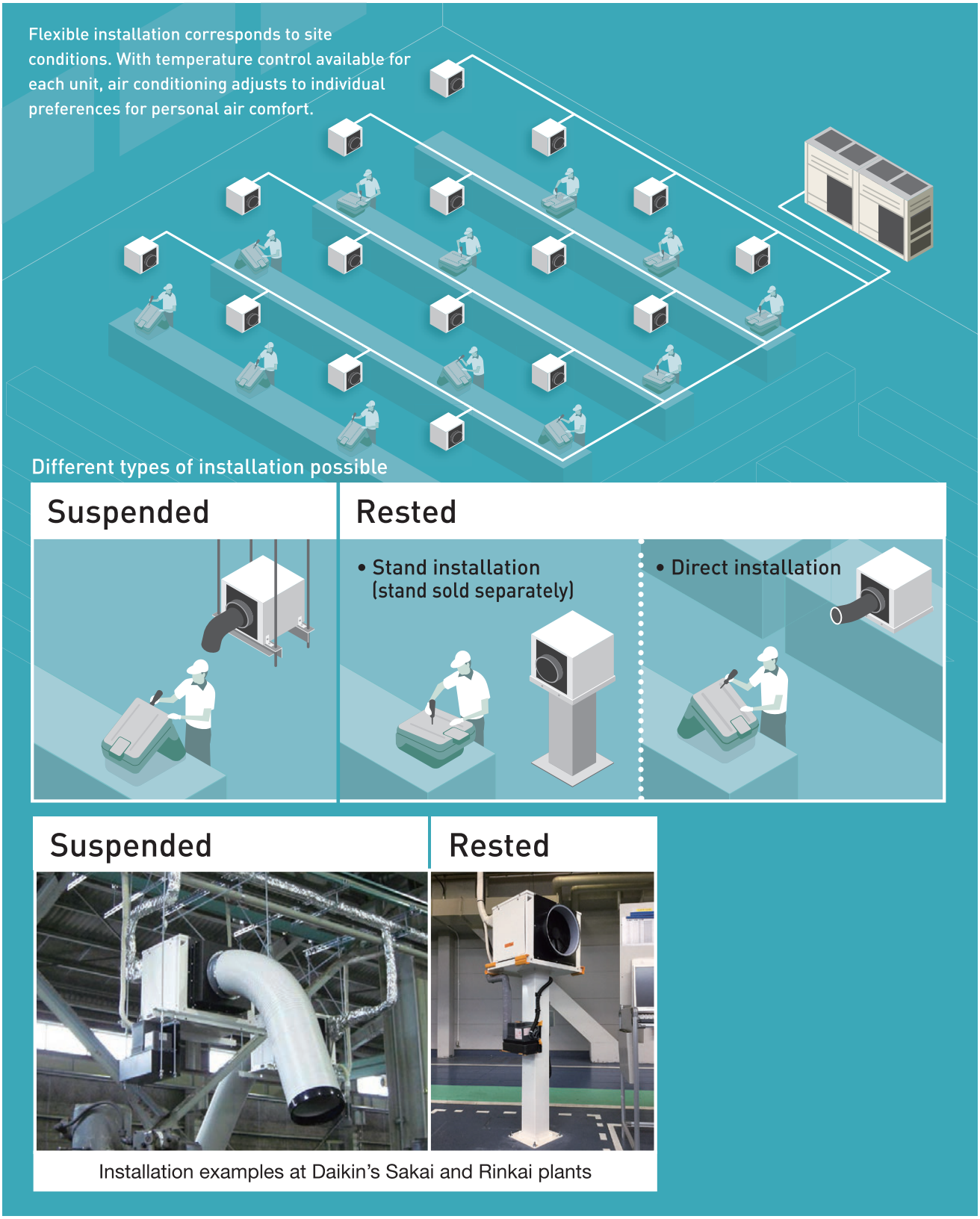
FXPQ25AVN

50 / 60 Hz

1. Lineup

Capacity range	2.8 kW
	1 HP
Capacity index	25
FXPQ	25AVN

VN: 1 phase, 220 V, 50 / 60 Hz



2. Air Conditioning Systems of FXPQ Type Indoor Units and Selection Approach

2.1 Air Conditioning Systems

The two air conditioning systems using FXPQ type indoor unit are described below.

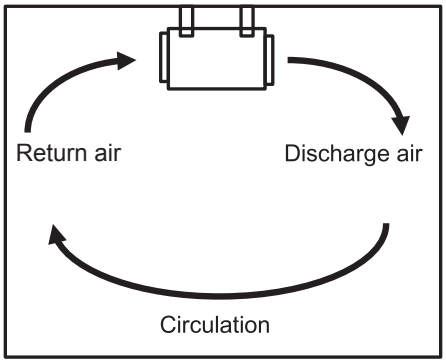
A) Standard Zone Air Conditioning (with temperature-controlled return air)

Indoor units are installed in the room and operate so that the indoor temperature reaches the set temperature of the remote controller as discharge air is circulated in the room.
Capacity is adjusted by comparing the difference in suction air temperature of the indoor unit and set temperature.
Example: Office in a building or similar
It is also possible to use spot temperature adjustment and have FXPQ type indoor units especially send discharge air toward targeted person (object) requiring direct air blow.

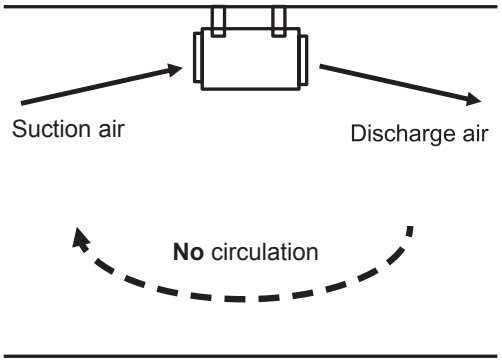
B) Spot Air Conditioning (without temperature-controlled return air)

The indoor unit is installed in areas of relatively large spaces to air condition specific areas rather than the entire space.
Spot temperature adjustment is performed by sending air discharge toward a specific targeted person.
The system air conditions only the areas where the discharge air reaches.
The suction air of the indoor unit is not conditioned air and becomes high load air.
Example: Spot air conditioning is used for workers such as those at a factory production line.

A) Standard Zone Air Conditioning



B) Spot Air Conditioning



2.2 Selection and Operation Conditions of Standard Zone Air Conditioning

■ Selection approach

- Indoor unit capacity: Because the return (suction) air is the same temperature as indoor temperature, capacity is the value obtained from the capacity table according to temperature conditions.
- Selection of outdoor unit: Selection is made for an outdoor unit by the normal procedures to provide for the total required capacity of all indoor units, including FXPQ type indoor units.
- Discharge air temperature: This can be read for FXPQ type indoor units from the performance characteristics (see page 18). However, careful consideration is necessary because the temperature rises higher than the values of the performance characteristics in order to save cooling capacity as the indoor temperature approaches the set temperature.

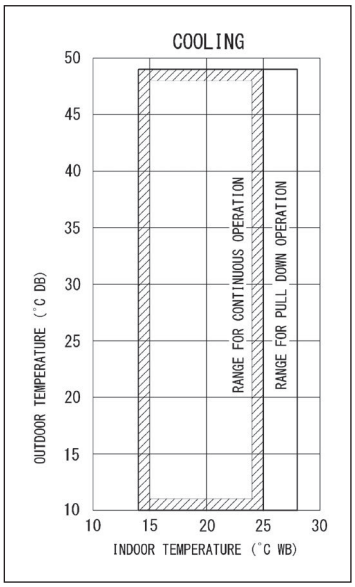
■ Operation limits (cooling)

- Outdoor temperature: Depends on connected outdoor unit
  (Example) ***VRV*** A series: 10°C - 49°CDB

- Indoor temperature: 14°C - 25°CWB
  (Up to 28°CWB possible for pull down)

* See right for case of ***VRV*** A series example.

* Refer to the Engineering Data Book of each outdoor unit for the operation limits during heating.



■ Capacity index: 25

■ Connection ratio (Capacity range): 50% - 130%

$$\text{Connection ratio} = \frac{\text{Total capacity index of the indoor units}}{\text{Capacity index of the outdoor units}}$$

■ Connectable *VRV* outdoor units (Outdoor temperature during cooling operation)

Cooling only model
- ***VRV*** X series (Outdoor temperature: 10°C - 49°CDB)
- ***VRV*** A series (Outdoor temperature: 10°C - 49°CDB)
- ***VRV*** IV series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV S series (Outdoor temperature: –5°C - 46°CDB)

Heat pump model
- ***VRV*** H series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV S series (Outdoor temperature: –5°C - 46°CDB)

* Refer to the Engineering Data Book of each outdoor unit for the operation limits during heating.

■ Connectable number of indoor units for standard zone air conditioning use

Connection ratio (Capacity range) 50% - 130%

For FXPQ type indoor units only

HP	Outdoor unit capacity index	Allowable connectable capacity index range			Number of indoor units					
					For FXPQ type indoor units only			For mixed standard unit and FXPQ type indoor units		
		Min. (50%)	-	Max. (130%)	Min. (50%)	-	Max. (130%)	Min. (50%)	-	Max. (130%)
6	150	75	-	195	3	-	7	3	-	9
8	200	100	-	260	4	-	10	5	-	13
10	250	125	-	325	5	-	13	6	-	16
12	300	150	-	390	6	-	15	7	-	19
14	350	175	-	455	7	-	18	8	-	22
16	400	200	-	520	8	-	20	10	-	26
18	450	225	-	585	9	-	23	11	-	29
20	500	250	-	650	10	-	26	12	-	32
22	550	275	-	715	11	-	28	13	-	35
24	600	300	-	780	12	-	31	15	-	39
26	650	325	-	845	13	-	33	16	-	42
28	700	350	-	910	14	-	36	17	-	45
30	750	375	-	975	15	-	39	18	-	48
32	800	400	-	1040	16	-	41	20	-	52
34	850	425	-	1105	17	-	44	21	-	55
36	900	450	-	1170	18	-	46	22	-	58
38	950	475	-	1235	19	-	49	23	-	61
40	1000	500	-	1300	20	-	52	25	-	64
42	1050	525	-	1365	21	-	54	26	-	64
44	1100	550	-	1430	22	-	57	27	-	64
46	1150	575	-	1495	23	-	59	28	-	64
48	1200	600	-	1560	24	-	62	30	-	64
50	1250	625	-	1625	25	-	64	31	-	64
52	1300	650	-	1690	26	-	64	32	-	64
54	1350	675	-	1755	27	-	64	33	-	64
56	1400	700	-	1820	28	-	64	35	-	64
58	1450	725	-	1885	29	-	64	36	-	64
60	1500	750	-	1950	30	-	64	37	-	64

2.3 Selection and Operation Conditions of Spot Air Conditioning

■ Selection approach

- Operation limits: There are many cases for suction air in which the air has not been conditioned and the air has a high air conditioning load. Confirm operation limits and operate within that range.
- Discharge air temperature: This can be read from the performance characteristics (see page 18). However, careful consideration is necessary because the temperature rises higher than the values of the performance characteristics in order to save cooling capacity as the indoor temperature approaches the set temperature.
- Installation location: Refer to discharge air speed distribution and investigate the indoor main units and optional ducts so that the discharge air reaches the targeted person (object).
- Indoor unit capacity: This is the value obtained from the capacity table based on suction air temperature conditions.
- Outdoor unit selection: Selection is made for an outdoor unit to provide for the total required capacity of all indoor units including FXPQ type indoor units.
- Mixed operation with standard indoor units: Mixed operation is possible. However because a gap may occur in performance characteristics from differences in FXPQ type indoor units and suction conditions, configuring the system with only FXPQ type indoor units is recommended.

■ Operation limits (cooling)

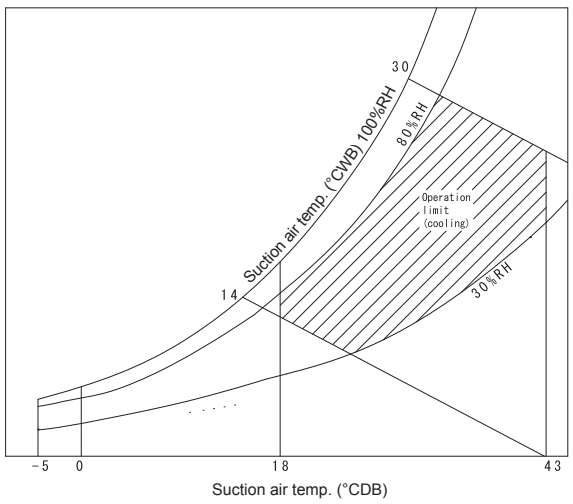
- Outdoor temperature:
  Depends on connected outdoor unit
  (Example) ***VRV*** A series: 10°C - 49°CDB

- Suction air temperature of FXPQ type indoor unit:
  See diagram to the right

- Indoor temperature
  (Mixed operation): 14°C - 25°CWB
  (Up to 28°CWB possible for pull down)

* Refer to the Engineering Data Book of each outdoor unit for the operation limits during heating.

Psychrometric chart



■ Capacity index: 31.25

■ Connection ratio (Capacity range): 70% - 100%

* When FXPQ type and standard indoor units are mixed, the total connection capacity index of FXPQ type indoor units must not exceed 30% of the capacity index of the outdoor units.

$$\text{Connection ratio} = \frac{\text{Total capacity index of the indoor units}}{\text{Capacity index of the outdoor units}}$$

■ Connectable *VRV* outdoor units (Outdoor temperature during cooling operation)

Cooling only model
- ***VRV*** X series (Outdoor temperature: 10°C - 49°CDB)
- ***VRV*** A series (Outdoor temperature: 10°C - 49°CDB)
- ***VRV*** IV series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV S series (Outdoor temperature: –5°C - 46°CDB)

Heat pump model
- ***VRV*** H series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV series (Outdoor temperature: –5°C - 49°CDB)
- ***VRV*** IV S series (Outdoor temperature: –5°C - 46°CDB)

* Refer to the Engineering Data Book of each outdoor unit for the operation limits during heating.

■ Connectable number of indoor units for spot air conditioning use

* Connection ratio (Capacity range): 70% - 100%,
  Under mixed combination: the total connection capacity index of FXPQ type indoor units must not exceed 30% of the capacity index of the outdoor units.

For FXPQ type indoor units only

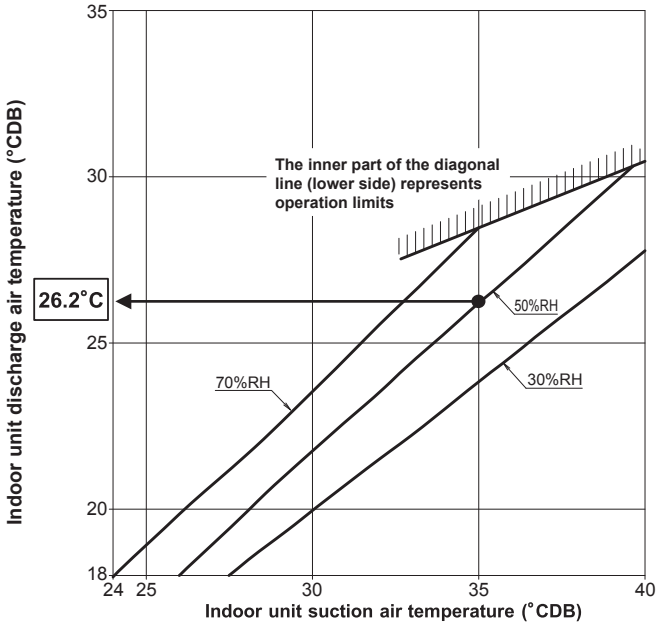
HP	Outdoor unit capacity index	Allowable connectable capacity index range			Number of FXPQ type indoor units		
		Min. (70%)	-	Max. (100%)	Min. (70%)	-	Max. (100%)
6	150	105	-	150	3	-	4
8	200	140	-	200	4	-	6
10	250	175	-	250	5	-	8
12	300	210	-	300	6	-	9
14	350	245	-	350	7	-	11
16	400	280	-	400	8	-	12
18	450	315	-	450	10	-	14
20	500	350	-	500	11	-	16
22	550	385	-	550	12	-	17
24	600	420	-	600	13	-	19
26	650	455	-	650	14	-	20
28	700	490	-	700	15	-	22
30	750	525	-	750	16	-	24
32	800	560	-	800	17	-	25
34	850	595	-	850	19	-	27
36	900	630	-	900	20	-	28
38	950	665	-	950	21	-	30
40	1000	700	-	1000	22	-	32
42	1050	735	-	1050	23	-	33
44	1100	770	-	1100	24	-	35
46	1150	805	-	1150	25	-	36
48	1200	840	-	1200	26	-	38
50	1250	875	-	1250	28	-	40
52	1300	910	-	1300	29	-	41
54	1350	945	-	1350	30	-	43
56	1400	980	-	1400	31	-	44
58	1450	1015	-	1450	32	-	46
60	1500	1050	-	1500	33	-	48

For mixed combination of standard indoor units and FXPQ type indoor units

HP	Outdoor unit capacity index	Allowable connectable capacity index range			Number of FXPQ type indoor units			Number of total indoor units including FXPQ type indoor units		
		Min. (70%)	-	Max. (100%)	-	Max. (30%)		-	Max. (100%)	
6	150	105	-	150	-	1		-	7	
8	200	140	-	200	-	1		-	10	
10	250	175	-	250	-	2		-	12	
12	300	210	-	300	-	2		-	15	
14	350	245	-	350	-	3		-	17	
16	400	280	-	400	-	3		-	20	
18	450	315	-	450	-	4		-	22	
20	500	350	-	500	-	4		-	25	
22	550	385	-	550	-	5		-	27	
24	600	420	-	600	-	5		-	30	
26	650	455	-	650	-	6		-	32	
28	700	490	-	700	-	6		-	35	
30	750	525	-	750	-	7		-	37	
32	800	560	-	800	-	7		-	40	
34	850	595	-	850	-	8		-	42	
36	900	630	-	900	-	8		-	45	
38	950	665	-	950	-	9		-	47	
40	1000	700	-	1000	-	9		-	50	
42	1050	735	-	1050	-	10		-	52	
44	1100	770	-	1100	-	10		-	55	
46	1150	805	-	1150	-	11		-	57	
48	1200	840	-	1200	-	11		-	60	
50	1250	875	-	1250	-	12		-	62	
52	1300	910	-	1300	-	12		-	64	
54	1350	945	-	1350	-	12		-	64	
56	1400	980	-	1400	-	13		-	64	
58	1450	1015	-	1450	-	13		-	64	
60	1500	1050	-	1500	-	14		-	64	

■ Discharge air temperature and air conditioning

The discharge air temperature is read according to suction air conditions as shown in the characteristics below.

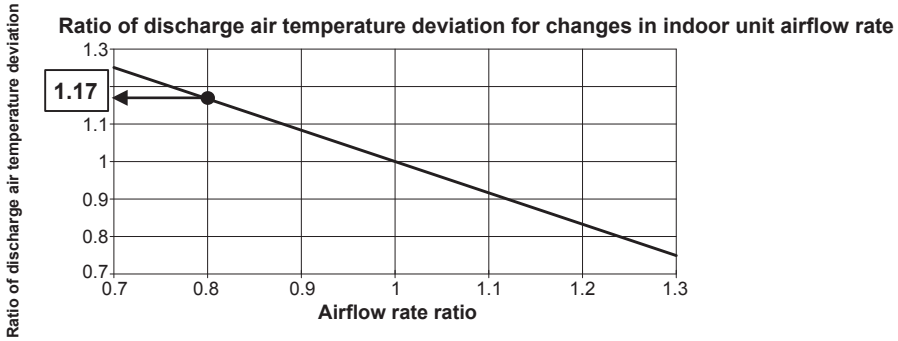


[Characteristics condition]
Outdoor unit: ***VRV*** A series RXQ10AYM
Indoor unit: FXPQ25AVN × 10 units
Outdoor temperature: 35°CDB
Equivalent piping length: 7.5 m
Level difference: 0 m
Indoor unit airflow rate: 15 m³/min (Rated)
Temperature control: Suction air temperature control
Remote controller set temperature: 18°C (Minimum temperature)

[Example]
In the case of suction air temperature 35°CDB and 50%RH, the discharge air temperature is about 26.2°C.

- Install all indoor units of the same system in the same space.
  Due to temperature differences in suction air, deviations in discharge air temperature are likely to occur.
- In cases when airflow rate is not the same amount for each indoor unit, deviations in discharge air temperatures are likely to occur.
- When the remote controller set temperature is not the same temperature in each indoor unit, bias of the thermo ON / OFF timing and operation frequency are likely to occur.
- There are cases when the discharge air temperature does not reach the set value depending on the suction air temperature conditions and operation capacity of the indoor unit. A deviation of about 5°C from the set value is possible depending on the environment (temperature, humidity, and installation conditions).
- When the necessary cooling capacity is small, such as in cases when approaching the set temperature, the discharge air temperature will be higher than this performance characteristics.

- The discharge air temperature can be adjusted by changing the airflow rate.



When switching the airflow rate setting from 15 m³/min to low of 12 m³/min by conditions of approximately 26.2°C for discharge air temperature at previously mentioned suction air temperature of 35°CDB and 50% RH:

- Airflow rate ratio: 1.2 / 1.5 = 0.8
  ↓
- Ratio of discharge air temperature deviation: 1.17
  ↓
- Temperature deviation at original conditions: 35°C − 26.2°C = 8.8°C
- Temperature deviation at low airflow rate conditions: 8.8°C × 1.17 = 10.3°C
- Discharge air temperature at the low airflow rate conditions: 35°C − 10.3°C = 24.7°C

3. Specifications

Model			FXPQ25AVN
Power supply			1 phase, 220 V, 50/60 Hz
★1 Cooling capacity		kcal/h	2,400
		Btu/h	9,600
		kW	2.8
★2 Heating capacity		kcal/h	2,800
		Btu/h	10,900
		kW	3.2
★3 Power input	Cooling	W	120/132
	Heating	W	120/132
Casing / Colour			Fresh white (N9.3)
Dimensions: (H×W×D)		mm	455×555×470
Fan	Type		Propeller fan
	Motor output × Number of units	W	60×1
	Airflow rate (H-L)	m^3/min	15/15-12/11
		cfm	530/530-424/388
	External static pressure (H)	Pa	5/20
	Drive		Direct drive
Temperature control			Microprocessor thermostat for cooling and heating
Air filter			Long life filter (Resin net with mould resistance)
Piping connections	Liquid pipes	mm	ϕ6.4 (Flare connection)
	Gas pipes	mm	ϕ12.7 (Flare connection)
	Drain pipe		SGP20A (External Dia. 27.2 / Internal Dia. 21.6)
Drain water		L/h	8
Mass		kg	32
★4 Sound pressure level (H)		dB(A)	55
Safety devices			Fuse, Thermal protector for fan motor
Refrigerant control			Electronic expansion valve
Standard accessories			Operation manual, Installation manual, Clamps, Insulation for fitting
Drawing No.	Specification		C: 4D113757A
	Sound level		C: 4D116614

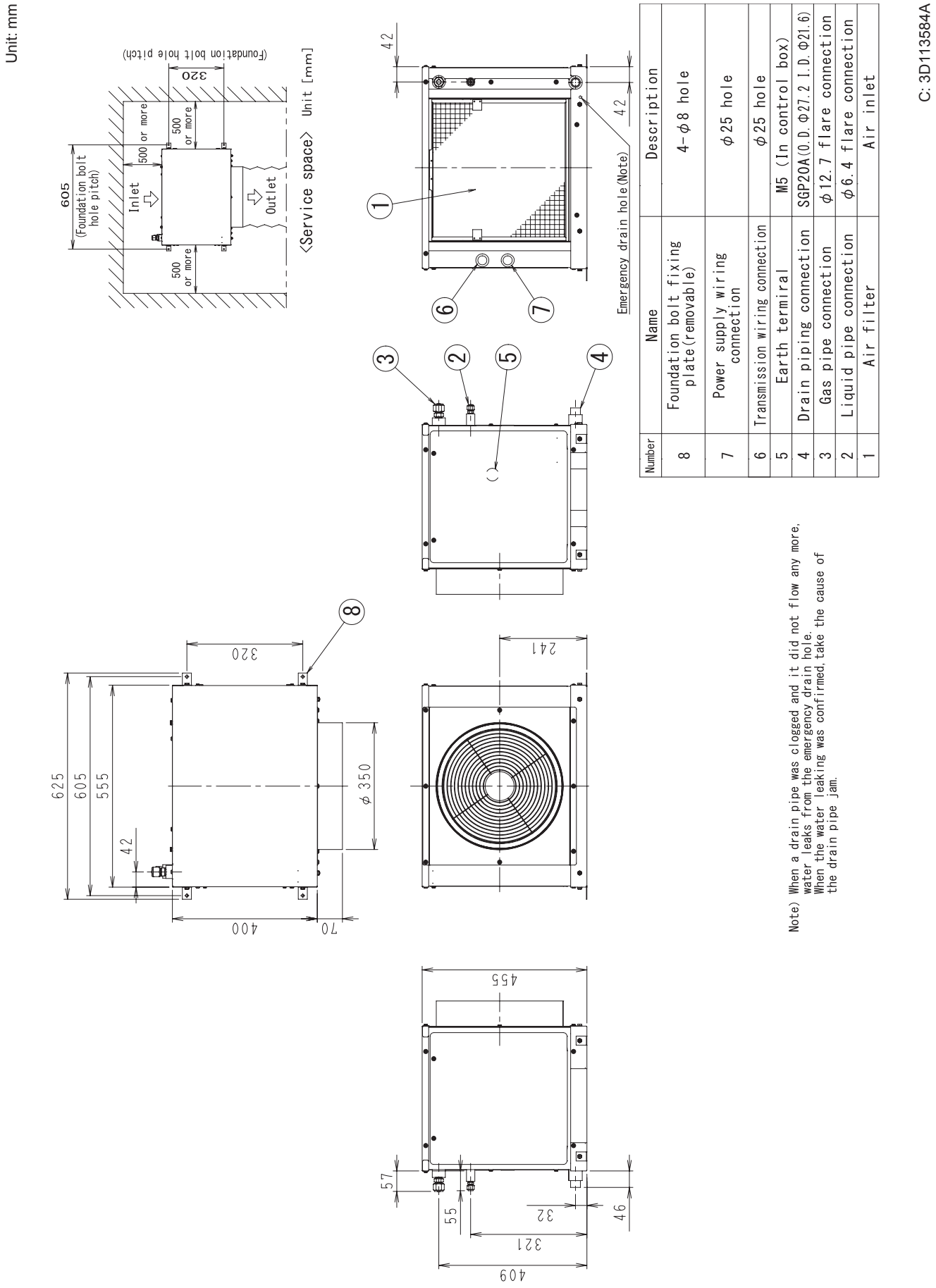
Notes:

★1. Indoor temp.: 27°CDB, 19°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5 m, level difference: 0 m.
★2. Indoor temp.: 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length: 7.5 m, level difference: 0 m.
★3. Power input values are based on conditions of rated external static pressure.
★4. Anechoic chamber conversion value, measured at a point 1.0 m downward from the unit centre. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Conversion formulae
kcal/h=kW×860 Btu/h=kW×3412 cfm=m^3/min×35.3

4. Dimensions

FXPQ25AVN

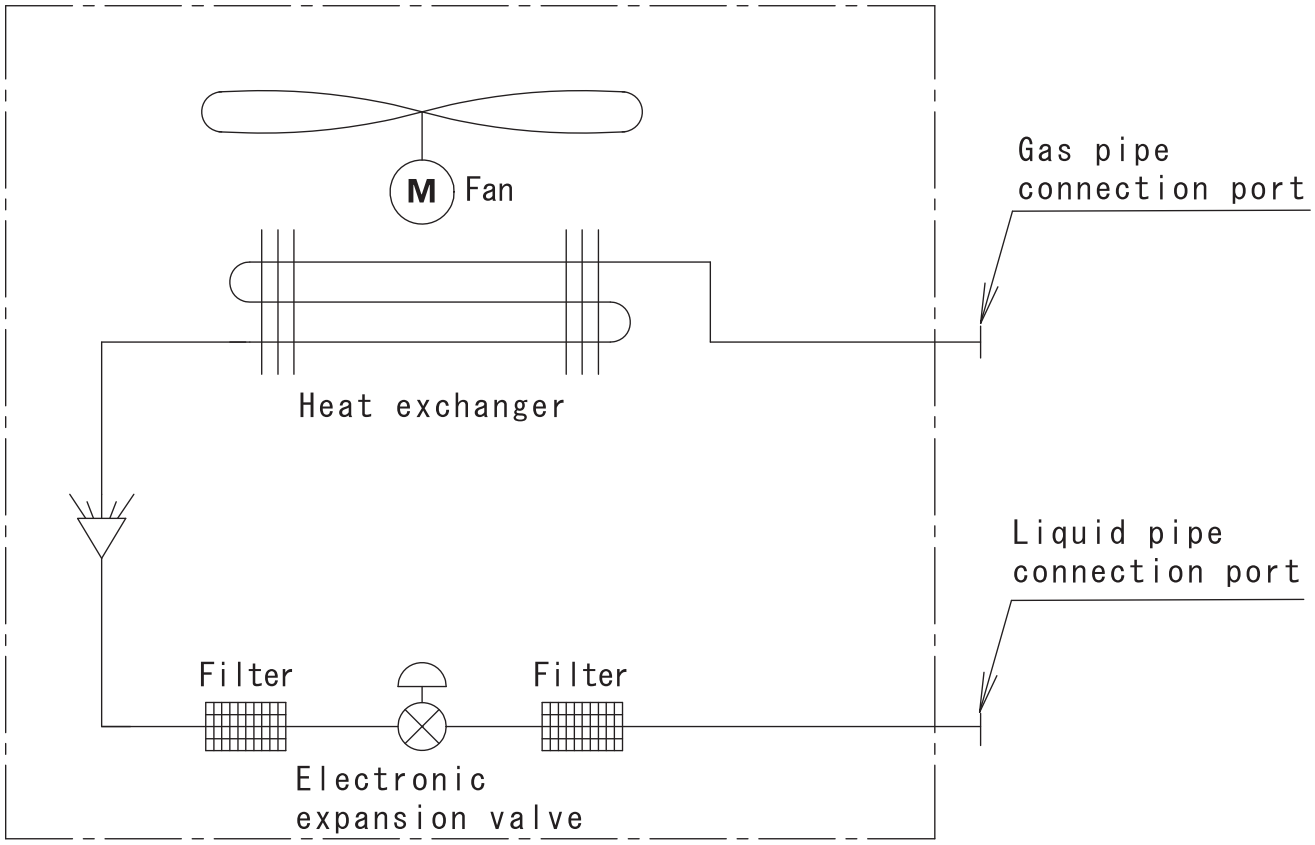


Number	Name	Description
8	Foundation bolt fixing plate(removable)	4-φ8 hole
7	Power supply wiring connection	φ25 hole
6	Transmission wiring connection	φ25 hole
5	Earth termiral	M5 (In control box)
4	Drain piping connection	SGP20A(O.D.φ27.2 I.D.φ21.6)
3	Gas pipe connection	φ12.7 flare connection
2	Liquid pipe connection	φ6.4 flare connection
1	Air filter	Air inlet

Note) When a drain pipe was clogged and it did not flow any more, water leaks from the emergency drain hole. When the water leaking was confirmed, take the cause of the drain pipe jam.

5. Piping Diagrams

FXPQ25AVN



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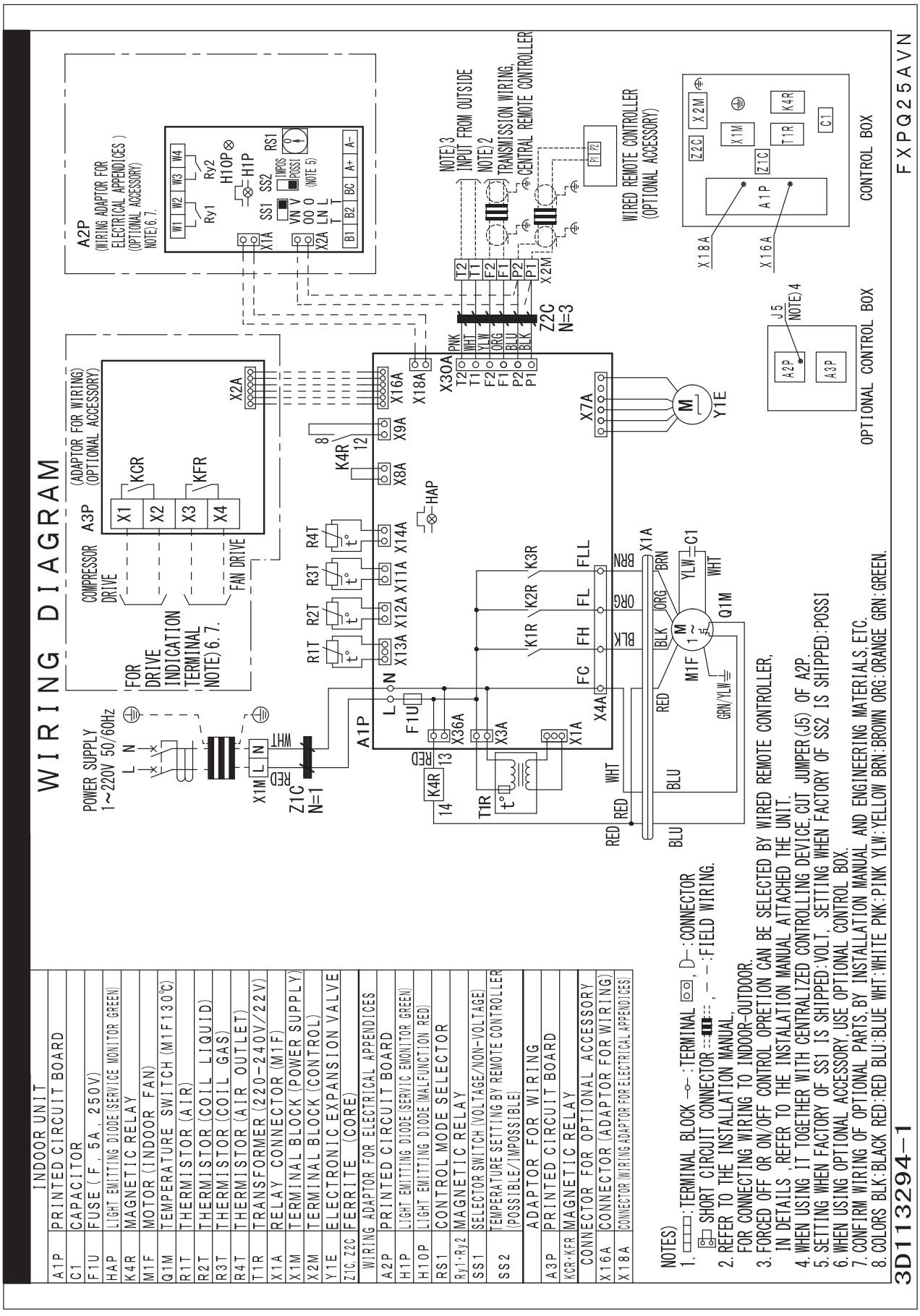
■ **Refrigerant pipe connection port diameters**

Unit: mm

Model	Gas	Liquid
FXPQ25AVN	ϕ12.7	ϕ6.4

6. Wiring Diagrams

FXPQ25AVN



7. Electric Characteristics

FXPQ25AVN

Units					Power supply		IFM		Input(W)	
Model	Type	Hz	Volts	Voltage range	MCA	MFA	KW	FLA	Cooling	Heating
FXPQ25AVN	VN	50	220	MAX. 242 Min. 198	0.9	15	0.06	0.7	120	132
FXPQ25AVN	VN	60	220	MAX. 242 Min. 198	0.9	15	0.06	0.7	120	132

Symbols:

MCA : Min. Circuit Amps (A)
MFA : Max. Fuse Amps (See note 5)
KW : Fan Motor Rated Output(kW)
FLA : Full Load Amps(A)
IFM : Indoor Fan Motor

Note:

1. Voltage range

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

2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA/MFA

   MCA = 1.25 X FLA

   MFA ≦ 4 X FLA

   (Next lower standard fuse rating. Min. 15A)

4. Select wire size based on the MCA.

5. Instead of fuse, use Circuit Breaker.

8. Safety Devices Setting

Model		FXPQ25AVN
Printed circuit board fuse		250 V, 5 A
Fan motor thermal protector	°C	OFF: 145±5 (ON: 94±15)

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9.Capacity Tables

9.1 Cooling Capacity for Te: Auto

Model	Capacity indication	Suction air temperature	°CWB							
		°CDB	14	16	18	19	20	22	24	26
			Capacity							
			kW	kW	kW	kW	kW	kW	kW	kW
FXPQ25AVN	25	20	2.5	2.4	2.4	2.5	—	—	—	—
		23	2.7	2.6	2.6	2.6	2.6	2.7	—	—
		26	3.2	2.9	2.8	2.8	2.8	2.8	2.9	—
		27	3.4	3.0	2.8	2.8	2.8	2.8	2.9	3.0
		28	3.5	3.1	2.9	2.8	2.8	2.8	2.9	3.0
		30	3.6	3.2	3.0	2.9	2.9	2.9	3.0	3.0
		32	3.8	3.3	3.1	2.9	2.9	3.0	3.0	3.1
		34	3.9	3.4	3.2	3.0	3.0	3.0	3.1	3.1

Notes:

1. These capacity tables are for use when selecting a ***VRV*** indoor unit. The actual capacity of the ***VRV*** system depends on factors such as the selected model of outdoor units, outdoor air temperature and piping length. Please confirm that the corrected capacity of the ***VRV*** system satisfies the required heat load.
2. ▭ shows rated condition.

9.2 Cooling Capacity for Te: 6°C

Model	Capacity indication	Suction air temperature	°CWB							
		°CDB	14	16	18	19	20	22	24	26
			Capacity							
			kW	kW	kW	kW	kW	kW	kW	kW
FXPQ25AVN	25	20	1.9	2.1	2.3	2.5	—	—	—	—
		23	2.1	2.3	2.5	2.6	2.6	2.7	—	—
		26	2.5	2.5	2.6	2.8	2.8	2.8	2.9	—
		27	2.6	2.6	2.6	2.8	2.8	2.8	2.9	3.0
		28	2.7	2.7	2.7	2.8	2.8	2.8	2.9	3.0
		30	2.8	2.8	2.8	2.9	2.9	2.9	3.0	3.0
		32	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.1
		34	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1

Notes:

1. These capacity tables are for use when selecting a ***VRV*** indoor unit. The actual capacity of the ***VRV*** system depends on factors such as the selected model of outdoor units, outdoor air temperature and piping length. Please confirm that the corrected capacity of the ***VRV*** system satisfies the required heat load.
2. ▭ shows rated condition.

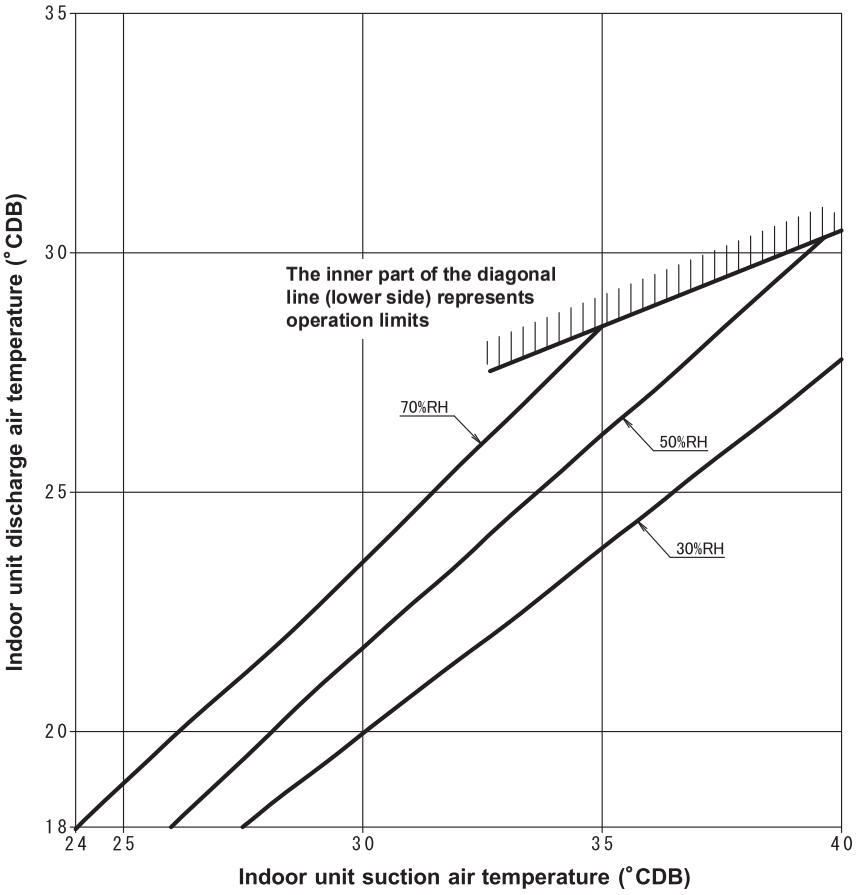
9.3 Heating Capacity

Model	Capacity indication	Suction air temperature					
		16°CDB	18°CDB	20°CDB	21°CDB	22°CDB	24°CDB
		kW	kW	kW	kW	kW	kW
FXPQ25AVN	25	3.4	3.2	3.2	3.1	3.0	2.8

Notes:

1. These capacity tables are for use when selecting a ***VRV*** indoor unit. The actual capacity of the ***VRV*** system depends on factors such as the selected model of outdoor units, outdoor air temperature and piping length. Please confirm that the corrected capacity of the ***VRV*** system satisfies the required heat load.
2. ▭ shows rated condition.

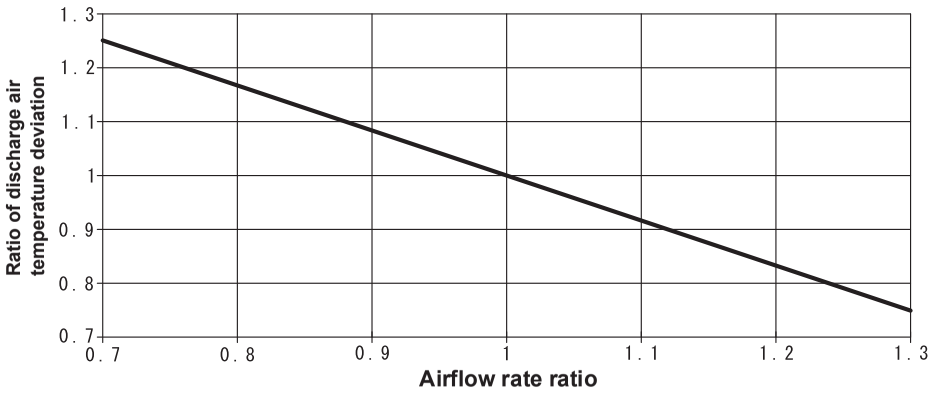
10.Performance Characteristics



- Install all indoor units of the same system in the same space.
  Due to temperature differences in suction air, deviations in discharge air temperature are likely to occur.
- In cases when airflow rate is not the same amount for each indoor unit, deviations in discharge air temperatures are likely to occur.
- When the remote controller set temperature is not the same temperature in each indoor unit, bias of the thermo ON / OFF timing and operation frequency are likely to occur.
- There are cases when the discharge air temperature does not reach the set value depending on the suction air temperature conditions and operation capacity of the indoor unit. A deviation of about 5°C from the set value is possible depending on the environment (temperature, humidity, and installation conditions).
- When the necessary cooling capacity is small, such as in cases when approaching the set temperature, the discharge air temperature will be higher than this performance characteristics.

- The discharge air temperature can be adjusted by changing the airflow rate.

Ratio of discharge air temperature deviation for changes in indoor unit airflow rate

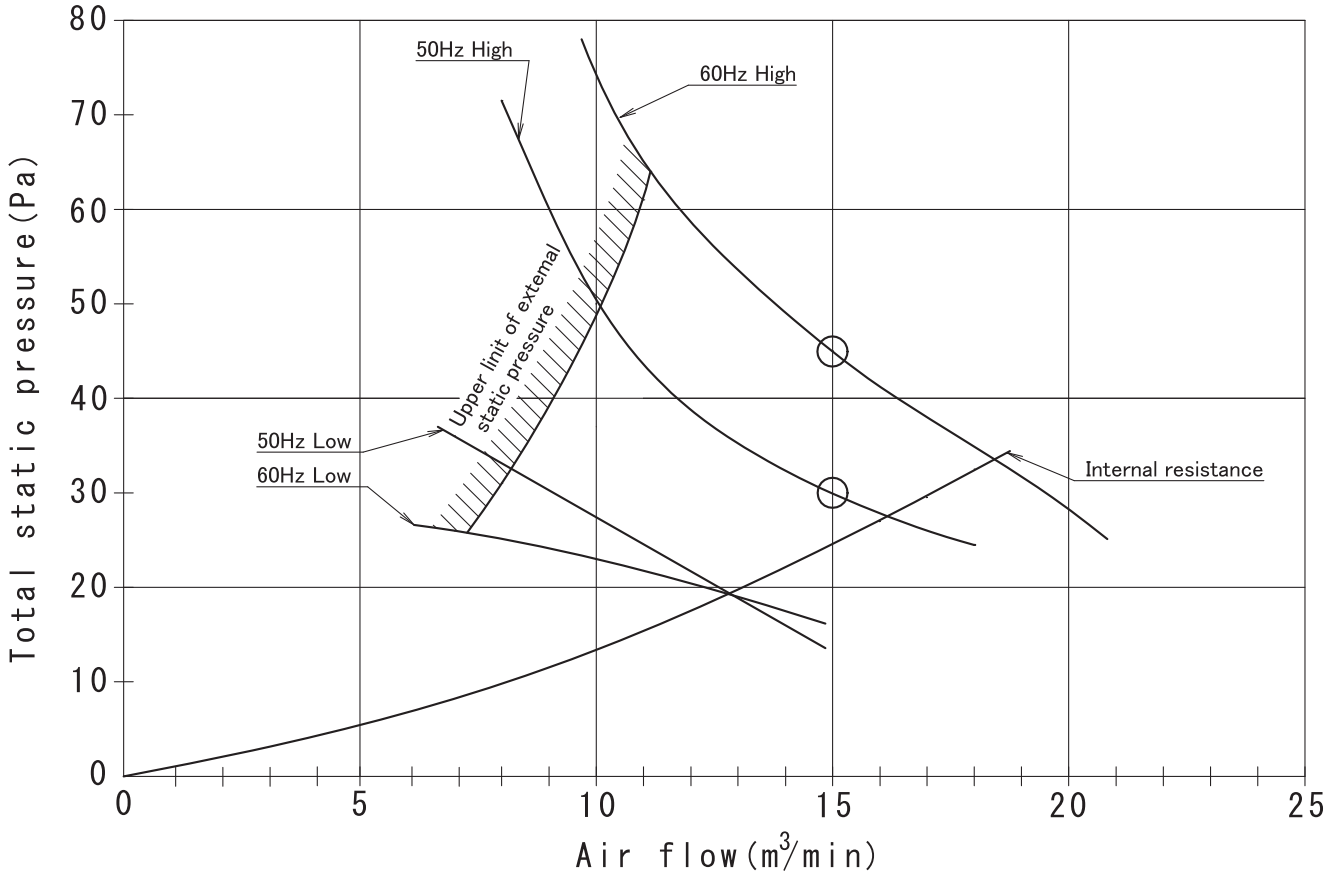


[Characteristics condition]
Outdoor unit: ***VRV*** A series RXQ10AYM
Indoor unit: FXPQ25AVN × 10 units
Outdoor temperature: 35°CDB
Equivalent piping length: 7.5 m
Level difference: 0 m
Indoor unit airflow rate: 15 m³/min (Rated)
Temperature control: Suction air temperature control
Remote controller set temperature: 18°C (Minimum temperature)

C: 3D117502A

11.Fan Characteristics

FXPQ25AVN



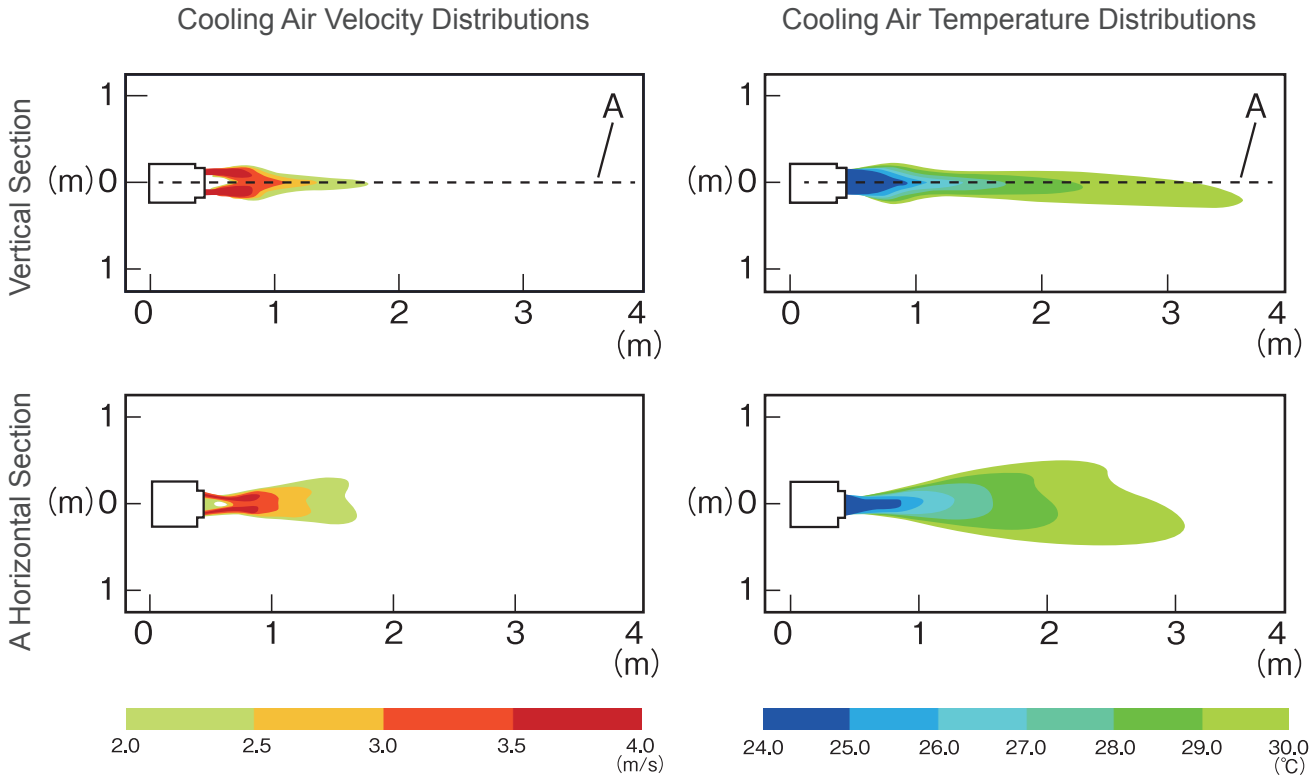
Notes) 1. The remote controller can be used to switch between "high" and "low".
2. "◯" shows rated air flow.

C: 3D113797

12.Air Velocity and Temperature Distributions (Reference Data)

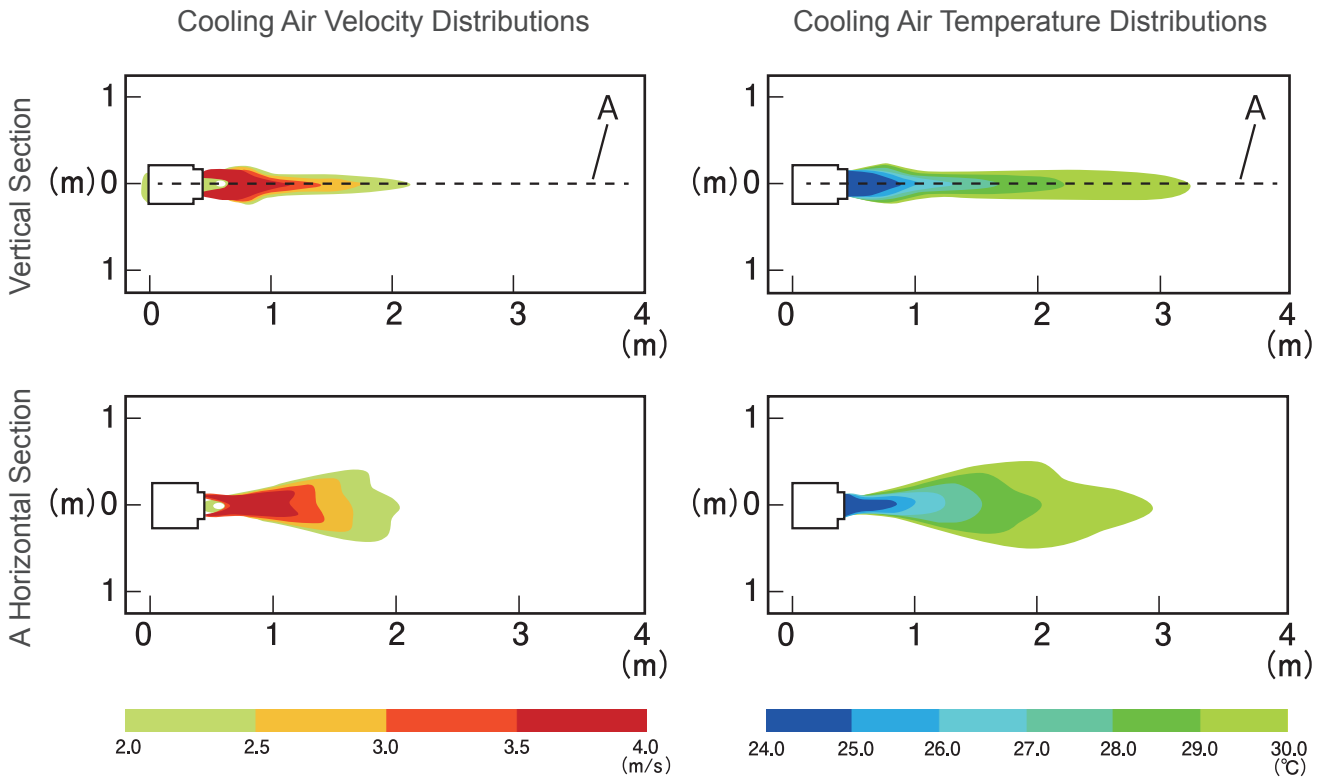
12.1 Cooling Operation (High Airflow Rate)

50 Hz (Direct Airflow Rate Distributions)



Notes:
1. The suction temperature is 32°C.
2. High temperature and high humidity may lower the air flow rate and air velocity.
   Please consult with a local Daikin sales office when installing it to a high temperature and high humidity environment.

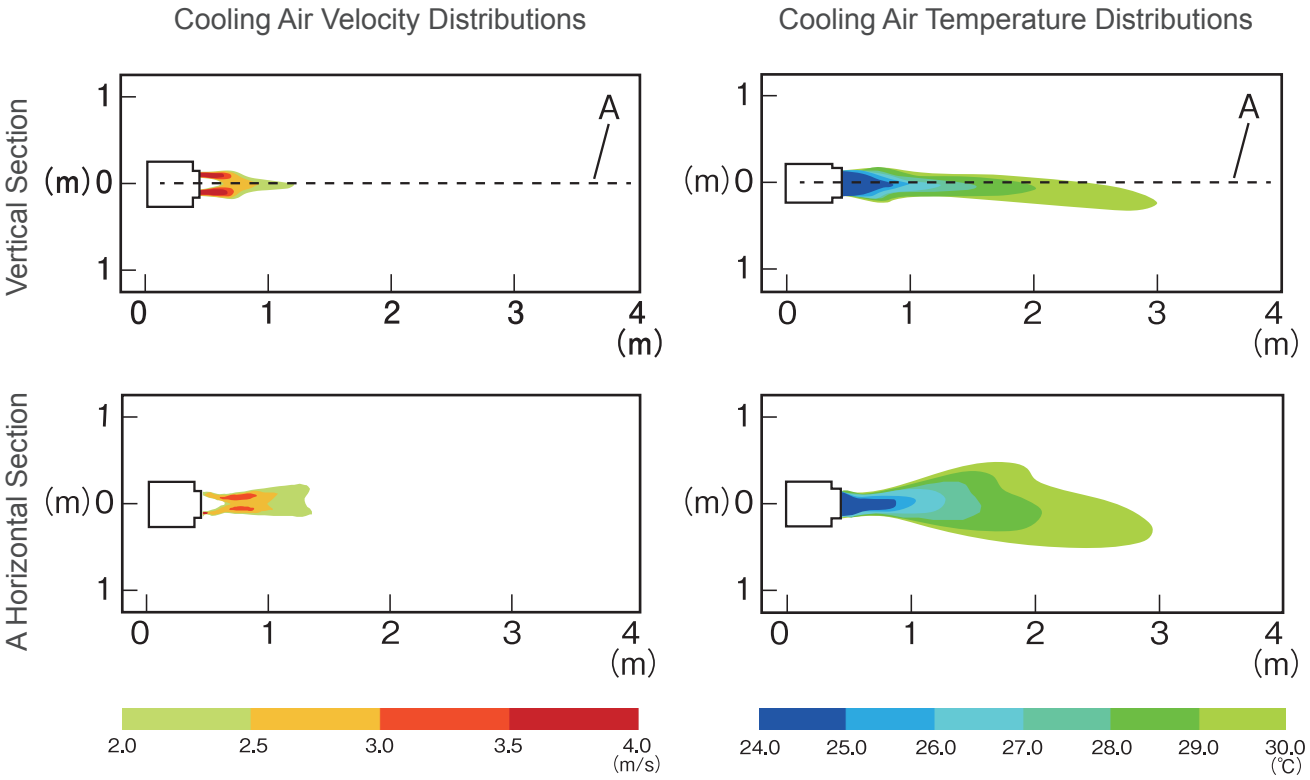
60 Hz (Direct Airflow Rate Distributions)



Notes:
1. The suction temperature is 32°C.
2. High temperature and high humidity may lower the air flow rate and air velocity.
   Please consult with a local Daikin sales office when installing it to a high temperature and high humidity environment.

12.2 Cooling Operation (Low Airflow Rate)

50 / 60 Hz (Direct Airflow Rate Distributions)

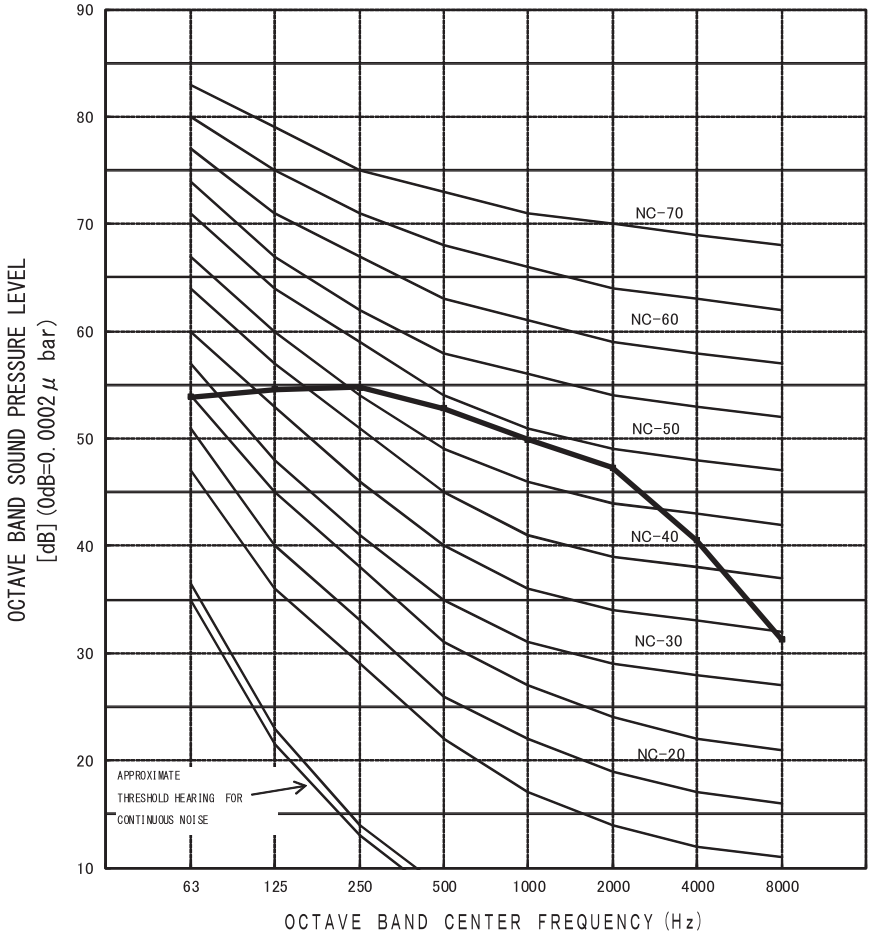


Notes:

1. The suction temperature is 32°C.
2. High temperature and high humidity may lower the air flow rate and air velocity.
   Please consult with a local Daikin sales office when installing it to a high temperature and high humidity environment.

13.Sound Levels

FXPQ25AVN



OVER ALL dB

SCALE	
A	55.0
C	60.5

(B.G.N IS ALREADY RECTIFIED)

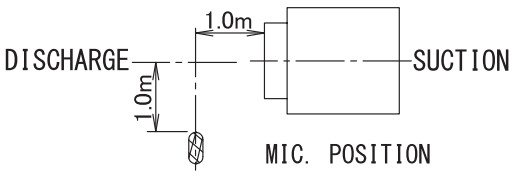
OPERATING CONDITIONS

POWER SOURCE 220V 50/60Hz

STANDARD

RATED AIR FLOW

EXTERNAL STATIC PRESSURE



MEASURING PLACE

Anechoic chamber

LOCATION OF MICROPHONE

By sound measuring method in JIS B8616

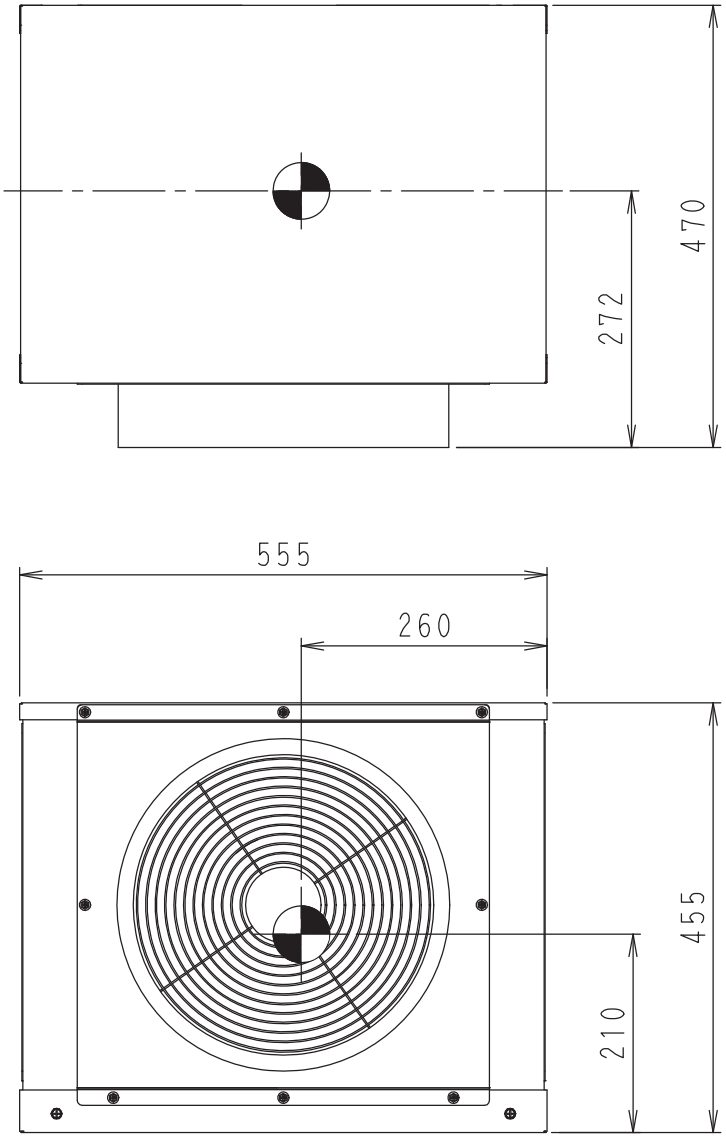
NOTE: Operation noise differs with operation and ambient conditions.

C: 4D116614

14.Centre of Gravity

FXPQ25AVN

Unit: mm



C: 4D113740