installation parts and specified parts.

(1) Install the indoor unit temporarily.

- Connect the hanging brackets to the hanging bolts. Be sure to use and tighten the nut and washer (procured in the field) for each hanging bracket from both upper and lower sides of the hanging bracket. (Refer to the Fig. 4) At that time, the fall of the washer for the hanging bracket can be prevented if the washer fixing plate (8) is used.

[Fixing hanging brackets]



[Fixing method of washers]

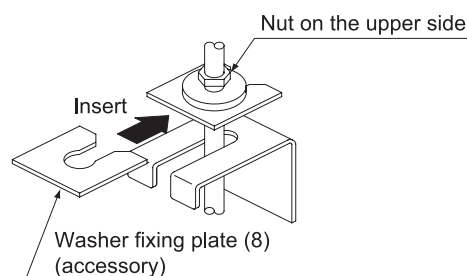
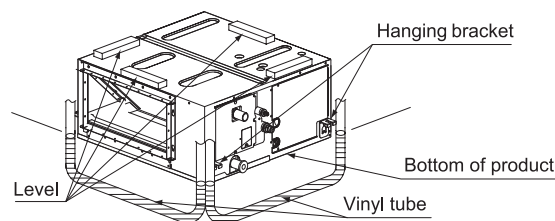


Fig. 4

- Keep the air outlet covered with a protective sheet to prevent weld spatter and other foreign materials from entering the indoor unit and damaging the resin drain pan. (If holes or cracks are generated in the resin drain pan, water can leak.)
- (2) Adjust so that the unit is properly positioned.
 - (3) Check the level of the unit. (**Refer to Fig. 5**)
 - (4) Remove the washer fixing plate used for preventing the washer for hanger from dropping and tighten the upper side nut.



Feed water into the tube and set the indoor unit to the water levels on the left and right.

[Maintaining horizontality]

Fig. 5

CAUTION

- **Install the indoor unit leveled.**
If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of float switch and result 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.**
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 of 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 in 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.
- 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. 6.
- For the dimension of flared part and the tightening torque, refer to the Table 2.
- When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
(Refer to Fig. 7)
Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

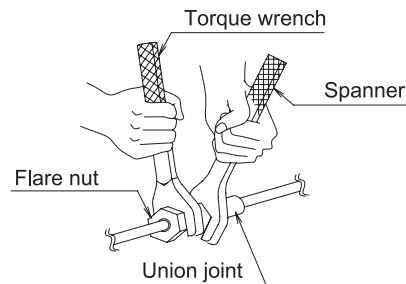


Fig. 6

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



Fig. 7

Table 2

Piping size (mm)	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 9.5	36.3 ± 3.6	13.0 ± 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 3 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 at the angle shown in Table 3.
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 3

Piping size (mm)	Tightening angle	Recommended arm length of tool used
φ 9.5	60° - 90°	approx. 200 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.

On completion of installation work, check that there is no gas leakage. Refer to the illustrations on the right hand side and be sure to perform heat insulation work on the piping joints after gas leakage. (Refer Fig. 8)

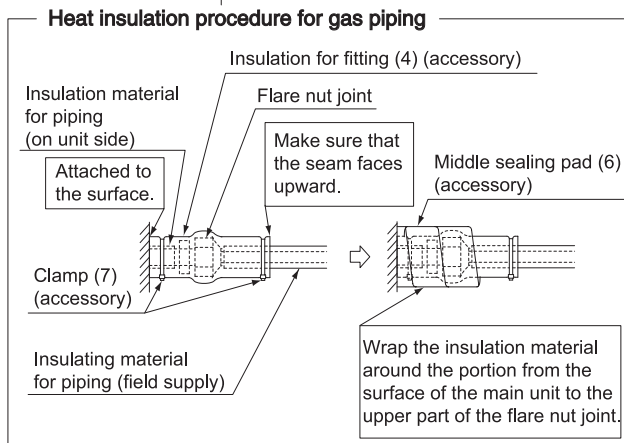
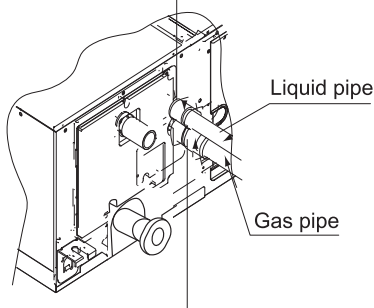
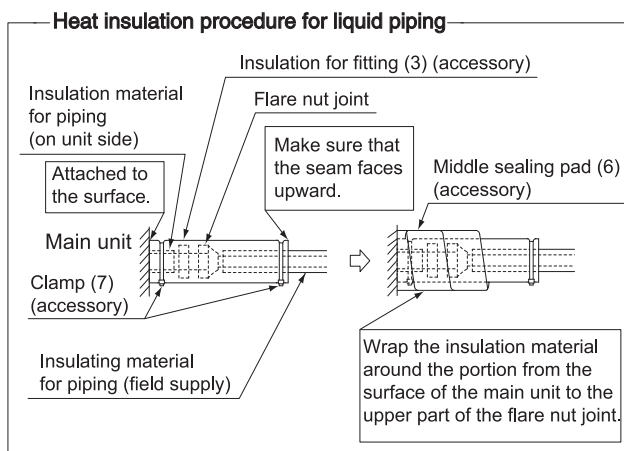


Fig. 8

- Use the insulation for fitting (3) and (4) provided to the liquid piping and gas piping, respectively and conduct heat insulation work. (Tighten both edges of the insulation for fitting(3) and (4) for each joint with clamp(7)).
- Make sure that the joint of the insulation for fitting(4) and (5) for the joint on the liquid piping and gas piping side faces upwards.
- Wrap the middle sealing material(6) around the insulation for fitting (3) and (4) for the joint(flare nut part).

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 9). Then, carry out brazing (NOTE 2).

After all the brazing works are finished, carry out flare connection with the indoor unit. (Refer to Fig. 8)

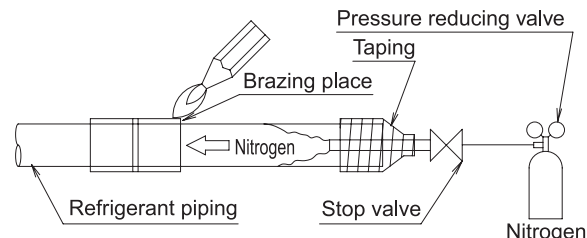


Fig. 9

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like slight 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.)
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. 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) Carry out drain piping.

Carry out drain piping so that drainage is ensured.

- Select the piping diameter equal to or larger than (except for riser) that of the connection piping (polyvinyl chloride piping, nominal diameter 25 mm, outside diameter 32 mm).
- Install the drain piping as short as possible with downward inclination of 1/100 or more and such that air may not stagnate. (Refer to Fig.10)

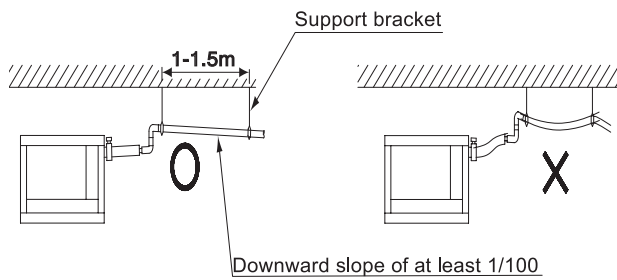


Fig. 10

CAUTION

If drain stagnates in the drain piping, the piping may be clogged.

- If sufficient downward inclination cannot be ensured, carry out upward drain piping.
- Install supports at a distance of 1 to 1.5m so that the piping may not deflect. (Refer Fig. 10)
- Make sure to use the attached drain hose (2) and the metal clamp (1).
Insert the drain hose (2) into the drain socket up to the point where the socket diameter becomes larger. Put the metal clamp (1) to the taped hose end. Be sure to fasten the screw of the metal clamp (1) until the margin of the screw thread decreases to 4 mm or less.

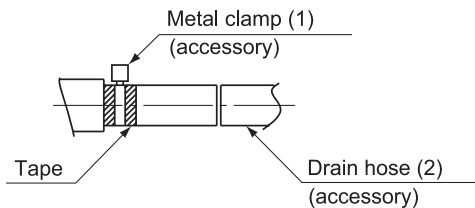
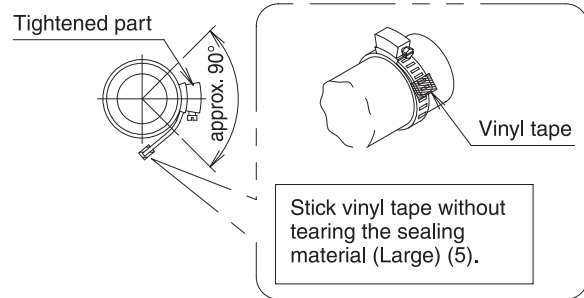


Fig. 11

CAUTION

- Tighten the metal clamp (1) on specified above otherwise. The drain hose (2), the socket or the metal clamp (1) may be damaged.
- Wrap the vinyl tape around the end of the metal clamp (1) so that the sealing material (Large) (5) to be used at the next process may not be damaged with the clamp end or bend the tip of the metal clamp (1) inward as shown. (Refer to Fig. 12)

<In case of sticking vinyl tape>



<In case of bending the tip>

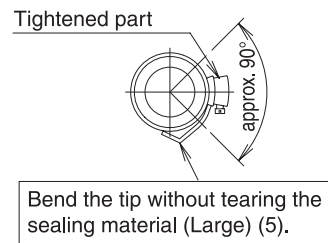


Fig. 12

< Caution to be taken when carrying out upward drain piping (Refer to Fig. 13) >

- The maximum height of the drain riser is 467 mm. Since the drain pump mounted on this indoor unit is a high head type, from the characteristic point of view, the higher the drain riser the lower the draining noise. Therefore, the drain riser of 300 mm or higher is recommended.
- For upward drain piping, keep the horizontal piping distance of 300 mm or less between the drain socket root to the drain riser.

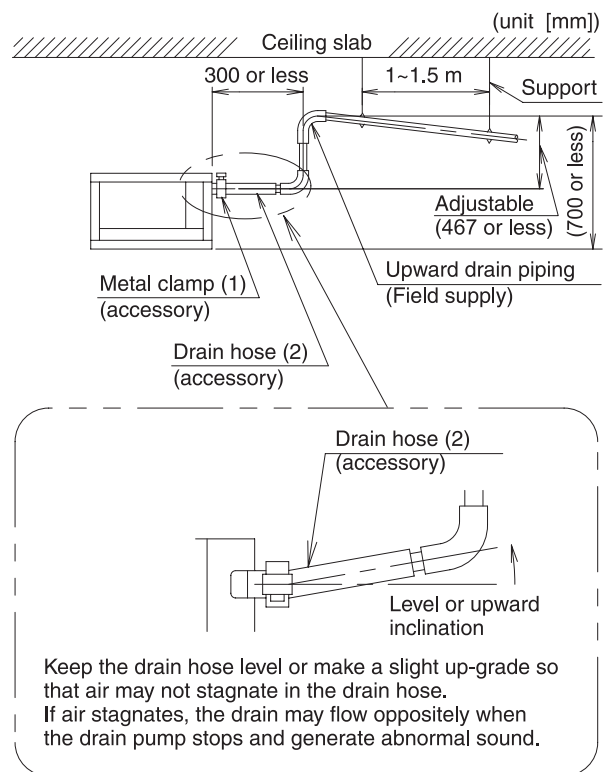


Fig. 13

⚠ CAUTION

- To avoid the attached drain hose (2) getting excessive force, do not bend nor twist it.
It may cause water leakage.
- As for drain piping connection, do not connect the drain hose directly to a sewage that gives off ammonia odor. (The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.)
- In case of centralized drain piping, carry out piping work according to the procedure shown in the following Fig. 14.

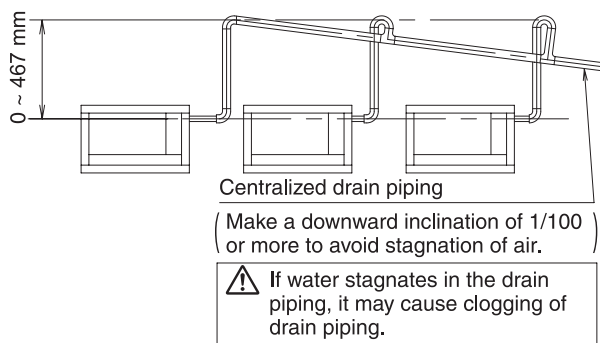


Fig. 14

- As for the size of centralized drain piping, select the size that meets the capacity of indoor units to be connected. (Refer to the technical document)
- Positioning the upward drain piping at an angle may cause float switch malfunction and lead to water leakage.
- While replacing with new indoor unit, use the attached new drain hose (2) and the metal clamp (1).
If an old drain hose or a metal clamp is used, it may cause water leakage.

(2) After piping is finished check if the drain flows smoothly.

[When the electric wiring work is finished]

- Gradually pour 1 litre of water from the inspection port at the bottom of the drain socket on the left side of the drain pan giving caution to avoid splashing water on the electric components such as drain pump and confirm drainage by operating the indoor unit under cooling mode according to 10. FIELD SETTING. (Refer to Fig. 15)

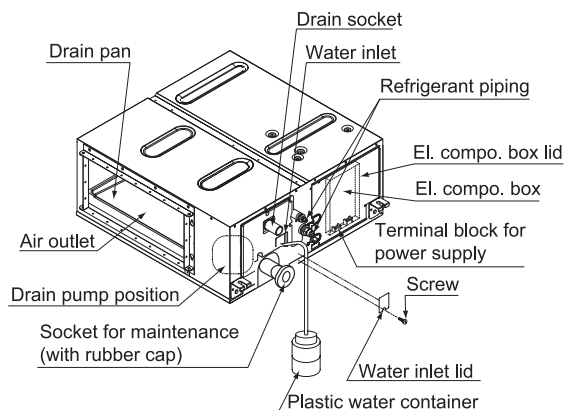


Fig. 15

[When the electric wiring work is not finished]

- The electric wiring works (including earthing) must be carried out by a qualified electrician.

- If a qualified person is not present, after the electric wiring work is finished, check the drainage according to the method specified in [When the electric wiring work is finished].

- Open the control box lid and connect the single phase 220-240V power supply to the terminal (L, N) on the terminal block (X2M).
Connect the earth wiring to the earth terminal.
- Make sure the control box lid is closed before turning on the power supply.
 - Throughout the whole process, carry out the work giving caution to the wiring around the control box so that the connectors may not come off.
- Gradually pour 1 litre of water from the air outlet on the left side of the drain socket into the drain pan giving caution to avoid splashing water on the electric components such as drain pump. (Refer to Fig. 15)
- When the power supply is turned on, the drain pump will operate. Drainage can be checked at the transparent part of the drain socket. (The drain pump will automatically stop after 10 minutes.)
The drainage of water can be confirmed with water level change in the drain pan through the access window.
 - Do not connect the drain piping directly to the sewage that gives off ammonia odor.
The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.
 - Do not apply external force to the float switch. (It may result in malfunction)
 - Do not touch the drain pump.
Touching the drain pump may cause electric shocks.
 - Do not apply external force to the float switch.
External force may cause a float switch malfunction.
- Turn off the power supply after checking drainage, and remove the power supply wiring.
- Attach the control box lid as before.

- On the completion of the drainage check, refer to the following illustration, and use the provided large sealing pad (5) and insulate the metal clamp (1) and drain hose (2)

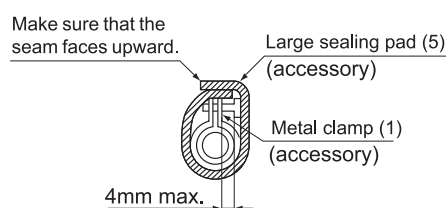


Fig. 16

8. DUCT WORK

Pay utmost attention to the following items and conduct the ductwork.

- Check that the duct is not in excess of the setting range of external static pressure for the unit. (Refer to the technical datasheet for the setting range.)
- Attach a canvas duct each to the air outlet and air inlet so that the vibration of the equipment will not be transmitted to the duct or ceiling.
Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- At the time of duct welding, perform the curing of the duct so that the sputter will not come in contact with the drain pan for the filter.
- If the metal duct passes through a metal lath, wire lath, or plate of a wooden structure, separate the duct and wall electrically.
- Be sure to heat insulate the duct for the prevention of dew condensation. (Material: Glass wool or styrene foam; Thickness: 25 mm)
- Explain the operation and washing methods of the locally procured components (i.e., the air filter, air inlet grille, and air outlet grille) to the customer.
- Locate the air outlet grille on the indoor side for the prevention of drafts in a position where indirect contact with people.
- The air conditioner incorporates a function to adjust the fan to rated speed automatically. **(10. FIELD SETTING)**
Therefore, do not use booster fans midway in the duct.

Connection method of ducts on air inlet and outlet sides.

- Connect the field supply duct in alignment with the inner side of the flange.
- Connect the flange and unit with the flange connection screw.
- Wrap aluminum tape around the flange and duct joint in order to prevent air leakage.

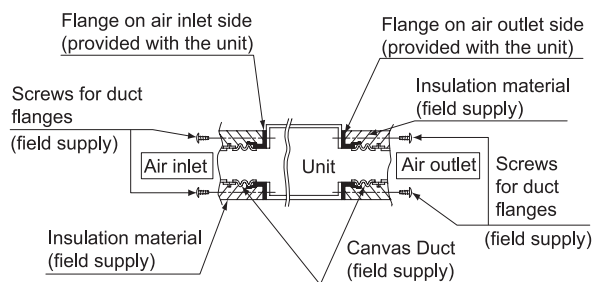


Fig. 17

CAUTION

Connect the flange and unit with the flange connection screw field supply regardless of whether the duct is connected to the air inlet side.

9. ELECTRIC WIRING WORK

9-1 GENERAL INSTRUCTIONS

- 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 dedicated circuit.
Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- Make sure to install an earth leakage breaker.
Failure to do so may cause electric shocks and a fire.
- Do not turn on the power supply (branch switch, branch overcurrent circuit breaker) until all the works are finished
- Multiple number of indoor units are connected to one outdoor unit. Name each indoor unit as A-unit, B-unit and the like. When these indoor units are wired to the outdoor unit, always wire the indoor unit to the terminal indicated with the same symbol on the terminal block. If the wiring and the piping are connected to the different indoor units and operated, it will result in malfunction.
- 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 pipings, 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.
- For electric wiring work, refer to also the "WIRING DIAGRAM" attached to the control box lid.
- Carry out wiring between the outdoor units, indoor units and the remote controllers according to the wiring diagram.
- Carry out installation and wiring of the remote controller according to the "installation manual" attached to the remote controller.
- Do not touch the Printed Circuit Board assembly. It may cause malfunction.

9-2 SPECIFICATION FOR FIELD SUPPLY FUSES AND WIRING

Table 4

Model	Power supply wiring			Remote controller wiring Transmission wiring	
	Field fuses 	Wiring	Size	Wiring	Size
FDMF18AVMK	15A	H05VV-U3G	Wiring size and length must comply with local codes or IEC60335-1 (Table 11).	Vinyl cord with sheath or cable (2 core)	0.75-1.25 mm ²
FDMF24AVMK		NOTE 1)		NOTE 2)	

The lengths of remote controller wiring are as follows:
Remote controller wiring (indoor unit - remote controller)....Max. 500 m

NOTE

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

9-3 WIRING CONNECTION METHOD

— ⚠ CAUTION FOR WIRING —

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or insulate the wirings properly.

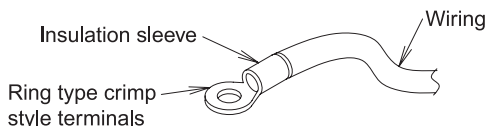


Fig. 18

- Connect the terminal as shown in Fig. 19.
- Do not carry out soldering finish when stranded wirings are used. (Otherwise, the loosening of wiring may result in abnormal heat radiation.)

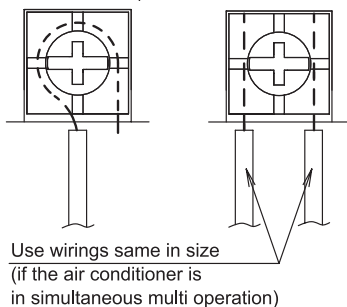


Fig. 19

(Abnormal heating may occur if the wirings are not tightened securely.)

- Use the required wirings, connect them securely and fix these wirings securely 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.

Table 5

	Tightening torque (N·m)
Terminal block for remote controller and transmission wirings	0.88 ± 0.08
Terminal for power supply	1.47 ± 0.14
Earth terminal	1.47 ± 0.14

- Do not carry out soldering finish when stranded wirings are used.

— ⚠ WARNING —

- When wiring, form the wirings orderly so that the control box lid can be securely fastened. If the control box lid is not in place, the wirings may come out or be sandwiched by the box and the lid and cause electric shocks or a fire.

(1) Remove the control box lid.

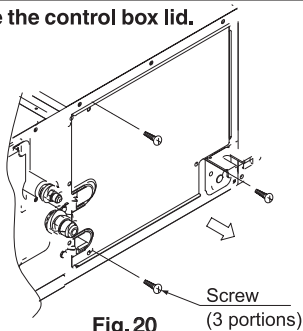


Fig. 20

(2) Connect the wiring into the control box through the wiring intake beside the control box.

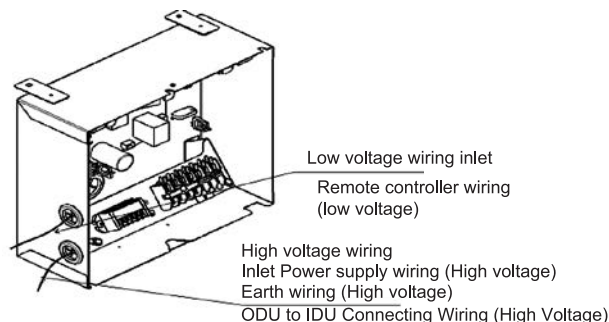


Fig. 21

(3) Follow the instructions below and perform wiring in the control box.

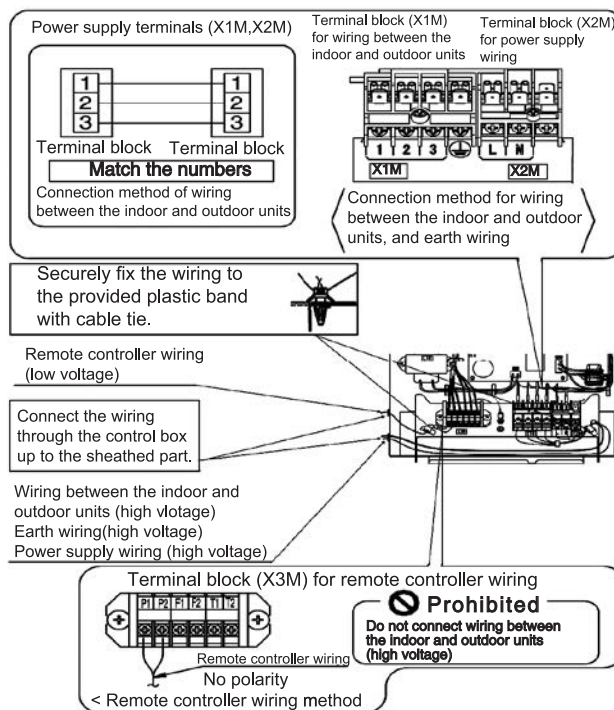


Fig. 22

(4) Mount the control box lid and wrap the wire sealing material (small) (9) so that the wiring through hole will be covered by the sealing material.

- Seal the clearance around the wirings with putty or insulating material (field supply). (If insects and small animals get into the indoor unit, short-circuiting may occur inside the control box.)

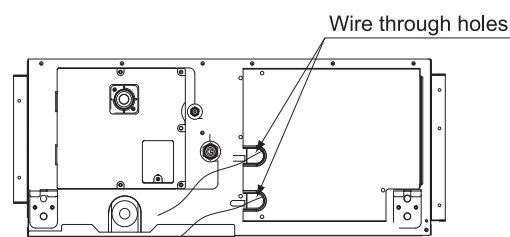
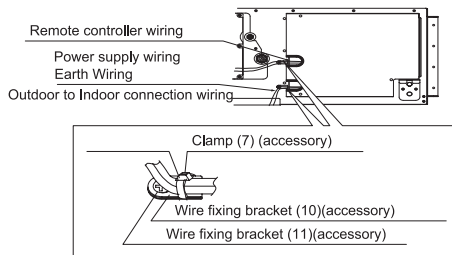


Fig. 23

(5) Mount the provided wire fixing bracket(10) with the wire fixing screw(11).Fix each wire with the provided clamp(7).



WIRING EXAMPLE



CAUTION

Be sure to install an earth leakage breaker to the outdoor unit. This is to avoid electric shocks or a 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. 25)
- **Simultaneous operation system:**
1 remote controller controls 2 indoor units (2 indoor units operates equally). (Refer to Fig. 26)
- **Group control:**
1 remote controller controls up to 16 indoor units (All indoor units operate according to the remote controller). (Refer to Fig. 27)
- **2 remote controllers control:**
2 remote controllers control 1 indoor unit. (Refer to Fig. 30)

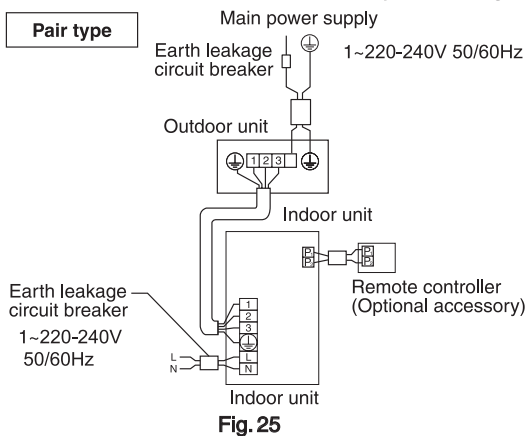


Fig. 25

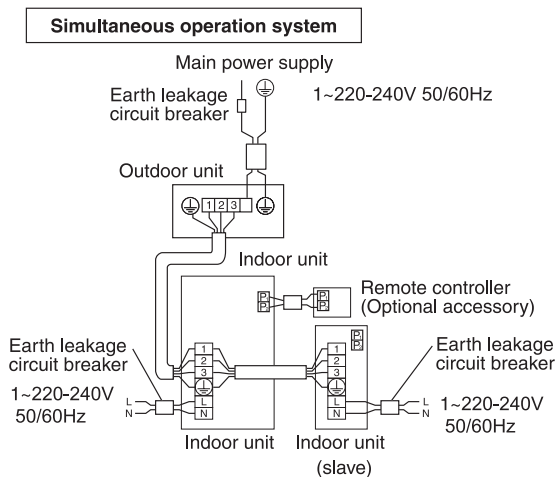


Fig. 26

NOTE

1. Terminal numbers of outdoor and indoor units must be matched.
 - 2-1. Connect the remote controller only to the master unit.
 - 2-2. 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.)
 - 2-3. The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
 - 2-4. 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

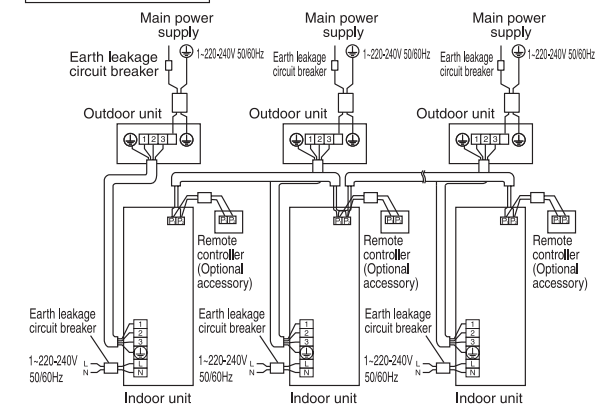


Fig. 27

NOTE

- Terminal numbers of outdoor and indoor units must be matched.
- When implementing group control**
- When using as a pair unit or as a master unit for simultaneous operation system, you may carry out simultaneous start/stop (group) control up to 16 units with the remote controller. (Refer to Fig. 28)
 - 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.

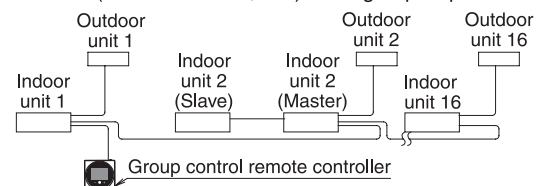
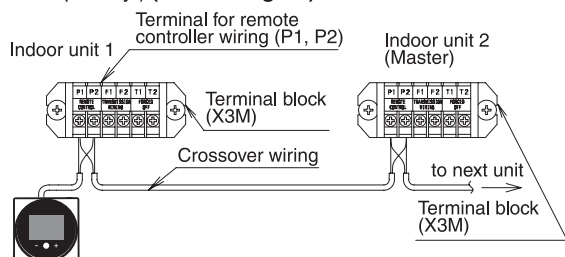
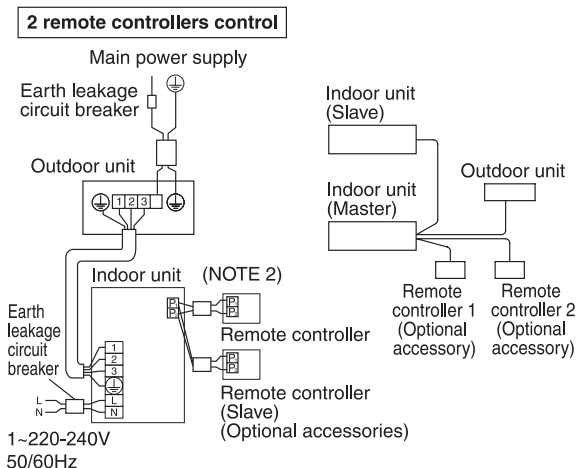


Fig. 28

Wiring Method

- (1) Remove the control box lid.
- (2) Connect crossover wiring between the terminals (P1, P2) inside the control box for the remote controller. (There is no polarity.) (Refer to Fig. 28)

**Fig. 29****Fig. 30****Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)**

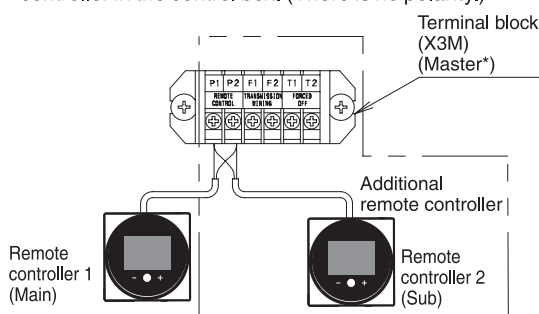
- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- (1) Remove the control box lid.
- (2) Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X3M) for the remote controller in the control box. (There is no polarity.)



* For simultaneous operation system, be sure to connect the remote controller to the master unit.

Fig. 31**NOTE**

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

10. FIELD SETTING**CAUTION**

Before carrying out field setting, check the items mentioned in **1. Items to be checked after the installation work is completed** on page 3.

- Check if all the installation and piping works for the air conditioner are completed.
- Check that the outside panel and piping cover of the indoor and outdoor units are closed.

< FIELD SETTING >

After turning 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 following tables indicate those when shipped from the factory.

(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 ().

- 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.
- Settings are performed by selecting "Mode No.", "FIRST CODE No.", and "SECOND CODE No."

10-1 Settings for external static pressure

- Make settings in either method (a) or method (b).

(a) Make settings with Air volume automatic adjustment function.

"Air volume automatic adjustment" function: The air volume is adjusted to the rated air volume automatically.

CAUTION

- Be sure to check that the external static pressure is within the specification range before making settings. The external static pressure will not be automatically adjusted and air volume insufficiency or water leakage may result if the external static pressure is outside the range. (Refer to the technical document for the setting range of external static pressure.)
- If the air conditioner is in simultaneous multi operation, the air volume automatic adjustment function cannot be set collectively for the slaves. Therefore, make main and slave unit settings according to **Simultaneous multi operation individual settings**.

- (1) Check that the electrical wiring and duct work have been completed.
(If the closing damper is set midway, be sure to check that the damper is opened. Furthermore, check that the air passage on the suction side is provided with an air filter (field supply)).
- (2) If air conditioner has more than one air outlet and air inlet, be sure to make adjustments so that the air volume ratio of each air outlet and the corresponding air inlet will conform to the designed air volume ratio.
In that case, set the operating mode to "Fan". (In the case of changing the air volume, press the fan speed button on the remote controller and change the current selection to "High", "Medium", or "Low".)

- (3) Make settings to adjust the air volume automatically. After setting the operating mode to "Fan", set the air conditioner to field setting mode with the operation of the air conditioner stopped. Select Mode No. [21] (11 in the case of batch settings), select FIRST CODE No. "7", and set the SECOND CODE No. to "03". Return to the "Basic screen", and press the ON/OFF button. The indoor unit will go into fan operation for air volume automatic adjustments (at which time, do not adjust the opening of the air outlet or inlet). The air volume adjustments will automatically terminate approximately 1 to 15 minutes after the indoor unit comes into operation, and the indoor unit will come to a stop.

Table 6

Mode No.	FIRST CODE No.	Setting content	SECOND CODE No.		
			01	02	03
11 (21)	7	Air volume adjustment	OFF	Air volume adjustment completion	Air volume adjustment start

- (4) After the air conditioner comes to a stop, be sure to check with Mode No. [21] per indoor unit that the above SECOND CODE No. is "02". If the operation of the air conditioner does not stop automatically or the SECOND CODE No. is not set to "02", repeat the setting procedure from (3). If the remote controller displays an error, refer to **11-1 HOW TO DIAGNOSE FOR PROBLEMS** and check the error.

CAUTION

- If airflow pathway changes, such as duct and air outlet changes, are made after air volume adjustments, be sure to make "Air volume automatic adjustment" again.
- If airflow pathway changes, such as duct and air outlet changes, are made after **11.TEST OPERATION** or air conditioner relocation, contact your dealer.

(b) **Select external static pressure with the remote controller.** Check with Mode No. [21] per indoor unit that the SECOND CODE No. for the above "Air volume adjustment" is set to "01" (OFF). (The SECOND CODE No. is factory set to "01" (OFF).) Change the SECOND CODE No. by referring to the table below according to the external static pressure of the duct to be connected.

Table 7

External static pressure	Mode No.	FIRST CODE No.	SECOND CODE No.
30Pa	13 (23)	6	05
40Pa			06
50Pa			07

 In the above table is rated static/factory settings.

10-2 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

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

10-3 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 8

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
State of fan in operation with thermostat OFF (cooling and heating)	Normal	11 (21)	2	01
	Stop			02
Fan speed during cooling thermostat OFF	LL (Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	LL (Extra low)	12 (22)	3	01
	Setting			02

10-4 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 9 according to the amount of dust or pollution in the room.
- The periodical filter cleaning time can be shortened depending on the environment.

Table 9

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.

10-5 Remote control settings (forced stop or start-stop control)

- Change the SECOND CODE No. by referring to the table below in the case of remote control.

Table 10

Setting content	Mode No. (Note)	FIRST CODE No.	SECOND CODE No.
Forced stop	12 (22)	1	01
Start-stop control			02

10-6 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 11.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

Table 11

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

10-7 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.

Table 12

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

- (2) Perform field setting (Refer to 10-1 to 10-6) 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 for the slave unit.
- (6) Perform field setting (Refer to 10-1 to 10-6) 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.)

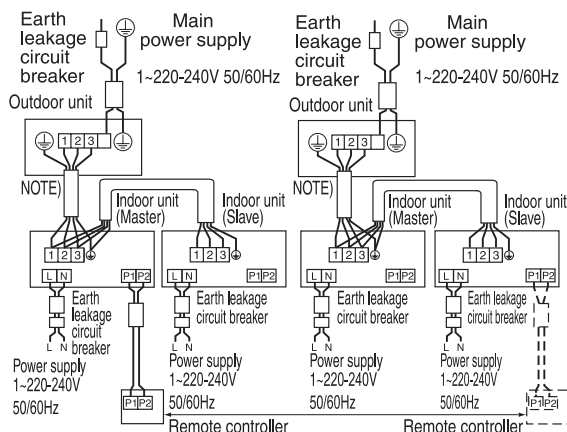


Fig. 32

NOTE

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

11. TEST OPERATION

Complete all the 1. Items to be checked after the installation work is completed on page 3. Please also refer to the installation manual of the outdoor unit.

The settings of BRC1H model remote controller should be performed while referring to the manual attached to the remote controller.

11-1 HOW TO DIAGNOSE FOR PROBLEMS

With the power on, troubles can be monitored on the remote controller.

The fault diagnosis for BRC1H model remote controller should be performed while referring to Indoor operation manual page 11.

11-2 MALFUNCTION CODE

- 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.

Malfunction code	Descriptions and measures	Remarks
A1	Indoor Printed Circuit Board failure	
A3	Drain level abnormal	
A6	Indoor fan motor overload, over current, lock Indoor Printed Circuit Board connection failure	
A8	Indoor unit power supply voltage abnormal	
AF	Humidifier system malfunction	
AH	Air cleaner faulty Only the air cleaner does not function.	
AJ	Capacity setting failure	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
C1	Transmission error between indoor Printed Circuit Board (Master) and indoor Printed Circuit Board (Slave)	
C4	Indoor heat exchanger liquid pipe temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C5	Indoor heat exchanger condenser / evaporator temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C9	Suction air thermistor malfunction	Abnormal stop is applied depending on the model or condition.
CJ	Remote controller air thermistor malfunction	Remote controller thermo does not function, but body thermo operation is enabled.
E0	Action of safety device (Outdoor unit)	
E1	Outdoor Printed Circuit Board failure (Outdoor unit)	

E3	High pressure malfunction (Outdoor unit)	
E4	Low pressure malfunction (Outdoor unit)	
E5	Compressor motor lock malfunction (Outdoor unit)	
E6	Compressor motor lock by over current (Outdoor unit)	
E7	Outdoor fan motor lock malfunction (Outdoor unit)	
	Outdoor fan instant over-current malfunction (Outdoor unit)	
E8	Input overcurrent (outdoor unit)	
E9	Electric expansion valve malfunction (Outdoor unit)	
EA	Cooling/heating switch malfunction (Outdoor unit)	
F3	Discharge piping temperature malfunction (Outdoor unit)	
F6	High pressure control (in cooling) (Outdoor unit)	
H0	Sensor fault for inverter (Outdoor unit)	
H3	High pressure switch failure (Outdoor unit)	
H4	Low pressure switch failure (Outdoor unit)	
H7	Outdoor fan motor position signal malfunction (Outdoor unit)	
H8	CT abnormality (Outdoor unit)	
H9	Outdoor air thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J1	Pressure sensor system malfunction (batch) (Outdoor unit)	
J2	Current sensor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J3	Discharge piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J5	Suction piping thermistor system malfunction (Outdoor unit)	
J6	Outdoor heat exchanger distributor liquid piping thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J7	Outdoor heat exchanger condenser / evaporator thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J8	Liquid piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J9	Gas piping thermistor malfunction (cooling) (Outdoor unit)	
JA	Discharge piping pressure sensor system malfunction (Outdoor unit)	

JC	Suction piping pressure sensor system malfunction (Outdoor unit)	
L1	Inverter system malfunction (Outdoor unit)	
L3	Reactor thermistor malfunction (Outdoor unit)	
L4	Overheated heat-radiating fin (Outdoor unit)	Inverter cooling failure.
L5	Instantaneous overcurrent (Outdoor unit)	The compressor engines and turbines may be experiencing a ground fault or short circuit.
L8	Electric thermal (Outdoor unit)	The compressor engines and turbines may be over-loaded and disconnected.
L9	Stall prevention (Outdoor unit)	The compressor may be locked.
LC	Transmission malfunction between inverter and outdoor control unit (Outdoor unit)	
P1	Open-phase (Outdoor unit)	
P3	DCL sensor system malfunction (Outdoor unit)	
P4	Heat-radiating fin thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
P6	DC output current sensor system malfunction (Outdoor unit)	
PJ	Capacity setting failure (Outdoor unit)	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
U0	Suction piping temperature abnormal (Outdoor unit)	The refrigerant may be insufficient. Abnormal stop is applied depending on the model or condition.
U1	Reverse phase (Outdoor unit)	Reverse two phase of L1, L2 and L3 leads.
U2	Power voltage malfunction (Outdoor unit)	The inverter open-phase or main circuit condenser may be malfunctioning. Abnormal stop is applied depending on the model or condition.
U4 UF	Transmission error (between indoor and outdoor units)	Wiring error between indoor and outdoor unit. Or Indoor and outdoor Printed Circuit Board failure.
U5	Transmission error (between indoor and outdoor units)	Transmission between indoor unit and remote controller is not performed properly.
U7	Transmission error of the inverter module	
U8	Transmission error between main and sub remote controllers (sub remote controller malfunction)	
UA	Field setting error	System setting error of the simultaneous on/off multi-split type.

UE	Transmission error (between indoor unit and centralized remote controller)	
UC	Remote controller address setting error	
UJ	Accessory equipment transmission error	Abnormal stop is applied depending on the model or condition.

— CAUTION —

After test operation is completed, check the items mentioned in the clause **2. Items to be checked at delivery** on page 4.

If the interior finish work is not completed when the test operation is finished, for protection of the air conditioner, ask the customer not operate the air conditioner until the interior finish work is completed.

If the air conditioner is operated, the inside of the indoor units may be polluted by substances generated from the coating and adhesives used for the interior finish work and cause water splash and leakage.

— To the operator carrying out test operation —

After test operation is completed, before delivering the air conditioner to the customer, confirm that the control box lid is closed.

In addition, explain the power supply status (power supply ON/OFF) to the customer.

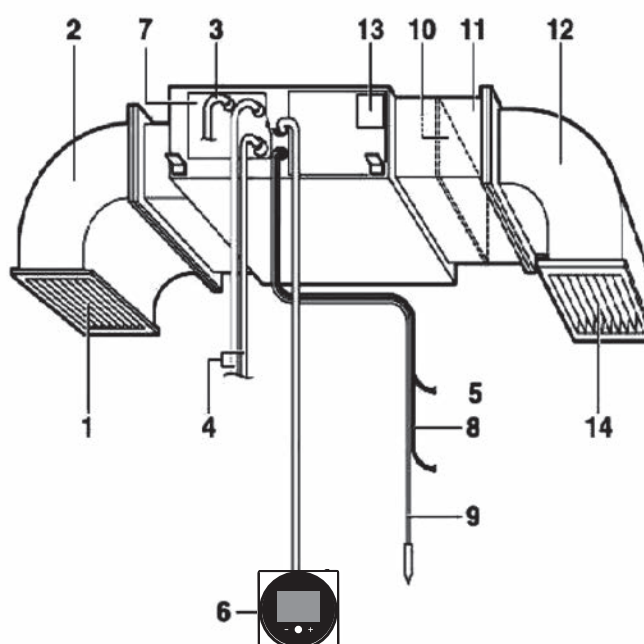
12 - Technical Data

		IDU / ODU	
Model		FDMF18AVMK / RZF18AVMK	
Rated Power Supply	Ph/V	1/220-240	
Unit Dimensions (H×W×D)	mm	300*1000*700/595*845*300	
Net Weight	Kg	34/40	
Packing Dimensions (H×W×D)	mm	350*1174*788/680*1035*410	
Gross Weight	Kg	37/43	
Testing Condition		Cooling	
		T1	T3
		50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	18000	15300
Power Input	Watt	1385	1700
EER	(BTU/Hr)/Watt	13	9
Current	A	6.7	8.2
Refrigerant Type/Qty	R32 / Kg	R32 / 1.3 Kg	
Annual Energy Consumption (Kwh)		3739.50	3400.00
Power Factor			0.9
Manufacturer's Name:		Daikin Air Conditioning India Pvt. Ltd.	
Country of Origin:		India	

		IDU / ODU	
Model		FDMF24AVMK / RZF24AVMK	
Rated Power Supply	Ph/V	1/220-240	
Unit Dimensions (H×W×D)	mm	300*1000*700/595*845*300	
Net Weight	Kg	35/40	
Packing Dimensions (H×W×D)	mm	350*1174*788/680*1035*410	
Gross Weight	Kg	38/43	
Testing Condition		Cooling	
		T1	T3
		50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	24000	17500
Power Input	Watt	1935	1650
EER	(BTU/Hr)/Watt	12.4	10.61
Current	A	9.3	8
Refrigerant Type/Qty	R32 / Kg	R32 / 1.3 Kg	
Annual Energy Consumption (Kwh)		5224.50	3300.00
Power Factor			0.9
Manufacturer's Name:		Daikin Air Conditioning India Pvt. Ltd.	
Country of Origin:		India	

2.2 FDMF30AVMK / FDMF36AVMK

2.2.1 Names and Functions of Parts



1	Air outlet (Field supply)
2	Exhaust duct (Field supply)
3	Drain pipe
4	Refrigerant piping
5	Wiring between indoor and outdoor unit
6	Remote controller (Sold separately)
7	Drain discharge device (built-in) Discharge indoor moisture removed during cooling operation.
8	Power line
9	Ground wire This wire releases electricity from the indoor unit to the ground in order to prevent electric shock or fire.
10	Air filter (inside filter chamber) (Sold separately)
11	Suction filter chamber (Sold separately)
12	Suction duct (Field supply)
13	Machine nameplate The nameplate is imprinted with the machine name and specifications.
14	Suction grille (Field supply)

2.2.2 Installation

DAIKIN

Split System Air Conditioner

INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

FDMF30AVMK, FDMF36AVMK

Page No.

INSTALLATION MANUAL OF INDOOR 1-18
INSTALLATION MANUAL OF OUTDOOR 19-37

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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: 550 *

⁽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).

1. SAFETY PRECAUTIONS



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



This appliance is filled with R32.

Please read these "SAFETY CONSIDERATIONS" carefully before installing air conditioning unit and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation.

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.

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

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- 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. Ask the user to keep this manual in a handy place for future reference.



WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 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 refrigerants may not contain an odor.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- 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 air conditioner 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 falling 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 falling down and causing injury.
In addition, it may lead to vibration of indoor units and cause unpleasant chattering noise.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as air conditioner falling.
- Make certain that all electrical 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 electrical 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 breaker.
Failure to do so may cause electric shocks and a fire.
- Disconnect the power supply before touching the electric components.
If you touch the live part, you may get electric shocks.
- Make sure that all wiring is secure, using the specified wirings and ensuring that external forces do not act on the terminal connections or wirings.
Incomplete connection or fixing may cause an overheat or a fire.
- When wiring between the indoor and outdoor units and wiring the power supply, form the wirings orderly so that the control box lid can be securely fastened.
If the control box lid is not in place, overheating of the terminals, electric shocks or a fire may be caused.
- 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.
- 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.
- 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.
- 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 air conditioner, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- Do not install the air conditioner in places such as the following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen.
Resin parts may deteriorate, and fall out or water may 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 fibre 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.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
 - Pay careful attention when transporting the product.
Carry the product by the handle sections indicated on the packaging material.
Do not hold the PP band since the PP band can become loose and may result in danger.
 - Do not touch the heat exchanger fins.
Inadvertently touching the fins can cause injury.
 - 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.
 - 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.
 - Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
 - 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.

2. BEFORE INSTALLATION

When unpacking the indoor unit or moving the unit after unpacked, hold the hangers (4 places) and do not apply force to other parts (particularly refrigerant piping, drain piping).

- Make sure to check in advance that the refrigerant to be used for installation work is R32.
(The air conditioner will not properly operate if a wrong refrigerant is used.)
- For installation of the outdoor unit, refer to the installation manual of the outdoor unit.
- Do not throw away the accessories until the installation work is completed.
- After the indoor unit is carried into the room, try to avoid the indoor unit from getting damaged, take measures to protect the indoor unit with packing materials.

- (1) Determine the route to carry the unit into the room.
- (2) Do not unpack the unit until it is carried to the installation location.

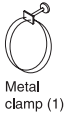
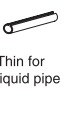
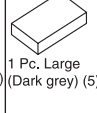
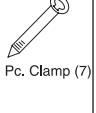
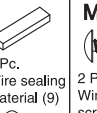
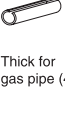
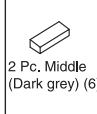
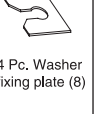
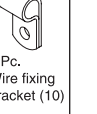
Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, to avoid damage or scratches to the indoor unit.

- Have the customer actually operate the air conditioner while looking at the operation manual.
Instruct the customer how to operate the air conditioner (particularly cleaning of the air filters, operation procedures and temperature adjustment).
- Do not use the air conditioner in a salty atmosphere such as coastal areas, vehicles, vessels or where voltage fluctuation is frequent such as factories.
- Take off static electricity from the body when carrying out wiring and the control box lid is removed.
The electric parts may get damaged.

2-1 ACCESSORIES

Check if the following accessories are attached to the indoor unit.

Table 1

Name	-	Insulation for fitting	Sealing pad	-	-	-
Quantity	1 each	1 each	-	-	-	-
Shape	 Metal clamp (1)	 Thin for liquid pipe (3)	 1 Pc. Large (Dark grey) (5)	 9 Pc. Clamp (7)	 2 Pc. Wire sealing material (9)	 2 Pc. Wire fixing screw (11)
	 Drain Hose (2)	 Thick for gas pipe (4)	 2 Pc. Middle (Dark grey) (6)	 4 Pc. Washer fixing plate (8)	 2 Pc. Wire fixing bracket (10)	 M4x8

2-2 OPTIONAL ACCESSORIES

- A remote controller is required for the indoor unit.
(No remote controllers are required for multi slave units in simultaneous multi operation.)
- Install the remote controller to the place where the customer has given consent.
Refer to the catalog for the applicable model.
(Refer to the installation manual attached to the remote controller for how to install.)

CARRY OUT THE WORK GIVING CAUTION TO THE FOLLOWING ITEMS AND AFTER THE WORK IS COMPLETED CHECK THESE AGAIN.

1. Items to be checked after the installation work is completed

Items to be checked	In case of defective	Check column
Are the indoor and outdoor units rigidly fixed?	Drop · vibration · noise	
Are the installation works of the outdoor and indoor units completed?	Does not operate · burnout	
Have you carried out a leakage test with the test pressure specified in the outdoor unit installation manual?	Does not cool.	
Is the insulation of refrigerant piping and drain piping completely carried out?	Water leakage	
Does the drain flow out smoothly?	Water leakage	
Is the power supply voltage identical to that stated in the manufacturer's label on the air conditioner?	Does not operate · burnout	
Are you sure that there is no wrong wiring or piping or no loose wiring?	Does not operate · burnout	
Is earthing completed?	Danger in case of leakage	
Are the sizes of electric wiring according to the specification?	Does not operate · burnout	
Are any of air outlets or inlets of the indoor and outdoor units blocked with obstacles? (It may lead to capacity drop due to fan speed drop or malfunction of equipment.)	Does not cool	
Is the external static pressure set correctly?	Does not cool	
Have you recorded the refrigerant piping length and the refrigerant charge amount added?	Refrigerant charge amount is not clear	

Make sure to recheck the items of "SAFETY PRECAUTIONS".

2. Items to be checked at delivery

Items to be checked	Check column
Have you carried out field setting? (if necessary)	
Are the control box lid, the air filter and the suction grille attached?	
Does the cool air discharge during the cooling operation? Does the indoor unit makes unpleasant sound during air discharge?	
Have you explained how to operate the air conditioner showing the operation manual to the customer?	
Have you explained the description of cooling, program dry and automatic (cooling) given in the operation manual to the customer?	
If you set the fan speed at thermostat OFF, did you explain the set fan speed to the customer.	
Have you handed the operation manual and the installation manual to the customer?	
Have you checked that there is no generation of abnormal noise (i.e. noise resulting from contamination or missing parts)?	
Is the printed circuit board switch not on the emergency (EMG.) side? The switch is factory set to the normal (NORM.) side.	
If an optional accessory is in use, did you check the operation of the optional accessory and make field settings as needed?	
Is the remote controller icon displayed? Is the remote controller connected to the master unit if the system is in simultaneous multi operation?	
Have you explained failure examples of 3. SELECTION OF INSTALLATION LOCATION?	

Points of the operation explanation

In addition to the general usage, since the items in the operation manual with the **⚠ WARNING** and **⚠ CAUTION** marks are likely to result in human bodily injuries and property damages, it is necessary not only to explain these items to the customer but also to have the customer read them.
Furthermore, it is necessary to have the customer read through the troubleshooting items while explaining the above items.

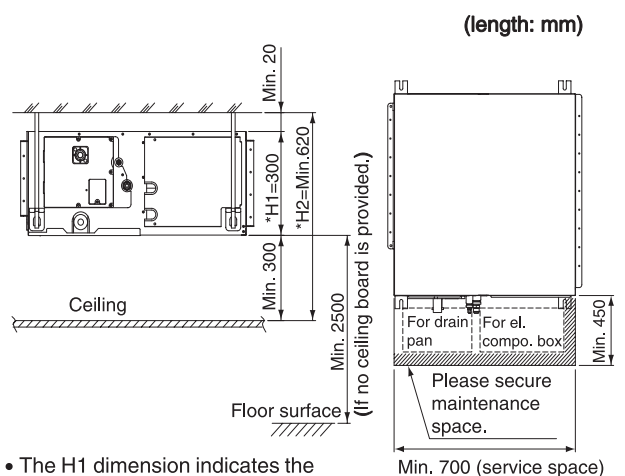
3. SELECTION OF INSTALLATION LOCATION

Hold the hangers at 4 locations to move the indoor unit when unpacking or after unpacked and do not apply force to the piping (refrigerant and drain) and air outlet flange. If the temperature and humidity in the ceiling is likely to exceed 30°C, RH80%, use the additional insulation stick to the indoor unit.

Use the insulation such as glass wool or polyethylene that has thickness of 10 mm or more. However, keep the insulated outside dimension smaller than the ceiling opening so that the unit may go through the opening at installation.

(1) Select the installation location that meets the following conditions and get approval of the customer.

- Where the cool and warm air spreads evenly in the room.
- Where there are no obstacles in the air passage.
- Where drainage can be ensured.
- Where the ceiling's lower surface is not remarkably inclined.
- Where there is sufficient strength to withstand the mass of the indoor unit. (If the strength is insufficient, the indoor unit may vibrate and get in contact with the ceiling and generate unpleasant chattering noise.)
- Where a space sufficient for installation and service can be ensured.
- Where the piping length between the indoor and the outdoor units is ensured within the allowable length. (Refer to the installation manual of the outdoor unit.)
- Where there is no risk of flammable gas leak.



- The H1 dimension indicates the height of the product.
- Determine the H2 dimension by maintaining a downward slope of at least 1/100 as specified in "7. DRAIN PIPING WORK".

[Required installation place]

The dimensions indicate the minimum required space of installation.

Fig. 1

<Failure example>

If there is an obstacle in the airflow path or proper installation space is not provided, the indoor unit will cause air volume reduction and take in air blown out of the indoor unit, thus resulting in performance degradation or turning the thermostat OFF frequently.

**CAUTION**

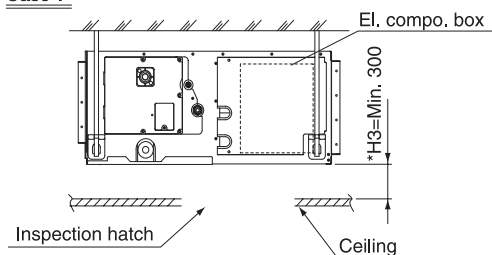
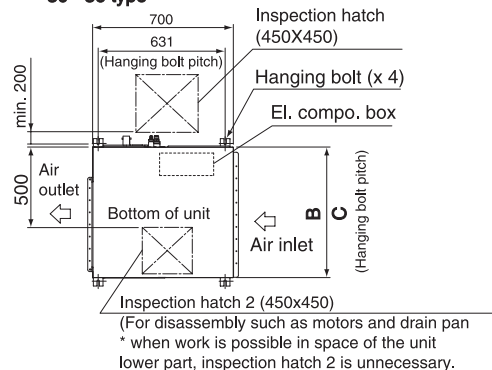
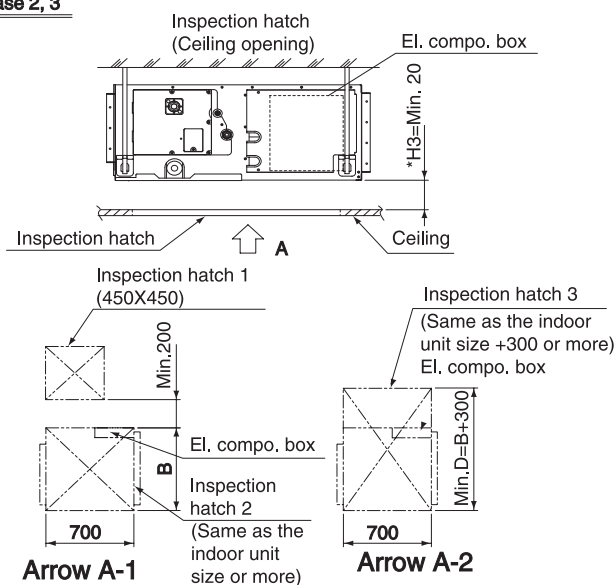
- Install the indoor and outdoor units, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor units as far as possible from fluorescent lamps.

(2) Use hanging bolts for installation.

Investigate if the installation place can withstand the mass of the indoor unit and if necessary, hang the indoor unit with bolts after it is reinforced by beams etc.

4. PREPARATION BEFORE INSTALLATION**(1) Check the relation of location between the ceiling opening and the indoor unit hanging bolts.**

- Provide one of the following service spaces for the maintenance and inspection of the control box and drain pump or for other services.
 1. Inspection hatch 1 and 2 (450 × 450) for the el. compo. box and a minimum space of 300 mm at the bottom of the product. (Refer Fig. 2-2)
 2. Inspection hatch 1 (450 × 450) on the control box side and inspection hatch 2 on the bottom of the product. (Fig. 2-3, arrow A-1)
 3. Inspection hatch 3 on the bottom of the product and on the bottom side of the control box, see direction view A-2 (Refer Fig. 2-3)

Case 1**Fig.2-1****• 30~ 36 type****Fig.2-2****Case 2, 3****Fig.2-3**

Model	B	C	D
30,36	1400	1438	1700

(All dimensions are in mm)

- (2) Mount canvas ducts to the air outlet and inlet so that the vibration of the indoor unit will not be transmitted to the ducts or ceiling. Furthermore, attach sound absorbing material (thermal insulation material) to the duct inner walls and anti-vibration rubber to the hanging bolts (refer to 8. DUCT WORK).
- (3) The indoor unit is set to standard external static pressure.
 - If external static pressure is higher or lower than the standard set value, the remote controller may be used to make on-site setting change in the external static pressure. Refer to 10. FIELD SETTING.

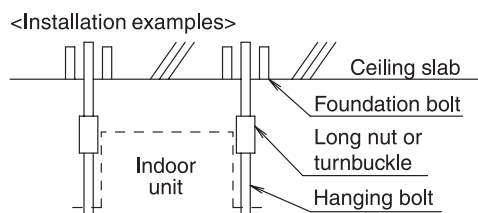
(4) Open installation holes**(in the case of installation onto the existing ceiling).**

- Open the installation holes on the ceiling of the installation location, and work on the refrigerant piping, drain piping, remote controller wiring and wiring between the indoor and outdoor units to the piping connection port and wiring connection port of the indoor unit (refer to each piping and wiring procedure items).
- Ceiling framework reinforcement may be required in order to keep the ceiling horizontal and prevent ceiling vibration after opening the ceiling holes. For details, consult your building and upholstery work contractors.

(5) Install the hanging bolts.

- Use M10 bolts for hanging the indoor unit. Use hole-in anchors for the existing bolts and embedded inserts or foundation bolts for new bolts, and fix the indoor unit firmly to the building so that it may withstand the mass of the unit.

In addition, adjust clearance (50 -100mm) from the ceiling in advance.



Note) Components shown in the figure above are all local procurement.

Fig. 3**CAUTION**

- Secure a sufficient maintenance space for the drain pan and electrical components before installing the indoor unit.
- Secure a sufficient maintenance space for the filter chamber, and peripheral components before installing the indoor unit.

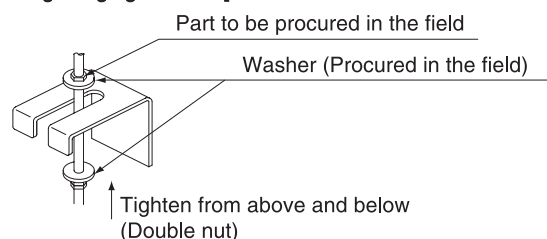
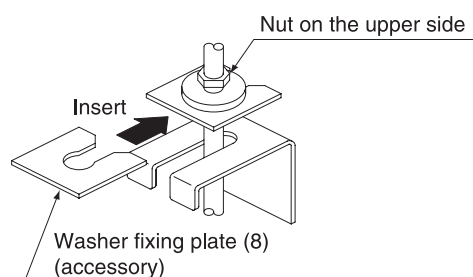
5. INSTALLATION OF INDOOR UNIT

Depending on the optional parts, it may be easier to attach them before installing the indoor unit. Refer to also the installation manual attached to the optional parts.

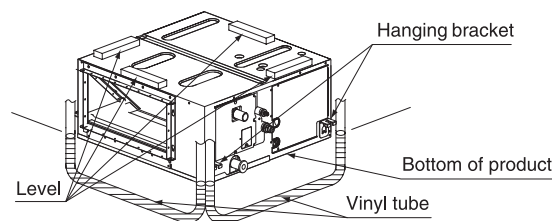
For installation, use the attached installation parts and specified parts.

(1) Install the indoor unit temporarily.

- Connect the hanging brackets to the hanging bolts. Be sure to use and tighten the nut and washer (procured in the field) for each hanging bracket from both upper and lower sides of the hanging bracket. (Refer to the Fig. 4) At that time, the fall of the washer for the hanging bracket can be prevented if the washer fixing plate (8) is used.

[Fixing hanging brackets]**[Fixing method of washers]****Fig. 4**

- Keep the air outlet covered with a protective sheet to prevent weld spatter and other foreign materials from entering the indoor unit and damaging the resin drain pan. (If holes or cracks are generated in the resin drain pan, water can leak.)
- (2) Adjust so that the unit is properly positioned.
 - (3) Check the level of the unit. (Refer to Fig. 5)
 - (4) Remove the washer fixing plate used for preventing the washer for hanger from dropping and tighten the upper side nut.



Feed water into the tube and set the indoor unit to the water levels on the left and right.

[Maintaining horizontality]

Fig. 5

⚠ CAUTION

- **Install the indoor unit leveled.**
If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of float switch and result 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.**
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 of 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 in 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.
 - 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. 6.
- For the dimension of flared part and the tightening torque, refer to the Table 2.
- When making a flare connection, coat the flare inner surface only with ether oil or ester oil.
(Refer to Fig. 7)
Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

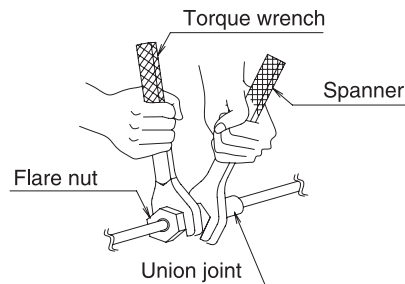


Fig. 6

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



Fig. 7

Table 2

Piping size (mm)	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 9.5	36.3 ± 3.6	13.0 ± 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 3 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 at the angle shown in Table 3.
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 3

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

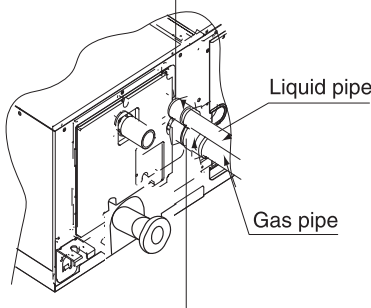
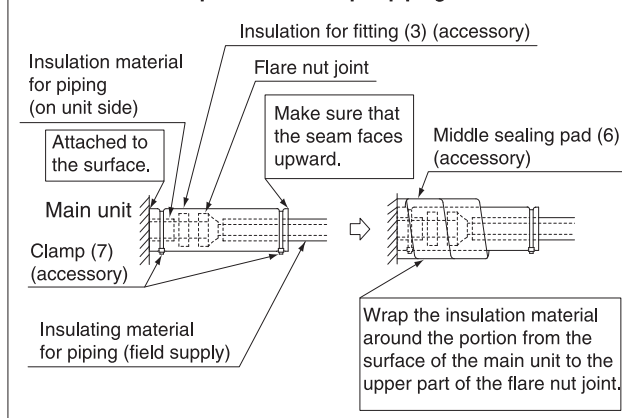
⚠ CAUTION

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.

On completion of installation work, check that there is no gas leakage. Refer to the illustrations on the right hand side and be sure to perform heat insulation work on the piping joints after gas leakage. (Refer Fig.8)

Heat insulation procedure for liquid piping



Heat insulation procedure for gas piping

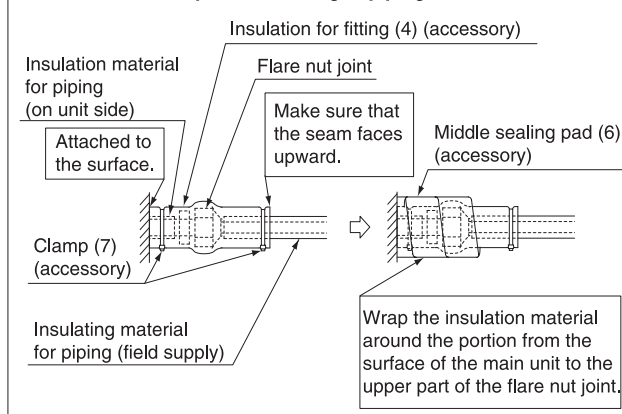


Fig. 8

- Use the insulation for fitting (3) and (4) provided to the liquid piping and gas piping, respectively and conduct heat insulation work. (Tighten both edges of the insulation for fitting(3) and (4) for each joint with clamp(7)).
- Make sure that the joint of the insulation for fitting(4) and (5) for the joint on the liquid piping and gas piping side faces upwards.
- Wrap the middle sealing material(6) around the insulation for fitting (3) and (4) for the joint (flare nut part).

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 9). Then, carry out brazing (NOTE 2). After all the brazing works are finished carry out flare connection with the indoor unit. (Refer to Fig. 8)

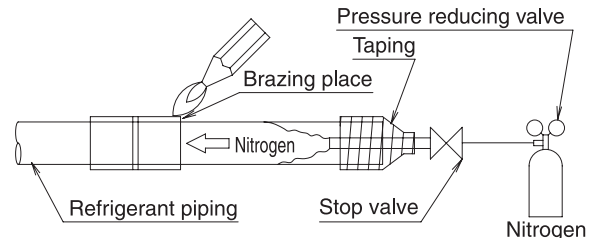


Fig. 9

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like slight 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.)
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. 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) Carry out drain piping.

Carry out drain piping so that drainage is ensured.

- Select the piping diameter equal to or larger than (except for riser) that of the connection piping (polyvinyl chloride piping, nominal diameter 25 mm, outside diameter 32 mm).
- Install the drain piping as short as possible with downward inclination of 1/100 or more and such that air may not stagnate. (Refer to Fig. 10)

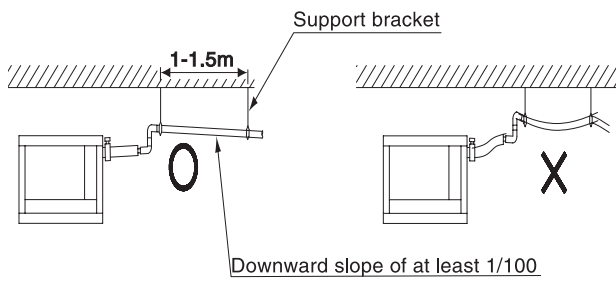


Fig. 10

CAUTION

If drain stagnates in the drain piping, the piping may be clogged.

- If sufficient downward inclination cannot be ensured, carry out upward drain piping.
- Install supports at a distance of 1 to 1.5 m so that the piping may not deflect. (Refer Fig. 10)
- Make sure to use the attached drain hose (2) and the metal clamp (1).
Insert the drain hose (2) into the drain socket up to the point where the socket diameter becomes larger. Put the metal clamp (1) to the taped hose end. Be sure to fasten the screw of the metal clamp (1) until the margin of the screw thread decreases to 4 mm or less.

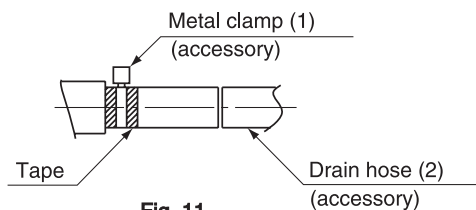
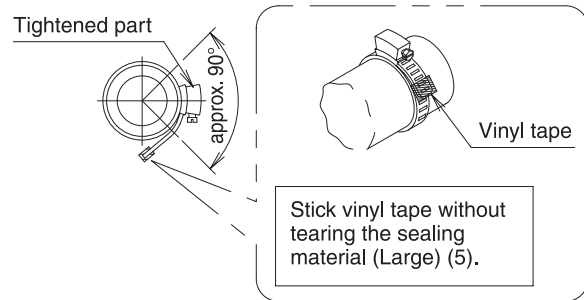


Fig. 11

CAUTION

- Tighten the metal clamp (1) on specified above otherwise. The drain hose (2), the socket or the metal clamp (1) may be damaged.
- Wrap the vinyl tape around the end of the metal clamp (1) so that the sealing material (Large) (5) to be used at the next process may not be damaged with the clamp end or bend the tip of the metal clamp (1) inward as shown. (Refer to Fig. 12)

<In case of sticking vinyl tape>



⚠ CAUTION

- To avoid the attached drain hose (2) getting excessive force, do not bend nor twist it. It may cause water leakage.
- As for drain piping connection, do not connect the drain hose directly to a sewage that gives off ammonia odor. (The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.)
- In case of centralized drain piping, carry out piping work according to the procedure shown in the following Fig. 14.

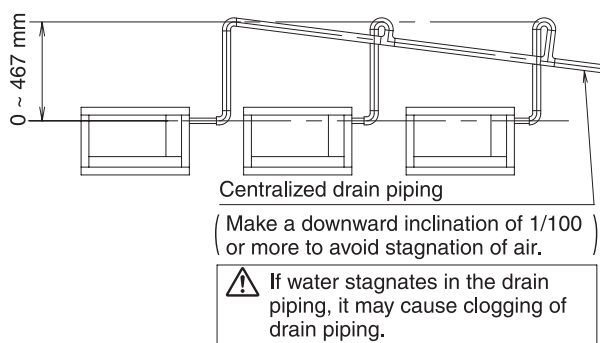


Fig. 14

- As for the size of centralized drain piping, select the size that meets the capacity of indoor units to be connected. (Refer to the technical document)
- Positioning the upward drain piping at an angle may cause float switch malfunction and lead to water leakage.
- While replacing with new indoor unit, use the attached new drain hose (2) and the metal clamp (1). If an old drain hose or a metal clamp is used, it may cause water leakage.

(2) After piping is finished, check if the drain flows smoothly.

[When the electric wiring work is finished]

- Gradually pour 1 litre of water from the inspection port at the bottom of the drain socket on the left side of the drain pan giving caution to avoid splashing water on the electric components such as drain pump and confirm drainage by operating the indoor unit under cooling mode according to 10. FIELD SETTING. (Refer to Fig. 15)

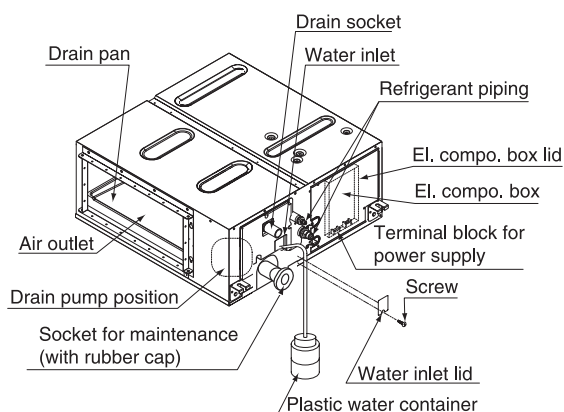


Fig. 15

[When the electric wiring work is not finished]

- The electric wiring works (including earthing) must be carried out by a qualified electrician.

- If a qualified person is not present, after the electric wiring work is finished, check the drainage according to the method specified in [When the electric wiring work is finished].

- Open the control box lid and connect the single phase 220-240V power supply to the terminal (L, N) on the terminal block (X2M). Connect the earth wiring to the earth terminal.
- Make sure the control box lid is closed before turning on the power supply.
 - Throughout the whole process, carry out the work giving caution to the wiring around the control box so that the connectors may not come off.
- Gradually pour 1 litre of water from the air outlet on the left side of the drain socket into the drain pan giving caution to avoid splashing water on the electric components such as drain pump. (Refer to Fig. 15)
- When the power supply is turned on, the drain pump will operate. Drainage can be checked at the transparent part of the drain socket. (The drain pump will automatically stop after 10 minutes.)
The drainage of water can be confirmed with water level change in the drain pan through the access window.
 - Do not connect the drain piping directly to the sewage that gives off ammonia odor. The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.
 - Do not apply external force to the float switch. (It may result in malfunction)
 - Do not touch the drain pump. Touching the drain pump may cause electric shocks.
 - Do not apply external force to the float switch. External force may cause a float switch malfunction.
- Turn off the power supply after checking drainage, and remove the power supply wiring.
- Attach the control box lid as before.

- On the completion of the drainage check, refer to the following illustration, and use the provided large sealing pad (5) and insulate the metal clamp (1) and drain hose (2)

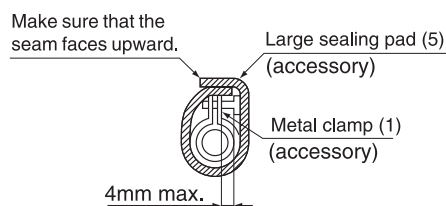


Fig. 16

8. DUCT WORK

Pay utmost attention to the following items and conduct the ductwork.

- Check that the duct is not in excess of the setting range of external static pressure for the unit. (Refer to the technical datasheet for the setting range.)
- Attach a canvas duct each to the air outlet and air inlet so that the vibration of the equipment will not be transmitted to the duct or ceiling.
Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- At the time of duct welding, perform the curing of the duct so that the sputter will not come in contact with the drain pan for the filter.
- If the metal duct passes through a metal lath, wire lath, or plate of a wooden structure, separate the duct and wall electrically.
- Be sure to heat insulate the duct for the prevention of dew condensation. (Material: Glass wool or styrene foam; Thickness: 25 mm)
- Explain the operation and washing methods of the locally procured components (i.e., the air filter, air inlet grille, and air outlet grille) to the customer.
- Locate the air outlet grille on the indoor side for the prevention of drafts in a position where indirect contact with people.
- The air conditioner incorporates a function to adjust the fan to rated speed automatically. **(10. FIELD SETTING)**
Therefore, do not use booster fans midway in the duct.

Connection method of ducts on air inlet and outlet sides.

- Connect the field supply duct in alignment with the inner side of the flange.
- Connect the flange and unit with the flange connection screw.
- Wrap aluminum tape around the flange and duct joint in order to prevent air leakage.

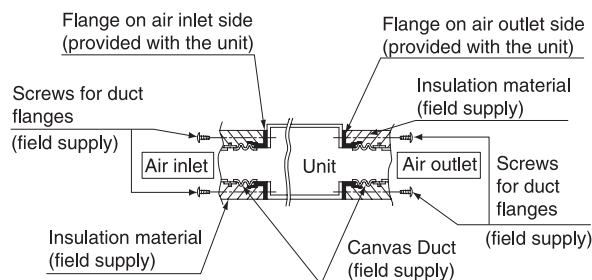


Fig. 17

CAUTION

Connect the flange and unit with the flange connection screw field supply regardless of whether the duct is connected to the air inlet side.

9. ELECTRIC WIRING WORK

9-1 GENERAL INSTRUCTIONS

- 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 dedicated circuit.
Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- Make sure to install an earth leakage breaker.
Failure to do so may cause electric shocks and a fire.
- Do not turn on the power supply (branch switch, branch overcurrent circuit breaker) until all the works are finished
- Multiple number of indoor units are connected to one outdoor unit. Name each indoor unit as A-unit, B-unit and the like. When these indoor units are wired to the outdoor unit, always wire the indoor unit to the terminal indicated with the same symbol on the terminal block. If the wiring and the piping are connected to the different indoor units and operated, it will result in malfunction.
- 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 pipings, 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.
- For electric wiring work, refer to also the "WIRING DIAGRAM" attached to the control box lid.
- Carry out wiring between the outdoor units, indoor units and the remote controllers according to the wiring diagram.
- Carry out installation and wiring of the remote controller according to the "installation manual" attached to the remote controller.
- Do not touch the Printed Circuit Board assembly. It may cause malfunction.

9-2 SPECIFICATION FOR FIELD SUPPLY FUSES AND WIRING

Table 4

Model	Power supply wiring			Remote controller wiring Transmission wiring	
	Field fuses 	Wiring	Size	Wiring	Size
FDMF30AVMK	15A	H05VV-U3G	Wiring size and length must comply with local codes or IEC60335-1 (Table 11).	Vinyl cord with sheath or cable (2 core)	0.75-1.25 mm ²
FDMF36AVMK		NOTE 1)		NOTE 2)	

The lengths of remote controller wiring are as follows:

Remote controller wiring (indoor unit - remote controller)Max. 500 m

NOTE

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

9-3 WIRING CONNECTION METHOD

⚠ CAUTION FOR WIRING

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or insulate the wirings properly.

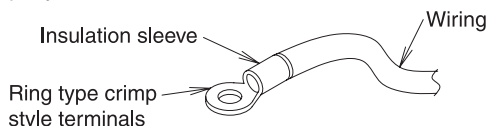


Fig. 18

- Connect the terminal as shown in Fig. 19.
- Do not carry out soldering finish when stranded wirings are used. (Otherwise, the loosening of wiring may result in abnormal heat radiation.)

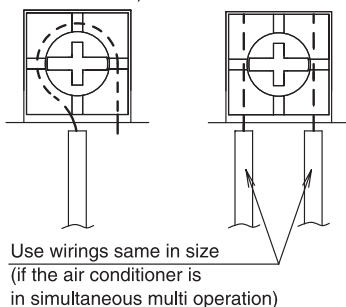


Fig. 19

(Abnormal heating may occur if the wirings are not tightened securely.)

- Use the required wirings, connect them securely and fix these wirings securely 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.

Table 5

	Tightening torque (N·m)
Terminal block for remote controller and transmission wirings	0.88 ± 0.08
Terminal for power supply	1.47 ± 0.14
Earth terminal	1.47 ± 0.14

- Do not carry out soldering finish when stranded wirings are used.

⚠ WARNING

- When wiring, form the wirings orderly so that the control box lid can be securely fastened. If the control box lid is not in place, the wirings may come out or be sandwiched by the box and the lid and cause electric shocks or a fire.

(1) Remove the control box lid.

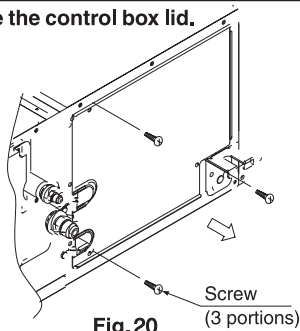


Fig. 20

(2) Connect the wiring into the control box through the wiring intake beside the control box.

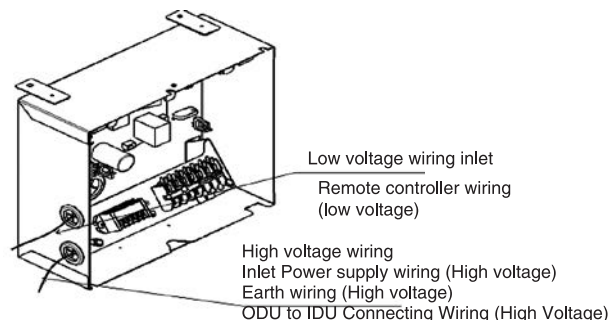


Fig. 21

(3) Follow the instructions below and perform wiring in the control box.

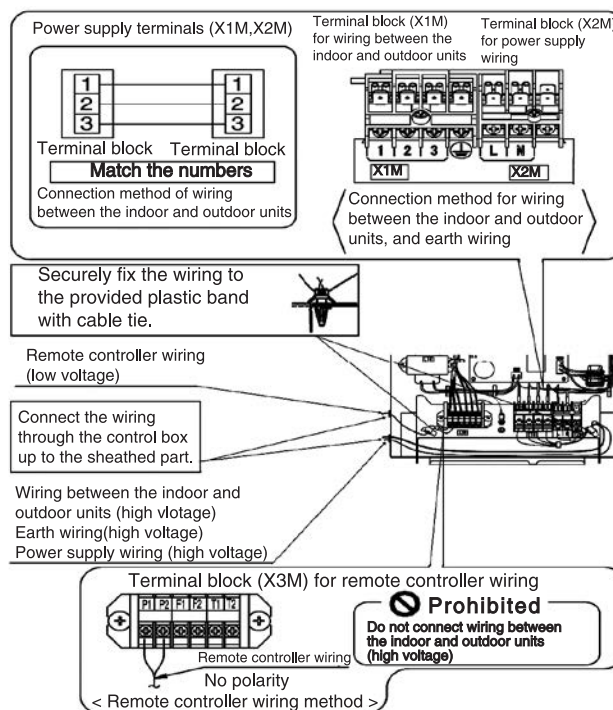


Fig. 22

(4) Mount the control box lid and wrap the wire sealing material (small) (9) so that the wiring through hole will be covered by the sealing material.

- Seal the clearance around the wirings with putty or insulating material (field supply).
(If insects and small animals get into the indoor unit, short-circuiting may occur inside the control box.)

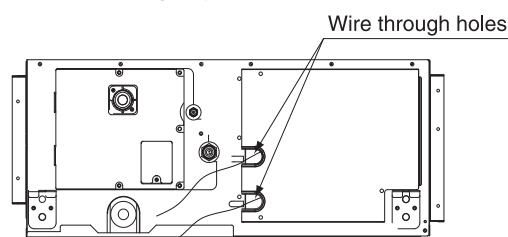


Fig. 23

- (5) Mount the provided wire fixing bracket(10) with the wire fixing screw(11). Fix each wire with the provided clamp(7).

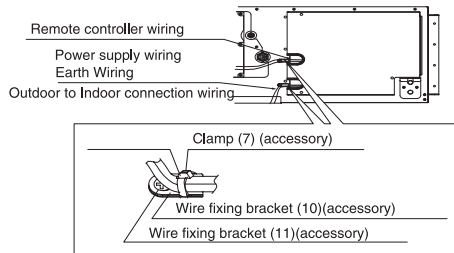


Fig. 24

WIRING EXAMPLE

CAUTION

Be sure to install an earth leakage breaker to the outdoor unit. This is to avoid electric shocks or a 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. 25)
- **Simultaneous operation system:**
1 remote controller controls 2 indoor units (2 indoor units operates equally). (Refer to Fig. 26)
- **Group control:**
1 remote controller controls up to 16 indoor units (All indoor units operate according to the remote controller). (Refer to Fig. 27)
- **2 remote controllers control:**
2 remote controllers control 1 indoor unit. (Refer to Fig. 30)

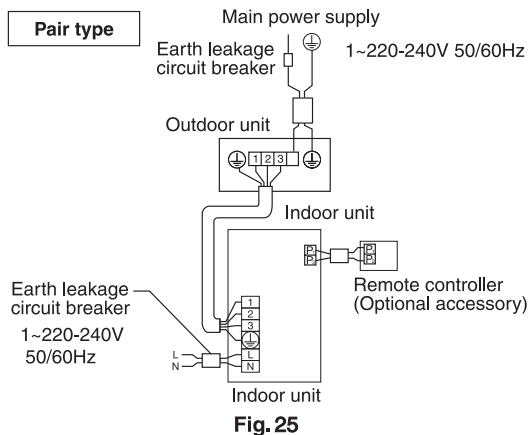


Fig. 25

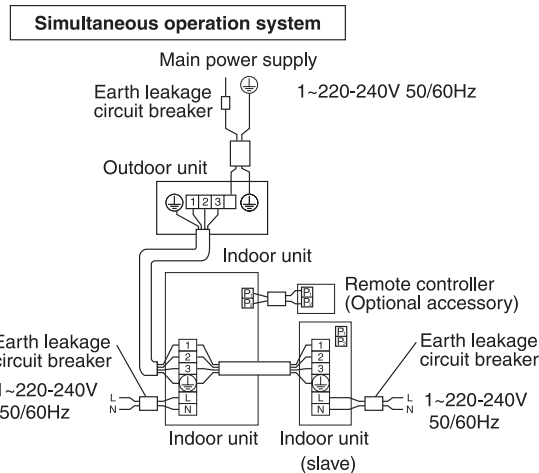


Fig. 26

NOTE

1. Terminal numbers of outdoor and indoor units must be matched.
- 2-1. Connect the remote controller only to the master unit.
- 2-2. 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.)
- 2-3. The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
- 2-4. 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

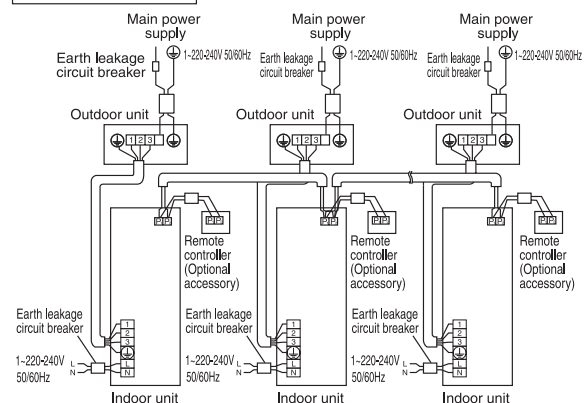


Fig. 27

NOTE

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

When implementing group control

- When using as a pair unit or as a master unit for simultaneous operation system, you may carry out simultaneous start/stop (group) control up to 16 units with the remote controller. (Refer to Fig. 28)
- 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.

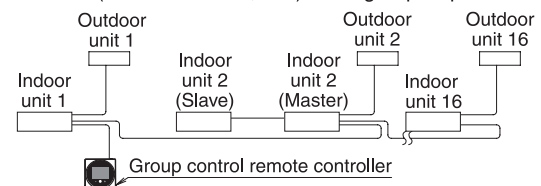
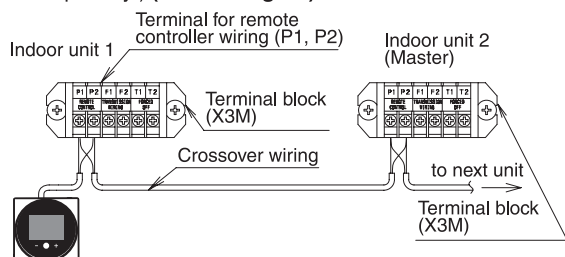
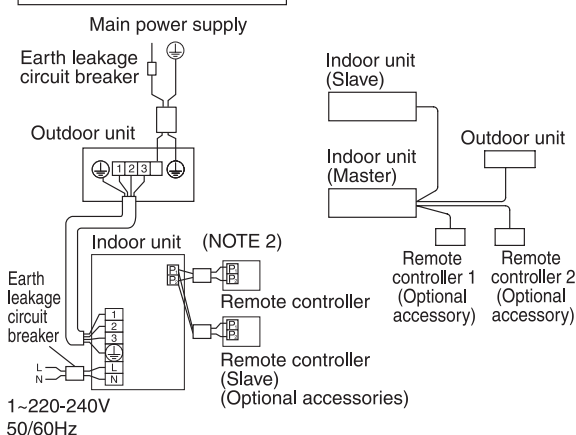


Fig. 28

Wiring Method

- (1) Remove the control box lid.
- (2) Connect crossover wiring between the terminals (P1, P2) inside the control box for the remote controller. (There is no polarity.) (Refer to Fig. 28)

**Fig. 29****2 remote controllers control****Fig. 30****Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)**

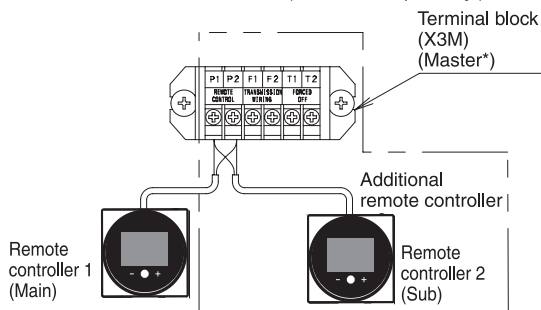
- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- (1) Remove the control box lid.
- (2) Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X3M) for the remote controller in the control box. (There is no polarity.)



* For simultaneous operation system, be sure to connect the remote controller to the master unit.

Fig. 31**NOTE**

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

10. FIELD SETTING**CAUTION**

Before carrying out field setting, check the items mentioned in **1. Items to be checked after the installation work is completed** on page 3.

- Check if all the installation and piping works for the air conditioner are completed.
- Check that the outside panel and piping cover of the indoor and outdoor units are closed.

< FIELD SETTING >

After turning 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 following tables indicate those when shipped from the factory.

(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 ().

- 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.
- Settings are performed by selecting "Mode No.", "FIRST CODE No.", and "SECOND CODE No.".

10-1 Settings for external static pressure

- Make settings in either method (a) or method (b).

(a) Make settings with Air volume automatic adjustment function.

"Air volume automatic adjustment" function: The air volume is adjusted to the rated air volume automatically.

CAUTION

- Be sure to check that the external static pressure is within the specification range before making settings. The external static pressure will not be automatically adjusted and air volume insufficiency or water leakage may result if the external static pressure is outside the range. (Refer to the technical document for the setting range of external static pressure.)
- If the air conditioner is in simultaneous multi operation, the air volume automatic adjustment function cannot be set collectively for the slaves. Therefore, make main and slave unit settings according to **Simultaneous multi operation individual settings**.

- (1) Check that the electrical wiring and duct work have been completed.
(If the closing damper is set midway, be sure to check that the damper is opened. Furthermore, check that the air passage on the suction side is provided with an air filter (field supply)).
- (2) If air conditioner has more than one air outlet and air inlet, be sure to make adjustments so that the air volume ratio of each air outlet and the corresponding air inlet will conform to the designed air volume ratio.
In that case, set the operating mode to "Fan". (In the case of changing the air volume, press the fan speed button on the remote controller and change the current selection to "High", "Medium", or "Low".)

- (3) Make settings to adjust the air volume automatically. After setting the operating mode to "Fan", set the air conditioner to field setting mode with the operation of the air conditioner stopped. Select Mode No. [21] (11 in the case of batch settings), select FIRST CODE No. "7", and set the SECOND CODE No. to "03". Return to the "Basic screen", and press the ON/OFF button. The indoor unit will go into fan operation for air volume automatic adjustments (at which time, do not adjust the opening of the air outlet or inlet). The air volume adjustments will automatically terminate approximately 1 to 15 minutes after the indoor unit comes into operation, and the indoor unit will come to a stop.

Table 6

Mode No.	FIRST CODE No.	Setting content	SECOND CODE No.		
			01	02	03
11 (21)	7	Air volume adjustment	OFF	Air volume adjustment completion	Air volume adjustment start

- (4) After the air conditioner comes to a stop, be sure to check with Mode No. [21] per indoor unit that the above SECOND CODE No. is "02". If the operation of the air conditioner does not stop automatically or the SECOND CODE No. is not set to "02", repeat the setting procedure from (3). If the remote controller displays an error, refer to **11-1 HOW TO DIAGNOSE FOR PROBLEMS** and check the error.

CAUTION

- If airflow pathway changes, such as duct and air outlet changes, are made after air volume adjustments, be sure to make "Air volume automatic adjustment" again.
- If airflow pathway changes, such as duct and air outlet changes, are made after **11.TEST OPERATION** or air conditioner relocation, contact your dealer.

(b) **Select external static pressure with the remote controller.** Check with Mode No. [21] per indoor unit that the SECOND CODE No. for the above "Air volume adjustment" is set to "01" (OFF). (The SECOND CODE No. is factory set to "01" (OFF).) Change the SECOND CODE No. by referring to the table below according to the external static pressure of the duct to be connected.

Table 7 [For FDMF30AVMK]

External static pressure	Mode No.	FIRST CODE No.	SECOND CODE No.
30Pa	13 (23)	6	05
40Pa			06
50Pa			07
60Pa			08
70Pa			09
80Pa			10

[For FDMF36AVMK]

External static pressure	Mode No.	FIRST CODE No.	SECOND CODE No.
50Pa	13 (23)	6	05
60Pa			06
70Pa			07
80Pa			08
90Pa			09
100Pa			10

 In the above table is rated static/factory settings.

10-2 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

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

10-3 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 8

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
State of fan in operation with thermostat OFF (cooling and heating)	Normal	11 (21)	2	01
	Stop			02
Fan speed during cooling thermostat OFF	LL (Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	LL (Extra low)	12 (22)	3	01
	Setting			02

10-4 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 9 according to the amount of dust or pollution in the room.
- The periodical filter cleaning time can be shortened depending on the environment.

Table 9

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.

10-5 Remote control settings (forced stop or start-stop control)

- Change the SECOND CODE No. by referring to the table below in the case of remote control.

Table 10

Setting content	Mode No. (Note)	FIRST CODE No.	SECOND CODE No.
Forced stop	12 (22)	1	01
Start-stop control			02

10-6 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 11.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

Table 11

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

10-7 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.
- Change the SECOND CODE No. to "02", individual setting, so that the slave unit can be individually set.

Table 12

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

- Perform field setting (Refer to 10-1 to 10-6) for the master unit.
- Turn off the main power supply switch after (2) is finished.
- Detach remote controller from the master unit and connect it to the slave unit.
- Turn on the main power supply switch again, and as in (1), change the SECOND CODE No. to "02", individual setting for the slave unit.
- Perform field setting (Refer to 10-1 to 10-6) for the slave unit.
- Turn off the main power supply switch after (6) is finished.
- If there is more than one slave unit, repeat steps (4) to (7).
- 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.)

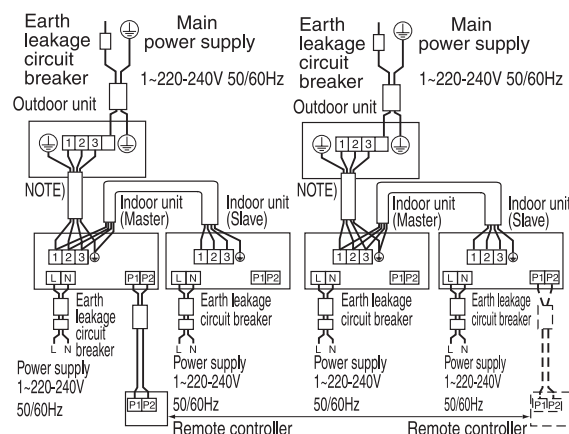


Fig. 32

NOTE

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

11. TEST OPERATION

Complete all the 1. Items to be checked after the installation work is completed on page 3. Please also refer to the installation manual attached to outdoor unit.

- The settings of BRC1H model remote controller should be performed while referring to the manual attached to the remote controller.

11-1 HOW TO DIAGNOSE FOR PROBLEMS

With the power on, troubles can be monitored on the remote controller.

The fault diagnosis for BRC1H model remote controller should be performed while referring to the indoor operation manual page 11.

11-2 MALFUNCTION CODE

- 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.

Malfunction code	Descriptions and measures	Remarks
A1	Indoor Printed Circuit Board failure	
A3	Drain level abnormal	
A6	Indoor fan motor overload, over current, lock Indoor Printed Circuit Board connection failure	
A8	Indoor unit power supply voltage abnormal	
AF	Humidifier system malfunction	
AH	Air cleaner faulty Only the air cleaner does not function.	
AJ	Capacity setting failure	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
C1	Transmission error between indoor Printed Circuit Board (Master) and indoor Printed Circuit Board (Slave)	
C4	Indoor heat exchanger liquid pipe temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C5	Indoor heat exchanger condenser / evaporator temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C9	Suction air thermistor malfunction	Abnormal stop is applied depending on the model or condition.
CJ	Remote controller air thermistor malfunction	Remote controller thermo does not function, but body thermo operation is enabled.
E0	Action of safety device (Outdoor unit)	
E1	Outdoor Printed Circuit Board failure (Outdoor unit)	
E3	High pressure malfunction (Outdoor unit)	
E4	Low pressure malfunction (Outdoor unit)	
E5	Compressor motor lock malfunction (Outdoor unit)	
E6	Compressor motor lock by over current (Outdoor unit)	
E7	Outdoor fan motor lock malfunction (Outdoor unit) Outdoor fan instant over-current malfunction (Outdoor unit)	
E8	Input overcurrent (outdoor unit)	

E9	Electric expansion valve malfunction (Outdoor unit)	
EA	Cooling/heating switch malfunction (Outdoor unit)	
F3	Discharge piping temperature malfunction (Outdoor unit)	
F6	High pressure control (in cooling) (Outdoor unit)	
H0	Sensor fault for inverter (Outdoor unit)	
H3	High pressure switch failure (Outdoor unit)	
H4	Low pressure switch failure (Outdoor unit)	
H7	Outdoor fan motor position signal malfunction (Outdoor unit)	
H8	CT abnormality (Outdoor unit)	
H9	Outdoor air thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J1	Pressure sensor system malfunction (batch) (Outdoor unit)	
J2	Current sensor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J3	Discharge piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J5	Suction piping thermistor system malfunction (Outdoor unit)	
J6	Outdoor heat exchanger distributor liquid piping thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J7	Outdoor heat exchanger condenser / evaporator thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J8	Liquid piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J9	Gas piping thermistor malfunction (cooling) (Outdoor unit)	
JA	Discharge piping pressure sensor system malfunction (Outdoor unit)	
JC	Suction piping pressure sensor system malfunction (Outdoor unit)	
L1	Inverter system malfunction (Outdoor unit)	
L3	Reactor thermistor malfunction (Outdoor unit)	
L4	Overheated heat-radiating fin (Outdoor unit)	Inverter cooling failure.
L5	Instantaneous overcurrent (Outdoor unit)	The compressor engines and turbines may be experiencing a ground fault or short circuit.
L8	Electric thermal (Outdoor unit)	The compressor engines and turbines may be overloaded and disconnected.

L9	Stall prevention (Outdoor unit)	The compressor may be locked.
LC	Transmission malfunction between inverter and outdoor control unit (Outdoor unit)	
P1	Open-phase (Outdoor unit)	
P3	DCL sensor system malfunction (Outdoor unit)	
P4	Heat-radiating fin thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
P6	DC output current sensor system malfunction (Outdoor unit)	
PJ	Capacity setting failure (Outdoor unit)	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
U0	Suction piping temperature abnormal (Outdoor unit)	The refrigerant may be insufficient. Abnormal stop is applied depending on the model or condition.
U1	Reverse phase (Outdoor unit)	Reverse two phase of L1, L2 and L3 leads.
U2	Power voltage malfunction (Outdoor unit)	The inverter open-phase or main circuit condenser may be malfunctioning. Abnormal stop is applied depending on the model or condition.
U4 UF	Transmission error (between indoor and outdoor units)	Wiring error between indoor and outdoor unit. Or Indoor and outdoor Printed Circuit Board failure.
U5	Transmission error (between indoor and outdoor units)	Transmission between indoor unit and remote controller is not performed properly.
U7	Transmission error of the inverter module	
U8	Transmission error between main and sub remote controllers (sub remote controller malfunction)	
UA	Field setting error	System setting error of the simultaneous on/off multi-split type.
UE	Transmission error (between indoor unit and centralized remote controller)	
UC	Remote controller address setting error	
UJ	Accessory equipment transmission error	Abnormal stop is applied depending on the model or condition.

— ⚠ CAUTION —

After test operation is completed, check the items mentioned in the clause **2. Items to be checked at delivery** on page 4.

If the interior finish work is not completed when the test operation is finished, for protection of the air conditioner, ask the customer not operate the air conditioner until the interior finish work is completed.

If the air conditioner is operated, the inside of the indoor units may be polluted by substances generated from the coating and adhesives used for the interior finish work and cause water splash and leakage.

— ⚠ To the operator carrying out test operation —

After test operation is completed, before delivering the air conditioner to the customer, confirm that the control box lid is closed.

In addition, explain the power supply status (power supply ON/OFF) to the customer.

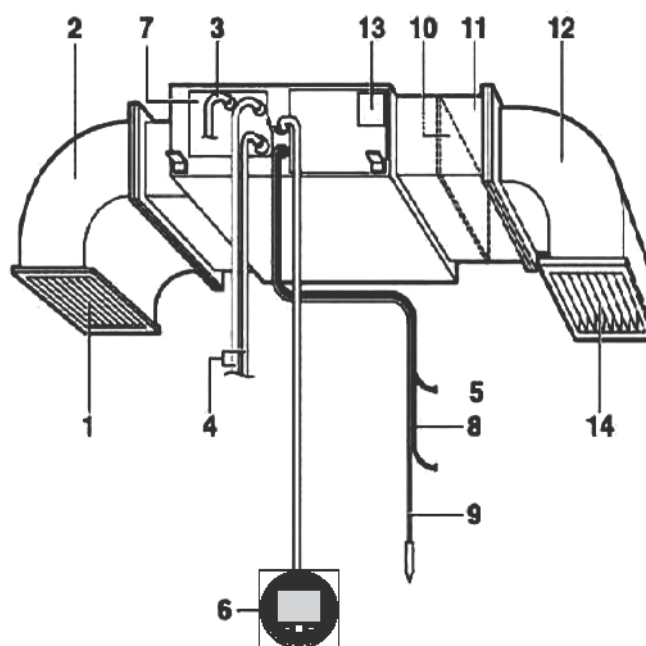
12 - Technical Data

		IDU / ODU	
Model		FDMF30AVMK / RZF30AVMK	
Rated Power Supply	Ph/V	1/220-240	
Unit Dimensions (H×W×D)	mm	300*1400*700/990*940*320	
Net Weight	Kg	45/50	
Packing Dimensions (H×W×D)	mm	350*1574*788/1130*1000*400	
Gross Weight	Kg	48/63	
Testing Condition		Cooling	
		T1	T3
		50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	30000	25500
Power Input	Watt	2519	3050
EER	(BTU/Hr)/Watt	12.4	8.36
Current	A	11.7	14.7
Refrigerant Type/Qty	R32 / Kg	R32 / 2.8 Kg	
Annual Energy Consumption (Kwh)		6531.30	6100.00
Power Factor		0.9	
Manufacturer's Name:		Daikin Air Conditioning India Pvt. Ltd.	
Country of Origin:		India	

		IDU / ODU	
Model		FDMF36AVMK / RZF36AVMK	
Rated Power Supply	Ph/V	1/220-240	
Unit Dimensions (H×W×D)	mm	300*1400*700/990*940*320	
Net Weight	Kg	45/60	
Packing Dimensions (H×W×D)	mm	350*1574*788/1130*1000*400	
Gross Weight	Kg	48/63	
Testing Condition		Cooling	
		T1	T3
		50Hz/230V	50Hz/230V
Cooling Capacity	BTU/Hr	34000	29000
Power Input	Watt	2800	3200
EER	(BTU/Hr)/Watt	12.4	8.36
Current	A	11.7	14.7
Refrigerant Type/Qty	R32 / Kg	R32 / 2.8 Kg	
Annual Energy Consumption (Kwh)		7560.00	6400.00
Power Factor		0.9	
Manufacturer's Name:		Daikin Air Conditioning India Pvt. Ltd.	
Country of Origin:		India	

2.3 FDMF48AVMK / FDMF54AVMK

2.3.1 Names and Functions of Parts



1	Air outlet (Field supply)
2	Exhaust duct (Field supply)
3	Drain pipe
4	Refrigerant piping
5	Wiring between indoor and outdoor unit
6	Remote controller (Sold separately)
7	Drain discharge device (built-in) Discharge indoor moisture removed during cooling operation.
8	Power line
9	Ground wire This wire releases electricity from the indoor unit to the ground in order to prevent electric shock or fire.
10	Air filter (inside filter chamber) (Sold separately)
11	Suction filter chamber (Sold separately)
12	Suction duct (Field supply)
13	Machine nameplate The nameplate is imprinted with the machine name and specifications.
14	Suction grille (Field supply)

2.3.2 Installation

DAIKIN

Split System Air Conditioner

INSTALLATION MANUAL <FOR INDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

FDMF48AVMK , FDMF54AVMK

Page No.

INSTALLATION MANUAL OF INDOOR 1-18
INSTALLATION MANUAL OF OUTDOOR 19-37

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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: 550 *

⁽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).

1. SAFETY PRECAUTIONS

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

Please read these "SAFETY CONSIDERATIONS" carefully before installing air conditioning unit and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation.

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.

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

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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



WARNINGIndicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTIONIndicates 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. Ask the user to keep this manual in a handy place for future reference.



WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 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 refrigerants may not contain an odor.
- Floor area required for installation of the equipment, refer to the installation manual of the outdoor unit.
- Comply with national gas regulations.
- 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 air conditioner 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 falling 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 falling down and causing injury.
In addition, it may lead to vibration of indoor units and cause unpleasant chattering noise.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes.
Improper installation may result in an accident such as air conditioner falling.
- Make certain that all electrical 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 electrical 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 breaker.
Failure to do so may cause electric shocks and a fire.
- Disconnect the power supply before touching the electric components.
If you touch the live part, you may get electric shocks.
- Make sure that all wiring is secure, using the specified wirings and ensuring that external forces do not act on the terminal connections or wirings.
Incomplete connection or fixing may cause an overheat or a fire.
- When wiring between the indoor and outdoor units and wiring the power supply, form the wirings orderly so that the control box lid can be securely fastened.
If the control box lid is not in place, overheating of the terminals, electric shocks or a fire may be caused.
- 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.
- 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.
- 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.
- 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 air conditioner, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor unit as far as possible from fluorescent lamps.
- Do not install the air conditioner in places such as the following:
 1. Where there is mist of oil, oil spray or vapor for example a kitchen.
Resin parts may deteriorate, and fall out or water may 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 fibre 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.
- The air conditioner is not intended for use in a potentially explosive atmosphere.
 - Pay careful attention when transporting the product.
Carry the product by the handle sections indicated on the packaging material.
Do not hold the PP band since the PP band can become loose and may result in danger.
 - Do not touch the heat exchanger fins.
Inadvertently touching the fins can cause injury.
 - 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.
 - 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.
 - Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
 - 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.

2. BEFORE INSTALLATION

When unpacking the indoor unit or moving the unit after unpacked, hold the hangers (4 places) and do not apply force to other parts (particularly refrigerant piping, drain piping).

- Make sure to check in advance that the refrigerant to be used for installation work is R32.
(The air conditioner will not properly operate if a wrong refrigerant is used.)
- For installation of the outdoor unit, refer to the installation manual of the outdoor unit.
- Do not throw away the accessories until the installation work is completed.
- After the indoor unit is carried into the room, try to avoid the indoor unit from getting damaged, take measures to protect the indoor unit with packing materials.

- (1) Determine the route to carry the unit into the room.
- (2) Do not unpack the unit until it is carried to the installation location.

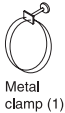
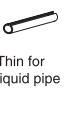
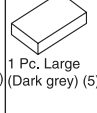
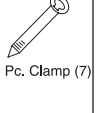
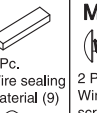
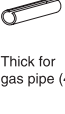
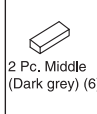
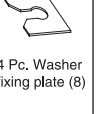
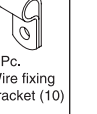
Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, to avoid damage or scratches to the indoor unit.

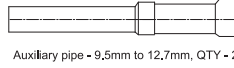
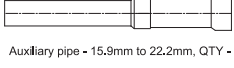
- Have the customer actually operate the air conditioner while looking at the operation manual.
Instruct the customer how to operate the air conditioner (particularly cleaning of the air filters, operation procedures and temperature adjustment).
- Do not use the air conditioner in a salty atmosphere such as coastal areas, vehicles, vessels or where voltage fluctuation is frequent such as factories.
- Take off static electricity from the body when carrying out wiring and the control box lid is removed.
The electric parts may get damaged.

2-1 ACCESSORIES

Check if the following accessories are attached to the indoor unit.

Table 1

Name	-	Insulation for fitting	Sealing pad	-	-	-
Quantity	1 each	1 each	-	-	-	-
Shape	 Metal clamp (1)	 Thin for liquid pipe (3)	 1 Pc. Large (Dark grey) (5)	 9 Pc. Clamp (7)	 2 Pc. Wire sealing material (9)	 2 Pc. Wire fixing screw (11)
	 Drain Hose (2)	 Thick for gas pipe (4)	 2 Pc. Middle (Dark grey) (6)	 4 Pc. Washer fixing plate (8)	 2 Pc. Wire fixing bracket (10)	 M4x8

Name	Installation Auxiliary Pipe
Quantity	2 - 9.5mm to 12.7mm 2 - 15.9mm to 22.2mm
Shape	 Auxiliary pipe - 9.5mm to 12.7mm, QTY - 2  Auxiliary pipe - 15.9mm to 22.2mm, QTY - 2 Installation Auxiliary Pipe (12)

2-2 OPTIONAL ACCESSORIES

- A remote controller is required for the indoor unit.
(No remote controllers are required for multi slave units in simultaneous multi operation.)
- Install the remote controller to the place where the customer has given consent.
Refer to the catalog for the applicable model.
(Refer to the installation manual attached to the remote controller for how to install.)

CARRY OUT THE WORK GIVING CAUTION TO THE FOLLOWING ITEMS AND AFTER THE WORK IS COMPLETED CHECK THESE AGAIN.

1. Items to be checked after the installation work is completed

Items to be checked	In case of defective	Check column
Are the indoor and outdoor units rigidly fixed?	Drop · vibration · noise	
Are the installation works of the outdoor and indoor units completed?	Does not operate · burnout	
Have you carried out a leakage test with the test pressure specified in the outdoor unit installation manual?	Does not cool.	
Is the insulation of refrigerant piping and drain piping completely carried out?	Water leakage	
Does the drain flow out smoothly?	Water leakage	
Is the power supply voltage identical to that stated in the manufacturer's label on the air conditioner?	Does not operate · burnout	
Are you sure that there is no wrong wiring or piping or no loose wiring?	Does not operate · burnout	
Is earthing completed?	Danger in case of leakage	
Are the sizes of electric wiring according to the specification?	Does not operate · burnout	
Are any of air outlets or inlets of the indoor and outdoor units blocked with obstacles? (It may lead to capacity drop due to fan speed drop or malfunction of equipment.)	Does not cool	
Is the external static pressure set correctly?	Does not cool	
Have you recorded the refrigerant piping length and the refrigerant charge amount added?	Refrigerant charge amount is not clear	

Make sure to recheck the items of "SAFETY PRECAUTIONS".

2. Items to be checked at delivery

Items to be checked	Check column
Have you carried out field setting? (if necessary)	
Are the control box lid, the air filter and the suction grille attached?	
Does the cool air discharge during the cooling operation? Does the indoor unit makes unpleasant sound during air discharge?	
Have you explained how to operate the air conditioner showing the operation manual to the customer?	
Have you explained the description of cooling, program dry and automatic (cooling) given in the operation manual to the customer?	
If you set the fan speed at thermostat OFF, did you explain the set fan speed to the customer.	
Have you handed the operation manual and the installation manual to the customer?	
Have you checked that there is no generation of abnormal noise (i.e. noise resulting from contamination or missing parts)?	
Is the printed circuit board switch not on the emergency (EMG.) side? The switch is factory set to the normal (NORM.) side.	
If an optional accessory is in use, did you check the operation of the optional accessory and make field settings as needed?	
Is the remote controller icon displayed? Is the remote controller connected to the master unit if the system is in simultaneous multi operation?	
Have you explained failure examples of 3. SELECTION OF INSTALLATION LOCATION?	

Points of the operation explanation

In addition to the general usage, since the items in the operation manual with the **⚠ WARNING** and **⚠ CAUTION** marks are likely to result in human bodily injuries and property damages, it is necessary not only to explain these items to the customer but also to have the customer read them.
Furthermore, it is necessary to have the customer read through the troubleshooting items while explaining the above items.

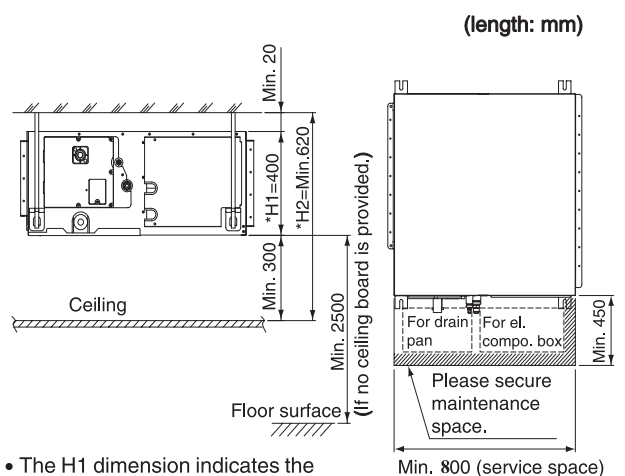
3. SELECTION OF INSTALLATION LOCATION

Hold the hangers at 4 locations to move the indoor unit when unpacking or after unpacked and do not apply force to the piping (refrigerant and drain) and air outlet flange. If the temperature and humidity in the ceiling is likely to exceed 30°C, RH80%, use the additional insulation stick to the indoor unit.

Use the insulation such as glass wool or polyethylene that has thickness of 10 mm or more. However, keep the insulated outside dimension smaller than the ceiling opening so that the unit may go through the opening at installation.

(1) Select the installation location that meets the following conditions and get approval of the customer.

- Where the cool and warm air spreads evenly in the room.
- Where there are no obstacles in the air passage.
- Where drainage can be ensured.
- Where the ceiling's lower surface is not remarkably inclined.
- Where there is sufficient strength to withstand the mass of the indoor unit. (If the strength is insufficient, the indoor unit may vibrate and get in contact with the ceiling and generate unpleasant chattering noise.)
- Where a space sufficient for installation and service can be ensured.
- Where the piping length between the indoor and the outdoor units is ensured within the allowable length. (Refer to the installation manual of the outdoor unit.)
- Where there is no risk of flammable gas leak.



- The H1 dimension indicates the height of the product.
- Determine the H2 dimension by maintaining a downward slope of at least 1/100 as specified in "7. DRAIN PIPING WORK".

[Required installation place]

The dimensions indicate the minimum required space of installation.

Fig. 1

<Failure example>

If there is an obstacle in the airflow path or proper installation space is not provided, the indoor unit will cause air volume reduction and take in air blown out of the indoor unit, thus resulting in performance degradation or turning the thermostat OFF frequently.

**CAUTION**

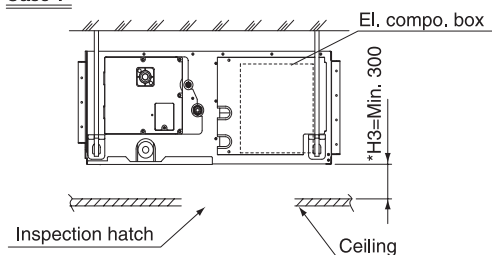
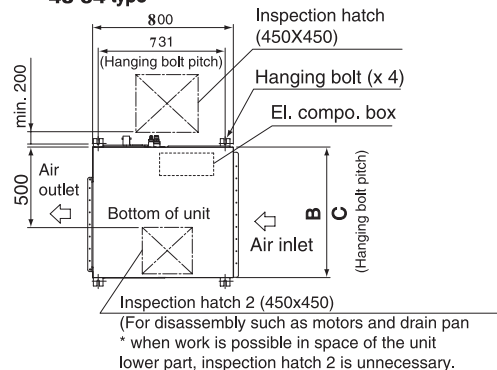
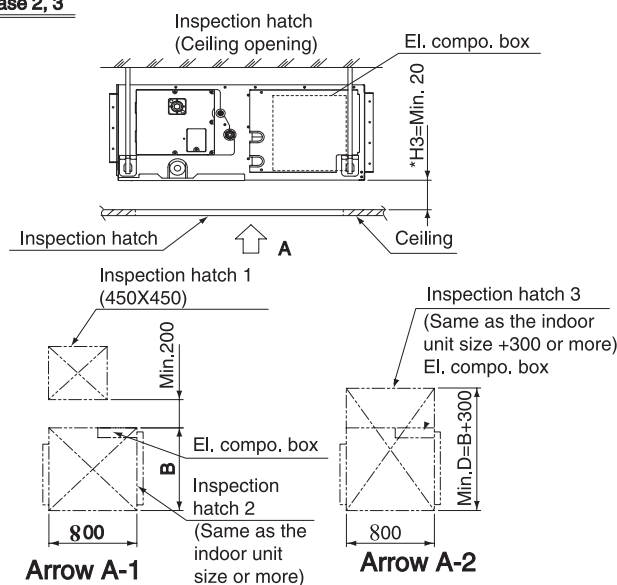
- Install the indoor and outdoor units, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor units as far as possible from fluorescent lamps.

(2) Use hanging bolts for installation.

Investigate if the installation place can withstand the mass of the indoor unit and if necessary, hang the indoor unit with bolts after it is reinforced by beams etc.

4. PREPARATION BEFORE INSTALLATION**(1) Check the relation of location between the ceiling opening and the indoor unit hanging bolts.**

- Provide one of the following service spaces for the maintenance and inspection of the control box and drain pump or for other services.
 1. Inspection hatch 1 and 2 (450 × 450) for the el. compo. box and a minimum space of 300 mm at the bottom of the product. (Refer Fig. 2-2)
 2. Inspection hatch 1 (450 × 450) on the control box side and inspection hatch 2 on the bottom of the product. (Fig. 2-3, arrow A-1)
 3. Inspection hatch 3 on the bottom of the product and on the bottom side of the control box, see direction view A-2 (Refer Fig. 2-3)

Case 1**Fig.2-1****• 48-54 type****Fig.2-2****Case 2, 3****Fig.2-3**

Model	B	C	D
48,54	1500	1538	1800

(All dimensions are in mm)

- (2) Mount canvas ducts to the air outlet and inlet so that the vibration of the indoor unit will not be transmitted to the ducts or ceiling. Furthermore, attach sound absorbing material (thermal insulation material) to the duct inner walls and anti-vibration rubber to the hanging bolts (refer to 8. DUCT WORK).
- (3) The indoor unit is set to standard external static pressure.
 - If external static pressure is higher or lower than the standard set value, the remote controller may be used to make on-site setting change in the external static pressure. Refer to 10. FIELD SETTING.

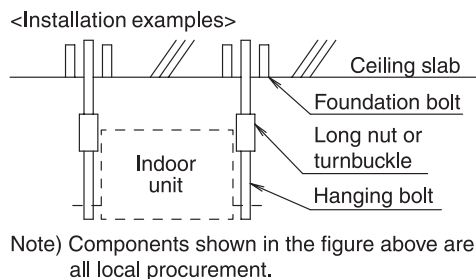
(4) Open installation holes**(in the case of installation onto the existing ceiling).**

- Open the installation holes on the ceiling of the installation location, and work on the refrigerant piping, drain piping, remote controller wiring and wiring between the indoor and outdoor units to the piping connection port and wiring connection port of the indoor unit (refer to each piping and wiring procedure items).
- Ceiling framework reinforcement may be required in order to keep the ceiling horizontal and prevent ceiling vibration after opening the ceiling holes. For details, consult your building and upholstery work contractors.

(5) Install the hanging bolts.

- Use M10 bolts for hanging the indoor unit. Use hole-in anchors for the existing bolts and embedded inserts or foundation bolts for new bolts, and fix the indoor unit firmly to the building so that it may withstand the mass of the unit.

In addition, adjust clearance (50 -100mm) from the ceiling in advance.

**Fig. 3****CAUTION**

- Secure a sufficient maintenance space for the drain pan and electrical components before installing the indoor unit.
- Secure a sufficient maintenance space for the filter chamber, and peripheral components before installing the indoor unit.

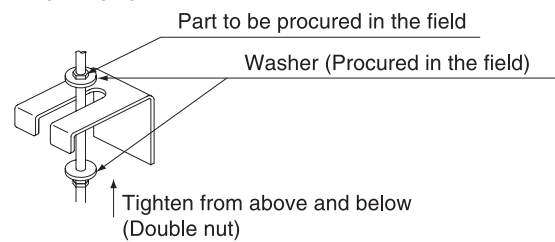
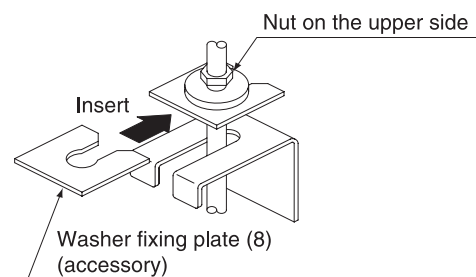
5. INSTALLATION OF INDOOR UNIT

Depending on the optional parts, it may be easier to attach them before installing the indoor unit. Refer to also the installation manual attached to the optional parts.

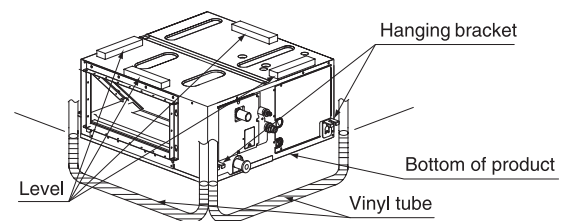
For installation, use the attached installation parts and specified parts.

(1) Install the indoor unit temporarily.

- Connect the hanging brackets to the hanging bolts. Be sure to use and tighten the nut and washer (procured in the field) for each hanging bracket from both upper and lower sides of the hanging bracket. (Refer to the Fig. 4) At that time, the fall of the washer for the hanging bracket can be prevented if the washer fixing plate (8) is used.

[Fixing hanging brackets]**[Fixing method of washers]****Fig. 4**

- Keep the air outlet covered with a protective sheet to prevent weld spatter and other foreign materials from entering the indoor unit and damaging the resin drain pan. (If holes or cracks are generated in the resin drain pan, water can leak.)

(2) Adjust so that the unit is properly positioned.**(3) Check the level of the unit. (Refer to Fig. 5)****(4) Remove the washer fixing plate used for preventing the washer for hanger from dropping and tighten the upper side nut.**

Feed water into the tube and set the indoor unit to the water levels on the left and right.

[Maintaining horizontality]

Fig. 5

CAUTION

- **Install the indoor unit leveled.**
If the indoor unit is inclined and the drain piping side gets high, it may cause malfunction of float switch and result 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.**
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 of 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 in 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.
 - 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. 6.
- For the dimension of flared part and the tightening torque, refer to the Table 2.
- When making a flare connection, coat the flare inner surface only with ether oil or ester oil. (Refer to Fig. 7)
Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

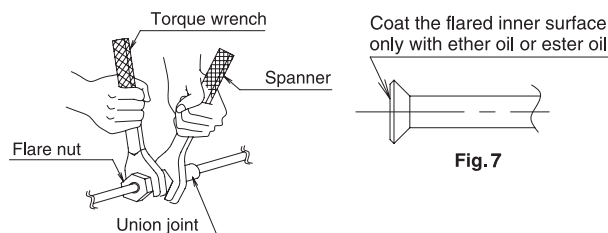
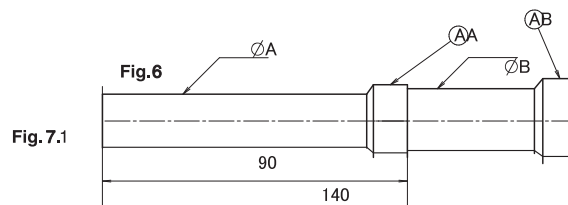


Fig. 7



Table

Installation kit
auxiliary pipe.

PART	Dia at AA	Dia at AB
1	ø 9.52 X t 0.8	ø 12.7 X t 1mm
2	ø 15.9 X t 1.0	ø 22.2 X t 1 mm

Table 2

Piping size (mm)	Installation kit pipe size	Tightening torque (N·m)	Dimension for processing flare A (mm)	Flare shape
φ 12.7	ø 9.52 to 12.7	36.3 ± 3.6	13.0 ± 0.2	
φ 22.2	ø 15.9 to 22.2	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 3 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 at the angle shown in Table 3.
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 3

Installation kit Flare End	Tightening angle	Recommended arm length of tool used
φ 9.5	60° - 90°	approx. 200 mm
φ 15.9	30° - 60°	approx. 300 mm

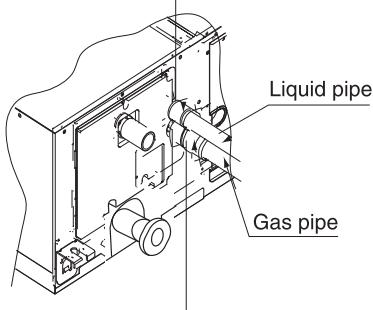
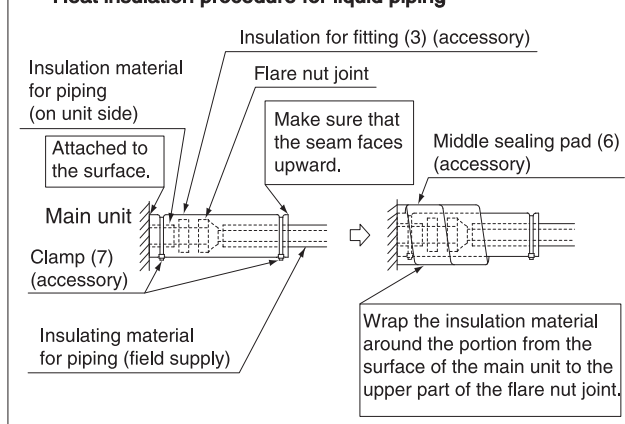
CAUTION

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.

On completion of installation work, check that there is no gas leakage. Refer to the illustrations on the right hand side and be sure to perform heat insulation work on the piping joints after gas leakage. (Refer Fig.8)

Heat insulation procedure for liquid piping



Heat insulation procedure for gas piping

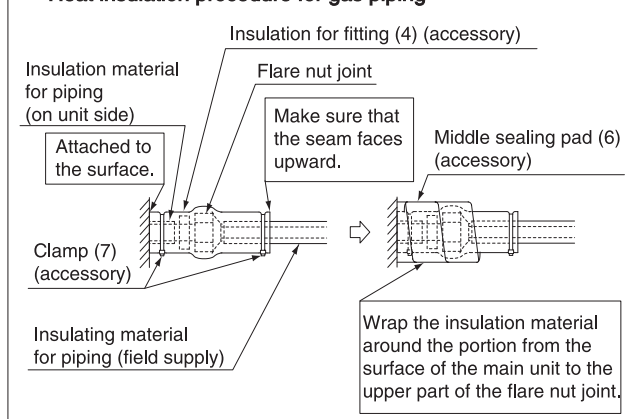


Fig. 8

- Use the insulation for fitting (3) and (4) provided to the liquid piping and gas piping, respectively and conduct heat insulation work. (Tighten both edges of the insulation for fitting(3) and (4) for each joint with clamp(7)).
- Make sure that the joint of the insulation for fitting(4) and (5) for the joint on the liquid piping and gas piping side faces upwards.
- Wrap the middle sealing material(6) around the insulation for fitting (3) and (4) for the joint (flare nut part).

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 9). Then, carry out brazing (NOTE 2).

After all the brazing works are finished carry out flare connection with the indoor unit. (Refer to Fig. 8)

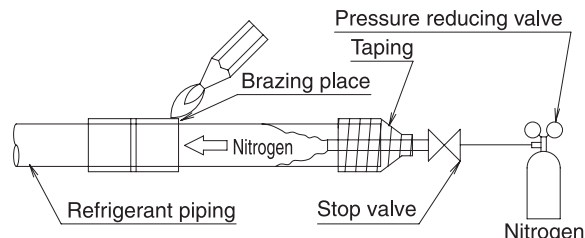


Fig. 9

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 0.02 MPa, a pressure that makes one feel like slight 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.)
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. 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) Carry out drain piping.

Carry out drain piping so that drainage is ensured.

- Select the piping diameter equal to or larger than (except for riser) that of the connection piping (polyvinyl chloride piping, nominal diameter 25 mm, outside diameter 32 mm).
- Install the drain piping as short as possible with downward inclination of 1/100 or more and such that air may not stagnate. (Refer to Fig. 10)

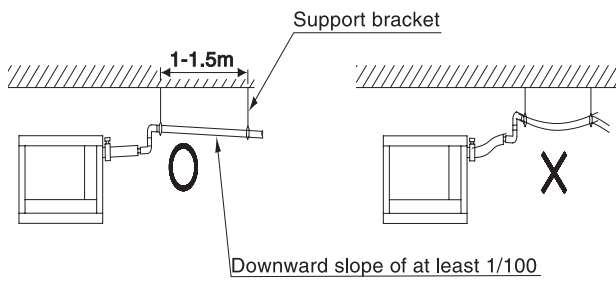


Fig. 10

CAUTION

If drain stagnates in the drain piping, the piping may be clogged.

- If sufficient downward inclination cannot be ensured, carry out upward drain piping.
- Install supports at a distance of 1 to 1.5 m so that the piping may not deflect. (Refer Fig. 10)
- Make sure to use the attached drain hose (2) and the metal clamp (1).
Insert the drain hose (2) into the drain socket up to the point where the socket diameter becomes larger. Put the metal clamp (1) to the taped hose end. Be sure to fasten the screw of the metal clamp(1) until the margin of the screw thread decreases to 4 mm or less.

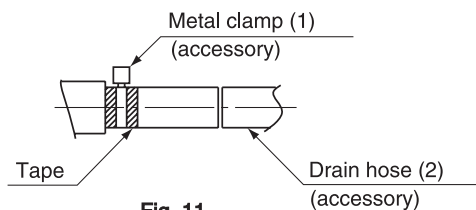
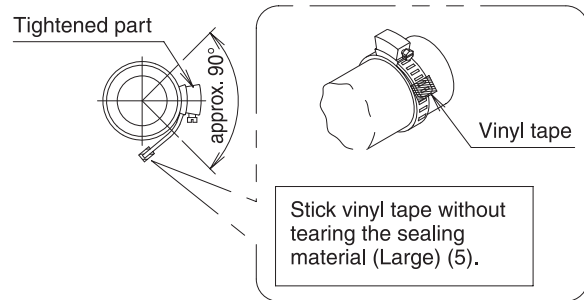


Fig. 11

CAUTION

- Tighten the metal clamp (1) on specified above otherwise. The drain hose (2), the socket or the metal clamp (1) may be damaged.
- Wrap the vinyl tape around the end of the metal clamp (1) so that the sealing material (Large) (5) to be used at the next process may not be damaged with the clamp end or bend the tip of the metal clamp (1) inward as shown. (Refer to Fig. 12)

<In case of sticking vinyl tape>



<In case of bending the tip>

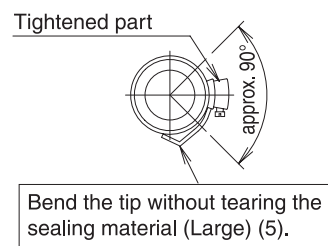


Fig. 12

< Caution to be taken when carrying out upward drain piping (Refer to Fig. 13) >

- The maximum height of the drain riser is 467 mm. Since the drain pump mounted on this indoor unit is a high head type, from the characteristic point of view, the higher the drain riser the lower the draining noise. Therefore, the drain riser of 300 mm or higher is recommended.
- For upward drain piping, keep the horizontal piping distance of 300 mm or less between the drain socket root to the drain riser.

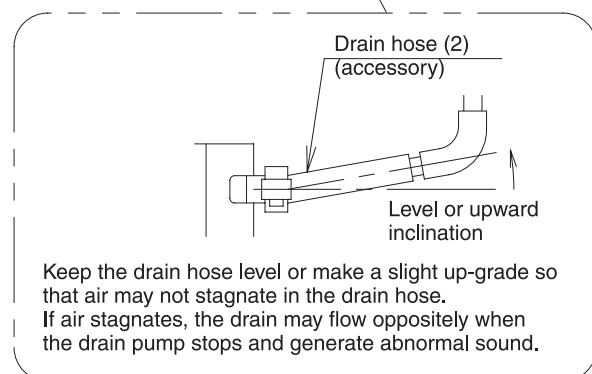
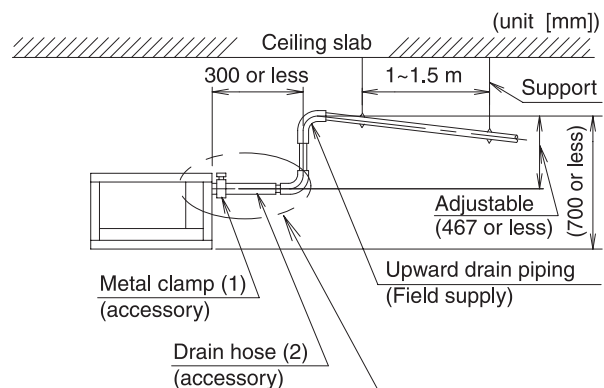


Fig. 13

⚠ CAUTION

- To avoid the attached drain hose (2) getting excessive force, do not bend nor twist it.
It may cause water leakage.
- As for drain piping connection, do not connect the drain hose directly to a sewage that gives off ammonia odor. (The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.)
- In case of centralized drain piping, carry out piping work according to the procedure shown in the following Fig. 14.

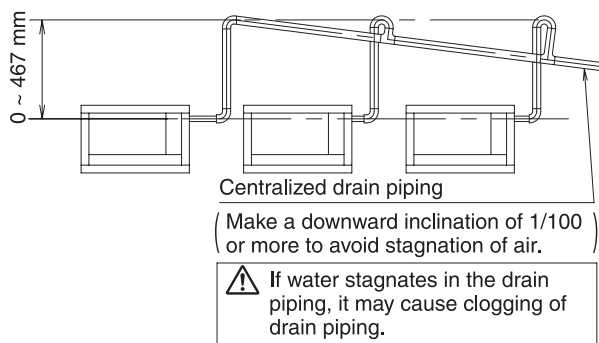


Fig. 14

- As for the size of centralized drain piping, select the size that meets the capacity of indoor units to be connected. (Refer to the technical document)
- Positioning the upward drain piping at an angle may cause float switch malfunction and lead to water leakage.
- While replacing with new indoor unit, use the attached new drain hose (2) and the metal clamp (1).
If an old drain hose or a metal clamp is used, it may cause water leakage.

(2) After piping is finished, check if the drain flows smoothly.

[When the electric wiring work is finished]

- Gradually pour 1 litre of water from the inspection port at the bottom of the drain socket on the left side of the drain pan giving caution to avoid splashing water on the electric components such as drain pump and confirm drainage by operating the indoor unit under cooling mode according to 10. FIELD SETTING. (Refer to Fig. 15)

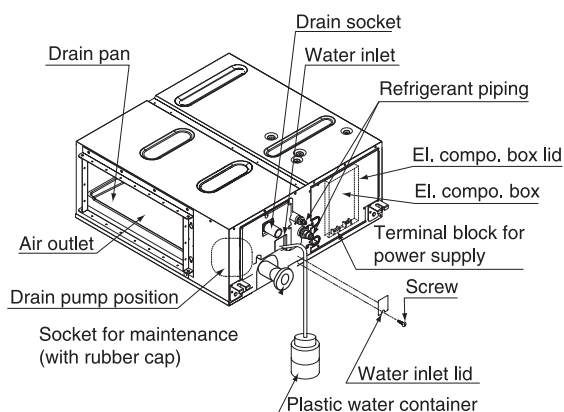


Fig. 15

[When the electric wiring work is not finished]

- The electric wiring works (including earthing) must be carried out by a qualified electrician.

- If a qualified person is not present, after the electric wiring work is finished, check the drainage according to the method specified in [When the electric wiring work is finished].

- Open the control box lid and connect the single phase 220-240V power supply to the terminal (L, N) on the terminal block (X2M).
Connect the earth wiring to the earth terminal.
- Make sure the control box lid is closed before turning on the power supply.
 - Throughout the whole process, carry out the work giving caution to the wiring around the control box so that the connectors may not come off.
- Gradually pour 1 litre of water from the air outlet on the left side of the drain socket into the drain pan giving caution to avoid splashing water on the electric components such as drain pump. (Refer to Fig. 15)
- When the power supply is turned on, the drain pump will operate. Drainage can be checked at the transparent part of the drain socket. (The drain pump will automatically stop after 10 minutes.)
The drainage of water can be confirmed with water level change in the drain pan through the access window.
 - Do not connect the drain piping directly to the sewage that gives off ammonia odor.
The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.
 - Do not apply external force to the float switch. (It may result in malfunction)
 - Do not touch the drain pump.
Touching the drain pump may cause electric shocks.
 - Do not apply external force to the float switch.
External force may cause a float switch malfunction.
- Turn off the power supply after checking drainage, and remove the power supply wiring.
- Attach the control box lid as before.

- On the completion of the drainage check, refer to the following illustration, and use the provided large sealing pad (5) and insulate the metal clamp (1) and drain hose (2)

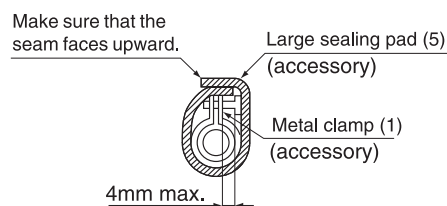


Fig. 16

8. DUCT WORK

Pay utmost attention to the following items and conduct the ductwork.

- Check that the duct is not in excess of the setting range of external static pressure for the unit. (Refer to the technical datasheet for the setting range.)
- Attach a canvas duct each to the air outlet and air inlet so that the vibration of the equipment will not be transmitted to the duct or ceiling.
Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- At the time of duct welding, perform the curing of the duct so that the sputter will not come in contact with the drain pan for the filter.
- If the metal duct passes through a metal lath, wire lath, or plate of a wooden structure, separate the duct and wall electrically.
- Be sure to heat insulate the duct for the prevention of dew condensation. (Material: Glass wool or styrene foam; Thickness: 25 mm)
- Explain the operation and washing methods of the locally procured components (i.e., the air filter, air inlet grille, and air outlet grille) to the customer.
- Locate the air outlet grille on the indoor side for the prevention of drafts in a position where indirect contact with people.
- The air conditioner incorporates a function to adjust the fan to rated speed automatically. **(10. FIELD SETTING)**
Therefore, do not use booster fans midway in the duct.

Connection method of ducts on air inlet and outlet sides.

- Connect the field supply duct in alignment with the inner side of the flange.
- Connect the flange and unit with the flange connection screw.
- Wrap aluminum tape around the flange and duct joint in order to prevent air leakage.

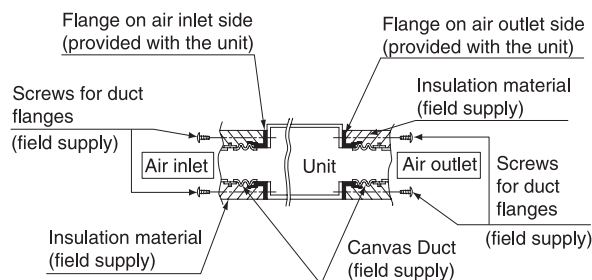


Fig. 17

CAUTION

Connect the flange and unit with the flange connection screw field supply regardless of whether the duct is connected to the air inlet side.

9. ELECTRIC WIRING WORK

9-1 GENERAL INSTRUCTIONS

- 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 dedicated circuit.
Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
- Make sure to install an earth leakage breaker.
Failure to do so may cause electric shocks and a fire.
- Do not turn on the power supply (branch switch, branch overcurrent circuit breaker) until all the works are finished
- Multiple number of indoor units are connected to one outdoor unit. Name each indoor unit as A-unit, B-unit and the like. When these indoor units are wired to the outdoor unit, always wire the indoor unit to the terminal indicated with the same symbol on the terminal block. If the wiring and the piping are connected to the different indoor units and operated, it will result in malfunction.
- 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 pipings, 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.
- For electric wiring work, refer to also the "WIRING DIAGRAM" attached to the control box lid.
- Carry out wiring between the outdoor units, indoor units and the remote controllers according to the wiring diagram.
- Carry out installation and wiring of the remote controller according to the "installation manual" attached to the remote controller.
- Do not touch the Printed Circuit Board assembly. It may cause malfunction.

9-2 SPECIFICATION FOR FIELD SUPPLY FUSES AND WIRING

Table 4

Model	Power supply wiring			Remote controller wiring Transmission wiring	
	Field fuses 	Wiring	Size	Wiring	Size
FDMF48AVMK	15A	H05VV-U3G	Wiring size and length must comply with local codes or IEC60335-1 (Table 11).	Vinyl cord with sheath or cable (2 core)	0.75-1.25 mm ²
FDMF54AVMK		NOTE 1)		NOTE 2)	

The lengths of remote controller wiring are as follows:

Remote controller wiring (indoor unit - remote controller)Max. 500 m

NOTE

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

9-3 WIRING CONNECTION METHOD

⚠ CAUTION FOR WIRING

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or insulate the wirings properly.

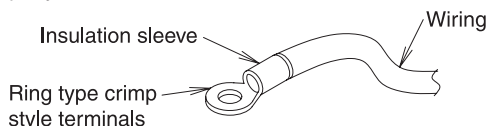


Fig. 18

- Connect the terminal as shown in Fig. 19.
- Do not carry out soldering finish when stranded wirings are used. (Otherwise, the loosening of wiring may result in abnormal heat radiation.)

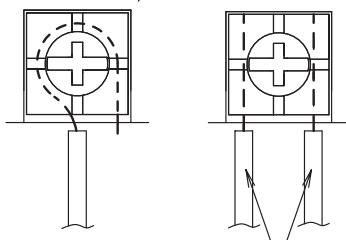


Fig. 19

(Abnormal heating may occur if the wirings are not tightened securely.)

- Use the required wirings, connect them securely and fix these wirings securely 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.

Table 5

	Tightening torque (N·m)
Terminal block for remote controller and transmission wirings	0.88 ± 0.08
Terminal for power supply	1.47 ± 0.14
Earth terminal	1.47 ± 0.14

- Do not carry out soldering finish when stranded wirings are used.

⚠ WARNING

- When wiring, form the wirings orderly so that the control box lid can be securely fastened. If the control box lid is not in place, the wirings may come out or be sandwiched by the box and the lid and cause electric shocks or a fire.

(1) Remove the control box lid.

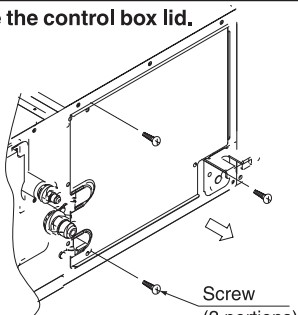


Fig. 20

(2) Connect the wiring into the control box through the wiring intake beside the control box.

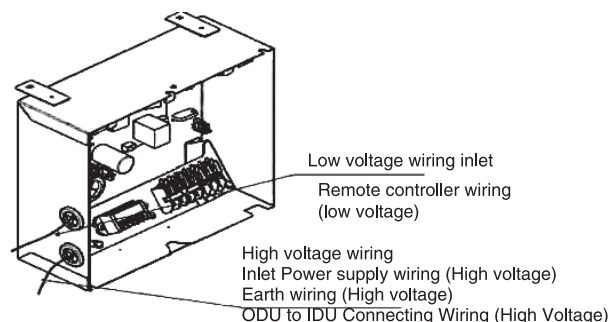


Fig. 21

(3) Follow the instructions below and perform wiring in the control box.

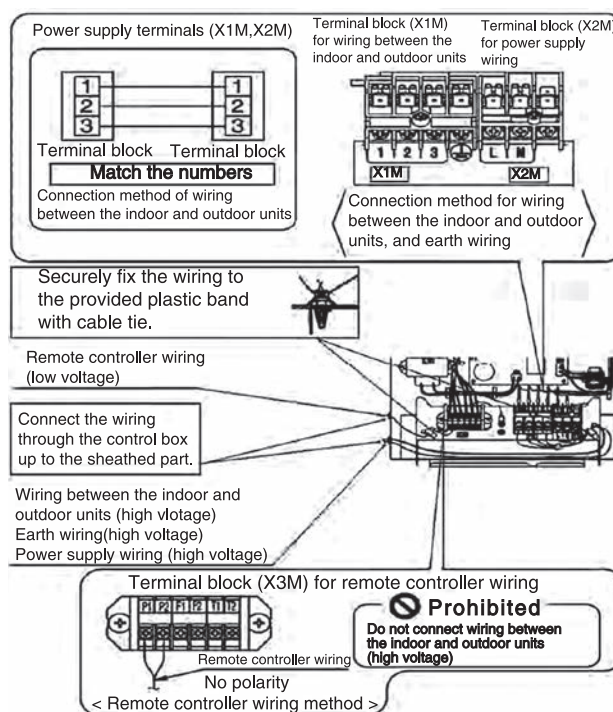


Fig. 22

(4) Mount the control box lid and wrap the wire sealing material (small) (9) so that the wiring through hole will be covered by the sealing material.

- Seal the clearance around the wirings with putty or insulating material (field supply).
(If insects and small animals get into the indoor unit, short-circuiting may occur inside the control box.)

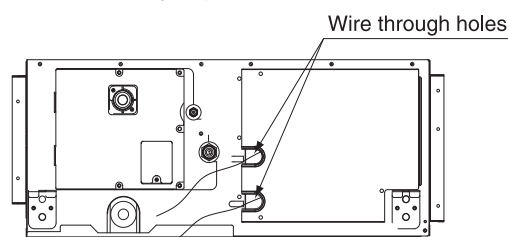


Fig. 23

- (5) Mount the provided wire fixing bracket(10) with the wire fixing screw(11). Fix each wire with the provided clamp(7).

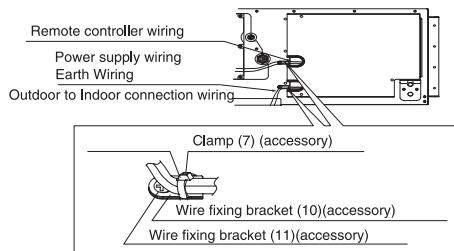


Fig. 24

WIRING EXAMPLE

CAUTION

Be sure to install an earth leakage breaker to the outdoor unit. This is to avoid electric shocks or a 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. 25)
- **Simultaneous operation system:**
1 remote controller controls 2 indoor units (2 indoor units operates equally). (Refer to Fig. 26)
- **Group control:**
1 remote controller controls up to 16 indoor units (All indoor units operate according to the remote controller). (Refer to Fig. 27)
- **2 remote controllers control:**
2 remote controllers control 1 indoor unit. (Refer to Fig. 30)

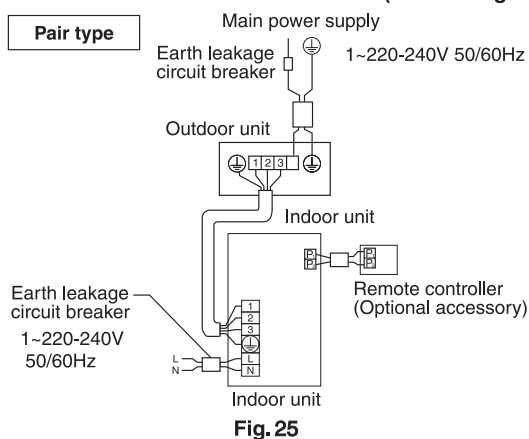


Fig. 25

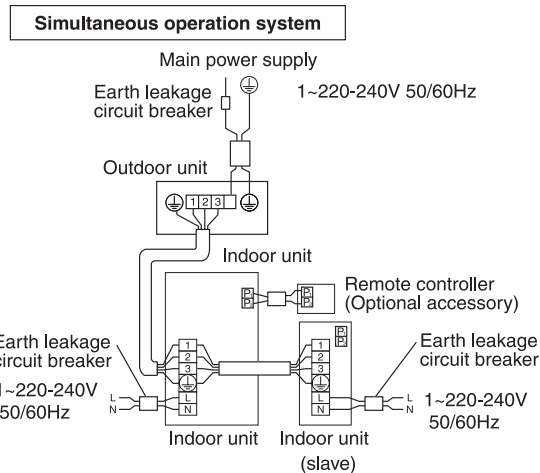


Fig. 26

NOTE

1. Terminal numbers of outdoor and indoor units must be matched.
 - 2-1. Connect the remote controller only to the master unit.
 - 2-2. 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.)
 - 2-3. The indoor temperature sensor is effective only for indoor units to which the remote controller is connected.
 - 2-4. 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

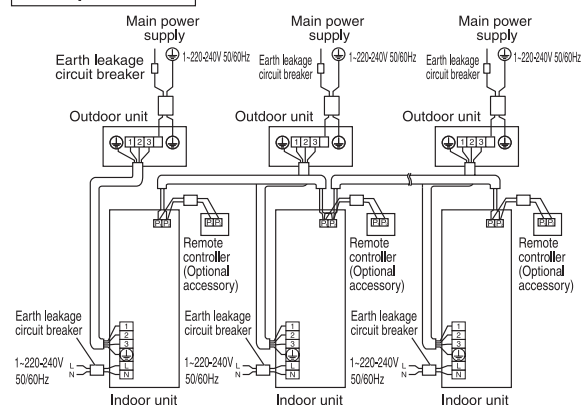


Fig. 27

NOTE

- Terminal numbers of outdoor and indoor units must be matched.
- When implementing group control**
- When using as a pair unit or as a master unit for simultaneous operation system, you may carry out simultaneous start/stop (group) control up to 16 units with the remote controller. (Refer to Fig. 28)
 - 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.

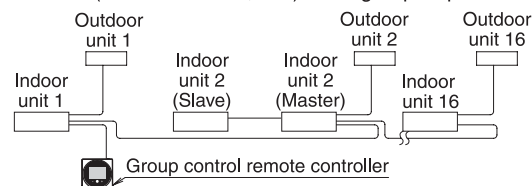
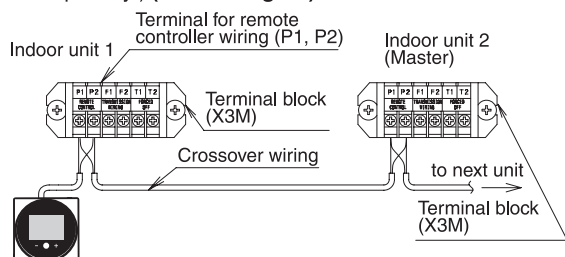
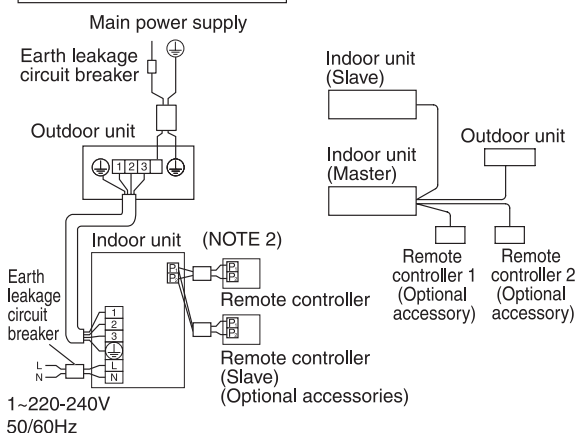


Fig. 28

Wiring Method

- (1) Remove the control box lid.
- (2) Connect crossover wiring between the terminals (P1, P2) inside the control box for the remote controller. (There is no polarity.) (Refer to Fig. 28)

**Fig. 29****2 remote controllers control****Fig. 30****Two remote controllers control (Controlling 1 indoor unit by 2 remote controllers)**

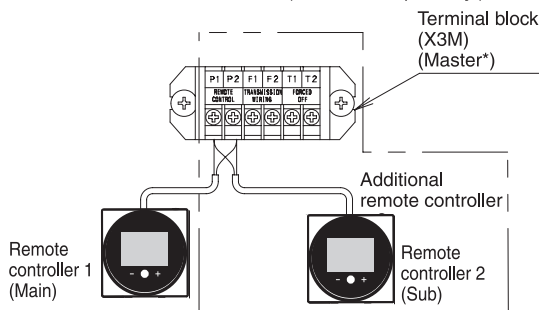
- When using 2 remote controllers, one must be set to “MAIN” and the other to “SUB”.

MAIN/SUB CHANGEOVER

- Refer to the manual attached to the remote controller.

Wiring Method

- (1) Remove the control box lid.
- (2) Add wiring between the remote controller 2 (Sub) and the terminal (P1, P2) of the terminal block (X3M) for the remote controller in the control box. (There is no polarity.)



* For simultaneous operation system, be sure to connect the remote controller to the master unit.

Fig. 31**NOTE**

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

10. FIELD SETTING**CAUTION**

Before carrying out field setting, check the items mentioned in **1. Items to be checked after the installation work is completed** on page 3.

- Check if all the installation and piping works for the air conditioner are completed.
- Check that the outside panel and piping cover of the indoor and outdoor units are closed.

< FIELD SETTING >

After turning 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 following tables indicate those when shipped from the factory.

(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 ().

- 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.
- Settings are performed by selecting “Mode No.”, “FIRST CODE No.”, and “SECOND CODE No.”.

10-1 Settings for external static pressure

- Make settings in either method (a) or method (b).

(a) Make settings with Air volume automatic adjustment function.

“Air volume automatic adjustment” function: The air volume is adjusted to the rated air volume automatically.

CAUTION

- Be sure to check that the external static pressure is within the specification range before making settings. The external static pressure will not be automatically adjusted and air volume insufficiency or water leakage may result if the external static pressure is outside the range. (Refer to the technical document for the setting range of external static pressure.)
- If the air conditioner is in simultaneous multi operation, the air volume automatic adjustment function cannot be set collectively for the slaves. Therefore, make main and slave unit settings according to **Simultaneous multi operation individual settings**.

- (1) Check that the electrical wiring and duct work have been completed.

(If the closing damper is set midway, be sure to check that the damper is opened. Furthermore, check that the air passage on the suction side is provided with an air filter (field supply)).

- (2) If air conditioner has more than one air outlet and air inlet, be sure to make adjustments so that the air volume ratio of each air outlet and the corresponding air inlet will conform to the designed air volume ratio.

In that case, set the operating mode to “Fan”. (In the case of changing the air volume, press the fan speed button on the remote controller and change the current selection to “High”, “Medium”, or “Low”.)

- (3) Make settings to adjust the air volume automatically. After setting the operating mode to "Fan", set the air conditioner to field setting mode with the operation of the air conditioner stopped. Select Mode No. [21] (11 in the case of batch settings), select FIRST CODE No. "7", and set the SECOND CODE No. to "03". Return to the "Basic screen", and press the ON/OFF button. The indoor unit will go into fan operation for air volume automatic adjustments (at which time, do not adjust the opening of the air outlet or inlet). The air volume adjustments will automatically terminate approximately 1 to 15 minutes after the indoor unit comes into operation, and the indoor unit will come to a stop.

Table 6

Mode No.	FIRST CODE No.	Setting content	SECOND CODE No.		
			01	02	03
11 (21)	7	Air volume adjustment	OFF	Air volume adjustment completion	Air volume adjustment start

- (4) After the air conditioner comes to a stop, be sure to check with Mode No. [21] per indoor unit that the above SECOND CODE No. is "02". If the operation of the air conditioner does not stop automatically or the SECOND CODE No. is not set to "02", repeat the setting procedure from (3). If the remote controller displays an error, refer to **11-1 HOW TO DIAGNOSE FOR PROBLEMS** and check the error.

CAUTION

- If airflow pathway changes, such as duct and air outlet changes, are made after air volume adjustments, be sure to make "Air volume automatic adjustment" again.
- If airflow pathway changes, such as duct and air outlet changes, are made after **11.TEST OPERATION** or air conditioner relocation, contact your dealer.

(b) Select external static pressure with the remote controller. Check with Mode No. [21] per indoor unit that the SECOND CODE No. for the above "Air volume adjustment" is set to "01" (OFF). (The SECOND CODE No. is factory set to "01" (OFF).) Change the SECOND CODE No. by referring to the table below according to the external static pressure of the duct to be connected.

Table 7 [For FDMF48AVMK]

External static pressure	Mode No.	FIRST CODE No.	SECOND CODE No.
50Pa	13 (23)	6	05
60Pa			06
70Pa			07
80Pa			08
90Pa			09
100Pa			10

[For FDMF54AVMK]

External static pressure	Mode No.	FIRST CODE No.	SECOND CODE No.
50Pa	13 (23)	6	05
60Pa			06
70Pa			07
80Pa			08
90Pa			09
100Pa			10

 In the above table is rated static/factory settings.

10-2 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

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

10-3 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 8

Setting		Mode No.	FIRST CODE No.	SECOND CODE No.
State of fan in operation with thermostat OFF (cooling and heating)	Normal	11 (21)	2	01
	Stop			02
Fan speed during cooling thermostat OFF	LL (Extra low)	12 (22)	6	01
	Setting			02
Fan speed during heating thermostat OFF	LL (Extra low)	12 (22)	3	01
	Setting			02

10-4 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 9 according to the amount of dust or pollution in the room.
- The periodical filter cleaning time can be shortened depending on the environment.

Table 9

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.

10-5 Remote control settings (forced stop or start-stop control)

- Change the SECOND CODE No. by referring to the table below in the case of remote control.

Table 10

Setting content	Mode No. (Note)	FIRST CODE No.	SECOND CODE No.
Forced stop	12 (22)	1	01
Start-stop control			02

10-6 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 11.
- When using in simultaneous operation system mode, refer to "SIMULTANEOUS OPERATION SYSTEM INDIVIDUAL SETTING" section to set master and slave units separately.

Table 11

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

10-7 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.

Table 12

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

- Perform field setting (Refer to 10-1 to 10-6) for the master unit.
- Turn off the main power supply switch after (2) is finished.
- Detach remote controller from the master unit and connect it to the slave unit.
- Turn on the main power supply switch again, and as in (1), change the SECOND CODE No. to "02", individual setting for the slave unit.
- Perform field setting (Refer to 10-1 to 10-6) for the slave unit.
- Turn off the main power supply switch after (6) is finished.
- If there is more than one slave unit, repeat steps (4) to (7).
- 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.)

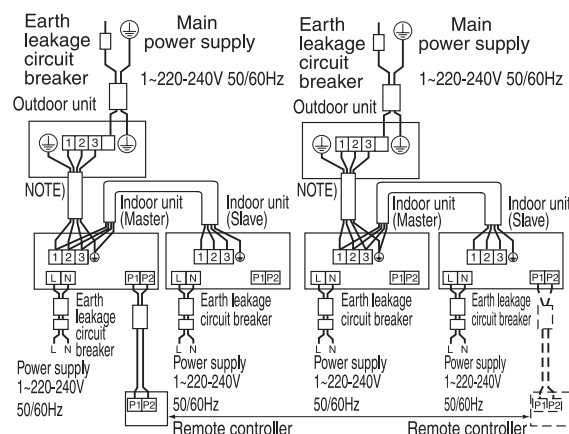


Fig. 32

NOTE

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

11. TEST OPERATION

Complete all the 1. Items to be checked after the installation work is completed on page 3. Please also refer to the installation manual attached to outdoor unit.

- (1) The settings of BRC1H model remote controller should be performed while referring to the manual attached to the remote controller.

11-1 HOW TO DIAGNOSE FOR PROBLEMS

With the power on, troubles can be monitored on the remote controller.

The fault diagnosis for BRC1H model remote controller should be performed while referring to the indoor operation manual page 11.

11-2 MALFUNCTION CODE

- 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.

Malfunction code	Descriptions and measures	Remarks
A1	Indoor Printed Circuit Board failure	
A3	Drain level abnormal	
A6	Indoor fan motor overload, over current, lock	
	Indoor Printed Circuit Board connection failure	
A8	Indoor unit power supply voltage abnormal	
AF	Humidifier system malfunction	
AH	Air cleaner faulty	
	Only the air cleaner does not function.	
AJ	Capacity setting failure	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
C1	Transmission error between indoor Printed Circuit Board (Master) and indoor Printed Circuit Board (Slave)	
C4	Indoor heat exchanger liquid pipe temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C5	Indoor heat exchanger condenser / evaporator temperature sensor malfunction	Abnormal stop is applied depending on the model or condition.
C9	Suction air thermistor malfunction	Abnormal stop is applied depending on the model or condition.
CJ	Remote controller air thermistor malfunction	Remote controller thermo does not function, but body thermo operation is enabled.
E0	Action of safety device (Outdoor unit)	
E1	Outdoor Printed Circuit Board failure (Outdoor unit)	
E3	High pressure malfunction (Outdoor unit)	
E4	Low pressure malfunction (Outdoor unit)	
E5	Compressor motor lock malfunction (Outdoor unit)	
E6	Compressor motor lock by over current (Outdoor unit)	
E7	Outdoor fan motor lock malfunction (Outdoor unit)	
	Outdoor fan instant overcurrent malfunction (Outdoor unit)	
E8	Input overcurrent (outdoor unit)	

E9	Electric expansion valve malfunction (Outdoor unit)	
EA	Cooling/heating switch malfunction (Outdoor unit)	
F3	Discharge piping temperature malfunction (Outdoor unit)	
F6	High pressure control (in cooling) (Outdoor unit)	
H0	Sensor fault for inverter (Outdoor unit)	
H3	High pressure switch failure (Outdoor unit)	
H4	Low pressure switch failure (Outdoor unit)	
H7	Outdoor fan motor position signal malfunction (Outdoor unit)	
H8	CT abnormality (Outdoor unit)	
H9	Outdoor air thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J1	Pressure sensor system malfunction (batch) (Outdoor unit)	
J2	Current sensor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J3	Discharge piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J5	Suction piping thermistor system malfunction (Outdoor unit)	
J6	Outdoor heat exchanger distributor liquid piping thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J7	Outdoor heat exchanger condenser / evaporator thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J8	Liquid piping thermistor system malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
J9	Gas piping thermistor malfunction (cooling) (Outdoor unit)	
JA	Discharge piping pressure sensor system malfunction (Outdoor unit)	
JC	Suction piping pressure sensor system malfunction (Outdoor unit)	
L1	Inverter system malfunction (Outdoor unit)	
L3	Reactor thermistor malfunction (Outdoor unit)	
L4	Overheated heat-radiating fin (Outdoor unit)	Inverter cooling failure.
L5	Instantaneous overcurrent (Outdoor unit)	The compressor engines and turbines may be experiencing a ground fault or short circuit.
L8	Electric thermal (Outdoor unit)	The compressor engines and turbines may be overloaded and disconnected.

L9	Stall prevention (Outdoor unit)	The compressor may be locked.
LC	Transmission malfunction between inverter and outdoor control unit (Outdoor unit)	
P1	Open-phase (Outdoor unit)	
P3	DCL sensor system malfunction (Outdoor unit)	
P4	Heat-radiating fin thermistor malfunction (Outdoor unit)	Abnormal stop is applied depending on the model or condition.
P6	DC output current sensor system malfunction (Outdoor unit)	
PJ	Capacity setting failure (Outdoor unit)	Capacity setting adapter or capacity data error, or disconnection of the capacity setting adapter, failure to connect the adapter, or the capacity is not set to the data-retention IC.
U0	Suction piping temperature abnormal (Outdoor unit)	The refrigerant may be insufficient. Abnormal stop is applied depending on the model or condition.
U1	Reverse phase (Outdoor unit)	Reverse two phase of L1, L2 and L3 leads.
U2	Power voltage malfunction (Outdoor unit)	The inverter open-phase or main circuit condenser may be malfunctioning. Abnormal stop is applied depending on the model or condition.
U4 UF	Transmission error (between indoor and outdoor units)	Wiring error between indoor and outdoor unit. Or Indoor and outdoor Printed Circuit Board failure.
U5	Transmission error (between indoor and outdoor units)	Transmission between indoor unit and remote controller is not performed properly.
U7	Transmission error of the inverter module	
U8	Transmission error between main and sub remote controllers (sub remote controller malfunction)	
UA	Field setting error	System setting error of the simultaneous on/off multi-split type.
UE	Transmission error (between indoor unit and centralized remote controller)	
UC	Remote controller address setting error	
UJ	Accessory equipment transmission error	Abnormal stop is applied depending on the model or condition.

— CAUTION —

After test operation is completed, check the items mentioned in the clause **2. Items to be checked at delivery** on page 4.

If the interior finish work is not completed when the test operation is finished, for protection of the air conditioner, ask the customer not operate the air conditioner until the interior finish work is completed.

If the air conditioner is operated, the inside of the indoor units may be polluted by substances generated from the coating and adhesives used for the interior finish work and cause water splash and leakage.

— To the operator carrying out test operation —

After test operation is completed, before delivering the air conditioner to the customer, confirm that the control box lid is closed.

In addition, explain the power supply status (power supply ON/OFF) to the customer.

3. Installation of Outdoor Unit

3.1 RZF18AVMK / RZF24AVMK

DAIKIN

Split System Air Conditioner

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

RZF18AVMK, RZF24AVMK

- 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	Cooling
RZF18AVMK	High	4.17
RZF24AVMK	Low	2.76

(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 (RZF18~24AVMK) shall be installed operated and stored in a room with floor area larger than 2.76 m² (model 24) and 1.84 m² (others model).
- 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.

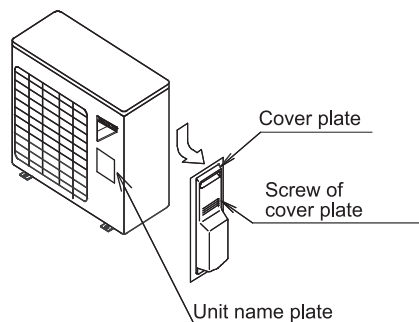
1 BEFORE INSTALLATION

<DO NOT THROW AWAY ACCESSORIES FOR INSTALLATION>

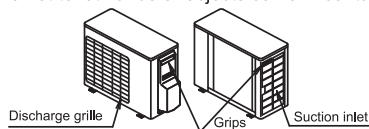
CAUTION

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

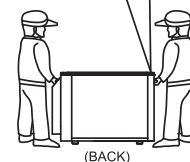
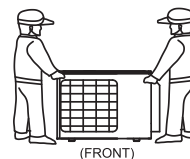
RZF18AVMK
RZF24AVMK

**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.

**INSTALLATION CONSTRUCTION ACCESSORIES**

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

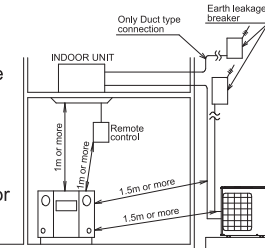
CAUTION

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.



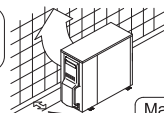
Inverter air conditioners may cause noise to occur in electrical appliances. As shown in the right drawing, select an installation site well away from radios, PCs, and stereos.
Especially in the areas where the incoming signal strength is weak, keep the indoor remote controller 3 meter or more from electrical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

2 SELECTING INSTALLATION SITE (2/2)

⚠ CAUTION

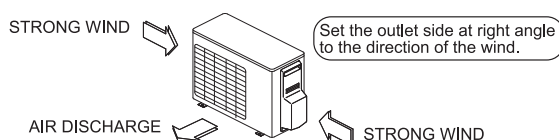
- 1) In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- 2) When installing the unit in a place exposed to strong wind, pay special attention to the following.
Strong winds of 5 m/sec or more blowing against the outdoor 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.

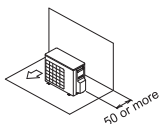
If the planned inlet area temperature exceeds 35°C(DB), or if the heat load of all outdoor units is increased significantly and exceeds the maximum operating capacity, secure a larger space than that indicated by the inlet dimensions in these drawings.

- 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.

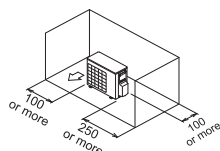
STAND-ALONE INSTALLATION

No Obstacle above

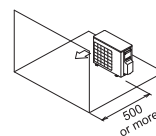
- 1) Obstacle on the suction side only



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

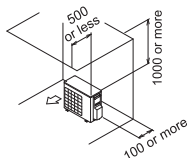


- 3) Obstacle on the discharge side only

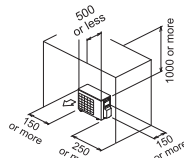


Obstacle above, too

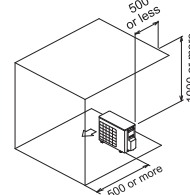
- 1) Obstacle on the suction side, too



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



- 3) Obstacle on the discharge side only, too



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

(Units: mm)

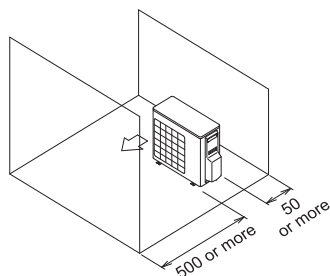
3 INSTALLATION SERVICE SPACE (2/3)

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.

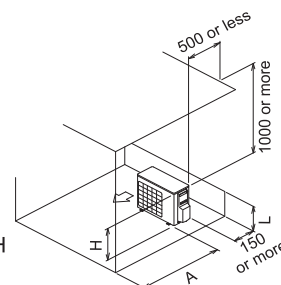
Pattern 1 When the obstacles on the discharge side is higher than the unit

- 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.



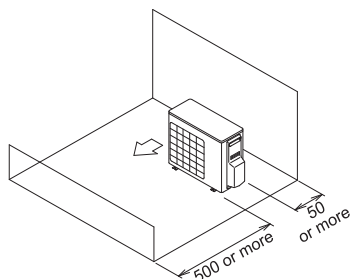
	L	A
$L \leq H$	$L \leq 0.5H$	750 or more
	$0.5H < L \leq H$	1000 or more
$L > H$	Set the stand as: $L \leq H$	

- ※ - 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 $L > H$



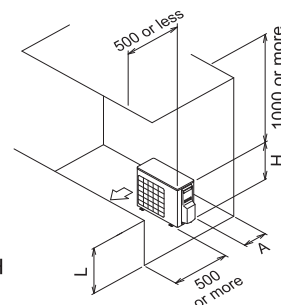
Pattern 2 When the obstacle on the discharge side is lower than the unit

- 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 $L > H$

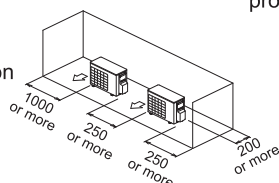


SERIES INSTALLATION (2 OR MORE)

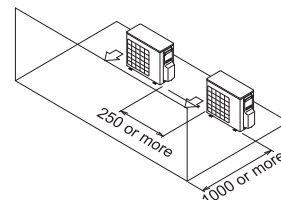
- ※ Inside extraction, please provide the space of piping. (Units: mm)
- To secure service space, more than 250 mm of each products at right side is needed.

No obstacle above

- 1) Obstacle on the suction side and both sides

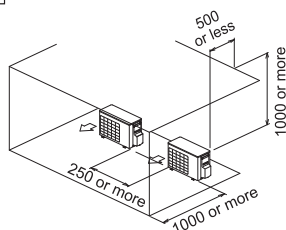


- 2) Obstacle on the discharge side only

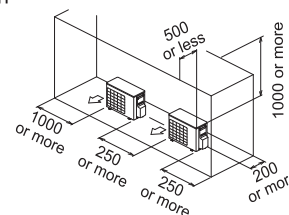


Obstacle above, too

- 1) Obstacle on the discharge side



- 2) Obstacle on the suction side and both sides



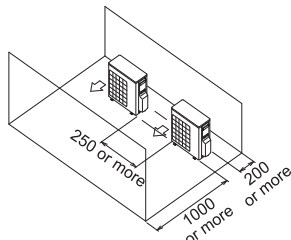
3 INSTALLATION SERVICE SPACE (3/3)

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.)

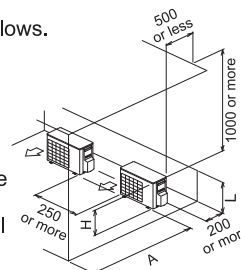


2) Obstacle above, too

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

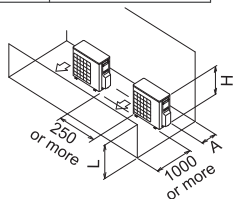
1) No obstacle above (There is no limit for the height of obstructions on the suction side.)

2) Obstacle above, too

(Units: mm)

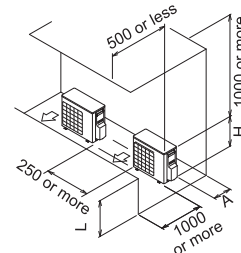
The relations between H, A and L are as follows. The relations between H, A and L are as follows.

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 $L > H$

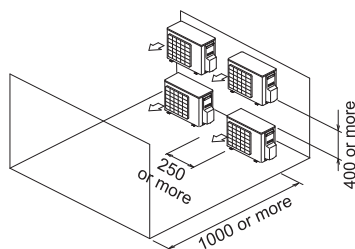


DOUBLE-DECKER INSTALLATION

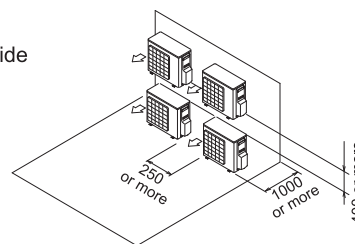
- Do not stack more than two unit.
- The drain piping construction size of upper side outdoor unit is needed about 100 mm.
- In side extraction, please provide the space of piping.

(Units: mm)

1) Obstacle on the discharge side

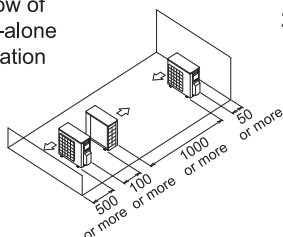


2) Obstacle on the suction side



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

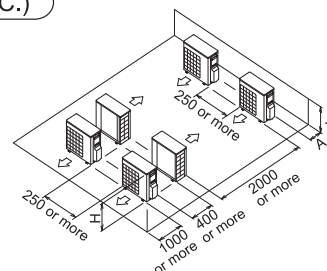
1) One row of stand-alone installation



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.

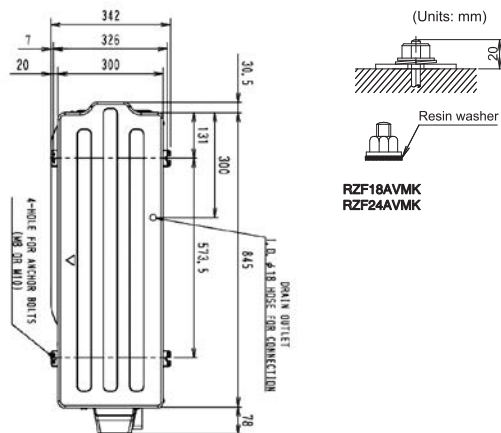


Fig : 1 BOTTOM VIEW

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
RZF18AVMK RZF24AVMK	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.

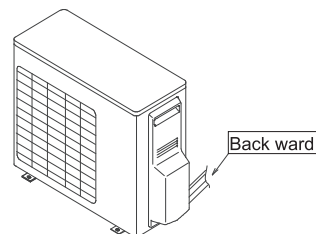


CAUTION

- 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.



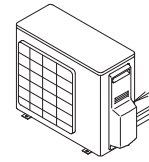
<Fig. 2>

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.

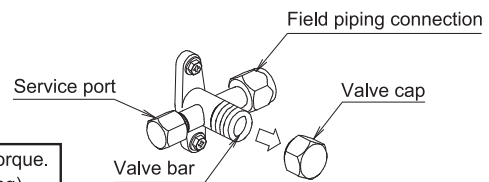


Putty or insulation material (Field supply)
Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

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.

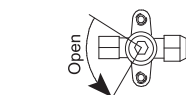
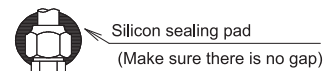


When tightening the flare of the stop valves, make sure to tighten by the rated torque. The rated torque is shown on **CAUTION FOR FLARE CONNECTION** (Following)

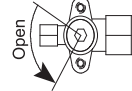
DO NOT APPLY FORCE ON THE VALVE CAP, THIS MAY RESULT IN A REFRIGERANT LEAK.

- 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.



<Liquid side>



<Gas side>

How to operate the stop valve

Use hexagonal wrenches 5mm.

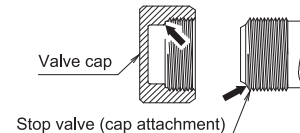
Opening the valve 1. Place the hex wrench on the valve bar and turn counter-clockwise.
2. Stop when the valve bar no longer turns. (It is now open.)

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.)

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 ± 1.2 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)

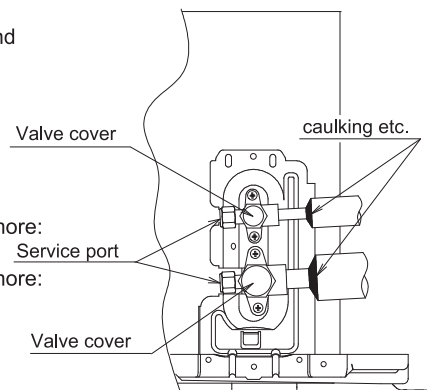
PRECAUTIONS FOR CONNECTING PIPING

- 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.)

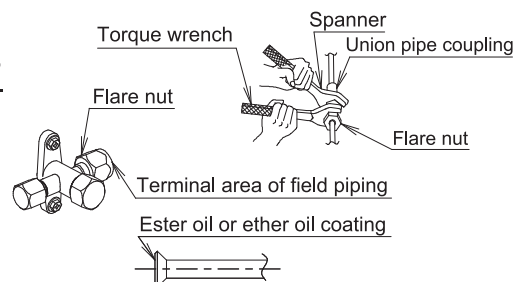


Insulation of interunit piping must be carried out up to the connection inside the casing. If the piping is exposed to the atmosphere, it may cause sweating or burn due to touching the piping, electric shocks or a fire due to the wiring touching the piping.

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

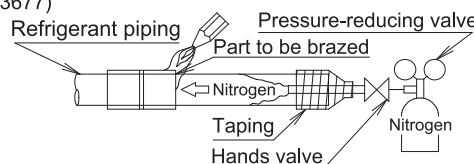
<Do not reuse joint which have been used once already>

- 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.)

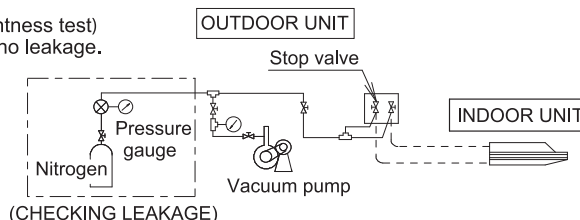
Do not use anti-oxidants when brazing the piping joints. (Residue can clog pipes and break equipment.)



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.

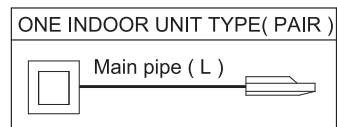
7 CHARGING REFRIGERANT (1/2) < Be sure to use R32 as refrigerant. >

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



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)
			30m or less
RZF18AVMK RZF24AVMK	ø9.5mm x t0.8mm	15m	0.375

• Total refrigerant charging (When recharging due to exchange compressor, etc.)

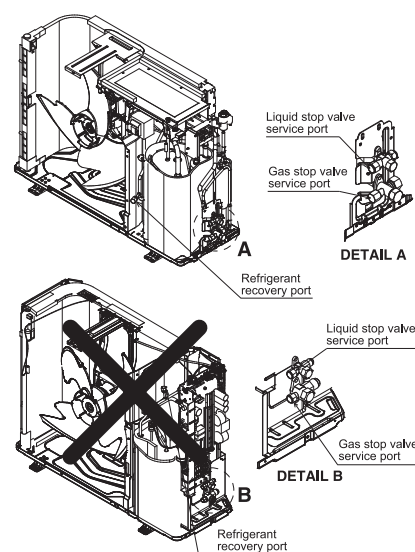
Please charge refrigerant base on pipe length mentioned on the following table.

Outdoor units type	Liquid piping size	Piping length, R32 complete additional amount (kg)	
		5m~15 m	30m or less
RZF18AVMK	ø9.5mm	1.30	1.675
RZF24AVMK	ø9.5mm	1.30	1.675

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 RZF18AVMK, RZF24AVMK) 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.



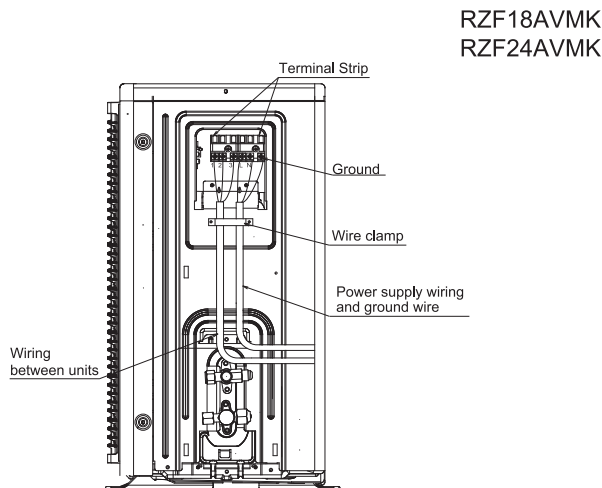
CAUTION

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.

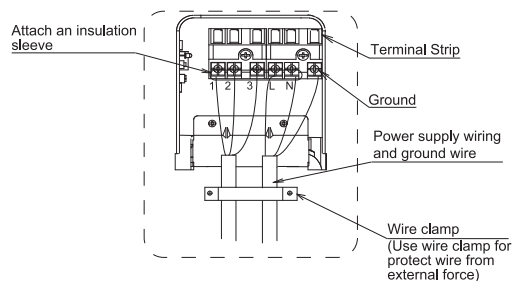
8 ELECTRICAL WIRING WORK (2/3)

- As shown in the following figure, please fix power supply wiring, field wiring and ground wire by clamp material.



- 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.

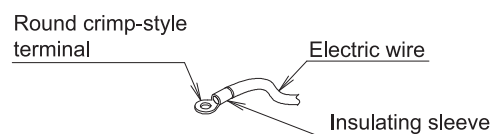


RZF18AVMK
RZF24AVMK

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



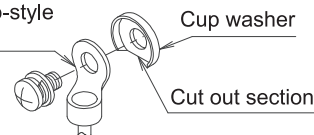
- Never use the stranded wiring which is soldered.
(Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws.
If 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

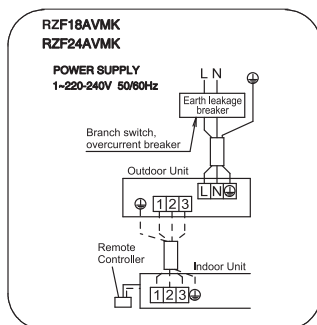
- Ground wiring should be taken out from the cut out section of a cup washer.
(Otherwise, contact of ground wiring is inadequate and it is ineffective.)

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	
RZF18AVMK RZF24AVMK	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
	2	Server room setting	—		Server room setting	Anti-Frozen+ 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

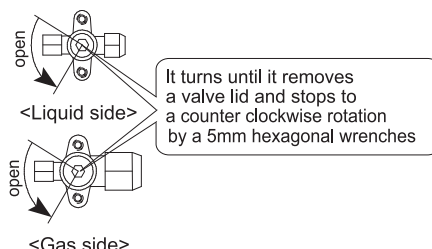
WARNING

- 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.
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 (RZF18~24AVMK)

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 t0.8mm	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 over chargeless, R32 additional amount (kg)
		15m or less	+15m or less
RZF18,24AVMK	φ 9.5mm x t0.8mm	15m	0.375

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
RZF18AVMK	φ 9.5 x t0.8mm	1.30 1.30 1.675
RZF24AVMK	φ 9.5 x t0.8mm	1.30 1.30 1.675

• 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 t0.8mm
Refrigerant piping length	m
Additional refrigerant charging	kg
Recharge of refrigerant	kg

How to execute a pumping-down

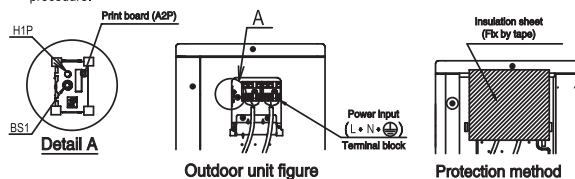
(for example, when moving or reinstalling an indoor or outdoor unit)

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	H1P	
(Green)	(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.

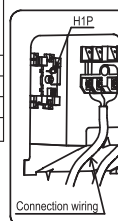
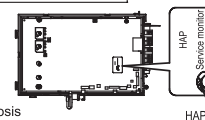
(NOTE 2) Power off for more than 5 seconds, take OFF connection wiring (indoor transmission) and power ON again. If after 10 seconds, outdoor PCB shows [HAP] it means indoor PCB defected.

(NOTE 3) There is phase interruption.

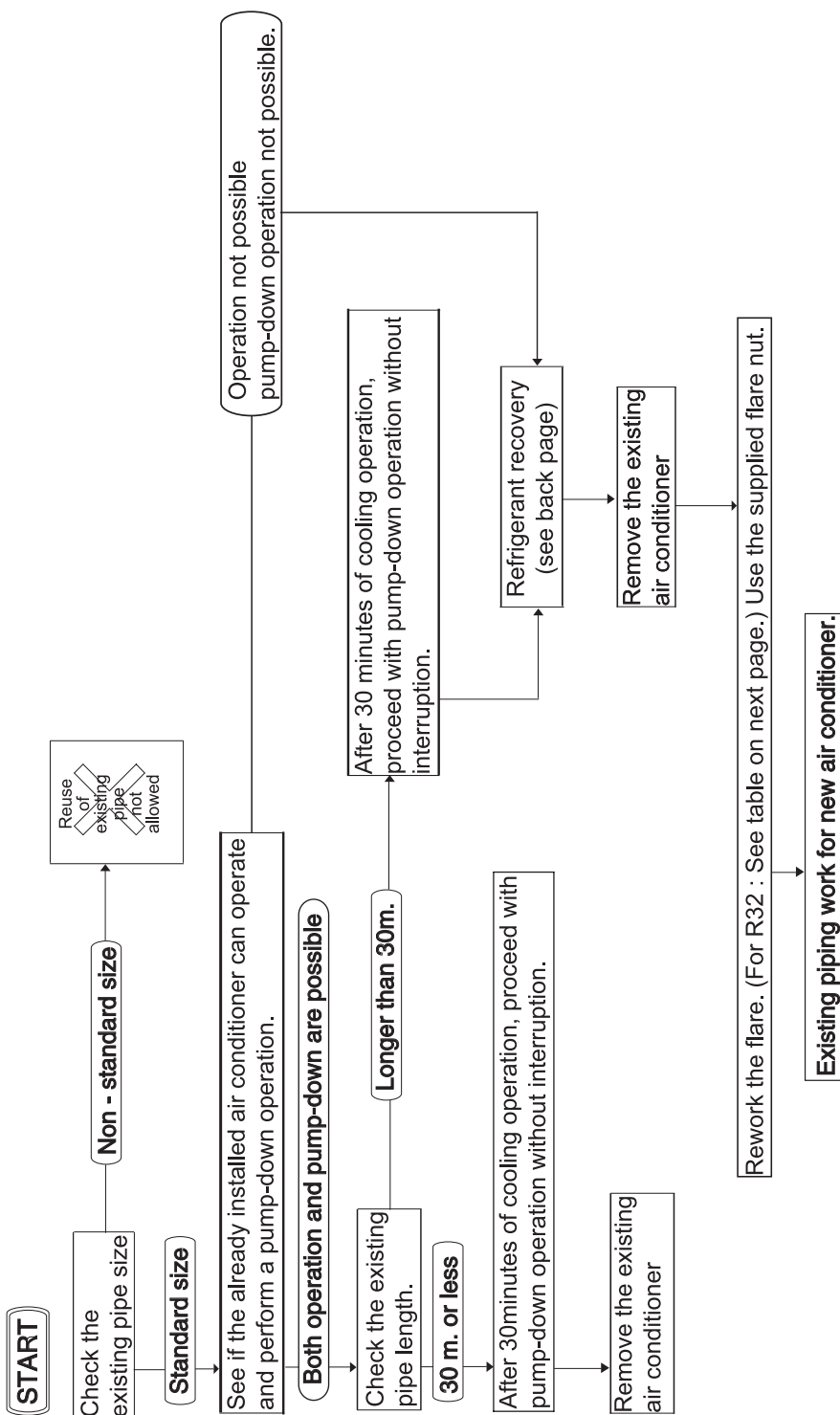
(NOTE 4) Previous abnormal history will be continuing display until power OFF. After inspection, please power OFF.

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.

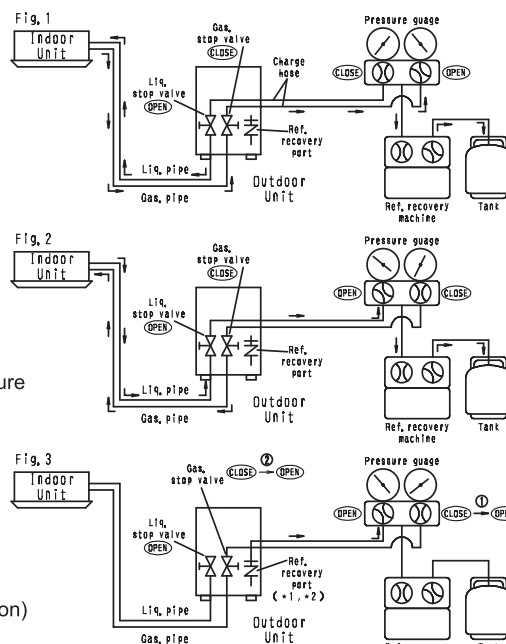
13 REFRIGERANT RECOVERY

[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
φ 9.5	13.2
φ 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
φ 9.5	22
φ 15.9	29

REFRIGERANT PIPE SIZE TABLE

Outdoor Unit	Existing pipe size	9.5/15.9	Height difference	Design pressure (High pressure)
RZF18AVMK RZF24AVMK	Standard pipe length	7.5m	Max 30m	4.17 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)	φ 9.5	φ 15.9
Thickness (mm)	t 0.8	t 1.0

3.2 RZF30AVMK / RZF36AVMK

DAIKIN

Split System Air Conditioner

INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

RZF30AVMK, RZF36AVMK

- 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	Cooling
RZF30AVMK	High	4.17
RZF36AVMK	Low	2.76

(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.





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 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.)

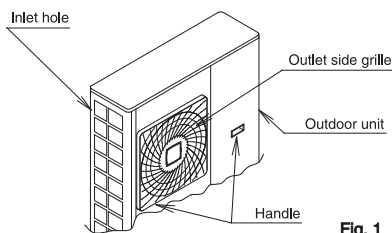


Fig. 1

< Installation Parts >

Always use accessory parts or those of designated specification as parts required for installation.

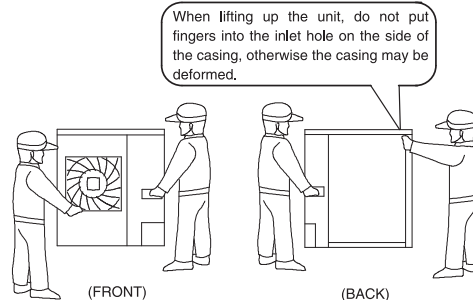


Fig. 2

< 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 there 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.

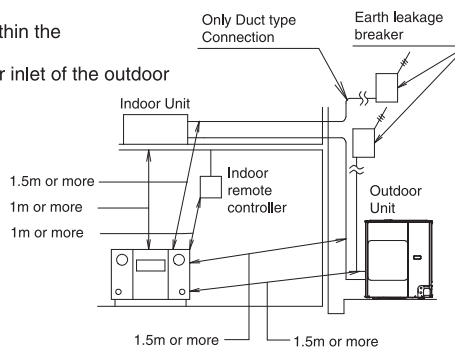
The minimum required space is shown in chapter ③ **INSTALLATION SERVICE SPACE**

 - 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.

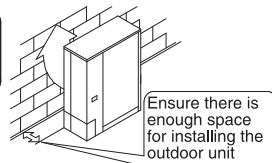
- Performance is degraded.
- Operation stop due to increase in pressure.

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.

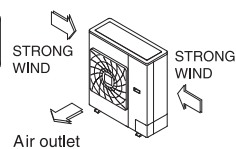
(3) Following the installation place, it is expected that the influence of the strong wind is great.

- 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).

Turn the outlet side toward the building's wall, fence or windbreak screen.



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



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.

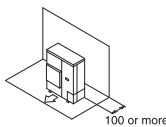
- For installation, consider both pedestrian and air flow paths and choose a suitable pattern from these drawings to match the space available field. (If the number of units to be installed exceeds the patterns in these drawings, consider there are no short-circuits.)
- Regarding the front space, position 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

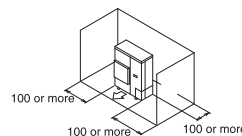
(Units: mm)

When nothing is obstructing the top

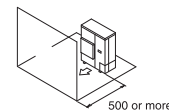
- (1) In case obstacles exist only in front of the inlet side.



- (2) In case obstacles exist in front of the inlet side and on both sides of the outdoor unit.

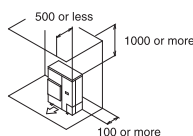


- (3) In case obstacles exist only in front of the outlet side.

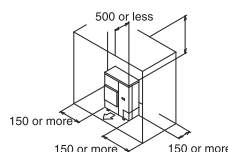


When something is obstructing the top

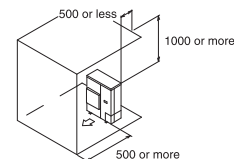
- (1) In case obstacles exist in front of the inlet side



- (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.



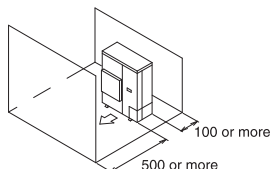
3 INSTALLATION SERVICING SPACES (2/3)

(Units: mm)

In case obstacles exist in front of both inlet and outlet sides

Pattern 1 When obstacles in front of the outlet side is higher than the outdoor unit.

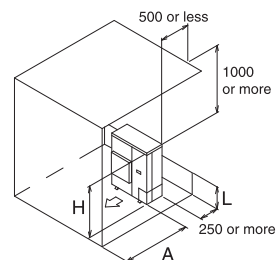
- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



- (2) When something is obstructing the top.
The relations between H, A and L are shown in the table below.

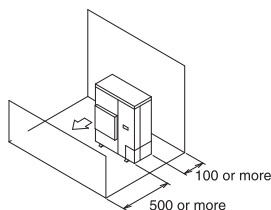
	L	A
$L \leq H$	$L \leq 0.5H$	750 or more
	$0.5H < L \leq H$	1000 or more
$L > H$	Set the frame to be $L \leq H$ Refer to the column of $L \leq H$ for A.	

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

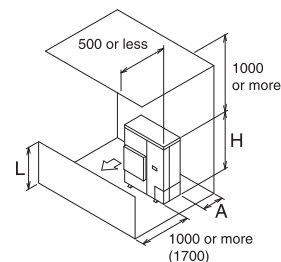
- (1) When nothing is obstructing the top. (There is no height limit for obstructions on the inlet side.)



- (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.	

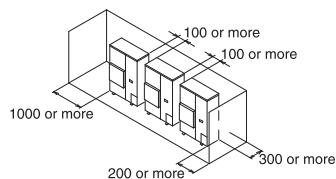
Get the lower part of the frame sealed so that air from the outlet does not bypass.
If the dimensions is () or more, you do not need to place the frame including the case of $L > H$.



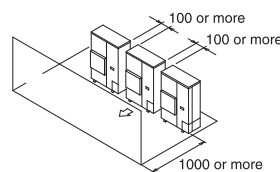
3-2 IN CASE OF INSTALLING MULTIPLE UNITS (2 UNITS OR MORE) IN LATERAL CONNECTION PER ROW (Units: mm)

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

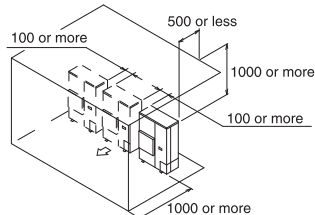


- (2) In case obstacles exist only in front of the outlet side

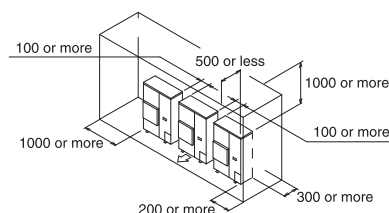


When something is obstructing the top

- (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



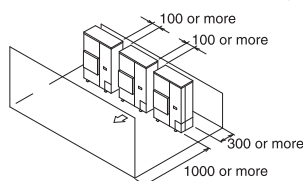
3 INSTALLATION SERVICING SPACES (3/3)

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.

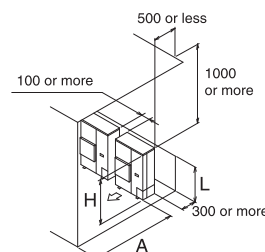
- (1) When nothing is obstructing the top.
(There is no height limit for obstructions on the inlet side.)



- (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.

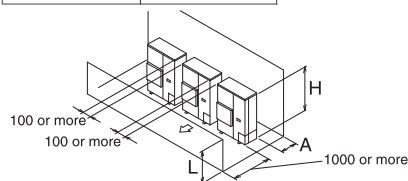


Pattern 2 Where obstacles in front of the outlet side is lower than the outdoor unit

- (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.

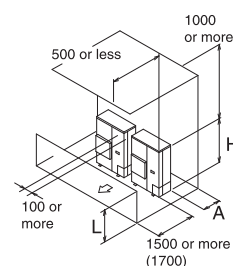
L	A
$L \leq 0.5H$	250 or more
$0.5H < L \leq H$	300 or more



- (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 $L > H$.

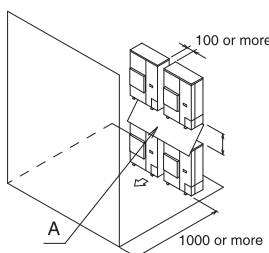


3-3 IN CASE OF STACKED INSTALLATION

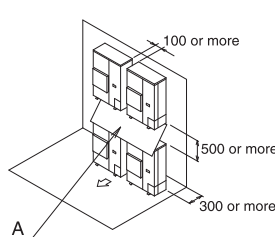
(Units: mm)

When nothing is obstructing the top

- (1) In case obstacles exist in front of the outlet side .



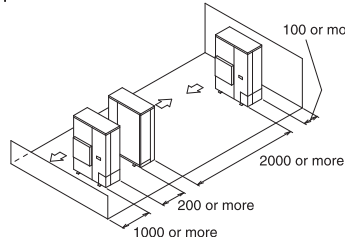
- (2) In case obstacles exist in front of the inlet side.



- 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.

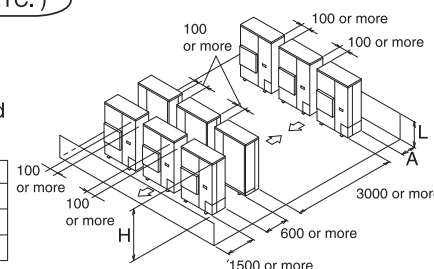


- (2) In case of installing multiple units
(2 units or more) in lateral connection per row.

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.

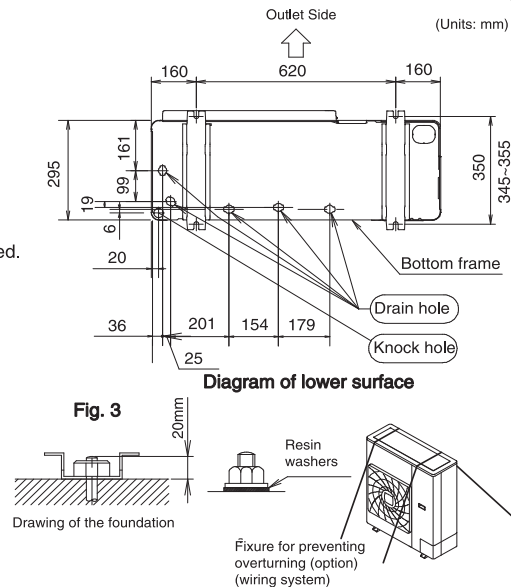
<Installation method of the outdoor unit>

- 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)

CAUTION

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	
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 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
RZF30AVMK RZF36AVMK	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)
RZF30AVMK RZF36AVMK	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)

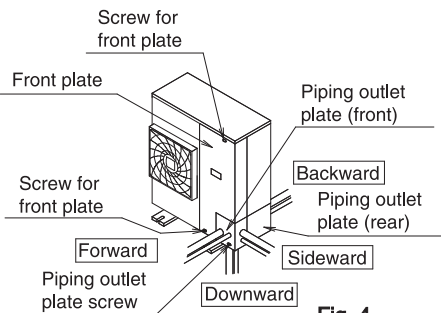


Fig. 4

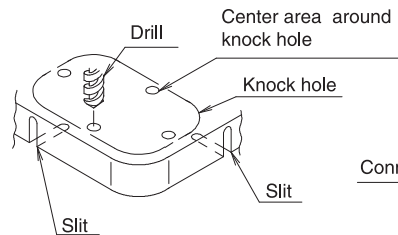


Fig. 5

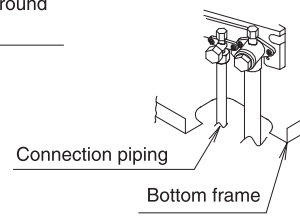
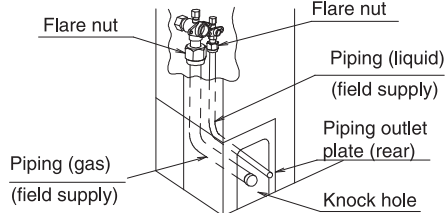


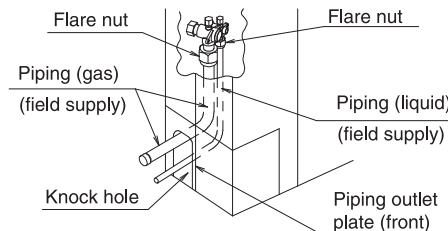
Fig. 6

- 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.)

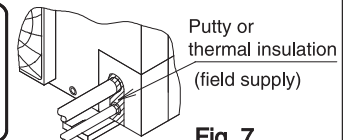


Fig. 7

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.



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)

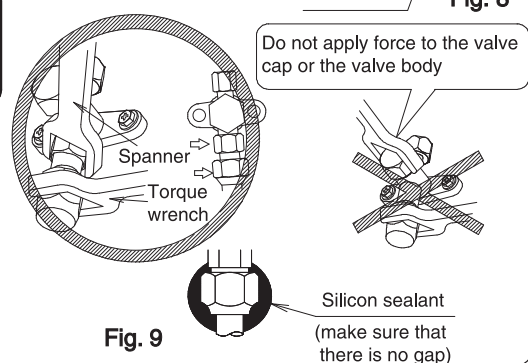


Fig. 9

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.

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

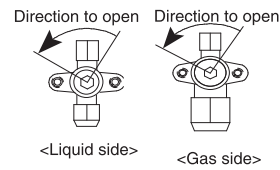


Fig. 10

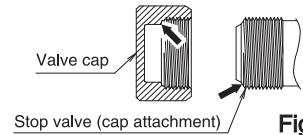


Fig. 11

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.

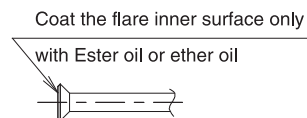
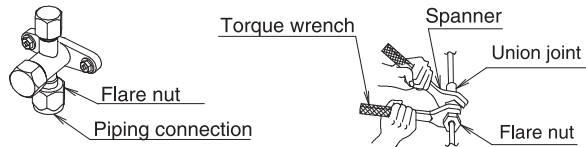
It may become the cause of refrigerant leakage if it is not insulated.
(Be sure to use insulating material which can resistant.)



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.

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 either 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	
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).

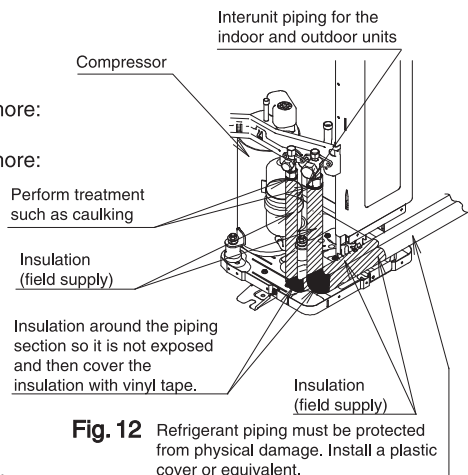


Fig. 12 Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

5 REFRIGERANT PIPING WORK (5/5)

PRECAUTIONS WHEN BRAZING THE REFRIGERANT PIPINGS

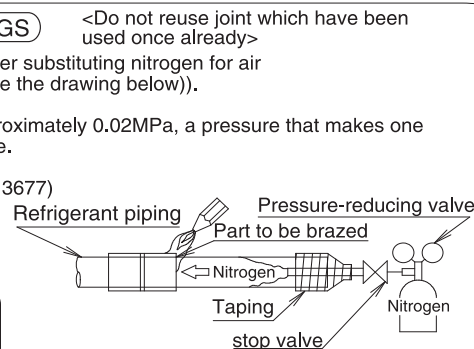
- When brazing the refrigerant piping, carry out brazing work (NOTE 2) after substituting nitrogen for air (flow nitrogen into the piping and substitute nitrogen for air (NOTE 1) (see the drawing below)).

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.)



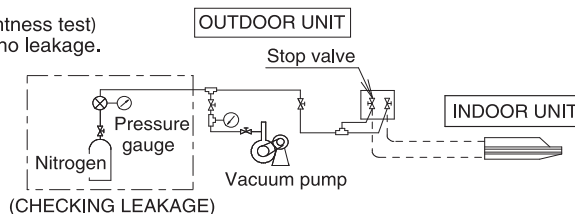
Do not use anti-oxidants when brazing the piping joints.
(Residue can clog pipes and break equipment.)



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
RZF30AVMK RZF36AVMK	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.

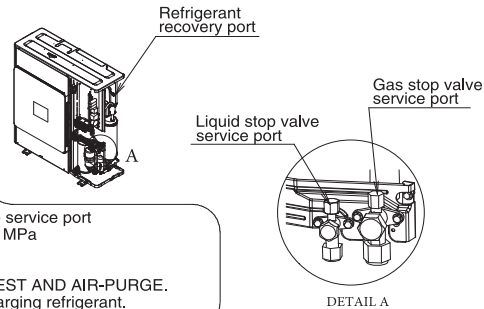
Outdoor units type	Liquid piping size	Piping length, R32 complete additional amount (kg)				
		10m or less	20m or less	30m or less	40m or less	50m or less
RZF30AVMK	ø9.5mm	2.80	2.80	2.80	3.05	3.30
RZF36AVMK	ø9.5mm	2.85	2.85	2.85	3.10	3.35

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 stuck 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.)

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.



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.



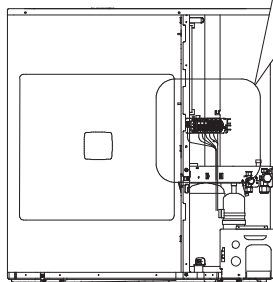
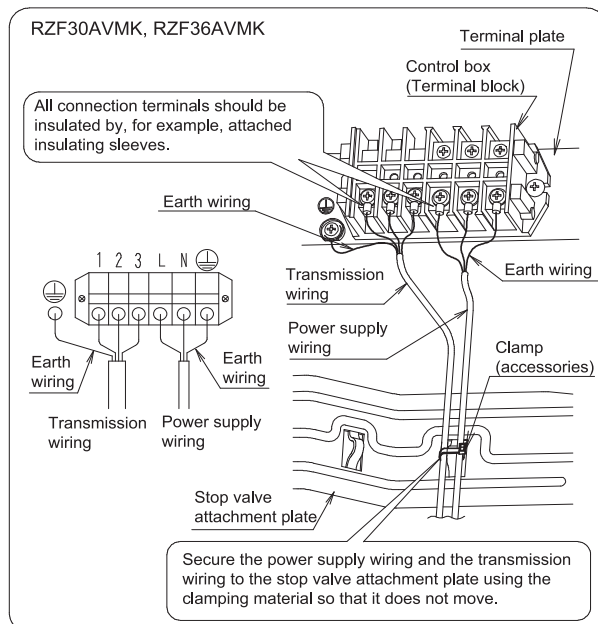
CAUTION

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.

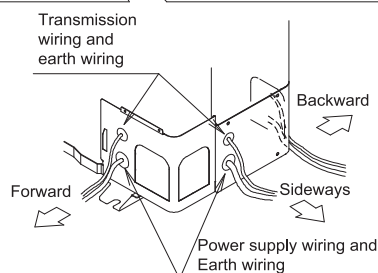
8 ELECTRICAL WIRING WORK (2/3)

- Please fix power supply wiring, transmission wiring, and earth wiring by clamp material as below figure.



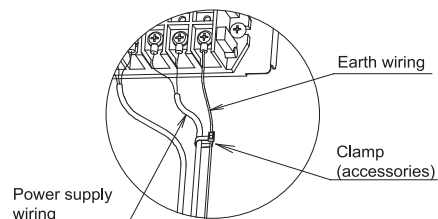
Direction for pulling out the wiring

- 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 size must be carried out on both sides.



Connection of 2 wirings on one side is prohibited.



Connection of wirings of different sizes is prohibited.



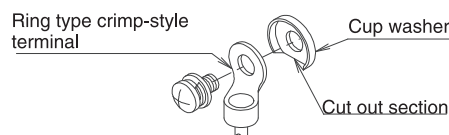
- Never use the stranded wiring which is soldered. (Slack in the electric wiring may cause abnormal heat.)
- Use the required wirings, connect them securely and fix these wirings so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws. If 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

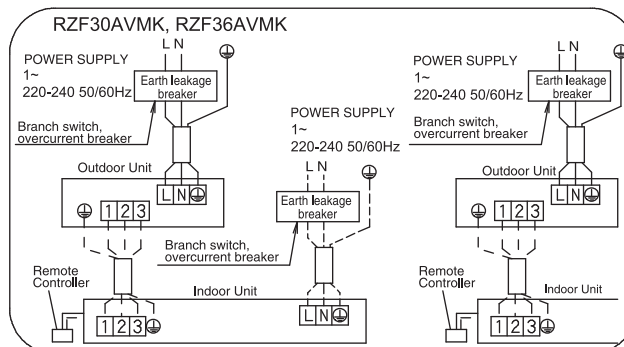


Conduct wiring so that the earth wiring comes out from the notched part of the cup washer. Otherwise, earth wiring contact will be insufficient and earth effect may be lost.



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	
RZF30AVMK RZF36AVMK	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.



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

	WHAT TO CHECK	CHECK
Power supply wiring	Is all wiring laid as instructed? Is all the wiring connected? Are there no missing or reversed phase?	
Transmission wiring	Is the transmission wiring transmission all in the correct order between the units?	
Earth wiring	Is the unit safely grounded? Are the screw at the attachment part of wiring not be loosened? Has the insulation resistance tested to at least 1MΩ? • Use a 500V mega-tester for measuring insulation • ※ Do not use the mega-tester to low voltage circuit except 200-240V. 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 piping size correct? Is the piping insulation applied correctly? Is the liquid and gas sides pipings all insulated? Are the stop valves for both the liquid side and the gas sides open completely? Operating the unit with the valves shut will break the compressor.	
Amount of refrigerant	Did you fill in the additional charging and recharging rate, and piping length on the caution label attached to the back side of the front panel?	
Indoor unit	Is the indoor unit fully installed? When the test run is started, the fan automatically begins turning.	

10 FIELD SETTINGS



WARNING

- Always close the all plates when leaving the outdoor unit with the power ON. (It may cause 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.)

HOW TO MAKE THE FIELD SETTINGS

Setup of functions for an outdoor unit is performed by the remote controller.

Make the field setting according to "How to make the field settings" which come with the remote controller.

The settings are set by switching "Mode No.", "FIRST CODE No.", and "SECOND CODE No.".

Incorrect setting may cause the wrong operations.

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
	2	Server room setting	—		Server room setting	Anti-Frozen+ 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 (attached to the back side of the front plate) or 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.

11 TEST OPERATION

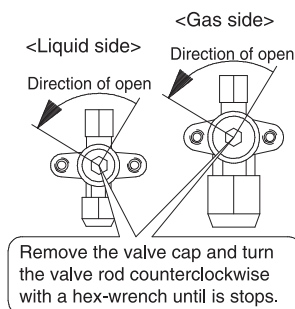
⚠ WARNING

- 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.)

11-1 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 front plate 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.
5. Operate normally
6. Confirm function of the indoor and outdoor units according to the operation manual.



11-2 MALFUNCTION DIAGNOSIS

During the test operation, if the malfunction code shown below is displayed on the remote controller, an installation work error may be the cause.

Malfunction code	Installation work error	Remedial action
[E3] [E5] [U0] [L8]	Failure to open the stop valves	Open the stop valves
[E3] [E5] [L4] [L8]	Closed air flow path	Remove any obstacle to the air flow path
[U1]	Missing phase, negative phase	2 Phase of power supply 3 Phase (L1, L2, L3 Phase) are replaced
[U2]	Unbalanced power	Balance the power/correct the wiring
[U4] [UF]	Improper connection of the transmission wiring	Correct the 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

- If the remote displays malfunction codes other than those above, the indoor and outdoor units may be damaged. For the malfunction codes, please refer to the indoor unit's installation manual or outdoor service manual
- 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.

⚠ CAUTION

To plumbing persons
To the electrician

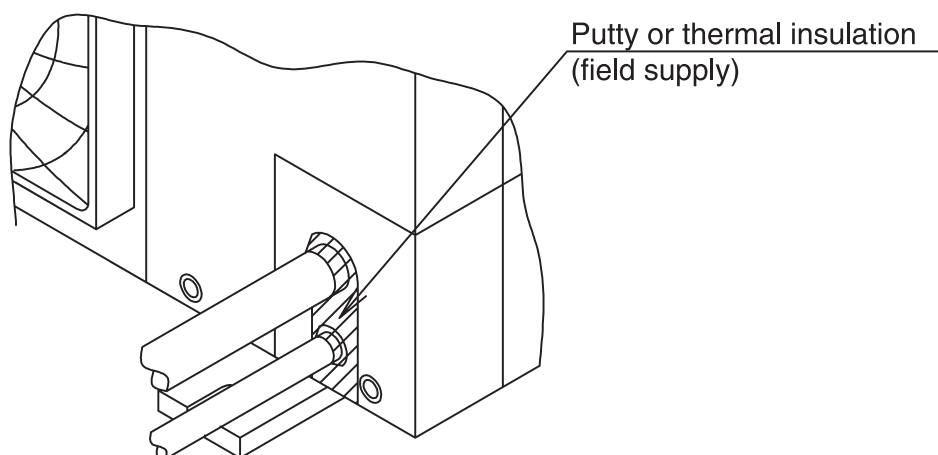
- After the test operation, when handling the unit over to the customer, make sure the piping covers and the all plates are attached.

12 CAUTION (RZF30AVMK, RZF36AVMK)**! CAUTION**

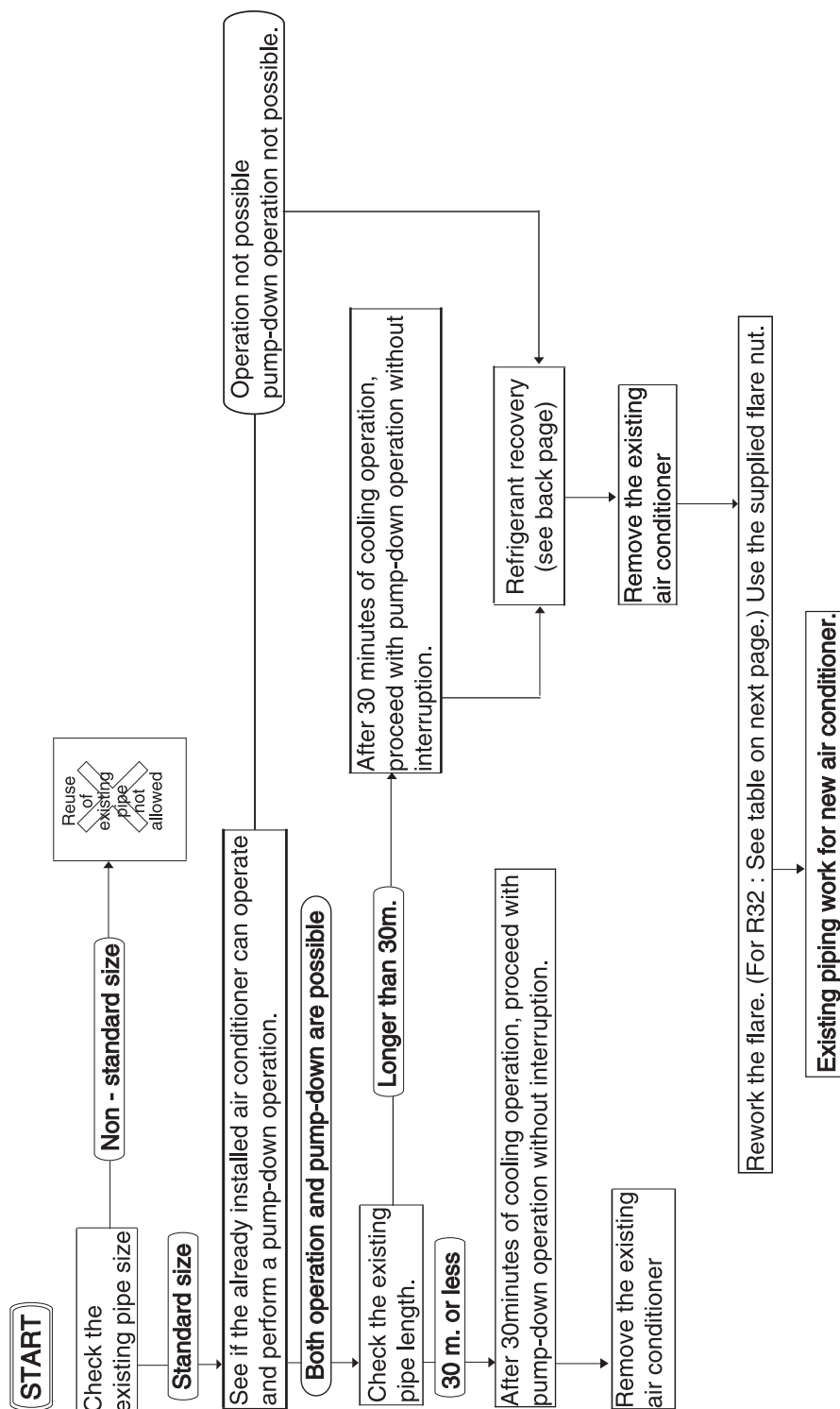
■ To those who carry out the piping work

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.)



13 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.

14 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

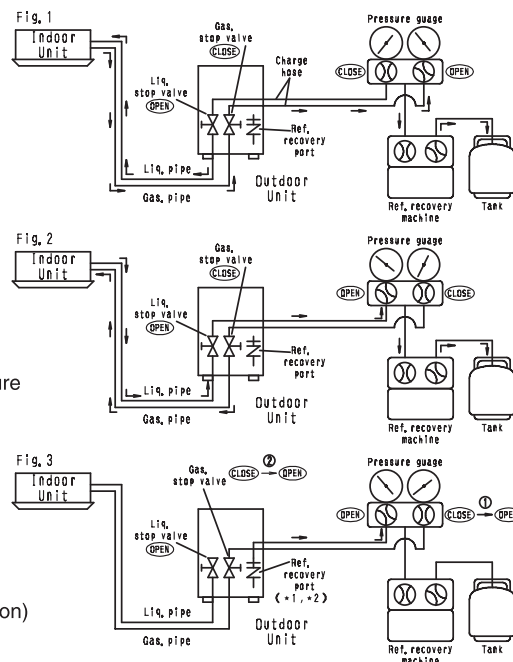
4. Recovery refrigerant in accordance with Fluorocarbons Recovery and Destructive Law

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
φ 9.5	13.2
φ 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
φ 9.5	22
φ 15.9	29

REFRIGERANT PIPE SIZE TABLE

Outdoor Unit		Existing pipe size	9.5/15.9	Height difference	Design pressure (High pressure)
RZF30AVMK RZF36AVMK	9.5/15.9	Standard pipe length	7.5m	Max 30m	4.17 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)	φ 9.5	φ 15.9
Thickness (mm)	t 0.8	t 1.0

3.3 RZF48AYMK / RZF54AYMK



Split System Air Conditioner INSTALLATION MANUAL <FOR OUTDOOR UNIT>

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NEW REFRIGERANT (R32) SERIES

RZF48AYMK, RZF54AYMK

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

CONTENTS

# Safety Precaution	19-21
1 About the documentation	21
2 About the box	21
3 Preparation	22
4 Installation & Technical data.....	22-30
5 Commissioning.....	30-31
6 Disposal	31
7 Service Space	32
8 Piping Diagram	32
9 Existing piping reuse	33

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 is 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	Cooling
RZF48AYMK RZF54AYMK	High	4.17
	Low	2.76

(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.





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 About the documentation

1.1 About this document

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.

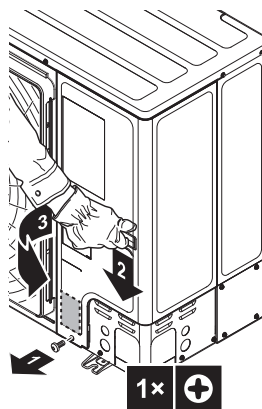
Technical engineering data

- 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).

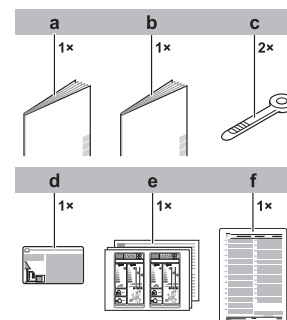
2 About the box

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.

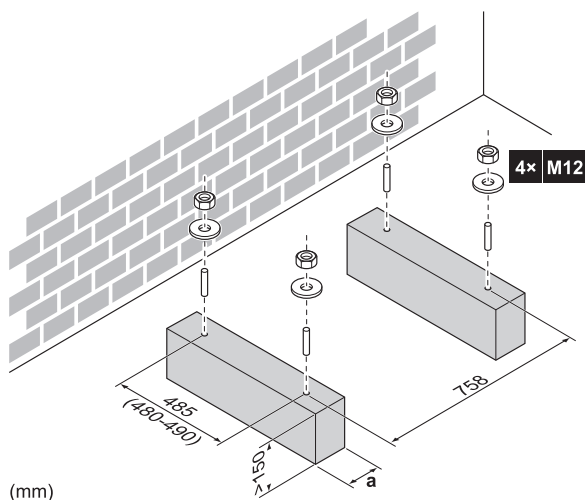
This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.

4 Installation

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:

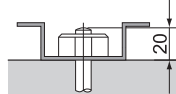


a Make sure not to cover the drain holes of the bottom plate of the unit.



INFORMATION

The recommended height of the upper protruding part of the bolts is 20 mm.

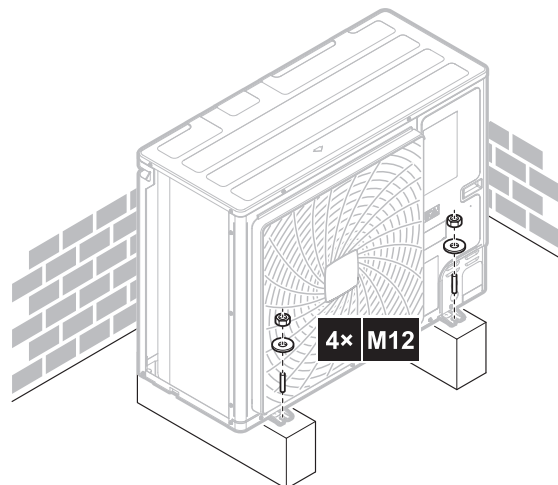


NOTICE

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.



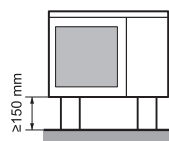
NOTICE

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.

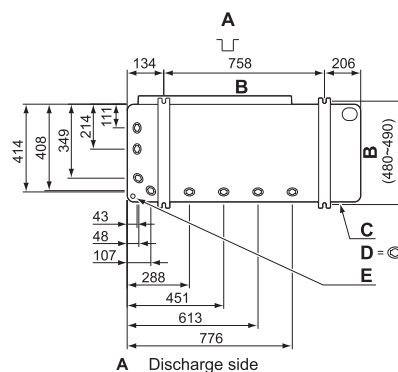


NOTICE

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)

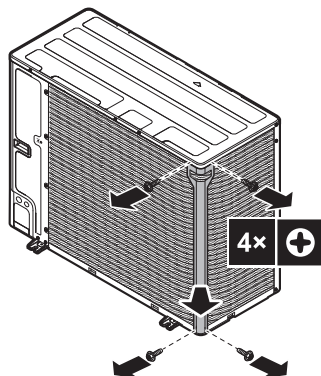


- B Distance between anchor points
 C Bottom frame
 D Drain holes
 E Knockout hole for snow

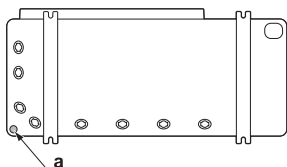
Snow

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.



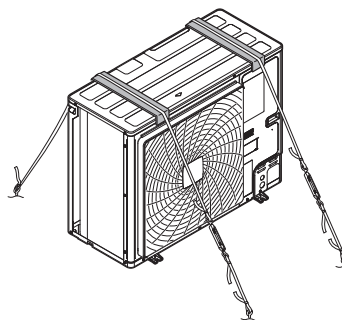
INFORMATION

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



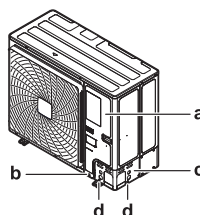
DANGER: RISK OF BURNING

4.2.1 To connect the refrigerant piping to the outdoor unit

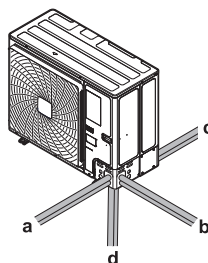
- **Piping length.** Keep field piping as short as possible.
- **Piping protection.** Protect the field piping against physical damage.

- 1 Do the following:

- Remove the service cover (a) with screw (b).
- Remove the piping intake plate (c) with screws (d).



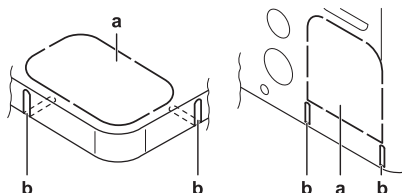
- 2 Choose a piping route (a, b, c or d).



- a Front
 b Side
 c Rear
 d Bottom



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.

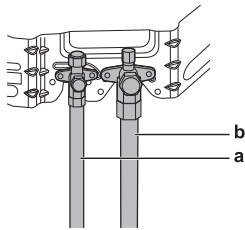
**NOTICE**

Precautions when making knockout holes:

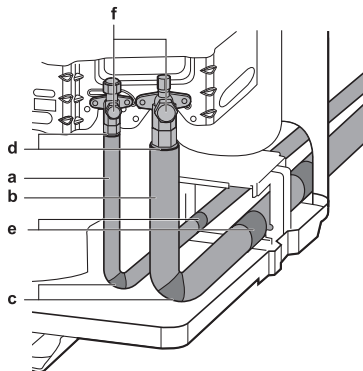
- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape 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:**

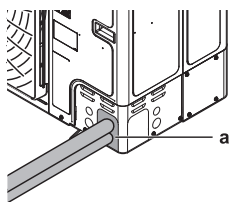
- Insulate the liquid piping (a) and the gas piping (b).
- Wind heat insulation around the curves, and then cover it with vinyl tape (c).
- Make sure the field piping does not touch any compressor components.
- Seal the insulation ends (sealant etc.) (d).
- Wrap the field piping with vinyl tape (e) to protect it against sharp edges



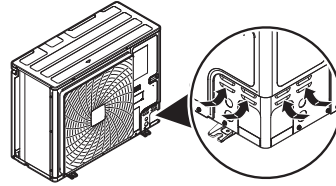
- 5** If the outdoor unit is installed above the indoor unit, cover the stop valves (f, see above) with sealing material to prevent condensed water on the stop valves from moving to the indoor unit.

**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**

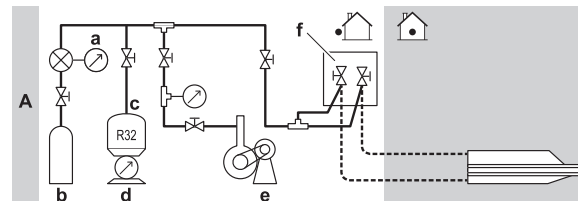
Do not block the air vents. This could affect air circulation inside the unit.

**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
- g Main piping
- h Refrigerant branch kit
- i Branch piping

4.3.2 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 12) which will open required valves in the refrigerant circuit so the vacuuming process or recharge of refrigerant can be done properly.

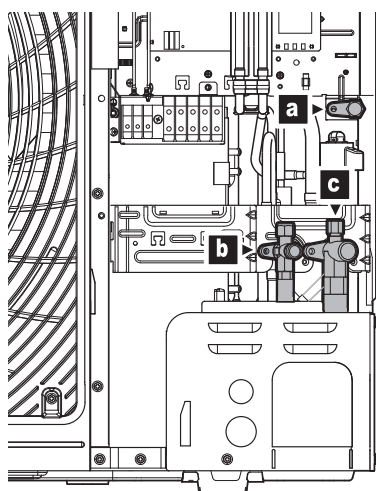
- Before vacuum drying or recharging, activate field setting "vacuum mode".
- After finishing vacuum drying or recharging, deactivate field setting "vacuum mode".

**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

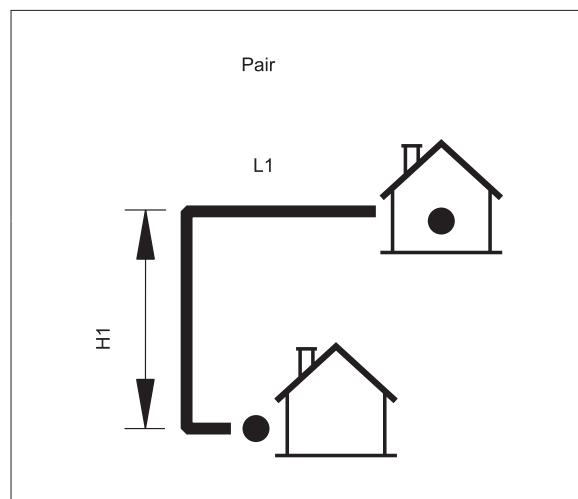


INFORMATION

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 ≤ chargeless length Charge less length =	You do not have to add additional refrigerant.
▪ 10 m (size-down) ▪ 25 m (standard) ▪ 15 m (size-up)	
L1 > 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:	0.5 kg	0.7 kg	1.05 kg ^(a)	1.2 kg ^(a)	1.4 kg ^(a)

(a) Only for RZF48/54.

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).

- Connect the refrigerant cylinder to both the service port of the gas stop valve and the service port of the liquid stop valve.
- Charge the additional refrigerant amount.
- 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)

Model	Length (m) ^(a)				
	3~25	25~30	30~35	35~40	40~50
RZF48/54	3.6	4.1	4.3	4.65	5.0

To determine the complete recharge amount (kg) (in case of size-down liquid pipe size)

Model	Length (m) ^(a)	
	3~10	
RZF48/54	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'.

- Press the BS2 button until you reach page 2-17.
- When 2-17 is reached, press the BS3 button once.
- Change the setting to '2' by pressing the BS2 button once.
- Push the BS3 button once.
- 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:

- Press the BS2 button until you reach page 2-17.
- When 2-17 is reached, press the BS3 button once.
- Change the setting to '1' by pressing the BS2 button once.
- Push the BS3 button once.
- When the display is not blinking anymore, press the BS3 button again to deactivate vacuum mode.
- 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

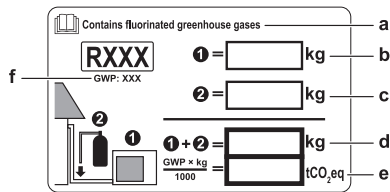
- Only use R32 as refrigerant. Other substances may cause explosions and accidents.
- R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.

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.

- If not already done (for vacuum drying of the unit), activate the vacuum mode (see "To activate/deactivate the vacuum mode field setting")
- Connect the refrigerant cylinder to the service port of the liquid stop valve.
- Open the liquid stop valve.
- Charge the complete refrigerant amount.
- Deactivate the vacuum mode (see "To activate/deactivate the vacuum mode field setting").
- Open the gas stop valve.

4.4.7 To fix the fluorinated greenhouse gases label

- 1 Fill in the label as follows:



- a 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.
b Factory refrigerant charge: see unit name plate
c Additional refrigerant amount charged
d Total refrigerant charge
e **Quantity of fluorinated greenhouse gases** of the total refrigerant charge expressed as tonnes CO₂ equivalent.
f 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.

- 2 Fix the label on the inside of the outdoor unit. There is a dedicated place for it on the wiring diagram label.



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

RZF48/54AYMK

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	
		48	54
Power supply cable	MCA ^(a)	15.7 A	15.4 A
	Voltage range	380~415 V	
	Phase	3N~	
	Frequency	50/60	
	Wire sizes	Must comply with applicable legislation	
Interconnection cables		Minimum cable section of 2.5 mm ² and applicable for 220-240 V	
Recommended field fuse		16 A	
Earth leakage circuit breaker		Must comply with applicable legislation	

(a) MCA=Minimum circuit capacity. Stated values are maximum values (see electrical data of combination with indoor units for exact values).

4.5 Connecting the electrical wiring



DANGER: RISK OF ELECTROCUTION



WARNING

ALWAYS use multicore cable for power supply cables.



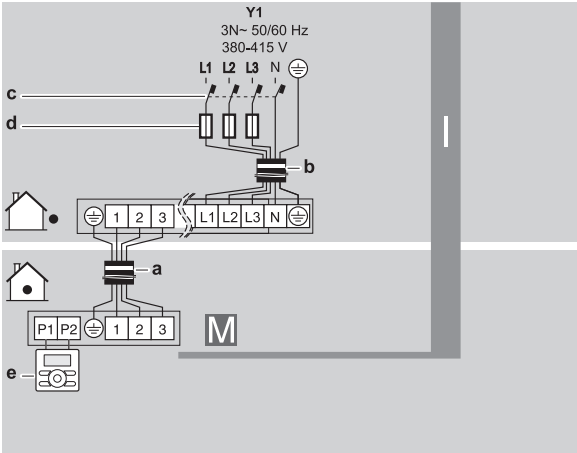
CAUTION

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.

4.5.4 Technical Data

		IDU / ODU							
Model		FDMF48AVMK / RZF48AYMK				FDMF54AVMK / RZF54AYMK			
Unit Dimensions	mm	IDU - 1500*800*400 ODU - 870*1100*520							
Net Weight	Kg	56 / 95							
Packing Dimensions	mm	IDU - 1677*894*455 ODU - 1010*1190*560							
Gross Weight	Kg	59 / 105							
Testing Condition		Cooling							
		T1	T1	T3	T3	T1	T1	T3	T3
		50Hz/400V	60Hz/400V	50Hz/400V	60Hz/400V	50Hz/400V	60Hz/400V	50Hz/400V	60Hz/400V
Cooling Capacity	BTU/Hr	48000	48000	42000	42000	54000	54000	47000	47000
Power Input	Watt	4000	4000	4800	5000	4500	4500	5400	5400
EER	(BTU/Hr)/Watt	12.00	12.00	8.75	8.75	12.00	12.00	8.70	8.70
Current	A	6.20	6.20	7.40	7.40	6.60	6.60	7.80	7.80
Refrigerant Type/Qty	/Kg	3.60 Kg							
Annual Energy Consumption (Kwh)		10800	10800	9600		12150	12150	10800	
Power Factor				0.9				0.9	
Manufacturer's Name:		Daikin Air Conditioning India Pvt Ltd							
Country of Origin:		India							

4.5.5 To connect the electrical wiring on the outdoor unit



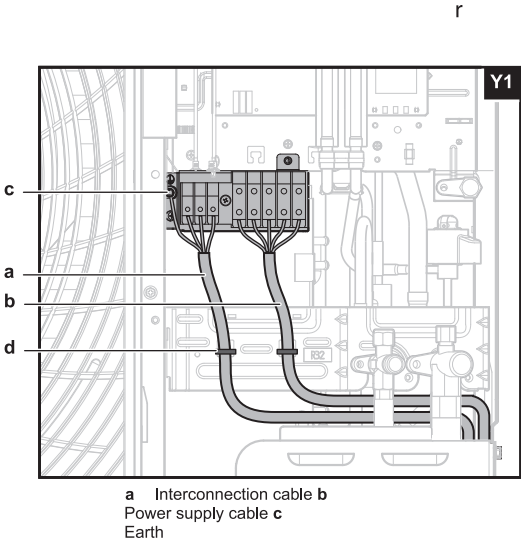
I single system

M Master

- a Interconnection cables
- b Power supply cable
- c Earth leakage circuit breaker
- d Fuse
- e User interface

i 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

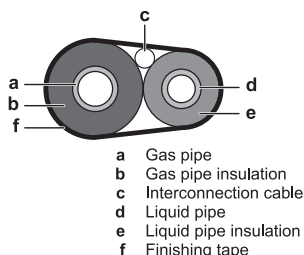
- Precautions when making knockout holes:
- Avoid damaging the casing and underlying piping.
 - After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
 - When passing electrical wiring through the knockout 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.

4.6.2 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 BRC1E52 or BRC1E53 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

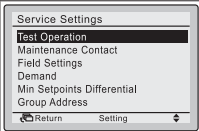
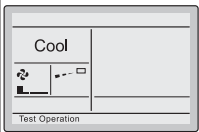
Backlight. To perform an ON/OFF action on the user interface, the backlight does not need to be lit. For any other action, it needs to be lit first. The backlight is lit for ±30 seconds when you press a button.

- 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.

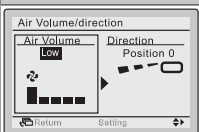
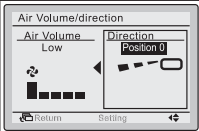
- 2 Start the test run

#	Action	Result
1	Go to the home menu.	

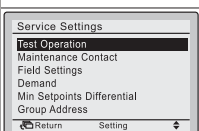
#	Action	Result
2	Press at least 4 seconds. 	The Service Settings menu is displayed.
3	Select Test Operation. 	
4	Press. 	Test Operation is displayed on the home menu. 
5	Press within 10 seconds. 	Test run starts.

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.

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, in the direction 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

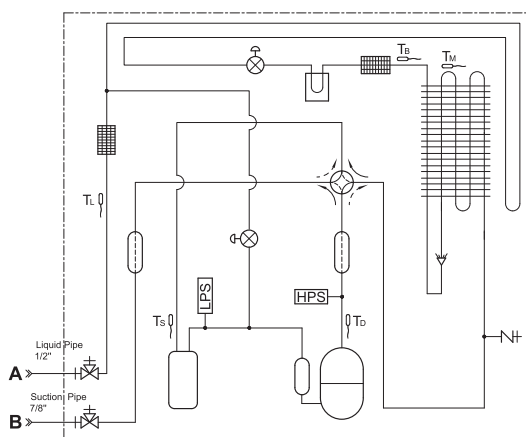
See figure 2 on the inside of the front cover.

- (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.

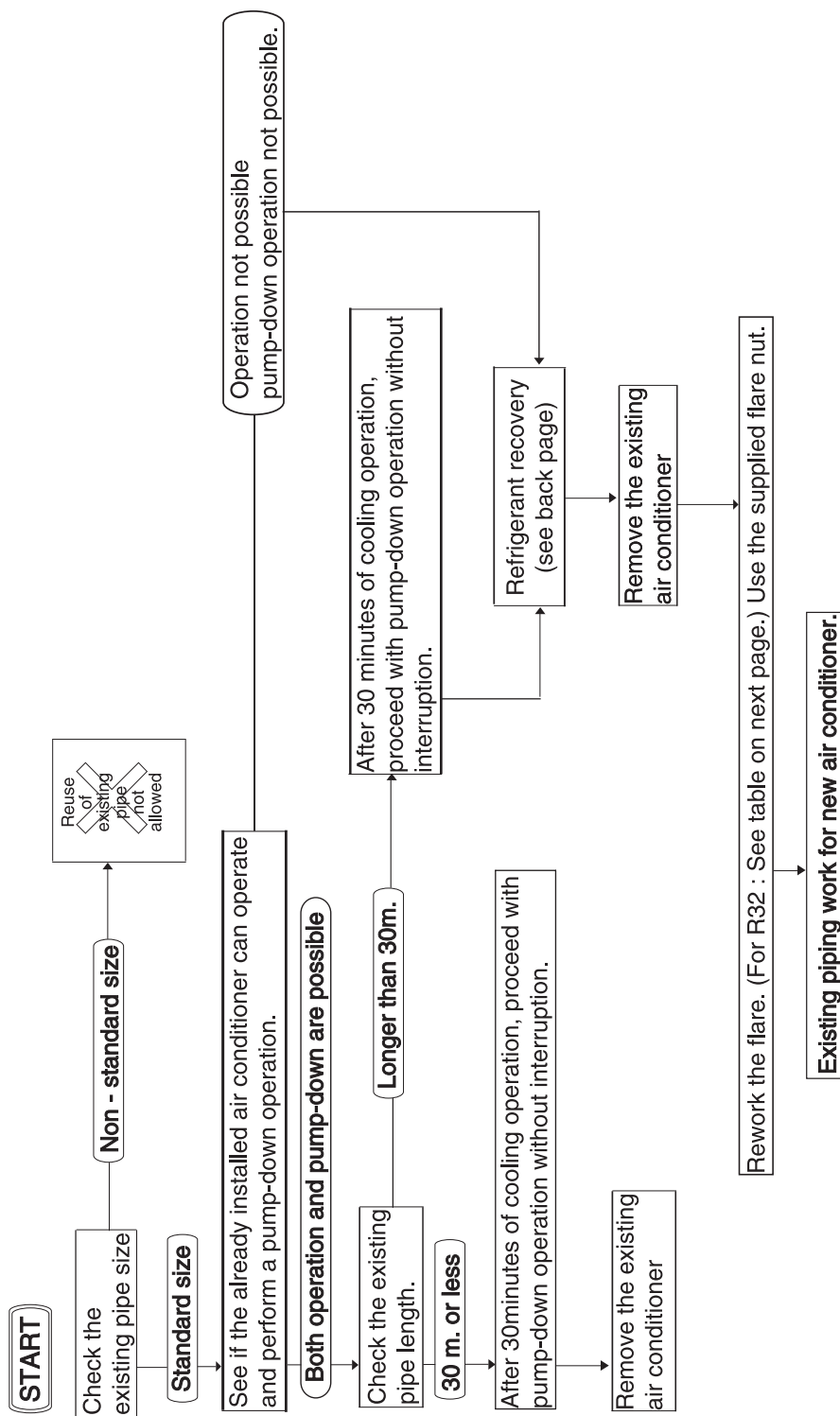
8 Piping diagram: Outdoor unit



- Service port (with 5/16" flare)
- Stop valve 3/8" & 5/8"
- Filter
- PCB cooling
- Muffler

- Electronic expansion valve
- 4-way valve
- HPS High pressure switch
- LPS Low pressure switch
- Compressor accumulator
- Heat exchanger
- Compressor
- Distributor
- Accumulator
- Thermistor
- A** Field piping (liquid: Ø12.7 flare connection)
- B** Field piping (gas: Ø22.2 flare connection)
- Heating
- Cooling

9 HOW TO RE-USE THE EXISTING PIPING



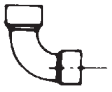
PRECAUTIONS ON REFRIGERANT PIPING

- 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, 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.

(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.**

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 (m) 	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.