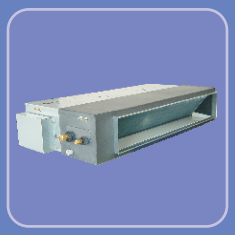
GREE

making better air conditioners

HEAT RECOVERY D.C INVERTER MULTI VRF





TECHNICAL SALES GUIDE

Capacity Range：22.4~180kW

T1/R410A/50Hz

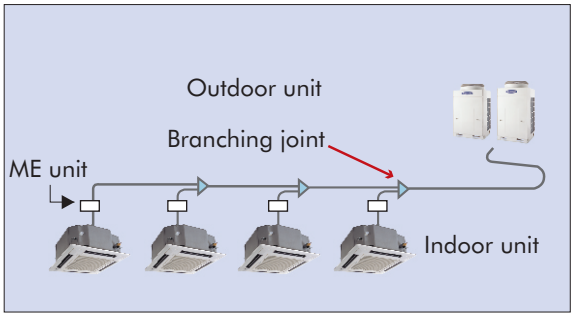
The photos of products on the cover are for reference only, the actual appearance of certain product may be different.

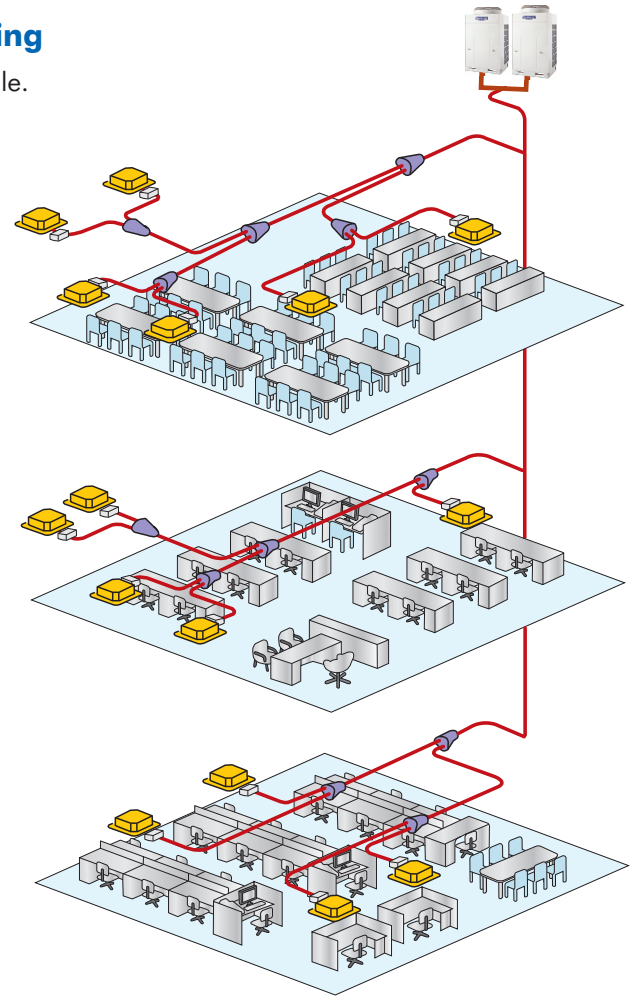
CONTENTS

1 OUTLINE OF MULTI VRF

Shortest Route Design by Free Branching

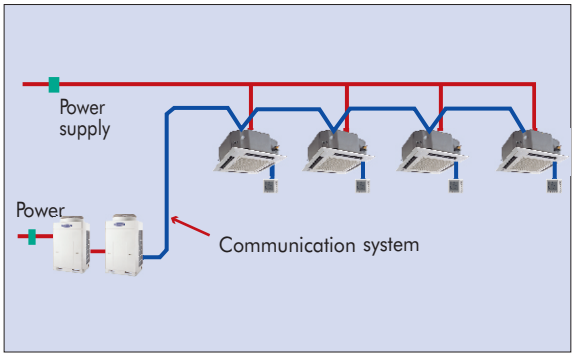
Combination of line and branching is highly flexible. This follows for the shortest design route possible, thereby saving on installation time and cost.





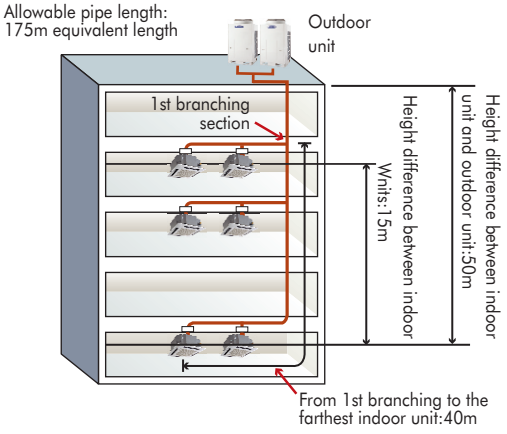
Simple Wiring

2-wire multiplex transmission system makes it possible to connect multiple indoor units to one outdoor unit with a 2-core wire, thus simplify the wiring operation.



High Lift Design

175m Equivalent length and 50m Height difference is allowed of GREE GMV.
Heigh difference between indoor units of 15m is the highest in the industry.The condition make flexibility more greater 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, due to DC inverter stepless regulation technology, the level of air conditioning can be precisely controlled by the condition of each room. High combined efficiency(the ratio of the effective or useful output to the total input in any system)is achieved by excellent recovery capability ,and employing cutting-edge technology, and contributing to smooth and economical operation. The highest combined efficiency value can reach 6.8, Compared with the conventional chiller fan coil system, a large energy for saving can be realized.

Self Diagnostics System

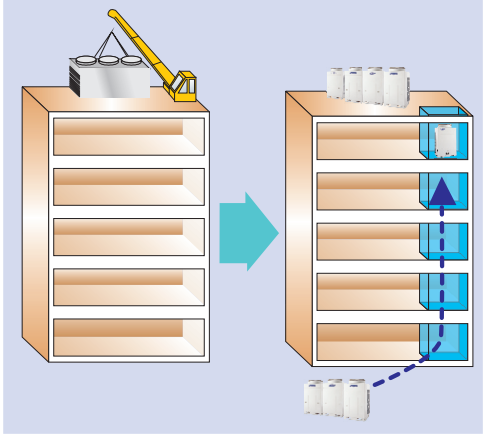
Comprehensive troubleshooting code was displayed when problems happened.

Self diagnostics examples

Malfunction code	Nature of malfunction
E1	Compressor high pressure protection
E2	Indoor unit prevent frostbite protection
E3	Compressor low pressure protection
E4	Compressor discharge temperature protection
E5	Compressor over loading protection
E6	Communication error

Compact Design

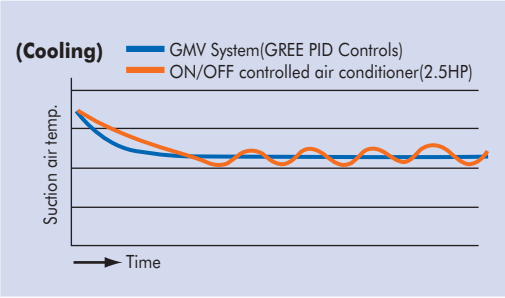
We offer a wide lineup of outdoor and indoor units to answer the needs of building size and interior design.
The length of refrigerant pipes is layed without narrow on design, thus it allowing of flexibility more greater in planning.
Indoor units are so lightweight and compact that they can be installed 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 GMV 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 capacity dynamically, 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 GMV system 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 ±0.5° C of the set temperature.



Wide Control Application

Intelligence Network system

- Central control available (be provided with weekly timer function)
- Monitoring system available
- Single remote controller and wired controller of indoor units
- Region monitoring controller
- Region wired controller

2 SUMMARY OF SYSTEM EQUIPMENTS

2.1 Outdoor Unit

Model	Capacity(kW)		Appearance
	Cooling	Heating	
GMV-Pdhm224W/Na-M	22.4	25.0	
GMV-Pdhm280W/Na-M	28.0	31.5	
GMV-Pdhm335W/Na-M	33.5	37.5	
GMV-Pdhm400W/Na-M	40.0	45.0	
GMV-Pdhm450W/Na-M	45.0	50.0	
GMV-Pdhm504W2/Na-M	50.4	56.5	
GMV-Pdhm560W2/Na-M	56.0	63.0	
GMV-Pdhm615W2/Na-M	61.5	69.0	
GMV-Pdhm680W2/Na-M	68.0	76.5	
GMV-Pdhm730W2/Na-M	73.0	81.5	
GMV-Pdhm800W2/Na-M	80.0	88.0	
GMV-Pdhm850W2/Na-M	85.0	95.0	
GMV-Pdhm900W2/Na-M	90.0	100.0	
GMV-Pdhm960W3/Na-M	96.0	108.0	
GMV-Pdhm1010W3/Na-M	101.0	113.0	
GMV-Pdhm1070W3/Na-M	107.0	119.0	
GMV-Pdhm1130W3/Na-M	113.0	126.5	
GMV-Pdhm1180W3/Na-M	118.0	131.5	

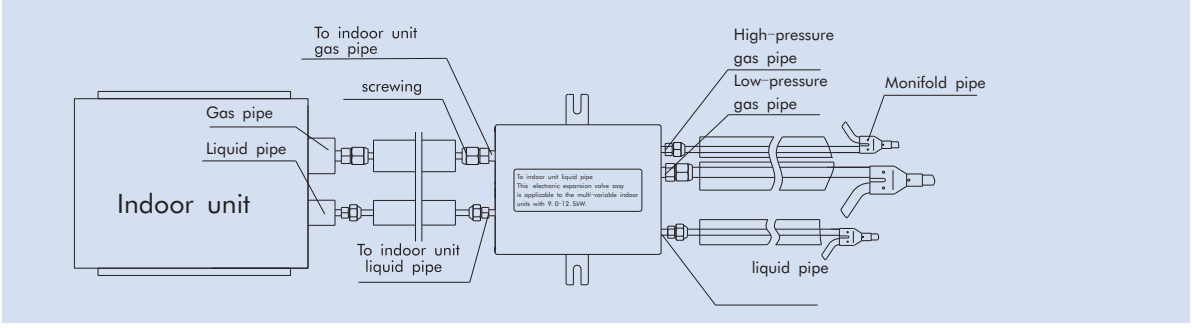
Model	Capacity(kW)		Appearance
	Cooling	Heating	
GMV-Pdhm1250W3/Na-M	125.0	138.5	
GMV-Pdhm1300W3/Na-M	130.0	145.0	
GMV-Pdhm1350W3/Na-M	135.0	150.0	
GMV-Pdhm1410W4/Na-M	141.0	158.0	
GMV-Pdhm1460W4/Na-M	146.0	163.0	
GMV-Pdhm1515W4/Na-M	151.5	169.0	
GMV-Pdhm1580W4/Na-M	158.0	176.5	
GMV-Pdhm1630W4/Na-M	163.0	181.5	
GMV-Pdhm1700W4/Na-M	170.0	187.5	
GMV-Pdhm1750W4/Na-M	175.0	195.0	
GMV-Pdhm1800W4/Na-M	180.0	200.0	

Conversion Formula: 1kW=3412Btu/h

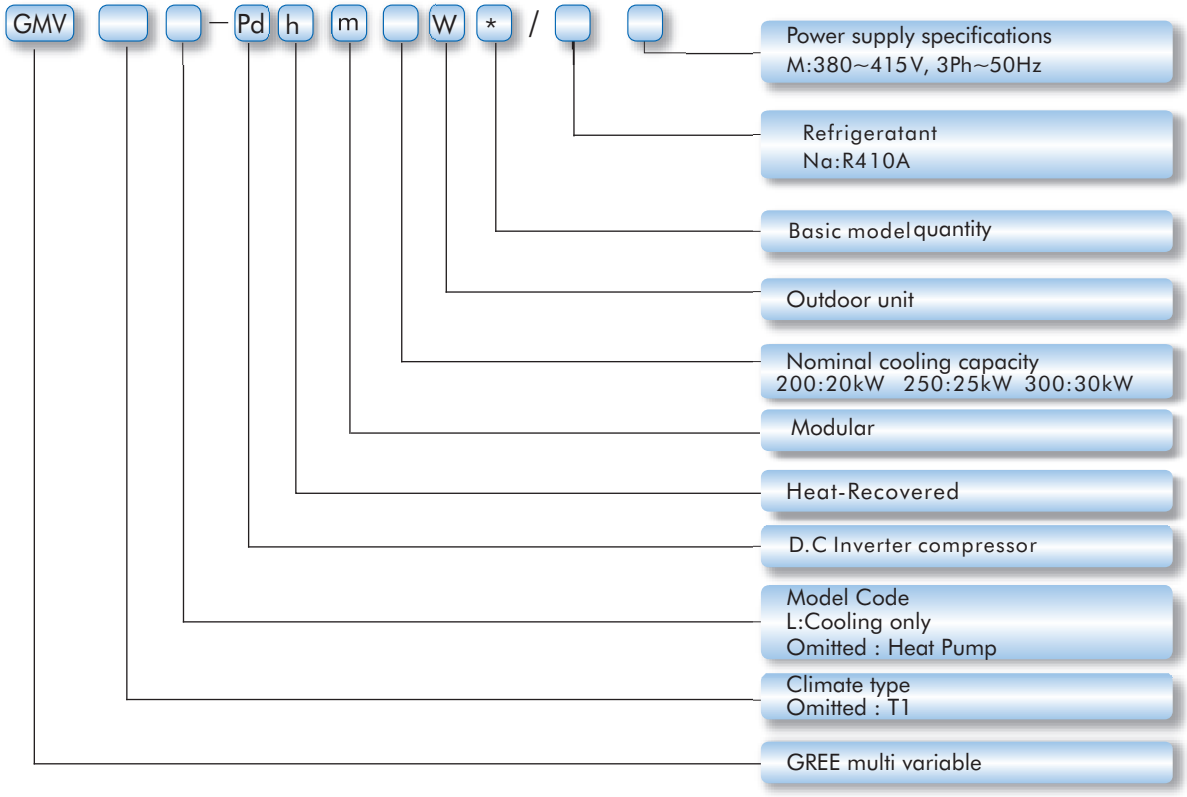
	Cooling and Heating Mode Exchanger	
Model	Usage	Appearance
CHS22	Capacity code range of indoor unit : 22 to 28	
CHS36	Capacity code range of indoor unit : 32 to 50	
CHS71	Capacity code range of indoor unit : 56 to 80	
CHS90	Capacity code range of indoor unit : 90 to 140	
CHS224	Capacity code range of indoor unit : 224 to 228	

Model	3 pipes side(to outdoor unit)			2 pipes side(to outdoor unit)	
	High-pressure Gas Pipe (mm)	Low-pressure Gas Pipe (mm)	Lquid Pipe (mm)	Gas Pipe (mm)	Lquid Pipe (mm)
CHS22	Φ9.52	Φ9.52	Φ6	Φ9.52	Φ6
CHS36	Φ9.52	Φ12.7	Φ6	Φ12.7	Φ6
CHS71	Φ12.7	Φ15.9	Φ9.52	Φ15.9	Φ9.52
CHS90	Φ12.7	Φ15.9	Φ9.52	Φ15.9	Φ9.52
CHS224	Φ16	Φ22	Φ9.52	Φ22	Φ9.52

ME UNIT CONNECTION DIAGRAM



(1) Nomenclature



(2) Rated Conditions

Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB
Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°F) WB

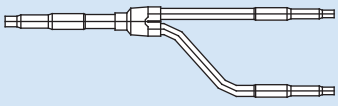
Heating : Indoor air temperature 20°C(68°F) DB/15°C(59°F) WB
Outdoor air temperature 7°C(45°F) DB/6°C(43°F) WB

Cooling and Heating:

Indoor air temperature under cooling 27°C(81°F) DB/19°C(66.6°F)WB
Indoor air temperature under heating 20°C(68°F) DB/15°C(59°F) WB
Outdoor air temperature 7°C(45°F) DB/6°C(43°F) WB

2.2 Y-shape Branching joints

2.2.1 Y-shape Branching joints of indoor unit

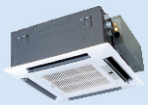
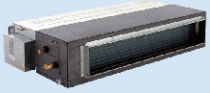
	Model name	Indoor unit capacity code total C	Appearance
Y-shape branching joint	FQ01Na/A	C≤56	
	FQ02Na/A	56<C≤220	
	FQ03Na/A	220<C≤300	
	FQ04Na/A	300<C≤680	
	FQ05Na/A	680<C≤960	
	FQ06Na/A	960<C≤1350	
	FQ07Na/A	1350<C	

Note : For Y-shape branching joint ,there are two branch pipes in the right side . The capacity ratio of the two branch pipes should not exceed 3:1.

2.2.2 Y-shape Branching joints of outdoor unit

R410A refrigerant system	Total Capacity of the Outdoor Unit(c)	Modle
Y-shape branch pipe	224≤C≤960	ML01R
	960≤C	ML02R

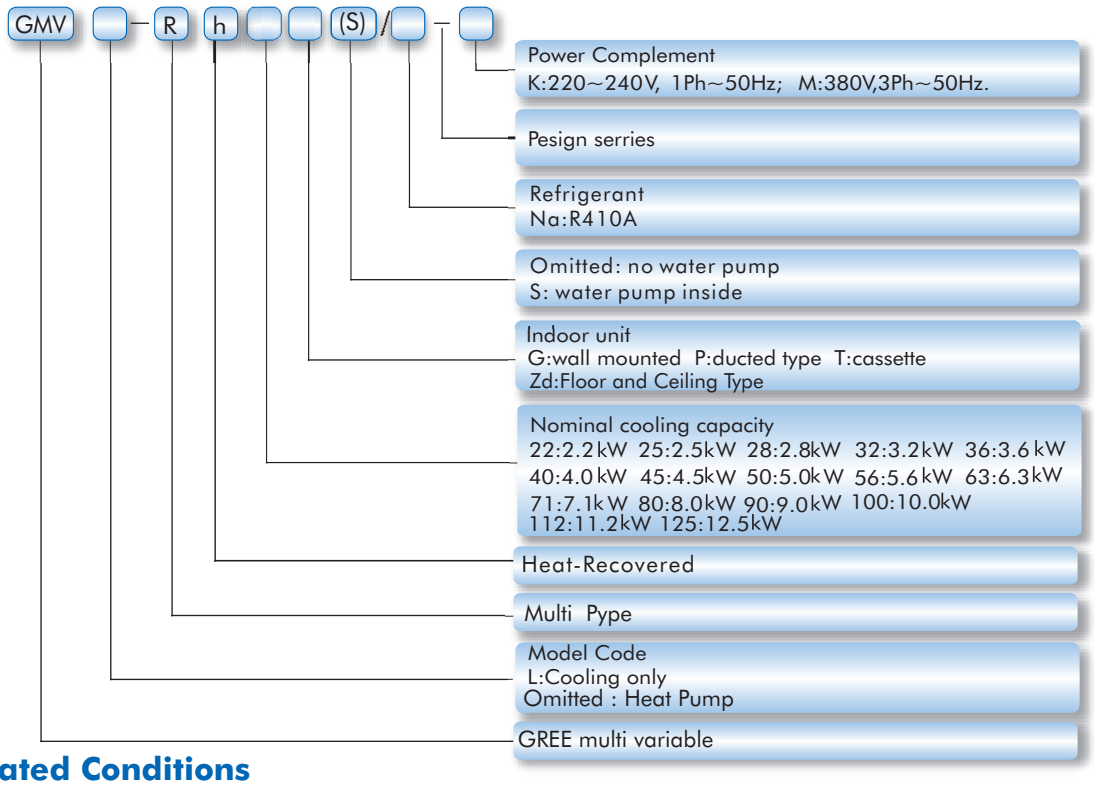
2.3 Indoor Unit

Type	Appearance	Model	Capacity Code	Cooling Capacity(kW)	Heating Capacity(kW)
4-way Air Discharge Cassette Type		GMV-Rh28T/Na-K	28	2.8	3.2
		GMV-Rh36T/Na-K	36	3.6	4.0
		GMV-Rh45T/Na-K	45	4.5	5.0
		GMV-Rh50T/Na-K	50	5.0	5.8
		GMV-Rh56T/Na-K	56	5.6	6.3
		GMV-Rh63T/Na-K	63	6.3	7.0
		GMV-Rh71T/Na-K	71	7.1	8.0
		GMV-Rh80T/Na-K	80	8.0	8.8
		GMV-Rh90T/Na-K	90	9.0	10.0
		GMV-Rh100T/Na-K	100	10.0	11.0
		GMV-Rh112T/Na-K	112	11.2	12.5
		GMV-Rh125T/Na-K	125	12.5	13.5
		GMV-Rh22T/NaA-K	22	2.2	2.5
		GMV-Rh28T/NaA-K	28	2.8	3.2
		GMV-Rh36T/NaA-K	36	3.6	4.0
		GMV-Rh45T/NaA-K	45	4.5	5.0
Concealed Duct Standard Type		GMV-Rh22P/Na-K	22	2.2	2.5
		GMV-Rh25P/Na-K	25	2.5	3.0
		GMV-Rh28P/Na-K	28	2.8	3.2
		GMV-Rh32P/Na-K	32	3.2	3.6
		GMV-Rh36P/Na-K	36	3.6	4.0
		GMV-Rh40P/Na-K	40	4.0	4.5
		GMV-Rh45P/Na-K	45	4.5	5.0
		GMV-Rh50P/Na-K	50	5.0	5.5
		GMV-Rh56P/Na-K	56	5.6	6.3
		GMV-Rh63P/Na-K	63	6.3	7.0
		GMV-Rh71P/Na-K	71	7.1	8.0
		GMV-Rh80P/Na-K	80	8.0	8.8
		GMV-Rh90P/Na-K	90	9.0	10.0
		GMV-Rh100P/Na-K	100	10.0	11.0
		GMV-Rh112P/Na-K	112	11.2	12.5
		GMV-Rh125P/Na-K	125	12.5	13.5
Concealed Duct High ESP Type (Water Pump integrated)		GMV-Rh22PS/NaB-K	22	2.2	2.5
		GMV-Rh28PS/NaB-K	28	2.8	3.2
		GMV-Rh36PS/NaB-K	36	3.6	4.0
		GMV-Rh45PS/NaB-K	45	4.5	5.0
		GMV-Rh56PS/NaB-K	56	5.6	6.3
		GMV-Rh71PS/NaB-K	71	7.1	8.0
		GMV-Rh90PS/NaB-K	90	9.0	10.0
		GMV-Rh112PS/NaB-K	112	11.2	12.5
		GMV-Rh140PS/NaB-K	140	14.0	15.0
Concealed Duct High ESP Type		GMV-Rh22P/NaB-K	22	2.2	2.5
		GMV-Rh28P/NaB-K	28	2.8	3.2
		GMV-Rh36P/NaB-K	36	3.6	4.0
		GMV-Rh45P/NaB-K	45	4.5	5.0
		GMV-Rh56P/NaB-K	56	5.6	6.3
		GMV-Rh71P/NaB-K	71	7.1	8.0
		GMV-Rh90P/NaB-K	90	9.0	10.0
		GMV-Rh112P/NaB-K	112	11.2	12.5
		GMV-Rh140P/NaB-K	140	14.0	15.0

Type	Appearance	Model	Capacity Code	Cooling Capacity(kW)	Heating Capacity(kW)
Concealed Duct High ESP Type		GMV-Rh224P/NaB-M	224	22.4	25
		GMV-Rh280P/NaB-M	280	2.8	31
Floor and Ceiling Type		GMV-Rh28Zd/Na-K	28	2.8	3.2
		GMV-Rh36Zd/Na-K	36	3.6	4.0
		GMV-Rh50Zd/Na-K	50	5.0	5.5
		GMV-Rh71Zd/Na-K	71	7.1	8.0
		GMV-Rh90Zd/Na-K	90	9.0	10.0
		GMV-Rh112Zd/Na-K	112	11.2	12.5
		GMV-Rh125Zd/Na-K	125	12.5	13.5
		GMV-Rh22G/Na-K	22	2.2	2.5
wall mounted type		GMV-Rh28G/Na-K	28	2.8	3.2
		GMV-Rh36G/Na-K	36	3.6	4.0
		GMV-Rh45G/Na-K	45	4.5	5.0
		GMV-Rh50G/Na-K	50	5.0	5.5
		GMV-Rh56G/Na-K	56	5.6	6.3
		GMV-Rh71G/Na-K	71	7.1	8.0
		GMV-Rh80G/Na-K	80	8.0	8.8

(1) Nomenclature

Conversion Formula: 1kW=3412Btu/h



(2) Rated Conditions

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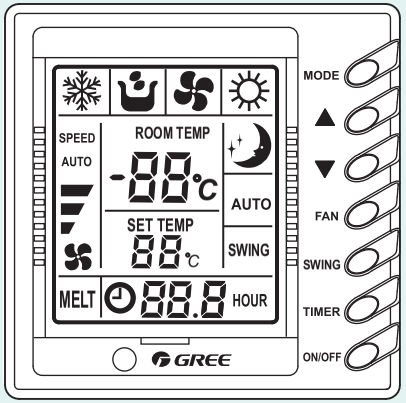
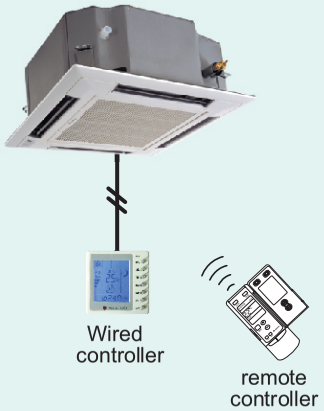
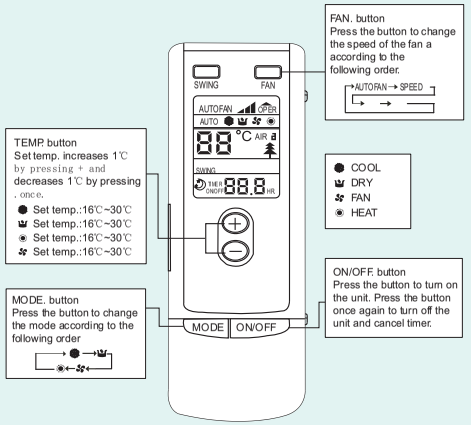
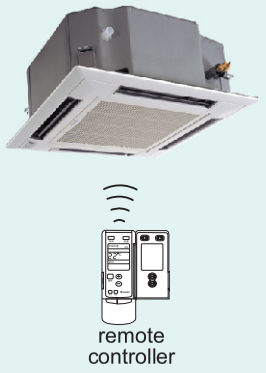
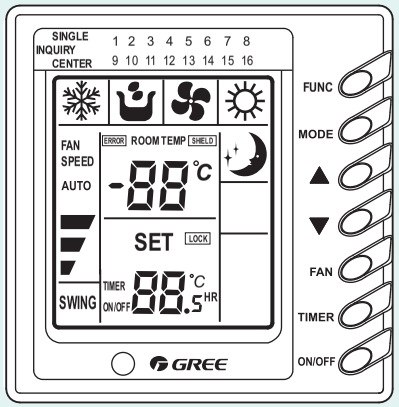
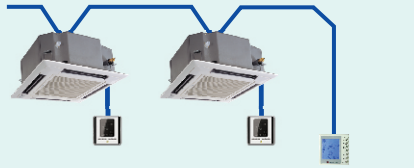
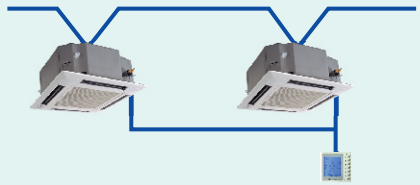
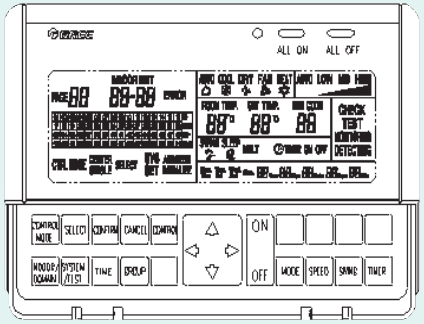
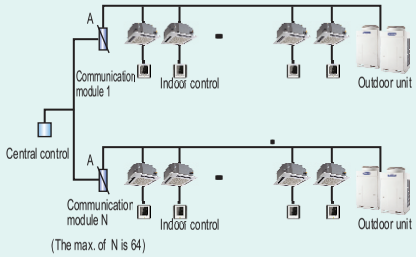
Outdoor air temperature 7°C(45°F) DB/6°C(43°F) WB

2.4 Controller

Name	Model Name	Appearance	Application	Function
Wired controller	Z63151F (30296308) Z63351F (30296309)			.Start / Stop .Changing mode .Temperature setting .Air flow changing .Timer function .Self-diagnosis function Displays code of trouble. .Control by 2 remote controllers is available. Two remote controllers can be connected to one indoor unit. The indoor unit can be separately operated from the isolated places.
remote controller	Y512			.Start / Stop .mode Changing .Temperature setting .Air flow changing .Timing setting

Name	Model Name	Appearance	Application	Function
Region controller	ZJA011 MC207006		A.  Region monitoring controller B.  Region wired controller	Region Controller has two functions. . 01 Function mode: Region monitoring controller . Individual control up to 16 indoor units. . Central control up to 16 indoor units . Each outdoor can only connect one Region monitoring controller. . Has two control mode Individual control mode Central control mode . 02 Function mode: Region wired controller . It can replace the No.1-16 selected wired controllers to uniformly set or control the indoor units.
Centralized controller	ZJ7011 MC207004			. Individual control up to 1024 indoor units. . Up to 64 outdoor units are connectable. . 4 type central control setting to inhibit individual operation by remote controller can be selected. . Three control mode: Individual control mode Central control mode Select control mode . Each indoor unit can set Timer On/Off time by central, single or select control. Both Timer On and Timer Off can be set at the same time, and it is available that set the timer which days of the 7 days from Sunday to Saturday works.

3 BASIC SYSTEM CONFIGURATION

System Legend (ex.)

Model name of outdoor unit:

GMV-Pdhm280W/Na-M

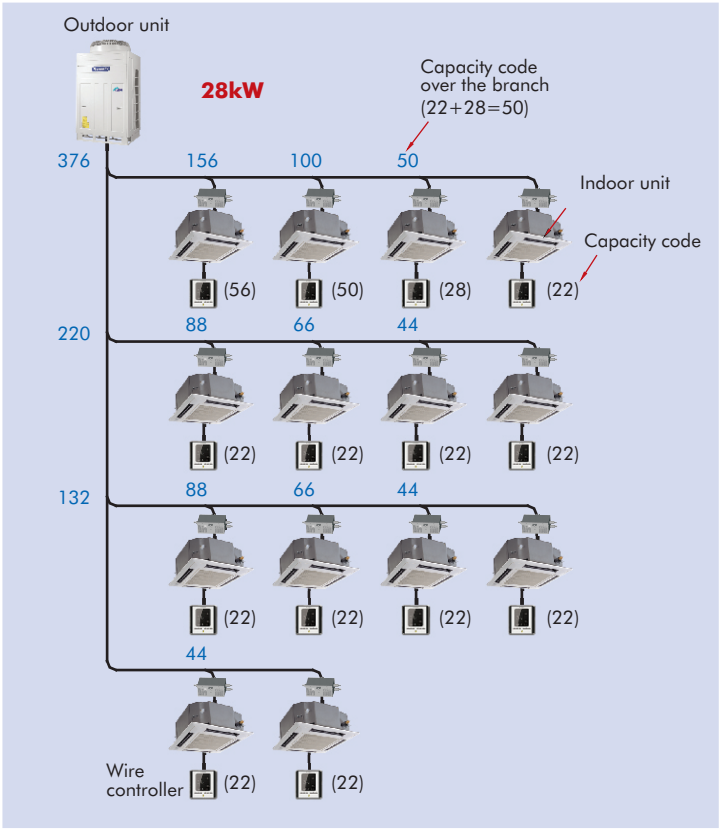
. Allowed max. indoor unit:

16 units

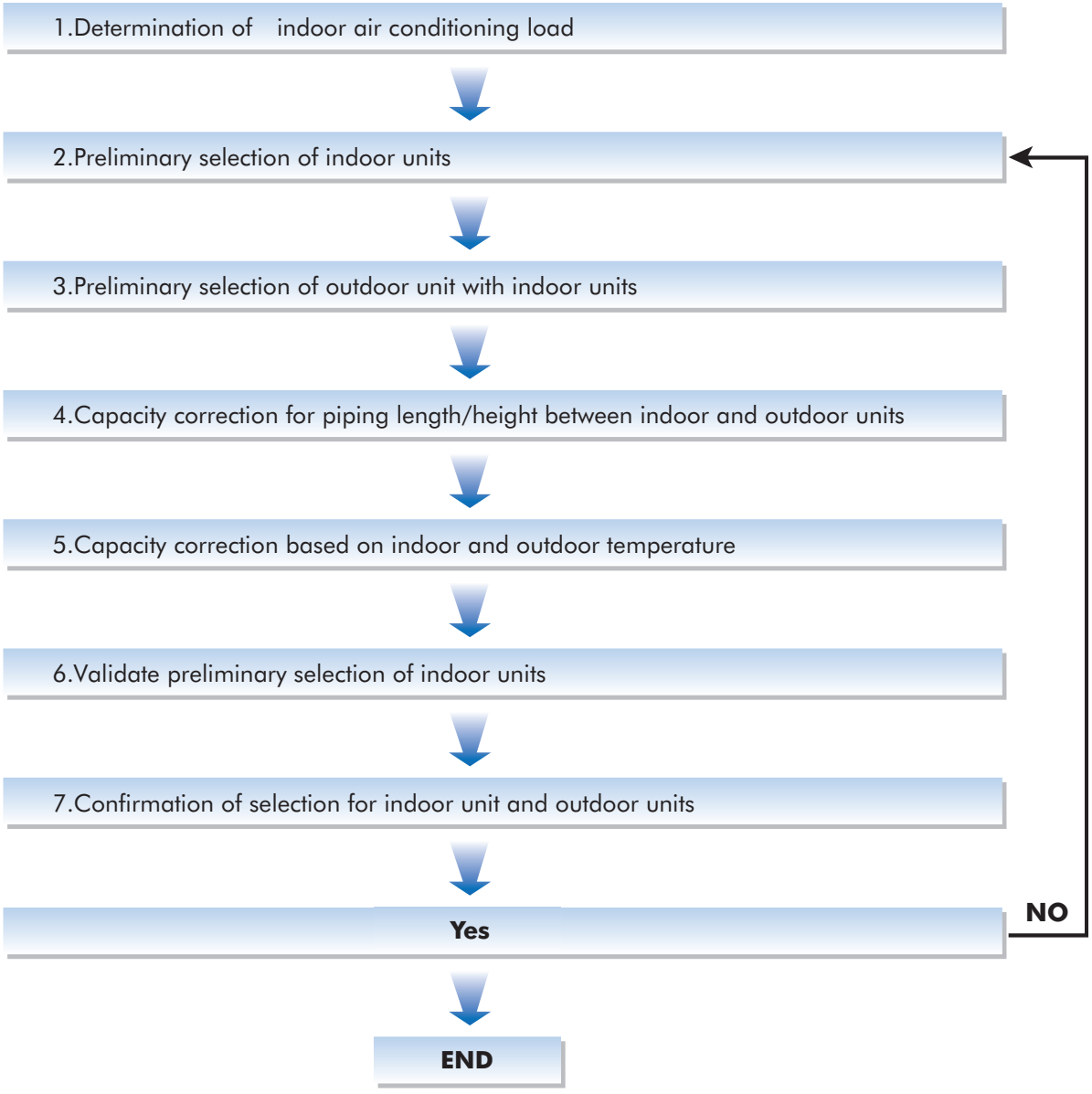
. Allowed capacity code of indoor unit:

Min. : 140 Max. : 378

Capacity code
Total 280
No. of total units
16



4 EQUIPMENT SELECTION PROCEDURE



4.2 Combination Conditions for Indoor Unit and Outdoor Unit

（1）The capacity code of each indoor unit = capacity of each indoor unit (unit : kW)×10.
The capacity code of each outdoor unit = capacity of each outdoor unit (unit : kW)×10.

（2）For outdoor unit, maximum No. of connectable indoor units and total capacity code of indoor units are decided.

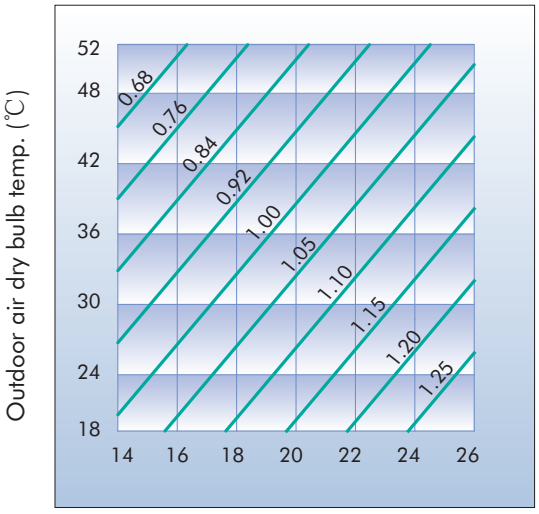
Model name of outdoor unit	Capacity code of outdoor unit	Max. No. of indoor units	Total Capacity code of indoor unit
GMV-Pdhm224W/Na-M	224	13	112 to 302
GMV-Pdhm280W/Na-M	280	16	140 to 378
GMV-Pdhm335W/Na-M	335	19	168 to 435
GMV-Pdhm400W/Na-M	400	23	200 to 520
GMV-Pdhm450W/Na-M	450	26	224 to 604
GMV-Pdhm504W2/Na-M	504	29	252 to 680
GMV-Pdhm560W2/Na-M	560	32	280 to 756
GMV-Pdhm615W2/Na-M	615	36	307 to 800
GMV-Pdhm680W2/Na-M	680	40	340 to 885
GMV-Pdhm730W2/Na-M	730	43	365 to 950
GMV-Pdhm800W2/Na-M	800	47	400 to 1040
GMV-Pdhm850W2/Na-M	850	50	425 to 1105
GMV-Pdhm900W2/Na-M	900	53	450 to 1170
GMV-Pdhm960W3/Na-M	960	56	480 to 1250
GMV-Pdhm1010W3/Na-M	1010	59	505 to 1313
GMV-Pdhm1070W3/Na-M	1070	64	535 to 1390
GMV-Pdhm1130W3/Na-M	1130	64	565 to 1470
GMV-Pdhm1180W3/Na-M	1180	64	590 to 1535
GMV-Pdhm1250W3/Na-M	1250	64	625 to 1625
GMV-Pdhm1300W3/Na-M	1300	64	650 to 1690
GMV-Pdhm1350W3/Na-M	1350	64	675 to 1755
GMV-Pdhm1410W4/Na-M	1410	66	705 to 1830
GMV-Pdhm1460W4/Na-M	1460	69	730 to 1900
GMV-Pdhm1515W4/Na-M	1515	71	758 to 1970
GMV-Pdhm1580W4/Na-M	1580	74	790 to 2000
GMV-Pdhm1630W4/Na-M	1630	77	815 to 2100
GMV-Pdhm1700W4/Na-M	1700	80	850 to 2200
GMV-Pdhm1750W4/Na-M	1750	80	875 to 2270
GMV-Pdhm1800W4/Na-M	1800	80	900 to 2350

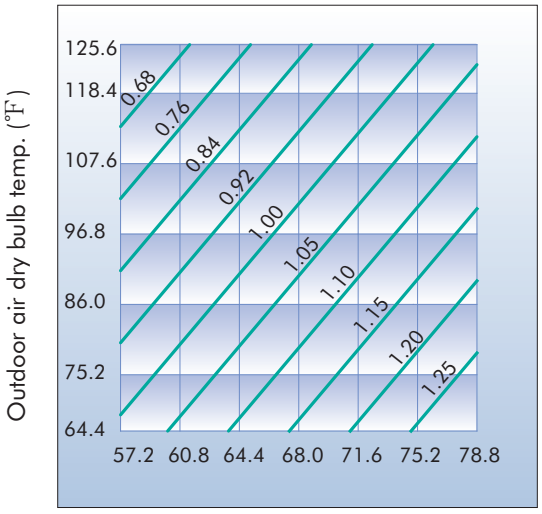
4.3 Cooling/Heating Capacity Characteristics

4.3.1 Cooling Capacity Calculation Method

Required cooling capacity =Cooling capacity ×Factor①× (Factor②- Factor③)

① Ambient Temperature vs. Capacity Correction Value





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

Equivalent pipe length (m)	5	10	15	20	25	30	35	40	45	50
Equivalent pipe length (ft)	16.4	32.8	49.2	65.6	82.0	98.4	114.8	131.2	147.6	164.0
Correction value	1·0	0·99	0·98	0·97	0·96	0·95	0·94	0·93	0·92	0·91

Equivalent pipe length (m)	55	60	65	70	75	80	85	90	95	100
Equivalent pipe length (ft)	180.4	196.8	213.2	229.6	246.0	262.4	278.8	295.2	311.6	328.0
Correction value	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.80

Equivalent pipe length (m)	105	110	115	120	125	130	135	140	145	150
Equivalent pipe length (ft)	344.4	360.8	377.2	393.6	410.0	426.4	442.8	459.2	475.6	492.0
Correction value	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.7

a. The calculation method of equivalent pipe length

Equivalent pipe length = The real pipe length between the farthest indoor unit and the outdoor unit + The quantity of 90° elbow between the outdoor unit and the farthest indoor unit ×the equivalent pipe length of 90° elbow (see the following table) + the quantity of branch joint between the outdoor unit and the farthest indoor unit×the equivalent of branch joint

b. The equivalent pipe length calculation method of 90° elbow

The equivalent pipe length of 90° elbow

Diameter of gas pipe	mm	12.7	15.9	19.05	25.4	28.6	34.9	41.3	12.7
	Inch	1/2	5/8	3/4	7/8	1	11/8	13/8	5/8
Equivalent pipe length	m	0.10	0.10	0.15	0.15	0.15	0.20	0.25	0.25
	ft	0.328	0.328	0.492	0.492	0.492	0.656	0.82	0.82

c. The equivalent pipe length of a branch joint is 0.5m.

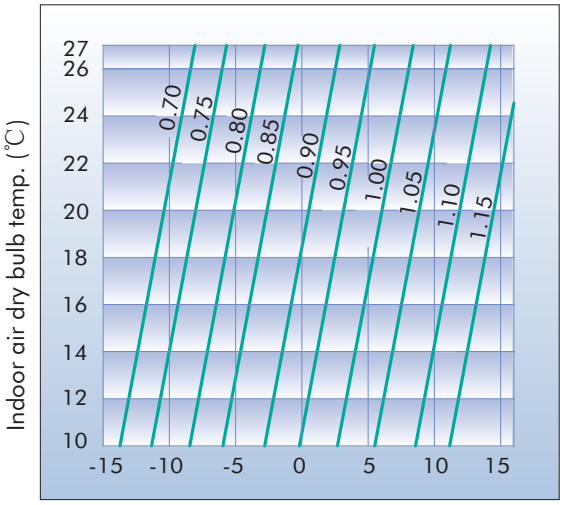
③ Height Difference Between Indoor and Outdoor Units vs. Capacity Correction Value

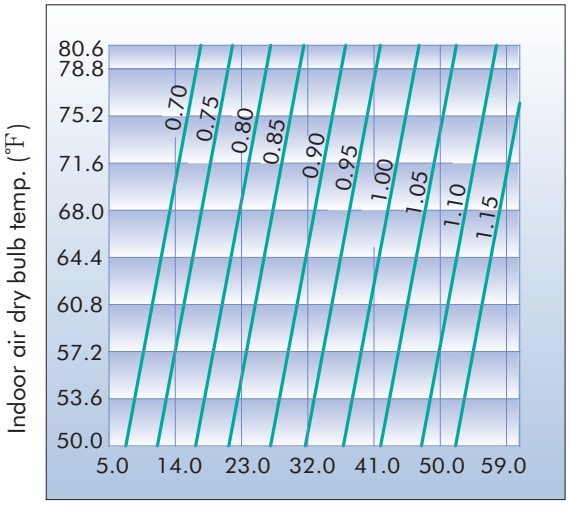
Height difference between indoor &outdoor(m)	5	10	15	20	25	30	35	40	45	50
Correction value	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10

4.3.2 Heating Capacity Calculation Method

Required heating capacity =Heating capacity ×Factor①× (Factor②- Factor③)

① Ambient Temperature vs. Capacity Correction Value





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

Equivalent pipe length (m)	5	10	15	20	25	30	35	40	45	50
Equivalent pipe length (ft)	16.4	32.8	49.2	65.6	82	98.4	114.8	131.2	147.6	164
Correction value	1.0	1.0	1.0	1.0	1.0	0.995	0.995	0.99	0.99	0.99

Equivalent pipe length (m)	55	60	65	70	75	80	85	90	95	100
Equivalent pipe length (ft)	180.4	196.8	213.2	229.6	246.0	262.4	278.8	295.2	311.6	328.0
Correction value	0.985	0.985	0.985	0.98	0.98	0.98	0.975	0.975	0.975	0·965

Equivalent pipe length (m)	105	110	115	120	125	130	135	140	145	150
Equivalent pipe length (ft)	344.4	360.8	377.2	393.6	410.0	426.4	442.8	459.2	475.6	492.0
Correction value	0.965	0.965	0.96	0.96	0.96	0.955	0.955	0.95	0.95	0.95

a. The calculation method of equivalent pipe length
Equivalent pipe length = The real pipe length between the farthest indoor unit and the outdoor unit + The quantity of 90° elbow between the outdoor unit and the farthest indoor unit ×the equivalent pipe length of 90° elbow (see the following table) + the quantity of branch joint between the outdoor unit and the farthest indoor unit×the equivalent of branch joint
b. The equivalent pipe length calculation method of 90° elbow.

The equivalent pipe length of 90° elbow

Diameter of gas pipe	mm	12.7	15.9	19.05	25.4	28.6	34.9	41.3	12.7
	Inch	1/2	5/8	3/4	7/8	1	11/8	13/8	5/8
Equivalent pipe length	m	0.1	0.1	0.15	0.15	0.15	0.2	0.25	0.25
	ft	0.328	0.328	0.492	0.492	0.492	0.656	0.820	0.820

c. The equivalent pipe length of a branch joint is 0.5m.

③ **Heigh Difference Between Indoor and Outdoor Units vs. Capacity Correction Value**

Height difference between indoor &outdoor(m)	5	10	15	20	25	30	35	40	45	50
Correction value	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10

4.3.3 Capacity Calculation for Each Indoor Unit

Capacity for each indoor unit

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

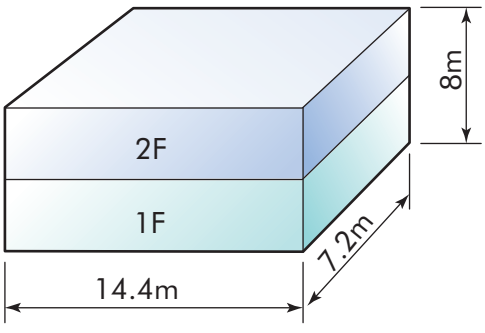
4.3.4 Working Range

Mode / Range	Outdoor temperature
Cooling	-10-48°C(14~118.4°F)
Heating	-20-27°C(-4~80.6°F)
Cooling and Heating	-10-20°C(14~68°F)

4.4 Example of Equipment Selection

4.4.1 Overview of Building Model

<Outside view>



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

Total floor area : 210m²

Outdoor unit is installed on the roof.

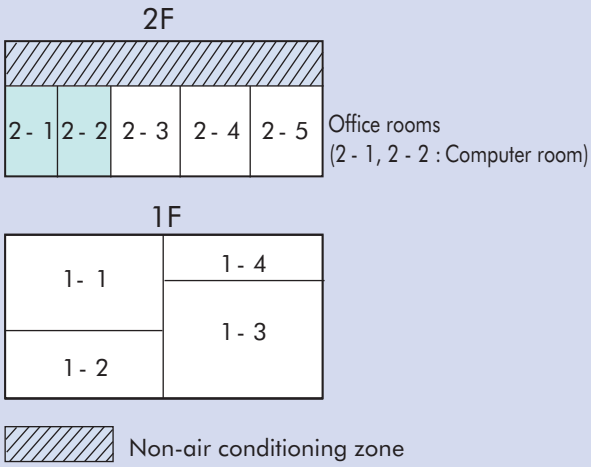
. Design indoor conditions

Cooling : 27.0°C(81°F)/19.0°C(66.6°F) DB/WB

. Design outdoor conditions

Cooling : 35°C(95.4°F) DB (Standard condition)

<Rooms configuration>



4.4.2 Selection Criteria for Each Floor

2F : Outdoor capacity exactly matches the total indoor capacity.

Total indoor HP = Outdoor unit HP

Indoor : 2.5 HP x 2 units + 1.25 HP + 2 HP x 2 = 10.25 HP

Outdoor : 10 HP (Same capacity)

Heat load of room 2-1 and 2-2 is higher than other rooms.

1F : Consider the increasing heat load in the specific room.

. Total indoor units HP > Outdoor unit HP

. Select each indoor unit based on individual peak room load.

Indoor : 2.5HP + 2.5HP + 3.2HP + 2.0HP =10.2HP

Outdoor : 10HP (Same capacity)

. The outdoor module should have sufficient capacity to cover the peak demand of the indoor unit connected.

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.

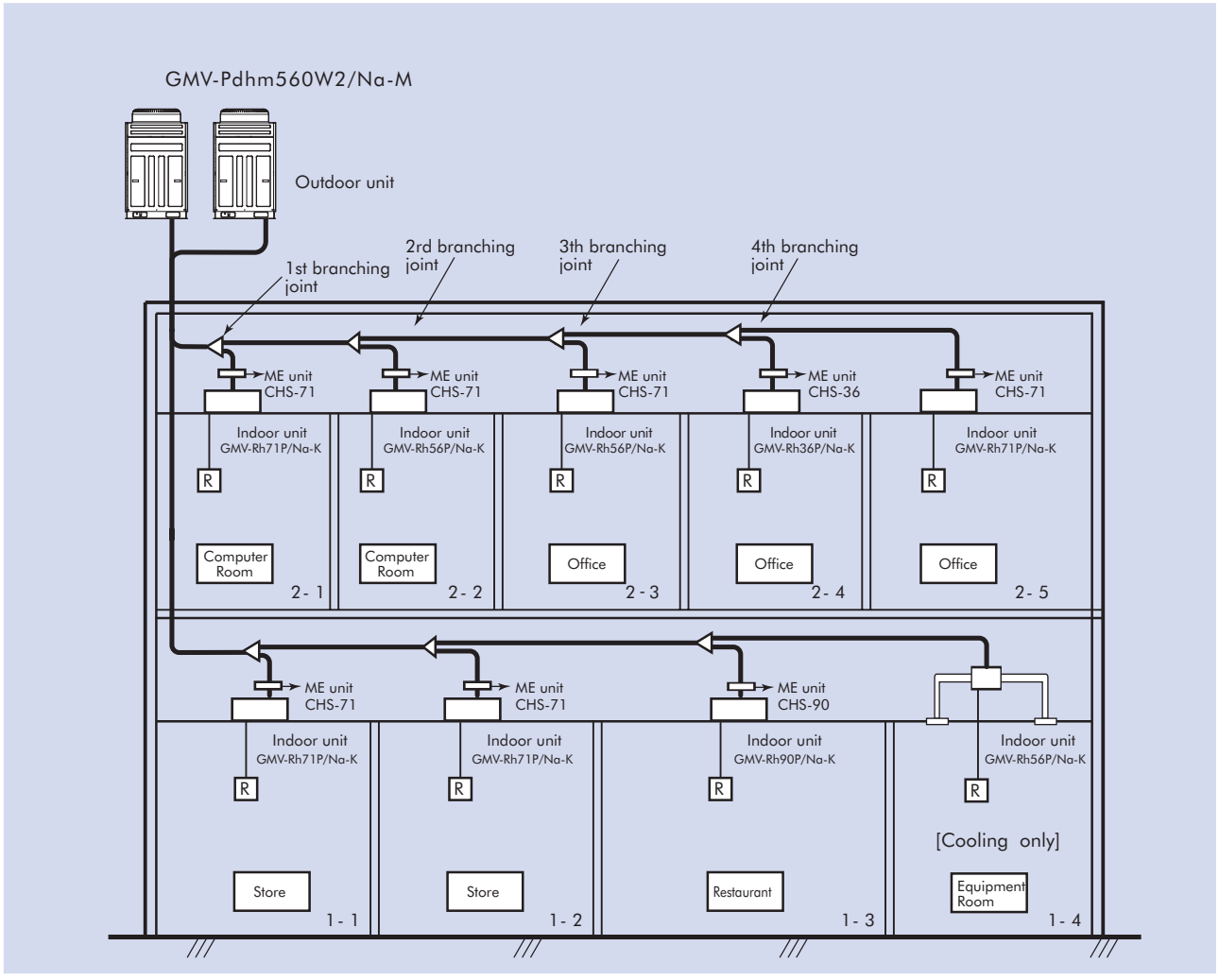
b. Equipment Selection and Capacity Check

Air conditioningload				Equipmentse lection					
Floor	Room No.	Indoor air conditioning load		Indoor unit			Outdoor unit		
				Model	Capacity (kW)		Model	Capacity (kW)	
		Cooling	Heating		Cooling	Heating		Cooling	Heating
2F	2-1	6.0	3.4	GMV-Rh71P/Na-K	7.1	8.0	GMV-Pdhm 560W2/Na-M	56.0	63. 0
	2-2	5.2	2.2	GMV-Rh56P/Na-K	5.6	6.3			
	2-3	5.0	5.5	GMV-Rh56P/Na-K	5.6	6.3			
	2-4	3.2	3.6	GMV-Rh36P/Na-K	3.6	4.0			
	2-5	6.4	5.4	GMV-Rh71P/Na-K	7.1	8.0			
1F	1-1	6.1	6.0	GMV-Rh71P/Na-K	7.1	8.0	GMV-Pdhm 560W2/Na-M	56.0	63. 0
	1-2	6.3	6.3	GMV-Rh71P/Na-K	7.1	8.0			
	1-3	7.2	7.0	GMV-Rh80P/Na-K	8.0	8.8			
	1-4	5.1	-	GMV-Rh56P/Na-K	5.6	6.3			

Piping distance				Capacity correction		Capacity check after correction		
Floor	Room No.	Equivalent length (m)	Height difference (m)	Pipe correction × temp. correction		Capacity(kW)		Judgment
				Cooling	Heating	Cooling	Heating	
2F	2-1	25	1.5	(0.95-0) ×1.0=0.95	(0.995-0) ×0.94 =0.935	6.9	7.6	good
	2-2					5.5	6.0	
	2-3					5.5	6.0	
	2-4					3.5	3.8	
	2-5					6.9	7.6	
1F	1-1	34	5	(0.91-0.01) ×1.0=0.90	(0.99-0.01) ×0.94 =0.921	6.6	7.4	good
	1-2					6.6	7.4	
	1-3					7.4	8.5	
	1-4					5.2	5.8	

Conversion Formula:1kW=3412 Btu/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.

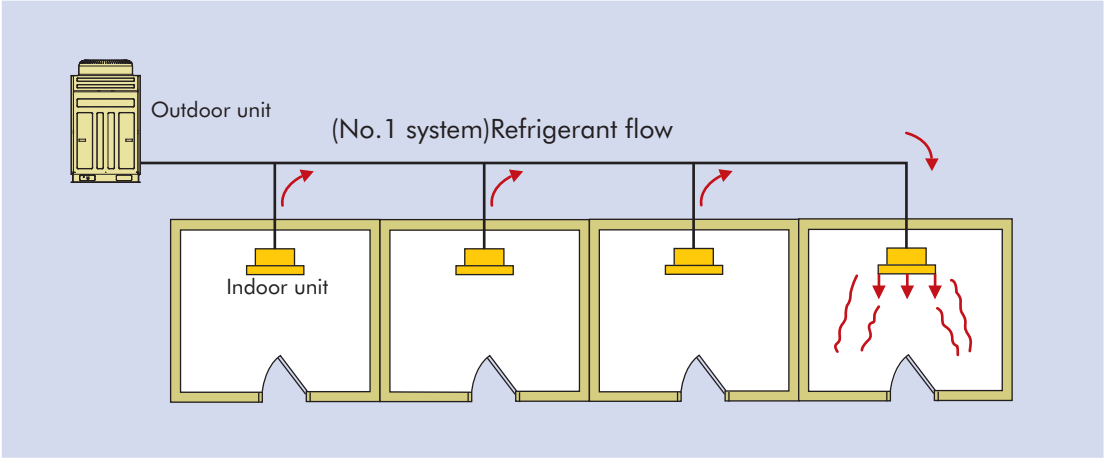
The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With 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 Conditioners

The concentration limit of R410Awhich means the concentration limit of R410A that can be control by emergency measures to prevent human body from harming.The refrigerant concentration unit is0.3kg/m^3(Which means the weight of refrigerant per m^3 air).



5.1.2 Check of Refrigerant Leakage

Calculate the refrigerant concentration as follows:

①Calculate 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 is 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::

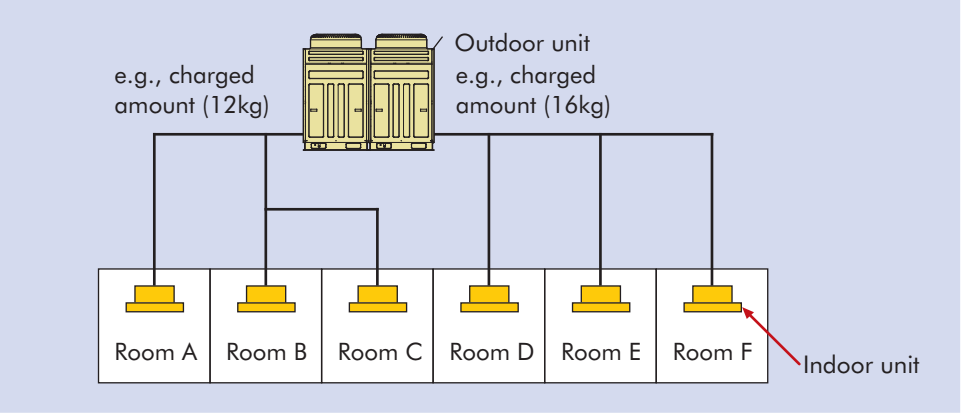


Fig.5.2

The possible amount of leaked refrigerant gas in rooms A, B and C is 12kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 16kg.

② Calculate the Minimum Room Volume are as Follows

◆ No partition (shaded portion)

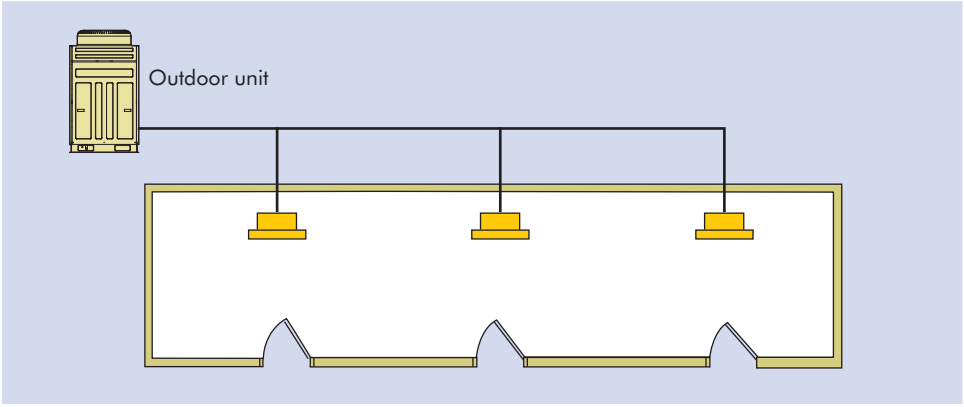


Fig.5.3

◆ When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening

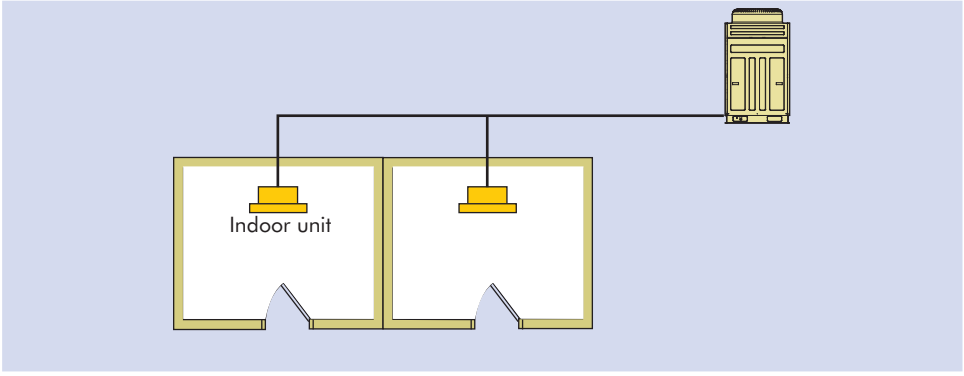


Fig.5.4

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

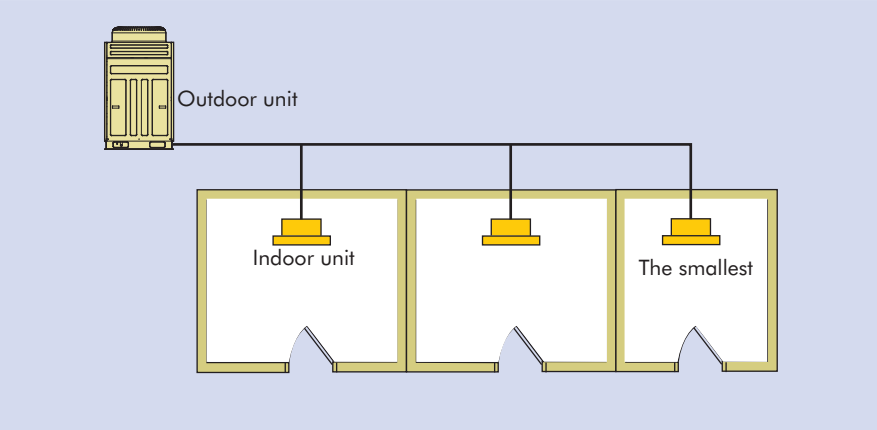


Fig.5.5

The concentration limit of R410A which is used in multi air conditioners is 0.3kg/m^3

③ Use the results of calculations ① and ②to calculate the refrigerant concentration:
The concentration is as given below.

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

5.1.3 Measures When The Refrigerant Concentration Limit is Exceeded

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 0.15% 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 20HP system is split into 2 sets of 10HP 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 twp 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.

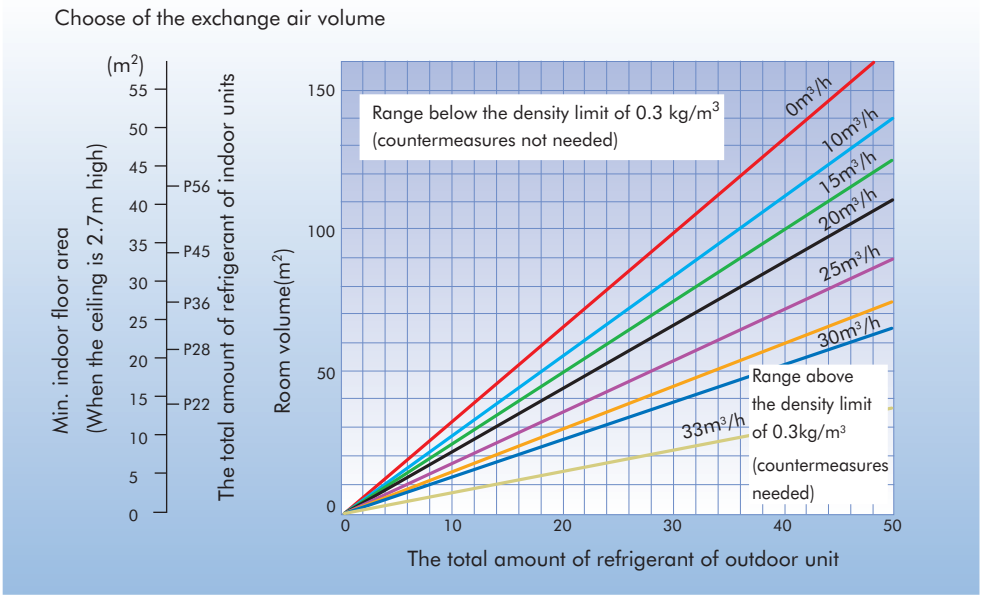


Fig.5.6

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

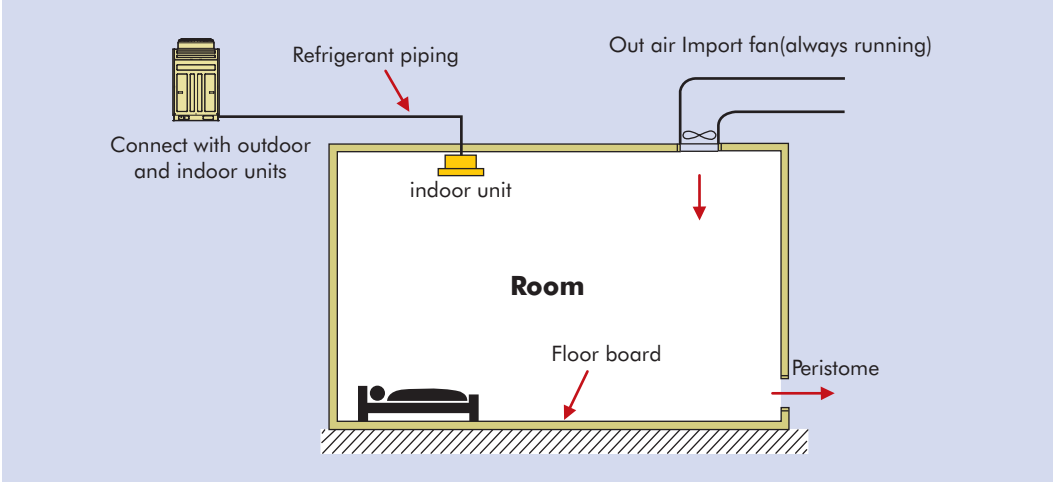


Fig.5.7

Detector Interlink System

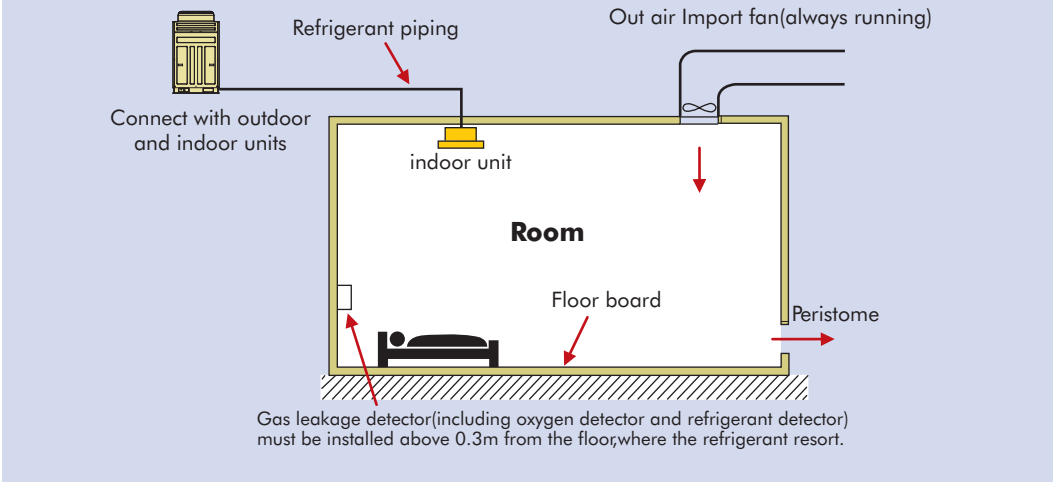


Fig.5.8

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

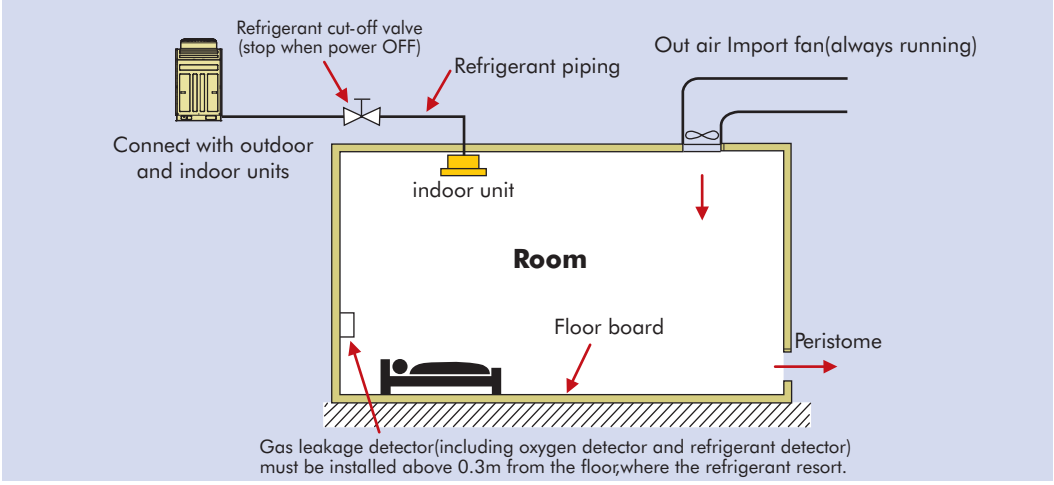
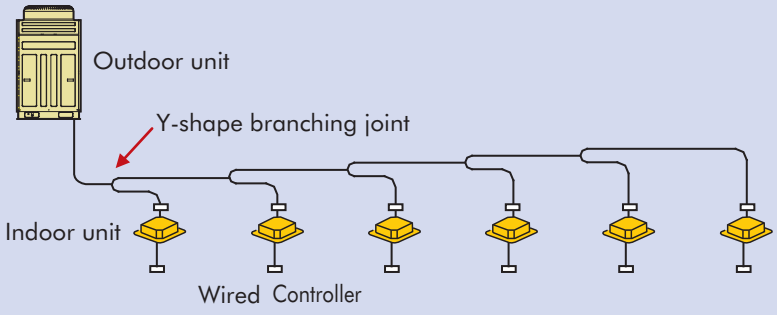
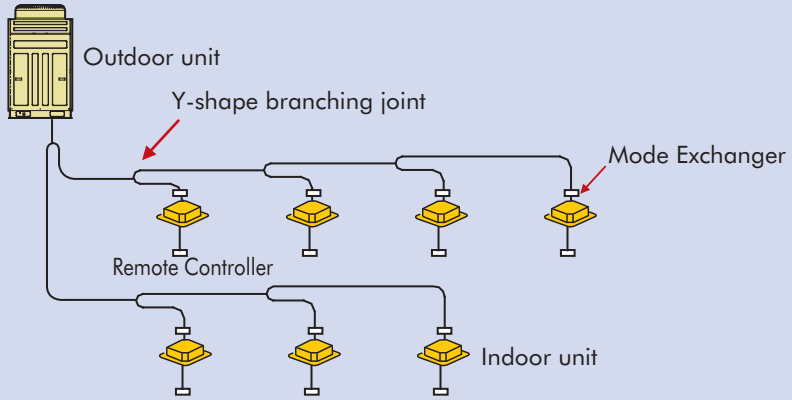
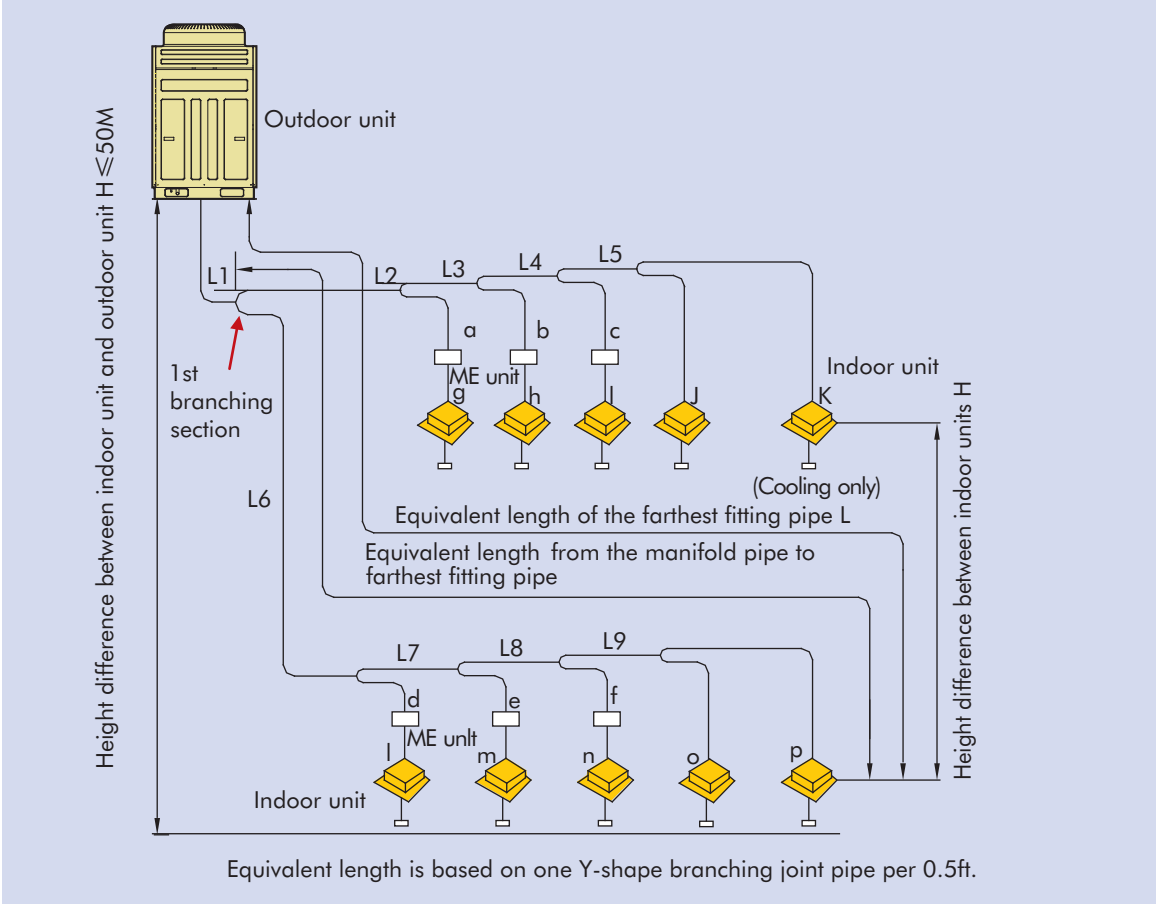


Fig.5.9

5.2 Free Branching System

Line branching system	 

5.3 Allowable Length/Height Difference of Refrigerant Piping

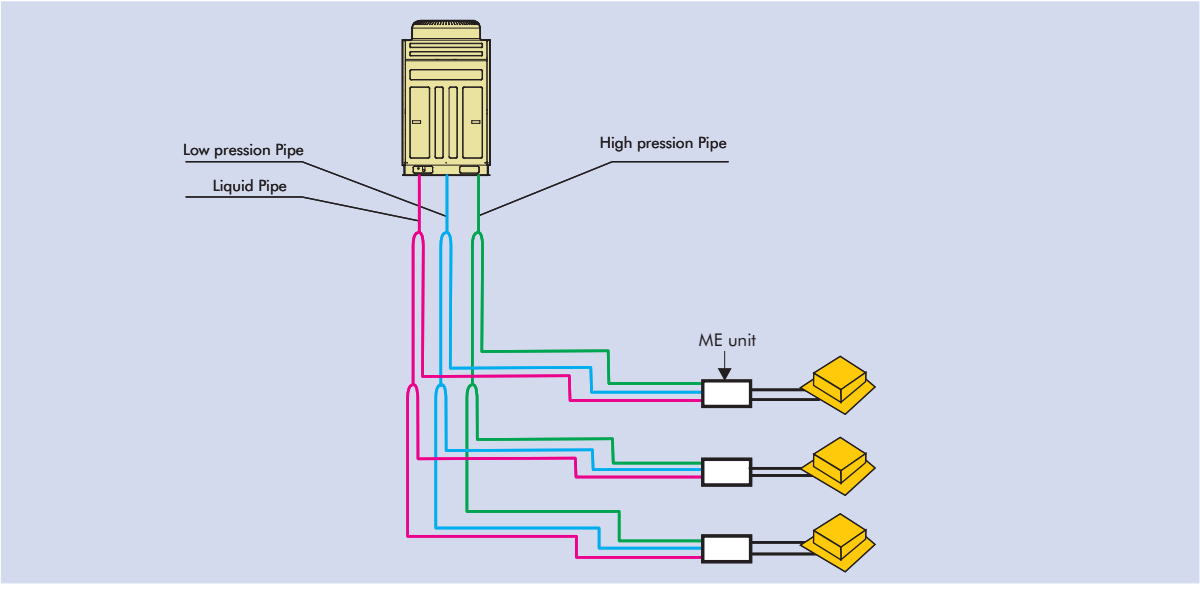


Equivalent length is based on one Y-shape branching joint pipe per 0.5ft.

		Allowable value m/ft	Piping section
Total length of fitting pipe (Liquid pipe real length)		500/1640	L1+L2+L3+L4+L5+L6+L7+a+b+c+d+e+f+g+h+j+k+l+m+n+o+p
Farthest piping length	Real length	150/492	L1+L6+L7+L8+L9+p
	Equivalent length	175/574	
Max. equivalent length of main piping		85/278.8	L1
Equivalent length of farthest piping from 1st branching		40/131.2	L3+L4+L5+L6+p
Max. real length of indoor unit connecting piping		30/98.4	a+g,b+h,c+i,d+l,e+m,f+n,j,k,o,p
Max. real length between ME unit and indoor unit		5/16.4	g,h,i,l,m,n
Height between indoor and outdoor units	Upper outdoor unit	50/164	-
	Lower outdoor unit	40/131.2	-
`Height between indoor units		15/49.2	-

5.4 Selection of Refrigerant Piping

5.4.1 Size of Main Pipe



Multple Model	Uses combination of	Piping Connections			
		Liquid pipe	Low-pressur gas pipe	High-pressur gas pipe	Oil balance pipe
		mm	mm	mm	mm
GMV-Pdhm224W/Na-M	—	Φ9. 5	Φ22.2	Φ19.1	—
GMV-Pdhm280W/Na-M	—	Φ9. 5	Φ22.2	Φ19.1	—
GMV-Pdhm335W/Na-M	—	Φ12.7	Φ28.6	Φ19.1	—
GMV-Pdhm400W/Na-M	—	Φ12.7	Φ28.6	Φ22.2	—
GMV-Pdhm450W/Na-M	—	Φ12.7	Φ28.6	Φ22.2	—
GMV-Pdhm504W2/Na-M	GMV-Pdhm224W/Na-M GMV-Pdhm228W/Na-M	Φ15.9	Φ28.6	Φ22.2	Φ12.7
GMV-Pdhm560W2/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M	Φ15.9	Φ28.6	Φ28.6	Φ12.7
GMV-Pdhm615W2/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm335W/Na-M	Φ15.9	Φ28.6	Φ28.6	Φ12.7
GMV-Pdhm680W2/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M	Φ15.1	Φ34.9	Φ28.6	Φ12.7
GMV-Pdhm730W2/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6	Φ12.7
GMV-Pdhm800W2/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm400W/Na-M	Φ19.1	Φ34.9	Φ28.6	Φ12.7
GMV-Pdhm850W2/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6	Φ12.7
GMV-Pdhm900W2/Na-M	GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6	Φ127
GMV-Pdhm960W3/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6	Φ12.7
GMV-Pdhm1010W3/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ28.6	Φ12.7

Multple Model	Uses combination of	Piping Connections			
		Liquid pipe	Low-pressur gas pipe	High-pressur gas pipe	Oil balance pipe
		mm	mm	mm	mm
GMV-Pdhm1070W3/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm335W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1130W3/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1180W3/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1250W3/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1300W3/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1350W3/Na-M	GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9	Φ12.7
GMV-Pdhm1410W4/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ34.9	Φ12.7
GMV-Pdhm1460W4/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ34.9	Φ12.7
GMV-Pdhm1515W4/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm335W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ41.3	Φ12.7
GMV-Pdhm1580W4/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ41.3	Φ12.7
GMV-Pdhm1630W4/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3	Φ12.7
GMV-Pdhm1700W4/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3	Φ12.7
GMV-Pdhm1750W4/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3	Φ12.7
GMV-Pdhm1800W4/Na-M	GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3	Φ12.7

The diameter of copper pipe that between outdoor unit and first branch pipe should be equal to outdoor unit's connection pipe.

Note:

1. For outdoor unit with total rated capacity less than 20.0kW

If the length from outdoor unit to the farthest indoor unit is longer than 50m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. Diameter will be more than Φ 54.1mm.

2. For outdoor unit with total rated capacity more than or equal to 20.0kW and less than 60.0kW module system, and if the length from outdoor unit to the farthest indoor unit is longer than 70m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. Diameter will be more Than Φ 54.1mm.

If outdoor unit is a module parallel system, and if the length of the first branch pipe of outdoor unit to the farthest indoor unit is longer or equal to 70m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from the first branch pipe of outdoor unit to the first branch pipe of the indoor unit. The max. Diameter will be more than Φ 54.1mm.

3. For outdoor unit with total rated capacity more than 60.0kW

If outdoor unit is a single-unit system or a single-module system, and if the length from outdoor unit to the farthest indoor unit is longer than 90m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. Diameter will be more than Φ 54.1mm.

If outdoor unit is a module parallel system, and if the length of the first branch pipe of outdoor unit to the farthest indoor unit is longer or equal to 90m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from the first branch pipe of outdoor unit to the first branch pipe of the indoor unit. The max. Diameter will be more than Φ54.1mm.

5.4.2 Pipe Size Between Branching Joints

Total capacity code of indoor units at downstream side	Liquid pipe mm(inch)	Low-pressure gas pipe mm(inch)	High-pressure gas pipe mm(inch)
C≤56	Φ 12.7(1/2)	Φ 12.7(1/2)	Φ 9.52(3/8)
56<C≤142	Φ 15.9(5/8)	Φ 12.7(1/2)	Φ 9.52(3/8)
142<C≤220	Φ 19.05(3/4)	Φ 15.9(5/8)	Φ 9.52(3/8)
220<C≤300	Φ 22.2(7/8)	Φ 19.05(3/4)	Φ 9.52(3/8)
300<X≤500	Φ 28.6(9/8)	Φ 25.4(1/1)	Φ 12.7(1/2)
500<X≤680	Φ 28.6(9/8)	Φ 28.6(9/8)	Φ 15.9(5/8)
680<X≤960	Φ 34.9(11/8)	Φ 28.6(9/8)	Φ 19.05(3/4)
960<X≤1350	Φ 41.3(13/8)	Φ 34.9(11/8)	Φ 19.05(3/4)
1350<X≤1580	Φ 44.5(7/4)	Φ 41.3(13/8)	Φ 22.2(7/8)
1580<X	Φ 44.5(7/4)	Φ 41.3(13/8)	Φ 25.4(1/1)

5. 4. 3 Pipe between Y-shpe branching jiot and ME

The diameter of copperpipe that between branch pipe and ME box should be equal to ME box's connection pipe.

Model	Capacity of Indoor Unit	High-pressure gas pipe	Low-pressure gas pipe	Liquid pipe
		mm(inch)	mm(inch)	mm(inch)
CHS22	22,25,28	Φ 9.5(3/8)	Φ 9.5(3/8)	Φ 6(1/4)
CHS36	32,36,40,45,50	Φ 9.5(3/8)	Φ 12.7(1/2)	Φ 6(1/4)
CHS71	56,63,71,80	Φ 12.7(1/2)	Φ 15.9(5/8)	Φ 9.5(3/8)
CHS90	90,100,112,125,140	Φ 12.7(1/2)	Φ 15.9(5/8)	Φ 9.5(3/8)
CHS224	224,280	Φ 16(3/5)	Φ 22(4/5)	Φ 9.5(3/8)

If the distance between indoor unit and nearest branch pipe is more than 10meter, then the liquid pipe should be one grade bigger

5.4.4 Piping of Indoor Unit

Capacity code range of indoor unit C	Gas pipe	Liquid pipe
	mm(inch)	mm(inch)
C≤28	Φ9.52(3/8)	Φ6.35(1/4)
28<C≤50	Φ12.7(1/2)	Φ6.35(1/4)
50<C≤140	Φ15.9(5/8)	Φ9.52(3/8)

If the distance between indoor unit and nearest branch pipe is more than 10meter, then the liquid pipe should be one grade bigger

5.4.5 Selection for Branching Section

	Total capacity code of indoor unit C	Model name
Y-shape branching joint	C≤56	FQ01Na/A
	56<C≤220	FQ02Na/A
	220<C≤300	FQ03Na/A
	300<X≤680	FQ04Na/A
	680<X≤960	FQ05Na/A
	960<X≤1350	FQ06Na/A
	1350<X	FQ07Na/A

5.4.6 Selection for Branching between outdoor section

1).Selection for Y branching between outdoor units.

	MODEL	Outdoor unit capacity code total X
Y branching jiont	ML01R	224≤X≤960
	ML02R	960< X

2).The connection pipe between the outdoor unit Y type refnet.

It is needed when there are more than two units combined together.

The pipe size depends on the upstream total capacity.

Up stream capacity C	Liquid pipe		Low-pressur gas pipe		High-pressur gas pipe		Oil balance pipe	
	mm	inch	mm	inch	mm	inch	mm	inch
450≥C	Φ12.7	1/2	Φ 28.6	9/8	Φ 28.6	9/8	Φ12.7	1/2
960≥C>450	Φ19.1	3/4	Φ 34.9	11/8	Φ 34.9	11/8	Φ12.7	1/2
1580≥C>960	Φ22.2	7/8	Φ 41.3	13/8	Φ 41.3	13/8	Φ12.7	1/2
C>1580	Φ25.4	1/1	Φ 41.3	13/8	Φ 54.1	17/8	Φ12.7	1/2

3).Oil balance pipe

"It is connected with Φ12. 7 copper pipe, an Φ13 oil balancing connection three-way valve is needed when there're more than two units combined together."

5.5 Charging Requirement with Additional Refrigerant

When the system is charged with refrigerant at the factory, the amount of refrigerant needed for the pipes at the site is not included. Calculate the additional amount needed, and add that amount to the system.

5.5.1 Refrigerant in the System When Shipped from the Factory

Model name	Refrigerant amount charged in factory
GMV-Pdhm224W/Na-M	12.0kg
GMV-Pdhm280W/Na-M	12.0kg
GMV-Pdhm335W/Na-M	14.0kg
GMV-Pdhm400W/Na-M	16.0kg
GMV-Pdhm450W/Na-M	16.0kg

5.5.2 [Additional Refrigerant Charge Amount] = [Real Length of Liquid Pipe] × [Additional Refrigerant Charge Amount Per Meter Liquid Pipe]

Pipe dia. At liquid side	mm/inch	mm/inch	mm/inch	mm/inch	mm/inch	mm/inch
	Φ22.2(7/8)	Φ19.05(3/4)	Φ15.9(5/8)	Φ12.7(1/2)	Φ9.52(3/8)	Φ6.35(1/4)
Additional refrigerant amount/1m(kg/m)	0.35	0.25	0.17	0.11	0.054	0.022
Additional refrigerant amount/1inch(kg/ft)	1.148	0.820	0.558	0.361	0.177	0.072

Note:

Standard pipe length is 49.2ft.
If the liquid pipe length is shorter than 49.2ft, additional refrigerant isn't needed;
If the liquid pipe length is longer than 49.2ft, calculate the additional refrigerant amount according to the above table.

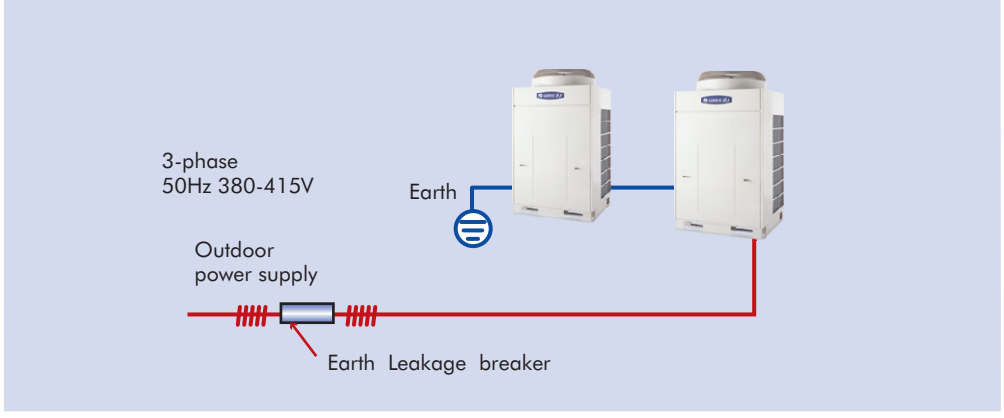
6 POWER SUPPLY DESIGN

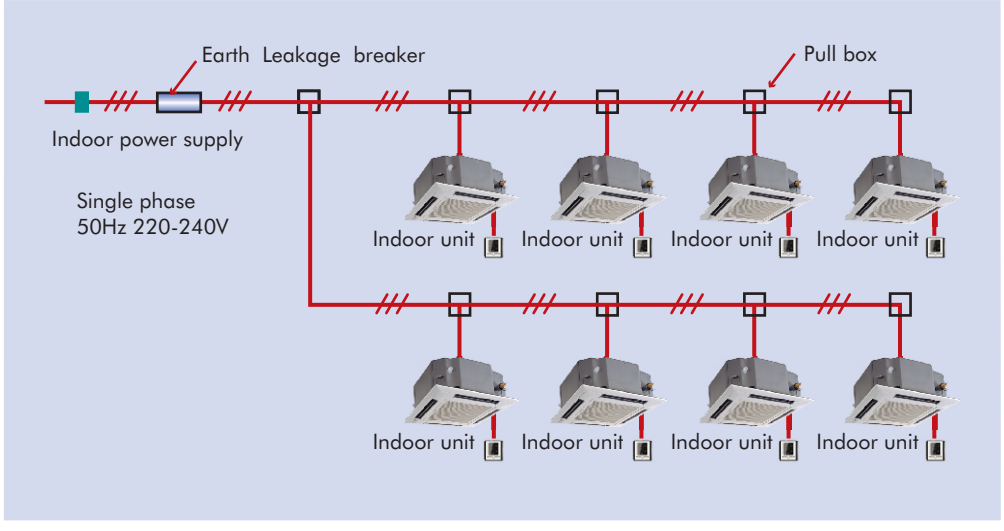
6.1 General

(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 double-core 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 Cabing and Fuse of Units

Model	Power Supply	Capability of circuit breaker	Min. sectional area of earth	Min. sectional area of power cord
GMV-Pdhm224W/Na-M	380~415V, 3Ph, 50Hz	32A	6mm²	6mm²
GMV-Pdhm280W/Na-M	380~415V, 3Ph, 50Hz	32A	6mm²	6mm²
GMV-Pdhm335W/Na-M	380~415V, 3Ph, 50Hz	40A	10mm²	10mm²
GMV-Pdhm400W/Na-M	380~415V, 3Ph, 50Hz	40A	10mm²	10mm²
GMV-Pdhm450W/Na-M	380~415V, 3Ph, 50Hz	40A	10mm²	10mm²
GMV-Pdhm504W2/Na-M	380~415V, 3Ph, 50Hz	63A	25mm²	25mm²
GMV-Pdhm560W2/Na-M	380~415V, 3Ph, 50Hz	63A	25mm²	25mm²
GMV-Pdhm615W2/Na-M	380~415V, 3Ph, 50Hz	80A	35mm²	35mm²
GMV-Pdhm680W2/Na-M	380~415V, 3Ph, 50Hz	80A	35mm²	35mm²
GMV-Pdhm730W2/Na-M	380~415V, 3Ph, 50Hz	80A	35mm²	35mm²
GMV-Pdhm800W2/Na-M	380~415V, 3Ph, 50Hz	80A	35mm²	35mm²
GMV-Pdhm850W2/Na-M	380~415V, 3Ph, 50Hz	80A	35mm²	35mm²
GMV-Pdhm900W2/Na-M	380~415V, 3Ph, 50Hz	100A	35mm²	35mm²
GMV-Pdhm960W3/Na-M	380~415V, 3Ph, 50Hz	100A	50mm²	50mm²
GMV-Pdhm1010W3/Na-M	380~415V, 3Ph, 50Hz	100A	50mm²	50mm²
GMV-Pdhm1065W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1130W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1180W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1250W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1300W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1350W3/Na-M	380~415V, 3Ph, 50Hz	125A	70mm²	70mm²
GMV-Pdhm1410W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1460W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1515W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1580W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1630W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1700W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1750W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²
GMV-Pdhm1800W4/Na-M	380~415V, 3Ph, 50Hz	160A	95mm²	95mm²

- 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 connecting length indicated in the table represents the length from the pull box to the outdoor unit when the indoor units are connected in parallel for power, as shown in the above illustration. A voltage drop of no more than 2% is also assumed. If the connecting length will exceed the length indicated in the table, select the wire thickness in accordance with local wiring standards.

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

Outdoor Unit

Model name	Power Supply (V/Ph/Hz)	Capability of circuit breaker (mm²)	Min. sectional area of earth lead(mm²)	Min. sectional area of power cord(mm²)	Compressor		Fan Motor		Power Supply	
					RLA(A)	LRA(A)	kW	FLA(A)	MCA	MOCP
GMV-Pdhm224W/Na-M	380~415,3,50	32	6	6	7.5	58	0.75	4.70	20.00	32.00
GMV-Pdhm280W/Na-M	380~415,3,50	32	6	6	7.5	58	0.75	4.70	20.00	32.00
GMV-Pdhm335W/Na-M	380~415,3,50	40	10	10	7.5	58	0.35	2.60	32.00	40.00
GMV-Pdhm400W/Na-M	380~415,3,50	40	10	10	7.5	58	0.35	2.60	32.00	40.00
GMV-Pdhm450W/Na-M	380~415,3,50	40	10	10	7.5	58	0.35	2.60	34.25	40.00
GMV-Pdhm504W2/Na-M	380~415,3,50	63	25	25	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm560W2/Na-M	380~415,3,50	63	25	25	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm615W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm680W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm730W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm800W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm850W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm900W2/Na-M	380~415,3,50	80	35	35	7.5	58	0.35	2.60	40.00	63.00
GMV-Pdhm960W3/Na-M	380~415,3,50	100	50	50	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1010W3/Na-M	380~415,3,50	100	50	50	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1065W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1130W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1180W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1250W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1300W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1350W3/Na-M	380~415,3,50	125	70	70	7.5	58	0.35	2.60	50.00	80.00
GMV-Pdhm1410W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1460W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1515W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1580W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1630W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1700W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1750W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00
GMV-Pdhm1800W3/Na-M	380~415,3,50	160	95	95	7.5	58	0.35	2.60	80.00	100.00

LEGEND:

MCA: Minimum Circuit Amps
LRA: Locked Rotor Amps
MOCP: Maximum Overcurrent Protection(Amps)
FLA: Full Load Amps
kW: Fan Motor Rated Output(kW)
RLA: Rated Load Amps
Note: RLA is based on the following conditions.
Indoor temperature: 27°C(81°F)DB/19°C(66.6°F)WB
Outdoor temperature: 35°C(95.4°F)DB.

6.4 Indoor Unit

Type	Model	Nominal power supply (V/Ph/Hz)	Voltage Range		Fan Motor		Power Supply	
			Min(v)	Max(v)	kW	FLA	MCA	MOCP
4-way Air Discharge Cassette Type	GMV-Rh28T/Na-K	220-240/1/50	198	264	0.06	0.27	0.3	0.6
	GMV-Rh36T/Na-K				0.06	0.27	0.3	0.6
	GMV-Rh45T/Na-K				0.065	0.28	0.3	0.6
	GMV-Rh50T/Na-K				0.065	0.28	0.3	0.6
	GMV-Rh56T/Na-K				0.083	0.37	0.5	0.8
	GMV-Rh63T/Na-K				0.083	0.37	0.5	0.8
	GMV-Rh71T/Na-K				0.083	0.37	0.5	0.8
	GMV-Rh80T/Na-K				0.083	0.37	0.5	0.8
	GMV-Rh90T/Na-K				0.133	0.59	0.7	1.3
	GMV-Rh100T/Na-K				0.133	0.59	0.7	1.3
	GMV-Rh112T/Na-K				0.133	0.59	0.7	1.3
	GMV-Rh125T/Na-K				0.133	0.59	0.7	1.3
	GMV-Rh22T/NaA-K				0.011	0.05	0.24	0.43
	GMV-Rh28T/NaA-K				0.011	0.05	0.24	0.43
	GMV-Rh36T/NaA-K				0.011	0.05	0.24	0.43
	GMV-Rh45T/NaA-K				0.011	0.05	0.24	0.43
Standard Duct Type	GMV-Rh22P/Na-K	220-240/1/50	198	264	0.054	0.24	0.3	0.5
	GMV-Rh25P/Na-K				0.054	0.24	0.3	0.5
	GMV-Rh28P/Na-K				0.055	0.25	0.3	0.5
	GMV-Rh32P/Na-K				0.055	0.25	0.3	0.5
	GMV-Rh36P/Na-K				0.055	0.25	0.3	0.5
	GMV-Rh40P/Na-K				0.091	0.42	0.5	0.9
	GMV-Rh45P/Na-K				0.091	0.42	0.5	0.9
	GMV-Rh50P/Na-K				0.091	0.42	0.5	0.9
	GMV-Rh56P/Na-K				0.157	0.72	0.9	1.6
	GMV-Rh63P/Na-K				0.157	0.72	0.9	1.6
	GMV-Rh71P/Na-K				0.157	0.72	0.9	1.6
	GMV-Rh80P/Na-K				0.157	0.72	0.9	1.6
	GMV-Rh90P/Na-K				0.27	1.2	1.5	2.7
	GMV-Rh100P/Na-K				0.27	1.2	1.5	2.7
	GMV-Rh112P/Na-K				0.27	1.2	1.5	2.7
	GMV-Rh125P/Na-K				0.27	1.2	1.5	2.7

Type	Model	Nominal power supply (V/Ph/Hz)	Voltage Range		Fan Motor		Powr Supply	
			Min(v)	Max(v)	kW	FLA	MCA	MOCP
Concealed Duck High ESP Type (Water Pump Inside)	GMV-Rh22PS/NaB-K	220-240/1/50	198	264	0.04	0.31	0.39	0.70
	GMV-Rh28PS/NaB-K				0.06	0.41	0.51	0.92
	GMV-Rh36PS/NaB-K				0.06	0.41	0.51	0.92
	GMV-Rh45PS/NaB-K				0.07	0.55	0.69	1.24
	GMV-Rh56PS/NaB-K				0.15	1.3	1.63	2.93
	GMV-Rh71PS/NaB-K				0.15	1.3	1.63	2.93
	GMV-Rh90PS/NaB-K				0.23	2.15	2.48	3.78
	GMV-Rh112PS/NaB-K				0.23	2.15	2.48	3.78
	GMV-Rh140PS/NaB-K				0.26	2.67	3.12	4.92
Concealed Duck High ESP Type	GMV-Rh224P/NaB-M	380-415/3/50	198	264	1.20	2.60	3.25	5.85
	GMV-Rh280P/NaB-M				1.20	2.60	3.25	5.85
	GMV-Rh22P/NaB-K	220-240/1/50	198	264	0.04	0.31	0.39	0.7
	GMV-Rh28P/NaB-K				0.06	0.41	0.51	0.92
	GMV-Rh36P/NaB-K				0.06	0.41	0.51	0.92
	GMV-Rh45P/NaB-K				0.07	0.55	0.69	1.24
	GMV-Rh56P/NaB-K				0.15	1.3	1.63	2.93
	GMV-Rh71P/NaB-K				0.15	1.3	1.63	2.93
	GMV-Rh90P/NaB-K				0.23	2.15	2.48	3.78
	GMV-Rh112P/NaB-K				0.23	2.15	2.48	3.78
	GMV-Rh140P/NaB-K				0.26	2.15	3.12	4.92
Floor and Ceiling Type	GMV-Rh28Zd/Na-K	220-240/1/50	198	264	0.019	0.09	0.11	0.15
	GMV-Rh36Zd/Na-K				0.019	0.09	0.11	0.15
	GMV-Rh50Zd/Na-K				0.075	0.36	0.45	0.67
	GMV-Rh71Zd/Na-K				0.185	0.88	1.1	1.65
	GMV-Rh90Zd/Na-K				0.28	1.34	1.47	2.2
	GMV-Rh112Zd/Na-K				0.34	1.63	1.79	2.68
	GMV-Rh125Zd/Na-K				0.34	1.63	1.79	2.68
Wall Mounted Type	GMV-Rh22G/Na-K	220-240/1/50	198	264	0.032	0.15	0.17	0.25
	GMV-Rh28G/Na-K				0.032	0.15	0.17	0.25
	GMV-Rh36G/Na-K				0.048	0.22	0.24	0.36
	GMV-Rh45G/Na-K				0.048	0.22	0.24	0.36
	GMV-Rh50G/Na-K				0.032	0.15	0.17	0.25
	GMV-Rh56G/Na-K				0.032	0.15	0.17	0.25
	GMV-Rh71G/Na-K				0.056	0.27	0.29	0.44
	GMV-Rh80G/Na-K				0.056	0.27	0.29	0.44

LEGEND:

MCA: Minimum Circuit Amps

MOCP: Maximum Overcurrent Protection(Amps)

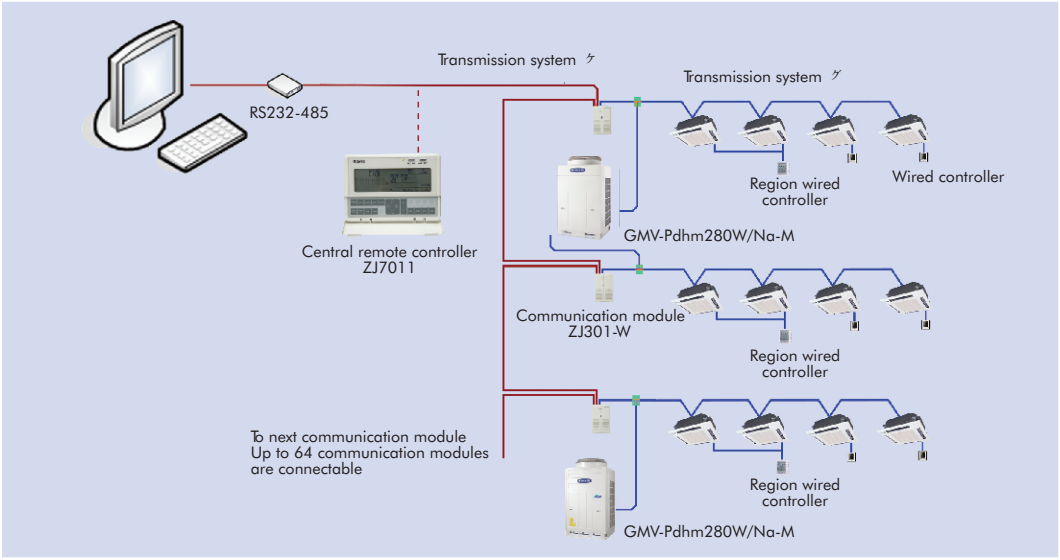
FLA: Full Load Amps

kW: Fan Motor Rated Output(kW)

7 COMMUNICATION SYSTEM DESIGN

7.1 Design of Control Wiring

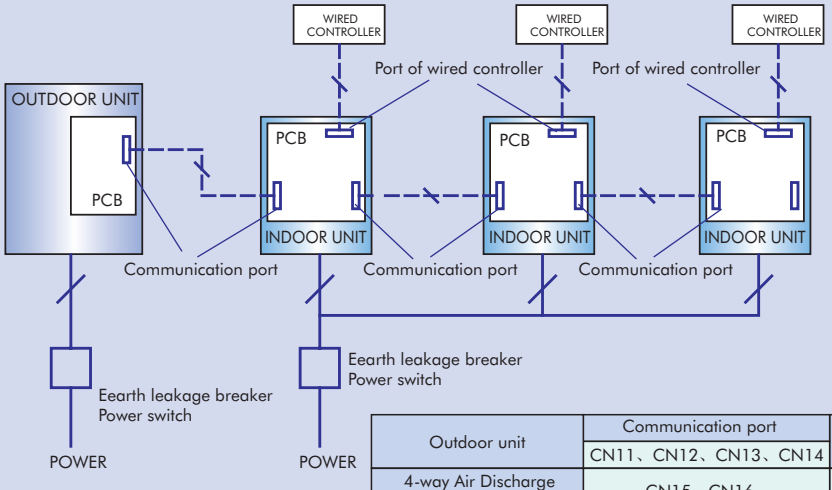
7.1.1 Control Wiring Drawing



7.1.2 Wire Specification, Quantity, Size of Crossover Wiring and Remote Controller Wiring

Name	Quantity	Size& Specification
communication cable between outdoor and indoor	2 cores	UL 2835 24
communication cable between indoor and wired contrller		

7.2 Wiring Diagram of Units



Outdoor unit		Communication port	Port of wired controller
		CN11、CN12、CN13、CN14	
4-way Air Discharge Cassette unit		CN15、CN16	CN17
Concealed Duct Standard unit		CN15、CN16	CN14
Floor and Ceiling unit		X27、X28	X31
Wall Mounted unit	22~45	CN13、CN14	CN15
	50~56	COMU3、COMU4	COMU5
	71~80	CN15、CN16	CN17

7.3 LONG-DISTANCE MONITORING SYSTEM

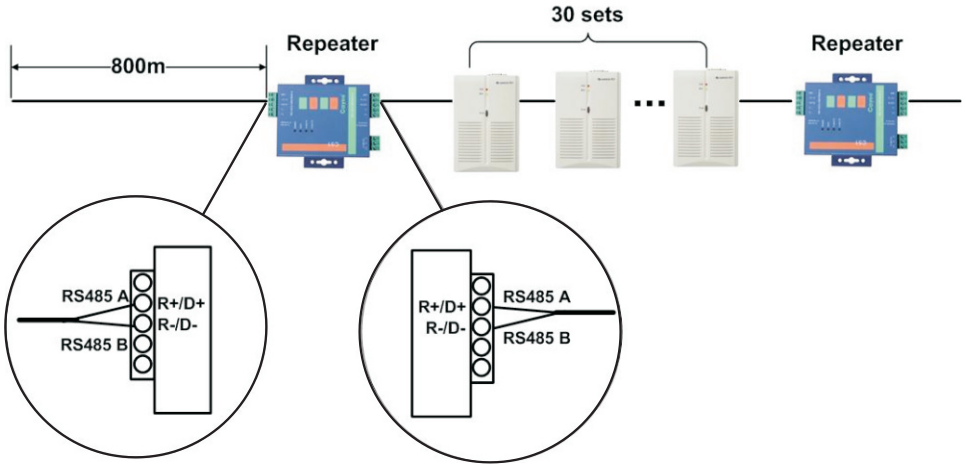
7.3.1 Introduction to Long-distance Monitoring System

As the development and improvement of manufacturing technology and in order to solve the problems of complex distribution of the central AC in the buildings and difficult control and maintenance of them, an platform easy and reliable to operate must be provided to the users for daily management and maintenance. So this long-distance monitoring system combining electronic communication and computer technologies is developed to collect the running state of the units and to monitor and control the units from a long distance.

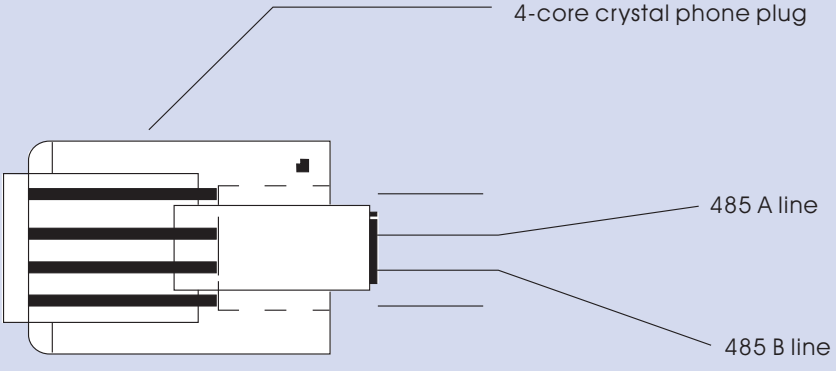
7.3.2 Installation and Selection.

Notice

1.The address code of the communication modules should not be conflicted in one project.
2.Optoelectronic Isolated Repeater: every 800m of communication distance equipped needs one and every 30 communication modules equipped needs one.



3.the communication cable and heavy-current wire should be separated and the distance between them can not be below 15cm.
4.line A and line B of Bus 485 should respectively correspond with line A and line B.
5.crystal head(crystal head buckle is downwards).



7.3.3 Installation and Selection

◆ Scope of Supply

S=Standard parts; O= User Optional; F= Field Supplied

Scope of Supply	Type Selection	Remarks
PC	F	—
Communication module set ZJ301-W	S	Including communication module ZJ301-W, power transformer and connecting wire between module
GMV Long-distance Monitoring System set FC232/422-W	S	Including CD and optoelectronic isolated converter Rs232- Rs485
Optoelectronic isolated repeater Rs485	O	One every 800m of communication distance equipped with one and One every 30 communication modules equipped with one.
4-core twisted pair wire	F	—
3-way phone connector	F	—

◆ Confirmation of Quantity of Parts

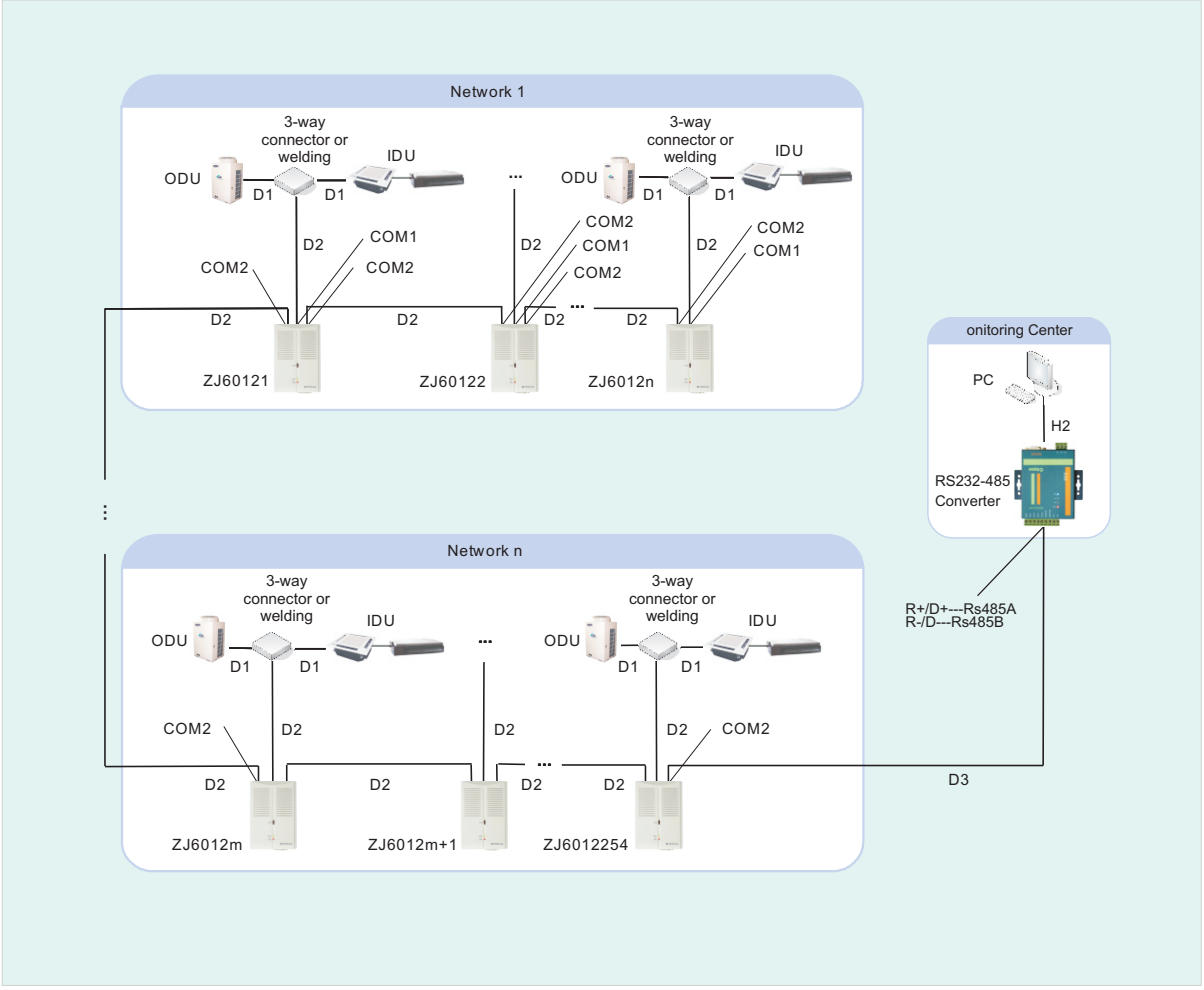
Types	Qty of Pinboards	Qty of Communication Modules	Long-distance Monitoring System	Optoelectronic Isolated Repeater
Heat recovery multi VRF (capacity of or below 280)	Unnecessary	One outdoor unit equipped with a communication module ZJ301-W which can connect with indoor units up to 16 sets	1 GMV Long-distance Monitoring System set FC232/422-W	One every 800m of communication distance equipped with one.
				One every 30 communication modules equipped with one
Heat recovery multi VRF (capacity of or above 280)	It may be used for 1-to-32 or 1-to -64 units, about which refer to Model Selection section.	One pinboard equipped with a coomunication module ZJ301-W	1 GMV Long-distance Monitoring System set FC232/422-W	One every 800m of communication distance equipped with one.
				One every 30 communication modules equipped with one

◆ Selection Example

35 sets of outdoor units GMV-Pdhm280W/Na-M with 300 sets of indoor units, 35 communication modules are needed, the communication distance is above 800m one repeater is necessary and the quantity of communication modules is above 30 one repeater is necessary, as follow:

Project Requirements	Quantity	
	Outdoor unit	Indoor unit
	GMV-Pdhm280W/Na-M	R410A four-in-one units
Qty(set)	35	300
Communication module set ZJ301-W	35	
GMV Long-distance Monitoring System set FC232/422-W	1	
Repeater	2	

◆Wiring Diagram



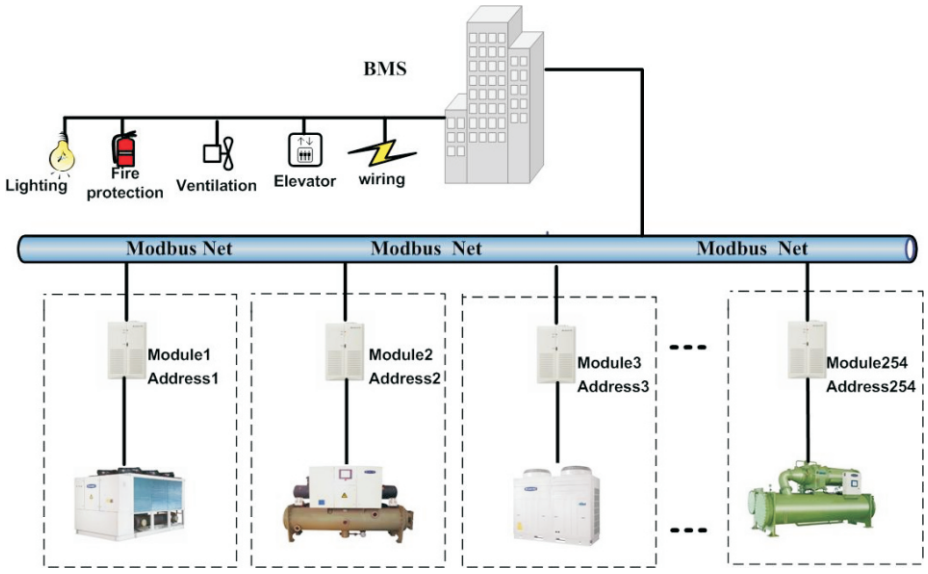
Description of above communication cables

Cable	Description
D1	Crystal head and the other end is XH 4-core pin connector(2-core Type-V twisted pair wire)
D2	Both crystal head(2-core Type-V twisted pair wire)
D3	Crystal head and the other end connects of it connects with wiring terminal of converter. (2-core Type-V twisted pair wire)
H2	Both 9-core head (Standard parts)

7.4 Central AC BMS interface

7.4.1 Introduction to BMS interface of Gree Central AC

BMS interface of Gree Central AC is only for Gree central AC devices. There is BMS interface or multifunctional gateway in the hardware and standard communication protocol and BMS software plug-in in the software. Gree central AC can be centrally monitored and managed through BMS interface together with other devices in the building.



7.4.2 Installation and Selection.

Notice

1.The air conditioners could be connected with the BMS system with every different model, or several models together, below wiring diagram shows the connection way of single unit, just for easy drawing.

2.3.4.5.6Please check7.3

7.4.3 Installation and Selection

◆ **Scope of Supply** S=Standard parts; O= User Optional; F= Field Supplied

Scope of Supply	Type Selection	Remarks
File of protocol	S	Modbus protocol is used for user to integrate with BMS system.
Communication module ME30-23/E(M)	S	Including communication module ZJ6012, power transformer and connecting wire between module
GMV long distance monitoring software FE30-20/A(M)	O	Including CD and optoelectronic isolated converter Rs232- Rs485
optoelectronic isolated converter Rs232- Rs485	O	It is needed when the interface protocol of BMS system is Rs232
Optoelectronic isolated repeater Rs485	O	One every 800m of communication distance equipped with one and One every 30 communication modules equipped with one.
4-core twisted pair wire	F	
3-way phone connector	F	

Confirmation of Quantity of Parts

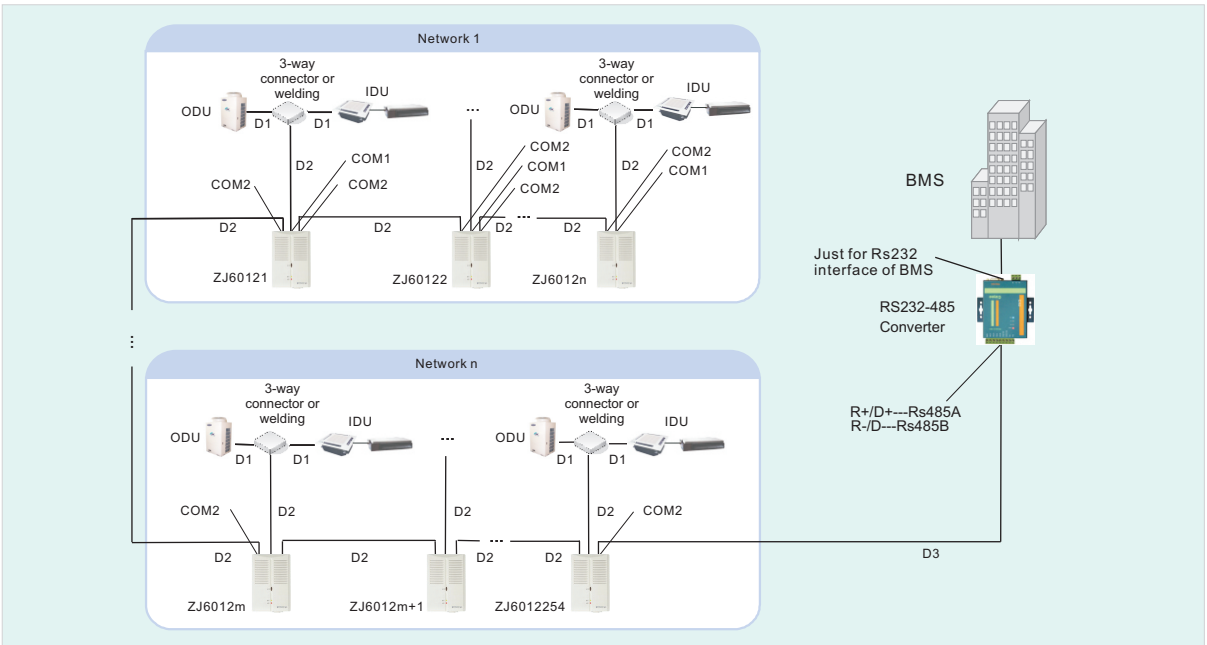
Types	Qty of Pinboards	Qty of Communication Modules	Optoelectronic isolated converter	Optoelectronic Isolated Repeater
Heat recovery multi VRF (capacity of or below 280)	Unnecessary	One outdoor unit equipped with a communication module ZJ6012 which can connect with indoor units up to 16 sets	One if BMS COM is Rs232	One every 800m of communication distance equipped with one.
				One every 30 communication modules equipped with one
Heat recovery multi VRF (capacity of or above 280)	It may be used for 1-to-32 or 1-to -64 units, about which refer to Model Selection section.	One pinboard equipped with a coomunication module ZJ6012	One if BMS COM is Rs232	One every 800m of communication distance equipped with one.
				One every 30 communication modules equipped with one

Selection Example

BMS COM is RS485, Converter is Unnecessary. 35 sets of outdoor units GMV-Pdhm280W/Na-M with 300 sets of indoor units, 35 communication modules are needed, the communication distance is above 800m one repeater is necessary and the quantity of communication modules is above 30 one repeater is necessary too, as follow:

Project Requirements	Quantity	
	Outdoor unit	Indoor unit
	GMV-Pdhm280W/Na-M	R410A four-in-one units
Qty（set）	35	300
Communication module ME30-23/E(M)	35	
Repeater	2	
Optoelectronic Isolated Converter	0	

Wiring Diagram



Description of above communication cables

Cable	Description
D1	Crystal head and the other end is XH 4-core pin connector
D2	Both crystal head
D3	Crystal head and the other end connects of it connects with wiring terminal of converter.

8 ACCESSORIES

8.1 Outdoor Unit

Accessories model name	Standard	Option	Field supplied
Communication Cable Between units	✓		
Y-shape Branching Joint and Collecting Pipe		✓	
Power Cable	✓		✓

8.2 Indoor Unit

Accessories model name	Standard	Option	Field supplied
Power Cable			✓
Wireless Controller	✓		
Wired Controller	✓		
Communication Cable for Wired Controller (8m)	✓		
Communication Cable between units	✓		
Drain Pipe	✓		

8.3 Controller

Accessories name	Mode name	Standard	Option	Remark
Wired controller	Z60151F Z60351F Z63151F Z63351F	✓		
Wireless controller	Y512	✓		Common parts for all type model
Region controller	ZJA011 ZJ301		✓	Common parts for all type model. But on the other hand unable Region controller when Central remote controller or Long-distance control system is put into use.
Central remote controller	ZJ7011		✓	
Long-distance control system for GMV	FC232/422-W		✓	
Communication Module	ZJ301-W		✓	Use for Central remote controller or Long-distance

9 TECHNICAL SPECIFICATIONS

9.1 Indoor Unit

◆ 4-way Air Discharge Cassette Type

Item		Model	GMV-Rh28T/Na-K	GMV-Rh36T/Na-K	GMV-Rh45T/Na-K	GMV-Rh50T/Na-K
Cooling capacity		KW	2.8	3.6	4.5	5.0
		Btu/h	9553.6	12283.2	15354	17060
Heating capacity		KW	3.2	4.0	5.0	5.8
		Btu/h	10918.4	13648	17060	19789.6
Air Flow Rate		m^3/h	680	680	680	680
		CFM	400	400	400	400
Sound Pressure Level(H/L)		dB(A)	37/34	37/34	37/34	37/34
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.06	0.06	0.065	0.065
	Running Current	A	0.27	0.27	0.28	0.28
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ12.7	Φ12.7	Φ12.7
		inch	3/8 "	1/2 "	1/2 "	1/2 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4 "	1/4 "	1/4 "	1/4 "
	Connection Method		Flare Connection			
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5		Φ30×1.5	
Unit Dimensions (Main Body / Panel) (W×D×H)		mm	840×840×190/ 950×950×60		840×840×190/ 950×950×60	
Package Dimensions (Main Body / Panel) (W×D×H)		mm	1075×960×257 / 1025×1040×115		1075×960×257 / 1025×1040×115	
Net weight (Main body/Panel)		kg	25/6.5		25/6.5	
Gross Weight (Main Body / Panel)		kg	33.5/10		33.5/10	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item		Model	GMV-Rh56T/Na-K	GMV-Rh63T/Na-K	GMV-Rh71T/Na-K	GMV-Rh80T/Na-K
Cooling capacity		KW	5.6	6.3	7.1	8.0
		Btu/h	19107.2	21495.6	24225.2	27296
Heating capacity		KW	6.3	7.0	8.0	8.8
		Btu/h	21495.6	23884	27296	30025.6
Air Flow Rate		m^3/h	1180	1180	1180	1180
		CFM	694	694	694	694
Sound Pressure Level(H/L)		dB(A)	39/35	39/35	39/35	39/35
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.083	0.083	0.083	0.083
	Running Current	A	0.37	0.37	0.37	0.37
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8 "	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "	3/8 "	3/8 "
	Connection Method		Flare Connection			
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5		Φ30×1.5	
Unit Dimensions (Main Body / Panel) (W×D×H)		mm	840×840×240/ 950×950×60		840×840×240/ 950×950×60	
Package Dimensions (Main Body / Panel) (W×D×H)		mm	1075×960×310 / 1025×1040×115		1075×960×310/ 1025×1040×115	
Net weight (Main body/Panel)		kg	30.5/6.5		30.5/6.5	
Gross Weight (Main Body / Panel)		kg	38.8/10		38.8/10	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item		Model	GMV-Rh90T/Na-K	GMV-Rh100T/Na-K	GMV-Rh112T/Na-K	GMV-Rh125T/Na-K
Cooling capacity		KW	9.0	10.0	11.2	12.5
		Btu/h	30708	34120	38214.4	42650
Heating capacity		KW	10.0	11.0	12.5	13.5
		Btu/h	34120	37532	42650	46062
Air Flow Rate		m^3/h	1860	1860	1860	1860
		CFM	1093	1093	1093	1093
Sound Pressure Level(H/L)		dB(A)	40/36	40/36	40/36	40/36
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.133	0.133	0.133	0.133
	Running Current	A	0.59	0.59	0.59	0.59
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8 "	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "	3/8 "	3/8 "
	Connection Method		Flare Connection			
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5		Φ30×1.5	
Unit Dimensions (Main Body / Panel) (W×D×H)		mm	840×840×320/ 950×950×60		840×840×320/ 950×950×60	
Package Dimensions (Main Body / Panel) (W×D×H)		mm	1075×960×394 / 1025×1040×115		1075×960×394 / 1025×1040×115	
Net weight (Main body/Panel)		kg	38.5/6.5		38.5/6.5	
Gross Weight (Main Body / Panel)		kg	46.5/10		46.5/10	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item		Model	GMV-Rh22T/NaA-K	GMV-Rh28T/NaA-K	GMV-Rh36T/NaA-K	GMV-Rh45T/NaA-K
Cooling capacity		KW	2.2	2.8	3.6	4.5
		Btu/h	7510	9550	12280	15350
Heating capacity		KW	2.5	3.2	4.0	5.0
		Btu/h	8530	10920	13650	17060
Air Flow Rate		m^3/h	600	600	600	600
		CFM	353	353	353	353
Sound Pressure Level(H/L)		dB(A)	47/41	47/41	47/41	47/41
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.011	0.011	0.011	0.011
	Running Current	A	0.02	0.02	0.02	0.02
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8 "	3/8 "	1/2 "	1/2 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4 "	1/4 "	1/4 "	1/4 "
	Connection Method		Flare Connection			
Drain Pipe (External Dia. ×Thickness)		mm	Φ25.5×2.8		Φ25.5×2.8	
Unit Dimensions (Main Body / Panel) (W×D×H)		mm	570×570×230/ 650×650×50		570×570×230/ 650×650×50	
Package Dimensions (Main Body / Panel) (W×D×H)		mm	870×688×325 / 733×673×117		870×688×325 / 733×673×117	
Net weight (Main body/Panel)		kg	16/2.5		18/2.5	
Gross Weight (Main Body / Panel)		kg	25/3.56		27/3.56	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

◆ Standard Duct Type

Item \ Model			GMV-Rh22P/Na-K	GMV-Rh25P/Na-K	GMV-Rh28P/Na-K	GMV-Rh32P/Na-K	GMV-Rh36P/Na-K
Cooling capacity		kW	2.2	2.5	2.8	3.2	3.6
		Btu/h	7506.4	8530	9553.6	10918.4	12283.2
Heating capacity		kW	2.5	3.0	3.2	3.6	4.0
		Btu/h	8530	10236	10918.4	12283.2	13648
Air Flow Rate		m^3/h	450	450	570	570	570
		CFM	265	265	335	335	335
Standard ESP		Pa	10	10	10	10	10
Sound Pressure Level(H/L)		dB(A)	37/33	37/33	39/35	39/35	39/35
Power supply			220-240V~1Ph~ 50Hz				
Fan Motor	Output	kW	0.02	0.02	0.02	0.02	0.02
	Running Current	A	0.24	0.24	0.25	0.25	0.25
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8 "	3/8 "	3/8 "	1/2 "	1/2 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "
	Connection Method		Flare Connection				
Drain Pipe (External Dia. ×Thickness)		mm	Φ20×1.7				
Unit Dimensions (W×D×H)		mm	875×680×220				
Package Dimensions (W×D×H)		mm	1165×710×275				
Net weight		kg	27				
Gross Weight		kg	31				

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh40P/Na-K	GMV-Rh45P/Na-K	GMV-Rh50P/Na-K	GMV-Rh56P/Na-K	GMV-Rh63P/Na-K
Cooling capacity		kW	4.0	4.5	5.0	5.6	6.3
		Btu/h	13648	15354	17060	19107.2	21495.6
Heating capacity		kW	4.5	5.0	5.8	6.3	7.0
		Btu/h	15354	17060	19789.6	21495.6	23884
Air Flow Rate		m^3/h	700	700	700	1000	1000
		CFM	412	412	412	588	588
Standard ESP		Pa	20	20	20	25	25
Sound Pressure Level(H/L)		dB(A)	40/36	40/36	40/36	42/38	42/38
Power supply			220-240V~1Ph~ 50Hz				
Fan Motor	Output	kW	0.06	0.06	0.06	0.09	0.09
	Running Current	A	0.42	0.42	0.42	0.72	0.72
Connecting Pipes	Gas Pipe (OD)	mm	Φ12.7	Φ12.7	Φ12.7	Φ15.9	Φ15.9
		inch	1/2 "	1/2 "	1/2 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ9.52	Φ9.52
		inch	1/4 "	1/4 "	1/4 "	3/8 "	3/8 "
	Connection Method		Flare Connection				
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5			Φ30×1.5	
Unit Dimensions (W×D×H)		mm	980×736×266			1159×736×260	
Package Dimensions (W×D×H)		mm	1220×776×320			1398×785×320	
Net weight		kg	36			37	
Gross Weight		kg	39			41	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh71P/Na-K	GMV-Rh80P/Na-K	GMV-Rh90P/Na-K	GMV-Rh100P/Na-K	GMV-Rh112P/Na-K	GMV-Rh125P/Na-K
Cooling capacity		kW	7.1	8.0	9.0	10.0	11.2	12.5
		Btu/h	24225.2	27296	30708	34120	38214.4	42650
Heating capacity		kW	8.0	8.8	10.0	11.0	12.5	13.5
		Btu/h	27296	30025.6	34120	37532	42650	46062
Air Flow Rate		m^3/h	1100	1100	1700	1700	1700	1700
		CFM	647	647	1000	1000	1000	1000
Standard ESP		Pa	25	25	30	30	30	30
Sound Pressure Level(H/L)		dB(A)	42/38	42/38	44/40	44/40	44/40	44/40
Power supply			220-240V~1Ph~ 50Hz					
Fan Motor	Output	kW	0.09	0.09	0.135	0.135	0.135	0.135
	Running Current	A	0.72	0.72	1.2	1.2	1.2	1.2
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8 "	5/8 "	5/8 "	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "	3/8 "	3/8 "	3/8 "	3/8 "
	Connection Method		Flare Connection					
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5		Φ30×1.5			
Unit Dimensions (W×D×H)		mm	1159×736×260		1385×736×260			
Package Dimensions (W×D×H)		mm	1398×785×320		1682×796×310			
Net weight		kg	37		49			
Gross Weight		kg	41		60			

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

High ESP Duct Type

Item \ Model			GMV-Rh22P (S)/NaB-K	GMV-Rh28P (S)/NaB-K	GMV-Rh36P (S)/NaB-K	GMV-Rh45P (S)/NaB-K	GMV-Rh56P (S)/NaB-K
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6
		Btu/h	7506	9554	12283	15354	19107
Heating capacity		kW	2.5	3.2	4	5	6.3
		Btu/h	8530	10918	13648	17060	21496
Air Flow Rate		m^3/h	450	570	570	700	1000
		CFM	265	335	335	412	589
Standard ESP		Pa	50/20	50/20	50/20	50/20	60/30
Sound Pressure Level(H/L)		dB(A)	37/33	39/35	39/35	40/36	44/40
Power supply			220-240V~1Ph~ 50Hz				
Fan Motor	Output	kW	0.04	0.06	0.06	0.07	0.15
	Running Current	A	0.28	0.41	0.41	0.55	1.3
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7	Φ15.9
		inch	3/8 "	3/8 "	1/2 "	1/2 "	5/8 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ9.52
		inch	1/4 "	1/4 "	1/4 "	1/4 "	3/8 "
	Connection Method		Flare Connection				
Drain Pipe (External Dia. ×Thickness)		mm	Φ20×1.5			Φ30×1.5	
Unit Dimensions (W×D×H)		mm	880×665×250			980×721×266	1155×736×300
Package Dimensions (W×D×H)		mm	1145×745×305			1290×795×308	1415×785×360
Net weight		kg	25/26	27/28	27/28	33/34	48/49
Gross Weight		kg	36/37	38/39	38/39	45/46	62/63

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh71P (S)/NaB-K	GMV-Rh90P (S)/NaB-K	GMV-Rh112P (S)/NaB-K	GMV-Rh140P (S)/NaB-K
Cooling capacity		kW	7.1	9.0	11.2	14.0
		Btu/h	24225	30708	38214	47768
Heating capacity		kW	8	10	12.5	15
		Btu/h	27296	34120	42650	51180
Air Flow Rate		m^3/h	1100	1700	1700	2000
		CFM	647	1001	1001	1177
Standard ESP		Pa	60/30	80/40	80/40	100/50
Sound Pressure Level(H/L)		dB(A)	45/41	48/44	48/44	50/46
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.15	0.225	0.225	0.26
	Running Current	A	1.3	2.15	2.15	2.67
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8 "	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "	3/8 "	3/8 "
	Connection Method		Flare Connection			
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5			
Unit Dimensions (W×D×H)		mm	1155×736×300	1425×736×300		
Package Dimensions (W×D×H)		mm	1415×785×360	1684×785×360		
Net weight		kg	48/49	59/60	59/60	62/63
Gross Weight		kg	62/63	75/76	75/76	77/78

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh224P/NaB-M	GMV-Rh280P/NaB-M
Cooling capacity		kW	22.4	28
		Btu/h	76000	96000
Heating capacity		kW	25	31
		Btu/h	85000	106000
Air Flow Rate		m^3/h	4000	4800
		CFM	2354	2825
Standard ESP		Pa	200	220
Sound Pressure Level(H/L)		dB(A)	56	57
Power supply			380-415V~3Ph~ 50Hz	
Fan Motor	Output	kW	1.2	1.2
	Running Current	A	2.4	2.47
Connecting Pipes	Gas Pipe (OD)	mm	Φ22.2	Φ22.2
		inch	7/8 "	7/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "
	Connection Method		Brazing Connection	
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5	
Unit Dimensions (W×D×H)		mm	1463×799×389	1628×869×454
Package Dimensions (W×D×H)		mm	1695×880×470	1900×1025×580
Net weight		kg	88	113
Gross Weight		kg	107	157

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

◆ Wall Mounted Type

Item \ Model			GMV-Rh22G/Na-K	GMV-Rh28G/Na-K	GMV-Rh36G/Na-K	GMV-Rh45G/Na-K
Cooling capacity		kW	2.2	2.8	3.6	4.5
		Btu/h	7506	9553	12283	15354
Heating capacity		kW	2.5	3.2	4.0	5.0
		Btu/h	8530	10918	13648	17060
Air Flow Rate		m^3/h	360	360	500	500
		CFM	212	212	294	294
Sound Pressure Level(H/L)		dB(A)	37/28	37/28	43/32	43/32
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.014	0.014	0.022	0.022
	Running Current	A	0.15	0.15	0.22	0.22
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8 "	3/8 "	1/2 "	1/2 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4 "	1/4 "	1/4 "	1/4 "
Drain Pipe (External Dia. ×Thickness)		mm	Φ20×1.5		Φ20×1.5	
Unit Dimensions (W×D×H)		mm	770×190×250		830×189×285	
Package Dimensions (W×D×H)		mm	860×272×478		905×265×533	
Net weight		kg	8.5		11	
Gross Weight		kg	15.6		18.5	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh50G/Na-K	GMV-Rh56G/Na-K	GMV-Rh71G/Na-K	GMV-Rh80G/Na-K
Cooling capacity		kW	5.0	5.6	7.1	8.0
		Btu/h	17060	19107	24225	27296
Heating capacity		kW	5.8	6.3	8.0	9.0
		Btu/h	19789	21495	27296	30708
Air Flow Rate		m^3/h	700	750	1200	1200
		CFM	412	441	706	706
Sound Pressure Level(H/L)		dB(A)	45/40	45/40	49/42	49/42
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.020	0.020	0.026	0.026
	Running Current	A	0.15	0.15	0.27	0.27
Connecting Pipes	Gas Pipe (OD)	mm	Φ12.7	Φ15.9	Φ15.9	Φ15.9
		inch	1/2 "	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ9.52	Φ9.52	Φ9.52
		inch	1/4 "	3/8 "	3/8 "	3/8 "
Drain Pipe (External Dia. ×Thickness)		mm	Φ30×1.5		Φ30×1.5	
Unit Dimensions (W×D×H)		mm	1020×228×310		1178×227×326	
Package Dimensions (W×D×H)		mm	1080×390×420		1415×333×475	
Net weight		kg	14.7		18.2	
Gross Weight		kg	23.6		27.3	

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

◆ Floor and Ceiling Type

Item \ Model			GMV-Rh28Zd/Na-K	GMV-Rh36Zd/Na-K	GMV-Rh50Zd/Na-K	GMV-Rh71Zd/Na-K
Cooling capacity		kW	2.8	3.6	5.0	7.1
		Btu/h	9550	12280	17060	24230
Heating capacity		kW	3.2	4.0	5.8	8.0
		Btu/h	10920	13650	19790	27300
Air Flow Rate		m^3/h	550	600	700	1170
		CFM	324	353	412	688
Sound Pressure Level(H/L)		dB(A)	43	44	50	48
Power supply			220-240V~1Ph~ 50Hz			
Fan Motor	Output	kW	0.01	0.01	0.04	0.1
	Running Current	A	0.09	0.09	0.36	0.88
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ12.7	Φ12.7	Φ15.9
		inch	3/8 "	1/2 "	1/2 "	5/8 "
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ9.52
		inch	1/4 "	1/4 "	1/4 "	3/8 "
Drain Pipe (External Dia. ×Thickness)		mm	Φ17×1.75			Φ17×1.75
Unit Dimensions (W×D×H)		mm	840×238×695			1300×188×600
Package Dimensions (W×D×H)		mm	1035×295×805			1514×248×724
Net weight		kg	26		27	32
Gross Weight		kg	37		39	43

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

Item \ Model			GMV-Rh90Zd/Na-K	GMV-Rh112Zd/Na-K	GMV-Rh125Zd/Na-K
Cooling capacity		kW	9.0	11.2	12.5
		Btu/h	30700	38210	42650
Heating capacity		kW	10.0	12.5	13.5
		Btu/h	34120	42650	46060
Air Flow Rate		m^3/h	2100	2200	2300
		CFM	1235	1294	1353
Sound Pressure Level(H/L)		dB(A)	51	54	55
Power supply			220-240V~1Ph~ 50Hz		
Fan Motor	Output	kW	0.15	0.18	0.18
	Running Current	A	1.34	1.63	1.63
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9
		inch	5/8 "	5/8 "	5/8 "
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52
		inch	3/8 "	3/8 "	3/8 "
Drain Pipe (External Dia. ×Thickness)		mm	Φ17×1.75		
Unit Dimensions (W×D×H)		mm	1590×238×695		
Package Dimensions (W×D×H)		mm	1714×330×830		
Net weight		kg	48		
Gross Weight		kg	63		

Notes:

a. The technical parameters are changed along with the products'improvement; please refer to the nameplate of the unit for actual data.
b. Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to the environmental change.
c. Rated conditions:
Cooling : Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(95.4°F) DB/24°C(75.6°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

9.2 Outdoor Unit

BASIC MODEL				GMV-Pdhm 224W/Na-M	GMV-Pdhm 280W/Na-M	GMV-Pdhm 335W/Na-M	GMV-Pdhm 400W/Na-M	GMV-Pdhm 450W/Na-M
Power supply				3phase, 380~415V, 3Ph,50Hz, 4wires system				
Capacity	Cooling	kW		22.4	28.0	33.5	40.0	45.0
		Btu/h		7642.8	95536.0	114302.0	136480.0	153540.0
	Heating	kW		25.0	31.5	37.5	45.0	50.0
		Btu/h		85300.0	107478.0	127950.0	153.540.0	170600.0
Power Input	Cooling	kW		5.5	7.5	9.23	12.45	14.32
	Heating	kW		5.8	7.7	9.38	11.2	13.9
Input Cunent	Cooling	A		9.9	13.4	16.5	22.3	4.07
	Heating	A		10.4	13.8	16.8	20.0	25.6
COP	Cooling	W/W		4.07	3.73	3.63	3.21	3.14
	Heating	W/W		4.31	4.09	4.0	4.02	3.6
ECOP	Cooling & Heating	W/W		6.80				
Capacity control		%		20~100	14~100	14~100	10~100	10~100
Compressor	Type	—		Hermetically sealed scroll type				
	NO.	—		2		3		
Air flow rate		m^3/min		190		232		
Dimensions(H×W×D)		mm		1670×930×770		1670×1340×770		
(H×W×D)		mm		1850×1010×850		1850×1420×850		
Net weight		kg		260		372	402	
Gross weight		kg		284		390	420	
Sound Pressure Level		dB(A)		58		61	61	
Refrigerant	Type	—		R410A				
	Charge	kg		12.0		14.0	16.0	
Refrigerant oil		—		Refer to the nameplate of the compressor				
Piping connections	Liquid	mm		Φ9.5	Φ9.5	Φ12.7	Φ12.7	Φ12.7
	Suction gas	mm		Φ22.2	Φ22.2	Φ28.6	Φ28.6	Φ28.6
	Discharge gas	mm		Φ19.1	Φ19.1	Φ19.1	Φ22.2	Φ22.2
Connectable Indoor Unit		—		13	16	19	23	26
Indoor Unit		—		50%~135%				
Recommended Power Cord		mm^2×NO.		6.0×5		10.0×5		
Loading Quantity			20'GP	12		10		
			40'GP	28		22		
			40'HQ	38		27		

Combined model			GMV-Pdhm 504W2/Na-M	GMV-Pdhm 560W2/Na-M	GMV-Pdhm 615W2/Na-M	GMV-Pdhm 680W2/Na-M	GMV-Pdhm 730W2/Na-M
Uses Combination of			GMV-Pdhm224W /Na-M; GMV-Pdhm280W /Na-M	GMV-Pdhm280W /Na-M; GMV-Pdhm280W /Na-M	GMV-Pdhm280W /Na-M; GMV-Pdhm335W /Na-M	GMV-Pdhm335W /Na-M; GMV-Pdhm400W /Na-M	GMV-Pdhm280W /Na-M; GMV-Pdhm450W /Na-M
Power supply			3phase, 380~415V, 3Ph,50Hz, 4wires system				
Capacity	Cooling	kW	50.4	56	61.5	68	73
		Btu/h	171964.8	191172.0	209838.0	232016.0	249076.0
	Heating	kW	56.5	63	69	76.5	81.5
		Btu/h	192778.0	214956.0	235428.0	261018.0	278078.0
Power Input	Cooling	kW	13.0	15.0	16.7	20.0	21.8
	Heating	kW	13.5	15.4	17.1	18.9	21.6
Input Cunent	Cooling	A	23.3	26.8	29.9	35.7	39.0
	Heating	A	24.2	27.8	30.6	33.8	28.7
COP	Cooling	W/W	3.88	3.73	3.68	3.40	3.35
	Heating	W/W	4.19	4.09	4.04	4.05	3.77
Capacity control		%	9~100	8~100	7~100	6~100	6~100
Compressor	Type	—	Hermetically sealed scroll type				
	NO.	—	4		5		
Air flow rate		m^3/min	190+190		190+232		
Dimensions(H×W×D)		mm	1670×930×770+ 1670×930×770		1670×930×770+ 1670×1340×770		
Net weight		kg	260+260		260+372	260+402	
Sound Pressure Level		dB(A)	62		62	62	63
Refrigerant	Type	—	R410A				
	Charge	kg	12.0+12.0		12.0+14.0	12.0+16.0	
Refrigerant oil		—	Refer to the nameplate of the compressor				
Piping connections	Liquid	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ19.1
	Suction gas	mm	Φ28.6	Φ28.6	Φ28.6	Φ34.9	Φ34.9
	Discharge gas	mm	Φ22.2	Φ28.6	Φ28.6	Φ28.6	Φ28.6
	Oil Balance	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7	Φ12.7
Connectable Indoor Unit		—	29	32	36	40	43
Indoor Unit		—	50%~135%				
Recommended Power Cord		mm^2×NO.	15.0×5		35.0×5		

Combined model			GMV-Pdhm 800W2/Na-M	GMV-Pdhm 850W2/Na-M	GMV-Pdhm 900W2/Na-M	GMV-Pdhm 960W3/Na-M	GMV-Pdhm 1010W3/Na-M
Uses Combination of			GMV-Pdhm400W /Na-M; GMV-Pdhm400W /Na-M	GMV-Pdhm400W /Na-M; GMV-Pdhm450W /Na-M	GMV-Pdhm450W /Na-M; GMV-Pdhm450W /Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M
Power supply			3phase, 380~415V, 3Ph,50Hz, 4wires system				
Capacity	Cooling	kW	80	85	90	96	101
		Btu/h	272960.0	290020.0	307080.0	327552.0	344612.0
	Heating	kW	88	95	100	108	113
		Btu/h	300256.0	324140.0	341200.0	368496.0	385556.0
Power Input	Cooling	kW	25.0	26.8	28.6	27.5	29.3
	Heating	kW	13.5	15.4	17.1	18.9	21.6
Input Cunent	Cooling	A	44.6	47.9	51.2	49.1	52.4
	Heating	A	40.0	44.9	49.8	47.6	52.5
COP	Cooling	W/W	3.20	3.17	3.15	3.49	3.45
	Heating	W/W	3.93	3.78	3.6	4.06	3.86
Capacity control		%	6~100	5~100	5~100	5~100	5~100
Compressor	Type	—	Hermetically sealed scroll type				
	NO.	—	6			7	
Air flow rate		m^3/min	232+232			190+190+232	
Dimensions(H×W×D)		mm	1670×930×770+ 1670×930×770			1670×930×770+ 1670×1340×770+ 1670×1340×770	
Net weight		kg	402+402			260+260+402	
Sound Pressure Level		dB(A)	63			64	64
Refrigerant	Type	—	R410A				
	Charge	kg	16.0+16.0			12.0+12.0+16.0	
Refrigerant oil		—	Refer to the nameplate of the compressor				
Piping connections	Liquid	mm	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1
	Suction gas	mm	Φ34.9	Φ34.9	Φ34.9	Φ34.9	Φ41.3
	Discharge gas	mm	Φ28.6	Φ28.6	Φ28.6	Φ28.6	Φ28.6
	Oil Balance	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7	Φ12.7
Connectable Indoor Unit		—	47	50	53	56	59
Indoor Unit		—	50%~135%				
Recommended Power Cord		mm^2×NO.	35.0×5			50.0×5	

HEAT RECOVERY D.C INVERTER MULTI VRF

Combined model			GMV-Pdhm 1070W3/Na-M	GMV-Pdhm 1130W3/Na-M	GMV-Pdhm 1180W3/Na-M	GMV-Pdhm 1250W3/Na-M	GMV-Pdhm 1300W3/Na-M
Uses Combination of			GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power supply			3phase, 380~415V, 3Ph,50Hz, 4wires system				
Capacity	Cooling	kW	107	113	118	125	130
		Btu/h	363378.0	385556.0	402616.0	426500.0	443560.0
	Heating	kW	119	126.5	131.5	138.5	145
		Btu/h	406022.0	431618.0	448678.0	472562.0	494740.0
Power Input	Cooling	kW	31.0	34.3	36.1	39.3	41.1
	Heating	kW	31.0	32.8	35.5	36.3	39.0
Input Cunent	Cooling	A	55.5	61.3	64.6	70.2	73.5
	Heating	A	55.5	58.7	63.6	64.9	69.8
COP	Cooling	W/W	3.45	3.29	3.27	3.18	3.16
	Heating	W/W	3.84	3.86	3.7	3.82	3.72
Capacity control		%	5~100	4~100	4~100	4~100	4~100
Compressor	Type	—	Hermetically sealed scroll type				
	NO.	—	8			9	
Air flow rate		m^3/min	190+232+232			232+232+232	
Dimensions(H×W×D)		mm	1670×930×770+ 1670×1340×770+ 1670×1340×770			1670×1340×770+ 1670×1340×770+ 1670×1340×770	
Net weight		kg	260+372+402	260+402+402		402+402+402	
Sound Pressure Level		dB(A)	64			65	
Refrigerant	Type	—	R410A				
	Charge	kg	12.0+14.0+16.0	12.0+16.0+16.0		16.0+16.0+16.0	
Refrigerant oil		—	Refer to the nameplate of the compressor				
Piping connections	Liquid	mm	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1
	Suction gas	mm	Φ41.3	Φ41.3	Φ41.3	Φ41.3	Φ41.3
	Discharge gas	mm	Φ34.9	Φ34.9	Φ34.9	Φ34.9	Φ34.9
	Oil Balance	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7	Φ12.7
Connectable Indoor Unit		—	64	64	64	64	64
Indoor Unit		—	50%~135%				
Recommended Power Cord		mm^2×NO.	70.0×5			70.0×5	

Combined model			GMV-Pdhm 1350W3/Na-M	GMV-Pdhm 1410W4/Na-M	GMV-Pdhm 1460W4/Na-M	GMV-Pdhm 1515W4/Na-M	GMV-Pdhm 1580W4/Na-M
Uses Combination of			GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power supply			3phase, 380~415V, 3Ph,50Hz, 4wires system				
Capacity	Cooling	kW	135	141	146	151.5	158
		Btu/h	460620.0	481092.0	498152.0	519918.0	539096.0
	Heating	kW	150	158	163	169	176.5
		Btu/h	511800.0	539096.0	556156.0	576628.0	602218.0
Power Input	Cooling	kW	42.9	41.8	43.6	45.3	48.6
	Heating	kW	41.7	40.5	43.2	44.9	46.7
Input Cunent	Cooling	A	76.8	74.7	78.0	81.1	86.9
	Heating	A	74.7	72.5	77.4	80.4	83.6
COP	Cooling	W/W	3.15	3.37	3.35	3.34	3.25
	Heating	W/W	3.60	3.90	3.77	3.76	3.78
Capacity control		%	4~100	3~100	3~100	3~100	3~100
Compressor	Type	—	Hermetically sealed scroll type				
	NO.	—	9	10		11	
Air flow rate		m^3/min	232+232+232	190+190+232+232		190+232+232+232	
Dimensions(H×W×D)		mm	1670×1340×770+ 1670×1340×770+ 1670×1340×770	1670×930×770+ 1670×930×770+ 1670×1340×770+ 1670×1340×770	1670×930×770+1670×1340×770+ 1670×1340×770+1670×1340×770		
Net weight		kg	402+402+402	260+260+402+402		260+372 +402+402	260+402 +402+402
Sound Pressure Level		dB(A)	64			65	
Refrigerant	Type	—	R410A				
	Charge	kg	16.0+16.0+16.0	12.0+12.0+16.0+16.0		12.0+14.0+16.0+16.0	
Refrigerant oil		—	Refer to the nameplate of the compressor				
Piping connections	Liquid	mm	Φ19.1	Φ22.2	Φ22.2	Φ22.2	Φ22.2
	Suction gas	mm	Φ41.3	Φ44.5	Φ44.5	Φ44.5	Φ44.5
	Discharge gas	mm	Φ34.9	Φ34.9	Φ41.3	Φ41.3	Φ41.3
	Oil Balance	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7	Φ12.7
Connectable Indoor Unit		—	64	66	69	71	74
Indoor Unit		—	50%~135%				
Recommended Power Cord		mm^2×NO.	70.0×5	95.0×5			

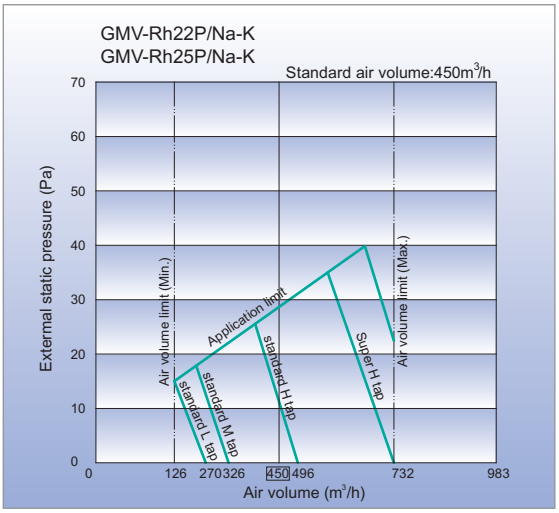
Combined model			GMV-Pdhm 1630W4/Na-M	GMV-Pdhm 1700W4/Na-M	GMV-Pdhm 1750W4/Na-M	GMV-Pdhm 1800W4/Na-M
Uses Combination of			GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power supply			3phase, 380~415V, 3Ph,50Hz, 4wires system			
Capacity	Cooling	kW	163	170	175	180
		Btu/h	556156.0	580040.0	597100.0	614160.0
	Heating	kW	181.5	187.5	195	200
		Btu/h	619278.0	639750.0	665340.0	682400.0
Power Input	Cooling	kW	50.4	53.6	55.4	57.2
	Heating	kW	49.4	50.2	52.9	55.6
Input Cunent	Cooling	A	90.2	95.8	99.1	102.4
	Heating	A	88.5	89.9	94.7	99.6
COP	Cooling	W/W	3.23	3.17	3.16	3.15
	Heating	W/W	3.67	3.74	3.69	3.60
Capacity control		%	3~100	3~100	3~100	3~100
Compressor	Type	—	Hermetically sealed scroll type			
	NO.	—	11	12		
Air flow rate		m^3/min	190+232+232+232	232+232+232+232		
Dimensions(H×W×D)		mm	1670×930×770+ 1670×1340×770+ 1670×1340×770+ 1670×1340×770	1670×1340×770+1670×1340×770+ 1670×1340×770+1670×1340×770		
Net weight		kg	260+402+402+402	402+402+402+402		
Sound Pressure Level		dB(A)	66			
Refrigerant	Type	—	R410A			
	Charge	kg	12.0+16.0+16.0+16.0	16.0+16.0+16.0+16.0		
Refrigerant oil		—	Refer to the nameplate of the compressor			
Piping connections	Liquid	mm	Φ25.4	Φ25.4	Φ25.4	Φ25.4
	Suction gas	mm	Φ54.1	Φ54.1	Φ54.1	Φ54.1
	Discharge gas	mm	Φ41.3	Φ41.3	Φ41.3	Φ41.3
	Oil Balance	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7
Connectable Indoor Unit		—	77	80	80	80
Indoor Unit		—	50%~135%			
Recommended Power Cord		mm^2×NO.	95.0×5			

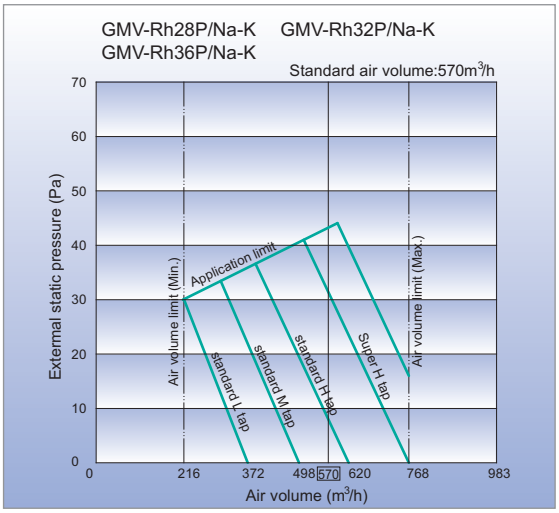
Notes:

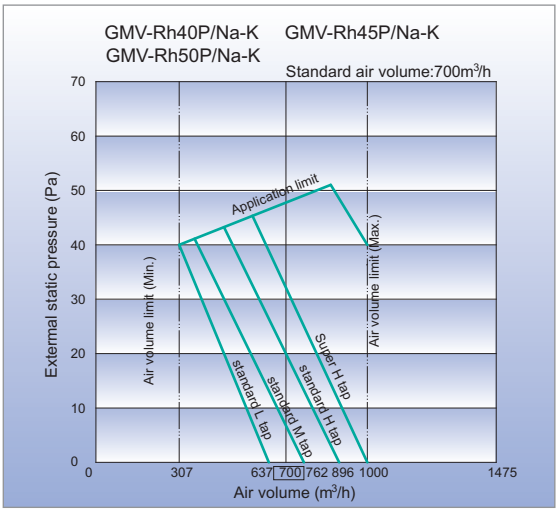
① Indoor air temperature 27°C(81°F) DB/19°C(66.6°F) WB, Outdoor air temperature 35°C(45°F) DBDB/15°C(59.4°F) WB
② Indoor air temperature 20°C(68.4°F) DB/15°C(59.4°F) WB, Outdoor air temperature 7°C (45°F) DB/6°C(43.2°F) WB
③ Interior Dimensions L×W×H：5898×2352×2393， Door Opening W×H：2343×2280;
④ Interior Dimensions L×W×H：12032×2350×2390，Door Opening W×H：2343×2280;
⑤ Interior Dimensions L×W×H：12032×2350×2697，Door Opening W×H：2338×2585.

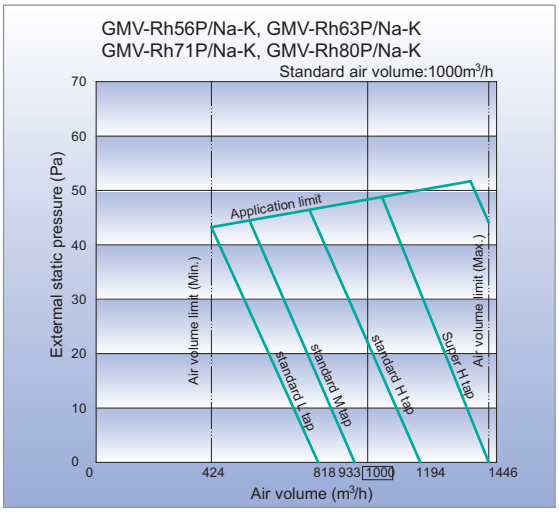
10 FAN CHARACTERISTICS

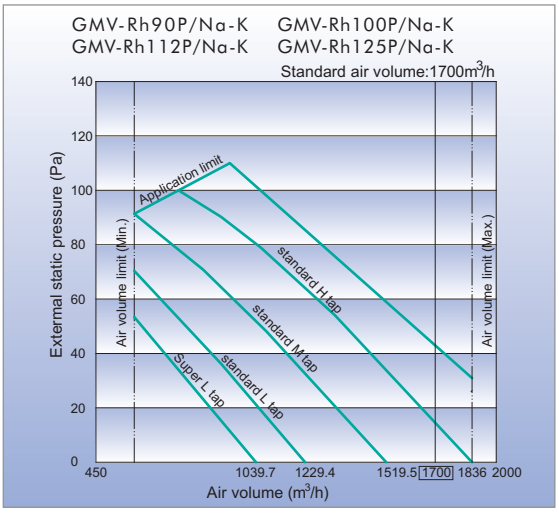
◆ Standard Duct Type

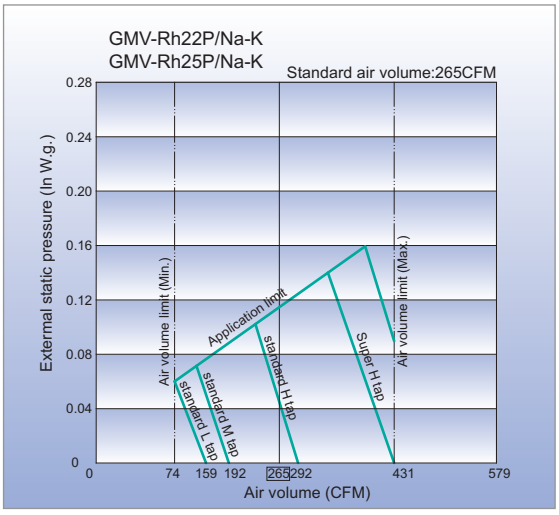


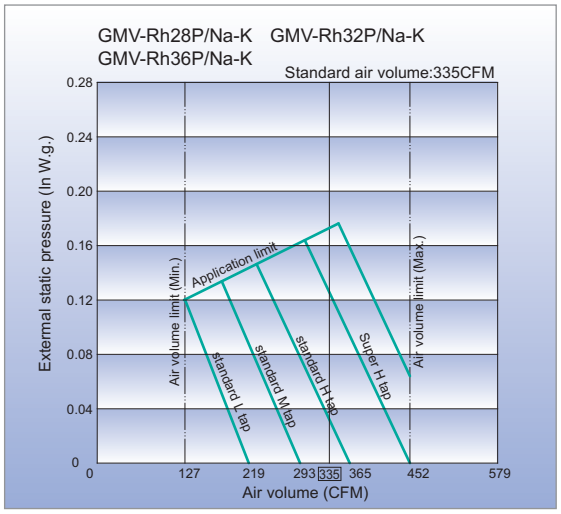


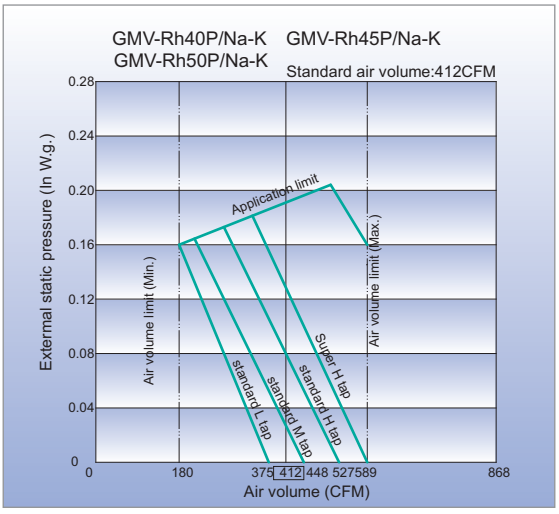


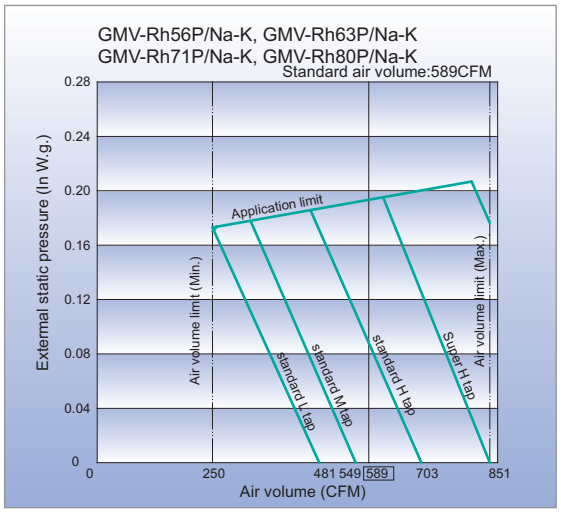


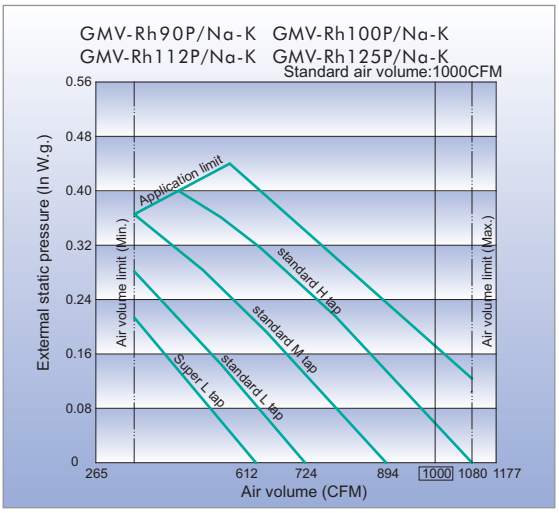




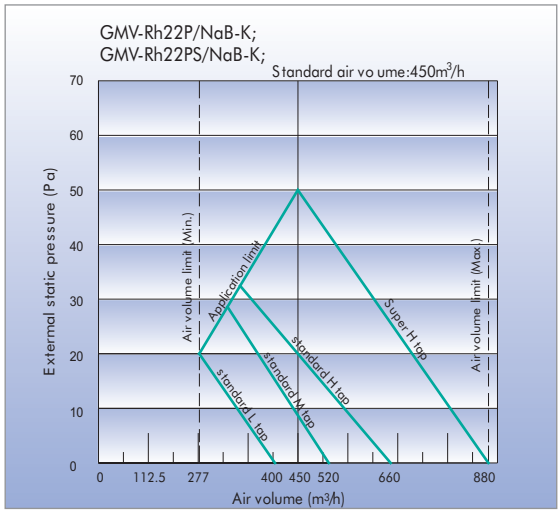


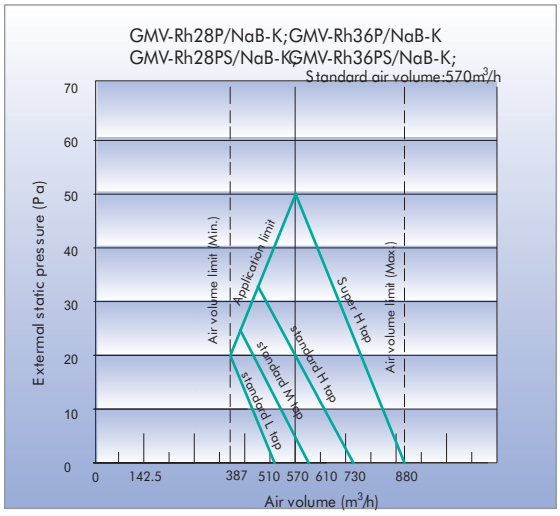




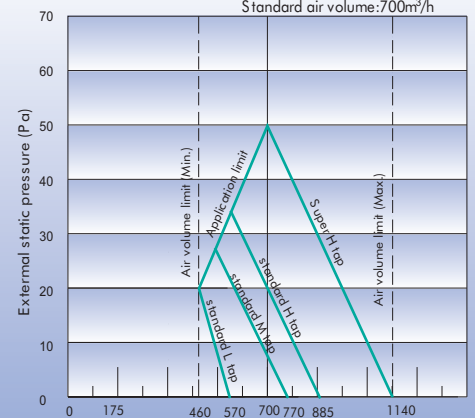


◆ Concealed Duct High ESP Type

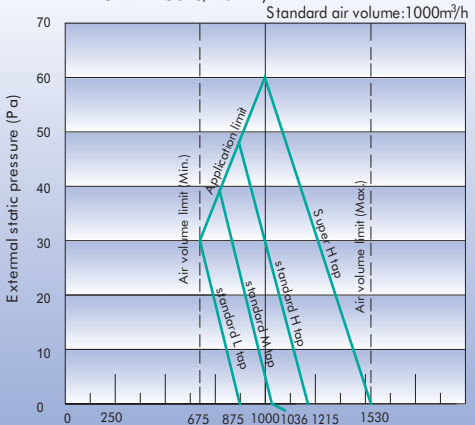




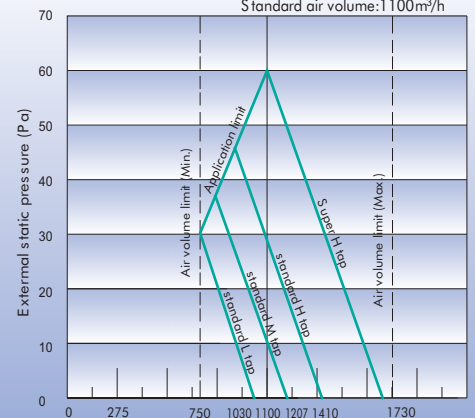
GMV-Rh45P/NaB-K;
GMV-Rh45PS/NaB-K;
Standard air volume:700m³/h



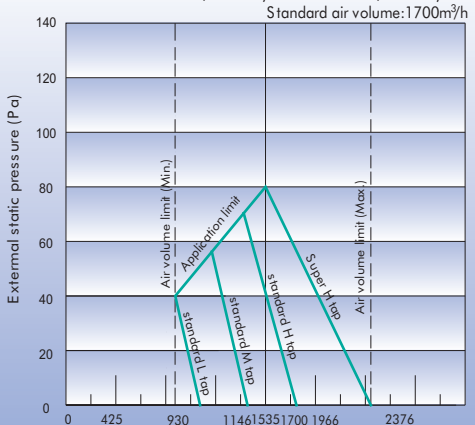
GMV-Rh56P/NaB-K;
GMV-Rh56PS/NaB-K;
Standard air volume:1000m³/h



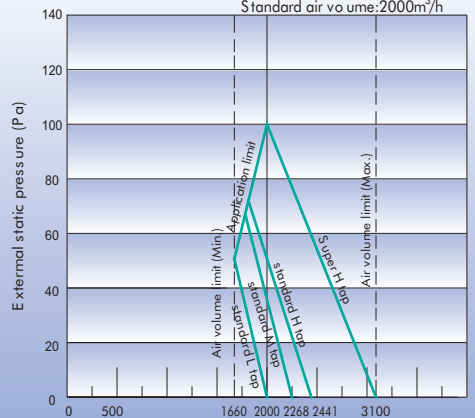
GMV-Rh71P/NaB-K;
GMV-Rh71PS/NaB-K;
Standard air volume:1100m³/h



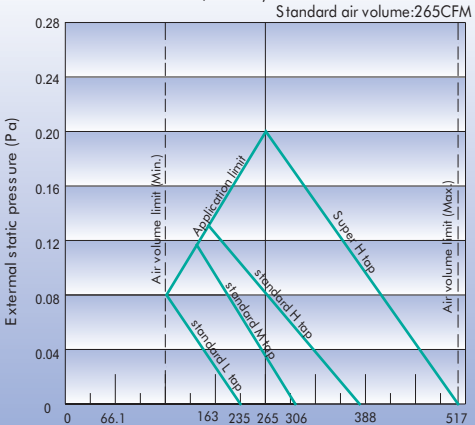
GMV-Rh90P/NaB-K;GMV-Rh112P/NaB-K
GMV-Rh90PS/NaB-K;GMV-Rh112PS/NaB-K;
Standard air volume:1700m³/h



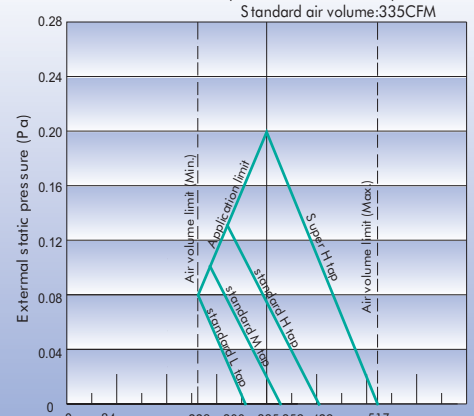
GMV-Rh140P/NaB-K;
GMV-Rh140PS/NaB-K;
Standard air vo ume:2000m³/h



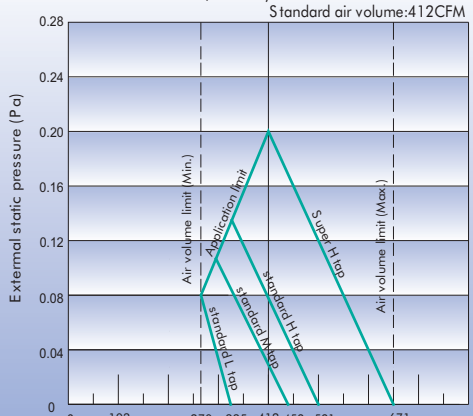
GMV-Rh22P/NaB-K;
GMV-Rh22PS/NaB-K;
Standard air volume:265CFM



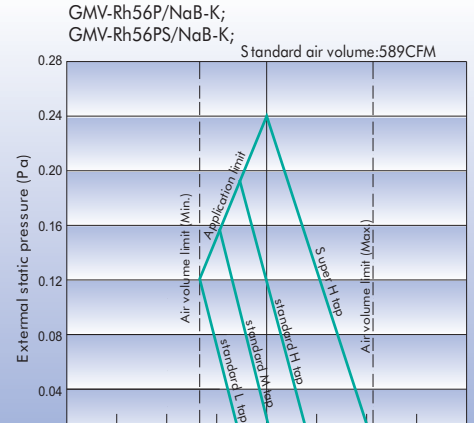
GMV-Rh28P/NaB-K; GMV-Rh36P/NaB-K;
GMV-Rh28PS/NaB-K;GMV-Rh36PS/NaB-K;
Standard air volume:335CFM



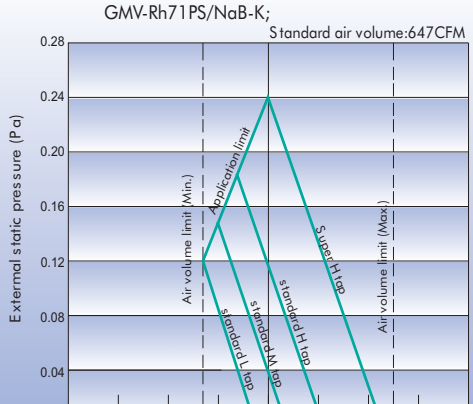
GMV-Rh45P/NaB-K;
GMV-Rh45PS/NaB-K;
Standard air volume:412CFM



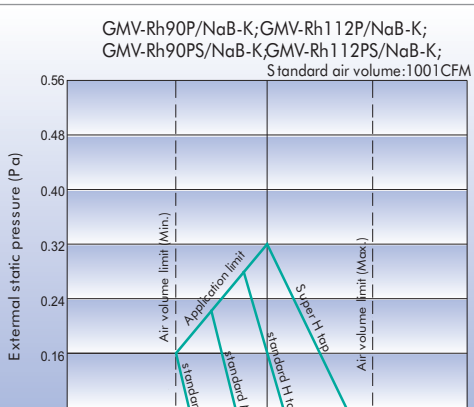
GMV-Rh56P/NaB-K;
GMV-Rh56PS/NaB-K;
Standard air volume:589CFM



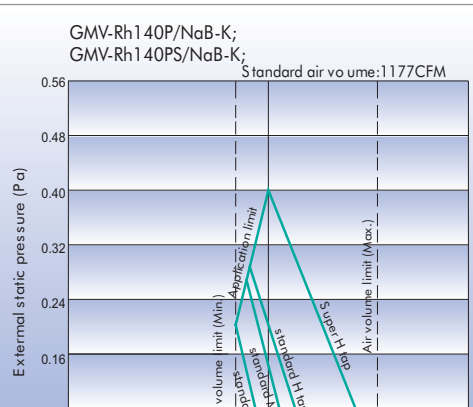
GMV-Rh71P/NaB-K;
GMV-Rh71PS/NaB-K;
Standard air volume:647CFM



GMV-Rh90P/NaB-K;GMV-Rh112P/NaB-K;
GMV-Rh90PS/NaB-K;GMV-Rh112PS/NaB-K;
Standard air volume:1001CFM



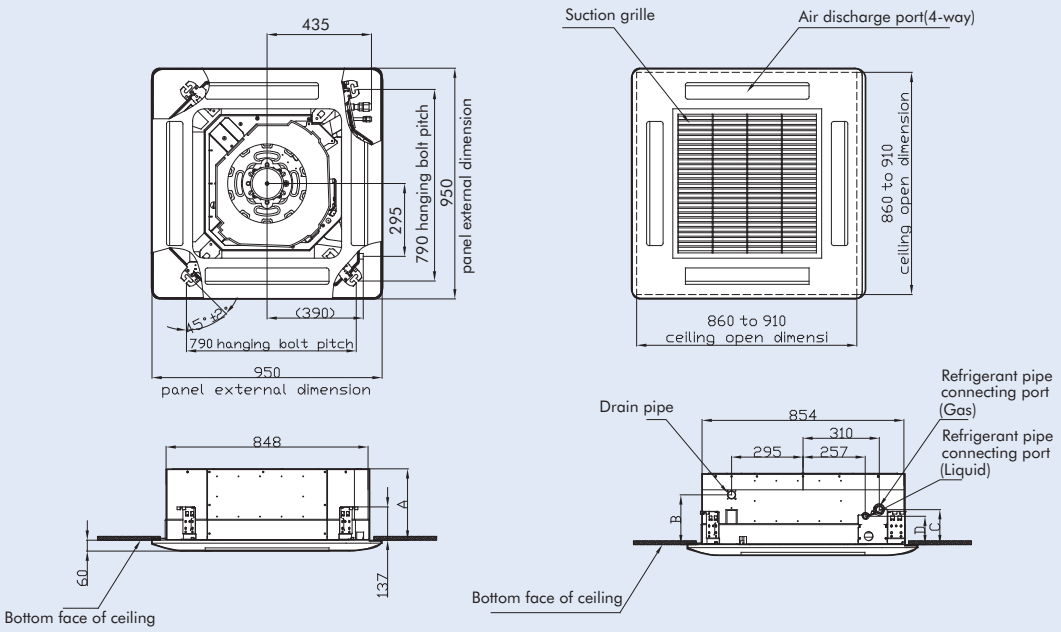
GMV-Rh140P/NaB-K;
GMV-Rh140PS/NaB-K;
Standard air vo ume:1177CFM



11 DIMENSIONAL DRAWINGS

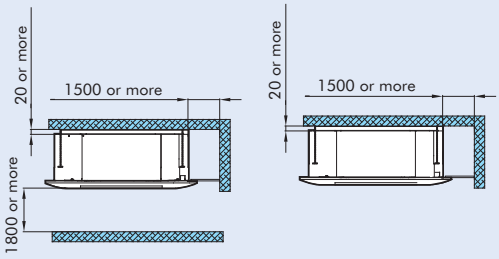
11.1 Indoor Unit

◆ 4 - way Air Discharge Cassette Type



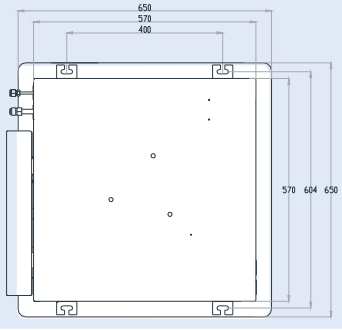
mm

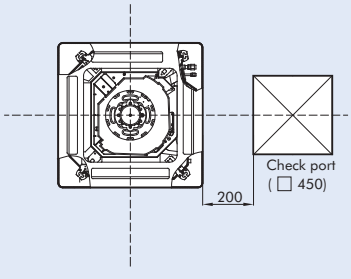
Model	A	B	C	D
GMV-Rh28T/Na-K~ GMV-Rh50T/Na-K	190	157	115.5	88.5
GMV-Rh56T/Na-K~ GMV-Rh80T/Na-K	240	204	142	115
GMV-Rh90T/Na-K~ GMV-Rh112T/Na-K	320	200	142	115



Space required for installation and servicing

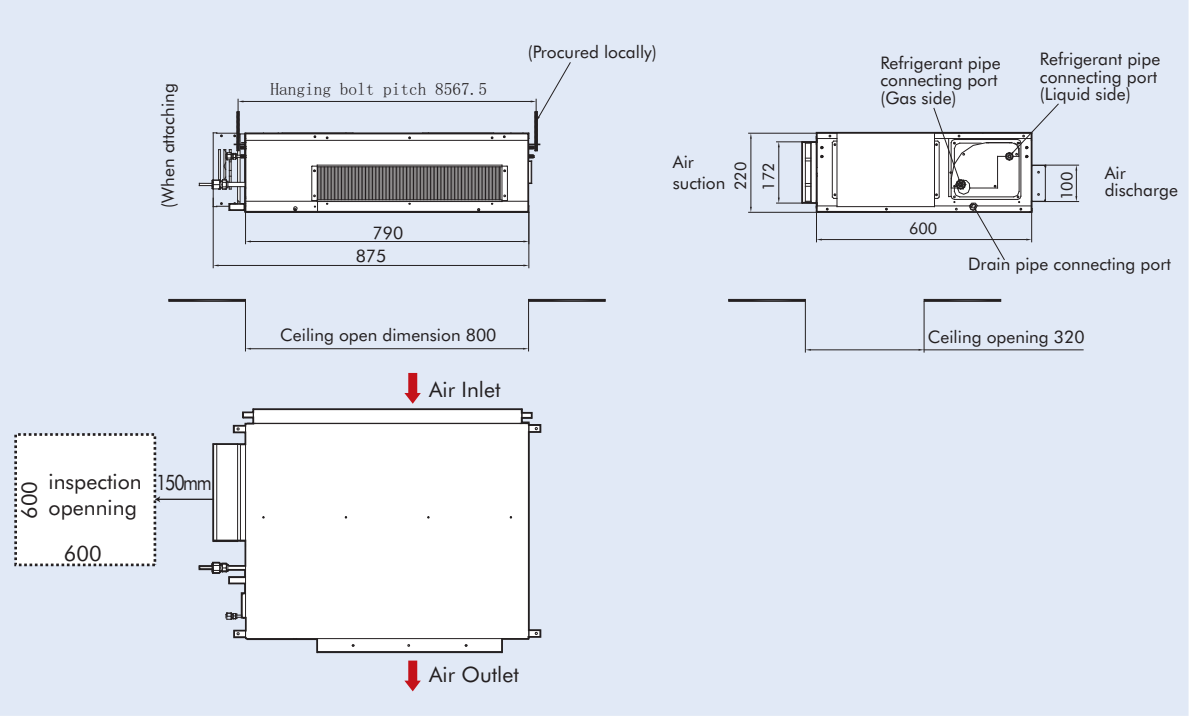
Dimensions for:
GMV-Rh22T/NaA-K;GMV-Rh28T/NaA-K;
GMV-Rh36T/NaA-K;GMV-Rh45T/NaA-K;



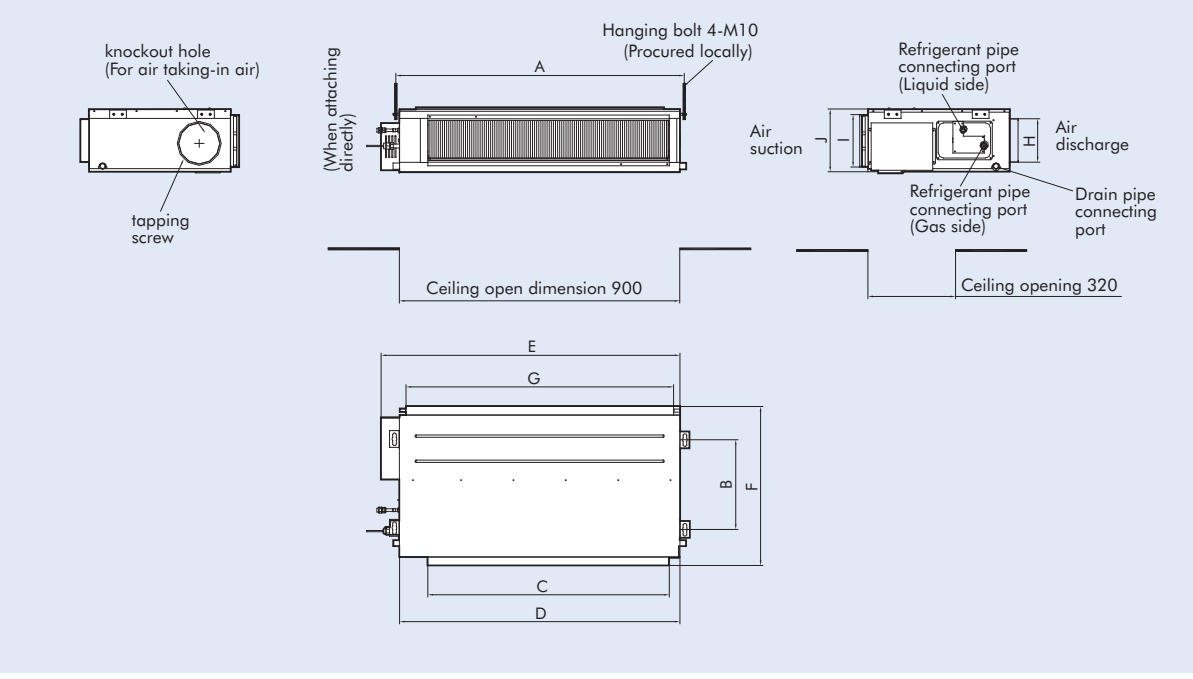


◆ Standard Duct Type

Dimensions for:
GMV-Rh22P/Na-K; GMV-Rh25P/Na-K; GMV-Rh28P/Na-K; GMV-Rh32P/Na-K;



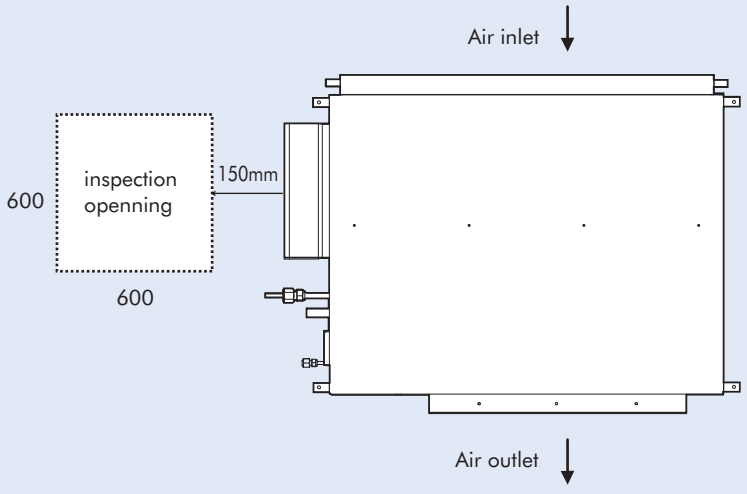
Dimensions for :
GMV-Rh40P/Na-K; GMV-Rh45P/Na-K; GMV-Rh50P/Na-K; GMV-Rh56P/Na-K; GMV-Rh63P/Na-K;
GMV-Rh71P/Na-K; GMV-Rh80P/Na-K; GMV-Rh90P/Na-K; GMV-Rh100P/Na-K; GMV-Rh112P/Na-K ;
GMV-Rh125P/Na-K;



Model	A	B	C	D	E	F	G	H	I	J
GMV-Rh40P/Na-K GMV-Rh45P/Na-K GMV-Rh50P/Na-K	932	430	738	894	980	736	738	125	203	266
GMV-Rh56P/Na-K GMV-Rh63P/Na-K GMV-Rh71P/Na-K GMV-Rh80P/Na-K	1114	420	918	1074	1159	736	918	207	207	260
GMV-Rh90P/Na-K GMV-Rh100P/Na-K GMV-Rh112P/Na-K GMV-Rh125P/Na-K	1350	430	1155	1310	1385	736	1155	207	207	260

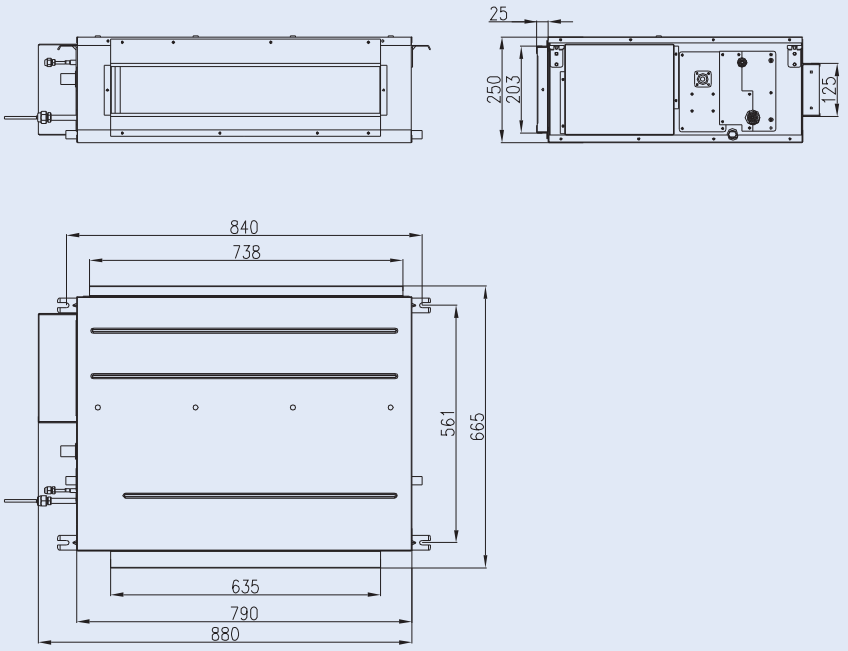
Note:

Be sure to place a inspection openning at the position indicated in the following figure for maintenance of the equipment.

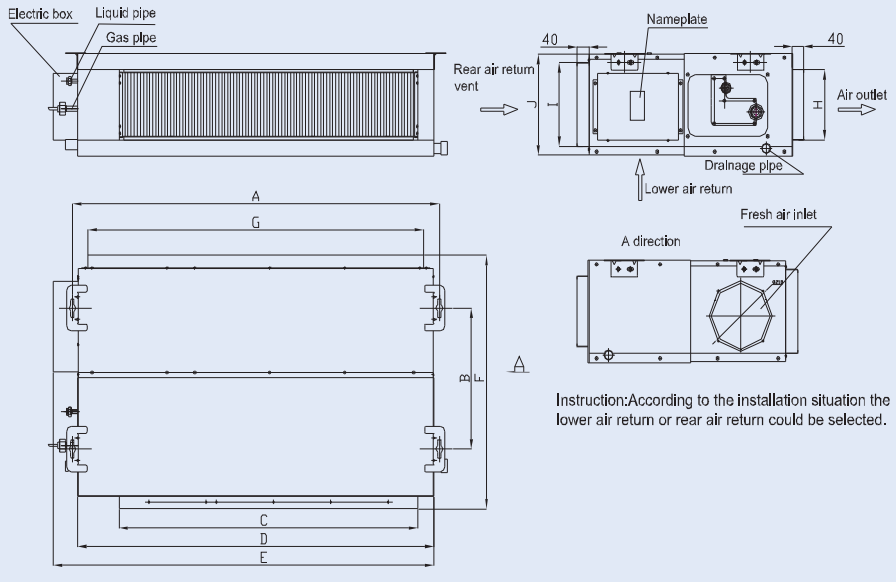


◆ Duct Type

Dimensions for:
GMV-Rh22P/NaB-K;GMV-Rh28P/NaB-K;GMV-Rh36P/NaB-K;
GMV-Rh22PS/NaB-K;GMV-Rh28PS/NaB-K;GMV-Rh36PS/NaB-K;



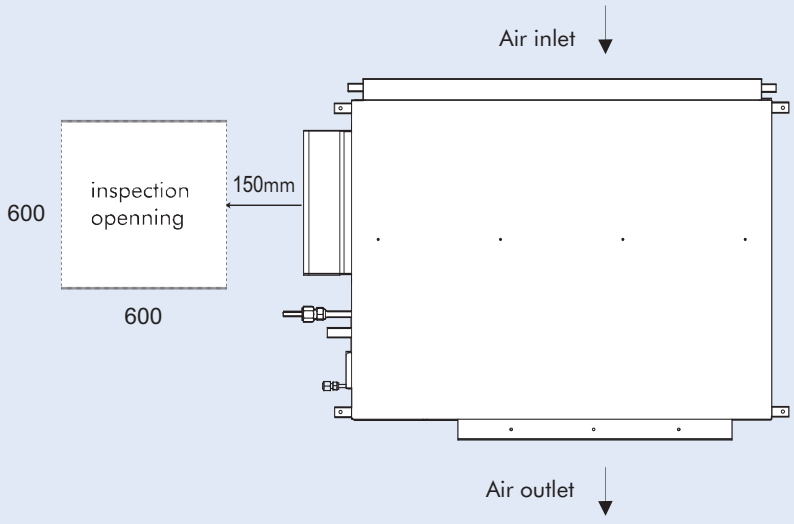
Dimensions for :
GMV-Rh45P/NaB-K;GMV-Rh56P/NaB-K;GMV-Rh71P/NaB-K;
GMV-Rh90P/NaB-K;GMV-Rh112P/NaB-K;GMV-Rh140P/NaB-K;
GMV-Rh45PS/NaB-K;GMV-Rh56PS/NaB-K;GMV-Rh71PS/NaB-K;
GMV-Rh90PS/NaB-K;GMV-Rh112PS/NaB-K;GMV-Rh140PS/NaB-K;
GMV-Rh224P/NaB-M;GMV-Rh280P/NaB-M;



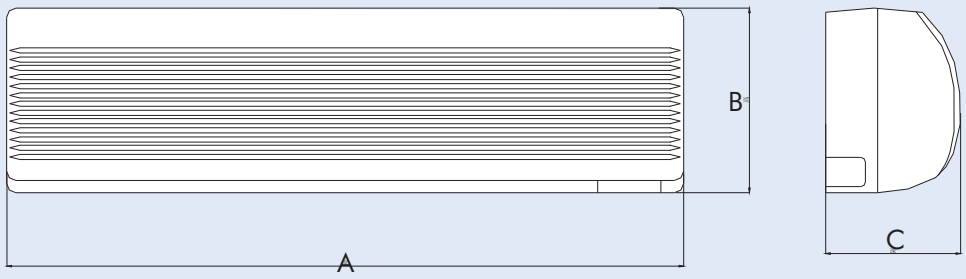
Model	A	B	C	D	E	F	G	H	I	J
GMV-Rh45P/NaB-K GMV-Rh45PS/NaB-K	932	430	738	892	980	721	738	125	203	266
GMV-Rh56P/NaB-K GMV-Rh56PS/NaB-K GMV-Rh71P/NaB-K GMV-Rh71PS/NaB-K	1114	420	918	1074	1159	736	1010	207	207	300
GMV-Rh90P/NaB-K GMV-Rh90PS/NaB-K GMV-Rh112P/NaB-K GMV-Rh112PS/NaB-K GMV-Rh140P/NaB-K GMV-Rh140PS/NaB-K	1382	420	1155	1340	1425	736	1280	207	250	300
GMV-Rh224P/NaB-M	1353	632	992	1314	1422	799	1088	192	343	389
GMV-Rh280P/NaB-M	1558	706	992	1518	1628	869	1308	192	396	454

Note:

Be sure to place a inspection openning at the position indicated in the following figure for maintenance of the equipment.

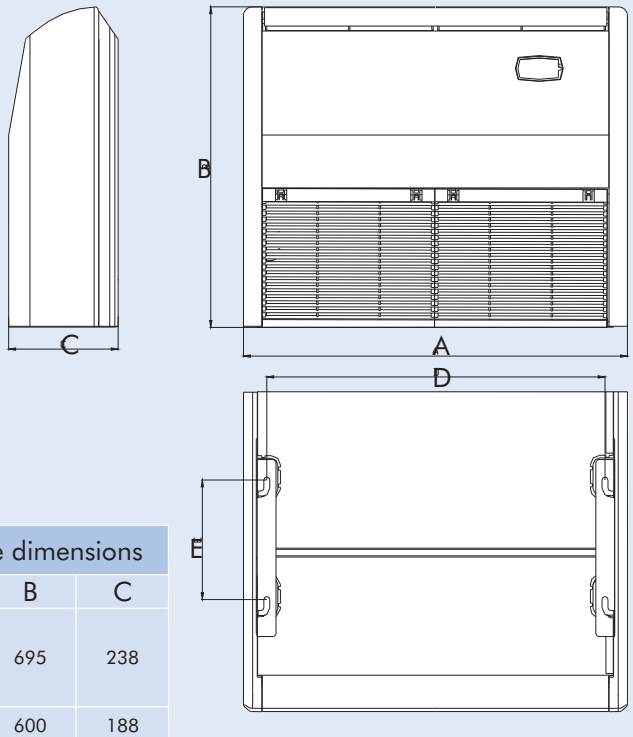


◆ Wall Mounted Type



Model	Dimensions			Model	Dimensions		
	A	B	C		A	B	C
GMV-Rh22G/Na-K GMV-Rh28G/Na-K	770	190	250	GMV-Rh50G/Na-K GMV-Rh56G/Na-K	1020	228	310
GMV-Rh36G/Na-K GMV-Rh45G/Na-K	830	189	285	GMV-Rh71G/Na-K GMV-Rh80G/Na-K	1178	227	326

◆ Floor and Ceiling Type

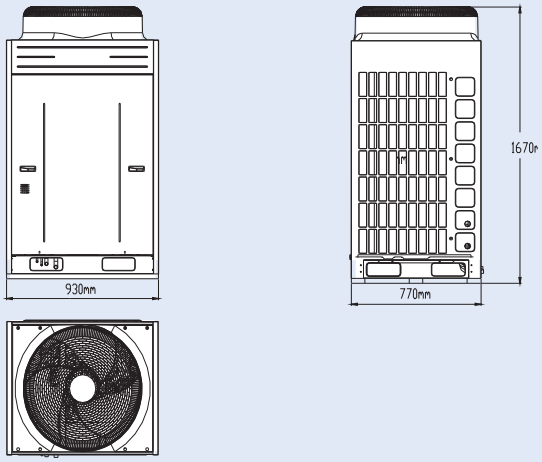


Model	Installation dimensions		Outline dimensions		
	E	D	A	B	C
GMV-Rh28Zd/Na-K GMV-Rh36Zd/Na-K GMV-Rh50Zd/Na-K	260	745	840	695	238
GMV-Rh71Zd/Na-K	260	1220	1300	600	188
GMV-Rh90Zd/Na-K	260	1500	1590	695	238
GMV-Rh112Zd/Na-K	260	1500	1590	695	238
GMV-Rh125Zd/Na-K	260	1500	1590	695	238

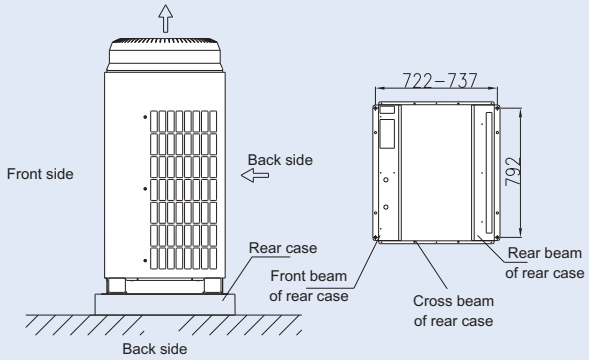
11.2 Outline Dimension Data and Installation Dimension Data

11. 2. 1 GMV-Pdhm224W/Na-M,GMV-Pdhm280W/Na-M

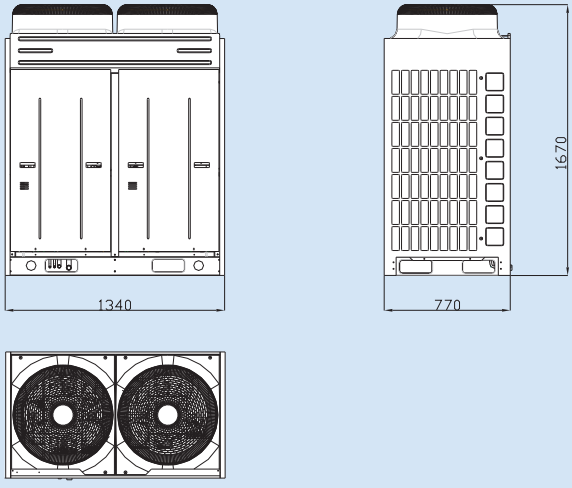
1. Outline dimensions:



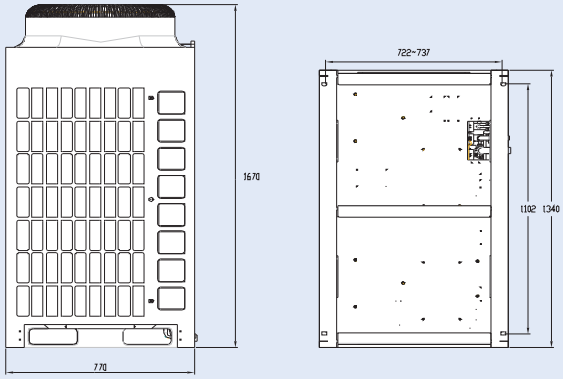
Mounting dimensions:



2)GMV-Pdhm335W/Na-M,GMV-Pdhm400W/Na-M,GMV-Pdhm450W/Na-M Outline dimensions:



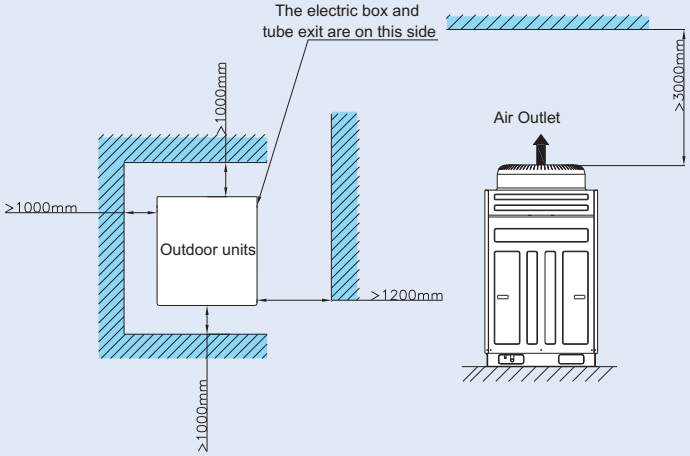
Mounting dimensions:



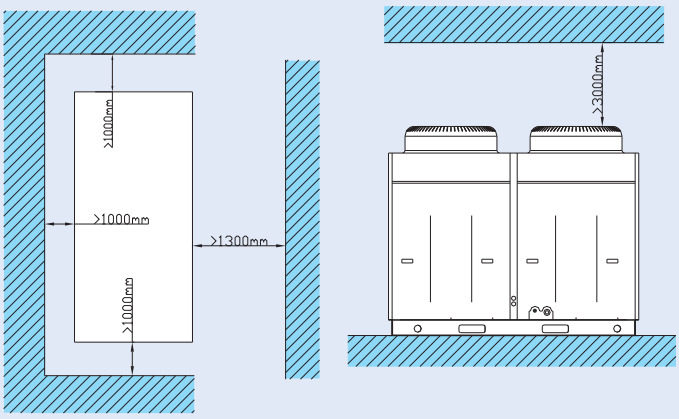
11.2.2 Clearance Data

1) Clearance data of single unit

GMV-Pdhm224W/Na-M, GMV-Pdhm280W/Na-M



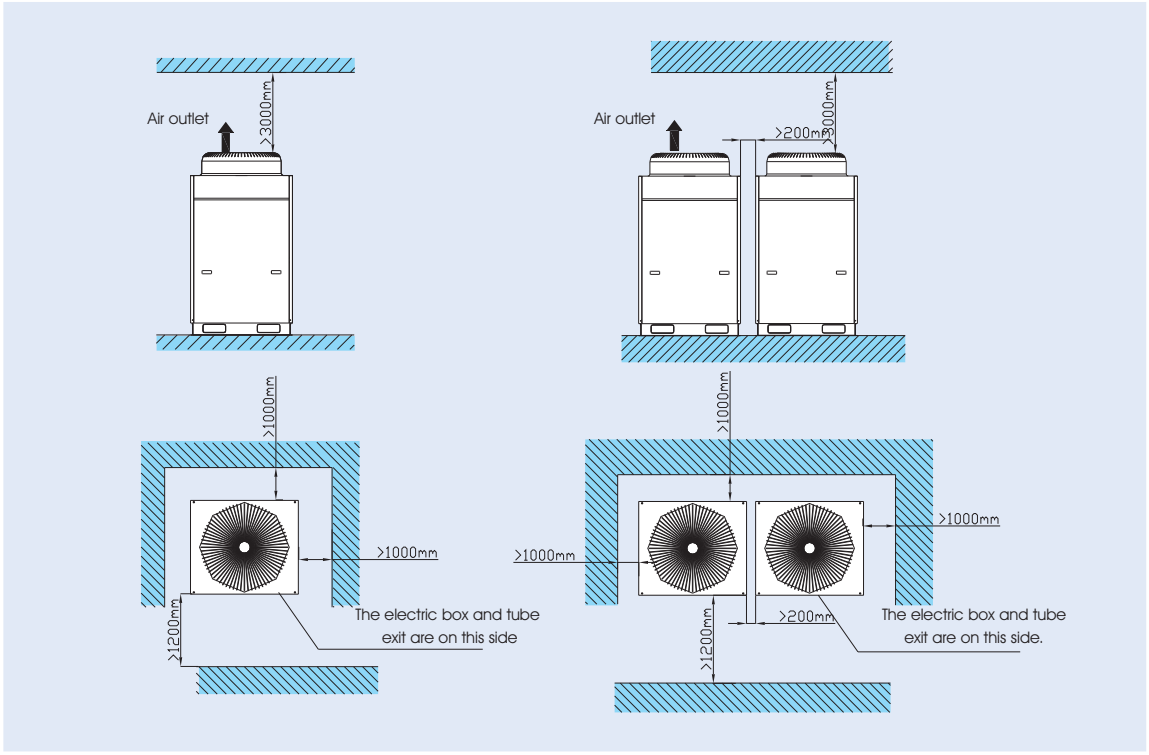
GMV-Pdhm335W/Na-M,GMV-Pdhm400W/Na-M,GMV-Pdhm450W/Na-M



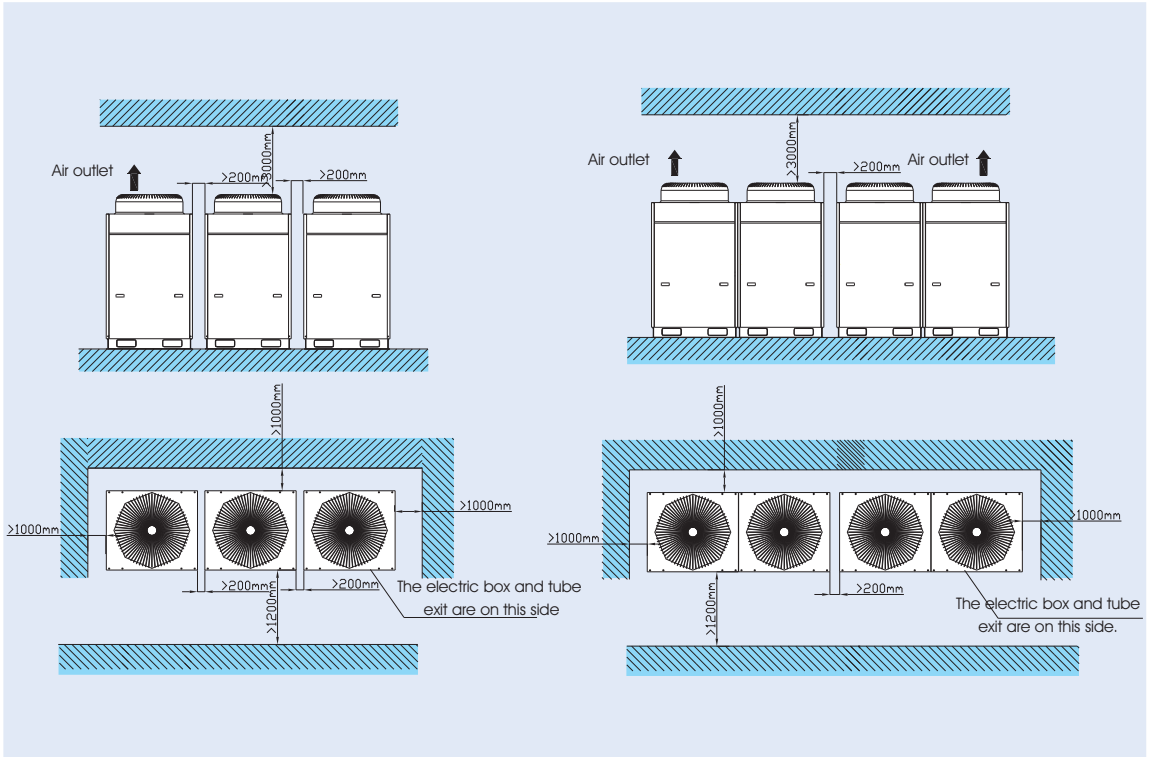
11.2.2 Clearance Data

2) Clearance data of multiple unit

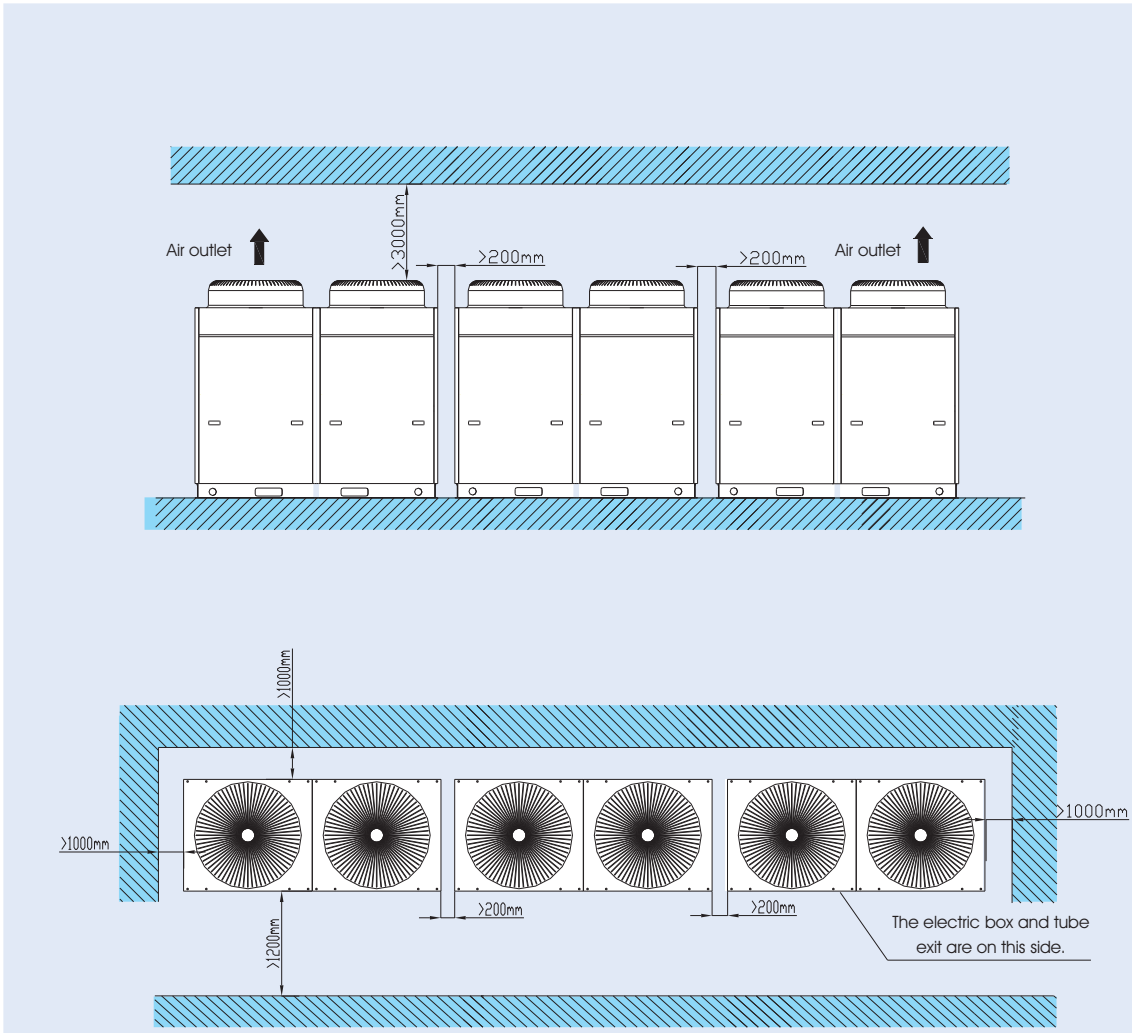
Requirements for mounting space dimensions of single-fan and single-fan double-module outdoor units



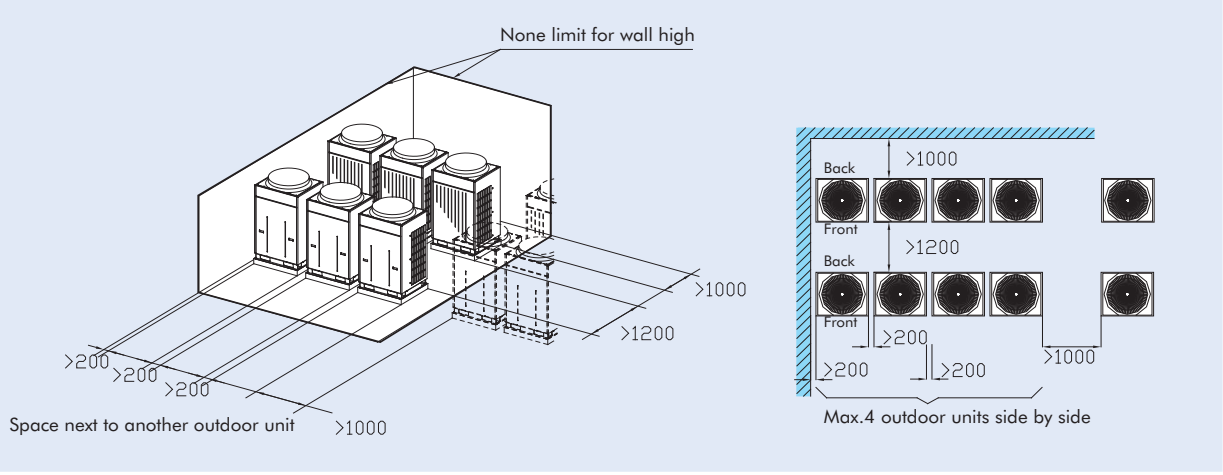
Requirements for mounting space dimensions of single-fan three-module and double-fan double-module outdoor units



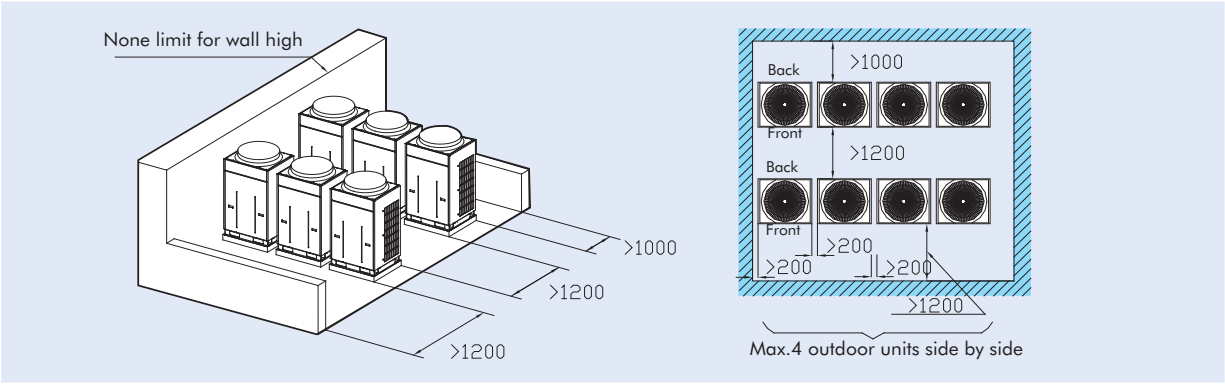
Requirements for mounting space dimensions of double-fan three-module outdoor unit



Installationspace dimension for several units back to back:

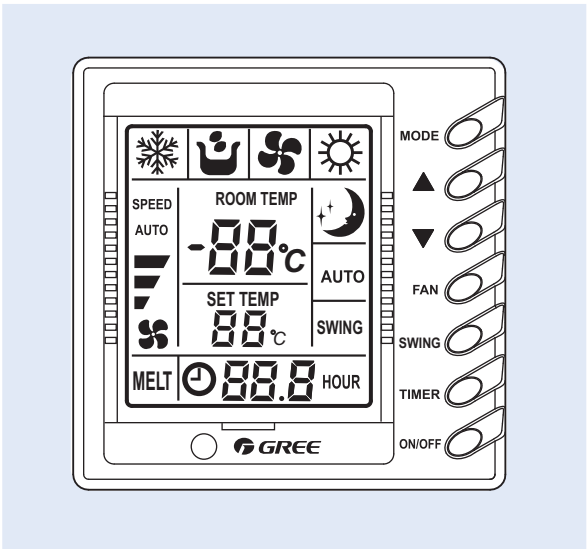


Under the circumstance that the units are surrounded by walls,the installation facing to the same direction is suggested.



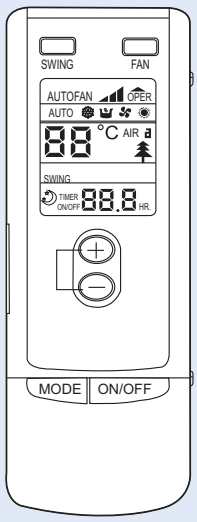
11.3 Controller

◆**Wired Controller**



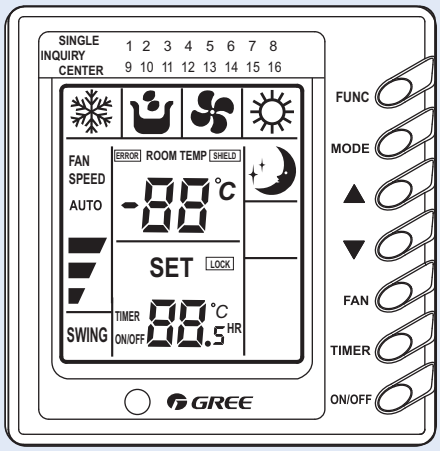
Outline size: 85mm×85mm×21mm

◆**Wireless**



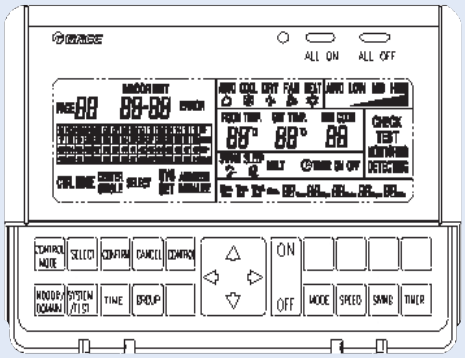
Outline size: 160 mm×57 mm×22mm

◆**Region Controller(Optional)**



Outline size: 85mm×85mm×21mm

◆**Central Remote Controller(Optional)**

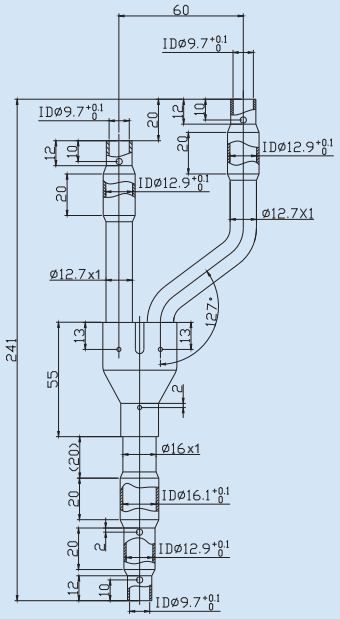


Outline size: 185mm×135mm×70mm

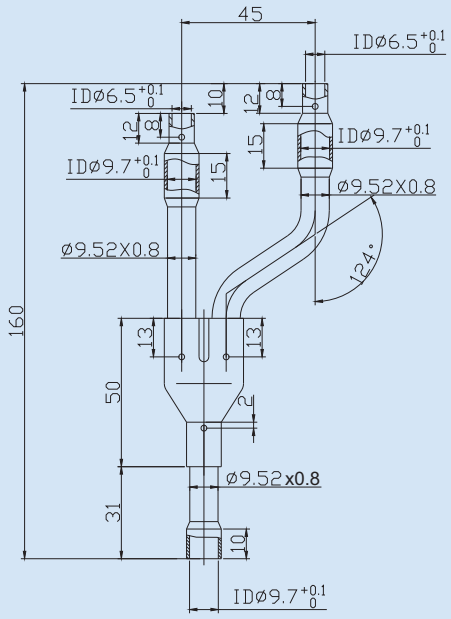
11.4 Branching Joint

FQ01Na/A

Low-pressure gas pipe and High-pressure gas pipe

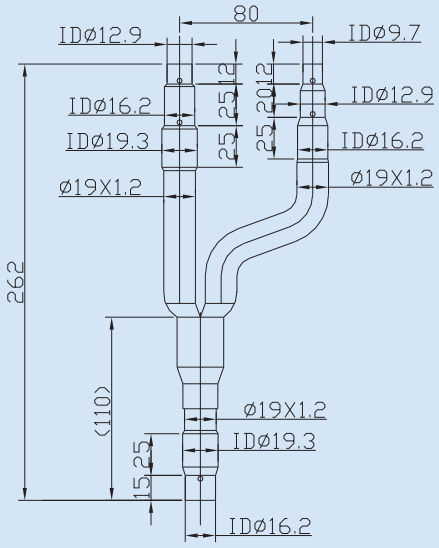


Liquid pipe

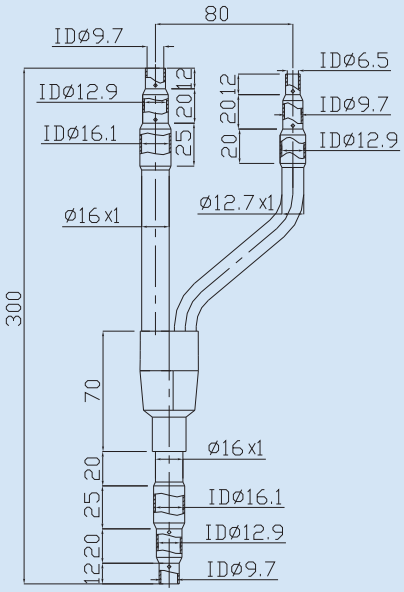


FQ02Na/A

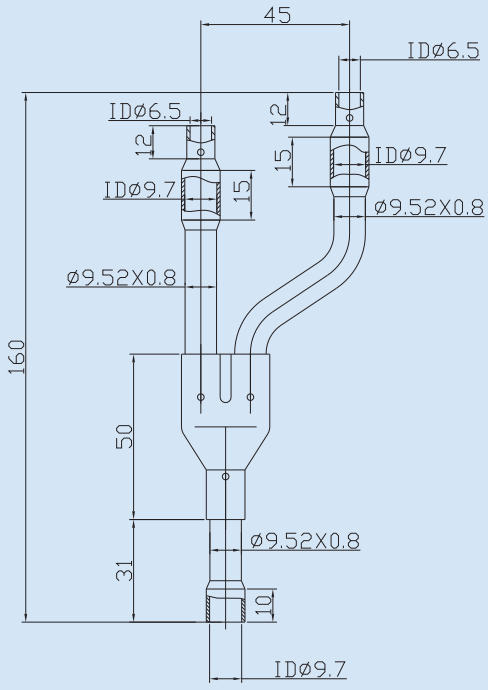
Low-pressure gas pipe



High-pressure gas pipe

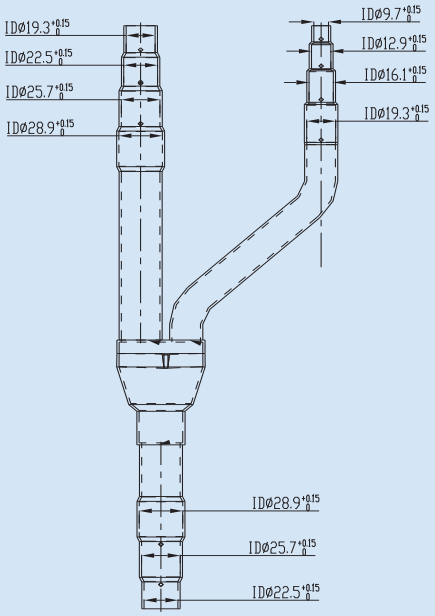


Liquid pipe

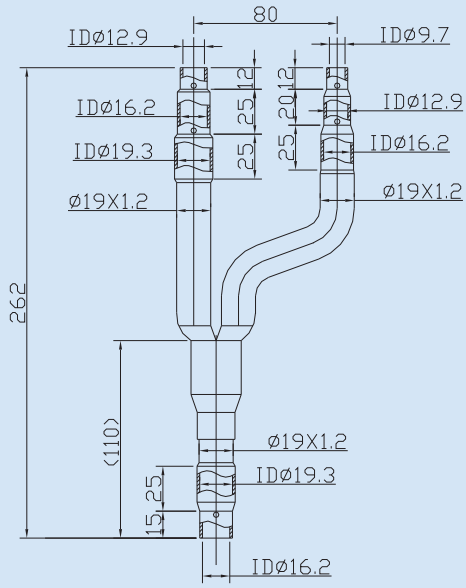


FQ03Na/A

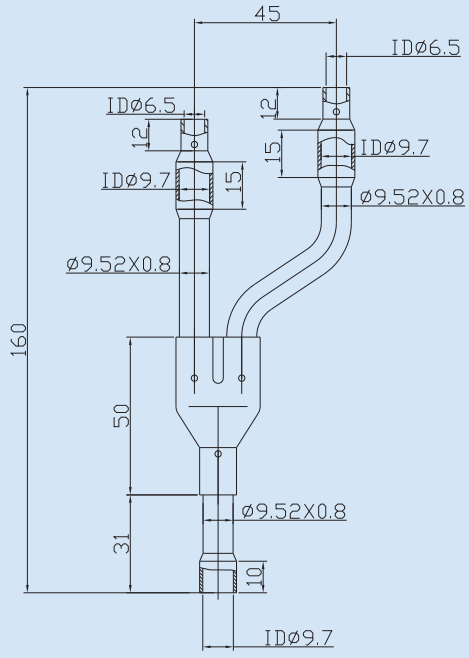
Low-pressure gas pipe



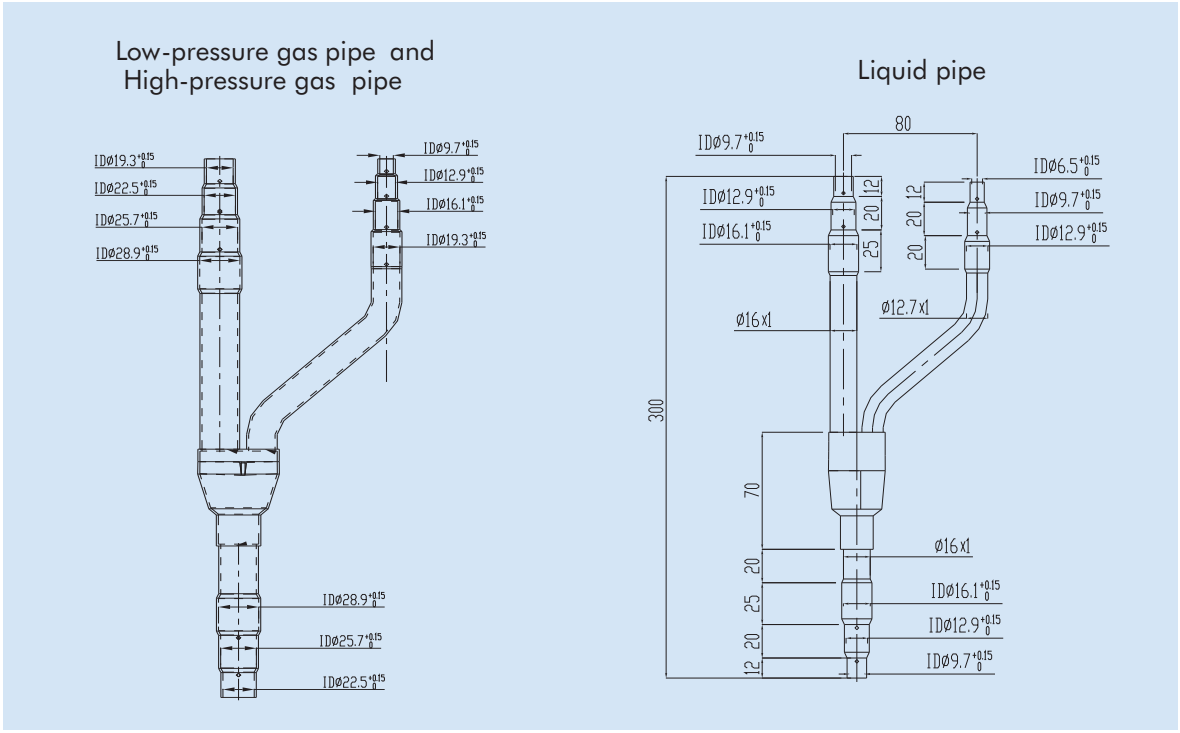
High-pressure gas pipe



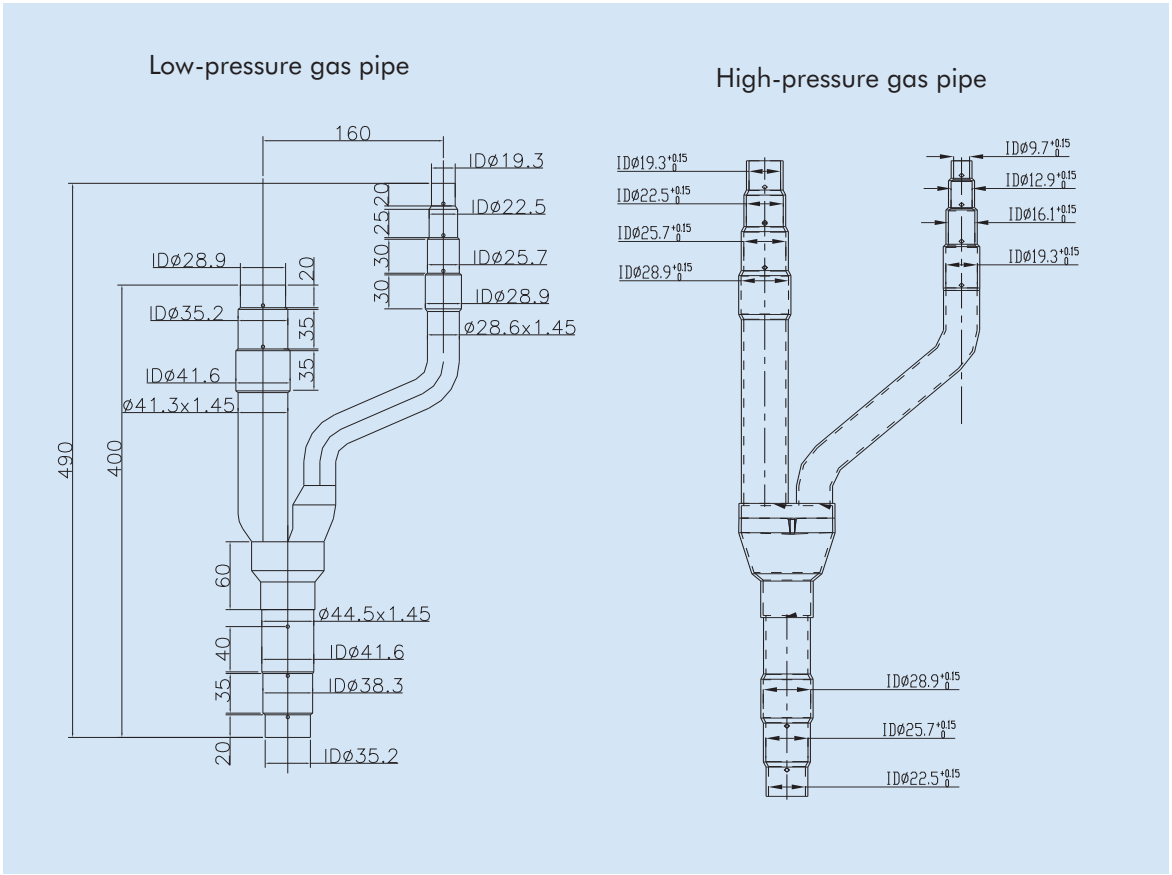
Liquid pipe



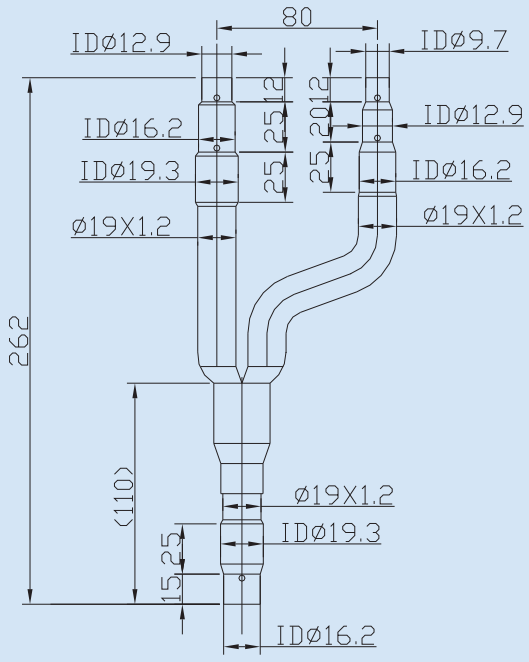
FQ04Na/A



FQ05Na/A

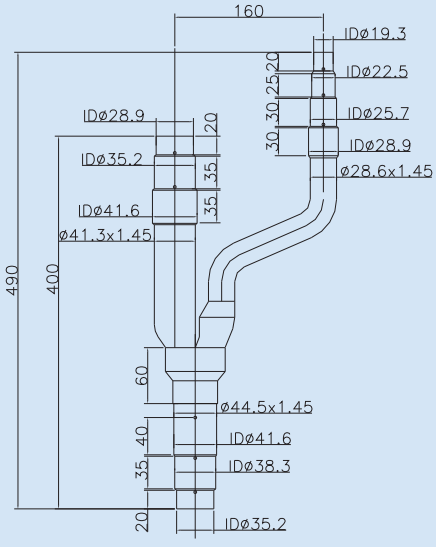


Liquid pipe

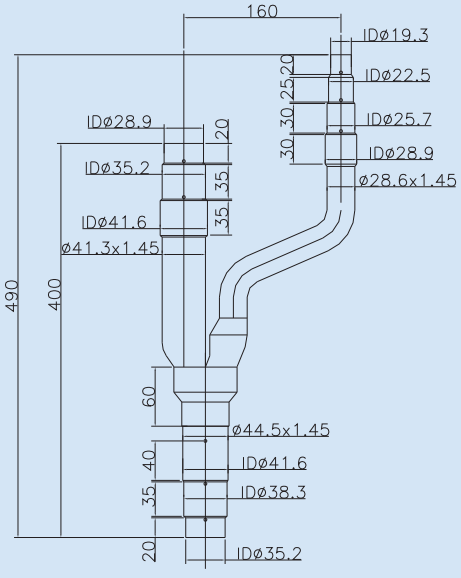


FQ06Na/A

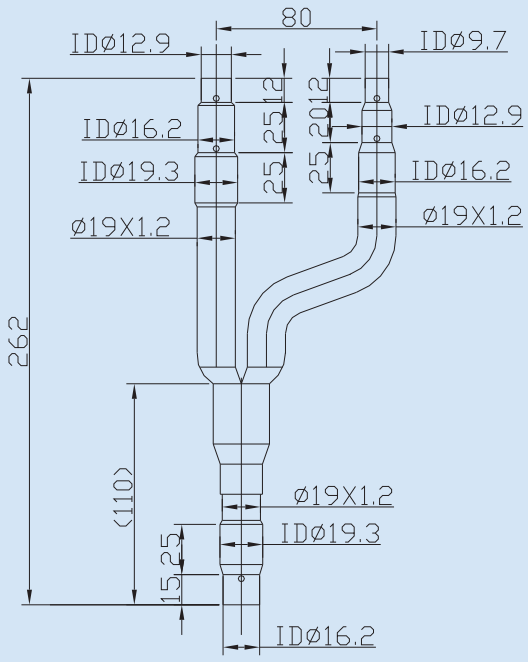
Low-pressure gas pipe



High-pressure gas pipe

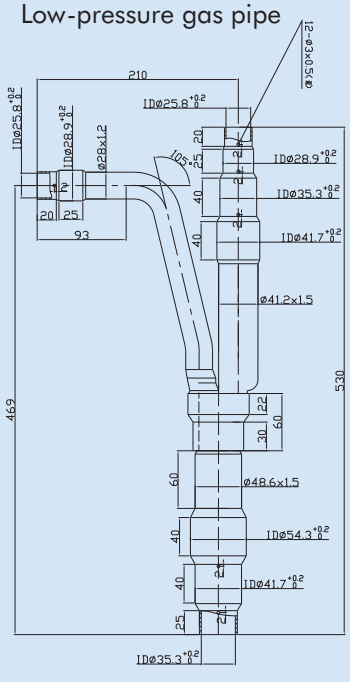


Liquid pipe

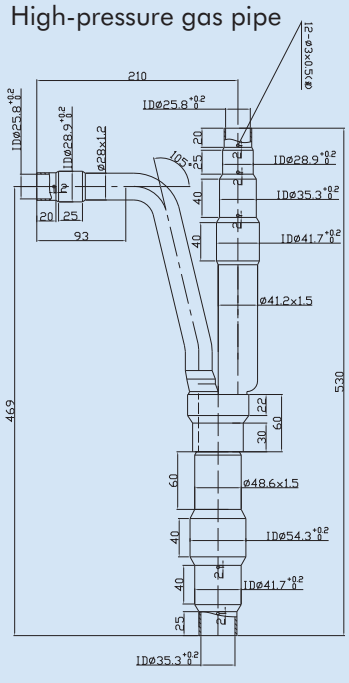


FQ07Na/A

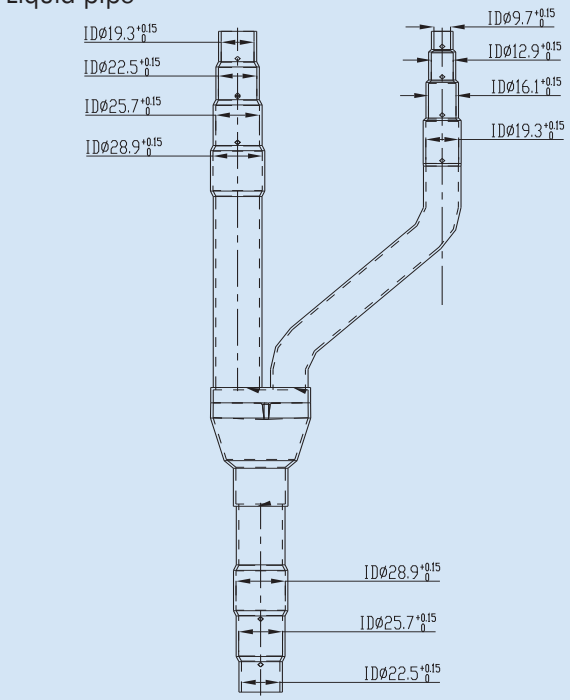
Low-pressure gas pipe



High-pressure gas pipe

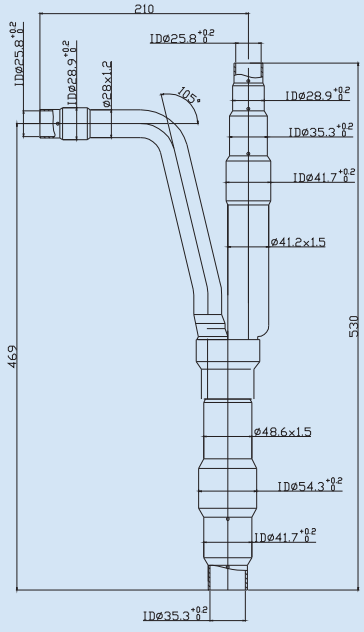


Liquid pipe

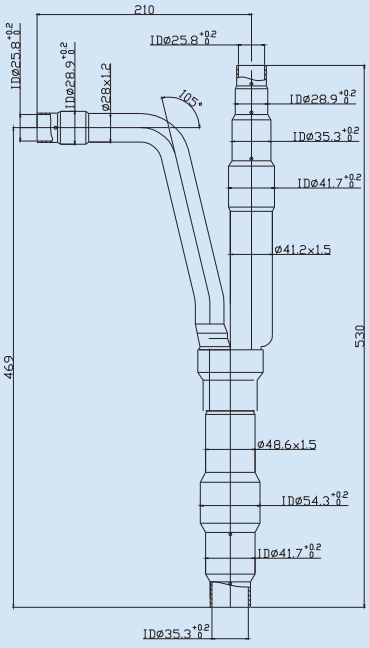


ML01R

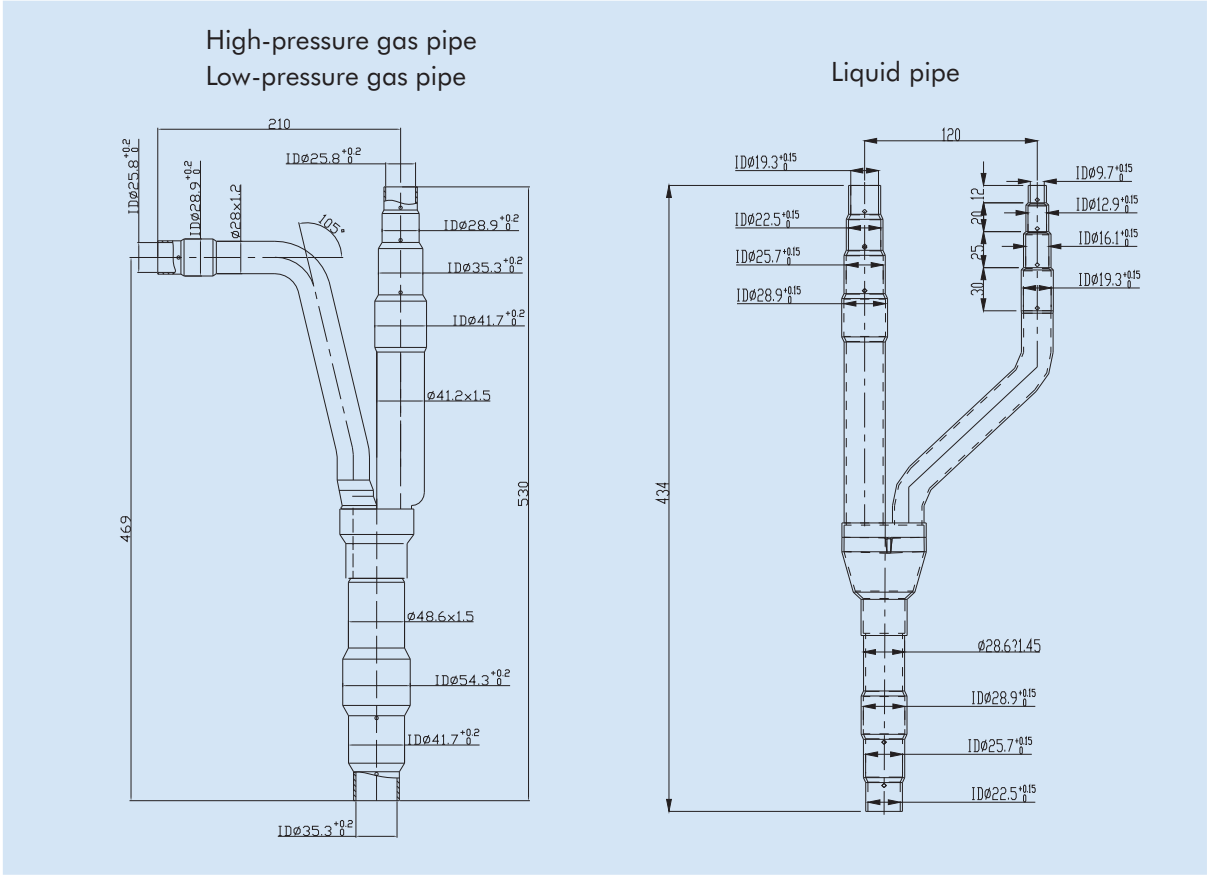
High-pressure gas pipe
Low-pressure gas pipe



Liquid pipe



ML02R


High-pressure gas pipe
Low-pressure gas pipe
Liquid pipe
210
ID⌀25.8 +0.2 0
ID⌀25.8 +0.2 0
ID⌀28.9 +0.2 0
⌀28x1.2
105°
ID⌀28.9 +0.2 0
ID⌀35.3 +0.2 0
ID⌀41.7 +0.2 0
⌀41.2x1.5
469
530
⌀48.6x1.5
ID⌀54.3 +0.2 0
ID⌀41.7 +0.2 0
ID⌀35.3 +0.2 0
120
ID⌀19.3 +0.15 0
ID⌀22.5 +0.15 0
ID⌀25.7 +0.15 0
ID⌀28.9 +0.15 0
434
12
20
25
30
ID⌀9.7 +0.15 0
ID⌀12.9 +0.15 0
ID⌀16.1 +0.15 0
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⌀28.6?1.45
ID⌀28.9 +0.15 0
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