



R410A

Commercial Air Conditioners

# Engineering Data



**MDV-D22G/N1-M**

**MDV-D56G/N1-M**

**MDV-D28G/N1-M**

**MDV-D70G/N1-M**

**MDV-D36G/N1-M**

**MDV-D80G/N1-M**

**MDV-D45G/N1-M**

**MDV-D90G/N1-M**



# Wall Mounted

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## 1 Specifications

MDV-D22G/N1-M ; MDV-D28G/N1-M ; MDV-D36G/N1-M ; MDV-D45G/N1-M

Table 1.1: MDV-D22(28,36,45)G/N1-M specifications

Model			MDV-D22G/N1-M	MDV-D28G/N1-M	MDV-D36G/N1-M	MDV-D45G/N1-M
Power supply			1 phase, 220-240V, 50/60Hz			
Cooling <sup>1</sup>	Capacity	kW	2.2	2.8	3.6	4.5
		kBtu/h	7.5	9.6	12.3	15.4
	Power input	W	29	29	31	45
Heating <sup>2</sup>	Capacity	kW	2.4	3.2	4.0	5.0
		kBtu/h	8.2	10.9	13.6	17.1
	Power input	W	29	29	31	45
Fan motor	Model		YKFG-20-4-5-21	YKFG-20-4-5-21	YKFG-20-4-5-21	YKFG-45-4-22-13
	Type (Brand)		AC (WELLING/DAYANG)			
Indoor coil	Number of rows		1	1	2	2
	Tube pitch × row pitch	mm	21×13.37			
	Fin spacing	mm	1.3			
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ9.53 Inner-groove			
	Dimensions (L×H×W)	mm	585×315×13.37	585×315×26.74	701×315×13.37	701×315×26.74
	Number of circuits		2	3	5	5
Air flow rate <sup>3</sup>	m <sup>3</sup> /h	446/429/424/40 9/394/382/373	457/445/433/42 1/419/410/402	447/429/399/36 9/339/333/303	648/618/582/56 3/546/505/476	
External Static Pressure	Pa	0	0	0	0	
Sound pressure level <sup>4</sup>	dB(A)	34/33/33/32/32/ 31/31	33/33/32/32/31/ 31/31	36/35/34/33/32/ 32/32	37/36/34/34/33/ 32/31	
Unit	Net dimensions <sup>5</sup> (W×H×D)	mm	835×280×203			990×315×223
	Packed dimensions (W×H×D)	mm	915×360×300			1075×400×300
	Net/Gross weight	kg	8.5/11.0	8.5/11.0	9.7/12.2	13.8/16.4
Refrigerant type			R410A			
Throttle	Type	Electronic expansion valve				
	Model	EEV20T500P(J)-700XHP6(R)				EEV20h500P(J)- 700XHP6(R)
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:

- 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.
- Fan motor speed and 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 in a semi-anechoic chamber.
- Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

Table 1.2: MDV-D-56(71,80,90)G/N1-M specifications

Model			MDV-D56G/N1-M	MDV-D71G/N1-M	MDV-D80G/N1-M	MDV-D90G/N1-M
Power supply			1 phase, 220-240V, 50/60Hz			
Cooling <sup>1</sup>	Capacity	kW	5.6	7.1	8.0	9.0
		kBtu/h	19.1	24.2	27.3	30.7
	Power input	W	54	77	77	90
Heating <sup>2</sup>	Capacity	kW	6.3	8.0	9.0	10.0
		kBtu/h	21.5	27.3	30.7	34.1
	Power input	W	54	77	77	90
Fan motor	Model		YKFG-45-4-22-13	YKFG-50-4-10	YKFG-50-4-10	YKFG-50-4-10
	Type		AC			
Indoor coil	Number of rows		2			
	Tube pitch × row pitch	mm	21×13.37			
	Fin spacing	mm	1.3			
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ9.53 Inner-groove			
	Dimensions (L×H×W)	mm	701×315×26.74	825×399×26.74	825×399×26.74	825×399×26.74
	Number of circuits		5	6	5	5
Air flow rate <sup>3</sup>	m <sup>3</sup> /h	798/764/723/691/665/627/595	1240/1171/1107/1045/976/914/869	1248/1194/1119/1056/993/914/863	1427/1403/1303/1232/1186/1096/1043	
External Static Pressure	Pa	0	0	0	0	
Sound pressure level <sup>4</sup>	dB(A)	42/41/40/39/38/37/36	48/47/45/44/42/39/38	48/47/45/43/42/39/38	52/51/50/49/47/45/43	
Unit	Net dimensions <sup>5</sup> (W×H×D)	mm	990×315×223	990×315×223		
	Packed dimensions (W×H×D)	mm	1075*400*300	1265*420*345		
	Net/Gross weight	kg	13.8/16.4	17.4/20.8	17.6/21.0	17.6/21.0
Refrigerant type			R410A			
Throttle	Type		Electronic expansion valve			
	Model		EEV20h500P(J)-700XHP6(R)			
Design pressure (H/L)	MPa	4.4/2.6				
Pipe connection	Liquid/Gas pipe	mm	Φ9.53/Φ15.9			
	Drain pipe	mm	OD Φ16			

Notes:

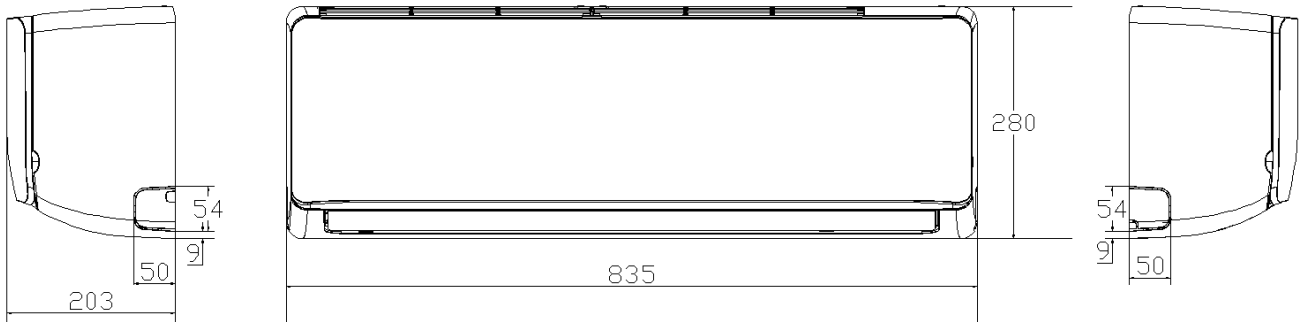
1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Fan motor speed and air 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 a semi-anechoic chamber.
5. Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

## 2 Dimensions

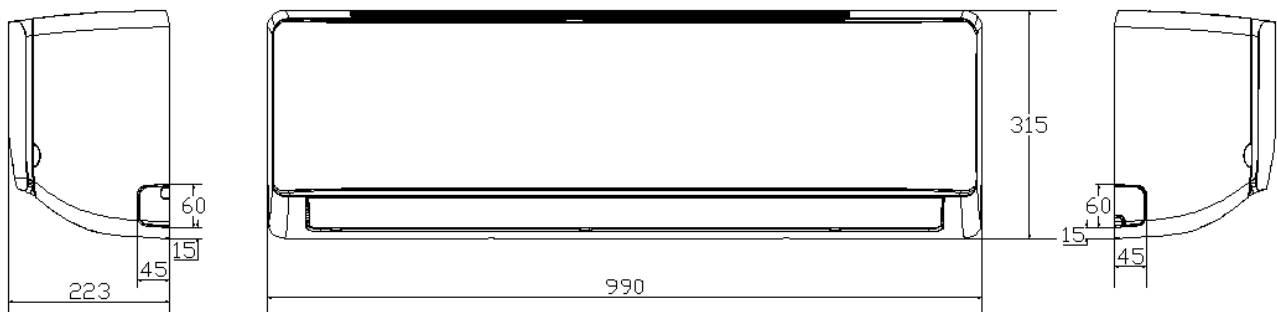
### 2.1 Unit Dimensions

Figure 2.1: Wall mounted dimensions (unit: mm)

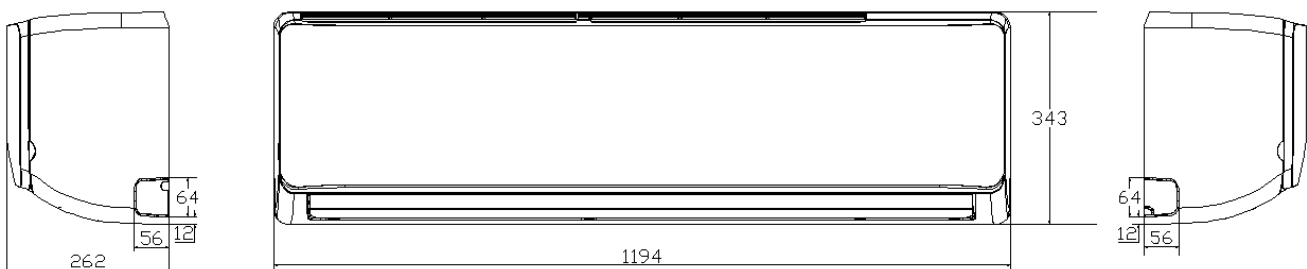
#### MDV-D22G/N1-M ; MDV-D28G/N1-M



#### MDV-D36G/N1-M, MDV-D45G/N1-M, MDV-D56G/N1-M

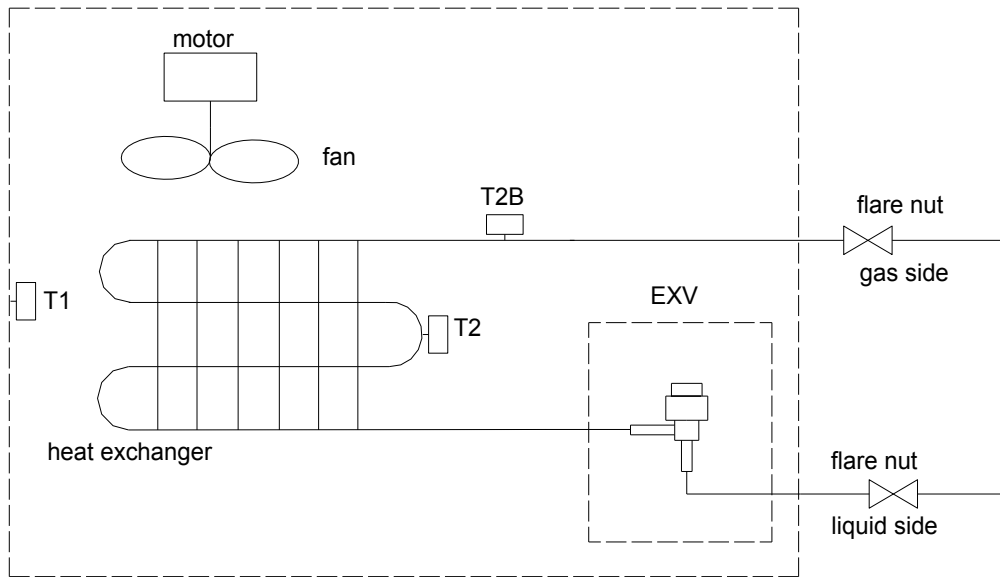


#### MDV-D71G/N1-M, MDV-D80G/N1-M, MDV-D90G/N1-M



### 3 Piping Diagram

Figure 4.1: Wall mounted piping diagram



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

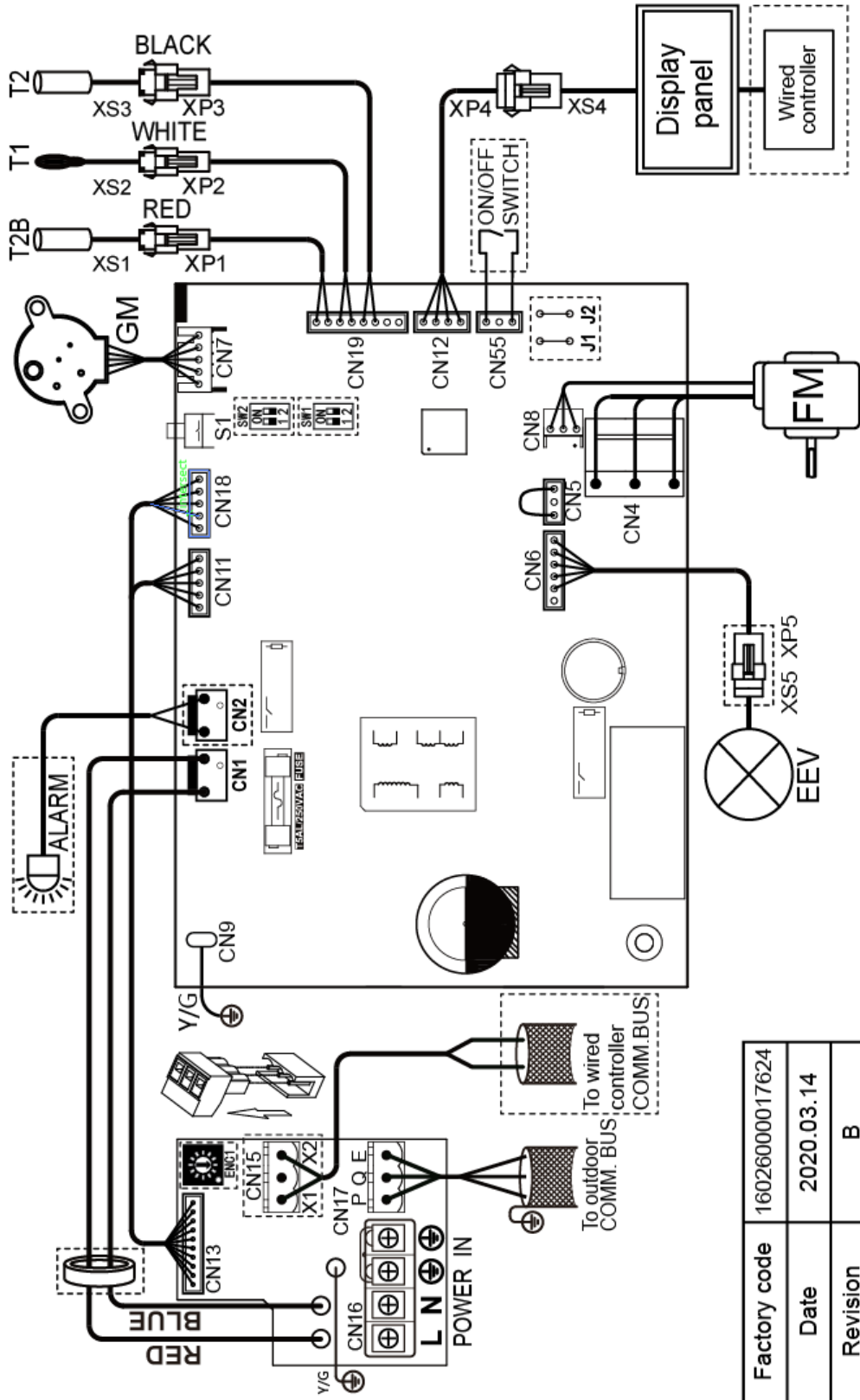
# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



## 4 Wiring Diagram

Figure 5.1: 2.2/2.8kW Wall mounted wiring diagram

Code	Name	Code	Name	Code	Name
FM	Indoor fan motor	T1	Indoor ambient temp. sensor	CS	Water level switch
GM	Swing motor	T2	Indoor heat exchanger mid-point temp. sensor	XP1-5/XS1-5	Connectors
EEV	Electronic expansion valve	T2B	Indoor heat exchanger outlet temp. sensor		

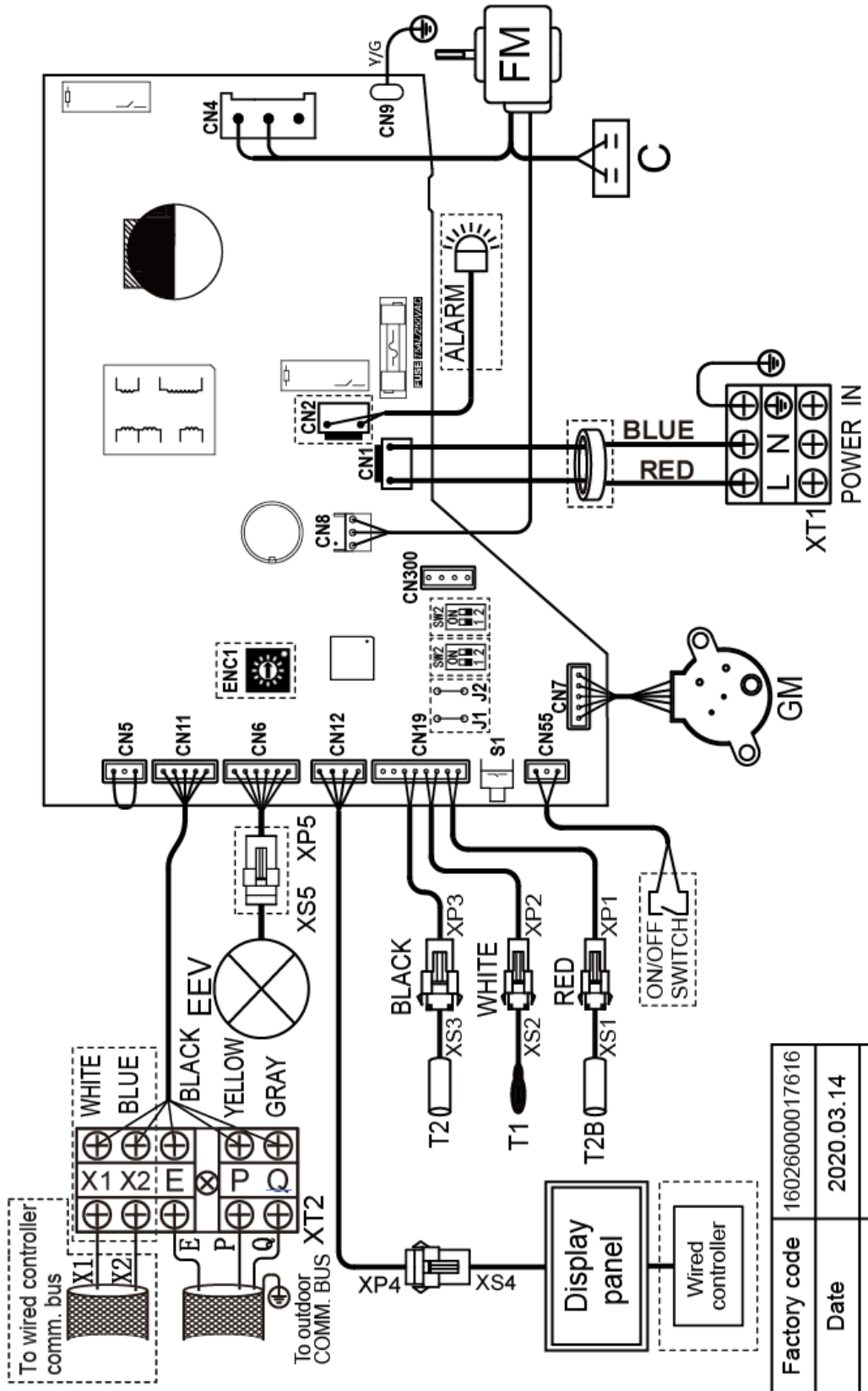


Factory code	16026000017624
Date	2020.03.14
Revision	B



Figure 5.2: 4.5/5.6kW Wall mounted wiring diagram

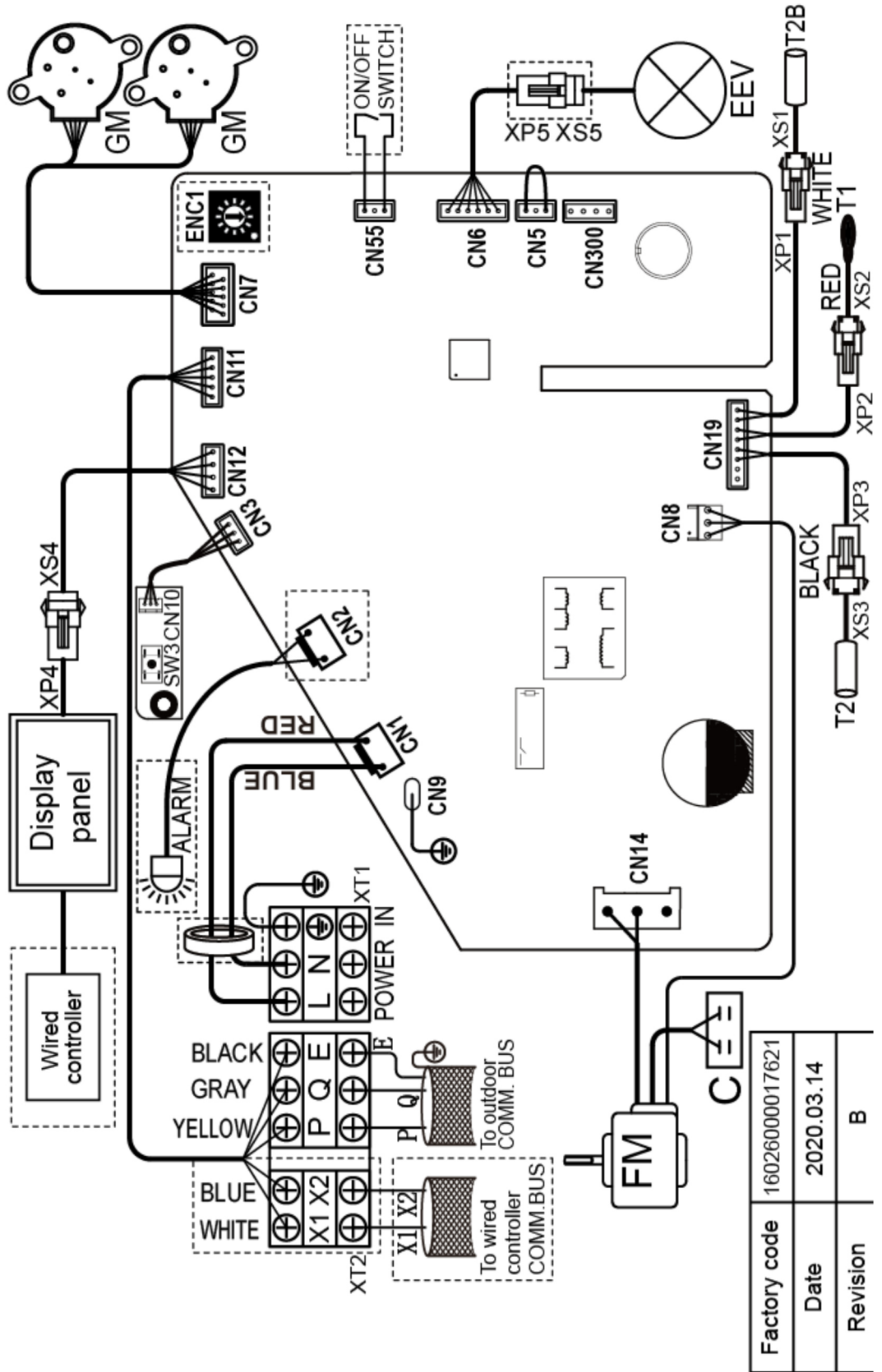
Code	Name	Code	Name	Code	Name
FM	Indoor fan motor	T1	Indoor ambient temp. sensor	CS	Water level switch
GM	Swing motor	T2	Indoor heat exchanger mid-point temp. sensor	XP1-5/XS1-5	Connectors
EEV	Electronic expansion valve	T2B	Indoor heat exchanger outlet temp. sensor	C	Capacitor



Factory code	16026000017616
Date	2020.03.14
Revision	B

Figure 5.3: 7.1/8.0/9.0kW Wall mounted wiring diagram

Code	Name	Code	Name	Code	Name
FM	Indoor fan motor	T1	Indoor ambient temp. sensor	CS	Water level switch
GM	Swing motor	T2	Indoor heat exchanger mid-point temp. sensor	XP1-5/XS1-5	Connectors
EEV	Electronic expansion valve	T2B	Indoor heat exchanger outlet temp. sensor	C	Capacitor



Factory code	16026000017621
Date	2020.03.14
Revision	B

## 5 Capacity Tables

### 5.1 Cooling Capacity Table

Table 6.1: 2.2Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2.2 kW	-5	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.8	1.7	3.1	1.5
	-2	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.8	1.7	3.1	1.5
	0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.8	1.7	3.1	1.5
	2	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.7	1.7	3.0	1.5
	4	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.7	1.6	3.0	1.5
	6	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.4	1.6	2.7	1.6	3.0	1.5
	8	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.7	1.6	2.9	1.5
	10.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.9	1.5
	12.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.8	1.5
	14.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.8	1.5
	16.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.8	1.5
	18.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.8	1.4
	20.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.7	1.4
	21.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.6	1.6	2.7	1.4
	23.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.5	1.5	2.7	1.4
	25.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.5	1.5	2.6	1.4
	27.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.5	1.5	2.6	1.4
	29.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.4	1.4	2.5	1.4
	31.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.4	1.4	2.5	1.4
	33.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.4	1.4	2.4	1.4
35.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.3	1.3	2.4	1.4	
37.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.3	1.6	2.3	1.3	2.3	1.4	
39.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.3	1.3	2.3	1.4	
42.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.3	1.3	2.3	1.4	
44.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.3	1.3	2.3	1.4	
46.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.3	1.3	2.3	1.4	
48.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.2	1.3	2.2	1.3	
50.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.2	1.3	2.2	1.3	
52.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.2	1.3	2.1	1.3	
54.0	1.5	1.3	1.8	1.4	2.1	1.5	2.2	1.5	2.2	1.5	2.2	1.3	2.1	1.3	

Abbreviations:

TC: Total capacity

SC: Sensible capacity

Notes:

1. Shaded cells indicate rating condition.

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: 2.8Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2.8 kW	-5	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.1	2.0	3.5	2.1	3.9	2.1
	-2	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.1	2.0	3.5	2.1	3.9	2.1
	0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	2.0	3.5	2.1	3.9	2.1
	2	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	2.0	3.5	2.1	3.8	2.0
	4	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	2.0	3.4	2.1	3.8	2.0
	6	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	2.0	3.4	2.1	3.7	2.0
	8	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.4	2.1	3.7	2.0
	10.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.7	2.0
	12.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.6	2.0
	14.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.6	2.0
	16.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.5	1.9
	18.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.5	1.9
	20.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.4	1.9
	21.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.4	1.9
	23.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.3	2.0	3.4	1.9
	25.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.2	1.9	3.3	1.9
	27.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.2	1.9	3.3	1.9
	29.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.1	1.8	3.2	1.8
	31.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.1	1.8	3.2	1.7
	33.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	3.0	1.9	3.1	1.8	3.1	1.7
35.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.8	3.1	1.7	
37.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.8	3.0	1.7	
39.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.9	3.0	1.7	
42.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.9	3.0	1.7	
44.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.9	3.0	1.7	
46.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	3.0	1.9	3.0	1.7	
48.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	2.9	1.8	2.9	1.6	
50.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	2.9	1.8	2.8	1.6	
52.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	2.9	1.8	2.8	1.6	
54.0	1.9	1.6	2.3	1.8	2.6	1.9	2.8	1.9	2.9	1.9	2.9	1.8	2.7	1.6	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

Table 6.2: 3.6Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
3.6 kW	-5	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.6	2.3	5.1	2.6
	-2	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.5	2.3	5.0	2.5
	0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.5	2.3	5.0	2.5
	2	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.5	2.3	4.9	2.5
	4	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.5	2.3	4.9	2.5
	6	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.4	2.4	4.8	2.5
	8	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.9	2.5	4.4	2.4	4.8	2.5
	10.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.7	2.5
	12.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.7	2.5
	14.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.6	2.4
	16.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.5	2.4
	18.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.5	2.4
	20.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.4	2.3
	21.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.3	2.4	4.4	2.3
	23.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.1	2.3	4.3	2.2
	25.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.1	2.3	4.2	2.2
	27.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.0	2.2	4.2	2.2
	29.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.0	2.2	4.1	2.2
	31.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.2	2.6	4.1	2.2
	33.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.2	2.6	3.9	2.1
35.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.8	2.5	4.2	2.6	3.9	2.1	
37.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.3	3.9	2.1	
39.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.3	3.8	2.1	
42.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.3	3.8	2.1	
44.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.3	3.8	2.1	
46.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.3	3.8	2.1	
48.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.4	3.6	2.0	
50.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.4	3.6	2.0	
52.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.8	2.4	3.5	2.0	
54.0	2.5	1.9	2.9	2.1	3.4	2.3	3.6	2.4	3.7	2.4	3.7	2.4	3.4	1.9	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: 4.5Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
4.5 kW	-5	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	5.0	3.1	5.8	3.9	6.4	3.3
	-2	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.7	3.8	6.3	3.3
	0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.7	3.8	6.3	3.2
	2	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.6	3.7	6.2	3.2
	4	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.6	3.7	6.1	3.2
	6	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.6	3.6	6.1	3.2
	8	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.9	3.0	5.5	3.6	6.0	3.1
	10.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.9	3.0
	12.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.9	3.0
	14.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.8	3.0
	16.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.6	2.9
	18.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.7	3.0
	20.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.7	3.0
	21.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.6	3.0
	23.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.3	3.4	5.5	3.0
	25.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.2	3.0	5.4	2.9
	27.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.1	3.0	5.2	2.8
	29.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.1	2.9	5.2	2.8
	31.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	5.0	2.9	5.1	2.7
	33.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	4.9	2.8	5.1	2.7
35.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	4.8	2.8	5.0	2.7	
37.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.8	3.0	4.8	2.9	4.9	2.6	
39.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.8	4.7	2.8	4.8	2.6	
42.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.8	4.7	2.8	4.8	2.6	
44.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.8	4.7	2.8	4.8	2.6	
46.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.8	4.7	3.1	4.8	2.6	
48.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.9	4.6	2.7	4.6	2.5	
50.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.9	4.6	2.6	4.6	2.5	
52.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.9	4.5	2.6	4.5	2.4	
54.0	3.1	2.4	3.7	2.6	4.2	2.8	4.5	2.9	4.6	2.8	4.5	2.8	4.4	2.4	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

Table 6.2: 5.6 Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
5.6 kW	-5	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	6.0	3.5	7.2	3.9	7.7	3.6
	-2	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	6.0	3.5	7.1	3.8	7.6	3.6
	0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	6.0	3.5	7.1	3.8	7.6	3.6
	2	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	6.0	3.5	7.0	3.8	7.5	3.6
	4	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	6.0	3.5	7.0	3.8	7.4	3.6
	6	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.9	3.7	7.3	3.5
	8	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.9	3.7	7.2	3.5
	10.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	7.3	3.5
	12.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	7.2	3.5
	14.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	7.1	3.5
	16.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	7.0	3.4
	18.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	6.8	3.4
	20.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	6.7	3.3
	21.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	6.6	3.3
	23.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	6.6	3.3
	25.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.6	3.6	6.5	3.2
	27.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.4	3.5	6.4	3.2
	29.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.3	3.5	6.4	3.3
	31.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.2	3.4	6.2	3.2
	33.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.2	3.4	6.2	3.2
35.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	6.0	3.3	6.0	3.1	
37.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.9	3.5	5.9	3.2	6.0	3.1	
39.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.4	5.8	3.2	6.0	3.1	
42.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.4	5.8	3.2	6.0	3.1	
44.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.4	5.8	3.2	6.0	3.1	
46.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.7	5.8	3.2	6.0	3.1	
48.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.8	3.4	5.7	3.2	5.7	3.0	
50.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.4	5.7	3.2	5.6	2.9	
52.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.4	5.6	3.1	5.5	2.9	
54.0	3.9	2.7	4.6	3.0	5.3	3.3	5.6	3.4	5.7	3.7	5.6	3.1	5.5	2.9	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: 7.1 Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
7.1 kW	-5	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	9.1	4.7	9.8	4.7
	-2	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	9.1	4.7	9.7	4.6
	0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	9.0	4.7	9.6	4.6
	2	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	8.9	4.7	9.5	4.6
	4	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	8.8	4.6	9.4	4.5
	6	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.6	4.4	8.8	4.6	9.3	4.5
	8	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.7	4.6	9.2	4.5
	10.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	9.2	4.6
	12.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	9.1	4.5
	14.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	9.0	4.5
	16.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.9	4.4
	18.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.7	4.3
	20.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.5	4.2
	21.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.4	4.2
	23.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.3	4.1
	25.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.4	4.5	8.2	4.1
	27.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.4	8.1	4.3	8.2	4.1
	29.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.5	8.0	4.3	8.1	4.1
	31.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.5	7.9	4.3	7.8	4.0
	33.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.5	7.8	4.2	7.8	4.0
35.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.5	4.5	7.6	4.1	7.7	3.9	
37.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.4	4.4	7.5	4.1	7.6	4.0	
39.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.4	4.1	7.6	4.0	
42.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.4	4.1	7.6	4.0	
44.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.4	4.1	7.6	4.0	
46.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.4	4.1	7.6	4.0	
48.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.3	4.0	7.2	3.8	
50.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.2	4.0	7.1	3.8	
52.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.1	4.0	7.0	3.7	
54.0	4.9	3.6	5.8	4.0	6.7	4.3	7.1	4.5	7.2	4.3	7.1	3.9	6.9	3.7	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.



Table 6.2: 8.0 Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
8.0 kW	-5	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.6	5.1	10.3	4.5	11.0	4.1
	-2	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.6	5.1	10.2	4.5	10.9	4.2
	0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.6	5.1	10.1	4.5	10.8	4.2
	2	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.6	5.1	10.0	4.6	10.7	4.2
	4	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.5	5.1	10.0	4.6	10.6	4.2
	6	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.5	5.1	9.9	4.6	10.5	4.2
	8	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.5	5.1	9.8	4.6	10.3	4.2
	10.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	10.4	4.3
	12.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	10.2	4.3
	14.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	10.2	4.3
	16.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	10.0	4.3
	18.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	9.8	4.3
	20.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	9.6	4.3
	21.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	9.4	4.3
	23.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	9.4	4.3
	25.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.4	4.6	9.3	4.3
	27.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.1	9.1	4.6	9.2	4.4
	29.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.2	9.0	4.7	9.1	4.4
	31.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.2	8.9	4.7	8.8	4.4
	33.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.2	8.8	4.7	8.8	4.4
35.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.4	5.2	8.6	4.7	8.6	4.4	
37.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.3	5.2	8.4	4.8	8.6	4.6	
39.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.3	4.8	8.6	4.6	
42.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.3	4.8	8.6	4.6	
44.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.3	4.8	8.6	4.6	
46.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.3	4.8	8.6	4.6	
48.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.2	5.2	8.2	4.8	8.1	4.6	
50.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.1	4.8	8.0	4.6	
52.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.0	4.8	7.9	4.6	
54.0	5.5	6.4	6.6	5.9	7.5	5.6	8.0	5.5	8.1	5.2	8.0	4.8	7.8	4.6	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: 9.0 Kw Wall mounted cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	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
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
9.0 kW	-5	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	10.0	6.2	11.6	6.6	12.4	6.1
	-2	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.9	6.2	11.5	6.5	12.3	6.1
	0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.9	6.2	11.4	6.5	12.1	6.0
	2	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.9	6.2	11.3	6.4	12.0	6.0
	4	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.8	6.2	11.2	6.4	11.9	6.0
	6	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.8	6.1	11.1	6.3	11.8	5.9
	8	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.8	6.1	11.0	6.3	11.6	5.9
	10.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	11.7	6.0
	12.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	11.5	5.9
	14.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	11.4	5.9
	16.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	11.3	5.8
	18.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	11.0	5.8
	20.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	10.8	5.7
	21.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	10.6	5.6
	23.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	10.5	5.5
	25.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.6	6.1	10.4	5.5
	27.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.3	5.9	10.4	5.4
	29.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.1	5.7	10.3	5.4
	31.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	10.0	5.7	9.9	5.3
	33.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.6	6.0	9.9	5.6	9.9	5.3
35.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.5	6.0	9.6	5.5	9.7	5.3	
37.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.3	5.8	9.5	5.4	9.6	5.3	
39.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	9.4	5.3	9.6	5.3	
42.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	9.4	5.3	9.6	5.3	
44.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	9.4	5.3	9.6	5.3	
46.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	9.4	5.3	9.6	5.3	
48.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.8	9.2	5.3	9.2	5.1	
50.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.8	9.1	5.2	9.0	5.0	
52.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	9.0	5.2	8.9	5.0	
54.0	6.2	4.9	7.3	5.3	8.4	5.8	9.0	5.9	9.2	5.7	8.9	5.1	8.8	4.9	

Abbreviations:  
 TC: Total capacity  
 SC: Sensible capacity

Notes:  
 1. Shaded cells indicate rating condition.

## 5.2 Heating Capacity Table

Table 6.2: Wall mounted heating capacity

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
2.2	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	2.40	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	
2.8	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	3.20	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	

Notes:

TC: Total capacity

Shaded cells indicate rating condition.

Table continued on next page ...

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: Wall mounted heating capacity

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
	WB	DB	TC	TC	TC	TC	TC	TC
3.6	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	4.00	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	
4.5	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	5.00	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	

Notes:

TC: Total capacity

Shaded cells indicate rating condition.

Table continued on next page ...

Table 6.2: Wall mounted heating capacity

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
	WB	DB	TC kW	TC kW	TC kW	TC kW	TC kW	TC kW
5.6	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	6.30	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	
7.1	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	8.00	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	

Notes:

TC: Total capacity

Shaded cells indicate rating condition.

Table continued on next page ...

# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



Table 6.2: Wall mounted heating capacity

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
	WB	DB	TC	TC	TC	TC	TC	TC
8.0	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	9.00	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	
9.0	-25	-25.4	1.30	1.30	1.30	1.30	1.30	1.30
	-19.8	-20	1.34	1.34	1.34	1.34	1.34	1.34
	-18.8	-19	1.44	1.44	1.44	1.44	1.44	1.44
	-16.7	-17	1.51	1.51	1.51	1.51	1.51	1.51
	-13.7	-15	1.56	1.56	1.56	1.56	1.56	1.56
	-11.8	-13	1.66	1.66	1.66	1.66	1.66	1.66
	-9.8	-11	1.68	1.70	1.70	1.70	1.70	1.70
	-9.5	-10	1.75	1.75	1.75	1.75	1.75	1.75
	-8.5	-9.1	1.80	1.80	1.80	1.80	1.80	1.80
	-7	-7.6	1.82	1.82	1.82	1.82	1.82	1.82
	-5	-5.6	1.90	1.90	1.90	1.90	1.90	1.90
	-3	-3.7	1.99	1.99	1.99	1.99	1.99	1.99
	0	-0.7	2.14	2.14	2.14	2.14	2.14	2.02
	3	2.2	2.26	2.26	2.26	2.26	2.21	2.02
	5	4.1	2.33	2.33	2.33	2.33	2.21	2.02
	7	6	2.40	2.40	10.00	2.33	2.21	2.02
	9	7.9	2.47	2.47	2.40	2.33	2.21	2.02
11	9.8	2.54	2.54	2.40	2.33	2.21	2.02	
13	11.8	2.64	2.59	2.40	2.33	2.21	2.02	
15	13.7	2.71	2.59	2.40	2.33	2.21	2.02	

Notes:

TC: Total capacity

Shaded cells indicate rating condition.

Table continued on next page ...

## 6 Indoor Unit Installation

### 6.1 Choosing an Installation Site

Unit placement should take account of the following considerations:

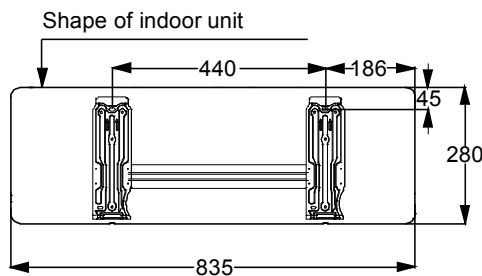
- Units should not be installed in the following locations:
  - Where exposure to direct radiation from a high-temperature heat source or to interference from a source of electromagnetic radiation may occur.
  - Where dust or dirt may affect heat exchangers.
  - Where exposure to oil or to corrosive 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.

### 6.2 Drill and Mount the rack for the indoor unit

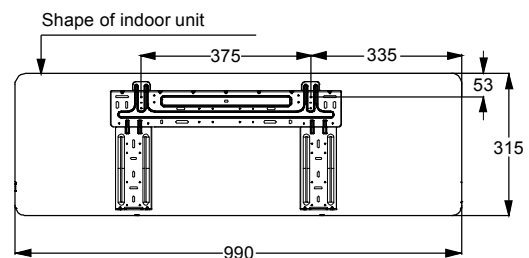
Rack Dimensions and directions (unit: mm)

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

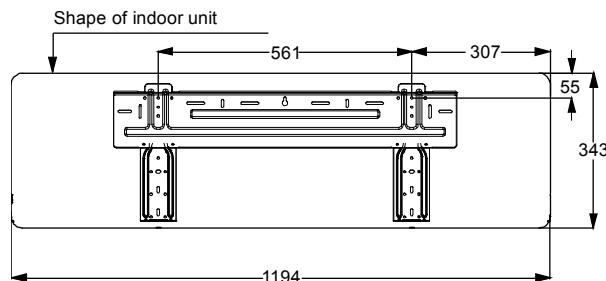
**MDV-D22G/N1-M, MDV-D28G/N1-M**



**MDV-D36G/N1-M, MDV-D45G/N1-M, MDV-D56G/N1-M**



**MDV-D71G/N1-M, MDV-D80G/N1-M, MDV-D90G/N1-M**



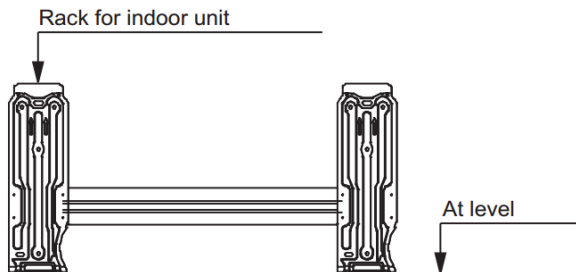
## The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



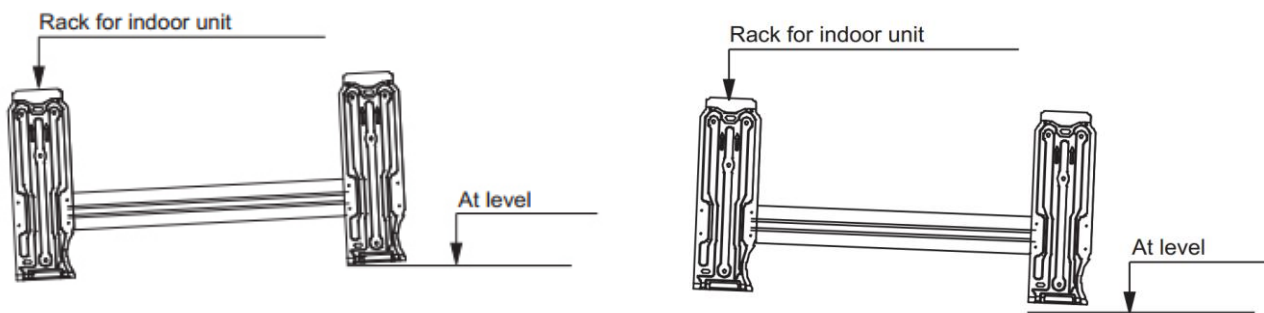
### 6.2.1 Mounting the Rack of the indoor unit

Select the installation location, and remove the installation panel from the back of the indoor unit, and place it on the installation position you have selected earlier. At this time, make sure the unit is level, and maintain the dimensions of the bottom, top, left and right sides of the unit. Determine the positions of the wall holes to secure the panel.

#### Correct Installation Method



#### Wrong Installation



### 6.2.2 Installation on Wood-based structure

- 1) Before installation, make sure that the wooded walls are strong enough.
- 2) Determine the upper and lower positions of the installation panel based on the distance between the indoor unit and the ceiling.
- 3) With reference to the screw holes of the installation panel as the center, adjust the distance on the left and right sides.
- 4) Fix the installation panel on the wall using self-tapping screws.

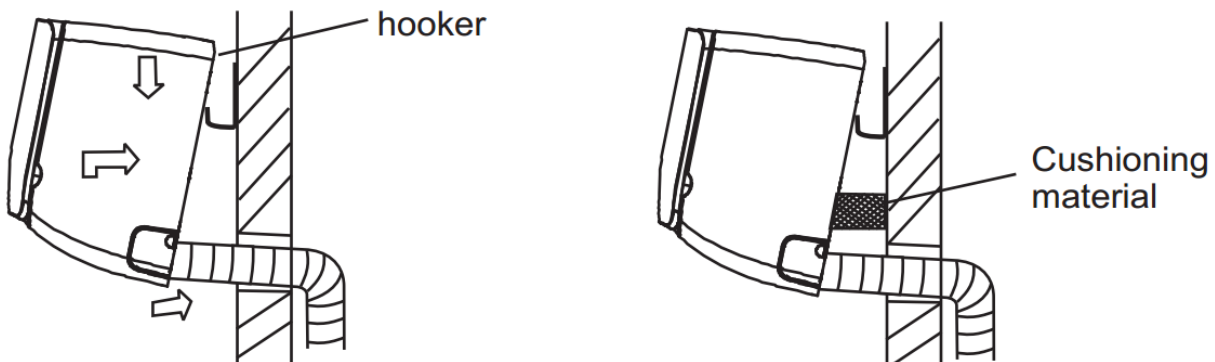
### 6.2.3 Installation on Concrete Structure

- 1) With reference to the installation panel, drill holes in the wall to embed the plastic expansion pipes.
- 2) Fix the installation panel on the wall using self-tapping screws.



#### 6.2.4 Indoor Unit Installation

- 1) Pass the properly bundled pipeline and connection lines through the wall hole, making sure that the pipe socket is not damaged, and the connecting pipes of the unit are sand-free and dust-free.
- 2) Hang the upper jaw at the back of the indoor unit on the upper hooker of the installation panel. Shift the indoor unit left and right to check that the hanging is secure and firm.
- 3) Push the lower part of the indoor unit against the wall, and shift the unit body up and down and left and right to check that the connection is secure.
- 4) Place a block of shock absorbing material in between the indoor unit and wall to support the indoor unit. Remove the shock absorbing material when the piping installation work is completed. Until the indoor unit can be connected properly, make sure that the indoor unit is buckled into the slots. Use your hands to shake the unit to check that it does not move up, down, left or right. Use a spirit level to verify that the indoor unit is level.



## 7 Refrigerant Piping Installation

### 7.1 Length and Level difference requirements for the piping connections to the indoor and outdoor units

The length and level difference requirements for the refrigerant piping are different for different indoor and outdoor units. Refer to the installation manual of the outdoor unit.

### 7.2 Piping Material and Size

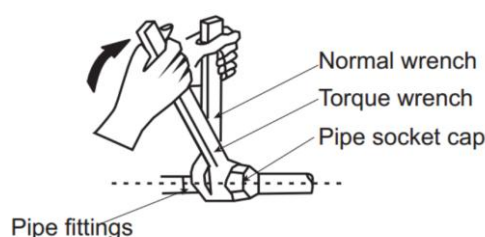
1. Piping material: Copper pipes for air handling.
2. Piping size: Choose and purchase copper pipes that correspond to the length and size calculated for the selected model in the installation manual of the outdoor unit and your actual project requirements.

### 7.3 Piping Layout

1. Seal the two ends of the piping properly before you connect the indoor and outdoor piping. Once unsealed, connect the piping of the indoor and outdoor units as quickly as possible to prevent dust or other debris from entering the piping system via the unsealed ends, as this may cause the system to malfunction.
2. If the piping needs to go through walls, drill the opening in the wall, and place accessories like casings and covers for the opening properly.
3. Place the refrigerant connecting piping and the communication wiring for the indoor and outdoor units together, and bundle them tightly to make sure air does not enter and condensate to form water that may leak from the system.
4. Insert the bundled piping and wiring from outside the room through the wall opening into the room. Be careful when you lay out the piping. Do not damage the piping.

### 7.4 Piping Installation

- Refer to the installation manual attached with the outdoor unit on installation of the refrigerant piping for the outdoor unit.
- All gas and liquid piping must be properly insulated; otherwise, this may cause water to leak. Use heat insulation materials that can withstand high temperatures above 120°C to insulate the gas pipes. In addition, the insulation of the refrigerant piping should be reinforced (20 mm or thicker) in situations where there is high temperature and/or high humidity (when part of refrigerant piping part is higher than 30°C or when the humidity exceeds RH80%). Otherwise, the surface of the heat insulation material may be exposed.
- Before the works are carried out, verify that the refrigerant is R410A. If the wrong refrigerant is used, the unit may malfunction.
- Other than the specified refrigerant, do not let air or other gases enter the refrigeration circuit.
- If the refrigerant leaks during installation, make sure you fully ventilate the room.
- Use two wrenches when you install or dismantle the piping, a common wrench and a torque wrench. See Figure



Slot the refrigerant piping into brass nut and expand the pipe socket and the appropriate tightening technique

Outer diameter of connecting pipe (mm)	Tightening torque (Nm)
Ø 6.4	14.2~17.2
Ø 9.5	32.7~39.9
Ø 12.7	49.5~60.3
Ø 15.9	61.8~75.4
Ø 19.1	97.2~118.6

## Notes for installers and service engineers

### Caution

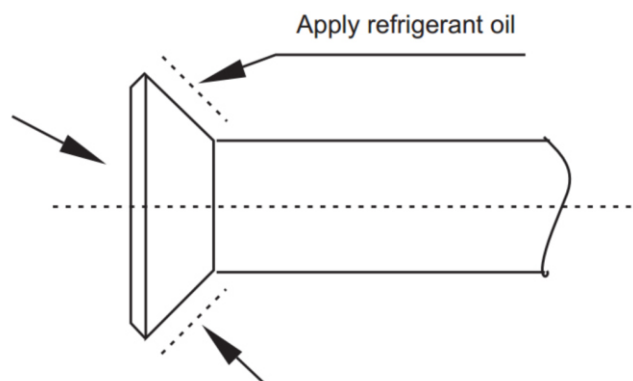
- Apply the appropriate tightening torque according to the installation conditions. Excessive torque will damage the socket cap and the cap will not be tight if you apply insufficient torque, leading to leakages

Note: \* Apply the appropriate tightening torque according to the installation conditions. Excessive torque will damage the socket cap and the cap will not be tight if you apply insufficient torque, leading to leakages.

Do not let air, dust, and other particles invade the piping system during the installation of the connecting pipes. Install the connecting pipes only when the indoor and outdoor units are secured.

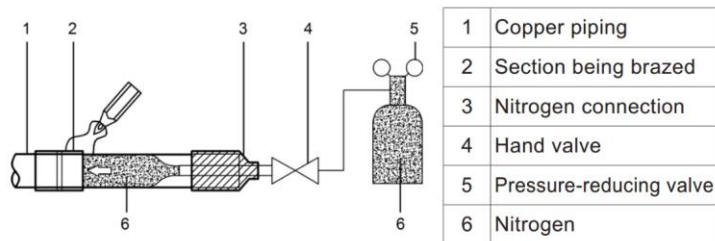
Make sure to keep the connecting pipes dry during installation so that no water will enter the piping system.

- Before the socket cap is installed on the pipe socket, apply some refrigerant oil on the socket (both inside and outside), then rotate it three or four times before you tighten the cap. See Figure



### ➤ Precautions to take while welding refrigerant pipes

- Before you weld the refrigerant pipes, fill the pipes with nitrogen first to discharge the air in the pipes. If no nitrogen is filled during welding, a large amount of oxide film will form inside the piping which may cause the air conditioning system to malfunction.
- Welding can be carried out on the refrigerant pipes when the nitrogen gas has been replaced or refilled.
- When the pipe is filled with nitrogen during welding, the nitrogen must be reduced to 0.02 MPa using the pressure release valve. See Figure



## 7.5 Air Tightness Test

Carry out the air tightness test on the system according to the instructions in the installation manual of the outdoor unit.

### Notes for installers and service engineers

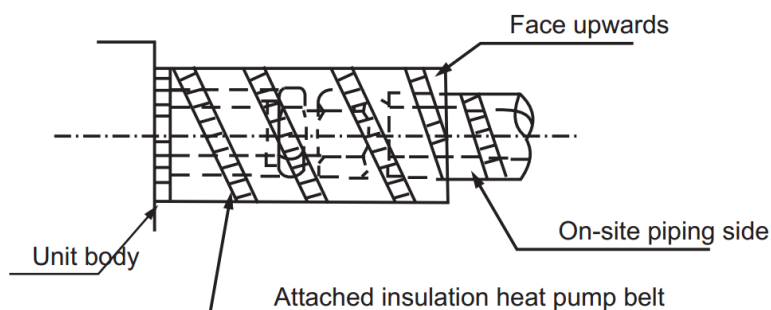
#### Caution

- The Air Tightness test helps to ensure that the air and liquid cut-off valves of the outdoor unit are closed

## 7.6 Heat Insulation Treatment for Gas- Liquid piping connections for the indoor unit

The heat insulation treatment is carried out on the piping at the gas and liquid sides of the indoor unit respectively.

- The piping on the gas side must use heat insulation material that can withstand temperatures of 120°C and more.
- For the piping connections of the indoor unit, use the insulation casing for copper pipes to carry out the insulation treatment, and close all gaps.



## 7.7 Vacuum

Create a vacuum in the system as per the instructions written in the outdoor unit installation manual.

### Notes for installers and service engineers

#### Caution

- For the vacuum, make sure that the air and liquid cut-off valves of the outdoor unit are all closed (maintain the factory status)

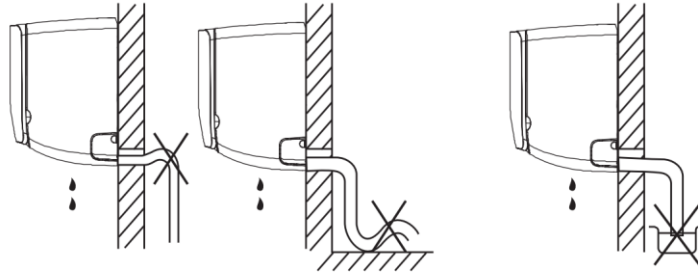
## 7.8 Refrigerant

Charge the system with refrigerant according to the instructions in the installation manual of the outdoor unit.

## 8 Water Discharge piping and Connecting piping installation

### 8.1 Installation of the Water discharge pipe for the indoor unit.

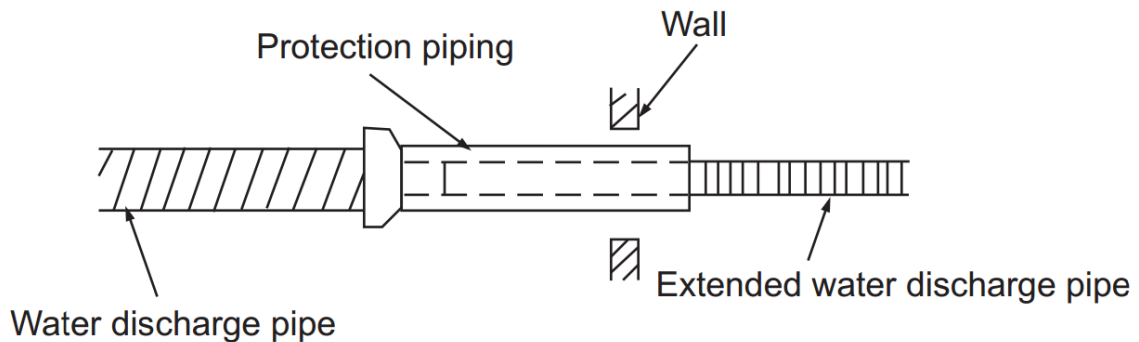
- Tilt the water discharge pipe downwards. Make sure the following situations do not arise when the water discharge pipes are being installed:



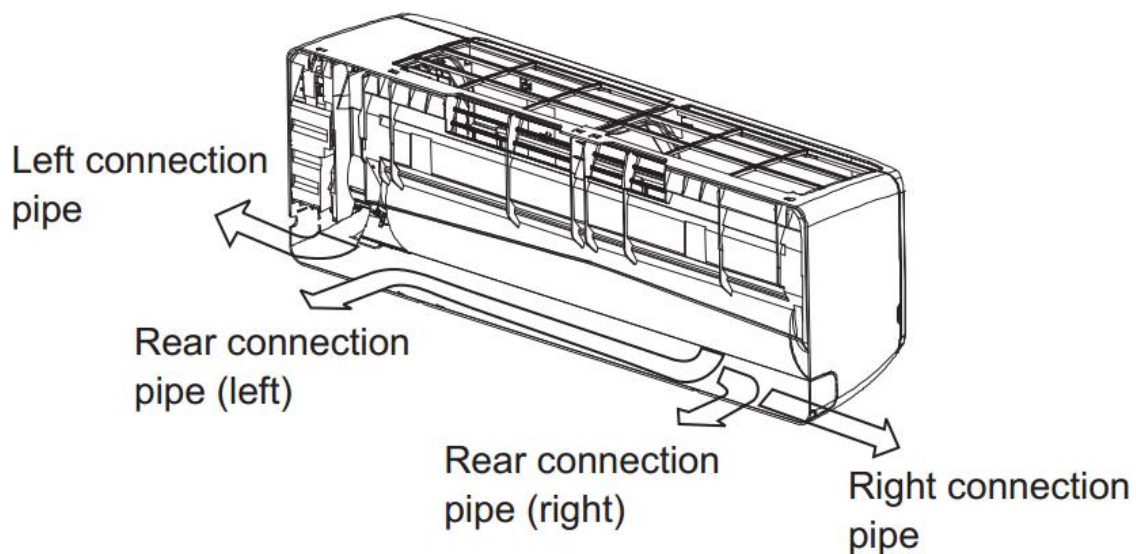
No section of the water discharge piping should be pointing up.

The tail end of the water discharge piping should not be placed into water.

- When connecting to a long water discharge pipe, the indoor unit portion must be covered with insulation casing. Make sure the long pipe does not become loose.



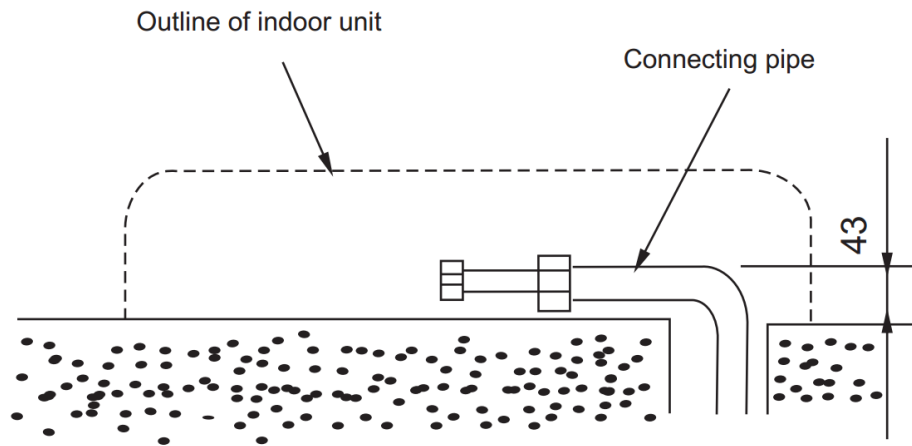
### 8.2 Installation of the connecting pipe for the indoor unit



## The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



- Use the following operations to join the left connection pipe and the rear connection pipe (left). Bend the connecting pipe, and place it at a maximum of 43 mm from the wall.



- Secure the tail-ends of the connecting pipes (refer to the portion on fixing and securing the connections in connecting the refrigeration piping.)



### Notes for installers and service engineers

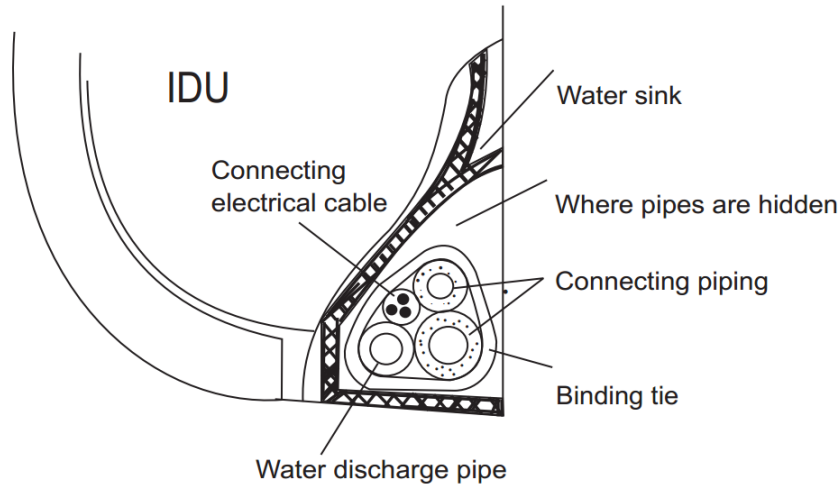
- First install the indoor unit. Then install the outdoor unit. Be careful of bends and adjust the pipeline accordingly.
- Do not expose the pipeline at the back of the indoor unit.
- Make sure the water discharge pipes are not loose and moving.
- Make sure all the connections in the piping system are properly sealed to prevent water leakages

### 8.3 Binding the pipes

- 1) Bind in the following sequence: power cord and signal line on top, connecting pipe in the middle, and water piping below.
- 2) Confirm where the water outlet is before you connect the water discharge pipe.
- 3) Do not pull the snake tube hard during the binding process.
- 4) Cover the insulation materials if the pipes are pulled out horizontally.
- 5) Avoid the connection joints during binding to in preparation of leakage checks.
- 6) When the water discharge pipe is not long enough, and there is a need to extend the water discharge pipe, make sure that protecting casing is used to wrap the indoor portion for the extended pipe. Make sure the water piping is not coiled anywhere.

## 8.4 Water Discharge Test

Once the water discharge piping is installed, inject a small amount of water into the water pan to check if the drainage is smooth.



### Notes for installers and service engineers

#### Caution

- The condensed water in the rear of the indoor unit is gathered in the water pan and discharged from the piping. Do not place anything in the water pan.

## 8.5 Material and Piping Size

Pipe Material		Copper Pipe for Air Conditioner	
Model (kW)		≤ 4.5	≥ 5.6
Size (mm)	Gas Side	Φ12.7	Φ15.9
	Liquid Side	Φ6.4	Φ9.5

### Notes for installers and service engineers

#### Caution

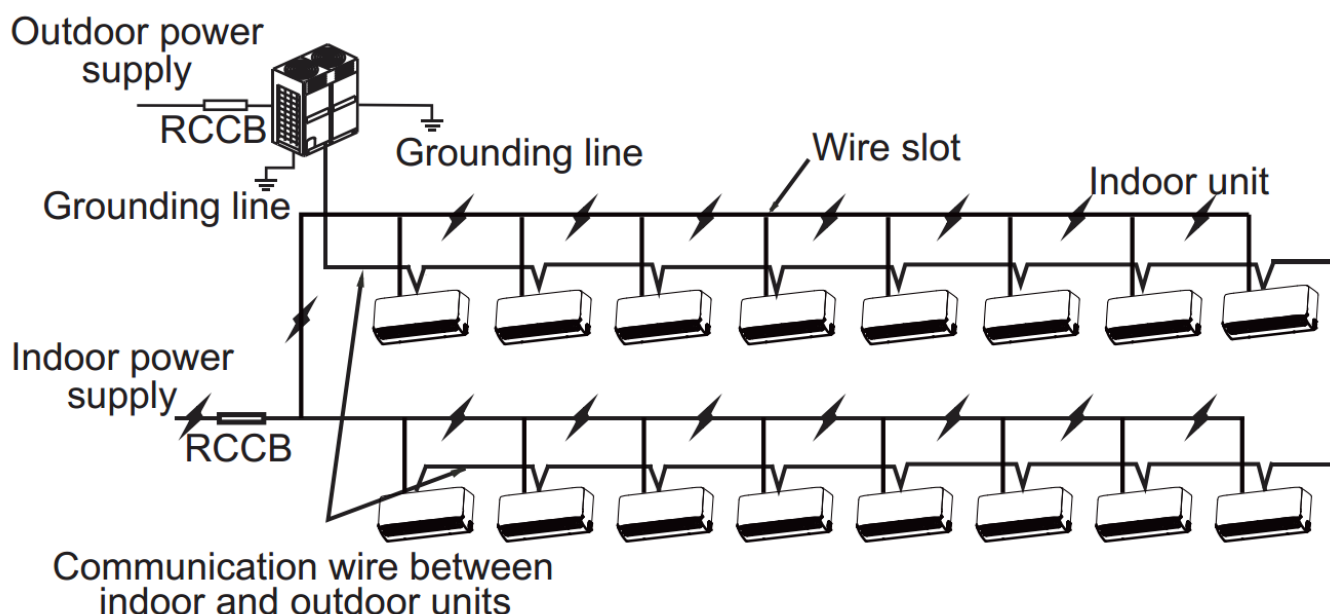
- Refer to the air conditioner pipeline connection method for the installation

## 9 Electrical Wiring

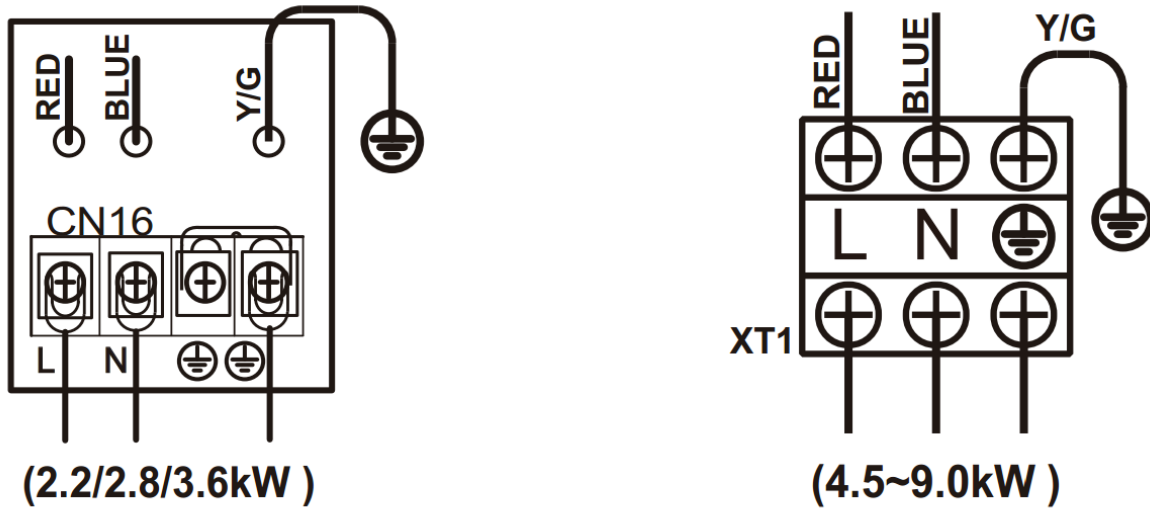
- All the supplied parts, materials and electrical works must comply with local regulations.
- Use only copper wires.
- Use a dedicated power supply for the air-conditioners. The power voltage must be in line with the rated voltage.
- The electrical wiring works must be carried out by a professional technician, and must comply with the labels stated in the circuit diagram.
- Before the electrical connection works are carried out, turn off the power supply to prevent injuries caused by electric shock.
- The external power supply circuit of the air conditioner must include an earth line, and the earth line of the power cord connecting to the indoor unit must be securely connected to the earth line of the external power supply.
- Leakage protective devices must be configured according to the local technical standards and requirements for electrical and electronic devices.
- The fixed wiring connected must be equipped with an all-pole disconnection device with a minimum 3 mm contact separation.
- The distance between the power cord and signaling line must be at least 300 mm to prevent the occurrences of electrical interference, malfunction or damage to electrical components. At the same time, these line must not come in contact with the piping and valves.
- Choose electrical wiring that conforms to the corresponding electrical requirements.
- Connect to the power supply only after all the wiring and connection works have been completed, and carefully checked to be correct.

### 9.1 Power Cord Connection

- Use a dedicated power supply for the indoor unit that is different from the power supply of the outdoor unit.
- Use the same power supply, circuit breaker and leakage protective device for the indoor units connected with the same outdoor unit.

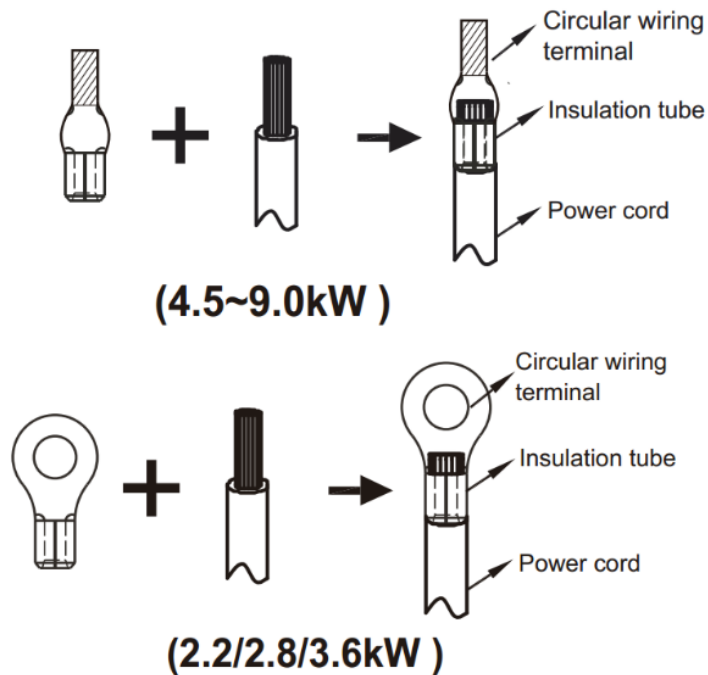






Power Supply Terminals of the indoor units

When connecting to the power supply terminal, use circular wiring terminal, with the insulation casing, see below figures:



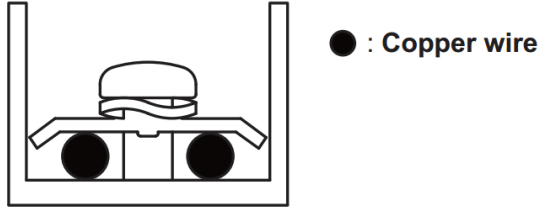
Use power cord that conforms to the specifications and connect the power cord firmly. To prevent the cord from being pulled out by external force, make sure it is fixed securely.

If circular wiring terminal with the insulation casing cannot be used,

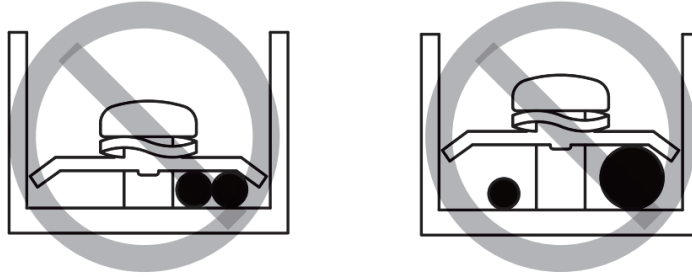
# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



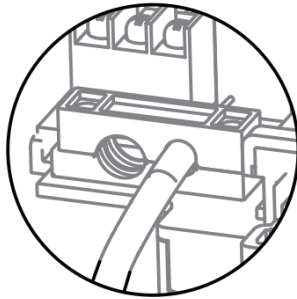
- Do not connect two power cords with different diameters to the same power supply terminal (may cause overheating of wires due to loose wiring)



Proper power wiring connections

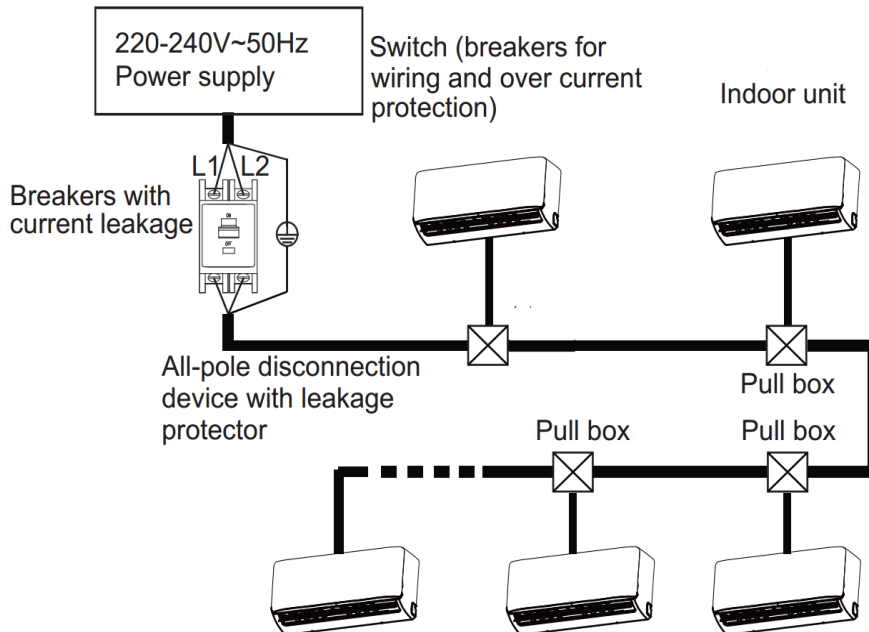


- When connecting the power line, the power line should go through the small hole in the clamp (there are two holes in the clamp)



The right wiring connections

## 9.2 Electrical Wiring Specifications



Refer to the tables below for the specifications of the power cord and communication wirings. A wiring capacity that is too small will cause the electrical wiring to become too hot and lead to accidents when the unit burns and becomes damaged.

<i>Table 6.1: Wall mounted electrical characteristics</i>	
<b>Models</b>	2.2~9.0 kW
<b>Power Supply</b>	<b>Phase</b>
	<b>Volt and Frequency</b>
<b>Communication wire between indoor and outdoor units</b>	
<b>Communication wire between indoor unit and wired controller*</b>	
<b>Field fuses</b>	

\*Please refer to the corresponding wired controller manual for the wired controller wiring.

<i>Table 6.2: Wall mounted electrical characteristics</i>								
Model	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
MDV-D22G/N1-M	50	220-240	198	264	0.32	15	0.02	0.2
MDV-D28G/N1-M	50	220-240	198	264	0.32	15	0.02	0.2
MDV-D36G/N1-M	50	220-240	198	264	0.45	15	0.02	0.23
MDV-D45G/N1-M	50	220-240	198	264	0.47	15	0.045	0.35
MDV-D56G/N1-M	50	220-240	198	264	0.58	15	0.045	0.4
MDV-D71G/N1-M	50	220-240	198	264	0.90	15	0.05	0.45
MDV-D80G/N1-M	50	220-240	198	264	0.90	15	0.05	0.45
MDV-D90G/N1-M	50	220-240	198	264	1.10	15	0.05	0.52

Abbreviations:

MCA: Minimum Circuit Amperes

MFA: Minimum Fuse Amperes

IFM: Indoor Fan Motor

kW: Rated motor output

FLA: Full Load Amperes

## The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



1. Select the wire diameters (minimum value) individually for each unit based on the Table 6.3, where the rated current in Table 6.3 means MCA in Table 6.2
2. Maximum allowable voltage range variation between phases is 2%.
3. Select circuit breaker that having a contact separation in all poles not less than 3 mm providing full disconnection, where MFA is used to select the current circuit breakers and residual current operation breakers:

Rated current of appliance (A)	Nominal cross-sectional area (mm <sup>2</sup> )	
	Flexible cords	Cable for fixed wiring
≤3	0.5 and 0.75	1 to 2.5
>3 and ≤6	0.75 and 1	1 to 2.5
>6 and ≤10	1 and 1.5	1 to 2.5
>10 and ≤16	1.5 and 2.5	1.5 to 4
>16 and ≤25	2.5 and 4	2.5 to 6
>25 and ≤32	4 and 6	4 to 10
>32 and ≤50	6 and 10	6 to 16
>50 and ≤63	10 and 16	10 to 25

### Notes for installers and service engineers

**Caution**

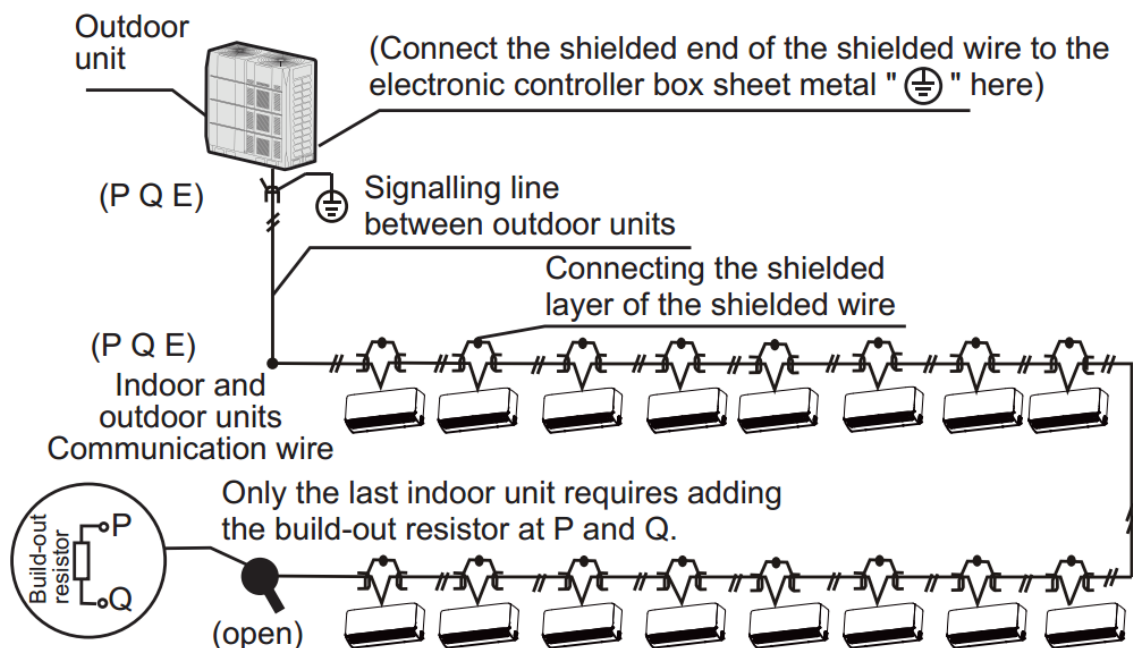
- Refer to local laws and regulations when deciding on the dimensions for the power cords and wiring. Get a professional to select and install the wiring.

## 9.3 Communication Wiring

- Use only shielded wires for the communication wiring. Any other type of wires may produce a signal interference that will cause the units to malfunction
- Do not carry out electrical works like welding with the power on.
- Do not bind the refrigerant piping, power cords and communication wiring together. When the power cord and communication wiring are parallel, the distance between the two lines must be 300 mm or more in order to prevent signal source interference.
- Communication wiring must not form a closed loop.

### 9.3.1 Communication wiring between the indoor and outdoor units

- The indoor and outdoor units communicate via the RS485 serial port.
- The communication wiring between the indoor and outdoor units should be connected one unit after another in a daisy chain from the outdoor unit to the final indoor unit and the shielded layer must be properly grounded, and a build-out resistor must be added to the last indoor unit to enhance the stability of the communication system.
- Incorrect wiring such as a star connection or a closed ring will cause instability of the communication system and system control anomalies.
- Use a three core shielded wire (greater than or equal to 0.75 mm<sup>2</sup> ) for the communication wiring between the indoor and outdoor units. Make sure the wiring is connected correctly. The connecting lead for this communication wire must come from the master outdoor unit
- All shielded wiring in the network are interconnected, and will eventually connect to earth at the same point “⊕”



## The 2<sup>nd</sup> Generation AC Series VRF Indoor Units

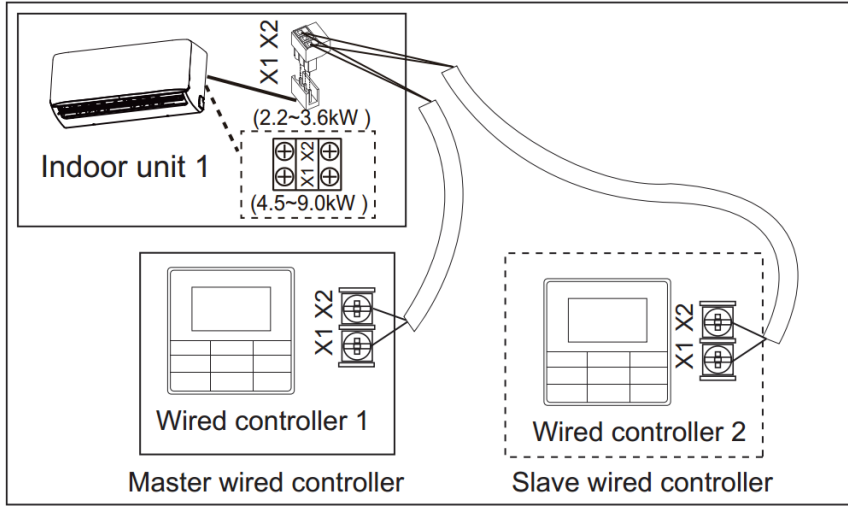


### 9.3.2 Communication wiring between the indoor unit and the wired controller (wired controller is optional for this unit)

The wired controller and the indoor unit can be connected in different manners, depending on the forms of communication.

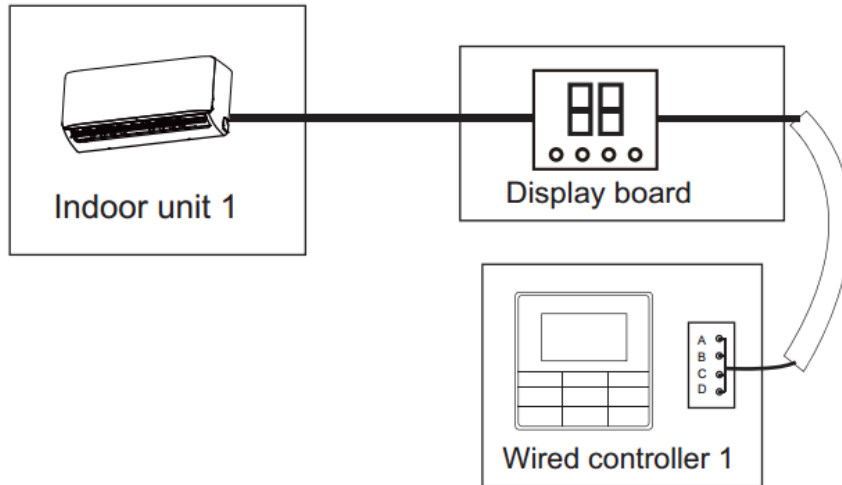
1. For Bi-directional communication mode:

- Use 1 wired controller to control 1 indoor unit or 2 wired controllers (one master and one slave controller) to control 1 indoor unit

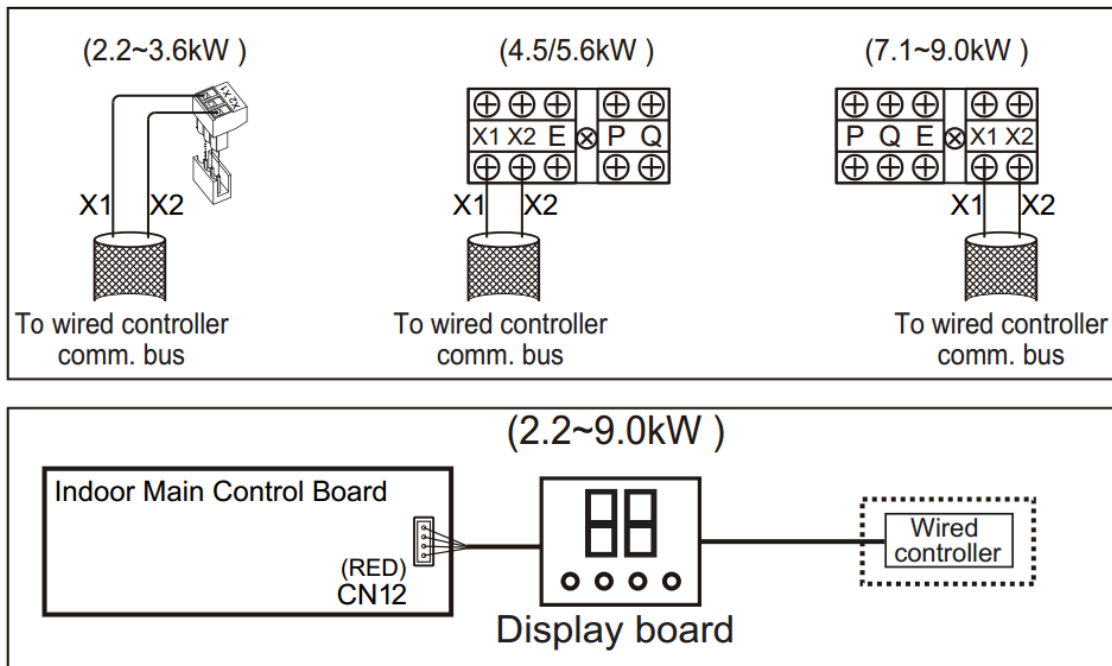


2. For Unidirectional communication mode:

Use 1 wired controller to control 1 indoor unit



- For the specific connection method, refer to the instructions in the corresponding wired controller manual to carry out the wiring and connections.
- The X1, X2 ports on the sides of the main control board and the unidirectional communication port (display board side) are for different types of wired controllers.



#### 9.4 Handling the Electrical Wiring connection points

- Once the wiring and connections are done, use tie straps to secure the wiring properly so that the connection joint cannot be pulled apart by external force. The connection wiring must be straight out so that the cover of the electrical box is level and can be closed tightly.
- Use professional insulation and sealing materials to seal and protect the perforated wires. Poor sealing may lead to condensation, and entry of small animals and insects that may cause short circuits in parts of the electrical system, causing the system to fail.

## 10 On- Site Configuration

### 10.1 Address Settings

When this indoor unit is connected to the outdoor unit, the outdoor unit will automatically allocate the address to the indoor unit. Alternatively, you may use the controller to manually set the address.

- The addresses of any two indoor units in the same system cannot be the same.
- The network address and the indoor unit address are the same and does not have to be configured separately.
- Once the address settings are completed, mark the address of each indoor unit to facilitate after-sales maintenance.
- The centralized control of the indoor unit is completed on the outdoor unit. For details, refer to the manual on the outdoor unit

#### Notes for installers and service engineers

##### Caution

- Once the centralized control function for the indoor unit has been completed on the outdoor unit, the DIP switch on main control panel of the outdoor unit must be set to auto addressing; otherwise, the indoor unit in the system are not controlled by the centralized controller.
- The system can connect up to 64 indoor units (address 0~63) at the same time. Each indoor unit can only have one address DIP switch in the system. The addresses of any two indoor units in the same system cannot be the same. Units that have the same address may malfunction

### 10.2 Dip Switch settings on Main Board

SW1_1&2 Definition	
SW1 [00]	●00 Reserved (Default)
SW1 [01]	●01 Reserved
SW1 [10]	●10 Reserved
SW1 [11]	●11 Reserved

SW2_1&2 Definition	
SW2 [00]	●00 Reserved (Default)
SW2 [01]	●01 Reserved
SW2 [10]	●10 Reserved
SW2 [11]	●11 Reserved



J1 Definition	
J1 	● Auto restart function enabled
J1 	● Auto restart function disabled
J2 Definition	
J2 	● CN2 port:Pump signal output
J2 	● CN2 port:Alarm singal output

0/1 Definition of each dial code switch:	
	● Means 0
	● Means 1

## Notes for installers and service engineers

### Caution

- All DIP switches have been configured before delivery. Only some professional maintenance personnel should change these settings.
- Improper dip switch settings may cause condensation, noise or unexpected system malfunction

## 10.3 Error Codes and Definitions

Error code	Content
E0	Mode conflict error
E1	Communication error between indoor and outdoor units
E2	Indoor ambient temperature sensor (T1) error
E3	Indoor heat exchanger mid-point temperature sensor(T2) error
E4	Indoor heat exchanger outlet temperature sensor (T2B) error
E6	Fan error
E7	EEPROM error
E9	Communication error between indoor unit and wired controller
Eb	Indoor EEV coil error
Ed	Outdoor unit error
EE	Water level error
A1	Refrigerant leakage error
FE	Indoor unit has not been assigned an address
F7	Repeat address error
FA	The capacity has not been set
H4	Communication failure with display board
U4	MS box self-check error
F8	MS box error

## 11 Test Run

### 11.1 Things to note before test run

- Indoor and outdoor units are properly installed;
- Piping and wiring are correct;
- No leakage from the refrigerant piping system;
- Water discharge is smooth;
- Insulation is complete;
- Grounding line has been properly connected;
- Piping length, and amount of refrigerant filled have been recorded;
- The voltage of the power supply is the same as the rated voltage of the air conditioner;
- No obstacles at the air inlet and outlet of the indoor and outdoor units;
- Cut-off valves for the gas and liquid ends of the outdoor unit are opened;

### 11.2 Test Run

When the wired/remote controller is used to set the cooling operations of the air conditioner, check the following items one by one. If there is a fault, troubleshoot according to the manual.

- Function keys of the wired/remote controller are operating normally;
- Room temperature regulation is normal;
- LED indicator is on;
- Water discharge is normal;
- No vibration and strange sounds during operation;

Note: Once the power is connected, when the unit is turned on or started immediately after the unit is turned off, the air conditioner has a protective function which delays the start of the compressor.

## 12 Sound Levels

### 12.1 Overall

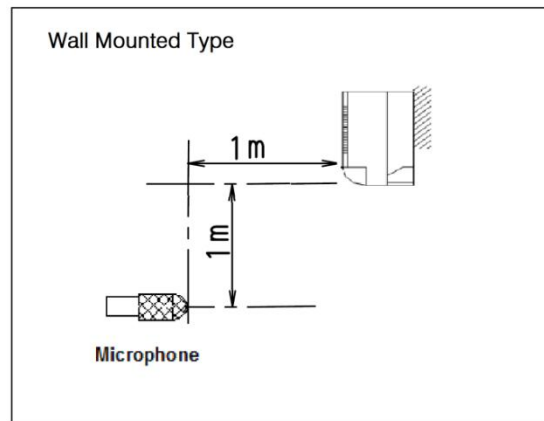
Table 8.1: Wall mounted sound pressure levels<sup>1</sup>

Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
MDV-D22G/N1-M	34	33	33	32	32	31	31
MDV-D28G/N1-M	34	33	32	32	31	31	31
MDV-D36G/N1-M	36	35	34	33	32	32	32
MDV-D45G/N1-M	37	36	34	34	33	32	31
MDV-D56G/N1-M	42	41	40	39	38	37	36
MDV-D71G/N1-M	48	47	45	44	42	39	38
MDV-D80G/N1-M	48	47	45	43	42	39	38
MDV-D90G/N1-M	52	51	50	49	47	45	43

Notes:

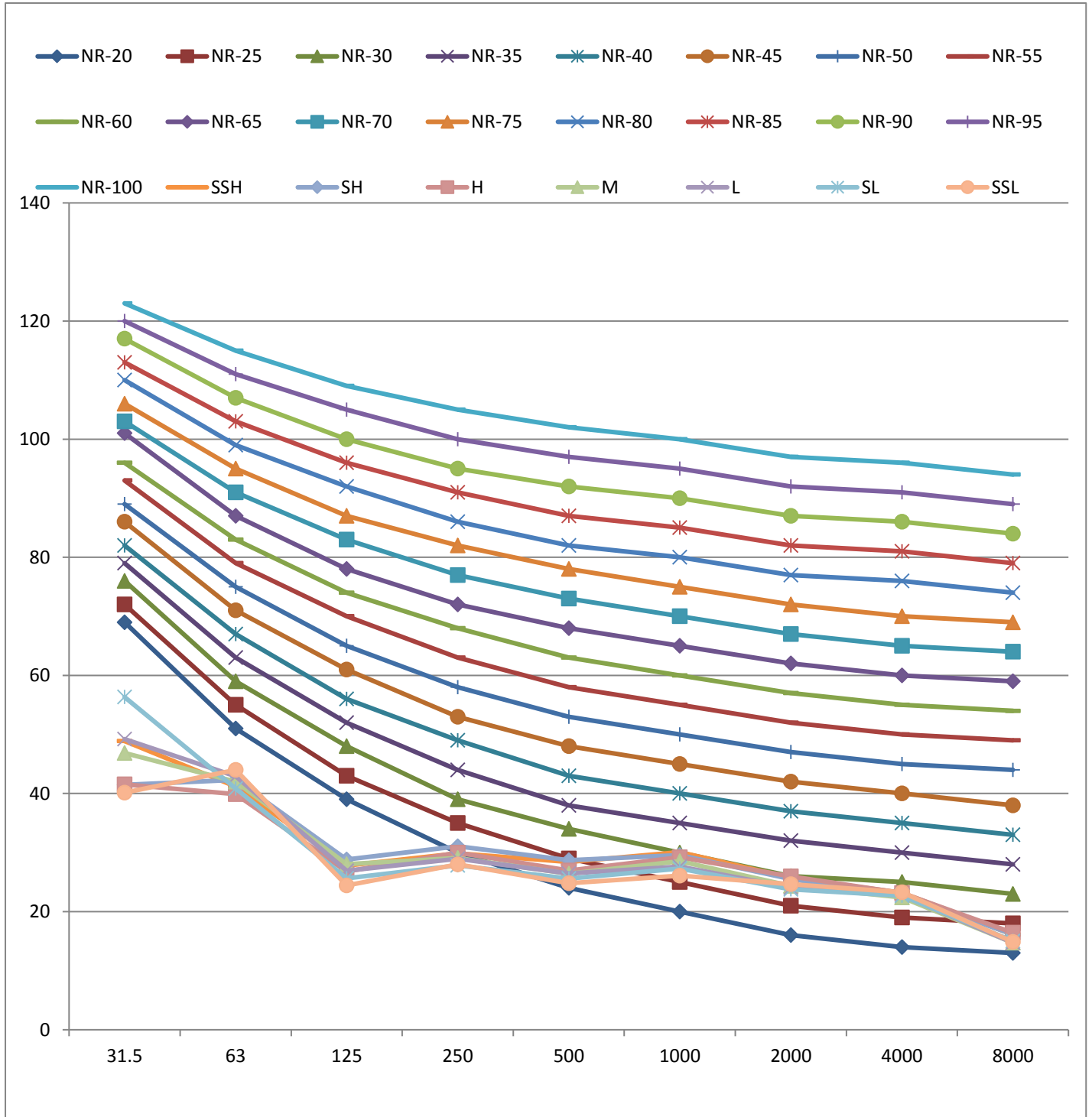
1. Sound pressure levels are measured in a semi-anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 8.1: Wall mounted sound pressure level measurement



## 12.2 Octave Band Levels

MDV-D22G/N1-M

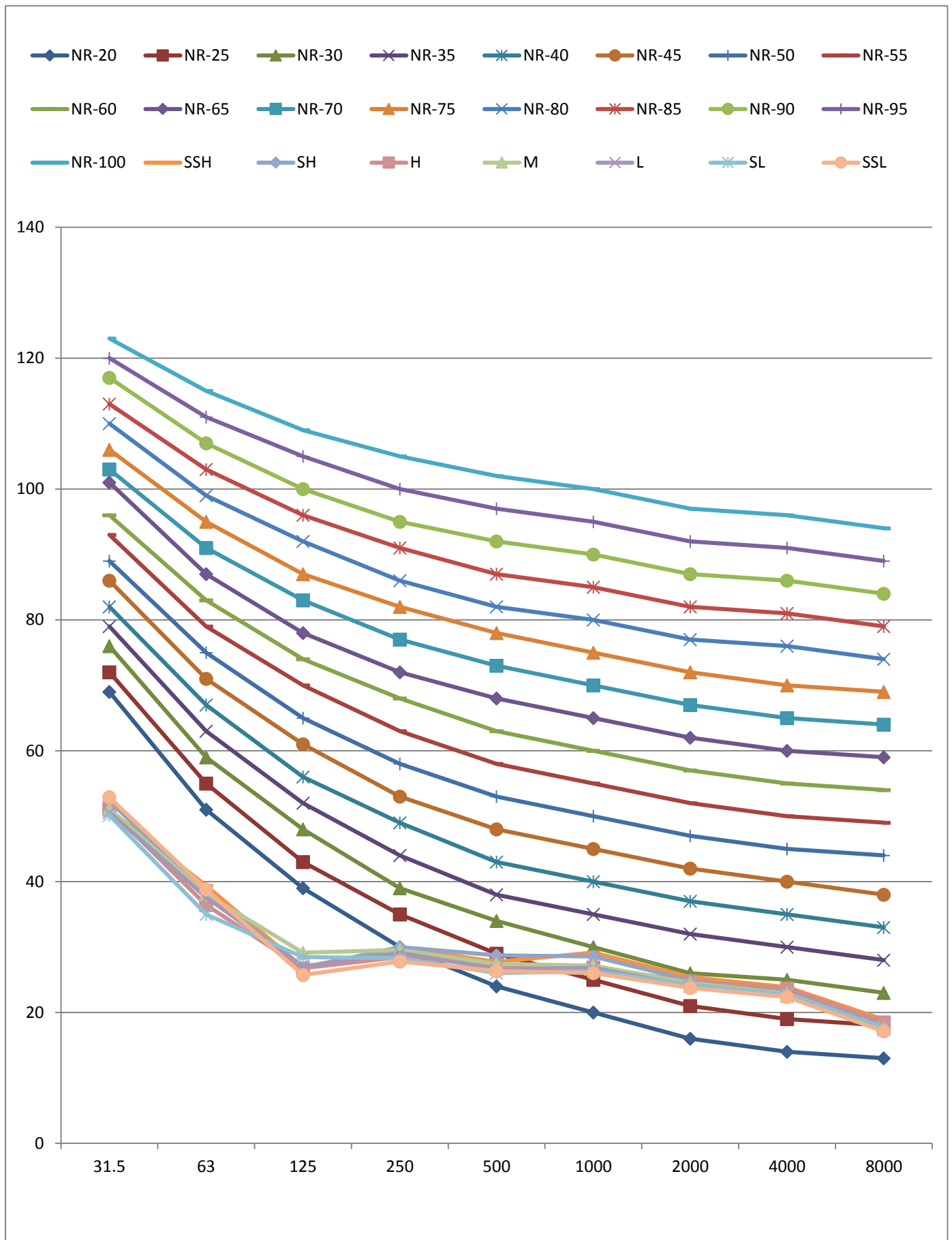


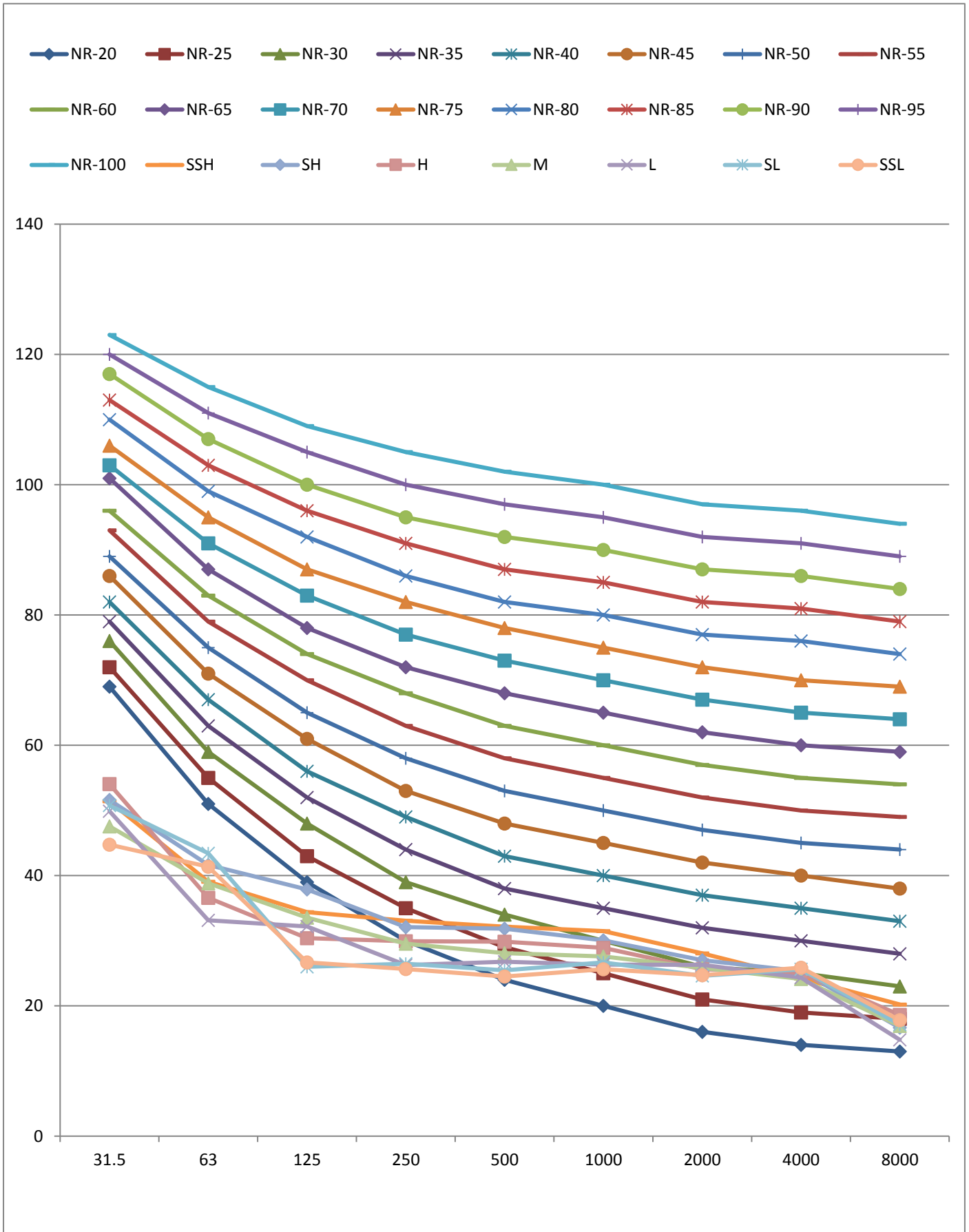
# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



MDV-D28G/N1-M

MDV 2<sup>nd</sup> Generation DC Series Wall Mounted VRF Indoor Units Engineering Data Book



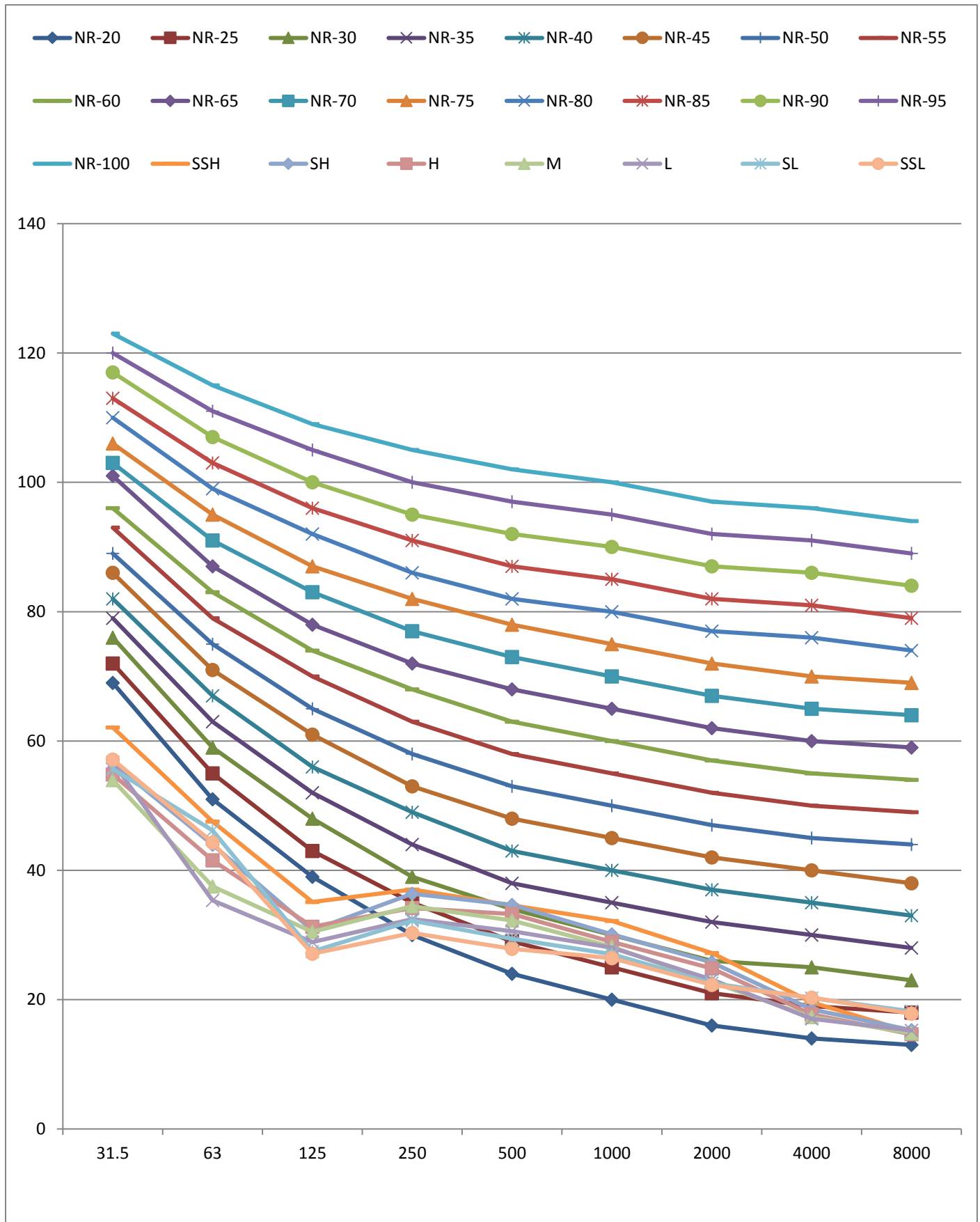


# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



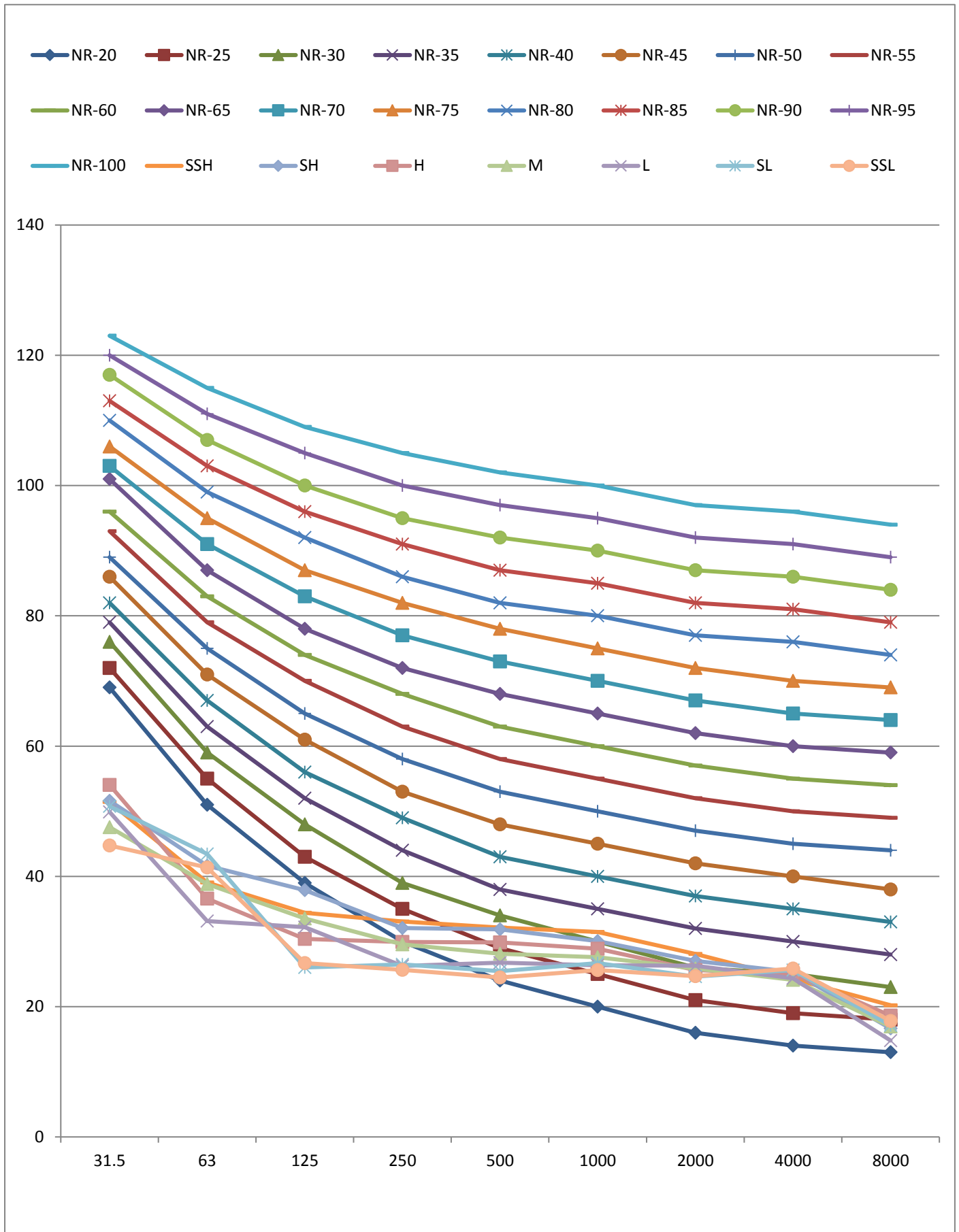
MDV-D45G/N1-M

MDV 2<sup>nd</sup> Generation DC Series Wall Mounted VRF Indoor Units Engineering Data Book





## MDV-D56G/N1-M

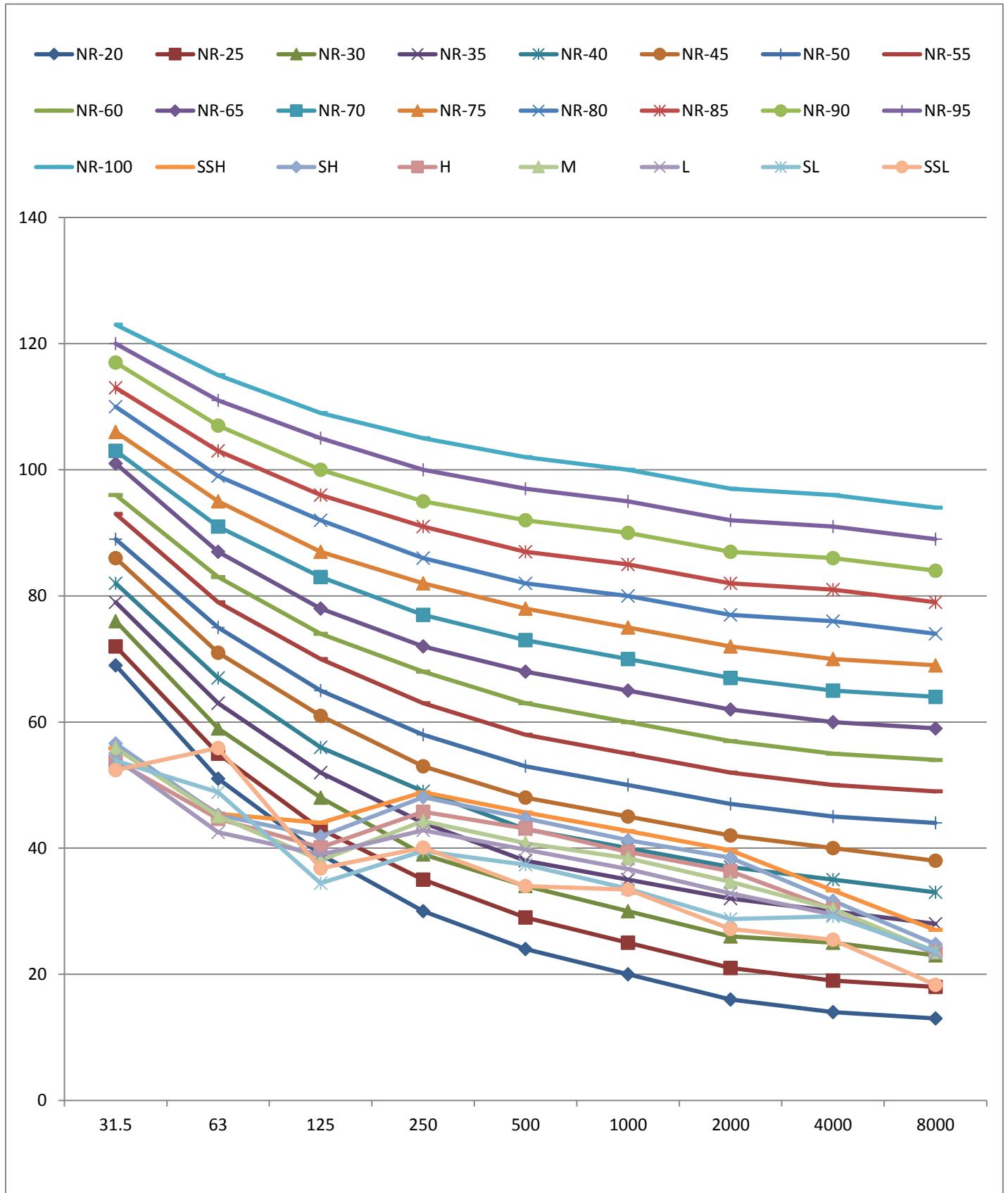


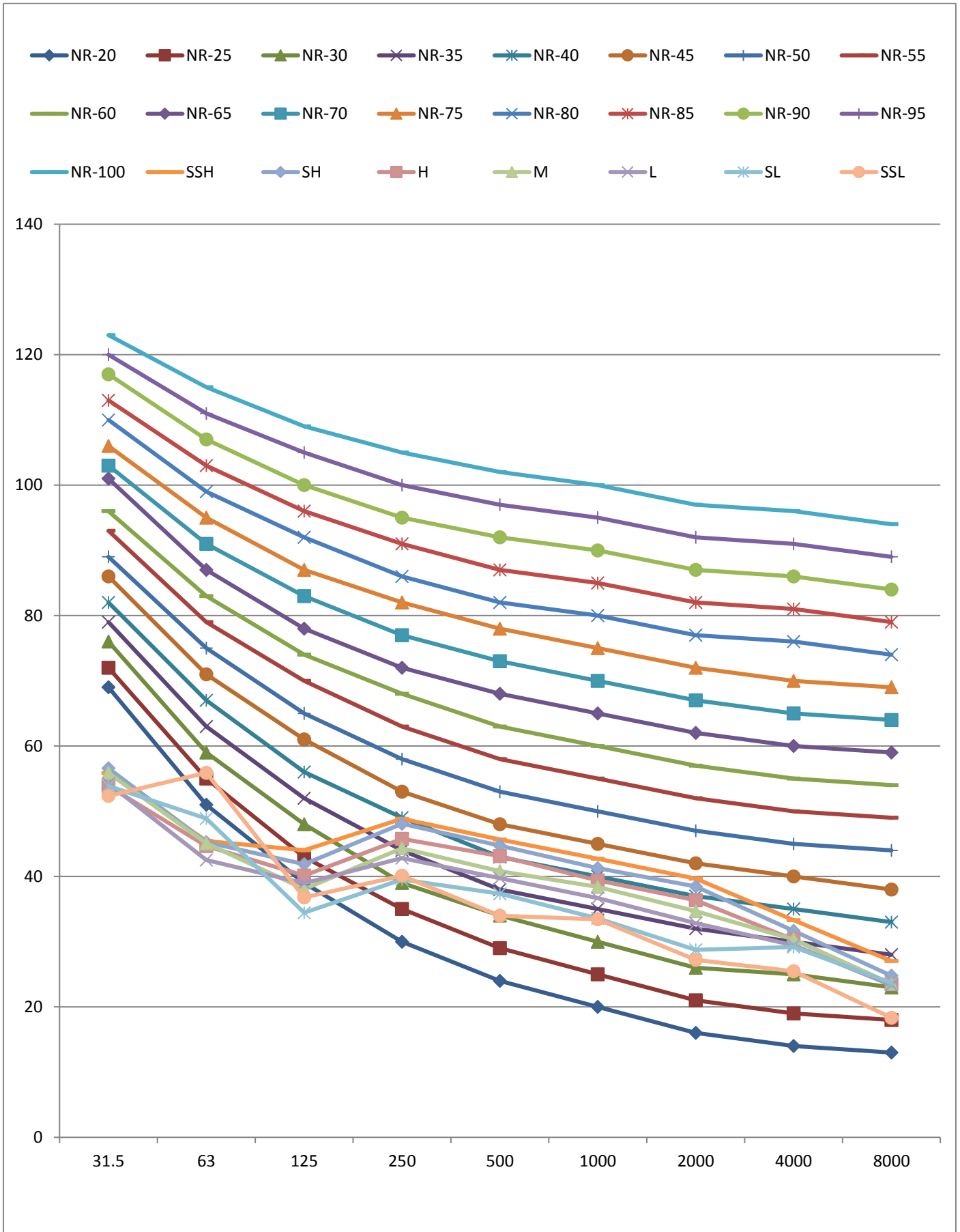
# The 2<sup>nd</sup> Generation AC Series VRF Indoor Units



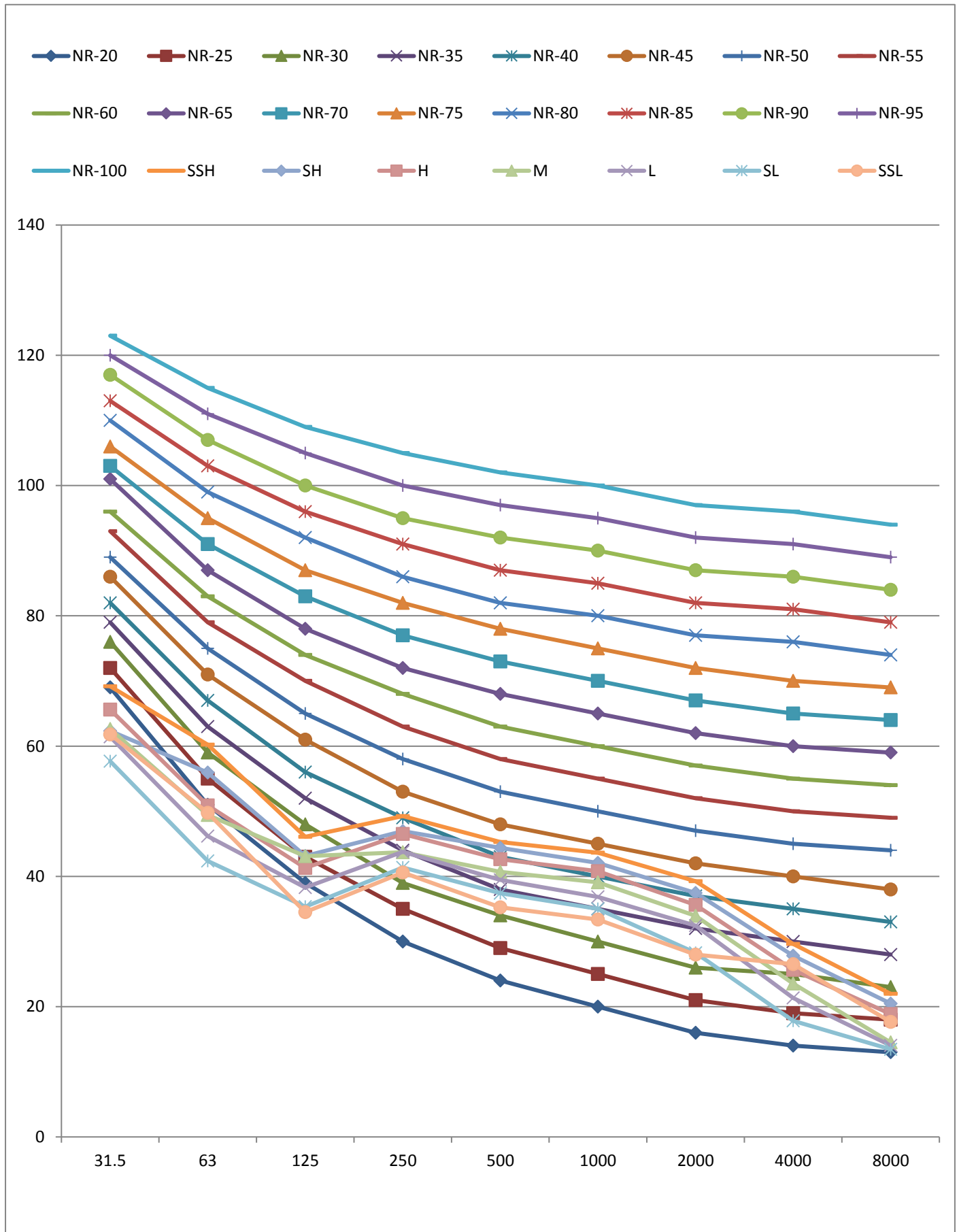
MDV-D71G/N1-M

MDV 2<sup>nd</sup> Generation DC Series Wall Mounted VRF Indoor Units Engineering Data Book

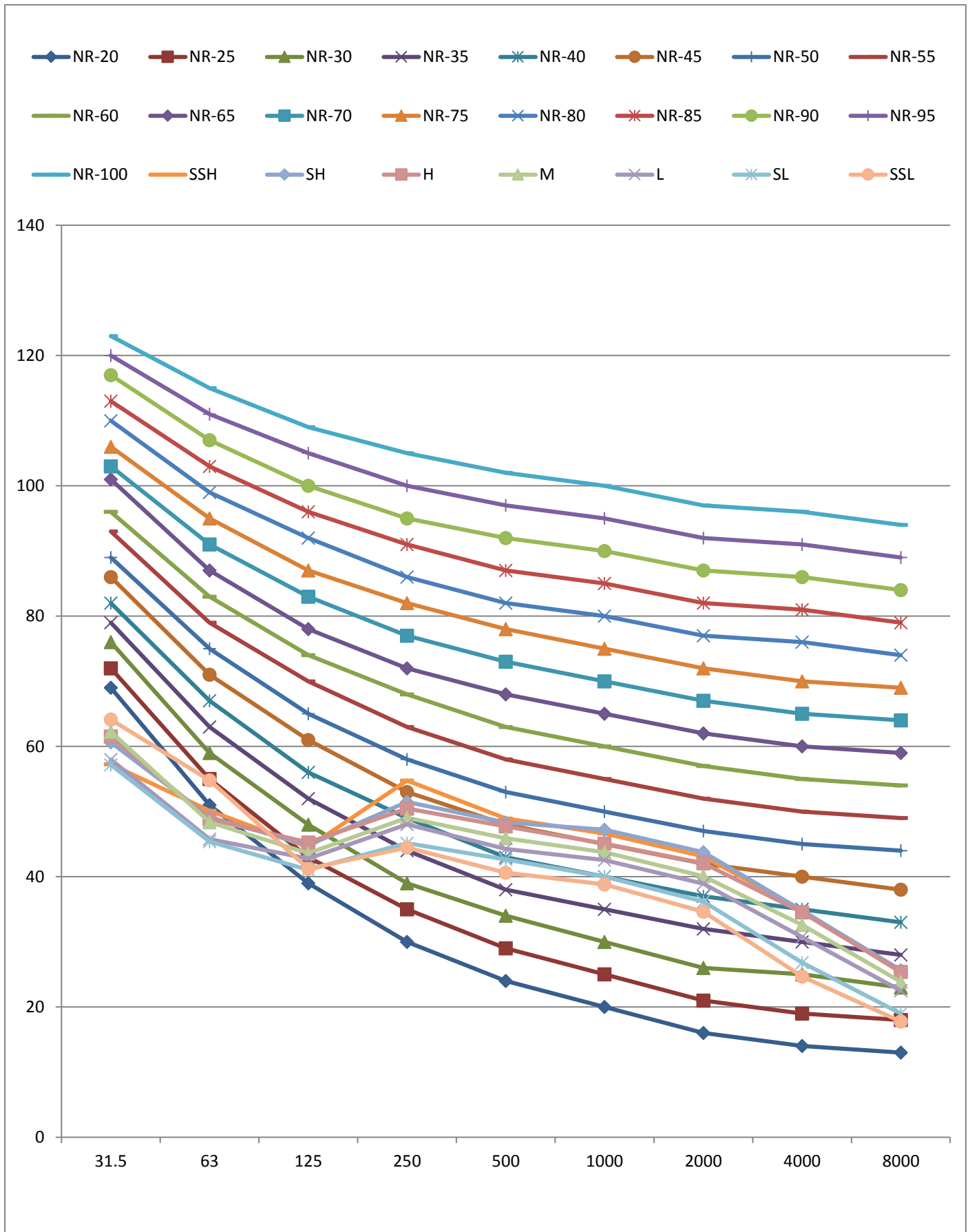




MDV-D80G/N1-M



## MDV-D90G/N1-M



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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.

