

LIGHT COMMERCIAL R32

CEILING & FLOOR-SL 2 70M-160M

Outdoor unit-SL 2 70M-160T

Note: for size 53M, see dedicated Technical Manual

TECHNICAL MANUAL

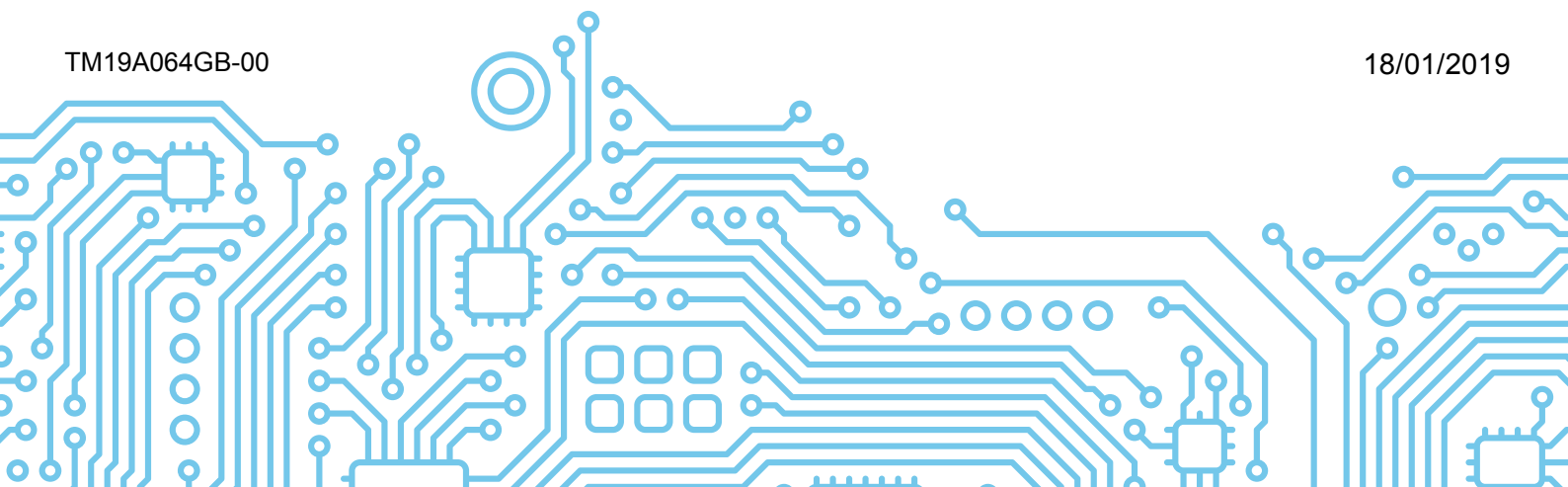


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Specifications

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1. Model Reference

Refer to the following table to determine the specific indoor and outdoor unit model number of your purchased equipment.

Indoor Unit Model	Outdoor Unit Model	Capacity (Btu/h)	Power Supply
			1Φ, 220-240V~, 50Hz
IF2-XY 70M	MC2-Y 70M	24K	
IF2-XY 105M	MC2-Y 105M	36K	
IF2-XY 105M	MC2-Y 105T	36K	3Φ, 380-410V~, 50Hz
IF2-XY 140M	MC2-Y 140T	48K	
IF2-XY 160M	MC2-Y 160T	55K	

Specifications

2. General Specifications

Indoor model			IF2-XY 70M	IF2-XY 105M
Outdoor model			MC2-Y 70M	MC2-Y 105M
Power supply (Indoor)	V- Ph-Hz		220~240-1-50	220~240-1-50
Power Supply (Outdoor)	V-Ph-Hz		220~240-1-50	220~240-1-50
Max. input consumption	W		2950	4700
Max. current	A		13.5	21.5
Indoor fan motor	Model		ZKFN-55-8-1	ZKFN-90-8-1
	Qty		1	2
	Insulation class		E	E
	IP rating		IPX4	IPX4
	Input	W	100.0	96.0
	Capacitor	uF	/	/
	Speed(Hi/Mi/Lo)	r/min	1200/1080/890	1200/1050/850
Indoor coil	Number of rows		3.0	3
	Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	Fin spacing	mm	1.3	1.3
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube
	Coil length x height x width	mm	795x294x40.11	1300x294x40.11
	Number of circuits		7	8
Indoor air flow (Hi/Mi/Lo)		m3/h	1208/1066/853	2160/1844/1431
ESP	Rated	Pa	/	/
	Range	Pa	/	/
Indoor sound pressure level		dB(A)	49/46/41	50/46/42
Indoor sound power level		dB(A)	59	61
Indoor unit	Dimension(W*D*H)	mm	1068x675x235	1650x675x235
	Packing (W*D*H)	mm	1145x755x313	1725x755x313
	Net/Gross weight	Kg	26.8/31.9	41.5/48
Design pressure		MPa	4.2/1.5	4.2/1.5
Drainage water pipe diameter		mm	ODΦ25mm	ODΦ25mm
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")
Controller			Remote control	Remote control
Operation temperature		°C	17-30	17-30
Room temperature	Cooling	°C	17~32	17~32
	Heating	°C	0~30	0~30
Qty'per 20' /40' /40'HQ		Indoor unit	102/220/252	72/147/167
Compressor	Model		KTF235D22UMT	KTF310D43UMT
	Type		ROTARY	ROTARY
	Brand		GMCC	GMCC
	Capacity	W	7650	10010
	Input	W	2065	2765
	Rated current(RLA)	A	9.4	5.38
	Refrigerant oil/oil charge	ml	RB74A F/670	VG74/1000
Outdoor fan motor	Model		ZKFN-50-8-2	ZKFN-120-8-2
	Qty		1	1
	Insulation class		E	E
	IP rating		IPX0	IPX4
	Output	W	115.0	150.0
	Capacitor	uF	/	/
	Speed	r/min	850	1050

Outdoor coil	Number of rows			2.0	2.0
	Tube pitch(a)x row pitch(b)	mm		25.4x22	25.4x22
	Fin spacing	mm		1.4	1.3
	Fin type (code)			Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm		Φ9.52,Inner groove tube	Φ9.52,Inner groove tube
	Coil length x height x width	mm		730x660x44	995x762x44
	Number of circuits			4	4
Outdoor air flow		m3/h		2700	4000
Outdoor sound pressure level		dB(A)		59	63
Outdoor sound power level		dB(A)		64	67
Throttle type				EXV+Capillary	EXV+Capillary
Outdoor unit	Dimension(W*D*H)	mm		845x363x702	946x410x810
	Packing (W*D*H)	mm		965x395x765	1090x500x875
	Net/Gross weight	Kg		49.4/52.8	66.8/73.4
Refrigerant type	Type	-		R32	R32
	GWP	-		675	675
	Charged quantity	Kg		1.5	2.4
Design pressure		MPa		4.2/1.5	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)		Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")
	Max. refrigerant pipe length	m		50	65
	Max. difference in level	m		25	30
Ambient temperature	Cooling	°C		-15~50	-15~50
	Heating	°C		-15~24	-15~24
Qty'per 20' /40' /40'HQ		Outdoor unit		102/215/216	44/96/144

Notes:

1) Capacities are based on the following conditions:

Cooling(T1): - Indoor Temperature 27°C(80.6°F) DB /19 °C(66.2°F) WB

-Outdoor Temperature 35 °C(95°F) DB /24 °C(75.2°F) WB

-Interconnecting Piping Length 5m

- Level Difference of Zero.

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

-Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

- Interconnecting Piping Length 5 m

- Level Difference of Zero.

2) Capacities are Net Capacities.

3) Due to our policy of innovation some specifications may be changed without notification.

Indoor model			IF2-XY 105M	IF2-XY 140M	IF2-XY 160M
Outdoor model			MC2-Y 105T	MC2-Y 140T	MC2-Y 160T
Power supply (Indoor)		V- Ph-Hz	220~240-1-50	220~240-1-50	220~240-1-50
Power Supply (Outdoor)		V-Ph-Hz	380~415-3-50	380~415-3-50	380~415-3-50
Max. input consumption		W	5600	6200	7500
Max. current		A	10.0	11.2	14
Indoor fan motor	Model		ZKFN-90-8-1	ZKFN-90-8-1	ZKFN-160-8-1-2
	Qty		2	2	2
	Insulation class		E	E	E
	IP rating		IPX4	IPX4	IPX0
	Input	W	96.0	96.0	90.0
	Capacitor	uF	/	/	/
	Speed(Hi/Mi/Lo)	r/min	1200/1050/850	1300/1100/850	1350/1050/850
Indoor coil	Number of rows		3	3	3
	Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37	21x13.37
	Fin spacing	mm	1.3	1.3	1.3
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ7,Inner groove tube	Φ7,Inner groove tube	Φ7,Inner groove tube
	Coil length x height x width	mm	1300x294x40.11	1300x294x40.11	1300x294x40.11
	Number of circuits		8	8	8
Indoor air flow (Hi/Mi/Lo)		m3/h	2160/1844/1431	2329/1930/1417	2454/1834/1426
ESP	Rated	Pa	/	/	/
	Range	Pa	/	/	/
Indoor sound pressure level		dB(A)	50/46/40	54/50/46	54/47/42
Indoor sound power level		dB(A)	57	66	69
Indoor unit	Dimension(W*D*H)	mm	1650x675x235	1650x675x235	1650x675x235
	Packing (W*D*H)	mm	1725x755x313	1725x755x313	1725x755x313
	Net/Gross weight	Kg	41.5/48	41.2/47.6	41.4/47.8
Design pressure		MPa	4.2/1.5	4.2/1.5	4.2/1.5
Drainage water pipe diameter		mm	ODΦ25mm	ODΦ25mm	ODΦ25mm
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")
Controller			Remote control	Remote control	Remote control
Operation temperature		°C	17-30	17-30	17-30
Room temperature	Cooling	°C	17~32	17~32	17~32
	Heating	°C	0~30	0~30	0~30
Qty/per 20' /40' /40'HQ		Indoor unit	72/147/167	72/147/167	72/147/167
Compressor	Model		KTF310D43UMT	KTQ420D1UMU	KTQ420D1UMU
	Type		ROTARY	ROTARY	ROTARY
	Brand		GMCC	GMCC	GMCC
	Capacity	W	10010	13700	13700
	Input	W	2765	3700	3700
	Rated current(RLA)	A	5.38	7.02	7.02
	Refrigerant oil/oil charge	ml	VG74/1000	VG74/1400	VG74/1400
Outdoor fan motor	Model		ZKFN-120-8-2	ZKFN-85-8-22	ZKFN-85-8-22-2
	Qty		1	2	2
	Insulation class		E	E	E
	IP rating		IPX4	IPX4	IPX4
	Output	W	150.0	126.0	126.0
	Capacitor	uF	/	/	/
	Speed	r/min	1050	850	850

Outdoor coil	Number of rows		2.0	1.6	2.0
	Tube pitch(a)x row pitch(b)	mm	25.4x22	25.4x22	25.4x22
	Fin spacing	mm	1.3	1.4	1.4
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.52,Inner groove tube	Φ9.52,Inner groove tube	Φ9.52,Inner groove tube
	Coil length x height x width	mm	995x762x44	990x1270x22+500x1270x22	990x1270x44
	Number of circuits		4	8	8
Outdoor air flow		m ³ /h	4000	7500	7500
Outdoor sound pressure level		dB(A)	61	66	65
Outdoor sound power level		dB(A)	64	72	74
Throttle type			EXV+Capillary	EXV+Capillary	EXV+Capillary
Outdoor unit	Dimension(W*D*H)	mm	946x410x810	952x415x1333	952x415x1333
	Packing (W*D*H)	mm	1090x500x875	1095x495x1480	1095x495x1480
	Net/Gross weight	Kg	81.5/87.0	106.7/119.9	111.3/124.3
Refrigerant type	Type	-	R32	R32	R32
	GWP	-	675	675	675
	Charged quantity	Kg	2.4	2.8	2.95
Design pressure		MPa	4.2/1.5	4.2/1.5	4.2/1.5
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")	Φ9.52/Φ15.9(3/8"/5/8")
	Max. refrigerant pipe length	m	65	65	65
	Max. difference in level	m	30	30	30
Ambient temperature	Cooling	°C	-15~50	-15~50	-15~50
	Heating	°C	-15~24	-15~24	-15~24
Qty'per 20' /40' /40'HQ		Outdoor unit	44/96/144	22/48/48	22/48/48

Notes:

1) Capacities are based on the following conditions:

Cooling(T1): - Indoor Temperature 27°C(80.6°F) DB /19 °C(66.2°F) WB

-Outdoor Temperature 35 °C(95°F) DB /24 °C(75.2°F) WB

-Interconnecting Piping Length 5m

- Level Difference of Zero.

Heating: - Indoor Temperature 20°C(68°F) DB / 15°C(59°F) WB

-Outdoor Temperature 7°C(44.6°F) DB / 6°C(42.8°F) WB

- Interconnecting Piping Length 5 m

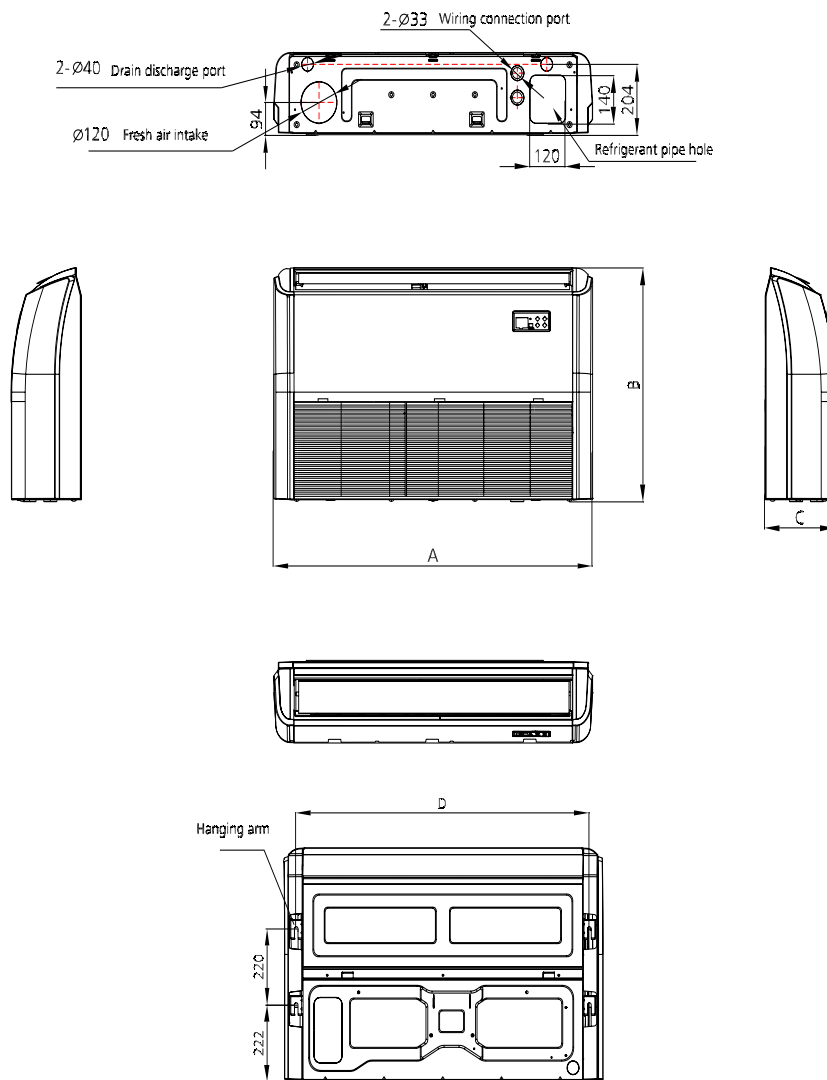
- Level Difference of Zero.

2) Capacities are Net Capacities.

3) Due to our policy of innovation some specifications may be changed without notification.

3. Dimensional Drawings

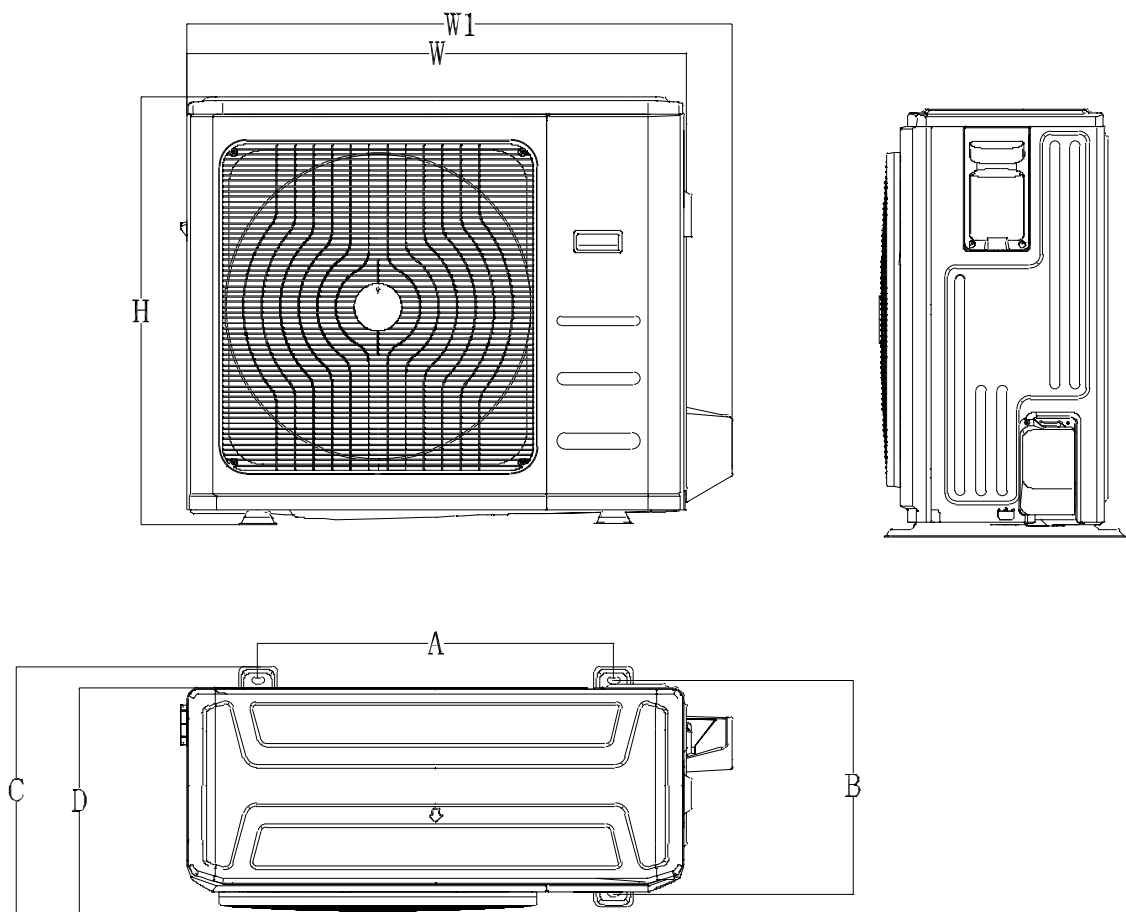
3.1 Indoor Unit



Model	Unit	A	B	C	D
70M	mm	1068	675	235	983
	inch	42.05	26.57	9.25	38.7
105M-160M	mm	1650	675	235	1565
	inch	64.96	26.57	9.25	61.61

3.2 Outdoor Unit

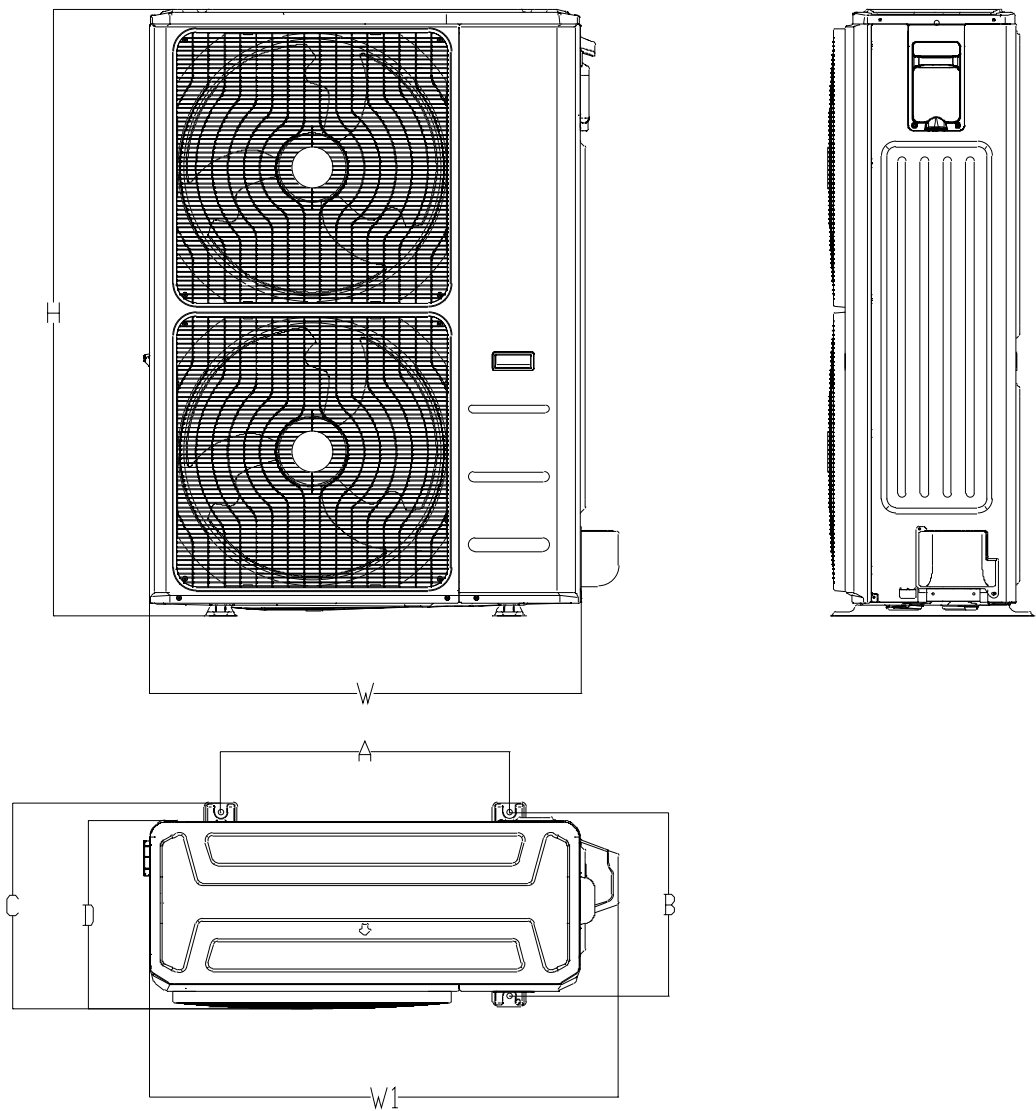
Single Fan Outdoor Unit



Specifications

Model	unit	W	D	H	W1	A	B
MC2-Y 70M	mm	845	363	702	914	540	350
	inch	33.27	14.29	27.64	35.98	21.26	13.78
MC2-Y 105M	mm	946	410	810	1030	673	403
	inch	37.24	16.14	31.89	40.55	26.50	15.87
MC2-Y 105T	mm	946	410	810	1030	673	403
	inch	37.24	16.14	31.89	40.55	26.50	15.87

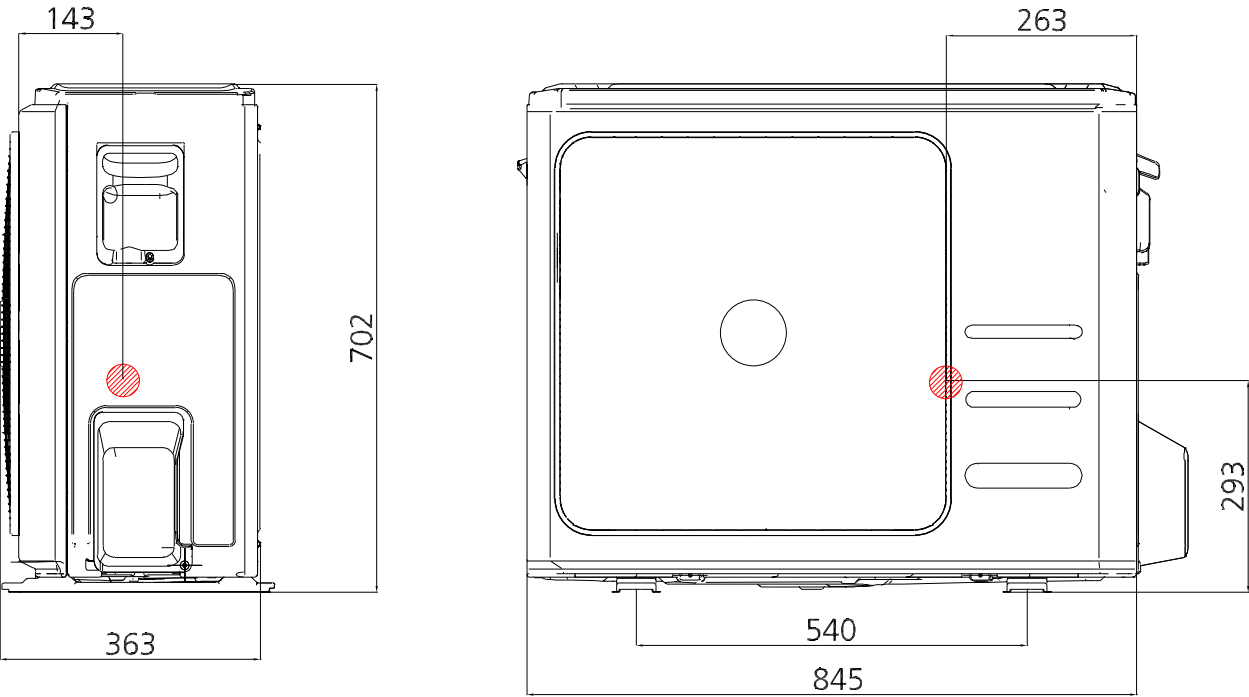
Double Fan Outdoor Unit



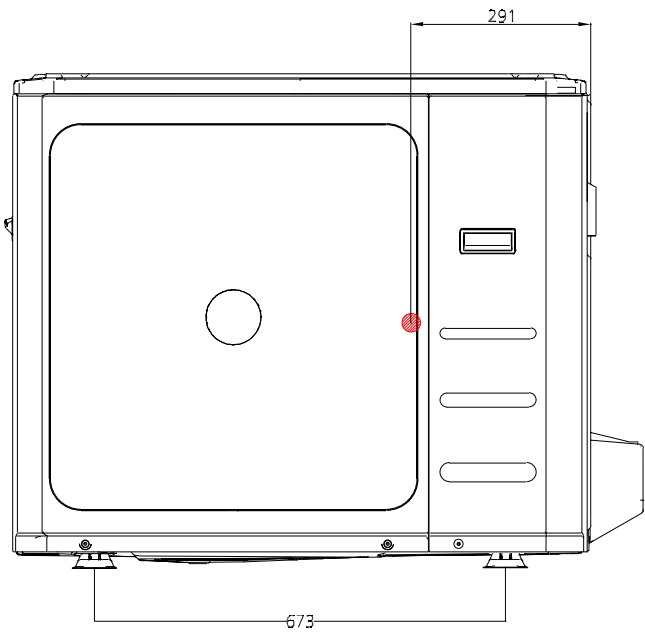
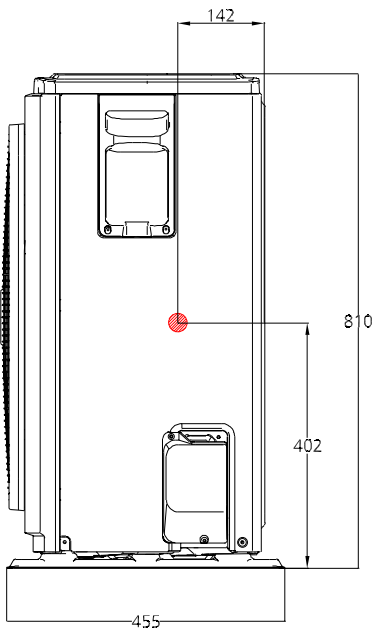
Model	unit	W	D	H	W1	A	B
MC2-Y 140T	mm	952	415	1333	1045	634	404
	inch	37.48	16.34	52.48	41.14	24.96	15.9
MC2-Y 160T	mm	952	415	1333	1045	634	404
	inch	37.48	16.34	52.48	41.14	24.96	15.9

4. Centre of gravity

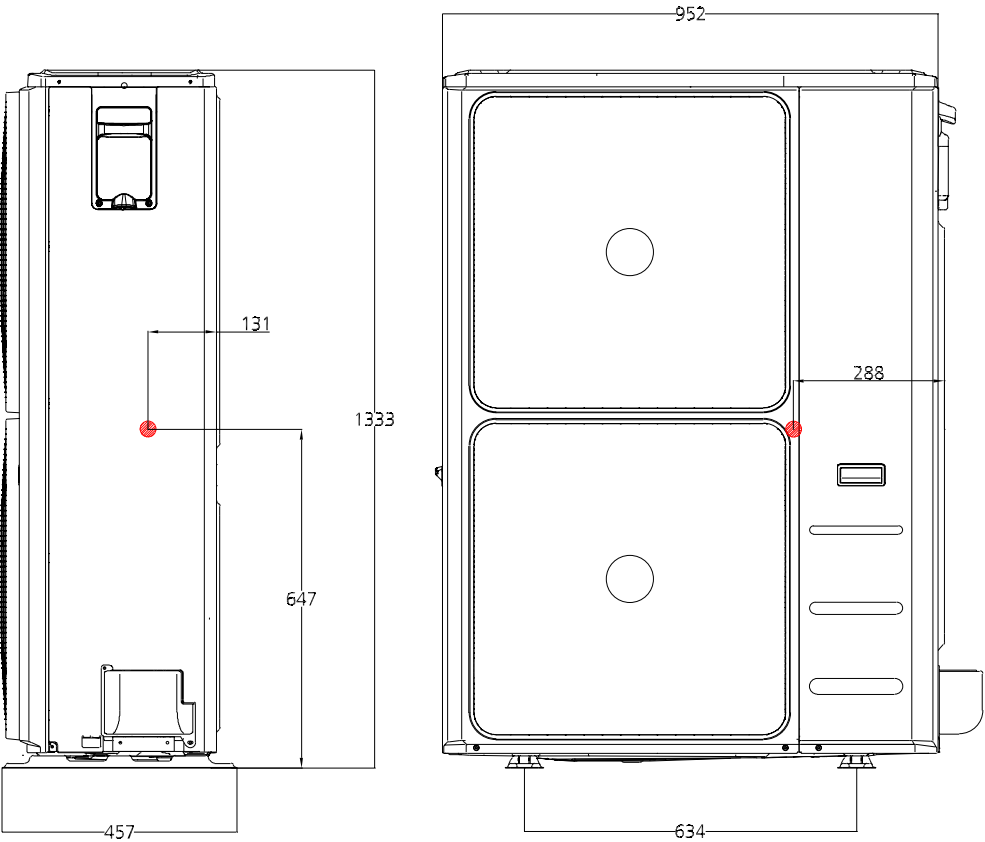
MC2-Y 70M



MC2-Y 105M, MC2-Y 105T



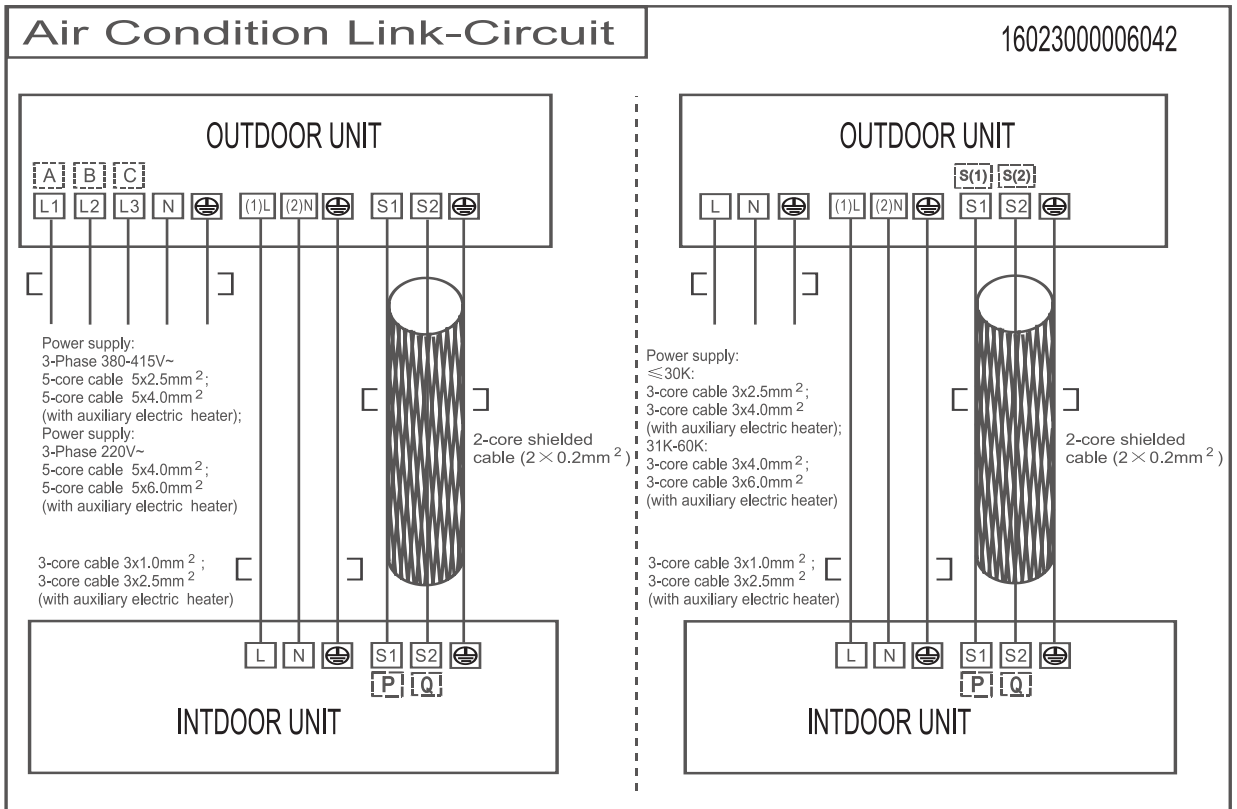
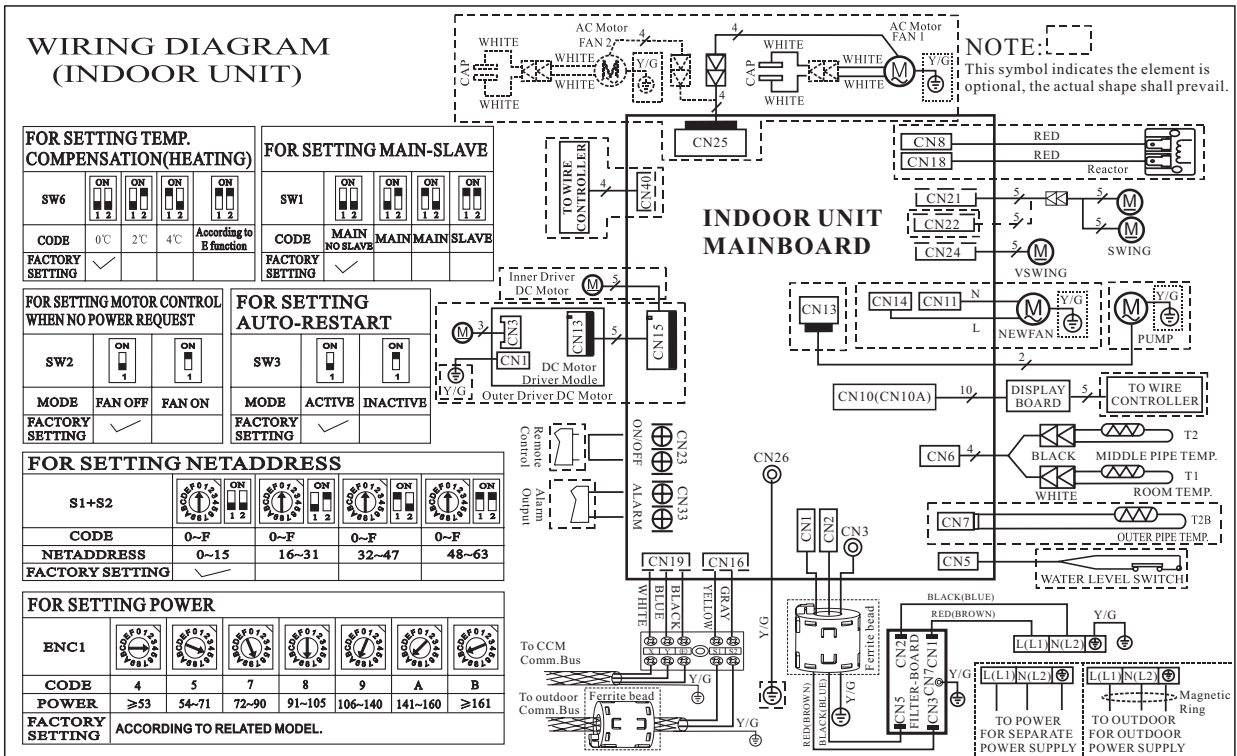
MC2-Y 140T, MC2-Y 160T



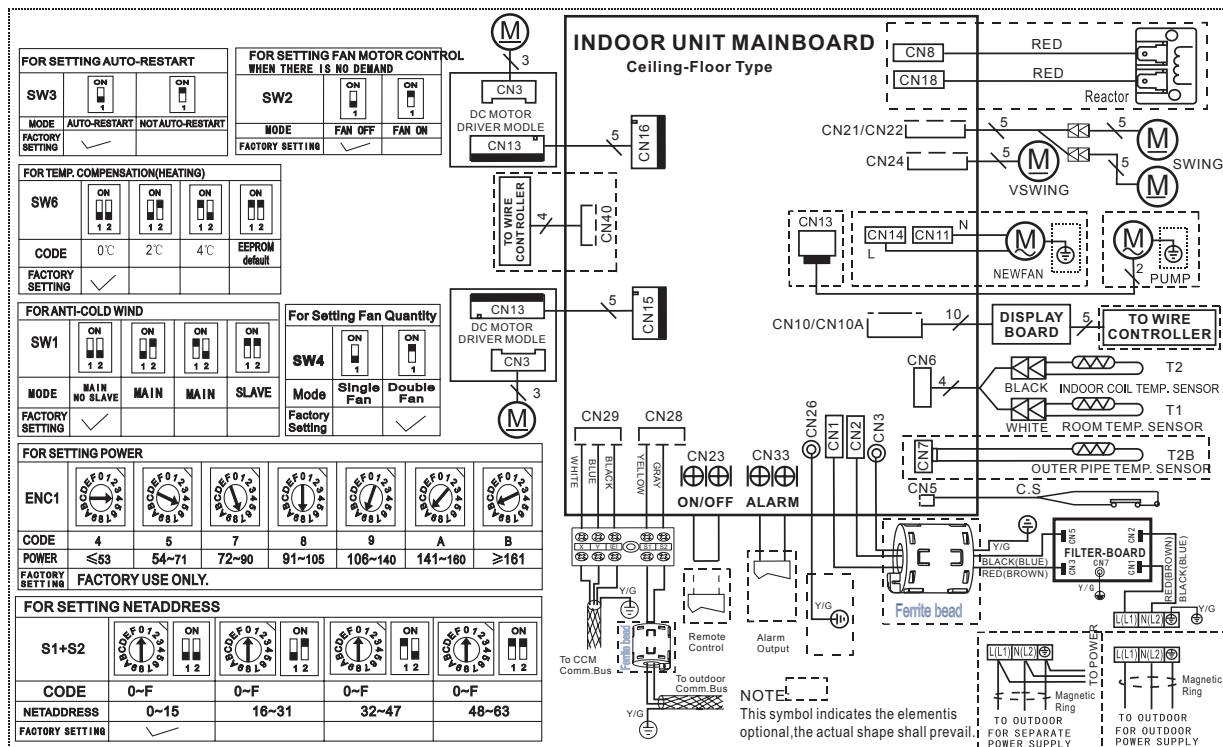
5. Electrical Wiring Diagrams

5.1 Indoor unit

Abbreviation	Paraphrase
Y/G	Yellow-Green Conductor
CAP1	Indoor Fan Capacitor
FAN	Indoor Fan
PUMP	PUMP
L	LIVE
N	NEUTRAL
TO CCM Comm.Bus	Central Controller
T1	Indoor Room Temperature
T2	Coil Temperature of Indoor Heat Exchanger
P1	Super High Speed
P2	High Speed

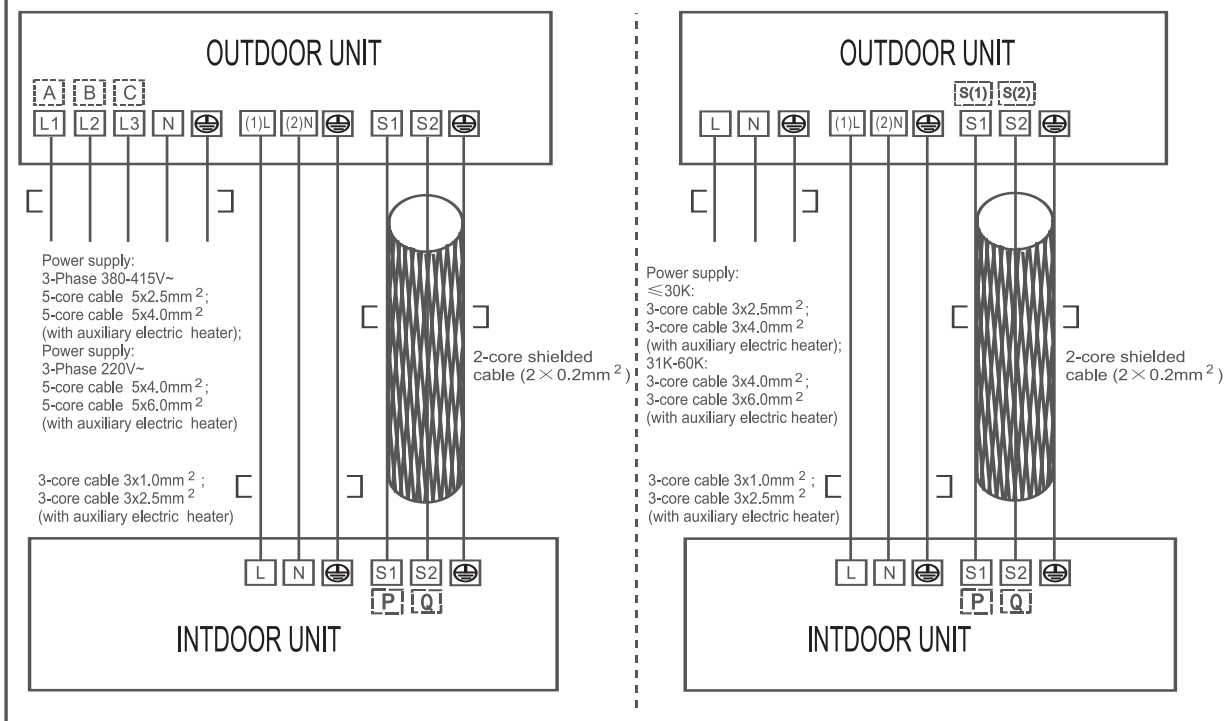


IF2-XY 105M, IF2-XY 140M, IF2-XY 160M

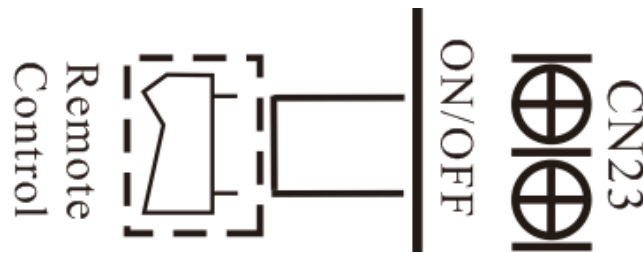


Air Condition Link-Circuit

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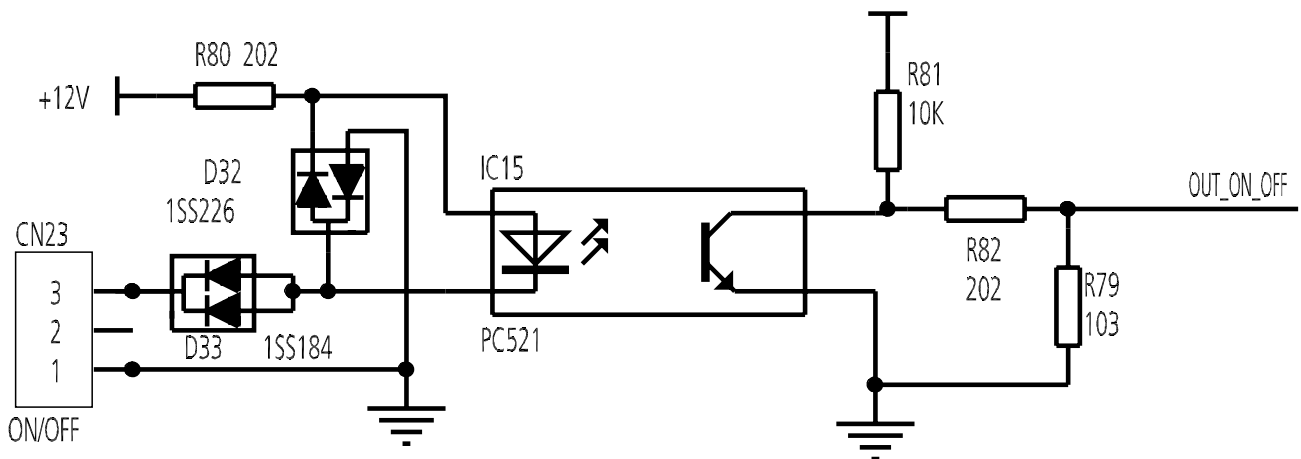


5.2 Some connectors introduce:



A For remote control (ON-OFF) terminal port CN23

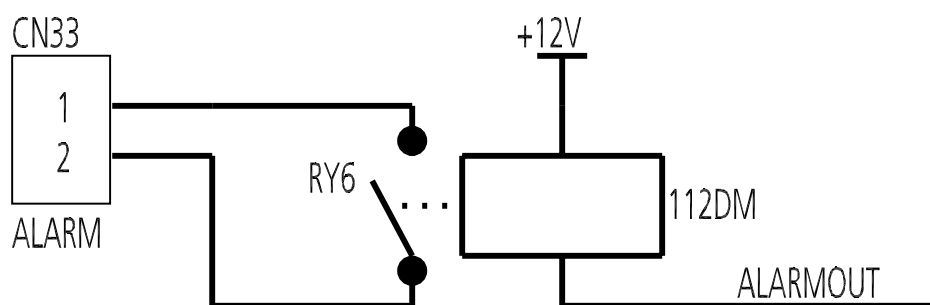
1. Remove the short connector in CN23 when you use ON-OFF function;
 2. When remote switch off (OPEN), the unit would be off;
 3. When remote switch on (CLOSE), the unit would be on;
 4. When close/open the remote switch, the unit would be responded the demand within 2 seconds;
 5. When the remote switch on. You can use remote controller/wire controller to select the mode what you want; when the remote switch off, the unit would not respond the demand from remote controller/wire controller.
- When the remote switch off, but the remote controller/wire controller are on, CP code would be shown on the display board.
6. The voltage of the port is 12V DC, design Max. current is 5mA.

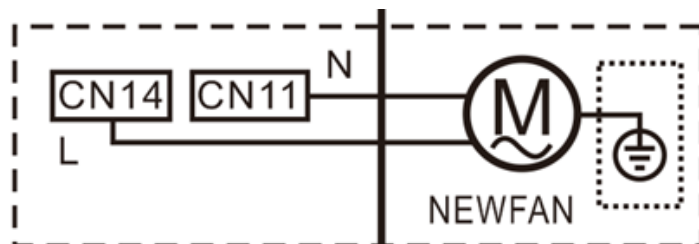




B For ALARM terminal port CN33.

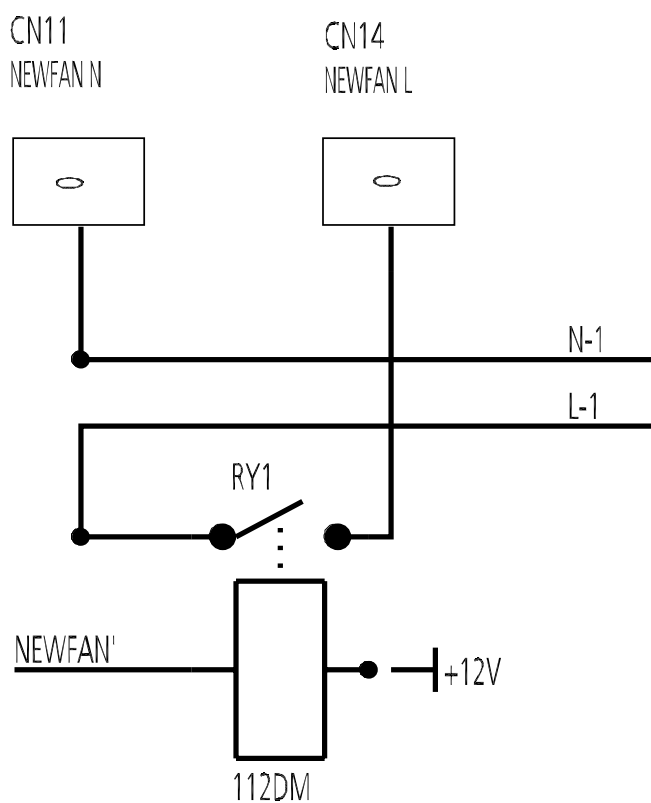
1. Provide the terminal port to connect ALARM, but no voltage of the terminal port , the power from the ALARM system (not from the unit).
2. Although design voltage can support higher voltage, but we strongly ask you connect the power less than 24V, current less than 0.5A.
3. When the unit occurs the problem, the relay would be closed, then ALARM works.



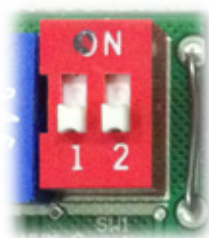


C. For new fresh motor terminal port CN14&CN14.

1. Connect the fan motor to the port, no need care L/N of the motor;
2. The output voltage is the power supply;
3. The fresh motor cannot exceed 200W or 1A, follow the smaller one;
4. The new fresh motor will be worked when the indoor fan motor work ;when the indoor fan motor stops, the new fresh motor would be stopped;
5. When the unit enter force cooling mode or capacity testing mode, the fresh motor isn't work.



5.3 Micro-Switch Introduce:



FOR SETTING MAIN-SLAVE				
SW1				
CODE	MAIN NO SLAVE	MAIN	MAIN	SLAVE
FACTORY SETTING	✓			

A. Micro-switch SW1 is for setting the master or slave unit when the unit is in twin connection.

Range: Master no slave (Normal 1 drive 1 connection), Master (2 positions without difference), Slave



FOR SETTING FAN MOTOR CONTROL WHEN THERE IS NO DEMAND		
SW2		
MODE	FAN OFF	FAN ON
FACTORY SETTING	✓	

B. Micro-switch SW2 is for selection of indoor FAN ACTION if room temperature reaches the setpoint and the compressor stops.

Range: OFF (in 127s), Keep running.



FOR SETTING AUTO-RESTART		
SW3		
MODE	AUTO-RESTART	NOT AUTO-RESTART
FACTORY SETTING	✓	

C. Micro-switch SW3 is for selection of auto-restart function.

Range: Active, inactive



For Setting Fan Quantity		
SW4		
Mode	Single Fan	Double Fan
Factory Setting		✓

D. Micro-switch SW4 is for selection of quantity of fan motors. Same as size selection switch, this switch is for making the PCB suitable for all series units. DO NOT change it at random unless you want to use the PCB as a spare part

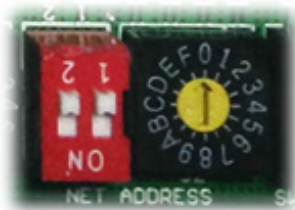
Range: Single Fan, Double Fan



FOR SETTING TEMP. COMPENSATION(HEATING)				
SW6				
CODE	0°C	2°C	4°C	According to E function
FACTORY SETTING	✓			

E. Micro-switch SW6 is for selection of temperature compensation in heating mode. This helps to reduce the real temperature difference between ceiling and floor so that the unit could run properly. If the unit is on-floor installed, 0 should be chosen.

Range: 0°C, 2°C, 4°C, E function (reserved for special customizing)



FOR SETTING NETADDRESS				
S1+S2				
CODE	0~F	0~F	0~F	0~F
NETADDRESS	0~15	16~31	32~47	48~63
FACTORY SETTING	✓			

F. Micro-switch S1 and dial-switch S2 are for address setting when you want to control this unit by a central controller.

Range: 00-63



FOR SETTING POWER(FACTORY USE ONLY)						
ENC1						
CODE	4	5	7	8	9	A
POWER	≤53	54~71	72~90	91~105	106~140	141~160
FACTORY SETTING	ACCORDING TO RELATED MODEL.					

G. Dial-switch ENC1: The indoor PCB is universal designed for whole series units from 18K to 55K. This ENC1 setting will tell the main program what size the unit is.

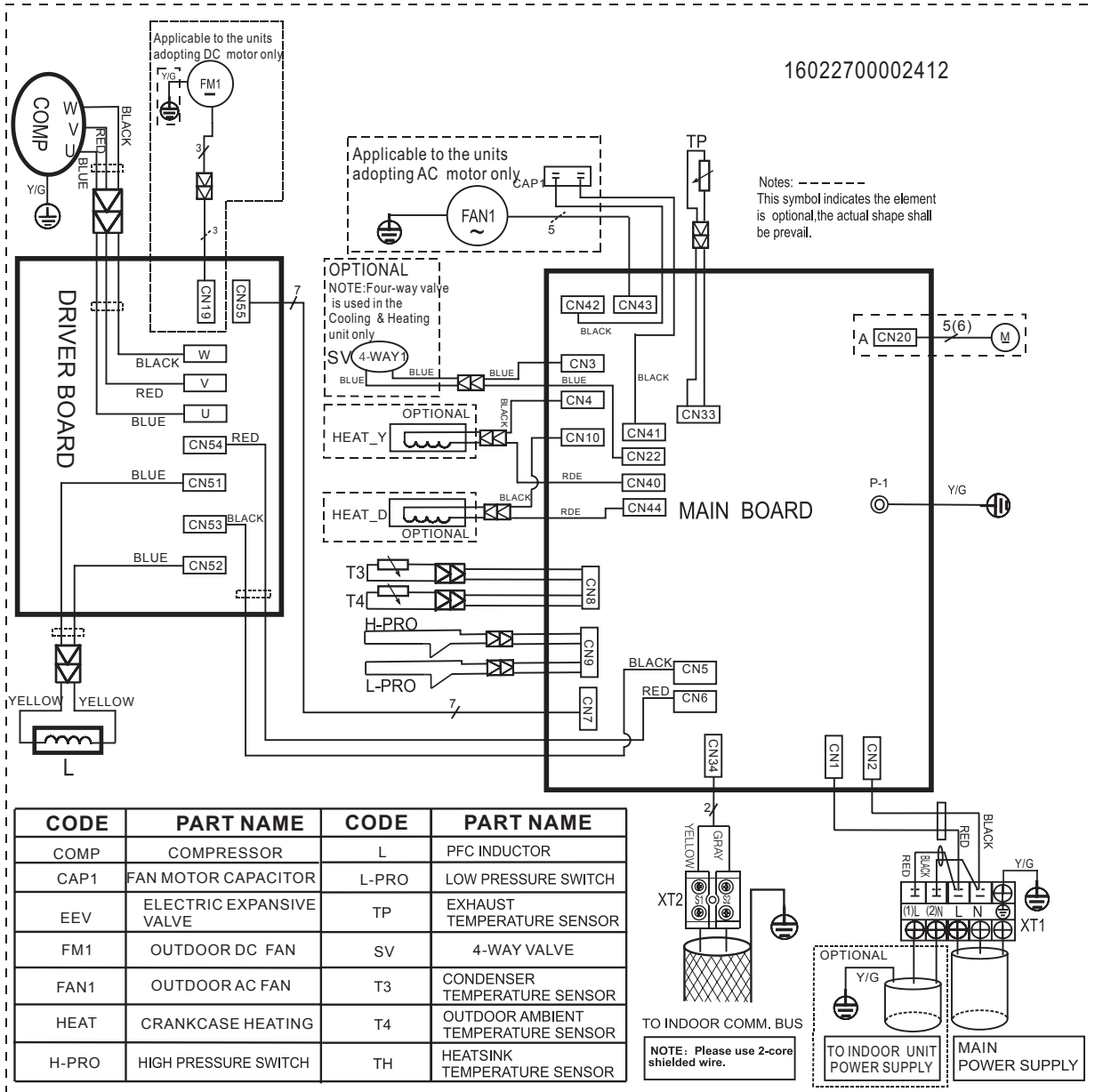
NOTE: Usually there is glue on it because the switch position cannot be changed at random unless you want to use this PCB as a spare part to use in another unit. Then you have to select the right position to match the size of the unit.

"53" means 5.3kW (18K), "105" means 10.5kW(36K), and so on.

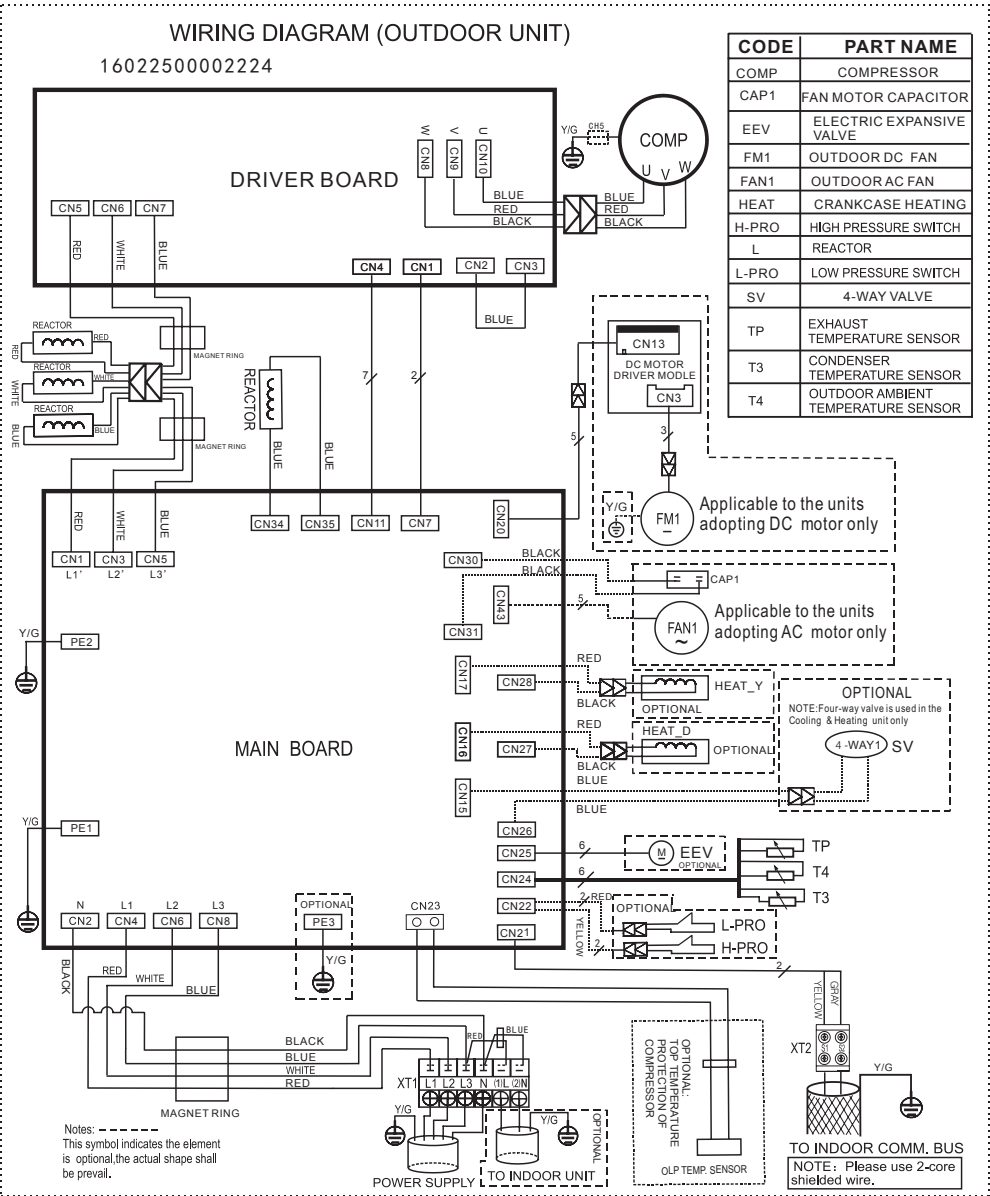
5.4 Outdoor Unit

Abbreviation	Paraphrase
CAP1, CAP2, CAP3,CAP4	Capacitor
FAN1	Outdoor Fan Motor
KM8	Contactor
CT1, CT2	AC Current Detector
COMP	Compressor
L-PRO, K2	Low Pressure Switch/Shorting Stub
K1	High Pressure Switch/Shorting Stub
TRANS	Power Transformer
T4	10K Ω RESISTANCE/Outdoor Ambient Temperature
T3	10K Ω RESISTANCE/Coil Temperature of Condenser
XT1	2-Way Terminal/4-Way Terminal
XT2	3-Way Terminal
XT4	Terminal
K3	Compressor Discharge Temperature/Shorting Stub
XP1~XP5,XT5~XT7	Connectors

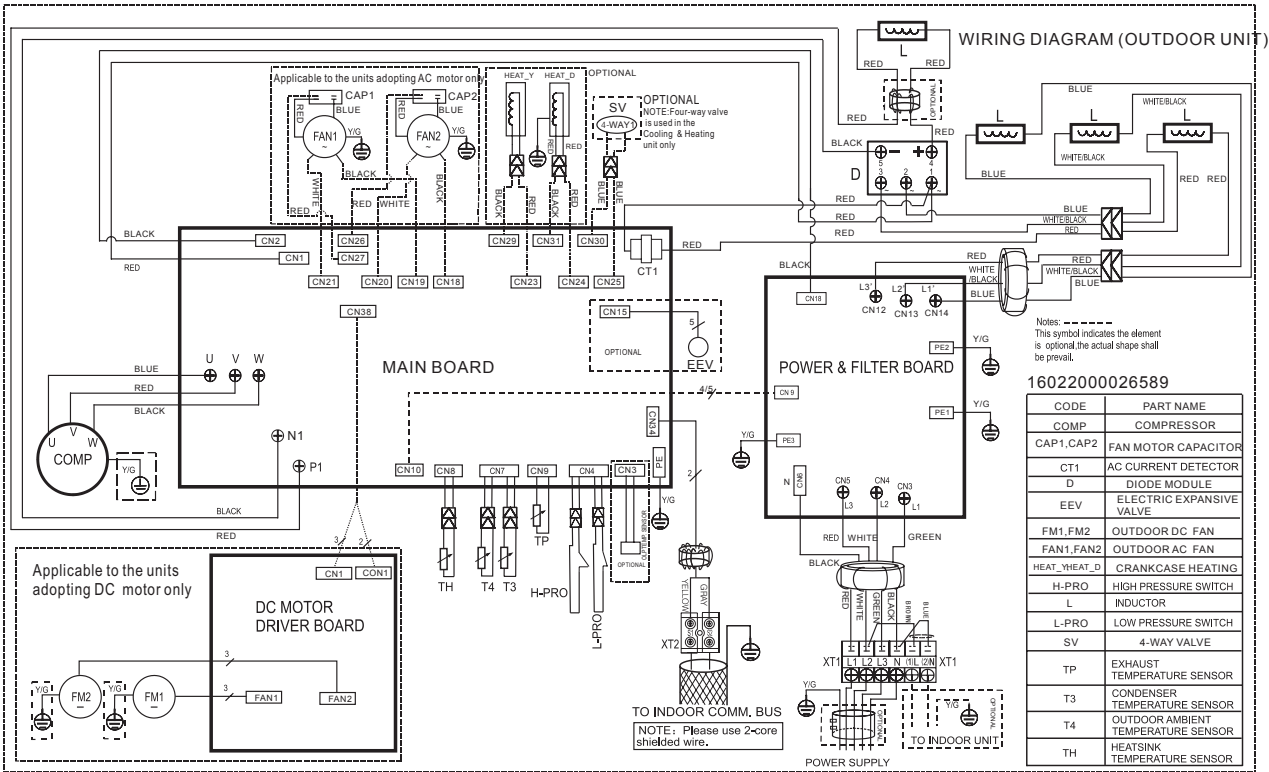




MC2-Y 105T

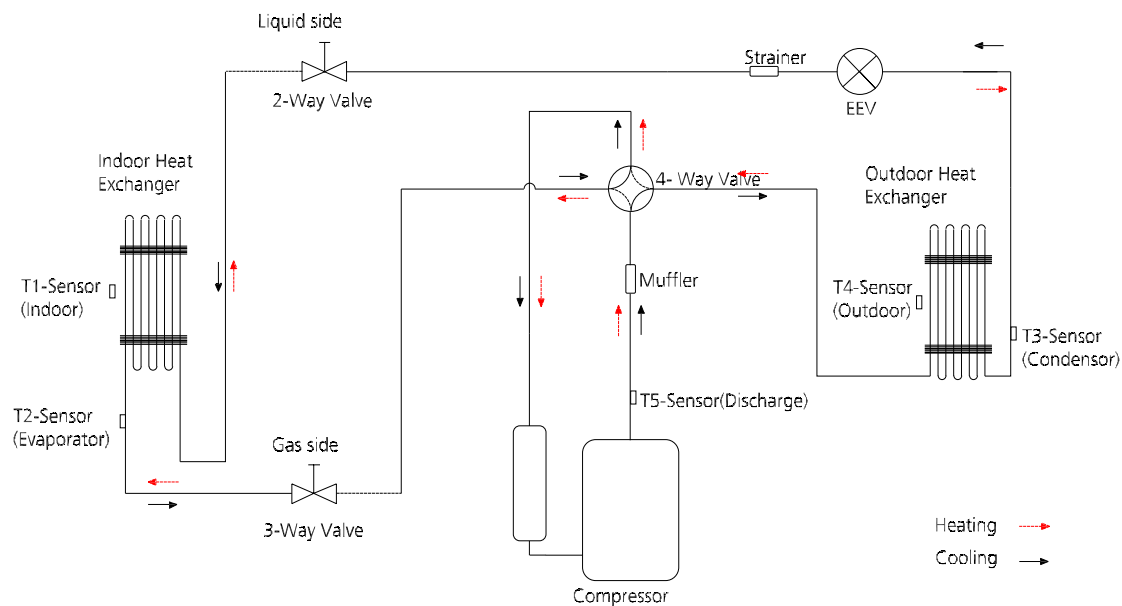


MC2-Y 140T, MC2-Y 160T

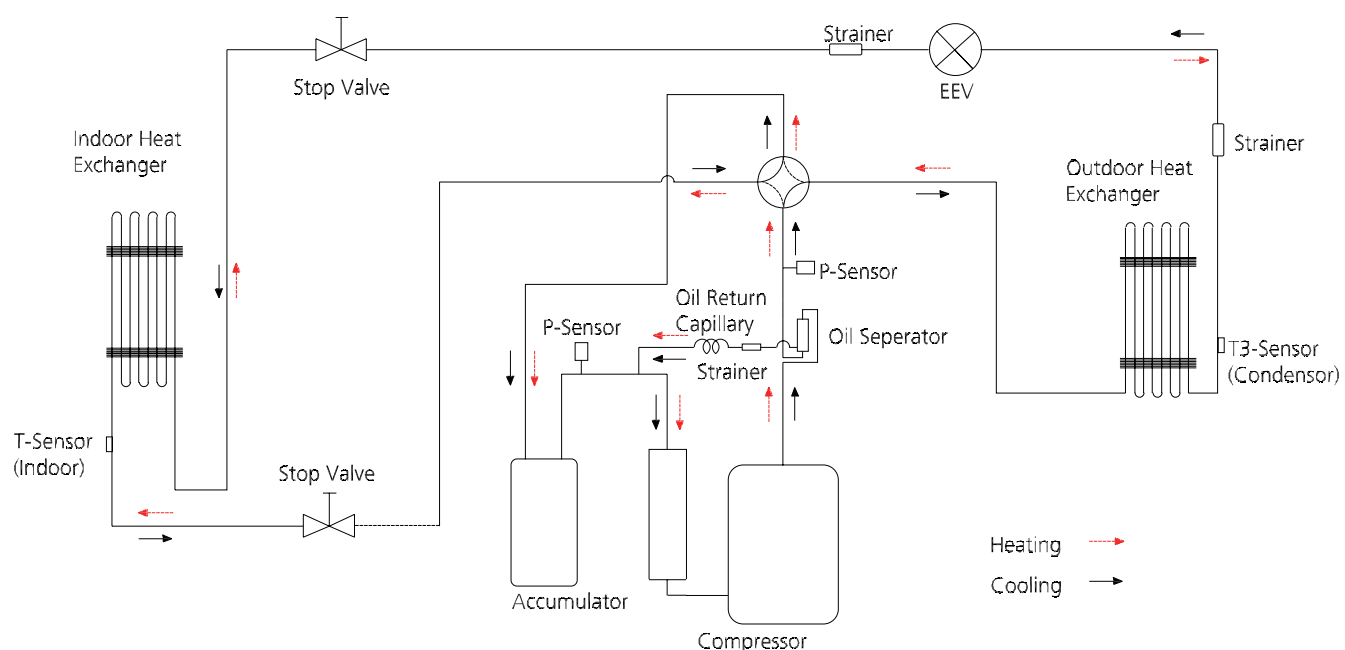


6. Refrigerant Cycle Diagrams

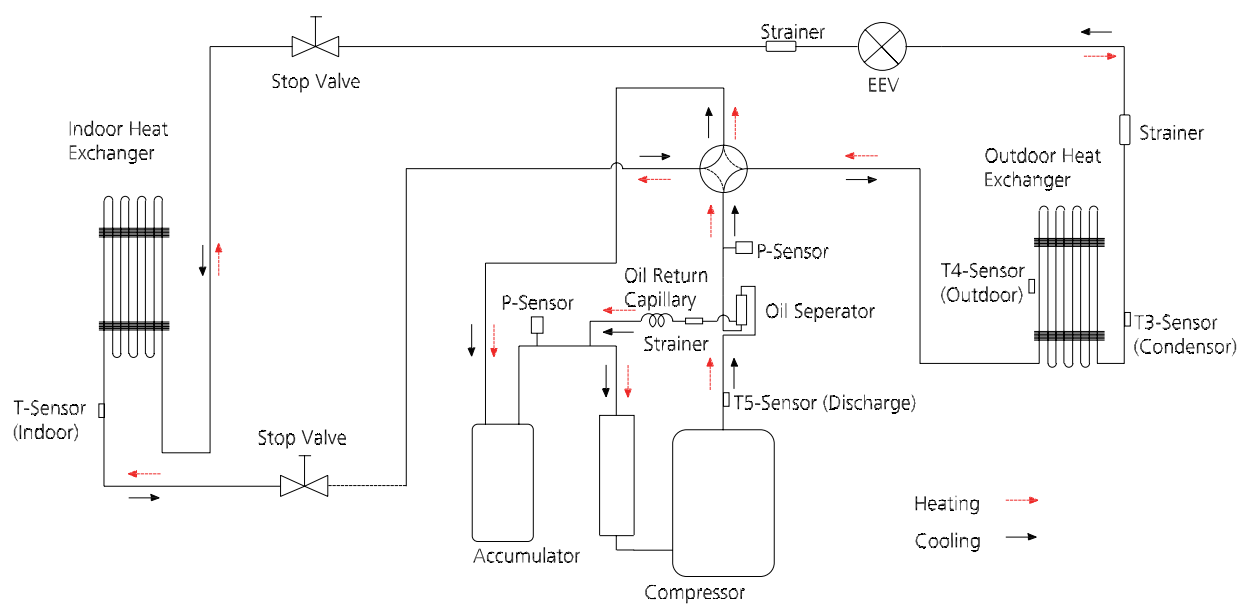
6.1 Heat pump



Model No.	Pipe Size (Diameter:ø) inch		Piping length (m/ft)		Elevation (m/ft)		Additional Refrigerant
	Gas	Liquid	Rated	Max.	Rated	Max.	
MC2-Y 70M	5/8	3/8	5/16.4	50/164.0	0	25/82	24g/m (0.26oz/ft)



Model No.	Pipe Size (Diameter:ø) inch		Piping length (m/ft)		Elevation (m/ft)		Additional Refrigerant
	Gas	Liquid	Rated	Max.	Rated	Max.	
MC2-Y 105T	5/8	3/8	5/16.4	65/213.3	0	30/98.4	24g/m (0.26oz/ft)



Model No.	Pipe Size (Diameter:ø) inch		Piping length (m/ft)		Elevation (m/ft)		Additional Refrigerant
	Gas	Liquid	Rated	Max.	Rated	Max.	
MC2-Y 105M	5/8	3/8	5/16.4	65/213.3	0	30/98.4	24g/m (0.26oz/ft)
MC2-Y 140T	5/8	3/8	5/16.4	65/213.3	0	30/98.4	24g/m (0.26oz/ft)
MC2-Y 160T	5/8	3/8	5/16.4	65/213.3	0	30/98.4	24g/m (0.26oz/ft)

7. Capacity Tables

7.1 Cooling

IF2-XY 70M+MC2-Y 70M																		
INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
853	27	TC	6.8	6.8	6.8	6.9	7.1	7.1	7.1	7.1	7.3	7.3	7.3	7.3	7.9	7.9	7.9	7.9
		S/T	0.67	0.79	0.86	0.98	0.57	0.68	0.74	0.87	0.50	0.61	0.67	0.79	0.35	0.45	0.51	0.62
		PI	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.86	1.86	1.86	1.86
	30	TC	6.6	6.6	6.6	6.7	6.9	6.9	6.9	6.9	7.1	7.1	7.1	7.1	7.7	7.7	7.7	7.7
		S/T	0.68	0.80	0.87	1.00	0.57	0.68	0.75	0.88	0.50	0.61	0.68	0.80	0.35	0.45	0.51	0.63
		PI	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97
	32	TC	6.5	6.5	6.5	6.5	6.8	6.8	6.8	6.8	7.0	7.0	7.0	7.0	7.5	7.5	7.5	7.5
		S/T	0.68	0.80	0.87	1.00	0.57	0.69	0.76	0.88	0.50	0.62	0.68	0.81	0.35	0.45	0.51	0.63
		PI	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.04
	35	TC	6.3	6.3	6.3	6.3	6.6	6.6	6.6	6.6	6.8	6.8	6.9	6.8	7.3	7.3	7.3	7.3
		S/T	0.69	0.81	0.88	1.00	0.57	0.69	0.76	0.89	0.51	0.62	0.69	0.82	0.35	0.45	0.52	0.64
		PI	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.15	2.15	2.15	2.15	2.16	2.16	2.16	2.16
	43	TC	5.7	5.7	5.7	5.8	6.0	6.0	6.0	6.0	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7
		S/T	0.70	0.84	0.92	1.00	0.58	0.71	0.79	0.93	0.51	0.63	0.71	0.85	0.34	0.45	0.52	0.66
		PI	2.49	2.49	2.49	2.49	2.50	2.50	2.50	2.50	2.51	2.51	2.51	2.51	2.52	2.52	2.52	2.52
	46	TC	5.5	5.5	5.5	5.6	5.7	5.7	5.7	5.8	5.9	5.9	5.9	5.9	6.4	6.4	6.4	6.4
		S/T	0.71	0.85	0.93	1.00	0.59	0.72	0.81	0.95	0.51	0.64	0.72	0.87	0.33	0.46	0.53	0.67
		PI	2.62	2.62	2.62	2.62	2.63	2.63	2.63	2.63	2.64	2.64	2.64	2.64	2.66	2.66	2.66	2.66
	52	TC	5.0	5.0	5.1	5.1	5.2	5.2	5.2	5.3	5.4	5.4	5.4	5.5	5.9	5.9	5.9	5.9
		S/T	0.74	0.89	0.98	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.69
		PI	2.96	2.96	2.96	2.96	2.97	2.97	2.97	2.97	2.98	2.98	2.98	2.98	3.00	3.00	3.00	3.00
1066	27	TC	6.9	6.9	7.0	7.1	7.3	7.3	7.3	7.3	7.5	7.5	7.5	7.5	8.1	8.1	8.1	8.1
		S/T	0.71	0.85	0.93	1.00	0.59	0.72	0.80	0.95	0.51	0.64	0.72	0.87	0.34	0.46	0.53	0.66
		PI	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
	30	TC	6.7	6.7	6.8	6.9	7.1	7.1	7.1	7.1	7.3	7.3	7.3	7.3	7.9	7.9	7.9	7.9
		S/T	0.72	0.86	0.94	1.00	0.59	0.73	0.81	0.96	0.51	0.65	0.73	0.88	0.33	0.46	0.53	0.67
		PI	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	32	TC	6.6	6.6	6.7	6.7	6.9	6.9	6.9	7.0	7.2	7.2	7.2	7.2	7.7	7.7	7.7	7.7
		S/T	0.72	0.87	0.95	1.00	0.59	0.73	0.82	0.97	0.51	0.65	0.73	0.88	0.33	0.46	0.53	0.68
		PI	2.06	2.06	2.06	2.06	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.08	2.08	2.08	2.08
	35	TC	6.4	6.4	6.5	6.5	6.7	6.7	6.7	6.8	6.9	6.9	7.0	7.1	7.5	7.5	7.5	7.5
		S/T	0.73	0.88	0.97	1.00	0.60	0.74	0.83	0.99	0.52	0.66	0.74	0.89	0.33	0.46	0.54	0.68
		PI	2.18	2.18	2.18	2.18	2.18	2.18	2.18	2.18	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19
	43	TC	5.8	5.9	5.9	6.0	6.1	6.1	6.1	6.2	6.3	6.3	6.3	6.4	6.8	6.8	6.8	6.8
		S/T	0.75	0.91	1.00	1.00	0.61	0.77	0.86	1.00	0.52	0.68	0.77	0.94	0.32	0.46	0.55	0.71
		PI	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.55	2.55	2.55	2.55	2.57	2.57	2.57	2.57
	46	TC	5.6	5.7	5.7	5.8	5.9	5.9	5.9	5.9	6.1	6.1	6.1	6.1	6.6	6.6	6.6	6.6
		S/T	0.76	0.93	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.72
		PI	2.67	2.67	2.67	2.67	2.68	2.68	2.68	2.68	2.69	2.69	2.69	2.69	2.71	2.71	2.71	2.71
	52	TC	5.1	5.1	5.2	5.2	5.3	5.3	5.4	5.5	5.5	5.5	5.5	5.6	6.0	6.0	6.0	6.0
		S/T	0.79	0.98	1.00	1.00	0.63	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.47	0.57	0.91
		PI	3.01	3.01	3.01	3.01	3.02	3.02	3.02	3.02	3.03	3.03	3.03	3.03	3.05	3.05	3.05	3.05

Note: The table shows the case where the operation frequency of a compressor is fixed.

INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
1208	27	TC	7.1	7.2	7.2	7.3	7.4	7.4	7.4	7.5	7.6	7.6	7.6	7.7	8.2	8.2	8.2	8.2
		S/T	0.73	0.88	0.97	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.69
		PI	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
	30	TC	6.9	6.9	7.0	7.1	7.2	7.2	7.2	7.3	7.4	7.4	7.4	7.5	8.0	8.0	8.0	8.0
		S/T	0.74	0.90	0.99	1.00	0.60	0.76	0.85	1.00	0.52	0.67	0.76	0.92	0.32	0.46	0.55	0.70
		PI	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.04	2.04
	32	TC	6.7	6.8	6.9	6.9	7.1	7.1	7.1	7.1	7.3	7.3	7.3	7.4	7.9	7.9	7.9	7.9
		S/T	0.75	0.91	1.00	1.00	0.61	0.76	0.86	1.00	0.52	0.67	0.76	0.93	0.32	0.46	0.55	0.71
		PI	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.11	2.11	2.11	2.11	2.12	2.12	2.12	2.12
	35	TC	6.5	6.6	6.7	6.7	6.9	6.9	6.9	6.9	7.1	7.1	7.2	7.2	7.6	7.6	7.6	7.6
		S/T	0.75	0.92	1.00	1.00	0.61	0.77	0.87	1.00	0.52	0.68	0.77	0.94	0.32	0.47	0.55	0.72
		PI	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.23	2.23	2.23	2.23	2.24	2.24	2.24	2.24
	43	TC	5.9	6.0	6.1	6.1	6.2	6.2	6.3	6.3	6.4	6.4	6.5	6.5	7.0	7.0	7.0	7.0
		S/T	0.78	0.96	1.00	1.00	0.63	0.80	0.91	1.00	0.53	0.70	0.81	0.99	0.31	0.47	0.57	0.90
		PI	2.58	2.58	2.58	2.58	2.59	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.62	2.62	2.62	2.62
	46	TC	5.7	5.8	5.8	5.9	6.0	6.0	6.1	6.1	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7
		S/T	0.79	0.98	1.00	1.00	0.64	0.82	0.92	1.00	0.54	0.72	0.82	1.00	0.31	0.48	0.57	0.92
		PI	2.72	2.72	2.72	2.72	2.73	2.73	2.73	2.73	2.74	2.74	2.74	2.74	2.76	2.76	2.76	2.76
	52	TC	5.2	5.2	5.3	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.7	6.1	6.1	6.1	6.1
		S/T	0.83	1.00	1.00	1.00	0.66	0.86	0.97	1.00	0.55	0.74	0.86	1.00	0.30	0.48	0.59	0.97
		PI	3.07	3.07	3.07	3.07	3.08	3.08	3.08	3.08	3.09	3.09	3.09	3.09	3.11	3.11	3.11	3.11

TC:Total Cooling Capacity (kW)

S/T:Sensible Cooling Capacity Ratio

PI:Power Input(kW)

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 105M+MC2-Y 105M																		
INDOOR AIRFLOW (CMH)	OUTDOOR DB (C)	ID WB (C)	16.0				18.0				19.0				22.0			
		ID DB (C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
1431	27	TC	10.2	10.2	10.3	10.4	10.7	10.7	10.7	10.8	11.0	11.0	11.0	11.0	11.9	11.9	11.9	11.9
		S/T	0.69	0.82	0.89	1.00	0.58	0.70	0.77	0.91	0.51	0.62	0.70	0.83	0.34	0.45	0.52	0.64
		PI	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.21	3.21	3.21	3.21
	30	TC	9.9	9.9	10.0	10.1	10.4	10.4	10.4	10.5	10.7	10.7	10.7	10.7	11.5	11.5	11.5	11.5
		S/T	0.70	0.83	0.90	1.00	0.58	0.71	0.78	0.92	0.51	0.63	0.70	0.84	0.34	0.45	0.52	0.65
		PI	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.39	3.39	3.39	3.39	3.40	3.40	3.40	3.40
	32	TC	9.7	9.7	9.8	9.9	10.2	10.2	10.2	10.3	10.5	10.5	10.5	10.5	11.3	11.3	11.3	11.3
		S/T	0.70	0.83	0.91	1.00	0.58	0.71	0.79	0.93	0.51	0.63	0.71	0.85	0.34	0.45	0.52	0.65
		PI	3.50	3.50	3.50	3.50	3.51	3.51	3.51	3.51	3.52	3.52	3.52	3.52	3.53	3.53	3.53	3.53
	35	TC	9.4	9.4	9.5	9.6	9.9	9.9	9.9	10.0	10.2	10.2	10.3	10.2	11.0	11.0	11.0	11.0
		S/T	0.71	0.84	0.92	1.00	0.59	0.72	0.80	0.94	0.51	0.64	0.71	0.86	0.34	0.45	0.53	0.66
		PI	3.70	3.70	3.70	3.70	3.71	3.71	3.71	3.71	3.71	3.71	3.72	3.71	3.74	3.74	3.74	3.74
	43	TC	8.6	8.6	8.7	8.8	9.0	9.0	9.0	9.1	9.3	9.3	9.3	9.3	10.0	10.0	10.0	10.0
		S/T	0.73	0.88	0.97	1.00	0.60	0.74	0.83	0.99	0.52	0.66	0.74	0.90	0.33	0.46	0.54	0.68
		PI	4.31	4.31	4.31	4.31	4.32	4.32	4.32	4.32	4.34	4.34	4.34	4.34	4.37	4.37	4.37	4.37
	46	TC	8.2	8.3	8.4	8.5	8.6	8.6	8.6	8.7	8.9	8.9	8.9	9.0	9.6	9.6	9.6	9.6
		S/T	0.74	0.89	0.98	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.70
		PI	4.54	4.54	4.54	4.54	4.55	4.55	4.55	4.55	4.57	4.57	4.57	4.57	4.60	4.60	4.60	4.60
	52	TC	7.4	7.5	7.6	7.7	7.9	7.9	7.9	7.9	8.1	8.1	8.1	8.2	8.8	8.8	8.8	8.8
		S/T	0.76	0.93	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.72
		PI	5.12	5.12	5.12	5.12	5.14	5.14	5.14	5.14	5.15	5.15	5.15	5.15	5.19	5.19	5.19	5.19
1844	27	TC	10.4	10.6	10.7	10.8	10.9	10.9	10.9	11.0	11.2	11.2	11.2	11.3	12.1	12.1	12.1	12.1
		S/T	0.74	0.90	0.99	1.00	0.61	0.76	0.85	1.00	0.52	0.67	0.76	0.92	0.32	0.46	0.55	0.70
		PI	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.28	3.28	3.28	3.28
	30	TC	10.1	10.2	10.3	10.4	10.6	10.6	10.6	10.7	10.9	10.9	10.9	11.0	11.8	11.8	11.8	11.8
		S/T	0.75	0.91	1.00	1.00	0.61	0.77	0.86	1.00	0.52	0.68	0.77	0.94	0.32	0.46	0.55	0.71
		PI	3.45	3.45	3.45	3.45	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.48	3.48	3.48	3.48
	32	TC	9.9	10.0	10.1	10.2	10.4	10.4	10.4	10.5	10.7	10.7	10.7	10.8	11.5	11.5	11.5	11.5
		S/T	0.75	0.92	1.00	1.00	0.61	0.77	0.87	1.00	0.52	0.68	0.78	0.95	0.32	0.47	0.55	0.72
		PI	3.58	3.58	3.58	3.58	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.61	3.61	3.61	3.61
	35	TC	9.6	9.7	9.8	9.9	10.1	10.1	10.2	10.3	10.4	10.4	10.6	10.7	11.2	11.2	11.2	11.2
		S/T	0.76	0.94	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.73
		PI	3.78	3.78	3.78	3.78	3.79	3.79	3.79	3.79	3.79	3.79	3.80	3.79	3.79	3.79	3.79	3.79
	43	TC	8.7	8.8	8.9	9.0	9.2	9.2	9.3	9.3	9.4	9.4	9.5	9.6	10.2	10.2	10.2	10.2
		S/T	0.79	0.98	1.00	1.00	0.64	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.48	0.57	0.76
		PI	4.41	4.41	4.41	4.41	4.42	4.42	4.42	4.42	4.42	4.42	4.43	4.42	4.45	4.45	4.45	4.45
	46	TC	8.4	8.5	8.6	8.6	8.8	8.8	8.9	9.0	9.1	9.1	9.1	9.2	9.8	9.8	9.8	9.8
		S/T	0.81	1.00	1.00	1.00	0.64	0.83	0.94	1.00	0.54	0.73	0.84	1.00	0.31	0.48	0.58	0.78
		PI	4.64	4.64	4.64	4.64	4.65	4.65	4.65	4.65	4.66	4.66	4.66	4.66	4.70	4.70	4.70	4.70
	52	TC	7.6	7.7	7.8	7.9	8.0	8.0	8.1	8.2	8.3	8.3	8.3	8.4	9.0	9.0	9.0	9.0
		S/T	0.84	1.00	1.00	1.00	0.66	0.87	1.00	1.00	0.55	0.76	0.88	1.00	0.30	0.49	0.60	0.91
		PI	5.23	5.23	5.23	5.23	5.25	5.25	5.25	5.25	5.26	5.26	5.26	5.26	5.30	5.30	5.30	5.30

Note: The table shows the case where the operation frequency of a compressor is fixed.

INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
2160	27	TC	10.6	10.7	10.8	11.0	11.1	11.1	11.2	11.3	11.5	11.5	11.5	11.6	12.3	12.3	12.3	12.3
		S/T	0.78	0.96	1.00	1.00	0.63	0.81	0.91	1.00	0.53	0.70	0.81	1.00	0.31	0.47	0.57	0.75
		PI	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.35	3.35	3.35	3.35
	30	TC	10.3	10.4	10.6	10.7	10.8	10.8	10.9	11.0	11.1	11.1	11.1	11.3	12.0	12.0	12.0	12.0
		S/T	0.79	0.98	1.00	1.00	0.63	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.48	0.58	0.76
		PI	3.52	3.52	3.52	3.52	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.55	3.55	3.55	3.55
	32	TC	10.1	10.2	10.3	10.4	10.6	10.6	10.7	10.8	10.9	10.9	10.9	11.0	11.8	11.8	11.8	11.8
		S/T	0.80	0.99	1.00	1.00	0.64	0.82	0.93	1.00	0.54	0.72	0.83	1.00	0.31	0.48	0.58	0.77
		PI	3.65	3.65	3.65	3.65	3.66	3.66	3.66	3.66	3.67	3.67	3.67	3.67	3.69	3.69	3.69	3.69
	35	TC	9.8	9.9	10.0	10.1	10.3	10.3	10.4	10.5	10.6	10.6	10.8	10.9	11.4	11.4	11.4	11.4
		S/T	0.81	1.00	1.00	1.00	0.64	0.84	0.95	1.00	0.54	0.73	0.83	1.00	0.31	0.48	0.58	0.78
		PI	3.86	3.86	3.86	3.86	3.87	3.87	3.87	3.87	3.87	3.87	3.88	3.87	3.90	3.90	3.90	3.90
	43	TC	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.6	9.6	9.7	9.8	10.4	10.4	10.4	10.4
		S/T	0.84	1.00	1.00	1.00	0.66	0.88	1.00	1.00	0.55	0.76	0.88	1.00	0.30	0.49	0.60	0.90
		PI	4.49	4.49	4.49	4.49	4.51	4.51	4.51	4.51	4.52	4.52	4.52	4.52	4.55	4.55	4.55	4.55
	46	TC	8.6	8.6	8.7	8.8	9.0	9.1	9.1	9.2	9.3	9.3	9.3	9.4	10.1	10.1	10.1	10.1
		S/T	0.86	1.00	1.00	1.00	0.67	0.89	1.00	1.00	0.56	0.77	0.90	1.00	0.30	0.49	0.61	0.92
		PI	4.73	4.73	4.73	4.73	4.75	4.75	4.75	4.75	4.76	4.76	4.76	4.76	4.80	4.80	4.80	4.80
	52	TC	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.4	8.4	8.5	8.6	9.1	9.1	9.1	9.1
		S/T	0.90	1.00	1.00	1.00	0.70	0.94	1.00	1.00	0.57	0.81	0.95	1.00	0.29	0.51	0.64	0.97
		PI	5.34	5.34	5.34	5.34	5.36	5.36	5.36	5.36	5.37	5.37	5.37	5.37	5.41	5.41	5.41	5.41

TC:Total Cooling Capacity (kW)

S/T:Sensible Cooling Capacity Ratio

PI:Power Input(kW)

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 105M+MC2-Y 105T																		
INDOOR AIRFLOW (CMH)	OUTDOOR DB(C)	ID WB (C)	16.0				18.0				19.0				22.0			
		ID DB (C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
1431	27	TC	10.2	10.2	10.3	10.4	10.7	10.7	10.7	10.8	11.0	11.0	11.0	11.0	11.9	11.9	11.9	11.9
		S/T	0.69	0.82	0.89	1.00	0.58	0.70	0.77	0.91	0.51	0.62	0.70	0.83	0.34	0.45	0.52	0.64
		PI	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.18	3.18	3.18	3.18
	30	TC	9.9	9.9	10.0	10.1	10.4	10.4	10.4	10.5	10.7	10.7	10.7	10.7	11.5	11.5	11.5	11.5
		S/T	0.70	0.83	0.90	1.00	0.58	0.71	0.78	0.92	0.51	0.63	0.70	0.84	0.34	0.45	0.52	0.65
		PI	3.34	3.34	3.34	3.34	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.37	3.37	3.37	3.37
	32	TC	9.7	9.7	9.8	9.9	10.2	10.2	10.2	10.3	10.5	10.5	10.5	10.5	11.3	11.3	11.3	11.3
		S/T	0.70	0.83	0.91	1.00	0.58	0.71	0.79	0.93	0.51	0.63	0.71	0.85	0.34	0.45	0.52	0.65
		PI	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.48	3.48	3.48	3.48	3.50	3.50	3.50	3.50
	35	TC	9.4	9.4	9.5	9.6	9.9	9.9	9.9	10.0	10.2	10.2	10.3	10.2	11.0	11.0	11.0	11.0
		S/T	0.71	0.84	0.92	1.00	0.59	0.72	0.80	0.94	0.51	0.64	0.71	0.86	0.34	0.45	0.53	0.66
		PI	3.66	3.66	3.66	3.66	3.67	3.67	3.67	3.67	3.67	3.67	3.68	3.67	3.70	3.70	3.70	3.70
	43	TC	8.6	8.6	8.7	8.8	9.0	9.0	9.0	9.1	9.3	9.3	9.3	9.3	10.0	10.0	10.0	10.0
		S/T	0.73	0.88	0.97	1.00	0.60	0.74	0.83	0.99	0.52	0.66	0.74	0.90	0.33	0.46	0.54	0.68
		PI	4.26	4.26	4.26	4.26	4.28	4.28	4.28	4.28	4.29	4.29	4.29	4.29	4.32	4.32	4.32	4.32
	46	TC	8.2	8.3	8.4	8.5	8.6	8.6	8.6	8.7	8.9	8.9	8.9	9.0	9.6	9.6	9.6	9.6
		S/T	0.74	0.89	0.98	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.70
		PI	4.49	4.49	4.49	4.49	4.51	4.51	4.51	4.51	4.52	4.52	4.52	4.52	4.55	4.55	4.55	4.55
	52	TC	7.4	7.5	7.6	7.7	7.9	7.9	7.9	7.9	8.1	8.1	8.1	8.2	8.8	8.8	8.8	8.8
		S/T	0.76	0.93	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.72
		PI	5.07	5.07	5.07	5.07	5.08	5.08	5.08	5.08	5.09	5.09	5.09	5.09	5.13	5.13	5.13	5.13
1844	27	TC	10.4	10.6	10.7	10.8	10.9	10.9	10.9	11.0	11.2	11.2	11.2	11.3	12.1	12.1	12.1	12.1
		S/T	0.74	0.90	0.99	1.00	0.61	0.76	0.85	1.00	0.52	0.67	0.76	0.92	0.32	0.46	0.55	0.70
		PI	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.24	3.24	3.24	3.24
	30	TC	10.1	10.2	10.3	10.4	10.6	10.6	10.6	10.7	10.9	10.9	10.9	11.0	11.8	11.8	11.8	11.8
		S/T	0.75	0.91	1.00	1.00	0.61	0.77	0.86	1.00	0.52	0.68	0.77	0.94	0.32	0.46	0.55	0.71
		PI	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.42	3.42	3.42	3.42	3.43	3.43	3.43	3.43
	32	TC	9.9	10.0	10.1	10.2	10.4	10.4	10.4	10.5	10.7	10.7	10.7	10.8	11.5	11.5	11.5	11.5
		S/T	0.75	0.92	1.00	1.00	0.61	0.77	0.87	1.00	0.52	0.68	0.78	0.95	0.32	0.47	0.55	0.72
		PI	3.53	3.53	3.53	3.53	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.56	3.56	3.56	3.56
	35	TC	9.6	9.7	9.8	9.9	10.1	10.1	10.2	10.3	10.4	10.4	10.6	10.7	11.2	11.2	11.2	11.2
		S/T	0.76	0.94	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.73
		PI	3.73	3.73	3.73	3.73	3.74	3.74	3.74	3.74	3.74	3.74	3.75	3.74	3.74	3.74	3.74	3.74
	43	TC	8.7	8.8	8.9	9.0	9.2	9.2	9.3	9.3	9.4	9.4	9.5	9.6	10.2	10.2	10.2	10.2
		S/T	0.79	0.98	1.00	1.00	0.64	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.48	0.57	0.76
		PI	4.35	4.35	4.35	4.35	4.36	4.36	4.36	4.36	4.37	4.37	4.37	4.37	4.39	4.39	4.39	4.39
	46	TC	8.4	8.5	8.6	8.6	8.8	8.8	8.9	9.0	9.1	9.1	9.1	9.2	9.8	9.8	9.8	9.8
		S/T	0.81	1.00	1.00	1.00	0.64	0.83	0.94	1.00	0.54	0.73	0.84	1.00	0.31	0.48	0.58	0.78
		PI	4.58	4.58	4.58	4.58	4.59	4.59	4.59	4.59	4.60	4.60	4.60	4.60	4.64	4.64	4.64	4.64
	52	TC	7.6	7.7	7.8	7.9	8.0	8.0	8.1	8.2	8.3	8.3	8.3	8.4	9.0	9.0	9.0	9.0
		S/T	0.84	1.00	1.00	1.00	0.66	0.87	1.00	1.00	0.55	0.76	0.88	1.00	0.30	0.49	0.60	0.91
		PI	5.16	5.16	5.16	5.16	5.18	5.18	5.18	5.18	5.19	5.19	5.19	5.19	5.23	5.23	5.23	5.23

Note: The table shows the case where the operation frequency of a compressor is fixed.

INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
2160	27	TC	10.6	10.7	10.8	11.0	11.1	11.1	11.2	11.3	11.5	11.5	11.5	11.6	12.3	12.3	12.3	12.3
		S/T	0.78	0.96	1.00	1.00	0.63	0.81	0.91	1.00	0.53	0.70	0.81	1.00	0.31	0.47	0.57	0.75
		PI	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.31	3.31	3.31	3.31
	30	TC	10.3	10.4	10.6	10.7	10.8	10.8	10.9	11.0	11.1	11.1	11.1	11.3	12.0	12.0	12.0	12.0
		S/T	0.79	0.98	1.00	1.00	0.63	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.48	0.58	0.76
		PI	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.49	3.49	3.49	3.49	3.50	3.50	3.50	3.50
	32	TC	10.1	10.2	10.3	10.4	10.6	10.6	10.7	10.8	10.9	10.9	10.9	11.0	11.8	11.8	11.8	11.8
		S/T	0.80	0.99	1.00	1.00	0.64	0.82	0.93	1.00	0.54	0.72	0.83	1.00	0.31	0.48	0.58	0.77
		PI	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.62	3.62	3.62	3.62	3.64	3.64	3.64	3.64
	35	TC	9.8	9.9	10.0	10.1	10.3	10.3	10.4	10.5	10.6	10.6	10.8	10.9	11.4	11.4	11.4	11.4
		S/T	0.81	1.00	1.00	1.00	0.64	0.84	0.95	1.00	0.54	0.73	0.83	1.00	0.31	0.48	0.58	0.78
		PI	3.81	3.81	3.81	3.81	3.82	3.82	3.82	3.82	3.82	3.82	3.83	3.82	3.85	3.85	3.85	3.85
	43	TC	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.6	9.6	9.7	9.8	10.4	10.4	10.4	10.4
		S/T	0.84	1.00	1.00	1.00	0.66	0.88	1.00	1.00	0.55	0.76	0.88	1.00	0.30	0.49	0.60	0.90
		PI	4.44	4.44	4.44	4.44	4.45	4.45	4.45	4.45	4.46	4.46	4.46	4.46	4.50	4.50	4.50	4.50
	46	TC	8.6	8.6	8.7	8.8	9.0	9.1	9.1	9.2	9.3	9.3	9.3	9.4	10.1	10.1	10.1	10.1
		S/T	0.86	1.00	1.00	1.00	0.67	0.89	1.00	1.00	0.56	0.77	0.90	1.00	0.30	0.49	0.61	0.92
		PI	4.67	4.67	4.67	4.67	4.69	4.69	4.69	4.69	4.70	4.70	4.70	4.70	4.74	4.74	4.74	4.74
	52	TC	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.4	8.4	8.5	8.6	9.1	9.1	9.1	9.1
		S/T	0.90	1.00	1.00	1.00	0.70	0.94	1.00	1.00	0.57	0.81	0.95	1.00	0.29	0.51	0.64	0.97
		PI	5.27	5.27	5.27	5.27	5.29	5.29	5.29	5.29	5.30	5.30	5.30	5.30	5.34	5.34	5.34	5.34

TC:Total Cooling Capacity (kW)

S/T:Sensible Cooling Capacity Ratio

PI:Power Input(kW)

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 140M+MC2-Y 140T																		
INDOOR AIRFLOW (CMH)	OUTDOOR DB(C)	ID WB (C)	16.0				18.0				19.0				22.0			
		ID DB (C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
1417	27	TC	13.6	13.6	13.6	13.7	14.2	14.2	14.2	14.2	14.7	14.7	14.7	14.7	15.8	15.8	15.8	15.8
		S/T	0.65	0.75	0.80	0.91	0.56	0.65	0.71	0.81	0.50	0.59	0.64	0.74	0.37	0.45	0.50	0.59
		PI	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.65	4.65	4.65	4.65
	30	TC	13.2	13.2	13.2	13.4	13.8	13.8	13.8	13.8	14.2	14.2	14.2	14.2	15.4	15.4	15.4	15.4
		S/T	0.65	0.75	0.81	0.92	0.56	0.65	0.71	0.82	0.50	0.59	0.65	0.75	0.37	0.45	0.50	0.60
		PI	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.91	4.91	4.91	4.91	4.93	4.93	4.93	4.93
	32	TC	13.0	13.0	13.0	13.1	13.6	13.6	13.6	13.6	14.0	14.0	14.0	14.0	15.1	15.1	15.1	15.1
		S/T	0.66	0.76	0.82	0.93	0.56	0.66	0.71	0.82	0.50	0.59	0.65	0.75	0.37	0.45	0.50	0.60
		PI	5.08	5.08	5.08	5.08	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.12	5.12	5.12	5.12
	35	TC	12.5	12.5	12.5	12.7	13.2	13.2	13.2	13.2	13.6	13.6	13.8	13.6	14.6	14.6	14.6	14.6
		S/T	0.66	0.76	0.82	0.94	0.56	0.66	0.72	0.83	0.50	0.60	0.65	0.76	0.36	0.45	0.50	0.60
		PI	5.36	5.36	5.36	5.36	5.37	5.37	5.37	5.37	5.38	5.38	5.39	5.38	5.42	5.42	5.42	5.42
	43	TC	11.4	11.4	11.4	11.5	11.9	11.9	11.9	11.9	12.3	12.3	12.4	12.3	13.3	13.3	13.3	13.3
		S/T	0.67	0.78	0.85	0.98	0.57	0.68	0.74	0.86	0.50	0.61	0.67	0.79	0.35	0.45	0.51	0.62
		PI	6.25	6.25	6.25	6.25	6.26	6.26	6.26	6.26	6.28	6.28	6.28	6.28	6.33	6.33	6.33	6.33
	46	TC	11.0	11.0	11.0	11.1	11.5	11.5	11.5	11.5	11.9	11.9	11.9	11.9	12.9	12.9	12.9	12.9
		S/T	0.68	0.80	0.87	0.99	0.57	0.68	0.75	0.88	0.50	0.61	0.68	0.80	0.35	0.45	0.51	0.62
		PI	6.58	6.58	6.58	6.58	6.60	6.60	6.60	6.60	6.62	6.62	6.62	6.62	6.67	6.67	6.67	6.67
	52	TC	9.9	9.9	10.0	10.1	10.4	10.4	10.4	10.6	10.8	10.8	10.8	10.8	11.7	11.7	11.7	11.7
		S/T	0.69	0.82	0.90	1.00	0.58	0.70	0.78	0.91	0.51	0.63	0.70	0.83	0.34	0.45	0.52	0.64
		PI	7.42	7.42	7.42	7.42	7.44	7.44	7.44	7.44	7.46	7.46	7.46	7.46	7.52	7.52	7.52	7.52
1930	27	TC	13.9	13.9	14.0	14.2	14.5	14.5	14.5	14.7	15.0	15.0	15.0	15.0	16.1	16.1	16.1	16.1
		S/T	0.69	0.82	0.89	1.00	0.58	0.70	0.77	0.90	0.51	0.62	0.69	0.83	0.34	0.45	0.52	0.64
		PI	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.74	4.74	4.74	4.74	4.75	4.75	4.75	4.75
	30	TC	13.5	13.5	13.6	13.8	14.1	14.1	14.1	14.3	14.6	14.6	14.6	14.6	15.7	15.7	15.7	15.7
		S/T	0.69	0.83	0.90	1.00	0.58	0.70	0.78	0.92	0.51	0.63	0.70	0.84	0.34	0.45	0.52	0.65
		PI	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.01	5.01	5.01	5.01	5.03	5.03	5.03	5.03
	32	TC	13.2	13.2	13.4	13.5	13.9	13.9	13.9	14.0	14.3	14.3	14.3	14.3	15.4	15.4	15.4	15.4
		S/T	0.70	0.83	0.91	1.00	0.58	0.71	0.79	0.92	0.51	0.63	0.71	0.84	0.34	0.45	0.52	0.65
		PI	5.18	5.18	5.18	5.18	5.19	5.19	5.19	5.19	5.20	5.20	5.20	5.20	5.23	5.23	5.23	5.23
	35	TC	12.8	12.8	13.0	13.1	13.4	13.4	13.4	13.6	13.9	13.9	14.1	13.9	14.9	14.9	14.9	14.9
		S/T	0.70	0.84	0.92	1.00	0.58	0.72	0.80	0.94	0.51	0.64	0.71	0.86	0.34	0.45	0.53	0.66
		PI	5.47	5.47	5.47	5.47	5.48	5.48	5.48	5.48	5.49	5.49	5.50	5.49	5.49	5.49	5.49	5.49
	43	TC	11.6	11.7	11.8	12.0	12.2	12.2	12.2	12.3	12.6	12.6	12.7	12.7	13.6	13.6	13.6	13.6
		S/T	0.73	0.88	0.96	1.00	0.60	0.74	0.83	0.98	0.51	0.65	0.74	0.89	0.33	0.46	0.54	0.68
		PI	6.37	6.37	6.37	6.37	6.39	6.39	6.39	6.39	6.41	6.41	6.41	6.41	6.45	6.45	6.45	6.45
	46	TC	11.2	11.3	11.4	11.5	11.8	11.8	11.8	11.9	12.1	12.1	12.1	12.3	13.1	13.1	13.1	13.1
		S/T	0.74	0.89	0.98	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.69
		PI	6.71	6.71	6.71	6.71	6.73	6.73	6.73	6.73	6.75	6.75	6.75	6.75	6.81	6.81	6.81	6.81
	52	TC	10.1	10.2	10.3	10.4	10.7	10.7	10.7	10.8	11.0	11.0	11.0	11.1	12.0	12.0	12.0	12.0
		S/T	0.76	0.93	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.91
		PI	7.57	7.57	7.57	7.57	7.59	7.59	7.59	7.59	7.61	7.61	7.61	7.61	7.67	7.67	7.67	7.67

Note: The table shows the case where the operation frequency of a compressor is fixed.

INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
2329	27	TC	14.2	14.2	14.3	14.5	14.8	14.8	14.8	15.0	15.3	15.3	15.3	15.4	16.5	16.5	16.5	16.5
		S/T	0.72	0.87	0.96	1.00	0.60	0.74	0.83	0.98	0.51	0.65	0.74	0.89	0.33	0.46	0.54	0.68
		PI	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.84	4.84	4.84	4.84
	30	TC	13.8	13.8	13.9	14.1	14.4	14.4	14.4	14.6	14.9	14.9	14.9	15.0	16.0	16.0	16.0	16.0
		S/T	0.73	0.88	0.97	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.90	0.33	0.46	0.54	0.69
		PI	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.11	5.11	5.11	5.11	5.13	5.13	5.13	5.13
	32	TC	13.5	13.7	13.8	14.0	14.2	14.2	14.2	14.3	14.6	14.6	14.6	14.7	15.7	15.7	15.7	15.7
		S/T	0.74	0.89	0.98	1.00	0.60	0.75	0.84	1.00	0.52	0.66	0.75	0.91	0.33	0.46	0.54	0.70
		PI	5.28	5.28	5.28	5.28	5.29	5.29	5.29	5.29	5.30	5.30	5.30	5.30	5.33	5.33	5.33	5.33
	35	TC	13.1	13.2	13.4	13.5	13.7	13.7	13.7	13.9	14.2	14.2	14.4	14.5	15.3	15.3	15.3	15.3
		S/T	0.74	0.90	0.99	1.00	0.61	0.76	0.85	1.00	0.52	0.67	0.76	0.92	0.32	0.46	0.55	0.70
		PI	5.58	5.58	5.58	5.58	5.59	5.59	5.59	5.59	5.60	5.60	5.61	5.60	5.64	5.64	5.64	5.64
	43	TC	11.9	12.0	12.1	12.3	12.5	12.5	12.5	12.7	12.9	12.9	12.9	13.0	13.9	13.9	13.9	13.9
		S/T	0.77	0.94	1.00	1.00	0.62	0.79	0.89	1.00	0.53	0.69	0.79	0.97	0.32	0.47	0.56	0.90
		PI	6.50	6.50	6.50	6.50	6.52	6.52	6.52	6.52	6.54	6.54	6.54	6.54	6.59	6.59	6.59	6.59
	46	TC	11.4	11.5	11.7	11.8	12.0	12.0	12.1	12.2	12.4	12.4	12.4	12.5	13.4	13.4	13.4	13.4
		S/T	0.78	0.96	1.00	1.00	0.63	0.81	0.91	1.00	0.53	0.70	0.81	1.00	0.31	0.47	0.57	0.92
		PI	6.84	6.84	6.84	6.84	6.87	6.87	6.87	6.87	6.89	6.89	6.89	6.89	6.94	6.94	6.94	6.94
	52	TC	10.3	10.5	10.6	10.7	10.9	10.9	11.0	11.1	11.3	11.3	11.3	11.4	12.2	12.2	12.2	12.2
		S/T	0.82	1.00	1.00	1.00	0.65	0.84	0.96	1.00	0.54	0.73	0.85	1.00	0.31	0.48	0.59	0.97
		PI	7.72	7.72	7.72	7.72	7.75	7.75	7.75	7.75	7.77	7.77	7.77	7.77	7.82	7.82	7.82	7.82

TC:Total Cooling Capacity (kW)

S/T:Sensible Cooling Capacity Ratio

PI:Power Input(kW)

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 160M+MC2-Y 160T																		
INDOOR AIRFLOW (CMH)	OUTDOOR DB(C)	ID WB (C)	16.0				18.0				19.0				22.0			
		ID DB (C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
1426	27	TC	15.3	15.3	15.3	15.3	16.0	16.0	16.0	16.0	16.5	16.5	16.5	16.5	17.8	17.8	17.8	17.8
		S/T	0.64	0.73	0.78	0.88	0.56	0.64	0.69	0.78	0.51	0.58	0.63	0.72	0.38	0.46	0.50	0.58
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	30	TC	14.9	14.9	14.9	14.9	15.6	15.6	15.6	15.6	16.0	16.0	16.0	16.0	17.3	17.3	17.3	17.3
		S/T	0.65	0.73	0.79	0.88	0.56	0.64	0.69	0.79	0.51	0.59	0.63	0.73	0.38	0.45	0.50	0.58
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	32	TC	14.6	14.6	14.6	14.7	15.3	15.3	15.3	15.3	15.7	15.7	15.7	15.7	17.0	17.0	17.0	17.0
		S/T	0.65	0.74	0.79	0.89	0.56	0.64	0.70	0.79	0.50	0.59	0.64	0.73	0.38	0.45	0.50	0.59
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	35	TC	14.1	14.1	14.1	14.3	14.8	14.8	14.8	14.8	15.3	15.3	15.5	15.3	16.5	16.5	16.5	16.5
		S/T	0.65	0.74	0.80	0.90	0.56	0.65	0.70	0.80	0.50	0.59	0.64	0.74	0.37	0.45	0.50	0.59
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	43	TC	12.8	12.8	12.8	13.0	13.5	13.5	13.5	13.5	13.9	13.9	13.9	13.9	15.0	15.0	15.0	15.0
		S/T	0.66	0.76	0.82	0.93	0.56	0.66	0.72	0.83	0.50	0.60	0.65	0.76	0.36	0.45	0.50	0.60
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	46	TC	12.3	12.3	12.3	12.5	13.0	13.0	13.0	13.0	13.4	13.4	13.4	13.4	14.5	14.5	14.5	14.5
		S/T	0.66	0.77	0.83	0.95	0.56	0.66	0.72	0.84	0.50	0.60	0.66	0.77	0.36	0.45	0.50	0.61
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	52	TC	11.2	11.2	11.2	11.3	11.8	11.8	11.8	11.8	12.1	12.1	12.1	12.1	13.2	13.2	13.2	13.2
		S/T	0.68	0.79	0.86	0.99	0.57	0.68	0.75	0.87	0.50	0.61	0.68	0.80	0.35	0.45	0.51	0.62
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1834	27	TC	15.6	15.6	15.6	15.8	16.4	16.4	16.4	16.4	16.9	16.9	16.9	16.9	18.1	18.1	18.1	18.1
		S/T	0.66	0.77	0.84	0.95	0.56	0.67	0.73	0.84	0.50	0.60	0.66	0.77	0.36	0.45	0.51	0.61
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	30	TC	15.2	15.2	15.2	15.3	15.9	15.9	15.9	15.9	16.4	16.4	16.4	16.4	17.6	17.6	17.6	17.6
		S/T	0.67	0.78	0.84	0.96	0.57	0.67	0.74	0.85	0.50	0.60	0.67	0.78	0.36	0.45	0.51	0.61
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	32	TC	14.9	14.9	14.9	15.0	15.6	15.6	15.6	15.6	16.1	16.1	16.1	16.1	17.3	17.3	17.3	17.3
		S/T	0.67	0.78	0.85	0.97	0.57	0.67	0.74	0.86	0.50	0.61	0.67	0.79	0.35	0.45	0.51	0.62
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	35	TC	14.4	14.4	14.4	14.6	15.1	15.1	15.1	15.1	15.6	15.6	15.8	15.6	16.8	16.8	16.8	16.8
		S/T	0.68	0.79	0.86	0.99	0.57	0.68	0.75	0.87	0.50	0.61	0.67	0.80	0.35	0.45	0.51	0.62
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	43	TC	13.1	13.1	13.2	13.3	13.7	13.7	13.7	13.8	14.2	14.2	14.2	14.2	15.3	15.3	15.3	15.3
		S/T	0.69	0.82	0.89	1.00	0.58	0.70	0.77	0.90	0.51	0.62	0.69	0.83	0.34	0.45	0.52	0.64
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	46	TC	12.6	12.6	12.7	12.8	13.2	13.2	13.2	13.4	13.7	13.7	13.7	13.7	14.8	14.8	14.8	14.8
		S/T	0.70	0.83	0.91	1.00	0.58	0.71	0.78	0.92	0.51	0.63	0.70	0.84	0.34	0.45	0.52	0.65
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	52	TC	11.4	11.4	11.5	11.6	12.0	12.0	12.0	12.1	12.4	12.4	12.4	12.4	13.5	13.5	13.5	13.5
		S/T	0.72	0.87	0.95	1.00	0.59	0.73	0.82	0.97	0.51	0.65	0.73	0.88	0.33	0.46	0.53	0.91
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: The table shows the case where the operation frequency of a compressor is fixed.

INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	ID WB (°C)	16.0				18.0				19.0				22.0			
		ID DB (°C)	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0	23.0	25.0	27.0	30.0
2454	27	TC	15.9	15.9	16.1	16.2	16.7	16.7	16.7	16.9	17.2	17.2	17.2	17.2	18.5	18.5	18.5	18.5
		S/T	0.71	0.85	0.93	1.00	0.59	0.72	0.80	0.95	0.51	0.64	0.72	0.87	0.33	0.46	0.53	0.67
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	30	TC	15.5	15.5	15.7	15.8	16.2	16.2	16.2	16.4	16.7	16.7	16.7	16.7	18.0	18.0	18.0	18.0
		S/T	0.72	0.86	0.94	1.00	0.59	0.73	0.81	0.96	0.51	0.65	0.73	0.88	0.33	0.46	0.53	0.67
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	32	TC	15.2	15.2	15.3	15.5	15.9	15.9	15.9	16.1	16.4	16.4	16.4	16.6	17.7	17.7	17.7	17.7
		S/T	0.72	0.87	0.95	1.00	0.59	0.73	0.82	0.97	0.51	0.65	0.73	0.88	0.33	0.46	0.53	0.68
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	35	TC	14.7	14.7	14.9	15.0	15.4	15.4	15.4	15.6	15.9	15.9	16.1	16.3	17.1	17.1	17.1	17.1
		S/T	0.73	0.88	0.97	1.00	0.60	0.74	0.83	0.99	0.52	0.66	0.74	0.89	0.33	0.46	0.54	0.69
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	43	TC	13.3	13.4	13.6	13.7	14.0	14.0	14.0	14.2	14.5	14.5	14.5	14.7	15.6	15.6	15.6	15.6
		S/T	0.75	0.91	1.00	1.00	0.61	0.77	0.87	1.00	0.52	0.68	0.77	0.94	0.32	0.46	0.55	0.90
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	46	TC	12.8	13.0	13.1	13.2	13.5	13.5	13.5	13.6	13.9	13.9	13.9	14.1	15.1	15.1	15.1	15.1
		S/T	0.76	0.93	1.00	1.00	0.62	0.78	0.88	1.00	0.53	0.69	0.78	0.96	0.32	0.47	0.56	0.92
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	52	TC	11.6	11.8	11.9	12.0	12.3	12.3	12.4	12.5	12.7	12.7	12.7	12.8	13.7	13.7	13.7	13.7
		S/T	0.79	0.98	1.00	1.00	0.63	0.82	0.92	1.00	0.54	0.71	0.82	1.00	0.31	0.47	0.57	0.97
		PI	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

TC:Total Cooling Capacity (kW)

S/T:Sensible Cooling Capacity Ratio

PI:Power Input(kW)

Note: The table shows the case where the operation frequency of a compressor is fixed.

7.2 Heating

IF2-XY 105M+MC2-Y 105M									
HEATING PERFORMANCE AT INDOOR DRY BULB TEMPERATURE									
INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	TC:TOTAL CAPACITY IN KILOWATTS (KW)				PI:TOTAL POWER IN KILOWATTS (KW)			
		Indoor Conditions (DB °C)				Indoor Conditions (DB °C)			
		16.0	20.0	22.0	24.0	16.0	20.0	22.0	24.0
1431	-7.0	9.8	9.6	9.7	9.7	3.98	4.12	4.04	4.06
	-5.6	9.8	9.7	9.6	9.6	3.87	3.91	3.93	3.95
	-2.8	9.8	9.6	9.6	9.6	3.68	3.71	3.73	3.74
	0.0	9.6	9.6	9.5	9.4	3.49	3.51	3.52	3.53
	2.8	9.9	9.8	9.7	9.6	3.34	3.35	3.35	3.36
	5.6	10.4	10.3	10.2	10.2	3.18	3.18	3.18	3.18
	7.0	11.0	10.9	10.8	10.7	3.10	3.01	3.10	3.10
	11.1	11.3	11.2	11.1	11.0	2.84	2.83	2.82	2.82
	13.9	11.5	11.4	11.3	11.2	2.67	2.65	2.64	2.62
	16.7	11.8	11.6	11.5	11.4	2.49	2.46	2.45	2.43
1844	-7.0	10.1	9.8	9.9	9.9	4.02	4.17	4.08	4.10
	-5.6	9.9	9.8	9.8	9.8	3.92	3.95	3.97	3.99
	-2.8	10.0	9.8	9.8	9.7	3.72	3.75	3.77	3.78
	0.0	9.8	9.7	9.7	9.6	3.53	3.55	3.56	3.57
	2.8	10.1	10.0	9.9	9.8	3.37	3.38	3.39	3.39
	5.6	10.6	10.5	10.4	10.4	3.21	3.21	3.21	3.21
	7.0	11.2	11.1	11.0	10.9	3.13	3.04	3.13	3.13
	11.1	11.5	11.4	11.3	11.3	2.87	2.86	2.85	2.84
	13.9	11.8	11.6	11.5	11.5	2.69	2.67	2.66	2.65
	16.7	12.0	11.8	11.8	11.7	2.52	2.49	2.47	2.46
2160	-7.0	10.2	9.9	10.0	10.0	4.07	4.21	4.13	4.15
	-5.6	10.1	10.0	9.9	9.8	3.96	3.99	4.01	4.03
	-2.8	10.1	10.0	9.9	9.8	3.76	3.79	3.81	3.82
	0.0	10.0	9.8	9.8	9.7	3.57	3.59	3.60	3.61
	2.8	10.2	10.1	10.0	9.9	3.40	3.42	3.42	3.43
	5.6	10.8	10.6	10.6	10.5	3.24	3.24	3.25	3.25
	7.0	11.3	11.3	11.1	11.0	3.16	3.07	3.16	3.16
	11.1	11.7	11.5	11.4	11.4	2.90	2.88	2.88	2.87
	13.9	11.9	11.8	11.7	11.6	2.72	2.70	2.69	2.67
	16.7	12.1	12.0	11.9	11.8	2.54	2.51	2.49	2.48
	18.0	12.3	12.1	12.0	11.9	2.45	2.42	2.40	2.38

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 105M+MC2-Y 105T									
HEATING PERFORMANCE AT INDOOR DRY BULB TEMPERATURE									
INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	TC:TOTAL CAPACITY IN KILOWATTS (KW)				PI:TOTAL POWER IN KILOWATTS (KW)			
		Indoor Conditions (DB °C)				Indoor Conditions (DB °C)			
		16.0	20.0	22.0	24.0	16.0	20.0	22.0	24.0
1431	-7.0	10.2	10.0	10.1	10.0	4.30	4.46	4.35	4.36
	-5.6	10.1	10.0	9.9	9.9	4.17	4.19	4.20	4.21
	-2.8	10.0	9.9	9.8	9.8	3.92	3.93	3.94	3.94
	0.0	9.8	9.7	9.7	9.6	3.67	3.67	3.67	3.67
	2.8	10.0	9.9	9.8	9.8	3.45	3.44	3.43	3.43
	5.6	10.5	10.3	10.3	10.2	3.23	3.21	3.20	3.19
	7.0	11.0	10.9	10.8	10.7	3.12	2.97	3.08	3.07
	11.1	11.3	11.1	11.0	10.9	2.78	2.73	2.71	2.69
	13.9	11.4	11.3	11.2	11.1	2.54	2.49	2.46	2.43
	16.7	11.6	11.4	11.3	11.2	2.31	2.24	2.21	2.18
1844	-7.0	10.4	10.2	10.3	10.2	4.35	4.51	4.39	4.41
	-5.6	10.3	10.2	10.1	10.1	4.21	4.23	4.25	4.26
	-2.8	10.2	10.1	10.1	10.0	3.96	3.97	3.98	3.98
	0.0	10.1	9.9	9.9	9.8	3.71	3.71	3.71	3.71
	2.8	10.2	10.1	10.0	10.0	3.49	3.47	3.47	3.46
	5.6	10.7	10.6	10.5	10.4	3.26	3.24	3.23	3.22
	7.0	11.3	11.1	11.0	11.0	3.16	3.00	3.11	3.10
	11.1	11.5	11.3	11.3	11.2	2.80	2.76	2.74	2.72
	13.9	11.7	11.5	11.4	11.3	2.57	2.51	2.49	2.46
	16.7	11.8	11.6	11.5	11.5	2.33	2.27	2.23	2.20
2160	-7.0	10.5	10.3	10.4	10.3	4.39	4.55	4.43	4.45
	-5.6	10.4	10.3	10.3	10.2	4.25	4.28	4.29	4.30
	-2.8	10.3	10.2	10.2	10.1	4.00	4.01	4.02	4.02
	0.0	10.2	10.1	10.0	9.9	3.74	3.74	3.74	3.75
	2.8	10.3	10.2	10.1	10.1	3.52	3.51	3.50	3.50
	5.6	10.8	10.7	10.6	10.6	3.30	3.27	3.26	3.25
	7.0	11.4	11.3	11.1	11.1	3.19	3.03	3.15	3.13
	11.1	11.6	11.5	11.4	11.3	2.83	2.79	2.77	2.75
	13.9	11.8	11.6	11.5	11.4	2.59	2.54	2.51	2.48
	16.7	11.9	11.8	11.7	11.6	2.35	2.29	2.26	2.22
2160	18.0	12.0	11.8	11.8	11.6	2.24	2.17	2.13	2.10

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 140M+MC2-Y 140T									
HEATING PERFORMANCE AT INDOOR DRY BULB TEMPERATURE									
INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	TC:TOTAL CAPACITY IN KILOWATTS (KW)				PI:TOTAL POWER IN KILOWATTS (KW)			
		Indoor Conditions (DB °C)				Indoor Conditions (DB °C)			
		16.0	20.0	22.0	24.0	16.0	20.0	22.0	24.0
1417	-7.0	12.5	12.1	12.3	12.3	5.29	5.46	5.45	5.50
	-5.6	12.5	12.4	12.3	12.3	5.23	5.33	5.38	5.43
	-2.8	12.9	12.7	12.7	12.6	5.13	5.23	5.28	5.33
	0.0	13.0	12.9	12.8	12.7	5.03	5.13	5.18	5.23
	2.8	13.7	13.5	13.4	13.3	4.98	5.08	5.12	5.17
	5.6	14.8	14.6	14.5	14.4	4.94	5.03	5.07	5.12
	7.0	15.8	15.8	15.4	15.4	4.92	5.00	5.06	5.10
	11.1	16.7	16.5	16.4	16.3	4.82	4.90	4.94	4.98
	13.9	17.4	17.1	17.0	16.9	4.74	4.82	4.86	4.90
	16.7	18.0	17.7	17.6	17.5	4.67	4.75	4.79	4.83
1930	-7.0	12.8	12.3	12.6	12.5	5.34	5.51	5.50	5.55
	-5.6	12.8	12.7	12.6	12.5	5.28	5.38	5.43	5.49
	-2.8	13.1	13.0	12.9	12.8	5.18	5.28	5.33	5.38
	0.0	13.3	13.1	13.0	13.0	5.08	5.18	5.23	5.28
	2.8	14.0	13.8	13.7	13.6	5.03	5.13	5.18	5.22
	5.6	15.1	14.9	14.8	14.7	4.99	5.08	5.12	5.17
	7.0	16.1	16.1	15.8	15.7	4.97	5.05	5.11	5.15
	11.1	17.1	16.8	16.7	16.6	4.86	4.95	4.99	5.03
	13.9	17.7	17.5	17.3	17.2	4.79	4.87	4.91	4.95
	16.7	18.3	18.1	18.0	17.8	4.72	4.80	4.84	4.87
2329	-7.0	12.9	12.4	12.7	12.6	5.39	5.57	5.56	5.61
	-5.6	12.9	12.8	12.7	12.6	5.33	5.44	5.49	5.54
	-2.8	13.3	13.1	13.0	13.0	5.23	5.33	5.39	5.44
	0.0	13.5	13.3	13.2	13.1	5.13	5.23	5.28	5.33
	2.8	14.1	13.9	13.8	13.7	5.08	5.18	5.23	5.27
	5.6	15.3	15.1	14.9	14.9	5.03	5.13	5.17	5.22
	7.0	16.3	16.3	15.9	15.8	5.02	5.10	5.16	5.20
	11.1	17.2	17.0	16.9	16.8	4.91	5.00	5.04	5.08
	13.9	17.9	17.6	17.5	17.4	4.84	4.92	4.96	5.00
	16.7	18.6	18.3	18.2	18.1	4.76	4.84	4.88	4.92
	18.0	18.9	18.6	18.5	18.3	4.73	4.81	4.84	4.88

Note: The table shows the case where the operation frequency of a compressor is fixed.

IF2-XY 160M+MC2-Y 160T									
HEATING PERFORMANCE AT INDOOR DRY BULB TEMPERATURE									
INDOOR AIRFLOW (CMH)	OUTDOOR DB(°C)	TC:TOTAL CAPACITY IN KILOWATTS (KW)				PI:TOTAL POWER IN KILOWATTS (KW)			
		Indoor Conditions (DB °C)				Indoor Conditions (DB °C)			
		16.0	20.0	22.0	24.0	16.0	20.0	22.0	24.0
1426	-7.0	14.8	14.3	14.6	14.5	5.75	5.93	5.97	6.04
	-5.6	14.7	14.6	14.5	14.4	5.72	5.87	5.94	6.01
	-2.8	15.0	14.8	14.7	14.7	5.70	5.85	5.92	5.99
	0.0	15.1	14.9	14.8	14.7	5.68	5.83	5.90	5.97
	2.8	15.7	15.5	15.4	15.3	5.72	5.86	5.94	6.01
	5.6	16.8	16.6	16.5	16.4	5.76	5.90	5.97	6.05
	7.0	17.8	17.8	17.5	17.4	5.79	5.98	6.01	6.08
	11.1	18.7	18.5	18.3	18.2	5.80	5.95	6.02	6.09
	13.9	19.3	19.1	18.9	18.8	5.81	5.96	6.03	6.10
	16.7	19.9	19.6	19.5	19.3	5.82	5.96	6.04	6.11
1834	18.0	20.2	19.9	19.8	19.6	5.82	5.97	6.04	6.12
	-7.0	15.1	14.6	14.9	14.8	5.80	5.99	6.02	6.09
	-5.6	15.1	14.9	14.8	14.7	5.78	5.92	6.00	6.07
	-2.8	15.3	15.1	15.0	14.9	5.76	5.90	5.97	6.05
	0.0	15.4	15.2	15.1	15.0	5.73	5.88	5.95	6.03
	2.8	16.0	15.8	15.7	15.6	5.77	5.92	5.99	6.06
	5.6	17.1	16.9	16.8	16.7	5.81	5.96	6.03	6.10
	7.0	18.2	18.2	17.8	17.7	5.84	6.04	6.06	6.14
	11.1	19.1	18.8	18.7	18.6	5.86	6.00	6.08	6.15
	13.9	19.7	19.4	19.3	19.2	5.86	6.01	6.09	6.16
2454	16.7	20.3	20.0	19.9	19.7	5.87	6.02	6.09	6.17
	18.0	20.6	20.3	20.2	20.0	5.88	6.02	6.10	6.17
	-7.0	15.2	14.8	15.0	14.9	5.86	6.04	6.08	6.15
	-5.6	15.2	15.0	15.0	14.9	5.83	5.98	6.05	6.13
	-2.8	15.4	15.3	15.2	15.1	5.81	5.96	6.03	6.11
	0.0	15.5	15.3	15.2	15.1	5.79	5.94	6.01	6.09
	2.8	16.1	15.9	15.8	15.7	5.83	5.98	6.05	6.13
	5.6	17.3	17.1	17.0	16.9	5.87	6.02	6.09	6.17
	7.0	18.3	18.3	18.0	17.9	5.90	6.10	6.13	6.20
	11.1	19.3	19.0	18.9	18.8	5.92	6.07	6.14	6.22
2454	13.9	19.9	19.6	19.5	19.3	5.93	6.08	6.15	6.23
	16.7	20.5	20.2	20.1	19.9	5.94	6.09	6.16	6.24
	18.0	20.8	20.5	20.3	20.2	5.94	6.09	6.17	6.24

Note: The table shows the case where the operation frequency of a compressor is fixed.

8. Capacity Correction Factor for Height Difference

8.1 Heat pump models

Model			IF2-XY 70M		Pipe Length (m)				
			MC2-Y 70M						
Cooling			5	10	20	30	40	50	
Height difference H (m)	Indoor Upper than Outdoor	25				0.914	0.894	0.874	
		20			0.944	0.924	0.903	0.883	
		10		0.975	0.954	0.933	0.912	0.891	
		5	0.995	0.984	0.963	0.942	0.921	0.900	
	0		1.000	0.989	0.968	0.947	0.926	0.905	
	Outdoor Upper than Indoor	-5	1.000	0.989	0.968	0.947	0.926	0.905	
		-10		0.989	0.968	0.947	0.926	0.905	
		-20			0.968	0.947	0.926	0.905	
		-25				0.947	0.926	0.905	
Heating			5	10	20	30	40	50	
Height difference H (m)	Indoor Upper than Outdoor	25				0.983	0.977	0.970	
		20			0.990	0.983	0.977	0.970	
		10		0.997	0.990	0.983	0.977	0.970	
		5	1.000	0.997	0.990	0.983	0.977	0.970	
	0		1.000	0.997	0.990	0.983	0.977	0.970	
	Outdoor Upper than Indoor	-5	0.992	0.989	0.982	0.975	0.969	0.962	
		-10		0.981	0.974	0.968	0.961	0.955	
		-20			0.966	0.960	0.953	0.947	
		-25				0.952	0.946	0.939	

Model			IF2-XY 105M		Pipe Length (m)				
			MC2-Y 105M						
Cooling			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.885	0.845	0.805	
		20			0.921	0.894	0.854	0.813	
		10		0.958	0.931	0.903	0.862	0.822	
		5	0.995	0.967	0.940	0.912	0.871	0.830	
		0	1.000	0.972	0.945	0.917	0.876	0.834	
	Outdoor Upper than Indoor	-5	1.000	0.972	0.945	0.917	0.876	0.834	
		-10		0.972	0.945	0.917	0.876	0.834	
		-20			0.945	0.917	0.876	0.834	
		-30				0.917	0.876	0.834	
Heating			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.962	0.943	0.924	
		20			0.975	0.962	0.943	0.924	
		10		0.987	0.975	0.962	0.943	0.924	
		5	1.000	0.987	0.975	0.962	0.943	0.924	
		0	1.000	0.987	0.975	0.962	0.943	0.924	
	Outdoor Upper than Indoor	-5	0.992	0.979	0.967	0.954	0.935	0.917	
		-10		0.972	0.959	0.947	0.928	0.909	
		-20			0.951	0.939	0.921	0.902	
-30					0.932	0.913	0.895		

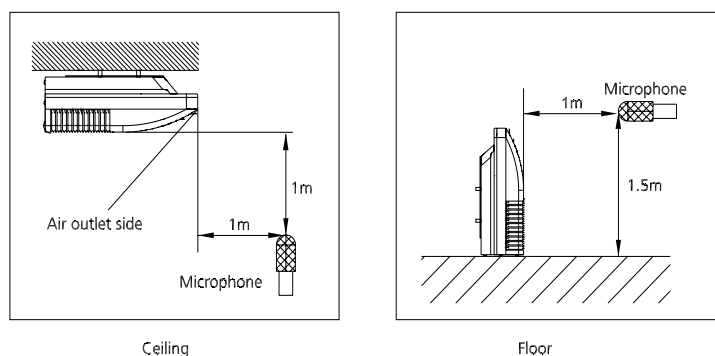
Model	IF2-XY 105M		Pipe Length (m)					
	MC2-Y 105T							
Cooling			5	15	25	35	50	65
Height difference H (m)	Indoor Upper than Outdoor	30				0.885	0.845	0.805
		20			0.921	0.894	0.854	0.813
		10		0.958	0.931	0.903	0.862	0.822
		5	0.995	0.967	0.940	0.912	0.871	0.830
		0	1.000	0.972	0.945	0.917	0.876	0.834
	Outdoor Upper than Indoor	-5	1.000	0.972	0.945	0.917	0.876	0.834
		-10		0.972	0.945	0.917	0.876	0.834
		-20			0.945	0.917	0.876	0.834
		-30				0.917	0.876	0.834
Heating			5	15	25	35	50	65
Height difference H (m)	Indoor Upper than Outdoor	30				0.962	0.943	0.924
		20			0.975	0.962	0.943	0.924
		10		0.987	0.975	0.962	0.943	0.924
		5	1.000	0.987	0.975	0.962	0.943	0.924
		0	1.000	0.987	0.975	0.962	0.943	0.924
	Outdoor Upper than Indoor	-5	0.992	0.979	0.967	0.954	0.935	0.917
		-10		0.972	0.959	0.947	0.928	0.909
		-20			0.951	0.939	0.921	0.902
		-30				0.932	0.913	0.895

Model			IF2-XY 140M		Pipe Length (m)				
			MC2-Y 140T						
Cooling			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.880	0.838	0.796	
		20			0.918	0.889	0.846	0.804	
		10		0.956	0.927	0.898	0.855	0.812	
		5	0.995	0.966	0.937	0.907	0.864	0.820	
		0	1.000	0.971	0.941	0.912	0.868	0.824	
	Outdoor Upper than Indoor	-5	1.000	0.971	0.941	0.912	0.868	0.824	
		-10		0.971	0.941	0.912	0.868	0.824	
		-20			0.941	0.912	0.868	0.824	
		-30				0.912	0.868	0.824	
Heating			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.956	0.933	0.911	
		20			0.970	0.956	0.933	0.911	
		10		0.985	0.970	0.956	0.933	0.911	
		5	1.000	0.985	0.970	0.956	0.933	0.911	
		0	1.000	0.985	0.970	0.956	0.933	0.911	
	Outdoor Upper than Indoor	-5	0.992	0.977	0.963	0.948	0.926	0.904	
		-10		0.969	0.955	0.940	0.918	0.896	
		-20			0.947	0.933	0.911	0.889	
		-30				0.925	0.904	0.882	

Model			IF2-XY 160M		Pipe Length (m)				
			MC2-Y 160T						
Cooling			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.866	0.816	0.767	
		20			0.908	0.875	0.825	0.774	
		10		0.951	0.917	0.884	0.833	0.782	
		5	0.995	0.961	0.927	0.893	0.841	0.790	
		0	1.000	0.966	0.931	0.897	0.846	0.794	
	Outdoor Upper than Indoor	-5	1.000	0.966	0.931	0.897	0.846	0.794	
		-10		0.966	0.931	0.897	0.846	0.794	
		-20			0.931	0.897	0.846	0.794	
		-30				0.897	0.846	0.794	
Heating			5	15	25	35	50	65	
Height difference H (m)	Indoor Upper than Outdoor	30				0.953	0.929	0.905	
		20			0.968	0.953	0.929	0.905	
		10		0.984	0.968	0.953	0.929	0.905	
		5	1.000	0.984	0.968	0.953	0.929	0.905	
		0	1.000	0.984	0.968	0.953	0.929	0.905	
	Outdoor Upper than Indoor	-5	0.992	0.976	0.961	0.945	0.921	0.898	
		-10		0.968	0.953	0.937	0.914	0.891	
		-20			0.945	0.930	0.907	0.883	
-30					0.922	0.899	0.876		

9. Noise Criterion Curves

9.1 Indoor Unit

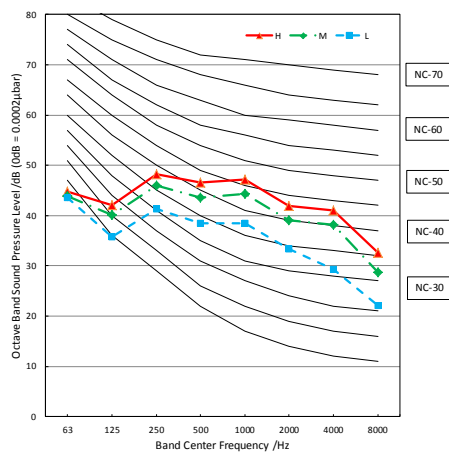


Notes:

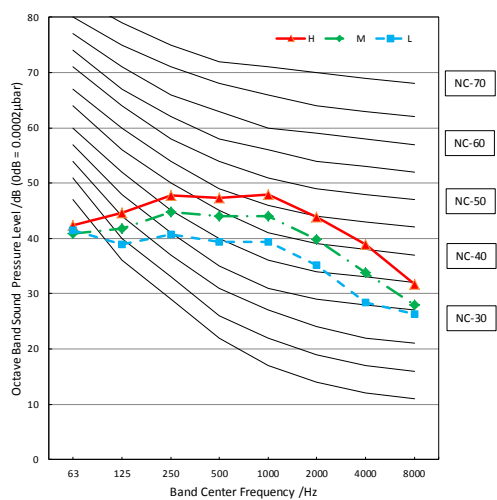
- Sound measured at 1.5m away from the center of the unit.
- Data is valid at free field condition
- Data is valid at nominal operation condition
- Reference acoustic pressure $OdB = 20\mu Pa$
- Sound level will vary depending on a range of factors such as the construction -(acoustic absorption coefficient) of particular room in which the equipment is installed.
- The operating conditions are assumed to be standard.

Model	Power supply (Outdoor)	Noise level dB(A)		
		H	M	L
IF2-XY 70M	220~240-1-50	49	46	41
IF2-XY 105M	220~240-1-50	50	46	42
IF2-XY 105M	380~415-3-50	50	46	40
IF2-XY 140M	380~415-3-50	54	50	46
IF2-XY 160M	380~415-3-50	54	47	42

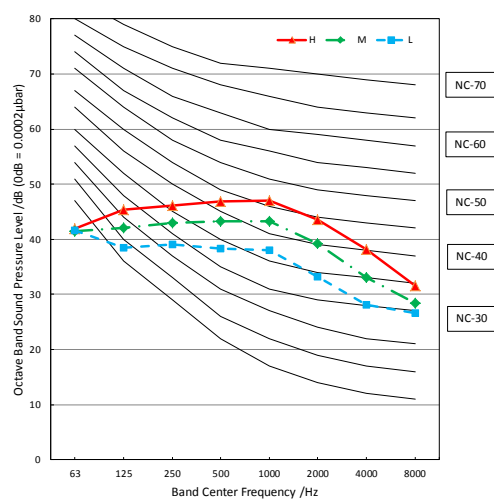
IF2-XY 70M



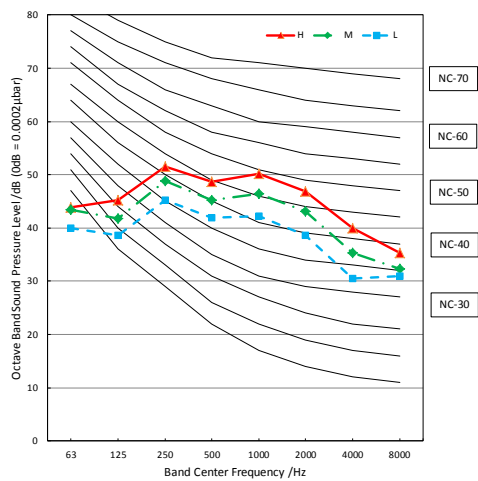
IF2-XY 105M (with MC2-Y 105M)



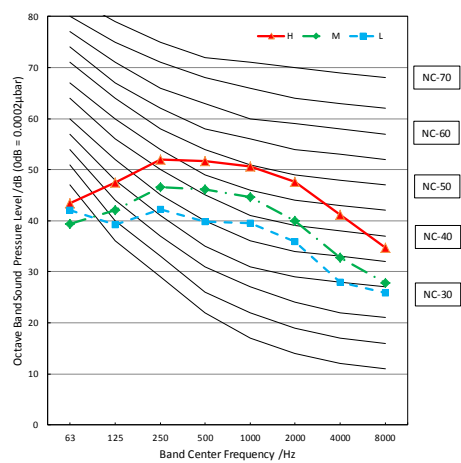
IF2-XY 105M (with MC2-Y 105T)



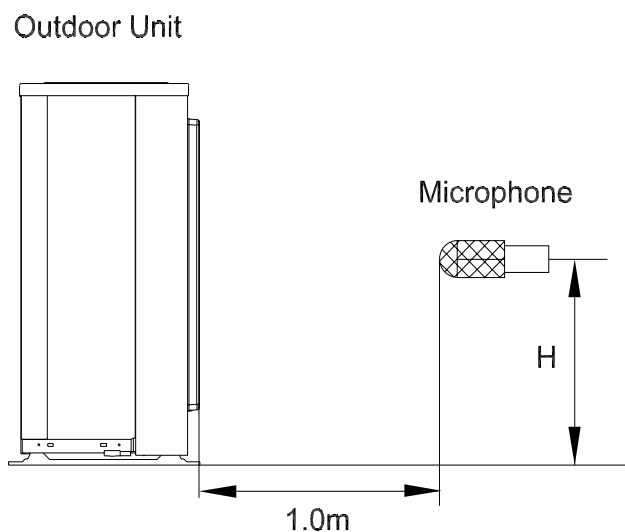
IF2-XY 140M



IF2-XY 160M



9.2 Outdoor Unit



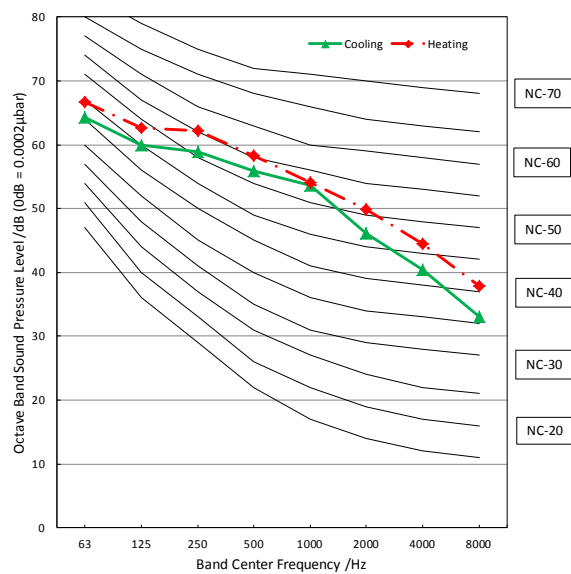
Note: $H = 0.5 \times \text{height of outdoor unit}$

Notes:

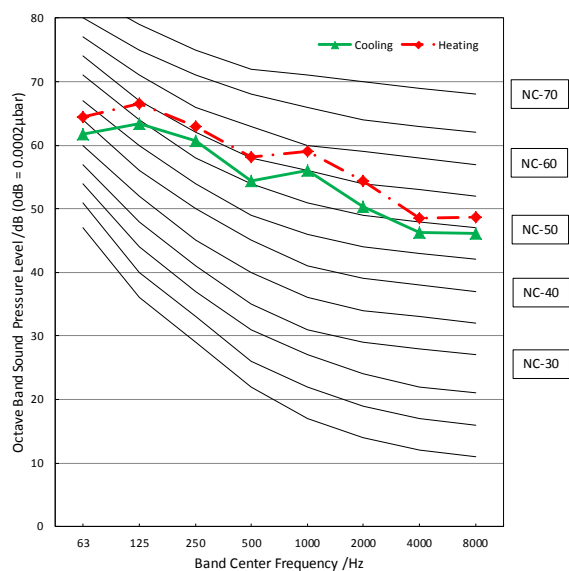
- Sound measured at 1.0m away from the center of the unit.
- Data is valid at free field condition
- Data is valid at nominal operation condition
- Reference acoustic pressure $OdB=20\mu Pa$
- Sound level will vary depending on arrangement of factors such as the construction (acoustic absorption coefficient) of particular room in which the equipment is installed.
- The operating conditions are assumed to be standard.

Model	Noise level dB(A)
MC2-Y 70M	59
MC2-Y 105M	63
MC2-Y 105T	61
MC2-Y 140T	66
MC2-Y 160T	65

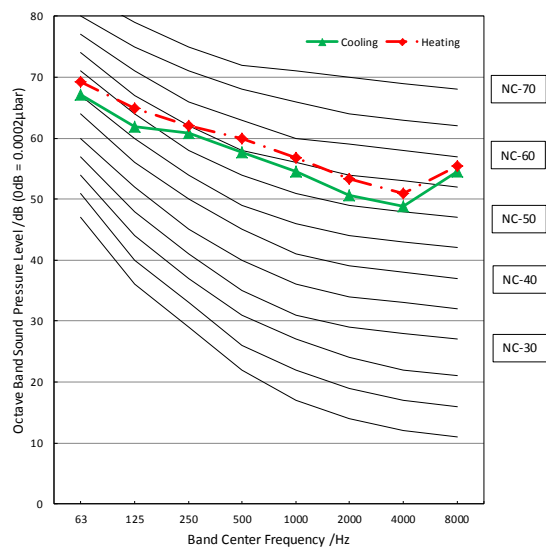
MC2-Y 70M



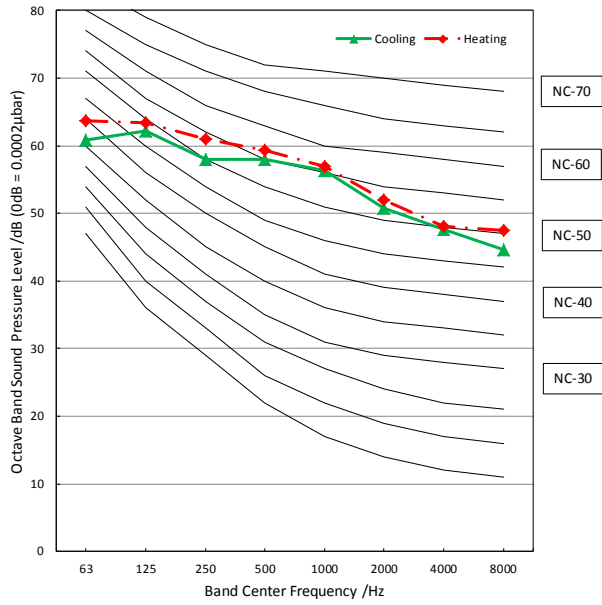
MC2-Y 105M



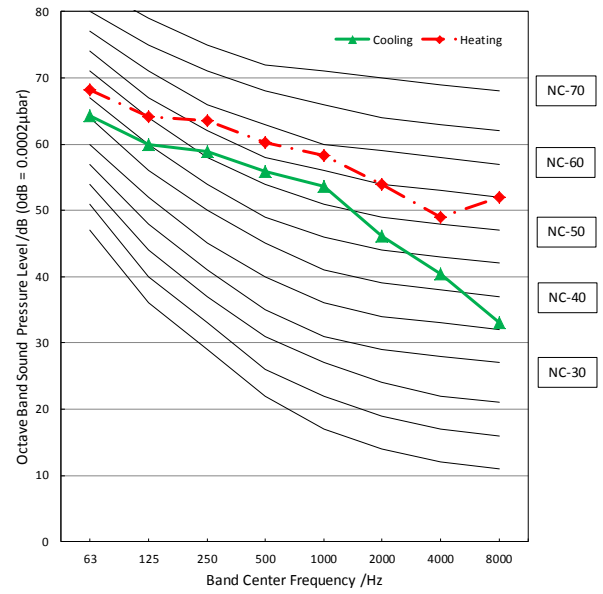
MC2-Y 105T



MC2-Y 140T



MC2-Y 160T



10. Electrical Characteristics

10.1 Heat pump models

Model			70M	105M
Phase			1-phase	1-phase
Frequency and Voltage			220-240V, 50Hz	220-240V, 50Hz
Circuit Breaker/ Fuse (A)			25/20	40/30
Indoor Unit Power Wiring (mm ²)				
Outdoor Unit Power Wiring (mm ²)			3×2.5(3×4.0 with auxiliary electric heater)	3×4.0(3×6.0 with auxiliary electric heater)
Indoor/Outdoor Connecting Wiring (mm ²)	Ground Wiring		2.5	4.0
	Strong Electric Signal		3×1.0(3×2.5 with auxiliary electric heater)	3×1.0(3×2.5 with auxiliary electric heater)
	Weak Electric Signal		2×0.2	2×0.2

Model		105T	140T	160T
Phase		3-phase	3-phase	3-phase
Frequency and Voltage		380-450V, 50Hz	380-450V, 50Hz	380-450V, 50Hz
Circuit Breaker/ Fuse (A)		25/20	32/25	32/25
Indoor Unit Power Wiring (mm ²)				
Outdoor Unit Power Wiring (mm ²)		5×2.5(5×4.0 with auxiliary electric heater)	5×2.5(5×4.0 with auxiliary electric heater)	5×2.5(5×4.0 with auxiliary electric heater)
Indoor/Outdoor Connecting Wiring (mm ²)	Ground Wiring	2.5	2.5	2.5
	Strong Electric Signal	3×1.0(3×2.5 with auxiliary electric heater)	3×1.0(3×2.5 with auxiliary electric heater)	3×1.0(3×2.5 with auxiliary electric heater)
	Weak Electric Signal	2×0.2	2×0.2	2×0.2

Product Features

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1. Operation Modes and Functions

1.1 Abbreviation

Unit element abbreviations

Abbreviation	Element
T1	Indoor room temperature
T2	Coil temperature of evaporator
T3	Coil temperature of condenser
T4	Outdoor ambient temperature
T5	Compressor discharge temperature

1.2 Safety Features

Compressor three-minute delay at restart

Compressor functions are delayed for up to one minute upon the first startup of the unit, and are delayed for up to three minutes upon subsequent unit restarts.

Low Pressure Check Function(For 36K~55K)

The low pressure switch should be always closed. If it is open, the system will stop until the fault is cleared. During defrosting procedure, 4 minutes after defrosting ends and 5 minutes after compressor is on in heating mode, low pressure switch won't be checked.

Note: The system will not check if the protection could be cleared in 30 seconds after the protection occurs. If this protection occurs 3 times, it won't recover automatically until the main power is cut off.

Over-current protection

When compressor is running, if the current is over twice of the rated for 3 seconds, the compressor will stop and an error code will be displayed on the outdoor PCB. If the current becomes normal, the indoor sends signal to the outdoor, the outdoor will display normally.

Open Circuit/Disconnection Sensor Protection

Fan Speed Malfunction

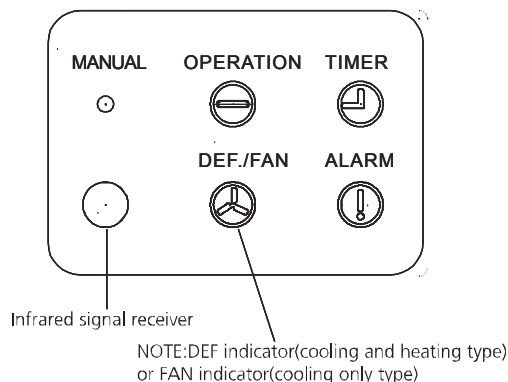
If a fault occurs on the air volume regulator or the regulator enters protection mode, it sends the error message CF and an instruction to reduce fan speed to the master. The message and the instruction can be inquired with the remote controller or the wired controller. (Fault and protection information are displayed for one minute). After a fault occurs, the master unit shows the error code E3 and the fault count for one minute.

If the fault occurs three times, then the fan is unable to resolve the problem independently. External shutdown by a remote controller, wired controller, or central controller

must be used to clear the fan fault and fault count. The fan runs normally for 5 minutes while clearing fault count.

1.3 Display Function

Unit display functions



1.4 Fan

When fan mode is activated:

- The outdoor fan and compressor are stopped.
- Temperature control is disabled and no temperature setting is displayed.
- The indoor fan speed can be set to high, medium, low, or auto.
- The louver operations are identical to those in cooling mode.

1.5 Cooling Mode

1.5.1 Compressor Control

- When $T1-Ts-\Delta T$ is lower than setting value, the compressor ceases operation.
- When $T1-Ts-\Delta T$ is higher than setting value, the compressor continues operation.

1.5.2 Indoor Fan Control

- In cooling mode, the indoor fan operates continuously. The fan speed can be set to high, medium, low or auto.
- The auto fan acts according to the value of $T1-Ts$.

1.5.3 Outdoor Fan Control

- The outdoor fan is controlled by $T4$ and compressor frequency.

1.5.4 Evaporator Temperature Protection

When evaporator temperature drops below a configured value for some time, the compressor ceases operation, the outdoor fan motor ceases operation 30 seconds later.

1.5.5 Condenser Temperature Protection

When condenser temperature is more than setting value, the compressor ceases operations.

1.6 Heating Mode(Heat pump models)

1.6.1 Indoor Fan Control:

- When the compressor is on, the fan speed can be set to high, medium, low, or auto. And the anti-cold wind function has the priority.
- The auto fan acts according to the value of T1-Ts.

1.6.2 Outdoor Fan Control:

- The outdoor fan is controlled by T4 and compressor frequency.

1.6.3 Defrosting mode

- The unit enters defrosting mode according to the value of temperature of T3 and the value range of temperature change of T3 and also the compressor running time.
- If any one of the following items is satisfied, the defrosting will finish and the machine will turn to normal heating mode.
 - T3 rises to be higher than TCDE1°C.
 - T3 keeps to be higher than TCDE2°C for 80 seconds.
 - The machine has run for 10 minutes (36~55k) in defrosting mode.

1.6.4 Evaporator Temperature Protection

When the evaporator temperature exceeds a preset protection value, the compressor and outdoor fan cease operations, the outdoor fan motor ceases operation 30 seconds later.

1.7 Auto Mode

- This mode can be selected with the remote controller and the temperature setting can be adjusted between 17°C ~30°C
- In auto mode, the machine selects cooling, heating, or fan-only mode on the basis of ΔT ($\Delta T = T1 - T_s$).

ΔT	Running mode
$\Delta T > 2^\circ\text{C}$	Cooling
$-2^\circ\text{C} \leq \Delta T \leq 2^\circ\text{C}$	Fan-only
$\Delta T < -2^\circ\text{C}$	Heating*

Heating*: In auto mode, cooling only models run the fan.

- Indoor fans run at the auto fan speed of the relevant mode.

- The louver operates the same as in relevant mode.
- If the machine switches mode between heating and cooling, the compressor pauses for a certain period of time intermittently and then selects a mode based on T1-Ts.
- If the setting temperature is modified, the machine selects a new running function.

1.8 Drying Mode

- Indoor fan speed is fixed at low and cannot be changed.
- All protections are activated and operate the same as they do in cooling mode.
- The louver operates the same as in cooling mode.

1.9 Timer Function

- The timing range is 24 hours.
- Timer On. The machine turns on automatically at the preset time.
- Timer Off. The machine turns off automatically at the preset time.
- Timer On/Off. The machine turns on automatically at the preset On Time, and then turns off automatically at the preset Off Time.
- Timer Off/On. The machine turns on automatically at the preset Off Time and then turns off automatically at the preset On Time.
- The timer does not change the unit operation mode. If the unit is off now, it does not start up immediately after the "timer off" function is set. When the setting time is reached, the timer LED switches ioff and the unit running mode remains unchanged.
- The timer uses relative time, not clock time

1.10 Sleep Function

- The sleep function is available in cooling, heating, or auto mode.
- The operational process for sleep mode is as follows:
- When cooling, the temperature rises 1°C (to not higher than 30°C) every hour. After 2 hours, the temperature stops rising and the indoor fan is fixed to auto speed.
- When heating, the temperature decreases 1°C (to not lower than 17°C) every hour. After 2 hours, the temperature stops decreasing and the indoor fan is fixed at auto speed. Anti-cold wind function takes priority.
- The operating time for sleep mode is 7 hours, after

which, the unit exits this mode and switches off.

- The timer setting is available in this mode.

1.11 Auto-Restart

- The indoor unit has an auto-restart module that allows the unit to restart automatically. The module automatically stores the current settings (not including sleep mode) and, in the case of a sudden power failure, will restore those setting automatically within 3 minutes after power returns.
- If the unit was in forced cooling mode, it will run in this mode for 30 minutes and turn to auto mode with temperature set to 24°C.
- If there is a power failure while the unit is running, the compressor starts 3 minutes after the unit restarts. If the unit was already off before the power failure, the compressor starts 1 minute after the unit restarts.

1.12 Follow Me (Optional)

- If you press "Follow Me" on the remote, the indoor unit will beep. This indicates the follow me function is active.
- Once active, the remote control will send a signal every 3 minutes, with no beeps. The unit automatically sets the temperature according to the measurements from the remote control.
- The unit will only change modes if the information from the remote control makes it necessary, not from the unit's temperature setting.

1.13 Drain Pump Control (Optional)

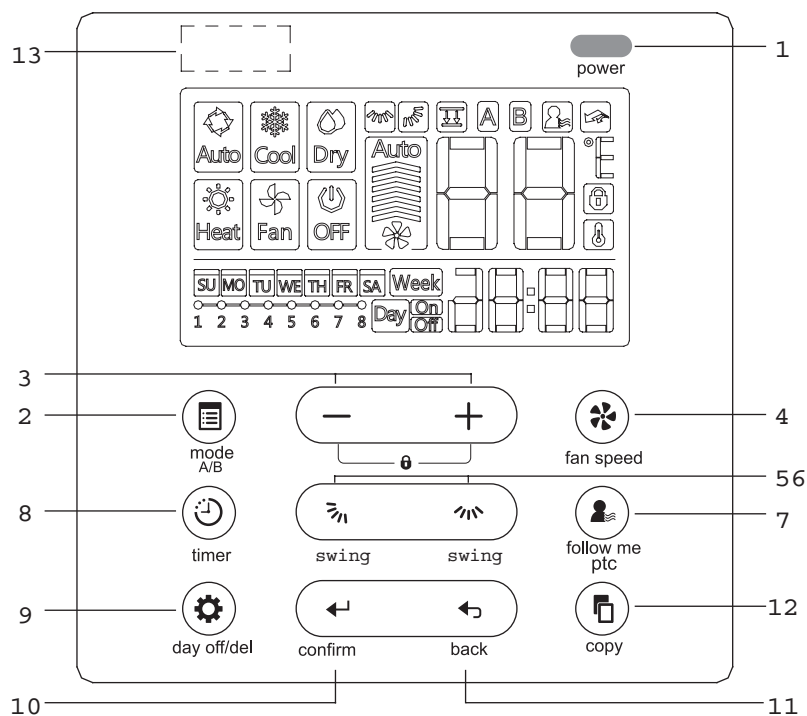
- Use the water-level switch to control drain pump.
- The system checks the water level every 5 seconds.
 - When the A/C operates in cooling (including auto cooling) or forced cooling mode, the pump begins running immediately and continuously until cooling stops.
 - If the water level increases up to the control point, the LED displays an alarm code and the drain pump opens and continually monitors the water level. If the water level falls and LED alarm code is no longer displayed (drain pump close delay is 1 minute), the unit goes back into its last mode. Otherwise, the entire system (including the pump) stops and the LED displays an alarm again after 3 minutes.

2. Remote Controller Functions

2.1 LCD Wired Remote Controller KJR-120C1E(Optional)

The KJR-120C1E wired remote controller is optional for all types.

i) Buttons and Functions



1. POWER button

Turn on or turn off the unit.

2. MODE(A/B) button

Used to select the operation mode: Auto / Cooling / Drying / Heating / Fan;

Hold to activate the operation of auto-lifting panel when off

3. Adjust button

To set temperature, time and timer; set up or down the auto-lifting panel

4. FAN SPEED button

Used to select the fan speed.

5. Up-down airflow direction and swing Button

Press for adjusting the angel of louver, hold for vertical swing; individual louver control for cassette panel

6. Left-right airflow swing Button

Press for activating the horizontal swing

7. FOLLOW ME(PTC) button

Allows the remote control to act as a remote thermostat and send temperature information from its current location.

8. TIMER button

To set timer on and timer off time of one day

9. DELAY/DAY OFF button

To set 1 to 2 hours delay off for each day or a whole day off in a weekly timer schedule

10. CONFIRM button

To confirm an setting or call up the menu

11. BACK button

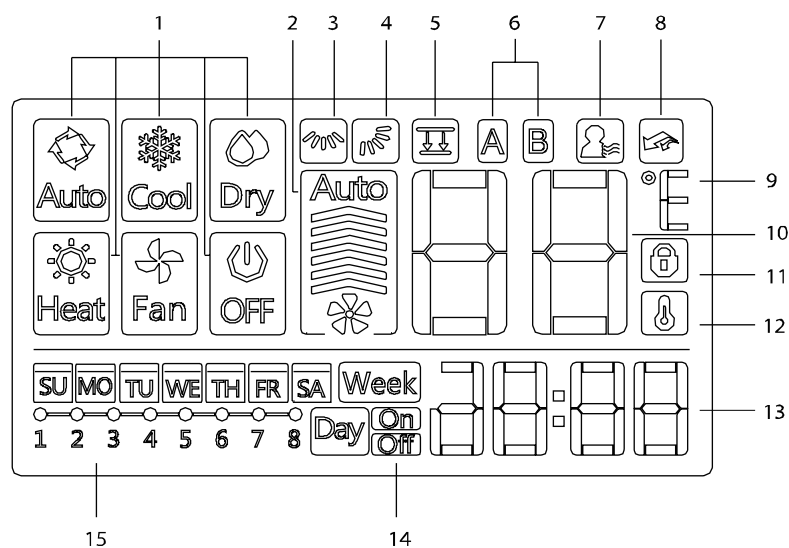
Back to previous operation or superior menu

12. COPY button

Copy timer setting of one day to another in weekly schedule setting

13 Infrared remote receiver (on some models)

ii) LCD Screen



1 Operation mode indication

2 Fan speed indication

3 Left-right swing indication

4 Up-down swing indication

5 Faceplate function indication

6 Main unit and secondary unit indication

7 Follow me function indication

8 PTC function indication

9 C° / F° indication

10 Temperature display

11 Lock indication

12 Room temperature indication

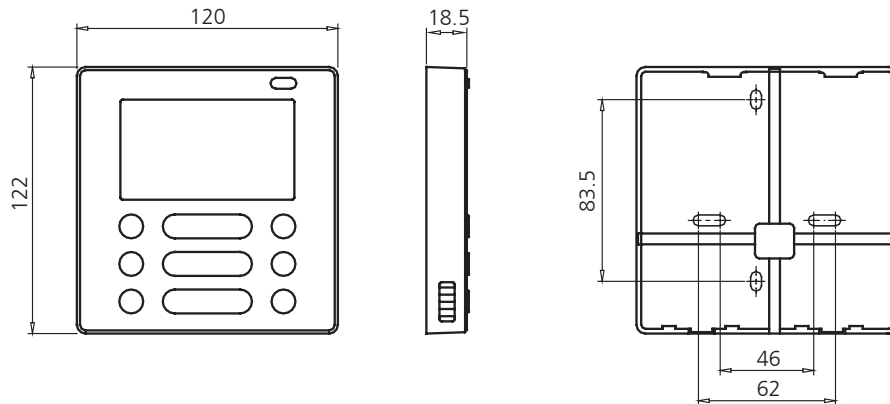
13 Clock display

14 On/Off timer

15 Timer display

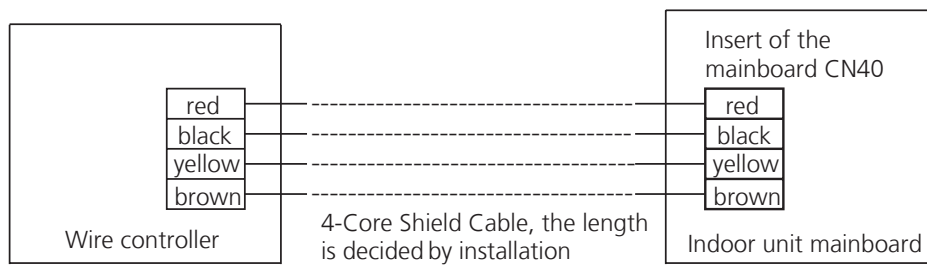
iii) Installation

• Dimensions



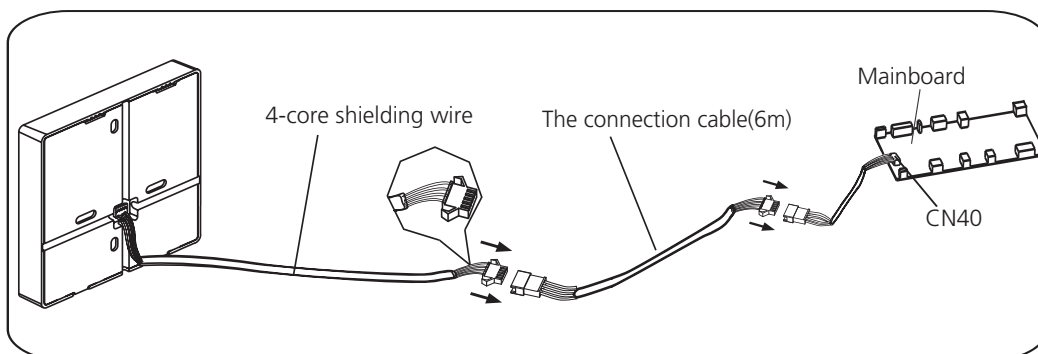
• Wiring diagram

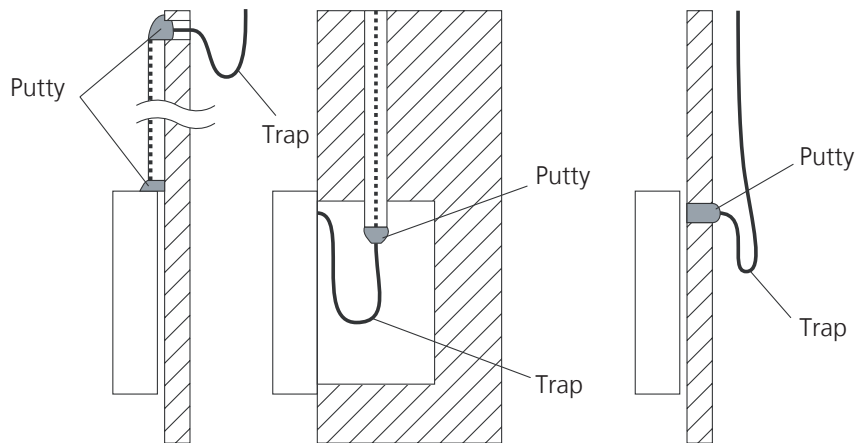
Refer to the following diagram to wire the wall-mounted remote control to the indoor unit.



• Installation Diagram

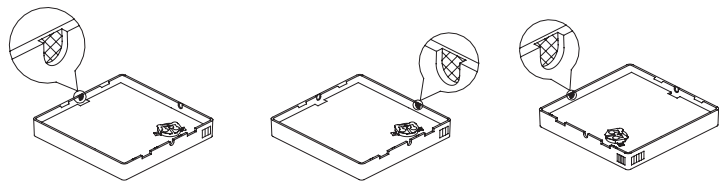
Connect the female joint of wires group from the mainboard with the male joint of connective wires group. Then connect the other side of connective wires group with the male joint of wires group leads from wire controller.





Note: DO NOT allow water to enter the remote control. Use the trap and putty to seal the wires.

- For exposed mounting, four outletting positions. There are three need cutting.



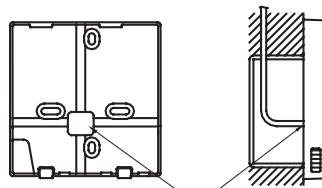
Cutting place of top
side wire outlet

Cutting place of left
side wire outlet

Cutting place of right
side wire outlet

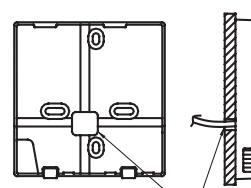
- For shielded wiring, please refer to the picture below.

Embedded switch
box wiring



Wiring
hole

Wiring through the wall

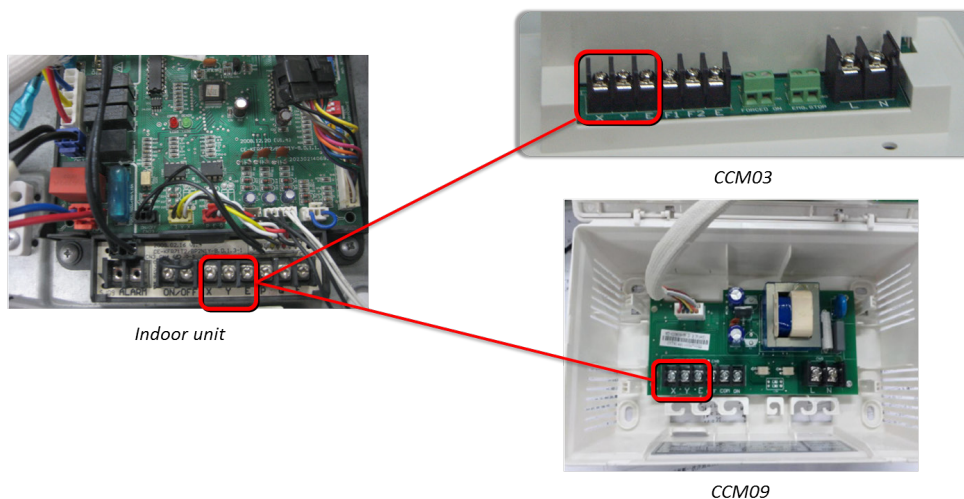


Wall hole and wiring hole
Diameter of wall hole: $\Phi 2\text{cm}$

2.2 Centralized Controller

1) Connection

For Light commercial air conditioner with XYE port, it can be directly connected to Centralized Controller (CCM03, CCM09).



2) Address setting

When setting the address, please make sure the unit is powered off. The address can be set from 0 to 63 by the switch. Turn on the unit, then the address will be effective.

SWITCH	FOR CCM UNIT ADDRESS	
S2 + S1		
ADDRESS	0~15	16~31
Factory Setting	✓	
S2 + S1		
ADDRESS	32~47	48~63
Factory Setting		

Note: For light commercial air conditioner with XYE port, it can be also connected to BMS (Building Management System).

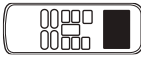
If there is any CAC (central air conditioner) connecting with the central controller at the same time, please set the address from largest (63,62,61...), since the CAC units could obtain address automatically from the smallest (00,01,02...)

Installation

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Accessories

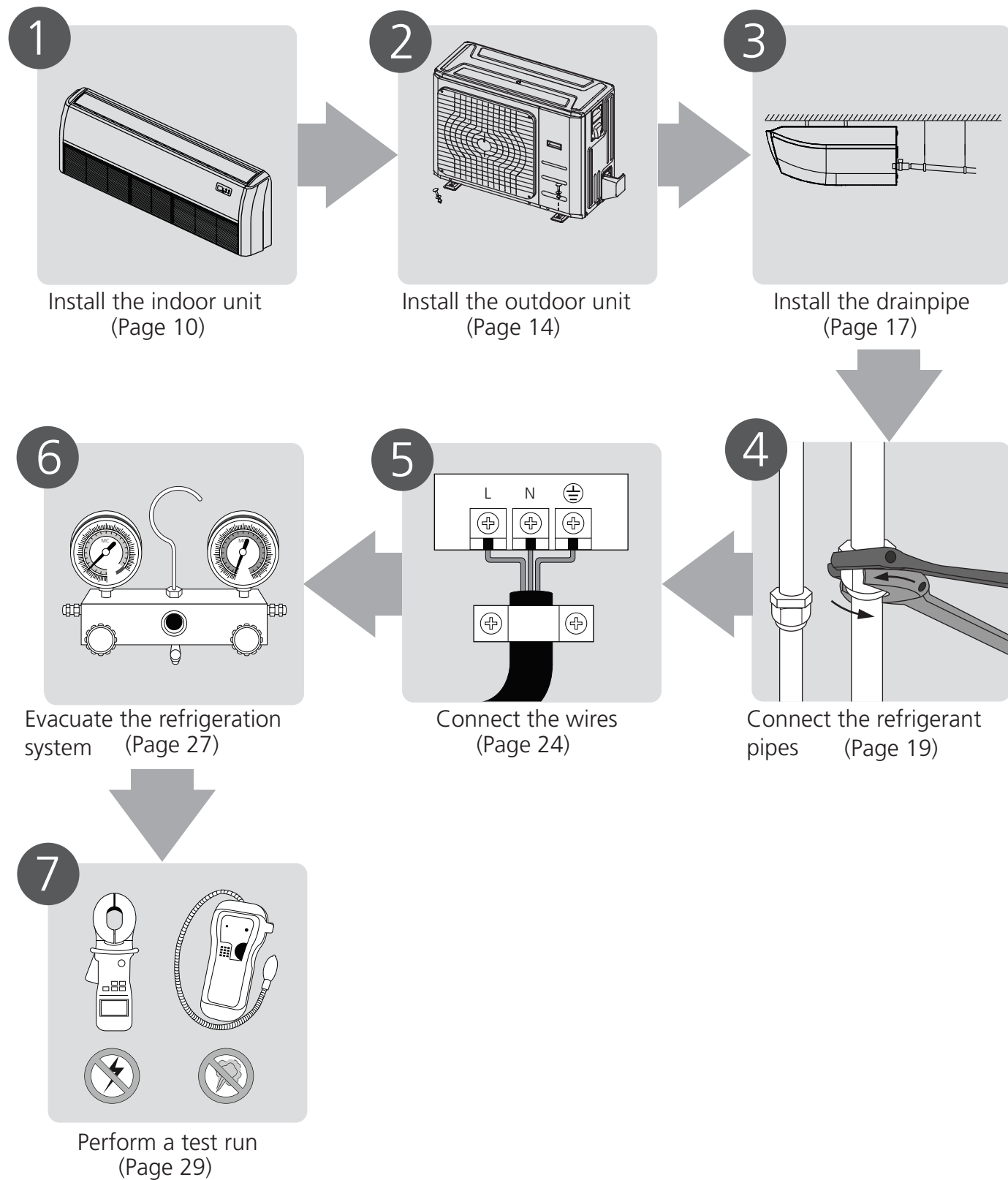
	Name	Shape	Quantity
Refrigeration Fittings	Soundproof/insulation sheath (some models)		1
Drainpipe Fittings	Outlet pipe sheath(some models)		1
	Outlet pipe clasp(some models)		1
	Drain joint (some models)		1
	Seal ring (some models)		1
Remote controller & Its Frame (some models)	Remote controller		1
	Fixing screw for remote controller holder ST2.9 x 10		2
	Remote controller holder		1
	Dry battery AAA		2
	Remote controller illustration		1
EMC Magnetic Ring (some models)	Magnetic ring (wrap the electric wires S1 & S2 (P & Q & E) around the magnetic ring twice)	 S1&S2(P&Q&E)	1
	Magnetic ring (Hitch it on the connective cable between indoor unit and outdoor unit after installation.)		1
	Installation and operating manual		1

Optional accessories:

- There are two types of remote controls: wired and wireless.
- Select a remote controller based on customer preferences and requirements and install in an appropriate place.
- Refer to catalogues and technical literature for guidance on selecting a suitable remote controller.

1. Installation Overview

Installation Order



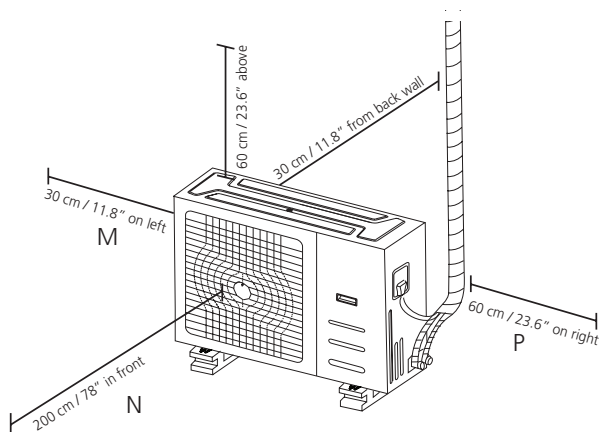
2. Location selection

2.1 Unit location selection can refer to installation manual.

2.2 DO NOT install the unit in the following locations:

- Where oil drilling or fracking is taking place.
- Coastal areas with high salt content in the air.
- Areas with caustic gases in the air, such as near hot springs.
- Areas with power fluctuations, such as factories.
- Enclosed spaces, such as cabinets.
- Areas with strong electromagnetic waves.
- Areas that store flammable materials or gas.
- Rooms with high humidity, such as bathrooms or laundry rooms.
- If possible, DO NOT install the unit where it is exposed to direct sunlight.

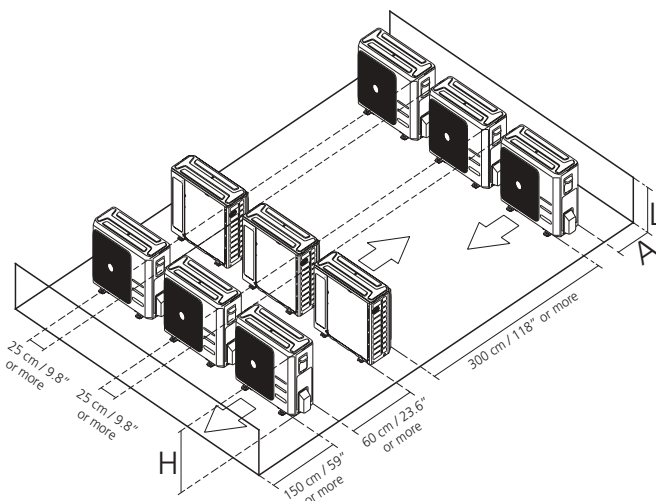
2.3 The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the three directions (M, N, P)



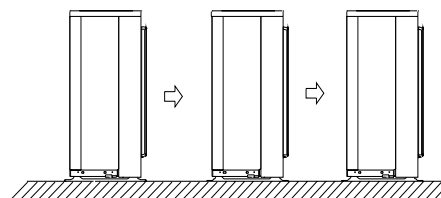
2.4 Rows of series installation

The relations between H, A and L are as follows.

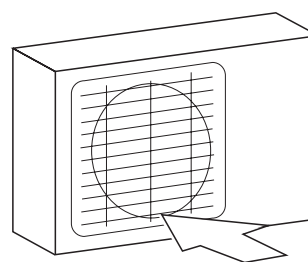
	L	A
$L \leq H$	$L \leq 1/2H$	25 cm / 9.8\" or more
	$1/2H < L \leq H$	30 cm / 11.8\" or more
$L > H$	Can not be installed	



DO NOT install the rows of series like following figure.



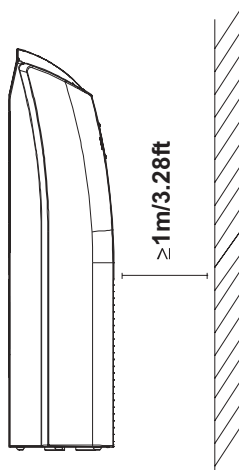
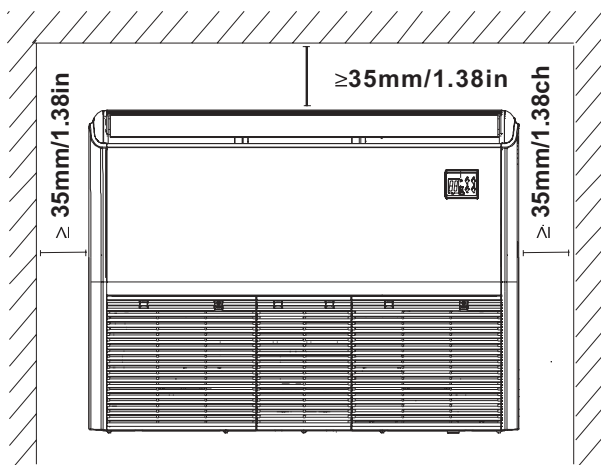
2.5. If the location is exposed to strong winds (for example: near a seaside), the unit must be placed against the wall to shelter it from the wind. If necessary, use an windbreaks (or similar).



DO NOT Strong wind

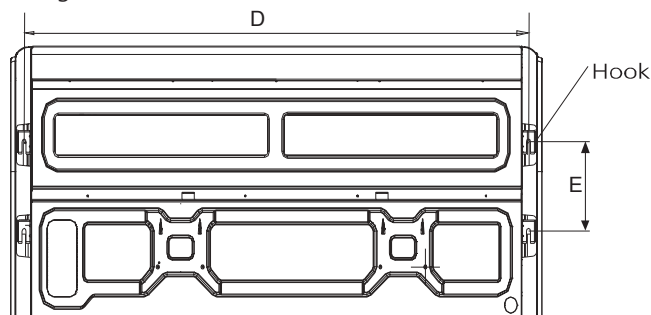
3. Indoor Unit Installation

3.1 Service space for indoor unit



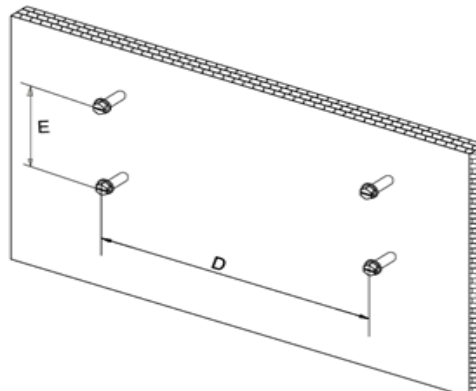
3.2 Bolt Pitch

Ceiling Installation



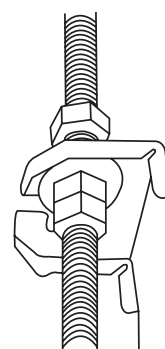
MODEL(Btu/h)	Length of D (mm/inch)	Length of E (mm/inch)
70M	983/38.7	220/8.7
105M-140M-160M	1565/61.6	220/8.7

Wall-Mounted Installation

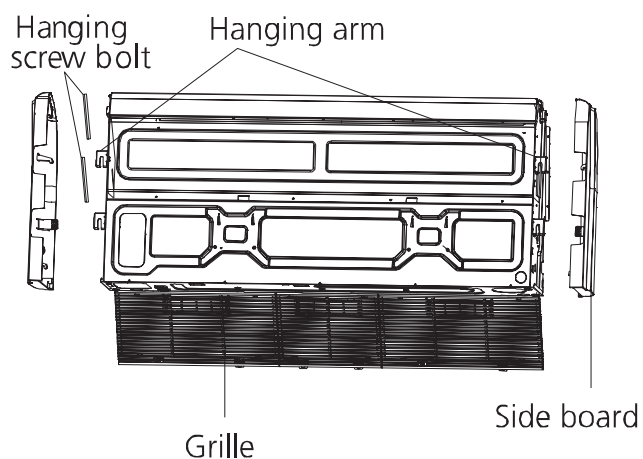


3.3 Hang Indoor Unit

1. The installation of hanging screw bolts.
 - Cut off the roof beam.
 - Strengthen the area at which the cut was made and consolidate the roof beam.
2. After the selection of the installation location, position the refrigerant pipes, drain pipes, and indoor and outdoor wires to the connection points before mounting the machine.
3. Drill 4 holes 10cm (4") deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
4. Secure the bolt using the included washers and nuts.
5. Install the four suspension bolts.
6. Mount the indoor unit. You will need two people to lift and secure it. Insert suspension bolts into the unit's hanging holes. Fasten them using the included washers and nuts

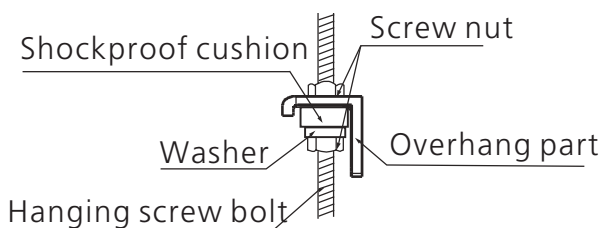


7. Remove the side board and the grille.



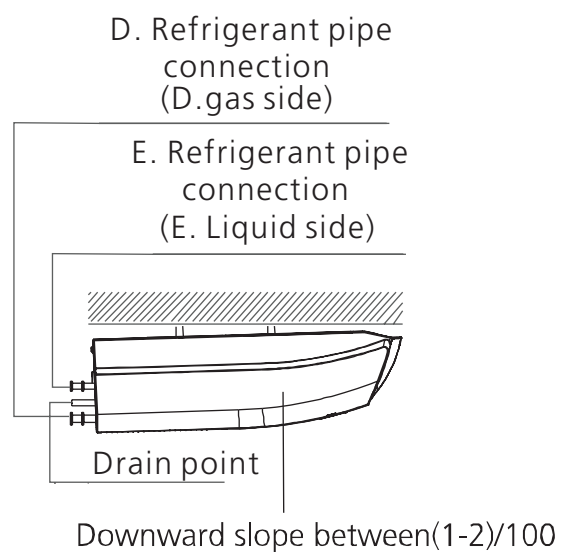
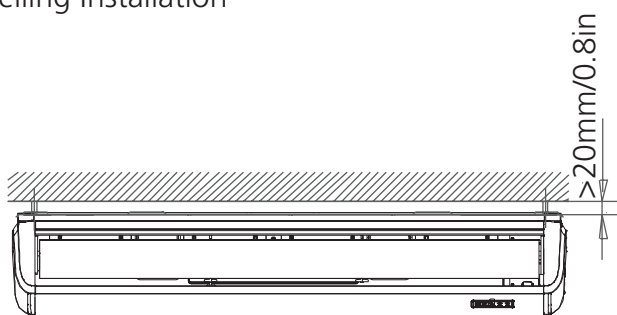
8. Mount the indoor unit onto the hanging screw bolts with a block.

Position the indoor unit on a flat level by using a level to prevent leaks.

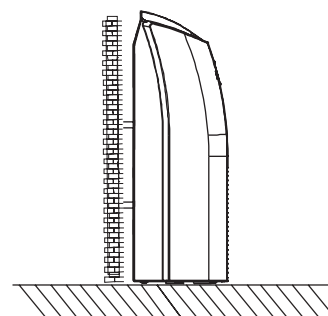


Note: Confirm the minimum drain tilt is 1/100 or more.

Ceiling Installation

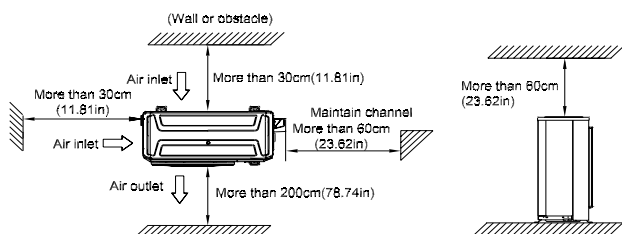


Wall-Mounted Installation



4. Outdoor unit installation(Side Discharge Unit)

4.1 Service space for outdoor unit



center, so please be careful when lifting it with a sling.

Never hold the inlet of the outdoor unit to prevent it from deforming.

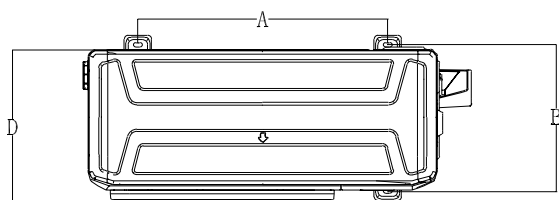
Do not touch the fan with hands or other objects.

Do not lean it more than 45, and do not lay it sidelong.

Make concrete foundation according to the specifications of the outdoor units.

Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind.

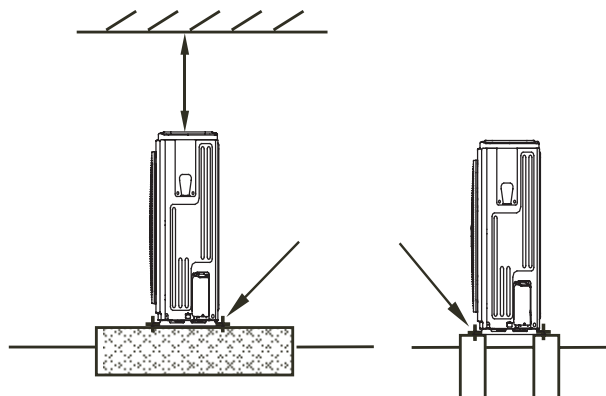
4.2 Bolt pitch



Model	A	B	D
70M	540	350	363
105M-105T	673	403	410
140T-160T	634	404	415

4.3 Install Outdoor Unit

Fix the outdoor unit with anchor bolts(M10)



Cation

Since the gravity center of the unit is not at its physical

5. Drainage Pipe Installation

Install the drainage pipe as shown below and take measures against condensation. Improperly installation could lead to leakage and eventually wet furniture and belongings.

5.1 Installation principle

- Ensure at least 1/100 slope of the drainage pipe
- Adopt suitable pipe diameter
- Adopt nearby condensate water discharge

5.2 Key points of drainage water pipe installation

1. Considering the pipeline route and elevation.

- Before installing condensate water pipeline, determine its route and elevation to avoid intersection with other pipelines and ensure slope is straight.

2. Drainage pipe selection

- The drainage pipe diameter shall not small than the drain hose of indoor unit
- According to the water flowrate and drainage pipe slope to choose the suitable pipe, the water flowrate is decided by the capacity of indoor unit.

Relationship between water flowrate and capacity of indoor unit

Capacity (kBtu)	Water flowrate (l/h)
70M	6
105M-105T	8
140T	12
160T	14

According to the above table to calculate the total water flowrate for the confluence pipe selection.

For horizontal drainage pipe (The following table is for reference)

PVC pipe	Reference value of inner diameter of pipe (mm)	Allowable maximum water flowrate (l/h)		Remark
		Slope 1/50	Slope 1/100	
PVC25	20	39	27	For branch pipe
PVC32	25	70	50	
PVC40	31	125	88	Could be used for confluence pipe
PVC50	40	247	175	
PVC63	51	473	334	

Attention: Adopt PVC40 or bigger pipe to be the main pipe.

For Vertical drainage pipe (The following table is for reference)

PVC pipe	Reference value of inner diameter of pipe (mm)	Allowable maximum water flowrate (l/h)	Remark
PVC25	20	220	For branch pipe
PVC32	25	410	
PVC40	31	730	Could be used for confluence pipe
PVC50	40	1440	
PVC63	51	2760	
PVC75	67	5710	
PVC90	77	8280	

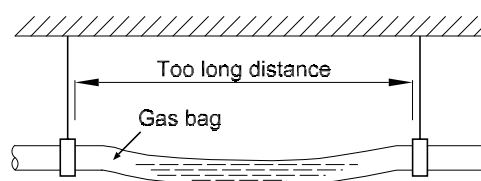
Attention: Adopt PVC40 or bigger pipe to be the main pipe.

3. Individual design of drainage pipe system

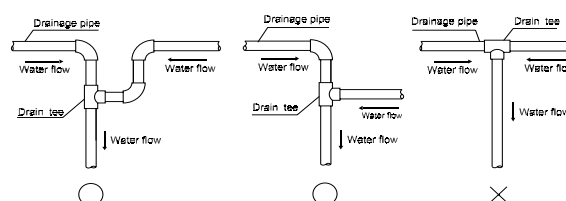
- The drainage pipe of air conditioner shall be installed separately with other sewage pipe, rainwater pipe and drainage pipe in building.
- The drainage pipe of the indoor unit with water pump should be apart from the one without water pump.

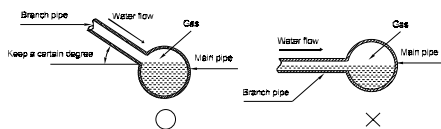
4. Supporter gap of drainage pipe

- In general, the supporter gap of the drainage pipe horizontal pipe and vertical pipe is respectively 1m~1.5m and 1.5m~2.0m.
- Each vertical pipe shall be equipped with not less than two hangers.
- Overlarge hanger gap for horizontal pipe shall create bending, thus leading to air block.



5. The horizontal pipe layout should avoid converse flow or bad flow

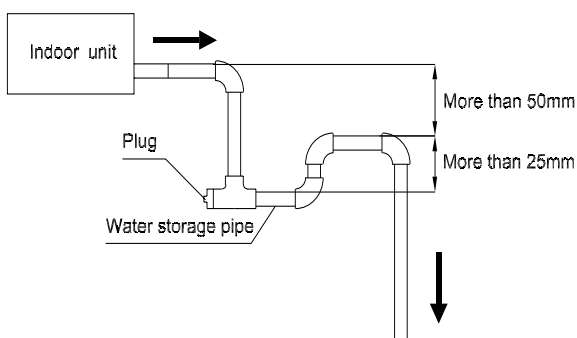




- The correct installation will not cause converse water flow and the slope of the branch pipes can be adjusted freely
- The false installation will cause converse water flow and the slope of the branch pipe can not be adjusted.

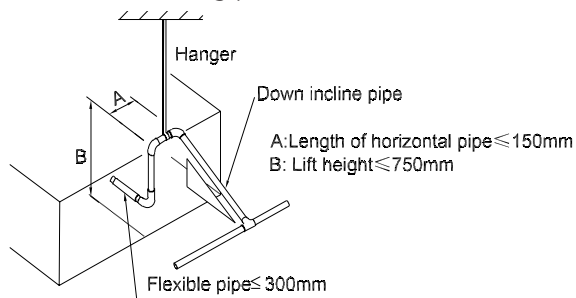
6. Water storage pipe setting

- If the indoor unit has high extra static pressure and without water pump to elevate the condensate water, such as high extra static pressure duct unit, the water storage pipe should be set to avoid converse flow or blow water phenomena.



7. Lifting pipe setting of indoor unit with water pump

- The length of lifting pipe should not exceed 750mm.
- The drainage pipe should be set down inclined after the lifting pipe immediately to avoid wrong operation of water level switch.
- Refer the following picture for installation reference.

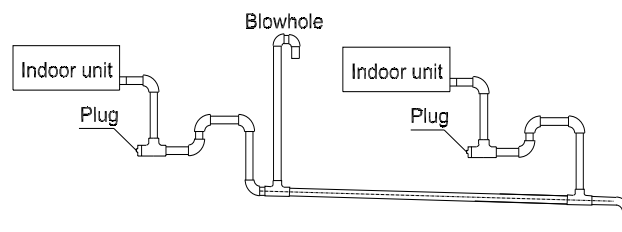


8. Blowhole setting

- For the concentrated drainage pipe system, there should design a blowhole at the highest point of main pipe to ensure the condensate water discharge smoothly.
- The air outlet shall face down to prevent dirt enter-

ing pipe.

- Each indoor unit of the system should be installed it.
- The installation should be considering the convenience for future cleaning.



9. The end of drainage pipe shall not contact with ground directly.

5.3 Insulation work of drainage pipe

Refer the introduction to the insulation engineering parts.

6. Refrigerant Pipe Installation

6.1 Maximum length and drop height

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown in the following table.

Model	Max. Length (m/ft)	Max. Elevation (m/ft)
70M	50/164	25/82
105M~160T	65/213.3	30/98.4

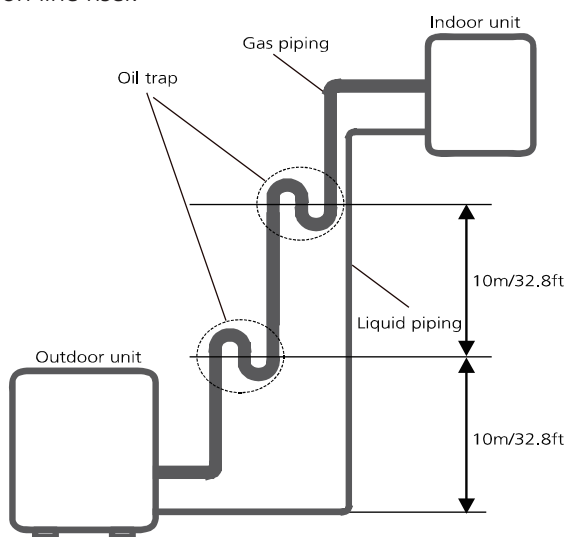
caution:

- The capacity test is based on the standard length and the maximum permissive length is based on the system reliability.
- Oil traps

If the indoor unit is installed higher than the outdoor unit:

-If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas piping can prevent this.

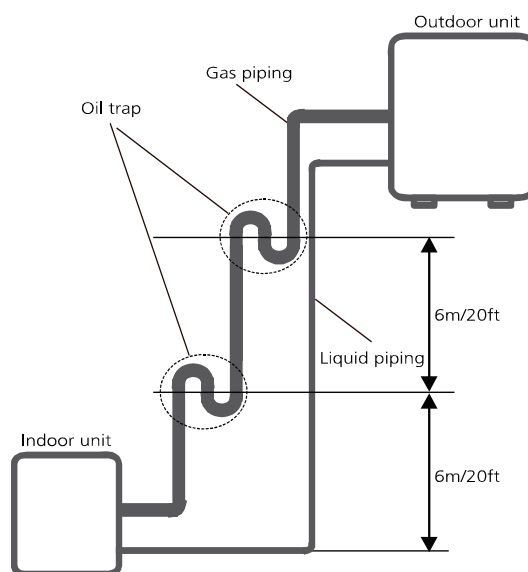
An oil trap should be installed every 10m(32.8ft) of vertical suction line riser.



The indoor unit is installed higher than the outdoor unit

If the outdoor unit is installed higher than the indoor unit:

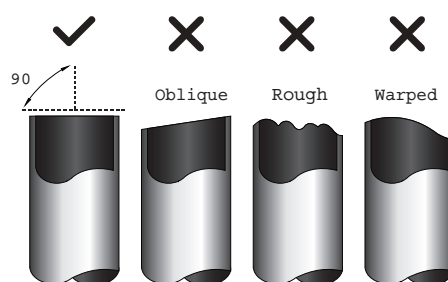
-It is recommended that vertical suction risers not be upsized. Proper oil return to the compressor should be maintained with suction gas velocity. If velocities drop below 7.62m/s(1500fpm (feet per minute)), oil return will be decreased. An oil trap should be installed every 6m(20ft) of vertical suction line riser.



The outdoor unit is installed higher than the indoor unit.

6.2 The procedure of connecting pipes

- 1.Choose the pipe size according to the specification table.
- 2.Confirm the cross way of the pipes.
- 3.Measure the necessary pipe length.
- 4.Cut the selected pipe with pipe cutter
 - Make the section flat and smooth.

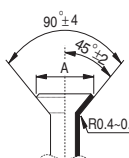


5. Insulate the copper pipe

- Before test operation, the joint parts should not be heat insulated.

6. Flare the pipe

- Insert a flare nut into the pipe before flaring the pipe
- According to the following table to flare the pipe.

Pipe diameter (inch(mm))	Flare dimension A (mm/inch)		Flare shape
	Min	Max	
1/4" (6.35)	8.4/0.33	8.7/0.34	
3/8" (9.52)	13.2/0.52	13.5/0.53	
1/2" (12.7)	16.2/0.64	16.5/0.65	
5/8" (15.9)	19.2/0.76	19.7/0.78	
3/4" (19)	23.2/0.91	23.7/0.93	
7/8" (22)	26.4/1.04	26.9/1.06	

- After flared the pipe, the opening part must be seal by end cover or adhesive tape to avoid duct or exogenous impurity come into the pipe.

7. Drill holes if the pipes need to pass the wall.

8. According to the field condition to bend the pipes so that it can pass the wall smoothly.

9. Bind and wrap the wire together with the insulated pipe if necessary.

10. Set the wall conduit

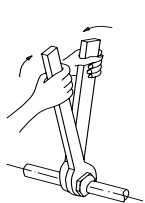
11. Set the supporter for the pipe.

12. Locate the pipe and fix it by supporter

- For horizontal refrigerant pipe, the distance between supporters should not be exceed 1m.
- For vertical refrigerant pipe, the distance between supporters should not be exceed 1.5m.

13. Connect the pipe to indoor unit and outdoor unit by using two spanners.

- Be sure to use two spanners and proper torque to fasten the nut, too large torque will damage the bellmouthing, and too small torque may cause leakage. Refer the following table for different pipe connection.

Pipe Diameter	Torque	Sketch map
	N.m(lb.ft)	
1/4" (6.35)	15~16 (11~11.8)	
3/8" (9.52)	25~26 (18.4~19.18)	
1/2" (12.7)	35~36 (25.8~26.55)	
5/8" (15.9)	45~47 (33.19~34.67)	
3/4" (19)	65~67 (47.94~49.42)	
7/8" (22)	75~85 (55.3~62.7)	

7. Vacuum Drying and Leakage Checking

7.1 Purpose of vacuum drying

- Eliminating moisture in system to prevent the phenomena of ice-blockage and copper oxidation. Ice-blockage shall cause abnormal operation of system, while copper oxide shall damage compressor.
- Eliminating the non-condensable gas (air) in system to prevent the components oxidizing, pressure fluctuation and bad heat exchange during the operation of system.

7.2 Selection of vacuum pump

- The ultimate vacuum degree of vacuum pump shall be -756mmHg or above.
- Precision of vacuum pump shall reach 0.02mmHg or above.

7.3 Operation procedure for vacuum drying

Due to different construction environment, two kinds of vacuum drying ways could be chosen, namely ordinary vacuum drying and special vacuum drying.

7.3.1 Ordinary vacuum drying

- When conduct first vacuum drying, connect pressure gauge to the infusing mouth of gas pipe and liquid pipe, and keep vacuum pump running for 1 hour (vacuum degree of vacuum pump shall be reached -755mmHg).
- If the vacuum degree of vacuum pump could not reach -755mmHg after 1 hour of drying, it indicates that there is moisture or leakage in pipeline system and need to go on with drying for half an hour.
- If the vacuum degree of vacuum pump still could not reach -755mmHg after 1.5 hours of drying, check whether there is leakage source.
- Leakage test: After the vacuum degree reaches -755mmHg, stop vacuum drying and keep the pressure for 1 hour. If the indicator of vacuum gauge does not go up, it is qualified. If going up, it indicates that there is moisture or leak source.

7.3.2 Special vacuum drying

The special vacuum drying method shall be adopted when:

- Finding moisture during flushing refrigerant pipe.
- Conducting construction on rainy day, because rain

water might penetrated into pipeline.

3. Construction period is long, and rain water might penetrated into pipeline.

4. Rain water might penetrate into pipeline during construction.

Procedures of special vacuum drying are as follows:

1. Vacuum drying for 1 hour.

2. Vacuum damage, filling nitrogen to reach 0.5Kgf/cm² .

Because nitrogen is dry gas, vacuum damage could achieve the effect of vacuum drying, but this method could not achieve drying thoroughly when there is too much moisture. Therefore, special attention shall be drawn to prevent the entering of water and the formation of condensate water.

3. Vacuum drying again for half an hour.

If the pressure reached -755mmHg, start to pressure leakage test. If it cannot reached the value, repeat vacuum damage and vacuum drying again for 1 hour.

4. Leakage test: After the vacuum degree reaches -755mmHg, stop vacuum drying and keep the pressure for 1 hour. If the indicator of vacuum gauge does not go up, it is qualified. If going up, it indicates that there is moisture or leak source.

8. Additional Refrigerant Charge

- After the vacuum drying process is carried out, the additional refrigerant charge process need to be performed.
- The outdoor unit is factory charged with refrigerant. The additional refrigerant charge volume is decided by the diameter and length of the liquid pipe between indoor and outdoor unit. Refer the following formula to calculate the charge volume.

Diameter of liquid pipe (mm)	Formula
6.35	$V=15g/m \times (L-5)$
9.52	$V=30g/m \times (L-5)$

V: Additional refrigerant charge volume (g).

L : The length of the liquid pipe (m).

Note:

- Refrigerant may only be charged after performed the vacuum drying process.
- Always use gloves and glasses to protect your hands and eyes during the charge work.
- Use electronic scale or fluid infusion apparatus to weight refrigerant to be recharged. Be sure to avoid extra refrigerant charged, it may cause liquid hammer of the compressor or protections.
- Use supplementing flexible pipe to connect refrigerant cylinder, pressure gauge and outdoor unit. And The refrigerant should be charged in liquid state. Before recharging, The air in the flexible pipe and manifold gauge should be exhausted.
- After finished refrigerant recharge process, check whether there is refrigerant leakage at the connection joint part.(Using gas leakage detector or soap water to detect).

9. Engineering of Insulation

9.1 Insulation of refrigerant pipe

1. Operational procedure of refrigerant pipe insulation

Cut the suitable pipe → insulation (except joint section) → flare the pipe → piping layout and connection → vacuum drying → insulate the joint parts

2. Purpose of refrigerant pipe insulation

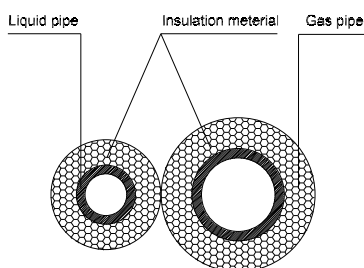
- During operation, temperature of gas pipe and liquid pipe shall be over-heating or over-cooling extremely. Therefore, it is necessary to carry out insulation; otherwise it shall debase the performance of unit and burn compressor.
- Gas pipe temperature is very low during cooling. If insulation is not enough, it shall form dew and cause leakage.
- Temperature of gas pipe is very high (generally 50-100 °C) during heating. Insulation work must be carried out to prevent hurt by carelessness touching.

3. Insulation material selection for refrigerant pipe

- The burning performance should over 120 °C
- According to the local law to choose insulation materials
- The thickness of insulation layer shall be above 10mm. If in hot or wet environment place, the layer of insulation should be thicker accordingly.

4. Installation highlights of insulation construction

- Gas pipe and liquid pipe shall be insulated separately, if the gas pipe and liquid pipe were insulated together; it will decrease the performance of air conditioner.



- The insulation material at the joint pipe shall be 5~10cm longer than the gap of the insulation material.
- The insulation material at the joint pipe shall be inserted into the gap of the insulation material.
- The insulation material at the joint pipe shall be banded to the gas pipe and liquid pipe tightly.
- The linking part should be use glue to paste together
- Be sure not bind the insulation material over-tight, it may extrude out the air in the material to cause bad

insulation and cause easy aging of the material.

9.2 Insulation of drainage pipe

1. Operational procedure of refrigerant pipe insulation

Select the suitable pipe → insulation (except joint section) → piping layout and connection → drainage test → insulate the joint parts

2. Purpose of drainage pipe insulation

The temperature of condensate drainage water is very low. If insulation is not enough, it shall form dew and cause leakage to damage the house decoration.

3. Insulation material selection for drainage pipe

- The insulation material should be flame retardant material, the flame retardancy of the material should be selected according to the local law.
- Thickness of insulation layer is usually above 10mm.
- Use specific glue to paste the seam of insulation material, and then bind with adhesive tape. The width of tape shall not be less than 5cm. Make sure it is firm and avoid dew.

4. Installation and highlights of insulation construction

- The single pipe should be insulated before connecting to another pipe, the joint part should be insulated after the drainage test.
- There should be no insulation gap between the insulation material.

10. Engineering of Electrical Wiring

10.1 Highlights of electrical wiring installation

- All field wiring construction should be finished by qualified electrician.
- Air conditioning equipment should be grounded according to the local electrical regulations.
- Current leakage protection switch should be installed.
- Do not connect the power wire to the terminal of signal wire.
- When power wire is parallel with signal wire, put wires to their own wire tube and remain at least 300mm gap.
- According to table in indoor part named "the specification of the power" to choose the wiring, make sure the selected wiring not small than the date showing in the table.
- Select different colors for different wire according to relevant regulations.
- Do not use metal wire tube at the place with acid or alkali corrosion, adopt plastic wire tube to replace it.
- There must be not wire connect joint in the wire tube If joint is a must, set a connection box at the place.
- The wiring with different voltage should not be in one wire tube.
- Ensure that the color of the wires of outdoor and the terminal No. are same as those of indoor unit respectively.
- You must first choose the right cable size before preparing it for connection. Be sure to use H07RN-F cables.

Table: Minimum Cross-Sectional Area able of Power and Signal Cables

Rated Current of Appliance (A)	Nominal Cross-Sectional Area(mm ²)
≤ 6	0.75
6 - 10	1
10 - 16	1.5
16 - 25	2.5
25 - 32	4
32 - 45	6

11. Test Operation

11.1 The test operation must be carried out after the entire installation has been completed.

11.2 Please confirm the following points before the test operation.

- The indoor unit and outdoor unit are installed properly.
- Tubing and wiring are correctly completed.
- The refrigerant pipe system is leakage-checked.
- The drainage is unimpeded.
- The ground wiring is connected correctly.
- The length of the tubing and the added stow capacity of the refrigerant have been recorded.
- The power voltage fits the rated voltage of the air conditioner.
- There is no obstacle at the outlet and inlet of the outdoor and indoor units.
- The gas-side and liquid-side stop valves are both opened.
- The air conditioner is pre-heated by turning on the power.

11.3 Test operation

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 check the following points.

Indoor unit

- Whether the switch on the remote controller works well.
- Whether the buttons on the remote controller works well.
- Whether the air flow louver moves normally.
- Whether the room temperature is adjusted well.
- Whether the indicator lights normally.
- Whether the temporary buttons works well.
- Whether the drainage is normal.
- Whether there is vibration or abnormal noise during operation.

Outdoor unit

- Whether there is vibration or abnormal noise during operation.
- Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
- Whether any of the refrigerant is leaked.

Drainage Test

- a. Ensure the drainpipe flows smoothly. New buildings should perform this test before finishing the ceiling.
- b. Remove the test cover. Add 2000ml of water to the tank through the attached tube.
- c. Turn on the main power switch and run the air conditioner in COOL mode.
- d. Listen to the sound of the drain pump to see if it makes any unusual noises.
- e. Check to see that the water is discharged. It may take up to one minute before the unit begins to drain depending on the drainpipe.
- f. Make sure that there are no leaks in any of the piping.
- g. Stop the air conditioner. Turn off the main power switch and reinstall the test cover.

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