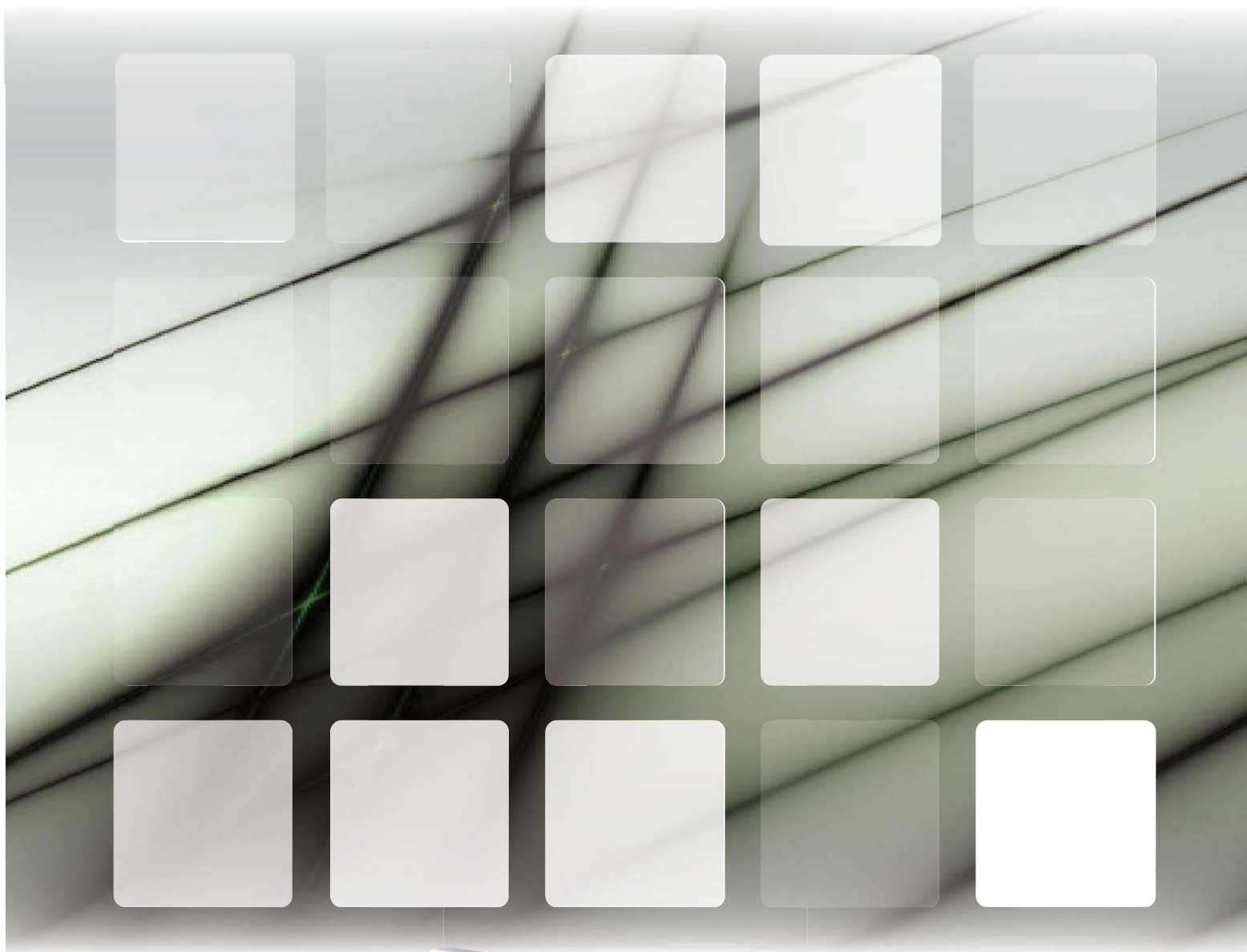


# IEFC-D Series Floor Ceiling Technical Manual



**Applicable Models:**

**Indoor units:**

**Ceiling and Floor**

IEFC018J3A-DWG053  
IEFC024J3A-DWG071  
IEFC036J3A-DWG105  
IEFC048J3A-DWG140  
IEFC060J3A-DWG160

**Outdoor unit**

ICHD009J0A-DMG026  
ICHD012J0A-DMG035  
ICHD018J0A-DMG053  
ICHD024J0A-DMG071  
ICHD031J0A-DMG090  
ICHD036J0A-DMG105  
ICHD042J0A-DMG120  
ICHD048J0A-DMG140  
ICHD060J0A-DMG160

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## **Part. 1 General information**

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## 1. Model Names of Indoor/Outdoor Units

Type	Indoor unit		Outdoor unit	
	Model	Power supply	Model	Power supply
Ceiling and Floor	IEFC018J3A	220-240V~, 1Ph, 50Hz	ICH018J0A	220-240V~, 1Ph, 50Hz
Ceiling and Floor	IEFC024J3A	220-240V~, 1Ph, 50Hz	ICH024J0A	220-240V~, 1Ph, 50Hz
Ceiling and Floor	IEFC036J3A	220-240V~, 1Ph, 50Hz	ICH036J0A	220-240V~, 1Ph, 50Hz
Ceiling and Floor	IEFC048J3A	220-240V~, 1Ph, 50Hz	ICH048J0A	220-240V~, 1Ph, 50Hz
Ceiling and Floor	IEFC060J3A	220-240V~, 1Ph, 50Hz	ICH060J0A	220-240V~, 1Ph, 50Hz

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## 2. External Appearance

### 2.1 Indoor units

IEFC018J3A / IEFC024J3A / IEFC036J3A / IEFC048J3A / IEFC060J3A



### 2.2 Outdoor unit

ICHD009J0A / ICHD012J0A / ICHD018J0A/ICHD024J0A



ICHD031J0A/ ICHD036J0A / ICHD042J0A / ICHD048J0A/ ICHD060J0A



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## Part. 3 Indoor Unit

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**Table 1.6: IEFC018, 024, 036 specifications**

Model name			IEFC018J3A	IEFC024J3A	IEFC036J3A
Power supply			1-phase, 220-240V, 50Hz		
Cooling	Capacity	W	5300(1000~6000)	7200(2400~8200)	10500(3000~11500)
	Input (IDU+ODU)	W	1600(330~2460)	2200(480~2800)	3500(820~4200)
	Input (IDU)	W	147	185	241
	EER	/	3.31	3.27	3
Heating	Capacity	W	6200(1260~6800)	8400(1720~9000)	11600(3100~13000)
	Input (IDU+ODU)	W	1860(340~2480)	2700(440~3200)	3400(800~4300)
	Input (IDU)	W	147	185	241
	COP	/	3.33	3.11	3.41
Fan motor	Model		YKSS-55-4-8	YKSS-61-4-2	YKSS-59-4-2-1
	Type		Ac motor		
	Brand		Welling	Welling/Match Well	Welling
	Speed (H/M/L)	r/min	1310/1190/1040	1310/1210/1115	1170/1070/995
Coil	Number of rows		3	3	3
	Tube pitch × row pitch	mm	25.4×22		
	Fin spacing	mm	1.8		
	Fin type		Arc shutter		
	Tube OD and type	mm	Φ9.52, Copper pipe with internal thread		
	Dimensions (L×H ×W)	mm	804×254×66	1094×254×66	1360×254×66
	Number of circuits		3	5	5
Airflow rate	m <sup>3</sup> /h	800/660/560	1000/880/750	1800/1560/1320	
Sound pressure level	dB(A)	47/43/40	48/45/41	50/47/44	
Unit	Net dimensions (W×H×D)	mm	990×203×660	1280×203×660	1670×244×660
	Packed dimensions (W×H×D)	mm	1089×296×744	1379×296×744	1765×325×760
	Net/Gross weight	kg	27.5/33.2	34.1/40.5	49.5/57.6
Refrigerant type			R410A		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ6.4/Φ12.7	Φ6.4/Φ15.9	Φ9.5/Φ15.9
	Drain pipe	mm	Φ25	Φ25	Φ25
Piping Length		m	25	25	30
Level Difference		m	15	15	20
Controller			RM05		

**Note:**

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.



**Table 1.7: IEFC048, 060 specifications**

Model name			IEFC048J3A	IEFC060J3A
Power supply			1-phase, 220-240V, 50Hz	
Cooling	Capacity	W	13800(4200~14200)	15500(4200~16000)
	Input (IDU+ODU)	W	6000(1200~6100)	6200(1300~6600)
	Input (IDU)	W	241	334
	EER	/	2.3	2.5
Heating	Capacity	W	15400(4500~16000)	17200(4600~18000)
	Input (IDU+ODU)	W	5000(1100~5400)	5400(1200~6000)
	Input (IDU)	W	241	339
	COP	/	3.08	3.19
Fan motor	Model		YKSS-59-4-2-1	YKSS-90-4-1-1
	Type		Ac motor	Ac motor
	Brand		Welling	Welling
	Speed (H/M/L)	r/min	1170/1070/995	1160/1050/960
Coil	Number of rows		3	4
	Tube pitch × row pitch	mm	25.4*22	25.4*22
	Fin spacing	mm	1.8	1.5
	Fin type		Arc shutter	Arc shutter
	Tube OD and type	mm	Φ9.52, Copper pipe with internal thread	
	Dimensions (L×H ×W)	mm	1360×254×66	1360×254×88
	Number of circuits		5	6
Airflow rate		m <sup>3</sup> /h	1800/1560/1320	2000/1640/1400
Sound pressure level		dB(A)	50/47/44	52/48/45
Unit	Net dimensions (W×H×D)	mm	1670×244×660	1670×285×660
	Packed dimensions (W×H×D)	mm	1765×325×760	1775×377×760
	Net/Gross weight	kg	49.5/57.6	56.0/65.2
Refrigerant type			R410A	
Design pressure (H/L)		MPa	4.4/2.6	
Pipe connections	Liquid/Gas pipe	mm	Φ9.5/Φ15.9	Φ9.5/Φ15.9
	Drain pipe	mm	Φ25	Φ25
Piping Length		m	50	50
Level Difference		m	25	25
Controller			RM05	

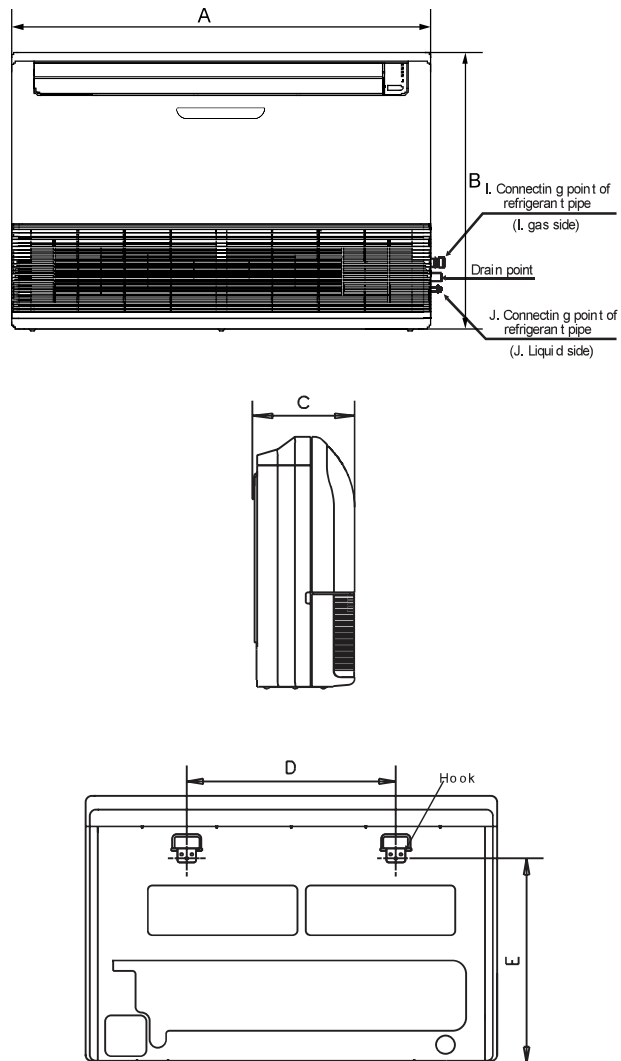
**Note:**

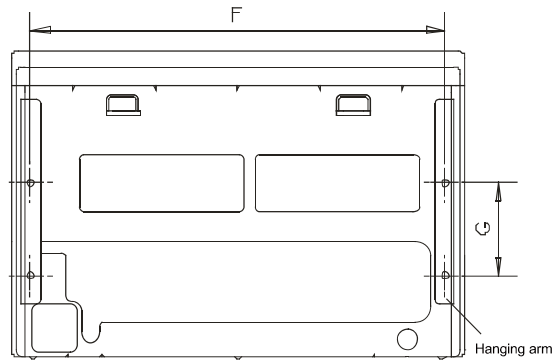
1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

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# 1. Specifications

## 2.3 Ceiling and Floor

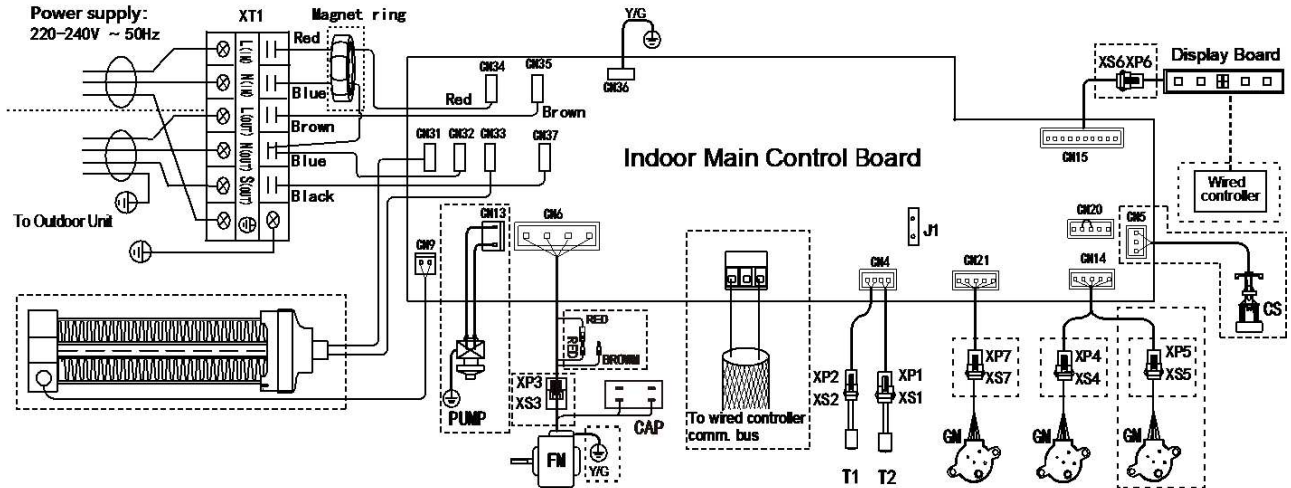




Model	A	B	C	D	E	F	G
IEFC018J3A-DWG053	990	660	203	505	506	907	200
IEFC024J3A-DWG071	1280	660	203	795	506	1195	200
IEFC036(48)J3A-DWG105(140)	1670	680	244	1070	450	1542	200
IEFC060J3A-DWG160	1670	680	285	1070	380	1613	200

### 3.3 Ceiling and Floor

IEFC018J3A-DWG053 / IEFC024J3A-DWG071



Error Code	Error Description
E0	IDU EPROM fault
E1	ODU communication fault
E3	IDU fan stall fault
E5	ODU temperature sensor or EPROM fault
E50	ODU temperature sensor fault
E51	ODU EPROM fault
E52	Outdoor coil T3 temperature sensor fault
E53	Outdoor ambient T4 temperature sensor fault
E54	Outdoor discharge temperature sensor fault
E55	Outdoor air return temperature sensor fault
E6	IDU temperature sensor fault
E60	IDU room temperature T1 sensor fault
E61	IDU pipe temperature T2 sensor fault
E7	ODU DC fan stall fault
E71	Outdoor fan over-current (external driving)
E72	Outdoor fan stall (external driving)
E73	Outdoor fan phase loss (external driving)
E74	Outdoor fan zero speed (external driving)
EE	Water level alarm error
P0	ODU IPM protection
P1	Voltage protection
P10	Low voltage protection
P11	High voltage protection
P12	Outdoor DC-side voltage protection
P2	Temperature protection for compressor top
P4	ODU compressor feedback protection
P40	Main control chip and driver chip communication fault
P41	Compressor current sampling circuit fault
P42	Compressor start-up fault

Attention: In order to facilitate the connection, the communication terminal can be pulled out from the circuit board.

Code	Title
FM	Indoor fan motor
CAP	Fan capacitance
T1	Indoor ambient temp. sensor
T2	Indoor heat exchanger mid-point temp. sensor
PUMP	Pump motor
GM	Swing Motor
XT1	Terminal
XP1-7 XS1-7	Connectors
CS	Water level switch

#### J1 definition

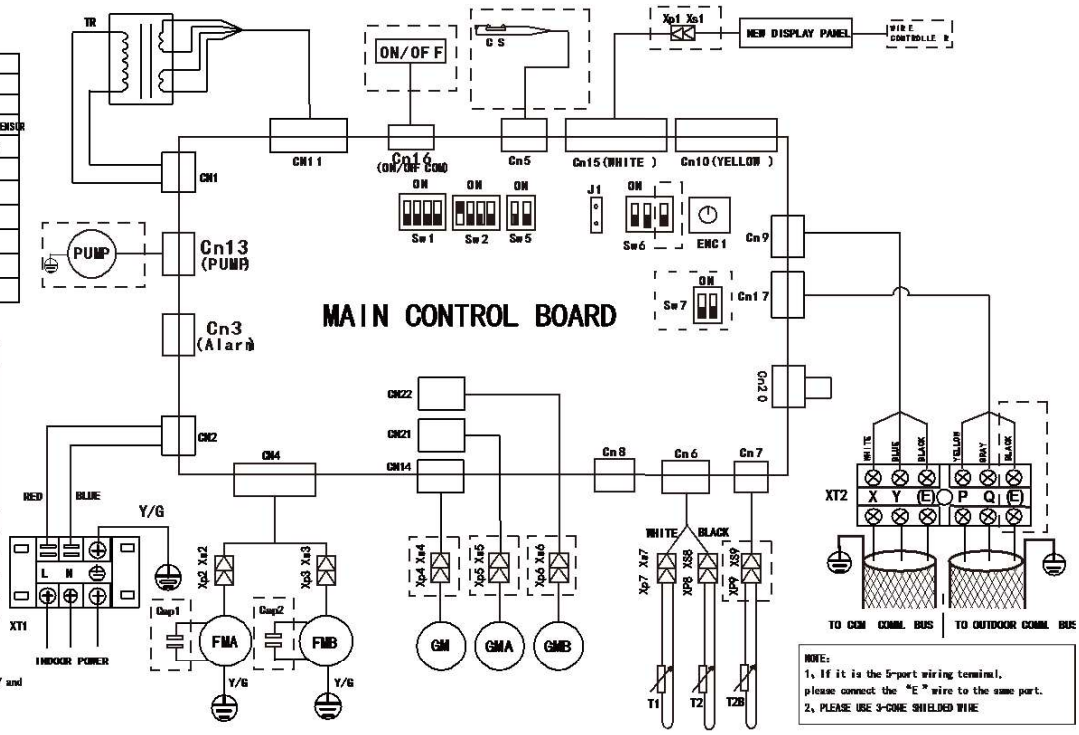
J1	Auto restart function disabled
J1	Auto restart function enabled

Error Code	Error Description
P43	Compressor phase loss protection
P44	Compressor zero speed protection
P45	Outdoor 341 main chip drive synchronization fault
P46	Compressor stall protection
P47	Compressor lock protection
P48	Compressor out-synchronous protection
P49	Compressor over-current protection
P6	Compressor high discharge temperature protection
P8	Outdoor electric control current protection
P80	IDU current protection
P81	ODU current protection
P82	Input AC current sampling circuit fault
PA	High temperature protection of condenser
PF	PFC switch power-off
P9	Evaporator high and low temperature protection
P90	Evaporator high temperature protection
P91	Evaporator low temperature protection
L0	Evaporator high and low temperature frequency limit
L1	Condenser high temperature frequency limit
L2	Compressor high discharge temperature frequency limit
L3	Current frequency limit
L5	Voltage frequency limit
L6	PFC fault frequency limit

DESIGNATOR	DESCRIPTION
FMA, FMB	INDOOR FAN MOTOR
T1	ROOM TEMP. SENSOR
T2	MIDDLE EVAPORATOR TEMP. SENSOR
T2B	EVAPORATOR OUTLET TEMP. SENSOR
XP1-9, XS1-9	CONNECTOR
TR	TRANSFORMER
Xs:1-2	TERMINAL
GM, GMA, GMB	SWING MOTOR
PUMP	PUMP MOTOR
CS	WATER LEVEL SWITCH

ENG1	CODE	CAPACITY
	0	
	1	
	2	
	3	RESERVED
	4	
	5	
	6	
	7	9000W
	8	10500W
	9	12000W
		14000W
	A	16000W

Note:  
for the definition of Sw1, Sw2, Sw5~Sw7 and  
fault code, see the indicator label.



NOTE:  
1. If it is the 5-port wiring terminal,  
please connect the "E" wire to the same part.  
2. PLEASE USE 3-CORE SHIELDED WIRE

**4.3 Ceiling and Floor**  
**Model IEFC018J3A-DWG053**  
**Cooling mode:**

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Airflow rate(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
800	10.00	6.00	4.03	6.14	4.07	6.23	4.07	6.32	4.19	6.51	4.37	6.70	4.56	6.79	4.68
	12.00	5.89	4.01	6.03	4.05	6.12	4.05	6.21	4.17	6.40	4.35	6.58	4.53	6.68	4.66
	14.00	5.81	4.01	5.95	4.05	6.04	4.05	6.13	4.15	6.32	4.34	6.51	4.54	6.60	4.66
	16.00	5.72	4.01	5.87	4.05	5.96	4.05	6.05	4.15	6.24	4.34	6.43	4.52	6.52	4.66
	18.00	5.64	4.01	5.78	4.05	5.88	4.05	5.97	4.14	6.16	4.33	6.35	4.52	6.44	4.65
	20.00	5.56	4.00	5.70	4.04	5.80	4.05	5.89	4.13	6.08	4.32	6.27	4.52	6.37	4.64
	21.00	5.53	4.04	5.67	4.07	5.77	4.08	5.86	4.15	6.05	4.35	6.25	4.55	6.34	4.68
	23.00	5.44	4.02	5.59	4.07	5.68	4.08	5.78	4.13	5.97	4.34	6.16	4.54	6.26	4.66
	25.00	5.36	4.01	5.50	4.06	5.60	4.07	5.69	4.12	5.89	4.32	6.08	4.52	6.18	4.65
	27.00	5.27	3.99	5.41	4.04	5.51	4.05	5.61	4.10	5.80	4.30	5.99	4.51	6.09	4.63
	29.00	5.18	3.98	5.32	4.02	5.42	4.03	5.52	4.07	5.71	4.28	5.91	4.48	6.01	4.62
	31.00	5.09	3.95	5.23	4.01	5.33	4.03	5.43	4.05	5.63	4.25	5.82	4.47	5.92	4.59
	33.00	4.99	3.93	5.14	3.99	5.19	3.96	5.38	4.06	5.54	4.23	5.73	4.44	5.83	4.58
	35.00	4.90	3.90	5.05	3.96	5.15	3.98	5.30	4.03	5.45	4.21	5.64	4.41	5.74	4.55
	37.00	4.68	3.76	4.83	3.83	4.93	3.85	5.10	3.92	5.22	4.07	5.42	4.27	5.52	4.41
	39.00	4.46	3.62	4.61	3.69	4.70	3.71	4.80	3.72	5.00	3.93	5.19	4.13	5.29	4.27
	42.00	4.14	3.40	4.29	3.47	4.39	3.50	4.49	3.51	4.68	3.71	4.88	3.92	4.97	4.04
	44.00	3.73	3.09	3.88	3.17	3.98	3.20	4.07	3.21	4.27	3.41	4.46	3.62	4.56	3.74
	46.00	3.43	2.87	3.57	2.95	3.67	2.99	3.76	2.99	3.96	3.19	4.15	3.39	4.25	3.52
	48.00	3.22	2.73	3.36	2.82	3.46	2.86	3.55	2.86	3.74	3.06	3.94	3.26	4.03	3.39
50.00	3.01	2.59	3.15	2.68	3.25	2.72	3.34	2.72	3.53	2.92	3.72	3.12	3.82	3.24	
52.00	2.71	2.36	2.85	2.45	2.95	2.50	3.04	2.51	3.23	2.70	3.42	2.89	3.52	3.02	
55.00	2.41	2.13	2.55	2.23	2.65	2.27	2.74	2.28	2.93	2.47	3.12	2.67	3.21	2.79	

**Notes:**

1. Capacity decreases by 2% every 5m with the increase of piping length
2. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
3. TC = Total Capacity (kW)
4. SC = Sensible Capacity (kW)

**Model IEFC024J3A-DWG071**

**Cooling mode:**

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
Airflow rate(m3/h)	(°C DB)	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1000	10.00	8.04	4.87	8.26	4.93	8.41	4.95	8.56	5.12	8.78	5.31	9.00	5.52	9.11	5.65
	12.00	7.89	4.83	8.11	4.89	8.26	4.91	8.41	5.07	8.63	5.27	8.85	5.47	8.97	5.61
	14.00	7.78	4.82	8.00	4.88	8.15	4.90	8.30	5.05	8.53	5.25	8.75	5.45	8.86	5.59
	16.00	7.67	4.80	7.90	4.87	8.05	4.90	8.20	5.03	8.42	5.23	8.65	5.44	8.76	5.58
	18.00	7.56	4.79	7.79	4.86	7.94	4.88	8.09	5.00	8.32	5.21	8.54	5.42	8.66	5.55
	20.00	7.45	4.76	7.68	4.84	7.83	4.87	7.98	4.98	8.21	5.18	8.44	5.39	8.55	5.53
	21.00	7.41	4.79	7.64	4.88	7.79	4.90	7.95	5.00	8.17	5.21	8.40	5.42	8.52	5.56
	23.00	7.30	4.77	7.53	4.85	7.68	4.88	7.83	4.97	8.06	5.18	8.29	5.39	8.41	5.54
	25.00	7.18	4.74	7.41	4.83	7.57	4.86	7.72	4.94	7.95	5.15	8.18	5.37	8.30	5.51
	27.00	7.06	4.71	7.29	4.80	7.45	4.84	7.60	4.91	7.84	5.12	8.07	5.34	8.19	5.48
	29.00	6.94	4.68	7.18	4.78	7.33	4.80	7.49	4.87	7.72	5.09	7.96	5.30	8.07	5.45
	31.00	6.82	4.64	7.06	4.74	7.21	4.78	7.37	4.83	7.60	5.05	7.84	5.27	7.96	5.42
	33.00	6.70	4.61	6.93	4.71	7.01	4.69	7.30	4.82	7.49	5.01	7.72	5.23	7.84	5.38
	35.00	6.57	4.56	6.81	4.67	6.97	4.71	7.20	4.80	7.37	4.97	7.60	5.20	7.72	5.34
	37.00	6.30	4.42	6.54	4.52	6.70	4.57	6.93	4.65	7.09	4.82	7.33	5.04	7.45	5.18
	39.00	6.04	4.27	6.27	4.38	6.43	4.43	6.59	4.45	6.82	4.67	7.06	4.89	7.17	5.04
	42.00	5.66	4.03	5.89	4.14	6.05	4.20	6.20	4.22	6.44	4.43	6.67	4.65	6.79	4.79
	44.00	5.10	3.66	5.34	3.78	5.49	3.84	5.65	3.86	5.88	4.07	6.11	4.29	6.23	4.42
	46.00	4.65	3.37	4.88	3.50	5.04	3.56	5.19	3.58	5.42	3.79	5.65	4.00	5.77	4.14
	48.00	4.40	3.23	4.63	3.36	4.78	3.41	4.93	3.43	5.16	3.64	5.40	3.86	5.51	3.98
50.00	4.14	3.08	4.37	3.21	4.53	3.27	4.68	3.29	4.91	3.49	5.14	3.70	5.25	3.84	
52.00	3.80	2.86	4.03	2.99	4.18	3.06	4.33	3.08	4.56	3.27	4.79	3.48	4.90	3.62	
55.00	3.44	2.61	3.67	2.75	3.82	2.82	3.97	2.84	4.20	3.04	4.42	3.25	4.54	3.37	

**Notes:**

1. Capacity decreases by 2% every 5m with the increase of piping length
2. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
3. TC = Total Capacity (kW)
4. SC = Sensible Capacity (kW)

**Heating mode:**

Capacity(kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
Airflow rate(m <sup>3</sup> /h)			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
1000	-15.30	-15.00	3.58	3.46	3.33	3.27	3.20	3.07
	-13.00	-12.60	4.11	3.98	3.85	3.78	3.72	3.59
	-11.00	-10.50	4.56	4.44	4.31	4.25	4.18	4.05
	-10.00	-9.50	4.78	4.65	4.52	4.46	4.40	4.27
	-9.10	-8.50	5.00	4.87	4.74	4.68	4.61	4.48
	-7.60	-7.00	5.33	5.20	5.07	5.01	4.94	4.81
	-5.60	-5.00	5.56	5.44	5.31	5.25	5.18	5.05
	-3.70	-3.00	6.02	5.89	5.76	5.70	5.63	5.49
	-0.70	0.00	6.49	6.35	6.22	6.16	6.09	5.96
	2.20	3.00	7.00	6.86	6.73	6.67	6.60	6.47
	4.10	5.00	7.58	7.45	7.33	7.27	7.20	7.07
	6.00	7.00	8.38	8.25	8.20	8.06	7.99	7.86
	7.90	9.00	8.57	8.44	8.32	8.26	8.19	8.06
	9.80	11.00	8.73	8.60	8.47	8.41	8.34	8.21
	11.80	13.00	8.88	8.75	8.62	8.57	8.50	8.37
	13.70	15.00	9.03	8.90	8.78	8.72	8.65	8.52
	15.60	17.00	9.18	9.05	8.92	8.87	8.80	8.67
	17.56	19.00	9.32	9.20	9.07	9.01	8.95	8.82
19.48	21.00	9.47	9.34	9.22	9.16	9.09	8.97	
21.41	23.00	9.61	9.48	9.36	9.30	9.23	9.11	
22.37	24.00	9.65	9.53	9.41	9.35	9.28	9.16	

**Notes:**

1. Capacity decreases by 1.5% every 5m with the increase of piping length
2. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
3. TC = Total Capacity (kW)
4. SC = Sensible Capacity (kW)



**Model IEFC036J3A-DWG105**

**Cooling mode:**

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Airflow rate(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1800	10.00	13.44	9.02	13.76	9.07	13.97	9.05	14.18	9.17	14.60	9.59	15.02	10.03	15.23	10.33
	12.00	13.19	8.99	13.50	9.05	13.71	9.03	13.92	9.14	14.34	9.57	14.76	10.00	14.97	10.31
	14.00	12.94	8.95	13.25	9.02	13.46	9.00	13.67	9.10	14.09	9.53	14.51	9.97	14.72	10.28
	16.00	12.68	8.91	13.00	8.97	13.21	8.96	13.42	9.05	13.84	9.49	14.26	9.93	14.47	10.24
	18.00	12.43	8.86	12.75	8.93	12.96	8.93	13.17	9.01	13.59	9.44	14.01	9.89	14.22	10.20
	20.00	12.18	8.81	12.50	8.89	12.71	8.89	12.92	8.95	13.34	9.39	13.76	9.85	13.97	10.15
	21.00	12.05	8.84	12.37	8.93	12.58	8.92	12.79	8.97	13.21	9.43	13.63	9.88	13.84	10.20
	23.00	11.80	8.79	12.12	8.86	12.33	8.86	12.54	8.92	12.96	9.37	13.38	9.82	13.59	10.14
	25.00	11.55	8.72	11.87	8.81	12.08	8.81	12.29	8.85	12.71	9.31	13.13	9.77	13.34	10.08
	27.00	11.30	8.64	11.61	8.74	11.82	8.74	12.03	8.78	12.45	9.24	12.87	9.70	13.08	10.02
	29.00	11.05	8.57	11.36	8.67	11.57	8.68	11.78	8.71	12.20	9.16	12.62	9.64	12.83	9.94
	31.00	10.79	8.49	11.11	8.59	11.32	8.60	11.45	8.56	11.95	9.08	12.37	9.56	12.58	9.88
	33.00	10.54	8.40	10.86	8.51	10.96	8.45	11.12	8.43	11.70	9.01	12.12	9.48	12.33	9.79
	35.00	9.90	8.00	10.23	8.13	10.36	8.08	10.50	8.05	11.12	8.66	11.53	9.12	11.73	9.44
	37.00	9.72	7.95	10.04	8.07	10.25	8.10	10.19	7.91	10.88	8.58	11.30	9.05	11.51	9.37
	39.00	9.16	7.59	9.47	7.72	9.68	7.75	9.89	7.76	10.31	8.22	10.73	8.70	10.94	9.01
	42.00	8.31	6.97	8.62	7.11	8.83	7.16	9.04	7.18	9.46	7.64	9.88	8.10	10.09	8.41
	44.00	7.63	6.48	7.95	6.64	8.16	6.69	8.37	6.73	8.79	7.18	9.21	7.64	9.42	7.94
	46.00	6.96	5.99	7.28	6.15	7.49	6.22	7.70	6.25	8.12	6.70	8.54	7.17	8.75	7.45
	48.00	6.39	5.57	6.71	5.74	6.92	5.82	7.13	5.85	7.55	6.31	7.97	6.76	8.18	7.06
50.00	5.83	5.14	6.14	5.33	6.35	5.40	6.56	5.46	6.98	5.90	7.40	6.35	7.61	6.64	
52.00	5.16	4.60	5.47	4.80	5.68	4.90	5.89	4.95	6.31	5.39	6.73	5.84	6.94	6.12	
55.00	4.31	3.88	4.62	4.10	4.83	4.21	5.04	4.28	5.46	4.72	5.88	5.16	6.09	5.42	

**Notes:**

5. Capacity decreases by 2% every 5m with the increase of piping length
6. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
7. TC = Total Capacity (kW)
8. SC = Sensible Capacity (kW)

**Heating mode:**

Capacity(kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
Airflow rate(m <sup>3</sup> /h)			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
1800	-15.30	-15.00	6.02	5.81	5.60	5.50	5.40	5.19
	-13.00	-12.60	6.71	6.50	6.29	6.19	6.09	5.88
	-11.00	-10.50	7.31	7.11	6.90	6.80	6.70	6.49
	-10.00	-9.50	7.60	7.40	7.19	7.09	6.98	6.78
	-9.10	-8.50	7.89	7.68	7.48	7.37	7.27	7.07
	-7.60	-7.00	8.32	8.12	7.91	7.81	7.70	7.50
	-5.60	-5.00	8.69	8.49	8.28	8.18	8.08	7.87
	-3.70	-3.00	9.06	8.86	8.65	8.55	8.45	8.24
	-0.70	0.00	9.48	9.27	9.06	8.96	8.86	8.65
	2.20	3.00	9.89	9.68	9.48	9.37	9.27	9.06
	4.10	5.00	11.12	10.92	10.71	10.61	10.51	10.30
	6.00	7.00	12.36	11.87	11.60	11.37	11.03	11.54
	7.90	9.00	12.57	12.36	12.15	12.05	11.95	11.74
	9.80	11.00	12.77	12.57	12.36	12.26	12.15	11.95
	11.80	13.00	12.98	12.77	12.57	12.46	12.36	12.15
	13.70	15.00	13.18	12.98	12.77	12.67	12.57	12.36
	15.60	17.00	13.39	13.18	12.98	12.88	12.77	12.57
	17.56	19.00	13.60	13.39	13.18	13.08	12.98	12.77
19.48	21.00	13.80	13.60	13.39	13.29	13.18	12.98	
21.41	23.00	14.01	13.80	13.60	13.49	13.39	13.18	
22.37	24.00	14.11	13.91	13.70	13.60	13.49	13.29	

**Notes:**

5. Capacity decreases by 1.5% every 5m with the increase of piping length
6. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
7. TC = Total Capacity (kW)
8. SC = Sensible Capacity (kW)

**Model IEFC048J3A-DWG140**

**Cooling mode:**

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Airflow rate(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1800	10.00	16.80	10.97	17.59	11.35	18.11	11.56	18.64	11.92	19.16	12.38	19.69	12.85	19.95	13.15
	12.00	16.49	10.85	17.27	11.25	17.80	11.46	18.32	11.81	18.85	12.27	19.37	12.74	19.64	13.04
	14.00	16.17	10.74	16.96	11.14	17.48	11.35	18.01	11.70	18.53	12.16	19.06	12.63	19.32	12.94
	16.00	15.86	10.62	16.64	11.02	17.17	11.25	17.69	11.58	18.22	12.05	18.74	12.52	19.01	12.82
	18.00	15.54	10.51	16.33	10.91	16.85	11.14	17.38	11.46	17.90	11.93	18.43	12.40	18.69	12.70
	20.00	15.23	10.38	16.01	10.80	16.54	11.02	17.06	11.33	17.59	11.80	18.11	12.27	18.38	12.58
	21.00	15.07	10.36	15.86	10.77	16.38	11.01	16.91	11.31	17.43	11.78	17.96	12.26	18.22	12.56
	23.00	14.75	10.23	15.54	10.66	16.07	10.89	16.59	11.18	17.12	11.65	17.64	12.13	17.90	12.43
	25.00	14.44	10.09	15.23	10.53	15.75	10.76	16.28	11.05	16.80	11.52	17.33	12.01	17.59	12.31
	27.00	14.12	9.96	14.91	10.39	15.44	10.64	15.96	10.91	16.49	11.40	17.01	11.88	17.27	12.18
	29.00	13.68	9.72	14.46	10.16	14.98	10.41	15.50	10.68	16.02	11.15	16.54	11.63	16.80	11.92
	31.00	13.24	9.49	14.01	9.93	14.52	10.17	15.04	10.43	15.55	10.91	16.07	11.38	16.33	11.67
	33.00	12.80	9.25	13.57	9.69	13.82	9.76	14.44	10.10	15.10	10.65	15.61	11.13	15.86	11.42
	35.00	12.50	9.10	13.26	9.55	13.77	9.80	13.80	9.71	14.65	10.42	15.15	10.88	15.40	11.17
	37.00	11.68	8.57	12.44	9.03	12.95	9.30	13.46	9.54	13.97	10.01	14.48	10.48	14.74	10.77
	39.00	10.97	8.12	11.74	8.59	12.26	8.87	12.77	9.12	13.29	9.58	13.80	10.05	14.06	10.34
	42.00	9.83	7.33	10.61	7.82	11.13	8.12	11.65	8.37	12.17	8.84	12.69	9.30	12.95	9.59
	44.00	9.29	6.98	10.08	7.49	10.61	7.80	11.13	8.05	11.66	8.51	12.18	9.00	12.44	9.27
	46.00	8.56	6.48	9.35	6.99	9.87	7.30	10.40	7.57	10.92	8.03	11.45	8.50	11.71	8.79
	48.00	8.03	6.13	8.82	6.66	9.35	6.97	9.87	7.24	10.40	7.70	10.92	8.17	11.18	8.45
50.00	7.19	5.53	7.98	6.07	8.51	6.39	9.03	6.66	9.56	7.12	10.08	7.59	10.34	7.87	
52.00	6.35	4.93	7.14	5.47	7.67	5.80	8.19	6.08	8.72	6.54	9.24	7.00	9.50	7.27	
55.00	5.09	3.97	5.88	4.54	6.41	4.88	6.93	5.18	7.46	5.63	7.98	6.09	8.24	6.35	

**Notes:**

9. Capacity decreases by 2% every 5m with the increase of piping length
10. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
11. TC = Total Capacity (kW)
12. SC = Sensible Capacity (kW)

**Heating mode:**

Capacity(kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
Airflow rate(m3/h)			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
1800	-15.30	-15.00	8.47	8.20	7.93	7.80	7.66	7.40
	-13.00	-12.60	9.33	9.06	8.80	8.66	8.53	8.26
	-11.00	-10.50	10.09	9.83	9.56	9.42	9.29	9.02
	-10.00	-9.50	10.45	10.19	9.92	9.79	9.65	9.38
	-9.10	-8.50	10.82	10.55	10.28	10.15	10.01	9.74
	-7.60	-7.00	11.35	11.08	10.82	10.68	10.55	10.28
	-5.60	-5.00	11.66	11.39	11.12	10.99	10.86	10.59
	-3.70	-3.00	12.07	11.80	11.54	11.40	11.27	11.00
	-0.70	0.00	12.59	12.32	12.05	11.92	11.78	11.52
	2.20	3.00	13.10	12.83	12.57	12.43	12.30	12.03
	4.10	5.00	14.75	14.48	14.21	14.08	13.95	13.68
	6.00	7.00	16.13	15.79	15.40	15.28	15.01	14.72
	7.90	9.00	16.60	16.34	16.07	15.93	15.80	15.53
	9.80	11.00	16.81	16.54	16.27	16.14	16.01	15.74
	11.80	13.00	17.02	16.75	16.48	16.35	16.21	15.94
	13.70	15.00	17.22	16.95	16.69	16.55	16.42	16.15
	15.60	17.00	17.43	17.16	16.89	16.76	16.62	16.36
	17.56	19.00	17.63	17.37	17.10	16.96	16.83	16.56
19.48	21.00	17.84	17.57	17.30	17.17	17.04	16.77	
21.41	23.00	18.05	17.78	17.51	17.38	17.24	16.97	
22.37	24.00	18.15	17.88	17.61	17.48	17.35	17.08	

**Notes:**

9. Capacity decreases by 1.5% every 5m with the increase of piping length
10. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
11. TC = Total Capacity (kW)
12. SC = Sensible Capacity (kW)

**Model IEFC060J3A-DWG160**

**Cooling mode:**

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Airflow rate(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2000	10.00	18.62	12.53	19.50	12.97	20.08	13.21	20.66	13.62	21.24	14.15	21.83	14.69	22.12	15.03
	12.00	18.27	12.40	19.15	12.85	19.73	13.10	20.31	13.50	20.89	14.03	21.48	14.57	21.77	14.91
	14.00	17.93	12.28	18.80	12.73	19.38	12.97	19.96	13.37	20.54	13.89	21.13	14.43	21.42	14.79
	16.00	17.58	12.14	18.45	12.59	19.03	12.85	19.61	13.23	20.20	13.77	20.78	14.31	21.07	14.65
	18.00	17.23	12.01	18.10	12.47	18.68	12.73	19.26	13.10	19.85	13.64	20.43	14.17	20.72	14.52
	20.00	16.88	11.86	17.75	12.34	18.33	12.59	18.92	12.95	19.50	13.49	20.08	14.03	20.37	14.38
	21.00	16.70	11.84	17.58	12.31	18.16	12.58	18.74	12.93	19.32	13.46	19.90	14.01	20.20	14.36
	23.00	16.35	11.69	17.23	12.18	17.81	12.45	18.39	12.78	18.97	13.32	19.56	13.87	19.85	14.21
	25.00	16.01	11.53	16.88	12.03	17.46	12.30	18.04	12.63	18.62	13.17	19.21	13.72	19.50	14.06
	27.00	15.66	11.38	16.53	11.87	17.11	12.15	17.69	12.47	18.27	13.02	18.86	13.57	19.15	13.92
	29.00	15.16	11.11	16.03	11.61	16.60	11.89	17.18	12.21	17.75	12.74	18.33	13.29	18.62	13.63
	31.00	14.67	10.84	15.53	11.35	16.10	11.62	16.67	11.92	17.24	12.46	17.81	13.00	18.10	13.34
	33.00	14.19	10.57	15.04	11.07	15.32	11.15	16.34	11.54	16.73	12.18	17.30	12.72	17.58	13.06
	35.00	13.85	10.40	14.70	10.92	15.27	11.20	15.50	11.10	16.24	11.90	16.79	12.43	17.07	12.76
	37.00	12.95	9.80	13.80	10.32	14.36	10.63	14.93	10.90	15.49	11.44	16.06	11.97	16.34	12.31
	39.00	12.16	9.28	13.02	9.82	13.59	10.13	14.16	10.42	14.73	10.95	15.30	11.49	15.59	11.81
	42.00	10.90	8.38	11.76	8.93	12.34	9.27	12.91	9.57	13.49	10.10	14.07	10.63	14.35	10.96
	44.00	10.30	7.98	11.17	8.56	11.76	8.91	12.34	9.20	12.92	9.73	13.50	10.28	13.79	10.60
	46.00	9.49	7.41	10.36	7.99	10.94	8.35	11.52	8.65	12.11	9.18	12.69	9.72	12.98	10.05
	48.00	8.90	7.00	9.78	7.61	10.36	7.97	10.94	8.27	11.52	8.80	12.11	9.34	12.40	9.66
50.00	7.97	6.32	8.85	6.94	9.43	7.31	10.01	7.61	10.59	8.14	11.17	8.68	11.47	9.00	
52.00	7.04	5.63	7.92	6.25	8.50	6.63	9.08	6.95	9.66	7.48	10.24	8.00	10.53	8.31	
55.00	5.65	4.54	6.52	5.19	7.10	5.58	7.68	5.92	8.26	6.44	8.85	6.96	9.14	7.26	

**Notes:**

- 13. Capacity decreases by 2% every 5m with the increase of piping length
- 14. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
- 15. TC = Total Capacity (kW)
- 16. SC = Sensible Capacity (kW)

**Heating mode:**

Capacity(kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
Airflow rate(m3/h)			TC	TC	TC	TC	TC	TC
	WB	DB	kW	kW	kW	kW	kW	kW
2000	-15.30	-15.00	9.17	8.88	8.59	8.45	8.30	8.01
	-13.00	-12.60	10.11	9.82	9.53	9.38	9.24	8.95
	-11.00	-10.50	10.94	10.65	10.36	10.21	10.07	9.78
	-10.00	-9.50	11.33	11.04	10.75	10.60	10.46	10.17
	-9.10	-8.50	11.72	11.43	11.14	10.99	10.85	10.56
	-7.60	-7.00	12.30	12.01	11.72	11.57	11.43	11.14
	-5.60	-5.00	12.63	12.34	12.05	11.91	11.76	11.47
	-3.70	-3.00	13.08	12.79	12.50	12.35	12.21	11.92
	-0.70	0.00	13.64	13.35	13.06	12.91	12.77	12.48
	2.20	3.00	14.19	13.90	13.61	13.47	13.32	13.03
	4.10	5.00	15.98	15.69	15.40	15.25	15.11	14.82
	6.00	7.00	17.47	17.46	17.20	16.72	16.26	15.95
	7.90	9.00	17.99	17.70	17.41	17.26	17.12	16.83
	9.80	11.00	18.21	17.92	17.63	17.49	17.34	17.05
	11.80	13.00	18.43	18.14	17.85	17.71	17.56	17.27
	13.70	15.00	18.66	18.37	18.08	17.93	17.79	17.50
	15.60	17.00	18.88	18.59	18.30	18.16	18.01	17.72
	17.56	19.00	19.10	18.81	18.52	18.38	18.23	17.94
	19.48	21.00	19.33	19.04	18.75	18.60	18.46	18.17
	21.41	23.00	19.55	19.26	18.97	18.82	18.68	18.39
22.37	24.00	19.66	19.37	19.08	18.94	18.79	18.50	

**Notes:**

13. Capacity decreases by 1.5% every 5m with the increase of piping length
14. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
15. TC = Total Capacity (kW)
16. SC = Sensible Capacity (kW)

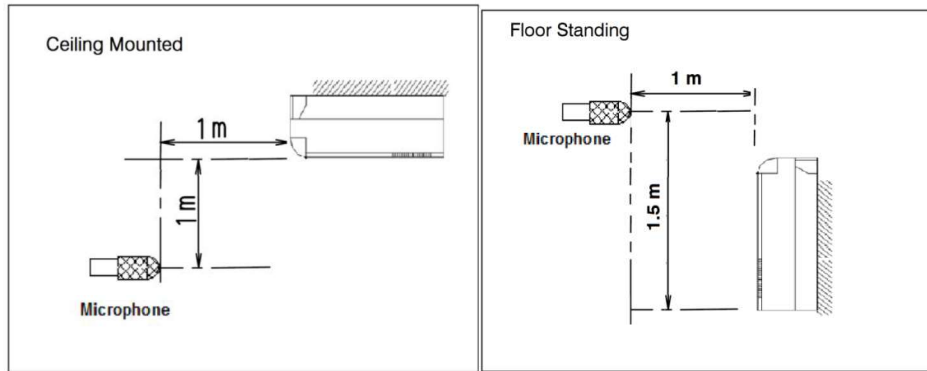
## 6. Electric Characteristics

Model name	Power supply					Indoor fan motors		
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
IEFC018J3A	50	220-240	198	264	0.7125	25	0.055	0.57
IEFC024J3A	50	220-240	198	264	0.7375	32	0.061	0.59
IEFC036J3A	50	220-240	198	264	0.5625*2	15	0.059*2	0.45*2
IEFC048J3A	50	220-240	198	264	0.5625*2	15	0.059*2	0.45*2
IEFC060J3A	50	220-240	198	264	0.9125*2	15	0.09*2	0.73*2

**Abbreviations:**

MCA: Minimum Circuit Amps MFA: Maximum Fuse Amps FLA: Full Load Amps

### 7.3 Ceiling and Floor



Unit Number	Model	Noise level under three speeds of fan (dB(A))
1	IEFC018J3A	47/43/40
2	IEFC024J3A	48/45/41
3	IEFC036J3A	50/47/44
4	IEFC048J3A	50/47/44
5	IEFC060J3A	52/48/45

## 8. Accessories

Accessory name of indoor unit	Qty.	Purpose
Installation Manual	1	Installation
Insulation piping	2	For insulation of piping connections
User Manual	1	Operating Instructions of air conditioner
Display control box assembly	1	For receiving remote signals
User Service Guide	1	User Service Guide
Mounting spring	2	Control box fixing assembly
Water discharge hose	1	For drainage of IDU
Ring clamp	1	For use in the installation works of connecting pipe
Brass nut	2	For use in the installation of connecting pipe (the quantity is one for models with a process pipe)



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## Part. 2 Outdoor Unit

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# 1. Specifications

**Table 1.1: ICHD009, 012, 018, 024 specifications**

kW			2.6	3.5	5.3	7.1	
Model name			ICHD009J0A	ICHD012J0A	ICHD018J0A	ICHD024J0A	
Power supply		V/Ph/Hz	220-240/1/50				
Cooling	Power input	W	649(210~1350)	1159(240~1460)	1602(370~2380)	2115(520~2890)	
	Power input (Maximum)	W	1620	1900	2800	3500	
Heating	Power input	W	859(190~1250)	1209(230~1570)	1902(390~2490)	2615(460~3310)	
	Power input (Maximum)	W	1900	1720	2700	3800	
Compressor	Type	KSK103D53UFZ		KSN140D21UFZ		ATM240D57UMT	
	Quantity	1		1		1	
	Oil type	ESTER OIL VG74					
	Start-up method	soft start					
Fan	Type	WZDK20-38G-W	WZDK56-38G-W	WZDK80-38G-W(A)	WZDK170-38G-1		
	Motor type	DC motor					
	Quantity	1					
	Motor output	kW	0.02		0.056	0.08	
	Static pressure	Pa	/				
	Airflow rate	m <sup>3</sup> /h	1718	1718	2283	3715	
	Drive type	External Drive					
Refrigerant	Type	R410A					
	Factory charge	g	800	800	1450	1600	
Throttle type	\		Throttle valve throttling				
Pipe connections	Liquid pipe	mm	Φ6.4				
	Gas pipe	mm	Φ9.5		Φ12.7	Φ15.9	
Sound pressure level	dB(A)	50		54	55		
Net dimensions (W×H×D)	mm	722×555×260			795×555×287	910×712×345	
Packed dimensions (W×H×D)	mm	845×610×390			915×610×420	1045×800×485	
Net weight	kg	25	25.5	33.5	47		
Gross weight	kg	28	28.5	36.5	52		
Ambient temp. operation range	Cooling	°C	10~55				
	Heating	°C	-15~24				

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

**Table 1.2: ICHD031, 036, 042, 048 specifications**

kW			9.0	10.5	12	14
Model name			ICHD031J0A	ICHD036J0A	ICHD042J0A	ICHD048J0A
Power supply		V/Ph/Hz	220-240/1/50			
Cooling	Power input	W	3060(670~3480)	3109 (529-3909)	4559(529~5009)	5809(1200~6100)
	Power input (Maximum)	W	4700	4609	5469	7000
Heating	Power input	W	2900(650~3570)	3009 (509-4009)	3909(509~4009)	4909(1000~5200)
	Power input (Maximum)	W	4700	4520	4520	5420
Compressor	Type		Rotary DC Inverter	ATM240D57UMT		ATF400D64UMTC
	Quantity		1	1	1	1
	Oil type		ESTER OIL VG74			
	Start-up method		DC Inverter Starting	Soft Start		
Fan	Type		WZDK80-38G-W(A)	WZDK170-38G-1		
	Motor type		DC motor			
	Quantity		1	1	1	1
	Motor output	kW	0.08	0.17		
	Static pressure	Pa	/	/		
	Airflow rate	m <sup>3</sup> /h	3692	5086		
	Drive type		Built-in Drive			
Refrigerant	Type		R410A			
	Factory charge	g	2000	3000	3000	3200
Throttle type	\		Piston	Throttle valve throttling		
Pipe connections	Liquid pipe	mm	Φ9.5	Φ9.5		
	Gas pipe	mm	Φ15.9	Φ15.9		
Sound pressure level		dB(A)	55	59		
Net dimensions (W×H×D)		mm	910×712×345	950×840×360		
Packed dimensions (W×H×D)		mm	1045×800×485	1025×860×510		
Net weight		kg	51	68	68	78.5
Gross weight		kg	56	76.5	76.5	87
Ambient temp. operation range	Cooling	°C	10~55			
	Heating	°C	-15~24			

Note:

4. The design implementation standard of this unit is GB/T 18836-2017.
5. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
6. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

**Table 1.3: ICHD060 specifications**

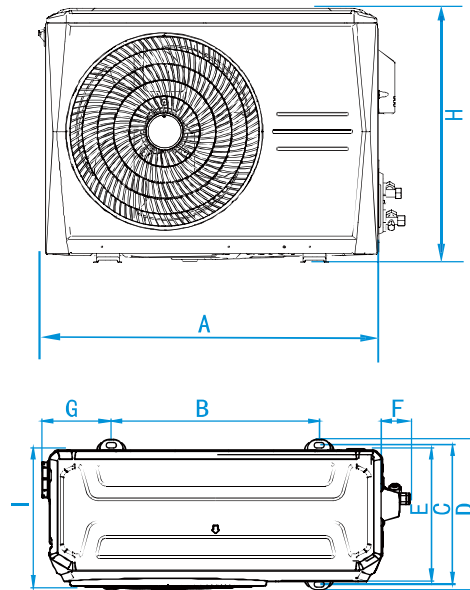
<b>kW</b>			<b>16</b>
Model name			ICHD060J0A
Power supply		V/Ph/Hz	220-240/1/50
Cooling	Power input	W	6600(1340~6600)
	Power input (Maximum)	W	7465
Heating	Power input	W	5800(1120~5800)
	Power input (Maximum)	W	7465
Compressor	Type		Rotary DC Inverter
	Quantity		1
	Oil type		ESTER OIL VG74
	Start-up method		DC Inverter Starting
Fan	Type		WZDK170-38G-1
	Motor type		DC motor
	Quantity		1
	Motor output	kW	0.17
	Static pressure	Pa	/
	Airflow rate	m <sup>3</sup> /h	5086
	Drive type		Built-in Drive
Refrigerant	Type		R410A
	Factory charge	g	3800
Throttle type	\		Piston
Pipe connections	Liquid pipe	mm	Φ9.5
	Gas pipe	mm	Φ15.9
Sound pressure level		dB(A)	60
Net dimensions (W×H×D)		mm	1040×865×410
Packed dimensions (W×H×D)		mm	1120×890×560
Net weight		kg	91
Gross weight		kg	101
Ambient temp. operation range	Cooling	°C	10~55
	Heating	°C	-15~24

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

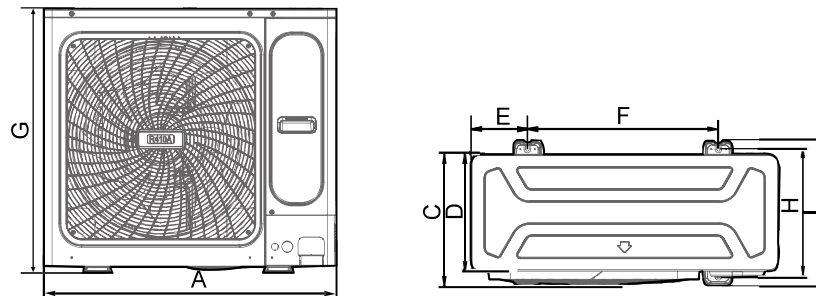
## 2. Dimension (Unit: mm)

ICHD009J0A-DMG026 / ICHD012J0A-DMG035 / ICHD018J0A-DMG053 / ICHD024J0A-DMG071



Model	A	B	C	D	E	F	G	H	I
26	722	453	302	327	260	50	135	555	300
35/53	795	514	340	365	287	50	125	555	330
71	910	663	403	427	345	55	120	712	390

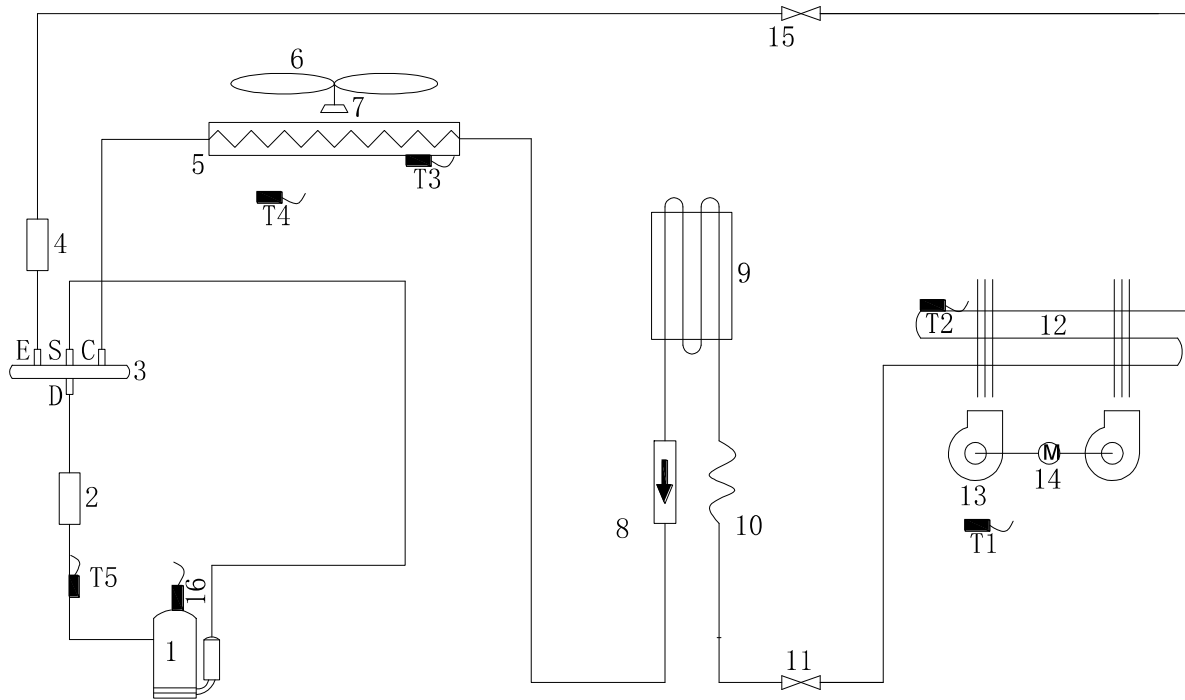
ICHD031J0A-DMG090 / ICHD036J0A-DMG105 / ICHD042J0A-DMG120 / ICHD048J0A-DMG140 / ICHD060J0A-DMG160



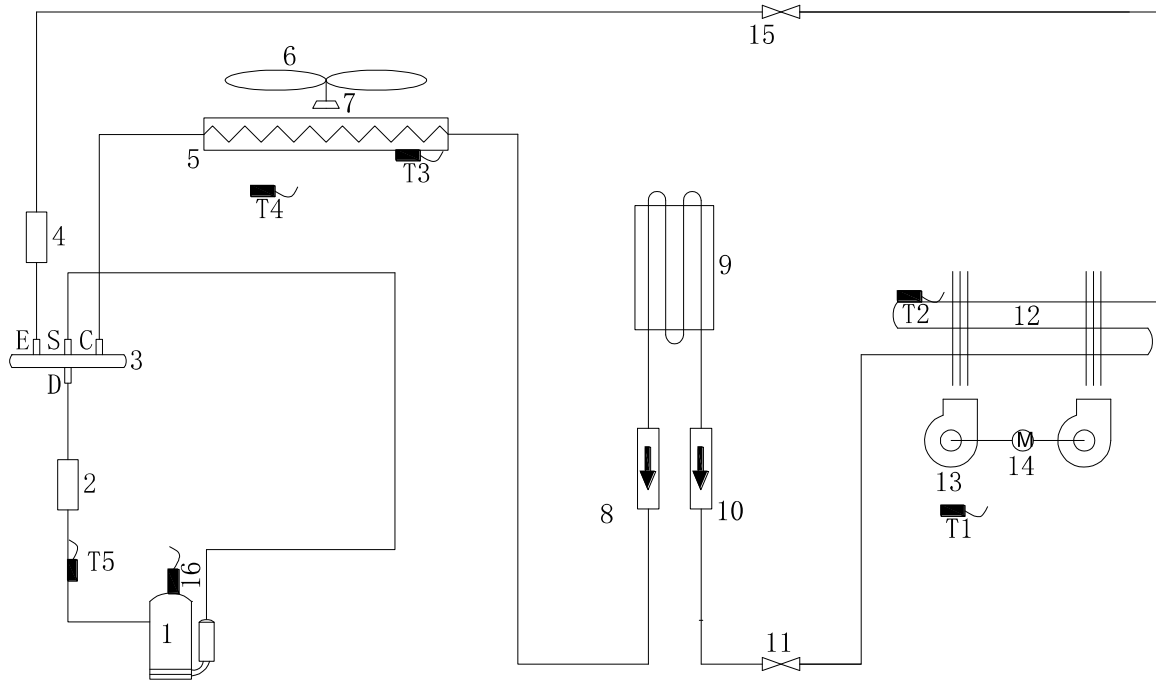
Model	A	C	D	E	F	G	H	I
90	910	390	345	120	663	712	403	427
105/120/140	950	406	360	175	590	840	390	440
160	1040	452	410	191	656	865	463	523

### 3. Refrigerant circuit

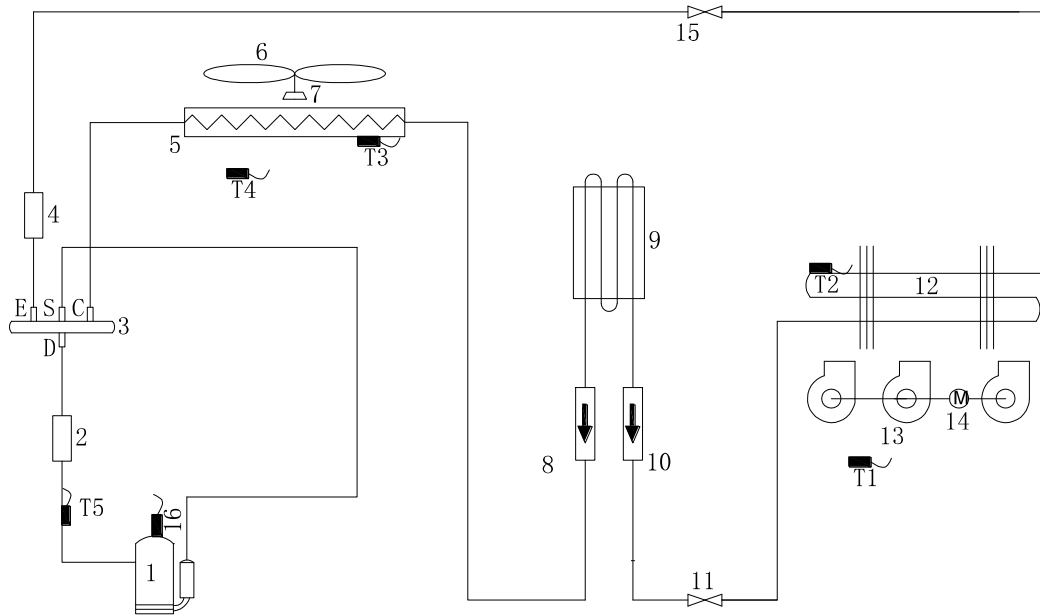
ICHD009J0A-DMG026 / ICHD012J0A-DMG035



1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Throttling capillary
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor

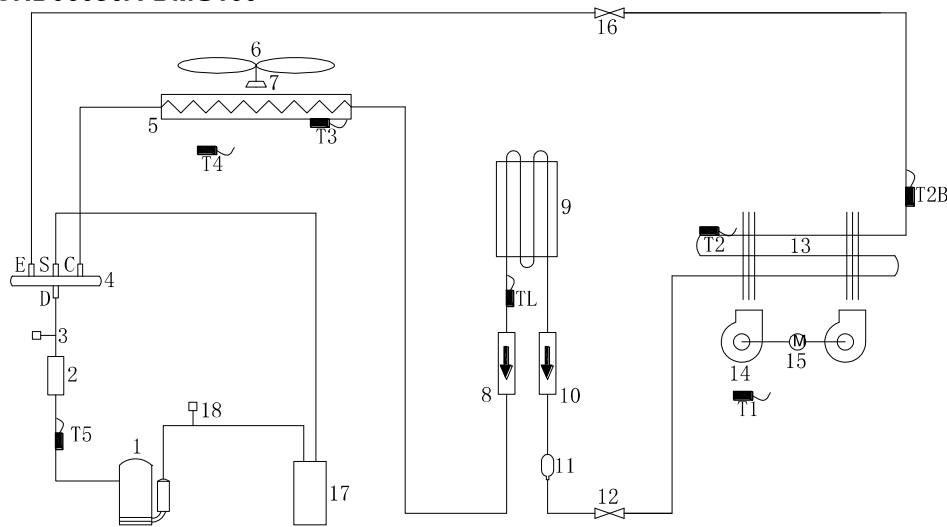


1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor



1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor



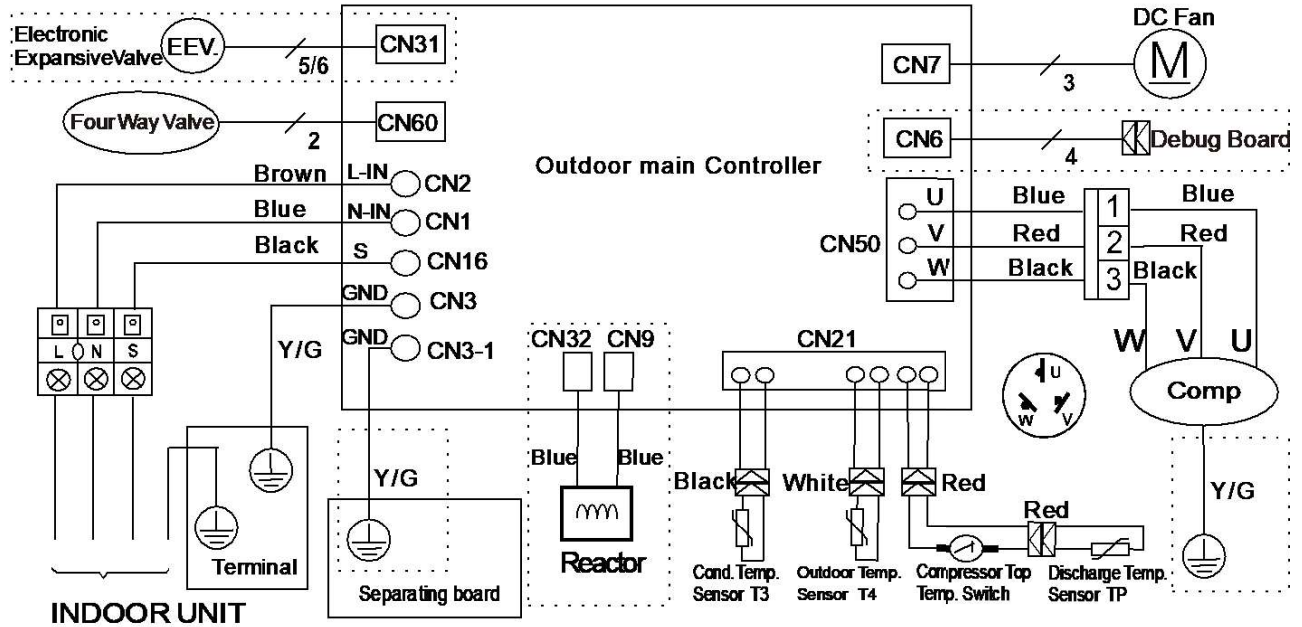


1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Filter
12	Stop valve (liquid side)
13	Evaporator
14	Outdoor unit wind wheel
15	Indoor unit motor
16	Stop valve (gas side)
17	Gas liquid separator
18	Low voltage switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T2B	Evaporator outlet temperature sensor
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor
TL	Temperature sensor of refrigerant cooling pipe

## 4. Wiring Diagrams

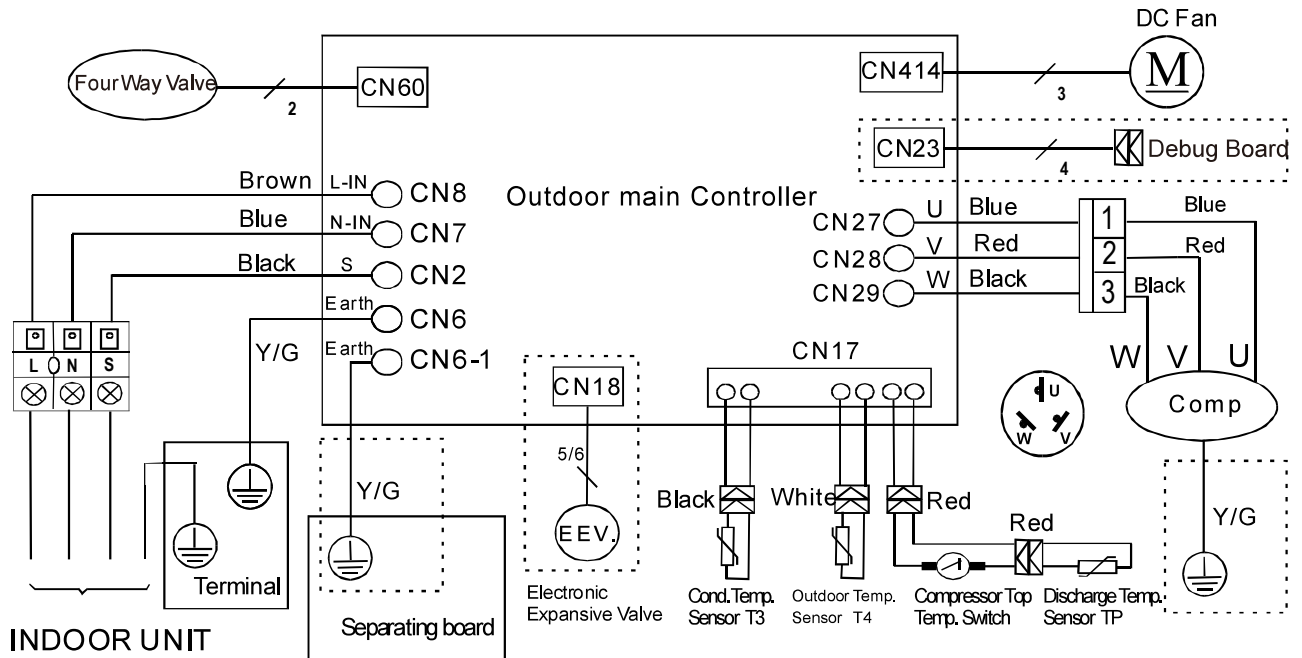
ICHD009J0A-DMG026 / ICHD012J0A-DMG035

### Outdoor wire diagram

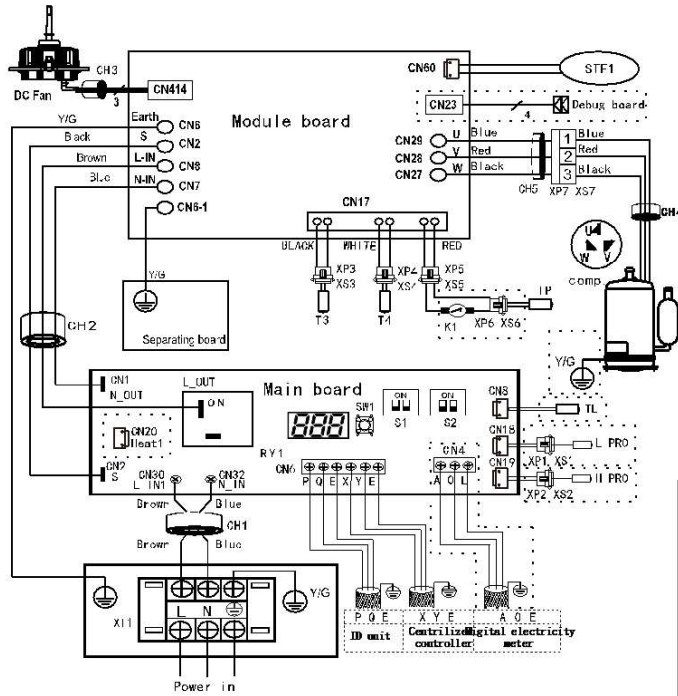


ICHD018J0A-DMG053 / ICHD024J0A-DMG071

### Outdoor wire diagram



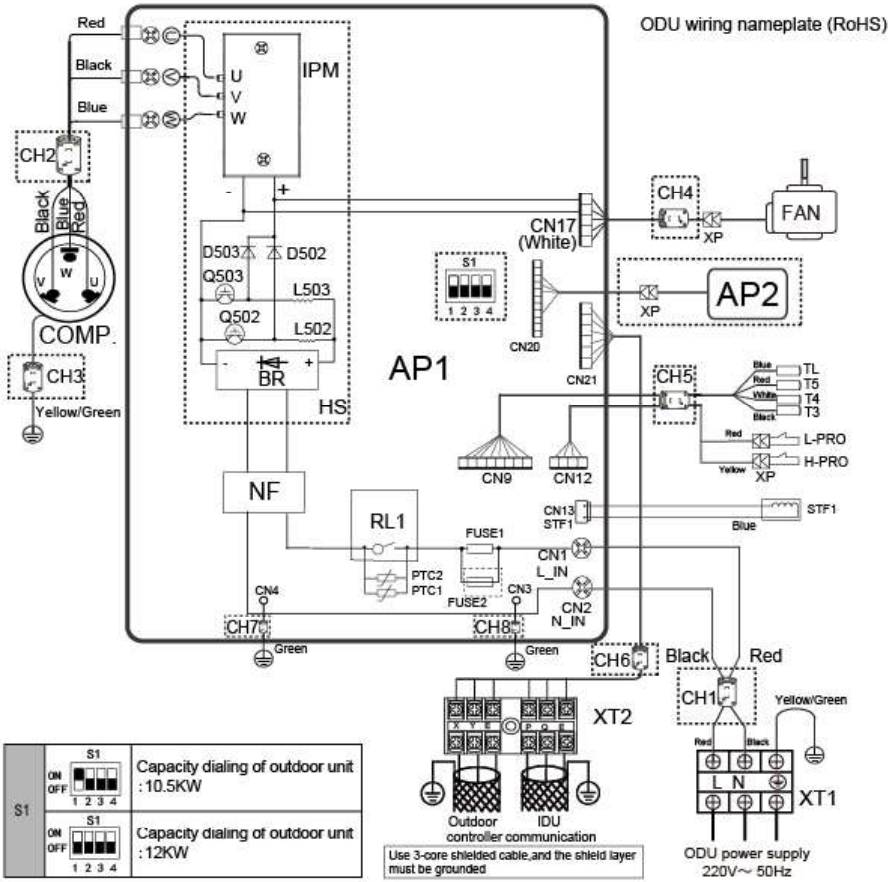
Outdoor wiring diagrams



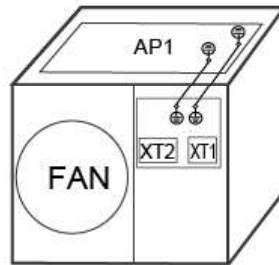
CODE	NAME	CODE	NAME
CH1-CH5	Magnetic ring	KY1	Relay
COMP	Compressor	STF1	Four way valve
HL	Compressor top thermostat	TP	Outdoor discharge temperature sensor
DCFM	DC fan	TL	Heat exchanger temperature sensor
H-PRO	High pressure on/off switch	XT1	Three way terminal
L-PRO	Low pressure on/off switch	T4	Outdoor ambient temperature sensor
XP1-XP7	Intermediate connector	T3	Outdoor heat exchanger temperature sensor
XS1-XS7	Intermediate connector		

Error Code	
EE	Module board stop abnormally
E2	Communication error between indoor and outdoor unit
E43	Outdoor heat exchanger temperature sensor (T3) error or
E44	Outdoor ambient temperature sensor (T4) error
E45	Discharge temperature sensor error
E5	Input voltage protection
E6	DC fan protection
E9	DEFROW solenoid
E.9	Compressor parameters mismatch
Eh	ES errors occur more than six times in an hour
EP	IPC error (reserved)
EP	Outdoor ambient temperature is below 10 degrees Celsius
EO	Communication error between main board and module board
EF	Indoor switch error
EL	LJ errors occur three times in an hour
EO	IPM module protection
L1	DC low voltage protection
L2	DC high voltage protection
L4	ME error (reserved)
L5	Zero speed protection
L7	Phase sequence error
LA	Compressor overcurrent protection
LC	Compressor current sampling circuit error (reserved)
LI	Compressor start error (reserved)
LI	Indoor surface high temperature protection
LI	System high voltage protection (reserved)
P9	Overcurrent protection
P4	Discharge temperature protection
P5	Outdoor heat exchanger temperature(T3) protection
P8	Pressure protection
P2	Indoor unit evaporator temperature protection

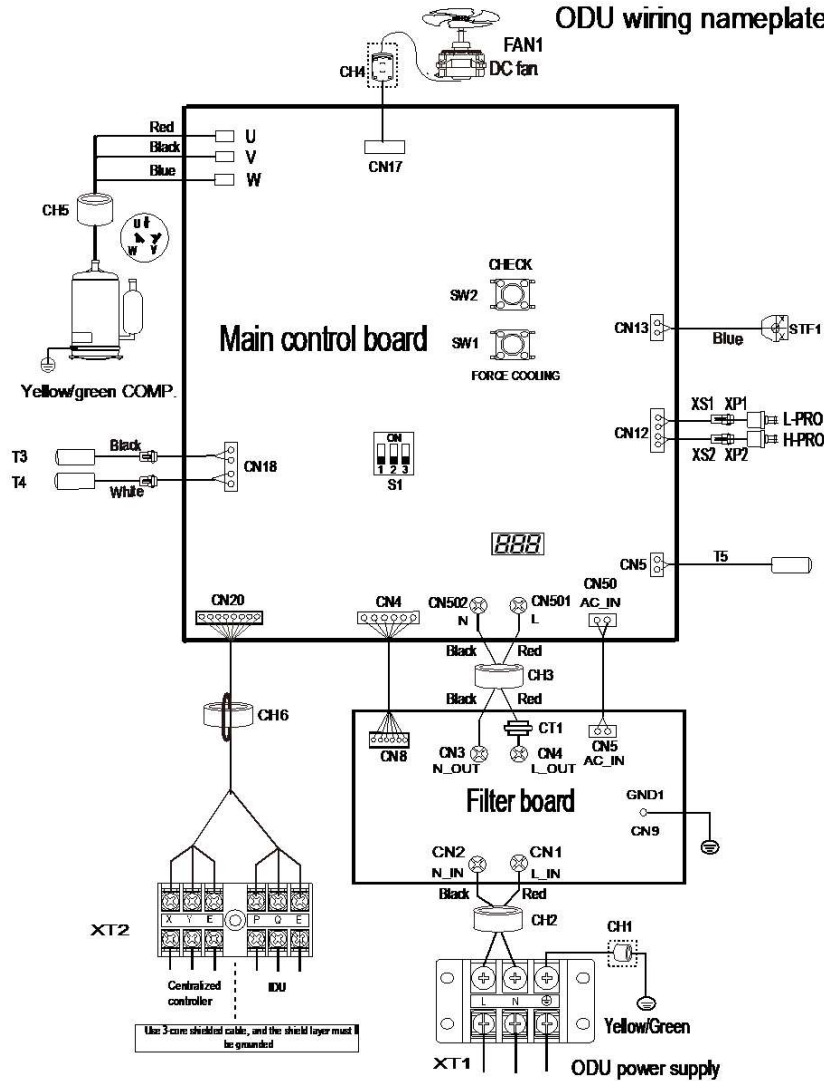
NO	Remarks
normal	display operating frequency
1	Operating mode
2	Operating fan speed and level
3	Total capacity requirement of indoor unit
4	Total corrected capacity requirement of outdoor unit
5	Main heat exchanger pipe (T3) temperature (°C)
6	Outdoor ambient (T4) temperature (°C)
7	Outdoor discharge (T5) temperature sensor
8	Refrigerant temperature
9	TL Heat exchanger temperature sensor
10	Input current value
11	Input voltage value
12	DC voltage value
13	T2/T2B average temperature
14	Model index
15	System address
16	Progress version number
17	Last error or protection code
18	Display " "



Component code	Name	Component code	Name
BR	Rectifier bridge stacking	RL1	Main relay
CH1-CH8	Magnetic ring	STF1	4-way valve
COMP.	Compressor	T3	Outdoor condenser temperature sensor
D502, D503	Fast recovery diode	T4	Outdoor ambient temperature sensor
AP2	Spot check module	T5	Discharge temperature sensor
FAN	DC fan	TL	Refrigerant radiator temperature sensor
FUSE1-FUSE2	Fuse	AP1	Main control board
HS	Radiator	XT1	3-slot power supply terminal
H-PRO	High pressure protection switch	XT2	6-slot power supply terminal
L-PRO	Low pressure protection switch	XP, XS	Connecting terminal
L502, L503	PFC Inductance	Q502, Q503	IGBT
IPM	Inverter module	NF	Filter assembly



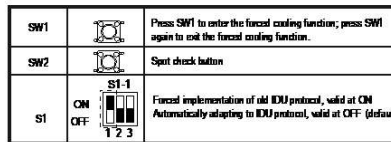
ODU wiring nameplate



Error code	Error or protection definition
HF	IDU mismatching error
E9	ODU EEPROM error
E.9	Wrong compressor model in EPROM
H0	Communication error between main control board and IR341
E43	T3 sensor error
E44	T4 sensor error
E45	T5 sensor error
E5	Voltage protection error
E6	ODU DC fan error
PF	Electronic lock error
E2	IDU communication error
Eb	E6 error occurs six times in one hour, requiring power failure recovery
EF	PFC feedback resistance failure
PL	Heat sink/T high temperature protection
P1	High pressure protection
P2	Low pressure protection
P3	Input current protection
P4	Discharge temperature protection
P5	Outdoor condenser high temperature protection
PE	Evaporator high temperature protection
L0	IPM protection
L1	DC bus low voltage protection
L2	DC bus high voltage protection
L4	MCE error
L5	Zero speed protection
L7	Phase loss
L8	Protection when the previous and next speed change $f$ is $> 15$ Hz
L9	Protection for a difference of $> 15$ Hz between the set $f$ speed and operating speed
H4	L (L0/L1) error occurs three times in one hour, reporting H4, and this error is not recoverable
F1	Detected DC bus voltage (PN voltage) $< 200$ VDC for 1.5S after power-on
P8	Typhoon protection
EP	Ambient temperature less than or equal to $10^{\circ}\text{C}$ in cooling mode

SW2 spot check description:

No.	Displayed contents	Remarks
1	Operating mode	(0—Standby, 2—Cool, 3—Heat, 4—Forced cool)
2	Operating fan speed	(0—Fan off)
3	Total IDU capacity requirement	
4	Capacity requirement for the modified ODU	
5	T3 tube temperature	Actual value
6	T4 ambient temperature	Actual value
7	T5 discharge temperature	Actual value
8	IT module temperature	Actual value
9	Reserved	
10	DC bus current value	Actual value
11	Actual voltage value	
12	DC bus voltage check	Actual value
13	T2 or T23 average temperature	Actual value
14	Model	
15	ODU address in the centralized control system	Valid at 0-7
16	Program version No.	
17	Last error or protection code	"m" displayed if not available
18	Display	



Component code	Description
XT1	3-slot power supply terminal
XT2	Communication Switching Board
CH1-CH6	Magnetic ring
COMP.	Compressor
CT1	AC current transformer
FAN1	DC fan
H-PRO	High pressure protection switch
L-PRO	Low pressure protection switch
STF1	4-way valve
T3	Outdoor condenser temperature sensor
T4	Outdoor ambient temperature sensor
T5	Discharge temperature sensor

## 5. Electric Characteristics

Model	Power Supply <sup>1</sup>							Compressor		OFM	
Capacity	Hz	Volts	Min.volts	Max.volts	MCA <sup>2</sup>	TOCA <sup>3</sup>	MFA <sup>4</sup>	MSC <sup>5</sup>	RLA <sup>6</sup>	kW	FLA
ICHD009-DMG026	50	220-240	198	264	8.8	10	16	/	5.6	0.02	0.6
ICHD012-DMG035	50	220-240	198	264	8.8	10	16	/	5.8	0.02	0.6
ICHD018-DMG053	50	220-240	198	264	12.9	14.5	20	/	7.85	0.05	0.71
ICHD024-DMG071	50	220-240	198	264	17.5	20	25	/	8.85	0.08	1.0
ICHD031-DMG090	50	220-240	198	264	23	25	32	/	11.8	0.08	1.0
ICHD036-DMG105	50	220-240	198	264	27	28.5	32	/	14.5	0.17	1.53
ICHD042-DMG120	50	220-240	198	264	27	28.5	32	/	23	0.17	1.53
ICHD048-DMG140	50	220-240	198	264	32	35.2	40	/	27.5	0.17	1.53
ICHD060-DMG160	50	220-240	198	264	33	35	40	/	27.1	0.17	1.53

### Abbreviations:

MCA: Minimum Circuit Amps; TOCA: Total Over-current Amps; MFA: Maximum Fuse Amps; MSC: Maximum Starting Current (A); RLA: Rated Load Amps; FLA: Full Load Amps

### Notes:

1. Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits. Maximum allowable voltage variation between phases is 2%.

2. Select wire size based on the value of MCA.

TOCA indicates the total overcurrent amps value of each OC set.

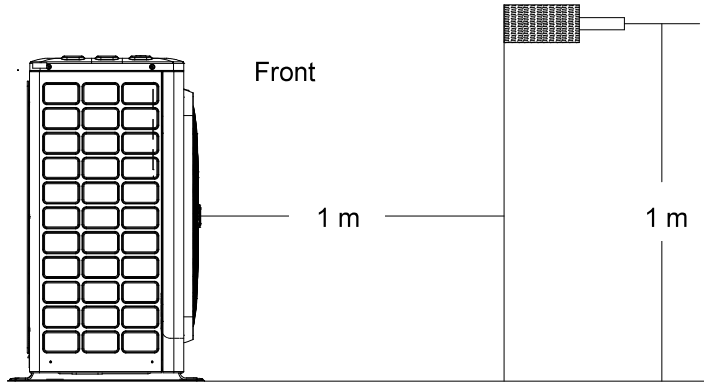
MFA is used to select overcurrent circuit breakers and residual-current circuit breakers.

MSC indicates the maximum current on compressor start-up in amps.

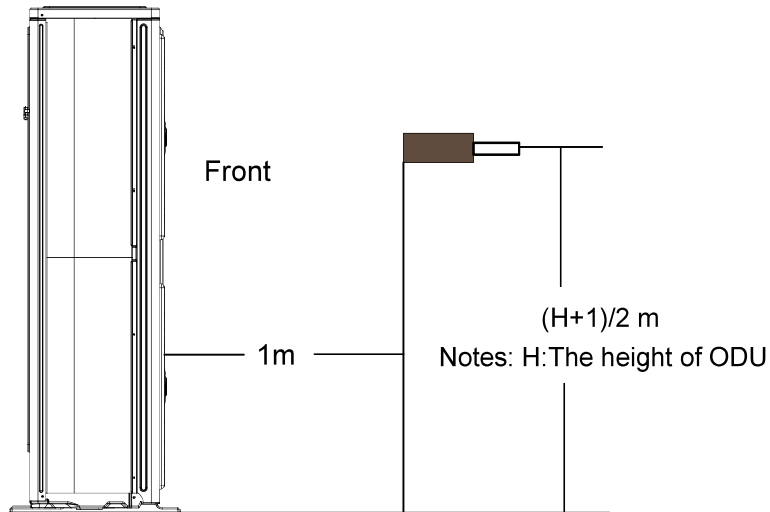
RLA is based on the following conditions: indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB.

## 6. Sound Levels

ICHD009, 012, 018, 024, 031, 036, 042, 048



ICHD060



Unit Number	Model	Noise Level (dB(A))
1	ICHD009J0A-DMG026	50
2	ICHD012J0A-DMG035	50
3	ICHD018J0A-DMG053	54
4	ICHD024J0A-DMG071	55
5	ICHD031J0A-DMG090	55
6	ICHD036J0A-DMG105	59
7	ICHD042J0A-DMG120	59
8	ICHD048J0A-DMG140	59
9	ICHD060J0A-DMG160	60

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## 7. Accessories

Accessory name of outdoor unit	Qty.	Purpose
Seal ring	1	For drainage of ODU
Water outlet joint	1	



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## **Part. 4 Installation & Troubleshooting**

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## 1. Notes

### 1.1 Selecting an installation site for IDU

- Enough space for installation and maintenance.
- The ceiling is level, and the structure is strong enough to support the weight of IDU; take reinforcement measures when necessary.
- Airflow in/out of the machine is not obstructed, and the external air exerts minimum impact.
- Easy to supply airflow to every corner in the room.
- Easy to drain fluids from the connected piping and water discharge piping.
- No direct heat radiation.
- Avoid installation in narrow spaces or where there are more stringent noise requirements.

#### **CAUTION:**

Installing the unit in the following places may cause it to malfunction (please enquire if it is unavoidable):

- Places that contain mineral oil such as machine oil for cutting.
- Places with high salt content in the air such as the sea.
- Areas like hot springs where there are corrosive gases like sulphur gases.
- Factories with major voltage fluctuations in the power supplies.
- Places like a car or cabin room.
- Areas filled with cooking oil and gas like kitchens.
- Places where strong electromagnetic waves are present.
- Places where flammable gases or materials are present.
- Areas where there is evaporation of acid or alkaline gases.
- Other special environmental conditions.

### 1.2 Selecting an installation site for ODU

- Enough space for installation and maintenance.
- Unobstructed airflow in/out of the unit; no strong breeze.
- The site should be dry and well-ventilated.
- The supporting surface should be flat and able to bear the weight of the unit. The ODU should be able to be installed horizontally without increasing vibration and noise. Take reinforcement measures when necessary.
- The operating noise and the discharged air should not affect neighbours.
- There should be no leakage of flammable gas nearby.
- It should be easy to install the connecting pipes and complete electrical connections.
- The level difference of connection pipes and the lengths of connection pipes must be within the allowed ranges.

#### **CAUTION:**

- Choose the correct move-in path.
- Carry the device in its original package.
- Electrical insulation measures can be taken in accordance with relevant technical specifications of electrical equipment if the air conditioner is to be installed onto the metal part of a building.
- If the height difference is greater than the allowed level difference, it is recommended to place the ODU above the IDU.

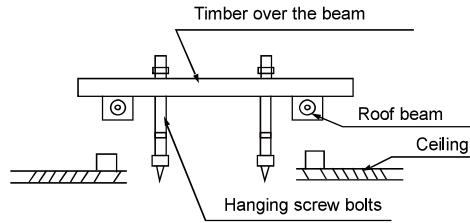
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## 4. Installation of Ceiling and Floor

■The units may be mounted vertically, provided that the correct clearances for positioning are maintained.

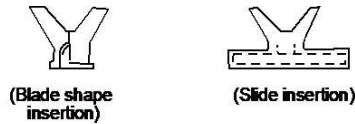
### 1. Wooden construction

Put the square timber transversely over the roof beam, then install the hanging screw bolts.



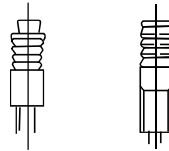
### 2. New Concrete Bricks

Inlaying or embedding the screw bolts.



### 3. For Original Concrete Bricks

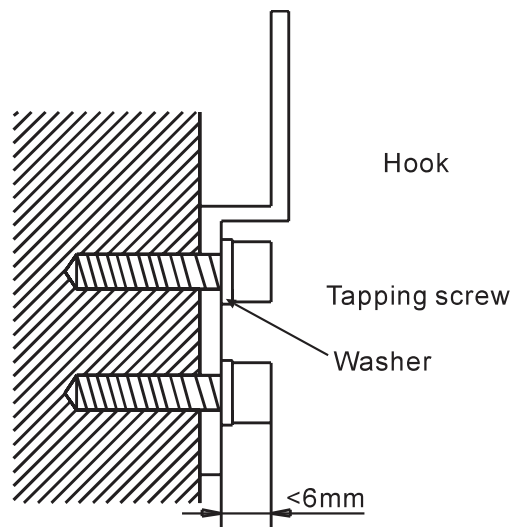
4. Install the hanging hook with expansible bolt into the concrete deep to 45~50mm to prevent loose.



## 4.1 Wall Mounting Installation

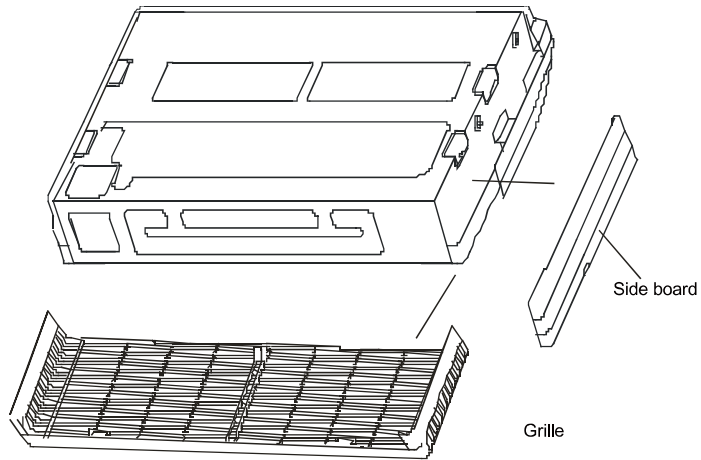
1. Fix the hook with tapping screw onto the wall.

2. Hang the indoor unit on the hook.

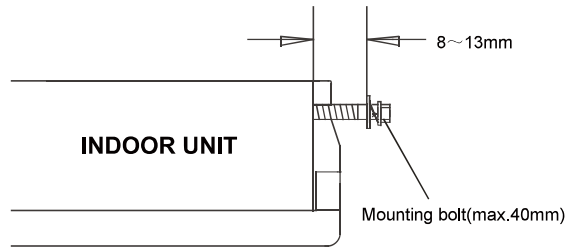
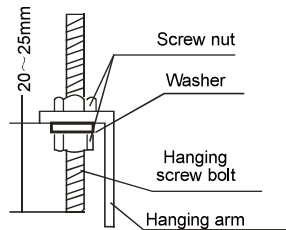


## 4.2 Ceiling Installation

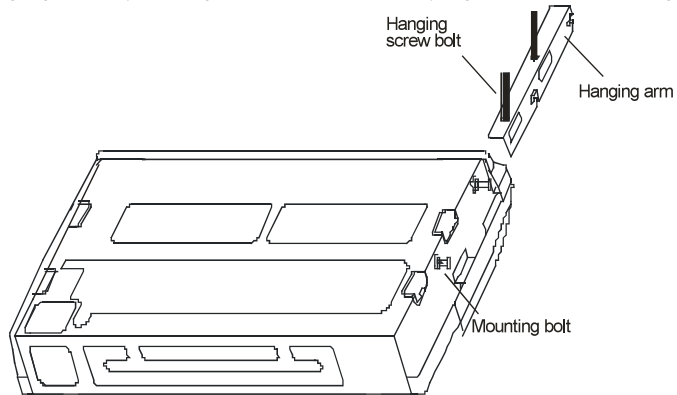
1. Remove the side board and the grille. (For models 140 and 160, do not remove the grille.)



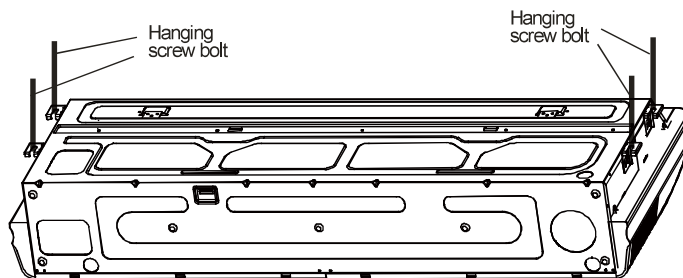
2. Locate the hanging arm on the hanging screw bolt. Prepare the mounting bolts on the unit.



3. Hang the unit on the hanging arm by sliding backward. Securely tighten the mounting bolts on both sides.



Model 36 ~ 140



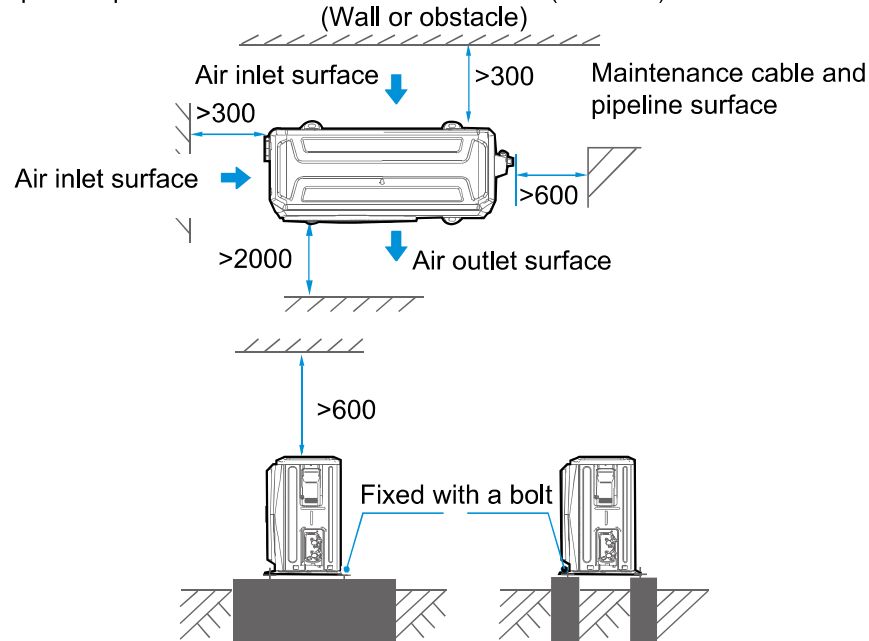
Model 160

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## 5. Installation of Outdoor Units

### 5.1 Installing space

Ensure enough space required for installation and maintenance. (Unit: mm)



### 5.2 Handling and installation

- Because the center of gravity of the unit is not at the center, be careful when lifting the unit with a hoist cable.
- Do not hold the suction port on the casing; otherwise, it will be deformed.
- Do not touch the blades with your hands or other objects.
- Do not tilt the unit over 45° when carrying it; do not store it horizontally.
- Use M8 or M10 bolts to secure the feet of the unit. The unit must be installed firmly to prevent collapse in the event of an earthquake or a sudden blast.

## 6. Water discharge piping layout

Note:

Do not exert too much force when installing the suction piping in order not to break the pipes. Wrap both the suction piping and water discharge piping evenly with heat insulation protective casing to prevent water condensation.

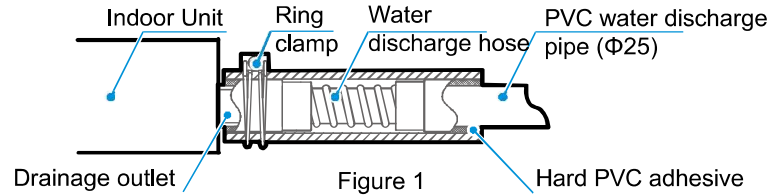
### 6.1 Installation of water discharge piping for the indoor unit

- Use the attached water discharge hose to connect to the drainage outlet and PVC piping of the indoor unit. Use the provided ring clamps to clasp tightly (see Figure 1).
- Use hard PVC adhesives for connecting to other water piping. Check that the connections are tight with no leakage. Use insulation casing to wrap the water suction piping connections and water discharge piping of the main body (especially the indoor portion) tie for the water discharge piping to bind them firmly to make sure air does not enter and condense to form water.
- In order to prevent the back-flow of water into the interior of the air conditioner when the unit stops operating, the water discharge pipe should slope downwards towards the outside (drainage side) at a slope of more than 1/100. Make sure that the water discharge pipe does not swell or store water, otherwise it will cause abnormal sounds.
- When connecting the water discharge piping, do not use force to pull and tug the pipes to prevent the main body from being affected by the force. The distance to pull out the water discharge piping should be within 20m, with supporting points set at every 0.8 to 1.0m to prevent the water discharge piping from bending.

- When concentrating and installing the water discharge piping, arrange the pipes according to the diagram provided in Figure 3.
- The end of the water discharge pipe must be more than 50 mm above the ground or from the base of the water discharge slot. In addition, do not submerge it in water. To discharge the condensed water directly into a ditch, the water discharge pipe must bend upwards to form a U-shaped water plug to stop the odour from entering the room via the water discharge pipe.

Caution:

Make sure all the connections in the piping system are properly sealed to prevent water leakages.



Connection of drainage pipe (see Figures 2 and 3):

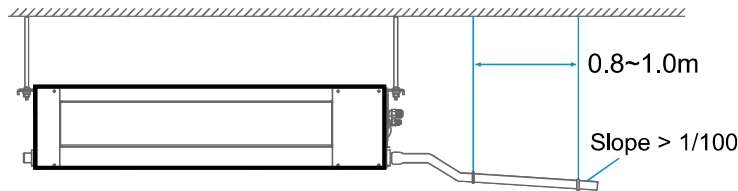


Figure 2 Method to connect the water discharge piping for a single unit

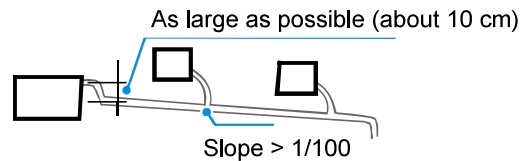
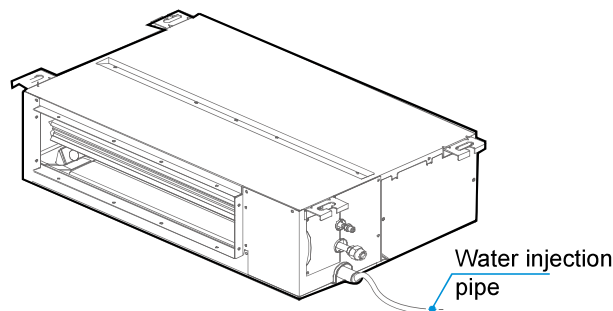


Figure 3 Method for centralised water discharge piping connection

## 6.2 Water discharge test

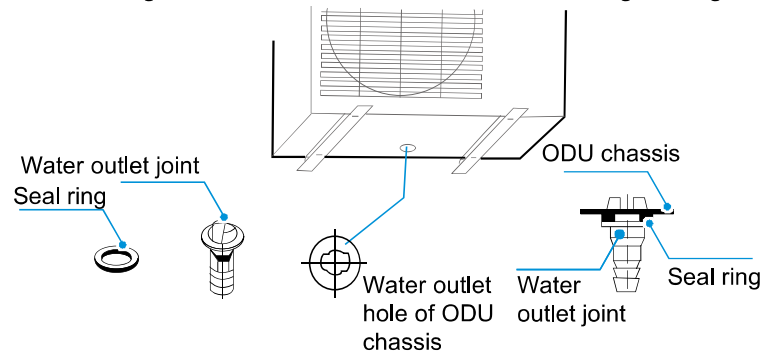
1. Before the test, make sure that the water discharge pipeline is smooth, and check that each connection is sealed properly.
2. Conduct the water discharge test in the new room before the ceiling is paved.
  - Use the water injection pipe to fill the drain pan with about 500ml of water through the drain pan outlet (high side) or through the air outlet (if the air outlet duct is not installed).
  - Connect the power supply, and set the air conditioner to operate in the cool mode. Check that the water discharge piping outlet discharges water properly (based on the length of the pipe, the discharge may occur at a delay of 1 minute or so), and check for water leakages at each joint. The water injection pipe is marked as shown in the following figure.



## 6.3 Installation of water discharge piping of ODU

Put the seal ring on the water outlet joint, insert it from the bottom of the ODU into the hole of the chassis and rotate it 90 degrees to make it fit firmly. Connect the water discharge piping (to be purchased by the customer)

to the water outlet joint to discharge condensation water from the ODU during heating.



## 7. Connection of Connecting Pipe

### 7.1 Length and level difference requirements for the pipe connections of IDU and ODU

Product Model	Maximum length(m)	Maximum level difference(m)	Maximum number of bends(m)
ICHD009(12)J0A-DMG026(35)	15	10	5
ICHD018(24)J0A-DMG053(71)	25	15	15
ICHD031(36,42)J0A-DMG090(105,120)	30	20	15
ICHD048(60)J0A-DMG140(160)	50	25	15

#### Notes:

If the height difference is greater than the allowed level difference, it is recommended to place ODU above the IDU.

#### Caution:

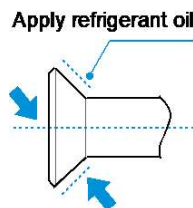
- Do not let air, dust, or other particles invade the pipeline system during installation of the connecting pipes.
- Install the connecting pipes only when the indoor and outdoor units are secured.
- Make sure to keep the connecting pipes dry during installation so that no water will enter the piping system.
- Connecting copper pipes must be wrapped with insulation materials (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

### 7.2 Steps of pipe connection

Measure the required length of the connecting pipe. Make the connecting pipe using the following method (see the column Pipe Connection for details).

1. Connect the IDUs before the ODU.

- Bend and arrange pipes carefully without damaging the pipes and their insulating layers.
- Before tightening the flare nut, apply refrigerant oil on the outer surface at the pipe flaring position and the conical surface of the connecting nut (the refrigerant oil used must be compatible with the refrigerant of this model), and screw it 3 to 4 turns with your hand to tighten it as shown in the figure below.



- When connecting or removing a pipe, use two wrenches at the same time.
  - Do not put the weight of the connecting pipe on the connector of the IDU. Otherwise, the heavy weight will deform the connector and affect the cooling (heating) effect.
2. The check valve of the ODU should be completely closed (e.g. the ex-factory condition). Unscrew nuts from the check valve in each connection, and connect the flared tube immediately (within 5 minutes). When the nut at the check valve is removed and placed for too long, dust and other sundries may enter the pipeline system and cause failures at a later time.

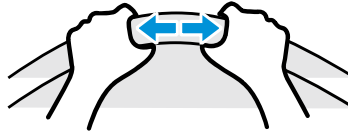
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3. After the refrigerant pipe is connected to the IDU and ODU, discharge the air according to the column Air Discharge. After the air is discharged, tighten the service nut.

Precautions for flexible pipes:

- Do not bend a pipe more than 90 degrees (see the figure below).

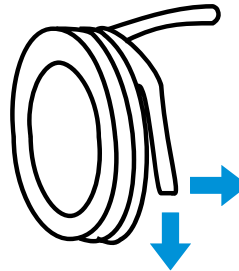
Bend the pipe with your thumbs



- The bend should be as close as possible to the center of the tube and the bend radius should not be less than 3.5D (pipe diameter).
- Do not bend the flexible tube back and forth more than 3 times.

Bend a thin-walled connecting pipe (see the figure below):

Method of unwinding the coil:  
Straighten the pipe end



- When bending a pipe, cut off the required recess in the insulation pipe at the bend and expose the pipe (wrap the bend with a binding tie after bending).
- Keep the elbow radius as much as possible to prevent flattening or crushing. Use a pipe bender to make tight elbows.

If a copper pipe purchased from the market is used, the heat insulation material of the copper pipe must be the same (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

### 7.3 Pipe layout

1. Bend the pipe or drill a hole in the wall as needed. The cross-sectional area of the pipe bending deformation must not exceed 1/3 of the original pipe section. A protective casing should be provided at the wall or floor hole. The weld joint must not be inside the casing. The drill hole on the external wall must be sealed and tightly wrapped with a binding tie to prevent impurities from entering the pipe. The pipe must be insulated with an insulation pipe of suitable size.

2. Insert the bundled piping and wiring from outside the room through the wall opening into the room. Be careful when laying out the pipes. Do not damage them.

Vacuum the connecting pipe.

After completing the above steps, the check valve stem of the ODU should be fully opened to ensure that the refrigerant pipeline of the IDU and ODU is unobstructed.

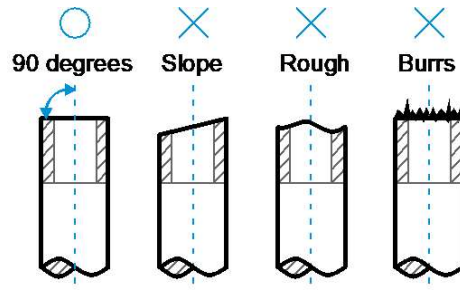
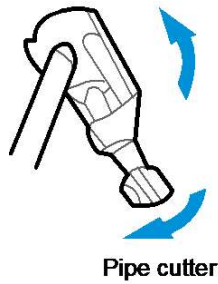
Use a leak detector or soapy water to carefully check for leakage and ensure that there is no leakage. Cover the joint of the IDU with a sound/heat insulation sleeve (accessory) and wrap it tightly with a binding tie to prevent condensation and water leakage.

### 7.4 Pipe connection

Flaring

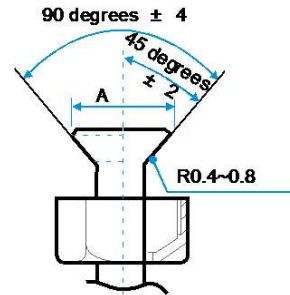
Use a pipe cutter to cut off the pipe, and rotate the pipe cutter repeatedly to cut off the pipe.





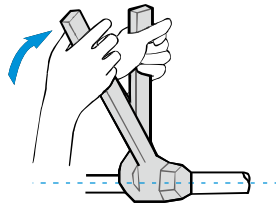
Insert the pipe into the connection nut flare.

Outer diameter(mm)	A(mm)	
	Max.	Min.
Φ6.4	8.7	8.3
Φ9.5	12.4	12.0
Φ12.7	15.8	15.4
Φ15.9	19.0	18.6
Φ19.1	23.3	22.9



### 7.5 Fasten the nut

Align the connection pipe, tighten the connecting nut with a hand, and tighten them with a wrench as shown in the figure below.



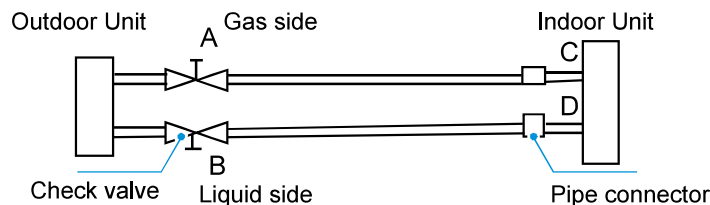
### 7.6 Air discharge

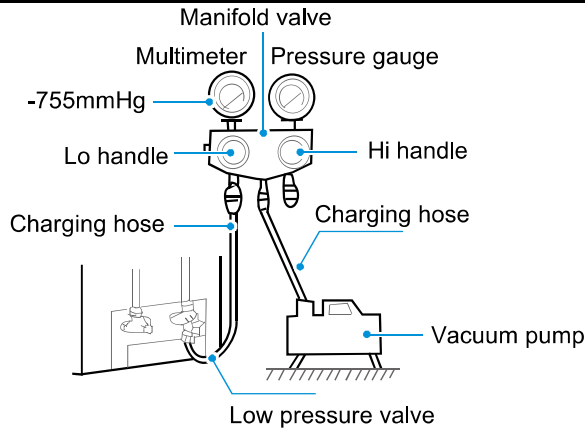
Use a vacuum pump to discharge the air.

- Loosen and remove the service port nut of check valve A and connect the manifold valve charging hose to the service port of check valve A (check valves A and B are closed).
- Connect the charging hose connector to the vacuum pump.
- Fully open the manifold valve Lo (low pressure) handle.
- Start the vacuum pump. When the vacuum is started, slightly loosen the service port nut of the check valve B to check if the air enters (the vacuum pump noise changes, and the multimeter reading changes from negative to 0). Tighten the service port nut.
- After the vacuum is complete, fully close the manifold valve low pressure (Lo) handle and stop the vacuum pump.

Vacuum the pipe for 15 minutes or more, check whether the multimeter reading is  $-1.0 \times 10^4 \text{ Pa}$  ( $-755 \text{ mmHg}$ ).

- Loosen and remove the square head covers of check valves A and B, fully open the check valves A and B, and tighten the square head covers of the check valves A and B.
- Remove the charging hose from the service port of check valve A and tighten the nut. (Refer to its manual for the use of the manifold valve)





### Adding Refrigerant

- If the one-way pipe length is less than 5m (including 5m), the refrigerant charging amount is determined according to the nameplate.
- If the one-way pipe length exceeds 5m, it is necessary to calculate the refrigerant charging amount according to the pipe diameter and length of the liquid-side pipes of the IDU and ODU. See the table below for details.
- Record the amount of refrigerant charged and retain the record for use during future maintenance.

Diameter of liquid-side pipe	Refrigerant charging amount	Remarks
Φ6.4	11.5g(L-5)	L is the one-way pipe length

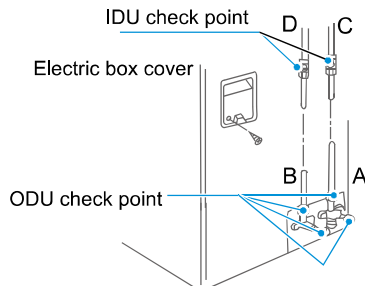
### 7.7 Leak detection

Use soapy water or a leak detector to check whether air leaks at each joint.

The low pressure check valve is indicated by A in the figure.

B indicates the high pressure side check valve.

C and D indicate IDU connecting pipe ports.



### 7.8 Check Valve Instructions

- Open the valve plug until it touches the limit block. Do not attempt to continue opening it.
- Use a wrench or similar tool to fasten the valve cap.
- See the torque table for the valve cap fastening torque.

Pipe size	Tightening torque N.m
Φ6.4	14.2~17.2 N.m (144~176 kgf.cm)
Φ9.5	32.7~39.9 N.m (333~407 kgf.cm)
Φ12.7	49.5~60.3 N.m (504~616 kgf.cm)
Φ15.9	61.8~75.4 N.m (630~770 kgf.cm)
Φ19.1	97.2~118.6 N.m (990~1210 kgf.cm)

### 7.9 Heat insulation

- The exposed flared tube connection portion and the refrigerant tube portion of the liquid pipe and the gas pipe must be wrapped with the heat insulation material with no gap in between.
- Insufficient insulation may cause condensation and water dripping.

## 8. Electric Connection

### 8.1 Caution

- Before the installation, check whether the power supply of the user meets the electrical installation

requirements of the product (including reliable grounding, power leakage, and wire-diameter electrical load). Do not install the product before the modification if the electrical installation requirements of the product are not met.

- Air conditioners must use a dedicated power supply. The power voltage must conform to the rated voltage.
- The external power supply circuit of the air conditioner must include a grounding line, and the grounding line of the power cable connecting to the indoor unit must be securely connected to the grounding line of the external power supply.
- Electrical wiring work must be carried out by a professional technician, and must comply with the labels stated in the circuit diagram.
- The fixed wiring connected must be equipped with an all-pole disconnection device with a minimum 3mm of contact separation.
- Leakage protection devices must be configured according to national standards for electrical equipment.
- The power cord and signal cables must be neatly and properly arranged without interfering with one another or contacting with any connecting pipes or valves.
- When multiple air conditioners are installed in a centralized manner, ensure load balance of the three-phase power supply, and avoid installing multiple units at the same phase of the three-phase power supply.
- In general, two wires cannot be connected unless the joint is securely welded and wrapped with insulation tape.
- Power the system on only after all the completed wiring operations have been carefully checked.

## 8.2 Power Supply Specifications

### Ceiling and Floor:

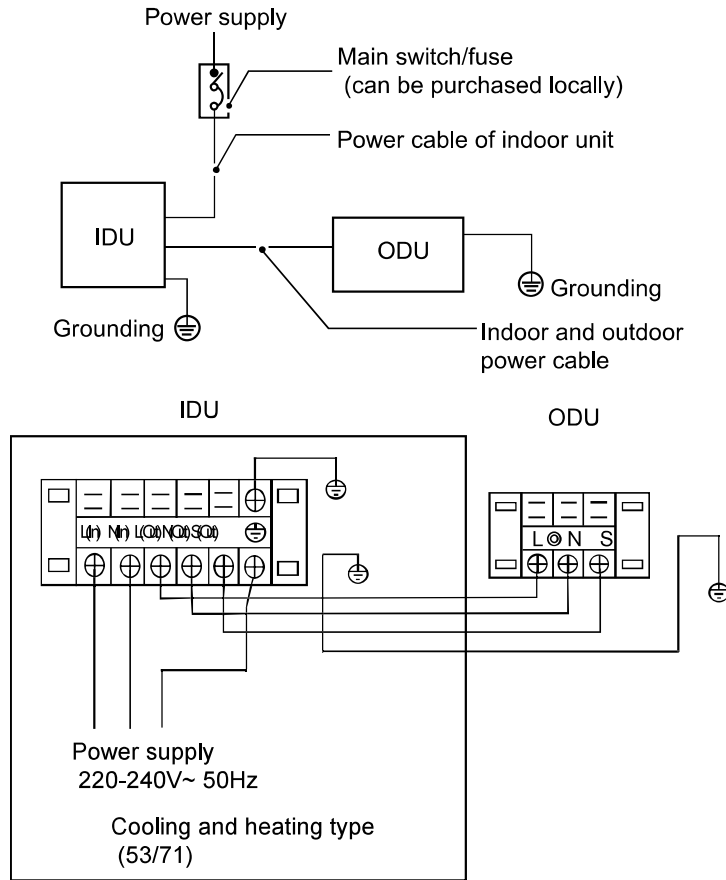
IEFC036(48,60)J3A-DWG105(140,160)

Model	Power supply	Circuit breaker/fuse (A)	Indoor unit power wiring(mm <sup>2</sup> )	Indoor/Outdoor connecting wire(mm <sup>2</sup> )	
	Voltage and frequency			Ground wiring(mm <sup>2</sup> )	Weak electric signal(mm <sup>2</sup> )
105/140	220V-240V~50Hz	15/15	1.0	1.0	
160	220V-240V~50Hz	15/15	1.0	0.75	

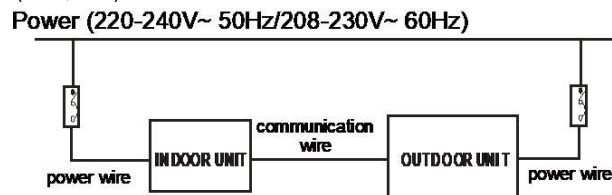
Note: The communication wire should be 3-core shielding wire, and the shielding wire layer must be connected the earth of sheet metal.

**Ceiling and Floor:**

IEFC018(024)J3A-DWG053(71)



IEFC036(48,60)J3A-DWG105(140,160)



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## 10. Trial Run

1. Conduct the test run only after all installation tasks have been completed.

2. Check the following items during the test run.

- Indoor and outdoor units are properly installed.
- Piping length, and the amount of refrigerant charged have been recorded.
- Piping and wiring are correct.
- The voltage of the power supply is the same as the rated voltage of the air conditioner.
- No leakage from the refrigerant piping system.
- There is no obstacle at the air inlet and outlet of the IDUs and ODU.

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■ Water discharge is smooth.

■ Open the check valves on the gas and liquid sides.

■ Heat insulation is complete.

■ Connect to the power supply to let the air conditioner warm up first.

■ Grounding cables have been properly connected.

3. Install the remote controller mounting rack according to the user's requirements.

The location of the mounting rack must be such that the remote control signal can be successfully transmitted to the indoor unit.

4. Test Run

Use wired/remote controller to control and operate the air conditioner in the cooling mode. Check the following items according to the manual. If there is any fault, troubleshoot by referring to the section "Fault and Troubleshooting" in the manual.

# 11. Trouble shooting

## 11.1 Fault information and codes

### Ceiling and Floor:

#### 1. Error code table(Indoor unit display)

IEFC018(24)J3A-DWG053(71)

Error code	Error definition	Error display
E0	IDU EPROM fault	Immediate display, spot check
E1	ODU communication fault	Immediate display, spot check
E3	IDU fan stall fault	Immediate display, spot check
E5	ODU temperature sensor or EPROM fault	Immediate display, spot check
E50	ODU temperature sensor fault	Immediate display, spot check
E51	ODU EPROM fault	Immediate display, spot check
E52	Outdoor coil T3 temperature sensor fault	Immediate display, spot check
E53	Outdoor ambient T4 temperature sensor fault	Immediate display, spot check
E54	Outdoor discharge temperature sensor fault	Immediate display, spot check
E55	Outdoor air return temperature sensor fault	Immediate display, spot check
E6	IDU temperature sensor fault	Immediate display, spot check
E60	IDU room temperature T1 sensor fault	Immediate display, spot check
E61	IDU pipe temperature T2 sensor fault	Immediate display, spot check
E7	ODU DC fan stall fault	Immediate display, spot check
E71	Outdoor fan over-current (external driving)	Immediate display, spot check
E72	Outdoor fan stall (external driving)	Immediate display, spot check
E73	Outdoor fan phase loss (external driving)	Immediate display, spot check
E74	Outdoor fan zero speed (external driving)	Immediate display, spot check
EE	Water level alarm error	Immediate display, spot check
P0	ODU IPM protection	Immediate display, spot check
P1	Voltage protection	Immediate display, spot check
P10	Low voltage protection	Immediate display, spot check
P11	High voltage protection	Immediate display, spot check
P12	Outdoor DC-side voltage protection	Immediate display, spot check
P2	Temperature protection for compressor top	Immediate display, spot check
P4	ODU compressor feedback protection	Immediate display, spot check
P40	Main control chip and driver chip communication fault	Immediate display, spot check
P41	Compressor current sampling circuit fault	Immediate display, spot check

P42	Compressor start-up fault	Immediate display, spot check
P43	Compressor phase loss protection	Immediate display, spot check
P44	Compressor zero speed protection	Immediate display, spot check
P45	Outdoor 341 main chip drive synchronization fault	Immediate display, spot check
P46	Compressor stall protection	Immediate display, spot check
P47	Compressor lock protection	Immediate display, spot check
P48	Compressor out-synchronous protection	Immediate display, spot check
P49	Compressor over-current protection	Immediate display, spot check
P6	Compressor high discharge temperature protection	Immediate display, spot check
P8	Outdoor electric control current protection	Immediate display, spot check
P81	ODU current protection	Immediate display, spot check
P82	Input AC current sampling circuit fault	Immediate display, spot check
PA	High temperature protection of condenser	Immediate display, spot check
PF	PFC switch power-off	Immediate display, spot check
P9	Evaporator high and low temperature protection	Code will not be displayed, but can be queried
P90	Evaporator high temperature protection	Code will not be displayed, but can be queried
P91	Evaporator low temperature protection	Code will not be displayed, but can be queried
L0	Evaporator high and low temperature frequency limit	Code will not be displayed, but can be queried
L1	Condenser high temperature frequency limit	Code will not be displayed, but can be queried
L2	Compressor discharge high temperature frequency limit	Code will not be displayed, but can be queried
L3	Current frequency limit	Code will not be displayed, but can be queried
L4	Voltage frequency limit	Code will not be displayed, but can be queried
L6	PFC fault frequency limit	Code will not be displayed, but can be queried

IEFC036(48,60)J3A-DWG105(140,160)

Error code	Error or protection definition	Error display
HF	IDU mismatching error	Immediate display, spot check
H4	L (L0/L1) error occurs three times in one hour, reporting H4, and this error is not recoverable. After H4 error, spot check may be performed on the latest three L errors (not limited to L0, L1). For example: report L0-L4-L8-L9-L0-L1 within one hour, and report H4 error. The errors for spot check are L9, L0, and L1.	Immediate display, spot check
E7	IDU EEPROM error	Immediate display, spot check
E9	ODU EEPROM error	Immediate display, spot check
E.9.	Wrong compressor model in parameter memory EPROM	Immediate display (display E9), spot check available
H0	Communication error between main control board and IR341	Immediate display, spot check
E1	Communication error between IDU and ODU	Immediate display, spot check
E2	T1 sensor error	Immediate display, spot check
E3	T2 sensor error	Immediate display, spot check
E4	T2B sensor error	Immediate display, spot check
E43	T3 sensor error	Immediate display, spot check
E44	T4 sensor error	Immediate display, spot check
E45	T5 sensor error	Immediate display, spot check
E5	Voltage protection error	After continuing 10 minutes Indoor unit

		displays, spot check available
E6	ODU DC fan error	After continuing 10 minutes Indoor unit displays, spot check available
EE	Water level alarm error	Immediate display, spot check
EH	TL sensor error	Immediate display, spot check
Eb	E6 error occurs six times in one hour, requiring power failure recovery	Immediate display, spot check
EF	PFC feedback resistance failure	After continuing 10 minutes Indoor unit displays, spot check available
PL	Heat sink TF high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
P1	High pressure protection	After continuing 10 minutes Indoor unit displays, spot check available
P2	Low pressure protection	After continuing 10 minutes Indoor unit displays, spot check available
P3	Input current protection	After continuing 10 minutes Indoor unit displays, spot check available
P4	Discharge temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
P5	Outdoor condenser T3 high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
PE	Evaporator T2 high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
L0	Module protection is triggered	After continuing 10 minutes Indoor unit displays, spot check available
L1	DC bus low voltage protection	After continuing 10 minutes Indoor unit displays, spot check available
L2	DC bus high voltage protection	After continuing 10 minutes Indoor unit displays, spot check available
L4	MCE error	After continuing 10 minutes Indoor unit displays, spot check available
L5	Zero speed protection	After continuing 10 minutes Indoor unit displays, spot check available
L7	Phase loss	After continuing 10 minutes Indoor unit displays, spot check available
L8	Protection when the previous and next speed change is > 15Hz	After continuing 10 minutes Indoor unit displays, spot check available
L9	Protection for a difference of > 15Hz between the set speed and operating speed	After continuing 10 minutes Indoor unit displays, spot check available
F1	Detected DC bus voltage (PN voltage) < 200VDC for 5S after power-on	After continuing 10 minutes Indoor unit displays, spot check available
P8	Typhoon protection	After continuing 10 minutes Indoor unit displays, spot check available
EP	Ambient temperature less than or equal to 10°C in cooling mode	After continuing 10 minutes Indoor unit displays, spot check available



2. Spot check query function (Press the button on the display board to spot check the system parameters)

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Sequence number	Spot check parameter contents	Remarks
01	Indoor unit T1 temperature	Actual value, temperature accurate to 0.5 °C
02	Indoor unit T2 temperature	Actual value, temperature accurate to 0.5 °C
03	Outdoor unit T3 temperature	Actual value, temperature accurate to 0.5 °C
04	Outdoor unit T4 temperature	Actual value, temperature accurate to 0.5 °C
05	Outdoor unit TP temperature	Actual value, it can display three digits such as 101 °C
06	Outdoor unit IPM temperature	Actual value, temperature accurate to 0.5 °C
07	Current compressor target frequency	Actual value
08	Current compressor operating frequency	Actual value
09	Current operating wind speed of internal fan	Actual value×10
10	Current operating wind speed of external fan	Actual value×10
11	Opening of electronic expansion valve of outdoor unit	No electronic expansion valve, it shows "0"
12	Voltage	Actual value
13	current	Actual value
14	Indoor unit program version number	
15	Indoor unit EEPROM parameter program version number	
16	Machine model	
17	the last fault code	No fault display "--"
18	the last but one fault code	No fault display "--"
19	the last but two fault code	No fault display "--"
20	nd	End

## 11.2 Fault and troubleshooting

Fault	Cause	Solution
Starting failure	Power failure	Wait for the power supply to be restored.
	Power switch is off	Turn on the power
	The fuse of the power switch is blown.	Replace the burnt fuse.
	The time set for the timed power-on has not arrived.	Replace the batteries.
	The batteries of the remote controller are exhausted.	Wait or cancel the setting.
There is air blowing, but the cooling/heating effect is poor.	The temperature setting is inappropriate.	Set the temperature properly. Increase or decrease the temperature. Read Operating Methods for details.
	The air inlet or outlet of the IDU or ODU is blocked	Remove the obstacles.
	Doors and windows are open.	Close the doors and windows.
There is air blowing, but the unit cannot supply cold or hot air.	The air inlet or outlet of the IDU or ODU is blocked.	Remove the obstacles and perform the operation again.
	Compressor 3-minute protection	Wait.
	The temperature setting is inappropriate.	Set the temperature properly.



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