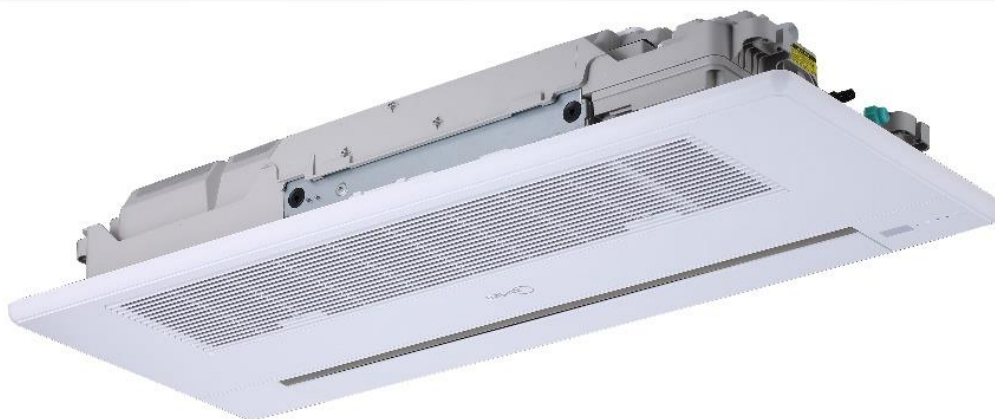
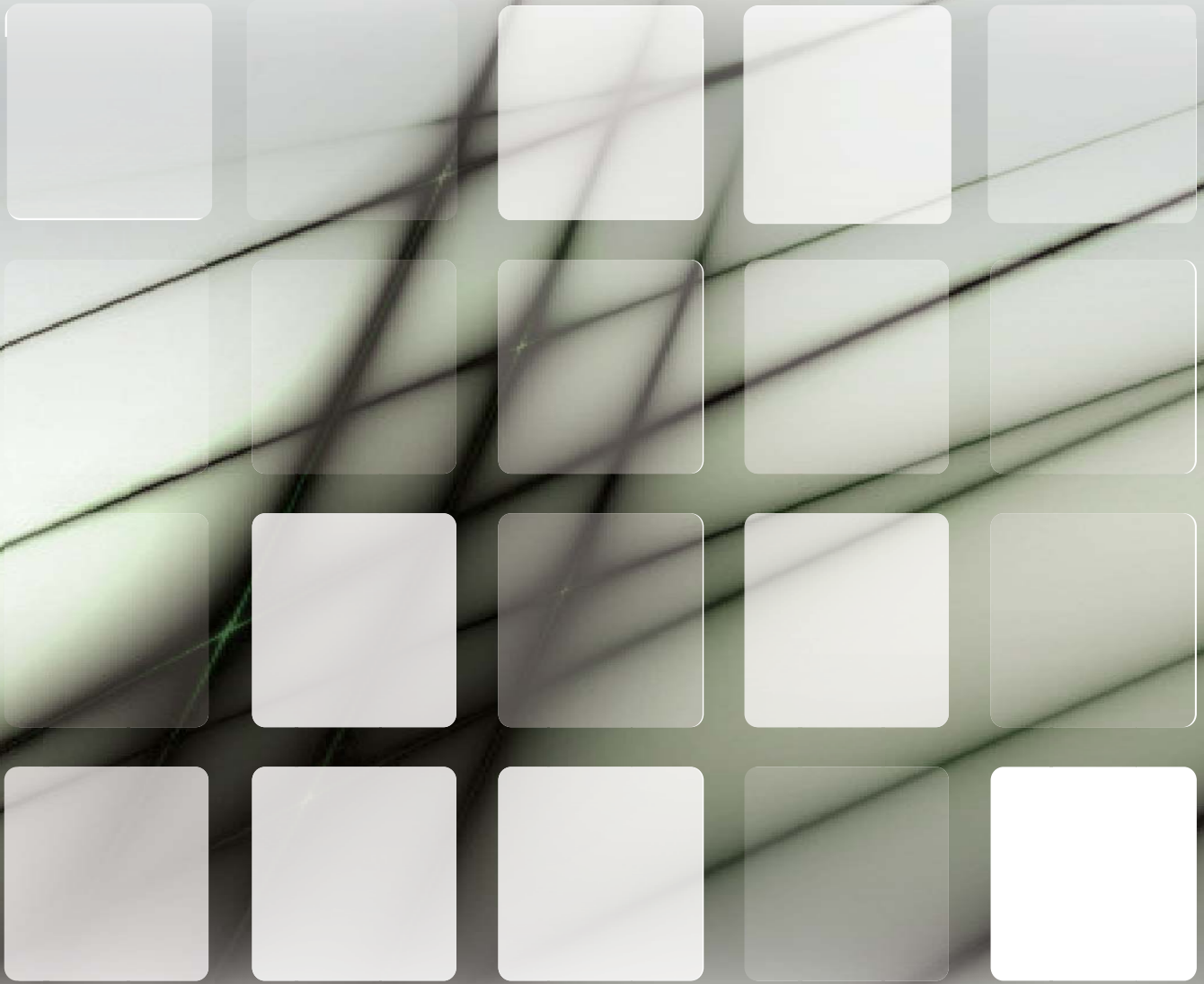


VECW - Series

One-Way Cassette Indoor unit

Technical Manual



One-way Cassette

1 Specifications	4
2 Dimensions.....	6
3 Unit Placement.....	8
4 Piping Diagram	9
5 Wiring Diagram	10
6 Capacity Tables.....	12
7 Electrical Characteristics	13
8 Sound Levels	14
9 Temperature and Airflow Distributions	16

OMEGA Indoor Units

1 Specifications

VECW007T0A-DWV018, VECW008T0A-DWV022, VECW010T0A-DWV028, VECW012T0A-DWV036

Table 1.1: VECW007(008,010,012)T0A specifications

Model			VECW007T0A-DWV018	VECW008T0A-DWV022	VECW010T0A-DWV028	VECW012T0A-DWV036
Power supply			1-phase, 220-240V, 50/60Hz			
Cooling ¹	Capacity	kW	1.8	2.2	2.8	3.6
		kBtu/h	6.1	7.5	9.6	12.3
	Power input	W	25	25	30	30
Heating ²	Capacity	kW	2.2	2.6	3.2	4.0
		kBtu/h	7.5	8.9	10.9	13.6
	Power input	W	25	25	30	30
Fan motor	Type		DC			
	Number		1			
Indoor coil	Number of rows		2	2	2	2
	Tube pitch × row pitch	mm	21×13.37	21×13.37	21×13.37	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	760×252.4×26.74			
	Number of circuits		2	2	3	3
Air flow rate ³		m ³ /h	380/355/330/300/286/263/240		460/440/410/380/355/330/300	
Sound pressure level ⁴		dB(A)	30/28/27/26/25/24/22		37/36/35/34/32/31/30	38/37/35/34/32/31/30
Main body	Net dimensions ⁵ (W×H×D)		in(mm) 41 1/2 x 6 1/8 x 16 7/8 (1054×153×428)			
	Net dimensions(no water tray)(W×H×D)		in(mm) 41 1/2 x5 1/2 x16 7/8 (1054×141×428)			
	Packed dimensions (W×H×D)		in(mm) 45 1/2 x9 5/8 x191/21 (1155×245×490)			
	Net/Gross weight		lbs(kg) 25.35(11.5)/31.97(14.5)		26.01(11.8)/32.63(14.8)	
Panel	Net dimensions (W×H×D)		in(mm) 46 1/2 x 7/8 x18 3/8 (1180×25×465)			
	Packed dimensions (W×H×D)		in(mm) 48 1/2 x 4 1/21 x20 3/8 (1232×107×517)			
	Net/Gross weight		lbs(kg) 7.72 (3.5)/10.36 (4.7)			
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:

- Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
- Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
- Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
- 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 a anechoic chamber.
- Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

VECW015T0A-DWV045, VECW019T0A-DWV056, VECW024T0A-DWV071

Table 1.2: VECW015(019,024)T0A specifications

Model			VECW015T0A-DWV045	VECW019T0A-DWV056	VECW024T0A-DWV071
Power supply			1-phase, 220-240V, 50/60Hz		
Cooling ¹	Capacity	kW	4.5	5.6	7.1
		kBtu/h	15.4	19.1	24.2
	Power input	W	40	48	60
Heating ²	Capacity	kW	5.0	6.3	8.0
		kBtu/h	17.1	21.5	27.3
	Power input	W	40	48	60
Fan motor	Type		DC		
	Number		1		
Indoor coil	Number of rows		2	2	2
	Tube pitch × row pitch	mm	21×13.37	21×13.37	21×13.37
	Fin spacing	mm	1.5	1.5	1.5
	Fin type		Hydrophilic aluminum		
	Tube OD and type	mm	Φ7 Inner-groove		
	Dimensions (L×H×W)	mm	955×231×26.74		
	Number of circuits		3	3	5
Air flow rate ³		m ³ /h	693/662/638/600/556 /510/476	792/763/728/688/643 /589/549	933/873/815/749/689 /637/592
Sound pressure level ⁴		dB(A)	39/37/36/35/34/32/31	41/39/38/37/36/35/33	43/41/40/39/37/36/35
Main body	Net dimensions ⁵ (W×H×D)	in(mm)	50 1/21 x 7 1/2 x 17 7/8 (1275×189×452)		
	Net dimensions(no water tray)(W×H×D)	in(mm)	50 1/21 x 6 7/8 x17 7/8 (1275×176×452)		
	Packed dimensions (W×H×D)	in(mm)	53 7/8 x11 5/8 x19 7/8 (1370×295×505)		
	Net/Gross weight	lbs(kg)	34.83 (15.8)/44.53 (20.2)	37.26 (16.9)/47.18(21.4)	
Panel	Net dimensions (W×H×D)	in(mm)	53 1/8 x 7/8 x19 7/8 (1350×25×505)		
	Packed dimensions (W×H×D)	in(mm)	55 1/2 x3 3/4 x22 1/8 (1410×95×560)		
	Net/Gross weight	lbs(kg)	8.82(4)/12.35(5.6)		
Refrigerant type			R410A/R32		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		Φ9.52/Φ15.9
connections	Drain pipe	mm	OD Φ25		

Notes:

- Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
- Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
- Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
- 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 a anechoic chamber.
- Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

OMEGA Indoor Units

2 Dimensions

2.1 Unit Dimensions

Figure 2.1: VECW007(008,010,012)T0A dimensions (unit: mm)

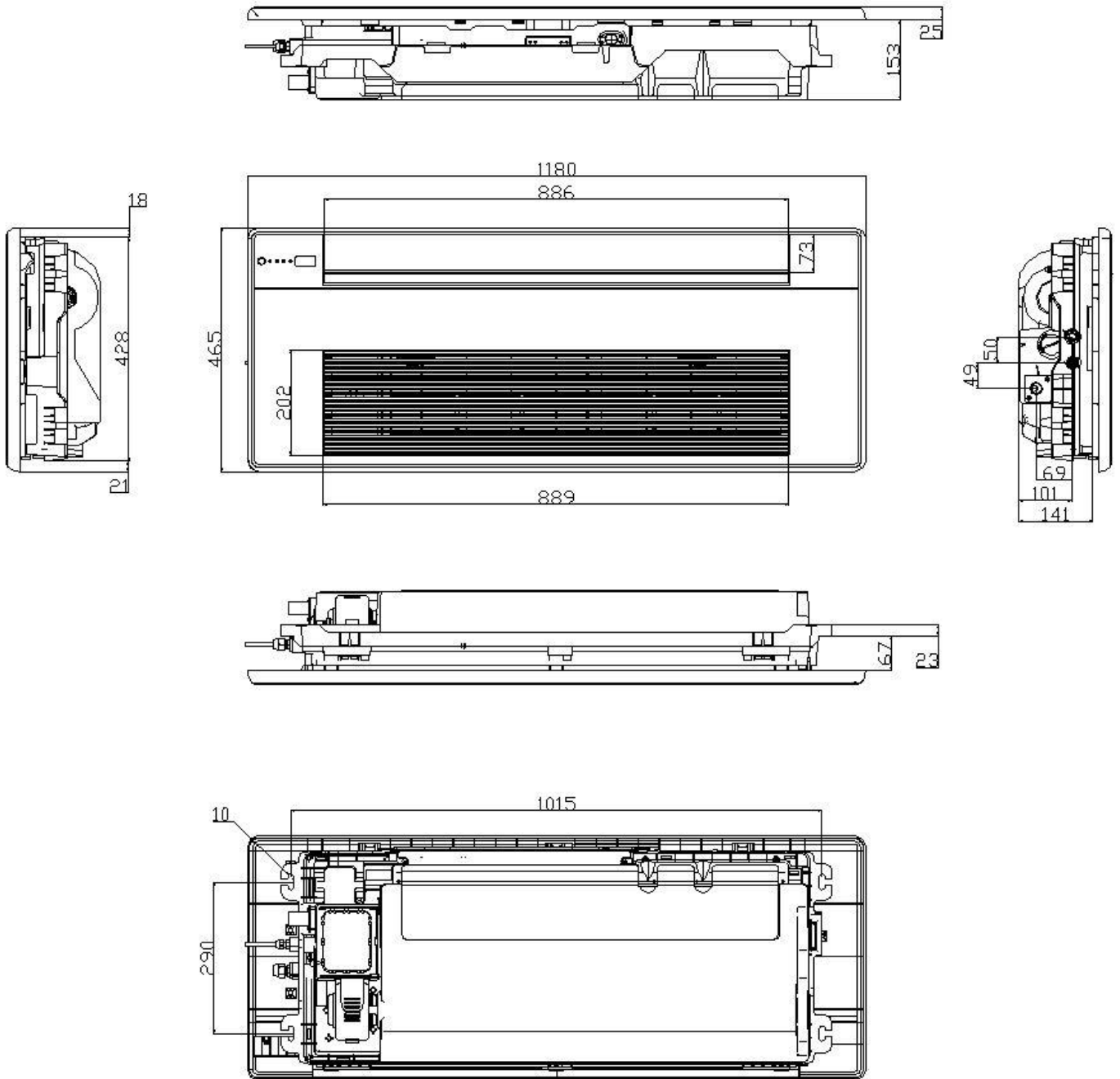
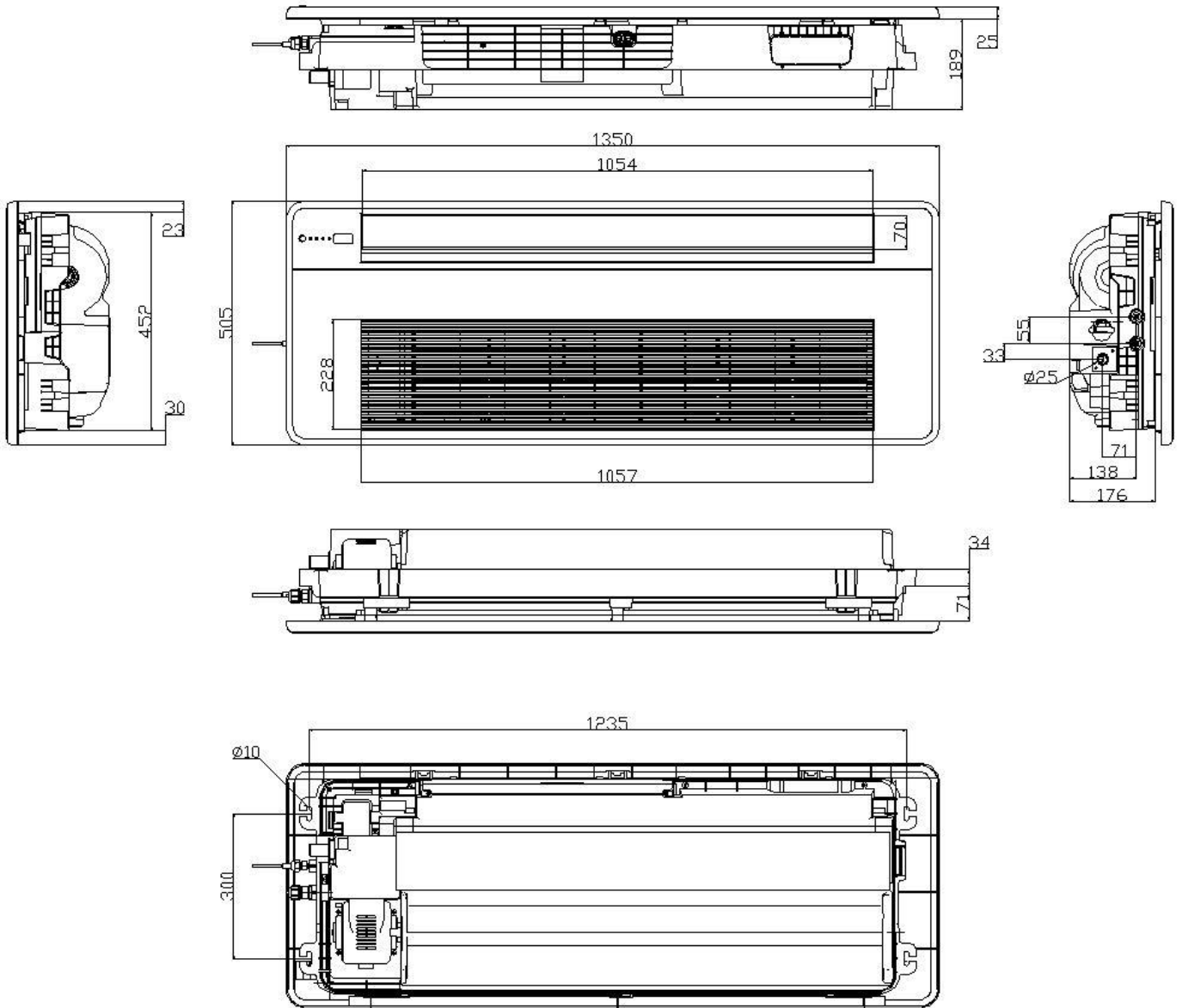


Figure 2.2: VECW015(019,024)T0A dimensions (unit: mm)



OMEGA Indoor Units

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

Figure 3.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette space requirements (unit: mm)

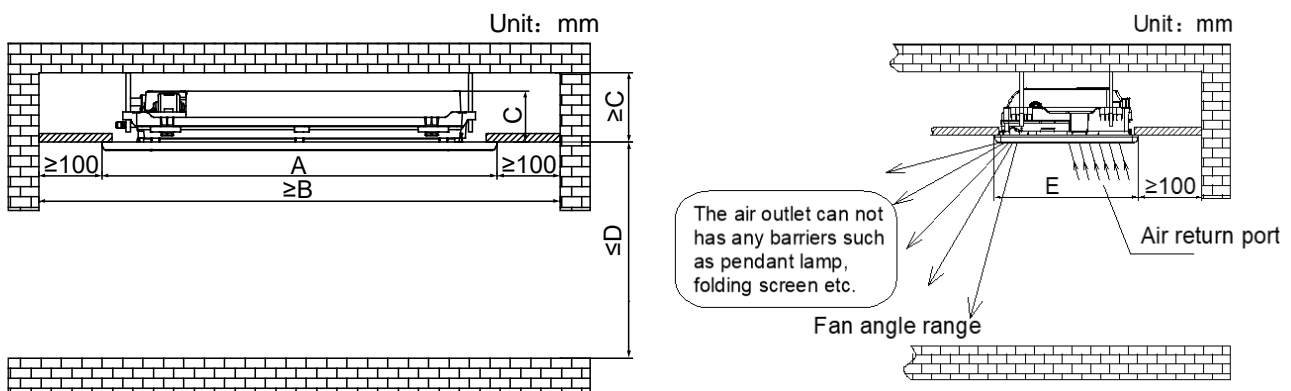
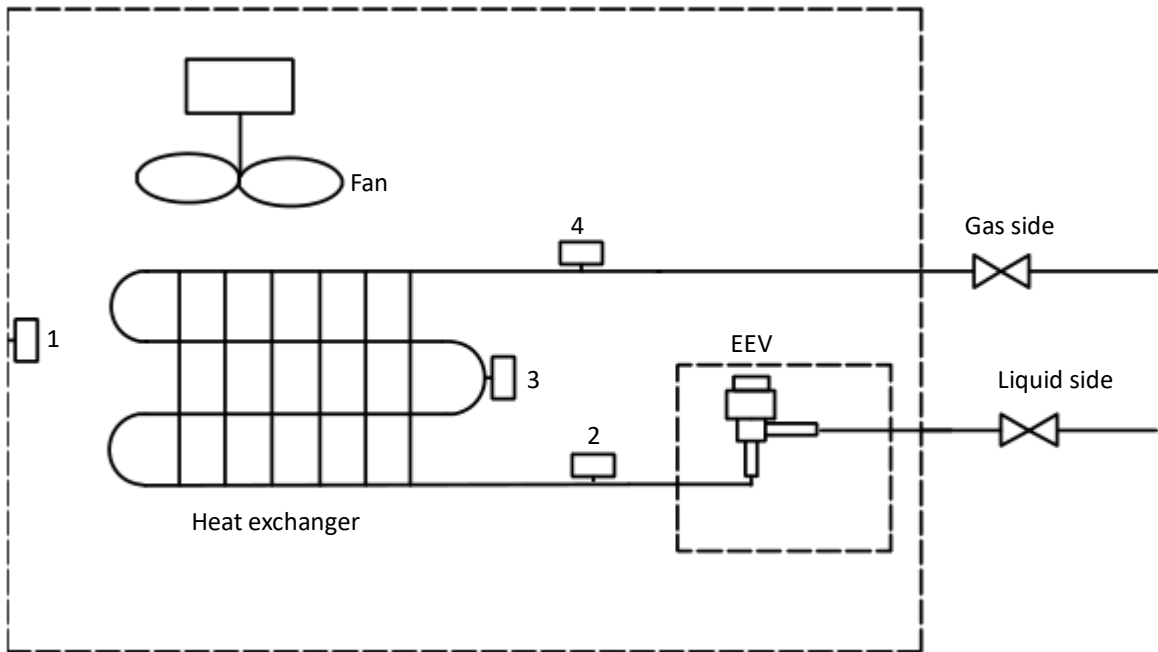


Table 3.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette dimensions and space requirements

Model name	Dimensions / Requirements (mm)				
	A	B	C	D	E
VECW007T0A-DWV018	1180	1380	153	3200	465
VECW008T0A-DWV022					
VECW010T0A-DWV028					
VECW012T0A-DWV036					
VECW015T0A-DWV045	1350	1550	189	4000	505
VECW019T0A-DWV056					
VECW024T0A-DWV071					

4 Piping Diagram

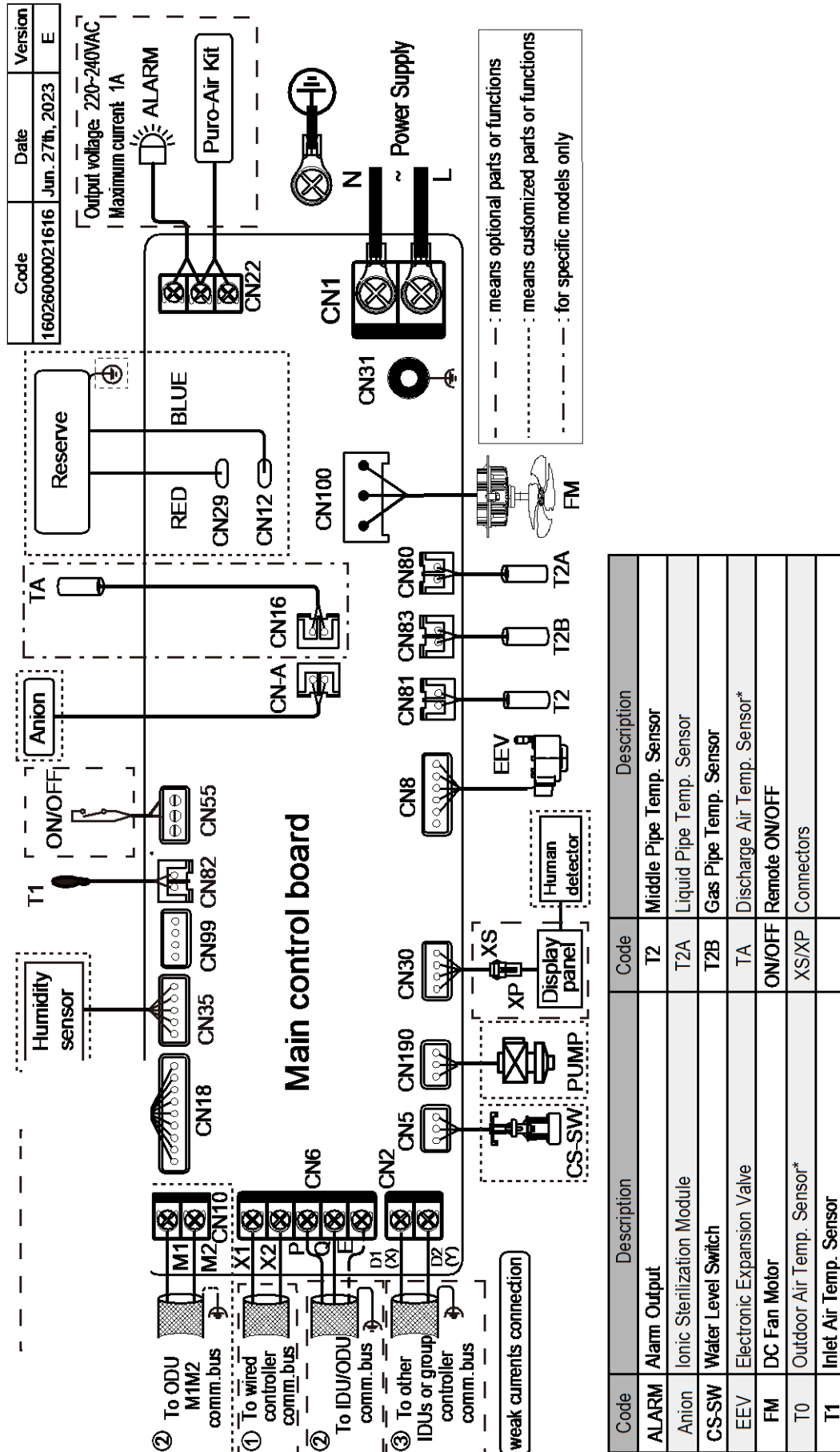
Figure 4.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette piping diagram



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	EEV	Electronic Expansion Valve
6	FAN	DC Fan Motor

5 Wiring Diagram

Figure 5.1: VECW007(008,010,012,15,019,024)TOA



* 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.

OMEGA Indoor Units

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: VECW007(008,010,012,15,019,024)T0A One-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
VECW007T0A-DWV018	1.6	1.5	1.7	1.5	1.8	1.6	1.8	1.5	1.9	1.5	1.9	1.4	2.0	1.4
VECW008T0A-DWV022	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
VECW010T0A-DWV028	2.5	2.3	2.7	2.4	2.8	2.4	2.8	2.3	2.9	2.3	2.9	2.1	3.0	2.1
VECW012T0A-DWV036	3.2	2.9	3.4	3.0	3.6	3.1	3.6	3.0	3.7	2.9	3.8	2.8	3.9	2.7
VECW015T0A-DWV045	4.0	3.7	4.3	3.8	4.5	3.9	4.5	3.7	4.6	3.6	4.7	3.4	4.8	3.3
VECW019T0A-DWV056	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
VECW024T0A-DWV071	6.3	5.7	6.7	5.9	7.0	5.9	7.1	5.8	7.2	5.7	7.4	5.4	7.6	5.2

Abbreviations:

TC: Total capacity (kW)

SC: Sensible capacity(kW)

Notes:

1. Shaded cells indicate rating condition

6.2 Heating Capacity Table

Table 6.2: VECW007(008,010,012,15,019,024)T0A One-way Cassette heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	SHC	SHC	SHC	SHC	SHC	SHC
VECW007T0A-DWV018	2.4	2.4	2.2	2.1	2.1	1.9
VECW008T0A-DWV022	2.8	2.8	2.6	2.5	2.4	2.3
VECW010T0A-DWV028	3.4	3.4	3.2	3.1	3.0	2.8
VECW012T0A-DWV036	4.2	4.2	4.0	3.8	3.8	3.5
VECW015T0A-DWV045	5.3	5.3	5.0	4.8	4.7	4.4
VECW019T0A-DWV056	6.7	6.6	6.3	6.1	5.9	5.5
VECW024T0A-DWV071	8.5	8.4	8.0	7.8	7.5	7.0

Abbreviations:

SHC: Sensible heating capacity(kW)

Notes:

1. Shaded cells indicate rating condition

7 Electrical Characteristics

Table 7.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette electrical characteristics

Model name	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (W)	FLA
VECW007T0A-DWV018	50/60	220-240	198	242	0.38	15	20	0.30
VECW008T0A-DWV022	50/60	220-240	198	242	0.38	15	20	0.30
VECW010T0A-DWV028	50/60	220-240	198	242	0.39	15	20	0.31
VECW012T0A-DWV036	50/60	220-240	198	242	0.39	15	20	0.31
VECW015T0A-DWV045	50/60	220-240	198	242	0.53	15	50	0.42
VECW019T0A-DWV056	50/60	220-240	198	242	0.58	15	50	0.46
VECW024T0A-DWV071	50/60	220-240	198	242	0.59	15	50	0.47

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

OMEGA Indoor Units

8 Sound Levels

8.1 Overall

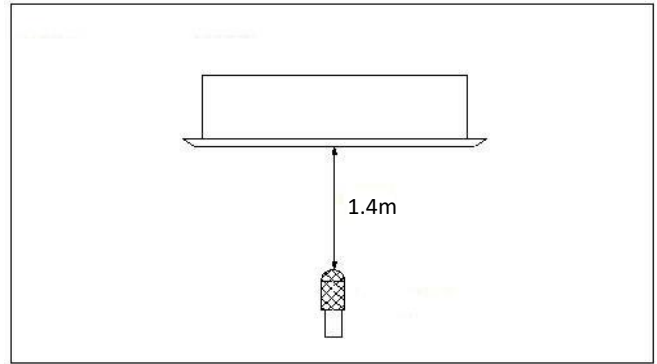
Table 8.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette sound pressure levels¹

Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
VECW007T0A-DWV018	30	28	27	26	25	24	22
VECW008T0A-DWV022	30	28	27	26	25	24	22
VECW010T0A-DWV028	37	36	35	34	32	31	30
VECW012T0A-DWV036	38	37	35	34	32	31	30
VECW015T0A-DWV045	39	37	36	35	34	32	31
VECW019T0A-DWV056	41	39	38	37	36	35	33
VECW024T0A-DWV071	43	41	40	39	37	36	35

Notes:

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

Figure 8.1: One-way Cassette sound pressure level measurement



8.2 Octave Band Levels

Figure 8.2: VECW007(008)T0A octave band levels

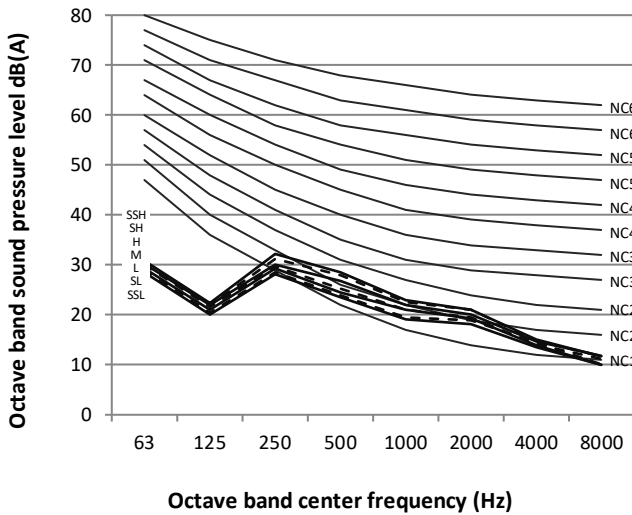


Figure 8.3: VECW010T0A-DWV028 octave band levels

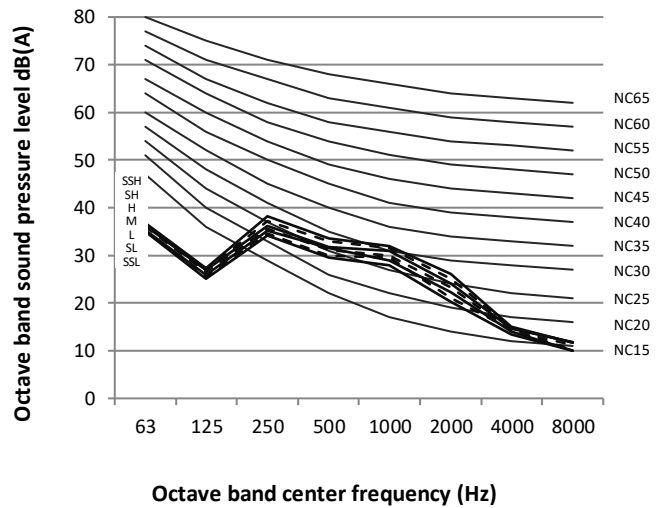


Figure 8.4: VECW012T0A-DWV036 octave band levels

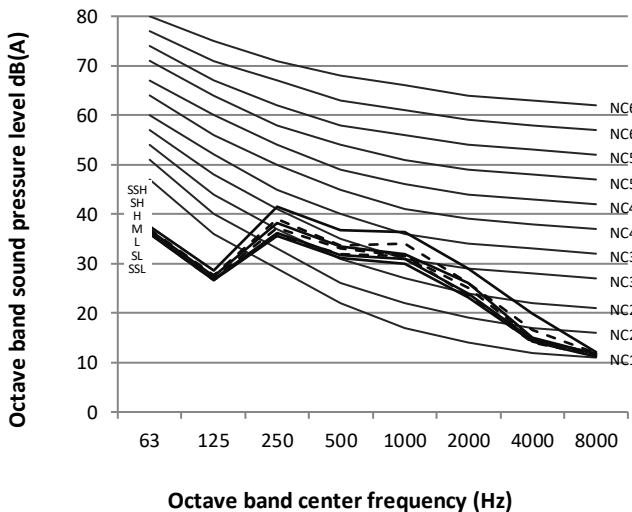


Figure 8.5: VECW015T0A-DWV045 octave band levels

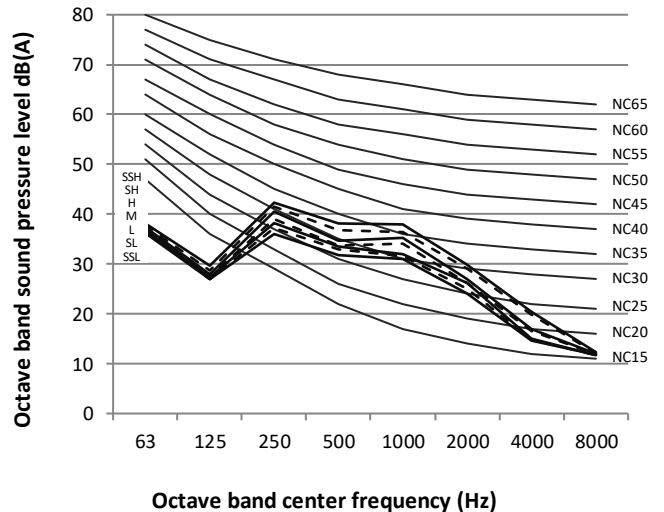


Figure 8.5: VECW019T0A-DWV056 octave band levels

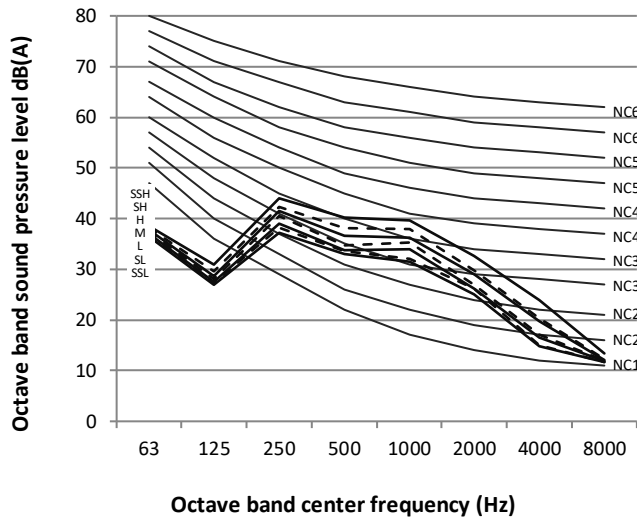
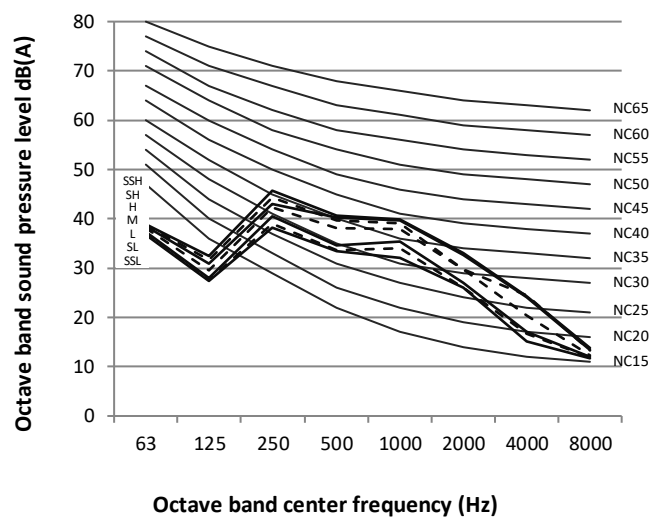


Figure 8.7: VECW024T0A-DWV071 octave band levels



OMEGA Indoor Units

9 Temperature and Airflow Distributions

9.1 Simulate condition

Table 9.1: VECW007(008,010,012,15,019,024)T0A One-way Cassette simulate condition

Model name	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
VECW007T0A-DWV018	6*6	2.7	25° /80°	Cassette
VECW008T0A-DWV022	6*6	2.7	25° /80°	Cassette
VECW010T0A-DWV028	6*6	2.7	25° /80°	Cassette
VECW012T0A-DWV036	6*6	2.7	25° /80°	Cassette
VECW015T0A-DWV045	8*8	2.7	25° /80°	Cassette
VECW019T0A-DWV056	8*8	2.7	25° /80°	Cassette
VECW024T0A-DWV071	8*8	2.7	25° /80°	Cassette

Note:

- 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 (unit: m/s)

Figure 9.1: VECW007T0A-DWV018 cooling at 300S

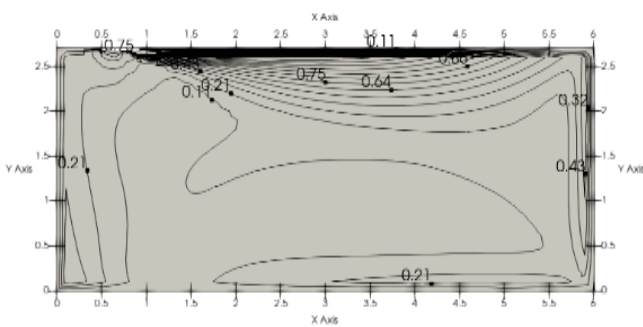


Figure 9.2: VECW007T0A-DWV018 heating at 300S

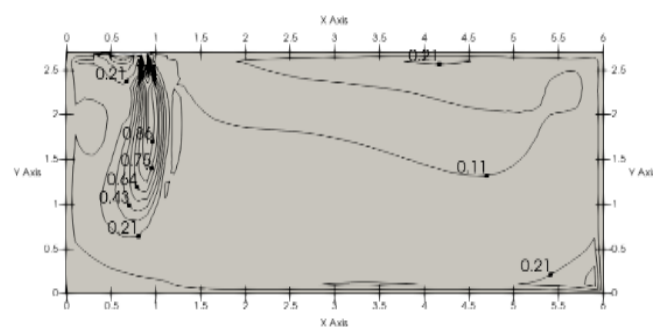


Figure 9.3: VECW008T0A-DWV022 cooling at 300S

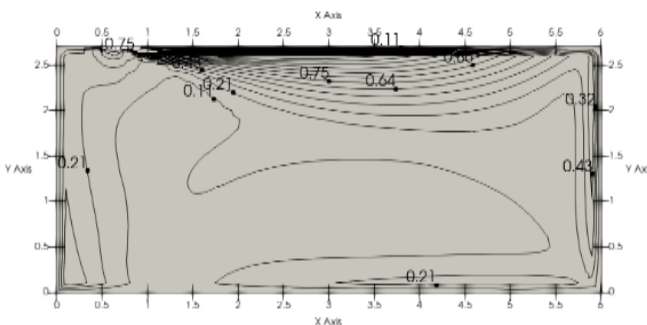


Figure 9.4: VECW008T0A-DWV022 heating at 300S

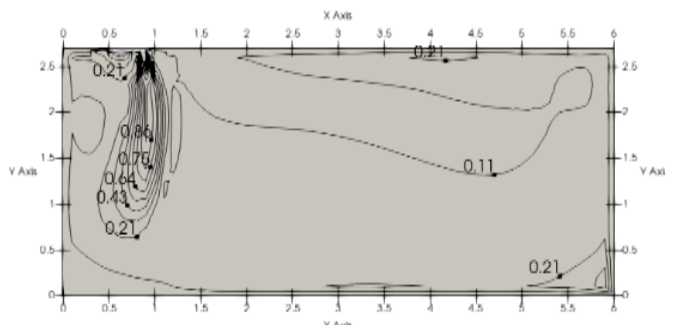


Figure 9.5: VECW010T0A-DWV028 cooling at 300S

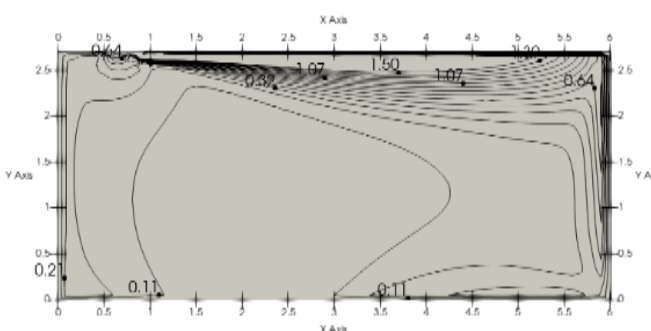


Figure 9.6: VECW010T0A-DWV028 heating at 300S

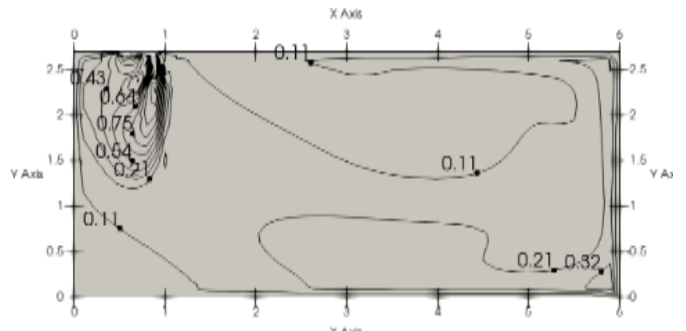


Figure 9.7: VECW012T0A-DWV036 cooling at 300S

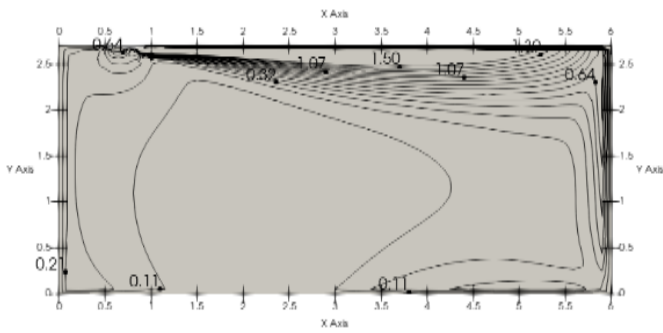


Figure 9.8: VECW012T0A-DWV036 heating at 300S

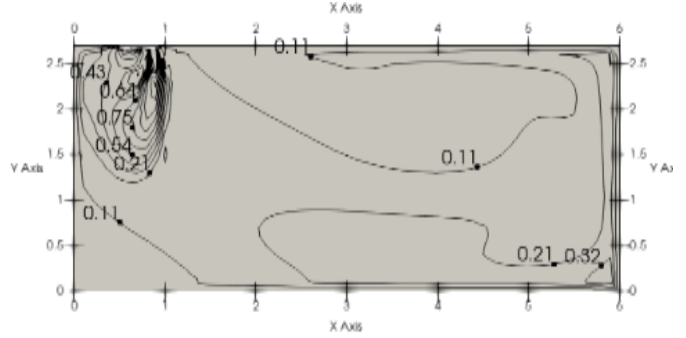


Figure 9.9: VECW015T0A-DWV045 cooling at 300S

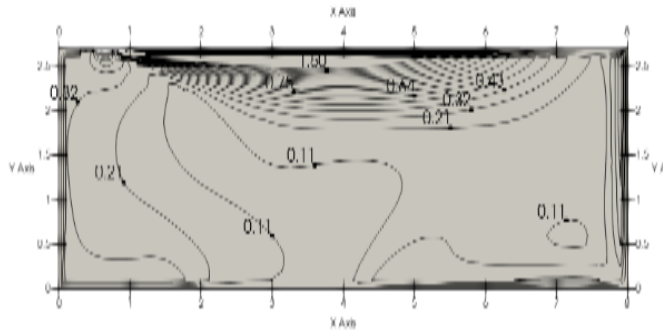


Figure 9.10: VECW015T0A-DWV045 heating at 300S

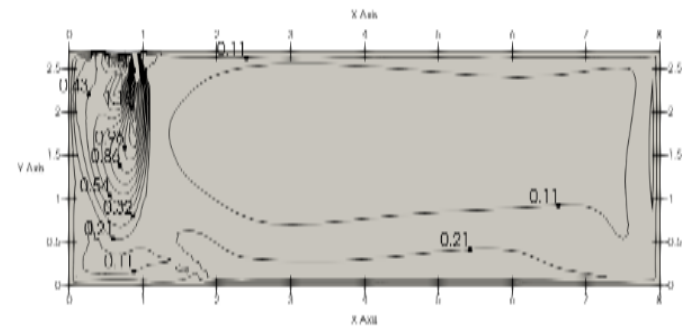


Figure 9.11: VECW019T0A-DWV056 cooling at 300S

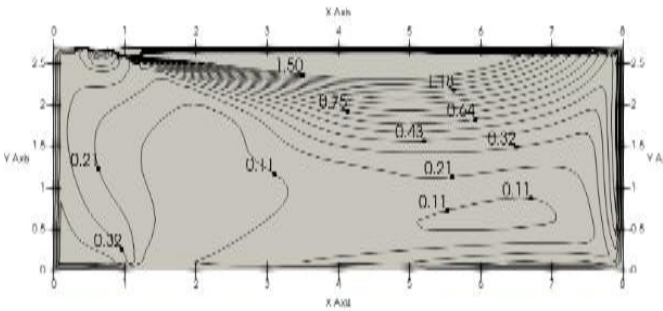


Figure 9.12: VECW019T0A-DWV056 heating at 300S

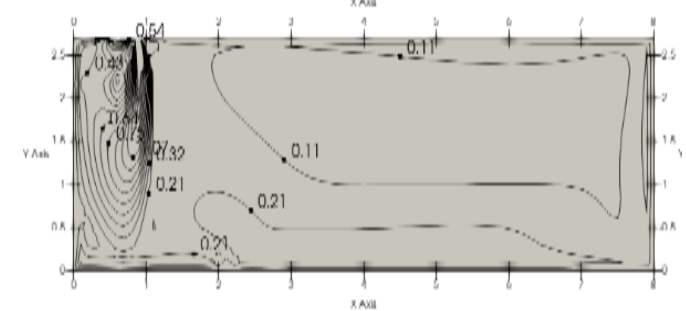


Figure 9.13: VECW024T0A-DWV071 cooling at 300S

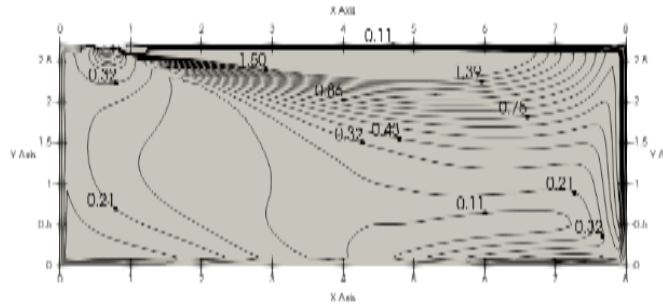
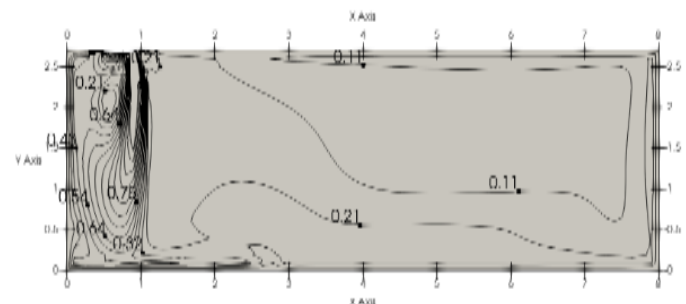


Figure 9.14: VECW024T0A-DWV071 heating at 300S



OMEGA Indoor Units

9.3 Temperature distributions (unit: °C)

Figure 9.15: VECW007T0A-DWV018 cooling at 300S

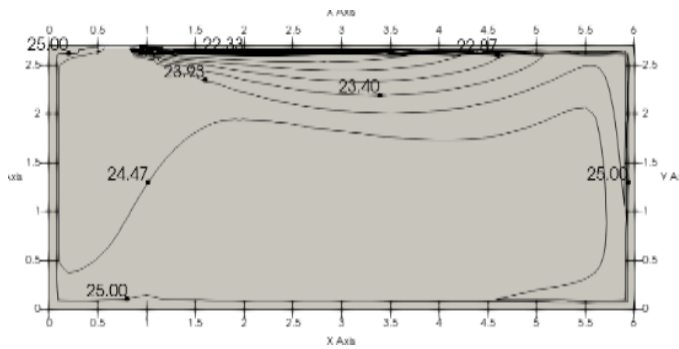


Figure 9.16: VECW007T0A-DWV018 heating at 300S

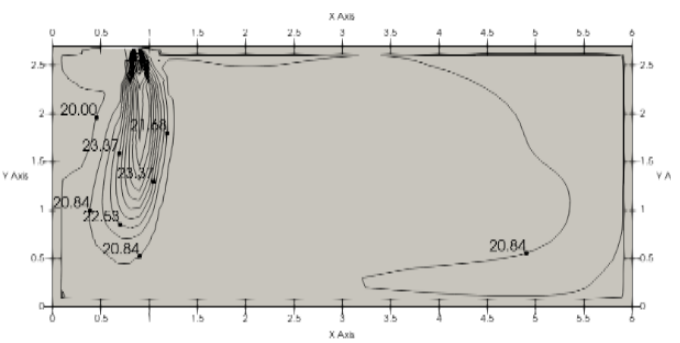


Figure 9.17: VECW008T0A-DWV022 cooling at 300S

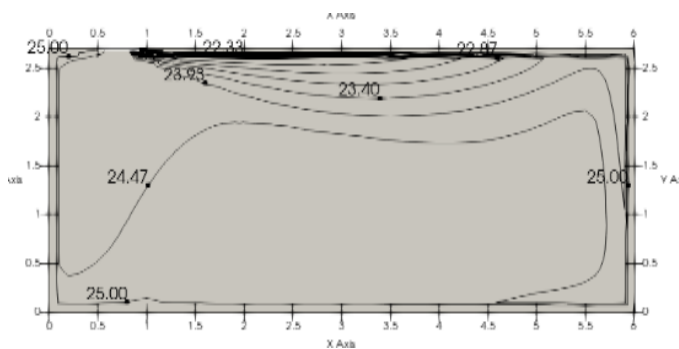


Figure 9.18: VECW008T0A-DWV022 heating at 300S

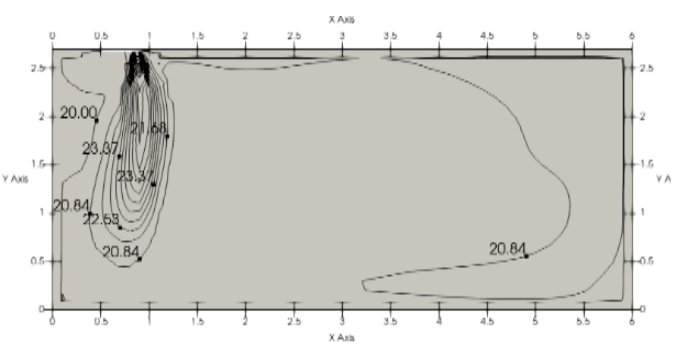


Figure 9.19: VECW010T0A-DWV028 cooling at 300S

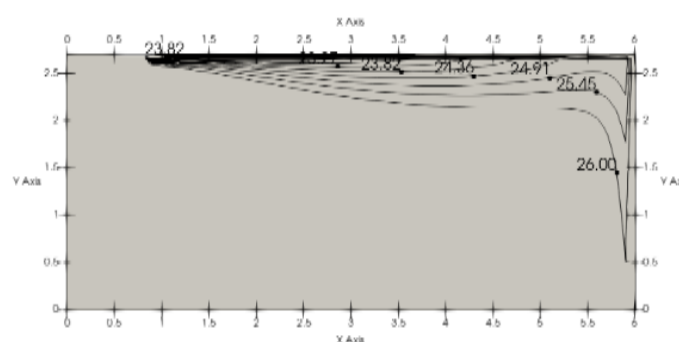


Figure 9.20: VECW010T0A-DWV028 heating at 300S

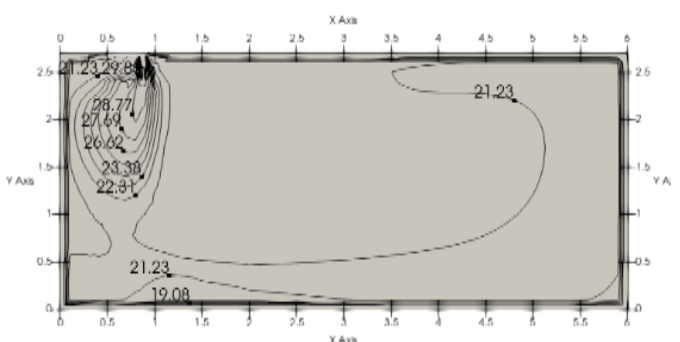


Figure 9.21: VECW012T0A-DWV036 cooling at 300S

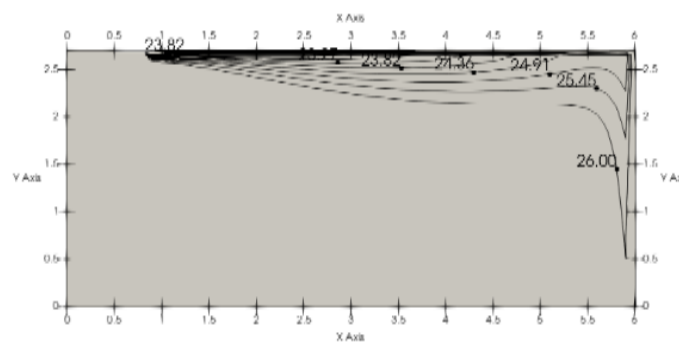


Figure 9.22: VECW012T0A-DWV036 heating at 300S

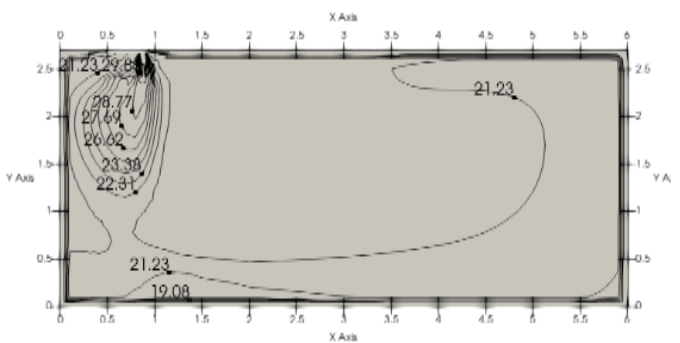


Figure 9.23: VECW015T0A-DWV045 cooling at 300S

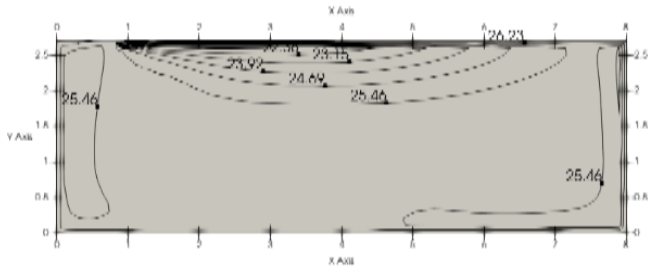


Figure 9.24: VECW015T0A-DWV045 heating at 300S

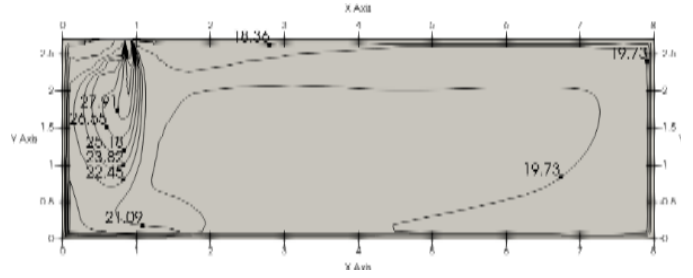


Figure 9.25: VECW019T0A-DWV056 cooling at 300S

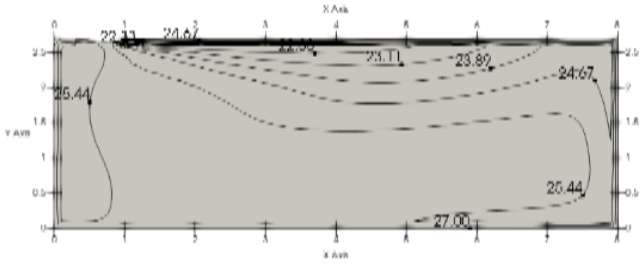


Figure 9.26: VECW019T0A-DWV056 heating at 300S

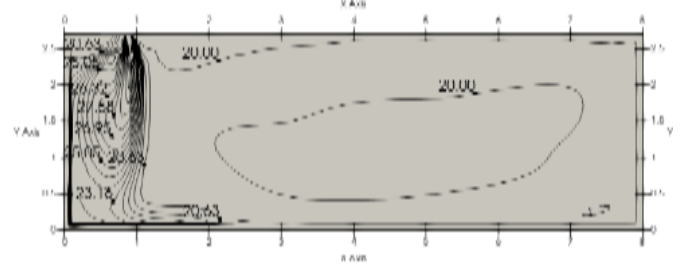


Figure 9.27: VECW024T0A-DWV071 cooling at 300S

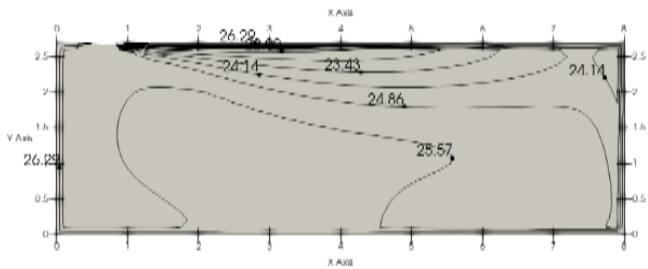
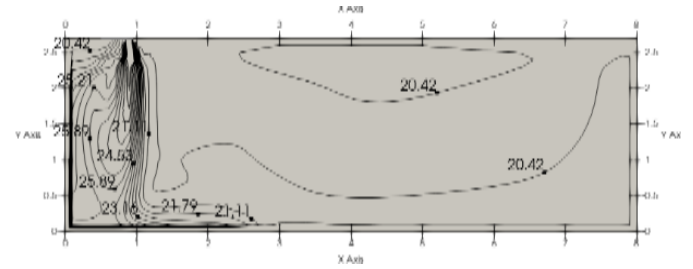


Figure 9.28: VECW024T0A-DWV071 heating at 300S





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