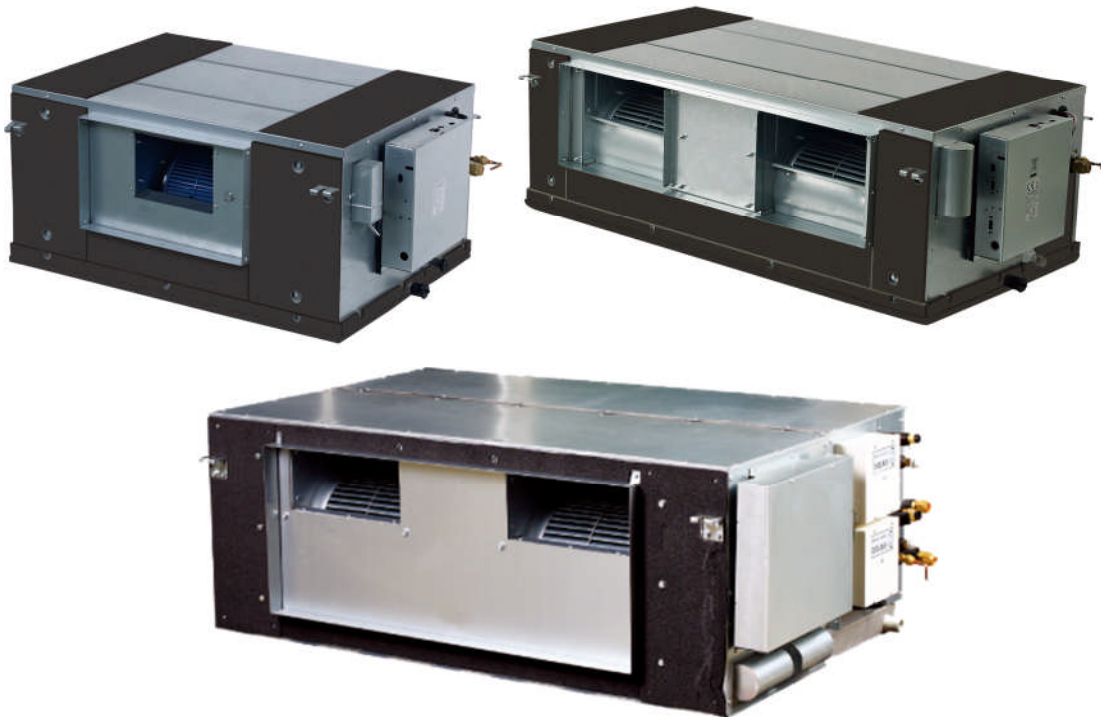




Technical Service Manual

TVR LX Systems

*High Static Pressure Duct Units with DC Fan Motor
220-240V/50-60Hz/1ph*



August 2015

High static pressure duct unit

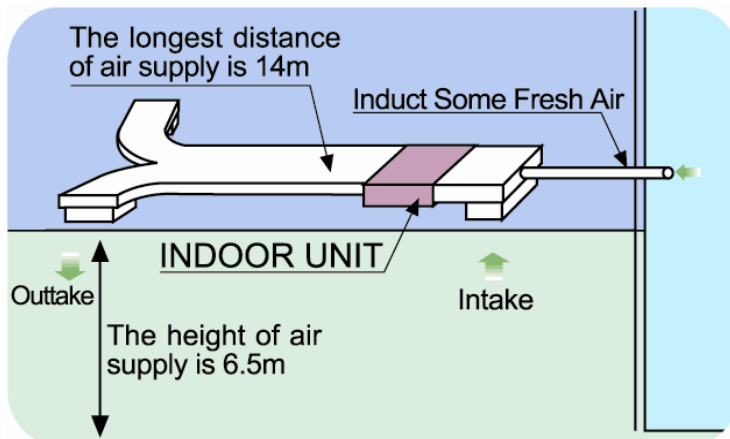
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1. Features

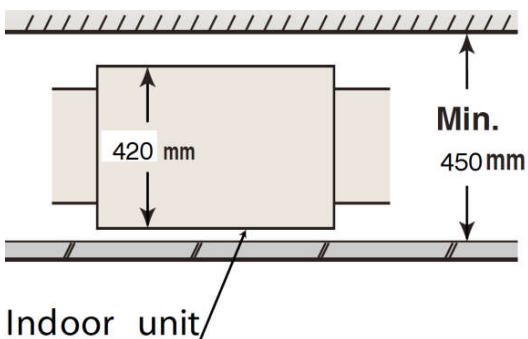
1.1 Flexibility in duct design



1.1.1 External static pressure of Indoor Unit can be up to 200 Pa, which allows for extensive duct work and therefore more flexibility. Challenges such as high ceilings can be overcome and cool air delivered to every corner of a room.



1.1.2 With 420mm (models 71~160) thick body, the minimum distance above the ceiling is 450mm.

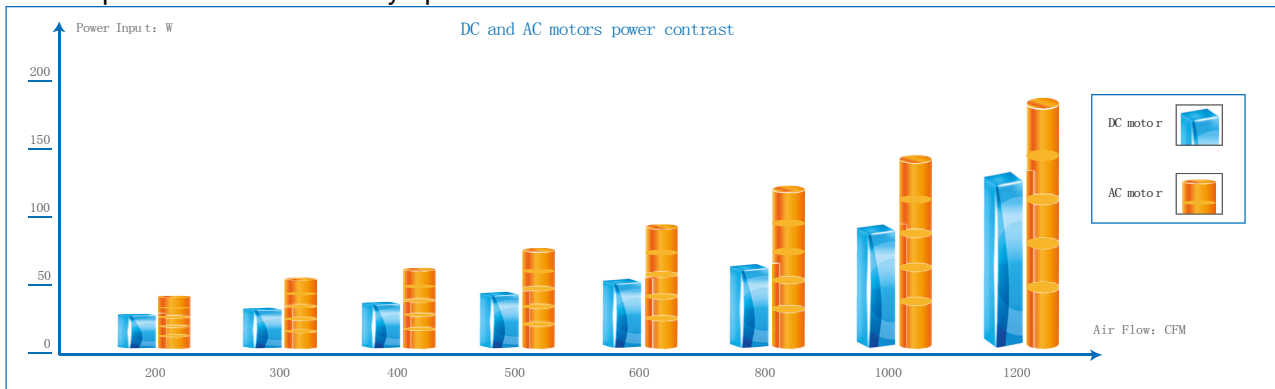


1.2 Wide capacity range

The capacity ranges from 7.1kW to 28.0kW, totally 9 models.

1.3 DC fan motor

Adoption of a DC fan motor can raise efficiency up to 90%. When compared with an AC fan motor, power consumption can be reduced by up to 30% with a DC fan motor.

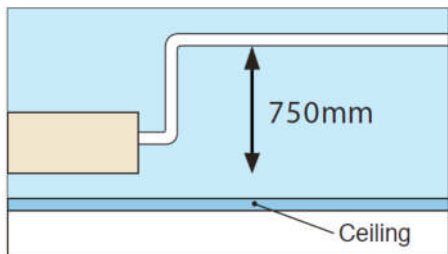


Thanks to the DC fan motor, this high static pressure duct indoor unit can meet the latest CE certification requirements.

1.4 Convenient installation

- 1.4.1 The EXV is fixed inside the indoor unit (for 24~51 MBH model), no extra connections required.
- 1.4.2 Standard filter with aluminum frame, which is removable from the bottom in a downward direction.
- 1.4.3 Air plenum is included as standard equipment.
- 1.4.4 Flange for air in/outlet duct connection comes standard.
- 1.4.5 Optional drain pump (for models 24~51 MBH).

Drain pump is equipped as an optional accessory with a 750 mm pump head.



1.4.6 Easy motor and maintenance access. The conveniently designed access method means the motor can be replaced without removal of the unit.

1.4.7 Integrated electrical control box structure for convenient maintenance and installation.

1.5 Flexible control and convenient maintenance

1.5.1 A new display board is used in the indoor unit to collect information from the control boards. Malfunction codes and running state can display on the board.

1.5.2 Standard functional ports such as remote On/Off dry contact are provided.

2. Specifications

Model			4TVD0024DF000AA	4TVD0027DF000AA	4TVD0030DF000AA
Power supply		V- Ph-Hz	220-240V~50/60Hz		
Cooling	Capacity	kW	7.1	8.0	9.0
		Btu/h	24200	27300	30700
	Input	W	180	180	220
	Rated current	A	1.4	1.4	1.9
Heating	Capacity	kW	8.0	9.0	10.0
		Btu/h	27300	30700	34100
	Input	W	180	180	220
	Rated current	A	1.4	1.4	1.9
Indoor fan motor	Model		WZDK240-38G	WZDK240-38G	WZDK750-38G-W
	Type		DC Motor		
	Brand		Panasonic/ Nidec/ Welling		
	Output	W	170	170	200
Indoor coil	Number of rows		2	2	3
	Tube pitch(a) × row pitch(b)	in.(mm)	1×7/8 (25.4×22)	1×7/8 (25.4×22)	1×7/8 (25.4×22)
	Fin spacing	in.(mm)	1/16(1.5)	1/16(1.5)	1/16(1.6)
	Fin type		Hydrophilic aluminum		
	Tube outside diameter and type	in.(mm)	3/8(Φ9.53) inner groove tube		
	Length× height× width	in.(mm)	27-9/16×14-1/32×1-23/32 (700×356×44)		27-9/16×14-1/32×2-19/32 (700×356×66)
	Number of circuits		3	3	7
Indoor air flow (H/M/L)		m ³ /h	1500/1390/1250	1450/1340/1190	1780/1650/1530
		CFM	885/819/736	854/789/701	1048/972/901
*Indoor external static pressure		Pa	25(0~ 196)	37(0~ 196)	37(0~ 196)
Indoor noise level (H/M/L)		dB(A)	46/44/42	46/44/42	50/47/45
Indoor unit	Dimension (W×H×D)	in.(mm)	37-31/64×16-17/32×27-11/64(952×420×690)		
	Packing (W×H×D)	in.(mm)	42-29/32×17-21/64×30-15/64(1090×440×768)		
	Net/Gross weight	lbs(kg)	90/104(41/47)		104/117(47/53)
Refrigerant type		R410A			
Throttle	Type	EXV			
	Model	BD20FKS(L)		BD24FKS(L)	
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid / Gas	in.(mm)	Φ3/8/ Φ5/8(Φ9.53/ Φ15.9)		
	Drain pipe	in.(mm)	OD 63/64(Φ25)		

Notes:

- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor air temperature:35°CDB,equivalent ref. piping: 8m(horizontal)
- Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB,outdoor air temperature: 7°CDB,6°CWB,equivalent ref. piping: 8m(horizontal)
- *() is the available static pressure range which represents optimal pressure levels at which the unit can operate stably. When selecting a suitable unit please refer to the recommended static pressure level ranges in the installation manual. Risks of selecting a unit outside of the optimal range include higher noise levels, low air flow volume ect. The value without () is rated static pressure.

Model			4TVD0038DF00AA	4TVD0048DF00AA	4TVD0051DF00AA
Power supply		V- Ph-Hz	220-240V~50/60Hz		
Cooling	Capacity	kW	11.2	14	16
		Btu/h	38200	47800	51200
	Input	W	380	420	700
	Rated current	A	2.9	4.5	4.5
Heating	Capacity	kW	12.5	16	17
	Input	W	380	420	700
	Rated current	A	2.9	4.5	4.5
Indoor fan motor	Model		WZDK750-38G-W	WZDK750-38GS-W	WZDK750-38GS-W
	Type		DC MOTOR		
	Brand		Panasonic/ Nidec/ Welling	Panasonic/ Welling	Panasonic/ Welling
	Output	W	370	410	680
Indoor coil	Number of rows		3	4	4
	Tube pitch(a) xrow pitch(b)	in.(mm)	1x7/8 (25.4x22)	1x7/8 (25.4x22)	1x7/8 (25.4x22)
	Fin spacing	in.(mm)	1/16(1.6)	1/16(1.6)	1/16(1.6)
	Fin type		Hydrophilic aluminum		
	Tube outside diameter and type	in.(mm)	3/8(Φ9.53) inner groove tube		
	Lengthx heightx width	in.(mm)	27-9/16x14-1/32x2-19/32 (700x356x66)	39-7/32x14-1/32x3-15/32 (996x356x88)	
	Number of circuits		7	7	7
Indoor air flow (H/M/L)		m ³ /h	2080/1930/1710	2860/2440/2010	3400/2660/2400
		CFM	1225/1137/1007	1684/1319/1184	2002/1567/1413
*Indoor external static pressure (H)		Pa	37(0~ 196)	50(0~ 196)	50(0~ 196)
Indoor noise level (H/M/L)		dB(A)	50/47/45	53/50/48	54/52/50
Indoor unit	Dimension (WxHxD)	in.(mm)	37-15/32x16-17/32x27-5/32 (952x420x690)	51-3/16x15-3/4x27-5/32(1300x420x690)	
	Packing (WxHxD)	in.(mm)	42-29/32x17-21/64x30-15/64 (1090x440x768)	56-17/32x17-23/32x30-15/64 (1436x450x768)	
	Net/Gross weight	lbs(kg)	1046/117(47/53)	150/154(68/70)	154/171(70/77.5)
Refrigerant type			R410A		
Throttle		Type	EXV		
		Model	BD24FKS(L)		
Design pressure(H/L)		MPa	4.4/2.6		
Pipe connections	Liquid / Gas	in.(mm)	Φ3/8/ Φ5/8(Φ9.53/ Φ15.9)		
	Drain pipe	in.(mm)	OD 63/64(Φ25)		

Notes:

- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor air temperature:35°CDB,equivalent ref. piping: 8m(horizontal)
- Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB,outdoor air temperature: 7°CDB,6°CWB,equivalent ref. piping: 8m(horizontal)
- *() is the available static pressure range which represents optimal pressure levels at which the unit can operate stably. When selecting a suitable unit please refer to the recommended static pressure level ranges in the installation manual. Risks of selecting a unit outside of the optimal range include higher noise levels, low air flow volume ect. The value without () is rated static pressure.

High Static Pressure Duct Unit with DC Fan Motor

Model			4TVD0068DF000AA	4TVD0085DF000AA	4TVD0095DF000AA
Power supply		V- Ph-Hz	220-240V~50/60Hz		
Cooling	Capacity	kW	20.0	25.0	28.0
		Btu/h	68200	85300	95500
	Input	W	800	800	800
	Rated current	A	6	6	6
Heating	Capacity	kW	22.5	26.0	31.5
		Btu/h	76800	88700	107500
	Input	W	800	800	800
	Rated current	A	6	6	6
Indoor fan motor	Model		WZDK750-38GS-W	WZDK750-38GS-W	WZDK750-38GS-W
	Type		DC Motor		
	Brand		Panasonic/ Nidec	Panasonic/ Nidec	Panasonic/ Nidec
	Output	W	790	790	790
Indoor coil	Number of rows		4	4	4
	Tube pitch(a) x row pitch(b)	in.(mm)	1x7/8 (25.4x22)	1x7/8 (25.4x22)	1x7/8 (25.4x22)
	Fin spacing	in.(mm)	5/64(1.8)	5/64(1.8)	5/64(1.8)
	Fin type		Hydrophilic aluminum		
	Tube outside diameter and type	in.(mm)	3/8(Φ9.53) inner groove tube		
	lengthx height x width	in.(mm)	44-19/64x20x3-15/32(1125x508x88)		
	Number of circuits		20	20	20
Indoor air flow (H/M/L)		m ³ /h	4820/4660/4620	4870/4760/4690	4870/4760/4690
		CFM	2839/2744/2721	2868/2803/2762	2868/2803/2762
*Indoor external static pressure		Pa	62(40~200)	62(40~200)	62(40~200)
Indoor noise level (H/M/L)		dB(A)	57/53/50	57/53/50	57/53/50
Indoor unit	Dimension (WxHxD)	in.(mm)	56-13/16x18-1/2x31-57/64(1443x470x810)		
	Packing (WxHxD)	in.(mm)	59-13/32x21-21/32x38-31/32(1509x550x990)		
	Net/Gross weight	lbs(kg)	238/265(108/120)		
Refrigerant type			R410A		
Throttle		Type	EXV (2 sets throttle boxes each unit)		
		Model	BD24FKS(L)		
Design pressure(H/L)		MPa	4.4/2.6		
Pipe connections	Liquid / Gas	in.(mm)	Φ3/8(Φ9.53)/ Φ5/8(Φ15.9)(x2)		
	Drain pipe	in.(mm)	OD 1-17/64(Φ32)		

Notes:

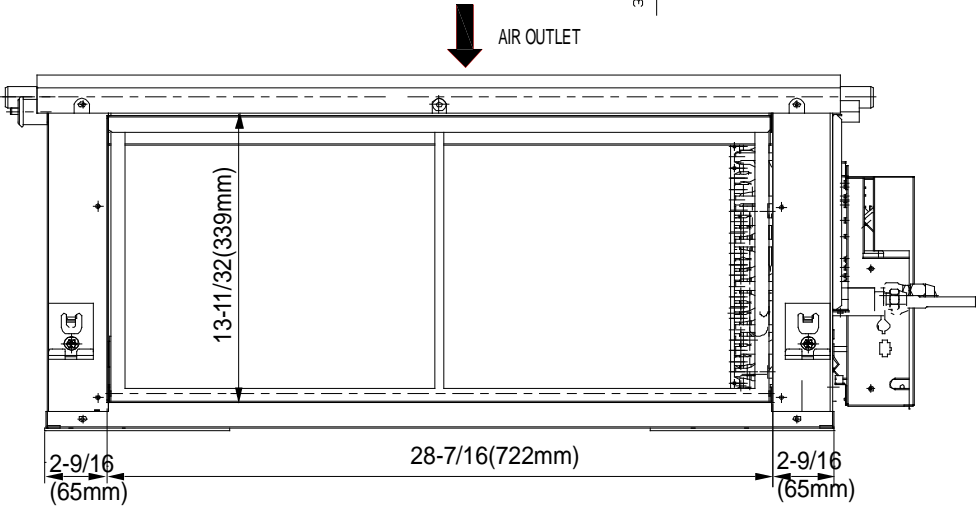
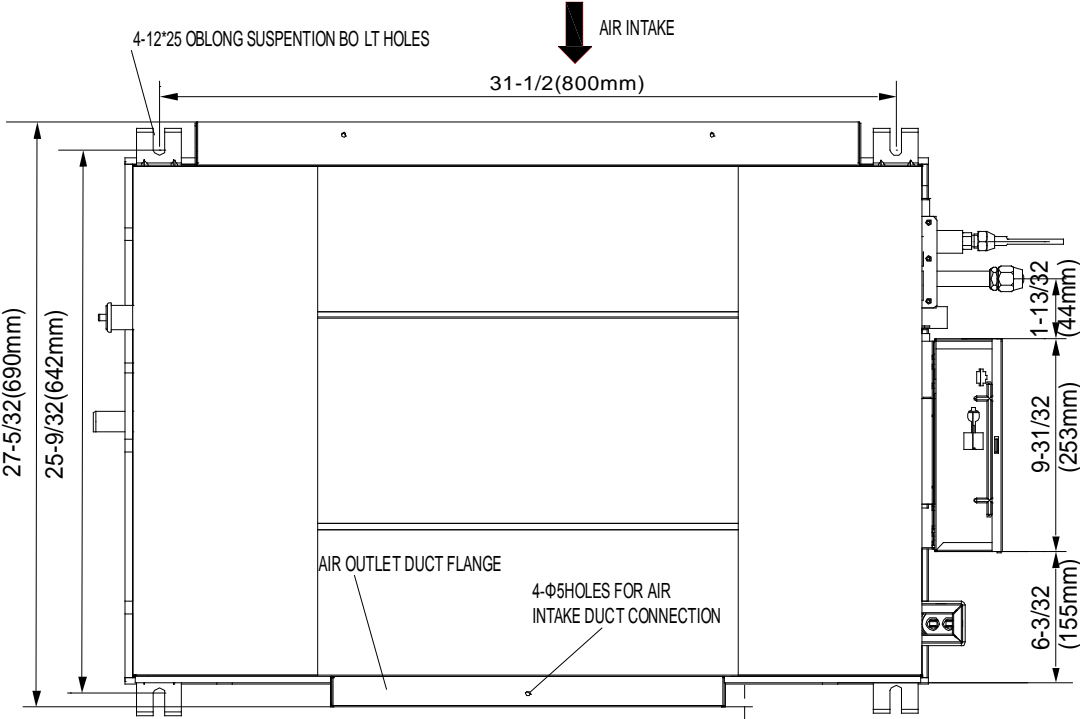
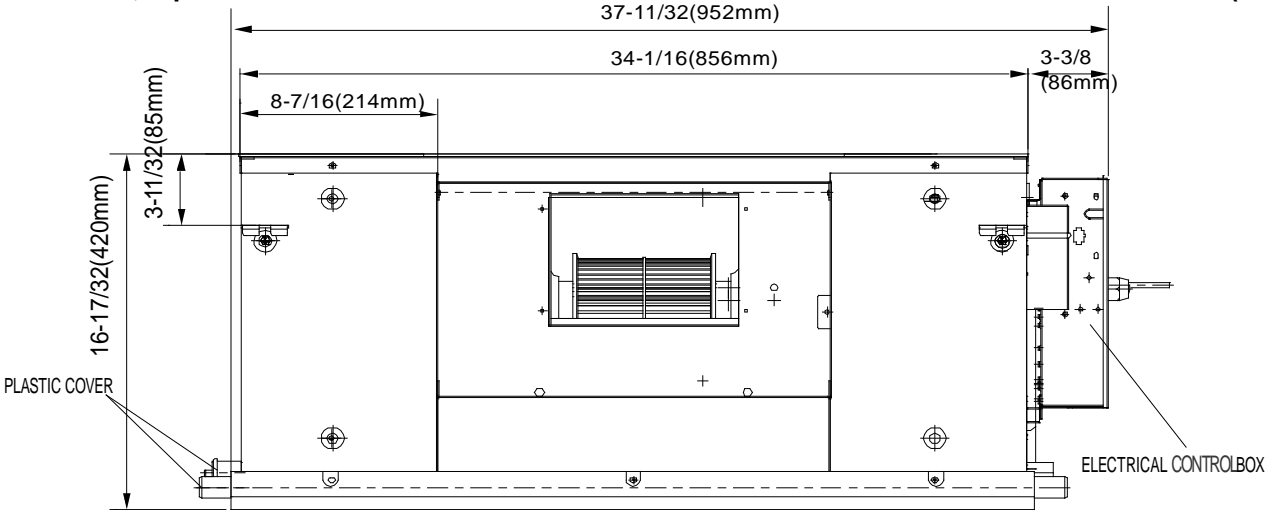
- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor air temperature:35°CDB, equivalent ref. piping: 8m(horizontal)
- Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB, outdoor air temperature: 7°CDB, 6°CWB, equivalent ref. piping: 8m(horizontal)
- * () is the available static pressure range which represents optimal pressure levels at which the unit can operate stably. When selecting a suitable unit please refer to the recommended static pressure level ranges in the installation manual. Risks of selecting a unit outside of the optimal range include higher noise levels, low air flow volume ect. The value without () is rated static pressure.

3. Dimensions

4TVD0024DF000AA, 4TVD0027DF000AA, 4TVD0030DF000AA, 4TVD0038DF000AA

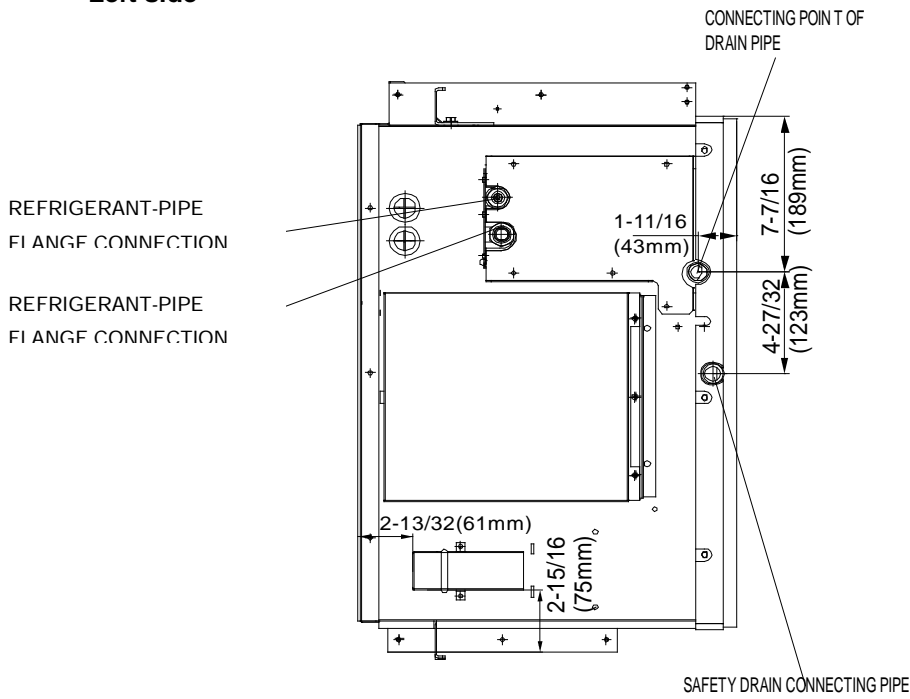
Front view, top view and rear view:

Unit:in (mm)

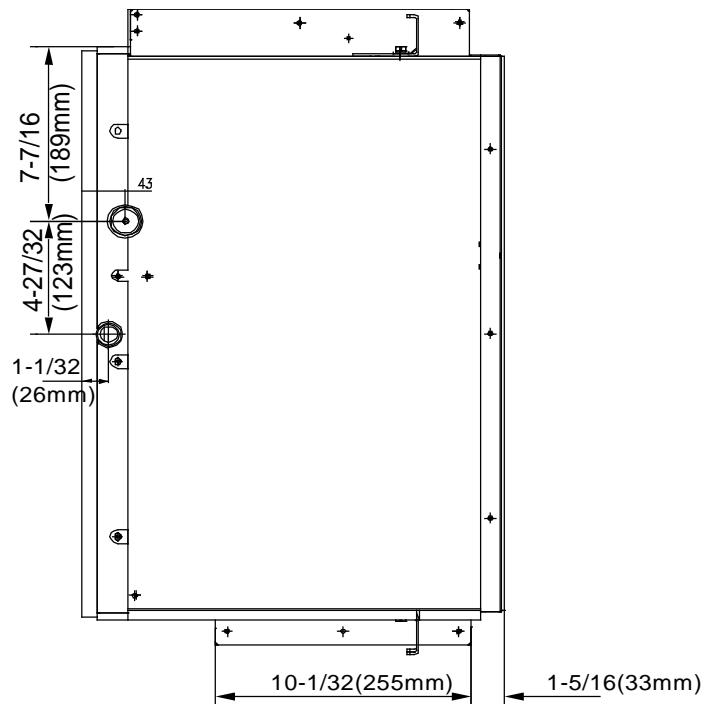


Side view:

- Left side**



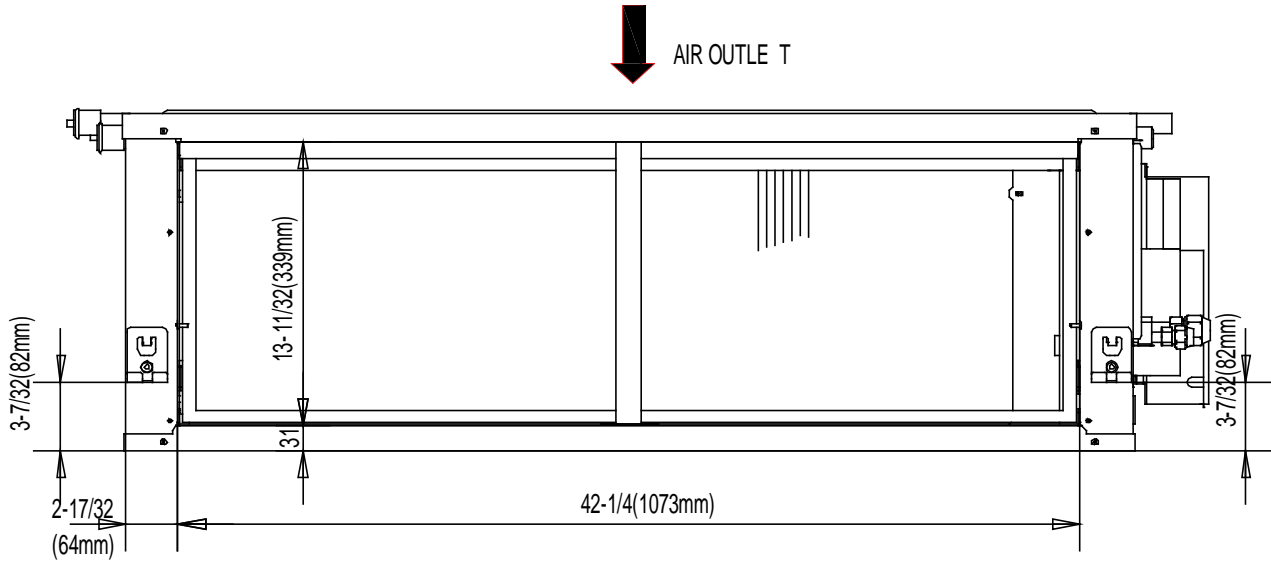
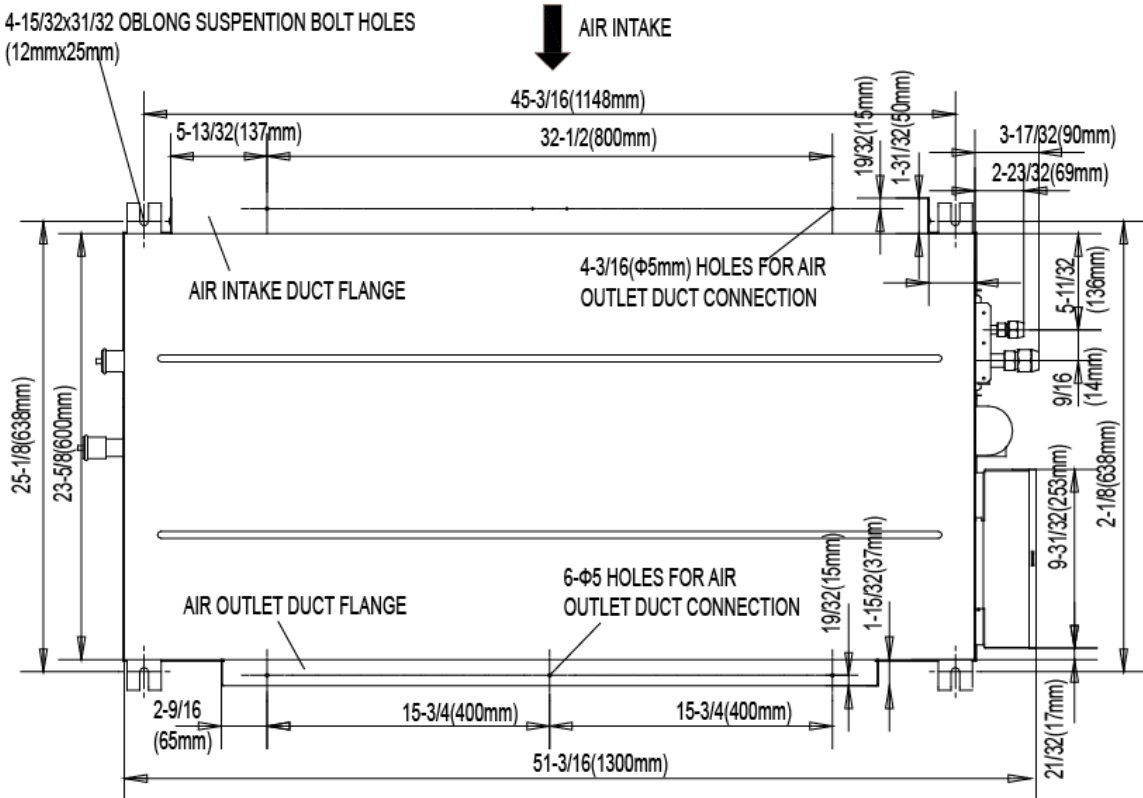
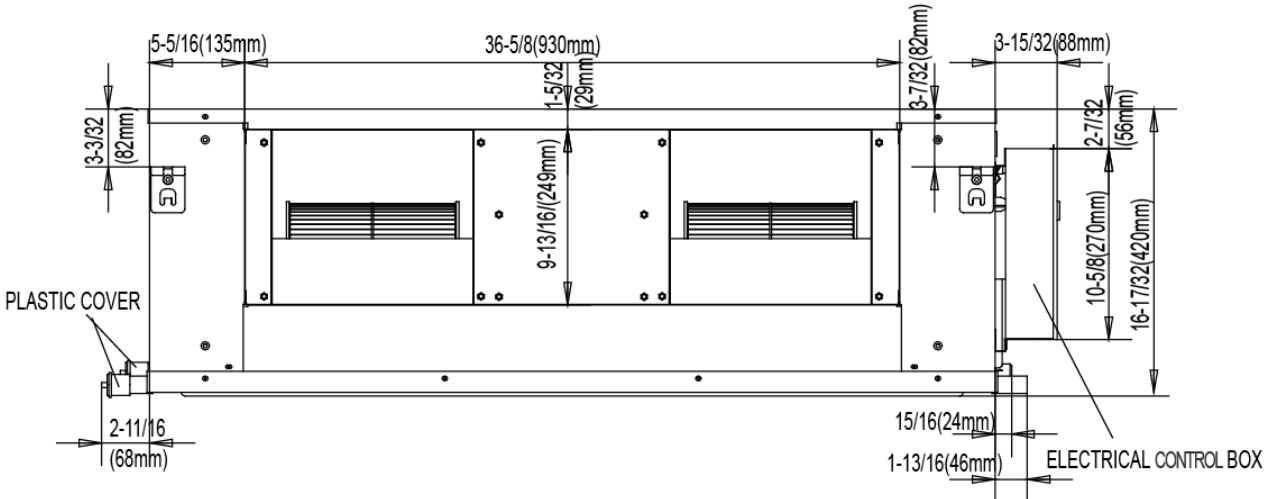
- Right side**



4TVD0048DF000AA, 4TVD0051DF000AA

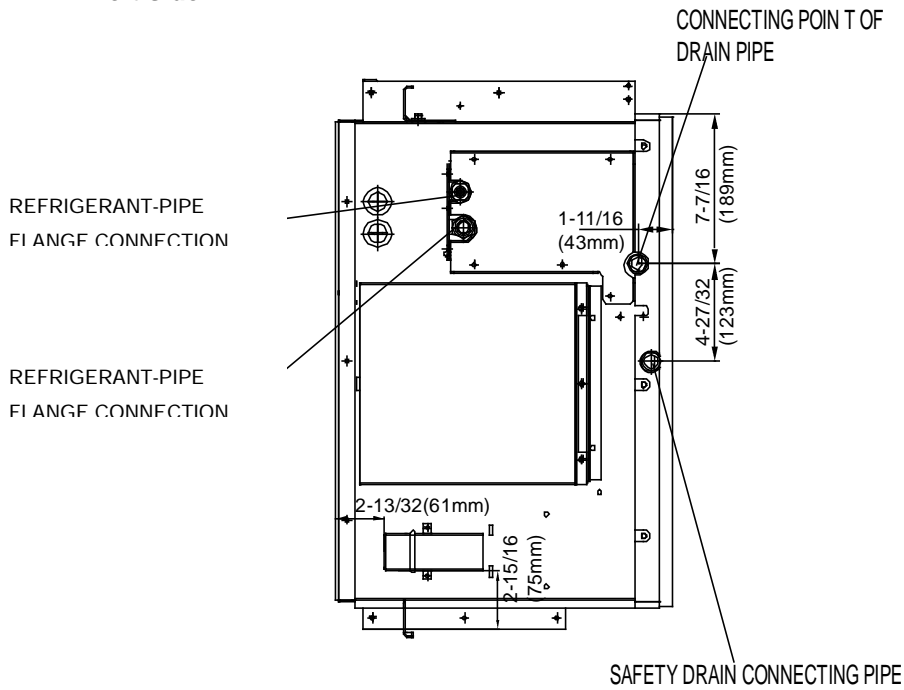
Front view, top view and rear view:

Unit: in(mm)

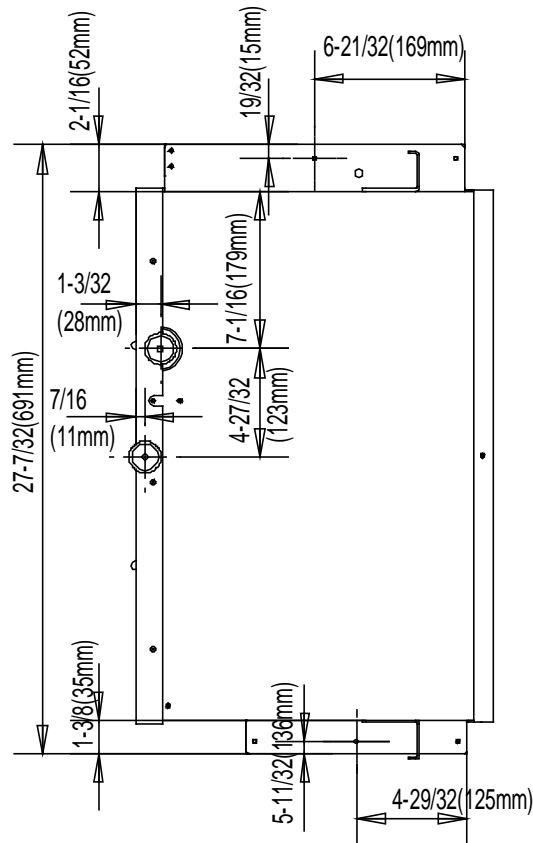


Side view:

• **Left side**

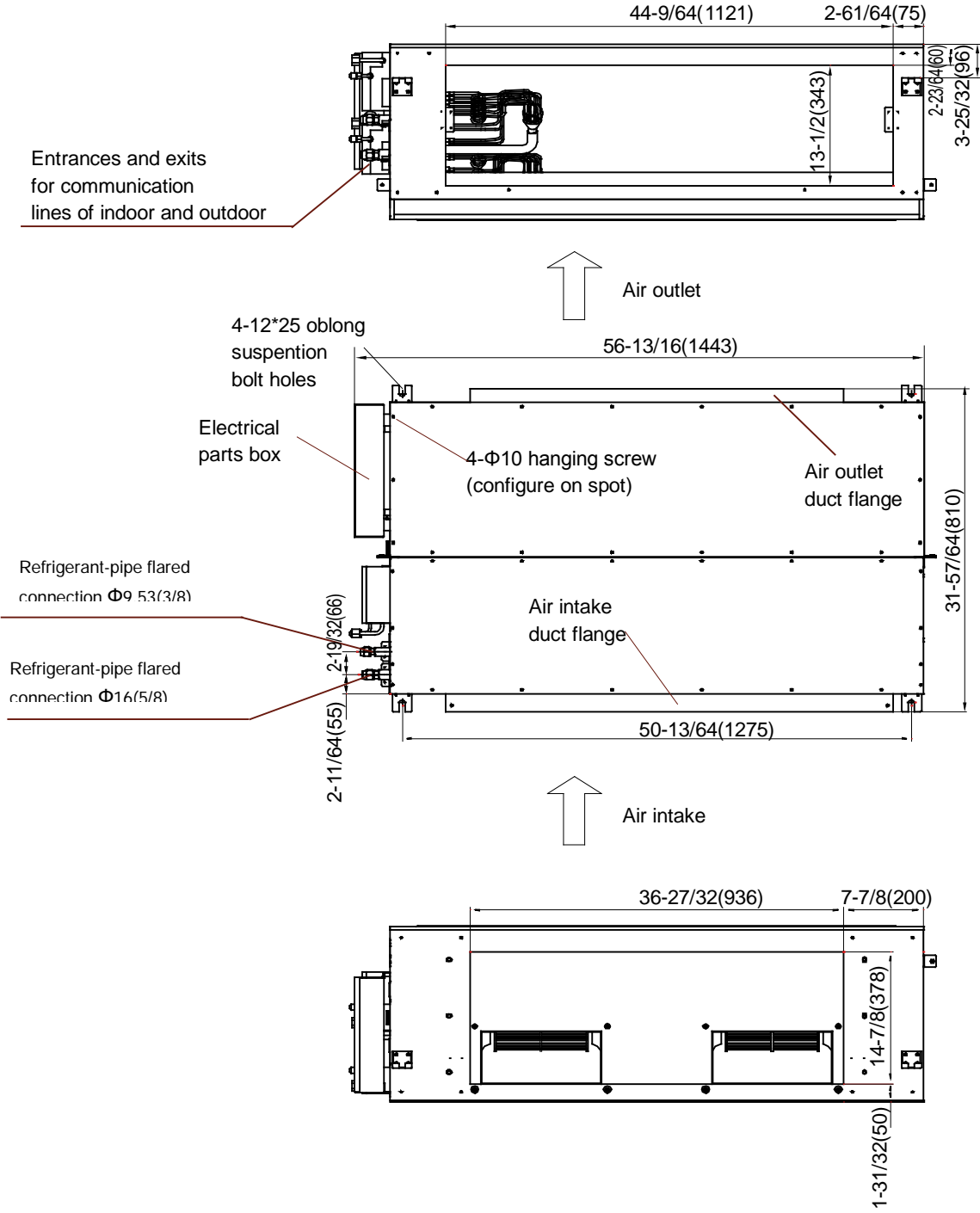


• **Right side**

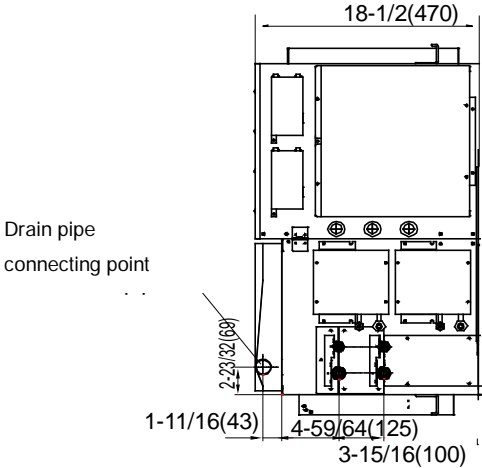


4TVD0068DF000AA, 4TVD0085DF000AA, 4TVD0095DF000AA

Front view, top view and rear view:



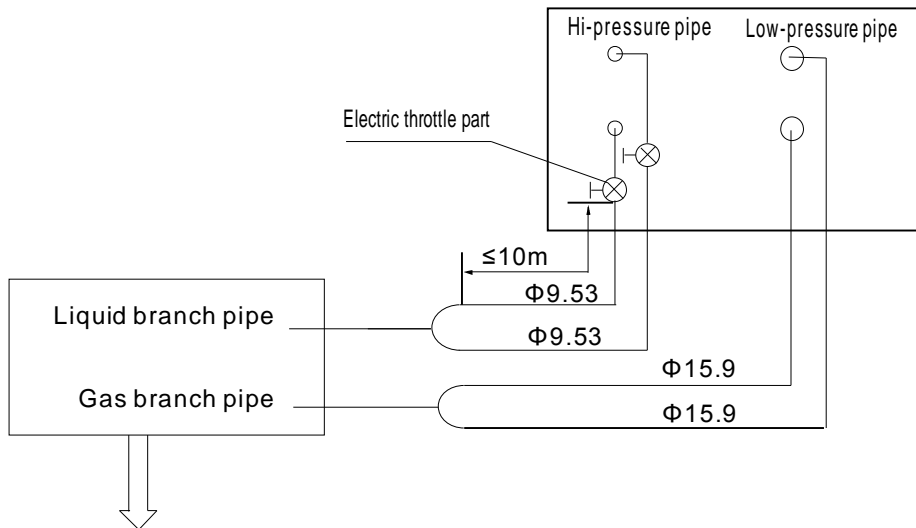
Side view:



Key installation points for the 68, 85, 95 MBH models:

There are two sets of EXV boxes for models 68, 85 & 95 MBH, as well two sets of pipes (Gas/Liquid), it's necessary to connect the two gas pipes together with the attached branch header BY101N1, as well the liquid pipes.

The branch header (1 set) already includes 1 gas and 1 liquid branch joint. Please check the accessory and follow the instructions while installing the indoor units and piping.

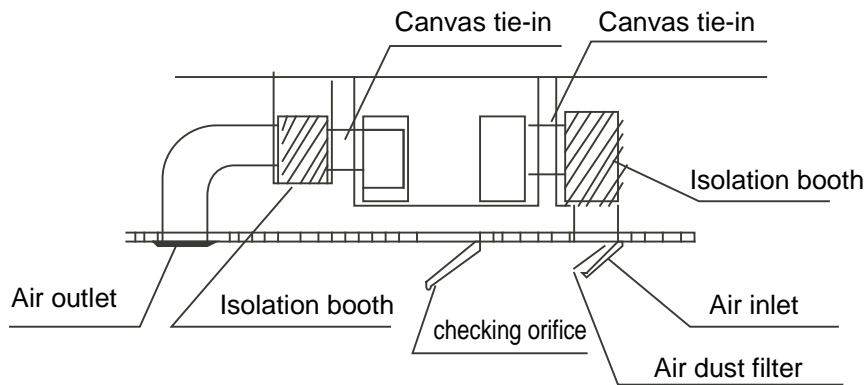


For piping diameter please refer to the provided manual of the purchased outdoor unit.

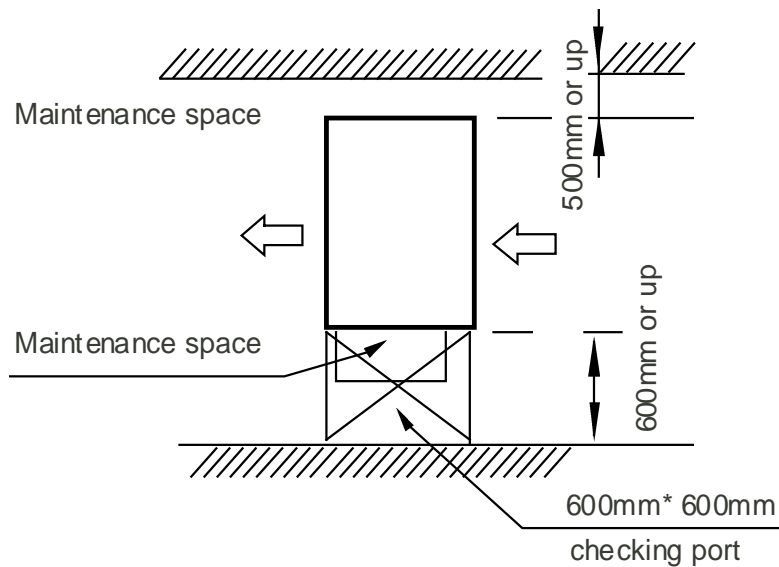
4. Service Spaces

- Ensure sufficient space for installation and maintenance.
- The ceiling must be horizontal, and is structurally capable of carrying the weight of the indoor unit.
- The outlet and the inlet are not impeded, and little influence of external air is the least.
- The air flow is sufficient throughout the room.
- The connecting pipe and drainpipe can be extracted easily.
- There is no direct radiation from heaters.

Below is the recommended duct installation method:

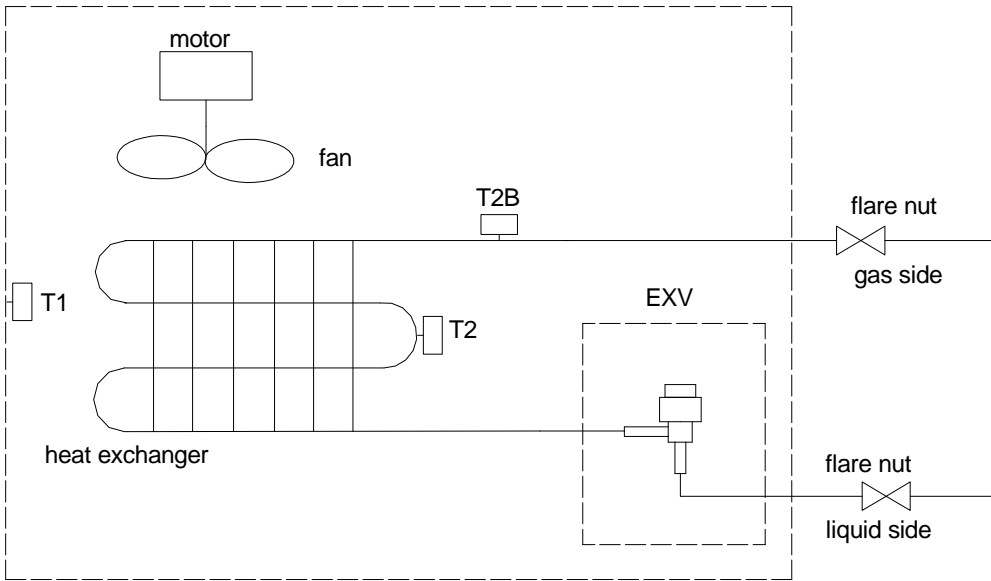


Keep min. 600mm*600mm (23-5/8in.x23-5/8in.) space for checking & maintenance:

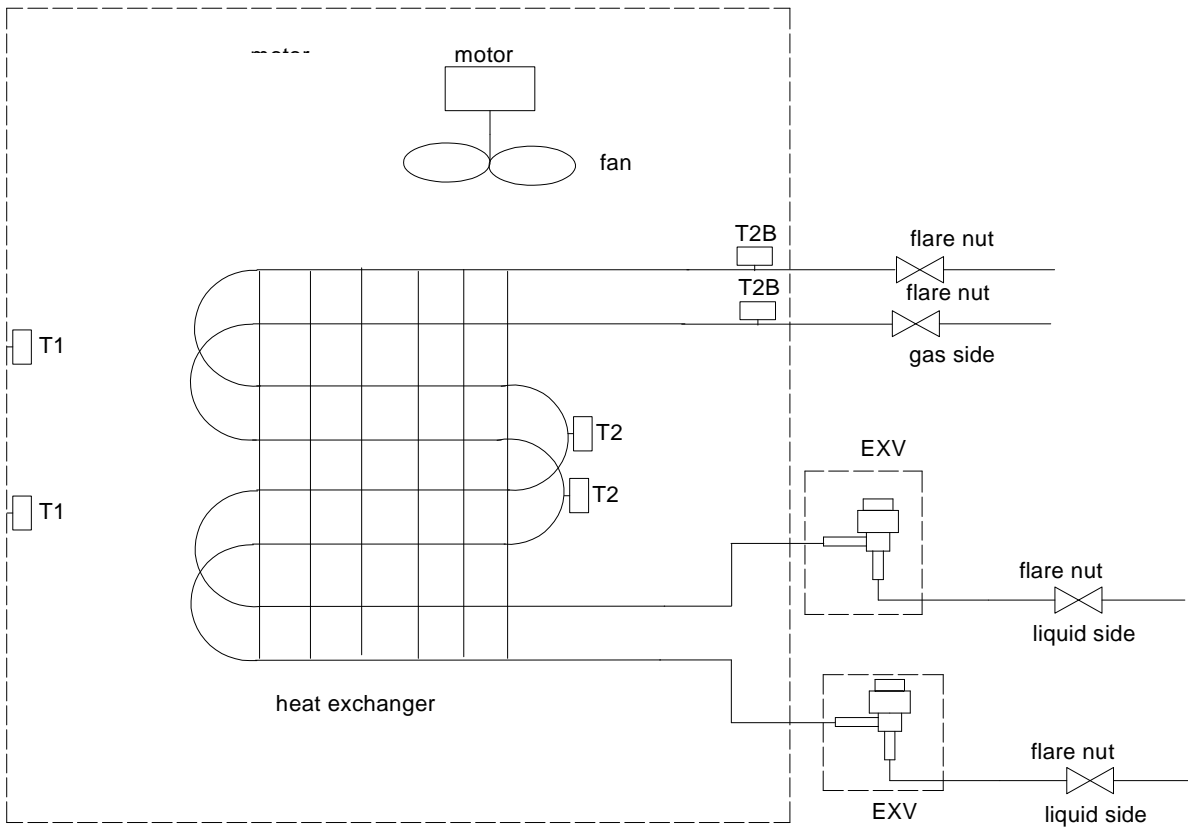


5. Piping Diagrams

4TVD0024DF000AA, 4TVD0027DF000AA, 4TVD0030DF000AA, 4TVD0038DF000AA, 4TVD0048DF000AA, 4TVD0051DF000AA



4TVD0068DF000AA, 4TVD0085DF000AA, 4TVD0095DF000AA



6. Wiring Diagrams

4TVD0024DF00AA, 4TVD0027DF00AA, 4TVD0030DF00AA, 4TVD0038DF00AA, 4TVD0048DF00AA, 4TVD0051DF00AA

202085690112
WIRING DIAGRAM
(INDOOR UNIT)

CODE	TITLE
FAN1	DC FAN MOTOR
TA	OUTLET AIR TEMP.
T1	ROOM TEMP.
T2	MIDDLE PIPE TEMP.
T2B	OUTER PIPE TEMP.
C. S	WATER LEVEL SWITCH
EEV	ELECTRONIC EXPANSION VALVE
XP1-XP5	CONNECTOR
XS1-XS5	CONNECTOR
XT1	TERMINAL
XT2	TERMINAL
XT3	TERMINAL
PUMP	PUMP MOTOR
BD-1	BRIDGE RECTIFIER

ENC1	Toggle switch	For set horsepower
	Code	Capacity
ENC1	0	2200W
	1	2800W
	2	3600W
	3	4500W
	4	5600W
	5	7100W
	6	8000W
	7	9000W
	8	10000/11200W
	9	12500/14000W
A	16000W	

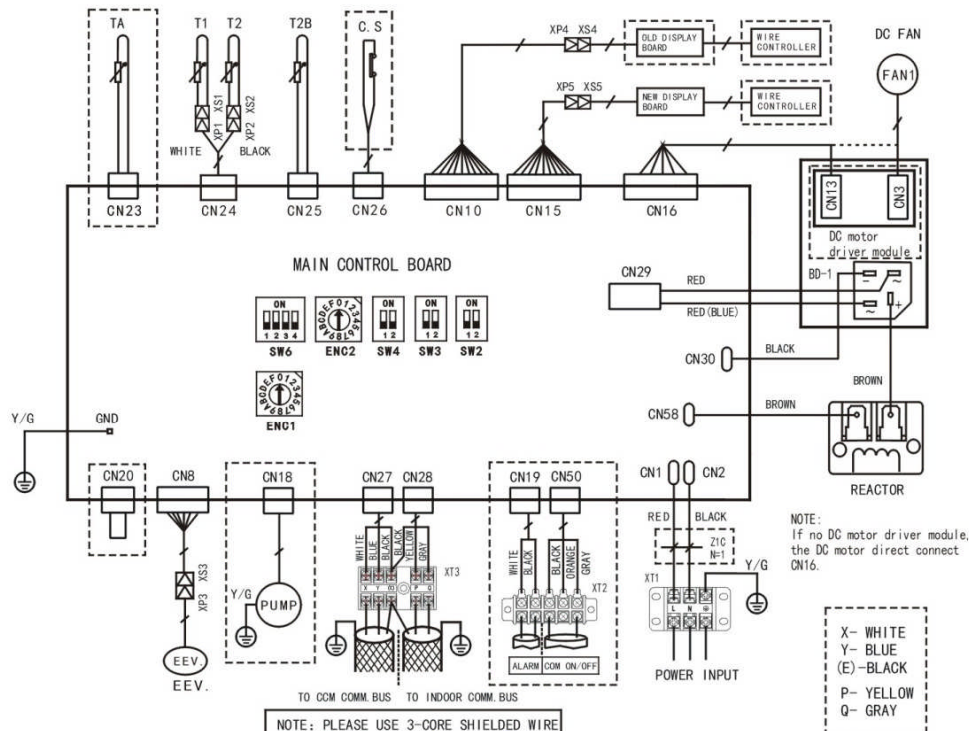
NOTE:
1. The functions in the dashed rectangle are available for particular Air-conditioner.
2. SW2-SW4, SW6 must be set as this diagram.
3. ENC2 is used for Static Pressure must be set according to the INSTALLATION MANUAL.

J1J2 Definition

J1	● without jumper "J1" for auto restart function
J1	● with jumper "J1" for non-auto restart function
J2	● reserved

SW2 Definition

SW2	●00 means shutting down the unit to "stop cold air" at 15°C
SW2	●01 means shutting down the unit to "stop cold air" at 20°C
SW2	●10 means shutting down the unit to "stop cold air" at 24°C
SW2	●11 means shutting down the unit to "stop cold air" at 26°C



NOTE: PLEASE USE 3-CORE SHIELDED WIRE

SW3 Definition

SW3	●00 means the time of stopping TERMINAL fan is 4 minutes
SW3	●01 means the time of stopping TERMINAL fan is 8 minutes
SW3	●10 means the time of stopping TERMINAL fan is 12 minutes
SW3	●11 means the time of stopping TERMINAL fan is 16 minutes

SW4 Definition

SW4	●00 means temp.compensation value is 6°C under heat mode
SW4	●01 means temp.compensation value is 2°C under heat mode
SW4	●10 means temp.compensation value is 4°C under heat mode
SW4	●11 means temp.compensation value is 8°C under heat mode

SW6 Definition

SW6-1	●1 means old display panel ●0 means new display panel
SW6-2	●1 means DC fan is chosen ●0 means AC fan is chosen
SW6-3	●1 means factory test mode ●0 means auto addressing mode (default setting)
SW6-4	● reserved

O/1 Definition

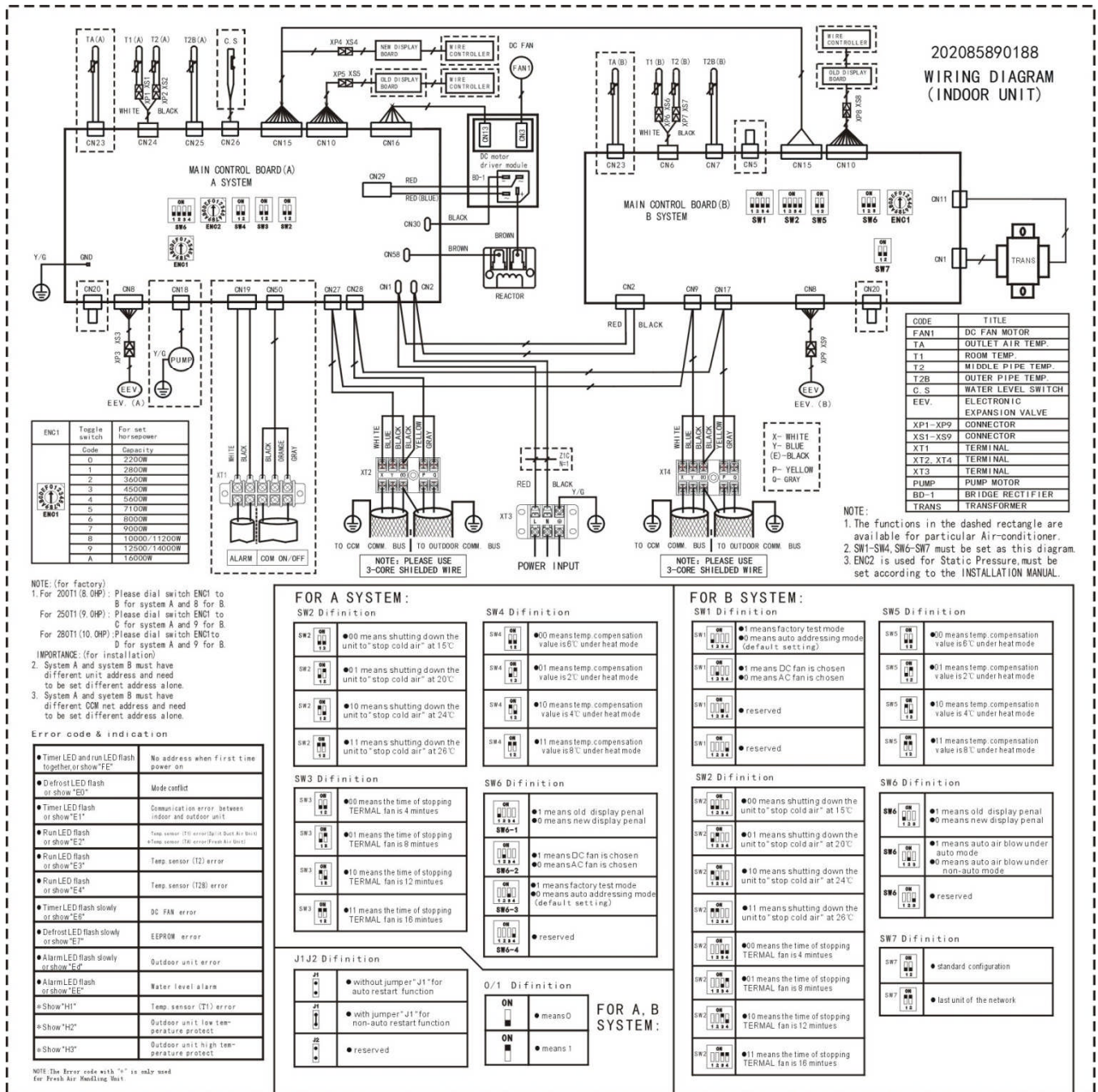
O	● means 0
1	● means 1

Error code & indication

● Timer LED and run LED flash together, or show "E"	No address when first time power on
● Defrost LED flash or show "E0"	Mode conflict
● Timer LED flash or show "E1"	Communication error between indoor and outdoor unit
● Run LED flash or show "E2"	Temp. sensor (T1) error (Indoor Unit) / Temp. sensor (T2) error (Fresh Air Unit)
● Run LED flash or show "E3"	Temp. sensor (T2) error
● Run LED flash or show "E4"	Temp. sensor (T2B) error
● Timer LED flash slowly or show "E6"	DC FAN error
● Defrost LED flash slowly or show "E7"	EEPROM error
● Alarm LED flash slowly or show "E8"	Outdoor unit error
● Alarm LED flash or show "EE"	Water level alarm
* Show "H1"	Temp. sensor (T1) error
* Show "H2"	Outdoor unit low temperature protect
* Show "H3"	Outdoor unit high temperature protect

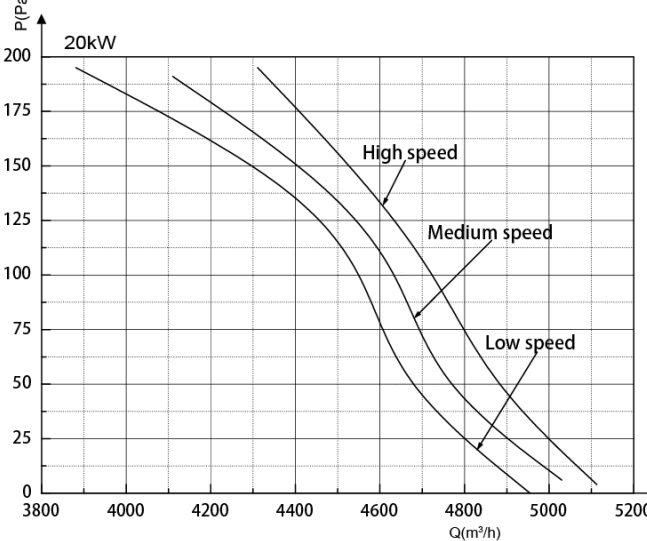
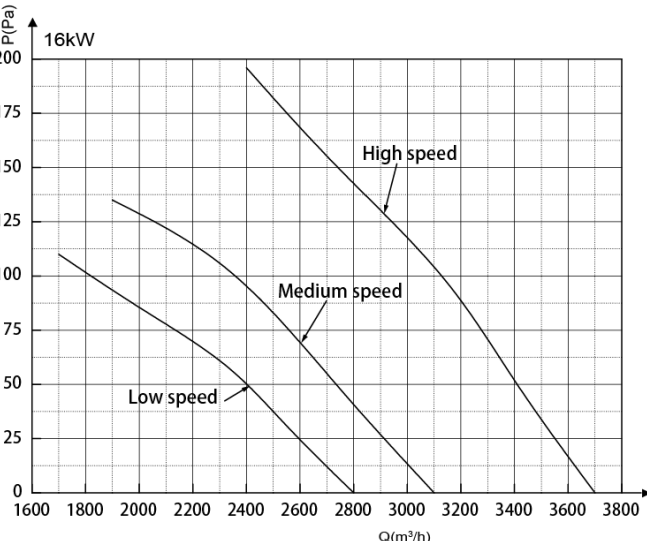
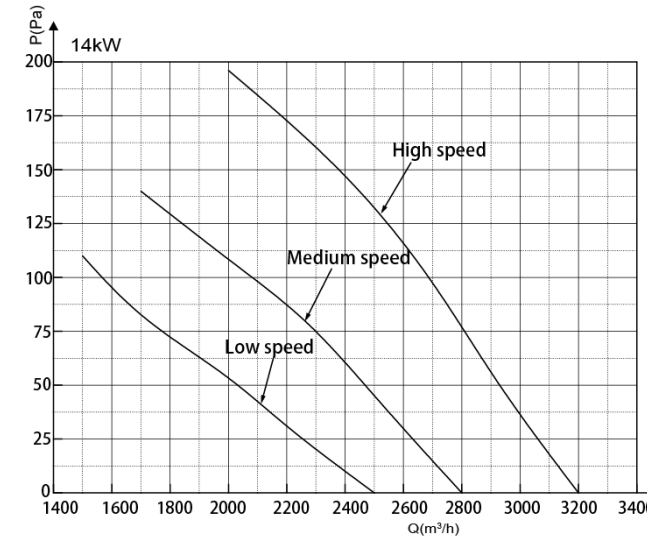
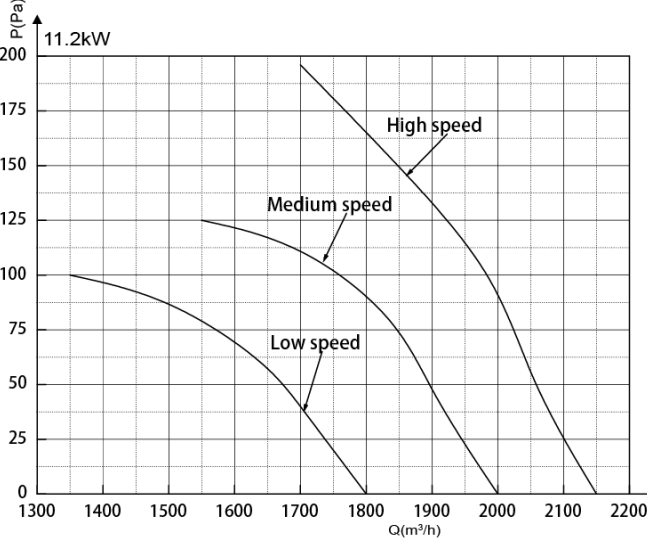
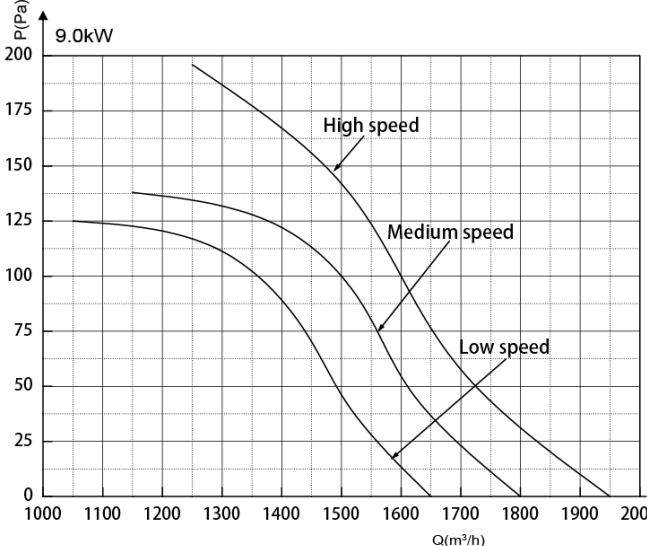
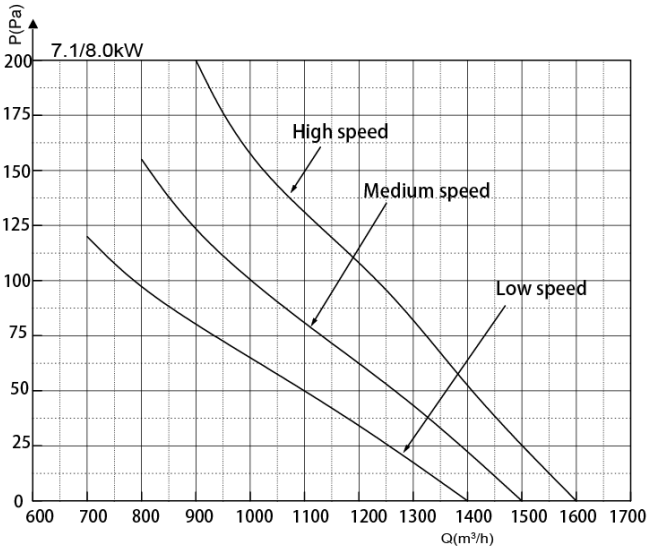
NOTE: The Error code with "H" is only used for Fresh Air Handling Unit.

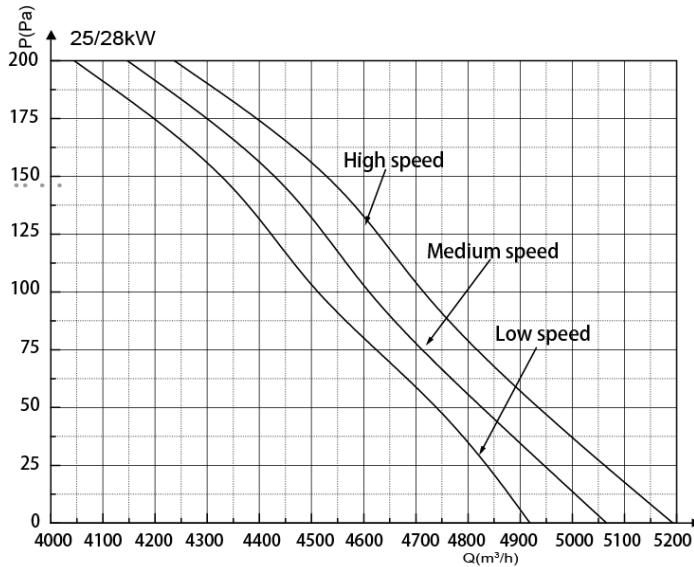
4TVD0068DF000AA, 4TVD0085DF000AA, 4TVD0095DF000AA



7. Fan Performance

Heating capacity and cooling capacity are tested under the standard allowable static pressure; the 7.1kW (24MBH) test static pressure is 25Pa, 8/9/11.2kW (27/30/38MBH) test static pressure is 37Pa, 14/16kW (48/51MBH) test static pressure is 50Pa, the 20/25/28kW (68/85/95MBH) test pressure is 62Pa.





- If the external static pressure is too high, caused by extensive ducting for example, the air flow volume at each outlet may be reduced to insufficient levels.
- So there's a limit air flow volume for each speed, which is the min. airflow of this duct unit. At this flow volume, the fan achieve the max. ESP, and indoor evaporator may protect by low temperature.
- As well, there's a limit airflow volume, which is the max. value at each speed. It request the unit to connect duct for air-inlet and outlet, to prevent damage from the high temperature of motor/evaporator.
- This is the available static pressure range which means the unit can run stably in this static pressure range, and the optimal static pressure range please refers to the Installation Manual.
- Risks of selecting a unit outside of the optimal range include higher noise levels, low air flow volume ect.

8. Capacity Tables

8.1 Cooling TC: total capacity SC: sensible capacity WB: wet-bulb temperature DB: dry-bulb temperature

Indoor Unit size (kW)	Outdoor temperature (°CDB)	Indoor temperature (°CWB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
7.1	10.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	9.2	5.6
	12.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	9.1	5.5
	14.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	9.0	5.5
	16.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	8.9	5.4
	18.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	8.7	5.2
	20.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	8.5	5.2
	21.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.4	5.6	8.4	5.1
	23.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.3	5.6	8.3	5.0
	25.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.2	5.5	8.2	5.0
	27.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.2	5.5	8.2	5.0
	29.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.1	5.4	8.1	5.0
	31.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.0	5.4	7.8	4.8
	33.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.4	8.0	5.3	7.8	4.8
	35.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.5	5.3	7.7	5.1	7.7	4.8
	37.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.4	5.3	7.7	5.1	7.6	4.8
	39.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.2	5.2	7.4	5.0	7.6	4.8
42.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.2	5.2	7.4	5.0	7.6	4.8	
44.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.2	5.2	7.4	5.0	7.6	4.8	
46.0	4.9	4.3	5.8	4.7	6.7	5.3	7.1	5.4	7.2	5.2	7.4	5.0	7.6	4.8	
8.0	10.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	10.4	6.3
	12.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	10.2	6.2
	14.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	10.2	6.1
	16.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	10.0	6.0
	18.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	9.8	5.9
	20.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	9.6	5.8
	21.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.5	6.3	9.4	5.7
	23.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.4	6.3	9.4	5.7
	25.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.3	6.2	9.3	5.6
	27.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.2	6.2	9.2	5.7
	29.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.1	6.1	9.1	5.6
	31.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.0	6.1	8.8	5.4
	33.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.5	6.0	9.0	6.0	8.8	5.4
	35.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.4	6.0	8.6	5.8	8.6	5.4
	37.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.3	5.9	8.6	5.8	8.6	5.4
	39.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.2	5.8	8.3	5.7	8.6	5.5
42.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.2	5.8	8.3	5.7	8.6	5.5	
44.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.2	5.8	8.3	5.7	8.6	5.5	
46.0	5.5	4.8	6.5	5.3	7.5	5.9	8.0	6.0	8.2	5.8	8.3	5.7	8.6	5.5	
9.0	10.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	11.7	7.1
	12.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	11.5	7.0
	14.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	11.4	6.9
	16.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	11.3	6.8
	18.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	11.0	6.6
	20.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	10.8	6.5
	21.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.7	7.1	10.6	6.4
	23.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.5	7.1	10.5	6.4
	25.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.4	7.0	10.4	6.3
	27.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.4	6.9	10.4	6.4
	29.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.3	6.9	10.3	6.3
	31.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.2	6.8	9.9	6.1
	33.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.8	10.1	6.7	9.9	6.1
	35.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.5	6.7	9.7	6.5	9.7	6.1
	37.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.4	6.7	9.7	6.5	9.6	6.0
	39.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.2	6.5	9.4	6.4	9.6	6.1
42.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.2	6.5	9.4	6.4	9.6	6.1	
44.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.2	6.5	9.4	6.4	9.6	6.1	
46.0	6.2	5.4	7.3	6.0	8.5	6.7	9.0	6.8	9.2	6.5	9.4	6.4	9.6	6.1	
11.2	10.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	14.6	8.8
	12.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	14.3	8.7
	14.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	14.2	8.6

High Static Pressure Duct Unit with DC Fan Motor

Indoor Unit size (kW)	Outdoor temperature (°CDB)	Indoor temperature (°CWB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
11.2	16.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	14.0	8.5
	18.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	13.7	8.3
	20.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	13.4	8.1
	21.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.3	8.8	13.2	8.0
	23.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.1	8.8	13.1	7.9
	25.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	13.0	8.7	13.0	7.9
	27.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	12.9	8.6	12.9	7.9
	29.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	12.8	8.5	12.8	7.9
	31.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	12.7	8.5	12.3	7.6
	33.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.9	8.5	12.5	8.4	12.3	7.6
	35.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.8	8.4	12.1	8.1	12.1	7.6
	37.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.6	8.3	12.1	8.1	12.0	7.5
	39.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.4	8.1	11.6	7.9	12.0	7.6
	42.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.4	8.1	11.6	7.9	12.0	7.6
44.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.4	8.1	11.6	7.9	12.0	7.6	
46.0	7.7	6.8	9.1	7.4	10.5	8.3	11.2	8.5	11.4	8.1	11.6	7.9	12.0	7.6	
14.0	10.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	18.2	11.0
	12.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	17.9	10.8
	14.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	17.8	10.8
	16.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	17.5	10.6
	18.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	17.1	10.3
	20.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	16.8	10.2
	21.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.7	11.0	16.5	10.0
	23.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.4	11.0	16.4	9.9
	25.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.2	10.9	16.2	9.8
	27.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.1	10.8	16.1	9.9
	29.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	16.0	10.7	16.0	9.8
	31.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	15.8	10.6	15.4	9.5
	33.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.8	10.6	15.7	10.5	15.4	9.5
	35.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.7	10.5	15.1	10.1	15.1	9.5
37.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.6	10.4	15.1	10.1	15.0	9.4	
39.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.3	10.2	14.6	9.9	15.0	9.5	
42.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.3	10.2	14.6	9.9	15.0	9.5	
44.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.3	10.2	14.6	9.9	15.0	9.5	
46.0	9.7	8.5	11.3	9.3	13.2	10.4	14.0	10.6	14.3	10.2	14.6	9.9	15.0	9.5	
16.0	10.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	20.8	12.6
	12.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	20.5	12.4
	14.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	20.3	12.3
	16.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	20.0	12.1
	18.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	19.5	11.8
	20.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	19.2	11.6
	21.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	19.0	12.5	18.9	11.4
	23.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	18.7	12.5	18.7	11.3
	25.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	18.6	12.4	18.6	11.2
	27.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	18.4	12.3	18.4	11.3
	29.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	18.2	12.2	18.2	11.2
	31.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	18.1	12.1	17.6	10.8
	33.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	17.0	12.1	17.9	12.0	17.6	10.8
	35.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.8	12.0	17.3	11.6	17.3	10.8
37.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.6	11.9	17.3	11.6	17.1	10.7	
39.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.3	11.6	16.6	11.3	17.1	10.9	
42.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.3	11.6	16.6	11.3	17.1	10.9	
44.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.3	11.6	16.6	11.3	17.1	10.9	
46.0	11.0	9.7	13.0	10.6	15.0	11.9	16.0	12.1	16.3	11.6	16.6	11.3	17.1	10.9	
20.0	10.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	26.0	15.7
	12.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	25.6	15.5
	14.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	25.4	15.4
	16.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	25.0	15.1
	18.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	24.4	14.8
	20.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	24.0	14.5
	21.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.8	15.7	23.6	14.3
23.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.4	15.7	23.4	14.2	

Indoor Unit size (kW)	Outdoor temperature (°CDB)	Indoor temperature (°CWB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
20.0	25.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.2	15.5	23.2	14.0
	27.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	23.0	15.4	23.0	14.2
	29.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	22.8	15.3	22.8	14.0
	31.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	22.6	15.1	22.0	13.5
	33.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.2	15.1	22.4	15.0	22.0	13.5
	35.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	21.0	15.0	21.6	14.5	21.6	13.5
	37.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	20.8	14.8	21.6	14.5	21.4	13.4
	39.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	20.4	14.5	20.8	14.2	21.4	13.6
	42.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	20.4	14.5	20.8	14.2	21.4	13.6
	44.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	20.4	14.5	20.8	14.2	21.4	13.6
46.0	13.8	12.1	16.2	13.3	18.8	14.8	20.0	15.1	20.4	14.5	20.8	14.2	21.4	13.6	
25.0	10.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	32.5	19.7
	12.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	32.0	19.4
	14.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	31.8	19.2
	16.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	31.3	18.9
	18.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	30.5	18.4
	20.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	30.0	18.1
	21.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.8	19.6	29.5	17.8
	23.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.3	19.6	29.3	17.7
	25.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	29.0	19.4	29.0	17.5
	27.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	28.8	19.3	28.8	17.7
	29.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	28.5	19.1	28.5	17.5
	31.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	28.3	18.9	27.5	16.9
	33.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.5	18.9	28.0	18.7	27.5	16.9
	35.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.3	18.7	27.0	18.1	27.0	16.9
	37.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	26.0	18.5	27.0	18.1	26.8	16.8
39.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	25.5	18.2	26.0	17.7	26.8	17.0	
42.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	25.5	18.2	26.0	17.7	26.8	17.0	
44.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	25.5	18.2	26.0	17.7	26.8	17.0	
46.0	17.3	15.1	20.3	16.6	23.5	18.5	25.0	18.9	25.5	18.2	26.0	17.7	26.8	17.0	
28.0	10.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	36.4	22.0
	12.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	35.8	21.7
	14.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	35.6	21.5
	16.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	35.0	21.2
	18.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	34.2	20.7
	20.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	33.6	20.3
	21.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	33.3	22.0	33.0	20.0
	23.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	32.8	21.9	32.8	19.8
	25.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	32.5	21.7	32.5	19.6
	27.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	32.2	21.6	32.2	19.8
	29.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	31.9	21.4	31.9	19.6
	31.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	31.6	21.2	30.8	19.0
	33.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.7	21.2	31.4	21.0	30.8	19.0
	35.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.4	21.0	30.2	20.2	30.2	18.9
	37.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	29.1	20.8	30.2	20.2	30.0	18.8
39.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	28.6	20.4	29.1	19.8	30.0	19.1	
42.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	28.6	20.4	29.1	19.8	30.0	19.1	
44.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	28.6	20.4	29.1	19.8	30.0	19.1	
46.0	19.3	16.9	22.7	18.6	26.3	20.8	28.0	21.2	28.6	20.4	29.1	19.8	30.0	19.1	

8.2 Heating

TC: total capacity **WB:** wet-bulb temperature **DB:** dry-bulb temperature

Indoor Unit size (kW)	Outdoor temperature (°C)		Indoor temperature (°C DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
	WB	DB	TC kW	TC kW	TC kW	TC kW	TC kW	TC kW
7.1	-20	-19.8	3.98	3.98	3.98	3.98	3.98	3.98
	-19	-18.8	4.26	4.26	4.26	4.26	4.26	4.26
	-17	-16.7	4.47	4.47	4.47	4.47	4.47	4.47
	-15	-14.7	4.62	4.62	4.62	4.62	4.62	4.62
	-13.00	-12.60	4.90	4.90	4.90	4.90	4.90	4.90
	-11.00	-10.50	4.97	5.04	5.04	5.04	5.04	5.04
	-10.00	-9.50	5.18	5.18	5.18	5.18	5.18	5.18
	-9.10	-8.50	5.33	5.33	5.33	5.33	5.33	5.33
	-7.60	-7.00	5.40	5.40	5.40	5.40	5.40	5.40
	-5.60	-5.00	5.61	5.61	5.61	5.61	5.61	5.61
	-3.70	-3.00	5.89	5.89	5.89	5.89	5.89	5.89
	-0.70	0.00	6.32	6.32	6.32	6.32	6.32	5.96
	2.20	3.00	6.67	6.67	6.67	6.67	6.53	5.96
	4.10	5.00	6.89	6.89	6.89	6.89	6.53	5.96
	6.00	7.00	7.10	7.10	7.10	6.89	6.53	5.96
	7.90	9.00	7.31	7.31	7.10	6.89	6.53	5.96
9.80	11.00	7.53	7.53	7.10	6.89	6.53	5.96	
11.80	13.00	7.81	7.67	7.10	6.89	6.53	5.96	
13.70	15.00	8.02	7.67	7.10	6.89	6.53	5.96	
8.0	-20	-19.8	4.48	4.48	4.48	4.48	4.48	4.48
	-19	-18.8	4.80	4.80	4.80	4.80	4.80	4.80
	-17	-16.7	5.04	5.04	5.04	5.04	5.04	5.04
	-15	-14.7	5.20	5.20	5.20	5.20	5.20	5.20
	-13.00	-12.60	5.52	5.52	5.52	5.52	5.52	5.52
	-11.00	-10.50	5.60	5.68	5.68	5.68	5.68	5.68
	-10.00	-9.50	5.84	5.84	5.84	5.84	5.84	5.84
	-9.10	-8.50	6.00	6.00	6.00	6.00	6.00	6.00
	-7.60	-7.00	6.08	6.08	6.08	6.08	6.08	6.08
	-5.60	-5.00	6.32	6.32	6.32	6.32	6.32	6.32
	-3.70	-3.00	6.64	6.64	6.64	6.64	6.64	6.64
	-0.70	0.00	7.12	7.12	7.12	7.12	7.12	6.72
	2.20	3.00	7.52	7.52	7.52	7.52	7.36	6.72
	4.10	5.00	7.76	7.76	7.76	7.76	7.36	6.72
	6.00	7.00	8.00	8.00	8.00	7.76	7.36	6.72
	7.90	9.00	8.24	8.24	8.00	7.76	7.36	6.72
9.80	11.00	8.48	8.48	8.00	7.76	7.36	6.72	
11.80	13.00	8.80	8.64	8.00	7.76	7.36	6.72	
13.70	15.00	9.04	8.64	8.00	7.76	7.36	6.72	
9.0	-20	5.04	5.04	5.04	5.04	5.04	5.04	5.04
	-19	5.40	5.40	5.40	5.40	5.40	5.40	5.40
	-17	5.67	5.67	5.67	5.67	5.67	5.67	5.67
	-15	5.85	5.85	5.85	5.85	5.85	5.85	5.85
	-13.00	6.21	6.21	6.21	6.21	6.21	6.21	6.21
	-11.00	6.30	6.30	6.39	6.39	6.39	6.39	6.39
	-10.00	6.57	6.57	6.57	6.57	6.57	6.57	6.57
	-9.10	6.75	6.75	6.75	6.75	6.75	6.75	6.75
	-7.60	6.84	6.84	6.84	6.84	6.84	6.84	6.84
	-5.60	7.11	7.11	7.11	7.11	7.11	7.11	7.11
	-3.70	7.47	7.47	7.47	7.47	7.47	7.47	7.47
	-0.70	8.01	8.01	8.01	8.01	8.01	8.01	7.56
	2.20	8.46	8.46	8.46	8.46	8.46	8.28	7.56
	4.10	8.73	8.73	8.73	8.73	8.73	8.28	7.56
	6.00	9.00	9.00	9.00	9.00	8.73	8.28	7.56
	7.90	9.27	9.27	9.27	9.00	8.73	8.28	7.56
9.80	9.54	9.54	9.54	9.00	8.73	8.28	7.56	
11.80	9.90	9.90	9.72	9.00	8.73	8.28	7.56	
13.70	10.17	10.17	9.72	9.00	8.73	8.28	7.56	
11.2	-20	-19.8	6.27	6.27	6.27	6.27	6.27	6.27
	-19	-18.8	6.72	6.72	6.72	6.72	6.72	6.72
	-17	-16.7	7.06	7.06	7.06	7.06	7.06	7.06

Indoor Unit size (kW)	Outdoor temperature (°C)		Indoor temperature (°C DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
	WB	DB	TC	TC	TC	TC	TC	TC
11.2	-15	-14.7	7.28	7.28	7.28	7.28	7.28	7.28
	-13.00	-12.60	7.73	7.73	7.73	7.73	7.73	7.73
	-11.00	-10.50	7.84	7.95	7.95	7.95	7.95	7.95
	-10.00	-9.50	8.18	8.18	8.18	8.18	8.18	8.18
	-9.10	-8.50	8.40	8.40	8.40	8.40	8.40	8.40
	-7.60	-7.00	8.51	8.51	8.51	8.51	8.51	8.51
	-5.60	-5.00	8.85	8.85	8.85	8.85	8.85	8.85
	-3.70	-3.00	9.30	9.30	9.30	9.30	9.30	9.30
	-0.70	0.00	9.97	9.97	9.97	9.97	9.97	9.41
	2.20	3.00	10.53	10.53	10.53	10.53	10.30	9.41
	4.10	5.00	10.86	10.86	10.86	10.86	10.30	9.41
	6.00	7.00	11.20	11.20	11.20	10.86	10.30	9.41
	7.90	9.00	11.54	11.54	11.20	10.86	10.30	9.41
	9.80	11.00	11.87	11.87	11.20	10.86	10.30	9.41
14.0	-20	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	-19	8.40	8.40	8.40	8.40	8.40	8.40	8.40
	-17	8.82	8.82	8.82	8.82	8.82	8.82	8.82
	-15	9.10	9.10	9.10	9.10	9.10	9.10	9.10
	-13.00	9.66	9.66	9.66	9.66	9.66	9.66	9.66
	-11.00	9.80	9.80	9.94	9.94	9.94	9.94	9.94
	-10.00	10.22	10.22	10.22	10.22	10.22	10.22	10.22
	-9.10	10.50	10.50	10.50	10.50	10.50	10.50	10.50
	-7.60	10.64	10.64	10.64	10.64	10.64	10.64	10.64
	-5.60	11.06	11.06	11.06	11.06	11.06	11.06	11.06
	-3.70	11.62	11.62	11.62	11.62	11.62	11.62	11.62
	-0.70	12.46	12.46	12.46	12.46	12.46	12.46	11.76
	2.20	13.16	13.16	13.16	13.16	13.16	12.88	11.76
	4.10	13.58	13.58	13.58	13.58	13.58	12.88	11.76
6.00	14.00	14.00	14.00	14.00	13.58	12.88	11.76	
7.90	14.42	14.42	14.42	14.00	13.58	12.88	11.76	
9.80	14.84	14.84	14.84	14.00	13.58	12.88	11.76	
11.80	15.40	15.40	15.12	14.00	13.58	12.88	11.76	
13.70	15.82	15.82	15.12	14.00	13.58	12.88	11.76	
16.0	-20	-19.8	8.96	8.96	8.96	8.96	8.96	8.96
	-19	-18.8	9.60	9.60	9.60	9.60	9.60	9.60
	-17	-16.7	10.08	10.08	10.08	10.08	10.08	10.08
	-15	-14.7	10.40	10.40	10.40	10.40	10.40	10.40
	-13.00	-12.6	11.04	11.04	11.04	11.04	11.04	11.04
	-11.00	-10.5	11.20	11.36	11.36	11.36	11.36	11.36
	-10.00	-9.5	11.68	11.68	11.68	11.68	11.68	11.68
	-9.10	-8.5	12.00	12.00	12.00	12.00	12.00	12.00
	-7.60	-7	12.16	12.16	12.16	12.16	12.16	12.16
	-5.60	-5	12.64	12.64	12.64	12.64	12.64	12.64
	-3.70	-3	13.28	13.28	13.28	13.28	13.28	13.28
	-0.70	0	14.24	14.24	14.24	14.24	14.24	13.44
	2.20	3	15.04	15.04	15.04	15.04	14.72	13.44
	4.10	5	15.52	15.52	15.52	15.52	14.72	13.44
6.00	7	16.00	16.00	16.00	15.52	14.72	13.44	
7.90	9	16.48	16.48	16.00	15.52	14.72	13.44	
9.80	11	16.96	16.96	16.00	15.52	14.72	13.44	
11.80	13	17.60	17.28	16.00	15.52	14.72	13.44	
13.70	15	18.08	17.28	16.00	15.52	14.72	13.44	
20.0	-20	-19.8	11.20	11.20	11.20	11.20	11.20	11.20
	-19	-18.8	12.00	12.00	12.00	12.00	12.00	12.00
	-17	-16.7	12.60	12.60	12.60	12.60	12.60	12.60
	-15	-14.7	13.00	13.00	13.00	13.00	13.00	13.00
	-13.00	-12.6	13.80	13.80	13.80	13.80	13.80	13.80
	-11.00	-10.5	14.00	14.20	14.20	14.20	14.20	14.20
	-9.10	-8.5	15.00	15.00	15.00	15.00	15.00	15.00

High Static Pressure Duct Unit with DC Fan Motor

Indoor Unit size (kW)	Outdoor temperature (°C)		Indoor temperature (°C DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
	WB	DB	TC	TC	TC	TC	TC	TC
20.0	-7.60	-7	15.20	15.20	15.20	15.20	15.20	15.20
	-5.60	-5	15.80	15.80	15.80	15.80	15.80	15.80
	-3.70	-3	16.60	16.60	16.60	16.60	16.60	16.60
	-0.70	0	17.80	17.80	17.80	17.80	17.80	16.80
	2.20	3	18.80	18.80	18.80	18.80	18.40	16.80
	4.10	5	19.40	19.40	19.40	19.40	18.40	16.80
	6.00	7	20.00	20.00	20.00	19.40	18.40	16.80
	7.90	9	20.60	20.60	20.00	19.40	18.40	16.80
	9.80	11	21.20	21.20	20.00	19.40	18.40	16.80
	11.80	13	22.00	21.60	20.00	19.40	18.40	16.80
13.70	15	22.60	21.60	20.00	19.40	18.40	16.80	
25.0	-20	-19.8	14.00	14.00	14.00	14.00	14.00	14.00
	-19	-18.8	15.00	15.00	15.00	15.00	15.00	15.00
	-17	-16.7	15.75	15.75	15.75	15.75	15.75	15.75
	-15	-14.7	16.25	16.25	16.25	16.25	16.25	16.25
	-13.00	-12.6	17.25	17.25	17.25	17.25	17.25	17.25
	-11.00	-10.5	17.50	17.75	17.75	17.75	17.75	17.75
	-10.00	-9.5	18.25	18.25	18.25	18.25	18.25	18.25
	-9.10	-8.5	18.75	18.75	18.75	18.75	18.75	18.75
	-7.60	-7	19.00	19.00	19.00	19.00	19.00	19.00
	-5.60	-5	19.75	19.75	19.75	19.75	19.75	19.75
	-3.70	-3	20.75	20.75	20.75	20.75	20.75	20.75
	-0.70	0	22.25	22.25	22.25	22.25	22.25	21.00
	2.20	3	23.50	23.50	23.50	23.50	23.00	21.00
	4.10	5	24.25	24.25	24.25	24.25	23.00	21.00
6.00	7	25.00	25.00	25.00	24.25	23.00	21.00	
7.90	9	25.75	25.75	25.00	24.25	23.00	21.00	
9.80	11	26.50	26.50	25.00	24.25	23.00	21.00	
11.80	13	27.50	27.00	25.00	24.25	23.00	21.00	
13.70	15	28.25	27.00	25.00	24.25	23.00	21.00	
28.0	-20	-19.8	15.68	15.68	15.68	15.68	15.68	15.68
	-19	-18.8	16.80	16.80	16.80	16.80	16.80	16.80
	-17	-16.7	17.64	17.64	17.64	17.64	17.64	17.64
	-15	-14.7	18.20	18.20	18.20	18.20	18.20	18.20
	-13.00	-12.6	19.32	19.32	19.32	19.32	19.32	19.32
	-11.00	-10.5	19.60	19.88	19.88	19.88	19.88	19.88
	-10.00	-9.5	20.44	20.44	20.44	20.44	20.44	20.44
	-9.10	-8.5	21.00	21.00	21.00	21.00	21.00	21.00
	-7.60	-7	21.28	21.28	21.28	21.28	21.28	21.28
	-5.60	-5	22.12	22.12	22.12	22.12	22.12	22.12
	-3.70	-3	23.24	23.24	23.24	23.24	23.24	23.24
	-0.70	0	24.92	24.92	24.92	24.92	24.92	23.52
	2.20	3	26.32	26.32	26.32	26.32	25.76	23.52
	4.10	5	27.16	27.16	27.16	27.16	25.76	23.52
	6.00	7	28.00	28.00	28.00	27.16	25.76	23.52
	7.90	9	28.84	28.84	28.00	27.16	25.76	23.52
9.80	11	29.68	29.68	28.00	27.16	25.76	23.52	
11.80	13	30.80	30.24	28.00	27.16	25.76	23.52	
13.70	15	31.64	30.24	28.00	27.16	25.76	23.52	

9. Electrical Characteristics

Model	Indoor Unit				Power Supply		IFM	
	Hz	Voltage	Min.	Max.	MCA	MFA	KW	FLA
4TVD0024DF000AA	50/60	220-240	198	254	1.7	16	0.17	1.35
4TVD0027DF000AA	50/60	220-240	198	254	1.7	16	0.17	1.35
4TVD0030DF000AA	50/60	220-240	198	254	2.4	16	0.2	1.9
4TVD0038DF000AA	50/60	220-240	198	254	3.6	16	0.37	2.88
4TVD0048DF000AA	50/60	220-240	198	254	4.5	16	0.41	3
4TVD0051DF000AA	50/60	220-240	198	254	4.5	16	0.68	3.6
4TVD0068DF000AA	50/60	220-240	198	254	7.5	16	0.79	6
4TVD0085DF000AA	50/60	220-240	198	254	7.5	16	0.79	6
4TVD0095DF000AA	50/60	220-240	198	254	7.5	16	0.79	6

Remark:

MCA: Min. Current Amps. (A)

MFA: Max. Fuse Amps. (A)

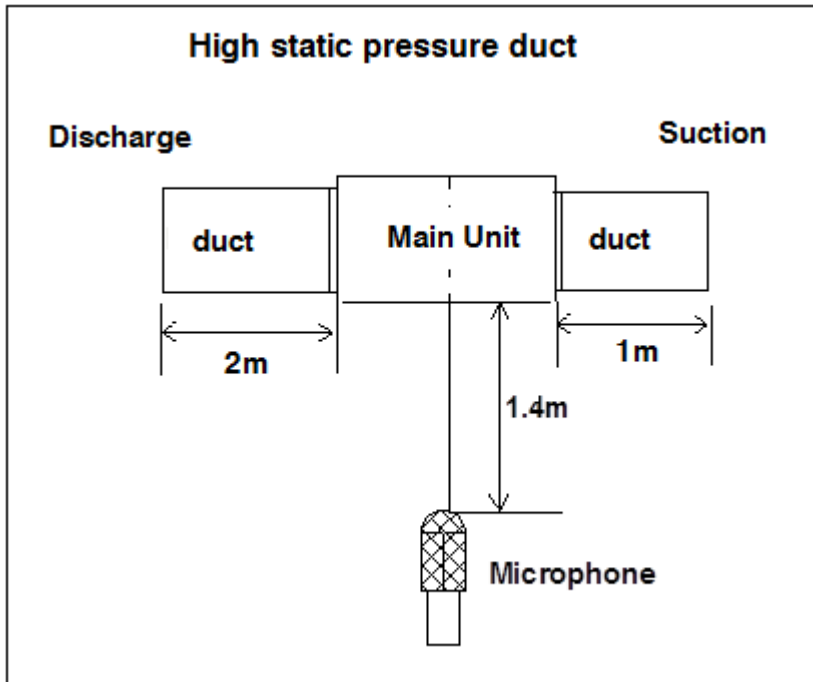
KW: Fan Motor Rated Output (kW)

FLA: Full Load Amps. (A)

IFM:Indoor Fan Motor

10. Sound Levels

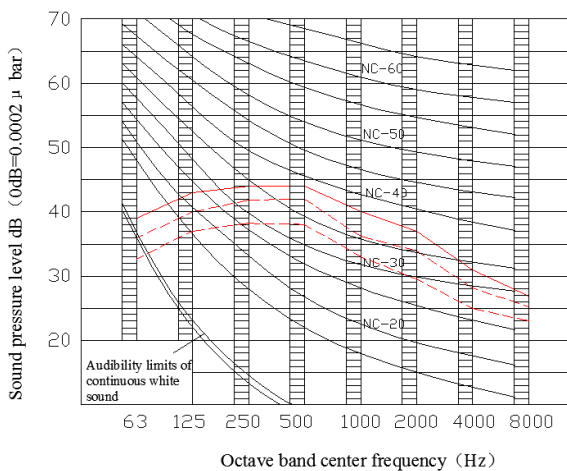
10.1 Test conditions



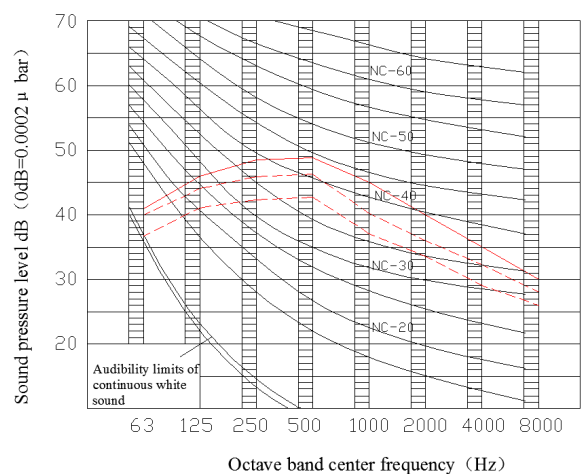
10.2 Test value

Model	Sound test value dB(A)		
	H	M	L
4TVD0024DF000AA	46	44	42
4TVD0027DF000AA	46	44	42
4TVD0030DF000AA	50	47	45
4TVD0038DF000AA	50	47	45
4TVD0048DF000AA	51	48	46
4TVD0051DF000AA	52	50	48
4TVD0068DF000AA	57	53	50
4TVD0085DF000AA	57	53	50
4TVD0095DF000AA	57	53	50

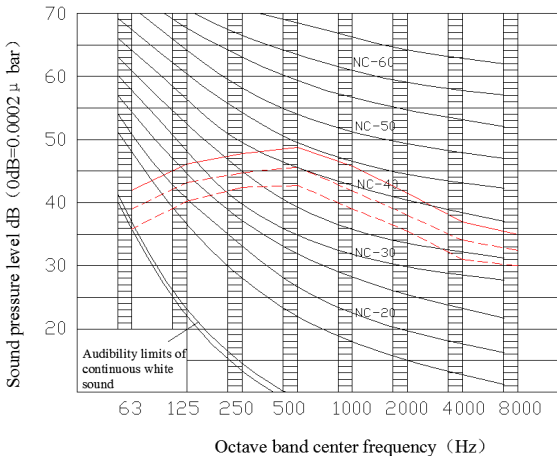
4TVD0024DF000AA, 4TVD0027DF000AA



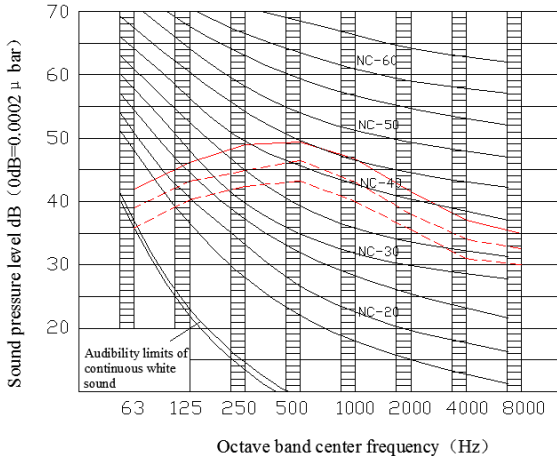
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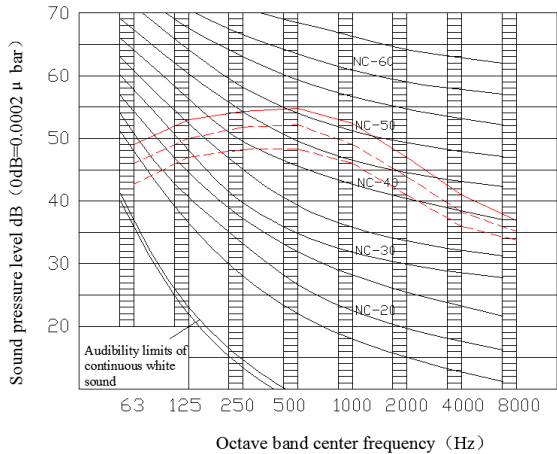
4TVD0048DF000AA



4TVD0051DF000AA














4TVD0068DF000AA, 4TVD0085DF000AA, 4TVD0095DF000AA



11. Accessories

11.1 Standard accessories

Name		Qty.	Shape	Usage
Installation manual		1	/	/
Pipe insulation material	7.1~16kW	2		Heat insulation
	20~28kW	4		
Adhesive tape	20~28kW	2		Form a sealed drain pipe connection
Water outlet joint	7.1~16kW	1		For drainage pipe
Wired controller (KJR-29B1/BK-E)		1		air conditioner control
Water connecting pipe	20~28kW	2		Drain pipe connector
Network matching wire	7.1~16kW	1		The indoor unit at the terminal end of the communication system should have a resistor placed between port P and port Q
	20~28kW	2		
Copper nut	7.1~16kW	1		Use for pipe connection of engineering installation
	20~28kW	2		
Clasp	7.1~16kW	1		Drain hose connection to the indoor unit outlet
Electric throttle connect part A	20~28kW	1		Connect electric throttle part A
Electric throttle connect part B	20~28kW	1		Connect electric throttle part B
Spring	20~28kW	1		To fix display box