

**SAMSUNG**

**VRF**

# Technical Data Book

**DVM S Water for America  
(R410A, 60Hz, HP/HR)**



Model : AM\*\*\*KXWD\*\*  
Premium Energy Efficiency Type  
Premium Compact Type

# Nomenclature

## Outdoor units

Model name

<b>AM</b>	<b>240</b>	<b>K</b>	<b>X</b>	<b>W</b>	<b>A</b>	<b>F</b>	<b>R</b>	/	<b>AA</b>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(Buyer)

(1) Classification

<b>AM</b>	DVM
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(5) Feature1

<b>W</b>	DVM WATER
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(2) Capacity

BTU/H ( x 1,000) (3digits)
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(6) Feature2

<b>A</b>	Standard + General Temp.+ Module
<b>D</b>	STANDARD + GENERAL TEMP. + NON MODULE

(3) Version

<b>F</b>	2013
<b>H</b>	2014
<b>J</b>	2015
<b>K</b>	2016

(7) Rating Voltage

<b>C</b>	1Ø, 208~230V, 60Hz
<b>F</b>	3Ø, 208~230V, 60Hz
<b>J</b>	3Ø, 460V, 60Hz

(4) Product Type

<b>X</b>	Outdoor Unit
<b>N</b>	Indoor Unit

(8) Mode

<b>R</b>	Heat Recovery
<b>H</b>	Heat Pump

# 2. Specification

## Premium Energy Efficiency Type (208~230 V)

Type			DVM S Water	DVM S Water	DVM S Water	DVM S Water		
Model Name	Outdoor unit module 1		AM168HXWAFR2	AM192HXWAFR**	AM216HXWAFR2	AM240HXWAFR2		
	Outdoor unit module 2		AM072HXWAFR*	AM192HXWAFR**	AM096HXWAFR**	AM120HXWAFR**		
	Outdoor unit module 3				AM120HXWAFR**	AM120HXWAFR**		
	Outdoor unit module 4							
Power Supply			ø, #, V, Hz	3, 3, 208~230, 60	3, 3, 208~230, 60	3, 3, 208~230, 60	3, 3, 208~230, 60	
Mode			-	HP, HR	HP, HR	HP, HR	HP, HR	
Performance	Ton		Ton	14	16	18	20	
	Capacity (Nominal) <sup>1)</sup>	Cooling	Btu/h	168,000	192,000	216,000	240,000	
		Heating	Btu/h	189,000	216,000	243,000	270,000	
	Capacity (Rated) <sup>2)</sup>	Cooling	Btu/h	161,000	184,000	206,000	228,000	
Heating		Btu/h	180,000	206,000	232,000	258,000		
Maximum number of connectable indoor units			ea	29	33	37	41	
	Total capacity of the connected Indoor Units	Min.	Btu/h	84,000	96,000	108,000	120,000	
		Max.	Btu/h	218,400	249,600	280,800	312,000	
Power	Power Input (Nominal) <sup>1)</sup>	Cooling	kW	7.42	15.20	12.77	17.00	
		Heating		8.31	13.39	12.98	16.38	
	Current	MCA	A	16 + 23	39.6	23 + 30	30 + 30	
		MOP		25 + 40	50	40 + 50	50 + 50	
Casing	Material	Body	-	EGI steel plate	EGI steel plate	EGI steel plate	EGI steel plate	
		Base	-	EGI steel plate	EGI steel plate	EGI steel plate	EGI steel plate	
Compressor	Type		-	Inverter Scroll	Inverter Scroll	Inverter Scroll	Inverter Scroll	
	Output		kW × n	(4.96) × 2	(4.96) × 2	(4.96) × 2	(4.96) × 2	
	Model Name		-	DS-GB052FBVASG x 2	DS-GB052FBVASG x 2	DS-GB052FBVASG x 2	DS-GB052FBVASG x 2	
	Oil	Type	-	PVE	PVE	PVE	PVE	
Initial Charge		Liter	3.9 x 2	6.2	3.9 x 2	3.9 x 2		
Condenser	Type		Type	PHE(Plate Heat Exchanger)	PHE (Plate Heat Exchanger)	PHE (Plate Heat Exchanger)	PHE (Plate Heat Exchanger)	
	Pipe Size		ø, inch	NPT 1-1/4 x 2	NPT 1-1/4	NPT 1-1/4 x 2	NPT 1-1/4 x 2	
	Lost Head		kPa (ftAq)	22 (7.3) + 30 (10.0)	54 (18.1)	30 (10.0) + 43 (14.4)	43 (14.4) + 43 (14.4)	
	Water Flow Rate		LPM (GPM)	80 (21.1) + 96 (25.4)	190 (50.2)	96(25.4) + 114(30.1)	114(30.1) + 114(30.1)	
	Max. Pressure		Mpa (psi)	1.96 (285)	1.96 (285)	1.96 (285)	1.96 (285)	
Piping Connections	Liquid Pipe	Type		Braze connection	Braze connection	Braze connection	Braze connection	
		ø, mm		15.88	15.88	15.88	15.88	
		ø, inch		5/8"	5/8"	5/8"	5/8"	
	Gas Pipe	Type		Braze connection	Braze connection	Braze connection	Braze connection	
		ø, mm		28.58	28.58	28.58	28.58	
		ø, inch		1 1/8"	1 1/8"	1 1/8"	1 1/8"	
	Discharge Gas Pipe (HR)		ø, mm	22.22	28.58	28.58	28.58	
			ø, inch	7/8"	1 1/8"	1 1/8"	1 1/8"	
	Heat insulation		-	Both liquid and gas pipes	Both liquid and gas pipes	Both liquid and gas pipes	Both liquid and gas pipes	
	Piping length (ODU-IDU)		Max.	m (ft)	170 (558)	170 (558)	170 (558)	170 (558)
	Piping length (1st Branch-IDU)		Max.	m (ft)	90 (295)	90 (295)	90 (295)	90 (295)
	Total piping length (System)		Max.	m (ft)	500 (1640)	500 (1640)	500 (1640)	500 (1640)
Level difference (ODU in highest position)		Max.	m (ft)	50 (164)	50 (164)	50 (164)	50 (164)	
Level difference (IDU in highest position)		Max.	m (ft)	40 (131)	40 (131)	40 (131)	40 (131)	
Level difference (IDU-IDU)		Max.	m (ft)	50 (164)	50 (164)	50 (164)	50 (164)	

# 2. Specification

## Premium Energy Efficiency Type (208~230 V)

Type				DVM S Water	DVM S Water	DVM S Water	DVM S Water
Model Name	Outdoor unit module 1			AM168HXWAFR2	AM192HXWAFR**	AM216HXWAFR2	AM240HXWAFR2
	Outdoor unit module 2			AM072HXWAFR*	AM192HXWAFR**	AM096HXWAFR**	AM120HXWAFR**
	Outdoor unit module 3			AM096HXWAFR*		AM120HXWAFR**	AM120HXWAFR**
	Outdoor unit module 4						
Wiring connections	Communication	Min.	mm2	0.75	0.75	0.75	0.75
		Remark	-	F1, F2	F1, F2	F1, F2	F1, F2
Refrigerant	Type			R410A	R410A	R410A	R410A
	Factory Charging			kg (lbs)	5.5(12.1) + 5.8(12.8)	9.8 (21.6)	5.8(12.8) + 6(13.2)
Sound	Sound Pressure	Cooling	dB(A)	51	51	52	53
		Heating		54	52	55	55
	Sound Power			73	73	73	73
External Dimension	Net Weight		kg (lbs)	160 (353) x 2	240 (529)	160 (353) x 2	160 (353) x 2
	Shipping Weight		kg (lbs)	167 (368) x 2	250 (551)	167 (368) x 2	167 (368) x 2
	Net Dimensions (WxHxD)		mm	(770x1,000x545) x 2	1,100x1,000x545	(770x1,000x545) x 2	(770x1,000x545) x 2
			inch	(30.3x39.4x21.5) x 2	43.3x39.4x21.5	(30.3x39.4x21.5) x 2	(30.3x39.4x21.5) x 2
	Shipping Dimensions (WxHxD)		mm	(840x1,200x620) x 2	1,170x1,200x620	(840x1,200x620) x 2	(840x1,200x620) x 2
inch			(33.1x47.2x24.4) x 2	46.1x47.2x24.4	(33.1x47.2x24.4) x 2	(33.1x47.2x24.4) x 2	
Operating Temp. Range (Water Temp.)	Cooling		°C (°F)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)
	Heating		°C (°F)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)	10~45 (50~113)

### NOTE

- Specification may be subject to change without prior notice.
- 1)\* Nominal capacities are based on (Equivalent refrigerant piping : 25ft(7.5m), Level differences : 0ft(0m)
  - Cooling : Indoor temperature : 80°F(26.7°C) DB, 67°F(19.4°C) WB / Inlet water temperature : 85°F(29.4°C)
  - Heating : Indoor temperature : 70°F(21.1°C) DB, 60°F(15.6°C) WB / Inlet water temperature : 68°F(20°C)
- 2)\* Rated capacities are based on (Equivalent refrigerant piping : 25ft(7.5m), Level differences : 0ft(0m)
  - Cooling : Indoor temperature : 80.6°F(27°C) DB, 66.2°F(19°C) WB / Inlet water temperature : 86°F(30°C)
  - Heating : Indoor temperature : 68°F(20°C) DB, 59°F(15°C) WB / Inlet water temperature : 68°F(20°C)
- Sound pressure level is obtained in an anechoic room.
  - Sound pressure level is a relative value, depending on the distance and acoustic environment.
  - Sound pressure level may differ depending on operation condition.
  - dBA = A-weighted sound pressure level
  - Reference acoustic pressure 0 dB = 20uPa
- Sound power level is an absolute value that a sound source generates.
  - dBA = A-weighted sound power level
  - Reference power : 1pW
  - Measured according to ISO 3741
- Sound values of multi combination are theoretical values based on sound results of individual installed units.
- These products contain R410A which is fluorinated greenhouse gas.
- Total capacity of the connected indoor units can be allowed from 50% to 130% of the total outdoor unit capacity.  
 $0.5 \times \sum(\text{Outdoor unit capacity}) \leq \text{Total capacity of the connected indoor units} \leq 1.3 \times \sum(\text{Outdoor unit capacity})$
- You can connect maximum 64 indoor units to the outdoor unit. Maximum quantity of connectable indoor unit is set to 64 since outdoor unit only support up to 64 communication address. Indoor unit address can be assigned from indoor unit address was assigned from 64~79, E201 error will occur.0~63.  
 If the indoor unit address was assigned from 64~79, E201 error will occur.

### 3. Electric Characteristics

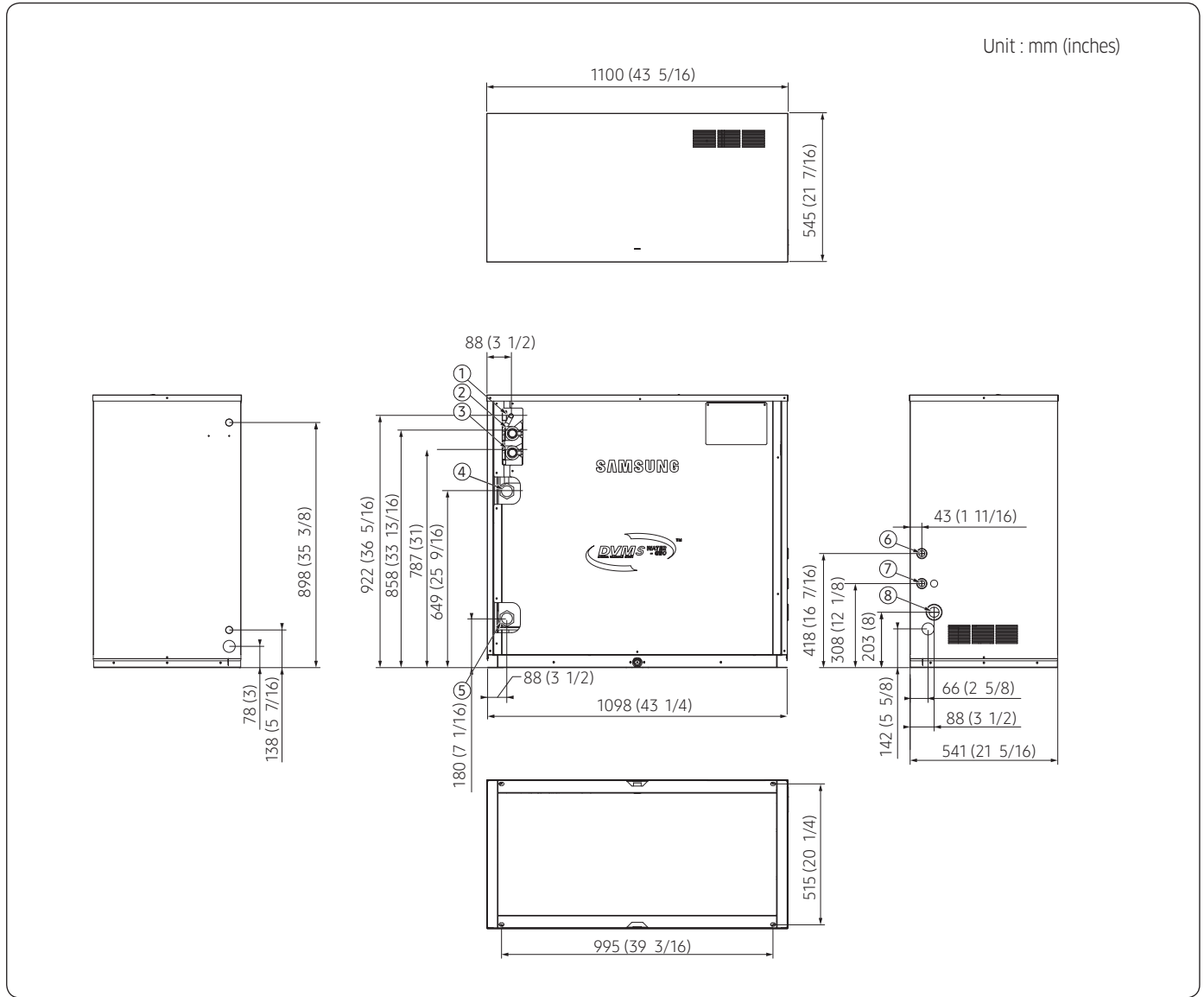
Capacity Ton	Model	Power Supply				Voltage Range		Current [A]	
		Ø	#	Voltage	Hz	Min. (-10%)	Max. (+10%)	MCA	MOP
3	AM038KXWD**	1	2	208~230	60	187.2	253	20.0	35
4	AM048KXWD**	1	2	208~230	60	187.2	253	24.0	40
5	AM055KXWD**	1	2	208~230	60	187.2	253	26.0	45

#### Premium Energy Efficiency Type

Capacity Ton	Model	Power Supply				Voltage Range		Current [A]	
		Ø	#	Voltage	Hz	Min. (-10%)	Max. (+10%)	MCA	MOP
6	AM072HXWAFR	3	3	208~230	60	187.2	253	16.0	25
8	AM096HXWAFR	3	3	208~230	60	187.2	253	23.0	40
10	AM120HXWAFR	3	3	208~230	60	187.2	253	30.0	50
12	AM144HXWAFR2	3	3	208~230	60	187.2	253	32.0	50
14	AM168HXWAFR2	3	3	208~230	60	187.2	253	39.0	65
16	AM192HXWAFR	3	3	208~230	60	187.2	253	39.6	50
18	AM216HXWAFR2	3	3	208~230	60	187.2	253	53.0	90
20	AM240HXWAFR2	3	3	208~230	60	187.2	253	60.0	100
22	AM264HXWAFR2	3	3	208~230	60	187.2	253	55.6	75
24	AM288HXWAFR2	3	3	208~230	60	187.2	253	62.6	90
26	AM312HXWAFR2	3	3	208~230	60	187.2	253	69.6	100
28	AM336HXWAFR2	3	3	208~230	60	187.2	253	71.6	100
30	AM360HXWAFR2	3	3	208~230	60	187.2	253	78.6	115
32	AM384HXWAFR2	3	3	208~230	60	187.2	253	79.2	100
34	AM408HXWAFR2	3	3	208~230	60	187.2	253	92.6	140
36	AM432HXWAFR2	3	3	208~230	60	187.2	253	99.6	150
38	AM456HXWAFR2	3	3	208~230	60	187.2	253	95.2	125
40	AM480HXWAFR2	3	3	208~230	60	187.2	253	102.2	140
42	AM504HXWAFR2	3	3	208~230	60	187.2	253	109.2	150
48	AM576HXWAFR2	3	3	208~230	60	187.2	253	118.8	150

# 4. Dimensional Drawing

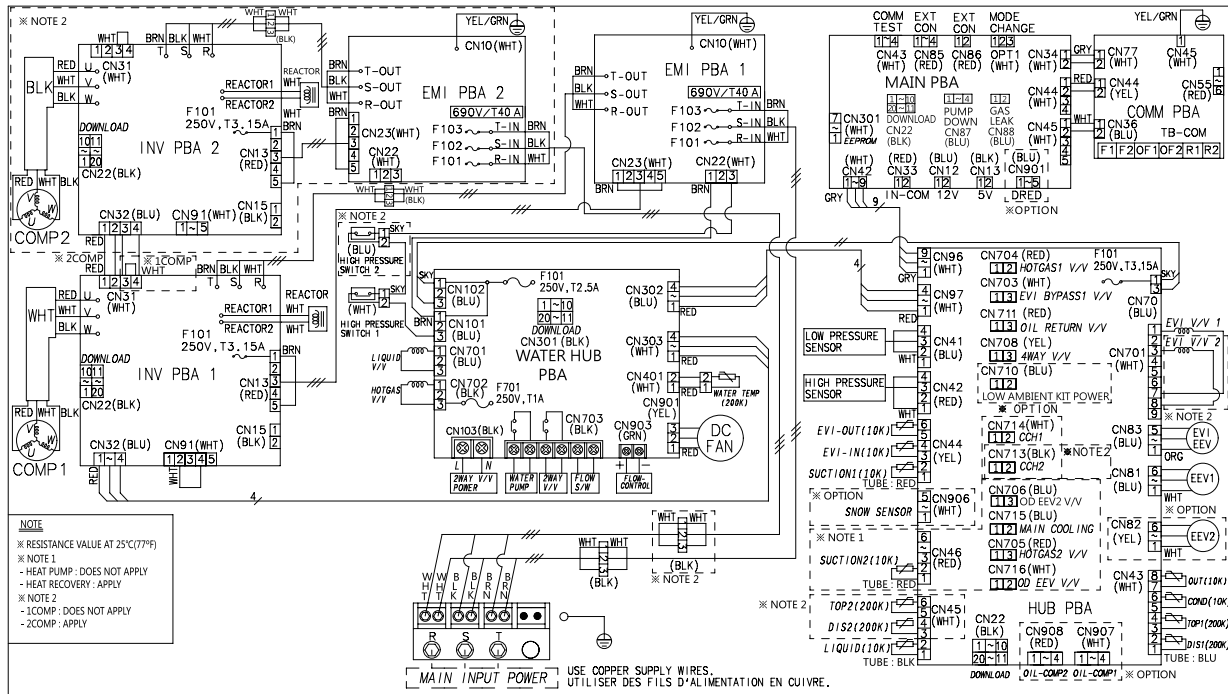
**AM192HXWAFR\*\* (16Ton)**



No.	Name	Description	No.	Name	Description
①	Liquid ref. pipe	15.88 (5/8")	⑤	Water inlet pipe	NPT 1-1/4
②	High pressure gas ref. pipe	28.58 (1 1/8")	⑥	Communication wiring	-
③	Low pressure gas ref. pipe	28.58 (1 1/8")	⑦	External contact wiring	-
④	Water outlet pipe	NPT 1-1/4	⑧	Power wiring	-

# 6. Electrical Wiring Diagram

AM072/096/120/192HXWAFR\*\*



INV PBA1	Printed circuit board(inverter1)	EEV1	electronic expansion valve 1	LIQUID(10K)	Thermistor LIQUID(10K)
INV PBA2	Printed circuit board(inverter2)	EEV2	electronic expansion valve 2	HOTGAS1 V/V	Solenoid valve(HOTGAS1)
EMI PBA1	Printed circuit board(emi1)	EV1-OUT(10K)	Thermistor (Enhanced Vapor Injection_out)	EV1 BYPASS V/V	Solenoid valve(EV1 BYPASS)
EMI PBA2	Printed circuit board(emi1)	EV1-IN(10K)	Thermistor (Enhanced Vapor Injection_in)	RETURN V/V	Solenoid valve(RETURN)
FAN PBA	Printed circuit board(fan motor)	SUCTION1(10K)	Thermistor (SUCTION1)	4WAY V/V	Solenoid valve(4WAY)
MAIN PBA	Printed circuit board(main)	SUCTION2(10K)	Thermistor (SUCTION2)	CCH1	Crank Case Heater (Compressor1)
HUB PBA	Printed circuit board(hub)	SNOW SENSOR	SNOW SENSOR	CCH2	Crank Case Heater (Compressor1)
COMM PBA	Printed circuit board(communication)	OIL-COMP1	Oil-Sensor(Compressor1)	MAIN COOLING	Solenoid valve(Main cooling)
COMP1	Motor (compressor1)	OIL-COMP2	Oil-Sensor(Compressor2)	HOTGAS2 V/V	Solenoid valve(HOTGAS2)
COMP2	Motor (compressor2)	OUT(10K)	Thermistor (Air)	OD EEV V/V	Solenoid valve(OD EEV)
FAN1	Motor (fan1)	COND(10K)	Thermistor (COND)	F101	FUSE(inverterPBA)
FAN2	Motor (fan2)	TOP2(200K)	Thermistor (Copressor2 TOP)	690V/T40A	FUSE(EMI PBA)
EV1 V/V 1	Solenoid valve(Enhanced Vapor Injection_1)	DIS1(200K)	Thermistor DIS1(200K)	MODE CHANGE	Connector (remote switching cool/heat selector)
EV1 V/V 2	Solenoid valve(Enhanced Vapor Injection_2)	DIS2(200K)	Thermistor DIS2(200K)	EXT CON	Connector (Output EXT CON)
EV1 EEV	electronic expansion valve(EV1)	LIQUID(10K)	Thermistor LIQUID(10K)	ERROR/COMP EXT	Connector (Output ERROR/COMP EXT CON)

## NOTE

- This wiring diagram applies only to the water-cooled DVM S Water.
- Colors BLK: black, RED: red, BLU: blue, WHT: white, YEL: yellow, BRN: brown, SKY: skyblue , ORG: orange, GRN: green
- When operating, don't short circuit the protection device (High Pressure switch)
- For connection wiring indoor-outdoor transmission F1-F2, outdoor-outdoor transmission OF1-OF2, refer to the installation manual.
- ⊕ Protective earth(screw) , □□□□ connector,  $\frac{N}{\times}$  : The wire quantity

# 7. Sound Data

## Summary

Capacity Ton	Model	Sound Pressure (dBA)		Sound Power (dBA)
		Cooling	Heating	
3	AM038KXWD**	47	49	65
4	AM048KXWD**	48	50	71
5	AM055KXWD**	49	51	71

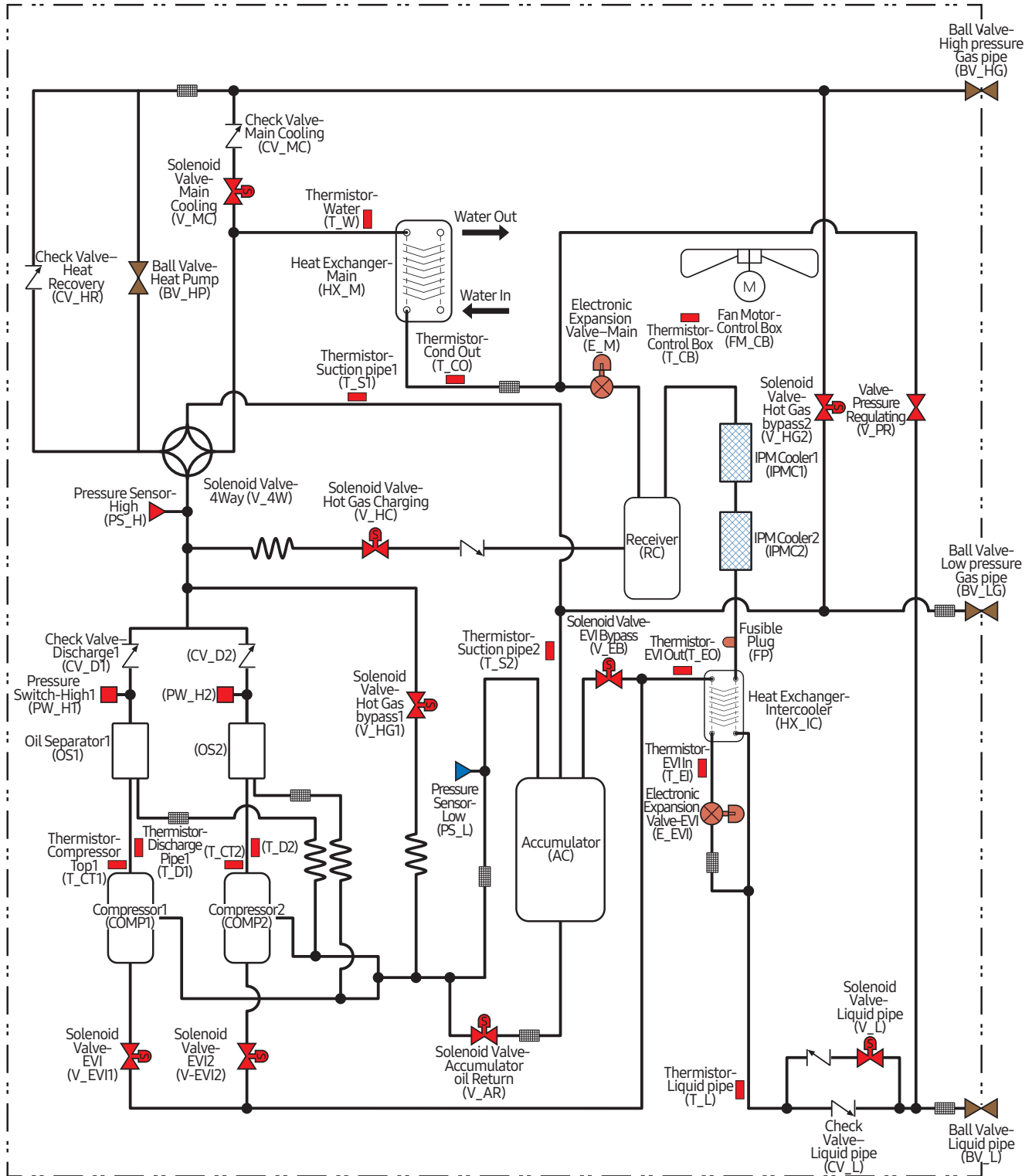
## Premium Energy Efficiency Type

Capacity Ton	Model	Sound Pressure (dBA)		Sound Power (dBA)
		Cooling	Heating	
6	AM072HXWA*R	48	51	70
8	AM096HXWA*R	48	51	70
10	AM120HXWA*R	50	52	70
12	AM144HXWA*R2	51	54	73
14	AM168HXWA*R2	51	54	73
16	AM192HXWA*R	51	52	73
18	AM216HXWA*R2	52	55	73
20	AM240HXWA*R2	53	55	73
22	AM264HXWA*R2	53	56	75
24	AM288HXWA*R2	53	55	75
26	AM312HXWA*R2	53	55	75
28	AM336HXWA*R2	54	56	75
30	AM360HXWA*R2	54	56	76
32	AM384HXWA*R2	54	55	76
34	AM408HXWA*R2	55	56	76
36	AM432HXWA*R2	55	57	76
38	AM456HXWA*R2	55	56	77
40	AM480HXWA*R2	55	56	77
42	AM504HXWA*R2	55	57	77
48	AM576HXWA*R2	56	57	78



# 9. Piping Diagram

AM192HXWA\*R\*X





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