

Samtec OÜ

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**Lugupeetud
Sven Soomuste**

Harjumaa

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Pakkumine -002280

Kivi 2, Lubja - soojuspump

Koostatud: 2020-04-29

Pakkumine kehtib kuni: 2020-05-31

#	Toode	Kogus	Tüki Hind	Hind
1	EHS mono - AE120JXYDGH/MIM-E03AN* Õhk-vesi soojuspump Samsung EHS Mono Küttevõimsus 12kW , COP 4,51; SCOP 4,46	1 kompl	3330.00	3330.00
2	PAIG - Betoonalus Betoonalus maaraamile 1100x700x50	1 tk	35.00	35.00
3	PAIG - Maaraam* Kuumkalvaniseeritud maaraam soojuspumba välisosale. Kõrgus 550mm, laius 435-770mm, sügavus 600mm	1 tk	50.00	50.00
4	Tsirk. Tsirkulatsioonipump küttesüsteemile 25-8 soojuspumba ja akupaagi vaheline	1 tk	255.00	255.00
5	TML - HYB 300* Tarbevee boiler puhvermahutiga soojuspumbale. Tarbevee mahtuvus 290l. Puhvermahuti mahtuvus 45l. Tarbevee süüa pindala 3,8m² Diameeter Ø 690mm. Kõrgus 1925mm	1 tk	980.00	980.00
6	Tsirk. Tsirkulatsioonipump küttesüsteemile 25-6	1 tk	180.00	180.00
7	PAIG - RER 30* Elektriküttekiha 3 kW vasest 230V, termostaadi- ja kaitselülitiga	2 tk	70.00	140.00

8	PAIG - õhk/vesi HYB*	1 kompl	1350.00	1350.00
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Soojuspumba paigaldusele eelnevad ettevalmistustööd:
Katlaruumis peab olema avariitrapp ja viimistlus tööd lõpetatud.
Katlaruum peaks olema mitte alla 2,5 m2 ja varustatud veevõtu sõlmega.
Elktritoide : kaitseautomaadid C16A x 2 ja vaskkaablid 5 x 2,5 mm2 x 2 või kaitseautomaat C25A x 1 ja vaskkaabel 5 x 4mm2 x 1
Hinnapakkumine sisaldab :
Soojuspumba ühendamist eelmarkeeritud, täidetud ja õhutatud kütteringiga, peale- ja tagasivool lõppeb kuulkraaniga katlaruumis, ning mitte rohkem kui 2 m kaugusel soojuspumbast.
Seadmete ja tarvikute transporti objektile, põhimõttelist skeemi ning paigaldustöid.
Soojuspumba käivitamist, seadistamist ja koolitamist.
Hinnapakkumine ei sisalda:
Kütte- ja veetorude isoleerimist.
Sooja tarbevee retsirkulatsiooni pumpa
Betoonalust soojuspumba välisosale.
Projektdokumentatsiooni ja teostusjooniseid.
Tuletõkke töid.
Töövälist tööaega.
Üldehitus-, viimistlus-, hüdroisolatsioonitöid ja avade täidet.

Hind ilma käibemaksuta	6320.00€
Käibemaks (20.00%)	1264.00€
Kokku	7584.00€

EHS

Technical Data Book

EHS Mono for Europe

(R410A, 50Hz, H/P)



Model : AE***JXYDEH/EU
AE***JXYDGH/EU

SAMSUNG

※ History List

Version	Date	Update Information
1.0	'15.03.30	- 2015 New EHS Mono TDB Released. (Except SCOP / ESEER)
1.1	'15.04.06	- Add SCOP / ESEER
1.2	'15.04.10	- Modify Capacity Table
1.3	'15.06.19	- Add 5kW Model / Control KIT (E03BN) - Modify : Change the Note for Refrigerant
1.4	'15.06.22	- Modify Product Gross for 5kW Model - Modify : Piping Diagram / Operating Range for DHW
1.5	'16.04.11	- Modify : Nominal Capacity / Power Input / Power Current / Shipping Size Heating Capacity Table (Peak & Integrated) / Outdoor Unit Drawing
1.6	'16.09.02	- Modify : Additional inch units on the Diminsional drawings
1.7	'16.10.27	- Add Heat Exchanger Type & Installation Part
1.8	'16.12.09	- Add tCO2e data (Specifications)



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I. Products

1. Nomenclature
2. Line-up

1. Nomenclature

1-1. Outdoor Unit

Model Name (New)

AE	090	J	X	Y	D	E	H	/	EU
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(Buyer)

(1) Classification		(5) Type	
AE	EHS	Y	Mono (Outdoor Unit)
(2) Capacity		(6) Feature 1	
x 1/10 kW (3 digits)		D	DELUXE (Basic)
(3) Version		(7) Rating Voltage	
J	2015	E	1Φ, 220~240V, 50Hz
(4) Product Type		G	3Φ, 380~415V, 50Hz
N	Indoor	(8) Mode	
X	Outdoor	H	Heat Pump
			R410A

2. Line-up

2-1. Outdoor Unit

Mono Type	Capacity (kW)				
	5.0	9.0	12.0	14.0	16.0
1 Phase	 AE050JXYDEH	 AE090JXYDEH	 AE120JXYDEH	 AE140JXYDEH	 AE160JXYDEH
3 Phases	N/A	 AE090JXYDGH	 AE120JXYDGH	 AE140JXYDGH	 AE160JXYDGH

2-2. Control Kit

Control Unit
 MIM-E03A(B)N

II. Specifications

1. Specifications
2. Capacity Tables
3. Dimensional Drawings
4. Piping Diagrams
5. Wiring Diagrams
6. Electric Specifications
7. Sound Pressure Level
8. Operation Range
9. Hydraulic Performance

1. Specifications

1-1. Outdoor Unit

Type					Mono	Mono	Mono	
Model Name		Outdoor Unit			AE050JXYDEH/EU	AE090JXYDEH/EU	AE120JXYDEH/EU	
System	Mode			-	Heat Pump (A2W)	Heat Pump (A2W)	Heat Pump (A2W)	
	Performance (A7/W35) * ¹	Nominal Capacity (Min/Std/Max)	Heating	kW	1.667 / 5.00 / 5.00	2.20 / 9.00 / 9.00	3.75 / 12.00 / 12.00	
				Btu/h	5,700 / 17,100 / 17,100	7,500 / 30,700 / 30,700	12,800 / 40,900 / 40,900	
			Cooling	kW	1.625 / 5.00 / 5.00	1.75 / 7.50 / 7.50	3.30 / 12.00 / 12.00	
				Btu/h	5,500 / 17,100 / 17,100	6,000 / 25,600 / 25,600	11,300 / 40,900 / 40,900	
		Power Input (Nominal) (Min/Std/Max)	Heating	kW	0.348 / 1.06 / 1.06	0.49 / 2.14 / 2.14	0.809 / 2.66 / 2.66	
			Cooling		0.438 / 1.21 / 1.21	0.48 / 1.95 / 1.95	0.853 / 3.16 / 3.16	
		Current Input (Nominal) (Min/Std/Max)	Heating	A	1.6 / 5.1 / 5.1	2.3 / 9.2 / 9.2	3.7 / 12.0 / 12.0	
			Cooling		2.0 / 5.7 / 5.7	2.2 / 9.0 / 9.0	3.9 / 14.3 / 14.3	
		COP (Nominal Heating)				4.72	4.21	4.51
		EER (Nominal Cooling)				4.13	3.85	3.80
		SCOP(35℃)				4.50	4.41	4.46
		ESEER				5.29	5.07	4.98
	Performance (A2/W35) * ²	Capacity	Heating	W	4,500	7,000	9,800	
		COP			3.46	3.00	3.32	
	Performance (A-7/W35) * ³	Capacity	Heating	W	4,700	7,600	10,300	
		COP			2.69	2.39	2.61	
	Field Wiring	MCA		A	20	22	28	
		MFA		A	25	27.5	35	
	Water Connections	Water Flow Rate (Heating/Cooling)		LPM	14.5/14.5	26/22	35/35	
		Water Pressure (Max)		bar	3	3	3	
		Water Pipe	Inlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
			Outlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
		Leaving Water Temperature	Heating	℃	25~55	25~55	25~55	
			Cooling	℃	5~25	5~25	5~25	
Refrigerant	Type			R410A	R410A	R410A		
	Control Method			EEV INCLUDED	EEV INCLUDED	EEV INCLUDED		
	Factory Charging		g / tCO2e	1,150 / 2.40	1,400 / 2.92	2,600 / 5.43		
Outdoor Unit	Power Supply			V, Hz, Φ	220~240V, 50Hz, 1Φ	220~240V, 50Hz, 1Φ	220~240V, 50Hz, 1Φ	
	Compressor	Type			BLDC Twin Rotary	BLDC Twin Rotary	BLDC Twin Rotary	
		Model			UG4TH200FUA4	UG8TH8265FJW	UG5T450FU	
		Oil			POE	POE	PVE	
	Fan	Air Flow Rate	Cooling	CMM	51	66	99	
				l/s	850	1100	1650	
		Number of Unit		EA	1	1	2	
	Base Heater			W	N/A	150	150	
	Sound* ⁴	Sound Pressure	Heating	dB(A)	45	48	50	
			Cooling	dB(A)	45	48	50	
		Sound Power	Heating	dB	61	63	64	
			Cooling	dB	62	64	65	
	External Dimension	Net Weight		kg	59.0	76.0	108.0	
		Shipping Weight		kg	63.0	84.0	118.0	
		Net Dimensions (WxHxD)		mm	880 x 798 x 310	940 x 998 x 330	940 x 1,420 x 330	
		Shipping Dimensions (WxHxD)		mm	1023 x 937 x 413	995 x 1,178 x 426	995 x 1,598 x 426	
	Operating Temp. Range	Heating* ⁵		℃	-25~35	-25~35	-25~35	
Cooling		℃	10~46	10~46	10~46			
DHW Tank* ⁶		℃	-25~43	-25~43	-25~43			

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

*2) A2W Condition #2 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB 2°C/1°C

*3) A2W Condition #3 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB -7°C/-8°C

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

*5) At the temperature -25°C ~ -20°C, operation is available but capacity cannot be guaranteed.

*6) Heat pump operating range of DHW : -25°C ~ 35°C.

※ Heat Exchanger type : Condensor - Fin & Tube (Fin : Al, Tube : Cu),
Plate Heat Exchanger(PHE) (STS)

7) These products contain R410A(GWP=2,088) which is fluorinated greenhouse gas.

1. Specifications

1-1. Outdoor Unit

Type					Mono	Mono	Mono	
Model Name		Outdoor Unit			AE140JXYDEH/EU	AE160JXYDEH/EU	AE090JXYDGH/EU	
System	Mode			-	Heat Pump (A2W)	Heat Pump (A2W)	Heat Pump (A2W)	
	Performance (A7/W35) ^{*1}	Nominal Capacity (Min/Std/Max)	Heating	kW	3.75 / 14.00 / 14.00	3.75 / 16.00 / 16.00	2.20 / 9.00 / 9.00	
				Btu/h	12,800 / 47,800 / 47,800	12,800 / 54,600 / 54,600	7,500 / 30,700 / 30,700	
			Cooling	kW	3.30 / 13.00 / 13.00	3.30 / 14.00 / 14.00	1.75 / 7.00 / 7.00	
				Btu/h	11,300 / 44,400 / 44,400	11,300 / 47,800 / 47,800	6,000 / 23,900 / 23,900	
		Power Input (Nominal) (Min/Std/Max)	Heating	kW	0.809 / 3.14 / 3.14	0.809 / 3.80 / 3.80	0.49 / 2.14 / 2.14	
			Cooling		0.853 / 3.50 / 3.50	0.853 / 3.84 / 3.84	0.48 / 1.92 / 1.92	
		Current Input (Nominal) (Min/Std/Max)	Heating	A	3.7 / 14.3 / 14.3	3.7 / 17.1 / 17.1	0.8 / 3.5 / 3.5	
			Cooling		3.9 / 15.7 / 15.7	3.9 / 17.3 / 17.3	0.8 / 3.2 / 3.2	
		COP (Nominal Heating)				4.46	4.21	4.21
		EER (Nominal Cooling)				3.71	3.65	3.65
		SCOP(35℃)				4.43	4.41	4.41
		ESEER				4.97	4.92	4.69
	Performance (A2/W35) ^{*2}	Capacity	Heating	W	11,200	12,500	7,000	
		COP			3.26	3.10	3.00	
	Performance (A-7/W35) ^{*3}	Capacity	Heating	W	10,800	13,400	7,600	
		COP			2.56	2.47	2.39	
	Field Wiring	MCA			A	30	32	10
		MFA			A	37.5	40	16.1
	Water Connections	Water Flow Rate (Heating/Cooling)			LPM	40/37	46/40	26/21
		Water Pressure (Max)			bar	3	3	3
		Water Pipe	Inlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
			Outlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
		Leaving Water Temperature	Heating	℃	25~55	25~55	25~55	
			Cooling	℃	5~25	5~25	5~25	
	Refrigerant	Type				R410A	R410A	R410A
		Control Method				EEV INCLUDED	EEV INCLUDED	EEV INCLUDED
		Factory Charging			g / tCO2e	2,600 / 5.43	2,600 / 5.43	1,500 / 3.13
Outdoor Unit	Power Supply			V, Hz, Φ	220~240V, 50Hz, 1Φ	220~240V, 50Hz, 1Φ	380~415V, 50Hz, 3Φ	
	Compressor	Type				BLDC Twin Rotary	BLDC Twin Rotary	BLDC Twin Rotary
		Model				UG5T450FU	UG5T450FU	UG8T300FUCJU
		Oil				PVE	PVE	PVE
	Fan	Air Flow Rate	Cooling	CMM	108	118	66	
				l/s	1800	1967	1100	
		Number of Unit			EA	2	2	1
	Base Heater			W	150	150	150	
	Sound ^{*4}	Sound Pressure	Heating	dB(A)	51	52	48	
			Cooling	dB(A)	52	54	48	
		Sound Power	Heating	dB	65	66	63	
			Cooling	dB	66	69	64	
	External Dimension	Net Weight			kg	108.0	108.0	76.0
		Shipping Weight			kg	118.0	118.0	84.0
		Net Dimensions (WxHxD)			mm	940 x 1,420 x 330	940 x 1,420 x 330	940 x 998 x 330
		Shipping Dimensions (WxHxD)			mm	995 x 1,598 x 426	995 x 1,598 x 426	995 x 1,178 x 426
	Operating Temp. Range	Heating ^{*5}			℃	-25~35	-25~35	-25~35
		Cooling			℃	10~46	10~46	10~46
		DHW Tank ^{*6}			℃	-25~43	-25~43	-25~43

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

*2) A2W Condition #2 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB 2°C/1°C

*3) A2W Condition #3 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB -7°C/-8°C

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

*5) At the temperature -25°C ~ -20°C, operation is available but capacity cannot be guaranteed.

*6) Heat pump operating range of DHW : -25°C ~ 35°C.

※ Heat Exchanger type : Condensor - Fin & Tube (Fin : Al, Tube : Cu),
Plate Heat Exchanger(PHE) (STS)

7) These products contain R410A(GWP=2,088) which is fluorinated greenhouse gas.

1. Specifications

1-1. Outdoor Unit

Type					Mono	Mono	Mono	
Model Name		Outdoor Unit			AE120JXYDGH/EU	AE140JXYDGH/EU	AE160JXYDGH/EU	
System	Mode			-	Heat Pump (A2W)	Heat Pump (A2W)	Heat Pump (A2W)	
	Performance (A7/W35) ^{*1}	Nominal Capacity (Min/Std/Max)	Heating	kW	3.75 / 12.00 / 12.00	3.75 / 14.00 / 14.00	3.75 / 16.00 / 16.00	
				Btu/h	12,800 / 40,900 / 40,900	12,800 / 47,800 / 47,800	12,800 / 54,600 / 54,600	
			Cooling	kW	3.30 / 12.00 / 12.00	3.30 / 13.00 / 13.00	3.30 / 14.00 / 14.00	
				Btu/h	11,300 / 40,900 / 40,900	11,300 / 44,400 / 44,400	11,300 / 47,800 / 47,800	
		Power Input (Nominal) (Min/Std/Max)	Heating	kW	0.809 / 2.66 / 2.66	0.809 / 3.14 / 3.14	0.809 / 3.80 / 3.80	
			Cooling		0.853 / 3.16 / 3.16	0.853 / 3.50 / 3.50	0.853 / 3.84 / 3.84	
		Current Input (Nominal) (Min/Std/Max)	Heating	A	1.3 / 4.2 / 4.2	1.3 / 4.8 / 4.8	1.3 / 5.7 / 5.7	
			Cooling		1.3 / 5.2 / 5.2	1.3 / 5.3 / 5.3	1.3 / 5.8 / 5.8	
		COP (Nominal Heating)				4.51	4.46	4.21
		EER (Nominal Cooling)				3.80	3.71	3.65
		SCOP(35℃)				4.46	4.43	4.41
		ESEER				4.98	4.97	4.92
	Performance (A2/W35) ^{*2}	Capacity	Heating	W	9,800	11,200	12,500	
		COP			3.32	3.26	3.10	
	Performance (A-7/W35) ^{*3}	Capacity	Heating	W	10,300	10,800	13,400	
		COP			2.61	2.56	2.47	
	Field Wiring	MCA			A	10	12	
		MFA			A	16.1	16.1	
	Water Connections	Water Flow Rate (Heating/Cooling)			LPM	35/35	40/37	46/40
		Water Pressure (Max)			bar	3	3	3
		Water Pipe	Inlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
			Outlet	Φ, inch	BSPP male 1"	BSPP male 1"	BSPP male 1"	
		Leaving Water Temperature	Heating	℃	25~55	25~55	25~55	
			Cooling	℃	5~25	5~25	5~25	
	Refrigerant	Type				R410A	R410A	
		Control Method				EEV INCLUDED	EEV INCLUDED	
		Factory Charging			g / tCO2e	2,600 / 5.43	2,600 / 5.43	2,600 / 5.43
Outdoor Unit	Power Supply			V, Hz, Φ	380~415V, 50Hz, 3Φ	380~415V, 50Hz, 3Φ	380~415V, 50Hz, 3Φ	
	Compressor	Type			BLDC Twin Rotary	BLDC Twin Rotary	BLDC Twin Rotary	
		Model			UG5T450FU	UG5T450FU	UG5T450FU	
		Oil			PVE	PVE	PVE	
	Fan	Air Flow Rate	Cooling	CMM	99	108	118	
				l/s	1650	1800	1967	
	Number of Unit			EA	2	2	2	
	Base Heater			W	150	150	150	
	Sound ^{*4}	Sound Pressure	Heating	dB(A)	50	51	52	
			Cooling	dB(A)	50	52	54	
		Sound Power	Heating	dB	64	65	66	
			Cooling	dB	65	66	69	
	External Dimension	Net Weight		kg	108.0	108.0	108.0	
		Shipping Weight		kg	118.0	118.0	118.0	
		Net Dimensions (WxHxD)		mm	940 x 1,420 x 330	940 x 1,420 x 330	940 x 1,420 x 330	
		Shipping Dimensions (WxHxD)		mm	995 x 1,598 x 426	995 x 1,598 x 426	995 x 1,598 x 426	
	Operating Temp. Range	Heating ^{*5}		℃	-25~35	-25~35	-25~35	
		Cooling		℃	10~46	10~46	10~46	
		DHW Tank ^{*6}		℃	-25~43	-25~43	-25~43	

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

*2) A2W Condition #2 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB 2°C/1°C

*3) A2W Condition #3 : (Heating) Water In/Out *35°C, Outdoor Air DB/WB -7°C/-8°C

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

*5) At the temperature -25°C ~ -20°C, operation is available but capacity cannot be guaranteed.

*6) Heat pump operating range of DHW : -25°C ~ 35°C.

* Heat Exchanger type : Condensor - Fin & Tube (Fin : Al, Tube : Cu),
Plate Heat Exchanger(PHE) (STS)

7) These products contain R410A(GWP=2,088) which is fluorinated greenhouse gas.

1. Specifications

1-2. Control Kit

Model Name				MIM-E03AN	MIM-E03BN
Use with			-	090/120/140/160 Model	050 Model
Power Supply			V, Hz, Φ	220~240V, 50Hz, 1 Φ	220~240V, 50Hz, 1 Φ
External Dimension	Weight	Net	kg	3.5	3.5
		Gross	kg	6.0	6.0
	Dimensions (WxHxD)	Net	mm	370x110x290	370x110x290
		Gross	mm	439x168x329	439x168x329
Flow Switch	Set Point (Min. flow rates)		LPM	16 $\pm$ 1.5	7 $\pm$ 1.5
External Control	Booster Heater			AC 230V (Max 20A)	AC 230V (Max 20A)
	Back up Heater (/Boiler)			AC 230V (Max 0.5A)	AC 230V (Max 0.5A)
	Water Pump			AC 230V (Max 2A)	AC 230V (Max 2A)
	2way(or 3way) Valve			AC 230V (Max 0.5A / 120W)	AC 230V (Max 0.5A / 120W)
	Room Thermostat			AC 230V (Max 10mA)	AC 230V (Max 10mA)
	Solar Pump			AC 230V (Max 10mA)	AC 230V (Max 10mA)
	Inverter Pump			AC 230V (Max 2A) (NEW)	AC 230V (Max 2A)
	3way Mixing Valve			AC 230V (Max 0.5A / 120W) (NEW)	AC 230V (Max 0.5A / 120W)

2. Capacity Tables

2-1. AE050/090/120/140/160JXYDEH/EU (1 Phase)

1) Maximum Heating Capacity (Peak Value)

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

AE050JXYDEH/EU	LWE(℃)	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	3.57	1.47	3.40	1.65	3.38	1.75	3.36	2.06				
	-15	4.52	1.69	4.30	1.90	4.13	2.00	3.95	2.10	3.83	2.21		
	-10	5.25	1.78	5.00	2.00	4.85	2.10	4.70	2.21	4.56	2.32	4.23	2.54
	-7	5.14	1.62	4.90	1.82	4.79	2.06	4.69	2.29	4.79	2.50	4.90	2.71
	-2	5.49	1.54	5.23	1.73	5.03	1.90	4.83	2.07	4.59	2.33	4.35	2.59
	2	5.49	1.35	5.23	1.51	4.94	1.60	4.65	1.69	4.42	1.90	4.19	2.11
	7	5.25	0.94	5.00	1.06	4.85	1.21	4.70	1.35	4.60	1.48	4.50	1.60
	10	5.73	0.95	5.46	1.07	5.32	1.22	5.18	1.36	4.93	1.53	4.67	1.70
AE090JXYDEH/EU	LWE(℃)	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	6.30	2.67	6.00	3.00	5.85	3.20	5.70	3.53				
	-15	7.46	2.85	7.10	3.20	6.90	3.40	6.70	3.60	6.50	3.78		
	-10	9.03	3.03	8.60	3.40	8.34	3.59	8.08	3.78	7.84	3.97	7.28	4.35
	-7	8.31	2.95	7.92	3.31	7.68	3.48	7.45	3.65	6.80	3.75	6.15	3.85
	-2	8.71	2.79	8.30	3.13	8.03	3.30	7.76	3.47	7.37	3.90	6.98	4.33
	2	8.55	2.41	8.14	2.71	7.85	2.87	7.56	3.02	7.18	3.40	6.80	3.78
	7	9.45	1.90	9.00	2.14	8.55	2.27	8.10	2.39	8.05	2.68	8.00	2.96
	10	10.38	1.90	9.89	2.14	9.47	2.29	9.06	2.44	8.61	2.75	8.15	3.05
AE120JXYDEH/EU	LWE(℃)	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	9.82	4.09	9.35	4.60	8.93	4.90	8.50	5.29				
	-15	11.13	4.27	10.60	4.80	10.30	5.10	10.00	5.40	9.70	5.67		
	-10	12.39	4.09	11.80	4.60	11.45	5.14	11.09	5.67	10.76	5.95	9.98	6.52
	-7	11.27	3.66	10.73	4.11	10.26	4.52	9.78	4.93	9.30	5.33	8.82	5.74
	-2	11.99	3.49	11.42	3.92	11.22	4.38	11.02	4.85	10.47	5.45	9.92	6.06
	2	11.97	3.05	11.40	3.43	11.51	3.92	11.63	4.42	11.05	4.97	10.47	5.52
	7	12.60	2.37	12.00	2.66	11.70	3.06	11.40	3.45	10.95	3.68	10.50	3.90
	10	13.91	2.35	13.25	2.64	12.89	3.02	12.54	3.40	11.91	3.83	11.28	4.25
AE140JXYDEH/EU	LWE(℃)	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	10.13	4.36	9.65	4.90	9.33	5.20	9.01	5.59				
	-15	11.76	4.54	11.20	5.10	10.90	5.40	10.60	5.70	10.28	5.99		
	-10	13.44	4.63	12.80	5.20	12.42	5.59	12.03	5.99	11.67	6.28	10.83	6.88
	-7	11.81	3.91	11.25	4.40	11.20	5.14	11.15	5.89	10.78	6.02	10.42	6.15
	-2	13.13	3.87	12.50	4.35	12.46	5.06	12.41	5.77	11.79	6.49	11.17	7.21
	2	13.67	3.56	13.02	4.00	12.99	4.62	12.97	5.23	12.32	5.89	11.67	6.54
	7	14.70	2.79	14.00	3.14	13.50	3.55	13.00	3.95	12.63	4.20	12.25	4.45
	10	15.67	2.79	14.92	3.13	14.42	3.52	13.92	3.90	13.23	4.39	12.53	4.87
AE160JXYDEH/EU	LWE(℃)	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	11.87	5.30	11.30	5.95	10.75	6.25	10.20	6.76				
	-15	13.65	5.61	13.00	6.30	12.50	6.60	12.00	6.90	11.64	7.25		
	-10	15.12	5.43	14.40	6.10	13.97	6.67	13.54	7.25	13.13	7.61	12.18	8.33
	-7	14.66	5.02	13.96	5.65	14.01	6.36	14.06	7.08	13.18	7.19	12.29	7.29
	-2	15.45	4.78	14.72	5.37	14.19	5.83	13.66	6.29	12.98	7.08	12.30	7.86
	2	15.26	4.17	14.53	4.69	13.40	4.83	12.27	4.97	11.65	5.59	11.04	6.21
	7	16.80	3.38	16.00	3.80	15.35	4.20	14.70	4.60	14.60	5.00	14.50	5.40
	10	18.25	3.42	17.38	3.85	16.71	4.25	16.04	4.65	15.24	5.23	14.43	5.81

2. Capacity Tables

2-1. AE050/090/120/140/160JXYDEH/EU (1 Phase)

2) Maximum Heating Capacity (Integrated Value)

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

	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)	HC(kW)	PI(kW)
AE050JXYDEH/EU	-20	3.57	1.47	3.40	1.65	3.38	1.75	3.36	2.06				
	-15	4.47	1.67	4.26	1.88	4.08	1.98	3.91	2.08	3.79	2.18		
	-10	5.15	1.74	4.90	1.96	4.75	2.06	4.61	2.16	4.47	2.27	4.15	2.49
	-7	4.94	1.56	4.70	1.75	4.60	1.98	4.50	2.20	4.60	2.40	4.70	2.60
	-2	4.83	1.36	4.60	1.53	4.43	1.68	4.25	1.83	4.04	2.05	3.83	2.28
	2	4.73	1.16	4.50	1.30	4.25	1.38	4.00	1.45	3.80	1.63	3.60	1.81
	7	5.25	0.94	5.00	1.06	4.85	1.21	4.70	1.35	4.60	1.48	4.50	1.60
	10	5.73	0.95	5.46	1.07	5.32	1.22	5.18	1.36	4.93	1.53	4.67	1.70
	15	6.54	0.97	6.23	1.08	6.11	1.21	5.99	1.38	5.69	1.55	5.39	1.73
	20	7.35	0.98	7.00	1.10	6.90	1.24	6.80	1.40	6.46	1.58	6.12	1.75
AE090JXYDEH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	6.30	2.67	6.00	3.00	5.85	3.20	5.70	3.53				
	-15	7.38	2.82	7.03	3.17	6.83	3.37	6.63	3.56	6.43	3.74		
	-10	8.85	2.97	8.43	3.33	8.18	3.52	7.92	3.70	7.68	3.89	7.13	4.26
	-7	7.98	2.83	7.60	3.18	7.38	3.34	7.15	3.50	6.53	3.60	5.90	3.70
	-2	7.67	2.45	7.30	2.76	7.06	2.90	6.83	3.05	6.48	3.43	6.14	3.81
	2	7.35	2.07	7.00	2.33	6.75	2.47	6.50	2.60	6.18	2.93	5.85	3.25
	7	9.45	1.90	9.00	2.14	8.55	2.27	8.10	2.39	8.05	2.68	8.00	2.96
	10	10.38	1.90	9.89	2.14	9.47	2.29	9.06	2.44	8.61	2.75	8.15	3.05
AE120JXYDEH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	9.82	4.09	9.35	4.60	8.93	4.90	8.50	5.29				
	-15	11.02	4.23	10.49	4.75	10.20	5.05	9.90	5.35	9.60	5.61		
	-10	12.14	4.01	11.56	4.51	11.22	5.03	10.87	5.56	10.54	5.83	9.78	6.39
	-7	10.82	3.52	10.30	3.95	9.85	4.34	9.39	4.73	8.93	5.12	8.47	5.51
	-2	10.55	3.07	10.05	3.45	9.87	3.86	9.70	4.27	9.21	4.80	8.73	5.33
	2	10.29	2.63	9.80	2.95	9.90	3.38	10.00	3.80	9.50	4.28	9.00	4.75
	7	12.60	2.37	12.00	2.66	11.70	3.06	11.40	3.45	10.95	3.68	10.50	3.90
	10	13.91	2.35	13.25	2.64	12.89	3.02	12.54	3.40	11.91	3.83	11.28	4.25
AE140JXYDEH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	10.13	4.36	9.65	4.90	9.33	5.20	9.01	5.59				
	-15	11.64	4.49	11.09	5.05	10.79	5.35	10.49	5.64	10.18	5.93		
	-10	13.17	4.54	12.54	5.10	12.17	5.48	11.79	5.87	11.44	6.16	10.61	6.75
	-7	11.34	3.76	10.80	4.22	10.75	4.94	10.70	5.65	10.35	5.78	10.00	5.90
	-2	11.55	3.41	11.00	3.83	10.96	4.45	10.93	5.08	10.38	5.71	9.83	6.34
	2	11.76	3.06	11.20	3.44	11.18	3.97	11.15	4.50	10.59	5.06	10.04	5.63
	7	14.70	2.79	14.00	3.14	13.50	3.55	13.00	3.95	12.63	4.20	12.25	4.45
	10	15.67	2.79	14.92	3.13	14.42	3.52	13.92	3.90	13.23	4.39	12.53	4.87
AE160JXYDEH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	11.87	5.30	11.30	5.95	10.75	6.25	10.20	6.76				
	-15	13.51	5.55	12.87	6.24	12.38	6.53	11.88	6.83	11.52	7.17		
	-10	14.82	5.32	14.11	5.98	13.69	6.54	13.27	7.10	12.87	7.46	11.94	8.17
	-7	14.07	4.82	13.40	5.42	13.45	6.11	13.50	6.80	12.65	6.90	11.80	7.00
	-2	13.60	4.21	12.95	4.73	12.49	5.13	12.03	5.54	11.42	6.23	10.82	6.92
	2	13.13	3.59	12.50	4.03	11.53	4.15	10.55	4.27	10.02	4.80	9.50	5.34
	7	16.80	3.38	16.00	3.80	15.35	4.20	14.70	4.60	14.60	5.00	14.50	5.40
	10	18.25	3.42	17.38	3.85	16.71	4.25	16.04	4.65	15.24	5.23	14.43	5.81
AE160JXYDEH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	20.68	3.49	19.69	3.92	18.98	4.26	18.27	4.72	17.36	5.31	16.44	5.90
	2	23.10	3.56	22.00	4.00	21.25	4.36	20.50	4.80	19.48	5.40	18.45	6.00

1. Heating capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for heated water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

2. Cooling capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for chilled water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

3. Power input : Power input is according to Eurovent rating standard OM-3-2015.

4. Peak value : Tested without defrost operation in accordance with EN14511

5. Integrated value : Tested with defrost operation in accordance with EN14511

※ The real capacity would be changed according to the install environment.

2. Capacity Tables

2-1. AE050/090/120/140/160JXYDEH/EU (1 Phase)

3) Maximum Cooling Capacity

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

AE050JXYDEH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	4.21	0.90	4.54	0.90	4.87	0.90	5.20	0.90	5.54	0.90	6.09	0.92
	20	4.05	1.02	4.37	1.02	4.69	1.02	5.01	1.02	5.33	1.02	5.86	1.04
	30	3.88	1.14	4.19	1.14	4.50	1.14	4.80	1.14	5.11	1.14	5.62	1.17
	35	3.80	1.21	4.10	1.21	4.40	1.21	4.70	1.21	5.00	1.21	5.50	1.23
	46	3.62	1.34	3.91	1.34	4.19	1.34	4.48	1.34	4.77	1.34	5.24	1.36
AE090JXYDEH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	6.09	1.39	6.64	1.41	7.18	1.44	7.55	1.46	8.09	1.49	8.82	1.52
	20	5.86	1.57	6.40	1.60	6.95	1.63	7.31	1.65	7.86	1.67	8.58	1.71
	30	5.62	1.76	6.16	1.78	6.71	1.81	7.07	1.83	7.62	1.86	8.35	1.89
	35	5.50	1.85	6.05	1.88	6.59	1.90	6.95	1.92	7.50	1.95	8.23	1.99
	46	5.24	2.05	5.78	2.08	6.33	2.11	6.69	2.13	7.24	2.15	7.97	2.19
AE120JXYDEH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	9.97	2.37	10.79	2.37	11.61	2.37	12.15	2.37	12.97	2.37	14.06	2.37
	20	9.58	2.69	10.40	2.69	11.22	2.69	11.77	2.69	12.58	2.69	13.67	2.69
	30	9.19	3.00	10.01	3.00	10.83	3.00	11.38	3.00	12.19	3.00	13.29	3.00
	35	9.00	3.16	9.82	3.16	10.64	3.16	11.18	3.16	12.00	3.16	13.09	3.16
	46	8.57	3.51	9.39	3.51	10.21	3.51	10.75	3.51	11.57	3.51	12.66	3.51
AE140JXYDEH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	10.76	2.62	11.66	2.63	12.56	2.64	13.16	2.65	14.06	2.67	15.26	2.68
	20	10.33	2.95	11.23	2.96	12.13	2.98	12.73	2.99	13.63	3.00	14.83	3.02
	30	9.91	3.28	10.81	3.30	11.71	3.31	12.31	3.32	13.21	3.33	14.41	3.35
	35	9.70	3.45	10.60	3.46	11.50	3.48	12.10	3.49	13.00	3.50	14.20	3.52
	46	9.24	3.82	10.14	3.83	11.04	3.84	11.64	3.85	12.54	3.87	13.74	3.89
AE160JXYDEH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	11.54	2.85	12.52	2.88	13.50	2.90	14.15	2.92	15.14	2.94	16.44	2.98
	20	11.08	3.21	12.06	3.24	13.04	3.26	13.70	3.28	14.68	3.30	15.99	3.34
	30	10.63	3.57	11.61	3.60	12.59	3.62	13.25	3.64	14.23	3.66	15.54	3.69
	35	10.40	3.75	11.38	3.77	12.36	3.80	13.02	3.82	14.00	3.84	15.31	3.87
	46	9.90	4.14	10.88	4.17	11.86	4.19	12.52	4.21	13.50	4.23	14.81	4.27

1. Heating capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for heated water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

2. Cooling capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for chilled water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

3. Power input : Power input is according to Eurovent rating standard OM-3-2015.

4. Peak value : Tested without defrost operation in accordance with EN14511

5. Integrated value : Tested with defrost operation in accordance with EN14511

※ The real capacity would be changed according to the install environment.

2. Capacity Tables

2-2. AE090/120/140/160JXYDGH/EU (3 Phase)

1) Maximum Heating Capacity (Peak Value)

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

AE090JXYDGH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	6.30	2.67	6.00	3.00	5.85	3.20	5.70	3.53				
	-15	7.46	2.85	7.10	3.20	6.90	3.40	6.70	3.60	6.50	3.78		
	-10	9.03	3.03	8.60	3.40	8.34	3.59	8.08	3.78	7.84	3.97	7.28	4.35
	-7	8.31	2.95	7.92	3.31	7.68	3.48	7.45	3.65	6.80	3.75	6.15	3.85
	-2	8.71	2.79	8.30	3.13	8.03	3.30	7.76	3.47	7.37	3.90	6.98	4.33
	2	8.55	2.41	8.14	2.71	7.85	2.87	7.56	3.02	7.18	3.40	6.80	3.78
	7	9.45	1.90	9.00	2.14	8.55	2.27	8.10	2.39	8.05	2.68	8.00	2.96
	10	10.38	1.90	9.89	2.14	9.47	2.29	9.06	2.44	8.61	2.75	8.15	3.05
AE120JXYDGH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	9.82	4.09	9.35	4.60	8.93	4.90	8.50	5.29				
	-15	11.13	4.27	10.60	4.80	10.30	5.10	10.00	5.40	9.70	5.67		
	-10	12.39	4.09	11.80	4.60	11.45	5.14	11.09	5.67	10.76	5.95	9.98	6.52
	-7	11.27	3.66	10.73	4.11	10.26	4.52	9.78	4.93	9.30	5.33	8.82	5.74
	-2	11.99	3.49	11.42	3.92	11.22	4.38	11.02	4.85	10.47	5.45	9.92	6.06
	2	11.97	3.05	11.40	3.43	11.51	3.92	11.63	4.42	11.05	4.97	10.47	5.52
	7	12.60	2.37	12.00	2.66	11.70	3.06	11.40	3.45	10.95	3.68	10.50	3.90
	10	13.91	2.35	13.25	2.64	12.89	3.02	12.54	3.40	11.91	3.83	11.28	4.25
AE140JXYDGH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	10.13	4.36	9.65	4.90	9.33	5.20	9.01	5.59				
	-15	11.76	4.54	11.20	5.10	10.90	5.40	10.60	5.70	10.28	5.99		
	-10	13.44	4.63	12.80	5.20	12.42	5.59	12.03	5.99	11.67	6.28	10.83	6.88
	-7	11.81	3.91	11.25	4.40	11.20	5.14	11.15	5.89	10.78	6.02	10.42	6.15
	-2	13.13	3.87	12.50	4.35	12.46	5.06	12.41	5.77	11.79	6.49	11.17	7.21
	2	13.67	3.56	13.02	4.00	12.99	4.62	12.97	5.23	12.32	5.89	11.67	6.54
	7	14.70	2.79	14.00	3.14	13.50	3.55	13.00	3.95	12.63	4.20	12.25	4.45
	10	15.67	2.79	14.92	3.13	14.42	3.52	13.92	3.90	13.23	4.39	12.53	4.87
AE160JXYDGH/EU	LWE(°C)	30		35		40		45		50		55	
	Tamb(°C)	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	11.87	5.30	11.30	5.95	10.75	6.25	10.20	6.76				
	-15	13.65	5.61	13.00	6.30	12.50	6.60	12.00	6.90	11.64	7.25		
	-10	15.12	5.43	14.40	6.10	13.97	6.67	13.54	7.25	13.13	7.61	12.18	8.33
	-7	14.66	5.02	13.96	5.65	14.01	6.36	14.06	7.08	13.18	7.19	12.29	7.29
	-2	15.45	4.78	14.72	5.37	14.19	5.83	13.66	6.29	12.98	7.08	12.30	7.86
	2	15.26	4.17	14.53	4.69	13.40	4.83	12.27	4.97	11.65	5.59	11.04	6.21
	7	16.80	3.38	16.00	3.80	15.35	4.20	14.70	4.60	14.60	5.00	14.50	5.40
	10	18.25	3.42	17.38	3.85	16.71	4.25	16.04	4.65	15.24	5.23	14.43	5.81
AE160JXYDGH/EU	15	20.68	3.49	19.69	3.92	18.98	4.26	18.27	4.72	17.36	5.31	16.44	5.90
	20	23.10	3.56	22.00	4.00	21.25	4.36	20.50	4.80	19.48	5.40	18.45	6.00

1. Heating capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for heated water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

2. Cooling capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for chilled water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

3. Power input : Power input is according to Eurovent rating standard OM-3-2015.

4. Peak value : Tested without defrost operation in accordance with EN14511

5. Integrated value : Tested with defrost operation in accordance with EN14511

※ The real capacity would be changed according to the install environment.

2. Capacity Tables

2-2. AE090/120/140/160JXYDGH/EU (3 Phase)

2) Maximum Heating Capacity (Integrated Value)

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

	LWE(℃)	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)
AE090JXYDGH/EU	-20	6.30	2.67	6.00	3.00	5.85	3.20	5.70	3.53				
	-15	7.38	2.82	7.03	3.17	6.83	3.37	6.63	3.56	6.43	3.74		
	-10	8.85	2.97	8.43	3.33	8.18	3.52	7.92	3.70	7.68	3.89	7.13	4.26
	-7	7.98	2.83	7.60	3.18	7.38	3.34	7.15	3.50	6.53	3.60	5.90	3.70
	-2	7.67	2.45	7.30	2.76	7.06	2.90	6.83	3.05	6.48	3.43	6.14	3.81
	2	7.35	2.07	7.00	2.33	6.75	2.47	6.50	2.60	6.18	2.93	5.85	3.25
	7	9.45	1.90	9.00	2.14	8.55	2.27	8.10	2.39	8.05	2.68	8.00	2.96
	10	10.38	1.90	9.89	2.14	9.47	2.29	9.06	2.44	8.61	2.75	8.15	3.05
	15	11.93	1.89	11.36	2.13	11.01	2.29	10.66	2.53	10.13	2.85	9.59	3.16
	20	13.48	1.89	12.84	2.12	12.55	2.35	12.26	2.62	11.65	2.95	11.03	3.27
AE120JXYDGH/EU	-20	9.82	4.09	9.35	4.60	8.93	4.90	8.50	5.29				
	-15	11.02	4.23	10.49	4.75	10.20	5.05	9.90	5.35	9.60	5.61		
	-10	12.14	4.01	11.56	4.51	11.22	5.03	10.87	5.56	10.54	5.83	9.78	6.39
	-7	10.82	3.52	10.30	3.95	9.85	4.34	9.39	4.73	8.93	5.12	8.47	5.51
	-2	10.55	3.07	10.05	3.45	9.87	3.86	9.70	4.27	9.21	4.80	8.73	5.33
	2	10.29	2.63	9.80	2.95	9.90	3.38	10.00	3.80	9.50	4.28	9.00	4.75
	7	12.60	2.37	12.00	2.66	11.70	3.06	11.40	3.45	10.95	3.68	10.50	3.90
	10	13.91	2.35	13.25	2.64	12.89	3.02	12.54	3.40	11.91	3.83	11.28	4.25
	15	16.09	2.31	15.32	2.60	14.88	2.92	14.43	3.33	13.71	3.74	12.98	4.16
	20	18.27	2.28	17.40	2.56	16.86	2.88	16.32	3.25	15.50	3.66	14.69	4.06
AE140JXYDGH/EU	-20	10.13	4.36	9.65	4.90	9.33	5.20	9.01	5.59				
	-15	11.64	4.49	11.09	5.05	10.79	5.35	10.49	5.64	10.18	5.93		
	-10	13.17	4.54	12.54	5.10	12.17	5.48	11.79	5.87	11.44	6.16	10.61	6.75
	-7	11.34	3.76	10.80	4.22	10.75	4.94	10.70	5.65	10.35	5.78	10.00	5.90
	-2	11.55	3.41	11.00	3.83	10.96	4.45	10.93	5.08	10.38	5.71	9.83	6.34
	2	11.76	3.06	11.20	3.44	11.18	3.97	11.15	4.50	10.59	5.06	10.04	5.63
	7	14.70	2.79	14.00	3.14	13.50	3.55	13.00	3.95	12.63	4.20	12.25	4.45
	10	15.67	2.79	14.92	3.13	14.42	3.52	13.92	3.90	13.23	4.39	12.53	4.87
	15	17.28	2.77	16.46	3.12	15.96	3.41	15.46	3.81	14.69	4.29	13.92	4.77
	20	18.90	2.76	18.00	3.10	17.50	3.38	17.00	3.73	16.15	4.20	15.30	4.66
AE160JXYDGH/EU	-20	11.87	5.30	11.30	5.95	10.75	6.25	10.20	6.76				
	-15	13.51	5.55	12.87	6.24	12.38	6.53	11.88	6.83	11.52	7.17		
	-10	14.82	5.32	14.11	5.98	13.69	6.54	13.27	7.10	12.87	7.46	11.94	8.17
	-7	14.07	4.82	13.40	5.42	13.45	6.11	13.50	6.80	12.65	6.90	11.80	7.00
	-2	13.60	4.21	12.95	4.73	12.49	5.13	12.03	5.54	11.42	6.23	10.82	6.92
	2	13.13	3.59	12.50	4.03	11.53	4.15	10.55	4.27	10.02	4.80	9.50	5.34
	7	16.80	3.38	16.00	3.80	15.35	4.20	14.70	4.60	14.60	5.00	14.50	5.40
	10	18.25	3.42	17.38	3.85	16.71	4.25	16.04	4.65	15.24	5.23	14.43	5.81
	15	20.68	3.49	19.69	3.92	18.98	4.26	18.27	4.72	17.36	5.31	16.44	5.90
	20	23.10	3.56	22.00	4.00	21.25	4.36	20.50	4.80	19.48	5.40	18.45	6.00

1. Heating capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for heated water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

2. Cooling capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for chilled water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

3. Power input : Power input is according to Eurovent rating standard OM-3-2015.

4. Peak value : Tested without defrost operation in accordance with EN14511

5. Integrated value : Tested with defrost operation in accordance with EN14511

※ The real capacity would be changed according to the install environment.

2. Capacity Tables

2-2. AE090/120/140/160JXYDGH/EU (3 Phase)

3) Maximum Cooling Capacity

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

AE090JXYDGH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	6.09	1.19	6.50	1.41	6.91	1.44	7.18	1.46	7.59	1.49	8.14	1.55
	20	5.86	1.23	6.27	1.60	6.67	1.63	6.95	1.65	7.36	1.67	7.90	1.74
	30	5.62	1.24	6.03	1.78	6.44	1.81	6.71	1.83	7.12	1.86	7.66	1.92
	35	5.50	1.94	5.91	1.88	6.32	1.90	6.59	1.92	7.00	1.92	7.55	2.01
	46	5.24	1.24	5.65	2.08	6.06	2.11	6.33	2.13	6.74	2.15	7.28	2.22
AE120JXYDGH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	9.97	2.37	10.79	2.37	11.61	2.37	12.15	2.37	12.97	2.37	14.06	2.37
	20	9.58	2.69	10.40	2.69	11.22	2.69	11.77	2.69	12.58	2.69	13.67	2.69
	30	9.19	3.00	10.01	3.00	10.83	3.00	11.38	3.00	12.19	3.00	13.29	3.00
	35	9.00	3.16	9.82	3.16	10.64	3.16	11.18	3.16	12.00	3.16	13.09	3.16
	46	8.57	3.51	9.39	3.51	10.21	3.51	10.75	3.51	11.57	3.51	12.66	3.51
AE140JXYDGH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	10.76	2.62	11.66	2.63	12.56	2.64	13.16	2.65	14.06	2.67	15.26	2.68
	20	10.33	2.95	11.23	2.96	12.13	2.98	12.73	2.99	13.63	3.00	14.83	3.02
	30	9.91	3.28	10.81	3.30	11.71	3.31	12.31	3.32	13.21	3.33	14.41	3.35
	35	9.70	3.45	10.60	3.46	11.50	3.48	12.10	3.49	13.00	3.50	14.20	3.52
	46	9.24	3.82	10.14	3.83	11.04	3.84	11.64	3.85	12.54	3.87	13.74	3.89
AE160JXYDGH/EU	LWE(℃)	7		10		13		15		18		25	
	Tamb(℃)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)	CC(kW)	PI(kW)
	10	11.54	2.85	12.52	2.88	13.50	2.90	14.15	2.92	15.14	2.94	16.44	2.98
	20	11.08	3.21	12.06	3.24	13.04	3.26	13.70	3.28	14.68	3.30	15.99	3.34
	30	10.63	3.57	11.61	3.60	12.59	3.62	13.25	3.64	14.23	3.66	15.54	3.69
	35	10.40	3.75	11.38	3.77	12.36	3.80	13.02	3.82	14.00	3.84	15.31	3.87
	46	9.90	4.14	10.88	4.17	11.86	4.19	12.52	4.21	13.50	4.23	14.81	4.27

1. Heating capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for heated water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

2. Cooling capacity : Capacity is according to Eurovent rating standard OM-3-2015 and valid for chilled water range $\Delta t = 3 \sim 8^{\circ}\text{C}$

3. Power input : Power input is according to Eurovent rating standard OM-3-2015.

4. Peak value : Tested without defrost operation in accordance with EN14511

5. Integrated value : Tested with defrost operation in accordance with EN14511

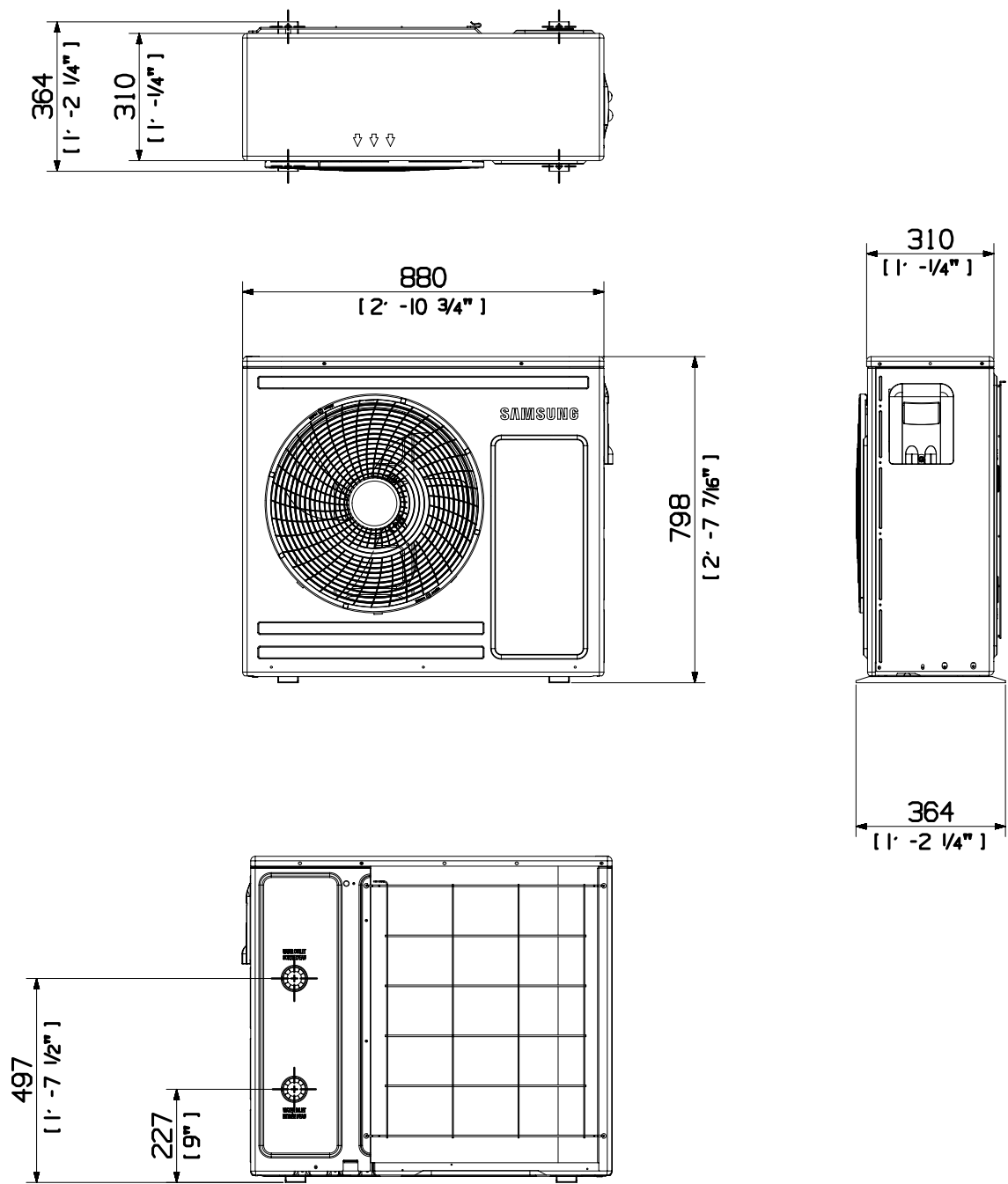
※ The real capacity would be changed according to the install environment.

3. Dimensional Drawings

3-1. Outdoor Unit

1) AE050JXYD*H/EU

(Unit : mm[Feet-Inch])



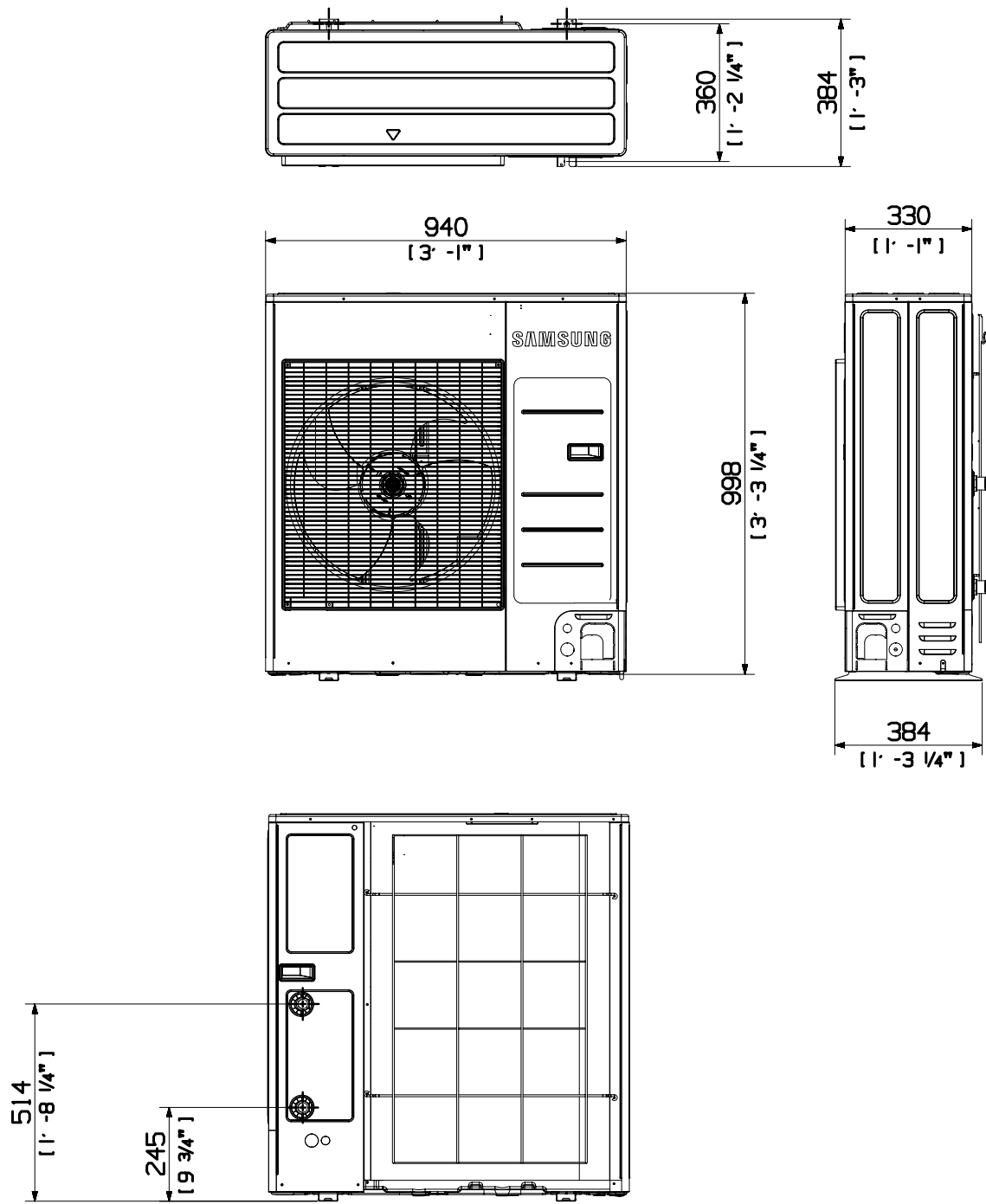
No.	Table of Descriptions
①	Water Pipe(Out)
②	Water Pipe(In)
③	Power & Communication Wiring Conduit Holes

3. Dimensional Drawings

3-1. Outdoor Unit

2) AE090JXYD*H/EU

(Unit : mm)



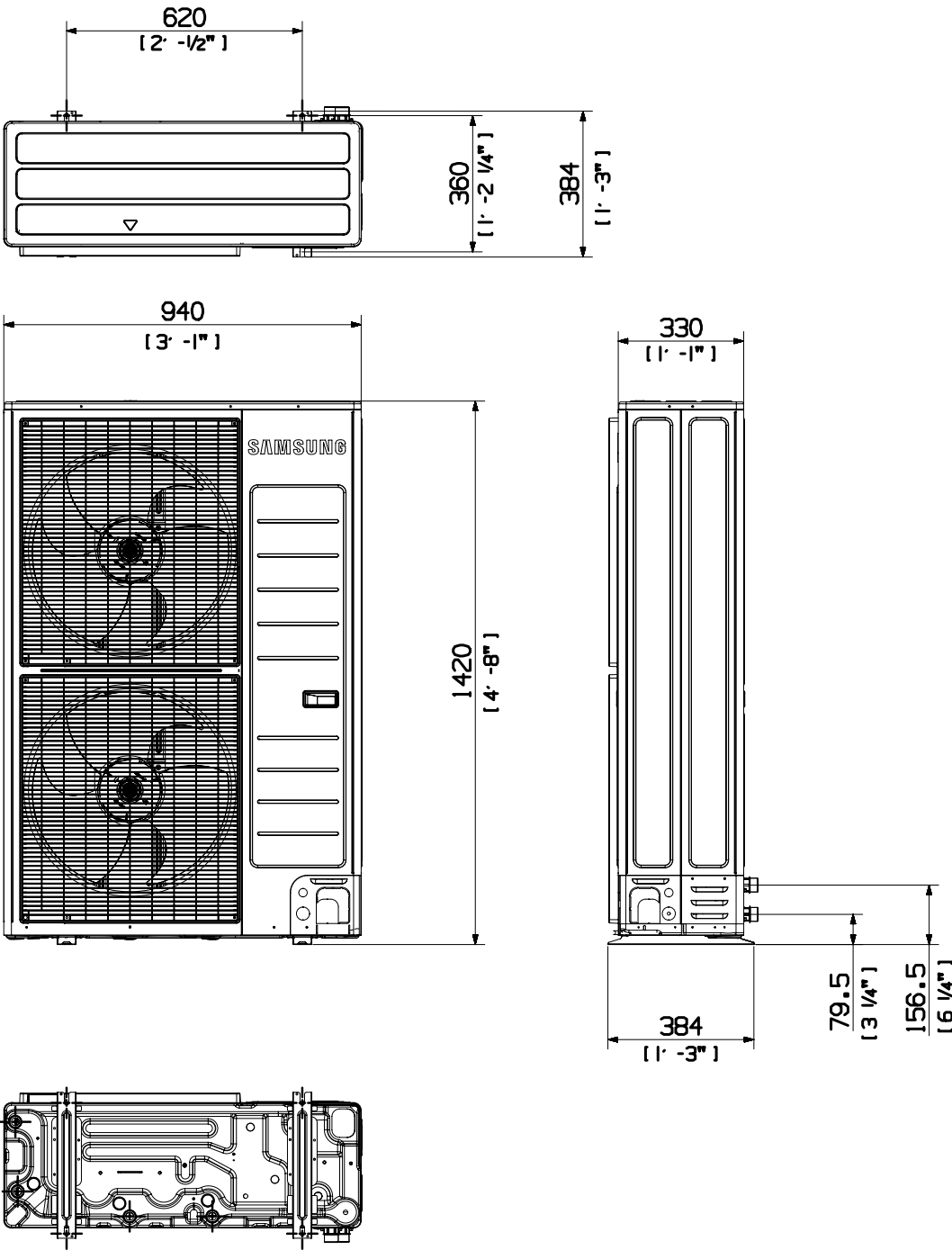
No.	Table of Descriptions
①	Water Pipe(Out)
②	Water Pipe(In)
③	Power & Communication Wiring Conduit Holes

3. Dimensional Drawings

3-1. Outdoor Unit

3) AE120/140/160JXYD*H/EU

(Unit : mm)



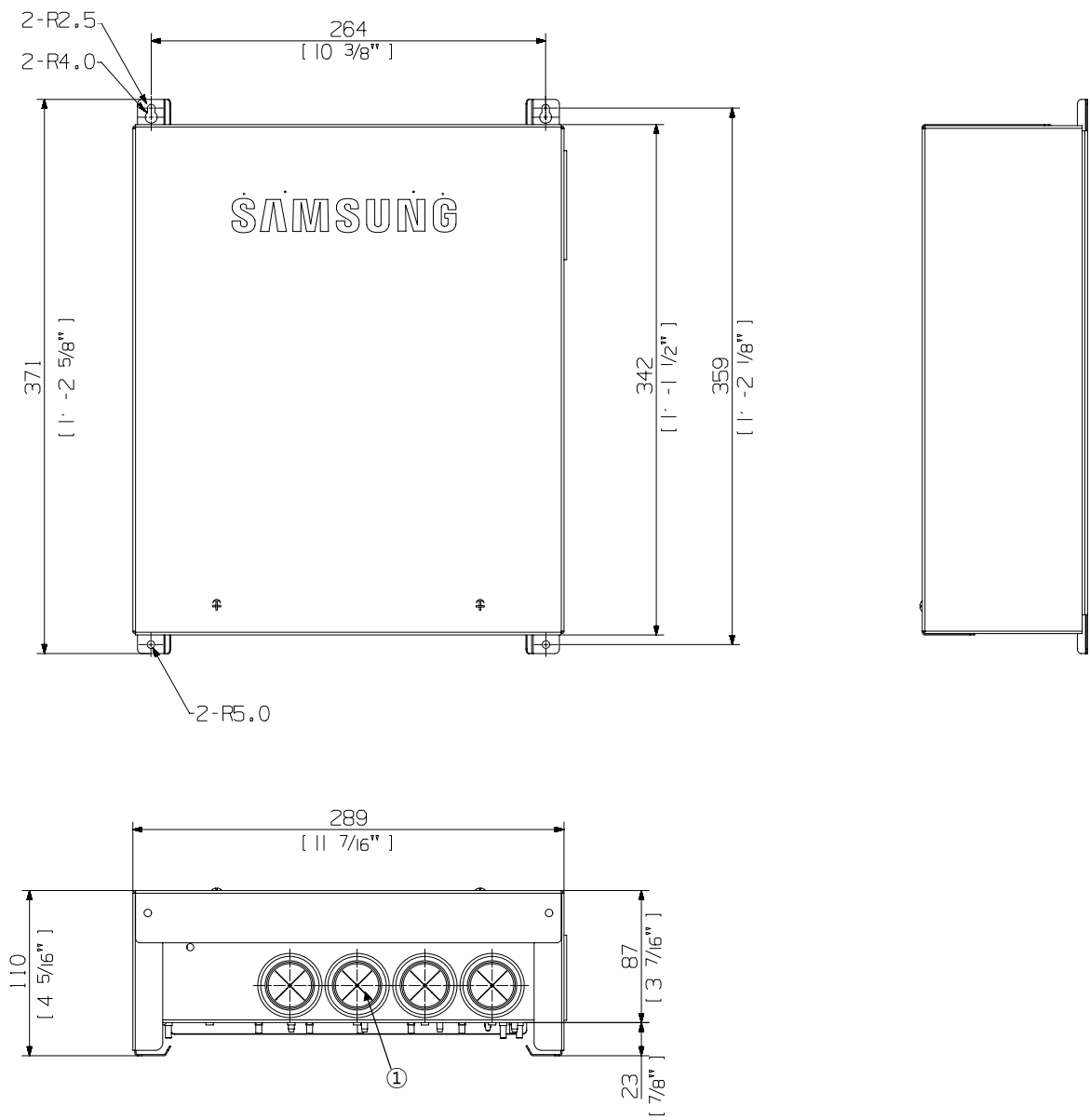
No.	Table of Descriptions
①	Water Pipe(Out)
②	Water Pipe(In)
③	Power & Communication Wiring Conduit Holes

3. Dimensional Drawings

3-2. Control Kit

1) MIM-E03A(B)N

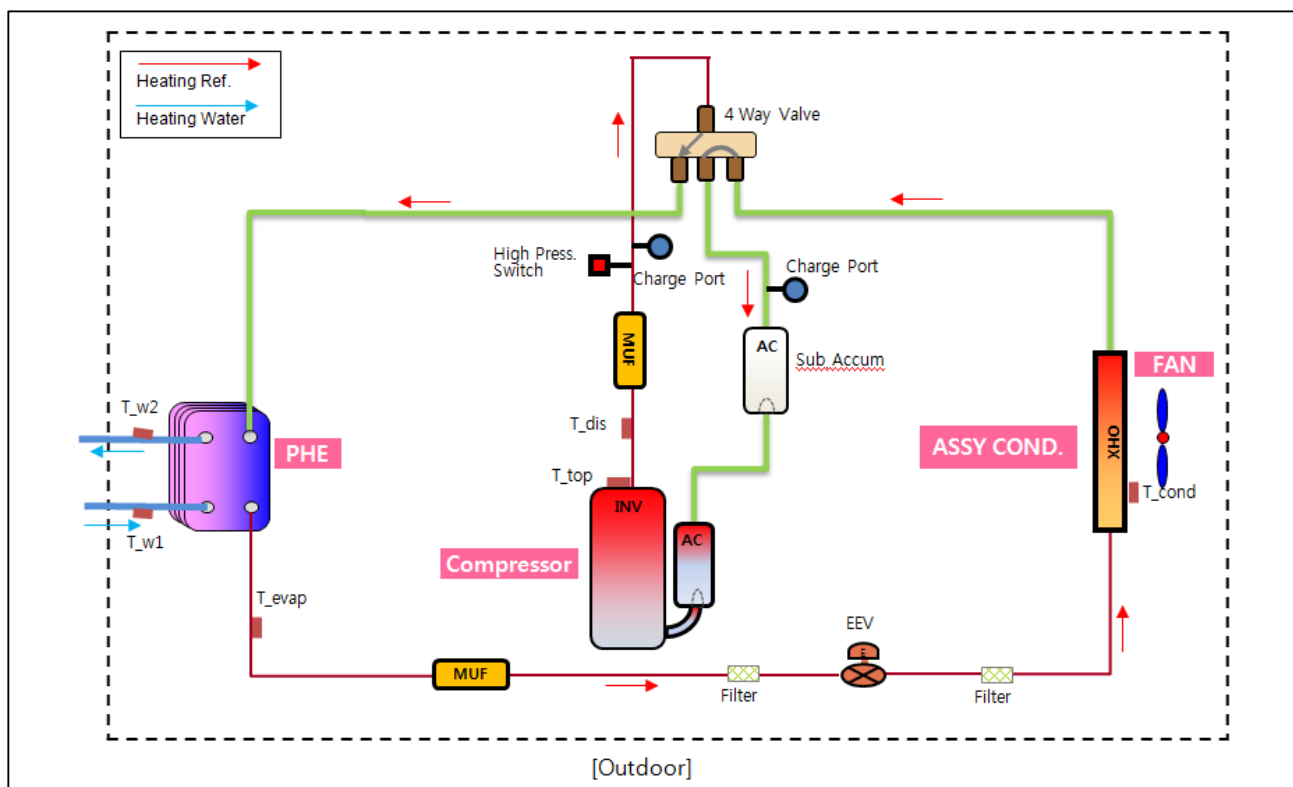
(Unit : mm)



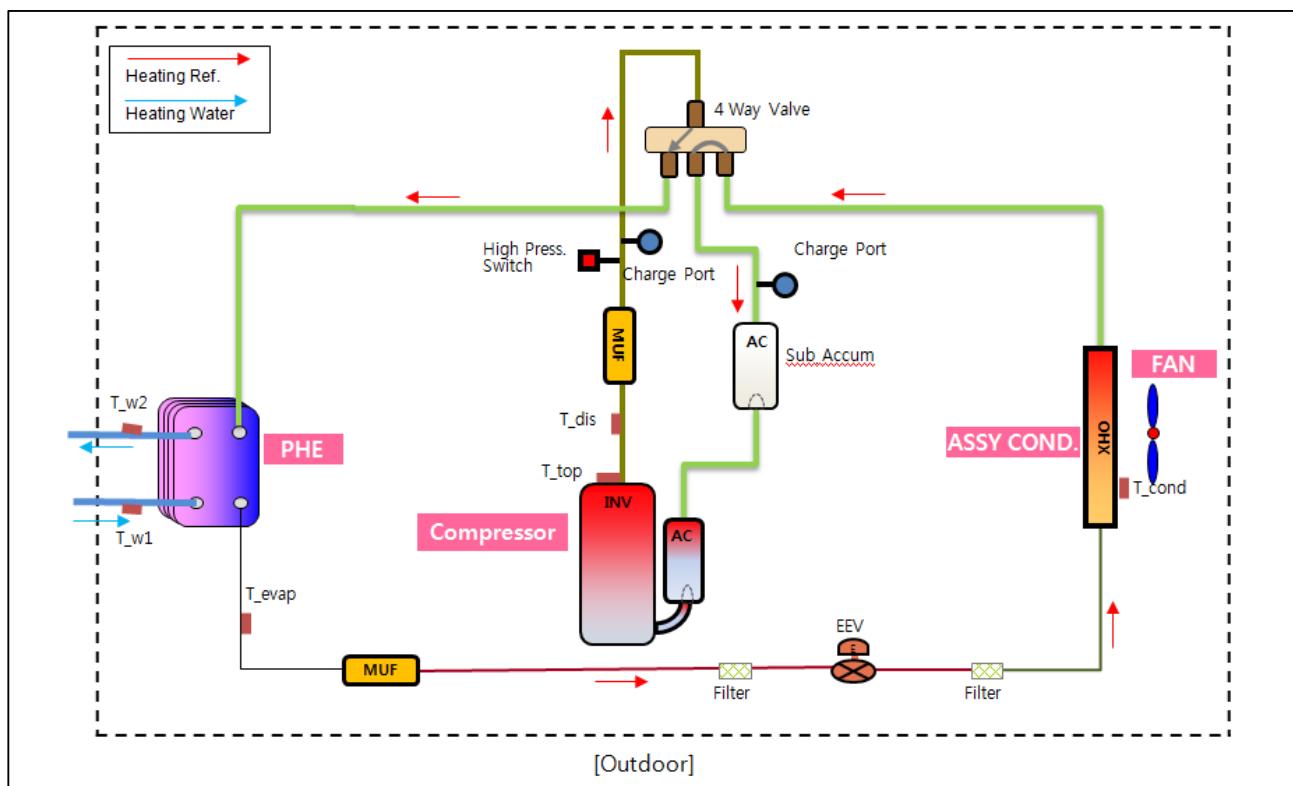
No.	Table of Descriptions
①	Conduit Holes for Wiring (Rubber)

4. Piping Diagrams

4-1. AE050JXYDEH/EU

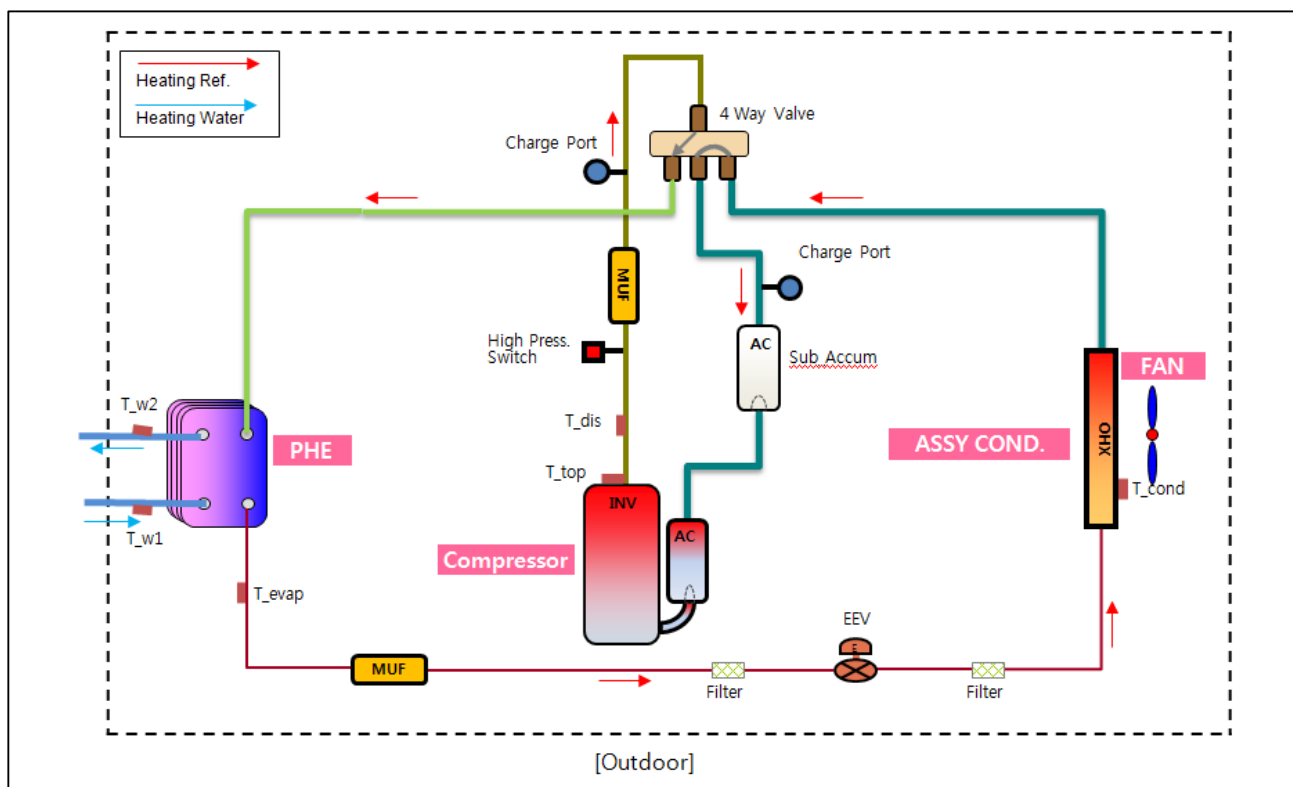


4-2. AE090JXYD*H/EU



4. Piping Diagrams

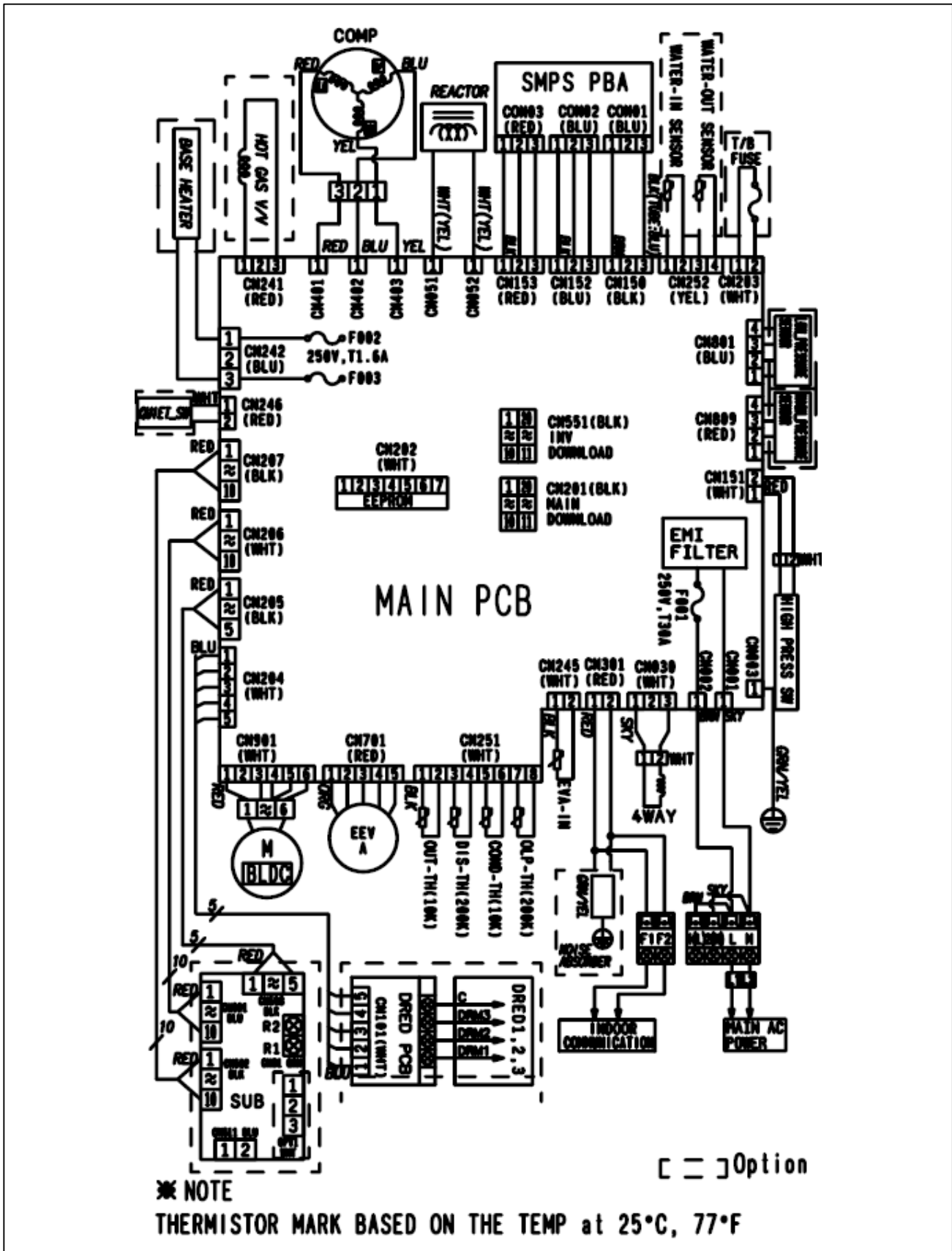
4-3. AE120/140/160JXYD*H/EU



5. Wiring Diagrams

5-1. Outdoor Unit

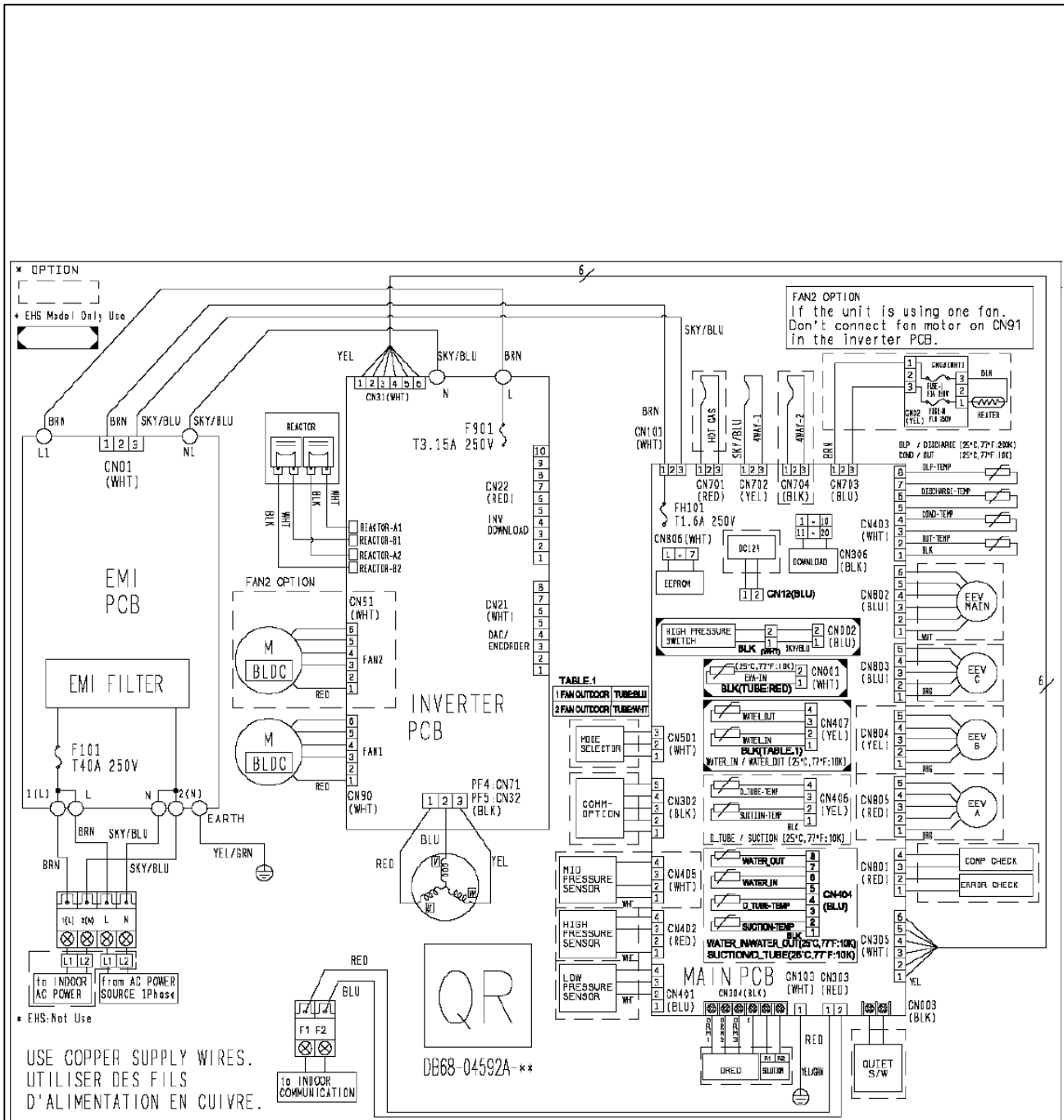
1) AE050JXYDEH/EU



5. Wiring Diagrams

5-1. Outdoor Unit

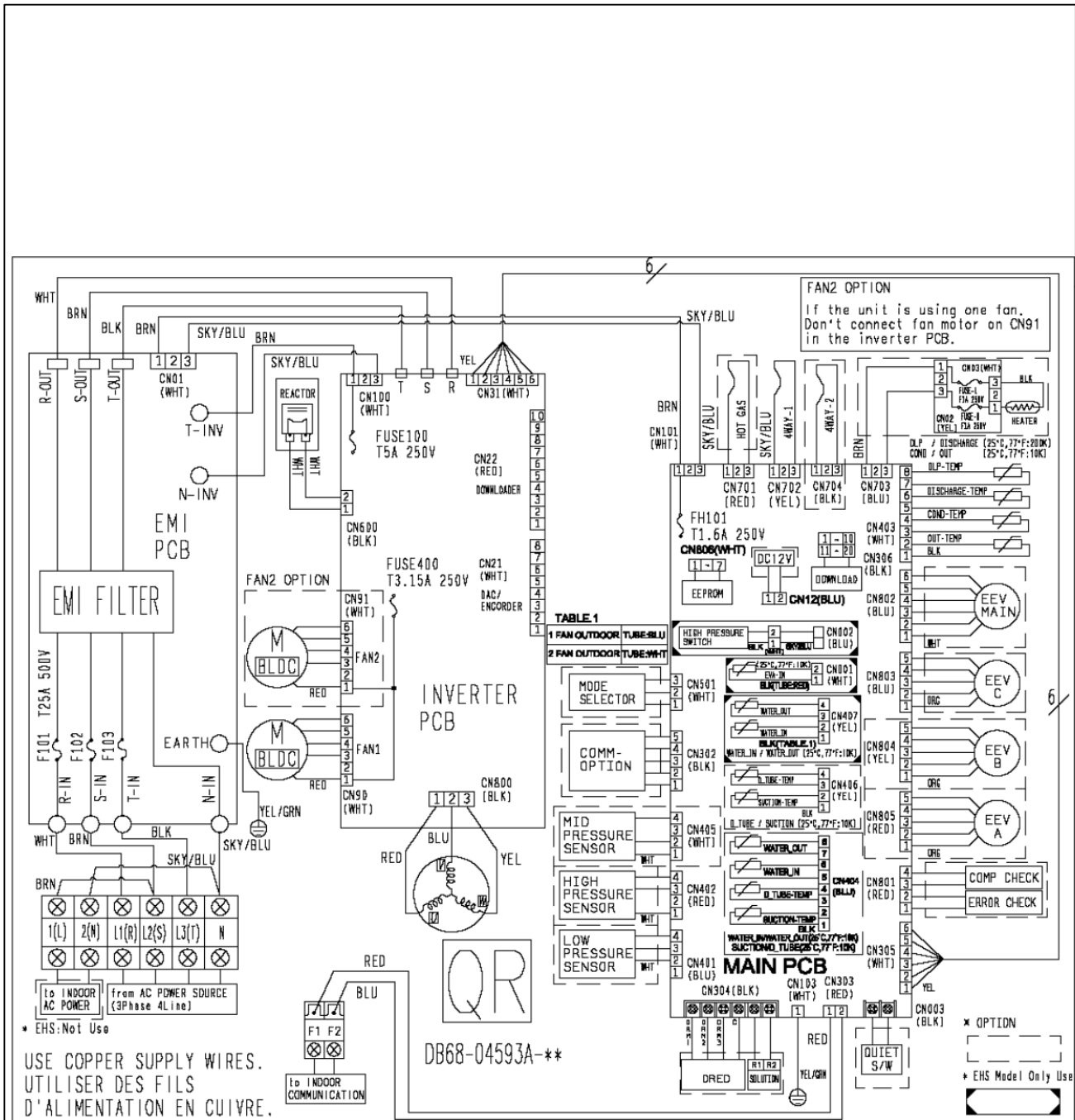
2) AE090~160JXYDEH/EU



5. Wiring Diagrams

5-1. Outdoor Unit

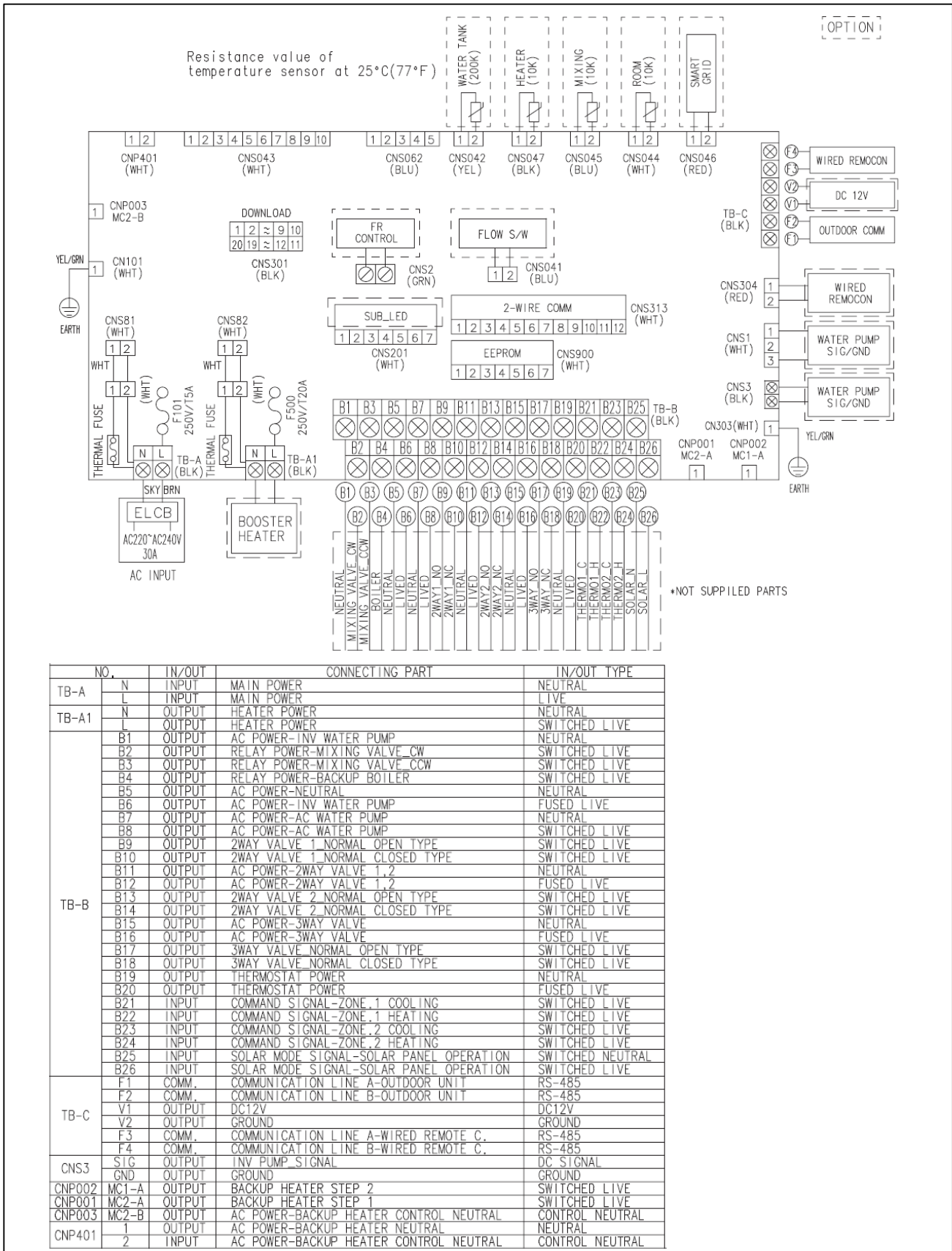
3) AE090~160JXYDGH/EU



5. Wiring Diagrams

5-2. Control Kit

1) MIM-E03A(B)N



6. Electric Specifications

6-1. Outdoor Unit

Product	Model Name	Rated		Voltage Range		MCA	MFA
		Hz	Volts	Min.	Max.		
Mono	AE050JXYDEH/EU	50	220-240	198	264	20.0	25.0
	AE090JXYDEH/EU	50	220-240	198	264	22.0	27.5
	AE120JXYDEH/EU	50	220-240	198	264	28.0	35.0
	AE014JXYDEH/EU	50	220-240	198	264	30.0	37.5
	AE160JXYDEH/EU	50	220-240	198	264	32.0	40.0
	AE090JXYDGH/EU	50	380-415	342	457	10.0	16.1
	AE120JXYDGH/EU	50	380-415	342	457	10.0	16.1
	AE014JXYDGH/EU	50	380-415	342	457	12.0	16.1
	AE160JXYDGH/EU	50	380-415	342	457	12.0	16.1

※ Notes

1. The power cable is not supplied with air conditioner.
2. Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord.
(Code designation IEC:60245 IEC 57 / CENELEC:H05RN-F)
3. This Equipment complies with IEC 61000-3-12.

※ Abbreviations

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

6-2. Control Kit

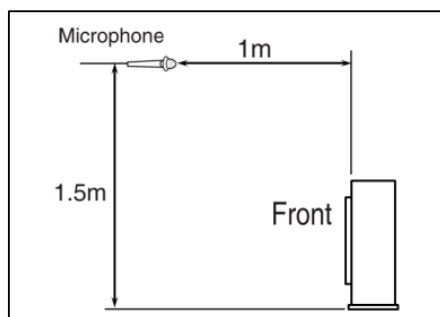
Product	Model Name	Load	Power supply	Power cable	Max. Length	Type GL
				mm ² , wires	m	A
Control Kit	MIM-E03AN MIM-E03BN	No Heater (Water Pump, Valve, Wired RMC)	1Φ, 220~240V, 50Hz	1.5 / 3	< 10m	10
				2.5 / 3	10m < L< 20m	10
		Booster Heater (3kW)		4.0 / 3	< 10m	20
				6.0 / 3	10m < L< 20m	20
		Booster Heater (~3kW) + Backup Heater (~3kW)		4.0 / 3	< 10m	40
				6.0 / 3	10m < L< 20m	40

※ Notes

1. The power cable is not supplied with the heat pump.
2. For power cable, use the grade H07RN-F materials in 1Ø system.
3. If you connect Backup Heater at separated power cable, you can reduce wire size.
(Please refer to indoor unit installation manual)

7. Sound Pressure Level

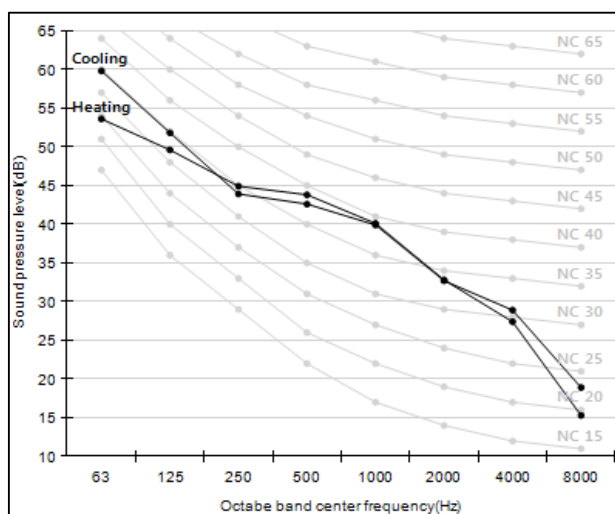
7-1. Operation Sound Level



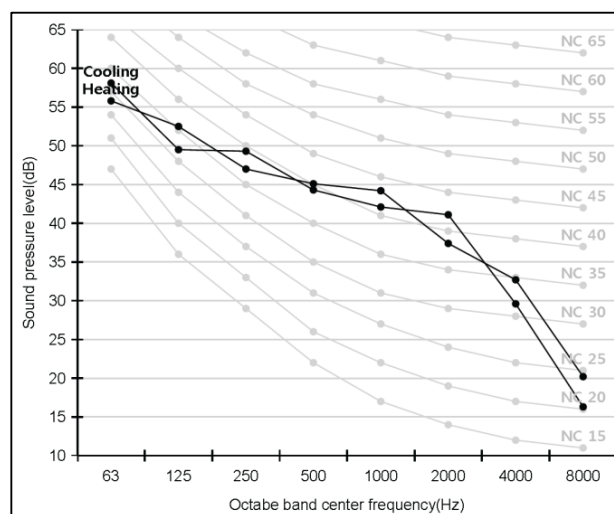
Model	Unit (dB(A))	
	Heating	Cooling
AE050JXYDEH/EU	45	45
AE090JXYDEH/EU	48	48
AE090JXYDGH/EU	48	48

7-2. NC Curve

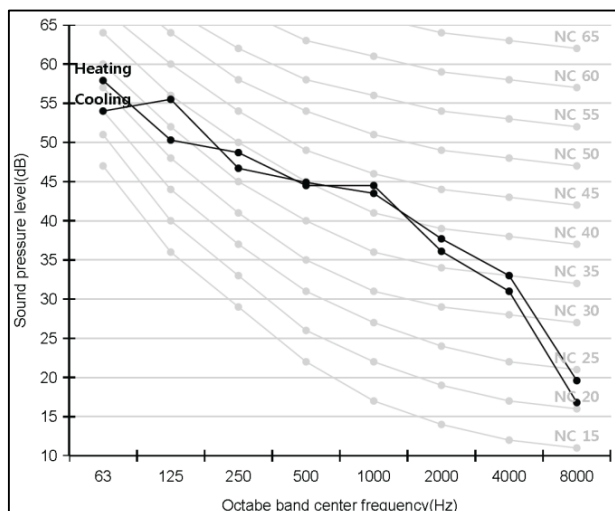
1) AE050JXYDEH/EU



2) AE090JXYDEH/EU



1) AE090JXYDGH/EU

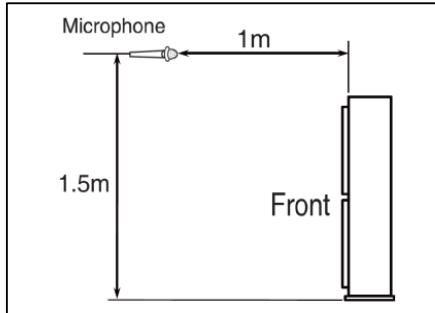


※ Notes

- These operation values 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.
- Operation sound level may differ depending on operation and ambient conditions.

7. Sound Pressure Level

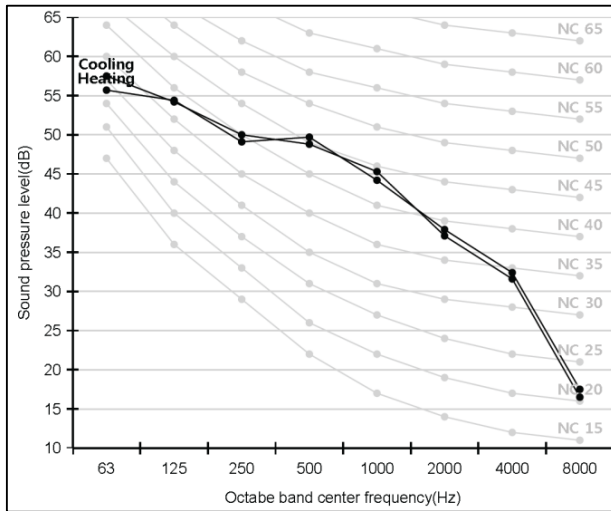
7-1. Operation Sound Level



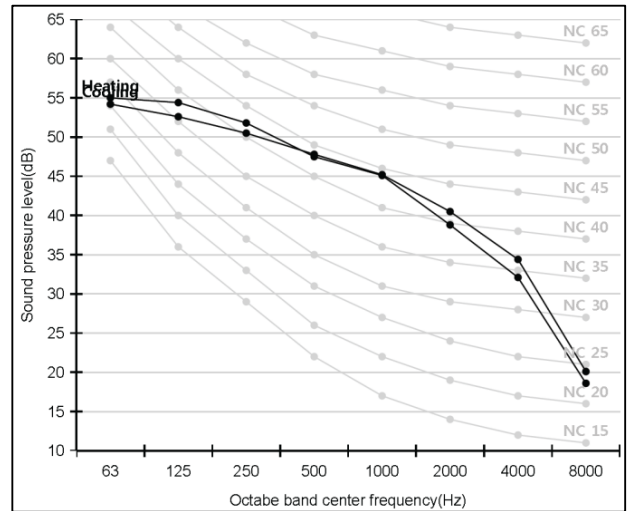
Model	Unit (dB(A))	
	Heating	Cooling
AE120JXYDEH/EU	50	50
AE120JXYDGH/EU	50	50
AE140JXYDEH/EU	51	52
AE140JXYDGH/EU	51	52

7-2. NC Curve

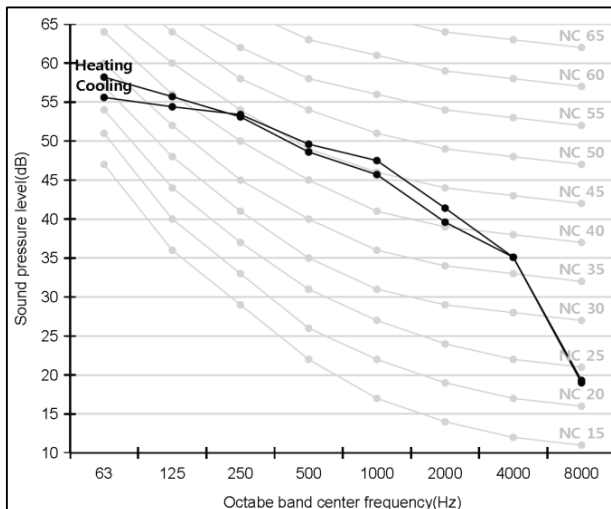
1) AE120JXYDEH/EU



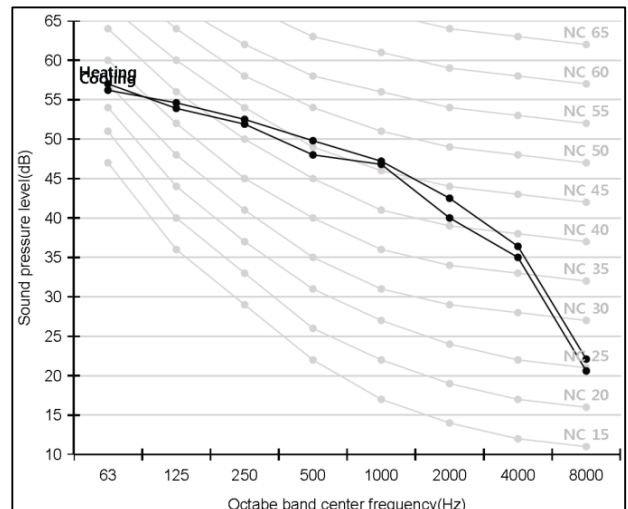
2) AE120JXYDGH/EU



3) AE140JXYDEH/EU



4) AE140JXYDGH/EU

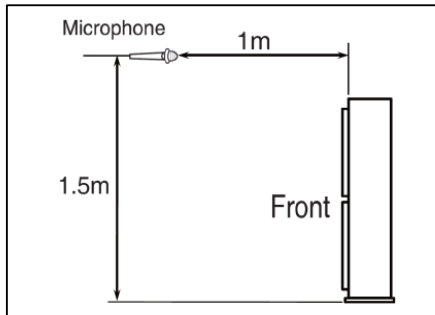


※ Notes

- These operation values 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.
- Operation sound level may differ depending on operation and ambient conditions.

7. Sound Pressure Level

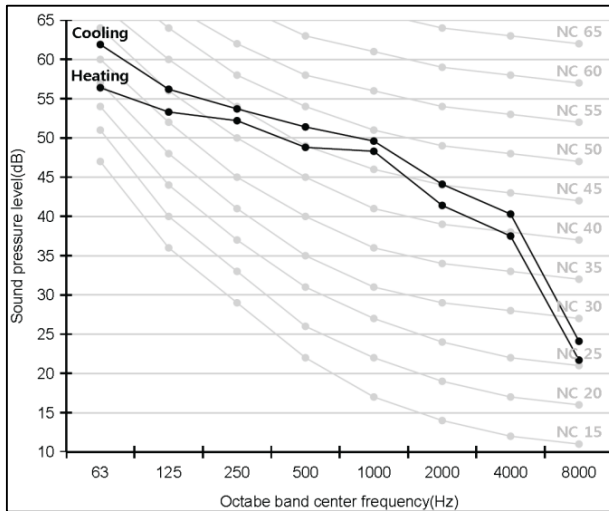
7-1. Operation Sound Level



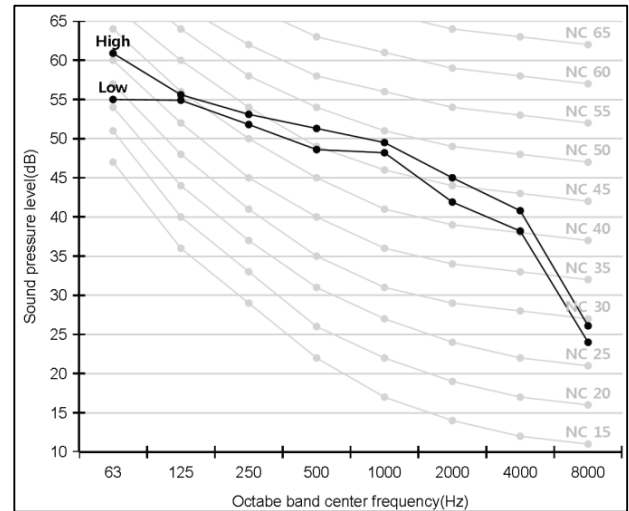
Model	Unit (dB(A))	
	Heating	Cooling
AE160JXYDEH/EU	52	54
AE160JXYDGH/EU	52	54

7-2. NC Curve

1) AE160JXYDEH/EU



2) AE160JXYDGH/EU



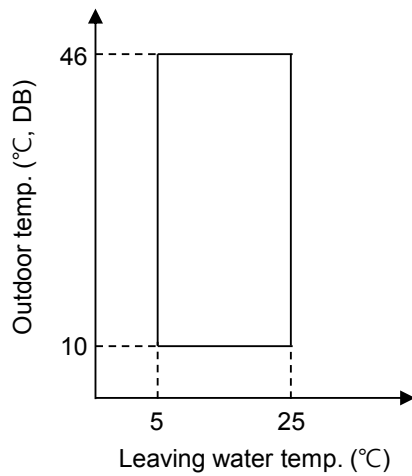
※ Notes

- These operation values 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.
- Operation sound level may differ depending on operation and ambient conditions.

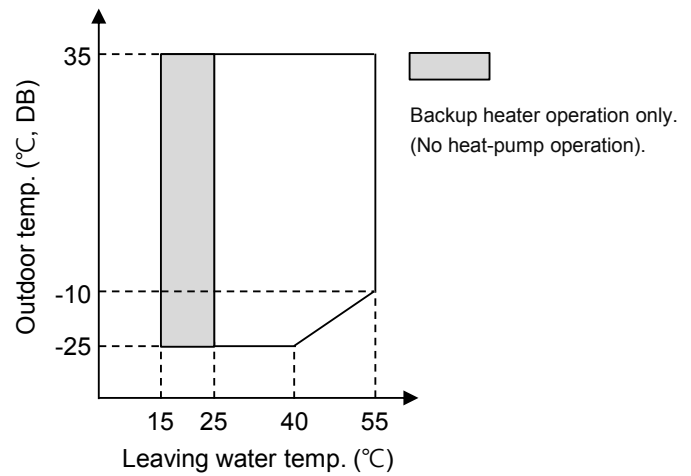
8. Operation Range

8-1. Outdoor Unit

1) Cooling



2) Heating



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

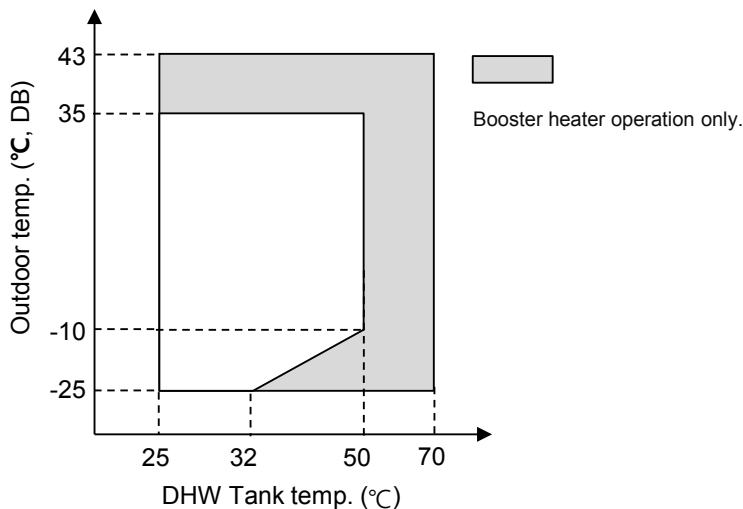
*1) Figures in brackets are for 5kW model.

*2) Figures in brackets are for 5kW/9kW models.

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

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

3) DHW (Domestic Hot Water Tank)



※ Special condition(35°C < Outdoor temp. ≤ 43°C) is operated by only Booster Heater.

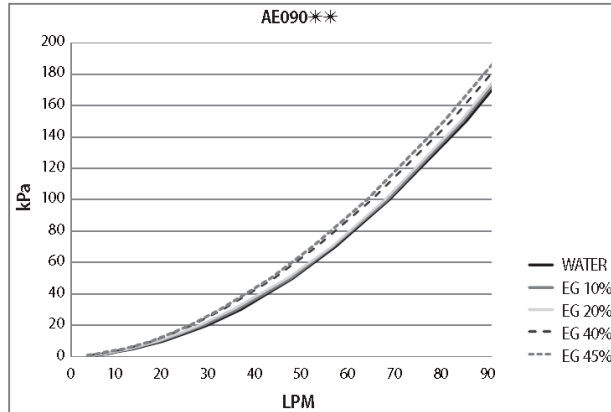
SAMSUNG doesn't supply DHW for EHS Mono.

Since it is a reference data, you have to check DHW operation range for yours.

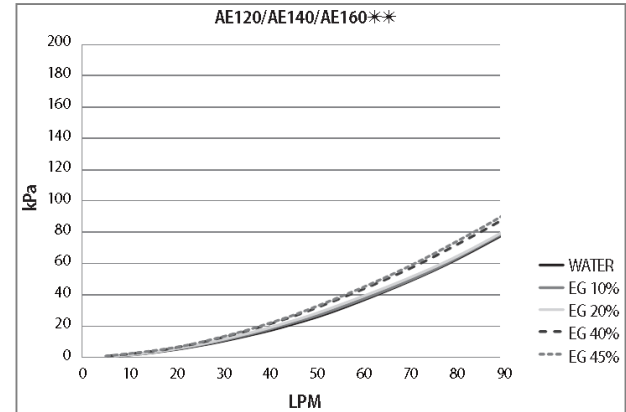
9. Hydraulic Performance

9-1. Correction Graph

1) AE050/090JXYD*H/EU

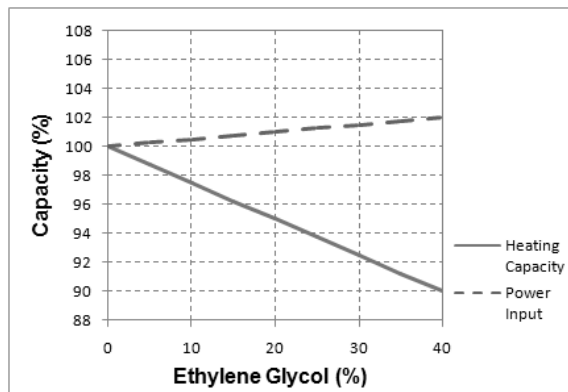


2) AE120/140/160JXYD*H/EU

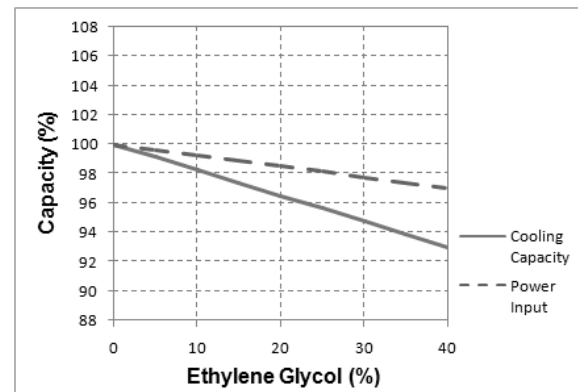


9-2. Capacity Correction

1) Heating



2) Cooling



※ 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.
3. Tested with Ethylene Glycol.

※ Abbreviations

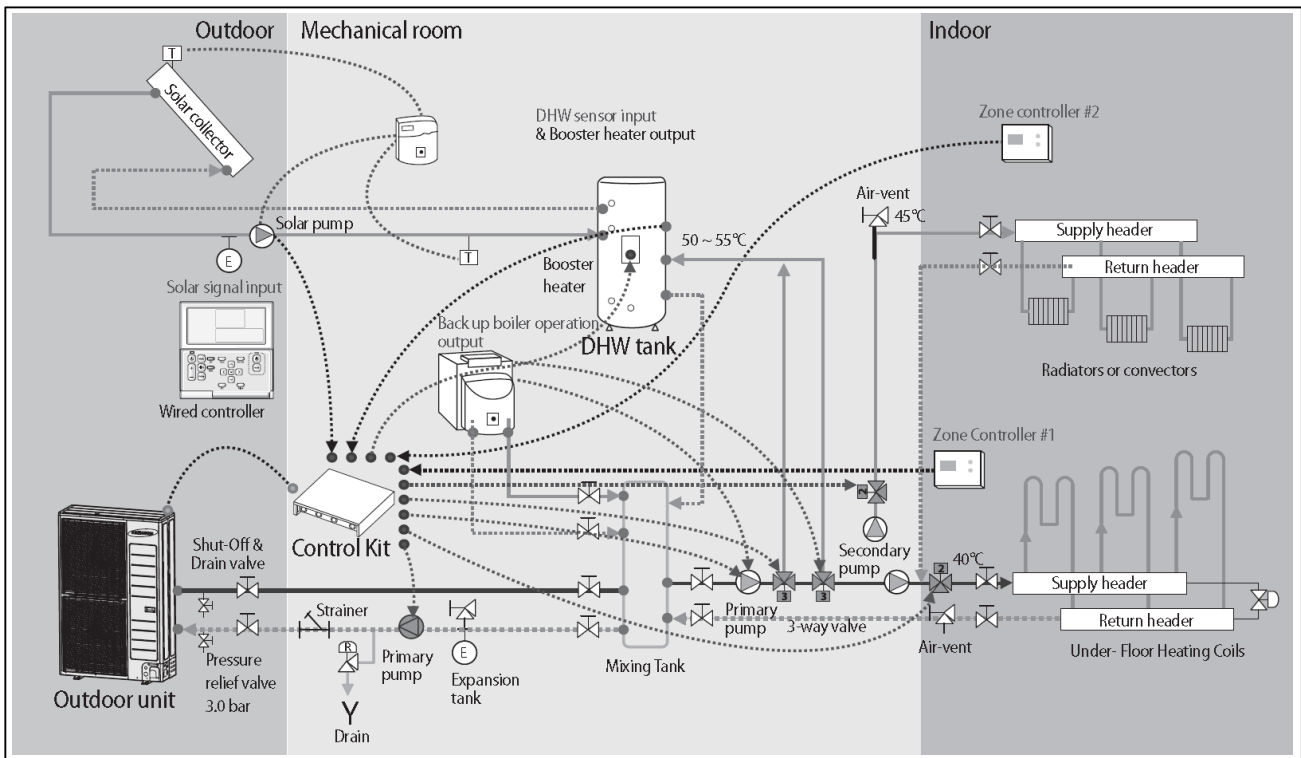
1. EG : Ethylene Glycol

III. Application

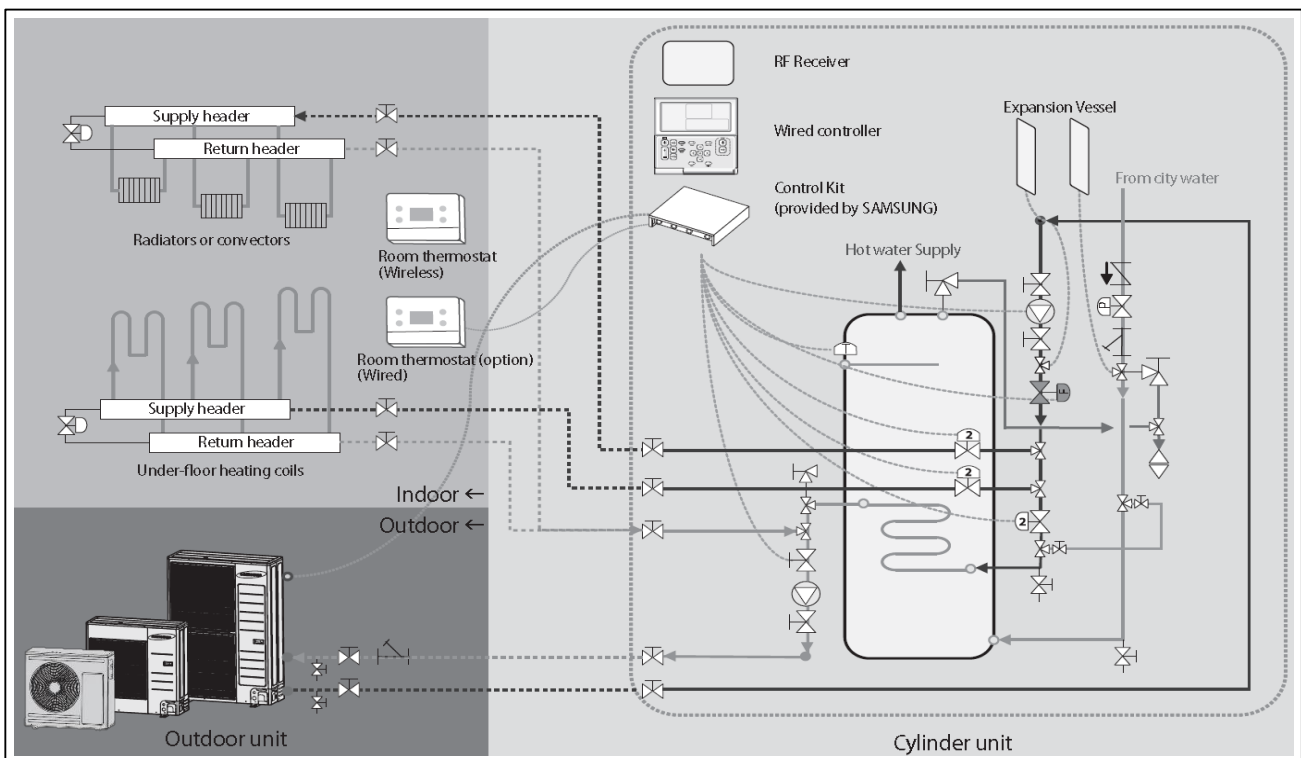
1. Application Examples
2. Installation

1. Application Examples

1-1. Outdoor Unit + Control Kit



2) Outdoor Unit + Cylinder Unit



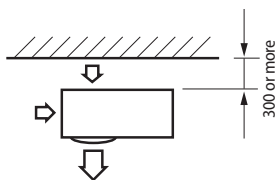
2. Installation

Installing the unit

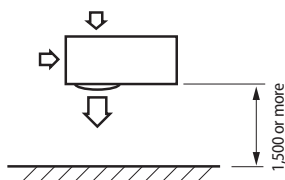
Space requirements for outdoor unit

When installing 1 outdoor unit

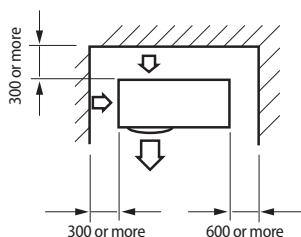
(Unit : mm)



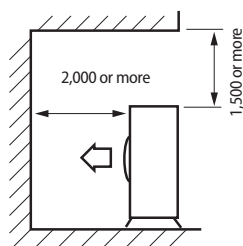
* When the air outlet is opposite the wall



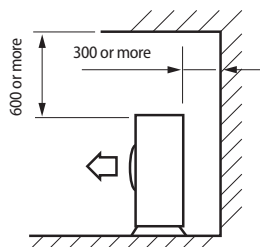
* When the air outlet is towards the wall



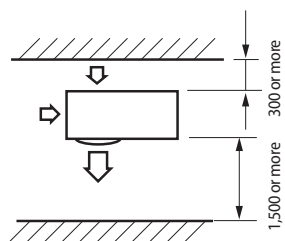
* When 3 sides of the outdoor unit are blocked by the wall



* The upper part of the outdoor unit and the air outlet is towards the wall



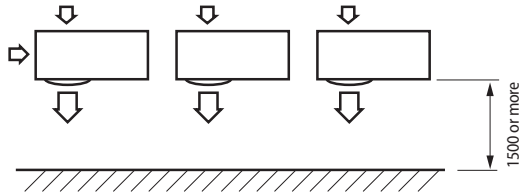
* The upper part of the outdoor unit and the air outlet is opposite the wall



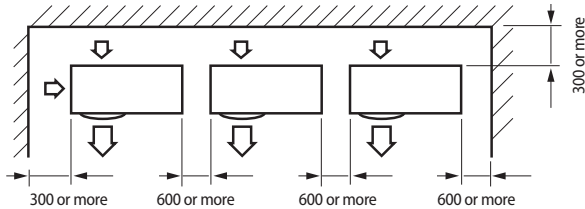
* When front and rear side of the outdoor unit is towards the wall

2. Installation

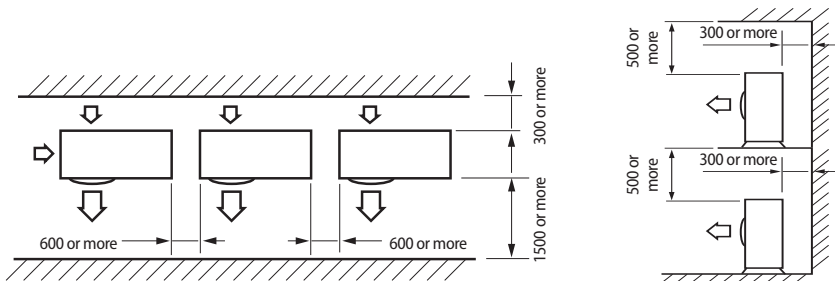
(Unit : mm)



* When the air outlet is towards the wall

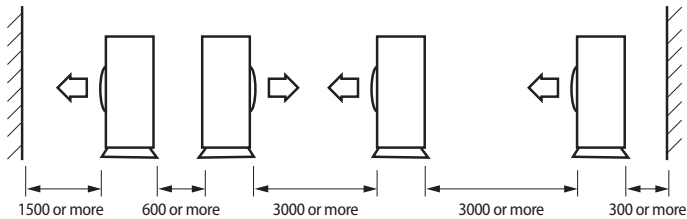


* When 3 sides of the outdoor unit are blocked by the wall



* When front and rear side of the outdoor unit is towards the wall

* The upper part of the outdoor unit and the air outlet is opposite the wall



* When front and rear side of the outdoor unit is towards the wall



- The units must be installed according to distances declared, in order to permit accessibility from each side, either to guarantee correct operation of maintenance or repairing products. The unit's parts must be reachable and removable completely under safety condition (for people or things).

2. Installation

Outdoor unit installation

The outdoor unit must be installed on a rigid and stable base to avoid any increase in the noise level and vibration, particularly if the outdoor unit is to be installed in a location exposed to strong winds or at a height, the unit must be fixed to an appropriate support (wall or ground).

- Fix the outdoor unit with anchor bolts.



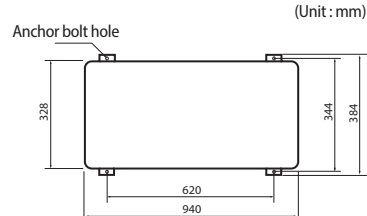
NOTE

- The anchor bolt must be 20mm or higher from the base surface.



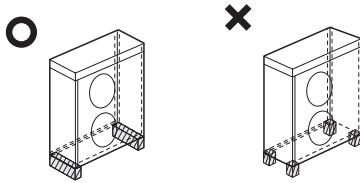
CAUTION

- When tightening the anchor bolt, tighten the rubber washer to prevent the outdoor unit bolt connection part from corroding.
- Make a drain outlet around the base for outdoor unit drainage.
- If the outdoor unit is installed on the roof, you have to check the ceiling strength and waterproof the unit.



(Unit : mm)

Outdoor unit support



OUTDOOR UNIT INSTALLED ON THE WALL BY RACK

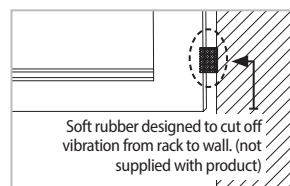
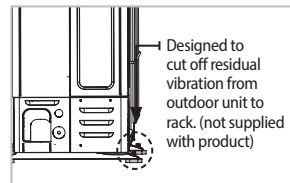
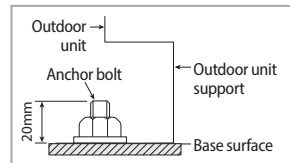
- Ensure the wall will be able to suspend the weight of rack and outdoor unit ;
- Install the rack close to the column as much as possible ;
- Install proper grommet in order to reduce noise and residual vibration transferred by outdoor unit towards wall.



CAUTION

When installing air guide duct

- Check and make sure that screws do not damage the copper pipe.
- Secure air guide duct on guard fan.



2. Installation

Drain work

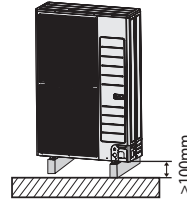
• General area

While Air-Water Heat Pump is running in heating mode, Ice can begin accumulate on the surface of condenser.

To prevent Ice from growing, system go into De-frost mode and then Ice on the surface changes to water.

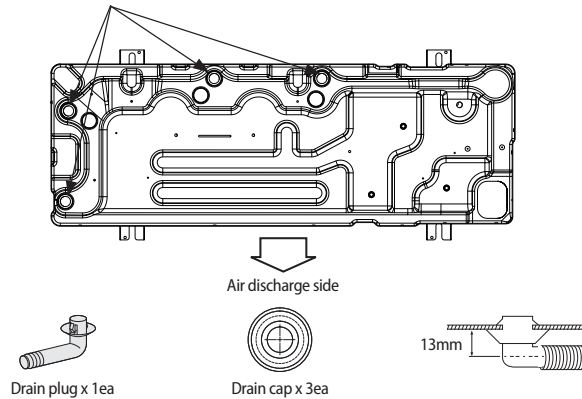
Dropped water from condenser shall be eliminated through running drain holes to prevent Ice growing at low temperature.

- ▶ In case there is not enough space for drainage out of the unit, additional drain works are required. Follow the description as below
 - Make space more than 100mm between the bottom of the outdoor unit and the ground for installation of the drain hose.
 - Insert the drain plug into the hole on the bottom of the outdoor unit.
 - Connect the drain hose to the drain plug.
 - Make sure dusts or small branches should not go into the drain hose.

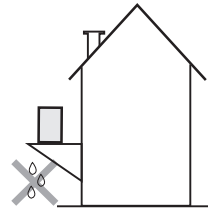


• If drain work is not enough, it can lead to system performance degradation and system damages.

Drain hole $\Phi 20 \times 4$ ea



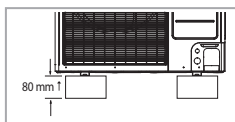
1. Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
2. If the water drainage of the unit is not easy, please build up the unit on a foundation of concrete blocks, etc. (the height of the foundation should be maximum 150 mm).
3. If you install the unit on a frame, please install a waterproof plate within 150 mm of the underside of the unit in order to prevent the invasion of water from the lower direction.
4. When installing the unit in a place frequently exposed to snow, pay special attention to elevate the foundation as high as possible.
5. If you install the unit on a building frame, please install a waterproof plate (field supply) (within 150mm of the underside of the unit) in order to avoid the drain water dripping. (See figure)



2. Installation

- Heavy snow fall area (Natural drainage)

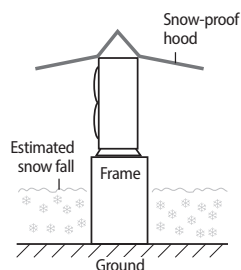
- ▶ When using the air conditioner in the heating mode, ice may accumulate. During de-icing (defrost operation), the condensed water must be drained off safely. For the air conditioner operates well, you must follow the instructions below.
 - Make space more than 80mm between the bottom of the outdoor unit and the ground for installation.



- If the product is installed in a region of heavy snow, allow enough separation distance between the product and the ground.
- When installing the product, make sure that the rack is not placed under the drain hole.
- Ensure that the drained water runs off correctly and safely.



- In areas with heavy snow fall, piled snow could block the air intake. To avoid this incident, install a frame that is higher than estimated snow fall. In addition, install a snow-proof hood to avoid snow from piling on the outdoor unit.
- If ice accumulates on the base, it may cause critical damage to the product. (e.g., a lakeside in a cold area, the seashore, an alpine region, etc.)
- In a heavy snowfall area, do not install the drain plug and drain cap into the outdoor unit. And, it may cause frozen ground. Therefore, take appropriate measures to prevent it.

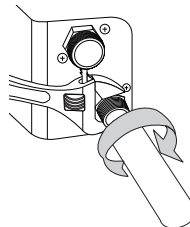


2. Installation

Piping work

Water connections must be made in accordance with the outlook diagram delivered with the unit, respecting the water in- and outlet. If air, moisture or dust gets in the water circuit, problems may occur. Therefore, always take into account the following when connecting the water circuit:

- ▶ Use clean pipes only.
- ▶ Hold the pipe end downwards when removing burrs.
- ▶ Cover the pipe end when inserting it through a wall so that no dust and dirt enter.
- ▶ Use a good thread sealant for the sealing of the connections.
The sealing must be able to withstand the pressures and temperatures of the system.
- ▶ When using non-brass metallic piping, make sure to insulate both materials from each other to prevent galvanic corrosion.
- ▶ Because brass is a soft material, use appropriate tooling for connecting the water circuit. Inappropriate tooling will cause damage to the pipes.



- Be careful not to deform the unit piping by using excessive force when connecting the piping. Deformation of the piping can cause the unit to malfunction.
- Always use two wrenches (spanners) for tightening or loosening the water connections, and tighten connections with a torque wrench as specified in below table. If not, connections and parts can be damaged and leaks.
- The unit is only to be used in a closed water system. If applications are in open water circuit, it will generate Heat exchangers fouling, Corrosion, Leak.

	Name	Tightening torque	
1	BSPP1	350~380 kgf-cm	34 ~ 37 N-m
2	Flow switch	72~82 kgf-cm	7 ~ 8 N-m

Flushing and air-purging

When filling water, the following start-up procedure should be followed.

1. All system components and pipes must be tested for the presence of leaks.
2. Preparation of a make-up water assembly or flushing unit is recommended for installation and service.
3. Before connecting pipes to the Outdoor Unit, flush water pipes clean to remove contaminants during hours using a flushing unit or tap water pressure if it is adequate (at 2 to 3 bar)
4. Fill water into the Outdoor Unit by opening shut-off & drain valve.
5. Purge the air. (Fill with a flushing unit with sufficient capacity: avoid aerating the water)
6. Circulate for long enough to ensure that all air has been bled from the complete water piping system.



- After installations, commissioning should be performed by qualified representatives. Unless flushing and air-purging works are performed adequately, it might result in malfunctions.



Flushing unit
(or purging cart)

2. Installation

Piping work

Freeze protection

Freeze protection solutions must use propylene glycol with a toxicity rating of Class 1 as listed in Clinical Toxicology of Commercial Products, 5th Edition.



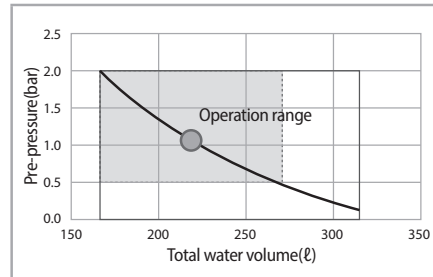
- Ethylene glycol is toxic and must not be used in the primary water circuit in case of any cross-contamination of the potable circuit.

Freezing Points of Propylene Glycol - Water Mixtures		
Percent Propylene Glycol [wt. %]	Freezing Point [°F]	Freezing Point [°C]
0	32	0
10	26	-3
20	20	-7
30	10	-12
36	0	-18
40	-5	-20
43	-10	-23
48	-20	-29

Setting capacity and pre-pressure of the expansion vessel

When it is required to change the default pre-pressure of the expansion vessel(1 bar), keep in mind the following guidelines:

- Use only dry nitrogen to set the expansion vessel pre-pressure.
- Inappropriate setting of the expansion vessel pre-pressure will lead to malfunction of the system. Therefore, the pre-pressure should only be adjusted by a licensed installer.



Installation height difference(a)	Water volume	
	< 220 Litres	> 220 Litres
<7m	No pre-pressure adjustment required.	Actions required: - Pre-pressure must be decreased, calculate according to "Calculating the pre-pressure of the expansion vessel". - Check if the water volume is lower than maximum allowed water volume.
>7m	Actions required: - Pre-pressure must be increased, calculate the appropriate value following by "Calculating the pre-pressure of the expansion vessel". - Check if the water volume is lower than maximum allowed water volume.	Expansion vessel of the unit too small for the installation.

(a) Installation height difference: height difference(m) between the highest point of the water circuit and the indoor unit. If the unit is located at the highest point of the installation, the installation height is considered 0m.

- When Expansion vessel has a capacity 8 liters and 1bar pre-charged.
Water volume of total system for reliable performance is minimum 50liters.

2. Installation

Calculating the pre-pressure of the expansion vessel

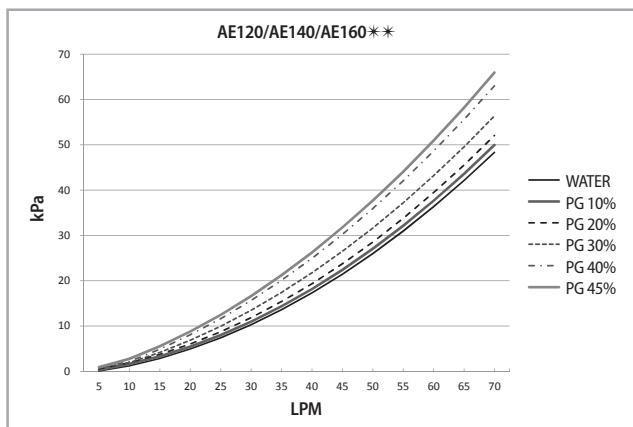
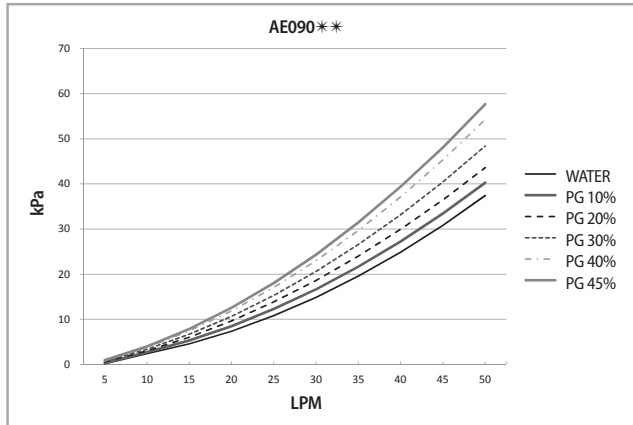
- The pre-pressure(Pg) to be set depends on the maximum installation height difference(H) and is calculated as below :

$$Pg = (H/10 + 0.3) \text{ bar}$$

Unit resistance and PHE resistance by glycol concentrate

The unit is composed of water pipes and PHE basically.

To ensure correct operation and predict the expected performance, Flow and Resistance table can be used and Flow and Resistance characteristic is dependent on Glycol concentration.



Changing Glycol concentration can cause the pressure drop of the system and it can lead to make flow rate rather slow. Just in case performance degradation, installer shall be careful of flow rate changes.

2. Installation

Piping work

Flow switch

Flow switch is not integrated part in MONO Unit. But the installation is essential to operate MONO Unit. Flow switch is provided by Samsung control kit as a sub component.

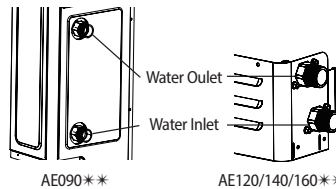


- Flow switch shall be installed described by installation manual of Mono unit or Control kit.
- All electric wiring works shall be implemented by manuals which Samsung provided.
- Before completing the installation works, make sure to check if the flow switch is installed in horizontal and if flow direction is in parallel with pipe direction. (Straight length of In and Out pipe of flow switch shall have 5 times length in diameter)

Charging water

After installation is completed, the following procedures shall be used to charge water into the Outdoor Unit.

- ▶ Connect water lines to water connections of Air-Water Heat Pump.
- ▶ Air vent valve shall be open at least 2turns so that air can be eliminated in the system.
- ▶ Open the shut-off & drain valve in the water supply connection.
- ▶ Water pressure of supply line shall be over 2.0 bar for good charging work.
- ▶ Stop water supply when the pressure indicates around 2.0 bar.



- There shall be enough space for Service works.
- Water pipe and connections shall be cleaned by using water or cleaner before operating the unit at first time.
- Considering E.S.P and water pump performance, select water plumbing specification and under floor loofs.
- Make sure to calculate the total resistance of piping system and determine the size of pipes before selecting the required head of pumps. If the pressure loss of total water system is over than designed pressure, an external water pump shall be installed on piping system in series.
- Do not connect power supply while water is charging.
- When initial installation or re-installation is required, remove air by air vent valve in water plumbings which are installed by local installers to prevent air trap in the system while charging water.
- Make sure that back flow preventer (check valves) shall be installed on main supply line to prevent from contaminating the city water.
 - It is recommended to install the make-up water assembly to prevent from contaminating the city water.
 - Check valves in the make-up water assembly can prevent running water inside Outdoor Unit from contaminating water supplies during installation or maintenance works.

Pressure relief valve

MONO Unit does not have a pressure relief valve. The valve shall prevents abnormal water pressure from damaging the the system by opening at 3.0 bar.



- Make certain that the discharged water out of drain pan does not affect other elements.

Filter / Strainer

Installation of Filter / Strainer is mandatory for water system. The Filter or Strainer shall be located in front of inlet pipe of PHE.

While operating the system, some dust and foreign materials can circulate the system and can make the whole system not work well due to blockage of heat exchangers and corrosion in some components.

Filter mesh : #50

Piping insulation

The complete water circuit, inclusive all piping, must be insulated to prevent condensation during cooling operation and reduction of the heating and cooling capacity as well as prevention of freezing of the outside water piping during winter time. The thickness of the sealing materials must be at least 9 mm with (0.035 W/mK) in order to prevent freezing on the outside water piping.

If the temperature is higher than 30°C and the humidity is higher than RH 80%, then the thickness of the sealing materials should be at least 20 mm in order to avoid condensation on the surface of the sealing.

2. Installation

Wiring

Two electronic cables must be connected to the outdoor unit.

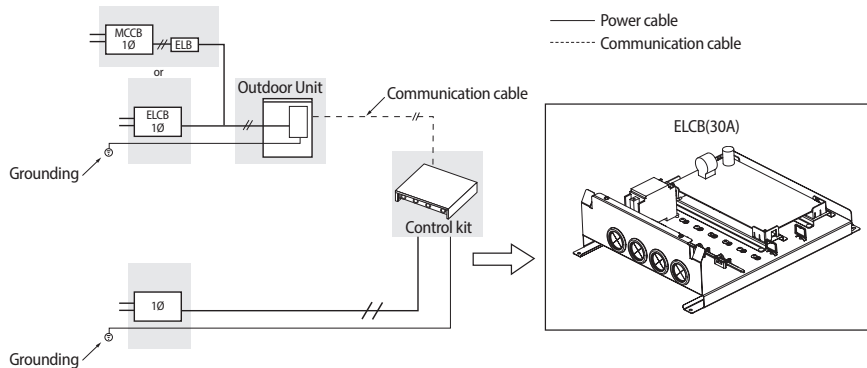
- ▶ The connection cord between indoor unit and outdoor unit.
- ▶ The power cable between outdoor unit and auxiliary circuit breaker.
- ▶ Specially for Russian and European market, before installation, the supply authority should be consulted to determine the supply system impedance to ensure compliance.



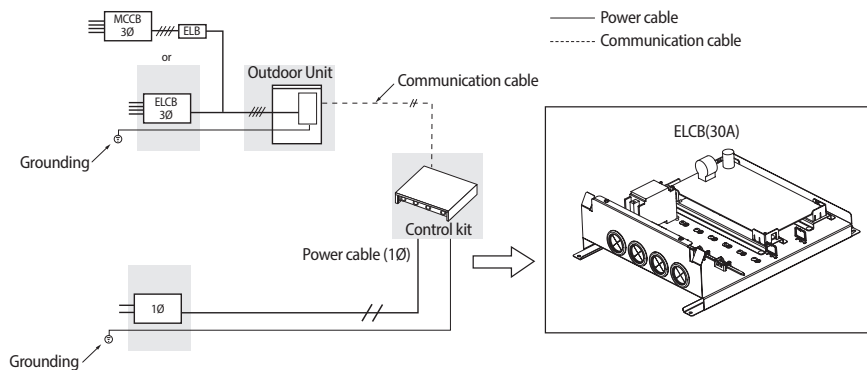
- During the unit installation make first refrigerant connections and then electrical connections. If unit is uninstalled first disconnect electrical cables, then refrigerant connections.
- Connect the Air to water heat pump to grounding system before performing the electrical connection.
- When installing the unit, you shouldn't use inter connection wire.

Example of EHS system

When using ELB/ELCB for 1 phase (220-240V~)



When using ELB/ELCB for 3 phase 4 wires (380-415V~)



- * If an outdoor unit is installed in a place in danger of an electric leak or submergence, you must install the ELB/ELCB.
- * Installation of control kit must be followed its Installation manual.

2. Installation

Power Cable Specifications

1 phase

Outdoor unit	Rated		Voltage Range		MCA	MFA
	Hz	Volts	Min	Max	Min. Circuit Amps.	Max. Fuse Amps.
AE090JXYDEH	50	220-240	198	264	22 A	27.5 A
AE120JXYDEH	50	220-240	198	264	28 A	35 A
AE140JXYDEH	50	220-240	198	264	30 A	37.5 A
AE160JXYDEH	50	220-240	198	264	32 A	40 A

- ▶ The power cable is not supplied with Air to water heat pump.
- ▶ Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (Code designation IEC:60245 IEC 57 / CENELEC:H05RN-F)
- ▶ This Equipment complies with IEC 61000-3-12.

Indoor Unit	Load	Power supply	Power cable	MAX. length	Type GL 
			mm²,wires	m	A
MIM-E03AN	No Heater (Water Pump, Valve, Wired RMC)	1Ø, 220-240V, 50Hz	1.5 / 3	<10m	10
			2.5 / 3	10m<L<20m	10
	Booster Heater (3kw)		4.0 / 3	<10m	20
			6.0 / 3	10m<L<20m	20
	Booster Heater (~3kw) + Backup Heater (~3kw)		6.0 / 3	<10m	40
			8.0 / 3	10m<L<20m	40

- ▶ The Power cable is not supplied with the heat pump.
- ▶ For power cable, use the grade H05RN-F materials in 1Ø system.
- ▶ If you connect Backup Heater at separated power cable, you can reduce wire size. (Please refer to control kit installation manual)

3 Phase

Outdoor unit	Rated		Voltage Range		MCA	MFA
	Hz	Volts	Min	Max	Min. Circuit Amps.	Max. Fuse Amps.
AE090JXYDGH	50	380-415	342	457	10 A	16.1 A
AE120JXYDGH	50	380-415	342	457	10 A	16.1 A
AE140JXYDGH	50	380-415	342	457	12 A	16.1 A
AE160JXYDGH	50	380-415	342	457	12 A	16.1 A

- ▶ The power cable is not supplied with air to water heat pump.
- ▶ Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (Code designation IEC:60245 IEC 66 / CENELEC:H07RN-F)
- ▶ This equipment complies with IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to 3.3[MVA] at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to 3.3[MVA].

2. Installation

Maintenance

Listed checks and inspections shall be implemented regularly so that the unit can operate as design intention in production site.

Always switch off the unit and remove power cable from the electric source before carrying out any maintenance or repair works.

Mentioned actions shall be carried out at least once a year by qualified personnel.

1. Water pressure
 - Check if the water pressure is above 0.3 bar. If necessary, fill a supplement water.
2. Water filter
 - Use water filter which is available for cleaning and clean it regularly.
3. Water pressure relief valve
 - Check for correct operation of the pressure relief valve.
 - The valve will work over the designated pressure.
 - If there is leakage of water or water splashed in normal condition, please contact your local installer.
4. Glycol
 - Record and check the glycol concentration and the pH-value in the system at least once a year.
 - A Ph-value below 8.0 indicates that a significant portion of the inhibitor has been depleted and that more inhibitor needs to be added.
 - When the Ph-value is below 7.0 then oxidation of the glycol occurred, the system should be drained and flushed thoroughly before severe damage occurs.
 - Make sure that the disposal of the glycol solution is done in accordance with relevant local and national regulation.

Adding refrigerant

The Heat Pump unit is provided to users with basic amounts of refrigerants as initial setting values. While using the unit or doing refrigerant piping works, there can be some loss of refrigerants compared to initial amounts. To run the units properly, keep the amount of refrigerant which SAMSUNG designated.

Procedures as below is describing how to adding the amount of refrigerant.

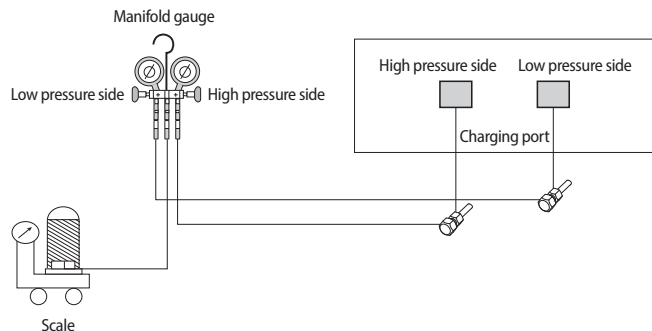


- R-410A Shall be added as liquid phase.
- Adding and recharging works shall be by Charging Ports.

1. Connect the manifold gauge and purge the manifold gauge.
2. Open the manifold gauge valve of the liquid side Charging Ports and add the liquid refrigerant.
3. If you cannot fully recharge the additional refrigerant while the outdoor unit is stopped, use the key on PCB in the Heat Pump to run for recharging the remaining refrigerant.

Adding refrigerants in running condition

1. Press the function key for adding refrigerant.
2. After 30 minutes of operation, open the Charging Ports on low pressure side in Heat Pump.
3. Open the valve for low pressure side in the manifold gauge to recharge the remaining refrigerant.
4. After completing, close the valves in manifold gauge and eliminate the hoses from Charging Ports.



Important information regulation regarding the refrigerant used



- Inform user if system contains 3 kg or more of fluorinated greenhouse gases. In this case, it has to be checked for leakage at least once every 12 months, according to regulation n°842/2006. This activity has to be covered by qualified personnel only. In case situation above (3 kg or more of R-410A), installer (or recognised person which has responsibility for final check) has to provide a maintenance book, with all the information recorded according to REGULATION(EC) N° 842/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on certain fluorinated greenhouse gases.

2. Installation

Maintenance

It is recommended that annually a competent person

- a Inspects and cleans the line strainer.
- b Checks the operation of the expansion relief valve and temperature & pressure relief valve.
- c Recommissions the cylinder in accordance with the instructions.

Tundish

Install the Tundish in a vertical position within a maximum of 600mm from the temperature and Pressure Relief Valve drain connection. Ensure the expansion relief pipework discharges through the tundish. Tundish pipework must be 22mm with a minimum vertical length of 300mm below tundish.

Maximum permitted length of 22mm pipework is 9m. Each bend or elbow is equivalent to 0.8m of pipework.

All pipework must have continuous fall and discharge in a safe, visible position. If any doubt, refer to Building Regulation G3.

Charging refrigerant

- The R-410A refrigerant is blended refrigerant. Add only liquid refrigerant.
- Measure the quantity of the refrigerant according to the length of the liquid side pipe. Add quantity of the refrigerant using a scale.

Important information regulation regarding the refrigerant used

This product contains fluorinated greenhouse gases. Do not vent gases into the atmosphere.



- Inform user if system contains 5 tCO₂e or more of fluorinated greenhouse gases. In this case, it has to be checked for leakage at least once every 12 months, according to regulation n°517/2014. This activity has to be covered by qualified personnel only. In case situation above (5 tCO₂e or more of R-410A), installer (or recognized person which has responsibility for final check) has to provide a maintenance book, with all the information recorded according to REGULATION (EU) N° 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on fluorinated greenhouse gases.

Please fill in the following with indelible ink on the refrigerant charge label supplied with this product and on this manual.

- ① the factory refrigerant charge of the product.
- ② the additional refrigerant amount charged in the field.
- ①+② the total refrigerant charge.

Unit	kg	tCO ₂ e
①, a		
②, b		
①+②, c		

Refrigerant type	GWP value
R-410A	2088

- GWP=Global Warming Potential
- Calculating tCO₂e : kg x GWP / 1000



- a Factory refrigerant charge of the product: see unit name plate.
- b Additional refrigerant amount charged in the field. (Refer to the above information for the quantity of refrigerant replenishment.)
- c Total refrigerant charge.
- d Refrigerant cylinder and manifold for charging.



- The filled-out label must be adhered in the proximity of the product charging port. (ex. onto the inside of the stop valve cover.)

SAMSUNG

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