

Engineering Data

One-way Cassette VRF IDU



MI2-18Q1DHN1

MI2-45Q1DHN1

MI2-22Q1DHN1

MI2-56Q1DHN1

MI2-28Q1DHN1

MI2-71Q1DHN1

MI2-36Q1DHN1

One-way Cassette

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1 Specifications

MI2-18Q1DHN1 / MI2-22Q1DHN1 / MI2-28Q1DHN1 / MI2-36Q1DHN1

Table 1.1: MI2-18(22, 28,36)Q1DHN1 specifications

Model			MI2-18Q1DHN1	MI2-22Q1DHN1	MI2-28Q1DHN1	MI2-36Q1DHN1
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)	mm	1054×153×425			
	Packed dimensions (W×H×D)	mm	1155×245×490			
	Net/Gross weight	kg	11.8/15.3		12.3/15.8	
Panel	Net dimensions (W×H×D)	mm	1180×25×465			
	Packed dimensions (W×H×D)	mm	1232×107×517			
	Net/Gross weight	kg	3.5/5.2			
Refrigerant type			R410A	R410A	R410A	R410A
Design pressure (H/L)		MPa	4.4/2.6	4.4/2.6	4.4/2.6	4.4/2.6
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7			
	Drain pipe	mm	OD Φ32			

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 semi-anechoic chamber.
- Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

MI2-45Q1DHN1 / MI2-56Q1DHN1 / MI2-71Q1DHN1

Table 1.2: MI2-45(56,71)Q1DHN1 specifications

Model			MI2-45Q1DHN1	MI2-56Q1DHN1	MI2-71Q1DHN1
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)	mm	1275×189×450		
	Packed dimensions (W×H×D)	mm	1370×295×505		
	Net/Gross weight	kg	16.1/20.4	16.4/20.7	17.6/22.4
Panel	Net dimensions (W×H×D)	mm	1350×25×505		
	Packed dimensions (W×H×D)	mm	1410×95×560		
	Net/Gross weight	kg	4/5.4		
Refrigerant type			R410A	R410A	R410A
Design pressure (H/L)		MPa	4.4/2.6	4.4/2.6	4.4/2.6
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7	Φ9.53/Φ15.9	
	Drain pipe	mm	OD Φ32		

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 semi-anechoic chamber.
- Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

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2 Dimensions

2.1 Unit Dimensions

Figure 2.1: MI2-18(22, 28,36)Q1DHN1 dimensions (unit: mm)

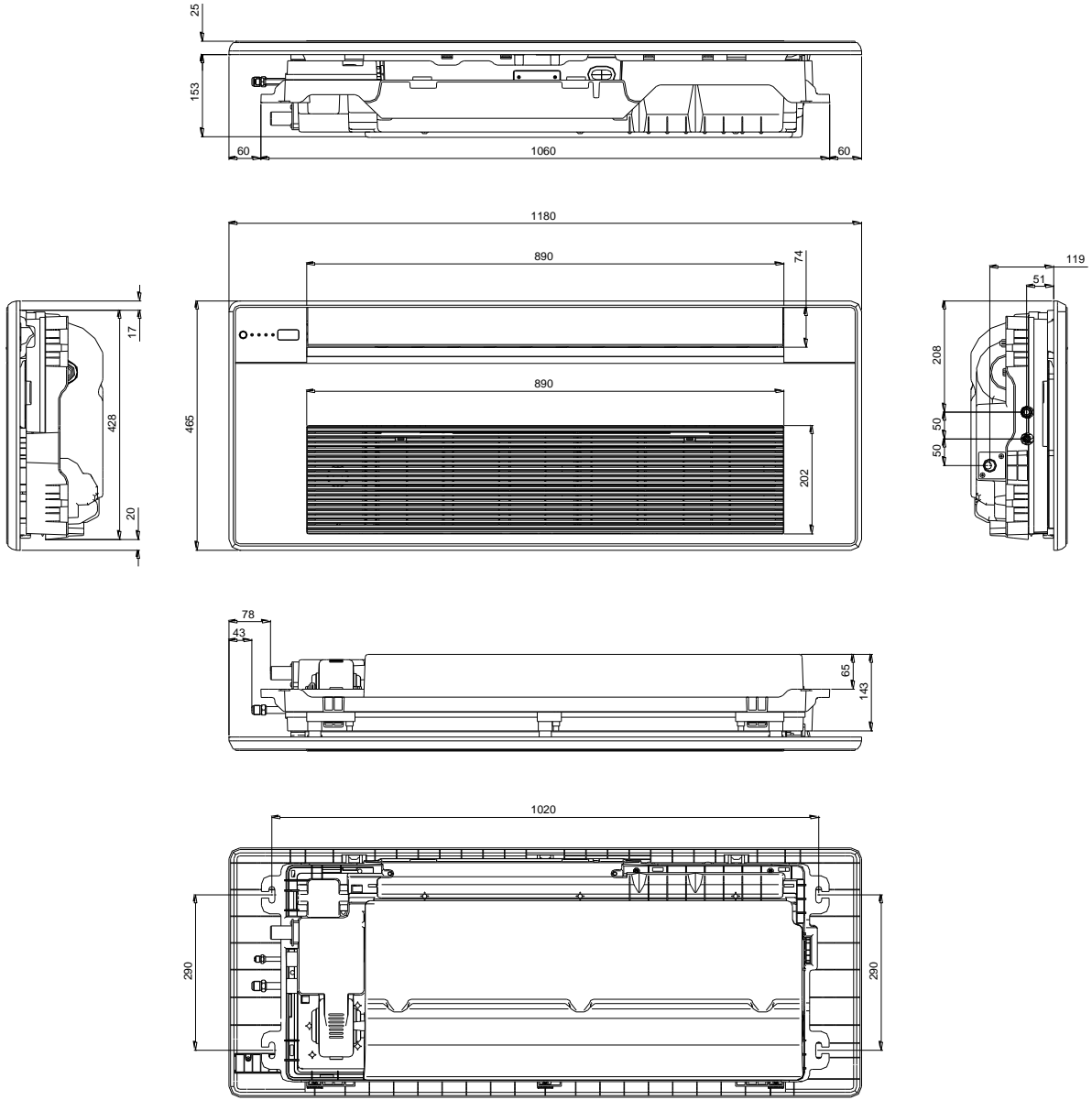
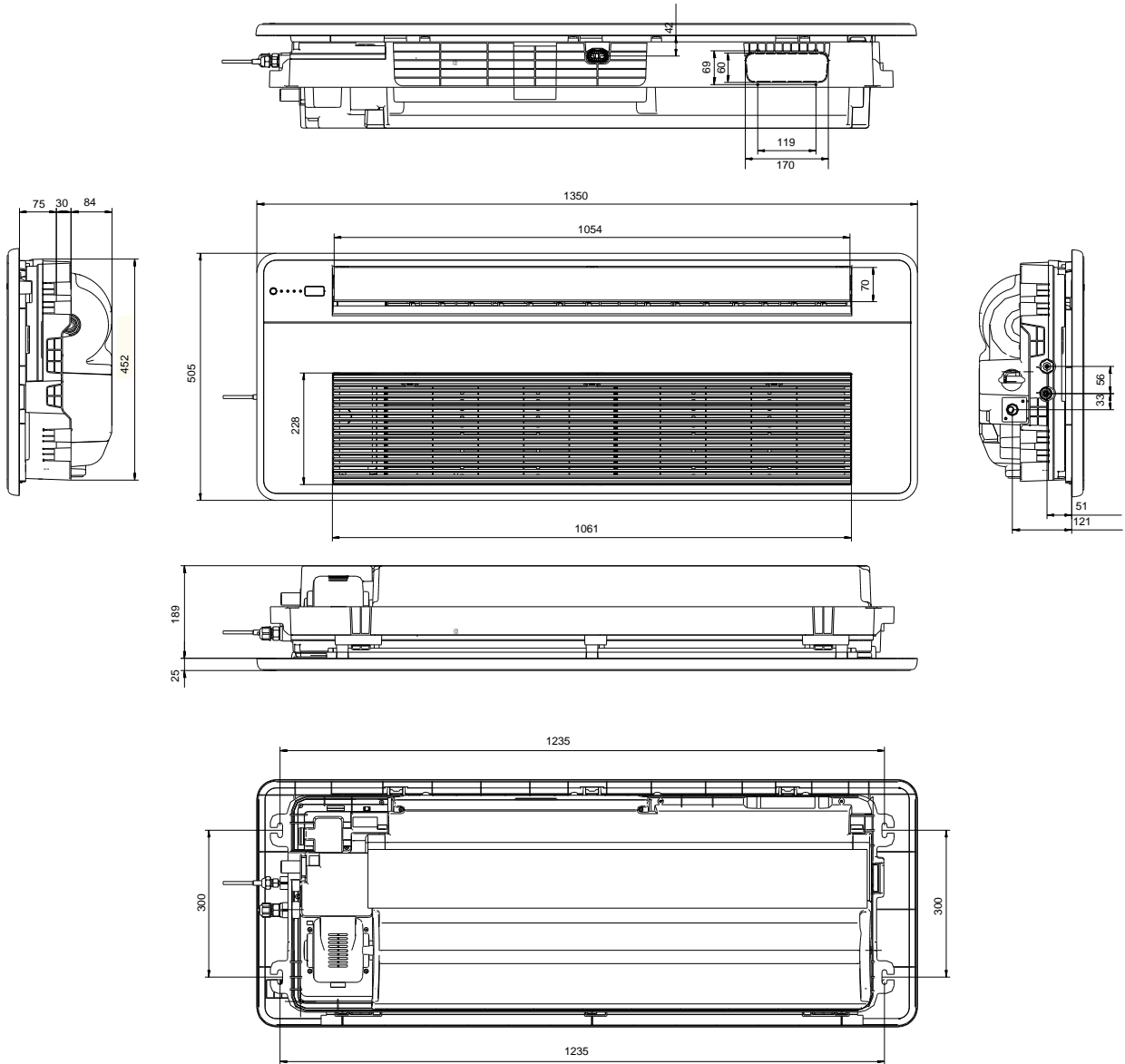


Figure 2.2: MI2-45(56,71)Q1DHN1 dimensions (unit: mm)



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: One-way Cassette space requirements (unit: mm)

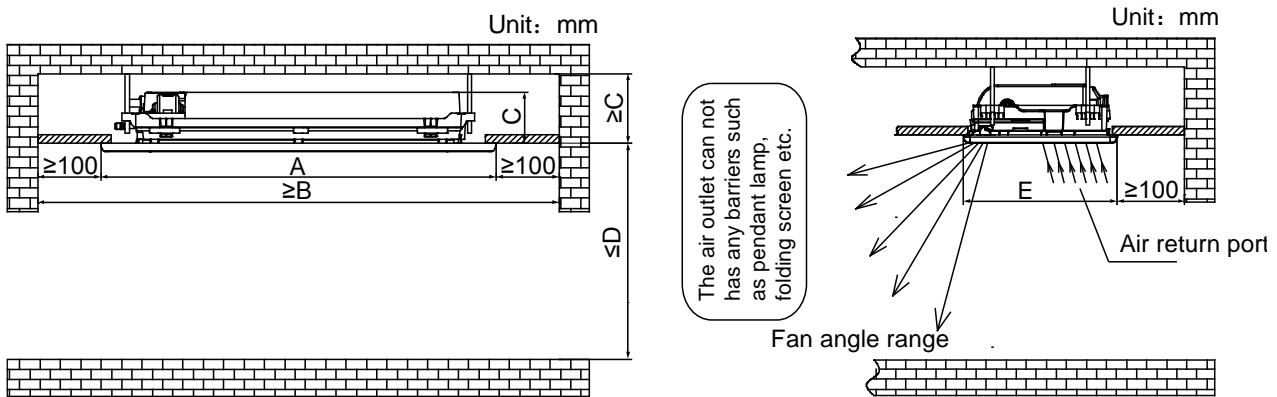
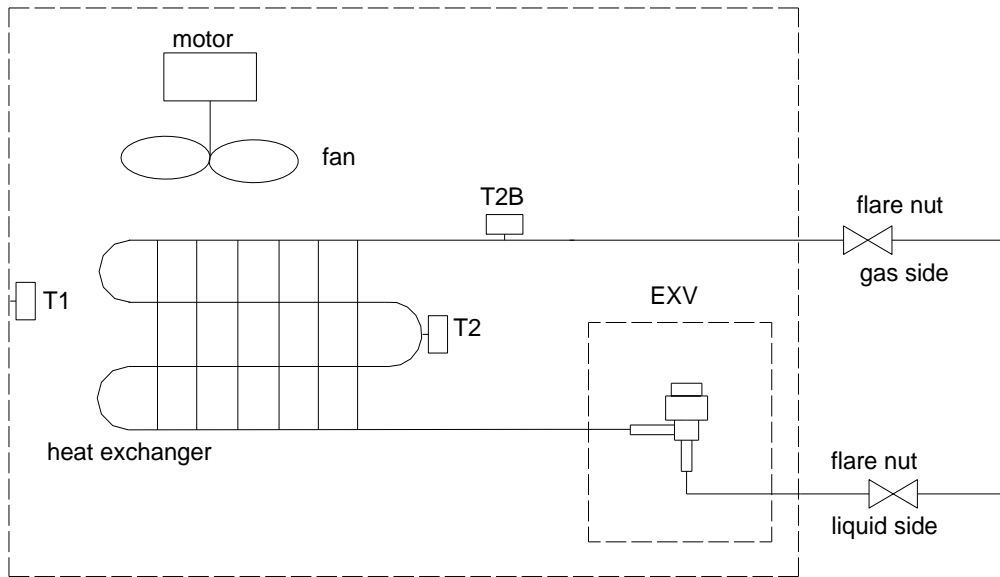


Table 3.1: One-way Cassette dimensions and space requirements

Model name	Dimensions / Requirements (mm)				
	A	B	C	D	E
MI2-18Q1DHN1 MI2-22Q1DHN1 MI2-28Q1DHN1 MI2-36Q1DHN1	1180	1380	153	3200	465
MI2-45Q1DHN1 MI2-56Q1DHN1 MI2-71Q1DHN1	1350	1550	189	4000	505

4 Piping Diagram

Figure 4.1: One-way Cassette piping diagram



Legend	
T1	Indoor ambient temperature sensor
T2	Indoor heat exchanger mid-point temperature sensor
T2B	Indoor heat exchanger outlet temperature sensor

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5 Wiring Diagram

Figure 5.1: MI2-18Q1DHN1, MI2-22Q1DHN1, MI2-28Q1DHN1, MI2-36Q1DHN1

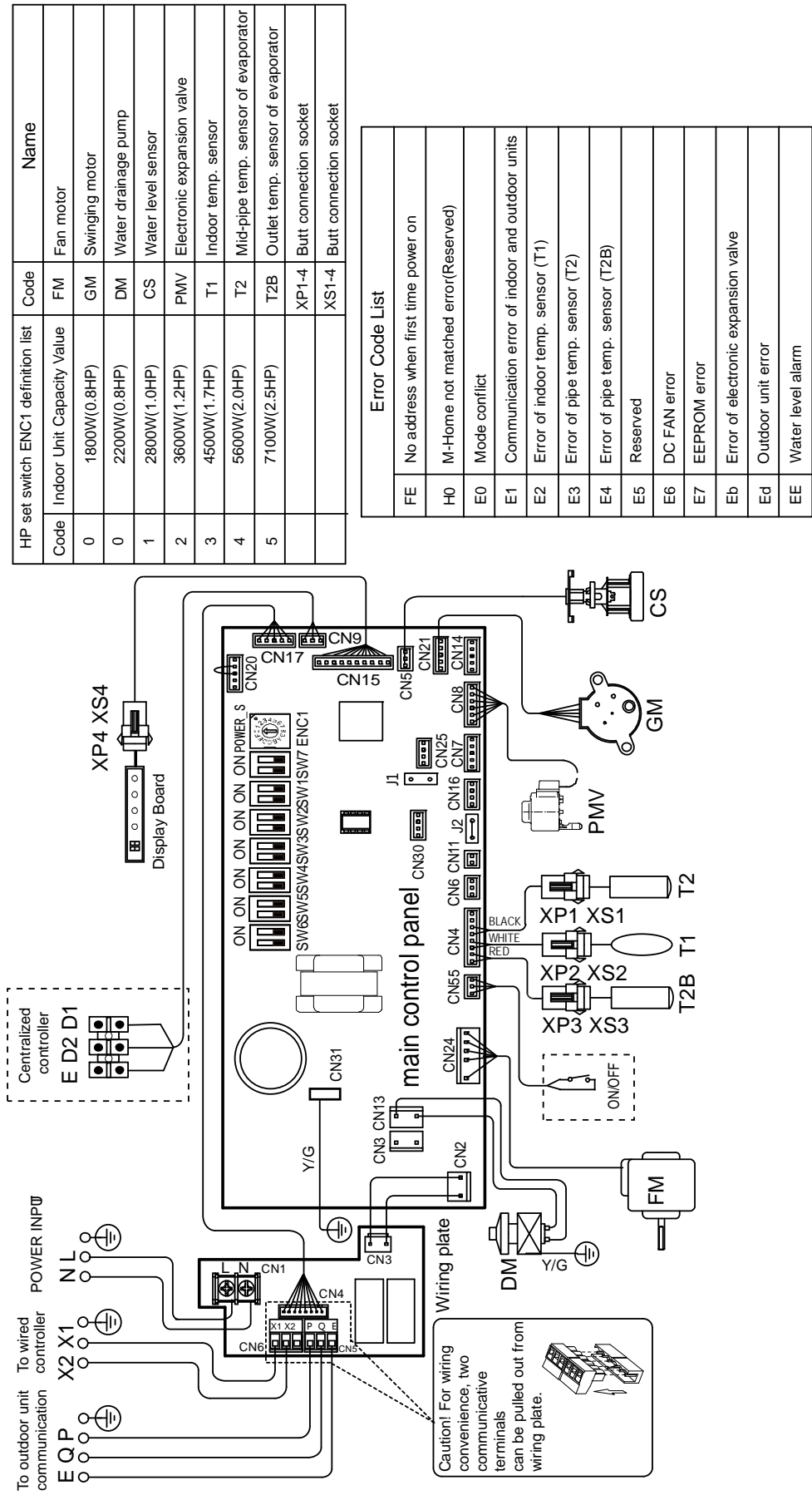
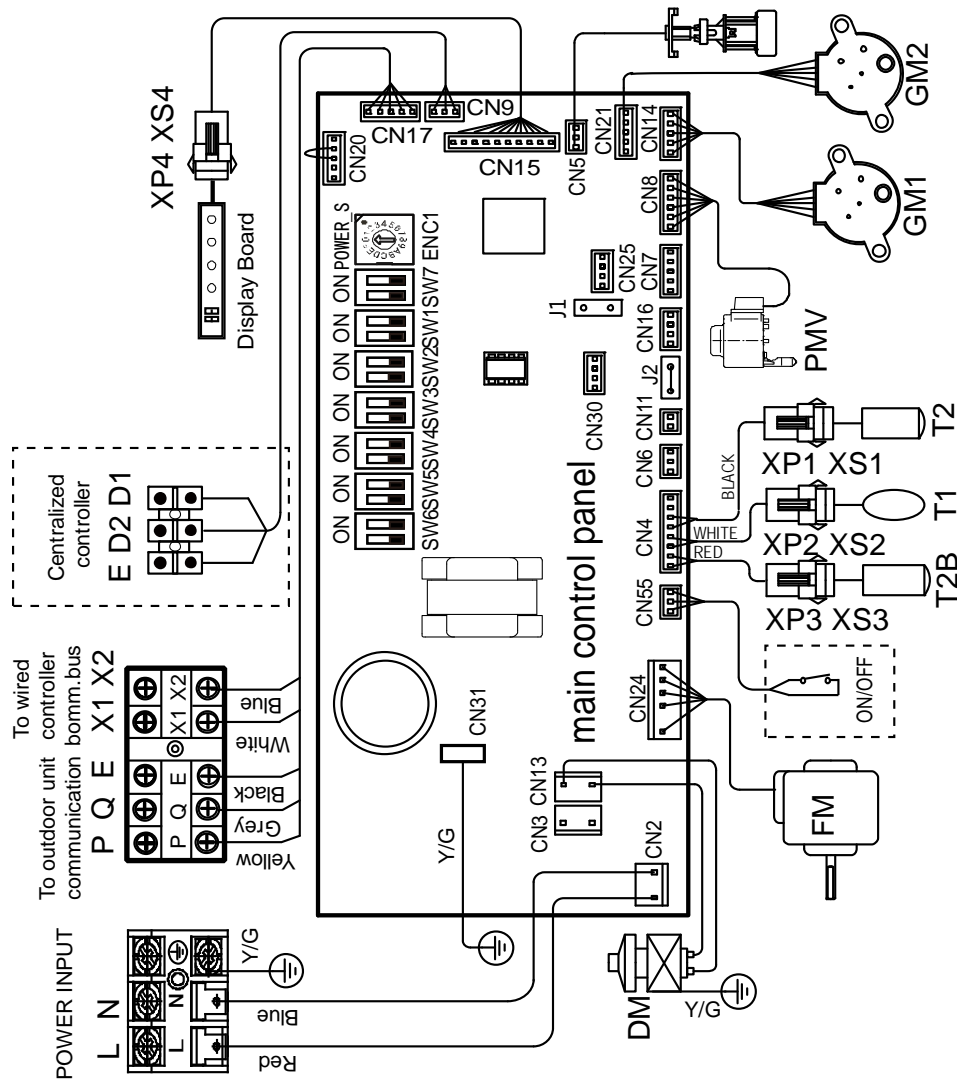


Figure 5.2: MI2-45Q1DHN1, MI2-56Q1DHN1, MI2-71Q1DHN1

HP set switch ENC1 definition list	Code	Name
Indoor Unit Capacity Value	FM	Fan motor
0 1800W(0.8HP)	GM1-2	Swinging motor
0 2200W(0.8HP)	DM	Water drainage pump
1 2800W(1.0HP)	CS	Water level sensor
2 3600W(1.2HP)	PMV	Electronic expansion valve
3 4500W(1.7HP)	T1	Indoor temp. sensor
4 5600W(2.0HP)	T2	Mid-pipe temp. sensor of evaporator
5 7100W(2.5HP)	T2B	Outlet temp. sensor of evaporator
	XP1-4	Butt connection socket
	XS1-4	Butt connection socket

Error Code List	
FE	No address when first time power on
H0	M-Home not matched error(Reserved)
E0	Mode conflict
E1	Communication error of indoor and outdoor units
E2	Error of indoor temp. sensor (T1)
E3	Error of pipe temp. sensor (T2)
E4	Error of pipe temp. sensor (T2B)
E5	Reserved
E6	DC FAN error
E7	EEPROM error
Eb	Error of electronic expansion valve
Ed	Outdoor unit error
EE	Water level alarm



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.
- Switch ENC1 (indoor unit capacity setting) is factory-set and its setting should normally not be changed. The only circumstances in which a switch ENC1 might need to be set in the field is when replacing a main PCB. When replacing a main PCB, ensure that the capacity setting on switch ENC1 on the new PCB is consistent with the unit capacity given on the unit's nameplate.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: 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
MI2-18Q1DHN1	1.6	1.6	1.7	1.6	1.8	1.6	1.8	1.5	1.9	1.5	1.9	1.4	2.0	1.4
MI2-22Q1DHN1	2.0	2.0	2.1	1.9	2.2	1.9	2.2	1.8	2.3	1.8	2.3	1.7	2.4	1.7
MI2-28Q1DHN1	2.5	2.4	2.7	2.5	2.8	2.4	2.8	2.3	2.9	2.3	2.9	2.1	3.0	2.1
MI2-36Q1DHN1	3.2	3.1	3.4	3.1	3.6	3.1	3.6	3.0	3.7	2.9	3.8	2.8	3.9	2.7
MI2-45Q1DHN1	4.0	3.9	4.3	3.9	4.5	3.9	4.5	3.7	4.6	3.6	4.7	3.4	4.8	3.3
MI2-56Q1DHN1	5.0	4.9	5.3	4.8	5.6	4.8	5.6	4.6	5.7	4.5	5.8	4.3	6.0	4.1
MI2-71Q1DHN1	6.3	6.0	6.7	6.0	7.0	6.0	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: One-way Cassette heating capacity

Model	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	TC	TC	TC	TC	TC	TC
MI2-18Q1DHN1	2.4	2.4	2.2	2.1	2.1	1.9
MI2-22Q1DHN1	2.8	2.8	2.6	2.5	2.4	2.3
MI2-28Q1DHN1	3.4	3.4	3.2	3.1	3.0	2.8
MI2-36Q1DHN1	4.2	4.2	4.0	3.8	3.8	3.5
MI2-45Q1DHN1	5.3	5.3	5.0	4.8	4.7	4.4
MI2-56Q1DHN1	6.7	6.6	6.3	6.1	5.9	5.5
MI2-71Q1DHN1	8.5	8.4	8.0	7.8	7.5	7.0

Abbreviations:

TC: Total capacity (kW)

Notes:

1. Shaded cells indicate rating condition

7 Electrical Characteristics

Table 7.1: One-way Cassette electrical characteristics

Model name	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
MI2-18Q1DHN1	50/60	220-240	198	264	0.38	15	0.02	0.30
MI2-22Q1DHN1	50/60	220-240	198	264	0.38	15	0.02	0.30
MI2-28Q1DHN1	50/60	220-240	198	264	0.39	15	0.02	0.31
MI2-36Q1DHN1	50/60	220-240	198	264	0.39	15	0.02	0.31
MI2-45Q1DHN1	50/60	220-240	198	264	0.53	15	0.06	0.42
MI2-56Q1DHN1	50/60	220-240	198	264	0.58	15	0.06	0.46
MI2-71Q1DHN1	50/60	220-240	198	264	0.59	15	0.06	0.47

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

8 Sound Levels

8.1 Overall

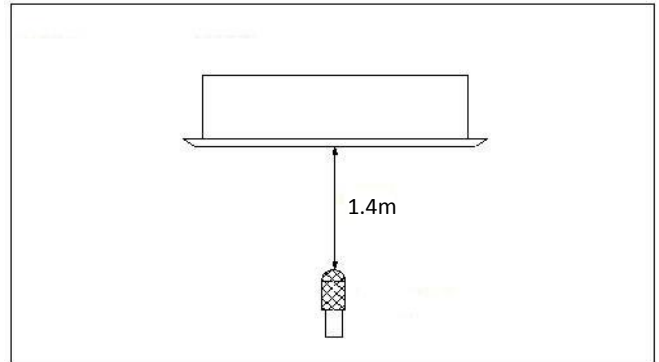
Table 8.1: One-way Cassette sound pressure levels¹

Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
MI2-18Q1DHN1	30	28	27	26	25	24	22
MI2-22Q1DHN1	30	28	27	26	25	24	22
MI2-28Q1DHN1	37	36	35	34	32	31	30
MI2-36Q1DHN1	38	37	35	34	32	31	30
MI2-45Q1DHN1	39	37	36	35	34	32	31
MI2-56Q1DHN1	41	39	38	37	36	35	33
MI2-71Q1DHN1	43	41	40	39	37	36	35

Notes:

1. Sound pressure levels are measured 1.4m 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: One-way Cassette sound pressure level measurement



8.2 Octave Band Levels

Figure 8.2: MI2-18(22)Q1DHN1 octave band levels

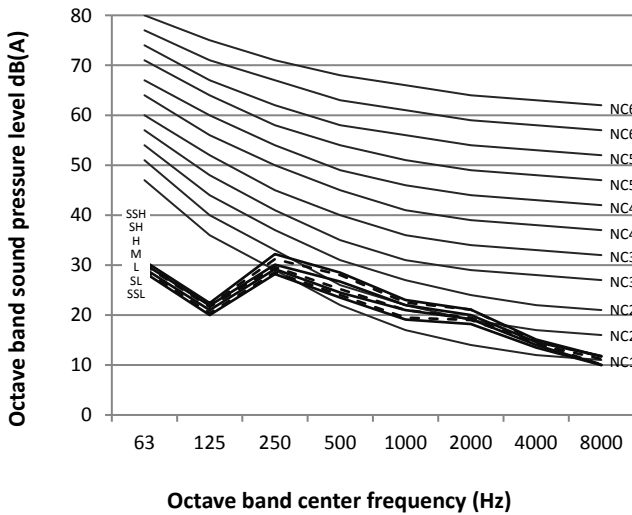


Figure 8.3: MI2-36Q1DHN1 octave band levels

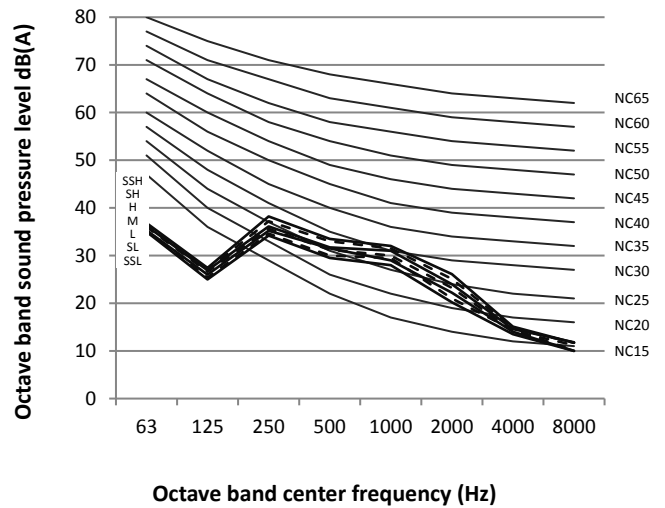


Figure 8.4: MI2-36Q1DHN1 octave band levels

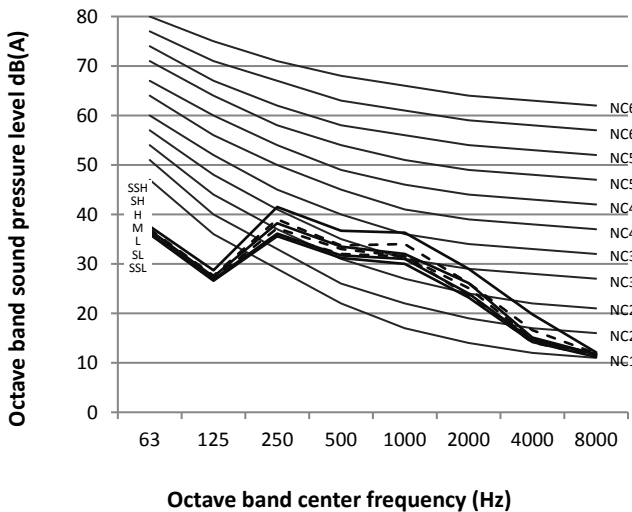
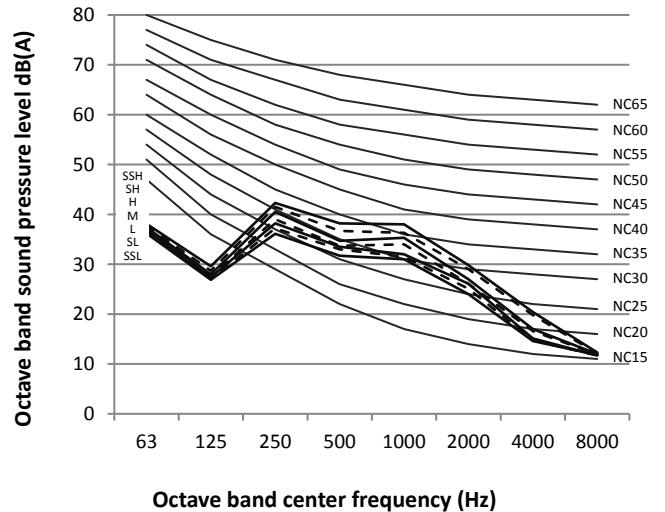


Figure 8.5: MI2-45Q1DHN1 octave band levels



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Figure 8.5: MI2-56Q1DHN1 octave band levels

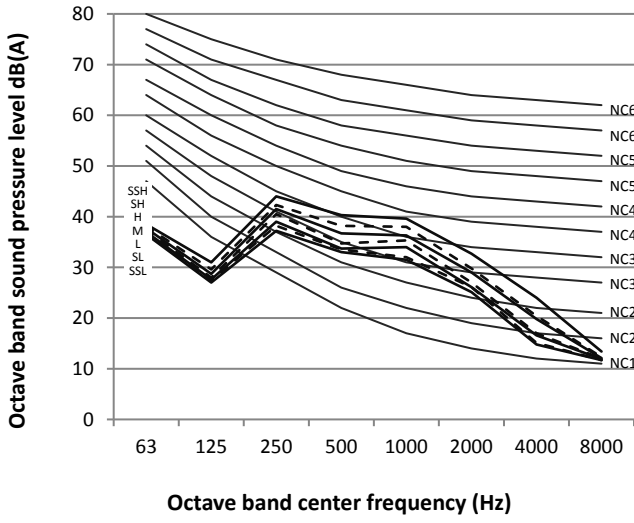
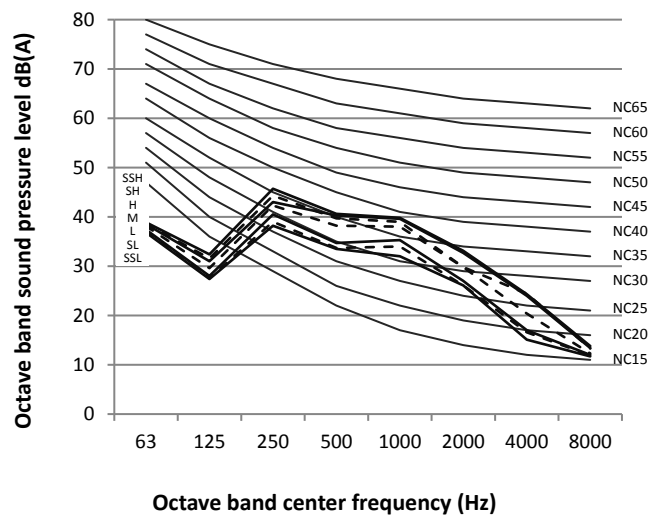


Figure 8.7: MI2-71Q1DHN1 octave band levels



9 Temperature and Airflow Distributions

9.1 Simulate condition

Table 9.1: One-way Cassette simulate condition

Model name	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
MI2-18Q1DHN1	6*6	2.7	25° /80°	Cassette
MI2-22Q1DHN1	6*6	2.7	25° /80°	Cassette
MI2-28Q1DHN1	6*6	2.7	25° /80°	Cassette
MI2-36Q1DHN1	6*6	2.7	25° /80°	Cassette
MI2-45Q1DHN1	8*8	2.7	25° /80°	Cassette
MI2-56Q1DHN1	8*8	2.7	25° /80°	Cassette
MI2-71Q1DHN1	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: MI2-18Q1DHN1 cooling at 300S

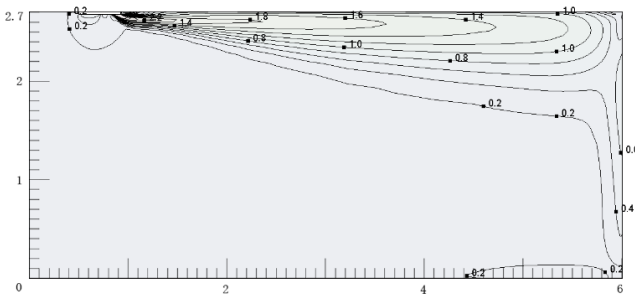


Figure 9.2: MI2-18Q1DHN1 heating at 300S

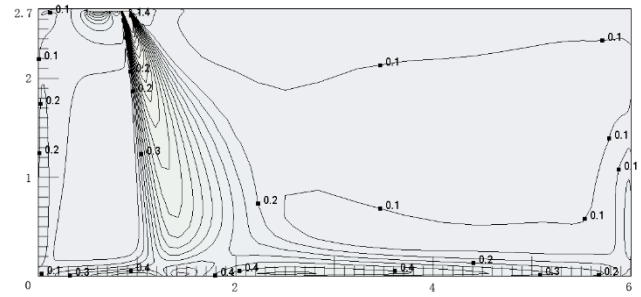


Figure 9.3: MI2-22Q1DHN1 cooling at 300S

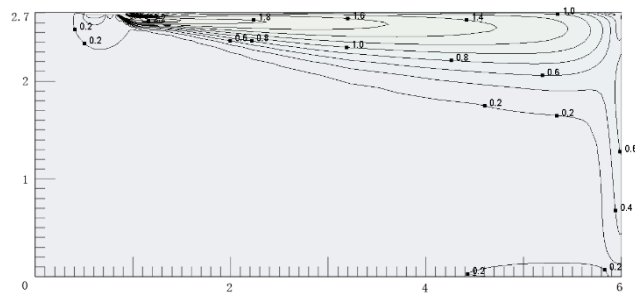


Figure 9.4: MI2-22Q1DHN1 heating at 300S

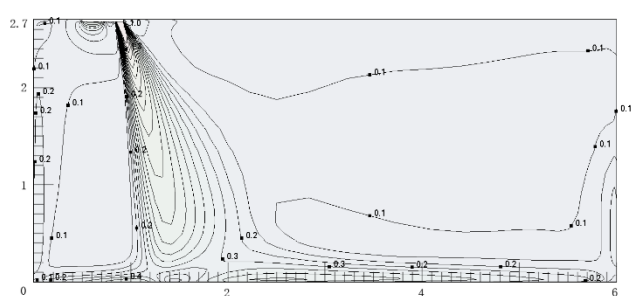


Figure 9.5: MI2-28Q1DHN1 cooling at 300S

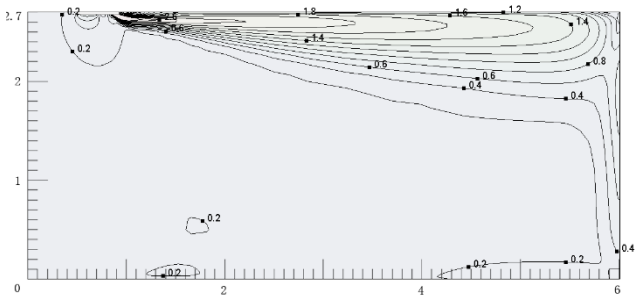


Figure 9.6: MI2-28Q1DHN1 heating at 300S

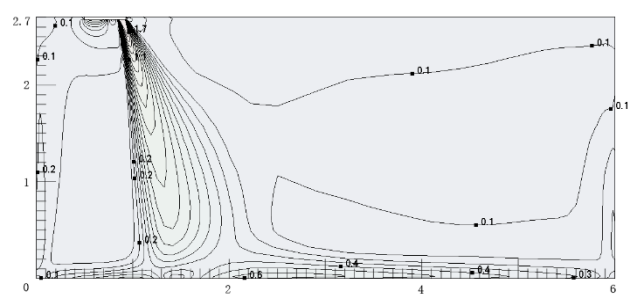


Figure 9.7: MI2-36Q1DHN1 cooling at 300S

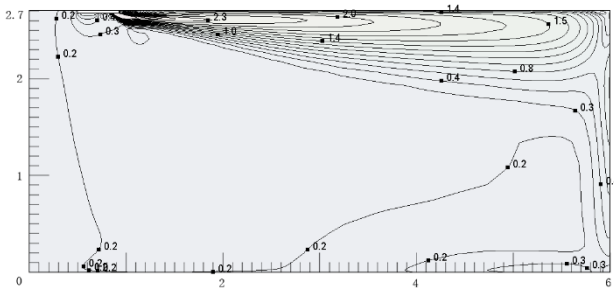


Figure 9.8: MI2-36Q1DHN1 heating at 300S

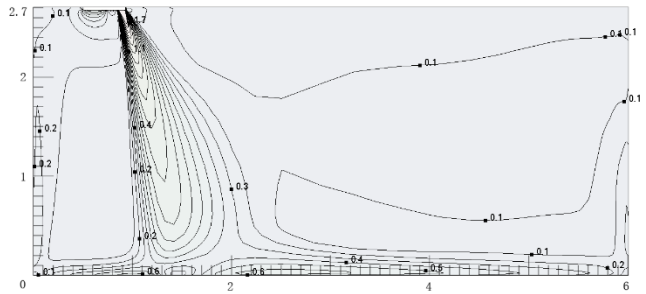


Figure 9.9: MI2-45Q1DHN1 cooling at 300S

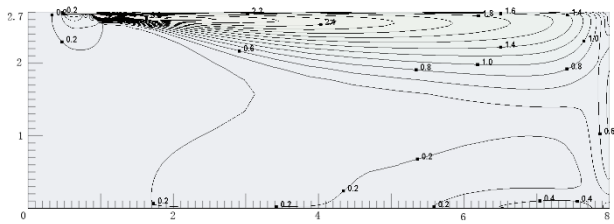


Figure 9.10: MI2-45Q1DHN1 heating at 300S

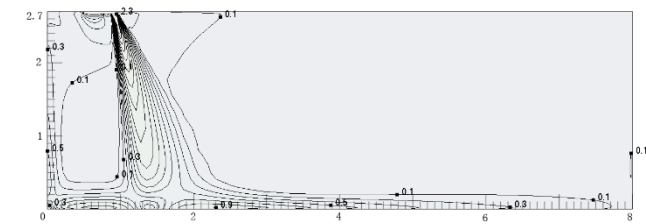


Figure 9.11: MI2-56Q1DHN1 cooling at 300S

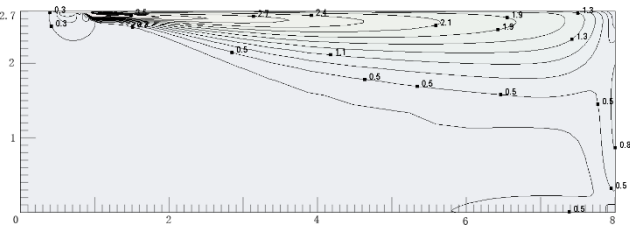


Figure 9.12: MI2-56Q1DHN1 heating at 300S

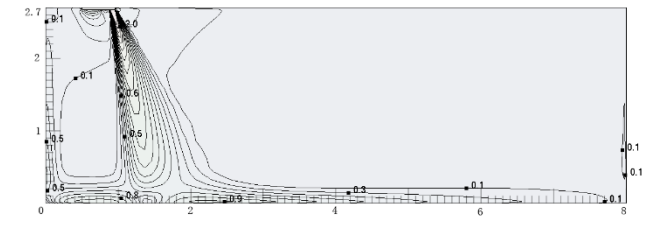


Figure 9.13: MI2-71Q1DHN1 cooling at 300S

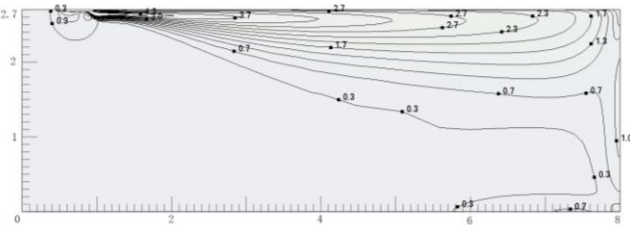
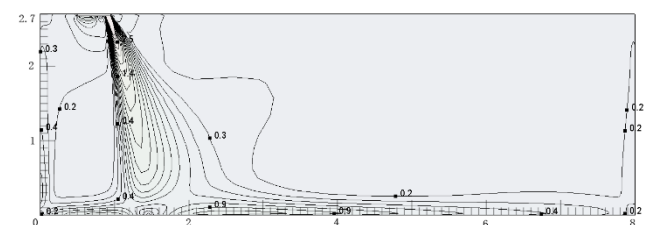


Figure 9.14: MI2-71Q1DHN1 heating at 300S



9.3 Temperature distributions (unit: °C)

Figure 9.15: MI2-18Q1DHN1 cooling at 300S

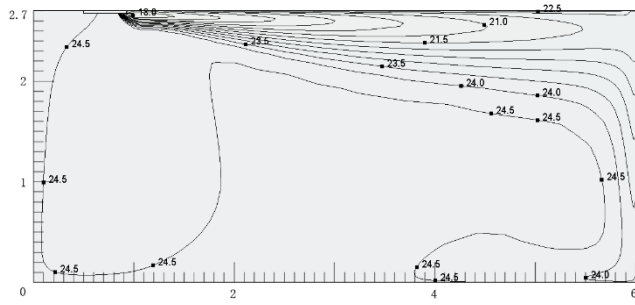


Figure 9.16: MI2-18Q1DHN1 heating at 300S

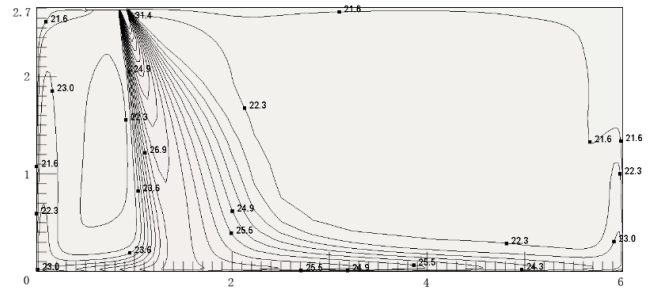


Figure 9.17: MI2-22Q1DHN1 cooling at 300S

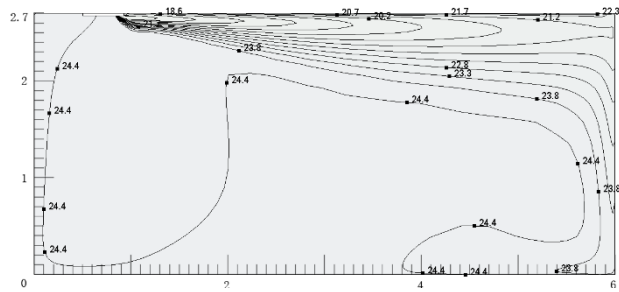


Figure 9.18: MI2-22Q1DHN1 heating at 300S

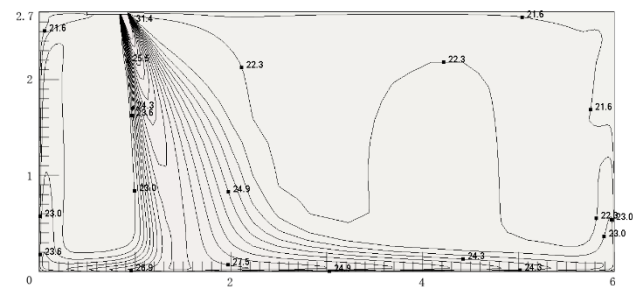


Figure 9.19: MI2-28Q1DHN1 cooling at 300S

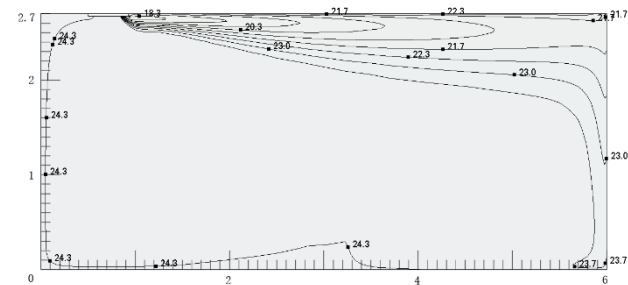


Figure 9.20: MI2-28Q1DHN1 heating at 300S

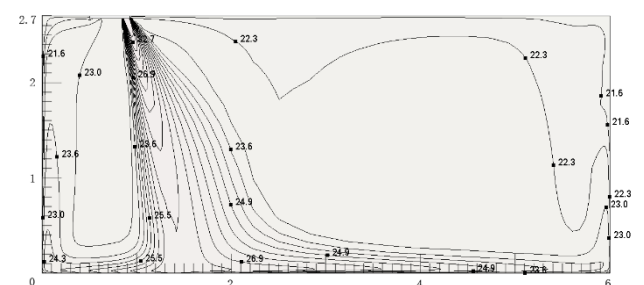


Figure 9.21: MI2-36Q1DHN1 cooling at 300S

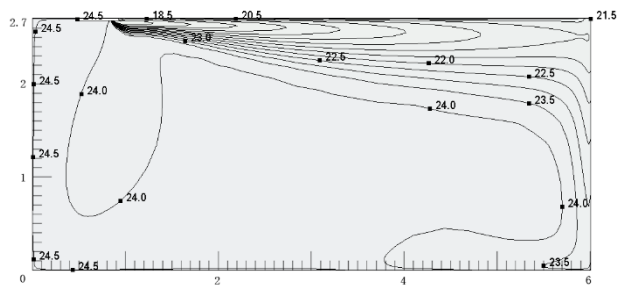
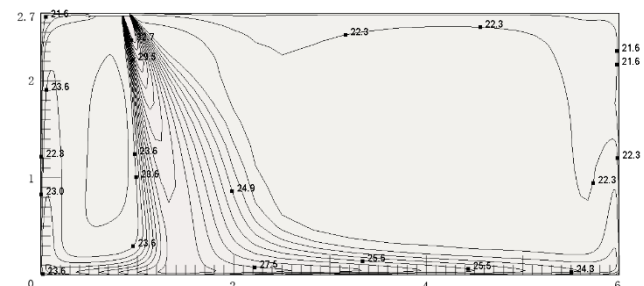


Figure 9.22: MI2-36Q1DHN1 heating at 300S



The 2nd Generation DC Series VRF Indoor Units



Figure 9.23: MI2-45Q1DHN1 cooling at 300S

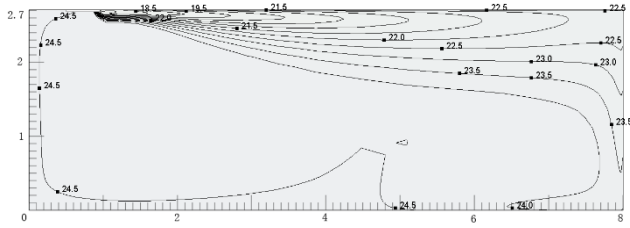


Figure 9.24: MI2-45Q1DHN1 heating at 300S

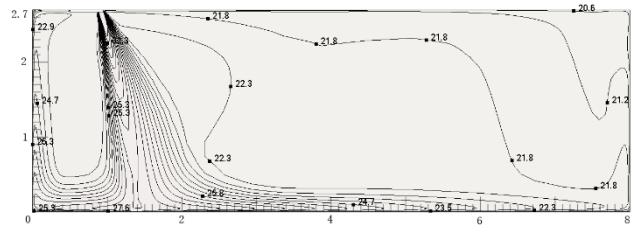


Figure 9.25: MI2-56Q1DHN1 cooling at 300S

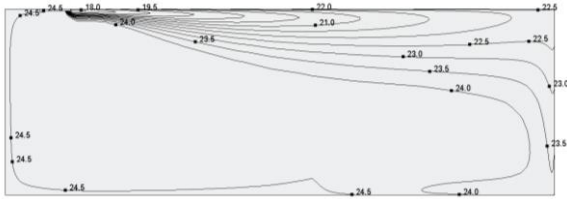


Figure 9.26: MI2-56Q1DHN1 heating at 300S

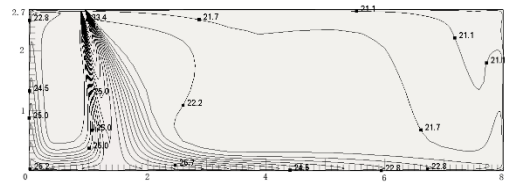


Figure 9.27: MI2-71Q1DHN1 cooling at 300S

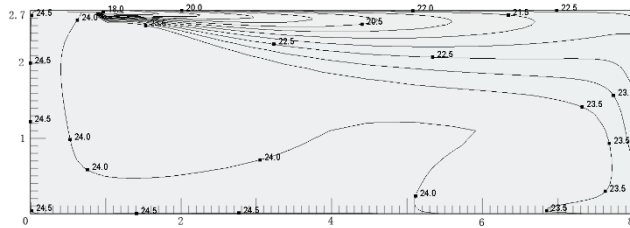
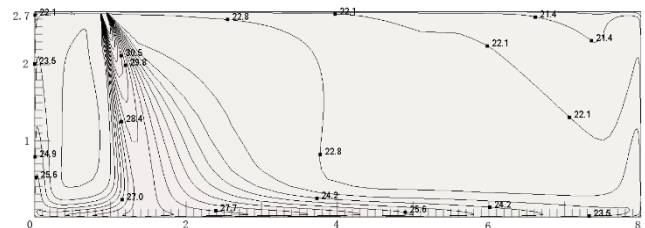


Figure 9.28: MI2-71Q1DHN1 heating at 300S



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Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.

