

## Ceiling & Floor Type

|  |            |
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## 1. Features

### 1.1 Panel with LED display



The front panel and display panel have different colors to choose: white and brown for big panel, blue and brown for small panel, and the other colors can be customized according to the customers' demands.

### 1.2 Convenient for installation

- 1.2.1 The ceiling type can be easily installed into a corner of the ceiling even if the ceiling is very narrow
- 1.2.2 It is especially useful when installation of an air conditioner in the center of the ceiling is impossible due to a structure such as one lighting
- 1.2.3 The EXV is built-in the indoor unit, compact size, and convenient for the installation.
- 1.2.4 Reserved the socket on main control board for water pump and PCB can be customized if you need water pump function.

### 1.3 Three air flow speed: high/middle/low, double air guides.

### 1.4 Two direction auto swing (vertical & horizontal) and wide angle air flow

### 1.5 Low noise, creates quiet and comfortable environment.

- 1.5.1 Adoption of the Fujikoki brand electrical expansion valve, ensures precise flow control, as well as lower modulation noise when EXV operating.
- 1.5.2 Smoother airflow with less turbulence. Owing to the multiple-blade fan and the air guide design, the airflow is getting smoother and more comfortable



### 1.6 Wired control compatible. RM05/BG(T)E-A remote wireless controller which can set the indoor unit address is standard, and wired controller is optional.

### 1.7 Auto restart

When the indoor unit is powered off, it will auto restart when powered on again after 3 minutes and operate in the original state.

## 2. Specifications

| Model                        |                                |                   | MDV-D36DL/N1-C  | MDV-D45DL/N1-C | MDV-D56DL/N1-C | MDV-D71DL/N1-C |
|------------------------------|--------------------------------|-------------------|---|----------------|----------------|----------------|
| Power supply                 |                                | V- Ph-Hz          | 220-240V~, 1Ph, 50Hz                                  |                |                |                |
| Cooling                      | Capacity                       | kW                | 3.6   | 4.5            | 5.6            | 7.1            |
|                              | Input                          | W                 | 49  | 120            | 122            | 125            |
|                              | Rated current                  | A                 | 0.55  | 0.55           | 0.55           | 0.57           |
| Heating                      | Capacity                       | kW                | 4   | 5              | 6.3            | 8              |
|                              | Input                          | W                 | 49  | 120            | 122            | 125            |
|                              | Rated current                  | A                 | 0.55  | 0.55           | 0.55           | 0.57           |
| Indoor fan motor             | Model                          |                   | YSK25-6L-1  | YSK55-4L-1     | YSK55-4L-1     | YSK55-4L-1     |
|                              | Type                           |                   | AC motor  |                |                |                |
|                              | Brand                          |                   | Welling   |                |                |                |
|                              | Input                          | W                 | 33.4/31.1/29.5  | 125/105/85     | 125/105/85     | 125/105/85     |
|                              | Capacitor                      | μF                | 1.2μF/450V  | 2μF/450V       | 2.5μF/450V     | 2.5μF/450V     |
|                              | Speed (h/m/l)                  | r/min             | 756/666/592   | 1310/1190/1040 | 1310/1190/1040 | 1310/1190/1040 |
| Indoor coil                  | Number of rows                 |                   | 2   | 3              | 3              | 3              |
|                              | Tube pitch x row pitch         | mm                | 25.4x22   | 25.4x22        | 25.4x22        | 25.4x22        |
|                              | Fin spacing                    | mm                | 1.8   | 1.8            | 1.8            | 1.8            |
|                              | Fin type                       |                   | Hydrophilic aluminum                                  |                |                |                |
|                              | Tube outside diameter and type | mm                | Φ9.53   |                |                |                |
|                              |                                |                   | Inner groove tube                                     |                |                |                |
|                              | length x height x width        | mm                | 804x254x44  | 804x254x66     | 804x254x66     | 804x254x66     |
| Number of circuits           |                                | 3                 | 3   | 3              | 3              |                |
| Indoor air flow (H/M/L)      |                                | m <sup>3</sup> /h | 650/570/500   | 800/600/500    | 800/600/500    | 800/600/500    |
| Indoor noise level (H/M/L)   |                                | dB(A)             | 40/38/36  | 43/41/38       | 43/41/38       | 43/41/38       |
| Indoor unit                  | Dimension (W×H×D)              | mm                | 990x660x206   | 990x660x206    | 990x660x206    | 990x660x206    |
|                              | Packing (W×H×D)                | mm                | 1089x744x296  | 1089x744x296   | 1089x744x296   | 1089x744x296   |
|                              | Net/Gross weight               | kg                | 26/32   | 28/34          | 28/34          | 28/34          |
| Refrigerant type             |                                |                   | R410A   |                |                |                |
| Throttle                     | Type                           | EXV (Built-in)    |   |                |                |                |
|                              | Model                          | BD20FKS(L)        |   |                |                |                |
| Design pressure              |                                | MPa               | 4.4/2.6   |                |                |                |
| Refrigerant piping           | Liquid side/ Gas side          | mm                | Φ6.35/ Φ12.7  |                | Φ9.53/ Φ15.9   |                |
| Connecting wiring            | Power wiring                   | mm <sup>2</sup>   | 3x2.5(L≤20m); 3x3.5(L≤50m)                            |                |                |                |
|                              | Signal wiring                  | mm <sup>2</sup>   | 3x0.75  |                |                |                |
| Drainage water pipe diameter |                                |                   | ODΦ16   |                |                |                |
| Controller                   |                                |                   | Wireless remote controller (RM05/BG(T)E-A) (Standard) |                |                |                |

- Notes:**
- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent ref. Piping: 8m(horizontal)
  - Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent ref. Piping: 8m(horizontal)

| Model                        |                                | MDV-D80DL/N1-C  | MDV-D90DL/N1-C                 | MDV-D112DL/N1-C | MDV-D140DL/N1-C      |                      |
|------------------------------|--------------------------------|---|--------------------------------|-----------------|----------------------|----------------------|
| Power supply                 |                                | V- Ph-Hz  | 220-240V~, 1Ph, 50Hz           |                 |                      |                      |
| Cooling                      | Capacity                       | kW  | 8                              | 9               | 11.2                 | 14                   |
|                              | Input                          | W   | 130                            | 130             | 182                  | 182                  |
|                              | Rated current                  | A   | 0.6                            | 0.6             | 0.83                 | 0.83                 |
| Heating                      | Capacity                       | kW  | 9                              | 10              | 12.5                 | 15.5                 |
|                              | Input                          | W   | 130                            | 130             | 182                  | 182                  |
|                              | Rated current                  | A   | 0.6                            | 0.6             | 0.83                 | 0.83                 |
| Indoor fan motor             | Model                          |   | YSK80-4A-1                     | YSK80-4A-1      | YSK59-4D x2          | YSK59-4D x2          |
|                              | Type                           |   | AC motor                       |                 |                      |                      |
|                              | Brand                          |   | Welling                        |                 |                      |                      |
|                              | Input                          | W   | 143/122/110                    | 143/122/110     | (89.5/81.5/77.5) x 2 | (89.5/81.5/77.5) x 2 |
|                              | Capacitor                      | μF  | 3.5μF/450V                     | 3.5μF/450V      | 2.5μF/450V x2        | 2.5μF/450V x2        |
|                              | Speed (h/m/l)                  | r/min   | 1310/1210/1115                 | 1310/1210/1115  | 1170/1070/995        | 1170/1070/995        |
| Indoor coil                  | Number of rows                 |   | 3                              | 3               | 3                    | 3                    |
|                              | Tube pitch x row pitch         | mm  | 25.4x22                        | 25.4x22         | 25.4x22              | 25.4x22              |
|                              | Fin spacing                    | mm  | 1.8                            | 1.8             | 1.8                  | 1.8                  |
|                              | Fin type                       |   | Hydrophilic aluminum           |                 |                      |                      |
|                              | Tube outside diameter and type | mm  | Φ9.53<br>Inner groove tube     |                 |                      |                      |
|                              | length x height x width        | mm  | 1094x254x66                    |                 | 1360x254x66          |                      |
|                              | Number of circuits             |   | 5                              | 5               | 5                    | 5                    |
| Indoor air flow (H/M/L)      |                                | m <sup>3</sup> /h                                     | 1200/900/700                   | 1200/900/700    | 1980/1860/1730       | 1980/1860/1730       |
| Indoor noise level (H/M/L)   |                                | dB(A)   | 45/43/40                       | 45/43/40        | 47/45/42             | 47/45/42             |
| Indoor unit                  | Dimension (W×H×D)              | mm  | 1280x660x206                   | 1280x660x206    | 1670x680x244         | 1670x680x244         |
|                              | Packing (W×H×D)                | mm  | 1379x744x296                   | 1379x744x296    | 1764x760x329         | 1764x760x329         |
|                              | Net/Gross weight               | kg  | 34.5/41                        | 34.5/41         | 54/59                | 54/59                |
| Refrigerant type             |                                | R410A   |                                |                 |                      |                      |
| Throttle                     | Type                           | EXV (Built-in)  |                                |                 |                      |                      |
|                              | Model                          | BD20FKS(L)  |                                | BD24FKS(L)      |                      |                      |
| Design pressure              |                                | MPa   | 4.4/2.6                        |                 |                      |                      |
| Refrigerant piping           | Liquid side/ Gas side          | mm  | Φ9.53/ Φ15.9                   |                 |                      |                      |
| Connecting wiring            | Power wiring                   | mm <sup>2</sup>                                       | 3 x 2.5(L≤20m); 3 x 3.5(L≤50m) |                 |                      |                      |
|                              | Signal wiring                  | mm <sup>2</sup>                                       | 3x0.75                         |                 |                      |                      |
| Drainage water pipe diameter |                                | ODΦ16   |                                |                 |                      |                      |
| Controller                   |                                | Wireless remote controller (RM05/BG(T)E-A) (Standard) |                                |                 |                      |                      |

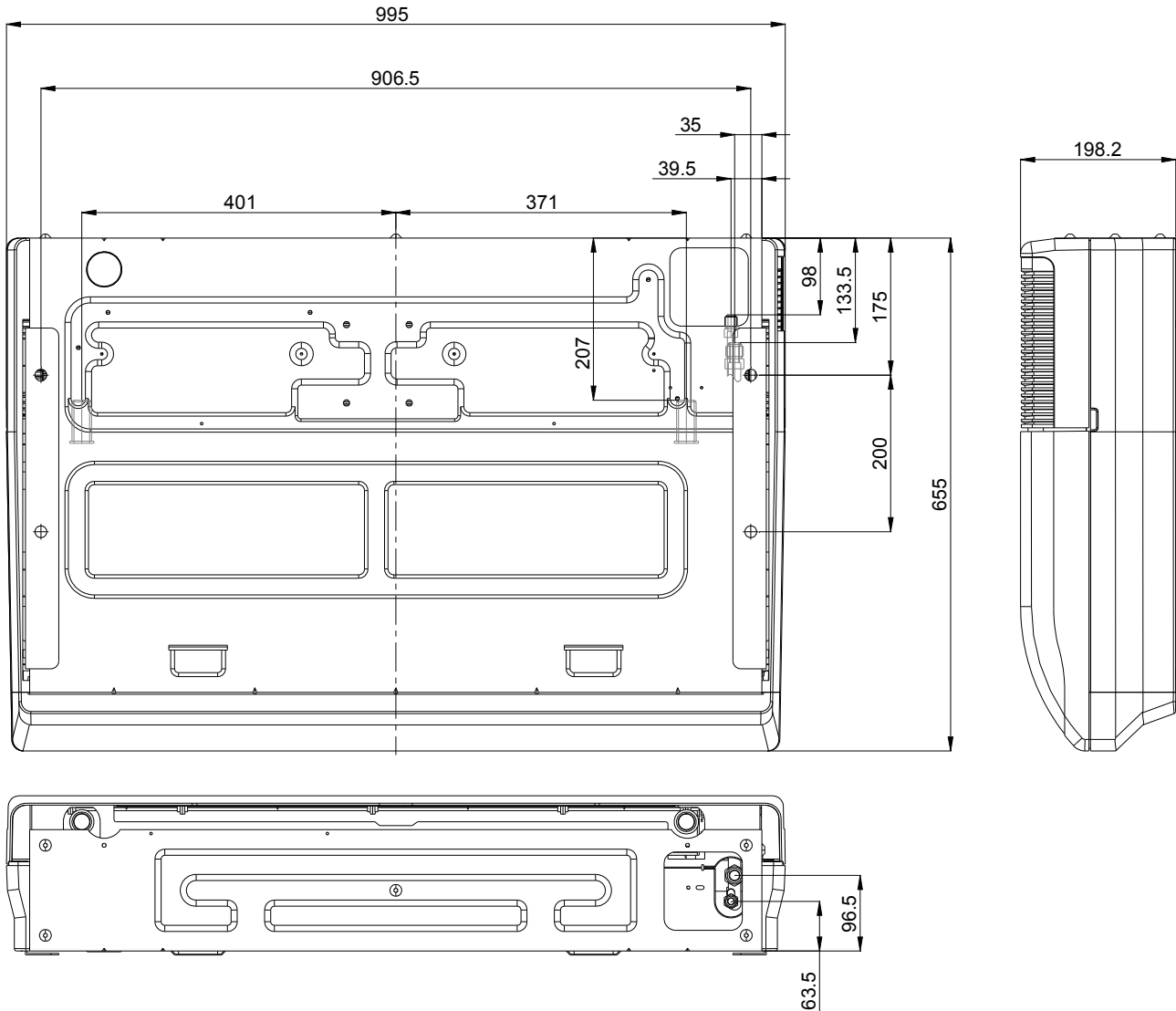
- Notes:** 1. Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent ref. Piping: 8m(horizontal)
2. Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent ref. Piping: 8m(horizontal)

|                              |                                |   |  |
|------------------------------|--------------------------------|---|--|
| Model                        |                                | MDV-D160DL/N1-C                                       |  |
| Power supply                 |                                | V- Ph-Hz  | 220~240-1-50                           |
| Cooling                      | Capacity                       | kW  | 16                                     |
|                              | Input                          | W   | 300                                    |
|                              | Rated current                  | A   | 1.41                                   |
| Heating                      | Capacity                       | kW  | 18                                     |
|                              | Input                          | W   | 300                                    |
|                              | Rated current                  | A   | 1.41                                   |
| Indoor fan motor             | Model                          |   | YSK90-4D x2                            |
|                              | Type                           |   | Ac Motor                               |
|                              | Brand                          |   | Welling                                |
|                              | Input                          | W   | 90 x 2                                 |
|                              | Capacitor                      | $\mu$ F   | 5 $\mu$ F/450V x2                      |
|                              | Speed (h/m/l)                  | r/min   | 1190/1090/980                          |
| Indoor coil                  | Number of rows                 |   | 3                                      |
|                              | Tube pitch x row pitch         | mm  | 25.4x22                                |
|                              | Fin spacing                    | mm  | 1.5                                    |
|                              | Fin type                       |   | Hydrophilic aluminum                   |
|                              | Tube outside diameter and type | mm  | $\Phi$ 9.52<br>Inner groove tube       |
|                              | length x height x width        | mm  | 1360x66 x457.2                         |
|                              | Number of circuits             |   | 6                                      |
| Indoor air flow (H/M/L)      |                                | m <sup>3</sup> /h                                     | 1980/1860/1730                         |
| Indoor noise level (H/M/L)   |                                | dB(A)   | 47/45/42                               |
| Indoor unit                  | Dimension (W×H×D)              | mm  | 1670x680x285                           |
|                              | Packing (W×H×D)                | mm  | 1775x760x377                           |
|                              | Net/Gross weight               | kg  | 57.5/63.5                              |
| Refrigerant type             |                                | R410A   |  |
| Throttle                     | Type                           | 4.4/2.6   |  |
|                              | Model                          | $\Phi$ 9.53/ $\Phi$ 15.9                              |  |
| Design pressure              |                                | MPa   | 4.4/2.6                                |
| Refrigerant piping           | Liquid side/ Gas side          | mm  | $\Phi$ 9.53/ $\Phi$ 15.9               |
| Connecting wiring            | Power wiring                   | mm <sup>2</sup>                                       | 2.5(L $\leq$ 20m); 3x3.5(L $\leq$ 50m) |
|                              | Signal wiring                  | mm <sup>2</sup>                                       | 3x0.75                                 |
| Drainage water pipe diameter |                                | OD $\Phi$ 16  |  |
| Controller                   |                                | Wireless remote controller (RM05/BG(T)E-A) (Standard) |  |

- Notes:** 1. Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB, outdoor temperature:35°CDB,equivalent ref. Piping: 8m(horizontal)
2. Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB, outdoor temperature: 7°CDB,6°CWB,equivalent ref. Piping: 8m(horizontal)

### 3. Dimensions

#### 3.1 Outline dimension of MDV-D36DL/N1-C MDV-D45DL/N1-C MDV-D56DL/N1-C MDV-D71DL/N1-C



#### 3.2 Main dimension:

##### MDV-D36DL/N1-C MDV-D45DL/N1-C

Outer Length: 995mm, Height: 665mm, Depth: 200mm

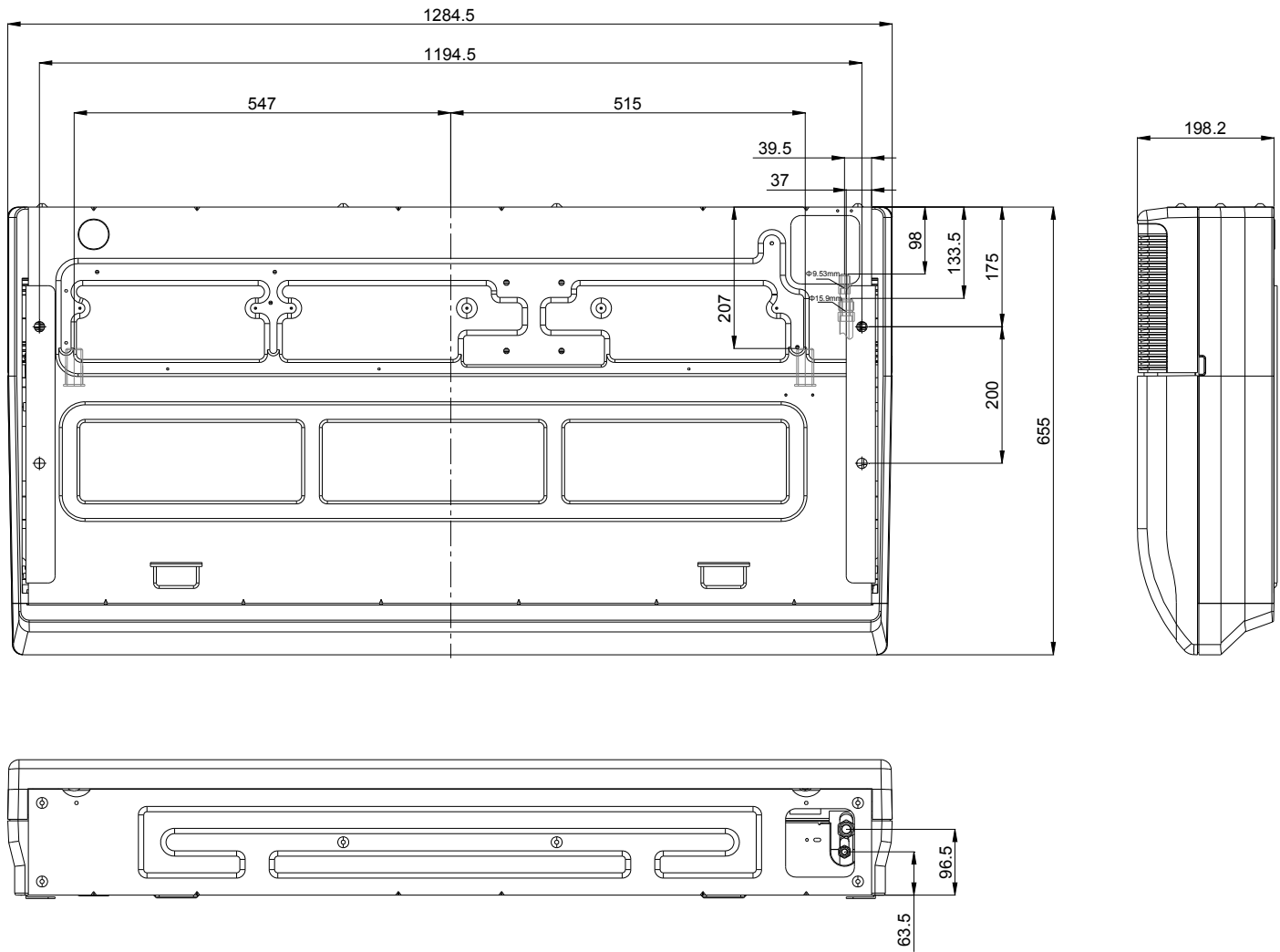
Gas tube:  $\Phi$ 12.7mm, Liquid tube:  $\Phi$ 6.35mm

##### MDV-D56DL/N1-C MDV-D71DL/N1-C

Outer Length: 995mm, Height: 665mm, Depth: 200mm

Gas tube:  $\Phi$ 15.9mm Liquid tube:  $\Phi$ 9.53

**3.3 Outline dimension of MDV-D80DL/N1-C MDV-D90DL/N1-C**

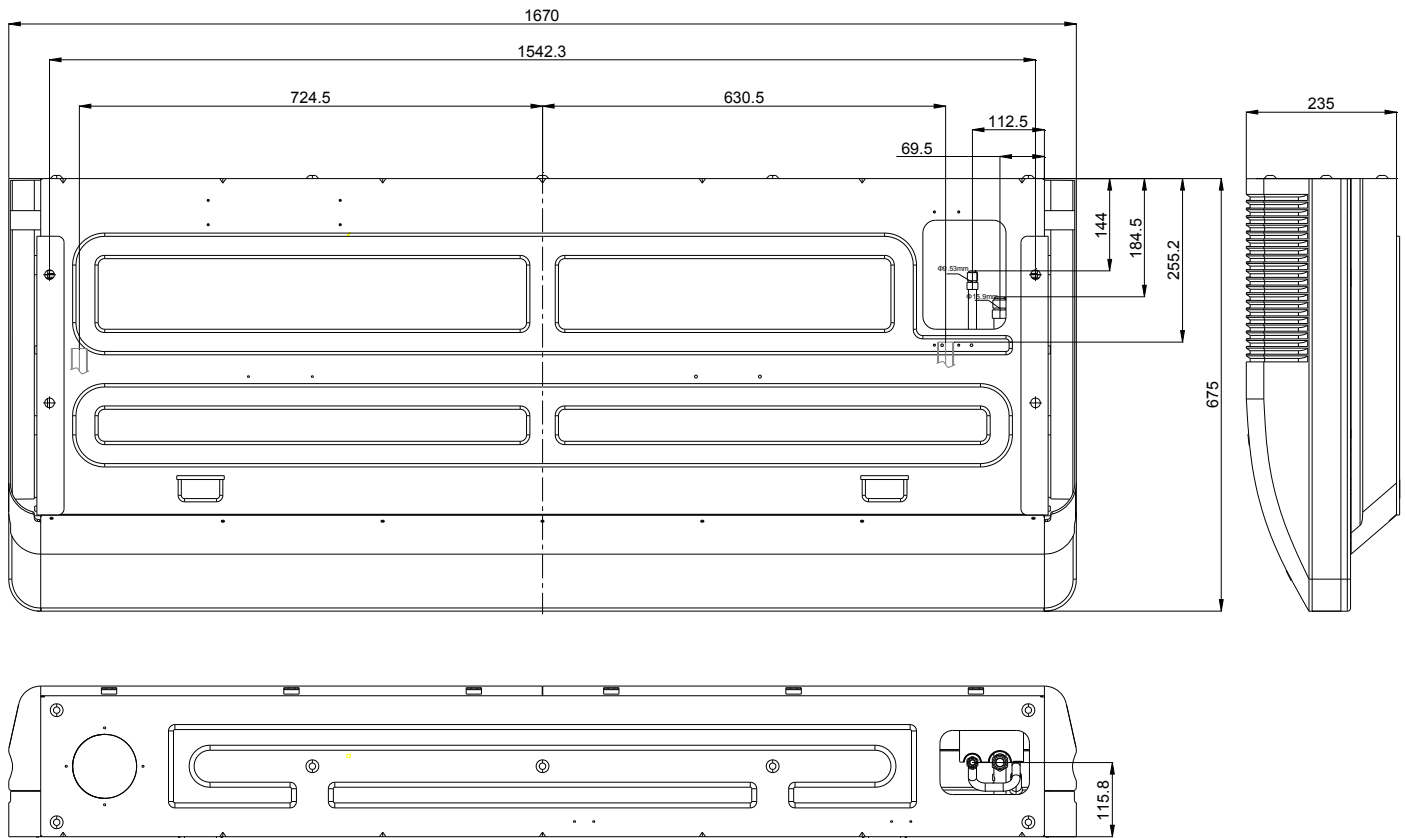


**3.4 Main dimension:  
MDV-D80DL/N1-C MDV-D90DL/N1-C**

Outer Length: 1285mm, Height: 665mm, Depth: 200mm

Gas tube:  $\phi 15.9\text{mm}$  Liquid tube:  $\phi 9.53$

**3.5 Outline dimension of MDV-D112DL/N1-C MDV-D140DL/N1-C**



**3.6 Main dimension:**

**MDV-D112DL/N1-C MDV-D140DL/N1-C**

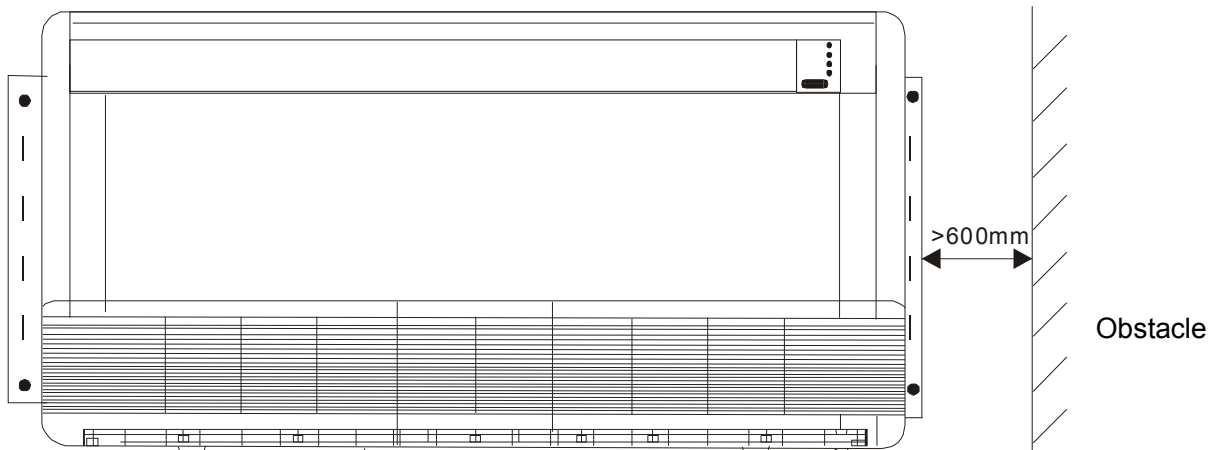
Outer Length: 1670mm, Height: 675mm, Depth: 235mm

Gas tube:  $\phi 15.9$ mm, Liquid tube:  $\phi 9.53$

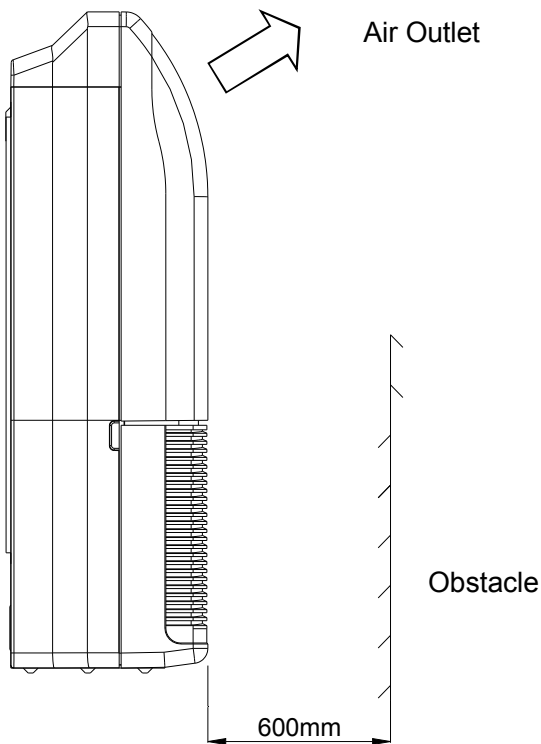


**4. Service Spaces**

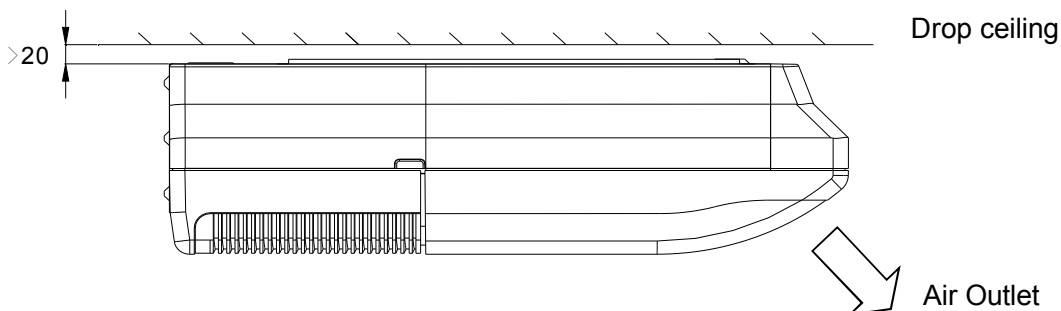
MDV-D36DL/N1-C MDV-D45DL/N1-C MDV-D56DL/N1-C MDV-D71DL/N1-C  
 MDV-D80DL/N1-C MDV-D90DL/N1-C MDV-D112DL/N1-C MDV-D140DL/N1-C  
 MDV-D160DL/N1-C



Keep more than 600mm clearance between the unit and left/right side wall. Piping connection



As well 600mm and up between the front panel and wall. For well ventilation.



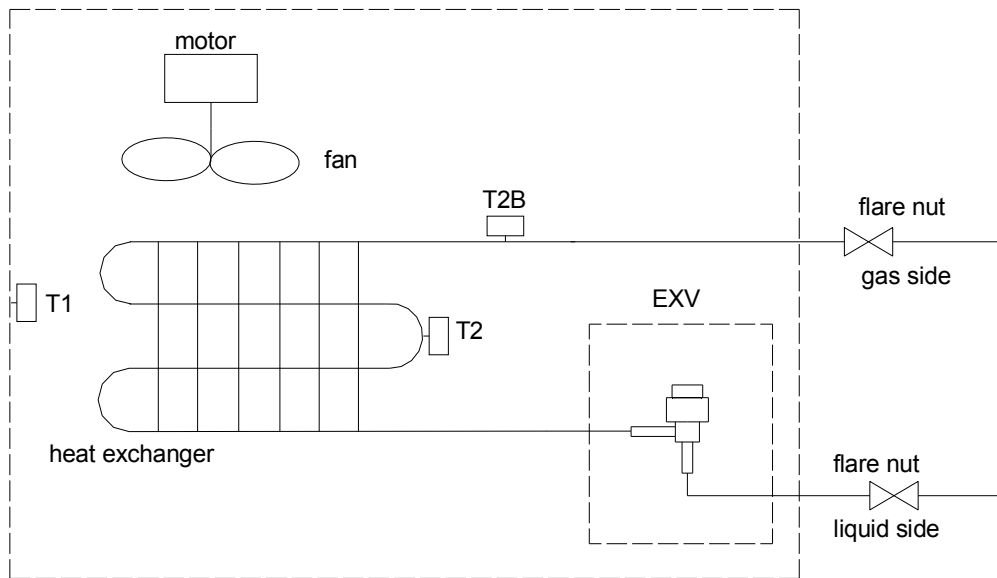
Keep 20mm up between the rear and wall if standing installed. As well 20mm between top and the drop ceiling if under ceiling installed

**Note:**

**This indoor unit may be installed on ceilings up to 3.5 m in height. However, if the ceiling is higher than 2.7m, the remote control will have to be set locally.**

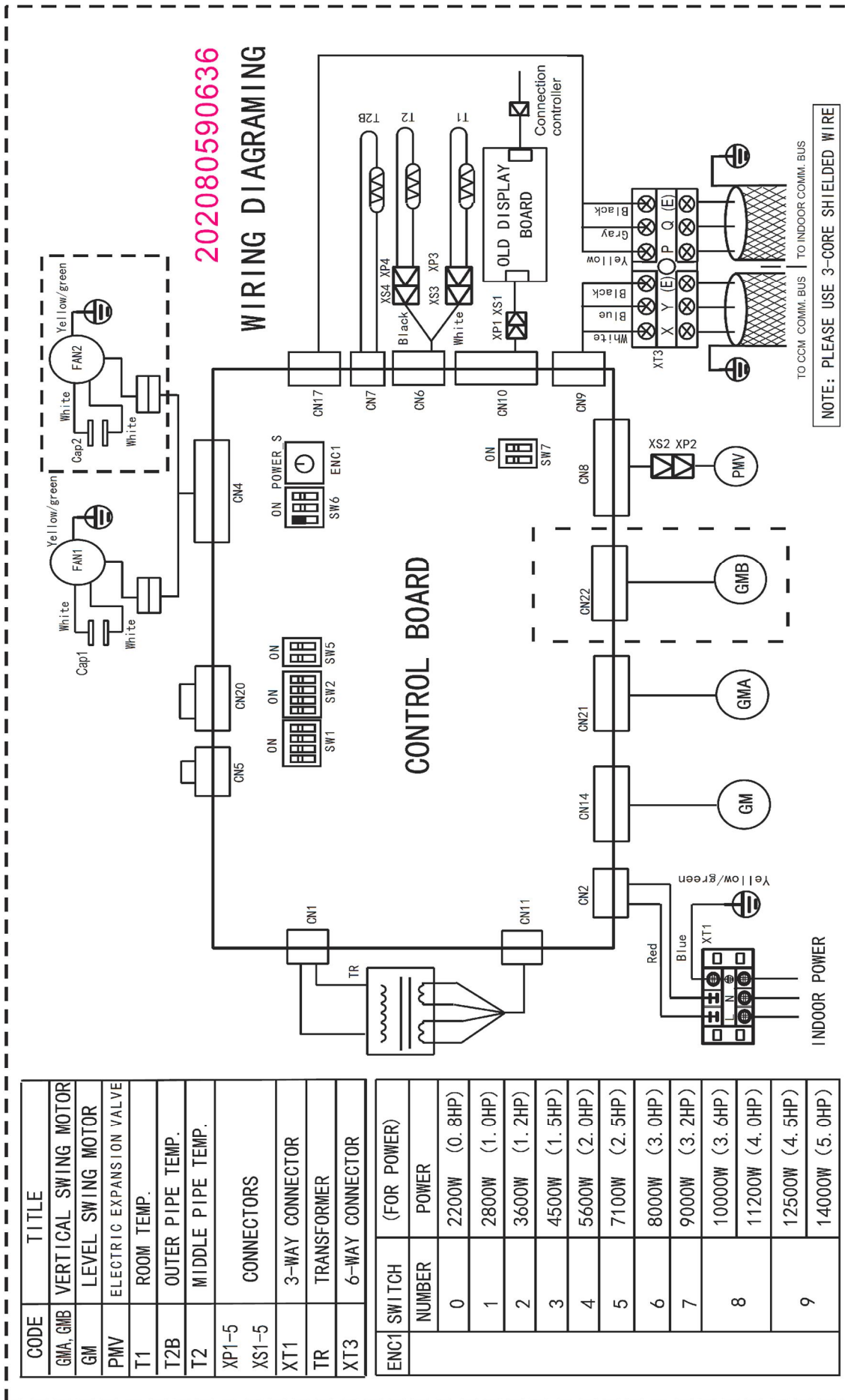
### 5. Piping Diagrams

MDV-D36DL/N1-C MDV-D45DL/N1-C MDV-D56DL/N1-C MDV-D71DL/N1-C  
 MDV-D80DL/N1-C MDV-D90DL/N1-C MDV-D112DL/N1-C MDV-D140DL/N1-C  
 MDV-D160DL/N1-C

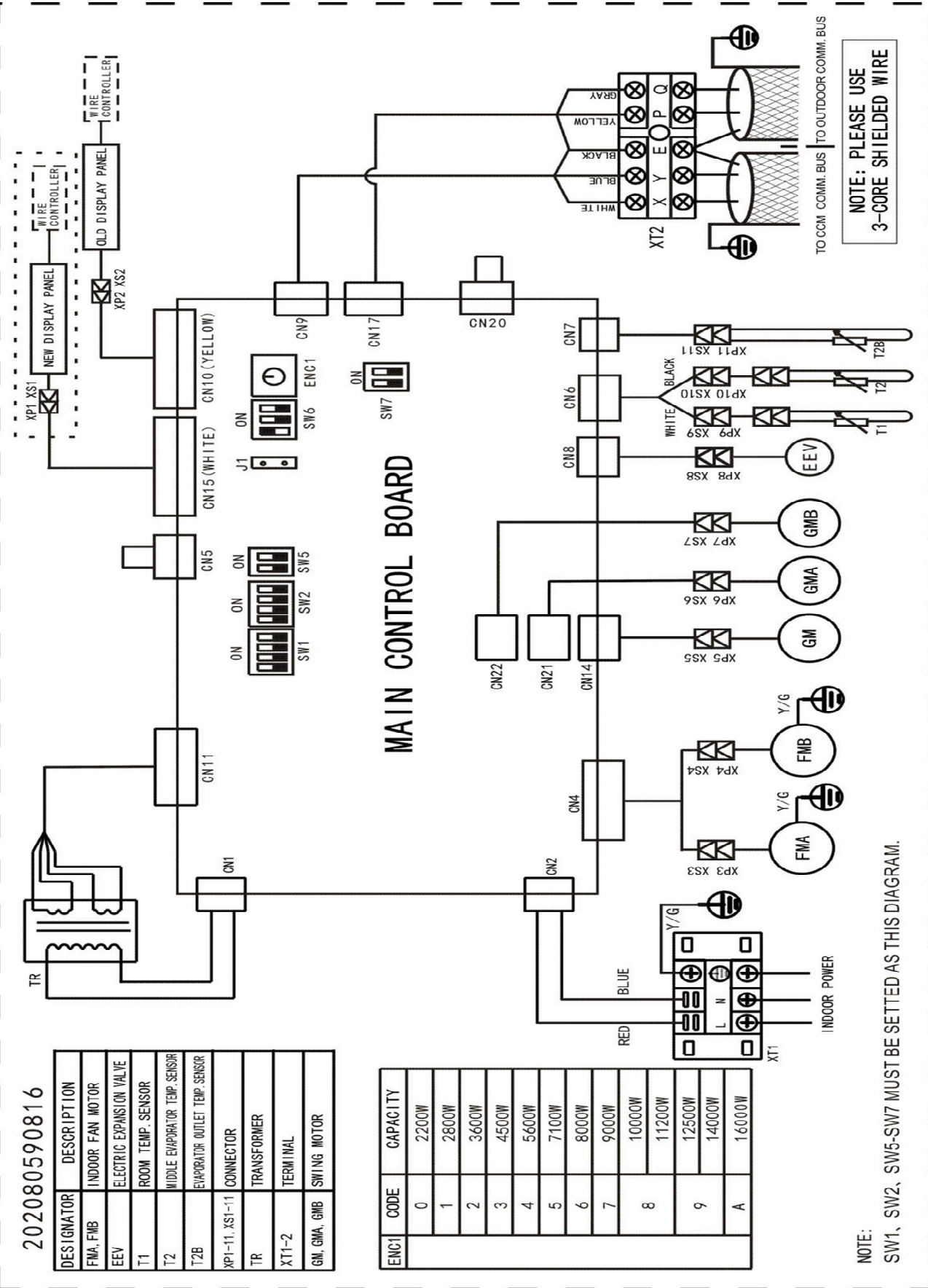


### 6. Wiring Diagrams

MDV-D36DL/N1-C MDV-D45DL/N1-C MDV-D56DL/N1-C MDV-D71DL/N1-C MDV-D80DL/N1-C  
 MDV-D90DL/N1-C MDV-D112DL/N1-C MDV-D140DL/N1-C



MDV-D160DL/N1-C



202080590816

| DESIGNATOR     | DESCRIPTION                    |
|----------------|--------------------------------|
| FMA, FMB       | INDOOR FAN MOTOR               |
| EEV            | ELECTRIC EXPANSION VALVE       |
| T1             | ROOM TEMP. SENSOR              |
| T2             | MIDDLE EVAPORATOR TEMP. SENSOR |
| T2B            | EVAPORATOR OUTLET TEMP. SENSOR |
| XP1-11, XS1-11 | CONNECTOR                      |
| TR             | TRANSFORMER                    |
| XT1-2          | TERMINAL                       |
| GM, GMA, GMB   | SWING MOTOR                    |

| ENC1 | CODE | CAPACITY |
|------|------|----------|
|      | 0    | 2200W    |
|      | 1    | 2800W    |
|      | 2    | 3600W    |
|      | 3    | 4500W    |
|      | 4    | 5600W    |
|      | 5    | 7100W    |
|      | 6    | 8000W    |
|      | 7    | 9000W    |
|      | 8    | 10000W   |
|      |      | 11200W   |
|      | 9    | 12500W   |
|      |      | 14000W   |
|      | A    | 16000W   |

NOTE:  
SW1, SW2, SW5-SW7 MUST BE SETTED AS THIS DIAGRAM.

## 7. Capacity Tables

### 7.1 Cooling

TC: total capacity

SC: sensible capacity

WB: wet-bulb temperature

DB: dry-bulb temperature

| Indoor Unit size (kW) | Outdoor temperature (°C DB) | Indoor 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                   | 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   |     |
| 4.5                   | 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   |     |
| 5.6                   | 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   |     |
| 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   |     |

|      |      |     |     |     |     |     |      |      |      |      |      |      |      |      |     |
|------|------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|-----|
| 7.1  | 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  |     |
| 8.0  | 10.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 10.4 | 5.6 |
|      | 12.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 10.2 | 5.5 |
|      | 14.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 10.2 | 5.5 |
|      | 16.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 10.0 | 5.4 |
|      | 18.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 9.8  | 5.3 |
|      | 20.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 9.6  | 5.2 |
|      | 21.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 9.4  | 5.1 |
|      | 23.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 9.4  | 5.1 |
|      | 25.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.4  | 5.5  | 9.3  | 5.0 |
|      | 27.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.4  | 9.1  | 5.3  | 9.2  | 5.1 |
|      | 29.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.5  | 9.0  | 5.3  | 9.1  | 5.0 |
|      | 31.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.5  | 8.9  | 5.2  | 8.8  | 4.8 |
|      | 33.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.5  | 8.8  | 5.2  | 8.8  | 4.8 |
|      | 35.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.4  | 5.5  | 8.6  | 5.1  | 8.6  | 4.8 |
|      | 37.0 | 5.5 | 4.4 | 6.6 | 4.9 | 7.5 | 5.3  | 8.0  | 5.5  | 8.3  | 5.4  | 8.4  | 5.0  | 8.6  | 4.9 |
| 39.0 | 5.5  | 4.4 | 6.6 | 4.9 | 7.5 | 5.3 | 8.0  | 5.5  | 8.1  | 5.3  | 8.3  | 5.0  | 8.6  | 4.9  |     |
| 42.0 | 5.5  | 4.4 | 6.6 | 4.9 | 7.5 | 5.3 | 8.0  | 5.5  | 8.1  | 5.3  | 8.3  | 5.0  | 8.6  | 4.9  |     |
| 44.0 | 5.5  | 4.4 | 6.6 | 4.9 | 7.5 | 5.3 | 8.0  | 5.5  | 8.1  | 5.3  | 8.3  | 5.0  | 8.6  | 4.9  |     |
| 46.0 | 5.5  | 4.4 | 6.6 | 4.9 | 7.5 | 5.3 | 8.0  | 5.5  | 8.1  | 5.3  | 8.3  | 5.0  | 8.6  | 4.9  |     |
| 9.0  | 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  |     |
| 10.0 | 10.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 13.0 | 7.3 |
|      | 12.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 12.8 | 7.2 |
|      | 14.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 12.7 | 7.1 |
|      | 16.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 12.5 | 7.0 |
|      | 18.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 12.2 | 6.8 |
|      | 20.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 12.0 | 6.7 |
|      | 21.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.9 | 7.3  | 11.8 | 6.6 |
|      | 23.0 | 6.9 | 5.6 | 8.1 | 6.2 | 9.4 | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.7 | 7.3  | 11.7 | 6.6 |
| 25.0 | 6.9  | 5.6 | 8.1 | 6.2 | 9.4 | 6.9 | 10.0 | 7.0  | 10.6 | 7.0  | 11.6 | 7.2  | 11.6 | 6.5  |     |

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
|      | 27.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.5 | 7.1  | 11.5 | 6.6 |
|      | 29.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.4 | 7.1  | 11.4 | 6.5 |
|      | 31.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.3 | 7.0  | 11.0 | 6.3 |
|      | 33.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.6 | 7.0  | 11.2 | 6.9  | 11.0 | 6.3 |
|      | 35.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.5 | 6.9  | 10.8 | 6.7  | 10.8 | 6.3 |
|      | 37.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.4 | 6.9  | 10.8 | 6.7  | 10.7 | 6.2 |
|      | 39.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.2 | 6.7  | 10.4 | 6.6  | 10.7 | 6.3 |
|      | 42.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.2 | 6.7  | 10.4 | 6.6  | 10.7 | 6.3 |
|      | 44.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.2 | 6.7  | 10.4 | 6.6  | 10.7 | 6.3 |
|      | 46.0 | 6.9  | 5.6  | 8.1  | 6.2  | 9.4  | 6.9  | 10.0 | 7.0  | 10.2 | 6.7  | 10.4 | 6.6  | 10.7 | 6.3 |
| 11.2 | 10.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 15.5 | 8.2 |
|      | 12.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 14.4 | 7.7 |
|      | 14.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 14.2 | 7.6 |
|      | 16.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 14.1 | 7.5 |
|      | 18.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 14.0 | 7.5 |
|      | 20.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 13.9 | 7.4 |
|      | 21.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.3 | 7.6  | 13.8 | 7.4 |
|      | 23.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.1 | 7.5  | 13.7 | 7.3 |
|      | 25.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 13.0 | 7.4  | 13.6 | 7.2 |
|      | 27.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 12.9 | 7.3  | 13.4 | 7.2 |
|      | 29.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 12.8 | 7.3  | 13.3 | 7.2 |
|      | 31.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 12.7 | 7.2  | 12.8 | 6.9 |
|      | 33.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.9 | 7.4  | 12.5 | 7.2  | 12.5 | 6.8 |
|      | 35.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.8 | 7.4  | 12.4 | 7.1  | 12.3 | 6.7 |
|      | 37.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.6 | 7.3  | 12.3 | 7.0  | 12.1 | 6.6 |
|      | 39.0 | 7.7  | 5.9  | 9.1  | 6.5  | 10.5 | 7.1  | 11.2 | 7.2  | 11.4 | 7.1  | 12.2 | 7.0  | 11.9 | 6.6 |
|      | 42.0 | 7.7  | 6.0  | 9.1  | 6.6  | 10.4 | 7.2  | 11.2 | 7.3  | 11.4 | 7.1  | 11.6 | 6.6  | 12.0 | 6.6 |
|      | 44.0 | 7.7  | 6.0  | 9.1  | 6.6  | 10.4 | 7.2  | 11.2 | 7.3  | 11.4 | 7.1  | 11.6 | 6.6  | 12.0 | 6.6 |
| 46.0 | 7.7  | 6.0  | 9.1  | 6.6  | 10.4 | 7.2  | 11.2 | 7.3  | 11.4 | 7.1  | 11.6 | 6.6  | 12.0 | 6.6  |     |
| 14.0 | 10.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 18.2 | 9.4 |
|      | 12.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 17.9 | 9.2 |
|      | 14.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 17.8 | 9.2 |
|      | 16.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 17.5 | 9.0 |
|      | 18.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 17.1 | 8.8 |
|      | 20.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 16.8 | 8.7 |
|      | 21.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.7 | 9.3  | 16.5 | 8.5 |
|      | 23.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.4 | 9.3  | 16.4 | 8.4 |
|      | 25.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.2 | 9.3  | 16.2 | 8.4 |
|      | 27.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.1 | 9.2  | 16.1 | 8.4 |
|      | 29.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 16.0 | 9.1  | 16.0 | 8.4 |
|      | 31.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 15.8 | 9.0  | 15.4 | 8.1 |
|      | 33.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.8 | 9.0  | 15.7 | 8.9  | 15.4 | 8.1 |
|      | 35.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.7 | 8.9  | 15.1 | 8.6  | 15.1 | 8.1 |
|      | 37.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.6 | 8.8  | 15.1 | 8.6  | 15.0 | 8.0 |
|      | 39.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.3 | 8.7  | 14.6 | 8.4  | 15.0 | 8.1 |
|      | 42.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.3 | 8.7  | 14.6 | 8.4  | 15.0 | 8.1 |
|      | 44.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.3 | 8.7  | 14.6 | 8.4  | 15.0 | 8.1 |
| 46.0 | 9.7  | 7.2  | 11.3 | 7.9  | 13.2 | 8.8  | 14.0 | 9.0  | 14.3 | 8.7  | 14.6 | 8.4  | 15.0 | 8.1  |     |
| 16.0 | 10.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 20.8 | 9.0 |
|      | 12.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 20.5 | 9.0 |
|      | 14.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 20.3 | 9.0 |
|      | 16.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 20.0 | 9.0 |
|      | 18.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 19.5 | 9.0 |
|      | 20.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 19.2 | 9.0 |
|      | 21.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 19.0 | 9.8  | 18.9 | 9.0 |
|      | 23.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 18.7 | 9.9  | 18.7 | 9.0 |
|      | 25.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 18.6 | 9.9  | 18.6 | 9.0 |
|      | 27.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 18.4 | 9.9  | 18.4 | 9.1 |
|      | 29.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 18.2 | 9.9  | 18.2 | 9.1 |
|      | 31.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 18.1 | 9.9  | 17.6 | 9.1 |
|      | 33.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 17.0 | 10.6 | 17.9 | 9.9  | 17.6 | 9.1 |
|      | 35.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.8 | 10.6 | 17.3 | 9.9  | 17.3 | 9.3 |
|      | 37.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.6 | 10.6 | 17.3 | 9.9  | 17.1 | 9.3 |
|      | 39.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.3 | 10.6 | 16.6 | 10.1 | 17.1 | 9.4 |
|      | 42.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.3 | 10.6 | 16.6 | 10.1 | 17.1 | 9.4 |

|  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
|  | 44.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.3 | 10.6 | 16.6 | 10.1 | 17.1 | 9.4 |
|  | 46.0 | 11.0 | 13.0 | 13.0 | 12.2 | 15.0 | 11.7 | 16.0 | 11.2 | 16.3 | 10.6 | 16.6 | 10.1 | 17.1 | 9.4 |

**7.2 Heating**

TC: total capacity

WB: wet-bulb temperature DB: dry-bulb temperature

| Indoor Unit size (kW) | Outdoor temperature (°C) |        | Indoor temperature (°C DB) |       |       |       |       |       |
|-----------------------|--------------------------|--------|----------------------------|-------|-------|-------|-------|-------|
|                       |                          |        | 16.00                      | 18.00 | 20.00 | 21.00 | 22.00 | 24.00 |
|                       | WB                       | DB     | TC kW                      | TC kW | TC kW | TC kW | TC kW | TC kW |
| 3.6                   | -20                      | -19.8  | 2.24                       | 2.24  | 2.24  | 2.24  | 2.24  | 2.24  |
|                       | -19                      | -18.8  | 2.40                       | 2.40  | 2.40  | 2.40  | 2.40  | 2.40  |
|                       | -17                      | -16.7  | 2.52                       | 2.52  | 2.52  | 2.52  | 2.52  | 2.52  |
|                       | -15                      | -14.7  | 2.60                       | 2.60  | 2.60  | 2.60  | 2.60  | 2.60  |
|                       | -13.00                   | -12.60 | 2.68                       | 2.68  | 2.68  | 2.68  | 2.68  | 2.68  |
|                       | -11.00                   | -10.50 | 2.80                       | 2.80  | 2.80  | 2.80  | 2.80  | 2.80  |
|                       | -10.00                   | -9.50  | 2.92                       | 2.92  | 2.92  | 2.92  | 2.92  | 2.92  |
|                       | -9.10                    | -8.50  | 3.00                       | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  |
|                       | -7.60                    | -7.00  | 3.04                       | 3.04  | 3.04  | 3.04  | 3.04  | 3.04  |
|                       | -5.60                    | -5.00  | 3.16                       | 3.16  | 3.16  | 3.16  | 3.16  | 3.16  |
|                       | -3.70                    | -3.00  | 3.32                       | 3.32  | 3.32  | 3.32  | 3.32  | 3.32  |
|                       | -0.70                    | 0.00   | 3.56                       | 3.56  | 3.56  | 3.56  | 3.56  | 3.36  |
|                       | 2.20                     | 3.00   | 3.76                       | 3.76  | 3.76  | 3.76  | 3.68  | 3.36  |
|                       | 4.10                     | 5.00   | 3.88                       | 3.88  | 3.88  | 3.88  | 3.68  | 3.36  |
|                       | 6.00                     | 7.00   | 4.00                       | 4.00  | 4.00  | 3.88  | 3.68  | 3.36  |
| 7.90                  | 9.00                     | 4.12   | 4.12                       | 4.00  | 3.88  | 3.68  | 3.36  |       |
| 9.80                  | 11.00                    | 4.24   | 4.24                       | 4.00  | 3.88  | 3.68  | 3.36  |       |
| 11.80                 | 13.00                    | 4.40   | 4.32                       | 4.00  | 3.88  | 3.68  | 3.36  |       |
| 13.70                 | 15.00                    | 4.52   | 4.32                       | 4.00  | 3.88  | 3.68  | 3.36  |       |
| 4.5                   | -20                      | -19.8  | 2.80                       | 2.80  | 2.80  | 2.80  | 2.80  | 2.80  |
|                       | -19                      | -18.8  | 3.00                       | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  |
|                       | -17                      | -16.7  | 3.15                       | 3.15  | 3.15  | 3.15  | 3.15  | 3.15  |
|                       | -15                      | -14.7  | 3.25                       | 3.25  | 3.25  | 3.25  | 3.25  | 3.25  |
|                       | -13.00                   | -12.60 | 3.35                       | 3.35  | 3.35  | 3.35  | 3.35  | 3.35  |
|                       | -11.00                   | -10.50 | 3.50                       | 3.50  | 3.50  | 3.50  | 3.50  | 3.50  |
|                       | -10.00                   | -9.50  | 3.65                       | 3.65  | 3.65  | 3.65  | 3.65  | 3.65  |
|                       | -9.10                    | -8.50  | 3.75                       | 3.75  | 3.75  | 3.75  | 3.75  | 3.75  |
|                       | -7.60                    | -7.00  | 3.80                       | 3.80  | 3.80  | 3.80  | 3.80  | 3.80  |
|                       | -5.60                    | -5.00  | 3.95                       | 3.95  | 3.95  | 3.95  | 3.95  | 3.95  |
|                       | -3.70                    | -3.00  | 4.15                       | 4.15  | 4.15  | 4.15  | 4.15  | 4.15  |
|                       | -0.70                    | 0.00   | 4.45                       | 4.45  | 4.45  | 4.45  | 4.45  | 4.20  |
|                       | 2.20                     | 3.00   | 4.70                       | 4.70  | 4.70  | 4.70  | 4.60  | 4.20  |
|                       | 4.10                     | 5.00   | 4.85                       | 4.85  | 4.85  | 4.85  | 4.60  | 4.20  |
|                       | 6.00                     | 7.00   | 5.00                       | 5.00  | 5.00  | 4.85  | 4.60  | 4.20  |
| 7.90                  | 9.00                     | 5.15   | 5.15                       | 5.00  | 4.85  | 4.60  | 4.20  |       |
| 9.80                  | 11.00                    | 5.30   | 5.30                       | 5.00  | 4.85  | 4.60  | 4.20  |       |
| 11.80                 | 13.00                    | 5.50   | 5.40                       | 5.00  | 4.85  | 4.60  | 4.20  |       |
| 13.70                 | 15.00                    | 5.65   | 5.40                       | 5.00  | 4.85  | 4.60  | 4.20  |       |
| 5.6                   | -20                      | -19.8  | 3.53                       | 3.53  | 3.53  | 3.53  | 3.53  | 3.53  |
|                       | -19                      | -18.8  | 3.78                       | 3.78  | 3.78  | 3.78  | 3.78  | 3.78  |
|                       | -17                      | -16.7  | 3.97                       | 3.97  | 3.97  | 3.97  | 3.97  | 3.97  |
|                       | -15                      | -14.7  | 4.10                       | 4.10  | 4.10  | 4.10  | 4.10  | 4.10  |
|                       | -13.00                   | -12.60 | 4.22                       | 4.22  | 4.22  | 4.22  | 4.22  | 4.22  |
|                       | -11.00                   | -10.50 | 4.41                       | 4.41  | 4.41  | 4.41  | 4.41  | 4.41  |
|                       | -10.00                   | -9.50  | 4.60                       | 4.60  | 4.60  | 4.60  | 4.60  | 4.60  |
|                       | -9.10                    | -8.50  | 4.73                       | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  |
|                       | -7.60                    | -7.00  | 4.79                       | 4.79  | 4.79  | 4.79  | 4.79  | 4.79  |
|                       | -5.60                    | -5.00  | 4.98                       | 4.98  | 4.98  | 4.98  | 4.98  | 4.98  |
|                       | -3.70                    | -3.00  | 5.23                       | 5.23  | 5.23  | 5.23  | 5.23  | 5.23  |
|                       | -0.70                    | 0.00   | 5.61                       | 5.61  | 5.61  | 5.61  | 5.61  | 5.29  |
|                       | 2.20                     | 3.00   | 5.92                       | 5.92  | 5.92  | 5.92  | 5.80  | 5.29  |
|                       | 4.10                     | 5.00   | 6.11                       | 6.11  | 6.11  | 6.11  | 5.80  | 5.29  |
|                       | 6.00                     | 7.00   | 6.30                       | 6.30  | 6.30  | 6.11  | 5.80  | 5.29  |
| 7.90                  | 9.00                     | 6.49   | 6.49                       | 6.30  | 6.11  | 5.80  | 5.29  |       |
| 9.80                  | 11.00                    | 6.68   | 6.68                       | 6.30  | 6.11  | 5.80  | 5.29  |       |
| 11.80                 | 13.00                    | 6.93   | 6.80                       | 6.30  | 6.11  | 5.80  | 5.29  |       |



|        |        |        |       |       |       |      |      |      |
|--------|--------|--------|-------|-------|-------|------|------|------|
|        | 13.70  | 15.00  | 7.12  | 6.80  | 6.30  | 6.11 | 5.80 | 5.29 |
| 7.1    | -20    | -19.8  | 4.48  | 4.48  | 4.48  | 4.48 | 4.48 | 4.48 |
|        | -19    | -18.8  | 4.80  | 4.80  | 4.80  | 4.80 | 4.80 | 4.80 |
|        | -17    | -16.7  | 5.04  | 5.04  | 5.04  | 5.04 | 5.04 | 5.04 |
|        | -15    | -14.7  | 5.20  | 5.20  | 5.20  | 5.20 | 5.20 | 5.20 |
|        | -13.00 | -12.60 | 5.36  | 5.36  | 5.36  | 5.36 | 5.36 | 5.36 |
|        | -11.00 | -10.50 | 5.60  | 5.60  | 5.60  | 5.60 | 5.60 | 5.60 |
|        | -10.00 | -9.50  | 5.84  | 5.84  | 5.84  | 5.84 | 5.84 | 5.84 |
|        | -9.10  | -8.50  | 6.00  | 6.00  | 6.00  | 6.00 | 6.00 | 6.00 |
|        | -7.60  | -7.00  | 6.08  | 6.08  | 6.08  | 6.08 | 6.08 | 6.08 |
|        | -5.60  | -5.00  | 6.32  | 6.32  | 6.32  | 6.32 | 6.32 | 6.32 |
|        | -3.70  | -3.00  | 6.64  | 6.64  | 6.64  | 6.64 | 6.64 | 6.64 |
|        | -0.70  | 0.00   | 7.12  | 7.12  | 7.12  | 7.12 | 7.12 | 6.72 |
|        | 2.20   | 3.00   | 7.52  | 7.52  | 7.52  | 7.52 | 7.36 | 6.72 |
|        | 4.10   | 5.00   | 7.76  | 7.76  | 7.76  | 7.76 | 7.36 | 6.72 |
|        | 6.00   | 7.00   | 8.00  | 8.00  | 8.00  | 7.76 | 7.36 | 6.72 |
|        | 7.90   | 9.00   | 8.24  | 8.24  | 8.00  | 7.76 | 7.36 | 6.72 |
| 9.80   | 11.00  | 8.48   | 8.48  | 8.00  | 7.76  | 7.36 | 6.72 |      |
| 11.80  | 13.00  | 8.80   | 8.64  | 8.00  | 7.76  | 7.36 | 6.72 |      |
| 13.70  | 15.00  | 9.04   | 8.64  | 8.00  | 7.76  | 7.36 | 6.72 |      |
| 8.0    | -20    | -19.8  | 5.04  | 5.04  | 5.04  | 5.04 | 5.04 | 5.04 |
|        | -19    | -18.8  | 5.40  | 5.40  | 5.40  | 5.40 | 5.40 | 5.40 |
|        | -17    | -16.7  | 5.67  | 5.67  | 5.67  | 5.67 | 5.67 | 5.67 |
|        | -15    | -14.7  | 5.85  | 5.85  | 5.85  | 5.85 | 5.85 | 5.85 |
|        | -13.00 | -12.60 | 6.03  | 6.03  | 6.03  | 6.03 | 6.03 | 6.03 |
|        | -11.00 | -10.50 | 6.30  | 6.30  | 6.30  | 6.30 | 6.30 | 6.30 |
|        | -10.00 | -9.50  | 6.57  | 6.57  | 6.57  | 6.57 | 6.57 | 6.57 |
|        | -9.10  | -8.50  | 6.75  | 6.75  | 6.75  | 6.75 | 6.75 | 6.75 |
|        | -7.60  | -7.00  | 6.84  | 6.84  | 6.84  | 6.84 | 6.84 | 6.84 |
|        | -5.60  | -5.00  | 7.11  | 7.11  | 7.11  | 7.11 | 7.11 | 7.11 |
|        | -3.70  | -3.00  | 7.47  | 7.47  | 7.47  | 7.47 | 7.47 | 7.47 |
|        | -0.70  | 0.00   | 8.01  | 8.01  | 8.01  | 8.01 | 8.01 | 7.56 |
|        | 2.20   | 3.00   | 8.46  | 8.46  | 8.46  | 8.46 | 8.28 | 7.56 |
|        | 4.10   | 5.00   | 8.73  | 8.73  | 8.73  | 8.73 | 8.28 | 7.56 |
|        | 6.00   | 7.00   | 9.00  | 9.00  | 9.00  | 8.73 | 8.28 | 7.56 |
|        | 7.90   | 9.00   | 9.27  | 9.27  | 9.00  | 8.73 | 8.28 | 7.56 |
| 9.80   | 11.00  | 9.54   | 9.54  | 9.00  | 8.73  | 8.28 | 7.56 |      |
| 11.80  | 13.00  | 9.90   | 9.72  | 9.00  | 8.73  | 8.28 | 7.56 |      |
| 13.70  | 15.00  | 10.17  | 9.72  | 9.00  | 8.73  | 8.28 | 7.56 |      |
| 9.0    | -20    | -19.8  | 5.60  | 5.04  | 5.60  | 5.60 | 5.60 | 5.60 |
|        | -19    | -18.8  | 6.00  | 5.40  | 6.00  | 6.00 | 6.00 | 6.00 |
|        | -17    | -16.7  | 6.30  | 6.30  | 6.30  | 6.30 | 6.30 | 6.30 |
|        | -15    | -14.7  | 6.50  | 6.50  | 6.50  | 6.50 | 6.50 | 6.50 |
|        | -13.00 | -12.60 | 6.70  | 6.70  | 6.70  | 6.70 | 6.70 | 6.70 |
|        | -11.00 | -10.50 | 7.00  | 7.00  | 7.00  | 7.00 | 7.00 | 7.00 |
|        | -10.00 | -9.50  | 7.30  | 7.30  | 7.30  | 7.30 | 7.30 | 7.30 |
|        | -9.10  | -8.50  | 7.50  | 7.50  | 7.50  | 7.50 | 7.50 | 7.50 |
|        | -7.60  | -7.00  | 7.60  | 7.60  | 7.60  | 7.60 | 7.60 | 7.60 |
|        | -5.60  | -5.00  | 7.90  | 7.90  | 7.90  | 7.90 | 7.90 | 7.90 |
|        | -3.70  | -3.00  | 8.30  | 8.30  | 8.30  | 8.30 | 8.30 | 8.30 |
|        | -0.70  | 0.00   | 8.90  | 8.90  | 8.90  | 8.90 | 8.90 | 8.40 |
|        | 2.20   | 3.00   | 9.40  | 9.40  | 9.40  | 9.40 | 9.20 | 8.40 |
|        | 4.10   | 5.00   | 9.70  | 9.70  | 9.70  | 9.70 | 9.20 | 8.40 |
|        | 6.00   | 7.00   | 10.00 | 10.00 | 10.00 | 9.70 | 9.20 | 8.40 |
|        | 7.90   | 9.00   | 10.30 | 10.30 | 10.00 | 9.70 | 9.20 | 8.40 |
| 9.80   | 11.00  | 10.60  | 10.60 | 10.00 | 9.70  | 9.20 | 8.40 |      |
| 11.80  | 13.00  | 11.00  | 10.80 | 10.00 | 9.70  | 9.20 | 8.40 |      |
| 13.70  | 15.00  | 11.30  | 10.80 | 10.00 | 9.70  | 9.20 | 8.40 |      |
| 10.0   | -20    | -19.8  | 6.16  | 6.16  | 6.16  | 6.16 | 6.16 | 6.16 |
|        | -19    | -18.8  | 6.60  | 6.60  | 6.60  | 6.60 | 6.60 | 6.60 |
|        | -17    | -16.7  | 6.93  | 6.93  | 6.93  | 6.93 | 6.93 | 6.93 |
|        | -15    | -14.7  | 7.15  | 7.15  | 7.15  | 7.15 | 7.15 | 7.15 |
|        | -13.00 | -12.60 | 7.37  | 7.37  | 7.37  | 7.37 | 7.37 | 7.37 |
|        | -11.00 | -10.50 | 7.70  | 7.70  | 7.70  | 7.70 | 7.70 | 7.70 |
| -10.00 | -9.50  | 8.03   | 8.03  | 8.03  | 8.03  | 8.03 | 8.03 |      |

|      |        |        |       |       |       |       |       |       |
|------|--------|--------|-------|-------|-------|-------|-------|-------|
|      | -9.10  | -8.50  | 8.25  | 8.25  | 8.25  | 8.25  | 8.25  | 8.25  |
|      | -7.60  | -7.00  | 8.36  | 8.36  | 8.36  | 8.36  | 8.36  | 8.36  |
|      | -5.60  | -5.00  | 8.69  | 8.69  | 8.69  | 8.69  | 8.69  | 8.69  |
|      | -3.70  | -3.00  | 9.13  | 9.13  | 9.13  | 9.13  | 9.13  | 9.13  |
|      | -0.70  | 0.00   | 9.79  | 9.79  | 9.79  | 9.79  | 9.79  | 9.24  |
|      | 2.20   | 3.00   | 10.34 | 10.34 | 10.34 | 10.34 | 10.12 | 9.24  |
|      | 4.10   | 5.00   | 10.67 | 10.67 | 10.67 | 10.67 | 10.12 | 9.24  |
|      | 6.00   | 7.00   | 11.00 | 11.00 | 11.00 | 10.67 | 10.12 | 9.24  |
|      | 7.90   | 9.00   | 11.33 | 11.33 | 11.00 | 10.67 | 10.12 | 9.24  |
|      | 9.80   | 11.00  | 11.66 | 11.66 | 11.00 | 10.67 | 10.12 | 9.24  |
|      | 11.80  | 13.00  | 12.10 | 11.88 | 11.00 | 10.67 | 10.12 | 9.24  |
|      | 13.70  | 15.00  | 12.43 | 11.88 | 11.00 | 10.67 | 10.12 | 9.24  |
| 11.2 | -20    | -19.8  | 7.00  | 7.00  | 7.00  | 7.00  | 7.00  | 7.00  |
|      | -19    | -18.8  | 7.50  | 7.50  | 7.50  | 7.50  | 7.50  | 7.50  |
|      | -17    | -16.7  | 7.88  | 7.88  | 7.88  | 7.88  | 7.88  | 7.88  |
|      | -15    | -14.7  | 8.13  | 8.13  | 8.13  | 8.13  | 8.13  | 8.13  |
|      | -13.00 | -12.60 | 8.38  | 8.38  | 8.38  | 8.38  | 8.38  | 8.38  |
|      | -11.00 | -10.50 | 8.75  | 8.75  | 8.75  | 8.75  | 8.75  | 8.75  |
|      | -10.00 | -9.50  | 9.13  | 9.13  | 9.13  | 9.13  | 9.13  | 9.13  |
|      | -9.10  | -8.50  | 9.38  | 9.38  | 9.38  | 9.38  | 9.38  | 9.38  |
|      | -7.60  | -7.00  | 9.50  | 9.50  | 9.50  | 9.50  | 9.50  | 9.50  |
|      | -5.60  | -5.00  | 9.88  | 9.88  | 9.88  | 9.88  | 9.88  | 9.88  |
|      | -3.70  | -3.00  | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 |
|      | -0.70  | 0.00   | 11.13 | 11.13 | 11.13 | 11.13 | 11.13 | 10.50 |
|      | 2.20   | 3.00   | 11.75 | 11.75 | 11.75 | 11.75 | 11.50 | 10.50 |
|      | 4.10   | 5.00   | 12.13 | 12.13 | 12.13 | 12.13 | 11.50 | 10.50 |
|      | 6.00   | 7.00   | 12.50 | 12.50 | 12.50 | 12.13 | 11.50 | 10.50 |
|      | 7.90   | 9.00   | 12.88 | 12.88 | 12.50 | 12.13 | 11.50 | 10.50 |
|      | 9.80   | 11.00  | 13.25 | 13.25 | 12.50 | 12.13 | 11.50 | 10.50 |
|      | 11.80  | 13.00  | 13.75 | 13.50 | 12.50 | 12.13 | 11.50 | 10.50 |
|      | 13.70  | 15.00  | 14.13 | 13.50 | 12.50 | 12.13 | 11.50 | 10.50 |
| 14.0 | -20    | -19.8  | 8.68  | 8.68  | 8.68  | 8.68  | 8.68  | 8.68  |
|      | -19    | -18.8  | 9.30  | 9.30  | 9.30  | 9.30  | 9.30  | 9.30  |
|      | -17    | -16.7  | 9.77  | 9.77  | 9.77  | 9.77  | 9.77  | 9.77  |
|      | -15    | -14.7  | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 |
|      | -13.0  | -12.6  | 10.4  | 10.4  | 10.4  | 10.4  | 10.4  | 10.4  |
|      | -11.0  | -10.5  | 10.9  | 10.9  | 10.9  | 10.9  | 10.9  | 10.9  |
|      | -10.0  | -9.5   | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  |
|      | -9.1   | -8.5   | 11.6  | 11.6  | 11.6  | 11.6  | 11.6  | 11.6  |
|      | -7.6   | -7.0   | 11.8  | 11.8  | 11.8  | 11.8  | 11.8  | 11.8  |
|      | -5.6   | -5.0   | 12.3  | 12.3  | 12.3  | 12.3  | 12.3  | 12.3  |
|      | -3.7   | -3.0   | 12.9  | 12.9  | 12.9  | 12.9  | 12.9  | 12.9  |
|      | -0.7   | 0.0    | 13.8  | 13.8  | 13.8  | 13.8  | 13.8  | 13.0  |
|      | 2.2    | 3.0    | 14.6  | 14.6  | 14.6  | 14.6  | 14.3  | 13.0  |
|      | 4.1    | 5.0    | 15.0  | 15.0  | 15.0  | 15.0  | 14.3  | 13.0  |
|      | 6.0    | 7.0    | 15.5  | 15.5  | 15.5  | 15.0  | 14.3  | 13.0  |
|      | 7.9    | 9.0    | 16.0  | 16.0  | 15.5  | 15.0  | 14.3  | 13.0  |
|      | 9.8    | 11.0   | 16.4  | 16.4  | 15.5  | 15.0  | 14.3  | 13.0  |
|      | 11.8   | 13.0   | 17.1  | 16.7  | 15.5  | 15.0  | 14.3  | 13.0  |
|      | 13.7   | 15.0   | 17.5  | 16.7  | 15.5  | 15.0  | 14.3  | 13.0  |
| 16.0 | -20    | -4     | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 |
|      | -19    | -2.2   | 10.80 | 10.80 | 10.80 | 10.80 | 10.80 | 10.80 |
|      | -17    | 1.4    | 11.43 | 11.43 | 11.43 | 11.43 | 11.43 | 11.43 |
|      | -15    | 5      | 11.70 | 11.70 | 11.70 | 11.70 | 11.70 | 11.70 |
|      | -13.0  | 8.6    | 12.42 | 12.42 | 12.42 | 12.42 | 12.42 | 12.42 |
|      | -11.0  | 12.2   | 12.60 | 12.78 | 12.78 | 12.78 | 12.78 | 12.78 |
|      | -10.0  | 14     | 13.14 | 13.14 | 13.14 | 13.14 | 13.14 | 13.14 |
|      | -9.1   | 15.62  | 13.50 | 13.50 | 13.50 | 13.50 | 13.50 | 13.50 |
|      | -7.6   | 18.32  | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 |
|      | -5.6   | 21.92  | 14.22 | 14.22 | 14.22 | 14.22 | 14.22 | 14.22 |
|      | -3.7   | 25.34  | 14.94 | 14.94 | 14.94 | 14.94 | 14.94 | 14.94 |
|      | -0.7   | 30.74  | 16.02 | 16.02 | 16.02 | 16.02 | 16.02 | 15.12 |
|      | 2.2    | 35.96  | 16.92 | 16.92 | 16.92 | 16.92 | 16.56 | 15.12 |
|      | 4.1    | 39.38  | 17.46 | 17.46 | 17.46 | 17.46 | 16.56 | 15.12 |
|      | 6.0    | 42.8   | 18.0  | 18.0  | 18.0  | 17.46 | 16.56 | 15.12 |

|  |      |       |       |       |      |       |       |       |
|--|------|-------|-------|-------|------|-------|-------|-------|
|  | 7.9  | 46.22 | 18.54 | 18.54 | 18.0 | 17.46 | 16.56 | 15.12 |
|  | 9.8  | 49.64 | 19.08 | 19.08 | 18.0 | 17.46 | 16.56 | 15.12 |
|  | 11.8 | 53.24 | 19.80 | 19.44 | 18.0 | 17.46 | 16.56 | 15.12 |
|  | 13.7 | 56.66 | 20.34 | 19.44 | 18.0 | 17.46 | 16.56 | 15.12 |

## 8. Electrical Characteristics

| Model           | Indoor Unit |         |      |      | Power Supply |     | IFM     |        |
|-----------------|-------------|---------|------|------|--------------|-----|---------|--------|
|                 | Hz          | Voltage | Min. | Max. | MCA          | MFA | KW      | FLA    |
| MDV-D36DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.21         | 5   | 0.025   | 0.15   |
| MDV-D45DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.64         | 5   | 0.055   | 0.57   |
| MDV-D56DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.64         | 5   | 0.055   | 0.57   |
| MDV-D71DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.64         | 5   | 0.055   | 0.57   |
| MDV-D80DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.8          | 5   | 0.08    | 0.63   |
| MDV-D90DL/N1-B  | 50          | 220-240 | 198  | 254  | 0.8          | 5   | 0.08    | 0.63   |
| MDV-D112DL/N1-B | 50          | 220-240 | 198  | 254  | 1.05         | 5   | 0.059*2 | 0.39*2 |
| MDV-D140DL/N1-B | 50          | 220-240 | 198  | 254  | 1.05         | 5   | 0.059*2 | 0.39*2 |
| MDV-D160DL/N1-B | 50          | 220-240 | 198  | 254  | 1.41         | 5   | 0.163*2 | 0.7*2  |

**Remark:**

MCA: Min. Circuit Amps. (A)

MFA: Max. Fuse Amps. (A)

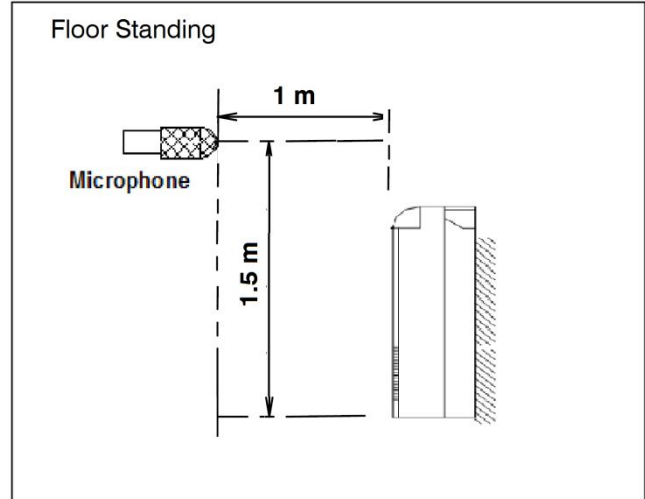
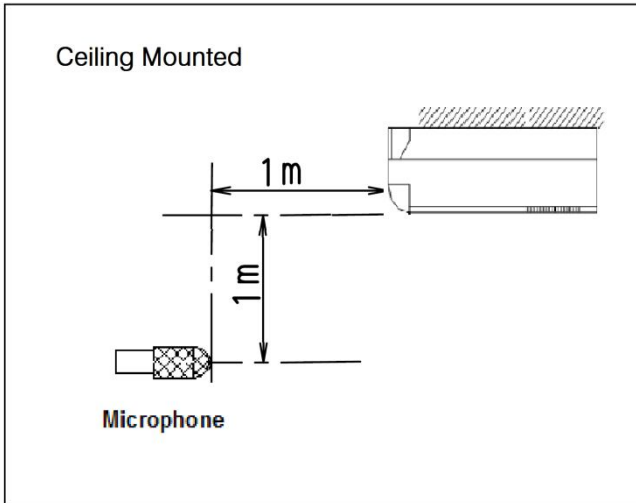
KW: Fan Motor Rated Output (kW)

FLA: Full Load Amps. (A)

IFM: Indoor Fan Motor

## 9. Sound Levels

### 9.1 Test condition



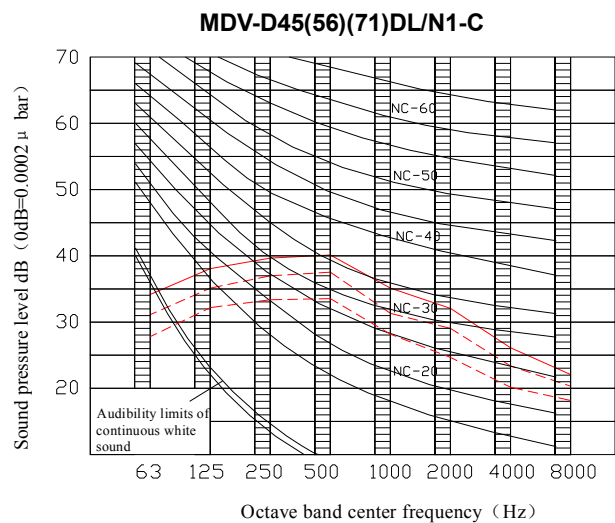
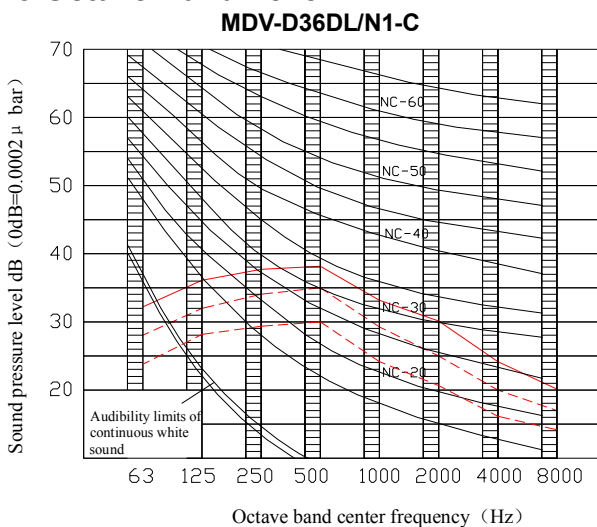
Note:

- 1, during actual operation, these values are normally somewhat higher as a result of ambient conditions.
- 2, Anechoic chamber conversion value, measured at a point 1m in front of the unit at a height of 1.5m

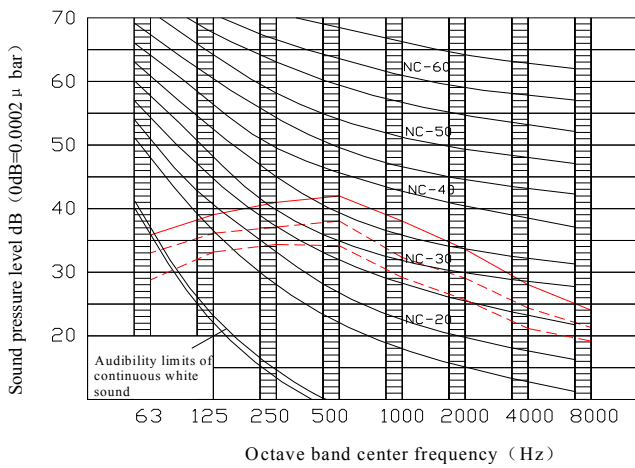
### 9.2 Test data (Sound Pressure Levels)

| Model           | Sound level under three speeds of fan (dB(A)) |    |    |
|-----------------|---|----|----|
|                 | H   | M  | L  |
| MDV-D36DL/N1-C  | 40  | 38 | 36 |
| MDV-D45DL/N1-C  | 43  | 41 | 38 |
| MDV-D56DL/N1-C  | 43  | 41 | 38 |
| MDV-D71DL/N1-C  | 43  | 41 | 38 |
| MDV-D80DL/N1-C  | 45  | 43 | 40 |
| MDV-D90DL/N1-C  | 45  | 43 | 40 |
| MDV-D112DL/N1-C | 47  | 45 | 42 |
| MDV-D140DL/N1-C | 47  | 45 | 42 |
| MDV-D160DL/N1-C | 52  | 50 | 48 |

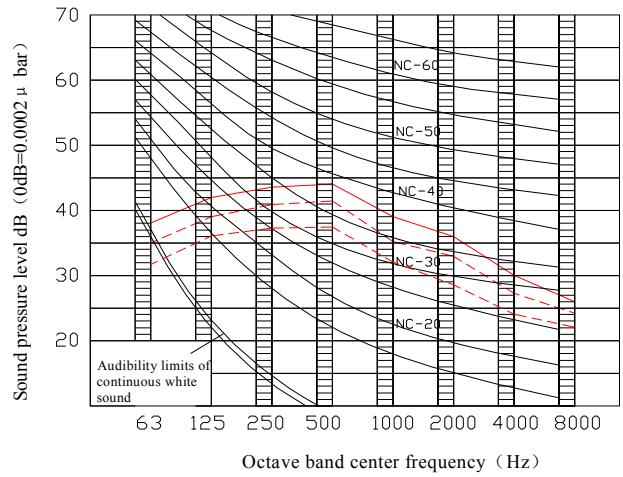
### 9.3 Octave Band Level



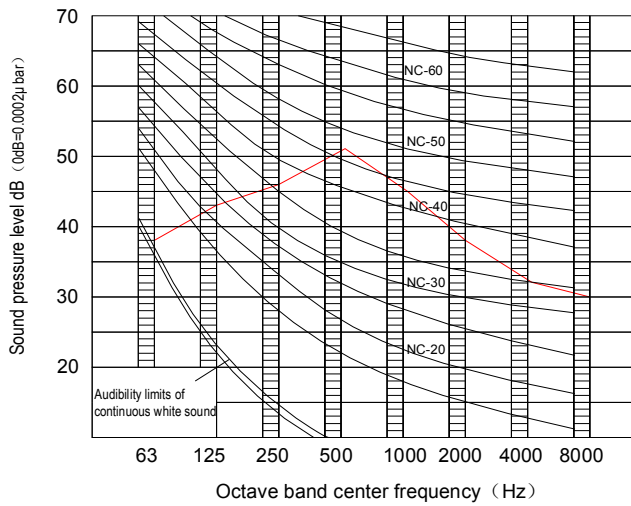
**MDV-D80(90)DL/N1-C**



**MDV-D112(140)DL/N1-C**














**MDV-D160DL/VN1-C**



## 10. Accessories

### 10.1 Standard accessories

| Name                         | Quantity | Shape   | Usage   |
|------------------------------|----------|---|---|
| Installation manual          | 1        | /   | /   |
| Hook                         | 2        |  |   |
| Hanging arm                  | 2        |  |   |
| Pipe insulation material     | 2        |  | Heat insulation   |
| Remote controller RM05       | 1        |  | /   |
| 7# alkaline battery          | 2        |  | /   |
| Holder for remote controller | 1        |  | Hold the remote controller  |
| Remoter controller manual    | 1        |  | /   |
| Mounting screw(ST2.9 10-C-H) | 2        |  | Installation Holder for remote controller   |
| Water outlet joint           | 1        |  | For drainage  |
| Wrapping tape                | 1        |  | /   |
| Network matching wire        | 1        |  | The indoor unit which at the terminal of communication system should connect a impedance between port P and port Q. |

### 10.2 Optional accessories

| Name                                | Model                    | Code                | Usage  |
|-------------------------------------|--------------------------|---------------------|--|
| Wired remote controller             | <b>KJR-10B/DP(T)-E</b>   | <b>203355190000</b> | With a standard 5m long cable to connect to display board.               |
| (Follow me) Wired remote controller | <b>KJR-12B/DP(T)-E</b>   | <b>203355100010</b> | With an extra Built-in room temp. sensor, all others are same as KJR-10B |
| (Follow me) Wired remote controller | <b>KJR-12B/DPBG(T)-E</b> | <b>203355100503</b> | With Follow Me function, built-in sensor, and Back ground light.         |