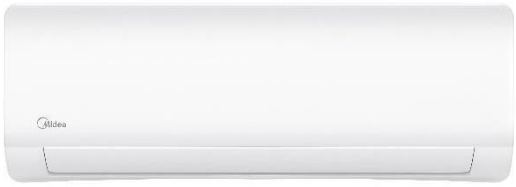
Technical Databook

Contents

1. General information

The heat recovery system is a multi-split air conditioning system that can be used for cooling, heating, and domestic hot water. The unit can be operated in 5 modes, cooling, heating, domestic hot water, heating + domestic water, cooling + domestic hot water (including cooling + total heat recovery, cooling + partial heat recovery). Compared with ordinary multi air conditioners, when the air conditioner runs in cooling + domestic hot water, the waste heat generated in the cooling process is used to heat the domestic water in the water tank to achieve the effect of saving energy.

1.1 **Product lineup**

<table>
<tr><th>Item</th><th>Series</th><th>Model name</th><th>Appearance</th></tr>
<tr><td>Outdoor unit</td><td></td><td>M4OA-27HFN8-Q(HRU)</td><td>  </td></tr>
<tr><td>Tank</td><td></td><td>PLSX-190(30)/DN8-A</td><td>  </td></tr>
<tr><td rowspan="8">Indoor unit</td><td rowspan="3">Breezeless E</td><td>MSCB1BU -09HRFN8-QRD1GW</td><td rowspan="3"> 
The appearance is for reference only, and different models may have different sizes.</td></tr>
<tr><td>MSCB1BU -12HRFN8-QRD1GW</td></tr>
<tr><td>MSCB1CU-18HRFN8-QRD1GW</td></tr>
<tr><td rowspan="5">Extreme</td><td>MSAGAU-07HRFNX-QRD0GW</td><td rowspan="5"> 
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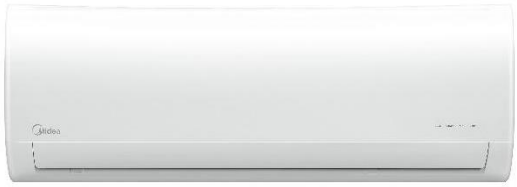
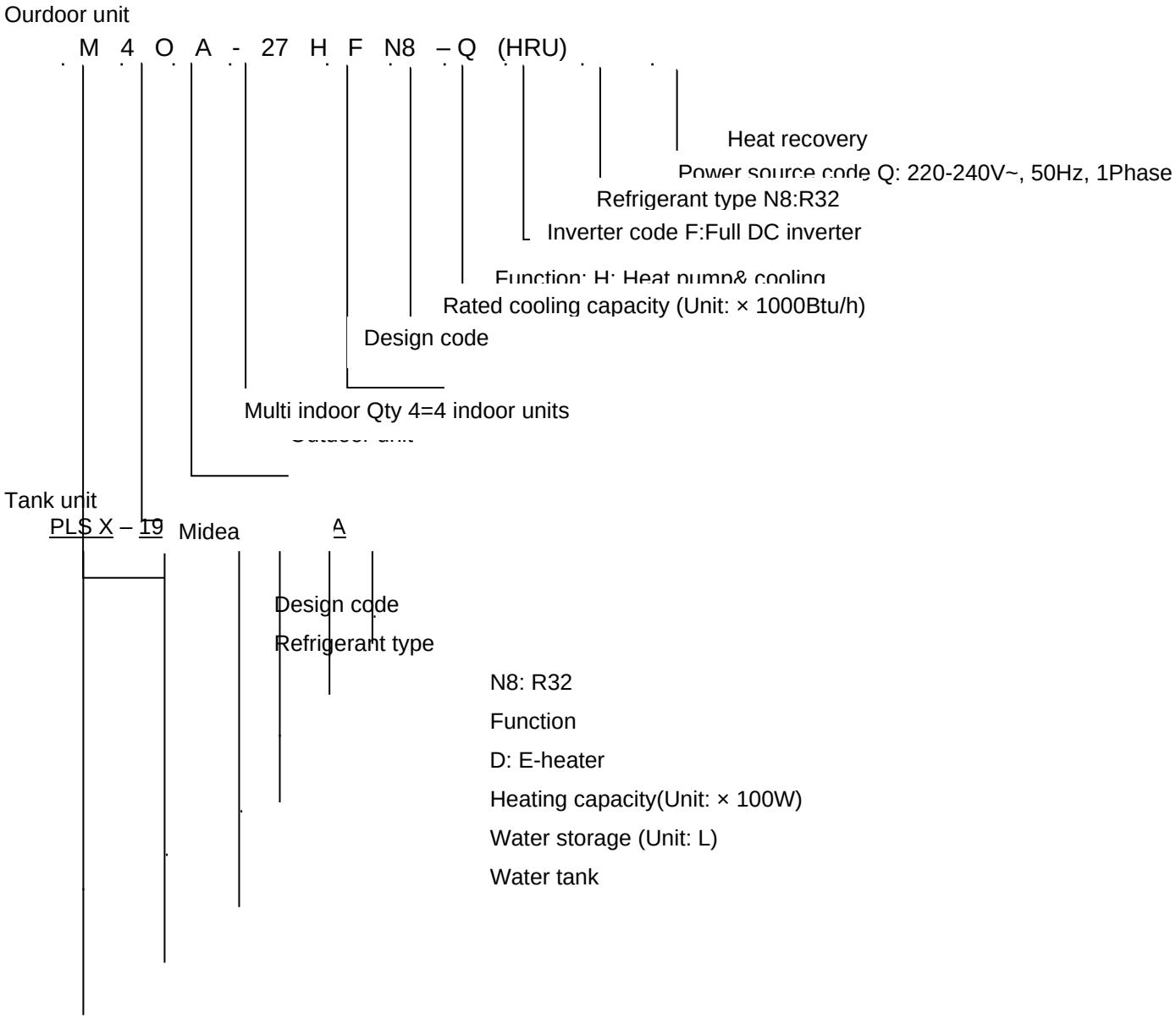
<tr><td>MSAGAU-09HRFNX-QRD0GW</td></tr>
<tr><td>MSAGBU-12HRFNX-QRD0GW</td></tr>
<tr><td>MSAGCU-18HRFNX-QRD0GW</td></tr>
<tr><td>MSAGDU-24HRFN8-QRD0GW</td></tr>
</table>

	Forest	MSAFBU-07HRDNX-QRD0GW	 The appearance is for reference only, and different models may have different sizes.
		MSAFBU-09HRDN8-QRD0GW	
		MSAFBU-12HRDNX-QRD0FGW	
		MSAFCU-18HRFNX-QRD0GW	
		MSAFDU-24HRFNX-QRD0GW	
	Aurora	MSABAU-09HRFNX-QRD0GW	 The appearance is for reference only, and different models may have different sizes.
		MSABBU-12HRFN8-QRD6GW	
		MSABDU-18HRFNX-QRD0GW	
		MSABEU-24HRFNX-QRD0GW	

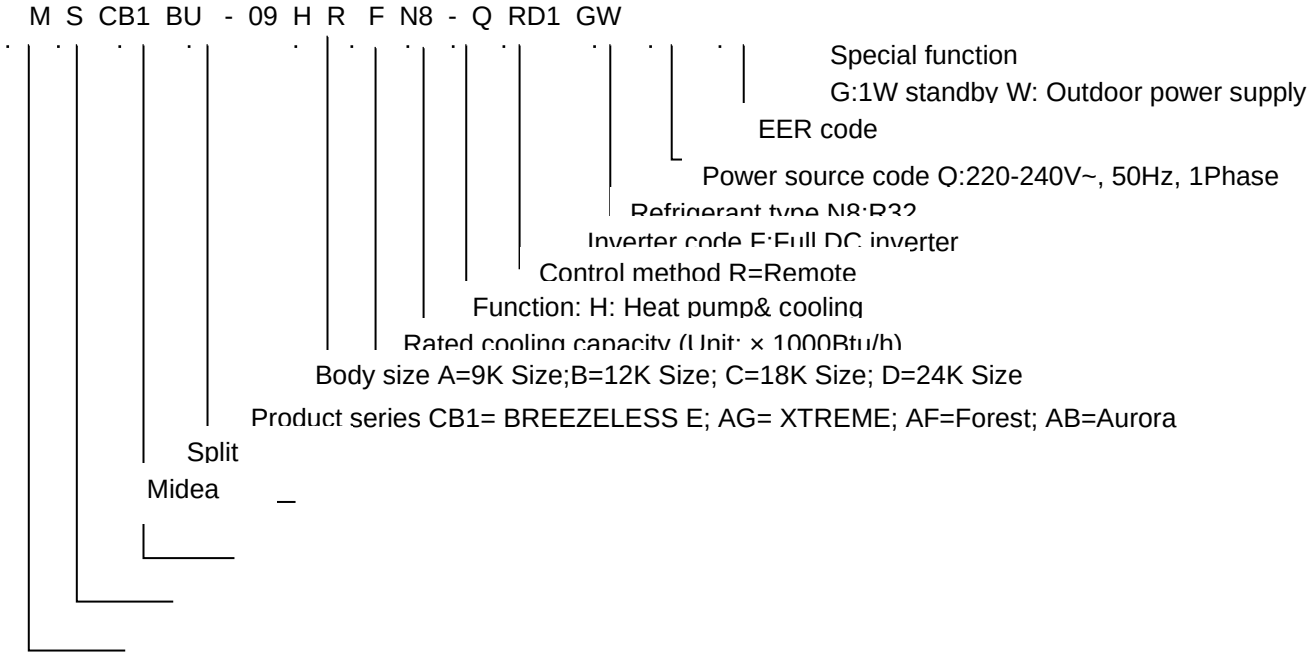
NOTICE：

1) All the contents of this manual, such as functions, sizes, and combination rules, are based on the above product models, if the product series name is the same, but the models are different, please search the corresponding documents according to the model.
2) Product upgrade iteration, such as parameter and function changes, will not be notified, please refer to the product nameplate and manual.

1.2 Naming rule



Indoor unit


M S CB1 BU - 09 H R F N8 - Q RD1 GW
Special function
G:1W standby W: Outdoor power supply
EER code
Power source code Q:220-240V~, 50Hz, 1Phase
Refrigerant type N8:R32
Inverter code F:Full DC inverter
Control method R=Remote
Function: H: Heat pump& cooling
Rated cooling capacity (Unit: × 1000Btu/h)
Body size A=9K Size;B=12K Size; C=18K Size; D=24K Size
Product series CB1= BREEZELESS E; AG= XTREME; AF=Forest; AB=Aurora
Split
Midea

2. Features

2.1 High Efficiency

2.1.1 One system, multiple functions

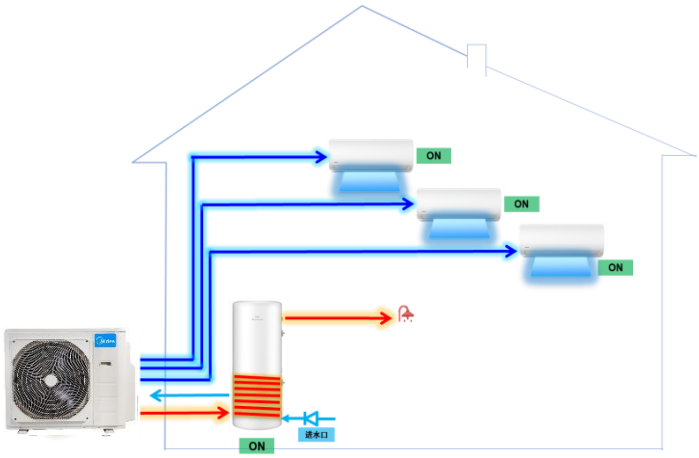
- The system can provide ATW cooling, ATA heating, and domestic hot water, offers the customer maximum flexibility and comfort the whole year through.

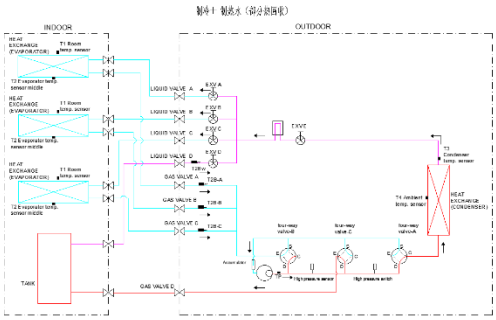
2.1.2 Intelligent whole-house energy management

- Two kinds of heat recovery mode, total heat recovery and partial heat recovery, which can be activated and controlled **automatically** according to the hot water need and AC used situation, so that more intelligent and energy-saving.
- **Partial heat recovery**

The exhausted heat for AC > the needed heat for water

- More AC cooling need or more opened IDU.
- Initial water temp is high.

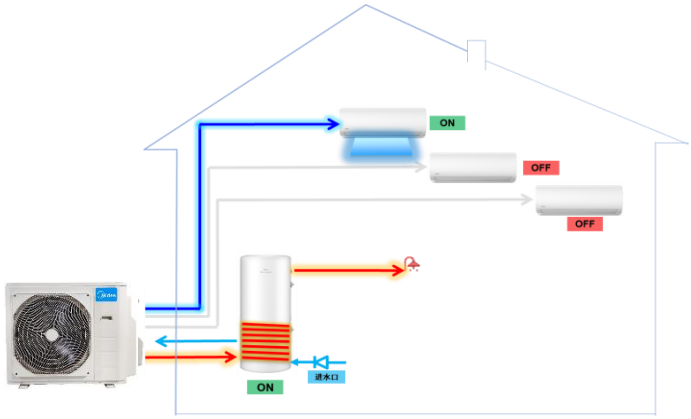


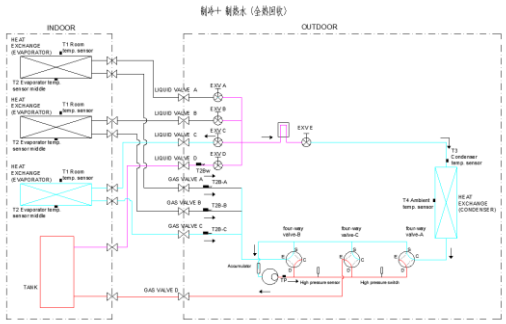


- **Total heat recovery**

The exhausted heat for AC <the needed heat for water

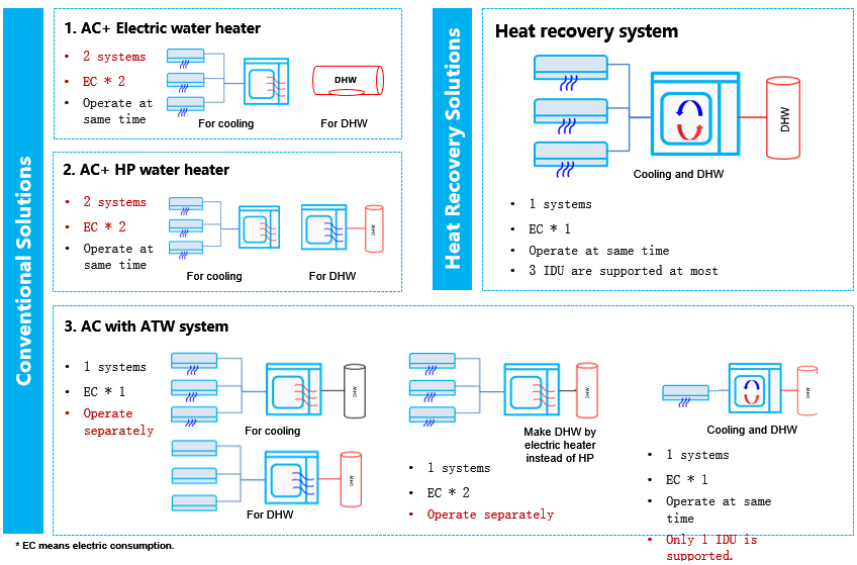
- Less opened IDU.
- Initial water temp is low.

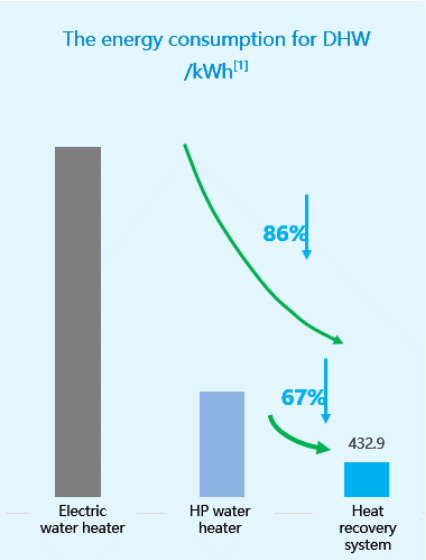




2.1.3 Energy saving, achieve free hot water in summer

- With heat recovery technology, the domestic hot water can be produced by recovery heat in AC cooling mode, even without extra energy, cost less.





2.1.4 Energy-saving mode for water tank

- When set the energy-saving mode, the unit will be adjusted to **delay the opening time of the electric heating.**

the electric heating will not be turned on until the heat pump mode reaches the heating limit temperature.

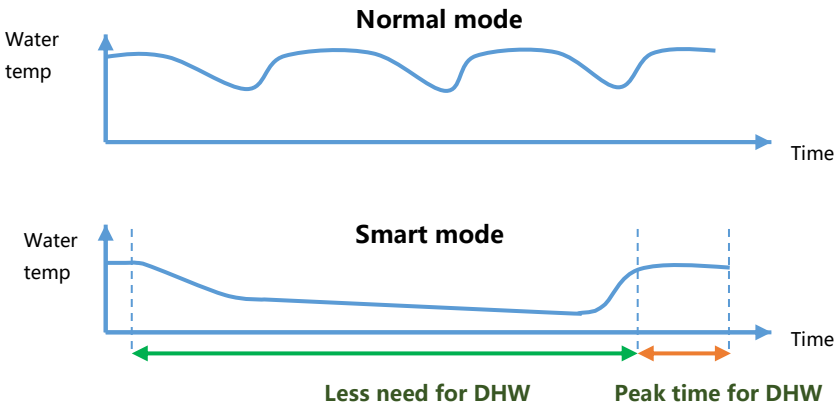
2.1.5 Smart Mode

- Normal mode

Stop heating after reaching the setting temp, and start if the water temp is lower, prepare the water and the temp all the times.

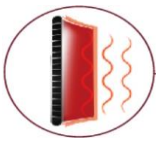
- Smart mode：

Learn the peak time that users use hot water according to the usage in the past 7 days, and prepare the hot water before the peak time automatically. So that less frequent system start and stop, more intelligent and more energy saving.

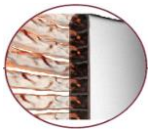


2.1.6 Microchannel heat transfer technology for water tank

- The contact area between the heat exchanger and the water tank was increased, so that the heat transfer effect is better.
- Porous parallel flow design, higher heat transfer efficiency under the same heat exchange area.



Multi-loop flat tube design, which can reduce system pressure.



Porous parallel flow design, which can increases heat transfer efficiency.

High strength design, which can pass 120 kg pressure test, operating more reliable

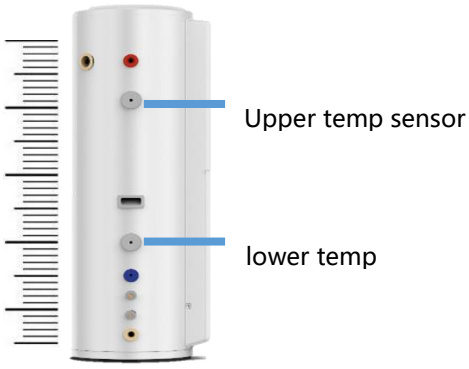
High efficiency thermal grease, which can greatly improves heat transfer efficiency

2.2 Enhanced Comfort

2.2.1 Control water temp more accurately

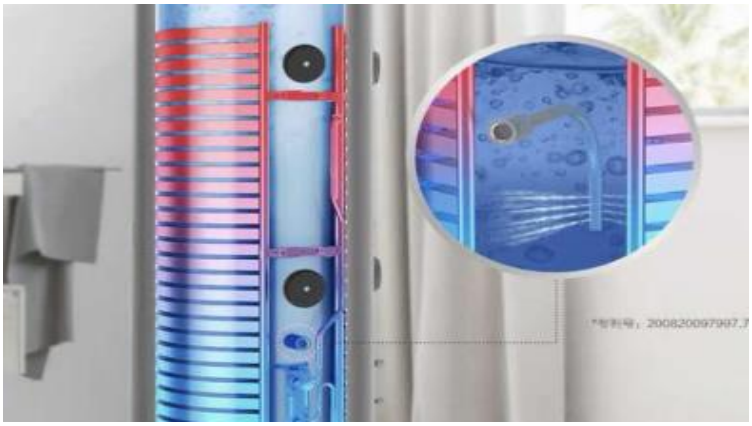
- **Dual temp sensors, Real-time monitor**

Dual temp sensors monitor the upper and lower part water temp of the tank, detect the water stratification in tank and adjust the unit operating in real time.



- **Low inlet laminar water addition technology***

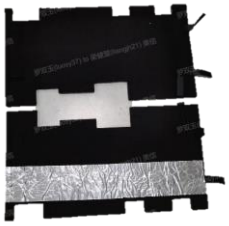
With the Low inlet laminar water addition patent technology, there will be little effect for upper hot water when add cold water, so that the water temp will be more accurate and comfortable.



2.2.2 Less noise from ODU

- **Less ODU, less noise sources**
- **Double insulation cotton**

With Needle felt + rubber double soundproofing cotton, better insulation and noise reduction effect, less operating noise from ODU



2.2.3 No IDU EXV, less noise

There is no EXV in IDU and water tank, so no refrigerant throttling noise, more quiet.

2.2.4 Multi kinds of AC IDU can be combined

Multi kinds of AC IDU can be choose and combine to match different application scenarios and decoration styles.

2.3 Easy Installation and Service

2.3.1 Easy Installation

HR Multi-Splits system

Wrench, screwdriver household tools are enough.

2.3.2 Clear wiring, easy to connect

- **Internal wiring is hidden in back, and the wiring connected by user is in front, more clear to connect for users.**

2.3.3 Easy wiring, easy setting

- The tank must be fixed at port D, and the wiring must be correspond to pipes.
- But for AC IDU, the corresponding can be corrected automatically.
- The IDU addresses can be assigned automatically without extra dip or set, more convenient.

3.Specification

3.1 Outdoor unit

Indoor			MSAGAU-09HRFNX-QRD0GW
Outdoor			M4OA-27HFN8-Q（HRU）
Power supply		Ph-V-Hz	1Ph-230V-50Hz
Cooling(Standard conditions)	Capacity	Btu/h	27000
	Input	W	2450
	Current	A	11
	EER	W/W	3.23
Heating(Standard conditions)	Capacity	Btu/h	28000
	Input	W	2210
	Current	A	10.5
	COP	W/W	3.71
Seasonal Cooling	Pdesignc	kW	7.9
	SEER	W/W	6.3
	Energy Efficiency Class		A++
Heating(Average)	Pdesignh	kW	6.2
	SCOP	W/W	4.1
	Energy Efficiency Class		A+
	Tbiv	℃	-7
Heating(Warmer)	Pdesignh	kW	6.4
	SCOP	W/W	5.1
	Energy Efficiency Class		A+++
	Tbiv	℃	2
Tol		℃	-15
Rated Power Input		W	5300
Rated Current		A	23.5
Compressor	Model		KTM240D46UKT2
	Type		ROTARY
	Brand		GMCC
	Capacity	W	4780/7600
	Input	W	805/2045
	Rated current(RLA)	A	4.15/9.30
	Locked rotor Amp(LRA)	A	/
	Thermal protector		/
	Thermal protector position		/
	Capacitor	μF	/

	Refrigerant oil/oil charge	ml	VG74/620
Outdoor fan motor	Model		ZKFN-120-8-9
	Qty		1
	Input	W	150
	Capacitor	uF	/
	Speed	r/min	900/750/600
Outdoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	25.4x22
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	995x762x44
	g.Number of circuits		8
Outdoor air flow		m3/h	4000
Outdoor sound pressure level		dB(A)	61
Outdoor sound power level		dB(A)	69
Throttle type			EXV
Outdoor unit	Dimension(W*D*H)	mm	946x410x810
	Packing (W*D*H)	mm	1090x500x885
	Net/Gross weight	kg	64.3/68.6
Refrigerant	Type		R32
	GWP		675
	Charged quantity	kg	1.8
Design pressure		MPa	4.3/1.7
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4x6.35mm(4x1/4in)/3x9.52mm+1x12.7mm(3x3/8in+1x1/2in)
	Max. length for all rooms	m	80(20m for DHW)
	Max. length for one indoor unit	m	35
	Max. height difference between indoor and outdoor unit	m	15
	Max. height difference between indoor units	m	10
Room temperature	Outdoor(cooling/heating)	℃	-15 ~ 50/-15 ~ 24

Indoor			MSAFBU-09HRDN8-QRD0GW
Outdoor			M4OA-27HFN8-Q（HRU）
Power supply		Ph-V-Hz	1Ph-230V-50Hz
Cooling(Standard conditions)	Capacity	Btu/h	27000
	Input	W	2450
	Current	A	11
	EER	W/W	3.23
Heating(Standard conditions)	Capacity	Btu/h	28000
	Input	W	2210
	Current	A	10.5
	COP	W/W	3.71
Seasonal Cooling	Pdesignc	kW	7.9
	SEER	W/W	6.3
	Energy Efficiency Class		A++
Heating(Average)	Pdesignh	kW	6.3
	SCOP	W/W	4.1
	Energy Efficiency Class		A+
	Tbiv	℃	-7
Heating(Warmer)	Pdesignh	kW	6.6
	SCOP	W/W	5.1
	Energy Efficiency Class		A+++
	Tbiv	℃	2
Tol		℃	-15
Rated Power Input		W	5300
Rated Current		A	23.5
Compressor	Model		KTM240D46UKT2
	Type		ROTARY
	Brand		GMCC
	Capacity	W	4780/7600
	Input	W	805/2045
	Rated current(RLA)	A	4.15/9.30
	Locked rotor Amp(LRA)	A	/
	Thermal protector		/
	Thermal protector position		/
	Capacitor	μF	/
	Refrigerant oil/oil charge	ml	VG74/620
Outdoor fan motor	Model		ZKFN-120-8-9
	Qty		1

	Input	W	150
	Capacitor	uF	/
	Speed	r/min	900/750/600
Outdoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	25.4x22
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	995x762x44
	g.Number of circuits		8
Outdoor air flow		m3/h	4000
Outdoor sound pressure level		dB(A)	61
Outdoor sound power level		dB(A)	69
Throttle type			EXV
Outdoor unit	Dimension(W*D*H)	mm	946x410x810
	Packing (W*D*H)	mm	1090x500x885
	Net/Gross weight	kg	64.3/68.6
Refrigerant	Type		R32
	GWP		675
	Charged quantity	kg	1.8
Design pressure		MPa	4.3/1.7
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4x6.35mm(4x1/4in)/3x9.52mm+1x12.7mm(3x3/8in+1x1/2in)
	Max. length for all rooms	m	80(20m for DHW)
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Room temperature	Outdoor(cooling/heating)	℃	-15 ~ 50/-15 ~ 24

Indoor			MSCB1BU-09HRFN8-QRD1GW
Outdoor			M4OA-27HFN8-Q（HRU）
Power supply		Ph-V-Hz	220_240V_1Ph_50HZ
Cooling(Standard conditions)	Capacity	Btu/h	27000
	Input	W	2261
	Current	A	10.5
	EER	W/W	3.5
Heating(Standard conditions)	Capacity	Btu/h	28000
	Input	W	2160
	Current	A	10
	COP	W/W	3.8
Seasonal Cooling	Pdesignc	kW	7.9
	SEER	W/W	7.2
	Energy Efficiency Class		A++
Heating(Average)	Pdesignh	kW	6.7
	SCOP	W/W	4.6
	Energy Efficiency Class		A++
	Tbiv	℃	-7
Heating(Warmer)	Pdesignh	kW	6.8
	SCOP	W/W	5.1
	Energy Efficiency Class		A+++
	Tbiv	℃	2
Tol		℃	-15
Rated Power Input		W	5300
Rated Current		A	23.5
Compressor	Model		KTM240D46UKT2
	Type		ROTARY
	Brand		GMCC
	Capacity	W	4780/7600
	Input	W	805/2045
	Rated current(RLA)	A	4.15/9.30
	Locked rotor Amp(LRA)	A	/
	Thermal protector		/
	Thermal protector position		/
	Capacitor	μF	0
	Refrigerant oil/oil charge	ml	VG74 620
Outdoor fan motor	Model		ZKFN-120-8-9

	Qty		1
	Input	W	150
	Capacitor	uF	/
	Speed	r/min	900/750/600
Outdoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	25.4x22
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	995x762x44
	g.Number of circuits		8
Outdoor air flow		m3/h	4000
Outdoor sound pressure level		dB(A)	61
Outdoor sound power level		dB(A)	69
Throttle type			EXV
Outdoor unit	Dimension(W*D*H)	mm	946x410x810
	Packing (W*D*H)	mm	1090x500x885
	Net/Gross weight	kg	64.3/68.6
Refrigerant	Type		R32
	GWP		675
	Charged quantity	kg	1.8
Design pressure		MPa	4.3/1.7
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4x6.35mm(4x1/4in)/3x9.52mm+1x12.7mm(3x3/8in+1x1/2in)
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	EER	W/W	3.23
Heating(Standard conditions)	Capacity	Btu/h	28000
	Input	W	2210
	Current	A	10.5
	COP	W/W	3.71
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Heating(Warmer)	Pdesignh	kW	6.3
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	Energy Efficiency Class		A+++
	Tbiv	℃	2
Tol		℃	-15
Rated Power Input		W	5300
Rated Current		A	23.5
Compressor	Model		KTM240D46UKT2
	Type		ROTARY
	Brand		GMCC
	Capacity	W	4780/7600
	Input	W	805/2045
	Rated current(RLA)	A	4.15/9.30
	Locked rotor Amp(LRA)	A	/
	Thermal protector		/
	Thermal protector position		/
	Capacitor	μF	0
	Refrigerant oil/oil charge	ml	VG74 620
Outdoor fan motor	Model		ZKFN-120-8-9
	Qty		1

	Input	W	150
	Capacitor	uF	/
	Speed	r/min	900/750/600
Outdoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	25.4x22
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	995x762x44
	g.Number of circuits		8
Outdoor air flow		m3/h	4000
Outdoor sound pressure level		dB(A)	61
Outdoor sound power level		dB(A)	69
Throttle type			EXV
Outdoor unit	Dimension(W*D*H)	mm	946x410x810
	Packing (W*D*H)	mm	1090x500x885
	Net/Gross weight	kg	64.3/68.6
Refrigerant	Type		R32
	GWP		675
	Charged quantity	kg	1.8
Design pressure		MPa	4.3/1.7
Refrigerant piping	Liquid side/ Gas side	mm(inch)	4x6.35mm(4x1/4in)/3x9.52mm+1x12.7mm(3x3/8in+1x1/2in)
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Room temperature	Outdoor(cooling/heating)	℃	-15 ~ 50/-15 ~ 24

3.2 Tank unit

Tank				PLSX-190(30)/DN8-A
Outdoor Model				M4OA-27HFN8-Q（HRU）
Power supply			Ph-V-Hz	1ph/220~240V/50Hz
Nominal volume of the tank			L	190
Water-heating Capacity（A15/12℃,W15~45℃）			kW	4.0
COP（A15/12℃,W15~45℃）			kW/kW	3.90
Water heating (EN 16147:2017)	Setting Temperature for the performance mesaurement	T_{set}	ºC	52
	Reference hot water temperature	θ_{wh}	℃	52.6
	Coefficient of Performance	COP_{dhw}	-	2.62
	Water heating energy efficient	η_{wh}	%	128
	Maximum volume of mixed water at 40℃	V_{max}	L	240
	Declared load profile		-	L
	energy class		-	A+
	Heat-up time	Time	hh:mm	02:30
	Energy input during Heat-up time	Weh	kWh	2.9
	Standby power input	Pes	W	50
Outdoor sound Pressure Level			dB(A)	/
Outdoor sound Power Level			dB(A)	64
Rated pressure of the water tank			Mpa	1
Dimensions	Dimension(H*W*D)		mm	1660*504*574
	Packing (H*W*D)		mm	1860*690*690
	Net/Gross weight		kg	70/92
Electrical data	Power cable of the electrical herter		Quantity	2+Earth
	Section of the power cable of the electrical heater		mm²	1.5
	Electrical heater	Power	kW	2.0
		Current	A	9.1
	Communication wries between the tank and the outdoor unit		mm²	1.0x3 + EARTH
Working range Outdoor Air Temperature (DHW)			ºC	-15～+43
Water setting temperature (with E-Heater)			ºC	38～55（70）
Tank Corrossion Protection			-	Magnesium Anode Active Anode (optional)
Tank Material			-	Enamelled steel
Refrigerant piping	Liquid side/ Gas side		mm(inch)	6.35mm(1/4in)/9.52mm(3/8in)
	Max. length for one indoor unit		m	20
	Max. height difference between indoor and outdoor unit		m	15
	Max. height difference between indoor units		m	10

3.3 Indoor unit

3.3.1 Breezeless E series

Model			MSCB1BU-09HRFN8-QRD1GW	MSCB1BU-12HRFN8-QRD1GW
Power supply		V,Hz,Ph	220-240V,1Ph,50Hz	220-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	9553	12283
	Input	W	25	25
	Rated current	A	0.11	0.11
Heating	Capacity	Btu/h	10000	12965
	Input	W	25	25
	Rated current	A	0.11	0.11
Indoor fan motor	Model		ZKFP-20-8-198	ZKFP-20-8-198
	Iutput	W	1	1
	Capacitor	uF	/	/
	Speed(Hi/Mi/Lo)	r/min	1000/860/790	1020/870/800
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	19.5x11.6	19.5x11.6
	c.Fin spacing	mm	1.3	1.3
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ5,Inner groove tube	Φ5,Inner groove tube
	f.Coil length x height x width	mm	580x195x23.2+580x117x23.2	580x195x23.2+580x117x23.2
	g.Number of circuits		4	4
Indoor air flow (Hi/Mi/Lo)		m3/h	510/415/375	520/420/380
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	37.0/32.0/20.0	37.5/35.5/20
Indoor sound power level		dB(A)	55.0	55.0
Indoor unit	Dimension(W*D*H)	mm	812x299x199	812x299x199
	Packing (W*D*H)	mm	870x277x385	870x277x385
	Net/Gross weight	kg	9.1/11.6	9.3/12.2
	Liquid side/ Gas side	mm(inch)	6.35mm(1/4in)/9.52mm(3/8in)	6.35mm(1/4in)/9.52mm(3/8in)
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	16～32	16～32
	Heating	℃	0～30	0～30
Operation temperature		℃	16-30	16-30

Model			MSCB1CU-18HRFN8-QRD1GW
Power supply		V,Hz,Ph	220-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	18000
	Input	W	30
	Rated current	A	0.13
Heating	Capacity	Btu/h	19000
	Input	W	30
	Rated current	A	0.13
Indoor fan motor	Model		ZKFP-30-8-297L

	Iutput	W	1
	Capacitor	uF	/
	Speed(Hi/Mi/Lo)	r/min	1000/850/650
Indoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	720x231x26.74+720x147x26.74
	g.Number of circuits		3
Indoor air flow (Hi/Mi/Lo)		m3/h	835/620/510
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	41/36.5/32.5/20.5
Indoor sound power level		dB(A)	53
Indoor unit	Dimension(W*D*H)	mm	968x225x320
	Packing (W*D*H)	mm	1027x307x412
	Net/Gross weight	kg	12.3/16.2
	Liquid side/ Gas side	mm(inch)	6.35mm(1/4in)/Φ12.7(1/2")
Thermostat type			Remote Control
Room temperature	Cooling	℃	16～32
	Heating	℃	0-30
Operation temperature		℃	16-30

3.3.2 Extreme series

Indoor			MSAGAU-07HRFNX-QRD0GW	MSAGAU-09HRFNX-QRD0GW
Power supply		Ph-V-Hz	220-240V,1Ph,50Hz	1Ph,220-240V,50Hz
Cooling	Capacity	Btu/h	7000	9000
	Input	W	21	23
	Current	A	0.09	0.11
Heating	Capacity	Btu/h	8000	10000
	Input	W	21	23
	Current	A	0.09	0.11
Indoor fan motor	Model		ZKFP-20-8-6-7	ZKFP-20-8-6-7
	Qty		1	1
	Input	W	50	50
	Capacitor	uF	0	—
	Speed(Hi/Mi/Lo)	r/min	1050/700	1050 / / 700
Indoor coil	a.Number of rows		2	2.0
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.3	1.3
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube
	f.Coil length x height x width	mm	525x84x13.37+525x105x26.74+525x105x26.74	525x84x13.37+525x210x26.74
	g.Number of circuits		2	2
Indoor air flow (Hi/Mi/Lo)		m3/h	460/330/260	520/460/330
Indoor noise level (Hi/Mi/Lo)		dB(A)	37/32/22	37/32/22
Indoor sound power level		dB(A)	54.0	54.0
Indoor unit	Dimension(W*D*H)	mm	726x210x291	726x210x291
	Packing (W*D*H)	mm	790x270x375	790x270x375
	Net/Gross weight	kg	8.0/10.5	8/10.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	6.35mm(1/4in)/9.52mm(3/8in)	6.35mm(1/4in)/9.52mm(3/8in)
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	16 ~ 32	16 ~ 32
	Heating	℃	0 ~ 30	0 ~ 30
Operation temperature		℃	16-30	16-30

Indoor			MSAGBU-12HRFNX-QRD0GW	MSAGCU-18HRFNX-QRD0GW
Power supply		Ph-V-Hz	1Ph,220-240V,50Hz	1Ph,220-240V,50Hz
Cooling	Capacity	Btu/h	12000	18000
	Input	W	23	36
	Current	A	0.11	0.15
Heating	Capacity	Btu/h	13000	19000
	Input	W	23	34

	Current	A	0.11	0.15
Indoor fan motor	Model		ZKFP-13-8-4	ZKFP-30-8-3
	Qty		1	1
	Input	W	40	36
	Capacitor	uF	—	—
	Speed(Hi/Mi/Lo)	r/min	1050 / / 700	1150/1000/850
Indoor coil	a.Number of rows		2.0	2.0
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.2	1.2
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube
	f.Coil length x height x width	mm	605x210x26.74+605x105x26.74	750x210x26.74+750x126x26.74
	g.Number of circuits		2	4
Indoor air flow (Hi/Mi/Lo)		m3/h	530/400/350	800/600/500
Indoor noise level (Hi/Mi/Lo)		dB(A)	37/32/22	41/37/31
Indoor sound power level		dB(A)	56.0	56
Indoor unit	Dimension(W*D*H)	mm	802*200*295	969x320x241
	Packing (W*D*H)	mm	875*285*380	1045x405x315
	Net/Gross weight	kg	8.7/11.5	11.2/14.6
Refrigerant piping	Liquid side/ Gas side	mm(inch)	6.35mm(1/4in)/9.52mm(3/8in)	6.35mm(1/4in)/Φ12.7(1/2")
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	16 ~ 32	16 ~ 32
	Heating	℃	0 ~ 30	0-30
Operation temperature		℃	16-30	16-30

Indoor			MSAGDU-24HRFN8-QRD0GW
Power supply		Ph-V-Hz	1Ph,220-240V,50Hz
Cooling	Capacity	Btu/h	24000
	Input	W	68
	Current	A	0.28
Heating	Capacity	Btu/h	25000
	Input	W	62
	Current	A	0.28
Indoor fan motor	Model		ZKFP-58-8-1
	Qty		1
	Input	W	58
	Capacitor	uF	—
	Speed(Hi/Mi/Lo)	r/min	1150/1000/850
Indoor coil	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	820x210x26.74+820x126x26.74
	g.Number of circuits		4
Indoor air flow (Hi/Mi/Lo)		m3/h	1090/770/610
Indoor noise level (Hi/Mi/Lo)		dB(A)	46/37/34.5
Indoor sound power level		dB(A)	62
Indoor unit	Dimension(W*D*H)	mm	1083x336x244
	Packing (W*D*H)	mm	1155x415x315
	Net/Gross weight	kg	13.6/17.3
Refrigerant piping	Liquid side/ Gas side	mm(inch)	9.52mm(3/8in)/Φ15.9(5/8")
Thermostat type			Remote Control
Room temperature	Cooling	℃	16～32
	Heating	℃	0-30
Operation temperature		℃	16-30

3.3.3 Forest series

Model			MSAFBU-07HRDNX-QRD0GW	MSAFBU-09HRDN8-QRD0GW
Power supply		V,Hz,Ph	220V-240V,1Ph,50Hz	220V-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	7000	9000
	Input	W	20	20
	Rated current	A	0.09	0.09
Heating	Capacity	Btu/h	8000	10000
	Input	W	20	20
	Rated current	A	0.09	0.09
Indoor fan motor	Model		YKFG-13-4-38L	YKFG-13-4-38L
	Iutput	W	40	40
	Capacitor	uF	1.2	1.2
	Speed(Hi/Mi/Lo)	r/min	1030/850/700	1030/850/700
Indoor coil	a.Number of rows		2.0	2.0
	b.Tube pitch(a)x row pitch(b)	mm	19.5x11.6	19.5x11.6
	c.Fin spacing	mm	1.2	1.2
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ5,innergroove tube	Φ5,innergroove tube
	f.Coil length x height x width	mm	595x273x23.2	595x273x23.2
	g.Number of circuits		4	4
Indoor air flow (Hi/Mi/Lo)		m3/h	520/460/340	520/460/340
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	40/30/26/21	40/30/26/21
Indoor sound power level		dB(A)	54	54
Indoor unit	Dimension(W*D*H)	mm	805x194x285	805x194x285
	Packing (W*D*H)	mm	870x270x360	870x270x360
	Net/Gross weight	Kg	7.5/9.7	7.5/9.7
	Liquid side/ Gas side	mm(inch)	Φ6.35(1/4")/Φ9.52/(3/8")	Φ6.35(1/4")/Φ9.52/(3/8")
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	17-32	17-32
	Heating	℃	0-30	0-30
Operation temperature		℃	17-30	17-30

Model			MSAFBU-12HRDNX-QRD0FGW	MSAFCU-18HRFNX-QRD0GW
Power supply		V,Hz,Ph	220V-240V,1Ph,50Hz	220-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	12000	18000
	Input	W	20	34
	Rated current	A	0.09	0.15
Heating	Capacity	Btu/h	13000	19000
	Input	W	20	34
	Rated current	A	0.09	0.15
Indoor fan motor	Model		YKFG-13-4-38L	ZKFP-30-8-3
	Iutput	W	40	36
	Capacitor	uF	1.2	—
	Speed(Hi/Mi/Lo)	r/min	1130/950/750	1130 / 900 / 800
Indoor coil	a.Number of rows		2.0	2.0
	b.Tube pitch(a)x row pitch(b)	mm	19.5x11.6	21x13.37
	c.Fin spacing	mm	1.2	1.2
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ5,innergroove tube	Φ7,Inner groove tube
	f.Coil length x height x width	mm	595x273x23.2	750x294x26.74
	g.Number of circuits		4	3
Indoor air flow (Hi/Mi/Lo)		m3/h	600/500/360	840/680/540
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	40/34/26/22	44/37/30/25
Indoor sound power level		dB(A)	53	55
Indoor unit	Dimension(W*D*H)	mm	805x194x285	957x213x302
	Packing (W*D*H)	mm	870x270x360	1035x295x380
	Net/Gross weight	Kg	7.5/9.7	10/13
	Liquid side/ Gas side	mm(inch)	Φ6.35(1/4")/Φ9.52/(3/8")	Φ6.35(1/4‘‘)/Φ12.7(1/2‘‘)
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	17-32	17-32
	Heating	℃	0-30	0-30
Operation temperature		℃	17-30	17-30

Model			MSAFDU-24HRFNX-QRD0GW
Power supply		V,Hz,Ph	220-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	24000
	Input	W	62
	Rated current	A	0.28
Heating	Capacity	Btu/h	25000
	Input	W	62
	Rated current	A	0.28
Indoor fan motor	Model		ZKFP-58-8-1
	Iutput	W	58.0
	Capacitor	uF	—
	Speed(Hi/Mi/Lo)	r/min	1150 / 1000 / 850
Indoor coil	a.Number of rows		2.0
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube
	f.Coil length x height x width	mm	780x315x26.74
	g.Number of circuits		4
Indoor air flow (Hi/Mi/Lo)		m3/h	980/817/662
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	44.5/42/34.5/28
Indoor sound power level		dB(A)	59
Indoor unit	Dimension(W*D*H)	mm	1040x220x327
	Packing (W*D*H)	mm	1120x405x310
	Net/Gross weight	Kg	12.3/15.8
	Liquid side/ Gas side	mm(inch)	Φ9.52(3/8‘‘)/Φ15.9(5/8‘‘)
Thermostat type			Remote Control
Room temperature	Cooling	℃	17-32
	Heating	℃	0-30
Operation temperature		℃	17-30

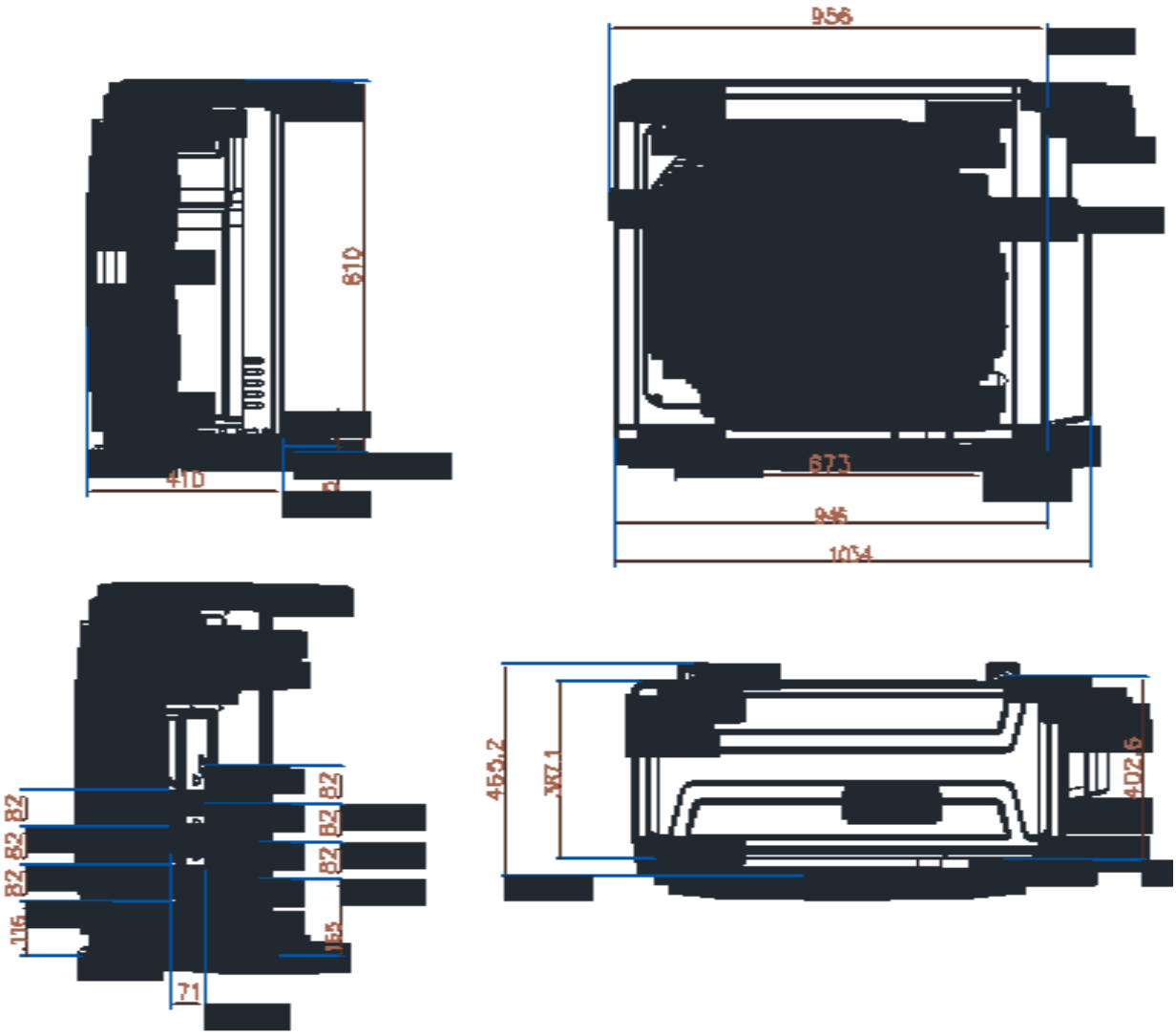
3.3.4 Aurora series

Model			MSABAU-09HRFNX-QRD0GW	MSABBU-12HRFN8-QRD6GW
Power supply		V,Hz,Ph	220V-240V,1Ph,50Hz	220V-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	9000	12000
	Input	W	24	23
	Rated current	A	0.11	0.1
Heating	Capacity	Btu/h	9500	13000
	Input	W	24	23
	Rated current	A	0.11	0.1
Indoor fan motor	Model		ZKFP-20-8-6-7	ZKFP-20-8-6-7
	Iutput	W	20	50.0
	Capacitor	uF	/	- -
	Speed(Hi/Mi/Lo)	r/min	1150/850/700	1100/900/750
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1	1.3
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube
	f.Coil length x height x width	mm	525x84x13.37+525x105x26.74	605x210x26.74+605x84x26.74
	g.Number of circuits		2	2
Indoor air flow (Hi/Mi/Lo)		m3/h	416/309/230	584/477/395
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	39/31/23/20	39/32/26
Indoor sound power level		dB(A)	55	55
Indoor unit	Dimension(W*D*H)	mm	722x187x290	802x189x297
	Packing (W*D*H)	mm	790x270x370	875x285x380
	Net/Gross weight	Kg	7.3/9.7	8.6/11.1
	Liquid side/ Gas side	mm(inch)	Φ6.35(1/4")/Φ9.52/(3/8")	Φ6.35(1/4")/Φ9.52/(3/8")
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	17-32	17-32
	Heating	℃	0-30	0-30
Operation temperature		℃	17-30	17-30

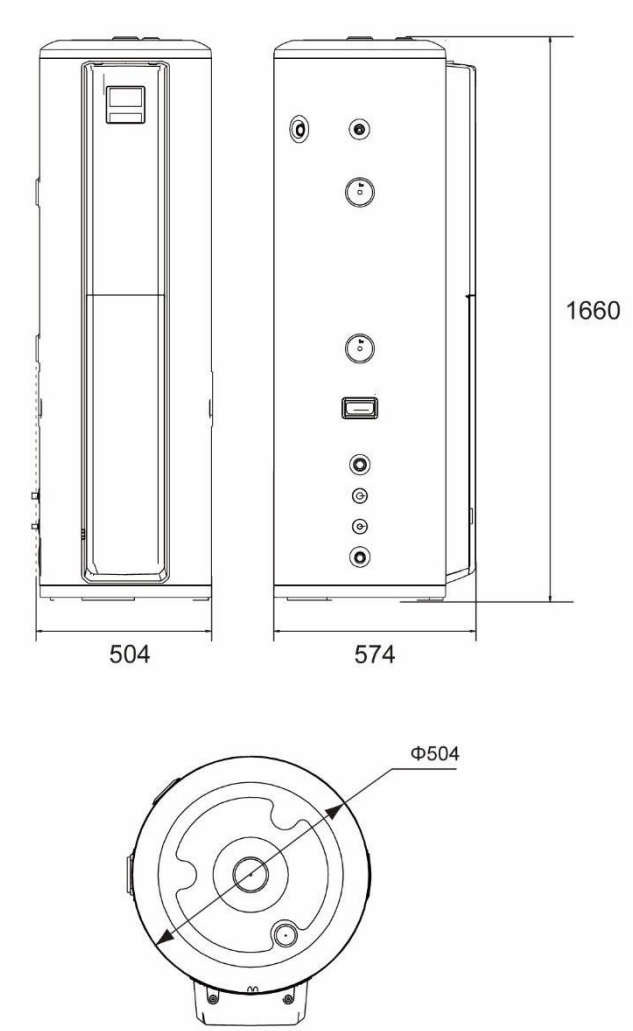
Model			MSABDU-18HRFNX-QRD0GW	MSABEU-24HRFNX-QRD0GW
Power supply		V,Hz,Ph	220V-240V,1Ph,50Hz	220-240V,1Ph,50Hz
Cooling	Capacity	Btu/h	18000	24000
	Input	W	36	58
	Rated current	A	0.16	0.26
Heating	Capacity	Btu/h	19000	25000
	Input	W	36	58
	Rated current	A	0.16	0.26
Indoor fan motor	Model		ZKFP-20-8-6-7	ZKFP-20-8-6-7
	Iutput	W	50.0	50.0
	Capacitor	uF	- -	- -
	Speed(Hi/Mi/Lo)	r/min	1100/900/750	1000/800/700
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.3	1.3
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube
	f.Coil length x height x width	mm	605x210x26.74+605x84x26.74	605x210x26.74+605x84x26.74
	g.Number of circuits		2	2
Indoor air flow (Hi/Mi/Lo)		m3/h	730/500/420	1020/830/640
Indoor sound pressure level(Hi/Mi/Lo)		dB(A)	43/33.5/28	47/41.5/30.5
Indoor sound power level		dB(A)	57.0	63.0
Indoor unit	Dimension(W*D*H)	mm	965x215x319	1080x226x335
	Packing (W*D*H)	mm	1045x305x410	1155x415x320
	Net/Gross weight	Kg	10.9/14.2	13.7/17.3
	Liquid side/ Gas side	mm(inch)	Φ6.35(1/4'')/Φ12.7(1/2'')	Φ9.52(3/8'')/Φ15.9(5/8'')
Thermostat type			Remote Control	Remote Control
Room temperature	Cooling	℃	17-32	17-32
	Heating	℃	0-30	0-30
Operation temperature		℃	17-30	17-30

4. Dimensional data

4.1 Outdoor unit

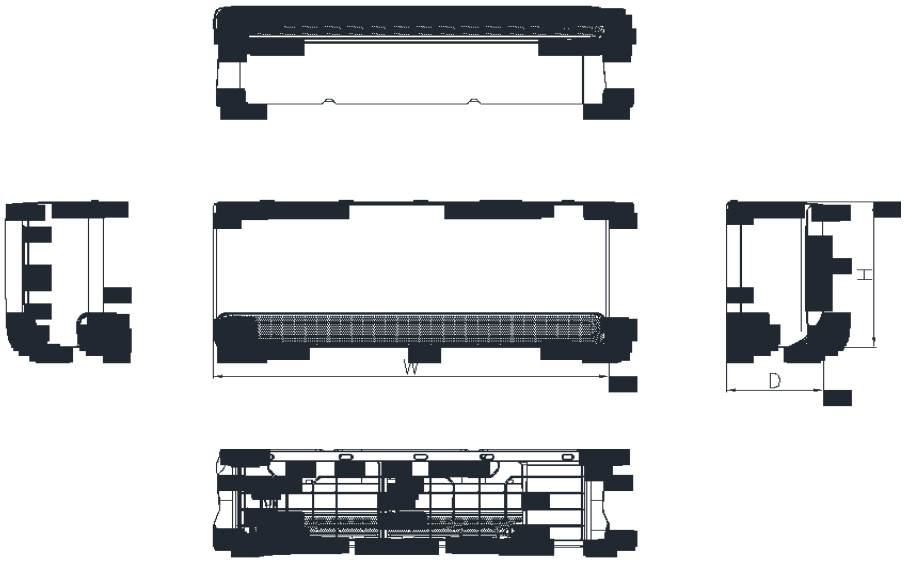


4.2 Tank unit



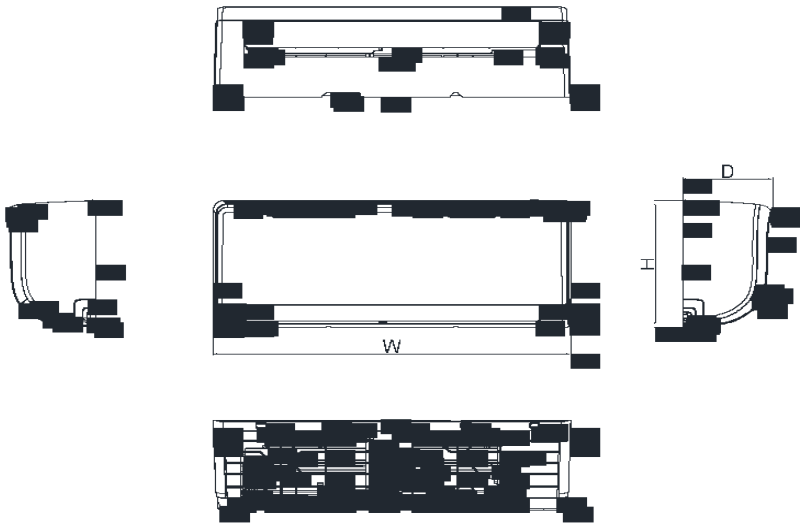
4.3 Indoor unit

4.3.1 Breezeless E series



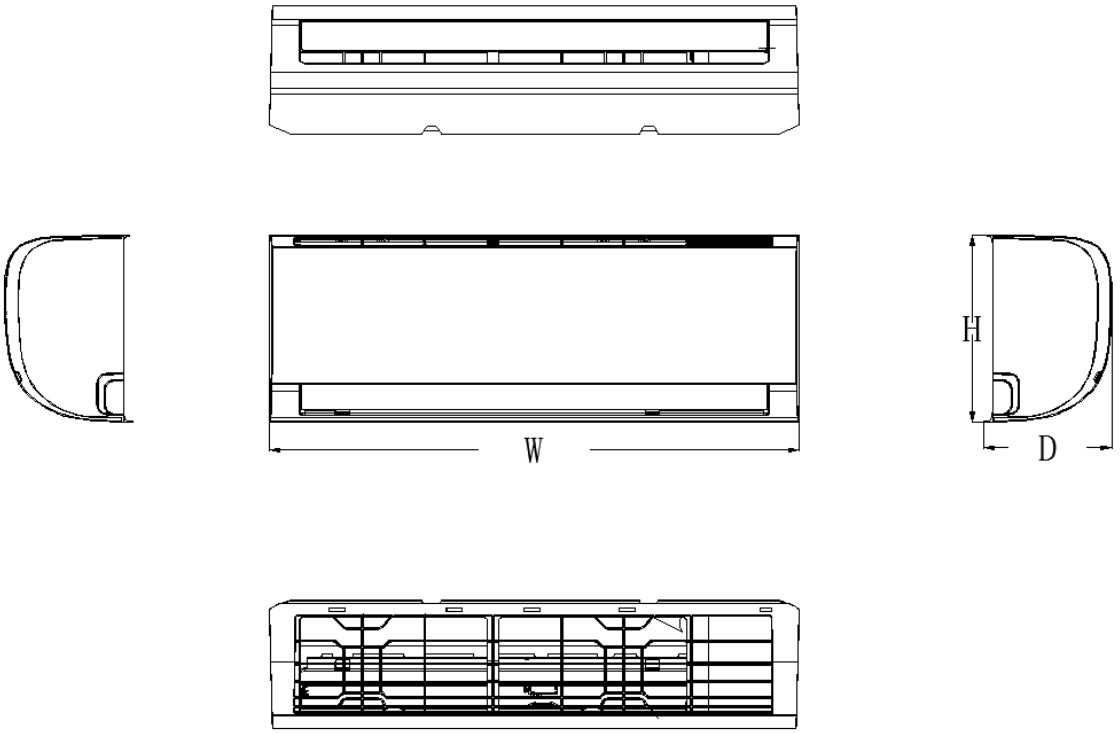
Models	W(mm)	D(mm)	H(mm)
MSCB1BU -09HRFN8-QRD1GW	812	199	299
MSCB1BU -12HRFN8-QRD1GW	812	199	299
MSCB1CU-18HRFN8-QRD1GW	968	225	320

4.3.2 Extreme series



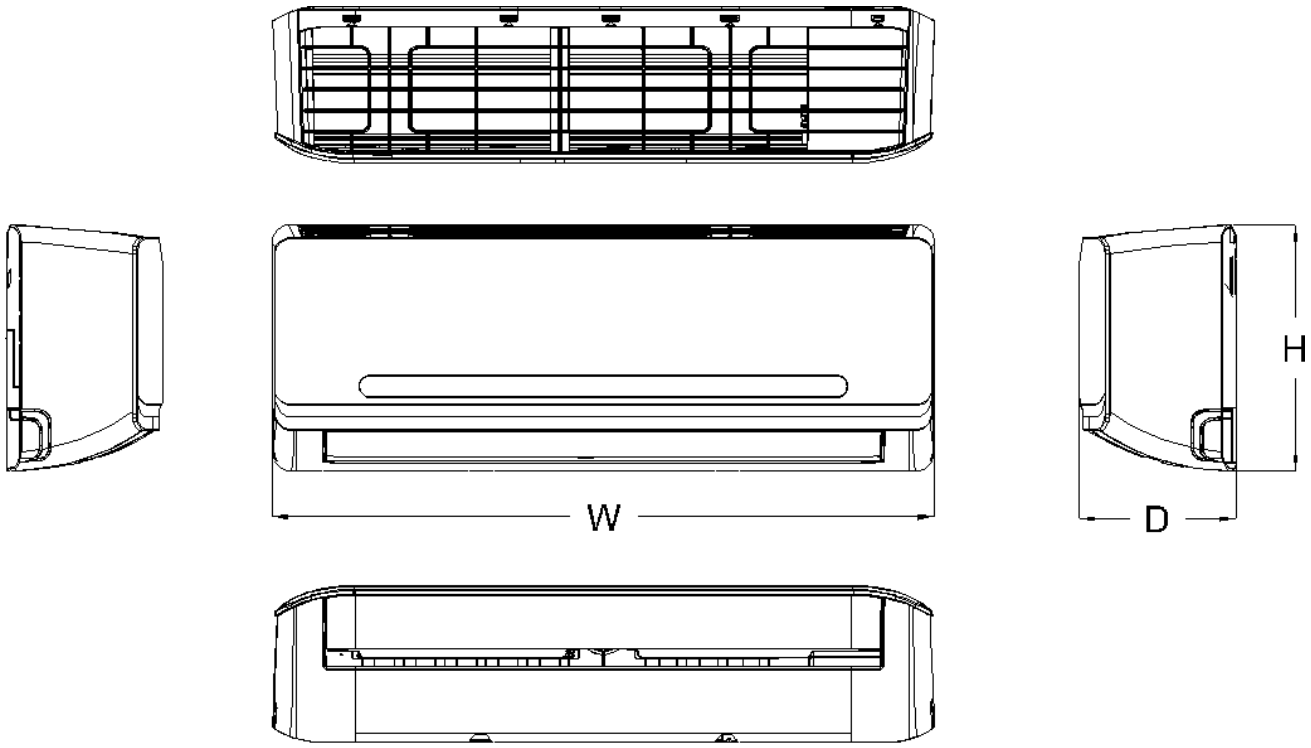
Models	W(mm)	D(mm)	H(mm)
MSAGAU-07HRFNX-QRD0GW	726	210	291
MSAGAU-09HRFNX-QRD0GW	726	210	291
MSAGBU-12HRFNX-QRD0GW	835	208	295
MSAGCU-18HRFNX-QRD0GW	969	241	320
MSAGDU-24HRFN8-QRD0GW	1083	244	336

4.3.3 Forest series



Model	W	D	H
MSAFBU-07HRDNX-QRD0GW	805	194	285
MSAFBU-09HRDN8-QRD0GW	805	194	285
MSAFBU-12HRDNX-QRD0FGW	805	194	285
MSAFCU-18HRFNX-QRD0GW	957	213	302
MSAFDU-24HRFNX-QRD0GW	1040	220	327

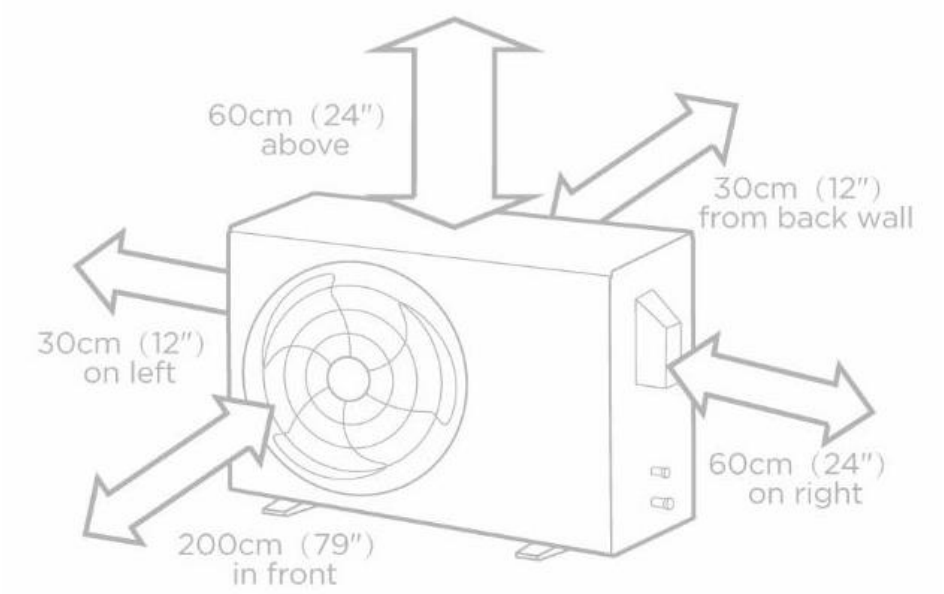
4.3.4 Aurora series



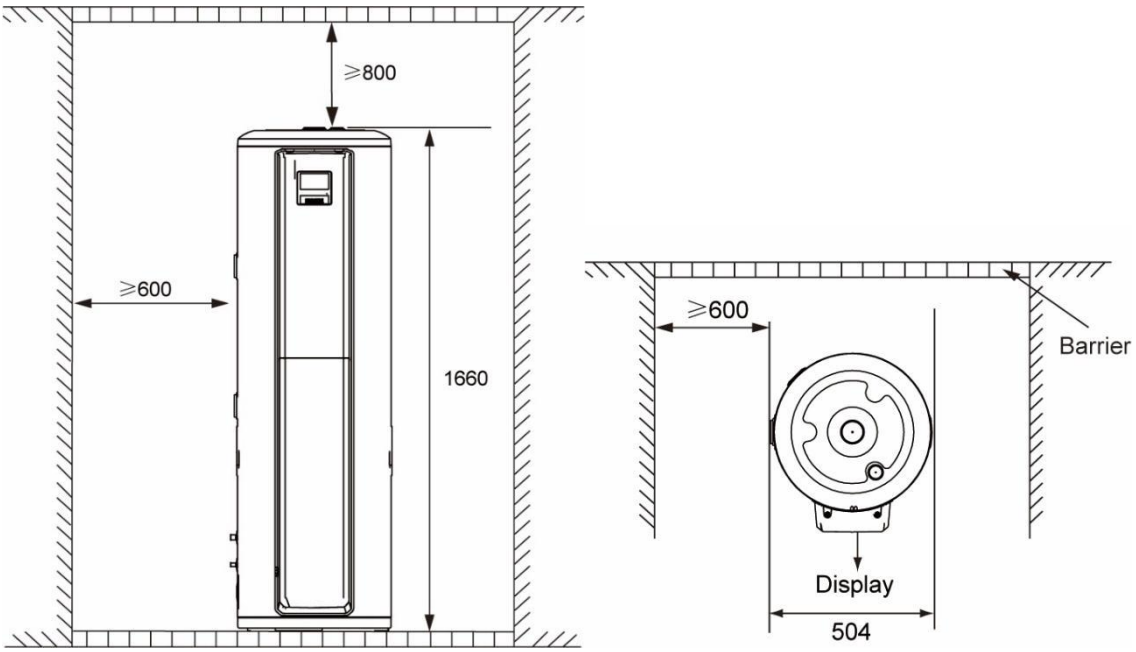
Model	W	D	H
MSABAU-09HRFNX-QRD0GW	722	187	290
MSABBU-12HRFN8-QRD6GW	802	189	297
MSABDU-18HRFNX-QRD0GW	965	215	319
MSABEU-24HRFNX-QRD0GW	1080	226	335

4.4 Service space

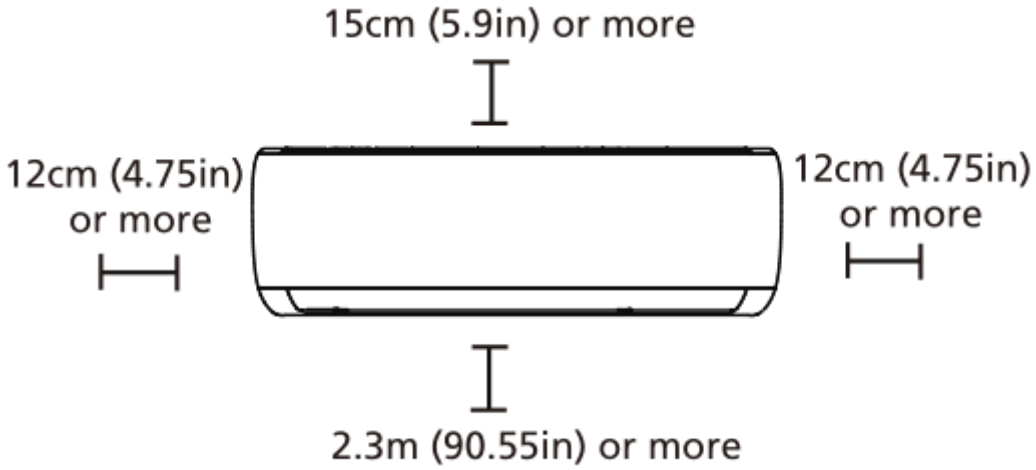
4.4.1 Outdoor unit



4.4.2 Tank unit



4.4.3 Indoor unit



5. Working range

5.1 Outdoor unit

5.1.1 Power supply

Rated Voltage	220~240V,1Ph，50Hz
Working Voltage	150V~364V

5.1.2 Temperature

The temperature range is indicated in the follow table.

Cooling

Working range	Min(℃)	Max(℃)	Rated(℃)
Outdoor	-15	55	35
Indoor	17(Forest series)/ 16(other series)	32	27

Heating

Working range	Min(℃)	Max(℃)	Rated(℃)
Outdoor	-20	24	7
Indoor	0	30	20

Cooling +DHW

Working range	Min(℃)	Max(℃)	Rated(℃)
Outdoor	-15	43	35
Indoor	16	32	27

Heating+DHW

Working range	Min(℃)	Max(℃)	Rated(℃)
Outdoor	-15	24	7
Indoor	0	30	20

5.2 Tank

Temperature

		Min	Max	Rated
Outdoor air temperature	℃	-15	43	7
Water setting temperature	℃	38	70(55)	53
Indoor tank	℃	5	43	20

Water temperature limits

Ambient temperature (T4)	T4<-18	-18<T4≤-12	-12<T4≤-7	-7<T4≤-2	-2<T4≤-2	2<T4≤7
DWH	-	40	45	45	50	55
COOL+DWH	-	40	45	45	50	52
Ambient temperature (T4)	7<T4≤15	15<T4≤30	30<T4≤43	43<T4≤50	50<T4	
DWH	55	52	50	-	-	
COOL+DWH	52	52	50	50	-	

6. Capacities and selection data

6.1 System selection procedure

The following system procedure is giving a sample regarding unit selection system, indicating how to use all parameters showed in this chapter.

6.1.1 Selection unit features

Considering the building distribution, the possible indoor unit position and the available air flow distribution, select the unit features that are giving the best efficiency and comfort to each room.

Decide the Outdoor Unit position getting easy service maintenance and easy refrigerant pipe installation.

Therefore, the maximum indoor unit capacity combined with outdoor unit should be carefully considered for correct indoor unit distribution at each building.

At present, we only have wall mounted indoor unit, and other forms of indoor unit are under development.

6.1.2 Selection guide

The following guide giving the method for indoor and outdoor unit selection.

Step 1: Determine the system requirements

Calculate the cooling capacity and heating capacity of each indoor unit according to the following conditions:

Temperature Condition

	Outdoor Air Inlet	Indoor Air Inlet
Cooling	Dry Bulb: 35.0ºC	Dry Bulb: 27,0ºC Wet Bulb: 19.0ºC
Heating	Dry Bulb: 7ºC Wet Bulb: 0ºC	Dry Bulb: 20ºC

Total Load for each room(Example)

Item	Room 1	Room 2	Room 3	Total
Estimated Cooling Load kW	2.75	4.24	5.35	12.34
Estimated Heating Load kW	2.90	4.60	6.00	13.50

Step 2: Select Unit Capacity Performance

The unit kW is selected following the Cooling capacity and Heating capacity showed in the combination table.

Step 3: Read Selected Capacity Performance

The unit performance should be calculated considering the following correction factors:

1) Outdoor unit performance capacity
2) Cooling and Heating piping length
3) Indoor unit performance capacity for each room cooling load

Kindly refer to the unit selection combination table for correct capacity performance.

Actual cooling capacity calculation method:

$AC_C = C_C \times L_C$

AC_C: Actual Corrected Cooling Capacity

C_C: Temperature corrected cooling capacity. Refer to Section 6.3 for details

L_C: Correction factor for cooling capacity according to piping length

Actual heating capacity calculation method:

$AC_h = C_h \times L_h \times D$

AC_C: Actual Corrected Cooling Capacity

C_h: Temperature corrected cooling capacity. Refer to Section 6.3 for details

L_h: Correction factor for cooling capacity according to piping length

D: Correction factors according to defrosting operation

6.2 Multizone combination selection

1. The ratio of the total indoor unit capacity to the outdoor unit capacity is 50-133%, which is subject to the matching table;
2. There can be at most one 18K or 24K indoor unit in a system;

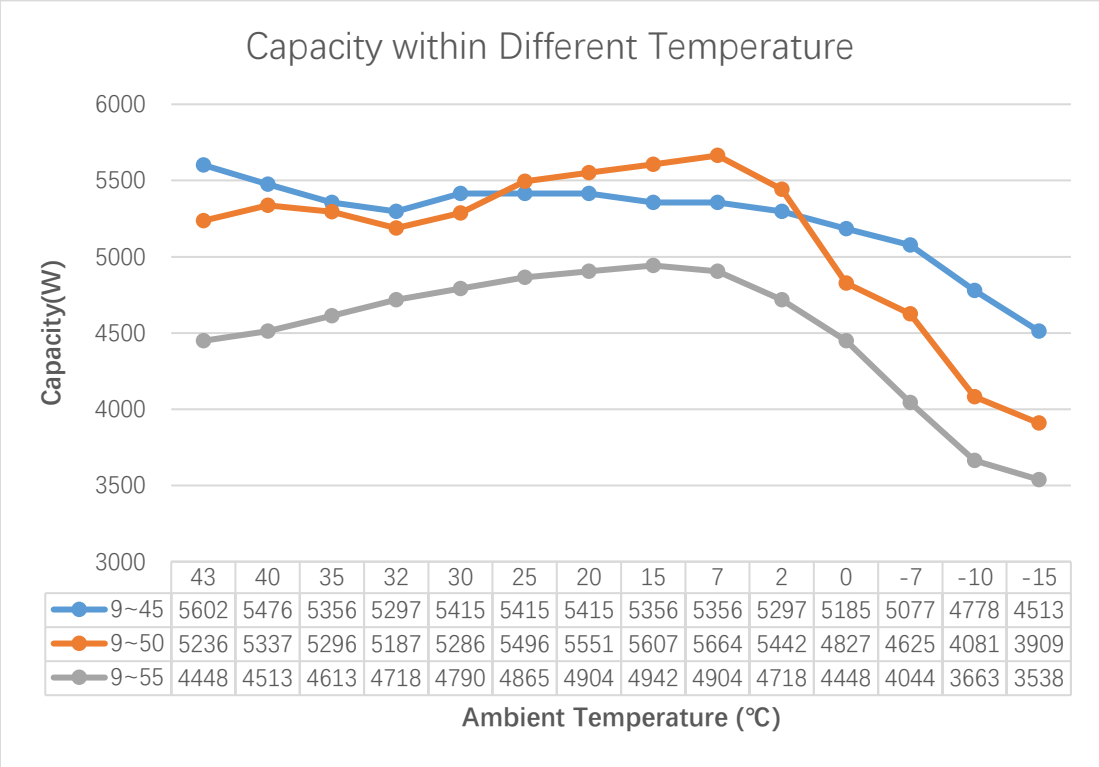
Model Name					M4OA-27HFN8-Q(HRU)
Combination form	Indoor unit			Indoor unit total capacity kbtu/h	
One unit	18			18	•
	24			24	•
Two unit	7	7		14	•
	7	9		16	•
	7	12		19	•
	7	18		25	•

	7	24		31	•
	9	9		18	•
	9	12		21	•
	9	18		27	•
	12	12		24	•
	12	18		30	•
Three unit	7	7	7	21	•
	7	7	9	23	•
	7	7	12	26	•
	7	7	18	32	•
	7	9	9	25	•
	7	9	12	28	•
	7	9	18	33	•
	7	12	12	31	•
	7	12	18	37	•
	9	9	9	27	•
	9	9	12	30	•
	9	9	18	36	•
	9	12	12	33	•
	9	12	18	39	•
	12	12	12	36	•
Tank	/			/	•
Tank+one unit	7			7	•
	9			9	•
	12			12	•
	18			18	•
	24			24	•
Tank+two unit	7	7		14	•
	7	9		16	•
	7	12		19	•
	7	18		25	•
	7	24		31	•
	9	9		18	•
	9	12		21	•
	9	18		27	•
	12	12		24	•
	12	18		30	•
Tank+three unit	7	7	7	21	•
	7	7	9	23	•

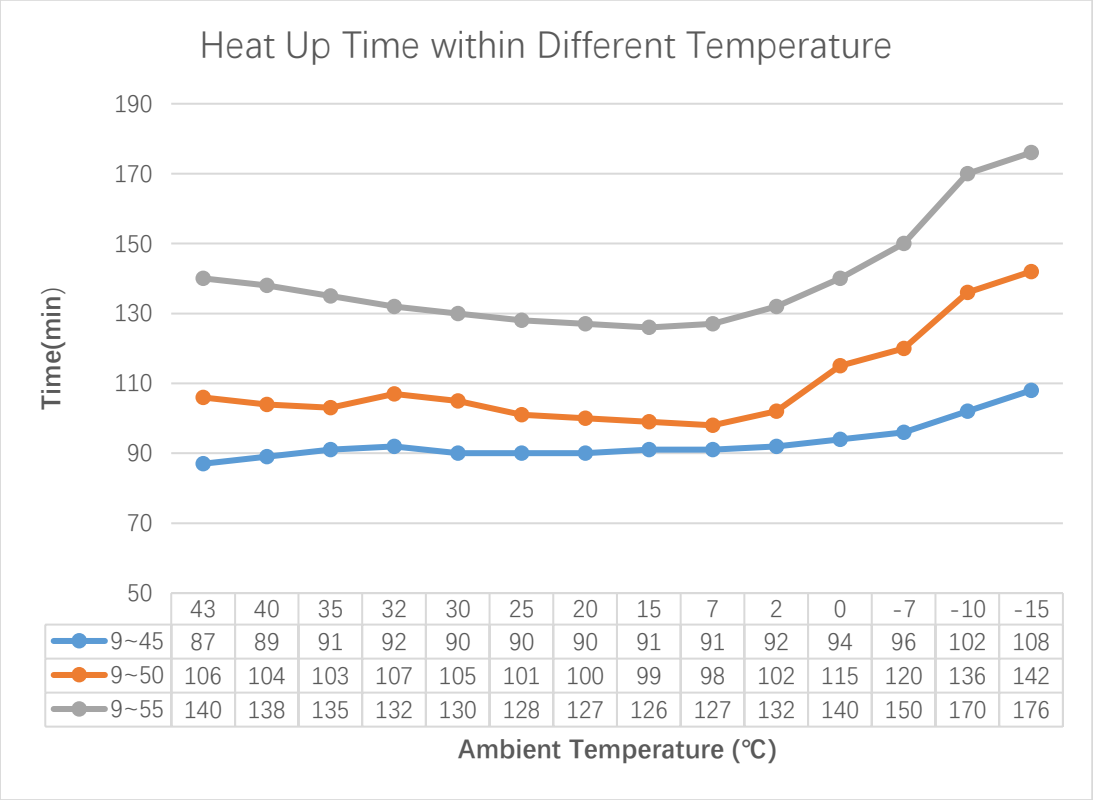
	7	7	12	26	•
	7	7	18	32	•
	7	9	9	25	•
	7	9	12	28	•
	7	9	18	34	•
	7	12	12	31	•
	7	12	18	37	•
	9	9	9	27	•
	9	9	12	30	•
	9	9	18	36	•
	9	12	12	33	•
	9	12	18	39	•
	12	12	12	36	•

6.3 Tank capacity and COP

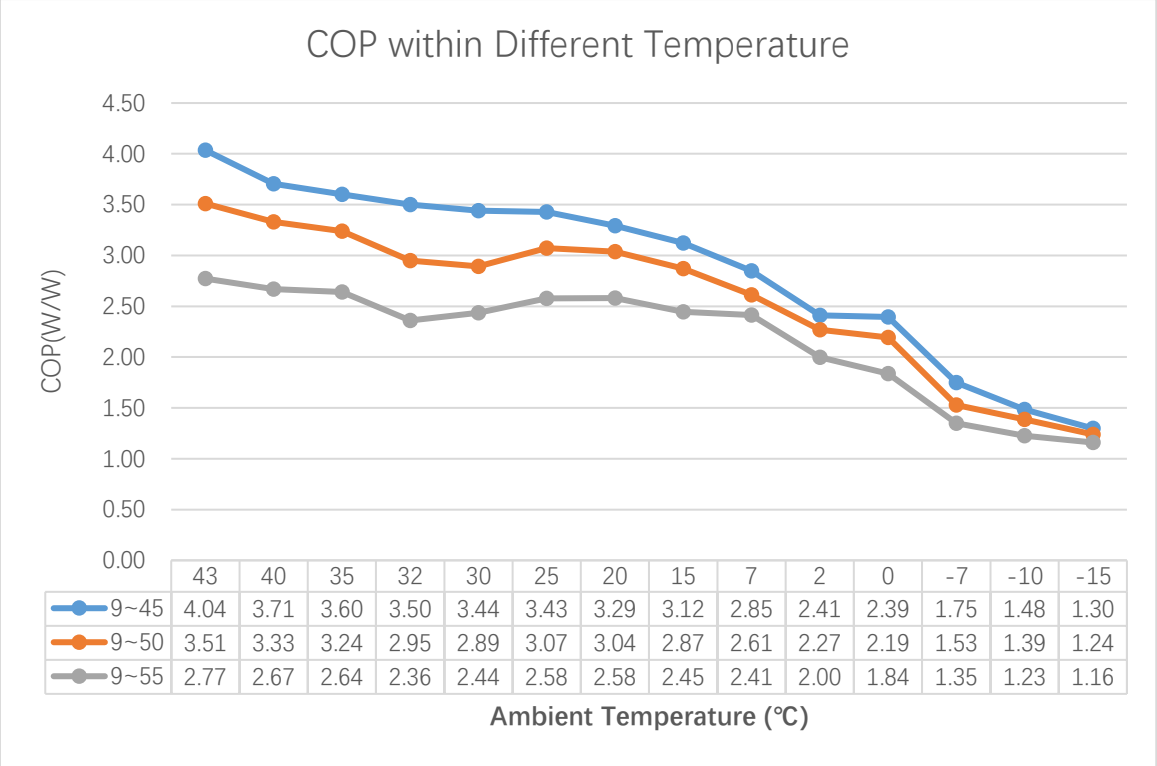
6.3.1 ATW



	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	5602	5476	5356	5297	5415	5415	5415	5356	5356	5297	5185	5077	4778	4513
9~50	5236	5337	5296	5187	5286	5496	5551	5607	5664	5442	4827	4625	4081	3909
9~55	4448	4513	4613	4718	4790	4865	4904	4942	4904	4718	4448	4044	3663	3538

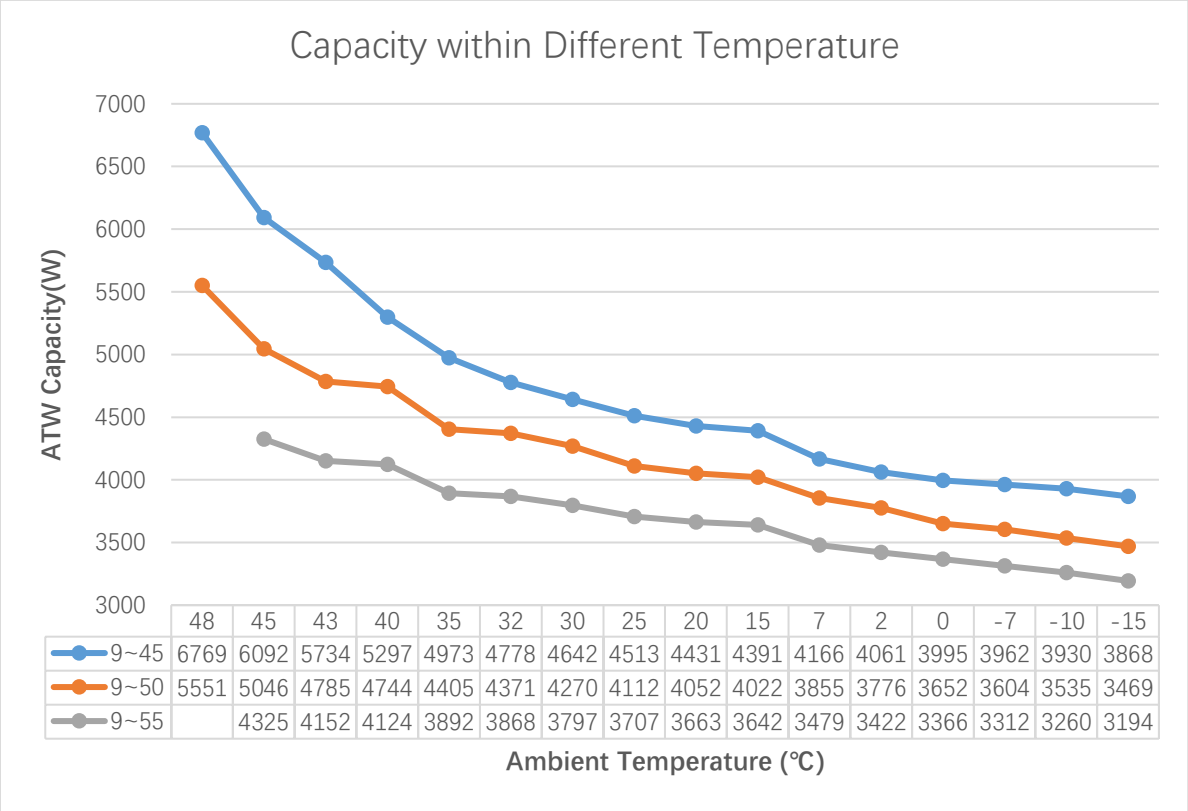


	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	87	89	91	92	90	90	90	91	91	92	94	96	102	108
9~50	106	104	103	107	105	101	100	99	98	102	115	120	136	142
9~55	140	138	135	132	130	128	127	126	127	132	140	150	170	176

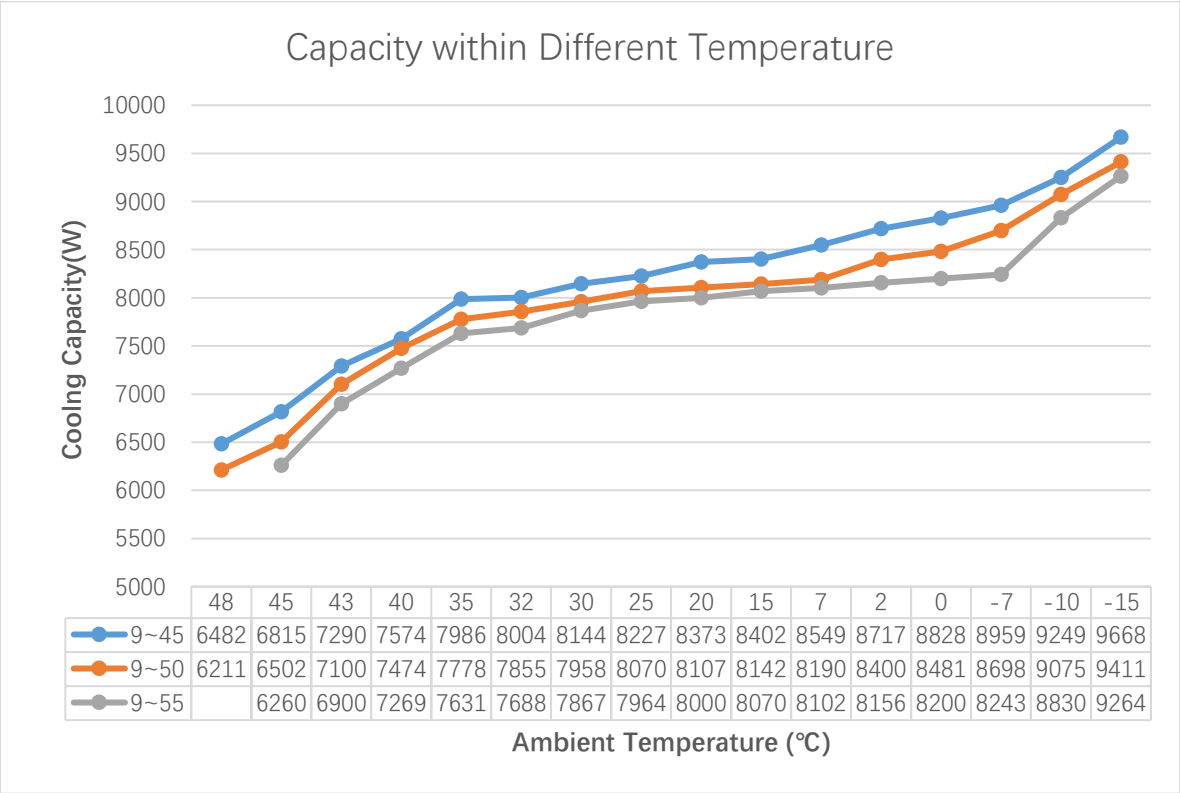


	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	4.04	3.71	3.60	3.50	3.44	3.43	3.29	3.12	2.85	2.41	2.39	1.75	1.48	1.30
9~50	3.51	3.33	3.24	2.95	2.89	3.07	3.04	2.87	2.61	2.27	2.19	1.53	1.39	1.24
9~55	2.77	2.67	2.64	2.36	2.44	2.58	2.58	2.45	2.41	2.00	1.84	1.35	1.23	1.16

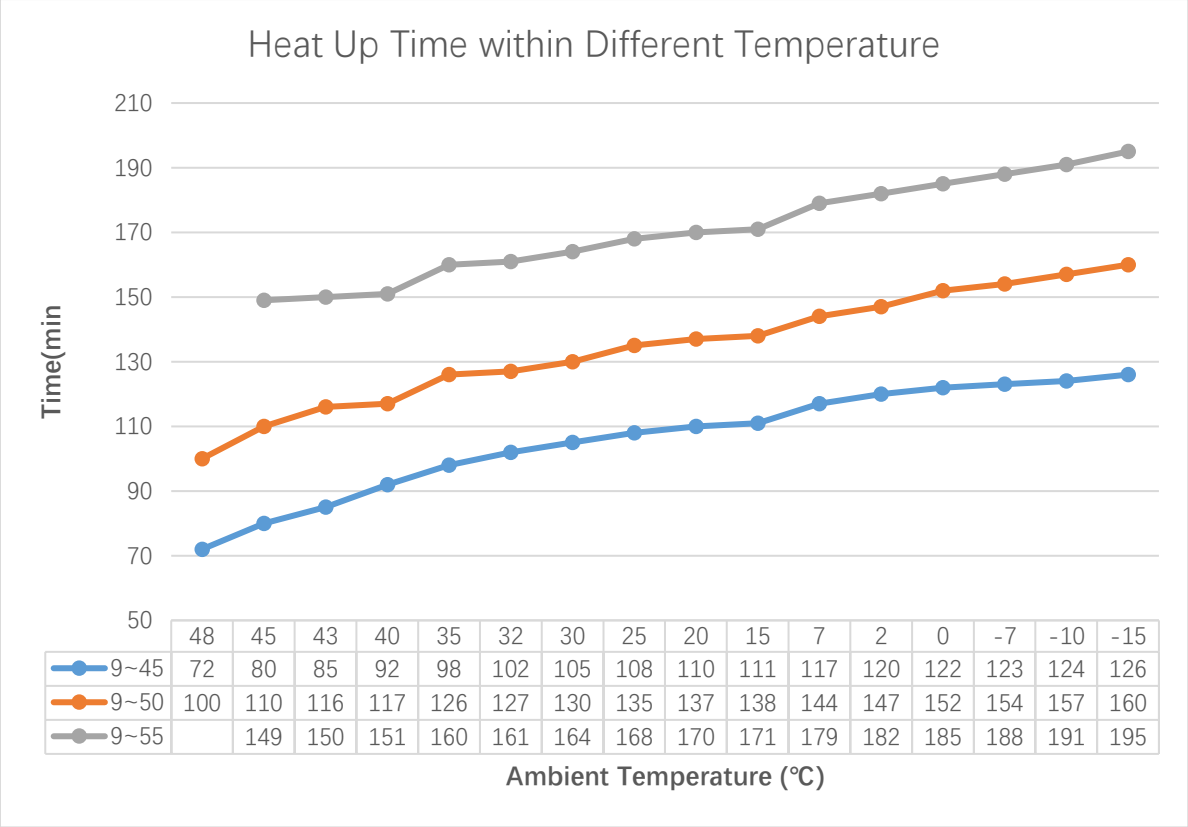
6.3.2 Cooling+ATW



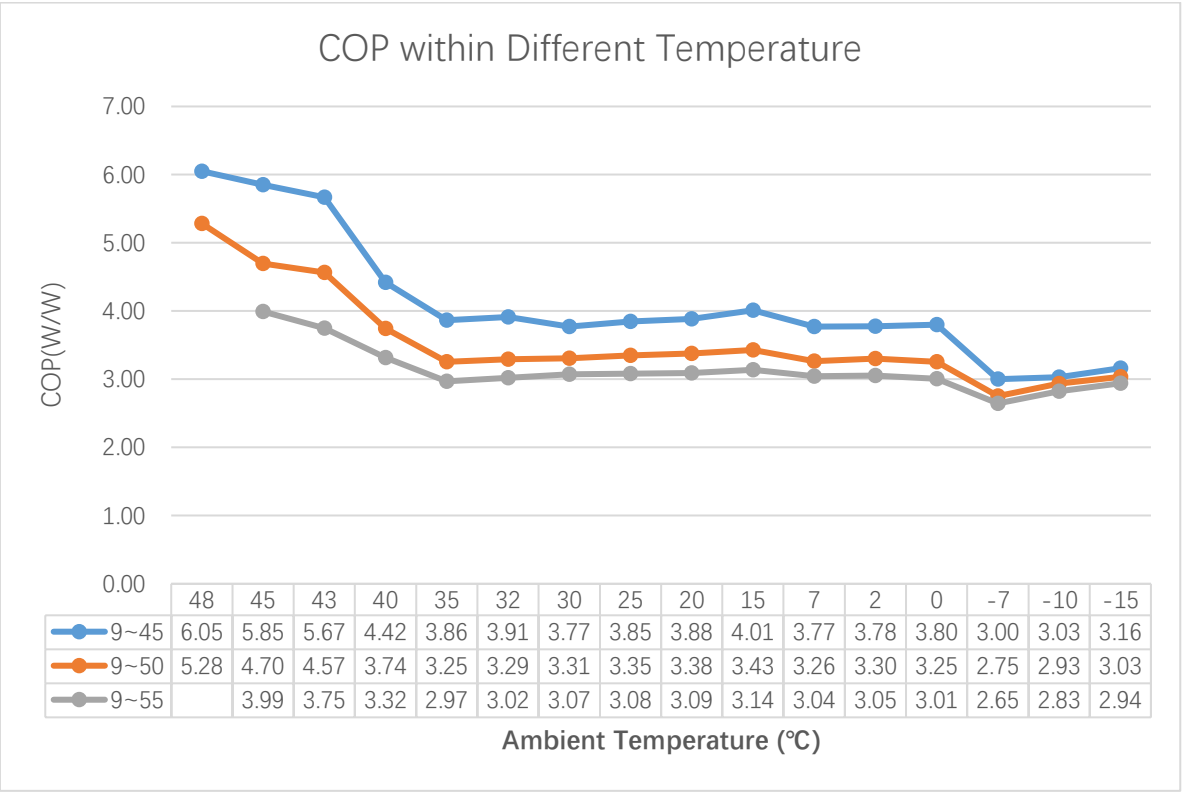
	48	45	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	6769	6092	5734	5297	4973	4778	4642	4513	4431	4391	4166	4061	3995	3962	3930	3868
9~50	5551	5046	4785	4744	4405	4371	4270	4112	4052	4022	3855	3776	3652	3604	3535	3469
9~55		4325	4152	4124	3892	3868	3797	3707	3663	3642	3479	3422	3366	3312	3260	3194



	48	45	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	6482	6815	7290	7574	7986	8004	8144	8227	8373	8402	8549	8717	8828	8959	9249	9668
9~50	6211	6502	7100	7474	7778	7855	7958	8070	8107	8142	8190	8400	8481	8698	9075	9411
9~55		6260	6900	7269	7631	7688	7867	7964	8000	8070	8102	8156	8200	8243	8830	9264



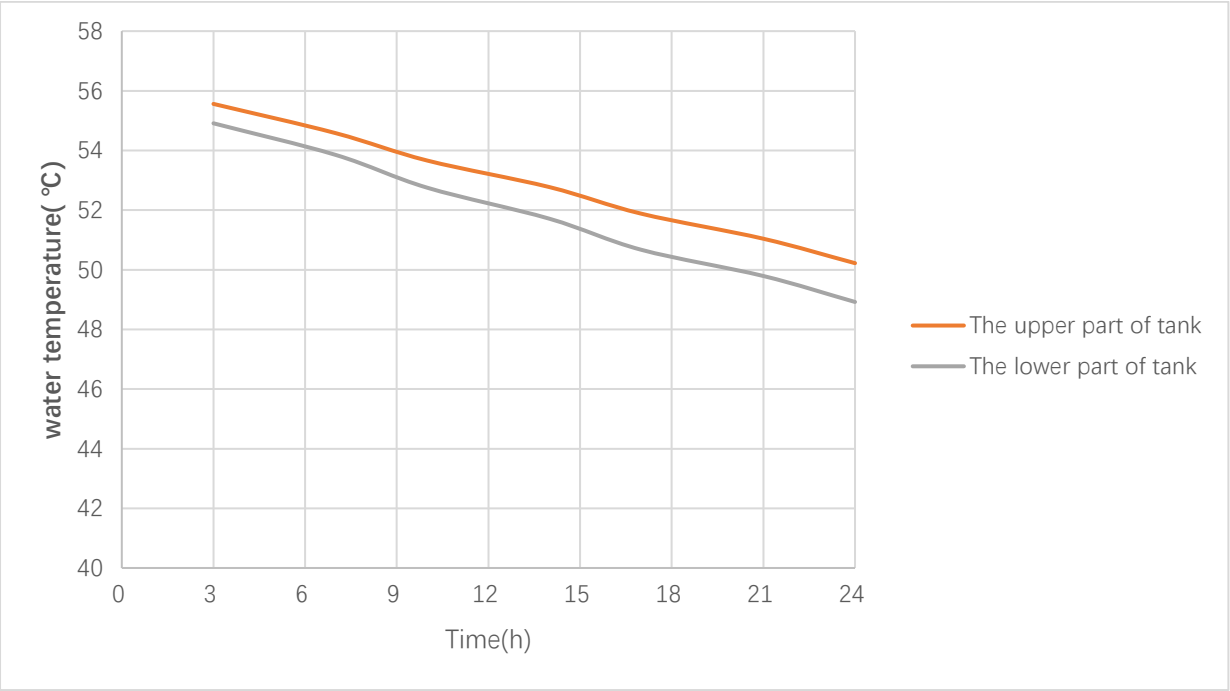
	48	45	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	72	80	85	92	98	102	105	108	110	111	117	120	122	123	124	126
9~50	100	110	116	117	126	127	130	135	137	138	144	147	152	154	157	160
9~55		149	150	151	160	161	164	168	170	171	179	182	185	188	191	195



	48	45	43	40	35	32	30	25	20	15	7	2	0	-7	-10	-15
9~45	6.05	5.85	5.67	4.42	3.86	3.91	3.77	3.85	3.88	4.01	3.77	3.78	3.80	3.00	3.03	3.16
9~50	5.28	4.70	4.57	3.74	3.25	3.29	3.31	3.35	3.38	3.43	3.26	3.30	3.25	2.75	2.93	3.03
9~55		3.99	3.75	3.32	2.97	3.02	3.07	3.08	3.09	3.14	3.04	3.05	3.01	2.65	2.83	2.94

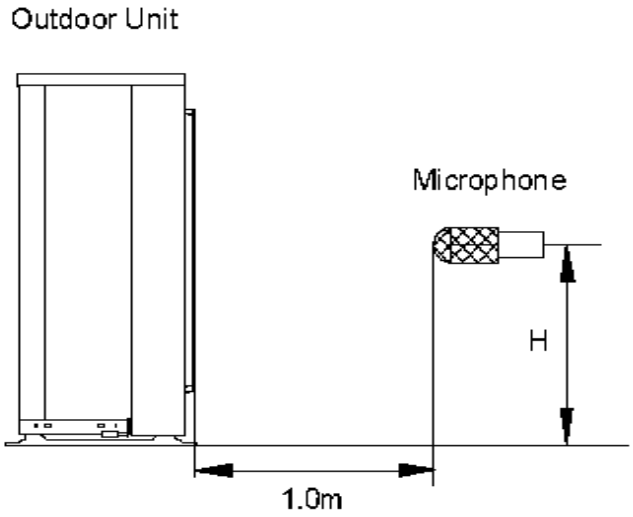
6.3.3 Thermal insulation performance of tank

Water temperature changes at an ambient temperature of 20 ℃



7 Sound data

7.1 Outdoor unit



Note: H= 0.5 × height of outdoor unit

Notes:

-Sound measured at 1.0m away from the center of the unit.

-Data is valid at free field condition

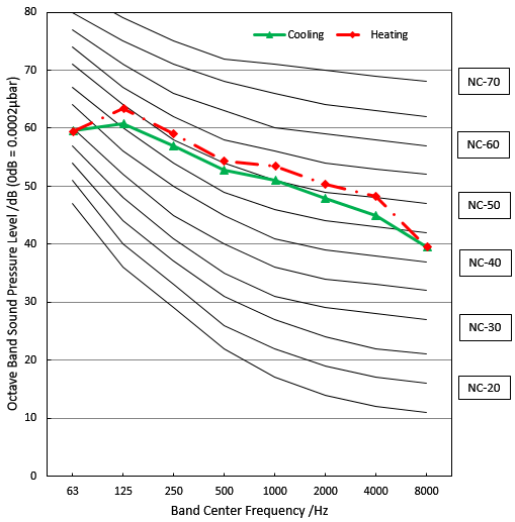
-Data is valid at nominal operation condition

-Reference acoustic pressure OdB=20μPa

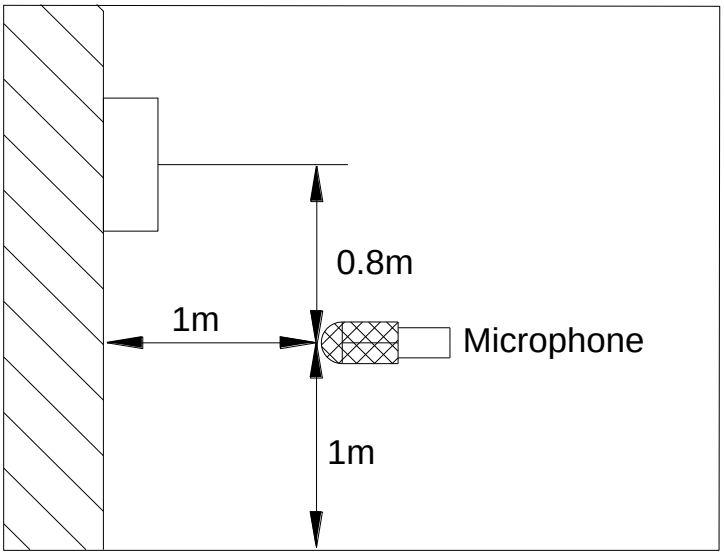
-Sound level will vary depending on arrange off actors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.

-The operating conditions are assumed to be standard.

M4OA-27HFN8-Q（HRU）



7.2 Indoor unit



Notes:

-Sound measured at 1.0m away from the center of the unit.

-Data is valid at free field condition

-Data is valid at nominal operation condition

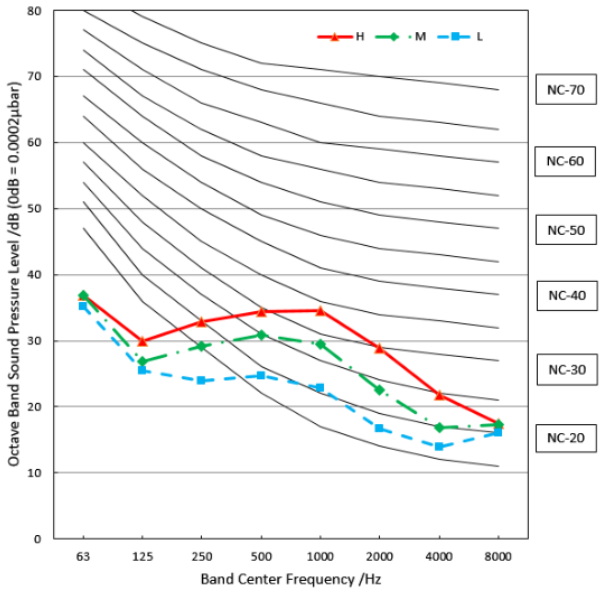
-Reference acoustic pressure OdB = 20μPa

-Sound level will vary depending on a range of factors such as the construction -(acoustic absorption coefficient) of particular room in which the equipment is installed.

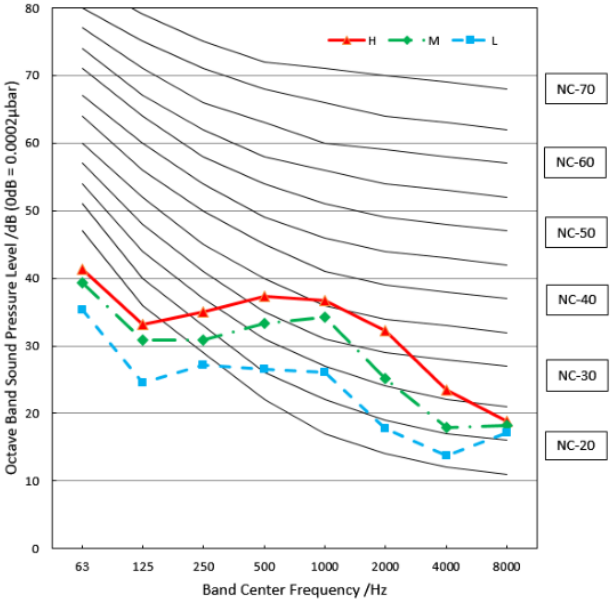
-The operating conditions are assumed to be standard.

Breezeless E series:

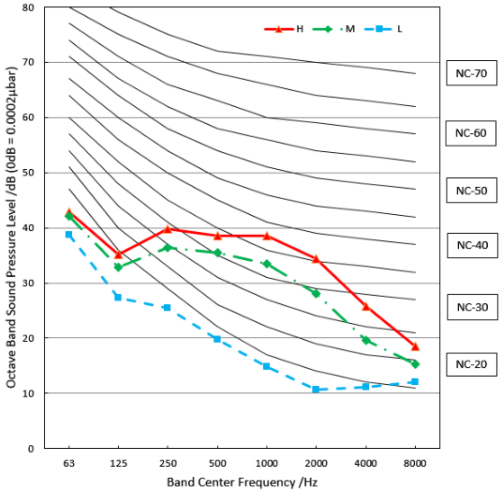
MSCB1BU -09HRFN8-QRD1GW



MSCB1BU -12HRFN8-QRD1GW



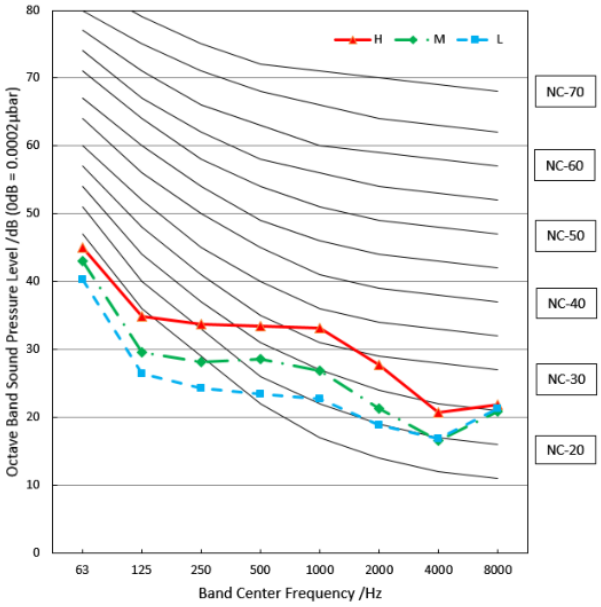
MSCB1CU-18HRFN8-QRD1GW

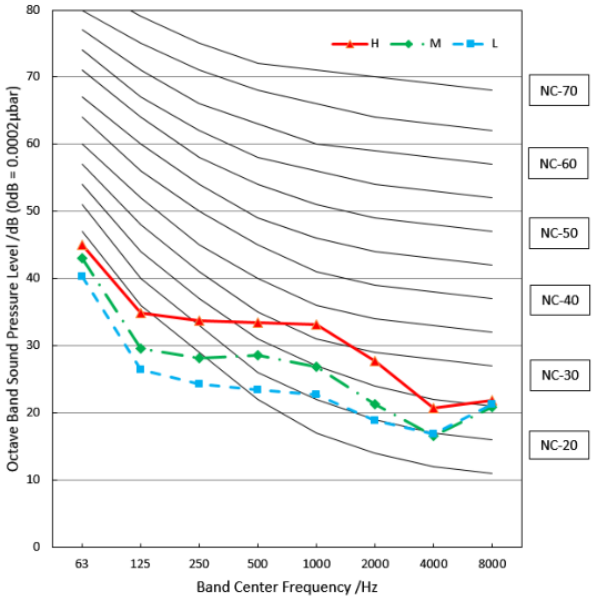


Extreme series:

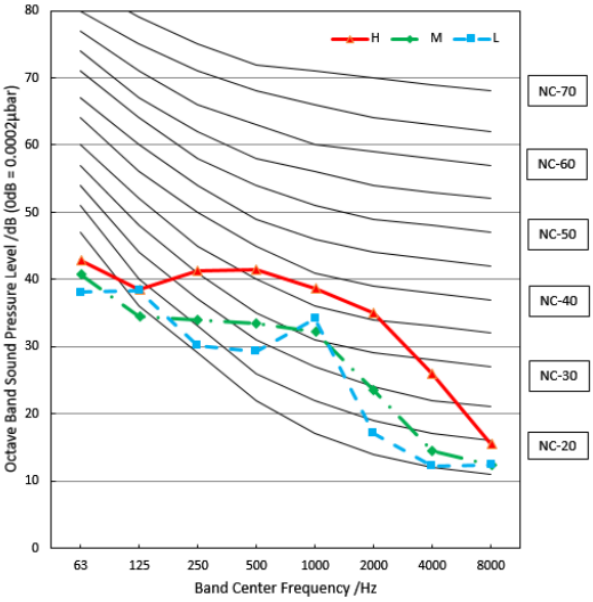
MSAGAU-07HRFNX-QRD0GW MSAGBU-12HRFNX-QRD0GW

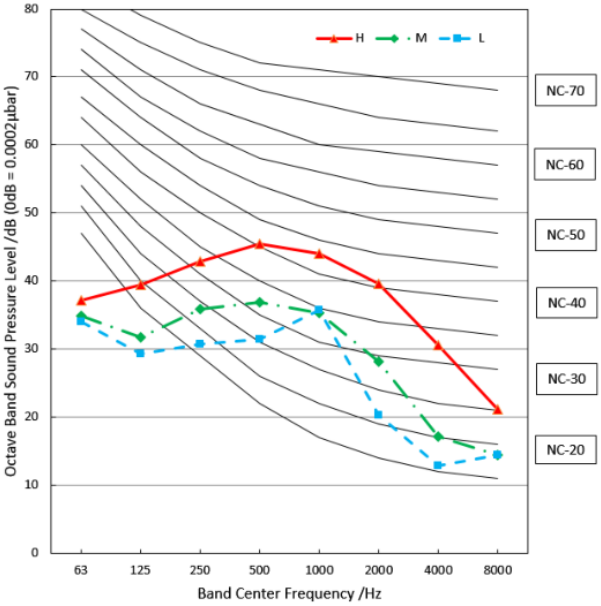
MSAGAU-09HRFNX-QRD0GW





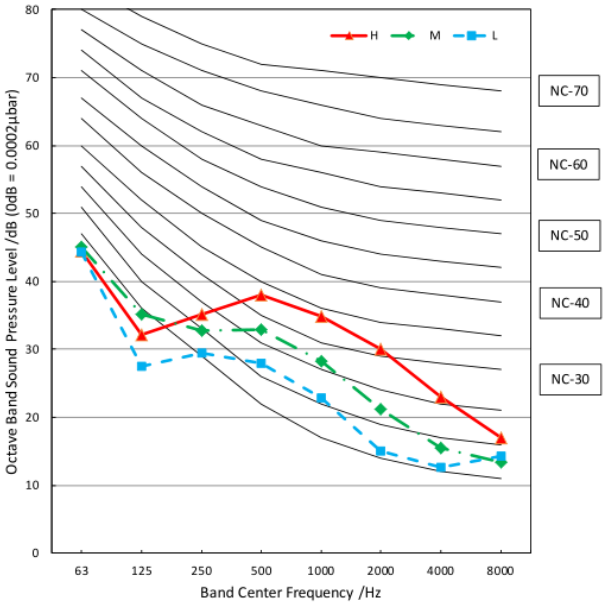
MSAGCU-18HRFNX-QRD0GW MSAGDU-24HRFN8-QRD0GW



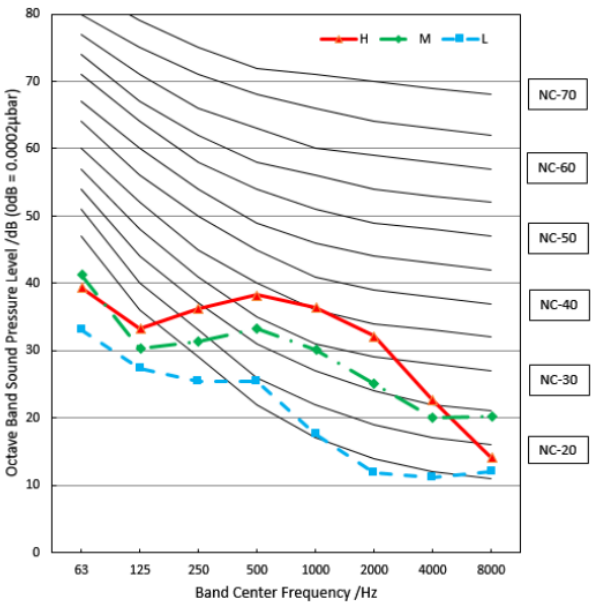


Forest series:

MSAFBU-07HRDNX-QRD0GW
MSAFBU-09HRDN8-QRD0GW



MSAFBU-12HRDNX-QRD0FGW



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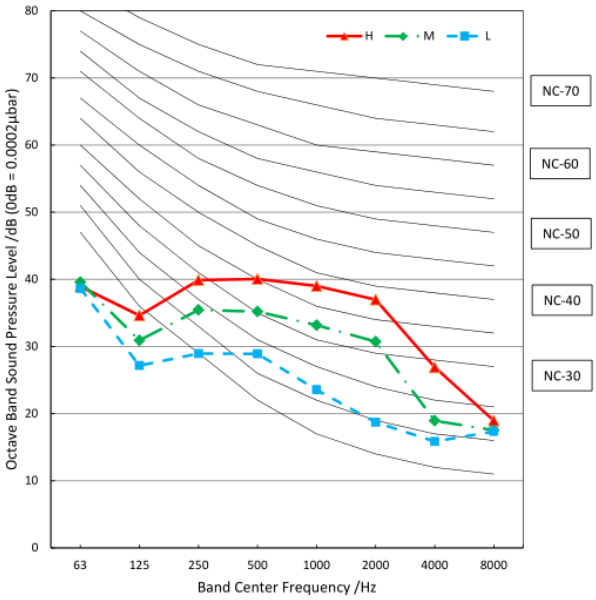
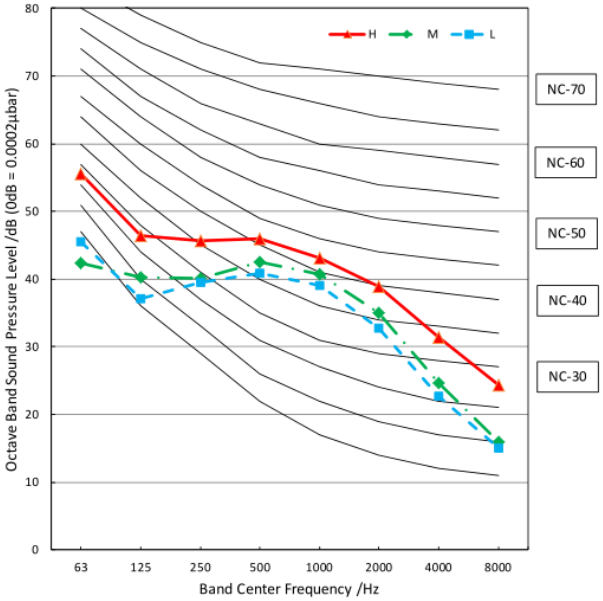
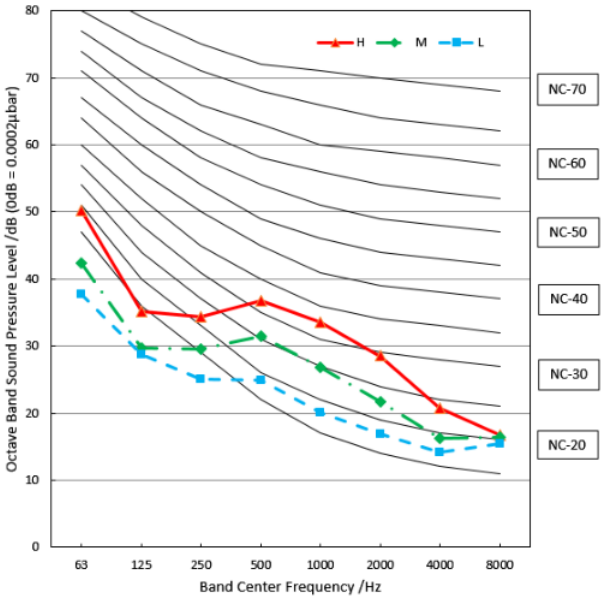


MSAFDU-24HRFNX-QRD0GW

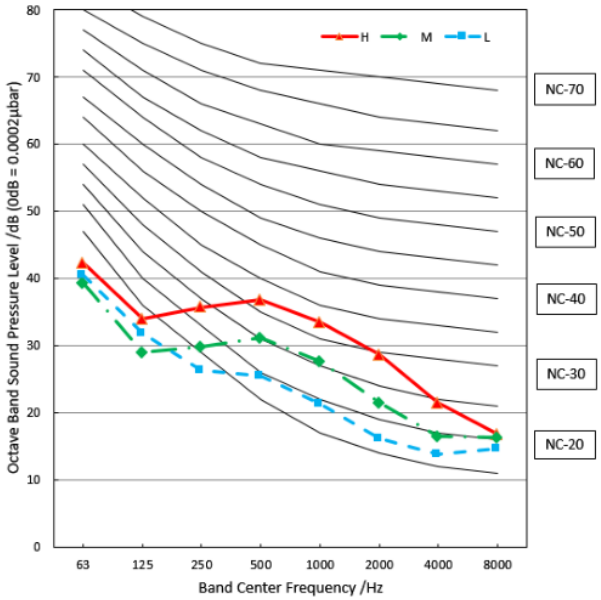


Aurora series:

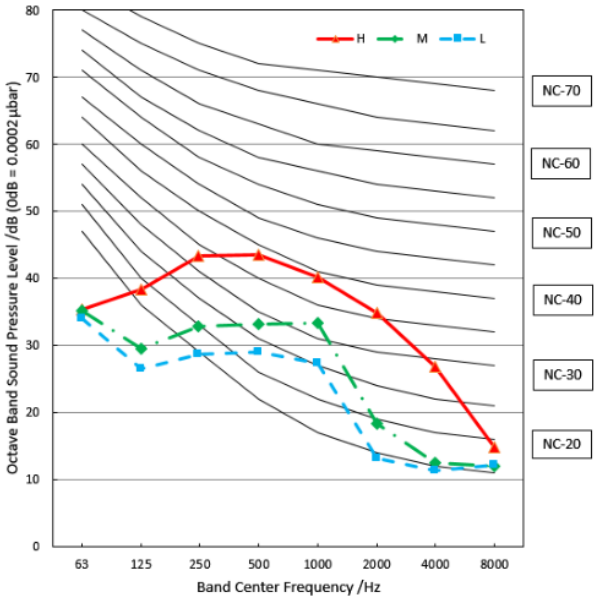
MSABAU-09HRFNX-QRD0GW



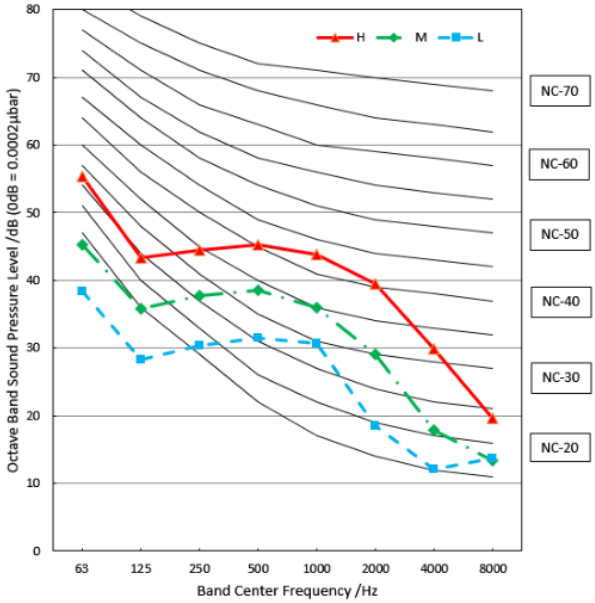
MSABBU-12HRFN8-QRD6GW



MSABDU-18HRFNX-QRD0GW



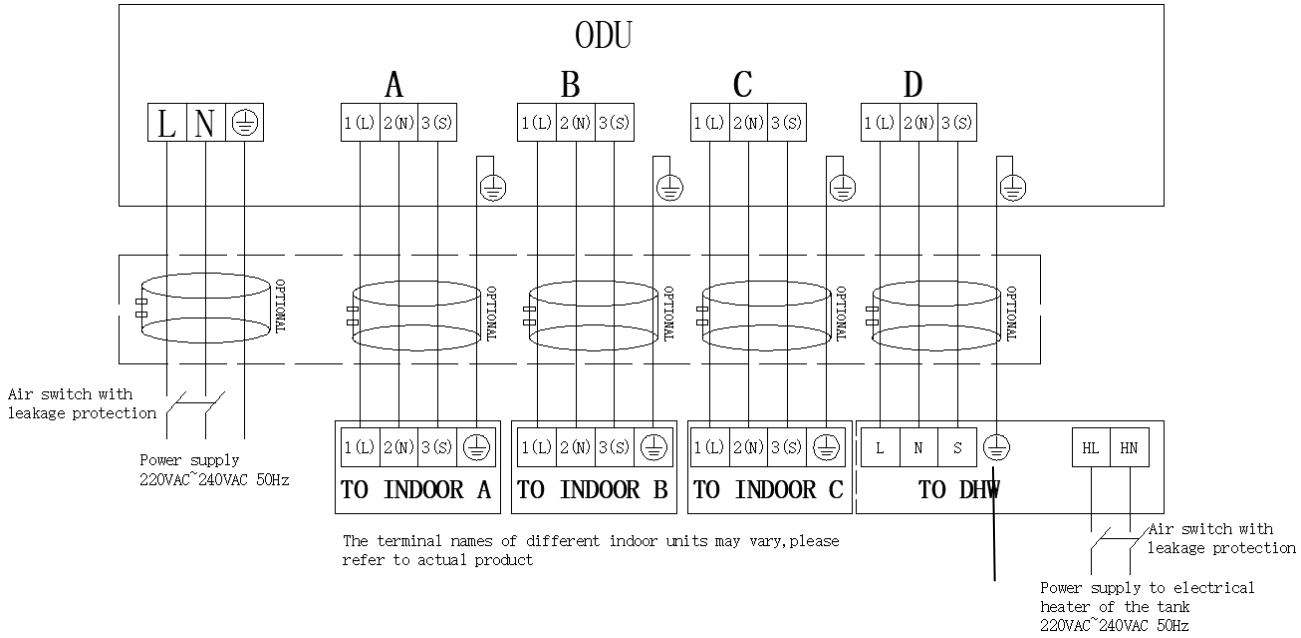
MSABEU-24HRFNX-QRD0GW



8 Electrical Data

8.1 System wiring diagram

The units shall be connected according to the following electric diagrams, depending on the applicable powering scheme and according to the local regulations:



CAUTION：

• The air switch should have leakage protection function

• Ensure that the transmission wiring is not connected to any live part by mistake, since it could be damage the PCB.

• These wiring diagrams are for illustrative purposes only and the positions of the terminals differ from the actual position of the terminals in the electrical box.

8.2 Outdoor unit

Outdoor unit model	M4OA-27HFN8-Q(HRU)
Outdoor unit power supply	220~240,1Ph,50Hz
Outdoor unit applicable voltage range	150V~264V
Outdoor unit Max.input power	5300W
Outdoor unit wiring wire	3×2.5mm²
Outdoor unit input capacity main switch (Breaker)	25A

8.3 Tank unit

- ✧ The power supply should be an independent circuit with rated voltage.
- ✧ Power supply circuit should be earthed effectively.
- ✧ The wiring must be performed by professional technicians in accordance with national wiring regulations and this circuit diagram.
- ✧ An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
- ✧ Set the electric leakage protector according to the relevant electric technical standards of the local.
- ✧ The power cord and the signal cord shall be laid out neatly and properly without mutual interference or contacting the connection pipe or valve.
- ✧ After wire connection, check it again and make sure the correctness before power on.

Specifications of power supply

Model name	PLSX-190(30)DN8-A
Power supply	220-240V~, 50Hz, 1Ph
Min. diameter of power supply cord (mm^2)	1.5 (For water tank with electric heating)
Earth cord (mm^2)	1.5 (For water tank with electric heating)
Manual switch capacity (A)/Fuse (A)	30/20 (For DHW)
Creepage breaker	(Not including)

- ✧ Please choosing the power cord according to above table, and it should comply with local electric standard.
- ✧ The power cord model, recommended power cord mode is H05RN-F.

8.4 Indoor unit

8.4.1 Breezeless E series

Model	power supply	Applicable voltage range	Rated current (A)	wiring wire outdoor unit-indoor unit
MSCB1BU -09HRFN8-QRD1GW	220-240V~, 50Hz, 1Ph	198~264V	0.11	4x1.5
MSCB1BU -12HRFN8-QRD1GW			0.11	4x1.5

MSCB1CU-18HRFN8-QRD1GW			0.11	4x1.5

8.4.2 Extreme series

Model	power supply	Applicable voltage range	Rated current (A)	wiring wire outdoor unit-indoor unit
MSAGAU-07HRFNX-QRD0GW	220-240V~, 50Hz, 1Ph	198~264V	0.09	4x1.5
MSAGAU-09HRFNX-QRD0GW			0.11	4x1.5
MSAGBU-12HRFNX-QRD0GW			0.11	4x1.5
MSAGCU-18HRFNX-QRD0GW			0.15	4x1.5
MSAGDU-24HRFN8-QRD0GW			0.28	4x1.5

8.4.3 Forest series

Model	power supply	Applicable voltage range	Rated current (A)	wiring wire outdoor unit-indoor unit
MSAFBU-07HRDNX-QRD0GW	220-240V~, 50Hz, 1Ph	198~264V	0.09	4x1.5
MSAFBU-09HRDN8-QRD0GW			0.09	4x1.5
MSAFBU-12HRDNX-QRD0FGW			0.09	4x1.5
MSAFCU-18HRFNX-QRD0GW			0.15	4x1.5
MSAFDU-24HRFNX-QRD0GW			0.28	4x1.5

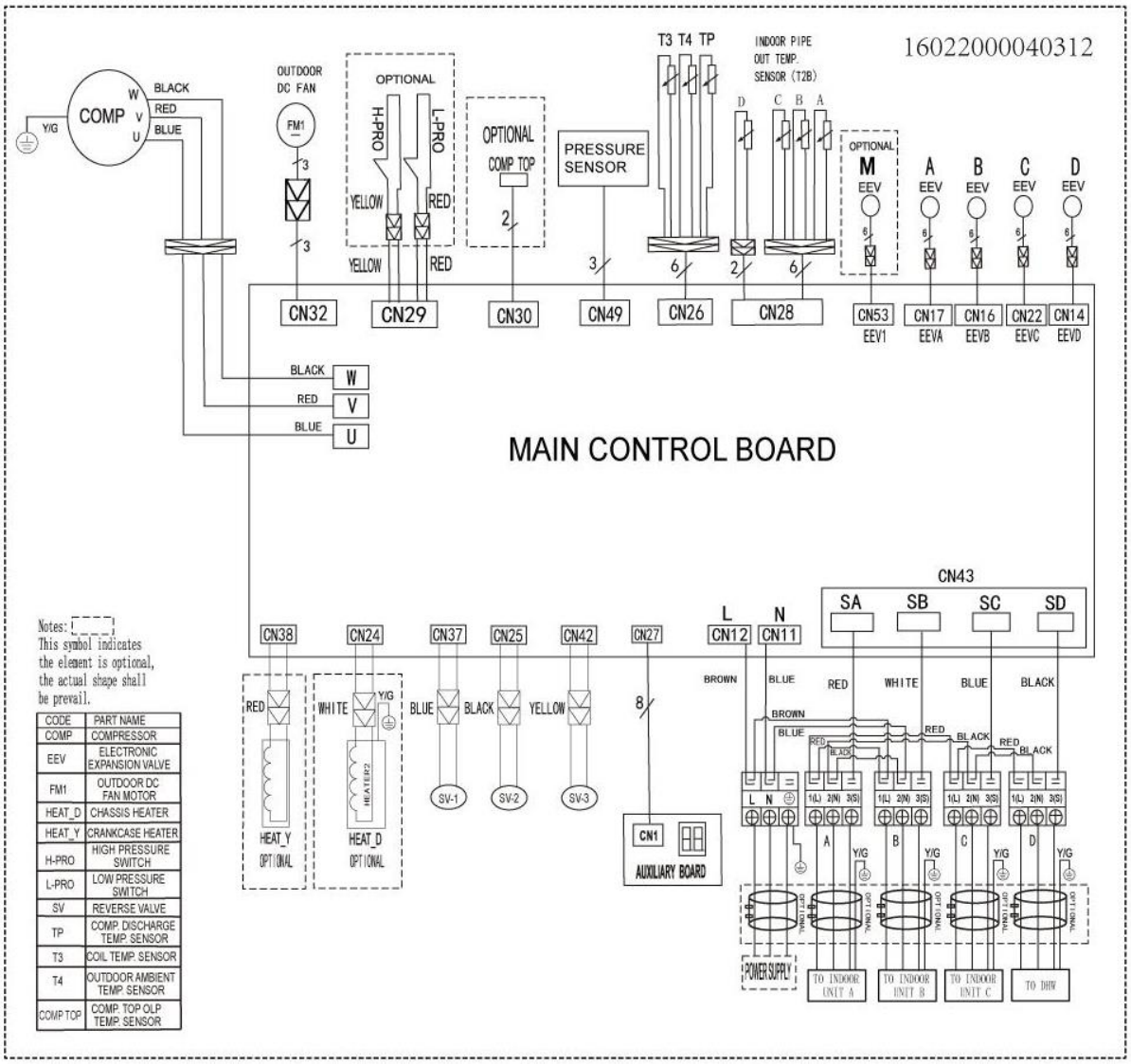
8.4.4 Aurora series

Model	power supply	Applicable voltage range	Rated current (A)	wiring wire outdoor unit-indoor unit
MSABAU-09HRFNX-QRD0GW	220-240V~, 50Hz, 1Ph	198~264V	0.11	4x1.5
MSABBU-12HRFN8-QRD6GW			0.1	4x1.5
MSABDU-18HRFNX-QRD0GW			0.16	4x1.5
MSABEU-24HRFNX-QRD0GW			0.26	4x1.5

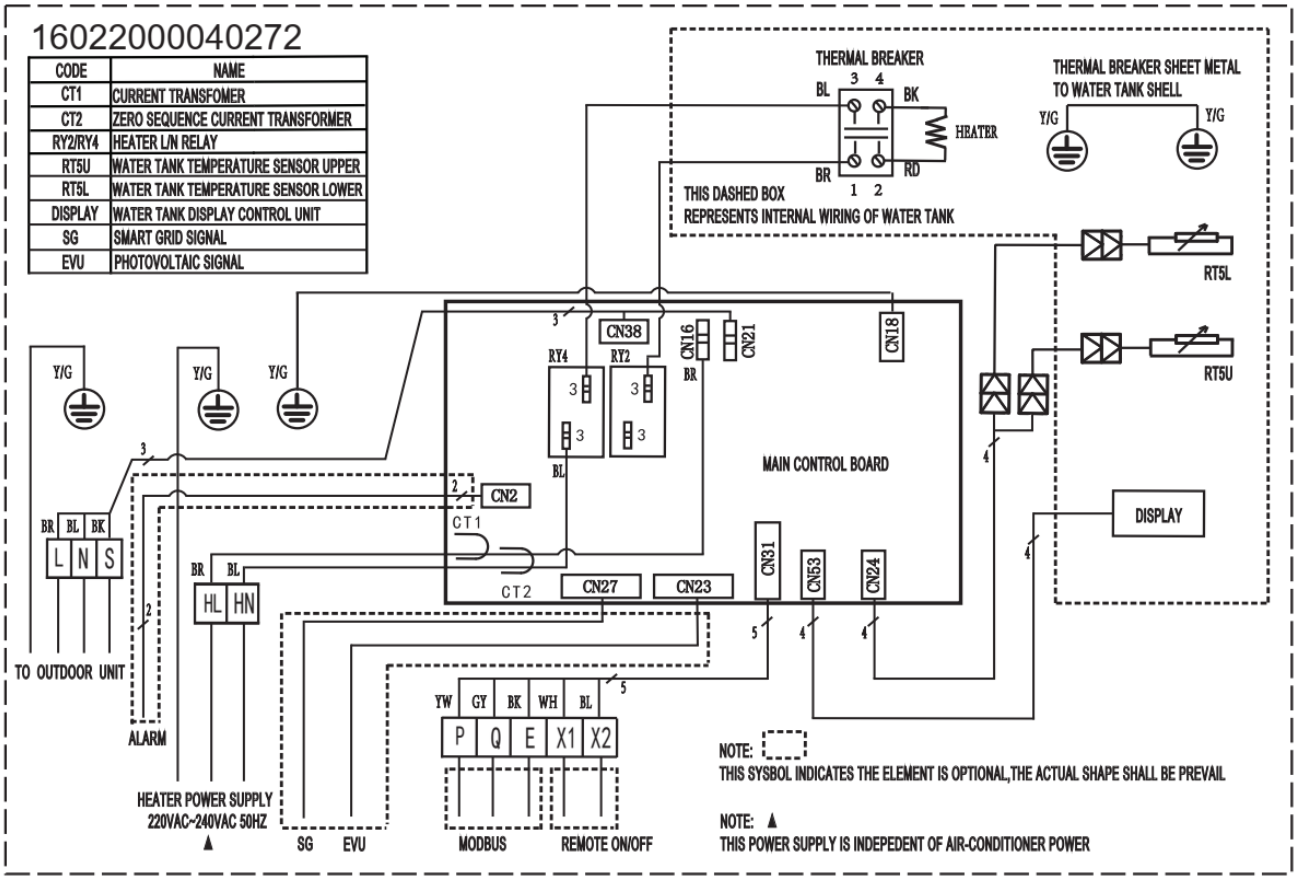
9 Wiring diagram

9.1 Outdoor unit

M4OA-27HFN8-Q(HRU)



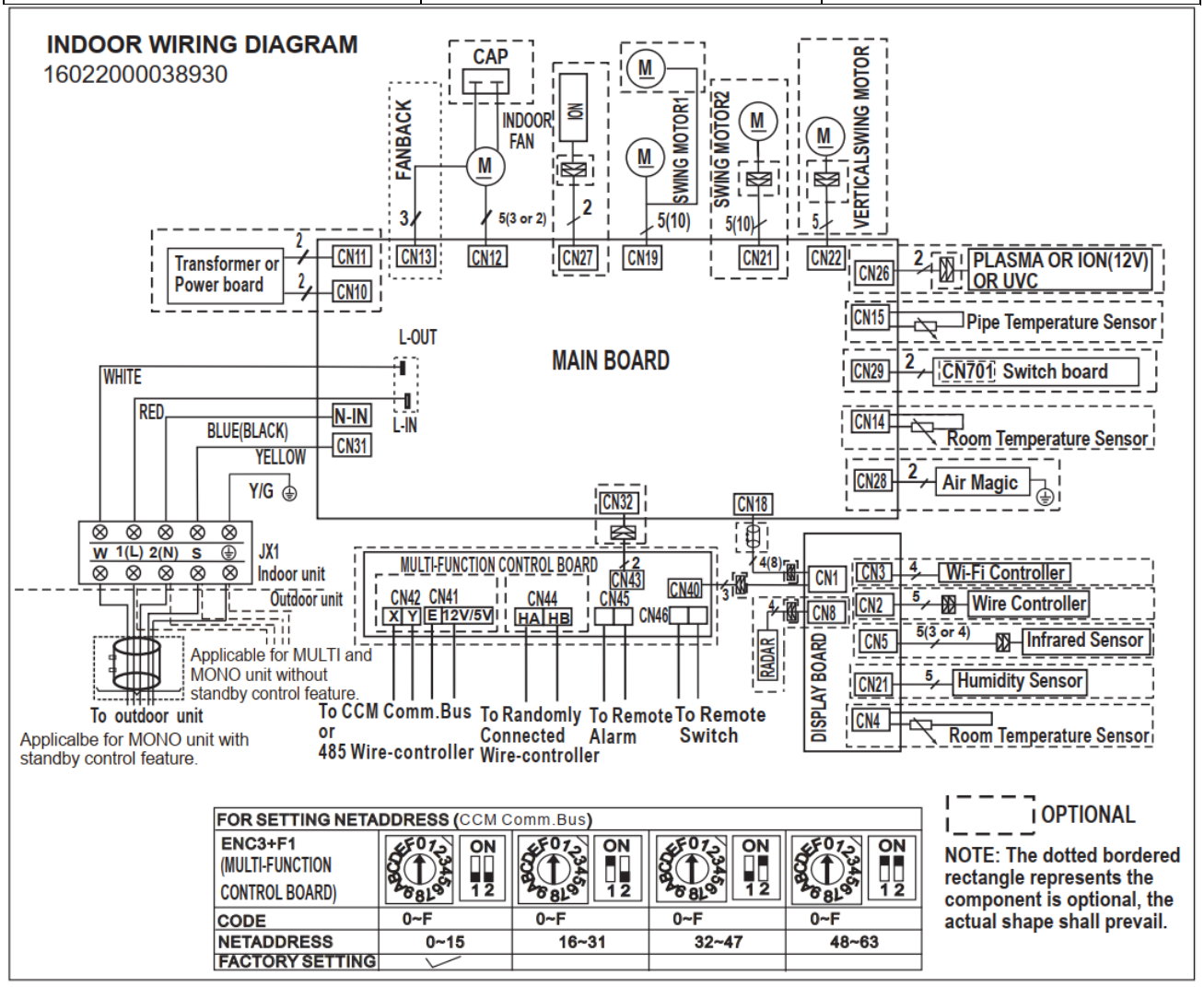
9.2 Tank unit


16022000040272
CODE NAME
CT1 CURRENT TRANSFOMER
CT2 ZERO SEQUENCE CURRENT TRANSFORMER
RY2/RY4 HEATER L/N RELAY
RT5U WATER TANK TEMPERATURE SENSOR UPPER
RT5L WATER TANK TEMPERATURE SENSOR LOWER
DISPLAY WATER TANK DISPLAY CONTROL UNIT
SG SMART GRID SIGNAL
EVU PHOTOVOLTAIC SIGNAL
THERMAL BREAKER
THERMAL BREAKER SHEET METAL TO WATER TANK SHELL
HEATER
THIS DASHED BOX REPRESENTS INTERNAL WIRING OF WATER TANK
RT5L
RT5U
DISPLAY
MAIN CONTROL BOARD
CN38
CN16
CN21
CN18
CN2
CN27
CN23
CN31
CN53
CN24
RY4
RY2
CT1
CT2
Y/G
BR BL BK
L N S
TO OUTDOOR UNIT
ALARM
BR BL
HL HN
HEATER POWER SUPPLY
220VAC~240VAC 50HZ
YW GY BK WH BL
P Q E X1 X2
SG EVU
MODBUS
REMOTE ON/OFF
NOTE:
THIS SYSBOL INDICATES THE ELEMENT IS OPTIONAL,THE ACTUAL SHAPE SHALL BE PREVAIL
NOTE:
THIS POWER SUPPLY IS INDEPEDENT OF AIR-CONDITIONER POWER

9.3 Indoor unit

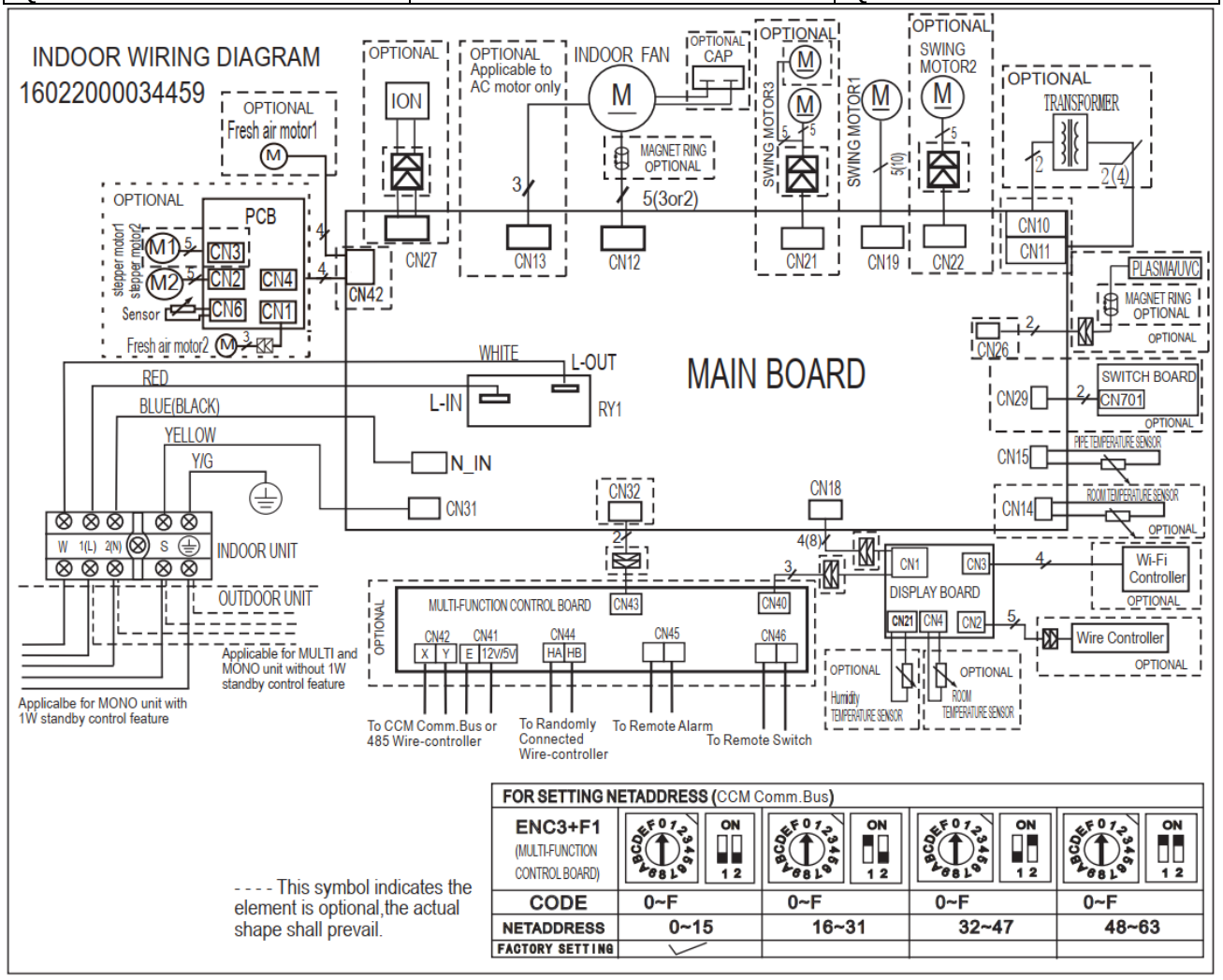
9.3.1 Breezeless E series

MSCB1BU -09HRFN8-QRD1GW	MSCB1BU -12HRFN8-QRD1GW	MSCB1CU-18HRFN8-QRD1GW

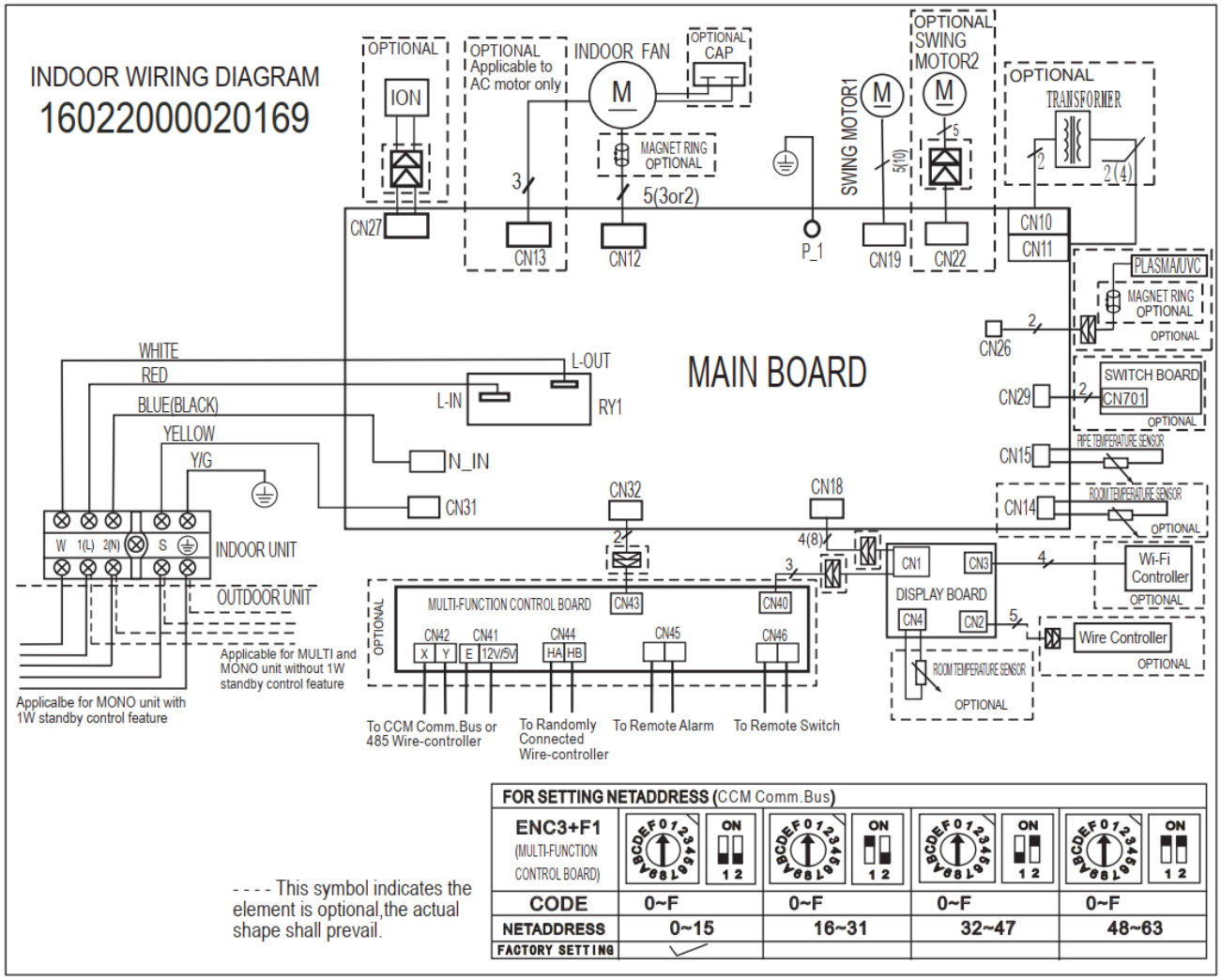


9.3.2 Extreme series

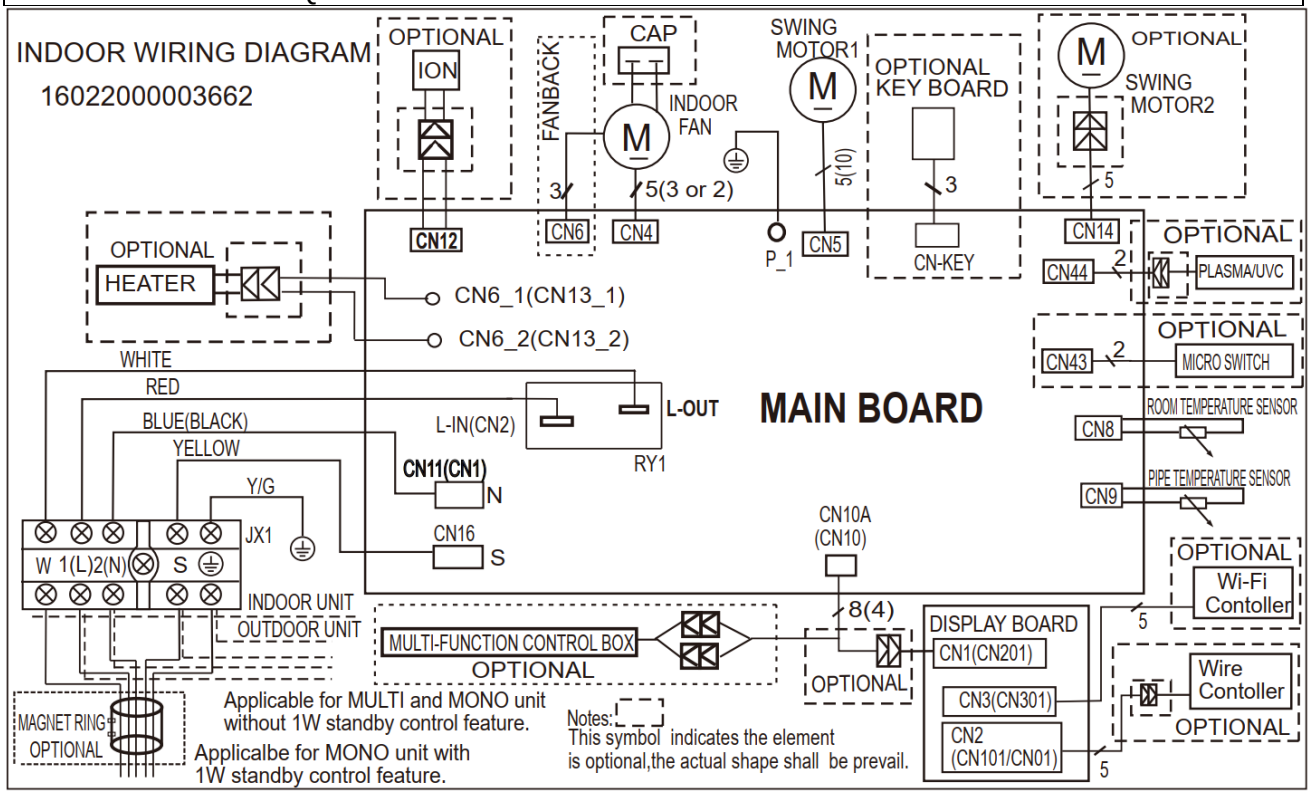
MSAGAU-07HRFNX-QRD0GW	MSAGAU-09HRFNX-QRD0GW	MSAGBU-12HRFNX-QRD0GW



MSAGCU-18HRFNX-QRD0GW

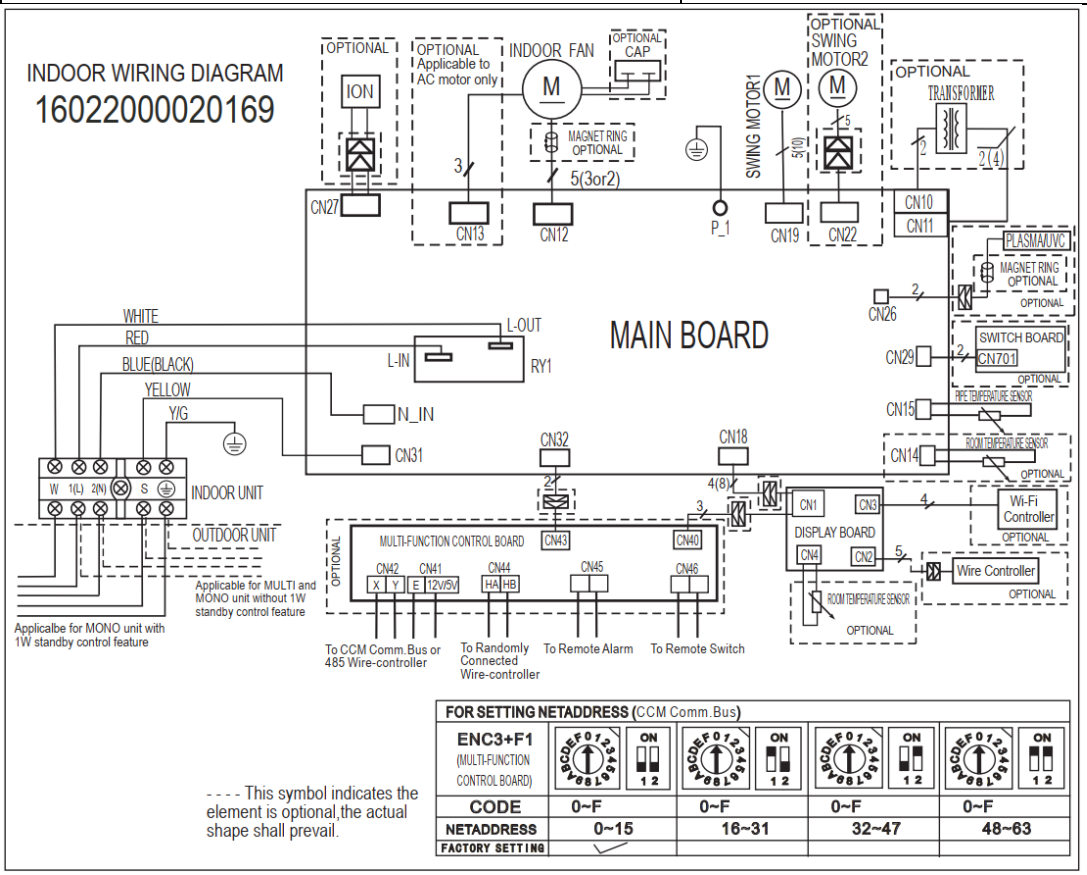


MSAGDU-24HRFN8-QRD0GW



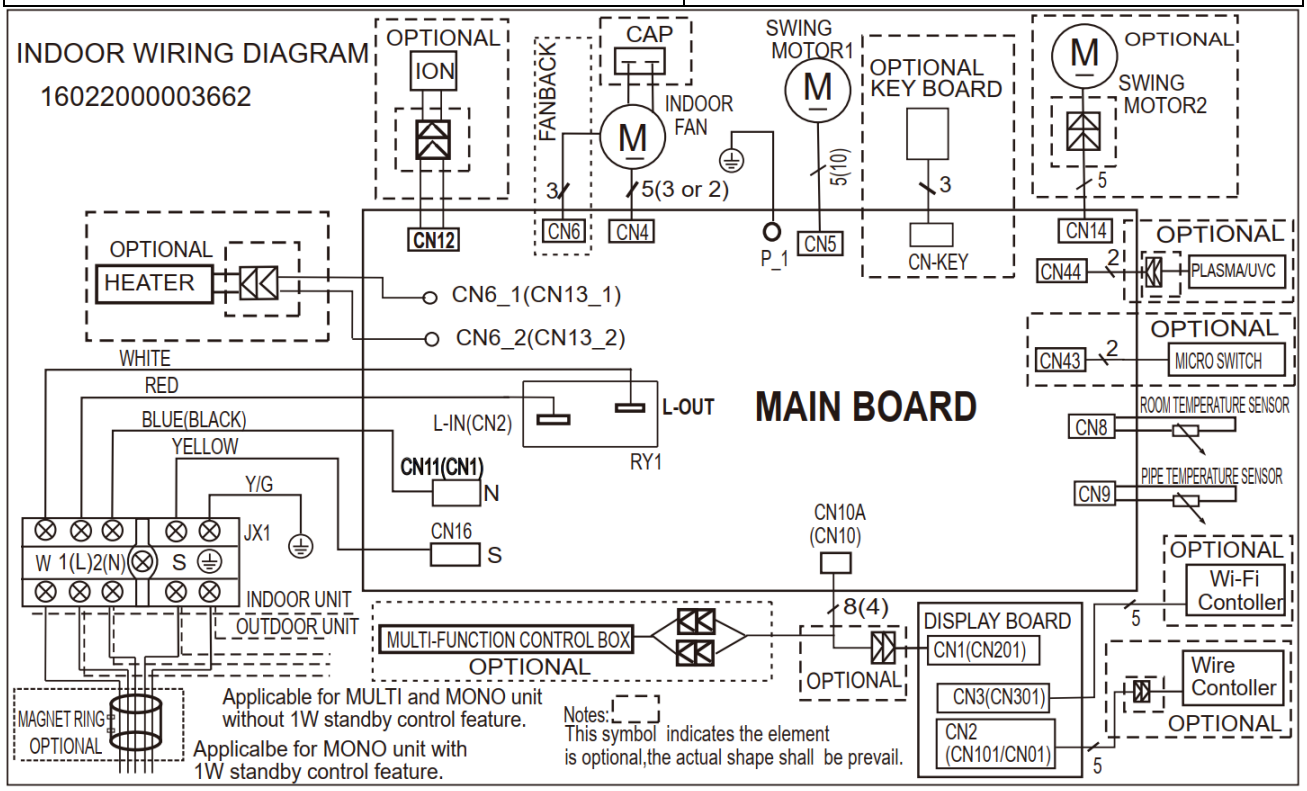
9.3.3 Forest series

MSAFBU-07HRDNX-QRD0GW	MSAFBU-12HRDNX-QRD0FGW
MSAFBU-09HRDN8-QRD0GW	MSAFCU-18HRFNX-QRD0GW
MSAFDU-24HRFNX-QRD0GW	

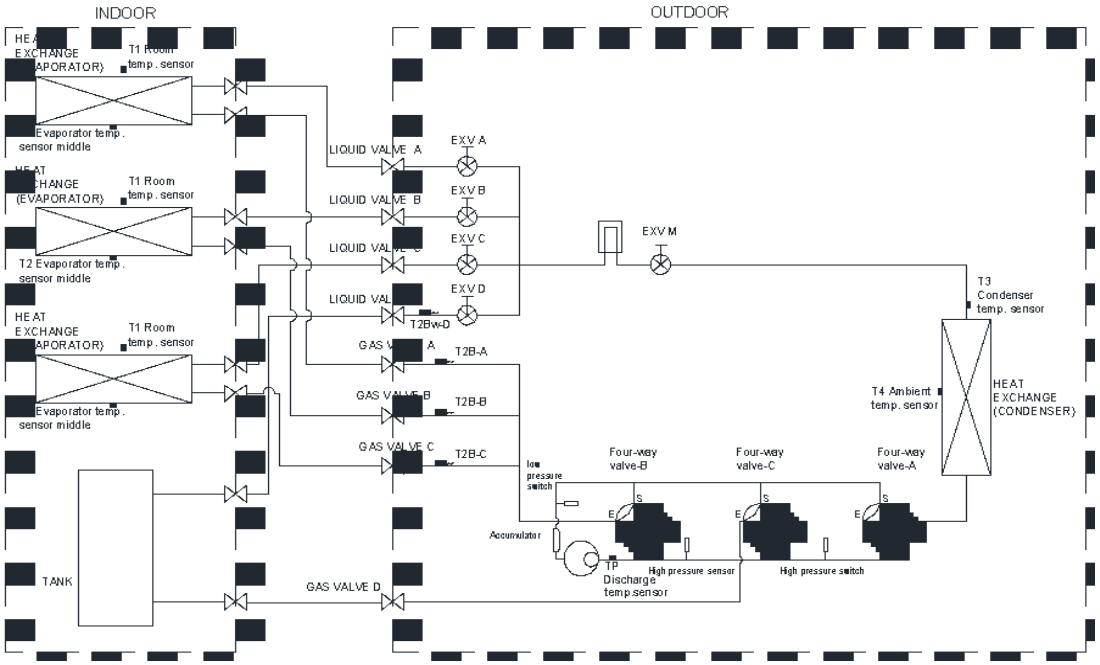


9.3.4 Aurora series

MSABAU-09HRFNX-QRD0GW	MSABDU-18HRFNX-QRD0GW
MSABBU-12HRFN8-QRD6GW	MSABEU-24HRFNX-QRD0GW

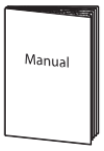


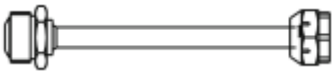
10 Refrigerant cycle



11 Accessories

11.1 Outdoor unit

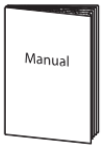
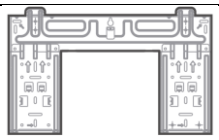
Name	Shape	Quantity
Manual		2
Magnetic ring (Hitch on the connective cable between the indoor unit and outdoor unit after installation.)		5
Drain joint		1

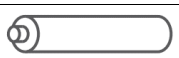
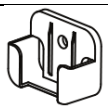
Seal ring		1
Transfer connector(Φ12.7-Φ15.9)/(Φ0.5in-Φ0.63in		1
Transfer connector(Φ6.35-Φ9.52)/(Φ0.25in-Φ0.37in)		1
Transfer connector(Φ12.7-Φ9.52)/(Φ0.5in-Φ0.375in)		1

11.2 Tank

Name	Qty.	Sharp	Purpose
Owner's and Installation Manual	1		Installation and use instruction.
One way valve	1		Prevent water from flowing backwards
Technical Parameter Table	1		Introduction of technical parameters
Water Pipe Joint	2		Connect the inlet and outlet water pipes
Fixed strip	1		Fixed water tank

11.3 Indoor unit

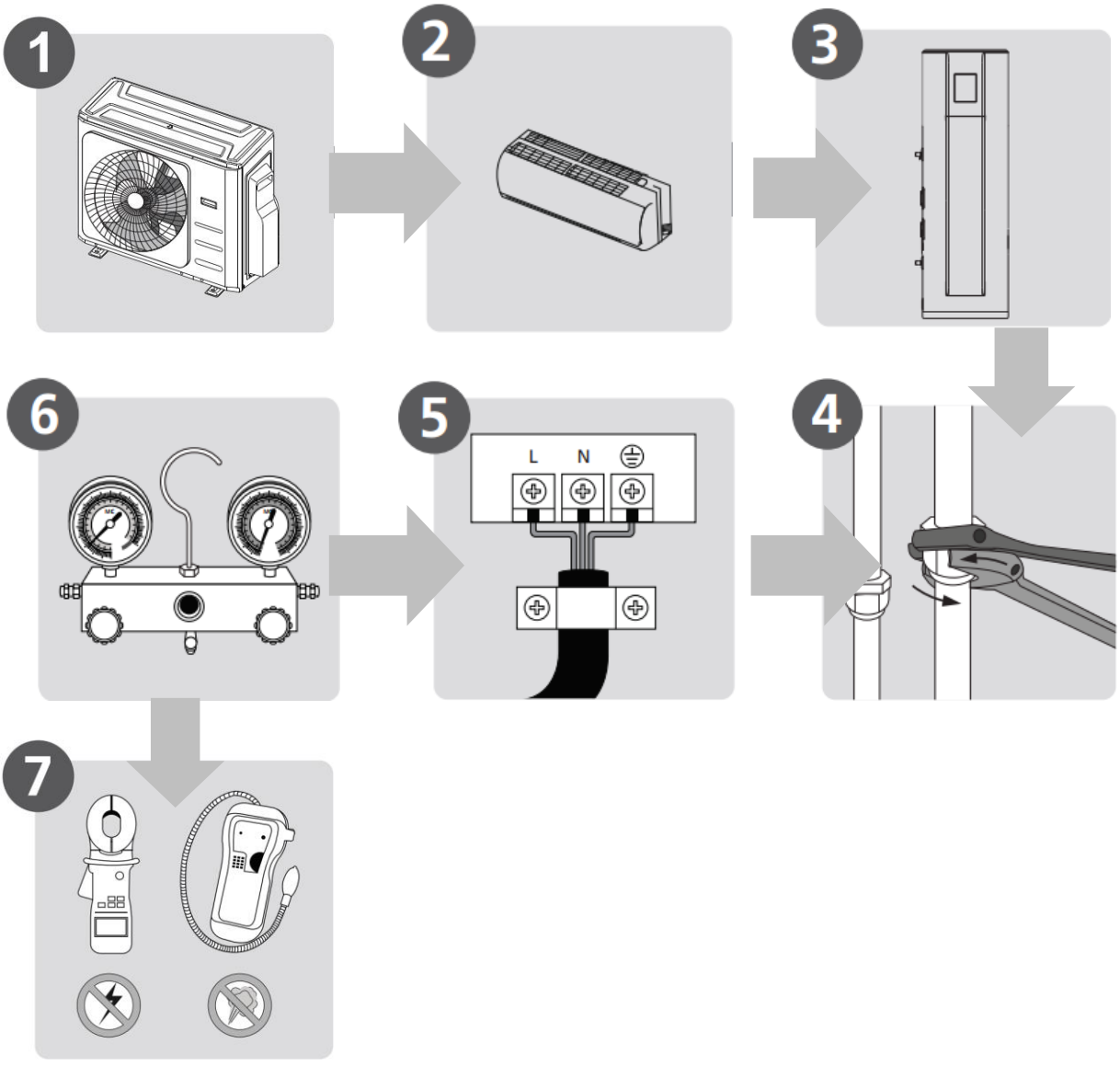
Name	Shape	Quantity
Manual		2~3
Remote controller		1
Mounting plate		1

Battery		2
Anchor		5~8(depending on models)
Mounting plate fixing screw		5~8(depending on models)
Small Filter((needs to be installed behind the main air filter by an authorized technician during installation))		1~2 (depending on models)
Drain joint		1
Seal ring		1
Remote controller holder(optional)		1
Fixing screw for remote controller holder ST2.9 x 10(optional)		2

12 Installation Details

12.1.Installation Overview

Installation Order



12.2 Outdoor unit installation

Install the unit by following local codes and regulations , there may be differ slightly between different regions.

Step 1: Select installation location

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- Meets all spatial requirements shown in Installation Space Requirements above.
- Good air circulation and ventilation
- Firm and solid—the location can support the unit and will not vibrate
- Noise from the unit will not disturb others
- Protected from prolonged periods of direct sunlight or rain
- Where snowfall is anticipated, take appropriate measures to prevent ice buildup and coil damage.

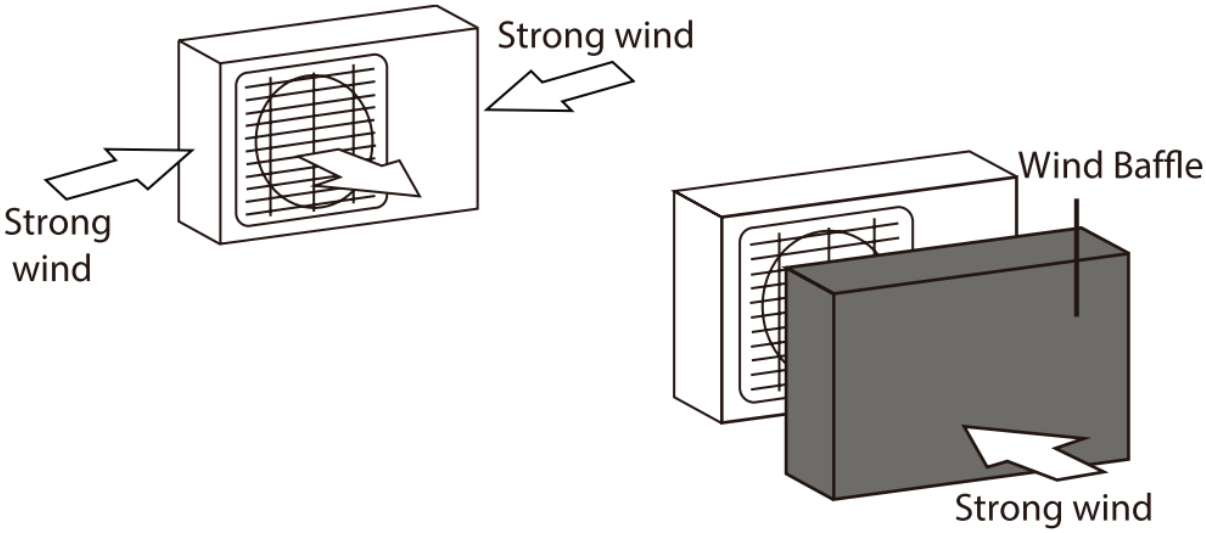
DO NOT install unit in the following locations:

- Near an obstacle that will block air inlets and outlets
- Near a public street, crowded areas, or where noise from the unit will disturb others
- Near animals or plants that will be harmed by hot air discharge
- Near any source of combustible gas
- In a location that is exposed to large amounts of dust
- In a location exposed to a excessive amounts of salty air

Special considerations for extreme weather

If the unit is exposed to heavy wind: Install unit so that air outlet fan is at a 90° angle to the direction of the wind. If needed,build a barrier in front of the unit to protect it from extremely heavy winds.

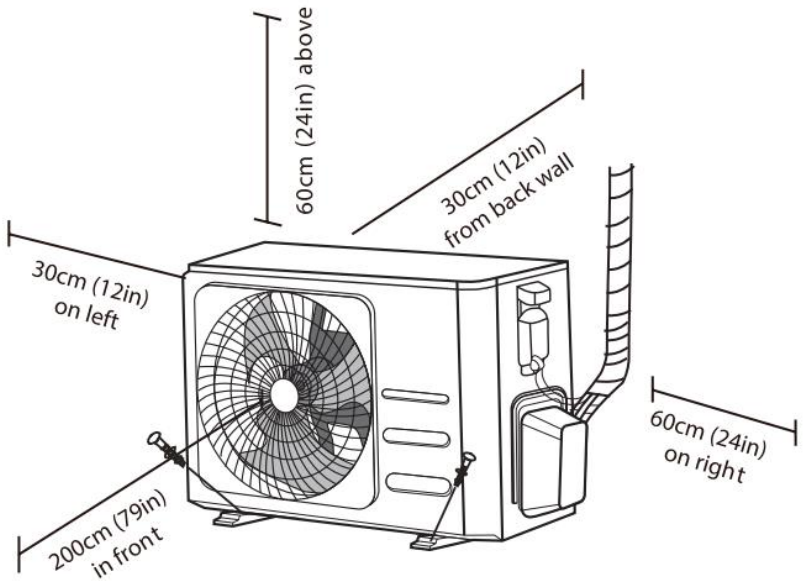
See Figures below.



If the unit is frequently exposed to heavy rain or snow: Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.

If the unit is frequently exposed to salty air (seaside): Use outdoor unit that is specially designed to resist corrosion.

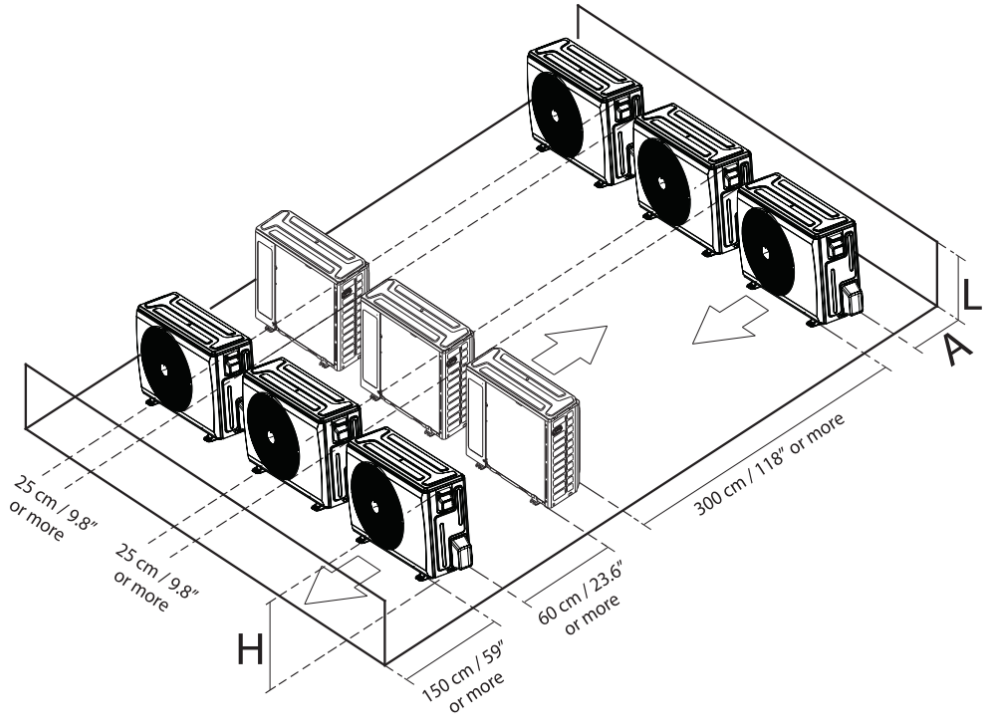
Srevice space:



Rows of series installation

The relations between H,A and L are as follows

	L	A
L≤ H	L≤1/2H	25cm/9.8“ or more
	1/2H < L≤ H	30cm/11.8“ or more
L > H	Can not be installed	

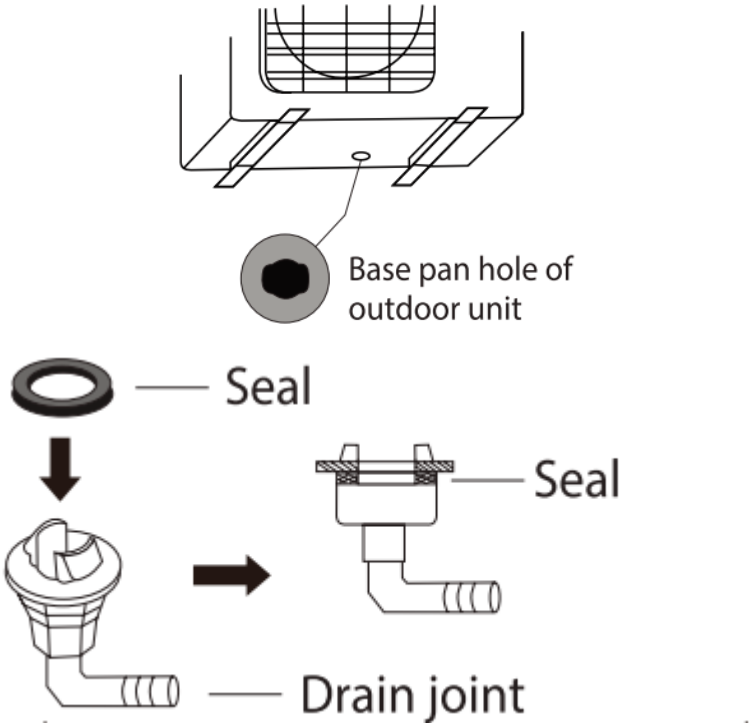


Step 2: Install drain joint

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit.

1) Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2) Insert the drain joint into the hole in the base pan of the unit.
3) Rotate the drain joint 90° until it clicks in place facing the front of the unit.

4) Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

Step 3: Anchor outdoor unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt(M10). Prepare the installation base of the unit according to the dimensions.

12.3 Indoor unit installation

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

√ Good air circulation

√ Convenient drainage

√ Noise from the unit will not disturb other people

√ Firm and solid—the location will not vibrate

√ Strong enough to support the weight of the unit

√ A location at least one meter from all other electrical devices (e.g., TV, radio, computer)

DO NOT install unit in the following locations:

⊘Near any source of heat, steam, or combustible gas

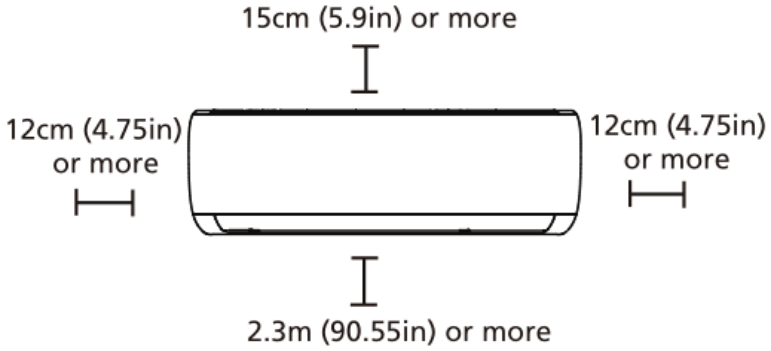
⊘Near flammable items such as curtains or clothing

⊘ Near any obstacle that might block air circulation

⊘ Near the doorway

⊘ In a location subject to direct sunlight

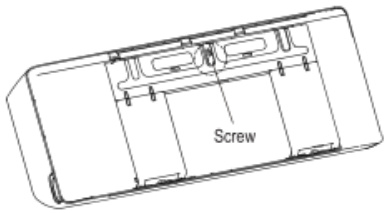
Refer to the following diagram to ensure proper distance from walls and ceiling:



Step 2: Attach mounting plate to wall

The mounting plate is the device on which you will mount the indoor unit.

1. Remove the screw that attaches the mounting plate to the back of the indoor unit.



2. Secure the mounting plate to the wall withthe screws provided. Make sure that mounting plate is flat against the wall.

NOTE FOR CONCRETE OR BRICK WALLS:

If the wall is made of brick, concrete, or similar material, drill 5mm-diameter (0.2in-diameter) holes in the wall and insert the sleeve anchors provided. Then secure the mounting plate to the wall by tightening the screws directly into the clip anchors.

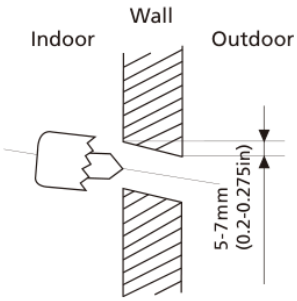
Step 3: Drill wall hole for connective piping

1. Determine the location of the wall hole based on the position of the mounting plate. Refer to Mounting Plate Dimensions.
2. Using a 65mm (2.5in) or 90mm(3.54in) (depending on models)core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 5mm to 7mm (0.2-0.275in). This will ensure proper water drainage.

3. Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

CAUTION:

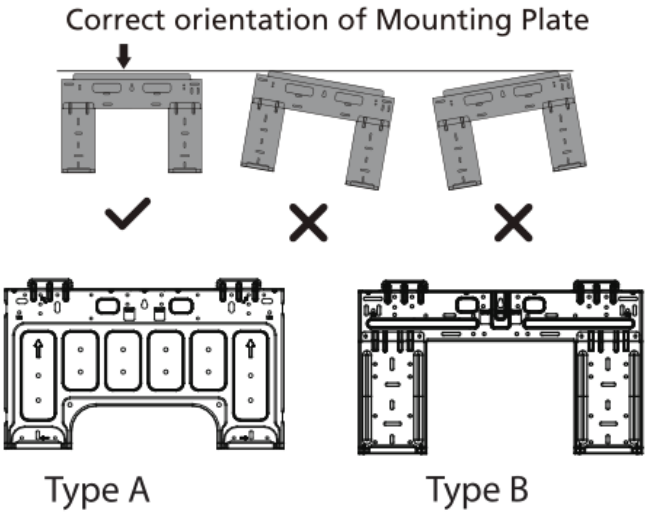
When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.



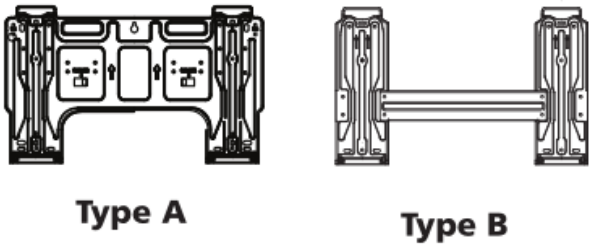
Mounting plate dimensions

Different models have different mounting plates. For the different customization requirements, the shape of the mounting plate may be slightly different. But the installation dimensions are the same for the same size of indoor unit.

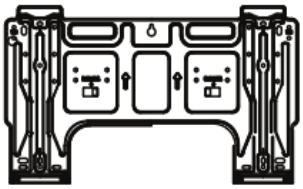
See Type A and Type B for example:



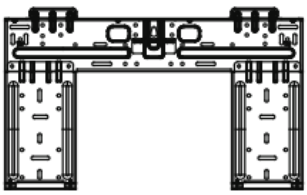
Breezeless E & Extreme series



Forest series



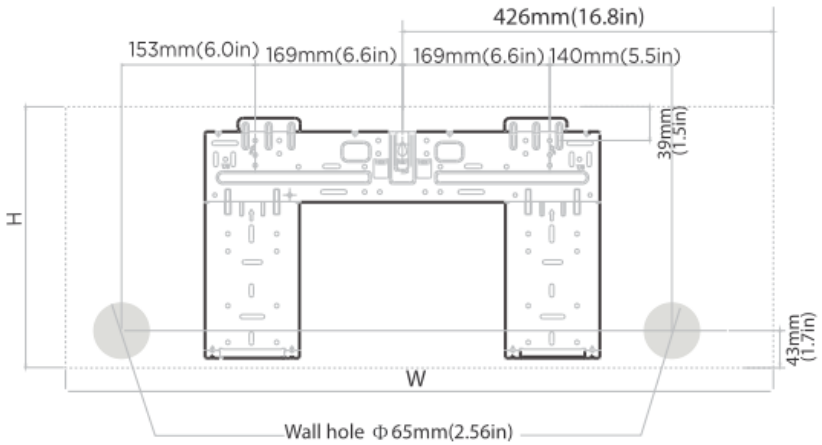
Type A



Type B

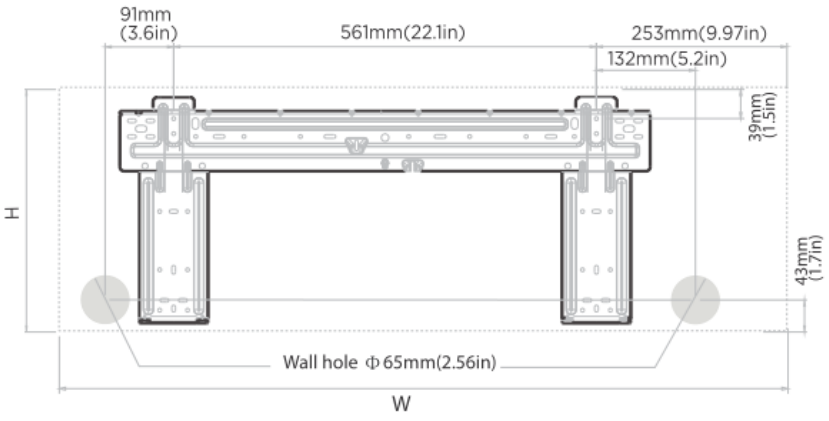
Aurora series

MSCB1BU-09HRFN8-QRD1GW	MSCB1BU-12HRFN8-QRD1GW



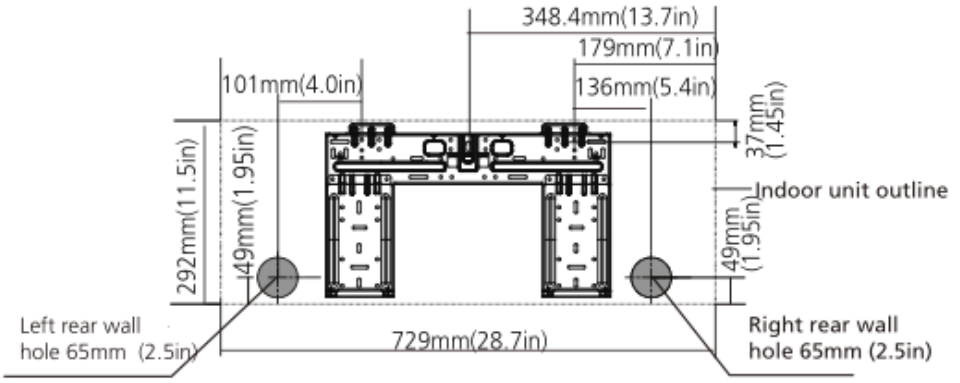
Indoor unit demensions(WxH):
812mm(40.0in)x299mm(11.8in)

MSCB1CU-18HRFN8-QRD1GW

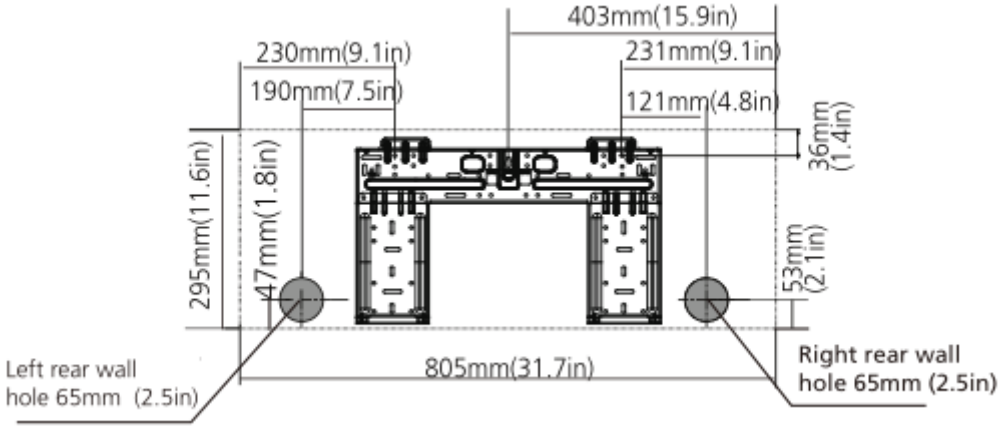


Indoor unit demensions(WxH):
968mm(38.1in)x322mm(12.7in)

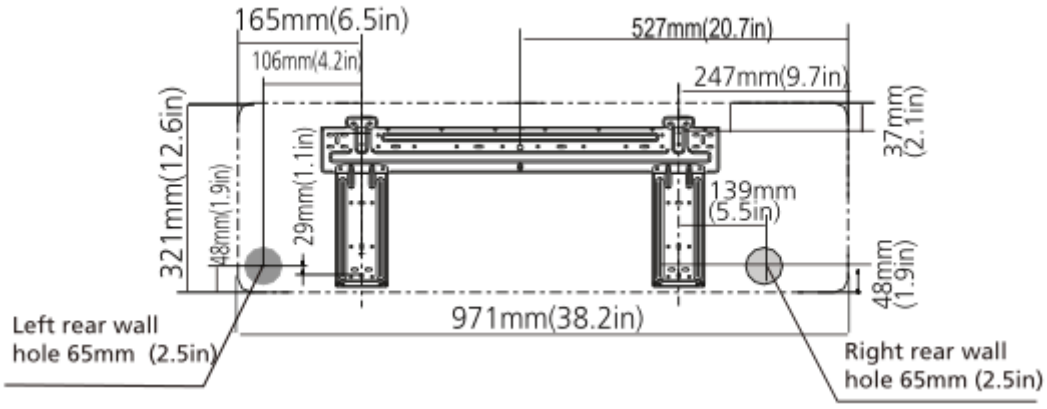
MSAGAU-07HRFNX-QRD0GW	MSAGAU-09HRFNX-QRD0GW



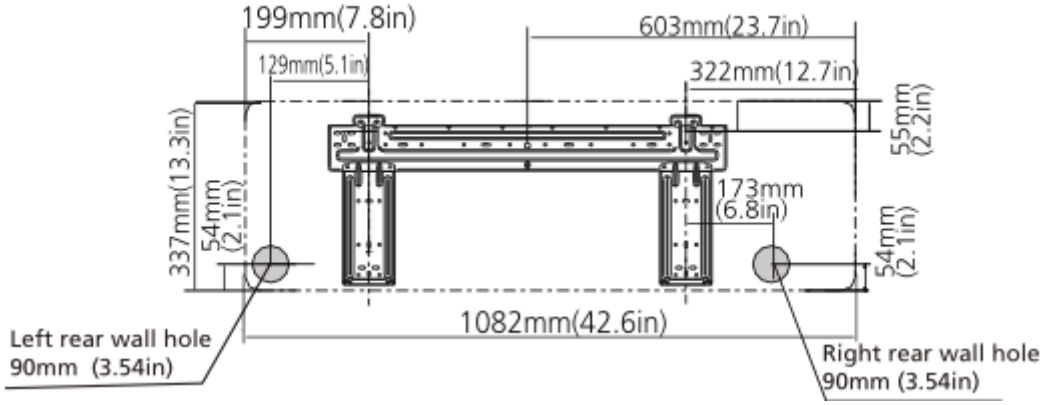
MSAGBU-12HRFNX-QRD0GW



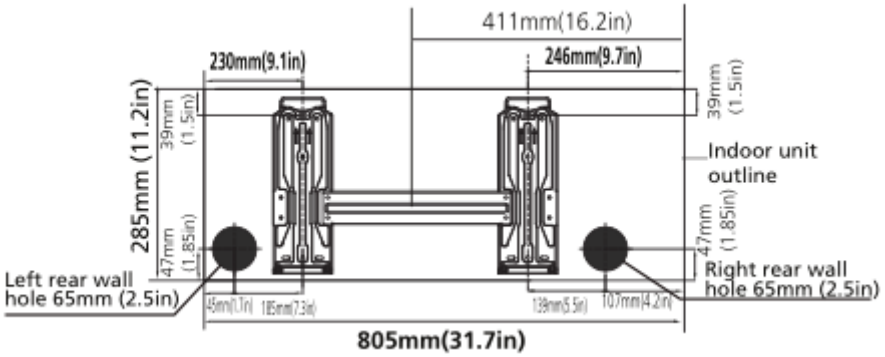
MSAGCU-18HRFNX-QRD0GW



MSAGDU-24HRFN8-QRD0GW



MSAFBU-07HRDNX-QRD0GW	MSAFBU-09HRDN8-QRD0GW	MSAFBU-12HRDNX-QRD0FGW



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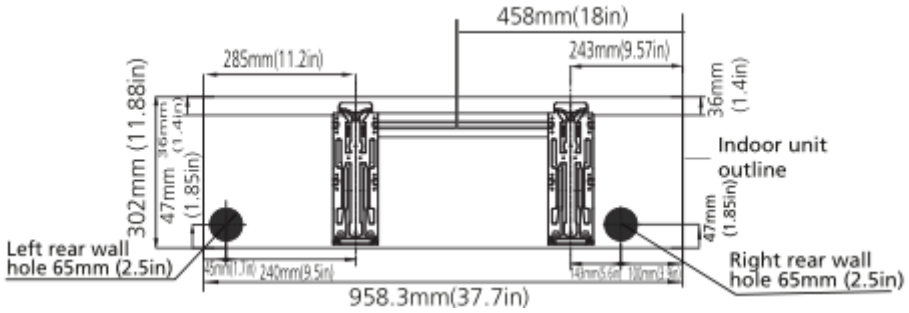

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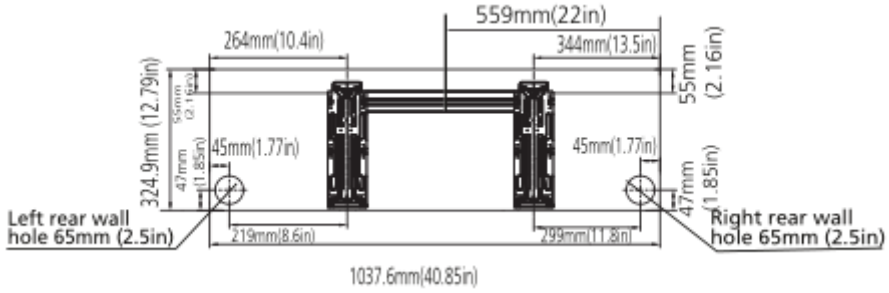

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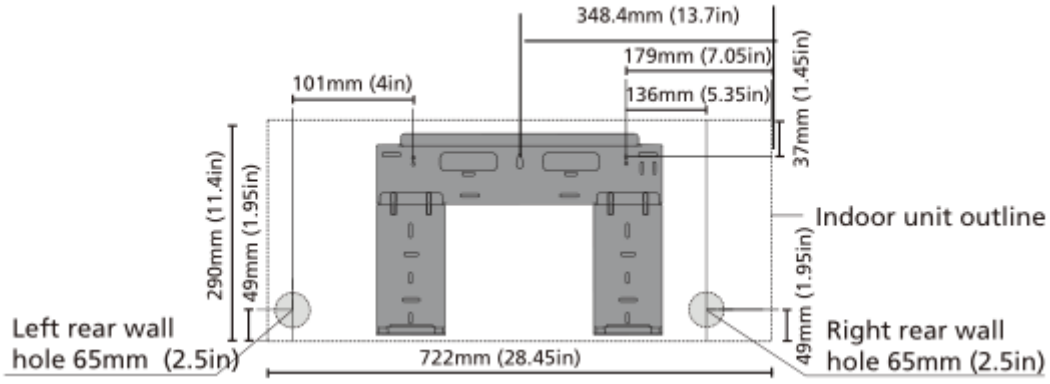

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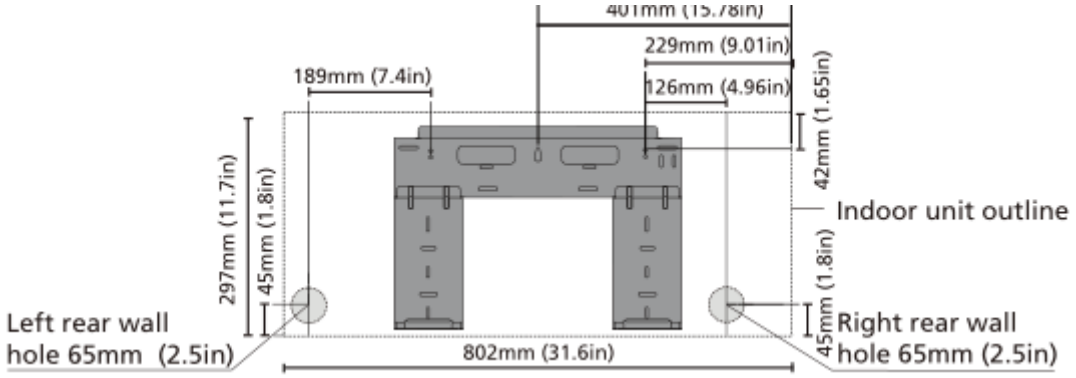

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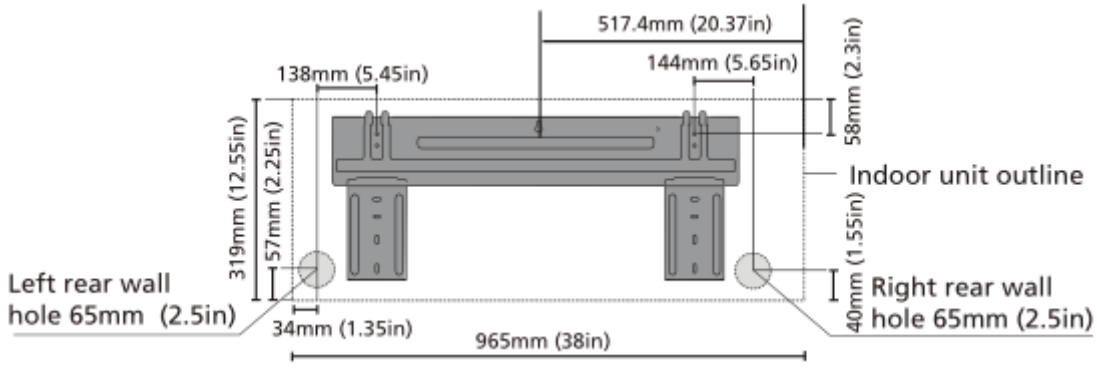

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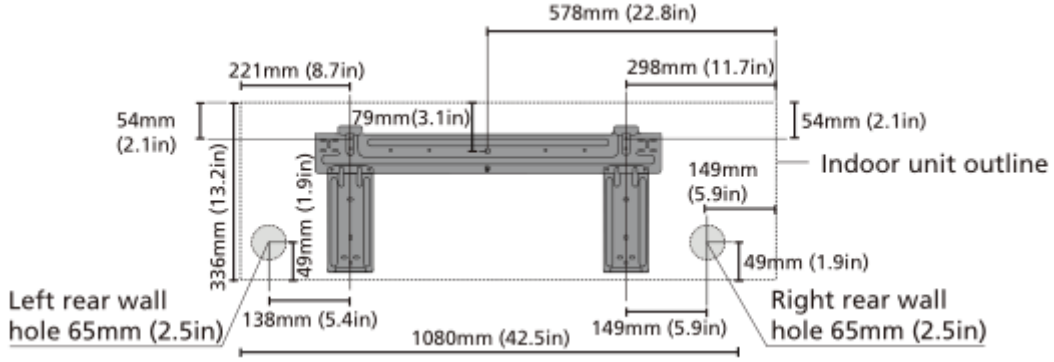


Step 4: Prepare refrigerant piping

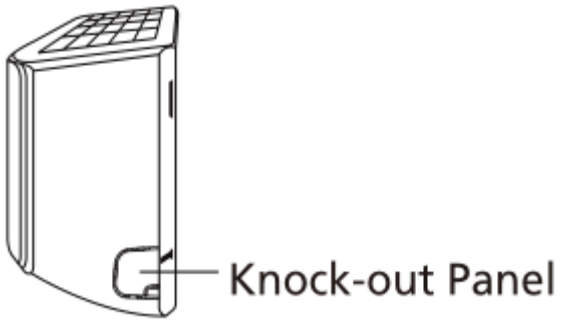
The refrigerant piping is inside an insulating sleeve attached to the back of the unit. You must prepare the piping before

passing it through the hole in the wall.

1. Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit.

2. If the wall hole is behind the unit, keep the knock-out panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit.

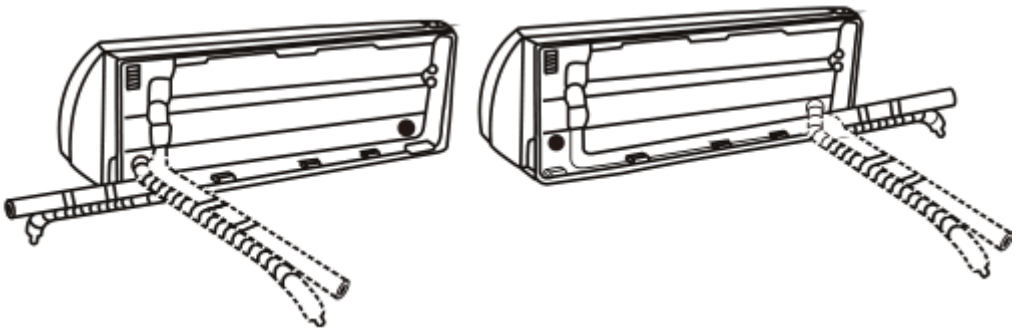
This will create a slot through which your piping can exit the unit. Use needle nose pliers if the plastic panel is too difficult to remove by hand. Groove has been made in the knock-out panel in order to cut it conveniently. The size of the slot is determined by the diameter of piping.



3. If existing connective piping is already embedded in the wall, proceed directly to the Connect Drain Hose step. If there is no embedded piping, connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the Refrigerant Piping Connection section of this manual for detailed instructions.

NOTE ON PIPING ANGLE: Refrigerant piping can exit the indoor unit from four different angles:

Right-hand side, Right rear, Left-hand side, Left rear



CAUTION:

Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit's performance.

Step 5: Connect drain hose

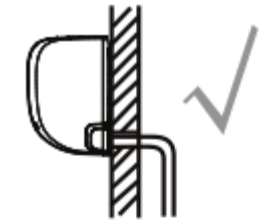
By default, the drain hose is attached to the left hand side of unit (when you're facing the back of the unit). However, it can also be attached to the right-hand side. To ensure proper drainage, attach the drain hose on the same side that your refrigerant piping exits the unit. Attach drain hose extension (purchased separately) to the end of drain hose.

- Wrap the connection point firmly with Teflon tape to ensure a good seal and to prevent leaks.
- For the portion of the drain hose that will remain indoors, wrap it with foam pipe insulation to prevent condensation.

- Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit smoothly.

NOTE ON DRAIN HOSE PLACEMENT:

Make sure to arrange the drain hose according to the following figures.



CORRECT

Make sure there are no kinks or dent in drain hose to ensure proper drainage.

NOT CORRECT

Kinks in the drain hose will create water traps.

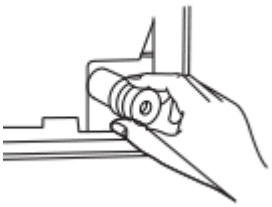
NOT CORRECT

Kinks in the drain hose will create water traps.

NOT CORRECT

Do not place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

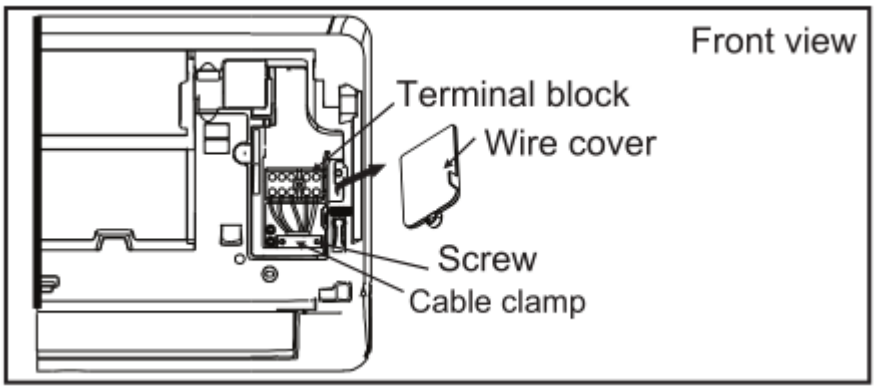
CAUTION: PLUG THE UNUSED DRAIN HOLE



To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.

Step 6: Connect signal and power cable

1. Open front panel of the indoor unit.
2. Using a screwdriver, open the wire box cover on the right side of the unit. This will reveal the terminal block.



3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Facing the back of the unit, remove the plastic panel on the bottom left-hand side.
5. Feed the signal wire through this slot, from the back of the unit to the front.
6. Facing the front of the unit, connect the wire according to the indoor unit's wiring diagram, connect the u-lug and firmly screw each wire to its corresponding terminal.

CAUTION: DO NOT MIX UP LIVE AND NULL WIRES

This is dangerous, and can cause the air conditioning unit to malfunction.

7. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly.
8. Replace the wire cover on the front of the unit, and the plastic panel on the back.

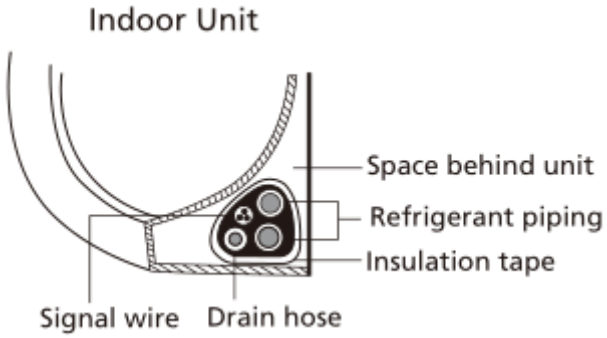
NOTE ABOUT WIRING

THE WIRING CONNECTION PROCESS MAY DIFFER SLIGHTLY BETWEEN UNITS AND REGIONS.

Step 7: Wrap piping and cables

Before passing the piping, drain hose, and the signal cable through the wall hole, you must bundle them together to save space, protect them, and insulate them(Not applicable in North America).

1. Bundle the drain hose, refrigerant pipes, and signal cable as shown below:



DRAIN HOSE MUST BE ON BOTTOM

Make sure that the drain hose is at the bottom of the bundle. Putting the drain hose at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

DO NOT INTERTWINE SIGNAL CABLE WITH OTHER WIRES

While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

2. Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose tightly together. Double-check that all items are bundled.

DO NOT WRAP ENDS OF PIPING

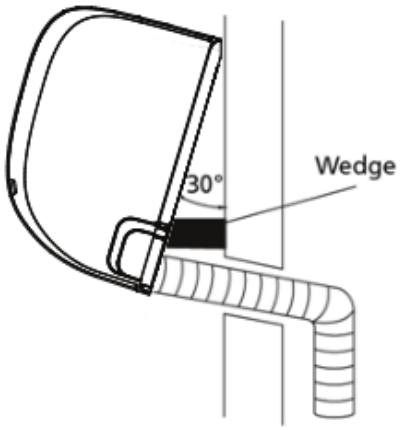
When wrapping the bundle, keep the ends of the piping unwrapped. You need to access them to test for leaks at the end of the installation process.

Step 8: Mount indoor unit

If you installed new connective piping to the outdoor unit, do the following:

1. If you have already passed the refrigerant piping through the hole in the wall, proceed to Step 4.
2. Otherwise, double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.
4. Hook the top of the indoor unit on the upper hook of the mounting plate.
5. Check that unit is hooked firmly on mounting by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
6. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
7. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

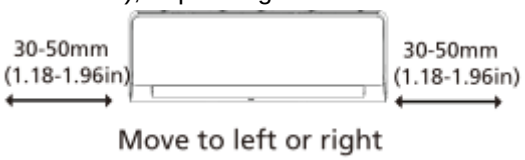
If refrigerant piping is already embedded in the wall, do the following:
1. Hook the top of the indoor unit on the upper hook of the mounting plate.
2. Use a bracket or wedge to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose.



3. Connect drain hose and refrigerant piping (refer to Refrigerant Piping Connection section of this manual for instructions).
4. Keep pipe connection point exposed to perform the leak test (refer to Electrical Checks and Leak Checks section of this manual).
5. After the leak test, wrap the connection point with insulation tape.
6. Remove the bracket or wedge that is propping up the unit.
7. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.

UNIT IS ADJUSTABLE

Keep in mind that the hooks on the mounting plate are smaller than the holes on the back of the unit. If you find that you don’t have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 30-50mm (1.18-1.96in), depending on the model.



12.4 Tank installation

CAUTION:

- If the water tank is installed in the outdoor strong wind, please fix the water heater, otherwise it will cause heavy consequences.
- In order to effectively fix the water tank, please make sure that the water tank is placed on a flat and hard concrete floor.
- Please ensure that the water outlet at the bottom of the water tank has been filled with water before the water tank.
- If the water tank is installed on the balcony, the water full weight should not exceed the load-bearing limit of the balcony.

Handling and Installation of water tank

- The water tank is soft and heavy, need more than two people to carry and install, otherwise it is easy to cause the machine to ingest and destroy into casualties.
- Please carry the water tank according to the factory state, do not disassemble it by yourself.
- In order to avoid surface abrasion and deformation, please put a guard on the surface of the body in contact with hard objects.
- Please ensure the vertical and reliable installation of the tank and the necessary space for installation and maintenance.

Fixing method

WARNING

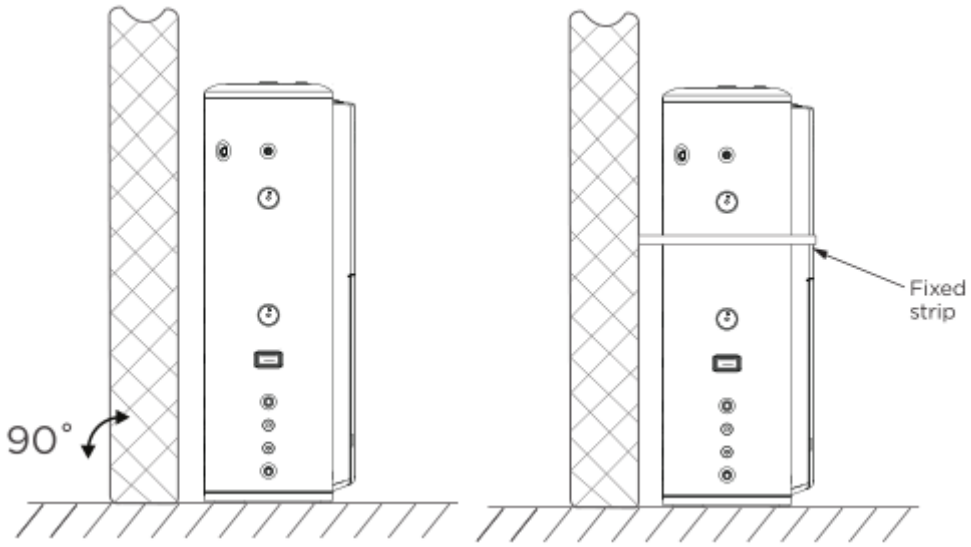
- The appearance of the water tank and the orientation of the water tank orifice are for reference only and can be adjusted according to the actual installation.
- The position of the fixed strip up and down can be adjusted according to the actual situation.
- The length of the expansion bolt is not less than 90mm.

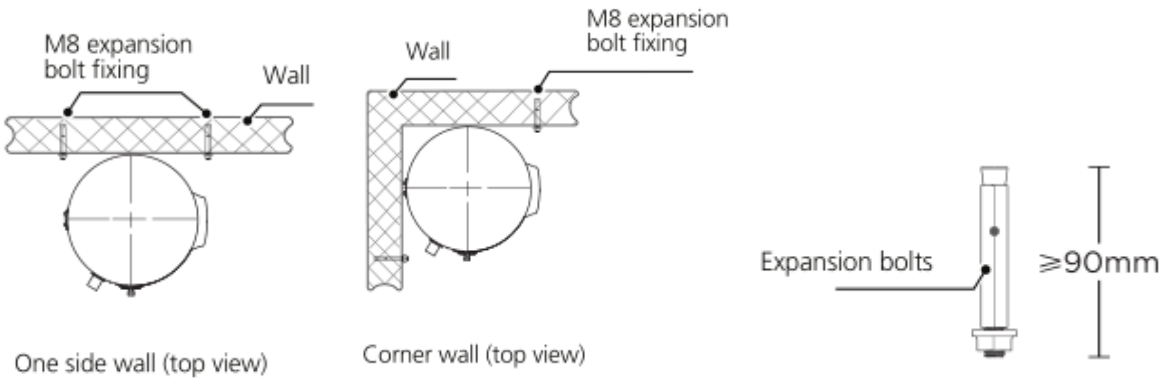
Water heater fixing steps are as follows:

- First place the water tank only against the wall and the ground hard and flat position, so that the tank vertical ground.
- Connect the connection pipes and water pipes of the internal and external units according to the installation instructions.
- Install the expansion bolts in the wall according to the drawing.
- Fix the end with less holes for mounting the fixing strip on the expansion bolt.
- Tighten the fixing strip to the appropriate hole position, and then fix it with a screw on another expansion bolt.
- If the fixed strip has extra please cut off.
- After the installation is completed, check whether the water tank is safely and securely fixed.

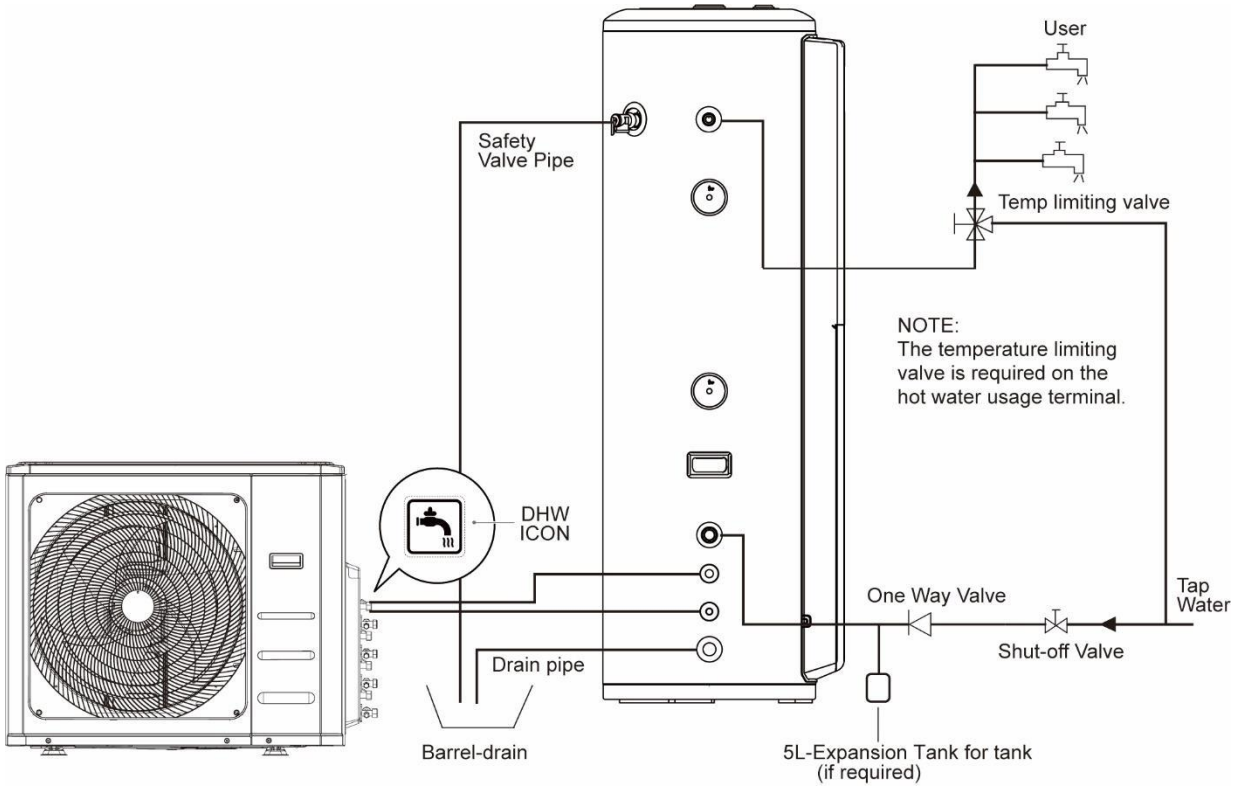
If installed in inclosed space

The water heater must be located in a space >15m³, and must have unrestricted air flow. As an example, a room that has an 2.5 tall ceiling and is 3 meter long by 2 meter wide would contain 15m³ .





Water system piping



Accessories	Function	Installation Requirements

Shut-off Valve	The switch acts to cut off the water path.	Must be installed, selected according to the water pipe diameter.
One Way Valve	One-way check to prevent backflow in the water line	Must be installed, accessories factory matched.
Expansion tank	Maintains constant water supply pressure.	Recommended installation, optional according to the specification of 5L
Temp limiting valve	Outgoing water temperature is too high for mixing.	Must be installed, selected according to the water pipe diameter.

CAUTION:

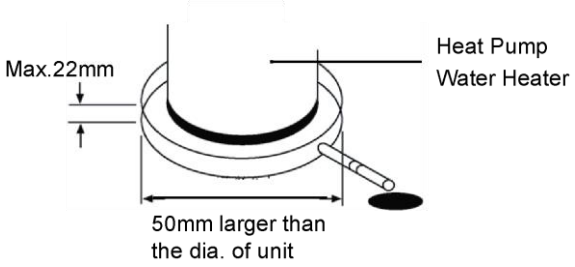
- Piping water system as the above figure. In case of installing it at a place where outside temperature below freezing point, insulation must be provided for all hydraulic components. The handle of PTR valve should be pulled out once per half a year to make sure that there is no jam of the valve.
- Please beware of burn, beware of the hot water from the valve.

The drainage pipe should be well insulated in order to prevent water inside pipe from freezing in cold weather.

- There is a risk of freezing if the tank is located in an ambient temperature below 0°C. To avoid freezing the water tank, empty the tank without powering it up. (the unit stays energized to protect the tank to a certain

Water inlet or outlet pipes: The spec of the water inlet or outlet thread is RC3/4" (external thread). Pipes must be heat-insulated well.

- ✧ Installation of the pipe for PTR valve: The spec of the valve connecting thread is RC3/4" (internal thread). After installation, it must be confirmed that the drainpipe outlet is exposed in the air.
- ✧ Installation of the One Way Valve: The spec of the One Way
- ✧ Valve thread in accessories is RC3/4". It is used to prevent water from flowing backwards.
- ✧ After water system piping work, turn on the cold water inlet valve and hot water outlet valve and start effusing the tank. When water flow smoothly out from water outlet pipe(tap water outlet), the tank is full, turn off all valves and check pipeline to make sure there is not any leakage.
- ✧ If the inlet water pressure is less than 0.15MPa, a pump should be installed at the water inlet. For guarantee the safety usage of tank at the condition of water supply pressure higher than 0.65MPa, a reducing valve should be installed at the water inlet pipe.
- ✧ Condensate may be leaked from unit if drainage pipe is blocked or unit operates in high humidity environment, a drainage pan is recommended as shown as following figure:



12.5 Refrigerant Piping Connection

When connecting refrigerant piping, do not let substances or gases other than the specified refrigerant enter the unit. The presence of other gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This can cause explosion and injury.

CAUTION

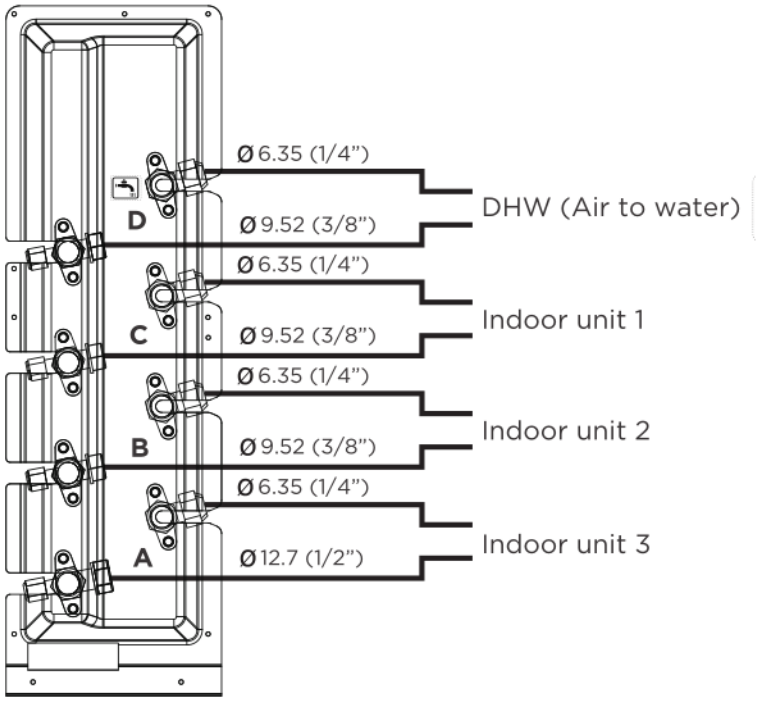
- DO NOT install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent water leakage.

Notes on drilling hole in wall: You must drill a hole in the wall for the refrigerant piping ,and signal cable that will connect the dooe and outdoor units.

1) Determine the location of the location of the wall hole based on the location of he outdoor unit.
2) Using a 65mm(2.5") core drill,drill a hole in the wall.
3) Place the protective wall cuff in the hole.This protects the edages of the hole and helps seal it when you finish the installation process.

Connect pipe size

The 24k indoor unit can only be connected with an A system. Tank can only be connected with a D system.



Indoor unit capacity(Btu/h)	Liquid (mm(inch))	Gas (mm(inch))
7k/9k/12k	6.35(1/4)	9.52(3/8)
12k/18k	6.35(1/4)	12.7(1/2)
24k	9.52(3/8)	15.9(5/8)

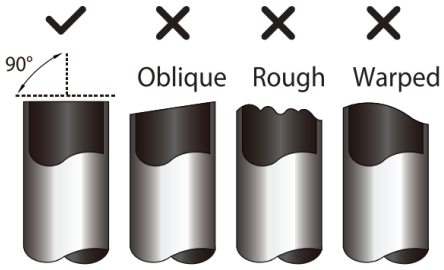
Step 1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1）Measure the distance between the indoor and outdoor units.

2）Using a pipe cutter, cut the pipe a little longer than the measured distance.

3）Make sure that the pipe is cut at a perfect 90° angle.



DO NOT DEFORM PIPE WHILE CUTTING

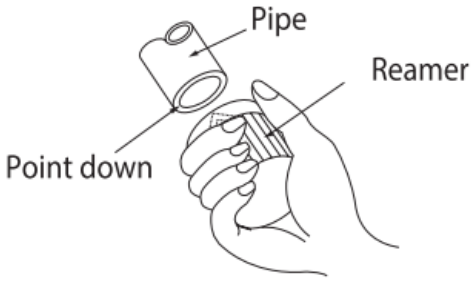
Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

Step 2: Remove burrs

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

1） Hold the pipe at a downward angle to prevent burrs from falling into the pipe.

2） Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.



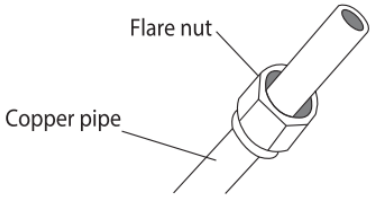
Step 3: Flare pipe ends

Proper flaring is essential to achieve an airtight seal.

1） After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.

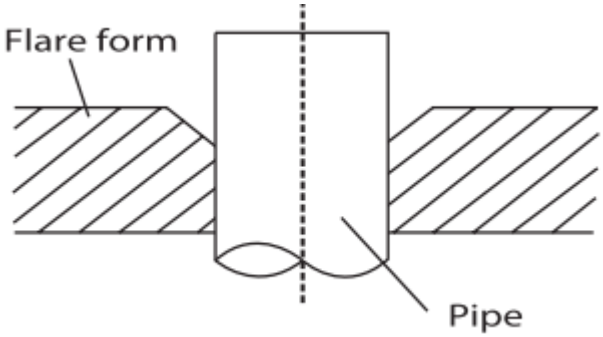
2） Sheath the pipe with insulating material.

3） Place flare nuts on both ends of pipe. Make sure they are facing in the right direction, because you can’t put them on or change their direction after flaring.



4） Remove PVC tape from ends of pipe when ready to perform flaring work.

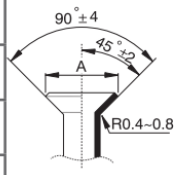
5） Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.



6） Place flaring tool onto the form.

7） Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe in accordance with the dimensions .

PIPING EXTENSION BEYOND FLARE FORM

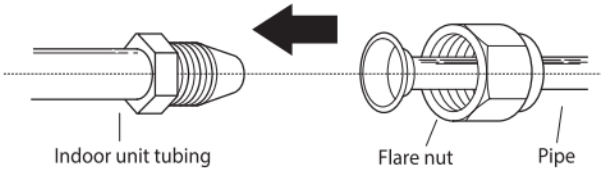
Pipe gauge	Tightening torque	Flare dimension (A) (Unit: mm/Inch)		Flare shape
		Min.	Max.	
Ø 6.35 (Ø 1/4")	18-20 N.m (180-200kgf.cm)	8.4/0.33	8.7/0.34	
Ø 9.52 (Ø3/8")	32-39 N.m (320-390kgf.cm)	13.2/0.52	13.5/0.53	
Ø 12.7 (Ø 1/2")	49-59 N.m (490-590kgf.cm)	16.2/0.64	16.5/0.65	
Ø 16 (Ø 5/8")	57-71 N.m (570-710kgf.cm)	19.2/0.76	19.7/0.78	
Ø 19 (Ø 3/4")	67-101 N.m (670-1010kgf.cm)	23.2/0.91	23.7/0.93	
Ø 22 (Ø 7/8")	85-110 N.m (850-1100kgf.cm)	26.4/1.04	26.9/1.06	

8） Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

Step 4: Connect pipes

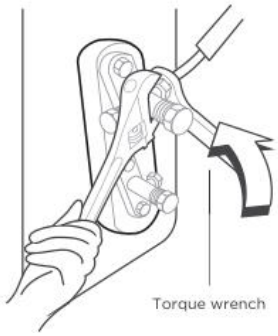
Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

1) When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.
2) Align the center of the two pipes that you will connect.



3) Tighten the flare nut as tightly as possible by hand.
4) Using a spanner, grip the nut on the unit tubing.
5) While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in above table.

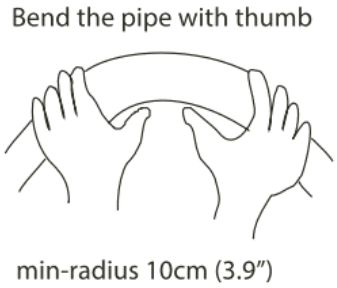
NOTE: Use both a spanner and a torque wrench when connecting or disconnecting pipes to/from the unit.



CAUTION

Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
Make sure the pipe is properly connected.
Over tightening may damage the bell mouth and under tightening may lead to leakage.

NOTE ON MINIMUM BEND RADIUS: Carefully bend the tubing in the middle according to the diagram below. DO NOT bend the tubing more than 90° or more than 3 times.



6) After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable and the piping together with binding tape.

NOTE: DO NOT intertwine signal cable with other wires. While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

7) Thread this pipeline through the wall and connect it to the outdoor unit.
8) Insulate all the piping, including the valves of the outdoor unit.

12.6 Wiring

Before performing any electrical work, read these regulations:

1) All wiring must comply with local and national electrical codes, regulations and must be installed by a licensed electrician.
2) All electrical connections mustbe made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3) If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue is properly resolved.
4) Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5) If connecting power to fixed wiring, a surgeprotector and main power switch should be installed.
6) If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
7) Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.
8) Make sure to properly ground the air conditioner.
9) Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10) Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
11) If the unit has an auxiliary electric heater, it must be installed at least 1 meter (40in) away from any combustible materials.
12) To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch the electrical components.
13) Make sure that you do not cross your electrical wiring with your signal wiring. This may cause distortion and interference.
14) The unit must be connected to the main outlet. Normally, the power supply must have a impedance of 32 ohms.
15) No other equipment should be connected to the same power circuit.
16) Connect the outdoor wires before connecting the indoor wires.

WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM

NOTE ON AIR SWITCH

When the maximum current of the air conditioner is more than 16A, an air switch or leakage protection switch with protective device shall be used (purchased seperately) .

When the maximum current of the air conditioner is less than 16A, the power cord of air conditioner shall be equipped with plug (purchased seperately).

Outdoor Unit Wiring

1. Prepare the cable for connection
   a. You must first choose the right cable size. Be sure to use H07RN-F cables.

Minimum Cross-Sectional Area of Power and Signal Cables (For reference)

Rated current of appliance	Nominal cross-sectional area(mm^2)
> 3 and ≤6	0.75
> 6 and ≤10	1
> 10 and ≤16	1.5
> 16 and ≤25	2.5
> 25 and ≤32	4
> 32 and ≤40	6

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch.

   b. Using wire strippers, strip the rubber jacketfrom both ends of the signal cable to reveal approximately 15cm (5.9”) of wire.
   c. Strip the insulation from the ends.
   d. Using a wire crimper, crimp u-lugs on the ends.
   NOTE: When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.
2. Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, take off the bolts from the maintenance board and remove the protection board.
3. Connect the u-lugs to the terminals Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

Wiring Figure

Connect the connective cables to the terminals, as identified, with their matching numbers on the terminal block of the indoor and outdoor units. For example, Terminal L1(A) of the outdoor unit must connect with terminal L1/1 on the indoor unit. The outdoor unit can match different types of indoor unit, the numbers on the terminal block of the indoor unit may be slightly different. Please pay special attention while connecting the wire.

CAUTION

After confirmation of the above conditions, follow these guidelines when performing wiring:

- Always have an individual power circuit specifically for the air conditioner. Always follow the circuit

diagram posted on the inside of the control cover.

- Screws fastening the wiring in the casing of electrical fittings may come loose during transporation. Because loose screws may cause wire burn-ou, check that the screws are tightly fastened.
- Check the specifications for the power source.
- Confirm that electrical capacity is sufficient.
- Confirm that starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- Confirm that the cable thickness is as specified in the power source specifications.
- Always install an earth leakage circuit breaker in wet or moist areas.
- The following can be caused by a drop in voltage: vibration of a magnetic switch, damaging the contact point, broken fuses, and disturbance of normal functioning.
- Disconnection from a power supply must be incorporated into the fixed wiring. It must have an air gap contact separation of at least 3mm in each active (phase) conductors.
- Before accessing terminals, all supply circuits must be disconnected.

NOTE:

- To satisfy the EMC compulsory regulations, which is required by the international standard CISPR 14-1:2005/A2:2011 in specific countries or districts ,please make sure you apply the correct magnetic rings on your equipment according to the wiring diagram that adhere to the your equipment .
- Please contact your distributor or installer to get further information and purchase magnetic rings (The supplier of magnetic ring is TDK (model ZCAT3035-1330) or similar) .

12.7 Air Evacuation

1) Preparations and Precautions

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system. Evacuation should be performed upon initiai installation and when unit is relocated.

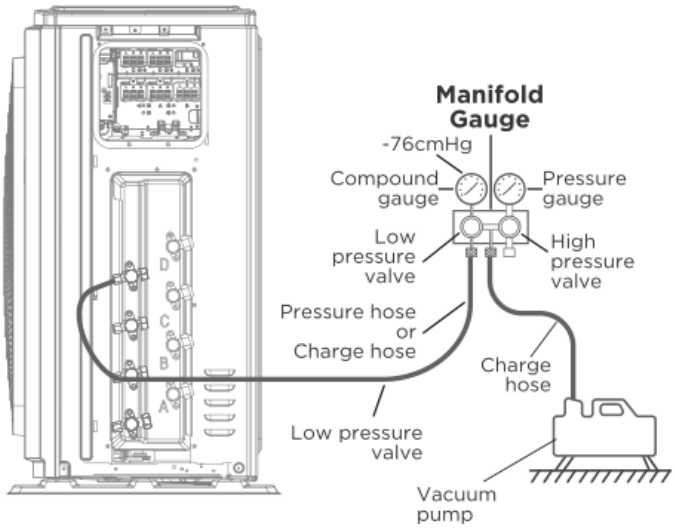
BEFORE PERFORMING EVACUATION

• Check to make sure the connective pipes between the indoor and outdoor units are connected properly.

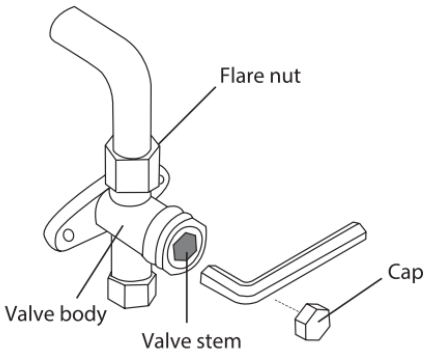
• Check to make sure all wiring is connected

2) Evacuation Instructions

Before using a manifold gauge and a vacuum pump, read their operation manuals to make sure you know how to use them properly.



• Connect the manifold gauge's charge hose to the service port on the outdoor unit's low pressure valve.
• Connect the manifold gauge's charge hose from the to the vacuum pump.
• Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
• Turn on the vacuum pump to evacuate the system.
• Run the vacuum for at least 15 minutes, or until the Compound Meter reads -76cmHG (-1x105Pa).
• Close the manifold gauge's Low Pressure valve and turn off the vacuum pump.
• Wait for 5 minutes, then check that there has been no change in system pressure.
NOTE: If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve). If there is a change in system pressure, there may be a gas leak.
• Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench 1/4 counterclockwise. Listen for gas to exit the system, then close the valve after 5 seconds.



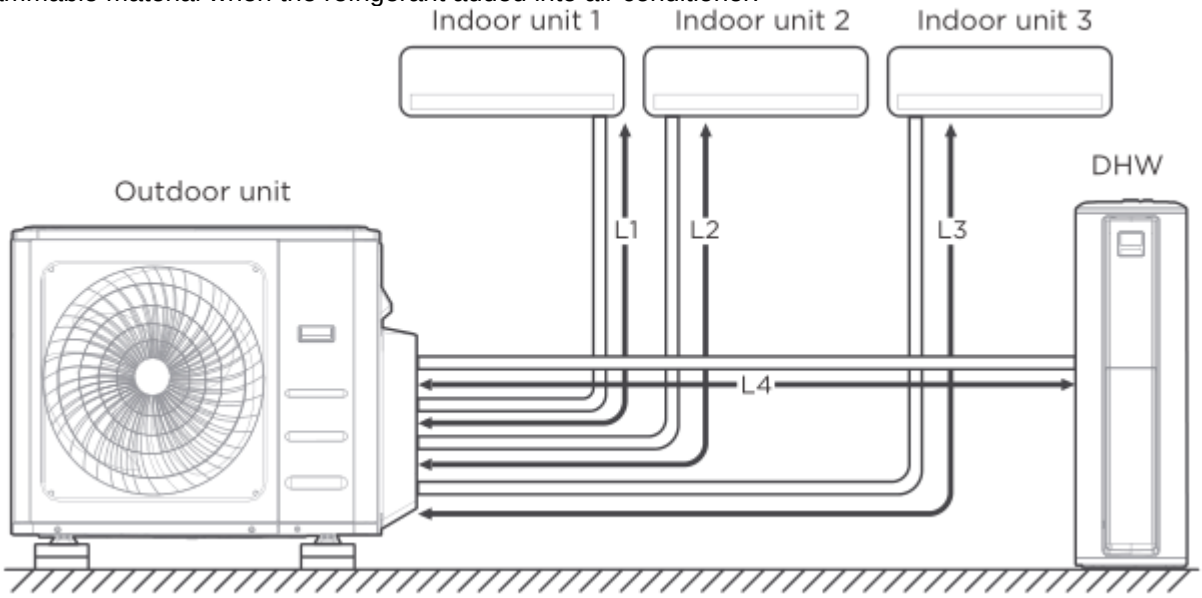
• Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. It should read slightly higher than the atmospheric pressure.
• Remove the charge hose from the service port.
• Using hexagonal wrench, fully open both the high pressure and low pressure valves.

OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench until it hits against the stopper. DO NOT try to force the valve to open further.

• Tighten valve caps by hand, then tighten it using the proper tool.
• If the outdoor unit uses all vacuum valves, and the vacuum position is at the main valve, the system is not connected with the indoor unit. The valve must be tightened with a screw nut. Check for gas leaks before operation to prevent leakage.
3) Note on add refrigerant
CAUTION
• Refrigerant charging must be performed after wiring,vacuuming,and the leak testing.
• DO NOT exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage the unit or impact it's functioning.

• Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
• Refrigerant containers must be opened slowly.Always use protective gear when charging the system.
• DO NOT mix refrigerants types.
• Make sure the condtions within the area have been made safe by control of flammable material when the refrigerant added into air conditioner.
• For the R32 refrigerant model, make sure the conditions within the area have been made safe by control of flammable material when the refrigerant added into air conditioner.



NOTE: The standard length of a single pipe length is 7.5m and the standard length of the total pipe length is 30m.

Refrigerant charge		
Standard pipe length(L1+L2+L3+L4)	m	30
Additional refrigerant charge	kg	0.02x((L1+L2+L3+L4)-30)

4) Safety And Leakage Check

(1)Electrical safety check

Perform the electrical safety check after completing installation. Cover the following Apply a soap-water solution or a liquid areas:

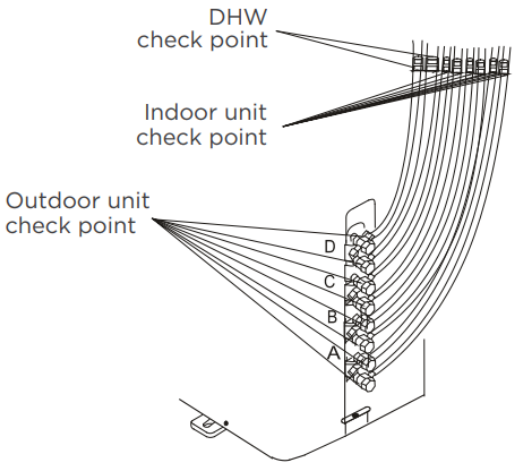
• Insulated resistance: The insulated resistance must be more than 2MΩ.
• Grounding work: After finishing grounding work, measure the grounding resistance by visual detection and using the grounding resistance tester.
• Electrical leakage check (performing during test while unit is on) : During a test operation after completed installation, the use the electroprobe and multimeter to perform an electrical leakage check. Turn off the unit immediately if leakage happens. Try and evaluate different solutions until the unit operates properly.

(2)Gas leak check

Soap water method: Apply a soap-water solution or a liquid neutral detergent on the indoor unit connection or outdoor unit connections with a soft brush to check for leakage of the connecting points of the piping. If bubbles emerge, the pipes are experiencing leakage.

Leak detector: Use the leak detector to check for leakage.

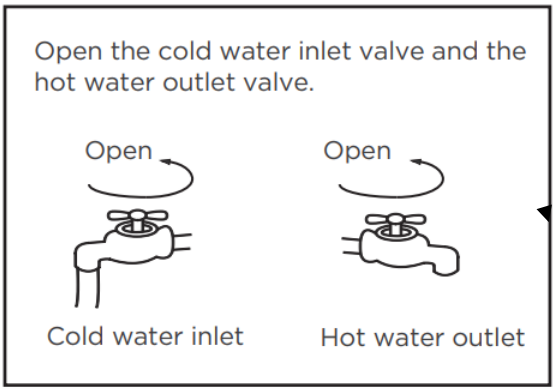
NOTE: The illustration is for example purposes only. The actual order ofA, B, C, D on the machine may be slightly different from the unit you purchased but the general shape will remain the same.

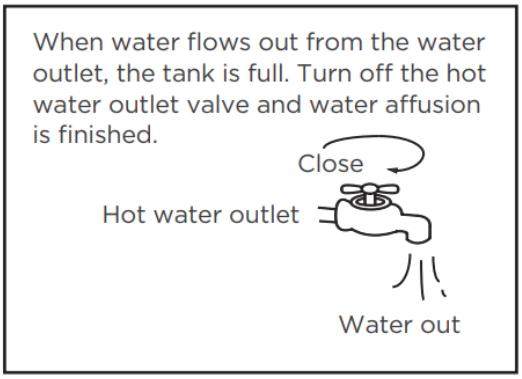


12.8 Test Run

CAUTION:Failure to perform the test run may result in unit damage, property damage, or personal injury.
Before Test Run
A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

a) The indoor, tank and outdoor units are properly installed.
b) Refrigerant/water piping and wiring are properly connected.
c) No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
d) The refrigeration system does not leak.
e) Drainage system is unimpeded and draining to a safe location.
f) The heating insulation is properly installed.
g) The grounding wires are properly connected.
h) Length of the piping and additional refrigerant stow capacity have been recorded.
i) The power voltage is the correct voltage for the air conditioner.
j) Please make sure that the tank is full of water before turning on the power as shown as below.





water affusion

Test Run Instructions

1. Open both the liquid and gas stop valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to COOL mode, and set the tank to Hybrid mode.
4. For the Indoor Unit
   a. Ensure the remote control and its buttons work properly.
   b. Ensure the louvers move properly and can be changed using the remote control.
   c. Double check to see if the room temperature is being registered correctly.
   d. Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
   e. Ensure the manual buttons on the indoor unit works properly.
   f. Check to see that the drainage system is unimpeded and draining smoothly.
   g. Ensure there is no vibration or abnormal noise during operation
5. For the DHW
   a. Condensate draining smoothly well.insulation work for all hydraulic part.
   b. Correct power supply.
   c. No air in the water pipeline and all valves opened.
   d. Effective electric leakage protector installation.
   e. Suffcient inlet water pressure (between 0.15 Mpa and 0.65 Mpa).
6. For the Outdoor Unit
   a. Check to see if the refrigeration system is leaking.
   b. Make sure there is no vibration or abnormal noise during operation.
   c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.
   NOTE: If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service

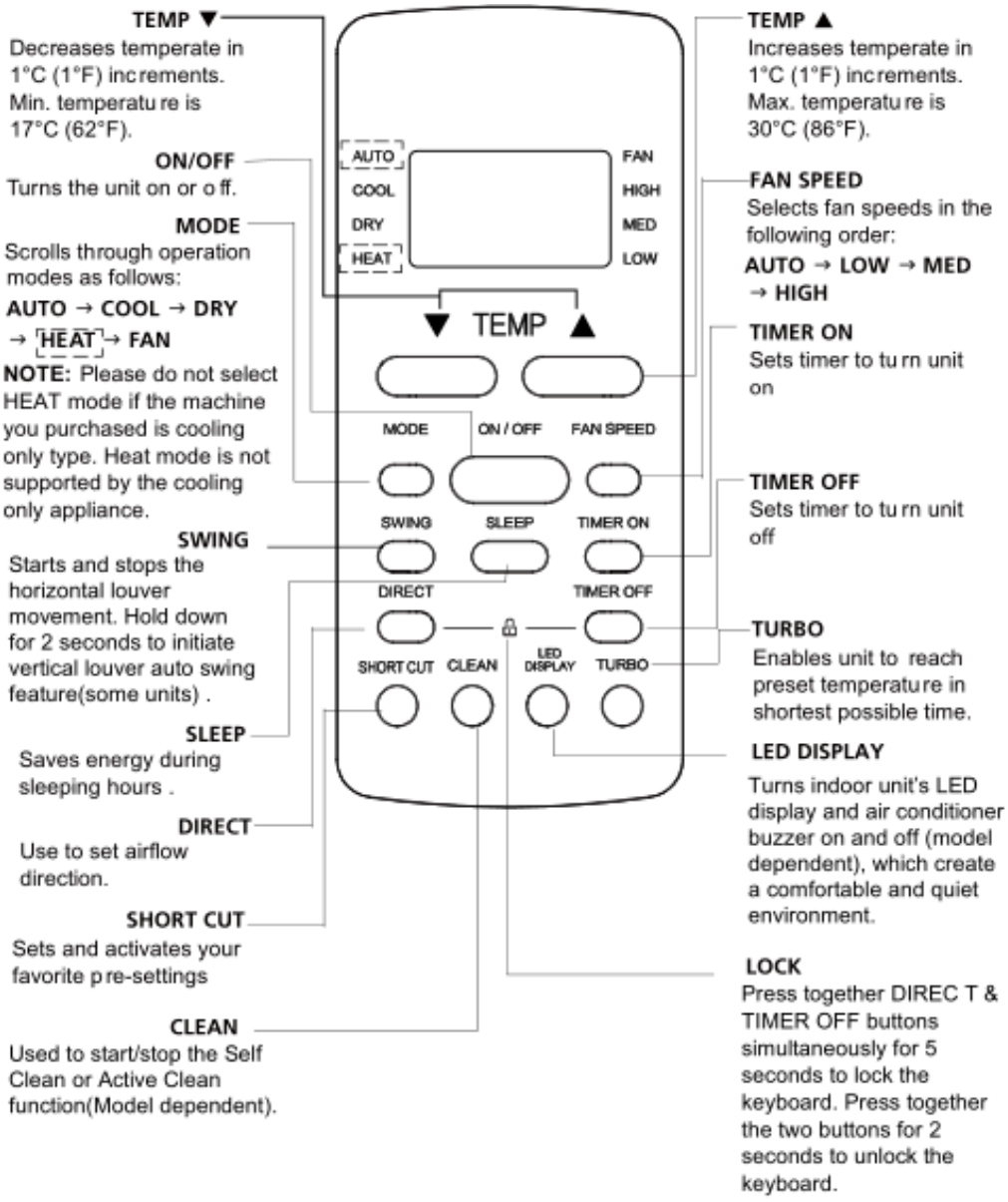
13 Control and function

13.1 RG51B/E (Standard for Forest series)

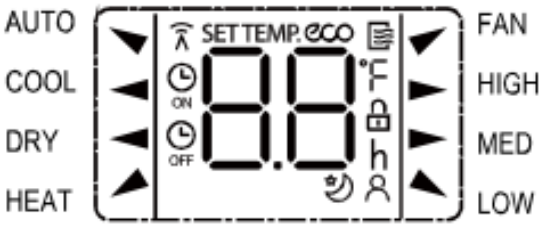
Remote Controller Specifications

Model	RG51B/E
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Reaching Distance	8m((when using 3.0 voltage, it Gets 11m))
Environment Temperature Range	-5°C~60°C(23°F~140°F)

Buttons and Functions



Remote LCD Screen Indicators



AUTO ▼ COOL ◄ DRY ◄
HEAT ▲ ▼ FAN

Displayed when data transmitted.

Displayed when remote controller is ON.

Displayed when TIMER ON time is set

Displayed when TIMER OFF time is set

Shows set temperature or room temperature, or time under TIMER setting

Displayed when ECO feature is activated (some unit)

Indicated all the current settings are locked

Displayed when Follow Me feature is activated(some units)

Displayed when SLEEP feature is activated

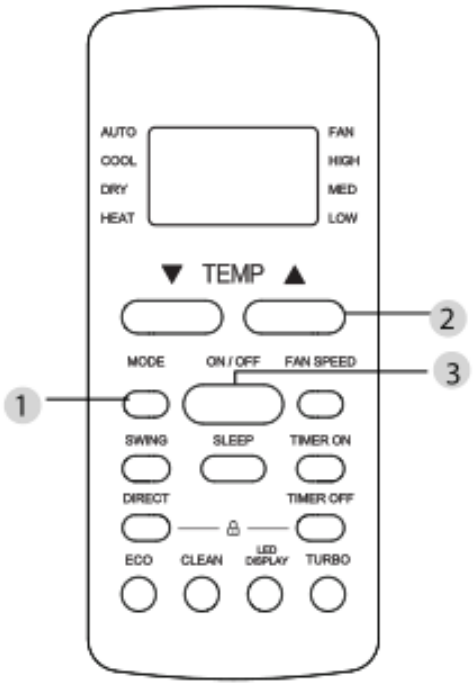
Fan speed indication

► HIGH	High speed
► MED	Medium speed
▲ LOW	Low speed
NO display	Auto fan speed

Note:
All indicators shown in the figure are for the purpose of clear presentation. But during the actaul operation, only the relative function signs are shown on the display window.

How To Use The Basic Functions

ATTENTION! Before operation, please ensure the unit is plugged in and power is available.



COOL Mode

1. Press the MODE button to select **COOL** mode.
2. Set your desired temperature using the **TEMP ▲ or TEMP ▼** button.
3. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
4. Press the **ON/OFF** button to start the unit.

SETTING TEMPERATURE

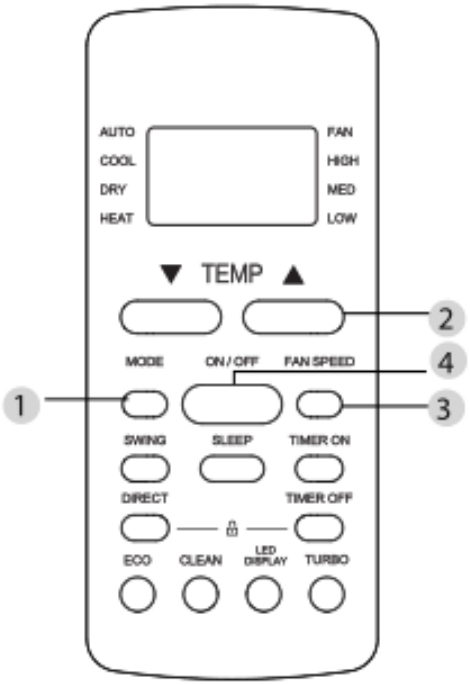
The operating temperature range for units is 17-30°C (62-86°F)/20-28°C.
You can increase or decrease the set temperature in 1°C (1°F) increments.

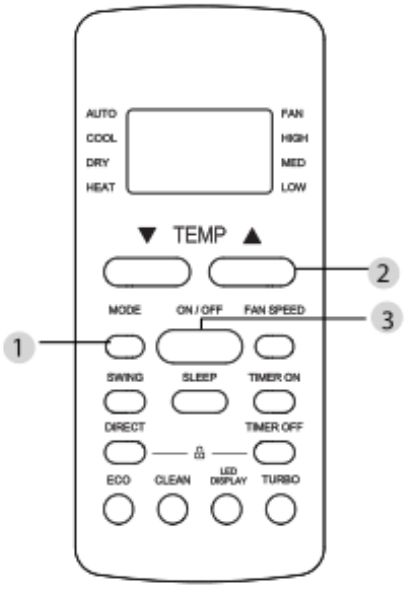
AUTO Mode

In AUTO mode, the unit will automatically select the COOL, FAN, or HEAT operation based on the set temperature.

1. Press the **MODE** button to select **AUTO**.
2. Set your desired temperature using the **TEMP ▲** or TEMP **▼** button.
3. Press the **ON/OFF** button to start the unit.

NOTE: FAN SPEED can't be set in AUTO mode.

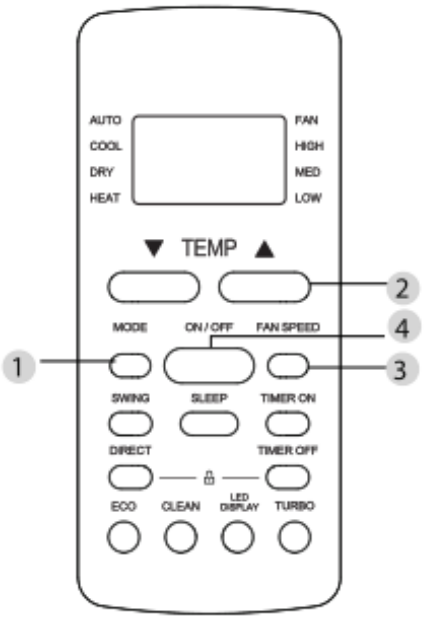




FAN Mode

1. Press the **MODE** button to select **FAN** mode.
2. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
3. Press the **ON/OFF** button to start the unit.

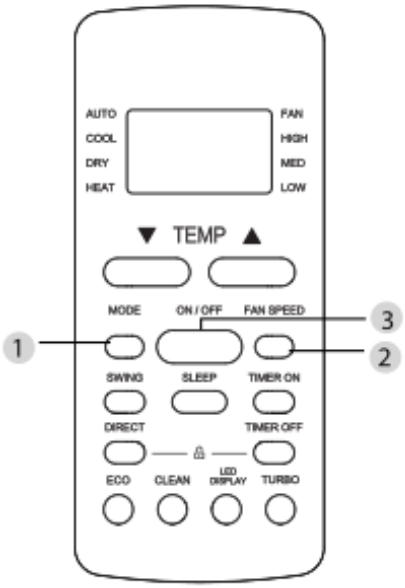
NOTE: You can't set temperature in FAN mode. As a result, your remote control's LCD screen will not display temperature.



DRY Mode (dehumidifying)

1. Press the **MODE** button to select **DRY**.
2. Set your desired temperature using the **TEMP ▲** or **TEMP ▼** button.
3. Press the ON/OFF button to start the unit.

NOTE: FAN SPEED cannot be changed in DRY mode.



HEAT Mode

1. Press the MODE button to select **HEAT** mode.
2. Set your desired temperature using the **TEMP ▲ or TEMP ▼** button.
3. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
4. Press the **ON/OFF** button to start the unit.

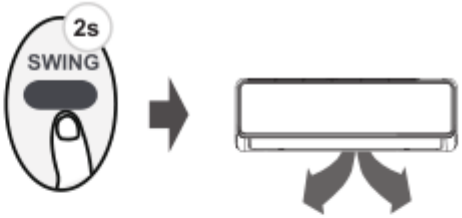
NOTE: As outdoor temperature drops, the performance of your unit's HEAT function may be affected. In such instances, we recommend using this air conditioner in conjunction with other heating appliances.

How To Use The Advanced Functions

Swing function

Press Swing button

The horizontal louver will swing up and down automatically when pressing Swing button.
Press again to make it stop.



Keep pressing this button more than 2 seconds, the vertical louver swing function is activated. (Model dependent)

Airflow direction

Each time you press the button, it will adjust the louver by 6 degrees . Press the button until the direction you prefer is reached.

LED DISPLAY

Press LED button

Press this button to turn on and turn off the display on the indoor unit.

Press this button more than 5 seconds(some units)

Keep pressing this button more than 5 seconds, the indoor unit will display the actual room temperature. Press more than 5 seconds again will revert back to display the setting temperature.

SHORTCUT function

Used to restore the current settings or resume previous settings.

Push this button when remote controller is on, the system will automatically revert back to the previous settings including operating mode, setting temperature, fan speed level and sleep feature(if activated).
If pushing more than 2 seconds, the system will automatically restore the current operation settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

SLEEP function

The SLEEP function is used to decrease energy use while you sleep (and don t need the same temperature settings to stay comfortable). This function can only be activated via remote control. The sleep function is not available in Fan or Dry mode.Please refer to the OWNER'S MANUAL for more details.

Silence function

Keep pressing Fan button for more than 2 seconds to activate/disable Silence function(some units).

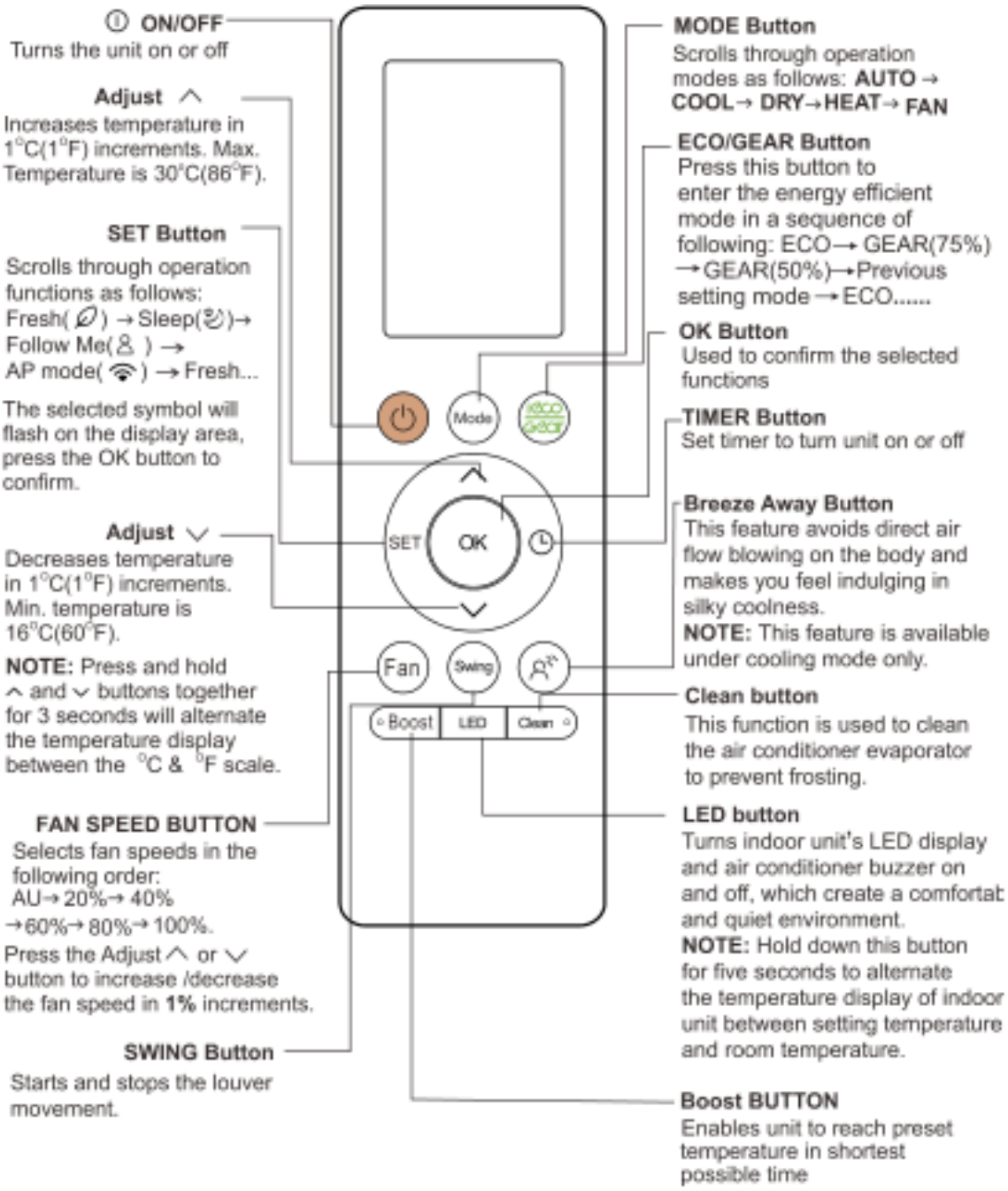
Due to low frequency operation of compressor, it may result in insufficient cooling and heating capacity. Press ON/OFF, Mode, Sleep, Turbo or Clean button while operating will cancel silence function.

13.2 RG10A(B2S)/BGEF (Standard for Extreme series)

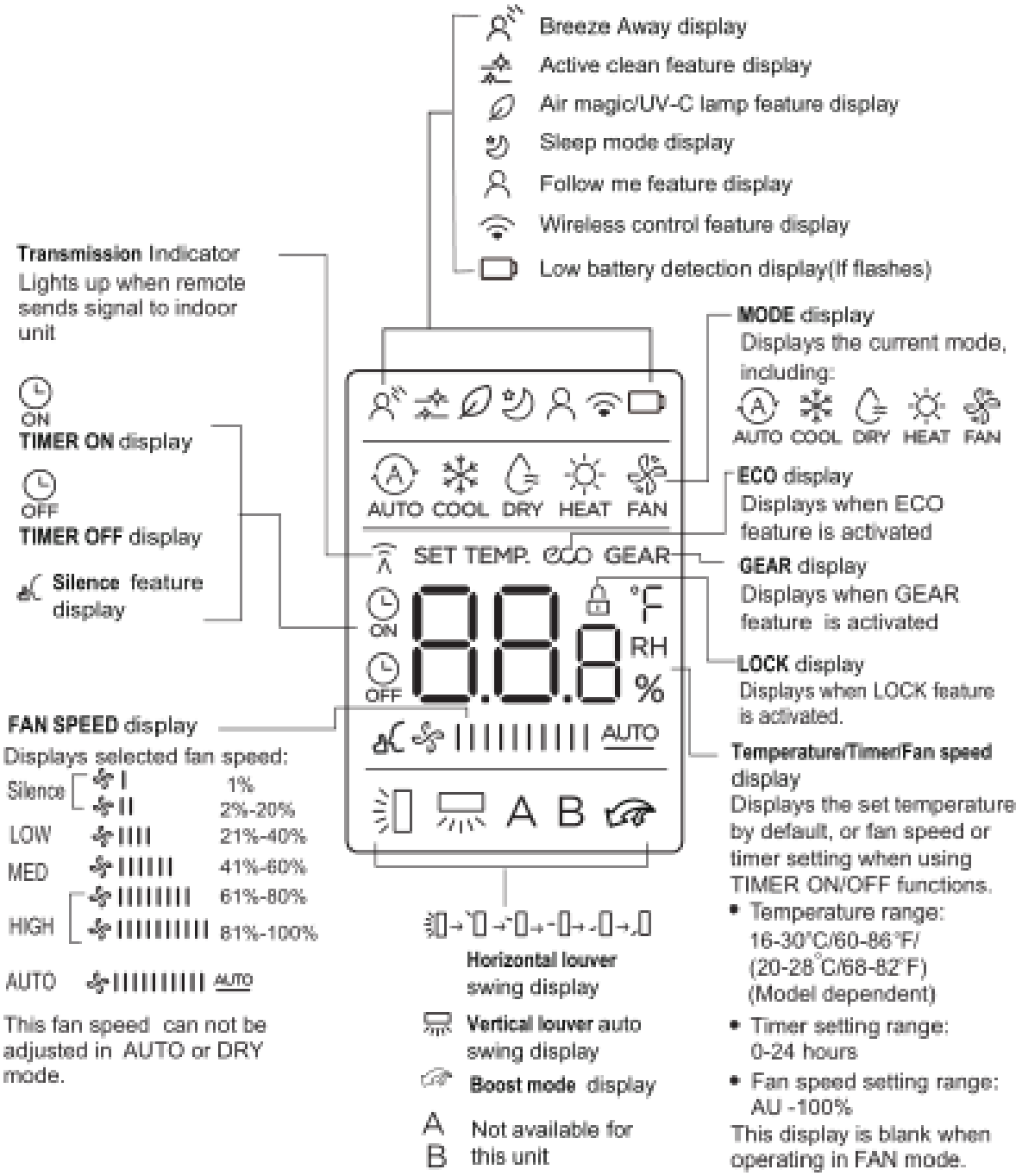
Remote Controller Specifications

Model	RG10A(B2S)/BGEF
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Reaching Distance	8m((when using 3.0 voltage, it Gets 11m))
Environment Temperature Range	-5°C~60°C(23°F~140°F)

Buttons and Functions

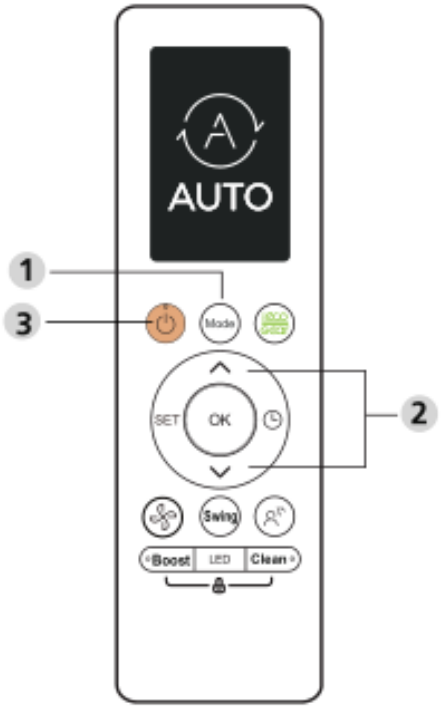


Remote LCD Screen Indicators



How to Use Basic Functions

ATTENTION! Before operation, please ensure the unit is plugged in and power is available.



COOL Mode

1. Press the MODE button to select **COOL** mode.
2. Set your desired temperature using the **TEMP** ^ **or TEMP** v button.
3. Press **FAN** button to select the fan speed in a range of AU-100%.
4. Press the **ON/OFF** button to start the unit.

SETTING TEMPERATURE

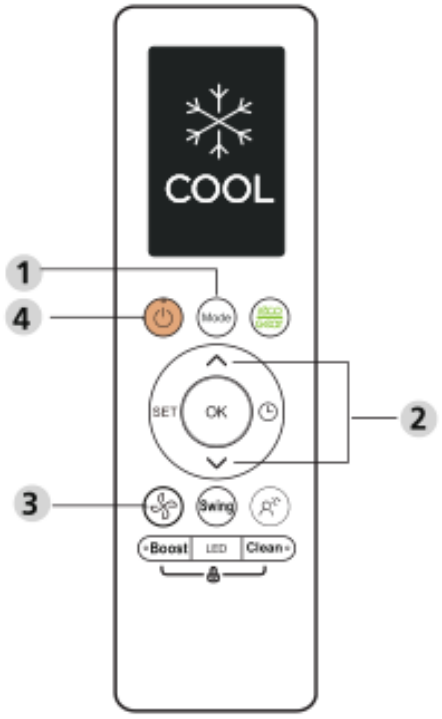
The operating temperature range for units is 16-30°C (60-86°F)/20-28°C(68-82°F). You can increase or decrease the set temperature in 1°C (1°F) increments.

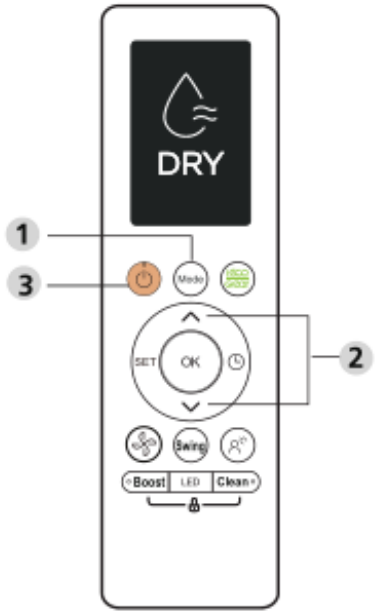
AUTO Mode

In AUTO mode, the unit will automatically select the COOL, FAN, or HEAT operation based on the set temperature.

1. Press the **MODE** button to select **AUTO**.
2. Set your desired temperature using the **TEMP** ^ or **TEMP** v button.
3. Press the **ON/OFF** button to start the unit.

NOTE: FAN SPEED can't be set in AUTO mode.

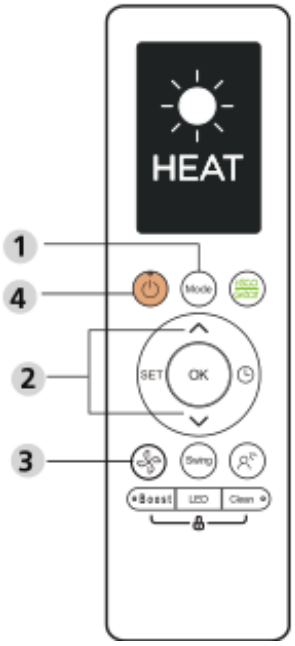




FAN Mode

1. Press the **MODE** button to select **FAN** mode.
2. Press **FAN** button to select the fan speed in a range of AU-100%.
3. Press the **ON/OFF** button to start the unit.

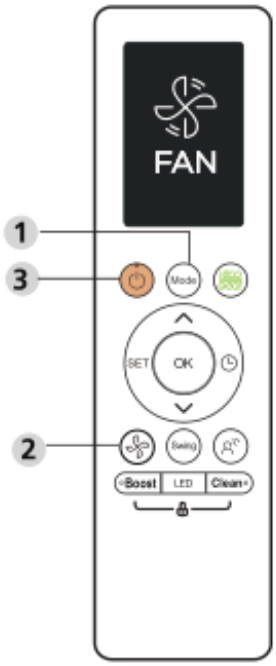
NOTE: You can't set temperature in FAN mode. As a result, your remote control's LCD screen will not display temperature.



DRY Mode (dehumidifying)

1. Press the **MODE** button to select **DRY**.
2. Set your desired temperature using the **TEMP** ∧ or **TEMP** ∨ button.
3. Press the ON/OFF button to start the unit.

NOTE: FAN SPEED cannot be changed in DRY mode.



HEAT Mode

1. Press the MODE button to select **HEAT** mode.
2. Set your desired temperature using the **TEMP** ∧ **or TEMP** ∨ button.
3. Press **FAN** button to select the fan speed in a range of AU-100%.
4. Press the **ON/OFF** button to start the unit.

NOTE: As outdoor temperature drops, the performance of your unit's HEAT function may be affected. In such instances, we recommend using this air conditioner in conjunction with other heating appliances.

How to Use Advanced Functions

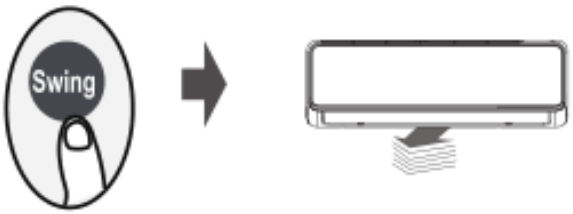
Swing function

Press Swing button

The horizontal louver will swing up and down automatically when pressing Swing button. Press again to make it stop.

Keep pressing this button more than 2 seconds, the vertical louver swing function is activated. (Model dependent)

Airflow direction



If continue to press the SWING button, five different airflow directions can be set. The louver can be move at a certain range each time you press the button. Press the button until the direction you prefer is reached.

NOTE: When the unit is off, press and hold **MODE** and **SWING** buttons together for one second, the louver will open for a certain angle, which makes it very convenient for cleaning. Press and hold **MODE** and **SWING** buttons together for one second to reset the louver(Model dependent).

LED DISPLAY

Press LED button

Press this button to turn on and turn off the display on the indoor unit.

Press this button more than 5 seconds(some units)

Keep pressing this button more than 5 seconds, the indoor unit will display the actual room temperature. Press more than 5 seconds again will revert back to display the setting temperature.

ECO/GEAR function

Press this button to enter the energy efficient mode in a sequence of following:

ECO → GEAR(75%) → GEAR(50%) → Previous setting mode → ECO.....

Note:This function is only available under COOL mode.

ECO operation:

Under cooling mode, press this button, the remote controller will adjust the temperature automatically to 24°C/75°F, fan speed of Auto to save energy (only when the set temperature is less than 24°C/75°F). If the set temperature is above 24°C/75°F, press the ECO button, the fan speed will change to Auto, the set temperature will remain unchanged.

NOTE:

Pressing the ECO button, or modifying the mode or adjusting the set temperature to less than 24°C/75°F will stop ECO operation.

Under ECO operation, the set tmeperature should be 24°C/75°F or above, it may result in insufficient cooling. If you feel uncomfortable, just press the ECO button again to stop it.

GEAR operation:

Press the ECO/GEAR button to enter the GEAR operation as following:

75%(up to 75% electrial energy consumption)

↓

50%(up to 50% electrial energy consumption)

↓

Previous setting mode.

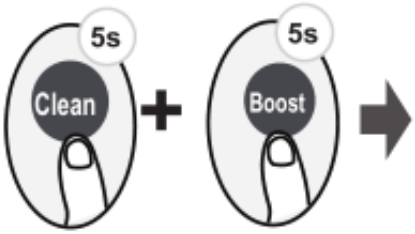
BOOST Function

Press Boost button

When you select Boost feature in COOL mode, the unit will blow cool air with strongest wind setting to jump-start the cooling process.

When you select Boost feature in HEAT mode, the unit will blow heat air with strongest wind setting to jump-start the heating process(some units). For units with Electric heat elements, the Electric HEATER will activate and jump-start the heating process.

LOCK function



Press together **Clean** button and **Boost** button at the same time more than 5 seconds to activate Lock function. All buttons will not response except pressing these two buttons for two seconds again to disable locking.

Silence function

Keep pressing Fan button for more than 2 seconds to activate/disable Silence function(some units).

Due to low frequency operation of compressor, it may result in insufficient cooling and heating capacity. Press ON/OFF, Mode, Sleep, Boost or Clean button while operating will cancel silence function.

FP function

Press this button 2 times during one second under HEAT Mode with setting temperature of 16°C/60°F or 20°C/68°F(for model RG10A10(B2)/BGEF).

The unit will operate at high fan speed (while compressor on) with temperature automatically set to 8°C/46°F.

Note: This function is for heat pump air conditioner only.

Press this button 2 times under HEAT Mode with setting temperature of 16° C/60° F or 20° C/68° F (for model RG10A10(B2)/BGEF) to activate the FP function. Press On/Off, Sleep, Mode, Fan and Temp. button while operating will cancel this function.

CLEAN function

Press Clean button to active self clean or active clean function(Model dependent)

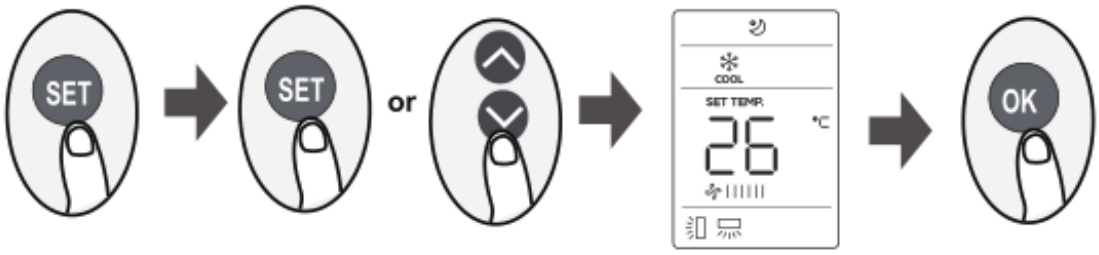
Active clean function:

The Active Clean Technology washes away dust, mold, and grease that may cause odors when it adheres to the heat exchanger by automatically freezing and then rapidly thawing the frost. When this function is turned on, the indoor unit display window appears "CL", after 20 to 45 or 130(model dependent) minutes, the unit will turn off automatically and cancel CLEAN function.

Self clean function:

Airborne bacteria can grow in the moisture that condenses around heat exchanger in the unit. With regular use, most of this moisture is evaporated from the unit.
By pressing the CLEAN button, your unit will clean itself automatically.
After cleaning, the unit will turn off automatically. Pressing the CLEAN button mid-cycle will cancel the operation and turn off the unit. You can use CLEAN as often as you like.
Note: You can only activate this function in COOL or DRY mode.

SET function



- Press the SET button to enter the function setting, then press SET button or TEMP ∨ or TEMP ∧ button to select the desired function. The selected symbol will flash on the display area, press the OK button to confirm.
- To cancel the selected function, just perform the same procedures as above.
- Press the SET button to scroll through operation functions as follows:
  Breeze Away*( ) → Fresh/UV-C lamp*( ) → Sleep( ) → Follow Me( ) → AP mode ( )
  [*]: If your remote controller has Breeze Away button or air magic button, you can not use the SET button to select the Breeze Away or Fresh/UV-C lamp feature.

Breeze Away function( ) (some units) :

This feature avoids direct air flow blowing on the body and makes you feel indulging in silky coolness.

NOTE: This feature is available under cool, Fan and Dry mode only.

FRESH/UV-C lamp function( ) (some units) :

When this function is selected, the Ionizer or UV-C lamp(model dependent) will be activated. If has both features, these two features will be activated at the same time. This function will help to purify the air in the room.

Sleep function( ) :

The SLEEP function is used to decrease energy use while you sleep (and don't need the same temperature settings to stay comfortable). This function can only be activated via remote control.

For the detail, see " sleep operation " in " USER'S MANUAL".

Note: The SLEEP function is not available in FAN or DRY mode.

Follow me function( ):

The FOLLOW ME function enables the remote control to measure the temperature at its current location and send this signal to the air conditioner every 3 minutes interval. When using AUTO, COOL or HEAT modes, measuring ambient temperature from the remote control(instead of from the indoor unit itself) will enable the air conditioner to optimize the temperature around you and ensure maximum comfort.

NOTE: Press and hold Boost button for seven seconds to start/stop memory feature of Follow Me function.

- If the memory feature is activated," **On**" displays for 3 seconds on the screen.
- If the memory feature is stopped, " **OF**" displays for 3 seconds on the screen.
- While the memory feature is activated, press the ON/OFF button, shift the mode or power failure will not cancel the Follow me function.

AP function( )(some units) :

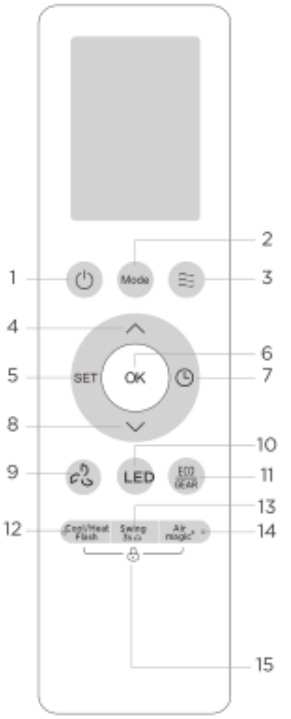
Choose AP mode to do wireless network configuration. For some units, it doesn't work by pressing the SET button. To enter the AP mode, continuously press the LED button seven times in 10 seconds.

13.3 RG10N7(2HS)/BGEF (Standard for Breezeless E series)

Remote Controller Specifications

Model	RG10N7(2HS)/BGEF
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Reaching Distance	8m((when using 3.0 voltage, it Gets 11m))
Environment Temperature Range	-5°C~60°C(23°F~140°F)

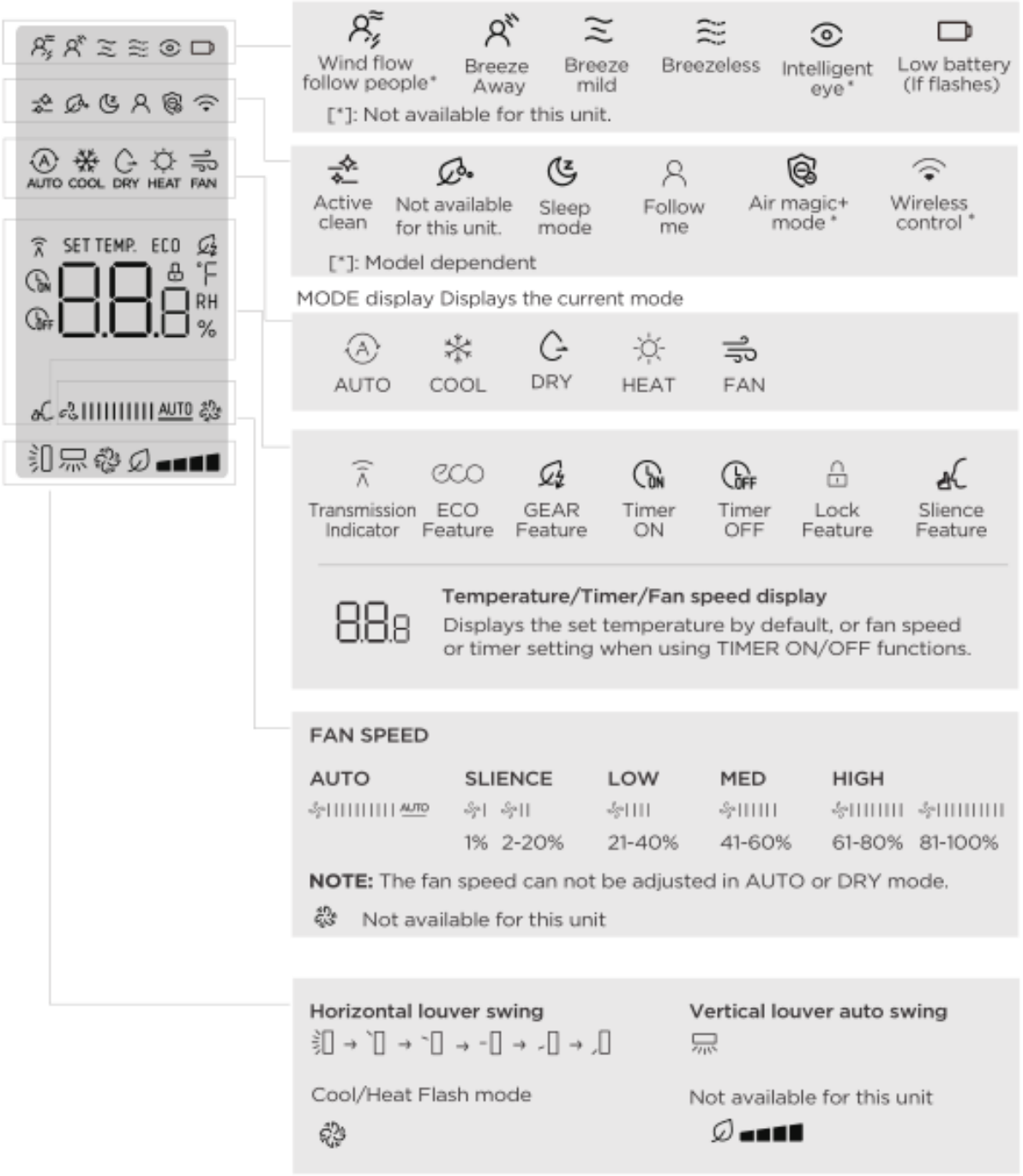
Buttons and Functions



Model : RG10N7(2HS)/BGEF

Description		
No.1	⏻	**ON/OFF** Turn the unit on or off.
No.2	Mode	**MODE** Auto > Cool > Dry > Heat > Fan **NOTE:** HEAT mode is not supported by the cooling only appliance.
No.3	≋	**BREEZE** Breezeless > Breeze away > Breeze mild>Stop
No.4	∧	**TEMP.** Increases temperature in 0.5°C (1°F) increments. Max. temperature is 30°C (86°F). (Press together ∧ & ∨ buttons at the same time for 3 seconds will alternate the temperature display between the °C & °F).
No.5	SET	**SET** Active clean>Sleep > Follow Me > AP mode > Active clean
No.6	OK	**OK** Used to confirm the selected functions
No.7	◷	**TIMER** Set timer to turn unit on or off
No.8	∨	**TEMP.** Decreases temperature in 0.5°C (1°F) increments. Min. temperature is 16°C (60°F)
No.9		**FAN SPEED** **AU > 20% > 40% >60% > 80% > 100%** Press the TEMP ∧ or ∨ button to increase/ decrease the fan speed in 1% increments.
No.10	LED	**LED** Turns LED display & air conditioner buzzer on and off
No.11	ECO GEAR	**ECO/GEAR** ECO > GEAR(75%) > GEAR(50%) > Previous setting mode > ECO
No.12	Cool/Heat Flash	**Cool/Heat Flash** Reduce(cool mode) or rise(heat mode) temperature in a short time.
No.13	Swing	**SWING** Starts and stops the horizontal louver movement. Hold down for 3 seconds to initiate vertical louver auto swing feature(some units).
No.14	Air magic+	**Air magic+** Used to start/stop the Air magic and UV-C lamp (if any) function.
No.15	Cool/Heat Flash & Air magic +	**LOCK** Press together these two buttons simultaneously for 5 seconds to lock the keyboard. Press together these two buttons for 2 seconds to unlock the keyboard.

Remote Control Screen Indicators



How to Use Basic Functions

NOTE

Before operation, please ensure the unit is plugged in and power is available.

AUTO Mode

Select AUTO mode → Set your desired temperature → Turn on the air conditioner

NOTE:

1. In AUTO mode, the unit will automatically select the COOL, FAN, or HEAT function based on the selected temperature.
2. In AUTO mode, fan speed cannot be set.

COOL or HEAT Mode

Select COOL/HEAT mode → Set the temperature → Set the fan speed → Turn on the air conditioner

DRY Mode

Select DRY mode → Set your desired temperature → Turn on the air conditioner

NOTE: In DRY mode, fan speed cannot be set since it has already been automatically controlled.

FAN Mode

Select FAN mode → Set the fan speed → Turn on the air conditioner

NOTE: In FAN mode, you can't set the temperature. As a result , no temperature is displayed on the remote's screen.

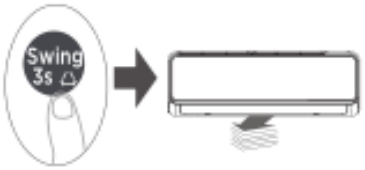
How to Use Advanced Functions

Swing function

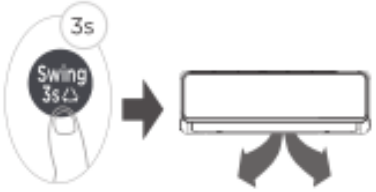
Press Swing button

The horizontal louver will swing up and down automatically when pressing Swing button.

Set airflow direction



If you repeatedly press the SWING button, five different airflow directions can be set. The louver will move incrementally each time you press the button. Press the button until the direction you prefer is reached.

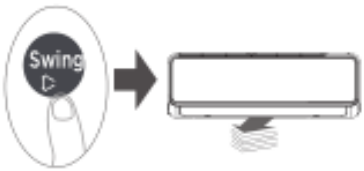


Keep the button depressed for more than 3 seconds to activate the vertical louver swing function. (Model dependent)

Press Swing button

The horizontal louver will swing up and down automatically when pressing the Swing button.

Set airflow direction



If you repeatedly press the SWING button, five different airflow directions can be set. The louver will move incrementally each time you press the button. Press the button until the direction you prefer is reached.

Press this button , the vertical louver swing function is activated.

LED DISPLAY

Press this button to turn on and turn off the display on the indoor unit.

Press this button more than 5 seconds(some units)

Keep pressing this button more than 5 seconds, the indoor unit will display the actual room temperature. Press more than 5 seconds again will revert back to display the setting temperature.

Cool/Heat Flash Function

Press this button

When you press this button in COOL mode, the Cool Flash function will start. The unit will produce a large volume of air and high airflow, the temperature of the whole room will be reduced in a short time.

When you press this button in HEAT mode, the Heat Flash function will start. Fast and strong hot airflow will warm up your whole room in a short time.

ECO/GEAR Function

Press this button to enter into one of the following energy efficiency modes:

ECO → GEAR(75%) → GEAR(50%) → Previous setting mode → ECO.....

Note:This function is only available under COOL mode.

ECO Operation:

If used during cooling mode, pressing this button will adjust the temperature automatically to 24°C/75°F and place the fan speed on Auto to save energy. If the set temperature is higher, it will remain at that setting.

NOTE: Pressing the ECO button again, or modifying the mode or adjusting the set temperature to less than 24°C/75°F will stop ECO operation.
Under ECO operation, the set temperature may not be lower than 24° C/75°F. This may result in insufficient cooling. Press the ECO button again to return to normal operation.

GEAR operation:

Press the ECO/GEAR button to enter into GEAR operation as following:
75%(up to 75% electrical energy consumption) → 50%(up to 50% electrical energy consumption) → Previous setting mode.

Silent Function

Keep pressing Fan button for more than 2 seconds to activate/disable Silent function.

Due to the low frequency operation of the compressor, it may result in insufficient cooling or heating. Pressing ON/OFF, Mode, Sleep, Boost or Clean button while operating will cancel the silent function.

FP function

Press this button twice rapidly during HEAT Mode and setting temperature of 16°C/60°F to activate the FP function.

The unit will operate at high fan speed (while the compressor is on) with temperature will automatically be set to 8℃/46°F.

SET function

- Press the SET button to change the function, press the SET button again or TEMP ∨ or TEMP ∧ button to select the desired function. The selected symbol will flash on the display area, press the OK button to confirm.
- To cancel the selected function, just perform the same procedures as above.
- Press the SET button to scroll through operation functions as follows:
  Active clean( ) → Sleep( ) → Follow Me( ) → AP mode*( )

Active Clean Function

The Active Clean technology removes dust and mold that may cause odors. Active Clean rapidly freezes and thaws the heat exchanger, to clean away material that has adhered to it. When this function is turned on, the indoor unit displays "CL". After 20 to 130 minutes, the unit will turn off automatically and terminate CLEAN function.

Sleep Function( ) :

The SLEEP function is used to decrease energy use while you sleep(and don't need the same temperature settings to stay comfortable).

NOTE: The SLEEP function is not available in FAN and DRY mode.

AP Function( )(some units) :

Use the SET button to choose AP(Access Point) mode to enable wireless configuration. If this function is not available on this unit, it might be possible to enter AP mode by pressing the LED button 7 times in 10 seconds.

Follow Me Function( ):

The FOLLOW ME function enables the remote control to measure the temperature at its current location and send this signal to the air conditioner in 3 minute intervals. When using AUTO, COOL or HEAT modes, measuring ambient temperature from the remote control(instead of from the indoor unit itself) will enable the air conditioner to optimize the temperature around you and ensure maximum comfort.

NOTE: Press and hold Cool/Heat Flash button for 7 seconds to start/stop the memory feature of the Follow Me function.

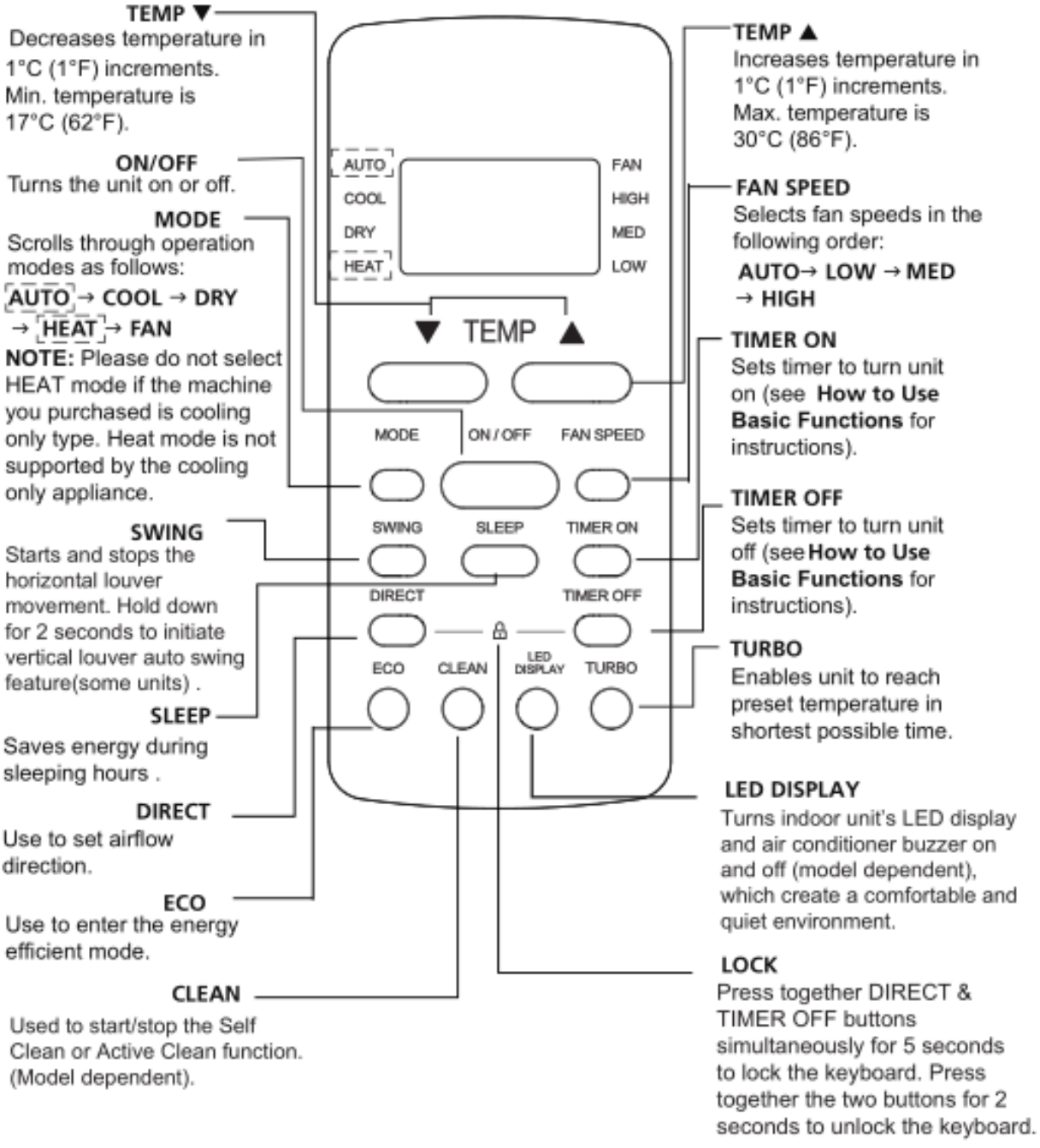
- If the memory feature is activated, " On" displays for 3 seconds on the screen.
- If the memory feature is stopped, "OF" displays for 3 seconds on the screen.
- While the memory feature is activated, pressing the ON/OFF button, shifting the mode or a power failure will not cancel the Follow Me function.

13.4 RG51A/E (Standard for Aurora series)

Remote Controller Specifications

Model	RG51A/E
Rated Voltage	3.0V (Dry batteries R03/LR03×2)
Reaching Distance	8m((when using 3.0 voltage, it Gets 11m))
Environment Temperature Range	-5°C~60°C(23°F~140°F)

Buttons and Functions



Remote LCD Screen Indicators

AUTO ▼ COOL ◄ DRY ◄
HEAT ▲ ▼ FAN

	Displayed when data transmitted.
	Displayed when remote controller is ON.
ON	Displayed when TIMER ON time is set
OFF	Displayed when TIMER OFF time is set
	Shows set temperature or room temperature, or time under TIMER setting
eco	Displayed when ECO feature is activated (some unit)
	Indicated all the current settings are locked
	Displayed when Follow Me feature is activated(some units)
	Displayed when SLEEP feature is activated

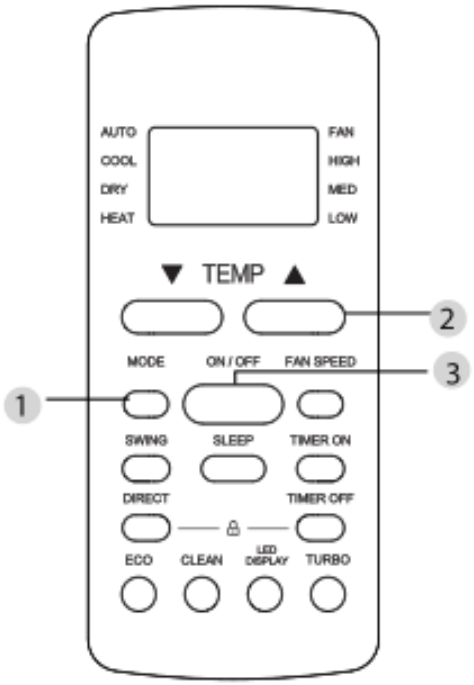
Fan speed indication

► HIGH	High speed
► MED	Medium speed
▲ LOW	Low speed
NO display	Auto fan speed

Note:
All indicators shown in the figure are for the purpose of clear presentation. But during the actaul operation, only the relative function signs are shown on the display window.

How To Use The Basic Functions

ATTENTION! Before operation, please ensure the unit is plugged in and power is available.



COOL Mode

1. Press the MODE button to select **COOL** mode.
2. Set your desired temperature using the **TEMP ▲ or TEMP ▼** button.
3. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
4. Press the **ON/OFF** button to start the unit.

SETTING TEMPERATURE

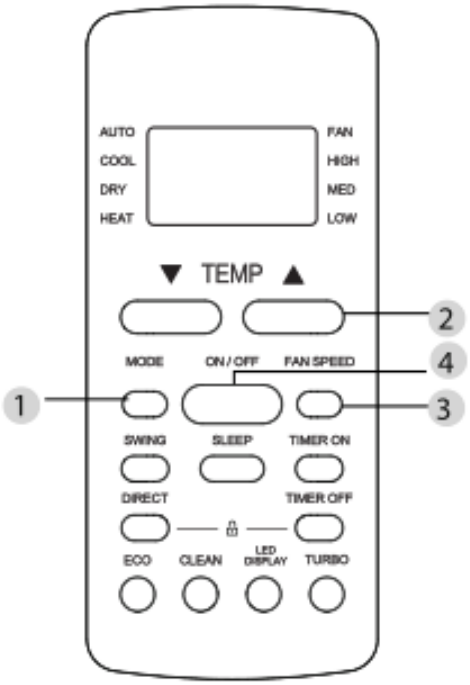
The operating temperature range for units is 17-30°C (62-86°F)/20-28°C.
You can increase or decrease the set temperature in 1°C (1°F) increments.

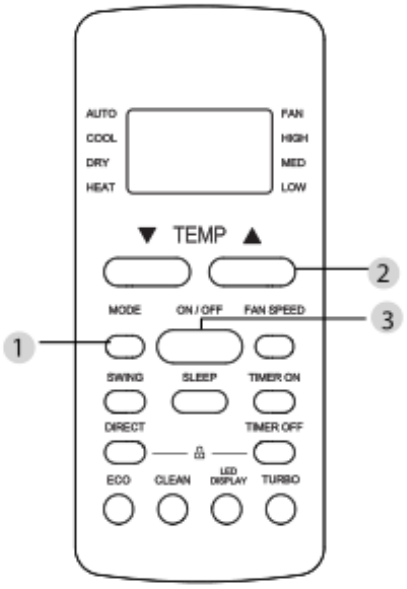
AUTO Mode

In AUTO mode, the unit will automatically select the COOL, FAN, or HEAT operation based on the set temperature.

1. Press the **MODE** button to select **AUTO**.
2. Set your desired temperature using the **TEMP ▲** or TEMP **▼** button.
3. Press the **ON/OFF** button to start the unit.

NOTE: FAN SPEED can't be set in AUTO mode.

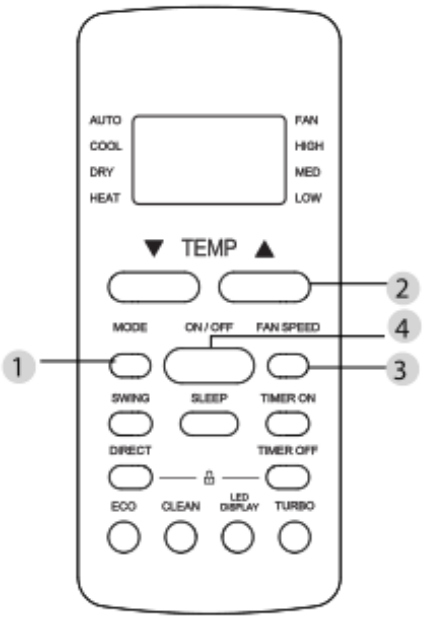




FAN Mode

1. Press the **MODE** button to select **FAN** mode.
2. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
3. Press the **ON/OFF** button to start the unit.

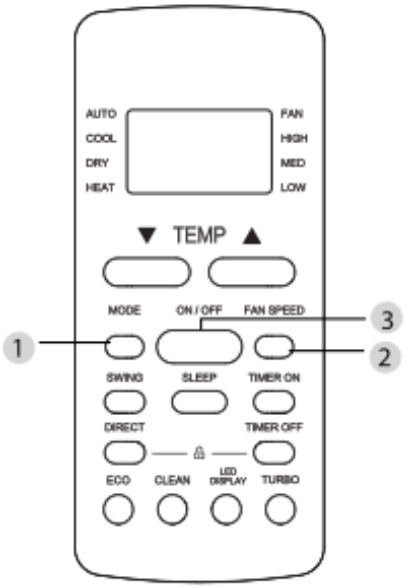
NOTE: You can't set temperature in FAN mode. As a result, your remote control's LCD screen will not display temperature.



DRY Mode (dehumidifying)

1. Press the **MODE** button to select **DRY**.
2. Set your desired temperature using the **TEMP ▲** or **TEMP ▼** button.
3. Press the ON/OFF button to start the unit.

NOTE: FAN SPEED cannot be changed in DRY mode.



HEAT Mode

1. Press the MODE button to select **HEAT** mode.
2. Set your desired temperature using the **TEMP ▲ or TEMP ▼** button.
3. Press **FAN** button to select the fan speed: AUTO, LOW, MED or HIGH.
4. Press the **ON/OFF** button to start the unit.

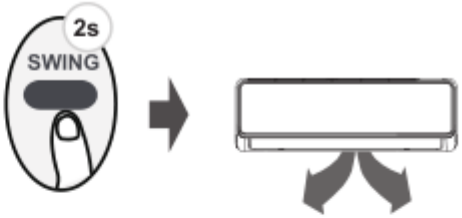
NOTE: As outdoor temperature drops, the performance of your unit's HEAT function may be affected. In such instances, we recommend using this air conditioner in conjunction with other heating appliances.

How To Use The Advanced Functions

Swing function

Press Swing button

The horizontal louver will swing up and down automatically when pressing Swing button. Press again to make it stop.



Keep pressing this button more than 2 seconds, the vertical louver swing function is activated. (Model dependent)

Airflow direction

Each time you press the button, it will adjust the louver by 6 degrees . Press the button until the direction you prefer is reached.

LED DISPLAY

Press LED button

Press this button to turn on and turn off the display on the indoor unit.

Press this button more than 5 seconds(some units)

Keep pressing this button more than 5 seconds, the indoor unit will display the actual room temperature. Press more than 5 seconds again will revert back to display the setting temperature.

ECO function

Press this button under COOL Mode to enter the energy efficient mode.

Note: This function is only available under COOL mode.

Under cooling mode, press this button, the remote controller will adjust the temperature automatically to 24°C/75°F, fan speed of Auto to save energy (only when the set temperature is less than 24°C/75°F). If the set temperature is above 24°C/75°F, press the ECO button, the fan speed will change to Auto, the set temperature will remain unchanged.

NOTE:
Pressing the ECO button, or modifying the mode or adjusting the set temperature to less than 24°C/75°F will stop ECO operation.
Under ECO operation, the set tmeperature should be 24°C/75°F or above, it may result in insufficient cooling. If you feel uncomfortable, just press the ECO button again to stop it.

SLEEP function

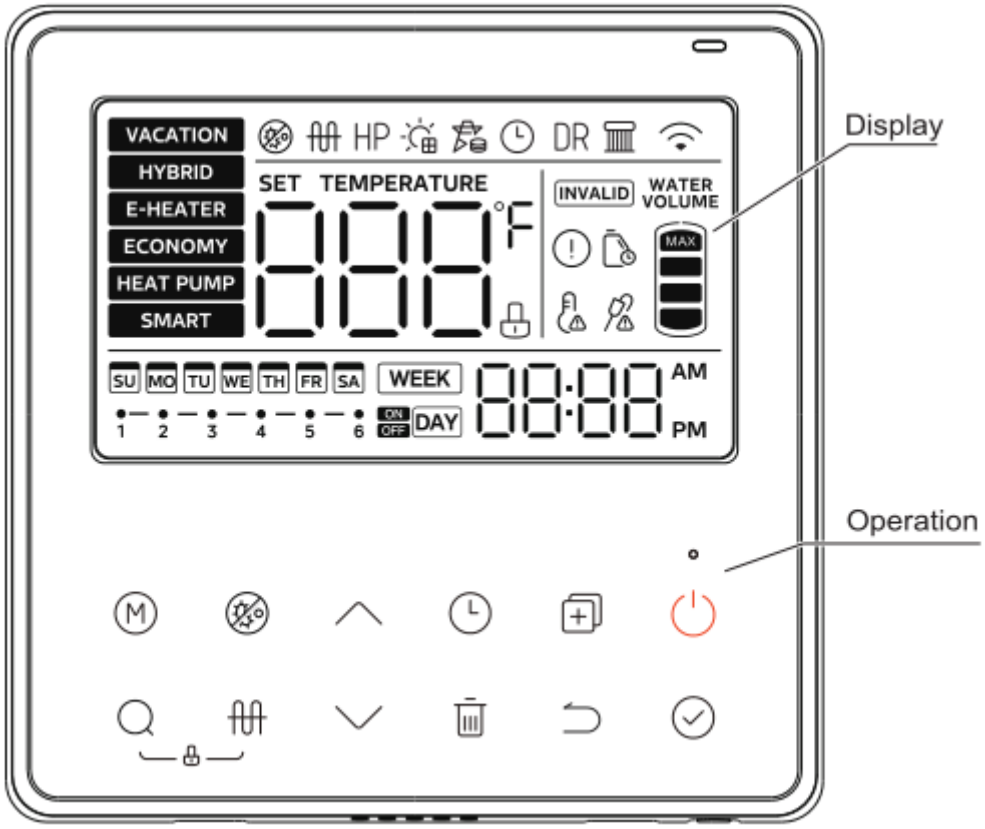
The SLEEP function is used to decrease energy use while you sleep (and don t need the same temperature settings to stay comfortable). This function can only be activated via remote control. The sleep function is not available in Fan or Dry mode.Please refer to the OWNER'S MANUAL for more details.

Silence function

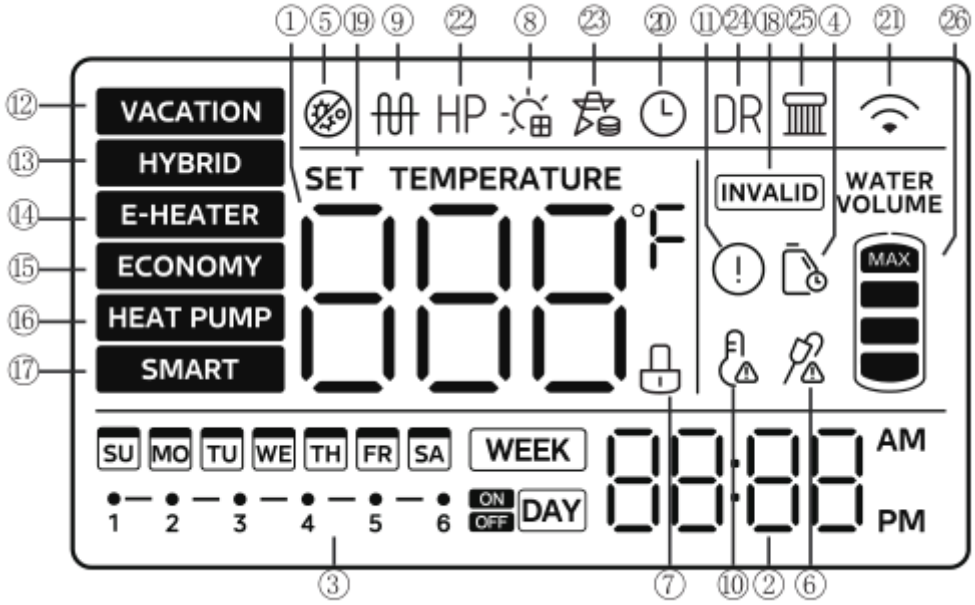
Keep pressing Fan button for more than 2 seconds to activate/disable Silence function(some units).

Due to low frequency operation of compressor, it may result in insufficient cooling and heating capacity. Press ON/OFF, Mode, Sleep, Turbo or Clean button while operating will cancel silence function.

13.4 Control Panel (tank)



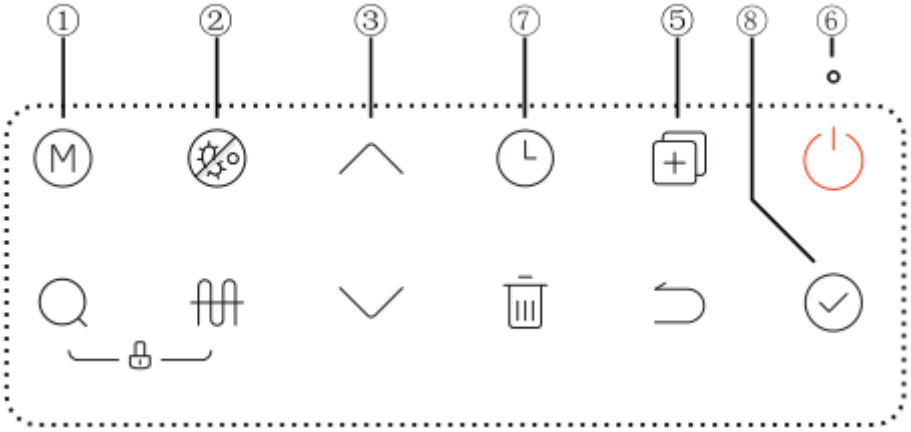
Display explanation



No	Icon	Description
①		888 will be lightened if screen is unlocked. It shows water temperature on normal; It shows remaining vacation days on vacation; It shows setting temperature on setting; It shows unit setting/running parameters, error/protection code on querying.
②		**Time and clock setting** 20:08 shows the clock. Whenever there is any setting for clock.
③		There are daily or weekly TIMER icon. If anyone of them has been set, this icon will lighten the corresponding one when screen is unlocked; If there is none of timers has been set, it will keep extinguished. If timer is being set, this icon will flash the corresponding one with 2Hz frequency as well lighten the timer which has been set.
④		It flashes to remind the user to maintain the water tank.
⑤		It will be lightened when the machine is disinfecting.
⑥		**Lock:** If button is locked, the icon will be lightened, otherwise it will be extinguished.
⑦		**EVU:** When the photovoltaic effective signal is detected, this icon lights up, this time the target temperature of the machine is adjusted to the highest set temperature, and the machine makes hot water quickly.
⑧		**E-heat:** It will be lightened when E-heat is running, otherwise it will be extinguished. NOTE: When the operating conditions are not met to turn on this function, the corresponding icon on the wire controller lights up briefly and then goes out.
⑨		**High temp. Alarm** If water temp is higher than 50℃， it will be lightened, otherwise it will be extinguished.

⑩		**Error:** It will be lightened when unit is under protection/error.
⑪	VACATION	**VACATION MODE:** For the outgoing vacation mode, the water tank is set at 15°C. Maintains low tank water temperature, preheats hot water and anti-freeze lines, while reducing on/off operation of the tank.
⑫	HYBRID	**HYBRID MODE:** Operating in heat pump mode, the electric heater and heat pump will heat up together when in extremely low ambient temperatures or when the heat pump has been running for a long time without reaching the set Temp. Factory default mode setting, it is recommended to set this mode to run when heat recovery COOL+DHW.
⑬	E-HEATER	**E-HEAT MODE:** Operate in accordance with the heat pump mode, the heat pump outdoor unit and the electric heater running at the same time.
⑭	ECONOMY	**ECONOMY MODE:** In accordance with the heat pump mode of operation, the heat pump external unit heats up to the maximum water temperature before turning on the electric auxiliary heater for heating, the heat pump and the electric auxiliary heater will not be turned on at the same time. It is recommended to use this mode of operation when making hot water alone, which is more energy-saving. **NOTE:** Energy-saving mode to limit the start of electric heating, running more energy-saving, but do not recommend COOL + DHW use this mode, easy to affect the effect of hot water heating effect.
⑮	SMART	**SMART MODE:** Records the hot water usage habits of users over the past 7 days and turns on the heating in advance according to the user's peak water usage hours. All other unconventional hot water hours are in standby mode, without heating operation (it is recommended that users set this mode after 7 days of regular and normal operation of the water heater to avoid affecting the normal use of the water heater by failing to record the complete user habits.)
⑯	INVALID	When any key is invalid, this icon will flash 3 sec.
⑰	SET TEMP	The icon lights up when the water temperature is being set.
⑱		The icon lights up when the clock is being set.
⑲		**Wireless:** will be lightened when Wireless is connected; will be extinguished when Wireless is not connected; will flash with 2Hz frequency when setting Wireless.
⑳	HP	**HEAT PUMP ICON:** When the heat pump is operating and producing hot water, the icon lights up.
㉑		**Smart Grid ICON:** When the SG signal is invalid, this icon does not light up and the machine does not switch on normally.

Operation panel explanation



Notes: Any press of button is effective only under button and display unlocked state.

No.	Icon	Description
①	M	Use this key to switch mode Default HYBRID mode Switch to E-heater mode Switch to ECONOMY mode Switch to smart mode Switch to VACATION mode Adjust vacation days (1-360 days) Switch to HYBRID mode
②		Click the button to turn on the forced sterilization function. Icon will light up. then the unit will heat up water to 70℃ at least for disinfection. When the machine is disinfected, press this button to cancel it. then the will be extinguished. This key is used to cancel all settings and exit the setting state. When Wireless connection is normal, long press the Cancel button for more than 8s to exit Wireless connection. NOTE: When the operating conditions are not met to turn on this function, the corresponding icon on the wire controller lights up briefly and then goes out.

No	Icon	Description
③		**INCREASE AND DECREASE** If screen is unlocked, corresponding value will increase by pressing the button. ● When setting temperature, press more than 1s, temperature value will be increased continuously; ● When setting clock/timer, press more than 1s, clock/timer value will be increased continuously; ● When setting vacation days, press more than 1s, day value will be increased continuously; On querying, check items will page up by pressing it.
④		**Checking function** 1) In the main interface, press and hold the search key for 1 second to enter the spot check function, and use the up and down keys to switch the spot check channel, and the attribute value of the channel will be displayed when switching to the channel, and the specific channel can be found in the function book. 2) After 30 seconds from the last operation of the up and down keys, or by pressing the return key or the on/off key, you can directly exit the engineering mode; 3) Query mode can be entered in both power-on and power-off state.
⑤		**Engineering Mode** 1) In the main interface, press and hold the copy key for 3 seconds to enter the engineering mode; use the up and down keys to switch the inspection channel, and the attribute value of the channel will be displayed when switching to the channel. By up and down key, you can modify a parameter setting, after setting and adjusting, press confirm key to return to the main interface to make the setting effective (channel 2, 3, 4, 34, 35 will be effective immediately). Press the Return button to return to the previous interface (channel selection interface). After 30 seconds from the last operation of the up and down buttons, or by pressing the return button or the on/off button, you can directly exit the engineering mode. 2) Engineering mode can be accessed in both power-on and power-off state. **F13 - Priority settings for Heating (AC) and Hot water production (DHW)** Parameter 0: Air conditioning is prioritized; Parameter 1: Hot water priority; The factory default setting is air conditioning priority, during engineering installation, it is necessary to confirm its priority selection settings with the customer and guide the instructions for use. It is strictly prohibited for the customer to change the parameter settings of other channels in the engineering mode without authorisation to avoid affecting the normal operation of the unit or causing damage to the prototype.
⑥		**Power on/off button** Press the button to turn the device on or off.

No	Icon	Description
⑦		TIMER (Daily setting) 1) Press the TIMER button to the day timer icon DAY, press the confirmation button to enter the day timer setting interface, the day timer has a total of 6 time periods, each time period can be set to open the time, close the time, mode, set the temperature of the water; when set the first time period set the temperature of the water, press the confirmation button to enter the next time period of the set; when set the sixth time period set the temperature of the water, press the confirmation button to return to the main interface; during this period, you can press the return button Return to the previous setting or main interface; 2) When setting the on time and off time, press the delete button , the time can be restored to the default value, and displaying (-. --). 3) If there is a conflict between the set time periods, the time period set at the back will be the valid time period, and the time period in front will be the invalid time period; the invalid time period restores the default setting 4) You can enter the daily timer setting in both power-on and power-off state. TIMER (Weekly setting) 1) Press the TIMER button to the weekly timer icon WEEK, press the confirmation button to enter the weekly timer setting interface, weekly timer a total of 7 days, there are 6 time slots can be set each day, each time slot can be set to open the time, close the time, the mode, set the water temperature; when the first time slot set the water temperature, press the confirmation button to enter the next time slot settings; when the sixth time slot set the temperature, press the confirmation button to return to weekly After setting the water temperature for the 6th period, press the confirmation key to return to the selection of week; during this period, you can press the return key to return to the previous level of setting or the main interface; 2) When setting the on time and off time, press the delete button to restore the time, mode and set water temperature to the default value, and displaying (-. --). 3) If you adjust the timing time again after the setting is completed, then all the settings after the adjustment time period will be canceled. For example, if you adjust the timer on for time period 2, the timer off for time period 2, and the settings for time periods 3, 4, 5, and 6 will all be canceled to (-:---) after adjustment. Mode and setting water temperature become default values (Energy saving mode, 60℃) 4) In the weekly timer setting, in the weekly selection, use the copy button , you can locate the setting of a certain day to the base day, select other days, press the copy button to change the status of the day, the fast flashing is selected, the slow flashing is unselected, and after pressing on the confirmation button, you can copy the setting of the base day to the selected day; 5) You can enter the weekly timer setting in both power-on and power-off state.
⑧		**CONFIRM** Press it to upload setting parameters after setting any parameter.

No.	Icon	Description
Setting the date and clock		1) In the main interface, press and hold the timer button for 3 seconds to enter the date setting, press the up/down button to select the date, press the confirmation button to enter the clock setting, press the up/down button to modify the time, and press and hold to accelerate the increase/decrease of the time. After setting the clock, press the confirm button to return to the main interface to complete the setting of date and time. (2) After 30 seconds from the last operation of the up/down button or pressing the return button or the power on/off button, you can directly exit the date and time setting; 3) Setting can be done in both power-on and power-off state.
connecting the wireless function	Press for 3 sec	1) In the main interface, long press the on/off key for 3 seconds to enter the AP wireless network mode, there will be a wireless icon in the upper right corner of the line controller. At this time, enter the APP, select the category of air water heater, choose the correct model, and then network according to the APP prompts, and after the network is completed, the wireless icon will be always on; (2) Wireless matching can last up to 8 minutes, after 8 minutes, if the matching is not successful, the wireless icon will go out; 3) Long press the delete button for 8 seconds in the main interface to reset the wireless function; 4) It can be set in both power on and power off state. NOTE: Please check the **5.4 Using the SmartHome App** for details.
Child lock function	Press for 2 sec	1) In the main interface, long press the key combination for 2 seconds to enter the child lock state; (2) In the state of child lock, long press the key combination again for 2 seconds to release the child lock state; 3) In the locked state, there will be an icon next to the water temperature display.