MUNDOCLIMA®

MVD

High Pressure Duct MVD DC

Service manual

CL23380 to CL23383

English

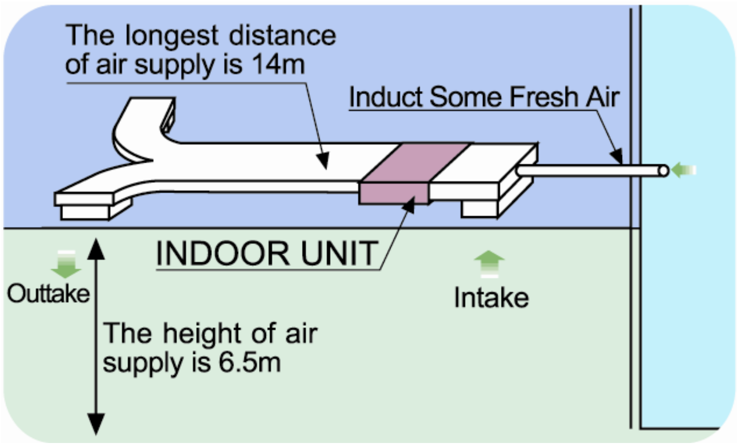
www.mundoclima.com

Content

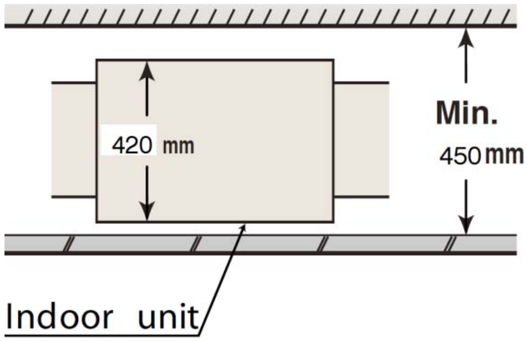
1. Features

1.1 Flexibility in duct design

1.1.1 External static pressure of Indoor Unit can be up to 280 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.

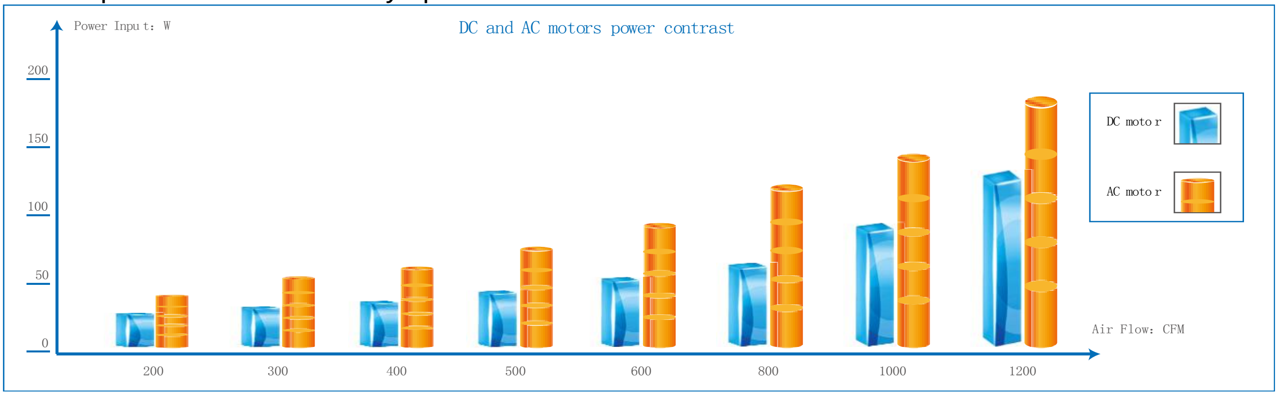


1.2 Wide capacity range

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 71~160 model), no extra connections required.

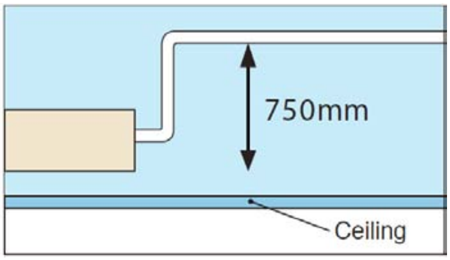
1.4.2 Standard filter with aluminum frame, which is removable from the bottom in a downward direction.

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 71~160).

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 Standard wired controller KJR-29B1/BK-E, and wireless remote controller RM05/BG(T)E-A is offered as an option.

1.5.2 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.

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

2. Specifications

Model			MVD-71T1/DHN1-B	MVD-80T1/DHN1-B	MVD-90T1/DHN1-B
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		Pansonic/ 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)		
Controller			Wired controller KJR-29B1/BK-E (6 meters connection wire)		

Notes:
1. 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)
2. 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)
3. *( ) 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				MVD-112T1/DHN1-B	MVD-140T1/DHN1-B	MVD-160T1/DHN1-B
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			Pansonic/ Nidec/ Welling	Pansonic/ Welling	Pansonic/ Welling
	Output		W	370	410	680
Indoor coil	Number of rows			3	4	4
	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(1.6)	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		
	Length× height× width		in.(mm)	27-9/16×14-1/32×2-19/32 (700×356×66)	39-7/32×14-1/32×3-15/32 (996×356×88)	
	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 (W×H×D)		in.(mm)	37-15/32×16-17/32×27-5/32 (952×420×690)	51-3/16×15-3/4×27-5/32(1300×420×690)	
	Packing (W×H×D)		in.(mm)	42-29/32×17-21/64×30-15/64 (1090×440×768)	56-17/32×17-23/32×30-15/64 (1436×450×768)	
	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)		
Controller				Wired controller KJR-29B1/BK-E (6 meters connection wire)		

Notes:

1. 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)
2. 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)
3. *( ) 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			MVD-200T1/DHN1-B	MVD-250T1/DHN1-B	MVD-280T1/DHN1-B
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		Pansonic/ Nidec	Pansonic/ Nidec	Pansonic/ Nidec
	Output	W	790	790	790
Indoor coil	Number of rows		4	4	4
	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)	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		
	length× height × width	in.(mm)	44-19/64×20×3-15/32(1125×508×88)		
	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 (W×H×D)	in.(mm)	1450× 505x925		
	Packing (W×H×D)	in.(mm)	1509× 550× 990		
	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)(×2)		
	Drain pipe	in.(mm)	OD 1-17/64(Φ32)		
Controller			Wired controller KJR-29B1/BK-E (6 meters connection wire)		

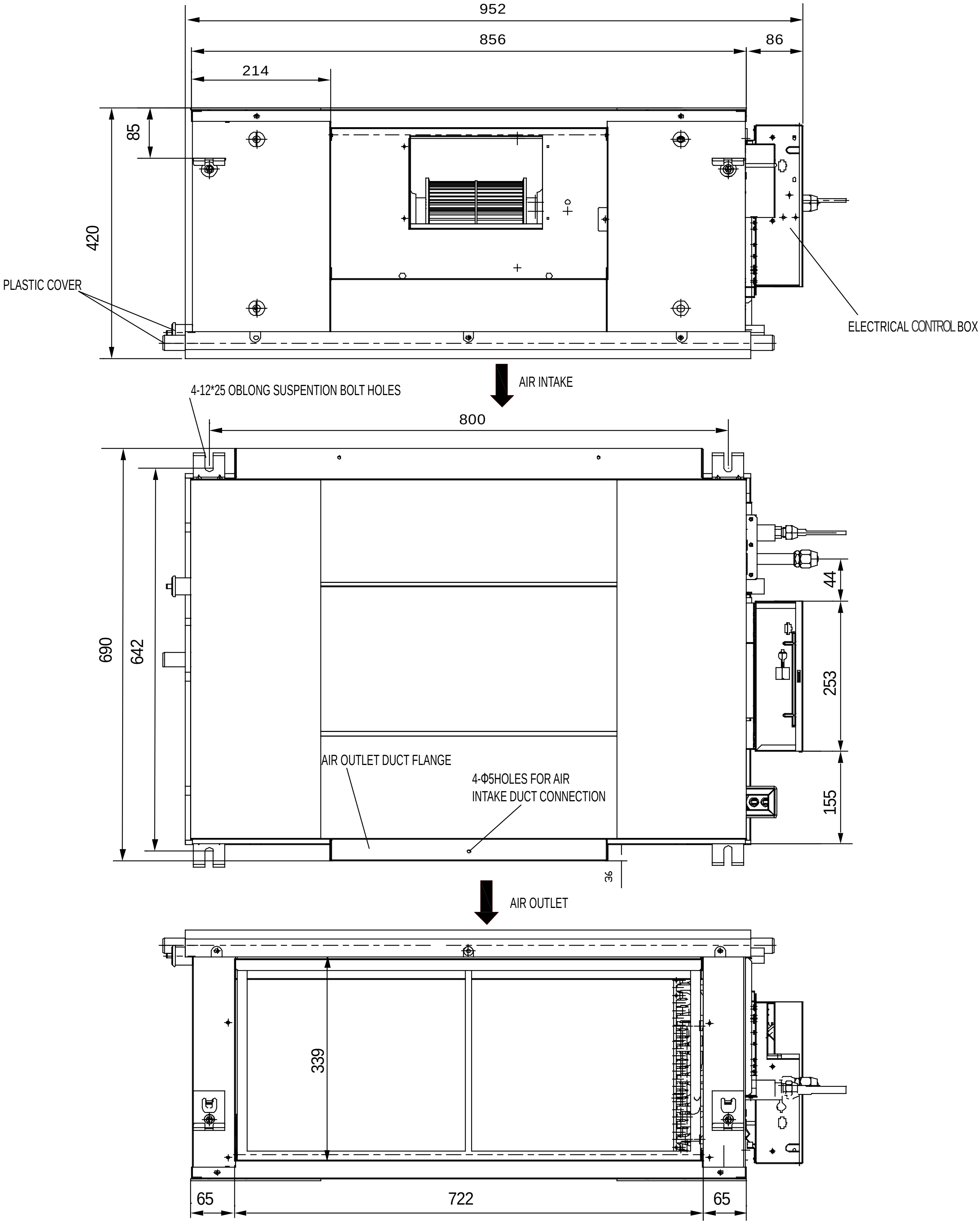
Notes:

1. 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)
2. 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)
3. *( ) 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

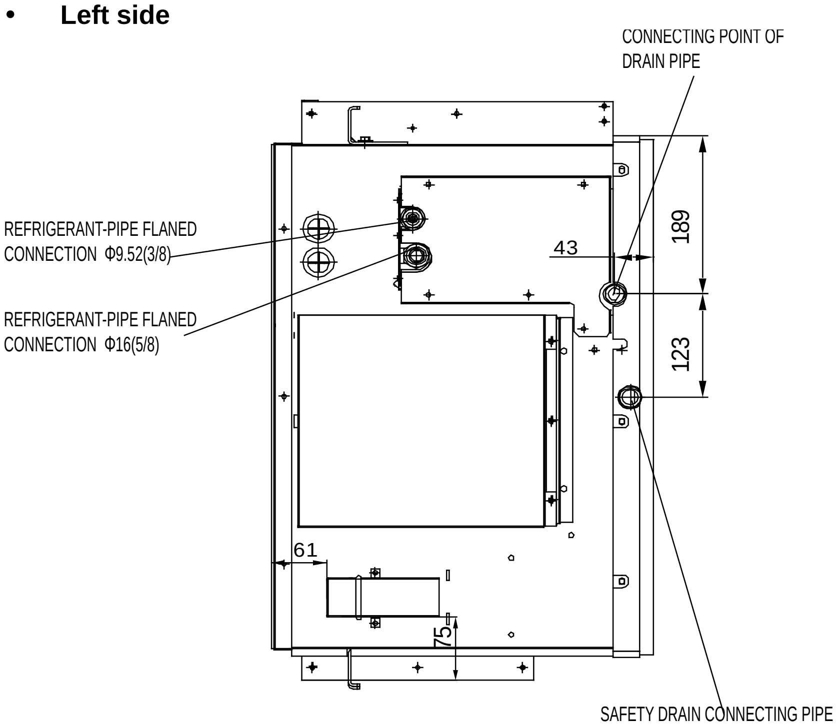
7,1kW to 11,2kW

Front view, top view and rear view:

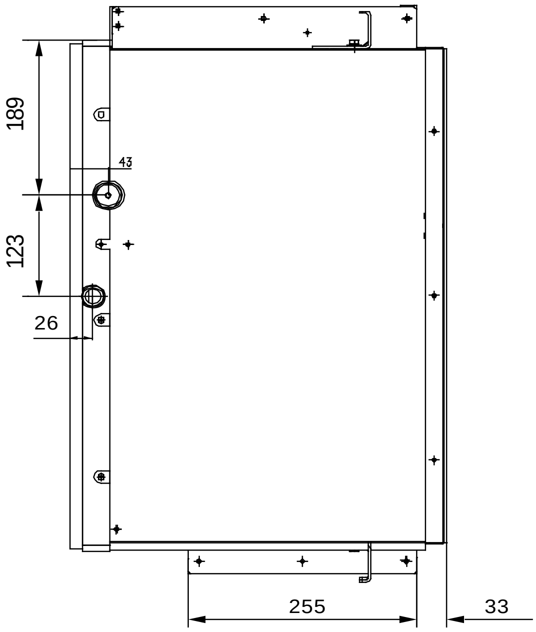


Side view:

- **Left side**

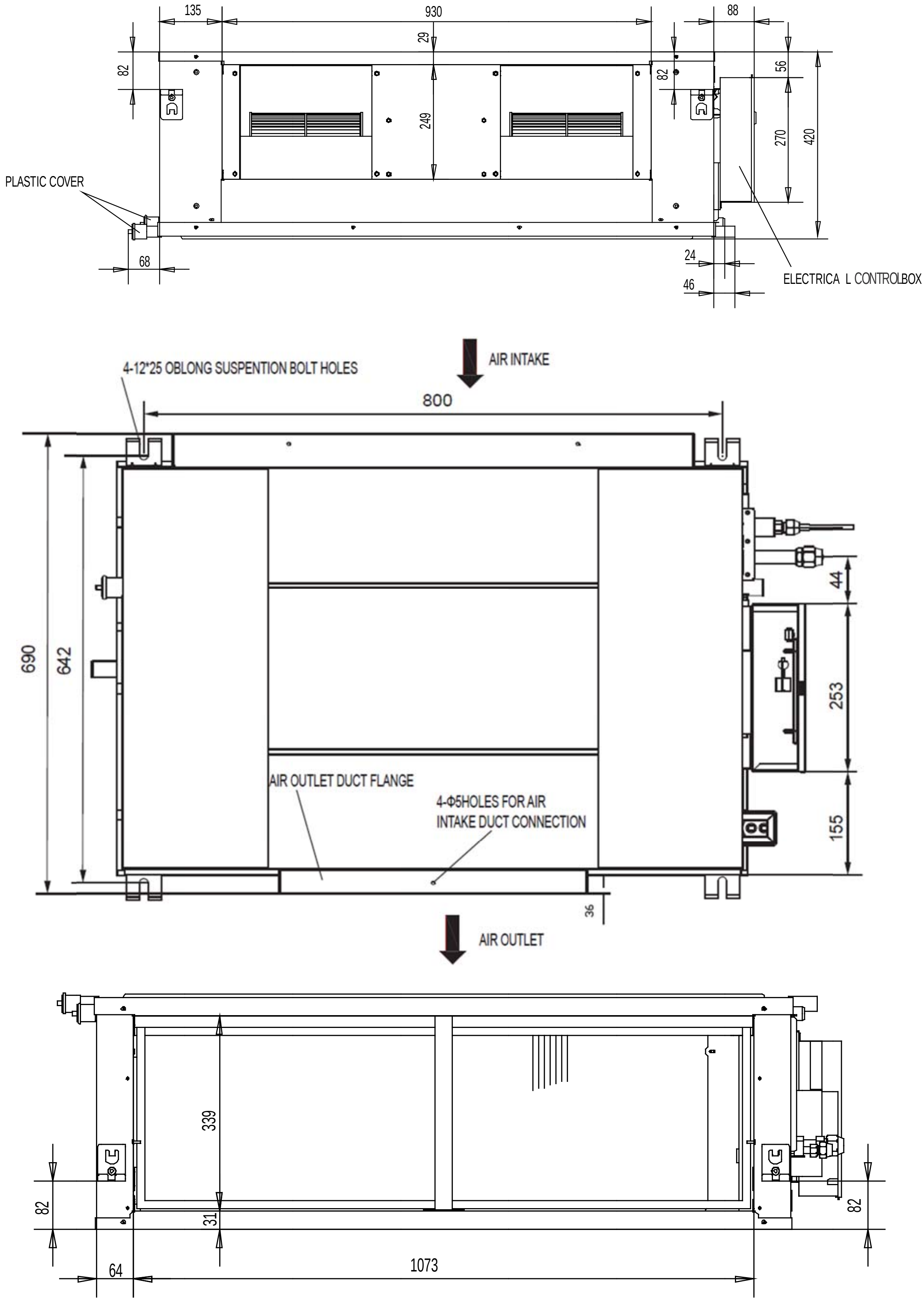


- **Right side**



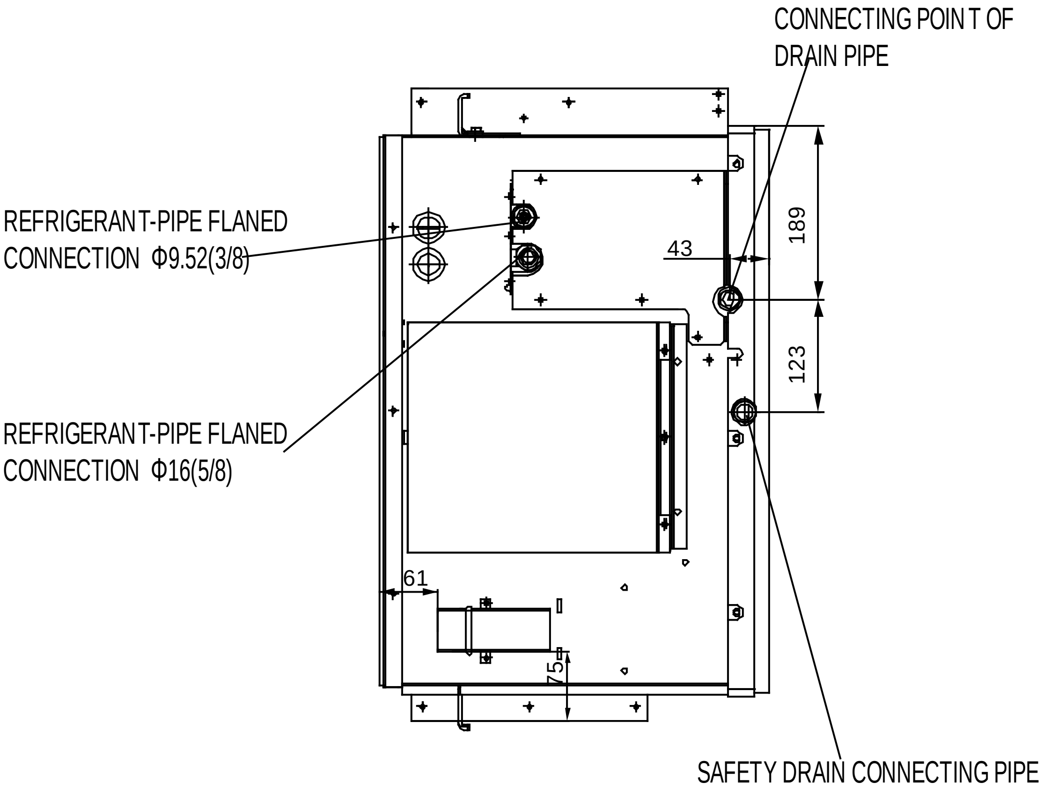
14kW to 16kW

Front view, top view and rear view: **Unit：in(mm)**

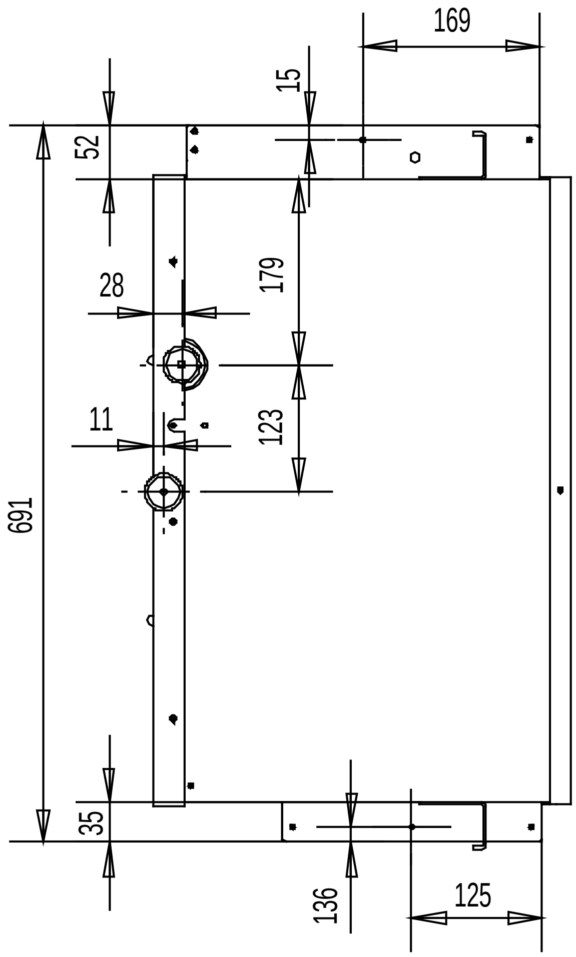


Side view:

- **Left side**

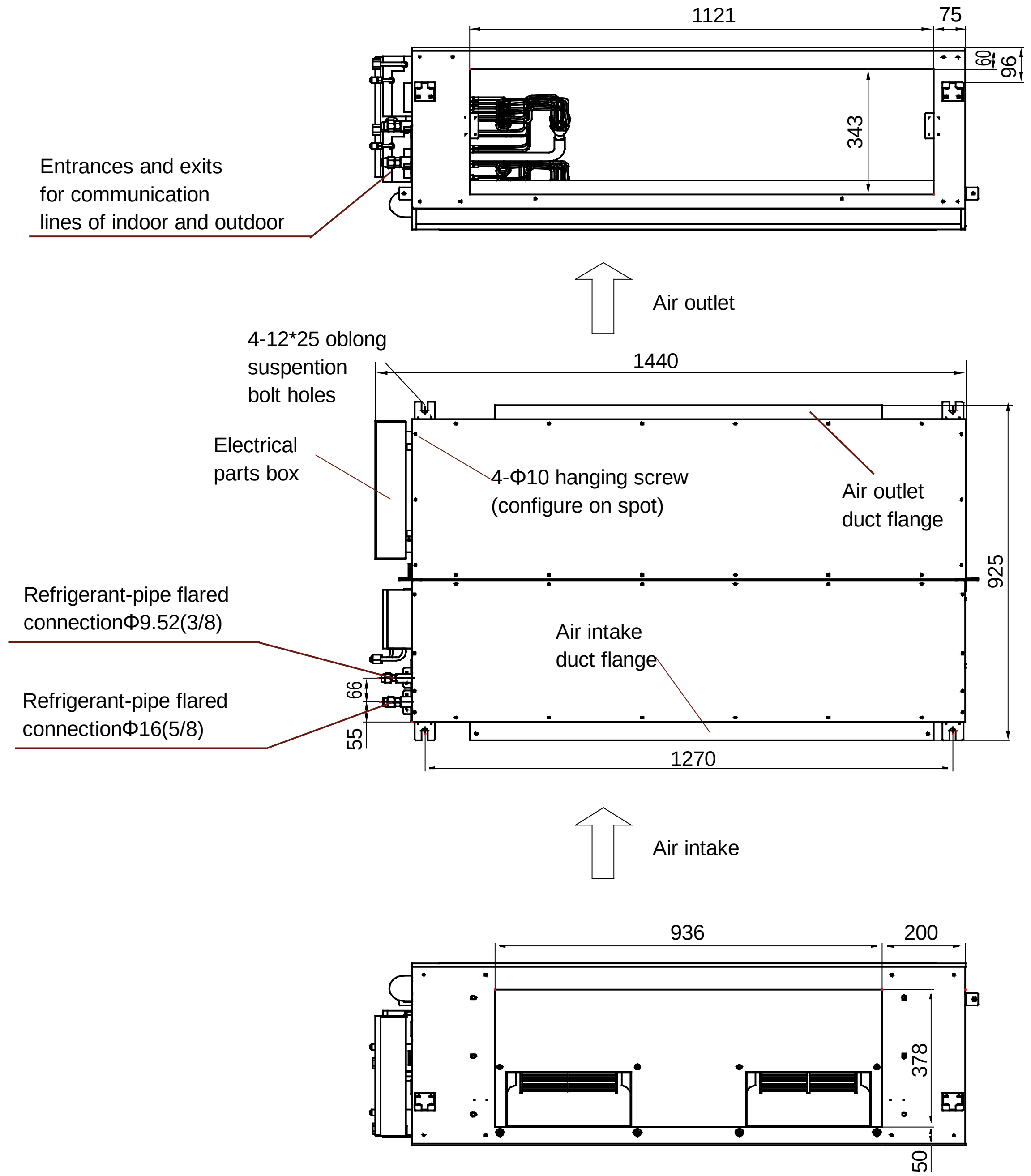


- **Right side**

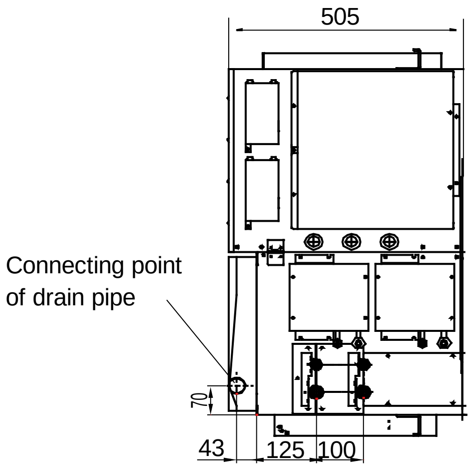


20kW to 28kW

Front view, top view and rear view:



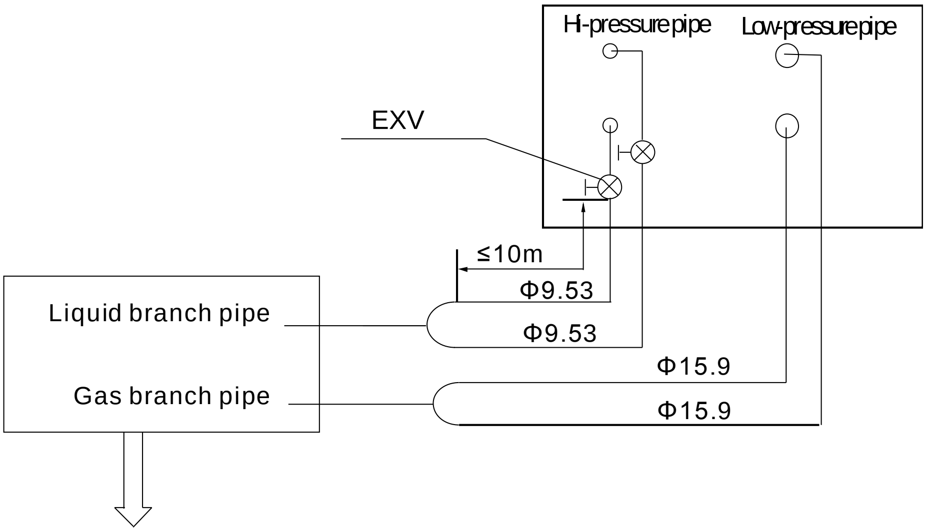
Side view:



Key installation points for the 200, 250, 280 models:
There are two sets of EXV boxes for models 200, 250 & 280, 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 models 200, 250, 280:

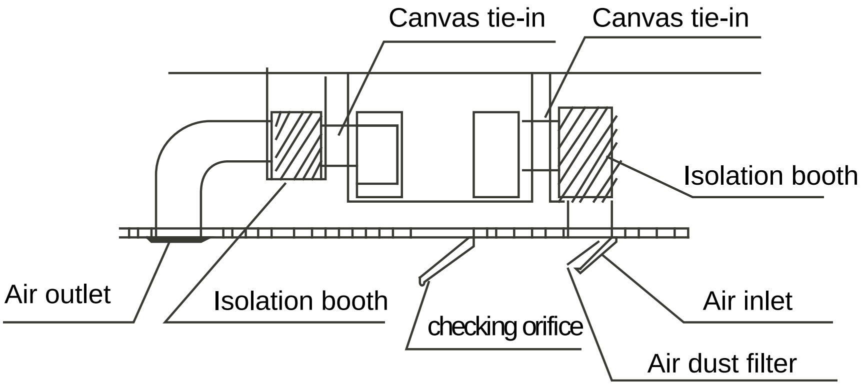


For piping diameter please refer to the provided manual of the purchased outdoor unit.

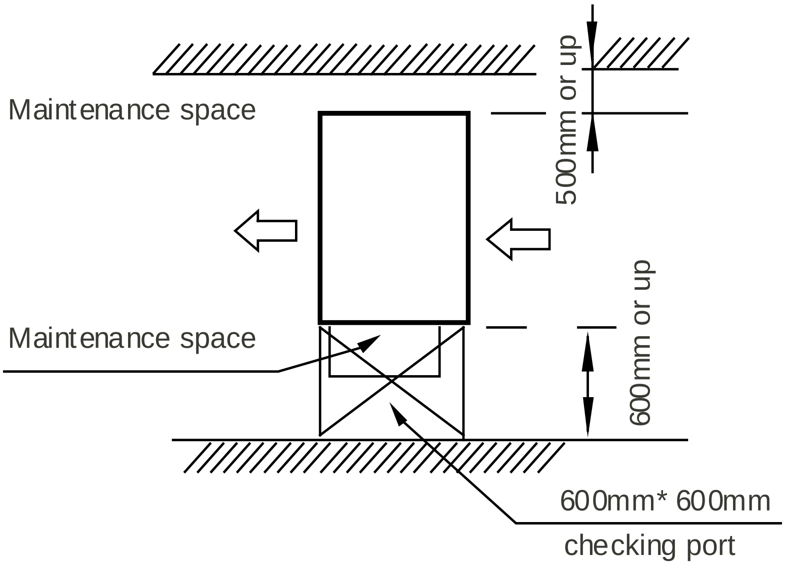
4. Service Spaces

- 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:

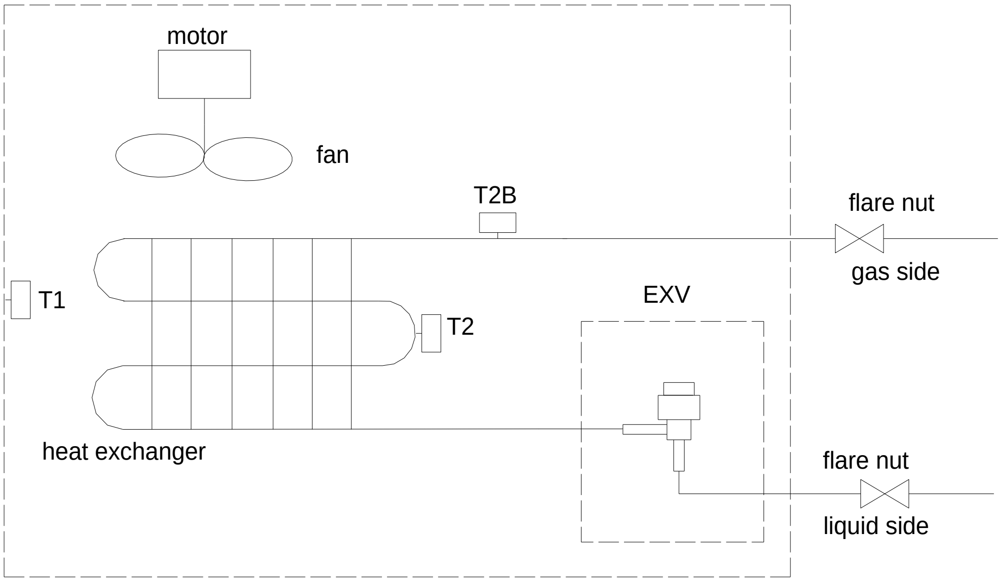


Keep min. 600mm*600mm (23-5/8in.x23-5/8in.) space for checking &maintenance:

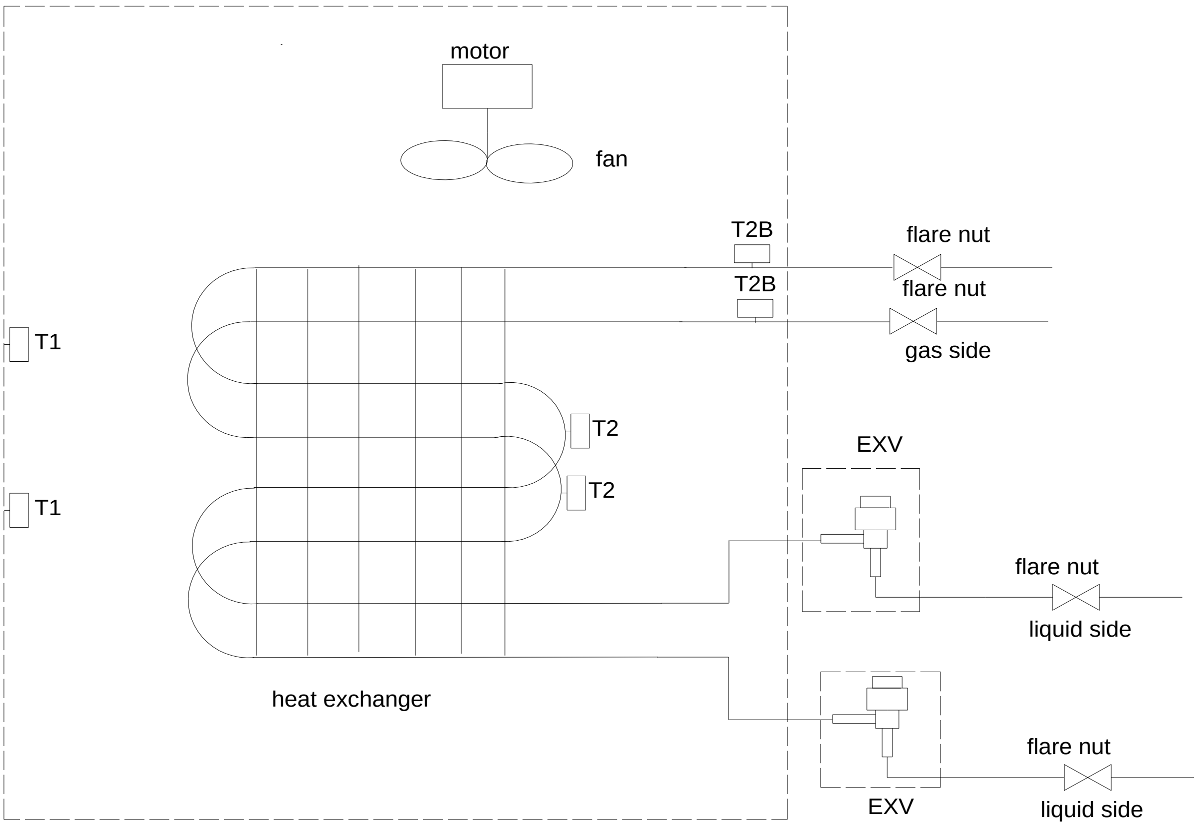


5. Piping Diagrams

7,1kW to 16kW

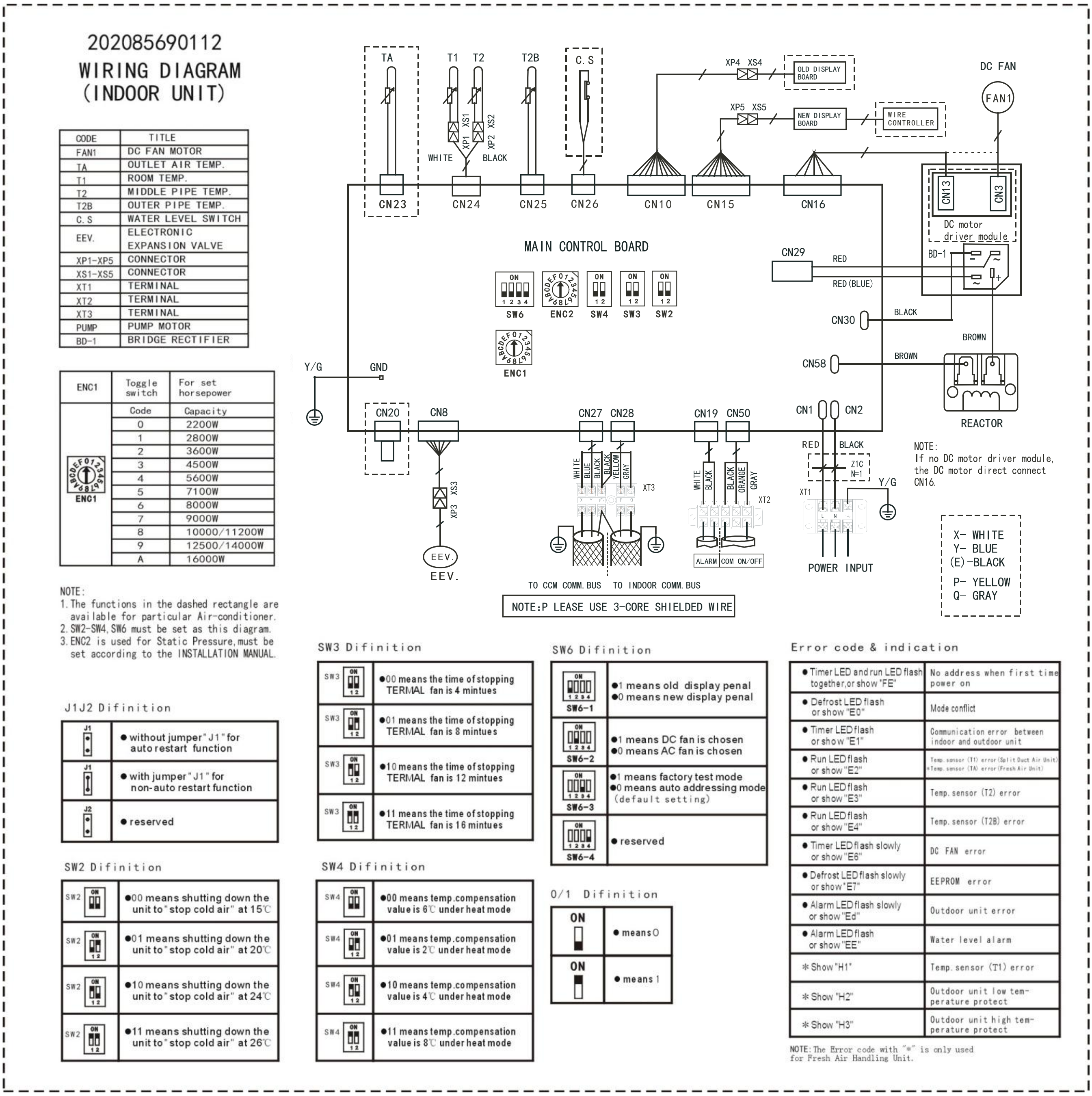


20kW to 28kW

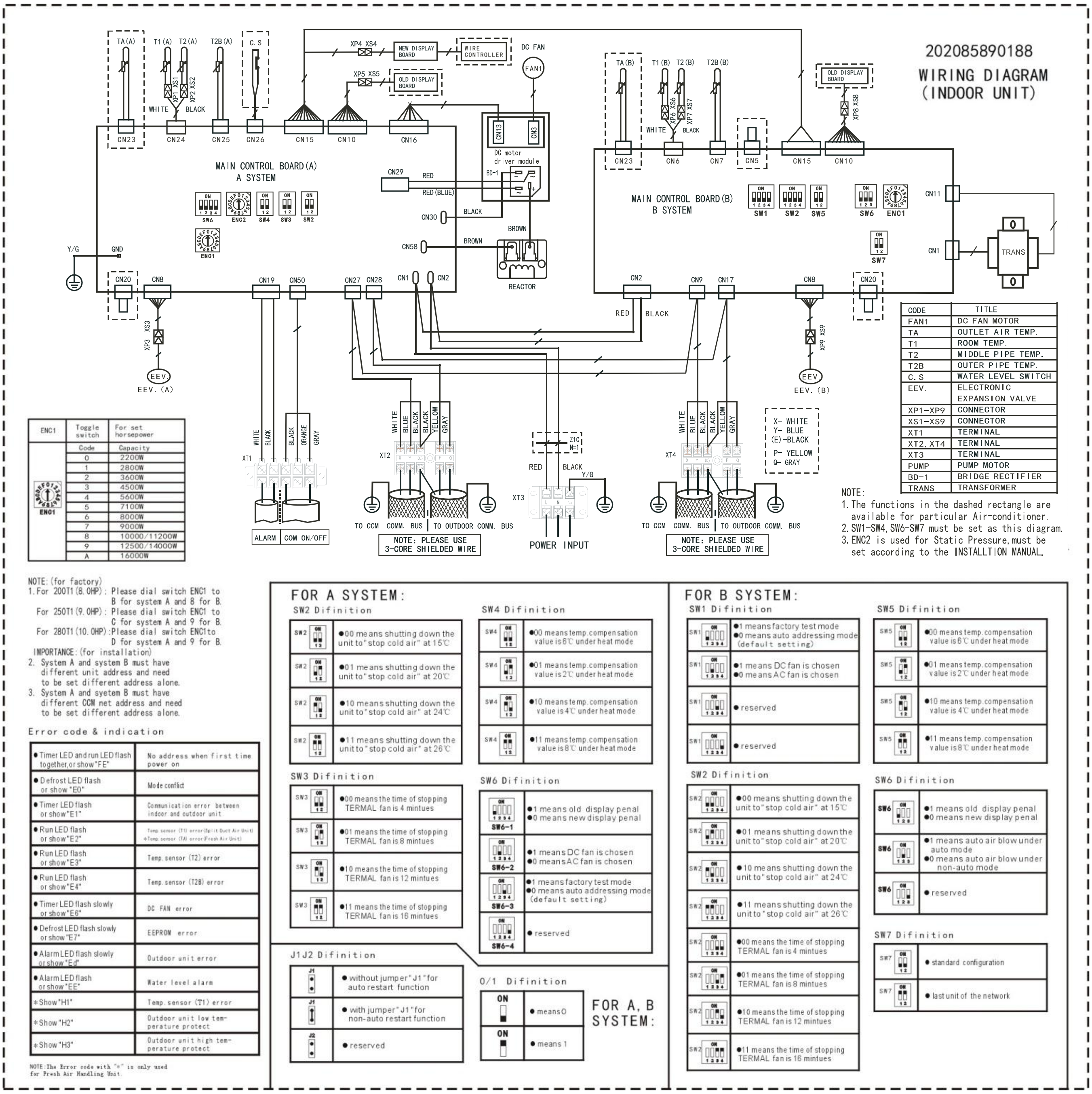


6. Wiring Diagrams

7,1kW to 16kW



20kW to 28kW


202085890188
WIRING DIAGRAM
(INDOOR UNIT)
MAIN CONTROL BOARD(A)
A SYSTEM
MAIN CONTROL BOARD(B)
B SYSTEM
DC FAN
FAN1
DC motor driver module
REACTOR
TRANS
NEW DISPLAY BOARD
WIRE CONTROLLER
OLD DISPLAY BOARD
EEV.(A)
EEV.(B)
ALARM
COM ON/OFF
TO CCM COMM. BUS
TO OUTDOOR COMM. BUS
NOTE: PLEASE USE 3-CORE SHIELDED WIRE
POWER INPUT
X- WHITE
Y- BLUE
(E)-BLACK
P- YELLOW
Q- GRAY
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—XP9 | CONNECTOR
XS1—XS9 | CONNECTOR
XT1 | TERMINAL
XT2, XT4 | TERMINAL
XT3 | TERMINAL
PUMP | PUMP MOTOR
BD—1 | BRIDGE RECTIFIER
TRANS | TRANSFORMER
NOTE:
1. The functions in the dashed rectangle are available for particular Air-conditioner.
2. SW1-SW4, SW6-SW7 must be set as this diagram.
3. ENC2 is used for Static Pressure, must be set according to the INSTALLTION MANUAL.
ENC1 | Toggle switch | For set horsepower
Code | Capacity
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: (for factory)
1. For 200T1(8.0HP): Please dial switch ENC1 to B for system A and 8 for B.
For 250T1(9.0HP): Please dial switch ENC1 to C for system A and 9 for B.
For 280T1(10.0HP): Please dial switch ENC1 to D for system A and 9 for B.
IMPORTANCE: (for installation)
2. System A and system B must have different unit address and need to be set different address alone.
3. System A and syetem B must have different CCM net address and need to be set different address alone.
Error code & indication
● Timer LED and run LED flash together, or show "FE" | 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 (Split Duct Air Unit) / Temp sensor (TA) 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 "Ed" | 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 "*" is only used for Fresh Air Handling Unit.
FOR A SYSTEM:
SW2 Difinition
●00 means shutting down the unit to "stop cold air" at 15℃
●01 means shutting down the unit to "stop cold air" at 20℃
●10 means shutting down the unit to "stop cold air" at 24℃
●11 means shutting down the unit to "stop cold air" at 26℃
SW4 Difinition
●00 means temp. compensation value is 6℃ under heat mode
●01 means temp. compensation value is 2℃ under heat mode
●10 means temp. compensation value is 4℃ under heat mode
●11 means temp. compensation value is 8℃ under heat mode
SW3 Difinition
●00 means the time of stopping TERMAL fan is 4 mintues
●01 means the time of stopping TERMAL fan is 8 mintues
●10 means the time of stopping TERMAL fan is 12 mintues
●11 means the time of stopping TERMAL fan is 16 mintues
SW6 Difinition
SW6-1 ●1 means old display penal ●0 means new display penal
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
J1J2 Difinition
● without jumper "J1" for auto restart function
● with jumper "J1" for non-auto restart function
● reserved
0/1 Difinition
● means 0
● means 1
FOR A, B SYSTEM:
FOR B SYSTEM:
SW1 Difinition
●1 means factory test mode ●0 means auto addressing mode (default setting)
●1 means DC fan is chosen ●0 means AC fan is chosen
● reserved
● reserved
SW5 Difinition
●00 means temp. compensation value is 6℃ under heat mode
●01 means temp. compensation value is 2℃ under heat mode
●10 means temp. compensation value is 4℃ under heat mode
●11 means temp. compensation value is 8℃ under heat mode
SW2 Difinition
●00 means shutting down the unit to "stop cold air" at 15℃
●01 means shutting down the unit to "stop cold air" at 20℃
●10 means shutting down the unit to "stop cold air" at 24℃
●11 means shutting down the unit to "stop cold air" at 26℃
●00 means the time of stopping TERMAL fan is 4 mintues
●01 means the time of stopping TERMAL fan is 8 mintues
●10 means the time of stopping TERMAL fan is 12 mintues
●11 means the time of stopping TERMAL fan is 16 mintues
SW6 Difinition
●1 means old display penal ●0 means new display penal
●1 means auto air blow under auto mode ●0 means auto air blow under non-auto mode
● reserved
SW7 Difinition
● standard configuration
● last unit of the network

7. Fan Performance

ENC2 must be set on the electronic board A as desired.

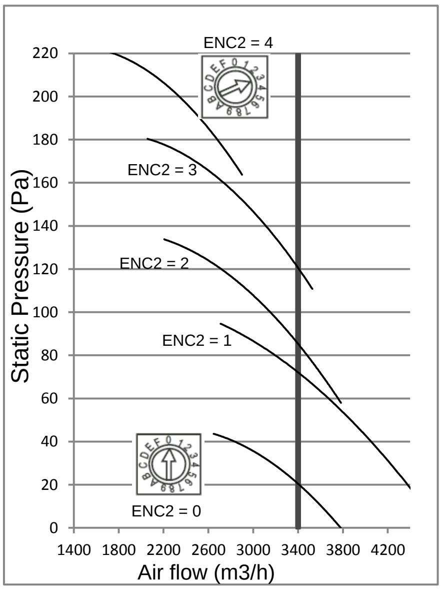
Note: The setting must be done without power.

ENC2	7.1kw	8.0kw	9.0kw	11.2kw	14kw	16kw	20kw	25kw	28kw
0	0～20Pa						40～60Pa		
1	21～80Pa						61～120Pa		
2	81～120Pa						121～170Pa		
3	121～170Pa						171～200Pa		
4	171～200Pa						\		

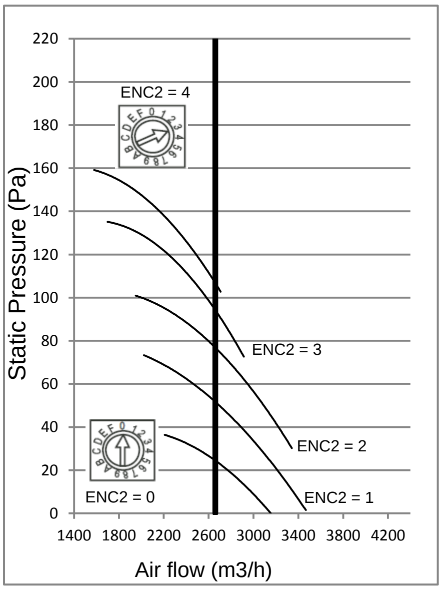
By default, setting is ENC2 = 0

MVD-160T1/DHN1-B

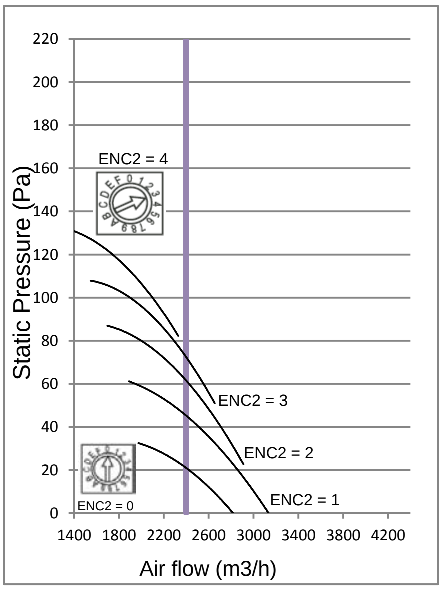
HIGH FAN SPEED



MIDDLE FAN SPEED

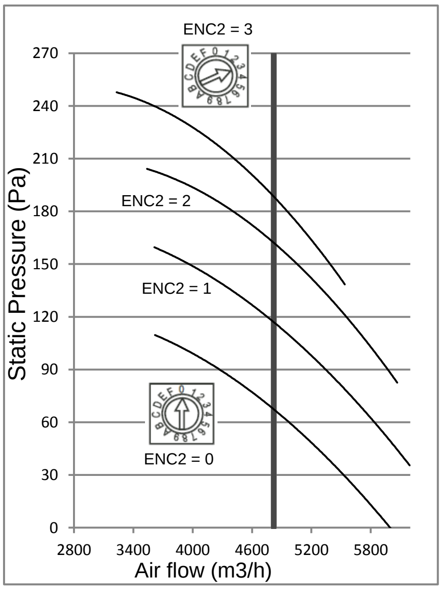


LOW FAN SPEED



MVD-200T1/DHN1-B

HIGH FAN SPEED



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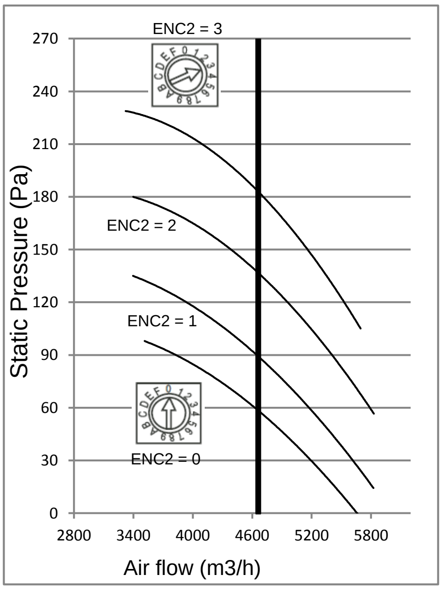
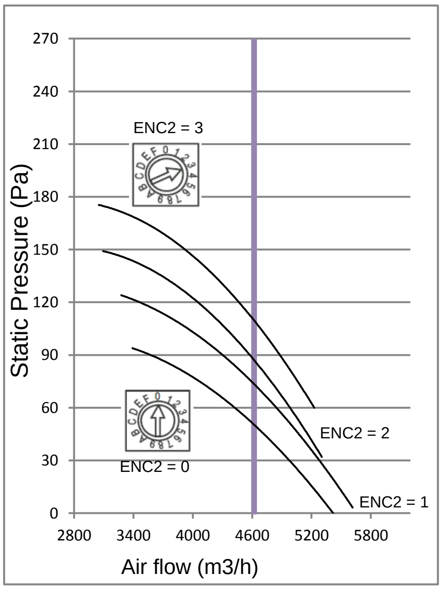
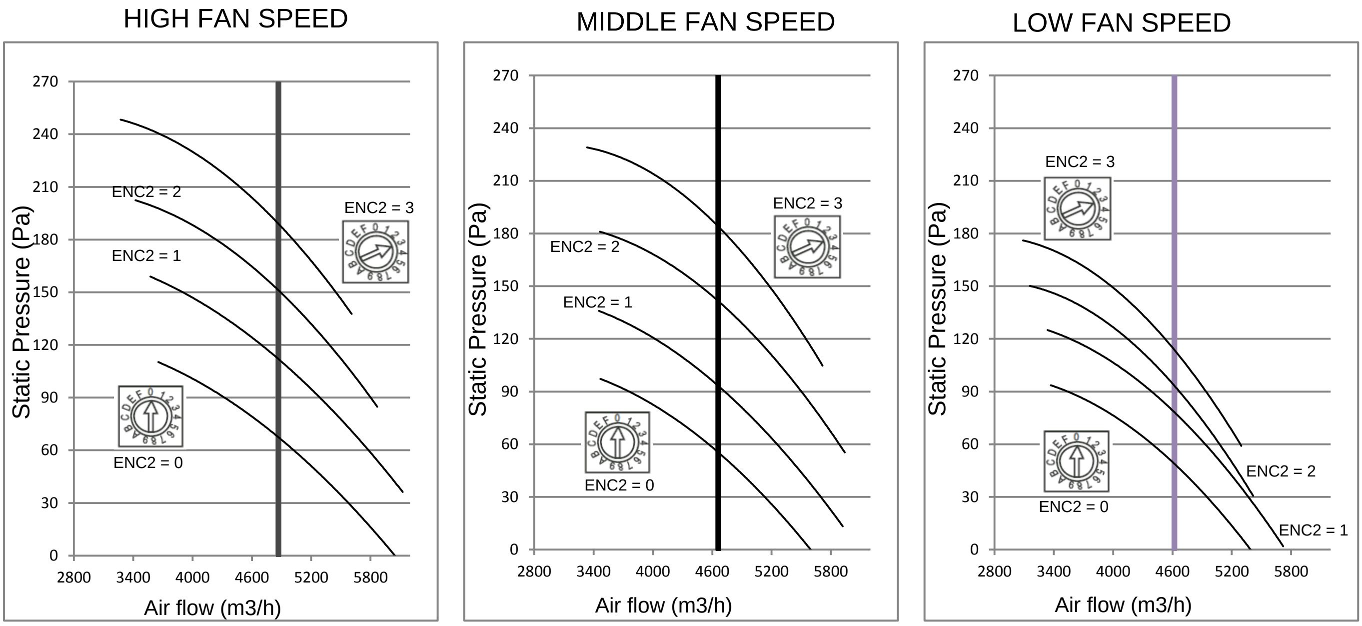


LOW FAN SPEED



MVD-250T1/DHN1-B
MVD-280T1/DHN1-B



- 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 (℃DB)	Indoor temperature (℃WB/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

Indoor Unit size (kW)	Outdoor temperature (℃DB)	Indoor temperature (℃WB/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 (℃DB)	Indoor temperature (℃WB/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 (℃)		Indoor temperature (℃ DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
	-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
7.1	-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
	-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
8.0	-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
	-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
9.0	-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
	-20	-19.8	6.27	6.27	6.27	6.27	6.27	6.27
11.2	-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 (℃)		Indoor temperature (℃ DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
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
	11.80	13.00	12.32	12.10	11.20	10.86	10.30	9.41
	13.70	15.00	12.66	12.10	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
	-10.00	-9.5	14.60	14.60	14.60	14.60	14.60	14.60
	-9.10	-8.5	15.00	15.00	15.00	15.00	15.00	15.00

Indoor Unit size (kW)	Outdoor temperature (℃)		Indoor temperature (℃ DB)					
			16.00	18.00	20.00	21.00	22.00	24.00
			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
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

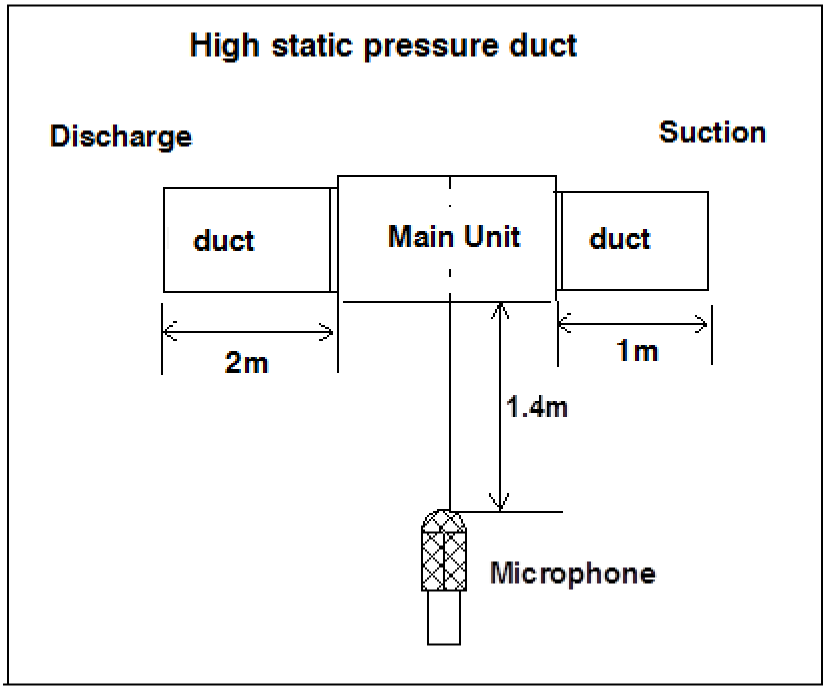
9. Electrical Characteristics

Model	Indoor Unit				Power Supply		IFM	
	Hz	Voltage	Min.	Max.	MCA	MFA	KW	FLA
MVD-71T1/DHN1-B	50/60	220-240	198	254	1.7	16	0.17	1.35
MVD-80T1/DHN1-B	50/60	220-240	198	254	1.7	16	0.17	1.35
MVD-90T1/DHN1-B	50/60	220-240	198	254	2.4	16	0.2	1.9
MVD-112T1/DHN1-B	50/60	220-240	198	254	3.6	16	0.37	2.88
MVD-140T1/DHN1-B	50/60	220-240	198	254	4.5	16	0.41	3
MVD-160T1/DHN1-B	50/60	220-240	198	254	4.5	16	0.68	3.6
MVD-200T1/DHN1-B	50/60	220-240	198	254	7.5	16	0.79	6
MVD-250T1/DHN1-B	50/60	220-240	198	254	7.5	16	0.79	6
MVD-280T1/DHN1-B	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

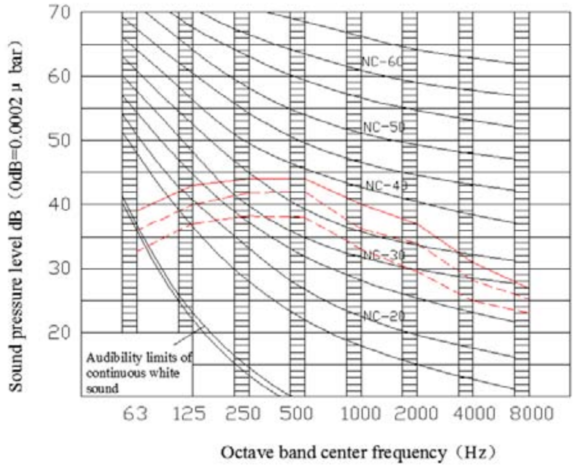
10.1 Test conditions



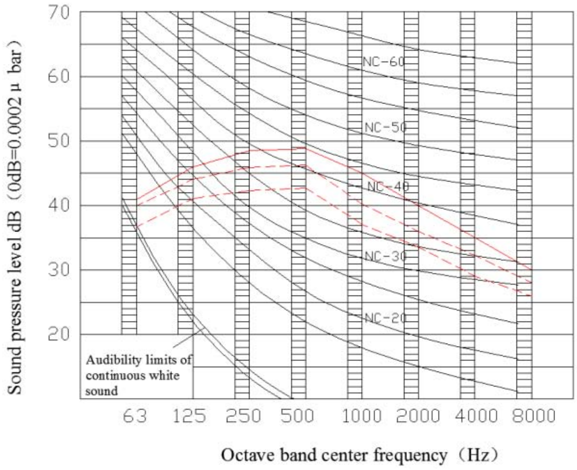
10.2 Test value

Model	Sound test value dB(A)		
	H	M	L
MVD-71T1/DHN1-B	46	44	42
MVD-80T1/DHN1-B	46	44	42
MVD-90T1/DHN1-B	50	47	45
MVD-112T1/DHN1-B	50	47	45
MVD-140T1/DHN1-B	51	48	46
MVD-160T1/DHN1-B	52	50	48
MVD-200T1/DHN1-B	57	53	50
MVD-250T1/DHN1-B	57	53	50
MVD-280T1/DHN1-B	57	53	50

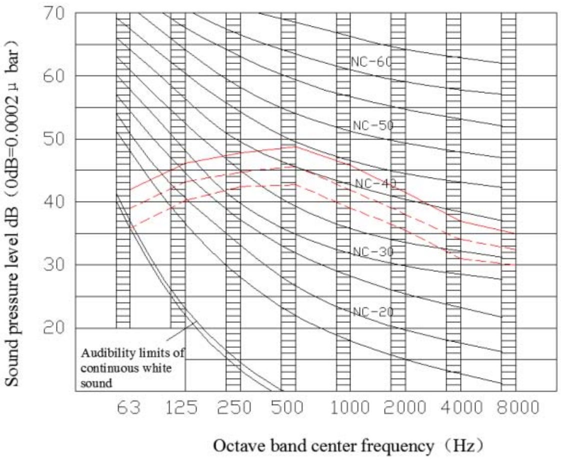
MVD-71T1/DHN1-B
MVD-80T1/DHN1-B



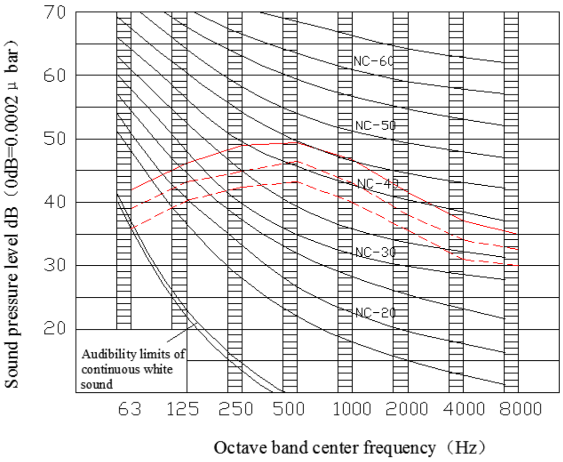
MVD-90T1/DHN1-B
MVD-112T1/DHN1-B



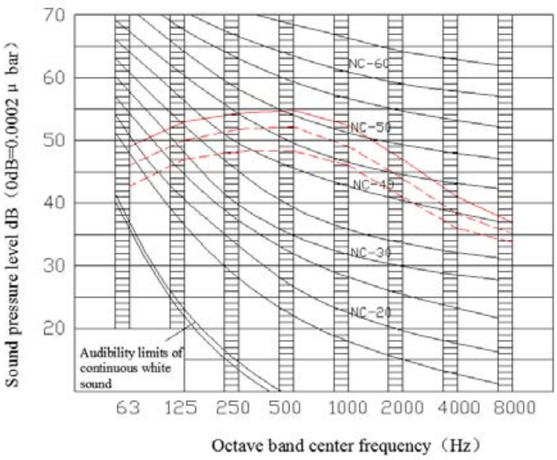
MVD-140T1/DHN1-B



MVD-160T1/DHN1-B

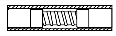
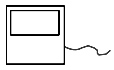
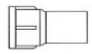
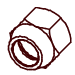
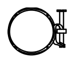
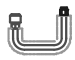
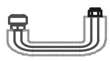


MVD-200T1/DHN1-B
MVD-250T1/DHN1-B
MVD-280T1/DHN1-B



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 resister 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

11.2 Optional accessories

Name	Model	Code	Usage
Wireless remote controller	RM05/BG(T)E-A	203355091418	Set indoor unit addresses and control indoor units
Drain pump kit	SBH-04	210095700140	To lift the drain water up

MVD

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