Engineering Data

TVR 7G Series

Medium Static Pressure Ducted
5 - 55MBH

Models:

4TVDD005AB07WAA
4TVDD007AB07WAA
4TVDD009AB07WAA
4TVDD012AB07WAA
4TVDD015AB07WAA
4TVDD019AB07WAA
4TVDD024AB07WAA
4TVDD027AB07WAA
4TVDD030AB07WAA
4TVDD038AB07WAA
4TVDD048AB07WAA
4TVDD055AB07WAA

Jan. 2024 **TVR-EM-006B**

Medium Static Pressure Duct

1 Specifications

Table 1.1: 4TVDD005 (007,009,012) AB07WAA specifications

Model			4TVDD005AB07WAA	4TVDD007AB07WAA	4TVDD009AB07WAA	4TVDD012AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	1.5	2.2	2.8	3.6
		kBtu/h	5.1	7.5	9.6	12.3
	Power input	W	33	36	40	50
Heating[2]	Capacity	kW	1.8	2.5	3.2	4
		kBtu/h	6.1	8.5	10.9	13.7
	Power input	W	33	36	40	50
Fan motor type			DC			
Indoor coil	Number of rows		2	2	2	2
	Tube pitch	mm	18×10.72			
	Fin spacing and type	mm	1.35 Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner-groove			
	Dimensions (L×H×W)	mm	400×21.44×360			
	Number of circuits		5	5	5	5
Air flow rate[3]		m^3/h	470/438/407/375/343/312/280	500/467/433/400/367/333/300	540/503/467/430/393/357/320	575/535/495/455/415/375/335
External static pressure[4]		Pa	30 (10-160)			
Sound pressure level[5]		dB(A)	26.5/26/25/24/23/22.5/22	26.5/26/25/24/23/22.5/22	26.5/26/25/24/23/22.5/22	29/28/27/26/25/23/22
Sound power level		dB(A)	46/44.5/43/41.5/40/38.5/37	47/45.5/44/42.5/41/39.5/38	47/45.5/44/42.5/41/39.5/38	50/48.5/47/45/43/41/39
Unit	Net dimensions[6] (W×H×D)	mm	600×245×750			
	Packed dimensions (W×H×D)	mm	765×305×885			
	Net/Gross weight	kg	18.5/21			
Refrigerant type			R410A/R32			
Throttle type			Electronic expansion valve			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7			
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual
7. All specifications are measured at standard external static pressure
8. G1 air filter is standard for Medium Static Pressure Duct.

Table 1.2: 4TVDD015 (019,024,027) AB07WAA specifications

Model			4TVDD015AB07WAA	4TVDD019AB07WAA	4TVDD024AB07WAA	4TVDD027AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	4.5	5.6	7.1	8
		kBtu/h	15.4	19.1	24.2	27.3
	Power input	W	70	70	96	102
Heating[2]	Capacity	kW	5	6.3	8	9
		kBtu/h	17.1	21.5	27.3	30.7
	Power input	W	70	70	96	102
Fan motor type			DC			
Indoor coil	Number of rows		3	2	3	2
	Tube pitch	mm	18×10.72			
	Fin spacing and type	mm	1.35 Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner-groove			
	Dimensions (L×H×W)	mm	400×32.16×360	600×21.44×360	600×32.16×360	850×21.44×360
	Number of circuits		5	5	10	10
Air flow rate[3]		m^3/h	665/623/580/538/495/453/410	970/904/838/773/707/641/575	1150/1068/986/904/822/740/660	1355/1263/1172/1080/988/897/805
External static pressure[4]		Pa	30 (10-160)			40 (10-160)
Sound pressure level[5]		dB(A)	33/32/29.5/28/26.5/25/24	33/32/31/30/27.5/26/25	35/33.5/32/30.5/29/27.5/26	37/35.5/34/32.5/31/29.5/28
Sound power level		dB(A)	53/51/49/47/45/43/41	55/53/51/49/47/45/43	58/56/54/51.5/48/47/45	59/57/55/53/51/49/47
Unit	Net dimensions[6] (W×H×D)	mm	600×245×750	800×245×750		1050×245×750
	Packed dimensions (W×H×D)	mm	765×305×885	965×305×885		1215×305×885
	Net/Gross weight	kg	19.5/22	24/27.5	25/28.5	30/34.0
Refrigerant type			R410A/R32			
Throttle type			Electronic expansion valve			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		Φ9.52/Φ15.9	
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
7. All specifications are measured at standard external static pressure
8. G1 air filter is standard for Medium Static Pressure Duct.

Table 1.3: 4TVDD030 (038,048,055) AB07WAA specifications

Model			**4TVDD030AB07WAA**	**4TVDD038AB07WAA**	**4TVDD048AB07WAA**	**4TVDD055AB07WAA**
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	9	11.2	14	16
		kBtu/h	30.7	38.2	47.8	54.6
	Power input	W	110	138	172	210
Heating[2]	Capacity	kW	10	12.5	16	18
		kBtu/h	34.1	42.7	54.6	61.4
	Power input	W	110	138	172	210
Fan motor type			DC			
Indoor coil	Number of rows		3	2	3	3
	Tube pitch	mm	18×10.72			
	Fin spacing and type	mm	1.35 Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner-groove			
	Dimensions (L×H×W)	mm	850×32.16×360	1200×21.44×360	1200×32.16×360	1200×32.16×360
	Number of circuits		10			
Air flow rate[3]		m^3/h	1420/1323/1225/1128/1030/933/835	1950/1817/1683/1550/1417/1283/1150	2105/1971/1837/1703/1568/1434/1300	2350/2160/2015/1871/1776/1533/1400
External static pressure[4]		Pa	40 (10-160)		50 (10-160)	
Sound pressure level[5]		dB(A)	37/35.5/34/32.5/31/29.5/28	39/37/35/33/31/29/28	40/38/36/34/32/30/29	42/40/38/36/34/33/31
Sound power level		dB(A)	59/57/55/53/50.5/48/46	60/58/56.5/55/53.5/52/50	64/62/61.5/59.5/57.5/55/53	65/63/61/58.5/56.5/54/52
Unit	Net dimensions[6] (W×H×D)	mm	1050×245×750	1400×245×750		
	Packed dimensions (W×H×D)	mm	1215×305×885	1565×305×885		
	Net/Gross weight	kg	31/35.0	37/42.0	39/44.0	39/44.0
Refrigerant type			R410A/R32			
Throttle type			Electronic expansion valve			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9			
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
7. All specifications are measured at standard external static pressure
8. G1 air filter is standard for Medium Static Pressure Duct.

2 Dimensions

2.1 Unit Dimensions

Figure 2.1: External dimension, air outlet size, and size of fresh air outlet (unit: mm)

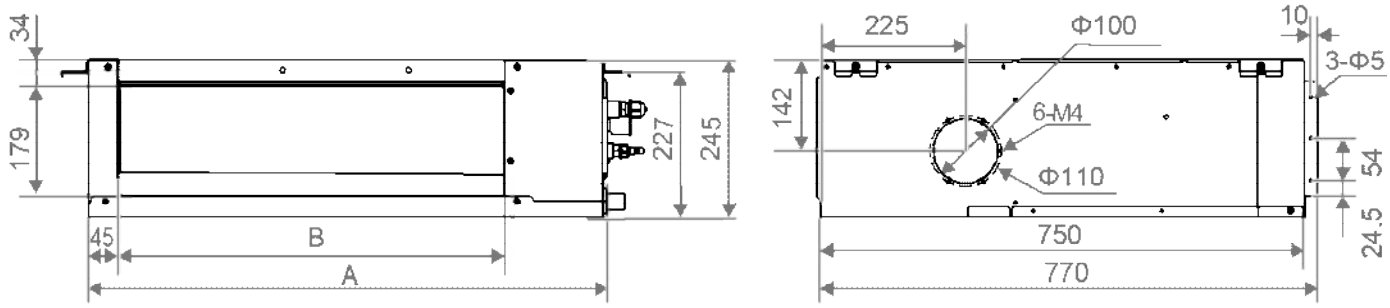


Figure 2.2: Size of return air inlet (rear return air mode): (unit: mm)

Figure 2.3: Piping and water pipe size:(unit: mm)

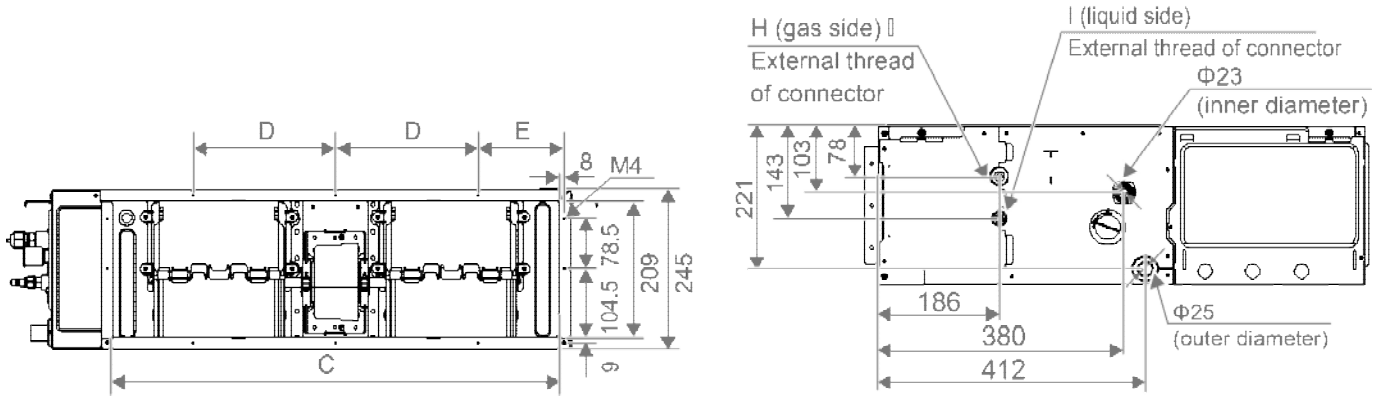
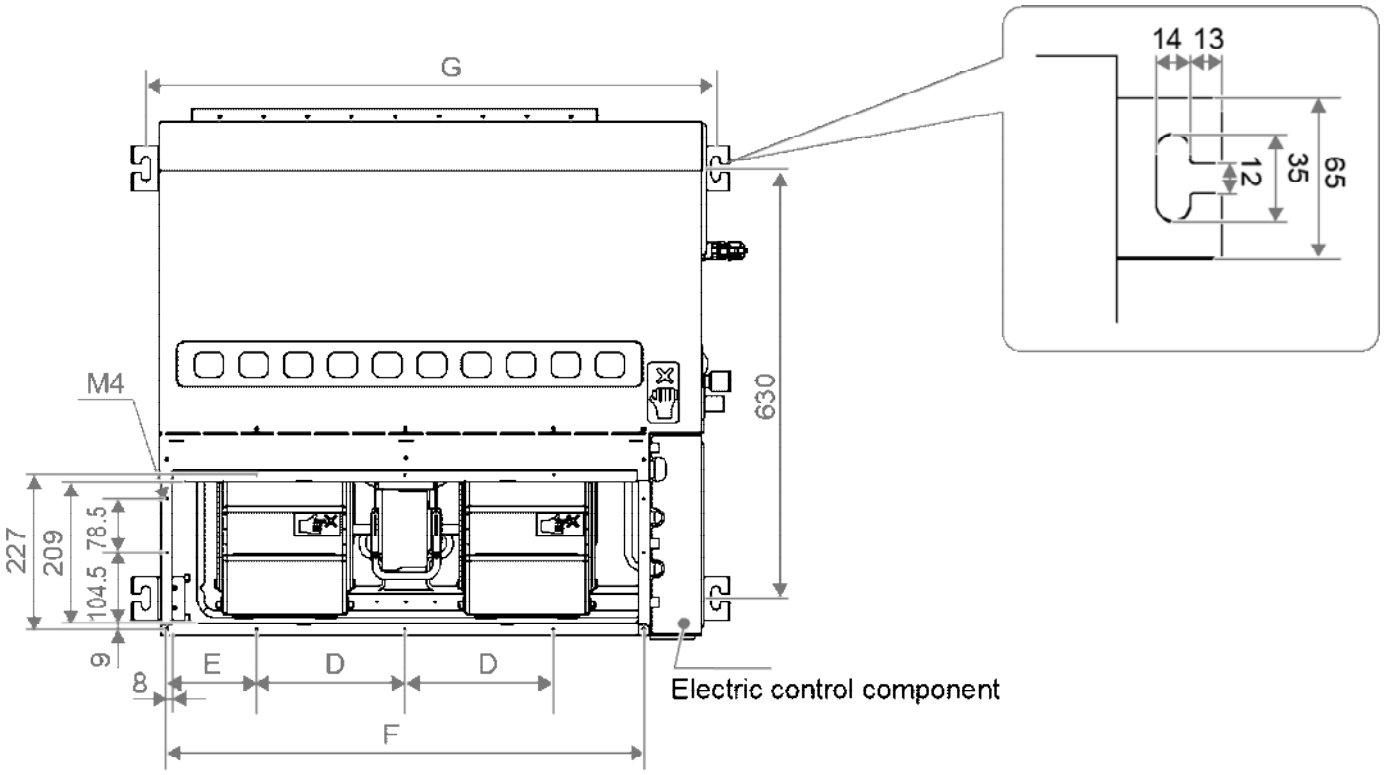


Figure 2.4: Size of return air inlet (bottom return air mode) and distance between lifting lugs:(unit: mm)



Notes: meaning of letters refer to *Table 2.1*

Table 2.1: Letter-Size Correspondence Table: (unit: mm)

Capacity (kW)	A	B	C	D	E	F	G	H	I
kW≤4.5	600	400	490	87.5	165	506	645	3/4-16 UNF	7/16-20 UNF
4.5<kW≤5.6	800	600	690	220	134	706	845		
5.6<kW≤7.1	800	600	690	220	134	706	845	7/8-14 UNF	5/8-18 UNF
7.1<kW<11.2	1050	850	940	220	146	956	1095		
11.2≤kW≤16.0	1400	1200	1290	220	213	1306	1445		

3 Unit Placement

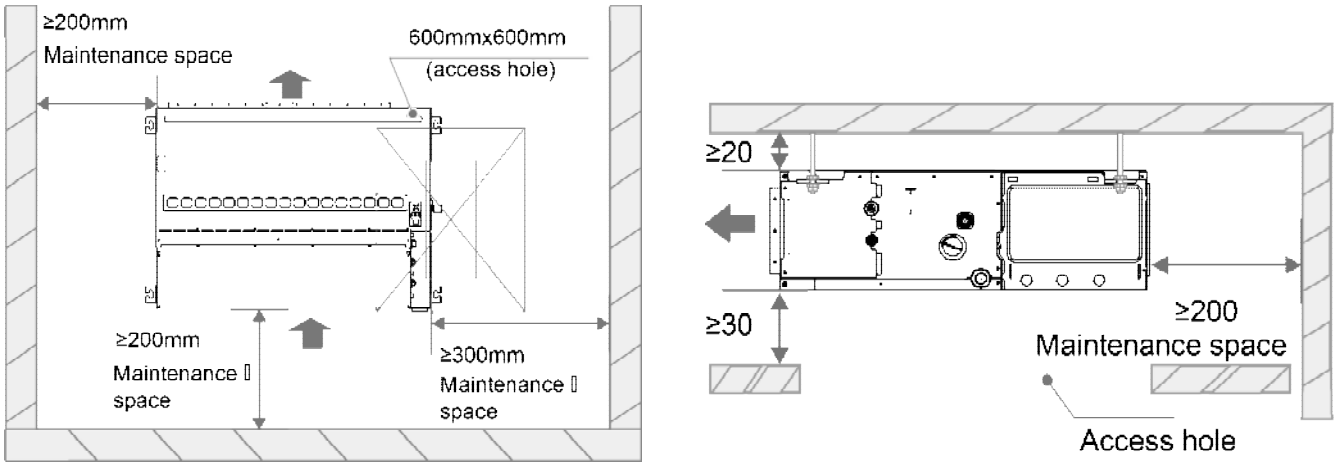
3.1 Placement Considerations

Unit placement should take account of the following considerations:

- Units should not be installed in the following locations:
  - A place filled with mineral oil, fumes or mist, like a kitchen.
  - A place where there are corrosive gases, such as acid or alkaline gases..
  - A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline.
  - A place where there is equipment emitting electromagnetic radiation.
  - A place where there is a high salt content in the air like a coast.
  - Do not use the air conditioner in an environment where an explosion may occur.
  - Places like in vehicles or cabin rooms.
  - Factories with major voltage fluctuations in the power supplies.
  - Other special environmental conditions.
- Units should be installed in positions where:
  - Ensure that the airflow in and out of the IDU is reasonably organized to form an air circulation in the room.
  - Ensure IDU maintenance space.
  - The nearer the drainage pipe and copper pipe are to the ODU, the lower the pipe cost is.
  - Prevent the air conditioner from blowing directly to the human body.
  - The closer the wiring to the power cabinet, the lower the wiring cost is.
  - Keep the air-conditioning return air away from the setting sun of the room.
  - Be careful not to interfere with the light tank, fire pipe, gas pipe and other facilities.
  - The IDU should not be lifted in the places like load-bearing beam and columns that affect the structural safety of the house.
  - The wired controller and the IDU should be in the same installation space; otherwise, the sampling point setting of the wired controller need to be changed.

3.2 Space Requirements

Figure 3.1: Medium Static Pressure Duct space requirements (unit: mm)

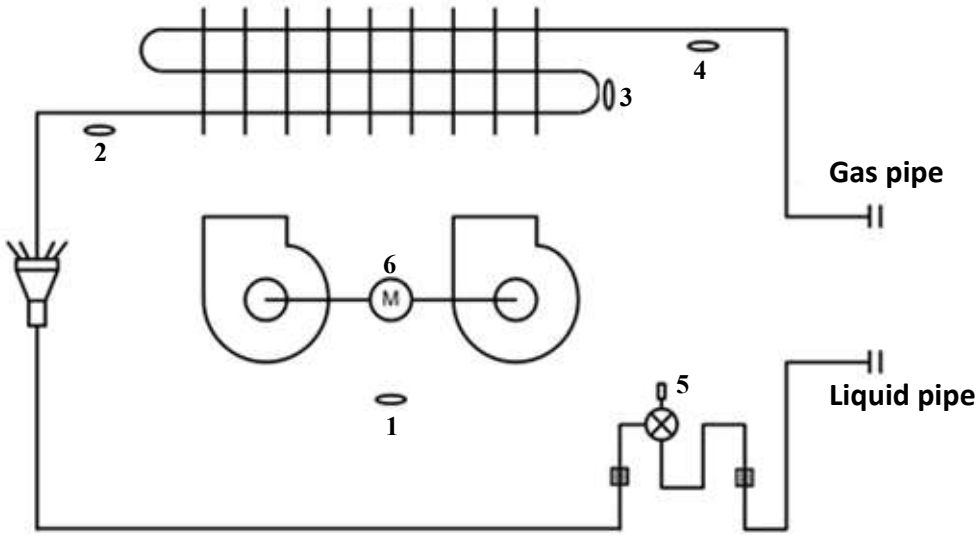


Notes:

1. The centerline of the maintenance hole should be in the same position as the centerline of the indoor unit.

4 Piping Diagram

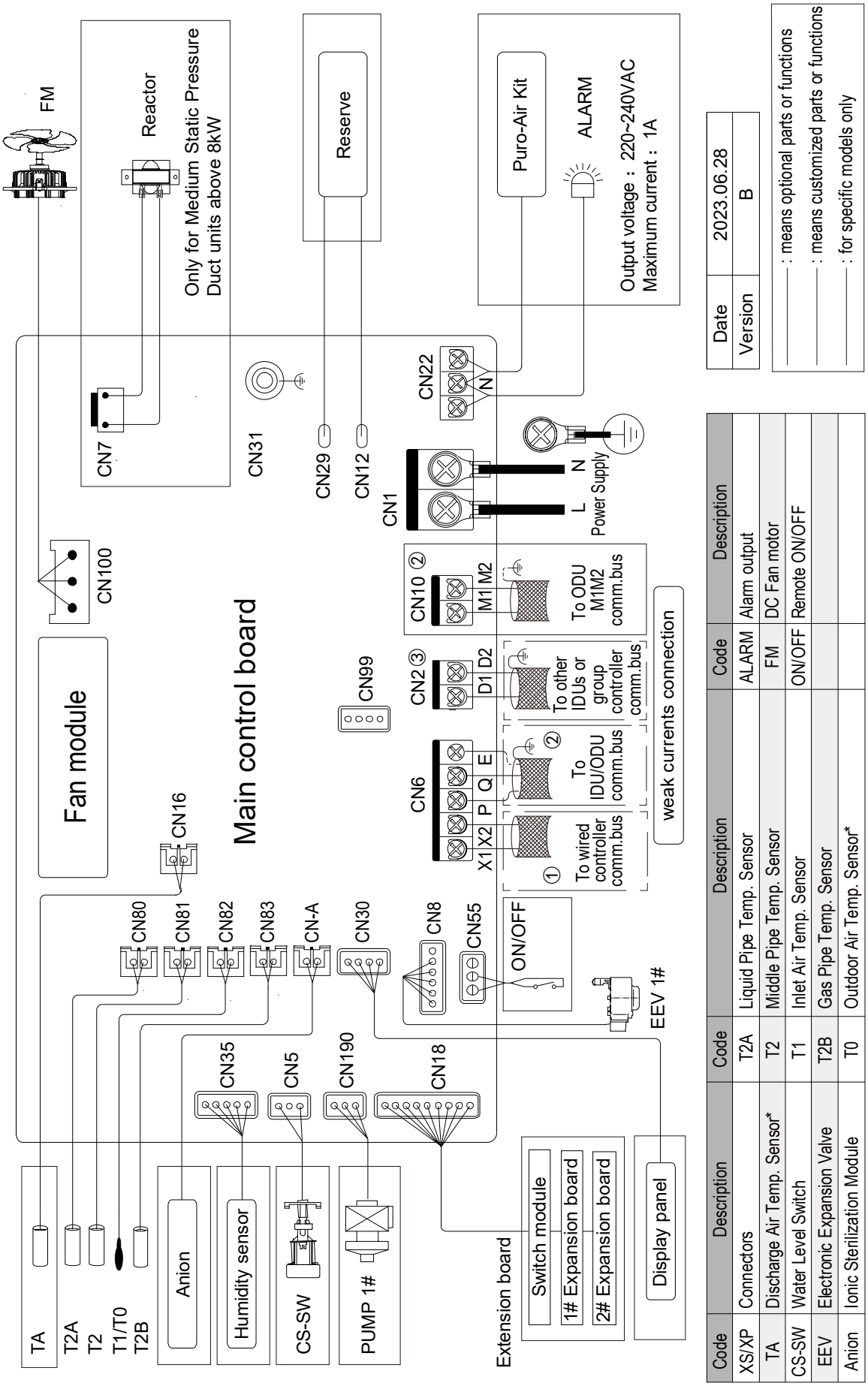
Figure 4.1: Medium Static Pressure Duct piping diagram



Legend	Code	Description
1	T1	Inlet Air Temp. Sensor
2	T2A	Liquid Pipe Temp. Sensor
3	T2	Middle Pipe Temp. Sensor
4	T2B	Gas Pipe Temp. Sensor
5	EEV	Electronic Expansion Valve
6	FAN	DC Fan motor

5 Wiring Diagram

Figure 5.1: Medium Static Pressure Duct wiring diagram



Code	Description	Code	Description	Code	Description
XS/XP	Connectors	T2A	Liquid Pipe Temp. Sensor	ALARM	Alarm output
TA	Discharge Air Temp. Sensor*	T2	Middle Pipe Temp. Sensor	FM	DC Fan motor
CS-SW	Water Level Switch	T1	Inlet Air Temp. Sensor	ON/OFF	Remote ON/OFF
EEV	Electronic Expansion Valve	T2B	Gas Pipe Temp. Sensor		
Anion	Ionic Sterilization Module	T0	Outdoor Air Temp. Sensor*		

* Indicates that this sensor is only available for Fresh Air Processing Unit

Notes for installers and service engineers

Caution

- All installation, servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals – loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- The dotted lines indicate the field wiring or optional function.
- PQ and M1M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at a time. Meanwhile, be sure to connect the same communication ports (PQ to PQ; M1M2 to M1M2) in case of damage of the main control board.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: Medium Static Pressure Duct cooling capacity

Model	Indoor air temperature (°C 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
4TVDD005AB07WAA	1.4	1.3	1.5	1.4	1.5	1.3	1.5	1.3	1.6	1.3	1.6	1.2	1.6	1.1
4TVDD007AB07WAA	2.0	1.9	2.1	1.9	2.2	1.9	2.2	1.8	2.3	1.8	2.3	1.7	2.4	1.7
4TVDD009AB07WAA	2.5	2.3	2.7	2.4	2.8	2.4	2.8	2.3	2.9	2.3	2.9	2.2	3.0	2.1
4TVDD012AB07WAA	3.2	3.0	3.4	3.1	3.6	3.1	3.6	3.0	3.7	3.0	3.8	2.8	3.9	2.7
4TVDD015AB07WAA	4.0	3.7	4.3	3.8	4.5	3.9	4.5	3.7	4.6	3.6	4.7	3.5	4.8	3.3
4TVDD019AB07WAA	5.0	4.6	5.3	4.7	5.6	4.8	5.6	4.6	5.7	4.5	5.8	4.3	6.0	4.1
4TVDD024AB07WAA	6.3	5.8	6.7	5.9	7.0	6.0	7.1	5.8	7.2	5.7	7.4	5.4	7.6	5.2
4TVDD027AB07WAA	7.1	6.3	7.6	6.5	7.9	6.6	8.0	6.5	8.1	6.3	8.3	6.0	8.5	5.8
4TVDD030AB07WAA	8.0	7.1	8.5	7.3	8.9	7.4	9.0	7.3	9.1	7.1	9.4	6.8	9.6	6.5
4TVDD038AB07WAA	9.9	8.8	10.6	9.1	11.1	9.3	11.2	9.1	11.3	8.8	11.6	8.4	11.9	8.1
4TVDD048AB07WAA	12.4	11.1	13.2	11.4	13.8	11.5	14.0	11.3	14.2	11.0	14.5	10.5	14.9	10.1
4TVDD055AB07WAA	14.2	12.7	15.1	13.0	15.8	13.2	16.0	12.9	16.2	12.6	16.6	12.0	17.0	11.5

Abbreviations:
TC: Total capacity (kW)
SC: Sensible capacity(kW)

Notes:
1.Shaded cells indicate rating condition.

6.2 Heating Capacity Table

Table 6.2: Medium Static Pressure Duct heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	SHC	SHC	SHC	SHC	SHC	SHC
4TVDD005AB07WAA	1.9	1.9	1.8	1.7	1.7	1.6
4TVDD007AB07WAA	2.7	2.7	2.5	2.4	2.4	2.2
4TVDD009AB07WAA	3.4	3.4	3.2	3.1	3.0	2.8
4TVDD012AB07WAA	4.2	4.2	4.0	3.8	3.8	3.5
4TVDD015AB07WAA	5.3	5.3	5.0	4.8	4.7	4.4
4TVDD019AB07WAA	6.7	6.6	6.3	6.1	5.9	5.5
4TVDD024AB07WAA	8.5	8.4	8.0	7.8	7.5	7.0
4TVDD027AB07WAA	9.5	9.5	9.0	8.7	8.5	7.8
4TVDD030AB07WAA	10.6	10.5	10.0	9.7	9.4	8.8
4TVDD038AB07WAA	13.3	13.1	12.5	12.1	11.8	10.9
4TVDD048AB07WAA	17.0	16.8	16.0	15.5	15.0	13.9
4TVDD055AB07WAA	19.1	18.9	18.0	17.5	16.9	15.7

Abbreviations:
SHC: Sensible Heat Capacity

Notes:
1.Shaded cells indicate rating condition.

7 Electrical Characteristics

Table 7.1: Medium Static Pressure Duct electrical characteristics

Model name	Power supply						Indoor Fan Motor	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated power output (W)	FLA
4TVDD005AB07WAA	50/60	220-240	198	264	0.63	15	50	0.50
4TVDD007AB07WAA	50/60	220-240	198	264	0.63	15	50	0.50
4TVDD009AB07WAA	50/60	220-240	198	264	0.63	15	50	0.50
4TVDD012AB07WAA	50/60	220-240	198	264	0.80	15	50	0.64
4TVDD015AB07WAA	50/60	220-240	198	264	1.19	15	50	0.95
4TVDD019AB07WAA	50/60	220-240	198	264	1.19	15	60	0.95
4TVDD024AB07WAA	50/60	220-240	198	264	1.50	15	60	1.2
4TVDD027AB07WAA	50/60	220-240	198	264	1.50	15	240	1.2
4TVDD030AB07WAA	50/60	220-240	198	264	1.63	15	240	1.3
4TVDD038AB07WAA	50/60	220-240	198	264	2.29	15	240	1.8
4TVDD048AB07WAA	50/60	220-240	198	264	2.31	15	240	1.9
4TVDD055AB07WAA	50/60	220-240	198	264	2.76	15	240	2.2

Abbreviations:
MCA: Minimum Circuit Amps
MFA: Maximum Fuse Amps
FLA: Full Load Amps

8 Sound Levels

8.1 Overall

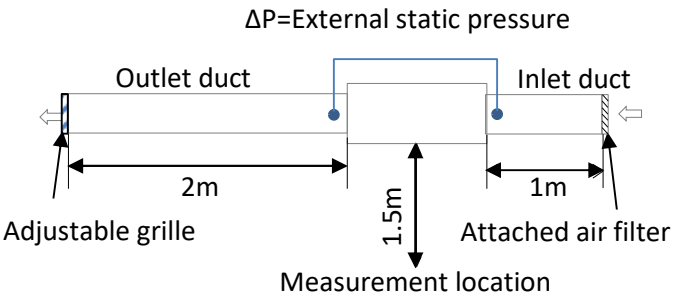
Table 8.1: Medium Static Pressure Duct sound pressure levels[1]

Model name	Sound pressure levels dB						
	SSH	SH	H	M	L	SL	SSL
4TVDD005AB07WAA	26.5	26	25	24	23	22.5	22
4TVDD007AB07WAA	26.5	26	25	24	23	22.5	22
4TVDD009AB07WAA	26.5	26	25	24	23	22.5	22
4TVDD012AB07WAA	29	28	27	26	25	23	22
4TVDD015AB07WAA	33	32	29.5	28	26.5	25	24
4TVDD019AB07WAA	33	32	31	30	27.5	26	25
4TVDD024AB07WAA	35	33.5	32	30.5	29	27.5	26
4TVDD027AB07WAA	37	35.5	34	32.5	31	29.5	28
4TVDD030AB07WAA	37	35.5	34	32.5	31	29.5	28
4TVDD038AB07WAA	39	37	35	33	31	29	28
4TVDD048AB07WAA	40	38	36	34	32	30	29
4TVDD055AB07WAA	42	40	38	36	34	33	31

Notes:

1. The sound pressure level is measured in an anechoic chamber at a distance of 1.5m below the unit, under the default static pressure setting at the factory. During on-site operation, the sound pressure level may be higher due to the influence of environmental noise

Figure 8.2: Medium Static Pressure Duc sound pressure level measurement



Connected to a top-discharge outdoor unit and measured in anechoic room. Adjusting the outlet grille to make the ΔP is equal to the rated static pressure, the data was recorded at 1.5m below the unit.

8.2 Octave Band Levels

Figure 8.3: 4TVDD005AB07WAA octave band levels

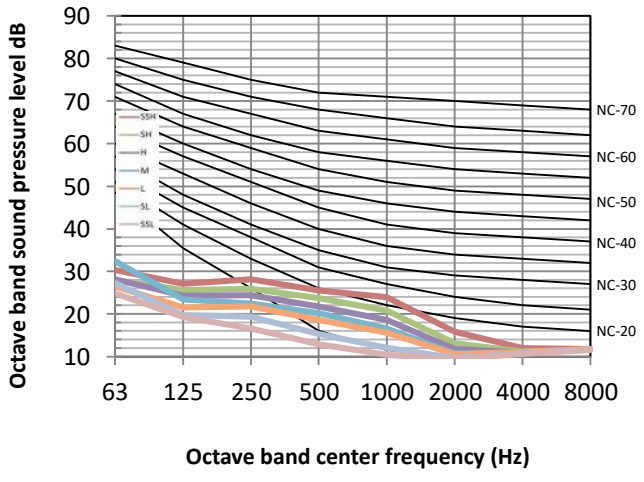


Figure 8.4: 4TVDD007AB07WAA octave band levels

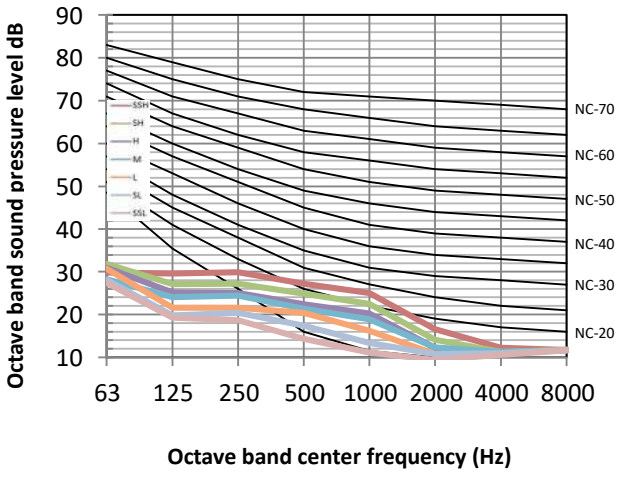


Figure 8.5: 4TVDD009AB07WAA octave band levels

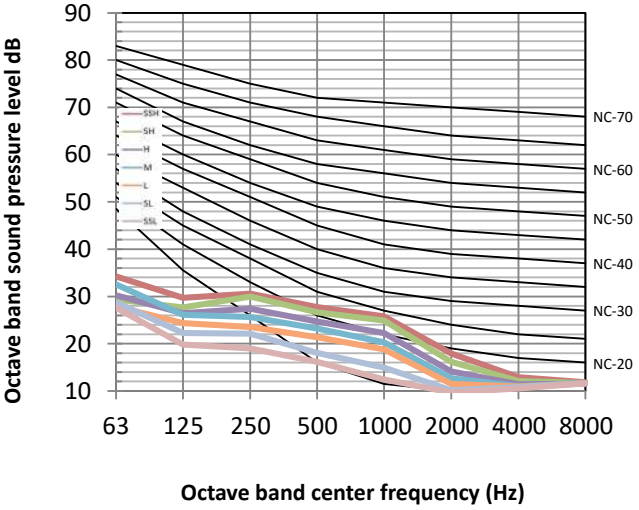


Figure 8.6: 4TVDD012AB07WAA octave band levels

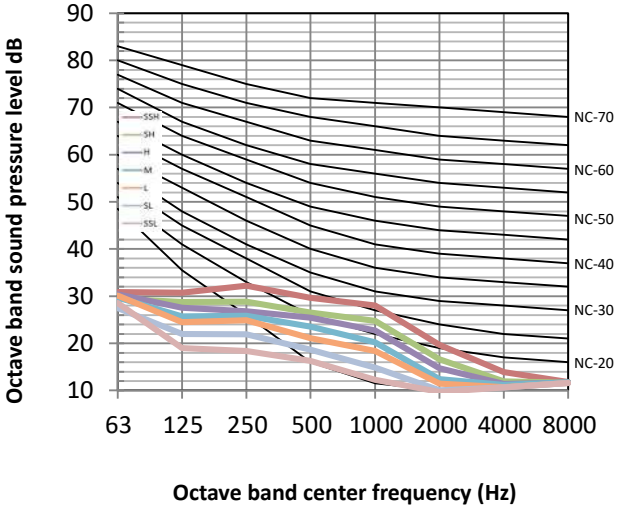


Figure 8.7: 4TVDD015AB07WAA octave band levels

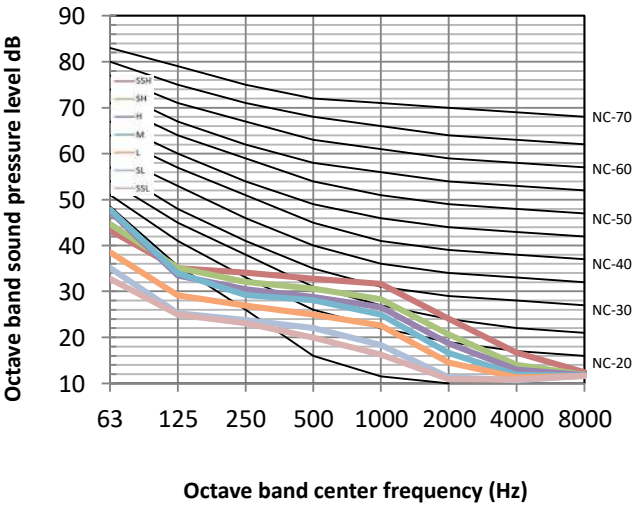


Figure 8.8: 4TVDD019AB07WAA octave band levels

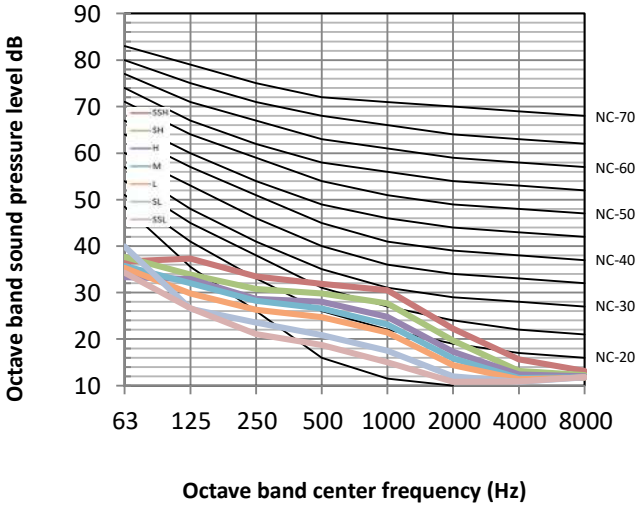


Figure 8.9: 4TVDD024AB07WAA octave band levels

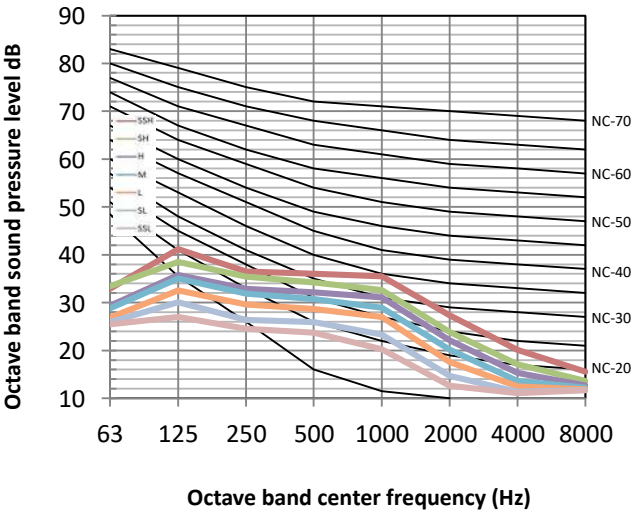


Figure 8.10: 4TVDD027AB07WAA octave band levels

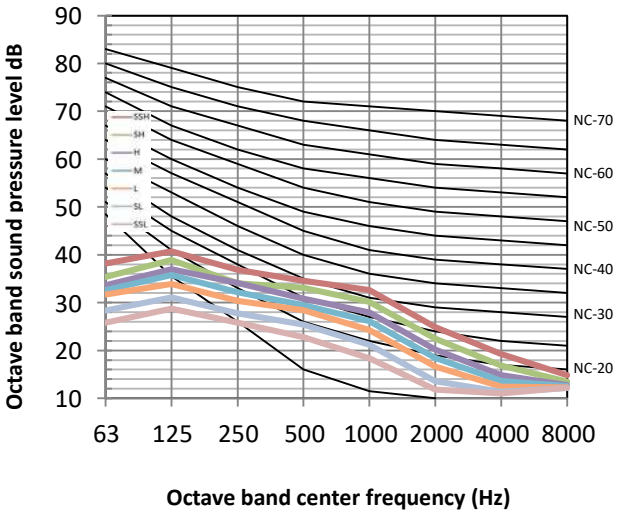


Figure 8.11: 4TVDD030AB07WAA octave band levels

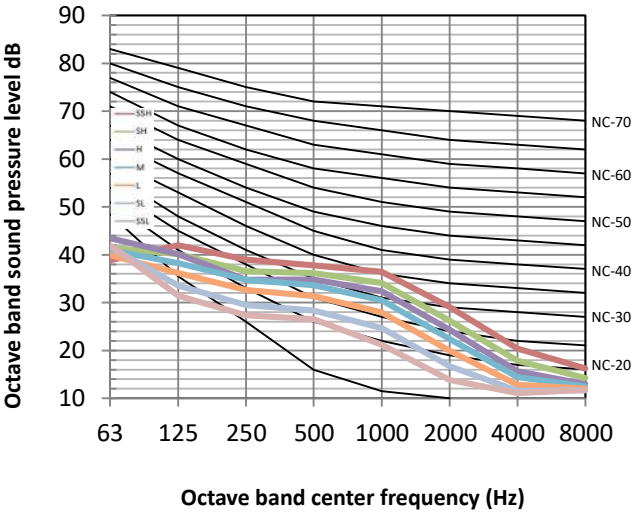


Figure 8.12: 4TVDD038AB07WAA octave band levels

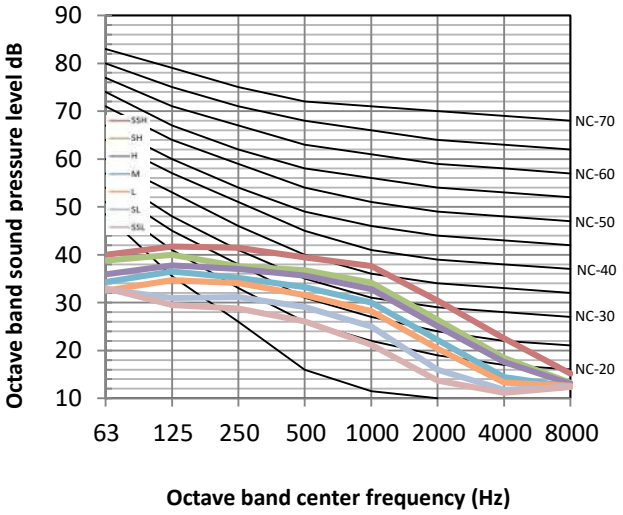


Figure 8.13: 4TVDD048AB07WAA octave band levels

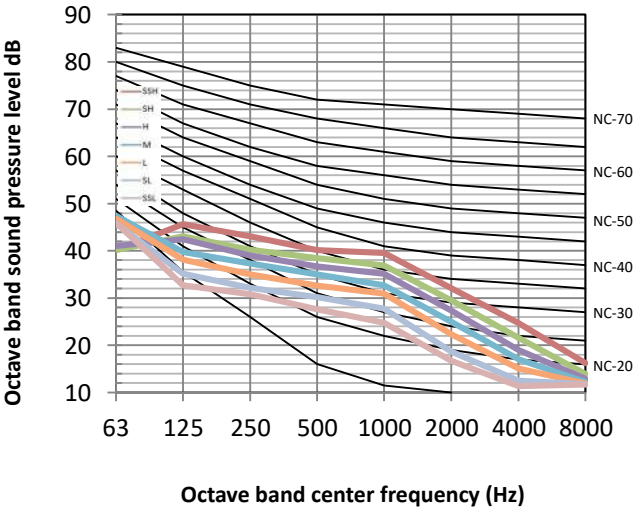
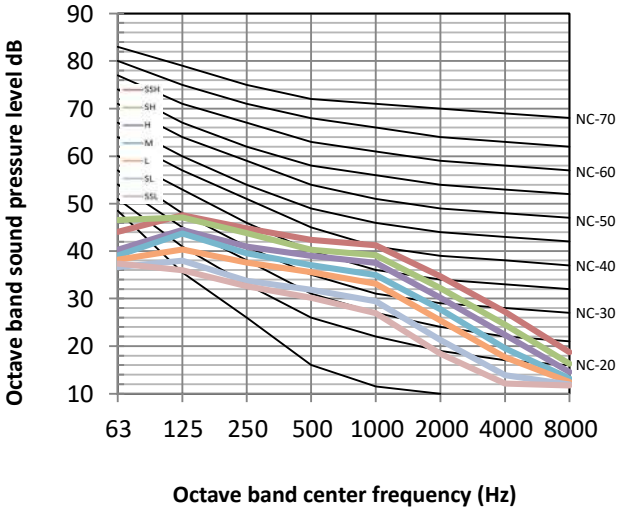


Figure 8.14: 4TVDD055AB07WAA octave band levels



9 Fan Performance

9.1 How to switch between Constant Airflow mode and Constant Speed mode

①In the main interface, press "☰" +"◁" for 3 seconds at the same time, and the main interface will display "CC". Press the "▲" and "▼" to select the indoor unit ("n00-n63" is displayed, and the last two digits are the indoor unit addresses). Press the "◁" to enter the parameter setting interface, and "n00" will be displayed.

②Press the "▲" and "▼" until "N30" is displayed on the page, and then press the "◁" to enter the mode setting. Use the "▲" and "▼" keys to adjust to the demand mode parameter values, and press the "◁" to confirm.

③Press the "🕒" button to return to the previous menu and exit the parameter setting. Parameter setting will also exit after 60 s of no operation

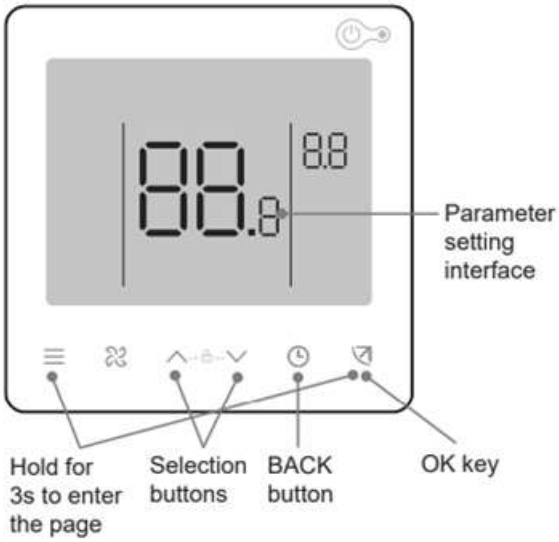


Table 9.1: Arc Duct mode setting

First level menu	Second level menu	Description	Default
n30	00	Constant Speed	-
	01	Constant Airflow	√

Notes:
1. The above is only an example. If you choose other controllers, please refer to their instructions for setting.

9.2 Constant Airflow mode

9.2.1 Fan performance diagram

Figure 9.1: 4TVDD005AB07WAA

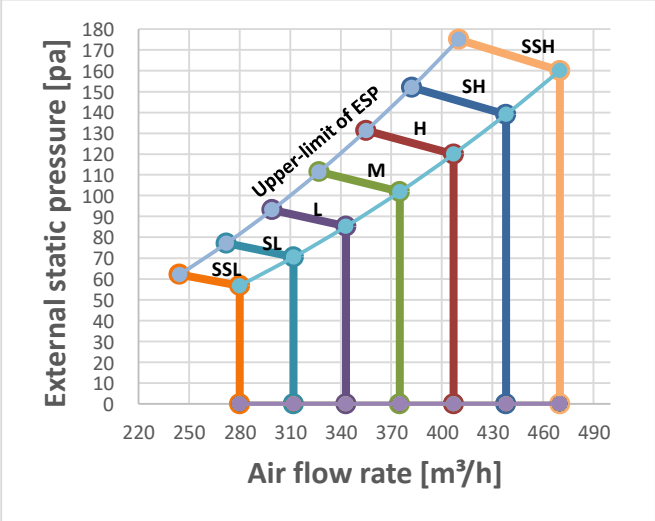


Figure 9.2: 4TVDD007AB07WAA

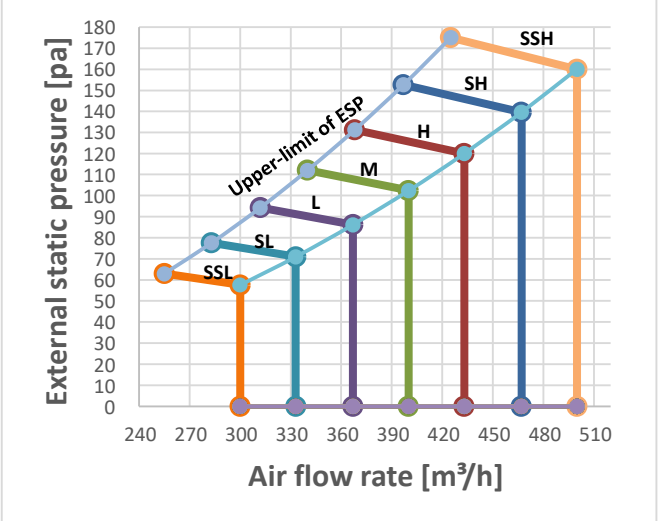


Figure 9.3: 4TVDD009AB07WAA

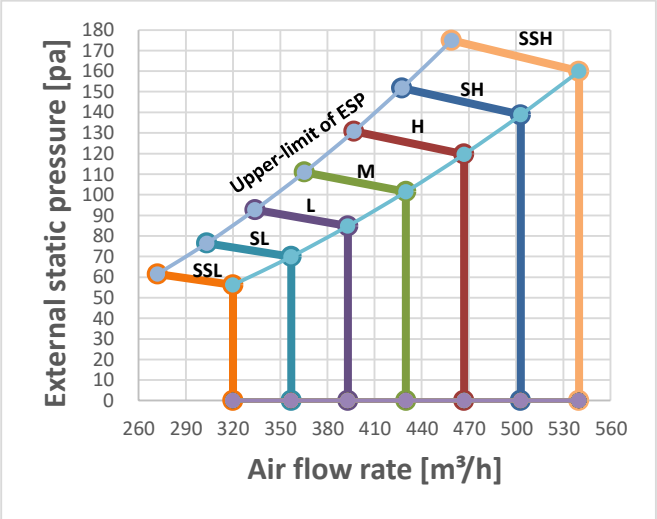


Figure 9.4: 4TVDD012AB07WAA

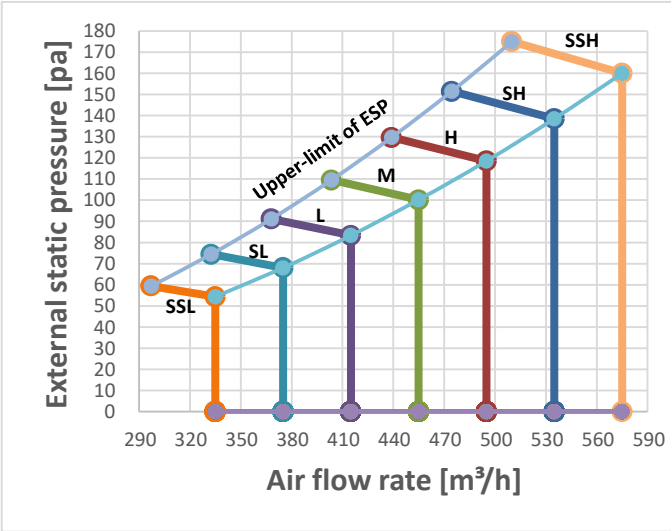


Figure 9.5: 4TVDD015AB07WAA

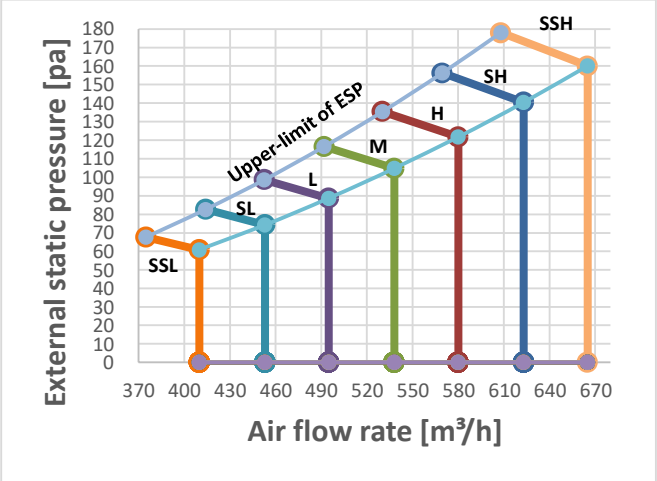


Figure 9.6: 4TVDD019AB07WAA

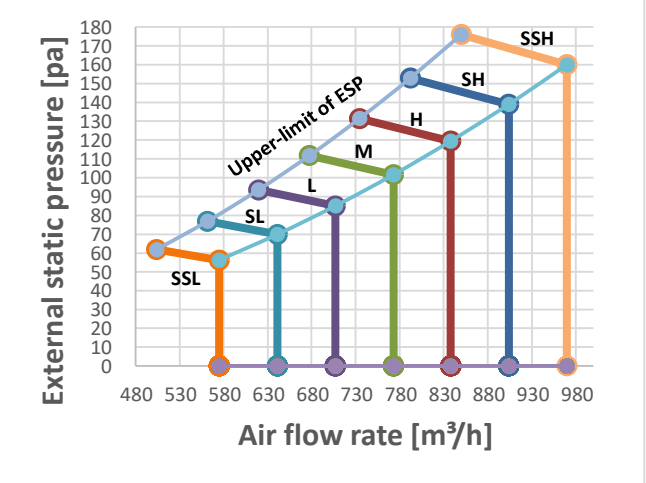


Figure 9.7: 4TVDD024AB07WAA

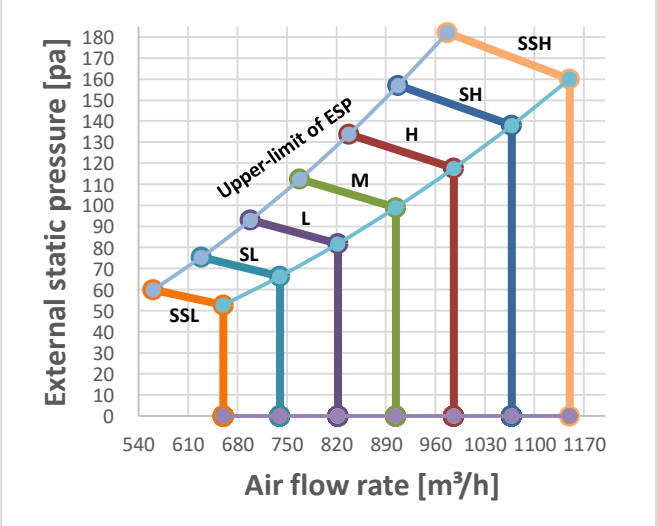


Figure 9.8: 4TVDD027AB07WAA

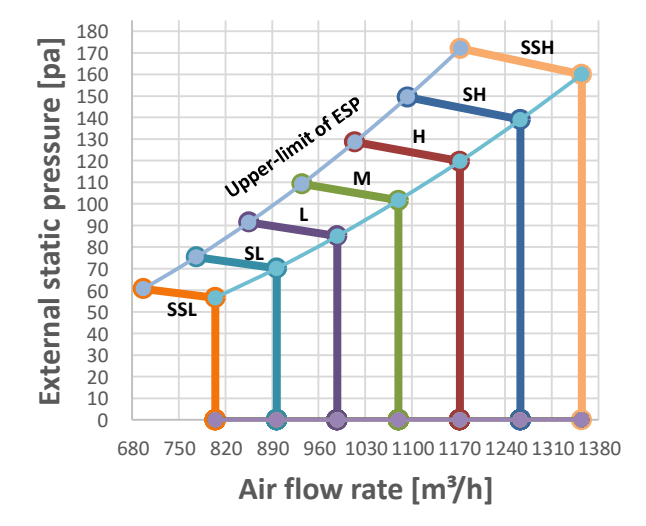


Figure 9.9: 4TVDD030AB07WAA

Figure 9.10: 4TVDD038AB07WAA

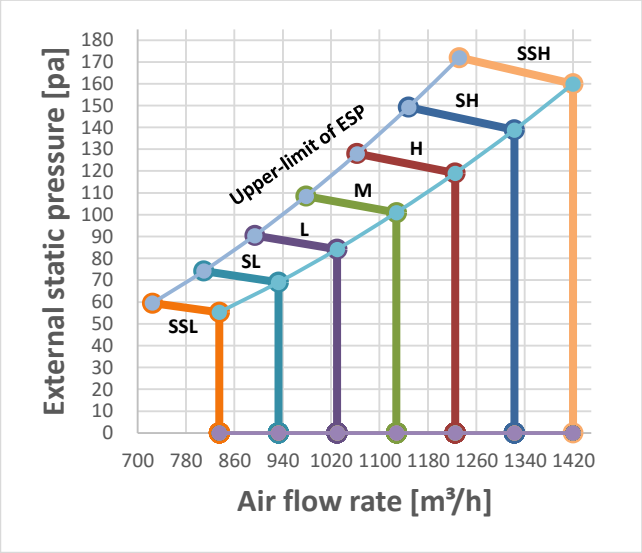


Figure 9.11: 4TVDD048AB07WAA

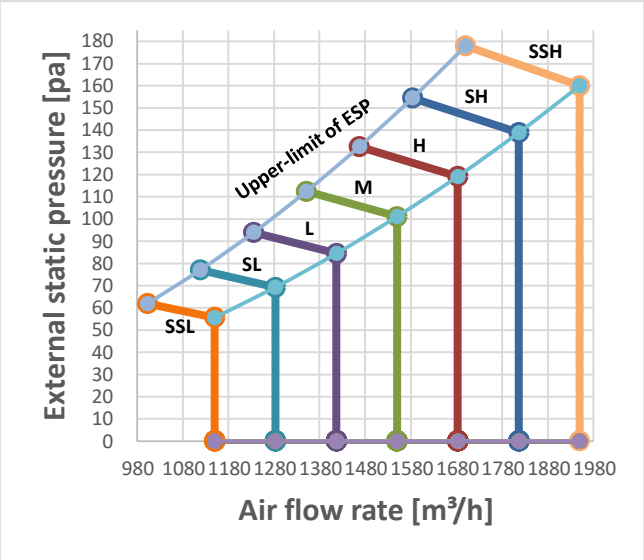
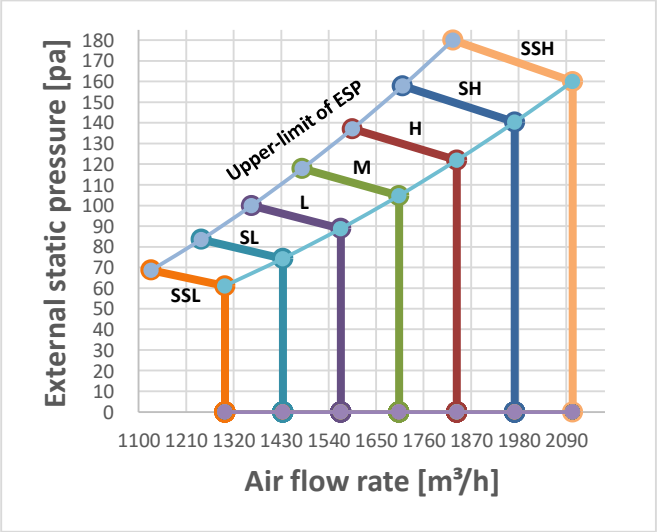
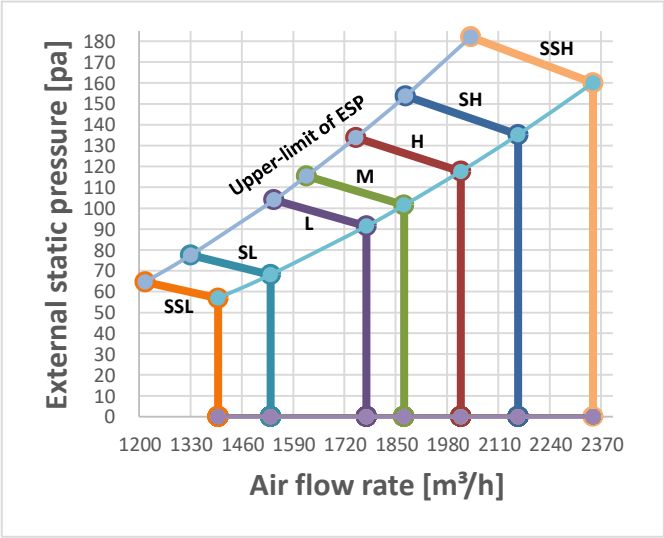


Figure 9.12: 4TVDD055AB07WAA





9.2.2 How to Read the Diagram (Constant Airflow mode)

The vertical axis is the External Static Pressure (Pa) while the horizontal axis represents the Air Flow (m^3/h). The characteristic curve for the “SSH”,“SH”, “H”, “M”, “L”,”SL” and “SSL” fan speed control.

For 4TVDD048AB07WAA, in “H” windshield, when the external static pressure is less than 122 Pa, the air flow keeps 1837 m3/h, but when the externa static pressure is greater than 122 Pa, the air flow begins to decline, and the allowable maximum external static pressure is 137 Pa.

9.3 Constant Speed mode

9.3.1 Set external static pressure parameters

①In the main interface, press "☰" +"◁" for 3 seconds at the same time, and the main interface will display "CC". Press the "▲" and "▼" to select the indoor unit ("n00-n63" is displayed, and the last two digits are the indoor unit addresses). Press the "◁" to enter the parameter setting interface, and "n00" will be displayed.

②When "n00" is displayed, press the "◁" to enter the static pressure setting. Use the "▲" and "▼" keys to adjust to the demand parameter values, and press the "◁" to confirm.

③Press the "🕒" button to return to the previous menu and exit the parameter setting. Parameter setting will also exit after 60 s of no operation

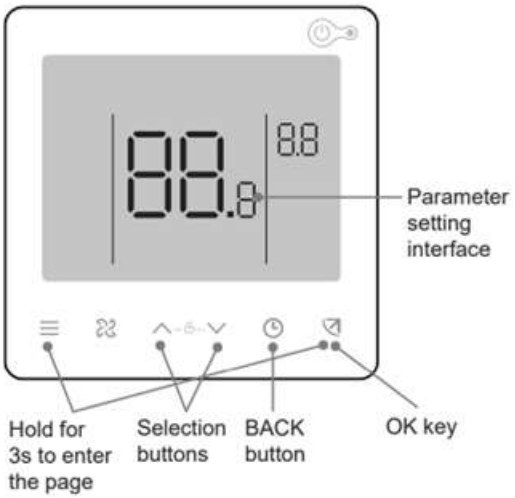


Table 9.1: External static pressure setting

First level menu	Second level menu	Description	Default
N00	00/01/02/03/04/05/~/19	Static pressure level	1.5-7.1kW: 06 8.0-11.2kW: 07 14.0-16.0kW: 08

Level	00	01	02	03	04	05	06	07	08	09	10
Static pressure(Pa)	0	5	10	15	20	25	30	40	50	60	70

Level	11	12	13	14	15	16	17	18	19
Static pressure(Pa)	80	90	100	110	120	130	140	150	160

Notes:

1. The above is only an example of 86S wired controller. If you choose other controllers, please refer to their manuals for setting.

9.3.2 Fan performance diagram

Figure 9.13: 4TVDD005AB07WAA

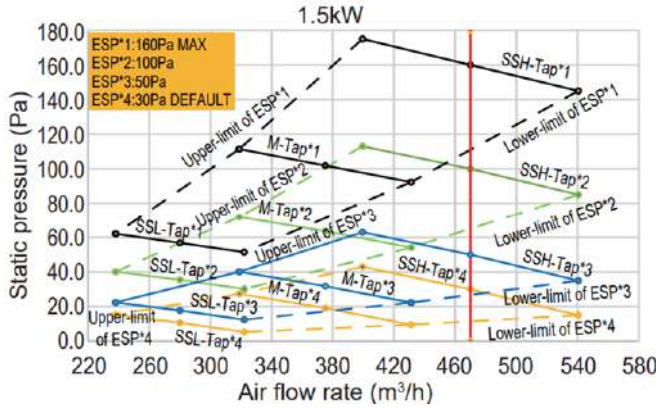


Figure 9.14: 4TVDD007AB07WAA

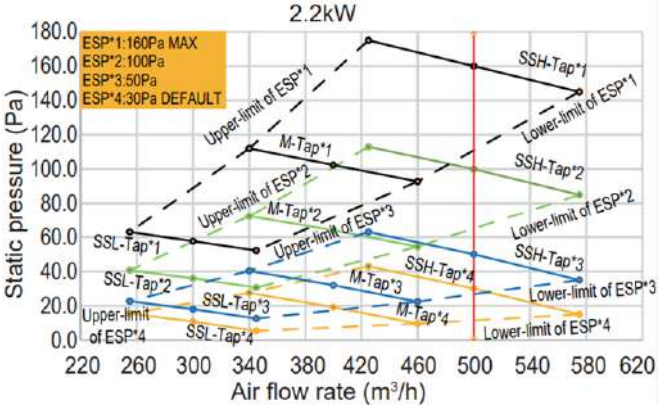


Figure 9.15: 4TVDD009AB07WAA

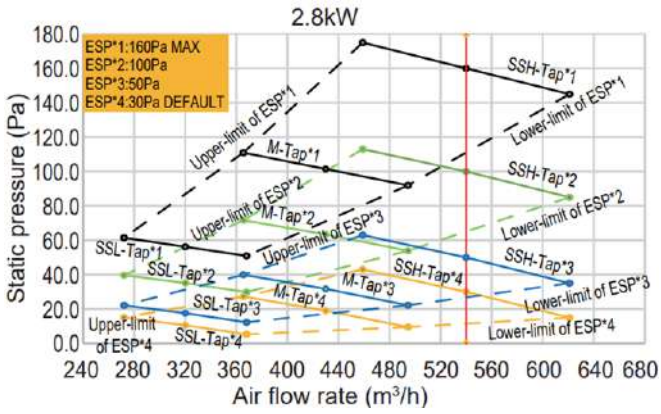


Figure 9.16: 4TVDD012AB07WAA

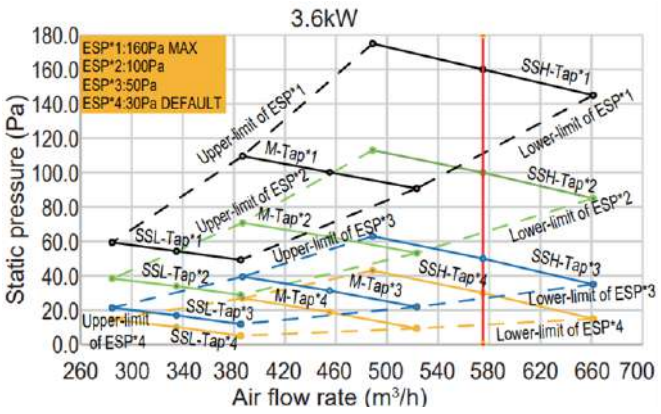


Figure 9.17: 4TVDD015AB07WAA

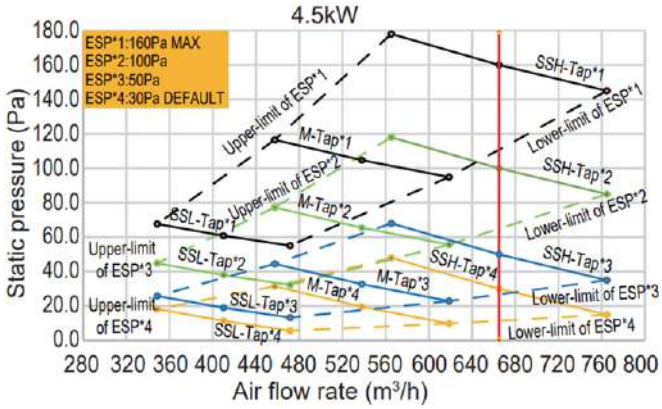


Figure 9.18: 4TVDD019AB07WAA

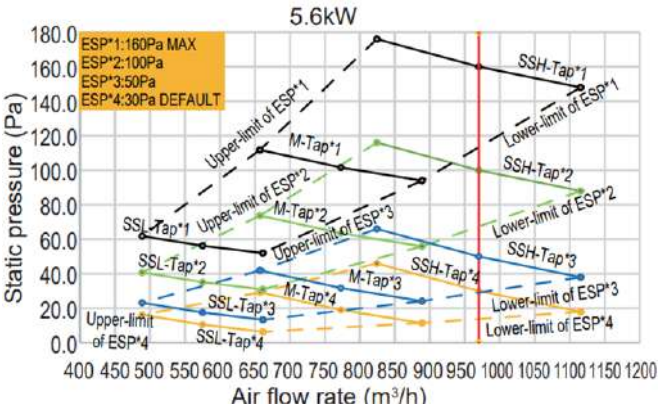


Figure 9.19: 4TVDD024AB07WAA

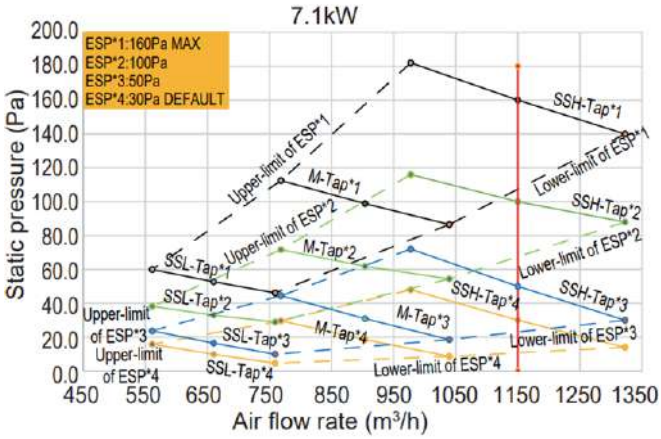


Figure 9.20: 4TVDD027AB07WAA

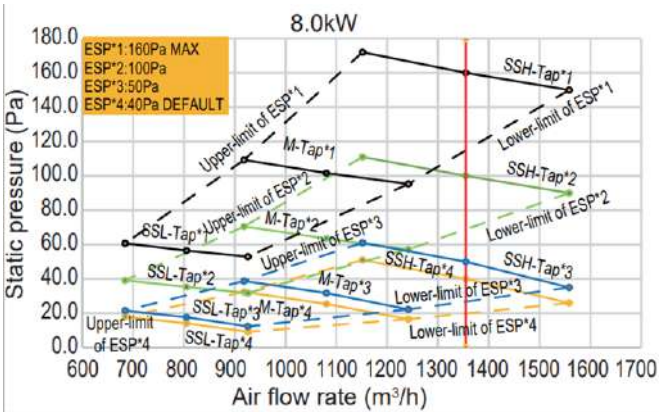


Figure 9.21: 4TVDD030AB07WAA

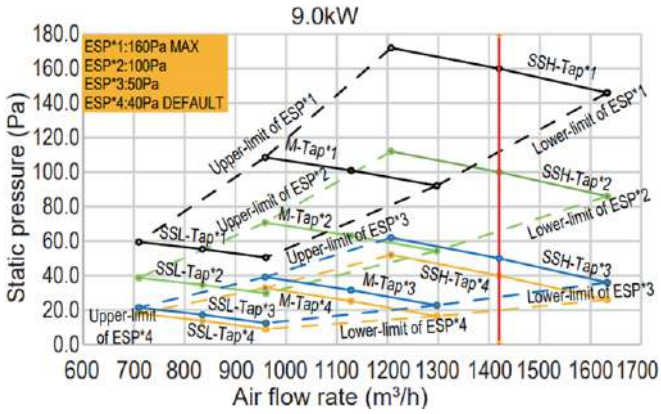


Figure 9.22: 4TVDD038AB07WAA

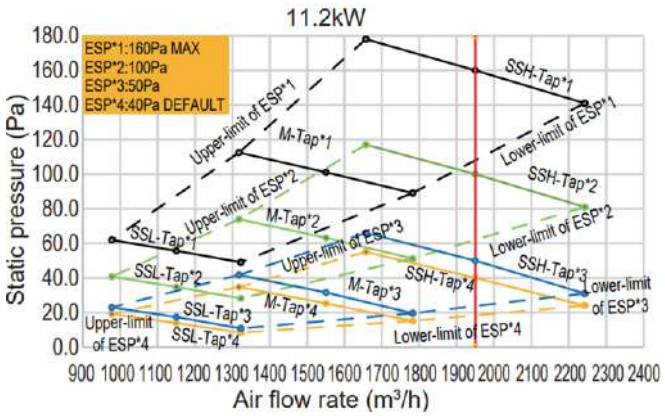


Figure 9.23: 4TVDD048AB07WAA

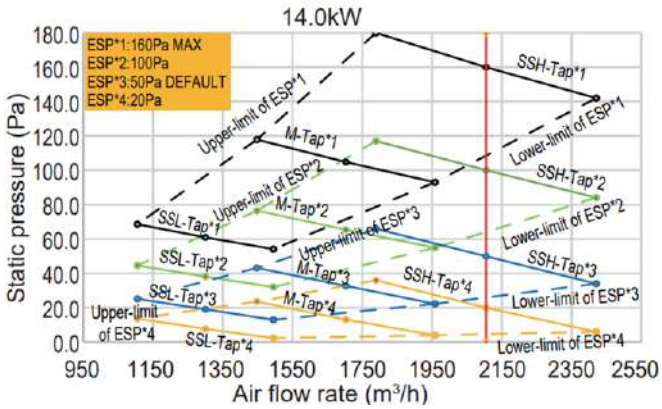
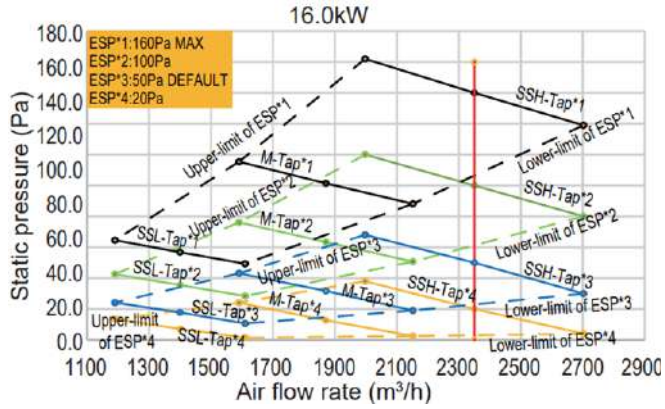


Figure 9.24: 4TVDD055AB07WAA



9.3.3 How to Read the Diagram (Constant Speed mode)

The vertical axis is the External Static Pressure (Pa) while the horizontal axis represents the Air Flow (m^3/h). The characteristic curve for the “SSH”, “M” and “SSL” fan speed control.

The Air Flow decreases with the increase of the external static pressure. For 4TVDD048AB07WAA, in “SSH” windshield and “50Pa” setting static pressure, when the externa static pressure is 50Pa, the air flow is 2105 m3/h, and the allowable externa static pressure range is 34 to 66.

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please visit trane.com or tranetechnologies.com.

Engineering Data

TVR 7G Series

High Static Pressure Ducted
19 - 190MBH

Models:

4TVHD019AB07WAA	4TVHD070AB07WAA
4TVHD024AB07WAA	4TVHD076AB07WAA
4TVHD027AB07WAA	4TVHD085AB07WAA
4TVHD030AB07WAA	4TVHD096AB07WAA
4TVHD038AB07WAA	4TVHD115AB07WAA
4TVHD042AB07WAA	4TVHD140AB07WAA
4TVHD048AB07WAA	4TVHD155AB07WAA
4TVHD055AB07WAA	4TVHD190AB07WAA

Jan. 2024 **TVR-EM-013B**

High Static Pressure Duct

1 Specifications

4TVHD019AB07WAA / 4TVHD024AB07WAA / 4TVHD027AB07WAA/ 4TVHD030AB07WAA

Table 1.1: 4TVHD019 (024,027,030) AB07WAA specifications

Model name			4TVHD019AB07WAA	4TVHD024AB07WAA	4TVHD027AB07WAA	4TVHD030AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	5.6	7.1	8.0	9.0
		kBut/h	19.1	24.2	27.3	30.7
	Input	W	159	159	159	196
Heating[2]	Capacity	kW	6.3	8.0	9.0	10.0
		kBut/h	21.5	27.3	30.7	34.1
	Input	W	159	159	159	196
Fan motor	Type		DC			
	Number		1			
Coil	Number of rows		3	3	3	3
	Tube pitch × row pitch	mm	18×10.72			
	Fin spacing	mm	1.35	1.35	1.35	1.35
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner groove			
	Dimensions (L×H ×W)	mm	850×360×32.16	850×360×32.16	850×360×32.16	850×360×32.16
	Number of circuits		10	10	10	10
Airflow rate[3]		m^3/h	1360/1281/1201/ 1122/1043/963/884	1360/1281/1201/ 1122/1043/963/884	1360/1281/1201/ 1122/1043/963/884	1500/1413/1325/ 1238/1150/1063/975
External static pressure[4]		Pa	80 (0-250)			
Sound pressure level[5]		dB(A)	39/38/36/35/33/32/30	39/38/36/35/33/32/30	39/38/36/35/33/32/30	40/39/37/36/34/33/31
Sound power level		dB(A)	59/56/54/53/51/49/47	59/56/54/53/51/49/47	59/56/54/53/51/49/47	63/60/58/56/54/52/50
Unit	Net dimensions[6] (W×H×D)	mm	1050×299×750			
	Packed dimensions (W×H×D)	mm	1215×359×890			
	Net/Gross weight	kg	35/38.5	35/38.5	35/38.5	35/38.5
Refrigerant type			R410A/R32			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7	Φ9.52/Φ15.9		
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

All specifications are measured at standard external static pressure

4TVHD038AB07WAA / 4TVHD042AB07WAA/ 4TVHD048AB07WAA / 4TVHD055AB07WAA

Table 1.2: 4TVHD038 (042,048,055) AB07WAA specifications

Model name			4TVHD038AB07WAA	4TVHD042AB07WAA	4TVHD048AB07WAA	4TVHD055AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	11.2	12.5	14.0	16.0
		kBut/h	38.2	42.7	47.8	54.6
	Input	W	248	252	284	339
Heating[2]	Capacity	kW	12.5	14.0	16.0	18.0
		kBut/h	42.7	47.8	54.6	61.4
	Input	W	248	252	284	339
Fan motor	Type		DC			
	Number		1			
Coil	Number of rows		2	3	3	3
	Tube pitch × row pitch	mm	18×10.72			
	Fin spacing	mm	1.35	1.35	1.35	1.35
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner groove			
	Dimensions (L×H ×W)	mm	1200×360×21.44	1200×360×32.16	1200×360×32.16	1200×360×32.16
	Number of circuits		10	10	10	10
Airflow rate[3]		m^3/h	2140/2015/1890/1766/1641/1516/1391	2150/2025/1899/1774/1649/1523/1398	2400/2260/2120/1980/1840/1700/1560	2600/2448/2297/2145/1993/1842/1690
External static pressure[4]		Pa	80 (0-250)	100 (0-250)		
Sound pressure level[5]		dB(A)	41/40/38/37/35/34/32	41/40/39/37/36/35/33	43/42/40/39/37/36/34	44/43/41/40/38/37/35
Sound power level		dB(A)	63/61/59/57/56/54/52	66/64/62/60/58/56/54	67/64/62/60/58/57/55	68/66/64/62/60/59/57
Unit	Net dimensions[6] (W×H×D)	mm	1400×299×750			
	Packed dimensions (W×H×D)	mm	1565×359×890			
	Net/Gross weight	kg	44.5/48.5	46.5/50.5	46.5/50.5	46.5/50.5
Refrigerant type			R410A/R32			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9			
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

All specifications are measured at standard external static pressure

4TVHD070AB07WAA / 4TVHD076AB07WAA / 4TVHD085AB07WAA/ 4TVHD096AB07WAA

Table 1.3: 4TVHD070 (076,085,096) AB07WAA specifications

Model name			4TVHD070AB07WAA	4TVHD076AB07WAA	4TVHD085AB07WAA	4TVHD096AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	20.0	22.4	25.2	28.0
		kBut/h	68.3	76.5	86.0	95.6
	Input	W	780	780	780	780
Heating[2]	Capacity	kW	22.5	25.0	26.0	31.5
		kBut/h	76.8	85.3	88.7	107.5
	Input	W	780	780	780	780
Fan motor	Type		DC			
	Number		1			
Coil	Number of rows		3	3	3	3
	Tube pitch × row pitch	mm	21×13.37			
	Fin spacing	mm	1.5	1.5	1.5	1.5
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ7 Inner groove			
	Dimensions (L×H ×W)	mm	1050×588×40.1	1050×588×40.1	1050×588×40.1	1050×588×40.1
	Number of circuits		14	14	14	14
Airflow rate[3]		m^3/h	4700/4387/4073/3760/3447/3133/2820	4700/4387/4073/3760/3447/3133/2820	4700/4387/4073/3760/3447/3133/2820	4700/4387/4073/3760/3447/3133/2820
External static pressure[4]		Pa	200(0-400)			
Sound pressure level[5]		dB(A)	51/50/48/46/44/43/42	51/50/48/46/44/43/42	51/50/48/46/44/43/42	51/50/48/46/44/43/42
Sound power level		dB(A)	74/72/70/68/66/64/62	74/72/70/68/66/64/62	74/72/70/68/66/64/62	74/72/70/68/66/64/62
Unit	Net dimensions[6] (W×H×D)	mm	1300×580×900			
	Packed dimensions (W×H×D)	mm	1530×730×1060			
	Net/Gross weight	kg	125/150	125/150	125/150	125/150
Refrigerant type			R410A/R32			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ19.1		Φ12.7/Φ22.2	
	Drain pipe	mm	OD Φ32			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

All specifications are measured at standard external static pressure

4TVHD115AB07WAA / 4TVHD140AB07WAA/ 4TVHD155AB07WAA / 4TVHD190AB07WAA

Table 1.4: 4TVHD115 140,155,190) AB07WAA specifications

Model name			4TVHD115AB07WAA	4TVHD140AB07WAA	4TVHD155AB07WAA	4TVHD190AB07WAA
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	33.5	40.0	45.0	56.0
		kBut/h	114.3	136.5	153.6	191.1
	Input	W	810	1850	1850	2030
Heating[2]	Capacity	kW	38.0	45.0	56.0	63.0
		kBut/h	129.7	153.6	191.1	215.0
	Input	W	810	1850	1850	2030
Fan motor	Type		DC			
	Number		1			
Coil	Number of rows		4	3	3	4
	Tube pitch × row pitch	mm	21×13.37			
	Fin spacing	mm	1.5	1.5	1.5	1.5
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ7 Inner groove			
	Dimensions (L×H ×W)	mm	1050×588×42.7	1600×588×40.1	1600×588×40.1	1600×588×42.7
	Number of circuits		14	14	14	14
Airflow rate[3]		m^3/h	4700/4387/4073/3760/3447/3133/2820	7500/7000/6500/6000/5500/5000/4500	7500/7000/6500/6000/5500/5000/4500	8400/7840/7280/6720/6160/5600/5040
External static pressure[4]		Pa	200 (0-400)	300 (0-400)		
Sound pressure level[5]		dB(A)	52/51/49/48/46/44/43	58/56/54/52/50/49/48	58/56/54/52/50/49/48	59/58/56/54/53/51/49
Sound power level		dB(A)	74/72/70/68/66/63/61	79/78/76/74/72/70/67	79/78/76/74/72/70/67	81/80/77/75/73/71/69
Unit	Net dimensions[6] (W×H×D)	mm	1300×580×900	1850×580×900		
	Packed dimensions (W×H×D)	mm	1530×730×1060	2080×730×1060		
	Net/Gross weight	kg	128/153	166/204	166/204	170/208
Refrigerant type			R410A/R32			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ12.7/Φ25.4		Φ15.9/Φ28.6	
	Drain pipe	mm	OD Φ32			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in an anechoic chamber.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

All specifications are measured at standard external static pressure

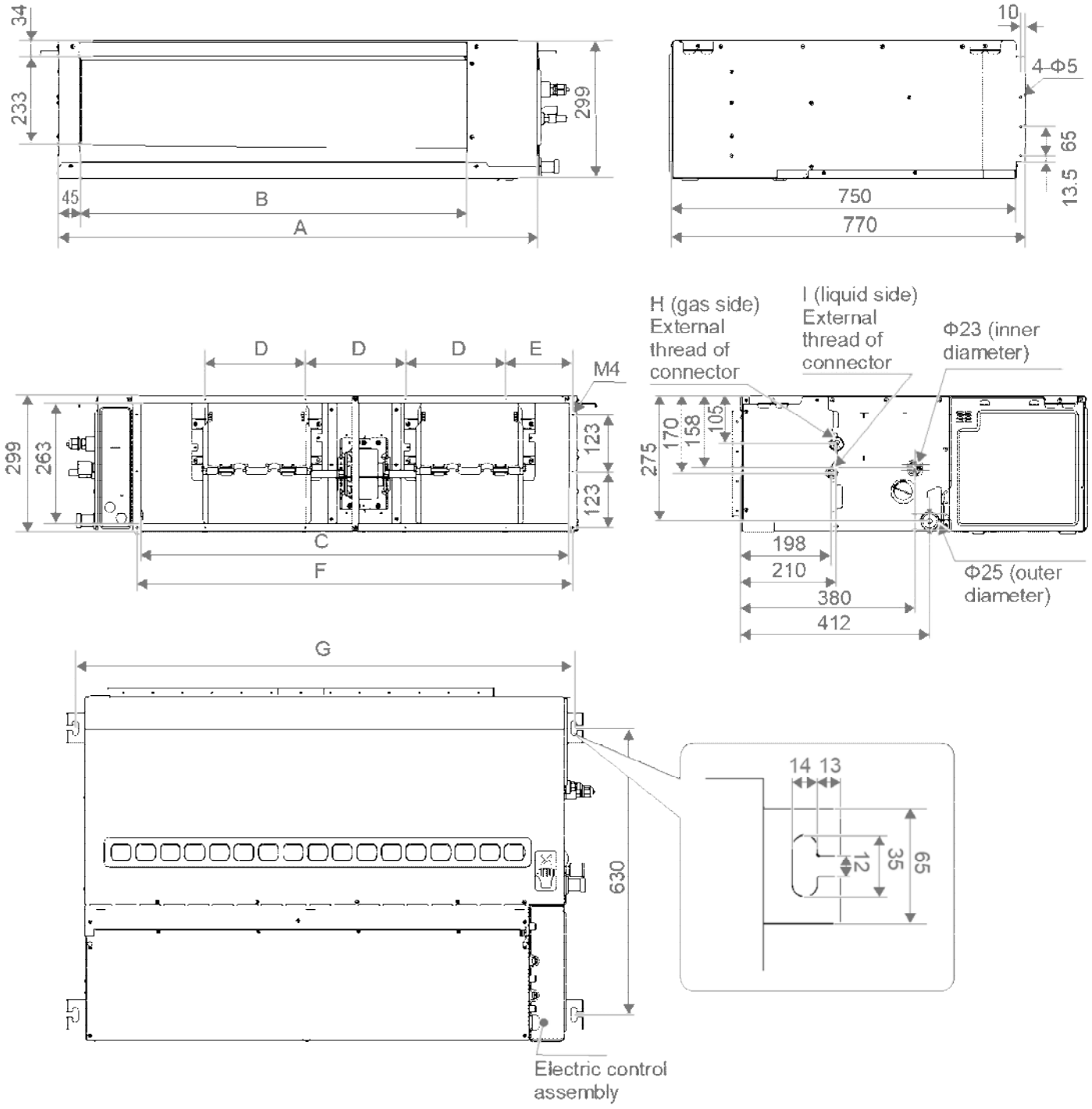
2 Dimensions

2.1 Unit Dimensions

4TVHD019AB07WAA / 4TVHD024AB07WAA / 4TVHD027AB07WAA/ 4TVHD030AB07WAA

4TVHD038AB07WAA / 4TVHD042AB07WAA/ 4TVHD048AB07WAA / 4TVHD055AB07WAA

Figure 2.1: 4TVHD019 (024,027,030,038,042,048,055) AB07WAA T1HN18 dimensions (unit: mm)



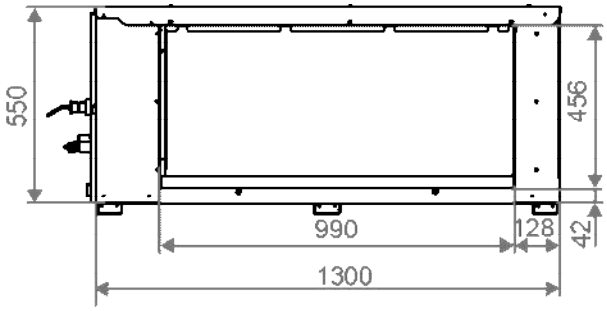
Model (kW)	A	B	C	D	E	F	G	H	I
kW≤5.6	1050	850	940	220	146	956	1095	3/4-16 UNF	7/16-20 UNF
5.6<kW≤9.0	1050	850	940	220	146	956	1095	7/8-14 UNF	5/8-18 UNF
9.0<kW≤16.0	1400	1200	1290	220	213	1306	1445	7/8-14 UNF	5/8-18 UNF

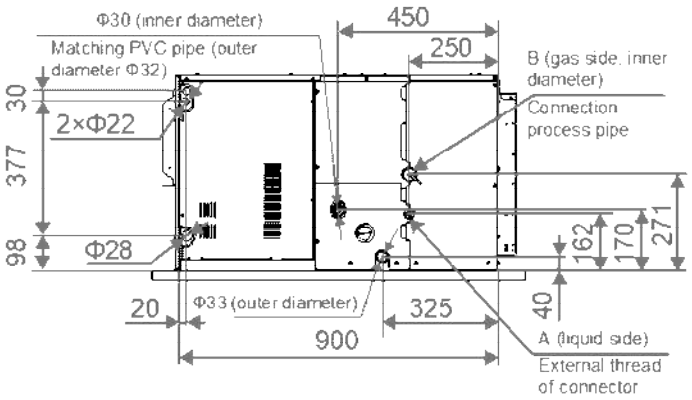
4TVHD070AB07WAA / 4TVHD076AB07WAA / 4TVHD085AB07WAA/ 4TVHD096AB07WAA/ 4TVHD115AB07WAA

Figure 2.2: 4TVHD070 (076,085,096,115) AB07WAA dimensions (unit: mm)

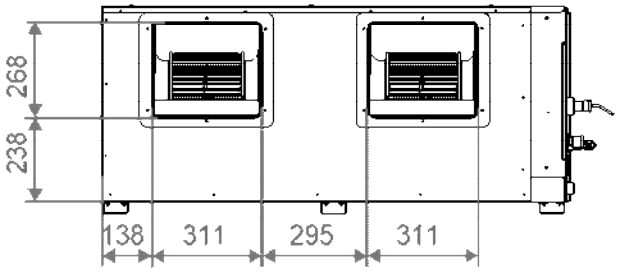
Capacity (kW)	A	B
20.0≤kW≤22.4	5/8-18 UNF	Φ19.1
22.4<kW≤28	3/4-16 UNF	Φ22.2
28<kW≤33.5	3/4-16 UNF	Φ25.4

Appearance and dimensions of the air inlets, piping, drain pipes, power cable hole and communication wire hole:

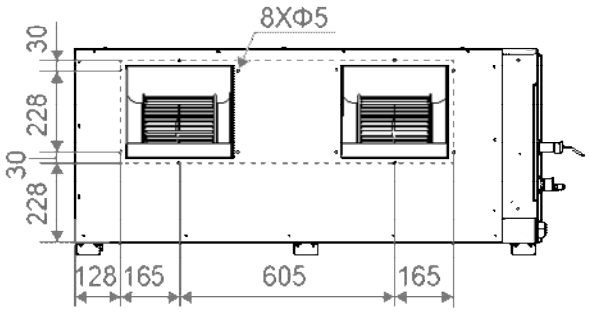




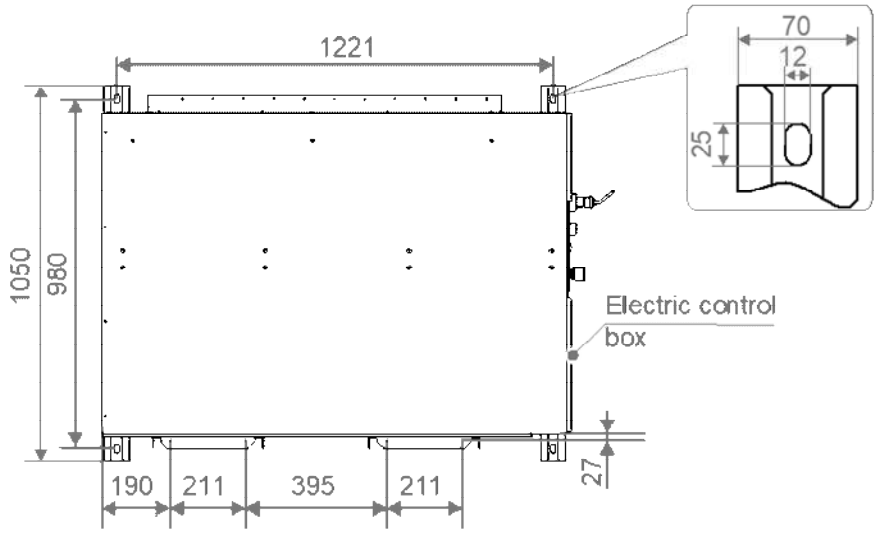
Dimensions of the air outlets:

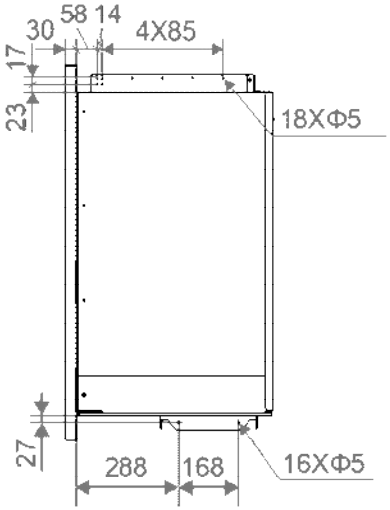


Dimensions of the air duct installation hole after the air outlet flange is removed:



Dimensions of lugs and the screw hole of air outet/inlet flange:



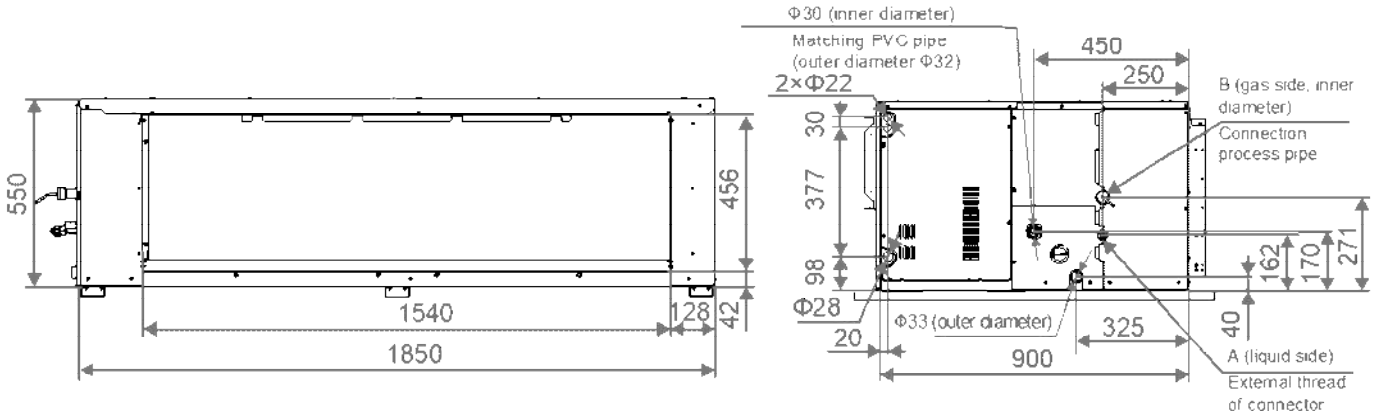


4TVHD140AB07WAA / 4TVHD155AB07WAA / 4TVHD190AB07WAA

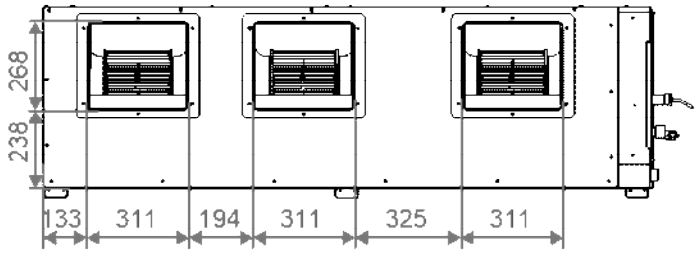
Figure 2.3: 4TVHD140 (155,190) AB07WAA dimensions (unit: mm)

Capacity (kW)	A	B
33.5≤kW≤40.0	3/4-16 UNF	Φ25.4
40.0<kW≤56.0	7/8-14 UNF	Φ28.6

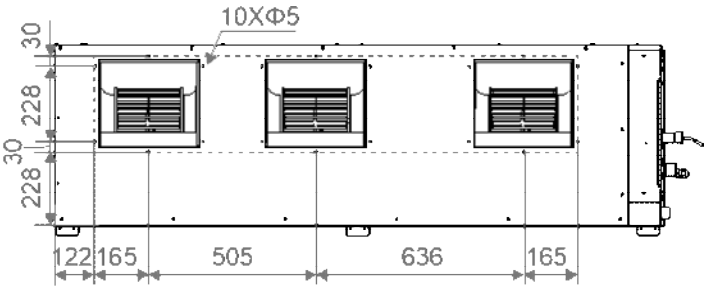
Appearance and dimensions of the air inlets, piping, drain pipes, power cable hole and communication wire hole:



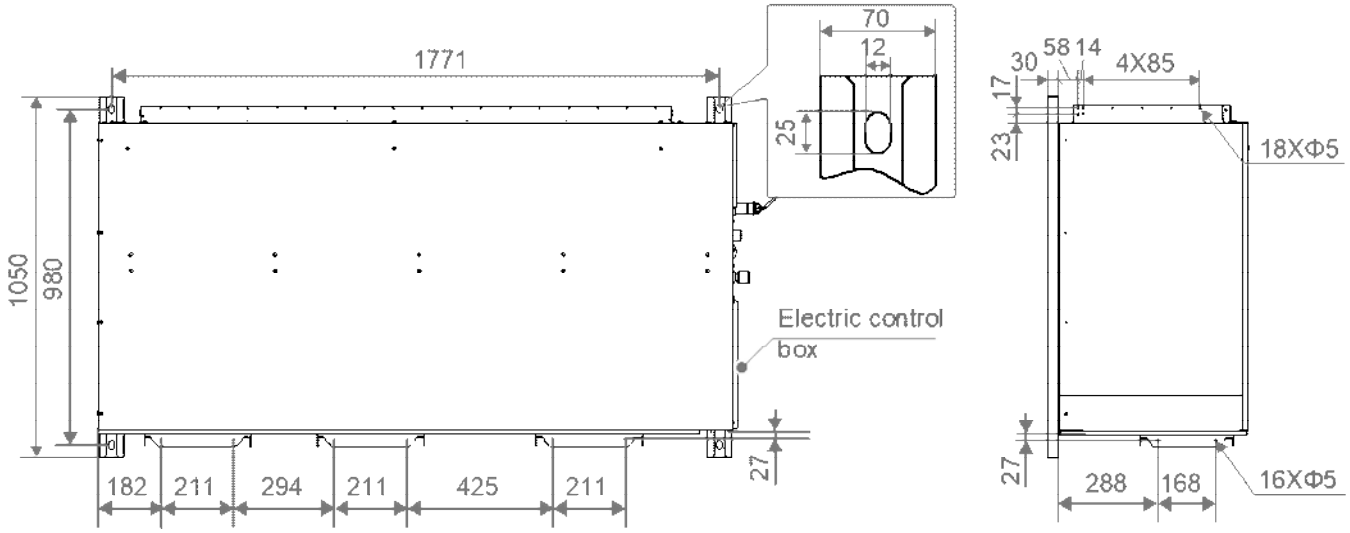
Dimensions of the air outlets:



Dimensions of the air duct installation hole after the air outlet flange is removed:



Dimensions of lugs and the screw hole of air outlet/inlet flange:



3 Unit Placement

3.1 Placement Considerations

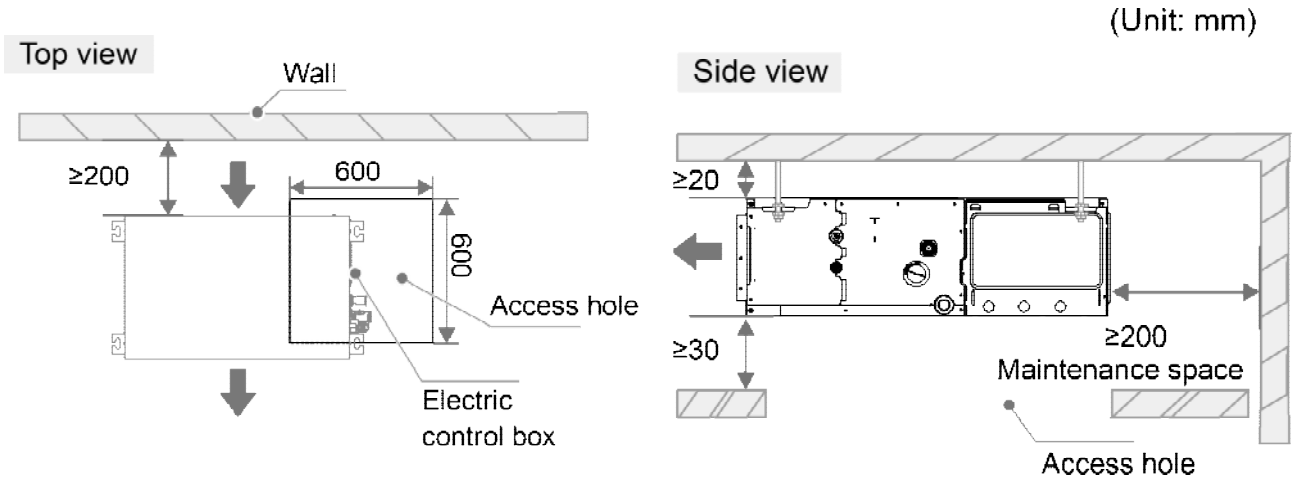
Unit placement should take account of the following considerations:

- Units should not be installed in the following locations:
  - Where exposure to direct radiation from a high-temperature heat source or to interference from a source of electromagnetic radiation may occur.
  - Where dust or dirt may affect heat exchangers.
  - Where exposure to oil or to corrosive or harmful gases, such as acidic or alkaline gases, may occur.
  - Where exposure to salinity may occur, such as seaside locations.
  - Where highly flammable materials are present.
  - Where exposure to oily air may occur, such as a kitchen.
  - Where exposure to very high humidity may occur, such as a laundry.
- Units should be installed in positions where:
  - The ceiling is horizontal and is able to bear the unit's weight.
  - There are no obstructions that could impede the airflow into and out of the unit.
  - The airflow out of the unit can reach throughout the room.
  - There is sufficient space for access during installation, servicing and maintenance.
  - The refrigerant piping and drain piping can be easily connected to the refrigerant piping and drain piping systems.
  - Short-circuit ventilation (where outlet air returns quickly to a unit's air inlet) will not occur.

3.2 Space Requirements

4TVHD019AB07WAA / 4TVHD024AB07WAA / 4TVHD027AB07WAA/ 4TVHD030AB07WAA
4TVHD038AB07WAA / 4TVHD042AB07WAA/ 4TVHD048AB07WAA / 4TVHD055AB07WAA

Figure 3.1: High Static Pressure Duct space requirements (unit: mm)



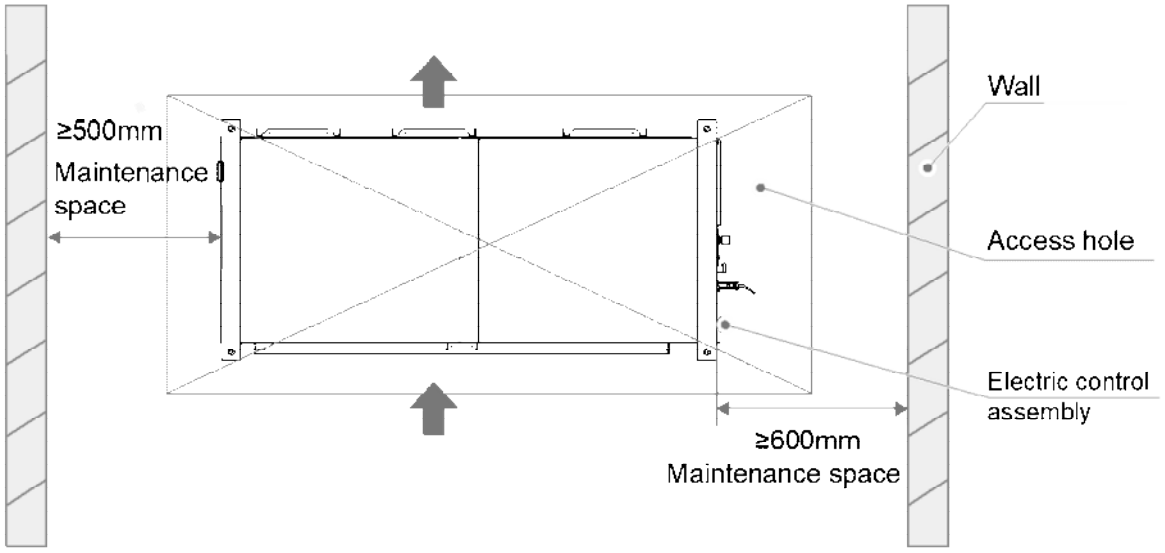
4TVHD070AB07WAA / 4TVHD076AB07WAA / 4TVHD085AB07WAA/ 4TVHD096AB07WAA

4TVHD115AB07WAA / 4TVHD140AB07WAA/ 4TVHD155AB07WAA / 4TVHD190AB07WAA

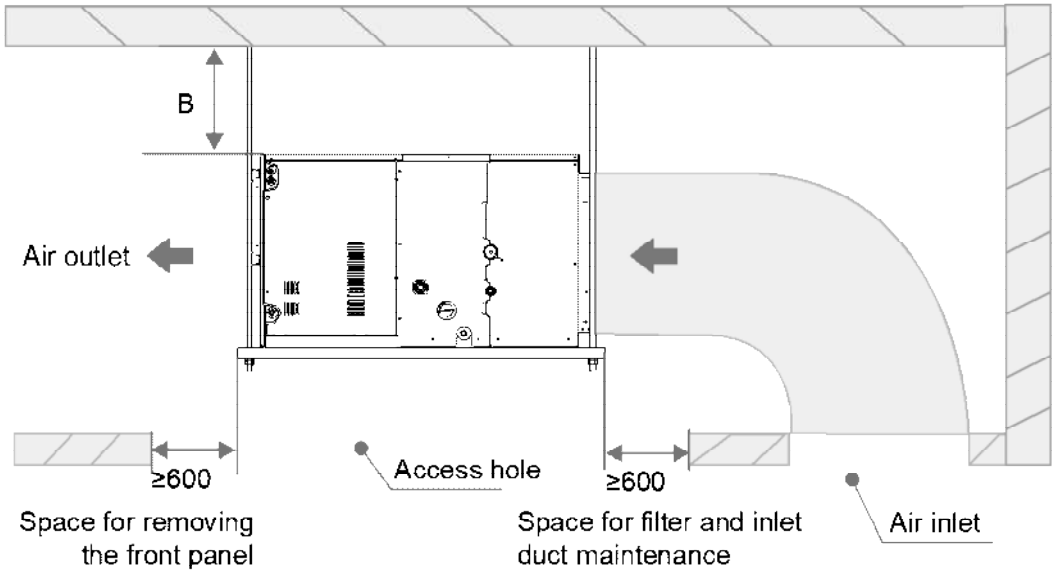
Figure 3.2: High Static Pressure Duct space requirements (unit: mm)

Bottom view

(Unit: mm)



Side view

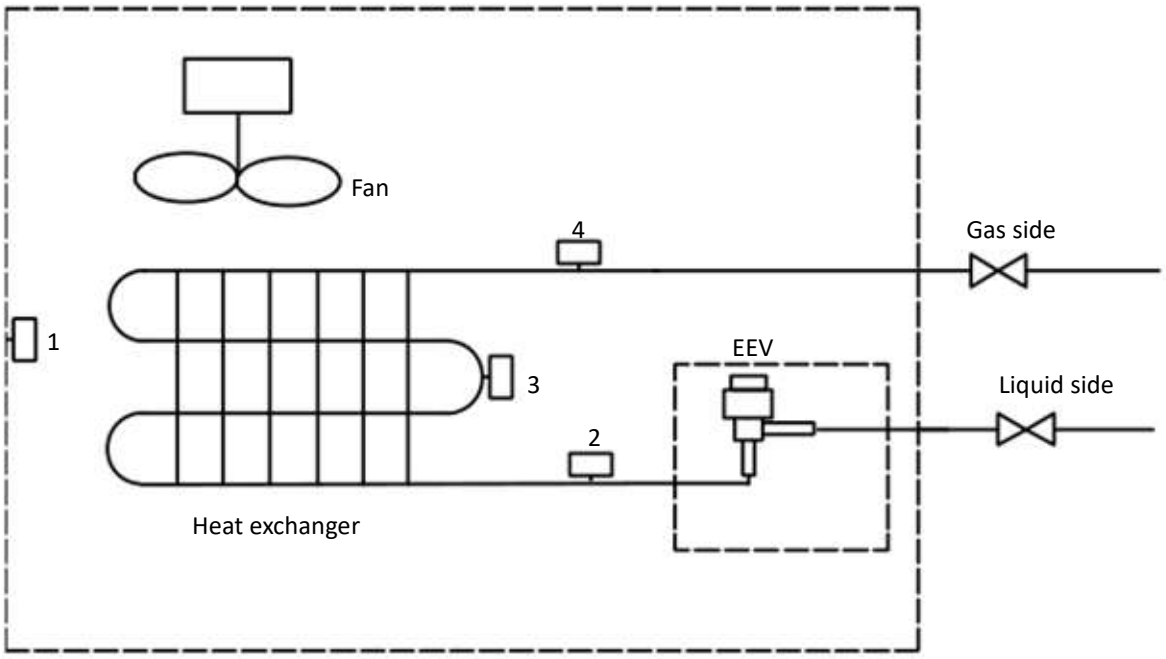


Notes for installers and service engineers

1. The distance between the indoor unit and the roof (B) shall be greater than 50mm to install the air duct.
2. The motor and fan can be maintained from the indoor unit top or the air outlet. If maintenance is performed from the indoor unit top, the distance between the indoor unit and the roof must be larger than 600mm. If maintenance is performed from the air outlet, the distance between the indoor unit and the roof must be larger than 50mm, with a minimum distance of 600mm allowed for removing the front panel.

4 Piping Diagrams

Figure 4.1: Piping diagram



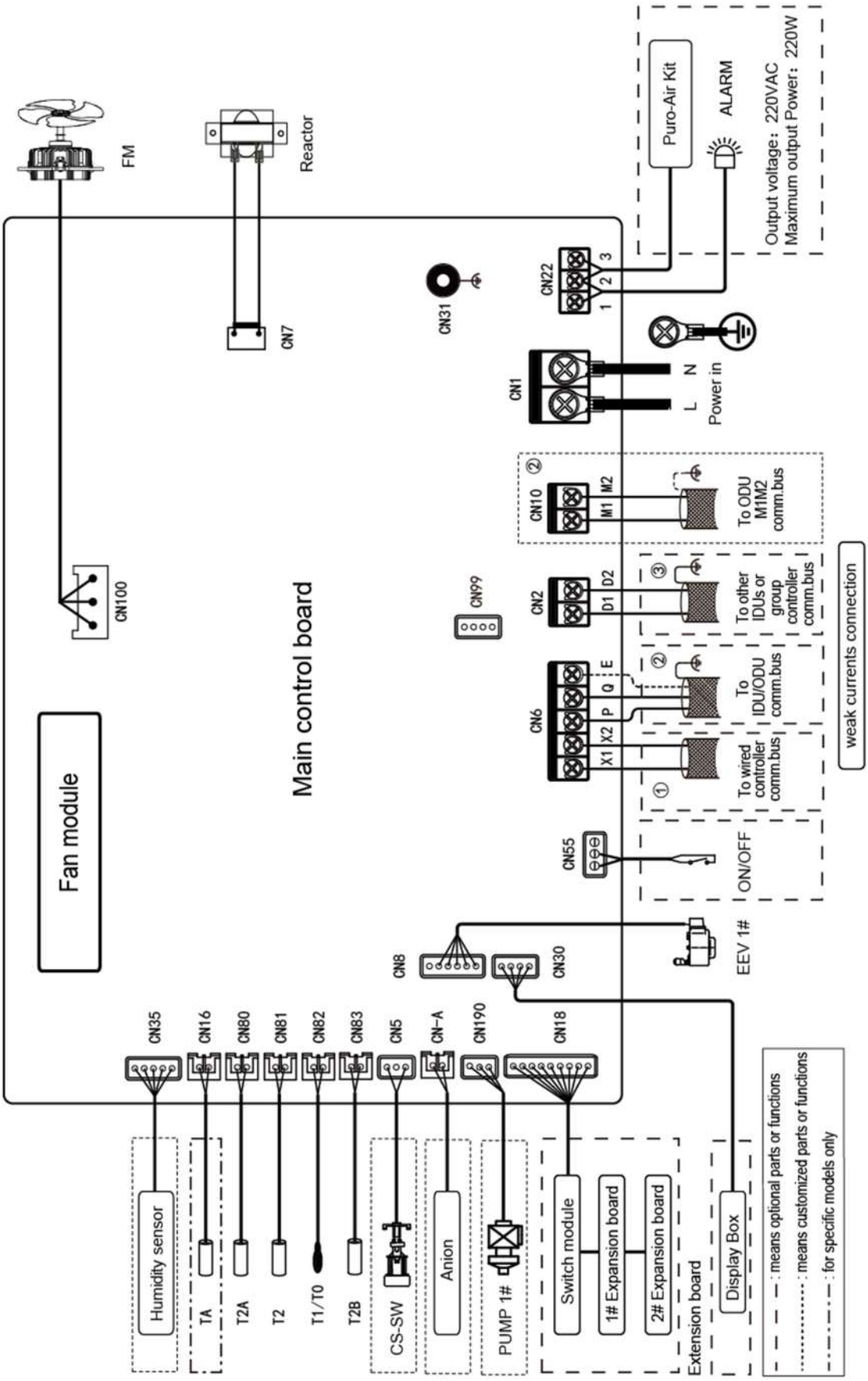
Legend		
1	T1	Inlet Air Temp. Sensor
2	T2A	Liquid Pipe Temp. Sensor
3	T2	Middle Pipe Temp. Sensor
4	T2B	Gas Pipe Temp. Sensor
5	EEV	Electronic expansion valve
6	FAN	Fan motor

5 Wiring Diagrams

4TVHD019AB07WAA / 4TVHD024AB07WAA / 4TVHD027AB07WAA/ 4TVHD030AB07WAA

4TVHD038AB07WAA / 4TVHD042AB07WAA / 4TVHD048AB07WAA / 4TVHD055AB07WAA

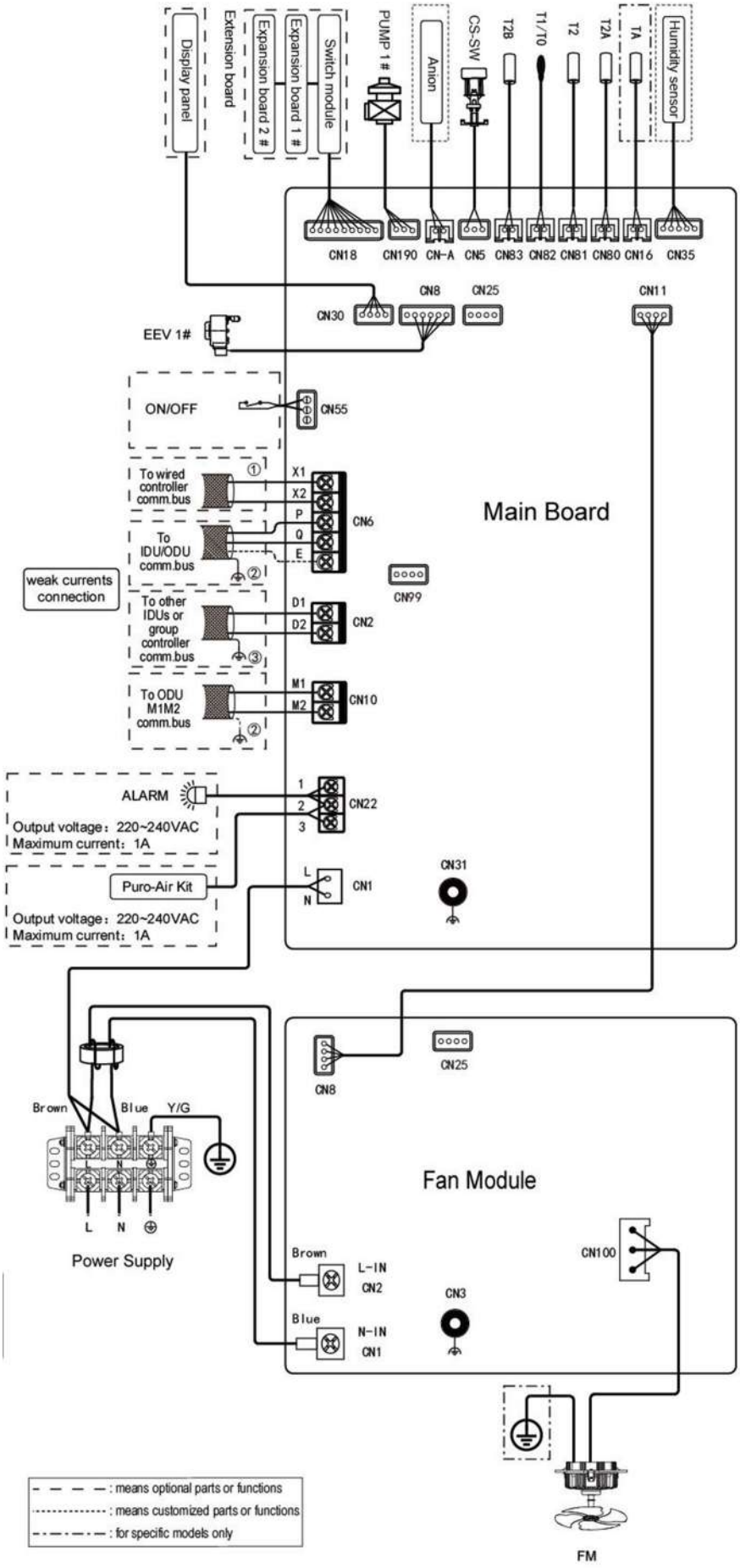
Figure 5.1: 4TVHD019 (024,027,030,038,042,048,055) AB07WAA Duct wiring diagram



4TVHD070AB07WAA / 4TVHD076AB07WAA / 4TVHD085AB07WAA/ 4TVHD096AB07WAA

4TVHD115AB07WAA / 4TVHD140AB07WAA/ 4TVHD155AB07WAA / 4TVHD190AB07WAA

Figure 5.2: 4TVHD070 (076,085,096,115,140,155,190) AB07WAA Duct wiring diagram



Legend				
Code	**Name**		**Code**	**Name**
XS XP	connectors		T1	Inlet Air Temp. Sensor
TA	Steam pipe temperature sensor*		T2B	Gas Pipe Temp. Sensor
CS-SW	Water level switch		T0	Fresh air inlet temperature sensor*
EEV	Electronic expansion valve		ALARM	Alarm output
Anion	Sterilization module		FM	DC Fan motor
T2A	Liquid Pipe Temp. Sensor		ON/OFF	Remote on/off
T2	Middle Pipe Temp. Sensor			

*** Indicates that this sensor is only available for Fresh Air Processing Unit**

Notes for installers and service engineers

Caution

- All installation, servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals – loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- The dotted lines indicate the field wiring or optional function.
- X1X2 communication ports can be connected to the wired controller.
- PQ and M1M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at a time. Meanwhile, be sure to connect the same communication ports (PQ to PQ; M1M2 to M1M2) in case of damage of the main control board.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: High Static Pressure Duct cooling capacity

Model	Indoor air temperature (°C 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
4TVHD019AB07WAA	5.0	4.8	5.3	4.8	5.6	4.9	5.6	4.7	5.7	4.6	5.8	4.3	6.0	4.1
4TVHD024AB07WAA	6.3	6.0	6.7	6.1	7.0	6.1	7.1	6.0	7.2	5.8	7.4	5.5	7.6	5.2
4TVHD027AB07WAA	7.1	6.8	7.6	6.9	7.9	6.9	8.0	6.7	8.1	6.5	8.3	6.1	8.5	5.8
4TVHD030AB07WAA	8.0	7.5	8.5	7.6	8.9	7.7	9.0	7.5	9.1	7.2	9.4	6.9	9.6	6.6
4TVHD038AB07WAA	9.9	9.3	10.6	9.5	11.1	9.6	11.2	9.3	11.3	9.0	11.6	8.5	11.9	8.1
4TVHD042AB07WAA	11.0	10.1	11.8	10.4	12.4	10.5	12.5	10.2	12.6	9.9	12.9	9.4	13.3	9.0
4TVHD048AB07WAA	12.4	11.3	13.2	11.6	13.8	11.7	14.0	11.4	14.2	11.1	14.5	10.5	14.9	10.1
4TVHD055AB07WAA	14.2	13.1	15.1	13.3	15.8	13.5	16.0	13.1	16.2	12.7	16.6	12.1	17.0	11.7
4TVHD070AB07WAA	17.7	16.1	18.9	16.5	19.8	16.8	20.0	16.3	20.2	15.8	20.8	15.1	21.2	14.4
4TVHD076AB07WAA	19.8	18.0	21.1	18.5	22.1	18.7	22.4	18.3	22.6	17.7	23.2	16.8	23.7	16.1
4TVHD085AB07WAA	22.3	20.3	23.8	20.8	24.9	21.1	25.2	20.5	25.5	19.9	26.1	18.9	26.7	18.1
4TVHD096AB07WAA	24.8	22.6	26.4	23.1	27.6	23.4	28.0	22.8	28.3	22.1	29.0	21.0	29.7	20.1
4TVHD115AB07WAA	29.6	26.9	31.6	27.6	33.1	28.0	33.5	27.3	33.8	26.4	34.7	25.1	35.5	24.1
4TVHD140AB07WAA	35.4	32.1	37.7	32.9	39.5	33.4	40.0	32.5	40.4	31.5	41.5	30.0	42.4	28.7
4TVHD155AB07WAA	39.8	36.1	42.4	37.0	44.4	37.5	45.0	36.6	45.4	35.4	46.6	33.7	47.6	32.2
4TVHD190AB07WAA	49.5	45.5	52.8	46.5	55.2	47.0	56.0	45.8	56.5	44.3	58.0	42.1	59.3	40.8

Abbreviations:
TC: Total capacity (kW)
SC: Sensible capacity (kW)

Notes:
1.Shaded cells indicate rating condition

6.2 Heating Capacity Table

Table 7.2: High Static Pressure Duct heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	SHC	SHC	SHC	SHC	SHC	SHC
4TVHD019AB07WAA	6.7	6.6	6.3	6.1	5.9	5.5
4TVHD024AB07WAA	8.5	8.4	8.0	7.8	7.5	7.0
4TVHD027AB07WAA	9.5	9.5	9.0	8.7	8.5	7.8
4TVHD030AB07WAA	10.6	10.5	10.0	9.7	9.4	8.8
4TVHD038AB07WAA	13.3	13.1	12.5	12.1	11.8	10.9
4TVHD042AB07WAA	14.8	14.7	14.0	13.6	13.2	12.2
4TVHD048AB07WAA	17.0	16.8	16.0	15.5	15.0	13.9
4TVHD055AB07WAA	19.1	18.9	18.0	17.5	16.9	15.7
4TVHD070AB07WAA	23.9	23.6	22.5	21.8	21.2	19.6
4TVHD076AB07WAA	26.5	26.3	25.0	24.3	23.5	21.8
4TVHD085AB07WAA	27.6	27.3	26.0	25.2	24.4	22.6
4TVHD096AB07WAA	33.4	33.1	31.5	30.6	29.6	27.4
4TVHD115AB07WAA	40.3	39.9	38.0	36.9	35.7	33.1
4TVHD140AB07WAA	47.7	47.3	45.0	43.7	42.3	39.2
4TVHD155AB07WAA	59.4	58.8	56.0	54.3	52.6	48.7
4TVHD190AB07WAA	66.8	66.2	63.0	61.1	59.2	54.8

Abbreviations:
SHC: Sensible Heat Capacity (kW)

Notes:
1.Shaded cells indicate rating condition

7 Electrical Characteristics

Table 8.1: High Static Pressure Duct electrical characteristics

Model	Power supply						Indoor Fan Motor	
	Hz	Volts (V)	Min. volts	Max. volts	MCA (A)	MFA (A)	Rated power output (W)	FLA (A)
4TVHD019AB07WAA	50/60	220-240	198	264	2.33	15	240	1.86
4TVHD024AB07WAA	50/60	220-240	198	264	2.33		240	1.86
4TVHD027AB07WAA	50/60	220-240	198	264	2.33		240	1.86
4TVHD030AB07WAA	50/60	220-240	198	264	2.46		240	1.97
4TVHD038AB07WAA	50/60	220-240	198	264	3.34		560	2.67
4TVHD042AB07WAA	50/60	220-240	198	264	3.38		560	2.70
4TVHD048AB07WAA	50/60	220-240	198	264	3.75		560	3.00
4TVHD055AB07WAA	50/60	220-240	198	264	4.13		560	3.30
4TVHD070AB07WAA	50/60	220-240	198	264	8.19	30	920	6.55
4TVHD076AB07WAA	50/60	220-240	198	264	8.19		920	6.55
4TVHD085AB07WAA	50/60	220-240	198	264	8.19		920	6.55
4TVHD096AB07WAA	50/60	220-240	198	264	8.19		920	6.55
4TVHD115AB07WAA	50/60	220-240	198	264	8.31		920	6.65
4TVHD140AB07WAA	50/60	220-240	198	264	12.98		2300	10.38
4TVHD155AB07WAA	50/60	220-240	198	264	12.98		2300	10.38
4TVHD190AB07WAA	50/60	220-240	198	264	15.49		2300	12.39

Abbreviations:
MCA: Min. Circuit Amps. (A), which is used to select the minimum circuit size to ensure safe operation over a long period of time.
MFA: Max. Fuse Amps. (A), which is used to select the circuit breaker.
FLA: Full Load Amps. (A), which is the full load current of the indoor fan motor (reliable operation at the fastest speed setting).

8 Sound Levels

8.1 Overall

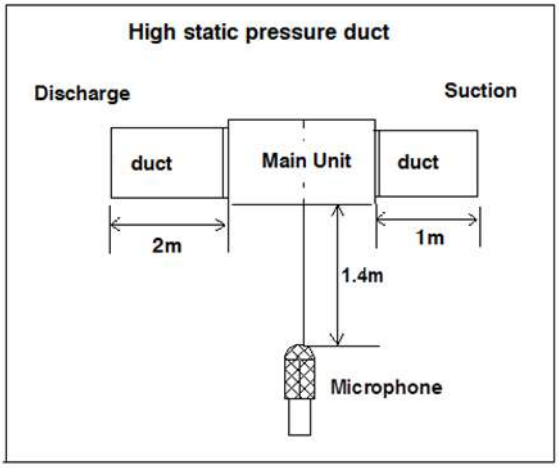
Table 8.1: High Static Pressure Duct sound pressure levels[1]

Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
4TVHD019AB07WAA	39	38	36	35	33	32	30
4TVHD024AB07WAA	39	38	36	35	33	32	30
4TVHD027AB07WAA	39	38	36	35	33	32	30
4TVHD030AB07WAA	40	39	37	36	34	33	31
4TVHD038AB07WAA	41	40	38	37	35	34	32
4TVHD042AB07WAA	41	40	39	37	36	35	33
4TVHD048AB07WAA	43	42	40	39	37	36	34
4TVHD055AB07WAA	44	43	41	40	38	37	35
4TVHD070AB07WAA	51	50	48	46	44	43	42
4TVHD076AB07WAA	51	50	48	46	44	43	42
4TVHD085AB07WAA	51	50	48	46	44	43	42
4TVHD096AB07WAA	51	50	48	46	44	43	42
4TVHD115AB07WAA	52	51	49	48	46	44	43
4TVHD140AB07WAA	58	56	54	52	50	49	48
4TVHD155AB07WAA	58	56	54	52	50	49	48
4TVHD190AB07WAA	59	58	56	54	53	51	49

Notes:

1. Sound pressure levels are measured 1.4m below the unit in an anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 8.1: High Static Pressure Duct sound pressure level measurement



8.2 Octave Band Levels

Figure 8.2: 4TVHD019 (024,027) AB07WAA octave band levels

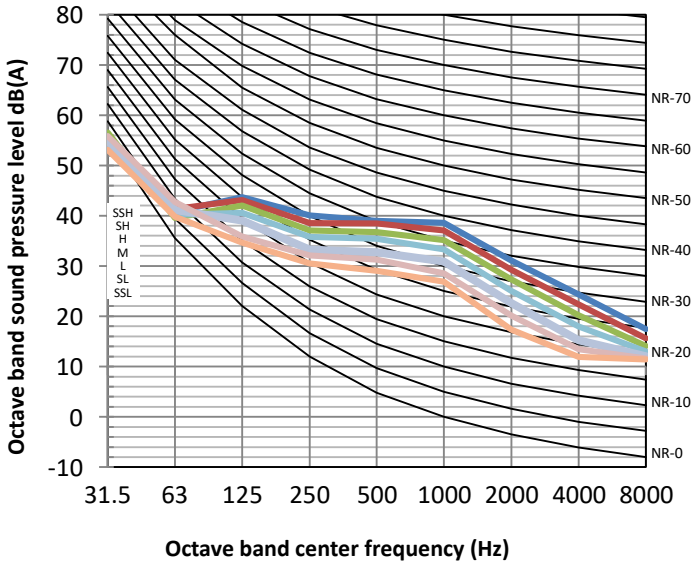


Figure 8.3: 4TVHD030AB07WAA octave band levels

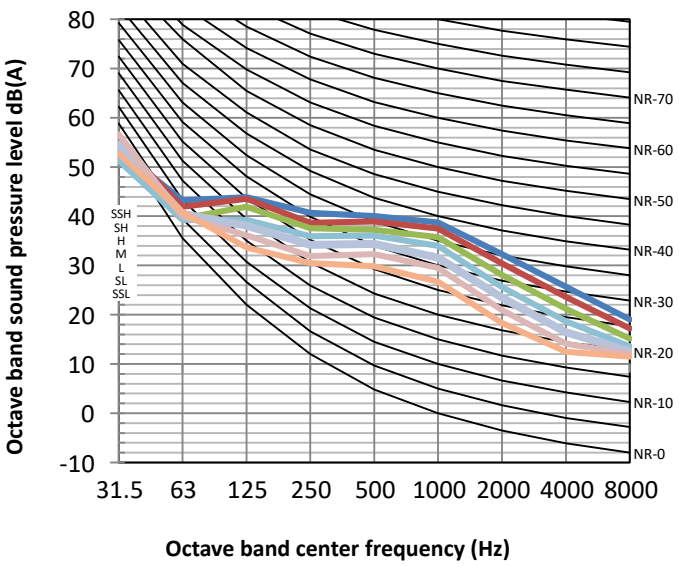


Figure 8.4: 4TVHD038AB07WAA octave band levels

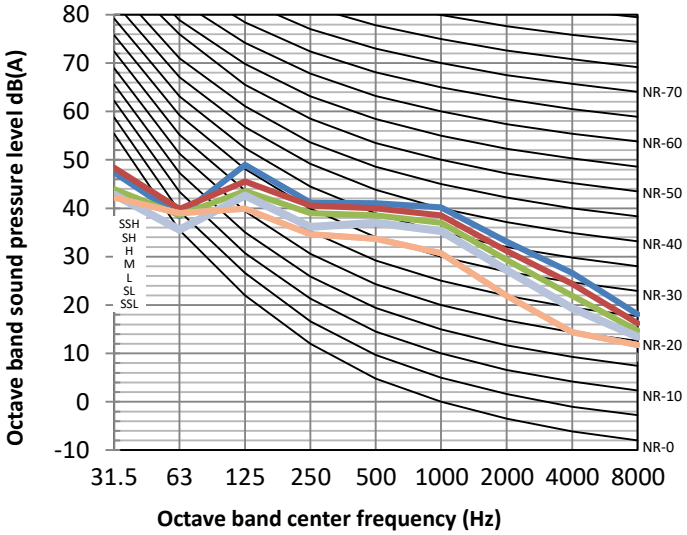


Figure 8.5: 4TVHD042AB07WAA octave band levels

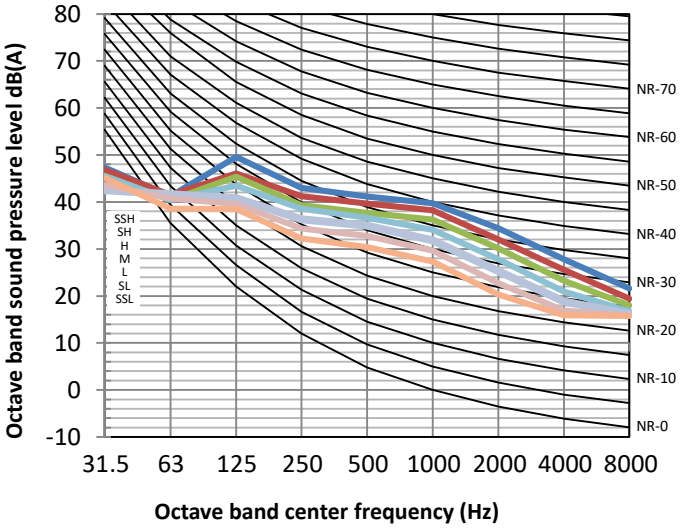


Figure 8.6: 4TVHD048AB07WAA octave band levels

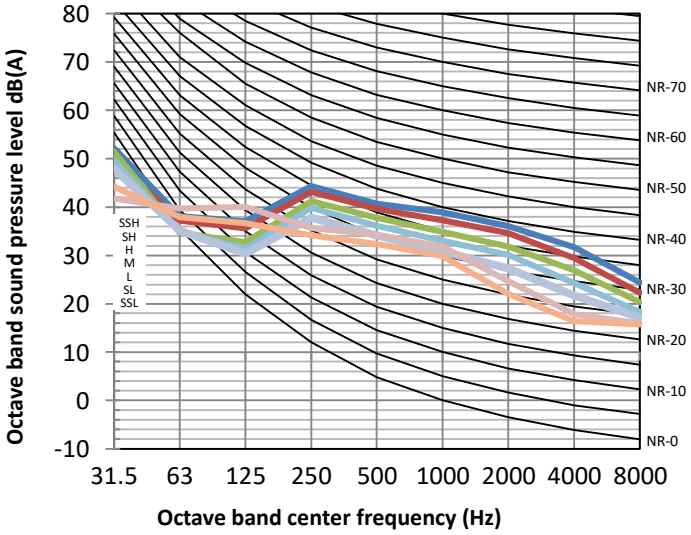


Figure 8.7: 4TVHD055AB07WAA octave band levels

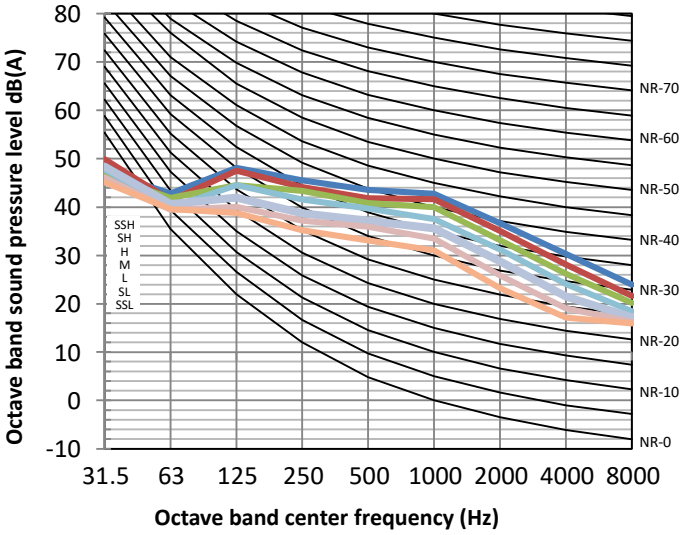


Figure 8.8: 4TVHD070AB07WAA octave band levels

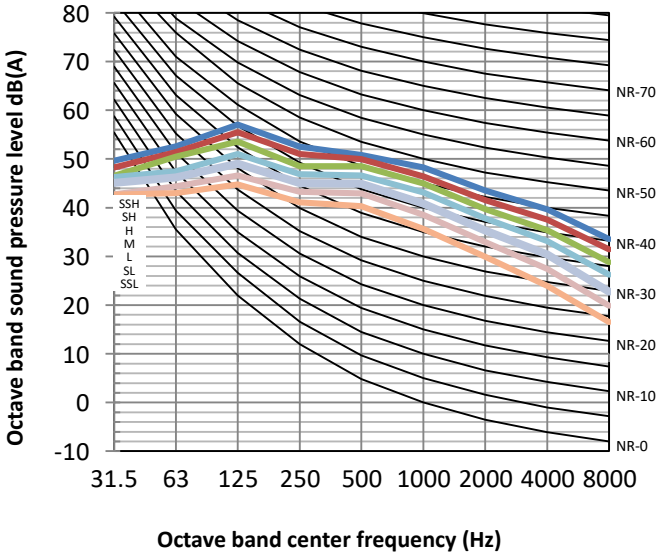


Figure 8.9: 4TVHD076AB07WAA octave band levels

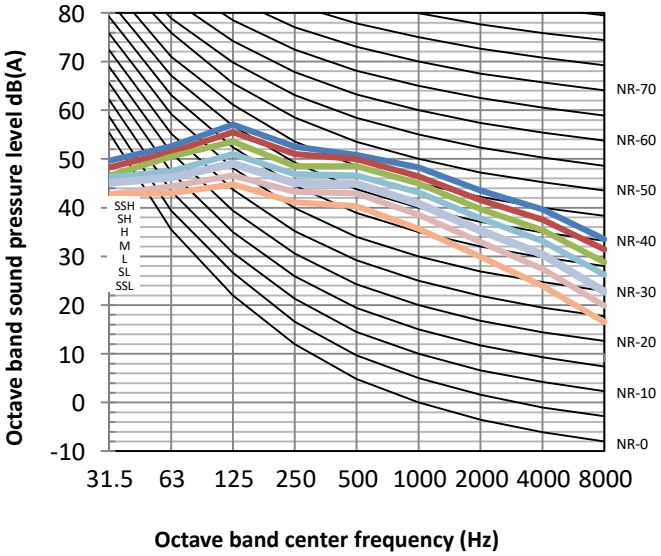


Figure 8.10: 4TVHD085AB07WAA octave band levels

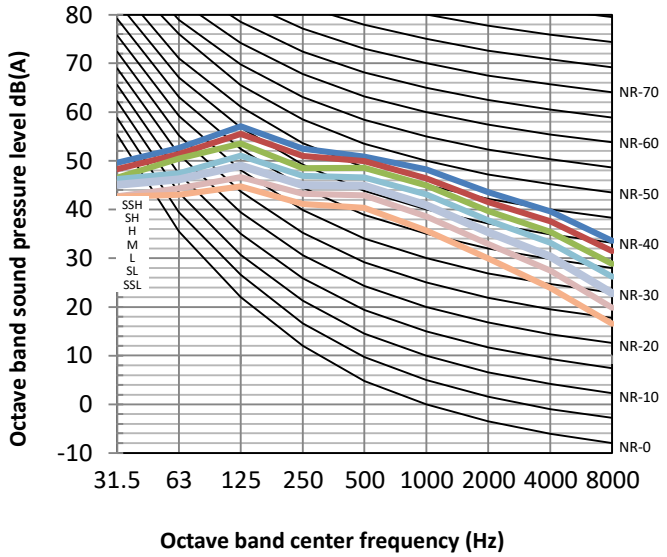


Figure 8.11: 4TVHD096AB07WAA octave band levels

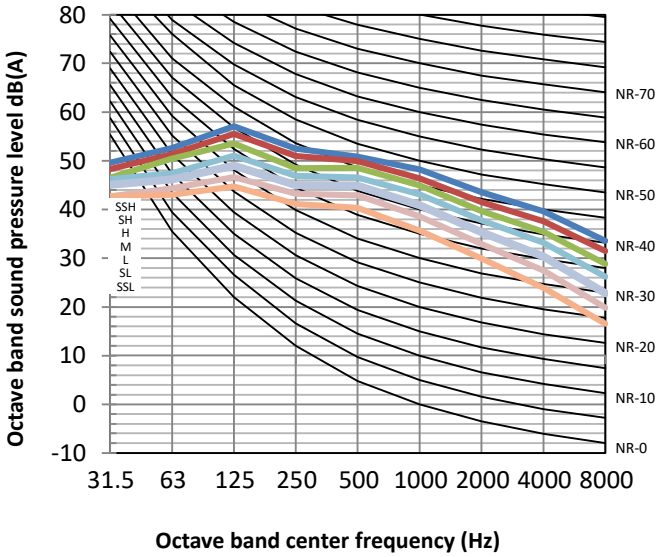


Figure 8.12: 4TVHD115AB07WAA octave band levels

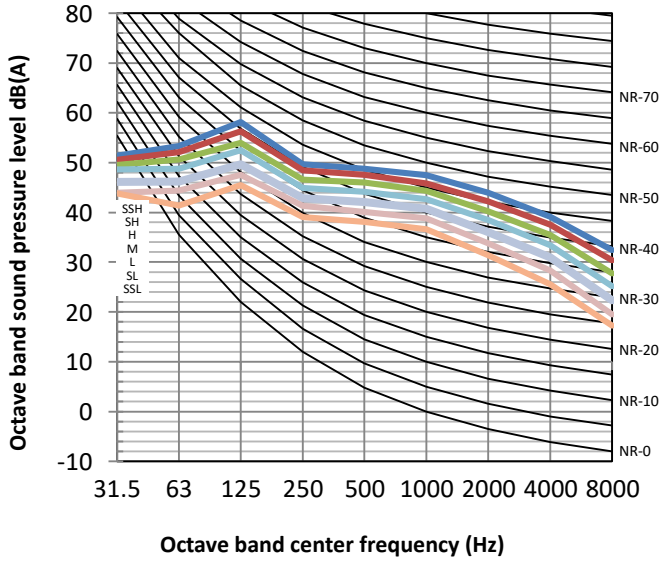


Figure 8.13: 4TVHD140AB07WAA octave band levels

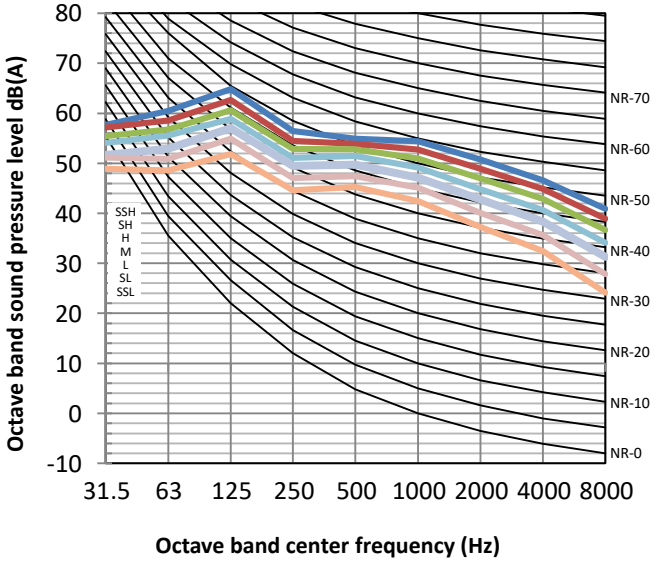


Figure 8.14: 4TVHD155AB07WAA octave band levels

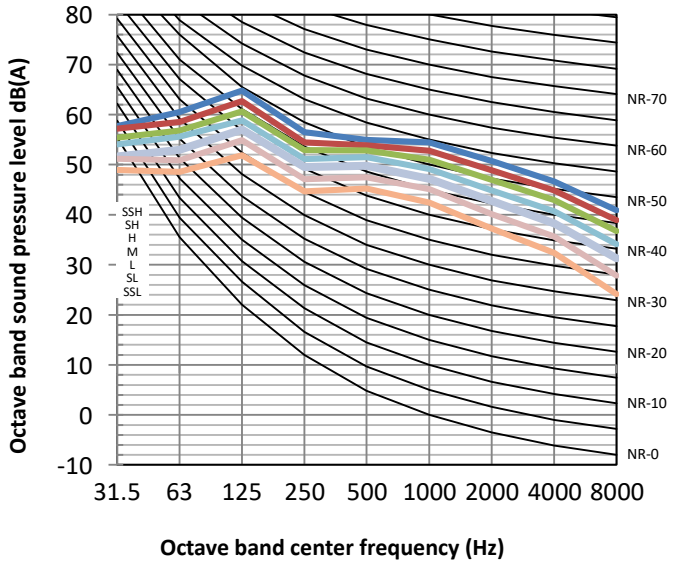
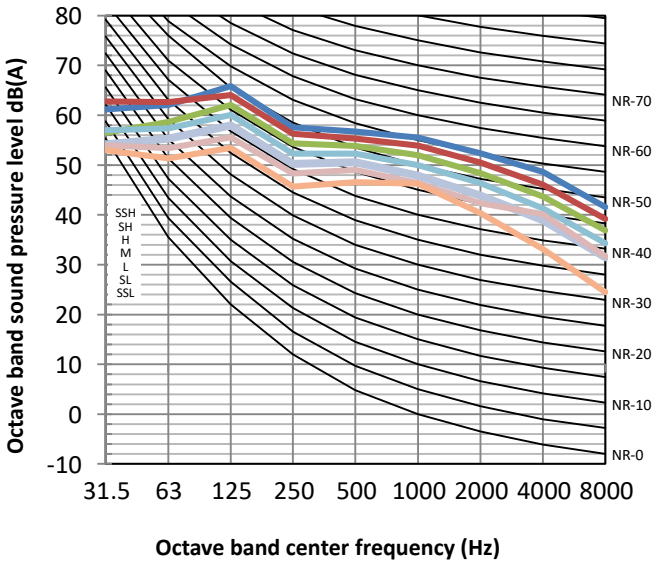


Figure 8.15: 4TVHD190AB07WAA octave band levels



9 Fan Performance

9.1 How to switch between Constant Airflow mode and Constant Speed mode

①In the main interface, press "☰" +"◁" for 3 seconds at the same time, and the main interface will display "CC". Press the "▲" and "▼" to select the indoor unit ("n00-n63" is displayed, and the last two digits are the indoor unit addresses). Press the "◁" to enter the parameter setting interface, and "n00" will be displayed.

②Press the "▲" and "▼" until "N30" is displayed on the page, and then press the "◁" to enter the mode setting. Use the "▲" and "▼" keys to adjust to the demand mode parameter values, and press the "◁" to confirm.

③Press the "🕒" button to return to the previous menu and exit the parameter setting. Parameter setting will also exit after 60 s of no operation

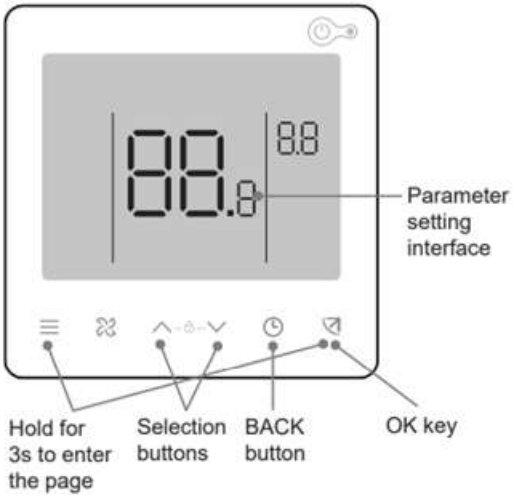


Table 9.1: Mode setting

First level menu	Second level menu	Description	Default
n30	00	Constant Speed	-
	01	Constant Airflow	√

Notes:
1. The above is only an example. If you choose other controllers, please refer to their instructions for setting.

9.2 Constant Airflow mode

9.2.1 Fan performance diagram

Figure 9.1: 4TVHD019 (024,027) AB07WAA

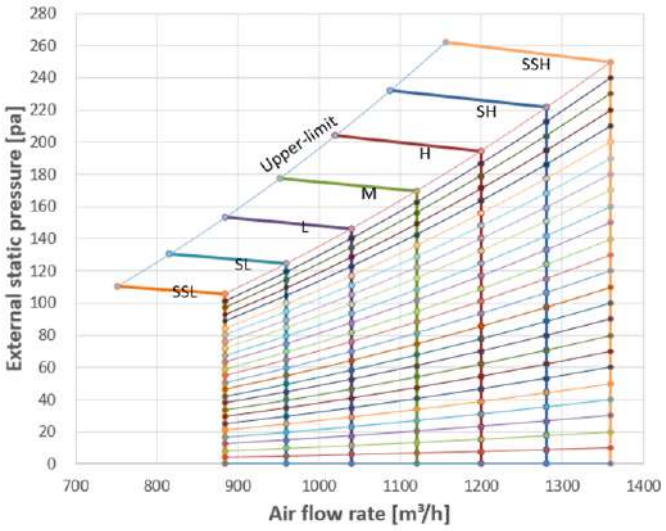


Figure 9.2: 4TVHD030AB07WAA

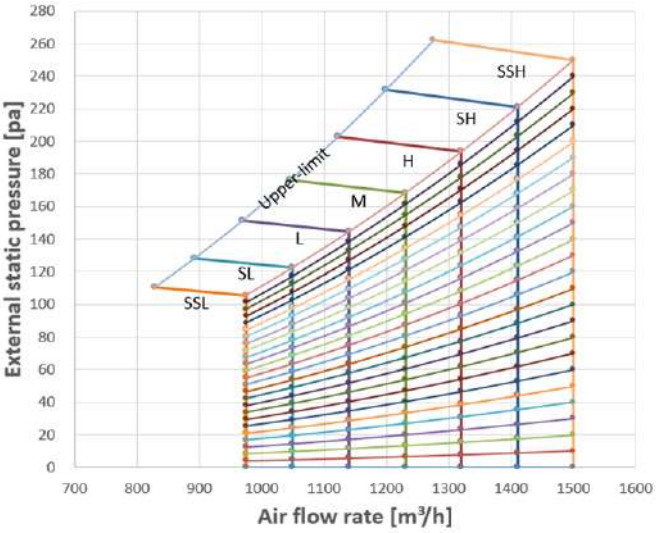


Figure 9.3: 4TVHD038AB07WAA

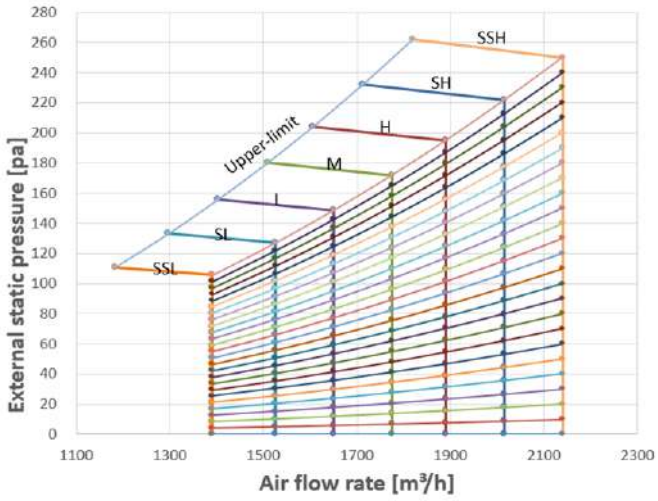


Figure 9.4: 4TVHD042AB07WAA

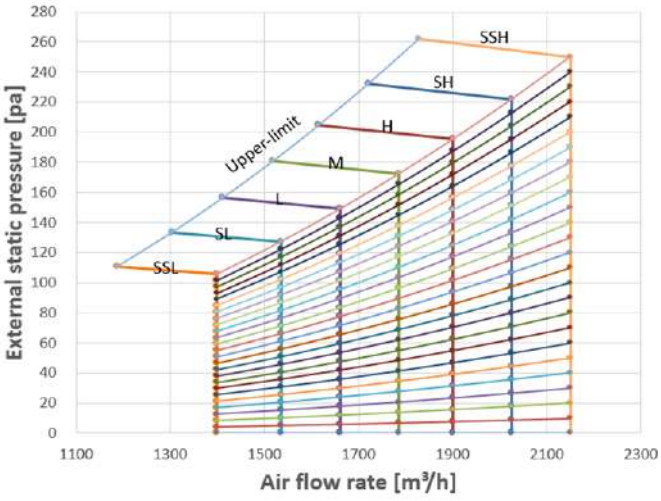


Figure 9.5: 4TVHD048AB07WAA

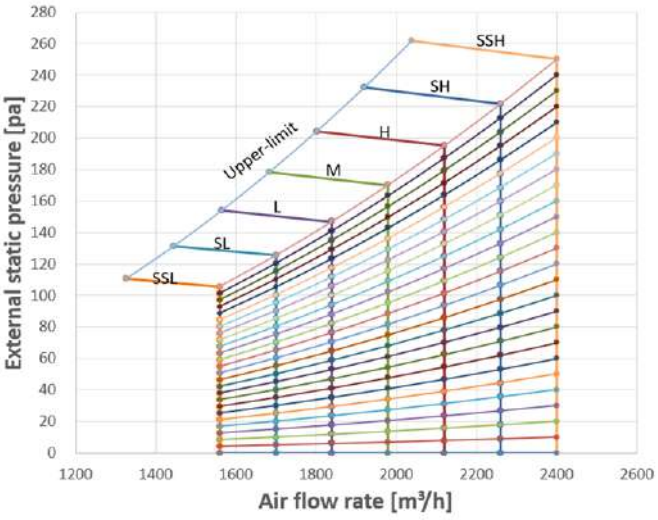


Figure 9.6: 4TVHD055AB07WAA

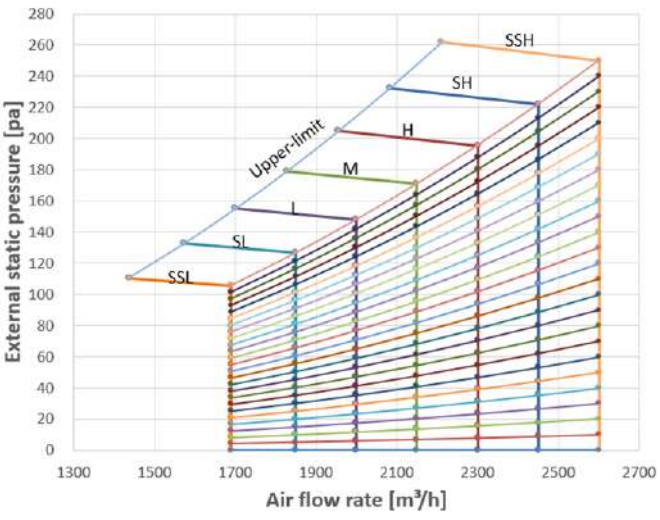


Figure 9.7: 4TVHD070 (076,080,096) AB07WAA

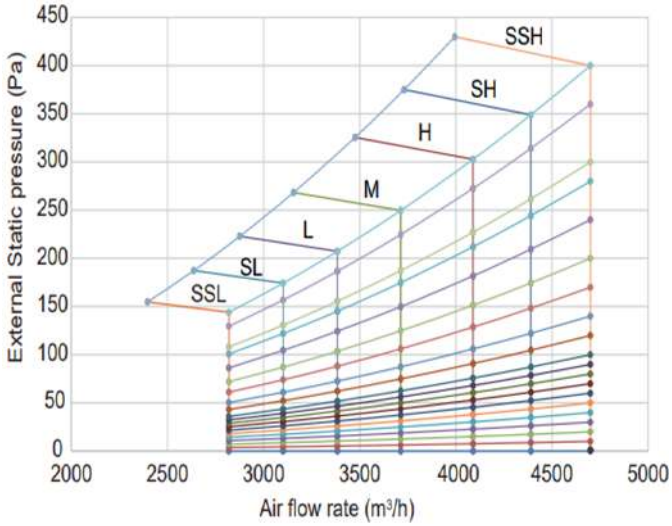


Figure 9.8: 4TVHD115AB07WAA

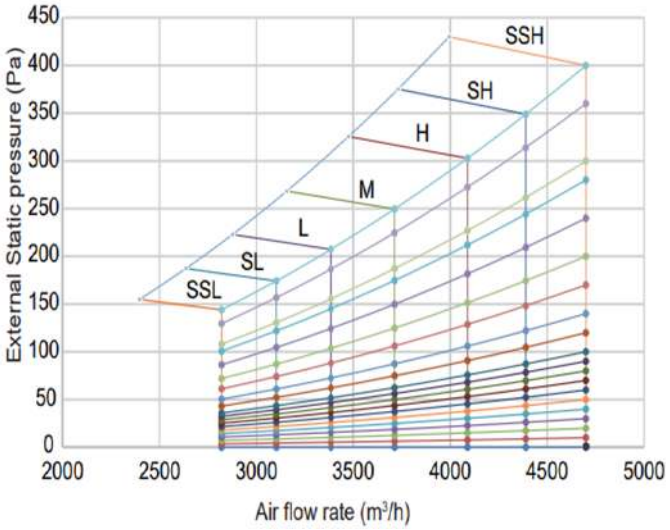


Figure 9.9: 4TVHD140 (155) AB07WAA

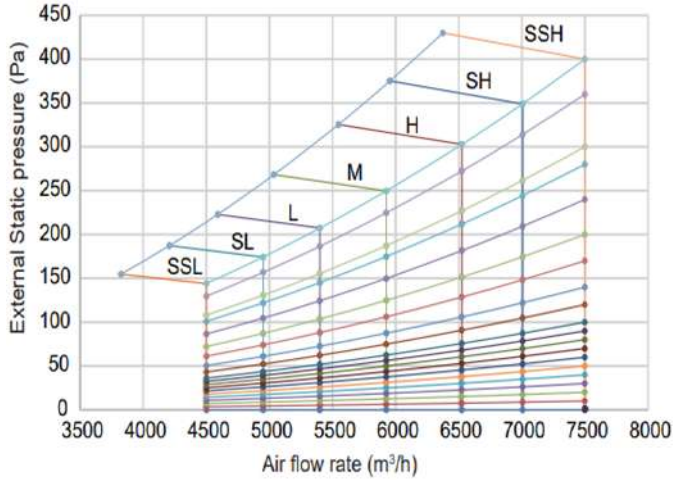
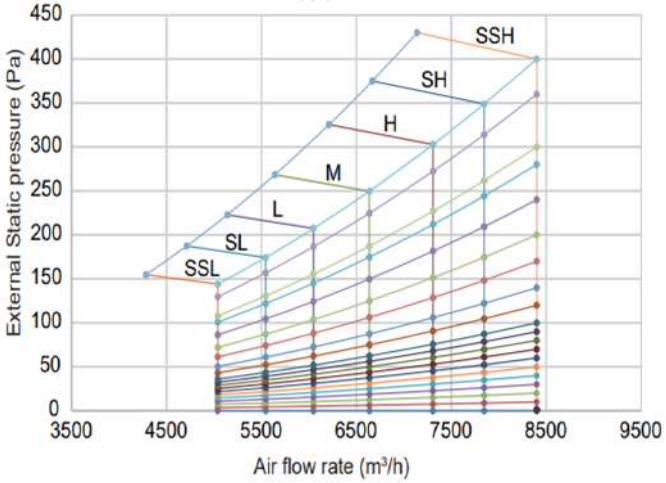


Figure 9.10: 4TVHD190AB07WAA



9.2.2 How to Read the Diagram (Constant Airflow mode)

The vertical axis is the External Static Pressure (Pa) while the horizontal axis represents the Air Flow (m^3/h). The characteristic curve for the “SSH”,“SH”, “H”, “M”, “L”,”SL” and “SSL” fan speed control.

For 4TVHD048AB07WAA, in “H” windshield, when the external static pressure is less than 195 Pa, the air flow keeps 2120 m3/h, but when the externa static pressure is greater than 195 Pa, the air flow begins to decline, and the allowable maximum external static pressure is 204 Pa.

9.3 Constant Speed mode

9.3.1 Set external static pressure parameters

①In the main interface, press "☰" +"⏎" for 3 seconds at the same time, and the main interface will display "CC". Press the "▲" and "▼" to select the indoor unit ("n00-n63" is displayed, and the last two digits are the indoor unit addresses). Press the "⏎" to enter the parameter setting interface, and "n00" will be displayed.

②When "n00" is displayed, press the "⏎" to enter the static pressure setting. Use the "▲" and "▼" keys to adjust to the demand parameter values, and press the "⏎" to confirm.

③Press the "🕒" button to return to the previous menu and exit the parameter setting. Parameter setting will also exit after 60 s of no operation

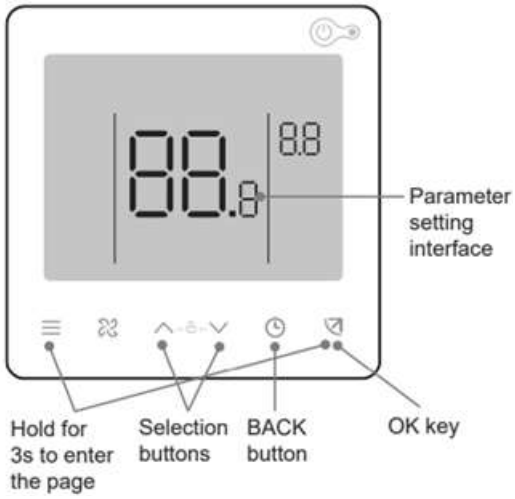


Table 9.1: External static pressure setting (5.6-16kW)

First level menu	Second level menu	Description	Default
N00	00/01/02/03/04/05/~/19	Static pressure level	08(5.6-11.2kW) 10(12.5-16.0kW)

Level	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Static pressure(Pa)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	160	180	200	220	250

Table 9.2: External static pressure setting (20-56kW)

First level menu	Second level menu	Description	Default
N00	00/01/02/03/04/05/~/19	Static pressure level	14(20-33.5kW) 17(40-56kW)

Level	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Static pressure(Pa)	0	10	20	30	40	50	60	70	80	90	100	120	140	170	200	240	280	300	360	400

Notes:

1. The above is only an example of 86S wired controller. If you choose other controllers, please refer to their manuals for setting.

9.3.2 Fan performance diagram

Figure 9.11: 4TVHD019 (024,027) AB07WAA

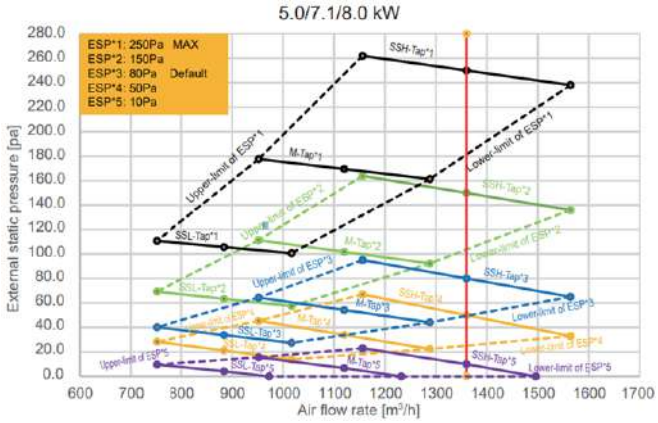


Figure 9.12: 4TVHD030AB07WAA

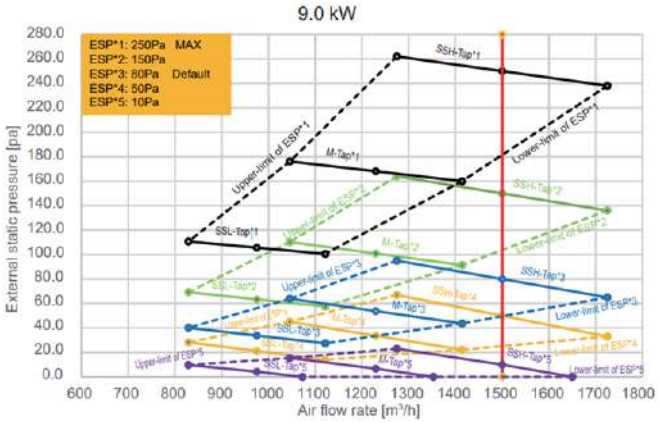


Figure 9.13: 4TVHD038AB07WAA

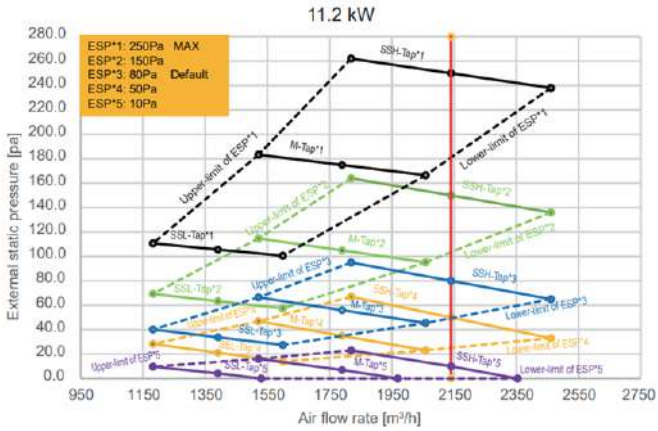


Figure 9.14: 4TVHD042AB07WAA

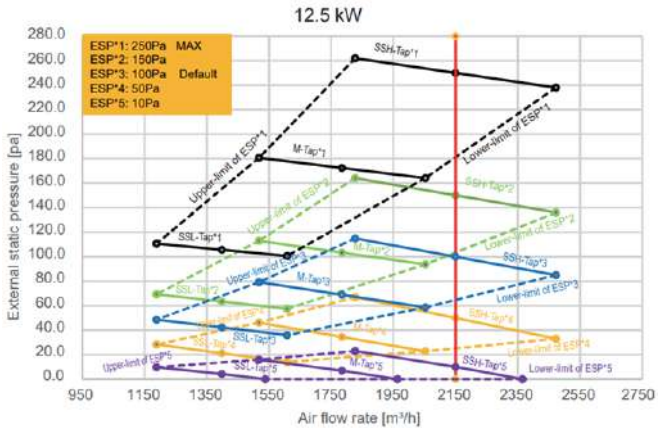


Figure 9.15: 4TVHD048AB07WAA

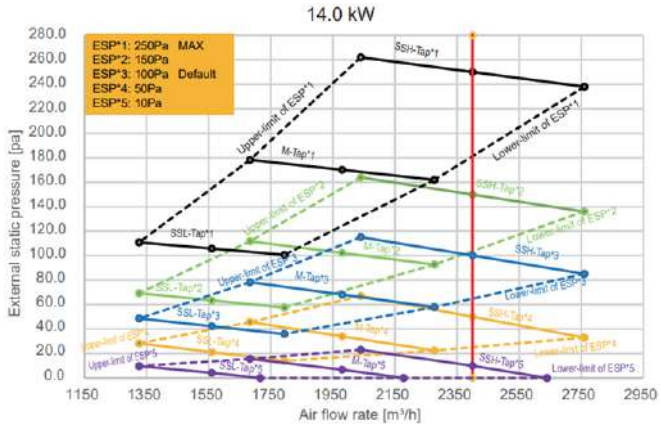


Figure 9.16: 4TVHD055AB07WAA

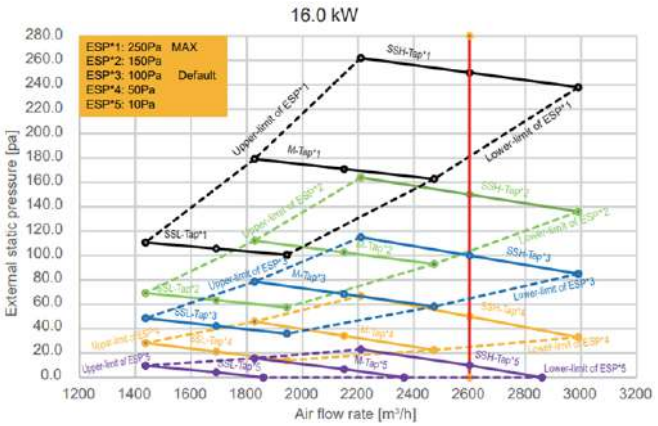


Figure 9.17: 4TVHD070 (076,085,096) AB07WAA

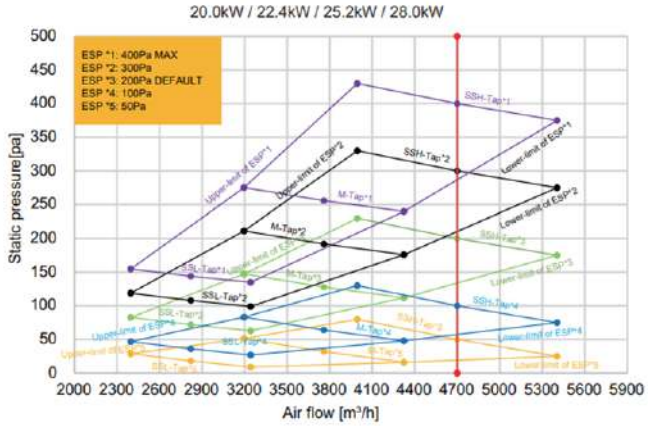


Figure 9.18: 4TVHD115AB07WAA

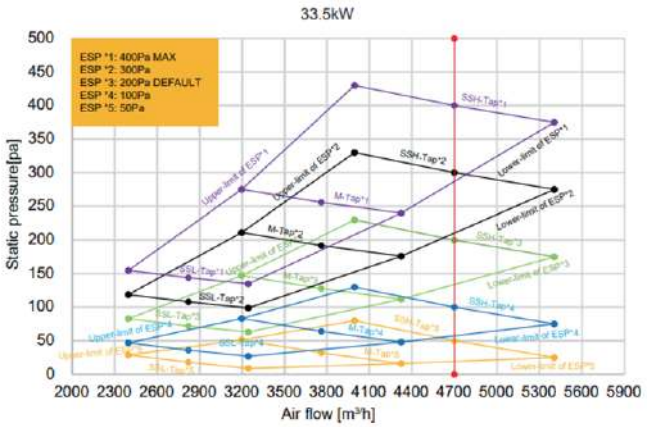


Figure 9.19: 4TVHD140 (155) AB07WAA

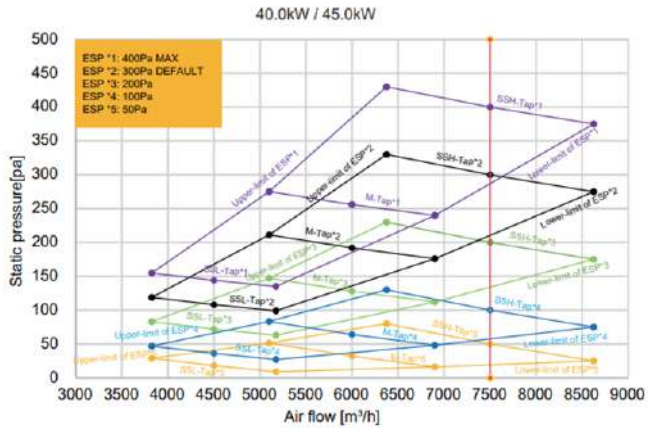
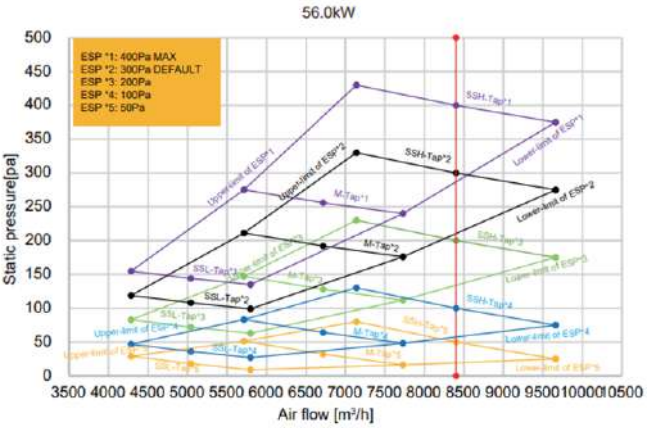


Figure 9.20: 4TVHD190AB07WAA



9.3.3 How to Read the Diagram (Constant Speed mode)

The vertical axis is the External Static Pressure (Pa) while the horizontal axis represents the Air Flow (m^3/h). The characteristic curve for the “SSH”, “M” and “SSL” fan speed control.

The Air Flow decreases with the increase of the external static pressure. For 4TVHD048AB07WAA, in “SSH” windshield and “100Pa” setting static pressure, when the externa static pressure is 100Pa, the air flow is 2400 m3/h, and the allowable externa static pressure range is 85Pa to 115Pa.

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Engineering Data

TVR 7G Series

High Wall

5 - 19MBH

Models:

4TVWD005AB07RAA
4TVWD007AB07RAA
4TVWD009AB07RAA
4TVWD012AB07RAA
4TVWD015AB07RAA
4TVWD019AB07RAA

Jan. 2024 **TVR-EM-008B**

High Wall

1 Specifications

4TVWD005AB07RAA / 4TVWD007AB07RAA / 4TVWD009AB07RAA

Model			4TVWD005AB07RAA	4TVWD007AB07RAA	4TVWD009AB07RAA
Power supply			1 phase, 220-240V, 50/60Hz		
Cooling[1]	Capacity	kW	1.5	2.2	2.8
		kBtu/h	5.1	7.5	9.6
	Power input	W	18	21	24
Heating[2]	Capacity	kW	1.7	2.4	3.2
		kBtu/h	5.8	8.2	10.9
	Power input	W	18	21	24
Fan motor	Model		ZKSN-20-8-5L	ZKSN-20-8-5L	ZKSN-20-8-5L
	Type		DC		
Indoor coil	Number of rows		1	1	2&3
	Fin spacing	mm	1.3	1.3	1.33
	Fin type		Hydrophilic aluminum		
	Tube OD and type	mm	Φ7 Inner-groove		Φ5 Inner-groove
	Dimensions (L×H×W)	mm	530×170×95	530×170×95	530×170×95
	Number of circuits		2	2	6
Air flow rate[3]		m^3/h	460/440/420/400 /380/360/340	500/470/440/410 /390/370/340	540/510/470/430 /400/370/340
Sound pressure level[4]		dB(A)	32/31/30/30/29/28 /27	33/32/31/30/29/28 /27	35/34/33/32/31/30 /28
Sound power level		dB(A)	45/44/43/43/42/41 /40	46/45/44/43/42/41 /40	50/49/48/47/46/44 /42
Unit	Net dimensions[5] (WxHxD)	mm	750×295×265		
	Packed dimensions (WxHxD)	mm	875×385×360		
	Net/Gross weight	kg	9/11.5	9/11.5	10/12.5
Refrigerant type			R410A/R32		
Throttle		Type	Electronic expansion valve		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		
	Drain pipe	mm	OD Φ16		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured in an anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

4TVWD012AB07RAA / 4TVWD015AB07RAA / 4TVWD019AB07RAA

Model			4TVWD012AB07RAA	4TVWD015AB07RAA	4TVWD019AB07RAA
Power supply			1 phase, 220-240V, 50/60Hz		
Cooling[1]	Capacity	kW	3.6	4.5	5.6
		kBtu/h	12.3	15.4	19.1
	Power input	W	27	30	40
Heating[2]	Capacity	kW	4.0	5.0	6.3
		kBtu/h	13.6	17.1	21.5
	Power input	W	27	30	40
Fan motor	Model		ZKSN-20-8-5L	ZKSN-20-8-5L	ZKSN-20-8-5L
	Type		DC		
Indoor coil	Number of rows		2&3		
	Fin spacing	mm	1.33		
	Fin type		Hydrophilic aluminum		
	Tube OD and type	mm	Φ5 Inner-groove		
	Dimensions (L×H×W)	mm	530×170×95	730×170×95	730×170×95
	Number of circuits		6	6	6
Air flow rate[3]		m^3/h	580/540/500/460/420/380/340	720/670/620/560/510/460/410	860/780/700/620/550/480/410
Sound pressure level[4]		dB(A)	37/36/34/33/31/30/28	37/35/33/32/31/30/29	41/39/37/35/33/31/29
Sound power level		dB(A)	54/53/51/50/48/46/44	54/52/50/49/48/46/44	56/54/52/50/48/46/44
Unit	Net dimensions[5] (WxHxD)	mm	750×295×265	950×295×265	
	Packed dimensions (WxHxD)	mm	875×385×360	1075×385×360	
	Net/Gross weight	kg	10/12.5	11.5/14	
Refrigerant type			R410A/R32		
Throttle		Type	Electronic expansion valve		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		
	Drain pipe	mm	OD Φ16		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured in an anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

4TVWD024AB07RAA / 4TVWD027AB07RAA

Model			4TVWD024AB07RAA	4TVWD027AB07RAA
Power supply			1 phase, 220-240V, 50/60Hz	
Cooling[1]	Capacity	kW	7.1	8.0
		kBtu/h	24.2	27.3
	Power input	W	50	65
Heating[2]	Capacity	kW	8.0	9.0
		kBtu/h	27.3	30.7
	Power input	W	50	65
Fan motor	Model		ZKSN-50-8-17L	ZKSN-50-8-17L
	Type		DC	
Indoor coil	Number of rows		2&3	
	Fin spacing	mm	1.33	
	Fin type		Hydrophilic aluminum	
	Tube OD and type	mm	Φ5 Inner-groove	
	Dimensions (L×H×W)	mm	980×170×95	980×170×95
	Number of circuits		8	8
Air flow rate[3]		m^3/h	1220/1120/1030/940/850/750/660	1380/1260/1140/1020/900/780/660
Sound pressure level[4]		dB(A)	44/42/40/38/36/34/32	45/43/41/39/37/35/32
Sound power level		dB(A)	58/56/54/52/50/48/46	60/57/55/53/50/48/46
Unit	Net dimensions[5] (WxHxD)	mm	1200×295×265	
	Packed dimensions (WxHxD)	mm	1315×385×360	
	Net/Gross weight	kg	15/18	
Refrigerant type			R410A/R32	
Throttle		Type	Electronic expansion valve	
Design pressure (H/L)		MPa	4.4/2.6	
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9	
	Drain pipe	mm	OD Φ16	

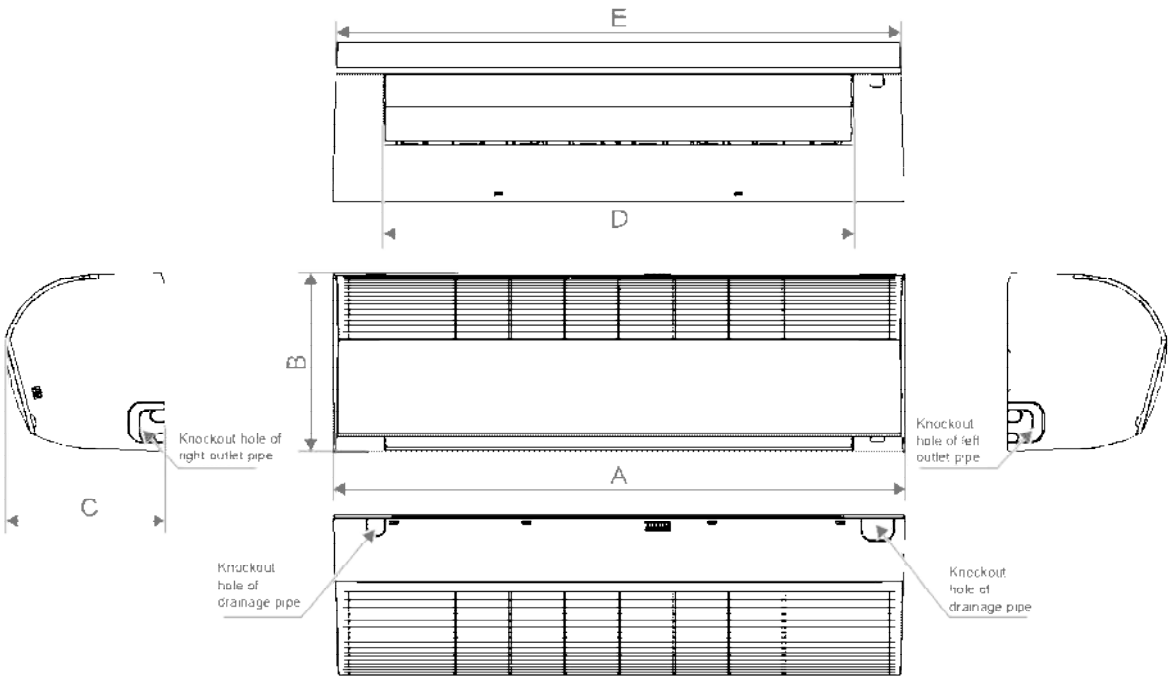
Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured in an anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

2 Dimensions

2.1 Unit Dimensions

Figure 2.1: High Wall dimensions (unit: mm)



Capacity(kW)	A	B	C	D	E
kW≤3.6	750	295	265	581	736
3.6<kW≤5.6	950	295	265	781	936
5.6<kW≤8.0	1200	295	265	1025	1186

3 Unit Placement

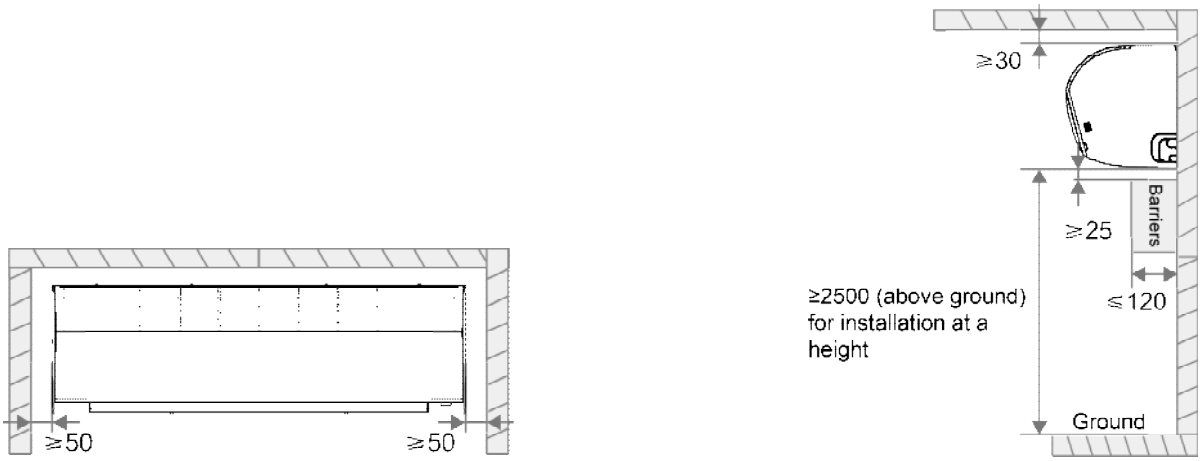
3.1 Placement Considerations

Unit placement should take account of the following considerations:

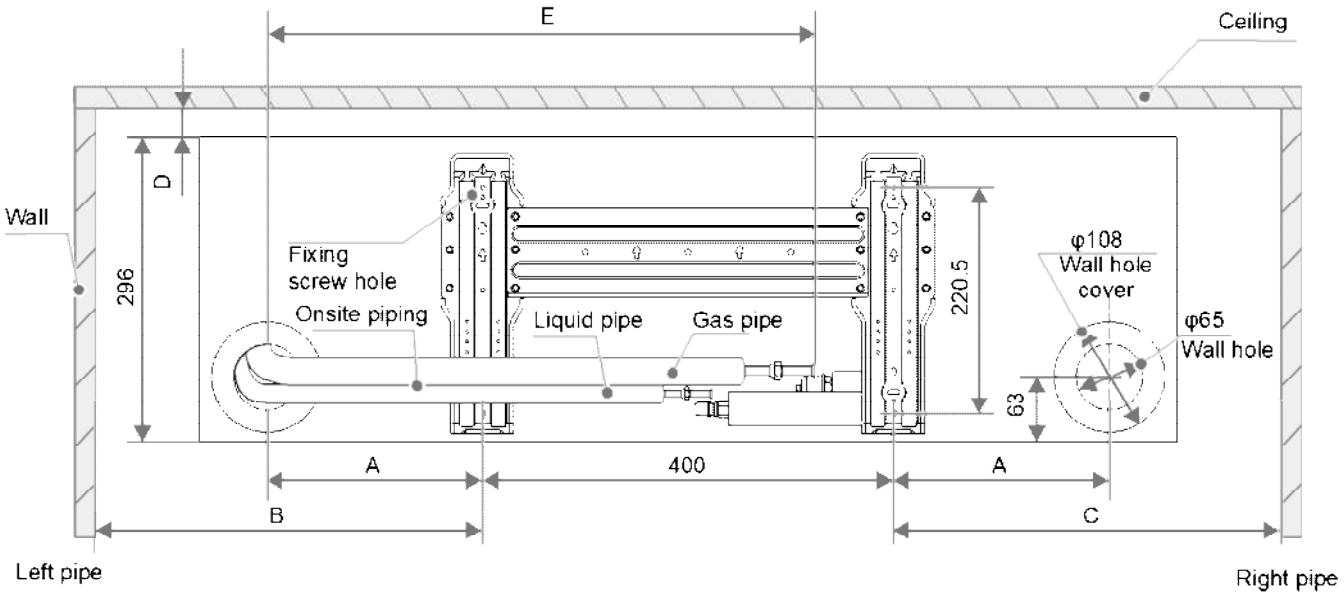
- Units should not be installed in the following locations:
  - A place filled with mineral oil, fumes or mist, like a kitchen.
  - A place where there are corrosive gases, such as acid or alkaline gases..
  - A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline.
  - A place where there is equipment emitting electromagnetic radiation.
  - A place where there is a high salt content in the air like a coast.
  - Do not use the air conditioner in an environment where an explosion may occur.
  - Places like in vehicles or cabin rooms.
  - Factories with major voltage fluctuations in the power supplies.
  - Other special environmental conditions.
- Units should be installed in positions where:
  - Ensure that the airflow in and out of the IDU is reasonably organized to form an air circulation in the room.
  - Ensure IDU maintenance space.
  - The nearer the drainage pipe and copper pipe are to the ODU, the lower the pipe cost is.
  - Prevent the air conditioner from blowing directly to the human body.
  - The closer the wiring to the power cabinet, the lower the wiring cost is.
  - Keep the air-conditioning return air away from the setting sun of the room.
  - Be careful not to interfere with the light tank, fire pipe, gas pipe and other facilities.
  - The IDU should not be lifted in the places like load-bearing beam and columns that affect the structural safety of the house.
  - The wired controller and the IDU should be in the same installation space; otherwise, the sampling point setting of the wired controller need to be changed.

3.2 Space Requirements

Figure 3.1: High Wall space requirements (unit: mm)



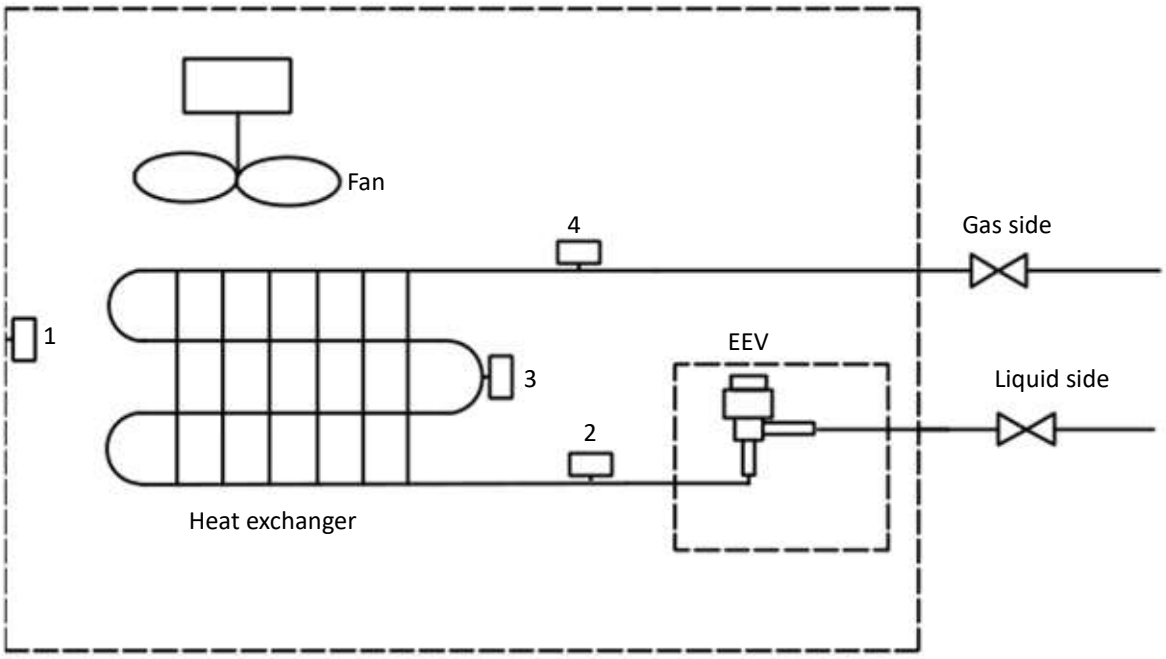
Positioning of mounting plate:



Distance(mm) / Capacity (kW)	A	B	C	D	E	Reserved lengths for power and signal cables	
						Left out pipe	Right out pipe
kW≤3.6	100	≥225	≥225	≥30	230	≥1115	≥415
3.6<kW≤5.6	180	≥325	≥325	≥30	412	≥1315	≥415
5.6<kW≤8.0	220	≥375	≥375	≥30	400	≥1565	≥415

4 Piping Diagram

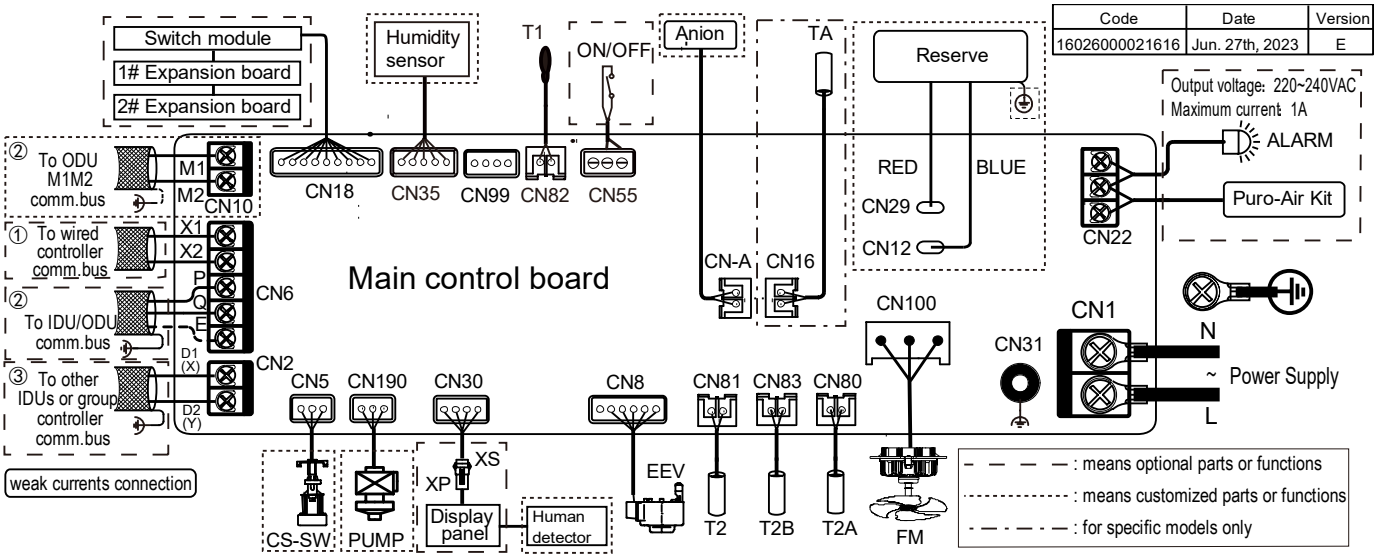
Figure 4.1: High Wall piping diagram



Legend		
1	T1	Inlet Air Temp. Sensor
2	T2A	Liquid Pipe Temp. Sensor
3	T2	Middle Pipe Temp. Sensor
4	T2B	Gas Pipe Temp. Sensor

5 Wiring Diagram

Figure 5.1: High Wall wiring diagram



Code	Description	Code	Description
ALARM	Alarm Output	T2	Middle Pipe Temp. Sensor
Anion	Ionic Sterilization Module	T2A	Liquid Pipe Temp. Sensor
CS-SW	Water Level Switch	T2B	Gas Pipe Temp. Sensor
EEV	Electronic Expansion Valve	TA	Discharge Air Temp. Sensor*
FM	DC Fan Motor	ON/OFF	Remote ON/OFF
T0	Outdoor Air Temp. Sensor*	XS/XP	Connectors
T1	Inlet Air Temp. Sensor		

* Indicates that this sensor is only available for Fresh Air Processing Unit.

Notes for installers and service engineers

Caution

- All installation, servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals – loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- PQ and M1M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at a time. Meanwhile, be sure to connect the same communication ports (PQ to PQ; M1M2 to M1M2) in case of damage of the main control board.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: High Wall cooling capacity

Model	Indoor air temperature (°C 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
4TVWD005AB07RAA	1.4	1.4	1.5	1.4	1.5	1.4	1.5	1.3	1.6	1.3	1.6	1.2	1.6	1.1
4TVWD007AB07RAA	2.0	1.9	2.1	2.0	2.2	2.0	2.2	1.9	2.3	1.9	2.3	1.7	2.4	1.7
4TVWD009AB07RAA	2.5	2.4	2.7	2.5	2.8	2.5	2.8	2.4	2.9	2.4	2.9	2.2	3.0	2.1
4TVWD012AB07RAA	3.2	3.1	3.4	3.1	3.6	3.2	3.6	3.0	3.7	3.0	3.8	2.8	3.9	2.7
4TVWD015AB07RAA	4.0	3.7	4.3	3.8	4.5	3.8	4.5	3.7	4.6	3.6	4.7	3.4	4.8	3.3
4TVWD019AB07RAA	5.0	4.6	5.3	4.7	5.6	4.8	5.6	4.6	5.7	4.5	5.8	4.2	6.0	4.1
4TVWD024AB07RAA	6.3	5.9	6.7	6.0	7.0	6.0	7.1	5.9	7.2	5.7	7.4	5.4	7.6	5.2
4TVWD027AB07RAA	7.1	6.6	7.6	6.8	7.9	6.8	8.0	6.6	8.1	6.4	8.3	6.1	8.5	5.8

Abbreviations:
TC: Total capacity (kW)
SC: Sensible capacity (kW)

Notes:
1.Shaded cells indicate rating condition

6.2 Heating Capacity Table

Table 6.2: High Wall heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	SHC	SHC	SHC	SHC	SHC	SHC
4TVWD005AB07RAA	1.8	1.8	1.7	1.6	1.6	1.5
4TVWD007AB07RAA	2.6	2.6	2.4	2.3	2.3	2.1
4TVWD009AB07RAA	3.4	3.4	3.2	3.1	3.0	2.8
4TVWD012AB07RAA	4.2	4.2	4.0	3.8	3.8	3.5
4TVWD015AB07RAA	5.3	5.3	5.0	4.8	4.7	4.4
4TVWD019AB07RAA	6.7	6.6	6.3	6.1	5.9	5.5
4TVWD024AB07RAA	8.5	8.4	8.0	7.8	7.5	7.0
4TVWD027AB07RAA	9.5	9.5	9.0	8.7	8.5	7.8

Abbreviations:
SHC: Sensible Heat Capacity

Notes:
1.Shaded cells indicate rating condition

7 Electrical Characteristics

Table 7.1: High Wall electrical characteristics

Model	Power supply						Indoor Fan Motor	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (W)	FLA
4TVWD005AB07RAA	50/60	220-240	198	264	0.28	15	20	0.22
4TVWD007AB07RAA	50/60	220-240	198	264	0.29	15	20	0.23
4TVWD009AB07RAA	50/60	220-240	198	264	0.36	15	20	0.29
4TVWD012AB07RAA	50/60	220-240	198	264	0.39	15	20	0.31
4TVWD015AB07RAA	50/60	220-240	198	264	0.41	15	20	0.33
4TVWD019AB07RAA	50/60	220-240	198	264	0.51	15	20	0.41
4TVWD024AB07RAA	50/60	220-240	198	264	0.69	15	50	0.55
4TVWD027AB07RAA	50/60	220-240	198	264	0.98	15	50	0.78

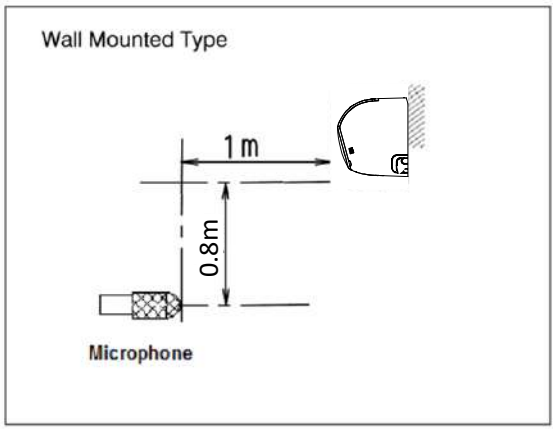
Abbreviations:
MCA: Minimum Circuit Amps
MFA: Maximum Fuse Amps
FLA: Full Load Amps

8 Sound Levels

8.1 Overall

Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
4TVWD005AB07RAA	32	31	30	30	29	28	27
4TVWD007AB07RAA	33	32	31	30	29	28	27
4TVWD009AB07RAA	35	34	33	32	31	30	28
4TVWD012AB07RAA	37	36	34	33	31	30	28
4TVWD015AB07RAA	37	35	33	32	31	30	29
4TVWD019AB07RAA	41	39	37	35	33	31	29
4TVWD024AB07RAA	44	42	40	38	36	34	32
4TVWD027AB07RAA	45	43	41	39	37	35	32

Figure 8.1: High Wall sound pressure level measurement



8.2 Octave Band Levels

Figure 8.2: 4TVWD005AB07RAA octave band levels

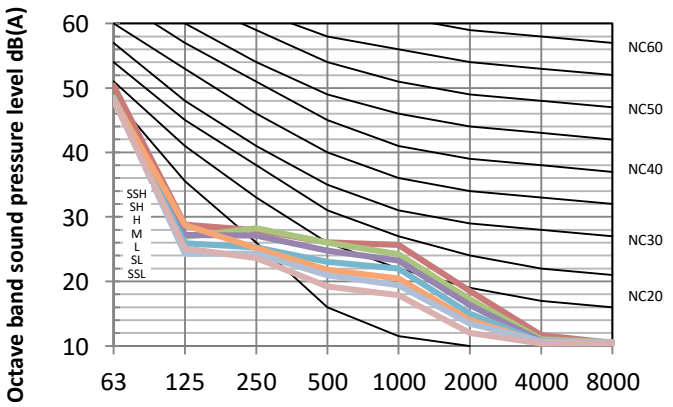


Figure 8.3: 4TVWD007AB07RAA octave band levels

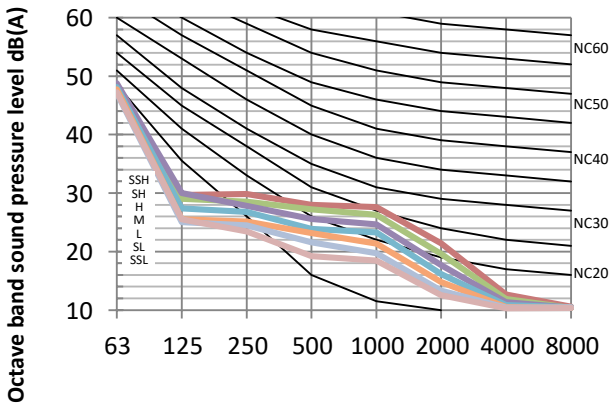


Figure 8.4: 4TVWD009AB07RAA octave band levels

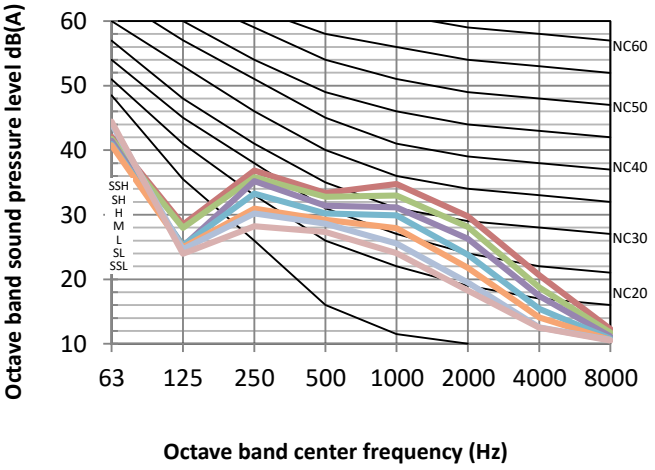


Figure 8.5: 4TVWD012AB07RAA octave band levels

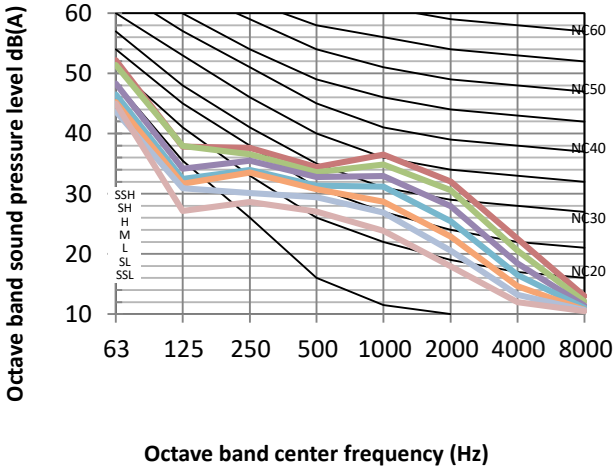


Figure 8.6: 4TVWD015AB07RAA octave band levels

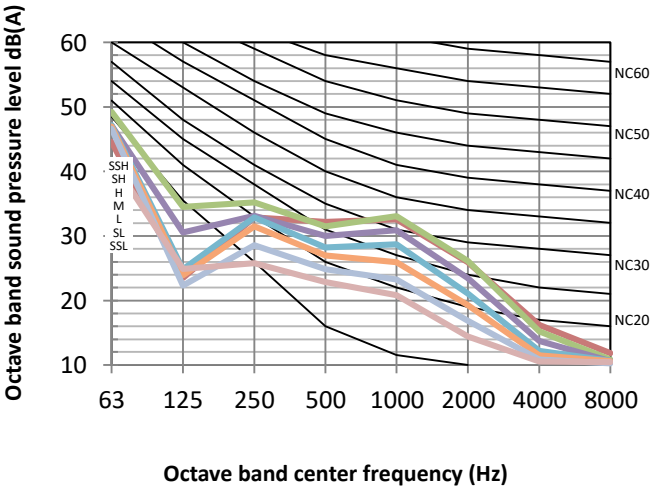


Figure 8.7: 4TVWD019AB07RAA octave band levels

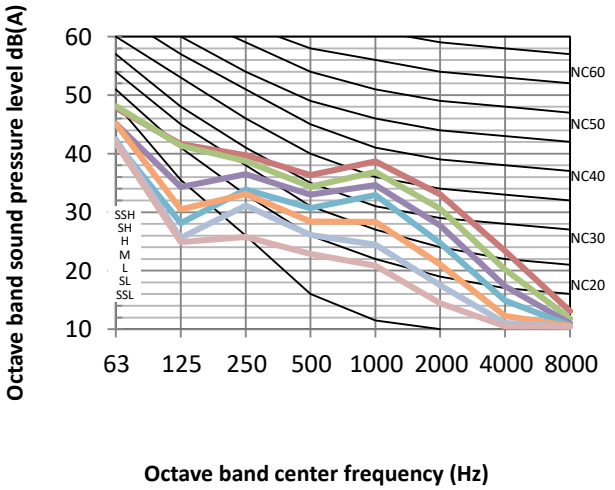


Figure 8.8: 4TVWD024AB07RAA octave band levels

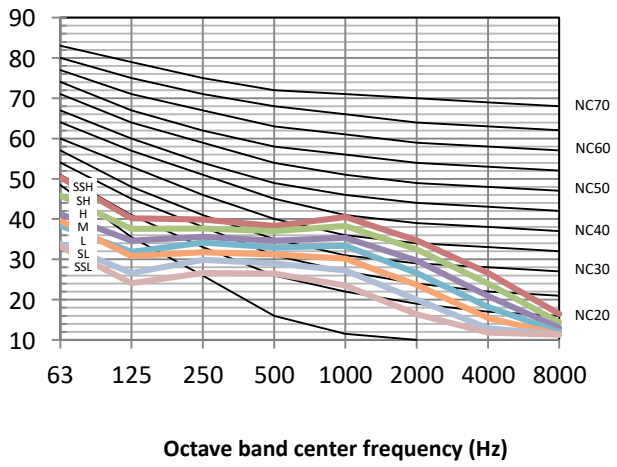
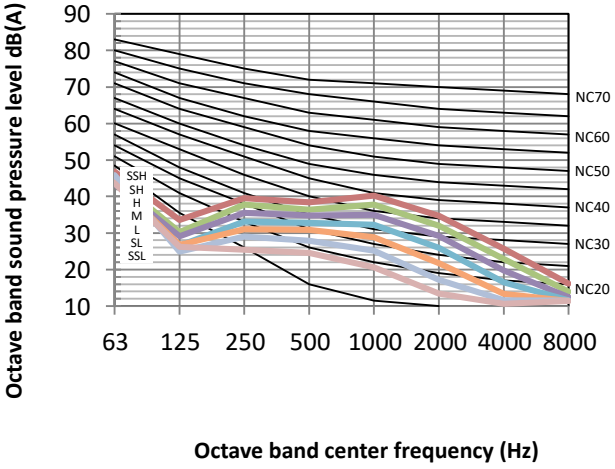


Figure 8.9: 4TVWD027AB07RAA octave band levels



9 Temperature and Airflow Distributions

9.1 Simulate condition

Table 9.1: High Wall simulate condition

Model name	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
4TVWD005AB07RAA	4×4	2.7	58°/88°	High Wall
4TVWD007AB07RAA	4.5×4.5	2.7	58°/88°	High Wall
4TVWD009AB07RAA	5×5	2.7	58°/88°	High Wall
4TVWD012AB07RAA	5.5×5.5	2.7	58°/88°	High Wall
4TVWD015AB07RAA	6×6	2.7	58°/88°	High Wall
4TVWD019AB07RAA	8×8	2.7	58°/88°	High Wall
4TVWD024AB07RAA	8×8	2.7	58°/88°	High Wall
4TVWD027AB07RAA	8×8	2.7	58°/88°	High Wall

Note:

1. These figures are based on software simulation. They show typical temperature and airflow distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

9.2 Airflow distributions (unit: m/s)

Figure 9.1: 4TVWD005AB07RAA *cooling at 300S*

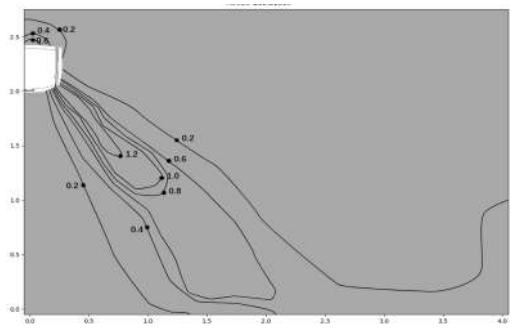


Figure 9.2: 4TVWD005AB07RAA *heating at 300S*

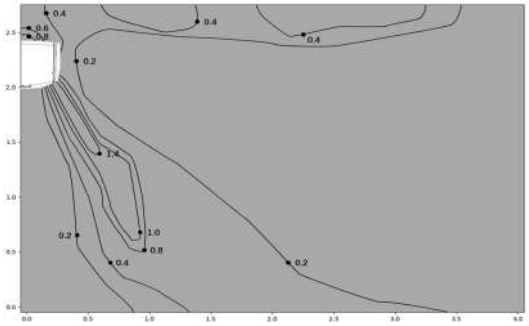


Figure 9.3: 4TVWD007AB07RAA *cooling at 300S*

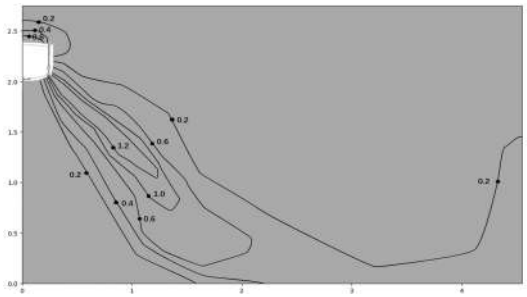


Figure 9.4: 4TVWD007AB07RAA *heating at 300S*

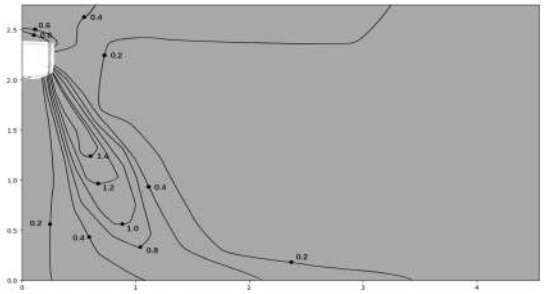


Figure 9.5: 4TVWD009AB07RAA cooling at 300S

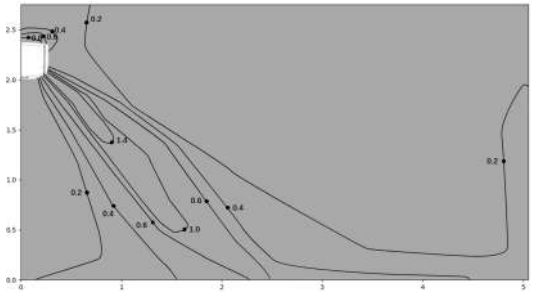


Figure 9.6: 4TVWD009AB07RAA *heating at 300S*

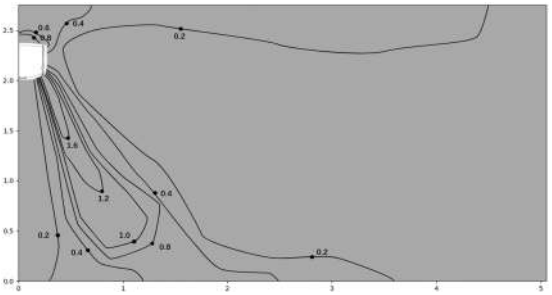


Figure 9.7: 4TVWD012AB07RAA *cooling at 300S*

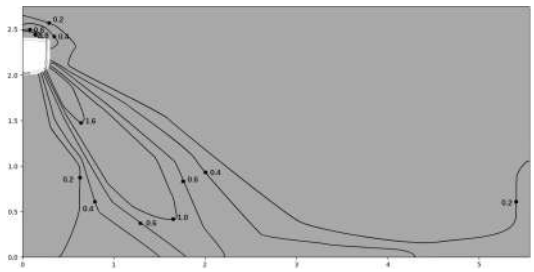


Figure 9.8: 4TVWD012AB07RAA *heating at 300S*

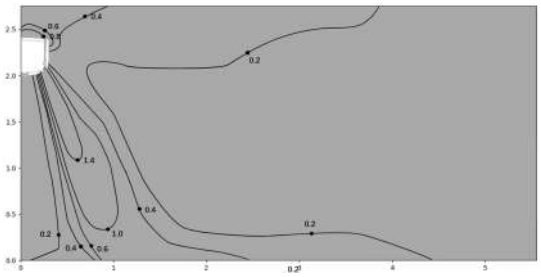


Figure 9.9: 4TVWD015AB07RAA *cooling at 300S*

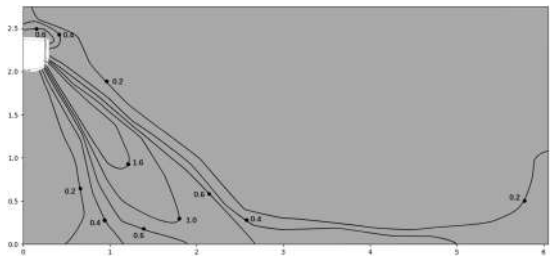


Figure 9.10: 4TVWD015AB07RAA *heating at 300S*

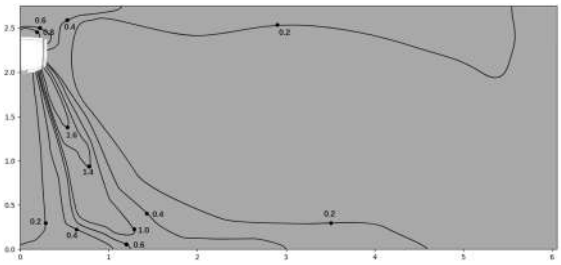


Figure 9.11: 4TVWD019AB07RAA *cooling at 300S*

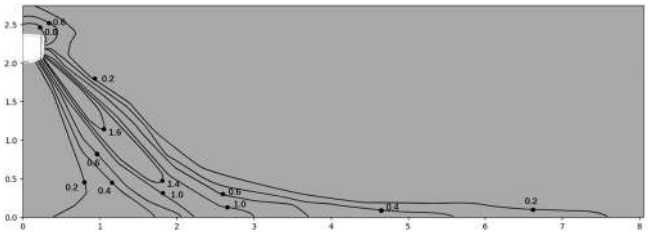


Figure 9.12: 4TVWD019AB07RAA *heating at 300S*

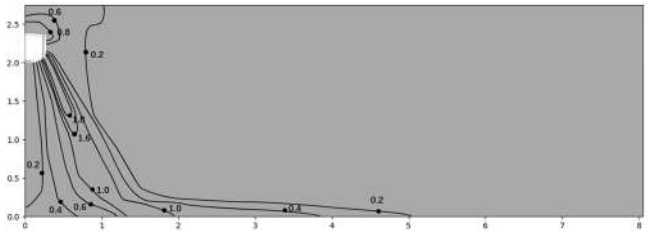


Figure 9.13: 4TVWD024AB07RAA *cooling at 300S*

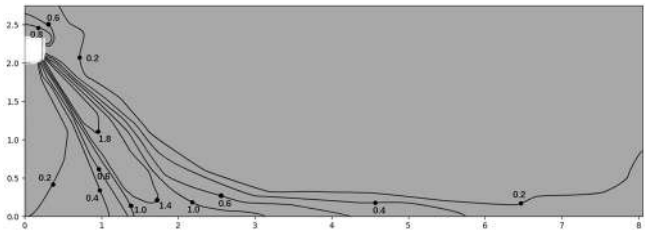


Figure 9.14: 4TVWD024AB07RAA *heating at 300S*

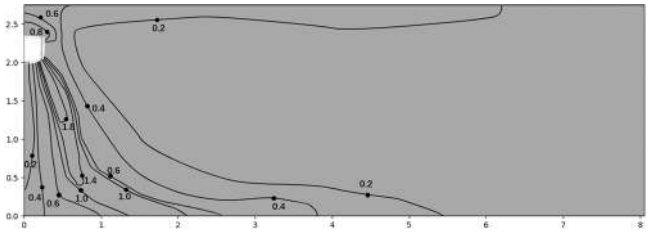


Figure 9.15: 4TVWD027AB07RAA *cooling at 300S*

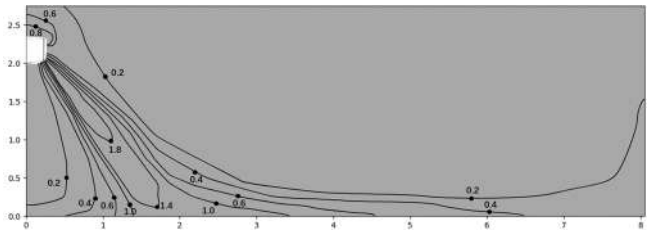
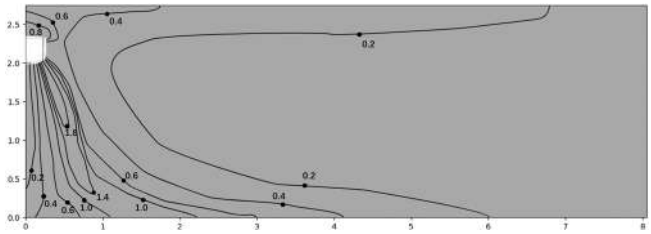


Figure 9.16: 4TVWD027AB07RAA *heating at 300S*



9.3 Temperature distributions

Figure 9.17: 4TVWD005AB07RAA *cooling at 300S*

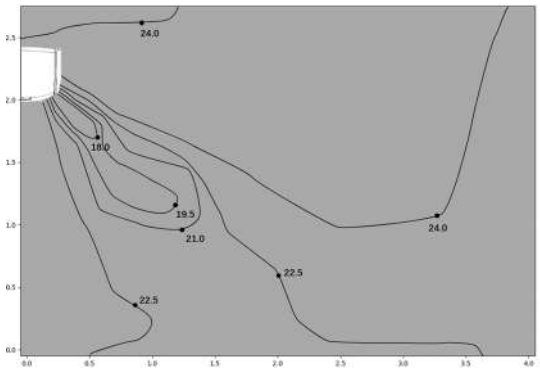


Figure 9.18: 4TVWD005AB07RAA *heating at 300S*

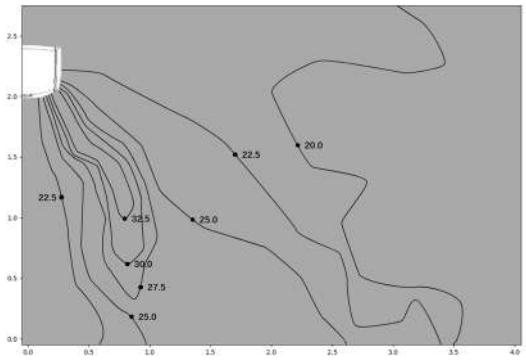


Figure 9.19: 4TVWD007AB07RAA *cooling at 300S*

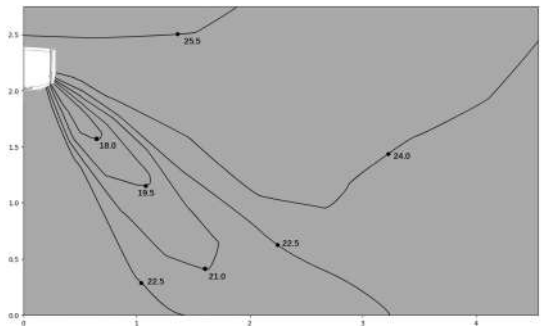


Figure 9.20: 4TVWD007AB07RAA *heating at 300S*

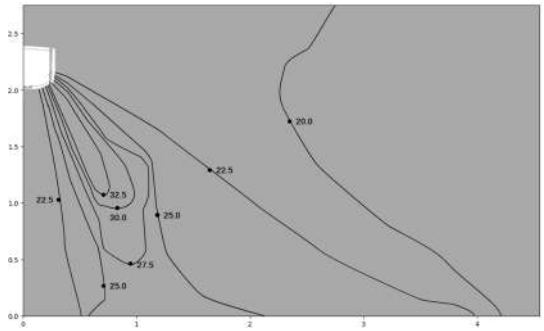


Figure 9.21: 4TVWD009AB07RAA cooling at 300S

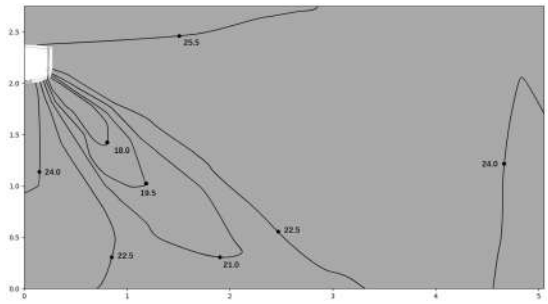


Figure 9.22: 4TVWD009AB07RAA *heating at 300S*

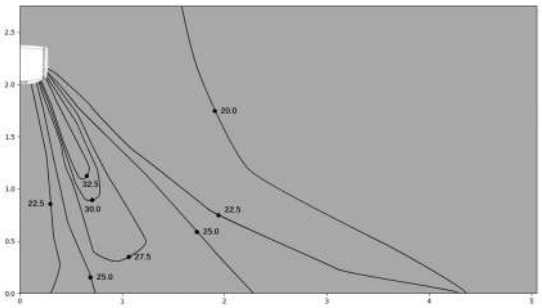


Figure 9.23: 4TVWD012AB07RAA *cooling at 300S*

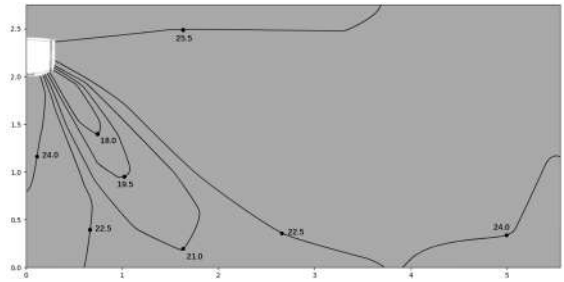


Figure 9.24: 4TVWD012AB07RAA *heating at 300S*

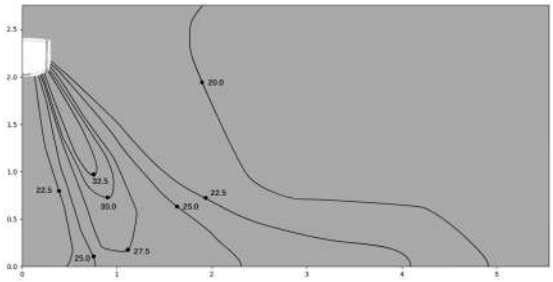


Figure 9.25: 4TVWD015AB07RAA *cooling at 300S*

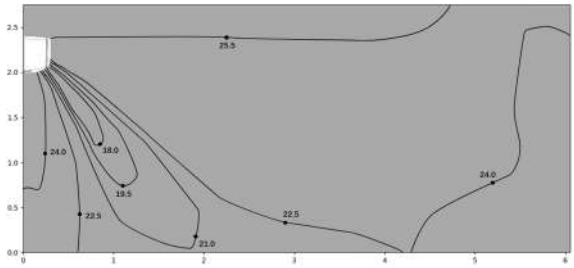


Figure 9.26: 4TVWD015AB07RAA *heating at 300S*

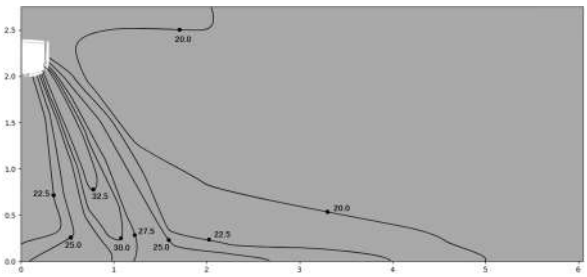


Figure 9.27: 4TVWD019AB07RAA cooling at 300S

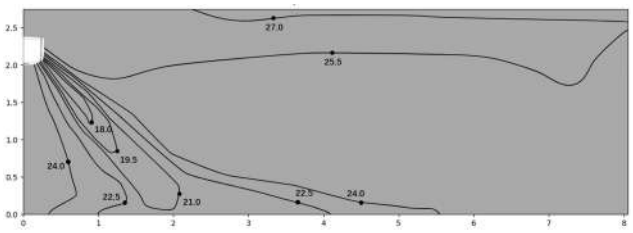


Figure 9.28: 4TVWD019AB07RAA *heating at 300S*

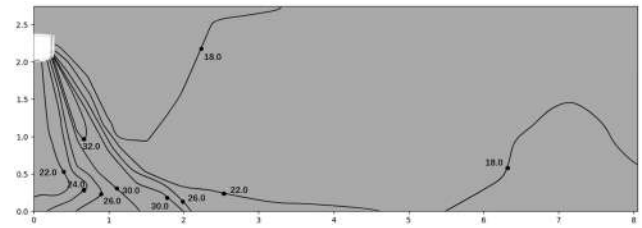


Figure 9.29: 4TVWD024AB07RAA cooling at 300S

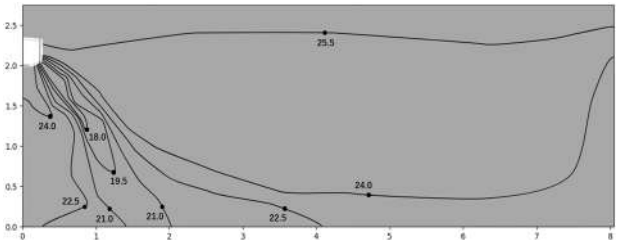


Figure 9.30: 4TVWD024AB07RAA *heating at 300S*

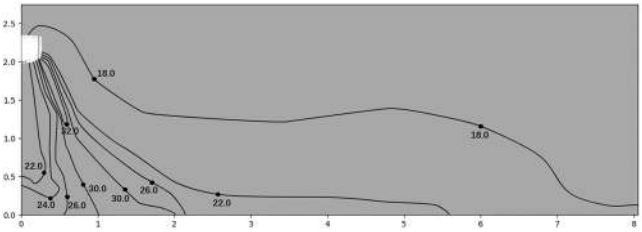


Figure 9.31: 4TVWD027AB07RAA cooling at 300S

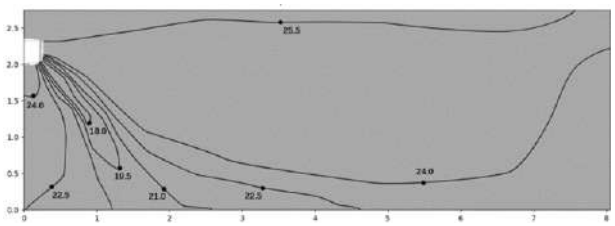
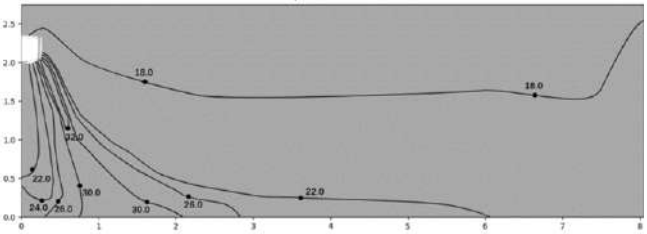


Figure 9.32: 4TVWD027AB07RAA *heating at 300S*



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Engineering Data

TVR 7G Series

Four-way Cassette

9 - 60MBH

Models:

4TVCD009AB07RAA
4TVCD012AB07RAA
4TVCD015AB07RAA
4TVCD019AB07RAA
4TVCD024AB07RAA
4TVCD027AB07RAA
4TVCD030AB07RAA
4TVCD034AB07RAA
4TVCD038AB07RAA
4TVCD048AB07RAA
4TVCD055AB07RAA
4TVCD060AB07RAA

Jan. 2024 **TVR-EM-005B**

Four Way Cassette

1 Specifications

Table 1.1: 4TVCD009(012,015,019)AB07RAA *specifications*

Model			**4TVCD009AB07RAA**	**4TVCD012AB07RAA**	**4TVCD015AB07RAA**	**4TVCD019AB07RAA**
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling[1]	Capacity	kW	2.8	3.6	4.5	5.6
		kBtu/h	9.6	12.3	15.4	19.1
	Power input	W	17	17	36	23
Heating[2]	Capacity	kW	3.2	4.0	5.0	6.3
		kBtu/h	10.9	13.7	17.1	21.5
	Power input	W	17	17	36	23
Fan motor type			DC			
Indoor coil	Number of rows		1	1	1	2
	Tube pitch × row pitch	mm	18×10.72			
	Fin spacing and type	mm	1.2 Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner-groove			
	Dimensions (L×H×W)	mm	2165×144×10.72			
	Number of circuits		4	4	4	8
Air flow rate[3]		m^3/h	790/740/691/641/591/542/492		910/840/770/701/631/561/491	840/791/741/692/642/593/543
Sound pressure level[4]		dB(A)	30/29/28/27.5/27/26/25		37/35/34/32/30/29/27	33/32/31/30/29/28/27
Sound power level		dB(A)	44/43/42/42/41/40/39		52/51/49/47/45/43/40	49/48/47/47/46/45/44
Main body	Net dimensions[5] (W×H×D)	mm	840×204×840			
	Packed dimensions (W×H×D)	mm	940×250×940			
	Net/Gross weight	kg	18/20.5			19.5/22
Panel	Net dimensions[6] (W×H×D)	mm	950×53×950			
	Packed dimensions (W×H×D)	mm	1020×90×1020			
	Net/Gross weight	kg	5.6/7.3			
Refrigerant type			R410A/R32			
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7			
	Drain pipe	mm	OD Φ25			

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in a semi-anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
6. Exposed height of the panel after being installed on the ceiling.

Table 1.2: 4TVCD024(027,030)AB07RAA *specifications*

Model			4TVCD024AB07RAA	4TVCD027AB07RAA	4TVCD030AB07RAA
Power supply			1-phase, 220-240V, 50/60Hz		
Cooling[1]	Capacity	kW	7.1	8.0	9.0
		kBtu/h	24.2	27.3	30.7
	Power input	W	32	41	43
Heating[2]	Capacity	kW	8.0	9.0	10.0
		kBtu/h	27.3	30.7	34.1
	Power input	W	32	41	43
Fan motor type			DC		
Indoor coil	Number of rows		2	3	2
	Tube pitch × row pitch	mm	18×10.72		
	Fin spacing and type	mm	1.2 Hydrophilic aluminum		
	Tube OD and type	mm	Φ5 Inner-groove		
	Dimensions (L×H×W)	mm	2165×144×21.44		2165×198×21.44
	Number of circuits		8	8	11
Air flow rate[3]		m^3/h	1000/943/886/829/772/715/658	1100/1019/939/858/777/697/616	1330/1239/1148/1057/965/874/783
Sound pressure level[4]		dB(A)	37/36/34/33/31/30/28	42.5/40/38/36/34/32/30	38/37/35/34/32/31/29
Sound power level		dB(A)	52/51/50/48/47/45/44	57/55/53/51/49/47/45	55/54/52/51/50/48/47
Main body	Net dimensions[5] (W×H×D)	mm	840×204×840		840×246×840
	Packed dimensions (W×H×D)	mm	940×250×940		940×295×940
	Net/Gross weight	kg	19.5/22		21.5/24
Panel	Net dimensions[6] (W×H×D)	mm	950×53×950		
	Packed dimensions (W×H×D)	mm	1020×90×1020		
	Net/Gross weight	kg	5.6/7.3		
Refrigerant type			R410A/R32		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9		
	Drain pipe	mm	OD Φ25		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in a semi-anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
6. Exposed height of the panel after being installed on the ceiling.

Table 1.3: 4TVCD034(038,048)AB07RAA *specifications*

Model			4TVCD034AB07RAA	4TVCD038AB07RAA	4TVCD048AB07RAA
Power supply			1-phase, 220-240V, 50/60Hz		
Cooling[1]	Capacity	kW	10.0	11.2	14.0
		kBtu/h	34.1	38.2	47.8
	Power input	W	74	61	118
Heating[2]	Capacity	kW	11.2	12.5	16.0
		kBtu/h	38.2	42.7	54.6
	Power input	W	74	61	118
Fan motor type			DC		
Indoor coil	Number of rows		2	2	2
	Tube pitch × row pitch	mm	18×10.72		
	Fin spacing and type	mm	1.2 Hydrophilic aluminum		
	Tube OD and type	mm	Φ5 Inner-groove		
	Dimensions (L×H×W)	mm	2165×198×21.44	2165×252×21.44	
	Number of circuits		11	14	14
Air flow rate[3]		m^3/h	1470/1360/1250/1141/1031/921/811	1600/1497/1393/1290/1186/1083/979	1900/1787/1673/1560/1446/1333/1219
Sound pressure level[4]		dB(A)	43/41/40/38/36/35/33	41/40/38/37/36/34/33	47.5/46/44/42/40/38/36.5
Sound power level		dB(A)	58/57/55/53/51/49/47	57/56/55/54/53/52/51	64/63/61/60/58/56/54
Main body	Net dimensions[6] (W×H×D)	mm	840×246×840	840×288×840	
	Packed dimensions (W×H×D)	mm	940×295×940	940×335×940	
	Net/Gross weight	kg	21.5/24	24/26.5	24/26.5
Panel	Net dimensions (W×H×D)	mm	950×53×950		
	Packed dimensions (W×H×D)	mm	1020×90×1020		
	Net/Gross weight	kg	5.6/7.3		
Refrigerant type			R410A/R32		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9		
	Drain pipe	mm	OD Φ25		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in a semi-anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
6. Exposed height of the panel after being installed on the ceiling.

Table 1.4: 4TVCD055(060)AB07RAA *specifications*

Model			**4TVCD055AB07RAA**	**4TVCD060AB07RAA**
Power supply			1-phase, 220-240V, 50/60Hz	
Cooling[1]	Capacity	kW	16.0	18.0
		kBtu/h	54.6	61.4
	Power input	W	110.0	145.0
Heating[2]	Capacity	kW	18.0	20.0
		kBtu/h	61.4	68.2
	Power input	W	110.0	145.0
Fan motor type			DC	
Indoor coil	Number of rows		3	3
	Tube pitch × row pitch	mm	18×10.72	
	Fin spacing and type	mm	1.2 Hydrophilic aluminum	
	Tube OD and type	mm	Φ5 Inner-groove	
	Dimensions (L×H×W)	mm	2165×144×10.72	2165×144×10.72
	Number of circuits		14	14
Air flow rate[3]		m^3/h	2100/1900/1760/1630/1500/1380/1270	2300/2140/1960/1770/1600/1430/1270
Sound pressure level[4]		dB(A)	48/46/44/43/41/39/37	52/49/47/45/42/39/38
Sound power level		dB(A)	57/56/54/52/50/47/46	60/58/56/54/52/49/46
Main body	Net dimensions[5] (W×H×D)	mm	950×300×950	950×300×950
	Packed dimensions (W×H×D)	mm	1050×350×1050	1050×350×1050
	Net/Gross weight	kg	32.6/37.2	32.7/37.3
Panel	Net dimensions[6] (W×H×D)	mm	1050×55×1050	1050×55×1050
	Packed dimensions (W×H×D)	mm	1115×100×1115	1115×100×1115
	Net/Gross weight	kg	7.4/9.7	7.4/9.7
Refrigerant type			R410A/R32	
Design pressure (H/L)		MPa	4.4/2.6	
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9	Φ9.52/Φ19.1
	Drain pipe	mm	OD Φ25	

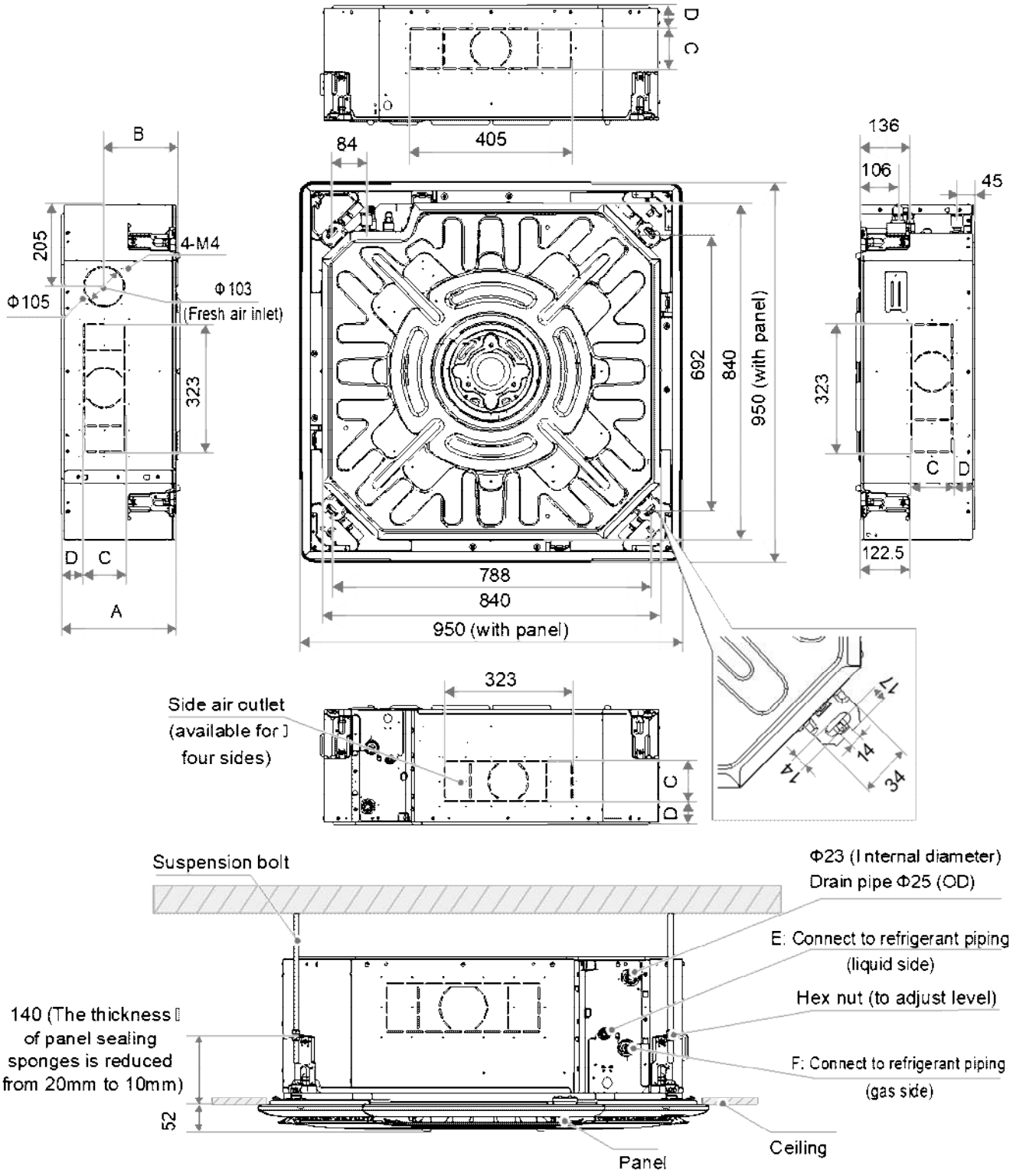
Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.5m below the unit in a semi-anechoic chamber.
5. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.
6. Exposed height of the panel after being installed on the ceiling.

2 Dimensions

2.1 Unit Dimensions

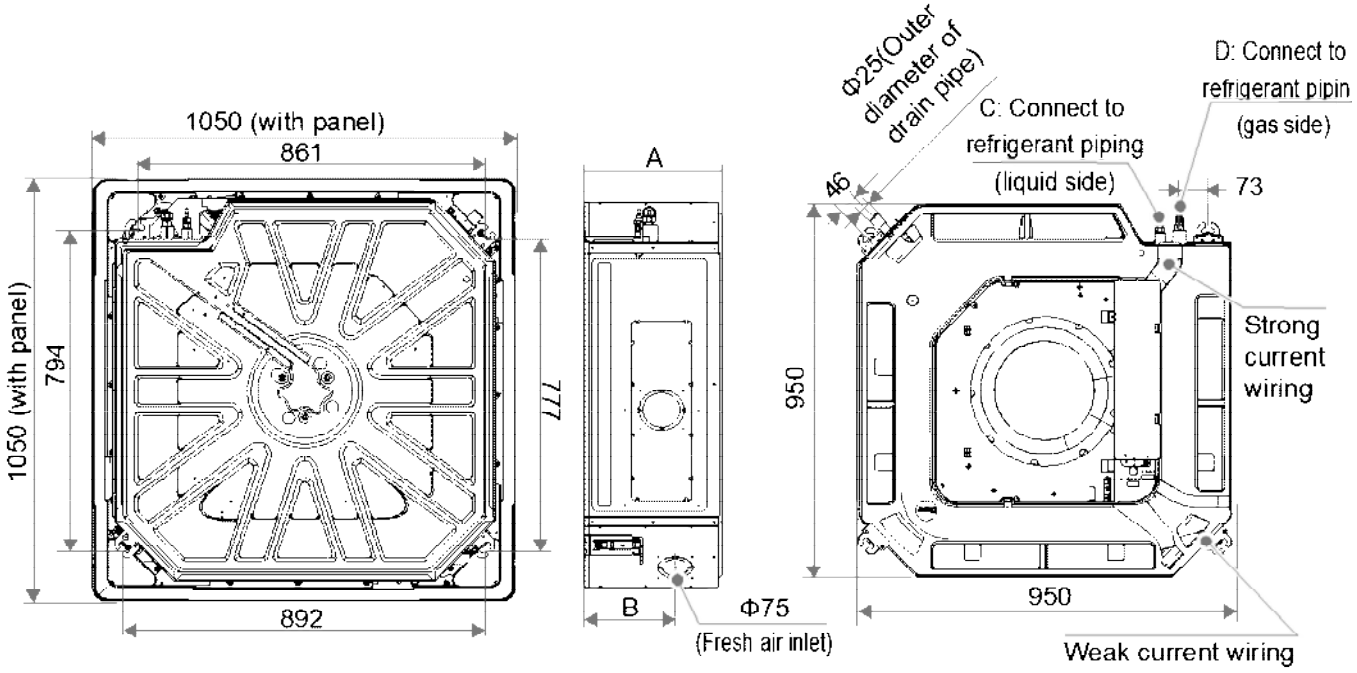
Figure 2.1: 2.8-14.0kW Four-way Cassette dimensions (unit: mm)

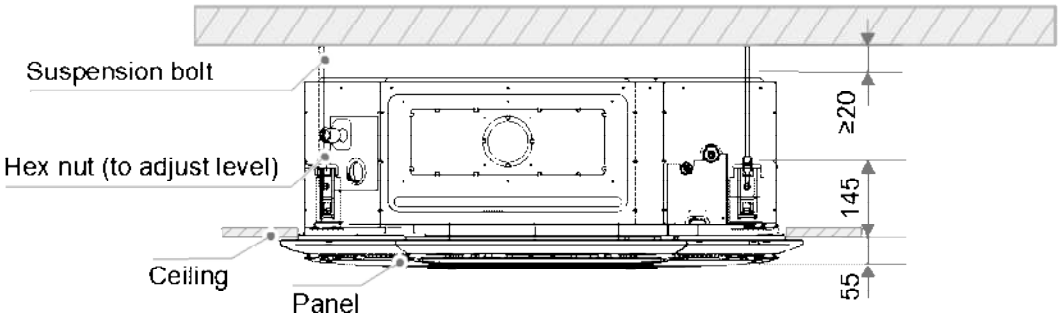


Capacity (kW)	A	B	C	D	E	F
kW≤5.6	204	141	63	41.5	Φ12.7	Φ6.35
5.6＜kW≤8.0	204	141	63	41.5	Φ15.9	Φ9.52
8.0＜kW≤10.0	246	163	103	41.5	Φ15.9	Φ9.52
10.0＜kW≤14.0	288	190	103	56.5	Φ15.9	Φ9.52

2.2 Unit Dimensions

Figure 2.1: 16.0-18.0kW Four-way Cassette dimensions (unit: mm)





Capacity (kW)	A	B	C	D
16.0	300	200	Φ9.5	Φ15.9
18.0	300	200	Φ9.5	Φ19.1

3 Unit Placement

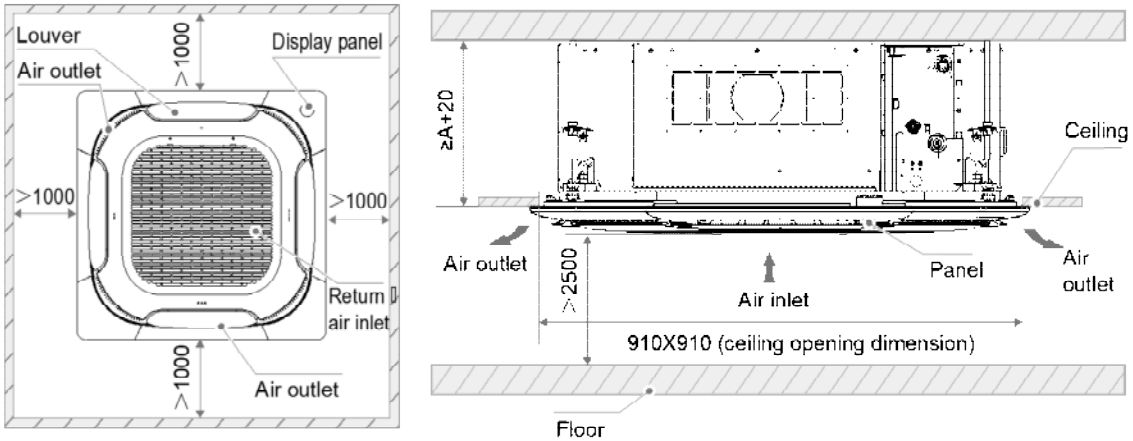
3.1 Placement Considerations

Unit placement should take account of the following considerations:

- Units should not be installed in the following locations:
  - A place filled with mineral oil, fumes or mist, like a kitchen.
  - A place where there are corrosive gases, such as acid or alkaline gases..
  - A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline.
  - A place where there is equipment emitting electromagnetic radiation.
  - A place where there is a high salt content in the air like a coast.
  - Do not use the air conditioner in an environment where an explosion may occur.
  - Places like in vehicles or cabin rooms.
  - Factories with major voltage fluctuations in the power supplies.
  - Other special environmental conditions.
- Units should be installed in positions where:
  - Ensure that the airflow in and out of the IDU is reasonably organized to form an air circulation in the room.
  - Ensure IDU maintenance space.
  - The nearer the drainage pipe and copper pipe are to the ODU, the lower the pipe cost is.
  - Prevent the air conditioner from blowing directly to the human body.
  - The closer the wiring to the power cabinet, the lower the wiring cost is.
  - Keep the air-conditioning return air away from the setting sun of the room.
  - Be careful not to interfere with the light tank, fire pipe, gas pipe and other facilities.
  - The IDU should not be lifted in the places like load-bearing beam and columns that affect the structural safety of the house.
  - The wired controller and the IDU should be in the same installation space; otherwise, the sampling point setting of the wired controller need to be changed.

3.2 Space Requirements

Figure 3.1: 2.8-14.0kW space requirements (unit: mm)

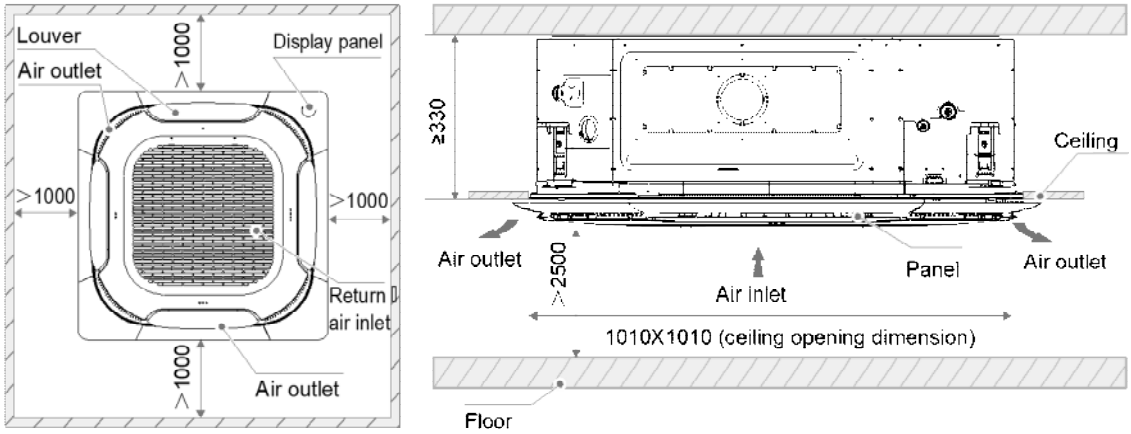


Capacity (kW)	A
kW≤8.0	204
8.0<kW≤10.0	246
10.0<kW≤14.0	288

Notes:

1. The centerline of the maintenance hole should be in the same position as the centerline of the indoor unit.

Figure 3.2: 16.0-18.0kW space requirements (unit: mm)

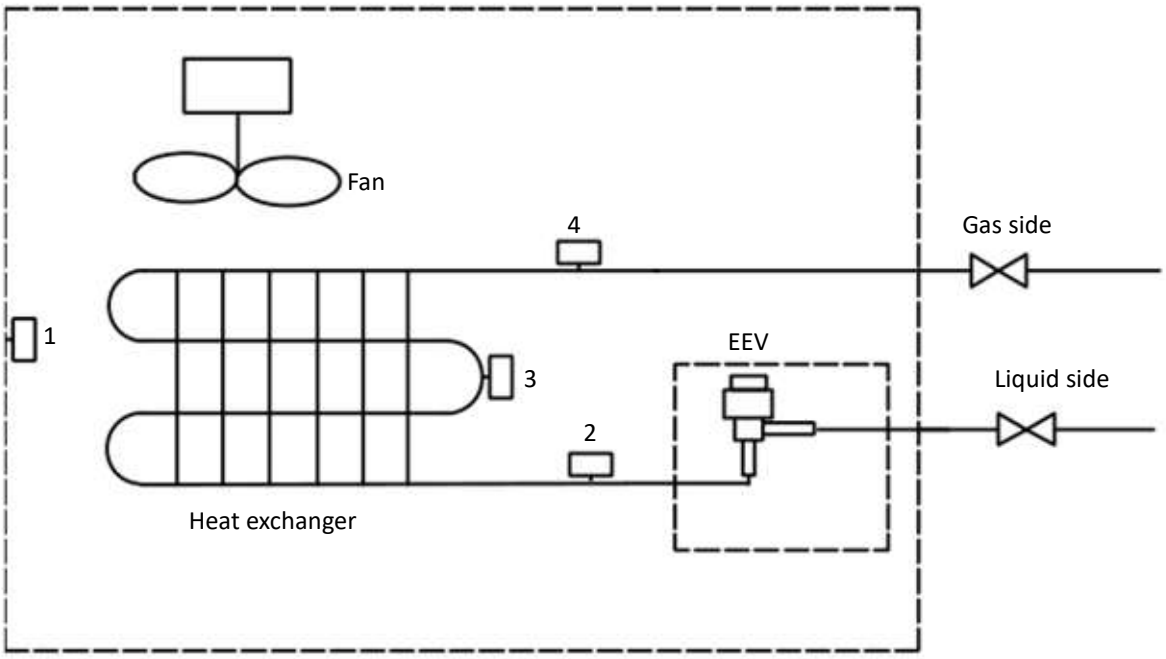


Notes:

1. The centerline of the maintenance hole should be in the same position as the centerline of the indoor unit.

4 Piping Diagram

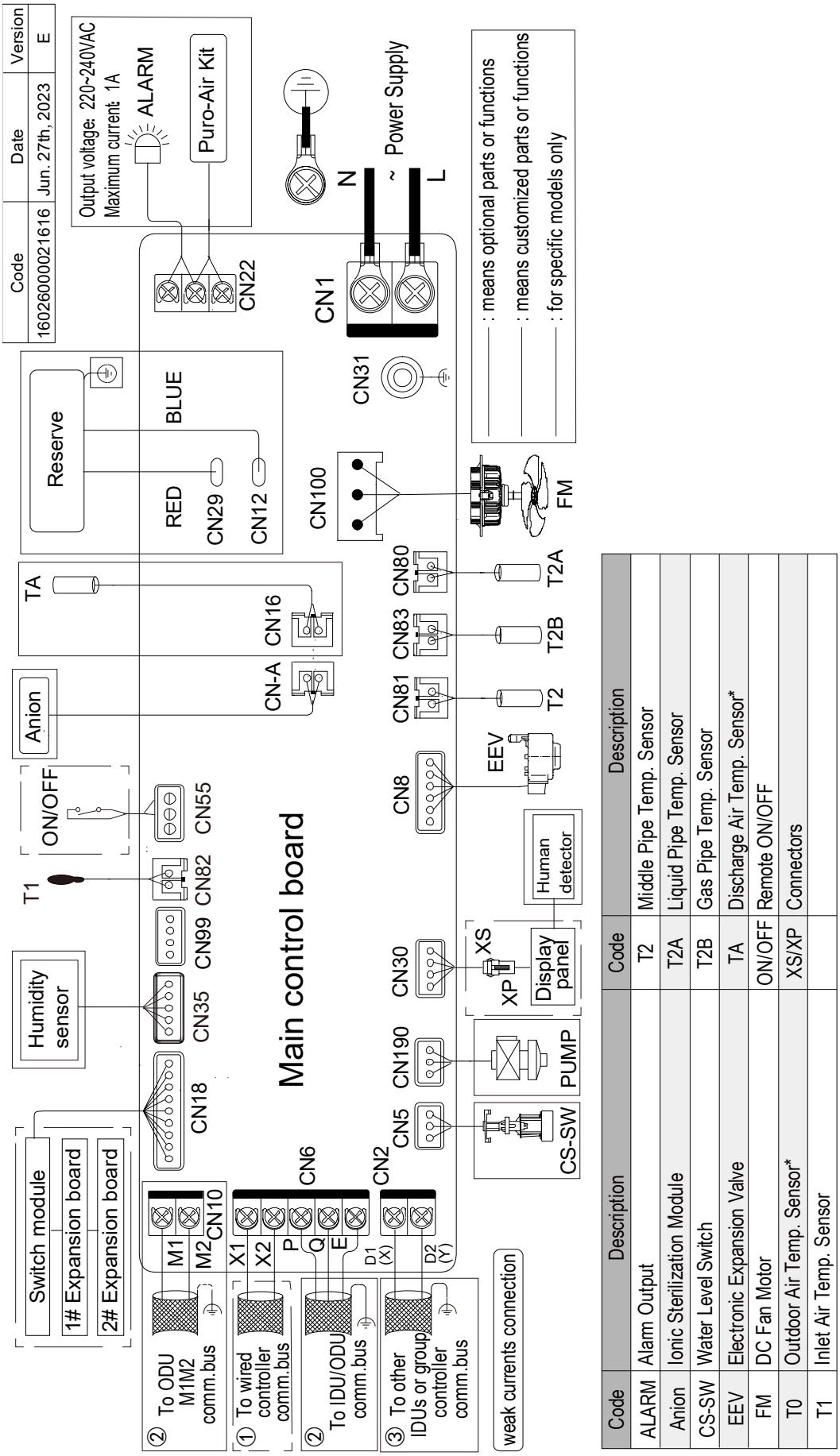
Figure 4.1: Four-way Cassette piping diagram



Legend		
1	T1	Inlet Air Temp. Sensor
2	T2A	Liquid Pipe Temp. Sensor
3	T2	Middle Pipe Temp. Sensor
4	T2B	Gas Pipe Temp. Sensor

5 Wiring Diagram

Figure 5.1: Four-way Cassette wiring diagram



Code	Description	Code	Description
ALARM	Alarm Output	T2	Middle Pipe Temp. Sensor
Anion	Ionic Sterilization Module	T2A	Liquid Pipe Temp. Sensor
CS-SW	Water Level Switch	T2B	Gas Pipe Temp. Sensor
EEV	Electronic Expansion Valve	TA	Discharge Air Temp. Sensor*
FM	DC Fan Motor	ON/OFF	Remote ON/OFF
T0	Outdoor Air Temp. Sensor*	XS/XP	Connectors
T1	Inlet Air Temp. Sensor		

* Indicates that this sensor is only available for Fresh Air Processing Unit.

Notes for installers and service engineers

Caution

- All installation, servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals – loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- The dotted lines indicate the field wiring or optional function.
- PQ and M1M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at a time. Meanwhile, be sure to connect the same communication ports (PQ to PQ; M1M2 to M1M2) in case of damage of the main control board.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: Four-way Cassette cooling capacity

Model	Indoor air temperature (°C 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
4TVCD009AB07RAA	2.5	2.4	2.7	2.5	2.8	2.5	2.8	2.4	2.9	2.3	2.9	2.2	3.0	2.1
4TVCD012AB07RAA	3.2	3.1	3.4	3.1	3.6	3.2	3.6	3.0	3.7	3.0	3.8	2.8	3.9	2.7
4TVCD015AB07RAA	4.0	3.6	4.3	3.8	4.5	3.8	4.5	3.7	4.6	3.6	4.7	3.4	4.8	3.3
4TVCD019AB07RAA	5.0	4.5	5.3	4.6	5.6	4.7	5.6	4.6	5.7	4.5	5.8	4.2	6.0	4.1
4TVCD024AB07RAA	6.3	5.7	6.7	5.8	7.0	5.9	7.1	5.8	7.2	5.6	7.4	5.4	7.6	5.2
4TVCD027AB07RAA	7.1	6.6	7.6	6.7	7.9	6.8	8.0	6.6	8.1	6.4	8.3	6.1	8.5	5.8
4TVCD030AB07RAA	8.0	7.2	8.5	7.4	8.9	7.5	9.0	7.3	9.1	7.1	9.4	6.8	9.6	6.5
4TVCD034AB07RAA	8.9	8.1	9.5	8.4	9.9	8.4	10.0	8.2	10.1	7.9	10.4	7.6	10.6	7.2
4TVCD038AB07RAA	9.9	9.1	10.6	9.3	11.1	9.4	11.2	9.2	11.3	8.9	11.6	8.4	11.9	8.1
4TVCD048AB07RAA	12.4	11.0	13.2	11.4	13.8	11.5	14.0	11.3	14.2	11.0	14.5	10.5	14.9	10.1
4TVCD055AB07RAA	14.2	12.6	15.1	13.0	15.8	13.2	16.0	12.9	16.2	12.5	16.6	12.0	17.0	11.5
4TVCD060AB07RAA	15.9	14.1	17.0	14.7	17.8	14.8	18.0	14.5	18.2	14.1	18.7	13.5	19.1	12.9

Abbreviations:
TC: Total capacity (kW)
SC: Sensible capacity(kW)

Notes:
1.Shaded cells indicate rating condition.

6.2 Heating Capacity Table

Table 6.2: Four-way Cassette heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	TC	TC	TC	TC	TC	TC
4TVCD009AB07RAA	3.4	3.4	3.2	3.1	3.0	2.8
4TVCD012AB07RAA	4.2	4.2	4.0	3.8	3.8	3.5
4TVCD015AB07RAA	5.3	5.3	5.0	4.8	4.7	4.4
4TVCD019AB07RAA	6.7	6.6	6.3	6.1	5.9	5.5
4TVCD024AB07RAA	8.5	8.4	8.0	7.8	7.5	7.0
4TVCD027AB07RAA	9.5	9.5	9.0	8.7	8.5	7.8
4TVCD030AB07RAA	10.6	10.5	10.0	9.7	9.4	8.8
4TVCD034AB07RAA	11.9	11.8	11.2	10.9	10.5	9.8
4TVCD038AB07RAA	13.3	13.1	12.5	12.1	11.8	10.9
4TVCD048AB07RAA	17.0	16.8	16.0	15.5	15.0	13.9
4TVCD055AB07RAA	19.1	19.1	18.0	17.4	16.9	15.8
4TVCD060AB07RAA	21.3	21.3	20.0	19.4	18.8	17.5

Abbreviations:
TC: Total capacity (kW)

Notes:
1.Shaded cells indicate rating condition.

7 Electrical Characteristics

Table 7.1: Four-way Cassette electrical characteristics

Model name	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
4TVCD009AB07RAA	50/60	220-240	198	264	0.27	15	0.045	0.22
4TVCD012AB07RAA	50/60	220-240	198	264	0.27	15	0.045	0.22
4TVCD015AB07RAA	50/60	220-240	198	264	0.52	15	0.045	0.41
4TVCD019AB07RAA	50/60	220-240	198	264	0.33	15	0.045	0.26
4TVCD024AB07RAA	50/60	220-240	198	264	0.42	15	0.045	0.33
4TVCD027AB07RAA	50/60	220-240	198	264	0.63	15	0.045	0.51
4TVCD030AB07RAA	50/60	220-240	198	264	0.58	15	0.045	0.46
4TVCD034AB07RAA	50/60	220-240	198	264	0.91	15	0.045	0.72
4TVCD038AB07RAA	50/60	220-240	198	264	0.78	15	0.125	0.62
4TVCD048AB07RAA	50/60	220-240	198	264	1.42	15	0.125	1.14
4TVCD055AB07RAA	50/60	220-240	198	264	2.30	15	0.125	1.83
4TVCD060AB07RAA	50/60	220-240	198	264	2.73	15	0.125	2.10

Abbreviations:
MCA: Minimum Circuit Amps
MFA: Maximum Fuse Amps
FLA: Full Load Amps

8 Sound Levels

8.1 Overall

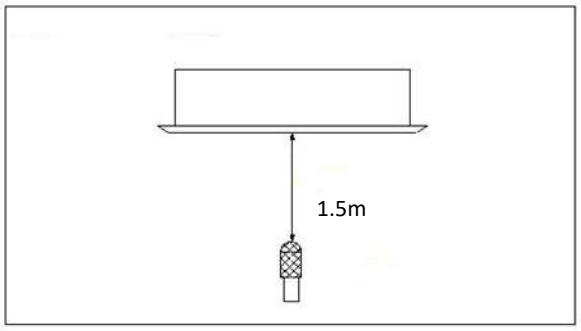
Table 8.1: Four-way Cassette sound pressure levels[1]

Model name	Sound pressure levels dB						
	SSH	SH	H	M	L	SL	SSL
4TVCD009AB07RAA	30	29	28	27.5	27	26	25
4TVCD012AB07RAA	30	29	28	27.5	27	26	25
4TVCD015AB07RAA	37	35	34	32	30	29	27
4TVCD019AB07RAA	33	32	31	30	29	28	27
4TVCD024AB07RAA	37	36	34	33	31	30	28
4TVCD027AB07RAA	42.5	40	38	36	34	32	30
4TVCD030AB07RAA	38	37	35	34	32	31	29
4TVCD034AB07RAA	43	41	40	38	36	35	33
4TVCD038AB07RAA	41	40	38	37	36	34	33
4TVCD048AB07RAA	47.5	46	44	42	40	38	36.5
4TVCD055AB07RAA	48	46	44	43	41	39	37
4TVCD060AB07RAA	52	49	47	45	42	39	38

Notes:

1. Sound pressure levels are measured 1.5m below the unit in a semi-anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 8.1: Four-way Cassette sound pressure level measurement



8.2 Octave Band Levels

Figure 8.2: 4TVCD009AB07RAA octave band levels

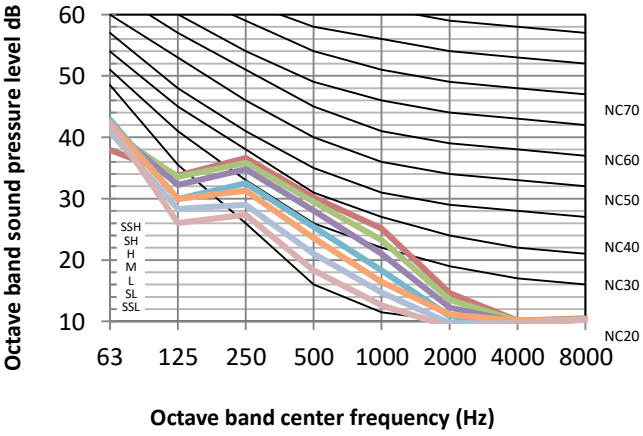


Figure 8.3: 4TVCD012AB07RAA octave band levels

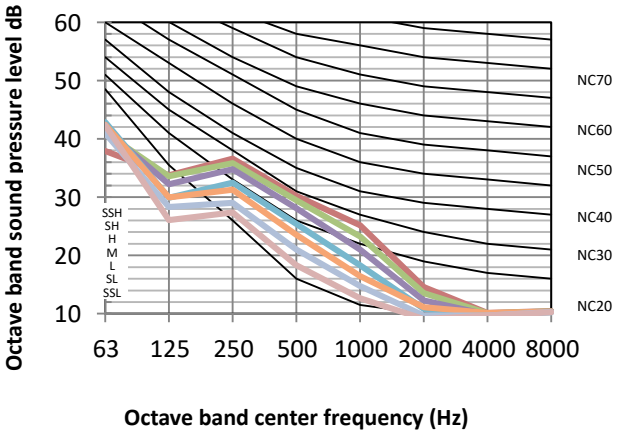


Figure 8.4: 4TVCD015AB07RAA octave band levels

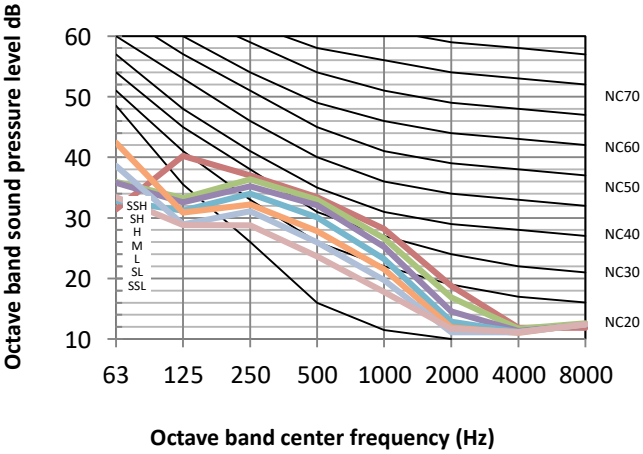


Figure 8.5: 4TVCD019AB07RAA octave band levels

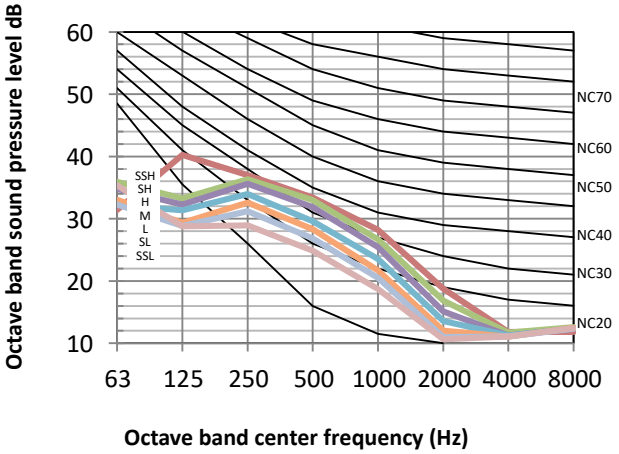


Figure 8.6: 4TVCD024AB07RAA octave band levels

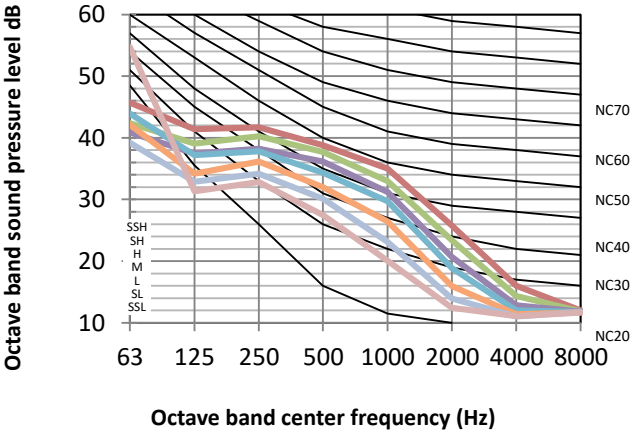


Figure 8.7: 4TVCD027AB07RAA octave band levels

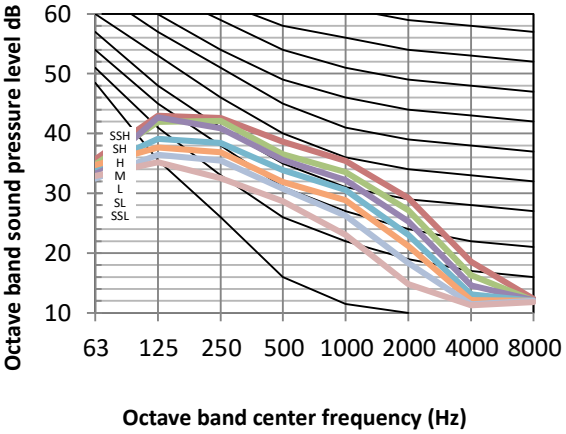


Figure 8.8: 4TVCD030AB07RAA octave band levels

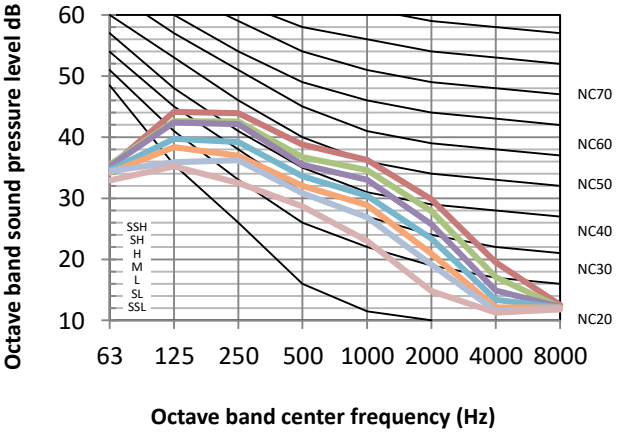


Figure 8.9: 4TVCD034AB07RAA octave band levels

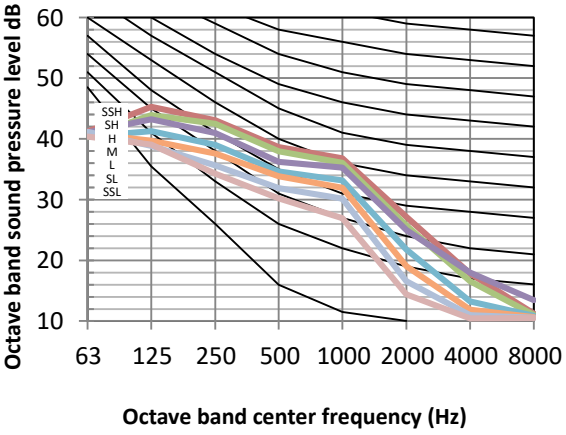


Figure 8.10: 4TVCD038AB07RAA octave band levels

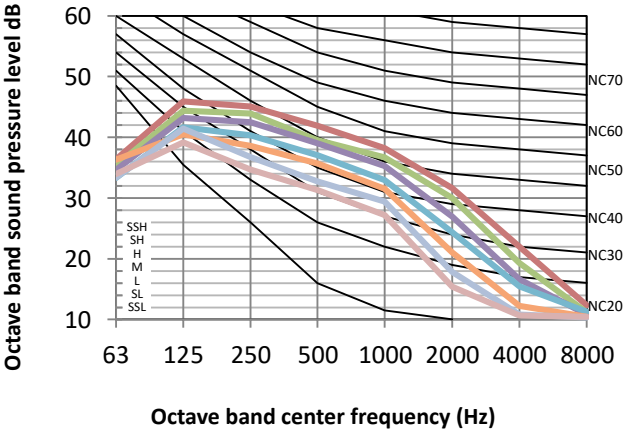


Figure 8.11: 4TVCD048AB07RAA octave band levels

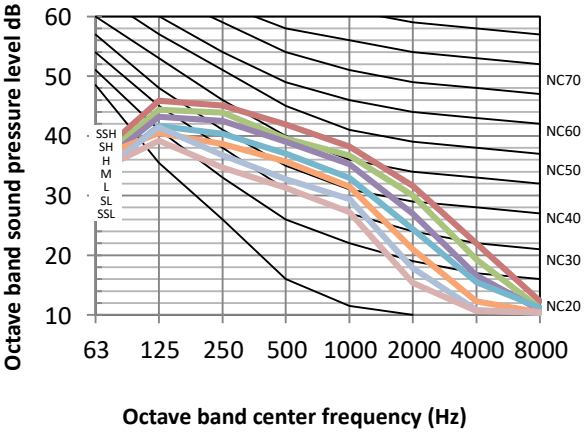


Figure 8.12: 4TVCD055AB07RAA octave band levels

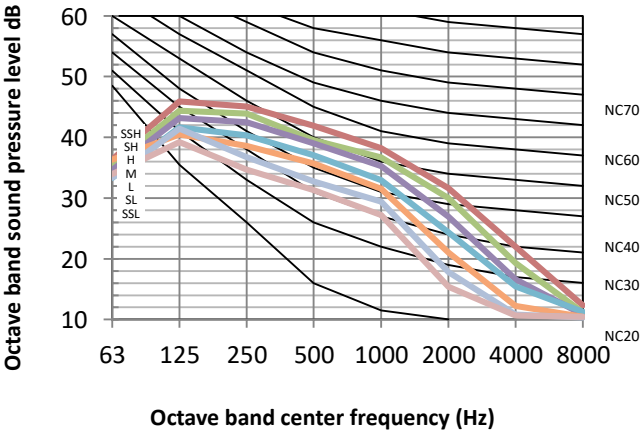
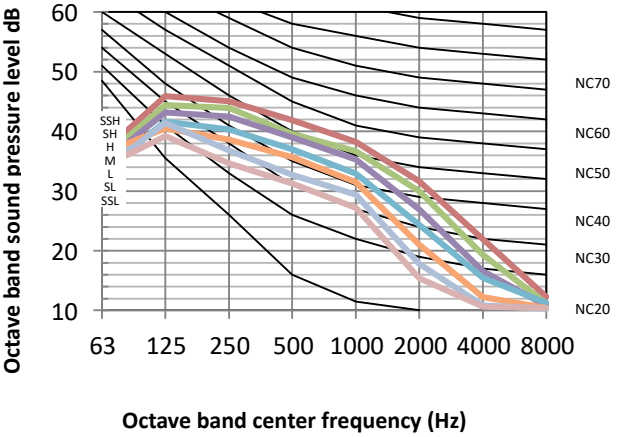


Figure 8.13: 4TVCD060AB07RAA octave band levels



9 Temperature and Airflow Distributions

9.1 Simulate condition

Table 9.1: Four-way Cassette simulate condition

Model name	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
4TVCD009AB07RAA	6×6	2.7	30° /65°	Center
4TVCD012AB07RAA	6×6	2.7	30° /65°	Center
4TVCD015AB07RAA	6×6	2.7	30° /65°	Center
4TVCD019AB07RAA	8×8	2.7	30° /65°	Center
4TVCD024AB07RAA	8×8	2.7	30° /65°	Center
4TVCD027AB07RAA	8×8	2.7	30° /65°	Center
4TVCD030AB07RAA	10×10	2.7	30° /65°	Center
4TVCD034AB07RAA	10×10	2.7	30° /65°	Center
4TVCD038AB07RAA	10×10	2.7	30° /65°	Center
4TVCD048AB07RAA	10×10	2.7	30° /65°	Center
4TVCD055AB07RAA	10×10	2.7	30° /65°	Center
4TVCD060AB07RAA	10×10	2.7	30° /65°	Center

Note:

1. These figures and videos are based on software simulation. They show typical temperature and airflow distributions in the conditions above. In the actual installation, they may differ from these figures and videos under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

9.2 Airflow distributions

Figure 9.1: 4TVCD009AB07RAA cooling at 300s

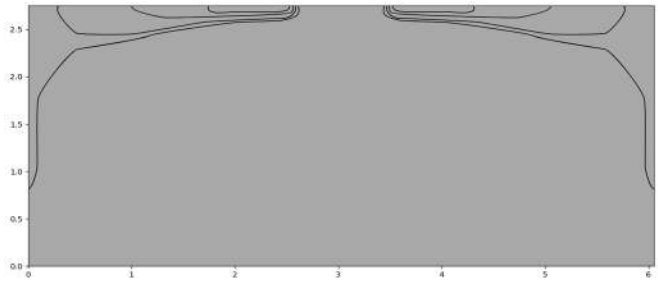


Figure 9.2: 4TVCD009AB07RAA heating at 300s

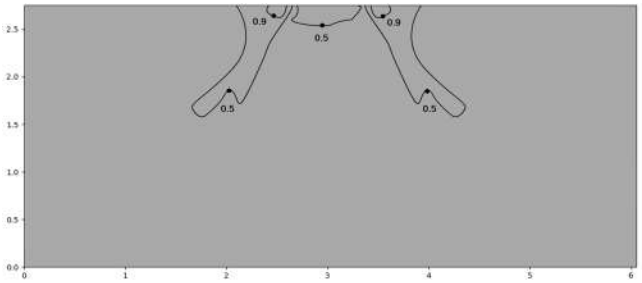


Figure 9.3: 4TVCD012AB07RAA cooling at 300s

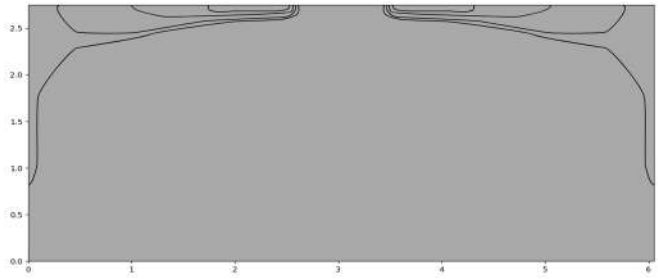


Figure 9.4: 4TVCD012AB07RAA heating at 300s

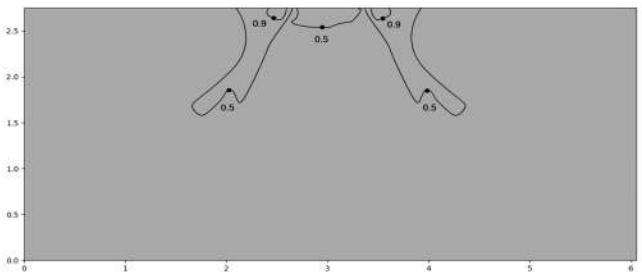


Figure 9.5: 4TVCD015AB07RAA cooling at 300s

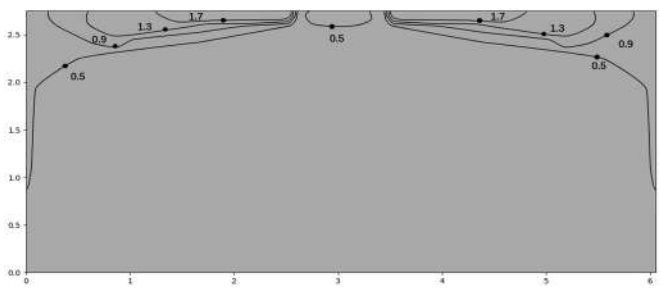


Figure 9.6: 4TVCD015AB07RAA heating at 300s

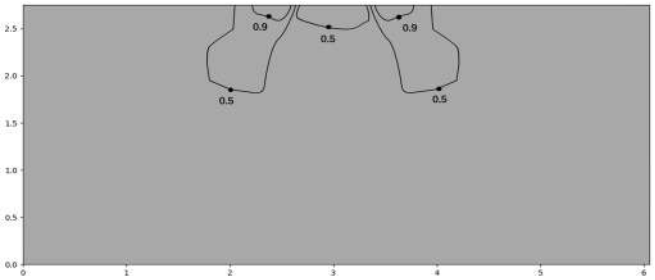


Figure 9.7: 4TVCD019AB07RAA cooling at 300s

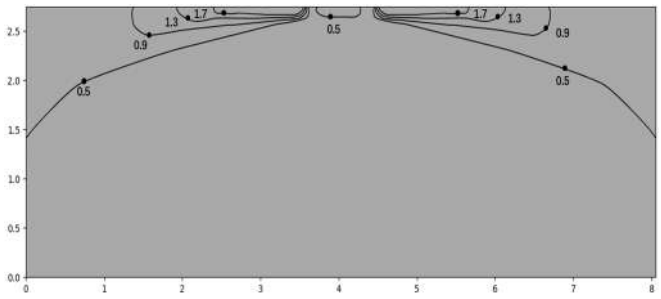


Figure 9.8: 4TVCD019AB07RAA heating at 300s

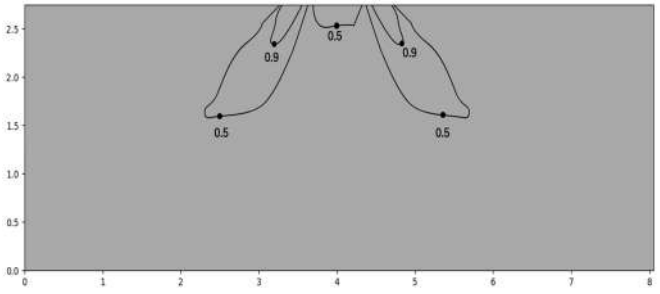


Figure 9.9: 4TVCD024AB07RAA cooling at 300s

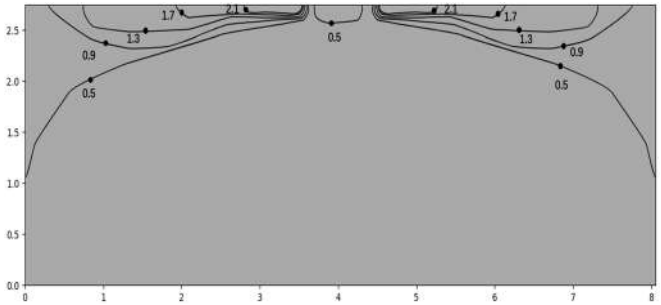


Figure 9.10: 4TVCD024AB07RAA heating at 300s

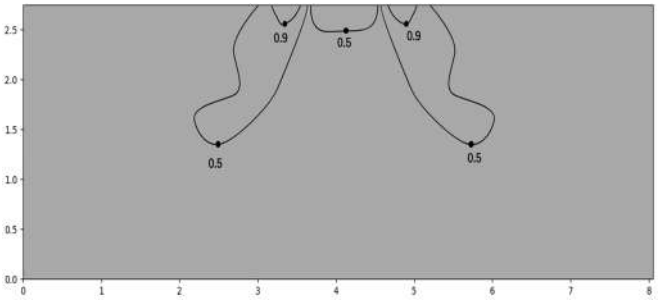


Figure 9.11: 4TVCD027AB07RAA cooling at 300s

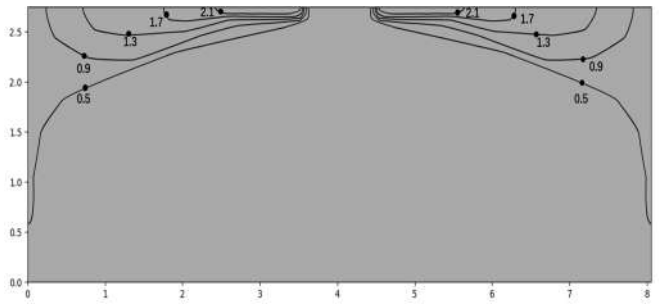


Figure 9.12: 4TVCD027AB07RAA heating at 300s

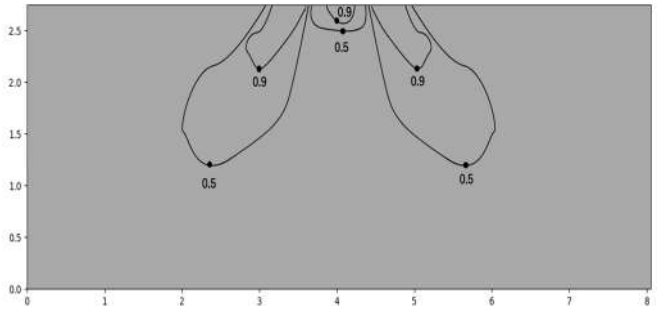


Figure 9.13: 4TVCD030AB07RAA cooling at 300s

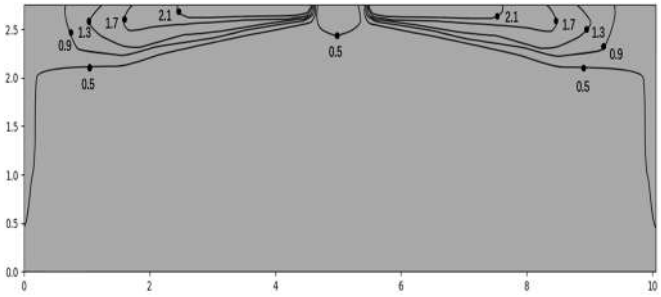


Figure 9.14: 4TVCD030AB07RAA heating at 300s

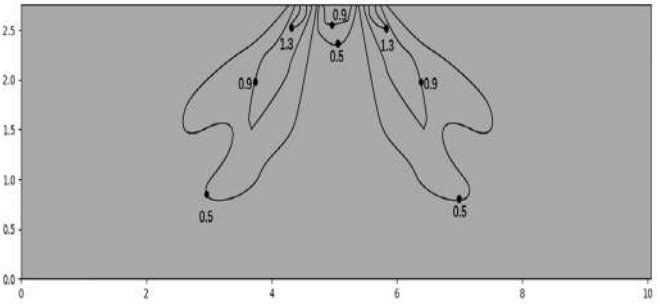


Figure 9.15: 4TVCD034AB07RAA cooling at 300s

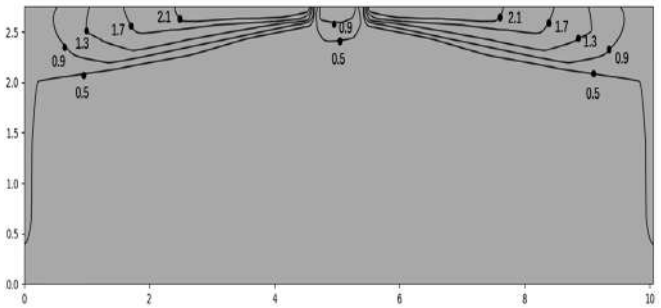


Figure 9.16: 4TVCD034AB07RAA heating at 300s

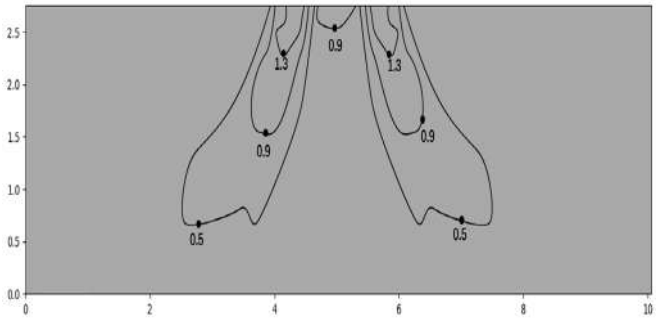


Figure 9.17: 4TVCD038AB07RAA cooling at 300s

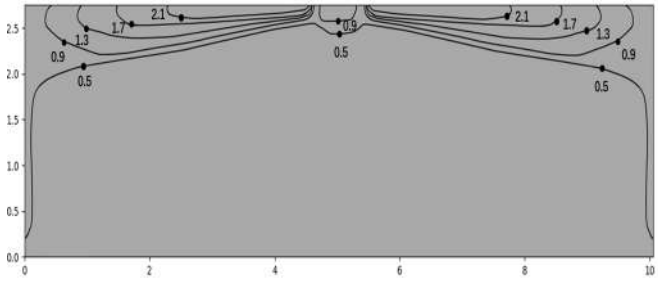


Figure 9.18: 4TVCD038AB07RAA heating at 300s

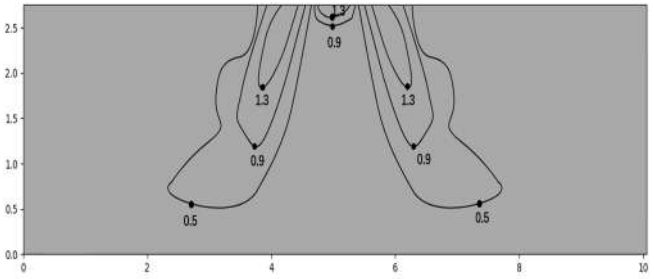


Figure 9.19: 4TVCD048AB07RAA cooling at 300s

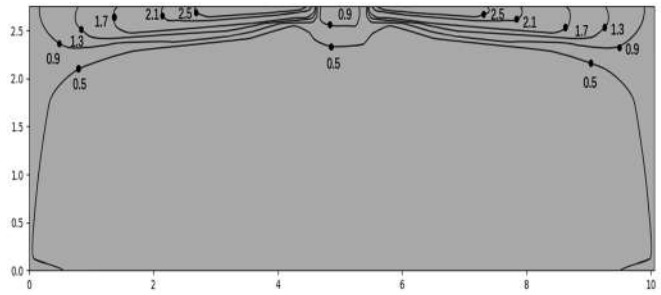


Figure 9.20: 4TVCD048AB07RAA heating at 300s

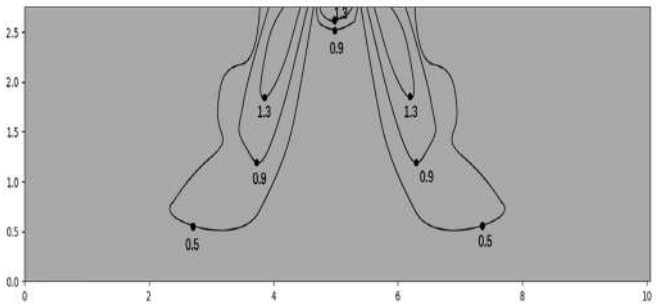


Figure 9.21: 4TVCD055AB07RAA cooling at 300s

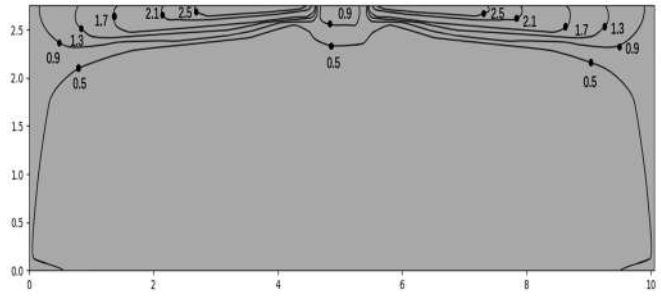


Figure 9.22: 4TVCD055AB07RAA heating at 300s

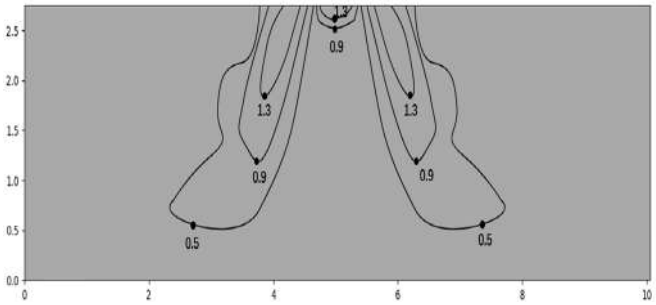


Figure 9.23: 4TVCD060AB07RAA cooling at 300s

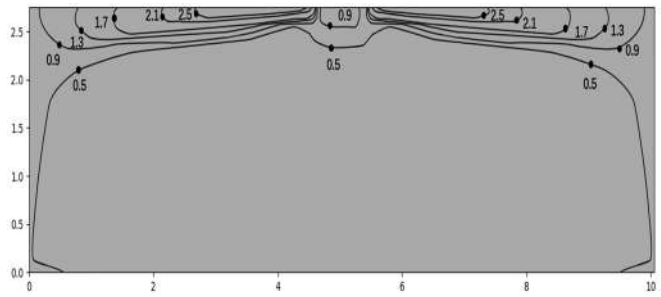
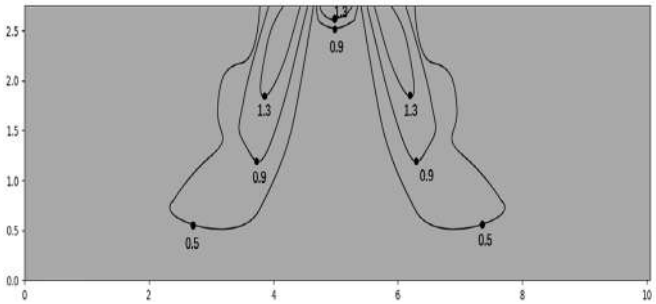


Figure 9.24: 4TVCD060AB07RAA heating at 300s



9.3 Temperature distributions

Figure 9.25: 4TVCD009AB07RAA cooling at 300s

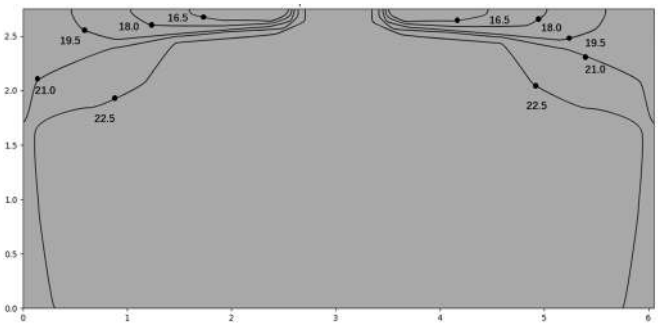


Figure 9.26: 4TVCD009AB07RAA heating at 300s

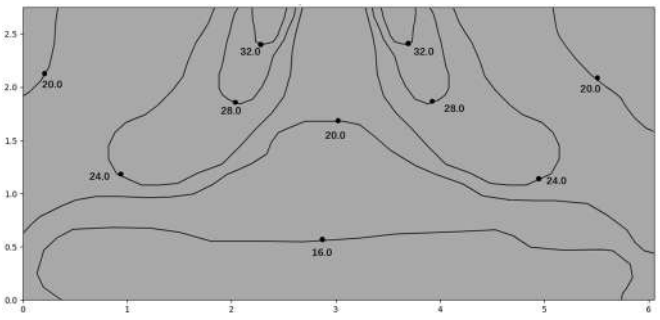


Figure 9.27: 4TVCD012AB07RAA cooling at 300s

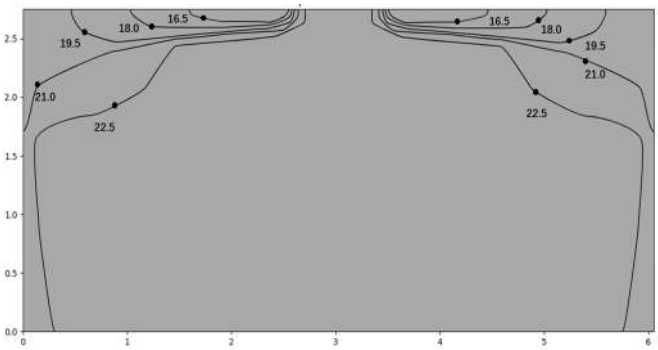


Figure 9.28: 4TVCD012AB07RAA heating at 300s

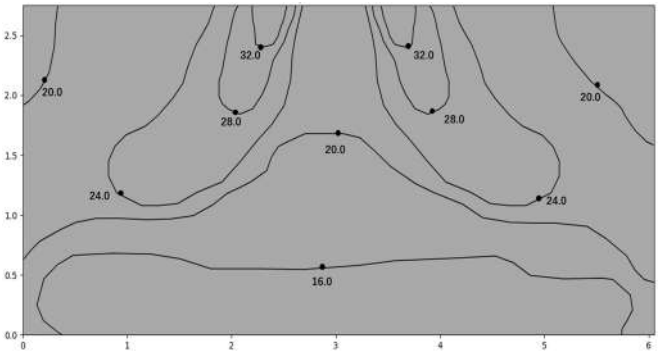


Figure 9.29: 4TVCD015AB07RAA cooling at 300s

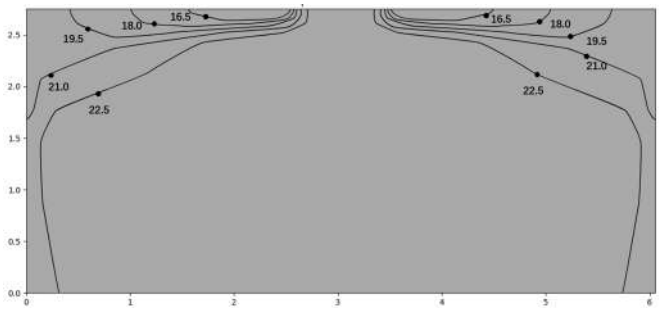


Figure 9.30: 4TVCD015AB07RAA heating at 300s

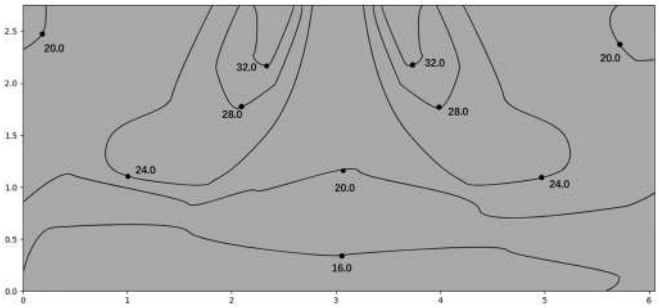


Figure 9.31: 4TVCD019AB07RAA cooling at 300s

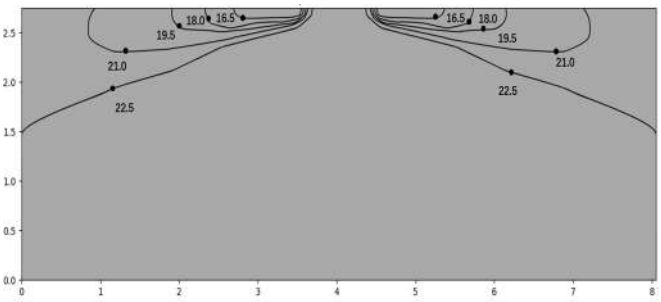


Figure 9.32: 4TVCD019AB07RAA heating at 300s

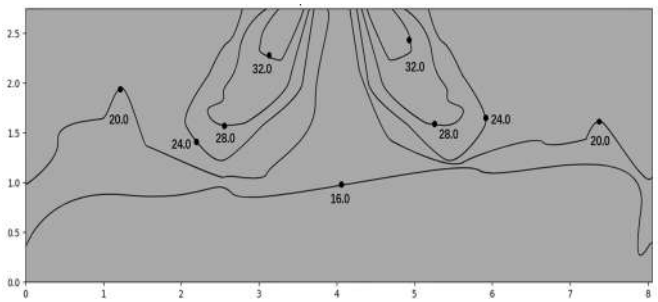


Figure 9.33: 4TVCD024AB07RAA cooling at 300s

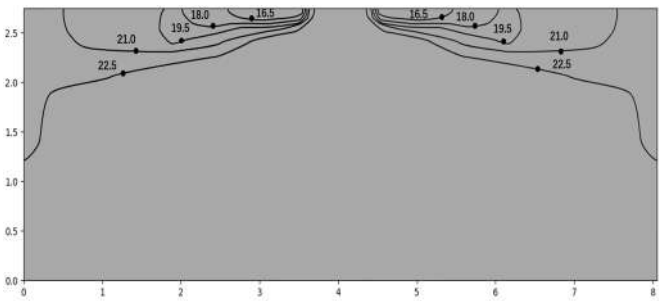


Figure 9.34: 4TVCD024AB07RAA heating at 300s

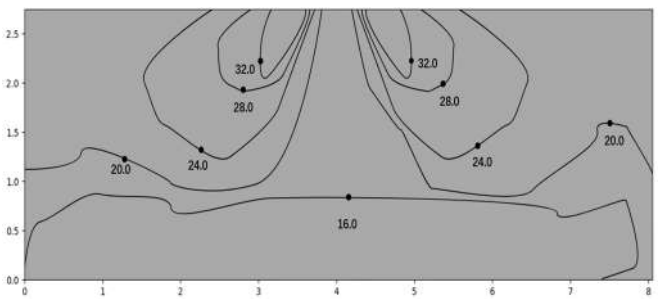


Figure 9.35: 4TVCD027AB07RAA cooling at 300s

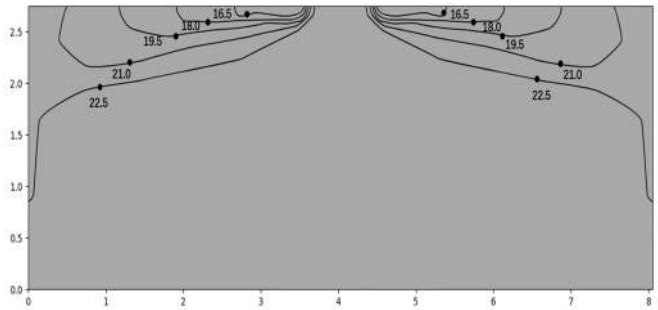


Figure 9.36: 4TVCD027AB07RAA heating at 300s

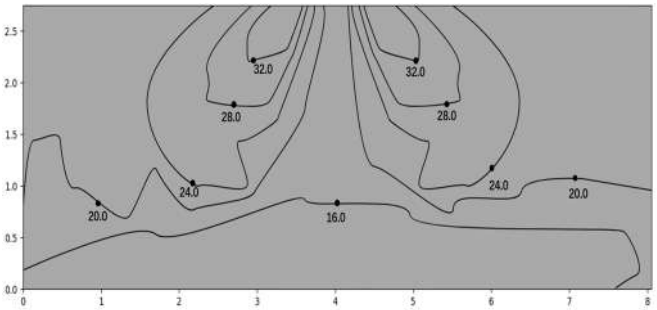


Figure 9.37: 4TVCD030AB07RAA cooling at 300s

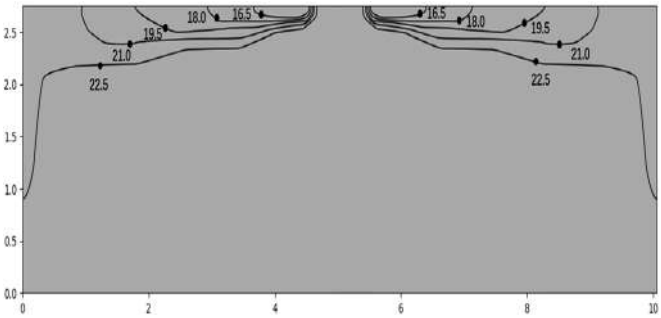


Figure 9.38: 4TVCD030AB07RAA heating at 300s

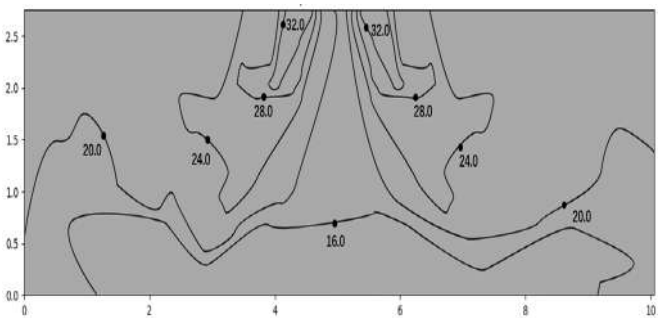


Figure 9.39: 4TVCD034AB07RAA cooling at 300s

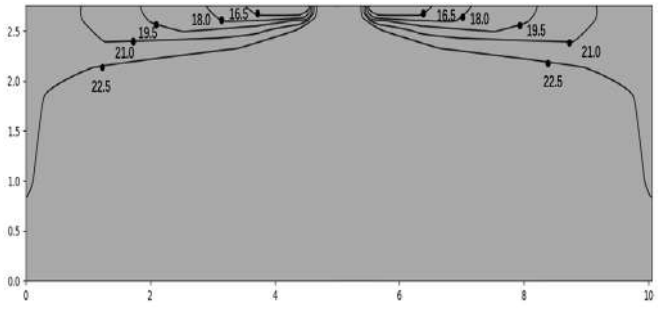


Figure 9.40: 4TVCD034AB07RAA heating at 300s

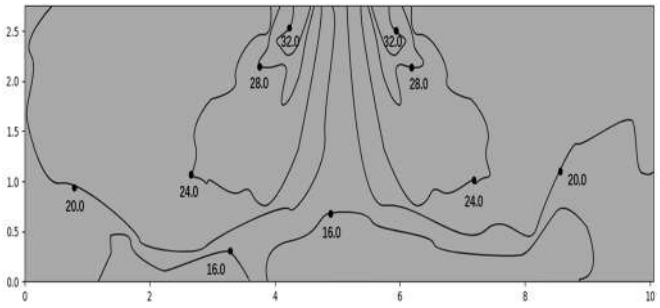


Figure 9.41: 4TVCD038AB07RAA cooling at 300s

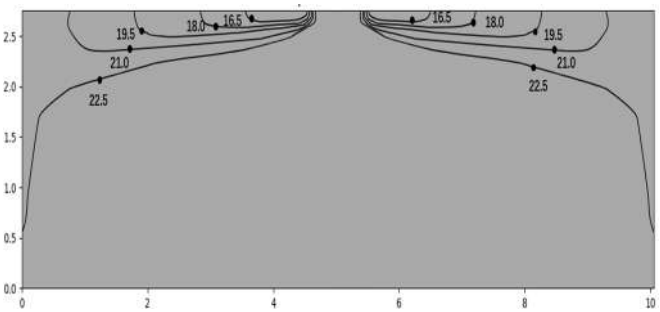


Figure 9.42: 4TVCD038AB07RAA heating at 300s

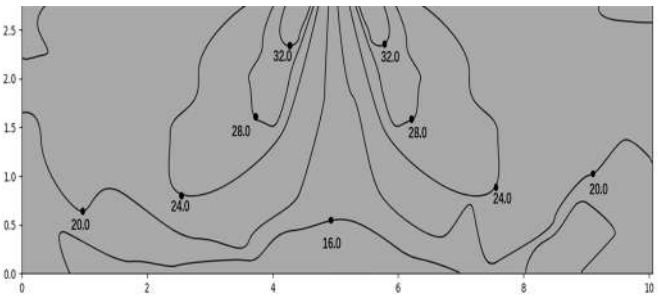


Figure 9.43: 4TVCD048AB07RAA cooling at 300s

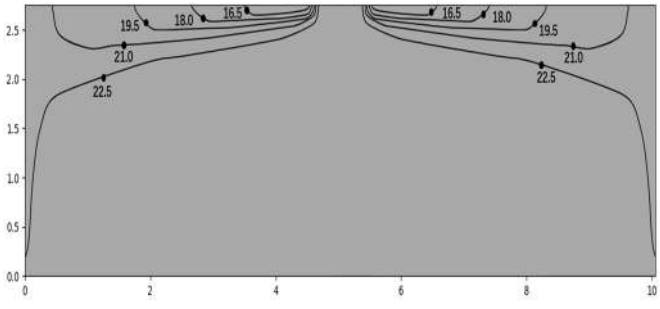


Figure 9.44: 4TVCD048AB07RAA heating at 300s

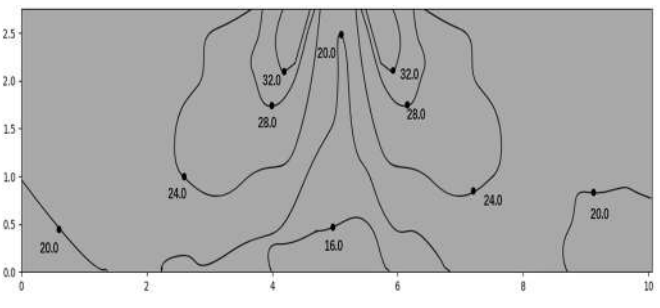


Figure 9.45: 4TVCD055AB07RAA cooling at 300s

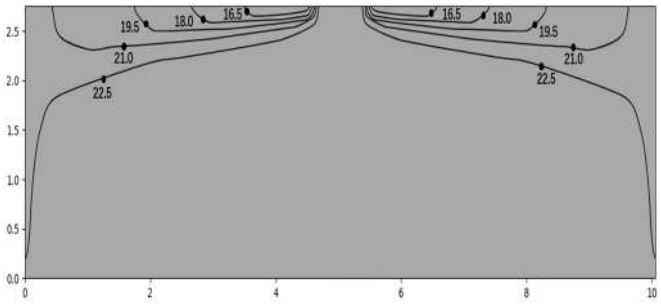


Figure 9.46: 4TVCD055AB07RAA heating at 300s

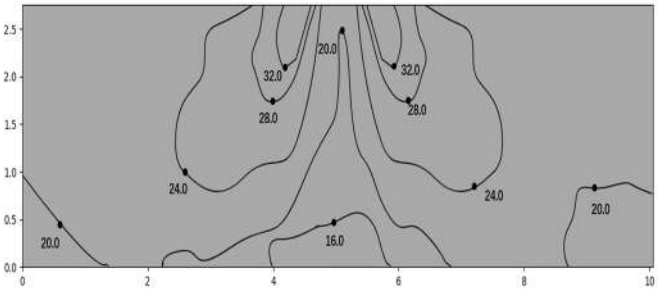


Figure 9.47: 4TVCD060AB07RAA cooling at 300s

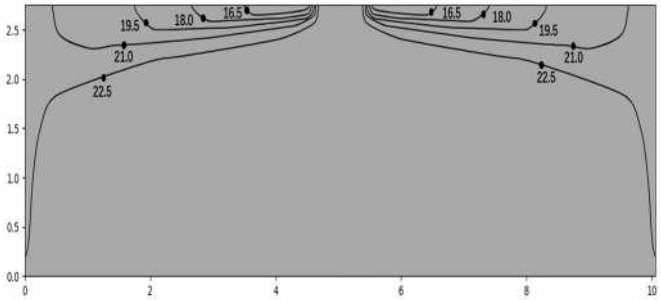
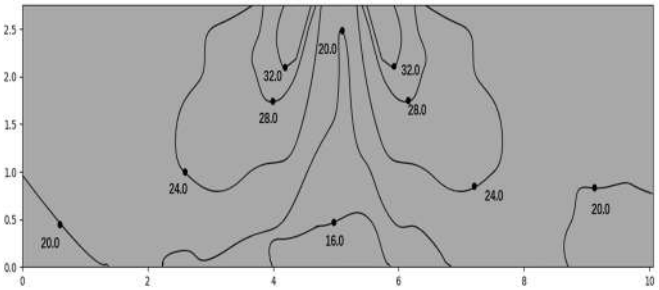


Figure 9.48: 4TVCD060AB07RAA heating at 300s



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