EHS

Technical Data Book

EHS GEN3 MONO (50Hz)

SAMSUNG

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I. Products

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1. Nomenclature

1-1. Outdoor Unit

Model Name

RC	090	M	H	X	E	A	/	000
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(Buyer)

(1) Classification	
RC	EHS/CAC (Single)

(2) Capacity -
Liters or x 1/10 kW (3 digits)

(3) Product Notation	
P	Split
M	Mono

(4) Mode	
H	Heat Pump

(5) Refrigerant	
X	R410A

(6) Rating Voltage	
E	1Φ, 220~240V, 50Hz
G	3Φ, 380~415V, 50Hz

(7) Version	
A~Z	Export

1. Nomenclature

1-2. Indoor Unit

Model Name

NH	200	C	H	X	E	A	/	000
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(Buyer)

(1) Classification	
NH	Hydro Unit
	Water Tank / Cylinder Unit
	EHS Indoor Unit

(2) Capacity
Liters or x 1/10 kW (3 digits)

(3) Product Notation	
P	Hydro Unit
W	Water Tank
C	Cylinder Unit

(4) Mode	
H	Heat Pump

(5) Refrigerant	
X	R410A

(6) Rating Voltage	
E	1Φ, 220~240V, 50Hz
G	3Φ, 380~415V, 50Hz

(7) Version	
A~Z	Export

2. Line-up

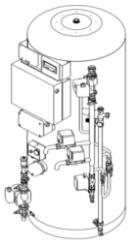
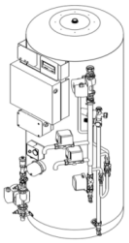
2-1. Mono Outdoor Unit

Mono Type	Capacity (kW)			
	9.0	12.0	14.0	16.0
1 Phase	 RC090MHXEA	 RC120MHXEA	 RC140MHXEA	 RC160MHXEA
3 Phases	-	 RC120MHXGA	 RC140MHXGA	 RC160MHXGA

2-2. Mono Control Kit

Control Unit
 MIM-E03A

2-3. Mono Cylinder Unit

Cylinder Unit	Capacity (Liters)	
	200	300
Standard	 NH200CHXEA	 NH300CHXEA

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1. Specifications

1-1. Mono Outdoor Units

Model Name				RC090MHXEA	RC120MHXEA	RC140MHXEA	RC160MHXEA
Mode			-	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)
Power Supply			Ø/V/Hz	1 / 220-240 / 50	1 / 220-240 / 50	1 / 220-240 / 50	1 / 220-240 / 50
Performance (A2W #1)	Nominal Capacity *1)	Heating	W	9,000	12,000	14,000	16,000
			Btu/h	30,700	40,900	47,800	54,600
		Cooling	W	10,000	13,500	16,000	17,000
			Btu/h	34,100	46,100	54,600	58,000
	Nominal Power Input *1)	Heating	W	2,090	2,610	3,220	3,810
		Cooling	W	2,860	4,070	5,330	5,860
	COP(Heating) *1)		W/W	4.30	4.60	4.35	4.20
	EER(Cooling) *1)		W/W	3.50	3.32	3.00	2.90
	ESEER *2)		W/W	5.60	6.45	6.34	5.98
Performance (A2W #2)	Nominal Capacity *3)	Heating	W	8,400	11,400	13,100	15,100
			Btu/h	28,700	38,900	44,700	51,500
		Cooling	W	7,500	10,000	12,500	13,100
			Btu/h	25,600	34,100	42,700	44,700
	Nominal Power Input *3)	Heating	W	2,510	3,260	3,850	4,580
		Cooling	W	2,730	3,770	5,060	5,350
	COP(Heating) *3)		W/W	3.35	3.50	3.40	3.30
	EER(Cooling) *3)		W/W	2.75	2.65	2.47	2.45
	ESEER *4)		W/W	4.26	4.92	4.57	4.55
Water Side	Heat Exchanger	Type	-	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate
		Quantity	-	1	1	1	1
	Required Water Pressure		bar	Max. 2.8	Max. 2.8	Max. 2.8	Max. 2.8
	Required Flow Rate		LPM	Min. 16.0	Min. 16.0	Min. 16.0	Min. 16.0
	Flow Switch (supplied with Control Kit & Cylinder Unit)		LPM	16 ± 1.5 (Magnetic, Decreasing)	16 ± 1.5 (Magnetic, Decreasing)	16 ± 1.5 (Magnetic, Decreasing)	16 ± 1.5 (Magnetic, Decreasing)
	Piping Connections	In/Out	Φ, mm(inch)	25.4(1")	25.4(1")	25.4(1")	25.4(1")
Refrigerant Side	Compressor	Type	-	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter
		Model	-	UG8T265FX	UG5T450FX	UG5T450FX	UG5T450FX
	Oil	Type	-	POE	POE	POE	POE
	Refrigerant	Type	-	R410A	R410A	R410A	R410A
		Factory Charging	g	1,400	2,200	2,200	2,200
Base Heater	Capacity	-	W	150	150	150	150
Sound	Sound Pressure *5)	Heating	dB(A)	50	50	52	53
		Cooling	dB(A)	51	51	53	54
External Dimension	Weight	Net	kg	75	103	103	103
		Gross	kg	83	113	113	113
	Dimensions (WxHxD)	Net	mm	940x998x330	940x1,420x330	940x1,420x330	940x1,420x330
		Gross	mm	995x1,096x426	995x1,548x426	995x1,548x426	995x1,548x426
Operating Range	Ambient (A2W)	Heating	˚C	-20~35	-20~35	-20~35	-20~35
		Cooling	˚C	10~46	10~46	10~46	10~46
		DHW	˚C	-20~43	-20~43	-20~43	-20~43
	Leaving Water	Heating	˚C	25~55	25~55	25~55	25~55
		Cooling	˚C	5~25	5~25	5~25	5~25

*1)~*4) A2W rating conditions in accordance with Eurovent Rating Standard for Liquid Chilling Packages 6/C/003-2008.

*1) A2W Condition #1 : (Heating) Water In/Out 30℃/35℃, Outdoor Air DB/WB 7℃/6℃; (Cooling) Water In/Out 23℃/18℃, Outdoor Air DB 35℃.

*2) A2W Condition for ESEER(Cooling) at Water Out 18℃.

*3) A2W Condition #2 : (Heating) Water In/Out 40℃/45℃, Outdoor Air DB/WB 7℃/6℃; (Cooling) Water In/Out 12℃/7℃, Outdoor Air DB 35℃.

*4) A2W Condition for ESEER(Cooling) at Water Out 7℃.

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

1. Specifications

1-1. Mono Outdoor Units

Model Name				RC120MHXGA	RC140MHXGA	RC160MHXGA
Mode			-	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)
Power Supply			Ø/V/Hz	3 / 380-415 / 50	3 / 380-415 / 50	3 / 380-415 / 50
Performance (A2W #1)	Nominal Capacity *1)	Heating	W	12,000	14,000	16,000
			Btu/h	40,900	47,800	54,600
		Cooling	W	13,500	16,000	17,000
			Btu/h	46,100	54,600	58,000
	Nominal Power Input *1)	Heating	W	2,610	3,220	3,810
		Cooling	W	3,910	5,250	5,710
	COP(Heating) *1)		W/W	4.60	4.35	4.20
	EER(Cooling) *1)		W/W	3.45	3.05	2.98
	ESEER *2)		W/W	6.45	6.34	5.98
Performance (A2W #2)	Nominal Capacity *3)	Heating	W	11,400	13,100	15,100
			Btu/h	38,900	44,700	51,500
		Cooling	W	10,000	12,500	13,100
			Btu/h	34,100	42,700	44,700
	Nominal Power Input *3)	Heating	W	3,260	3,850	4,580
		Cooling	W	3,700	5,000	5,240
	COP(Heating) *3)		W/W	3.50	3.40	3.30
	EER(Cooling) *3)		W/W	2.70	2.50	2.50
	ESEER *4)		W/W	4.92	4.57	4.55
Water Side	Heat Exchanger	Type	-	Brazed Plate	Brazed Plate	Brazed Plate
		Quantity	-	1	1	1
	Required Water Pressure		bar	Max. 2.8	Max. 2.8	Max. 2.8
	Required Flow Rate		LPM	Min. 16.0	Min. 16.0	Min. 16.0
	Flow Switch (supplied with Control Kit & Cylinder Unit)		LPM	16 ± 1.5 (Magnetic, Decreasing)	16 ± 1.5 (Magnetic, Decreasing)	16 ± 1.5 (Magnetic, Decreasing)
	Piping Connections	In/Out	Φ, mm(inch)	25.4(1")	25.4(1")	25.4(1")
Refrigerant Side	Compressor	Type	-	Rotary Inverter	Rotary Inverter	Rotary Inverter
		Model	-	UG5T450FX	UG5T450FX	UG5T450FX
	Oil	Type	-	POE	POE	POE
	Refrigerant	Type	-	R410A	R410A	R410A
		Factory Charging	g	2,200	2,200	2,200
Base Heater	Capacity	-	W	150	150	150
Sound	Sound Pressure *5)	Heating	dB(A)	50	52	53
		Cooling	dB(A)	51	53	54
External Dimension	Weight	Net	kg	103	103	103
		Gross	kg	113	113	113
	Dimensions (WxHxD)	Net	mm	940x1,420x330	940x1,420x330	940x1,420x330
		Gross	mm	995x1,548x426	995x1,548x426	995x1,548x426
Operating Range	Ambient (A2W)	Heating	˚C	-20~35	-20~35	-20~35
		Cooling	˚C	10~46	10~46	10~46
		DHW	˚C	-20~43	-20~43	-20~43
	Leaving Water	Heating	˚C	25~55	25~55	25~55
		Cooling	˚C	5~25	5~25	5~25

*1)~*4) A2W rating conditions in accordance with Eurovent Rating Standard for Liquid Chilling Packages 6/C/003-2008.

*1) A2W Condition #1 : (Heating) Water In/Out 30℃/35℃, Outdoor Air DB/WB 7℃/6℃; (Cooling) Water In/Out 23℃/18℃, Outdoor Air DB 35℃.

*2) A2W Condition for ESEER(Cooling) at Water Out 18℃.

*3) A2W Condition #2 : (Heating) Water In/Out 40℃/45℃, Outdoor Air DB/WB 7℃/6℃; (Cooling) Water In/Out 12℃/7℃, Outdoor Air DB 35℃.

*4) A2W Condition for ESEER(Cooling) at Water Out 7℃.

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

1. Specifications

1-2. Mono Control Kit

Model Name				MIM-E03A
Use with			-	EHS Mono Type
Power Supply			Ø/V/Hz	1 / 220-240 / 50
External Dimension	Weight	Net	kg	3.5
		Gross	kg	5.7
	Dimensions (WxHxD)	Net	mm	290x342x110
		Gross	mm	330x430x170
External Control	Booster Heater		-	AC 230V (Max 20A)
	Back up Heater / Boiler		-	AC 230V (Max 0.5A)
	Water Pump		-	AC 230V (Max 2A)
	2way or 3way Valve		-	AC 230V (Max 0.5A / 120W)
	Room Thermostat		-	AC 230V (Max 10mA)
	Solar Pump		-	AC 230V (Max 10mA)

1. Specifications

1-3. Mono Cylinder Units

Model Name			Standard	
			NH200CHXEA	NH300CHXEA
Pressure Vessel	Material Quality	-	AISI 444 / DIN 1.4521	
	Volume Capacity	Liter	198	287
Power Supply		Ø/V/Hz	1 / 220-240 / 50	
Electric Element	Capacity	kW	2.6	
	Material	-	Incoloy 825	
	Voltage	Ø/V/Hz	1 / 230 / 50	
	Thermostat #1 (Auto)	℃	40-70 (60 preset)	
	Thermostat #2 (Manual)	℃	91	
Heating Coil	Material Quality	-	Duplex LDX 2101	
	Heating Area	㎡	0.71	
Heating Coil for Solar	Material Quality	-	-	
	Heating Area	㎡	-	
Insulation	Material Quality	-	Urethane form	
	Thickness	mm	40	
Insulation Jacket	Material Quality	-	Epoxy-coated mild steel-white	
Dimensions Overall	Diameter	mm	585	585
	Height	mm	1,130	1,580
Connections	Cold Water Inlet	inch	3/4” BSPP	
	Hot Water Outlet	inch	3/4” BSPP	
	Recirculation	mm	Ø22mm Straight tube (for compression fitting)	
	Flow & Return	mm	3/4” BSPP	
	Sensor Poket(s)	mm	Ø8.05mm inside, 1/2”Thread	
Weight	Net	kg		
	Gross	kg	47	61
Max. Water Temperature		ºC	70	
Cylinder Unit parts	Water Pump	-	Wilo RS 25/6	
	2way valve	-	Honeywell V4043	
	Flow Switch	-	Sika VH9341	
	P & T valve	-	3.0bar & 95ºC	
Combination valve	Pressure Reducing Valve	bar	3.0	
	Relief Pressure	bar	2.1	
	Strainer	mesh	25	
Room thermostat & receiver	Wireless Room Thermostat	-	Danfoss TP5000 Si RF	
	RF Receiver for Thermostat	-	Danfoss RX1	
Timer controller			Danfoss FP715 Si	
Other	Packaging	-	Eco Foam-PUF	
	Adjustable Legs	pcs	3	

2. Capacity Tables

2-1. RC090/120/140/160MHXE* (1 Phase)

1) Maximum Heating Capacity (Peak Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), PI (Power input)

	LWT (℃)	30		35		40		45		50		55	
RC090MHXEA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	5.94	3.00	5.86	3.18	5.78	3.35						
	-10	7.84	3.11	7.73	3.30	7.61	3.49	7.50	3.67	6.94	3.99		
	-7	8.40	3.15	8.29	3.34	8.18	3.52	8.06	3.71	7.67	4.03	7.29	4.35
	2	8.50	2.19	8.39	2.51	8.27	2.83	8.15	3.15	7.82	3.50	7.48	3.83
	7	9.30	1.88	9.00	2.09	8.70	2.30	8.40	2.51	8.04	2.77	7.68	3.03
	15	10.99	1.82	10.63	2.04	10.27	2.26	9.91	2.48	9.37	2.75	8.83	3.03
	20	12.04	1.79	11.64	2.01	11.25	2.24	10.85	2.46	10.43	2.73	10.01	3.00
RC120MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.81	3.58	8.44	3.93	7.94	4.28						
	-10	11.69	3.71	11.13	4.09	10.21	4.47	9.76	4.86	9.28	5.31		
	-7	12.47	3.76	11.93	4.13	11.23	4.50	10.87	4.87	10.36	5.32	9.61	5.88
	2	10.67	2.50	10.45	2.84	10.24	3.18	10.02	3.51	9.60	3.94	8.93	4.37
	7	12.30	2.29	12.00	2.61	11.65	2.94	11.40	3.26	10.94	3.63	10.27	4.00
	15	14.11	2.14	13.88	2.46	13.60	2.74	13.43	3.11	12.93	3.48	12.03	3.85
	20	15.18	2.05	15.05	2.37	14.93	2.70	14.80	3.02	14.05	3.40	13.30	3.78
RC140MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	9.72	4.44	9.59	4.80	9.23	5.17						
	-10	12.92	4.59	12.65	4.99	12.15	5.35	11.88	5.80	11.44	6.26		
	-7	13.75	4.66	13.57	5.05	13.22	5.43	13.22	5.82	12.68	6.28	12.14	6.95
	2	13.60	3.38	13.17	3.77	12.61	4.14	12.30	4.57	11.99	5.03	11.35	5.47
	7	14.45	2.91	14.00	3.22	13.40	3.54	13.10	3.85	12.89	4.30	12.27	4.75
	15	17.23	2.86	16.71	3.19	16.04	3.51	15.67	3.84	15.21	4.27	14.34	4.78
	20	18.95	2.84	18.40	3.17	17.70	3.51	17.30	3.84	16.60	4.24	15.90	4.76
RC160MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	10.69	5.20	10.52	5.49	10.22	5.79						
	-10	14.00	5.42	13.87	5.73	13.51	6.05	13.39	6.36	12.39	6.92		
	-7	15.12	5.46	14.88	5.77	14.46	6.08	14.40	6.39	13.71	6.94	13.02	7.50
	2	14.28	3.86	13.84	4.29	13.20	4.72	12.94	5.15	12.40	5.70	11.87	6.25
	7	16.45	3.43	16.00	3.81	15.40	4.20	15.10	4.58	14.46	5.06	13.81	5.53
	15	19.43	3.33	18.89	3.72	18.20	4.12	17.81	4.52	16.84	5.02	15.87	5.52
	20	21.30	3.26	20.70	3.67	19.95	4.08	19.50	4.49	18.75	4.99	18.00	5.48

1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

2. Capacity Tables

2-1. RC090/120/140/160MHXE* (1 Phase)

2) Maximum Heating Capacity (Integrated Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), PI (Power input)

	LWT (℃)	30		35		40		45		50		55	
RC090MHXEA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	5.30	2.91	5.23	3.08	5.16	3.26						
	-10	7.00	3.02	6.90	3.20	6.80	3.38	6.70	3.56	6.19	3.88		
	-7	7.50	3.06	7.40	3.24	7.30	3.42	7.20	3.60	6.85	3.91	6.51	4.23
	2	7.33	2.02	7.23	2.32	7.13	2.62	7.03	2.92	6.74	3.24	6.45	3.55
	7	9.30	1.88	9.00	2.09	8.70	2.30	8.40	2.51	8.04	2.77	7.68	3.03
	15	10.99	1.82	10.63	2.04	10.27	2.26	9.91	2.48	9.37	2.75	8.83	3.03
	20	12.04	1.79	11.64	2.01	11.25	2.24	10.85	2.46	10.43	2.73	10.01	3.00
RC120MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	7.53	3.51	7.21	3.86	6.78	4.20						
	-10	10.00	3.63	9.51	4.01	8.73	4.39	8.34	4.76	7.93	5.20		
	-7	10.66	3.69	10.20	4.05	9.60	4.41	9.29	4.77	8.85	5.22	8.22	5.76
	2	8.82	2.36	8.64	2.68	8.46	3.00	8.28	3.32	7.93	3.72	7.38	4.12
	7	12.30	2.29	12.00	2.61	11.65	2.94	11.40	3.26	10.94	3.63	10.27	4.00
	15	14.11	2.14	13.88	2.46	13.60	2.74	13.43	3.11	12.93	3.48	12.03	3.85
	20	15.18	2.05	15.05	2.37	14.93	2.70	14.80	3.02	14.05	3.40	13.30	3.78
RC140MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.24	4.31	8.13	4.66	7.82	5.02						
	-10	10.95	4.45	10.72	4.85	10.29	5.19	10.07	5.63	9.69	6.08		
	-7	11.65	4.53	11.50	4.90	11.20	5.28	11.20	5.65	10.74	6.10	10.29	6.75
	2	10.97	3.07	10.62	3.43	10.17	3.76	9.92	4.15	9.67	4.57	9.15	4.97
	7	14.45	2.91	14.00	3.22	13.40	3.54	13.10	3.85	12.89	4.30	12.27	4.75
	15	17.23	2.86	16.71	3.19	16.04	3.51	15.67	3.84	15.21	4.27	14.34	4.78
	20	18.95	2.84	18.40	3.17	17.70	3.51	17.30	3.84	16.60	4.24	15.90	4.76
RC160MHXEA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.91	5.05	8.77	5.33	8.52	5.62						
	-10	11.66	5.26	11.56	5.57	11.26	5.87	11.16	6.18	10.32	6.72		
	-7	12.60	5.30	12.40	5.60	12.05	5.90	12.00	6.20	11.42	6.74	10.85	7.28
	2	11.16	3.45	10.81	3.83	10.31	4.21	10.11	4.59	9.69	5.09	9.27	5.58
	7	16.45	3.43	16.00	3.81	15.40	4.20	15.10	4.58	14.46	5.06	13.81	5.53
	15	19.43	3.33	18.89	3.72	18.20	4.12	17.81	4.52	16.84	5.02	15.87	5.52
	20	21.30	3.26	20.70	3.67	19.95	4.08	19.50	4.49	18.75	4.99	18.00	5.48

1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

2. Capacity Tables

2-1. RC090/120/140/160MHXE* (1 Phase)

3) Maximum Cooling Capacity

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), CC (Cooling Capacity), PI (Power input)

	Tamb (℃)	20		25		30		35		40		45	
RC090MHXEA	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	8.44	2.32	8.30	2.46	7.98	2.59	7.50	2.73	6.68	2.70	5.89	2.96
	10	9.21	2.35	9.05	2.49	8.71	2.63	8.18	2.77	7.29	2.73	6.42	3.00
	13	9.97	2.38	9.81	2.52	9.44	2.66	8.86	2.80	7.89	2.77	6.96	3.04
	15	10.48	2.40	10.31	2.54	9.92	2.68	9.32	2.82	8.30	2.79	7.31	3.07
	18	11.25	2.43	11.06	2.57	10.65	2.72	10.00	2.86	8.90	2.82	7.85	3.11
	21	12.02	2.46	11.82	2.60	11.37	2.75	10.68	2.90	9.51	2.86	8.38	3.14
	25	13.04	2.50	12.82	2.65	12.34	2.79	11.59	2.94	10.32	2.91	9.10	3.20
RC120MHXEA	Tamb (℃)	20		25		30		35		40		45	
	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	11.28	2.76	11.15	3.00	10.73	3.34	10.00	3.77	9.26	4.08	7.86	4.10
	10	12.78	2.82	12.43	3.06	11.77	3.40	10.82	3.84	9.92	4.13	8.49	4.13
	13	14.28	2.89	13.83	3.12	13.07	3.46	12.02	3.90	10.89	4.18	9.12	4.16
	15	15.28	2.93	14.77	3.16	13.96	3.50	12.85	3.94	11.62	4.23	9.53	4.19
	18	16.78	2.99	15.99	3.23	14.89	3.56	13.50	4.07	11.93	4.27	10.16	4.22
	21	18.28	3.06	17.47	3.29	16.37	3.62	14.96	4.05	13.54	4.34	10.79	4.25
	25	20.28	3.14	19.32	3.37	17.86	3.70	16.51	4.13	14.91	4.47	11.62	4.30
RC140MHXEA	Tamb (℃)	20		25		30		35		40		45	
	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	13.91	3.90	13.74	4.23	13.27	4.61	12.50	5.06	11.09	4.91	9.75	5.50
	10	15.43	3.94	15.17	4.28	14.41	4.71	13.45	5.18	11.98	4.95	10.39	5.50
	13	16.95	3.99	16.54	4.34	15.82	4.77	14.81	5.25	13.09	4.99	11.03	5.51
	15	18.00	4.04	17.54	4.39	16.79	4.82	15.74	5.30	14.03	5.03	11.46	5.52
	18	19.52	4.10	18.64	4.45	17.47	4.89	16.00	5.33	14.15	5.13	12.10	5.60
	21	21.36	4.15	20.58	4.52	19.51	5.02	18.14	5.49	15.95	5.25	12.74	5.60
	25	23.17	4.22	22.42	4.63	21.34	5.18	20.35	5.66	17.84	5.50	13.59	5.61
RC160MHXEA	Tamb (℃)	20		25		30		35		40		45	
	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	14.74	4.55	14.49	4.82	13.95	5.09	13.10	5.35	11.67	5.29	10.28	5.82
	10	16.08	4.59	15.84	4.89	15.10	5.19	14.16	5.49	12.58	5.37	10.96	5.82
	13	17.42	4.64	17.10	4.96	16.47	5.29	15.55	5.62	13.85	5.44	11.63	5.83
	15	18.31	4.70	18.08	5.03	17.56	5.37	16.73	5.70	14.73	5.48	12.08	5.84
	18	19.65	4.75	19.07	5.11	18.18	5.47	17.00	5.86	14.83	5.59	12.76	5.85
	21	21.83	4.81	21.24	5.19	20.34	5.58	19.15	5.97	16.73	5.72	13.44	5.85
	25	23.86	4.88	23.76	5.20	22.63	5.71	21.84	6.14	18.63	6.04	14.34	5.87

1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

2. Capacity Tables

2-2. RC120/140/160MHXG* (3 Phase)

1) Maximum Heating Capacity (Peak Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), PI (Power input)

	LWT (℃)	30		35		40		45		50		55	
RC120MHXGA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.81	3.58	8.44	3.93	7.94	4.28						
	-10	11.69	3.71	11.13	4.09	10.21	4.47	9.76	4.86	9.28	5.31		
	-7	12.47	3.76	11.93	4.13	11.23	4.50	10.87	4.87	10.36	5.32	9.61	5.88
	2	10.67	2.50	10.45	2.84	10.24	3.18	10.02	3.51	9.60	3.94	8.93	4.37
	7	12.30	2.29	12.00	2.61	11.65	2.94	11.40	3.26	10.94	3.63	10.27	4.00
	15	14.11	2.14	13.88	2.46	13.60	2.74	13.43	3.11	12.93	3.48	12.03	3.85
	20	15.18	2.05	15.05	2.37	14.93	2.70	14.80	3.02	14.05	3.40	13.30	3.78
	LWT (℃)	30		35		40		45		50		55	
RC140MHXGA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	9.72	4.44	9.59	4.80	9.23	5.17						
	-10	12.92	4.59	12.65	4.99	12.15	5.35	11.88	5.80	11.44	6.26		
	-7	13.75	4.66	13.57	5.05	13.22	5.43	13.22	5.82	12.68	6.28	12.14	6.95
	2	13.60	3.38	13.17	3.77	12.61	4.14	12.30	4.57	11.99	5.03	11.35	5.47
	7	14.45	2.91	14.00	3.22	13.40	3.54	13.10	3.85	12.89	4.30	12.27	4.75
	15	17.23	2.86	16.71	3.19	16.04	3.51	15.67	3.84	15.21	4.27	14.34	4.78
	20	18.95	2.84	18.40	3.17	17.70	3.51	17.30	3.84	16.60	4.24	15.90	4.76
	LWT (℃)	30		35		40		45		50		55	
RC160MHXGA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	10.69	5.20	10.52	5.49	10.22	5.79						
	-10	14.00	5.42	13.87	5.73	13.51	6.05	13.39	6.36	12.39	6.92		
	-7	15.12	5.46	14.88	5.77	14.46	6.08	14.40	6.39	13.71	6.94	13.02	7.50
	2	14.28	3.86	13.84	4.29	13.20	4.72	12.94	5.15	12.40	5.70	11.87	6.25
	7	16.45	3.43	16.00	3.81	15.40	4.20	15.10	4.58	14.46	5.06	13.81	5.53
	15	19.43	3.33	18.89	3.72	18.20	4.12	17.81	4.52	16.84	5.02	15.87	5.52
	20	21.30	3.26	20.70	3.67	19.95	4.08	19.50	4.49	18.75	4.99	18.00	5.48

1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

2. Capacity Tables

2-2. RC120/140/160MHXG* (3 Phase)

2) Maximum Heating Capacity (Integrated Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), PI (Power input)

	LWT (℃)	30		35		40		45		50		55	
RC120MHXGA	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	7.53	3.51	7.21	3.86	6.78	4.20						
	-10	10.00	3.63	9.51	4.01	8.73	4.39	8.34	4.76	7.93	5.20		
	-7	10.66	3.69	10.20	4.05	9.60	4.41	9.29	4.77	8.85	5.22	8.22	5.76
	2	8.82	2.36	8.64	2.68	8.46	3.00	8.28	3.32	7.93	3.72	7.38	4.12
	7	12.30	2.29	12.00	2.61	11.65	2.94	11.40	3.26	10.94	3.63	10.27	4.00
	15	14.11	2.14	13.88	2.46	13.60	2.74	13.43	3.11	12.93	3.48	12.03	3.85
	20	15.18	2.05	15.05	2.37	14.93	2.70	14.80	3.02	14.05	3.40	13.30	3.78
RC140MHXGA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.24	4.31	8.13	4.66	7.82	5.02						
	-10	10.95	4.45	10.72	4.85	10.29	5.19	10.07	5.63	9.69	6.08		
	-7	11.65	4.53	11.50	4.90	11.20	5.28	11.20	5.65	10.74	6.10	10.29	6.75
	2	10.97	3.07	10.62	3.43	10.17	3.76	9.92	4.15	9.67	4.57	9.15	4.97
	7	14.45	2.91	14.00	3.22	13.40	3.54	13.10	3.85	12.89	4.30	12.27	4.75
	15	17.23	2.86	16.71	3.19	16.04	3.51	15.67	3.84	15.21	4.27	14.34	4.78
	20	18.95	2.84	18.40	3.17	17.70	3.51	17.30	3.84	16.60	4.24	15.90	4.76
RC160MHXGA	LWT (℃)	30		35		40		45		50		55	
	Tamb (℃)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
	-20	8.91	5.05	8.77	5.33	8.52	5.62						
	-10	11.66	5.26	11.56	5.57	11.26	5.87	11.16	6.18	10.32	6.72		
	-7	12.60	5.30	12.40	5.60	12.05	5.90	12.00	6.20	11.42	6.74	10.85	7.28
	2	11.16	3.45	10.81	3.83	10.31	4.21	10.11	4.59	9.69	5.09	9.27	5.58
	7	16.45	3.43	16.00	3.81	15.40	4.20	15.10	4.58	14.46	5.06	13.81	5.53
	15	19.43	3.33	18.89	3.72	18.20	4.12	17.81	4.52	16.84	5.02	15.87	5.52
	20	21.30	3.26	20.70	3.67	19.95	4.08	19.50	4.49	18.75	4.99	18.00	5.48

1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

2. Capacity Tables

2-2. RC120/140/160MHXG* (3 Phase)

3) Maximum Cooling Capacity

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), CC (Cooling Capacity), PI (Power input)

	Tamb (℃)	20		25		30		35		40		45	
RC120MHXGA	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	11.28	2.70	11.15	2.93	10.73	3.27	10.00	3.70	9.26	3.99	7.86	4.01
	10	12.78	2.76	12.43	2.99	11.77	3.33	10.82	3.76	9.92	4.04	8.49	4.04
	13	14.28	2.83	13.83	3.06	13.07	3.39	12.02	3.82	10.89	4.09	9.12	4.08
	15	15.28	2.87	14.77	3.10	13.96	3.42	12.85	3.85	11.62	4.14	9.53	4.10
	18	16.78	2.93	15.99	3.16	14.89	3.48	13.50	3.91	11.93	4.18	10.16	4.13
	21	18.28	2.99	17.47	3.22	16.37	3.54	14.96	3.97	13.54	4.25	10.79	4.16
	25	20.28	3.08	19.32	3.30	17.86	3.62	16.51	4.04	14.91	4.37	11.62	4.21
	Tamb (℃)	20		25		30		35		40		45	
RC140MHXGA	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	13.91	3.82	13.74	4.14	13.27	4.51	12.50	5.00	11.09	4.80	9.75	5.38
	10	15.43	3.86	15.17	4.19	14.41	4.61	13.45	5.07	11.98	4.84	10.39	5.39
	13	16.95	3.90	16.54	4.24	15.82	4.66	14.81	5.14	13.09	4.88	11.03	5.39
	15	18.00	3.96	17.54	4.29	16.79	4.71	15.74	5.18	14.03	4.93	11.46	5.40
	18	19.52	4.01	18.64	4.35	17.47	4.79	16.00	5.25	14.15	5.02	12.10	5.47
	21	21.36	4.06	20.58	4.43	19.51	4.91	18.14	5.37	15.95	5.14	12.74	5.48
	25	23.17	4.13	22.42	4.53	21.34	5.07	20.35	5.54	17.84	5.38	13.59	5.49
	Tamb (℃)	20		25		30		35		40		45	
RC160MHXGA	LWT (℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	7	14.74	4.45	14.49	4.71	13.95	4.98	13.10	5.24	11.67	5.18	10.28	5.69
	10	16.08	4.49	15.84	4.78	15.10	5.08	14.16	5.37	12.58	5.26	10.96	5.70
	13	17.42	4.54	17.10	4.86	16.47	5.18	15.55	5.50	13.85	5.32	11.63	5.71
	15	18.31	4.60	18.08	4.92	17.56	5.25	16.73	5.58	14.73	5.36	12.08	5.71
	18	19.65	4.65	19.07	5.00	18.18	5.36	17.00	5.71	14.83	5.47	12.76	5.72
	21	21.83	4.71	21.24	5.08	20.34	5.46	19.15	5.84	16.73	5.60	13.44	5.73
	25	23.86	4.78	23.76	5.09	22.63	5.59	21.84	6.01	18.63	5.91	14.34	5.74

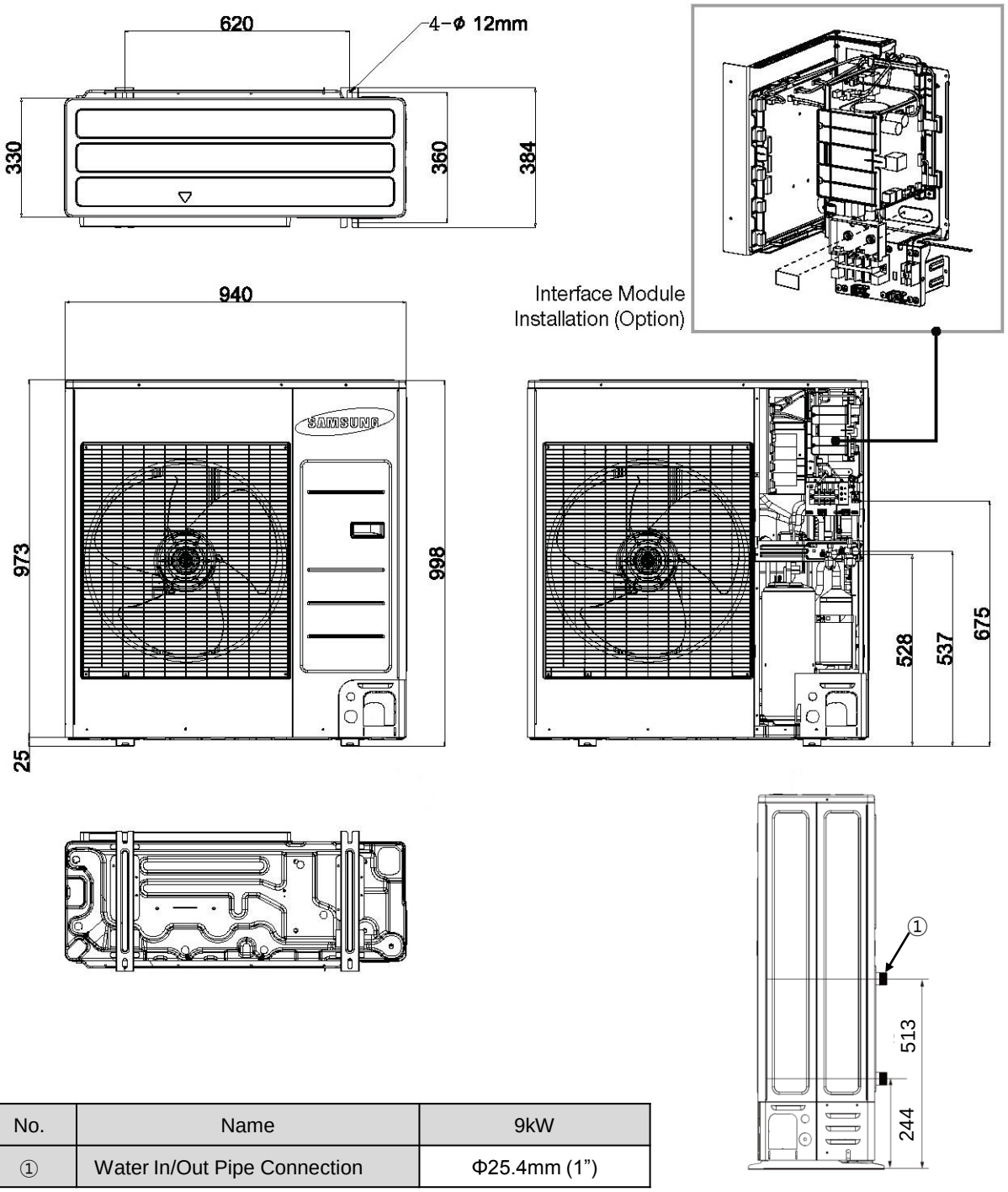
1. Heating capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for heated water range △t = 3～8°C
2. Cooling capacity
   : Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range △t = 3～8°C
3. Power input
   : Power input is total of indoor and outdoor unit, according to Eurovent rating standard 6/C/003-2006.

3. Dimensional Drawings

3-1. Mono Outdoor Units

1) RC090MHX*

(Unit : mm)



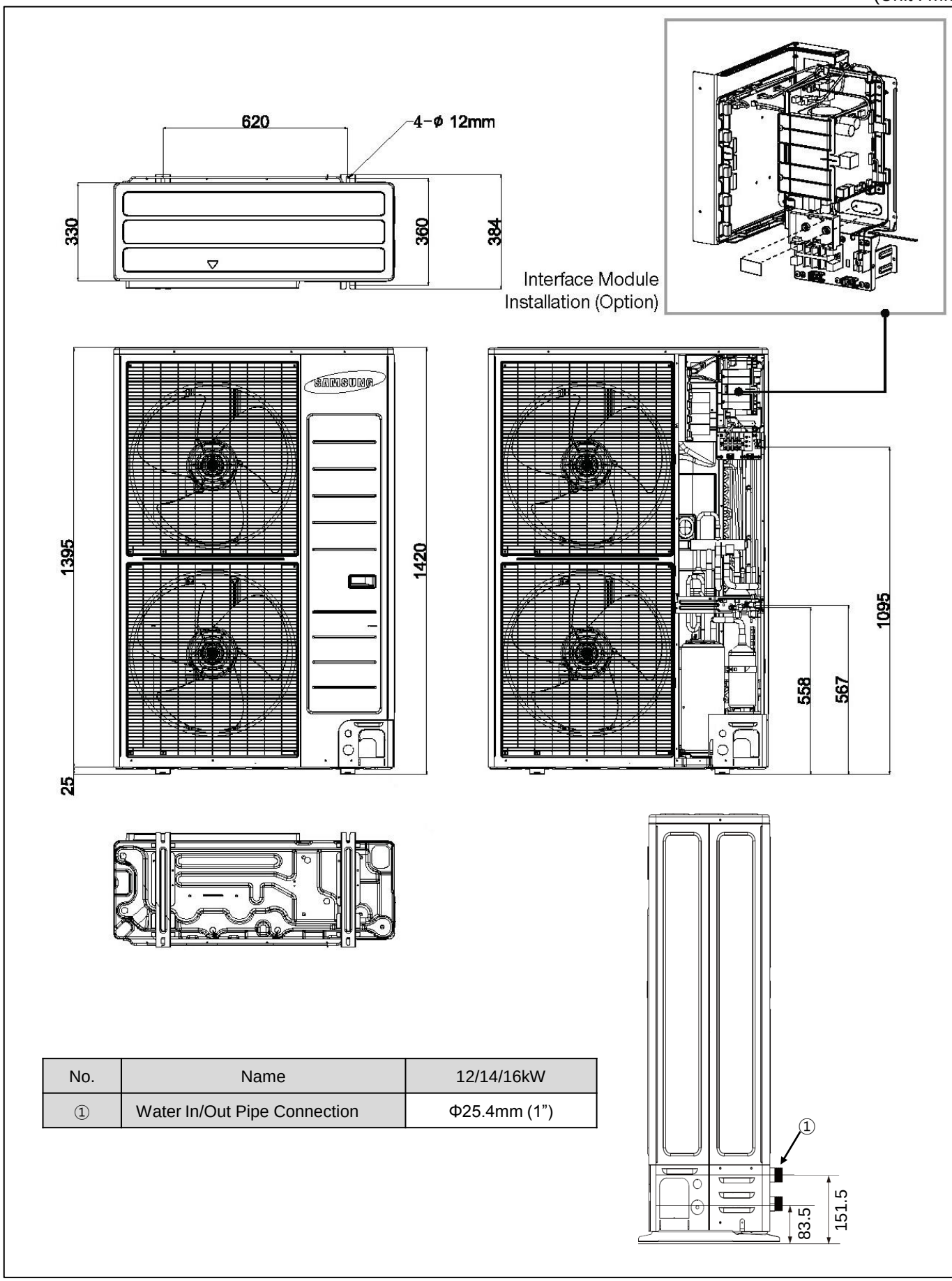
No.	Name	9kW
①	Water In/Out Pipe Connection	Φ25.4mm (1”)

3. Dimensional Drawings

3-1. Mono Outdoor Units

2) RC120/140/160MHX*

(Unit : mm)



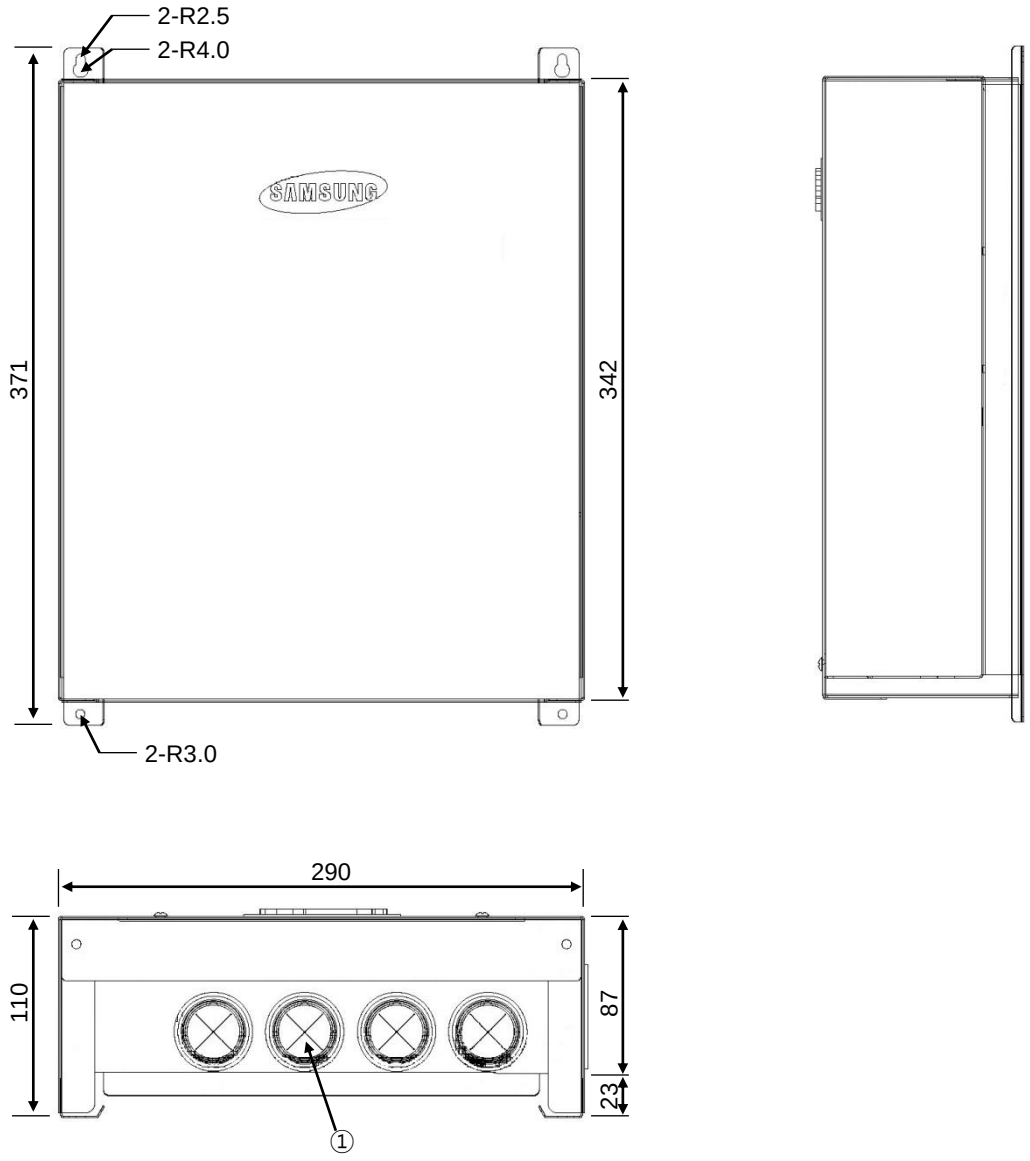
No.	Name	12/14/16kW
①	Water In/Out Pipe Connection	Φ25.4mm (1”)

3. Dimensional Drawings

3-2. Mono Control Kit

1) MIM-E03A

(Unit : mm)



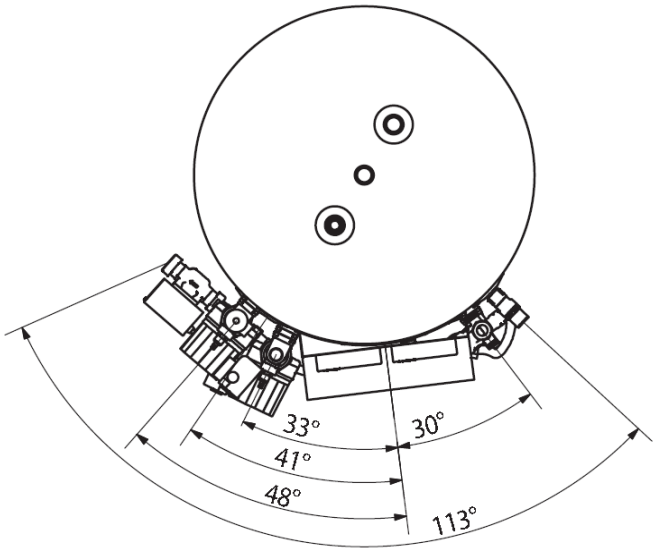
No.	Name	MIM-E03A
①	Conduit for Wiring (Rubber)	Φ27mm x 4

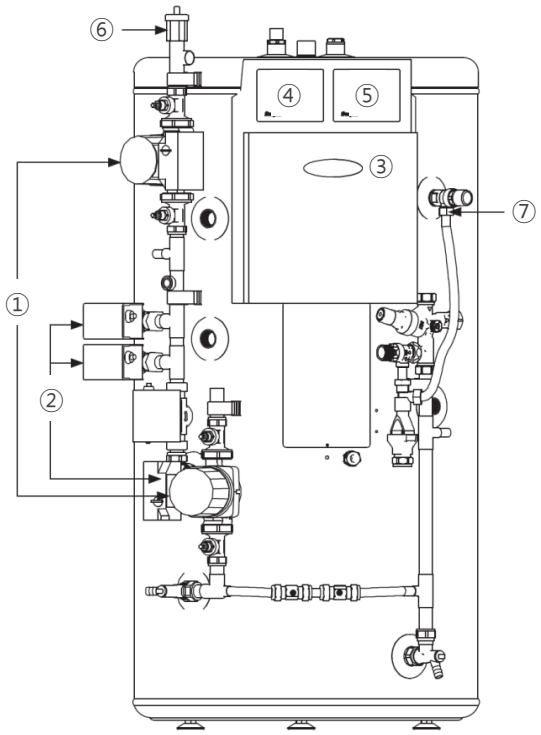
3. Dimensional Drawings

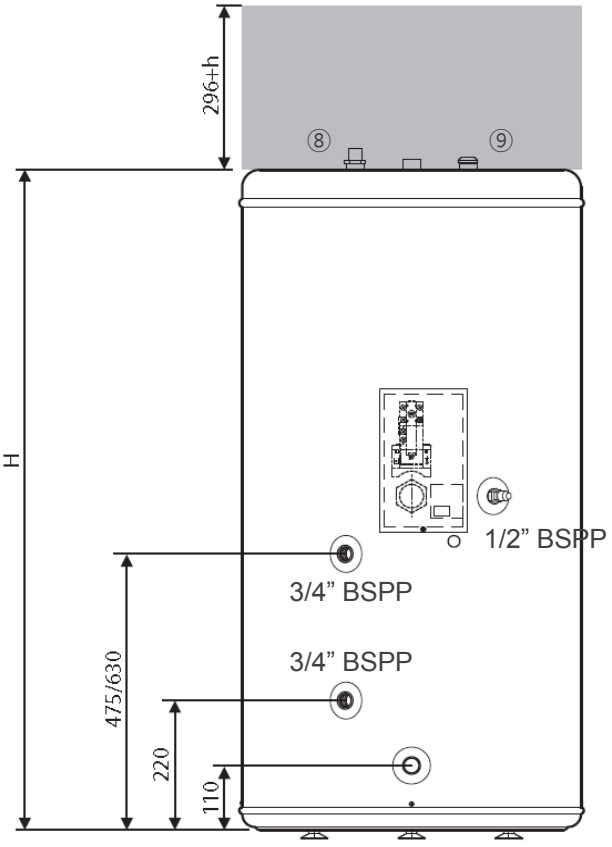
3-3. Mono Cylinder Units

1) NH200/300CHX*

(Unit : mm)







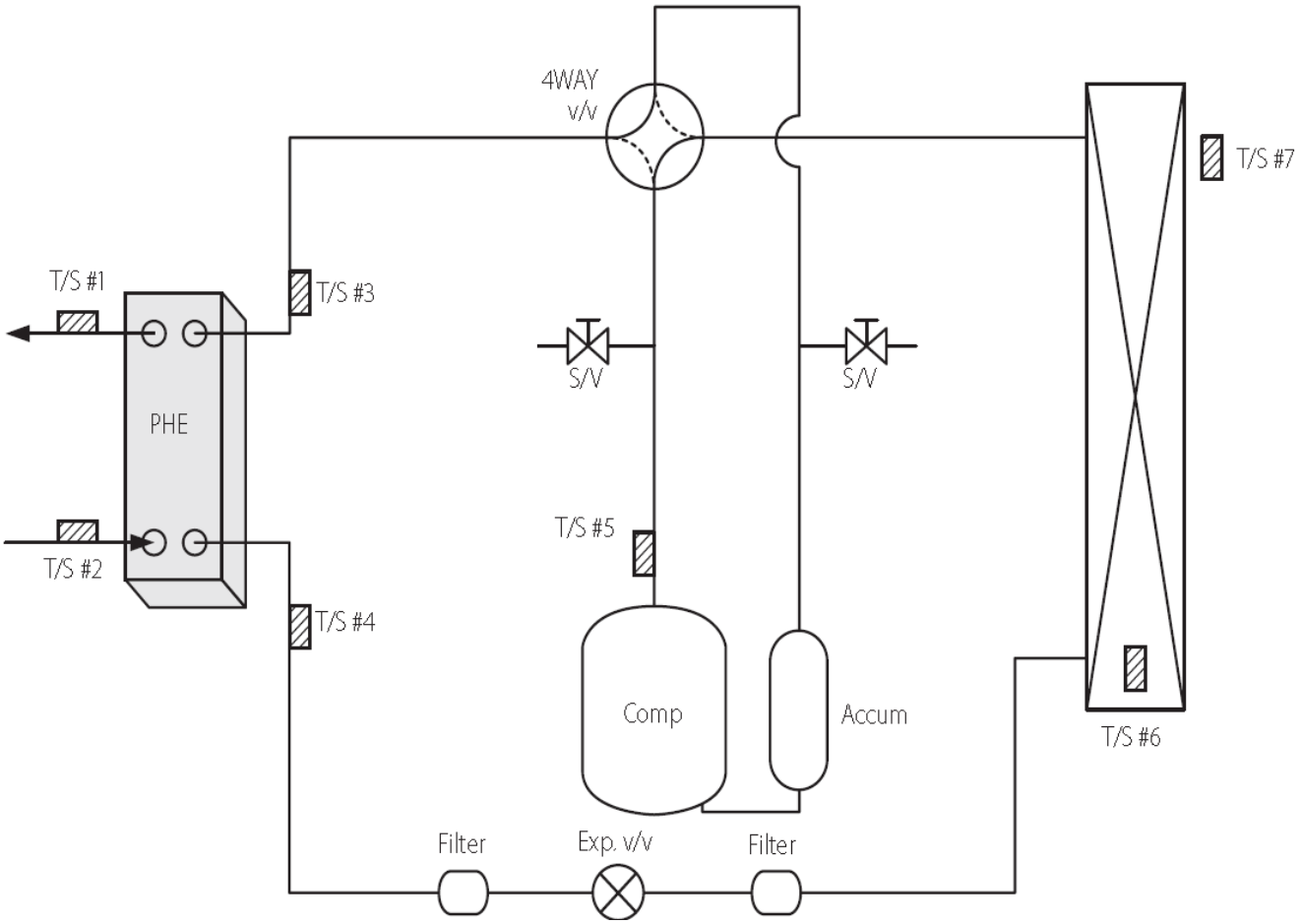
No.	Name	Qty
①	Water Pump	2
②	2way Valve	3
③	Control Kit	1
④	Wired Remote Controller	1
⑤	Receiver	1
⑥	Air Vent	1
⑦	Relief Valve	1

No.	Name	Qty
⑧	Recirculation	1
⑨	ANODE	1

Model	H	h
NH200CHXE*	1,130	800
NH300CHXE*	1,580	1,250

4. Piping Diagramss

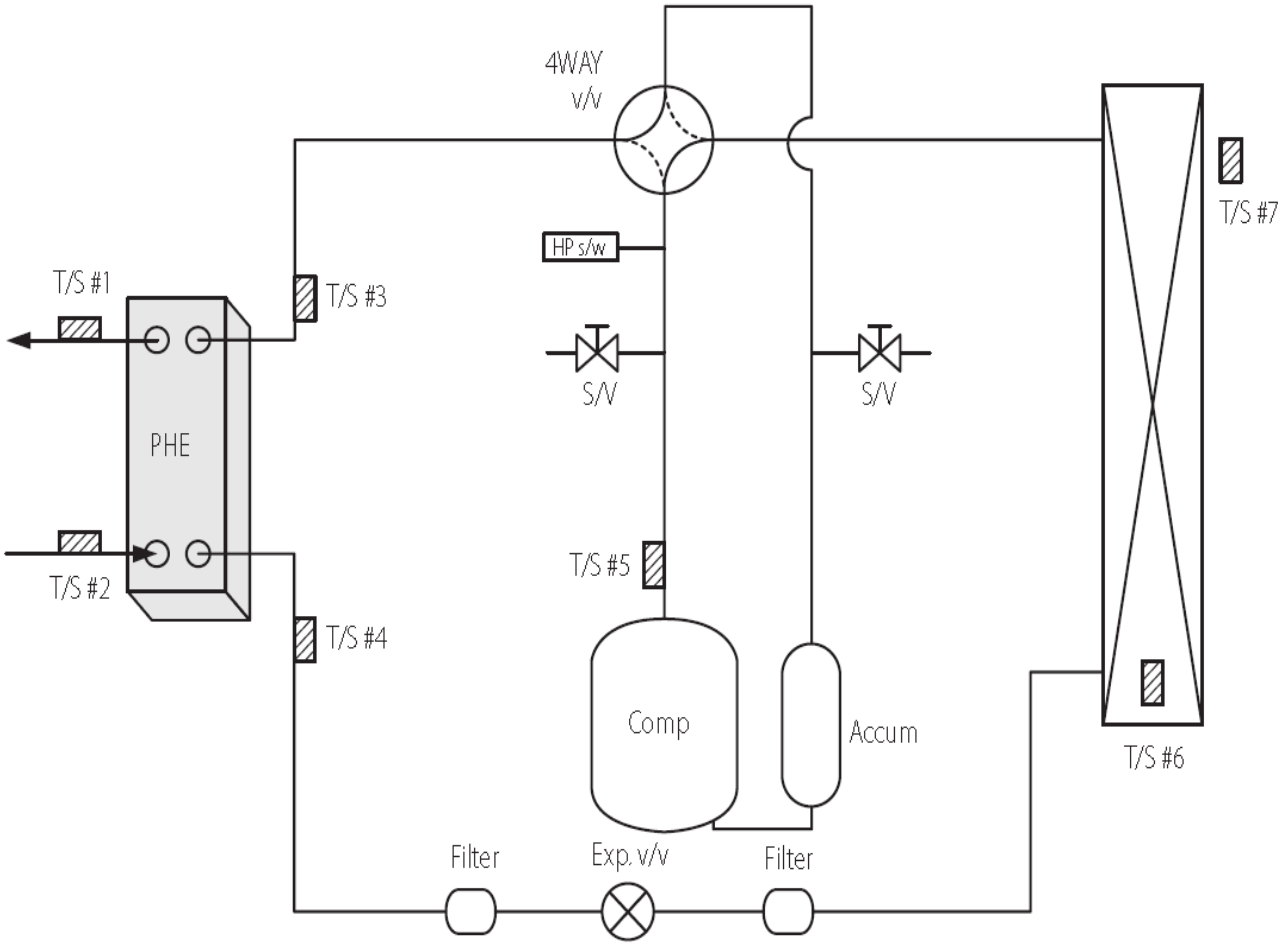
4-1. RC090MHX*



No.	Name	Description
①	PHE	Plate heat exchanger
②	T/S #1	For water outlet temperature sensor
③	T/S #2	For water inlet temperature sensor
④	T/S #3	For PHE in temperature sensor
⑤	T/S #4	For PHE out temperature sensor
⑥	T/S #5	For discharge temperature sensor
⑦	T/S #6	For condenser temperature sensor
⑧	T/S #7	For ambient temperature sensor
⑨	S/V	Service valve 1/4 inch
⑩	Accum	Accumulator
⑪	Exp. v/v	Expansion valve

4. Piping Diagrams

4-2. RC120/140/160MHX*

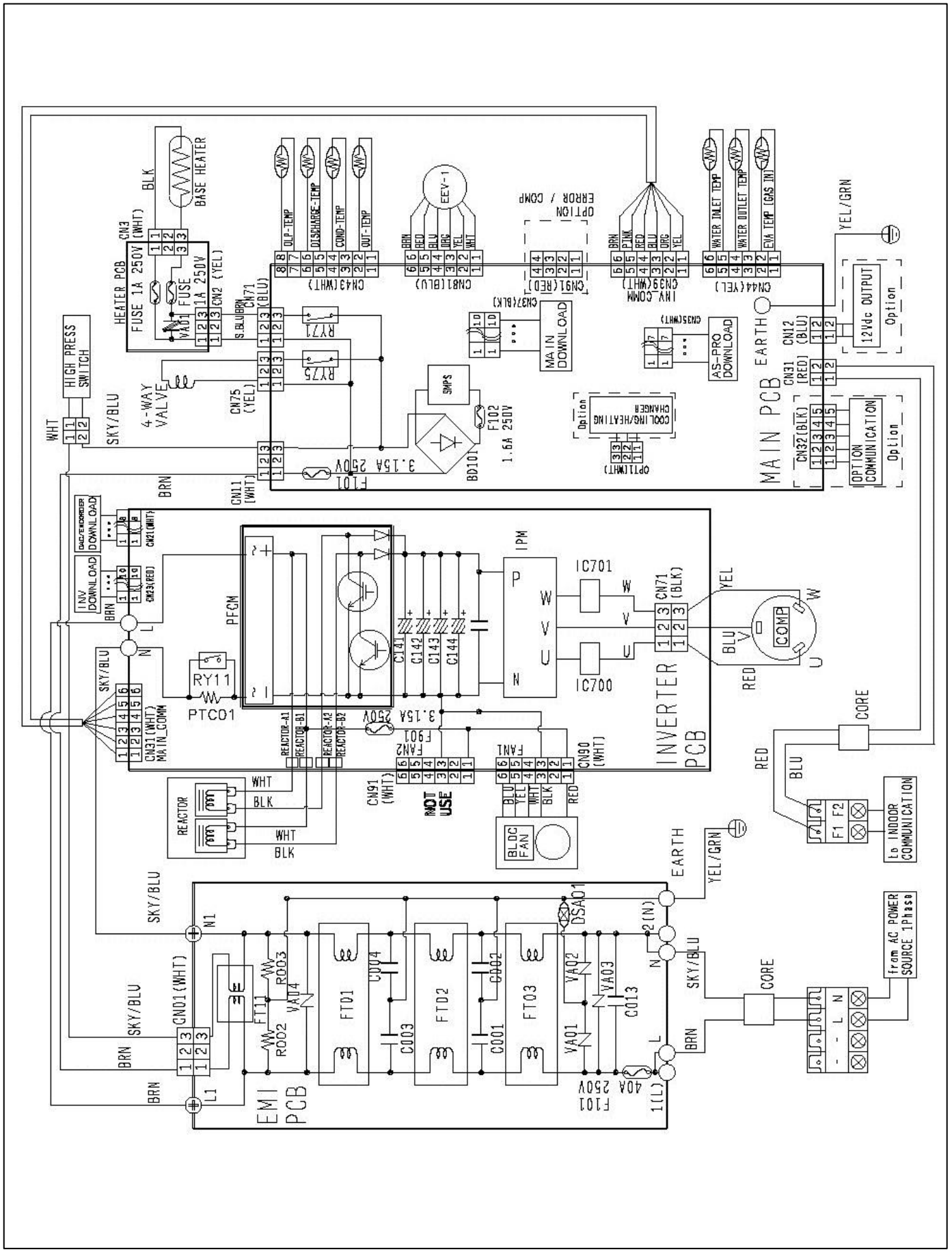


No.	Name	Description
①	PHE	Plate heat exchanger
②	T/S #1	For water outlet temperature sensor
③	T/S #2	For water inlet temperature sensor
④	T/S #3	For PHE in temperature sensor
⑤	T/S #4	For PHE out temperature sensor
⑥	T/S #5	For discharge temperature sensor
⑦	T/S #6	For condenser temperature sensor
⑧	T/S #7	For ambient temperature sensor
⑨	S/V	Service valve 1/4 inch
⑩	Accum	Accumulator
⑪	Exp. v/v	Expansion valve
⑫	HP s/w	High pressure switch

5. Wiring Diagrams

5-1. Mono Outdoor Units

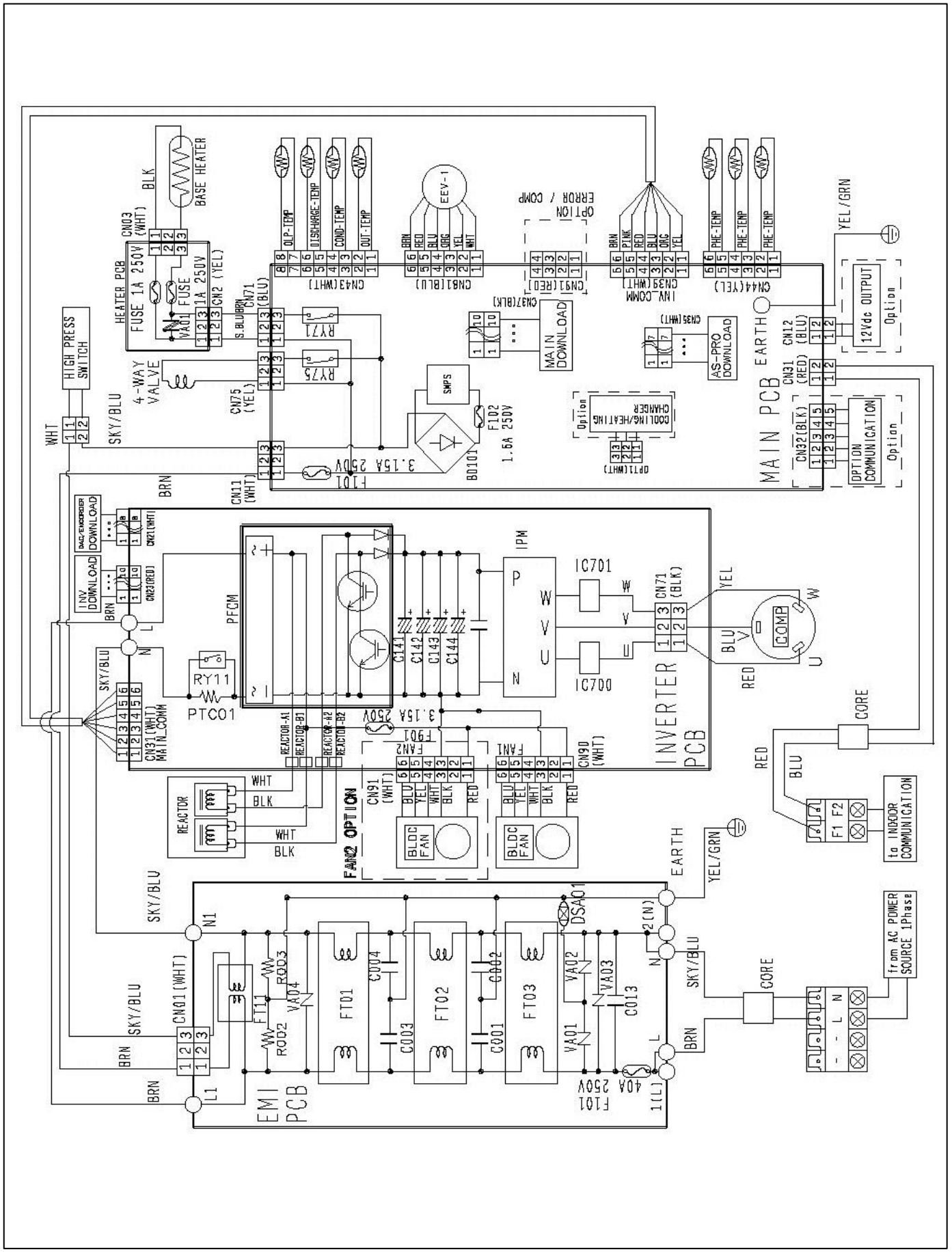
1) RC090MHXE*



5. Wiring Diagrams

5-1. Mono Outdoor Units

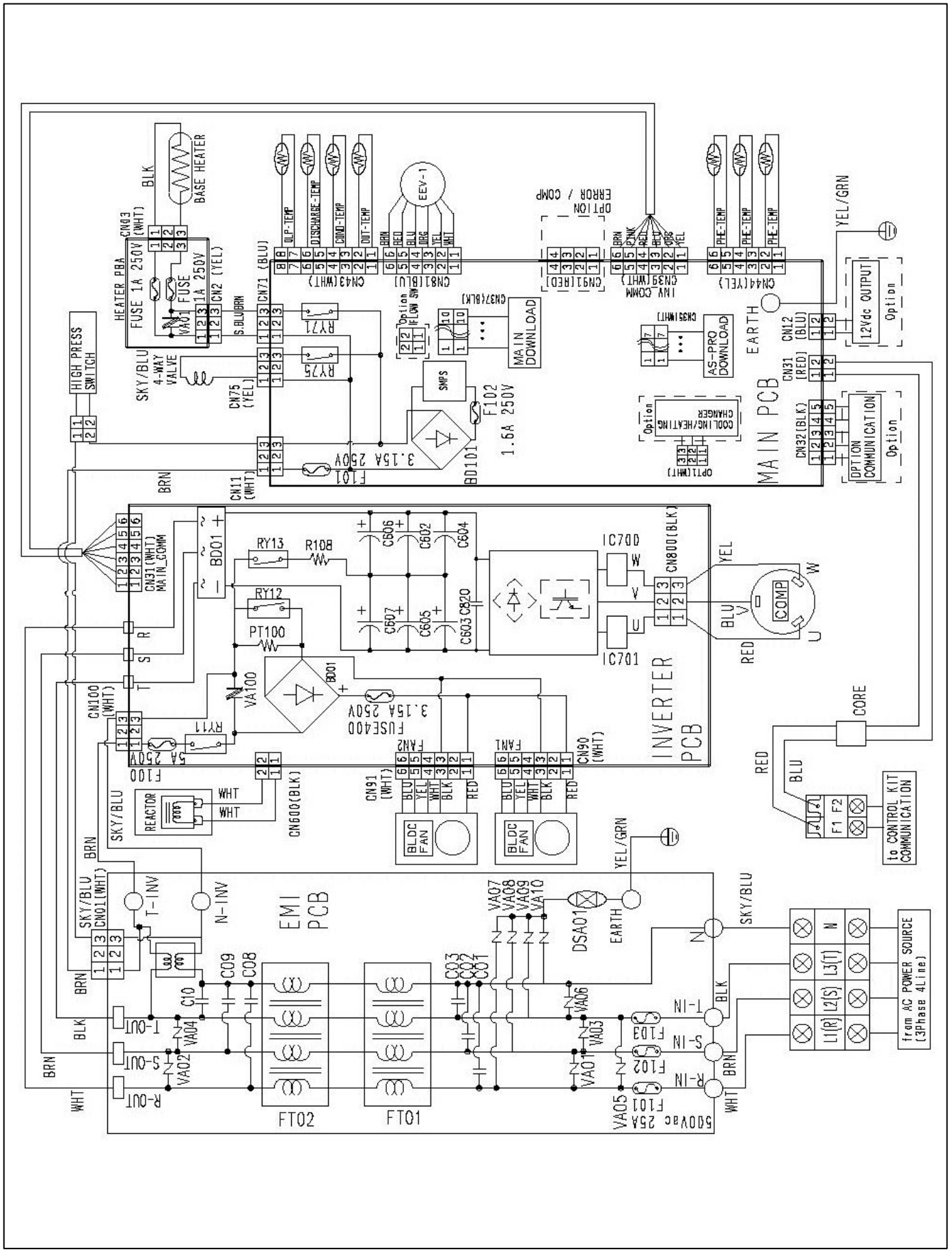
2) RC120/140/160MHXE*



5. Wiring Diagrams

5-1. Mono Outdoor Units

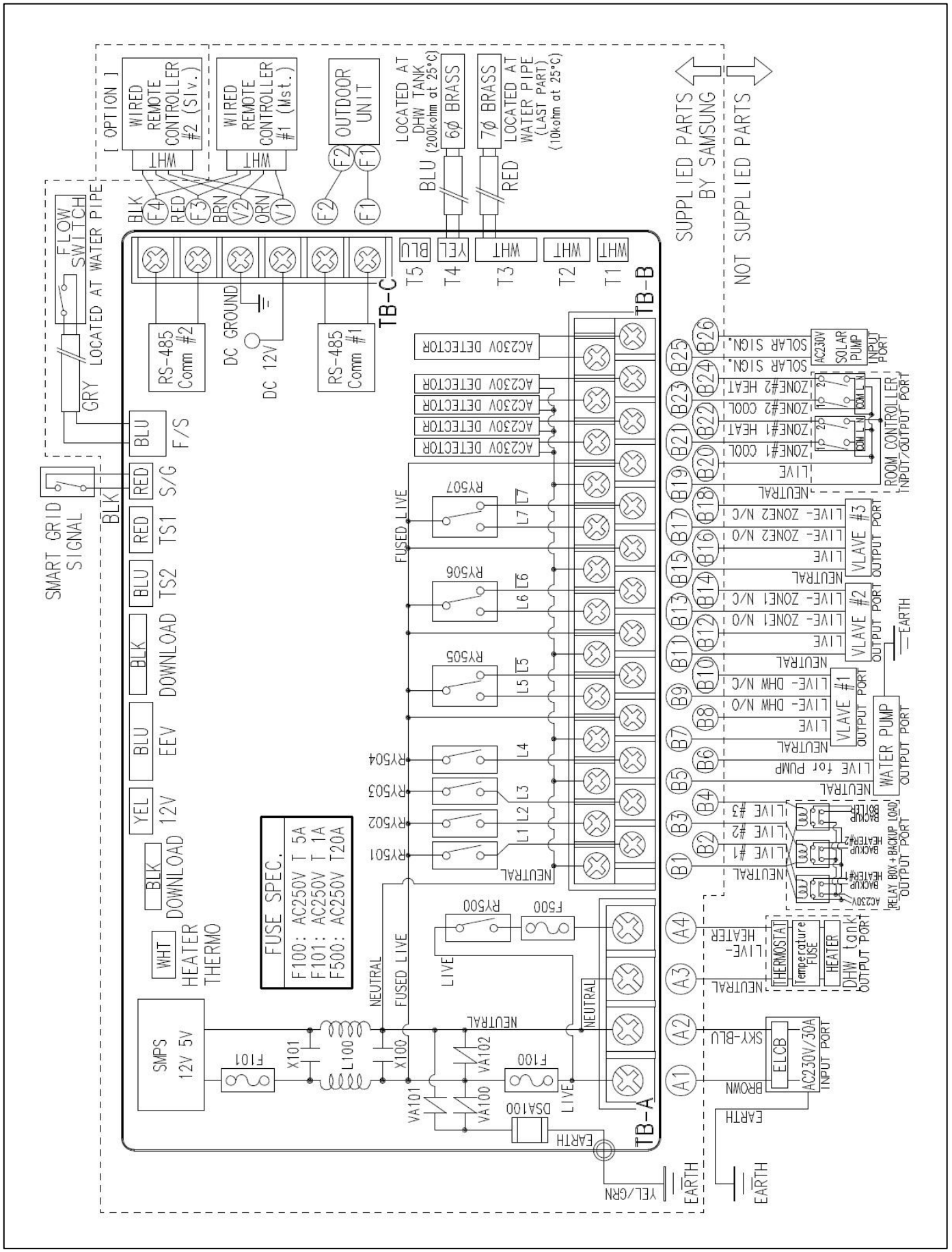
3) RC120/140/160MHXG*



5. Wiring Diagrams

5-2. Mono Control Kits

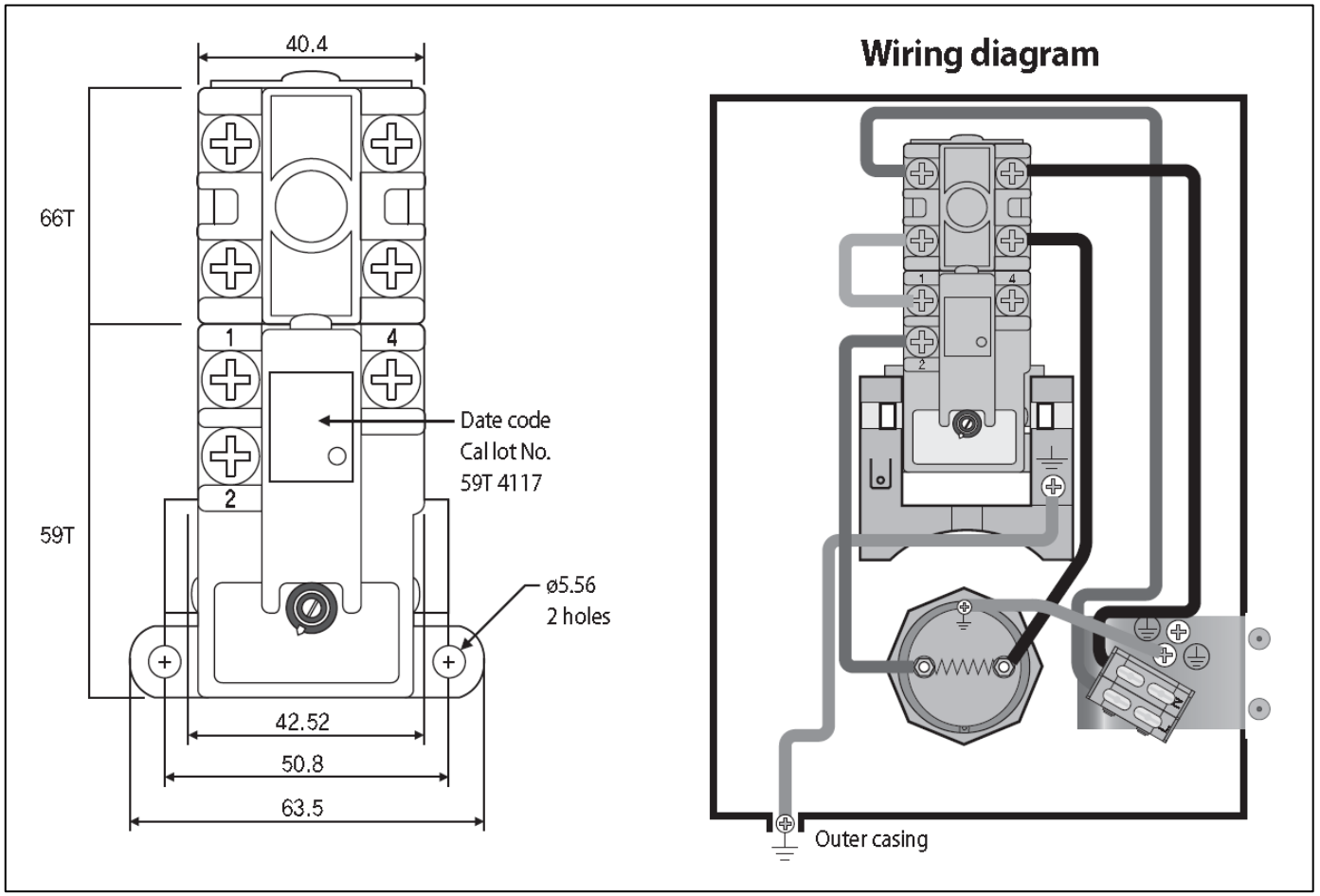
1) MIM-E03A



5. Wiring Diagrams

5-3. Mono Cylinder Units

1) NH200/300CHXE*



6. Electric Characteristics

6-1. Outdoor Units

Product	Model	Outdoor Unit					
		Rated		Voltage Range		Power Supply	
	Outdoor Unit	Hz	Volts	Min.	Max.	MCA	MFA
EHS GEN3 Mono	RC090MHXE*	50	220-240	198	264	26.0	32.5
	RC120MHXE*	50	220-240	198	264	34.0	42.5
	RC140MHXE*	50	220-240	198	264	34.0	42.5
	RC160MHXE*	50	220-240	198	264	34.0	42.5
	RC120MHXG*	50	380-415	342	456.5	16.1	20.1
	RC140MHXG*	50	380-415	342	456.5	16.1	20.1
	RC160MHXG*	50	380-415	342	456.5	16.1	20.1

※ Notes

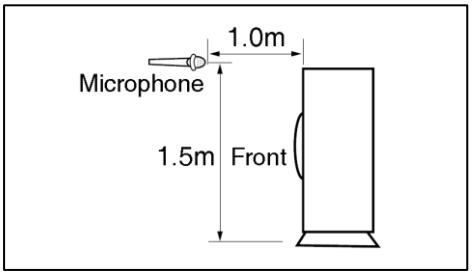
1. Voltage range
   - Units are suitable for use on electrical systems where voltage supplied to unit terminal is below or above listed range limits.
2. Maximum allowable voltage variation between phases is 2%.
3. Wire size & type must comply with the applicable local and national code.
   - Wire size : Based on the value of MCA.
   - Wire type : 60245 IEC57(IEC) or H05RN-F(CENELEC) grade or above.
4. MFA is used to select the circuit breaker and the ground fault circuit interrupter(earth leakage circuit breaker).
5. MCA represents maximum input current.
6. MFA represents capacity which may accept MCA.
7. This equipment complying with IEC 61000-3-12.

※ Abbreviations

1. MCA : Min. Circuit Amps. (A)
2. MFA : Max. Fuse Amps. (A)

7. Sound Pressure Level

7-1. Operation Sound Level

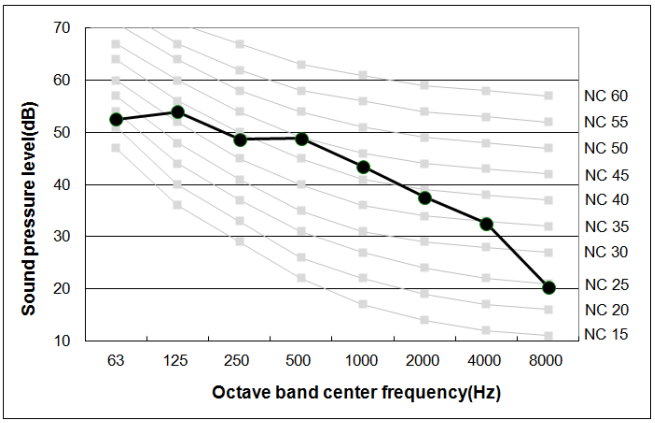


Unit (dB(A))

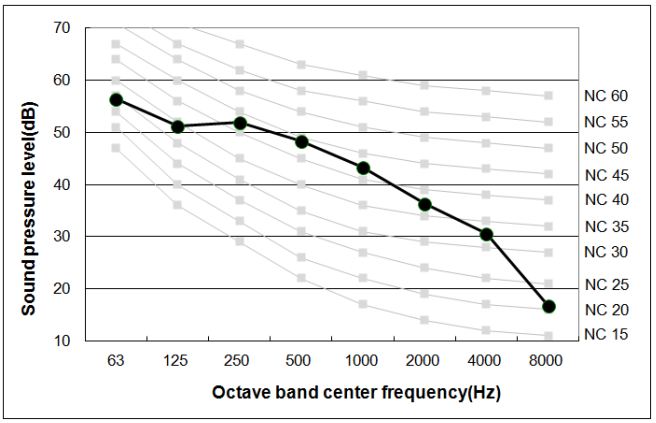
Model	Heating	Cooling
RC090MHX*	50	51
RC120MHX*	50	51
RC140MHX*	52	53
RC160MHX*	53	54

7-2. NC Curve

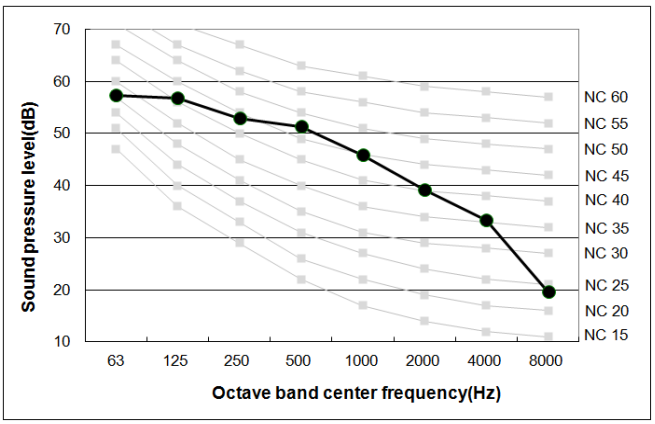
1) RC090MHX*



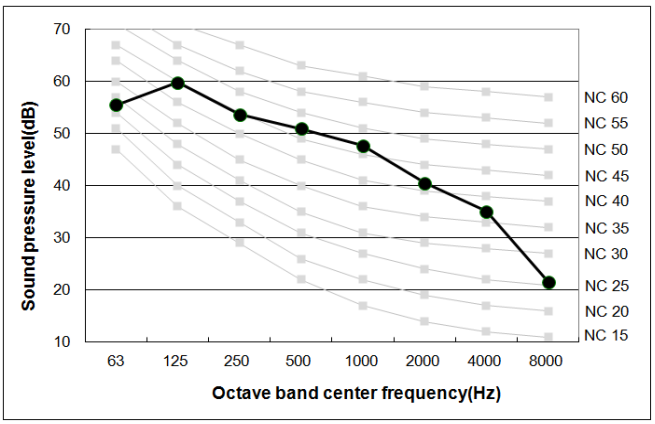
2) RC120MHX*



3) RC140MHX*



4) RC160MHX*



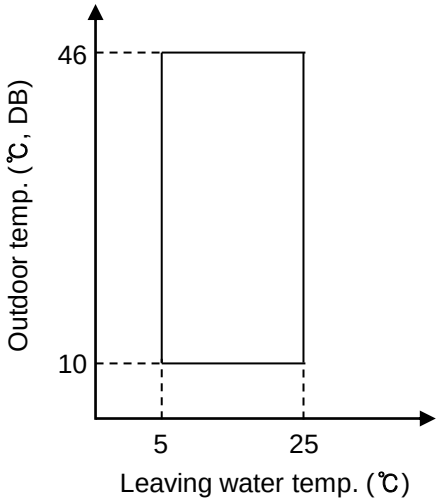
※ Notes

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

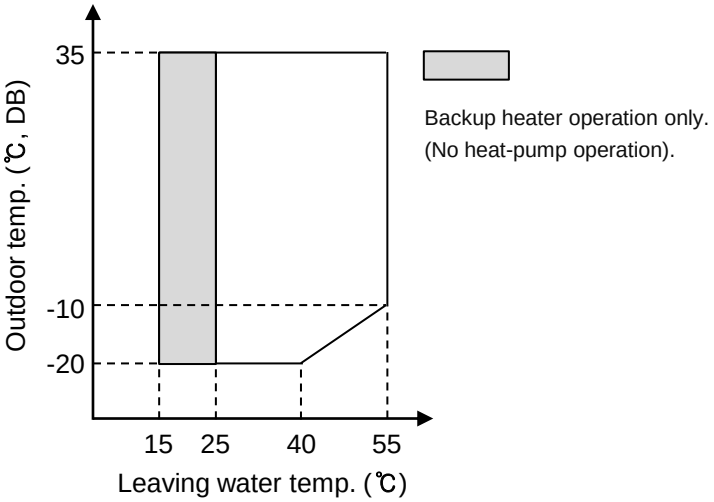
8. Operation Range

8-1. Outdoor Units

1) Cooling



2) Heating



-		Water Temp. (℃)			Water Flow Rates (LPM)			Air Temp. (℃, DB/WB)		
		Min	Std	Max	Min	Std	Max	Min	Std	Max
Controller	Cooling	5	-	25						
	Heating	15	-	55						
Cooling	Inlet	-	23 (12*2)	30	16 (12*1)	Δ 5℃	58 (42*1)	10/-	35/24	46/27
	Outlet	5	18 (7*2)	25						
Heating	Inlet	5	30 (40*2)	-				-20/-	7/6 (-7/-8*3)	35/24
	Outlet	25(15*4)	35 (45*2)	55						

*1) Figures in brackets are for 9kW model.

*2) Figures in brackets are based on Eurovent Test Condition #2

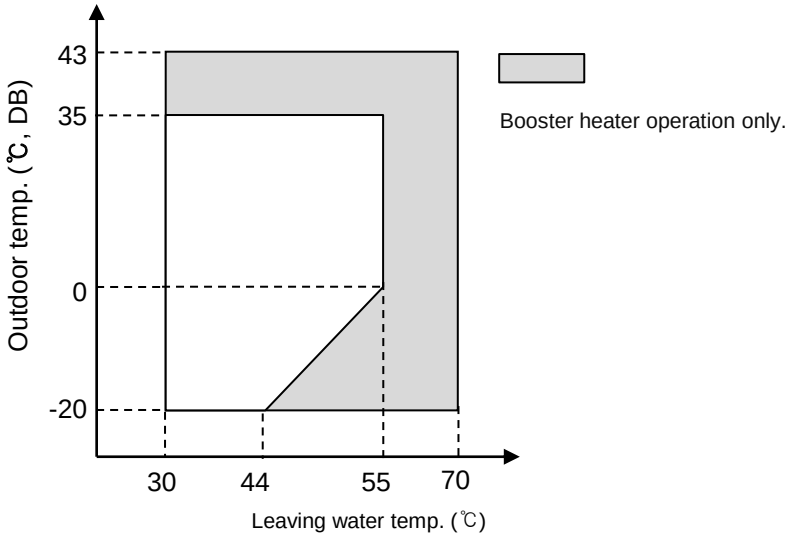
*3) Figures in brackets are based on NF PAC Low Temp. Heating Condition.

*4) Figures in brackets are based on back up heater operation only.

8. Operation Range

8-2. Cylinder Units

1) DHW Mode

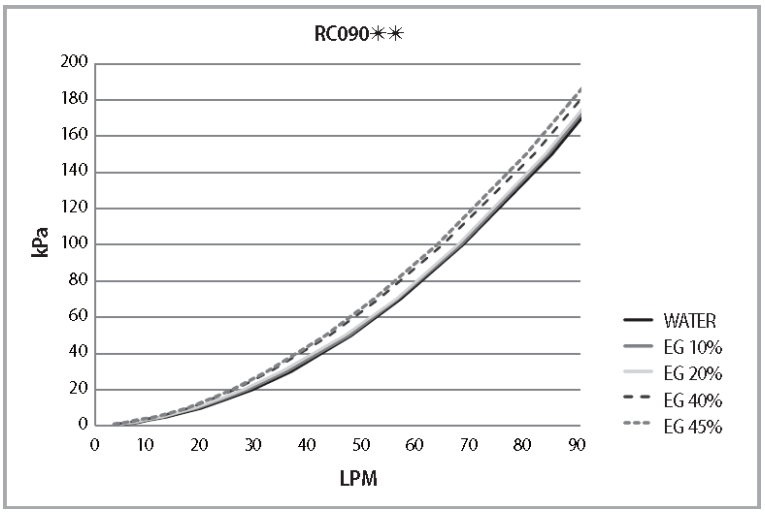


-		Water Temp. (℃)			Water Flow Rates (LPM)			Air Temp. (℃, DB/WB)		
		Min	Std	Max	Min	Std	Max	Min	Std	Max
Controller	DHW	30	-	70						
Cooling	Outlet	30	-	70	-	-	-	-20/-	-	43/26

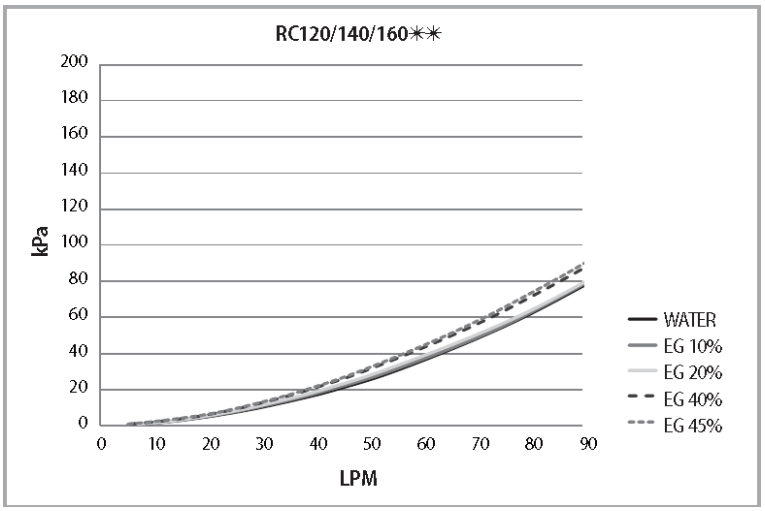
9. Hydraulic Performance

9-1. Correction Graph

1) RC090MHX*



2) RC120/140/160MHX*



※ Notes

1. To ensure correct operation and predict the expected performance, this graph can be used.
2. Flow and resistance characteristic is dependent on anti-freezer concentration.

※ Abbreviations

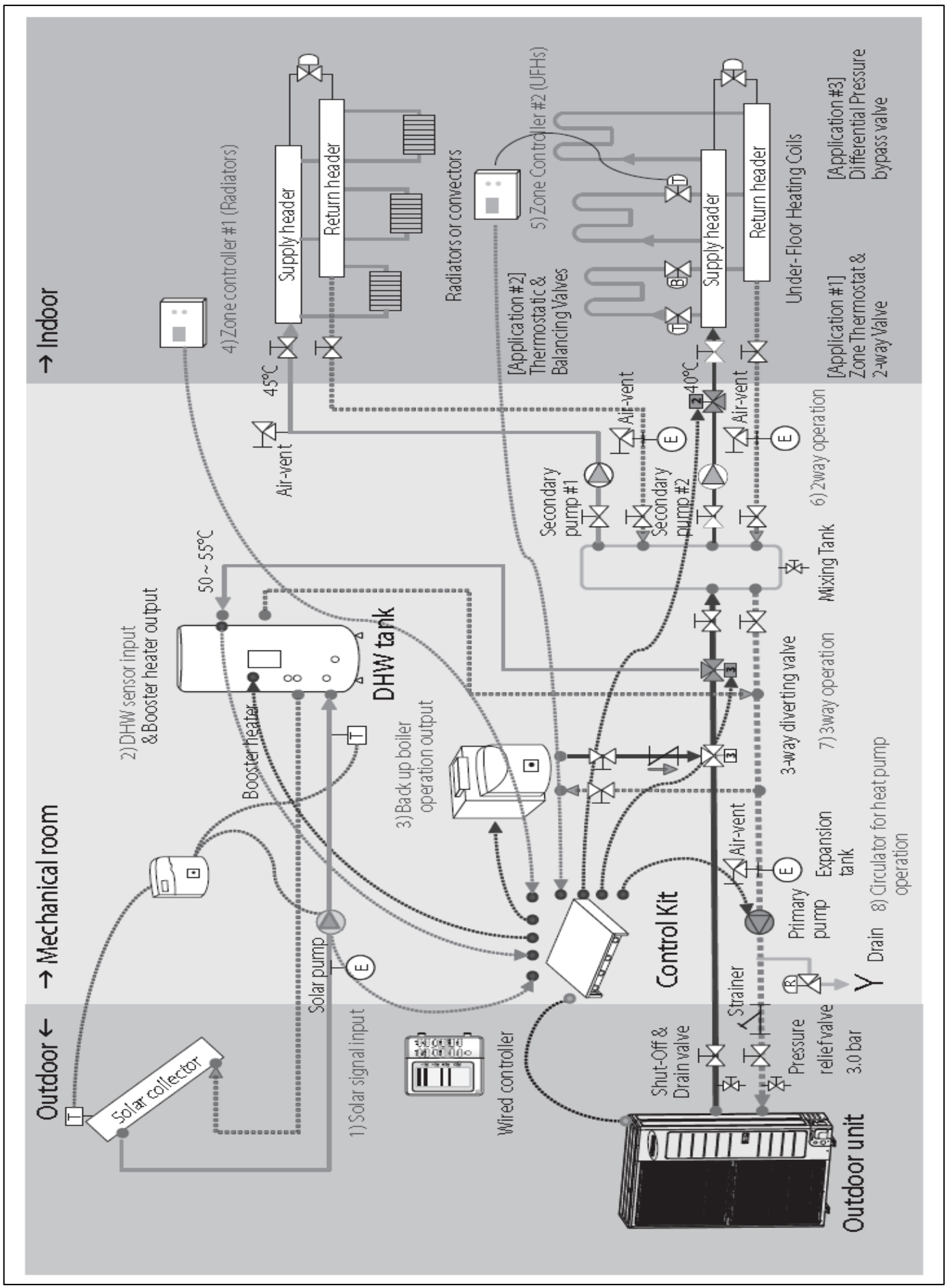
1. EG : Ethylene Glycol

III. Application

1. Application Examples ……..……..…..…..…… 36

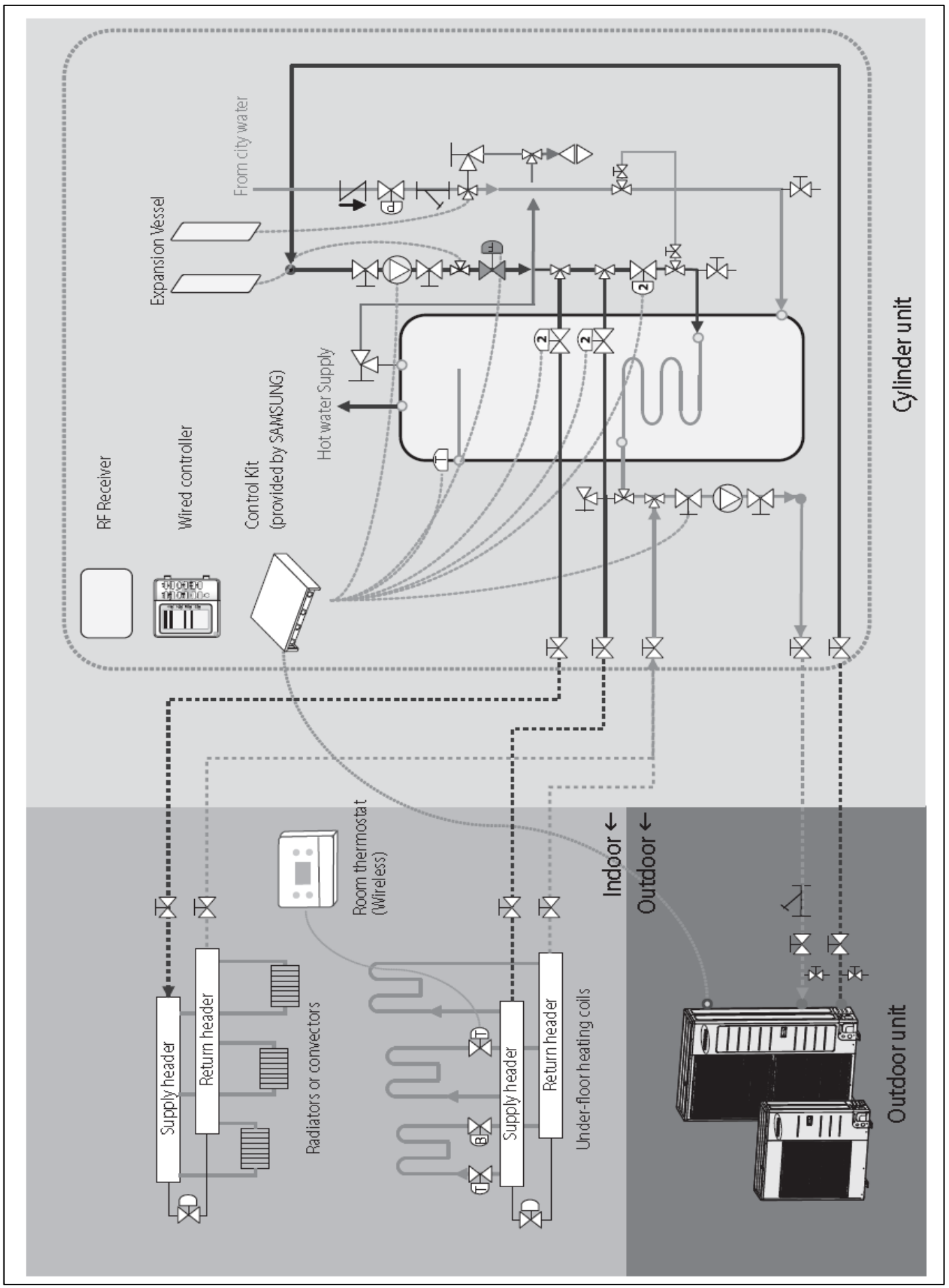
1. Application Examples

1-1. Mono Outdoor Unit + Mono Control Kit



1. Application Examples

2) Mono Outdoor Unit + Mono Cylinder Unit



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