

FREE MATCH II Multi VRF

(GC201105-I)

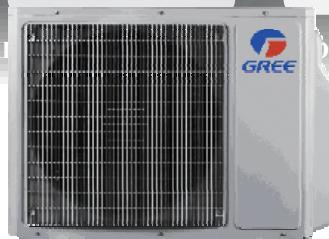
GREE MAKING BETTER AIR CONDITIONERS GREE MAKING BETTER AIR CONDITIONERS GREE MAKING BETTER AIR CONDITIONERS

TECHNICAL SALES GUIDE-50Hz

CAPACITY RANGE:10~180kW

SUPER HIGH AMBIENT OPERATION TO 52 °C

GREE MAKING BETTER AIR CONDITIONERS GREE MAKING BETTER AIR CONDITIONERS GREE MAKING BETTER AIR CONDITIONERS



R410A



GREE ELECTRIC APPLIANCES INC.OF ZHUHAI

CONTENTS

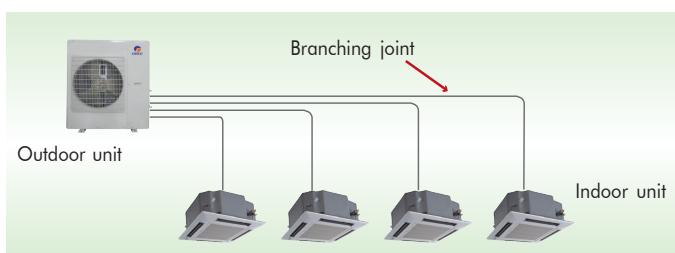
1. OUTLINE OF MULTI VRF	1
2. SUMMARY OF SYSTEM EQUIPMENTS	4
3. BASIC SYSTEM CONFIGURATION.....	9
4. EQUIPMENT SELECTION PROCEDURE	10
5. REFRIGERANT PIPING DESIGN	14
6. WIRING DESIGN	21
7. ACCESSORIES	24
8. TECHNICAL SPECIFICATIONS.....	25
9. FAN CHARACTERISTICS.....	65

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1 OUTLINE OF MULTI VRF

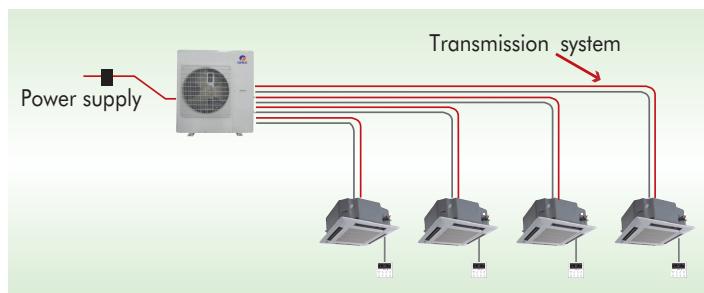
No sweating

No sweating is needed for the pipe connection between the indoor and outdoor units, simplifying and easing largely the pipe installation.



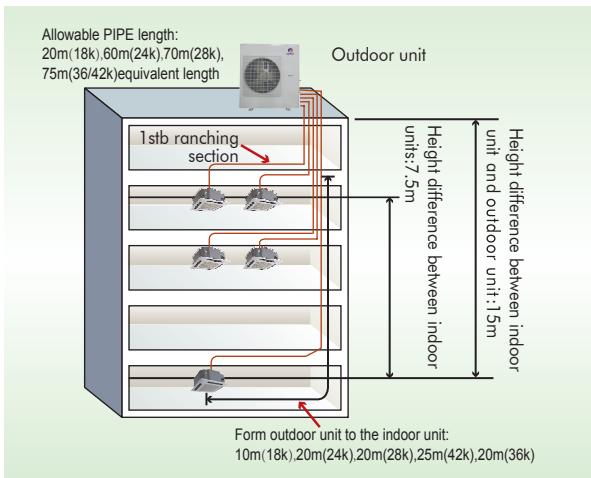
Simple Wiring

No dedicated communication line is needed between the indoor and outdoor unit, since the communication is available through the heavy-current carrier signals as soon as the electricwiring between the indoor and outdoor units gets ready.



High Lift Design

Equivalent pipe length of 70m and vertical lift of 20m is made possible with GREE FREE MATCH II . Vertical lift between indoor units of 15m is the highestin the industry.This allows for greater flexibility in the location of the system.



Energy Saving

Because each room is controlled individually, only those rooms requiring air conditioning are cooled or heated. In addition, thanks to inverter technology, the level of air conditioning can be precisely controlled depending on the condition of each room. High EER is achieved by employing advanced technology, contributing to smooth and economical operation. The largest EER value can reach 3.2w/w, Cop can reach 30w/w compared with the conventional chiller fan coil system, a large energy saving can be realized.

Self Diagnostics System

Comprehensive troubleshooting code allows for timely identification of problems arising.

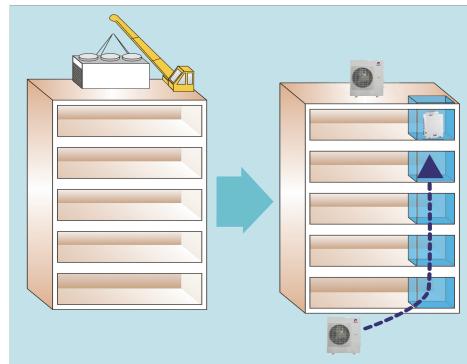
Self diagnostics examples

Error code	Malfunction
E1	High pressure protection of compressor
E2	Indoor anti-frozen protection
E3	Low pressure protection of compressor
E4	Discharge temp.protection of compressor
E5	Compressor overload protection
E6	Communication error
E7	Modes conflict

Compact Design

We offer a wide lineup of outdoor and indoor units to answer the needs of building size and interior design. The length of refrigerant pipes is kept without narrow on design, thus it allowing of flexibility more greater in planning.

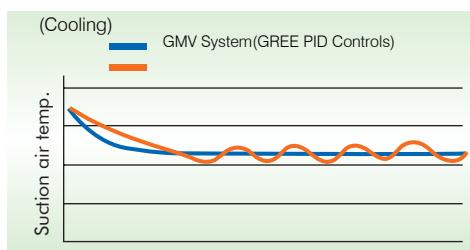
Indoor units are so lightweight and compact that they can be installed in any ceiling space. Outdoor units do not require the special cranes or conveyors to move them. They can even be hauled in a building elevator. the diameter of pipes is narrow, and the number is few, so making layout simpler. Inspection after installation is straightforward.



Intelligent Control

GREE FREE match intelligent controls and modulating valves could deliver the required capacity, according to the load variation from 10% to 100%. the intelligent controls and modulating valves limit or increase the cooling modulating valves limit or increase the cooling capacity, so humidity and temperature are kept in the comfort range.

Electronic expansion valves respond to the changes in load of indoor units and continually control the flow rate of the refrigerant. In this way, We can get a nearly constant room temperature with the FREE match without the typical temperature changes that occurs with a conventional ON/OFF control system. The extremely refined PID controls to maintains the room temperature within $\pm 0.5^{\circ}\text{C}$ of the set temperature .



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Refrigerant Recovery

The Generation II Free Match System is able to recover the refrigerant automatically, which simplifies the refrigerant recovery operation and also is highly safe.

Adjustable Heating Capacity

Under the low ambient heating (below 0 °C), the heating capacity of the system can be increased automatically to guarantee a reliable and sufficient heating effect.

2 SUMMARY OF SYSTEM SQUIPMENTS

2.1 Outdoor Unit

	FREE MATCH II outdoor unit	
Model	GWHD(18)NK3JO	Appearance
Cooling Capacity (kW)	5.4	
Heating Capacity (kW)	5.65	

	FREE MATCH II outdoor unit	
Model	GWHD(24)NK3JO	Appearance
Cooling Capacity (kW)	7.3	
Heating Capacity (kW)	8.8	

	FREE MATCH II outdoor unit	
Model	GWHD(28)NK3JO	Appearance
Cooling Capacity (kW)	8.15	
Heating Capacity (kW)	9.3	

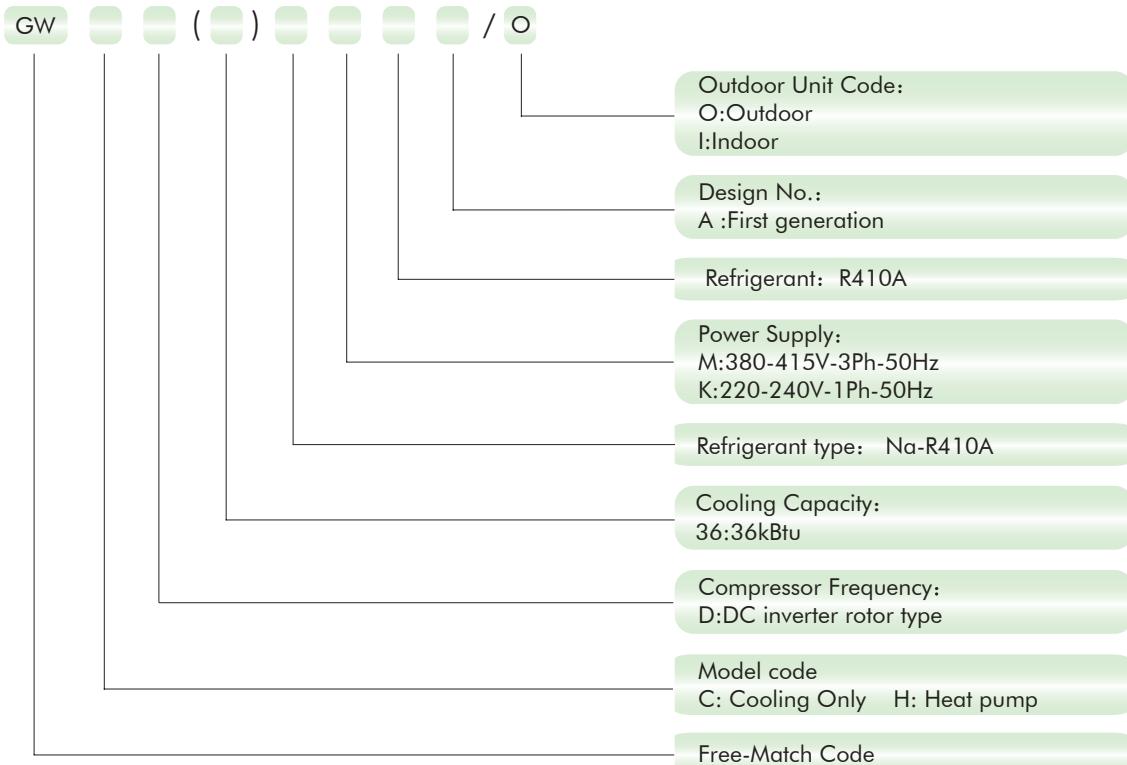
	FREE MATCH II outdoor unit	
Model	GWHD(36)NK3JO	Appearance
Cooling Capacity (kW)	10.0	
Heating Capacity (kW)	11.2	

	FREE MATCH II outdoor unit	
Model	GWHD(42)NK3JO	Appearance
Cooling Capacity (kW)	11.4	
Heating Capacity (kW)	12.0	

Conversion Formula: 1kW=3412Btu/h

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a. Nomenclature



Example:

GWHD(18)NK3JO: D.C.FREE MATCH II outdoor unit of GREE,with single compressor and the nominal cooling capacity is 5.4kW. The power supply is 220V~240V-1Ph-50Hz.

b. Rated Conditions

Cooling: Indoor air temperature 27°C (80.6 °F)DB/19 °C (66.2 °F)WB
Outdoor air temperature 35 °C (95 °F)DB/24 °C (75.2 °F)WB

Heating: Indoor air temperature 20 °C (68 °F)DB/15 °C (59 °F)WB
Outdoor air temperature 7 °C (44.6 °F)DB/6 °C (42.8 °F)WB



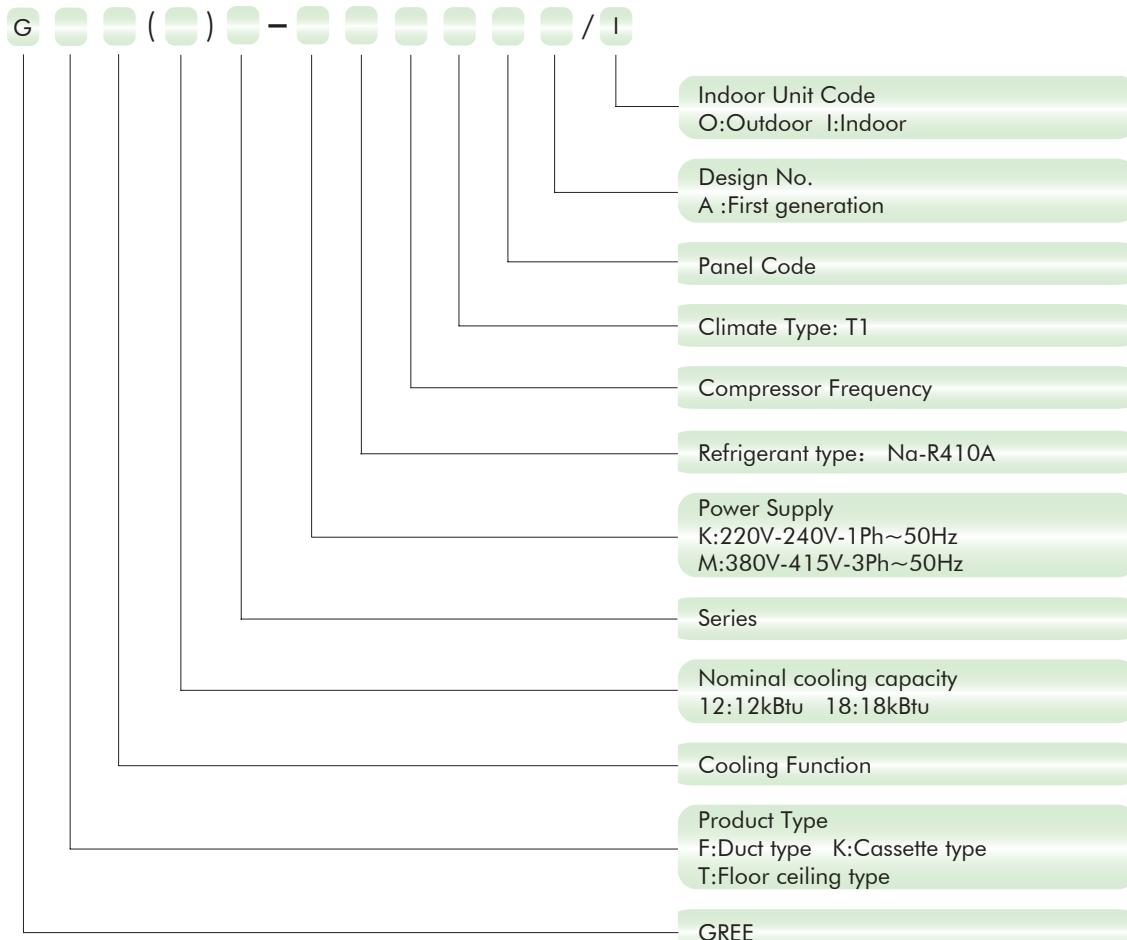
2.2 Indoor Unit

Type	Model Name	Capacity Code	Cooling Capacity(kW)	Heating Capacity(kW)
Cozy	GWH09MB-K3DNA4H/I	9	2.6	2.8
	GWH12MB-K3DNA4H/I	12	3.5	3.85
	GWH18MC-K3DNA4H/I	18	5.25	5.85
	GWH24MD-K3DNA4H/I	24	6.3	6.3
	GWH28ME-K3DNA4H/I	28	8	8.4
Hansol	GWH09TA-K3DNA1B/I	9	2.6	3
	GWH12TB-K3DNA1B/I	12	3.5	4
	GWH18TC-K3DNA1B/I	18	5.3	5.8
	GWH24TD-K3DNA1C/I	24	7	7.4
	GWH28TD-K3DNA1B/I	28	8	8.4
LOMO	GWH09QC-K3DNB2A/I	9	2.5	3.0
	GWH12QC-K3DNB2D/I	12	3.4	4.0
	GWH18UC-K3DNA1D/I	18	5.3	5.6
	GWH21QE-K3DNB2A/I	21	6.2	7.1
	GWH24QE-K3DNB2H/I	24	7.1	8.0
	GWH28QE-K3DNB2H/I	28	8.5	9.0
Conceded Duct Standard Type	GFH(09)EA-K3DNA1A/I	9	2.5	2.8
	GFH(12)EA-K3DNA1A/I	12	3.5	3.85
	GFH(18)EA-K3DNA1A/I	18	5.0	5.5
	GFH(21)EA-K3DNA1A/I	21	6.0	6.6
	GFH(24)EA-K3DNA1A/I	24	7.1	8.0
4-way Air Discharge Cassette Type	GKH(12)BA-K3DNA1A/I	12	3.5	3.85
	GKH(18)BA-K3DNA1A/I	18	5.0	5.5
	GKH(24)BA-K3DNA1A/I	24	7.1	8.0
	GKH(12)BA-K3DNA2A/I	12	3.5	4.0
	GKH(18)BA-K3DNA2A/I	18	4.5	5.0
Flooring ceiling Type	GTH(09)BA-K3DNA1A/I	9	2.5	2.8
	GTH(12)BA-K3DNA1A/I	12	3.5	3.85
	GTH(18)BA-K3DNA1A/I	18	5.0	5.5
	GTH(24)BA-K3DNA1A/I	24	7.1	8.0

Conversion Formula: 1kW=3412Btu/h

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a. Nomenclature



Example:

GWH09MB-K3DNA4H/I:A ducted type indoor unit of GREE, and the nominal cooling capacity is 2.6kW. It is the R410A product. The power supply is 220V-240V-1Ph~50Hz.

b. Rated Conditions

Cooling: Indoor air temperature 27°C (80.6 °F)DB/19 °C (66.2 °F)WB

Outdoor air temperature 35 °C (95 °F)DB/24 °C (75.2 °F)WB

Heating: Indoor air temperature 20 °C (68 °F)DB/15 °C (59 °F)WB

Outdoor air temperature 7 °C (44.6 °F)DB/6 °C (42.8 °F)WB



2.3 Controller

Name	Model Name	Appearance	Application	Function
Wired controller	XK19			<ul style="list-style-type: none"> Start/Stop Mode changing Temperature setting Air flow changing Timing setting Self-diagnosis function <p>Display codes of trouble.</p> <ul style="list-style-type: none"> Control by 2 remote controllers is available <p>Two remote controllers can be connected to one indoor unit.</p> <p>The indoor unit can be separately operated from the isolated places.</p>
Remote controller	YT1F			<ul style="list-style-type: none"> Start/Stop Mode changing Temperature setting Air flow changing Timing setting

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3 BASIC SYSTEM CONFIGURATION

System Legend (ex.)

Model name of outdoor unit:

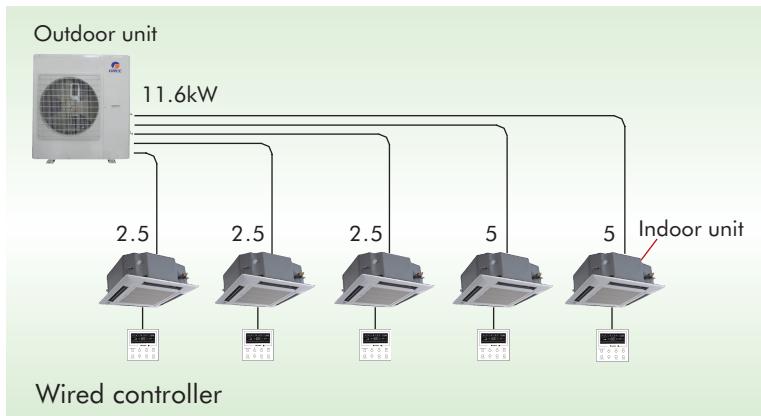
GWHD(42)NK3JO

Allowed max. indoor unit:

5 Units

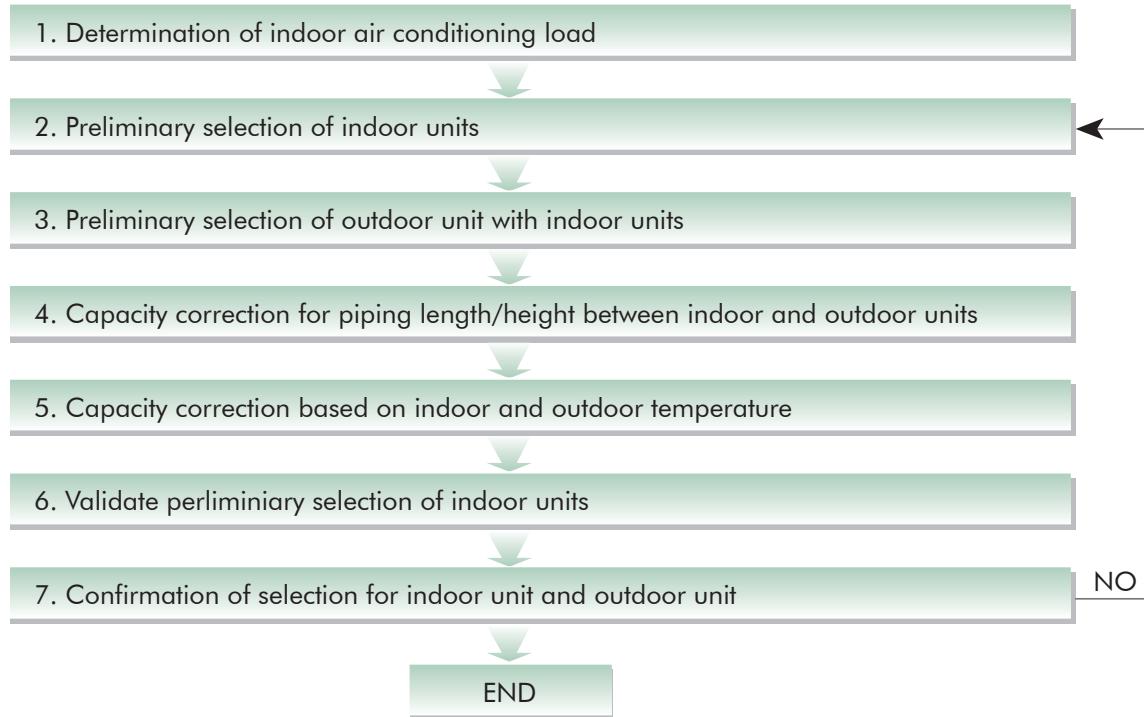
Allowed capacity code of indoor unit:

Min. : 7kW Max. : 18kW



4 EQUIPMENT SELECTION PROCEDURE

4.1 Selection Flow Chart



4.2 Combination Conditions for Indoor Unit and Outdoor Unit

- (1) The capacity code of indoor units = the nominal cooling capacity (Btu/h) × 1000.
- (2) For outdoor unit, maximum No. of connectable indoor units and total capacity code of indoor units are decided.

Model name of outdoor unit	Capacity code of outdoor unit	Max. No. of indoor units	Total capacity code of indoor units
GWHD(18)NK3JO	18	2	9 to 27
GWHD(24)NK3JO	24	3	12 to 36
GWHD(28)NK3JO	28	4	14 to 42
GWHD(36)NK3JO	36	4	18 to 54
GWHD(42)NK3JO	42	5	21 to 63

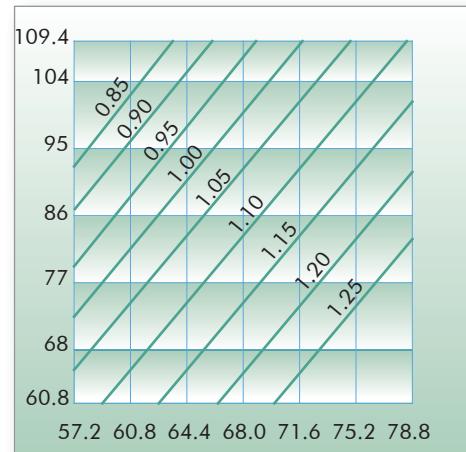
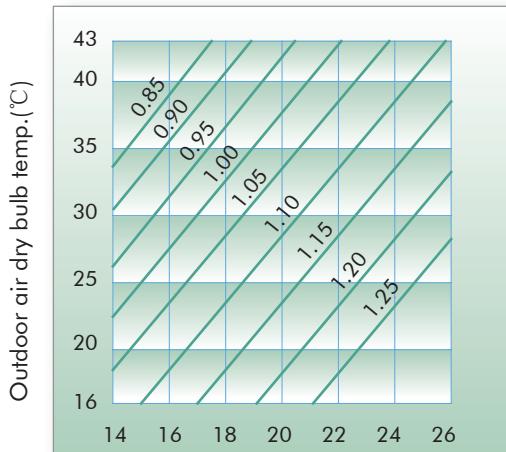
4.3 Cooling/Heating Capacity Characteristics

4.3.1 Cooling Capacity Calculation Method

$$\text{Required cooling capacity} = \text{cooling capacity} \times \text{Factor ①} \times \text{Factor ②} \text{ kW}$$

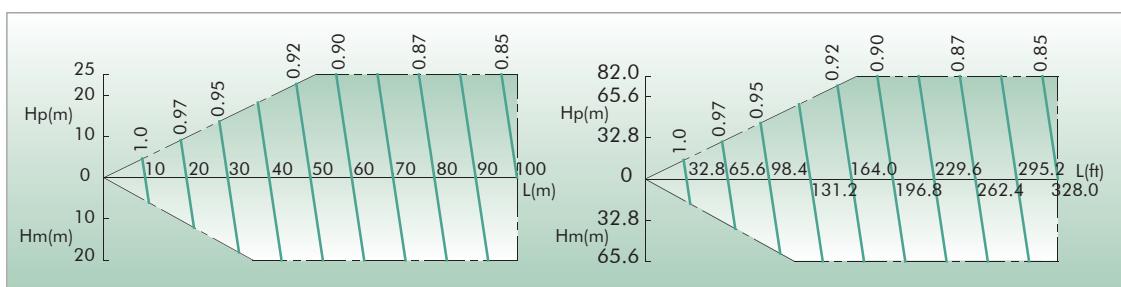
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① Ambient Temperature vs. Capacity Correction Value



② Connecting Pipe Length and Height Difference Between Indoor and Outdoor Units vs. Capacity Correction Value

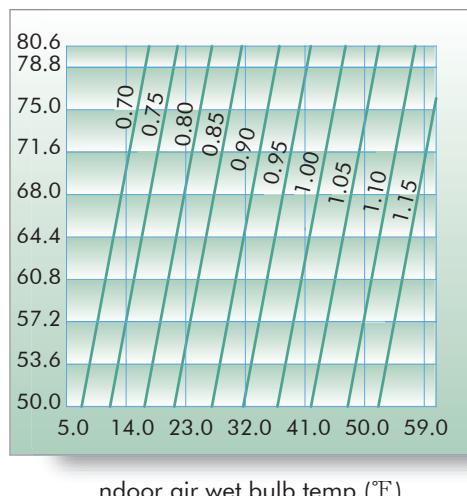
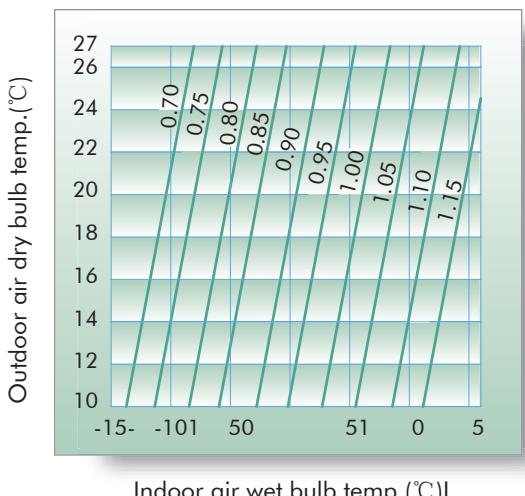
- ◆ Hp: Height Difference Between Indoor and Outdoor Units(Outdoor unit higher)
- ◆ Hm: Height Difference Between Indoor and Outdoor Units(Outdoor unit lower)
- ◆ L: Equivalent pipe length



4.3.2 Heating Capacity Calculation Method

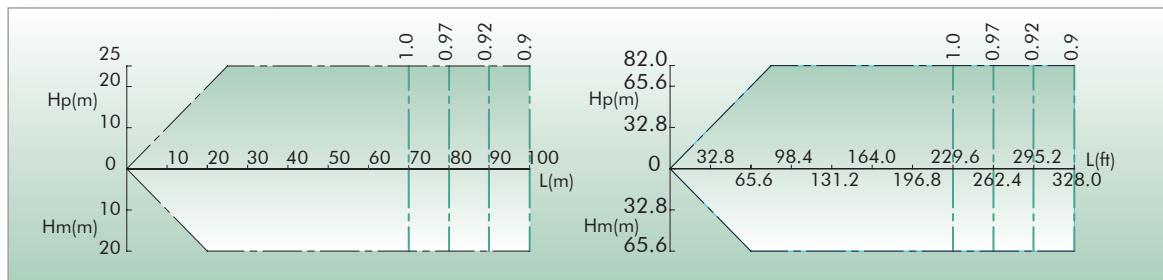
$$\text{Required Heating capacity} = \text{Heating capacity} \times \text{Factor ①} \times \text{Factor ②} \text{ kW}$$

① Ambient Temperature vs. Capacity Correction Value



② Connecting Pipe Length Between Indoor and Outdoor Units vs. Capacity Correction Value

- ◆ Hp: Height Difference Between Indoor and Outdoor Units(Outdoor unit higher)
- ◆ Hm: Height Difference Between Indoor and Outdoor Units(Outdoor unit lower)
- ◆ L:Equivalent pipe length



4.3.3 Capacity Calculation for Each Indoor Unit

Capacity for each indoor unit

$$= \text{Capacity after correction of outdoor unit} \times \frac{\text{Required standard capacity of indoor unit}}{\text{Total value of standard indoor unit capacity}}$$

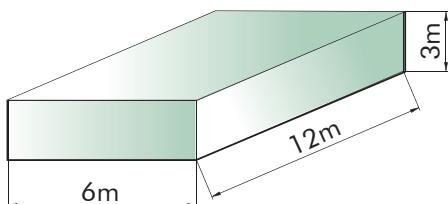
4.3.4 Operating temperature range

Range	Mode	Outdoor temperature range °C
	Cooling	18/24/28k: -15~43°C 36/42k: -7~48°C
	Heating	18/24/28k: -15~24°C 36/42k: -15~30°C

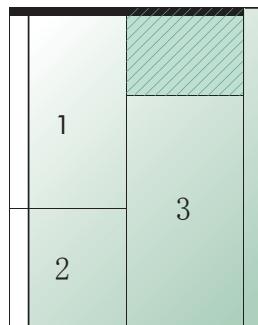
4.4 Example of Equipment Selection

4.4.1 Overview of Building Model

<Outside view>



<Stories configuration>



Non-air conditioning zone

Steel frame, reinforced concrete building, ten stories above ground.

An apartment area : 72 m²

Outdoor unit is installed on the balcony.Design indoor conditions:

Cooling : 27.0°C (80.6°F)/19.0°C (66.2°F)DB/WB

Design outdoor conditions

Cooling : 35°C (95°F)DB (Standard condition)

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4.4.2 Selection Criteria for Each Apartment

Outdoor capacity exactly matches the total indoor capacity.

Total indoor HP = Outdoor unit HP

Indoor : 1.5 HP + 1HP + 2 HP = 4.5 HP

Outdoor : 5 HP (Same capacity)

4.4.3 Procedure and Result of Equipment Selection

a. Procedure of Equipment Selection

① Calculate cooling for every rooms.

② Select an indoor unit to match the cooling load for every room.

③ Choose a tentative outdoor that will match with the indoor units. Perform capacity correction based on the pipe length, system lift, indoor set temperature, outdoor temperature. Then, make sure the corrected system cooling capacity satisfies the cooling load.

b. Equipment Selection and Capacity Check

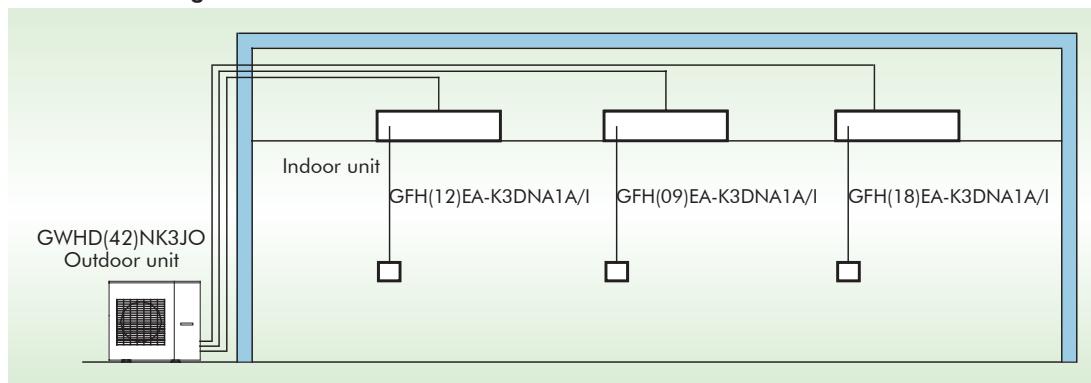
Air conditioning load			Equipment selection					
Floor	Room No.	Indoor cooling load (kW)	Indoor unit			Outdoor unit		
			Model	Capacity (kW)		Model	Capacity (kW)	
				Cooling	Heating		Cooling	Heating
5F	1	3.5	GFH(12)EA-K3DNA1A/I	3.5	3.85	GWHD(42)NK3JO	11.6	13.0
	2	2.5	GFH(09)EA-K3DNA1A/I	2.5	2.8			
	3	5	GFH(18)EA-K3DNA1A/I	5	5.5			

Conversion Formula: 1kW=3412Btu/h

Piping distance				Capacity correction		Capacity check after correction			
Floor	Room No.	Equivalent length (m)	Height Pipe difference (m)	correction x temp. correction		Capacity		Judgment	
						Capacity (kW)			
				Cooling	Heating	Cooling	Heating		
5F	1	30	0	0.95	1	3.42	4.0	good	
	2					2.375	3.0		
	3					4.75	5.8		

Conversion Formula: 1kW=3412Btu/h

c. Schematic Diagram



5 REFRIGERANT PIPING DESIGN

5.1 Warning on Refrigerant Leakage

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its concentration will not exceed a set limit.

The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.

5.1.1 The Concentration Limit of R410A Which is Used in Multi Air Conditioner

The concentration limit of R410A which means the concentration limit of R410A that can be controlled by emergency measures to prevent human body from harming. The refrigerant concentration unit is kg/m³ (Which means the weight of refrigerant per m³ air).

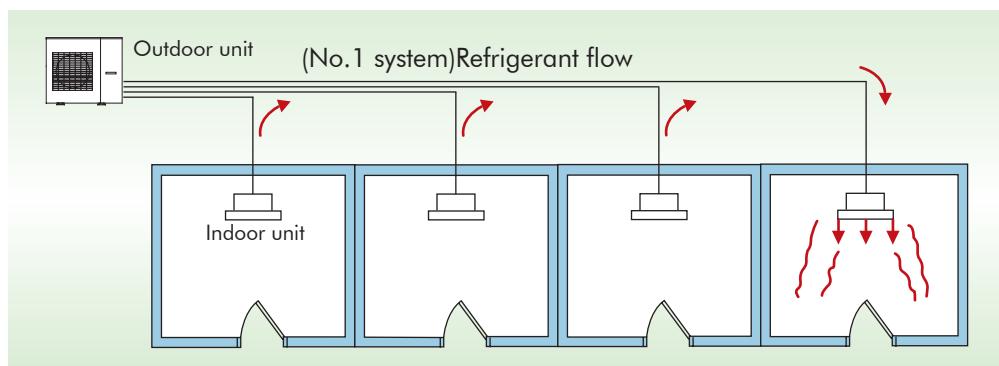


Fig.5.1

5.1.2 Check of Refrigerant Leakage

Calculate the refrigerant concentration as follows:

① Calculate the Amount of Refrigerant of Each Refrigeration System

[The amount of refrigerant of each system of outdoor unit] + [Additional charged amount at field installation]

Refrigerant amount of the outdoor unit at ex-factory

According to the liquid tube length and diameter

= System total amount of refrigerant(kg)

NOTE:

When single refrigeration system consists of several independent refrigeration circuit, figure out the total refrigerant amount by each independent refrigerant circuit. For the amount of charge in this example:

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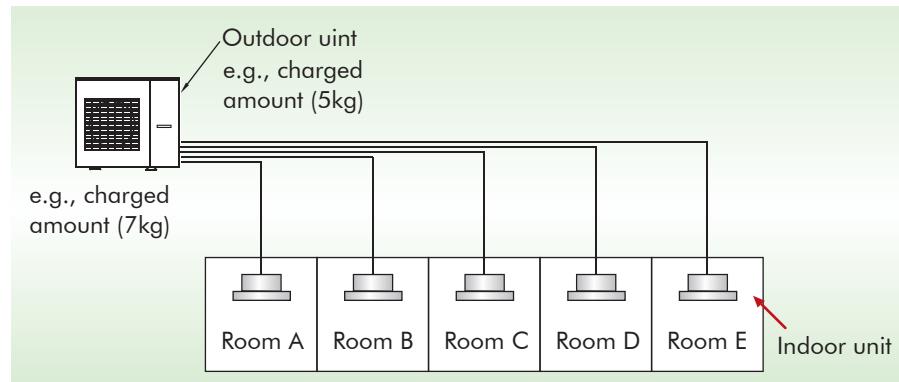


Fig.5.2

The possible amount of leaked refrigerant gas in rooms A, B and C is 7kg.
The possible amount of leaked refrigerant gas in rooms D, E is 7 kg.

② Calculate the Minimum Room Volume are as Follows

- ◆ No partition (shaded portion)

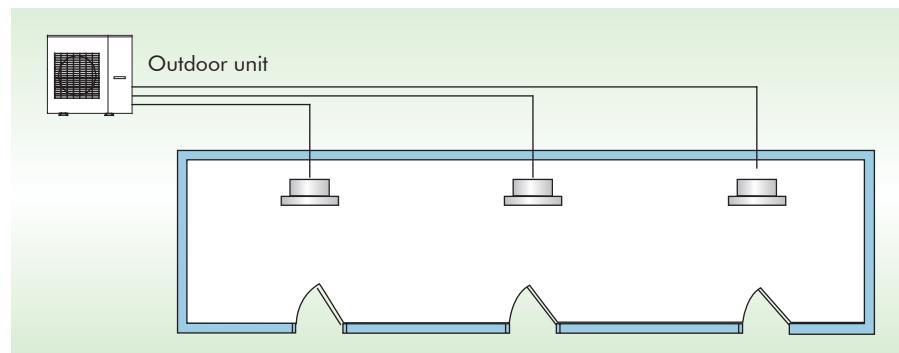


Fig.5.3

- ◆ When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening with a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).

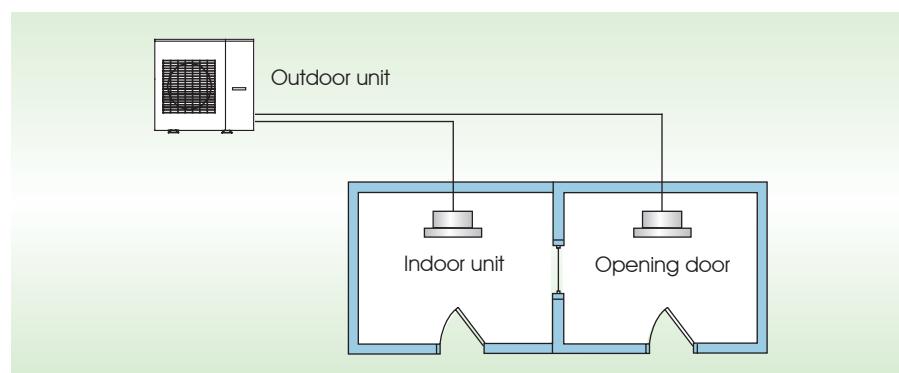


Fig.5.4

- ◆ If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object.

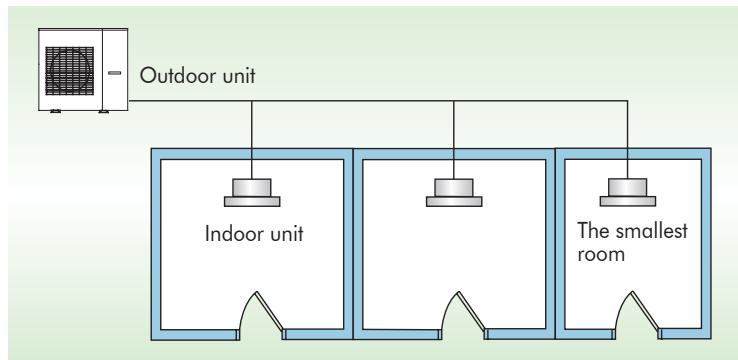


Fig.5.5

The concentration limit of R410A which is used in multi air conditioners is 0.3kg/m³.

③ Use the results of calculations ① and ② to calculate the refrigerant concentration:

The concentration is as given below:

$$\frac{\text{Total amount of refrigerant(kg)}}{\text{Min.volume of the indoor unit installed room(m}^3\text{)}} \leq \text{Concentration limit(kg/m}^3\text{)}$$

5.1.3 Measures When The Refrigerant Concentration Limit is Exceeded(JRA-GL 13-1998)

When the refrigerant concentration exceeds the density limit value relative to indoor volume, take proper actions according to following key points:

◆ **Method 1:** Set up an opening for efficient air exchange

Opening with a door, or an opening 0.1% or larger than the respective floor spaces at the top or bottom of the door.

◆ **Method 2:** Decrease the total amount of refrigerant in refrigerant equipment.

Shorten the Length of Refrigerant Pipe

Install the outdoor unit closer to the indoor unit and shorten the length of refrigerant pipe, hence to decrease the total amount of refrigerant in refrigerant equipment.

Decrease the Capacity of Outdoor Unit

Split the outdoor unit into multiple sets, thus decreasing the capacity of each outdoor unit to which one refrigerant system corresponds and hence to decrease the filling amount of refrigerant.

For example: If one 10HP system is split into 2 sets of 5HP systems, the amount of refrigerant in one refrigerant system may be half decreased approximately.

◆ **Method 3:** Set up an air exchange system

An air exchange system can be set to avoid too high concentration of refrigerant in event of refrigerant leakage. The air exchange system includes two types, i.e. external air import and air discharge. From the property of refrigerant, it is recommended to adopt the external air import.

Exchanging Air Volume

According to the total amount of refrigerant of refrigerant equipment and the room volume, air exchange volume should be greater than the volume showed in Fig.5.6.

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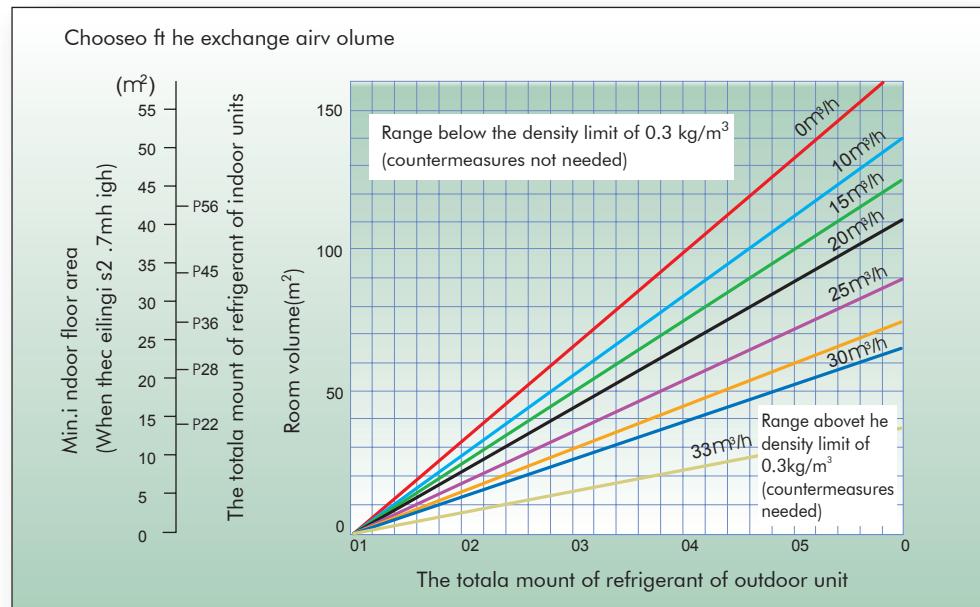


Fig.5.6

Detector and Interlink

In principle, the air exchange system shall always work normally no matter the air conditioner is used or any person stays in the room. If it is impossible to realize long-term working, please use a detector system to activate the air exchange system upon leakage of refrigerant. Shown in Fig. 5.7 is the air exchange system in long-term working. Shown in Fig. 5.8 is the detector interlink system.

NOTE:

- (a) In order to avoid malfunction of air exchange system, please do not choose the range showed in oblique line in Fig. 5.6 even though equipped with air exchange system. If entering into this range, should set effective air exchange port, expand room volume or decrease the amount of outdoor unit, change the piping length in order to decrease total refrigerant amount, in principle according to method 1 and 2.
- (b) Where an air exchange system is provided but it is impossible to take Method 1 or Method 2 when the refrigerant concentration is within the range indicated by the oblique line in Fig. 5.6, please use other means independent from air exchange system to ensure safety. In detail, we can set a refrigerant cutoff valve that can be activated by the detector upon refrigerant leakage and as well, set an alarm system that can notify the indoor person. The detector here is different from the detector in aforementioned air exchange system. Shown in Fig. 5.9 is the status that a refrigerant cutoff valve is set.
- (c) To set an air exchange system, please ensure to leave an efficient air exchange gap (e.g. gap below the door) at the lowest part of the room.
- (d) For connection of pipes within living area, please make sure to comply with JIS specification and perform thorough airtight test after the work is completed. Additionally, please ensure that the pipe is installed with shockproof device to avoid damage due to earthquake or the other external forces. (But on axial direction, a leeway shall be left to eliminate the stress caused by temperature variation).

Long Term Working Air Exchange System

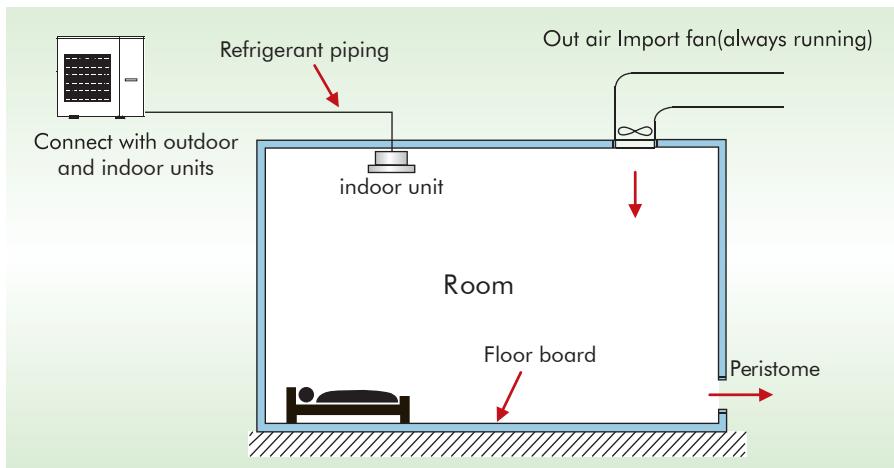


Fig.5.7

Detector Interlink System

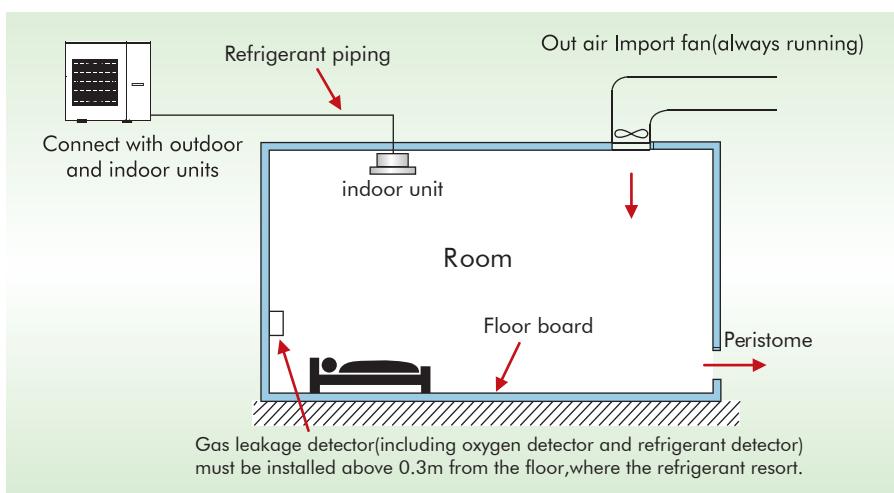


Fig.5.8

Position of Long Term Running Ventilation System and Refrigerant Cut-off Valve

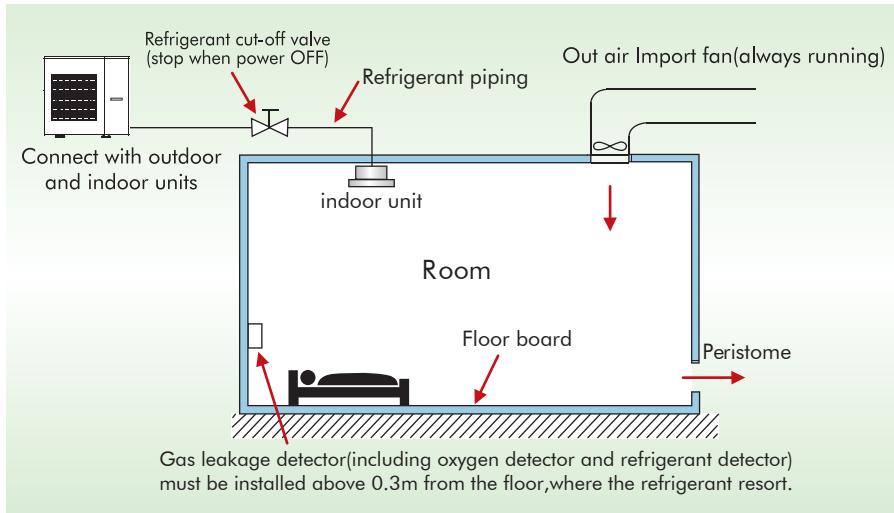


Fig.5.9

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5.2 Allowable Length/Height Difference of Refrigerant Piping

GWHD(18)NK3JO

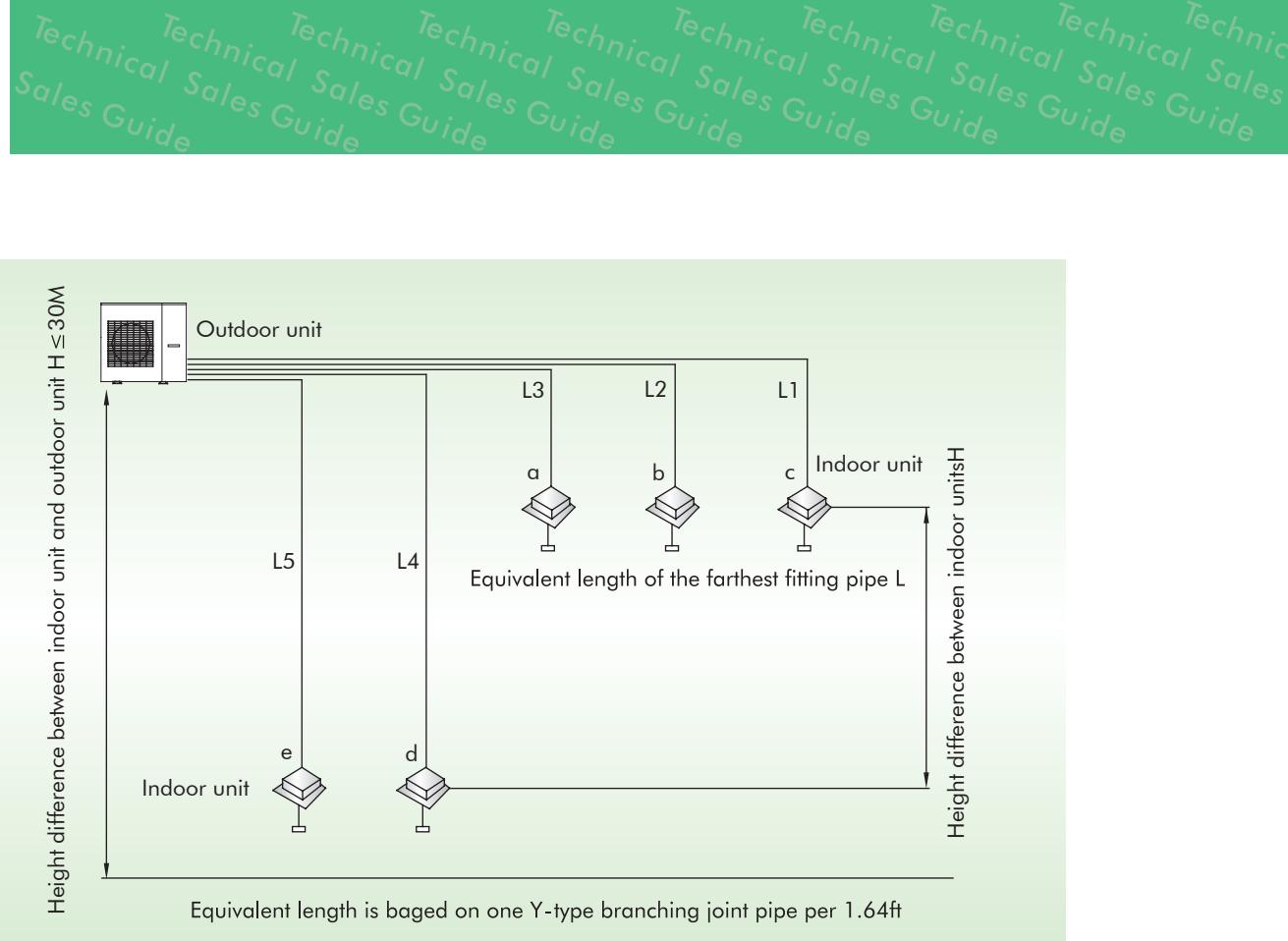
		Allowable Length	Refrigerant Pipe
		GWHD(18)NK3JO	GWHD(18)NK3JO
Total Length(m)		20	L1+L2
Max. Length for Single Unit(m)		10	L1
Max. installation altitude	Outdoor unit and indoor unit	5	H1
	Indoor unit and indoor unit	7.5	H2

GWHD(24)NK3JO, GWHD(28)NK3JO

		Allowable Length		Refrigerant Pipe	
		GWHD(24)NK3JO	GWHD(28)NK3JO	GWHD(24)NK3JO	GWHD(28)NK3JO
Total Length(m)		60	70	L1+L2+L3	L1+L2+L3+ L4
Max. Length for Single Unit(m)		20	20	L1	
Max. installation altitude	Outdoor unit and indoor unit	10	10	H1	
	Indoor unit and indoor unit	7.5	7.5	H2	

GWHD(36)NK3JO, GWHD(42)NK3JO

		Allowable Length		Refrigerant Pipe	
		GWHD(36)NK3JO	GWHD(42)NK3JO	GWHD(36)NK3JO	GWHD(42)NK3JO
Total Length(m)		75	75	L1+L2+L3+ L4	L1+L2+L3+ L4+ L5
Max. Length for Single Unit(m)		20	25	L1	
Max. installation altitude	Outdoor unit and indoor unit	15	15	H1	
	Indoor unit and indoor unit	7.5	7.5	H2	



5.3 Charging Requirement with Additional Refrigerant

Refrigerant in the System When Shipped from the Factory

Model name	GWHD(18)NK3JO	
Refrigerant amount charged in factory	1.6kg	
Model name	GWHD(24)NK3JO	GWHD(28)NK3JO
Refrigerant amount charged in factory	2.2kg	2.3kg
Model name	GWHD(36)NK3JO	GWHD(42)NK3JO
Refrigerant amount charged in factory	3.65kg	3.65kg

NOTE:

- (a) The refrigerant charge mentioned in the table above is not included those charged additionally in the indoor unit and the refrigerant pipe.
- (b) The amount of the additional refrigerant charge is dependent on the diameter and length of the liquid refrigerant pipe which is decided by the actual yield installation requirement.
- (c) Record the additional refrigerant charge for future maintenance.

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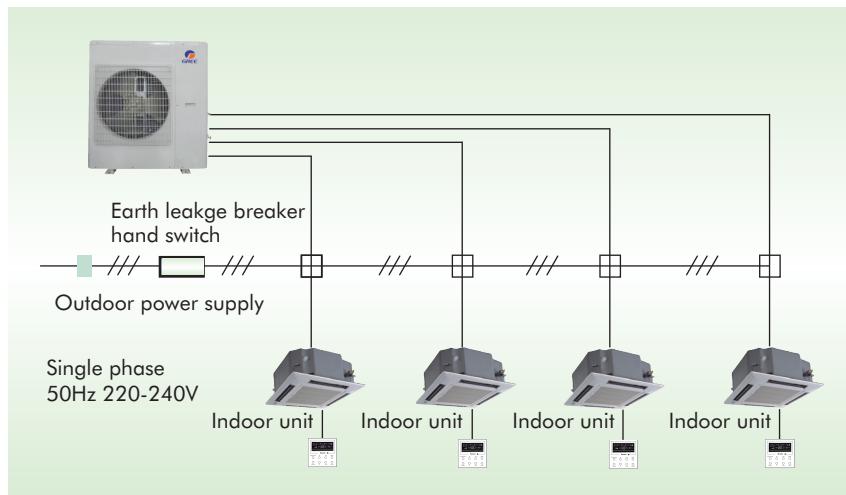
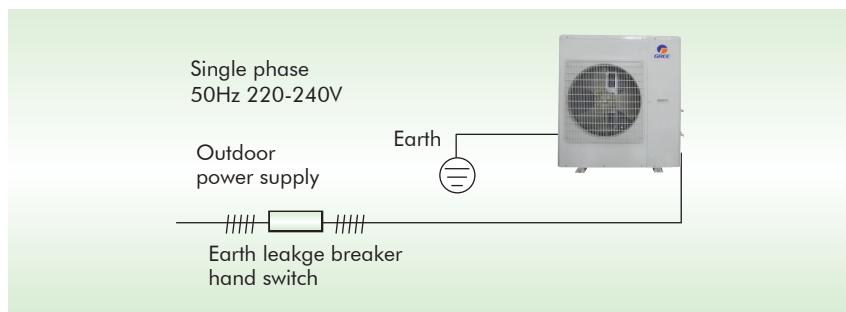
6 WIRING DESIGN

6.1 General

- (1) Perform wiring of the power supply in conformance with the regulations of the local electric company.
- (2) For the control wires connecting indoor units, and between indoor and outdoor units, use of twisted -pair shield wires is recommended to prevent noise trouble.
- (3) Be sure to set the earth leakage breaker and the switches to the power supply section of the indoor unit.
- (4) Supply power to each outdoor unit and provide an earth leakage breaker or hand switch for each outdoor unit.
- (5) Store wiring system for control and refrigerant piping system in the same line.
- (6) Arrange the cables so that the electric wires do not contact with high-temperature part of the pipe; otherwise coating melts and an accident may be caused.
- (7) Do not turn on power of the indoor unit until vacuuming of the refrigerant pipe finish.

6.2 Electrical Wiring Design

6.2.1 Wiring Drawing



6.2.2 Selection of Power Supply Cabling and Fuse of Units

Model	Power supply wiring		
	Wire Size	Field Fuse	
Outdoor Unit	GWHD(18)NK3JO	2.5mm ²	25A
	GWHD(24)NK3JO	4mm ²	30A
	GWHD(28)NK3JO	4mm ²	30A
	GWHD(36)NK3JO	6mm ²	32A
	GWHD(42)NK3JO	6mm ²	32A
Indoor Unit	All models of indoor units	1.5mm ²	10A

- Determine the wire size for indoor unit according to the number of connected indoor units downstream.
- Observe local regulation regarding wire size selection and installation.

NOTE :

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 manufacture.



CAUTIONS

- (1) Keep the refrigerant piping system and the indoor-indoor/indoor-outdoor control wiring systems together.
- (2) When running power wires and control wires parallel to each other, either run them through separate conduits or (Current capacity of power wires: 10A or less for 300m, 50A or less for 500m)



6.3 Parameters

6.3.1 Outdoor Unit

Model name	Voltage Range		Compressor	Fan Motor	
	Min	Max	RLA	kW	FLA
GWHD(18)NK3JO	198	264	4.5A	0.06	0.56
GWHD(24)NK3JO	198	264	9.7A	0.06	0.06
GWHD(28)NK3JO	198	264	9.7A	0.06	0.06
GWHD(36)NK3JO	198	264	9.7A	0.12	0.58A
GWHD(42)NK3JO	198	264	13.5A	0.22	1.1A

LEGEND:

MCA: Minimum Circuit Amps

FLA: Full Load Amps

7 ACCESSORIES

7.1 Outdoor Unit

Accessories model name	Standard	Option	Field supplied
Power Cable			√
Flexible pipe	√		

7.2 Indoor Unit

Accessories model name	Standard	Option	Field supplied
Power Cable			√
Wireless Remote Controller	√		
Wired Controller	√		
Connecting Cable for Wired Controller (8m)	√		
Drain Pipe	√		

7.3 Controller

Accessories name	Model name	Standard	Option	Remark
Wireless Remote Controller	YT1F	√		Common parts for all type model

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8 TECHNICAL SPECIFICATIONS



8.1 Indoor Unit

◆ Cozy

Model			GWH09MB-K3DNA4H/I	GWH12MB-K3DNA4H/I	GWH18MC-K3DNA4H/I
Capacity	Cooling	kW	2.60	3.50	5.20
	Heating	kW	2.80	3.85	5.85
Power supply		V-Ph-Hz	220~240-50-1	220~240-50-1	220~240-50-1
Air flow volume		m3/h	580/500/400/300	580/530/430/330	850/780/650/550
		CFM	341/294/235/177	341/312/253/194	500/459/383/324
Sound pressure level(H/L)		dB(A)	40/37/34/27	42/39/35/28	46/44/40/35
Fan motor	Output	kW	0.02	0.02	0.02
	Running current	A	0.22	0.22	0.31
Connecting pipe	Gas	inch	9.52	12	12
	Liquid	inch	6	6	6
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ16	Φ16	Φ16
Outline dimension	W×D×H	mm	845×180×275	845×180×275	940×200×298
Package dimension	W×D×H	mm	918×258×370	918×258×370	1013×288×395
Net weight		kg	9.5	9.5	13.0
Gross weight		kg	11.5	11.5	16.0
Loading quantity	20'GP		318	318	248
	40' GP		684	684	539
	40' HQ		798	798	607

NOTES:

- The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- The Heating capacity of the heat pump type is the capacity of heat pump.
- Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

Model			GWH24MD-K3DNA4H/I	GWH28ME-K3DNA4H/I
Capacity	Cooling	kW	6.30	8.00
	Heating	kW	6.30	8.40
Power supply		V-Ph-Hz	220~240-50-1	220~240-50-1
Air flow volume		m3/h	950/800/700/550	1200/1100/1000/900
		CFM	559/471/412/324	706/647/588/530
Sound pressure level(H/L)		dB(A)	51/45/42/39	51/48/43/40
Fan motor	Output	kW	0.035	0.03
	Running current	A	0.31	0.30
Connecting pipe	Gas	inch	5/8"	5/8"
	Liquid	inch	1/4"	1/4"
	Connection method		Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ16	Φ16
Outline dimension	W×D×H	mm	1007×315×219	1178×326×253
Package dimension	W×D×H	mm	1076×398×328	1268×420×358
Net weight		kg	16.0	17.5
Gross weight		kg	21.0	23.5
Loading quantity		20'GP	210	130
		40' GP	434	285
		40' HQ	496	331

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

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◆ Hansol

Model			GWH09TA-K3DNA1B/I	GWH12TB-K3DNA1B/I	GWH18TC-K3DNA1B/I
Capacity	Cooling	kW	2.60	3.50	5.30
	Heating	kW	3.00	4.00	5.80
Power supply		V-Ph-Hz	220~240-1-54	220~240-1-55	220~240-1-56
Air flow volume	m3/h	550/490/420/370/330/290/ 230	650/570/510/430/360/310/ 280	950/870/790/710/630/560/ 480	
	CFM	324/288/247/218/194/171/ 135	383/336/300/253/212/183/ 165	559/512/465/418/371/330/ 282	
Sound pressure level(H/L)		dB(A)	41/37/34/32/28/24/21	43/39/34/32/28/24/22	49/45/41/39/36/33/30
Fan motor	Output	kW	0.015	0.015	0.025
	Running current	A	0.07	0.07	0.1
Connecting pipe	Gas	inch	3/8	1/2	5/8
	Liquid	inch	1/4	1/4	1/4
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	16	16	16
Outline dimension	W×D×H	mm	806×209×292	866×209×292	1018×230×319
Package dimension	W×D×H	mm	888×377×297	945×377×297	1097×397×340
Net weight		kg	10.5	11.0	16.0
Loading quantity	Gross weight	kg	13.5	14.0	19.5
	20'GP	284	276	183	
	40' GP	591	566	381	
	40' HQ	669	640	442	

NOTES:

- a. The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

Model			GWH24TD-K3DNA1C/I	GWH28TD-K3DNA1B/I
Capacity	Cooling	kW	7.00	8.00
	Heating	kW	7.40	8.40
Power supply		V-Ph-Hz	220~240-50-1	220~240-50-1
Air flow volume		m³/h	1200/1100/1000/900/800/700/ 600	1200/1130/1060/990/920/850/ 780
		CFM	706/647/588/530/471/412/353	706/665/624/583/541/500/459
Sound pressure level(H/L)		dB(A)	52/50/47/45/43/40/36	51/49/45/43/41/39/36
Fan motor	Output	kW	0.06	0.07
	Running current	A	0.24	0.28
Connecting pipe	Gas	inch	5/8"	5/8"
	Liquid	inch	1/4"	1/4"
Connection method			Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ16	Φ16
Outline dimension	W×D×H	mm	1178×326×264	1178×326×264
Package dimension	W×D×H	mm	1256×414×364	1256×414×364
Net weight		kg	18.0	18.0
Gross weight		kg	22.0	24.0
		20'GP	135	135
Loading quantity		40' GP	288	288
		40' HQ	330	330

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

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◆ LOMO

Model			GWH09QC-K3DNB2A/I	GWH12QC-K3DNB2D/I	GWH18QD-K3DNB2L/I
Capacity	Cooling	kW	2.50	3.40	5.275
	Heating	kW	3.00	4.00	6.00
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50	220~240-1-50
Air flow volume	m3/h	630/580/530/420/380/300/ 250	680/620/560/490/450/420/ 390	900/800/700/600/500/400/ 350	900/800/700/600/500/400/ 350
	CFM	371/341/312/247/224/177/ 147	400/365/330/288/265/247/ 230	530/471/412/353/294/235/ 206	530/471/412/353/294/235/ 206
Sound pressure level(H/L)		dB(A)	40/37/35/32/28/24/23	44/40/37/34/31/29/26	48/45/42/37/33/29/26
Fan motor	Output	kW	0.02	0.02	0.05
	Running current	A	0.09	0.09	0.24
Connecting pipe	Gas	inch	3/8"	3/8"	1/2"
	Liquid	inch	1/4"	1/4"	1/4"
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	16	16	16
Outline dimension	W×D×H	mm	845×209×289	845×209×289	970×224×300
Package dimension	W×D×H	mm	921×281×379	921×281×379	1041×383×320
Net weight		kg	10.0	10.5	13.5
Gross weight		kg	12.0	12.5	16.5
Loading quantity	20'GP		300	300	230
	40' GP		624	624	489
	40' HQ		728	728	557

NOTES:

- a. The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6°F) DB/19°C (66.2°F) WB,
Outdoor air temperature 35°C (95°F) DB/24°C (75.2°F) WB.
Heating : Indoor air temperature 20°C (68°F) DB/15°C (59°F) WB,
Outdoor air temperature 7°C (44.6°F) DB/6°C (42.8°F) WB.

Model			GWH21QE-K3DNB2A/I	GWH24QE-K3DNB2H/I	GWH28QE-K3DNB2H/I
Capacity	Cooling	kW	6.20	7.10	8.50
	Heating	kW	7.10	8.00	9.00
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50	220~240-1-50
Air flow volume		m³/h	1350/1150/1050/950/ 850/800/700	1400/1250/1100/1000/ 900/800/750	1400/1250/1100/1000/ 900/800/750
		CFM	794/677/618/559/500/ 471/412	824/736/647/589/530/ 471/441	824/736/647/588/530/ 471/441
Sound pressure level(H/L)		dB(A)	50/46/44/41/38/36/35	51/48/44/41/38/36/35	52/48/45/42/39/37/35
Fan motor	Output	kW	0.035	0.03	0.06
	Running current	A	0.16	0.5	0.38
Connecting pipe	Gas	inch	1/2	5/8	5/8
	Liquid	inch	1/4	1/4	1/4
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	16	16	16
Outline dimension	W×D×H	mm	1078×246×325	1078×246×325	1078×246×325
Package dimension	W×D×H	mm	1148×413×350	1148×413×350	1148×413×350
Net weight		kg	15.5	16.0	16.0
Loading quantity		kg	19.0	19.5	19.5
		20'GP	172	172	172
		40' GP	346	346	346
		40' HQ	402	402	402

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

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◆ Duct Type

Model	Heat pump		GFH(09)EA-K3DNA1A/I	GFH(12)EA-K3DNA1A/I	GFH(18)EA-K3DNA1A/I
Capacity	Cooling	kW	2.5	3.5	5.0
	Heating	kW	2.80	3.85	5.50
Power supply		V-Ph-Hz	220 ~ 240-1- 50	220 ~ 240-1- 50	220 ~ 240-1- 50
Motor power input		kW	0.075	0.065	0.08
Air flow volume		m ³ /h	450	550	700
		CFM	265	324	412
Sound pressure level(H/L)		dB(A)	37/31	39/32	40/33
Fan motor	Output	kW	0.03	0.04	0.06
	Running current	A	0.28	0.31	0.41
Connecting pipe	Gas	inch	3/8"(9.52mm)	3/8"(9.52mm)	1/2"(Φ 12.7mm)
	Liquid	inch	1/4"(Φ 6.35mm)	1/4"(Φ 6.35mm)	1/4"(Φ 6.35mm)
	Connection method		Screw thread connection	Screw thread connection	Screw thread connection
Drain pipe	External dia.	mm	Φ20	Φ20	Φ20
	Thickness	mm	1.5	1.5	1.5
Outline dimension	W×D×H	mm	700×615×200	700×615×200	900×615×200
Package dimension	W×D×H	mm	893×743×305	893×743×305	1120×743×305
Net weight		kg	22	23	27
Gross weight		kg	27	29	36
Loading quantity		20'GP	108	108	90
		40' GP	234	234	180
		40' HQ	234	234	180

NOTES:

- e. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- f. The Heating capacity of the heat pump type is the capacity of heat pump.
- g. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- h. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

Model	Heat pump		GFH(21)EA-K3DNA1A/I	GFH(24)EA-K3DNA1A/I
Capacity	Cooling	kW	6.0	7.1
	Heating	kW	6.60	8.00
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.11	0.11
Air flow volume			m³/h	1000
			CFM	589
Sound pressure level(H/L)		dB(A)	42/34	42/34
Fan motor	Output	kW	0.02	0.02
	Running current	A	0.5	0.5
Connecting pipe	Gas	inch	5/8"(Φ 15.9mm)	5/8"(Φ 15.9mm)
	Liquid	inch	3/8"(Φ 9.52mm)	3/8"(Φ 9.52mm)
	Connection method		Screw thread connection	Screw thread connection
Drain pipe	External dia.	mm	Φ 20	Φ 20
	Thickness	mm	1.5	1.5
Outline dimension	W×D×H	mm	1100×615×200	1100×615×200
Package dimension	W×D×H	mm	1320×740×290	1320×740×290
Net weight		kg	31	31
Gross weight		kg	41	41
Loading quantity	20'GP		72	72
	40' GP		162	162
	40' HQ		162	162

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

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◆ Cassette Type

Model	Heat pump		GKH(12)BA-K3DNA1A/I	GKH(18)BA-K3DNA1A/I	GKH(24)BA-K3DNA1A/I
Capacity	Cooling	kW	3.5	5	7.1
	Heating	kW	3.85	5.5	8
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50	220~240-1-50
Motor power input		kW	0.07	0.07	0.1
Air flow volume		m³/h	680	680	1180
		CFM	400	400	694
Sound pressure level(H/L)		dB(A)	37/33	37/33	39/35
Fan motor	Output	kW	0.035	0.035	0.035
	Running current	A	0.3	0.3	0.4
Connecting pipe	Gas	inch	3/8"(Φ 9.52mm)	1/2"(Φ 12.7mm)	5/8"(Φ 15.9mm)
	Liquid	inch	1/4"(Φ 6.35mm)	1/4"(Φ 6.35mm)	3/8"(Φ 9.52mm)
	Connection method		Screw thread connection	Screw thread connection	Screw thread connection
Drain pipe	External dia.	mm	Φ31	Φ31	Φ31
	Thickness	mm	3	3	3
Outline dimension	Body(W×D×H)	mm	840×840×190	840×840×190	840×840×240
	Panel(W×D×H)	mm	950×950×60	950×950×60	950×950×60
Package dimension	Body(W×D×H)	mm	963×963×273	963×963×273	963×963×325
	Panel(W×D×H)	mm	1043×1028×130	1043×1028×130	1043×1028×130
Net weight	Body	kg	25	25	30
	Panel	kg	6.5	6.5	6.5
Gross weight	Body	kg	33	33	38
	Panel	kg	10	10	10
Loading quantity		20'GP	48	48	40
		40' GP	128	128	108
		40' HQ	144	144	128

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

Model	Heat pump		GKH(12)BA-K3DNA2A/I	GKH(18)BA-K3DNA2A/I
Capacity	Cooling	kW	3.5	4.5
	Heating	kW	4.0	5.0
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.05	0.05
Air flow volume			m³/h	600
			CFM	353
Sound pressure level(H/L)		dB(A)	46	46
Fan motor	Output	kW	0.011	0.011
	Running current	A	0.25	0.25
Connecting pipe	Gas	inch	3/8"(Φ9.52mm)	1/2"(Φ12.7mm)
	Liquid	inch	1/4"(Φ6.35mm)	1/4"(Φ6.35mm)
Connection method		Screw thread connection		Screw thread connection
Drain pipe	External dia.	mm	31	31
	Thickness	mm	3	3
Outline dimension	Body(W×D×H)	mm	570×570×230	570×570×230
	Panel(W×D×H)	mm	650×650×50	650×650×50
Package dimension	Body(W×D×H)	mm	851×731×325	851×731×325
	Panel(W×D×H)	mm	733×673×117	733×673×117
Net weight	Body	kg	18	18
	Panel	kg	6.5	6.5
Gross weight	Body	kg	23	23
	Panel	kg	10	10
Loading quantity		20'GP	102	102
		40' GP	209	209
		40' HQ	246	246

NOTES:

- The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data.
- The Heating capacity of the heat pump type is the capacity of heat pump.
- Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

FREE MATCH II Multi VRF Technical Sales Guide

◆ Floor Ceiling Type

Model	Heat pump		GTH(09)BA-K3DNA1A/I	GTH(12)BA-K3DNA1A/I
Capacity	Cooling	kW	2.5	3.5
	Heating	kW	2.8	3.85
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.055	0.055
Air flow volume			m ³ /h	650
			CFM	383
Sound pressure level(H/L)		dB(A)	40/36	40/36
Fan motor	Output	kW	0.015	0.015
	Running current	A	0.3	0.3
Connecting pipe	Gas	inch	3/8"(Φ 9.52mm)	1/2"(Φ 12.7mm)
	Liquid	inch	1/4"(Φ 6.35mm)	1/4"(Φ 6.35mm)
	Connection method		Screw thread connection	Screw thread connection
Drain pipe	External dia.	mm	Φ 17	Φ 17
	Thickness	mm	1.75	1.75
Outline dimension	W×D×H	mm	1220×700×225	1220×700×225
Package dimension	W×D×H	mm	1343×823×315	1343×823×315
Net weight		kg	40	40
Gross weight		kg	50	50
Loading quantity	20'GP		48	48
	40' GP		96	96
	40' HQ		96	96

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6°F) DB/19°C (66.2°F) WB,
Outdoor air temperature 35°C (95°F) DB/24°C (75.2°F) WB.
Heating : Indoor air temperature 20°C (68°F) DB/15°C (59°F) WB,
Outdoor air temperature 7°C (44.6°F) DB/6°C (42.8°F) WB.

Model	Heat pump		GTH(18)BA-K3DNA1A/I	GTH(24)BA-K3DNA1A/I
Capacity	Cooling	kW	5	7.1
	Heating	kW	5.5	8
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.11	0.11
Air flow volume			m³/h	950
			CFM	559
Sound pressure level(H/L)		dB(A)	45/40	48/40
Fan motor	Output	kW	0.02	0.05
	Running current	A	0.5	0.5
Connecting pipe	Gas	inch	1/2"(Φ 12.7mm)	5/8"(Φ 15.9mm)
	Liquid	inch	1/4"(Φ 6.35mm)	3/8"(Φ 9.52mm)
	Connection method		Screw thread connection	Screw thread connection
Drain pipe	External dia.	mm	Φ 17	Φ 17
	Thickness	mm	1.75	1.75
Outline dimension	W×D×H	mm	122×700×225	1220×700×225
Package dimension	W×D×H	mm	1343×823×315	1343×823×315
Net weight		kg	40	45
Gross weight		kg	50	54
Loading quantity	20'GP		48	48
	40' GP		96	96
	40' HQ		96	96

NOTES:

- a. The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data.
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
 Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
 Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
 Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

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8.2 Outdoor Unit

Model			GWHD<18>NK3JO
Capacity	Cooling	kW	5.40
	Heating	kW	5.65
EER		kW/kW	3.53
COP		kW/kW	3.69
Power supply		V-Ph-Hz	220~240-1-51
Refrigerant	Type		R410A
	Charge volume	kg	1.6
Compressor	Brand		GREE
	Running current		Inverter Rotary
	Model		QXA-B141zF030A
Connecting pipe	Connection method		Flare Connection
Sound pressure level			Flare Connection
Outline dimension	W×D×H	mm	955×396×700
Package dimension	W×D×H	mm	1029×458×750
Net weight		kg	47.0
Gross weight		kg	51.5
Maximum drive IDU NO.		unit	2
Max. equivalent connection pipe length		m	10
Loading quantity	20'GP		81
	40' GP		171
	40' HQ		171

NOTES:

- a. The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

Model			GWHD<24>NK3JO	GWHD<28>NK3JO
Capacity	Cooling	kW	7.30	8.15
	Heating	kW	8.80	9.30
EER		kW/kW	3.35	3.35
COP		kW/kW	3.52	3.66
Power supply		V-Ph-Hz	220~240-1-52	220~240-1-53
Refrigerant	Type		R410A	R410A
	Charge volume	kg	2.2	2.3
Compressor	Brand		GREE	GREE
	Running current		Inverter Rotary	Inverter Rotary
	Model		QXAS-D23zX090B	QXAS-D23zX090B
Connecting pipe	Connection method		Flare Connection	Flare Connection
Sound pressure level			Flare Connection	Flare Connection
Outline dimension	W×D×H	mm	980×427×790	980×427×790
Package dimension	W×D×H	mm	1083×488×855	1083×488×855
Net weight		kg	59.0	65.0
Gross weight		kg	64.0	70.0
Maximum drive IDU NO.		unit	3	4
Max. equivalent connection pipe length		m	20	20
Loading quantity		20'GP	44	44
		40' GP	96	96
		40' HQ	144	144

NOTES:

- The technical parameters are changed along with the products, improvement; please refer to the nameplate of the unit for actual data
- The Heating capacity of the heat pump type is the capacity of heat pump.
- Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F)

FREE MATCH II Multi VRF Technical Sales Guide

Model			GWHD<36>NK3JO	GWHD<42>NK3JO
Capacity	Cooling	kW	10.00	11.40
	Heating	kW	11.20	12.00
EER		kW/kW	3.33	3.26
COP		kW/kW	3.61	3.69
Power supply		V-Ph-Hz	220~240-1-54	220~240-1-55
Refrigerant	Type		R410A	R410A
	Charge volume	kg	3.65	3.65
Compressor	Brand		LANDA	LANDA
	Running current		Inverter Rotary	Inverter Rotary
	Model		QXAS-D32zX090A	QXAS-D32zX090A
Connecting pipe	Connection method		Flare Connection	Flare Connection
Sound pressure level			Flare Connection	Flare Connection
Outline dimension	W×D×H	mm	1087×440×1103	1087×440×1103
Package dimension	W×D×H	mm	1173×493×1235	1173×493×1235
Net weight		kg	89.0	90.0
Gross weight		kg	98.0	98.0
Maximum drive IDU NO.		unit	4	5
Max. equivalent connection pipe length		m	25	25
Loading quantity		20'GP	22	22
		40' GP	44	44
		40' HQ	86	86

NOTES:

- a. The technical parameters are changed along with the products improvement; please refer to the nameplate of the unit for actual data
- b. The Heating capacity of the heat pump type is the capacity of heat pump.
- c. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
- d. Rated conditions: Cooling : Indoor air temperature 27°C (80.6 °F) DB/19°C (66.2 °F) WB,
Outdoor air temperature 35°C (95 °F) DB/24°C (75.2 °F) WB.
Heating : Indoor air temperature 20°C (68 °F) DB/15°C (59 °F) WB,
Outdoor air temperature 7°C (44.6 °F) DB/6°C (42.8 °F) WB.

8.3 Performance Parameters

◆ GWHD(18)NK3JO

GWHD(18)NK3JO(1 to 2) Cooling Performance Parameters																
Indoor unit					Rated Capacity(KW)					Capacity(KW)			Power Input(KW)			
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	Min. data	Rated. data	Max. data	Min. data	Rated. data	Max. data	
9					2.60					2.15	2.60	3.00	0.56	0.70	0.88	
12					3.50					2.15	3.50	3.80	0.56	1.00	1.10	
7	7				2.10	2.10				2.15	4.60	4.80	0.56	1.40	1.50	
7	9				2.10	2.60				2.15	4.90	5.20	0.56	1.40	1.50	
7	12				2.10	3.50				2.15	5.20	5.80	0.56	1.45	1.56	
9	9				2.60	2.60				2.15	5.20	5.80	0.56	1.45	1.56	
9	12				2.23	2.97				2.15	5.20	5.80	0.56	1.45	1.56	
12	12				2.60	2.60				2.15	5.20	5.80	0.56	1.45	1.56	

GWHD(18)NK3JO (1 to 2) Heating Performance Parameters																
Indoor unit					Rated Capacity(KW)					Capacity(KW)			Power Input(KW)			
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	Min. data	Rated. data	Max. data	Min. data	Rated. data	Max. data	
9					2.80					2.05	2.80	3.02	0.78	1.25	1.56	
12					3.80					2.05	3.80	4.10	0.78	1.25	1.56	
7	7				2.60	2.60				2.05	5.20	5.62	0.78	1.25	1.56	
7	9				2.60	2.80				2.05	5.40	5.83	0.78	1.25	1.56	
7	12				1.99	3.41				2.50	5.40	5.90	0.78	1.30	1.78	
9	9				2.70	2.70				2.50	5.40	5.90	0.78	1.30	1.78	
9	12				2.31	3.09				2.50	5.40	5.90	0.78	1.30	1.78	
12	12				2.70	2.70				2.50	5.40	5.90	0.78	1.30	1.78	

FREE MATCH II Multi VRF Technical Sales Guide

◆ GWHD(24)NK3JO

GWHD(24)NK3JO (2 to 3) Cooling Performance Parameters																
Indoor unit					Rated Capacity(KW)					Capacity(KW)			Power Input(KW)			
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	Min. data	Rated. data	Max. data	Min. data	Rated. data	Max. data	
7	7				2.10	2.10				2.40	4.20	4.90	1.10	1.42	2.05	
7	9				2.10	2.60				2.40	4.70	5.20	1.10	1.42	2.05	
7	12				2.10	3.50				2.40	5.60	6.30	1.10	1.72	2.20	
7	18				1.99	5.11				2.40	7.10	8.50	1.10	1.95	2.87	
9	9				2.60	2.60				2.40	5.20	6.30	1.10	1.72	2.20	
9	12				2.60	3.50				2.40	6.10	7.30	1.10	1.72	2.20	
9	18				2.37	4.73				2.40	7.10	8.50	1.10	1.95	2.87	
12	12				3.55	3.55				2.40	7.10	8.50	1.10	1.95	2.87	
12	18				2.84	4.26				2.40	7.10	8.50	1.10	1.95	2.87	
18	18				3.55	3.55				2.40	7.10	8.50	1.10	1.95	2.87	
7	7	7			2.10	2.10	2.10			2.40	4.20	4.90	1.10	1.72	2.20	
7	7	9			2.10	2.10	2.60			2.40	7.10	8.50	1.10	1.95	2.87	
7	7	12			1.91	1.91	3.28			2.40	7.10	8.50	1.10	1.95	2.87	
7	7	18			1.55	1.55	3.99			2.40	7.10	8.50	1.10	1.95	2.87	
7	9	9			1.99	2.56	2.56			2.40	7.10	8.50	1.10	1.95	2.87	
7	9	12			1.78	2.28	3.04			2.40	7.10	8.50	1.10	1.95	2.87	
7	9	18			1.46	1.88	3.76			2.40	7.10	8.50	1.10	1.95	2.87	
7	12	12			1.60	2.75	2.75			2.40	7.10	8.50	1.10	1.95	2.87	
9	9	9			2.37	2.37	2.37			2.40	7.10	8.50	1.10	1.95	2.87	
9	9	12			2.13	2.13	2.84			2.40	7.10	8.50	1.10	1.95	2.87	
9	9	18			1.78	1.78	3.55			2.40	7.10	8.50	1.10	1.95	2.87	
9	12	12			1.94	2.58	2.58			2.40	7.10	8.50	1.10	1.95	2.87	
12	12	12			2.37	2.37	2.37			2.40	7.10	8.50	1.10	1.95	2.87	

GWHD(24)NK3JO (2 to 3) Heating Performance Parameters															
Indoor unit					Rated Capacity(KW)					Capacity(KW)			Power Input(KW)		
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	Min. data	Rated. data	Max. data	Min. data	Rated. data	Max. data
7	7				2.60	2.60				3.60	5.20	8.80	0.98	2.20	2.87
7	9				2.60	2.80				3.60	5.40	8.80	0.98	2.20	2.87
7	12				2.60	3.80				3.60	6.40	8.80	0.98	2.20	2.87
7	18				2.60	5.60				3.60	8.20	8.80	0.98	2.20	2.87
9	9				2.60	2.60				3.60	5.20	8.80	0.98	2.20	2.87
9	12				2.60	3.80				3.60	6.40	8.80	0.98	2.20	2.87
9	18				2.80	5.60				3.60	8.40	8.80	0.98	2.20	2.87
12	12				4.25	4.25				3.60	8.50	8.80	0.98	2.20	2.87
12	18				3.40	5.10				3.60	8.50	8.80	0.98	2.20	2.87
18	18				4.25	4.25				3.60	8.50	8.80	0.98	2.20	2.87
7	7	7			2.60	2.60	2.60			3.60	7.80	8.80	0.98	2.20	2.87
7	7	9			2.60	2.60	2.80			3.60	8.00	8.80	0.98	2.20	2.87
7	7	12			2.29	2.29	3.92			3.60	8.50	8.80	0.98	2.20	2.87
7	7	18			1.86	1.86	4.78			3.60	8.50	8.80	0.98	2.20	2.87
7	9	9			2.38	3.06	3.06			3.60	8.50	8.80	0.98	2.20	2.87
7	9	12			2.13	2.73	3.64			3.60	8.50	8.80	0.98	2.20	2.87
7	9	18			1.75	2.25	4.50			3.60	8.50	8.80	0.98	2.20	2.87
7	12	12			1.92	3.29	3.29			3.60	8.50	8.80	0.98	2.20	2.87
9	9	9			2.83	2.83	2.83			3.60	8.50	8.80	0.98	2.20	2.87
9	9	12			2.55	2.55	3.40			3.60	8.50	8.80	0.98	2.20	2.87
9	9	18			2.13	2.13	4.25			3.60	8.50	8.80	0.98	2.20	2.87
9	12	12			2.32	3.09	3.09			3.60	8.50	8.80	0.98	2.20	2.87
12	12	12			2.83	2.83	2.83			3.60	8.50	8.80	0.98	2.20	2.87

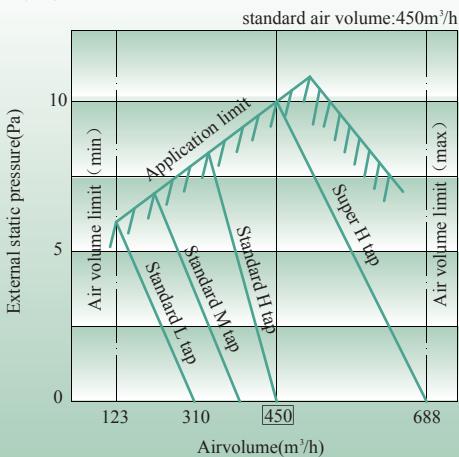
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Indoor unit					Rated Capacity(KW)					Capacity(KW)			Power Input(KW)		
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	Min. data	Rated. data	Max. data	Min. data	Rated. data	Max. data
7	9	9	18	18	1.49	1.92	1.92	3.84	3.84	2.60	13.00	13.00	1.61	3.20	4.00
7	9	12	12	12	1.75	2.25	3.00	3.00	3.00	2.60	13.00	13.00	1.61	3.20	4.00
7	9	12	12	18	1.57	2.02	2.69	2.69	4.03	2.60	13.00	13.00	1.61	3.20	4.00
7	9	12	12	21	1.49	1.92	2.56	2.56	4.48	2.60	13.00	13.00	1.61	3.20	4.00
7	12	12	12	12	1.65	2.84	2.84	2.84	2.84	2.60	13.00	13.00	1.61	3.20	4.00
7	12	12	12	18	1.49	2.56	2.56	2.56	3.84	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	9	9	2.60	2.60	2.60	2.60	2.60	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	9	12	2.44	2.44	2.44	2.44	3.25	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	9	18	2.17	2.17	2.17	2.17	4.33	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	9	21	2.05	2.05	2.05	2.05	4.79	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	9	24	1.95	1.95	1.95	1.95	5.20	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	12	12	2.29	2.29	2.29	3.06	3.06	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	12	18	2.05	2.05	2.05	2.74	4.11	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	12	21	1.95	1.95	1.95	2.60	4.55	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	12	24	1.86	1.86	1.86	2.48	4.95	2.60	13.00	13.00	1.61	3.20	4.00
9	9	9	18	18	1.86	1.86	1.86	3.71	3.71	2.60	13.00	13.00	1.61	3.20	4.00
9	9	12	12	12	2.17	2.17	2.89	2.89	2.89	2.60	13.00	13.00	1.61	3.20	4.00
9	9	12	12	18	1.95	1.95	2.60	2.60	3.90	2.60	13.00	13.00	1.61	3.20	4.00
9	9	12	12	21	1.86	1.86	2.48	2.48	4.33	2.60	13.00	13.00	1.61	3.20	4.00
9	12	12	12	12	2.05	2.74	2.74	2.74	2.74	2.60	13.00	13.00	1.61	3.20	4.00
9	12	12	12	18	1.86	2.48	2.48	2.48	3.71	2.60	13.00	13.00	1.61	3.20	4.00
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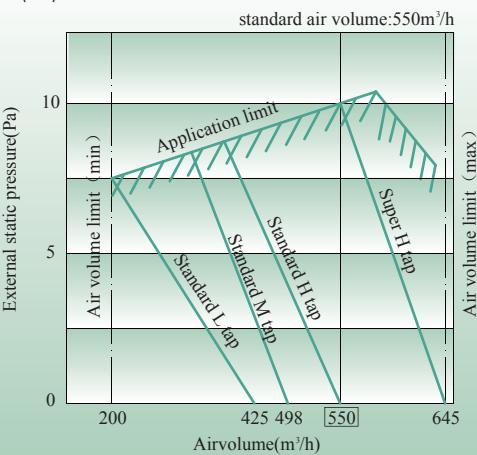
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9 FAN CHARACTERISTICS

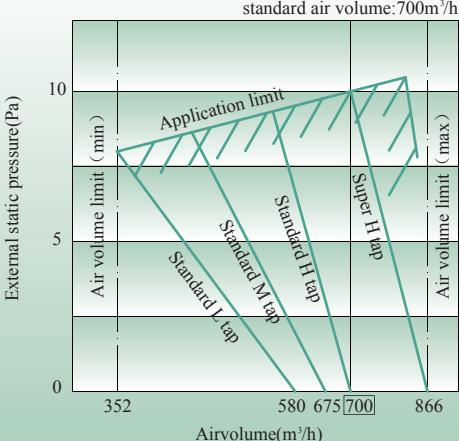
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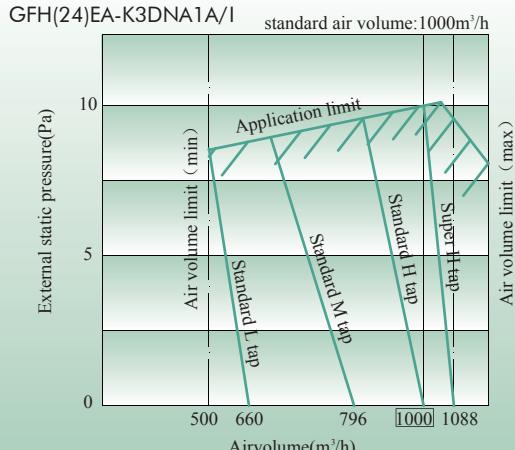
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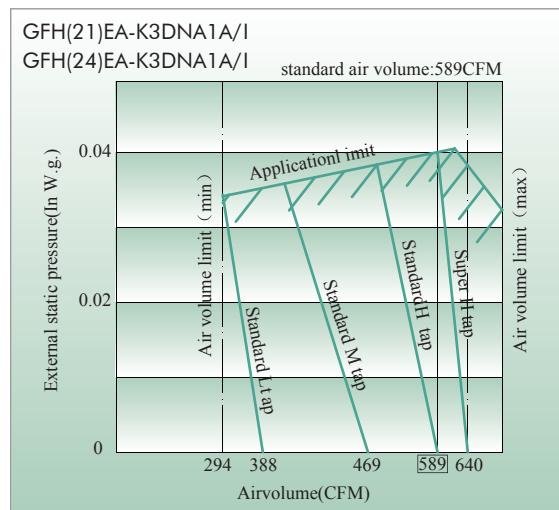
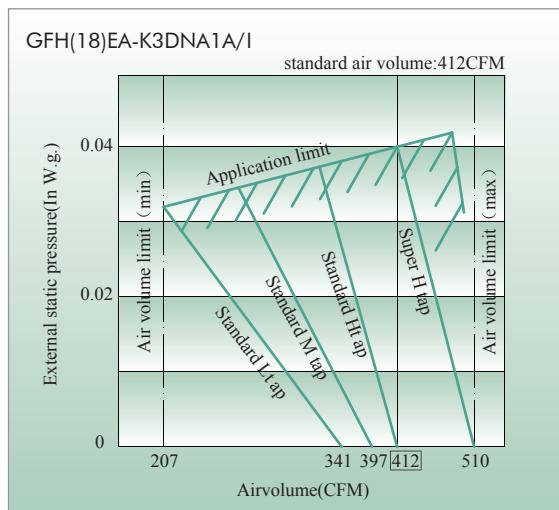
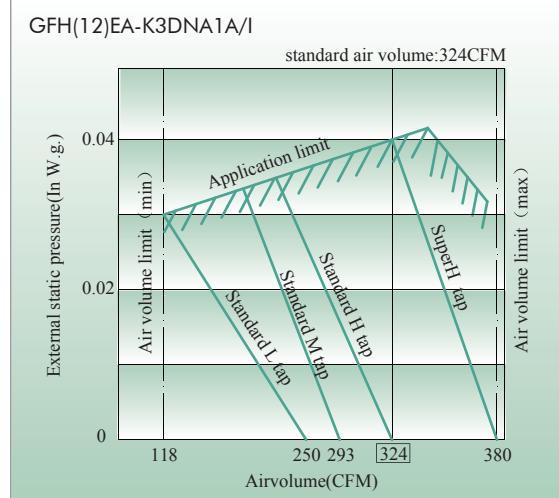
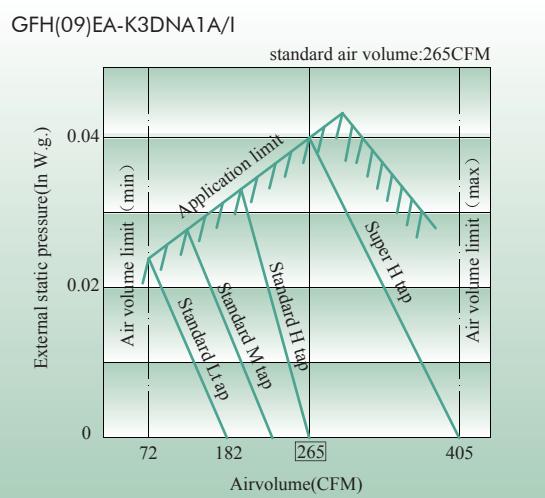


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