

WATER-SOURCE VRFZ SYSTEMS

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WR2-SERIES

CITY MULTI® WATER-SOURCE VRFZ SYSTEMS

WR2-SERIES

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PQRY-P-TGMU-A	P72	P96
	8HP	10HP
Nominal Cooling Capacity *1 BTU/h	72,000	96,000
Nominal Heating Capacity *2 BTU/h	85,000	107,000
WR2-Series Heat Recovery	●	●

Refer to the Specifications Table for nominal cooling (*1) and nominal heating (*2) conditions.

1. SPECIFICATIONS

DATA U3

Model			PQRY-P72TGMU-A		PQRY-P96TGMU-A	
Power Source			3-phase, 3-wire 208-230V 60Hz			
Cooling Capacity (Nominal)	*1	BTU/h	72,000		96,000	
	*1	kW	21.1		28.1	
	Power Input	kW	5.25		6.95	
	Current Input (208-230)	A	16.19 - 14.64		21.43 - 19.38	
Temp. Range of Cooling	Indoor		59 to 75 degFW.B. (15 to 24 degCW.B.)			
	Circulating Water		50 to 113 degF (10 to 45 degC)			
Heating Capacity (Nominal)	*2	BTU/h	85,000		107,000	
	*2	kW	24.9		31.4	
	Power Input	kW	5.44		6.84	
	Current Input	A	16.77 - 15.17		21.09 - 19.07	
Temp. Range of Heating	Indoor		59 to 81 degFD.B. (15 to 27 degCD.B.)			
	Circulating Water		50 to 113 degF (10 to 45 degC) 59 to 113 degF (15 to 45 degC) when total indoor unit capacity exceeds 130% of the heat source unit			
Indoor Unit Connectable	Total Capacity		50-150% of water-source unit capacity		50-150% of water-source unit capacity	
	Model / Quantity		P06-P96 / 1-15		P06-96 / 1-19	
Sound Level (Measured in an Anechoic Room)		dB <A>	46		47	
Diameter of Refrigerant Pipe (O.D.)	Liquid (High Pressure)		in. (mm)		5/8 (15.88 Brazed) 3/4 (19.05) Brazed	
	Gas (Low Pressure)		in. (mm)		3/4 (19.05) Brazed 7/8 (22.2) Brazed	
External Finish			Hot-dip Galvanized-steel Sheets			
External Dimension H x W x D		in.	70-7/8 x 39 x 21-11/16		70-7/8 x 39 x 21-11/16	
		mm	1,800 x 990 x 550		1,800 x 990 x 550	
Net Weight		lbs (kg)	567 (257)		574 (260)	
Heat Exchanger			Tube-in-Tube Coil		Tube-in-Tube Coil	
	Water Volume in Coil	G	2.51		2.77	
		L	9.5		10.5	
	Water Pressure Max.	psi	145		145	
MPa		1.0		1.0		
Compressor	Type		Inverter Scroll Hermetic Comp.		Inverter Scroll Hermetic Comp.	
	Manufacturer		AC&R Works, MITSUBISHI ELECTRIC CORPORATION			
	Starting Method		Inverter		Inverter	
	Motor Output	kW	5.0		6.0	
	Case Heater	kW	0.057 (230V)		0.057 (230V)	
	Lubricant		MEL32		MEL32	
Circulating Water	Water Flow Rate	G/min	20		25	
		L/s	1.3		1.6	
	Pressure Drop	ft	4.6		6.9	
		psi	2		3	
	Operation Volume Range	G/h	1,030-1,795		1,188-1,901	
		G/min	17.2-29.9		19.8-31.7	
		m³/h	3.9-6.8		4.5-7.2	
HIC Circuit (HIC: Heat Inter-Changer)			—			
Protection	High-pressure Protection		High-pressure Sensor, High-pressure Switch 601 psi (4.15 MPa)			
	Inverter Circuit (COMP.)		Overcurrent Protection, Overheat protection			
	Compressor		Overcurrent Protection, Overheat protection			
Refrigerant	Type x Original Charge	lbs + oz (kg)	R410A x 16 lbs + 9 oz (7.5kg)		R410A x 18 lbs + 12 oz (8.5kg)	
	Control		Indoor LEV and BC Controller			
Drawing	External		W663170			
	Wiring		W274673			
	Refrigerant Circuit		—			
Standard Attachment	Document Accessory		Installation Manual			
Optional Parts			Joint: CMY-Y102S-G2, CMY-Y102L-G2, CMY-R160J BC Controller: CMB-P105, 106, 108, 1010, 1013, 1016-G Main BC Controller: CMB-P108, 1010, 1013, 1016-GA Sub BC Controller: CMB-P104, 108V-GB			
Remark			For details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items, see the Installation Manual. For details on the electrical data needed for installing these units, see the System Design section, page SD-6.			

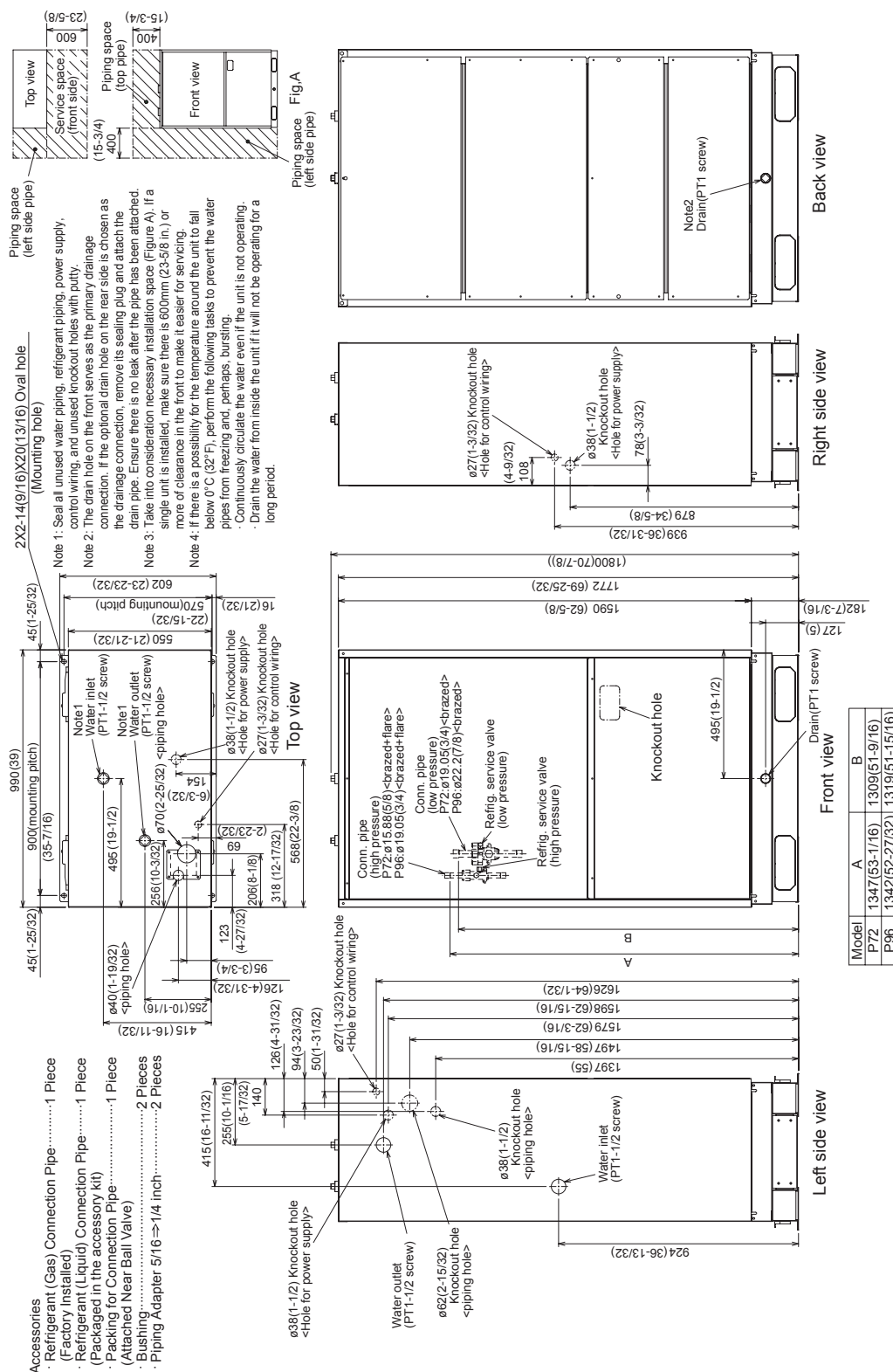
Note:	*1 Nominal Cooling Conditions	*2 Nominal Heating Conditions	Unit Converter
	Indoor: 80degF D.B. / 67degF W.B. (26.7degC D.B. / 19.4degC W.B.)	70degF D.B. (21.1degC D.B.)	kcal/h = kW x 860
	Water Temperature: 85degF (29.4degC)	70degF (21.1degC)	BTU/h = kW x 3,412
	Pipe Length: 25 ft. (7.6 m)	25 ft. (7.6 m)	cfm = m³/min x 35.31
	Level Difference: 0 ft. (0 m)	0 ft. (0 m)	lbs = kg / 0.4536
			psi = MPa x 145.038
			G (us) L x 0.2642

* Due to continuing improvements, above specifications may be subject to change without notice.

* Above specification data is subject to rounding variation.

Ref.: Spec_PQRY-P72-96TGMU

WR2-SERIES



PQRY-P72,96TGMU-A

Drw.: PQRY-TGMU_W274673

Definition of Symbols

Symbol	Name
ACCT	AC Current Sensor
DOCT	DC Current Sensor
DOL	DC reactor (Power factor improvement)
52C	Magnetic contactor (Inverter main circuit)
MF1	Fan motor (Radiator panel)
CHT1	Crank case heater (Compressor)
2TS4a	4-way valve
SV1	Solenoid valve (Discharge-suction bypass)
SV4a,b,c,d	Solenoid valve (Heat exchanger capacity control)
SV7a,b,c	Solenoid valve (Heat exchanger capacity control)
LEV1	Electronic expansion valve (Sub-cool coil bypass)
LEV2	Electronic expansion valve (Heat exchanger for inverter)
TH11	Discharge pipe temp. detect
TH5	Pipe temp. detect
TH6	Water temp. detect
TH7	Liquid outlet temp. detect
TH8	Sub-cool coil bypass outlet temp. detect
TH9	Sub-cool coil bypass inlet temp. detect
TH10	Freeze prevention sensor
THHS1	Outlet temp. detect of heat exchanger for inverter
63H	High pressure switch
63HS	High pressure sensor
63LS	Low pressure sensor
L1,L2	Choke coil (Transmission)
Z20	Function device
⊕	Ground terminal

< Difference of appliance >

Model name	Cross X not exist
PQRY-P72/P96TGMU-A	×
PQRY-P72/P96TGMU-A	○

*1: Function according to switch operation.

(SW4-7, CN3D 1-2P and CN3D 1-3P, SW3-3, CN51 3-5P)

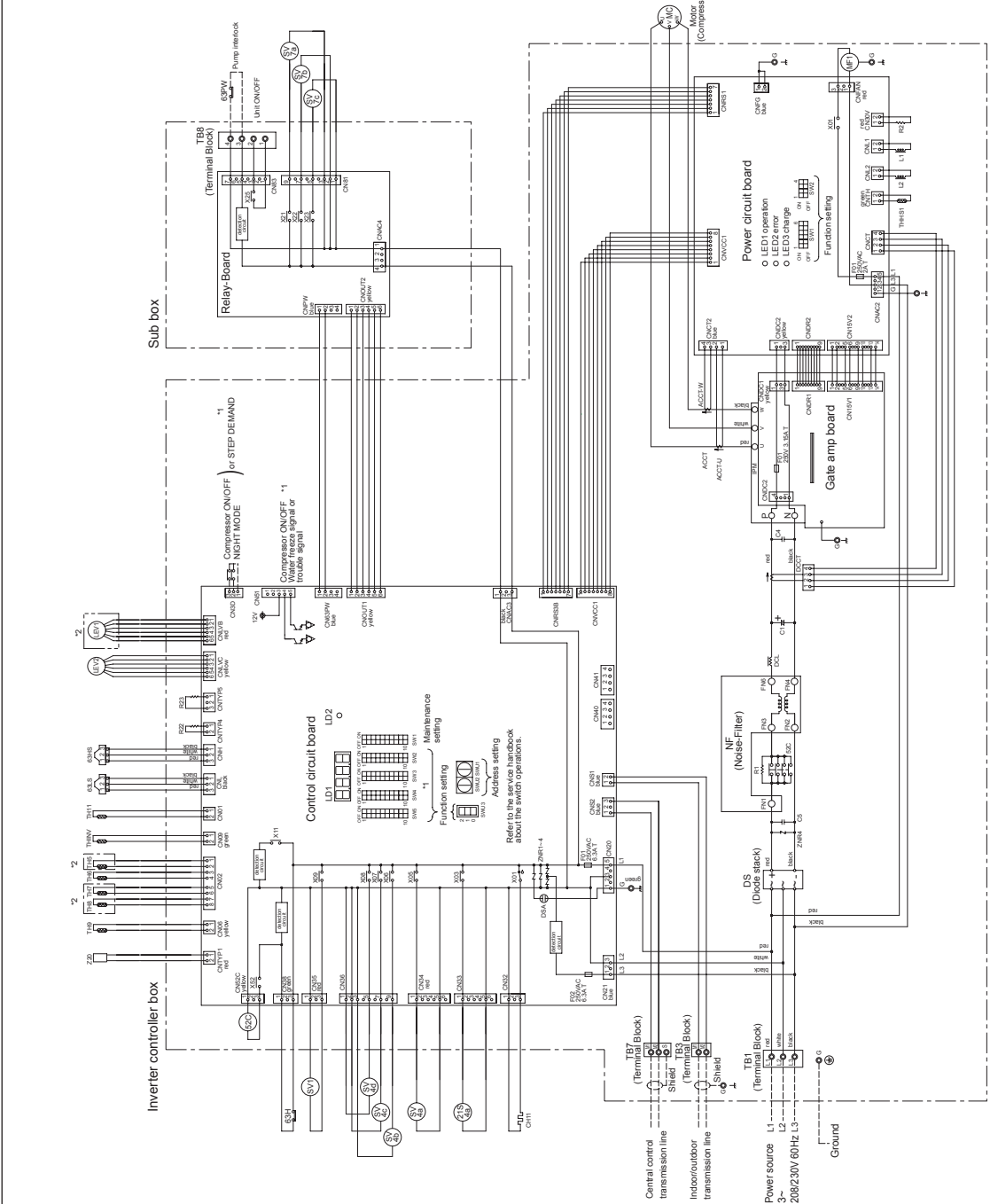
SW4-7 OFF (Compressor ON/OFF and NIGHT MODE)

CN3D 1-3P	Compressor ON/OFF	CN3D 1-3P	NIGHT MODE
OPEN	ON	OPEN	ON
SHORT	OFF	SHORT	OFF

SW4-7 ON (STEP DEMAND)	CN3D 1-2P	OPEN	SHORT
CN3D 1-3P	OPEN	100%	75%
	SHORT	0%	50%

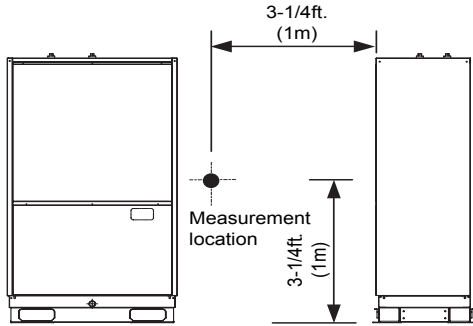
SW3-3	CN51 3-5P
ON	water freeze signal
OFF	trouble signal

NOTE: The dash lines indicate field wiring.



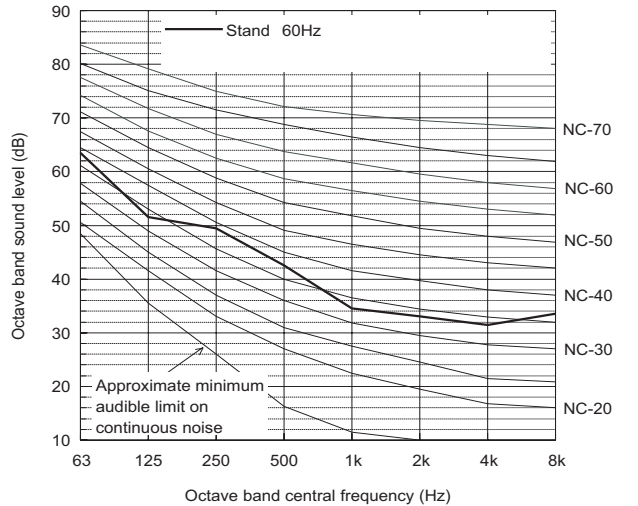
WR2-SERIES

Measurement condition
PQRY-P72,96TGMU-A



PQRY-P72TGMU-A
Sound Pressure Levels

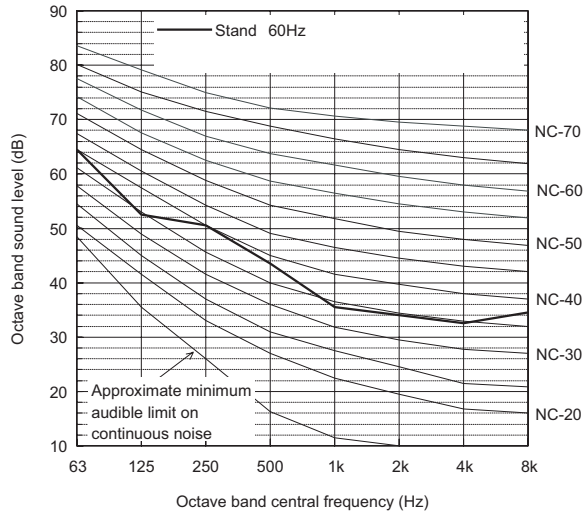
Ref.:NC_PQRY-P72_WYNB0-5256



	63	125	250	500	1k	2k	4k	8k	dB(A)
Standard 60Hz	63.5	51.5	49.5	42.5	34.5	33.0	31.5	33.5	46.0

PQRY-P96TGMU-A
Sound Pressure Levels

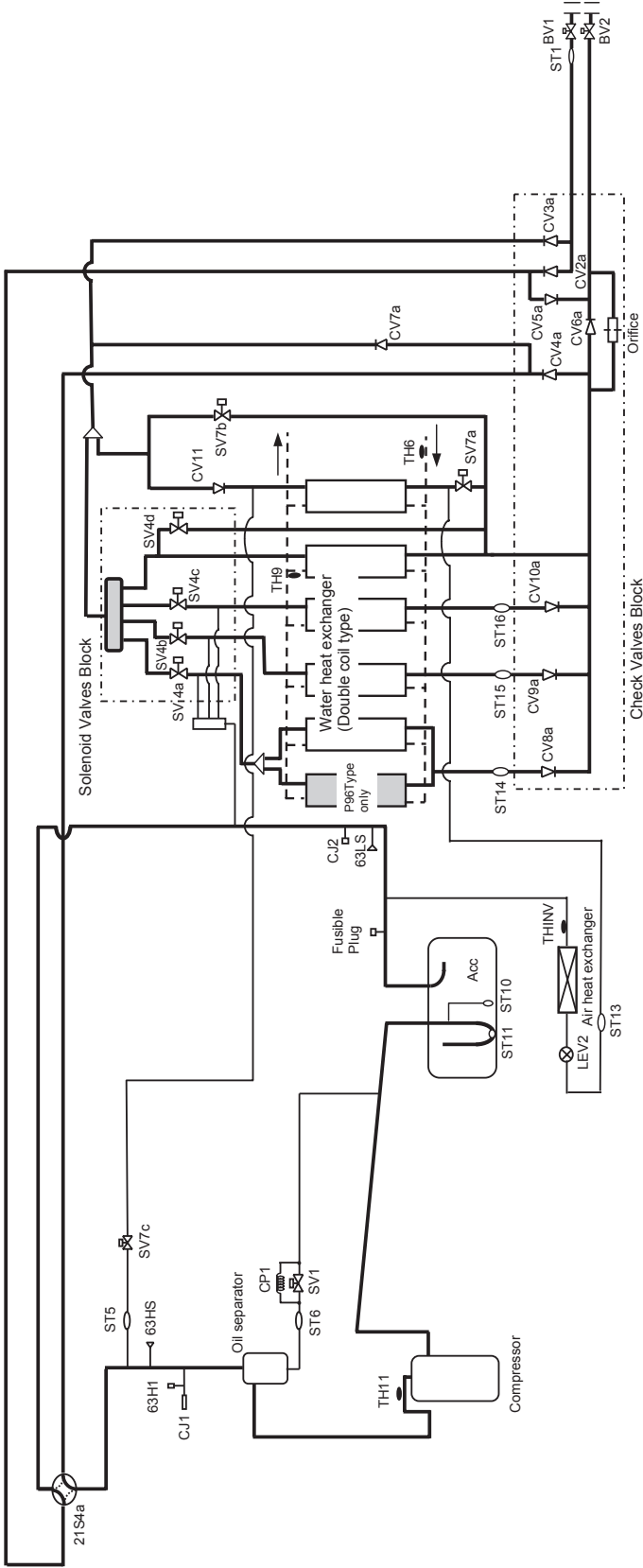
Ref.:NC_PQRY-P96_WYNB0-5257



	63	125	250	500	1k	2k	4k	8k	dB(A)
Standard 60Hz	64.5	52.5	50.5	43.5	35.5	34.0	32.5	34.5	47.0

PQRY-P72,96TGMU-A

Drw. : RC_PQRY-P72-96TGMU

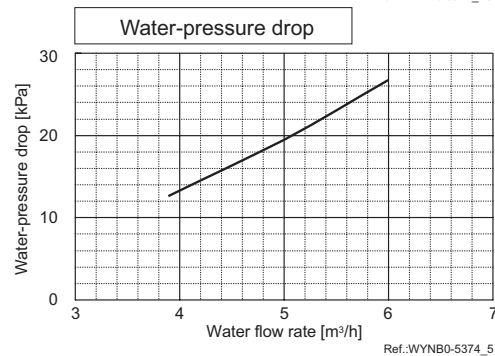
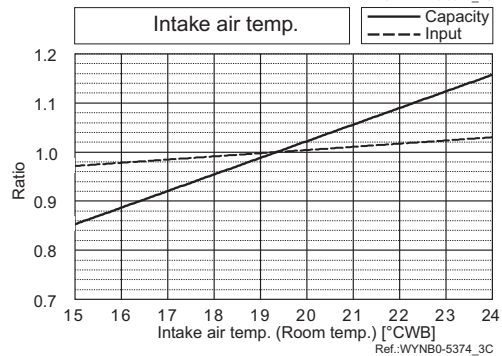
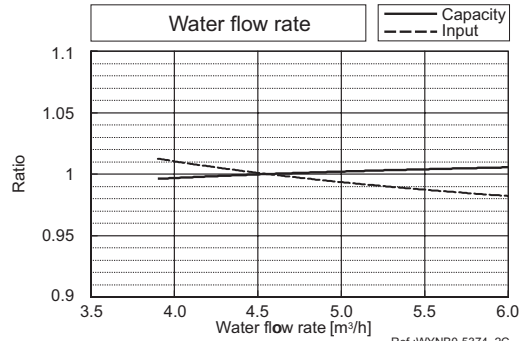
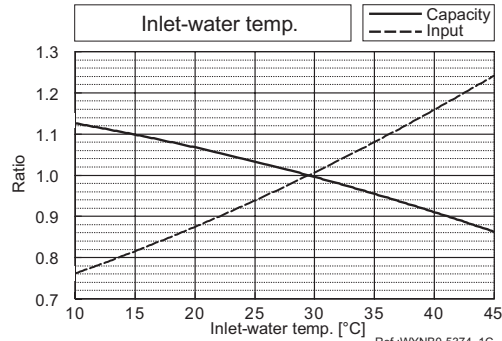


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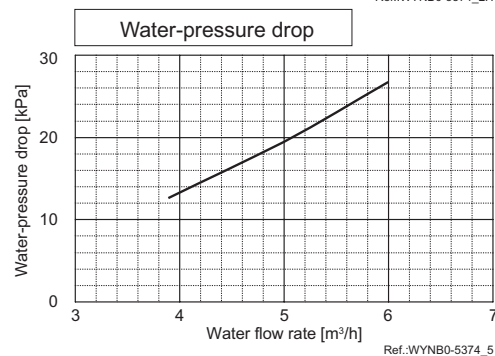
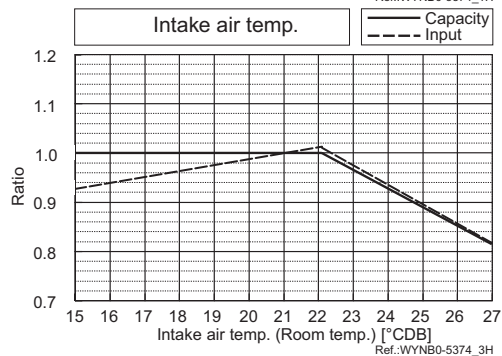
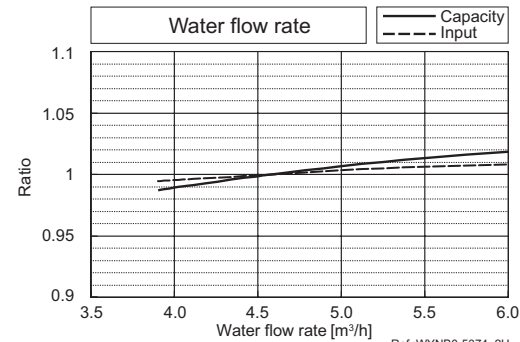
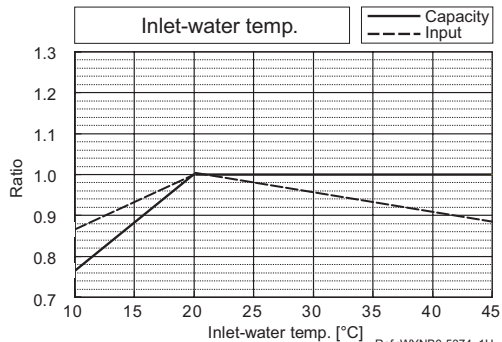
6-1. Correction by Temperature

CITY MULTI® systems could have various capacities at different temperatures. Using the nominal cooling/heating capacity values and ratios below, the capacity can be found for different temperatures.

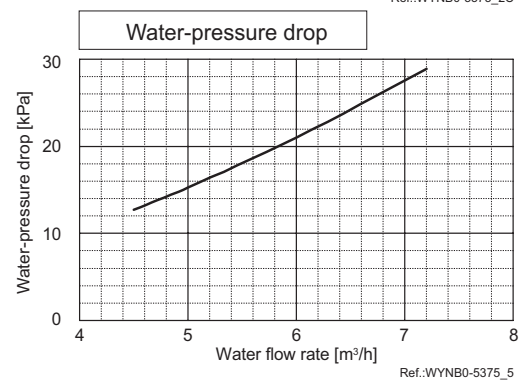
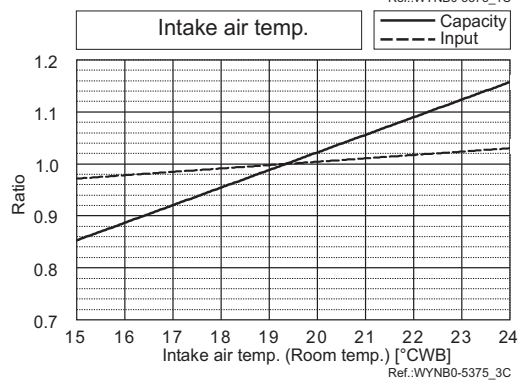
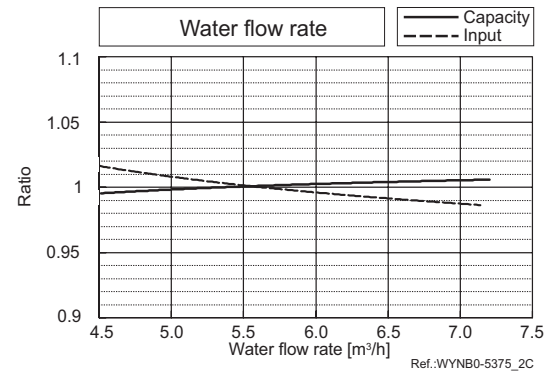
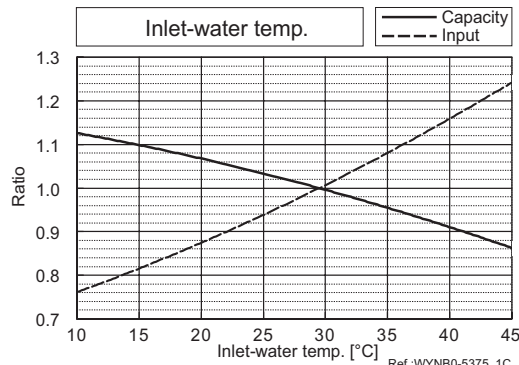
Nominal Cooling Capacity and Input for PQRY-P72TGMU		
Nominal Cooling Capacity	kW	21.1
	BTU/h	72,000
Input	kW	5.25



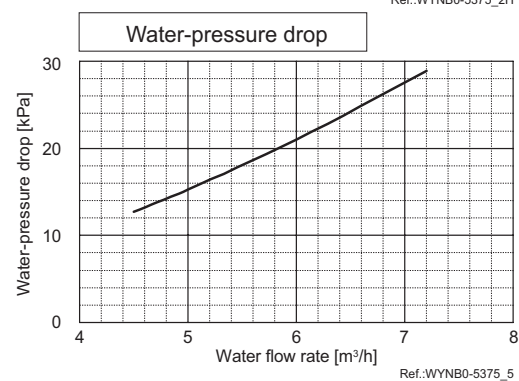
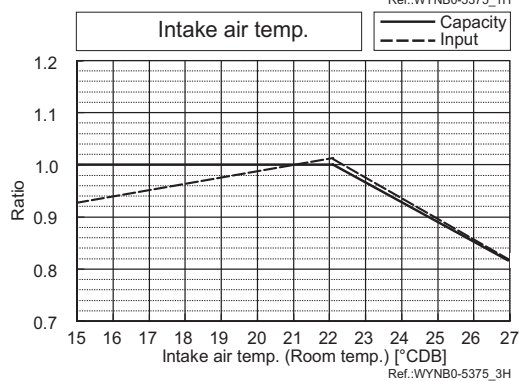
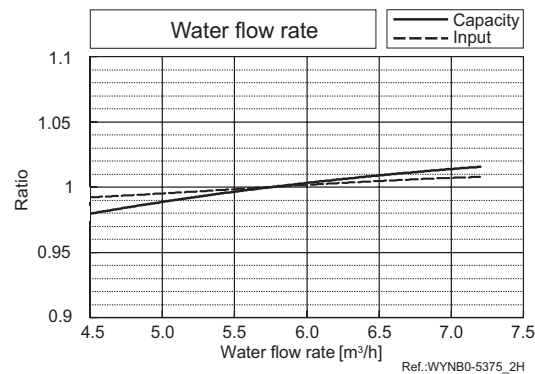
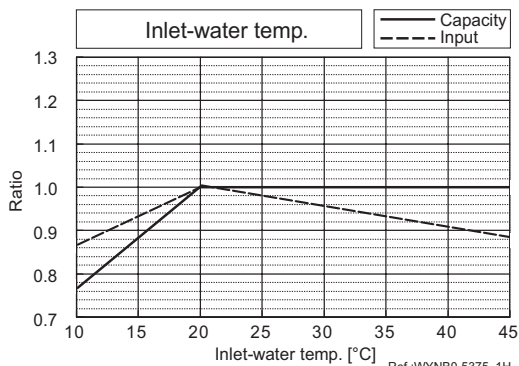
Nominal Heating Capacity and Input for PQRY-P72TGMU		
Nominal Heating Capacity	kW	24.9
	BTU/h	85,000
Input	kW	5.44



Nominal Cooling Capacity and Input for PQRY-P96TGMU		
Nominal Cooling Capacity	kW	28.1
	BTU/h	96,000
Input	kW	6.95

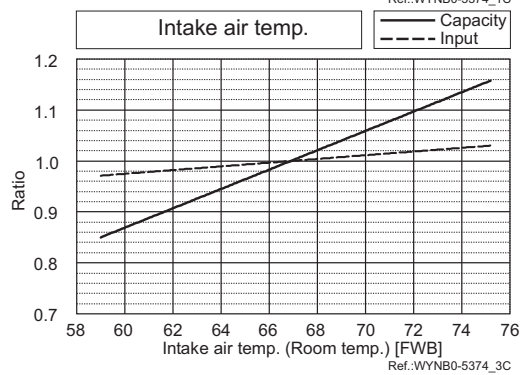
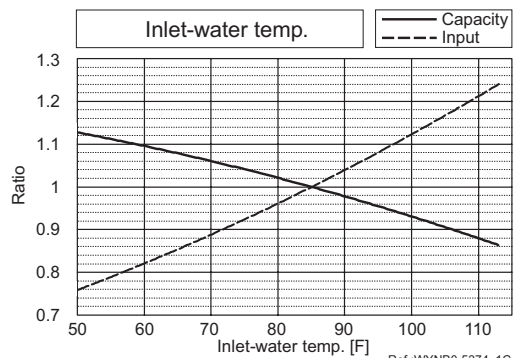


Nominal Heating Capacity and Input for PQRY-P96TGMU		
Nominal Heating Capacity	kW	31.4
	BTU/h	107,000
Input	kW	6.84

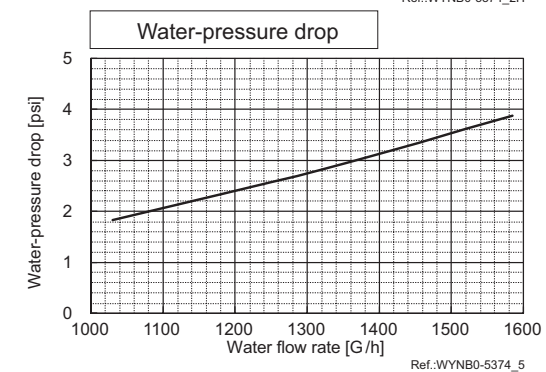
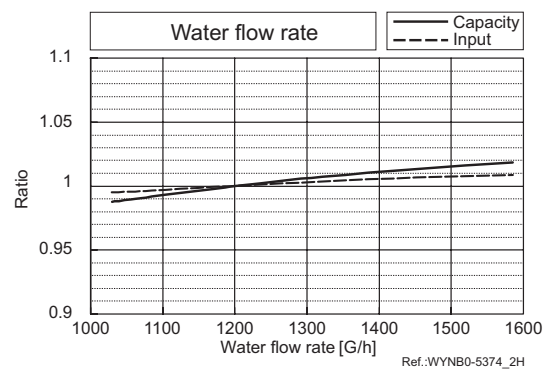
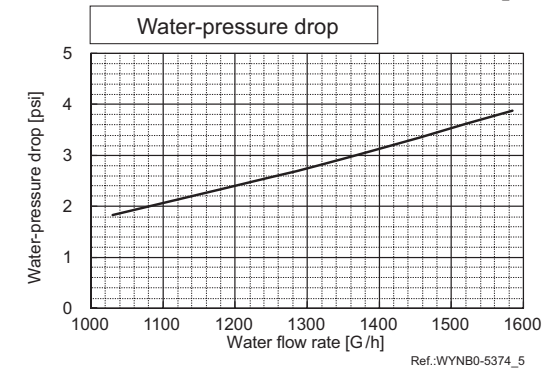
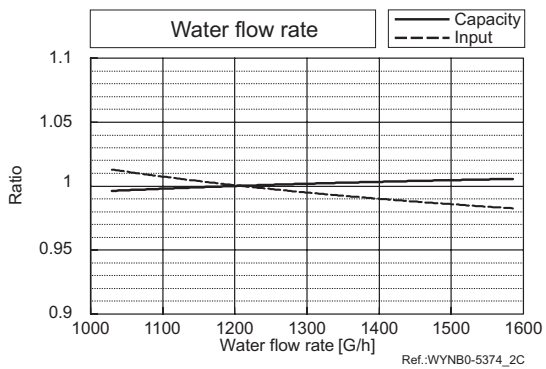
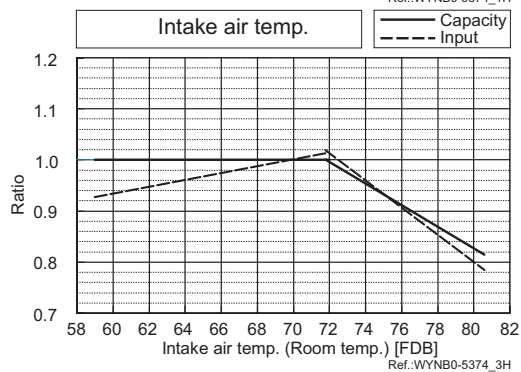
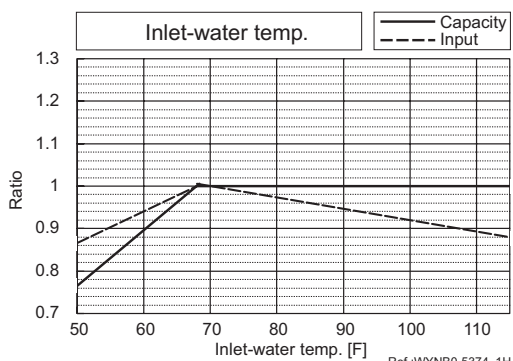


Nominal Cooling Capacity and Input for PQRY-P72TGMU

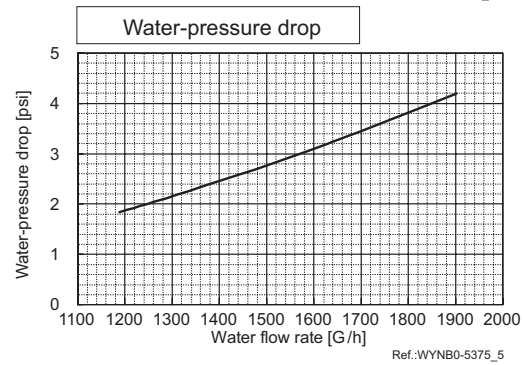
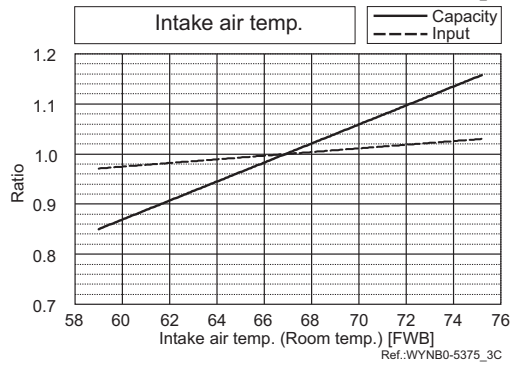
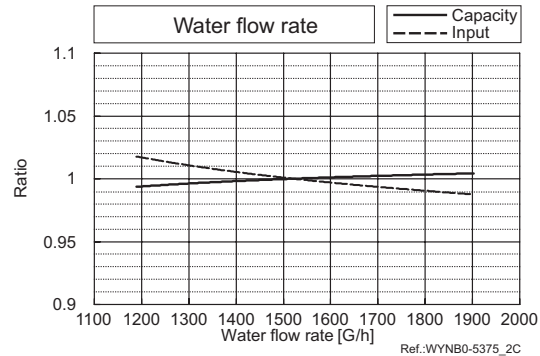
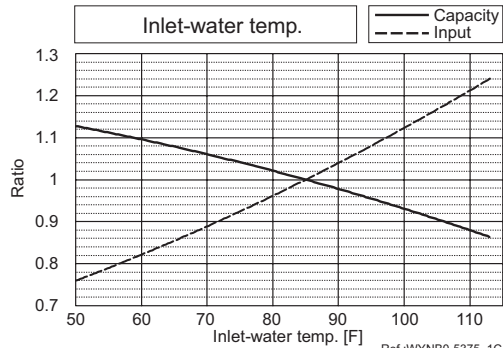
Nominal Cooling Capacity	kW	21.1
	BTU/h	72,000
Input	kW	5.25

**Nominal Heating Capacity and Input for PQRY-P72TGMU**

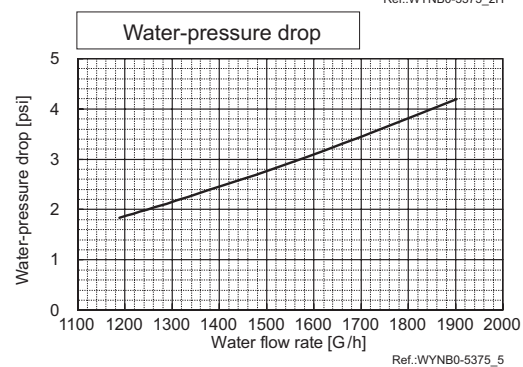
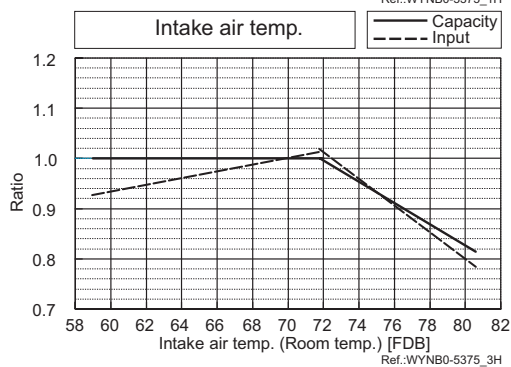
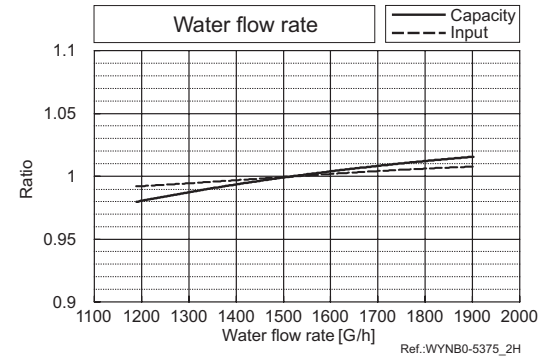
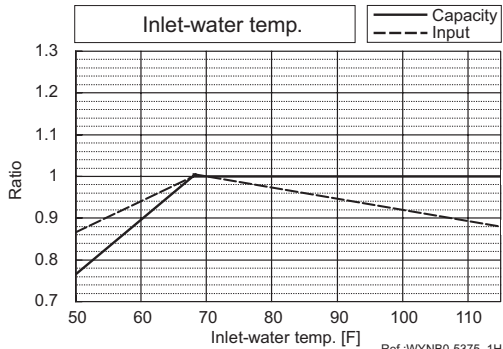
Nominal Heating Capacity	kW	24.9
	BTU/h	85,000
Input	kW	5.44



Nominal Cooling Capacity and Input for PQRV-P96TGMU		
Nominal Cooling Capacity	kW	28.1
	BTU/h	96,000
Input	kW	6.95



Nominal Heating Capacity and Input for PQRV-P96TGMU		
Nominal Heating Capacity	kW	31.4
	BTU/h	107,000
Input	kW	6.84



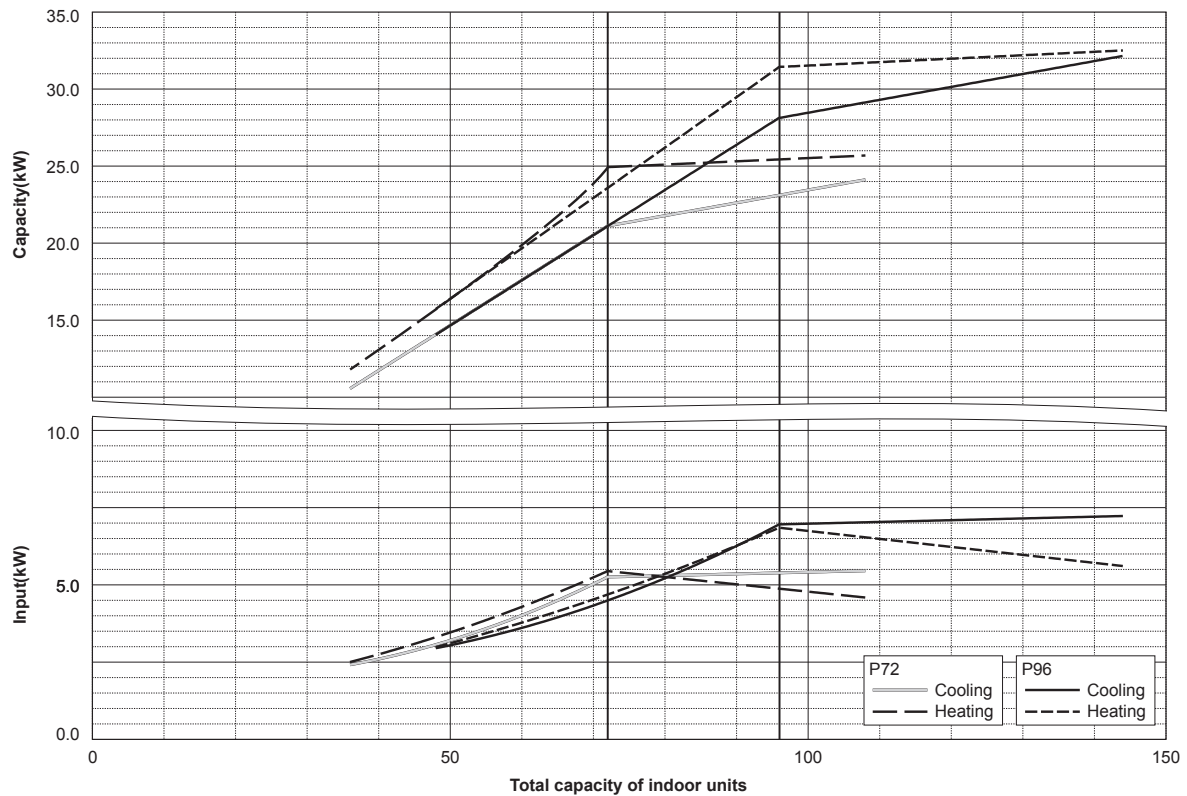
6. CAPACITY TABLES

DATA U3

6-2. Correction by Total Indoor

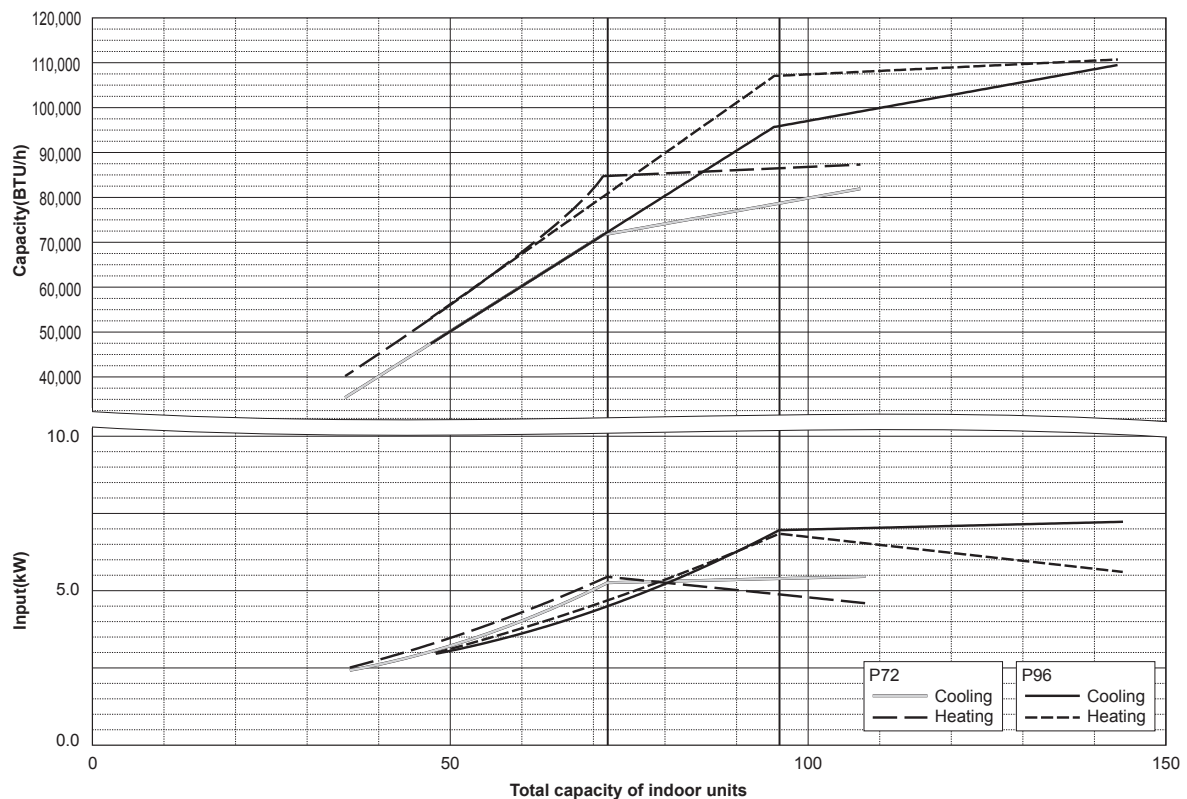
CITY MULTI® systems have different capacities and inputs when many combinations of indoor units with different total capacities are connected. Using the following tables, the maximum capacity can be found to ensure a system is installed with enough capacity for a particular application.

PQRY-P72,96TGMU



Ref. CbT1_PQRY-P72-96TGMU

PQRY-P72,96TGMU

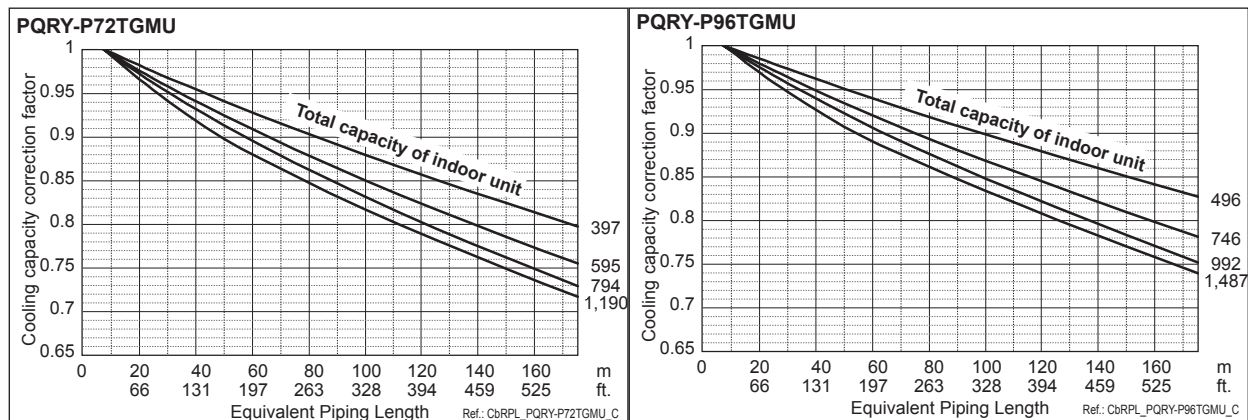


Ref. CbT1_PQRY-P72-96TGMU

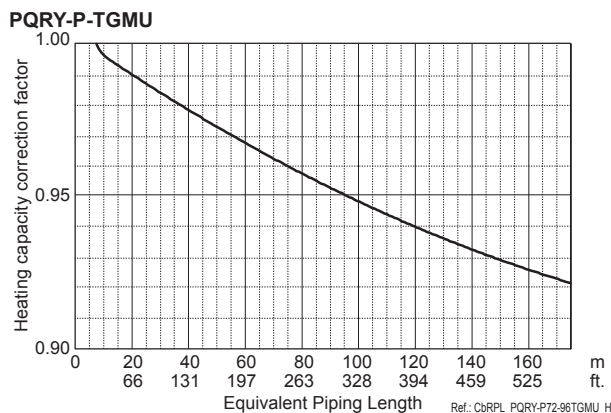
6-3. Correction by Refrigerant Piping Length

CITY MULTI® systems can have extended piping lengths if certain limitations are followed, but cooling/heating capacity could be reduced. Using the following correction factor by equivalent piping length shown at 6-3-1 and 6-3-2, capacity can be found. 6-3-3 shows how to obtain the equivalent piping length.

6-3-1. Cooling Capacity Correction



6-3-2. Heating Capacity Correction



6-3-3. How to Obtain the Equivalent Piping Length

1 PQRYP, PQRYP72TGMU

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bends in the piping) m
+ (1.15 x number of bends in the piping) ft.

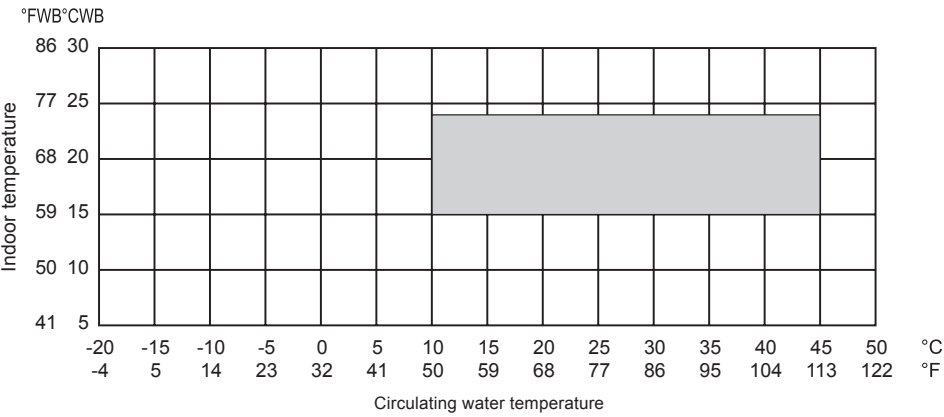
2 PQRYP, PQRYP96TGMU

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bends in the piping) m
+ (1.38 x number of bends in the piping) ft.

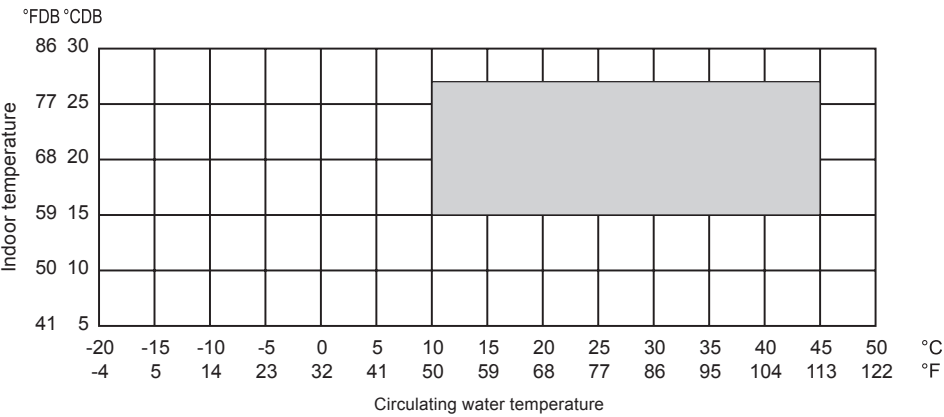
Ref.: EPL_TGMU

6-4. Operation Temperature Range

• Cooling



• Heating



59 to 113 degF (15 to 45degC) when total indoor unit capacity exceeds 130% of the PQRY system.

Ref.: tr-ygm-w

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