MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow

AIR CONDITIONING SYSTEMS

MODEL

PWFY-P100VM-E-BU
PWFY-P100VM-E1-AU
PWFY-P200VM-E1-AU

DATA BOOK

5th edition

Safety Precautions

• Before installing the unit, thoroughly read the following safety precautions.
• Observe these safety precautions for your safety.

⚠ WARNING

This symbol is intended to alert the user to the presence of important instructions that must be followed to avoid the risk of serious injury or death.

⚠ CAUTION

This symbol is intended to alert the user to the presence of important instructions that must be followed to avoid the risk of serious injury or damage to the unit.

• After reading this manual, give it to the user to retain for future reference.
• Keep this manual for easy reference. When the unit is moved or repaired, give this manual to those who provide these services.
When the user changes, make sure that the new user receives this manual.

⚠ WARNING

- **Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.**
  - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
  - It may also be in violation of applicable laws.
  - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- **Do not use steel pipes as water pipes.**
  - Copper pipes are recommended.
- **The water circuit should be a closed circuit.**
- **Ask the dealer or an authorized technician to install the air conditioner.**
  - Improper installation by the user may result in water leakage, electric shock, or fire.
- **Install the unit in a place that can withstand its weight.**
  - Inadequate strength may cause the unit to fall down, resulting in injuries.
- **Do not touch the unit. The unit surface can be hot.**
- **Do not install the unit where corrosive gas is generated.**
- **Use the specified cables for wiring. Make the connections securely so that the outside force of the cable is not applied to the terminals.**
  - Inadequate connection and fastening may generate heat and cause a fire.
- **Prepare for rain and other moisture and earthquakes and install the unit at the specified place.**
  - Improper installation may cause the unit to topple and result in injury.
- **Always use an strainer and other accessories specified by Mitsubishi Electric.**
  - Ask an authorized technician to install the accessories. Improper installation by the user may result in water leakage, electric shock, or fire.
- **Never repair the unit. If the air conditioner must be repaired, consult the dealer.**
  - If the unit is repaired improperly, water leakage, electric shock, or fire may result.
- **Do not touch the refrigerant pipes and Water pipes.**
  - Improper handling may result in injury.
- **When handling this product, always wear protective equipment.**

  EG: Gloves, full arm protection namely boiler suit, and safety glasses.
  - Improper handling may result in injury.
- **If refrigerant gas leaks during installation work, ventilate the room.**
  - If the refrigerant gas comes into contact with a flame, poisonous gases will be released.
- **Install the unit according to this manual.**
  - If the unit is installed improperly, water leakage, electric shock, or fire may result.
- **Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard" and "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.**
  - If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.
- **Keep the electric parts away from water (washing water etc.).**
  - It might result in electric shock, catching fire or smoke.
- **Securely install the heat source unit terminal cover (panel).**
  - If the terminal cover (panel) is not installed properly, dust or water may enter the heat source unit and fire or electric shock may result.
- **When installing and moving the air conditioner to another site, do not charge it with a refrigerant different from the refrigerant (R410A) specified on the unit.**
  - If a different refrigerant or air is mixed with the original refrigerant, the refrigerant cycle may malfunction and the unit may be damaged.

- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant should leak.**
  - Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.
- **When moving and reinstalling the air conditioner, consult the dealer or an authorized technician.**
  - If the air conditioner is installed improperly, water leakage, electric shock, or fire may result.
- **After completing installation work, make sure that refrigerant gas is not leaking.**
  - If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.
- **Do not reconstruct or change the settings of the protection devices.**
  - If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.
- **To dispose of this product, consult your dealer.**
- **The installer and system specialist shall secure safety against leakage according to local regulation or standards.**
  - Following standards may be applicable if local regulation are not available.
- **Pay a special attention to the place, such as a basement, etc. where refrigeration gas can stay, since refrigeration is heavier than the air.**

Precautions for handling units for use with R410A

⚠ CAUTION

- **Do not use the existing refrigerant piping.**
  - The old refrigerant and refrigerant oil in the existing piping contains a large amount of chlorine which may cause the refrigerant oil of the new unit to deteriorate.
  - R410A is a high-pressure refrigerant and can cause the existing piping to burst.
- **Use refrigerant piping made of C1220 (CU-DHP) phosphorus deoxidized copper as specified in the JIS H3300 “Copper and copper alloy seamless pipes and tubes”. In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.**
  - Contaminants on the inside of the refrigerant piping may cause the refrigerant residual oil to deteriorate.
- **Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Store elbows and other joints in a plastic bag.)**
  - If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.
- **Apply a small amount of ester oil, ether oil, or alkyl benzene to flares. (for indoor unit)**
  - Infiltration of a large amount of mineral oil may cause the refrigerant oil to deteriorate.
- **Use liquid refrigerant to fill the system.**
  - If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.
- **Do not use a refrigerant other than R410A.**
  - If another refrigerant (R22, etc.) is mixed with R410A, the chlorine in the refrigerant may cause the refrigerant oil to deteriorate.
- **Use a vacuum pump with a reverse flow check valve.**
  - The vacuum pump oil may flow back into the refrigerant cycle and cause the refrigerant oil to deteriorate.
- **Do not use the following tools that are used with conventional refrigerants.**

  (Gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, refrigerant recovery equipment)
  - If the conventional refrigerant and refrigerant oil are mixed in the R410A, the refrigerant may deteriorated.
  - If water is mixed in the R410A, the refrigerant oil may deteriorate.
  - Since R410A does not contain any chlorine, gas leak detectors for conventional refrigerants will not react to it.
- **Do not use a charging cylinder.**
  - Using a charging cylinder may cause the refrigerant to deteriorate.
- **Do not use antioxidant or leak-detection additive.**
- **Be especially careful when managing the tools.**
  - If dust, dirt, or water gets in the refrigerant cycle, the refrigerant may deteriorate.

Before installing the unit

⚠ WARNING

- **Do not install the unit where combustible gas may leak.**
  - If the gas leaks and accumulates around the unit, an explosion may result.
- **Do not use the air conditioner where food, pets, plants, precision instruments, or artwork are kept.**
  - The quality of the food, etc. may deteriorate.
- **Do not use the air conditioner in special environments.**
  - Oil, steam, sulfuric smoke, etc. can significantly reduce the performance of the air conditioner or damage its parts.
- **When installing the unit in a hospital, communication station, or similar place, provide sufficient protection against noise.**
  - The inverter equipment, private power generator, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate erroneously, or fail to operate. On the other hand, the air conditioner may affect such equipment by creating noise that disturbs medical treatment or image broadcasting.
- **Do not install the unit on a structure that may cause leakage.**
  - When the room humidity exceeds 80 % or when the drain pipe is clogged, condensation may drip from the indoor unit. Perform collective drainage work together with the unit, as required.

Before installing the unit (moving and reinstalling the unit) and performing electrical work

⚠ CAUTION

- **Ground the unit.**
  - Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground lines. Improper grounding may result in electric shock.
- **Install the power cable so that tension is not applied to the cable.**
  - Tension may cause the cable to break and generate heat and cause a fire.
- **Install a leak circuit breaker, as required.**
  - If a leak circuit breaker is not installed, electric shock may result.
- **Use power line cables of sufficient current carrying capacity and rating.**
  - Cables that are too small may leak, generate heat, and cause a fire.
- **Use only a circuit breaker and fuse of the specified capacity.**
  - A fuse or circuit breaker of a larger capacity or a steel or copper wire may result in a general unit failure or fire.
- **Do not wash the air conditioner units.**
  - Washing them may cause an electric shock.
- **Be careful that the installation base is not damaged by long use.**
  - If the damage is left uncorrected, the unit may fall and cause personal injury or damage property.
- **Install the drain piping according to this manual to ensure proper drainage. Wrap thermal insulation around the pipes to prevent condensation.**
  - Improper drain piping may cause water leakage and damage to furniture and other possessions.
- **Be very careful about product transportation.**
  - If the unit weighs more than 20kg, carry the unit with more than one person.
  - Some products use PP bands for packaging. Do not use any PP bands for a means of transportation. It is dangerous.
  - When transporting the unit, support it at the specified positions on the unit base. Also support the unit at four points so that it cannot slip side ways.
- **Safely dispose of the packing materials.**
  - Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.
  - Tear apart and throw away plastic packaging bags so that it is out of reach of children. If children play with a plastic bag which was not torn apart, they face the risk of suffocation.

Before the test run

⚠ CAUTION

- **Turn on the power at least 12 hours before starting operation.**
- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.
- **Do not touch the switches with wet fingers.**
- Touching a switch with wet fingers can cause electric shock.
- **Do not touch the refrigerant pipes during and immediately after operation.**
- During and immediately after operation, the refrigerant pipes are may be hot and may be cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes.
- **Do not operate the air conditioner with the panels and guards removed.**
- Rotating, hot, or high-voltage parts can cause injuries.
- **Do not turn off the power immediately after stopping operation.**
- Always wait at least five minutes before turning off the power. Otherwise, water leakage and trouble may occur.
- **Do not touch the surface of the compressor during servicing.**
- If unit is connected to the supply and not running, crank case heater at compressor is operating.
- **Do not touch the panels near the fan outlet with bare hands: they can get hot while the unit is in operation (even if it is stopped) or immediately after operation to prevent burns. Wear gloves to protect your hands when it is necessary to touch the panels.**
- **While the unit is in operation or immediately after operation, high-temperature exhaust air may blow out of the fan exhaust outlet. Do not hold your hands over the outlet or touch the panels near the outlet.**
- **Be sure to provide a pathway for the exhaust air from the fan.**
- **Water pipes can get very hot, depending on the preset temperature. Wrap the water pipes with insulating materials to prevent burns.**

Contents

I General Equipment Descriptions

1. Unit configuration table

Model	PWFY-P100VM-E-BU	PWFY-P100VM-E1-AU	PWFY-P200VM-E1-AU
Outdoor unit	R2, Replace R2 series, WR2 series only	S series, Y, Replace Y series, HP (ZUBADAN) series, WY series, R2, Replace R2 series, WR2 series	Y, Replace Y series, HP (ZUBADAN) series, WY series, R2, Replace R2 series, WR2 series
Connection	BC controller	BC controller: CMB-P104,105,106,108,1010,1013,1016V-G1 Main BC controller: CMB-P108,1010,1013,1016V-GA1 / CMB-P1016V-HA1 Sub BC controller: CMB-P104,108V-GB1 / CMB-P1016V-HB1	
	WCB	CMB-PW202V-J	

2. Operable temperature range

<PWFY-P100VM-E-BU>

		Only PWFY	PWFY with standard indoor unit	Only standard indoor units
		Heating		
Inlet water temperature	R2/WR2 series	10 to 70ºC	10 to 70ºC	–
Outdoor temperature	R2 series	-20 to 32ºCWB	-20 to 32ºCWB	-20 to 15.5ºCWB
Circulating water temperature	WR2 series	10 to 45ºC	10 to 45ºC	10 to 45ºC

<PWFY-P100,200VM-E1-AU>

		Only PWFY		PWFY with standard indoor units	
		Cooling	Heating	Cooling	Heating
Inlet water temperature	R2/WR2 series	10 to 35ºC	10 to 40ºC	10 to 35ºC	10 to 40ºC
	S series *1	–	10 to 45ºC	–	–
	Y/HP/WY series	10 to 35ºC	10 to 40ºC	10 to 35ºC	10 to 40ºC
Outdoor temperature	R2 series	-5 to 46ºCDB	-20 to 32ºCWB	-5 to 46ºCDB	-20 to 32ºCWB
	S series *1	–	-15 to 15ºCWB	–	–
	Y series	-5 to 46ºCDB	-20 to 15.5ºCWB	-5 to 46ºCDB	-20 to 15.5ºCWB
	HP series	-5 to 43ºCDB	-25 to 15.5ºCWB	-5 to 43ºCDB	-25 to 15.5ºCWB
Circulating water temperature	WR2 series	10 to 45ºC	10 to 45ºC	10 to 45ºC	10 to 45ºC
	WYseries	10 to 45ºC	10 to 45ºC	10 to 45ºC	10 to 45ºC

*1 For the S-series, only one PWFY-P100VM-E1-AU unit can be used and only heating operation is available.

		Only standard indoor units	
		Cooling	Heating
Outdoor temperature	R2 series	-5 to 46ºCDB	-20 to 15.5ºCWB
	S series	-5 to 46ºCDB	-15 to 15ºCWB
	Y series	-5 to 46ºCDB	-20 to 15.5ºCWB
	HP series	-5 to 43ºCDB	-25 to 15.5ºCWB
Circulating water temperature	WR2 series	10 to 45ºC	10 to 45ºC
	WYseries	10 to 45ºC	10 to 45ºC

3. Connectable outdoor unit/heat source unit capacity range

<PWFY-P100VM-E-BU>

	Only PWFY	PWFY with standard indoor units	Only standard indoor units
R2/WR2 series	50 to 100%	50 to 150%*1	50 to 150%*1

*1 In case of WCB connection, the capacity range will be "50 to 130%".

<PWFY-P100,200VM-E1-AU>

	Only PWFY	PWFY with standard indoor units	Only standard indoor units
R2/WR2 series	50 to 100%	50 to 150%*1	50 to 150%*1
S series	–	standard indoor units 50 to 100% + PWFY	50 to 130%
Y/HP/WY series	50 to 100%	50 to 130%	50 to 130%

*1 In case of WCB connection, the capacity range will be "50 to 130%".

<BC controller>

	Connectable unit
CMB-P104/P105/106/107/1010/ 1013/1016V-G1	PURY-(E)P200-350YJM-A(-BS) PQRY-P200-300YHM-A
CMB-P108/1010/1013/1016V-GA1	PURY-(E)P200-650Y(S)JM-A(1)(-BS) PQRY-P200-600Y(S)HM-A
CMB-P1016V-HA1	PURY-(E)P700-900YSJM-A(1)(-BS)
CMB-P104/108V-GB1, CMB-P1016V-HB1	CMB-P108/1010/1013/1016V-GA1, CMB-P1016V-HA1

<WCB>

	Connectable unit
CMB-PW202V-J	PURY-(E)P200-350YJM-A(-BS) *1 PQRY-P200-300YHM-A

*1 Except PURY-EP350YJM-A(-BS)

II Product Specifications

1. Specifications

(1) PWFY-P100VM-E-BU

Model			PWFY-P100VM-E-BU
Power source			1-phase 220-230-240V 50/60Hz
Heating capacity (Nominal)	*1	kW	12.5
	*1	kcal / h	10,800
	*1	BTU / h	42,700
	Power input	kW	2.48
	Current input	A	11.63 - 11.12 - 10.66
Temp. range of heating	Outdoor temp.	W.B	-20~32°C (-4~90°F) R2-series
	Circulating Water temp.	-	10~45°C (50~113°F) WR2-series
	Inlet Water temp.	-	10~70°C (50~158°F)
Connectable outdoor unit /heat source unit	Total capacity		50~100% of outdoor unit/heat source unit capacity
	Model / Quantity		PURY-(E)P･Y(S)JM-A(1)(-BS) PQRY-P･Y(S)HM-A
Sound pressure level (measured in anechoic room)		dB<A>	44
Diameter of refrigerant pipe	Liquid	mm(in.)	Φ9.52 (Φ3/8") Brazed
	Gas	mm(in.)	Φ15.88 (Φ5/8") Brazed
Diameter of water pipe	Inlet	mm(in.)	PT3/4 Screw
	Outlet	mm(in.)	PT3/4 Screw
Field drain pipe size		mm(in.)	Φ32 (1-1/4")

External finish			NO
External dimension H × W × D		mm	800 (785 without legs) × 450 × 300
		in.	31-1/2" (30-15/16" without legs) × 17-3/4" × 11-13/16"
Net weight		kg(lbs)	60 (133)
Compressor	Type		Inverter rotary hermetic compressor
	Maker		MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	1.0
	Lubricant		NEO22
Circulating water	Operation volume Range	m^3/h	0.6~2.15
Protection on Internal circuit (R134a)	High pressure protection		High pressure sensor, High pressure switch at 3.60 MPa (601 psi)
	Inverter circuit (COMP)		Over-heat protection, Over-current protection
	Compressor		Discharge thermo protection, Over-current protection
Refrigerant	Type × original charge		R134a × 1.1kg (0.50lbs)
	Control		LEV
Design pressure	R410a	MPa	4.15
	R134a	MPa	3.60
	Water	MPa	1.00
Drawing	External		WKB94L762
	Wiring		WKE94C229
Standard attachment	Document		Installation Manual, Instruction Book
	Accessory		Strainer, Heat insulation material, 2 × Connector sets, wire
Optional parts			NONE
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.

Note: *1 Nominal heating conditions (PWFY conditions are indicated in the parentheses.)

<R2-series>
Outdoor Temp. : 7°CDB/6°CWB (45°FDB / 43°FWB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 65°C Water flow rate 2.15 m^3/h)

<WR2-series>
Circulating water Temp. : 20°C (68°F)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 65°C Water flow rate 2.15 m^3/h)

* Due to continuing improvement, the above specifications may be subject to change without notice.
* The unit is not designed for outside installations.
* Please don't use the steel material for the water piping material.
* Please always make water circulate or add the brine to the circulation water when the ambient temperature becomes 0°C or less.
* Please always make water circulate or pull out the circulation water completely when not using it.
* Please do not use groundwater and well water.
* Install the unit in an environment where the wet bulb Temp. will not exceed 32°C.
* The water circuit must use the closed circuit.
* Please do not use it as a drinking water.

Unit converter

kcal = kW × 860
BTU/h = kW × 3,412
cfm = m^3/min x 35.31
lbs = kg / 0.4536

* The specification data is subject to rounding variation.

(2) PWFY-P100VM-E1-AU

Model			PWFY-P100VM-E1-AU
Power source			1-phase 220-230-240V 50/60Hz
Heating capacity (Nominal)	*1	kW	12.5
	*1	kcal / h	10,800
	*1	BTU / h	42,700
	Power input	kW	0.015
	Current input	A	0.068 - 0.065 - 0.063
Temp. range of heating	Outdoor temp.	W.B	-20~32°C (-4~90°F) R2-series
		W.B	-15~15°C (5~60°F) S-series
		W.B	-20~15.5°C (-4~60°F) Y-series
		W.B	-25~15.5°C (-13~60°F) HP (ZUBADAN)-series
	Circulating Water temp.	-	10~45°C (50~113°F) WR2-series
		-	10~45°C (50~113°F) WY-series
	Inlet Water temp.	-	10~45°C (50~113°F) S-series
		-	10~40°C (50~104°F) R2/Y/HP(ZUBADAN)/WR2/WY-series
Cooling capacity (Nominal)	*2	kW	11.2
	*2	kcal / h	9,600
	*2	BTU / h	38,200
	Power input	kW	0.015
	Current input	A	0.068 - 0.065 - 0.063
Temp. range of cooling	Outdoor temp.	D.B	-5~46°C (23~115°F) R2-series
		D.B	-5~46°C (23~115°F) Y-series
		D.B	-5~43°C (23~110°F) HP (ZUBADAN)-series
	Circulating Water temp.	-	10~45°C (50~113°F) WR2-series
		-	10~45°C (50~113°F) WY-series
	Inlet Water temp.	-	10~35°C (50~95°F)
Connectable outdoor unit /heat source unit	Total capacity		50~100% of outdoor unit/heat source unit capacity
	Model / Quantity		PUMY-P･V/YHMB PUHY-(E)P･Y(S)JM-A(1)(-BS) PUHY-HP･Y(S)HM-A(-BS) PQHY-P･Y(S)HM-A PURY-(E)P･Y(S)JM-A(1)(-BS) PQRY-P･Y(S)HM-A
Sound pressure level (measured in anechoic room)		dB<A>	29
Diameter of refrigerant pipe	Liquid	mm(in.)	Φ9.52 (Φ3/8") Brazed
	Gas	mm(in.)	Φ15.88 (Φ5/8") Brazed
Diameter of water pipe	Inlet	mm(in.)	PT3/4 Screw
	Outlet	mm(in.)	PT3/4 Screw
Field drain pipe size		mm(in.)	Φ32 (1-1/4")

External finish			NO
External dimension H × W × D		mm	800 (785 without legs) × 450 × 300
		in.	31-1/2" (30-15/16" without legs) × 17-3/4" × 11-13/16"
Net weight		kg(lbs)	35 (78)
Circulating water	Operation Volume Range	m^3/h	1.1~2.15
Design pressure	R410a	MPa	4.15
	Water	MPa	1.00
Drawing	External		WKB94L763
	Wiring		WKE94C230
Standard attachment	Document		Installation Manual, Instruction Book
	Accessory		Strainer, Heat insulation material, 2 × Connector sets, wire, Flow switch × 1set
Optional parts			Solenoid valve kit: PAC-SV01PW-E
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.

Note:

*1 Nominal heating conditions (PWFY conditions are indicated in the parentheses.)

<S/Y/HP (ZUBADAN)/R2-series>
- Outdoor Temp. : 7°CDB/6°CWB (45°FDB / 43°FWB)
- Pipe length : 7.5 m (24-9/16 ft)
- Level difference : 0 m (0 ft)
- (Inlet water Temp 30°C Water flow rate 2.15 m^3/h)

<WY/WR2-series>
- Circulating water Temp. : 20°C (68°F)
- Pipe length : 7.5 m (24-9/16 ft)
- Level difference : 0 m (0 ft)
- (Inlet water Temp 30°C Water flow rate 2.15 m^3/h)

*2 Nominal cooling conditions (PWFY conditions are indicated in the parentheses.)

<Y/HP (ZUBADAN)/R2-series>
- Outdoor Temp. : 35°CB (95°FDB)
- Pipe length : 7.5 m (24-9/16 ft)
- Level difference : 0 m (0 ft)
- (Inlet water Temp 23°C Water flow rate 1.93 m^3/h)

<WY/WR2-series>
- Circulating water Temp. : 30°C (86°F)
- Pipe length : 7.5 m (24-9/16 ft)
- Level difference : 0 m (0 ft)
- (Inlet water Temp 23°C Water flow rate 1.93 m^3/h)

* Due to continuing improvement, the above specifications may be subject to change without notice.
* The unit is not designed for outside installations.
* Please don't use the steel material for the water piping material.
* Please always make water circulate or add the brine to the circulation water when the ambient temperature becomes 0°C or less.
* Please always make water circulate or pull out the circulation water completely when not using it.
* Please do not use groundwater and well water.
* Install the unit in an environment where the wet bulb Temp. will not exceed 32°C.
* The water circuit must use the closed circuit.
* Please do not use it as a drinking water.

Unit converter

kcal = kW × 860
BTU/h= kW × 3,412
cfm = m^3/min × 35.31
lbs = kg / 0.4536
* The specification data is subject to rounding variation.

(3) PWFY-P200VM-E1-AU

Model			PWFY-P200VM-E1-AU
Power source			1-phase 220-230-240V 50/60Hz
Heating capacity (Nominal)	*1	kW	25.0
	*1	kcal / h	21,500
	*1	BTU / h	85,300
	Power input	kW	0.015
	Current input	A	0.068 - 0.065 - 0.063
Temp. range of heating	Outdoor temp.	W.B	-20~32°C (-4~90°F) R2-series
		W.B	-20~15.5°C (-4~60°F) Y-series
		W.B	-25~15.5°C (-13~60°F) HP(ZUBADAN)-series
	Circulating Water temp.	-	10~45°C (50~113°F) WR2-series
		-	10~45°C (50~113°F) WY-series
	Inlet Water temp.	-	10~40°C (50~104°F)
Cooling capacity (Nominal)	*2	kW	22.4
	*2	kcal / h	19,300
	*2	BTU / h	76,400
	Power input	kW	0.015
	Current input	A	0.068 - 0.065 - 0.063
Temp. range of cooling	Outdoor temp.	D.B	-5~46°C (23~115°F) R2-series
		D.B	-5~46°C (23~115°F) Y-series
		D.B	-5~43°C (23~110°F) HP(ZUBADAN)-series
	Circulating Water temp.	-	10~45°C (50~113°F) WR2-series
		-	10~45°C (50~113°F) WY-series
	Inlet Water temp.	-	10~35°C (50~95°F)
Connectable outdoor unit /heat source unit	Total capacity		50~100% of outdoor unit/heat source unit capacity
	Model / Quantity		PUHY-(E)P・Y(S)JM-A(1)(-BS) PUHY-HP・Y(S)HM-A(-BS) PQHY-P・Y(S)HM-A PURY-(E)P・Y(S)JM-A(1)(-BS) PQRY-P・Y(S)HM-A
Sound pressure level (measured in anechoic room)		dB<A>	29
Diameter of refrigerant pipe	Liquid	mm(in.)	Φ9.52 (Φ3/8") Brazed
	Gas	mm(in.)	Φ19.05 (Φ3/4") Brazed
Diameter of water pipe	Inlet	mm(in.)	PT 1 Screw
	Outlet	mm(in.)	PT 1 Screw
Field drain pipe size		mm(in.)	Φ32 (1-1/4")

External finish			NO
External dimension H × W × D		mm	800 (785 without legs) × 450 × 300
		in.	31-1/2" (30-15/16" without legs) × 17-3/4" × 11-13/16"
Net weight		kg(lbs)	38 (84)
Circulating water	Operation Volume Range	m^3/h	1.8~4.30
Design pressure	R410a	MPa	4.15
	Water	MPa	1.00
Drawing	External		WKB94L763
	Wiring		WKE94C230
Standard attachment	Document		Installation Manual, Instruction Book
	Accessory		Strainer, Connecter, Heat insulation material, 2 × Connector sets, Expansion joint, wire, Flow switch × 1set
Optional parts			Solenoid valve kit: PAC-SV01PW-E
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.

Note: *1 Nominal heating conditions (PWFY conditions are indicated in the parentheses.)

<Y/HP (ZUBADAN)/R2-series>
Outdoor Temp. : 7°CDB/6°CWB (45°FDB / 43°FWB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 30°C Water flow rate 4.30 m^3/h)

<WY/WR2-series>
Circulating water Temp. : 20°C (68°F)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 30°C Water flow rate 4.30 m^3/h)

*2 Nominal cooling conditions (PWFY conditions are indicated in the parentheses.)

<Y/HP (ZUBADAN)/R2-series>
Outdoor Temp. : 35°CDB (95°FDB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 23°C Water flow rate 3.86 m^3/h)

<WY/WR2-series>
Circulating water Temp. : 30°C (86°F)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)
(Inlet water Temp 23°C Water flow rate 3.86 m^3/h)

* Due to continuing improvement, the above specifications may be subject to change without notice.
* The unit is not designed for outside installations.
* Please don't use the steel material for the water piping material.
* Please always make water circulate or add the brine to the circulation water when the ambient temperature becomes 0°C or less.
* Please always make water circulate or pull out the circulation water completely when not using it.
* Please do not use groundwater and well water.
* Install the unit in an environment where the wet bulb Temp. will not exceed 32°C.
* The water circuit must use the closed circuit.
* Please do not use it as a drinking water.

Unit converter

kcal = kW × 860
BTU/h= kW × 3,412
cfm = m^3/min × 35.31
lbs = kg / 0.4536
* The specification data is subject to rounding variation.

(4) CMB-P104V-G1

*Other models of BC controller are available. For unit information, refer to the Data Book.

Model			CMB-P104V-G1	
Number of branch			4	
Power source			1-phase 220/230/240V	
			50Hz	60Hz
Power input (220/230/240)	Cooling	kW	0.067/0.076/0.085	0.054/0.061/0.067
	Heating		0.030/0.034/0.038	0.024/0.027/0.030
Current (220/230/240)	Cooling	A	0.31/0.34/0.36	0.25/0.27/0.28
	Heating		0.14/0.15/0.16	0.11/0.12/0.13
External finish			Galvanized steel plate (Lower part drain pan painting N1.5)	
Connectable outdoor unit/heat source unit			PURY-(E)P200/250/300/350YJM-A(-BS) PQRY-P200/250/300YHM-A	
Indoor unit capacity connectable to 1 branch			Model P80 or smaller (Use optional joint pipe combing 2 branches when the total unit capacity exceeds 81.)	
External dimension H x W x D		mm (in.)	284 x 648 x 432 (11-3/16 x 25-17/32 x 17-1/32)	
Refrigerant piping diameter	Connectable outdoor unit/heat source unit capacity		To outdoor unit/heat source unit	
			High press. pipe	Low press. pipe
		to P200 mm (in.) O.D.	15.88 (5/8) Brazed	19.05 (3/4) Brazed
		P250/P300 mm (in.) O.D.	19.05 (3/4) Brazed	22.2 (7/8) Brazed
		to P350 mm (in.) O.D.	19.05 (3/4) Brazed	28.58 (1-1/8) Brazed
			To indoor unit	
			Liquid pipe	Gas pipe
		mm (in.) O.D.	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed (12.7 (1/2) with optional joint pipe used.)	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4) with optional joint pipe used.)
Field drain pipe size		mm (in.) O.D.	32 (1-1/4)	
Net weight		kg (lbs)	24 (53)	
Accessories			Drain Connection pipe (with flexible hose and insulation) Reducer	
Remark				

Note:
*1. Installation/foundation work, electrical connection work, insulation work, power source switch, and other items shall be referred to the Installation Manual.
*2. The equipment is for R410A refrigerant.
*3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
(For use in quiet environments with low background noise, position the BC CONTROLLER at least 5m away from any indoor units.)
*4. Indoor units P100, P125, P140 can be connected to 1 branch. (In this case, cooling capacity decrease a little.)
*5. Refrigerant piping diameter for connection of plural indoor units with 1 branch shall be referred to the Installation Manual.

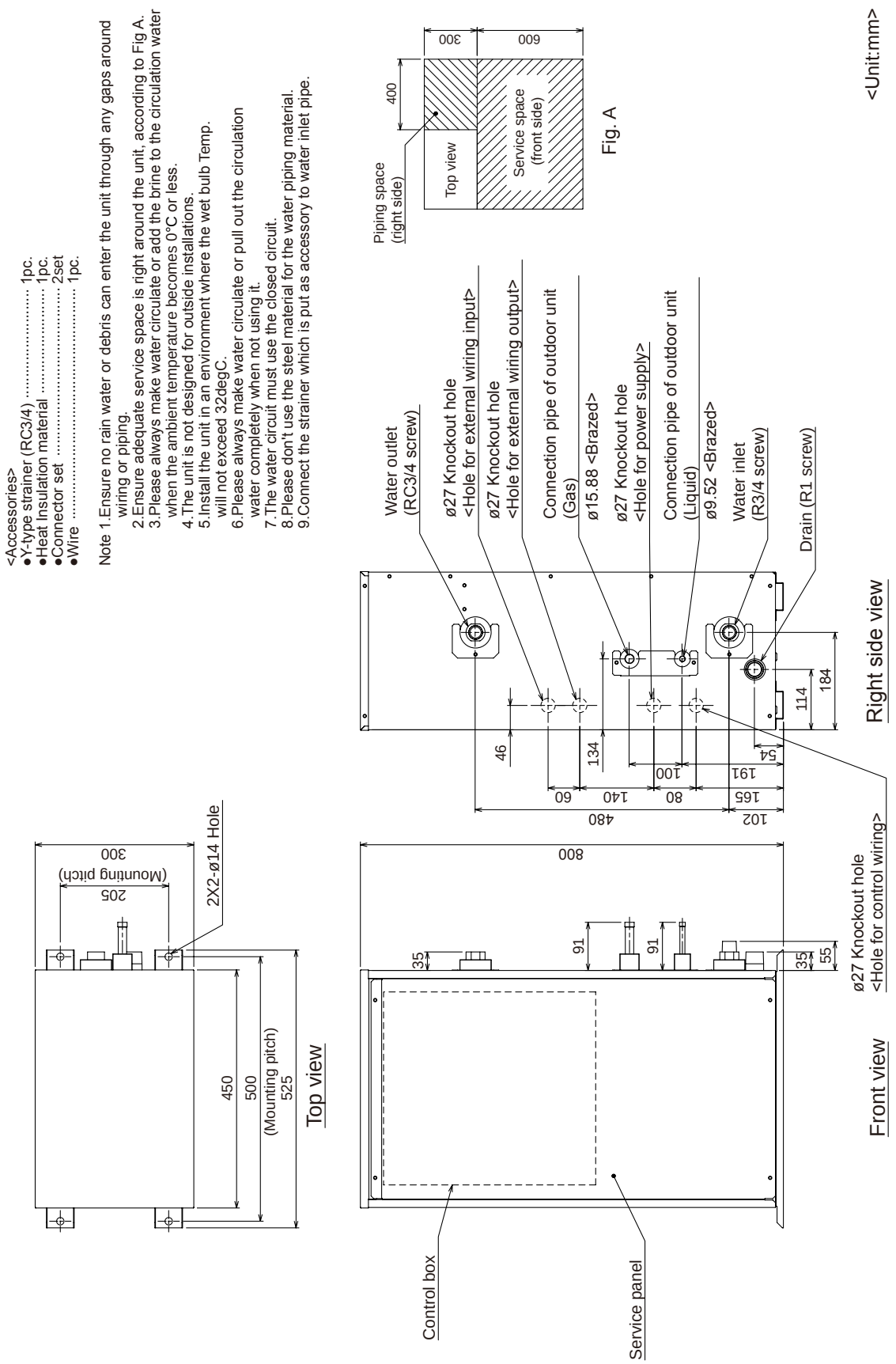
(5) CMB-PW202V-J

Model				CMB-PW202V-J				
Number of branch				2				
Power source				1N ~ 220/230/240V				
				50Hz				60Hz
Power input			kW	Cooling : 0.019/0.020/0.021 Heating : 0.020/0.022/0.024				Cooling : 0.018/0.019/0.019 Heating : 0.019/0.020/0.021
Current			A	Cooling : 0.09/0.09/0.09 Heating : 0.10/0.10/0.10				Cooling : 0.09/0.09/0.09 Heating : 0.09/0.09/0.09
External finish				Galvanized steel plate (Lower part drain pan painting N1.5)				
Connectable outdoor unit/heat source unit				PURY-(E)P200/250/300/350YJM-A(-BS) PQRY-P200/250/300YHM-A				
Connectable unit capacity			Total	50% ~ 130% of outdoor unit/heat source unit				
			Indoor / PWFY branch	up to 130% of outdoor unit/heat source unit				
			PWFY branch	up to 100% of outdoor unit/heat source unit				
External dimension H x W x D			mm(in.)	284 x 648 x 432 (11-3/16" x 25-9/16" x 17-1/16")				
Refrigerant piping diameter	To outdoor unit /heat source unit			Connectable outdoor unit capacity				
				P200		P250/P300		P350
		High press. pipe	mm(in.)	ø15.88 (ø5/8") Brazed		ø19.05 (ø3/4") Brazed		ø19.05 (ø3/4") Brazed
		Low press. pipe	mm(in.)	ø19.05 (ø3/4") Brazed		ø22.2 (ø7/8") Brazed		ø28.58 (ø1-1/8") Brazed
	To indoor/ PWFY unit			Total down-stream Indoor unit capacity				
				~P140	P141~P200	P201~P300	P301~P400	P401~
		Liquid pipe	mm(in.)	ø9.52 (ø3/8") Brazed	ø9.52 (ø3/8") Brazed	ø9.52 (ø3/8") Brazed	ø12.70 (ø1/2") Brazed	ø15.88 (ø5/8") Brazed
		Gas pipe	mm(in.)	ø15.88 (ø5/8") Brazed	ø19.05 (ø3/4") Brazed	ø22.2 (ø7/8") Brazed	ø28.58 (ø1-1/8") Brazed	ø28.58 (ø1-1/8") Brazed
Field drain pipe size				O.D. 32mm (1-1/4")				
Net weight			kg(lbs)	20 (45)				
Accessories				·Drain Connection pipe (with flexible hose and insulation) ·Refrigerant connection pipe				

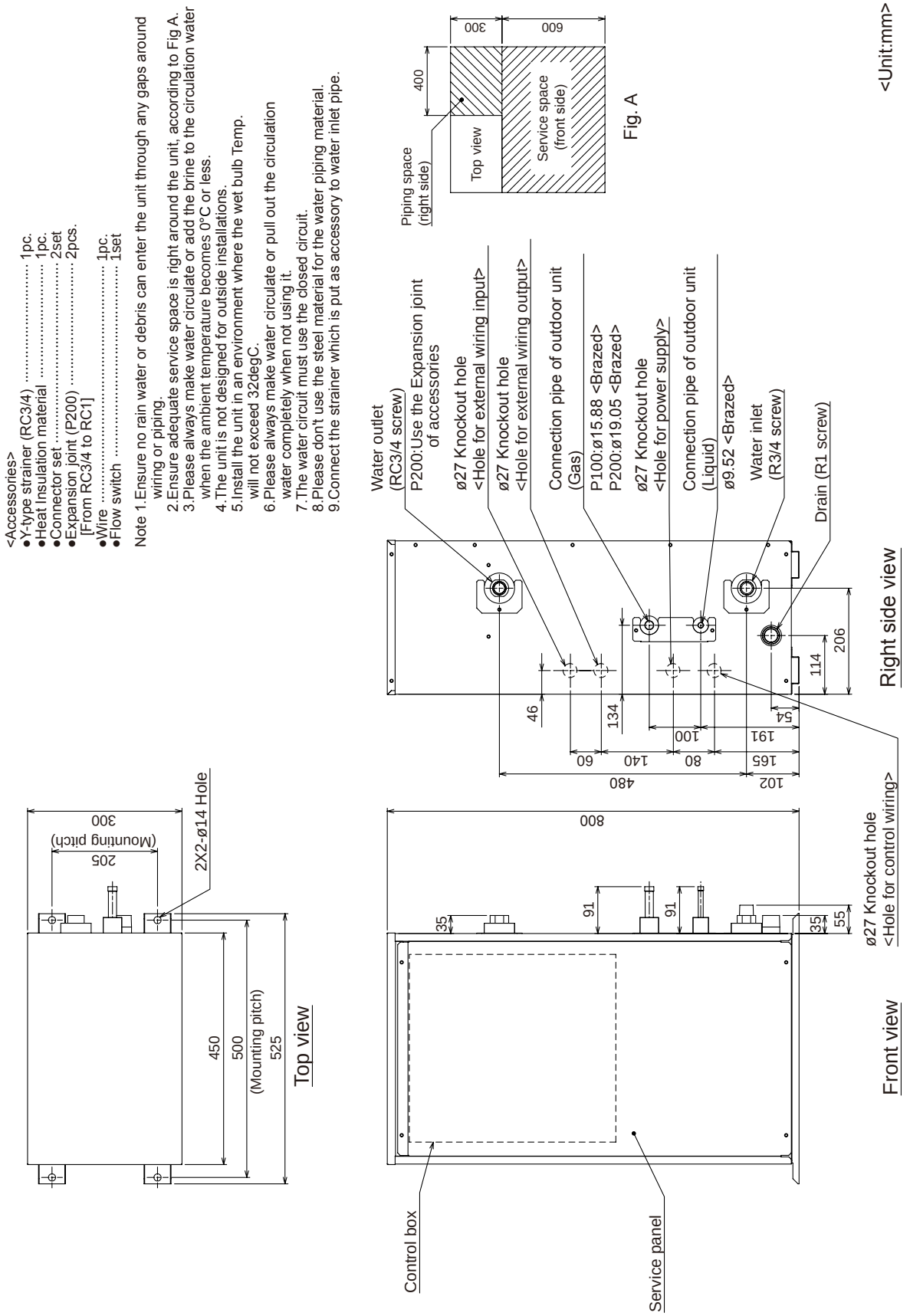
Note:
*1. For installation/foundation work, electrical connection work, insulation work, and power source switch etc., refer to the Installation Manual.
*2. The equipment is for R410A refrigerant.
*3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
(For use in quiet environments with low background noise, position the Water system Connection Box at least 5m away from any indoor units.)
*4. Install the unit horizontally.
*5. The indoor / PWFY unit branch is for cooling / heating. The indoor / PWFY unit cannot be simultaneously operated in different operation modes.
*6. The PWFY unit branch is for the heating only.
*7. Seal the unused branch using the optional cover cap (CMY-S202-J).

2. External Dimensions

(1) PWFY-P100VM-E-BU

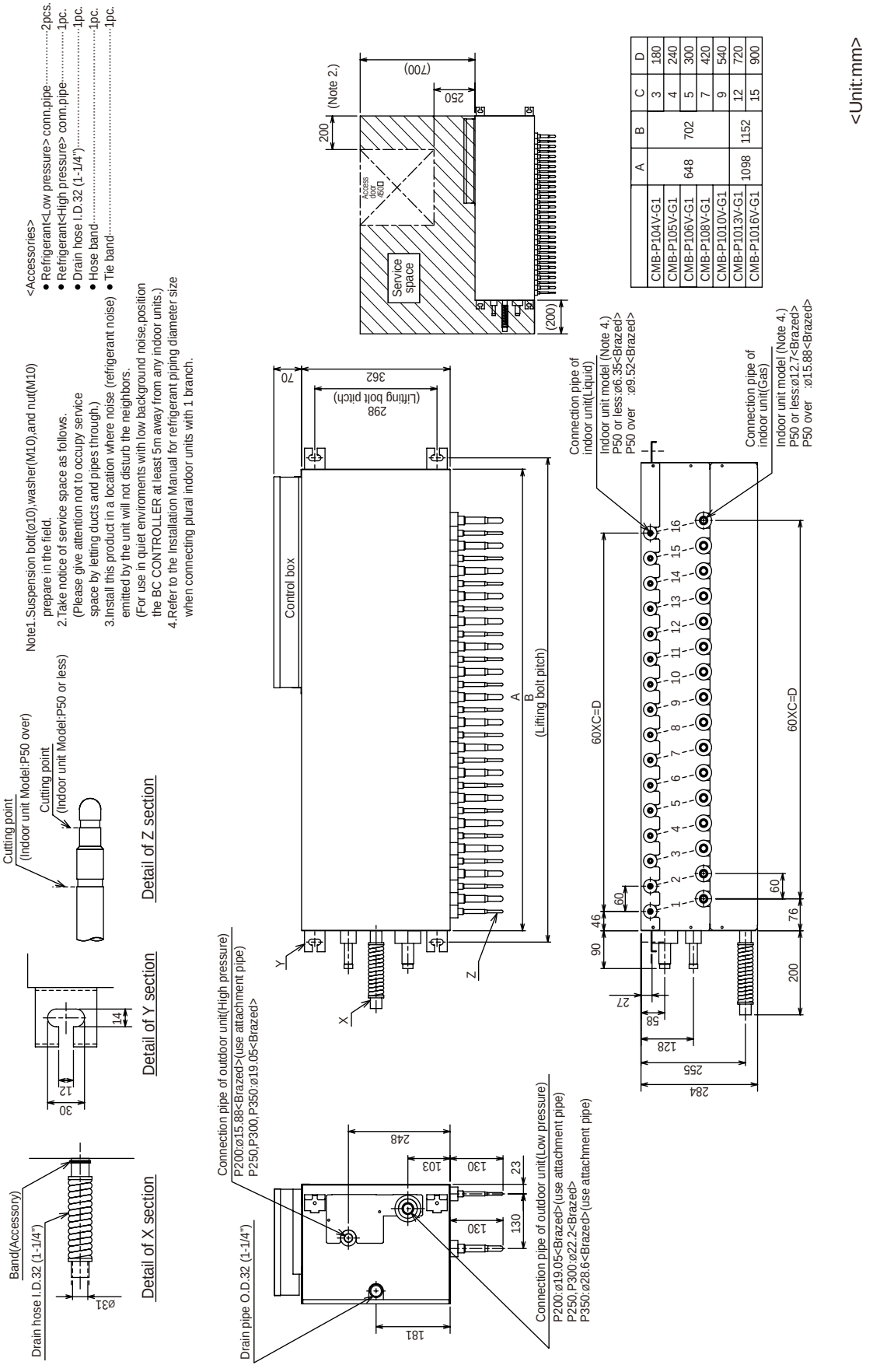


(2) PWFY-P100, 200VM-E1-AU

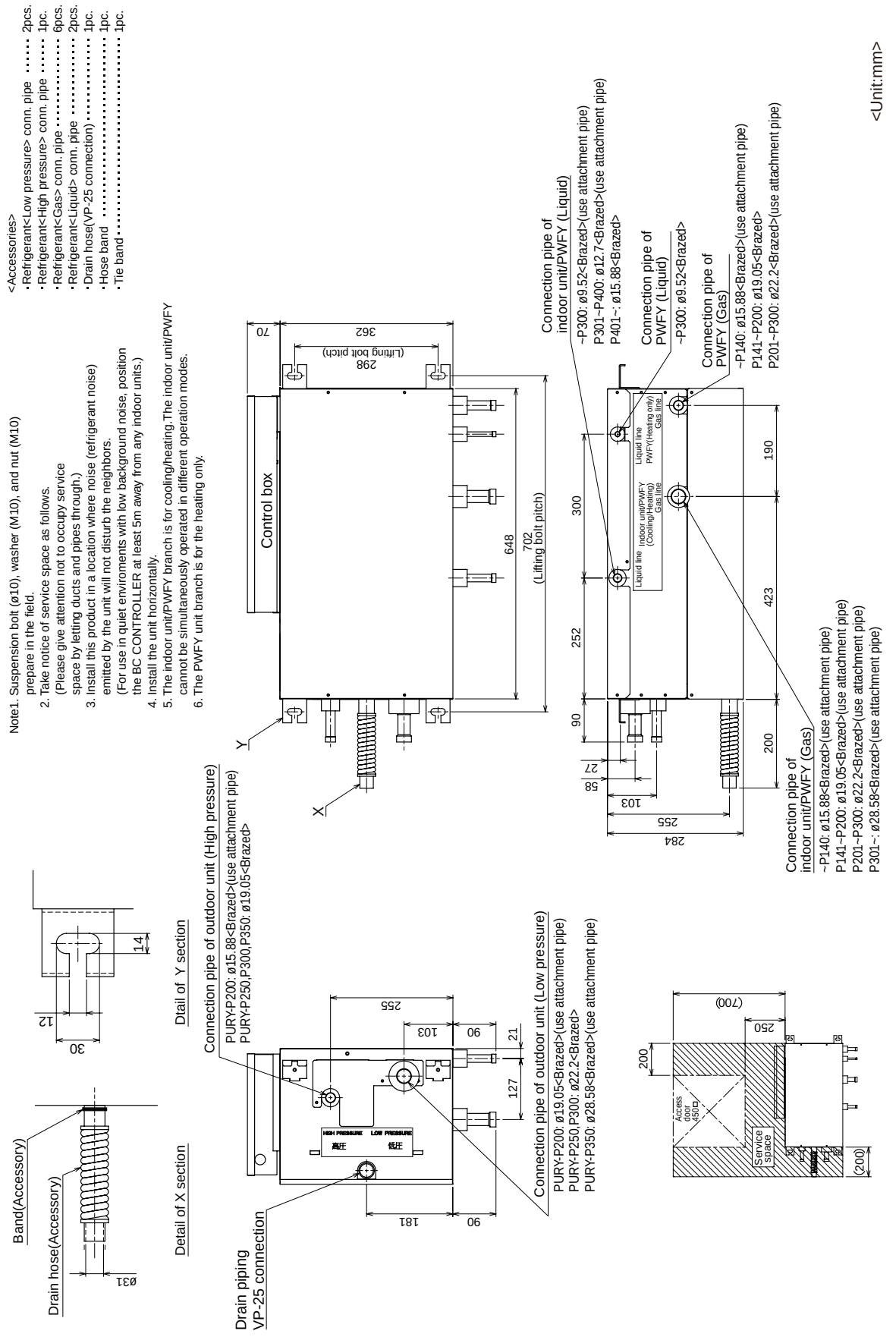


(3) CMB-P104,105,106,108,1010,1013,1016V-G1

*Other models of BC controller are available. For unit information, refer to the Data Book.

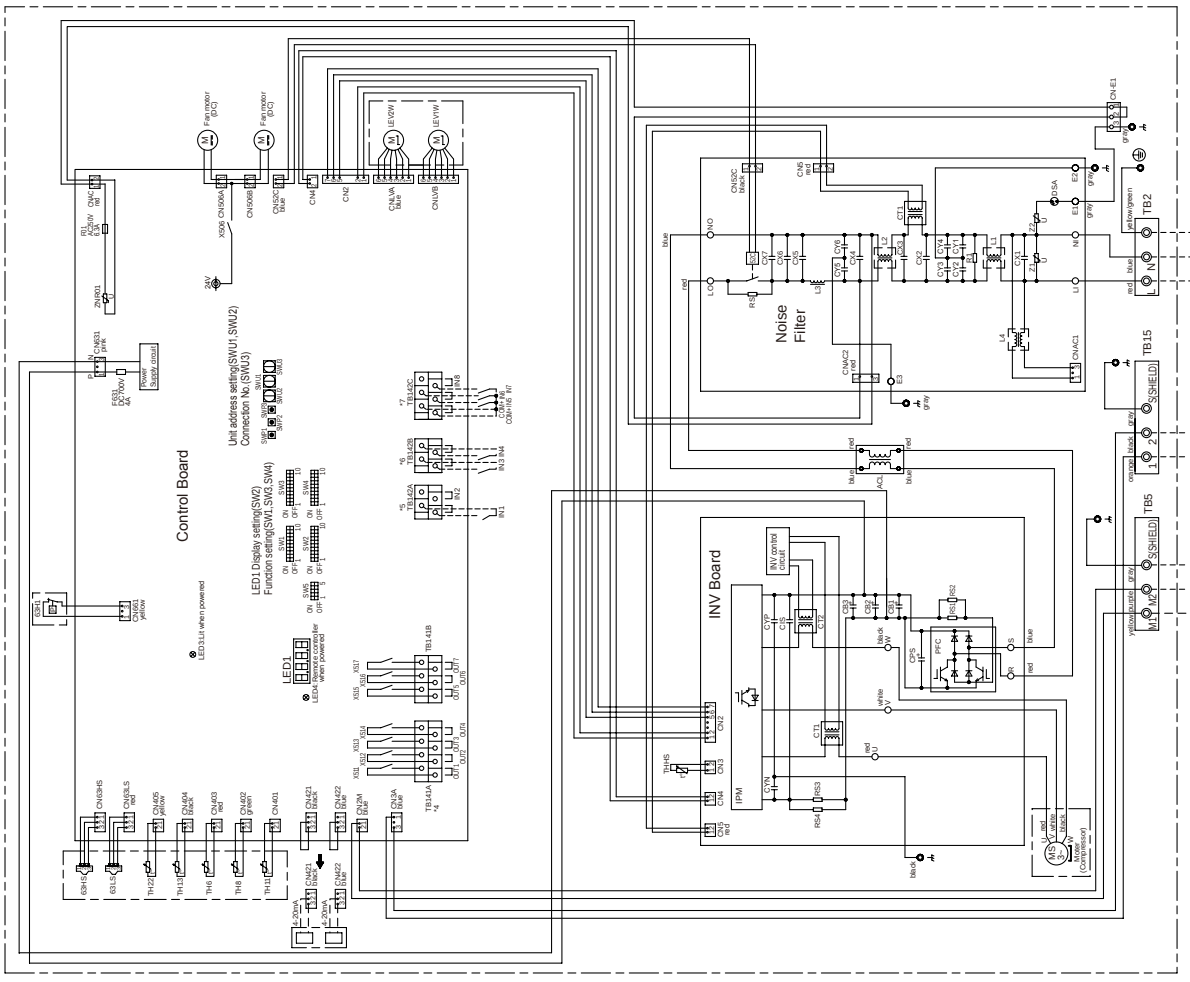


(4) CMB-PW202V-J



3. Electrical Wiring Diagrams

(1) PWFY-P100VM-E-BU



<HIGH VOLTAGE WARNING>
·Control box houses high-voltage parts.
Before inspecting the inside of the control box, turn off the power, keep the unit off for at least 10 minutes,and confirm that the voltage CN631 on Control Board has dropped to DC20V or less.
<CAUTION FOR INSTALLATION>
·Prior to installation,read the Installation Manual carefully.
*1.Single-dotted lines indicate wiring not supplied with the unit.
*2.Dot-dash lines indicate the control box boundaries.
*3.Faston terminals have a locking function.
Make sure the terminals are securely locked in place after insertion.
Press the tab on the terminals to removed them.

*4 TB141A(output)

Symbol	Function
OUT1	Operation ON/OFF
OUT2	Defrost
OUT3	Compressor
OUT4	Error signal

*5 TB142A(input)

Symbol	Function
IN1	Pump interlock

*6 TB142B(input)

Symbol	Function
IN3	Connection demand
IN4	Operation ON/OFF

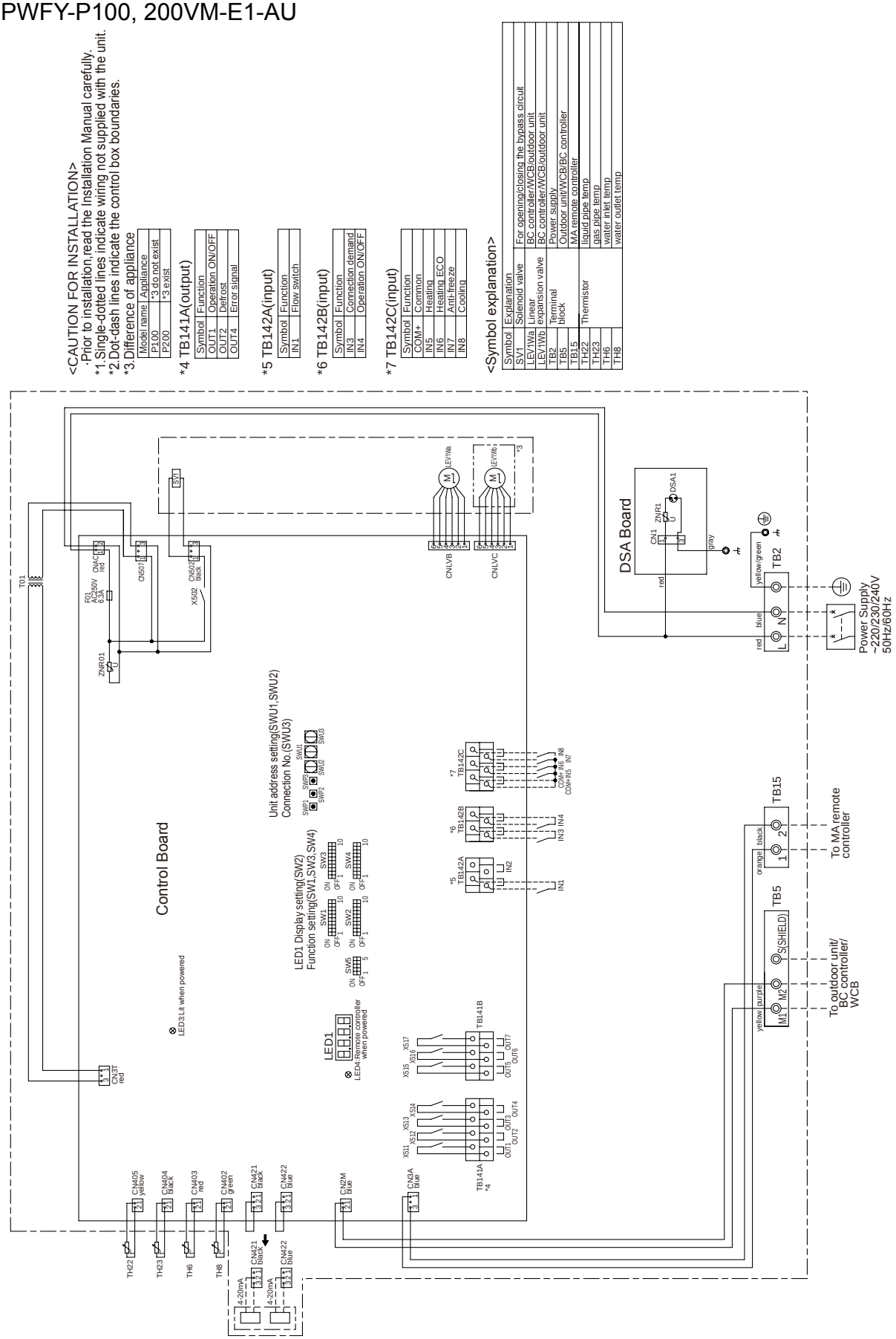
*7 TB142C(input)

Symbol	Function
COM+	Common
IN5	Hot water
IN6	Heating ECO
IN7	Anti-freeze

<Symbol explanation>

Symbol	Explanation	
63H1	Pressure switch	High pressure switch (High pressure protection for the booster unit)
63HS	Pressure sensor	Discharge pressure
63LS		Low pressure
52C	Magnetic relay(main circuit)	
ACL	AC reactor	
CT1,CT2	Current sensor(AC)	
LEV1W	Linear expansion valve	BC controller/WCB/outdoor unit
LEV2W		Booster unit
TB2	Terminal block	Power supply
TB5		Outdoor unit/BC controller/WCB
TB15		MA remote controller
TH11	Thermistor	Compressor discharge temp
TH13		Evaporator outlet temp
TH22		liquid pipe temp
TH6		water inlet temp
TH8		water outlet temp
THHS		IGBT temp

(2) PWFY-P100, 200VM-E1-AU



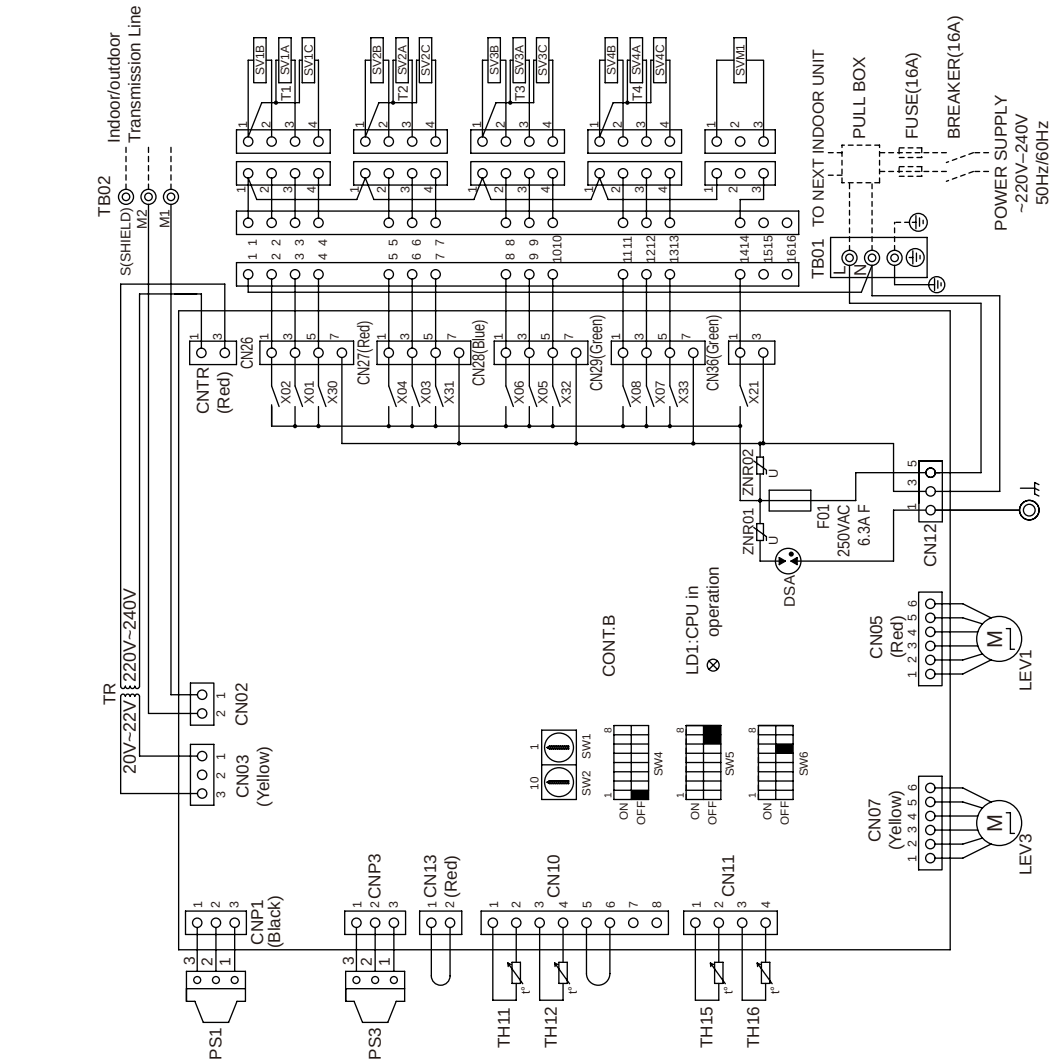
(3) CMB-P104V-G1

*Other models of BC controller are available. For unit information, refer to the Data Book.

(Symbol explanation)

Symbol	Name	
TR	Transformer	
TH11,12,15,16	Thermister sensor	
LEV1,3	Expansion valve	
PS1,3	Pressure sensor	
CONT.B	Circuit board	BC controller
TB01	Terminal block (for power source)	
TB02	Terminal block (for Transmission)	
SV1~4A,B,C	Solenoid valve	
SVM1	Solenoid valve	
T1~4	Terminal	
F01	Fuse AC250V 6.3A F	

Note: 1.TB02 is transmission terminal block. Never connect power line to it.
2.The initial set values of switch on CONT.B are as follows.
SW1:0
SW2:0

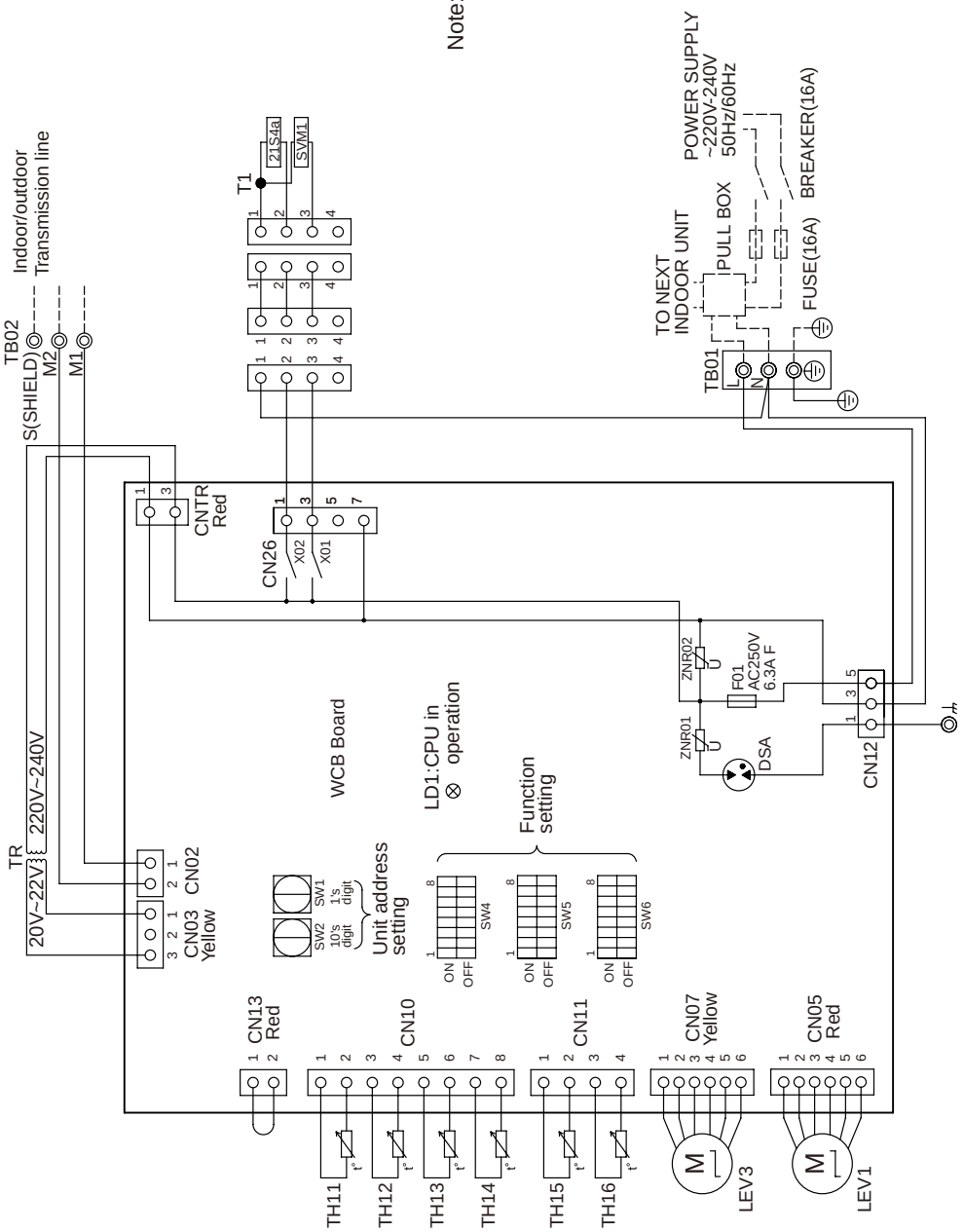


(4) CMB-PW202V-J

(Symbol explanation)

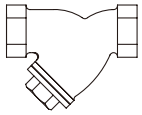
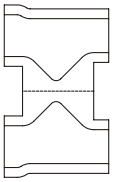
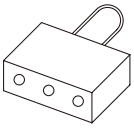
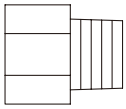
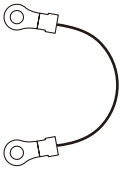
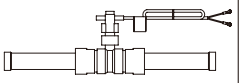
Symbol	Name
TR	Transformer
TH11~16	Thermistor sensor
LEV1,3	Expansion valve
TB01	Terminal block (for power source)
TB02	Terminal block (for Transmission)
SVM1	Solenoid valve
21S4a	4-way valve
F01	Fuse AC250V 6.3A F

Note:1. TB02 is transmission terminal block.
Never connect power line to it.
2. The initial set values of switch on
WCB Board are as follows.
SW1:0
SW2:0



4. Accessories

(1) PWFY

(A) Strainer	(B) Heat insulation material	(C) Connecter sets X2	(D) Expansion joint X2	(E) Wire	(F)
			*1 		

*1. PWFY-P200VM-E1-AU only

(A) Install the strainer at the water pipe inlet.
(B) This insulation is for exclusive use with the strainer. Wrap the strainer with the insulation after water pipes are installed.
(C) These are analog input connectors. Cut the wire before using.
(D) Supplied only with the PWFY-P200VM-E1-AU. Install them at the strainer inlet. Refer to P57 for details.
(E) To perform test run before the pump interlock circuit is completed, short circuit the terminal block TB142A (IN1), and then perform test run.
(F) When installing the unit, be sure to install the supplied flow switch on the water outlet side of the unit and connect the wire to IN1 of TB142A on the unit.

(2) CMB-P104V-G1

SIZE	Unit
ODø19.05 - IDø15.88	1
ODø22.2 - IDø19.05	1
ODø22.2 - IDø28.6	1
Drain hose set	1set
Installation Manual	1

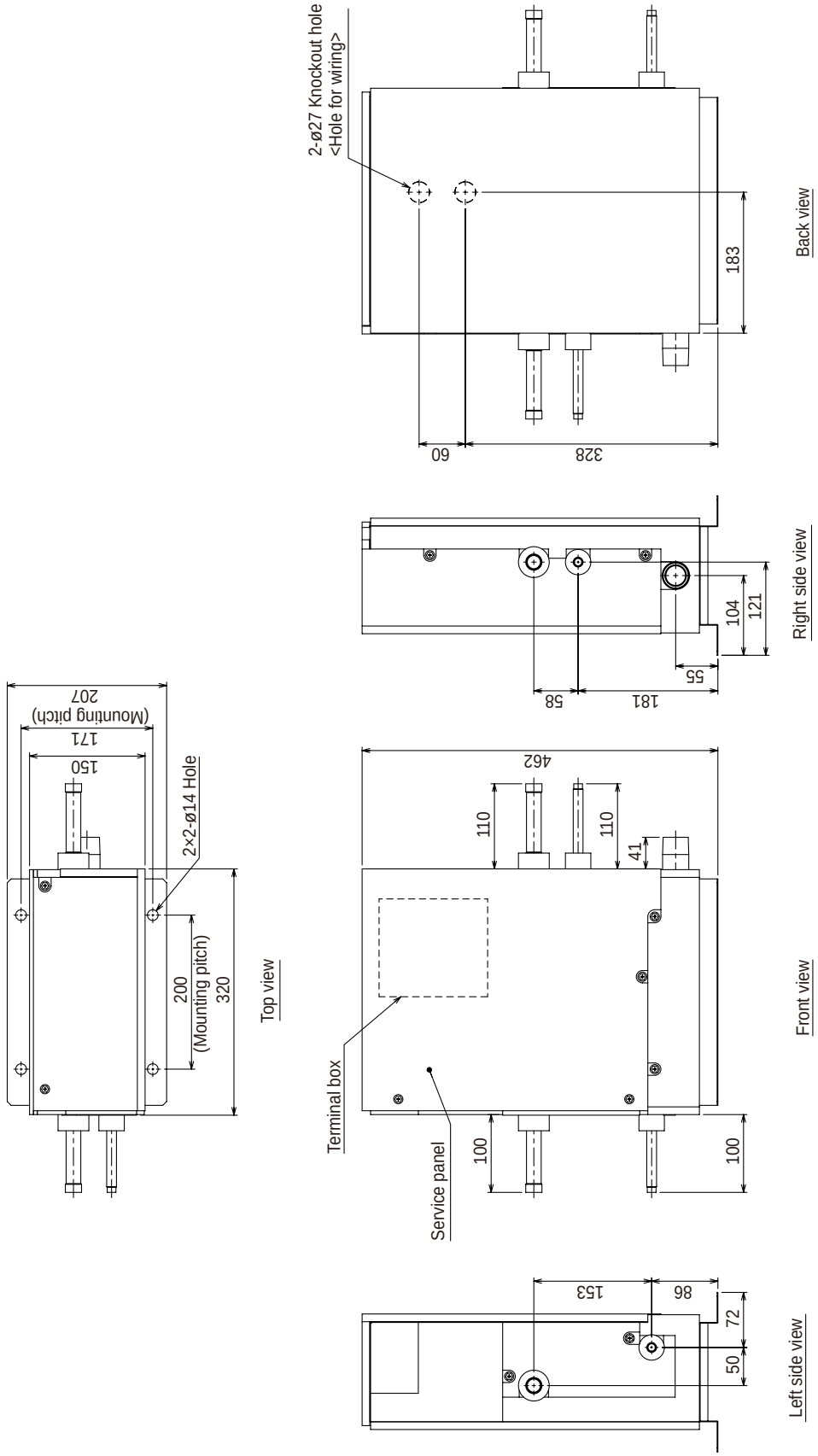
(3) CMB-PW202V-J

SIZE	Unit
ODø19.05 - IDø15.88	2
ODø22.2 - IDø19.05	1
ODø15.88 - IDø9.52	1
ODø15.88 - IDø12.7	1
ODø25.4 - IDø19.05	1
ODø25.4 - IDø22.2	1
ODø19.05 - IDø22.2	1
ODø25.4 - IDø28.6	1
ODø22.2 - IDø28.6	1
ODø25.4 - IDø15.88	1
Drain hose set	1 set
Installation Manual	1

5. Optional parts

(1) Solenoid valve kit

PAC-SV01PW-E

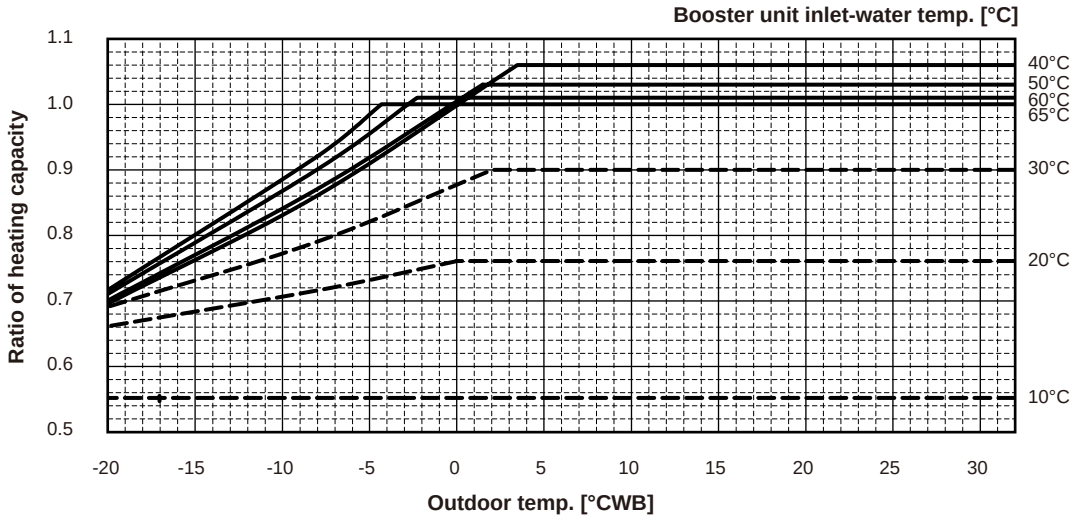


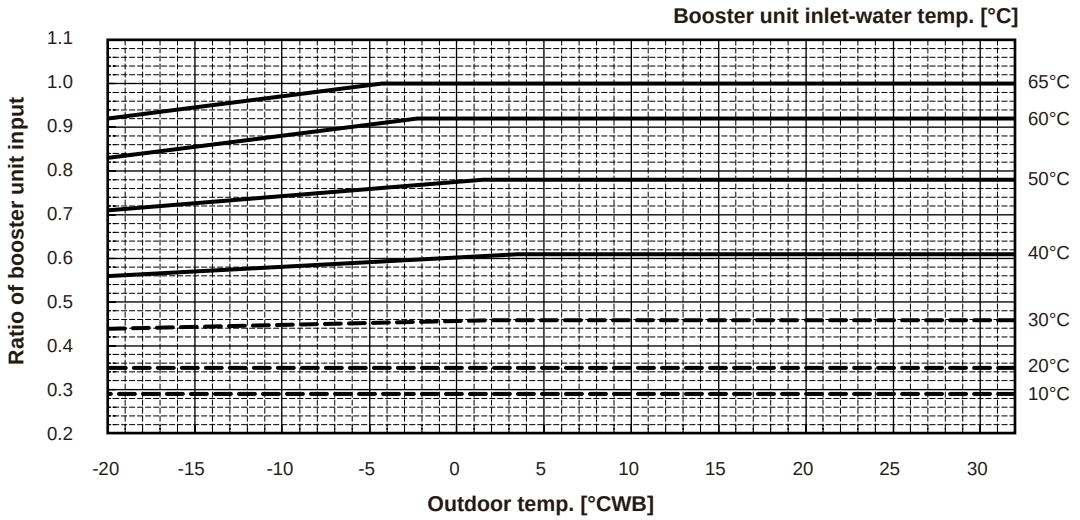
1. Capacity tables

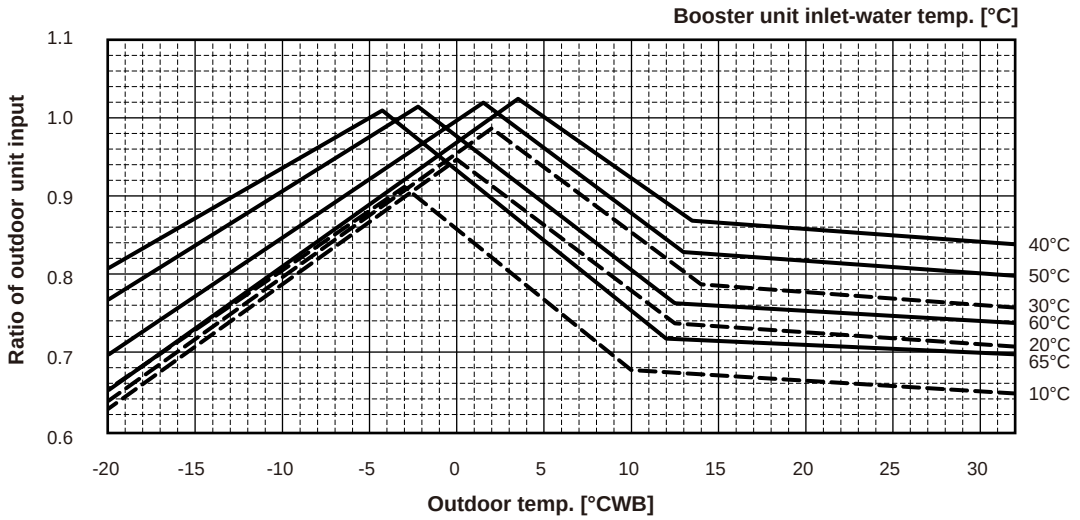
(1) Correction by temperature (Estimated performance without defrost)

(1)-1 R2 series + PWFY-P100VM-E-BU

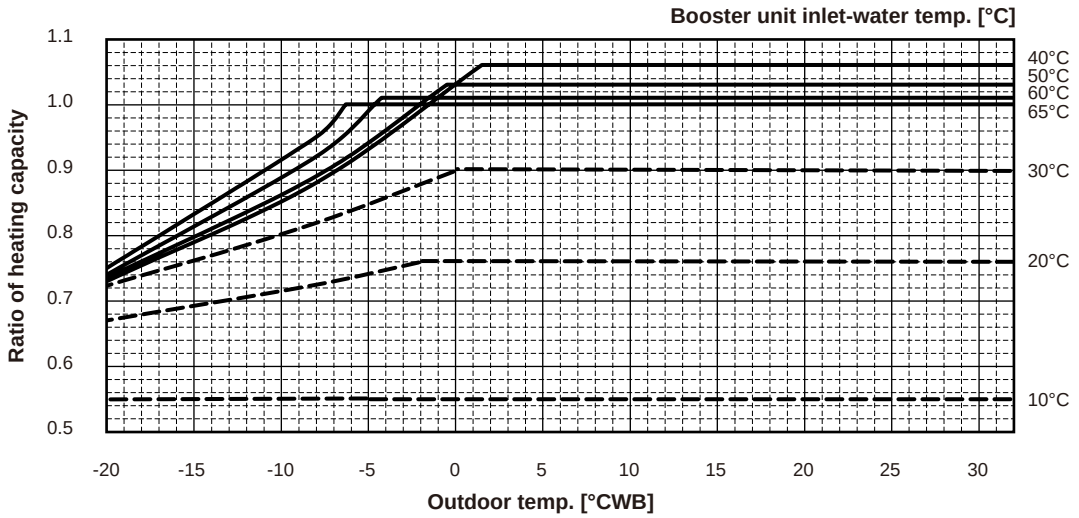
PURY-	P200,250YJM-A(-BS)	EP200,250YJM-A(-BS)

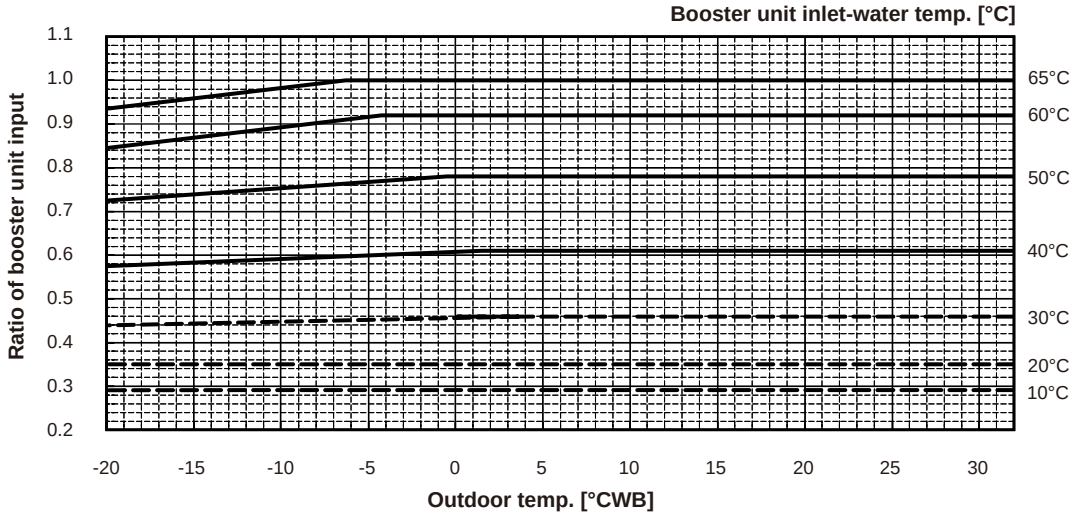


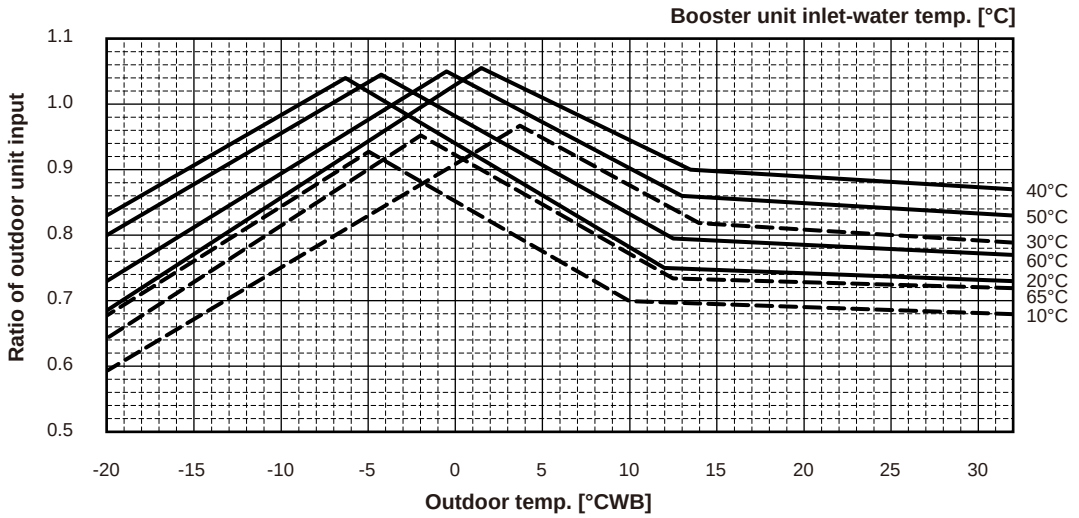




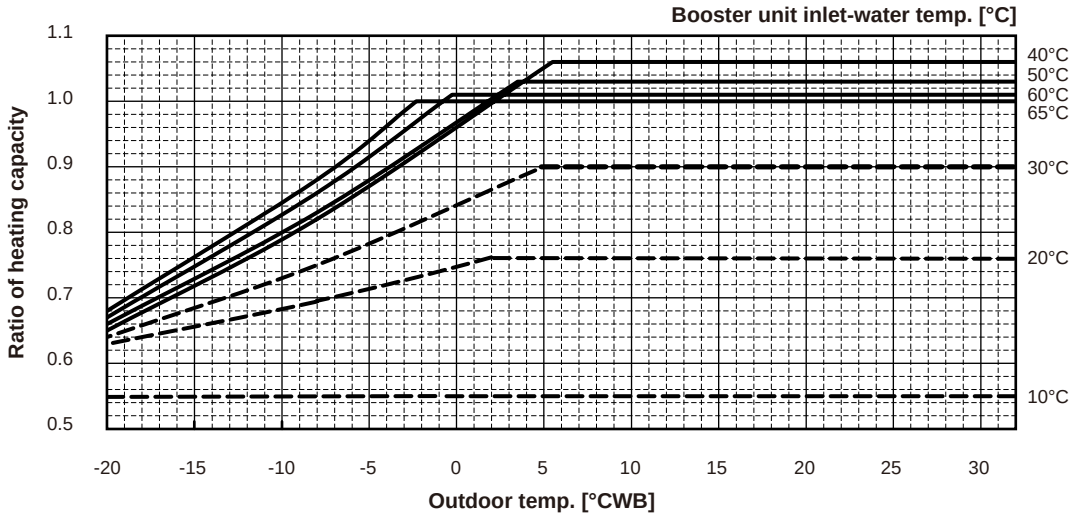
PURY-	P300,350,400YJM-A(-BS)	EP300,350,400Y(S)JM-A(-BS)

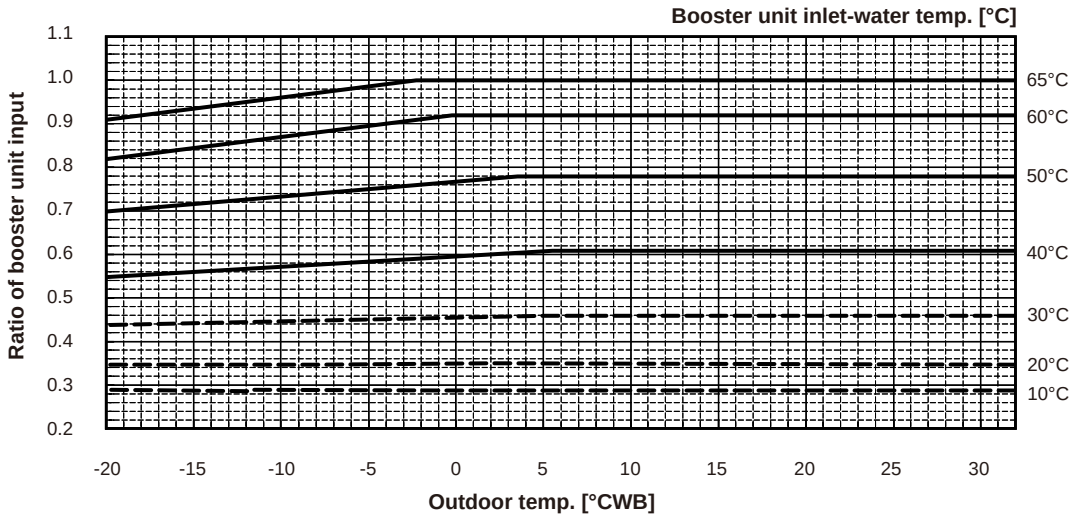


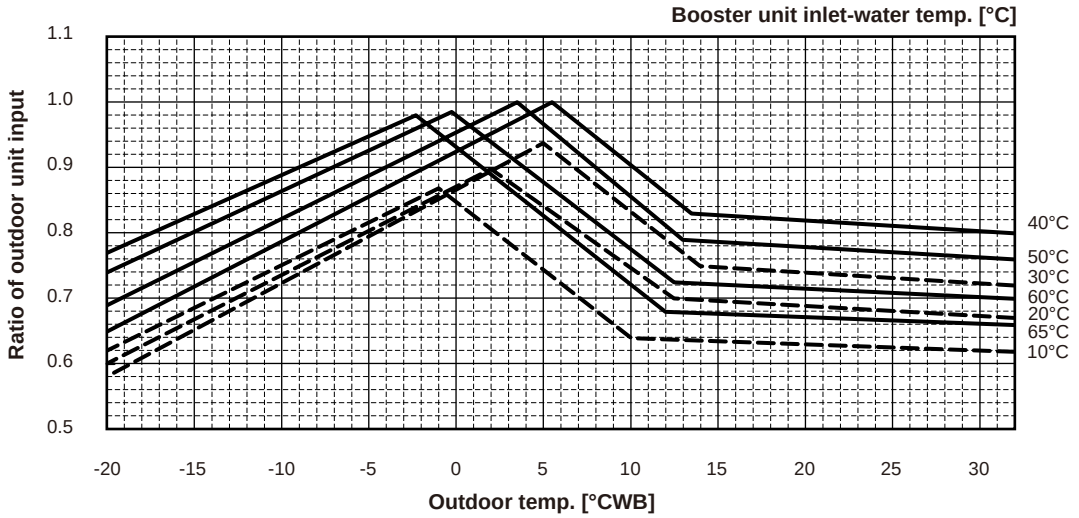




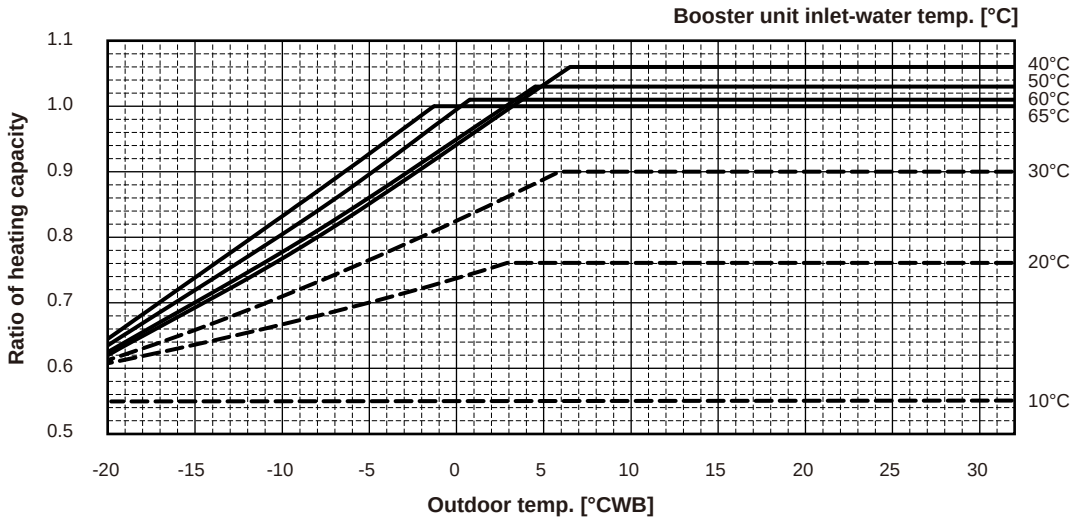
PURY-	P450,500,550,600,650Y(S)JM-A(1)(-BS) EP450,500,550,600,650YSJM-A(1)(-BS)

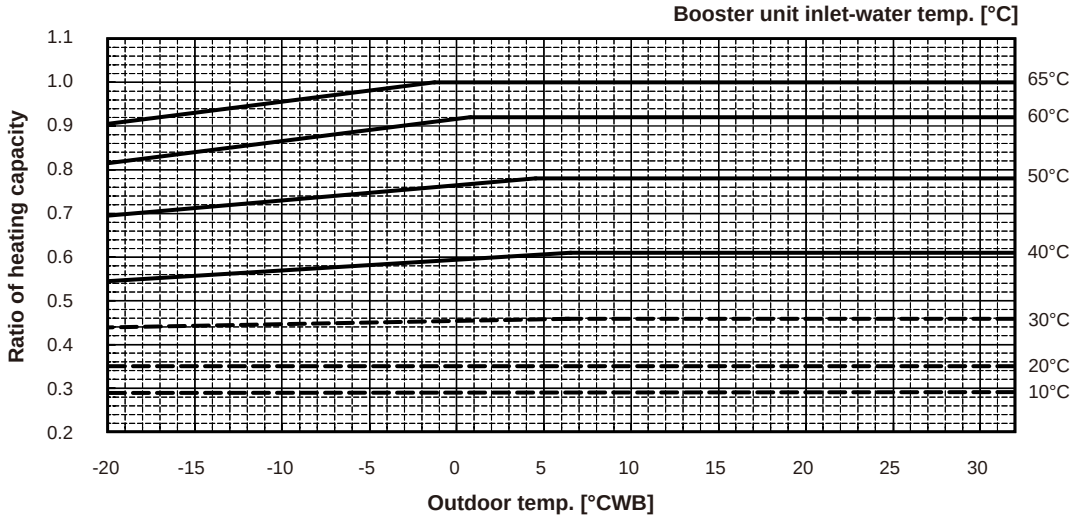


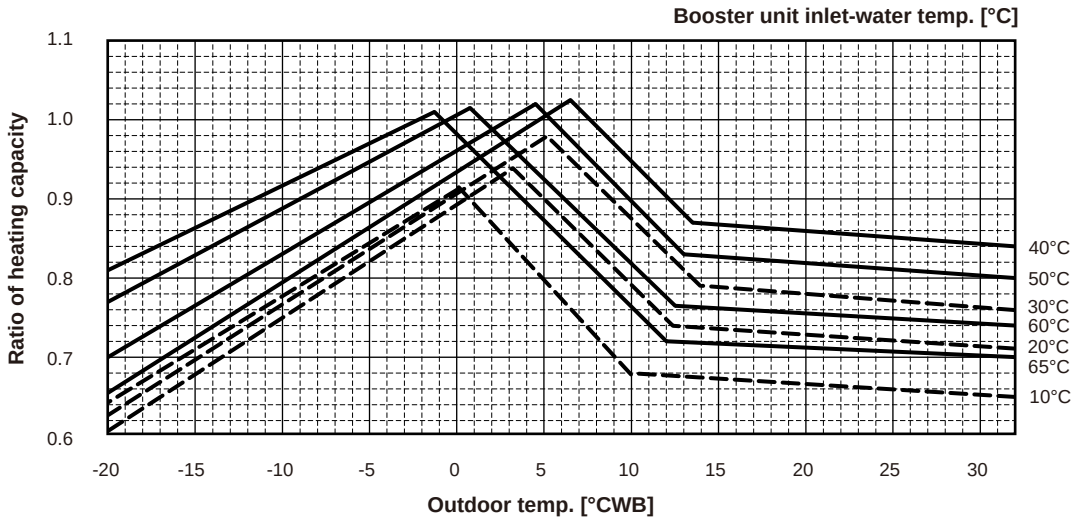




PURY-	P700,750,800,850,900YSJM-A(1)(-BS)	EP700YSJM-A(-BS)



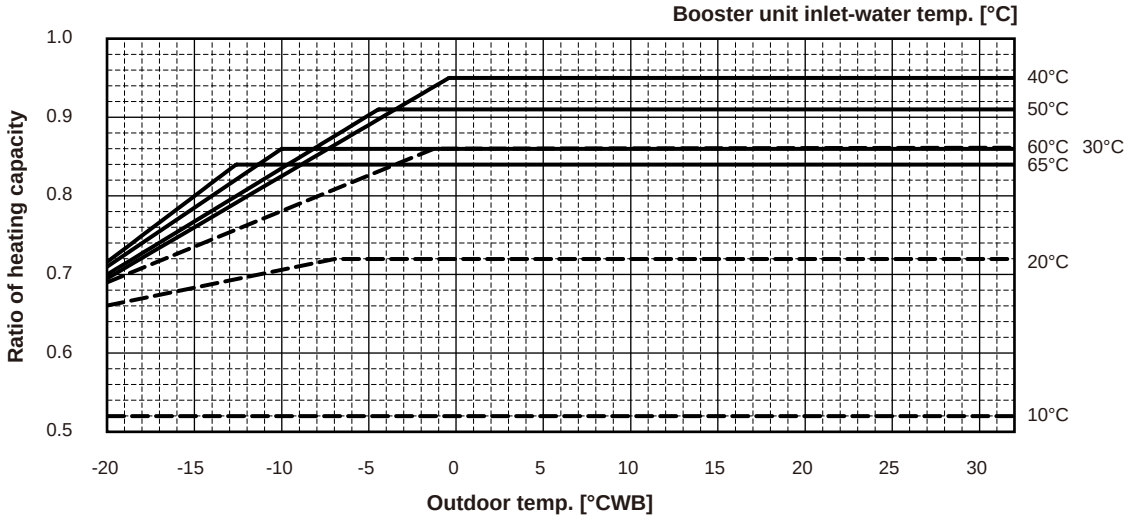


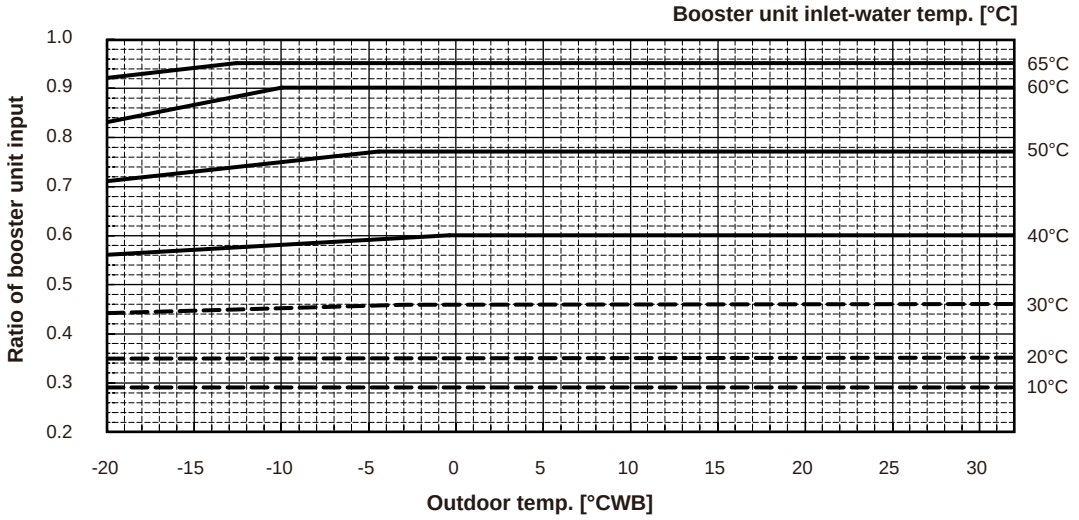


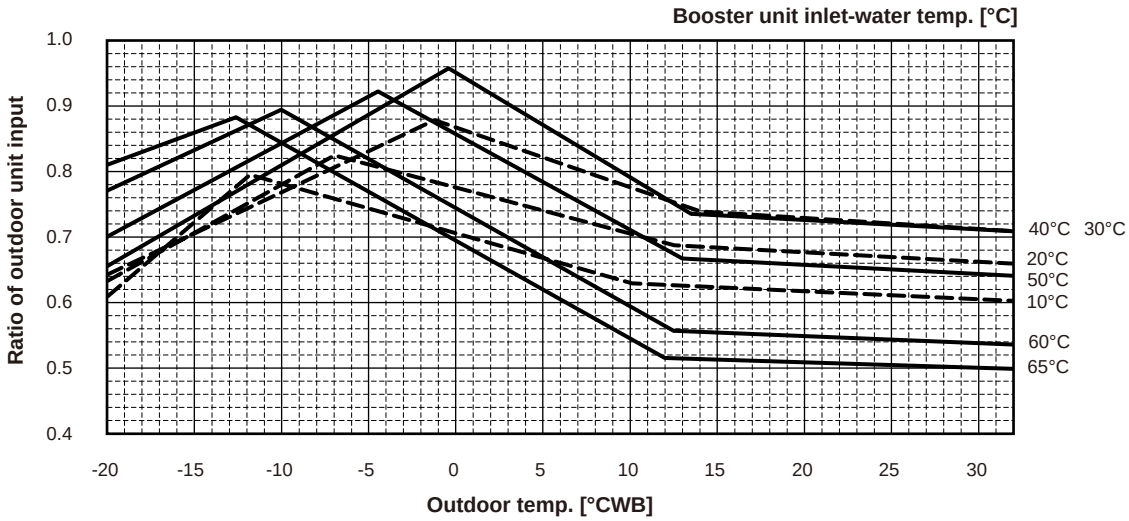
(1)-2 R2 series + PWFY-P100VM-E-BU + WCB Energy saving mode*

*For energy saving mode, set WCB DIP SW 6-5 ON.

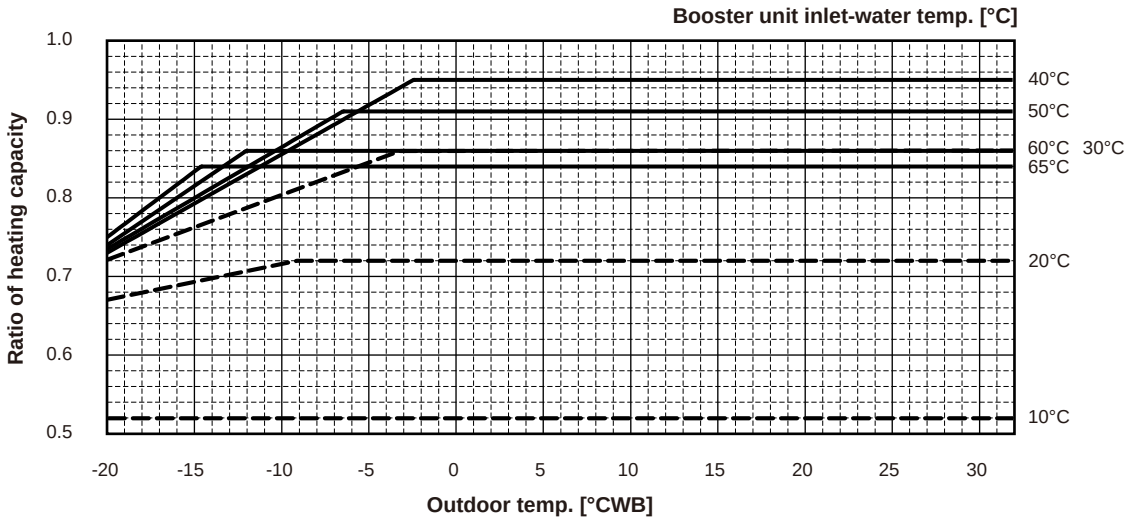
PURY-	P200,250YJM-A(-BS)	EP200,250YJM-A(-BS)

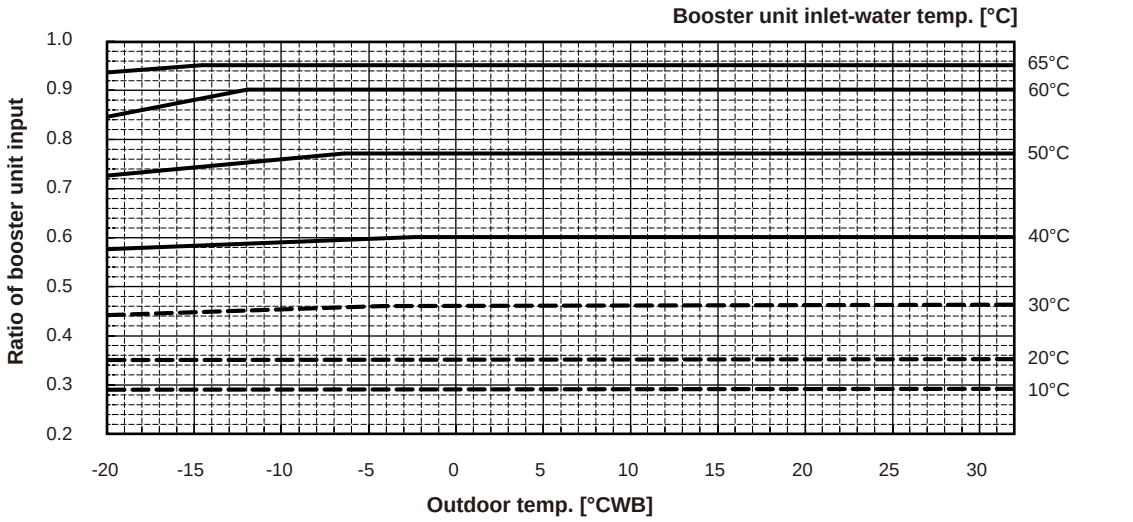


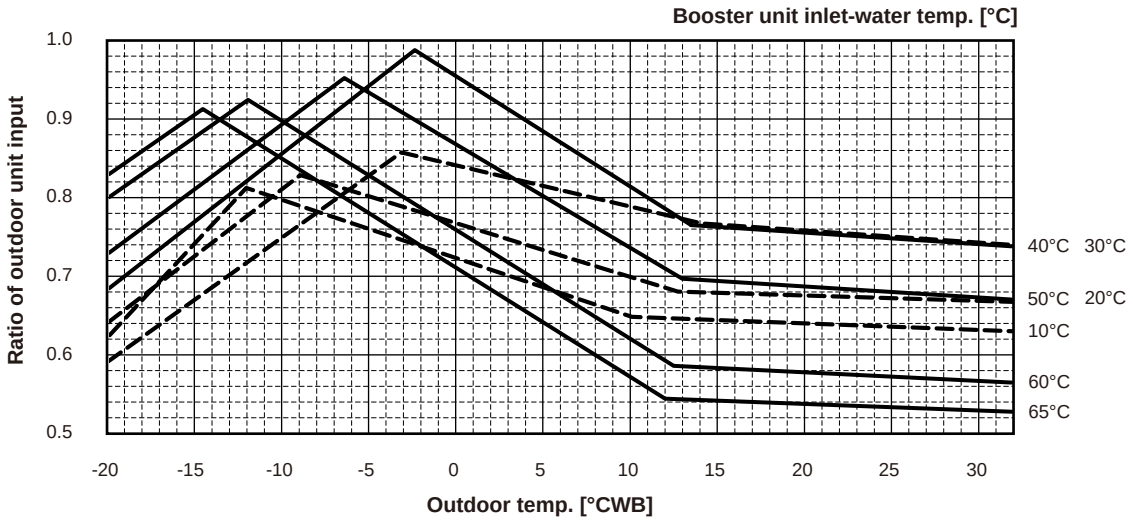




PURY-	P300,350YJM-A(-BS)	EP300,350YJM-A(-BS)

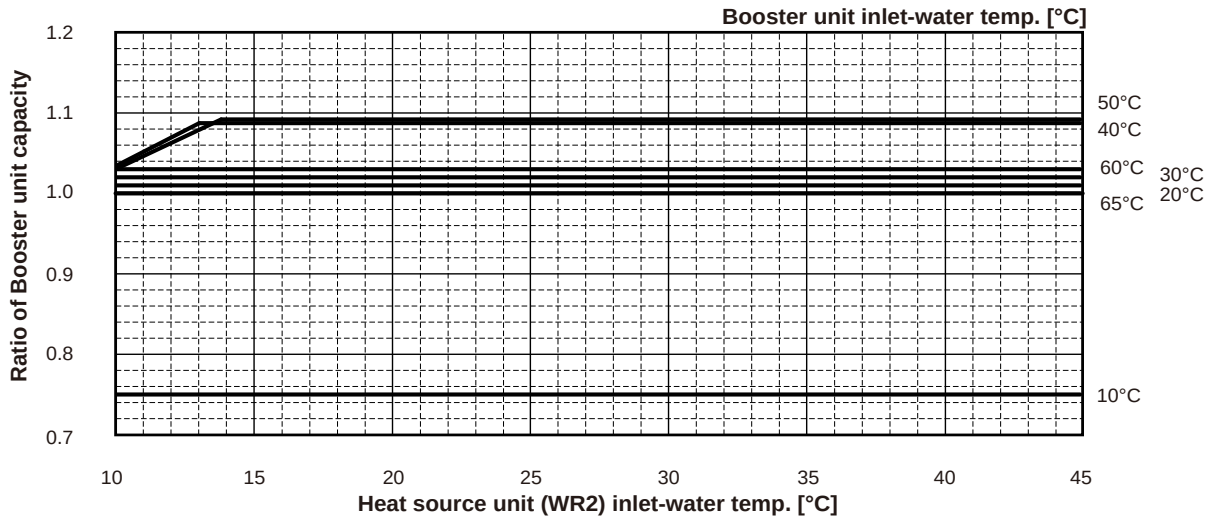


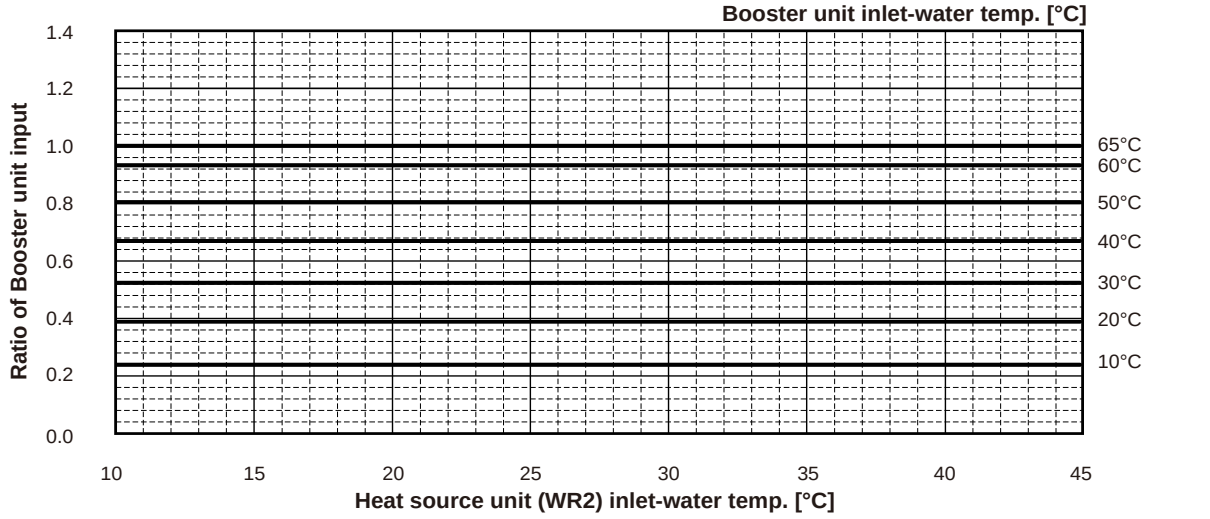


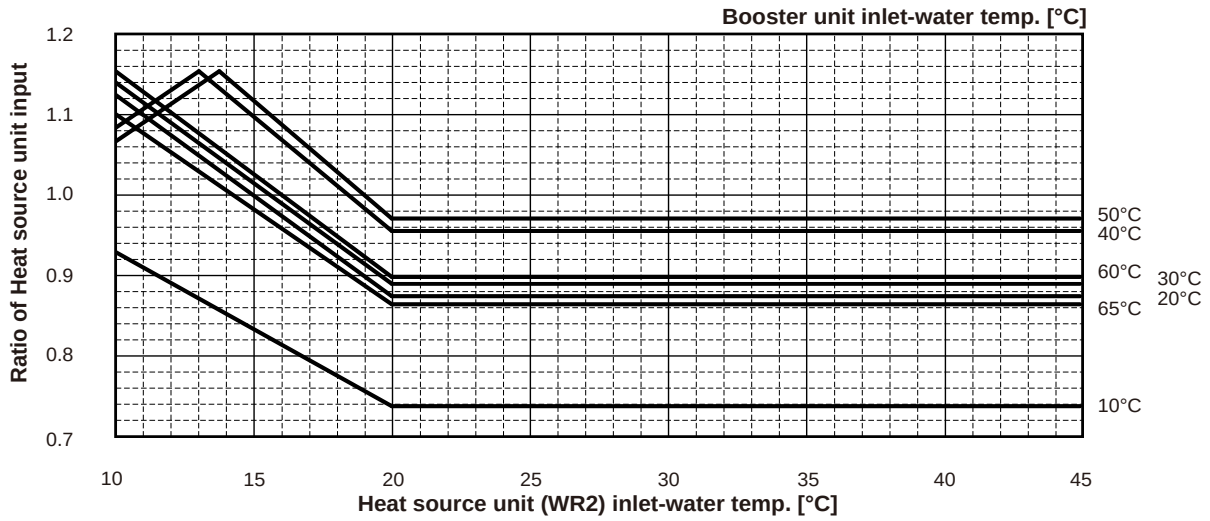


(1)-3 WR2 series + PWFY-P100VM-E-BU

PQRY-	P200,250,300,400,450,500,550,600Y(S)HM-A



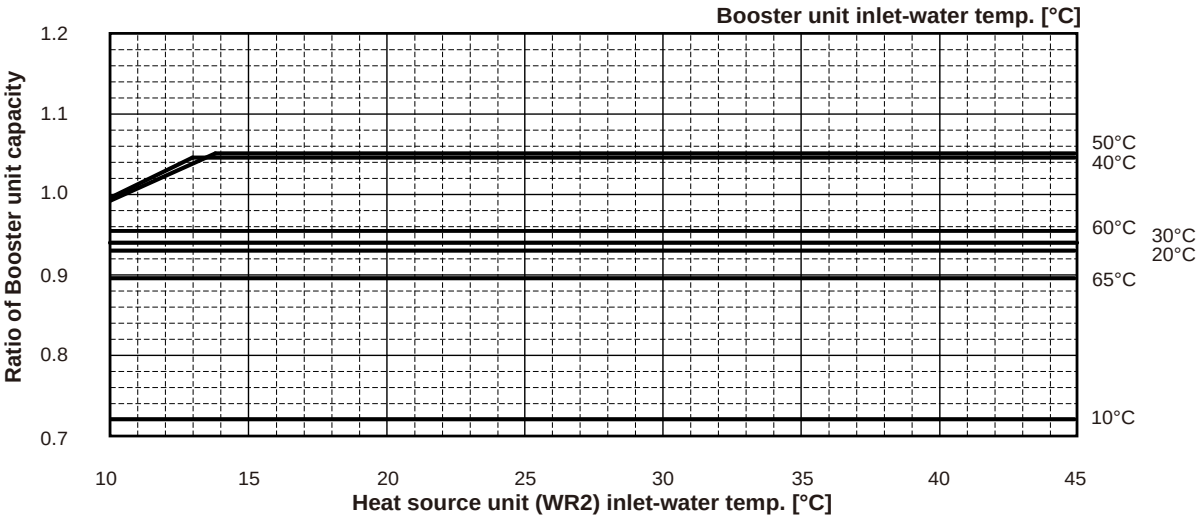


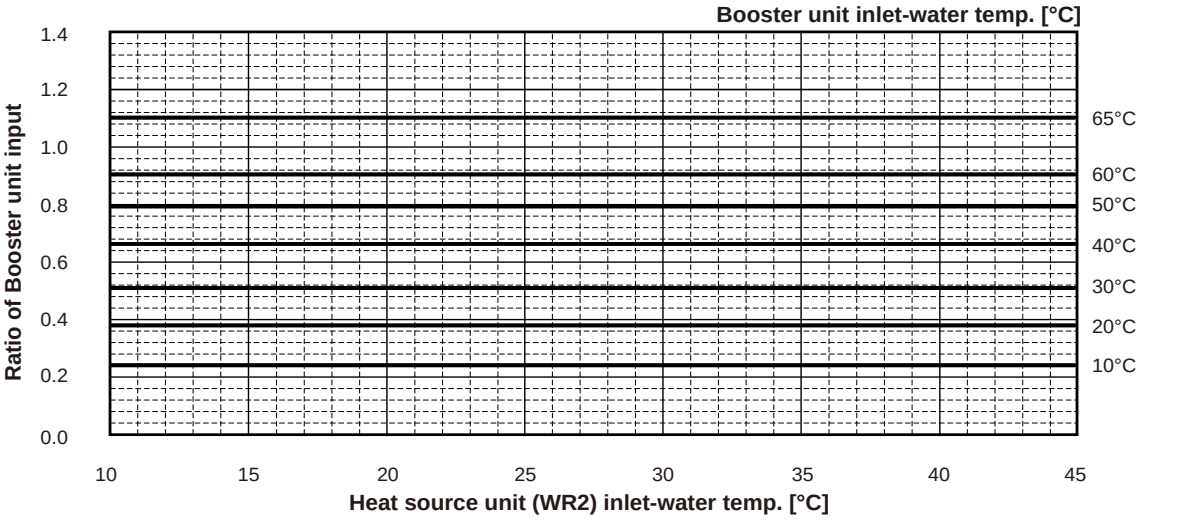


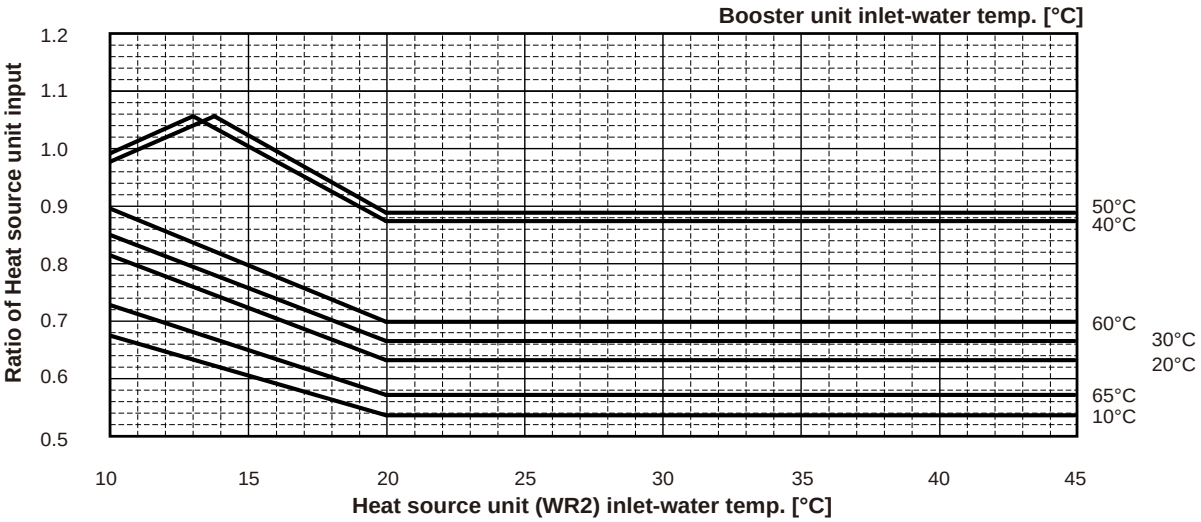
(1)-4 WR2 series + PWFY-P100VM-E-BU + WCB Energy saving mode*

*For energy saving mode, set WCB DIP SW 6-5 ON.

PQRY-	P200,250,300,400,450,500,550,600Y(S)HM-A



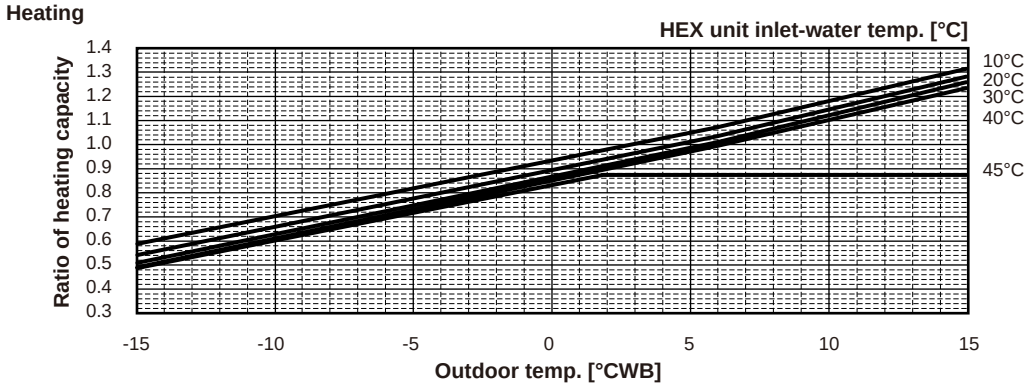


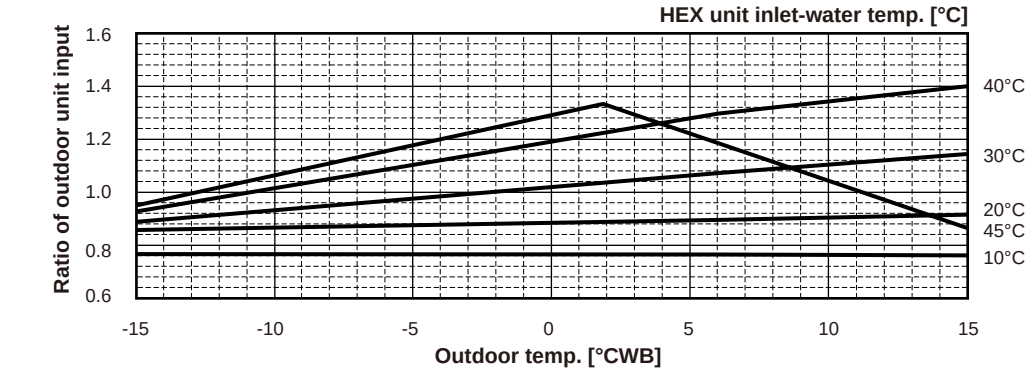


(1)-5 S series + PWFY-P100VM-E1-AU

PUMY-	P100,125,140VHMB	P100,112,125,140YHMB

Heating

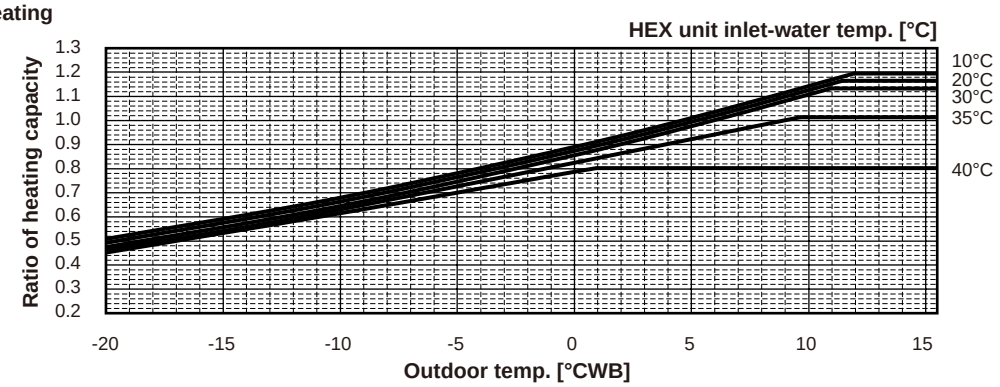


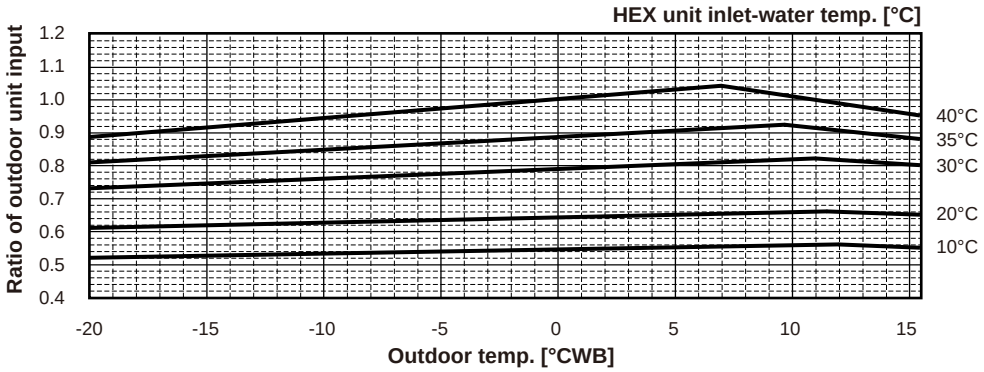


(1)-6 Y series + PWFY-P100,200VM-E1-AU

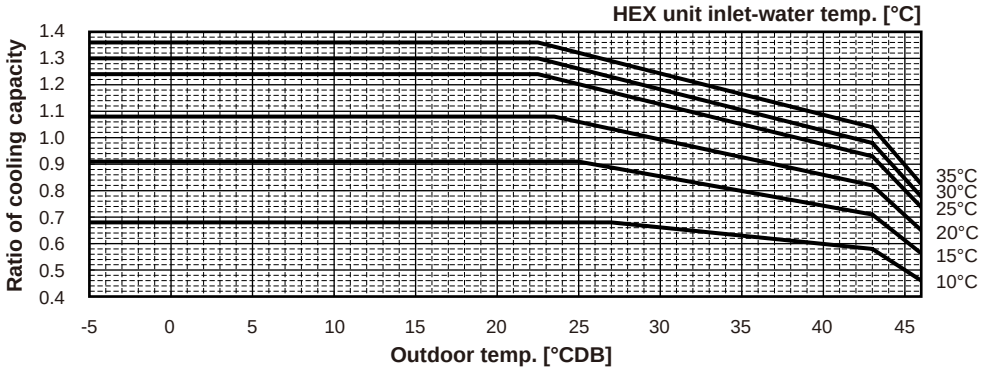
PUHY-	P200,250YJM-A(-BS)	EP200,250YJM-A(-BS)

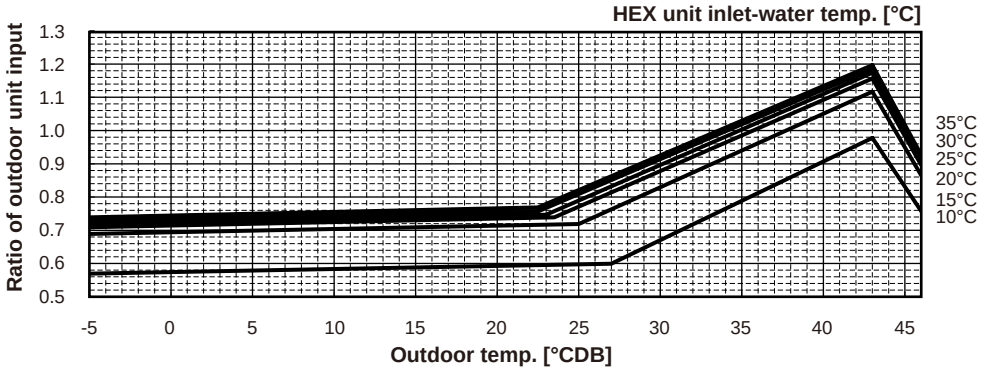
Heating





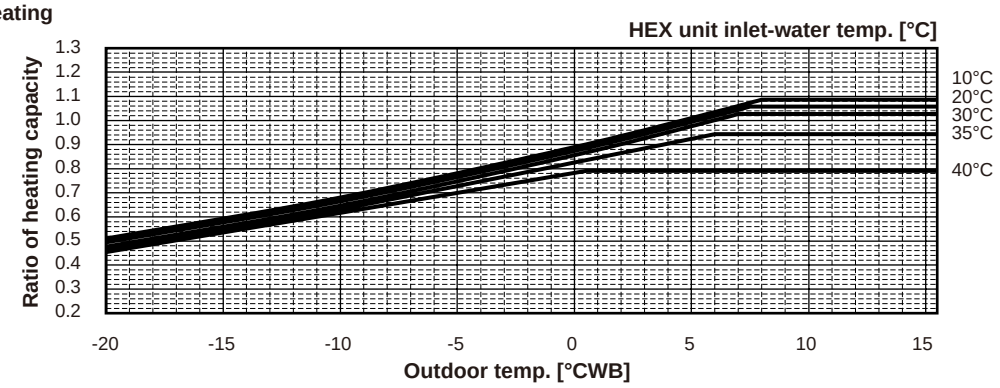
Cooling

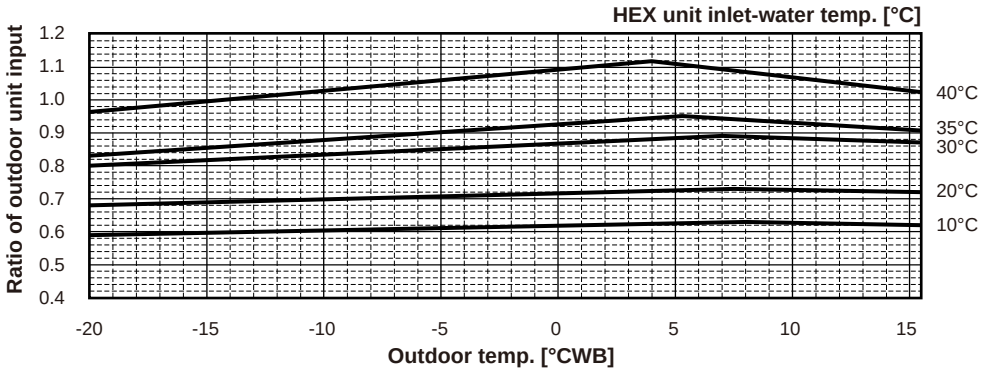




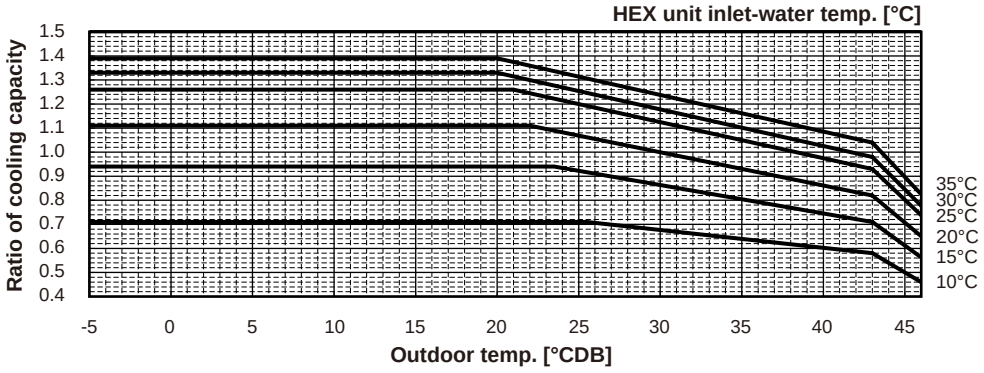
PUHY-	P300,350,400YJM-A(-BS)	EP300,400Y(S)JM-A(-BS)

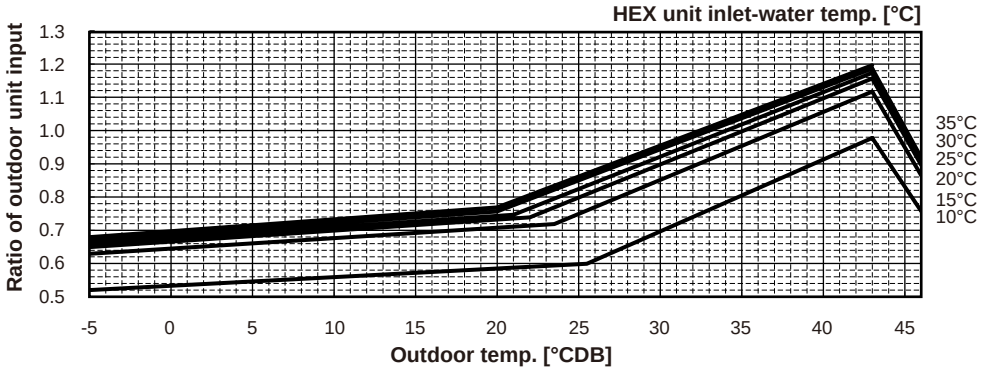
Heating





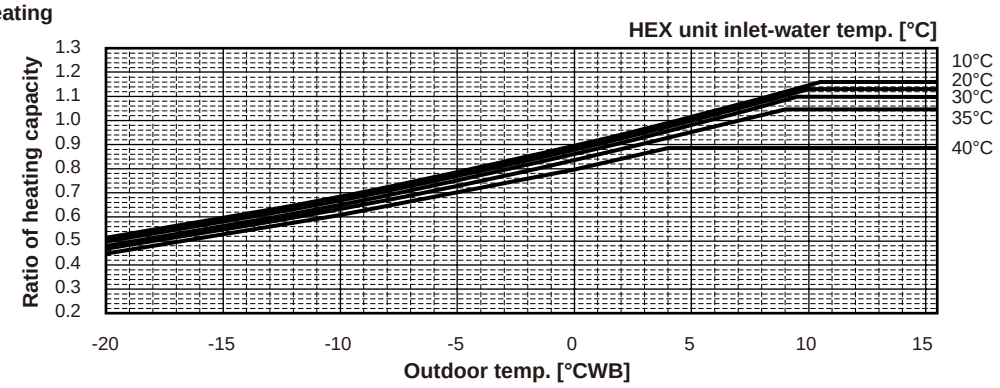
Cooling

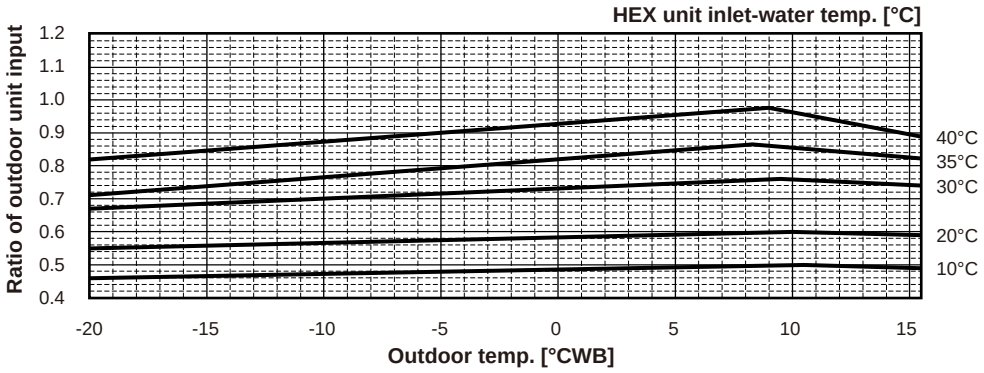




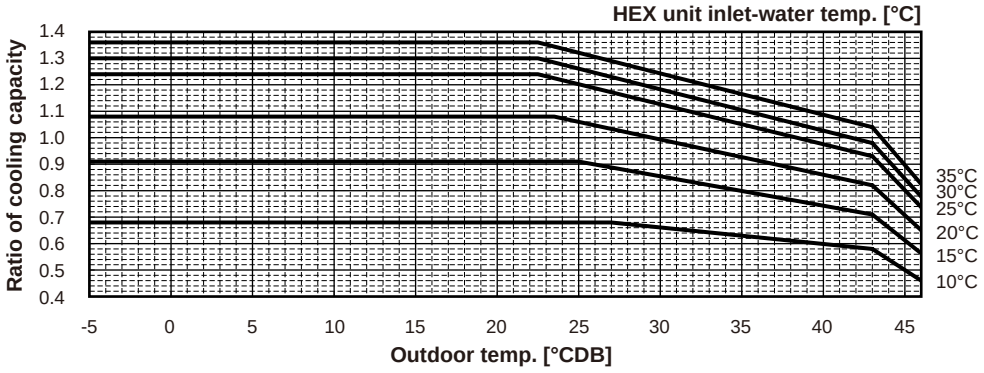
PUHY-	P450,500,550,600,650Y(S)JM-A(1)(-BS) EP450,500,550,600,650YSJM-A(1)(-BS)

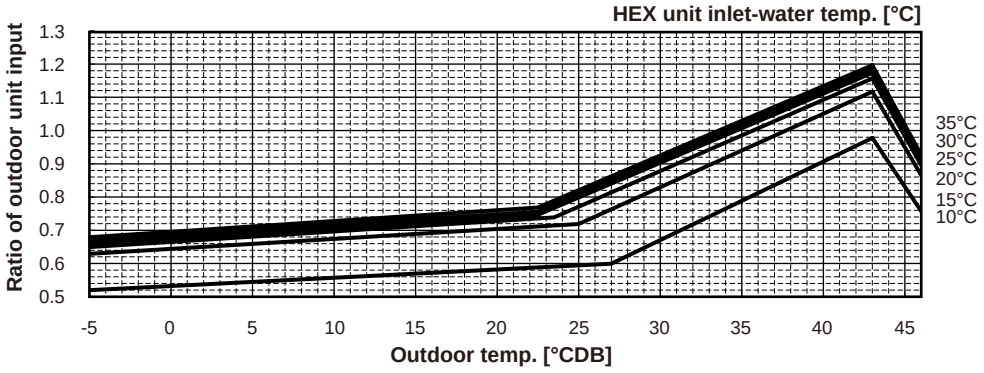
Heating





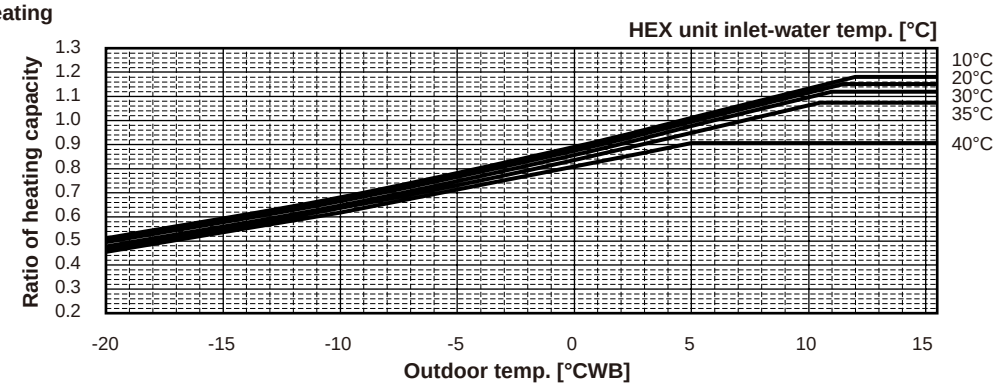
Cooling

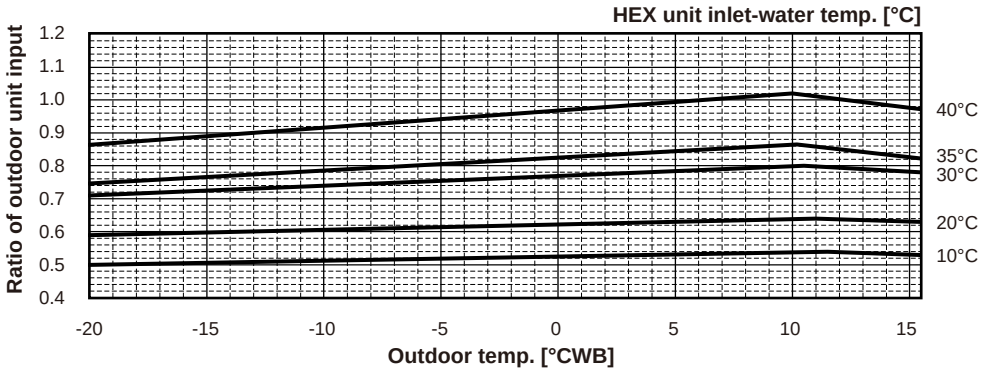




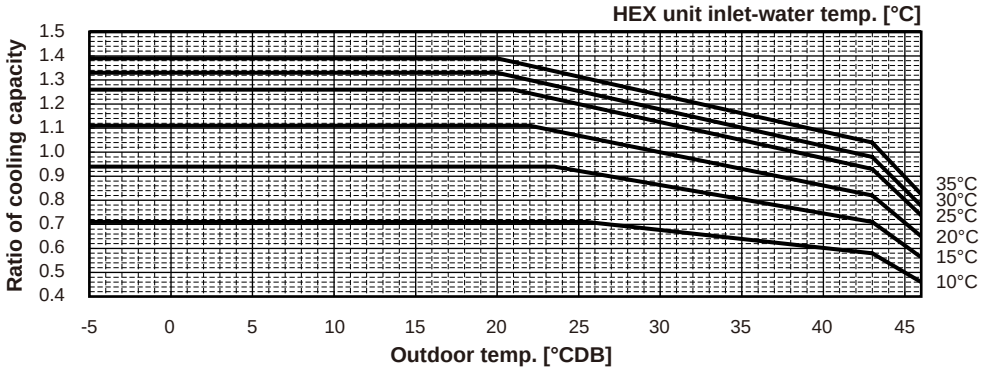
PUHY-	P700,750,800YSJM-A(1)(-BS) EP700,750,800YSJM-A(1)(-BS)

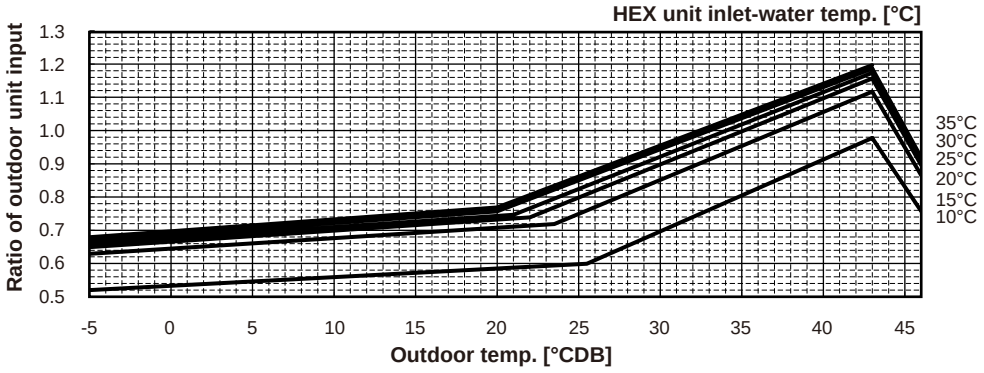
Heating





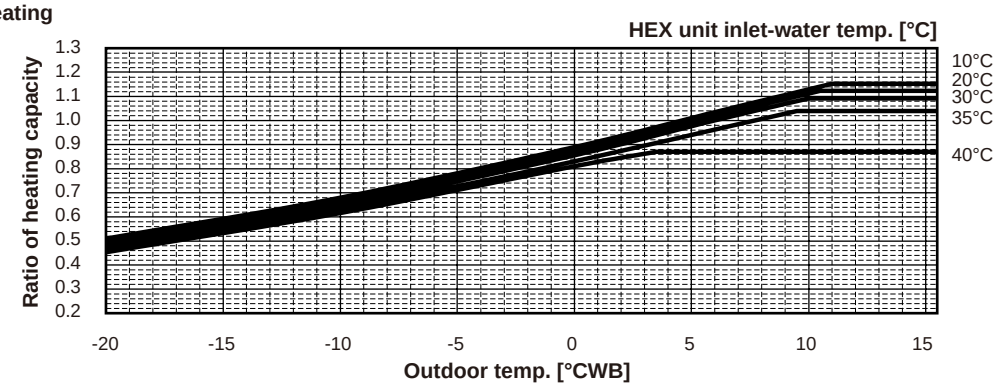
Cooling

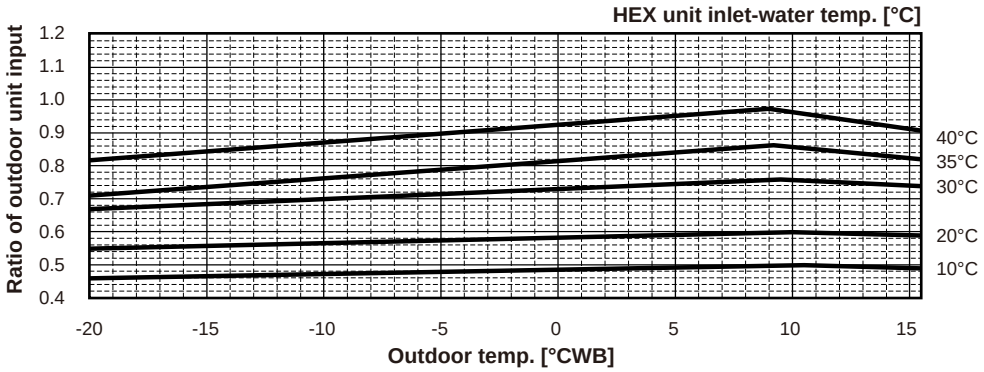




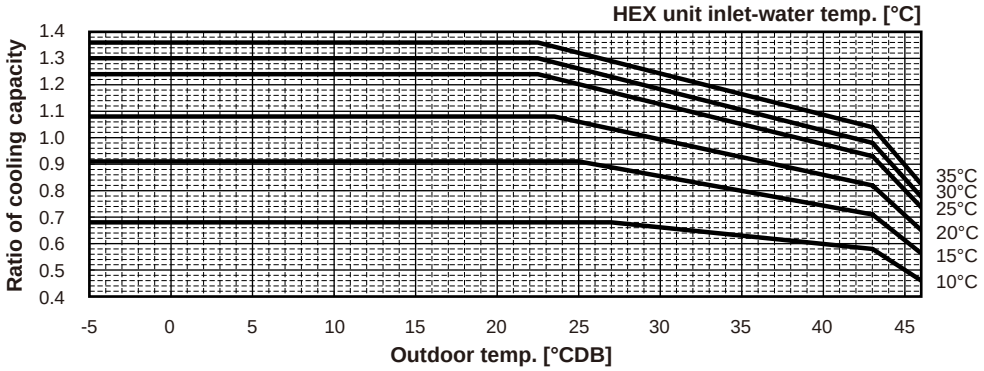
PUHY-	P850,900,950,1000,1050,1100,1150,1200,1250YSJM-A(-BS) EP850,900YSJM-A(-BS)

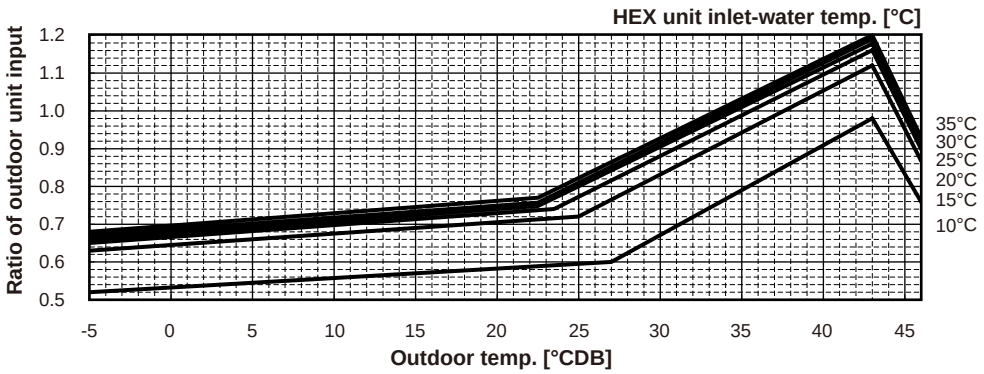
Heating





Cooling

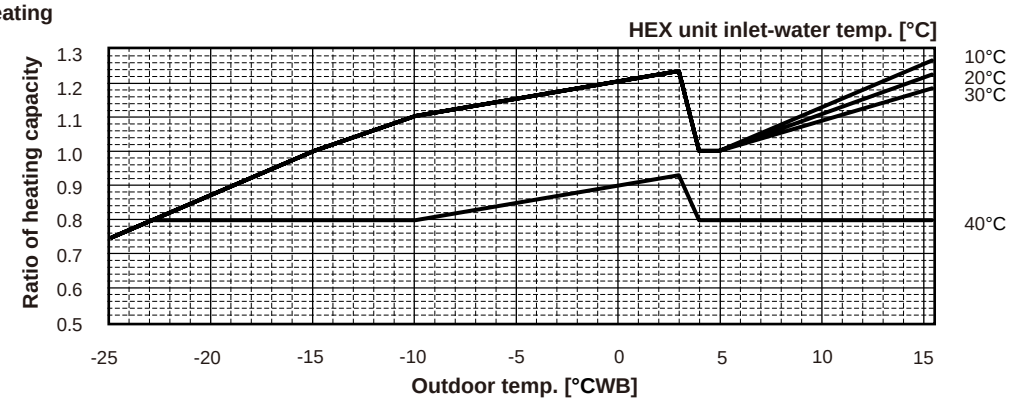


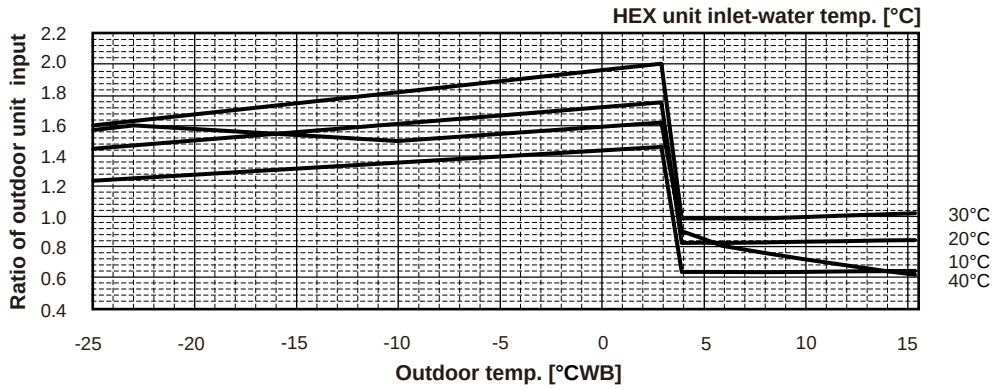


(1)-7 HP (ZUBADAN) series + PWFY-P100,200VM-E1-AU

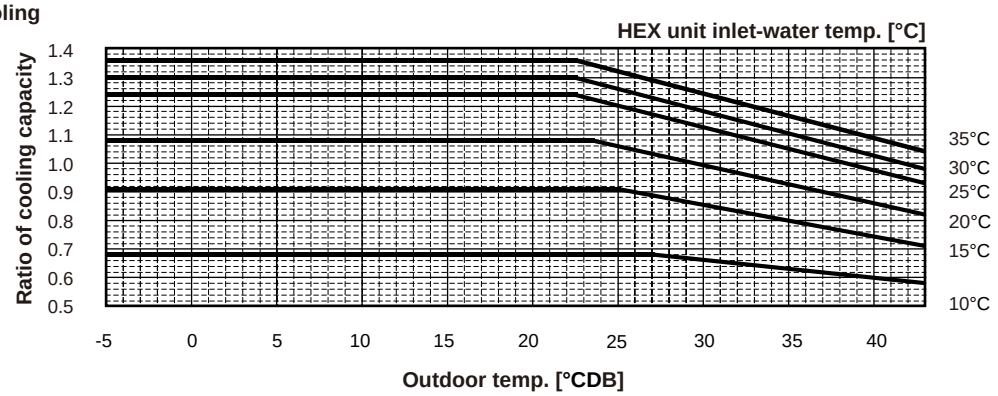
PUHY-	HP200,250,400,500Y(S)HM-A(-BS)

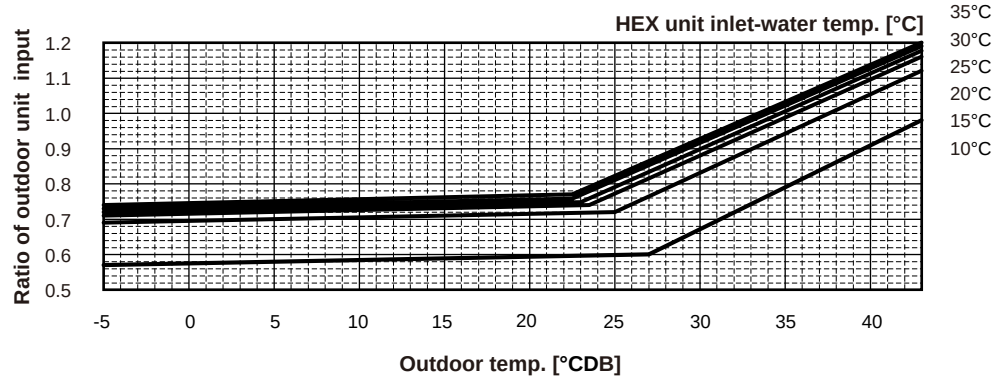
Heating





Cooling

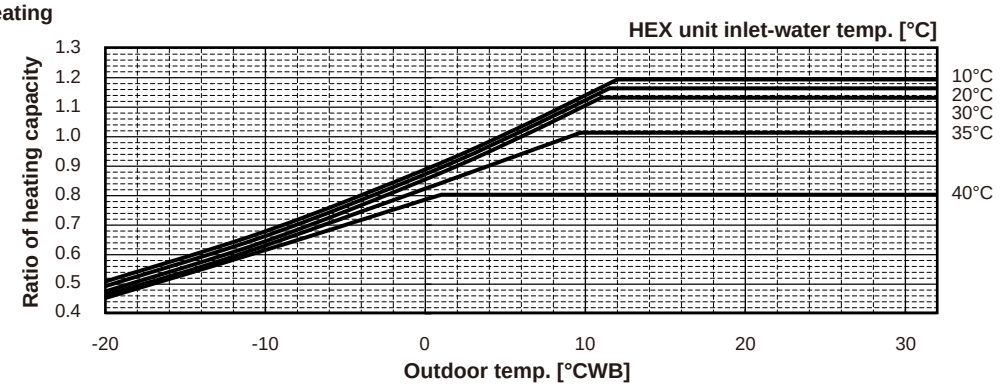


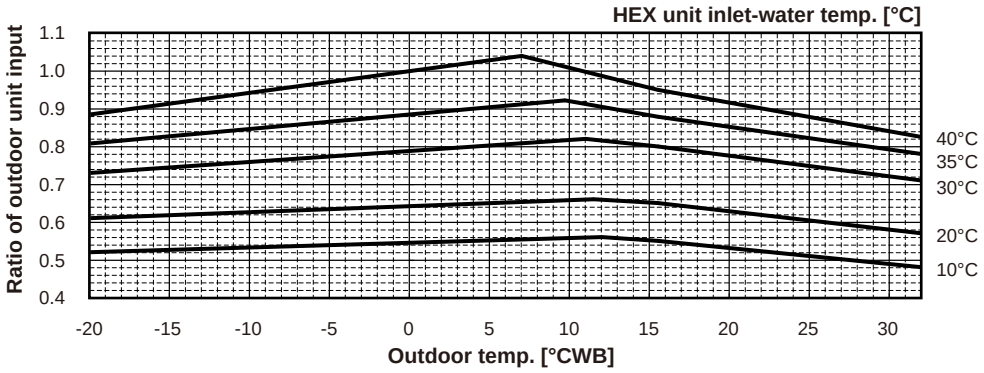


(1)-8 R2 series + PWFY-P100,200VM-E1-AU

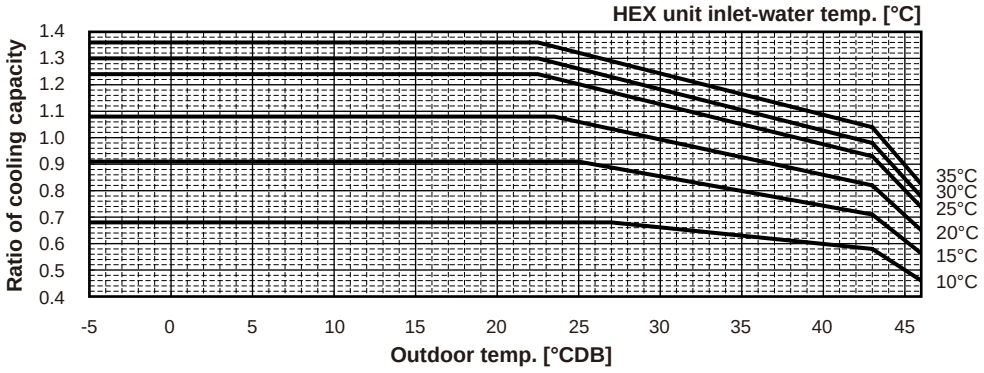
PURY-	P200,250YJM-A(-BS)	EP200,250YJM-A(-BS)

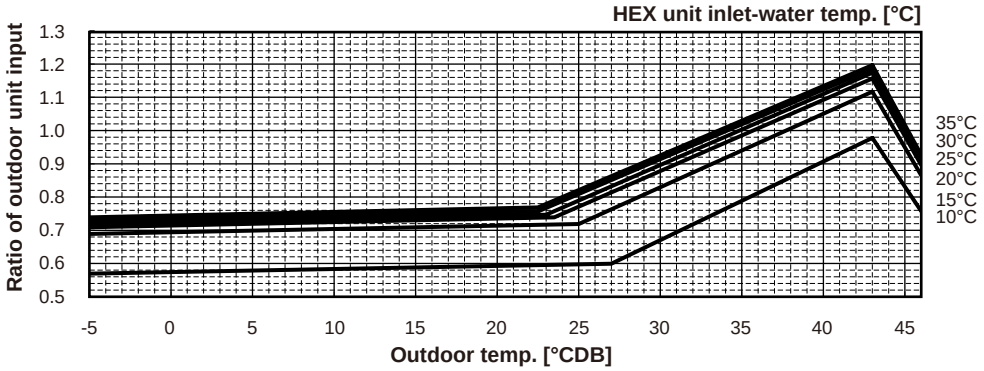
Heating





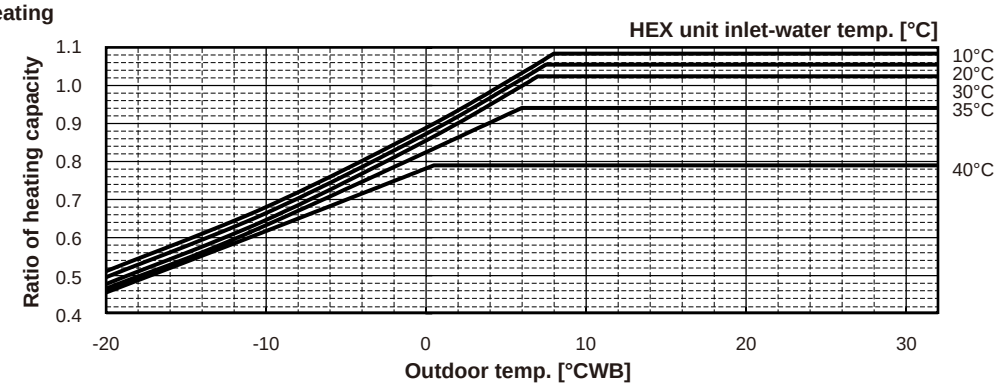
Cooling

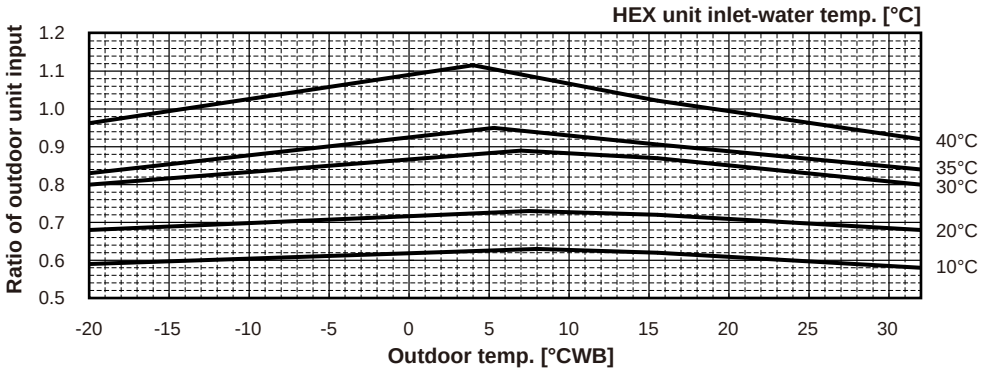




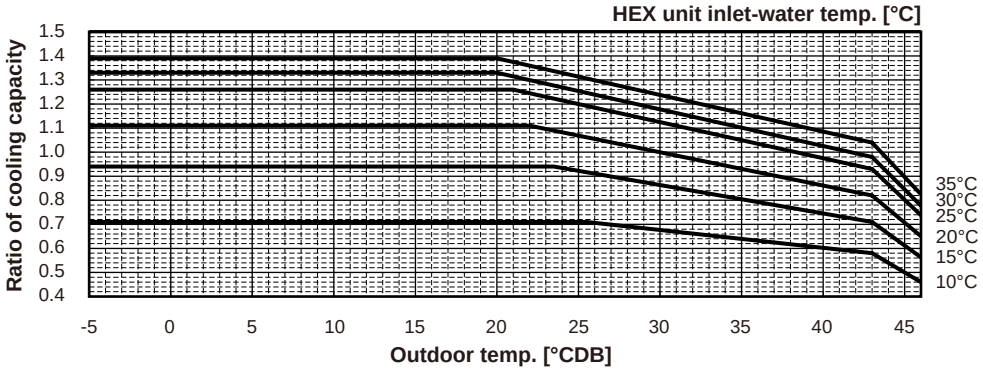
PURY-	P300,350,400YJM-A(-BS)	EP300,350,400Y(S)JM-A(-BS)

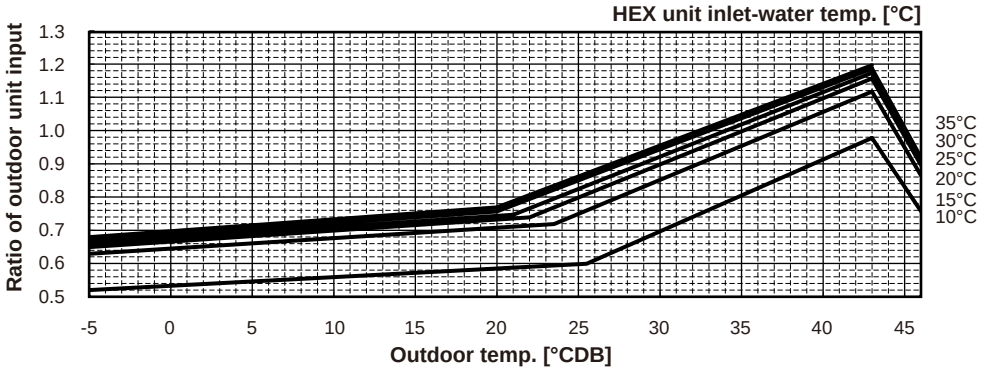
Heating





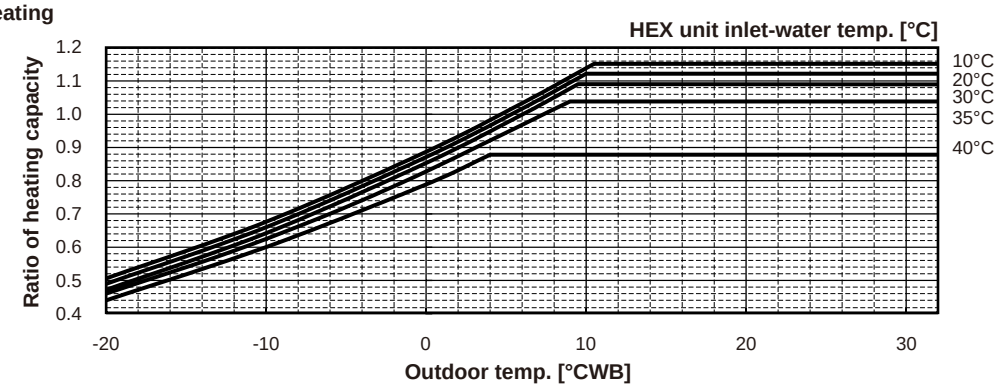
Cooling

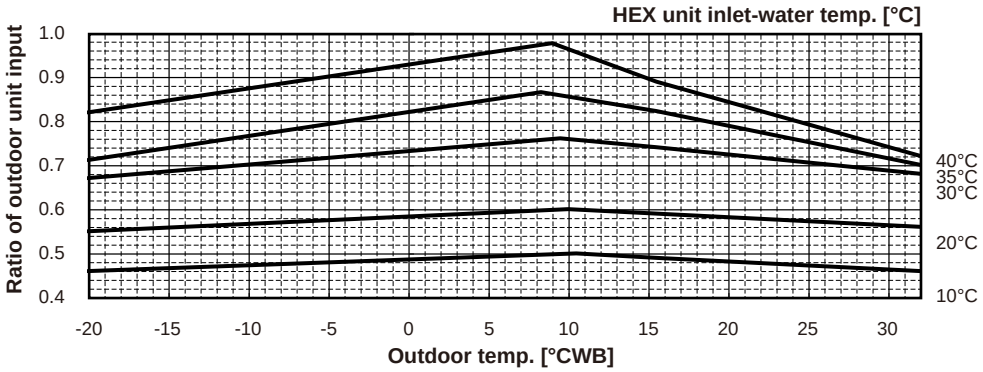




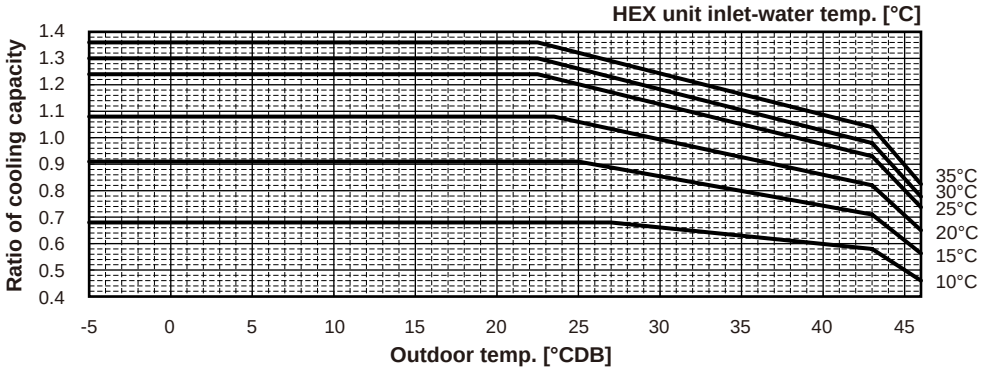
PURY-	P400,450,500,550,600,650Y(S)JM-A(1)(-BS) EP450,500,550,600,650YSJM-A(1)(-BS)

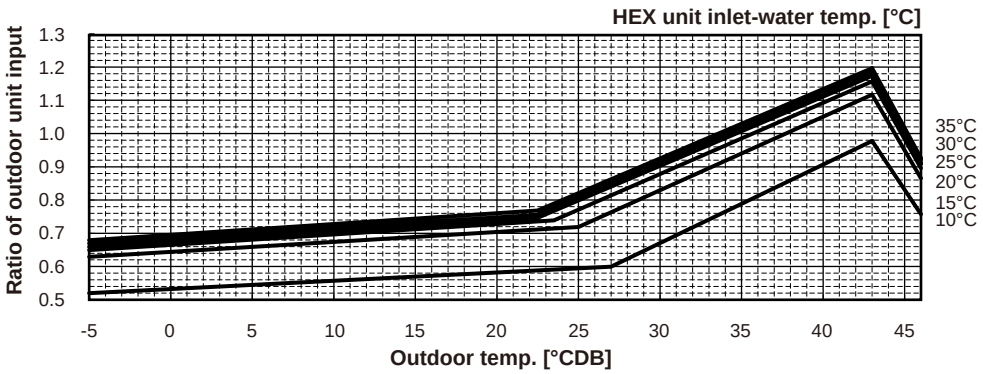
Heating





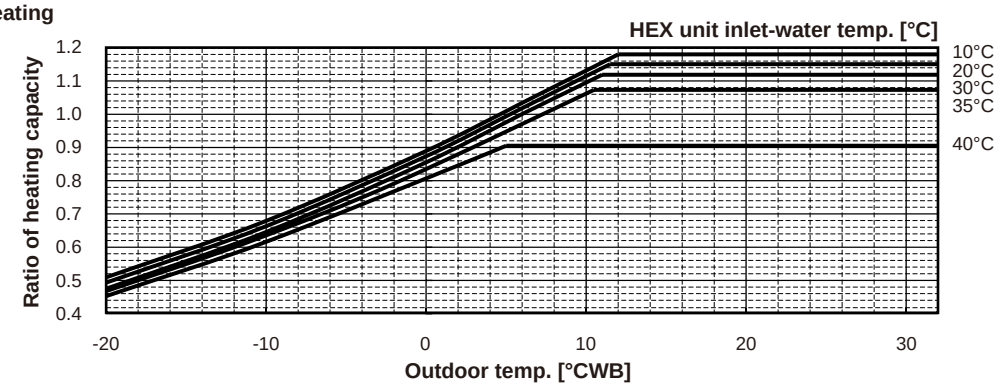
Cooling

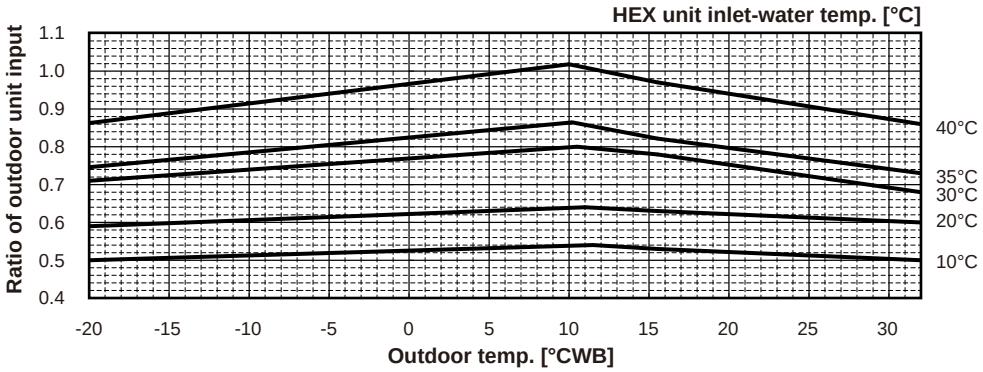




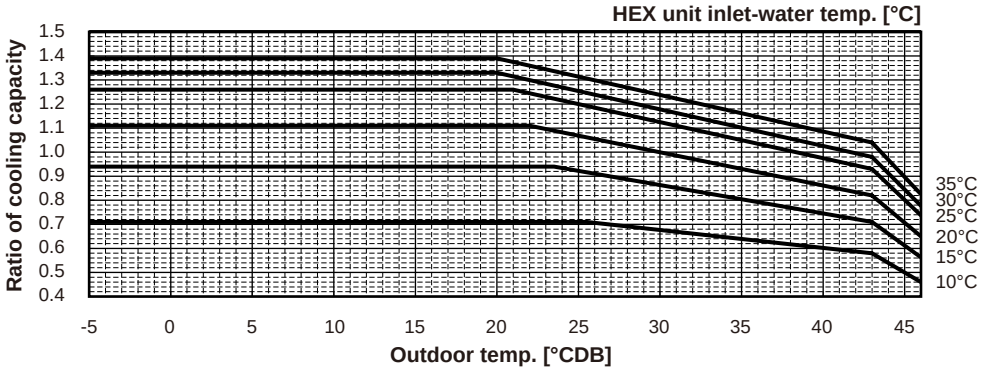
PURY-	P700,750,800,850,900YSJM-A(1)(-BS) EP700YSJM-A(-BS)

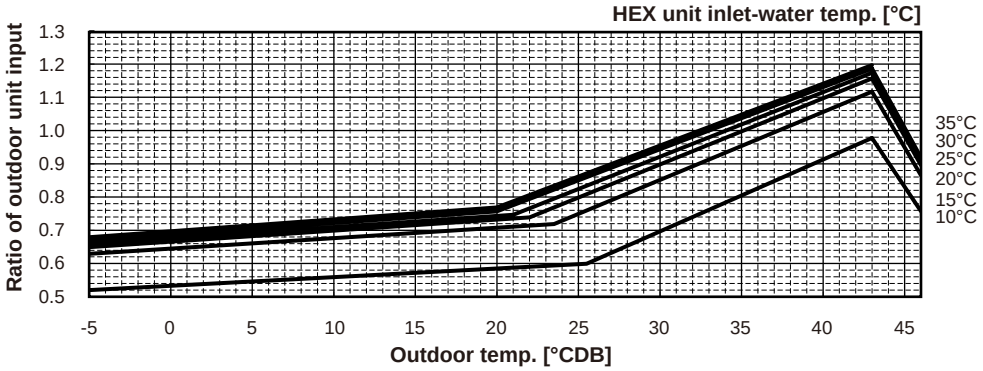
Heating





Cooling

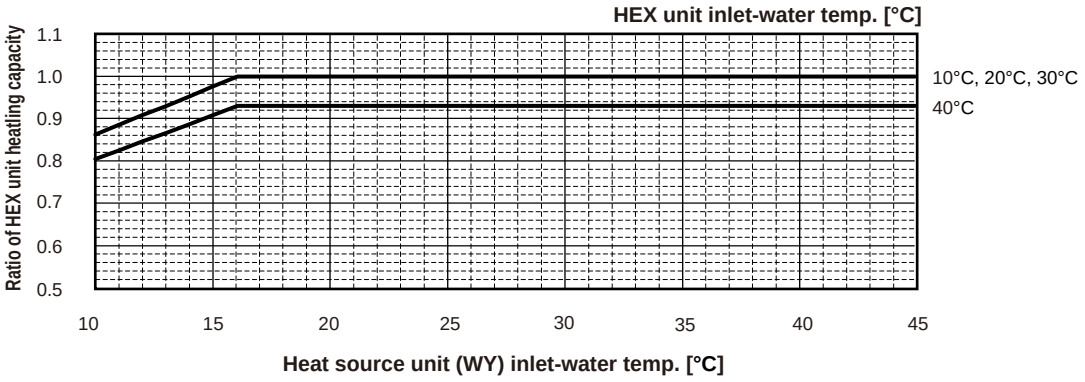


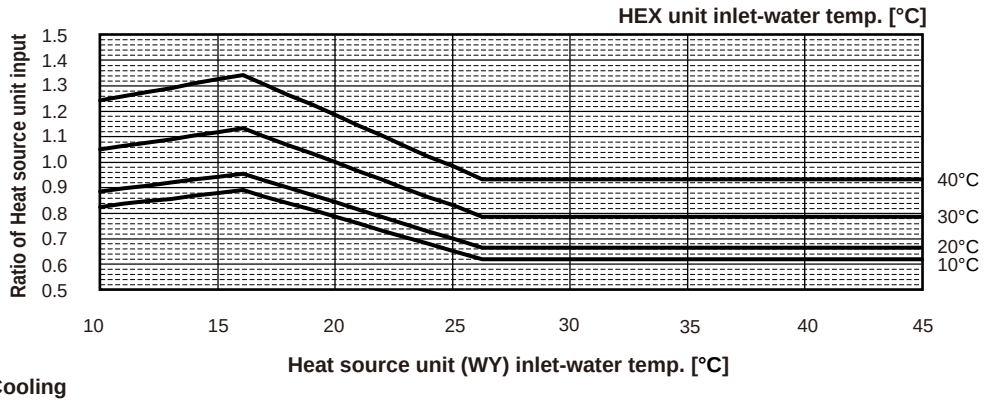


(1)-9 WY series + PWFY-P100,200VM-E1-AU

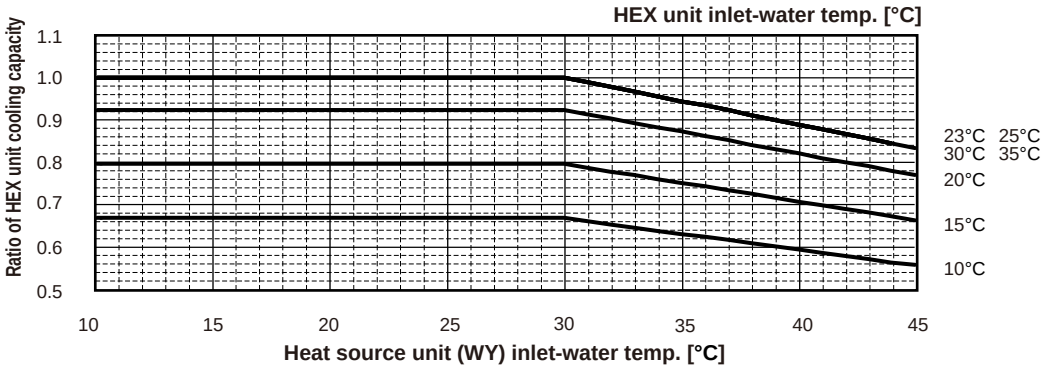
PQHY-	P200,250,300,400,450,500,550,600,650,700,750,800,850,900Y(S)HM-A

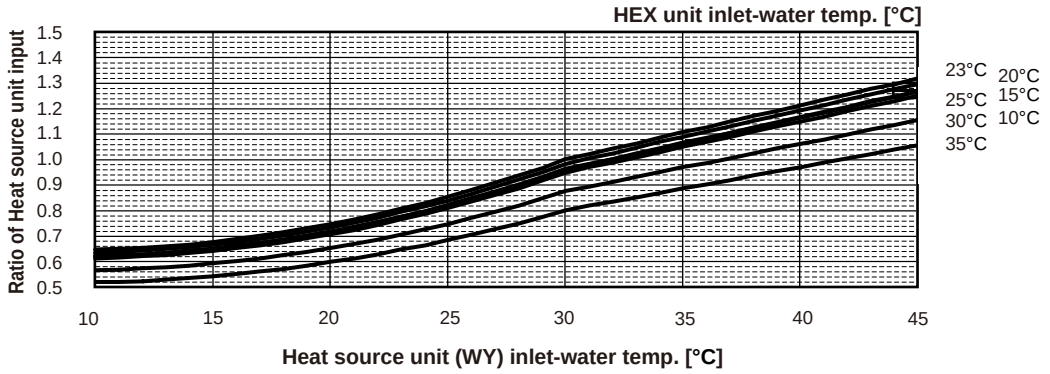
Heating





Cooling

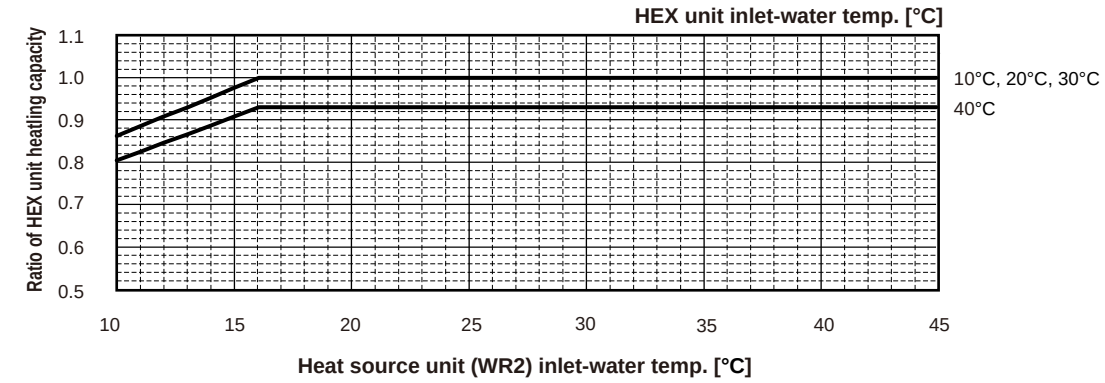


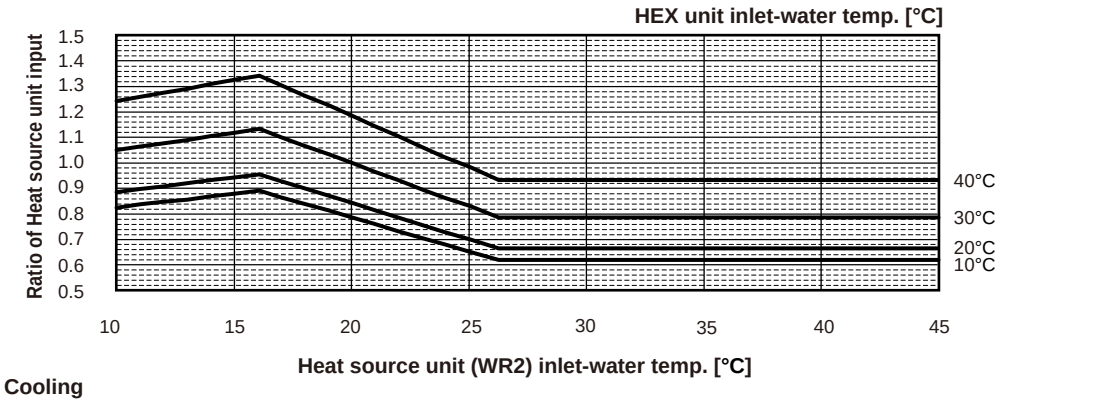


(1)-10 WR2 series + PWFY-P100,200VM-E1-AU

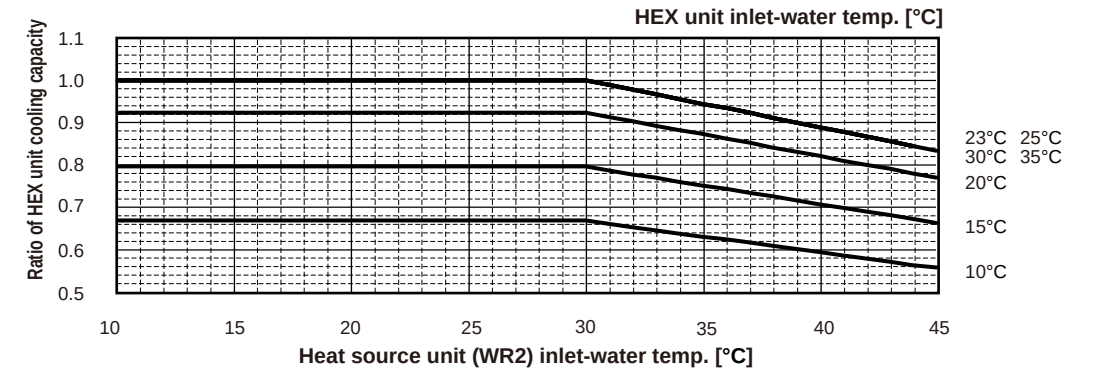
PQRY-	P200,250,300,400,450,500,550,600Y(S)HM-A

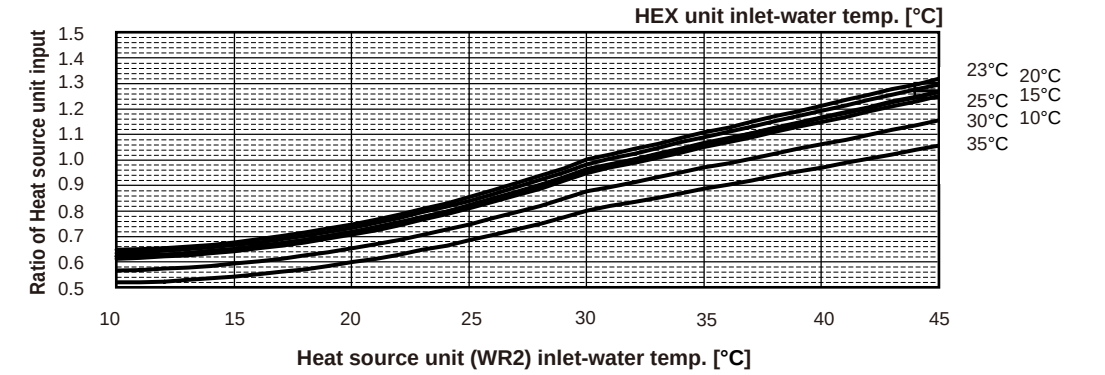
Heating





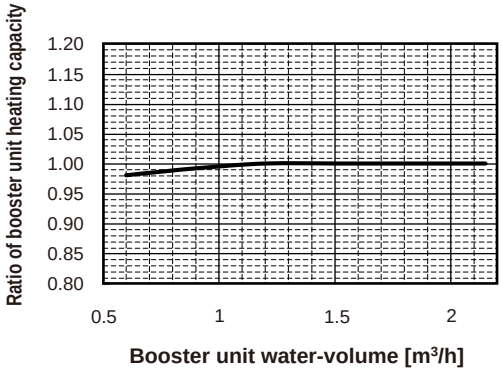
Cooling

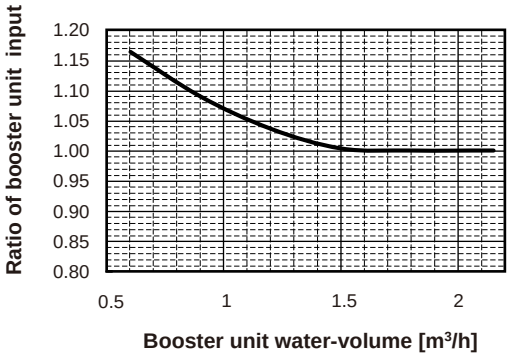


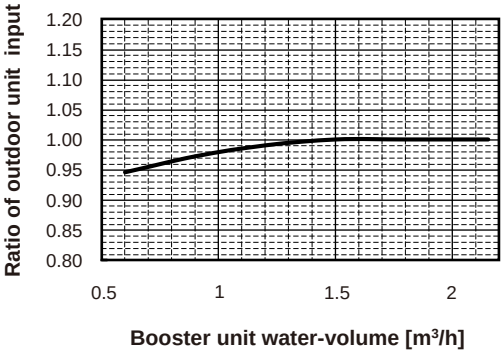


(2) Correction by water flow rate

(2)-1 PWFY-P100VM-E-BU



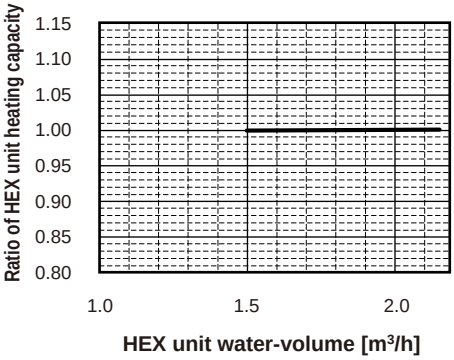


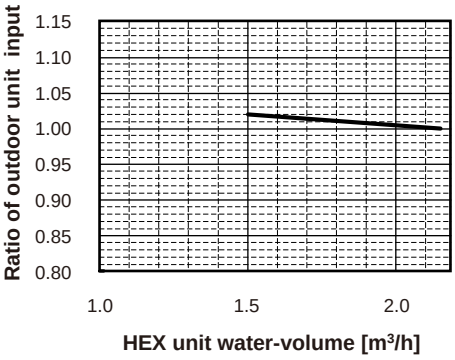


(2)-2 PWFY-P100VM-E1-AU

(2)-2-1 S series

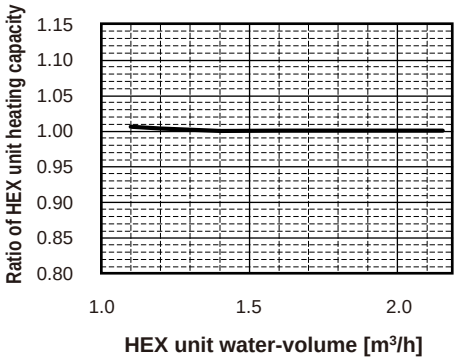
Heating

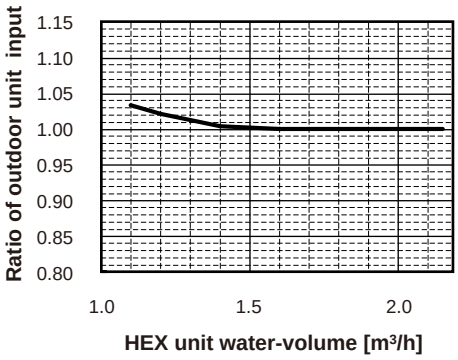




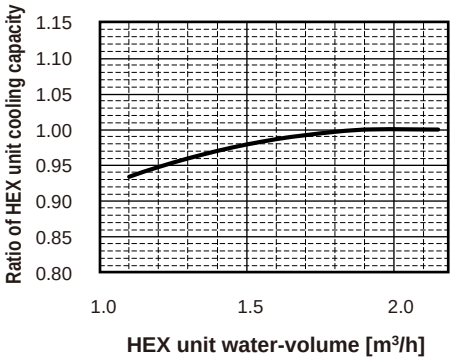
(2)-2-2 R2/Y/HP (ZUBADAN)/WR2/WY series

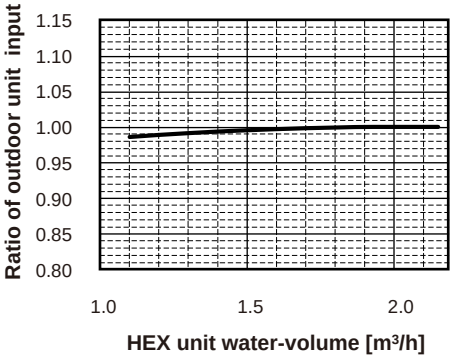
Heating





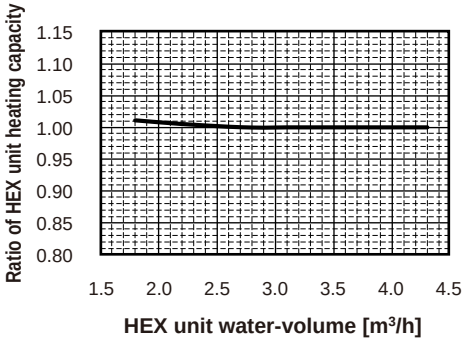
Cooling

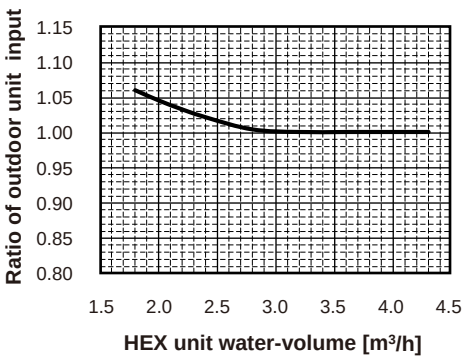




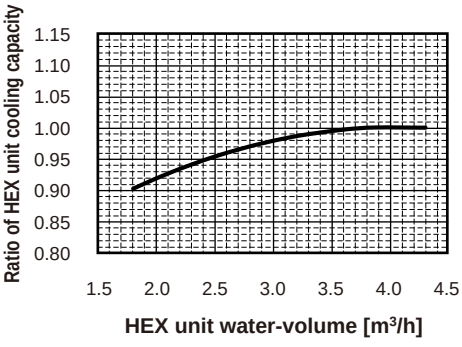
(2)-3 PWFY-P200VM-E1-AU

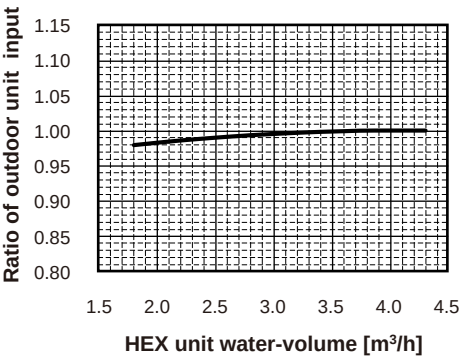
Heating





Cooling





(3) Correction by total indoor

Refer to Chapter VIII.

(4) Correction by refrigerant piping length

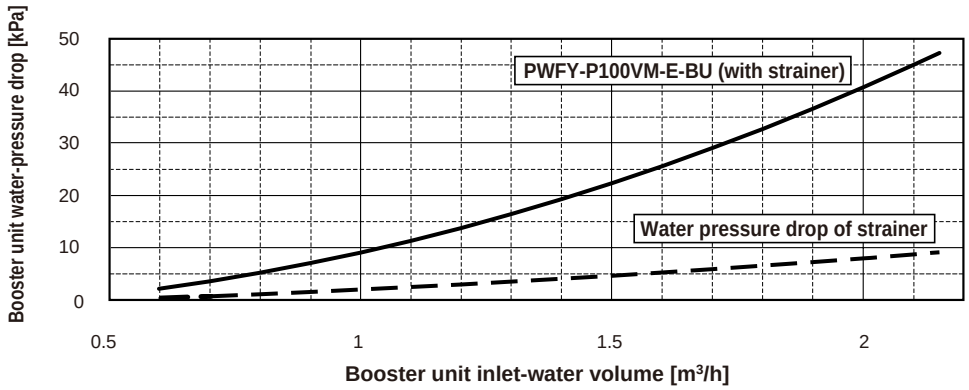
Refer to Chapter VIII.

(5) Correction at frosting and defrosting

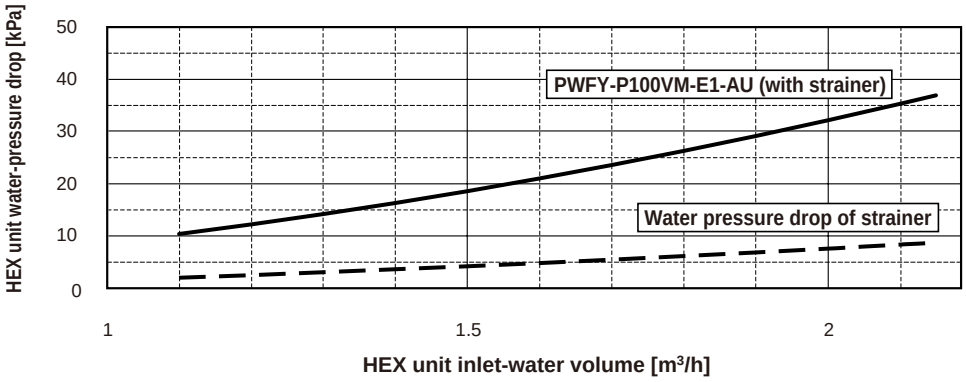
Refer to Chapter VIII.

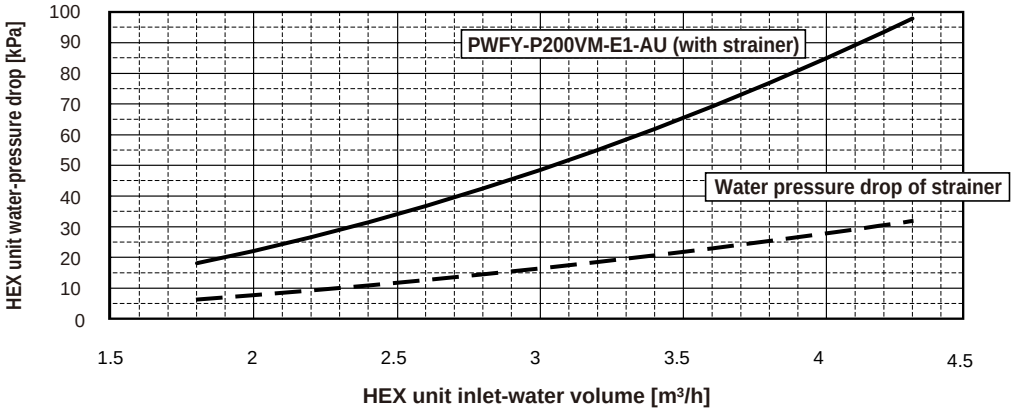
(6) Water pressure drop

(6)-1 PWFY-P100VM-E-BU (with strainer)



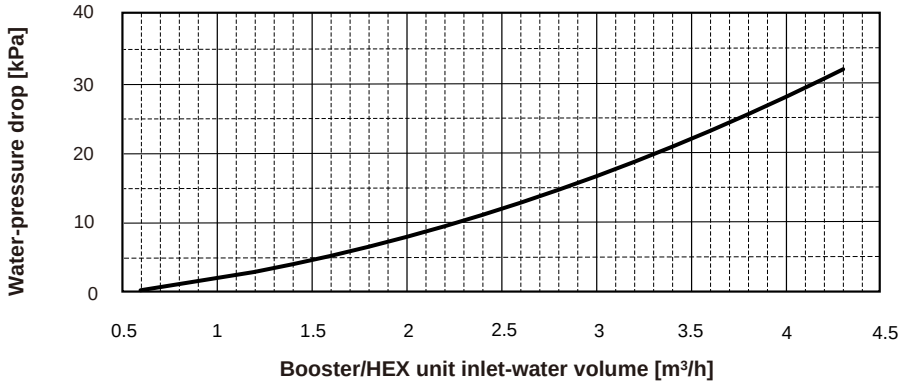
(6)-2 PWFY-P100, 200VM-E1-AU (with strainer)





(6)-3 Water pressure drop of Strainer only

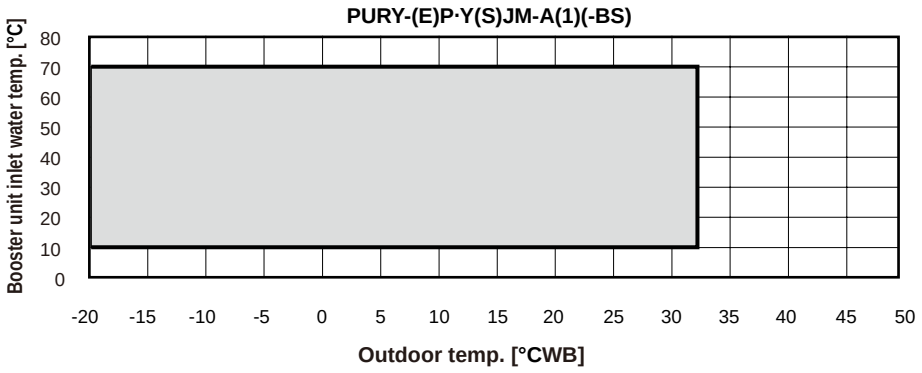
(accessory for PWFY-P100VM-E-BU and PWFY-P100, 200VM-E1-AU)



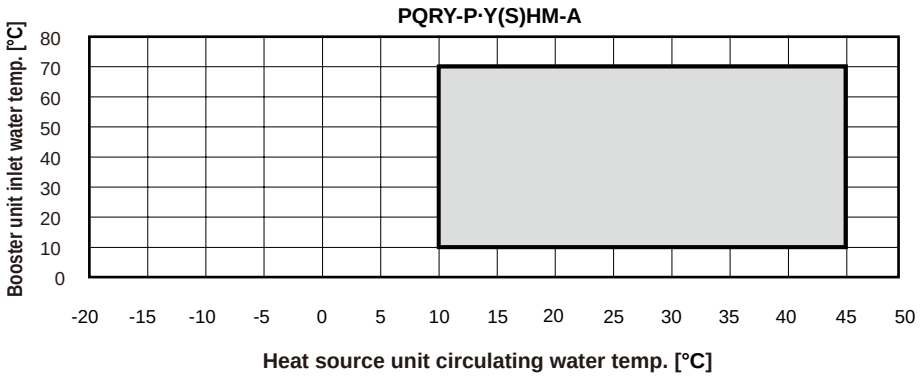
(7) Operation temperature range

(7)-1 PWFY-P100VM-E-BU

Heating



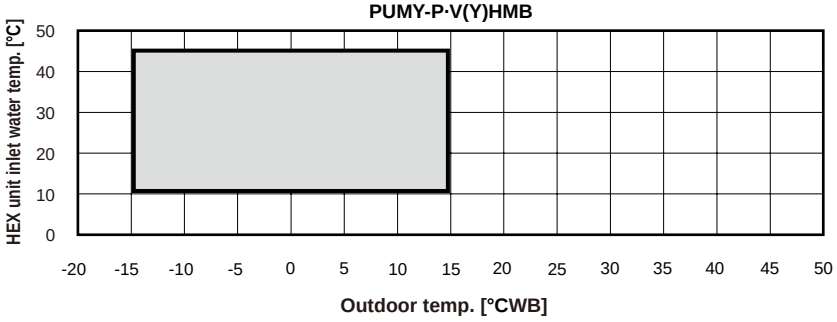
Heating



(7)-2 PWFY-P100, 200VM-E1-AU

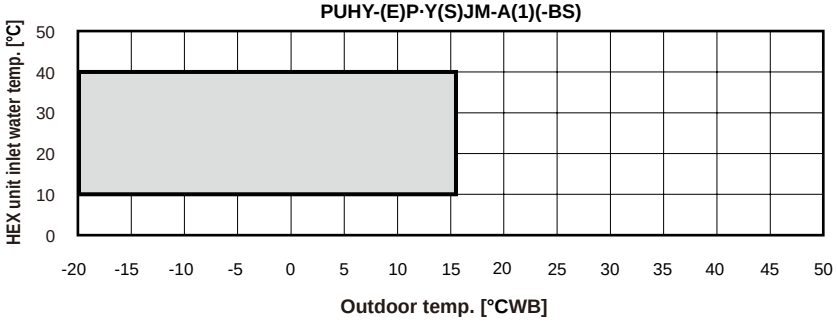
Heating

PUMY-P·V(Y)HMB



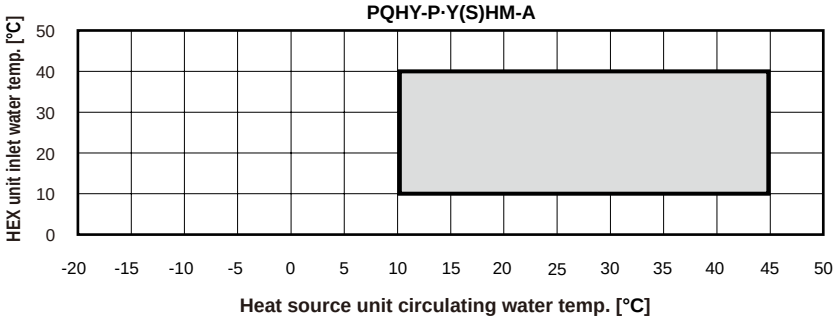
Heating

PUHY-(E)P·Y(S)JM-A(1)(-BS)



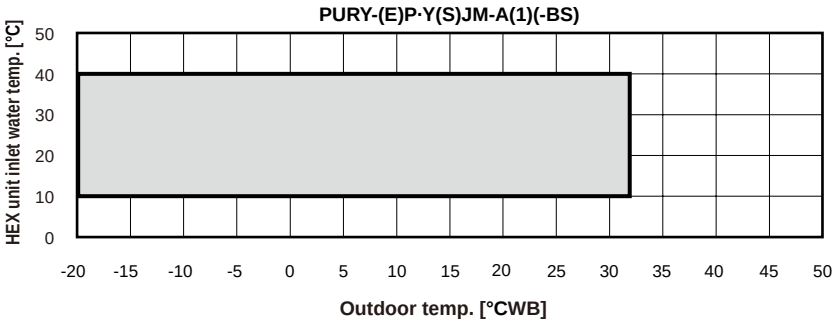
Heating

PQHY-P·Y(S)HM-A



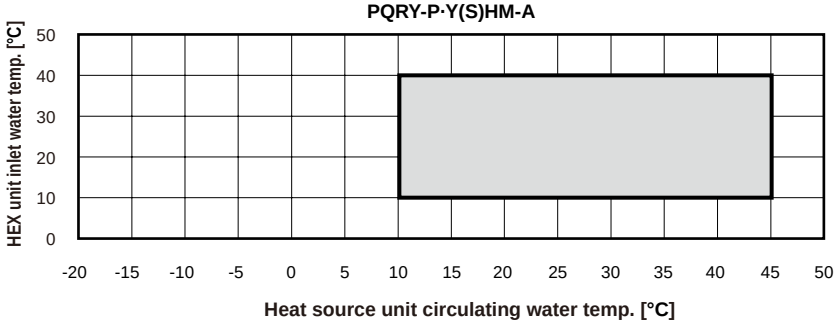
Heating

PURY-(E)P·Y(S)JM-A(1)(-BS)



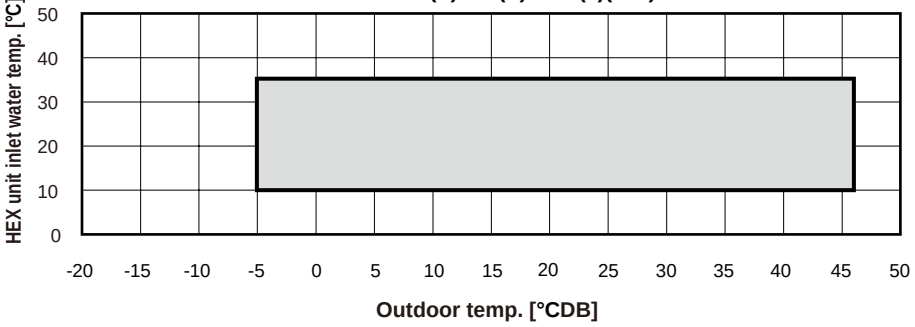
Heating

PQRY-P·Y(S)HM-A



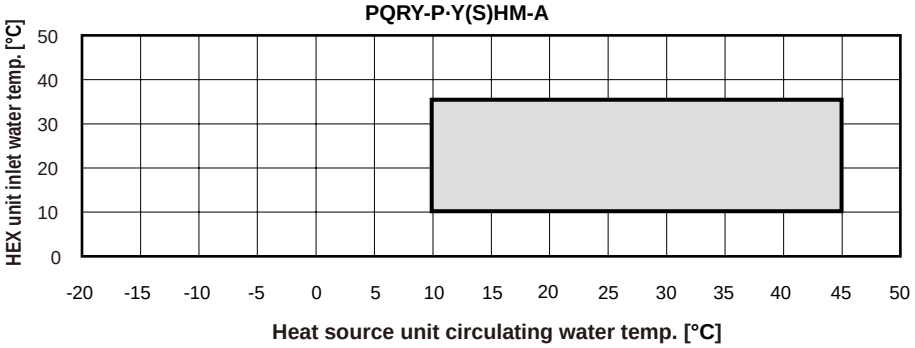
Cooling

PUHY-(E)P·Y(S)JM-A(1)(-BS)
PURY-(E) P·Y(S)JM-A(1)(-BS)



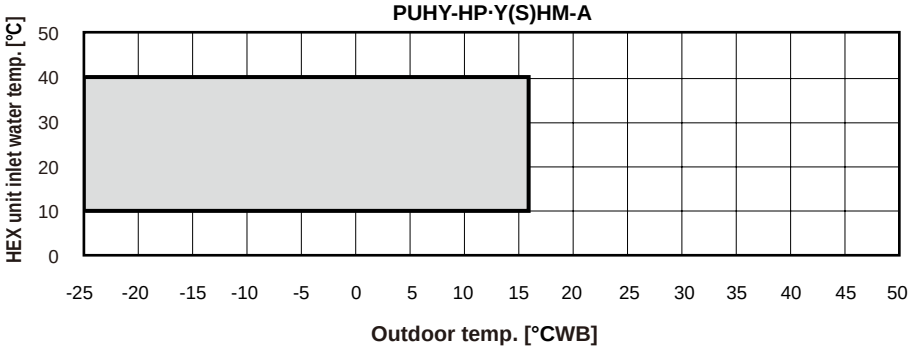
Cooling

PQHY-P·Y(S)HM-A
PQRY-P·Y(S)HM-A



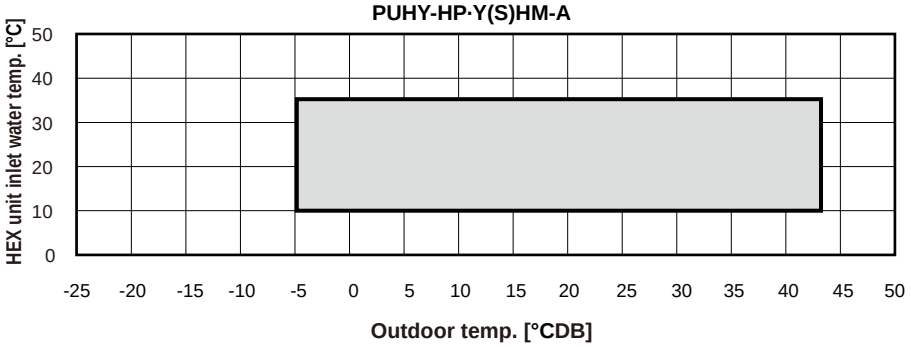
Heating

PUHY-HP·Y(S)HM-A



Cooling

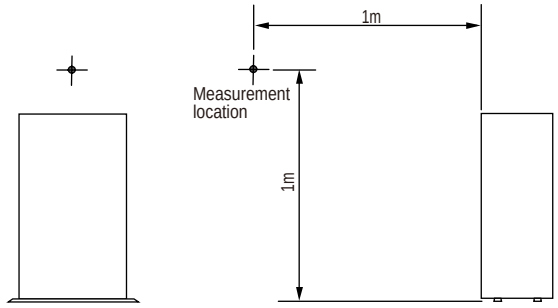
PUHY-HP·Y(S)HM-A



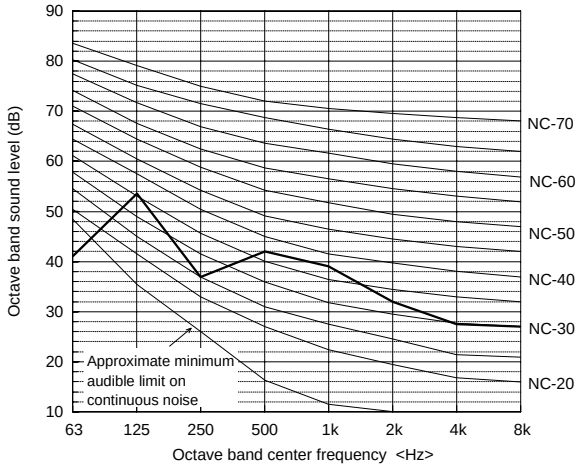
2. Sound pressure levels

(1) PWFY-P100VM-E-BU

Measurement condition
PWFY-P100VM-E-BU



Sound level of PWFY-P100VM-E-BU

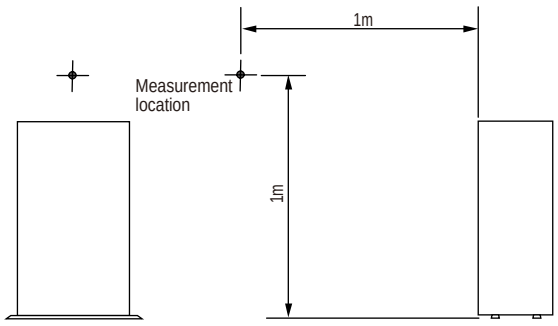


	63	125	250	500k	1k	2k	4k	8k	dB(A)
50/60Hz	41.0	53.5	37.0	42.0	39.0	32.0	27.5	27.0	44.0

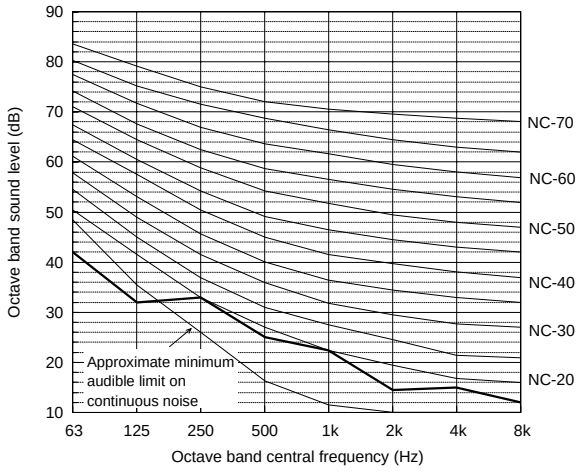
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

(2) PWFY-P100, 200VM-E1-AU

Measurement condition
PWFY-P100, 200VM-E1-AU



Sound level of PWFY-P100, 200VM-E1-AU

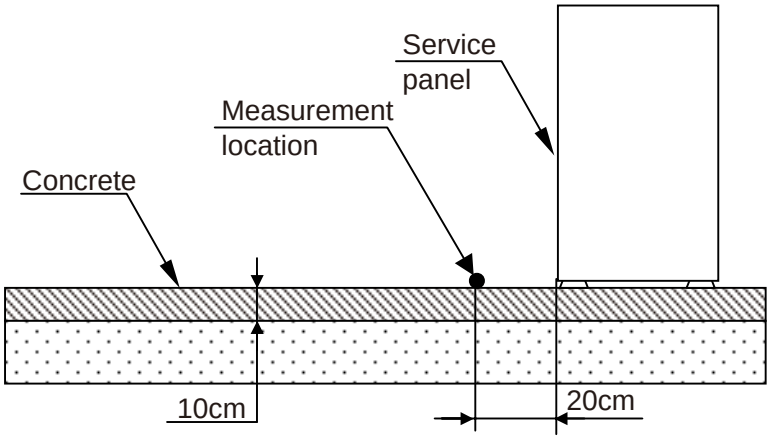


	63	125	250	500k	1k	2k	4k	8k	dB(A)
50/60Hz	42.0	32.0	33.0	25.0	22.5	14.5	15.0	12.0	29.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

3. Vibration levels

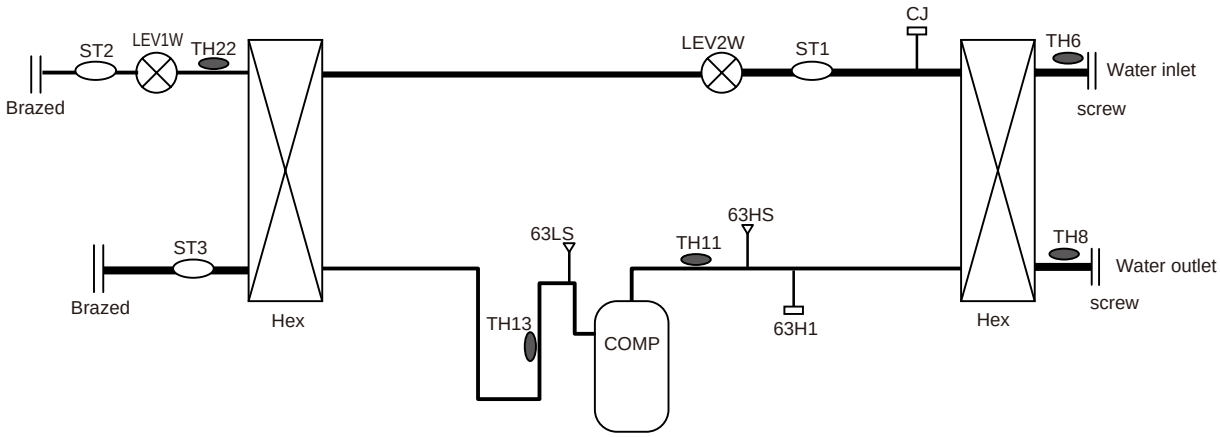
(1) PWFY-P100VM-E-BU



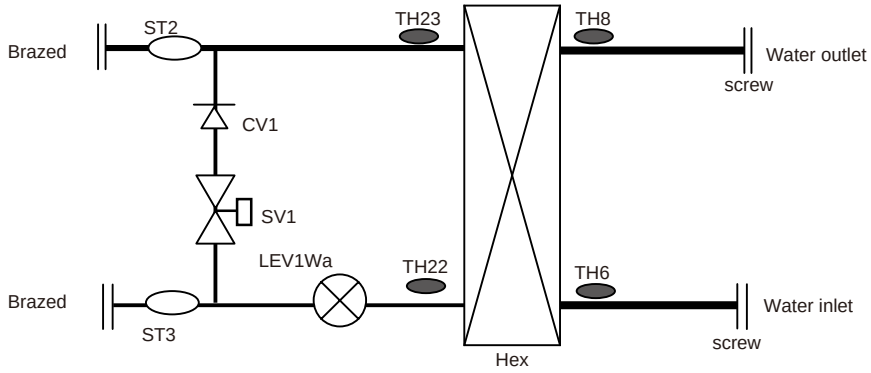
Model	Vibration Levels[dBA]
PWFY-P100VM-E-BU	34

4. Refrigerant circuit diagrams and thermal sensors

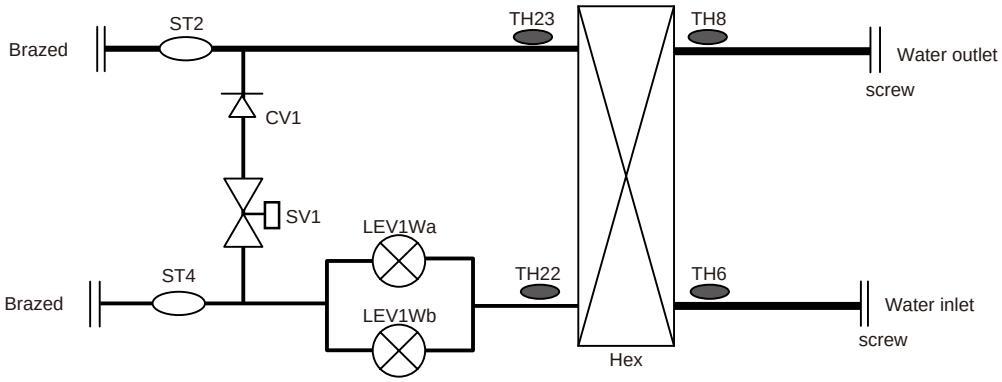
(1) PWFY-P100VM-E-BU



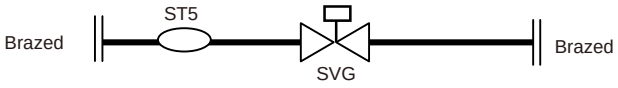
(2) PWFY-P100VM-E1-AU

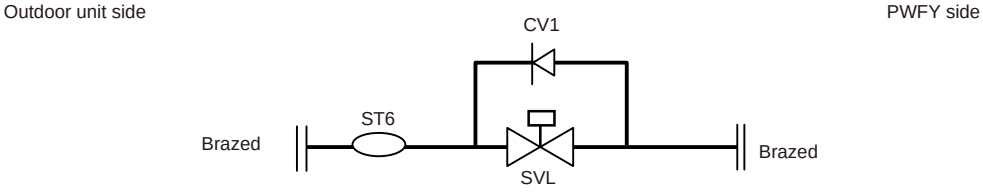


(3) PWFY-P200VM-E1-AU



(4) PAC-SV01PW-E





IV Installation

1. How to calculate the necessary heating capacity

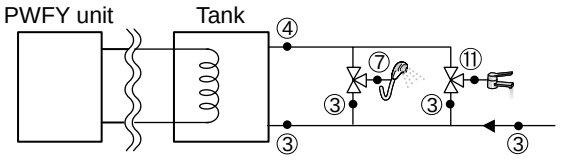
(1) Heating capacity calculation

A. For Air conditioning using such as Panel Heaters, Floor Heating and Fan coil units

Required total heating capacity ① kW

Safety factor; ② %

B. For Sanitary use such as Shower and Bathrooms



Conditions

Tank inlet water Temp.; ③ °C

Tank outlet water Temp.; ④ °C

(Set Temp -5 °C)

Safety factor for Heat Loss; ⑤ %

Operating time; ⑥ Hours

For Shower; ⑦ ℓ/person x ⑧ Person = ⑨ ℓ (Water Temp. Condition ⑩ °C)

For Bathrooms; ⑪ ℓ/Person x ⑫ Person = ⑬ ℓ (Water Temp. Condition ⑭ °C)

The conversion of water volume to ④ °C

⑨ x (⑩ - ③) / (④ - ③)

+ ⑬ x (⑭ - ③) / (④ - ③)

= ⑮ ℓ/day

Heating Capacity Calculation for sanitary usage

⑮ /1,000 x (④ - ③) = ⑯ M cal / day

The conversion of M cal to kW

⑯ / 860 x 1,000 / ⑥ = ⑰ kW

C. Total (A+B)

Total Heating Capacity

① x (100% + ② %) + ⑰ x (100% + ⑤ %) = ⑱ kW

D. No. of units required

Safety factor; ⑲ %

⑱ x (100% + ⑲ %) / 12.5 kW = ⑳ units

⇩

⑳ units are required

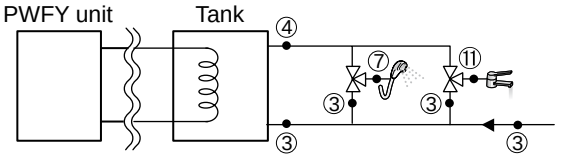
(2) Calculation example

A. For Air conditioning using such as Panel Heaters, Floor Heating and Fan coil units

Required total heating capacity 20 kW

Safety factor; 10 %

B. For Sanitary use such as Shower and Bathrooms



Conditions

Tank inlet water Temp.; 10 °C

Tank outlet water Temp.; 60 °C

(Set Temp -5 °C)

Safety factor for Heat Loss; 15 %

Operating time; 8 Hours

For Shower; 60 ℓ/person x 20 Person = 1,200 ℓ (Water Temp. Condition 40 °C)

For Bathrooms; 8 ℓ/Person x 30 Person = 240 ℓ (Water Temp. Condition 45 °C)

The conversion of water volume to 60 °C

1,200 x (40 - 10) / (60 - 10)

+ 240 x (45 - 10) / (60 - 10)

= 888 ℓ/day

Heating Capacity Calculation for sanitary usage

888 /1,000 x (60 - 10) = 44.4 M cal / day

The conversion of M cal to kW

44.4 / 860 x 1,000 / 8 = 6.45 kW

C. Total (A+B)

Total Heating Capacity

20 x (100% + 10 %) + 6.45 x (100% + 15 %) = 29.42 kW

D. No. of units required

Safety factor; 20 %

29.42 x (100% + 20 %) / 12.5 kW = 2.82 units

⇩

3 units are required

2. Installation

(1) Selecting an installation site

- **Do not install outdoors. The unit is not waterproof.**
- **Back up system is recommended in case of PWFY unit breakdown.**
- **The unit will get hot. Do not install in a location where heat gets trapped inside.**
- **Be sure to install unit in a place strong enough to withstand its weight.**

  Any lack of strength may cause unit to fall down, resulting in a personal injury.
- **Do not install the unit where corrosive gas is generated.**
- **Have installation work in order to protect against earthquake.**

  Any installation deficiency may cause unit to fall down, resulting in a personal injury.
- **Pay a special attention to the place, such as a basement, etc. where refrigeration gas can stay, since refrigeration is heavier than the air.**
- **Do not install the unit where combustible gas may leak.**

- If the gas leaks and accumulates around the unit, an explosion may result.

- **When installing the unit in a hospital, communication station, or similar place, provide sufficient protection against noise.**

- The inverter equipment, private power generator, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate erroneously, or fail to operate. On the other hand, the air conditioner may affect such equipment by creating noise that disturbs medical treatment or image broadcasting.

- **Do not install the unit on a structure that may cause leakage.**

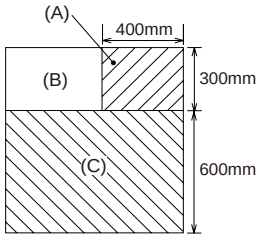
- When the room humidity exceeds 80 % or when the drain pipe is clogged, condensation may drip from the indoor unit. Perform collective drainage work together with the unit, as required.

- **It is recommended that a water pump is connected to each PWFY unit.**

(1)-1 Securing installation and service space

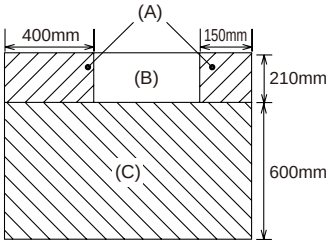
- Please secure the following service spaces after installation.
  (All servicing can be performed from the front of the unit)
  [Fig. IV. 2. (1). 1]

•PWFY unit



(A) Piping space (right side)
(B) Top view
(C) Service space (front side)

•Solenoid valve kit



(A) Piping space (both sides)
(B) Top view
(C) Service space (front side)

⚠ **Warning:**

- **Be sure to install the unit in a location which can adequately support its weight.**

- If there is insufficient strength to support the unit's weight, it could fall and cause injuries.

(1)-2 Combining indoor units with BC controllers/WCB and outdoor units

For combining indoor units with BC controllers and outdoor units, refer to V System Design and outdoor units installation manual.

(2) Installing the unit

(2)-1 Lifting method

⚠ **Caution:**

Be very careful when carrying the product.

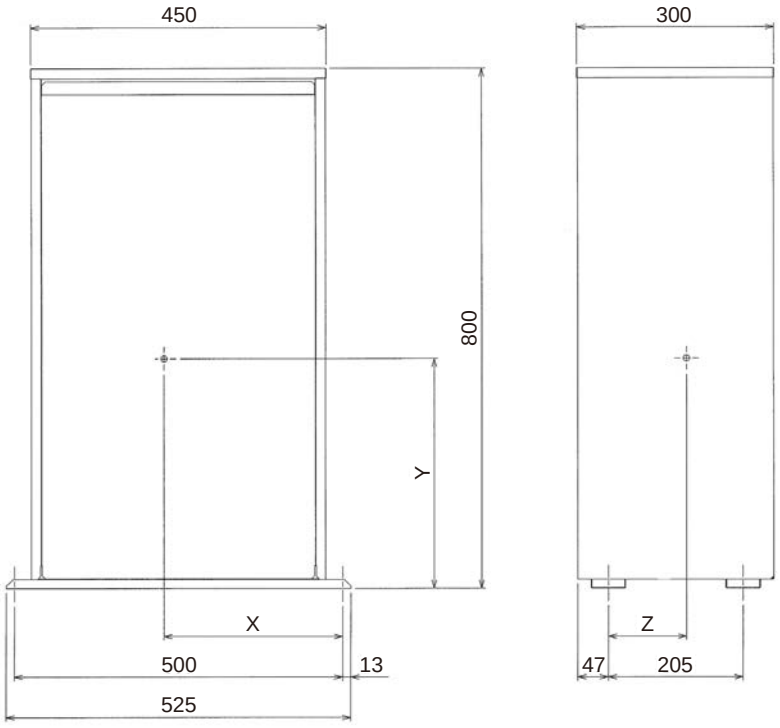
- Do not have only one person to carry product if it is more than 20 kg.
- Do not tilt the unit while transporting.
- PP bands are used to pack some products. Do not use them as a mean for transportation because they are dangerous.
- Tear plastic packaging bag and scrap it so that children cannot play with it. Otherwise plastic packaging bag may suffocate children to death.

(2)-2 Product net weight

Model	PWFY-P100VM-E-BU	PWFY-P100VM-E1-AU	PWFY-P200VM-E1-AU
Net weight	60 kg	35 kg	38 kg

(2)-3 Center of gravity

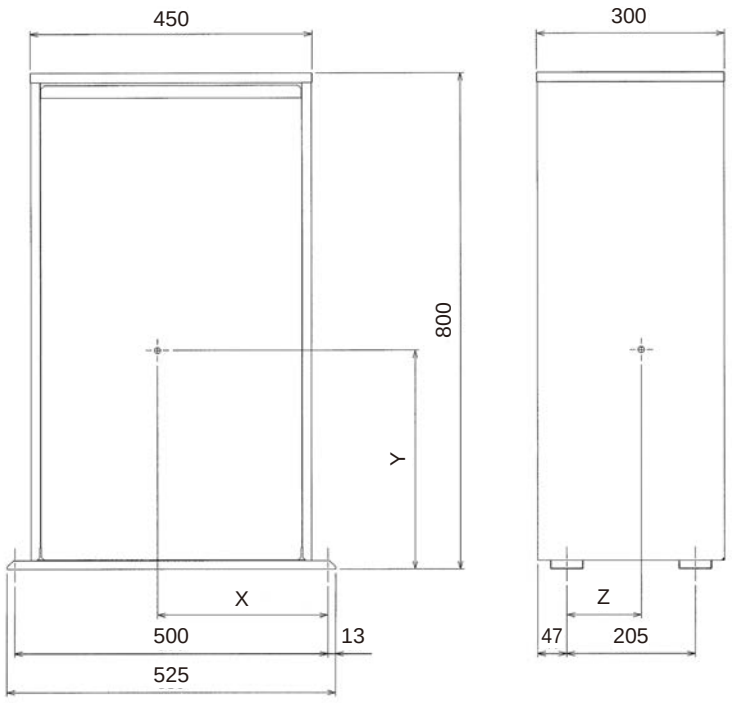
(2)-3-1 PWFY-P100VM-E-BU



Unit : mm

Model	X	Y	Z
PWFY-P100VM-E-BU	272	355	119

(2)-3-2 PWFY-P100, 200VM-E1-AU



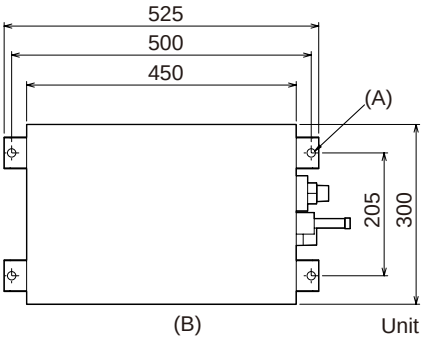
Unit : mm

Model	X	Y	Z
PWFY-P100VM-E1-AU	289	346	103
PWFY-P200VM-E1-AU	277	347	99

(2)-4 Installation method

- Using the anchoring holes shown below, firmly bolt the unit to the base.
  [Fig. IV. 2. (2). 1]

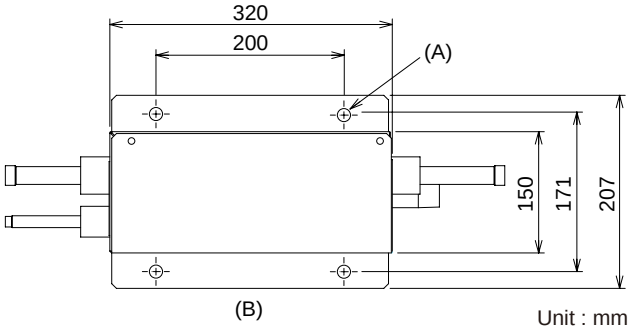
•PWFY unit



Unit : mm

(A) 4-ø14 (Anchoring hole)
(B) (Top view)

•Solenoid valve kit



Unit : mm

(A) 4-ø14 (Anchoring hole)
(B) (Top view)

Bases

- Be sure to install unit in a place strong enough to withstand its weight. If the base is unstable, reinforce with a concrete base.
- The unit must be anchored on a level surface. Use a level to check after installation.
- If the unit is installed near a room where noise is a problem, using an anti-vibration stand on the base of the unit is recommended.

(3) Refrigerant pipe and drain pipe specifications

(3)-1 Refrigerant pipe and drain pipe specifications

To avoid dew drops, provide sufficient antisweating and insulating work to the refrigerant and drain pipes.

When using commercially available refrigerant pipes, be sure to wind commercially available insulating material (with a heat-resisting temperature of more than 100 °C and thickness given below) onto both liquid and gas pipes.

Be also sure to wind commercially available insulating material (with a form polyethylene's specific gravity of 0.03 and thickness given below) onto all pipes which pass through rooms.

1) Select the thickness of insulating material by pipe size.

Unit : mm

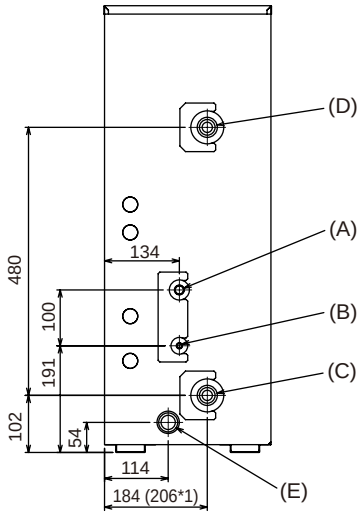
Model	PWFY-P100VM-E-BU	PWFY-P100VM-E1-AU	PWFY-P200VM-E1-AU	PAC-SV01PW-E
Gas	ø15.88	ø15.88	ø19.05	Depends on the pipe diameter of the PWFY unit to be connected.
Liquid	ø9.52	ø9.52	ø9.52	
Drain	ø32			
Insulating material's thickness	More than 10 mm			

2) If the unit is used on the highest story of a building and under conditions of high temperature and humidity, it is necessary to use pipe size and insulating material's thickness more than those given in the table above.

3) If there are customer's specifications, simply follow them.

(3)-2 Refrigerant pipe, drain pipe and filling port

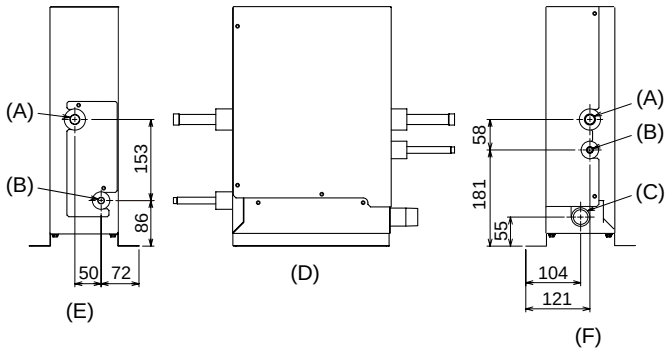
•PWFY unit



Unit : mm

(A) Refrigerant piping (gas)
(B) Refrigerant piping (liquid)
(C) Water inlet
(D) Water outlet
(E) Drain outlet
*1: PWFY-P100, 200VM-E1-AU

•Solenoid valve kit



Unit: mm

(A) Refrigerant piping (gas)
(B) Refrigerant piping (liquid)
(C) Drain outlet
(D) Front view
(E) Left side view
(F) Right side view

(4) Connecting refrigerant pipes and drain pipes

(4)-1 Refrigerant piping work

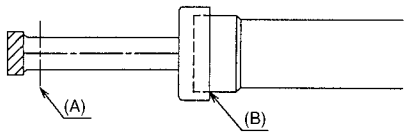
This piping work must be done in accordance with the installation manuals for both outdoor unit and BC controller/WCB (simultaneous cooling and heating R2 series).

- R2 series is designed to operate in a system that the refrigerant pipe from an outdoor unit is received by BC controller/WCB and branches at the BC controller/WCB to connect between indoor units.
- The PWFY unit should be connected to 2 ports on the BC controller. (Set BC controller DIP SW 4-6 to ON)
- For constraints on pipe length and allowable difference of elevation, refer to the outdoor unit installation manual.
- The method of pipe connection is brazing connection.

⚠ **Caution:**

- **Install the refrigerant piping for the indoor unit in accordance with the following.**

1. Cut the tip of the indoor unit piping, remove the gas, and then remove the brazed cap.
   [Fig. IV. 2. (4). 1]



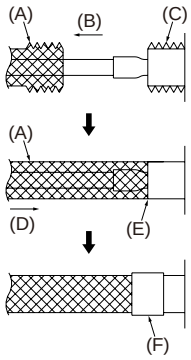
(A) Cut here
(B) Remove brazed cap

2. Pull out the thermal insulation on the site refrigerant piping, braze the unit piping, and replace the insulation in its original position.
   Wrap the piping with insulating tape.

Note:

- **Pay strict attention when wrapping the copper piping since wrapping the piping may cause condensation instead of preventing it.**

* Before brazing the refrigerant piping, **always wrap the piping on the main body, and the thermal insulation piping, with damp cloths to prevent heat shrinkage and burning the thermal insulation tubing.** Take care to ensure that the flame does not come into contact with the main body itself.
[Fig. IV. 2. (4). 2]



(A) Thermal insulation
(B) Pull out insulation
(C) Wrap with damp cloth
(D) Return to original position
(E) Ensure that there is no gap here
(F) Wrap with insulating tape

(4)-2 Mixed system of PWFY-AU and Indoor unit (Y, Replace Y, HP (ZUBADAN), WY system)

Take one of the options listed below.

1) Install the External Solenoid Valve
   (External Solenoid Valve kit (PAC-SV01PW-E) will be available in Nov. 2012.)
2) Add brine, assuming that the temperature will drop to -20°C.
   Set Dip SW 1-10 (on ATW unit) to ON if brine is added.
   See section VI.3.(9) for the brine concentration graph.

* With the WY system, the above steps apply only when operating the WY at the water temperature below 10ºC.

(4)-3 PWFY-AU in cooling operation (Y, Replace Y, HP (ZUBADAN), WY system)

Add brine, assuming that the temperature will drop to -20°C.
Set Dip SW 1-10 (on ATW unit) to ON if brine is added.

* With the WY system, the above steps apply only when operating the WY at the water temperature below 10ºC.

Cautions On Refrigerant Piping

- **Be sure to use non-oxidative brazing for brazing to ensure that no foreign matter or moisture enter into the pipe.**
- **Be sure to apply refrigerating machine oil over the flare connection seating surface and tighten the connection using a double spanner.**
- **Provide a metal brace to support the refrigerant pipe so that no load is imparted to the indoor unit end pipe. This metal brace should be provided 500 mm away from the indoor unit's flare connection.**

⚠ **Warning:**

When installing and moving the unit, do not charge it with refrigerant other than the refrigerant (R407C or R22) specified on the unit.

- Mixing of a different refrigerant, air, etc. may cause the refrigerant cycle to malfunction and result in severe damage.

⚠ **Caution:**

- **Use refrigerant piping made of C1220 (CU-DHP) phosphorus deoxidized copper as specified in the JIS H3300 "Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.**
- **Never use existing refrigerant piping.**

- The large amount of chlorine in conventional refrigerant and refrigerator oil in the existing piping will cause the new refrigerant to deteriorate.

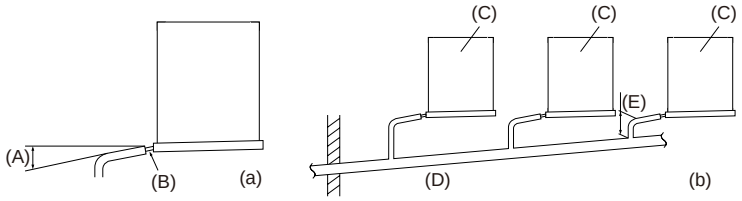
- **Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing.**

- If dust, dirt, or water gets into the refrigerant cycle, the oil will deteriorate and the compressor may fail.

(4)-4 Drain piping work

1. Ensure that the drain piping is downward (pitch of more than 1/100) to the outdoor (discharge) side. Do not provide any trap or irregularity on the way. (a)
2. Ensure that any cross-wise drain piping is less than 20 m (excluding the difference of elevation). If the drain piping is long, provide metal braces to prevent it from waving. Never provide any air vent pipe. Otherwise drain may be ejected.
3. Use a hard vinyl chloride pipe VP-25 (with an external diameter of 32 mm) for drain piping.
4. Ensure that collected pipes are 100 mm lower than the unit body's drain port as shown in (b).
5. Do not provide any odor trap at the drain discharge port.
6. Put the end of the drain piping in a position where no odor is generated.
7. Do not put the end of the drain piping in any drain where ionic gases are generated.

[Fig. IV. 2. (4).3]

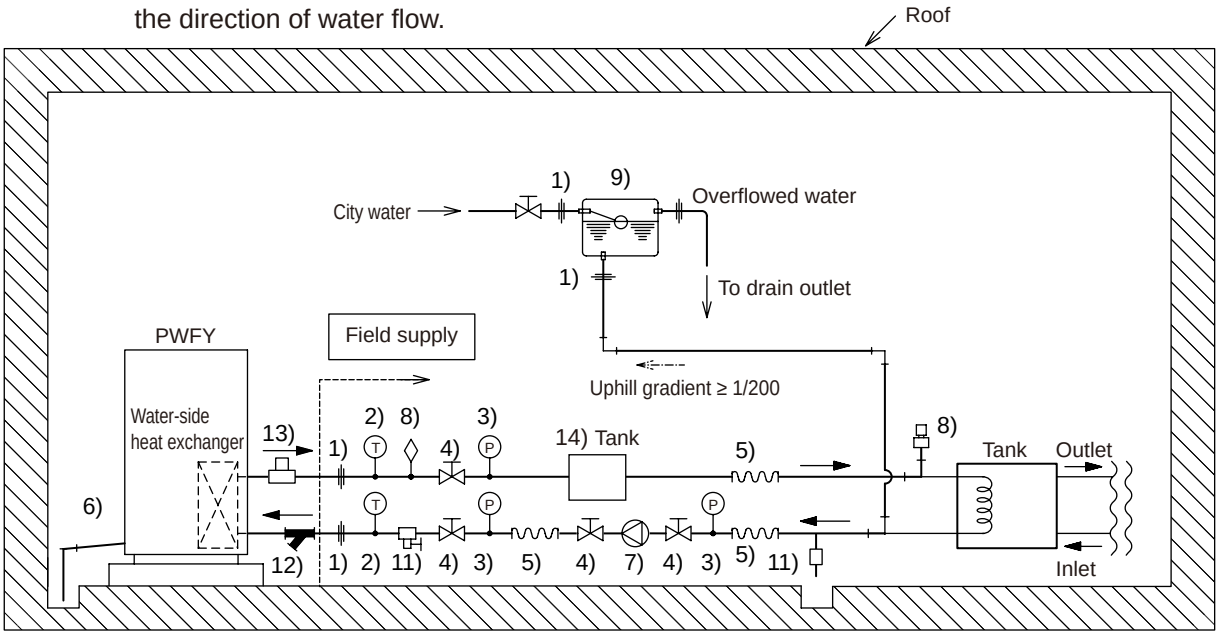


(A) Downward slope 1/100 or more
(B) Drain hose
(C) Unit
(D) Collective piping
(E) Maximize this length to approx. 100 mm

3. Water pipe installation

(1) Water circuit sample

← Solid arrows in the figure indicate the direction of water flow.



Sample of water circuit for PWFY

Consider the following when designing and installing a water piping system. (Items (1)-(14) in the figure are explained below.)

1) Union joints/flange joints etc.
   Install a flange etc. to allow for easy replacement of connected equipment.
2) Thermometer
   For checking unit performance and operation monitoring
3) Water pressure gauge
   For operation status monitoring
4) Valve
   Install a valve for easy replacement and cleaning of the refrigerant flow control device.
   Install a refrigerant flow control valve on the fan coil outlet side.
5) Flexible joint
   Recommended to prevent the noise and vibration from the pump from being transmitted.
6) Drain pipe
   Install the drain pipe with an inclination of between 1/100 and 1/200 to provide a downward flow of drain water.
   For cold climate installation, take an appropriate measure (e.g., drain heater) to prevent the drain water from freezing.
7) Pump
   Use a pump that is large enough to compensate for the total water pressure loss and to supply sufficient water to the unit.
8) Air vent valve
   Provide air vent valves on the pipes.
9) Expansion tank
   Install an expansion tank to accommodate expanded water and to supply water.
10) Cold/Hot water pipe
    Use pipes that allow for easy air purging, and provide sufficient insulation.
11) Drain valve
    Install drain valves so that water can be drained for servicing.
12) Strainer
    Install a strainer near the PWFY unit to keep foreign materials from entering the water-side heat exchanger.
13) Flow switch
    Install the supplied flow switch on the outlet pipe.
14) Tank
    Minimum tank capacity : 100 L (Refer to Fig IV.3.(8).1)

(1)-1 Caution for water pipe installation

Consider the following when designing and installing a water piping system.

- Do not use steel pipes as water pipes.
- Copper pipes or stainless steel pipes are recommended.If iron pipes are used in the existing system, do not connect a new circuit to the old one. Keep the existing and new circuits separate.
- Light pipes are similar to other air-conditioning pipes, however, please observe the following precautions during installation.
- Before a long period of non use, purge the water out of the pipes and thoroughly let them dry.
- Use a closed water circuit.
- When operating the unit, add brine to the circulating water to prevent it from freezing. To use brine in the system, DipSW 1-10 must be set to ON.
- When installed in a low-ambient temperature environment, keep the water circulating at all times. If that is not possible, purge the water out of the pipes completely.
- Do not use the water used for this unit for drinking or food manufacturing.
- When the ambient temperature is 0 ˚C or lower during stop operation, keep the water circulating at all times, or purge the water out of the pipes completely.

Model	Water inlet	Water outlet
PWFY-P100VM-E-BU	PT 3/4 Screw	PT 3/4 Screw
PWFY-P100VM-E1-AU	PT 3/4 Screw	PT 3/4 Screw
PWFY-P200VM-E1-AU *1 When the attached expansion joints are installed.	PT 1 Screw*1	PT 1 Screw*1

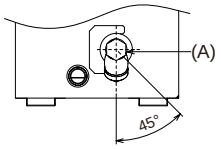
(2) Selecting a water pump

Use a pump that is large enough to compensate for the total water pressure loss and to supply sufficient water to the unit.

(3) Installing the strainer

- Install the strainer at the angle of 45˚ or less as shown in [Fig. IV 3.(3).1].
- Install the supplied strainer at the water inlet.

[Fig. IV 3.(3).1]



(A) Y-type strainer

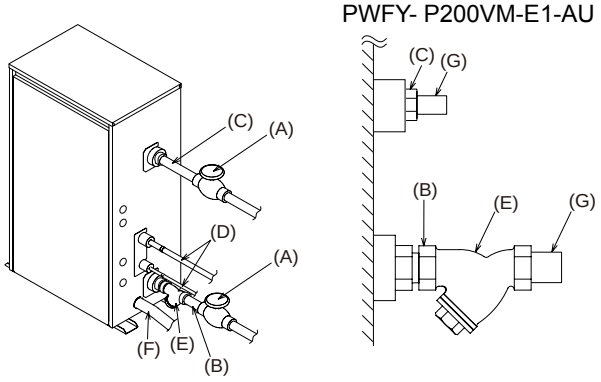
(4) Precautions during installation

- Use the reverse-return method to insure proper pipe resistance to each unit.
- To insure easy maintenance, inspection, and replacement of the unit, use a proper joint, valve, etc. on the water intake and outlet port. In addition, be sure to install a strainer on the water intake pipe. (In order to maintain the heat source unit, a strainer on the circulating water inlet is necessary.)
  * An example of the heat source unit installation is shown in [Fig. IV 3.(5).1].
- Install a suitable air vent on the water pipe. After sending water through the pipe, be sure to vent the excess air.
- Compressed water may form in the low-temperature sections of heat source unit. Use a drainage pipe connected to the drain valve at the base of the unit to drain the water.
- Install a back flow-prevention valve on the pump and a flexible joint to prevent excess vibration.
- Use a sleeve to protect the pipes where they go through a wall.
- Use metal fittings to secure the pipes, and install them so that they have maximum protection against breakage and bending.
- Do not confuse the water intake and outlet valves.
- This unit doesn't have any heater to prevent freezing within tubes. When the water flow is stopped on low ambient, take out the water from tubes.
- The unused knockout holes should be closed and the opening of refrigerant pipes, water pipes, power source and transmission wires should be filled with putty and so on to prevent from rain. (field construction)
- Wrap some sealing tape around the screw part to prevent water leakage.
- Wrap the sealing tape as follows.
  1. Wrap the joint with sealing tape in the direction of the threads (clockwise), and do not let the tape run over the edge.
  2. Overlap the sealing tape by two-thirds to three-fourths of its width on each turn. Press the tape with your fingers so that it is pressed firmly against each thread.
  3. Leave the 1.5th through 2nd farthest threads away from the pipe and unwrapped.
- Hold the pipe on the unit side in place with a spanner when installing the pipes or strainer. Tighten screws to a torque of 50 N·m.
- Water pipes can get very hot, depending on the preset temperature. Wrap the water pipes with insulating materials to prevent burns.
- On the PWFY-P200VM-E1-AU model, install the expansion joint (accessory) at the inlet after installing the strainer, and outlet.

(5) Example of unit installation

[Fig. IV. 3.(5).1]

PWFY- P200VM-E1-AU



(A) Close valve
(B) Water inlet
(C) Water outlet
(D) Refrigerant piping
(E) Y-type strainer
(F) Drain pipe
(G) Expansion joint

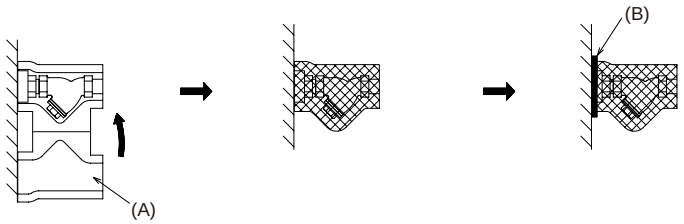
(6) Insulation installation

The surface temperature of the water pipe would be very high, depending on the set temperature. Insulate the pipe to prevent burns. When operating PWFY-P100, P200VM-E1-AU with cold water, insulate the water pipe to prevent condensation.

Wrap insulation material around water pipes as shown in [Fig. IV. 3.(6).1].

- Any heat source piping.
- Indoor piping in cold-weather regions where frozen pipes are a problem.
- When air coming from the outside causes condensation to form on piping.
- Any drainage piping.

[Fig. IV. 3.(6).1]



(A) Heat insulation material (accessory)
(B) Inject with caulking material

(7) Flow switch installation

<Caution>

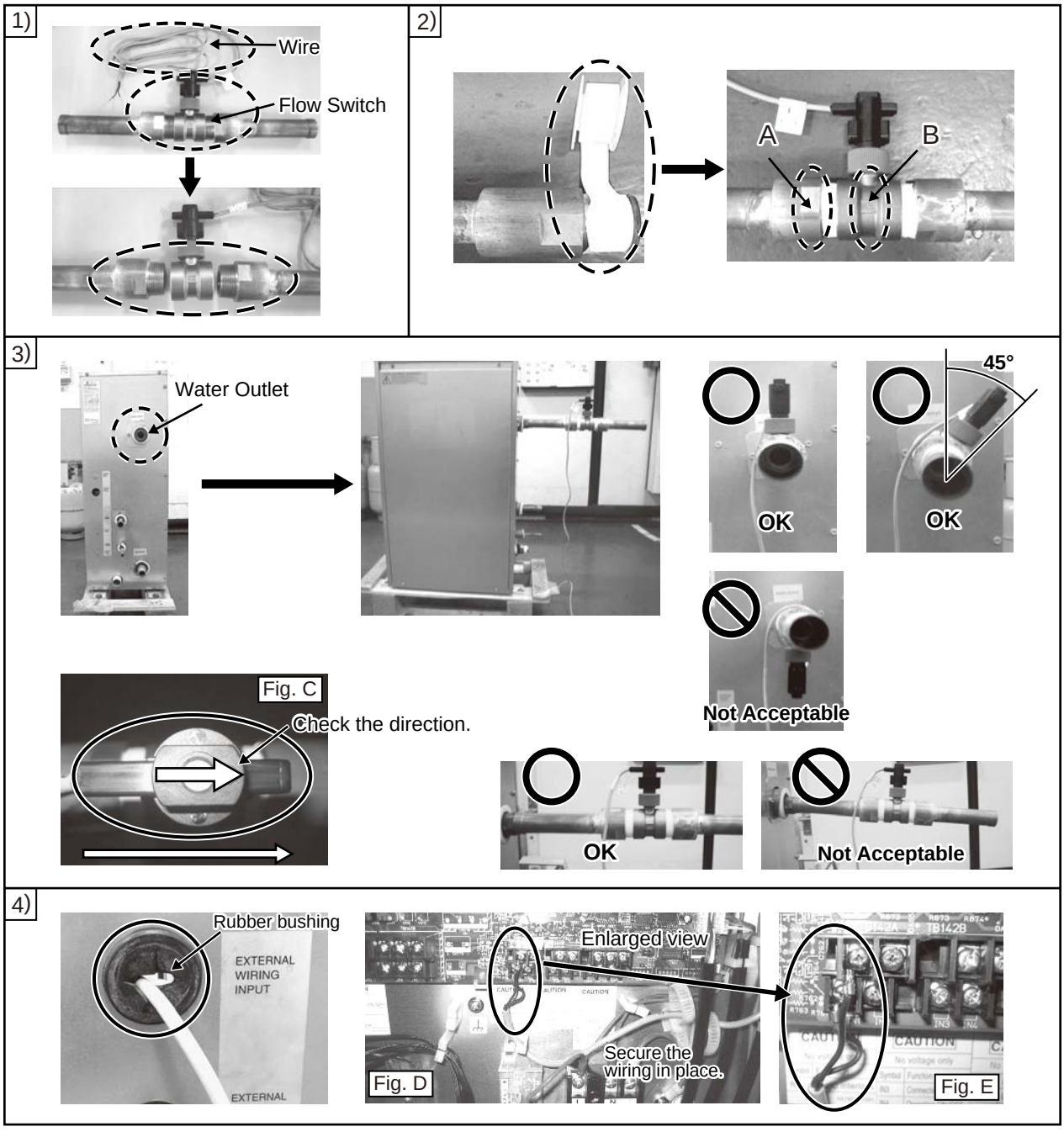
When installing the unit, be sure to install the supplied flow switch on the water outlet side of the unit and connect the wire to IN1 of TB142A on the unit.

If the flow switch is not installed, the unit will emit the error signal (2100: Interlock error) and not operate.

* A short-circuit wire is supplied, but it is only for test run.

<Installation procedures>

1) Remove the pipes attached to the flow switch.
   Note: The unit is shipped with the pipes loosely tightened.
2) Wrap seal tape around the threads at the end of the pipes, starting at the 1.5th or 2nd thread, and not over the openings. Apply two to three wraps in the direction of the pipe threads (clockwise). Each course of the tape should overlap the one before it by 2/3 to 3/4 the width of the tape. Run your fingers around the threads and tape to press the tape into the threads.
   Then, attach the pipes to the flow switch, holding parts A and B with a spanner. The maximum tightening torque is 60 N•m (611 kgf•cm).
3) Attach the flow switch and pipes to the water outlet in the horizontal position.
   The angle of the axis of the pipe should be less than 45 degrees.
   Check the direction of the flow switch as shown in Fig. C.
4) Connect the flow switch wire to IN1 of TB142A.
   From the External Wiring Input, route the wire as shown in Fig. D and connect it to the terminal as shown in Fig. E. Use a wire protector such as a rubber bushing in the access hole on the unit.



(8) Water processing and water quality control

To preserve water quality, use the closed type of cooling tower for unit. When the circulating water quality is poor, the water heat exchanger can develop scales, leading to a reduction in heat-exchange power and possible corrosion of the heat exchanger. Please pay careful attention to water processing and water quality control when installing the water circulation system.

- Removal of foreign objects or impurities within the pipes.

  During installation, be careful that foreign objects, such as welding fragments, sealant particles, or rust, do not enter the pipes.
- Water Quality Processing

  a) Depending on the quality of the cold-temperature water used in the air-conditioner, the copper piping of the heat exchanger may become corroded. We recommend regular water quality processing.

  Cold water circulation systems using open heat storage tanks are particularly prone to corrosion.

  When using an open-type heat storage tank, install a water-to-water heat exchanger, and use a closed-loop circuit on the air conditioner side. If a water supply tank is installed, keep contact with air to a minimum, and keep the level of dissolved oxygen in the water no higher than 1mg/liter.

  b) Water quality standard

Items		Lower mid-range temperature water system Water Temp. =< 60 ˚C		Higher mid-range temperature water system Water Temp. > 60 ˚C		Tendency	
		Recirculating water	Make-up water	Recirculating water	Make-up water	Corrosive	Scale-forming
Standard items	pH (25 ˚C)	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	○	○
	Electric conductivity(mS/m) (25 ˚C) (μ s/cm) (25 ˚C)	30 or less [300 or less]	30 or less [300 or less]	30 or less [300 or less]	30 or less [300 or less]	○	○
	Chloride ion (mg Cl^-/liter)	50 or less	50 or less	30 or less	30 or less	○	
	Sulfate ion (mg $SO4^{2-}$/liter)	50 or less	50 or less	30 or less	30 or less	○	
	Acid consumption (pH4.8) (mg $CaCO_3$/liter)	50 or less	50 or less	50 or less	50 or less		○
	Total hardness (mg $CaCO_3$/liter)	70 or less	70 or less	70 or less	70 or less		○
	Calcium hardness (mg $CaCO_3$/liter)	50 or less	50 or less	50 or less	50 or less		○
	Ionic silica (mg SiO_2/liter)	30 or less	30 or less	30 or less	30 or less		○
Reference items	Iron (mg Fe/liter)	1.0 or less	0.3 or less	1.0 or less	0.3 or less	○	○
	Copper (mg Cu/liter)	1.0 or less	1.0 or less	1.0 or less	1.0 or less	○	
	Sulfide ion (mg S^{2-}/liter)	not to be detected	not to be detected	not to be detected	not to be detected	○	
	Ammonium ion (mg NH_4^+ /liter)	0.3 or less	0.1 or less	0.1 or less	0.1 or less	○	
	Residual chlorine (mg Cl/liter)	0.25 or less	0.3 or less	0.1 or less	0.3 or less	○	
	Free carbon dioxide (mg CO_2/liter)	0.4 or less	4.0 or less	0.4 or less	4.0 or less	○	
	Ryzner stability index	–	–	–	–	○	○

Reference : Guideline of Water Quality for Refrigeration and Air Conditioning Equipment. (JRA GL02E-1994)

c) Please consult with a water quality control specialist about water quality control methods and water quality calculations before using anti-corrosive solutions for water quality management.

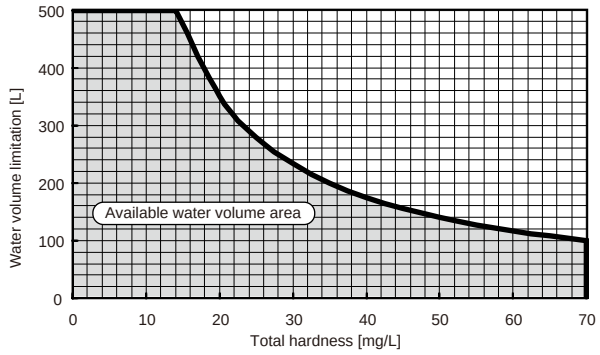
d) When replacing a previously installed air conditioning device (even when only the heat exchanger is being replaced), first conduct a water quality analysis and check for possible corrosion.

Corrosion can occur in cold-water systems even if there has been no prior signs of corrosion.

If the water quality level has dropped, please adjust water quality sufficiently before replacing the unit. Refer to the below graph for the maximum amount of circulating water in the water pipe. Make sure that this amount does not exceed.

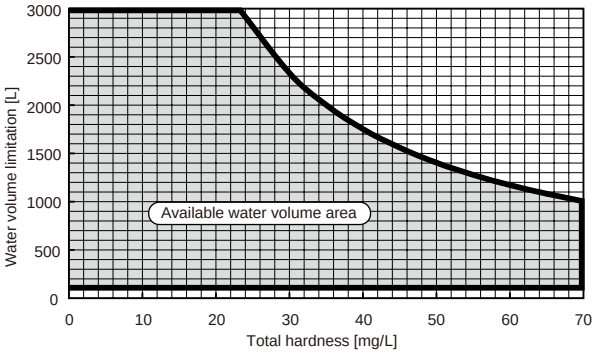
[Fig. IV. 3. (8).1] Maximum circulating water

PWFY-P100VM-E-BU



Condition: Water outlet temp. 70°C

PWFY-P100/200VM-E1-AU

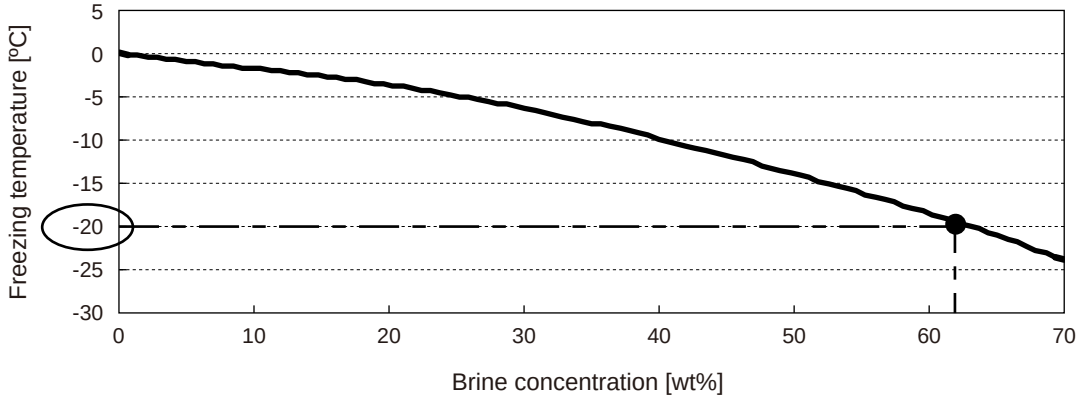


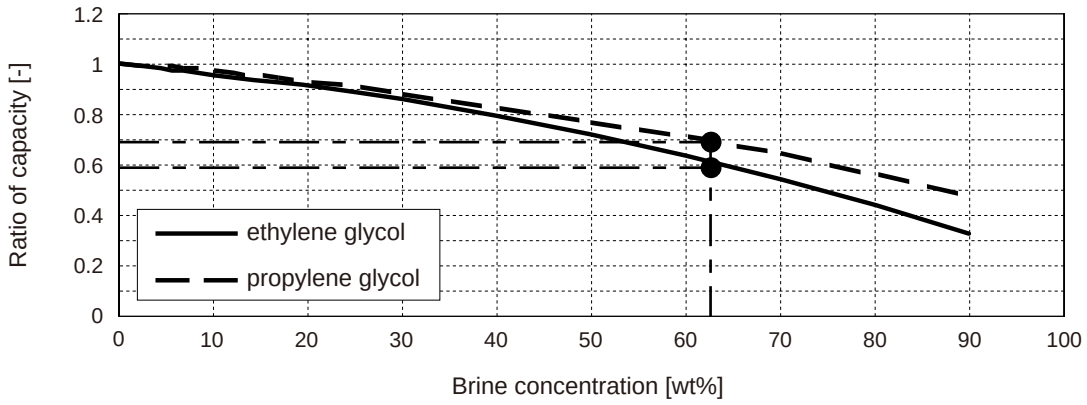
Condition: Water outlet temp. 45°C

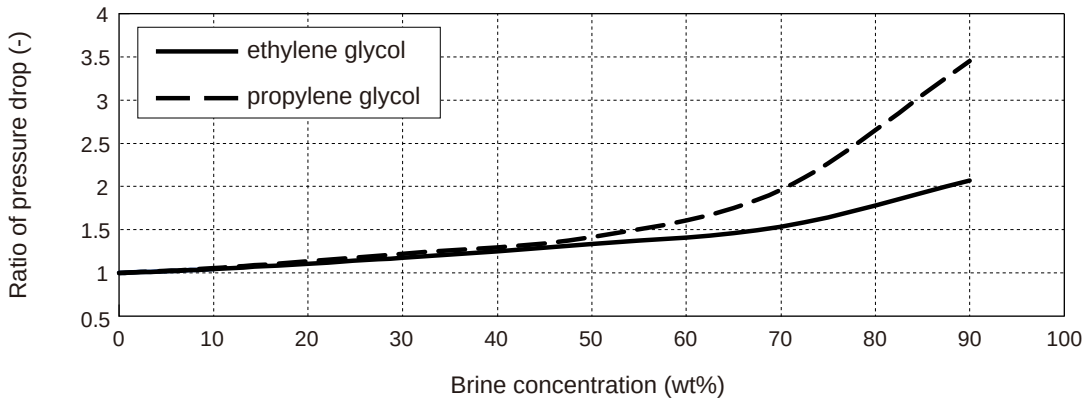
(9) Brine

When (a) PWFY-AU is used for cooling purpose, or (b) PWFY-AU is installed in the temperature condition below freezing temperature, Brine is required to add.

Set Dip SW 1-10 (on ATW unit) to ON if brine is added.



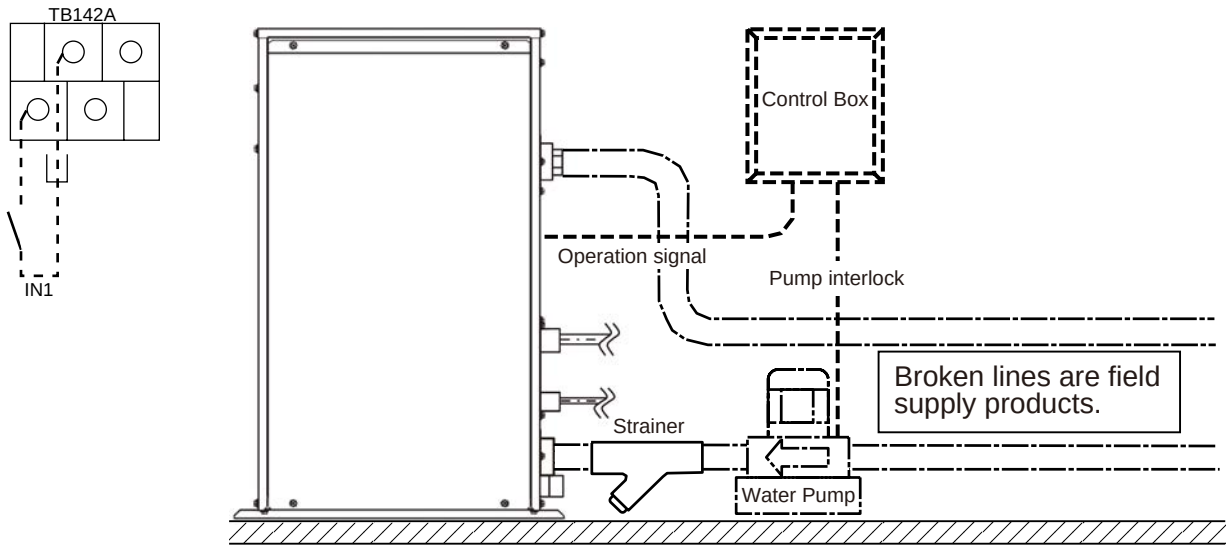




(10) Pump interlock

The unit may become damaged if it is operated with no water circulating through the pipes.
Be sure to interlock unit operation and the water-circuit pump. In the system including PWFY-P100VM-E-BU, use the terminal blocks for interlocking TB142A (IN1) that can be found on the unit.

[Fig. IV. 3. (10).1]



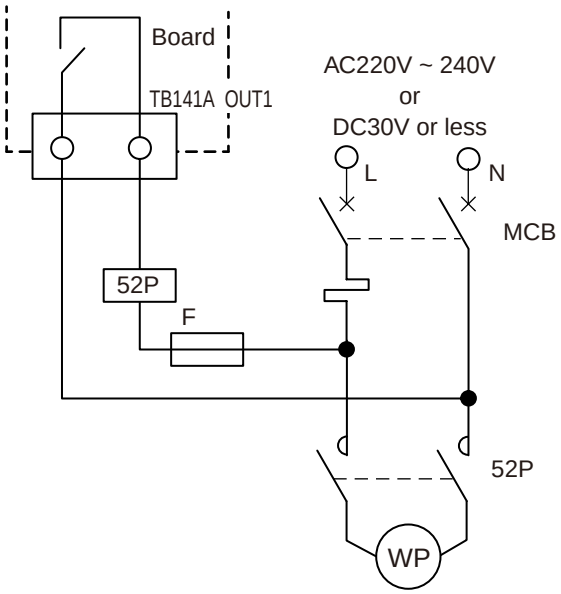
Example drawing for pump interlock

In the system including PWFY-P100/P200VM-E1-AU, the circulating water may freeze, and result in a unit malfunction.
Perform the electrical work as shown in [Fig. IV. 3. (10).2] to prevent water from freezing.
Set the DipSW as shown in the table below.

DipSW3-6	External output contact
ON	Effective when Thermo-ON
OFF	Effective when Operation-ON (Remote controller-ON)

Be sure to turn on the power supply of the pump, since the control does not work if the power supply of the pump is turnd off.
*Refer to (7) Flow switch installation for details.

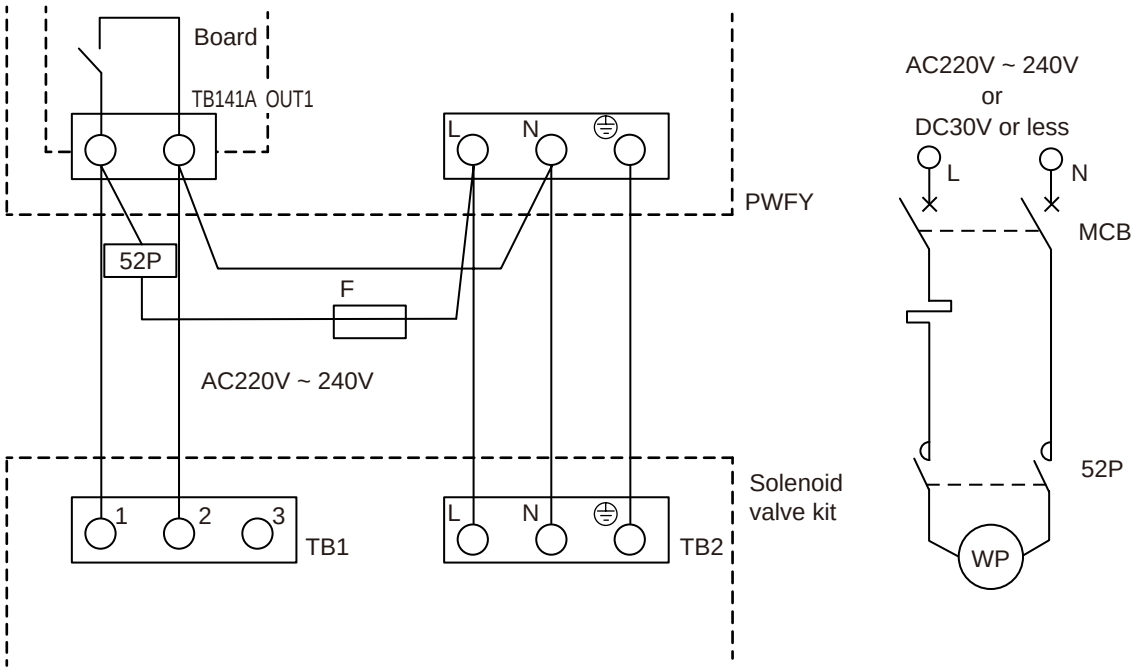
[Fig. IV. 3. (10).2]



F: Fuze
52P: Magnetic contactor for heat source water pump
MCB: Circuit breaker
WP: Water pump

In a system that includes PWFY-P100/P200VM-E1-AU, if the operation of the pump is interlocked with the operation of the air conditioning units AND if the Solenoid valve kit (PAC-SV01PW-E) is connected to the system, connect the wires as shown in [Fig. IV.3.(10).3]. Set Dip SW3-6 to ON, and make sure that the version of the software is 1.18 or later.

[Fig. IV. 3. (10).3]



F: Fuze
52P: Magnetic contactor for heat source water pump
MCB: Circuit breaker
WP: Water pump

(11) Anti freeze mode (Dip SW4-4 ON)

Anti freeze mode is to prevent water pipe from freezing.
The Anti freeze mode can set the heating temperature range between 10ºC~45ºC enabling the unit to maintain low water temperature to prevent water pipes from freezing.

V System Design

1. Electrical work

(1) General cautions

⚠ **Warning:**

Electrical work should be done by qualified electrical engineers in accordance with "Engineering Standards For Electrical Installation" and supplied installation manuals. Special circuits should also be used. If the power circuit lacks capacity or has an installation failure, it may cause a risk of electric shock or fire.

1. Be sure to take power from the special branch circuit.
2. Be sure to install an earth leakage breaker to the power.
3. Install the unit to prevent that any of the control circuit cables (remote controller, transmission cables, or external input/output line) is brought in direct contact with the power cable outside the unit.
4. Ensure that there is no slack on all wire connections.
5. Some cables (power, remote controller, transmission cables external input/output line) above the ceiling may be bitten by mouses. Use as many metal pipes as possible to insert the cables into them for protection.
6. Never connect the power cable to leads for the transmission cables. Otherwise the cables would be broken.
7. Be sure to connect control cables to the indoor unit, remote controller, and the outdoor unit.
8. Be sure to ground the unit.
9. Select control cables from the conditions given in page **66**.

⚠ **Caution:**

Be sure to put the unit to the ground on the outdoor unit side. Do not connect the earth cable to any gas pipe, water pipe, lightening rod, or telephone earth cable. Incomplete grounding may cause a risk of electric shock.

(2) Power supply for PWFY unit

(2)-1 Electrical characteristics of PWFY unit

- Power supply cords of appliances shall not be lighter than design 245 IEC 57 or 227 IEC 57.
- A switch with at least 3 mm contact separation in each pole shall be provided by the Air conditioner installation.

Model	Power supply				Compressor		RLA (A)
	Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Heating
PWFY-P100VM-E-BU	50/60	220-230-240 V	Max. 264 V Min. 198 V	15.71	1.0	1.25	11.63-11.12-10.66

Model	Power supply				RLA (A)	
	Hz	Volts	Voltage range	MCA (A)	Cooling	Heating
PWFY-P100VM-E1-AU PWFY-P200VM-E1-AU	50/60	220-230-240 V	Max. 264 V Min. 198 V	0.085	0.068-0.065-0.063	

Model	Power supply			RLA (A)
	Hz	Volts	Voltage range	
PAC-SV01PW-E	50/60	220-230-240 V	Max. 264 V Min. 198 V	0.070-0.074-0.077

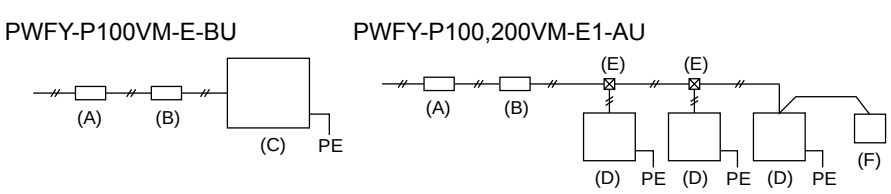
(2)-2 Power cable specifications

Model	Minimum wire thickness (mm^2)			Breaker for current leakage	Local swich (A)		Breaker for wiring (NFB) (A)
	Main cable	branch	Ground		capacity	fuse	
PWFY-P100VM-E-BU	2.5	-	2.5	30 A 30 mA 0.1 sec or less	25	25	30

Model			Minimum wire thickness (mm^2)			Breaker for current leakage	Local swich (A)		Breaker for wiring (NFB) (A)
			Main cable	branch	Ground		capacity	fuse	
PWFY-P100VM-E1-AU PWFY-P200VM-E1-AU	Total operating current	16 A or less	1.5	1.5	1.5	20 A 30 mA 0.1 sec. or less	16	16	20
		25 A or less	2.5	2.5	2.5	30 A 30 mA 0.1 sec. or less	25	25	30
		32 A or less	4.0	4.0	4.0	40 A 30 mA 0.1 sec. or less	32	32	40

Model	Minimum wire thickness (mm^2)		
	Main cable	branch	Ground
PAC-SV01PW-E	1.5	1.5	1.5

[Fig. V. 1.(2).1]

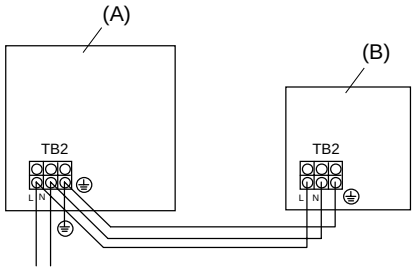


(A) Breaker for current leakage
(B) Local switch or breakers for wiring
(C) PWFY-P100VM-E-BU
(D) PWFY-P100, 200VM-E1-AU
(E) Pull box
(F) PAC-SV01PW-E

(2)-3 When a solenoid valve kit is connected

- Connect the solenoid valve kit TB2 and PWFY TB2.
- Run the power supply wire through the access hole for power supply wire on the PWFY unit. If the hole is already used to run other wires from the existing PWFY units, use any other wire access holes except the control wire access hole.

[Fig. V. 1.(2).2]



(A) PWFY-P-VM-E-AU
(B) PAC-SV01PW-E

⚠ **Caution:**

Do not use anything other than the correct capacity breaker and fuse. Using fuse, wire or copper wire with too large capacity may cause a risk of malfunction or fire.

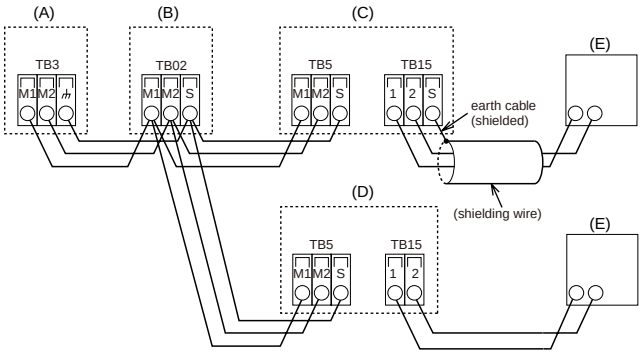
(3) Connecting remote controller, indoor and outdoor transmission cables

- Connect unit TB5 and outdoor unit TB3. (Non-polarized 2-wire (shield))
  The “S” on unit TB5 is a shielding wire connection. For specifications about the connecting cables, refer to the outdoor unit installation manual.
- Install a remote controller following the manual supplied with the remote controller.

(3)-1 Power supply examples

(3)-1-1 Using MA Remote controller (Remote controller is optionally available)

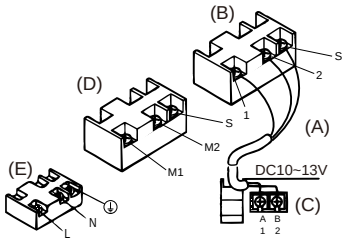
- Connect the “1” and “2” on unit TB15 to a MA remote controller. (Non-polarized 2-wire)
  [Fig. V. 1. (3). 1] MA Remote controller



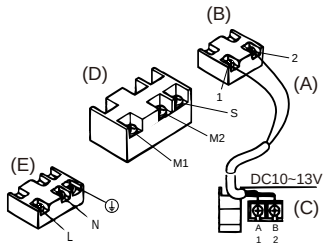
(A) Outdoor unit
(B) BC controller/WCB
(C) PWFY-P100VM-E-BU
(D) PWFY-P100, 200VM-E1-AU
(E) MA remote controller

- DC 10 to 13 V between 1 and 2 (MA remote controller)
  [Fig. V. 1. (3). 2] MA Remote controller

PWFY- P100VM-E-BU



PWFY- P100, 200VM-E1-AU



(A) Non-polarized
(B) TB15 (MA remote controller cables)
(C) MA remote Controller
(D) TB5 (Transmission cables)
(E) TB2 (Power supply wiring)

- The MA remote controller cannot be used at the same time or interchangeably.

Note:

Ensure that the wiring is not pinched when fitting the terminal box cover. Pinching the wiring may cut it.

⚠ Caution:

- Use wire with supplemental insulation.
- Input to TB142A, TB142B, and TB142C should not carry voltage.
- Cables from equipment connected to external input/output should have supplemental insulation.
- Use a single multiple-core cable for external input/output to allow for connection to the PG screw.

⚠ Caution:

Wire the power supply so that no tension is imparted. Otherwise disconnection, heating or fire result.

(4) Transmission cable specifications

(4)-1 Transmission cables

PWFY-P100VM-E-BU

	Transmission cables	MA Remote controller cables	External input	External output
Type of cable	Shielding wire (2-core) CVVS, CPEVS or MVVS	Sheathed 2-core cable (shielded) CVVS	Sheathed multi-core cable (shielded) CVVS or MVVS	Sheathed multi-core cable (unshielded) CVV or MVV
Cable diameter	More than 1.25 mm^2	0.3 ~ 1.25 mm^2 (0.75 ~ 1.25 mm^2)*1	0.3 ~ 0.5 mm^2	0.3 ~ 1.25 mm^2
Remarks	-	Max.length: 200 m	Max.length: 100 m	Rated voltage: L1-N: 220 ~ 240 V Rated load: 0.6 A

PWFY-P100, 200VM-E1-AU

	Transmission cables	MA Remote controller cables	External input	External output
Type of cable	Shielding wire (2-core) CVVS, CPEVS or MVVS	Sheathed 2-core cable CVV (unshielded)	Sheathed multi-core cable CVV or MVV (unshielded)	Sheathed multi-core cable (unshielded) CVV or MVV
Cable diameter	More than 1.25 mm^2	0.3 ~ 1.25 mm^2 (0.75 ~ 1.25 mm^2)*1	0.3 ~ 0.5 mm^2	0.3 ~ 1.25 mm^2
Remarks	-	Max.length: 200 m	Max.length: 100 m	Rated voltage: L1-N: 220 ~ 240 V Rated load: 0.6 A

*1 Connected with simple remote controller. CVVS, MVVS: PVC insulated PVC jacketed shielded control cable
CVV, MVV : PVC insulated PVC sheathed control cable
CPEVS : PE insulated PVC jacketed shielded communication cable

(5) Connecting electrical connections

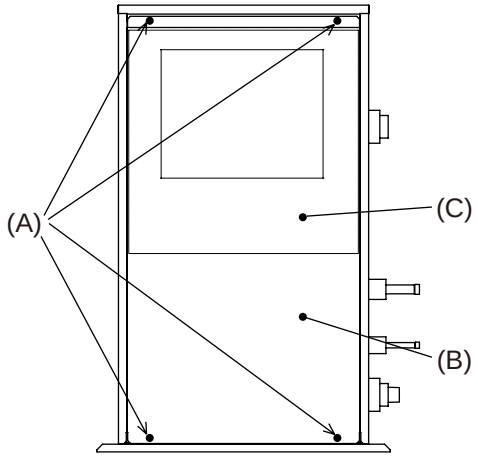
Verify that the model name on the operating instructions on the cover of the control box is the same as the model name on the nameplate.

Step 1

Remove the screws holding the terminal box cover in place.

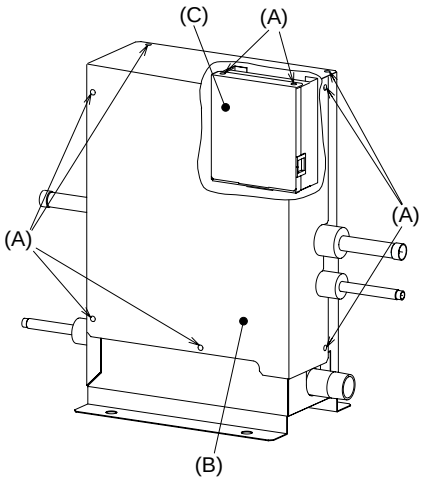
[Fig. V.1.(5).1]

•PWFY unit



(A) Screws
(B) Front panel
(C) Control box

•Solenoid valve kit



Note:

Ensure that the wiring is not pinched when fitting the terminal box cover. Pinching the wiring may cut it.

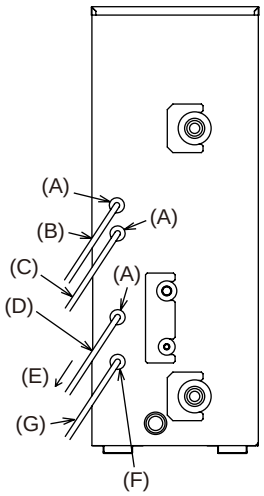
⚠ Caution:

Install wiring so that it is not tight and under tension. Wiring under tension may break, or overheat and burn.

- Fix power source external input/output line wiring to control box by using buffer bushing for tensile force to prevent electric shock. (PG connection or the like.) Connect transmission wiring to transmission terminal block through the knockout hole of control box using ordinary bushing.
- After wiring is complete, make sure again that there is no slack on the connections, and attach the cover onto the control box in the reverse order removal.

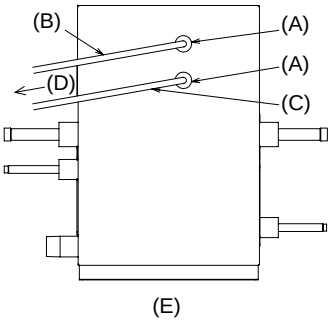
[Fig. V. 1.(5).2]

•PWFY unit



(A) To prevent external tensile force from applying to the wiring connection section of power source terminal block use buffer bushing like PG connection or the like.
(B) External signal input cable
(C) External signal output cable
(D) Power source wiring
(E) Tensile force
(F) Use ordinary bushing
(G) Transmission cable and MA remote controller cable

•Solenoid valve kit



(A) To prevent external tensile force from applying to the wiring connection section of power source terminal block use buffer bushing like PG connection or the like.
(B) External signal input cable
(C) Power source wiring
(D) Tensile force
(E) Back view

⚠ **Caution:**

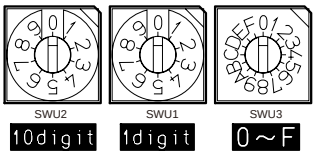
Wire the power supply so that no tension is imparted. Otherwise disconnection, heating or fire result.

(6) Indoor unit address setting

(Be sure to operate with the main power turned OFF.)

[Fig. V. 1.(6).1]

<Address board>



(6)-1 Switch operation (BC controller)

- There are two types of rotary switch setting available: setting addresses 1 to 9 and over 10, and setting branch numbers.

a) How to set addresses

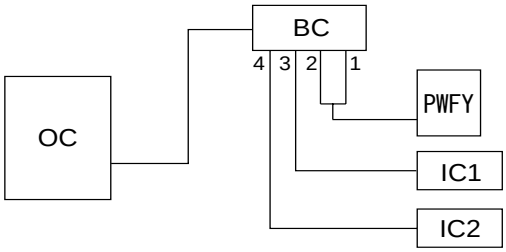
Example: If Address is “3”, SWU2 (for over 10) remains at “0”, and match SWU1 (for 1 to 9) to “3”.

b) How to set branch numbers SWU3 (only for R2 series)

Branch number matches the BC controller branch number. If two branches are used, SWU3 should be set to a smaller branch number. For other than R2 series, remain SWU3 as "0".

- example -

＜BC controller＞



	SWU2	SWU1	SWU3
PWFY	0	1	1
IC1	0	2	3
IC2	0	3	4

(6)-2 Switch operation (WCB)

a) How to set addresses

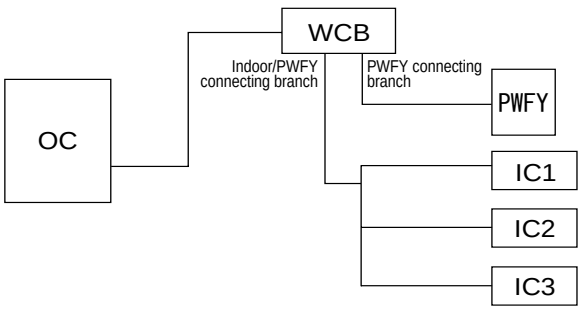
Example: If Address is “3”, SWU2 (for over 10) remains at “0”, and match SWU1 (for 1 to 9) to “3”.

b) How to set branch numbers SWU3 (only for R2 series)

There are two branches for WCB. Indoor unit/PWFY connecting branch should be set as "0" and PWFY connecting branch as "1".

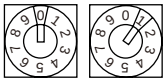
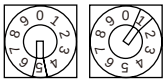
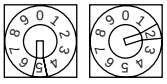
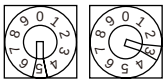
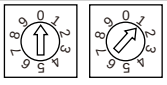
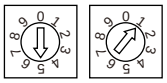
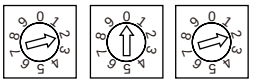
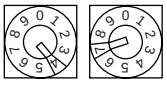
- example -

＜WCB＞



	SWU2	SWU1	SWU3
PWFY	0	1	**1**
IC1	0	2	**0**
IC2	0	3	**0**
IC3	0	4	**0**

(6)-3 Rule of setting address

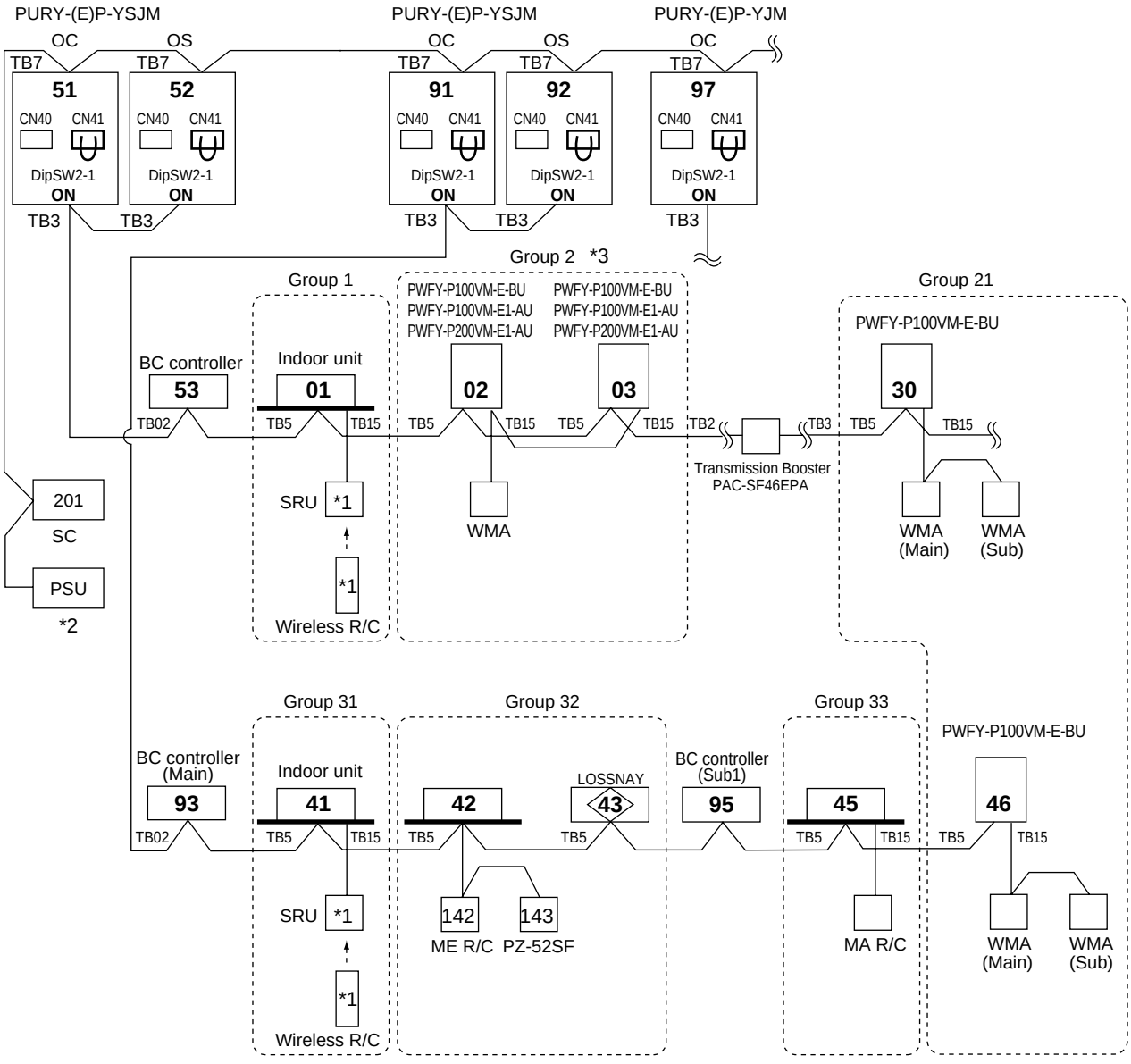
Unit		Address setting	Example	Note
PWFY unit Standard indoor unit		01 ~ 50		Use the most recent address within the same group of indoor units. Make the indoor units address connected to the BC controller (Sub) larger than the indoor units address connected to the BC controller (Main). If applicable, set the sub BC controllers in an PURY system in the following order: (1) Indoor unit to be connected to the BC controller (Main) (2) Indoor unit to be connected to the BC controller (No.1 Sub) (3) Indoor unit to be connected to the BC controller (No.2 Sub) Set the address so that (1)<(2)<(3)
Outdoor unit		51 ~ 99, 100 (Note1)		The smallest address of indoor unit in same refrigerant system + 50 Assign sequential address numbers to the outdoor units in one refrigerant circuit system. OC and OS are automatically detected. (Note 2) * Please reset one of them to an address between 51 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"
BC controller (Main)/WCB		52 ~ 99, 100		The address of outdoor unit + 1 * Please reset one of them to an address between 52 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"
BC controller (Sub)		53 ~ 99, 100		Lowest address within the indoor units connected to the BC controller (Sub) plus 50.
Local remote controller	ME, LOSSNAY Remote controller (Main)	101 ~ 150	1 Fixed 	The smallest address of indoor unit in the group + 100 * The place of "100" is fixed to "1"
	ME, LOSSNAY Remote controller (Sub)	151 ~ 199, 200	1 Fixed 	The address of main remote controller + 50 * The address automatically becomes "200" if it is set as "00"
System controller	ON/OFF remote controller	000, 201 ~ 250		
	AG-150A GB-50ADA	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	
	PAC-YG50ECA	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	* Settings are made on the initial screen of AG-150A.
	BAC-HD150	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	* Settings are made with setting tool of BM ADAPTER.
	LMAP02-E	201 ~ 250	2 Fixed 	

Note1: To set the address to "100", set it to "50"
Note2: Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.

(6)-4 System examples

(6)-4-1 MA remote controller, Multi-refrigerant-system, System Controller at TB7 side, Booster for long M-NET wiring

PWFY-P100VM-E-BU/PWFY-P100, 200VM-E1-AU with R2 series outdoor units



*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

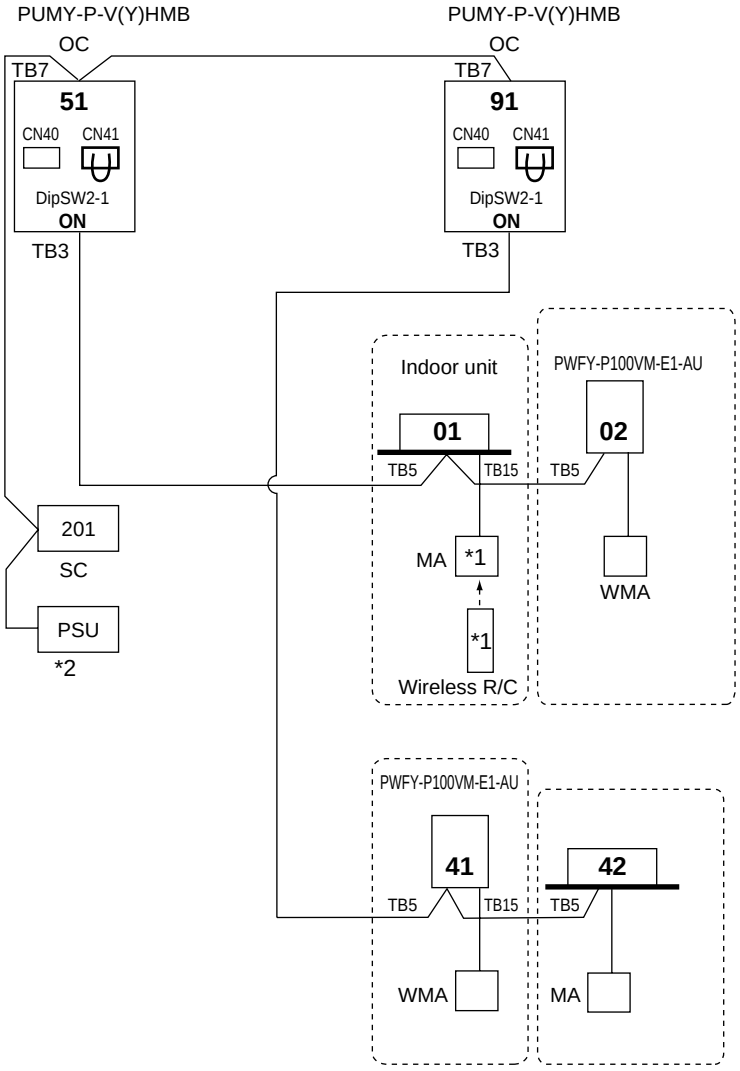
*2 System controller should connect to TB7 at Outdoor and use power supply unit together in Multi-Refrigerant-System.

*3 Do not group PWFY-P100VM-E-BU and PWFY-P100, 200VM-E1-AU together in the same group.

NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units, LOSSNAY and central controller.
3. M-NET power is supplied by the Outdoor unit at TB3, while Indoor unit and MA RC consume the M-NET power for transmission use. The power balance is needed to consider for long M-NET wiring. Details refer to Data book SYSTEM DESIGN, SYSTEM DESIGN R2 SERIES, **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.
5. Assign an address to each of the sub BC controllers (SC1 and SC2) which equals the sum of the smallest address of the indoor units that are connected to each sub BC controller and 50.

PWFY-P100VM-E1-AU with S series outdoor units



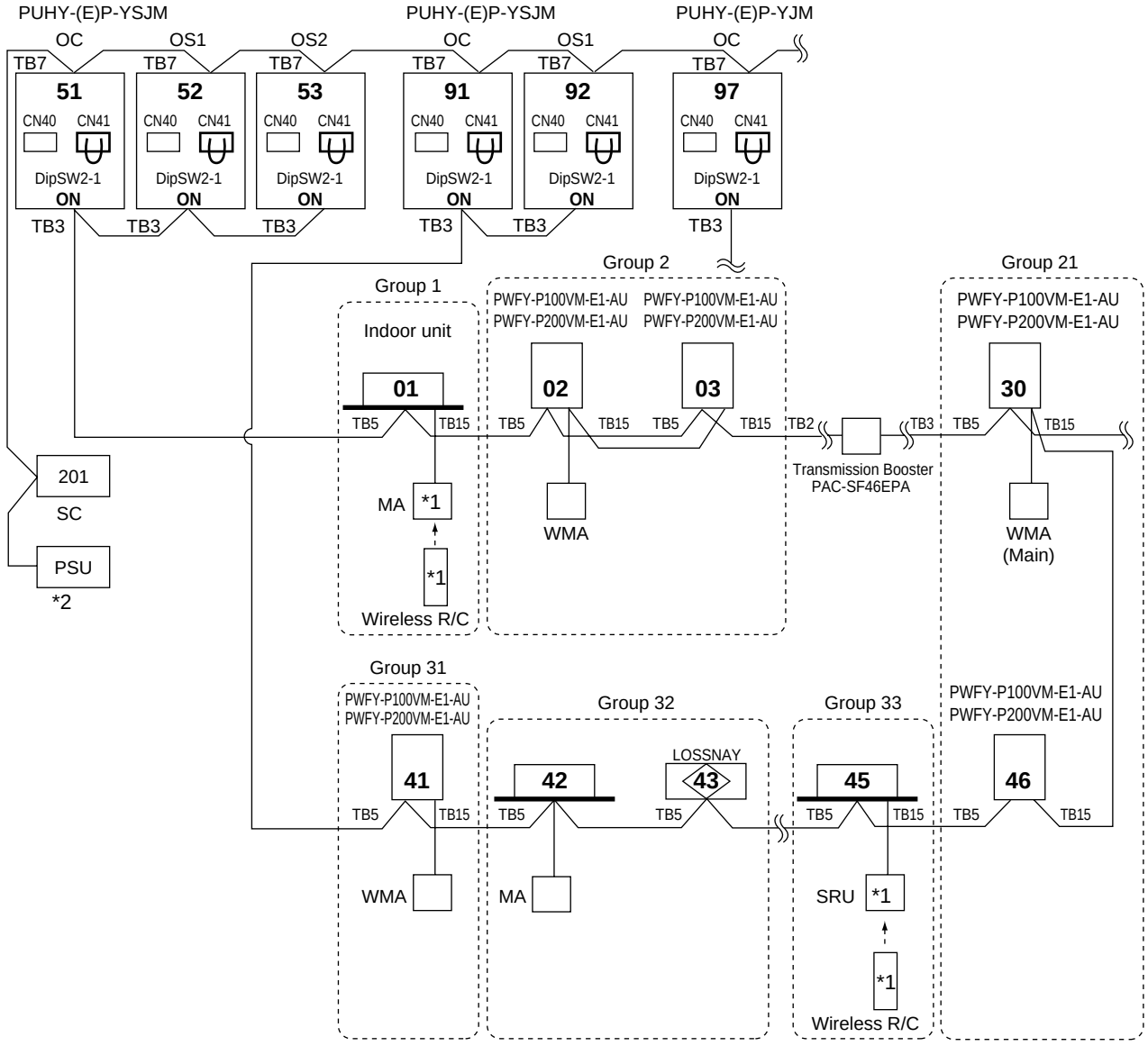
*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*2 System controller should connect to TB7 at Outdoor and use power supply unit together in Multi-Refrigerant-System.

NOTE:

1. Address should be set to Indoor units, LOSSNAY and central controller.

PWFY-P100, 200VM-E1-AU with Y series outdoor units



*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*2 System controller should connect to TB7 at Outdoor and use power supply unit together in Multi-Refrigerant-System.

NOTE:

1. Outdoor units OC, OS1 and OS2 in one refrigerant circuit system are automatically detected.
   OC, OS1 and OS2 are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units, LOSSNAY and central controller.
3. M-NET power is supplied by the Outdoor unit at TB3, while Indoor unit and MA consume the M-NET power for transmission use. The power balance is needed to consider for long M-NET wiring. Details refer to Data book SYSTEM DESIGN, SYSTEM DESIGN Y SERIES, **2-3 "System configuration restrictions".**

(7) External input/output function

Preset temperature input (external analog input: 4mA-20mA)

• External input

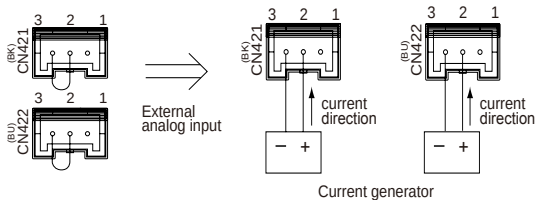
Input through CN421, CN422 on the circuit board. (Fig. V. 1.(7).1)

• External analog input

Use the supplied connector.

If no temperature settings are made via the MA remote controller, the temperature changes with the current of generator.

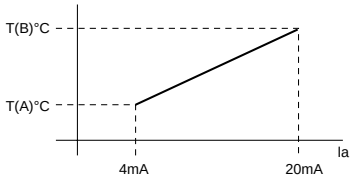
[Fig. V. 1.(7).1]



Method

Input T(A), T(B)
4mA :T(A)
20mA:T(B)

Changeable with PAR-W21MAA



S/W default
T(A)=10°C
T(B)=70°C.

*All setting with a controller.

Conversion equation:To=[{T(B) - T(A)}/16] × Ia + [T(A) - {T(B) - T(A)}/4]
To: set temperature, Ia: analogue input value (mA)

Calculation example: T(A)=30°C, T(B)=70°C, Ia=10mA
Conversion equation: To=2.5 × Ia+20 To=45°C

External output terminal

External output terminal (refer to Fig. V. 1.(7).3) is ineffective when the circuit is open.

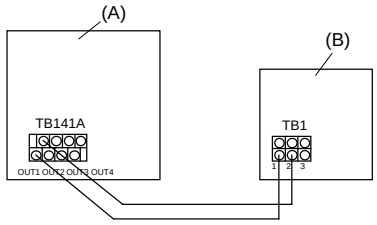
Refer to Table V. 1.(7).1 for information about each contact.

The current and voltage in the circuit to be connected to external output terminal (TB141A OUT1) must meet the following conditions.

When a solenoid valve kit is connected

- Connect the "1" and "2" on solenoid valve kit TB1 to the OUT1 on PWFY external output terminal.
- Run the external signal input cable through the access hole for external wiring output wire on the PWFY unit.
  If the hole is already used to run other wires from the existing PWFY units, use any other wire access holes except the control wire access hole.

[Fig. V. 1.(7).2]



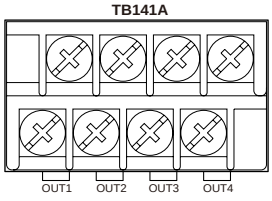
(A) PWFY-P-VM-E-AU
(B) PAC-SV01PW-E

		Contact rating current
Contact rating voltage	AC250V	1A or less
	AC125V	3A or less
	DC30V	3A or less

[Table. V. 1.(7).1]

OUT1	Operation ON/OFF
OUT2	Defrost
OUT3 *7	Compressor
OUT4	Error signal

[Fig. V. 1.(7).3]



External input terminal

The piping length must be within 100 m.

External input terminal (refer to Fig. V. 1.(7).4) is ineffective when the circuit is open.

Refer to Table V. 1.(7).2 through Table V. 1.(7).4 for information about each contact.

Only the “pump interlock” function is ineffective when the circuit is short-circuited.

Connect a relay circuit to the external output terminal as shown in Fig. IV. 3.(10).2.

The specifications of the relay circuit to be connected must meet the following conditions.

Contact rating voltage >= DC15V

Contact rating current >= 0.1A

Minimum applicable load =< 1mA at DC

[Table V. 1.(7).2] TB142A

IN1	Pump interlock

[Table V. 1.(7).3] TB142B

IN3	Connection demand
IN4	Operation ON/OFF

[Table V. 1.(7).4] TB142C

COM+	Common
IN5 *1	Hot Water/Heating
IN6 *2	Heating ECO *5
IN7 *3	Anti-freeze *6
IN8 *4	Cooling operation

*1 PWFY-P100VM-E-BU Hot Water
PWFY-P100, 200VM-E1-AU Heating

*2 Effective when SW 4-3 is set to ON.

*3 Effective when SW 4-4 is set to ON.

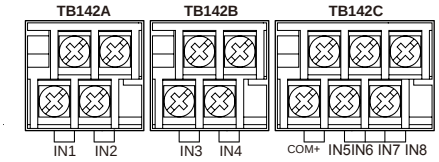
*4 PWFY-P100, 200VM-E1-AU only

*5 When Heating ECO mode is effective, the outlet water temp. will be changed based on ambient temp. automatically. (Only Y/HP (ZUBADAN)/R2-series)

*6 When Anti-freeze mode is effective, the unit will set the heating temperature range between 10ºC~45ºC enabling the unit to maintain low water temperature to prevent water pipes from freezing.

*7 PWFY-P100VM-E-BU only

[Fig. V. 1.(7).4]



Note: When setting Heating ECO or Anti-freeze mode, reset all power supply of all units (outdoor/indoor units).

Note: Dip S/W 1-1 OFF: Water Inlet Temp.

Dip S/W 1-1 ON : Water Outlet Temp.

The factory setting for Dip SW 1-1 is OFF.

Signal priority = External input > centralized controller > remote controller

2. Piping Design

(1) BC controller piping design

(1)-1 IF 16 ports or less are in use, I.e., if only one BC controller is in use with no sub BC controller

Note1. No Header usable on PURY system.
Note2. Indoor unit sized P100-P250 should be connected to BC controller via Y shape joint CMY-R160-J1 ;
Note3. Indoor unit sized P100-P250 does NOT share BC controller ports with other Indoor units ;
Note4. As bents cause pressure loss on transportation of refrigerant, fewer bents design is better ;
Piping length needs to consider the actual length and equivalent length which bents are counted.
Equivalent piping length (m)=Actual piping length+"M" x Quantity of bent.
Note5. Set DIP-SW 4-6 to ON of BC controller, in case of connected Indoor unit sized P100-P140 with 2 ports.
Note6. It is also possible to connect Indoor unit sized P100-P140 with 1 port (set DIP-SW 4-6 to OFF).
However, the cooling capacity decreases a little (For details, refer to Data book OUTDOOR UNITS, R2 SERIES, 6-4. Correction by port counts of the BC controller).
Note7. Individual indoor units grouped together to connect to the BC controller via one port cannot operate individually in heating and cooling modes at the same time. I.e., they must all function in either heating or cooling together.
Note8. Indoor capactiy is described as its model size. For example, PEFY-P63VML-E, its capacity is P63.
Note9. Total down-stream Indoor capacity is the summary of the model size of Indoors down-stream.
For example, PEFY-P63VML-E + PEFY-P32VML-E : Total Indoor capacity = P63 + P32 = P95.

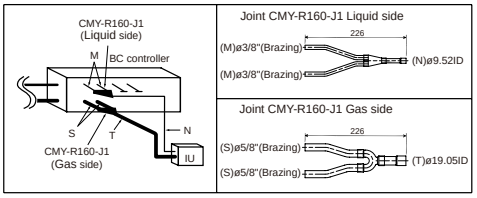


Fig. (1)-1AA

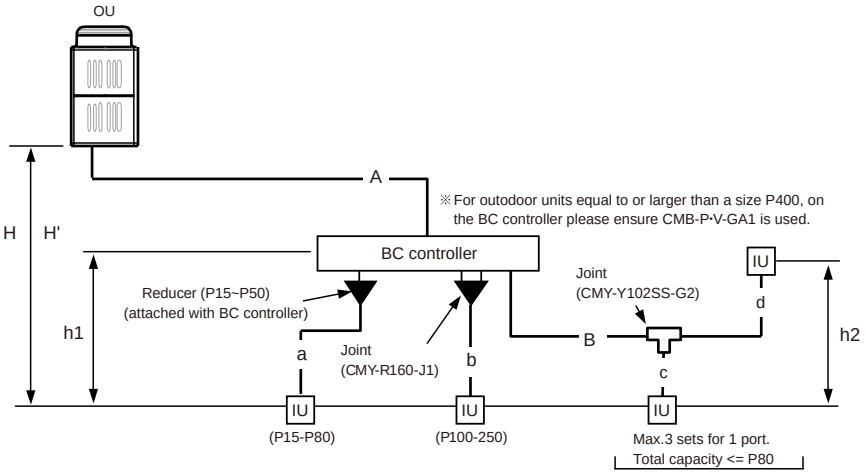


Fig. (1)-1A Piping scheme

Table (1)-1-1. Piping length limitation **(m [ft.])**

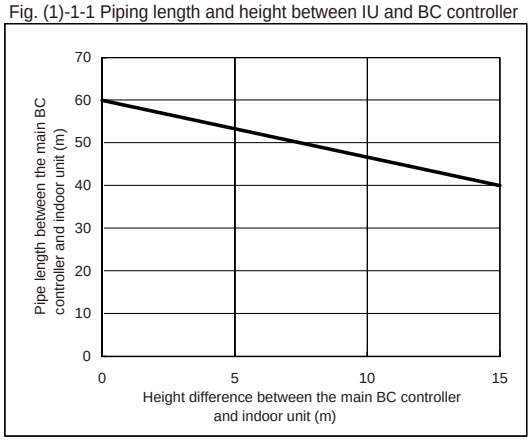
Item	Piping in the figure	Max. length	Max. equivalent length
Total piping length	A+B+a+b+c+d	*1	-
Farthest IU from OU	A+B+d	165 [541']	190 [623']
Distance between OU and BC	A	110 [360'] *1	110 [360'] *1
Farthest IU from BC controller	B+d	40 [131'] *2*3	40 [131'] *3
Heignt between OU and IU (OU above IU)	H	50 [164'] *5	-
Heignt between OU and IU (OU under IU)	H'	40 [131'] *6	-
Height between IU and BC	h1	15 [49'] (10 [32']) *4	-
Height between IU and IU	h2	15 [49'] (10 [32']) *4	-

Table(1)-1-2. Bent equivalent length "M"

Outdoor Model	M (m/bent [ft./bent])
(E)P200YJM	0.35 [1.15']
(E)P250YJM	0.42 [1.38']
(E)P300YJM	0.42 [1.38']
(E)P350YJM	0.47 [1.54']
P400YJM	0.50 [1.64']
P450YJM	0.50 [1.64']

OU : Outdoor Unit ; IU : Indoor Unit ; BC : BC controller
*1. Refer to the section (1)-2.
*2. Details refer to Fig.(1)-1-1
*3. Farthest Indoor from BC controller "B+d" can exceed 40m till 60m if no Indoor sized P200, P250 connected. Details refer to Fig.(1)-1-1
*4. Distance of Indoor sized P200, P250 from BC must be less than 10m, if any.
*5. 90m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*6. 60m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.

Fig. (1)-1-1 Piping length and height between IU and BC controller



Table(1)-1-3. Piping "A"size selection rule **(mm [in.])**

Outdoor Model	Pipe(High pressure)	Pipe(Low pressure)
(E)P200YJM	ø15.88 [5/8"]	ø19.05 [3/4"]
(E)P250YJM	ø19.05 [3/4"]	ø22.20 [7/8"]
(E)P300YJM	ø19.05 [3/4"]	ø22.20 [7/8"]
(E)P350YJM	ø19.05 [3/4"]	ø28.58 [1-1/8"]
P400YJM	ø22.20 [7/8"]	ø28.58 [1-1/8"]
P450YJM	ø22.20 [7/8"]	ø28.58 [1-1/8"]

Table(1)-1-4. Piping "B" size seleciton rule **(mm [in.])**

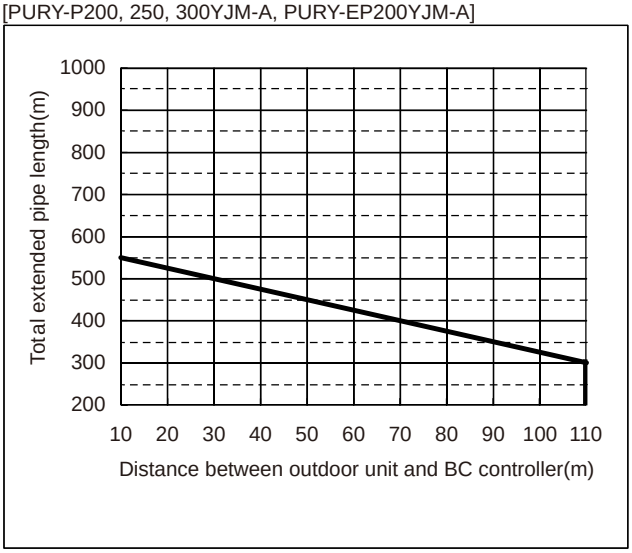
Total down-stream Indoor capacity	Pipe(Liquid)	Pipe(Gas)
P140 or less	ø9.52 [3/8"]	ø15.88 [5/8"]

Table(1)-1-5. Piping "a", "b", "c", "d" size selection rule **(mm [in.])**

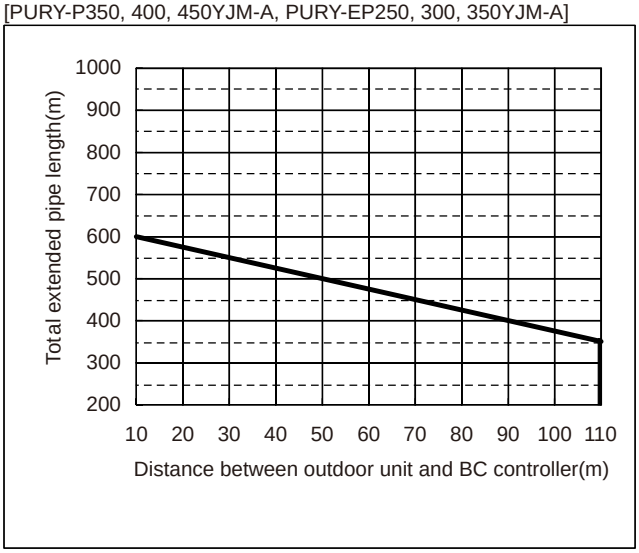
Indoor Unit size	Pipe(Liquid)	Pipe(Gas)
P15 to P50, GUF-50RD(H)	ø6.35 [1/4"]	ø12.70 [1/2"]
P63 to P140, GUF-100RD(H)	ø9.52 [3/8"]	ø15.88 [5/8"]
P200	ø9.52 [3/8"]	ø19.05 [3/4"]
P250	ø9.52 [3/8"]	ø22.20 [7/8"]

(1)-2 Total piping length restrictions

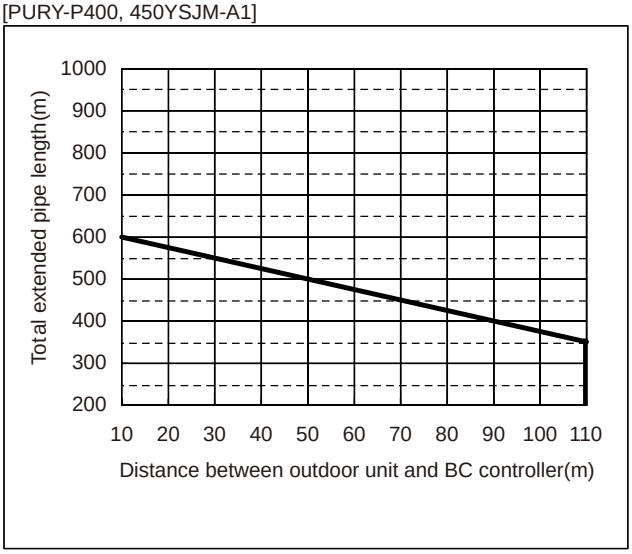
[PURY-P200, 250, 300YJM-A, PURY-EP200YJM-A]



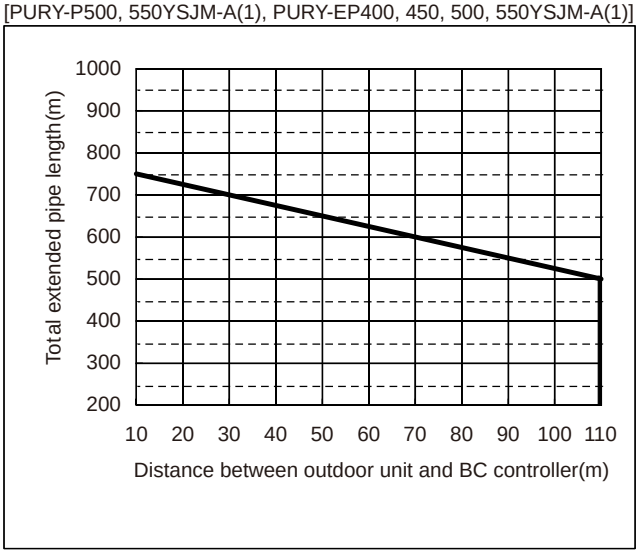
[PURY-P350, 400, 450YJM-A, PURY-EP250, 300, 350YJM-A]



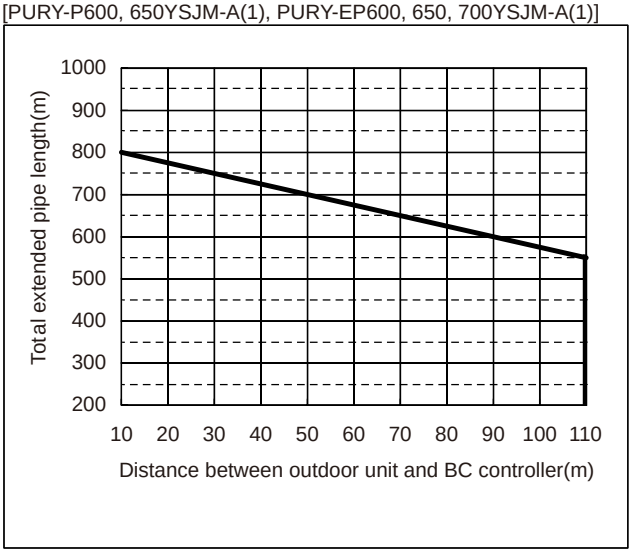
[PURY-P400, 450YSJM-A1]



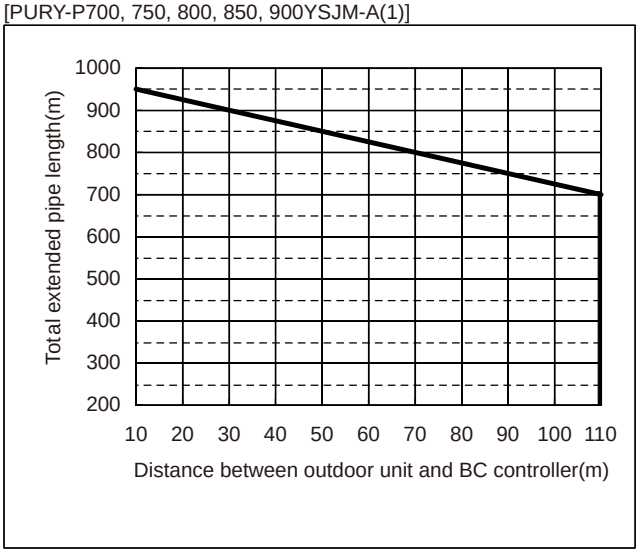
[PURY-P500, 550YSJM-A(1), PURY-EP400, 450, 500, 550YSJM-A(1)]



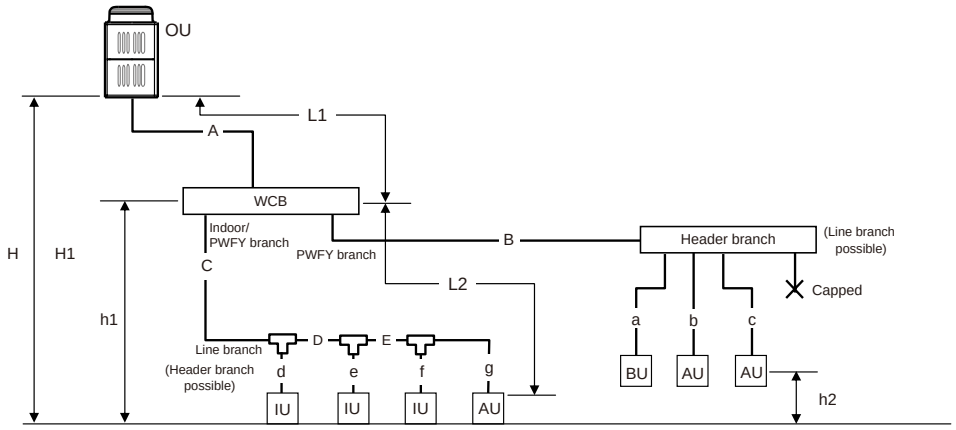
[PURY-P600, 650YSJM-A(1), PURY-EP600, 650, 700YSJM-A(1)]



[PURY-P700, 750, 800, 850, 900YSJM-A(1)]



(2) WCB piping design



Item		Piping in the figure	Maximum length
Total piping length		A+B+C+D+E+a+b+c+d+e+f+g	*1
Farthest IU from OU		A+C+D+E+g / A+B+c	165 m (Max. equivalent length of 190 m or less)
Distance between OU and WCB		A	110
Distance between IU and WCB		C+D+E+g / B+c	40 *2
Height between IU and OU	OU above IU	H	50
	OU below IU	H1	40
Height between IU and WCB		h1	15 (10) *3
Height between indoor units		h2	15 (10) *3

*1. Refer to Fig. (2)-1 "Restrictions on piping length" .
*2. Please refer to Fig. (2)-2 "Distance between WCB and farthest Indoor unit" when the distance between WCB controller and farthest indoor unit exceeds 40 m. (Not applicable to the P250 model indoor unit).
*3. The values in the parenthesis show the maximum piping length when the capacity of the connected indoor unit is 200 or more.

NOTE:
Joint branching is not possible after header branching.
Cover the unused branch using the optional cover cap (CMY-S202-J).
Top-bottom differential 90m(OU above IU) or 60m(OU below IU) is not available.

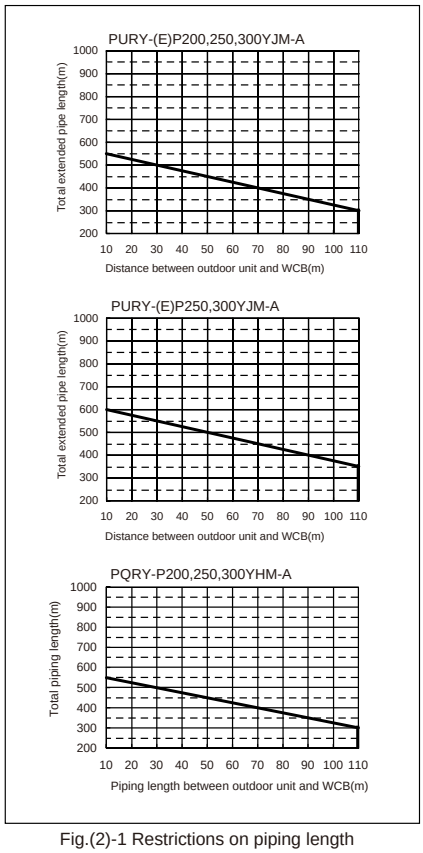


Fig.(2)-1 Restrictions on piping length

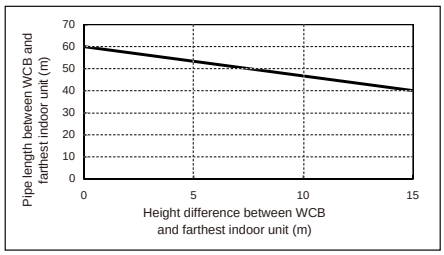


Fig.(2)-2 Distance between WCB and fartherest indoor unit

Table (2)-1. Piping "B", "C", "D", "E" size selection rule (mm)

Total capacity of indoor units	Liquid pipe	Gas pipe
-140	ø9.52	ø15.88
14 - 200	ø9.52	ø19.05
201 - 300	ø9.52	ø22.2
301 - 400	ø12.7	ø28.58
401 -	ø15.88	ø28.58

Table (2)-2. Piping "a", "b", "c", "d", "e", "f", "g" size selection rule (mm)

Model number	Liquid pipe	Gas pipe
20,25,32,40,50	ø6.35	ø12.7
63,71,80,100,125,140	ø9.52	ø15.88
200	ø9.52	ø19.05
250	ø9.52	ø22.2

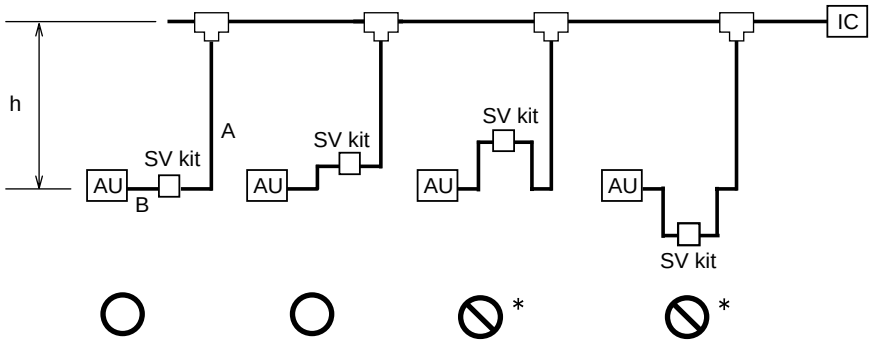
Table (2)-3. Selection rule for branch pipe (joint)

Downstream unit model total	Joint
-200	CMY-Y102S-G2
201 - 400	CMY-Y102L-G2
401 -	CMY-Y202-G2

Table (2)-4. Selection rule for branch pipe (header)

4-Branching header (Downstream unit model total ≦ 200)	8-Branching header (Downstream unit model total ≦ 400)	10-Branching header (Downstream unit model total ≦ 650)
CMY-Y104-G	CMY-Y108-G	CMY-Y1010-G

(3) Solenoid valve kit piping design



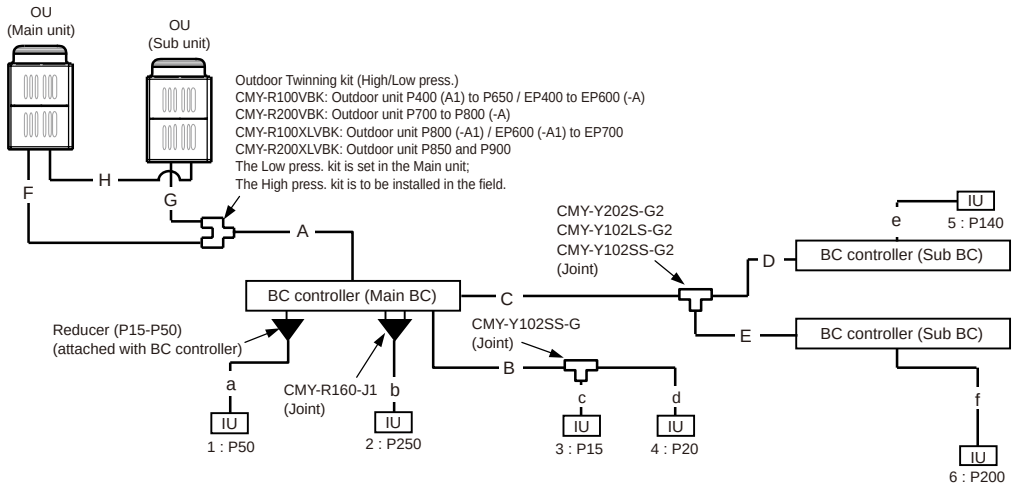
*Do not install the Solenoid valve kit on the square-arch-shaped piping as shown in the figure above.

Piping length limitation

Item	Piping in the figure	Max. length (m)
Farthest AU from first joint	A+B	40
Length between AU and SV kit	B	5
Height between AU and IC (AU)	h	15

(4) Refrigerant charging calculation (R2 system)

Sample connection (with 3 BC controller and 6 indoor units)



■Amount of additional refrigerant to be charged

Refrigerant for extended pipes (field piping) is not factory-charged to the outdoor unit. Add an appropriate amount of refrigerant for each pipes on site.
Record the size of each high pressure pipe and liquid pipe, and the amout of refrigerant that was charged on the outdoor unit for future reference.

■Calculating the amount of additional refrigerant to be charged

The amount of refrigerant to be charged is calculated with the size of the on-site-installed hige pressure pipes and liquid pipes, and their length.
Calculate the amount of refrigerant to be charged according to the formula below.
Round up the calculation result to the nearest 0.1kg. (i.e., 16.08 kg = 16.1 kg)

<Amount of additional refrigerant to be charged>

■Calculating the amount of additional refrigerant to be charged

Additional refrigerant charge	=	High pressure pipe size Total length of ø 28.58 x 0.36	+	High pressure pipe size Total length of ø 22.20 x 0.23	+	High pressure pipe size Total length of ø 19.05 x 0.16	+	High pressure pipe size Total length of ø 15.88 x 0.11
(kg)		(m) x 0.36(kg/m)		(m) x 0.23(kg/m)		(m) x 0.16(kg/m)		(m) x 0.11(kg/m)

+	Liquid pipe size Total length of ø 15.88 x 0.2	+	Liquid pipe size Total length of ø 12.7 x 0.12	+	Liquid pipe size Total length of ø 9.52 x 0.06	+	Liquid pipe size Total length of ø 6.35 x 0.024
	(m) x 0.20(kg/m)		(m) x 0.12(kg/m)		(m) x 0.06(kg/m)		(m) x 0.024(kg/m)

+	Total outdoor unit Model	Charged amount per BC controller (Standard / Main)
	(E)P200	2.0 kg
	(E)P250 - (E)P500	3.0 kg
	(E)P550 - P900	5.0 kg

+	Charged amount per BC controller (Main) HA-type
	2.0 kg

+	BC controller (Sub) Total units	Charged amount
	1 unit	1.0 kg
	2 units	2.0 kg

+	Total capacity of connected indoor units	Charged amount
	-80	2.0 kg
	81 - 160	2.5 kg
	161 - 330	3.0 kg
	331 - 390	3.5 kg
	391 - 480	4.5 kg
	481 - 630	5.0 kg
	631 - 710	6.0 kg
	711 - 800	8.0 kg
	801 - 890	9.0 kg
	891 - 1070	10.0 kg
	1071 - 1250	12.0 kg
	1251 -	14.0 kg

■Amount of factory charged refrigerant

Outdoor unit Model	Charged amount
P200	9.5 kg
EP200	
P250	
P300	
EP250	11.8 kg
EP300	
P350	
EP350	
P400	
P450	

■Sample calculation

Indoor	1: 80	A: ø28.58	40m	a: ø9.52	10m
	2: 250	B: ø9.52	10m	b: ø9.52	5m
	3: 32	C: ø9.52	20m	c: ø6.35	5m
	4: 40	D: ø9.52	5m	d: ø6.35	10m
	5: 32	E: ø9.52	5m	e: ø6.35	5m
	6: 63	F: ø22.2	3m	f: ø9.52	5m
		G: ø19.05	1m		
Outdoor	P550				

The total length of each liquid line is as follows:
ø28.58: A = 40 m
ø22.2: F = 3 m
ø19.05: G = 1 m
ø9.52: C + D + E + a + b + f = 50 m
ø6.35: c + d + e = 20 m
Therefore,
<Calculation example>
Additional refrigerant charge
= 40 × 0.36 + 3 × 0.23 + 1 × 0.16 + 50 × 0.06 + 20 × 0.024 + 5 + 2 + 5
= 30.8 kg

■Limitation of the amount of refrigerant to be charged

The above calculation result of the amount of refrigerant to be charged must become below the value in the table below.

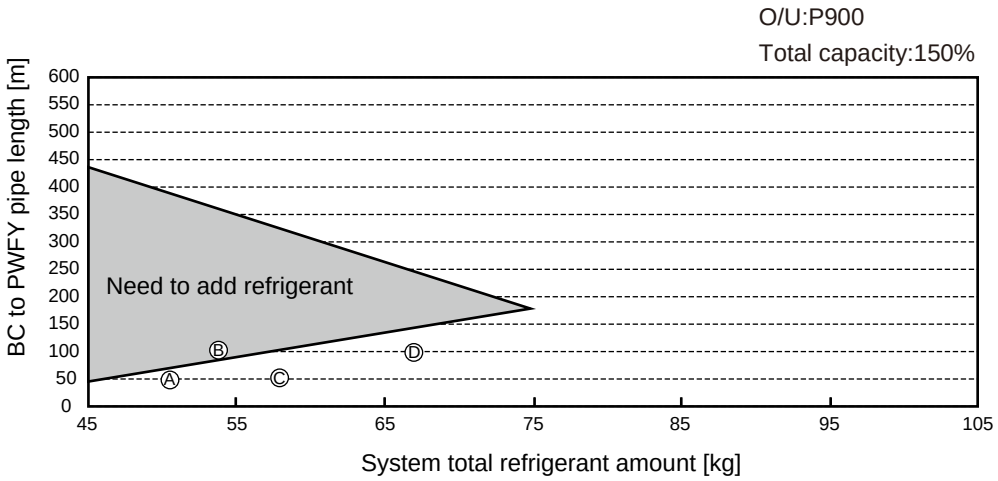
Outdoor unit model	P200	P250	P300	P350	P400	P450	P500	P550	P600	P650	P700	P750	P800	P850	P900
Maximum amount of refrigerant *1	24.8kg	33.8kg	34.8kg	39.7kg	46.7kg	53.7kg	60.2kg	69.2kg	72.9kg	74.6kg	90.3kg	91.5kg	91.5kg	91.5kg	91.5kg

Outdoor unit model	EP200	EP250	EP300	EP350	EP400	EP450	EP500	EP550	EP600	EP650	EP700
Maximum amount of refrigerant *1	27.3kg	34.0kg	35.0kg	39.7kg	47.5kg	49.2kg	62.9kg	69.6kg	73.3kg	74.8kg	74.8kg

*1 Amount of additional refrigerant to be charged on site

(5) Refrigerant charging calculation (PWFY-AU with R2 system)

It is needed to add extra refrigerant if the system is under the following conditions.
See the attachment for how to decide the amount of refrigerant to be added to each outdoor unit.
The graph below shows an example.



Ⓐ Main pipe: 40m
PWFY: P200 x 4, Pipe 12.5m each

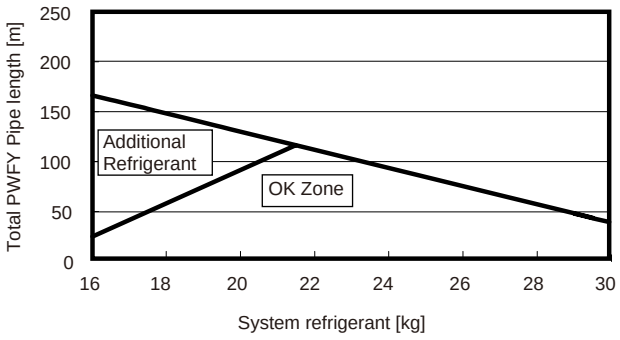
Ⓑ Main pipe: 40m
PWFY: P200 x 4, Pipe 25m each

Ⓒ Main pipe: 40m
PWFY: P200 x 2, Pipe 25m each
IC: P50 x 10, Pipe 20m each (100%)

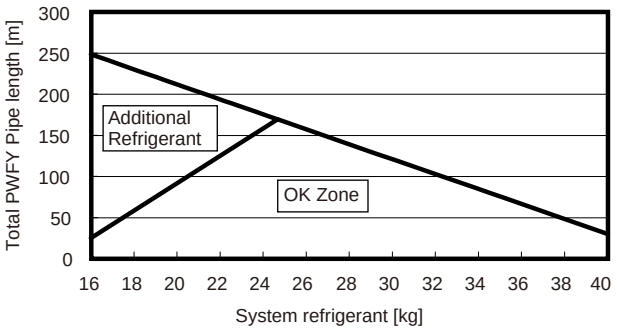
Ⓓ Main pipe: 40m(BC) + 20m(BS)
PWFY: P200 x 4, Pipe 25m each
IC: P50 x 11, Pipe 20m each (150%)

Extra charge amount (kg): BC to PWFY pipe length (m) × 0.1

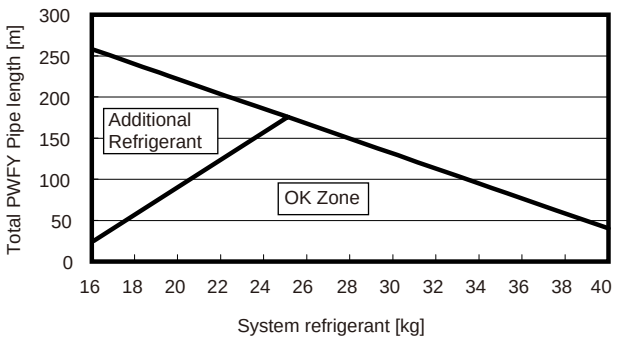
PURY-P200, PURY-EP200



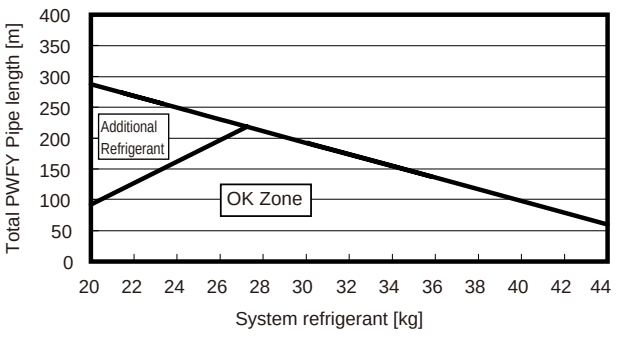
PURY-P250, PURY-EP250



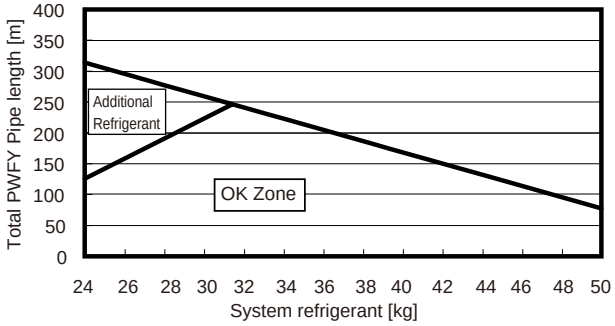
PURY-P300, PURY-EP300



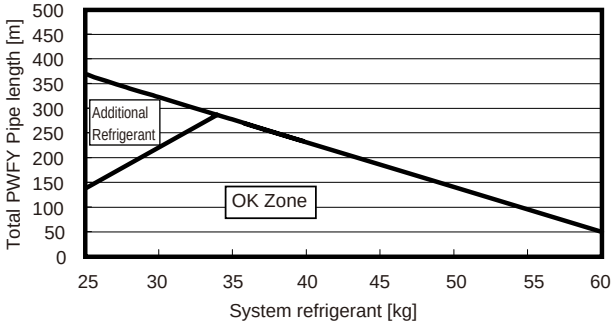
PURY-P350, PURY-EP350



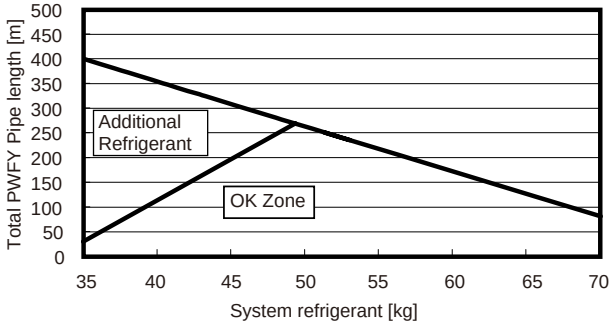
PURY-P400, PURY-EP400



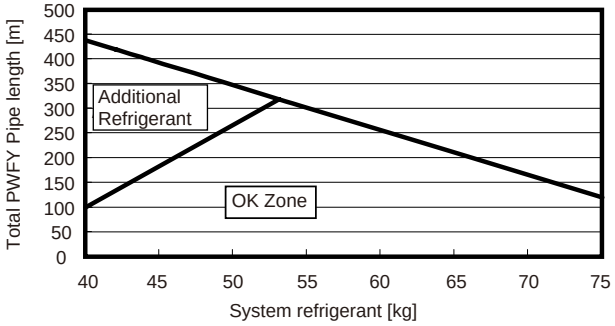
PURY-P450, PURY-EP450



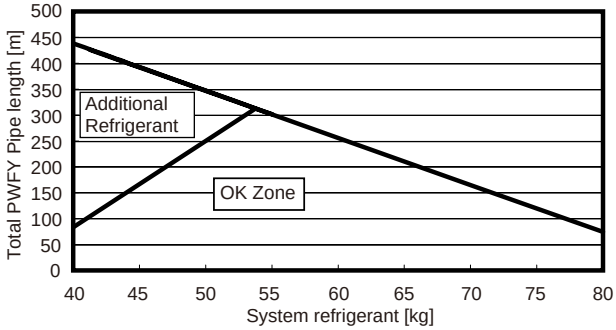
PURY-P500, PURY-EP500



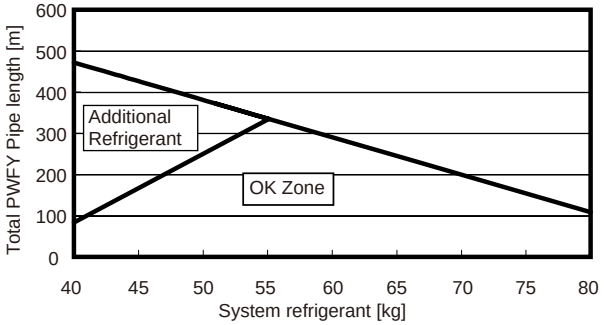
PURY-P550, PURY-EP550



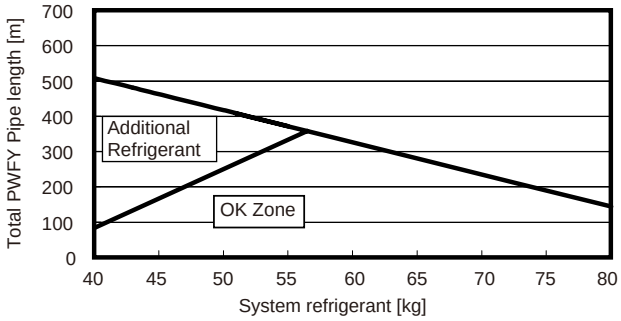
PURY-P600, PURY-EP600



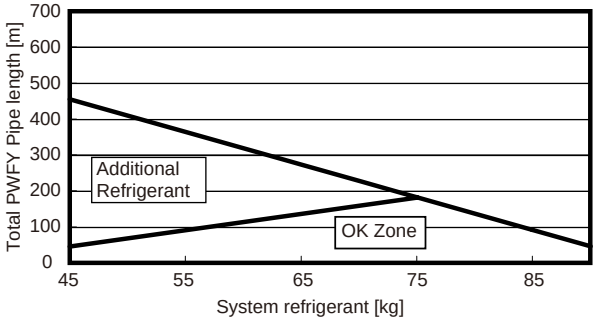
PURY-P650, PURY-EP650



PURY-P700, PURY-EP700



PURY-P750,800,850,900, PURY-EP700



*Total PWFY pipe length
Shows the total length of gas pipes from PWFY units that are connected to the system

Ⅵ Controller

1. PAR-W21MAA specifications

Item	Description	Operations	Display
ON/OFF	Runs and stops the operation of a group of units	○	○
Operation mode switching	Switches between Hot Water / Heating / Heating ECO / Anti-freeze / Cooling * Available operation modes vary depending on the unit to be connected. * Switching limit setting can be made via a remote controller.	○	○
Water temperature setting	Temperature can be set within the ranges below. (in increments of 1°C or 1°F) Hot Water 30°C ~ 70°C Heating 30°C ~ 45°C Heating ECO 30°C ~ 45°C Anti-freeze 10°C ~ 45°C Cooling 10°C ~ 30°C * The settable range varies depending on the unit to be connected.	○	○
Preset temperature range	Preset temperature range setting can be limited via a remote controller.	○	○
Water temperature display	10°C ~ 90°C (in increments of 1°C or 1°F) * The settable range varies depending on the unit to be connected.	×	○
Permit / Prohibit local operation	Individually prohibits operations of each local remote control function :ON/OFF, Operation modes,water temperature setting, Circulating water replacement warning reset. * Upper level controller may not be connected depending on the unit to be connected.	×	○
Weekly scheduler	ON / OFF / Water temperature setting can be done up to 6 times one day in the week. (in increments of a minute)	○	○
Error	When an error is currently occurring on a unit, the afflicted unit and the error code are displayed.	×	○
Self check (Error history)	Searches the latest error history by pressing the CHECK button twice.	○	○
Test run	Enables the Test run mode by pressing the TEST button twice. * Test run mode is not available depending on the unit to be connected.	○	○
Circulating water replacement warning	Displays the circulating water replacement warning via the unit message. Clears the display by pressing the CIR.WATER button twice. * Circulating water replacement warning is not available depending on the unit to be connected.	○	○
LANGUAGE setting	The language on the dot matrix LCD can be changed. (Seven languages) English/German/Spanish/Russian/Italian/French/Swedish	○	○
Operation locking function	Remote controller operation can be locked or unlocked. ·All-switch locking ·Locking except ON/OFF switch	○	○

2. Dip switch functions

Switch		Function	Function according to switch setting		Switch setting timing
			OFF	ON	
SW1	1	TH0 thermistor selection	Water inlet thermistor TH6	Water outlet thermistor TH8	Before power on
	2	-	-	-	-
	3	Operation after power recovery *1	Remains stopped	Auto recovery (to the status before power failure)	Before power on
	4	Operation after power recovery	Depends on the SW1-3 setting	Forced to operate	Before power on
	5	-	-	-	-
	6	-	-	-	-
	7	Test-run mode	OFF	ON	Any time
	8	Error history deleted	Normal	Deleted	Any time
	9	Effective only when SW1-7 is set to ON and only on the HEX models.	Heating	Cooling	Any time
	10	Brine mode *2	Ineffective	Effective	Any time
SW2	1-10	For self-diagnosis/operation monitoring	-	-	Any time
SW3	1	Capacity setting (HEX unit only)	4HP	8HP (HEX unit only)	Before power on
	2	Service LED display selection	Display in Centigrade	Display in Fahrenheit	Any time
	3	-	-	-	-
	4	-	-	-	-
	5	Cumulative compressor operation time is deleted.	Normal	Deleted	Any time
	6	Pump interlock operation	During Thermo-ON or Thermo-OFF	During Thermo-ON only	Any time
	7	-	-	-	-
	8	-	-	-	-
	9	Heating Thermo OFF differential change *3			Any time
	10	-	-	-	-
SW4	1	Do not change from factory setting.			
	2	Do not change from factory setting.			
	3	Use to change preset temperature range for the Heating ECO mode.	Booster : Ineffective HEX : Ineffective	Booster : 30°C to 50°C HEX : 30°C to 50°C	Before power on
	4	Use to change preset temperature range for the Anti-freeze mode.	Booster : Ineffective HEX : Ineffective	Booster : 10°C to 45°C HEX : 10°C to 45°C	Before power on
	5	-	-	-	-
	6	-	-	-	-
	7	-	-	-	-
	8	-	-	-	-
	9	-	-	-	-
	10	-	-	-	-
SW5	1	Enabling/disabling ACCT sensor error detection	Error detection enabled	Error detection disable (No load operation is possible)	Any time
	2	-	-	-	-
	3	-	-	-	-
	4	-	-	-	-

*1 Valid only when SW1-4 is set to OFF
*2 Refer to P60.
*3 The following changes can be made by changing the setting of the switch from OFF to ON.
0.5 → 1 → 0.5 → 2 → 0.5 → 3 → 0.5 → 4 → 0.5 → 5 → 0.5 → 6 → 0.5 → 7 → 0.5 → 8

VII Maintenance Cycle

1. Routine maintenance checks

- Periodically and thoroughly check the circulating water circuit. (See table below.)
- Consult a maintenance technician.

2. Parts Replacement Cycle

Regular preventive maintenance and parts replacement help keep the unit running smoothly and minimize problems. The table below shows the maintenance schedule. Use the replacement timing in the table only as a guide. Some parts may need to be replaced sooner, depending on the usage.

Components		What to look for	Maintenance cycle (times/year)	Replacement cycle
Refrigerant circuit components	Compressor	High/low pressure, vibration, noise Insulation resistance, loose terminals	2	20,000 hours
	Water-refrigerant heat exchanger	High/low pressure, water pressure loss	2	10 Years
	Solenoid valve (PWFY-P100, 200VM-E1-AU)	Operation, leakage, clogging	2	7 Years
	Check valve (PWFY-P100, 200VM-E1-AU)	Operation, leakage, clogging	1	10 Years
	Linear expansion valve	Operation	2	7 Years
	Strainer	Inlet/outlet temperature difference	1	While in heavy use
	Capillary tube	Contact wear, Vibration	1	10 Years
	Pipes	Contact wear, Vibration	1	10 Years
Electric circuit parts	Electromagnetic contactor	Corroded contact, loose terminals Insulation resistance	2	8 Years
	Overcurrent relay	loose terminals	2	7 to 10Years
	Relay	Operation, Contact resistance. Insulation resistance	2	6 Years
	Solenoid valve	Insulation resistance	2	7 Years
	Fuse	External appearance	2	8 Years
	Electronic board	External appearance	2	8 Years
	Switch	Operation, Contact resistance.	2	8 Years
	Pressure switch	Contact resistance.	2	7 to 10Years
	Terminal block	loose terminals	2	8 Years
	Cable/connector	Looseness, corrosion, and wearing	2	10 Years
	Fan	Balance	2	10 Years
	Motor	Insulation resistance, noise, vibration	2	6 to 10Years

VIII Product Data (additional information for chapter III.)

1. Outdoor unit capacity tables

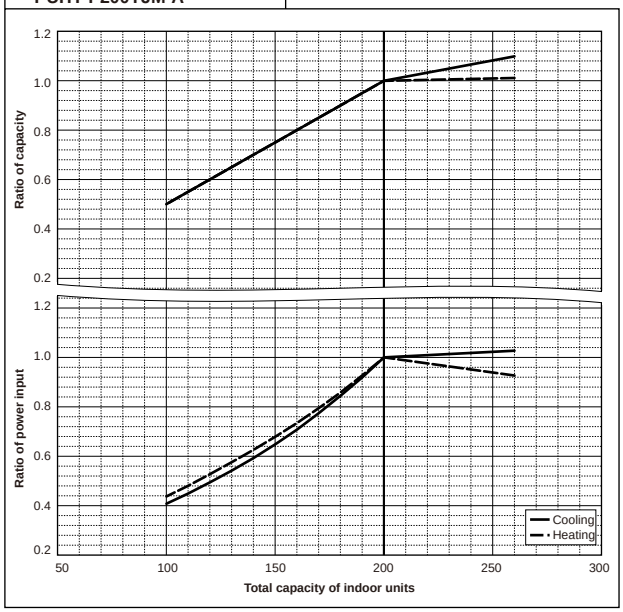
(1) Correction by total indoor

(1)-1 Y series

PUHY-P200YJM-A		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.62

PUHY-P200YJM-A		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	5.84

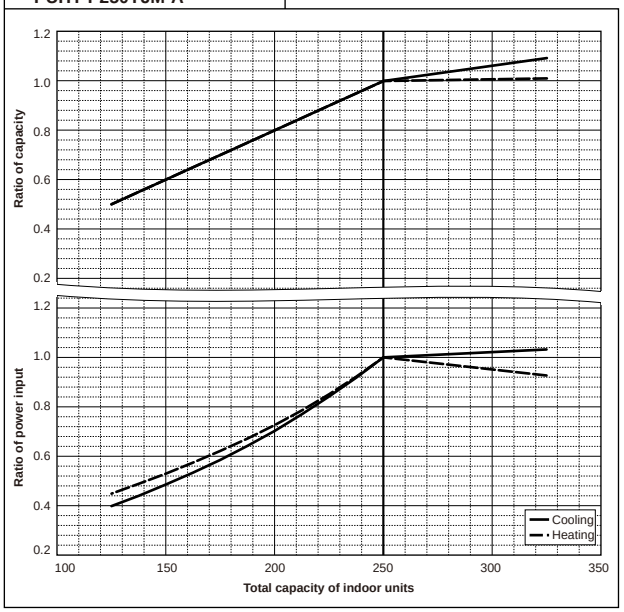
PUHY-P200YJM-A



PUHY-P250YJM-A		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	7.40

PUHY-P250YJM-A		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	7.34

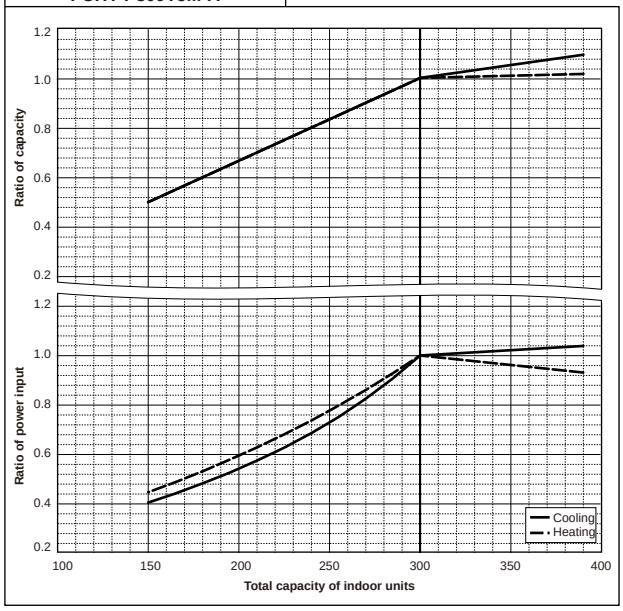
PUHY-P250YJM-A



PUHY-P300YJM-A		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	9.00

PUHY-P300YJM-A		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	9.25

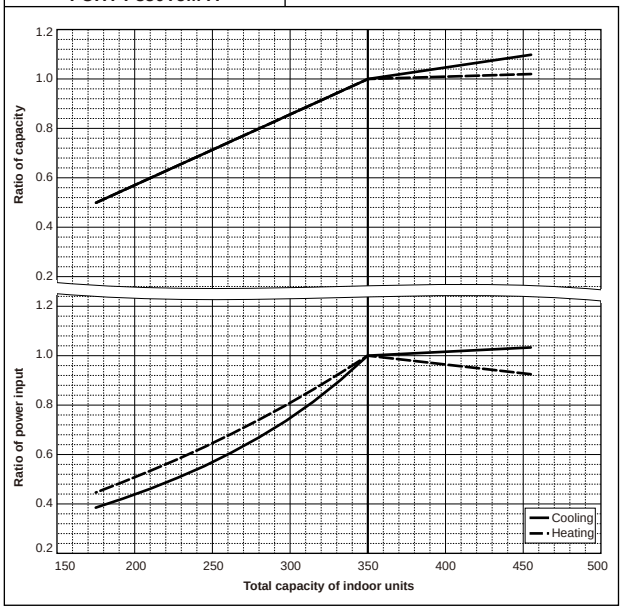
PUHY-P300YJM-A



PUHY-P350YJM-A		
Nominal Cooling Capacity	kW	40.0
	BTU/h	136,500
Input	kW	11.01

PUHY-P350YJM-A		
Nominal Heating Capacity	kW	45.0
	BTU/h	153,500
Input	kW	11.19

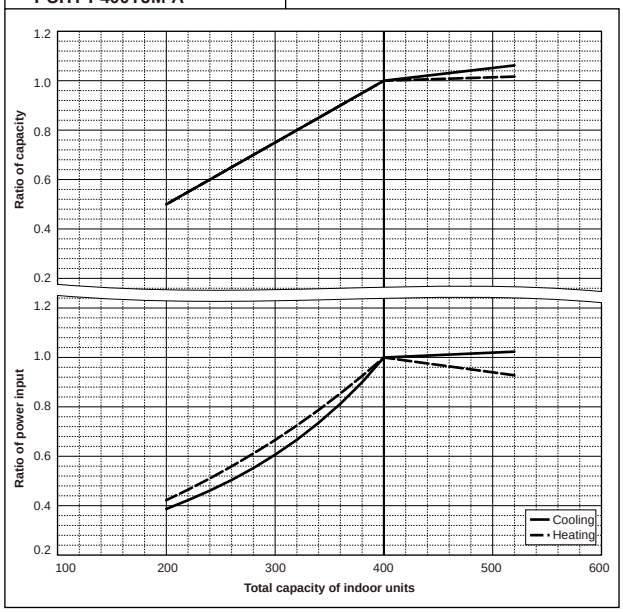
PUHY-P350YJM-A



PUHY-P400YJM-A		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	13.11

PUHY-P400YJM-A		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	12.82

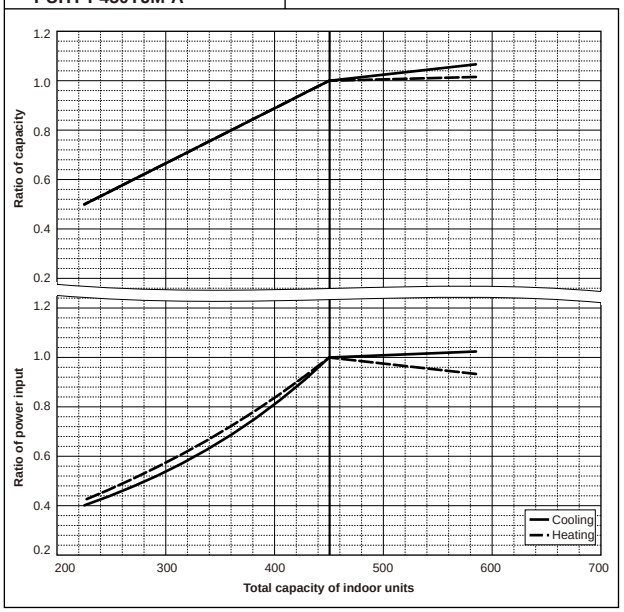
PUHY-P400YJM-A



PUHY-P450YJM-A		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	15.47

PUHY-P450YJM-A		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	14.62

PUHY-P450YJM-A



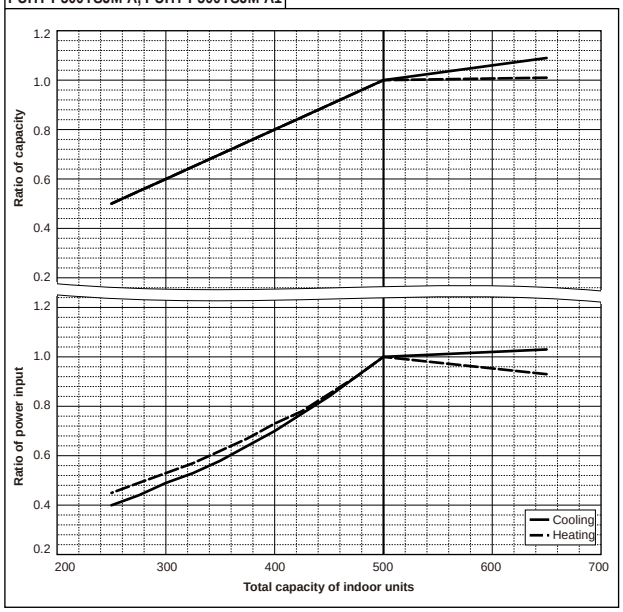
PUHY-P500YSJM-A		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	15.38

PUHY-P500YSJM-A		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.03

PUHY-P500YSJM-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	15.05

PUHY-P500YSJM-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.51

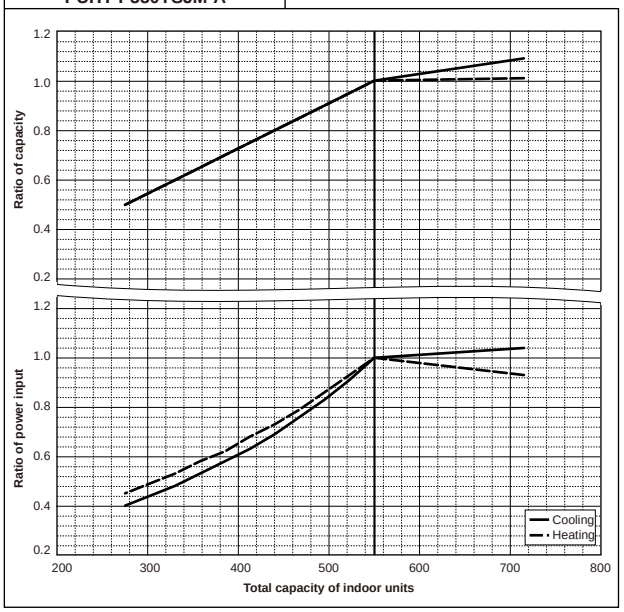
PUHY-P500YSJM-A, PUHY-P500YSJM-A1



PUHY-P550YSJM-A		
Nominal Cooling Capacity	kW	63.0
	BTU/h	215,000
Input	kW	17.16

PUHY-P550YSJM-A		
Nominal Heating Capacity	kW	69.0
	BTU/h	235,400
Input	kW	16.87

PUHY-P550YSJM-A



PUHY-P600YSJM-A		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	18.75

PUHY-P600YSJM-A		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	18.88

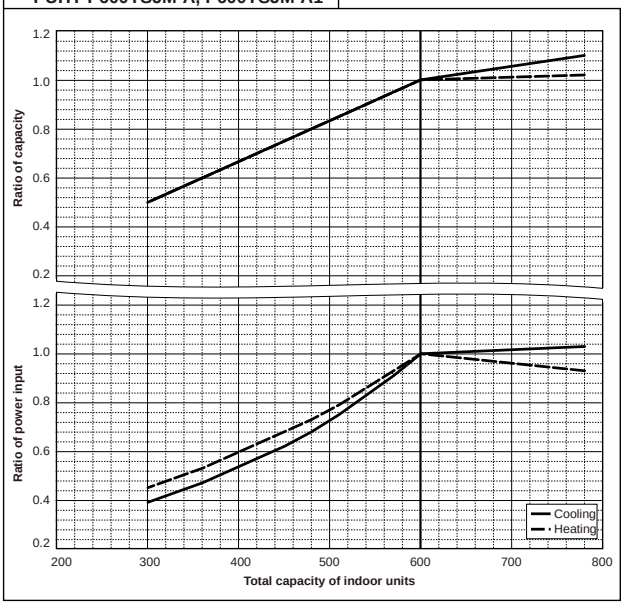
PUHY-P600YSJM-A1		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	19.00

PUHY-P600YSJM-A1		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	19.26

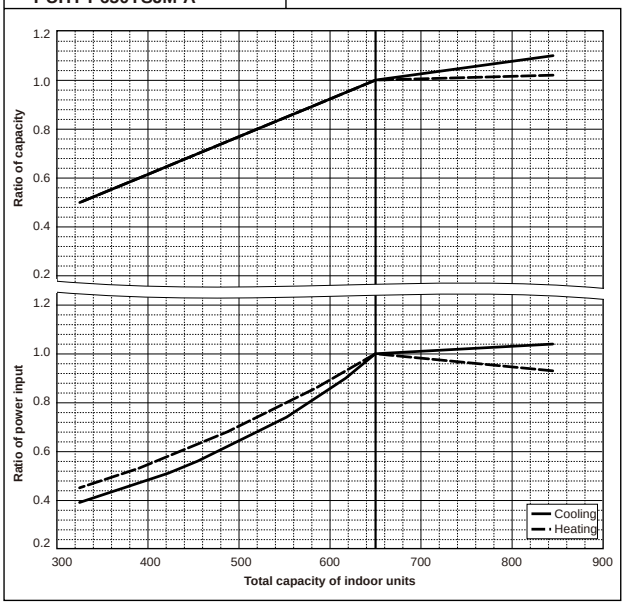
PUHY-P650YSJM-A		
Nominal Cooling Capacity	kW	73.0
	BTU/h	249,100
Input	kW	20.39

PUHY-P650YSJM-A		
Nominal Heating Capacity	kW	81.5
	BTU/h	278,100
Input	kW	20.47

PUHY-P600YSJM-A, P600YSJM-A1



PUHY-P650YSJM-A



PUHY-P700YSJM-A		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	22.47

PUHY-P700YSJM-A		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	22.27

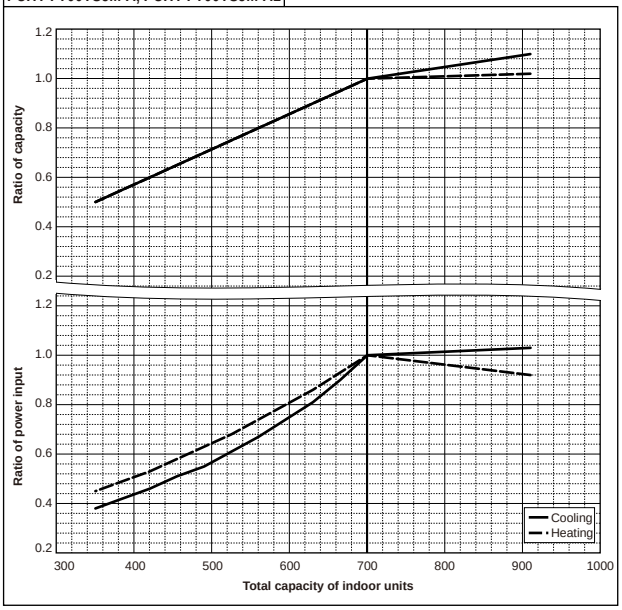
PUHY-P700YSJM-A1		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	23.05

PUHY-P700YSJM-A1		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	23.09

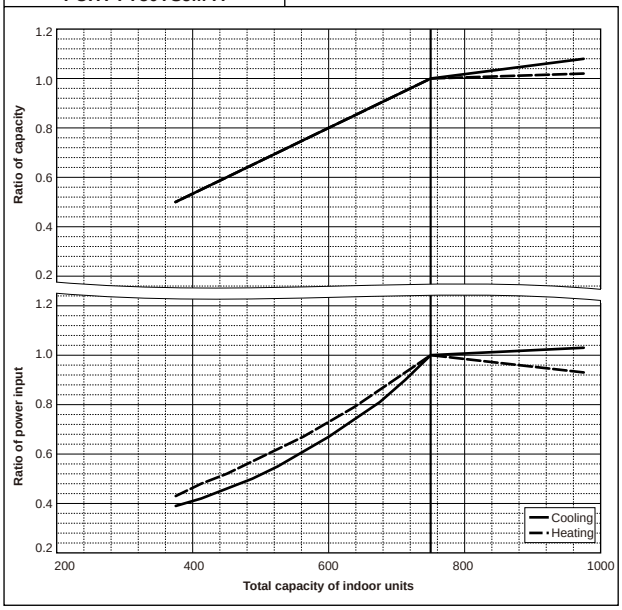
PUHY-P750YSJM-A		
Nominal Cooling Capacity	kW	85.0
	BTU/h	290,000
Input	kW	24.70

PUHY-P750YSJM-A		
Nominal Heating Capacity	kW	95.0
	BTU/h	324,100
Input	kW	24.67

PUHY-P700YSJM-A, PUHY-P700YSJM-A1



PUHY-P750YSJM-A



PUHY-P800YSJM-A		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	27.10

PUHY-P800YSJM-A		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	25.70

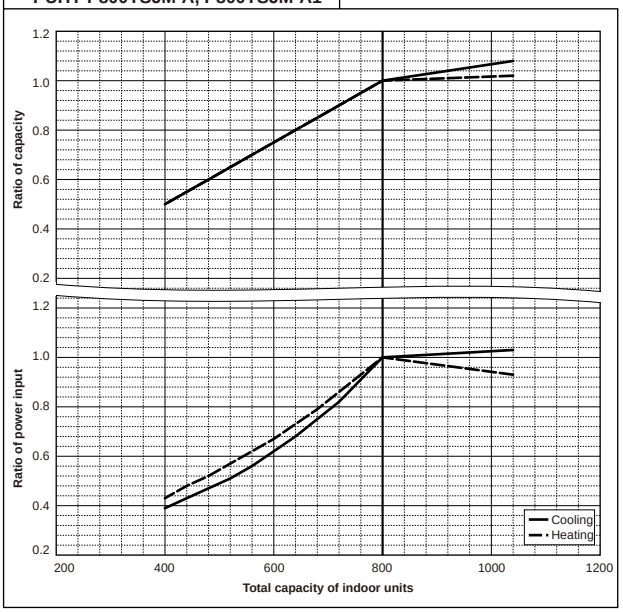
PUHY-P800YSJM-A1		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	26.86

PUHY-P800YSJM-A1		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	27.02

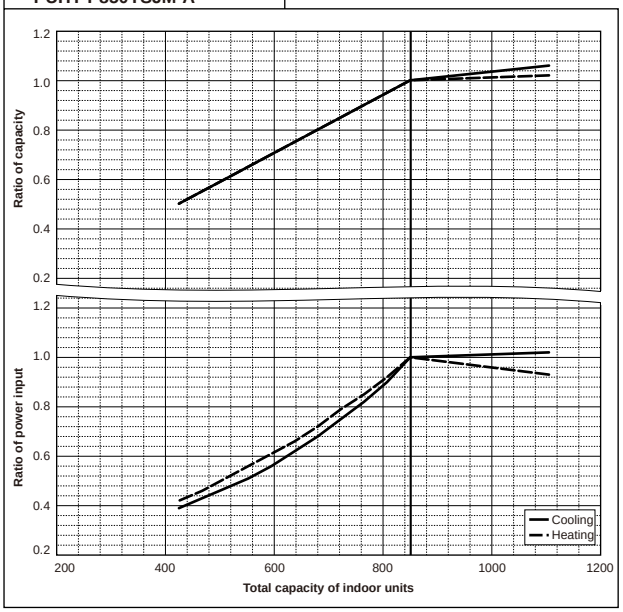
PUHY-P850YSJM-A		
Nominal Cooling Capacity	kW	96.0
	BTU/h	327,600
Input	kW	29.62

PUHY-P850YSJM-A		
Nominal Heating Capacity	kW	108.0
	BTU/h	368,500
Input	kW	28.42

PUHY-P800YSJM-A, P800YSJM-A1



PUHY-P850YSJM-A



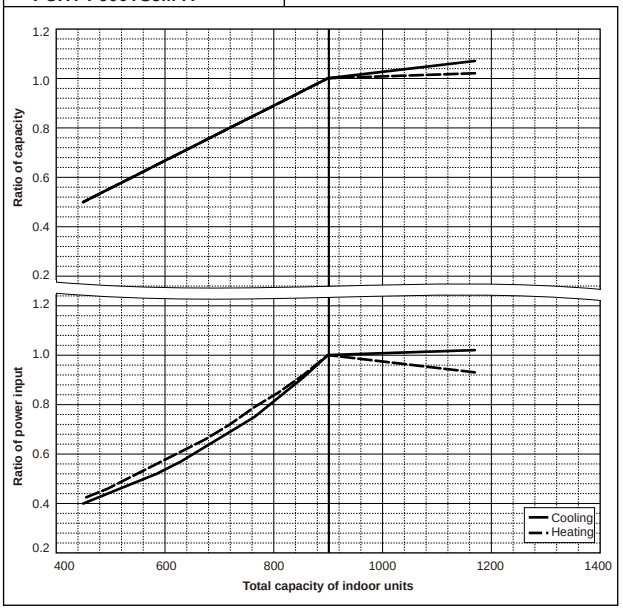
PUHY-P900YSJM-A		
Nominal Cooling Capacity	kW	101.0
	BTU/h	344,600
Input	kW	32.06

PUHY-P900YSJM-A		
Nominal Heating Capacity	kW	113.0
	BTU/h	385,600
Input	kW	30.05

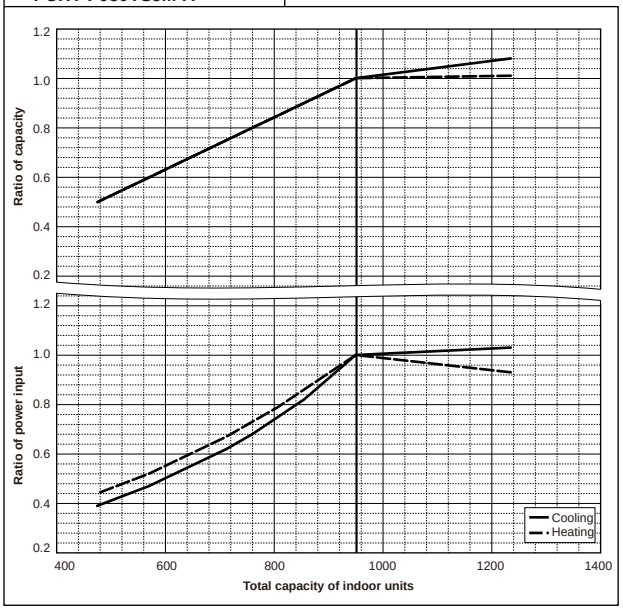
PUHY-P950YSJM-A		
Nominal Cooling Capacity	kW	108.0
	BTU/h	368,500
Input	kW	30.50

PUHY-P950YSJM-A		
Nominal Heating Capacity	kW	119.5
	BTU/h	407,700
Input	kW	30.02

PUHY-P900YSJM-A



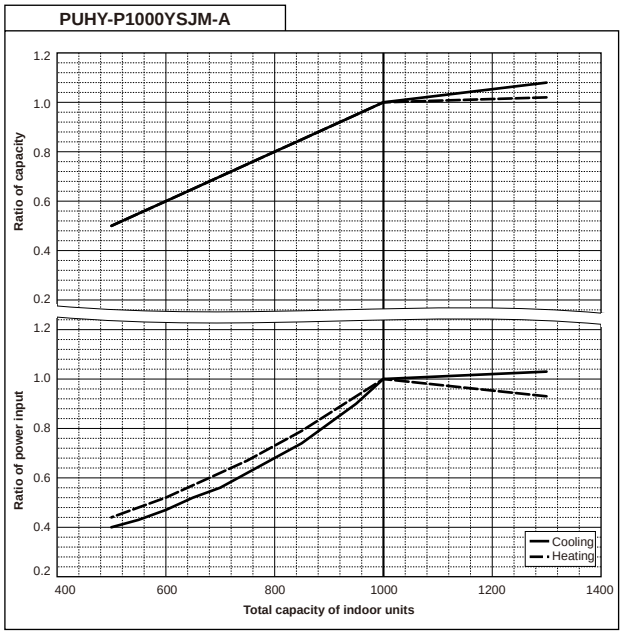
PUHY-P950YSJM-A



PUHY-P1000YSJM-A		
Nominal Cooling Capacity	kW	113.0
	BTU/h	385,600
Input	kW	32.10

PUHY-P1000YSJM-A		
Nominal Heating Capacity	kW	127.0
	BTU/h	433,300
Input	kW	33.15

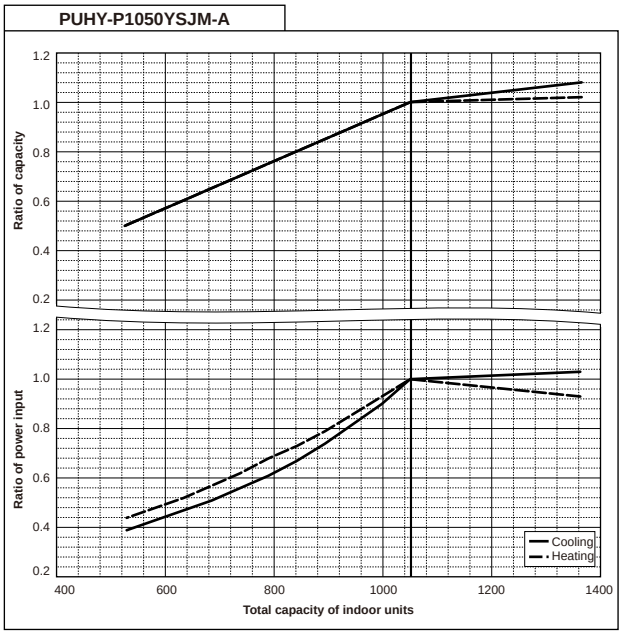
PUHY-P1000YSJM-A



PUHY-P1050YSJM-A		
Nominal Cooling Capacity	kW	118.0
	BTU/h	402,600
Input	kW	33.81

PUHY-P1050YSJM-A		
Nominal Heating Capacity	kW	132.0
	BTU/h	450,400
Input	kW	34.10

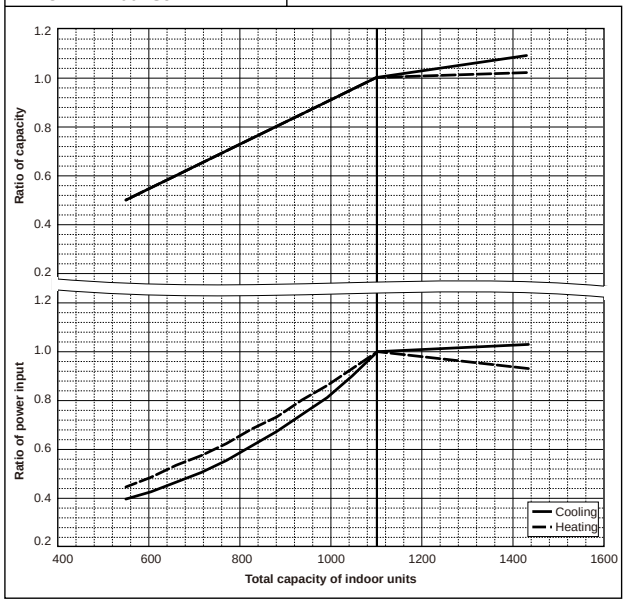
PUHY-P1050YSJM-A



PUHY-P1100YSJM-A		
Nominal Cooling Capacity	kW	124.0
	BTU/h	423,100
Input	kW	35.73

PUHY-P1100YSJM-A		
Nominal Heating Capacity	kW	140.0
	BTU/h	477,700
Input	kW	36.08

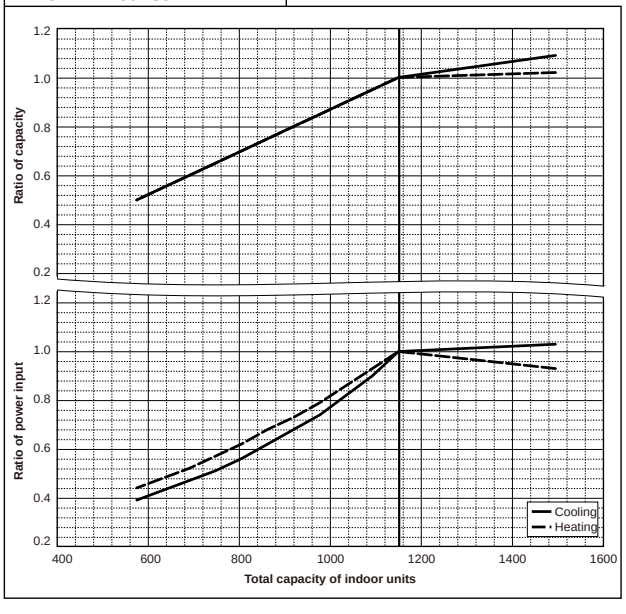
PUHY-P1100YSJM-A



PUHY-P1150YSJM-A		
Nominal Cooling Capacity	kW	130.0
	BTU/h	443,600
Input	kW	38.34

PUHY-P1150YSJM-A		
Nominal Heating Capacity	kW	145.0
	BTU/h	494,700
Input	kW	37.27

PUHY-P1150YSJM-A



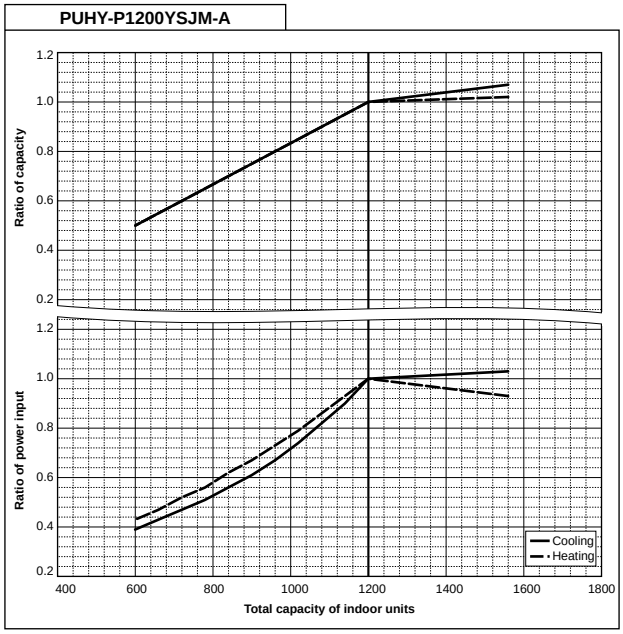
PUHY-P1200YSJM-A		
Nominal Cooling Capacity	kW	136.0
	BTU/h	464,000
Input	kW	40.84

PUHY-P1200YSJM-A		
Nominal Heating Capacity	kW	150.0
	BTU/h	511,800
Input	kW	39.26

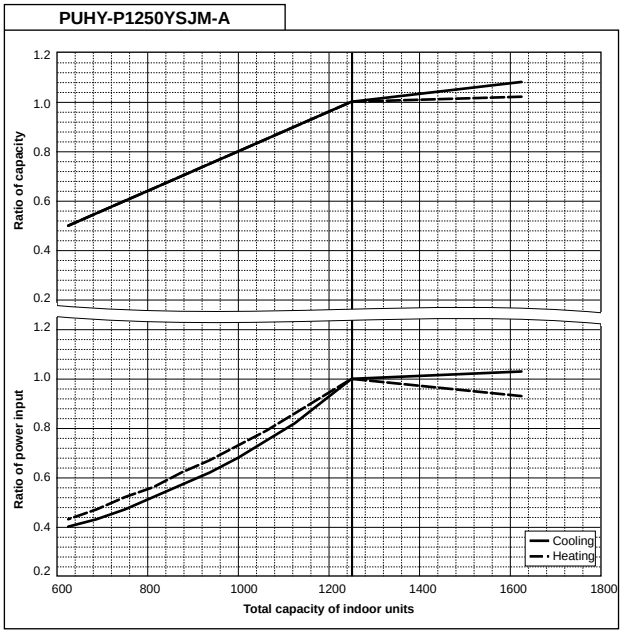
PUHY-P1250YSJM-A		
Nominal Cooling Capacity	kW	140.0
	BTU/h	477,700
Input	kW	42.94

PUHY-P1250YSJM-A		
Nominal Heating Capacity	kW	156.5
	BTU/h	534,000
Input	kW	40.86

PUHY-P1200YSJM-A



PUHY-P1250YSJM-A

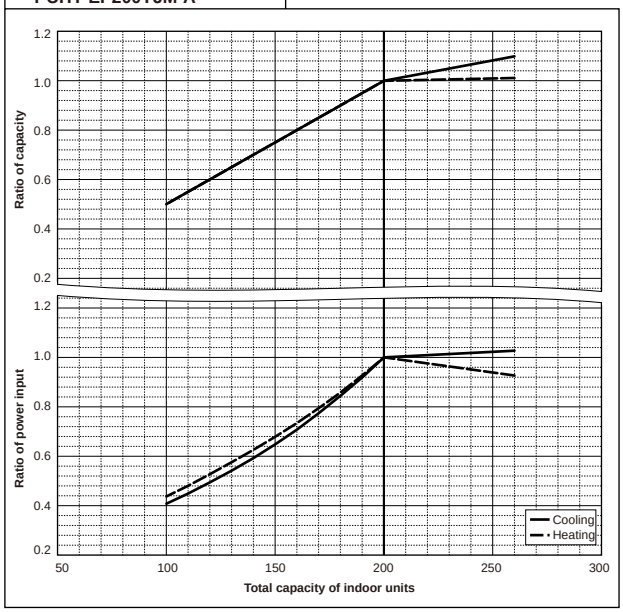


(1)-2 Y (High COP) series

PUHY-EP200YJM-A		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.09

PUHY-EP200YJM-A		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	5.54

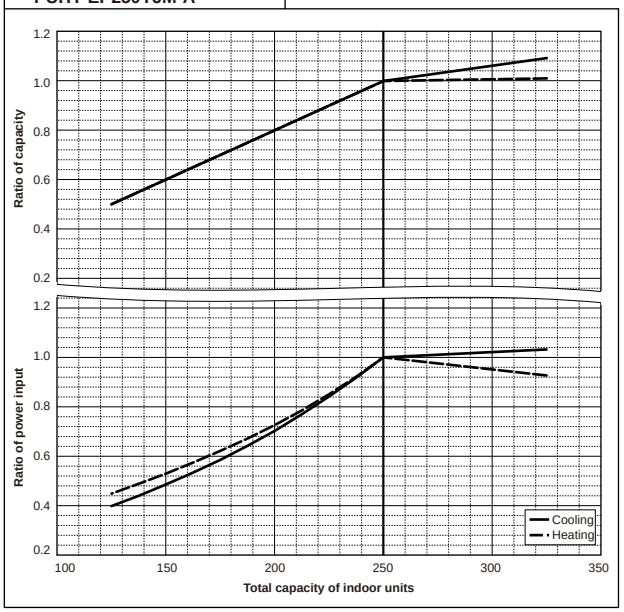
PUHY-EP200YJM-A



PUHY-EP250YJM-A		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	6.73

PUHY-EP250YJM-A		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	7.15

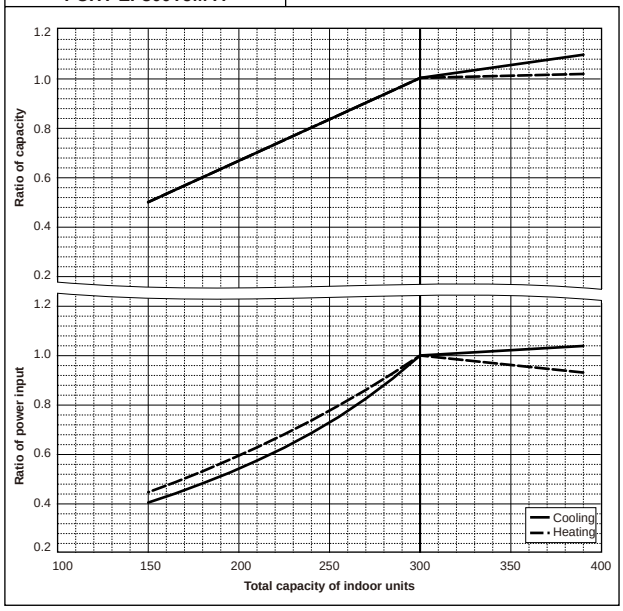
PUHY-EP250YJM-A



PUHY-EP300YJM-A		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	8.03

PUHY-EP300YJM-A		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	8.37

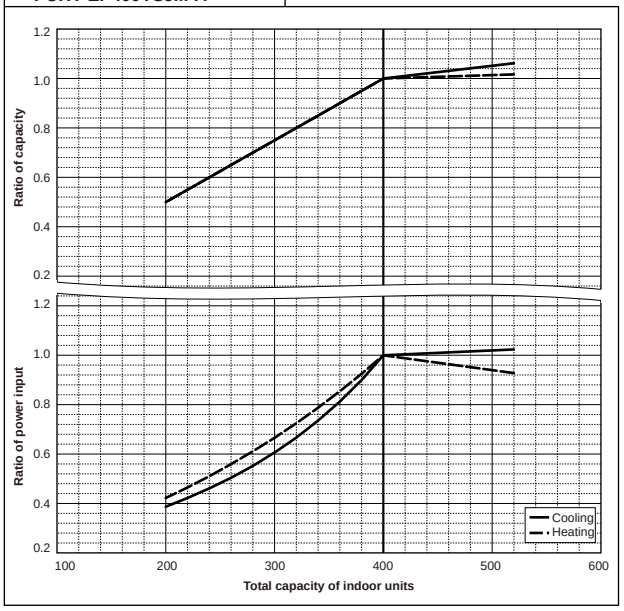
PUHY-EP300YJM-A



PUHY-EP400YSJM-A		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	10.34

PUHY-EP400YSJM-A		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	11.41

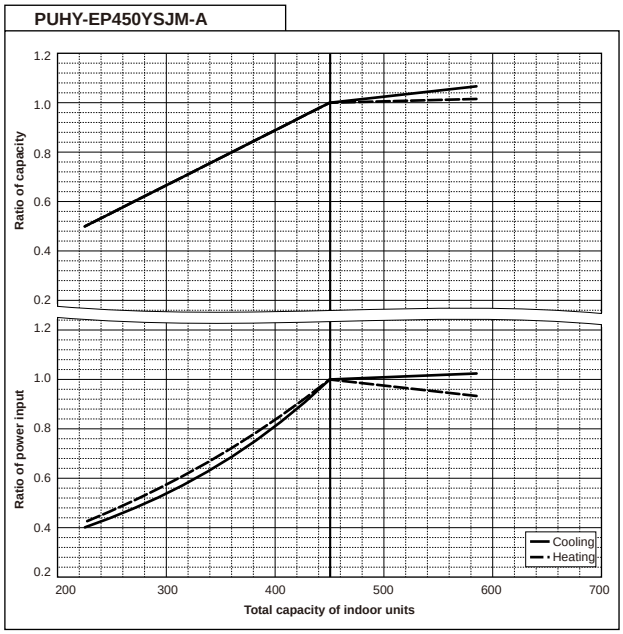
PUHY-EP400YSJM-A



PUHY-EP450YSJM-A		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	11.87

PUHY-EP450YSJM-A		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	12.90

PUHY-EP450YSJM-A



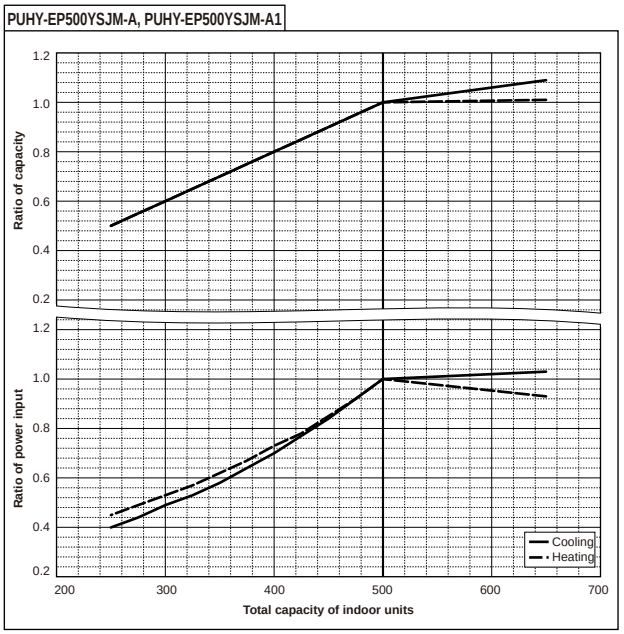
PUHY-EP500YSJM-A		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	13.30

PUHY-EP500YSJM-A		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	14.28

PUHY-EP500YSJM-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	13.65

PUHY-EP500YSJM-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	14.54

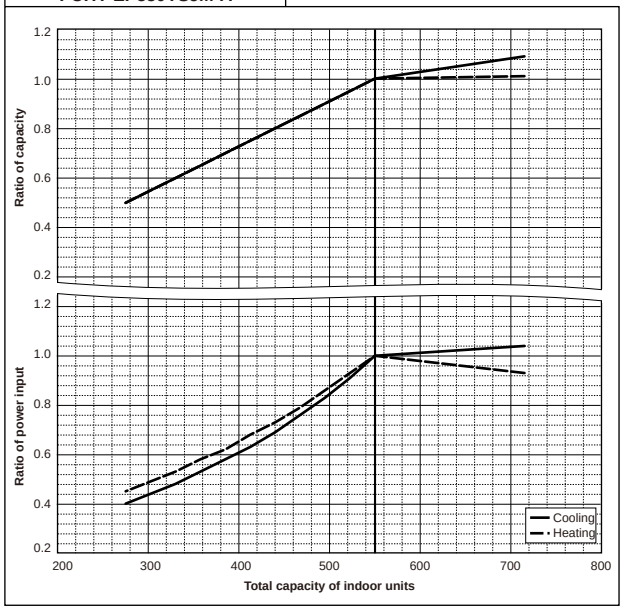
PUHY-EP500YSJM-A, PUHY-EP500YSJM-A1



PUHY-EP550YSJM-A		
Nominal Cooling Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.36

PUHY-EP550YSJM-A		
Nominal Heating Capacity	kW	69.0
	BTU/h	235,400
Input	kW	15.78

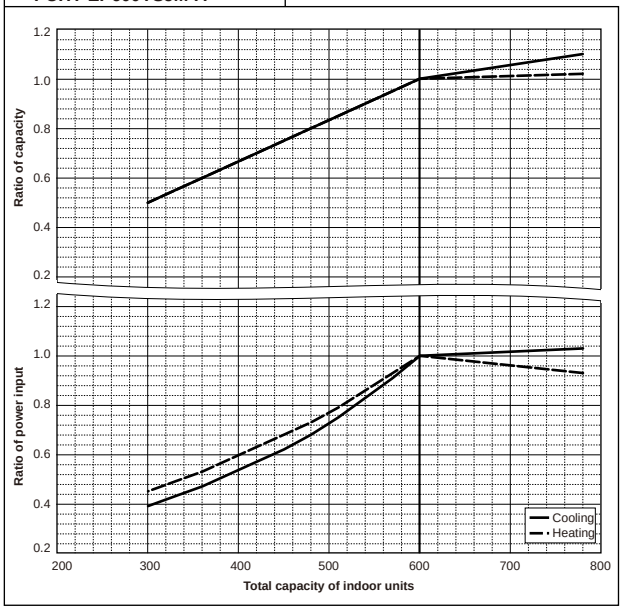
PUHY-EP550YSJM-A



PUHY-EP600YSJM-A		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	16.82

PUHY-EP600YSJM-A		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	17.30

PUHY-EP600YSJM-A



PUHY-EP650YSJM-A		
Nominal Cooling Capacity	kW	73.0
	BTU/h	249,100
Input	kW	17.46

PUHY-EP650YSJM-A		
Nominal Heating Capacity	kW	81.5
	BTU/h	278,100
Input	kW	18.56

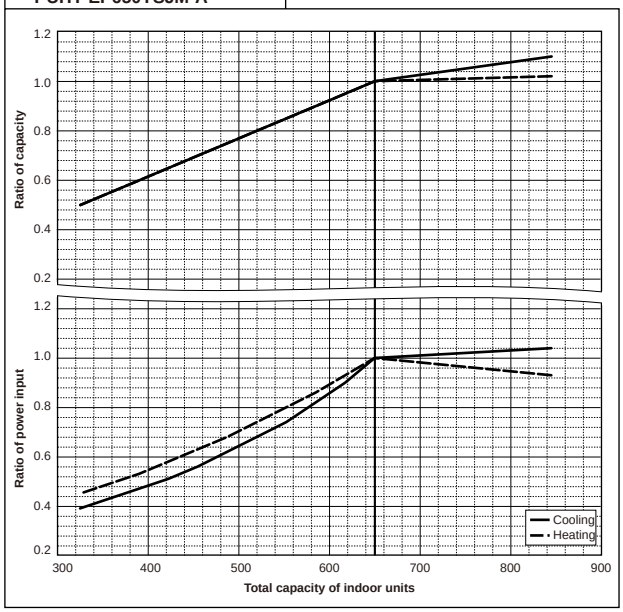
PUHY-EP700YSJM-A		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	19.13

PUHY-EP700YSJM-A1		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	19.41

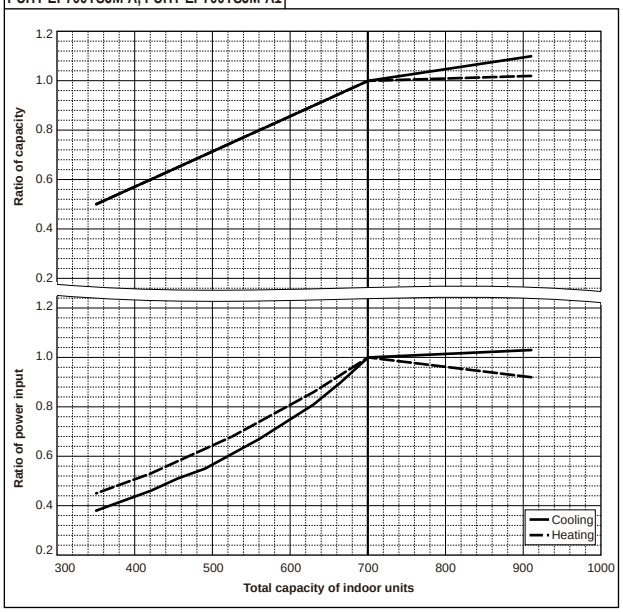
PUHY-EP700YSJM-A		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	20.00

PUHY-EP700YSJM-A1		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	20.32

PUHY-EP650YSJM-A



PUHY-EP700YSJM-A, PUHY-EP700YSJM-A1



PUHY-EP750YSJM-A		
Nominal Cooling Capacity	kW	85.0
	BTU/h	290,000
Input	kW	20.43

PUHY-EP750YSJM-A1		
Nominal Cooling Capacity	kW	85.0
	BTU/h	290,000
Input	kW	20.93

PUHY-EP750YSJM-A		
Nominal Heating Capacity	kW	95.0
	BTU/h	324,100
Input	kW	21.93

PUHY-EP750YSJM-A1		
Nominal Heating Capacity	kW	95.0
	BTU/h	324,100
Input	kW	21.78

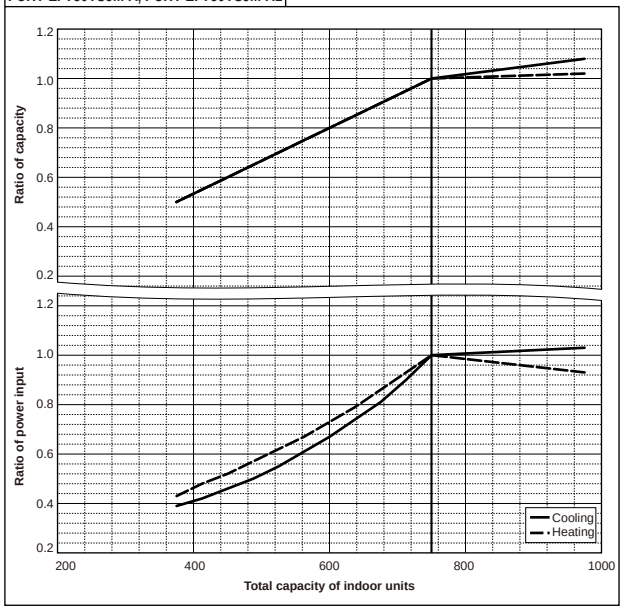
PUHY-EP800YSJM-A		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	21.63

PUHY-EP800YSJM-A1		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	22.16

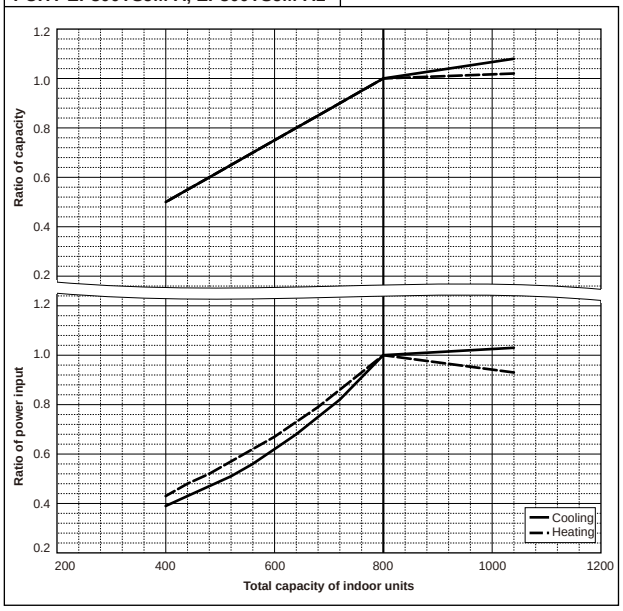
PUHY-EP800YSJM-A		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	22.77

PUHY-EP800YSJM-A1		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	22.98

PUHY-EP750YSJM-A, PUHY-EP750YSJM-A1



PUHY-EP800YSJM-A, EP800YSJM-A1



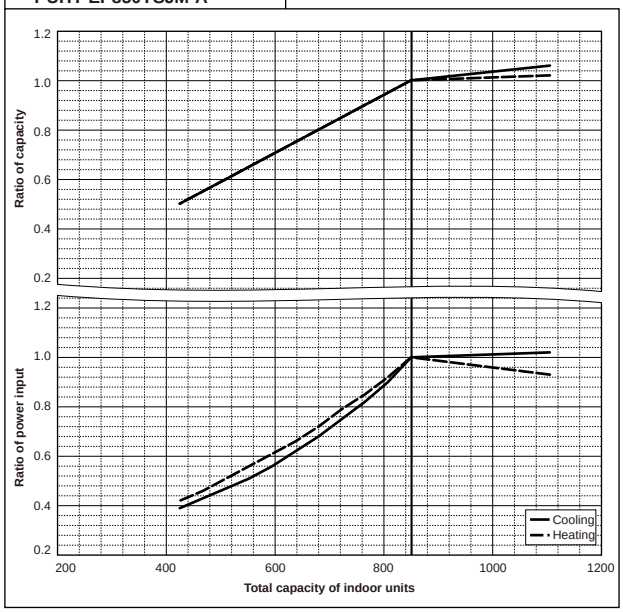
PUHY-EP850YSJM-A		
Nominal Cooling Capacity	kW	96.0
	BTU/h	327,600
Input	kW	23.58

PUHY-EP850YSJM-A		
Nominal Heating Capacity	kW	108.0
	BTU/h	368,500
Input	kW	24.65

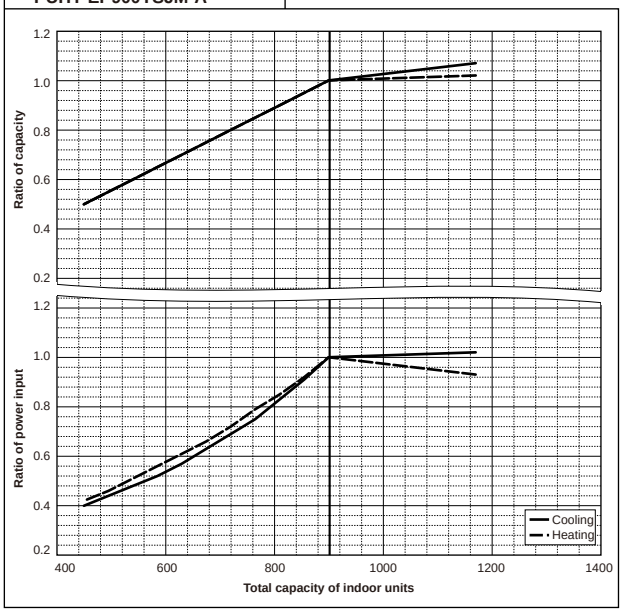
PUHY-EP900YSJM-A		
Nominal Cooling Capacity	kW	101.0
	BTU/h	344,600
Input	kW	24.81

PUHY-EP900YSJM-A		
Nominal Heating Capacity	kW	113.0
	BTU/h	385,600
Input	kW	25.50

PUHY-EP850YSJM-A

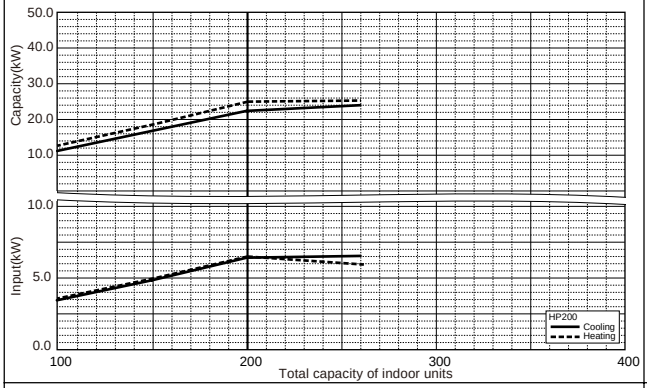


PUHY-EP900YSJM-A

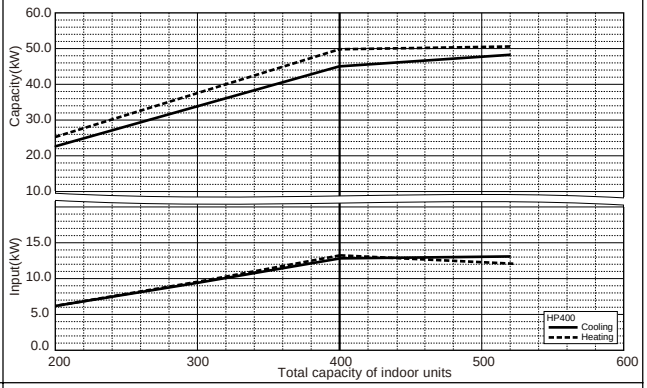


(1)-3 HP (ZUBADAN) series

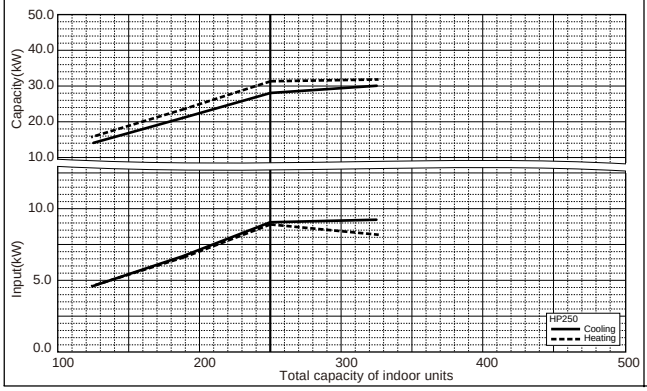
PUHY-HP200YHM-A



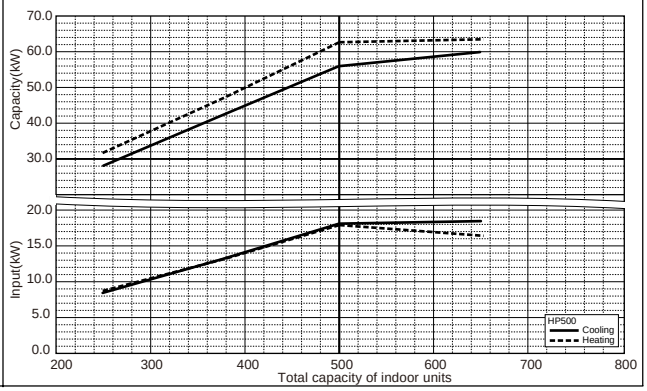
PUHY-HP400YSHM-A



PUHY-HP250YHM-A



PUHY-HP500YSHM-A

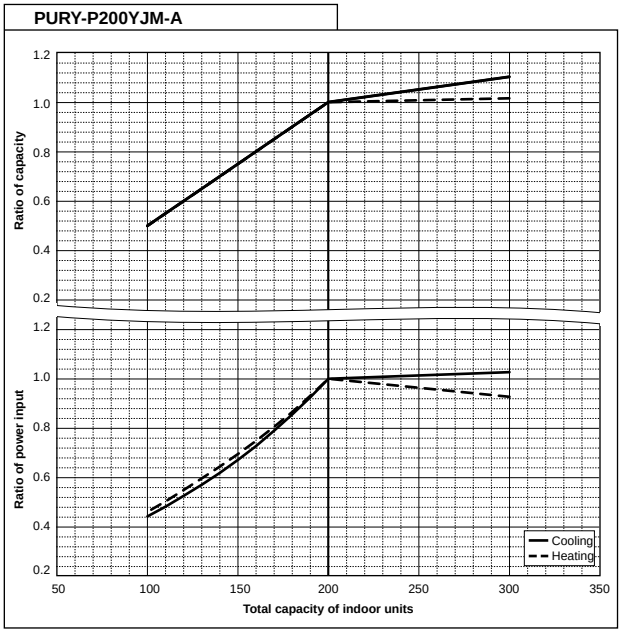


(1)-4 R2 series

PURY-P200YJM-A		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.18

PURY-P200YJM-A		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	5.69

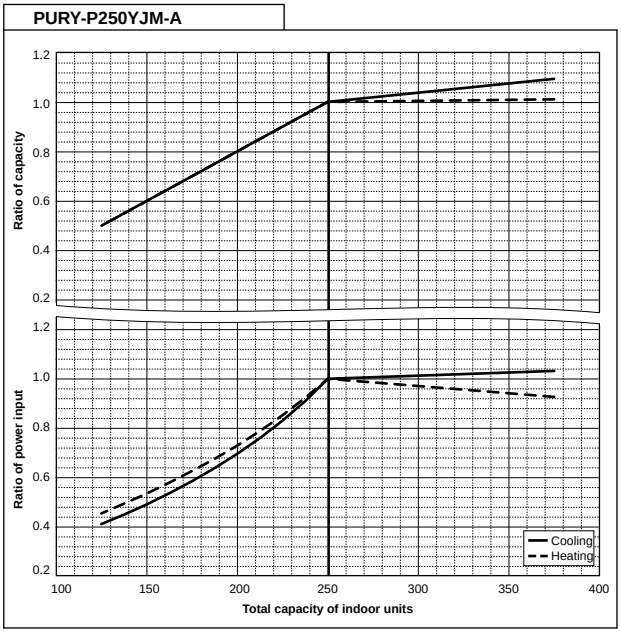
PURY-P200YJM-A



PURY-P250YJM-A		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	7.05

PURY-P250YJM-A		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	7.32

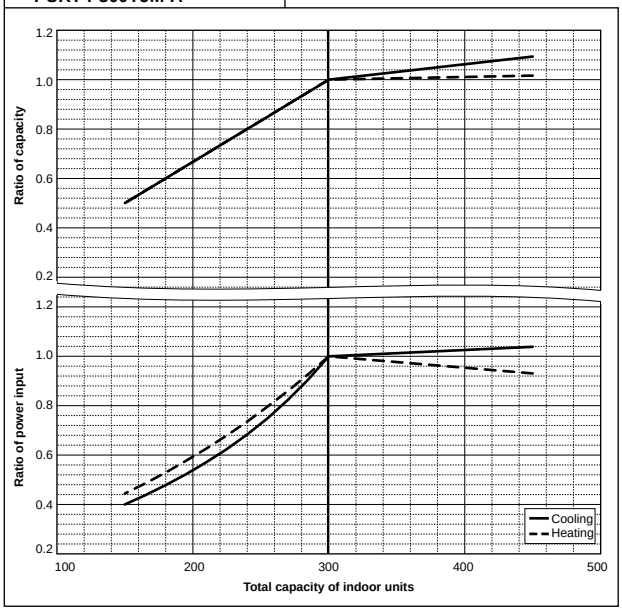
PURY-P250YJM-A



PURY-P300YJM-A		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	8.67

PURY-P300YJM-A		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	8.78

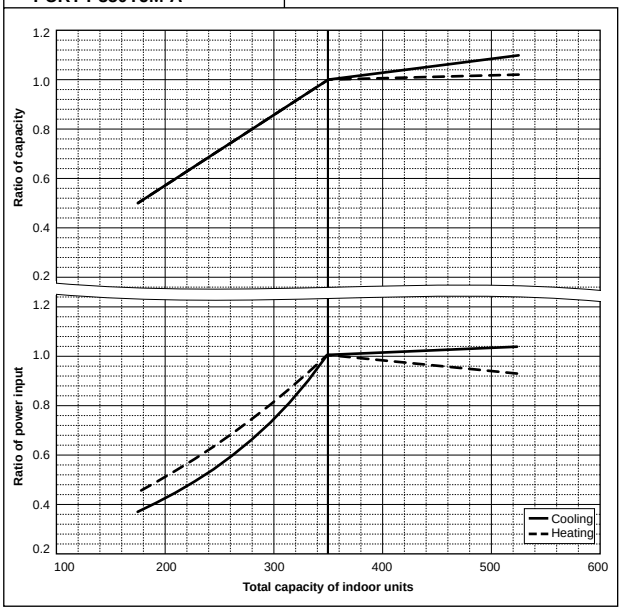
PURY-P300YJM-A



PURY-P350YJM-A		
Nominal Cooling Capacity	kW	40.0
	BTU/h	136,500
Input	kW	11.33

PURY-P350YJM-A		
Nominal Heating Capacity	kW	45.0
	BTU/h	153,500
Input	kW	10.89

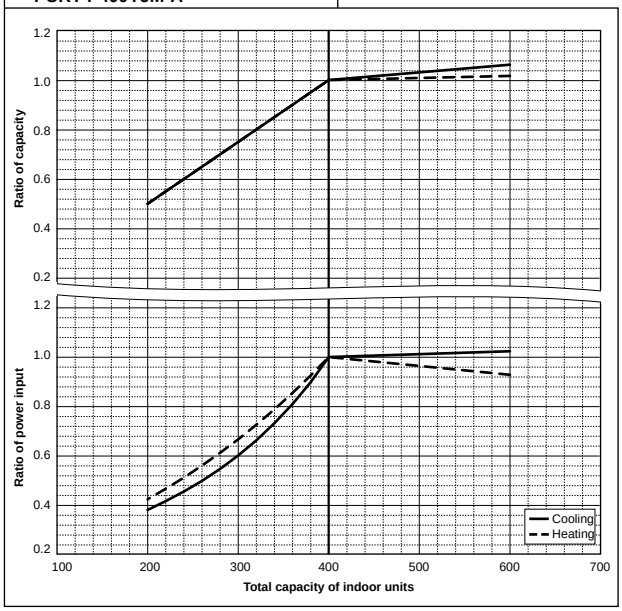
PURY-P350YJM-A



PURY-P400YJM-A		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	13.55

PURY-P400YJM-A		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	12.75

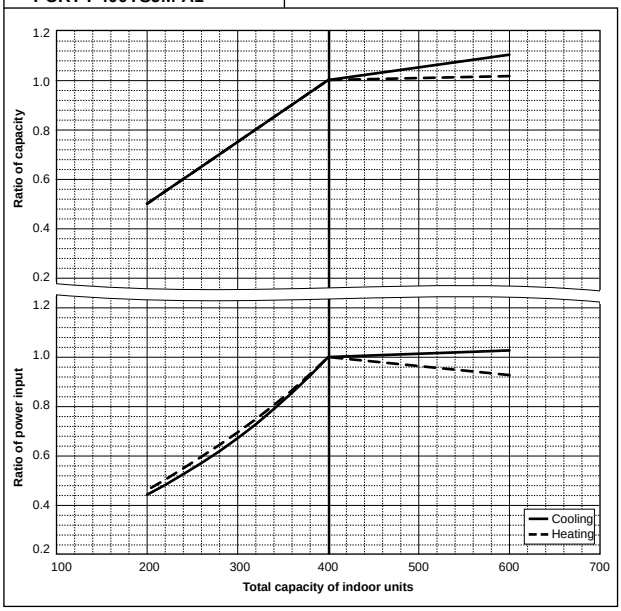
PURY-P400YJM-A



PURY-P400YSJM-A1		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	10.73

PURY-P400YSJM-A1		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	11.62

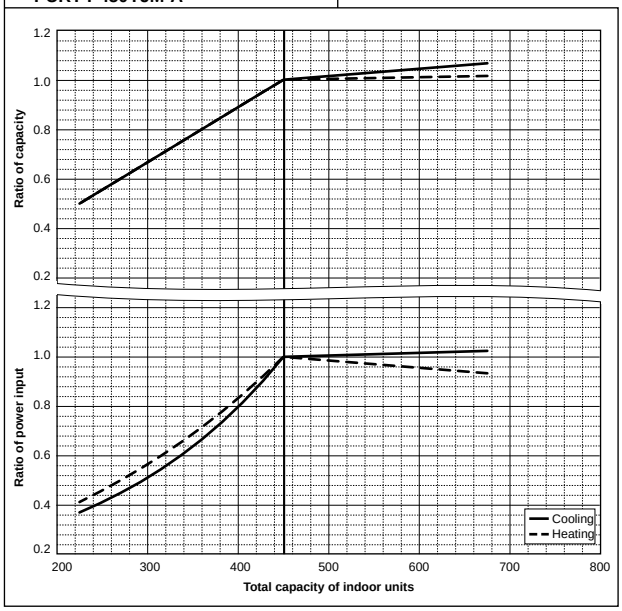
PURY-P400YSJM-A1



PURY-P450YJM-A		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	14.49

PURY-P450YJM-A		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	14.58

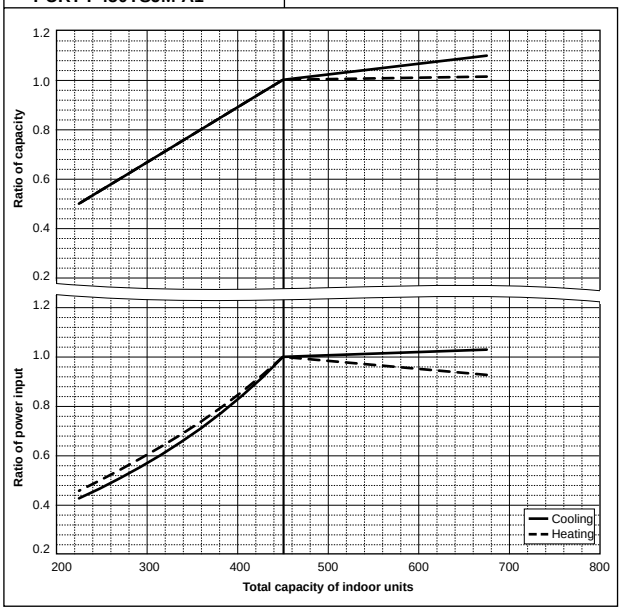
PURY-P450YJM-A



PURY-P450YSJM-A1		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	12.50

PURY-P450YSJM-A1		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	13.30

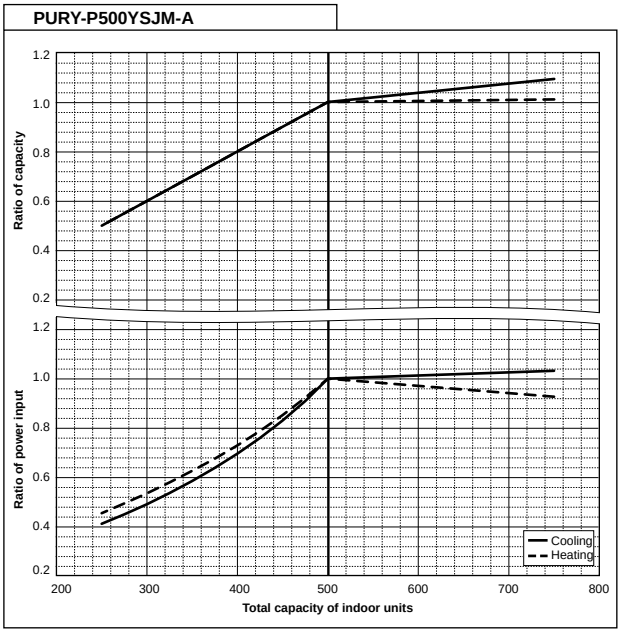
PURY-P450YSJM-A1



PURY-P500YSJM-A		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	14.85

PURY-P500YSJM-A		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.10

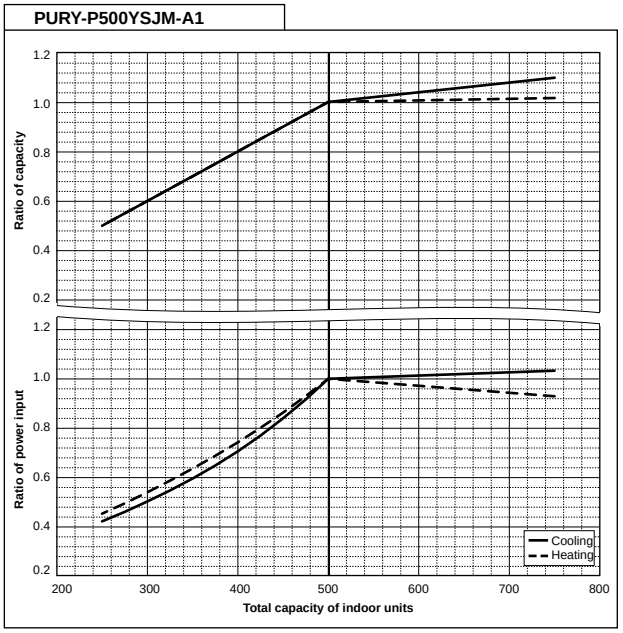
PURY-P500YSJM-A



PURY-P500YSJM-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	14.73

PURY-P500YSJM-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.07

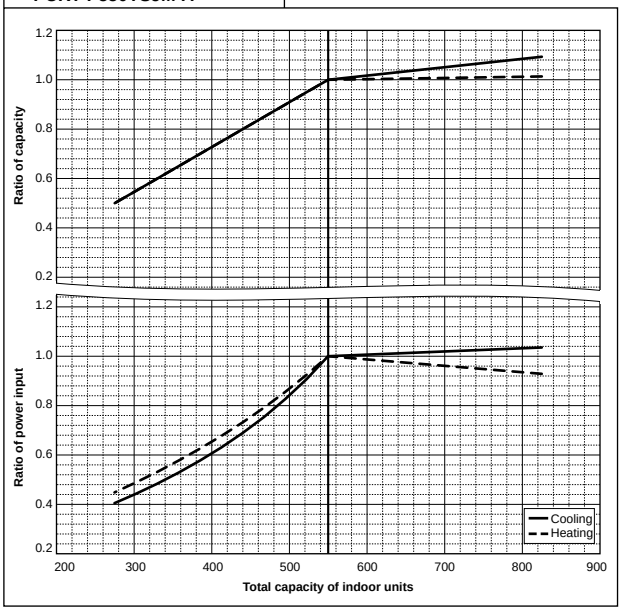
PURY-P500YSJM-A1



PURY-P550YSJM-A		
Nominal Cooling Capacity	kW	63.0
	BTU/h	215,000
Input	kW	17.30

PURY-P550YSJM-A		
Nominal Heating Capacity	kW	69.0
	BTU/h	235,400
Input	kW	16.95

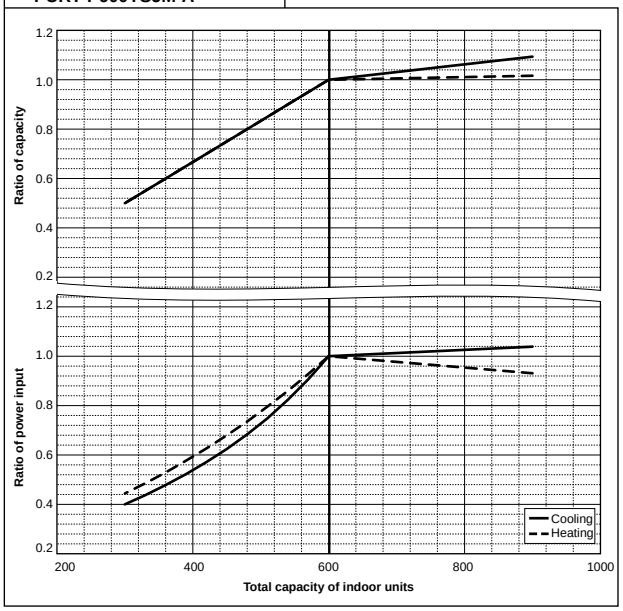
PURY-P550YSJM-A



PURY-P600YSJM-A		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	19.65

PURY-P600YSJM-A		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	19.07

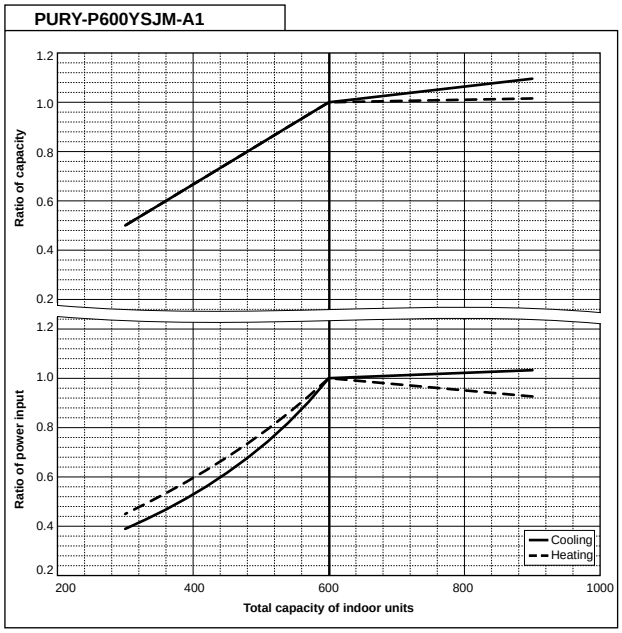
PURY-P600YSJM-A



PURY-P600YSJM-A1		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	19.16

PURY-P600YSJM-A1		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	18.61

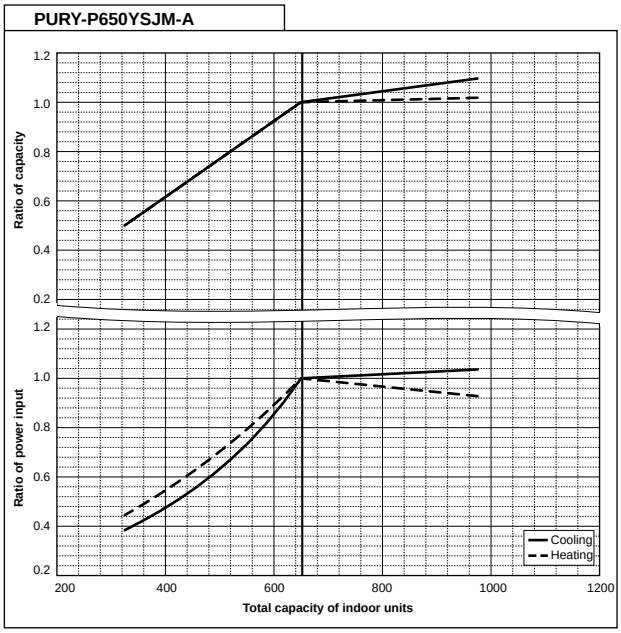
PURY-P600YSJM-A1



PURY-P650YSJM-A		
Nominal Cooling Capacity	kW	73.0
	BTU/h	249,100
Input	kW	21.53

PURY-P650YSJM-A		
Nominal Heating Capacity	kW	81.5
	BTU/h	278,100
Input	kW	20.47

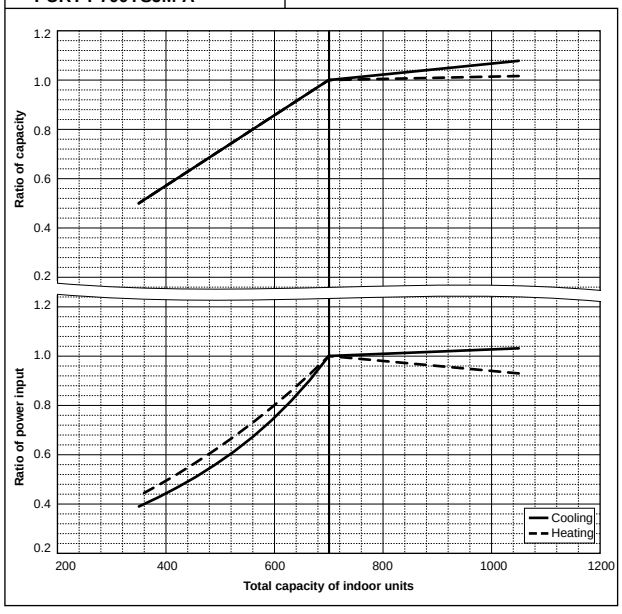
PURY-P650YSJM-A



PURY-P700YSJM-A		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	23.95

PURY-P700YSJM-A		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	22.33

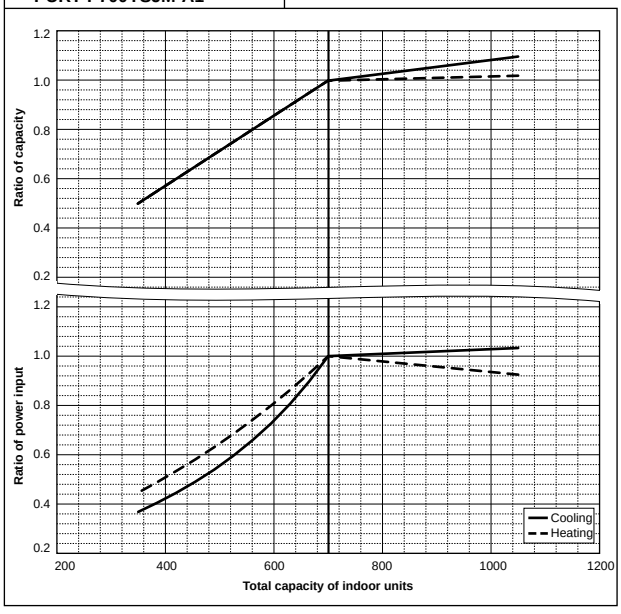
PURY-P700YSJM-A



PURY-P700YSJM-A1		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	23.39

PURY-P700YSJM-A1		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	21.78

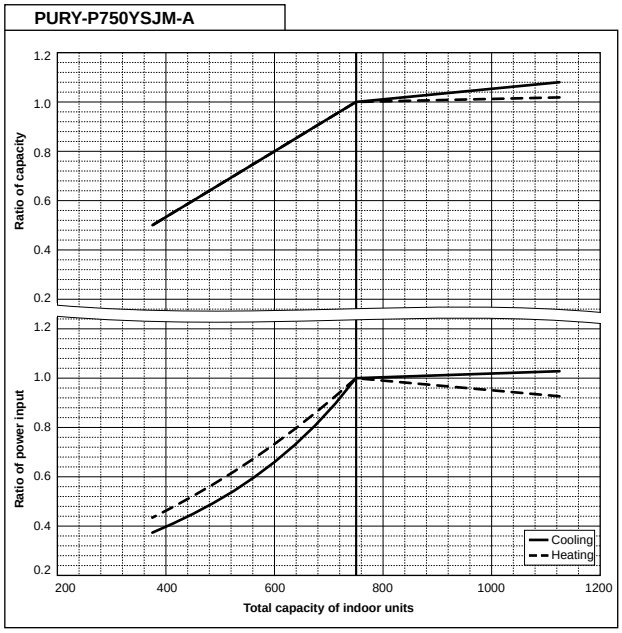
PURY-P700YSJM-A1



PURY-P750YSJM-A		
Nominal Cooling Capacity	kW	85.0
	BTU/h	290,000
Input	kW	26.47

PURY-P750YSJM-A		
Nominal Heating Capacity	kW	95.0
	BTU/h	324,100
Input	kW	24.05

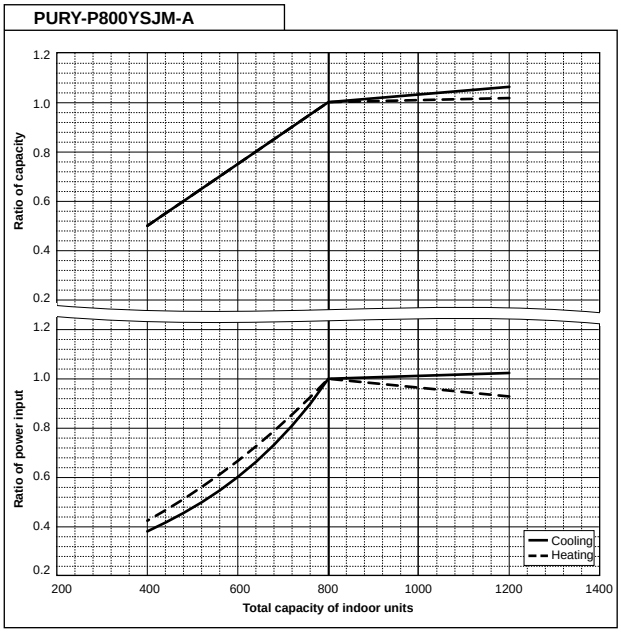
PURY-P750YSJM-A



PURY-P800YSJM-A		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	28.30

PURY-P800YSJM-A		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	26.04

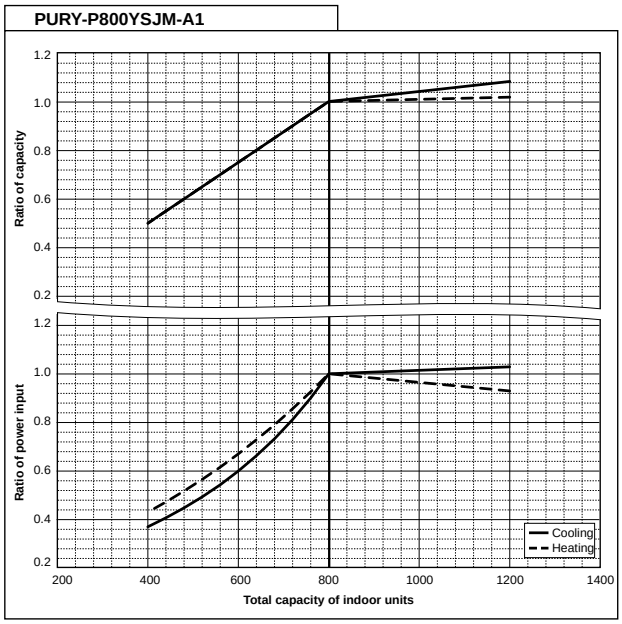
PURY-P800YSJM-A



PURY-P800YSJM-A1		
Nominal Cooling Capacity	kW	90.0
	BTU/h	307,100
Input	kW	26.62

PURY-P800YSJM-A1		
Nominal Heating Capacity	kW	100.0
	BTU/h	341,200
Input	kW	25.77

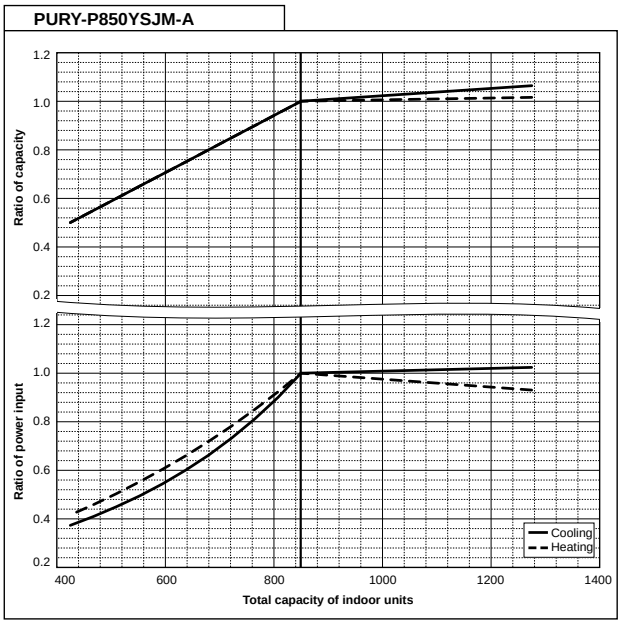
PURY-P800YSJM-A1



PURY-P850YSJM-A		
Nominal Cooling Capacity	kW	96.0
	BTU/h	327,600
Input	kW	29.26

PURY-P850YSJM-A		
Nominal Heating Capacity	kW	108.0
	BTU/h	368,500
Input	kW	28.42

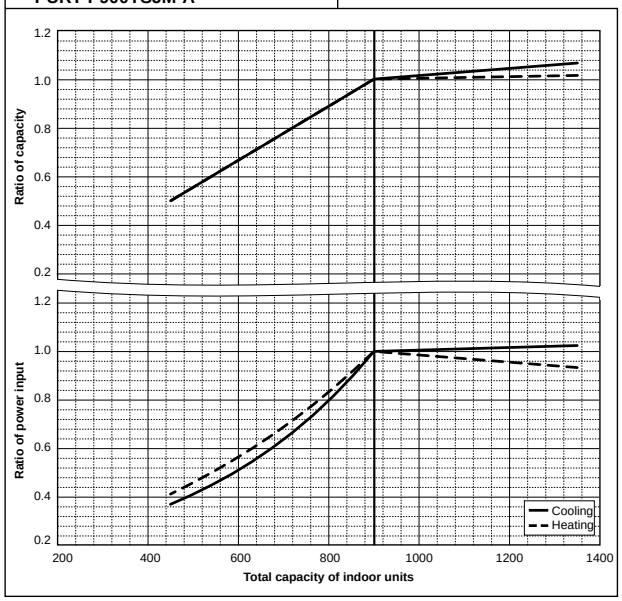
PURY-P850YSJM-A



PURY-P900YSJM-A		
Nominal Cooling Capacity	kW	101.0
	BTU/h	344,600
Input	kW	30.23

PURY-P900YSJM-A		
Nominal Heating Capacity	kW	113.0
	BTU/h	385,600
Input	kW	30.05

PURY-P900YSJM-A

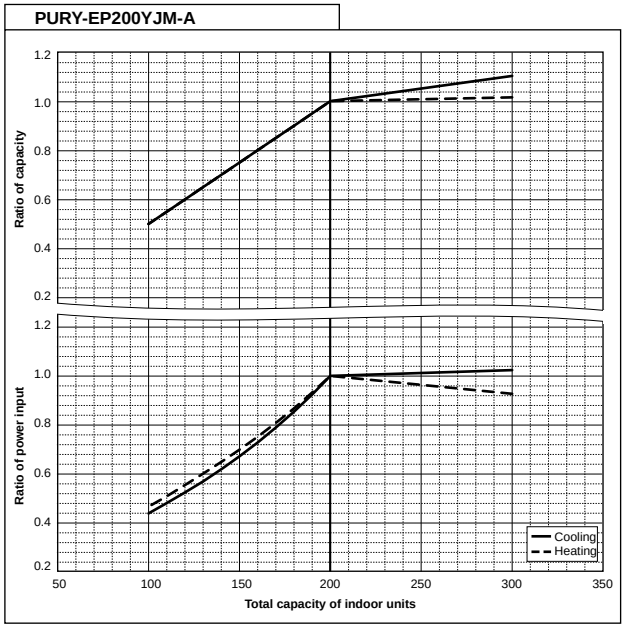


(1)-5 R2 (High COP) series

PURY-EP200YJM-A		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.07

PURY-EP200YJM-A		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	5.56

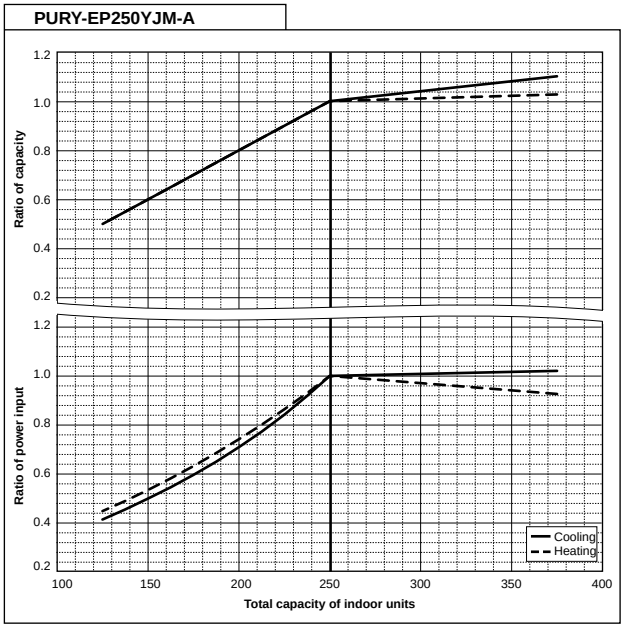
PURY-EP200YJM-A



PURY-EP250YJM-A		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	6.76

PURY-EP250YJM-A		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	7.15

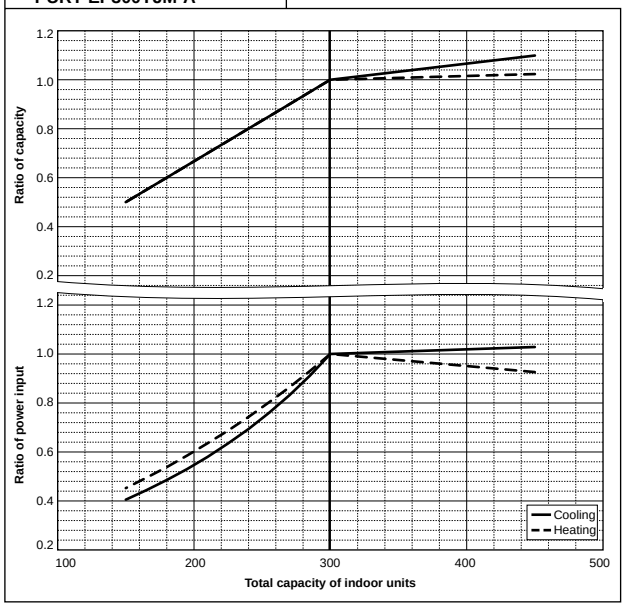
PURY-EP250YJM-A



PURY-EP300YJM-A		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	8.25

PURY-EP300YJM-A		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	8.60

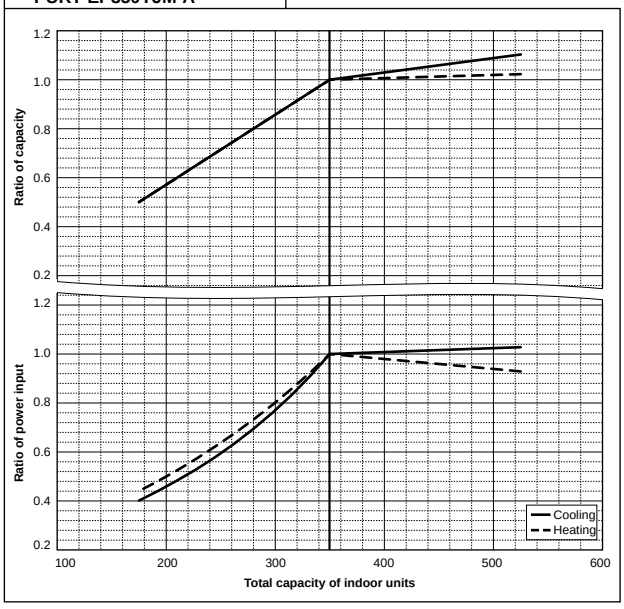
PURY-EP300YJM-A



PURY-EP350YJM-A		
Nominal Cooling Capacity	kW	40.0
	BTU/h	136,500
Input	kW	10.28

PURY-EP350YJM-A		
Nominal Heating Capacity	kW	45.0
	BTU/h	153,500
Input	kW	10.58

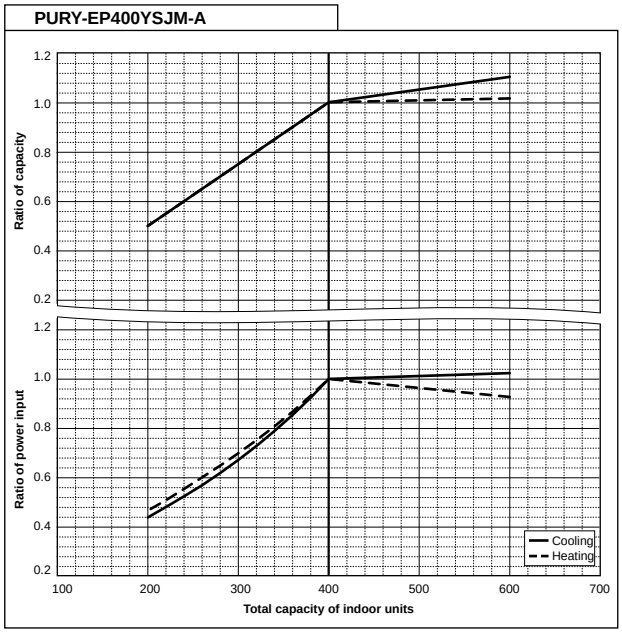
PURY-EP350YJM-A



PURY-EP400YSJM-A		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	10.41

PURY-EP400YSJM-A		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	11.36

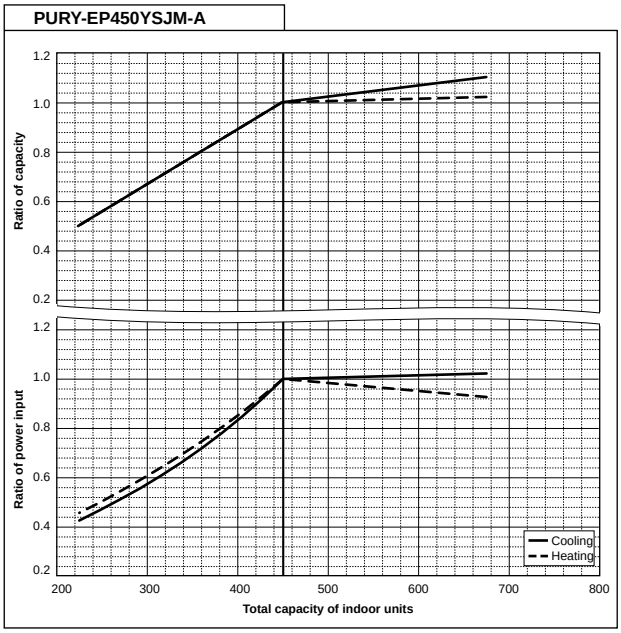
PURY-EP400YSJM-A



PURY-EP450YSJM-A		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	11.99

PURY-EP450YSJM-A		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	12.87

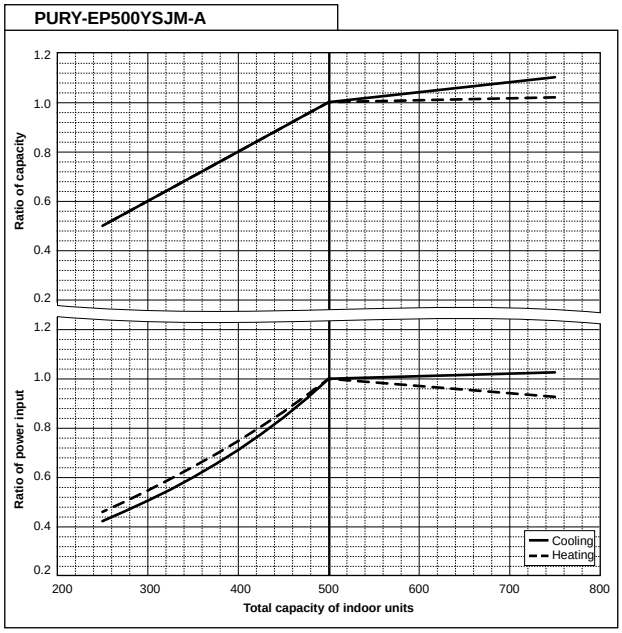
PURY-EP450YSJM-A



PURY-EP500YSJM-A		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	13.62

PURY-EP500YSJM-A		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	14.38

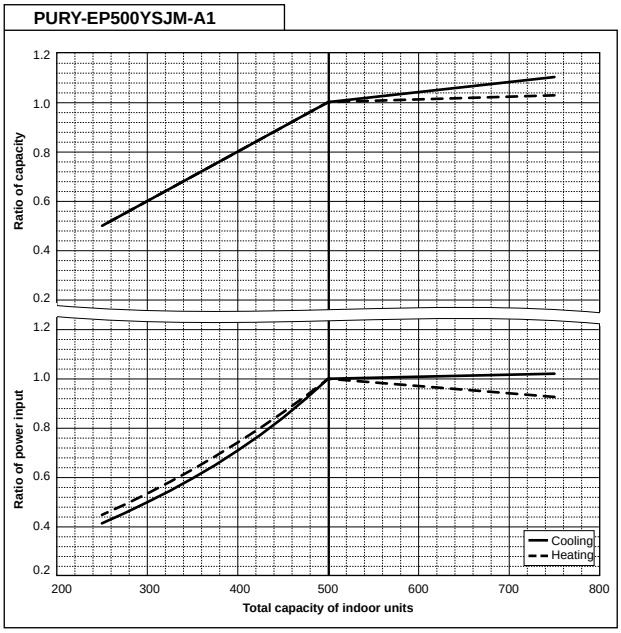
PURY-EP500YSJM-A



PURY-EP500YSJM-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	13.96

PURY-EP500YSJM-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	14.78

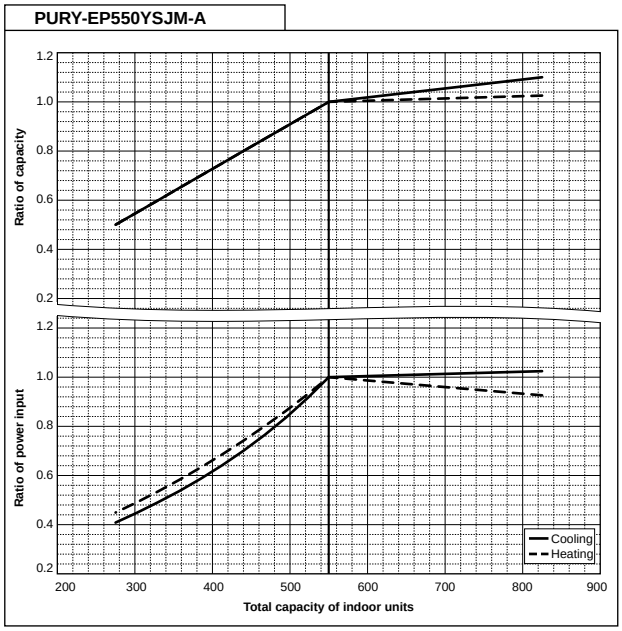
PURY-EP500YSJM-A1



PURY-EP550YSJM-A		
Nominal Cooling Capacity	kW	63.0
	BTU/h	215,000
Input	kW	15.40

PURY-EP550YSJM-A		
Nominal Heating Capacity	kW	69.0
	BTU/h	235,400
Input	kW	15.93

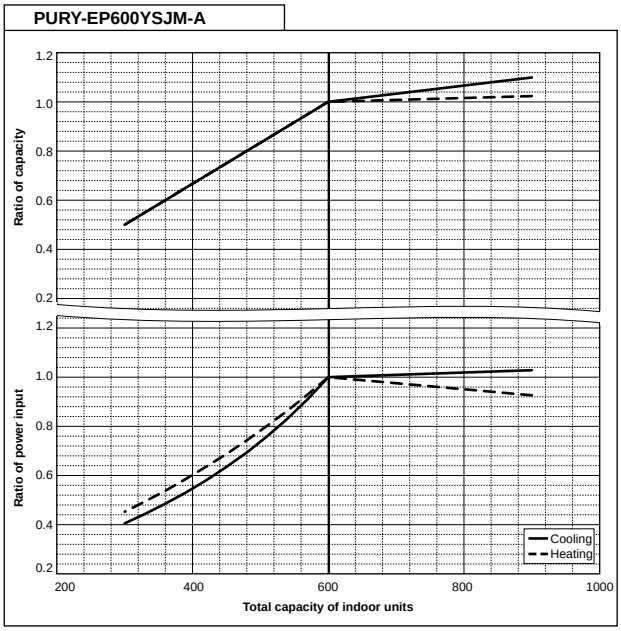
PURY-EP550YSJM-A



PURY-EP600YSJM-A		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	16.87

PURY-EP600YSJM-A		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	17.38

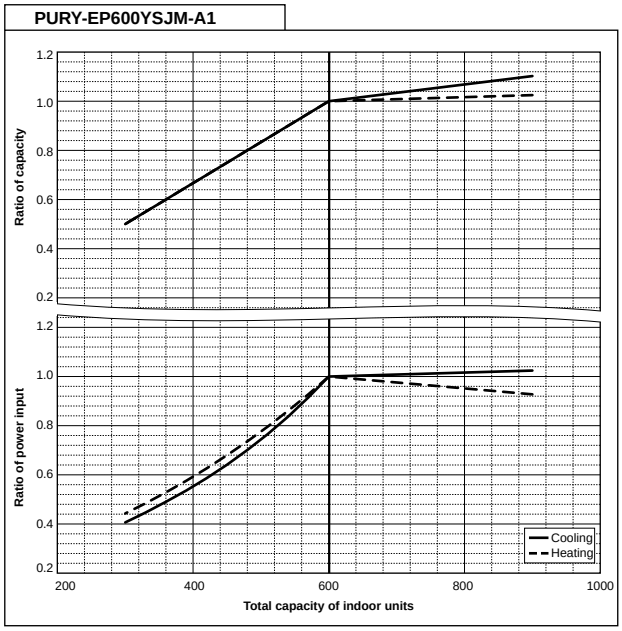
PURY-EP600YSJM-A



PURY-EP600YSJM-A1		
Nominal Cooling Capacity	kW	69.0
	BTU/h	235,400
Input	kW	17.82

PURY-EP600YSJM-A1		
Nominal Heating Capacity	kW	76.5
	BTU/h	261,000
Input	kW	18.30

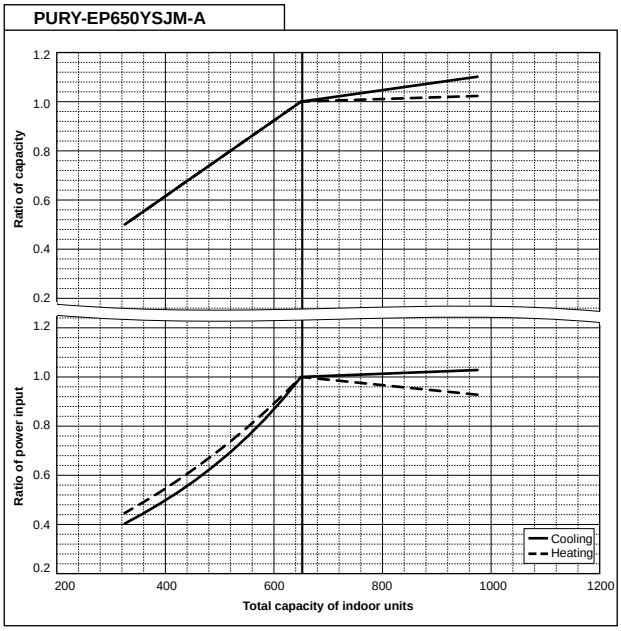
PURY-EP600YSJM-A1



PURY-EP650YSJM-A		
Nominal Cooling Capacity	kW	73.0
	BTU/h	249,100
Input	kW	19.01

PURY-EP650YSJM-A		
Nominal Heating Capacity	kW	81.5
	BTU/h	278,100
Input	kW	19.73

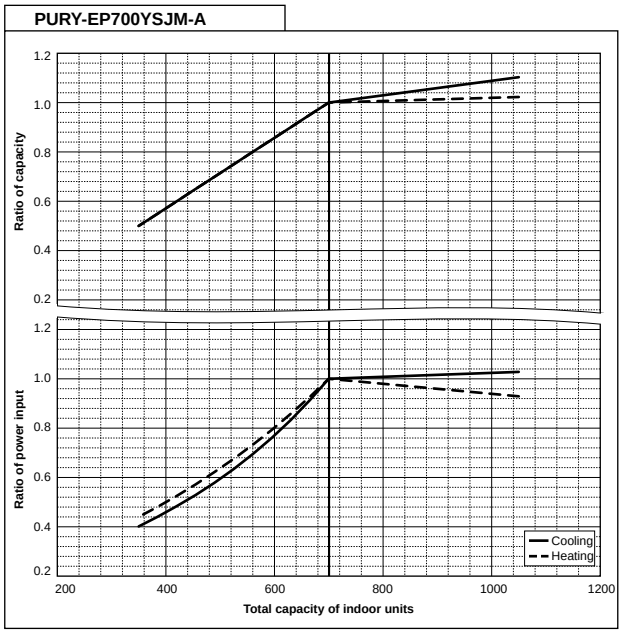
PURY-EP650YSJM-A



PURY-EP700YSJM-A		
Nominal Cooling Capacity	kW	80.0
	BTU/h	273,000
Input	kW	21.22

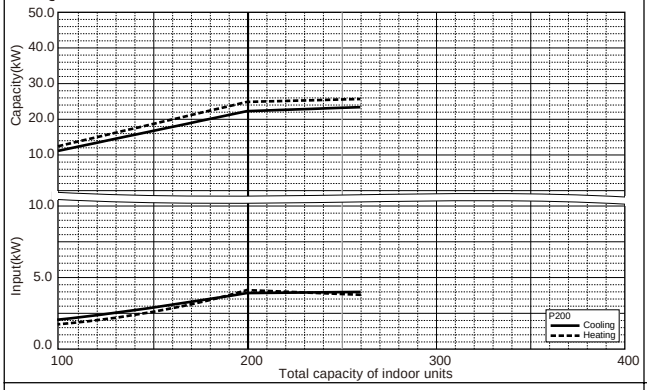
PURY-EP700YSJM-A		
Nominal Heating Capacity	kW	88.0
	BTU/h	300,300
Input	kW	22.05

PURY-EP700YSJM-A

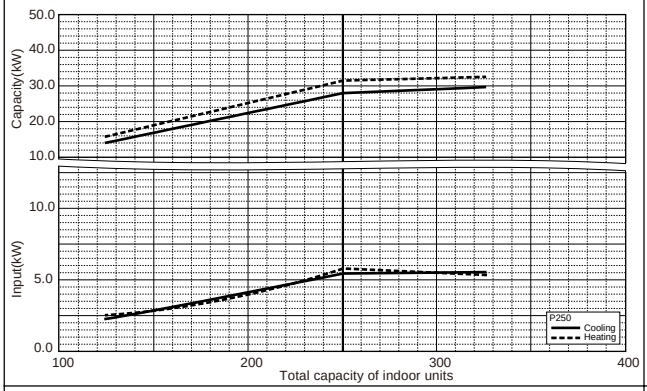


(1)-6 WY series

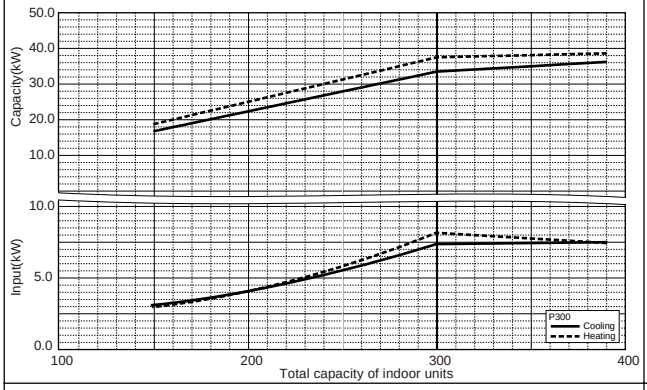
PQHY-P200YHM-A



PQHY-P250YHM-A



PQHY-P300YHM-A



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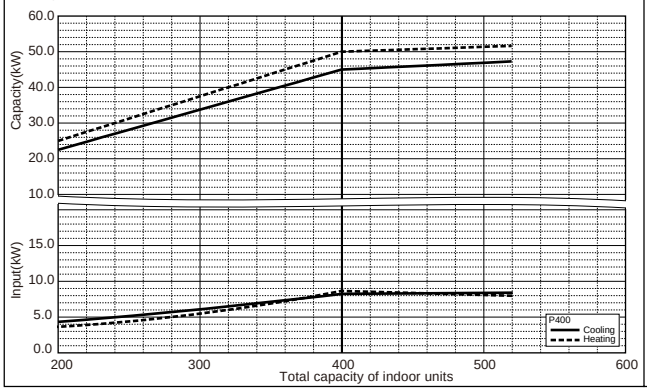
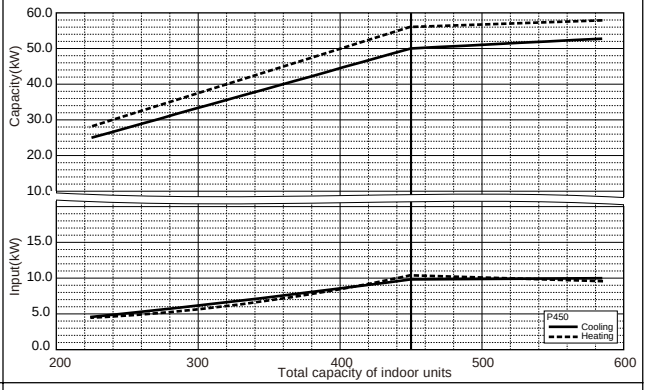


PQHY-P450YSHM-A



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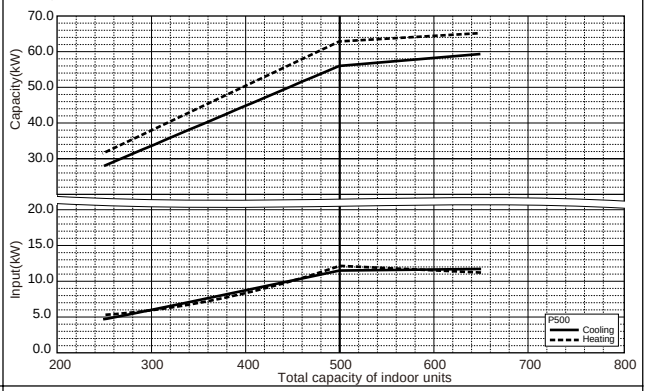
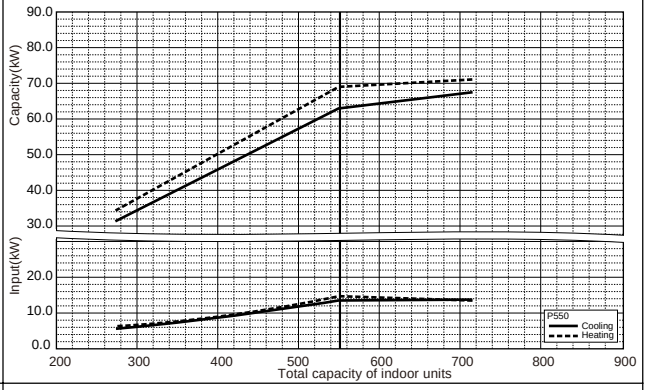


PQHY-P550YSHM-A



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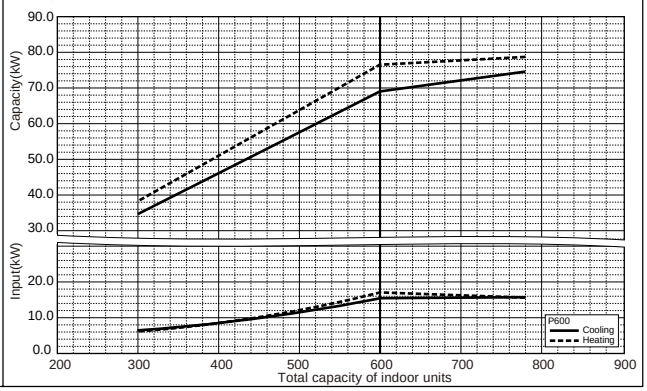

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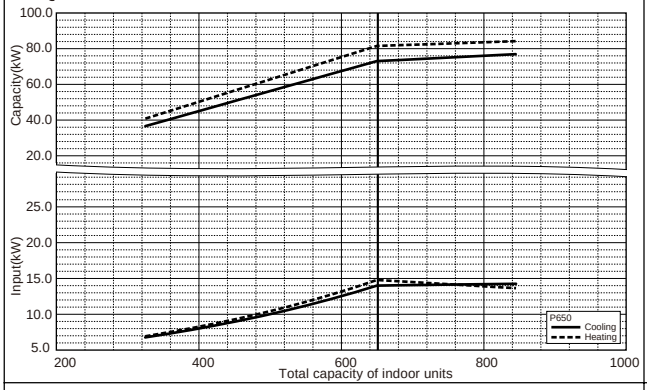
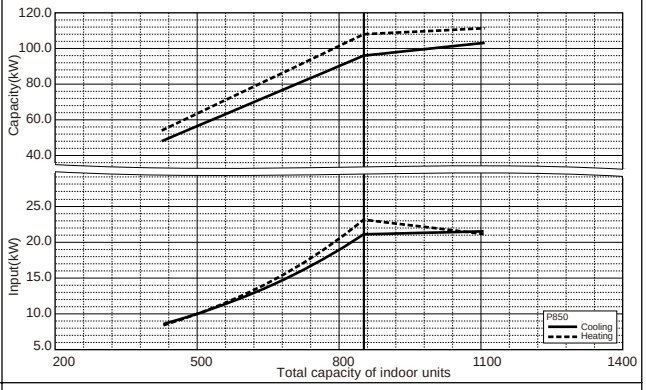
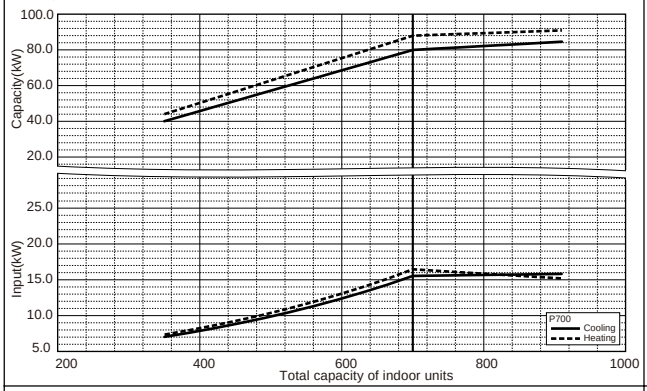


PQHY-P850YSHM-A



PQHY-P700YSHM-A



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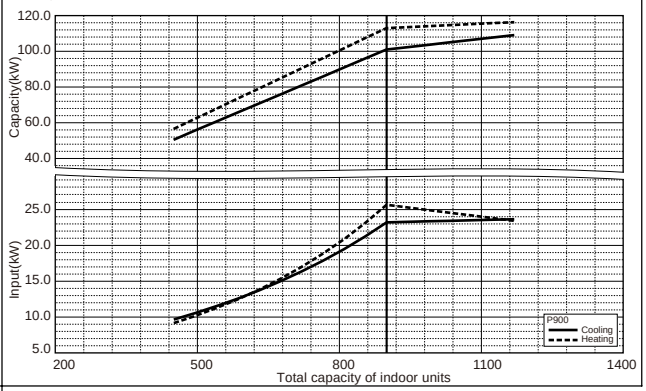

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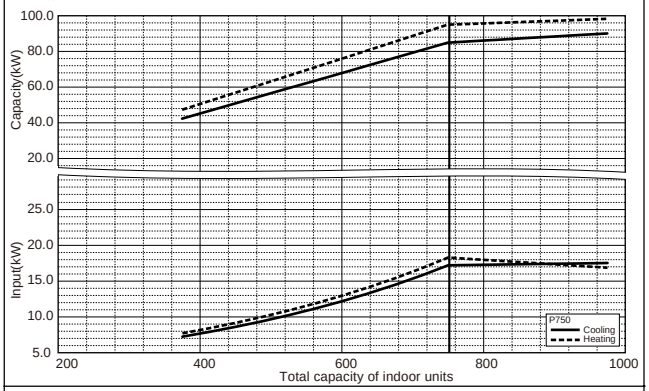
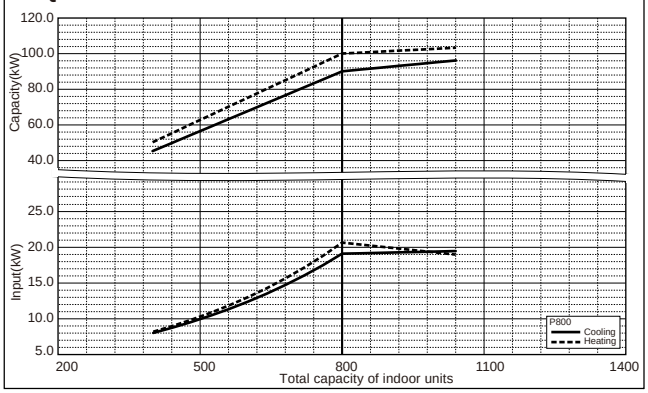
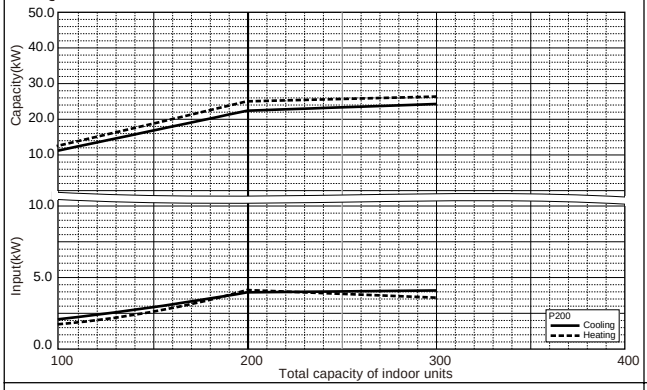


PQHY-P800YSHM-A

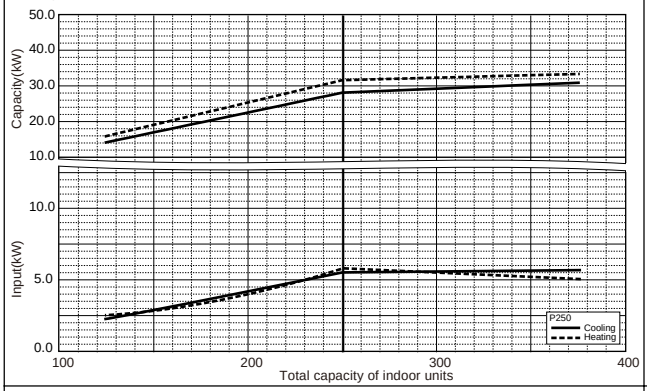


(1)-7 WR2 series

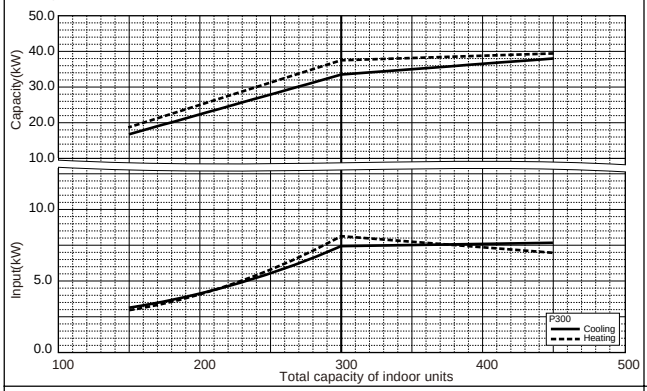
PQRY-P200YHM-A



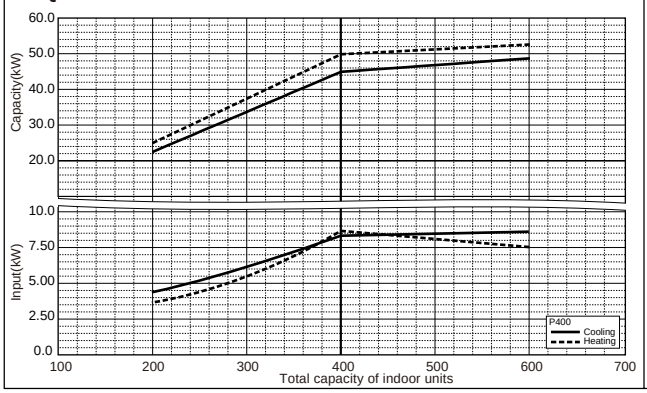
PQRY-P250YHM-A



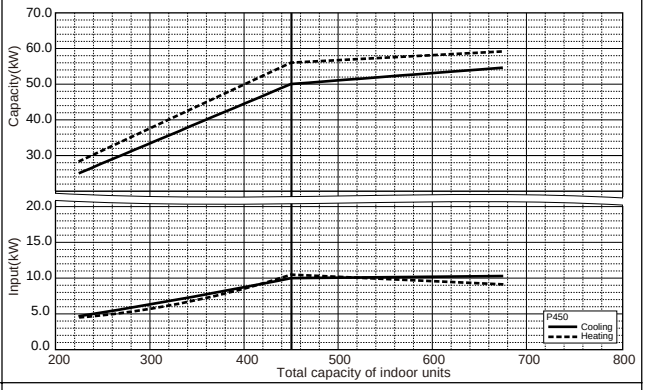
PQRY-P300YHM-A



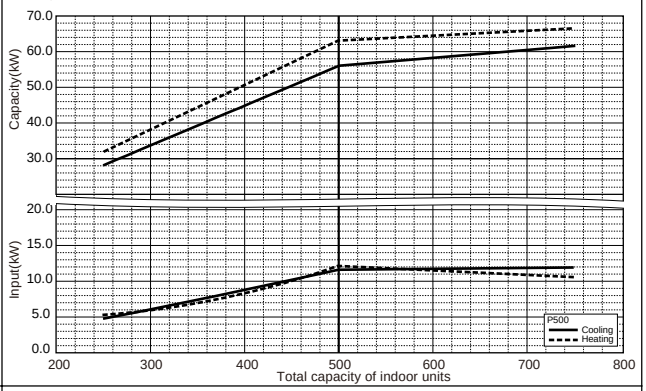
PQRY-P400YSHM-A



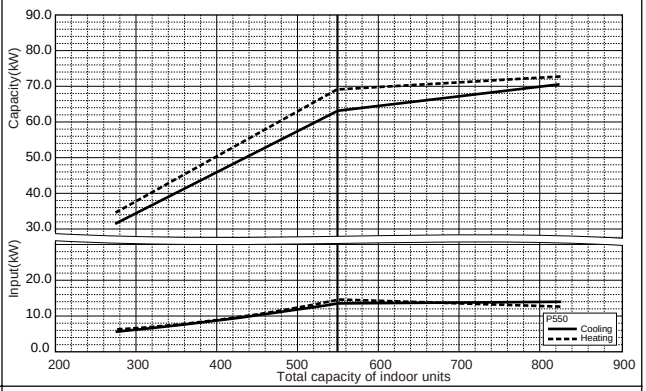
PQRY-P450YSHM-A



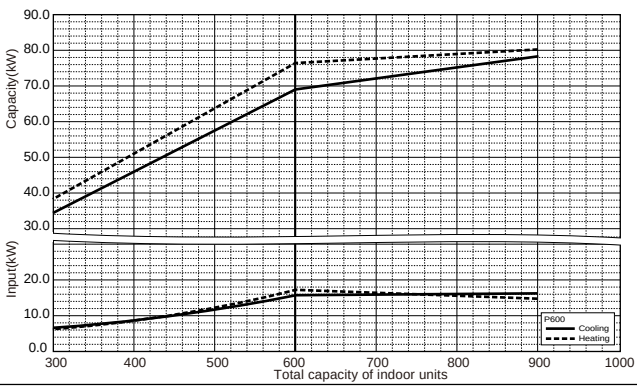
PQRY-P500YSHM-A



PQRY-P550YSHM-A



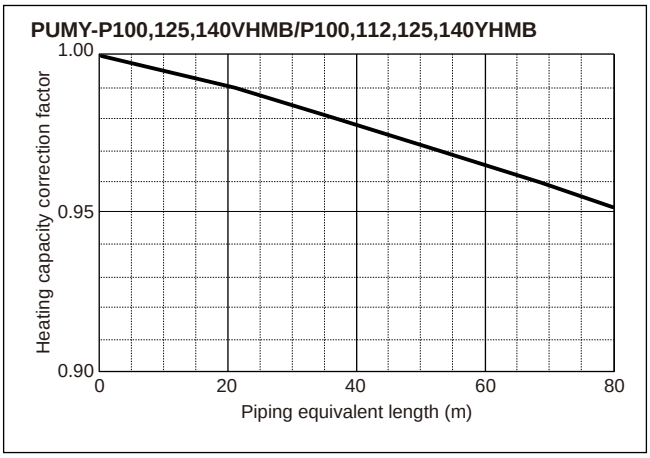
PQRY-P600YSHM-A



(2) Correction by refrigerant piping length

(2)-1 S series

(2)-1-1 Heating capacity correction



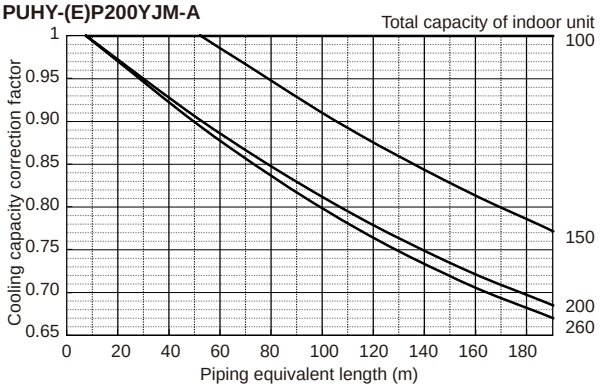
(2)-1-2 How to obtain the equivalent piping length

1. PUMY-P100, 125, 140VHMB/PUMY-P100, 112, 125, 140YHMB
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.3 × number of bends in the piping) m

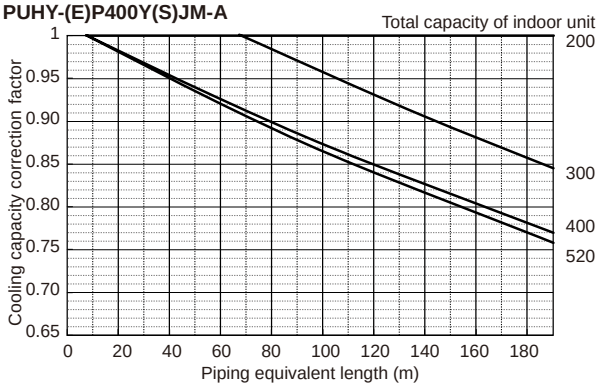
(2)-2 Y series

(2)-2-1 Cooling capacity correction

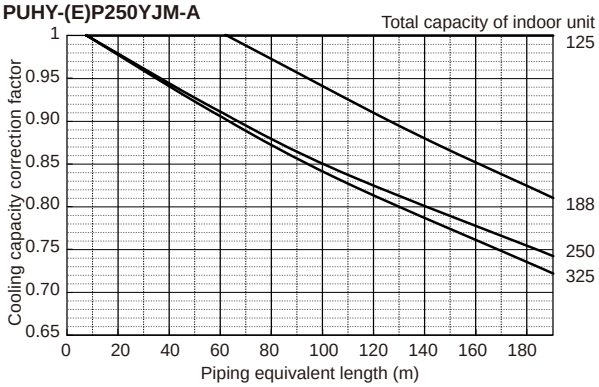
PUHY-(E)P200YJM-A



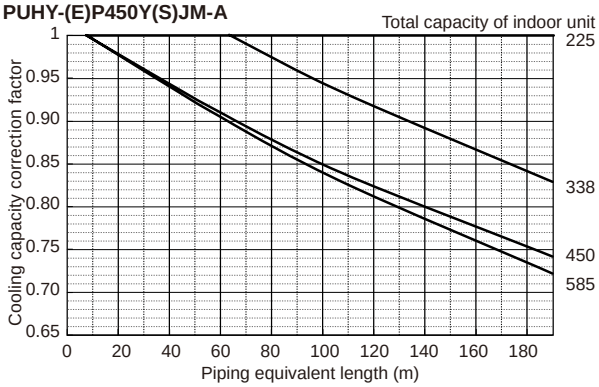
PUHY-(E)P400Y(S)JM-A



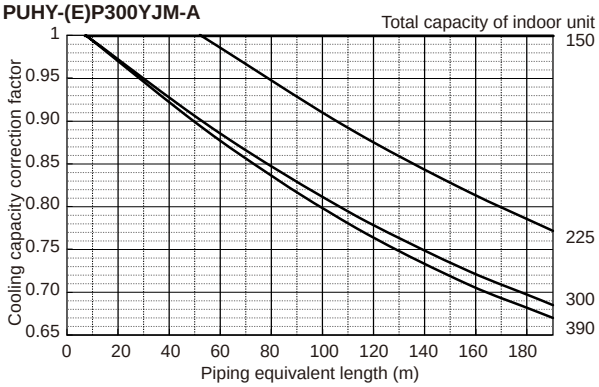
PUHY-(E)P250YJM-A



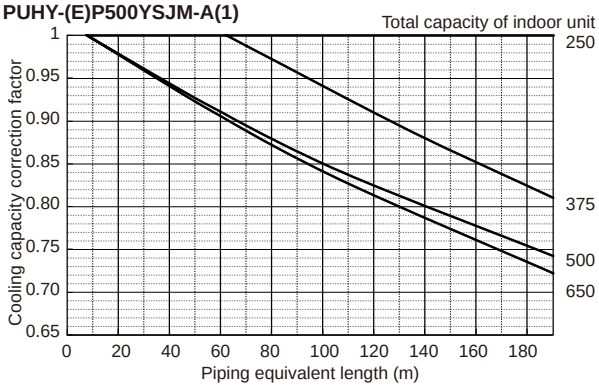
PUHY-(E)P450Y(S)JM-A



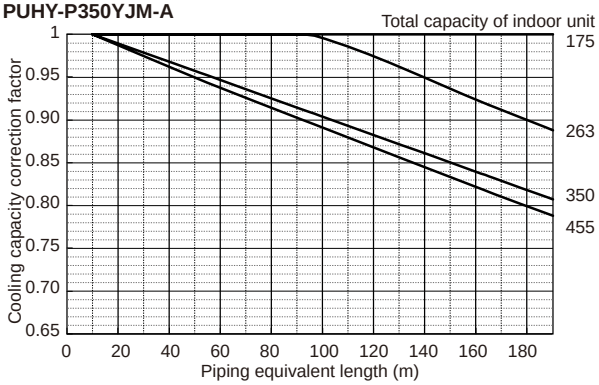
PUHY-(E)P300YJM-A



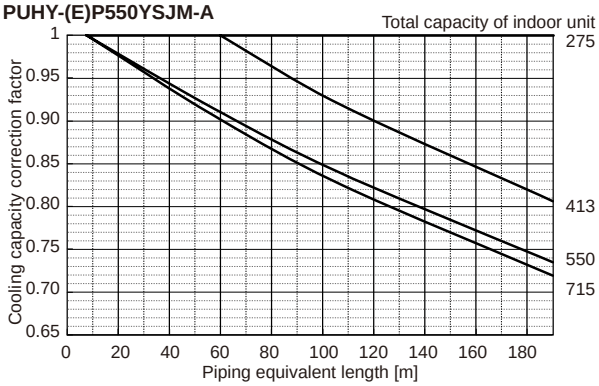
PUHY-(E)P500YSJM-A(1)



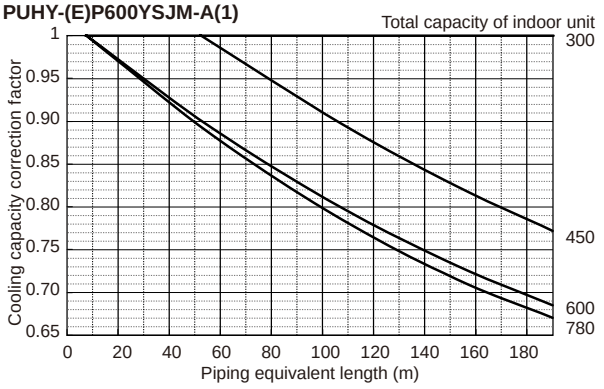
PUHY-P350YJM-A



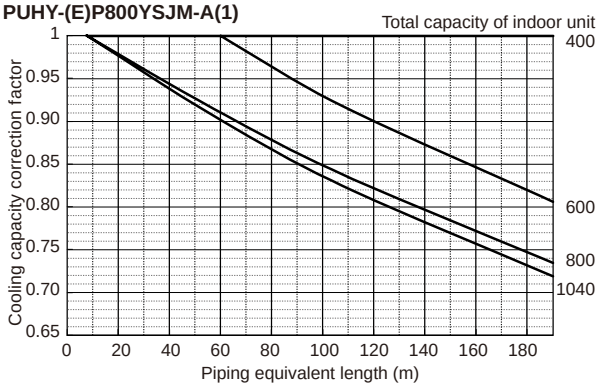
PUHY-(E)P550YSJM-A



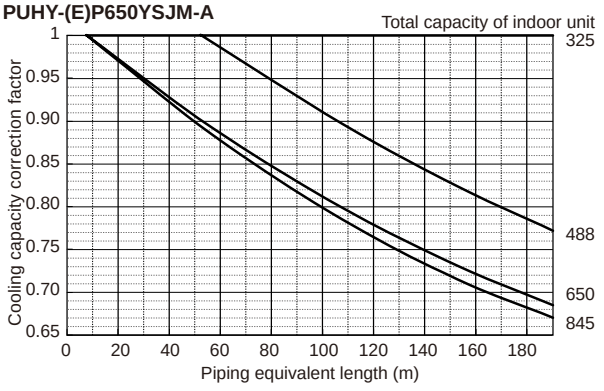
PUHY-(E)P600YSJM-A(1)



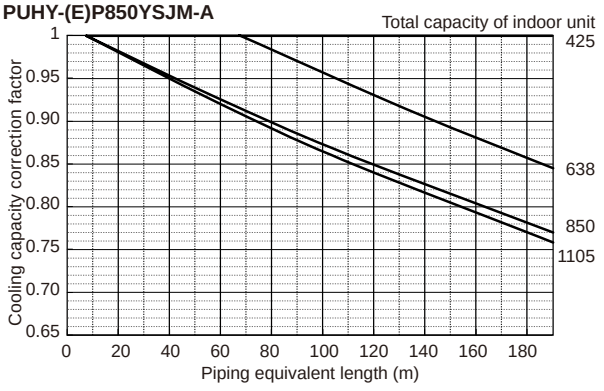
PUHY-(E)P800YSJM-A(1)



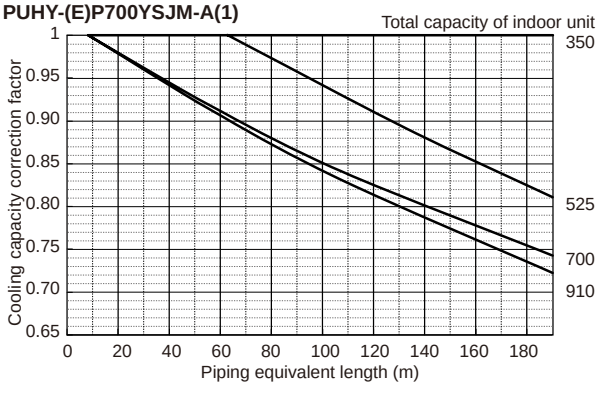
PUHY-(E)P650YSJM-A



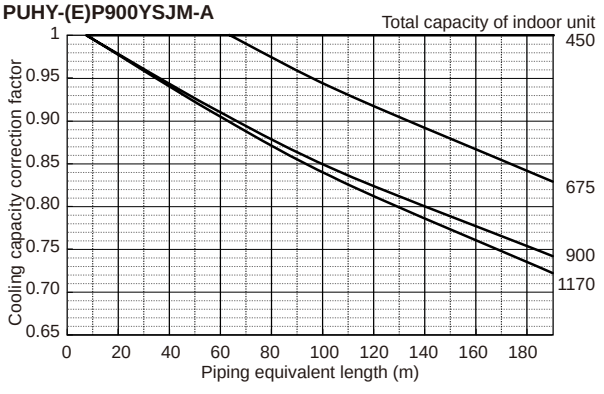
PUHY-(E)P850YSJM-A



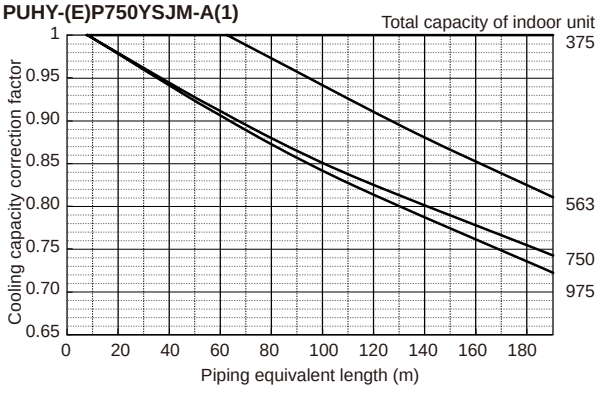
PUHY-(E)P700YSJM-A(1)



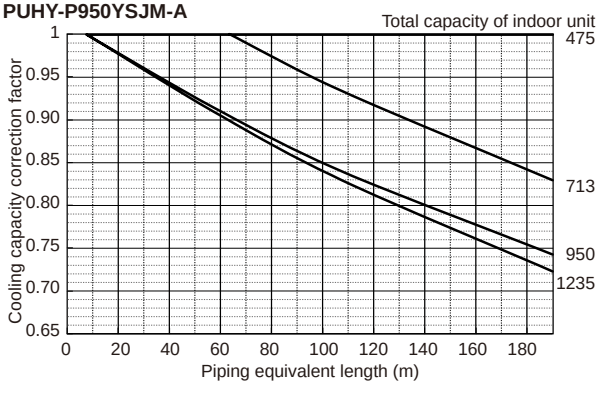
PUHY-(E)P900YSJM-A



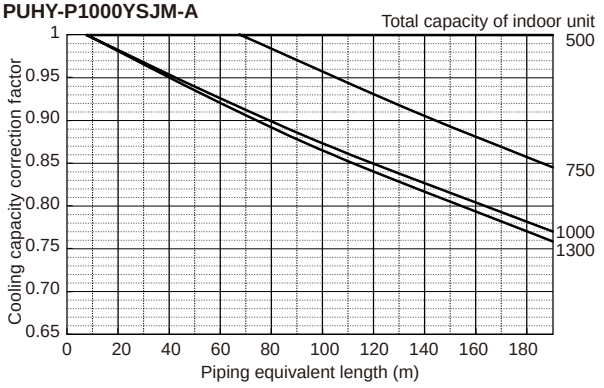
PUHY-(E)P750YSJM-A(1)



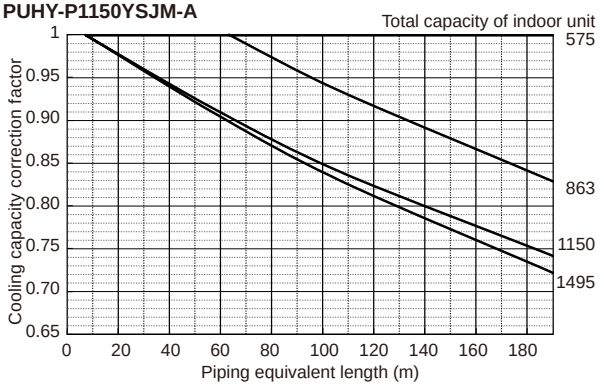
PUHY-P950YSJM-A



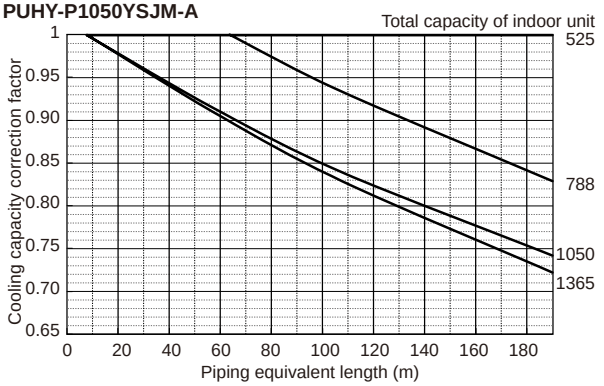
PUHY-P1000YSJM-A



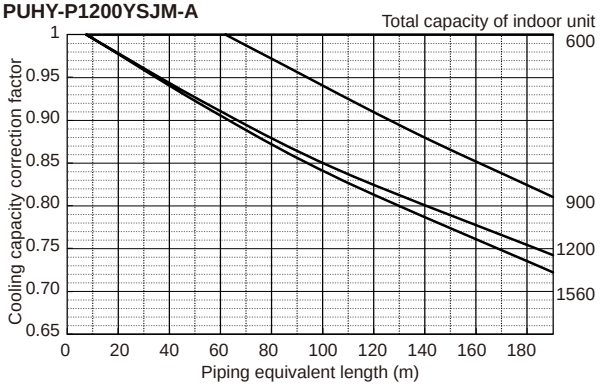
PUHY-P1150YSJM-A



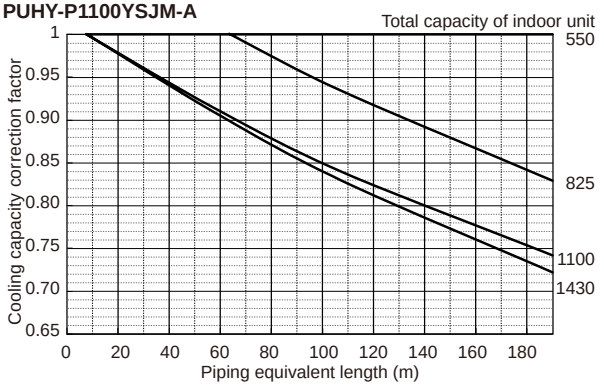
PUHY-P1050YSJM-A



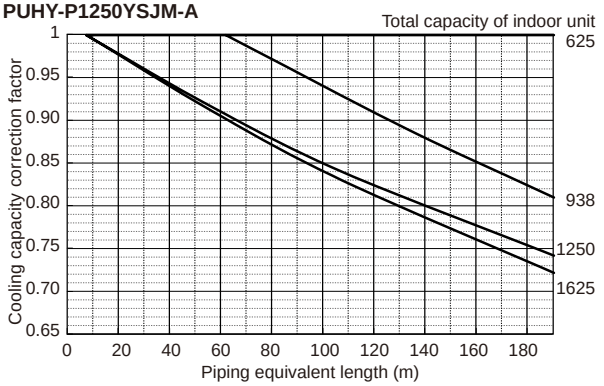
PUHY-P1200YSJM-A



PUHY-P1100YSJM-A

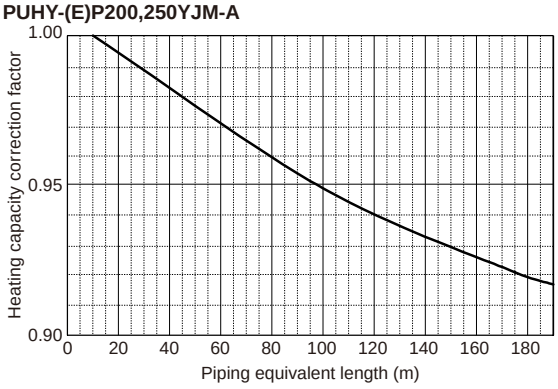


PUHY-P1250YSJM-A

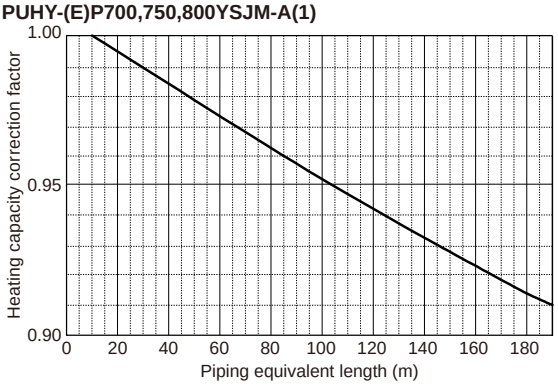


(2)-2-2 Heating capacity correction

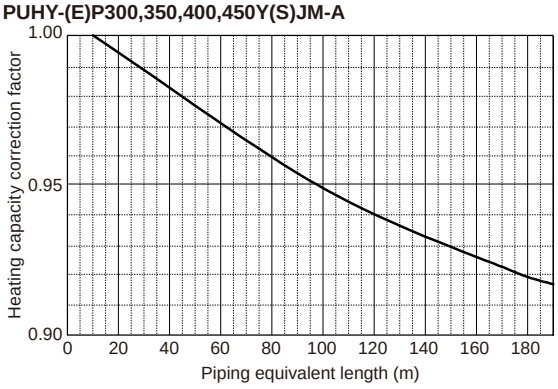
PUHY-(E)P200,250YJM-A



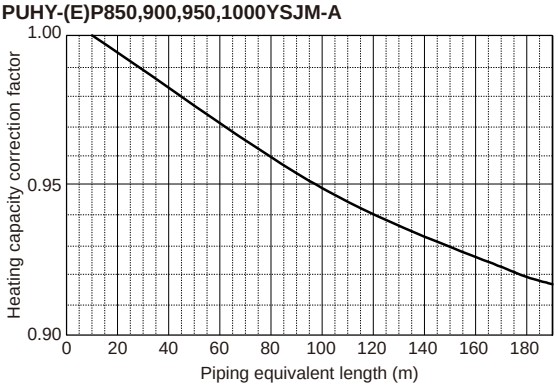
PUHY-(E)P700,750,800YSJM-A(1)



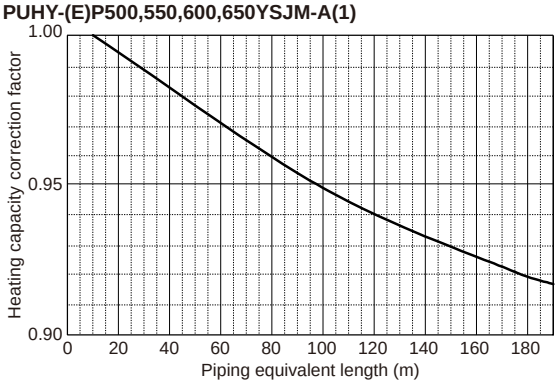
PUHY-(E)P300,350,400,450Y(S)JM-A



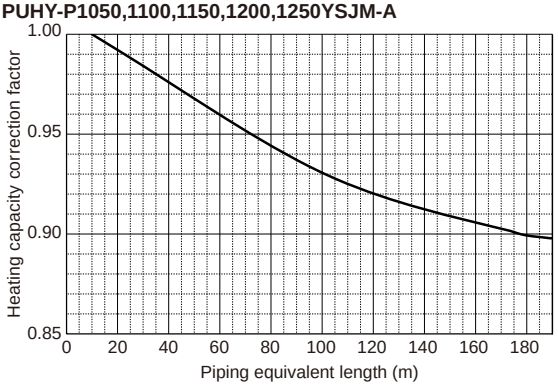
PUHY-(E)P850,900,950,1000YSJM-A



PUHY-(E)P500,550,600,650YSJM-A(1)



PUHY-P1050,1100,1150,1200,1250YSJM-A



(2)-2-3 How to obtain the equivalent piping length

1 **PUHY-(E)P200YJM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m

2 **PUHY-(E)P250,300YJM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m

3 **PUHY-P350YJM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.47 x number of bends in the piping) m

4 **PUHY-(E)P400,450,500,550,600,650Y(S)JM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bends in the piping) m

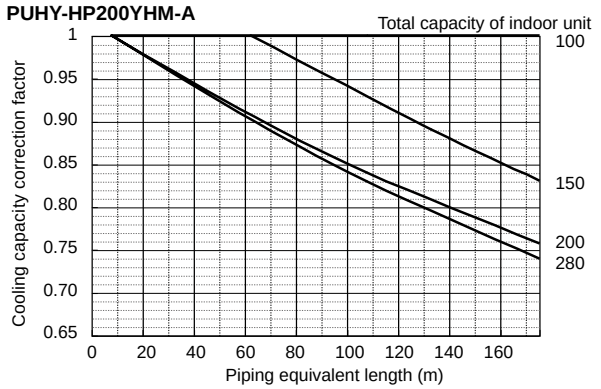
5 **PUHY-(E)P700,750,800YSJM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.70 x number of bends in the piping) m

6 **PUHY-(E)P850,900,950,1000,1050,1100,1150,1200,1250YSJM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.80 x number of bends in the piping) m

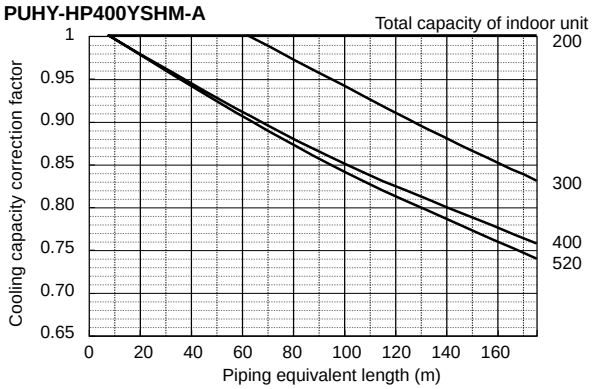
(2)-3 HP (ZUBADAN) series

(2)-3-1 Cooling capacity correction

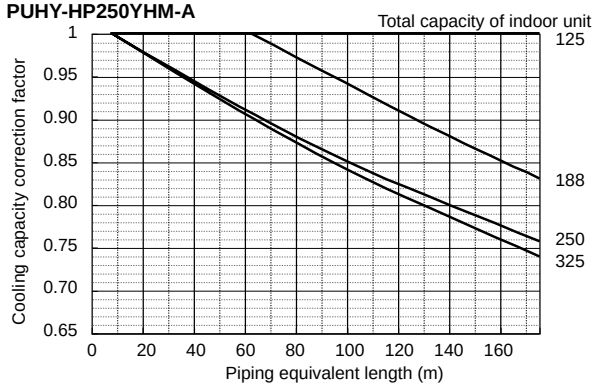
PUHY-HP200YHM-A



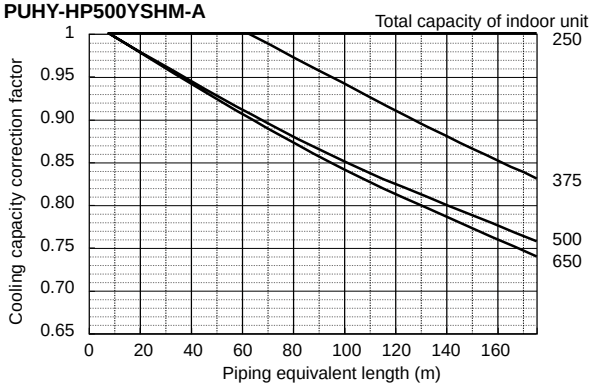
PUHY-HP400YSHM-A



PUHY-HP250YHM-A

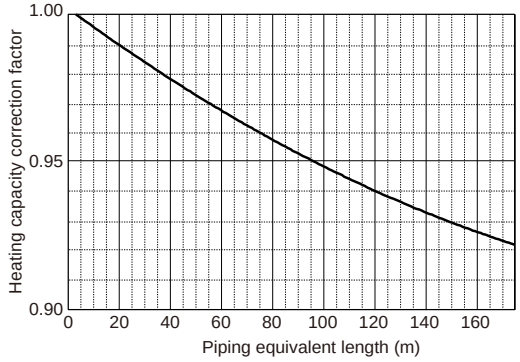


PUHY-HP500YSHM-A



(2)-3-2 Heating capacity correction

PUHY-HP200,250,400,500Y(S)HM-A



(2)-3-3 How to obtain the equivalent piping length

1 PUHY-HP200YHM
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m

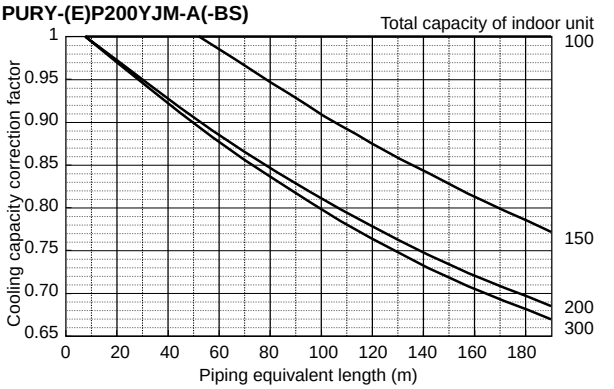
2 PUHY-HP250YHM
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m

3 PUHY-HP400,500YSHM
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bends in the piping) m

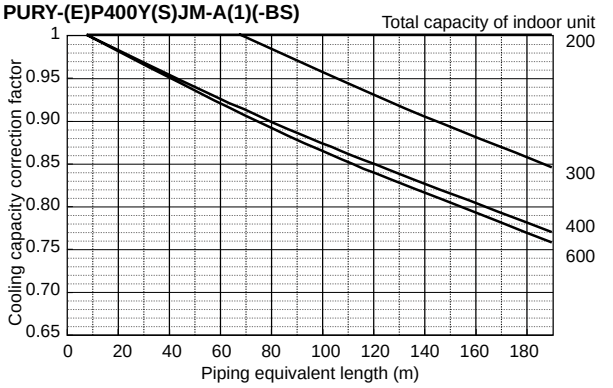
(2)-4 R2 series

(2)-4-1 Cooling capacity correction

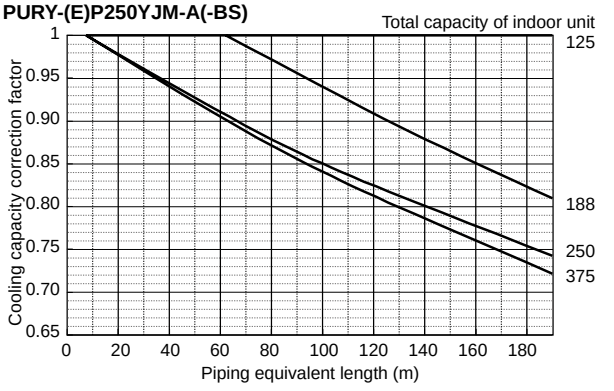
PURY-(E)P200YJM-A(-BS)



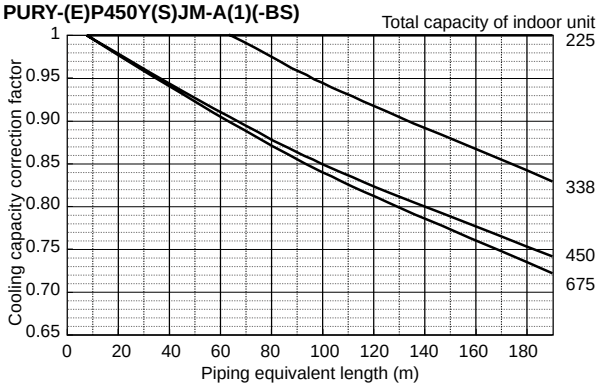
PURY-(E)P400Y(S)JM-A(1)(-BS)



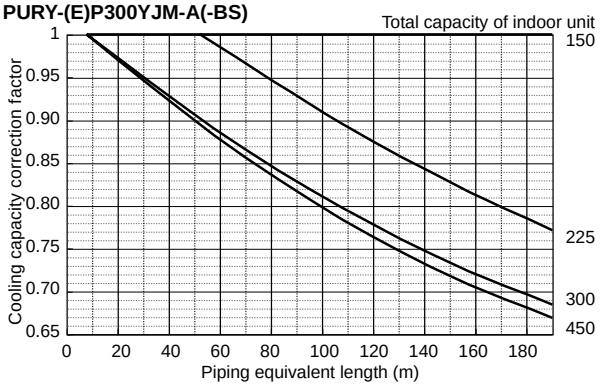
PURY-(E)P250YJM-A(-BS)



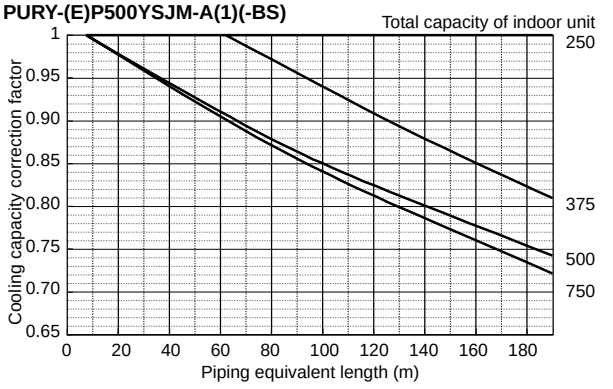
PURY-(E)P450Y(S)JM-A(1)(-BS)



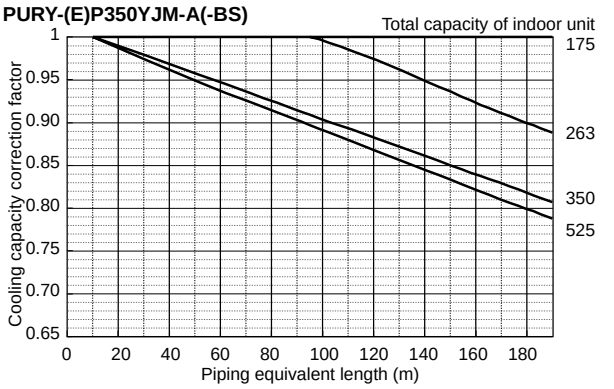
PURY-(E)P300YJM-A(-BS)



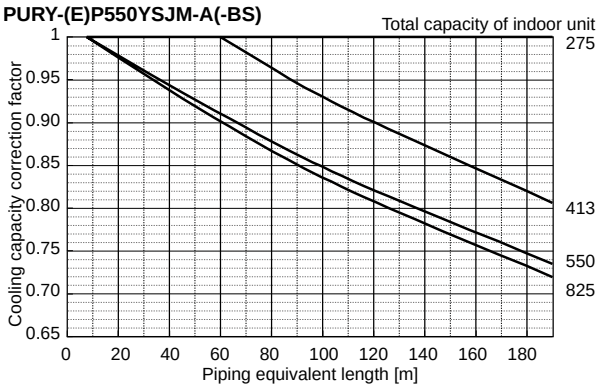
PURY-(E)P500YSJM-A(1)(-BS)



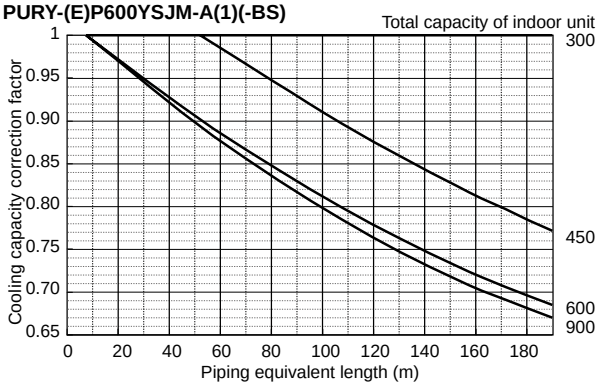
PURY-(E)P350YJM-A(-BS)



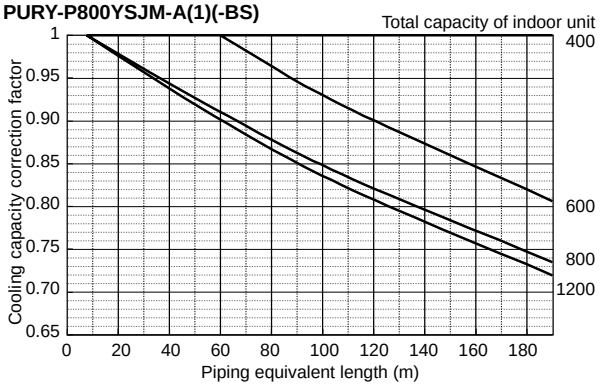
PURY-(E)P550YSJM-A(-BS)



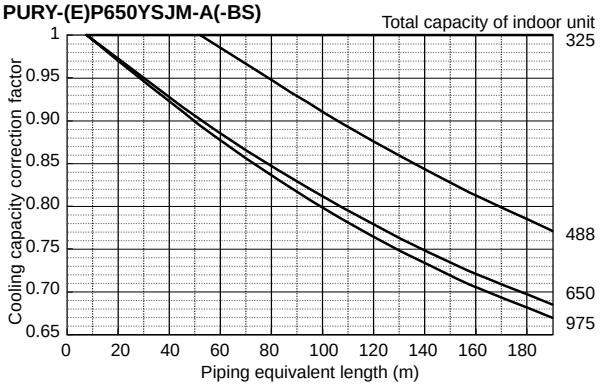
PURY-(E)P600YSJM-A(1)(-BS)



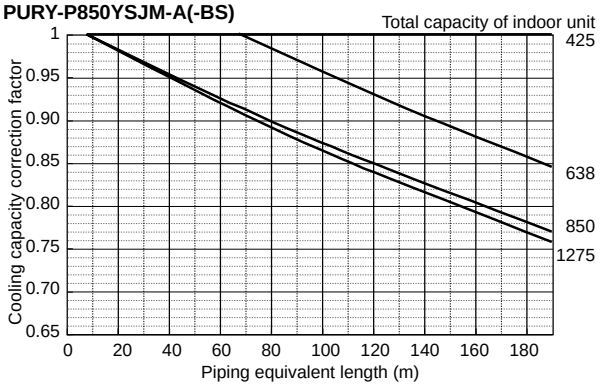
PURY-P800YSJM-A(1)(-BS)



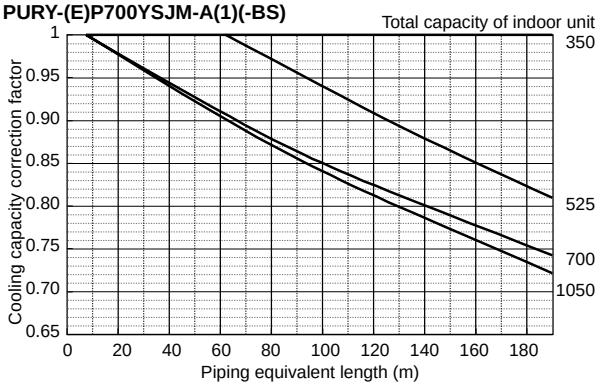
PURY-(E)P650YSJM-A(-BS)



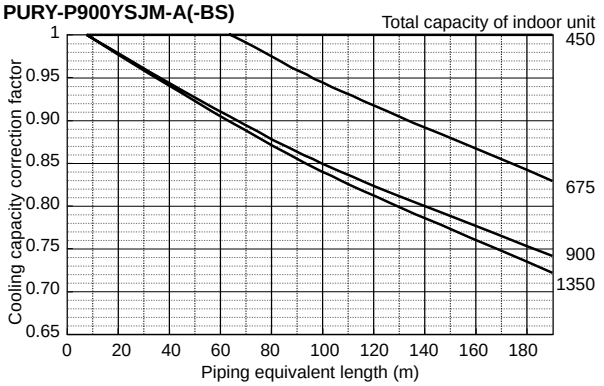
PURY-P850YSJM-A(-BS)



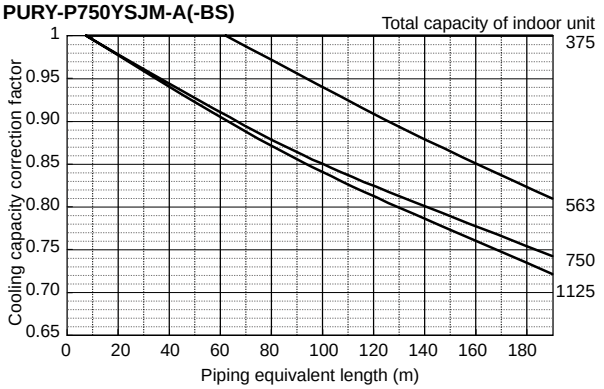
PURY-(E)P700YSJM-A(1)(-BS)



PURY-P900YSJM-A(-BS)

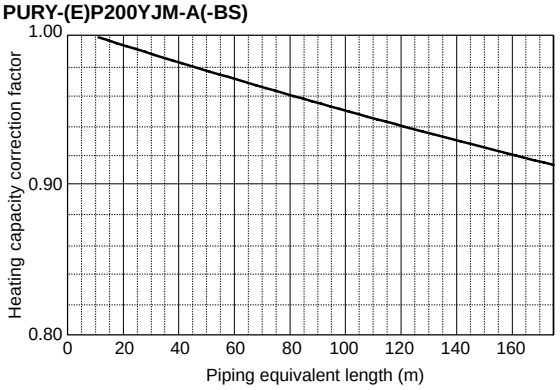


PURY-P750YSJM-A(-BS)

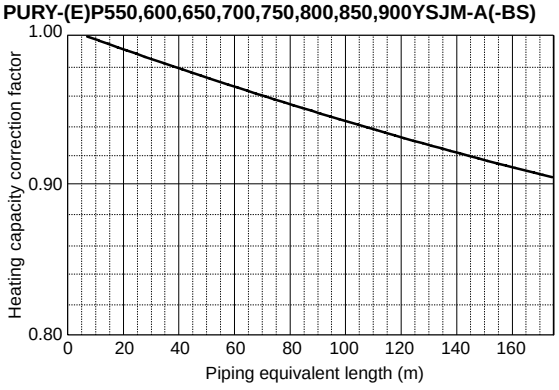


(2)-4-2 Heating capacity correction

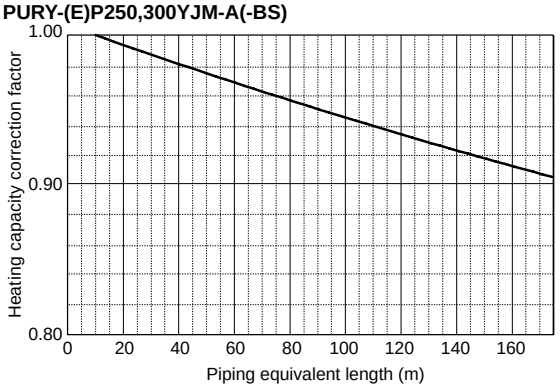
PURY-(E)P200YJM-A(-BS)



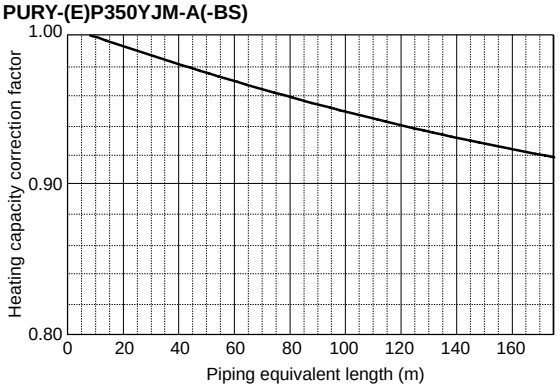
PURY-(E)P550,600,650,700,750,800,850,900YSJM-A(-BS)



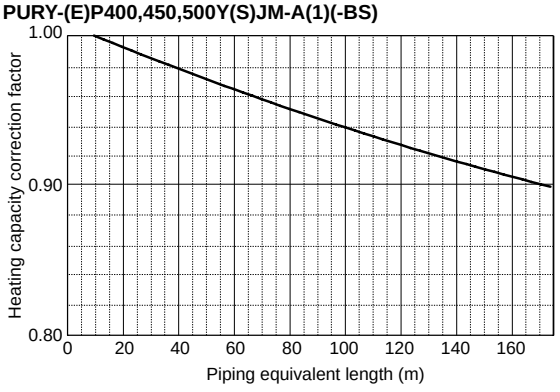
PURY-(E)P250,300YJM-A(-BS)



PURY-(E)P350YJM-A(-BS)



PURY-(E)P400,450,500Y(S)JM-A(1)(-BS)



(2)-4-3 How to obtain the equivalent piping length

1 **PURY-(E)P200YJM-A(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m

2 **PURY-(E)P250,300YJM-A(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m

3 **PURY-(E)P350YJM-A(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.47 x number of bends in the piping) m

4 **PURY-(E)P400,450,500,550,600,650Y(S)JM-A(1)(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bends in the piping) m

5 **PURY-(E)P700,750,800YSJM-A(1)(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.70 x number of bends in the piping) m

6 **PURY-P850,900YSJM-A(-BS)**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.80 x number of bends in the piping) m

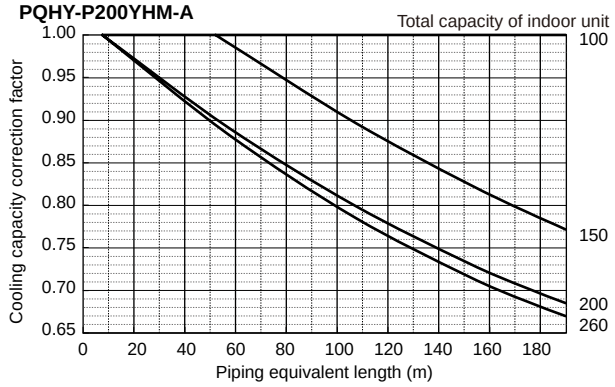
(2)-4-4 Correction by port counts of the BC controller

Indoor unit sizes P200 and P250 must be connected to 2 ports on the BC controller.
Indoor unit sizes from P100 to P140 should normally be connected to 2 ports on the BC controller (set BC controller DIP-SW 4-6 to its ON position).
In cases whereby indoor unit sizes from P100 to P140 are connected to only 1port on the BC controller (set BC controller DIP-SW 4-6 to its OFF position), the cooling capacity of the indoor unit should be multiplied by a correction factor of **0.97.**

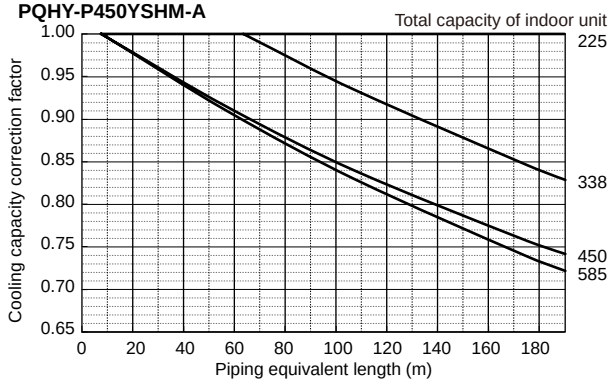
(2)-5 WY series

(2)-5-1 Cooling capacity correction

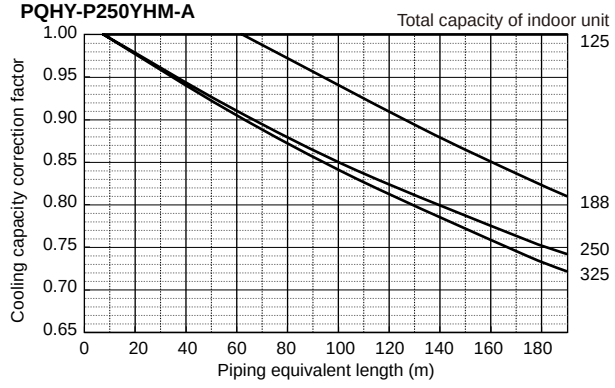
PQHY-P200YHM-A



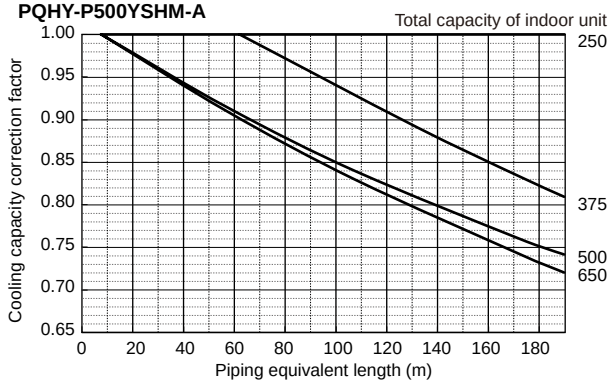
PQHY-P450YSHM-A



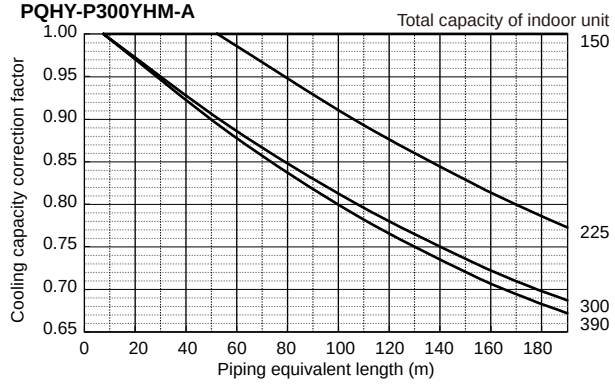
PQHY-P250YHM-A



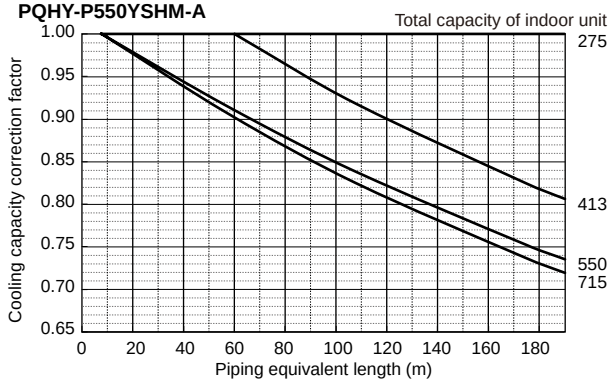
PQHY-P500YSHM-A



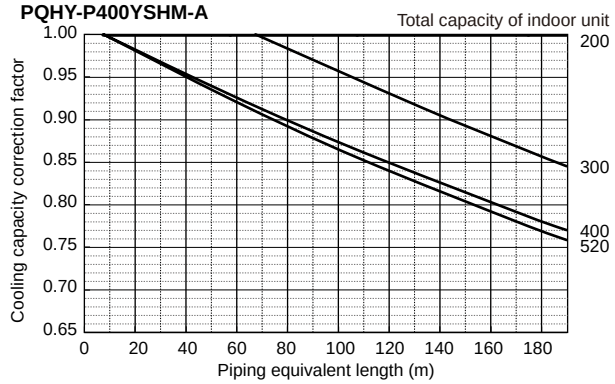
PQHY-P300YHM-A



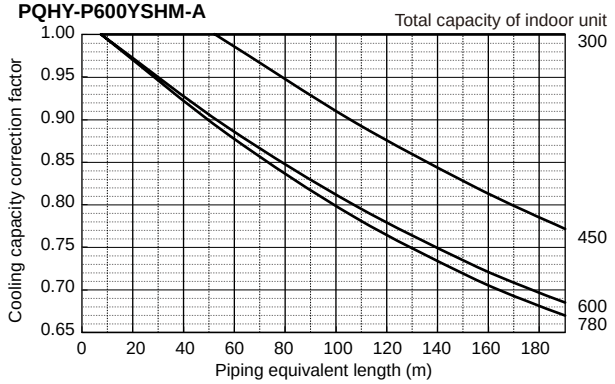
PQHY-P550YSHM-A



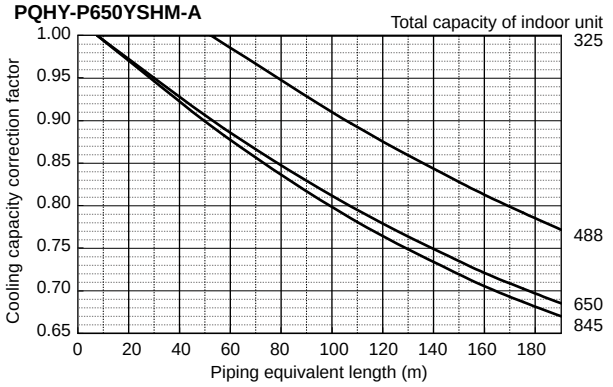
PQHY-P400YSHM-A



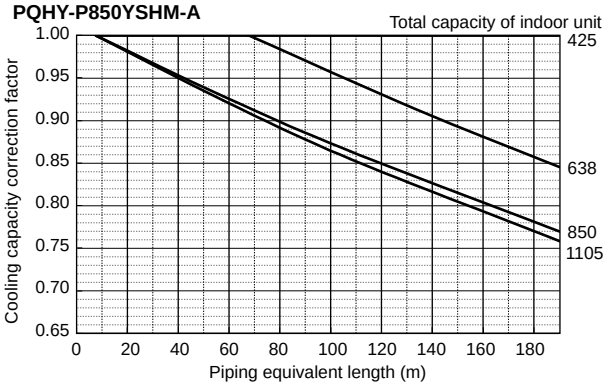
PQHY-P600YSHM-A



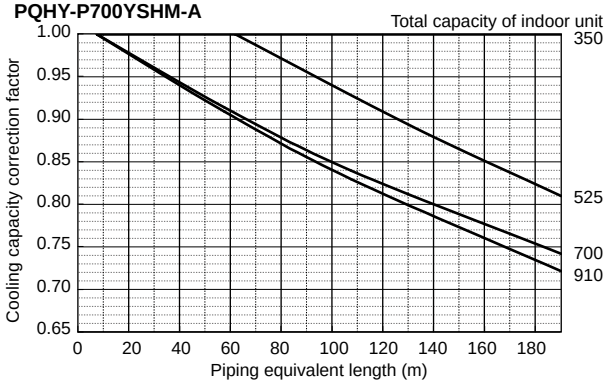
PQHY-P650YSHM-A



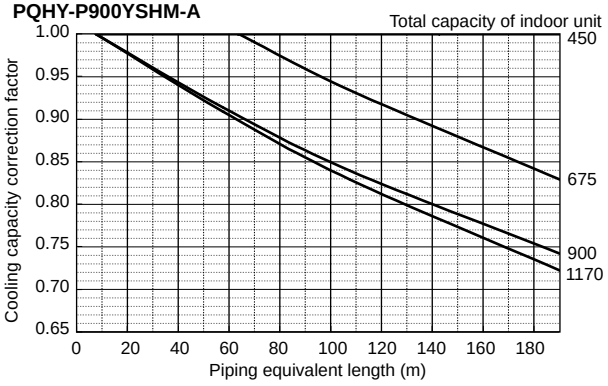
PQHY-P850YSHM-A



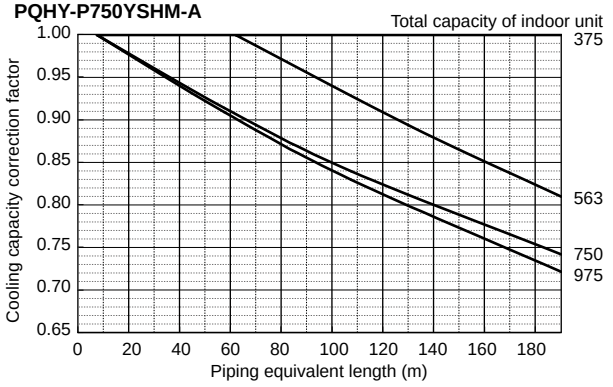
PQHY-P700YSHM-A



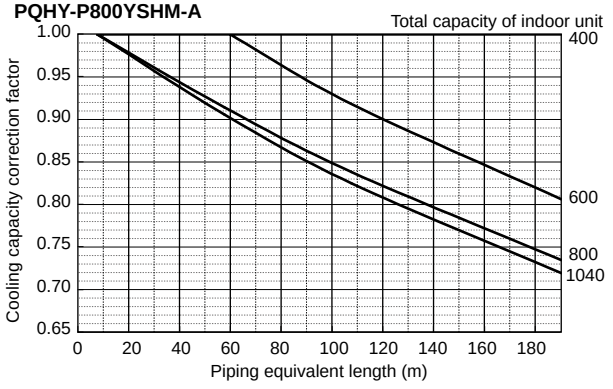
PQHY-P900YSHM-A



PQHY-P750YSHM-A

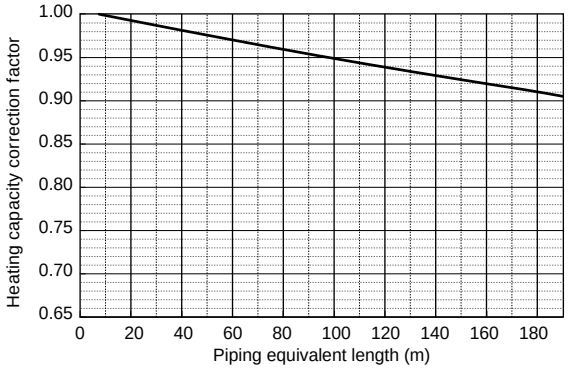


PQHY-P800YSHM-A

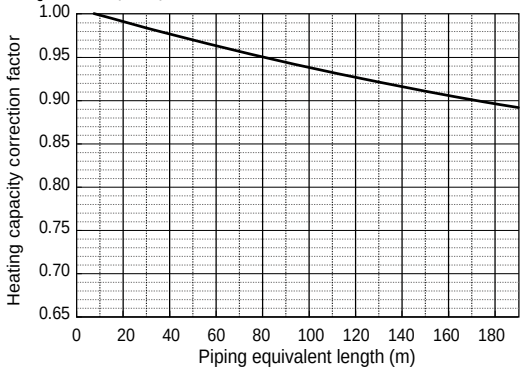


(2)-5-2 Heating capacity correction

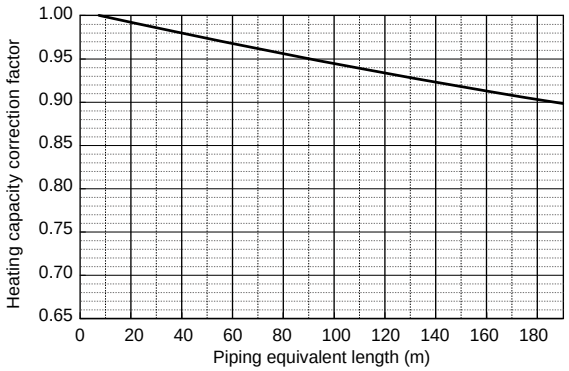
PQHY-P200YHM-A



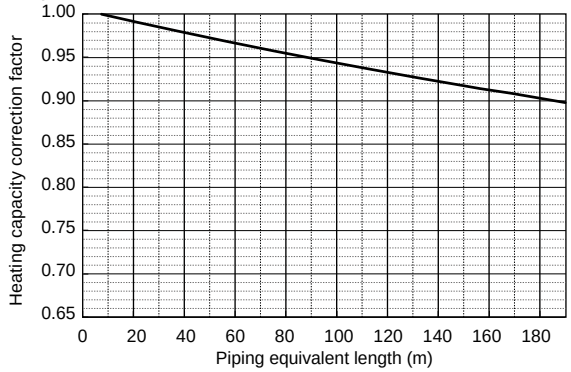
PQHY-P400, 450, 500YSHM-A



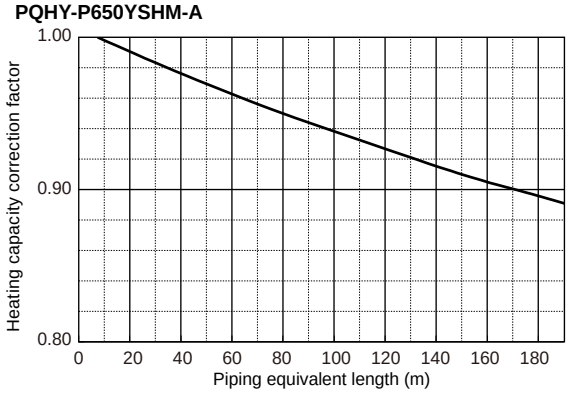
PQHY-P250, 300YHM-A



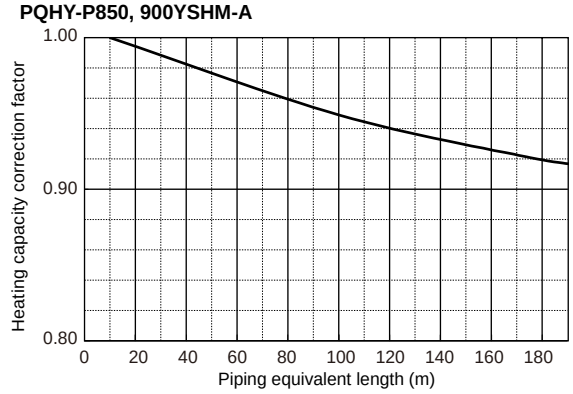
PQHY-P550, 600YSHM-A



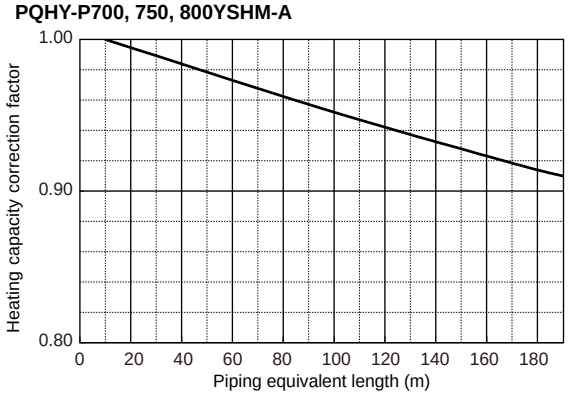
PQHY-P650YSHM-A



PQHY-P850, 900YSHM-A



PQHY-P700, 750, 800YSHM-A



(2)-5-3 How to obtain the equivalent piping length

1 PQHY-P200YHM

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m

2 PQHY-P250, 300YHM

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m

3 PQHY-P400, 450, 500, 550, 600, 650YSHM

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bends in the piping) m

4 PQHY-P700, 750, 800YSHM

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.70 x number of bends in the piping) m

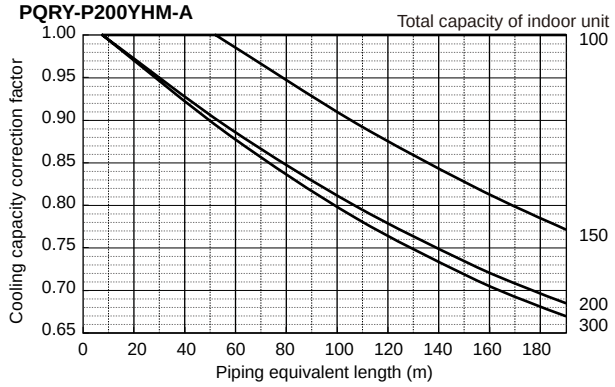
5 PQHY-P850, 900YSHM

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.80 x number of bends in the piping) m

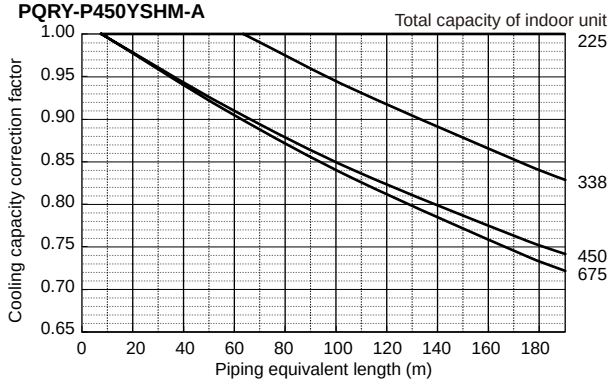
(2)-6 WR2 series

(2)-6-1 Cooling capacity correction

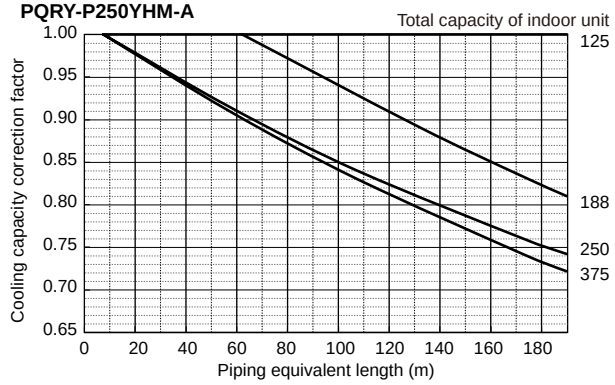
PQRY-P200YHM-A



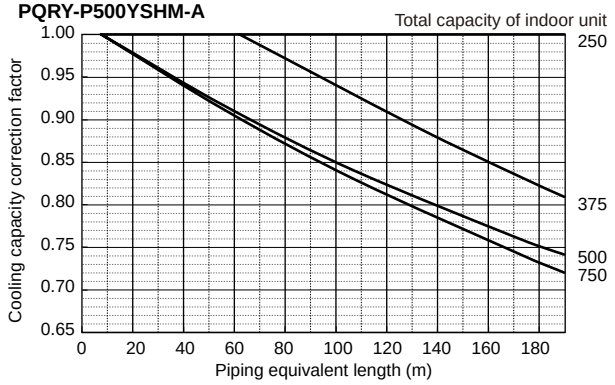
PQRY-P450YSHM-A



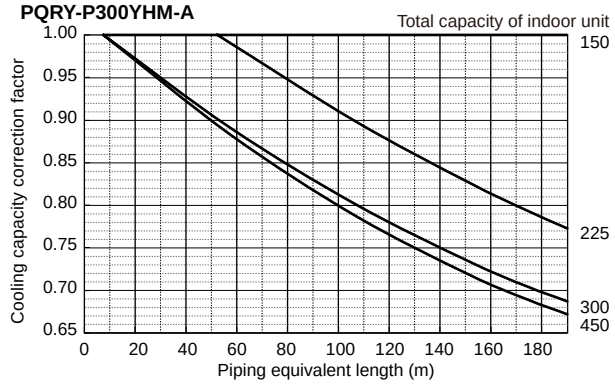
PQRY-P250YHM-A



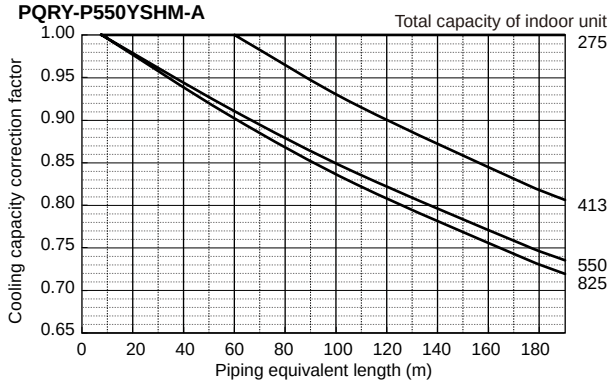
PQRY-P500YSHM-A



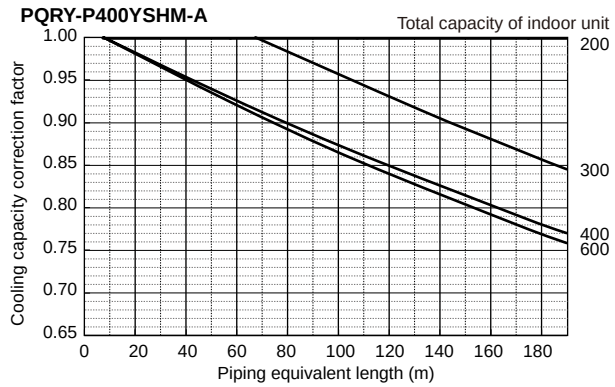
PQRY-P300YHM-A



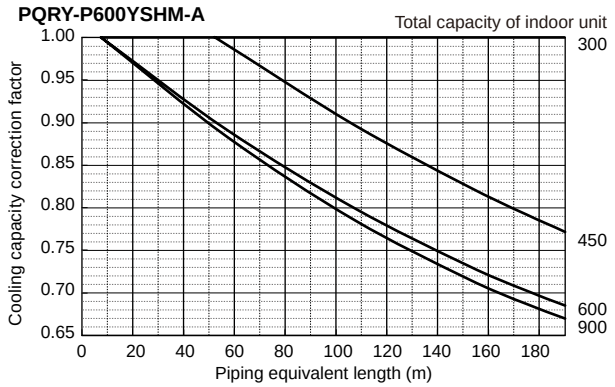
PQRY-P550YSHM-A



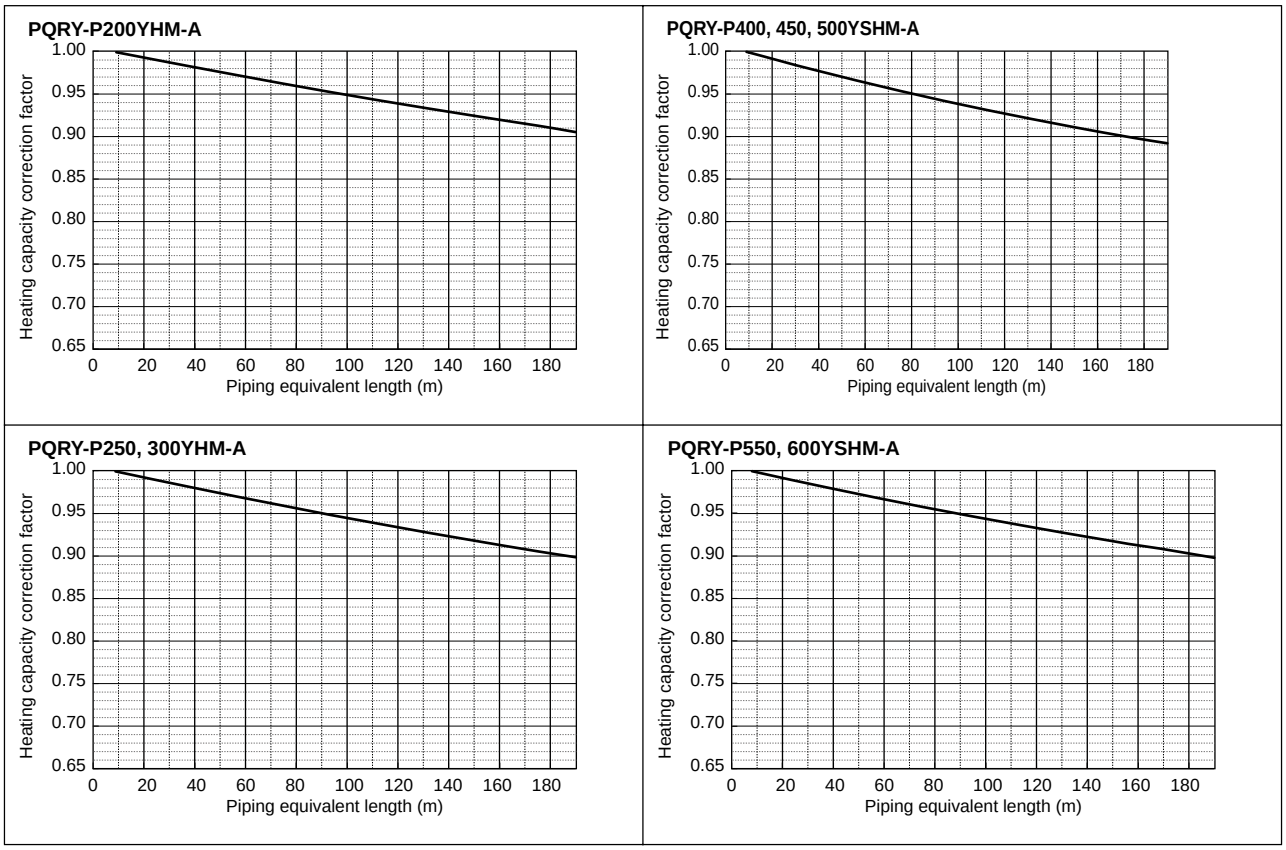
PQRY-P400YSHM-A



PQRY-P600YSHM-A



(2)-6-2 Heating capacity correction



(2)-6-3 How to obtain the equivalent piping length

1 **PQRY-P200YHM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m

2 **PQRY-P250, 300YHM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m

3 **PQRY-P400, 450, 500, 550, 600YSHM**
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bends in the piping) m

(2)-6-4 Correction by port counts of the BC controller

Indoor unit sizes P200 and P250 must be connected to 2 ports on the BC controller.
Indoor unit sizes from P100 to P140 should normally be connected to 2 ports on the BC controller (set BC controller DIP-SW 4-6 to its ON position).
In cases whereby indoor unit sizes from P100 to P140 are connected to only 1port on the BC controller (set BC controller DIP-SW 4-6 to its OFF position), the cooling capacity of the indoor unit should be multiplied by a correction factor of **0.97.**

(3) Correction at frosting and defrosting

Due to frosting at the outdoor heat exchanger and the automatical defrosting operation, the heating capacity of the outdoor unit should be considered by multiplying the correction factor which shown in the table below.

(3)-1 S series

Table of correction factor at frost and defrost

Outdoor inlet air temp. °C WB	6	4	2	1	0	-2	-4	-6	-8	-10	-15
Outdoor inlet air temp. °F WB	43	39	36	34	32	28	25	21	18	14	5
PUMY-P100VHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P125VHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P140VHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P100YHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P112YHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P125YHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95
PUMY-P140YHMB	1.00	0.98	0.86	0.85	0.89	0.90	0.95	0.95	0.95	0.95	0.95

(3)-2 Y series

Table of correction factor at frost and defrost

Outdoor inlet air temp. °C WB	6	4	2	1	0	-2	-4	-6	-8	-10	-20
Outdoor inlet air temp. °F WB	43	39	36	34	32	28	25	21	18	14	-4
PUHY-(E)P200YJM-A (-BS)	1.00	0.95	0.84	0.825	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PUHY-(E)P250YJM-A (-BS)	1.00	0.95	0.84	0.825	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PUHY-(E)P300YJM-A (-BS)	1.00	0.93	0.82	0.80	0.82	0.86	0.90	0.90	0.95	0.95	0.95
PUHY-P350YJM-A (-BS)	1.00	0.93	0.85	0.83	0.84	0.86	0.90	0.90	0.95	0.95	0.95
PUHY-(E)P400YJM-A (-BS)	1.00	0.95	0.90	0.87	0.88	0.89	0.90	0.95	0.95	0.95	0.95
PUHY-(E)P450YJM-A (-BS)	1.00	0.98	0.89	0.87	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PUHY-(E)P500YSJM-A(1) (-BS)	1.00	0.98	0.89	0.86	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PUHY-(E)P550YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-(E)P600YSJM-A(1) (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-(E)P650YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-(E)P700YSJM-A(1) (-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PUHY-(E)P750YSJM-A (-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PUHY-(E)P800YSJM-A(1) (-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PUHY-(E)P850YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-(E)P900YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P950YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1000YSJM-A (-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1050YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1100YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1150YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1200YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PUHY-P1250YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93

(3)-3 HP (ZUBADAN) series

Table of correction factor at frost and defrost

Outdoor inlet air temp. °C WB	6	4	2	1	0	-2	-4	-6	-8	-10	-25
Outdoor inlet air temp. °F WB	43	39	36	34	32	28	25	21	18	14	-13
PUHY-HP200,250,400,500Y(S)HM	1.00	0.95	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.92	0.95

(3)-4 R2 series

Table of correction factor at frost and defrost

Outdoor inlet air temp. °C WB	6	4	2	1	0	-2	-4	-6	-8	-10	-20
Outdoor inlet air temp. °F WB	43	39	36	34	32	28	25	21	18	14	-4
PURY-(E)P200YJM-A(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)P250YJM-A(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)P300YJM-A(-BS)	1.00	0.93	0.82	0.80	0.82	0.86	0.90	0.90	0.95	0.95	0.95
PURY-(E)P350YJM-A(-BS)	1.00	0.93	0.85	0.83	0.84	0.86	0.90	0.90	0.95	0.95	0.95
PURY-(E)P400Y(S)JM-A(1)(-BS)	1.00	0.95	0.90	0.87	0.88	0.89	0.90	0.95	0.95	0.95	0.95
PURY-(E)P450Y(S)JM-A(1)(-BS)	1.00	0.98	0.89	0.87	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-(E)P500YSJM-A(1)(-BS)	1.00	0.98	0.89	0.86	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-(E)P550YSJM-A(-BS)	1.00	0.94	0.87	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PURY-(E)P600YSJM-A(1)(-BS)	1.00	0.94	0.84	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PURY-(E)P650YSJM-A(-BS)	1.00	0.94	0.84	0.86	0.87	0.88	0.90	0.90	0.93	0.93	0.93
PURY-(E)P700YSJM-A(1)(-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-P750YSJM-A(-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-P800YSJM-A(1)(-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-P850YSJM-A(-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-P900YSJM-A(-BS)	1.00	0.98	0.89	0.88	0.89	0.90	0.92	0.95	0.95	0.95	0.95

DATA BOOK PWFY-P100VM-E-BU
PWFY-P100VM-E1-AU
PWFY-P200VM-E1-AU

for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

⚠Warning

■Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.

- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
- It may also be in violation of applicable laws.
- MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.

MITSUBISHI ELECTRIC CORPORATION

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