



# **TECHNICAL SERVICE MANUAL**

## **CASSETTE TYPE AIR-CONDITIONER (Four-way cassette)**

**FSK-124HF**

**FSK-184HF**

**FSK-244HF**

**FSK-364HF**

**FSK-484HF**

# Four-way Cassette Air-conditioner

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**NOTICE**

Specifications are subject to change without notice for further improvement.

All the product information has been carefully checked.

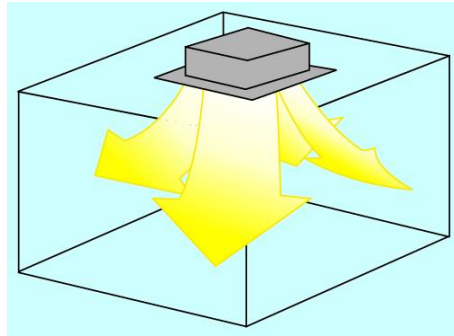
## Part 1. Product Features

### 1) Low operation noise

- Streamline plate ensures quietness
- Creates natural and comfortable environment

### 2) Efficient cooling

- Equal, fast and wide—range cooling



Four-way airflow

### 3) The adoption of the most advanced 3- Dimensional Screw fan

- Reduces the air resistance passing through
- Smooths the air flow
- Makes air speed distribution to the heat exchange uniform



3- Dimensional Screw fan

### 4) Improvement for easy installation and maintenance

- Little space is required for installation into a shallow ceiling
- Because of the compactness and weight reduction of the main unit and panel, all models can be installed without a hoist

## Part 2. Specification

### R407C

Model			FSK-124HF	FSK-184HF
Power supply		Ph-V-Hz	1N,220-240V,50Hz	1N,220-240V,50Hz
Cooling	Capacity	Btu/h	12000	18000
	Capacity	kW	3.55	5.3
	Input	W	1450	2050
	Rated current	A	6.4	9.8
	EER		2,45	2,59
Heating	Capacity	Btu/h	15000	20500
	Capacity	kW	4.4	6.0
	Input	W	1350	2150
	Rated current	A	6.0	10.5
	COP		3,26	2,8
Moisture Removal		L/h	1.2	1.8
Max. input consumption		W	1910	2630
Max. current		A	9.6	12.5
Starting current		A	34	48
Compressor	Model		PG240X2C-4FT	PG330X2CS-4KU3
	Type		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Supplier		TOSHIBA (Guangdong)	TOSHIBA (Guangdong)
	Capacity	Btu/h	14600/14800	20150/20300
	Input	W	1400/1430	1980/2105
	Rated current(RLA)	A	6.5	9.7/10.3
	Locked rotor Amp(LRA)	A	29.9/33.0	45
	Thermal protector		UP3RE0591-T56	UP3SE0391-T39
	Capacitor	uF	35	40
	Refrigerant oil	ml	480	750
Indoor fan motor	Model		YDK45-4F	YDK45-4F
	Brand		WELLING	WELLING
	Input	W	63	63
	Capacitor	uF	1.5 $\mu$ F/450V	2.5 $\mu$ F/450V
	Speed(hi/lo)	r/min	730/630	930/830
Indoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	21X13.37	21X13.37
	Fin spacing	mm	1.3	1.3
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type	mm	$\Phi$ 7.94, innergroove	$\Phi$ 7.94, innergroove
	Coil length x height x width	mm	1185X210X26.7	1185X210X26.7
	Number of circuits		5	5

Indoor air flow (Hi/Lo)		m3/h	680/600	860/760
Indoor noise level (Hi/Lo)		dB(A)	38/35	43/40
Indoor unit	Dimension (W*H*D)(body)	mm	580×254×580	580×254×580
	Packing (W*H*D)(body)	mm	750x340×750	750x340×750
	Dimension (W*H*D)(panel)	mm	650x30x650	650x30x650
	Packing (W*H*D)(panel)	mm	715x115x715	715x115x715
	Net/Gross weight(body)	kg	21/30	21/30
	Net/Gross weight(panel)	kg	3/5	3/5
Outdoor fan motor	Model		YDK25-6-1	YDK53-6K
	Brand		WELLING	WELLING
	Input	W	85	130
	Capacitor	uF	2.5 μ F/450V	2.5 μ F/450V
	Speed	r/min	920	750
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	25.4x22	25.4x22
	Fin spacing	mm	1.8	1.8
	Fin type (code)		Hydrophilic	Hydrophilic
	Tube outside dia.and type	mm	Φ9.53,innergroove	Φ9.53,innergroove
	Coil length x height x width	mm	651x559x44	775x660x44
	Number of circuits		2	3
Outdoor air flow		m3/h	1800	2200
Outdoor noise level		dB(A)	43	48
Outdoor unit	Dimension(W*H*D)	mm	760×590×285	845×695×335
	Packing (W*H*D)	mm	890×655×360	965×847×395
	Net/Gross weight	kg	40/45	55/60
Refrigerant type		g	R407C/1330	R407C/2050
Design pressure		MPa	2.6/1.2	2.6/1.2
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ6.35/Φ12.7	Φ6.35/Φ12.7
	Max. refrigerant pipe length	m	15	15
	Max. difference in level	m	5	5
Connection wiring			No	No
Plug type			16A	No
Controller			Remote	Remote
Operation temp		°C	17-30	17-30
Ambient temp		°C	—7-45	—7-45

Notes: 1. Nominal cooling capacities are based on the following conditions:

Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 8m(horizontal)

2. Nominal heating capacities are based on the following conditions:

Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 8m(horizontal)

3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

**R407C**

Model		FSK-244HF	FSK-364HF	FS-484HF
Power supply		Ph-V-Hz	1, 220-240V~, 50Hz	3N, 380V~, 50Hz
Cooling	Capacity	Btu/h	24000	36000
	Capacity	kW	7.05	10.55
	Input	W	3100	4600
	Rated current	A	13.8	7.8
	EER		2,28	2,29
Heating	Capacity	Btu/h	28000	40000
	Capacity	kW	8.2	11.75
	Input	W	2950	4800
	Rated current	A	13.0	8.1
	COP		2,78	2,45
Moisture Removal		L/h	2.4	3.8
Max. input consumption		W	4030	6200
Max. input current		A	18	11.3
Starting current		A	44	50
Compressor	Model		HQ034PAA	C-SBN303H8A
	Type		Scroll	Scroll
	Brand		LG	SANYO
	Supplier		LG	SANYO
	Capacity	Btu/h	29000	39067
	Input	W	2760	4000
	Rated current(RLA)	A	12.4	7
	Locked rotor Amp(LRA)	A	61	50
	Thermal protector		INTERNAL TYPE	INTERNAL TYPE
	Capacitor	u	60	/
	Refrigerant oil	ml	750	1700
Indoor fan motor	Model		YDK55-6	YDK56-6
	Brand		WELLING	WELLING
	Input	W	120	137
	Capacitor	uF	3.5	3
	Speed(hi/lo)	r/min	680/ 600	670/ 565
Indoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	21X13.37	21X13.37
	Fin spacing	mm	1.3	1.3
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	Tube O.D. and type	mm	Φ7, innergroove tube	Φ7, innergroove tube
	Coil length x height x width	mm	1950X126X26.74	1950X168X26.74
	Number of circuits		8	12

Indoor air flow (Hi/Lo)		m3/h	1050/900	1600/1420	1750/1500
Indoor noise level (Hi/Lo)		dB(A)	43/40	47/44	47/44
Indoor unit	Dimension(W*D*H) Body	mm	840X240X840	840X310X840	840X310X840
	Dimension(W*D*H) Panel	mm	950X40X950	950X40X950	950X40X950
	Packing (W*D*H) Body	mm	1020X330X930	1020X400X930	1020X400X930
	Packing (W*D*H) Panel	mm	1030X145X1030	1030X145X1030	1030X145X1030
	Net/Gross weight Body	Kg	36/46	40/50	40/50
	Net/Grossweight Panel	Kg	6/11	6/11	6/11
Outdoor fan motor	Model		YDK53-6H	YDK250-6D-WL	YDK65-6WL; YDK65-6FC
	Brand		WELLING	WEILING	WEILING
	Input	W	140	307	138+156
	Capacitor	uF	3	10 μ	3.5x2
	Speed	r/min	800	740	800
Outdoor coil	Number of rows		2	2	2
	Tube pitch(a)x row pitch(b)	mm	25.4x22	25.4x22	25.4X22
	Fin spacing	mm	1.5	1.7	1.8
	Fin type (code)		Hydrophilic aluminium	Unhydrophilic aluminium	Unhydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.53, innergroove tube	Φ9.53, innergroove tube	Φ9.53, bare tube
	Coil length x height x width	mm	850X810X44	955*915*44	715X1220X44
	Number of circuits		2	8	4
Outdoor air flow		m3/h	3000	5000	6000
Outdoor noise level		dB(A)	52	57	57
Outdoor unit	Dimension(W*H*D)	mm	895X860X330	990x960x360	940X1245X360
	Packing (W*H*D)	mm	972X9875X406	1120x1090x435	1018X1377X434
	Net/Gross weight	Kg	79/90	101/106	110/125
Refrigerant type		g	R407C/2500	R407C/2700	R407C/4050
Design pressure		MPa	1.2/2.8	1.2/3.5	1.2/3.5
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ12.7/Φ19.0	Φ12.7/Φ19
	Max. refrigerant pipe length	m	15	15	15
	Max. difference in level	m	5	5	5
Connection wiring		mm2	No	NO	No
Plug type			No	NO	No
Controller			Remote	Remote	Remote
Operation temp		°C	17-30	17-30	17-30
Ambient temp		°C	-7-45	-7 ~ 45	-7~ 45

Notes: 1. Nominal cooling capacities are based on the following conditions:

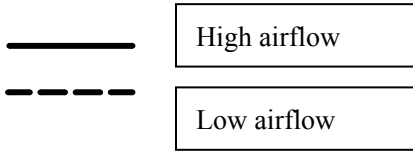
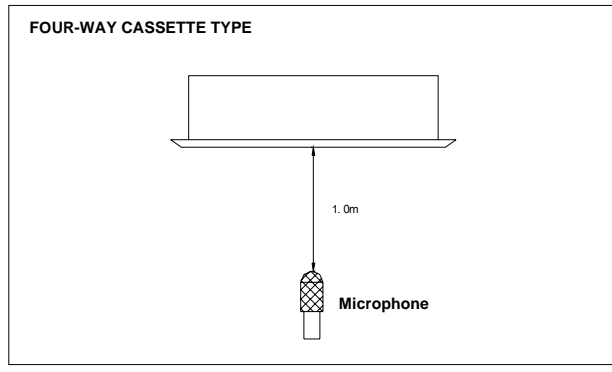
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 8m(horizontal)

2. Nominal heating capacities are based on the following conditions:

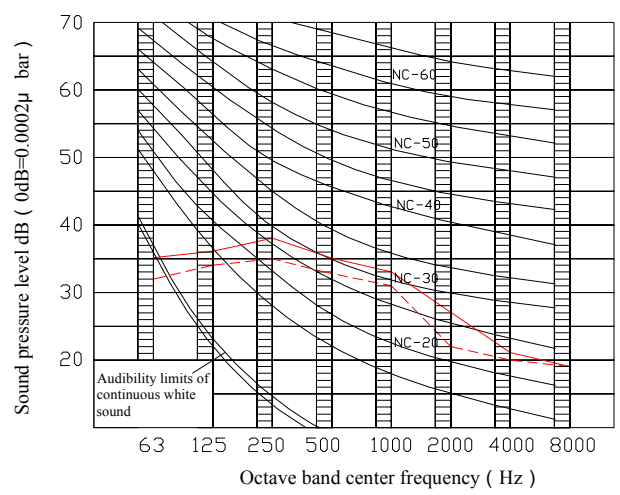
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 8m(horizontal)

3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

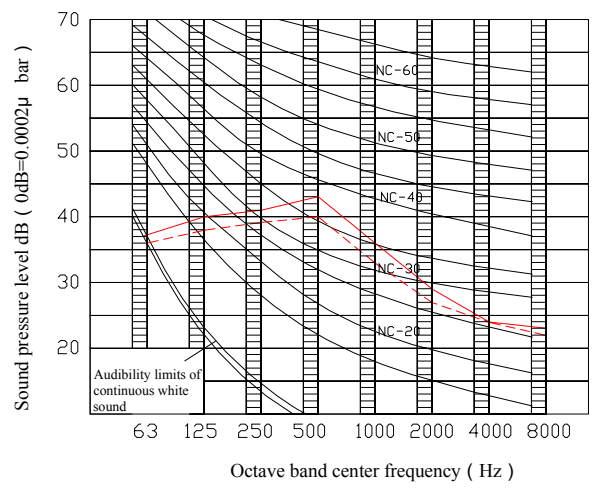
# Part 3 Noise Level



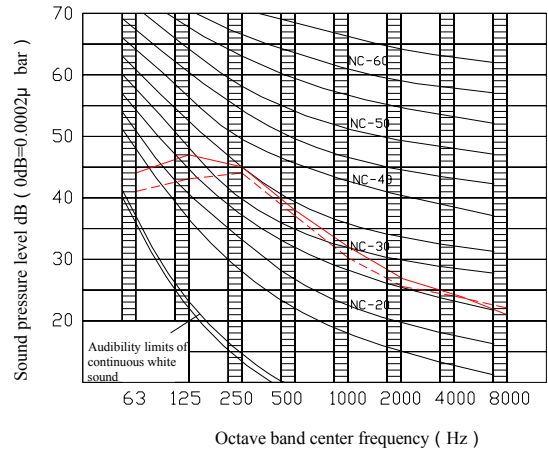
**FSK-124HF**



**FSK-184HF FSK-244HF**



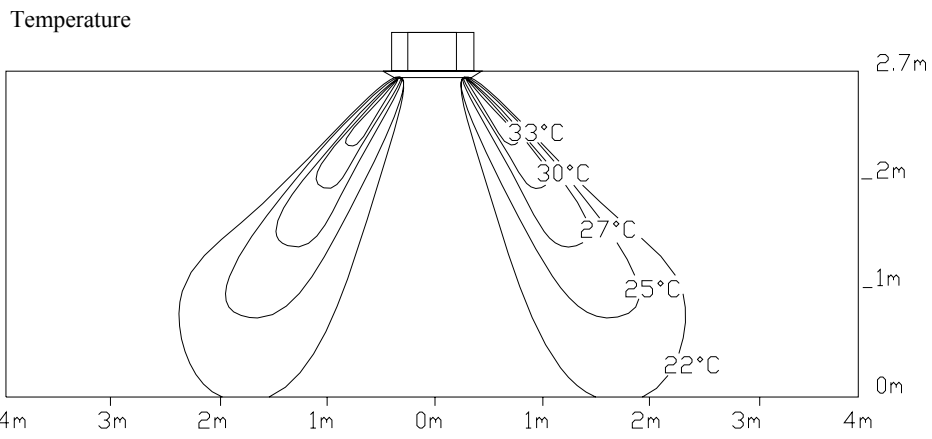
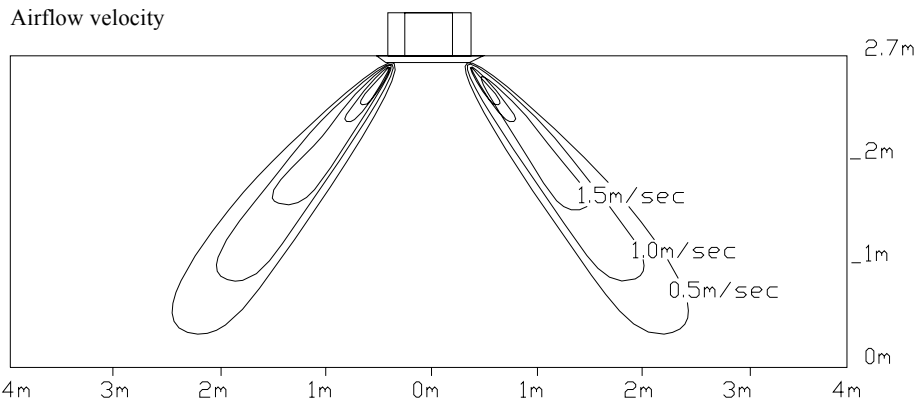
**FSK-364HF FSK-484HF**





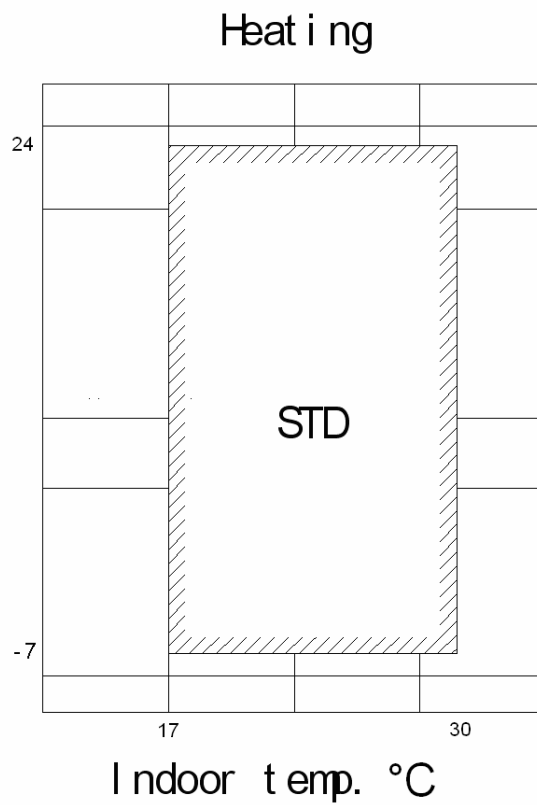
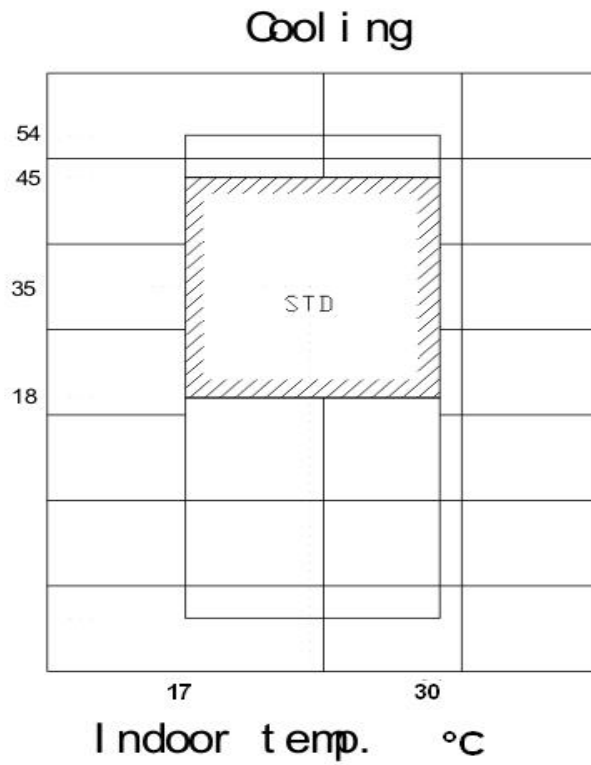
# Part 4 Velocity & temperature distribution

Discharge angle 60°



## Part 5 Operation Range

Ensure the operating temperature is in allowable range.



## Part 6 Capacity Table

### Model: FSK-124HF

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	3.48	3.33	3.21	3.02	2.90	2.81	2.72
	Sensitive capacity kW	2.78	2.66	2.56	2.42	2.32	2.25	2.18
	Input kW.	0.91	1.04	1.17	1.31	1.44	1.57	1.70
24°C D 17°C W	Total capacity kW	3.81	3.64	3.51	3.31	3.18	3.08	2.98
	Sensitive capacity kW	3.05	2.91	2.81	2.65	2.54	2.46	2.38
	Input kW.	0.96	1.10	1.24	1.38	1.52	1.65	1.79
27°C D 19°C W	Total capacity kW	4.14	3.96	3.82	<b>3.60</b>	3.46	3.35	3.24
	Sensitive capacity kW	3.31	3.17	3.05	2.88	2.76	2.68	2.59
	Input kW.	1.02	1.16	1.31	<b>1.45</b>	1.60	1.74	1.89
32°C D 23°C W	Total capacity kW	4.76	4.55	4.39	4.14	3.97	3.85	3.73
	Sensitive capacity kW	3.81	3.64	3.51	3.31	3.18	3.08	2.98
	Input kW.	1.17	1.33	1.50	1.67	1.83	2.00	2.17

### Model: FSK-124HF

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	5.16	4.13	3.44	3.10	2.92	2.61	2.41	2.24
	Input kW.	1.62	1.30	1.08	1.03	0.97	0.92	0.86	0.76
18°C	Capacity kW	5.81	4.64	3.87	3.48	3.29	2.90	2.71	2.52
	Input kW.	1.82	1.46	1.22	1.15	1.09	1.03	0.97	0.85
20°C	Capacity kW	6.45	5.16	<b>4.30</b>	3.87	3.66	3.23	3.01	2.80
	Input kW.	2.03	1.62	<b>1.35</b>	1.28	1.22	1.15	1.08	0.95
22°C	Capacity kW	7.10	5.68	4.73	4.26	4.02	3.55	3.31	3.07
	Input kW.	2.23	1.78	1.49	1.41	1.34	1.26	1.19	1.04
27°C	Capacity kW	8.39	6.71	5.59	5.03	4.75	4.19	3.91	3.63
	Input kW.	2.63	2.11	1.76	1.67	1.58	1.49	1.40	1.23

**Model: FSK-184HF**

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	4.83	4.62	4.45	4.20	4.03	3.91	3.78
	Sensitive capacity kW	3.86	3.70	3.56	3.36	3.23	3.12	3.02
	Input kW.	1.29	1.48	1.66	1.85	2.03	2.21	2.40
24°C D 17°C W	Total capacity kW	5.29	5.06	4.88	4.60	4.42	4.28	4.14
	Sensitive capacity kW	4.23	4.05	3.90	3.68	3.53	3.42	3.31
	Input kW.	1.36	1.56	1.75	1.95	2.14	2.34	2.53
27°C D 19°C W	Total capacity kW	5.75	5.50	5.30	<b>5.00</b>	4.80	4.65	4.50
	Sensitive capacity kW	4.60	4.40	4.24	4.00	3.84	3.72	3.60
	Input kW.	1.44	1.64	1.85	<b>2.05</b>	2.26	2.46	2.67
32°C D 23°C W	Total capacity kW	6.61	6.33	6.10	5.75	5.52	5.35	5.18
	Sensitive capacity kW	5.29	5.06	4.88	4.60	4.42	4.28	4.14
	Input kW.	1.65	1.89	2.12	2.36	2.59	2.83	3.06

**Model: FSK-184HF**

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D	-15°C D
		18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W	-16°C W
15°C	Capacity kW	7.20	5.76	4.80	4.32	4.08	3.65	3.36	3.12
	Input kW.	2.58	2.06	1.72	1.63	1.55	1.46	1.38	1.20
18°C	Capacity kW	8.10	6.48	5.40	4.86	4.59	4.05	3.78	3.51
	Input kW.	2.90	2.32	1.94	1.84	1.74	1.64	1.55	1.35
20°C	Capacity kW	9.00	7.20	<b>6.00</b>	5.40	5.10	4.50	4.20	3.90
	Input kW.	3.23	2.58	<b>2.15</b>	2.04	1.94	1.83	1.72	1.51
22°C	Capacity kW	9.90	7.92	6.60	5.94	5.61	4.95	4.62	4.29
	Input kW.	3.55	2.84	2.37	2.25	2.13	2.01	1.89	1.66
27°C	Capacity kW	11.70	9.36	7.80	7.02	6.63	5.85	5.46	5.07
	Input kW.	4.19	3.35	2.80	2.66	2.52	2.38	2.24	1.96

**Model: FSK-244HF**

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
		21°C D 15°C W	Total capacity kW	6.86	6.56	6.32	5.96	5.73
Sensitive capacity kW	5.49		5.25	5.06	4.77	4.58	4.44	4.29
Input kW.	1.95		2.23	2.51	2.79	3.07	3.35	3.63
24°C D 17°C W	Total capacity kW	7.51	7.19	6.92	6.53	6.27	6.07	5.88
	Sensitive capacity kW	6.01	5.75	5.54	5.23	5.02	4.86	4.70
	Input kW.	2.06	2.36	2.65	2.95	3.24	3.53	3.83
27°C D 19°C W	Total capacity kW	8.17	7.81	7.53	<b>7.10</b>	6.82	6.60	6.39
	Sensitive capacity kW	6.53	6.25	6.02	5.68	5.45	5.28	5.11
	Input kW.	2.17	2.48	2.79	<b>3.10</b>	3.41	3.72	4.03
32°C D 23°C W	Total capacity kW	9.39	8.98	8.65	8.17	7.84	7.59	7.35
	Sensitive capacity kW	7.51	7.19	6.92	6.53	6.27	6.07	5.88
	Input kW.	2.50	2.85	3.21	3.57	3.92	4.28	4.63

**Model: FSK-244HF**

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
		15°C	Capacity kW	9.84	7.87	6.56	5.90	5.58	1.94
Input kW.	3.54		2.83	2.36	2.24	2.12	2.01	1.89	1.65
18°C	Capacity kW	11.07	8.86	7.38	6.64	6.27	2.16	5.17	4.80
	Input kW.	3.98	3.19	2.66	2.52	2.39	2.26	2.12	1.86
20°C	Capacity kW	12.30	9.84	<b>8.20</b>	7.38	6.97	6.15	5.74	5.33
	Input kW.	4.43	3.54	<b>2.95</b>	2.80	2.66	2.51	2.36	2.07
22°C	Capacity kW	13.53	10.82	9.02	8.12	7.67	6.77	6.31	5.86
	Input kW.	4.87	3.89	3.25	3.08	2.92	2.76	2.60	2.27
27°C	Capacity kW	15.99	12.79	10.66	9.59	9.06	8.00	7.46	6.93
	Input kW.	5.75	4.60	3.84	3.64	3.45	3.26	3.07	2.68

**Model: FSK-364HF**

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	10.34	9.89	9.53	8.99	8.63	8.36	8.09
	Sensitive capacity kW	8.27	7.91	7.62	7.19	6.90	6.69	6.47
	Input kW.	2.90	3.31	3.73	4.14	4.55	4.97	5.38
24°C D 17°C W	Total capacity kW	11.32	10.83	10.43	9.84	9.45	9.15	8.86
	Sensitive capacity kW	9.06	8.66	8.35	7.88	7.56	7.32	7.09
	Input kW.	3.06	3.50	3.93	4.37	4.81	5.24	5.68
27°C D 19°C W	Total capacity kW	12.31	11.77	11.34	<b>10.70</b>	10.27	9.95	9.63
	Sensitive capacity kW	9.84	9.42	9.07	8.56	8.22	7.96	7.70
	Input kW.	3.22	3.68	4.14	<b>4.60</b>	5.06	5.52	5.98
32°C D 23°C W	Total capacity kW	14.15	13.54	13.04	12.31	11.81	11.44	11.07
	Sensitive capacity kW	11.32	10.83	10.43	9.84	9.45	9.15	8.86
	Input kW.	3.70	4.23	4.76	5.29	5.82	6.35	6.88

**Model: FSK-364HF**

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D	-15°C D
		18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W	-16°C W
15°C	Capacity kW	14.04	11.23	9.36	8.42	7.96	7.11	6.55	6.08
	Input kW.	5.76	4.61	3.84	3.65	3.46	3.26	3.07	2.69
18°C	Capacity kW	15.80	12.64	10.53	9.48	8.95	7.90	7.37	6.84
	Input kW.	6.48	5.18	4.32	4.10	3.89	3.67	3.46	3.02
20°C	Capacity kW	17.55	14.04	<b>11.70</b>	10.53	9.95	8.78	8.19	7.61
	Input kW.	7.20	5.76	<b>4.80</b>	4.56	4.32	4.08	3.84	3.36
22°C	Capacity kW	19.31	15.44	12.87	11.58	10.94	9.65	9.01	8.37
	Input kW.	7.92	6.34	5.28	5.02	4.75	4.49	4.22	3.70
27°C	Capacity kW	22.82	18.25	15.21	13.69	12.93	11.41	10.65	9.89
	Input kW.	9.36	7.49	6.24	5.93	5.62	5.30	4.99	4.37

**Model: FSK-484HF**

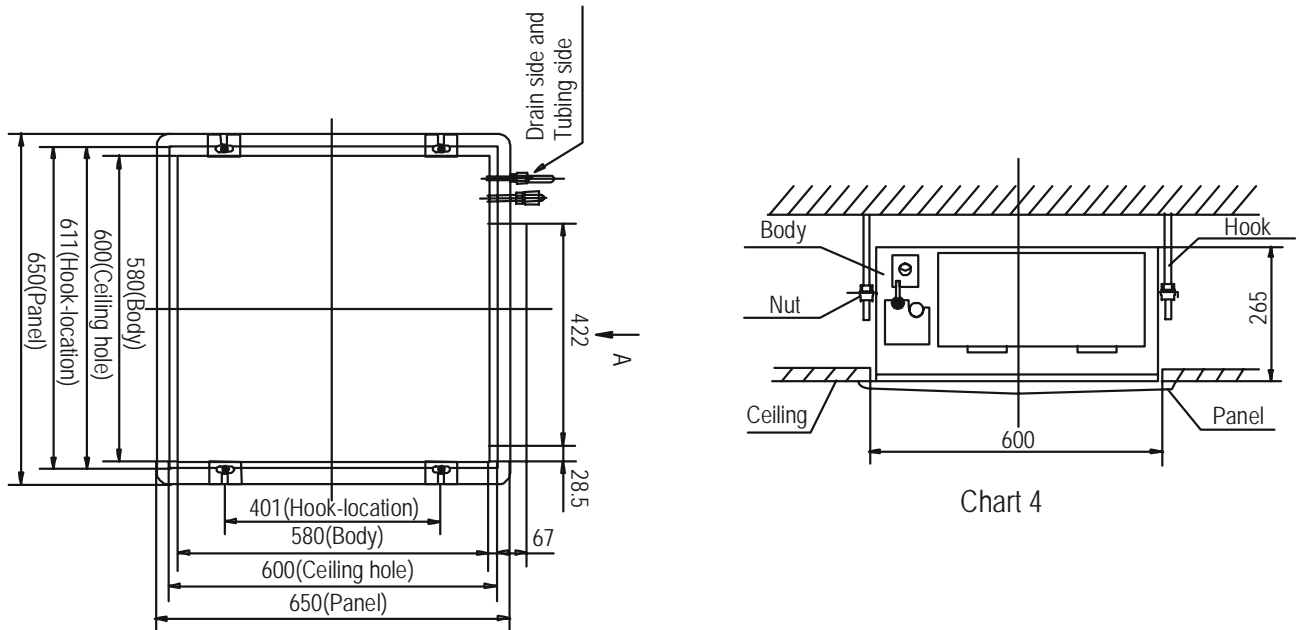
COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	13.62	13.03	12.55	11.84	11.37	11.01	10.66
	Sensitive capacity kW	10.90	10.42	10.04	9.48	9.10	8.81	8.53
	Input kW.	3.59	4.10	4.62	5.13	5.64	6.16	6.67
24°C D 17°C W	Total capacity kW	14.92	14.27	13.75	12.97	12.45	12.06	11.67
	Sensitive capacity kW	11.93	11.42	11.00	10.38	9.96	9.65	9.34
	Input kW.	3.79	4.33	4.87	5.42	5.96	6.50	7.04
27°C D 19°C W	Total capacity kW	16.22	15.51	14.95	<b>14.10</b>	13.54	13.11	12.69
	Sensitive capacity kW	12.97	12.41	11.96	11.28	10.83	10.49	10.15
	Input kW.	3.99	4.56	5.13	<b>5.70</b>	6.27	6.84	7.41
32°C D 23°C W	Total capacity kW	18.65	17.84	17.19	16.22	15.57	15.08	14.59
	Sensitive capacity kW	14.92	14.27	13.75	12.97	12.45	12.06	11.67
	Input kW.	4.59	5.24	5.90	6.56	7.21	7.87	8.52

**Model: FSK-484HF**

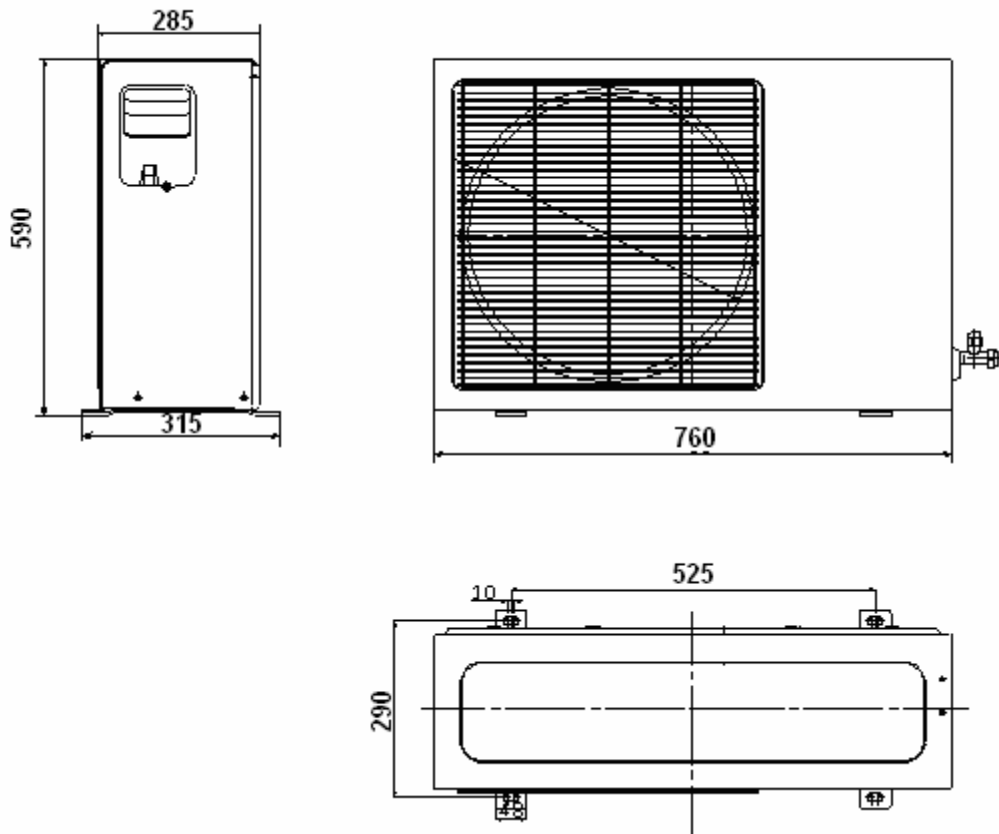
HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D	-15°C D
		18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W	-16°C W
15°C	Capacity kW	18.72	14.98	12.48	11.23	10.61	9.48	8.74	8.11
	Input kW.	7.20	5.76	4.80	4.56	4.32	4.08	3.84	3.36
18°C	Capacity kW	21.06	16.85	14.04	12.64	11.93	10.53	9.83	9.13
	Input kW.	8.10	6.48	5.40	5.13	4.86	4.59	4.32	3.78
20°C	Capacity kW	23.40	18.72	<b>15.60</b>	14.04	13.26	11.70	10.92	10.14
	Input kW.	9.00	7.20	<b>6.00</b>	5.70	5.40	5.10	4.80	4.20
22°C	Capacity kW	25.74	20.59	17.16	15.44	14.59	12.87	12.01	11.15
	Input kW.	9.90	7.92	6.60	6.27	5.94	5.61	5.28	4.62
27°C	Capacity kW	30.42	24.34	20.28	18.25	17.24	15.21	14.20	13.18
	Input kW.	11.70	9.36	7.80	7.41	7.02	6.63	6.24	5.46

## Part 7 Outlines and Dimension

### 1 Indoor unit FSK-124HF FSK-184HF

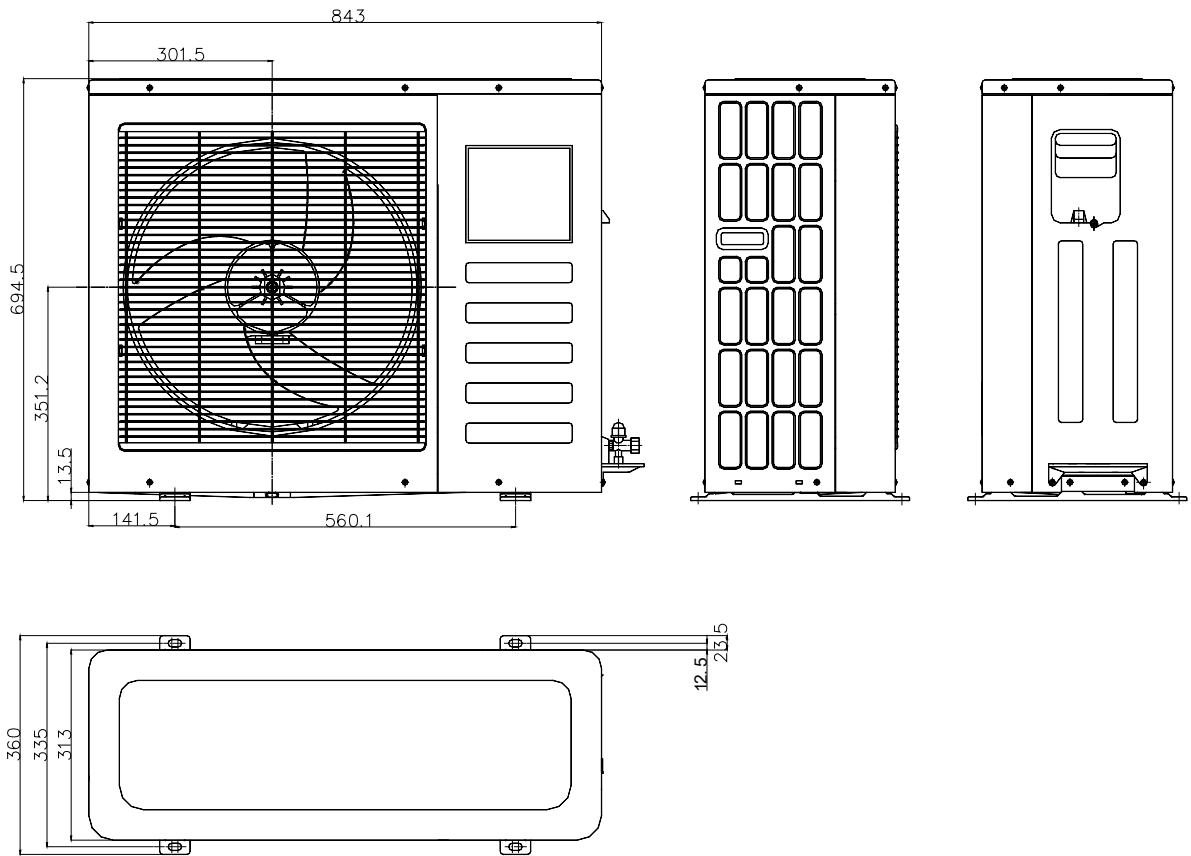


### 2 Outdoor unit FSO-124HF

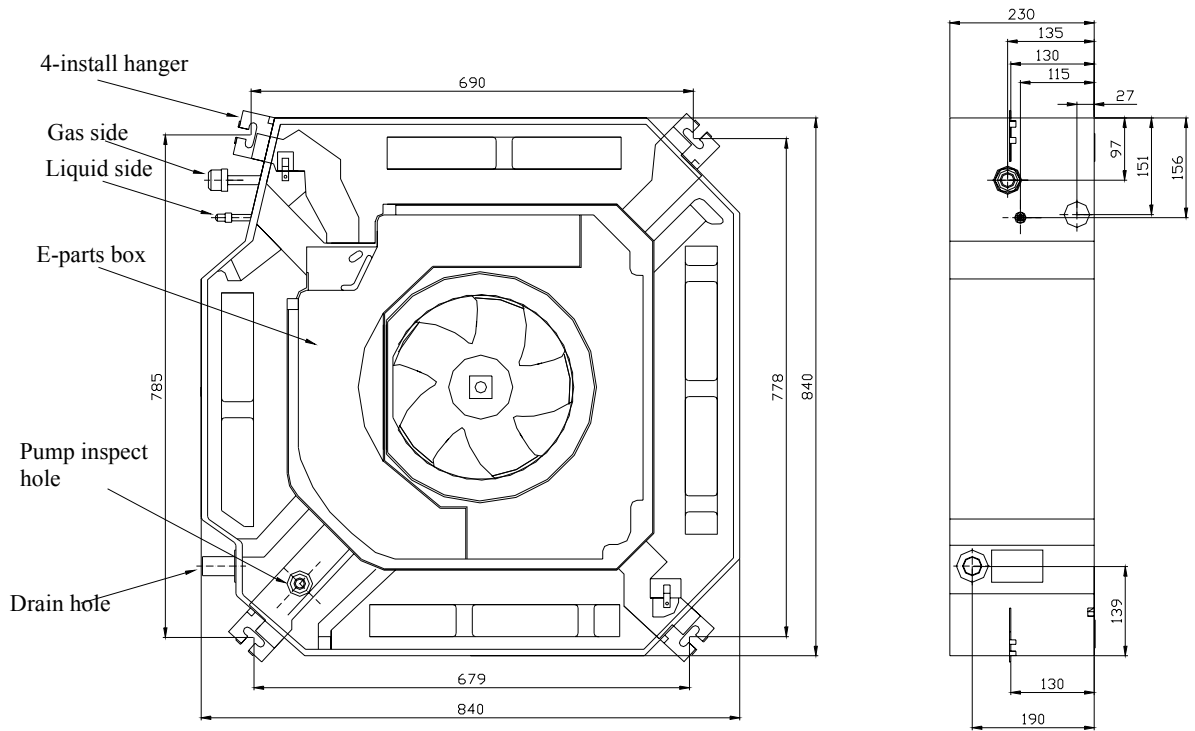




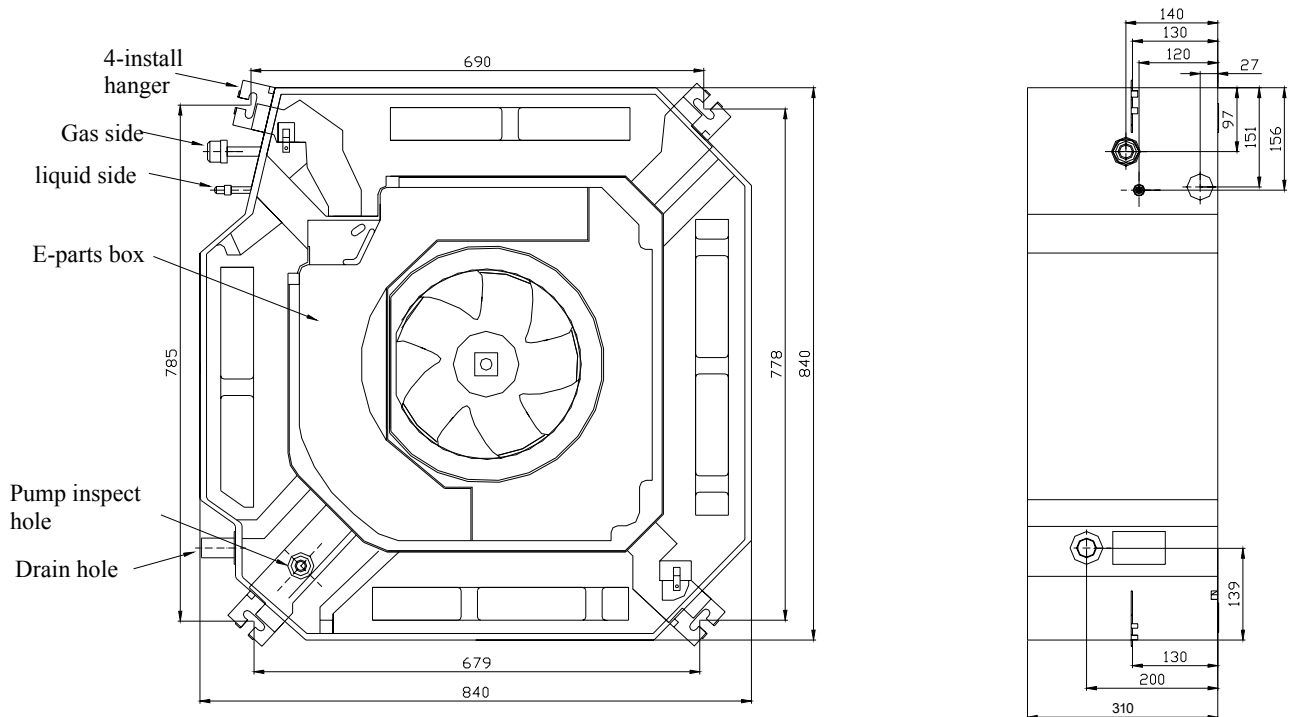
### 3 Outdoor unit FSO-184HF



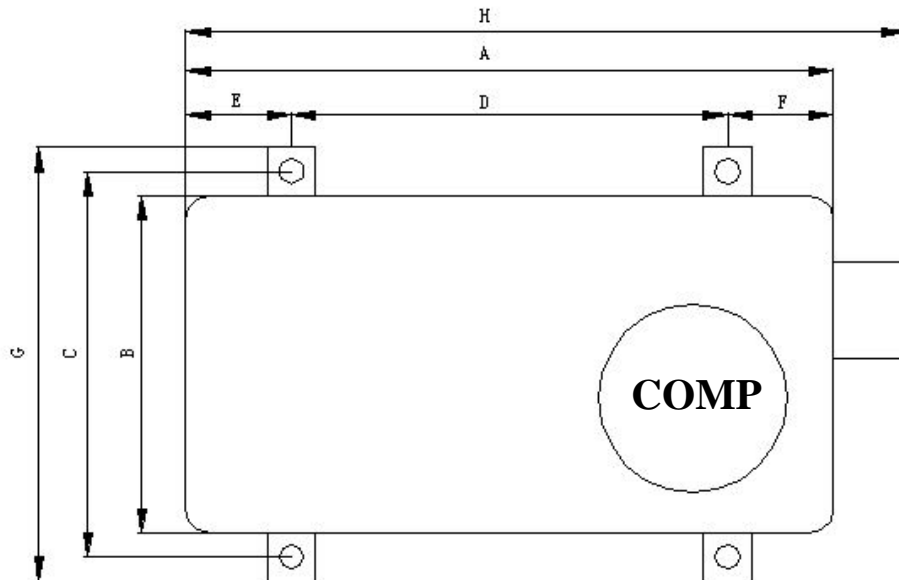
### 4 Indoor unit FSK-244HF



**5 Indoor unit FSK-364HF FSK-484HF**

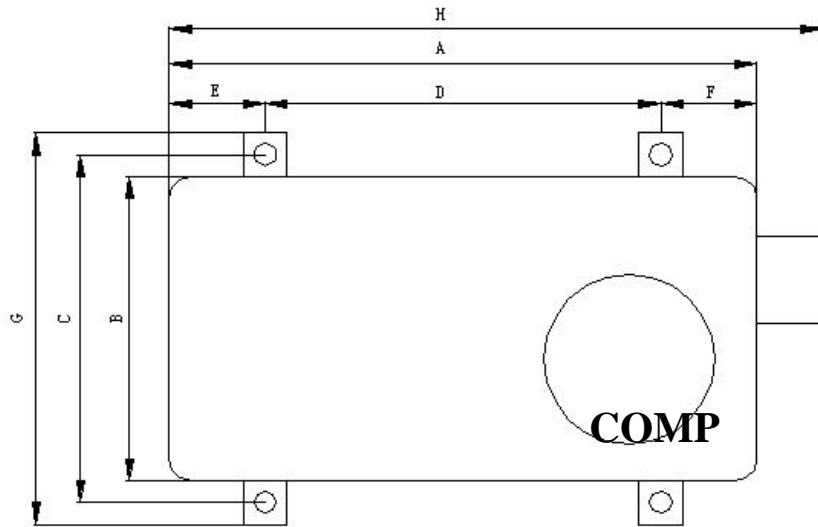


**6 Outdoor unit FSO-244HF**



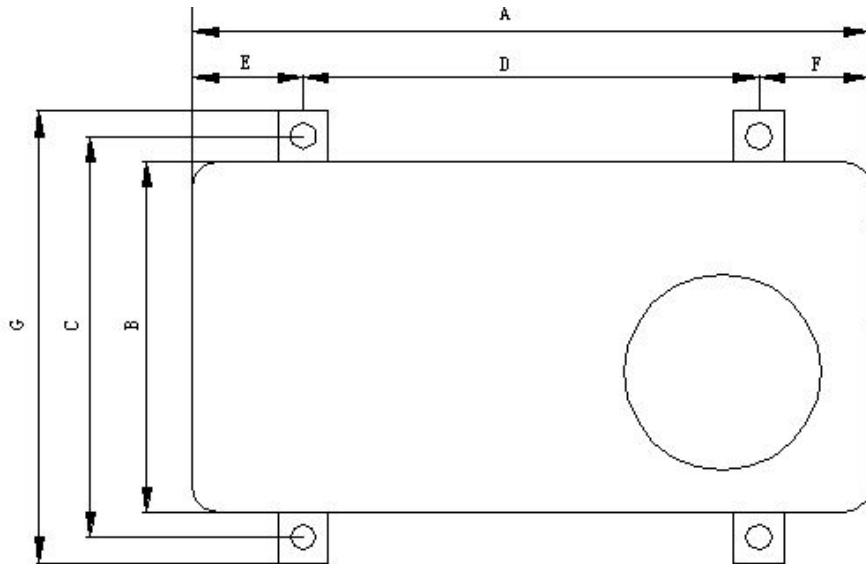
A (BODY DIMENSION)	B (BODY DIMENSION)	C (INSTALL BOLTS)	D (INSTALL BOLTS)	E (INSTALL BOLTS)	F (INSTALL BOLTS)	G (BASE FOOT)	H (WATER RECEIVER)
895	300	330	590	163	141	355	1013

7 Outdoor unit FSO-364HF



A (BODY DIMENSION)	B (BODY DIMENSION)	C (INSTALL BOLTS)	D (INSTALL BOLTS)	E (INSTALL BOLTS)	F (INSTALL BOLTS)	G (BASE FOOT)	H (WATER RECEIVER)
990	340	360	625	182,5	182,5	396	1070

8 Outdoor unit FSO-484HF



A (BODY DIMENSION)	B (BODY DIMENSION)	C (INSTALL BOLTS)	D (INSTALL BOLTS)	E (INSTALL BOLTS)	F (INSTALL BOLTS)	G (BASE FOOT)
940.0	340	378	600	170	170	400

## Part 8. Electric Control Functions

### 1. Performance Index

No.	Item	Index
1	Applicable Voltage Range	165-253V~, 343-418V~
2	A/C Frequency	50Hz
3	Working environment temperature	-7°C- +45°C

### 2. Main Parts Introduction

#### 2.1 Indoor Fan

High speed and low speed.  
Breeze speed for anti-cold air.

#### 2.2 Outdoor Fan

High speed and low speed.  
Remark : some model just have one speed.

#### 2.3 Buzzer

- 2.3.1 It will buzz when its driving port in the main chip outputs high level.
- 2.3.2 It will buzz once when the main frame receives remote start-up signal.
- 2.3.3 It will buzz once for 1 second when receiving turn-off signal.
- 2.3.4 It will buzz for 0.5 second once receiving other signal.

#### 2.4 Indicator

- 2.4.1 There are 4 indicators: operating indicator, timer indicator, water level warning indicator, defrosting indicator and pre-heating indicator (wind-delivery indicator for cooling-only A/C).
- 2.4.2 LED indicates errors when protection is in effective.

#### 2.5 Four-way Valve

It is controlled by relays.

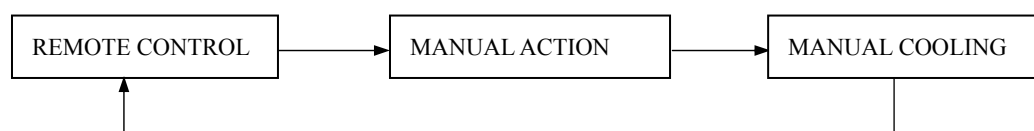
#### 2.6 Condensate Pump

It is controlled by relays.

### 3. Operation Modes and Functions

#### 3.1 Manual Operation

- 3.1.1 The manual operation mode is controlled through “manual” pad in the wind in-take grid, including such two modes as manual action and manual cooling. Push the manual pad for each switchover, the order for which is shown below:



##### 3.1.2 Manual Cooling

- 3.1.2.1 Under this mode, no remote control signal will be received.
- 3.1.2.2 The compressor is started up unconditionally and the rotating speed of indoor and outdoor fans is set to be in high and forced cooling operation.
- 3.1.2.3 Under this mode, the buzzer will buzz twice with each lasting 0.5 second at 0.5 interval. During the first

30 minutes of unconditional forced cooling operation, the operation indicator will blink at 0.5Hz. In the process of switchover to manual action mode, the buzzer buzzes for 0.5 second and the indicator is illuminated.

3.1.2.4 Under this mode, the corresponding protections are in effective (3- minute delayed start-up, over current, outdoor protection and evaporator low temperature protection.). Corresponding protection will act once any protection is in active.

Push “manual” pad once to end this mode and enter the remote control pending status. The buzzer will buzz for 1 second and the indicator turn off.

### 3.1.3 Manual Action

3.1.3.1 Under this mode, the remote signal will be received and corresponding actions will be taken accordingly upon the receipt of the remote signal.

3.1.3.2 On entering this mode, the buzzer will buzz for 0.5 second and the indicator on.

3.1.3.3 The system will operate under the auto mode whose temperature is set to be 24°C and at the same time, the wind grille will swing automatically.

3.1.3.4 Under this mode, corresponding protections are in effective.

3.1.3.5 Push “ manual” pad to end this mode and switch over to manual cooling mode.

## 3.2 Heating Mode

3.2.1 Four-way valve opens at once, while defrosting process closes.

3.2.2 Condition for the compressor action: (Ts = set temperature, Ta = room temperature)

	Condition	Compressor	Outdoor fan
Room temp. up	Ta > Ts+4	Off	Off
	Ta < Ts+4	On	On
Room temp. down	Ta < Ts+3	On	On
	Ta > Ts+3	Off	Off

### 3.2.3 Indoor Fan Action

3.2.3.1 Anytime remote switchover for fan speed among high/low/auto, (anti-cold air function takes priority).

3.2.3.2 Anti-cold air:

Switchover between fan speed and fine tune can be set according to temperature of evaporator pipe .

	Condition T= Indoor exchanger temp.	Indoor fan speed
Indoor exchanger temp. up	T < 25°C	Off
	25°C < T < 32°C	Breeze
	T > 32°C	Setting fan speed
Indoor exchanger temp. down	T > 30°C	Setting fan speed
	15°C < T < 30°C	Breeze
	T < 15°C	Off

During anti-cold air period, if indoor fan is shut down, then pre-heating/defrosting lamp is on. Once indoor fan starts, pre-heating/defrosting lamp will be off.

3.2.3.3 Auto fan of indoor fan under heating mode.

	Condition (T =Indoor Temp.-Setting Temp.)	Indoor fan speed
Room temp. up	T < 3°C	High
	T > 3°C	Low
Room temp. down	T > 1°C	Low
	T < 1°C	High

### 3.3 Defrost

3.3.1 The defrosting of **FSK-124-184-244HF** is processed by indoor control board.

#### 3.3.1.1 Defrosting Conditions

##### 3.3.1.1.1 Low temperature defrosting condition:

Accumulated operating time when temperature of outdoor heat exchanger coil T3 is below  $-2^{\circ}\text{C}$  reaches up to over 40 minutes.

##### 3.3.1.1.2 High temperature defrosting condition:

Under high temperature protection of evaporator, the time when outdoor fan is shut down but compressor is not has been accumulated for up to 90 minutes. It is considered that defrosting is performed when either 3.3.1.1 or 3.3.1.2 is met.

#### 3.3.1.2 Defrosting Action

Four-way valve and outdoor fan are shut down. Indoor fan operates according to anti-cold air function. Compressor keeps on continuously.

#### 3.3.1.3 Ending Of Defrosting Condition

It is considered that defrosting condition is ended when any of the conditions is met:

##### 3.3.1.3.1 Operating current of compressor reaches 1.5Ie.

##### 3.3.1.3.2 Time of defrosting reaches 10 minutes.

##### 3.3.1.3.3 Temperature of outdoor coil T3 is up to $20^{\circ}\text{C}$ .

#### 3.3.1.4 Ending Action of Defrost

##### 3.3.1.4.1 Outdoor fan and four-way valve are open.

##### 3.3.1.4.2 Compressor keeps on continuously.

##### 3.3.1.4.3 Indoor fan acts according to anti-cold air function.

##### 3.3.1.4.4 Defrosting/pre-heating lamp continues to be on until indoor fan starts up.

3.3.2 The defrosting of **FSK-364-484HF** is processed by outdoor control board.

#### 3.3.2.1 Defrosting Conditions(any of the following conditions is meet)

3.3.2.1.1 Under indoor pipe high temperature protection in heating mode, accumulated operating time is up to 90 minutes.(if outdoor fan is off and compressor are cut down, time again.)

3.3.2.1.2 When  $T4 \geq -8^{\circ}\text{C}$ , 1min, process the normal defrost mode: compressor operates continue 40 minute, the accumulated time up to 40 minutes when pipe temperature sensor  $T3 \leq -2^{\circ}\text{C}$  (if compressor is off, time again); when defrosting ends, check T4 again.

#### 3.3.2.2 Defrosting Action

When defrosting, the outdoor four-way valve is power off, defrosting valve is power on, outdoor fan is off, compressor operate continue, indoor fan operates according to anti-cold air condition in heating mode. If indoor fan is to be off, cut down the electric auxiliary heater and after 15 seconds cut down indoor fan.

#### 3.3.2.3 Ending Action of Defrost(any of the following conditions is met)

##### 3.3.2.3.1 Time of defrosting reaches 10 minutes.

##### 3.3.2.3.2 Temperature of outdoor coil T3 is up to $20^{\circ}\text{C}$

#### 3.3.2.4 Ending Action of Defrost

Operate in normal heating mode. After defrost stops, indoor fan starts to operate according to anti-cold air condition.

### 3.4 Cooling Mode

3.4.1 Four-way valve is closed. If four-way valve is open before the machine enters cooling mode, then four-way valve will be closed at the first time the compressor starts under the cooling mode.

3.4.2 Conditions for the compressor and outdoor fan action (Ts = set temperature, Ta=room temperature)

	Condition	Compressor	Outdoor fan
Room temp. up	Ta > Ts+1	On	On
	Ta < Ts+1	Off	Off
Room temp. down	Ta > Ts	On	On
	Ta < Ts	Off	Off

3.4.3 Action of Indoor Fan

3.4.3.1 HIGH/LOW/AUTO fan can be switched over for your comfort.

3.4.3.2 Auto fan under cooling mode.

	Condition (T=Indoor Temp.-Setting Temp.)	Indoor fan speed
Temp. up	T<4°C	Low
	T>4°C	High
Temp. down	T> 1°C	High
	T<1°C	Low

### 3.5 Dehumidifying Mode

3.5.1 Dehumidifying mode is the cooling operation, under which the indoor fan is high and outdoor fan is low.

3.5.2 Protective condition is activated.

### 3.6 Auto Mode

3.6.1 Under auto mode, the indoor fan is set to be auto (refer to auto fan under cooling, heating).

3.6.2 When entering auto mode, the heating, fan only or cooling operation will be automatically chosen according to the room temperature Ta and the set temperature Ts.

3.6.2.1 When Ta < Ts - 1°C, it performs the heating operation with a set temperature of Ts - 1°C (refer to the heating mode). However the cool only model will be in low fan.

3.6.2.2 When Ts + 2°C ≥ Ta ≥ Ts - 1°C, control according to cooling auto fan with a set temperature of 23°C.

3.6.2.3 When Ta > Ts + 2°C, it performs the cooling operation with a set temperature of Ts (refer to the cooling mode).

3.6.3 After one mode is chosen, if the condition Ta > Ts+1°C or Ta < Ts - 1°C lasts for 15 minutes, meanwhile the compressor doesn't start up within consecutive 15 minutes, the operation mode will be re-chosen according to the Ta and Ts.

3.6.4 Protective condition is activated.

### 3.7 Fan Only Mode

3.7.1 Under this mode, four-way valve, compressor and outdoor fan are shut down.

3.7.2 High/Low/Auto fan can be switched over through manual control. Auto fan will be controlled in line with cooling auto fan with temperature set to be 23°C.

3.7.3 After entering fan mode, the operating indicator is on. If the model is cooling only mode, fan indicator is on at the same time.

## 4. Other Functions

### 4.1 LED Display

Operation lamp, timer lamp, defrosting/pre-heating lamp, and water level alarm lamp.

#### 4.1.1 Operation Lamp

When the operation is recovering, it will blink at 1 Hz.

After the unit is on, the lamp will keep on.

After the unit is off, the lamp will be off.

When the unit is switched over from manual cooling to remote control, the lamp will be off.

#### 4.1.2 Timer Lamp

During timer operation, it will be on.

#### 4.1.3 Defrosting/Pre-Heating Lamp

When heat pump model performs defrosting or anti-cold air, it will be on.

#### 4.1.4 Water Level Alarm Lamp

When water level is above the alarm level, it will blink at 5Hz.

### 4.2 Timer

Refer to remote controller manual for detail operation.

Note: The timer is valid for one operation of the A/C.

### 4.3 Louver Action

Closed angle at energized	Heating	Cooling or dehumidifying	Swing range
55°	30°	30°	0-30°

The swing angle is between 15° and -15° with 15° being its center.

### 4.4 Condensate Pump

4.4.1 The action of the water pump is controlled by water level switch.

4.4.2 Control procedures (check water level every 5 seconds)

4.4.2.1 When entering cooling mode, dehumidifying mode or forced cooling mode, condenser starts at once and operates continue until the above modes stop.

4.4.2.2 Under stand-by, heating or fan mode, if the water level in water receiver rises to the position of the water switch, the controller will make LED flashing to give warning signal, and at the same time forces compressor to stop and the drain pump start. The water level will be checked continuously. If the water level falls to warning water level, the warning signal will disappear (the drain pump delay 1 minute to be off), compressor starts again (3 minutes protection takes priority), and operation recovers according to former setting mode. On the other wise, after 3 minutes, the whole unit stops (including drain pump) and warning signal can't disappear. It can't recover unless out of power.



## 5. Trouble Shooting

### 5.1 Protective Function

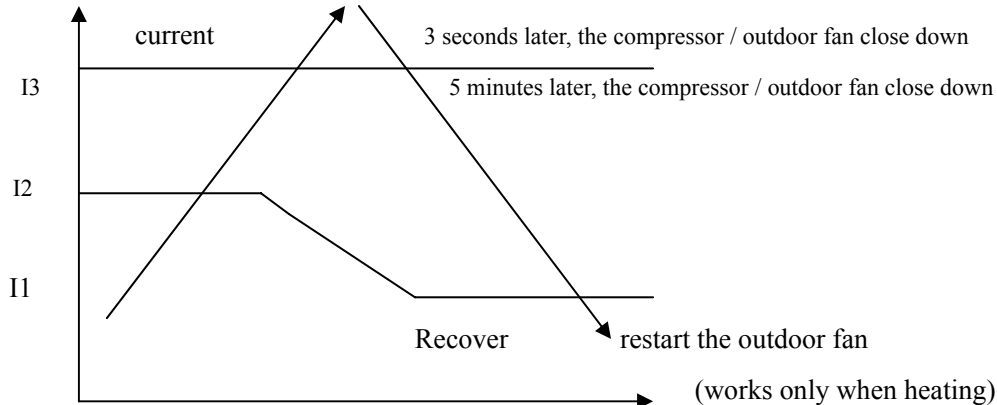
#### 5.1.1 3-minute delay for the compressor start-up.

At the beginning of energizing or after the stop of the compressor, 3-minute delay will be needed to start the compressor.

When switchover between cooling/heating mode, the compressor stops automatically.

#### 5.1.2 Compressor current overload protection

##### 5.1.2.1 <24000BTU compressor current examination and action



Remark :Ie: rating current; I<sub>1</sub>:1.3 time Ie; I<sub>2</sub>:1.5 time Ie; I<sub>3</sub>:2.0 time Ie.

- The compressor and outdoor fan closed for protection purpose will restart after 3 minutes.
- During the protection, the indoor fan continues working in a set speed, while the anti-cold air function when heating and the compressor will be 3 minutes delayed to shut down for protection.
- When there are 4 times compressor protection within one hour, the A/C will be shut down, meanwhile the operation light and timer light will be turned on, the defrosting light flashes in a frequency of 0.5Hz. This situation will be recovered only when power is switched off.

5.1.2.2 If the AC don't check the compressor current through electric control system, then use compressor self current protection.

5.1.2.2 36000BTU-600000BTU compressor current is checked by outdoor main board. The protection principle is as following:

In any case, after the compressor starts, if

- Only in heating mode, when current is higher than 1.5Ie, then outdoor fan will shut off. When compressor current is less than 1.3Ie, then restart outdoor fan and recover operation.
- when current is higher than 1.5Ie and time is up to 20seconds, compressor and outdoor fan will shut down. At the same time, cut down outdoor protection communication wiring, protection malfunction will be indicated by indoor unit and 3minutes later restart compressor.

#### 5.1.3 Evaporator protection against high temperature(heating mode)

Only available to heating mode, including heating mode, heating operation under auto mode.

※ Note: During protection, the indoor fan continues operating at a setting speed, while the anti-cold air function of heating and the compressor will be 3 minute delayed to shut down for protection.

#### 5.1.4 Evaporator Protection against low temperature(cooling mode)

5.1.4.1 When the evaporator pipe temperature  $\leq 3^{\circ}\text{C}$  and this lasts for 3 minutes, the compressor and outdoor fan will be shut off.

5.1.4.2 When the evaporator pipe temperature  $\geq 7^{\circ}\text{C}$ , it recovers.

5.1.4.3 The restart of the compressor shall execute the delay protection.

#### 5.1.5 Anti-cold air protection

Only available to heating mode, including heating mode, heating operation under auto mode.

#### 5.1.6 Condenser high temperature protection

5.1.6.1 Only available to cooling (incl. cooling mode, cooling operation under auto mode) and dehumidifying mode.

5.1.6.2 Delay protection should be performed when the compressor restarts.

#### 5.1.7 Water level protection

#### 5.1.8 Outdoor protection

When outdoor protection signal is high level, outdoor unit will perform protection: the whole machine will be shut down while the LED will indicate the corresponding protection signal.

The A/C will recover if outdoor errors are eliminated after the outdoor protection occurs.

Only FSK-244HF has outdoor protection function.

## 5.2 Self-diagnosis

### 5.2.1 Indoor unit

No.	Type	Contents	LED Flashing	Remark
1	protection	Over current protection of the compressor occurs 4 times in 1h	Lamps of operation, timer, defrosting (only fan ) flashing simultaneously at 5Hz.	Whole unit is shut down. It cannot recover unless power is cut off
2	protection	Outdoor protection (absent phrase, phrase sequence and temperature protection)	All lamps flashing at 5Hz	Recover automatically after errors are eliminated(For T3 malfunction can't recover automatically)
3	error	Room temperature sensor checking channel is abnormal	Timer lamp flashing at 5Hz	
4	error	Evaporator sensor checking channel is abnormal	Operation lamp flashing at 5Hz	
5	error	Condenser sensor checking channel is abnormal	Defrosting lamp flashing at 5Hz	
6	error	Temperature fuse is melt(reserved)	Operation lamp and timer lamp flashing at 5Hz	

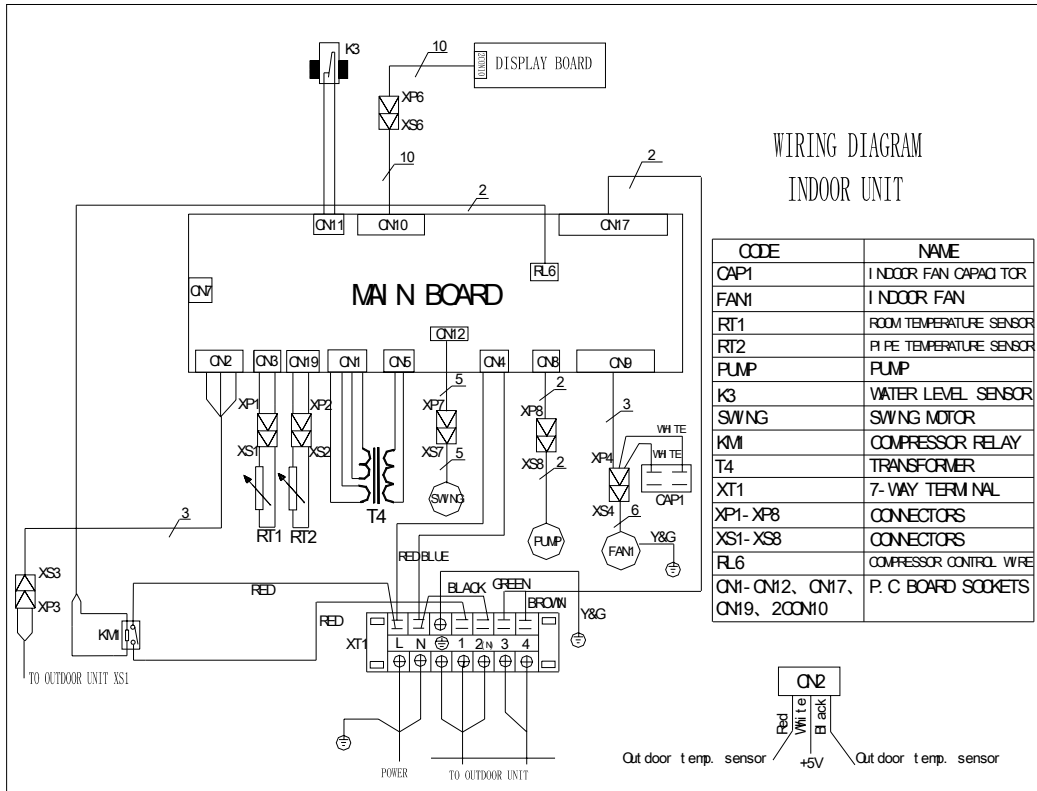
### 5.2.2 LEDs for the indication of outdoor trouble(3 phase type FSK-364HF FSK-484HF)

Type	Contents	LED1	LED2	LED3
Trouble	Phase sequence	Flash	Off	Off
Trouble	Lack of phase	Flash	Off	Off
Trouble	Protection of pressure	Flash	Flash	Off
Trouble	Overload of current	Off	Off	Flash
Trouble	Open-circuit and short-circuit trouble of T3	Off	Flash	Flash
Trouble	Open-circuit and short-circuit trouble of T4	Off	Flash	Off
Trouble	High temperature protection of condenser	Flash	Flash	Flash

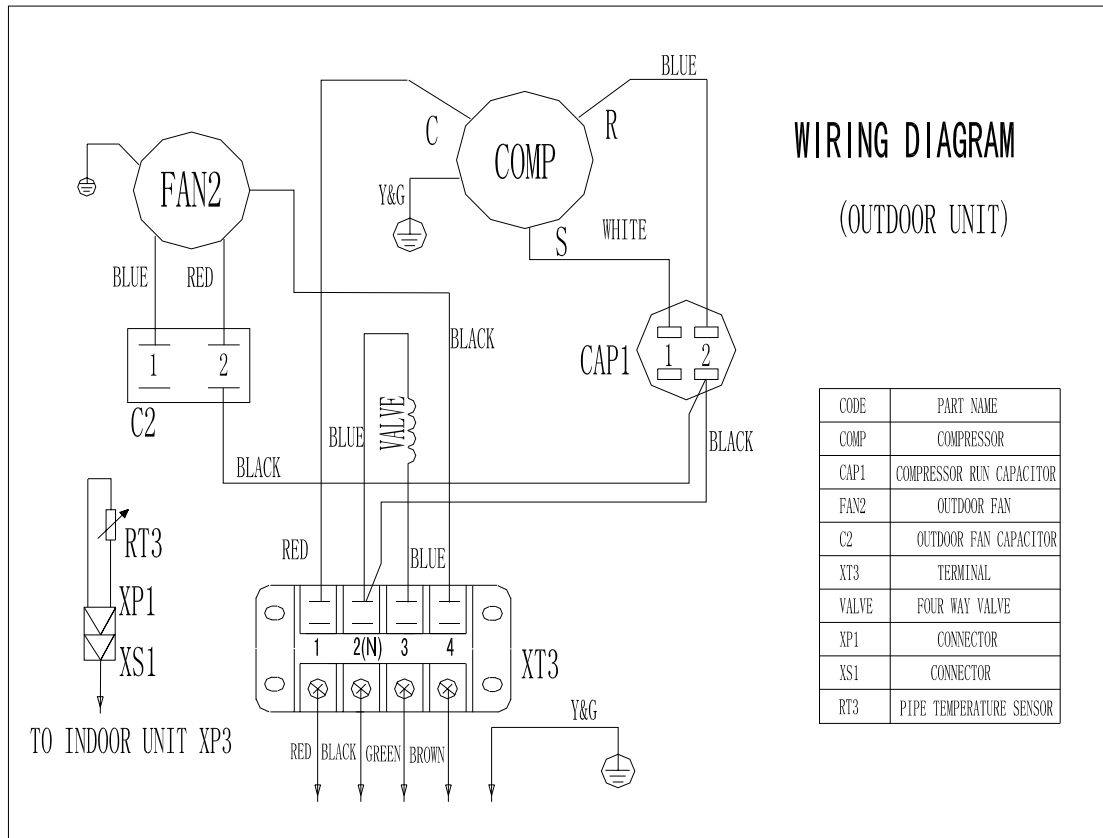
# Part 9. Wiring Diagram

FSK-124HF FSK-184HF

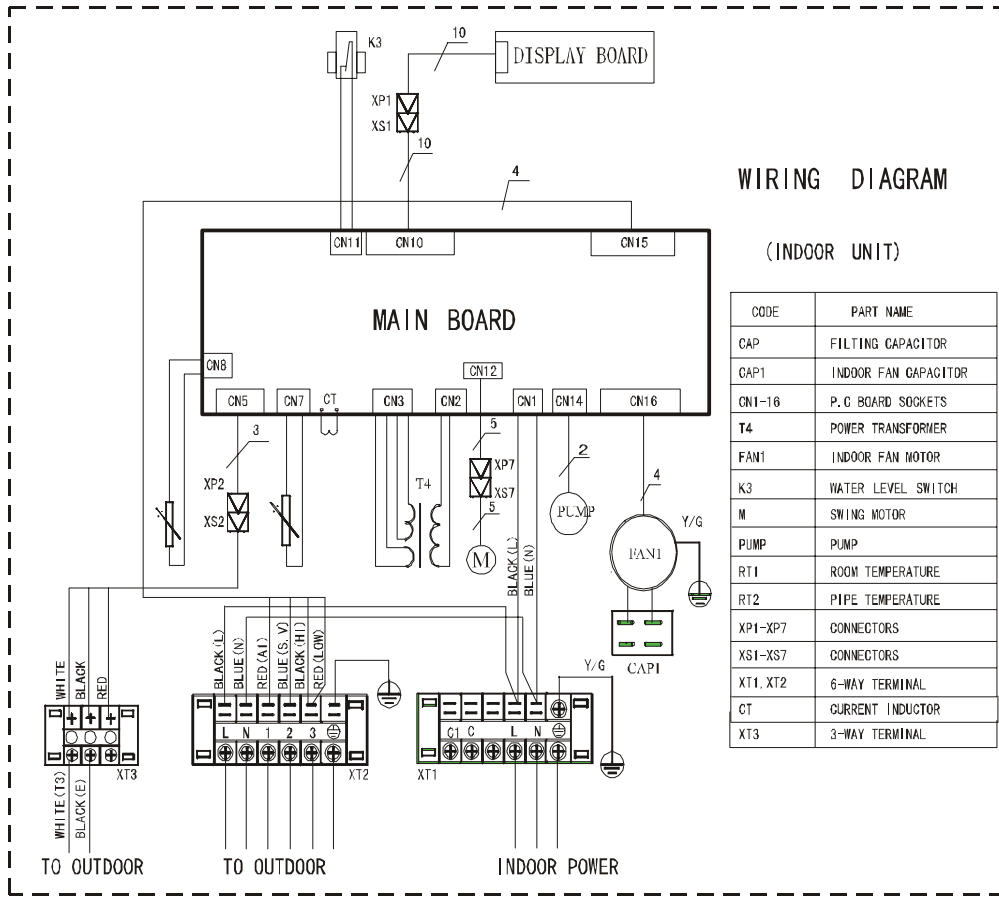
Indoor Unit:



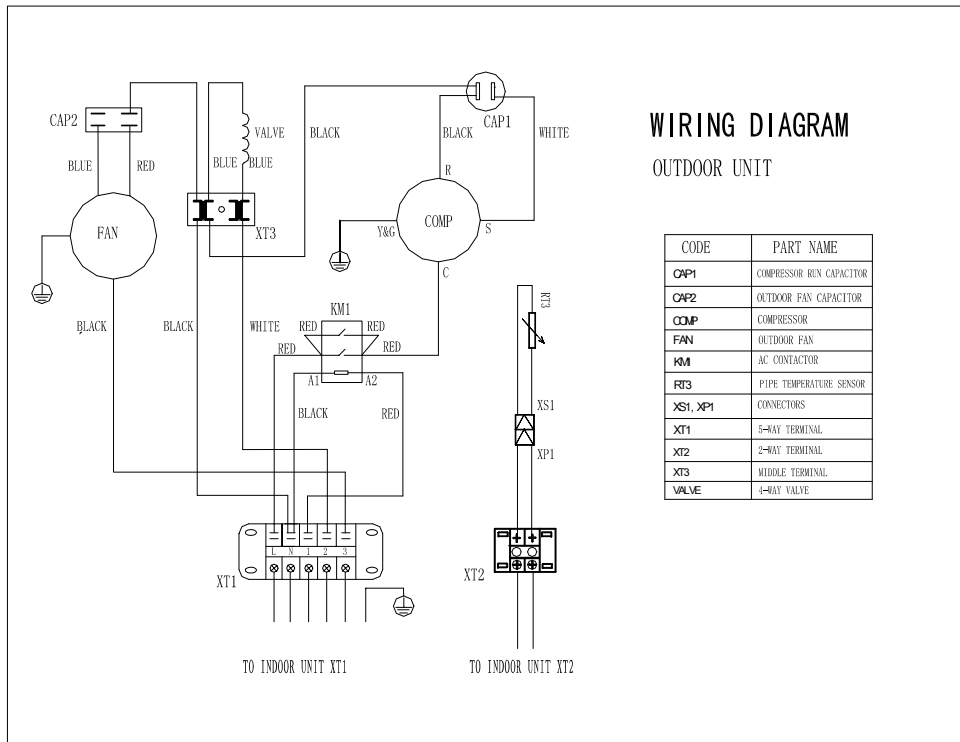
Outdoor Unit:



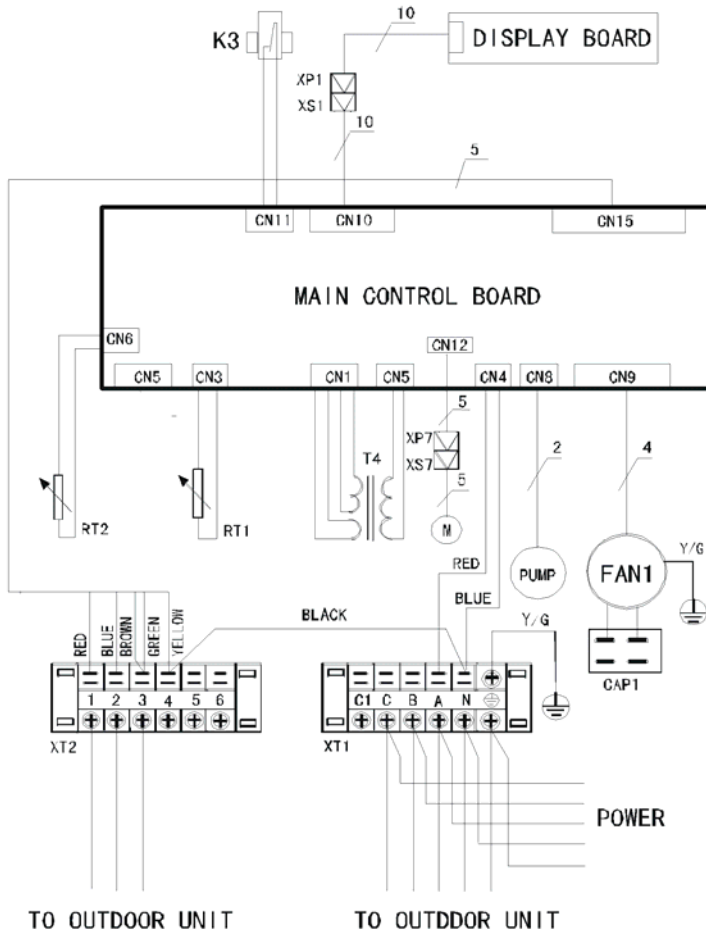
**FSK-244HF**  
**Indoor Unit:**



**Outdoor Unit:**



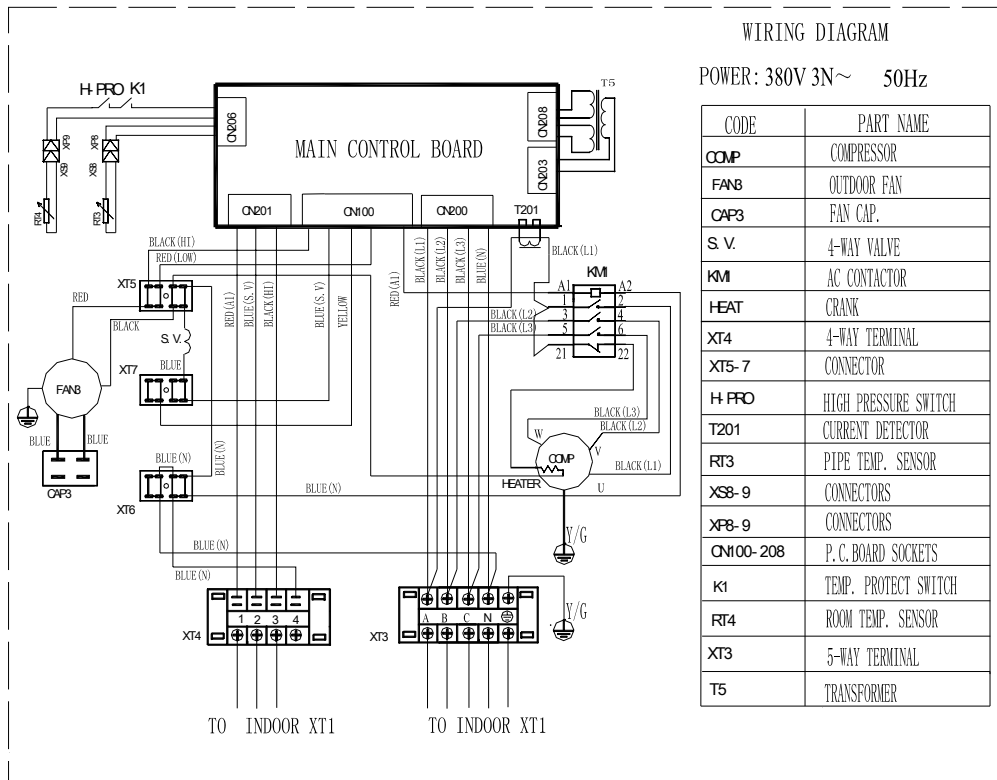
**FSK-364HF**  
**Indoor Unit:**



**WIRING DIAGRAM**  
**(INDOOR UNIT)**

CODE	PART NAME
CAP	FILTING CAPACITOR
CAP1	INDOOR FAN CAPACITOR
CN1-16	P. C BOARD SOCKETS
T4	POWER TRANSFORMER
FAN1	INDOOR FAN MOTOR
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
RT1	ROOM TEMPERATURE
RT2	PIPE TEMPERATURE
XP1-XP2, XP7	CONNECTORS
XS1-XS2, XS7	CONNECTORS
XT1, XT2	6-WAY TERMINAL

**Outdoor Unit:**

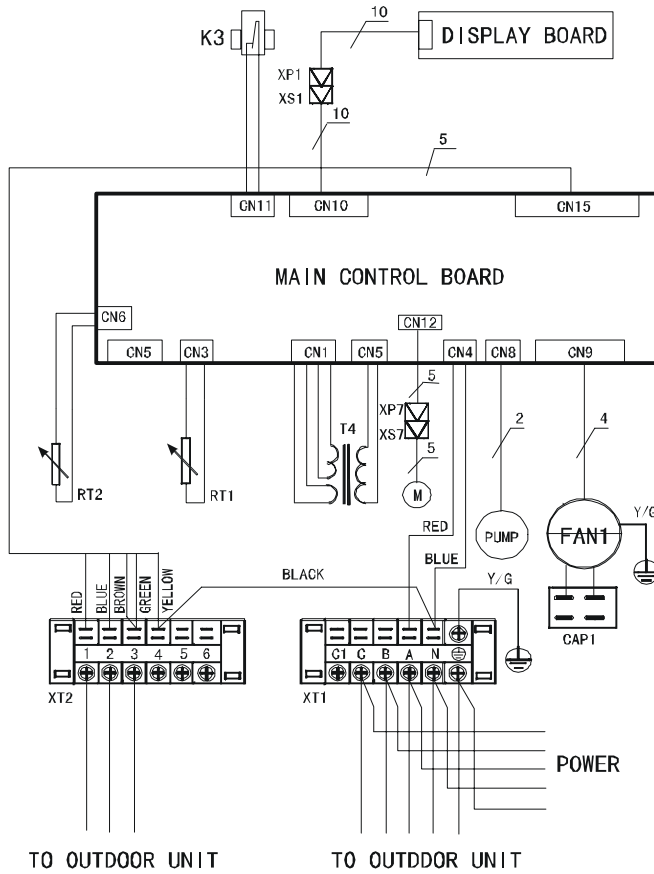


**WIRING DIAGRAM**

POWER: 380V 3N~ 50Hz

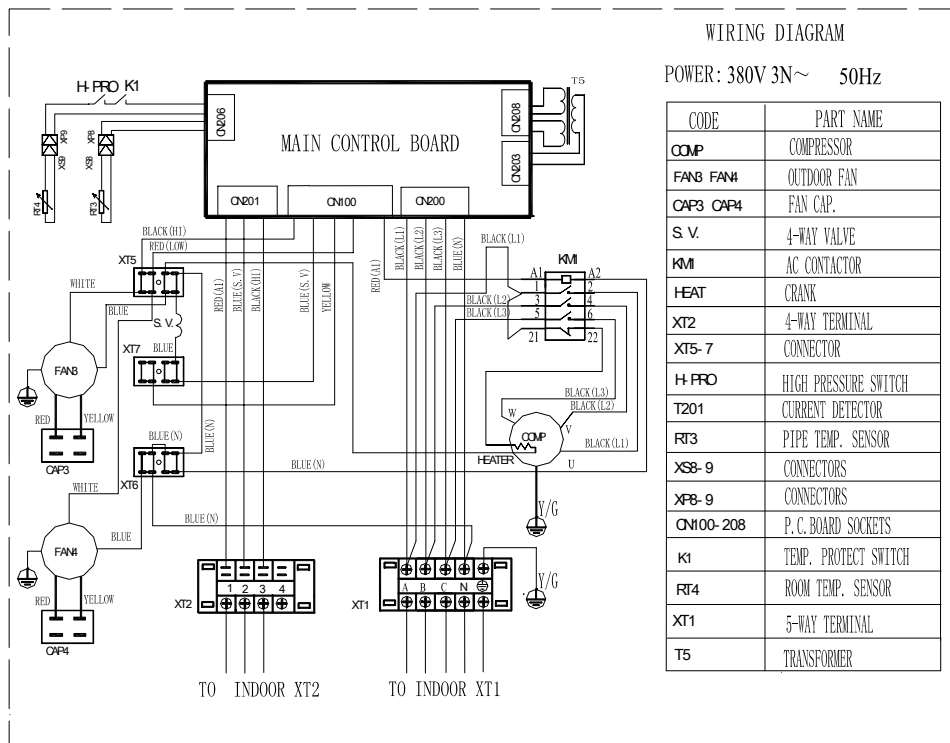
CODE	PART NAME
COMP	COMPRESSOR
FAN8	OUTDOOR FAN
CAP3	FAN CAP.
S.V.	4-WAY VALVE
KM	AC CONTACTOR
HEAT	HEATER
XT4	4-WAY TERMINAL
XT5-7	CONNECTOR
H.P.F.O	HIGH PRESSURE SWITCH
T201	CURRENT DETECTOR
RT3	PIPE TEMP. SENSOR
XS8-9	CONNECTORS
XP8-9	CONNECTORS
CN100-208	P. C. BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
RT4	ROOM TEMP. SENSOR
XT3	5-WAY TERMINAL
T5	TRANSFORMER

**FSK-484HF**  
**Indoor Unit:**



CODE	PART NAME
CAP	FILTING CAPACITOR
CAP1	INDOOR FAN CAPACITOR
CN1-16	P. C BOARD SOCKETS
T4	POWER TRANSFORMER
FAN1	INDOOR FAN MOTOR
K3	WATER LEVEL SWITCH
M	SWING MOTOR
PUMP	PUMP
RT1	ROOM TEMPERATURE
RT2	PIPE TEMPERATURE
XP1-XP2, XP7	CONNECTORS
XS1-XS2, XS7	CONNECTORS
XT1, XT2	6-WAY TERMINAL

**Outdoor Unit:**

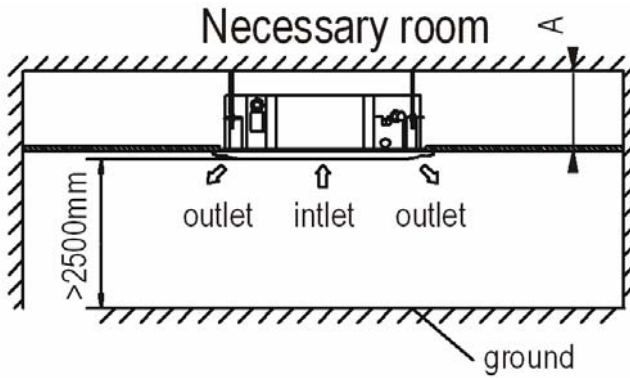


CODE	PART NAME
COMP	COMPRESSOR
FAN3 FAN4	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
S.V.	4-WAY VALVE
KM1	AC CONTACTOR
HEAT	CRANK
XT2	4-WAY TERMINAL
XT5-7	CONNECTOR
H.F.P.D.	HIGH PRESSURE SWITCH
T201	CURRENT DETECTOR
RT3	PIPE TEMP. SENSOR
XS8-9	CONNECTORS
XP8-9	CONNECTORS
CN100-208	P. C. BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
RT4	ROOM TEMP. SENSOR
XT1	5-WAY TERMINAL
T5	TRANSFORMER

# Part 10 Installation

## 1. Installation place

- A place where there is enough room for installation and maintenance.(Refer to Chart 1)
- The ceiling is structurally sound to hold the Indoor Unit.
- A place that is well ventilated and the influence of weather is the least.
- A place that the airflow can reach every corners of the room.
- A place where the drain pipe can reach out easily.



FSK-124-184HF	A > 280
FSK-244HF	A > 260
FSK-364-484HF	A > 330

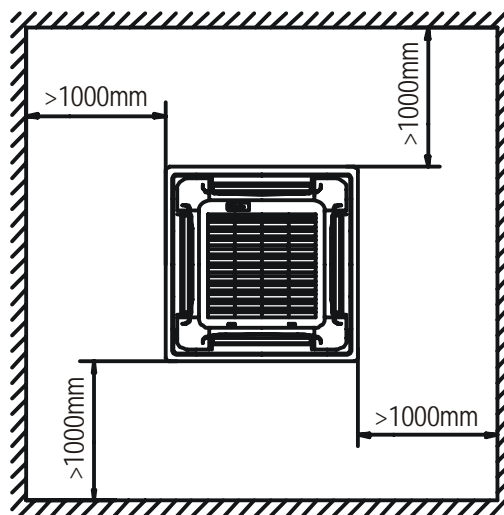
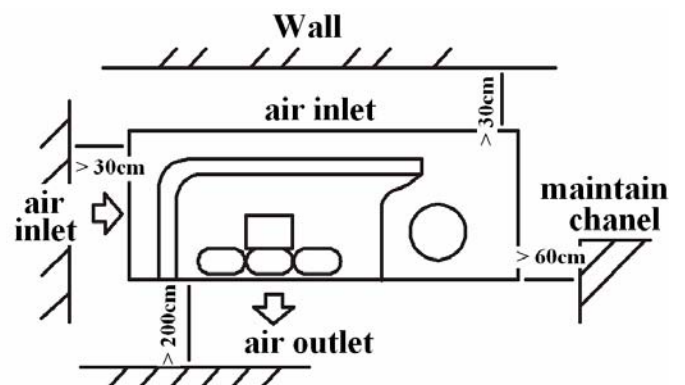
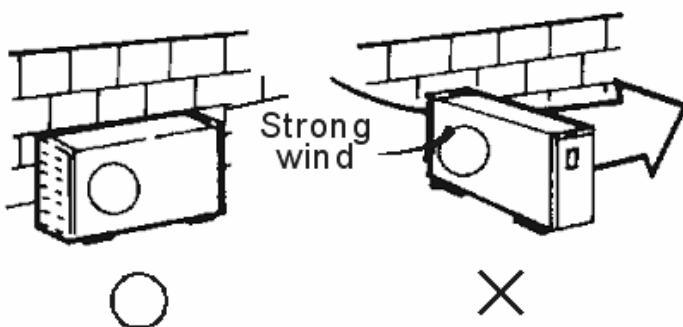


Chart 2

outdoor

- Install the outdoor unit on a rigid base to prevent increasing noise level and vibration.
- Determine the air outlet direction where the discharged air is not blocked.
- In the case that the installation place is exposed to strong wind such as a seaside or high position, secure the normal fan operation by putting the unit length wise along the wall or using a duct or shield plates.
- Specially in windy area, install the unit to prevent the admission of wind.



## 2. Indoor unit installation FSK-124-184HF

Install the main body

A. The existing ceiling (to be horizontal)

a. Please cut a quadrangular hole of 600X600mm in the ceiling according to the shape of the installation paper board.

The center of the hole should be at the same position of that of the air conditioner body.

Determine the lengths and outlets of the connecting pipe, drain pipe and cables.

To balance the ceiling and to avoid vibration, please enforce the ceiling when necessary.

b. Please select the position of installation hooks according to the hook holes on the installation board.

Drill four holes of 12mm, 50~55mm deep at the selected positions on the ceiling. Then embed the expansible hooks(fittings).

Face the concave side of the installation hooks toward the expansible hooks. Determine the length of the installation hooks from the height of ceiling, then cut off the unnecessary part.

If the ceiling is extremely high, please determine the length of the installation hook according to facts.

Cut the installation hook open in the middle position, then use appropriate length of reinforcing rod ( $\phi 12$ ) to weld together.

The length could be calculated from Chart5:

Length=210+L(in general, L is half of the whole length of the installation hook)

c. Please adjust the hexangular nuts on the four installation hooks evenly, to ensure the balance of the body.

Use the transparent hose filled with water to check the lever of the main body from the four sides or diagonal line direction, the lever indicator also can check the lever from four sides of the main body .(Refer to chart 6)

If the drainpipe is awry, leakage will be caused by the malfunction of the water-level switch.

Adjust the position to ensure the gaps between the body and the four sides of ceiling are even.

The body's lower part should sink into the ceiling for 10~12mm (Refer to chart5).

Locate the air conditioner firmly by wrenching the nuts after having adjusted the body's position well.

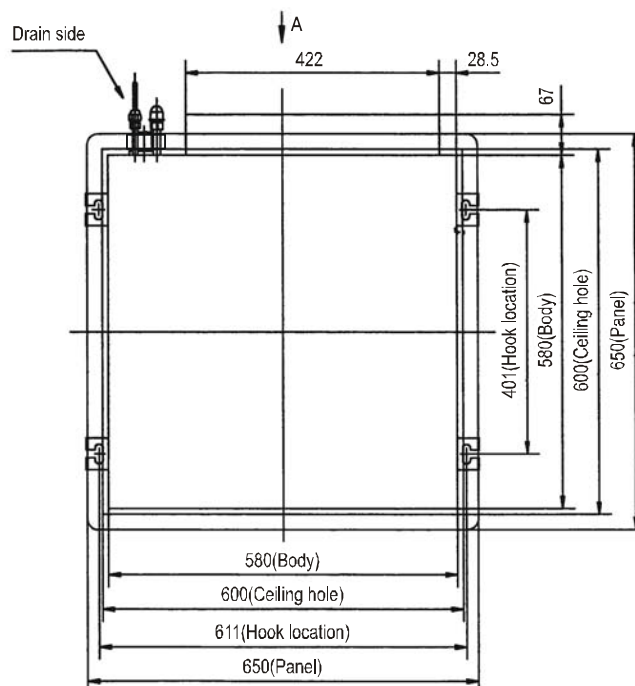


Chart 3



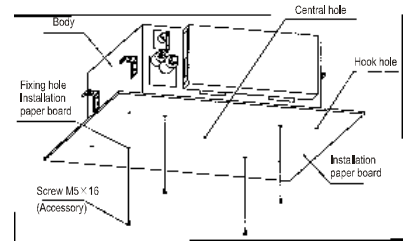
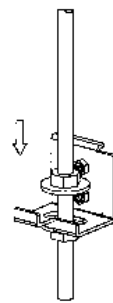
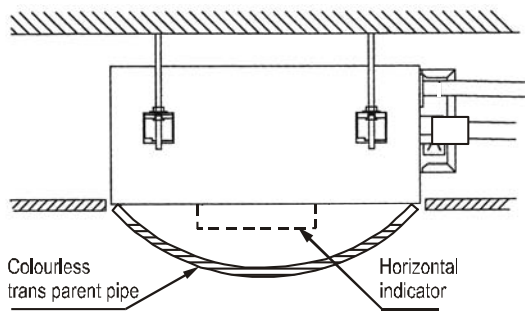
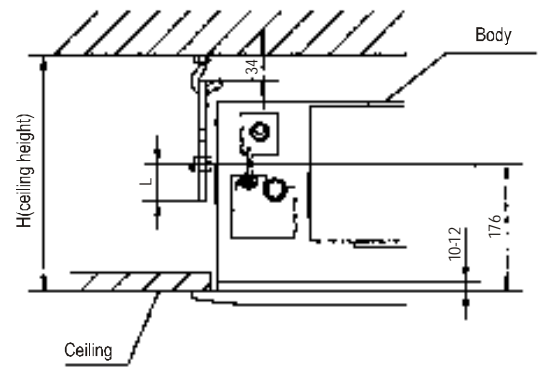
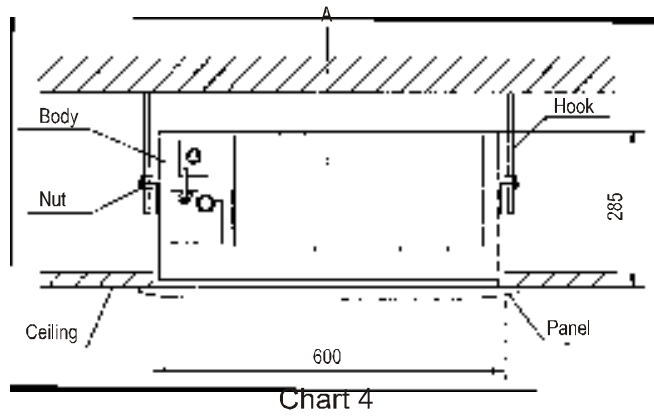


Chart 6

Chart 7

Chart 8

**B. New built houses and ceilings**

a. In the case of new built house, the hook can be embedded in advance (refer to the A.b mentioned above). But it should be strong enough to bear the indoor unit and will not become loose because of concrete shrinking.

b. After installing the body, please fasten the installation paper board onto the air conditioner with bolts (M5X16) to determine in advance the sizes and positions of the hole opening on ceiling. Please first guarantee the flatness and horizontal of ceiling when installing it. Refer to the A.a mentioned above for others.

c. Refer to the A.c mentioned above for installation.

d. Remove the installation paper board.

**(1) Install The Panel**

**Cautions:** Never put the panel face down on floor or against the wall, or on bulgy objects.

Never crash or strike it.

**1) Remove the inlet grid.**

a. Slide two grid switches toward the middle at the same time, and then pull them up. (Refer to chart 9)

b. Draw the grid up to an angle of about 30, and remove it. (Refer to chart 10)

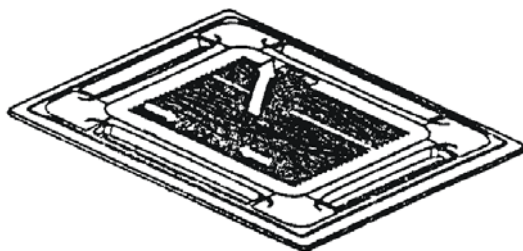


Chart9



Chart10

2) Install the panel

- a. Align the swing motor on the panel to the water receiver of the body properly. (Refer to chart 11)
- b. Hang the four fixed rope of the main body to the installation cover and the other three covers of the swing motor: (Refer to chart 11)

CAUTIONS:

The installation cover of the swing motor must sink into the corresponding water receiver.

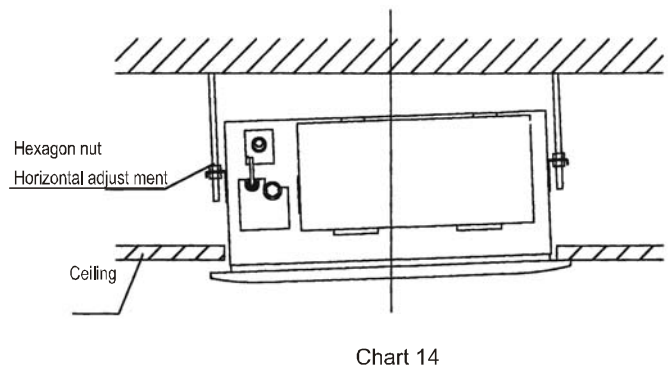
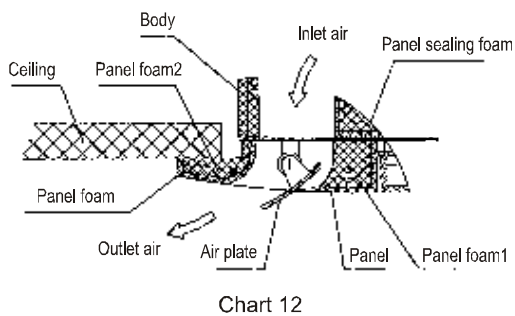
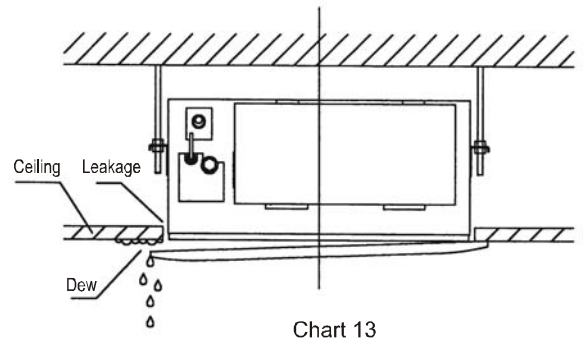
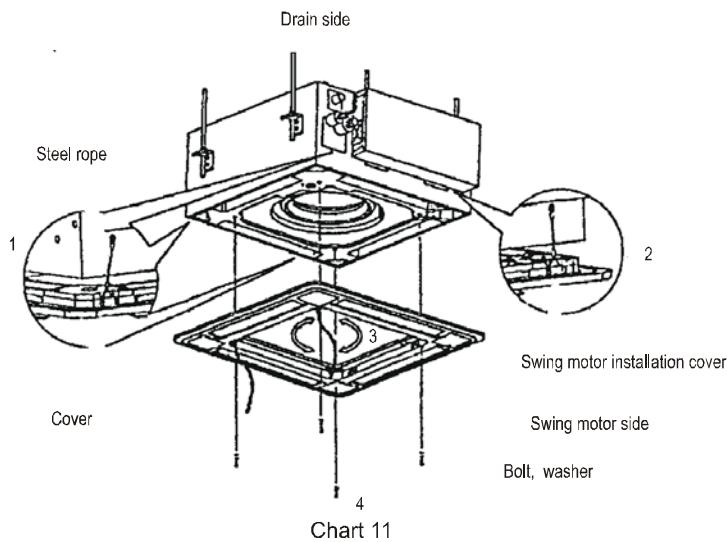
- c. Install the panel on the main body with bolt (M5X16) and washer. (Refer to chart 11)
- d. Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly.
- e. Regulate the panel in the direction of the arrow in Chart 11 (3) slightly to fit the panel's center to the center of the ceiling's opening. Guarantee that hooks of four corners are fixed well.

f. Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. (Refer to chart 12)

Malfunction described in Chart 13 can be caused by inappropriate tightness the screw.

If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. You can modify the height of the indoor unit through the openings on the panel's four corners, if the lift of the indoor unit and the drainpipe is not influenced (refer to chart 14-right).

- 3) Hang the air-in grid to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.
- 4) Relocate the air-in grid in the procedure of reversed order, install the air-in grid.



### 3. Indoor unit installation

#### FSK-244-364-484HF

(1) Install the main body

A. The existing ceiling (to be horizontal)

a. Please cut a quadrangular hole of 880X880mm in the ceiling according to the shape of the installation paper board. (Refer to Chart3,4)

The center of the hole should be at the same position of that of the air conditioner body.

Determine the lengths and outlets of the connecting pipe, drain pipe and cables.

To balance the ceiling and to avoid vibration, please enforce the ceiling when necessary.

b. Please select the position of installation hooks according to the hook holes on the installation board.

Drill four holes of 12mm, 45~50mm deep at the selected positions on the ceiling. Then embed the expansible hooks(fittings).

Face the concave side of the installation hooks toward the expansible hooks. Determine the length of the installation hooks from the height of ceiling, then cut off the unnecessary part.

If the ceiling is extremely high, please determine the length of the installation hook according to facts.

The length could be calculated from Chart5:

Length=H-181+L(in general, L is half of the whole length of the installation hook)

c. Please adjust the hexangular nuts on the four installation hooks evenly, to ensure the balance of the body.

If the drainpipe is awry, leakage will be caused by the malfunction of the water-level switch.

Adjust the position to ensure the gaps between the body and the four sides of ceiling are even. The body's lower part should sink into the ceiling for 10~12mm (Refer to chart5).

Locate the air conditioner firmly by wrenching the nuts after having adjusted the body's position well.

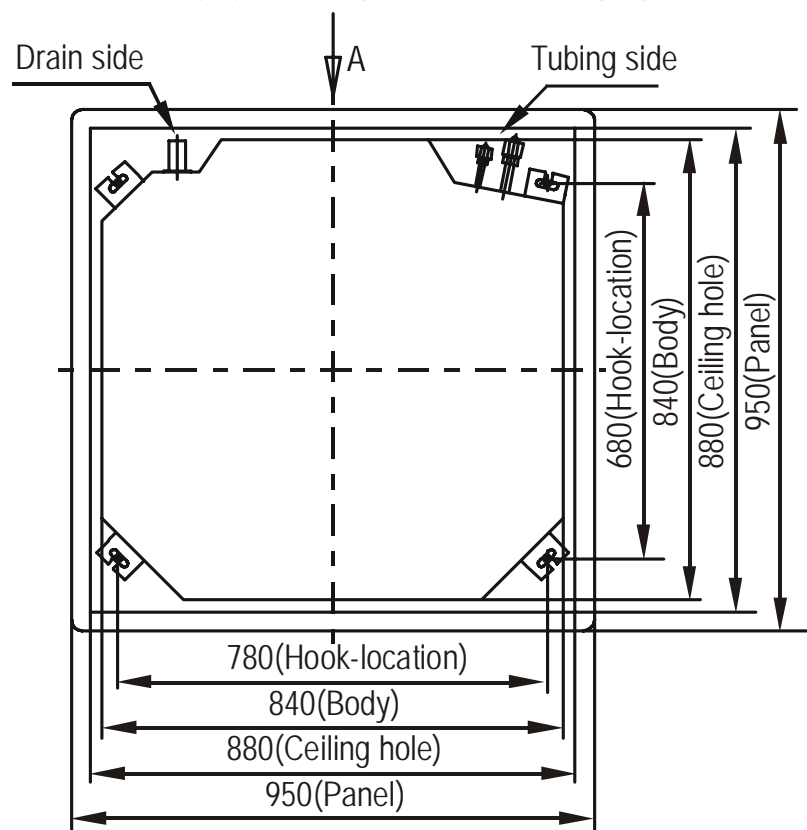
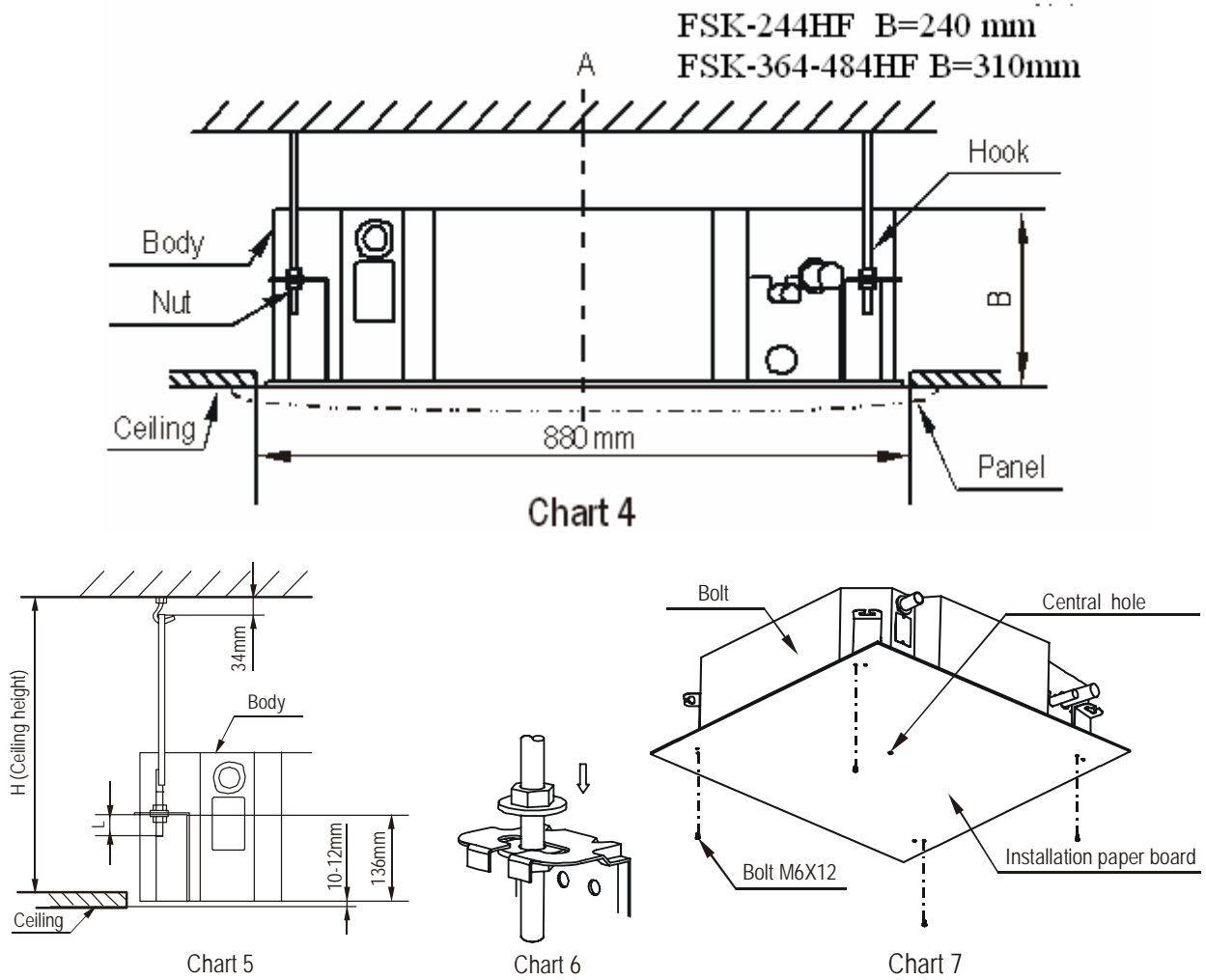


Chart 3



## B. New built houses and ceilings

a. In the case of new built house, the hook can be embedded in advance (refer to the A.b mentioned above). But it should be strong enough to bear the indoor unit and will not become loose because of concrete shrinking.

b. After installing the body, please fasten the installation paper board onto the air conditioner with bolts (M6X12) to determine in advance the sizes and positions of the hole opening on ceiling. Please first guarantee the flatness and horizontal of ceiling when installing it. Refer to the A.a mentioned above for others.

c. Refer to the A.c mentioned above for installation.

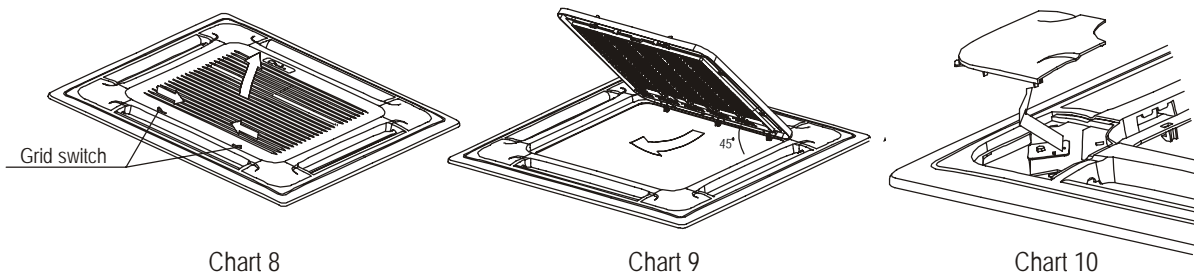
d. Remove the installation paper board.

### (2) Install The Panel

1) Remove the inlet grid.

a. Slide two grid switches toward the middle at the same time, and then pull them up. (Refer to chart 8)

b. Draw the grid up to an angle of about 45°, and remove it. (Refer to chart 9)



2) Remove the installation covers at the four corners.

Wrench off the bolts, loose the rope of the installation covers, and remove them. (Refer to chart 10)

3) Install the panel

a. Align the swing motor on the panel to the tubing joints of the body properly. ( Refer to chart 11)

b. Fix hooks of the panel at swing motor and its opposite sides to the hooks of corresponding water receiver. Then hang the other two panel hooks onto corresponding hangers of the body.

c. Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly.

d. Regulate the panel in the direction of the arrow in Chart11(4) slightly to fit the panel's center to the center of the ceiling's opening. Guarantee that hooks of four corners are fixed well.

e. Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. (Refer to chart 12)

Malfunction described in Chart13 can be caused by inappropriate tightness the screw.

If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. ( Refer to chart 14-left)

You can modify the height of the indoor unit through the openings on the panel's four corners, if the lift of the indoor unit and the drainpipe is not influenced (refer to chart 14-right).

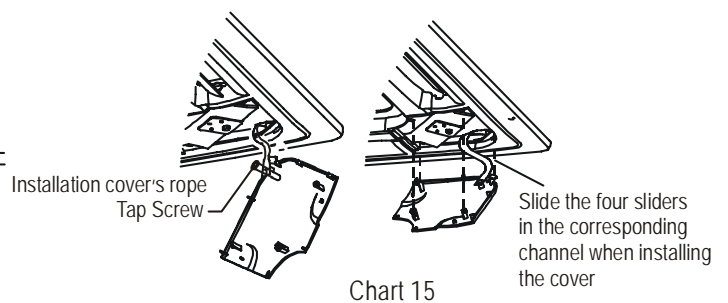
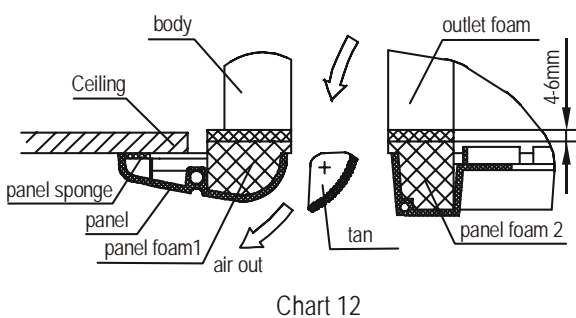
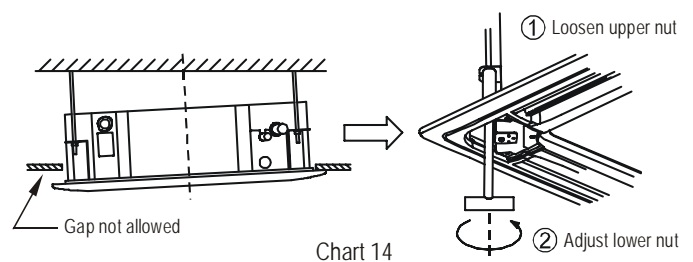
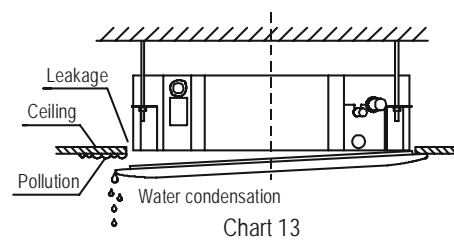
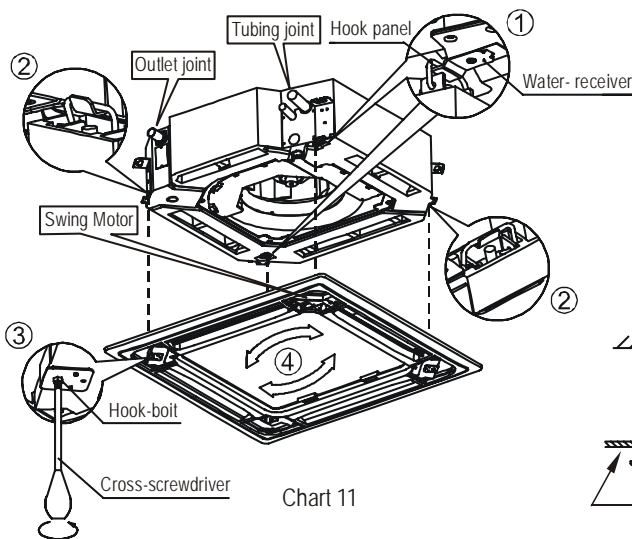
4) Hang the air-in grid to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

5) Relocate the air-in grid in the procedure of reversed order.

6) Relocate the installation cover.

a. Fasten the rope of installation cover on the bolt of the installation cover. (Refer to chart 15-left)

b. Press the installation cover into the panel slightly. (Refer to chart 15-right)



## 2. Install outdoor unit

## 3. Refrigerant pipe connecting

### (1) Maximum pipe length

Model	Max. Length	Max. Elevation
FSK-124-244-364-484HF	15m	5m

### (2) Piping sizes

Model	Liquid(mm/inch)	Gas(mm/inch)
FSK-124-184HF	6.35(1/4)	12.7(1/2)
FSK-244HF	9.52(3/8)	16.0(5/8)
FSK-364-484HF	12.7(1/2)	19.0(3/4)

### (3) Piping connection

1). Measure the necessary length of the connecting pipe, and make it by the following way.

a. Connect the indoor unit at first, then the outdoor unit.

Bend the tubing in proper way. Do not harm them.

#### CAUTIONS

& Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds

& With hands before fasten the flare nuts.

& Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

Tubing size	Torque
6.35	1420~1720N.cm(144~176kgf.cm)
9.52	3270~3990N.cm(333~407kgf.cm)
12.7	4950~6030N.cm(504~616kgf.cm)
16	6180~7540N.cm(630~770kgf.cm)
19	9720~11860N.cm(990~12106kgf.cm)

b. The stop value of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop value, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.

c. Expel the air after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

2) Locate The Pipe

a. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.

b. Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.

c. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.

3) Connect the pipes.

4) Then, open the stem of stop values of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

5) Be sure of no leakage by checking it with leak detector or soap water.

6) Cover the joint of the connecting pipe to the indoor unit with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

#### (4) Additional charge

When the length of the one-way pipe is less than 8m, additional refrigerant charge after vacuuming is not necessary.

When the length of one-way pipe is over 8m, the quantity to be added is as follows (unit in gram):

Connective pipe length	Air purging method	Additional amount of refrigerant to be charged
Less than 8m	Use refrigerant of outdoor unit	
Over 8m	Use vacuum pump or refrigerant cylinder	30g(length-8m) (FSK-124-184HF)
		65g(length-8m) (FSK-244-364-484HF)

#### 4. Connect the drain pipe

#### 5. Wiring

Please refer to the Wiring Diagram.

#### 6. Test operation

(1) The test operation must be carried out after the entire installation has been completed.

(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.

(3) According to the user's requirement, install the remote controller when the remote controller's signal can reach the indoor unit smoothly.

(4) Test operation

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 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.

## Part 11 Servicing and Maintenance

### 1. Troubles and Solutions

If any the following abnormal conditions occur, turn off the power supply immediately. Please contact our dealer.	
TROUBLES	Indicator lamps flash rapidly, after your disconnecting and connecting the unit, the situation is the same.
	Fuse or circuit breaker work frequently.
	Foreign matter or water has fallen into the unit.
	Remote controller is disabled or the switch is out of hand.
	Any other unusual conditioner is observed.

If any of the following conditions occur, check your unit and resolve corresponding problems referring to given remediation. If the trouble can't be settled contact our dealer.		
Trouble	Cause	Solutions
Unit does not start	Power failure.	Wait for the comeback of power
	Power switch is open.	Switch on the power
	Fuse of power switch may have blown.	Replace the fuse
	Batteries of remote controller are exhausted.	Replace the batteries
	The time is not start-up time you have set.	Wait or cancel the time set.
Air flowing normally with low cooling(heating) effect	Temperature is not set correctly.	Set the temperature properly.
	Door or window is open.	Close door and window.
	Air filter is blocked with dust or dirtiness.	Clean the air filter.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear all blockages.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear the blockage, then restart your operation.
	Be in 3 minutes protection of compressor	Wait

NOTE: Do not replace electric wire or repair the air conditioner by yourself to avoid possible danger.

### 2. Troubles and solutions concerning the remote controller

Please make the following check before asking for repair or maintenance.

Trouble	Cause	Solutions
CAN NOT CHANGE THE FAN SPEED SETTING	Check if the mode display on the LCD is AUTO	The Indoor Unit will select fan speed automatically when AUTO mode is selected.
	Check if the mode display on the LCD is DRY	The Indoor Unit will select fan speed automatically when the unit is on DRY mode.

The transmission symbol does not flash		
Symptom	Checking items	Cause
Press ON/OFF button, the remote controlling signals can not be transmitted	Check if the remote controller has run out of power	When the battery was out, transmission signals can not be sent



Temperature display disappear		
Symptom	Checking items	Cause
Temperature Display does not light.	Check if the mode display on the LCD is FAN ONLY	You can not set the temperature when the unit is on FAN ONLY mode.

The Display Goes Off		
Symptom	Checking items	Cause
The indication on the display disappears after a lapse of time.	Check whether the timer operation has come to an end when the OFF TIMER is indicated on the display.	The air conditioner operation stops since the set time elapsed.
The ON TIMER indicators go off after a lapse of certain time.	Check whether the timer operation is started when the ON TIMER is indicated on the display.	When the time set to start the air conditioner is reached, the air conditioner will automatically start and the appropriate indicator will go off.

The Signal Receiving Tone does Not Sound		
Symptom	Checking items	Cause
No receiving tone sounds from the indoor unit even when the ON/OFF button is pushed.	Check whether the signal transmitter of the remote controller is properly directed to the receiver of the indoor unit when the ON/OFF button is pushed.	Direct the signal transmitter of the remote controller to the receiver of the indoor unit, and then repeatedly push the ON/OFF button twice.
Buttons on the remote controller don't work.		Press Reset button.

### 3. Clean

CAUTION: Please turn off your air conditioner and disconnect power supply before cleaning.

#### (1) CLEANING INDOOR UNIT

Use a dry to wipe the indoor unit.

A cloth dampened with cold water may be used if the indoor unit is too dirty.

It is allowed to remove the front panel of indoor unit and clean it with water, and ensure to wipe it up with a dry rag.

Note: Do not use a chemically treated duster for wiping or leave such materials near the unit for long.

Do not use benzene, thinner, polishing powder, or similar solvents for cleaning.

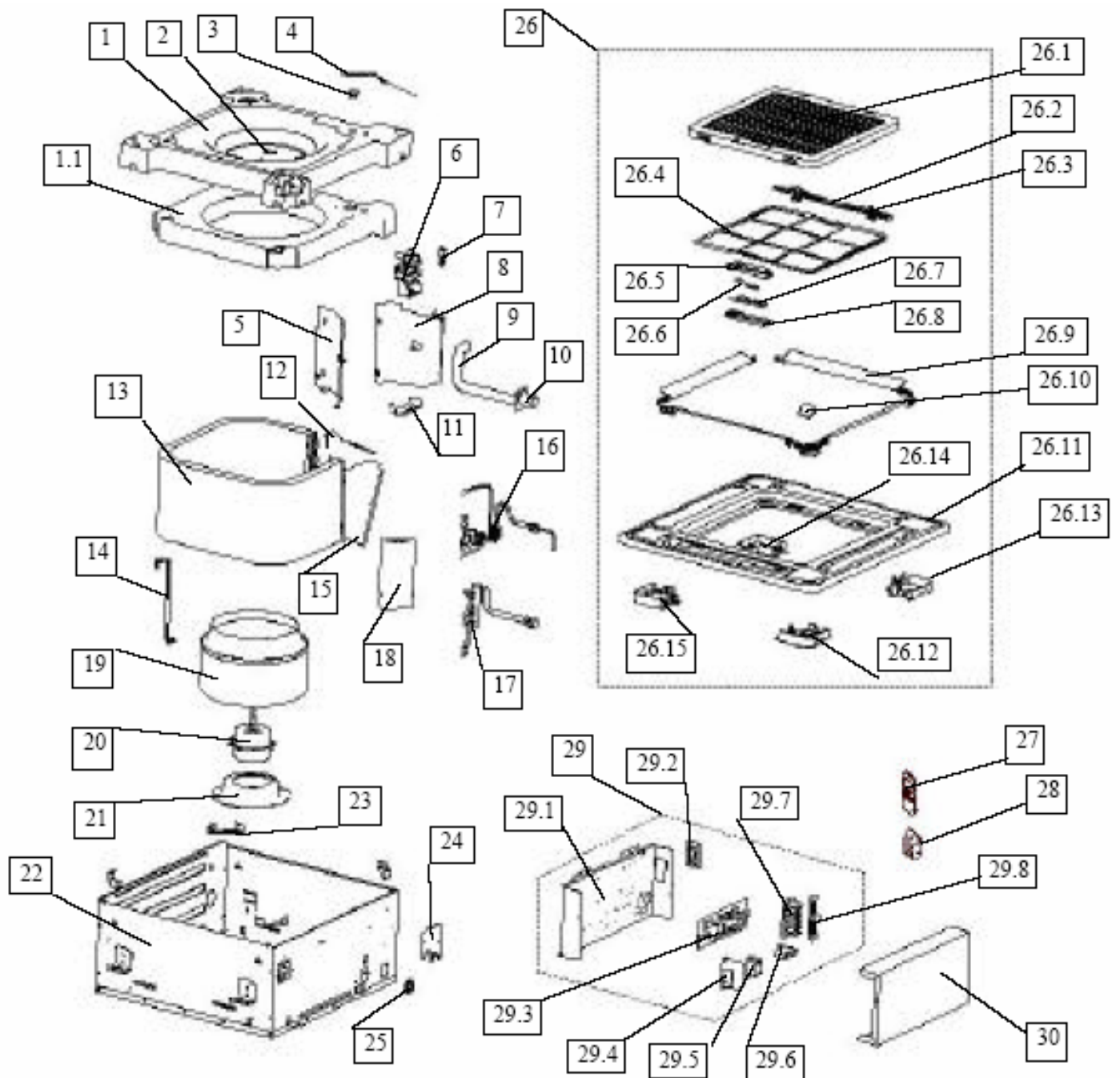
#### (2) CLEANING AIR FILTER

The air filter in unit can filter dust and other granules in air. It may reduce the cooling effect that the air filter is covered with dust. So clean the air filter often.

## Part 12 Exploded view

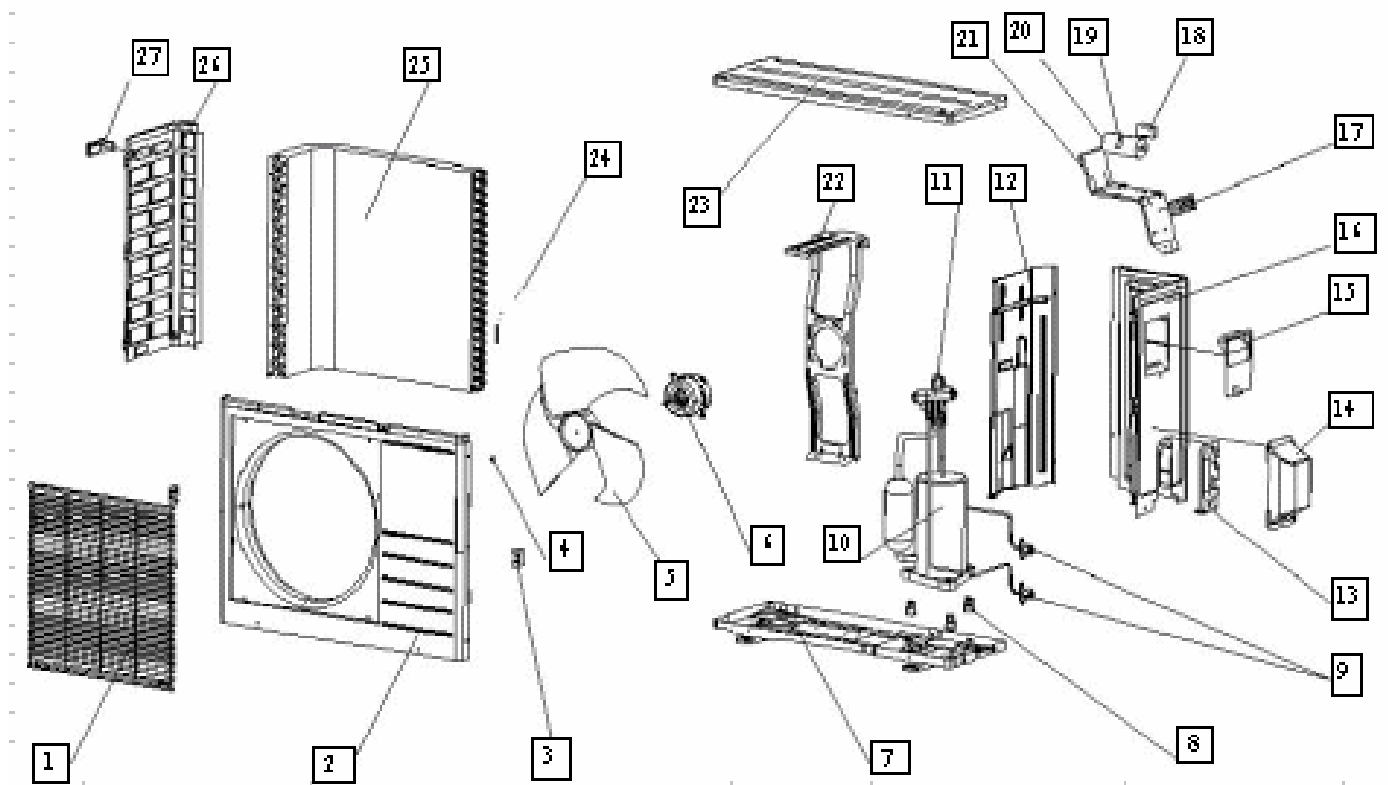
### 1. FSK-124HF

#### Indoor unit



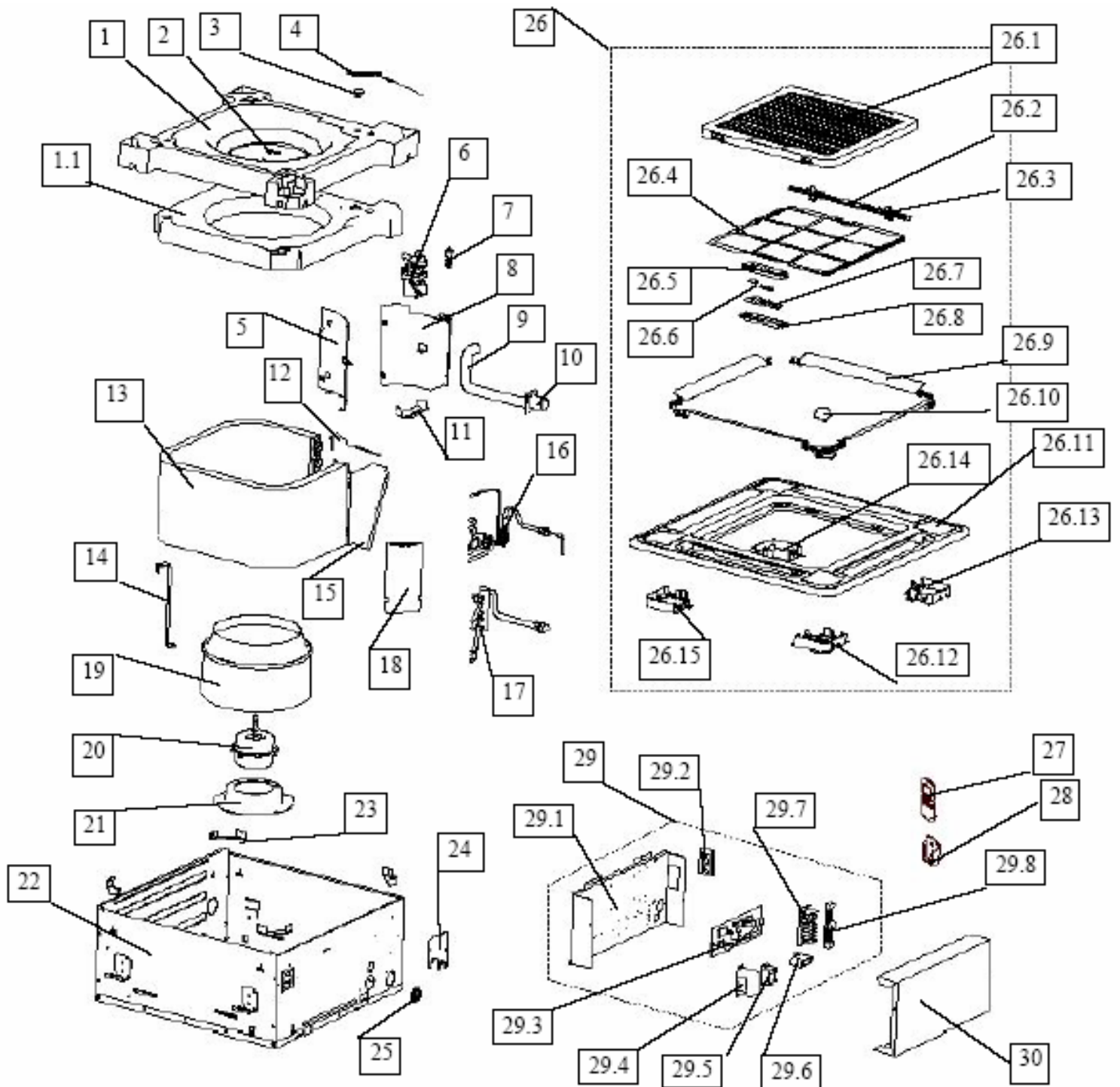
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Collect Water Pan ,Ass'y	1	26.1	Air inlet grille	1
1.1	Foam, Collect Water Pan	1	26.2	Switch cover, air inlet grille	1
2	Wire fixing board	1	26.3	Switch, air inlet grille	2
3	Stopper, Water Drain	1	26.4	Filter	1
4	Room Temperature Sensor Ass'y	1	26.5	Control box	1
5	Evaporater Fixture Board Ass'y	1	26.6	LED holder	1
6	Drain Pump	1	26.7	Control board	1
7	Liquid Position Sensor Ass'y	1	26.8	Cover, control box	1
8	Deseperating board, right	1	26.9	Fan guide	4
9	Drain pipe	1	26.10	Swing motor	1
10	Extend water pipe	1	26.11	Panel	1
11	Drain Pump Holder	1	26.12	Install cover, swing motor	1
12	Pipe Temperature Sensor Ass'y	1	26.13	Install cover I	1
13	Evaporator Ass'y	1	26.14	Install cover II	1
14	Fixing clamp, evaaporater	1	26.15	Install cover I	1
15	Deseperating board, left	1	27	Remoter	1
16	Inlet pipe, eva	1	28	Holder, Remote Controller	1
17	Outlet pipe, eva	1	29	E-control Assy	1
18	Wire crossing board	1	29.1	Control Box	1
19	Fan	1	29.2	Rubber, wire crossing	1
20	Fan Motor	1	29.3	PCB Ass'y	1
21	Fan Motor Underlay	1	29.4	Transformer	1
22	Base Pan Ass'y	1	29.5	Relay	1
23	Fixing board, water pan	4	29.6	Capacity	1
24	Sealing board, pipe out	1	29.7	Base, wire fixing	1
25	Rubber, wire crossing	2	29.8	Cover, wire fixing	1
26	Panel Ass'y	1	30	Control Box Cover	1

## Outdoor unit (FSO-124HF)



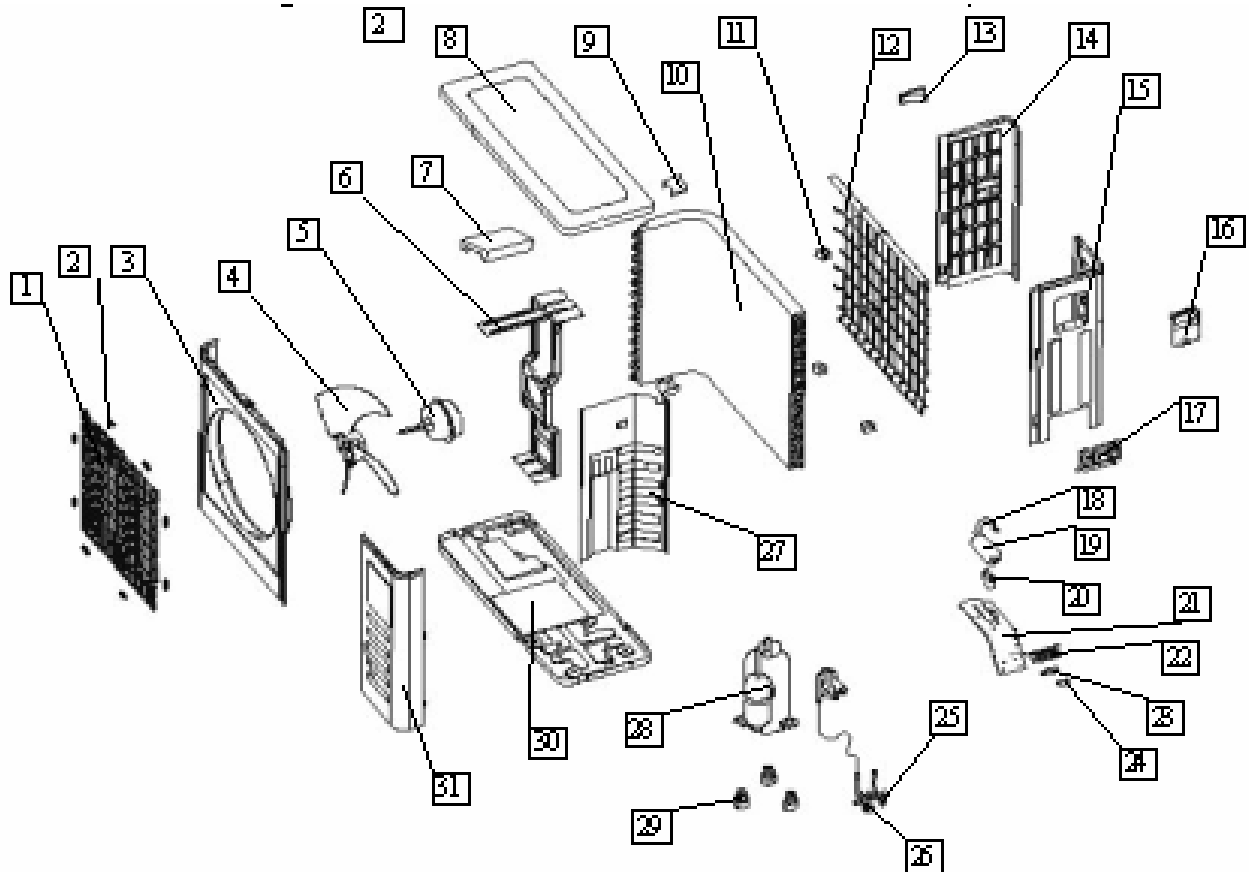
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front Net Cover Ass'y	1	14	Water Pan	1
2	Cabinet , Front	1	15	Right Handle	1
3	Stopper Guard	2	16	Right Cover Board	1
4	Nut, left screw	1	17	Terminal Block	1
5	Fan,Propeller	1	18	Capacitor, Fan Motor	1
6	Fan Motor	1	19	Capacitor Block	1
7	Base Pan Ass'y	1	20	Capacitor , Compressor	1
8	Compressor Foot Mat	3	21	E-Parts Board	1
9	High Pressure Valve	1	22	Holder,Fan Motor	1
9	Low Pressure Valve	1	23	Top Cover	1
10	Compressor	1	24	Pipe temperature sensor	1
11	Four-way Valve	1	25	Condensator	1
12	Clapboard	1	26	Left clapboard	1
13	Valve Installation Panel	1	27	Left Handle	1
14	Water Pan	1			

**2. FSK-184HF**  
**Indoor unit**



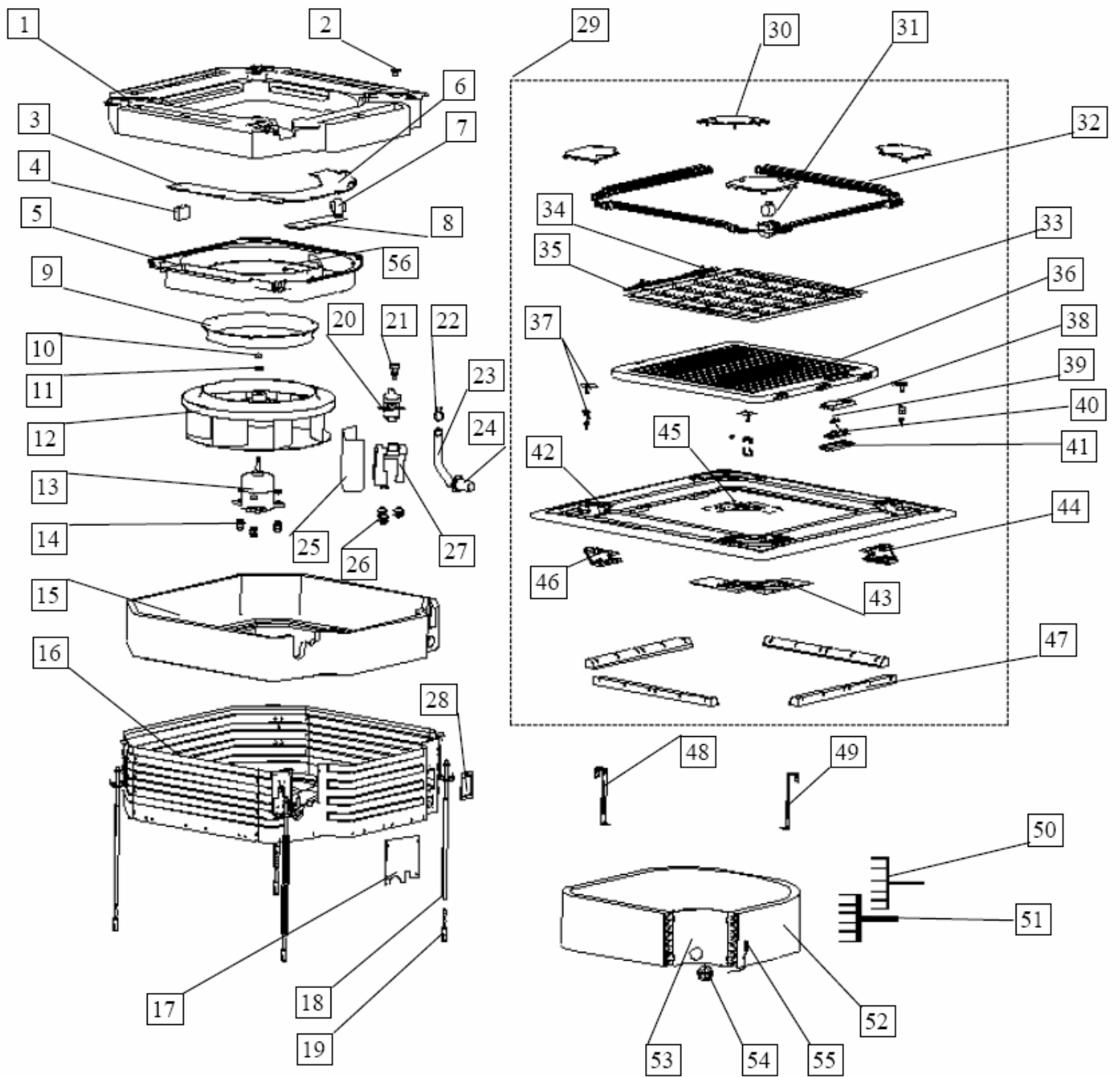
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Collect Water Pan ,Ass'y	1	26.1	Air inlet grille	1
1.1	Foam, Collect Water Pan	1	26.2	Switch cover, air inlet grille	1
2	Wire fixing board	1	26.3	Switch, air inlet grille	2
3	Stopper, Water Drain	1	26.4	Filter	1
4	Room Temperature Sensor Ass'y	1	26.5	Control box	1
5	Evaporater Fixture Board Ass'y	1	26.6	LED holder	1
6	Drain Pump	1	26.7	Control board	1
7	Liquid Position Sensor Ass'y	1	26.8	Cover, control box	1
8	Deseperating board, right	1	26.9	Fan guide	4
9	Drain pipe	1	26.10	Swing motor	1
10	Extend water pipe	1	26.11	Panel	1
11	Drain Pump Holder	1	26.12	Install cover, swing motor	1
12	Pipe Temperature Sensor Ass'y	1	26.13	Install cover I	1
13	Evaporator Ass'y	1	26.14	Install cover II	1
14	Fixing clamp, evaaporater	1	26.15	Install cover I	1
15	Separating board, left	1	27	Remoter	1
16	Inlet pipe, eva	1	28	Holder, Remote Controller	1
17	Outlet pipe, eva	1	29	E-control Assy	1
18	Wire crossing board	1	29.1	Control Box	1
19	Fan	1	29.2	Rubber, wire crossing	1
20	Fan Motor	1	29.3	PCB Ass'y	1
21	Fan Motor Underlay	1	29.4	Transformer	1
22	Base Pan Ass'y	1	29.5	Relay	1
23	Fixing board, water pan	4	29.6	Capacity	1
24	Sealing board, pipe out	1	29.7	Base, wire fixing	1
25	Rubber, wire crossing	2	29.8	Cover, wire fixing	1
26	Panel Ass'y	1	30	Control Box Cover	1

## Outdoor unit (FSO-184HF)



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front net	1	19	Compressor capacitor	1
2	Clamp for front net	8	20	Fan motor capacitor	1
3	Front clapboard	1	21	Installation board for E-parts	1
4	Propeller fan	1	22	Wire joint	1
5	Fan motor	1	23	Washer for wire joint	1
6	Holder for fan motor	1	24	Clamp for wiring	1
7	Foam over holder for motor	1	25	Gas pipe valve	1
8	Cover	1	26	Liquid pipe valve	1
9	Fixing clamp for condenser	2	27	Separating board	1
10	Condenser	1	28	Compressor	1
11	Antivibration sponge, Tail net	2	29	Rubber underlay for compressor	3
12	Rear net	1	30	Chassis	1
13	Little handle	1	31	Front right clapboard	1
14	Left clapboard	1	32	4-Ways valve ass'y	1
15	Rear right clapboard	1	33	4-Ways valve	1
16	Big handle	1	34	Pipe temp sensor	1
17	Installation plate for valves	1	35	Water collector	1
18	Capacitor clamp	1			

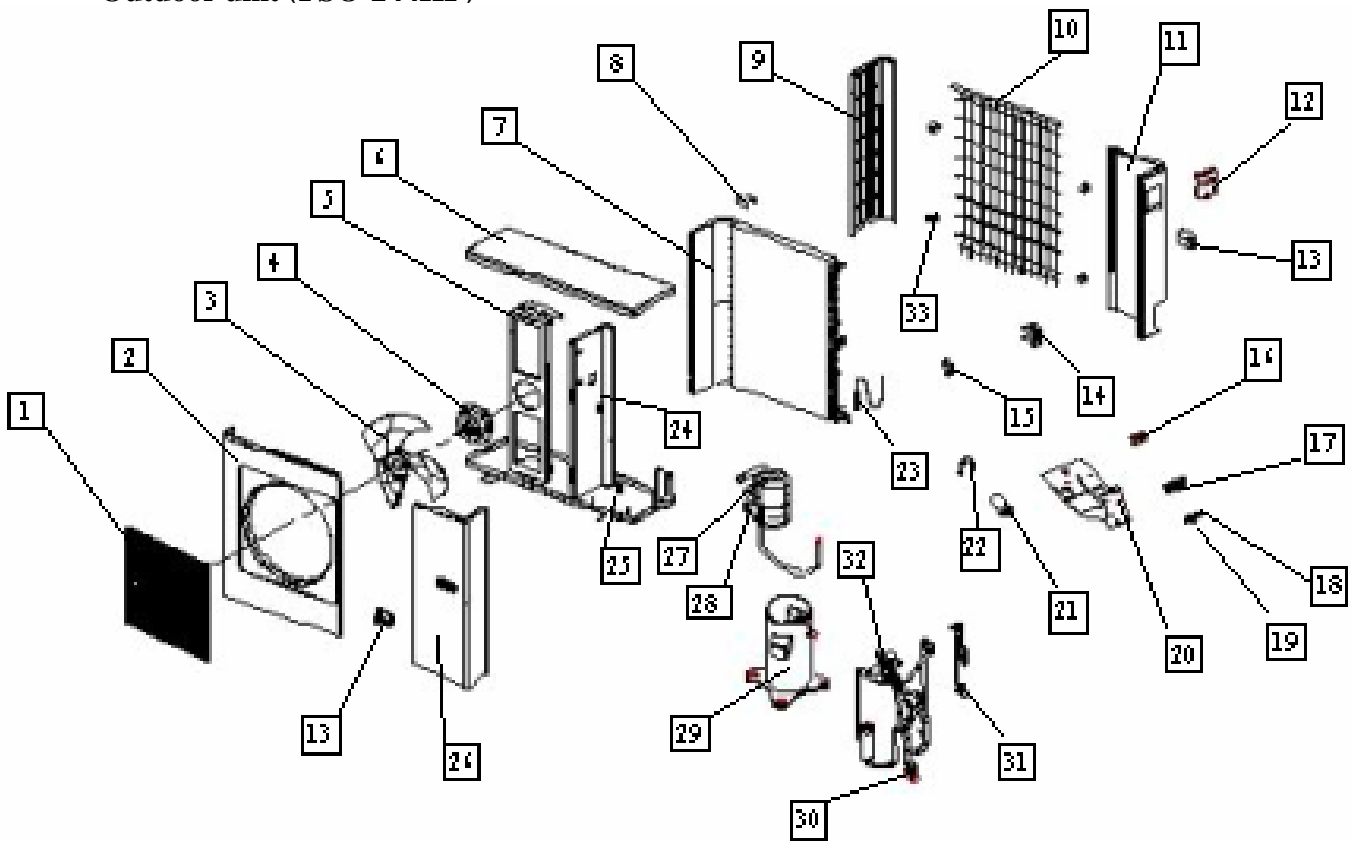
**12. FSK-244HF**  
**Indoor unit**





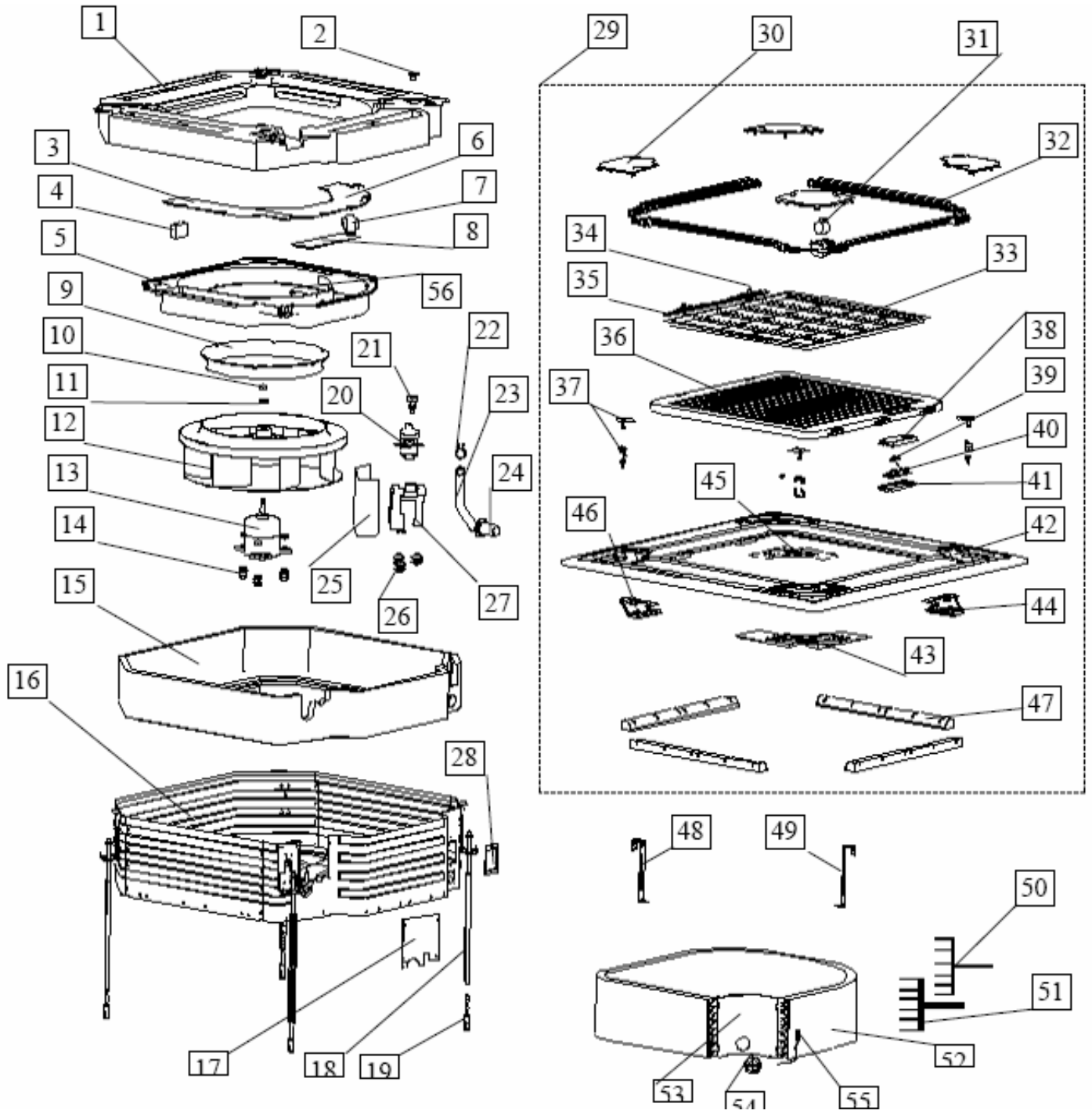
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Water Receiver, Ass'y	1	30	Cover, installing	4
2	Stopper, Water Drain	1	31	Swing motor	1
3	E-Parts Box Cover1	1	32	Fan guide	4
4	Capacity	1	33	Filter	1
5	E-Parts Box Ass'y	1	34	Switch, air inlet grille	2
6	E-Parts Box Cover2	1	35	Switch cover, air inlet grille	1
7	Transformer	1	36	Air inlet grille	1
8	PCB Ass'y	1	37	Hanger for panel, assmy	4
9	Wind inlet guide	1	38	Control box	1
10	nut	1	39	LED holder	1
11	Clamp, fan	1	40	Control board	1
12	Fan Ass'y	1	41	Cover, control box	1
13	Fan Motor	1	42	Panel	1
14	Gasket, motor	6	43	Back board, Air out 1	1
15	Evaporator Base Ass'y	1	44	Back board, Air out 2	1
16	Base Pan Ass'y	1	45	Back board, Air out 3	1
16	Wire clamp board	1	46	Back board, Air out 4	1
17	Sealing board, pipe out	1	47	Foam, air out 1	4
18	Install hanger	4	47	Foam, air out 2	4
19	Expandable hanger	4	48	Fixing hanger 1, Evaporator	1
20	Drain Pump Ass'y	1	49	Fixing hanger, Evaporator	2
21	Water switch	1	50	Eva in pipe, assmy	1
22	Clamp, water pipe	1	51	Eva out pipe, assmy	1
23	Water pipe	1	52	Evaporator Ass'y	1
24	Extend water pipe	1	53	Fixing board, Evaporator	1
25	Separate board, pump	1	54	Rubber, wire crossing	1
26	Rubber washer, pump	3	55	Pipe Temperature Sensor Ass'y	1
27	holder, pump	1	56	Room Temperature Sensor Ass'y	1
28	Water trying board	1	57	Remoter	1
29	Panel Ass'y	1			

**Outdoor unit (FSO-244HF)**



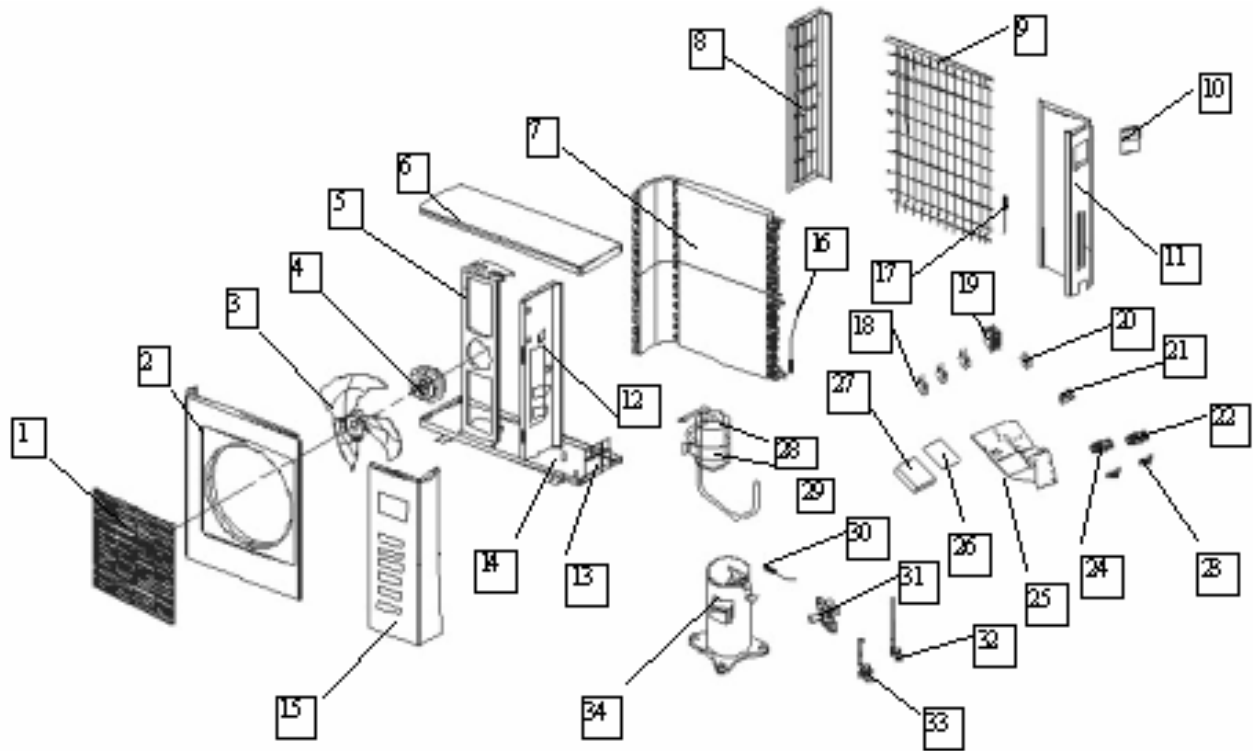
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front net	1	19	Terminal Block, 2p	1
2	Cabinet, Front	1	20	Contactora, AC	1
3	Fan, Propeller	1	21	Capacitor, Fan Motor	1
4	Fan Motor	1	22	Wire Clamp	1
5	Mount, Fan Motor	1	23	Terminal Block, 5p	1
6	Top cap Ass'y	1		Terminal Block, 2p	1
7	Condenser Ass'y	1	24	Compressor	1
8	Fixture clip , Condenser Ass'y	2	25	Fixture, Segregator	1
9	Support board, Left Side	1	26	Four-way Valve	1
10	Rear Net	1		Four-way Valve Solenoid	1
11	Support board, Back side	1	27	High Pressure Valve, 1/4 in.	1
12	Handle	2	28	Capillary pipe Ass'y	1
13	Separating board	1	29	Low Pressure Valve, 3/8 in.	1
14	Base Pan Ass'y	1	30	Refrigerant Container	1
15	Cabinet, Front-Right	1	31	Pipe Temp. Sensor Ass'y	1
16	Capacitor Clamp	1	32	Underlay, Rear net	1
17	Running Capacitor, Compressor	1	33	Big handle	1
18	Wiring Installation Board	1	34	Noise decreasing part	1
	Washer for wire joint	1	35	Small Handle	1
	Terminal install board	1			

**13. FSK-364-484HF**  
**Indoor unit**



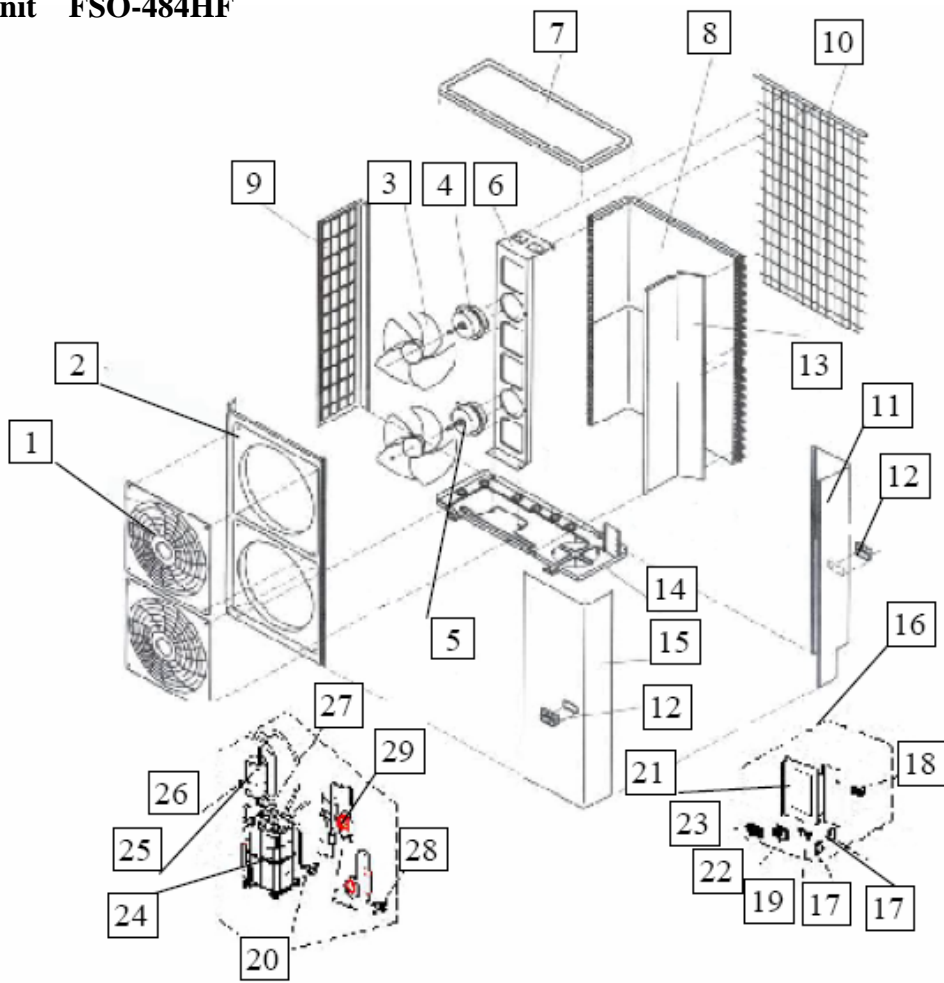
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Water Receiver, Ass'y	1	30	Cover, installing	4
2	Stopper, Water Drain	1	31	Swing motor	1
3	E-Parts Box Cover1	1	32	Fan guide	4
4	Capacity	1	33	Filter	1
5	E-Parts Box Ass'y	1	34	Switch, air inlet grille	2
6	E-Parts box cover	1	35	Switch cover, air inlet grille	1
7	Transformer	1	36	Air inlet grille	1
8	PCB Ass'y	1	37	Hanger for panel, assmy	4
9	Wind inlet guide	1	38	Control box	1
10	nut	1	39	LED holder	1
11	Clamp, fan	1	40	Control board	1
12	Fan Ass'y	1	41	Cover, control box	1
13	Fan Motor	1	42	Panel	1
14	Gasket, motor	6	43	Back board, Air out 1	1
15	Evaporator Base Ass'y	1	44	Back board, Air out 2	1
16	Base Pan Ass'y	1	45	Back board, Air out 3	1
16	Wire clamp board	1	46	Back board, Air out 4	1
17	Sealing board, pipe out	1	47	Foam, air out 1	4
18	Install hanger	4	47	Foam, air out 2	4
19	Expandable hanger	4	48	Fixing hanger, Evaporator	1
20	Drain Pump Ass'y	1	49	Fixing hanger, Evaporator	2
21	Water switch	1	50	Eva in pipe, assmy	1
22	Clamp, water pipe	1	51	Eva out pipe, assmy	1
23	Water pipe	1	52	Evaporator Ass'y	1
24	Extend water pipe	1	53	Fixing board, Evaporator	1
25	Separate board, pump	1	54	Rubber, wire crossing	1
26	Rubber washer, pump	3	55	Pipe Temperature Sensor Ass'y	1
27	holder, pump	1	56	Room Temperature Sensor Ass'y	1
28	Water trying board	1	57	Remoter	1
29	Panel Ass'y	1			

**Outdoor unit FSO-364HF**



No.	Part Name	Quantity	No.	Part Name	Quantity
	Front net	1	17	Outdoor temp sensor	1
1	Clamp for front net	10	18	Wire joint for multiplexer	3
2	Front clapboard	1	19	Contactora AC	1
3	Propeller fan	1	20	Transformer	1
4	Fan Motor	1	21	Fan motor capacitor	1
5	Holder for fan motor	1	22	Wire joint for power	1
6	Cover	1	23	Washer for wire joint	1
7	Condenser I	1	24	Wire joint, 4p	1
7	Condenser II	1	25	Installation board for E-parts	1
8	Left clapboard	1	26	Main control board	1
9	Rear Net	1	27	Main board box	1
10	Big Handle	1	28	Refrigerant container	1
11	Rear right clapboard	1	29	Fixing clamp, container	1
12	Separating board	1	30	Discharge temp sensor	1
13	Installation plate for valves	1	31	4-Ways valve	1
14	Chassis	1	32	Liquid pipe valve	1
15	Front right clapboard	1	33	Gas pipe valve	1
16	Condenser pipe temp sensor	1	34	Compressor	1
			34	Electric heater for compressor	1

**Outdoor unit FSO-484HF**



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front net	2	18	Terminal Block,2p	3
2	Cabinet, Front	1	19	Contactor, AC	1
3	Fan, Propeller	2	20	Low Pressure Valve, 3/8 in.	1
4	Fan Motor, Down	1	21	PCB Ass'y	1
5	Fan Motor	1	22	Terminal Block, 4p	1
6	Mount, Fan Motor	1	23	Wire joint for power	1
7	Top cap Ass'y	1	24	Compressor	1
8	Condenser I	1	25	Refrigerator Container	1
8	Condenser II	1	26	Fixture, Segregator	1
9	Left Side Cabinet	1	27	Four-way Valve	1
10	Supporter, Rear Cabinet	1	27	Four-way Valve Solenoid	1
11	Cabinet, Back side	1	28	High Pressure Valve .	1
12	Handle	2	29	Capillary Tube Ass'y	1
13	Plate, Sound-proof	1	30	Electric heat belt for comp	1
14	Base Pan Ass'y	1	31	Discharge temp controller	1
15	Cabinet, Front Side	1	32	Condenser temp sensor	1
16	E-control box, ass'y	1	33	Room temp sensor	1
17	Capacitor, Fan Motor	2			

