

# GREE

making better air conditioners

**TECHNICAL SALES GUIDE-50Hz,R410A**

## DUCT TYPE SPLIT AIR CONDITIONERS



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

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## 1 MODELS LIST

Nominal Capacity	Model		Power Supply
Ton	Refrigerant	Model Name	Ph, V, Hz
5.5	R410A	FG20/BNa-M	3,380-415,50
		FGR20/BNa-M	
7		FGR25/BNa-M	
		FG25/BNa-M	
8.5		FG30/BNa-M	
		FGR30/BNa-M	

Note: 1Ton = 12000Btu/h = 3.517kW

## 2 NOMENCLATURE

FG
R
20
/
B
Na
-
M

1      2      3      4      5      6

Number	Description	options
1	Ducted Type Air Conditioner	—
2	Product Type	omitted =cooling only type R=heat pump type
3	Nominal Cooling Capacity	20=20kW, 25=25 kW, 30=30 kW
4	Design Sequence	omitted—the basic design A—the first improvement B—the second improvement
5	Refrigerant	Na=R410A omitted=R22
6	Power Supply Code	K=1Ph,220-240V,50Hz M=3Ph,380-415V,50Hz

## 3 FEATURES



### 3.1 Description

GREE FG Series Ducted type Air-conditioning Units has combined the comfort, top grade from the central air conditioners as well as the convenient installation and facility from the mini type of the split air conditioners.

GREE FG Series Ducted type can offer the perfect combination of superior product quality, operating efficiency and value for money. These units are available in vertical discharge configurations, as cool only models. All capacities are rated according to the relevant ASHRAE Standards. These units are CE certified and are manufactured under strict quality control with full conformance to ISO 9001:2000 and ISO 14001 standards.

GREE FG Series Ducted type can offer the high static pressure indoor unit. And the static pressure is alterable by changing the strap wheel. The static pressure range is from 0Pa to 250Pa. The capacity range is from 20KW to 30KW. It could be sufficient to the different requirements from customers. The FG Series Ducted Air-conditioning Units can be widely used in supermarkets, chain stores, hotels, restaurants, offices and meeting rooms etc. Its especially fit for the small commercial and industrial application.

### 3.2 Features-Condensing Units

Features	Description
Quality Condenser Coil	The coil is constructed of hydrophilic aluminum sheet and inner groove copper pipe.
Coil Protected	Coils are protected from damage by a metal grill.
Protected Compressor	High / low pressure protection、Discharge high temperature protection、Overload protection、Reverse (open) phase protection、Sensor malfunction alarm.
Resisting Corrosion	Cabinet is made of pre-painted steel. The pre-treated flat galvanized steel provides a better paint to steel bond, which resists corrosion and rust creep. Special primer formulas ensure minimal fading when exposed to sunlight.
Low Operating Sound Level	Low noise fan and low noise compressor with isolator.
Low Maintenance	quality compressor and motor are used.
Factory Tested	All units are factory tested prior to dispatch to verify system operation and control functioning before shipment.

### 3.3 Features-Indoor Units

Features	Description
Flexible Installation	condensation water exit direction can be selected flexibly.
Long-distance Duct Air Supply	it adopts high static pressure design, so air is centralized handling in the indoor unit and implant long-distance duct air supply
The Capacity Range	The capacity range is 20KW to 30KW
Convenient Operation	Simple controller and intelligent remote controller make unit more convenient operation.
Good Indoor Air Quality	it can connect many supply-air outlet to the duct, so that it can make the temperature and humidity of the whole room equality, meanwhile, it can lead in fresh air, makes well indoor unit air quality. All units are provided with filters that are easily accessible from the rear of the unit.
Microcomputer Control	The controls provide for compressor delay protection, Remote control function, temperature setting ,fan function,Sleep function, Memory function, Self-diagnosis with alarm function etc.
Quality Evaporator Coil	Evaporator coils are constructed of inner groove copper pipe and hydrophilic aluminum sheet.
Low Operating Sound	The fan motors are resilient mounted to minimize vibration and noise

### 3.4 The Unit Function

Control Function	Protection Function	Display Function
Memory function	High/low pressure protection	Timing ON/OFF display
Remote control function	Overload protection	Fan speed display
Timing function	Over current protection	Function model display
Self-diagnosis with alarm function	Discharge high temperature protection	Testing display
Sleep function	Reverse (open) phase protection	Sleep mode display
Automatic function	Anti-high temperature protection	Temperature display
Cool air proof function	Sensor malfunction alarm	Malfunction code display

## ■ Control Function :

- ◆ Memory function: when unit restart after power off, it will run on former status, the mode and parameter are kept the same
- ◆ Remote control function: wireless controller and remote controller can be opted, and the maximum control distance of remote controller is 10m.
- ◆ Timing function: it can timing ON/ OFF separately, meanwhile, it can also can timing on circularly
- ◆ Self-diagnosis with alarm function : once unit has malfunction, the malfunction code will be indicated and alarm ring immediately
- ◆ Automatic model function: the fan of indoor unit can adjust fan speed automatically based on actual demand when cooling or heating under automatic mode
- ◆ Cool air proof function: the fan starts only when the temperature of indoor unit heat exchanger is higher than indoor temperature under heating mode
- ◆ Blow residual heat function: under heating mode, fan of indoor unit will work for a period after compress or stops

## ■ Protection Function :

- ◆ High/low pressure protection: when suction pressure is too low or discharge pressure is too high, compressor will stop and unit display malfunction code
- ◆ Overload protection: compressor has its own overheat protection, once the temperature of compressor is higher than allowable level, compressor will stop and only when temperature recovery, compressor restart
- ◆ Over current protection: once the current of compressor is higher than normal level, compressor will stop and unit display malfunction code
- ◆ Discharge high temperature protection: once the discharge temperature of compressor is higher than allowable value, compressor will stop and unit display malfunction code
- ◆ Reverse (open) phase protection: once the phase sequence of power supply is incongruent or the phase is absent, unit can't work and display malfunction code
- ◆ Anti-high temperature protection: once the heat exchanger temperature of indoor unit is too high, compressor stop and unit display malfunction code.
- ◆ Sensor malfunction alarm: once the sensor short out or shutdown, unit will display malfunction code.

## ■ Display Function :

- ◆ Time display: display and set real time
- ◆ Timing turn ON/OFF display: display and timing turn ON/OFF time.
- ◆ Cancel timing display: display the cancel of timing
- ◆ Fan speed display: display the speed (high、medium、low) of fan, But the fan motor is single speed.
- ◆ Function mode display: cooling mode、dehumidifying mode、heating mode、fan mode
- ◆ Testing display: display testing mode
- ◆ Energy efficiency display: display energy saving mode
- ◆ Temperature display: display room temperature and set temperature
- ◆ Malfunction code display

## 4 PRODUCT DATA

### 4.1 Product Data at Rated Condition

Models		Indoor Unit	FG/BNa-M(I)			FGR/BNa-M(I)				
			20	25	30	20	25	30		
		Outdoor Unit		FG/BNa-M(O)			FGR/BNa-M(O)			
Nominal Capacity At Rated ESP	Cooling	MBtu/h		68	85	102	68	85		
		kW		20	25	30	20	25		
	Heating	MBtu/h		/	/	/	75	92		
		kW		/	/	/	22	27		
	Power Supply		V/Ph/Hz		380-415V/3/50					
	Power Consumption		kW		7.4	9.2	11.0	7.0		
Running Current		A		11.8	14.6	17.5	11.0	14.2		
Refrigerant Type		R410A								
Refrigerant Charge		kg		7.0	8.0	9.5	7.0	8.0		
Indoor Unit	Power Supply		V/Ph/Hz		380-415V/3/50					
	Fan Type		Centrifugal /Indirect Drive							
	Fan	Air flow		CFM m³/h	2354 4000	2876 4800	3295 5500	2354 4000		
		Input Power		W	1100	1100	1500	1100		
		Running Current		A	2.1	2.1	2.9	2.1		
		Rated ESP		in.wg Pa	0.40 100	0.40 100	0.48 120	0.40 100		
		Fan Motor Protection		Auto Reset Thermal Overload						
	Sound Pressure Level (H/M/L)		dB(A)		54	54	56	54		
	Coil	Tube		Material		Inner Groove Copper Tube				
		Diameter		mm		9.52	9.52	9.52		
	Dimensions (Outline/Package)	Fin		Material		Aluminum				
		No.of Rows/FPI				3/15	3/15	4/15		
		Coil Area		Sqm		0.594	0.660	0.594		
		Height				500 673	500 673	500 673		
		Width		mm		1500 1820	1500 1820	1500 1820		
	Depth						1000 1200	1000 1200		
	Weight(Net/Gross)		kg		130	150	170	130		
System Operation Control				Wired Control with LED Display + Wireless Controller						
Condensate Drainage(O.D)				mm						
Air Filter				Standard Washable Synthetic						
Outdoor Unit	Power Supply		Volts	380-415	380-415	380-415	380-415	380-415		
			Hz	50	50	50	50	50		
			Ph	3	3	3	3	3		
	Compressor		Compressor Type		Scroll					
			Nominal Current		A	22	22	29		
			Vibration Isolator		Rubber					
			Protection Device		Auto Reset Thermal Overload					
	Fan	Fan Type/Drive		Axial / Direct Drive						
		Fan Speed		660	660	660	660	660		
		Blade Material		plastic						
	Coil		Diameter		Φ 750					
			Tube Material		Inner Groove Copper Tube					
	Fin	Material		Aluminum						
		No.of Rows/FPI		1-14	2-14	2-14	1-14	2-14		
	Coil Area		Sqm		2.070	2.070	2.234	2.070		
	Dimension (Outline/Package)		Height		1670 1837	1670 1837	1715 2000	1670 1837		
			Width		930 1010	930 1010	990 1162	930 1010		
			Depth		770 850	770 850	840 980	770 850		
	Weight (Net/Gross)		kg		200 240	240 280	250 300	240 280		
	Pipe sizes		Suction		9/8					
			Liquid		1/2					

## Note:

- 1.The cooling (heating) capacity stated above is measured under following conditions conditions :  
Indoor Conditions:27°C (81°F) DB/19°C (66.6°F) WB;  
Outdoor Conditions:35°C (95.4°F) DB/24°C (75.6°F) WB.  
corresponding to standard external static pressure.
- 2.Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.
- 3.The air volume is measured at the relevant standard external static pressure.
- 4.The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.



## 4.2 Working Range

### Appendix:

Air conditioner working range condition:

Test condition	working range
	DBT°C(°F)
cooling	18°C~43°C(64.8°F~109.8°F)
heating	-7°C~24°C(19.8°F~75.6°F)



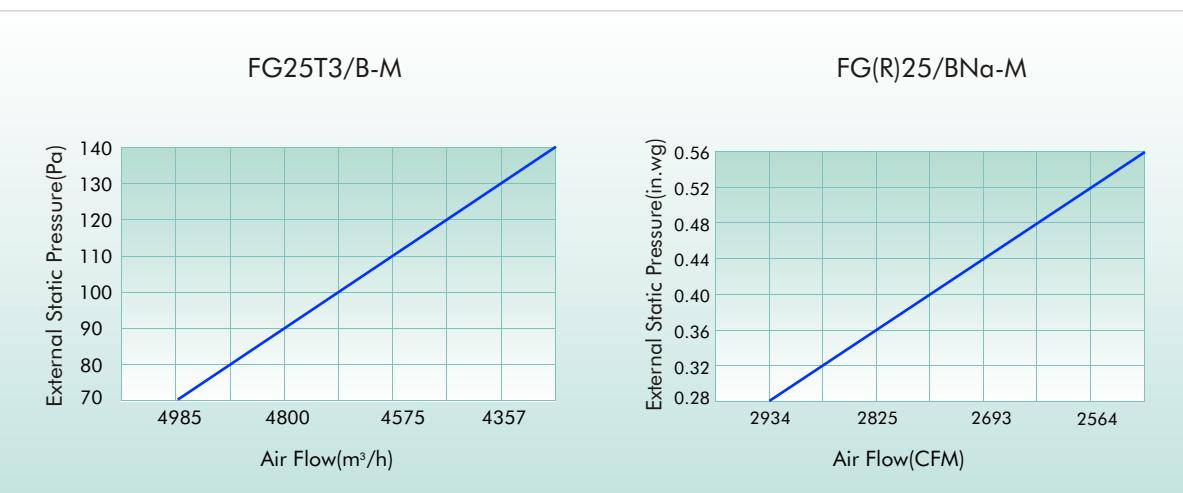
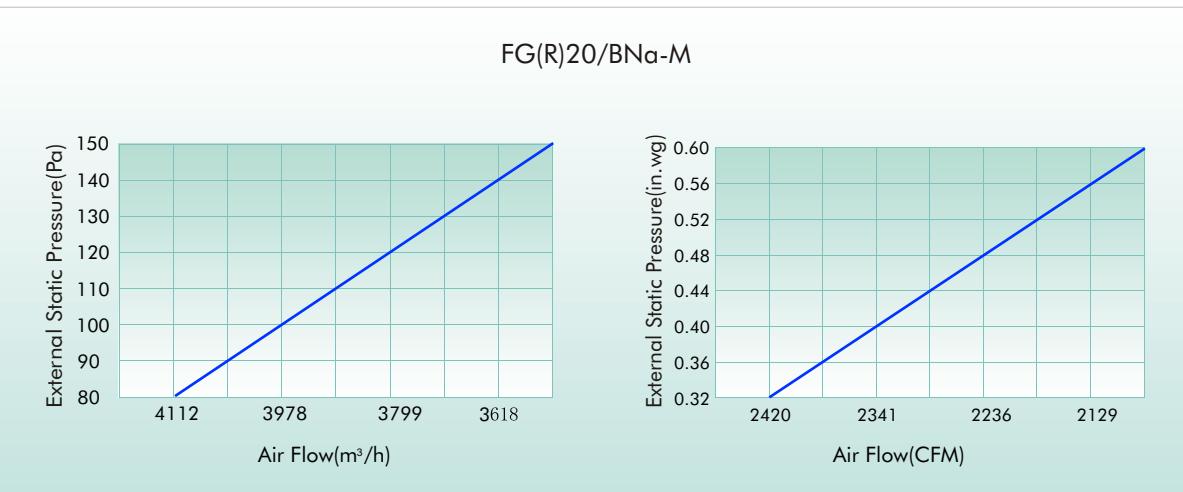




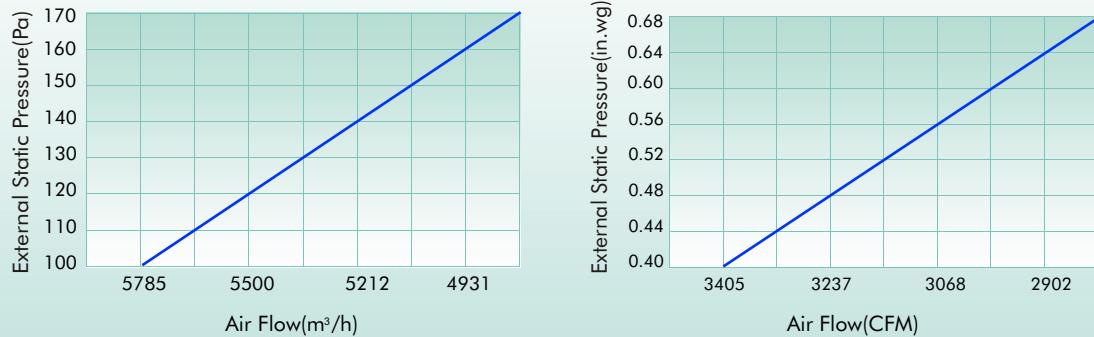
## 4.4 Electrical Data

Model	Compressor				Fan Motor		Max. Fuse Breaker Size (Indoor/Outdoor)	Min. Disconnect Size (Indoor/Outdoor)
	Power Supply	Qty.	RLA	LRA	Condenser Fan Motors	Supply Blower Motor		
					—	Each	Each	FLA Each
FGR20/BNa-M	3Ph,380-415V,50Hz	1	15.7	99	1.5	2.7	16/32	2.9/23.6
FG20/BNa-M	3Ph,380-415V,50Hz	1	15.7	99	1.5	2.7	16/32	2.9/23.6
FGR25/BNa-M	3Ph,380-415V,50Hz	1	17	118	1.5	2.7	16/32	2.9/25.5
FG25/BNa-M	3Ph,380-415V,50Hz	1	17	118	1.5	2.7	16/32	2.9/25.5
FGR30/BNa-M	3Ph,380-415V,50Hz	1	20.7	130	1.5	3.6	16/32	4/30.6
FG30/BNa-M	3Ph,380-415V,50Hz	1	20.7	130	1.5	3.6	16/32	4/30.6

## 5 FAN PERFORMANCE CURVES

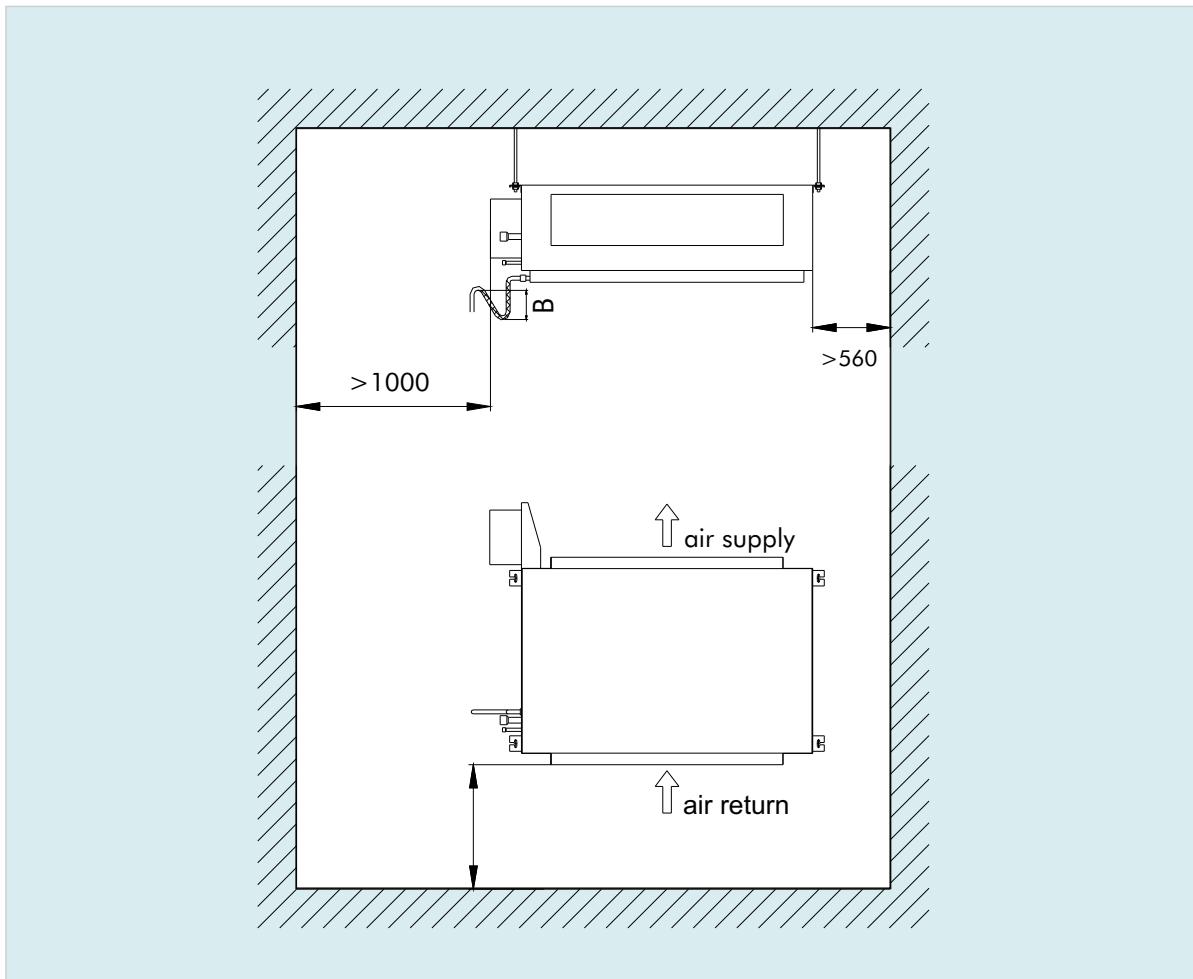


FG(R)30/BNa-M



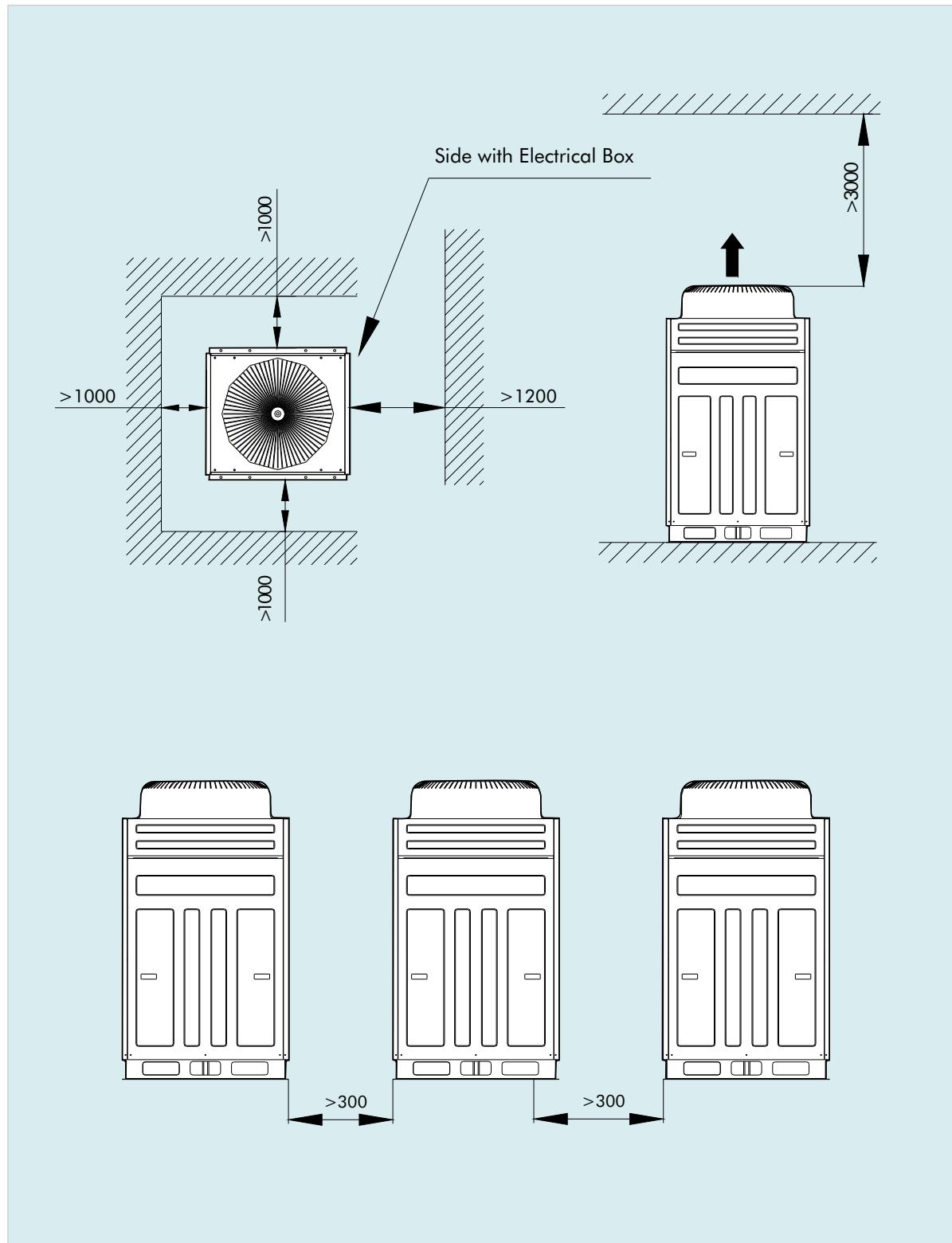
## 6 CLEARANCE DATA

Space requirement of the indoor unit:



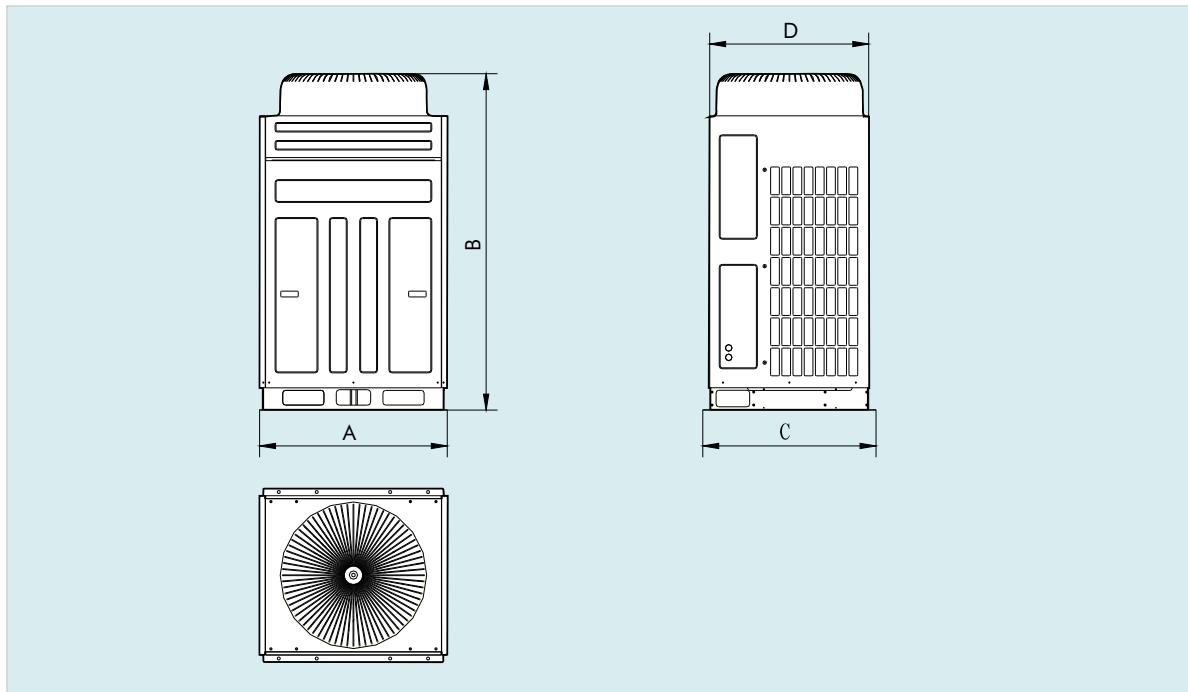
# Duct Type Split Air Conditioners Technical Sales Guide

Space requirement of the outdoor unit:



## 7 DIMENSIONAL DATA

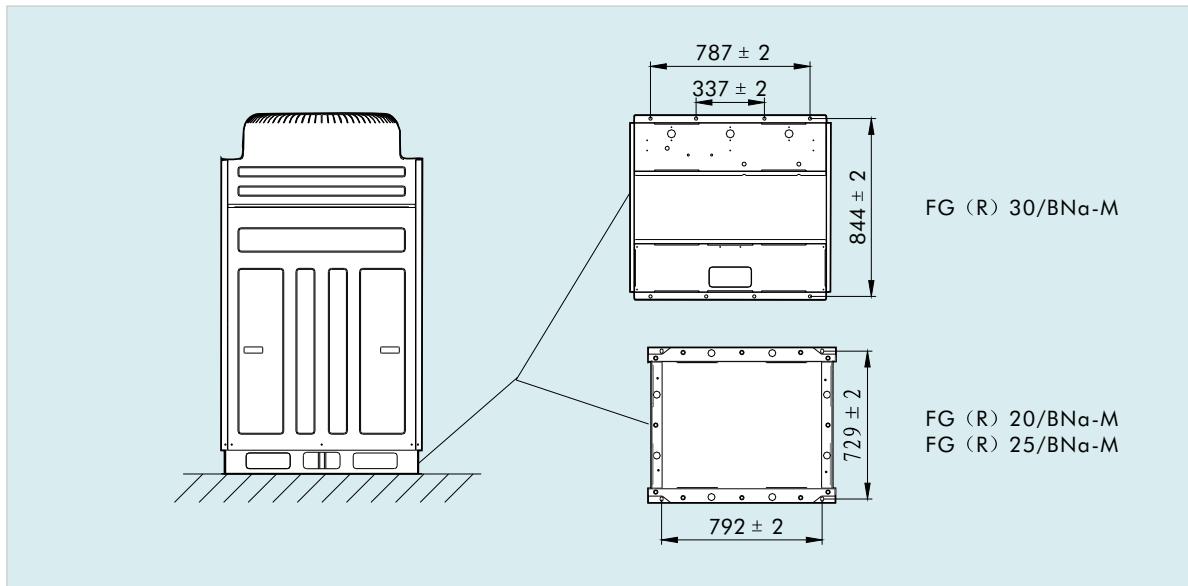
### 7.1 Dimensional Data-Condensing Units



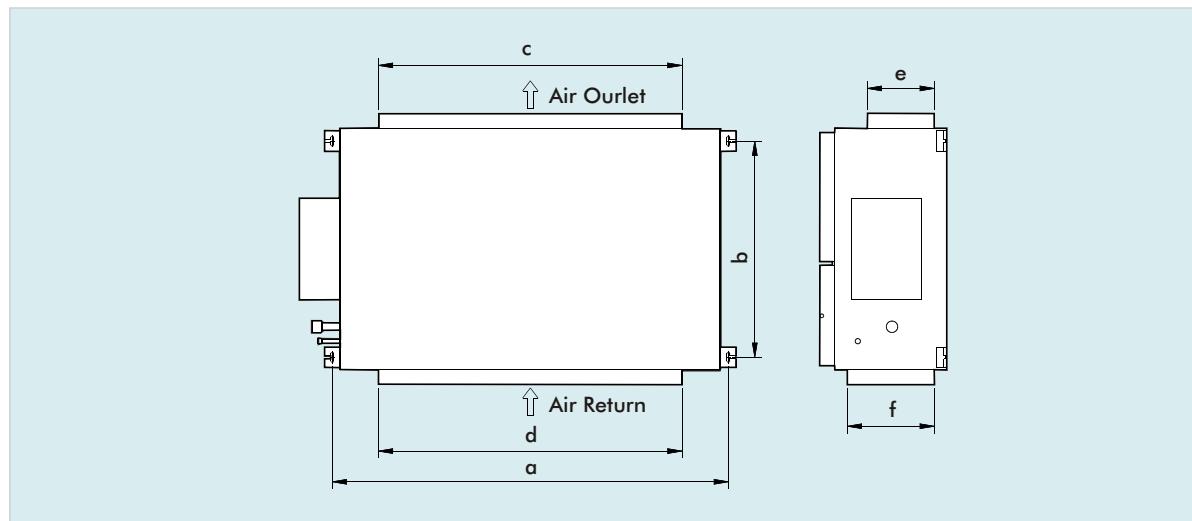
Outlines dimension of the unit

Model	A	B	C	D
FG(R)20/BNa-M(O)	930	1670	770	770
FG(R)25/BNa-M(O)				
FG(R)30/BNa-M(O)	990	1772	880	840

Installation holes dimension of unit



## 7.2 Dimensional Data-Indoor Units

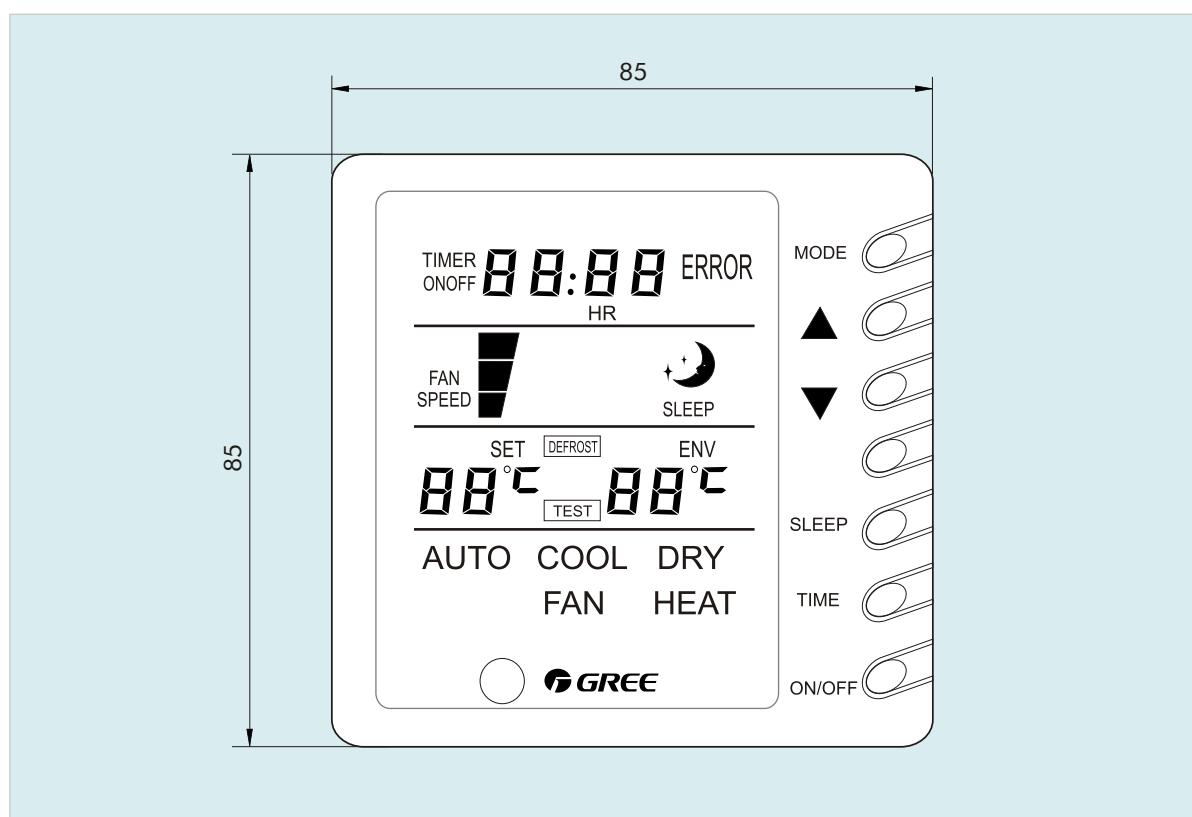


Outlines and installation holes dimension of the unit

Unit: mm

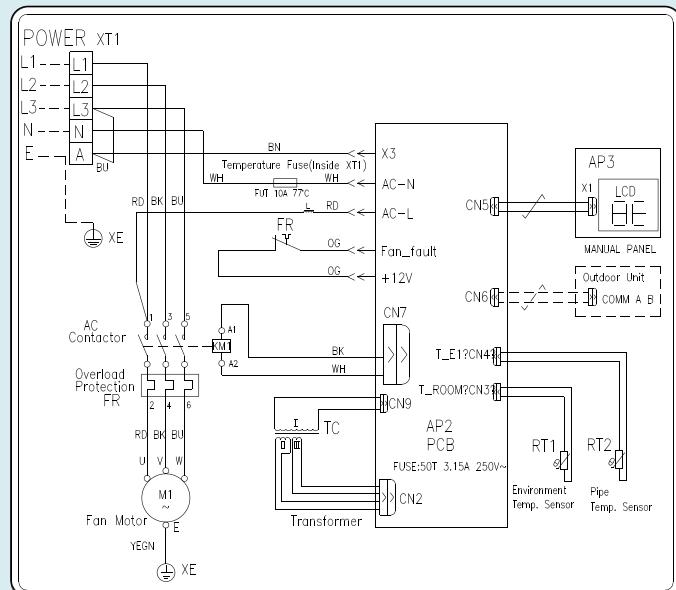
Model	a	b	c	d	e	f
FG(R)20/BNa-M(I)						
FG(R)25/BNa-M(I)	1560	910	1194	1194	292	342
FG(R)30/BNa-M(I)						

## 7.3 Dimensional Data-Controller



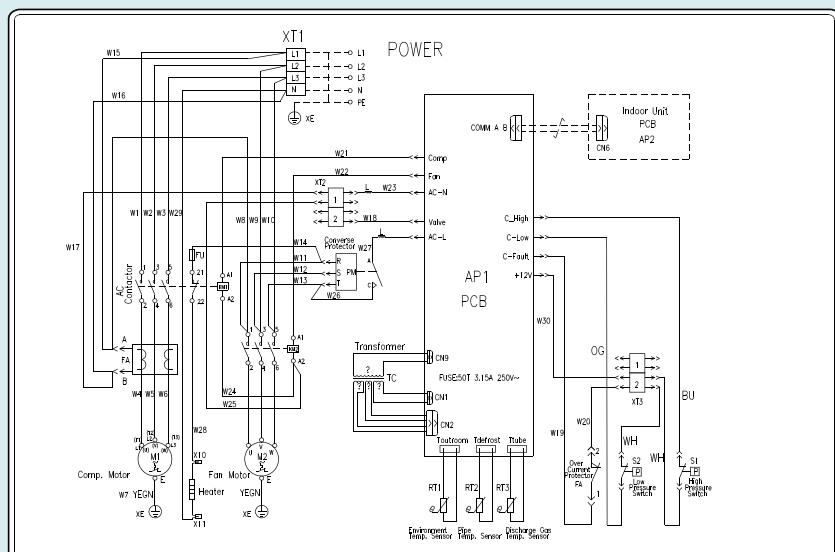
## 8 WIRING DIAGRAM

### 8.1 Wiring Diagram-Indoor Units

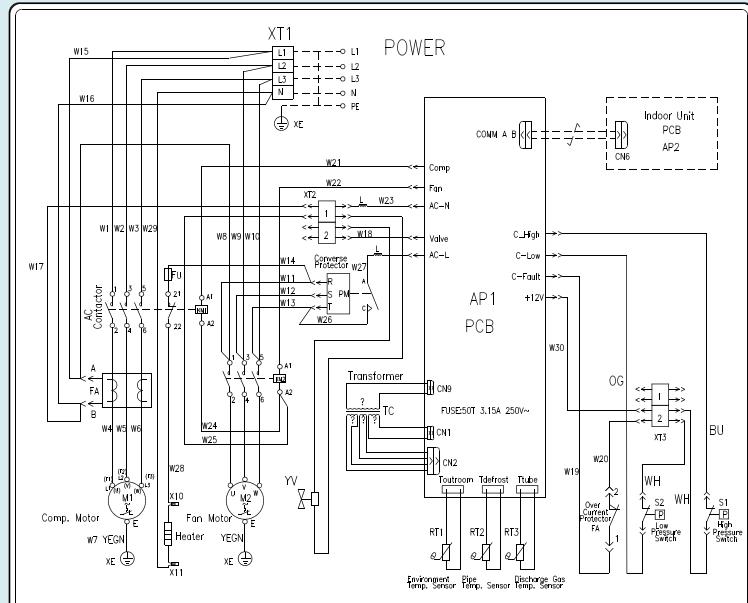


### 8.2 Wiring Diagram-Condensing Units

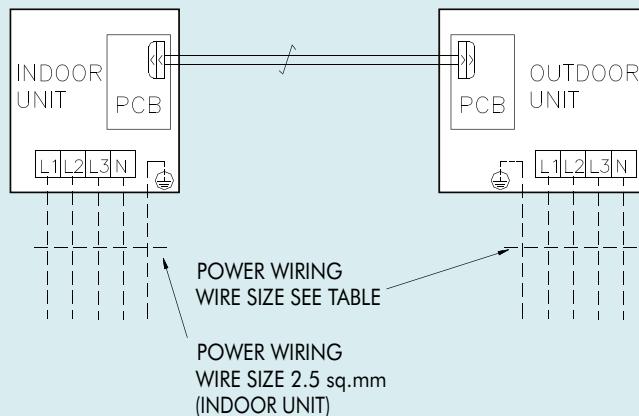
Wiring Diagram-Outdoor Units (FOR COOLING ONLY UNIT )



## Wiring Diagram-Outdoor Units ( FOR HEAT PUMP UNIT )



## 8.3 Field Wiring Diagrams



MODEL	SECTIONAL AREA OF ELECTRICAL WIRE(mm <sup>2</sup> )
FG(R)20/BNa-M	6
FG(R)25/BNa-M	6
FG(R)30/BNa-M	6

The specification of power cord mentioned hereby is defined as the required specification when wiring with BV single core cable (2 ~ 4 pieces) under the cover of PVC pipe, and environment temperature shall be at 40°C; Air switch shall be selected according to 40°C temperature condition, and shall in "D" type. if the installation condition on site changed, please consider the modification on the required specification of Power cord and Air switch, according to the specification manual provided by manufacturer.



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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.



#### GREE ELECTRIC APPLIANCES ,INC.OF ZHUHAI

Add:West Jinji Rd.,Qianshan,Zhuhai,Guangdong,China 519070

Tel:(+86-756)8614883 Fax:(+86-756)8614998

[Http://www.gree.com.cn](http://www.gree.com.cn) Email:[gree@gree.com.cn](mailto:gree@gree.com.cn)

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