CITY MULTI OUTDOOR UNIT

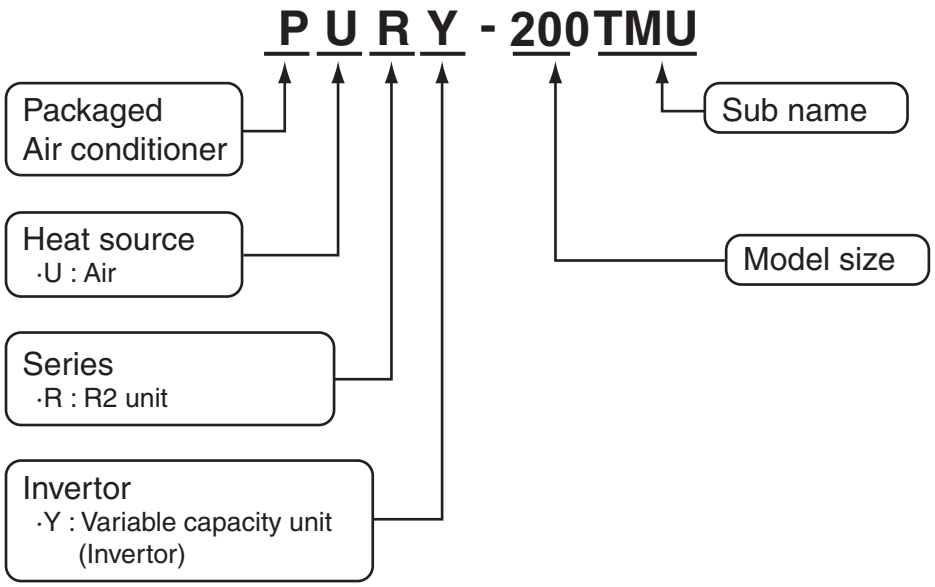
CONTENTS

Introduction

CITY MULTI OUTDOOR UNITS

Refrigerant	Series	Model Name	200 (8HP)	250 (10HP)
R22	R2 series	PURY-TMU	●	●

Meaning of model name



PURY-200TMU, PURY-250TMU

CONTENTS

1. Specifications

1-1. Outdoor unit specifications

R2

Model name			PURY-200TMU	
			Cooling	Heating
Capacity ✻1		kW	22.4	25.0
		BTU/h	76,400	85,300
Power source			3～208/230V 60Hz	
Fan	Type ×Quantity		Propeller fan ×1	
	Airflow rate CFM	m^3/min(cfm)	185(6,533)	
	Motor output	kW	0.38	
Compressor	Type		Hermetic	
	Motor output	kW	5.5	
	Crankcase heater	kW	0.057(230V)	
Refrigerant / Lubricant			R22/MS32(N-1)	
External finish			Steel plate painting with polyester powder <MUNSELL 5Y8/1 or similar>	
External dimension		mm	1,715(H)×990(W)×840(L)	
		in	$67^1/_2$ (H)×39(W)×$33^1/_{16}$ (L)	
Protection devices	High pressure protection	MPa(psi)	2.94(426)	
	Compressor / Fan		Over current protection / Thermal switch	
	Inverter		DC bus current protection, thermal switch	
Refrigerant piping diameter		High press. / Low press.	ϕ19.05($^3/_4$")flare / ϕ25.4(1")flange	
Indoor unit	Total capacity		50～150% of outdoor unit capacity	
	Model / Quantity		Model 08～48/ 2～15	
Noise level ✻2		dB<A>	56	
Net weight		kg(lb)	225(498)	
Operating temperature range˚C(˚F)			Indoor:15(59)WB ~ 24(75)WB Outdoor:-5(23)DB ~ 43(109)DB	Indoor:15(59)DB ~ 27(80)DB Outdoor:-15(5)WB ~ 15.5(59)WB
			✻-5(23)DB/-6(22)WB ~ 21(69)DB/15.5(59)WB with cooling/heatingmixed operation.	

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

✻1 **Cooling** Indoor : 26.7˚C(80˚F)DB/19.4˚C(67˚F)WB Outdoor : 35˚C(95˚F)DB
Heating Indoor : 21.1˚C(70˚F)DB Outdoor : 8.3˚C(47˚F)DB/6.1˚CWB(43˚F)
Pipe length : 7.6m(25Ft) Height difference : 0m

✻2 It is measured in anechoic room.

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

Model name			PURY-250TMU	
			Cooling	Heating
Capacity ✻1		kW	28.0	31.5
		BTU/h	95,500	107,500
Power source			3 ~ 208/230V 60Hz	
Fan	Type× Quantity		Propeller fan× 1	
	Airflow rate CFM	m^3/min(cfm)	185(6,533)	
	Motor output	kW	0.38	
Compressor	Type		Hermetic	
	Motor output	kW	7.5	
	Crankcase heater	kW	0.062(240V)	
Refrigerant / Lubricant			R22/MS32(N-1)	
External finish			Steel plate painting with polyester powder <MUNSELL 5Y8/1 or similar>	
External dimension		mm	1,715(H)×990(W)×840(L)	
		in	$67^1/_2$(H)×39(W)×$33^1/_{16}$(L)	
Protection devices	High pressure protection	MPa(psi)	2.94(426)	
	Compressor / Fan		Over current protection / Thermal switch	
	Inverter		DC bus current protection, thermal switch	
Refrigerant piping diameter		High press. / Low press.	φ19.05($^3/_4$")flare / φ28.58(1-$^1/_8$")flange	
Indoor unit	Total capacity		50 ~ 150% of outdoor unit capacity	
	Model / Quantity		Model 80 ~ 11 / 08 ~ 48/2-16	
Noise level ✻2		dB<A>	57	
Net weight		kg(lb)	240(530)	
Operating temperature range˚C(˚F)			Indoor:15(59)WB ~ 24(75)WB Outdoor:-5(23)DB ~ 43(109)DB	Indoor:15(59)DB ~ 27(80)DB Outdoor:-15(5)WB ~ 15.5(59)WB
			✻-5(23)DB/-6(22)WB ~ 21(69)DB/15.5(59)WB with cooling/heatingmixed operation.	

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

✻1 **Cooling** Indoor : 26.7˚C(80˚F)DB/19.4˚C(67˚F)WB Outdoor : 35˚C(95˚F)DB
Heating Indoor : 21.1˚C(70˚F)DB Outdoor : 8.3˚C(47˚F)DB/6.1˚CWB(43˚F)
Pipe length : 7.6m(25Ft) Height difference : 0m

✻2 It is measured in anechoic room.

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

1-2. Recommended system specifications

System	Outdoor unit	PURY-200TMU		
Capacity ✻1		Cooling	Heating	Low ambient temp.heating
	kW	22.4	25	17.8
	BTU/h	76,400	85,300	60,700
Total power input	kW	8.3	8.3	8.68
Total current	A	25.5/23.1	25.5/23.1	26.7/24.2
Cooling EER		9.2	-	-
Heating COP		-	3.01	2.05

System	Outdoor unit	PURY-250TMU		
Capacity ✻1		Cooling	Heating	Low ambient temp.heating
	kW	28	31.5	20.9
	BTU/h	95,500	107,500	71,300
Total power input	kW	10.72	10.4	10.2
Total current	A	33.0/29.8	32.0/29.0	31.4/28.4
Cooling EER		8.9	-	-
Heating COP		-	3.02	2.04

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

✻1 **Cooling** Indoor : 26.7˚C(80˚F)DB/19.4˚C(67˚F)WB Outdoor : 35˚C(95˚F)DB

Heating Indoor : 21.1˚C(70˚F)DB Outdoor : 8.3˚C(47˚F)DB/6.1˚C(43˚F)WB

Low ambient temp.heating Indoor : 21.1˚C(70˚F)DB Outdoor : -8.3˚C(17˚F)DB/-9.4˚C(15˚F)WB

2. Capacity tables

2-1. Correction by temperature

Cooling

• Standard Specifications

		PURY-200TMU	PURY-250TMU
Capacity	kW	22.4	28.0
	BTU/h	76,400	95,500
Input	kW	8.90	11.42
Source	V	208~230V	
Current	A	27.4/24.8	35.2/31.8

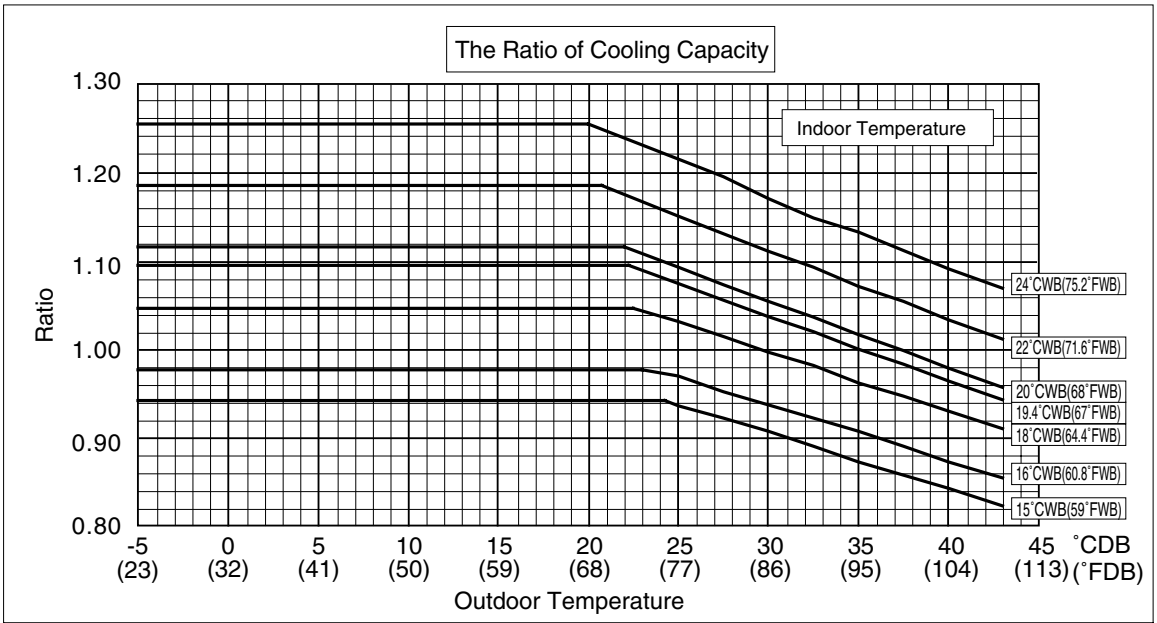
• Calculation

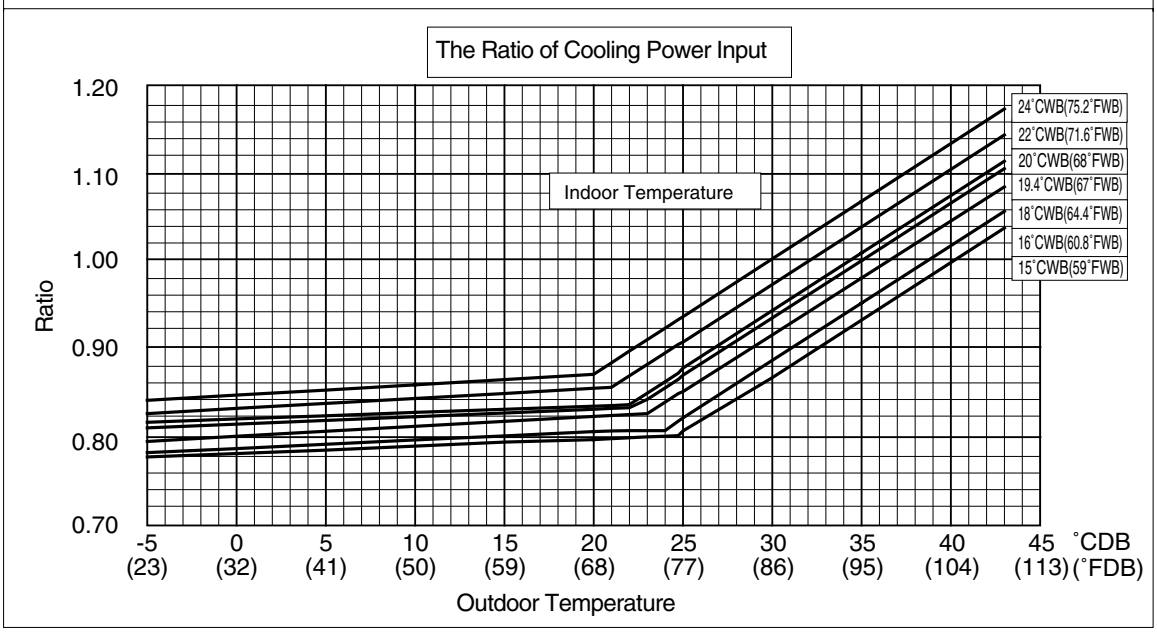
$$\text{Capacity}' = \text{Capacity} \times \text{Ratio}$$

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

$$\text{Current}' = \frac{\text{Input}' \times 1000}{\sqrt{3} \times \text{Source} \times 0.90}$$

※ Capacity', Input', Current' } After correction





R2

Heating

• Standard Specifications

		PURY-200TMU	PURY-250TMU
Capacity	kW	25.0	31.5
	BTU/h	85,300	107,500
Input	kW	8.94	11.15
Source	V	208~230V	
Current	A	27.5/24.9	35.6/32.2

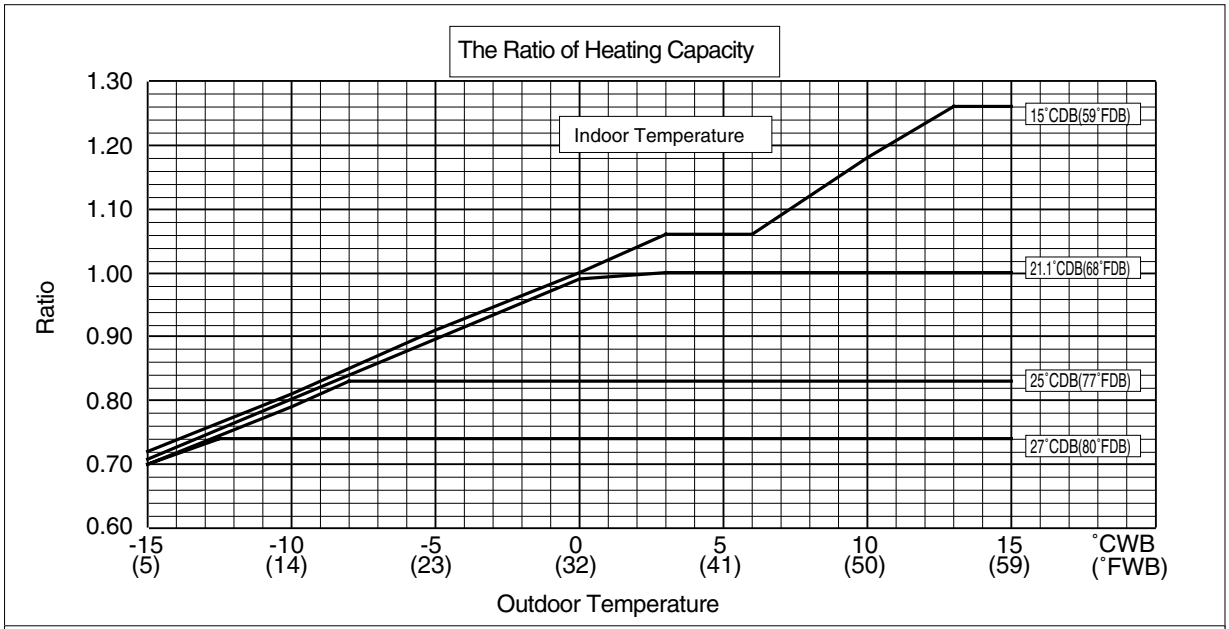
• Calculation

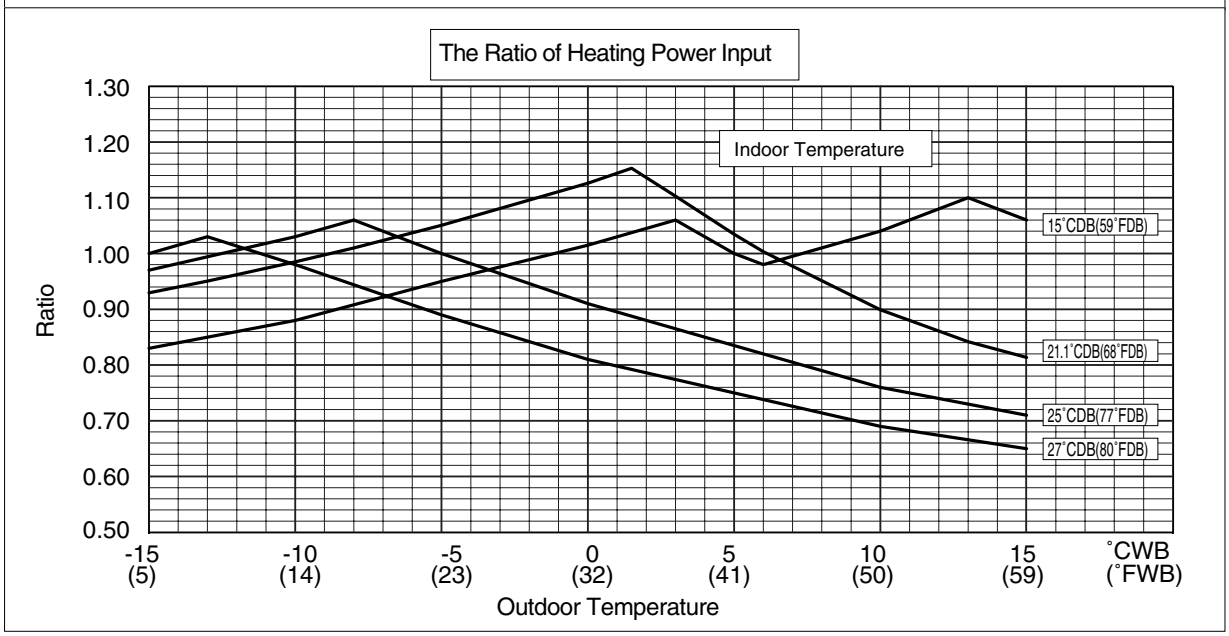
$$\text{Capacity}' = \text{Capacity} \times \text{Ratio}$$

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

$$\text{Current}' = \frac{\text{Input}' \times 1000}{\sqrt{3} \times \text{Source} \times 0.90}$$

※Capacity'
Input'
Current'
} After correction

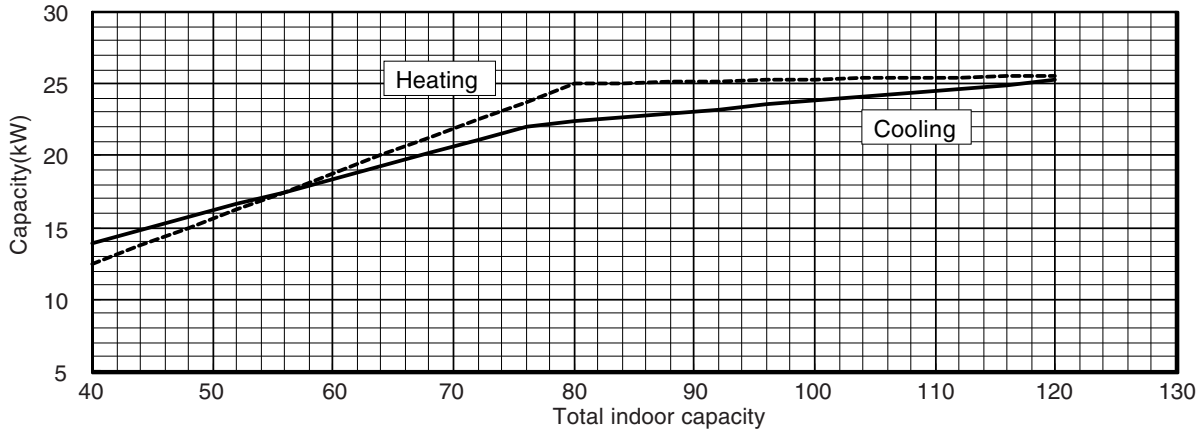


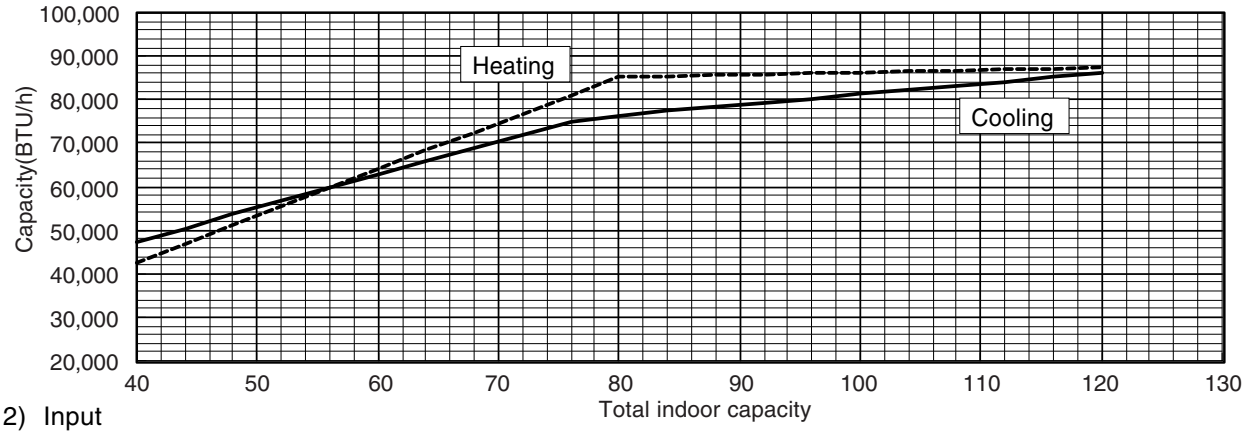


2-2. Correction by total indoor

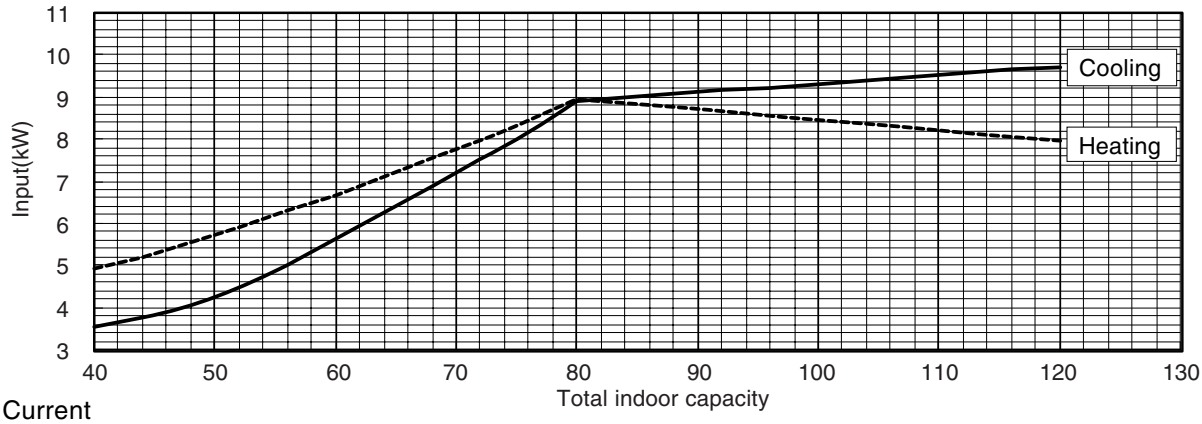
PURY-200TMU

1) Capacity

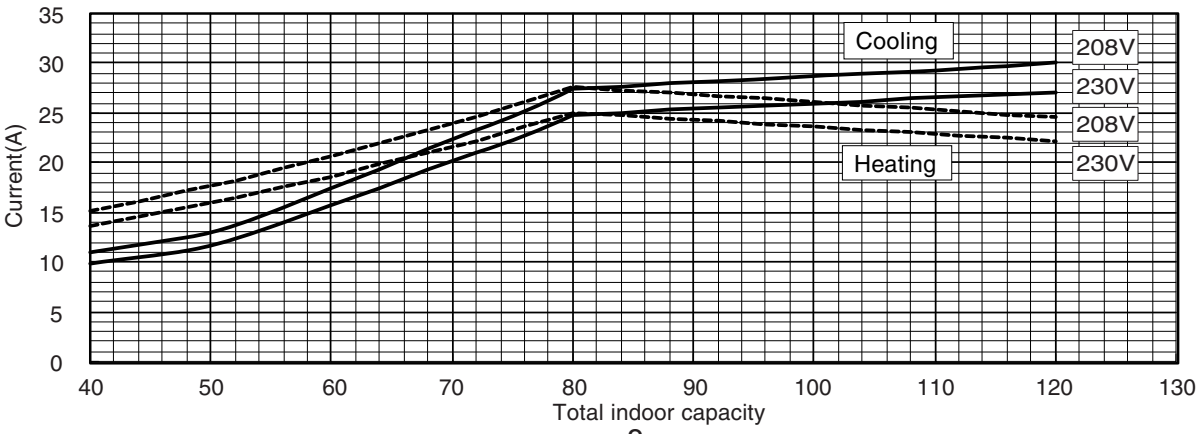




2) Input



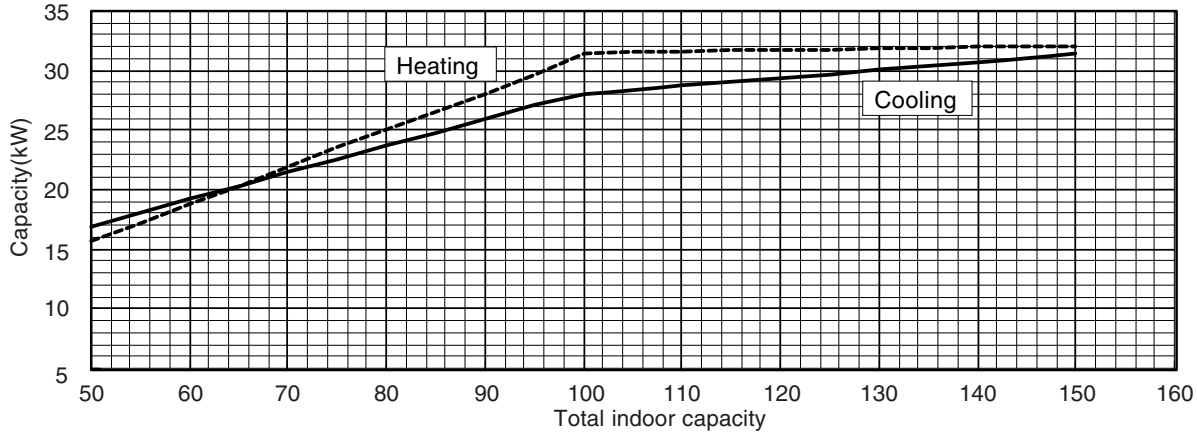
3) Current

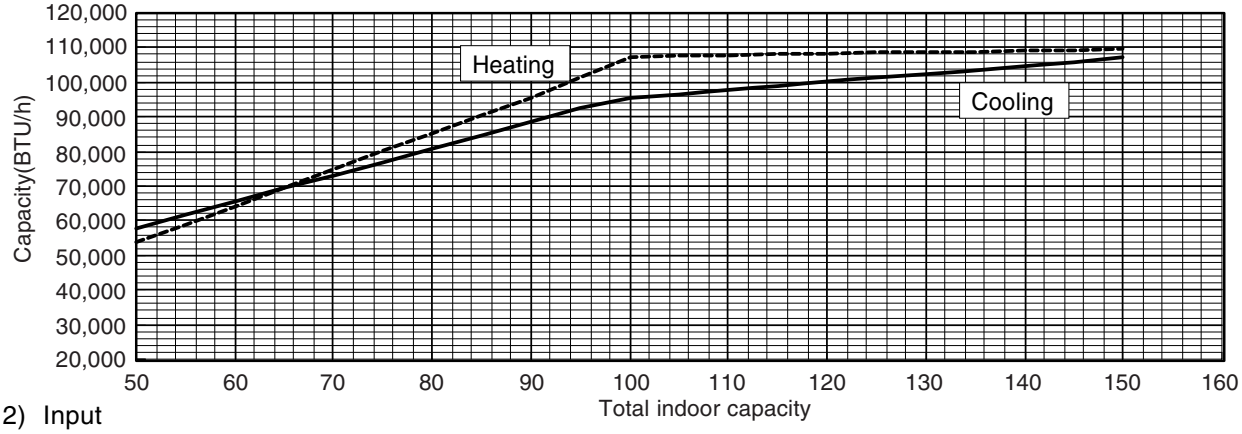


R2

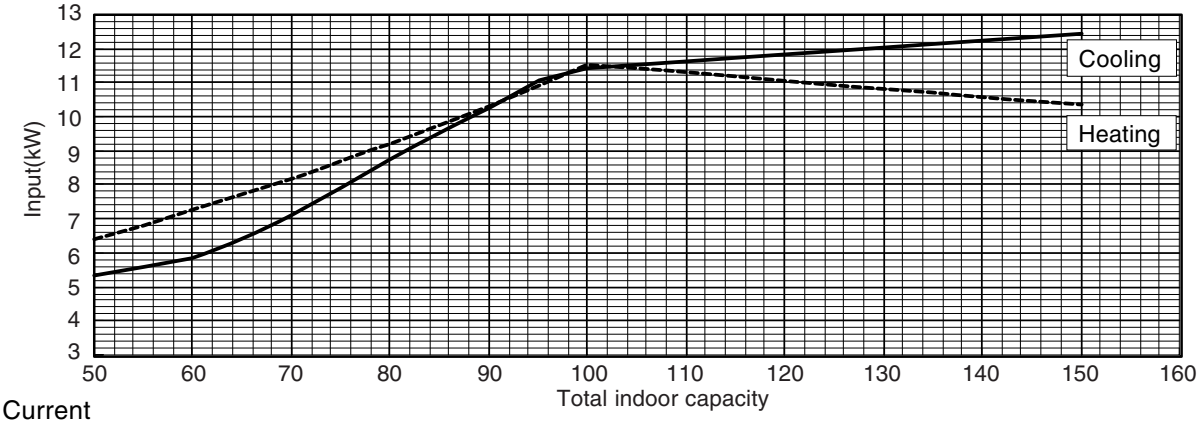
PURY-250TMU

1) Capacity

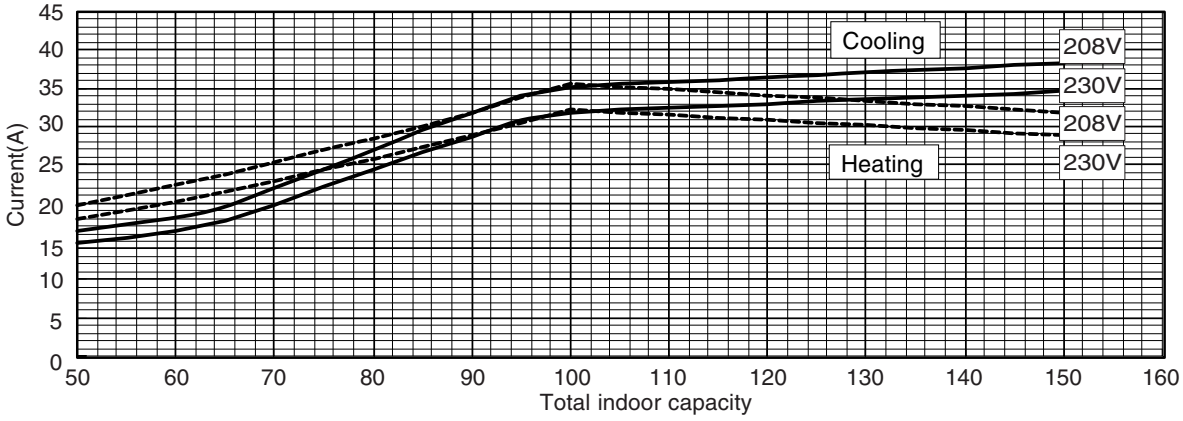




2) Input



3) Current

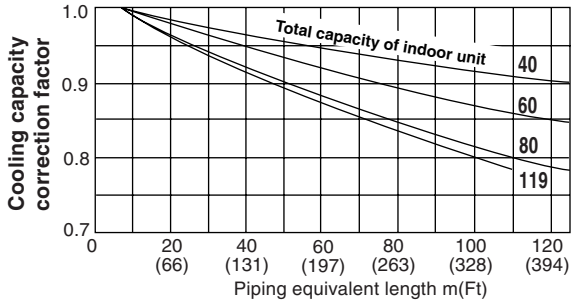


2-3 Correction by refrigerant piping length

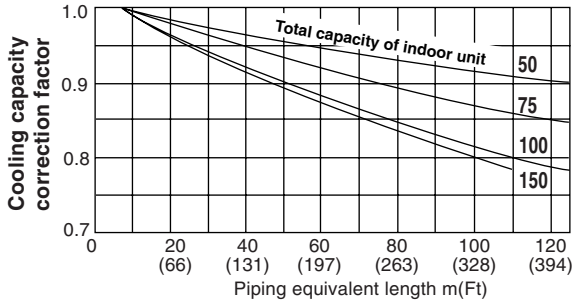
To obtain a decrease in cooling/heating capacity due to refrigerant piping extension, multiply by the capacity correction factor based on the refrigerant piping equivalent length in the table below.

• Cooling capacity correction

PURY-200TMU

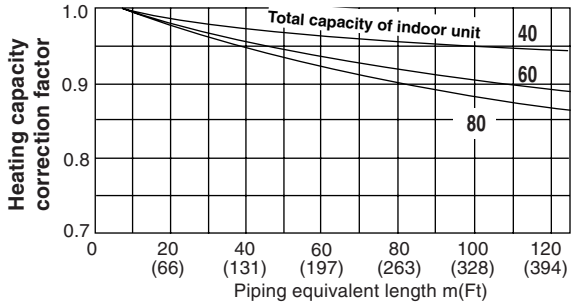


PURY-250TMU

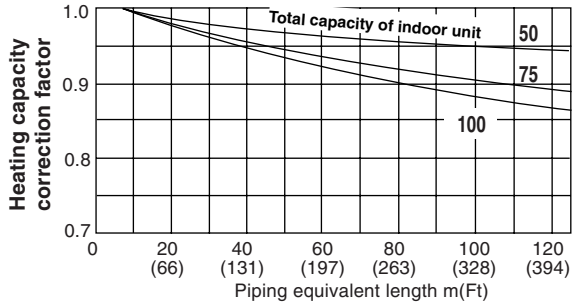


• Heating capacity correction

PURY-200TMU



PURY-250TMU



• How to obtain piping equivalent length

① PURY-200TMU

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.47 × number of bent on the piping)m
= (Actual piping length to the farthest indoor unit) + (0.16 × number of bent on the piping)Ft

② PURY-250TMU

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 × number of bent on the piping)m
= (Actual piping length to the farthest indoor unit) + (0.17 × number of bent on the piping)Ft

2-4 Correction at frosting and defrosting

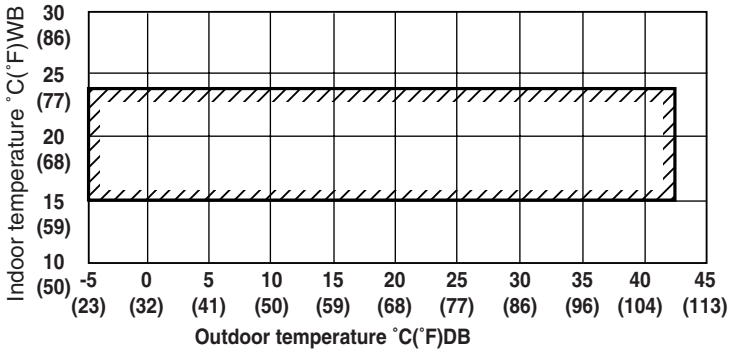
When a decrease in heating capacity due to frosted and defrosting operations is considered, the value multiplied by the correction factor in the table below represents the heating capacity.

Correction factor table

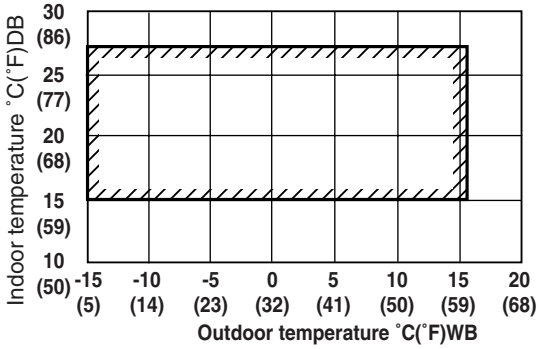
Outdoor inlet air temp ˚C(˚F)WB		6 (43)	4 (39)	2 (36)	0 (32)	-2 (28)	-4 (25)	-6 (21)	-8 (18)	-10 (14)
Correction factor	PURY-80	1.0	0.95	0.84	0.83	0.87	0.88	0.88	0.88	0.88
	PURY-100	1.0	0.95	0.84	0.81	0.82	0.82	0.82	0.82	0.82

2-5 Operation limit

• Cooling



• Heating

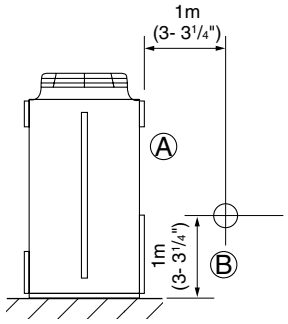


※ Outdoor temperature : -5˚C(23˚F)DB/-6˚C(21.2˚F)WB ~ 21˚C(69.8˚F)DB/ 15.5˚C(59.9˚F)WB in cooling/heating mixed mode.

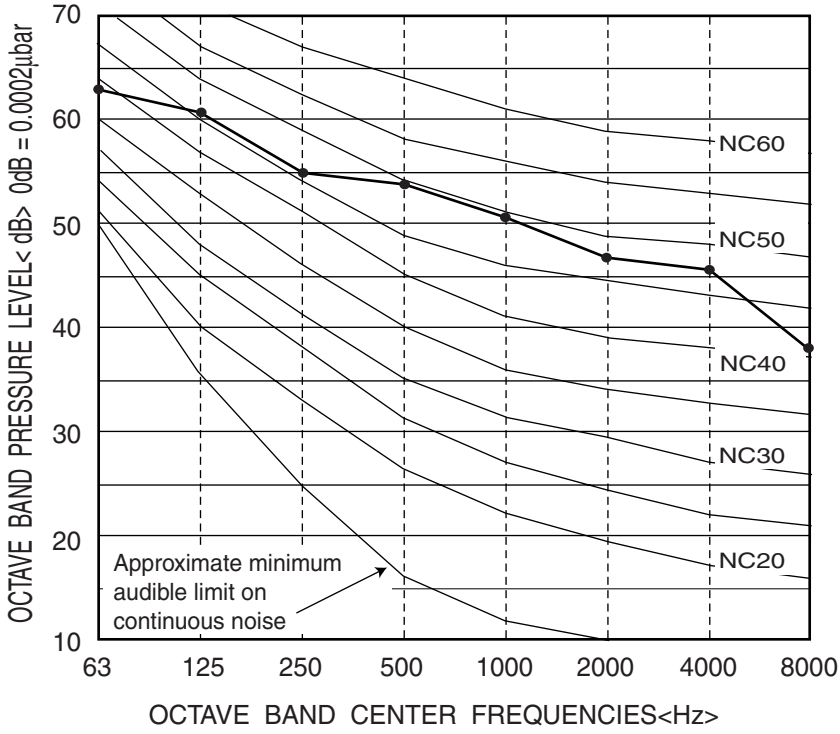
3. Sound levels

PURY-200TMU

Measurement condition

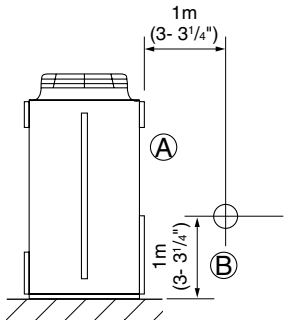


Sound pressure level in anechoic room
56 dB (A)

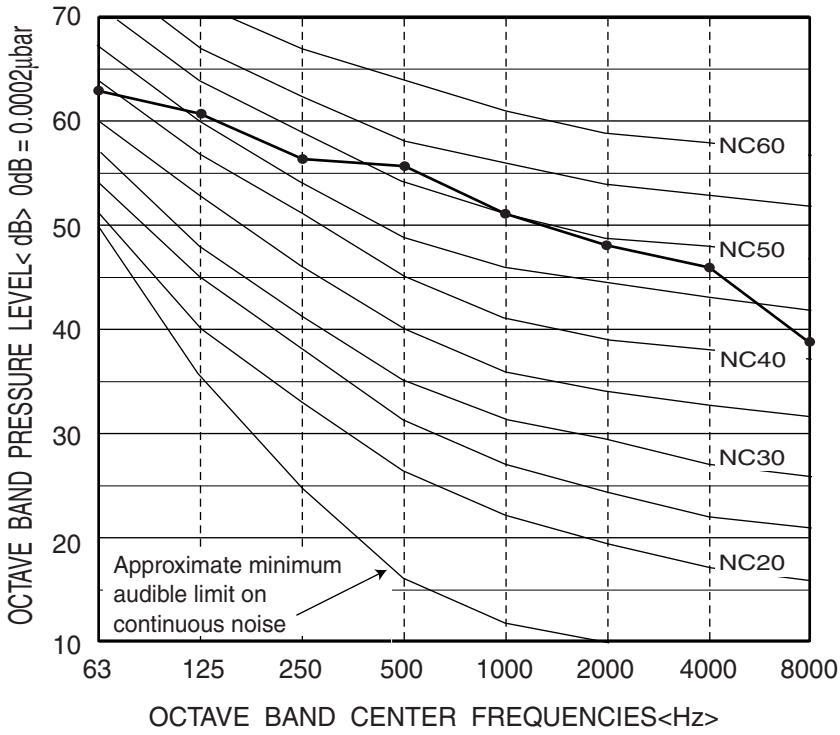


PURY-250TMU

Measurement condition



Sound pressure level in anechoic room
57 dB (A)



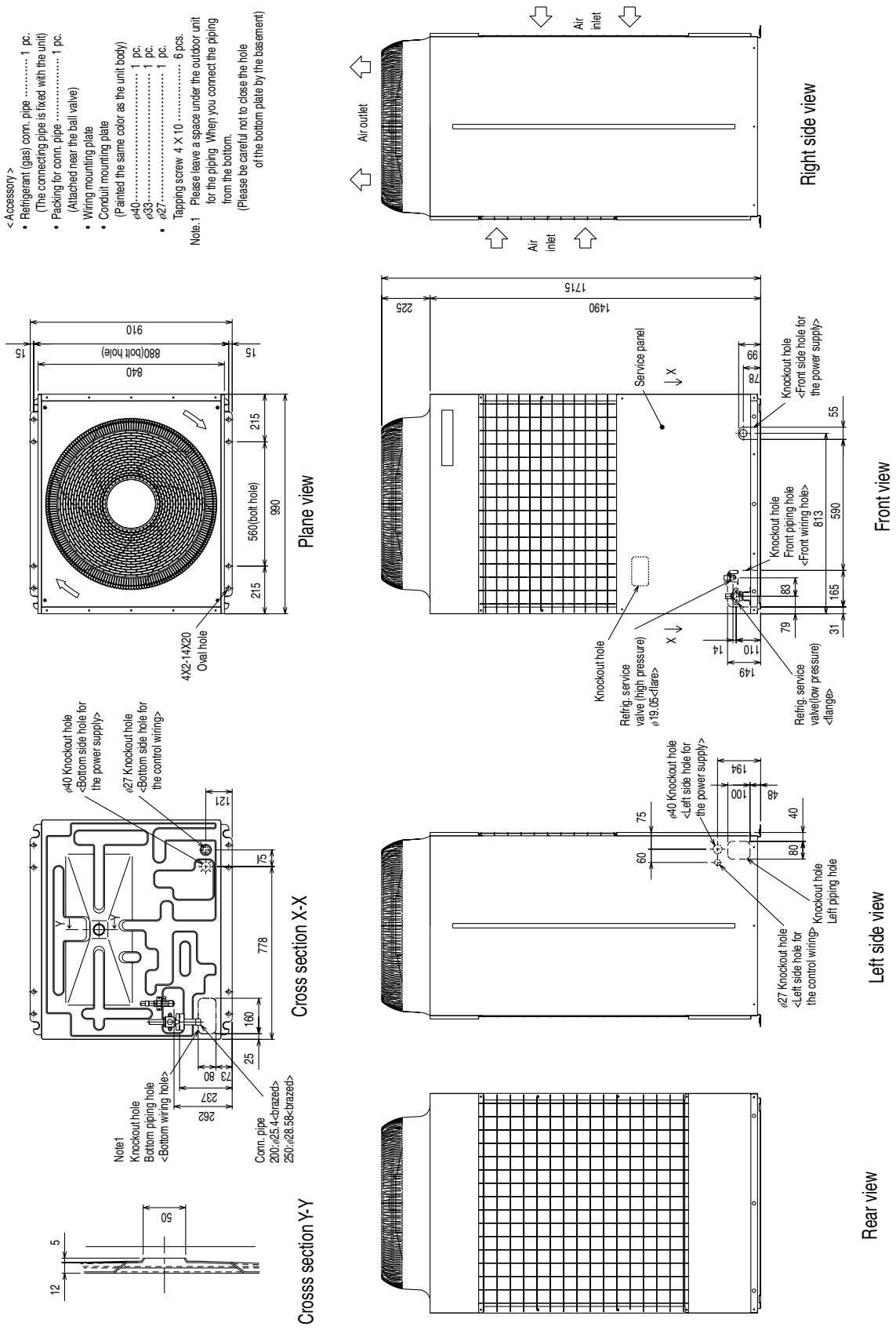
R2

4. External dimensions

R2

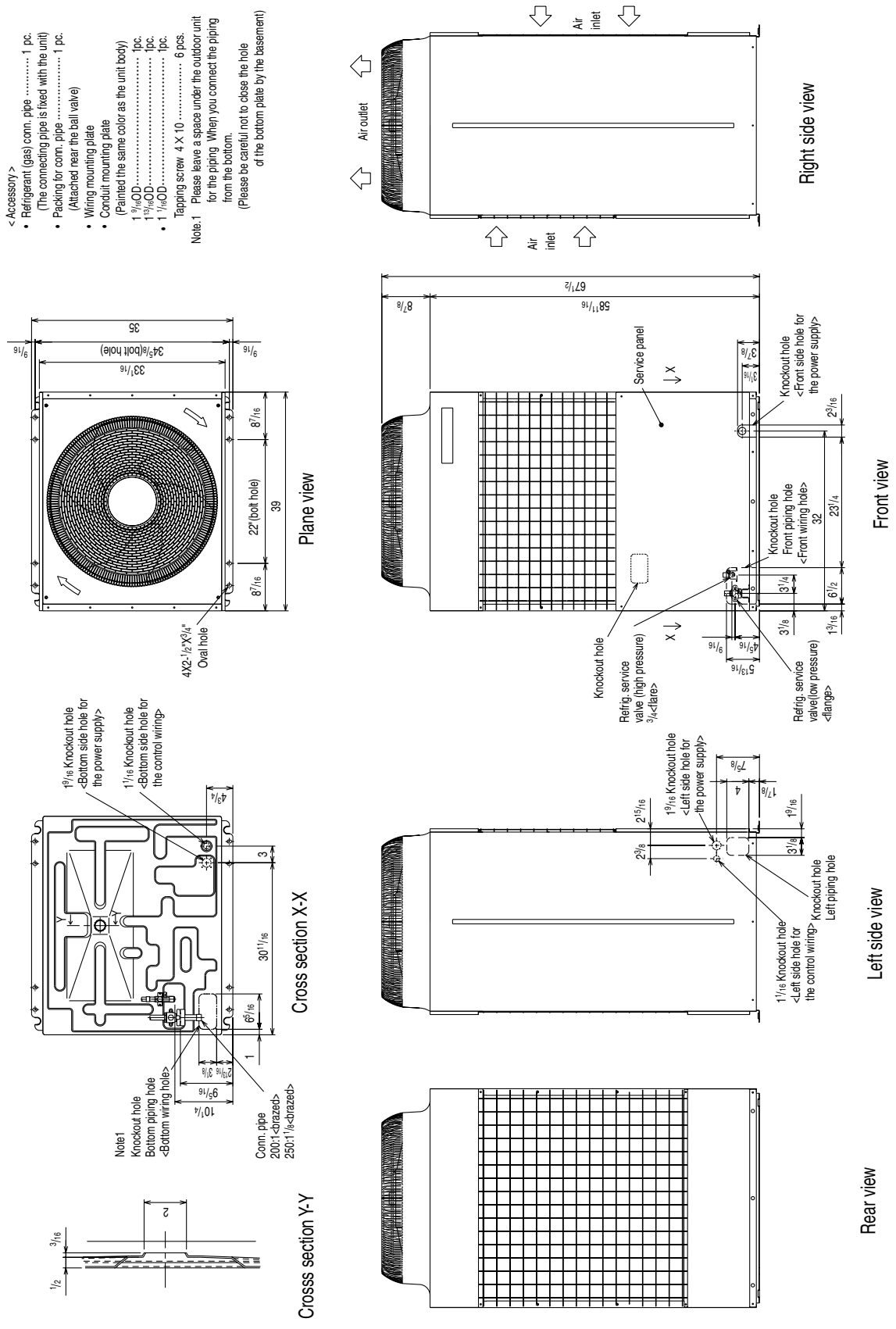
PURY-200,250TMU

Unit : mm



PURY-200,250TMU

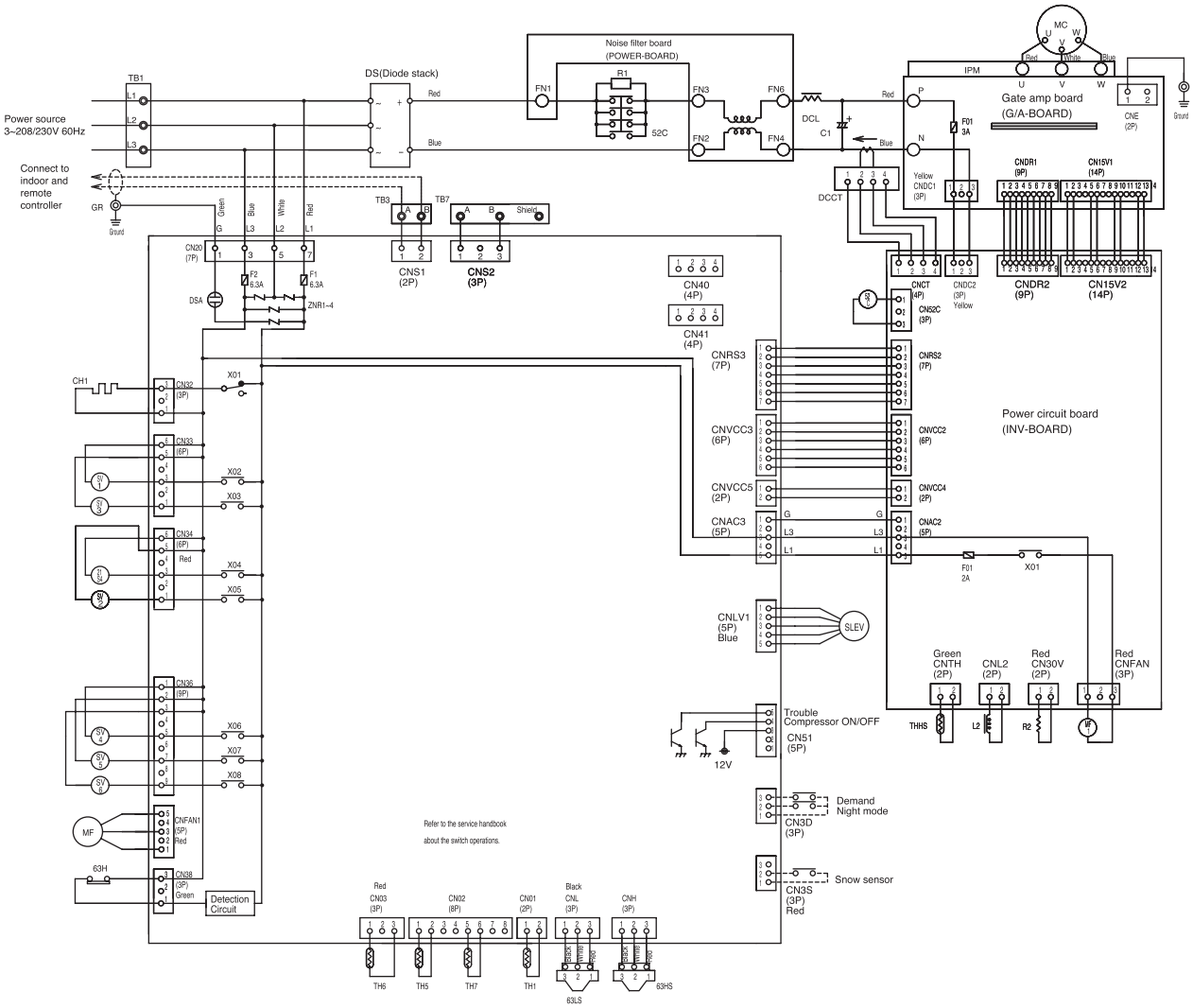
Unit : in



5. Electrical Wiring Diagram

R2

PURY-200, 250TMU



Symbol	Name	Symbol	Name	Symbol	Name	Symbol	Name
TB1	Terminal block power source	R2	Resistor power regulation	SV1, SV2	Solenoid valve (Discharge-suction bypass)	THHS	Thermistor: Rediator panel temp.detect
TB3	Terminal block transmisson	C1	Capacitor Smoothing				
TB7	Terminal block transmisson centralized control	52C	Magnetic contactor (Inverter main circuit)	SV3~6	Solenoid valve (Heat exchanger capacity control)	63HS	High pressure sensor
GR	Ground terminal	IPM	Intelligent power module	63H	High pressure switch	63LS	Low pressure sensor
		MC	Motor Compressor	TH1	Thermistor: discharge pipe temp.detect	SLEV	Electronic expansion valve (Oil return)
DCL	DC reactor (Power factor improvement)	MF	Motor Fan Heat exchanger	TH5	pipe temp.detect	L2	Choke coil(Transmission)
		MF1	Motor Fan Radiator panel	TH6	OA temp.detect		
DCCT	Current Sensor	CH1	Crankcase heater (Compressor)	TH7	liquid outlet temp. detect at Sub-cool coil		
R1	Resistor rush current protect	21S4	4-way valve				

6. Refrigerant Circuit Diagram And Thermal Sensor

PURY-200, 250TMU