

PUMY-71VM, PUMY-125VM

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1. Specifications

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Model name		PUMY-71VM	
		Cooling	Heating
Capacity	kW	*1 8.0	9.0
	kcal/h	*2 7,100	-
Power source		~N 220-230-240V 50Hz / 208-230V 60Hz	
Power input	kW	3.50/3.63	3.65/3.53
Current	A	17.5-16.7-16.0/18.1	18.2-17.4-16.0/17.6
Fan	Type X Quantity		Propeller fan X 2
	Airflow rate	m ³ /min	95
	Motor output	kW	0.04 X 2
Compressor	Type		Hermetic
	Motor output	kW	2.6
	Crankcase heater	kW	-
Refrigerant / Lubricant		R22/MS56	
External finish		Steel plate painting with polyester powder <MUNSELL 5Y8/1>	
External dimension	mm	1200(H)X900(W)X320(+30)(D)	
Protection devices	High pressure protection		3.0MPa
	Compressor / Fan		Internal thermal switch / Internal thermal switch
	Inverter		Over current protection, Overheat protection
Refrigerant piping diameter	Liquid / Gas	φ9.52 / φ15.88 (Flare)	
Indoor unit	Total capacity		50 ~ 130% of outdoor unit capacity
	Model / Quantity		Model 20 ~ 80 / 1 ~ 4
Noise level	dB<A>	52	
Net weight	kg	93	
Operating temperature range		Indoor:15°CWB ~ 24°CWB Outdoor:-5°CDB ~ 46°CDB	Indoor:15°CDB ~ 27°CDB Outdoor:-15°CWB ~ 15.5°CWB

Note: 1.Cooling/heating capacity indicates the maximum value at operation under the following condition.

*1 **Cooling** Indoor : 27°CDB/19°CWB Outdoor : 35°CDB *2 **Cooling** Indoor : 27°CDB/19.5°CWB Outdoor : 35°CDB
Heating Indoor : 20°CDB Outdoor : 7°CDB/6°CWB Pipe length : 5m Height difference : 0m
 Pipe length : 7.5m Height difference : 0m

2.Works not included : Installation/foundation work, electrical connection work, duct work, insulation work, power source switch and other items not specified in this specification.

Model name		PUMY-125VM	
		Cooling	Heating
Capacity	kW	*1 14.0	16.0
	kcal/h	*2 12,500	-
Power source		~N 220-230-240V 50Hz / 208-230V 60Hz	
Power input	kW	6.57/6.43	6.10/6.03
Current	A	34.9-33.5-32.2/33.6	32.6-31.2-29.9/31.5
Fan	Type X Quantity		Propeller fan X 2
	Airflow rate	m ³ /min	90
	Motor output	kW	0.06 X 2
Compressor	Type		Hermetic
	Motor output	kW	3.5
	Crankcase heater	kW	-
Refrigerant / Lubricant		R22/MS32(N-1)	
External finish		Steel plate painting with polyester powder <MUNSELL 5Y8/1>	
External dimension	mm	1280(H)X1020(W)X350(+30)(D)	
Protection devices	High pressure protection		3.0MPa
	Compressor / Fan		Internal thermal switch / Internal thermal switch
	Inverter		Over current protection, Overheat protection
Refrigerant piping diameter	Liquid / Gas	φ9.52 / φ19.05	
Indoor unit	Total capacity		50 ~ 130% of outdoor unit capacity
	Model / Quantity		Model 20 ~ 125 / 1 ~ 8
Noise level	dB<A>	54	
Net weight	kg	130	
Operating temperature range		Indoor:15°CWB ~ 24°CWB Outdoor:-5°CDB ~ 46°CDB	Indoor:15°CDB ~ 27°CDB Outdoor:-15°CWB ~ 15.5°CWB

Note: 1.Cooling/heating capacity indicates the maximum value at operation under the following condition.

*1 **Cooling** Indoor : 27°CDB/19°CWB Outdoor : 35°CDB *2 **Cooling** Indoor : 27°CDB/19.5°CWB Outdoor : 35°CDB
Heating Indoor : 20°CDB Outdoor : 7°CDB/6°CWB Pipe length : 5m Height difference : 0m
 Pipe length : 7.5m Height difference : 0m

2.Works not included : Installation/foundation work, electrical connection work, duct work, insulation work, power source switch and other items not specified in this specification.

2. Capacity table

2-1. Correction by temperature

Cooling

- Standard Specifications

		PUMY-71VM	PUMY-125VM
Capacity	kW	8.0	14.0
Input	kW	3.50/3.63	6.57/6.43
Source	V	208-230V	
Current	A	17.5-16.7-16.0/18.1	34.9-33.5-32.2/33.6

- Calculation

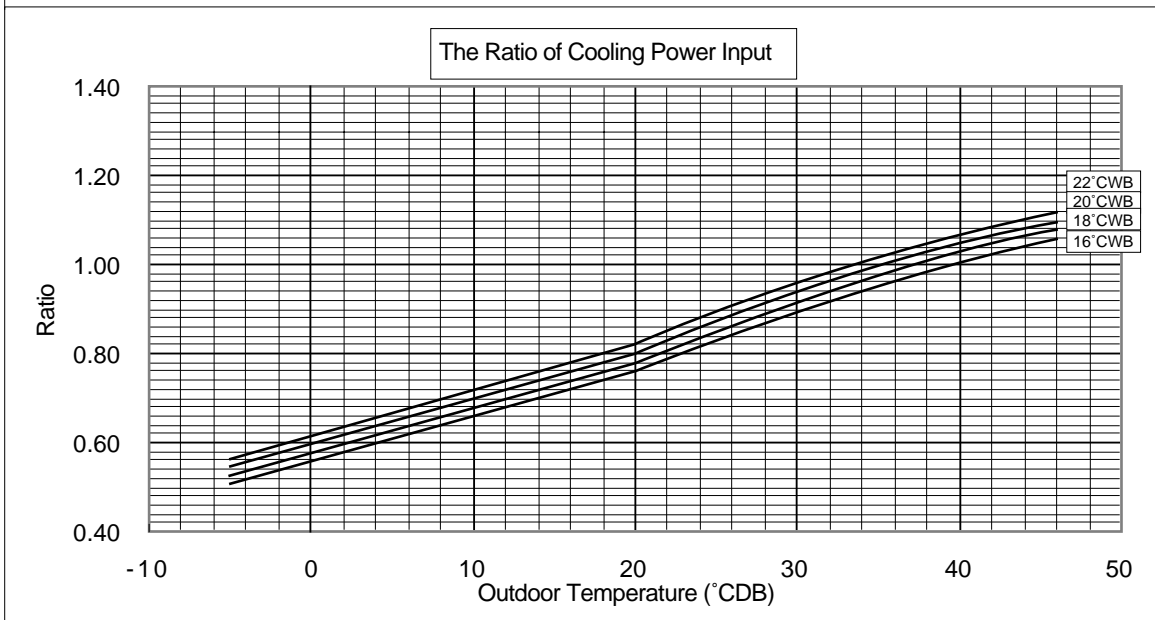
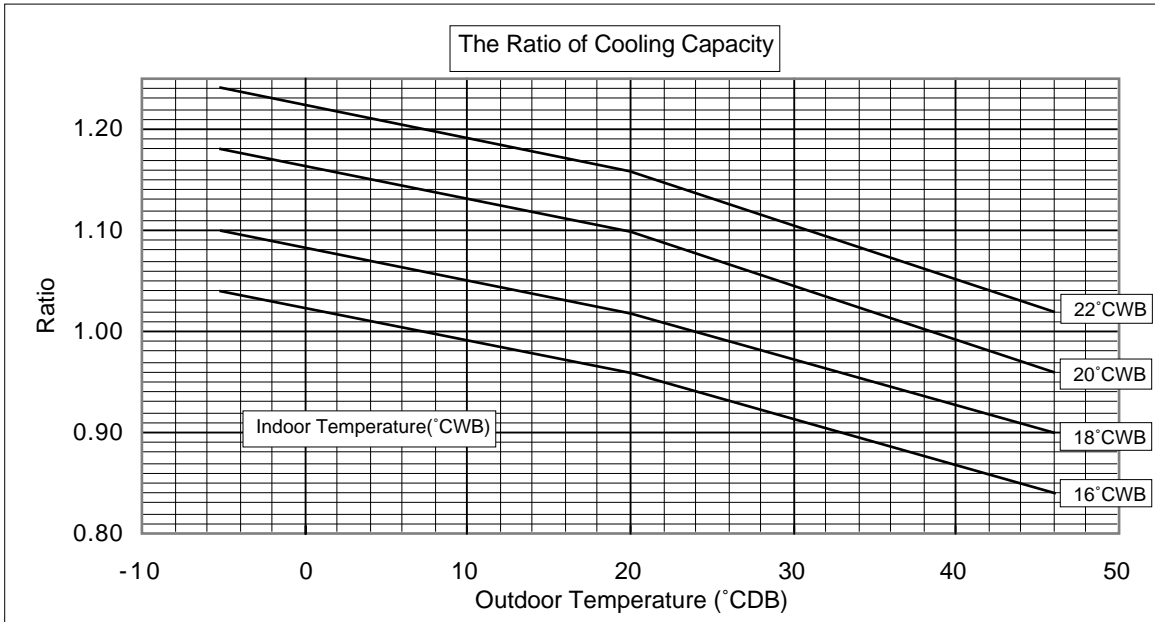
$$\text{Capacity}' = \text{Capacity} \times \text{Ratio}$$

$$\text{Input}' = \text{Input} \times \text{Ratio}$$

$$\text{Current}' = \frac{\text{Input}' \times 1000}{\text{Source} \times \begin{cases} 0.91 & (\text{:PUMY-71VM}) \\ 0.85 & (\text{:PUMY-125VM}) \end{cases}}$$

※ Capacity'
Input'
Current'

} After correction



Heating

• Standard Specifications

		PUMY-71VM	PUMY-125VM
Capacity	kW	9.0	16.0
Input	kW	3.65/3.53	6.10/6.03
Source	V	220-230-240/220V	
Current	A	18.2-17.4-16.0/17.6	32.6-31.2-29.9/31.5

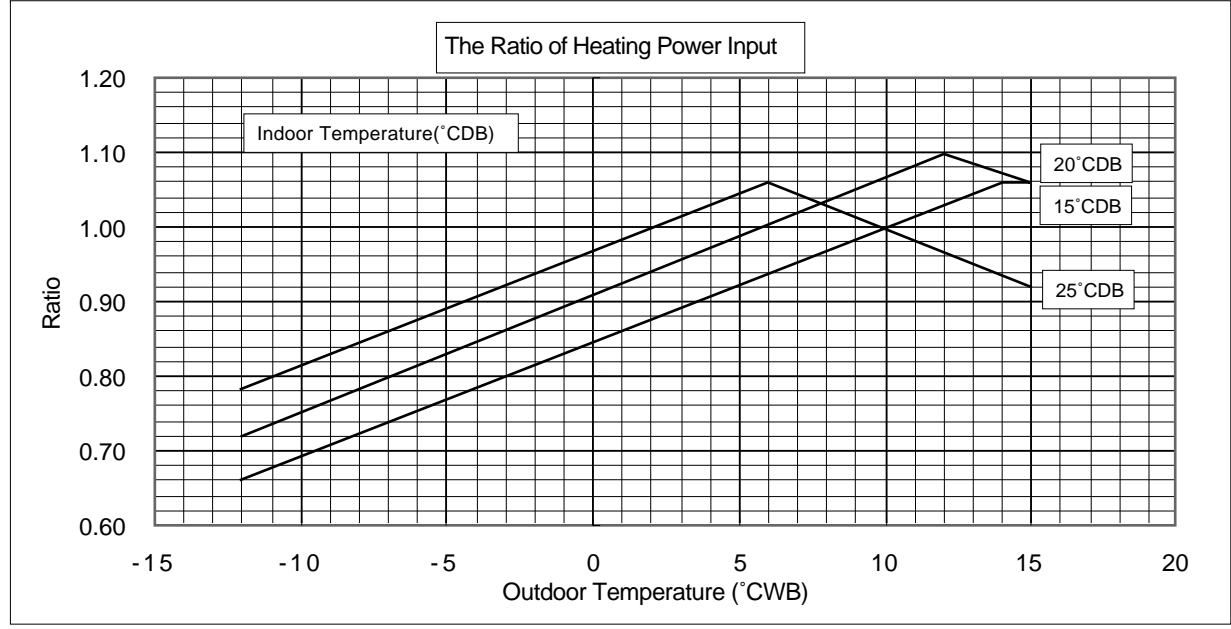
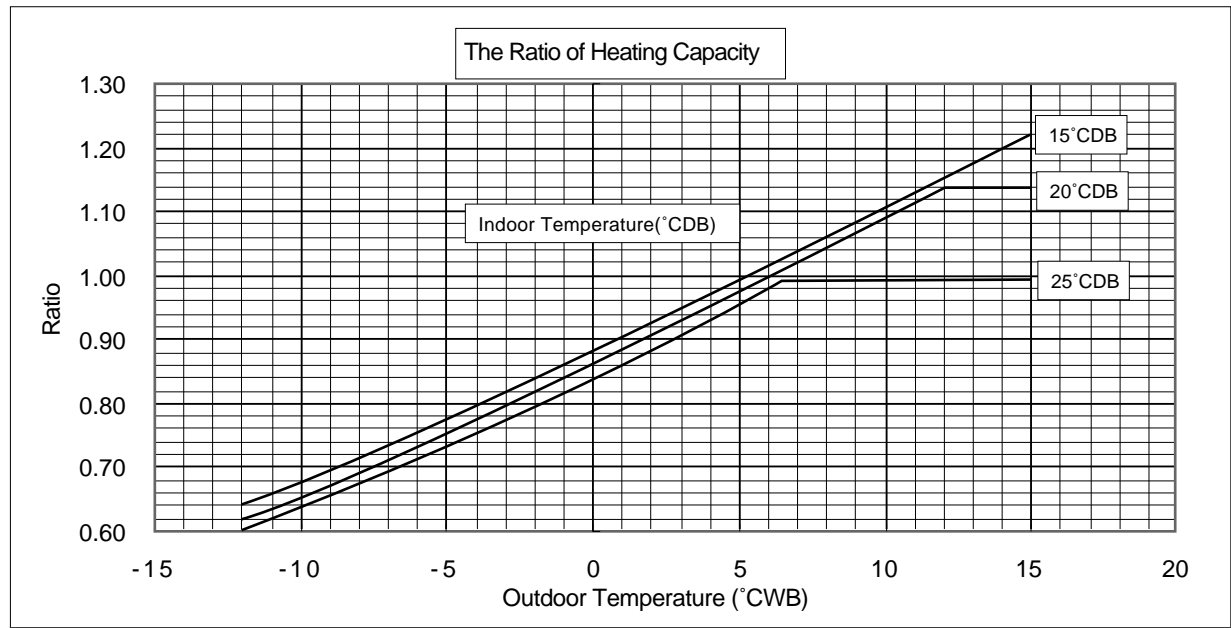
• Calculation

Capacity' = Capacity X Ratio

Input' = Input X Ratio

$$\text{Current}' = \frac{\text{Input}' \times 1000}{\text{Source} \times \begin{matrix} 0.91 \text{ (:PUMY-71VM)} \\ 0.85 \text{ (:PUMY-125VM)} \end{matrix}}$$

Capacity'
Input'
Current' } After correction

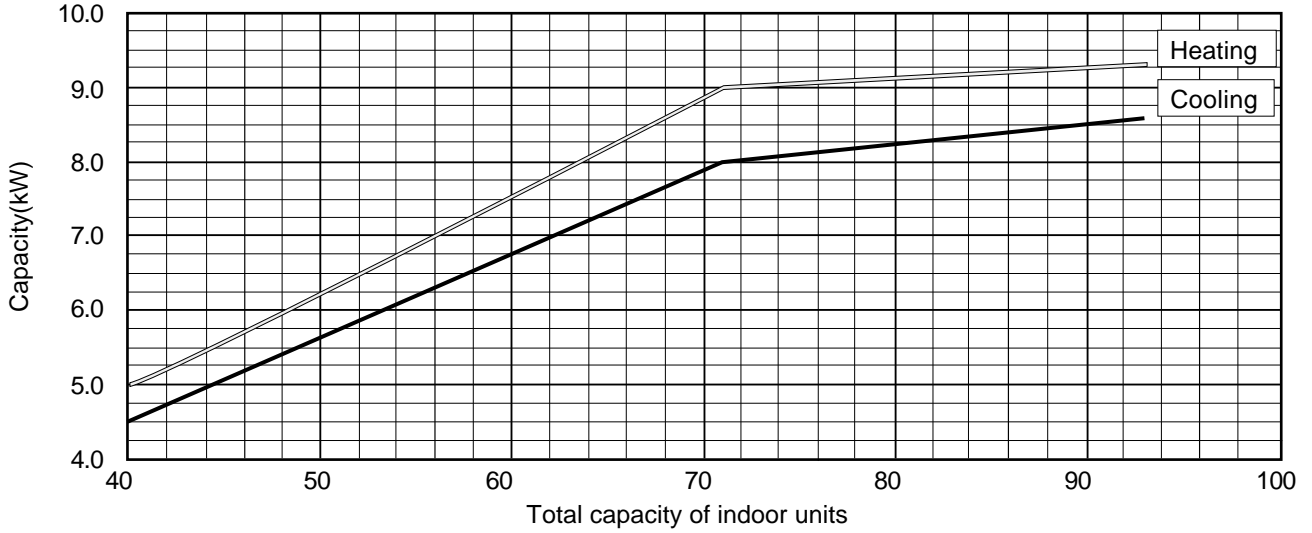


2-2. Correction by total indoor

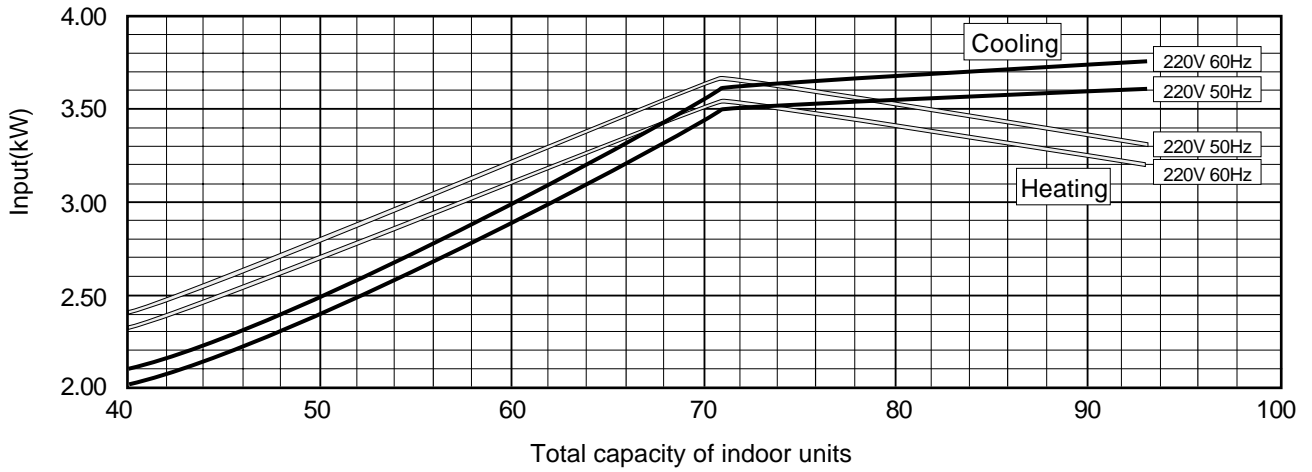
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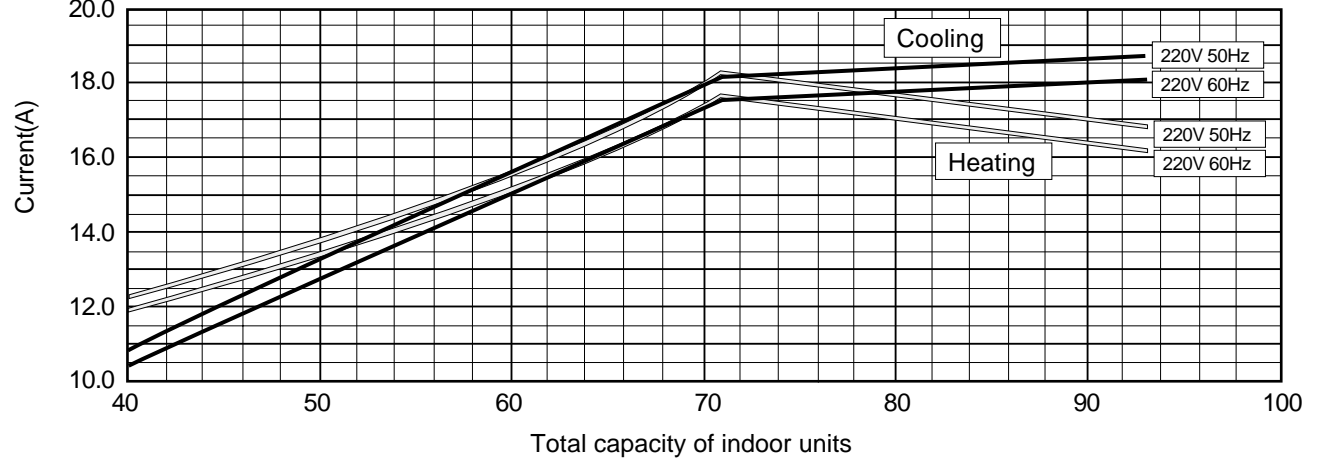
1) Capacity



2) Input



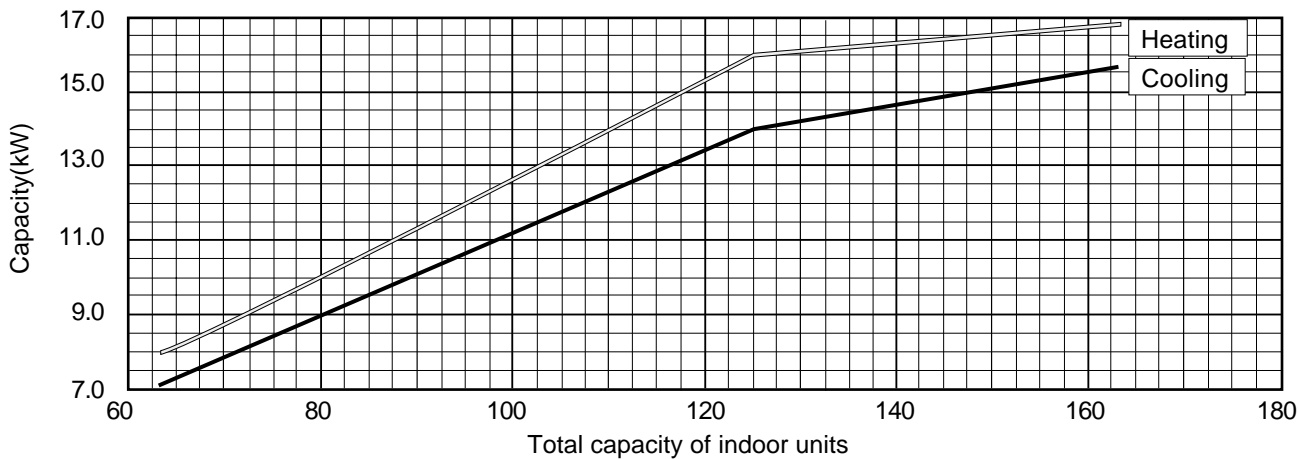
3) Current



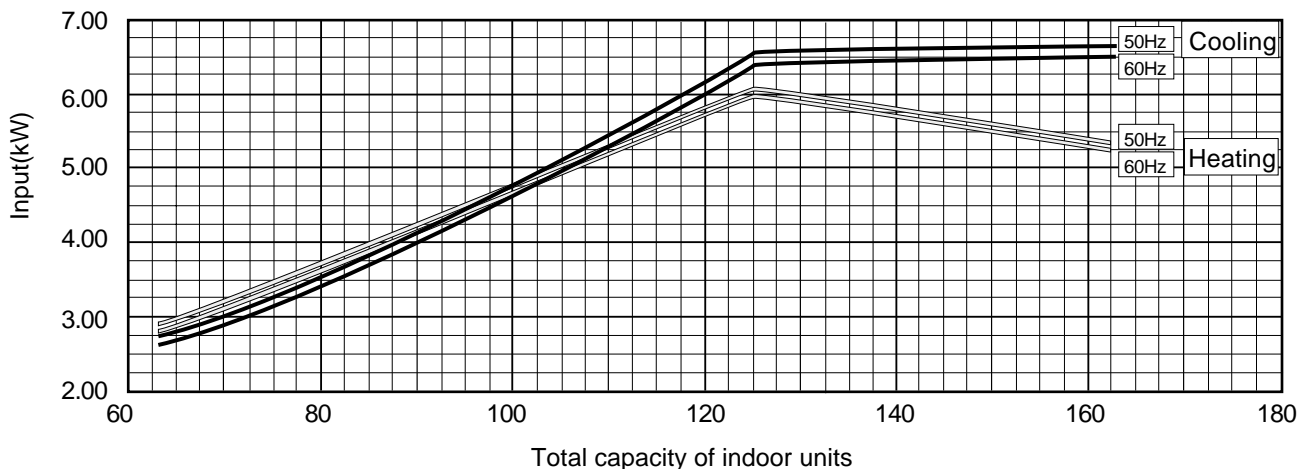


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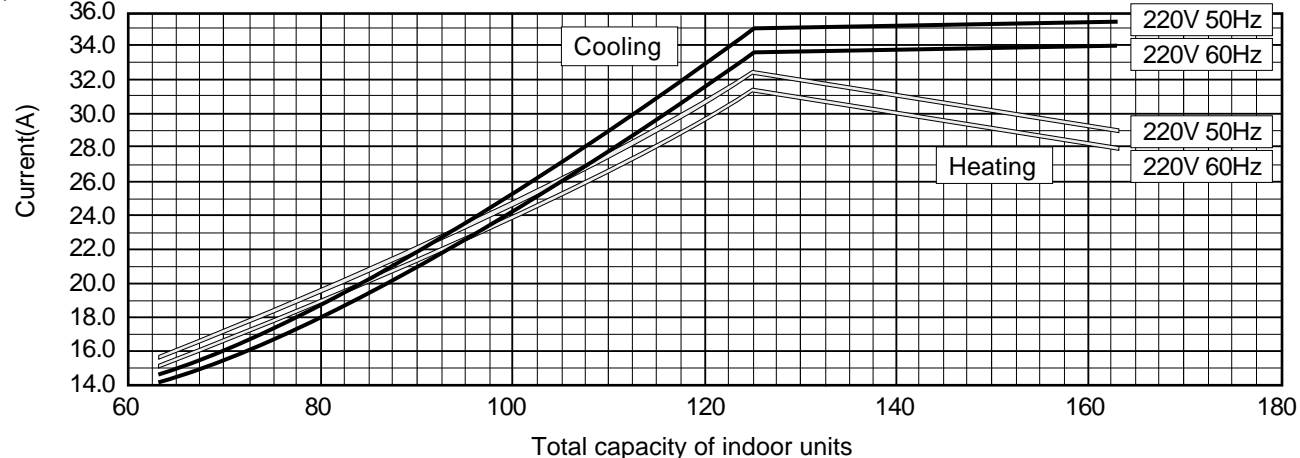
1) Capacity



2) Input



3) Current

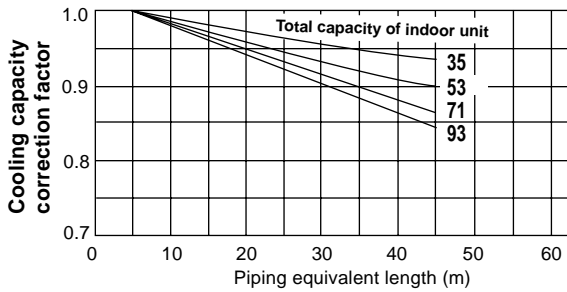


2-3 Correction by refrigerant piping length

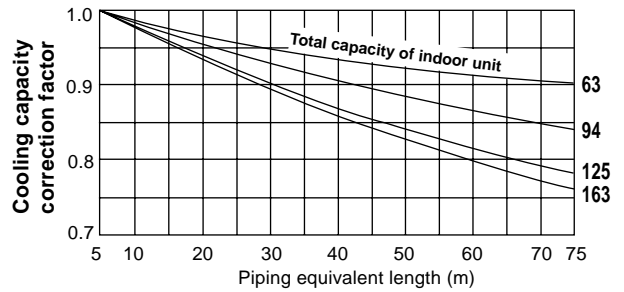
To obtain a decrease in cooling/heating capacity due to refrigerant piping extension, multiply by the capacity correction factor based on the refrigerant piping equivalent length in the table below.

• Cooling capacity correction

PUMY-71VM

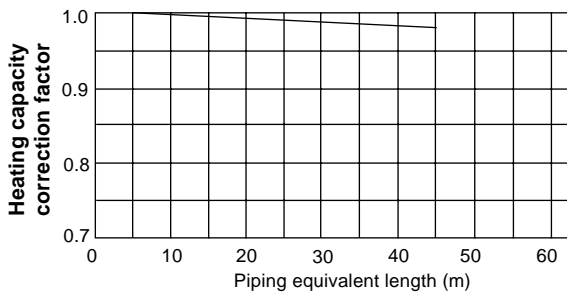


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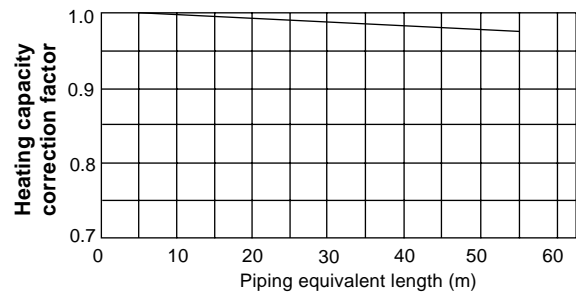


• Heating capacity correction

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• How to obtain piping equivalent length

① **PUMY-71VM**

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.3 × number of bent on the piping)m

② **PUMY-125VM**

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 × number of bent on the piping)m

2-4 Correction at frosting and defrosting

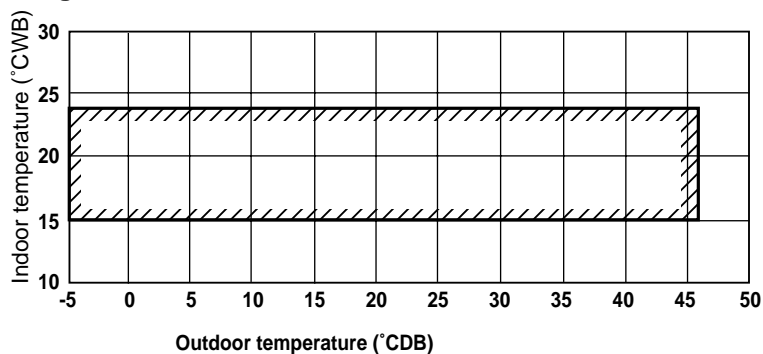
When a decrease in heating capacity due to frosted and defrosting operations is considered, the value multiplied by the correction factor in the table below represents the heating capacity.

Correction factor table

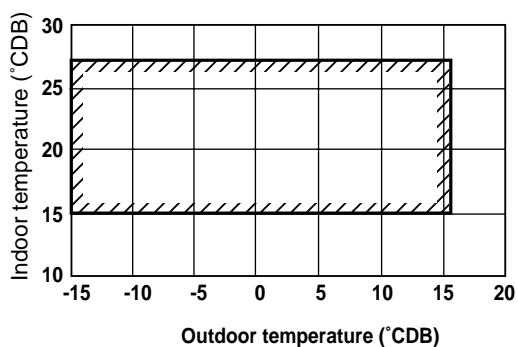
Outdoor inlet air temp (°CWB)	6	4	2	0	-2	-4	-6	-8	-10
Correction factor	1.0	0.98	0.89	0.88	0.89	0.9	0.95	0.95	0.95

2-5 Operation limit

• Cooling



• Heating

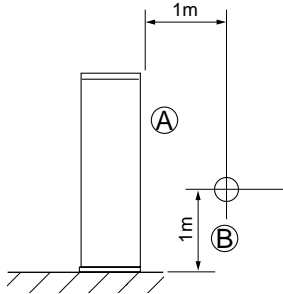


3. Sound levels

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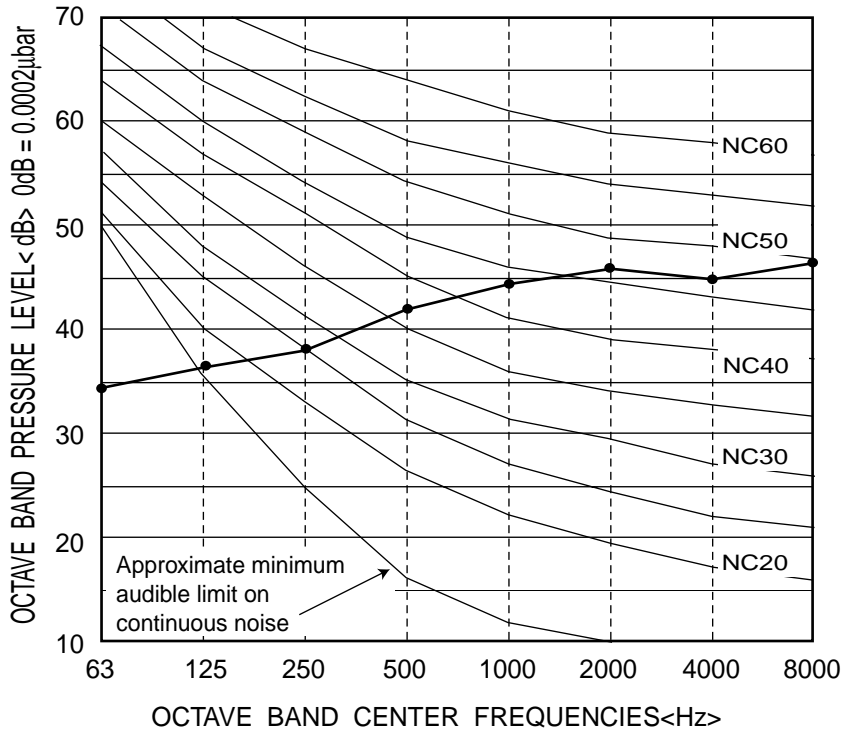
PUMY-71VM

Measurement condition



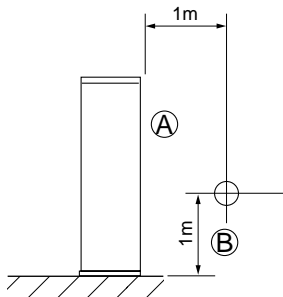
Sound pressure level in anechoic room

57 dB (A)



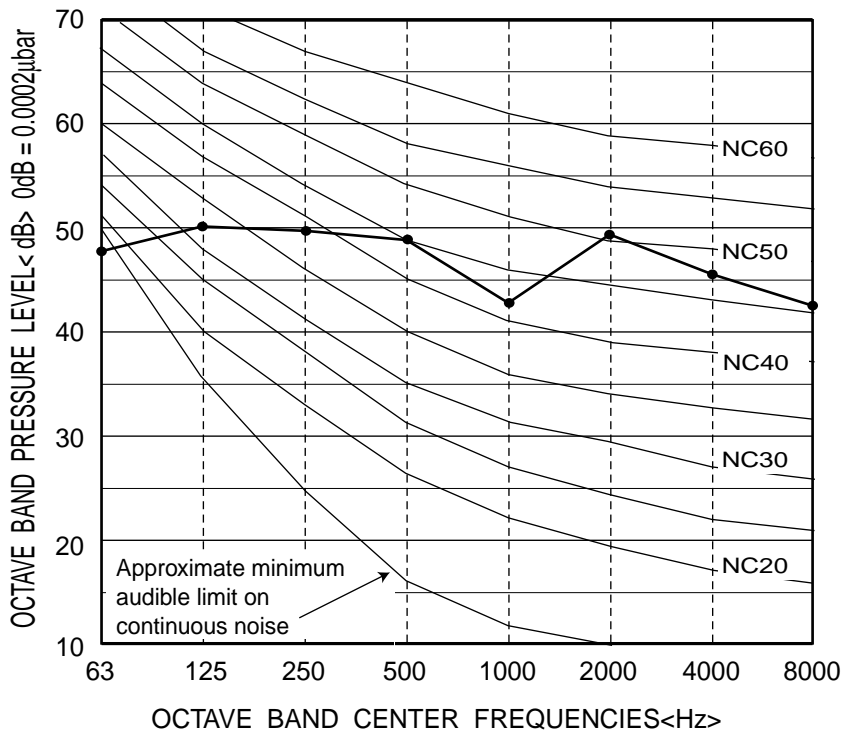
PUMY-125VM

Measurement condition

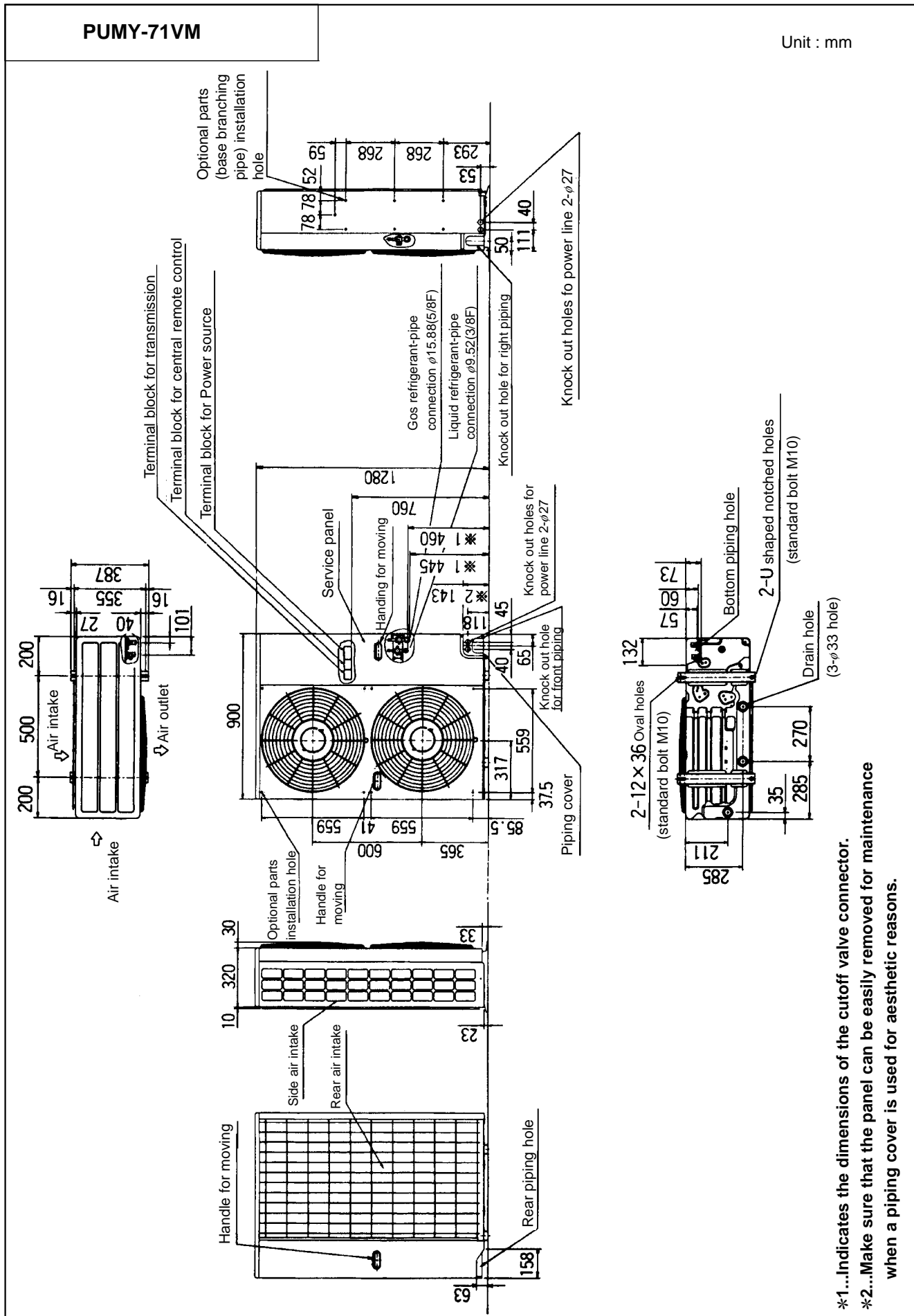


Sound pressure level in anechoic room

58 dB (A)



4. External dimensions

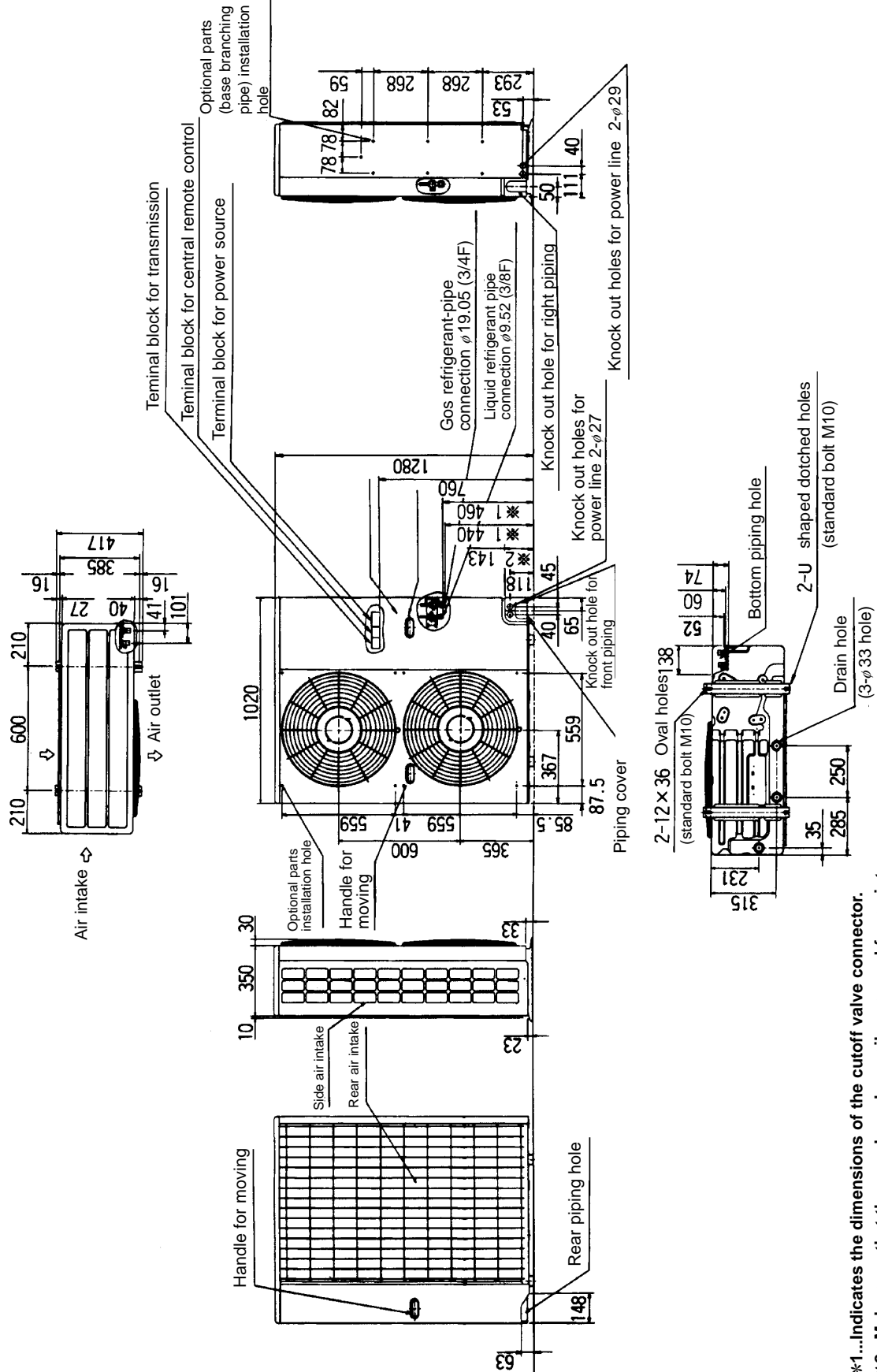


*1...Indicates the dimensions of the cutoff valve connector.
 *2...Make sure that the panel can be easily removed for maintenance when a piping cover is used for aesthetic reasons.



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Unit : mm

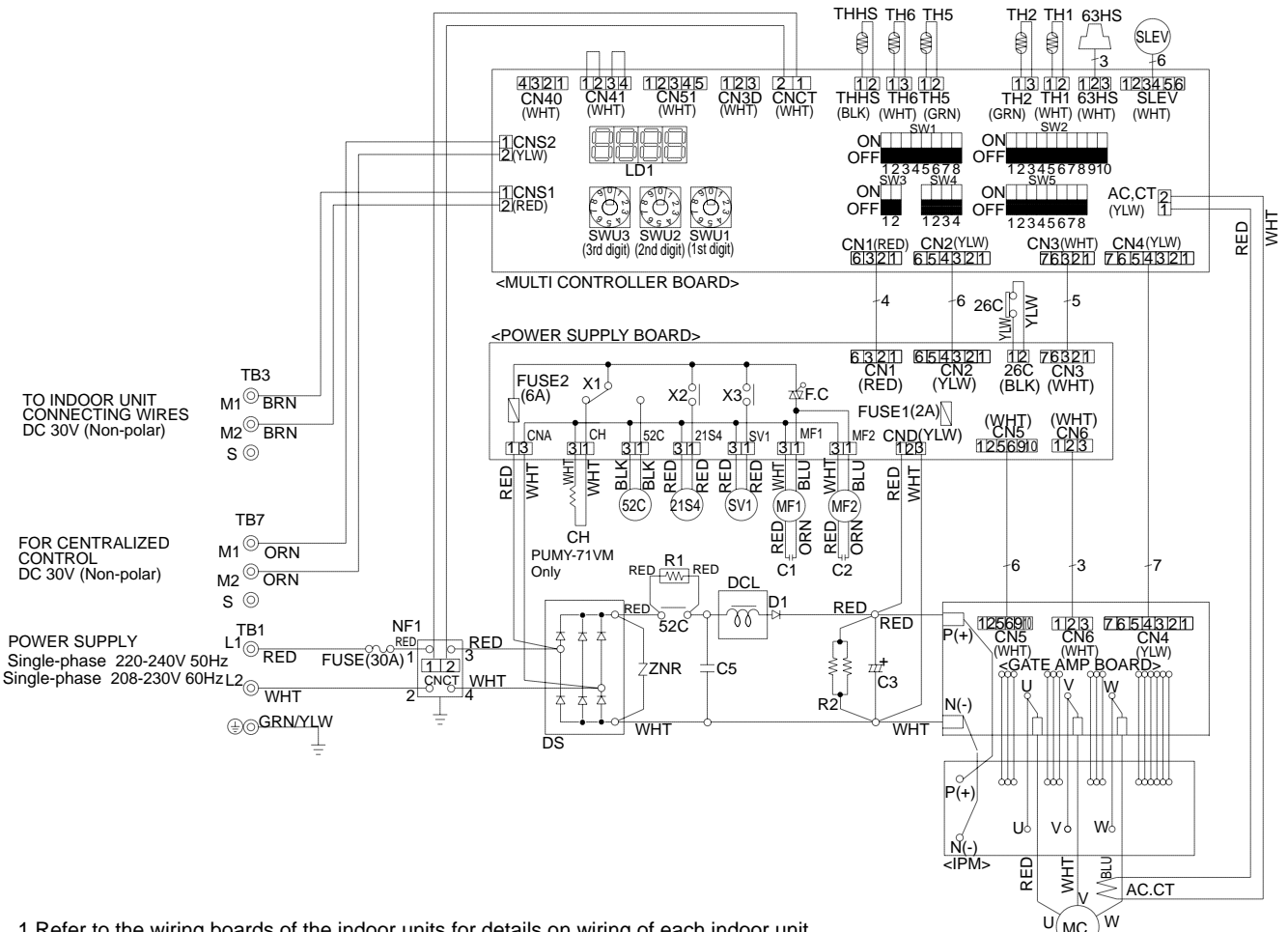


*1...Indicates the dimensions of the cutoff valve connector.
 *2...Make sure that the panel can be easily removed for maintenance when a piping cover is used for aesthetic reasons.

5. Electrical Wiring Diagram

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SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
AC,CT	Current detection	F.C	Fan control	TB3	Terminal block <Transmission>
CH	Crankcase heater	FUSE1	Fuse(2A)	TB7	Terminal block <Transmission> (Centralized control)
CNA	Connector <Power supply>	FUSE2	Fuse(6A)	THHS	Thermistor <IPM Radiator panel temperatuer detection>
CND	Connector <DC Power supply>	FUSE	Fuse(30A)	TH1	Thermistor <Discharge temperatuer detection>
CNS1	Connector <Multi system>	IPM	Intelligent power module	TH2	Thermistor <Low pressure saturated temperatuer detection>
CNS2	Connector <Centralized control>	LD1	Digital indication LED <Operation inspection indication>	TH5	Thermistor <Pipe temperatuer detection, judging defrost>
CN1	Connector <Controller drive control>	MC	Compressor	TH6	Thermistor <Outdoor temperatuer detection>
CN2	Connector <Power sync signal, protection>	MF1.2	Fan motor (Inner thermostat)	X1	Relay <Crankcase heater, magnetic contactor>
CN3	Connector <Power supply 30V, 12V, 5V>	NF1	Noise filter	X2	Relay <4-way valve>
CN4	Connector <Inverter signal 5V>	R1	Resistor <Rush current protect>	X3	Relay <Solenoid valve>
CN5	Connector <IPM power supply>	R2	Resistor <Discharge>	ZNR	Varistor
CN6	Connector <IPM power supply, trouble output>	SLEV	Expansion valve	21S4	4-Way valve
CN40	Connector <Centralized control power supply>	SV1	Solenoid valve <Hot gas bypass>	26C	Thermal switch <Compressor>
CN41	Connector <For storing jumper connector>	SW1	Switch <Display selection selfdiagnosis>	52C	Magnetic contactor <Inverter main circuit>
CN51	Connector <Compressor drive signal output>	SW2	Switch <Function selection>	63HS	High pressure sensor <Discharge pressure detection>
CN3D	Connector <Demand signal, silent mode input>	SW3	Switch <Test run>		
CNCT	Connector <Current detection>	SW4	Switch <Model selection>		
C1,2	Fan motor capacitor	SW5	Switch <Function selection>		
C3	Capacitor <Smoothing>	SWU1	Switch <Unit address selection,1st digit>		
C5	Capacitor <Power factor improvement>	SWU2	Switch <Unit address selection,2nd digit>		
DS	Diode stack	SWU3	Switch <Unit address selection,3rd digit>		
D1	Diode <Power factor improvement>	TB1	Terminal block <Power supply>		
DCL	Reactor				

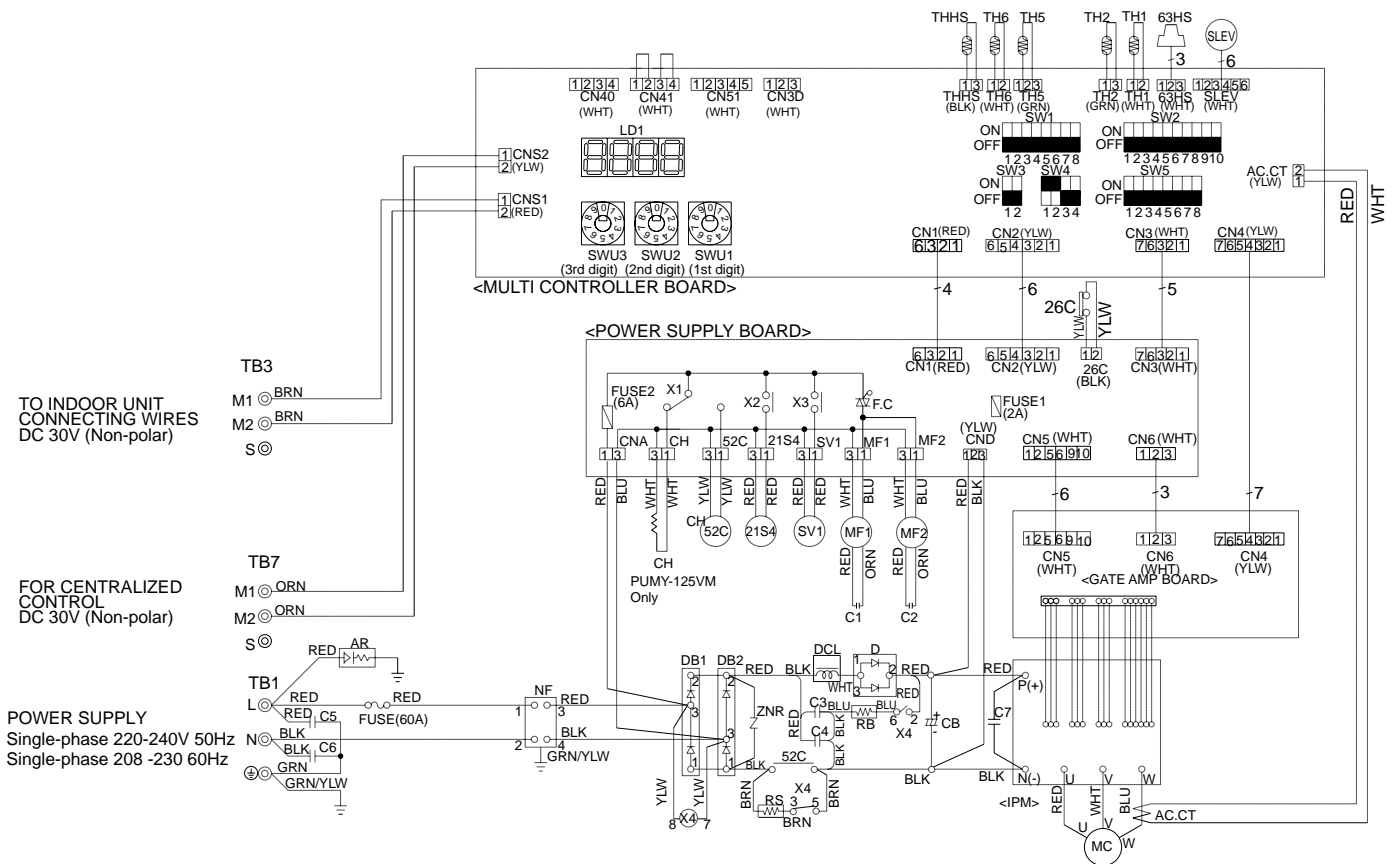


1. Refer to the wiring boards of the indoor units for details on wiring of each indoor unit.
2. The transmission line is two-wire type and has no polarity.
3. Mark ⊙ shows the terminal board, mark □ the connector. Symbols in parentheses () show the colors of connectors.
4. Self-diagnosis function
 The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1) and LD1 (LED indication) found on the multi-controller of the outdoor unit.
 LED indication : Set all contacts of SW1 to OFF.

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SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
AC.CT	Current detection	DCL	Reactor	TB3	Terminal block <Transmission>
AR	Surge absorber	F.C	Fan control	TB7	Terminal block <Transmission> (Centralized control)
CB	Smoothing capacitor	FUSE1	Fuse(2A)	THHS	Thermistor <IPM radiator panel temperature detection>
CH	Crankcase heater	FUSE2	Fuse(6A)	TH1	Thermistor <Discharge temperature detection>
CNA	Connector <Power supply>	FUSE	Fuse(60A)	TH2	Thermistor <Low pressure saturated temperature detection>
CND	Connector <DC Power supply>	IPM	Intelligent power module	TH5	Thermistor <Pipe temperature detection, judging defrost>
CNS1	Connector <Multi system>	LD1	Digital indication LED <Operation inspection indication>	TH6	Thermistor <Outdoor temperature detection>
CNS2	Connector <Centralized control>	MC	Compressor	X1	Relay <Crankcase heater, magnetic contactor>
CN1	Connector <Controller drive control>	MF1,2	Fan motor (Inner thermostat)	X2	Relay<4-way valve>
CN2	Connector <Power sync signal, protection>	NF	Noise filter	X3	Relay<Solenoid valve>
CN3	Connector <Power supply 30V, 12V, 5V>	RB	Resistor <Discharge>	X4	Relay
CN4	Connector <For storing jumper connector>	RS	Resistor <Rush current protect>	ZNR	Varistor
CN5	Connector <IPM Power supply>	SLEV	Expansion valve	21S4	4-way valve
CN6	Connector <IPM Power supply, trouble output>	SV1	Solenoid valve <Hot gas bypass>	26C	Thermal switch <Compressor>
CN40	Connector <Centralized control power supply>	SW1	Switch <Display selection selfdiagnosis>	52C	Magnetic contactor <Inverter main circuit>
CN41	Connector <For storing jumper connector>	SW2	Switch <Function selection>	63HS	High pressure sensor <Discharge pressure detection>
CN51	Connector <Compressor drive signal output>	SW3	Switch <Test run>		
CN3D	Connector <Demand signal, silent mode input>	SW4	Switch <Model selection>		
C1,2	Fan motor capacitor	SW5	Switch <Function selection>		
C3,4	Capacitor <Power factor improvement>	SWU1	Switch <Unit address selection , 1st digit>		
C5,6	Capacitor	SWU2	Switch <Unit address selection 2nd digit>		
C7	Capacitor <Filter>	SWU3	Switch <Unit address selection 3rd digit>		
D	Diode <Power factor improvement>	TB1	Terminal block <Power supply>		
DB1,DB2	Diode stack				



- 1.Refer to the wiring boards of the indoor units for details on wiring of each indoor unit.
- 2.The transmission line is two-wire type and has no polarity.
- 3.Mark ⊙ shows the terminal board,mark □ the connector.Symbols in parentheses() show the colors of connectors.
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The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch(SW1) and LD1(LED indication) found on the multi-controller of the outdoor unit.
LED indication:Set all contacts of SW1 to OFF.

6. Refrigerant circuit diagram and Thermal sensor

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