

# GREE

making better air conditioners

TECHNICAL SALES GUIDE-50Hz /60Hz



## CONCEALED CEILING FAN COIL UNIT



The photos of products on the cover are for reference only, the actual appearance of certain product may be different.

## 1 DESCRIPTION

GREE FP series fan coil air conditioners are designed specially to meet the varied requirements of district cooling or heating using chilled water or hot water. Fan coils can be applied to two or four pipe systems to satisfy the requirements of a wide variety of air conditioning or heating application. GREE FCU (Fan coil unit) is available in concealed versions for ceiling mounted installation. They offer effective zone control and are especially suitable for use in apartments, hotels, shopping centers, office buildings and hospitals

GREE FCU with airflow capacity from 250 to 3400m<sup>3</sup>/h are available. The ceiling concealed unit is suitable for external static pressure up-to 60 Pa. the cooling or heating performance of a fan coil can vary greatly with changes in air-inlet temperature and humidity. It also varies with the amount of water being circulated in the coil. The water flow rate through each unit is determined by the specification of the system that governs the difference between the inlet and outlet water temperature. District cooling systems traditionally require a 9 Deg C difference between the inlet and outlet at maximum load conditions, to conserve the pumping power and increase the overall system efficiency. GREE FCU has a version that meets this requirement.

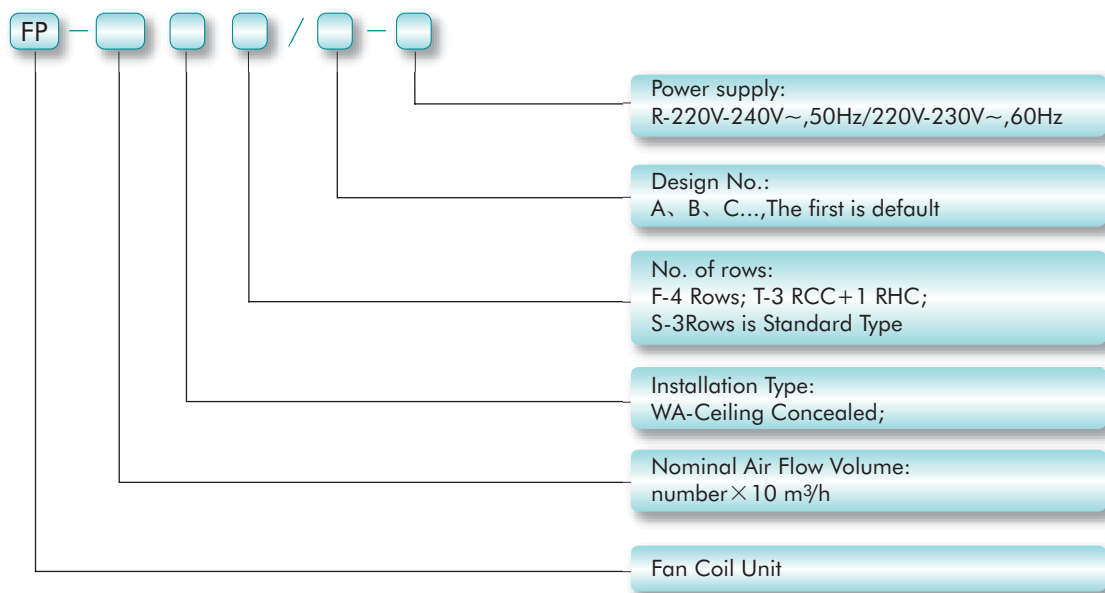
To facilitate choosing the correct size of a fan coil for various inlet air dry bulb and wet bulb temperatures, as well as various inlet water temperature and temperature rise or flow rates, a dedicated computer selection software is available. The manufacturing facility has a test-lab that allows verification of the thermal capacities given by the software under the specified conditions.

## 2 COMPATIBILITY SHEET

<b>GENERAL</b>	Coils	Standard Cooling Coil 4-Rows Cooling Coil Cooling + Heating Coil	◇ ■ ■
	Motor Protection	IP 20 - 50Hz IP 20 - 60Hz	◇ ■
<b>OPTIONS</b>	Drain Pan	Standard Drain Pan Curate Drain Pan	◇ ■
	Filters & Rails	6mm Synthetic Filter	□
<b>SPECIAL REQUESTS</b>	FIN PROTECTION	Blue Fin Copper Fin	■ ■
	Plenum Insulat	6mm Plenum Insulation	■
	Flange	Inlet Flange	■
	Heater & Terminal	Heater Extra Terminal Box	■
	Powder Coating	Powder Coating For Casing	■
	Drain Pan	Stainless Steel Drain Pan	■
		Extended Stainless Steel Drain Pan	■

**Legend:** ◇ Standard   □ Option   ■ Special Request

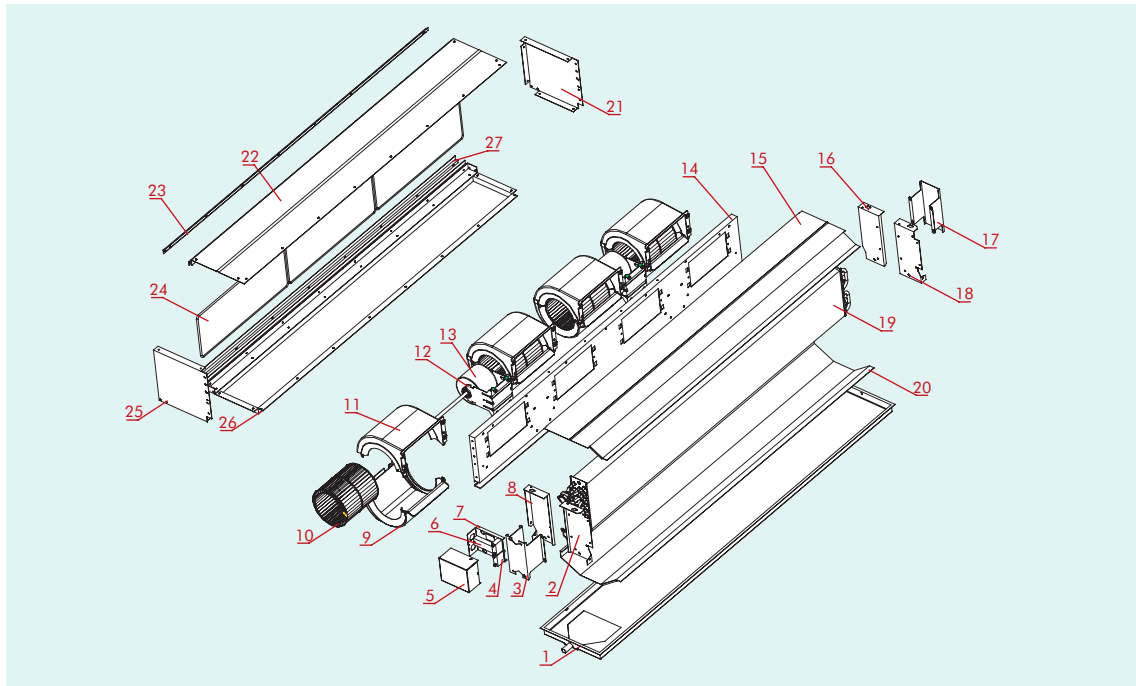
### 3 NOMENCLATURE



### 4 FEATURES & BENEFITS

Features		Benefits
Features	Descriptions For Features	
Low Noise Level	Units have 3 fan speeds and operate very silently. Sound Data of the units at all three is available	Whisper quiet comfort condition results in satisfied occupant
Large Range of Sizes	Airflow capacity from 250 to 3400 m <sup>3</sup> /h, 3 and 4 row coils to closely match load requirement and provide dehumidification.	Better control over comfort conditions results in satisfied occupants
Compact Size & Low Height	Height of Ceiling Units is restricted to 245mm (2040m <sup>3</sup> /h and below modles) for concealed unit	Higher Ceiling heights result in optimum comfort to occupants
Superior Air Distribution	Multi configurations allow designers to provide cooling in all areas with minimum ductwork.	Higher Ceiling heights result in optimum comfort to occupants
Easy Installation	Threaded Brass connector is provided for easy piping connection. Drain and Purge Valves are provided on all units to assist in commissioning.	Reduces installation and commissioning time and cost
Easy Maintenance	Filters on the Concealed Units can remove from any direction. Exposed Units have filters that slide out. Fan and Motor can be separate, thereby maintenance is convenient.	Filters can be cleaned frequently resulting in healthier comfort conditions Lowers maintenance cost
Safety	Motors are internally protected with UL recognized components CE marked unit available as an option	May qualify for lower insurance premium Valid for sale in EU Countries with this option

## 5 EXPLODED VIEW



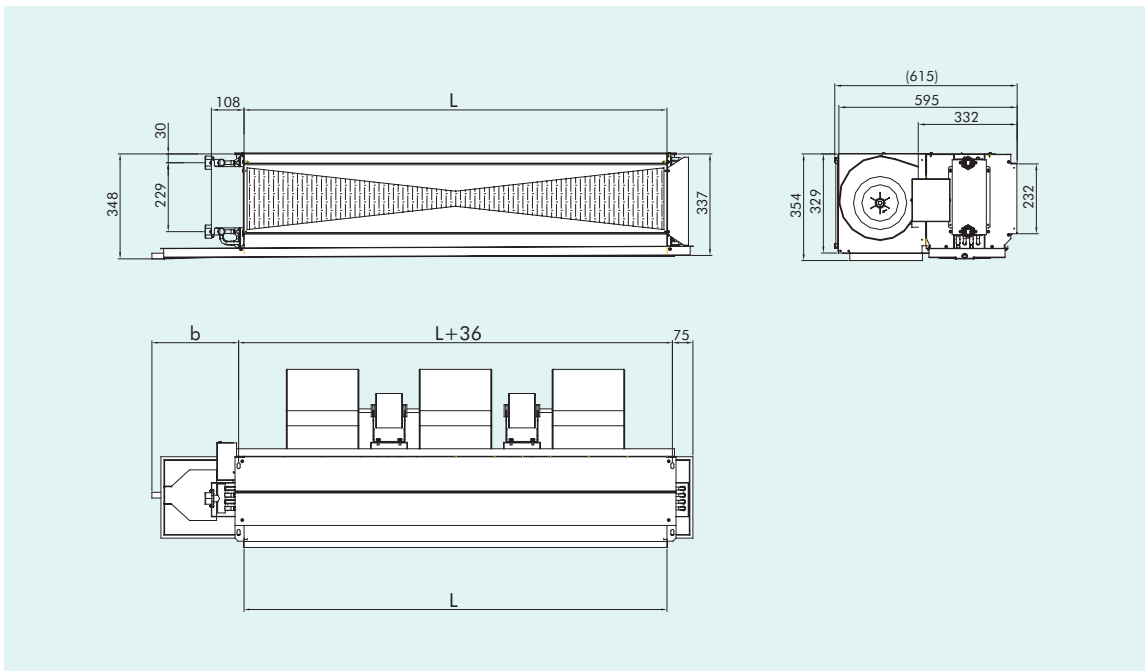
No.	Component	Available as	Material & Specification	Insulation Material
1	Drain Pan	◇	Powder Coating for 1.0mm Steel	8mmPE
2	Left terminal plate 2	◇	1.2mm Galvanized Steel	
3	Manifold Support	◇	1.2mm Galvanized Steel	
4	Capacitance	◇		
5	Motor Terminal Cover	◇	1.0mm Galvanized Steel	
6	Motor Terminals	◇		
7	Support Plate for Terminals	◇	1.0mm Galvanized Steel	
8	Left terminal plate 1	◇	1.2mm Galvanized Steel	
9	Front propeller housing	◇	ABS	
10	Centrifugal fan	◇	ABS	
11	Rear propeller housing	◇	ABS	
12	Motor Support Plate	◇	2.0mm Galvanized Steel	
13	Motor	◇		
14	Fan Deck	◇	1.2mm Galvanized Steel	
15	Top Panel	◇	0.8mm Galvanized Steel	8mmXPE
16	Right terminal plate 1	◇	1.2mm Galvanized Steel	
17	Cooling coil protecting plate	◇	0.8mm Galvanized Steel	
18	Right terminal plate 2	◇	1.2mm Galvanized Steel	
19	Cooling Coil	◇	9.52×0.30×0.17	
20	Bottom Panel	◇	0.8mm Galvanized Steel	5mmXPE
21	Side Panel of Plenum(Left)	□	1.2mm Galvanized Steel	
22	Top Panel of plenum	□	1.2mm Galvanized Steel	
23	Top Flange of Plenum	□	1.0mm Galvanized Steel	
24	Filter	□		
25	Side Panel of Plenum(Right)	□	1.2mm Galvanized Steel	
26	Bottom Panel of plenum	□	1.2mm Galvanized Steel	
27	Bottom Flange of Plenum	□	1.0mm Galvanized Steel	

**Legend:** ◇ Standard □ Option ■ Special Request

# Concealed Ceiling Fan Coil Unit Technical Sales Guide

Model	L	a	b	b*(with Curate Drain Pan)	Width	Height	Weight	
							3Rows	4,3+1Rows
FP-34WA*	490	45	310	180	510(525)	245(252)	15	14.4
FP-51WA*	620						16	17.2
FP-68WA*	740						18	19.2
FP85WA*	820						19.5	20.5
FP-102WA*	980						21	23.2
FP-136WA*	1400	75	250	180	510(525)	245(252)	30	34.2
FP-170WA*	1500		310				33	37.5
FP-204WA*	1500		34				37.5	

- Note:**
1. Width & Height in ( ) refers to plenum with Filter and Flange;
  2. Weights mentioned above are four Standard Units, Plenum with single Package.



Model	L	b	b*(with Curate Drain Pan)	Width	Height	Weight	
						3Rows	4,3+1Rows
FP-238WA*	1250	310	180	595 (615)	329(354)	48	52
FP-272WA*	1250					48	52
FP-306WA*	1500					52	59
FP-340WA*	1500					52	59

- Note:**
1. Width & Height in ( ) refers to plenum with Filter and Flange;
  2. Weights mentioned above are for Standard Units, while the Plenum will be Package separately.

## 8 PACKAGE DIMENSIONS

Model		Length	Width	Height	Gross Weight	
					3Rows	4,3+1Rows
		mm	mm	mm	kg	kg
Standard	FP-34WA*	900	275	560	19	18.9
	FP-51WA*	1030			20.5	21.9
	FP-68WA*	1150			23	24.1
	FP-85WA*	1230			24.5	25.6
	FP-102WA*	1390			26	28.7
	FP-136WA*	1780			35	40.5
	FP-170WA*	1940			38.5	44
	FP-204WA*	1940			39.5	44
	FP-238WA*	1710	400	650	55	60
	FP-272WA*	1710			55	60
	FP-306WA*	1960			60	66
	FP-340WA*	1960			60	66
Curate Drain Pan	FP-34WA*	770	275	560	19	20.4
	FP-51WA*	900			20.5	23.2
	FP-68WA*	1020			23	25.4
	FP-85WA*	1100			24.5	27
	FP-102WA*	1260			26	30.9
	FP-136WA*	1700			35	42.5
	FP-170WA*	1800			38.5	45.5
	FP-204WA*	1800			39.5	48
	FP-238WA*	1580	400	650	55	60
	FP-272WA*	1580			55	60
	FP-306WA*	1830			60	66
	FP-340WA*	1830			60	66

## 9 GUIDE SPECIFICATION

### ➔ General

Furnish and install Fan Coil Units as indicated and scheduled in the plans. Units shall be factory assembled with coils that are pressure tested individually to 310 psi (2.5MPa). The fans must be factory run and manufacturer must have a facility to test the capacity of cooling at specified entering air conditions and specified chilled water temperature, to assure correct capacity. In addition the test facility shall be test air capacity at specified external pressure drop at indicated speed setting.

## ➔ Basic Unit

The basic unit shall be fabricated out of 1mm galvanized steel or above. The fan motor shall be easily removable for serviceability. A terminal box with terminal strip shall be provided for terminating the wiring. On ceiling concealed units with plenum, the filter shall be easily removable from either side or the back.

## ➔ Coils

Coils shall be made out of 3/8 inch or 9.52mm OD copper tubes. Aluminium fins shall be 0.115mm thick and the coil shall have maximum spacing of 2.3mm between the fins. The coil shall be pressure tested to 2.5MPa (For a working pressure of 1600 kPa) and dehydrated before assembly. A manual air vent shall be provided on top of the coil. The coil assembly shall be protected on the side on which piping is to be fitted with a cover made of G1 sheet. The metal sheet below the coil shall be powder coated to avoid corrosion. Black Epoxy coated fins shall be available as an option.

## ➔ Motors

Motors shall be 3 speeds, permanent split capacitor type with Thermal overload protection. Motors shall have permanently lubricated ball bearings. The motors shall have a class B insulation. Standard motor shall be IP20 is totally available on request. Total enclosed motors shall be available on request (option). Motors shall be protected by an internal overload that is UL Certified component.

## ➔ Fans

Fans shall be centrifugal direct-drive, forward curved type. Fan wheel shall be statically and dynamically balanced.

## ➔ Terminal Box

All units shall be provided with factory installed terminal box with the fan motor wired to the box.

## ➔ Drain Pan

Drain Pan shall be die-formed steel, sloped to the piping connection, which will be threaded for easy connection. Internal surface shall be painted with anti-corrosive paint. The drain pan shall be insulated below the closed cell formed insulation (that complies with B5476 part 6 to class 1 requirements).

## ➔ Test

Manufacturer shall have a test facility to verify the air flow rate at specified external static pressure on all three speeds.

It shall also be possible to verify the cooling capacity with water flow rates and temperature shown in the product guide. Verification of airflow and capacities shall be option available at a declared cost.

The manufacturing process should have a certified ISO 9000 quality plan.

## 10 SPECIFICATION

### ➔ 10.1 Specification-Standard

#### Note:

The performances are based on the following conditions:

Cooling Capacity: For 3 Row Coils      Entering Air Conditions DB:27°C (80.6°F)    WB : 19 °C (66.2°F)

Entering Chilled Water Conditions : 7°C (44.6°F)    Leaving Chilled Water Conditions : 12°C (53.6°F)

Air Flow: Fan Speed = High                      220V/1Ph./50-60Hz

Under Dry Coil Conditions at 30 Pa External Static Pressure

MODEL		FP-34	FP-51	FP-68	FP-85	FP-102	FP-136
<b>PERFORMANCE</b>							
Nominal Air Flow	cu.m/h	340	510	680	850	1020	1360
	CFM	200	300	400	500	600	800
Nominal Total Capacity	kW	2.19	3.37	4.28	5.04	6.46	8.17
	Btu/h	6812	11507	14587	17180	22042	27877
Water Flow Rate	l/s	0.104	0.161	0.204	0.241	0.309	0.390
	G.P.M.(US)	1.654	2.553	3.237	3.812	4.891	6.186
Water Pressure Drop	kPa	10	15	25	30	40	20
	ft.wg.	3.28	4.92	8.2	9.84	13.12	6.56
<b>COIL</b>							
Face Area	sq.m	0.100	0.126	0.150	0.167	0.199	0.284
Face Velocity	m/s	0.95	1.12	1.26	1.42	1.42	1.33
<b>Motor</b>							
Type	3-Speed Permanent Split Capacitor Motor						
No. of motor	#	1	1	1	1	1	2
Total Rating Output	watt	44	59	72	87	108	156
Amp.	A	0.20	0.27	0.33	0.40	0.49	0.71
<b>FAN</b>							
Type	Centrifugal Fan ( Forward Curve )						
No. of Fans	#	1	2	2	2	2	3
<b>WATER CONTENT</b>							
3 Rows	Liters	1.06	1.29	1.50	1.64	1.92	2.66
4 Rows	Liters	1.35	1.65	1.94	2.12	2.50	3.48
3+1 Rows	Liters	1.55	1.85	2.14	2.32	2.70	3.68
<b>PLENUM</b>							
Model		HF31	HF32	HF33	HF34	HF35	HF36

MODEL		FP-170	FP-204	FP-238	FP-272	FP-306	FP-340
<b>PERFORMANCE</b>							
Nominal Air Flow	Cu.m/h	1700	2040	2380	2720	3060	3400
	CFM	1000	1200	1400	1600	1800	2000
Nominal Total Capacity	kW	10.74	12.16	12.4	13.5	16	17
	Btu/h	36629	41492	42296	46049	54576	57987
Water Flow Rate	l/s	0.513	0.581	0.567	0.636	0.742	0.794
	G.P.M.(US)	8.128	9.207	2.493	2.799	3.263	3.496
Water Pressure Drop	kPa	38	45	21.9	27.1	37.5	41.2
	ft.wg.	12.464	14.76	7.18	8.89	12.30	13.51
<b>COIL</b>							
Face Area	sq.m	0.305	0.305	0.381	0.381	0.457	0.457
Face Velocity	m/s	1.55	1.86	1.74	1.98	1.86	2.07
<b>Motor</b>							
Type	3-Speed Permanent Split Capacitor Motor						
No. of motor	#	2	2	2	2	2	2
Total Rating Output	watt	174	212	380	475	535	640
Amp.	A	0.79	0.96	1.73	2.16	2.43	2.91
<b>FAN</b>							
Type	Centrifugal Fan ( Forward Curve )						
No. of Fans	#	4	4	3	3	3	3
<b>WATER CONTENT</b>							
3 Rows	Liters	2.84	2.84	3.50	3.50	4.16	4.16
4 Rows	Liters	3.72	3.72	4.60	4.60	5.48	5.48
3+1 Rows	Liters	3.92	3.92	4.80	4.80	5.68	5.68
<b>PLENUM</b>							
Model		HF37	HF37	HF28	HF28	HF29	HF29

## ➔ 10.2 Specification-District Cooling

**Note:**

The performances are based on the following conditions:

Cooling Capacity: For 3 Row Coils      Entering Air Conditions DB:27 °C (80.6°F)      WB: 19 °C (66.2°F)  
 Entering Chilled Water Conditions :5.5 °C (41.9°F)      Leaving Chilled Water Conditions      14.5 °C (58.1°F)  
 Air Flow: FanSpeed = High 220V/1Ph./50-60Hz      Under Dry Coil Conditions at 30 Pa External Static Pressure

MODEL		FP-34	FP-51	FP-68	FP-85	FP-102	FP-136
<b>PERFORMANCE</b>							
Nominal Air Flow	Cu.m/h	340	510	680	850	1020	1360
	CFM	200	300	400	500	600	800
Nominal Total Capacity	kW	2.19	3.37	4.28	5.04	6.46	8.17
	Btu/h	7456	11507	14587	17180	22042	27877
Water Flow Rate	l/s	0.058	0.089	0.114	0.134	0.171	0.217
	G.P.M.(US)	0.921	1.417	1.800	2.120	2.717	3.436
Water Pressure Drop	kPa	22.6	33.9	31.3	37.6	50.0	49.4
	ft.wg.	7.4	11.1	10.3	12.3	16.4	16.2
<b>COIL</b>							
Face Area	sq.m	0.100	0.126	0.150	0.167	0.199	0.284
Face Velocity	m/s	0.95	1.12	1.26	1.42	1.42	1.33
<b>Motor</b>							
Type	3-Speed Permanent Split Capacitor Motor						
No. of motor	#	1	1	1	1	1	2
Total Rating Output	watt	44	59	72	87	108	156
Amp.	A	0.20	0.27	0.33	0.40	0.49	0.71
<b>FAN</b>							
Type	Centrifugal Fan ( Forward Curve )						
No. of Fans	#	1	2	2	2	2	3
<b>WATER CONTENT</b>							
3 Rows	Liters	1.06	1.29	1.50	1.64	1.92	2.66
4 Rows	Liters	1.35	1.65	1.94	2.12	2.50	3.48
3+1 Rows	Liters	1.55	1.85	2.14	2.32	2.70	3.68
<b>PLENUM</b>							
Model		HF31	HF32	HF33	HF34	HF35	HF36
MODEL		FP-170	FP-204	FP-238	FP-272	FP-306	FP-340
<b>PERFORMANCE</b>							
Nominal Air Flow	Cu.m/h	1700	2040	2380	2720	3060	3400
	CFM	1000	1200	1400	1600	1800	2000
Nominal Total Capacity	kW	10.74	12.16	12.4	13.5	15.32	16.35
	Btu/h	36629	41492	42296	46049	52257	55770
Water Flow Rate	l/s	0.285	0.323	0.380	0.439	0.501	0.553
	G.P.M.(US)	1.254	1.420	1.673	1.930	2.202	2.435
Water Pressure Drop	kPa	39.6	46.9	20.4	28.6	37.1	43.2
	ft.wg.	12.99	15.38	6.69	9.38	12.17	14.17
<b>COIL</b>							
Face Area	sq.m	0.305	0.305	0.381	0.381	0.457	0.457
Face Velocity	m/s	1.55	1.86	1.74	1.98	1.86	2.07
<b>Motor</b>							
Type	3-Speed Permanent Split Capacitor Motor						
No. of motor	#	2	2	2	2	2	2
Total Rating Output	watt	174	212	380	475	535	640
Amp.	A	0.79	0.96	1.73	2.16	2.43	2.91
<b>FAN</b>							
Type	Centrifugal Fan ( Forward Curve )						
No. of Fans	#	4	4	3	3	3	3
<b>WATER CONTENT</b>							
3 Rows	Liters	2.84	2.84	3.50	3.50	4.16	4.16
4 Rows	Liters	3.72	3.72	4.60	4.60	5.48	5.48
3+1 Rows	Liters	3.92	3.92	4.80	4.80	5.68	5.68
<b>PLENUM</b>							
Model		HF37	HF37	HF28	HF28	HF29	HF29

# Concealed Ceiling Fan Coil Unit Technical Sales Guide

Air Condition: EDB/EWB 27/19°C (80.6/66.2°F) Water Conditions: EWT/LWT 7/12°C (44.6/53.6°F) delta T 5°C (41°F)  
 Note: Standard || 3+1Rows || 4Pipe

EDB/EWB: Entering Air Dry-bulb Temperature / Entering Air Wet-bulb Temperature.  
 EWT/LWT: Entering Water Temperature / Leaving Water Temperature.

Model	Speed	ESP Pa	Air. Flow		Cooling Capacity				Air Off FCU		Water Flow		Water Pressure		Power Input watts
					Total		Sensible		DB	WB					
			m <sup>3</sup> /h	CFM	kW	Btu/h	kW	Btu/h	°C	°C	l/s	G.P.M	kPa	ft.wg	
FP-170	High	0	1748	1028	10.85	36965	7.56	25749	13.70	12.62	0.518	2.281	38.4	12.6	190
		30	1610	947	8.90	30298	6.48	22087	13.22	12.95	0.427	1.881	29.4	9.6	174
		60	1390	818	9.44	32158	6.44	21944	12.40	11.66	0.451	1.985	29.0	9.5	158
	Medium	0	1389	817	9.42	32101	6.43	21916	12.40	11.66	0.450	1.981	29.0	9.5	160
		30	1265	744	8.85	30127	5.98	20371	12.03	11.33	0.423	1.859	25.5	8.4	150
		60	1107	651	8.13	27695	5.42	18454	11.34	10.75	0.388	1.708	21.6	7.1	138
	Low	0	1195	703	8.78	29898	5.82	19827	11.45	10.78	0.419	1.844	25.0	8.2	142
		30	1085	638	8.13	27695	5.38	18311	11.08	10.51	0.388	1.708	21.6	7.1	132
		60	925	544	7.27	24777	4.75	16193	9.87	10.33	0.348	1.530	17.2	5.7	121
FP-204	High	0	2094	1232	10.59	36078	7.83	26665	14.26	13.16	0.586	2.579	45.3	14.8	240
		30	1940	1141	9.79	33360	7.18	24462	13.36	13.08	0.485	2.135	39.0	12.8	212
		60	1683	990	9.11	31014	6.30	21458	13.01	12.26	0.422	1.856	35.0	11.5	197
	Medium	0	1677	986	10.74	36593	7.53	25664	13.01	12.26	0.513	2.259	34.7	11.4	201
		30	1518	893	10.06	34275	6.99	23804	12.54	11.89	0.481	2.115	30.5	10.0	180
		60	1339	788	9.32	31758	6.38	21744	11.88	11.35	0.445	1.960	26.2	8.6	169
	Low	0	1435	844	9.79	33360	6.74	22946	12.17	11.57	0.468	2.059	28.9	9.5	168
		30	1302	766	9.15	31157	6.24	21258	11.77	11.24	0.437	1.924	25.2	8.3	155
		60	1135	668	8.37	28525	5.62	19140	11.09	10.66	0.400	1.760	21.1	6.9	147
FP-238	High	0	2618	1540	11.46	39025	7.07	24076	14.17	13.07	0.524	2.304	29.9	9.8	418
		30	2380	1400	10.42	35477	6.43	21887	13.63	12.67	0.476	2.094	27.2	8.9	380
		60	2142	1260	9.37	31929	5.78	19698	12.93	12.17	0.428	1.885	23.1	7.6	342
	Medium	0	2102	1236	9.12	31071	5.58	18997	12.88	12.16	0.420	1.847	22.2	7.3	368
		30	1892	1113	8.21	27964	5.02	17098	12.47	11.83	0.407	1.791	17.7	5.8	334
		60	1703	1002	7.39	25167	4.52	15388	11.81	11.29	0.386	1.696	15.0	4.9	301
	Low	0	1793	1055	7.92	26980	4.74	16136	12.09	11.51	0.368	1.621	15.5	5.1	314
		30	1614	949	7.13	24282	4.26	14523	11.69	11.17	0.347	1.527	14.9	4.9	285
		60	1452	854	6.42	21853	3.84	13070	11.01	10.59	0.321	1.414	11.9	3.9	257
FP-272	High	0	2992	1760	12.47	42486	7.30	24862	14.10	12.99	0.588	2.586	37.0	12.1	523
		30	2720	1600	11.34	38624	6.64	22602	13.56	12.59	0.534	2.351	33.6	11.0	475
		60	2448	1440	10.21	34762	5.97	20342	12.85	12.07	0.481	2.116	28.6	9.4	428
	Medium	0	2401	1412	9.97	33961	5.89	20056	12.80	12.06	0.471	2.074	27.4	9.0	460
		30	2161	1271	8.97	30564	5.30	18050	12.39	11.74	0.457	2.010	21.9	7.2	418
		60	1945	1144	8.08	27508	4.77	16245	11.71	11.20	0.433	1.904	18.6	6.1	376
	Low	0	2045	1203	8.80	29984	4.89	16651	12.00	11.41	0.414	1.820	19.6	6.4	392
		30	1841	1083	7.92	26985	4.40	14986	11.59	11.08	0.390	1.714	15.7	5.1	356
		60	1656	974	7.13	24287	3.96	13488	10.92	10.48	0.361	1.587	12.1	4.0	321
FP-306	High	0	3366	1980	14.78	50354	8.80	29961	13.93	12.85	0.685	3.015	51.2	16.8	589
		30	3060	1800	13.44	45777	8.00	27237	13.40	12.45	0.623	2.741	46.5	15.2	535
		60	2754	1620	12.10	41199	7.20	24513	12.67	11.92	0.561	2.467	41.9	13.7	482
	Medium	0	2712	1595	11.74	39997	7.07	24090	12.62	11.91	0.549	2.418	40.7	13.4	518
		30	2441	1436	10.57	35998	6.37	21681	12.21	11.58	0.533	2.344	37.3	12.2	471
		60	2197	1292	9.51	32398	5.73	19513	11.54	11.02	0.505	2.220	35.9	11.8	424
	Low	0	2285	1344	9.71	33074	5.91	20113	11.83	11.26	0.482	2.122	36.8	12.1	441
		30	2057	1210	8.74	29766	5.31	18102	11.41	10.92	0.454	1.998	34.2	11.2	401
		60	1851	1089	7.87	26790	4.78	16292	10.72	10.31	0.421	1.850	30.6	10.0	361
FP-340	High	0	3740	2200	15.71	53501	10.00	34052	14.11	12.93	0.734	3.230	56.2	18.4	704
		30	3400	2000	14.28	48638	9.09	30956	13.57	12.51	0.667	2.936	51.1	16.8	640
		60	3060	1800	12.85	43774	8.18	27861	12.86	11.99	0.601	2.643	46.0	15.1	576
	Medium	0	2982	1754	12.57	42801	8.08	27535	12.82	11.98	0.589	2.590	44.7	14.7	620
		30	2684	1579	11.31	38521	7.28	24781	12.40	11.66	0.571	2.511	40.3	13.2	563
		60	2415	1421	10.18	34669	6.55	22303	11.74	11.10	0.541	2.378	37.0	12.1	507
	Low	0	2532	1489	10.56	35963	6.90	23518	12.03	11.33	0.517	2.273	38.5	12.6	528
		30	2279	1340	9.50	32367	6.21	21166	11.55	10.99	0.486	2.141	35.9	11.8	480
		60	2051	1206	8.55	29130	5.59	19049	10.86	10.39	0.450	1.982	31.8	10.4	432

# Concealed Ceiling Fan Coil Unit Technical Sales Guide

Air Condition: EDB/EWB 24/18°C (75.2/64.4°F) Water Conditions: EWT/LWT 7/12°C (44.6/53.6°F) delta T 5°C (41°F)

Note:

EDB/EWB: Entering Air Dry-bulb Temperature / Entering Air Wet-bulb Temperature.

EWT/LWT: Entering Water Temperature / Leaving Water Temperature.

Standard ||3+1Rows|| 4Pipe

Model	Speed	ESP Pa	Air. Flow m <sup>3</sup> /h CFM		Cooling Capacity				Air Off FCU		Water Flow		Water Pressure		Power Input watts
					Total		Sensible		DB	WB	l/s	G.P.M	kPa	ft.wg	
					kW	Btu/h	kW	Btu/h	°C	°C					
FP-170	High	0	1748	1028	9.22	31420	6.43	21887	13.70	12.62	0.441	1.939	27.7	9.1	190
		30	1610	947	7.56	25754	5.51	18774	13.22	12.95	0.363	1.599	21.2	6.9	174
		60	1390	818	8.03	27334	5.48	18653	12.40	11.66	0.383	1.687	20.9	6.8	158
	Medium	0	1389	817	8.01	27286	5.47	18628	12.40	11.66	0.383	1.684	20.9	6.8	160
		30	1265	744	7.52	25608	5.08	17315	12.03	11.33	0.359	1.580	18.4	6.0	150
		60	1107	651	6.91	23541	4.61	15686	11.34	10.75	0.330	1.452	15.5	5.1	138
	Low	0	1195	703	7.46	25413	4.95	16853	11.45	10.78	0.356	1.567	18.0	5.9	142
		30	1085	638	6.91	23541	4.57	15564	11.08	10.51	0.330	1.452	15.5	5.1	132
		60	925	544	6.18	21060	4.04	13764	10.33	9.87	0.296	1.300	12.4	4.1	121
FP-204	High	0	2094	1232	9.00	30666	6.65	22665	14.26	13.16	0.498	2.192	32.6	10.7	240
		30	1940	1141	8.33	28356	6.10	20793	13.36	13.08	0.413	1.815	28.1	9.2	212
		60	1683	990	7.74	26362	5.36	18239	13.01	12.26	0.359	1.578	25.2	8.3	197
	Medium	0	1677	986	9.13	31104	6.40	21814	13.01	12.26	0.436	1.920	25.0	8.2	201
		30	1518	893	8.55	29134	5.94	20233	12.54	11.89	0.409	1.798	22.0	7.2	180
		60	1339	788	7.93	26994	5.43	18482	11.88	11.35	0.379	1.666	18.8	6.2	169
	Low	0	1435	844	8.33	28356	5.73	19504	12.17	11.57	0.398	1.751	20.8	6.8	168
		30	1302	766	7.78	26483	5.31	18069	11.77	11.24	0.372	1.635	18.1	5.9	155
		60	1135	668	7.12	24246	4.78	16269	11.09	10.66	0.340	1.496	15.2	5.0	147
FP-238	High	0	2618	1540	9.74	33171	6.01	20464	14.17	13.07	0.445	1.958	21.5	7.1	418
		30	2380	1400	8.85	30155	5.46	18604	13.63	12.67	0.405	1.780	19.6	6.4	380
		60	2142	1260	7.97	27140	4.92	16744	12.93	12.17	0.364	1.602	16.6	5.4	342
	Medium	0	2102	1236	7.75	26410	4.74	16148	12.88	12.16	0.357	1.570	16.0	5.2	368
		30	1892	1113	6.98	23769	4.27	14533	12.47	11.83	0.346	1.522	12.8	4.2	334
		60	1703	1002	6.28	21392	3.84	13080	11.81	11.29	0.328	1.442	10.8	3.5	301
	Low	0	1793	1055	6.73	22933	4.03	13716	12.09	11.51	0.313	1.378	11.2	3.7	314
		30	1614	949	6.06	20639	3.62	12344	11.69	11.17	0.295	1.298	10.7	3.5	285
		60	1452	854	5.45	18575	3.26	11110	11.01	10.59	0.273	1.202	8.6	2.8	257
FP-272	High	0	2992	1760	10.60	36113	6.20	21133	14.10	12.99	0.500	2.198	26.6	8.7	523
		30	2720	1600	9.64	32830	5.64	19212	13.56	12.59	0.454	1.998	24.2	7.9	475
		60	2448	1440	8.68	29547	5.08	17291	12.85	12.07	0.409	1.799	20.6	6.7	428
	Medium	0	2401	1412	8.48	28866	5.01	17048	12.80	12.06	0.401	1.763	19.7	6.5	460
		30	2161	1271	7.63	25980	4.50	15343	12.39	11.74	0.388	1.709	15.8	5.2	418
		60	1945	1144	6.86	23382	4.05	13808	11.71	11.20	0.368	1.619	13.4	4.4	376
	Low	0	2045	1203	7.48	25486	4.16	14154	12.00	11.41	0.352	1.547	14.1	4.6	392
		30	1841	1083	6.73	22938	3.74	12738	11.59	11.08	0.331	1.457	11.3	3.7	356
		60	1656	974	6.06	20644	3.37	11464	10.92	10.48	0.307	1.349	8.7	2.8	321
FP-306	High	0	3366	1980	12.57	42801	7.48	25467	13.93	12.85	0.583	2.563	36.8	12.1	589
		30	3060	1800	11.42	38910	6.80	23152	13.40	12.45	0.530	2.330	33.5	11.0	535
		60	2754	1620	10.28	35019	6.12	20836	12.67	11.92	0.477	2.097	30.1	9.9	482
	Medium	0	2712	1595	9.98	33998	6.01	20476	12.62	11.91	0.467	2.055	29.3	9.6	518
		30	2441	1436	8.98	30598	5.41	18429	12.21	11.58	0.453	1.992	26.9	8.8	471
		60	2197	1292	8.09	27538	4.87	16586	11.54	11.02	0.429	1.887	25.8	8.5	424
	Low	0	2285	1344	8.25	28113	5.02	17096	11.83	11.26	0.410	1.803	26.5	8.7	441
		30	2057	1210	7.43	25301	4.52	15387	11.41	10.92	0.386	1.699	24.6	8.1	401
		60	1851	1089	6.69	22771	4.07	13848	10.72	10.31	0.357	1.573	22.0	7.2	361
FP-340	High	0	3740	2200	13.35	45476	8.50	28944	14.11	12.93	0.624	2.745	40.5	13.3	704
		30	3400	2000	12.14	41342	7.73	26313	13.57	12.51	0.567	2.496	36.8	12.1	640
		60	3060	1800	10.92	37208	6.95	23682	12.86	11.99	0.511	2.246	33.1	10.9	576
	Medium	0	2982	1754	10.68	36381	6.87	23404	12.82	11.98	0.500	2.201	32.2	10.6	620
		30	2684	1579	9.61	32743	6.18	21064	12.40	11.66	0.485	2.134	29.0	9.5	563
		60	2415	1421	8.65	29469	5.57	18958	11.74	11.10	0.459	2.022	26.7	8.7	507
	Low	0	2532	1489	8.97	30569	5.87	19990	12.03	11.33	0.439	1.932	27.7	9.1	528
		30	2279	1340	8.08	27512	5.28	17991	11.55	10.99	0.414	1.819	25.9	8.5	480
		60	2051	1206	7.27	24761	4.75	16192	10.86	10.39	0.383	1.685	22.9	7.5	432

# Concealed Ceiling Fan Coil Unit Technical Sales Guide

Air Condition: EDB/EWB 20°C (68°F)

Water Conditions: EWT/LWT 70/60°C (158/140°F)

delta T 10°C (50°F)

Note:

District Cooling || 3+1Rows || 4Pipe

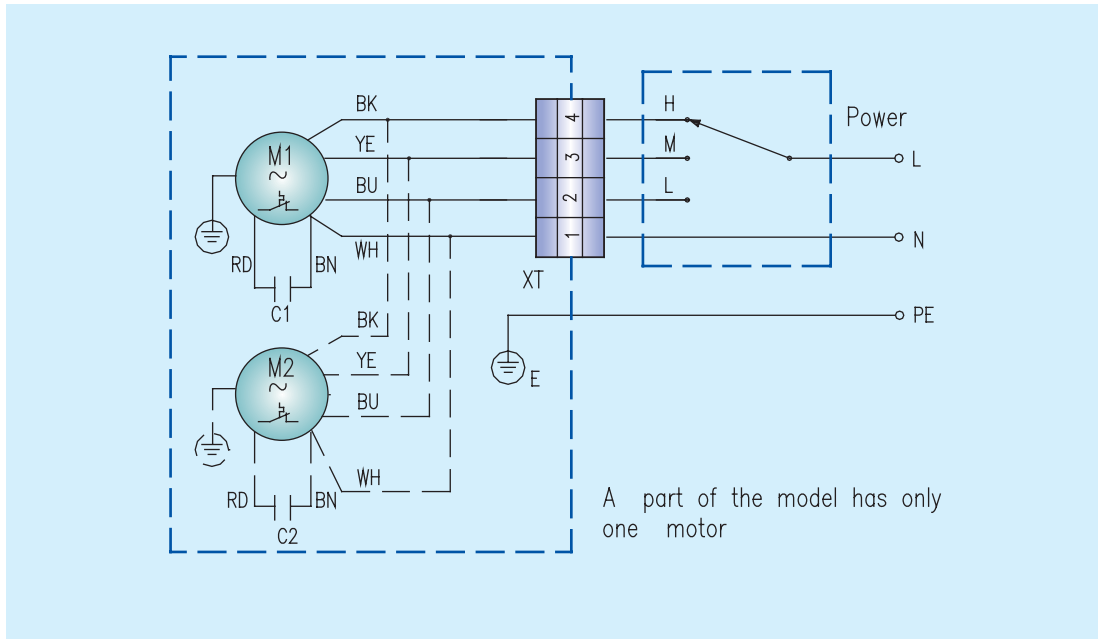
EDB/EWB: Entering Air Dry-bulb Temperature / Entering Air Wet-bulb Temperature.

EWT/LWT: Entering Water Temperature / Leaving Water Temperature.

Model	Speed	ESP	Air. Flow		Heating Capacity		LDBT	Water Flow		Water Pressure	
		Pa	m <sup>3</sup> /h	CFM	kW	Btu/h	°C	l/s	G.P.M	kPa	ft.wg
FP-170	High	0	1748	1029	10.28	35069	37.46	0.884	3.890	78.3	25.7
		30	1581	930	9.68	33031	38.18	0.832	3.664	69.5	22.8
		60	1390	818	8.94	30500	39.09	0.768	3.383	59.3	19.4
	Medium	0	1389	817	8.93	30461	39.09	0.767	3.379	59.1	19.4
		30	1265	744	8.37	28578	39.67	0.720	3.170	52.0	17.1
		60	1107	651	7.69	26256	40.65	0.661	2.912	43.9	14.4
	Low	0	1195	703	8.31	28347	40.64	0.714	3.144	51.2	16.8
		30	1085	638	7.69	26256	41.06	0.661	2.912	43.9	14.4
		60	925	544	6.89	23512	42.11	0.592	2.608	35.2	11.6
FP-204	High	0	2094	1232	11.61	39635	36.47	0.999	4.396	92.4	30.3
		30	1897	1116	10.96	37398	37.16	0.942	4.148	82.2	27.0
		60	1683	990	10.21	34841	38.01	0.878	3.865	71.4	23.4
	Medium	0	1677	987	10.17	34719	38.01	0.875	3.851	70.9	23.2
		30	1518	893	9.53	32514	38.64	0.819	3.607	62.2	20.4
		60	1339	788	8.83	30123	39.58	0.759	3.341	53.3	17.5
	Low	0	1435	844	9.28	31654	39.20	0.797	3.511	58.9	19.3
		30	1302	766	8.66	29565	39.76	0.745	3.279	51.4	16.9
		60	1135	667	7.93	27056	40.75	0.682	3.001	43.0	14.1
FP-238	High	0	2432	1431	13.62	46495	36.64	1.171	5.157	127.1	41.7
		30	2213	1302	12.91	44072	37.33	1.110	4.889	114.2	37.5
		60	1971	1160	12.08	41214	38.20	1.038	4.572	99.9	32.8
	Medium	0	1940	1141	11.89	40566	38.20	1.022	4.500	96.7	31.7
		30	1771	1042	11.17	38131	38.74	0.961	4.230	85.5	28.0
		60	1581	930	10.47	35742	39.68	0.900	3.965	75.1	24.6
	Low	0	1662	978	10.80	36860	39.30	0.929	4.089	79.9	26.2
		30	1519	894	10.16	34673	39.87	0.874	3.846	70.7	23.2
		60	1330	782	9.34	31867	40.86	0.803	3.535	59.7	19.6
FP-272	High	0	2784	1638	15.74	53723	36.79	1.353	5.959	75.4	24.7
		30	2530	1488	14.90	50838	37.49	1.281	5.639	67.5	22.2
		60	2260	1330	13.98	47698	38.37	1.202	5.291	59.4	19.5
	Medium	0	2224	1308	13.75	46929	38.37	1.182	5.205	57.5	18.9
		30	2024	1190	12.89	43985	38.92	1.108	4.879	50.6	16.6
		60	1809	1064	12.10	41290	39.86	1.040	4.580	44.5	14.6
	Low	0	1903	1120	12.49	42614	39.48	1.074	4.727	47.4	15.6
		30	1736	1021	11.72	39996	40.05	1.008	4.437	41.8	13.7
		60	1530	900	10.84	37009	41.05	0.932	4.105	35.8	11.7
FP-306	High	0	3135	1844	17.98	61350	37.03	1.546	6.805	98.3	32.3
		30	2846	1674	17.00	58004	37.74	1.461	6.434	87.9	28.8
		60	2548	1499	15.98	54541	38.63	1.374	6.050	77.7	25.5
	Medium	0	2506	1474	15.72	53641	38.63	1.351	5.950	75.2	24.7
		30	2277	1339	14.70	50185	39.19	1.264	5.567	65.8	21.6
		60	2037	1198	13.81	47146	40.14	1.188	5.230	58.1	19.0
	Low	0	2144	1261	14.27	48685	39.76	1.227	5.400	61.9	20.3
		30	1953	1149	13.37	45634	40.34	1.150	5.062	54.4	17.8
		60	1729	1017	12.43	42430	41.35	1.069	4.706	47.0	15.4
FP-340	High	0	3486	2050	19.88	67859	36.94	1.710	7.527	120.3	39.5
		30	3162	1860	18.79	64124	37.65	1.616	7.113	107.4	35.2
		60	2836	1668	17.70	60395	38.53	1.522	6.699	95.3	31.3
	Medium	0	2785	1638	17.38	59298	38.53	1.494	6.577	91.9	30.1
		30	2530	1488	16.26	55480	39.09	1.398	6.154	80.4	26.4
		60	2264	1332	15.28	52147	40.04	1.314	5.784	71.1	23.3
	Low	0	2385	1403	15.78	53870	39.66	1.357	5.975	75.8	24.9
		30	2170	1276	14.78	50449	40.23	1.271	5.596	66.5	21.8
		60	1930	1135	13.80	47106	41.25	1.187	5.225	58.0	19.0

# 11 ELECTRICAL & CONTROLS

## ➔ 11.1 Wiring Diagram



## ➔ 11.2 Operation & Controls

Key-part	Specification for Wiring & Function
Three Speed Switch	<p>The unit motor is a single-phase permanent split capacitor with the three speeds tapings HIGH/MEDIUM/LOW wired to the Terminal Block with color-coded wires.</p> <p>Terminal 1 — RED -HIGH SPEED                      Terminal 2 — BLUE -MEDIUM SPEED                      Terminal 1 — BLACK -LOW SPEED</p>
Motor	<p>The fan coil unit is equipped with three speed the model of FP31~FP102 have one motor and the model of FP136~FP204 have two motors.</p>

# 12 MEASURED SOUND PRESSURE LEVEL

## 12.1 Testing Way for Noises

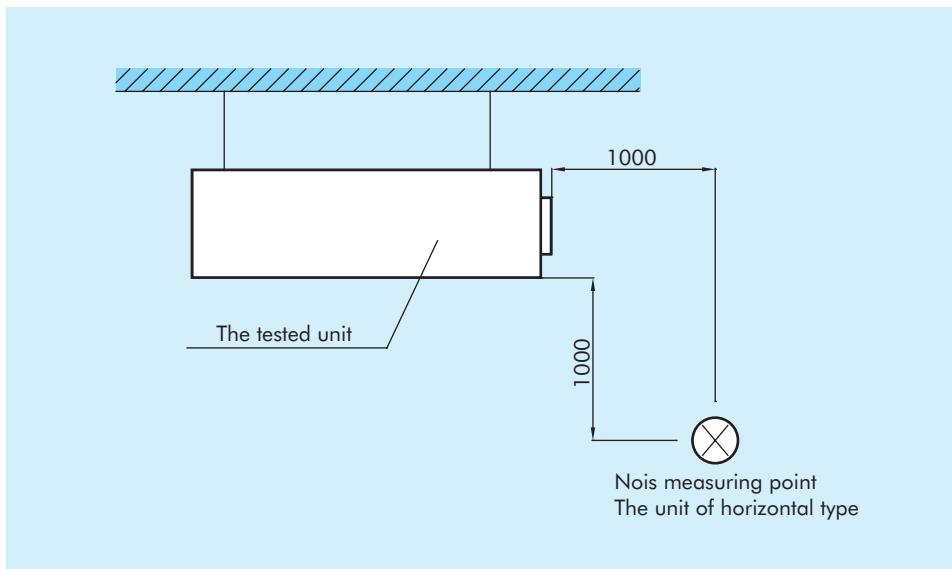
The published Sound Pressure data' is based on actual measurement being carried out as per stated standard.

The standard requires the following requirement for the noise measuring room:

- 1). The noise should be measured in a room that simulates a half-free field with the floor being reflecting.
- 2). The acoustics of the room should be in accordance with the requirements in table 1.

Types of measuring room	Center Frequency of 1/3 octave band/Hz	Max. tolerance/dB
Free field room	< 630	±1.5
	800~ 5000	±1.0
	< 6300	±1.5
Half-free field room	< 630	±2.5
	800~ 5000	±2.0
	< 6300	±3.0

The unit was tested at 220V 50Hz at the designates High, Medium and low speed setting with free discharge of air.



## 12.2 Result of Noises Test

### (1) Overall Sound Pressure Level

Model	FP-34	FP-51	FP-68	FP-85	FP-102	FP-136	FP-170	FP-204	FP-238	FP-272	FP-306	FP-340	
High	0Pa	39.5	42.4	41.8	45.8	45.6	46.8	48.9	51.3	53.5	56.3	58.2	60.3
Mid	0Pa	36.3	39.1	38.6	41.9	42.1	41	46.3	49.3	50.4	52.9	55.4	57.8
Low	0Pa	33.5	35.9	35.5	39.7	39.8	35	43.4	43.7	47.8	49.7	51.6	54.1

## (2) Octave Band Sound Pressure Level

Model	Speed	ESP (Pa)	Octave band sound pressure level (dB(A))							Overall Lp(dB(A))
			125Hz	250Hz	500Hz	1KHz	2KHz	4 Hz	8KHz	
FP-34	High	0	12.2	24.8	28.1	28.1	28.3	17.8	9.6	39.5
	Medium	0	12.8	24.0	28.3	27.4	28.3	18.4	10.7	36.3
	Low	0	12.1	23.3	28.1	26.5	26.6	17.9	11.3	33.5
FP-51	High	0	16.1	30.7	31.7	32.5	33.6	22.1	16.8	42.4
	Medium	0	15.2	29.0	30.3	32.3	32.1	22.4	16.5	39.1
	Low	0	15.2	28.9	30.0	29.9	31.4	21.0	16.8	35.9
FP-68	High	0	13.5	29.0	31.1	31.6	33.3	21.0	18.8	41.8
	Medium	0	14.9	28.8	29.3	30.2	32.0	21.8	19.2	38.6
	Low	0	15.0	27.9	28.0	28.7	30.6	21.5	18.2	35.5
FP-85	High	0	17.4	31.9	33.2	33.2	34.4	23.2	17.0	45.8
	Medium	0	18.0	31.2	32.5	32.8	33.7	21.6	17.1	41.9
	Low	0	18.7	31.3	32.0	32.4	33.8	22.6	16.5	39.7
FP-102	High	0	19.3	30.7	34.2	34.7	34.2	23.1	15.2	45.6
	Medium	0	19.9	30.7	32.7	32.7	33.6	23.4	14.4	42.1
	Low	0	19.0	31.0	33.2	32.0	32.2	23.3	14.9	39.8
FP-136	High	0	19.6	34.1	36.1	35.6	35.4	25.3	18.1	46.8
	Medium	0	19.6	32.1	31.9	31.4	31.6	22.8	17.3	41
	Low	0	16.9	28.3	27.4	27.2	28.7	19.9	16.1	35
FP-170	High	0	20.7	35.8	39.1	38.6	36.8	26.2	20.2	48.9
	Medium	0	20.8	33.9	38.0	38.8	36.0	24.8	21.5	46.3
	Low	0	21.6	32.9	36.1	36.9	33.8	23.3	21.3	43.4
FP-204	High	0	23.2	36.1	40.0	39.4	40.9	30.4	21.7	51.3
	Medium	0	22.7	35.2	40.3	39.9	41.7	30.0	21.2	49.3
	Low	0	22.1	32.6	37.4	36.3	38.7	27.1	19.8	43.7
FP-238	High	0	27.2	39.9	42.5	42.4	41.2	31.6	24.1	53.5
	Medium	0	26.4	39.5	40.5	42.2	40.2	31.4	24.1	50.4
	Low	0	27.0	38.1	39.3	41.5	39.9	30.0	23.4	47.8
FP-272	High	0	29.1	43.6	46.3	44.9	44.1	34.1	25.6	56.3
	Medium	0	28.3	41.5	43.9	43.2	42.3	32.8	24.2	52.9
	Low	0	28.5	41.2	42.7	40.9	41.9	32.7	22.9	49.7
FP-306	High	0	31.9	45.3	47.9	48.5	46.3	37.6	29.7	58.2
	Medium	0	31.5	43.5	47.8	48.4	46.0	36.1	30.5	55.4
	Low	0	31.0	42.8	45.2	46.0	44.1	34.3	30.0	51.6
FP-340	High	0	32.7	47.3	49.9	48.3	49.2	38.0	29.4	60.3
	Medium	0	32.4	46.3	48.8	48.4	48.3	37.6	29.3	57.8
	Low	0	31.9	43.9	46.3	45.8	45.2	36.5	29.2	54.1

# GREE

making better air conditioners



Gree Electric Appliances, Inc. of Zhuhai (“Gree”) is the largest specialized air conditioner enterprise in the world.

Gree has now become a renowned multinational enterprise that possessing 4 production bases located in Zhuhai, Chongqing, Brazil and Hefei, and five subsidiary companies, totally 37,800 employees. Annual production capacity of us is over 25 million sets of home air conditioners and annual output value of 716 million USD from commercial air conditioners.

We are always paying much attention on technical innovation. Till now, we had registered nearly 1500 patents at home or abroad. The high-end technologies we have successfully developed include the GMV multi VRF system, centrifugal chiller and, in particular, central air conditioners using ultra-low temperature heat pump, which is the first of its kind in the world and an internationally-advanced technology that has filled in a gap of China and broken the technical monopoly of the refrigeration magnates in the United States and Japan, winning widespread reputation and influence in the world refrigeration industry.

With the installation of Gree commercial air conditioners in important projects at home and abroad like Media Village for 2008 Beijing Olympic Game, Stadiums for 2010 World Cup in South Africa, as well as Indian Telecom base station, Gree commercial air conditioners are ready to develop steadily to every corner in the world, to present a more comfortable and harmony working environment and family atmosphere.



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