

# Engineering Data

## One-way Cassette VRF IDU

AC 50Hz



MDV-D18Q1/N1-D(B)

MDV-D45Q1/N1-D(B)

MDV-D22Q1/N1-D(B)

MDV-D56Q1/N1-D(B)

MDV-D28Q1/N1-D(B)

MDV-D71Q1/N1-D(B)

MDV-D36Q1/N1-D(B)

# One-way Cassette

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## 1 Specifications

### MDV-D18Q1/N1-D(B) / MDV-D22Q1/N1-D(B)

Table 1.1: MDV-D18(22)Q1/N1-D(B) specifications

Model			MDV-D18Q1/N1-D(B)	MDV-D22Q1/N1-D(B)
Power supply			1-phase, 220-240V, 50Hz	
Cooling <sup>1</sup>	Capacity	kW	1.8	2.2
	Input	W	41	41
Heating <sup>2</sup>	Capacity	kW	2.2	2.6
	Input	W	41	41
Indoor fan motor	Type		AC	
	Quantity		1	
Indoor coil	Number of rows		2	
	Tube pitch × row pitch	mm	21×13.37	
	Fin spacing	mm	1.5	
	Fin type		Hydrophilic aluminum	
	Diameter & type	mm	Φ7, inner-groove	
	Dimensions (L×H×W)	mm	760×252.4×26.74	
	Number of circuits		2	
Indoor air flow (H/M/L)		m <sup>3</sup> /h	523/404/275	
Sound pressure level <sup>3</sup>		dB(A)	37/34/30	
Indoor unit	Net dimensions <sup>4</sup> (W×H×D)		mm	
	Packed dimensions (W×H×D)		mm	
	Net/Gross weight		kg	
Panel	Net dimensions (W×H×D)		mm	
	Packed dimensions (W×H×D)		mm	
	Net/Gross weight		kg	
Refrigerant type			R410A	
Pipe connections	Liquid pipe	mm	Φ6.35	
	Gas pipe	mm	Φ12.7	
	Drain pipe	mm	OD Φ25	

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.
4. Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

## MDV-D28Q1/N1-D(B) / MDV-D36Q1/N1-D(B)

Table 1.2: MDV-D28(36)Q1/N1-D(B) specifications

Model			MDV-D28Q1/N1-D(B)	MDV-D36Q1/N1-D(B)
Power supply			1-phase, 220-240V, 50Hz	
Cooling <sup>1</sup>	Capacity	kW	2.8	3.6
	Input	W	41	41
Heating <sup>2</sup>	Capacity	kW	3.2	4.0
	Input	W	41	41
Indoor fan motor	Type		AC	
	Quantity		1	
Indoor coil	Number of rows		2	
	Tube pitch × row pitch	mm	21×13.37	
	Fin spacing	mm	1.5	
	Fin type		Hydrophilic aluminum	
	Diameter & type	mm	Φ7, inner-groove	
	Dimensions (L×H×W)	mm	760×252.4×26.74	
	Number of circuits		3	
Indoor air flow (H/M/L)		m <sup>3</sup> /h	573/456/315	
Sound pressure level <sup>3</sup>		dB(A)	39/37/34	
Indoor unit	Net dimensions <sup>4</sup> (W×H×D)		mm	
	Packed dimensions (W×H×D)		mm	
	Net/Gross weight		kg	
Panel	Net dimensions (W×H×D)		mm	
	Packed dimensions (W×H×D)		mm	
	Net/Gross weight		kg	
Refrigerant type			R410A	
Pipe connections	Liquid pipe	mm	Φ6.35	
	Gas pipe	mm	Φ12.7	
	Drain pipe	mm	OD Φ25	

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.
4. Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

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



MDV-D45Q1/N1-D(B) / MDV-D56Q1/N1-D(B) / MDV-D71Q1/N1-D(B)

Table 1.2: MDV-D45(56,71)Q1/N1-D(B) specifications

Model			MDV-D45Q1/N1-D(B)	MDV-D56Q1/N1-D(B)	MDV-D71Q1/N1-D(B)
Power supply			1-phase, 220-240V, 50Hz		
Cooling <sup>1</sup>	Capacity	kW	4.5	5.6	7.1
	Input	W	48	48	60
Heating <sup>2</sup>	Capacity	kW	5.0	6.3	8.0
	Input	W	48	48	60
Indoor fan motor	Type		AC		
	Quantity		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		
	Diameter & type	mm	Φ7, inner-groove		
	Dimensions (L×H×W)	mm	955×231×26.74		
	Number of circuits		3	3	5
Indoor air flow (H/M/L)		m <sup>3</sup> /h	693/600/476	792/688/549	933/749/592
Sound pressure level <sup>3</sup>		dB(A)	41/39/35	42/40/36	44/41/37
Indoor unit	Net dimensions <sup>4</sup> (W×H×D)	mm	1275×189×450		
	Packed dimensions (W×H×D)	mm	1370×295×505		
	Net/Gross weight	kg	18.5/22.8	18.8/23.1	19.5/23.8
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		
Pipe connections	Liquid pipe	mm	Φ6.35	Φ9.53	Φ9.53
	Gas pipe	mm	Φ12.7	Φ15.9	Φ15.9
	Drain pipe	mm	OD Φ25		

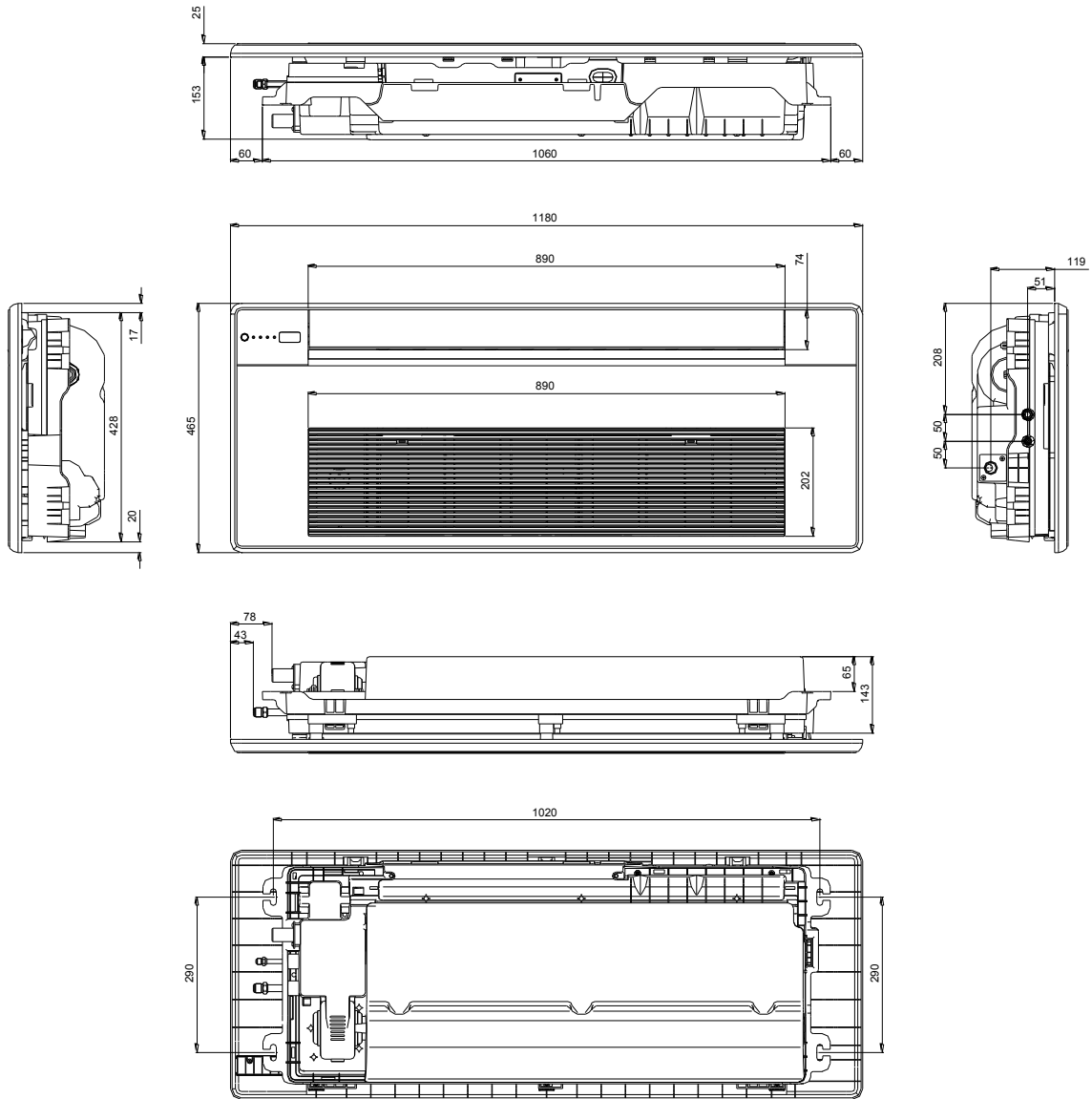
Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.
4. Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

## 2 Dimensions

### 2.1 Unit Dimensions

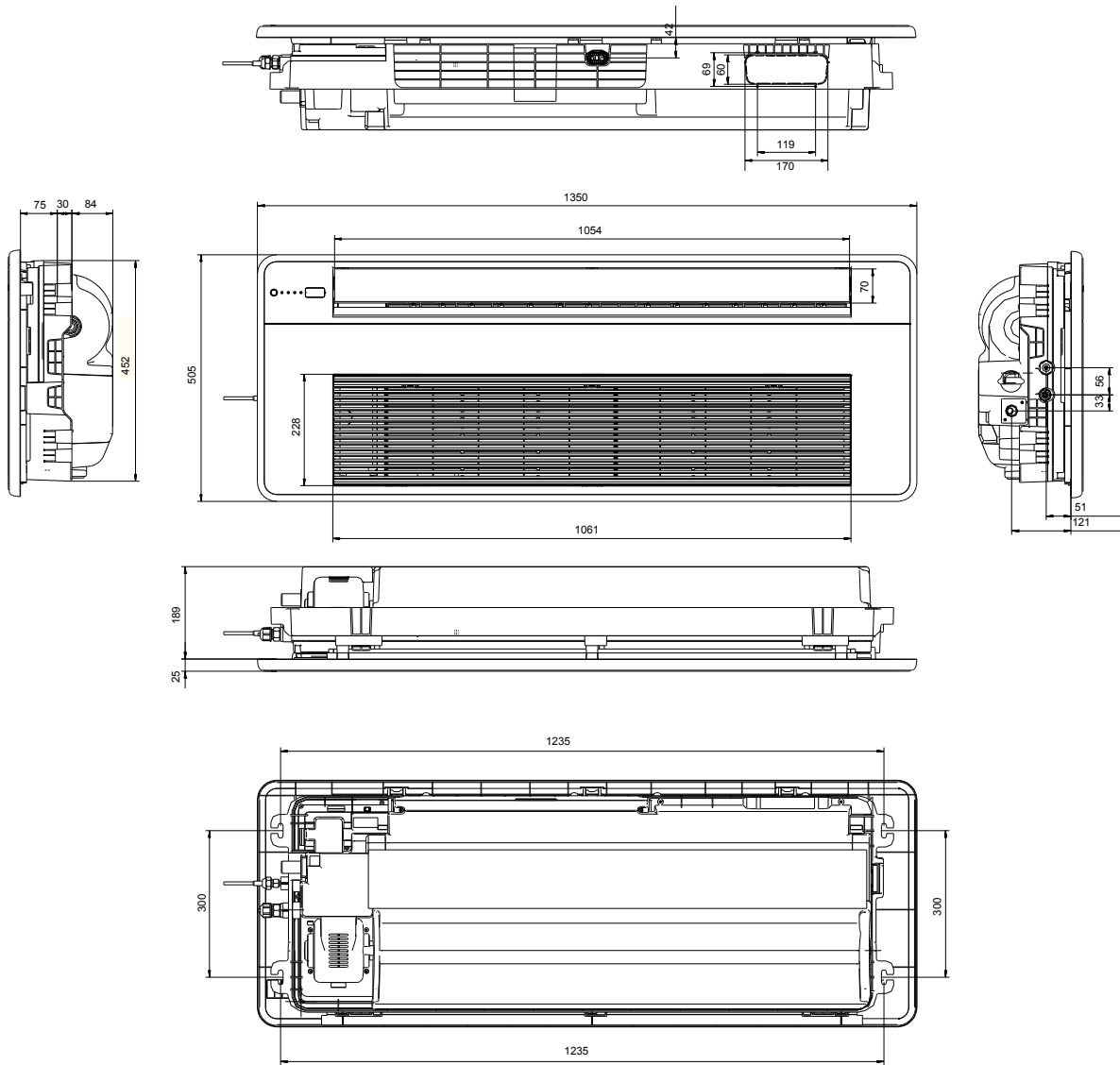
Figure 2.1: MDV-D18(22,28,36)Q1N1-D(B) dimensions (unit: mm)



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



Figure 2.2: MDV-D45(56,71)Q1N1-D(B) 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)

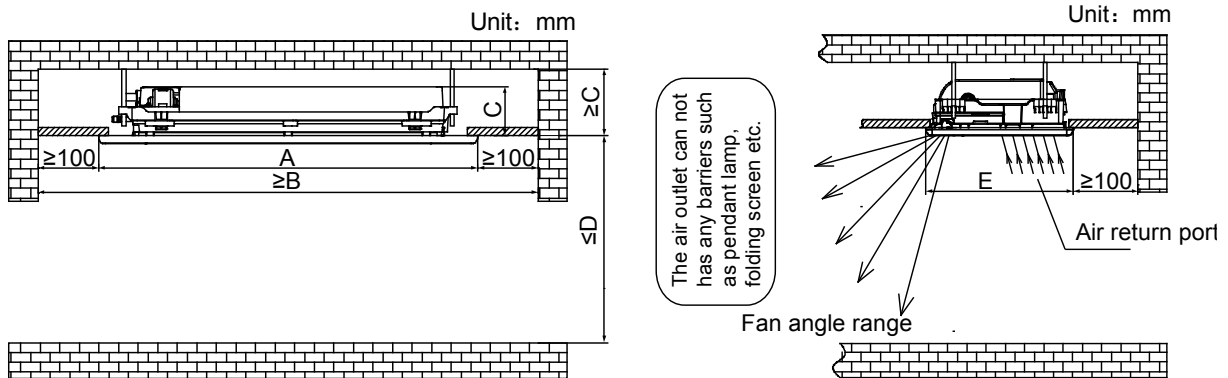


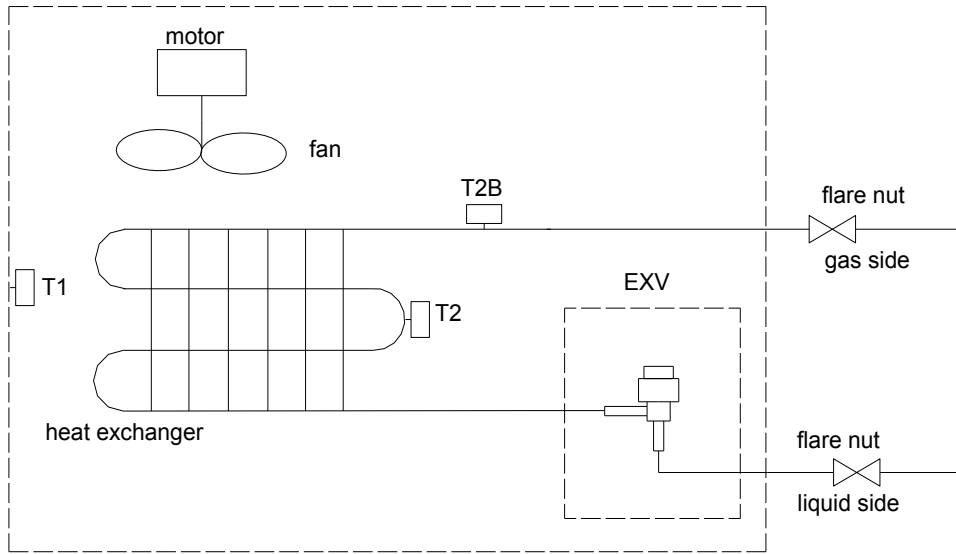
Table 3.1: One-way Cassette dimensions and space requirements

Model name	Dimensions / Requirements (mm)				
	A	B	C	D	E
MDV-D18Q1/N1-D(B) MDV-D22Q1/N1-D(B) MDV-D28Q1/N1-D(B) MDV-D36Q1/N1-D(B)	1180	1380	153	3200	465
MDV-D45Q1/N1-D(B) MDV-D56Q1/N1-D(B) MDV-D71Q1/N1-D(B)	1350	1550	189	4000	505



### 4 Piping Diagram

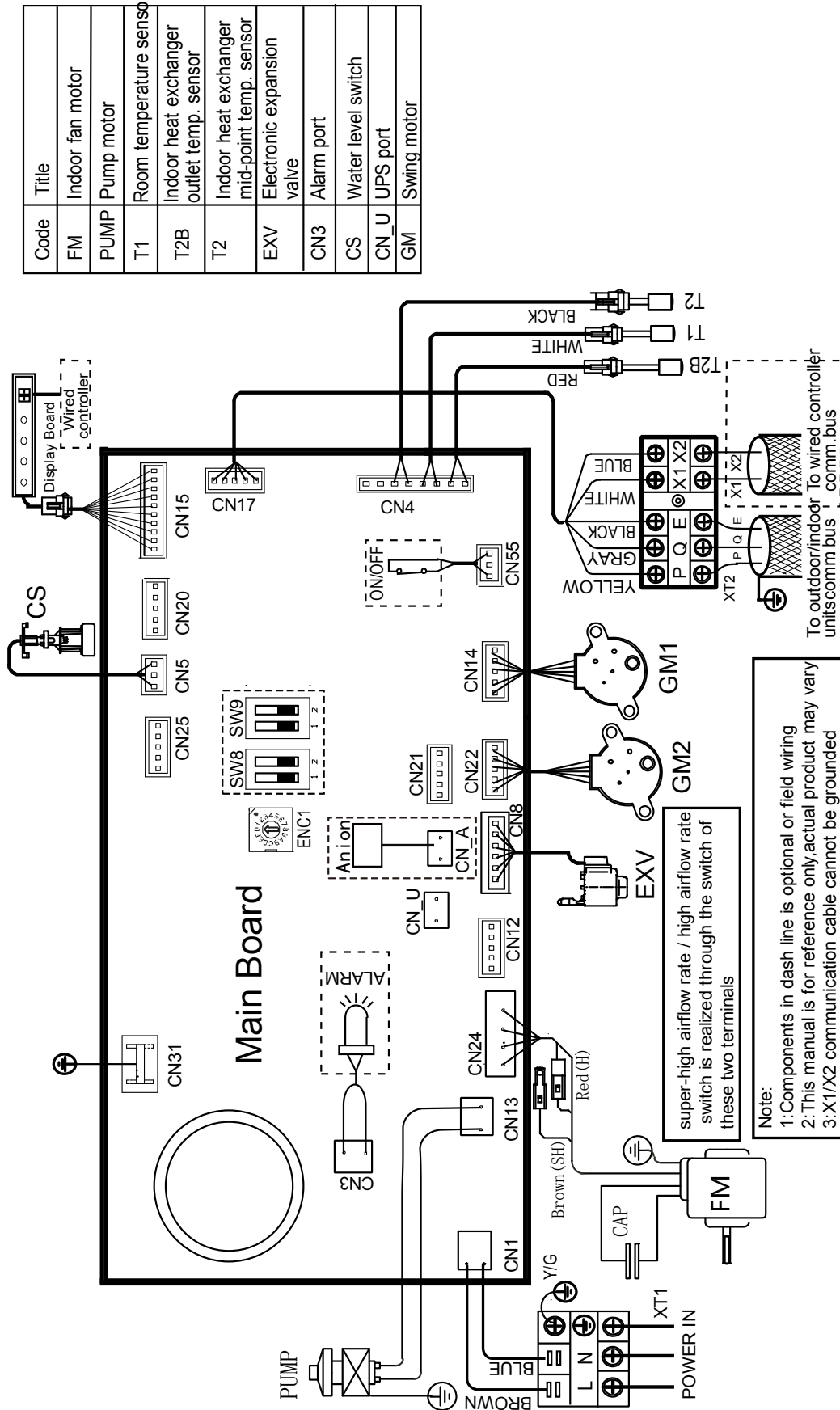
Figure 4.1: One-way Cassette piping diagram



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

## 5 Wiring Diagram

Figure 5.1: One-way Cassette wiring diagram



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
MDV-D18Q1/N1-D(B)	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
MDV-D22Q1/N1-D(B)	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
MDV-D28Q1/N1-D(B)	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
MDV-D36Q1/N1-D(B)	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
MDV-D45Q1/N1-D(B)	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
MDV-D56Q1/N1-D(B)	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
MDV-D71Q1/N1-D(B)	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
MDV-D18Q1/N1-D(B)	2.4	2.4	2.2	2.1	2.1	1.9
MDV-D22Q1/N1-D(B)	2.8	2.8	2.6	2.5	2.4	2.3
MDV-D28Q1/N1-D(B)	3.4	3.4	3.2	3.1	3.0	2.8
MDV-D36Q1/N1-D(B)	4.2	4.2	4.0	3.8	3.8	3.5
MDV-D45Q1/N1-D(B)	5.3	5.3	5.0	4.8	4.7	4.4
MDV-D56Q1/N1-D(B)	6.7	6.6	6.3	6.1	5.9	5.5
MDV-D71Q1/N1-D(B)	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	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
MDV-D18Q1/N1-D(B)	50	220-240	198	264	0.2	15	0.04	0.16
MDV-D22Q1/N1-D(B)	50	220-240	198	264	0.2	15	0.04	0.16
MDV-D28Q1/N1-D(B)	50	220-240	198	264	0.3	15	0.04	0.24
MDV-D36Q1/N1-D(B)	50	220-240	198	264	0.3	15	0.04	0.24
MDV-D45Q1/N1-D(B)	50	220-240	198	264	0.3	15	0.05	0.24
MDV-D56Q1/N1-D(B)	50	220-240	198	264	0.3	15	0.05	0.24
MDV-D71Q1/N1-D(B)	50	220-240	198	264	0.4	15	0.06	0.32

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

## 8 Sound Levels

### 8.1 Overall

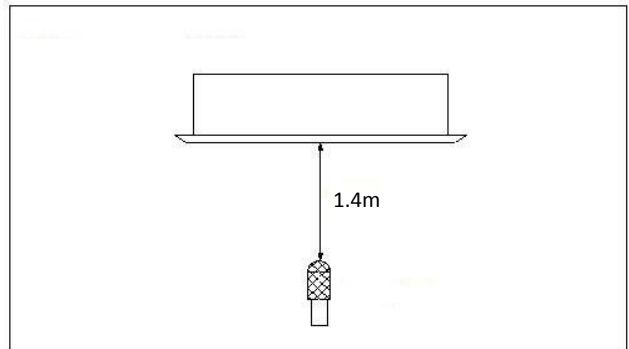
Table 8.1: One-way Cassette sound pressure levels<sup>1</sup>

Model name	Sound pressure levels dB(A)		
	H	M	L
MDV-D18Q1/N1-D(B)	37	34	30
MDV-D22Q1/N1-D(B)	37	34	30
MDV-D28Q1/N1-D(B)	38	34	30
MDV-D36Q1/N1-D(B)	38	34	30
MDV-D45Q1/N1-D(B)	41	39	35
MDV-D56Q1/N1-D(B)	42	40	36
MDV-D71Q1/N1-D(B)	44	41	37

Notes:

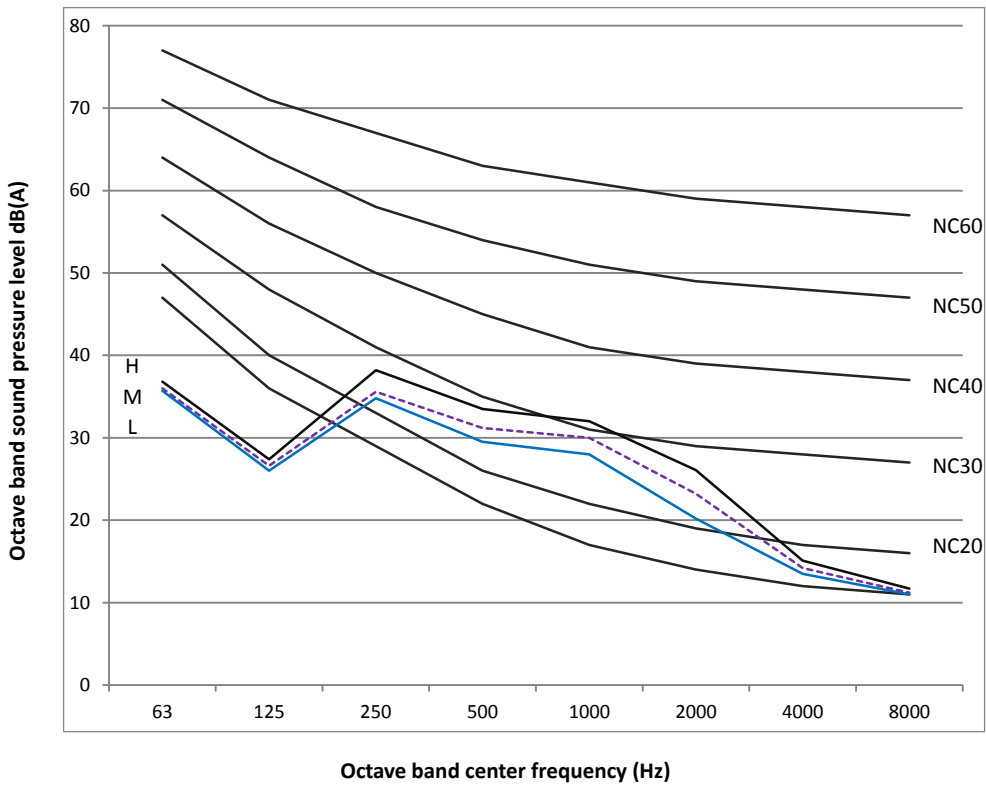
1. Sound pressure levels are measured 1.4m below the unit in a semi-anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 8.1: One-way Cassette sound pressure level measurement



### 8.2 Octave Band Levels

Figure 8.2: MDV-D18(22)Q1/N1-D(B) octave band levels



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



Figure 8.3: MDV-D28(36)Q1/N1-D(B) octave band levels

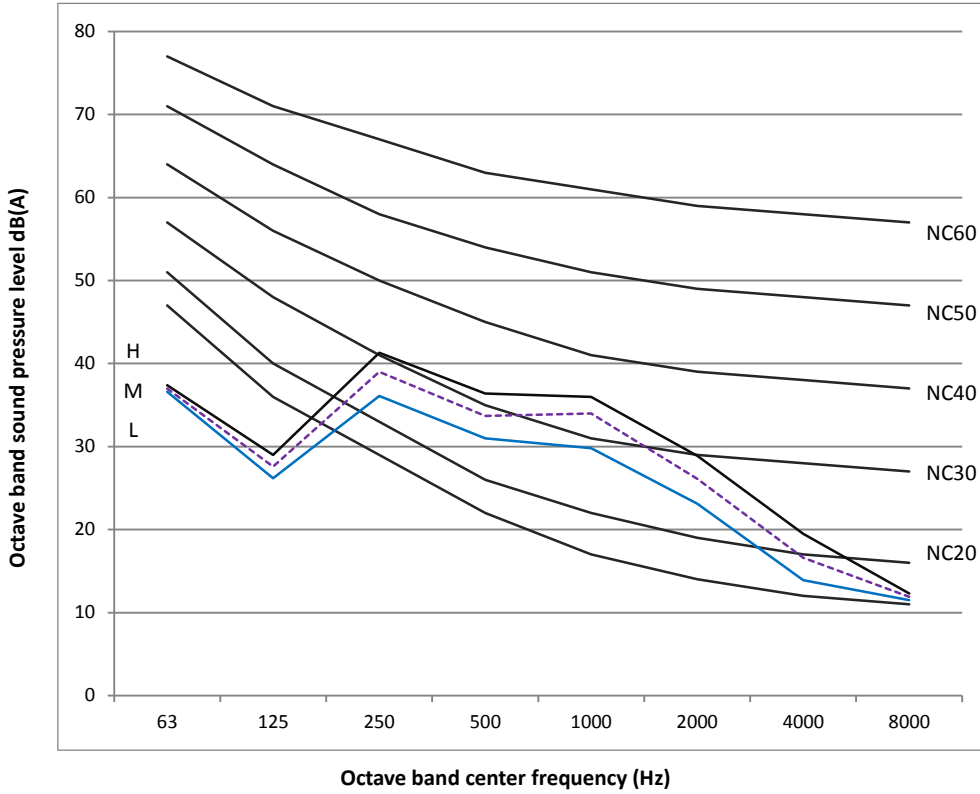


Figure 8.4: MDV-D45Q1/N1-D(B) octave band levels

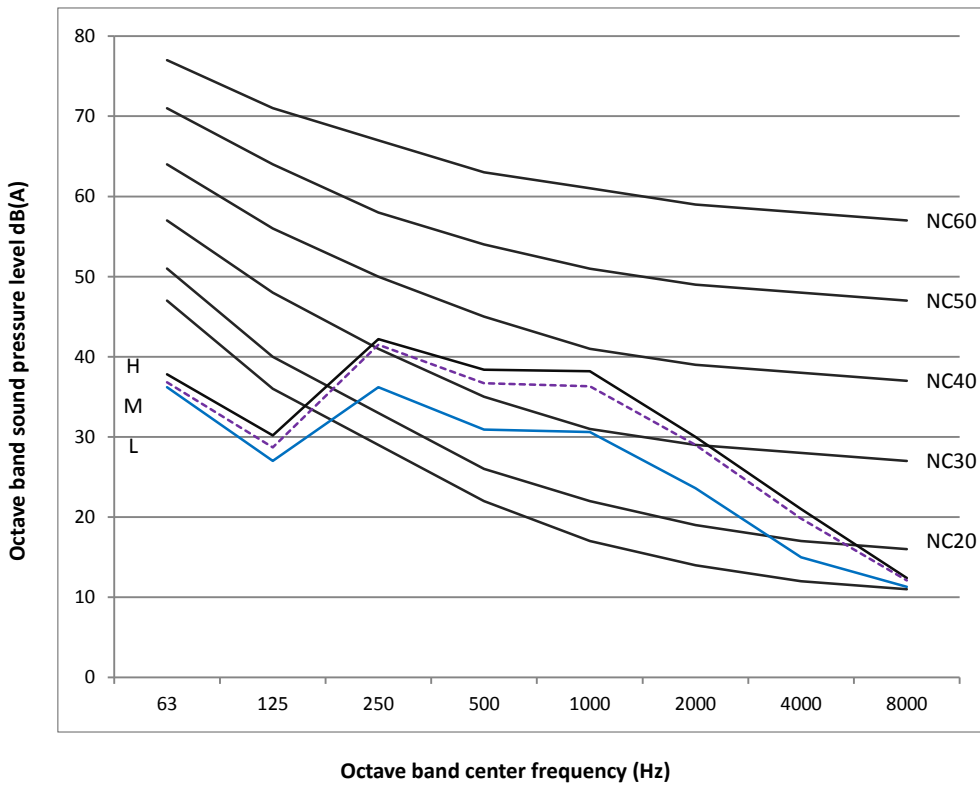


Figure 8.5: MDV-D56Q1/N1-D(B) octave band levels

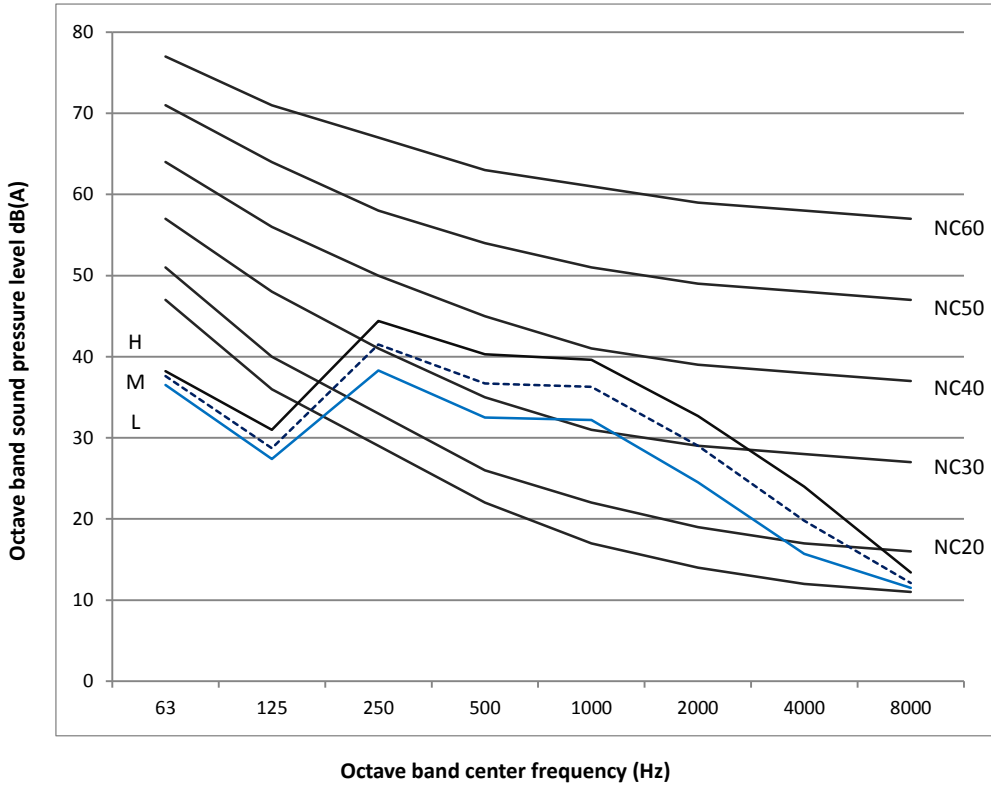
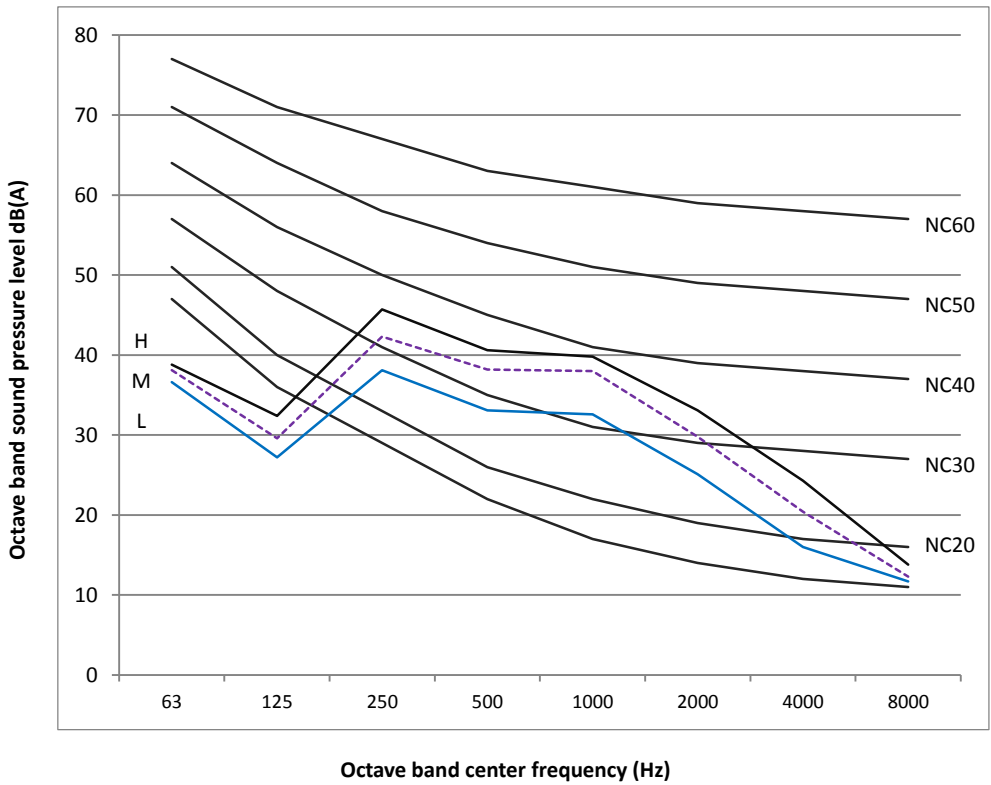


Figure 8.6: MDV-D71Q1/N1-D(B) octave band levels





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