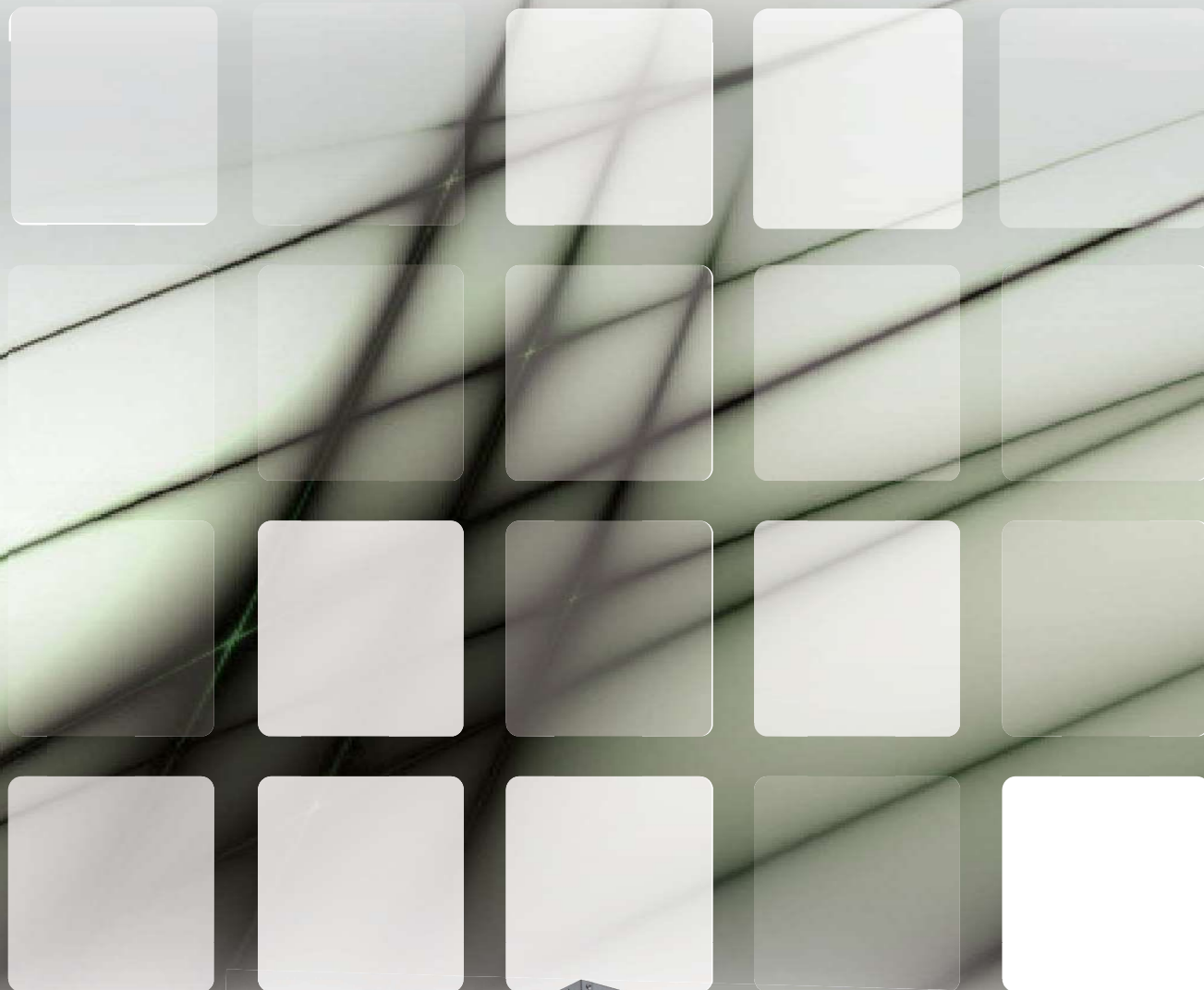


BECS(R)-D Ultima Series

50Hz Round Flow Cassette VRF Indoor Unit
Technical Manual

220~240V/1/50Hz



Technical Manual

Four-way Cassette VRF IDU

Ultima Series

AC 50Hz



BECS010Q3A-DWM028

BECS031Q3A-DWM090

BECS012Q3A-DWM036

BECS036Q3A-DWM100

BECS015Q3A-DWM045

BECS038Q3A-DWM112

BECS019Q3A-DWM056

BECS048Q3A-DWM140

BECS024Q3A-DWM071

BECS060Q0A-DWM160

BECS027Q3A-DWM080

Four-way Cassette

| | |
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Ultima Series VRF Indoor Units

1 Specifications

BECS010Q3A-DWM028 / BECS015Q3A-DWM045 / MDV-D15Q4/N1-

Table 1.1: BECS010 (12,15) specifications

| Model | | | BECS010Q3A-DWM028 | BECS012Q3A-DWM036 | BECS015Q3A-DWM045 |
|---|---------------------------------|-------------------|-------------------------|-------------------|-------------------|
| Power supply | | | 1 phase, 220-240V, 50Hz | | |
| Cooling ¹ | Capacity | kBtu/h | 9 | 12 | 15 |
| | Input | W | 80 | 80 | 88 |
| Heating ² | Capacity | kBtu/h | 10 | 13 | 17 |
| | Input | W | 80 | 80 | 88 |
| Indoor fan motor | Type | | AC | | |
| | Quantity | | 1 | | |
| Indoor coil | Number of rows | | 1 | 1 | 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 | 2033×168×13.37 | | 2051×168×26.74 |
| | Number of circuits | | 4 | | 8 |
| Indoor air flow (H/M/L) | | m ³ /h | 764/638/554 | | 905/740/651 |
| Sound pressure level (H/M/L) ³ | | dB(A) | 32/31/30 | | 36/34/33 |
| Indoor unit | Dimensions ⁴ (W×H×D) | mm | 840×230×840 | | |
| | Packing (W×H×D) | mm | 955×260×955 | | |
| | Net/Gross weight | kg | 21.5/26.7 | | 23.7/28.9 |
| Panel | Dimensions (W×H×D) | mm | 950×70×950 | | |
| | Packing(W×H×D) | mm | 1035×89×1035 | | |
| | Net/Gross weight | kg | 5.8/7.9 | | |
| Refrigerant type | | | R410A | | |
| Pipe connections | Liquid pipe | mm | Φ6.35 | | |
| | Gas pipe | mm | Φ12.7 | | |
| | Drain pipe | mm | OD Φ32 | | |

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. 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.

Ultima Series VRF Indoor Units

BECS019Q3A-DWM056 / BECS024Q3A-DWM071 / BECS027Q3A-DWM080

Table 1.2: BECS018(24,28) specifications

| Model | | | BECS019Q3A-DWM056 | BECS024Q3A-DWM071 | BECS027Q3A-DWM080 |
|---|---------------------------------|-------------------|-------------------------|-------------------|-------------------|
| Power supply | | | 1 phase, 220-240V, 50Hz | | |
| Cooling ¹ | Capacity | kBtu/h | 19 | 24 | 27 |
| | Input | W | 88 | 88 | 110 |
| Heating ² | Capacity | kBtu/h | 21 | 27 | 30 |
| | Input | W | 88 | 88 | 110 |
| 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 | 2051×168×26.74 | | |
| | Number of circuits | | 8 | | |
| Indoor air flow (H/M/L) | | m ³ /h | 905/740/651 | 950/767/663 | 1200/1021/789 |
| Sound pressure level (H/M/L) ³ | | dB(A) | 36/34/33 | 38/36/35 | 42/39/37 |
| Indoor unit | Dimensions ⁴ (W×H×D) | mm | 840×230×840 | | |
| | Packing (W×H×D) | mm | 955×260×955 | | |
| | Net/Gross weight | kg | 23.7/28.9 | | |
| Panel | Dimensions (W×H×D) | mm | 950×70×950 | | |
| | Packing (W×H×D) | mm | 1035×89×1035 | | |
| | Net/Gross weight | kg | 5.8/7.9 | | |
| Refrigerant type | | | R410A | | |
| Pipe connections | Liquid pipe | mm | Φ9.53 | | |
| | Gas pipe | mm | Φ15.9 | | |
| | Drain pipe | mm | OD Φ32 | | |

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. 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.

Ultima Series VRF Indoor Units

BECS031Q3A-DWM090 / BECS036Q3A-DWM100

Table 1.3: BECS031(36) specifications

| Model | | | BECS031Q3A-DWM090 | BECS036Q3A-DWM100 |
|---|---------------------------------|----------------------|-------------------------|-------------------|
| Power supply | | | 1 phase, 220-240V, 50Hz | |
| Cooling ¹ | Capacity | kBtu/h | 30 | 34 |
| | Input | W | 140 | 165 |
| Heating ² | Capacity | kBtu/h | 34 | 37 |
| | Input | W | 140 | 165 |
| Indoor fan motor | Type | AC motor | | |
| | Number | 1 | | |
| Indoor coil | Number of rows | 2 | | 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 | 2051×252×26.74 | |
| | Number of circuits | 8 | | |
| Indoor air flow (H/M/L) | | m ³ /h | 1332/1129/908 | 1651/1304/1127 |
| Sound pressure level (H/M/L) ³ | | dB(A) | 43/39/38 | 45/42/40 |
| Indoor unit | Dimensions ⁴ (W×H×D) | mm | 840×300×840 | |
| | Packing (W×H×D) | mm | 955×330×955 | |
| | Net/Gross weight | kg | 28.7/34.1 | |
| Panel | Dimensions (W×H×D) | mm | 950×70×950 | |
| | Packing (W×H×D) | mm | 1035×89×1035 | |
| | Net/Gross weight | kg | 5.8/7.9 | |
| Refrigerant type | | | R410A | |
| Pipe connections | Liquid pipe | mm | Φ9.53 | |
| | Gas pipe | mm | 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.
- 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.

Ultima Series VRF Indoor Units

BECS038Q3A-DWM112 / MDV-D48Q4/N1-E(At)

Table 1.4: BECS038(48) specifications

| Model | | | BECS038Q3A-DWM112 | BECS048Q3A-DWM140 | BECS060Q0A-DWM160 |
|---|---------------------------------|-------------------|-------------------------|-------------------|------------------------------------|
| Power supply | | | 1 phase, 220-240V, 50Hz | | 1 phase, 220-240V, 50/60Hz |
| Cooling ¹ | Capacity | kBtu/h | 38 | 47 | 54 |
| | Input | W | 165 | 176 | 170 |
| Heating ² | Capacity | kBtu/h | 42 | 54 | 61 |
| | Input | W | 165 | 176 | 170 |
| Indoor fan motor | Type | | AC motor | | DC motor |
| | Number | | 1 | | |
| Indoor coil | Number of rows | | 2 | 3 | 3 |
| | 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 | 2051×252×26.74 | 2007×252×40.11 | 2200×252×40.11 |
| | Number of circuits | | 8 | 12 | 12 |
| Indoor air flow (H/M/L) | | m ³ /h | 1651/1304/1127 | 1658/1335/1130 | 2100/1950/1800/1750/1600/1450/1350 |
| Sound pressure level (H/M/L) ³ | | dB(A) | 45/42/40 | 46/41/39 | 46/44/42/41/39/38/37 |
| Indoor unit | Dimensions ⁴ (W×H×D) | mm | 840×300×840 | | 950×300×950 |
| | Packing (W×H×D) | mm | 955×330×955 | | 1050×335×1050 |
| | Net/Gross weight | kg | 28.7/34.1 | 30.9/36.3 | 35.3/41.2 |
| Panel | Dimensions (W×H×D) | mm | 950×70×950 | | 1050×55×1050 |
| | Packing (W×H×D) | mm | 1035×89×1035 | | 1115×100×1115 |
| | Net/Gross weight | kg | 5.8/7.9 | | 7.4/9.7 |
| Refrigerant type | | | R410A | | |
| Pipe connection | Liquid pipe | mm | Φ9.53 | | |
| | Gas pipe | mm | 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.
- Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.

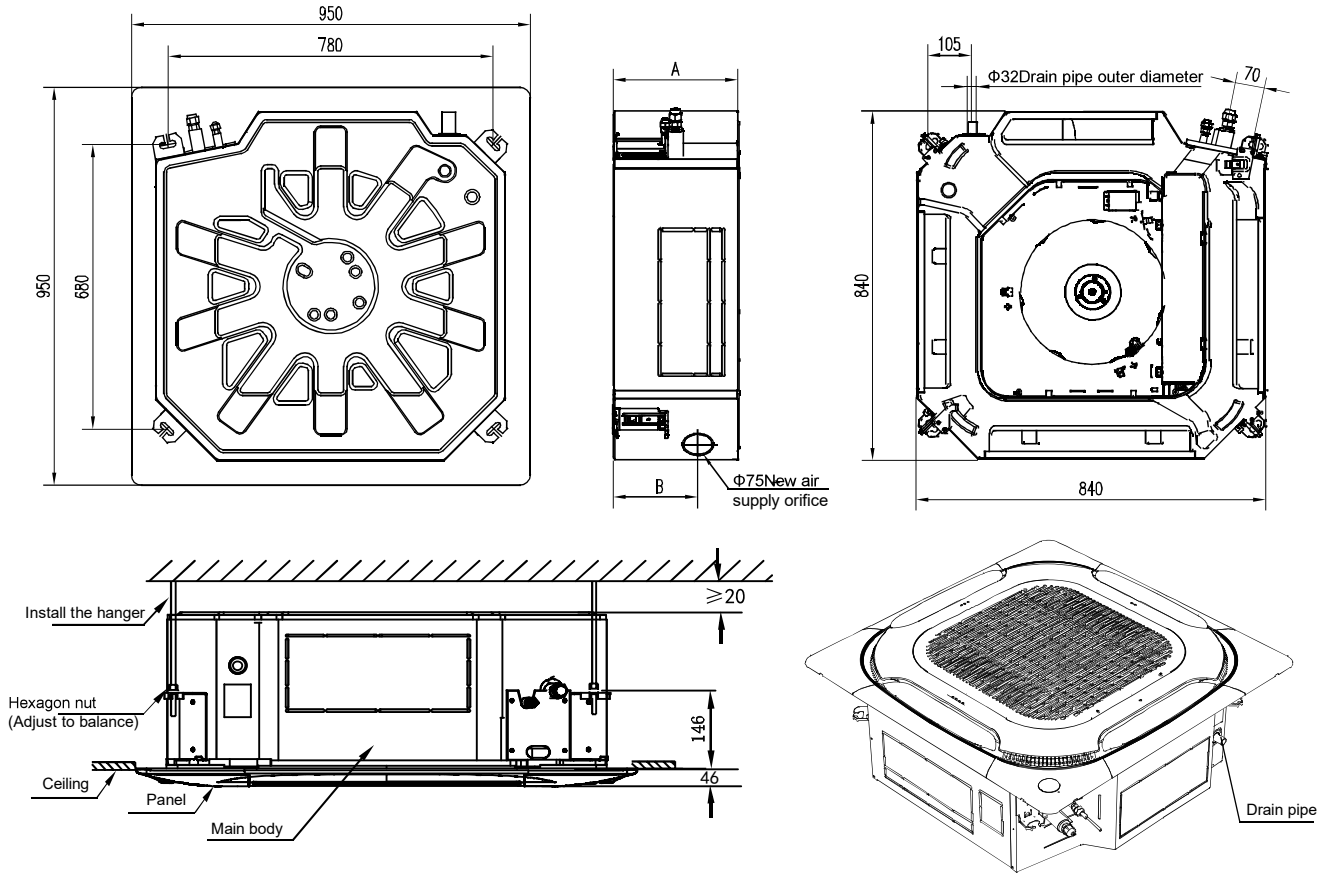
Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

Ultima Series VRF Indoor Units

2 Dimensions

2.1 Unit Dimensions

Figure 2.1: BECS10 (12,15,18,24,28,32,36,40,48) Four-way Cassette dimensions (unit: mm)



Ultima Series VRF Indoor Units

Figure 2.2: BECS060Q0A-DWM160 Four-way Cassette dimensions (unit: mm)

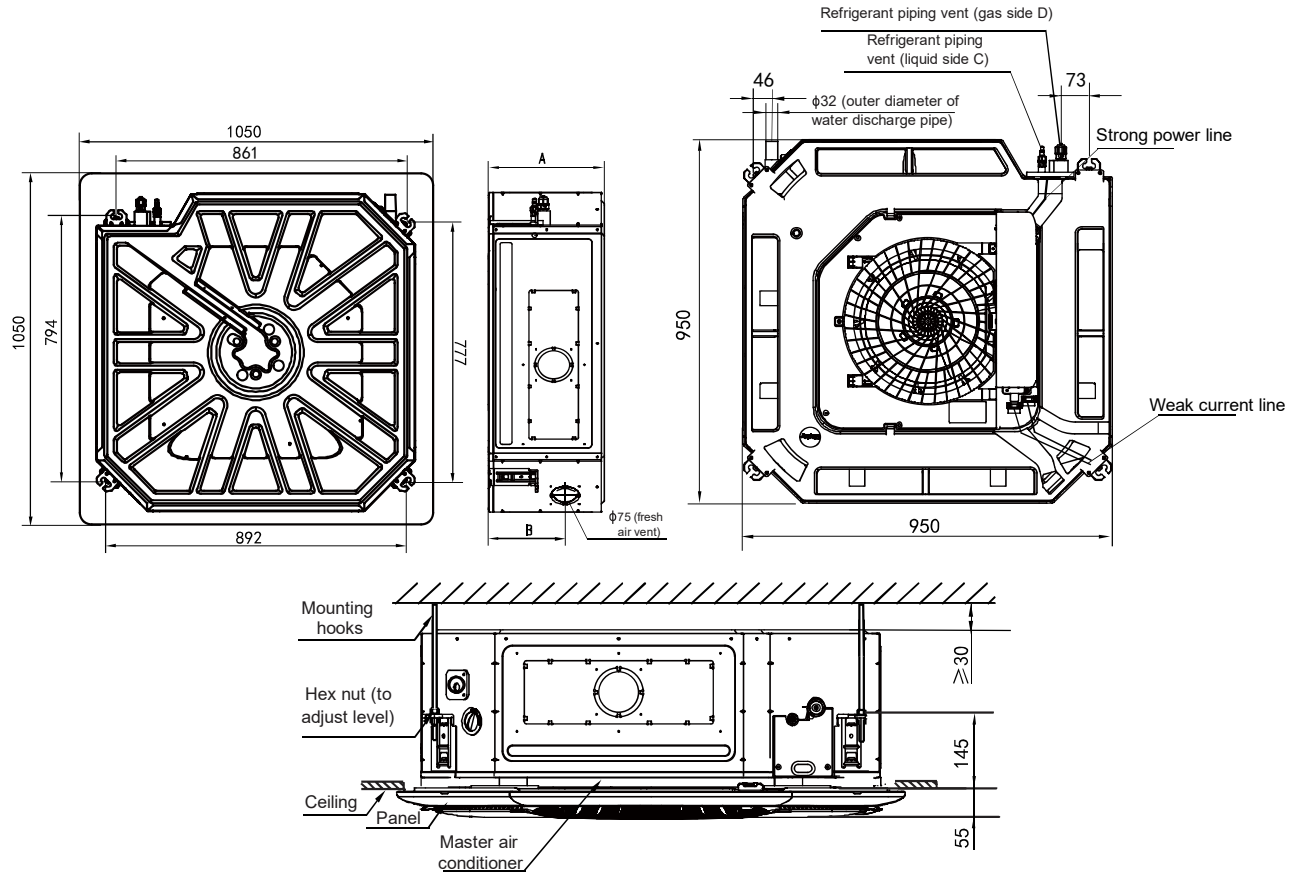


Table 2.1: Four-way Cassette dimensions

| Model names | Dimensions (mm) | |
|--|-----------------|-----|
| | A | B |
| BECS010Q3A-DWM028 BECS012Q3A-DWM036 BECS015Q3A-DWM045 BECS019Q3A-DWM056 BECS024Q3A-DWM071 BECS027Q3A-DWM080 | 230 | 126 |
| BECS031Q3A-DWM090 BECS036Q3A-DWM100 BECS038Q3A-DWM112 BECS048Q3A-DWM140 | 300 | 197 |
| BECS060Q0A-DWM160 | 300 | 200 |

Table 2.2: Four-way Cassette piping connections

| Model names | Gas pipe (mm) | Liquid pipe (mm) |
|--|---------------|------------------|
| BECS010Q3A-DWM028 BECS012Q3A-DWM036 BECS015Q3A-DWM045 | Φ12.7 | Φ6.35 |
| BECS019Q3A-DWM056 BECS024Q3A-DWM071 BECS027Q3A-DWM080 BECS031Q3A-DWM090 BECS036Q3A-DWM100 BECS038Q3A-DWM112 BECS048Q3A-DWM140 BECS060Q0A-DWM160 | Φ15.9 | Φ9.53 |

Ultima Series VRF Indoor Units

3 Unit Placement

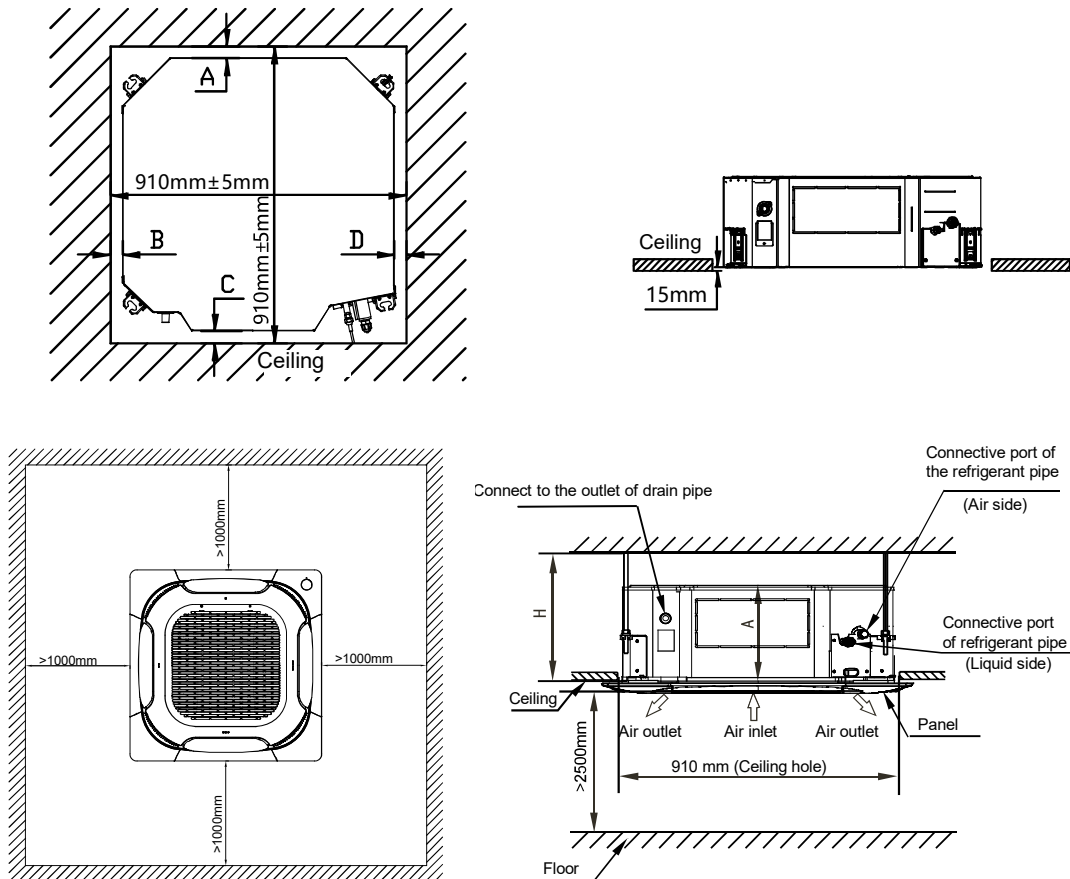
3.1 Placement Considerations

Unit placement should take account of the following considerations:

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

3.2 Space Requirements

Figure 3.1: BECS010 (12,15,18,24,28,32,36,40,48)Q4/N1-E(At) Four-way Cassette space requirements (unit: mm)



Units Figure 3.2: BECS060Q0A-DWM160 Four-way Cassette space requirements (unit: mm)

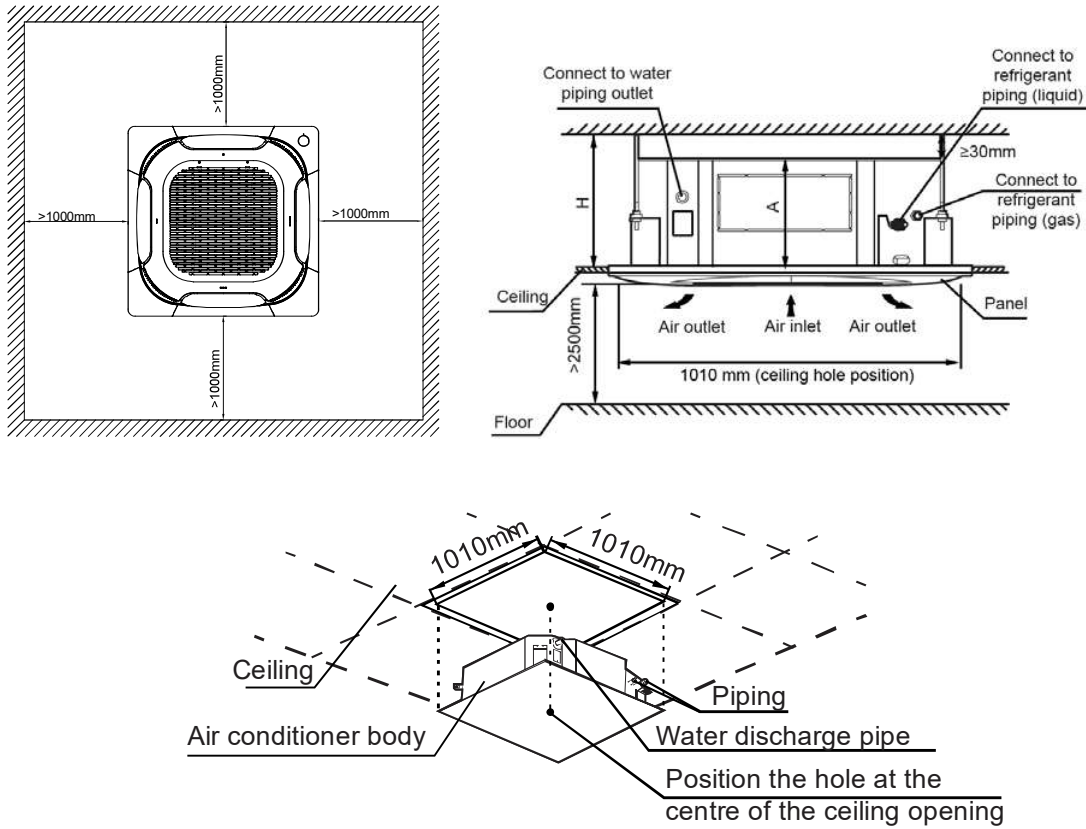
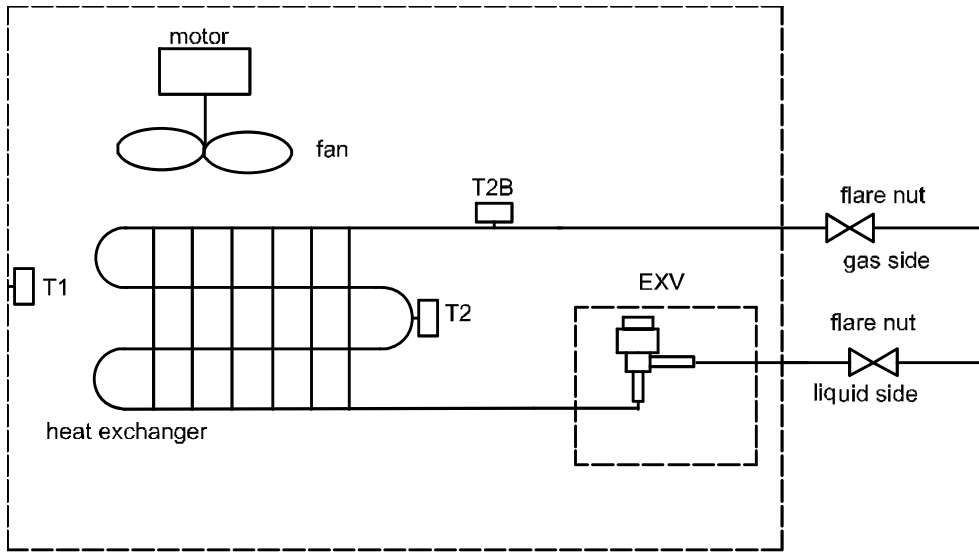


Table 3.1: Four-way Cassette dimensions and space requirements

| Model name | Dimensions / Requirements (mm) | |
|--|--------------------------------|------|
| | A | H |
| BECS010Q3A-DWM028 BECS012Q3A-DWM036 BECS015Q3A-DWM045 BECS019Q3A-DWM056 BECS024Q3A-DWM071 BECS027Q3A-DWM080 | 230 | ≥260 |
| BECS031Q3A-DWM090 BECS036Q3A-DWM100 BECS038Q3A-DWM112 BECS048Q3A-DWM140 BECS060Q0A-DWM160 | 300 | ≥330 |

Units 4 Piping Diagram

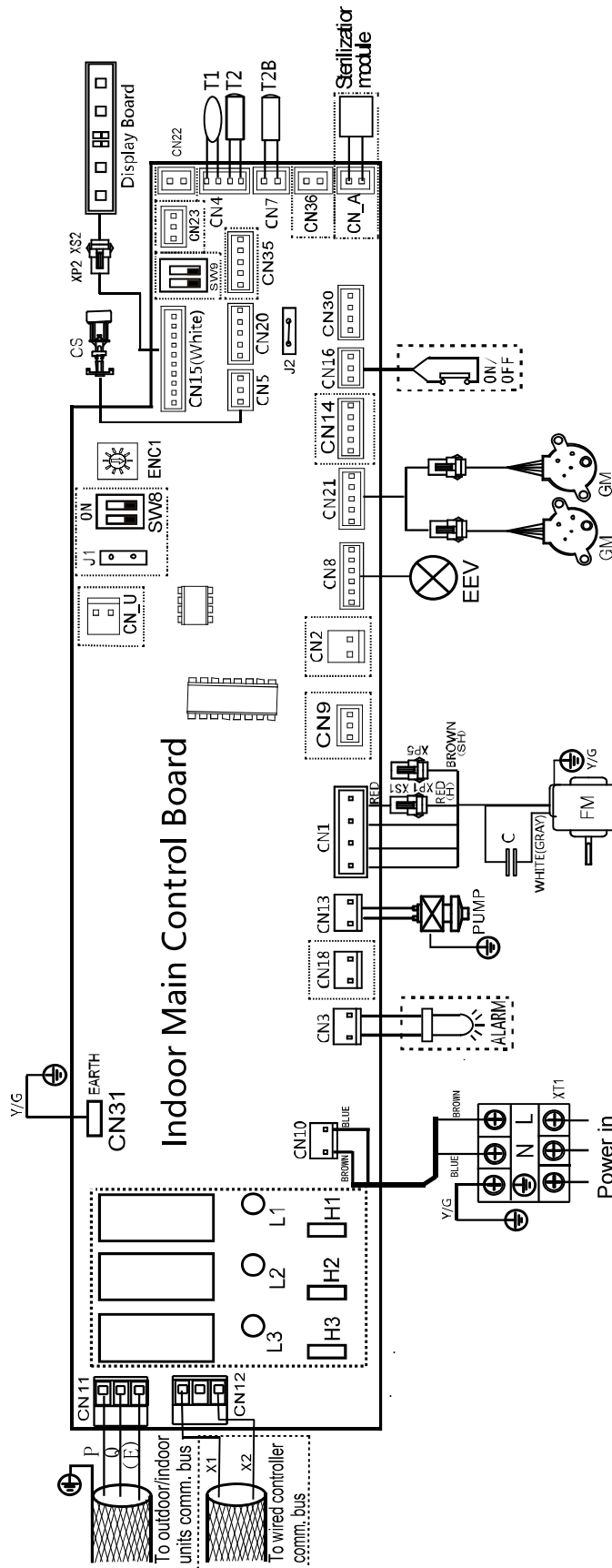
Figure 4.1: Four-way Cassette piping diagram



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

5 Wiring Diagram

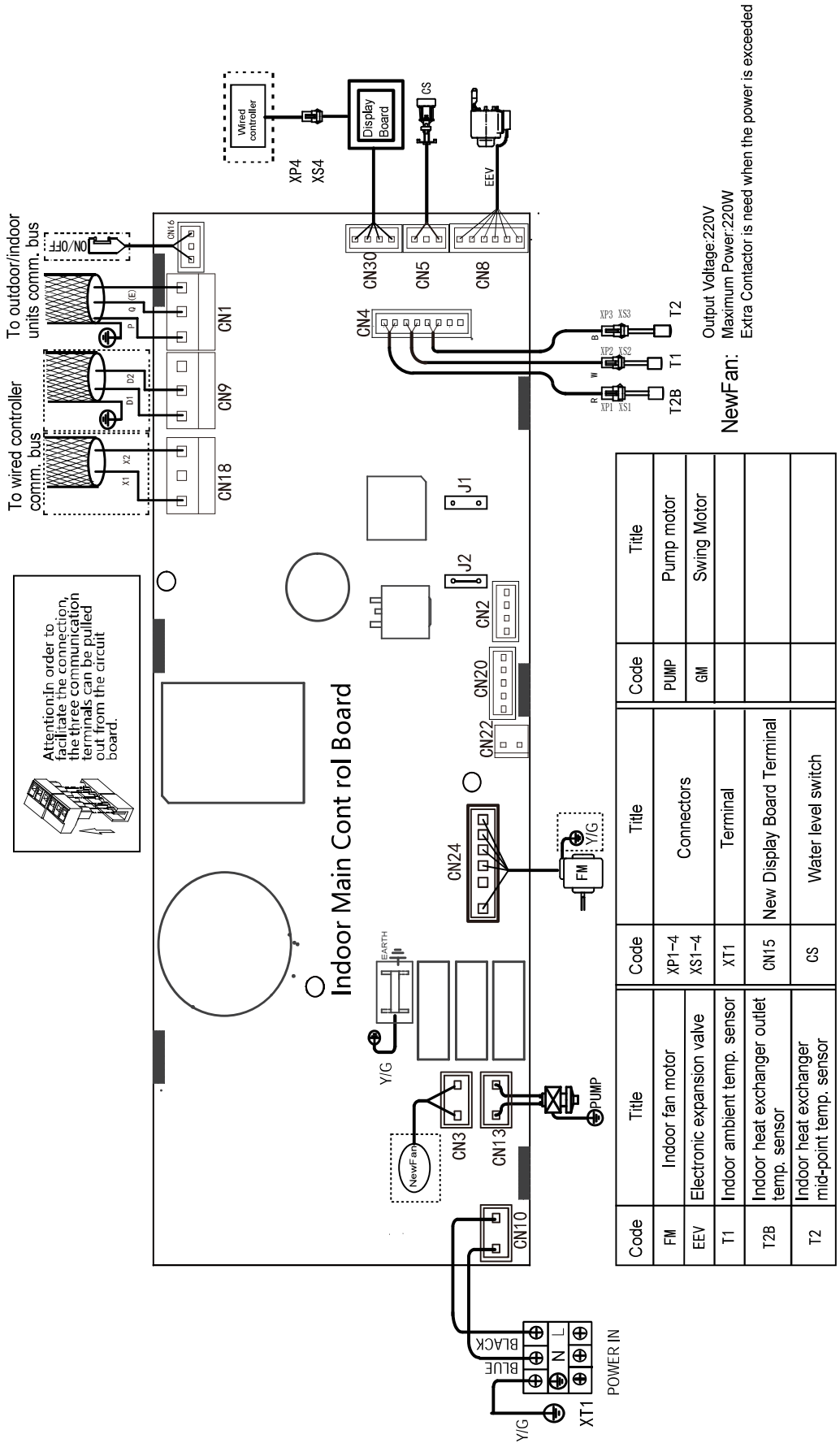
Figure 5.1: BECS010 (12,15,18,24,28,32,36,40,48)Q4/N1-E(At) Four-way Cassette wiring diagram



| Code | Title | Code | Title | Code | Title |
|------|----------------------------|-------|--------------------|--------|------------------------|
| FM | Indoor Fan Motor | XP1-8 | Connectors | GM | Swing Motor |
| EEV | Electronic Expansion Valve | XS1-8 | Terminal | C | Fan Motor capacitance |
| T1 | Room Temp. Sensor | XT1 | Pump Motor | ALARM | Warning Lamp(Optional) |
| T2B | Outer Pipe Temp. Sensor | PUMP | Water Level Switch | ON/OFF | Remote on/off switch |
| T2 | Middle Pipe Temp. Sensor | CS | | | |

Ultima Series VRF Indoor Units

Figure 5.2: BECS060Q0A-DWM160 Four-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.

Ultima Series VRF Indoor Units

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: Four-way Cassette cooling capacity

| Model | Indoor air temperature (°C WB/DB) | | | | | | | | | | | | | |
|-------------------|-----------------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | 14/20 | | 16/23 | | 18/26 | | 19/27 | | 20/28 | | 22/30 | | 24/32 | |
| | TC | SC | TC | SC | TC | SC | TC | SC | TC | SC | TC | SC | TC | SC |
| BECS010Q3A-DWM028 | 2.5 | 2.5 | 2.7 | 2.5 | 2.8 | 2.5 | 2.8 | 2.4 | 2.9 | 2.3 | 2.9 | 2.2 | 3.0 | 2.1 |
| BECS012Q3A-DWM036 | 3.2 | 3.2 | 3.4 | 3.2 | 3.6 | 3.2 | 3.6 | 3.0 | 3.7 | 3.0 | 3.8 | 2.8 | 3.9 | 2.7 |
| BECS015Q3A-DWM045 | 4.0 | 3.8 | 4.3 | 3.9 | 4.5 | 3.9 | 4.5 | 3.7 | 4.6 | 3.6 | 4.7 | 3.4 | 4.8 | 3.3 |
| BECS019Q3A-DWM056 | 5.0 | 4.8 | 5.3 | 4.8 | 5.6 | 4.8 | 5.6 | 4.6 | 5.7 | 4.5 | 5.8 | 4.2 | 6.0 | 4.1 |
| BECS024Q3A-DWM071 | 6.3 | 6.0 | 6.7 | 6.0 | 7.0 | 6.0 | 7.1 | 5.8 | 7.2 | 5.6 | 7.4 | 5.4 | 7.6 | 5.2 |
| BECS027Q3A-DWM080 | 7.1 | 6.9 | 7.6 | 6.9 | 7.9 | 6.8 | 8.0 | 6.6 | 8.1 | 6.4 | 8.3 | 6.1 | 8.5 | 5.8 |
| BECS031Q3A-DWM090 | 8.0 | 7.6 | 8.5 | 7.6 | 8.9 | 7.6 | 9.0 | 7.3 | 9.1 | 7.1 | 9.4 | 6.8 | 9.6 | 6.5 |
| BECS036Q3A-DWM100 | 8.9 | 8.6 | 9.5 | 8.6 | 9.9 | 8.5 | 10.0 | 8.2 | 10.1 | 7.9 | 10.4 | 7.6 | 10.6 | 7.2 |
| BECS038Q3A-DWM112 | 9.9 | 9.5 | 10.6 | 9.6 | 11.1 | 9.5 | 11.2 | 9.2 | 11.3 | 8.9 | 11.6 | 8.4 | 11.9 | 8.1 |
| BECS048Q3A-DWM140 | 12.4 | 11.6 | 13.2 | 11.7 | 13.8 | 11.6 | 14.0 | 11.3 | 14.2 | 11.0 | 14.5 | 10.5 | 14.9 | 10.1 |
| BECS060Q0A-DWM160 | 14.2 | 13.5 | 15.1 | 13.5 | 15.8 | 13.4 | 16.0 | 13.0 | 16.2 | 12.6 | 16.6 | 12.0 | 17.0 | 11.5 |

Abbreviations:

TC: Total capacity (kW)

SC: Sensible capacity (kW)

Notes:

1. Shaded cells indicate rating condition

6.2 Heating Capacity Table

Table 6.2: Four-way Cassette heating capacity

| Model | Indoor air temperature (°C DB) | | | | | |
|-------------------|--------------------------------|------|------|------|------|------|
| | 16 | 18 | 20 | 21 | 22 | 24 |
| | TC | TC | TC | TC | TC | TC |
| BECS010Q3A-DWM028 | 3.4 | 3.4 | 3.2 | 3.1 | 3.0 | 2.8 |
| BECS012Q3A-DWM036 | 4.2 | 4.2 | 4.0 | 3.8 | 3.8 | 3.5 |
| BECS015Q3A-DWM045 | 5.3 | 5.3 | 5.0 | 4.8 | 4.7 | 4.4 |
| BECS019Q3A-DWM056 | 6.7 | 6.6 | 6.3 | 6.1 | 5.9 | 5.5 |
| BECS024Q3A-DWM071 | 8.5 | 8.4 | 8.0 | 7.8 | 7.5 | 7.0 |
| BECS027Q3A-DWM080 | 9.5 | 9.5 | 9.0 | 8.7 | 8.5 | 7.8 |
| BECS031Q3A-DWM090 | 10.6 | 10.5 | 10.0 | 9.7 | 9.4 | 8.8 |
| BECS036Q3A-DWM100 | 11.8 | 11.7 | 11.1 | 10.8 | 10.4 | 9.7 |
| BECS038Q3A-DWM112 | 13.3 | 13.1 | 12.5 | 12.1 | 11.8 | 10.9 |
| BECS048Q3A-DWM140 | 17.0 | 16.8 | 16.0 | 15.5 | 15.0 | 13.9 |
| BECS060Q0A-DWM160 | 18.0 | 17.9 | 17.0 | 16.5 | 16.0 | 14.8 |

Abbreviations:

TC: Total capacity (kW)

Notes:

1. Shaded cells indicate rating condition

7 Electrical Characteristics

Table 7.1: Four-way Cassette electrical characteristics

| Model | Power supply | | | | | | Indoor fan motors | |
|-------------------|--------------|---------|------------|------------|------|-----|-------------------------|------|
| | Hz | Volts | Min. volts | Max. volts | MCA | MFA | Rated motor output (kW) | FLA |
| BECS010Q3A-DWM028 | 50 | 220-240 | 198 | 264 | 0.3 | 15 | 0.026 | 0.2 |
| BECS012Q3A-DWM036 | 50 | 220-240 | 198 | 264 | 0.3 | 15 | 0.026 | 0.2 |
| BECS015Q3A-DWM045 | 50 | 220-240 | 198 | 264 | 0.4 | 15 | 0.026 | 0.3 |
| BECS019Q3A-DWM056 | 50 | 220-240 | 198 | 264 | 0.4 | 15 | 0.026 | 0.3 |
| BECS024Q3A-DWM071 | 50 | 220-240 | 198 | 264 | 0.4 | 15 | 0.03 | 0.3 |
| BECS027Q3A-DWM080 | 50 | 220-240 | 198 | 264 | 0.5 | 15 | 0.037 | 0.4 |
| BECS031Q3A-DWM090 | 50 | 220-240 | 198 | 264 | 0.7 | 15 | 0.05 | 0.5 |
| BECS036Q3A-DWM100 | 50 | 220-240 | 198 | 264 | 0.7 | 15 | 0.065 | 0.6 |
| BECS038Q3A-DWM112 | 50 | 220-240 | 198 | 264 | 0.7 | 15 | 0.065 | 0.6 |
| BECS048Q3A-DWM140 | 50 | 220-240 | 198 | 264 | 0.8 | 15 | 0.065 | 0.6 |
| BECS060Q0A-DWM160 | 50 | 220-240 | 198 | 264 | 1.26 | 15 | 0.09 | 1.01 |

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

8 Sound Levels

8.1 Overall

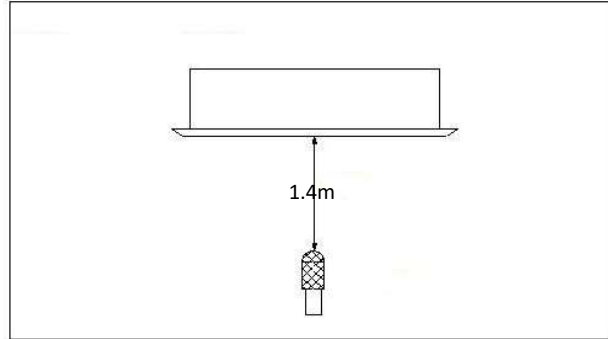
Table 8.1: Four-way Cassette sound pressure levels¹

| Model | Sound pressure levels dB(A) | | |
|-------------------|-----------------------------|----|----|
| | H | M | L |
| BECS010Q3A-DWM028 | 32 | 31 | 30 |
| BECS012Q3A-DWM036 | 32 | 31 | 30 |
| BECS015Q3A-DWM045 | 36 | 34 | 33 |
| BECS019Q3A-DWM056 | 36 | 34 | 33 |
| BECS024Q3A-DWM071 | 38 | 36 | 35 |
| BECS027Q3A-DWM080 | 42 | 39 | 37 |
| BECS031Q3A-DWM090 | 43 | 39 | 38 |
| BECS036Q3A-DWM100 | 45 | 42 | 40 |
| BECS038Q3A-DWM112 | 45 | 42 | 40 |
| BECS048Q3A-DWM140 | 46 | 41 | 39 |

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: Four-way Cassette sound pressure level measurement



| Model name | Sound pressure levels dB(A) | | | | | | |
|-------------------|-----------------------------|----|----|----|----|----|-----|
| | SSH | SH | H | M | L | SL | SSL |
| BECS060Q0A-DWM160 | 46 | 44 | 42 | 41 | 39 | 38 | 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.

8.2 Octave Band Levels

Figure 8.2: BECS010 (12) octave band levels

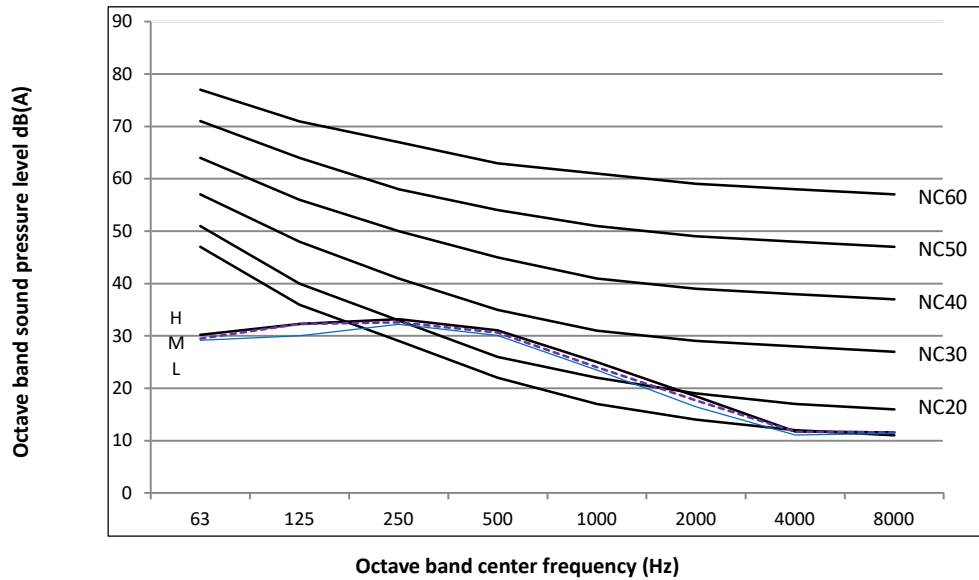


Figure 8.3: BECS015 (18) octave band levels

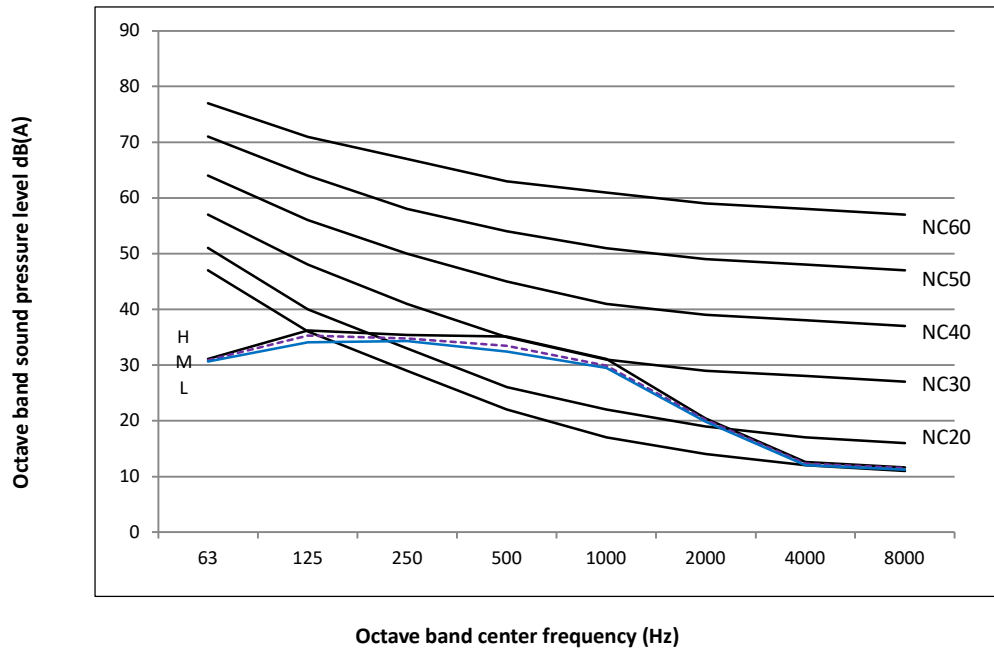
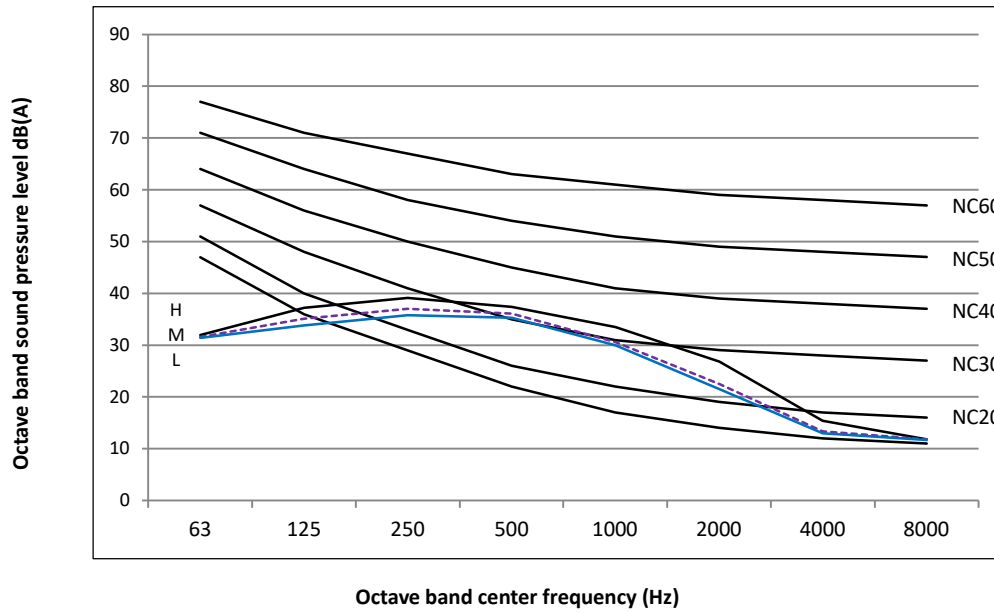


Figure 8.4: BECS024Q3A-DWM071 octave band levels



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Figure 8.5: BECS027Q3A-DWM080 octave band levels

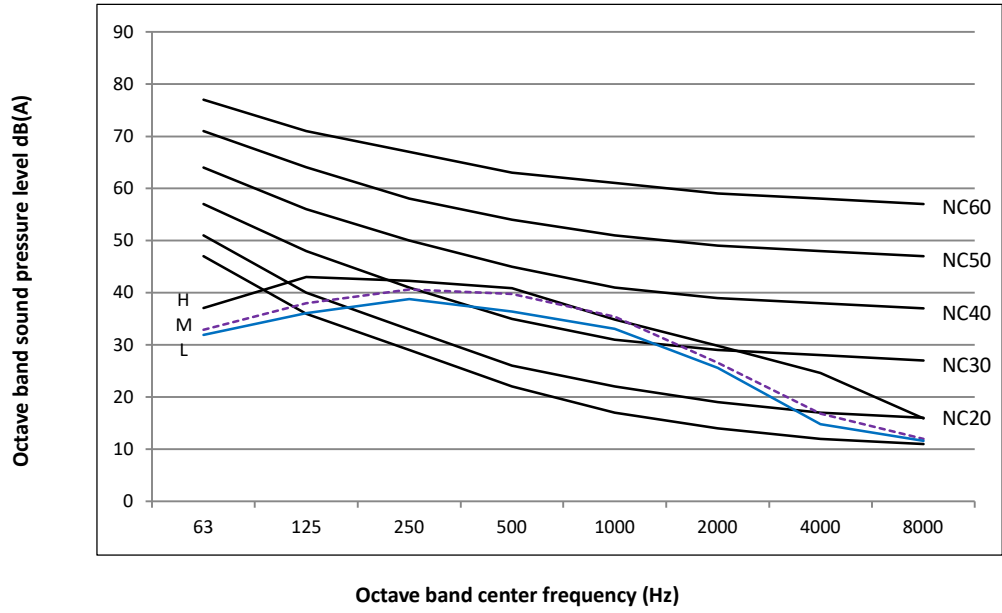


Figure 8.6: BECS031Q3A-DWM090 octave band levels

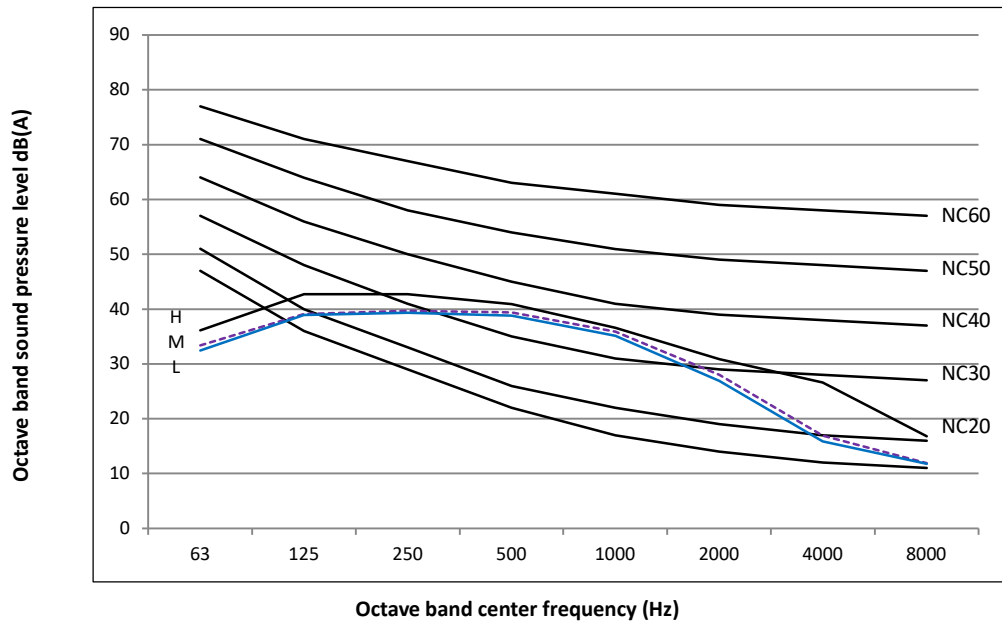


Figure 8.7: BECS(40) octave band levels

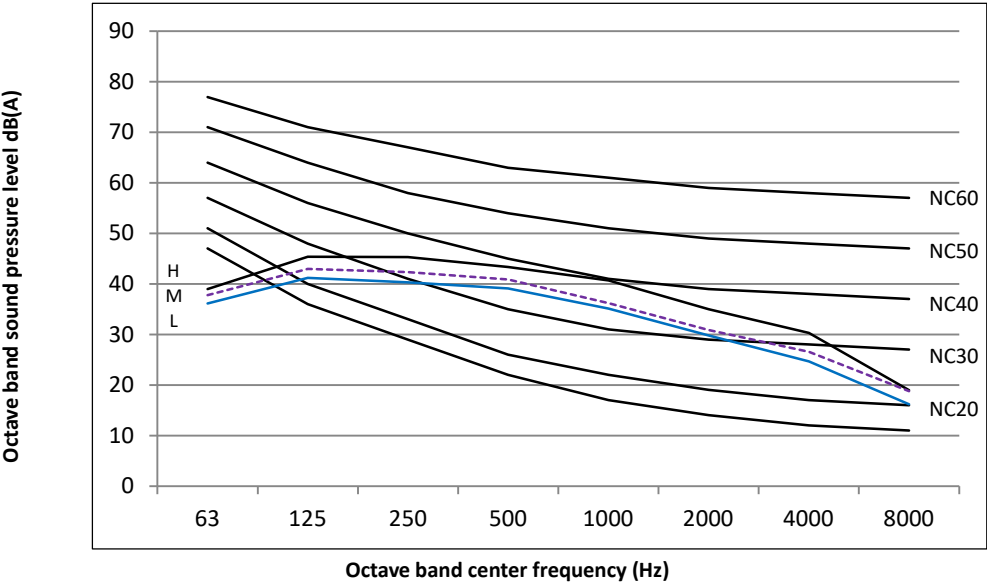
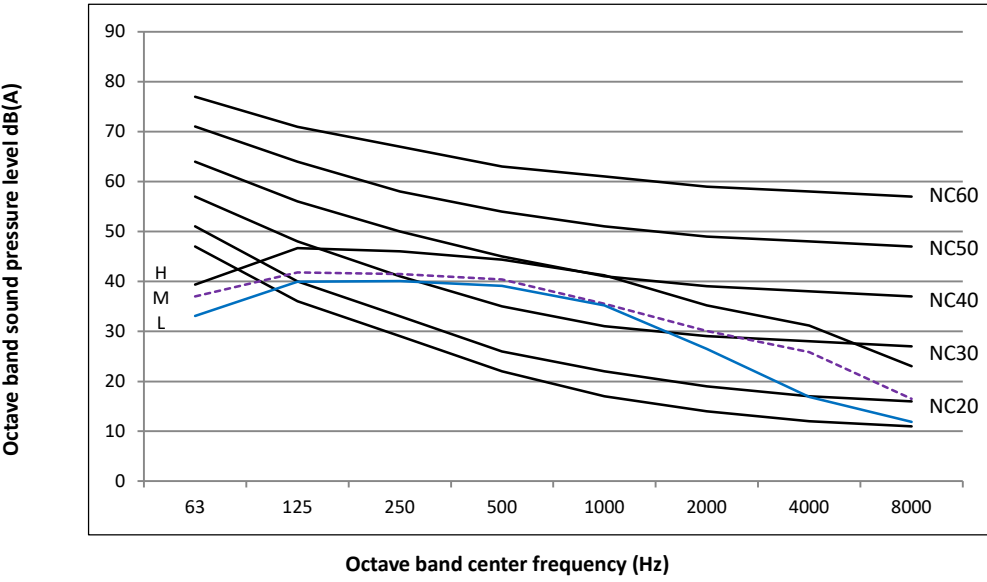
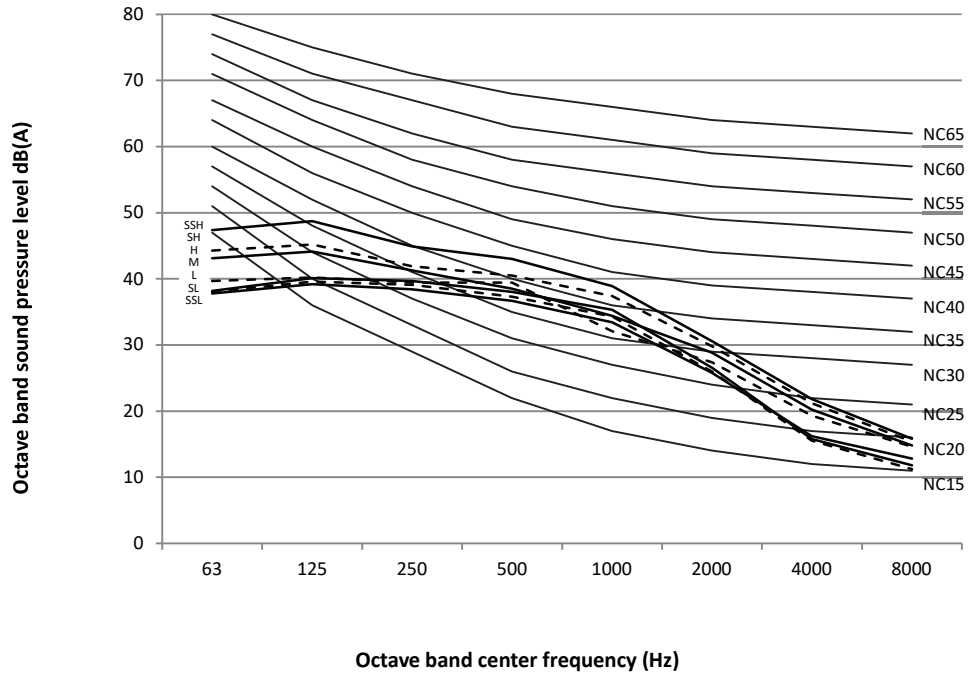


Figure 8.8: BECS048Q3A-DWM140 octave band levels



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Figure 8.9: BECS060Q0A-DWM160 octave band levels





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