



## 2 Hydro unit HT

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# 2 Hydro unit HT

## 2-1. Specifications

### 1) Technical specifications

| Model                 |  |                              |             | AM160FNBFB***               | AM160FNBFB***               | AM250FNBFB***               | AM250FNBFB***               |
|-----------------------|--|------------------------------|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Power Supply          |  |                              | Ø, #, V, Hz | 1, 2, 220-240, 50           | 3, 4, 380-415, 50           | 1, 2, 220-240, 50           | 3, 4, 380-415, 50           |
| Mode                  |  |                              | -           | HP/HR                       | HP/HR                       | HP/HR                       | HP/HR                       |
| Performance           | Capacity (Nominal)                             | Cooling *1)                  | kW          | -                           | -                           | -                           | -                           |
|                       |  |                              | Btu/h       | -                           | -                           | -                           | -                           |
|                       |  | Heating *2)                  | kW          | 16.0                        | 16.0                        | 25.0                        | 25.0                        |
|                       |  |                              | Btu/h       | 54,600                      | 54,600                      | 85,300                      | 85,300                      |
| Power                 | Power Input (Nominal)                          | Cooling *1)                  | W           | -                           | -                           | -                           | -                           |
|                       |  | Heating *2)                  | W           | 3,100                       | 3,100                       | 5,000                       | 5,000                       |
|                       | Current Input (Nominal)                        | Cooling *1)                  | A           | -                           | -                           | -                           | -                           |
|                       |  | Heating *2)                  | A           | 14.3                        | 4.85                        | 23.1                        | 7.85                        |
|                       | MCA (Including External Contact)               |                              |             |                             | 24.15                       | 12.88                       | 32.15                       |
| MFA                   |  |                              | A           | 30.19                       | 16.1                        | 40.19                       | 16.1                        |
| Compressor            | Type   |                              | -           | Rotary                      | Rotary                      | Rotary                      | Rotary                      |
|                       | Output   |                              | kW x n      | -                           | -                           | -                           | -                           |
|                       | Model Name                                     |                              | -           | UX5T250FNBEX                | UX5T250FNBEX                | UX5T250FNBEX                | UX5T250FNBEX                |
|                       | Oil  | Type                         | -           | POE                         | POE                         | POE                         | POE                         |
| Initial Charge        |  | cc                           | 1,700       | 1,700                       | 1,700                       | 1,700                       |                             |
| Heat Exchanger        | Type   |                              | -           | PHE                         | PHE                         | PHE                         | PHE                         |
|                       | Quantity                                       |                              | -           | 2                           | 2                           | 2                           | 2                           |
|                       | Pipe Size                                      |                              | Ø, inch     | PT 1 (25A)                  | PT 1 (25A)                  | PT 1 (25A)                  | PT 1 (25A)                  |
|                       | Water Flow Rate                                |                              | LPM         | 23                          | 23                          | 36                          | 36                          |
|                       | Flow Switch                                    |                              | LPM         | 12                          | 12                          | 12                          | 12                          |
| Option Code           |  |                              | -           | 01104C-105000-20A0A0-332200 | 01104C-105000-20A0A0-332200 | 01104C-105000-20FAFA-332100 | 01104C-105000-20FAFA-332100 |
| Piping Connections    | Liquid Pipe                                    | Ø, mm                        | 9.52        | 9.52                        | 9.52                        | 9.52                        |                             |
|                       |  | Ø, inch                      | 3/8"        | 3/8"                        | 3/8"                        | 3/8"                        |                             |
|                       | Gas Pipe                                       | Ø, mm                        | 15.88       | 15.88                       | 15.88                       | 15.88                       |                             |
|                       |  | Ø, inch                      | 5/8"        | 5/8"                        | 5/8"                        | 5/8"                        |                             |
| Drain Pipe            |  | Ø, mm                        | -           | -                           | -                           | -                           |                             |
| Field Wiring          | Power Source Wire (L<10m, Single Installation) |                              | mm2         | 4.0                         | 2.5                         | 4.0                         | 2.5                         |
|                       | Transmission Cable                             |                              | mm2         | 0.75 ~ 1.5                  | 0.75 ~ 1.5                  | 0.75 ~ 1.5                  | 0.75 ~ 1.5                  |
| Refrigerant           | Type   |                              | -           | R-134a                      | R-134a                      | R-134a                      | R-134a                      |
|                       | Control Method                                 |                              | -           | EEV                         | EEV                         | EEV                         | EEV                         |
| Sound                 | Sound Pressure *3)                             |                              | dB(A)       | 42                          | 42                          | 42                          | 42                          |
|                       | Sound Power                                    |                              |             | -                           | -                           | -                           | -                           |
| Dimensions            | Net Weight                                     |                              | kg          | 104.00                      | 104.00                      | 104.00                      | 104.00                      |
|                       | Shipping Weight                                |                              | kg          | 107                         | 107                         | 107                         | 107                         |
|                       | Net Dimensions (WxHxD)                         |                              | mm          | 518 x 1,210 x 330           | 518 x 1,210 x 330           | 518 x 1,210 x 330           | 518 x 1,210 x 330           |
|                       | Shipping Dimensions (WxHxD)                    |                              | mm          | 652 x 1,289 x 426           | 652 x 1,289 x 426           | 652 x 1,289 x 426           | 652 x 1,289 x 426           |
| Operating Temp. Range | Ambient  | Cooling                      | °C          | -                           | -                           | -                           | -                           |
|                       |  | Heating                      | °C          | -20 ~ 24                    | -20 ~ 24                    | -20 ~ 24                    | -20 ~ 24                    |
|                       |  | Hot Water (Main Cooling, HR) | °C          | -20.0 ~ 35.0 (-5.0 ~ 43.0)  | -20.0 ~ 35.0 (-5.0 ~ 43.0)  | -20.0 ~ 35.0 (-5.0 ~ 43.0)  | -20.0 ~ 35.0 (-5.0 ~ 43.0)  |
|                       | Leaving Water                                  | Cooling                      | °C          | -                           | -                           | -                           | -                           |
|                       |  | Heating                      | °C          | 25.0 ~ 80.0                 | 25.0 ~ 80.0                 | 25.0 ~ 80.0                 | 25.0 ~ 80.0                 |

\* Specifications may be subject to change without prior notice for product improvement.

\*1) Nominal cooling capacities are based on;  
 - Water temperature : 23°C inlet, 18°C outlet  
 - Indoor temperature : 27°C DB, 19°C WB  
 - Outdoor temperature : 35°C DB, 24°C WB

\*2) Nominal heating capacities are based on;  
 - Water temperature : 55°C inlet, 65°C outlet  
 - Indoor temperature : 20°C DB  
 - Outdoor temperature : 7°C DB, 6°C WB

\*3) Sound pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.

## 2-2. Capacity tables

### 1) Heating

HC : Heating Capacity(W), PI : Power Input(W)  
 LW : Leaving Water temperature, EW : Entering Water temperature

| Model | Ta<br>[°C DB] | LW[°C] |        | LW[°C] |        | LW[°C] |        | LW[°C] |       |
|-------|---------------|--------|--------|--------|--------|--------|--------|--------|-------|
|       |               | 45     |        | 55     |        | 65     |        | 75     |       |
|       |               | HC     | PI     | HC     | PI     | HC     | PI     | HC     | PI    |
| 160   | -20           | 15,000 | 2,062  | 15,000 | 2,017  | 15,000 | 2,523  | 14,000 | 3,193 |
|       | -17           | 15,000 | 2,083  | 15,000 | 1,952  | 15,000 | 2,357  | 14,500 | 3,063 |
|       | -15           | 15,500 | 2,313  | 15,500 | 2,007  | 15,500 | 2,435  | 15,000 | 2,895 |
|       | -7            | 15,500 | 2,305  | 16,000 | 2,185  | 16,000 | 2,598  | 15,500 | 2,956 |
|       | -3            | 16,000 | 2,352  | 16,000 | 2,380  | 16,000 | 2,560  | 16,000 | 3,087 |
|       | 1             | 16,000 | 2,146  | 16,000 | 2,363  | 16,000 | 2,501  | 16,000 | 3,052 |
|       | 3             | 16,000 | 2,041  | 16,000 | 2,314  | 16,000 | 2,453  | 16,000 | 2,963 |
|       | 7             | 16,000 | 1,868  | 16,000 | 2,281  | 16,000 | 2,419  | 16,000 | 2,828 |
|       | 11            | 16,000 | 1,850  | 16,000 | 2,279  | 16,000 | 2,428  | 16,000 | 2,763 |
| 250   | -20           | 23,000 | 4,460  | 23,000 | 4,734  | 22,000 | 5,017  | 21,500 | 5,424 |
|       | -17           | 23,500 | 4,333  | 23,500 | 4,563  | 23,500 | 4,802  | 22,500 | 5,159 |
|       | -15           | 24,000 | 4,287  | 24,500 | 4,456  | 24,500 | 4,670  | 23,500 | 4,996 |
|       | -7            | 24,500 | 3,878  | 25,000 | 4,084  | 25,000 | 4,235  | 24,000 | 4,442 |
|       | -3            | 25,000 | 3,736  | 25,000 | 3,933  | 25,000 | 4,073  | 24,500 | 4,226 |
|       | 1             | 25,000 | 3,616  | 25,000 | 3,803  | 25,000 | 3,948  | 25,000 | 4,051 |
|       | 3             | 25,000 | 3,565  | 25,000 | 3,747  | 25,000 | 3,900  | 25,000 | 3,979 |
|       | 7             | 25,000 | 3,443  | 25,000 | 3,652  | 25,000 | 3,831  | 25,000 | 3,865 |
|       | 11            | 25,000 | 3,417  | 25,000 | 3,580  | 25,000 | 3,799  | 25,000 | 3,791 |
| 15    | 25,000        | 3,400  | 25,000 | 3,530  | 25,000 | 3,798  | 25,000 | 3,758  |       |

EW = 40°C  
 $\Delta T = 5^\circ C$

EW = 45°C  
 $\Delta T = 10^\circ C$

EW = 55°C  
 $\Delta T = 10^\circ C$

EW = 65°C  
 $\Delta T = 10^\circ C$

#### Conditions

- $\Delta T$  = Leaving Water temperature - Entering Water temperature
- No pump power input is included.
- Equivalent piping length = 7.5m
- Ta < 0 °C : RH=75%, Ta > 0 °C : RH=85%

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## 2) Capacity calculation method

How to calculate heating capacity and power input : Combination of outdoor unit and hydro unit HT

- Heating capacity and power input of hydro unit HT : refer to the indoor unit capacity table.
- Power input of outdoor unit : refer to the outdoor unit capacity table (indoor 20°C DB).

Example

- Standard condition: Outdoor 7°C DB/6°C WB, Indoor 20°C DB
- Water condition: EW 55°C, LW 65°C

### 8HP DVM S TDB Heat Capacity Table

| combination, %<br>(Capacity index) | Outdoor Temperature(°C) |      | Indoor Temperature (°C,DB) |          |
|------------------------------------|-------------------------|------|----------------------------|----------|
|                                    |                         |      | 20.0 °C                    |          |
|                                    | DB                      | WB   | TC<br>kW                   | PI<br>kW |
| 100%                               | -20                     | -21  | 19.8                       | 7.80     |
|                                    | -17                     | -18  | 20.9                       | 7.96     |
|                                    | -15                     | -16  | 22.0                       | 8.04     |
|                                    | -12                     | -13  | 22.9                       | 7.92     |
|                                    | -10                     | -11  | 23.9                       | 7.68     |
|                                    | -7                      | -8   | 24.4                       | 7.21     |
|                                    | -5                      | -6   | 25.2                       | 6.84     |
|                                    | -3                      | -4   | 25.2                       | 6.21     |
|                                    | 0                       | -1   | 25.2                       | 5.84     |
|                                    | 3                       | 2    | 25.2                       | 5.52     |
|                                    | 5                       | 4    | 25.2                       | 5.23     |
|                                    | 7                       | 6    | 25.2                       | 5.10     |
|                                    | 9                       | 8    | 25.2                       | 4.85     |
|                                    | 11                      | 10   | 25.2                       | 4.63     |
|                                    | 13                      | 12   | 25.2                       | 4.42     |
| 15                                 | 14                      | 25.2 | 4.27                       |          |

Combination 1 (Outdoor Unit 8HP + Indoor Unit 8HP)

|                          |       |                                   |
|--------------------------|-------|-----------------------------------|
| Indoor Heat Capa.[kW]    | 25    | = HT Capacity Table               |
| PI Indoor Unit(8HP)[kW]  | 3.831 | = HT Capacity Table               |
| PI Outdoor Unit(8HP)[kW] | 5.10  | ----- Outdoor Unit Capacity Table |
| PI System[kW]            | 8.93  | =Indoor Unit PI + Outdoor Unit PI |

## 10HP DVM S TDB Heat Capacity Table

| combination, %<br>(Capacity index) | Outdoor Temperature(°C) |      | Indoor Temperature (°C,DB) |          |
|------------------------------------|-------------------------|------|----------------------------|----------|
|                                    |                         |      | 20.0 °C                    |          |
|                                    | DB                      | WB   | TC<br>kW                   | PI<br>kW |
| 100%                               | -20                     | -21  | 26.5                       | 10.24    |
|                                    | -17                     | -18  | 28.1                       | 10.45    |
|                                    | -15                     | -16  | 29.1                       | 10.67    |
|                                    | -12                     | -13  | 29.7                       | 10.62    |
|                                    | -10                     | -11  | 30.7                       | 10.40    |
|                                    | -7                      | -8   | 31.2                       | 9.57     |
|                                    | -5                      | -6   | 31.5                       | 8.99     |
|                                    | -3                      | -4   | 31.5                       | 8.15     |
|                                    | 0                       | -1   | 31.5                       | 7.68     |
|                                    | 3                       | 2    | 31.5                       | 7.25     |
|                                    | 5                       | 4    | 31.5                       | 6.88     |
|                                    | 7                       | 6    | 31.5                       | 6.70     |
|                                    | 9                       | 8    | 31.5                       | 6.38     |
|                                    | 11                      | 10   | 31.5                       | 6.08     |
|                                    | 13                      | 12   | 31.5                       | 5.81     |
| 15                                 | 14                      | 31.5 | 5.61                       |          |

Combination 1 ( Outdoor Unit 10HP + Indoor Unit 5HP x 2ea)

|                           |       |  |
|---------------------------|-------|--|
| Indoor Heat Capa.[kW]     | 16    | = HT Capacity Table                      |
| Indoor Heat Capa.[kW]     | 32    | = 2 x 5HP                                |
| PI Indoor Unit(5HP)[kW]   | 2.419 | = HT Capacity Table                      |
| PI Total Indoor Unit[kW]  | 4.838 | = 2 x 5HP                                |
| PI Outdoor Unit(10HP)[kW] | 6.70  | ----- Outdoor Unit Capacity Table        |
| PI System[kW]             | 11.54 | = Total Indoor Unit PI + Outdoor Unit PI |

Flowrate Information

| Flowrate[l/min] | **160** | **250** |
|-----------------|---------|---------|
| ΔT = 15°C       | 15.4    | 24.1    |
| ΔT = 10°C       | 23.0    | 36.0    |
| ΔT = 5°C        | 46.0    | 72.0    |

## 2 Hydro Unit HT

### How to calculate heating capacity and power input : Integrated value

#### 1. Defrosting correction factor (Outdoor unit)

- On heating operation, frost can be formed on heat exchanger according to outdoor temperature. (Frost on heat exchanger results in decreasing the performance.)

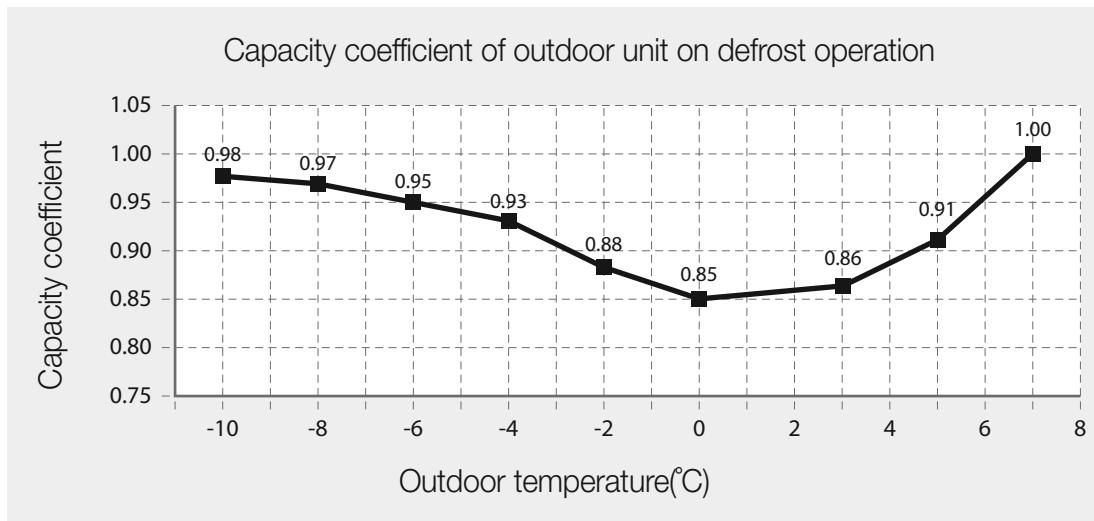
To remove frost on heat exchanger of outdoor unit, defrost operation is carried out periodically.

During defrost operation, capacity of outdoor unit may decrease.

The decrement is not considered to the individual capacity tables.

|                                 |      |      |      |      |      |      |      |      |   |
|---------------------------------|------|------|------|------|------|------|------|------|---|
| Outdoor temperature<br>(°C, DB) | -10  | -8   | -6   | -4   | -2   | 0    | 3    | 5    | 7 |
| Capacity coefficient            | 0.98 | 0.97 | 0.95 | 0.93 | 0.88 | 0.85 | 0.86 | 0.91 | 1 |

$$\text{Corrected Heating Capacity} = \text{heating capacity} \times \text{Capacity coefficient}$$



#### 2. Power input of hydro unit HT during defrost operation

|        | Power Input (W) |
|--------|-----------------|
| HT 5HP | 1050            |
| HT 8HP | 1500            |

#### 3. Capacity correction factor of hydro unit HT during defrost operation

|        | HT Capa Correction Factor |
|--------|---------------------------|
| HT 5HP | 0.3                       |
| HT 8HP |                           |

Example) Combination: 10HP DVM S + 5HP HT X 2ea, Outdoor 5°C DB, EW/LW=55°C/65°C

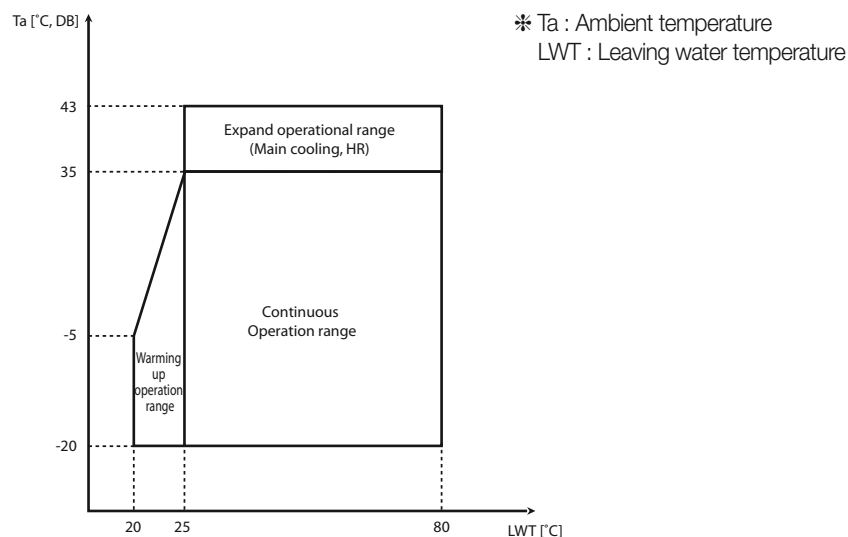
- 1) Defrosting correction factor (Outdoor unit, 5°C) = 0.91
- 2) Capacity correction factor (Hydro unit HT) = 0.3
- 3) Integrated capacity correction factor =  $0.91 - (1 - 0.91) \times 0.3 = 0.883$
- 4) HC =  $0.883 \times 16,000\text{W} \times 2\text{ea} = 28.3\text{kW}$
- 5) Power input (Outdoor unit) = 6.88kW
- 6) Power input (Hydro unit HT) =  $\{ 0.91 \times (2,453\text{W} + 2,419\text{W}) / 2 + (1 - 0.91) \times 1,050\text{W} \} \times 2 = 4.62\text{kW}$
- 7) Total PI =  $6.88 + 4.62 = 11.5\text{kW}$

### 10HP DVM S TDB Heat Capacity Table

| combination, %<br>(Capacity index) | Outdoor Temperature(°C) |      | Indoor Temperature (°C,DB) |          |
|------------------------------------|-------------------------|------|----------------------------|----------|
|                                    |                         |      | 20.0 °C                    |          |
|                                    | DB                      | WB   | TC<br>kW                   | PI<br>kW |
| 100%                               | -20                     | -21  | 26.5                       | 10.24    |
|                                    | -17                     | -18  | 28.1                       | 10.45    |
|                                    | -15                     | -16  | 29.1                       | 10.67    |
|                                    | -12                     | -13  | 29.7                       | 10.62    |
|                                    | -10                     | -11  | 30.7                       | 10.40    |
|                                    | -7                      | -8   | 31.2                       | 9.57     |
|                                    | -5                      | -6   | 31.5                       | 8.99     |
|                                    | -3                      | -4   | 31.5                       | 8.15     |
|                                    | 0                       | -1   | 31.5                       | 7.68     |
|                                    | 3                       | 2    | 31.5                       | 7.25     |
|                                    | 5                       | 4    | 31.5                       | 6.88     |
|                                    | 7                       | 6    | 31.5                       | 6.70     |
|                                    | 9                       | 8    | 31.5                       | 6.38     |
|                                    | 11                      | 10   | 31.5                       | 6.08     |
| 13                                 | 12                      | 31.5 | 5.81                       |          |
| 15                                 | 14                      | 31.5 | 5.61                       |          |

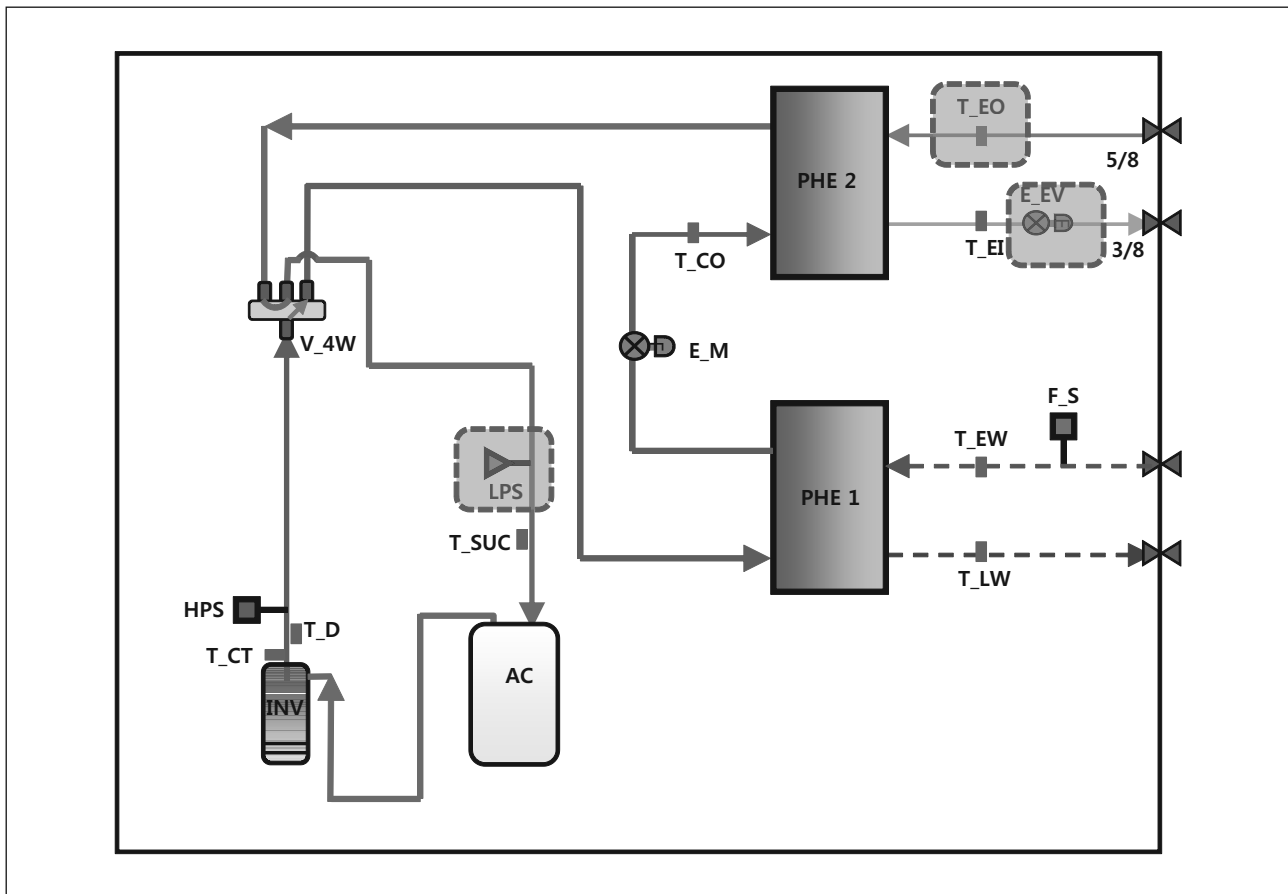
## 2-3. Operation range

### 1) Heating



## 2 Hydro Unit HT

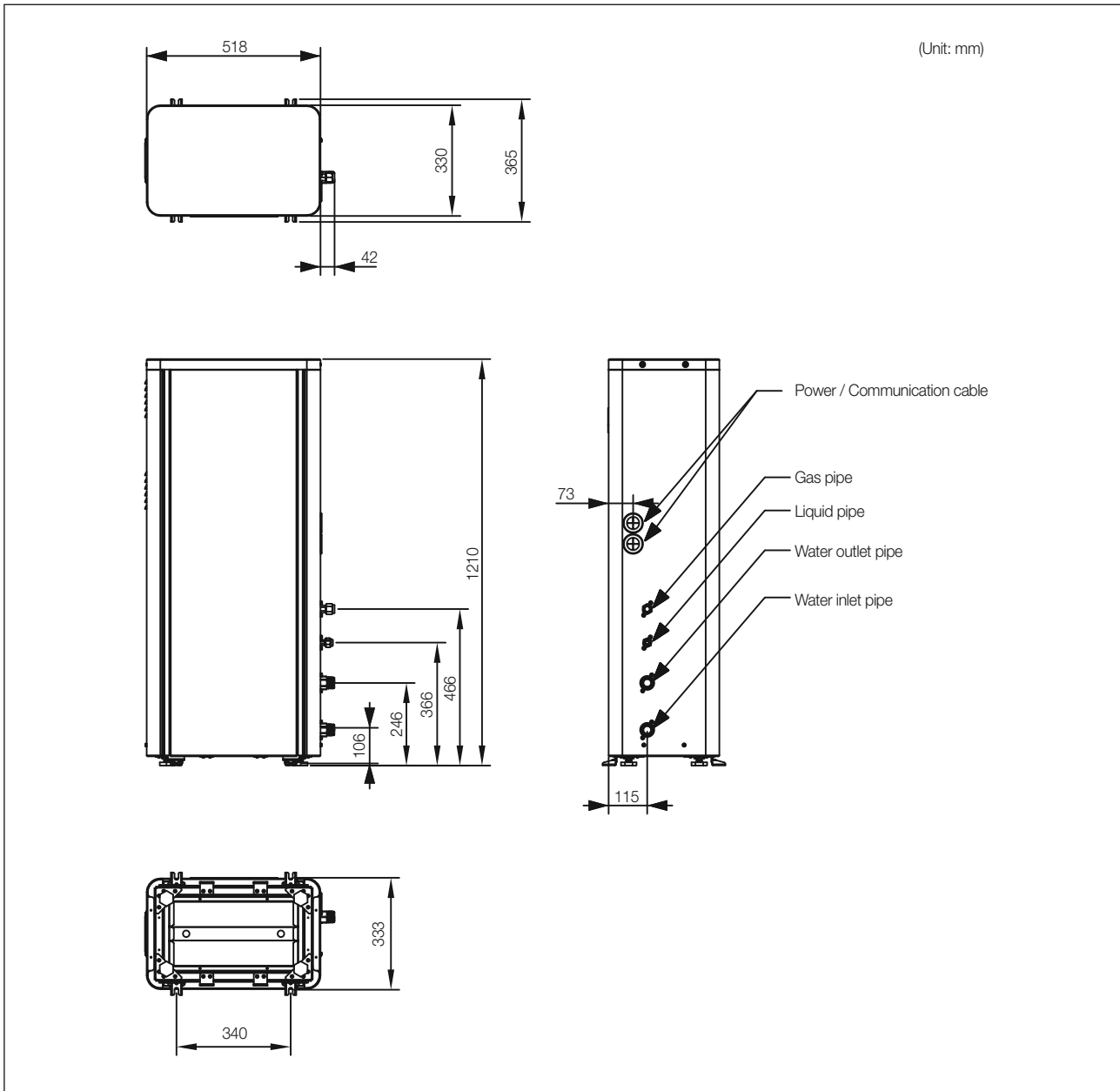
### 2-4. Cycle diagram



| Symbol | Name                              |
|--------|-----------------------------------|
| INV    | Inverter Compressor               |
| PHE1   | Plate Heat Exchanger(R134a/water) |
| PHE2   | Plate Heat Exchanger(R134a/R410a) |
| AC     | Accumulator                       |
| HPS    | High Pressure Sensor              |
| LPS    | Low Pressure Sensor               |
| E_M    | Main EEV (R134a)                  |
| E_EV   | EVI EEV (R410a)                   |
| V_4W   | 4Way Valve                        |
| T_D    | Discharge Temp. Sensor            |
| T_CO   | Cond Out Temp. Sensor             |
| T_EI   | EVI In Temp. Sensor (R410a)       |
| T_EO   | EVI Out Temp. Sensor (R410a)      |
| T_CT   | Comp. Top Temp. Sensor            |
| T_SUC  | Suction Temp. Sensor              |
| T_EW   | Entering Water Temp. Sensor       |
| T_LW   | Leaving Water Temp. Sensor        |
| F_S    | Flow Switch                       |



## 2-5. Dimensional drawing

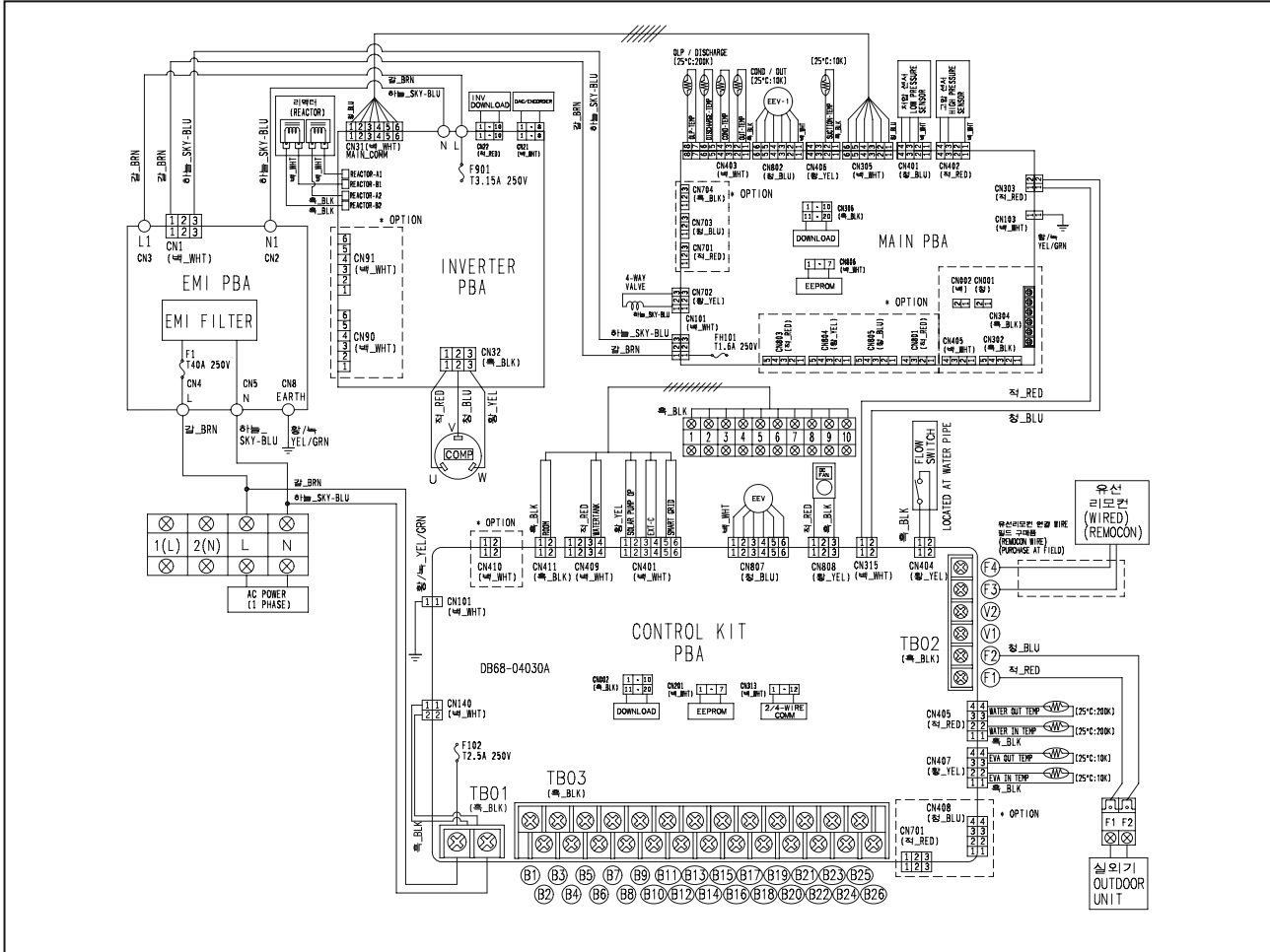


| Model of the Hydro unit    |                             | AM***FNBF*B   |
|----------------------------|-----------------------------|---------------|
| Refrigerant side           | Liquid side connection part | 3/8" (ø9.52)  |
|                            | Gas side connection part    | 5/8" (ø15.88) |
| Water side connection part |                             | PT 1(25A)     |

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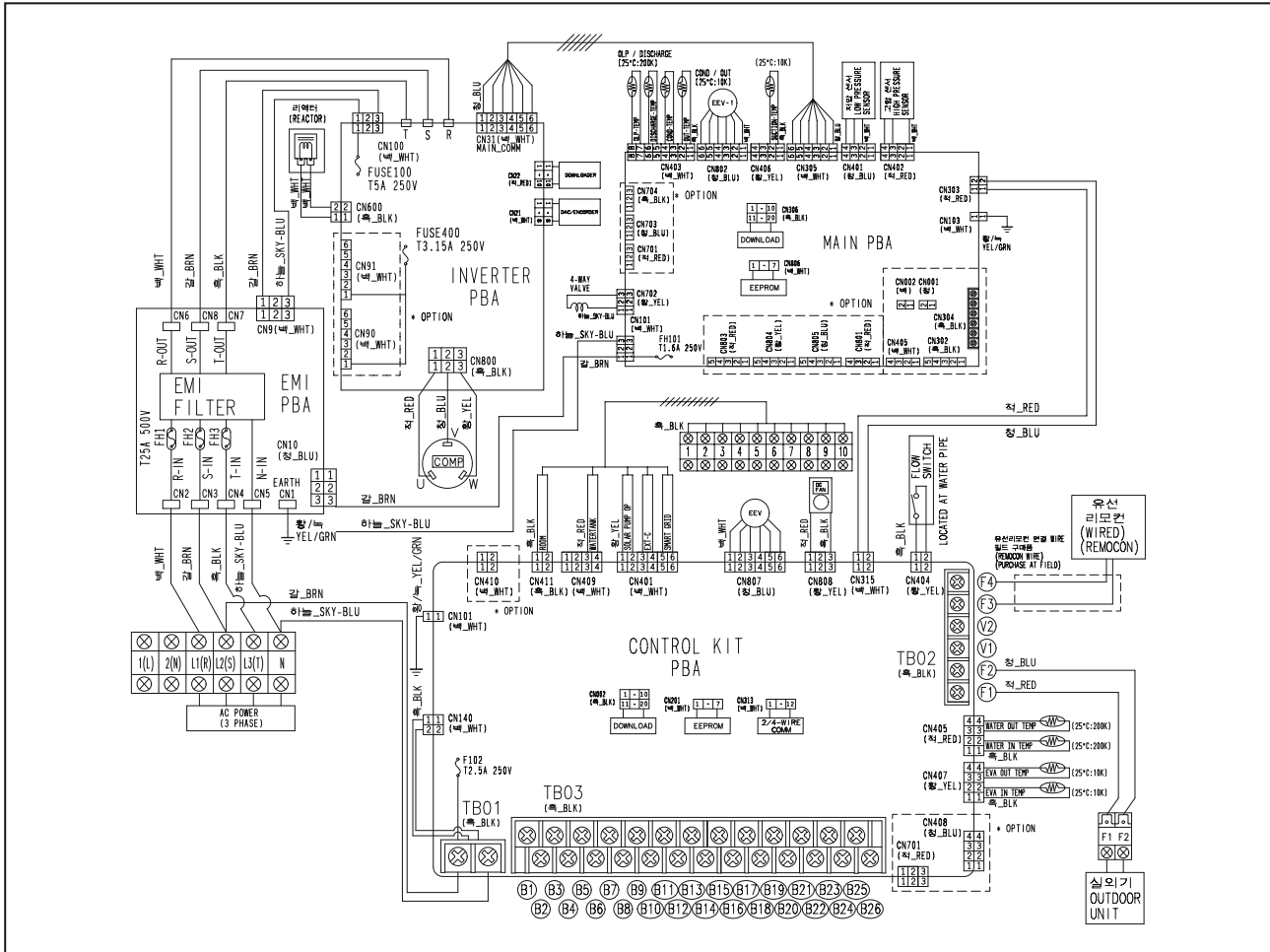
## 2-6. Electrical wiring diagram

### 1) AM\*\*\*FNBFE\*\*\*



| Terminal No. | External contact    | Operation status/inspection checklist   | Remarks            |
|--------------|---------------------|---|--------------------|
| B1-B2        | OPERATION CHECK     | Check on/off status for operation lamp of the control panel on the site   | Optional           |
| B3-B4        | ALARM               | Check on/off status for alarm lamp of the panel on the site   | Optional           |
| B5-B6        | MAIN PUMP           | Check the status of the pump operation signal and on/off status of operation at the control panel on the site   | Mandatory          |
| B7-B8        | HEATER              | Check the status of the heater operation signal output at the control panel on the site   | Optional           |
| B9-B10-B11   | 3WAY 1 V/V          | Check the status of signal output and on/off status of valve operation (Direction switch of the indoor hot water tank)  | Optional           |
| B12-B13-B14  | 3WAY 2 V/V          | Check the status of signal output and on/off status of valve operation (Interlocked with solar energy pump signal)  | Optional           |
| B15-B16-B17  | 2WAY V/V            | Check the status of signal output or operation status of the valve  | Optional           |
| B19-B20      | AC230, THERMOSTAT 1 | Check the connection status of the thermostat and operation status of the product (cooling)   | Optional           |
| B21-B22      | AC230, THERMOSTAT 2 | Check the connection status of the thermostat and operation status of the product (heating)   | Optional           |
| B23-B24      | AC24, THERMOSTAT 1  | Check the connection status of the thermostat and operation status of the product (cooling)   | Optional           |
| B25-B26      | AC24, THERMOSTAT 2  | Check the connection status of the thermostat and operation status of the product (heating)   | Optional           |
| 1-2          | ROOM TEMP           | Check the temperature display on the wired remote controller after separately installing the indoor temperature sensor (Refer to option setting of the wired remote controller) | Optional           |
| 3-4          | WATER TANK TEMP     | Check the temperature display on the wired remote controller after installing the 4~20 mA temperature sensor  | (hot water supply) |
| 5-6          | SOLAR PUMP          | Check the solar pump contact signal input and status of the operation   | Optional           |
| 7-8          | EXT. CONTROL        | Check the contact signal input and status of the operation  | Optional           |
| 9-10         | SMART GRID          | Check the Smart Grid contact input and the signal   | Optional           |

## 2) AM\*\*\*FNBFGB\*\*\*

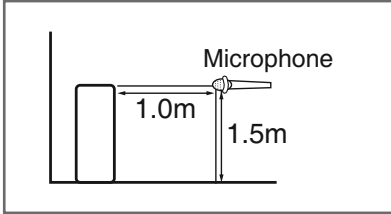


| Terminal No. | External contact    | Operation status/inspection checklist   | Remarks            |
|--------------|---------------------|---|--------------------|
| B1-B2        | OPERATION CHECK     | Check on/off status for operation lamp of the control panel on the site   | Optional           |
| B3-B4        | ALARM               | Check on/off status for alarm lamp of the panel on the site   | Optional           |
| B5-B6        | MAIN PUMP           | Check the status of the pump operation signal and on/off status of operation at the control panel on the site   | Mandatory          |
| B7-B8        | HEATER              | Check the status of the heater operation signal output at the control panel on the site   | Optional           |
| B9-B10-B11   | 3WAY 1 V/V          | Check the status of signal output and on/off status of valve operation (Direction switch of the indoor hot water tank)  | Optional           |
| B12-B13-B14  | 3WAY 2 V/V          | Check the status of signal output and on/off status of valve operation (Interlocked with solar energy pump signal)  | Optional           |
| B15-B16-B17  | 2WAY V/V            | Check the status of signal output or operation status of the valve  | Optional           |
| B19-B20      | AC230, THERMOSTAT 1 | Check the connection status of the thermostat and operation status of the product (cooling)   | Optional           |
| B21-B22      | AC230, THERMOSTAT 2 | Check the connection status of the thermostat and operation status of the product (heating)   | Optional           |
| B23-B24      | AC24, THERMOSTAT 1  | Check the connection status of the thermostat and operation status of the product (cooling)   | Optional           |
| B25-B26      | AC24, THERMOSTAT 2  | Check the connection status of the thermostat and operation status of the product (heating)   | Optional           |
| 1-2          | ROOM TEMP           | Check the temperature display on the wired remote controller after separately installing the indoor temperature sensor (Refer to option setting of the wired remote controller) | Optional           |
| 3-4          | WATER TANK TEMP     | Check the temperature display on the wired remote controller after installing the 4~20 mA temperature sensor  | (hot water supply) |
| 5-6          | SOLAR PUMP          | Check the solar pump contact signal input and status of the operation   | Optional           |
| 7-8          | EXT. CONTROL        | Check the contact signal input and status of the operation  | Optional           |
| 9-10         | SMART GRID          | Check the Smart Grid contact input and the signal   | Optional           |

# 2 Hydro Unit HT

## 2-7. Sound pressure level

### 1) Operation Sound Level



Unit : dB(A)

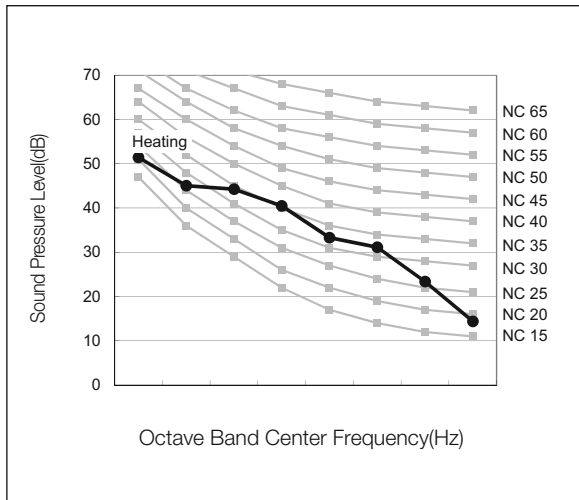
| Model          | Heating |
|----------------|---------|
| AM160FNBFEB*** | 42      |
| AM160FNBFGB*** | 42      |
| AM250FNBFEB*** | 42      |
| AM250FNBFGB*** | 42      |

**Note**

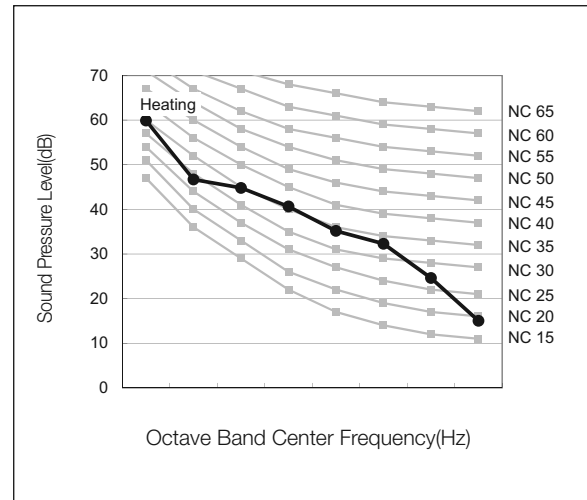
- ◆ These operation values were obtained in an anechoic room. Sound pressure level will vary depending on a range of factors such as the construction of the particular room where the equipment is installed.
- ◆ Operation sound level may differ depending on operation and ambient conditions.

### 2) NC curves

#### (1) AM160FNBF\*B



#### (2) AM250FNBF\*B



## 2-8. Hydraulic performance

### 1) AM\*\*\*FNBF\*\*

