

GMV5 COMPACT MULTI VRF UNIT

CAPACITY RANGE: 22.4~28.0KW

OPERATING RANGE:

COOLING: 10~52°C

HEATING: -20~27°C



R410A



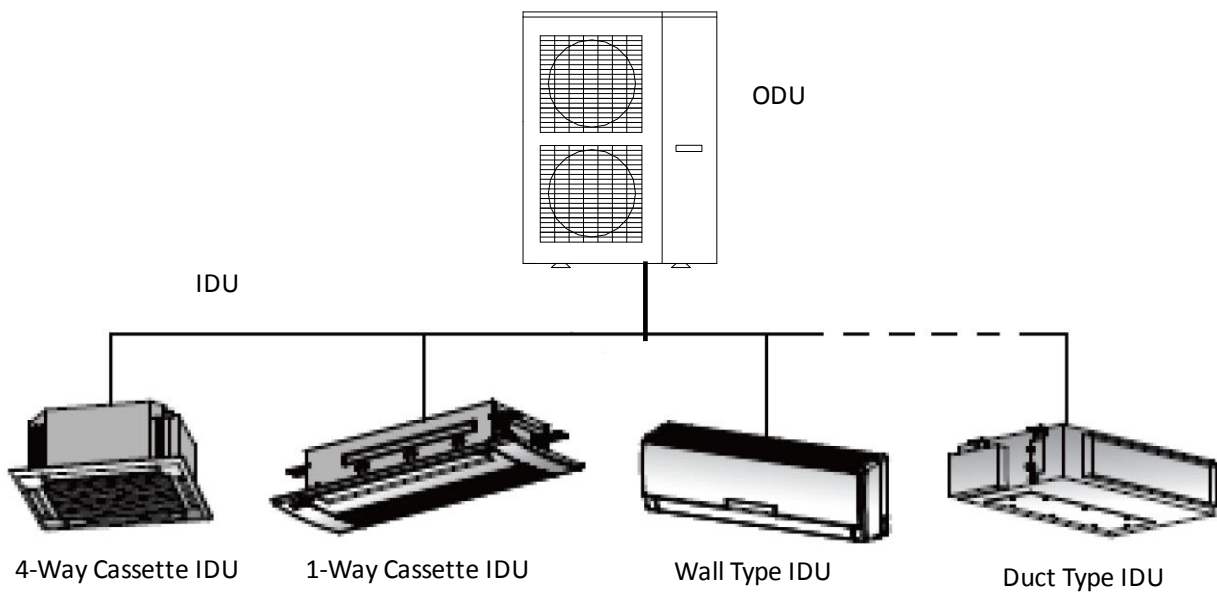
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1 OUTLINE OF MULTI VRF

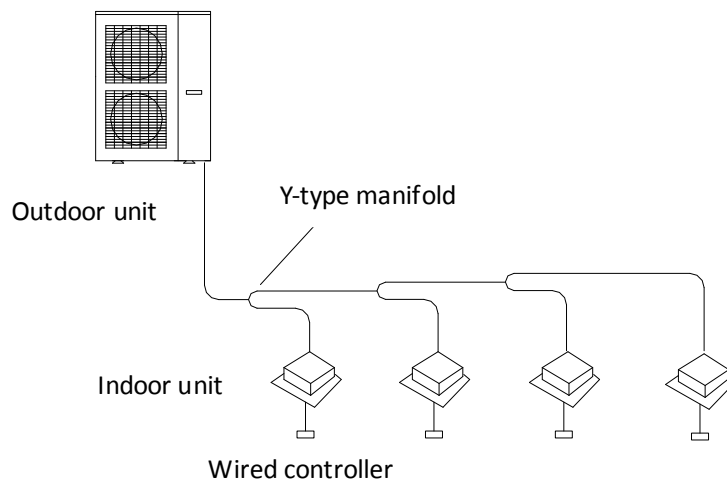
➤ Abundant Indoor Units

One outdoor unit (ODU) of GMV5 Compact multi VRF matches different kinds and different capacity of indoor units (IDU), including of 4-way cassette IDU, 1-way cassette IDU, wall type IDU, duct type IDU.



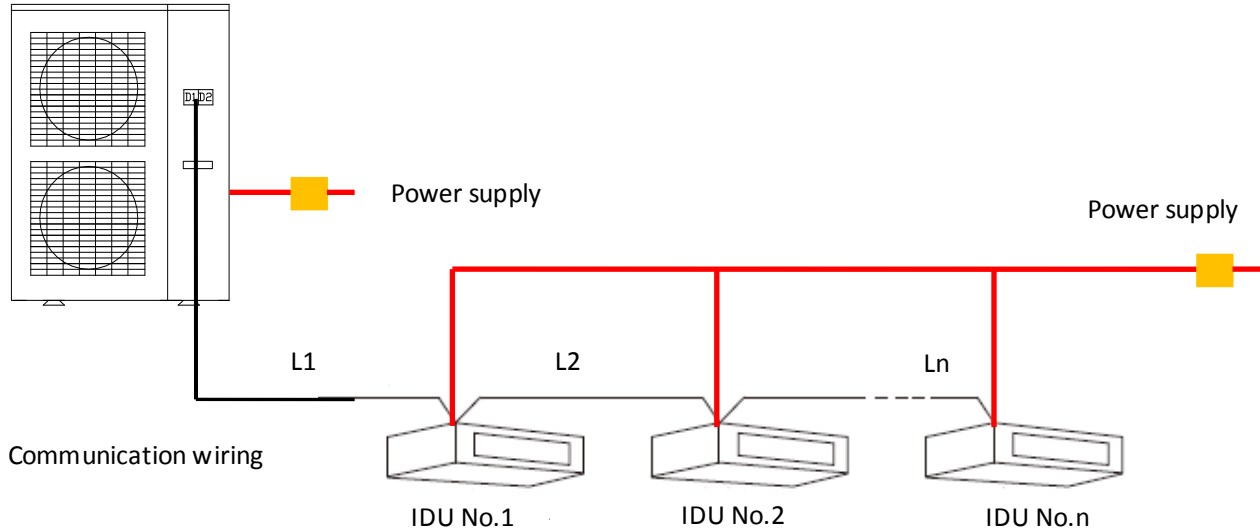
➤ Shortest Route Design by Free Branching

Combination of line and branching is highly flexible, which follows the shortest design route principle and saves cost and installation time.



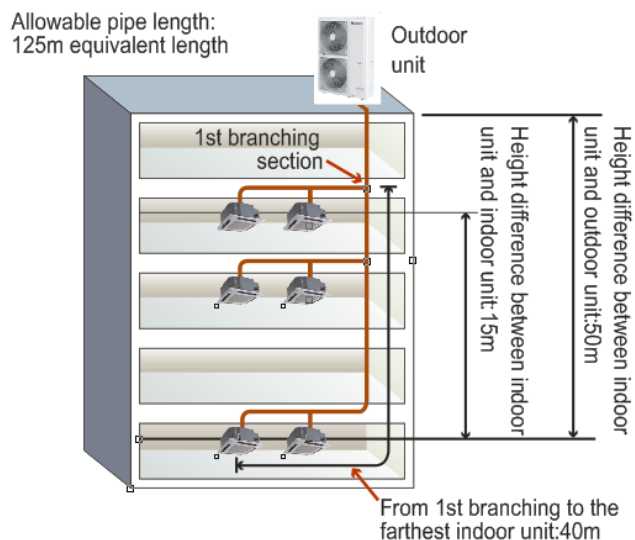
➤ Simple Wiring

2-wire multiplex communication 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

Equivalent pipe length of 125m and vertical lift of 50 or 40m are made possible with GMV5 Compact multi VRF. When outdoor unit is above indoor units, vertical lift is 50m; When outdoor unit is under indoor units, vertical lift is 40m. Vertical lift between indoor units of 15m is the highest value in the industry, which makes the location of the system more flexibility.



➤ Energy Saving

Because each room is controlled individually, only those rooms requiring air conditioners are cooled

or heated. In addition, thanks to inverter technology, the level of air conditioner can be precisely controlled depending on the condition of each room. And the highest EER value is 3.38w/w, and the largest COP value is 3.82w/w. Compared with conventional system, a large energy saving is realized.

➤ Self Diagnostics System

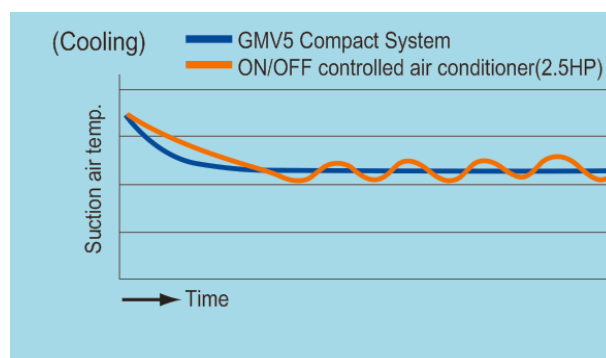
Comprehensive troubleshooting code allows for timely identification of problems arising.

Self diagnostics examples:

Error code	Malfunction
E1	High pressure protection
E3	Low pressure protection
E4	Discharge protection
F1	Malfunction of high pressure sensor
F3	Malfunction of low pressure sensor
L1	Indoor fan protection
L3	Water overflow protection

➤ Intelligent Control

GMV5 Compact multi VRF include of two compressors with two rotors and new DC inverter technology---G-MATRIK, and the required capacity can be realized from 10% to 100%. 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 get a nearly constant room temperature with GMV5 Compact multi VRF without typical temperature changes that occurs in a conventional ON/OFF control system. The extremely refined PI control remains room temperature within $\pm 0.5^{\circ}\text{C}$ of the set temperature.





➤ Oil Return Technology


New oil return technology enables compressor won't be damaged by lack of oil and excess oil.

2 SUMMARY OF SYSTEM EQUIPMENTS

2.1 Outdoor Unit

	GMV5 Compact outdoor unit	Appearance
Model	GMV-224WL/A-X	
Cooling Capacity(KW)	22.4	
Heating Capacity(KW)	25	

	GMV5 Compact outdoor unit	Appearance
Model	GMV-250WL/A-X	
Cooling Capacity(KW)	25	
Heating Capacity(KW)	28	

	GMV5 Compact outdoor unit	Appearance
Model	GMV-280WL/A-X	
Cooling Capacity(KW)	28	
Heating Capacity(KW)	30	

Conversion Formula: 1kW=3412Btu/h

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



Caution:

It is not recommended to adopt the combination mode not specified by this manual.


2.2 Branching Joints

R410A	Total capacity of downstream indoor units X (KW)	Model	Appearance
Y-type branching joint (2 branches)	$X \leq 20$	FQ01A	
	$20 < X \leq 30$	FQ01B	
	$30 < X \leq 70$	FQ02	
	$70 < X \leq 135$	FQ03	
	$135 < X$	FQ04	


2.3 Indoor Unit


Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
Low Static Pressure Duct Type		GMV-ND22PLS/A-T	2200	2500
		GMV-ND25PLS/A-T	2500	2800
		GMV-ND28PLS/A-T	2800	3200
		GMV-ND32PLS/A-T	3200	3600
		GMV-ND36PLS/A-T	3600	4000
		GMV-ND40PLS/A-T	4000	4500
		GMV-ND45PLS/A-T	4500	5000
		GMV-ND50PLS/A-T	5000	5600
		GMV-ND56PLS/A-T	5600	6300
		GMV-ND63PLS/A-T	6300	7100
		GMV-ND71PLS/A-T	7100	8000
		GMV-ND80PLS/A-T	8000	9000
		GMV-ND90PLS/A-T	9000	10000
		GMV-ND100PLS/A-T	10000	11200
		GMV-ND112PLS/A-T	11200	12500
GMV-ND125PLS/A-T	12500	14000		
GMV-ND140PLS/A-T	14000	16000		

Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
Slim Duct Type		GMV-ND22PL/B-T	2200	2500
		GMV-ND25PL/B-T	2500	2800
		GMV-ND28PL/B-T	2800	3200
		GMV-ND32PL/B-T	3200	3600
		GMV-ND36PL/B-T	3600	4000
		GMV-ND40PL/B-T	4000	4500
		GMV-ND45PL/B-T	4500	5000
		GMV-ND50PL/B-T	5000	5600
		GMV-ND56PL/B-T	5600	6300
		GMV-ND63PL/B-T	6300	7000
		GMV-ND72PL/B-T	7200	8000

Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
High Static Pressure Duct Type		GMV-ND56PHS/A-T	5600	6300
		GMV-ND63PHS/A-T	6300	7100
		GMV-ND71PHS/A-T	7100	8000
		GMV-ND80PHS/A-T	8000	9000
		GMV-ND90PHS/A-T	9000	10000
		GMV-ND100PHS/A-T	10000	11200
		GMV-ND112PHS/A-T	11200	12500
		GMV-ND125PHS/A-T	12500	14000
		GMV-ND140PHS/A-T	14000	16000
		GMV-ND224PH/A-T	22400	25000
		GMV-ND280PH/A-T	28000	31000

Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
1-way Cassette Type		GMV-ND22TD/A-T	2200	2500
		GMV-ND28TD/A-T	2800	3200
		GMV-ND36TD/A-T	3600	4000
		GMV-ND45TD/A-T	4500	5000
		GMV-ND50TD/A-T	5000	5600

Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
4-way Cassette Type		GMV-ND28T/A-T	2800	3200
		GMV-ND36T/A-T	3600	4000
		GMV-ND45T/A-T	4500	5000
		GMV-ND50T/A-T	5000	5600
		GMV-ND56T/A-T	5600	6300
		GMV-ND63T/A-T	6300	7100
		GMV-ND71T/A-T	7100	8000
		GMV-ND80T/A-T	8000	9000
		GMV-ND90T/A-T	9000	10000
		GMV-ND100T/A-T	10000	11200
		GMV-ND112T/A-T	11200	12500
		GMV-ND125T/A-T	12500	14000
		GMV-ND140T/A-T	14000	16000
		GMV-ND160T/A-T	16000	17500

Type	Appearance	Model	Cooling Capacity(W)	Heating Capacity(W)
Floor Ceiling Type		GMV-ND28ZD/A-T	2800	3200
		GMV-ND36ZD/A-T	3600	4000
		GMV-ND50ZD/A-T	5000	5600
		GMV-ND56ZD/A-T	5600	6300
		GMV-ND63ZD/A-T	6300	7100
		GMV-ND71ZD/A-T	7100	8000
		GMV-ND90ZD/A-T	9000	10000
		GMV-ND112ZD/A-T	11200	12500
		GMV-ND125ZD/A-T	12500	14000
		GMV-ND140ZD/A-T	14000	16000

Type	Appearance	Model	Cooling Capacity(kW)	Heating Capacity(kW)
Wall Type		GMV-N22G/A3A-K	2200	2500
		GMV-N28G/A3A-K	2800	3200
		GMV-N36G/A3A-K	3600	4000
		GMV-N45G/A3A-K	4500	5000
		GMV-N50G/A3A-K	5000	5800
		GMV-N56G/A3A-K	5600	6300
		GMV-N63G/A3A-K	6300	7000
		GMV-N71G/A3A-K	7100	7500

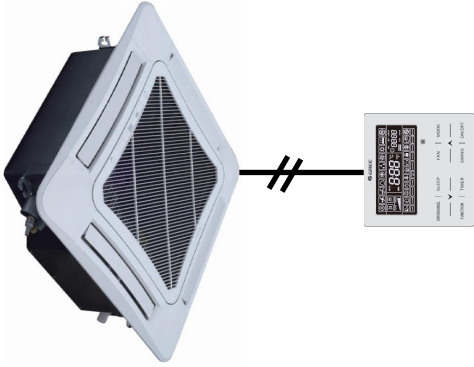

Conversion Formula: 1kW=3412Btu/h

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

2.4 Controller

Name	Model Name	Appearance	Application	Function
Wired Controller	XK46			<ul style="list-style-type: none"> ◇ Start/Stop ◇ Mode changing ◇ Temperature setting ◇ Air flow changing ◇ Time setting ◇ Self-diagnosing function ◇ Display codes of trouble ◇ Control by 2 controller separately ◇ One indoor unit can be separately operated by wired controller and remote controller.
Remote Controller	YV111 YAD1F			<ul style="list-style-type: none"> ◇ Start/Stop ◇ Mode changing ◇ Temperature setting ◇ Air flow changing ◇ Time setting

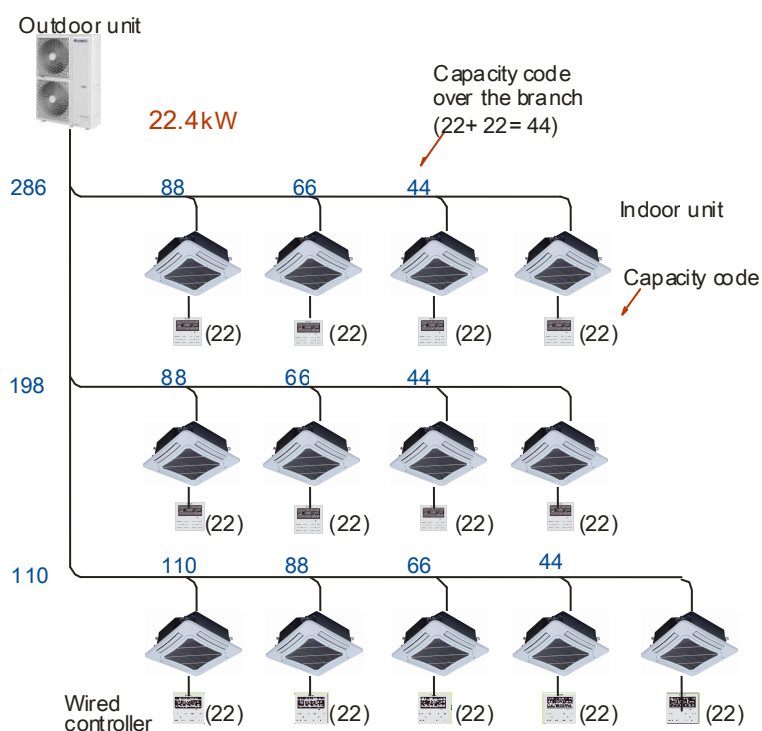
3 BASIC SYSTEM CONFIGURATION

➤ **System Legend (ex.)**

Model name of outdoor unit: GMV-224WL/A-X

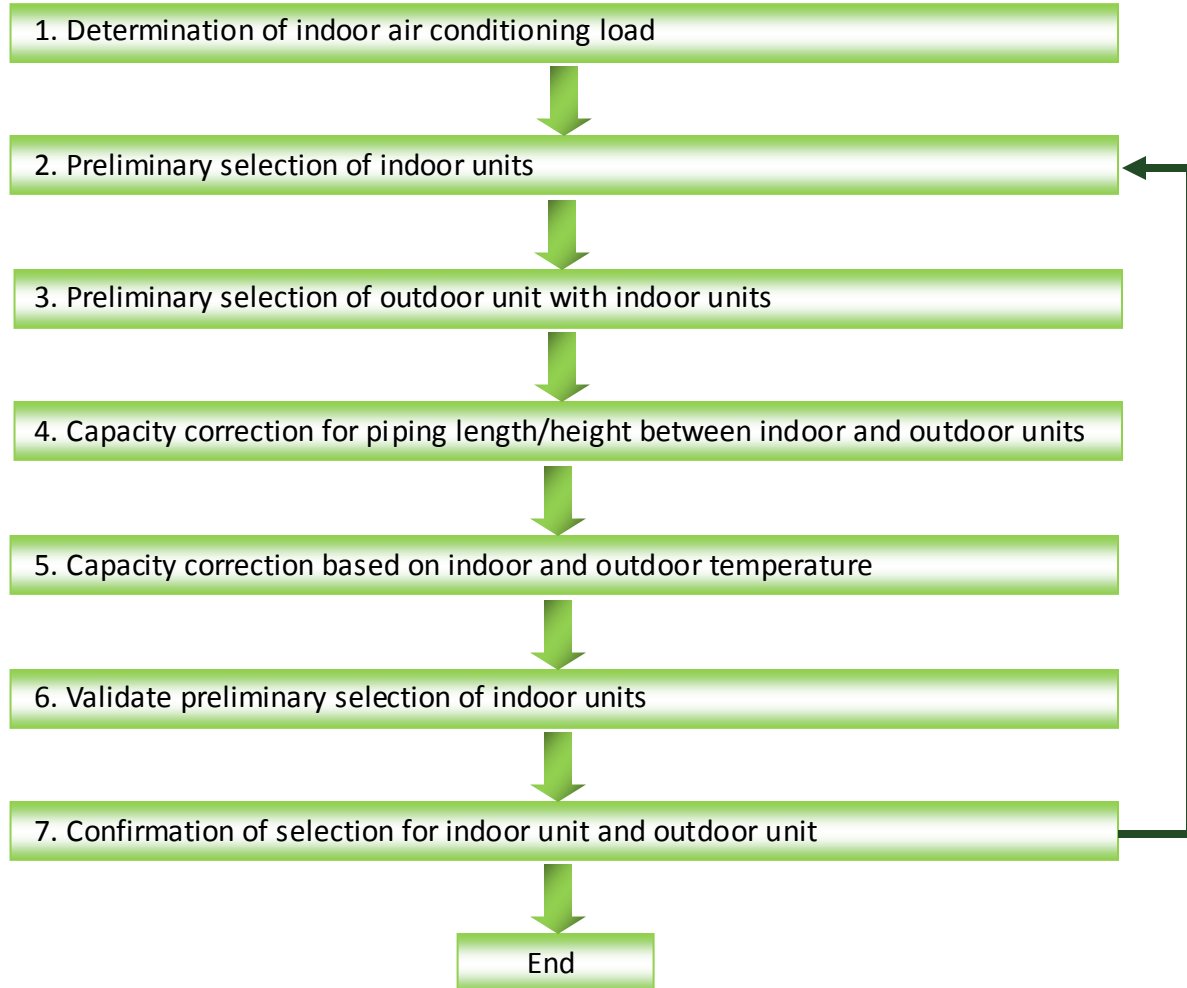
Allowed max. indoor unit: 13

Allowed capacity code of indoor unit: MIN.:11.2KW MAX.:30.2kW



4 EQUIPMENT SELECTION PROCEDURE

4.1 Selection Flow Chart



4.2 Combination Conditions for Indoor Unit and Outdoor Unit

- 1) The capacity code = the nominal cooling capacity (W) × 0.01.
- 2) For outdoor unit, MAX. Number of connectable indoor units and total capacity code of indoor units are decided.

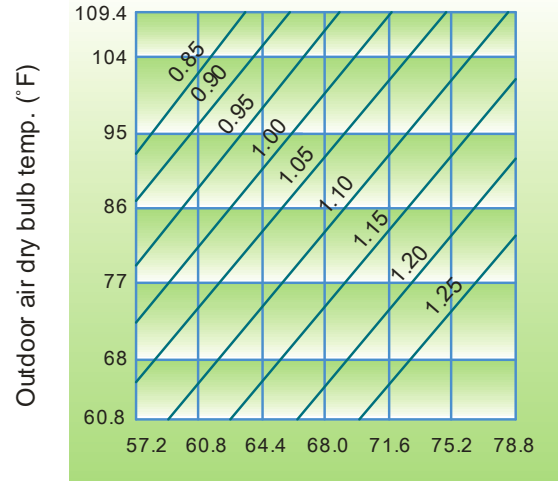
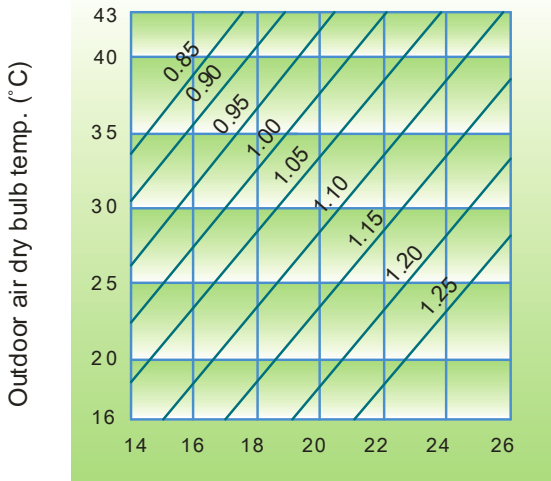
Model Name of Outdoor Unit	Capacity Code of Outdoor Unit	MAX. Number of Indoor Units	Total Capacity Code of Indoor Units
GMV-224WL/A-X	224	13	112to302
GMV-250WL/A-X	250	16	125to337
GMV-280WL/A-X	280	16	140to378

4.3 Cooling/Heating Capacity Characteristics

4.3.1 Cooling Capacity Calculation Method

Required cooling capacity = Cooling capacity × Factor① × Factor② kW

① Ambient Temperature VS. Capacity

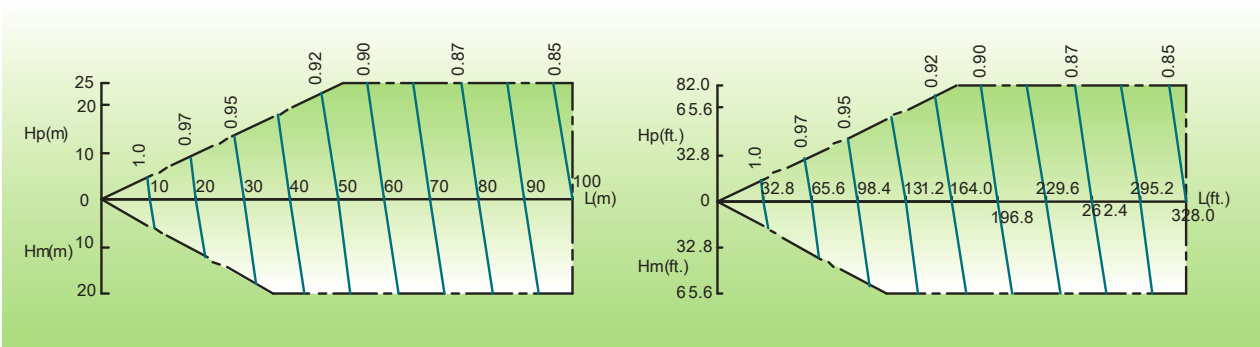


Indoor air wet bulb temp. (°C)

Indoor air wet bulb temp. (°F)

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

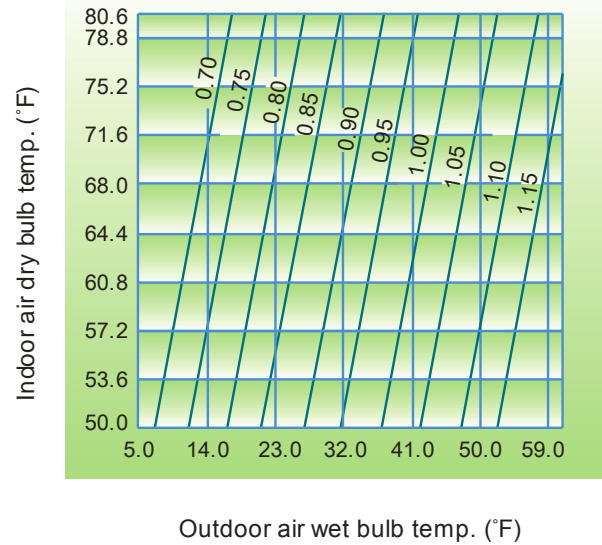
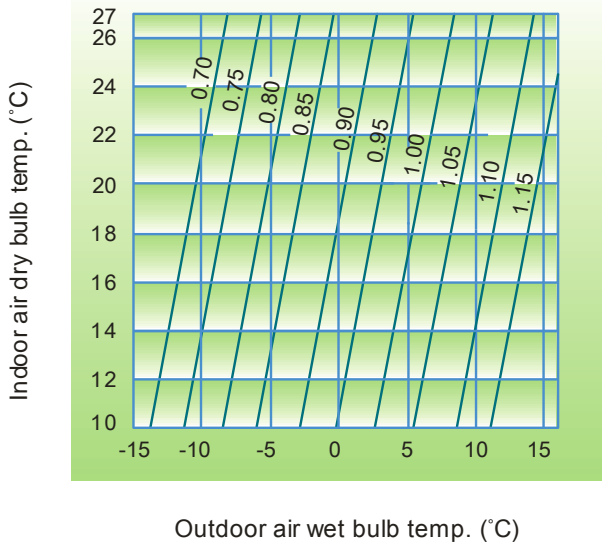
- ✧ Hp: Height Difference Between Indoor and Outdoor Units (Outdoor unit higher)
- ✧ Hm: Height Difference Between Indoor and Outdoor Units (Outdoor unit lower)
- ✧ L: Equivalent Pipe Length



4.3.2 Heating Capacity Calculation Method

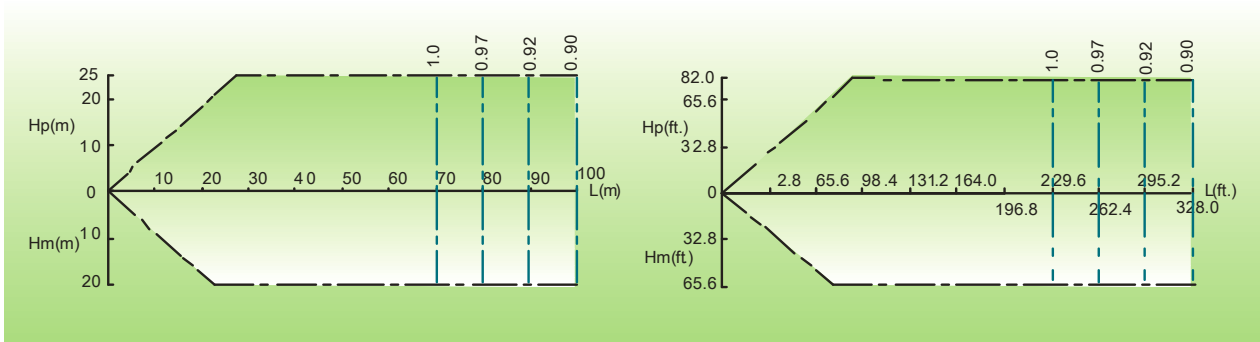
Required heating capacity = Heating capacity × Factor① × Factor② kW

① Ambient Temperature VS. Capacity



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

- ✧ Hp: Height Difference Between Indoor and Outdoor Units (Outdoor unit higher)
- ✧ Hm: Height Difference Between Indoor and Outdoor Units (Outdoor unit lower)
- ✧ L: Equivalent Pipe Length



4.3.3 Capacity Calculation for Each Indoor Unit

Capacity for each indoor unit

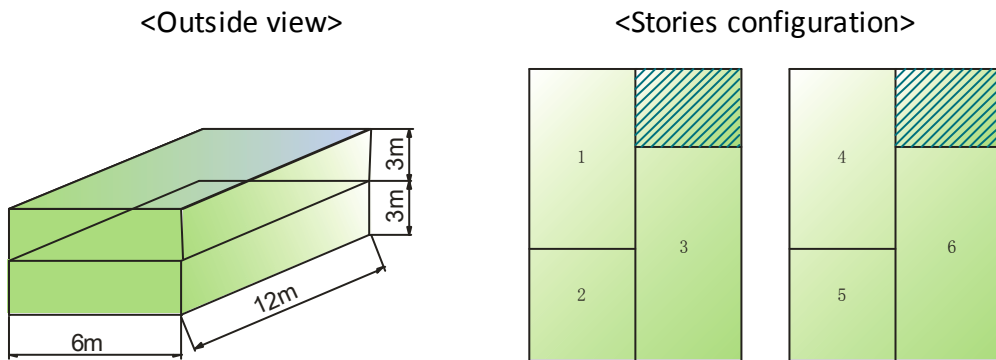
$$= \text{Capacity after correction of outdoor unit} \times \frac{\text{Required standard capacity of indoor unit}}{\text{Total value of standard indoor unit capacity}}$$

4.3.4 Operating Temperature Range

Range	Mode	Outdoor Temperature Range °C (°F)
	Cooling	10~52(50~125.6)
	Heating	-20~27(-4~81)

4.4 Example of Equipment Selection

4.4.1 Overview of Building Model



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

An apartment area: 144m², each story area: 72 m².

Outdoor unit is installed on the balcony.

Cooling:

Design indoor conditions: 27°C (81°F)DB/19°C (66.6°F)WB

Design outdoor conditions: 35°C (95.4°F)DB/24°C (75.6°F)WB

4.4.2 Selection Criteria for Each Apartment

Outdoor capacity exactly matches the total indoor capacity.

Total indoor HP = Outdoor unit HP

For example:

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

Outdoor: 5HP

4.4.3 Procedure and Result of Equipment Selection

① Procedure of Equipment Selection

- ✧ Calculate cooling for every room.
- ✧ Select an indoor unit to match the cooling load for every room.
- ✧ Choose a tentative outdoor that will match with 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.

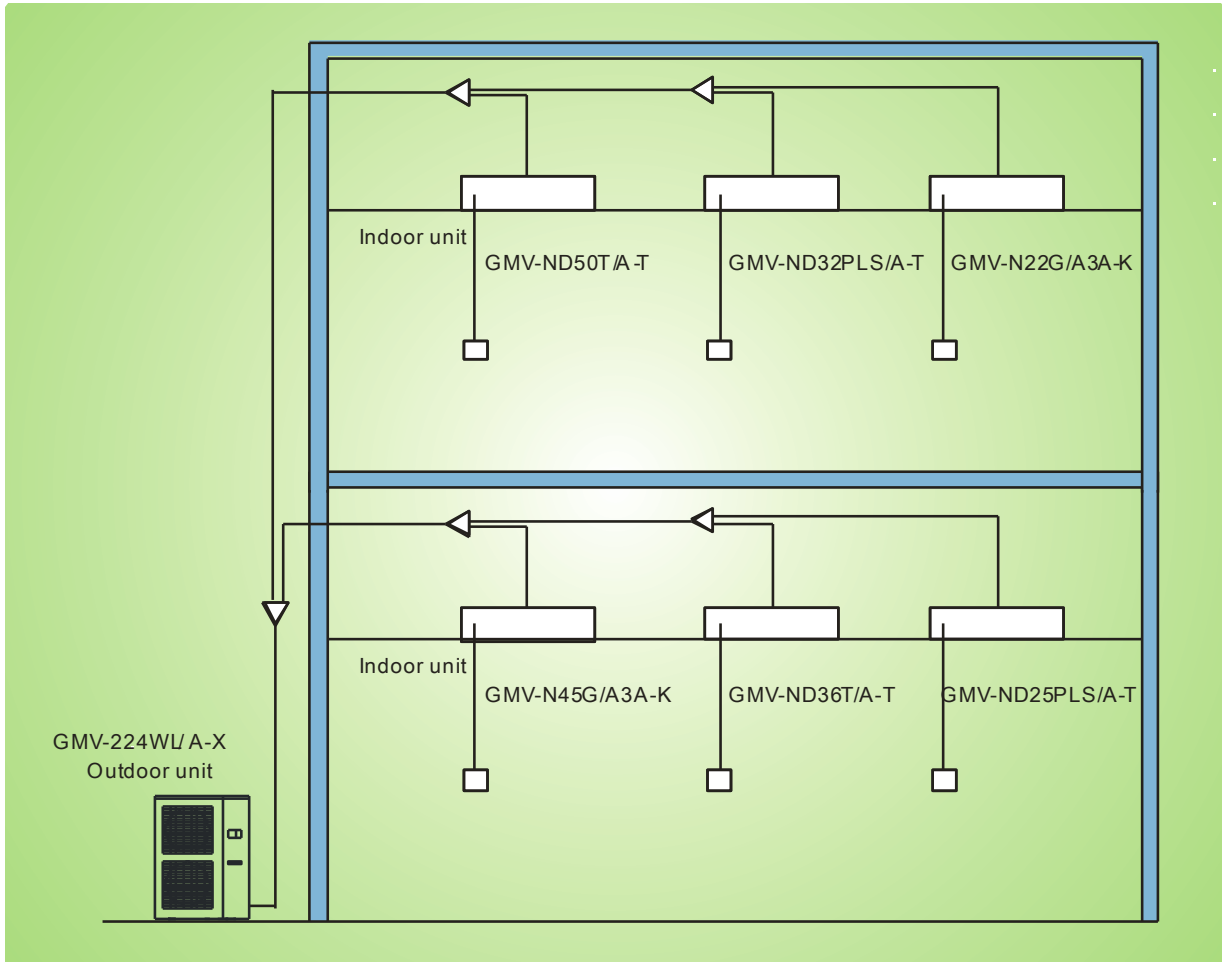
② Equipment Selection and Capacity Check

Air Conditioning Load			Equipment Selection					
Floor	Room No.	Indoor Cooling Load (kW)	Indoor Unit			Outdoor Unit		
			Model	Capacity (kW)		Model	Capacity (kW)	
				Cooling	Heating		Cooling	Heating
1F	1	2.5	GMV-ND25PLS/A-T	2.5	2.8	GMV-224WL/A-X	22.4	25.0
	2	3.6	GMV-ND36T/A-T	3.6	4.0			
	3	4.5	GMV-N45G/A3A-K	4.5	5.0			

2F	4	2.2	GMV-N22G/A3A-K	2.2	2.5			
	5	3.2	GMV-ND32PLS/A-T	3.2	3.6			
	6	5.0	GMV-ND50T/A-T	5.0	5.6			

Conversion Formula: 1kW=3412Btu/h

③ 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 number of high concentration buildings, the installation of multi air conditioner systems is increasing because of the need for effective use of floor space, individual control, and 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 air conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if refrigerant leaks out accidentally, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injure occur).

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

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

The concentration limit of R410A means that emergency can be controlled to prevent human body from harming. The refrigerant concentration unit is kg/m^3 , which means the weight of refrigerant per m^3 air.

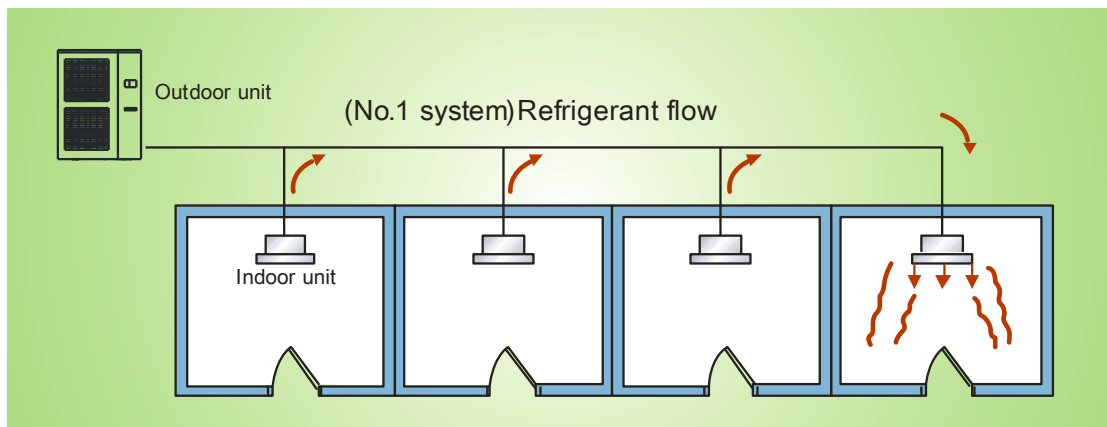


Fig.5.1

5.1.2 Check of Refrigerant Leakage

Calculate the refrigerant concentration as follows:

① Calculate the Amount of Refrigerant of Each Refrigeration System

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

Refrigerant amount of the outdoor unit at ex-factory According to the liquid tube length and diameter

= System total amount of refrigerant (kg)

Note:

When single refrigeration system consists of several independent refrigeration circuits, figure out the total refrigerant amount by each independent refrigerant circuit.

② Calculate the Minimum Room Volume

✧ No partition (shaded portion)

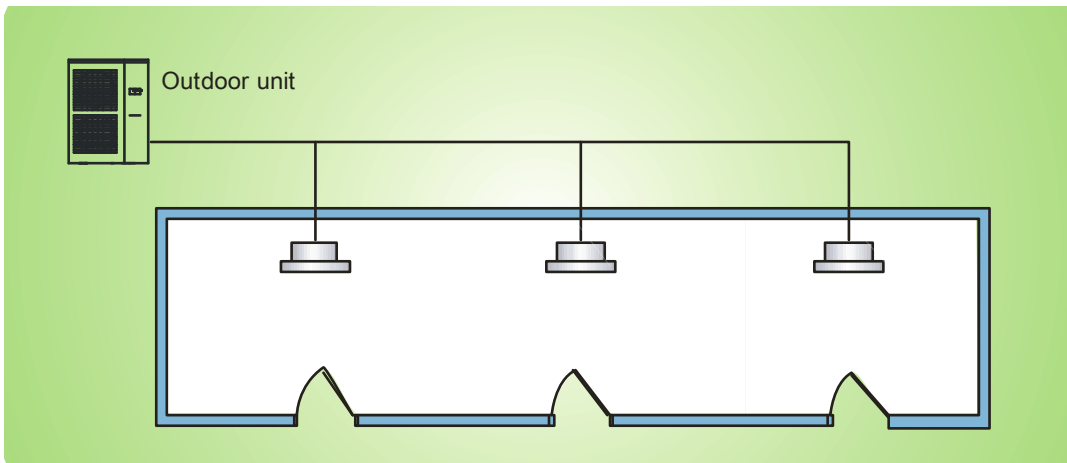


Fig.5.2

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

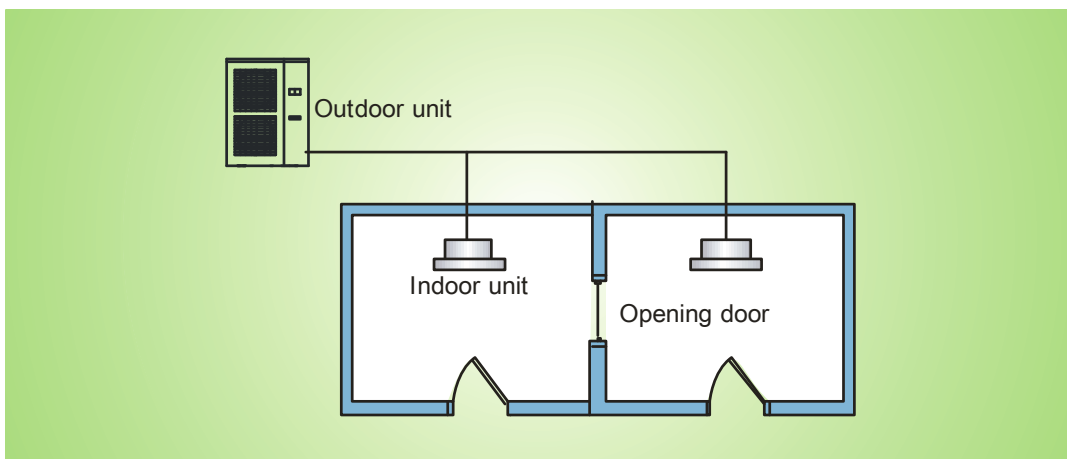


Fig.5.3

✧ If an indoor unit is installed in each partitioned room and the refrigerant tubing is inter-connected, the smallest room becomes the object.

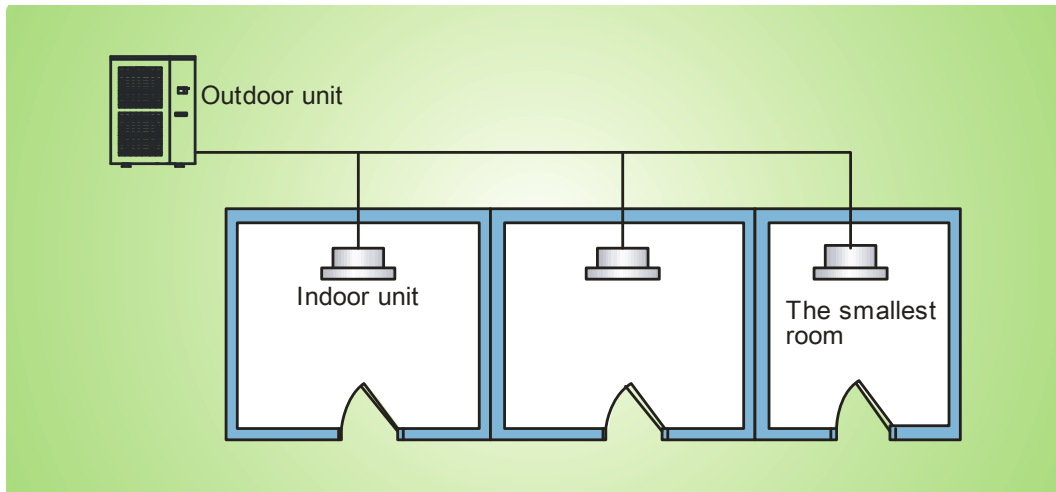


Fig.5.4

The concentration limit of R410A which is used in multi air conditioners is $0.3\text{kg}/\text{m}^3$.

③ **Use the Results of Calculations ① and ② to Calculate the Refrigerant Concentration:**

The concentration is as given below:

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

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

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

① **Set Up an Opening for Efficient Air Exchange**

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

② **Decrease the System Total Amount of Refrigerant**

✧ Shorten the length of refrigerant pipe

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

✧ Decrease the capacity of outdoor unit

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

For example:

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

③ **Set Up an Air Exchange System**

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

✧ Exchange air volume

According to the system total amount of refrigerant and the room volume, air exchange volume should be greater than the below Fig.5.5 volume.

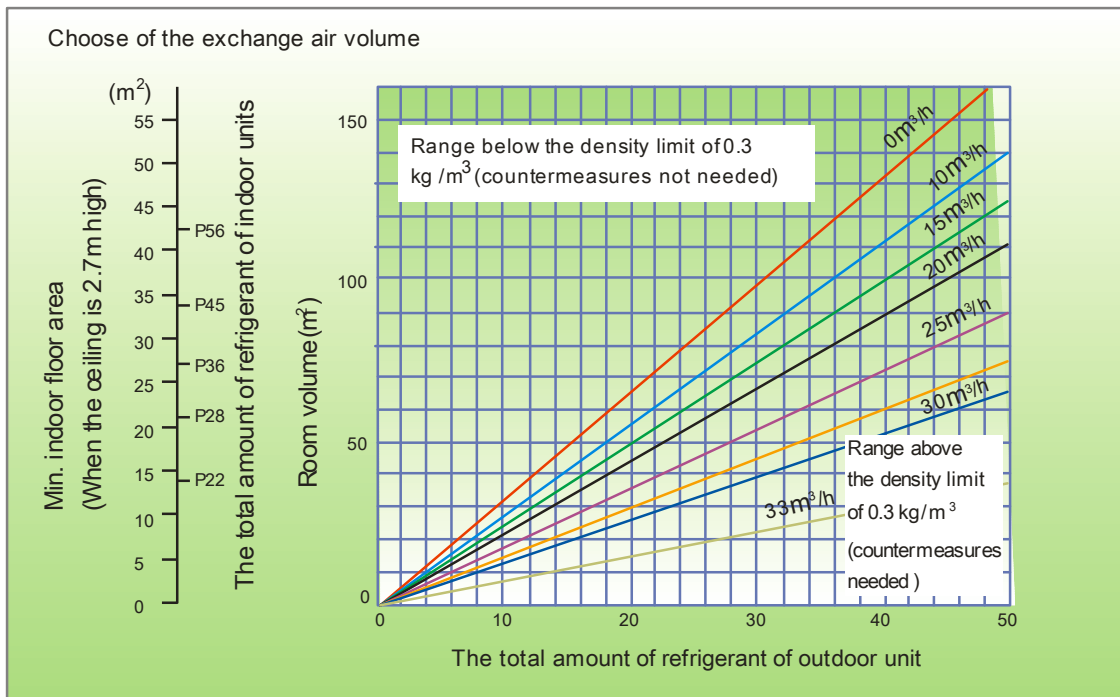


Fig.5.5

✧ 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. 5.6 is the air exchange system in long-term working. Shown in Fig. 5.7 is the detector interlink system.

Long Term Working Air Exchange System

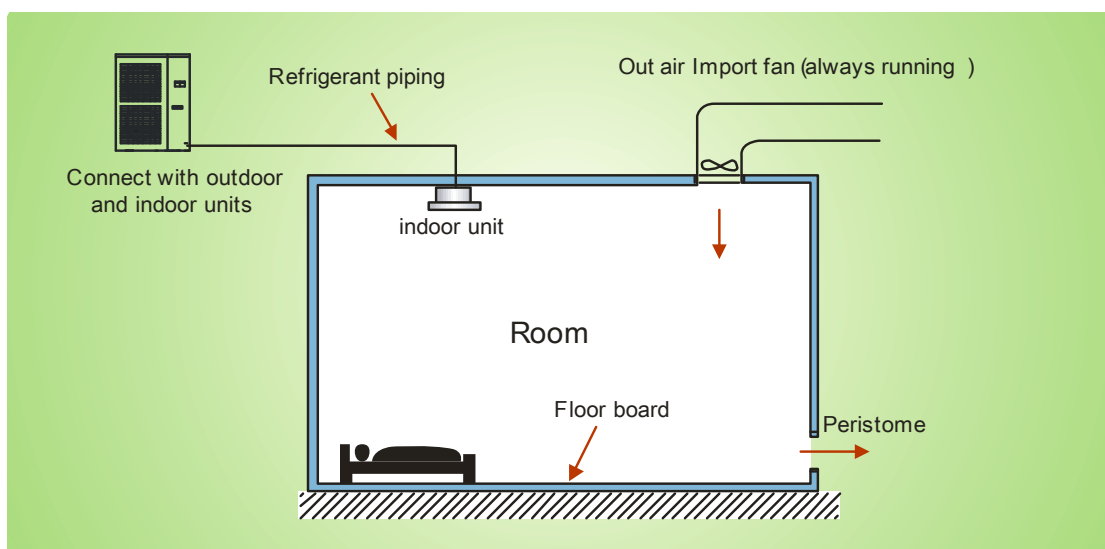


Fig.5.6

Detector Interlink System

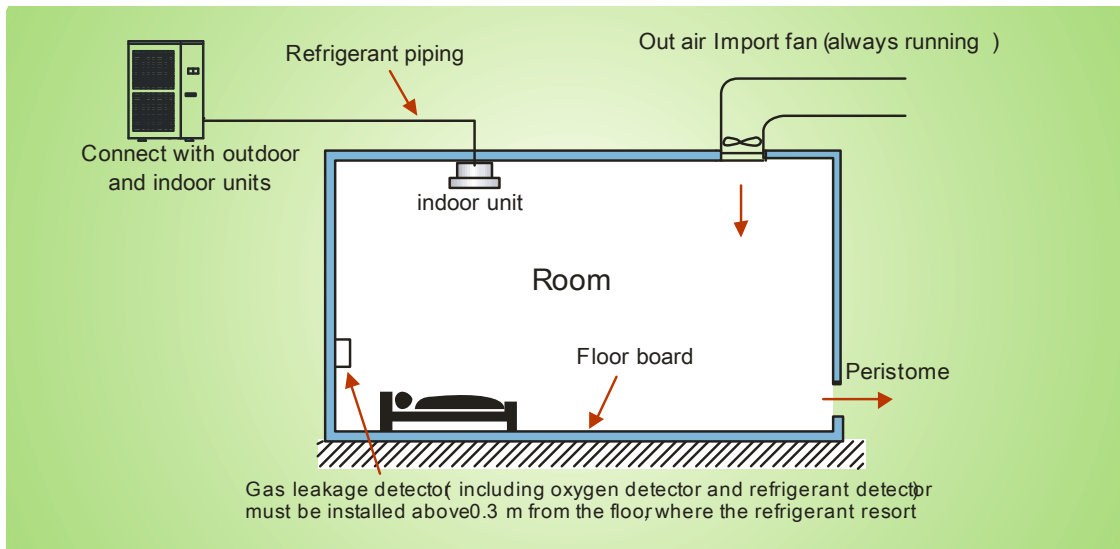


Fig.5.7

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

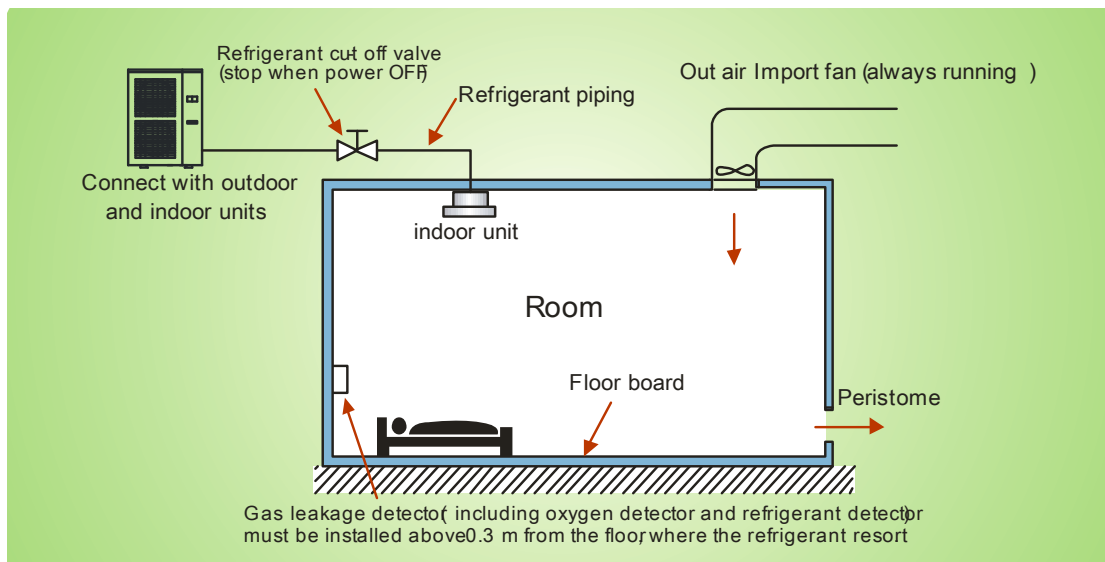


Fig.5.8

Note:

- ✧ In order to avoid malfunction of air exchange system, please do not choose the range showed in oblique line in Fig. 5.5 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.
- ✧ 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. 5.5, 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. 5.8 is the status that a refrigerant cutoff valve is set.

- ✧ 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.
- ✧ 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).

5.2 Free Branching System

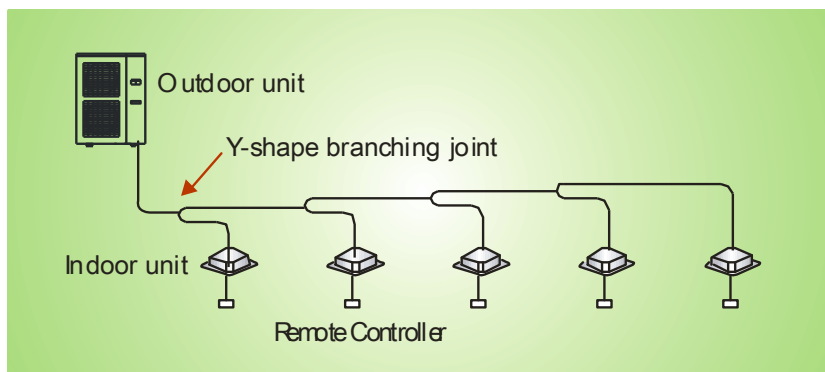


Fig.5.9

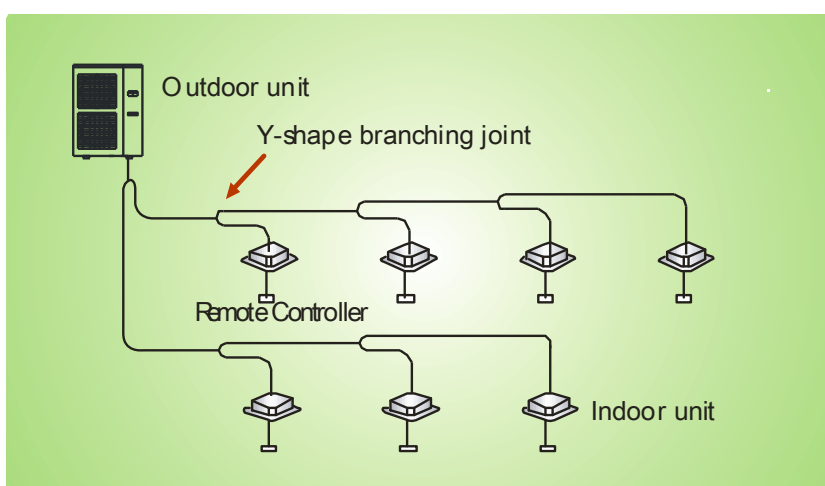


Fig.5.10

5.3 Allowable Length/Height Difference of Refrigerant Piping

GMV-224WL/A-X、GMV-250WL/A-X、GMV-280WL/A-X		Allowable Value	Fitting Pipe
Total Length (Actual Length) of Fitting Pipe		250m	$L1+L2+L3+...+L8+a+b+...i$
Length of Farthest Fitting Pipe	Actual Length	100m	$L1+L6+L7+L8+i$
	Equivalent Length	120m	
Equivalent Length from the First Manifold to the Furthest Pipe		40m	$L5+L6+L7+L7+i$
Height Difference between Outdoor Unit and Indoor Unit	Outdoor Unit at Upper	50m	--
	Outdoor Unit at Lower	40m	--
Height Difference between Indoor Units		15m	--
Maximum Length of Main Pipe		90m	L1

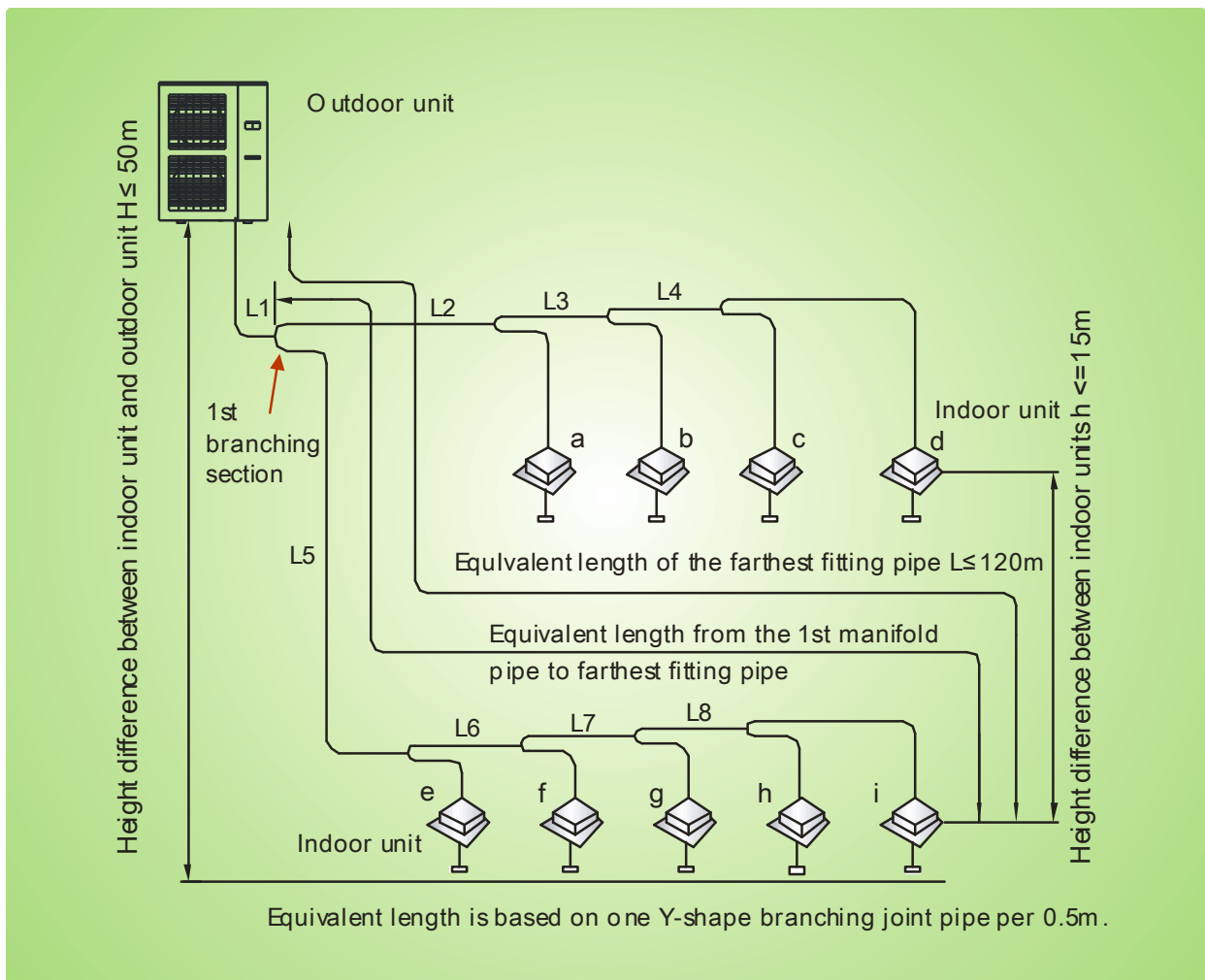


Fig.5.11

5.4 Selection of Refrigerant Piping

5.4.1 Size of Connection Pipe L1

		Equivalent length: L; The Maximum Height Difference between IDU and ODU:H			
		L<90m and H<15m	L<90m and H≥15m	L≥90m and H<15m	L≥90m and H≥15m
GMV-224WL/A-X	L1 gas pipe	Φ22.2	Φ22.2	Φ22.2	Φ22.2
	L1 liquid pipe	Φ9.52	Φ9.52	Φ9.52	Φ12.7
GMV-250WL/A-X	L1 gas pipe	Φ22.2	Φ22.2	Φ22.2	Φ28.6
	L1 liquid pipe	Φ9.52	Φ9.52	Φ9.52	Φ12.7
GMV-280WL/A-X	L1 gas pipe	Φ22.2	Φ22.2	Φ22.2	Φ28.6
	L1 liquid pipe	Φ9.52	Φ9.52	Φ9.52	Φ12.7

5.4.2 Size of Connection Pipe between Manifolds

Fitting pipe size between Manifolds (such as L2, L3) at indoor unit side is determined by the total capacity of downstream indoor unit(s).

Total Capacity of Downstream Indoor Unit(s) X (kW)	Fitting Pipe Size between Manifolds at Indoor Unit Side	
	Gas pipe (mm)	Liquid pipe (mm)
X≤5.6	Φ12.7	Φ6.35
5.6<X≤14.2	Φ15.9	Φ9.52
14.2<X≤22.0	Φ19.05	Φ9.52
22.0<X≤30.0	Φ22.2	Φ9.52

5.4.2 Size of Pipe Connected with Indoor Unit

Manifold should be matched with the fitting pipe of indoor units. (If the distance from the first manifold to a indoor unit exceeds 30m, then double the gas pipe size between them)

Size of pipe from indoor unit to the manifold (such as a, b):

Indoor Unit Energy Rank	Gas pipe (mm)	Liquid pipe (mm)
22、25、28 model	Φ9.52	Φ6.35
32、36、40、45、50 model	Φ12.7	Φ6.35
56、63、71、80、90、100、112、125、140 model	Φ15.9	Φ9.52

5.5 Charging Equipment with Additional Refrigerant

5.5.1 The Refrigerant Mass of Outdoor Unit before Installation

Model Item	GMV-224WL/A-X	GMV-250WL/A-X	GMV-280WL/A-X
The refrigerant mass (kg)	7.2	7.6	7.6

5.5.2 The Method of Computing Refrigerant Mass of Connection Pipe

If the length of connection pipe is more than 50m, then the refrigerant mass should be charged for every excess meter.

The refrigerant mass of connection pipe = \sum the length of liquid pipe \times Refrigerant mass for every excess meter

Diameter of Liquid Pipe	Φ28.6	Φ25.4	Φ22.2	Φ19.05	Φ15.9	Φ12.7	Φ9.52	Φ6.35
Refrigerant Mass for Every Excess Meter (kg/m)	0.680	0.520	0.350	0.250	0.170	0.110	0.054	0.022

6 WIRING DESIGN

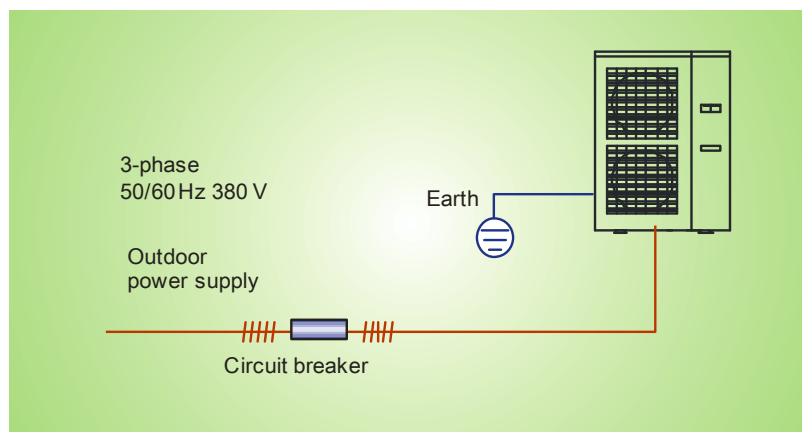
6.1 General

- Wiring should conform to national rules. All the parts, materials, electric work should be in accordance with local codes.
- Power supplies of indoor unit and outdoor unit can be uniform or separate, but power supplies of indoor units must be uniform.
- Rated voltage and exclusive power supply should be used.
- Power cord should be fixed soundly and reliable. Never forcibly pull the power cord.
- Wire size of power cord should be large enough. The damaged power cord and connecting wire should be replaced by exclusive cable.
- All the electrical work should be performed by professional personnel as per local law, regulation and this manual.
- Connect the unit to the special earthing device and make sure the unit is earthed soundly. Please call professional personnel to install.
- Air switch and circuit breaker is required to be set. Air switch should have both magnetic trip and thermal trip functions so as to protect the unit when short-circuit and overload happens. D-type breaker is advised to be used.
- Wiring diagram attached on the unit is prevailed.

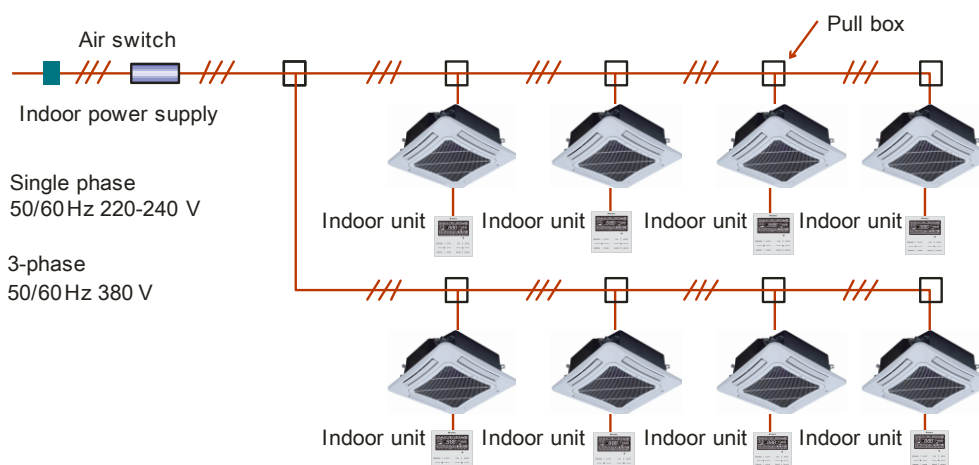
6.2 Electrical Wiring Design

6.2.1 Wiring Drawing

Outdoor unit:



Indoor unit:



6.2.2 Selection of Power Supply Wire and Fuse of Units

Model		Power Supply Wiring	
		Wire Size (mm ²)	Capacity of Circuit Breaker (A)
Outdoor Unit	GMV-224WL/A-X	4.0	20
	GMV-250WL/A-X	4.0	25
	GMV-280WL/A-X	4.0	25
Indoor Unit	All models of indoor units	1.0	6

If indoor unit is equipped with auxiliary electric heater, select capacity of circuit breaker as per auxiliary electric heater, which requires special setting.

Indoor unit models (with auxiliary electric heater)	Wire Size (mm ²)	Capacity of Circuit Breaker (A)
22、25、28、32、36 duct type unit	1.0	6
40、45、50 duct type unit	1.0	10
56、63、71、80 duct type unit	1.5	16
90、100、112、125、140 duct type unit	1.0	10
28、36、45、50 cassette type unit	1.0	6
56、63、71 cassette type unit	1.0	10
80、90、112、125、140 cassette type unit	1.0	10



Caution:

- ① Unit power cord must use copper cable whose actual temperature can't exceed its rated value.
- ② If the length of power cord exceeds 15m, please enlarge its sectional area in case of causing

accident from overload.

③ Power cord and air switch are conjoint with the units and their models are determined by the units. Other accessories specifications are determined by actual fact.

④ Condition: models of power cord and circuit breaker are based on the most power (the most current); power cord model is based on the condition that environment temperature is 40°C and its working temperature is 90°C, and the working temperature is gained from the condition that copper-other cable (such as YJV) is laid on the seam barely, if the actual condition doesn't agree with above condition, please adjust power cord model according to the nation standard (GB/T 16895.15-2002); circuit breaker model is based on the condition that environment temperature is 40°C, if the actual condition doesn't agree with above condition, please adjust circuit breaker model according to the circuit breaker specification.

⑤ The rated current value of air switch should be more than the maximum current value of unit but less than next wire load.

⑥ If air switch was installed at a changing temperature place, such as coordinate installation, poor radiator, and higher environment temperature, air switch should be considered falling capacity.

⑦ The load of electrical wire has a relation with its installing way, environment temperature, material of electrical wire, and fire-resistant grade. If all the above conditions changed, the diameter of electrical wire should be chosen again.

6.3 Parameters

6.3.1 Outdoor Unit

Model Name	Voltage Range (V)		Compressor	Fan Motor
	Min	Max	RLA (A)	RO (kW)
GMV-224WL/A-X	342	420	8	0.2×2
GMV-250WL/A-X	342	420	24	0.2×2
GMV-280WL/A-X	342	420	24	0.2×2

Legend:

RLA: Rated Load Amps RO: Rated Output

Note: RLA is based on the following conditions, indoor air temperature 29 °C (84.2 °F) DB/19 °C (66.6 °F) WB, outdoor air temperature 46 °C (114.8 °F) DB.

6.3.2 Indoor Unit

Type	Model Name	Nominal Voltage (V/Ph/Hz)	Voltage Range		Fan Motor
			Min	Max	RO (kW)
4-way Cassette	GMV-ND28T/A-T	220-240/1/50	198	264	0.035
	GMV-ND36T/A-T	208-230/1/60	187.2	253	0.035

Type	GMV-ND45T/A-T				0.035
	GMV-ND50T/A-T				0.035
	GMV-ND56T/A-T				0.045
	GMV-ND63T/A-T				0.045
	GMV-ND71T/A-T				0.045
	GMV-ND80T/A-T				0.045
	GMV-ND90T/A-T				0.075
	GMV-ND100T/A-T				0.075
	GMV-ND112T/A-T				0.075
	GMV-ND125T/A-T				0.075
	GMV-ND140T/A-T				0.075
	GMV-ND160T/A-T				0.100
1-way Cassette Type	GMV-ND22TD/A-T				0.030
	GMV-ND28TD/A-T	220-240/1/50	198	264	0.030
	GMV-ND36TD/A-T	208-230/1/60	187.2	253	0.030
	GMV-ND45TD/A-T				0.030
	GMV-ND50TD/A-T				0.030
Low Static Pressure Duct Type	GMV-ND22PLS/A-T				0.060
	GMV-ND25PLS/A-T				0.060
	GMV-ND28PLS/A-T				0.060
	GMV-ND32PLS/A-T				0.060
	GMV-ND36PLS/A-T				0.060
	GMV-ND40PLS/A-T				0.060
	GMV-ND45PLS/A-T				0.060
	GMV-ND50PLS/A-T	220-240/1/50	198	264	0.060
	GMV-ND56PLS/A-T	208-230/1/60	187.2	253	0.060
	GMV-ND63PLS/A-T				0.060
	GMV-ND71PLS/A-T				0.060
	GMV-ND80PLS/A-T				0.060
	GMV-ND90PLS/A-T				0.150
	GMV-ND100PLS/A-T				0.150
GMV-ND112PLS/A-T				0.150	
GMV-ND125PLS/A-T				0.150	
GMV-ND140PLS/A-T				0.150	
Slim Duct Type	GMV-ND22PL/B-T				0.060
	GMV-ND25PL/B-T	220-240/1/50	198	264	0.060
	GMV-ND28PL/B-T	208-230/1/60	187.2	253	0.060
	GMV-ND32PL/B-T				0.060
	GMV-ND36PL/B-T				0.060

	GMV-ND40PL/B-T				0.060
	GMV-ND45PL/B-T				0.060
	GMV-ND50PL/B-T				0.060
	GMV-ND56PL/B-T				0.060
	GMV-ND63PL/B-T				0.060
	GMV-ND72PL/B-T				0.060
High Static Pressure Duct Type	GMV-ND56PHS/A-T	220-240/1/50 208-230/1/60	198 187.2	264 253	0.150
	GMV-ND63PHS/A-T				0.150
	GMV-ND71PHS/A-T				0.150
	GMV-ND80PHS/A-T				0.150
	GMV-ND90PHS/A-T				0.250
	GMV-ND100PHS/A-T				0.250
	GMV-ND112PHS/A-T				0.250
	GMV-ND125PHS/A-T				0.250
	GMV-ND140PHS/A-T				0.250
	GMV-ND224PH/A-T				0.750
	GMV-ND280PH/A-T				0.750
Floor Ceiling Type	GMV-ND28ZD/A-T	220-240/1/50 208-230/1/60	198 187.2	264 253	0.060
	GMV-ND36ZD/A-T				0.060
	GMV-ND50ZD/A-T				0.060
	GMV-ND56ZD/A-T				0.060
	GMV-ND63ZD/A-T				0.150
	GMV-ND71ZD/A-T				0.150
	GMV-ND90ZD/A-T				0.150
	GMV-ND112ZD/A-T				0.250
	GMV-ND125ZD/A-T				0.250
	GMV-ND140ZD/A-T				0.250
Wall Type	GMV-N22G/A3A-K	220-240/1/50	198	264	0.050
	GMV-N28G/A3A-K				0.050
	GMV-N36G/A3A-K				0.060
	GMV-N45G/A3A-K				0.060
	GMV-N50G/A3A-K				0.060
	GMV-N56G/A3A-K				0.070
	GMV-N63G/A3A-K				0.070
	GMV-N71G/A3A-K				0.070

Legend:

RO: Rated Output

7 ACCESSORIES

7.1 Outdoor Unit

Accessories Name	Standard	Option	Field Supplied
FQ01A/FQ01B branching joint		√	
Condensate pipe			√
Power cord			√
Filter		√	
Oil return elbow		√	
Signal wires among units			√

7.2 Indoor Unit

Accessories Name	Standard	Option	Field Supplied
XK46 wired controller	√		
YV1L1 remote controller		√	
YAD1F remote controller		√	
Screw M4X25(cross recessed small pan head screw)	√		
Drain hose assembly	√		
Union nut assembly	√		
Nut with washer	√		
Nut M10(type 1 hex nut)	√		
Nut 10(type 1 hex nut)	√		
Heating jacket of liquid in pipe	√		
Heating jacket of header	√		
Sponge of drain pipe	√		
Cable tie	√		

Note:

All indoor controllers are used for GMV units; at the same time, the central remote controller and the long distance control system are used for GMV series units only.

8 TECHNICAL SPECIFICATIONS

8.1 Indoor Unit

➤ 4-way Cassette Type

Model		GMV-ND28T/A-T	GMV-ND36T/A-T	GMV-ND45T/A-T	GMV-ND50T/A-T	GMV-ND56T/A-T	
Cooling Capacity	KW	2.8	3.6	4.5	5.0	5.6	
Heating Capacity	KW	3.2	4.0	5.0	5.6	6.3	
Air Flow Rate	m ³ /h	750	750	750	830	1000	
Noise	dB(A)	36	36	36	36	37	
Power Input (W)	Cooling	48	48	48	50	59	
	Heating	48	48	48	50	59	
Power Supply	220-240V 1phase~50Hz 208-230V 1phase~60Hz						
Main Body Dimensions (mm) (W×D×H)		840×840×190	840×840×190	840×840×190	840×840×190	840×840×240	
Panel Dimensions (mm) (W×D×H)		950×950×65	950×950×65	950×950×65	950×950×65	950×950×65	
Connection Pipe	Gas Pipe	mm	Φ9.52	Φ12.7	Φ12.7	Φ12.7	Φ15.9
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	
Main Body Net Weight	kg	25	25	25	25	30	
Panel Net Weight	kg	7	7	7	7	7	

Model		GMV-ND63T/A-T	GMV-ND71T/A-T	GMV-ND80T/A-T	GMV-ND90T/A-T	GMV-ND100T/A-T
Cooling Capacity	KW	6.3	7.1	8.0	9.0	10.0

Model		GMV-ND63T/A-T	GMV-ND71T/A-T	GMV-ND80T/A-T	GMV-ND90T/A-T	GMV-ND100T/A-T
Heating Capacity	KW	7.1	8.0	9.0	10.0	11.2
Air Flow Rate	m ³ /h	1000	1180	1180	1500	1500
Noise	dB(A)	37	37	37	40	40
Cooling Power Input (W)		59	68	68	98	98
Heating Power Input (W)		59	68	68	98	98
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz				
Main Body Dimensions (mm) (W×D×H)		840×840×240	840×840×240	840×840×240	840×840×320	840×840×320
Panel Dimensions (mm) (W×D×H)		950×950×65	950×950×65	950×950×65	950×950×65	950×950×65
Connection	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Main Body Net Weight	kg	30	30	30	35	35
Panel Net Weight	kg	7	7	7	7	7

Model		GMV-ND112T/A-T	GMV-ND125T/A-T	GMV-ND140T/A-T	GMV-ND160T/A-T
Cooling Capacity	KW	11.2	12.5	14.0	16.0
Heating Capacity	KW	12.5	14.0	16.0	17.5
Air Flow Rate	m ³ /h	1700	1860	1860	2100
Noise	dB(A)	41	43	43	47
Cooling Power Input (W)		110	110	110	135
Heating Power Input (W)		110	110	110	135
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Main Body Dimensions (mm) (W×D×H)		840×840×320	840×840×320	840×840×320	910×910×293

Model			GMV-ND112T/A-T	GMV-ND125T/A-T	GMV-ND140T/A-T	GMV-ND160T/A-T
Panel Dimensions (mm) (WxDxH)			950×950×65	950×950×65	950×950×65	1040×1040×65
Conn ection Pipe	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)			Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Main Body Net Weight		kg	35	35	35	45
Panel Net Weight		kg	7	7	7	7.5

Conversion Formula: 1kW=3412Btu/h

Note:

① Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.

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 (44.6°F) DB/6°C (42.8°F) WB

Connection pipe length: 5m, without height drop between units.

➤ **1-way Cassette Type**

Model		GMV-ND22TD/ A-T	GMV-ND28TD/ A-T	GMV-ND36TD/ A-T	GMV-ND45TD/ A-T	GMV-ND50TD/ A-T
Cooling Capacity	KW	2.2	2.8	3.6	4.5	5.0
Heating Capacity	KW	2.5	3.2	4.0	5.0	5.6
Air Flow Rate	m ³ /h	600	600	600	830	830
Noise	dB(A)	36	36	36	40	40
Power Input (W)	Cooling	30	30	30	45	45
	Heating	30	30	30	45	45
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz				
Panel Dimensions (mm) (WxDxH)		1200×460×55	1200×460×55	1200×460×55	1200×460×55	1200×460×55

Model		GMV-ND22TD/ A-T	GMV-ND28TD/ A-T	GMV-ND36TD/ A-T	GMV-ND45TD/ A-T	GMV-ND50TD/ A-T
Main Body Dimensions (mm) (W×D×H)		987×385×178	987×385×178	987×385×178	987×385×178	987×385×178
Gas Pipe	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7	Φ12.7
Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Drain Pipes(External Dia. ×Thickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Main Body Net Weight	kg	20	20	20	21	21
Panel Net Weight	kg	4.2	4.2	4.2	4.2	4.2

Conversion Formula: 1kW=3412Btu/h

Note:

① Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.

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 (44.6°F) DB / 6°C (42.8°F) WB

Connection pipe length: 5m, without height drop between units.

➤ **Low Static Pressure Duct Type**

Model		GMV-ND22PLS /A-T	GMV-ND25PLS/ A-T	GMV-ND28PLS/ A-T	GMV-ND32PLS/ A-T	GMV-ND36PLS/ A-T
Cooling Capacity	KW	2.2	2.5	2.8	3.2	3.6
Heating Capacity	KW	2.5	2.8	3.2	3.6	4.0
Air Flow Rate	m ³ /h	450	450	450	550	550
Noise	dB(A)	31	31	31	32	32
ESP	Pa	150~30	150~30	150~30	150~30	150~30
Cooling Power Input (W)		35	35	35	43	43
Heating Power Input (W)		35	35	35	43	43

Model		GMV-ND22PLS/A-T	GMV-ND25PLS/A-T	GMV-ND28PLS/A-T	GMV-ND32PLS/A-T	GMV-ND36PLS/A-T
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz				
Unit Dimensions (mm) (WxDxH)		700×615×200	700×615×200	700×615×200	700×615×200	700×615×200
Gas Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ12.7	Φ12.7
Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Drain Pipes(External Dia. xThickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Net Weight	kg	22	22	22	22	22

Model		GMV-ND40PLS/A-T	GMV-ND45PLS/A-T	GMV-ND50PLS/A-T	GMV-ND56PLS/A-T	
Cooling Capacity	KW	4.0	4.5	5.0	5.6	
Heating Capacity	KW	4.5	5.0	5.6	6.3	
Air Flow Rate	m ³ /h	700	700	700	1000	
Noise	dB(A)	33	33	33	35	
ESP	Pa	150~30	150~30	150~30	150~30	
Cooling Power Input (W)		52	52	52	99	
Heating Power Input (W)		52	52	52	99	
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz				
Unit Dimensions (mm) (WxDxH)		900×615×200	900×615×200	900×615×200	1100×615×200	
Conn ection Pipe	Gas Pipe	mm	Φ12.7	Φ12.7	Φ12.7	Φ15.9
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ9.52
Drain Pipes(External Dia. xThickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5	
Net Weight	kg	27	27	27	31	

Model		GMV-ND63PLS/A-T	GMV-ND71PLS/A-T	GMV-ND80PLS/A-T	GMV-ND90PLS/A-T
Cooling Capacity	KW	6.3	7.1	8.0	9.0
Heating Capacity	KW	7.1	8.0	9.0	10.0

Model			GMV-ND63PLS/A-T	GMV-ND71PLS/A-T	GMV-ND80PLS/A-T	GMV-ND90PLS/A-T
Air Flow Rate	m ³ /h		1000	1000	1100	1500
Noise	dB(A)		35	35	36	40
ESP	Pa		150~30	300~50	300~50	300~50
Cooling Power Input (W)			99	105	140	209
Heating Power Input (W)			99	105	140	209
Power Supply			220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Unit Dimensions (mm) (W×D×H)			1100×615×200	1100×615×200	1200×655×260	1340×655×260
Conn ection Pipe	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)			Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Net Weight	kg		31	31	40	46

Model			GMV-ND100PLS/A-T	GMV-ND112PLS/A-T	GMV-ND125PLS/A-T	GMV-ND140PLS/A-T
Cooling Capacity	KW		10.0	11.2	12.5	14.0
Heating Capacity	KW		11.2	12.5	14.0	16.0
Air Flow Rate	m ³ /h		1500	1700	2000	2000
Noise	dB(A)		40	40	42	42
ESP	Pa		300~50	300~50	300~50	300~50
Cooling Power Input (W)			209	209	230	230
Heating Power Input (W)			209	209	230	230
Power Supply			220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Unit Dimensions (mm) (W×D×H)			1340×655×260	1340×655×260	1340×655×260	1340×655×260
Gas Pipe	mm		Φ15.9	Φ15.9	Φ15.9	Φ15.9
Liquid Pipe	mm		Φ9.52	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)			Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Net Weight	kg		46	46	47	47

Conversion Formula: 1kW=3412Btu/h

Note:

- ① In the column of “Unit external static pressure”: The figure before “/” indicates the default external static pressure of unit before delivery, and the figures after indicate the adjustable static pressure range of unit.
- ② Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.
- ③ 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

Connection pipe length: 5m, without height drop between units.

➤ **Slim Duct Type**

Model			GMV-ND22PL/B-T	GMV-ND25PL/B-T	GMV-ND28PL/B-T	GMV-ND32PL/B-T
Cooling Capacity	KW		2.2	2.5	2.8	3.2
Heating Capacity	KW		2.5	2.8	3.2	3.6
Air Flow Rate	m ³ /h		450	450	450	550
Noise	dB(A)		30	30	30	31
Power Supply			220-240V 1phase ~ 50Hz 208-230V 1phase ~ 60Hz			
Unit Dimensions (mm) (WxDxH)			710×450×200	710×450×200	710×450×200	710×450×200
Conn ection Pipe	Gas Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Drain Pipes(External Dia. xThickness) (mm)			Φ26×2.5	Φ26×2.5	Φ26×2.5	Φ26×2.5
Net Weight	kg		18.5	18.5	18.5	19.5

Model			GMV-ND36PL/B-T	GMV-ND40PL/B-T	GMV-ND45PL/B-T	GMV-ND50PL/B-T
Cooling Capacity	KW		3.6	4.0	4.5	5.0
Heating Capacity	KW		4.0	4.5	5.0	5.6
Air Flow Rate	m ³ /h		550	750	750	750
Noise	dB(A)		31	33	33	33
Power Supply			220-240V 1phase ~ 50Hz 208-230V 1phase ~ 60Hz			

Model			GMV-ND36PL/B-T	GMV-ND40PL/B-T	GMV-ND45PL/B-T	GMV-ND50PL/B-T
Unit Dimensions (mm) (WxDxH)			710×450×200	1010×450×200	1010×450×200	1010×450×200
Conn ection Pipe	Gas Pipe	mm	Φ12.7	Φ12.7	Φ12.7	Φ12.7
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Drain Pipes(External Dia. ×Thickness) (mm)			Φ26×2.5	Φ26×2.5	Φ26×2.5	Φ26×2.5
Net Weight		kg	19.5	23.5	23.5	23.5

Model			GMV-ND56PL/B-T	GMV-ND63PL/B-T	GMV-ND72PL/B-T
Cooling Capacity		KW	5.6	6.3	7.2
Heating Capacity		KW	6.3	7.0	8.0
Air Flow Rate		m ³ /h	850	850	1100
Noise		dB(A)	35	35	37
Power Supply			220-240V 1phase~50Hz 208-230V 1phase~60Hz		
Unit Dimensions (mm) (WxDxH)			1010×450×200	1010×450×200	1310×450×200
Connection Pipe	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)			Φ26×2.5	Φ26×2.5	Φ26×2.5
Net Weight		kg	24.5	24.5	30.5

Conversion Formula: 1kW=3412Btu/h

Note:

- ① The design of this unit complies with the national executing standard.
- ② Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.
- ③ Refer to the product nameplate for parameters and specification of the unit.

➤ **High Static Pressure Duct Type**

Model		GMV-ND56PHS/A-T	GMV-ND63PHS/A-T	GMV-ND71PHS/A-T	GMV-ND80PHS/A-T
Cooling Capacity	KW	5.6	6.3	7.1	8.0
Heating Capacity	KW	6.3	7.1	8.0	9.0

Model		GMV-ND56PHS/A-T	GMV-ND63PHS/A-T	GMV-ND71PHS/A-T	GMV-ND80PHS/A-T
Air Flow Rate	m ³ /h	1000	1000	1100	1100
Static Pressure (Pa)	Standard	70	70	70	70
	Optional	0~100	0~100	0~100	0~100
Noise	dB(A)	44	44	45	45
Cooling Power Input (W)		120	120	130	130
Heating Power Input (W)		120	120	130	130
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Unit Dimensions (mm) (W×D×H)		1271×558×268	1271×558×268	1271×558×268	1271×558×268
Connection Pipe	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia.×Thickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Net Weight	kg	35	35	47	47

Model		GMV-ND90PHS/A-T	GMV-ND100PHS/A-T	GMV-ND112PHS/A-T	GMV-ND125PHS/A-T
Cooling Capacity	KW	9.0	10.0	11.2	12.5
Heating Capacity	KW	10.0	11.2	12.5	14.0
Air Flow Rate	m ³ /h	1700	1700	1700	2000
Static Pressure (Pa)	Standard	70	70	70	70
	Optional	0~100	0~100	0~100	0~100
Noise	dB(A)	46	46	46	48
Cooling Power Input (W)		200	200	200	220
Heating Power Input (W)		120	120	130	130
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Unit Dimensions (mm) (W×D×H)		1229×775×290	1229×775×290	1229×775×290	1229×775×290
Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52

Model		GMV-ND90PHS/A-T	GMV-ND100PHS/A-T	GMV-ND112PHS/A-T	GMV-ND125PHS/A-T
Drain Pipes(External Dia. ×Thickness) (mm)		Φ25×2.5	Φ25×2.5	Φ25×2.5	Φ25×2.5
Net Weight	kg	47	47	47	47

Model		GMV-ND140PHS/A-T	GMV-ND224PH/A-T	GMV-ND280PH/A-T	
Cooling Capacity	KW	14.0	22.4	28.0	
Heating Capacity	KW	16.0	25.0	31.0	
Air Flow Rate	m ³ /h	2000	4000	4400	
Static Pressure (Pa)	Standard	70	150	150	
	Optional	0~100	50~200	50~200	
Noise	dB(A)	48	54	55	
Cooling Power Input (W)		220	700	1000	
Heating Power Input (W)		220	750	1050	
Power Supply		220-240V 1phase~50Hz 208-230V 1phase~60Hz			
Unit Dimensions (mm) (W×D×H)		1229×775×290	1483×791×385	1628×869×454	
Connection Pipe	Gas Pipe	mm	Φ15.9	Φ19.05	Φ22.2
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)		Φ25×2.5	Φ30×1.5	Φ30×1.5	
Net Weight	kg	47	80	115	

Conversion Formula: 1kW=3412Btu/h

Note:

① Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.

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 (44.6°F) DB/6°C (42.8°F) WB

Connection pipe length: 5m, without height drop between units.

➤ **Floor Ceiling Type**

Model		GMV-ND28ZD/ A-T	GMV-ND36ZD/ A-T	GMV-ND50ZD/ A-T	GMV-ND56ZD/ A-T	GMV-ND63ZD/ A-T	
Cooling Capacity	KW	2.8	3.6	5.0	5.6	6.3	
Heating Capacity	KW	3.2	4.0	5.6	6.3	7.1	
Air Flow Rate	m ³ /h	650	650	950	950	1400	
Noise	dB(A)	36	36	42	42	44	
Power Input (W)	Cooling	40	40	50	50	75	
	Heating	40	40	50	50	75	
Power Supply	220-240V 1phase~50Hz 208-230V 1phase~60Hz						
Unit Dimensions (mm) (W×D×H)		1220×700×225	1220×700×225	1220×700×225	1220×700×225	1420×700×245	
Connection Pipe	Gas Pipe	mm	Φ9.52	Φ12.7	Φ12.7	Φ12.7	Φ15.9
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)		Φ17×1.5	Φ17×1.5	Φ17×1.5	Φ17×1.5	Φ17×1.5	
Net Weight	kg	40	40	40	40	50	

Model		GMV-ND71ZD/ A-T	GMV-ND90ZD/ A-T	GMV-ND112ZD /A-T	GMV-ND125ZD /A-T	GMV-ND140ZD/ A-T
Cooling Capacity	KW	7.1	9.0	11.2	12.5	14.0
Heating Capacity	KW	8.0	10.0	12.5	14.0	16.0
Air Flow Rate	m ³ /h	1400	1600	2000	2000	2000
Noise	dB(A)	44	50	52	52	52
Power Input (W)	Cooling	75	140	160	160	160
	Heating	75	140	160	160	160
Power Supply	220-240V 1phase~50Hz 208-230V 1phase~60Hz					
Unit Dimensions (mm) (W×D×H)		1420×700×245	1420×700×245	1700×700×245	1700×700×245	1700×700×245
Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9

Model		GMV-ND71ZD/ A-T	GMV-ND90ZD/ A-T	GMV-ND112ZD /A-T	GMV-ND125ZD /A-T	GMV-ND140ZD/ A-T
Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)		Φ17×1.5	Φ17×1.5	Φ17×1.5	Φ17×1.5	Φ17×1.5
Net Weight	kg	50	50	60	60	60

Conversion Formula: 1kW=3412Btu/h

Note:

① Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.

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 (44.6°F) DB / 6°C (42.8°F) WB

Connection pipe length: 5m, without height drop between units.

➤ **Wall Type**

Model			GMV-N22G/A3A-K	GMV-N28G/A3A-K	GMV-N36G/A3A-K	GMV-N45G/A3A-K
Cooling Capacity	KW		2.2	2.8	3.6	4.5
Heating Capacity	KW		2.5	3.2	4.0	5.0
Air Flow Rate	m ³ /h		500	500	630	630
Noise (H/L)	dB(A)		38/30	38/30	44/38	44/38
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Unit Dimensions (mm) (W×D×H)			843×180×275	843×180×275	940×200×298	940×200×298
Conn ection Pipe	Gas Pipe	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
Drain Pipes(External Dia. ×Thickness) (mm)			Φ20×1.5	Φ20×1.5	Φ20×1.5	Φ20×1.5
Net Weight	kg		10.0	10.0	12.5	12.5

Model			GMV-N50G/A3A-K	GMV-N56G/A3A-K	GMV-N63G/A3A-K	GMV-N71G/A3A-K
Cooling Capacity	KW		5.0	5.6	6.3	7.1
Heating Capacity	KW		5.8	6.3	7.0	7.5
Air Flow Rate	m ³ /h		630	750	750	750
Noise (H/L)	dB(A)		44/38	44/38	44/38	44/38
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Unit Dimensions (mm) (W×D×H)			940×200×298	1008×221×319	1008×221×319	1008×221×319
Conn ection Pipe	Gas Pipe	mm	Φ12.7	Φ15.87	Φ15.87	Φ15.87
	Liquid Pipe	mm	Φ6.35	Φ9.52	Φ9.52	Φ9.52
Drain Pipes(External Dia. ×Thickness) (mm)			Φ20×1.5	Φ30×1.5	Φ30×1.5	Φ30×1.5
Net Weight	kg		12.5	15.0	15.0	15.0

Conversion Formula: 1kW=3412Btu/h

Note:

- ① The design of this unit comply with the national executing standard.
- ② Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.
- ③ Refer to the product nameplate for parameters and specification of the unit.

8.2 Outdoor Unit

Model		GMV-224WL/A-X	GMV-250WL/A-X	GMV-280WL/A-X
Cooling Capacity	KW	22.4	25	28
Heating Capacity	KW	25	28	30
Air Flow Rate	m ³ /h	9000	9000	9000
Noise	dB(A)	60	61	61
R410A Filling Amount	kg	7.2	7.6	7.6
Energy Efficiency Level	level	1	1	1
EER		3.34	3.38	3.37
COP		3.82	3.81	3.68
Power Supply		380V 3N~50/60Hz	380V 3N~50/60Hz	380V 3N~50/60Hz
Cooling Power Input	KW	6.7	7.4	8.3

Model		GMV-224WL/A-X	GMV-250WL/A-X	GMV-280WL/A-X
Heating Power Input	KW	6.54	7.35	8.15
Unit Dimensions (mm) (Width×Depth×Height)		1098×399×1584	1098×399×1584	1098×399×1584
Package Dimensions (mm) (Width×Depth×Height)		1183×473×1785	1183×473×1785	1183×473×1785
Compressor		QXAS-D32zX050×2	QXAS-F428zX050B×2	QXAS-F428zX050B×2
Moisture Protection		IPX4	IPX4	IPX4
Connection Pipe	Gas Pipe	mm	22.2	22.2
	Liquid Pipe	mm	9.52	9.52
	Connection Method		Brazing Connection	Brazing Connection
Net Weight	kg	175	185	185

Conversion Formula: 1kW=3412Btu/h

Note:

- ① The technical parameters are changed along with the products' improvement; please refer to the nameplate of the unit for actual data.
- ② Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual operation due to environmental change.
- ③ 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

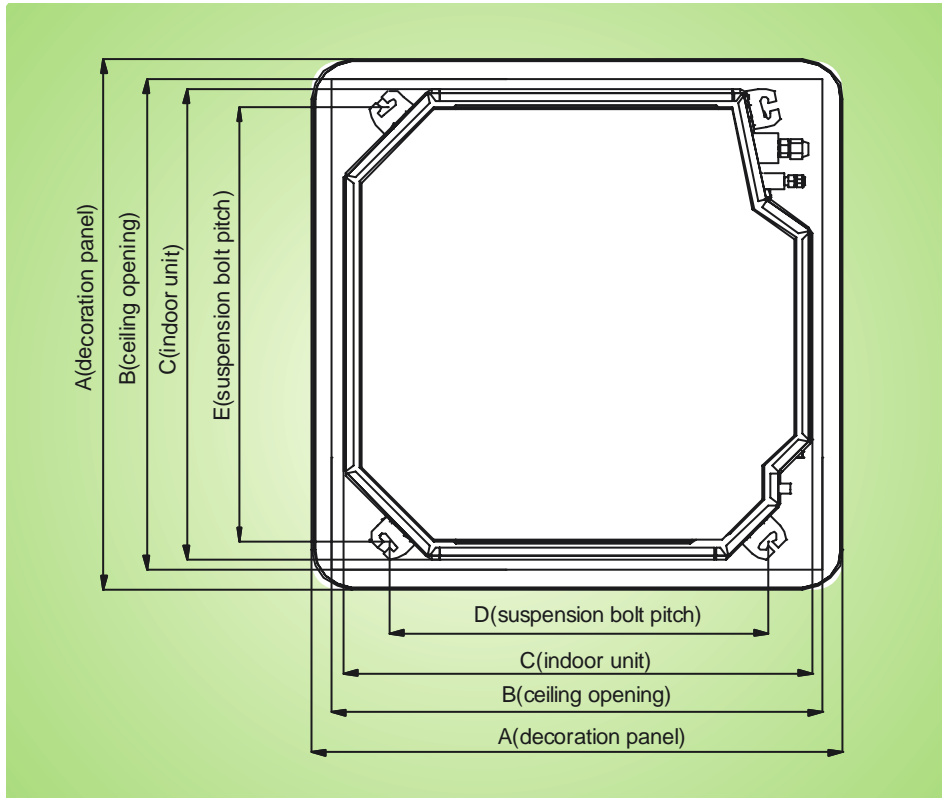
Outdoor air temperature 7°C (44.6°F) DB / 6°C (42.8°F) WB

9 DIMENSIONAL DRAWINGS

9.1 Indoor Unit

➤ 4-way Cassette Type

① Outline Dimensions:



GMV-ND28T/A-T, GMV-ND36T/A-T, GMV-ND45T/A-T, GMV-ND50T/A-T (mm)

A	B	C	D	E	G	H
950	890	840	680	780	65	210

GMV-ND56T/A-T, GMV-ND63T/A-T, GMV-ND71T/A-T, GMV-ND80T/A-T (mm)

A	B	C	D	E	G	H
950	890	840	680	780	65	260

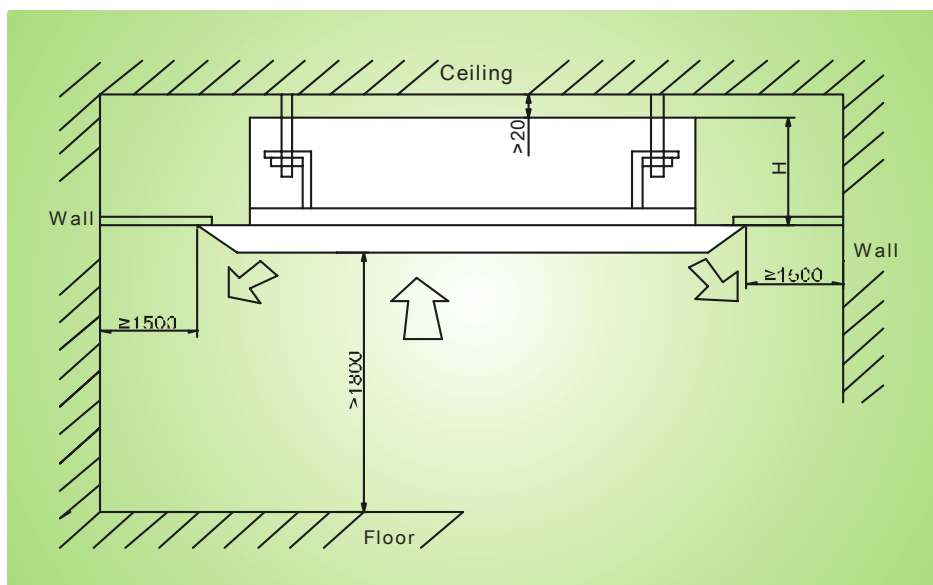
GMV-ND90T/A-T, GMV-ND100T/A-T, GMV-ND112T/A-T, GMV-ND125T/A-T, GMV-ND140T/A-T (mm)

A	B	C	D	E	G	H
950	890	840	680	780	65	340

GMV-ND160T/A-T (mm)

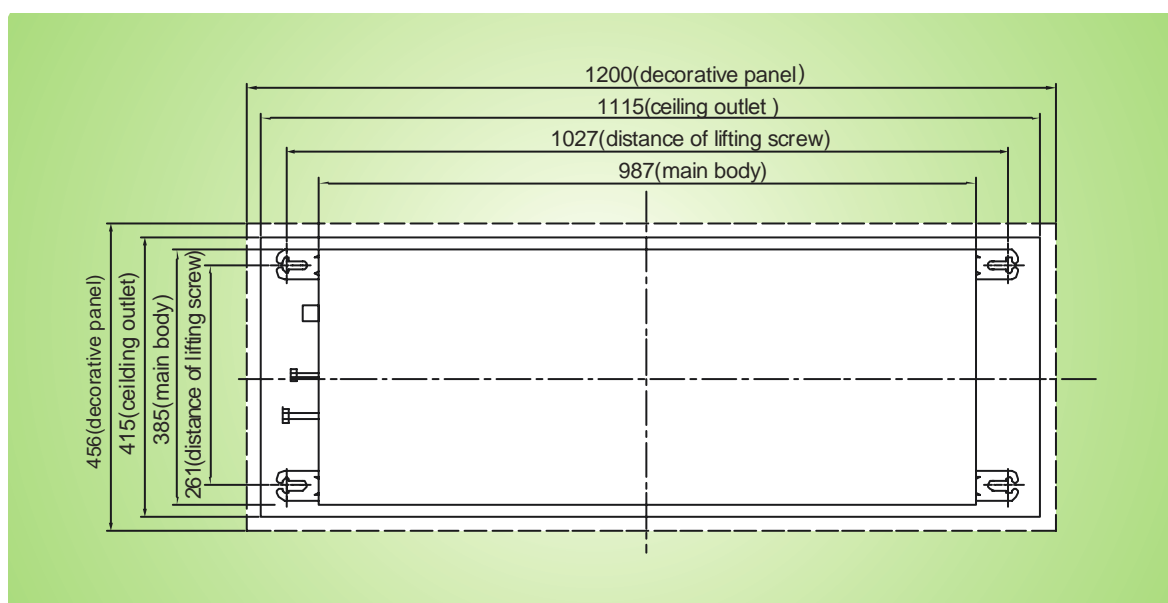
A	B	C	D	E	G	H
1040	975	910	787	840	65	315

② Space Dimension for Installation: (mm)

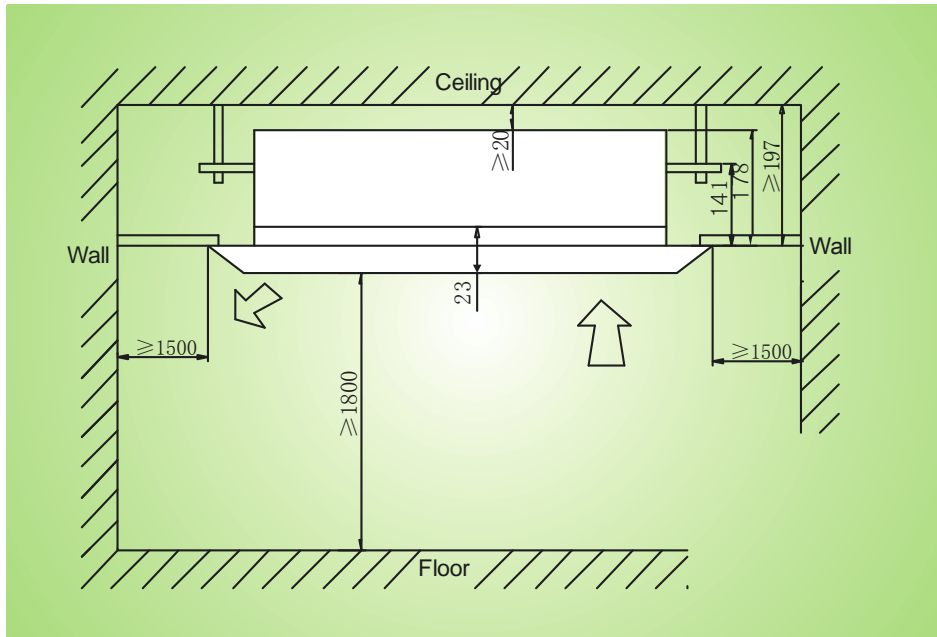


➤ **1-way Cassette Type**

① Outline Dimensions:

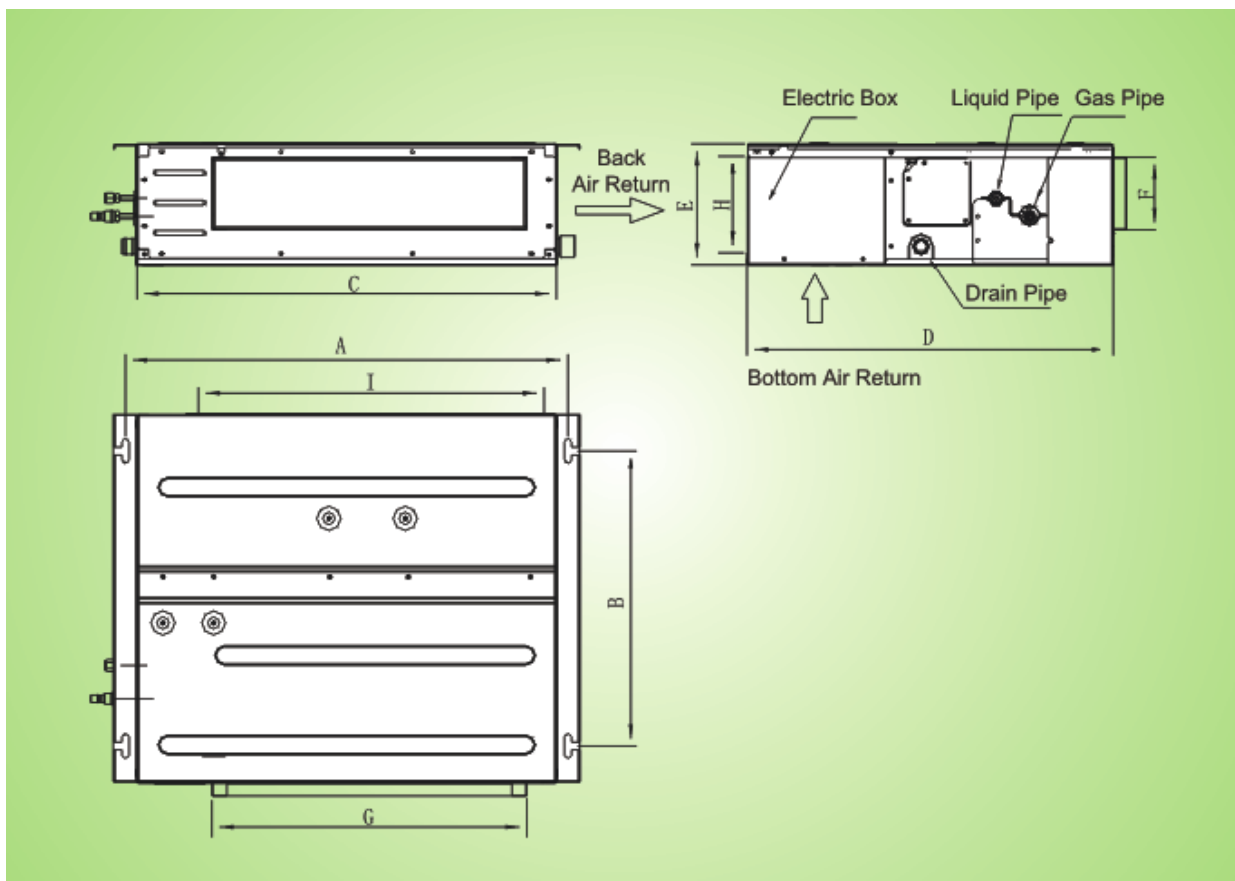


② Space Dimension for Installation: (mm)



➤ **Low Static Pressure Duct Type**

① **Outline Dimensions:**



GMV-ND22PLS/A-T, GMV-ND25PLS/A-T, GMV-ND28PLS/A-T, GMV-ND32PLS/A-T, GMV-ND36PLS/A-T
(mm)

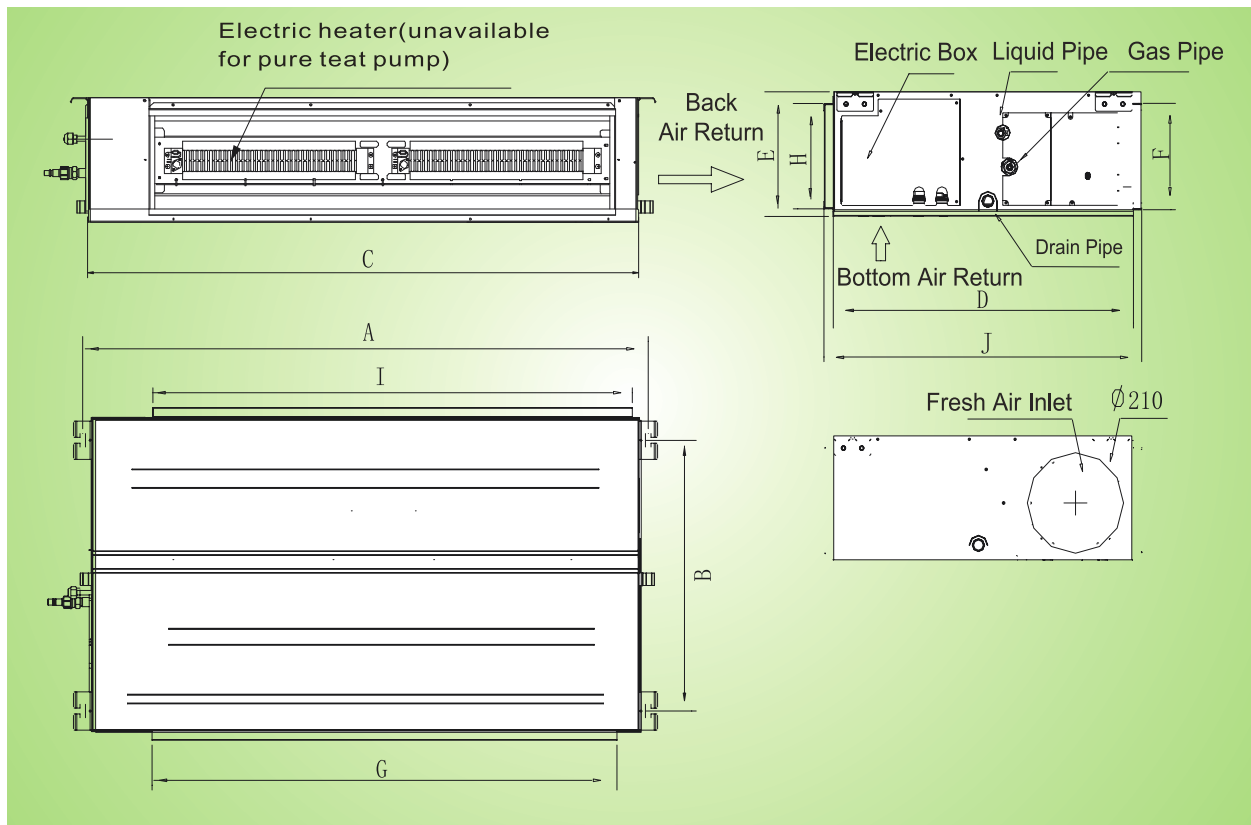
A	B	C	D	E	F	G	H	I
742	491	700	615	200	121	528	161	580

GMV-ND40PLS/A-T, GMV-ND45PLS/A-T, GMV-ND50PLS/A-T (mm)

A	B	C	D	E	F	G	H	I
942	491	900	615	200	121	728	161	780

GMV-ND56PLS/A-T, GMV-ND63PLS/A-T (mm)

A	B	C	D	E	F	G	H	I
1142	491	1100	615	200	121	928	161	980



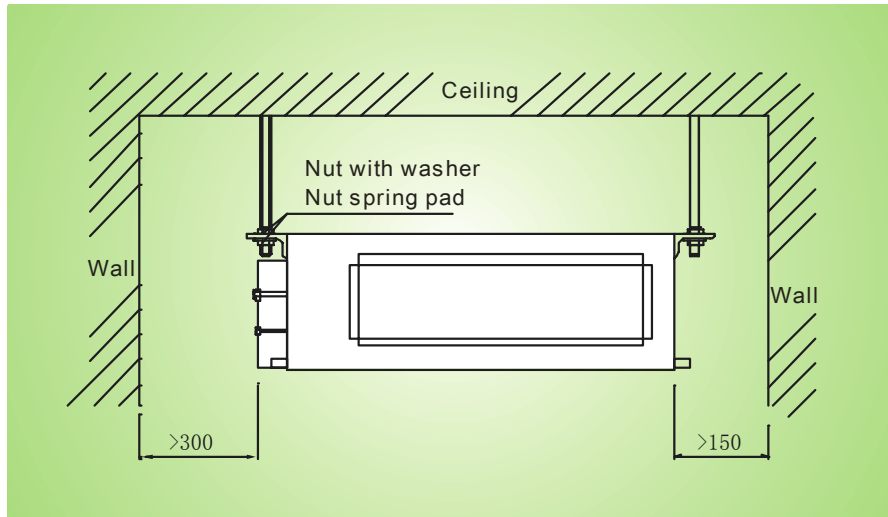
GMV-ND71PLS/A-T, GMV-ND80PLS/A-T (mm)

A	B	C	D	E	F	G	H	I	J
1236	565	1200	655	260	222	1016	220	1050	695

GMV-ND90PLS/A-T, GMV-ND100PLS/A-T, GMV-ND112PLS/A-T, GMV-ND125PLS/A-T, GMV-ND140PLS/A-T (mm)

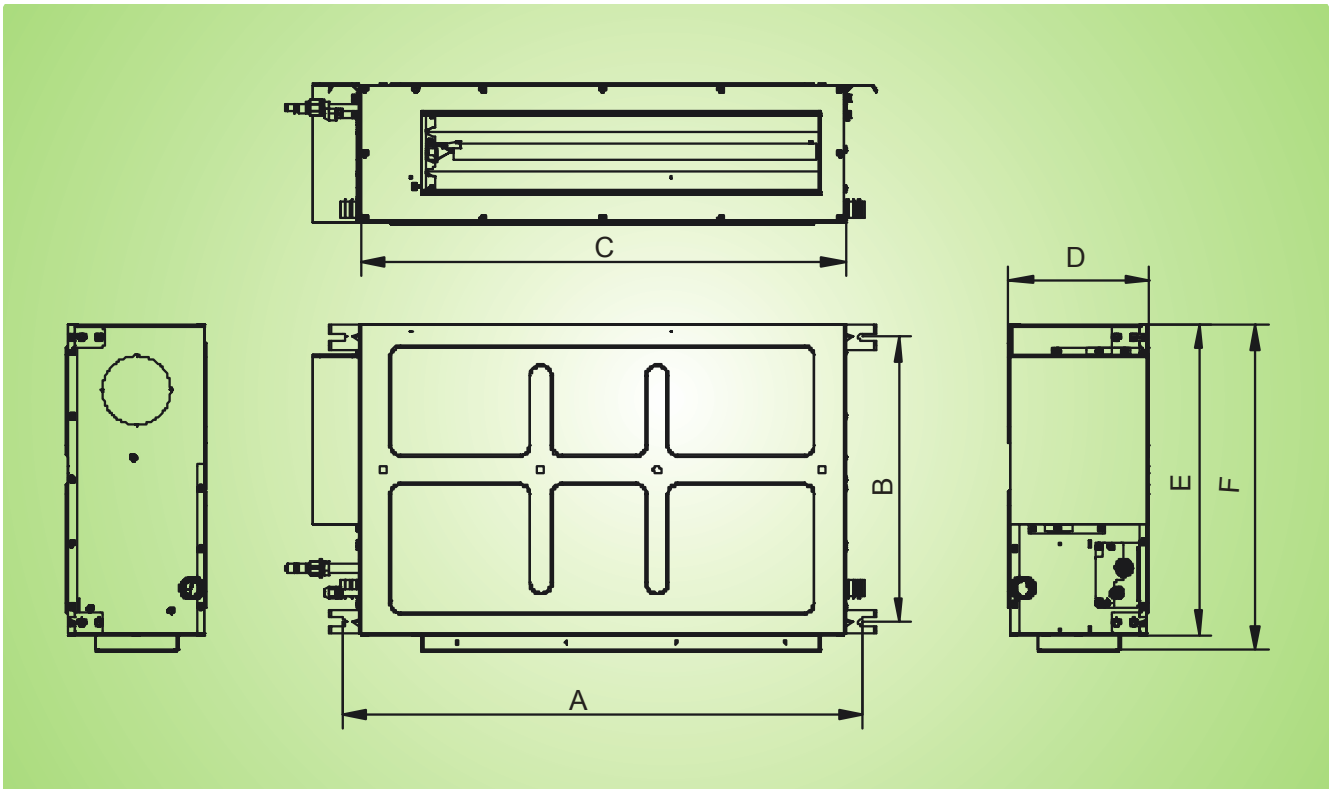
A	B	C	D	E	F	G	H	I	J
1379	565	1340	655	260	207	1153	220	1188	716

② Space Dimension for Installation: (mm)



➤ **Slim Duct Type**

① **Outline Dimensions:**



GMV-ND22PL/B-T, GMV-ND25PL/B-T, GMV-ND28PL/B-T, GMV-ND32PL/B-T, GMV-ND36PL/B-T (mm)

A	B	C	D	E	F
760	415	710	200	450	475

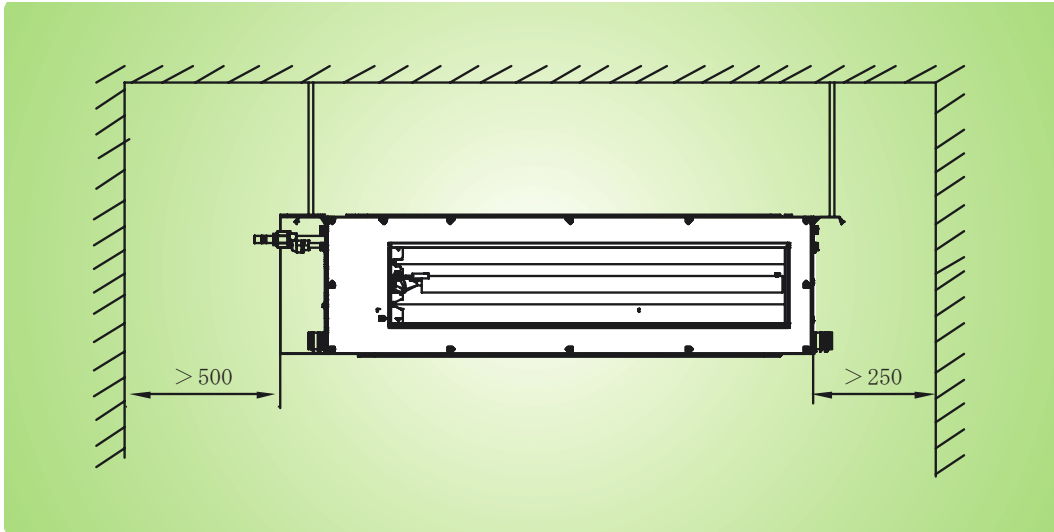
GMV-ND40PL/B-T, GMV-ND45PL/B-T, GMV-ND50PL/B-T, GMV-ND56PL/B-T, GMV-ND63PL/B-T (mm)

A	B	C	D	E	F
1060	415	1010	200	450	475

GMV-ND72PL/B-T (mm)

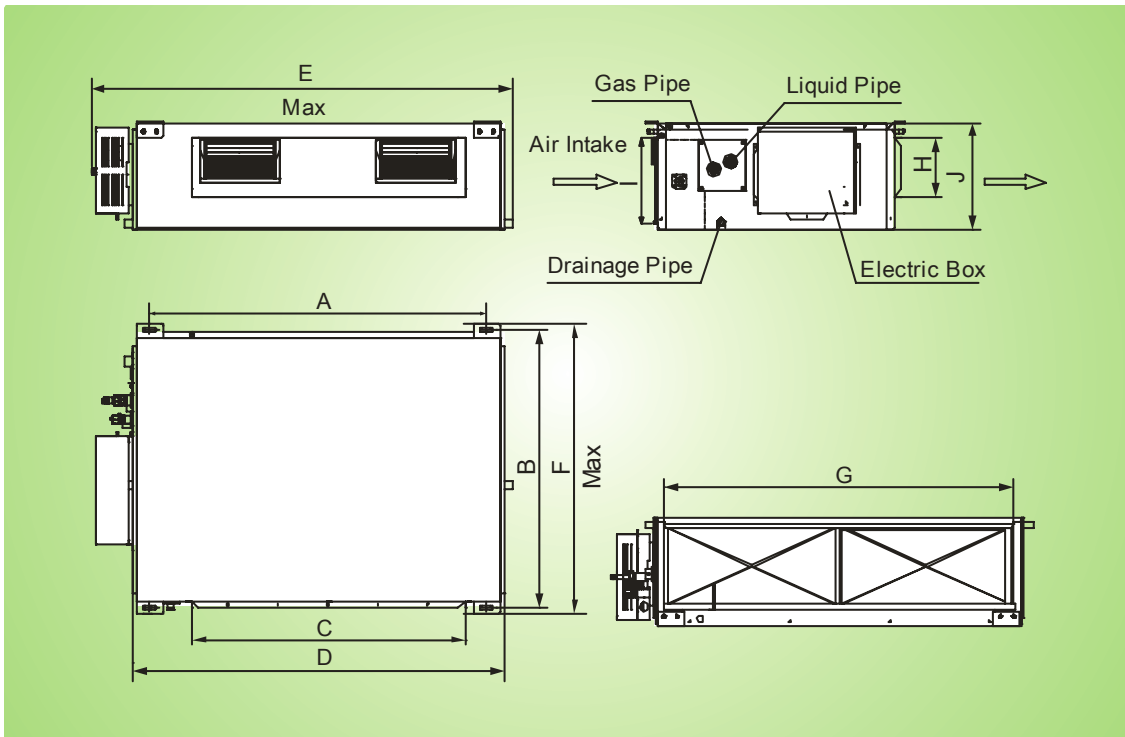
A	B	C	D	E	F
1360	415	1310	200	450	475

② Space Dimension for Installation: (mm)



➤ High Static Pressure Duct Type

① Outline Dimensions:

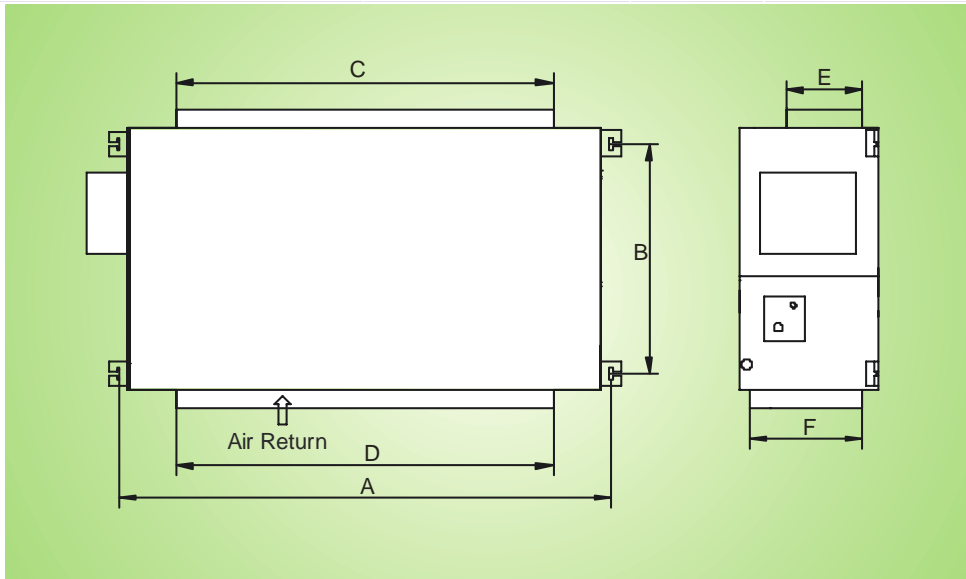


GMV-ND56PHS/A-T, GMV-ND63PHS/A-T, GMV-ND71PHS/A-T, GMV-ND80PHS/A-T (mm)

A	B	C	D	E	F	G	H	I	J
1101	517	820	1159	1271	558	1002	160	235	268

GMV-ND90PHS/A-T, GMV-ND100PHS/A-T, GMV-ND112PHS/A-T, GMV-ND125PHS/A-T, GMV-ND140PHS/A-T (mm)

A	B	C	D	E	F	G	H	I	J
1101	748	820	1115	1229	775	979	160	231	290



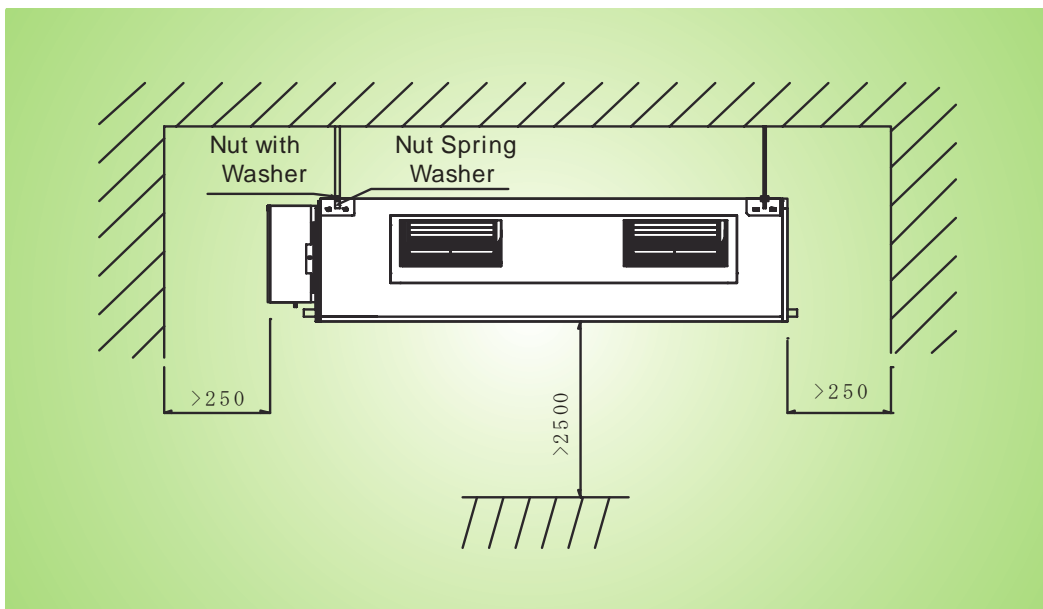
GMV-ND224PH/A-T (mm)

A	B	C	D	E	F
1353	632	992	1150	192	327

GMV-ND280PH/A-T (mm)

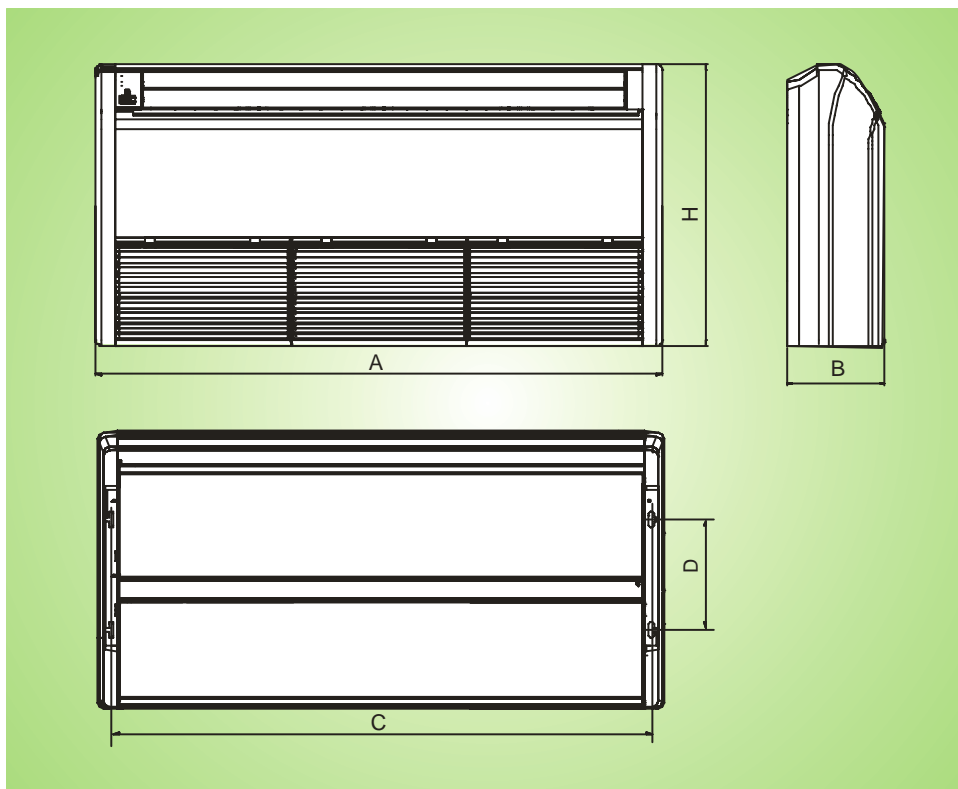
A	B	C	D	E	F
1563	706	992	1350	192	402

② Space Dimension for Installation: (mm)



➤ **Floor Ceiling Type**

① **Outline Dimensions:**



GMV-ND28ZD/A-T, GMV-ND36ZD/A-T, GMV-ND50ZD/A-T, GMV-ND56ZD/A-T (mm)

A	B	C	D	H
1220	225	1158	280	700

GMV-ND63ZD/A-T, GMV-ND71ZD/A-T, GMV-ND90ZD/A-T (mm)

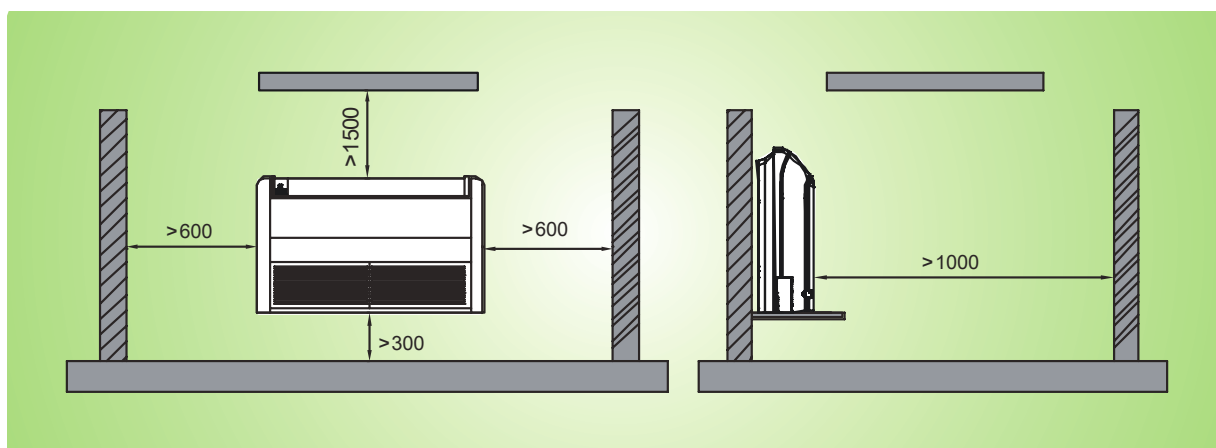
A	B	C	D	H
1420	245	1354	280	700

GMV-ND112ZD/A-T, GMV-ND125ZD/A-T, GMV-ND140ZD/A-T (mm)

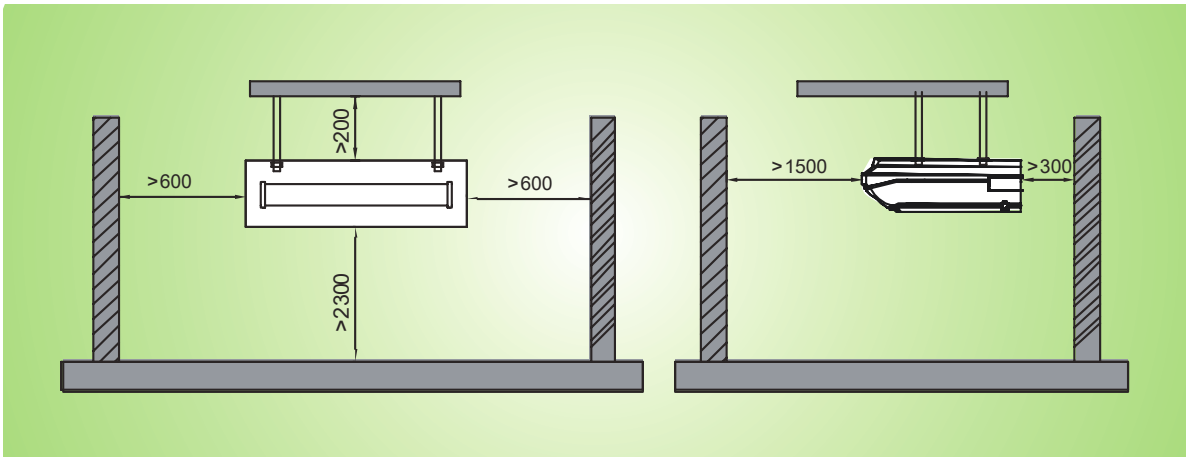
A	B	C	D	H
1700	245	1634	280	700

② Space Dimension for Installation: (mm)

✧ Floor Type

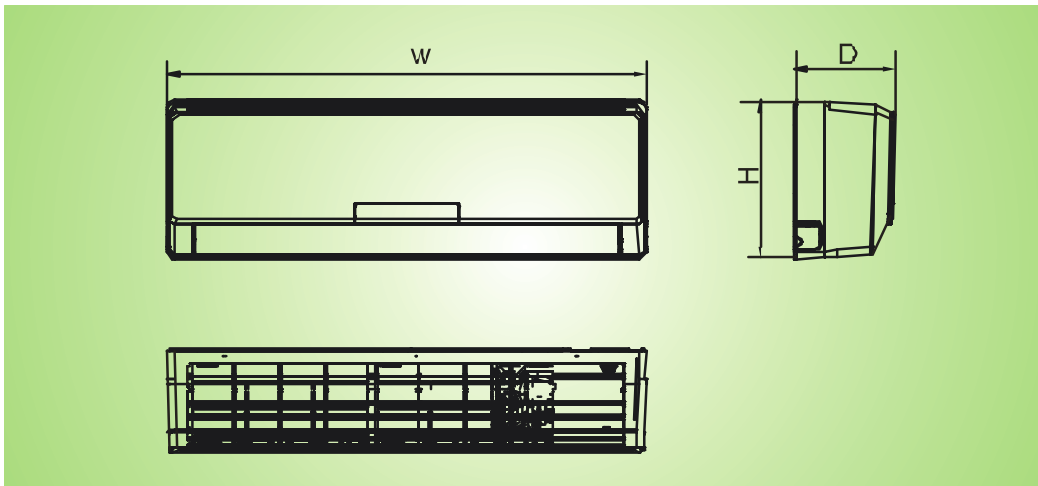


✧ Ceiling Type



➤ Wall Type

① Outline Dimensions:



GMV-N22G/A3A-K, GMV-N28G/A3A-K (mm)

W	H	D
843	275	180

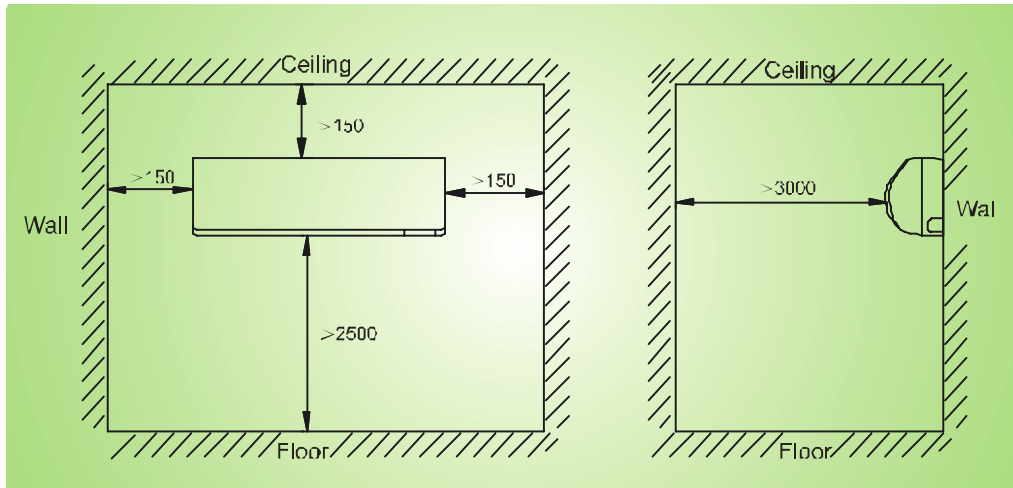
GMV-N36G/A3A-K, GMV-N45G/A3A-K, GMV-N50G/A3A-K (mm)

W	H	D
940	298	200

GMV-N56G/A3A-K, GMV-N63G/A3A-K, GMV-N71G/A3A-K (mm)

W	H	D
1008	319	221

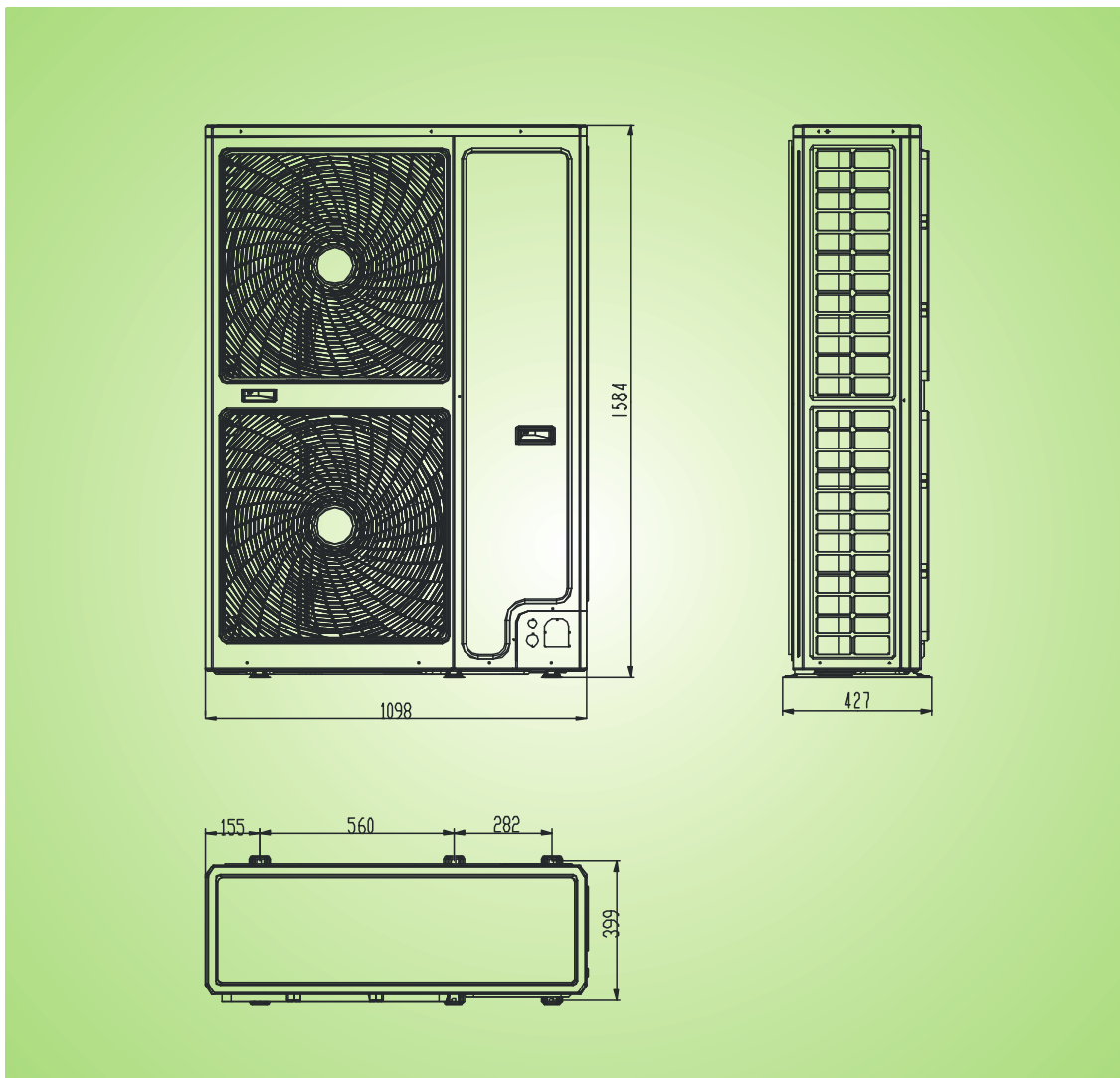
② Space Dimension for Installation: (mm)



9.2 Outdoor Unit

GMV-224WL/A-X, GMV-250WL/A-X, GMV-280WL/A-X

➤ **Outline Dimensions and Installation Holes: (mm)**

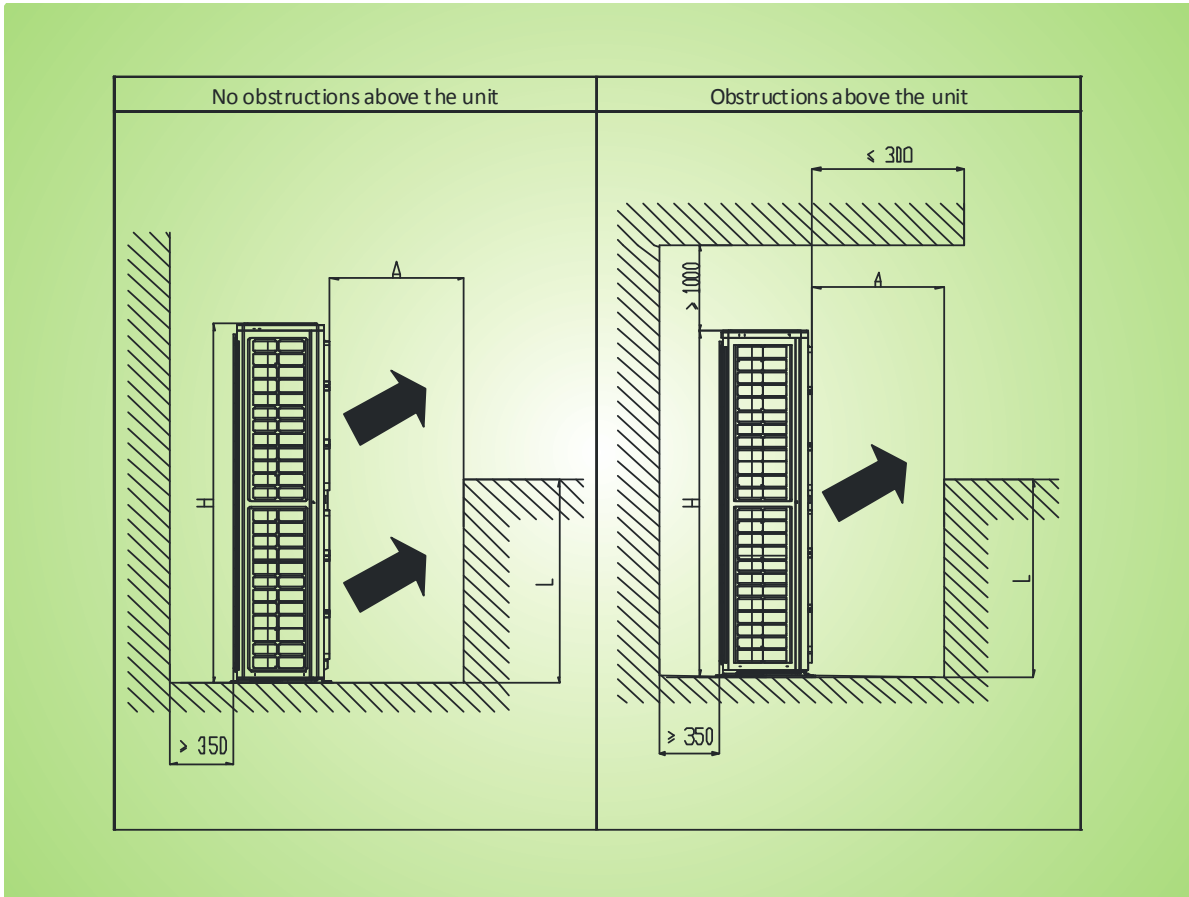


Use M12 bolt to fix up the chassis of the units when installing units.

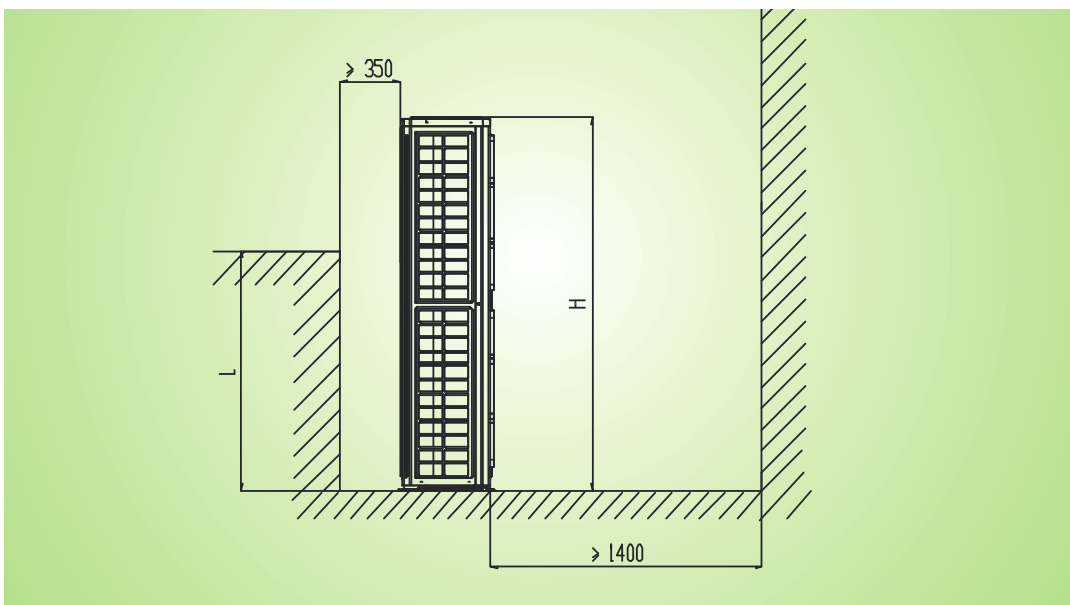
Outdoor unit shall be installed on a concrete base 10cm high.

➤ **Space Dimension for Installation :**

① **Obstructions in the air inlet (mm)**



② **Obstructions in the air outlet (mm)**



Note:

- ✧ Be sure that L is less than H, and H is the height of the unit and its chassis;
- ✧ The value of A must meet the following standard: (mm)

L	A
$0 < L < 1/2H$	≥ 600
$1/2H < L < H$	≥ 1400

9.3 Controller

➤ Wired controller

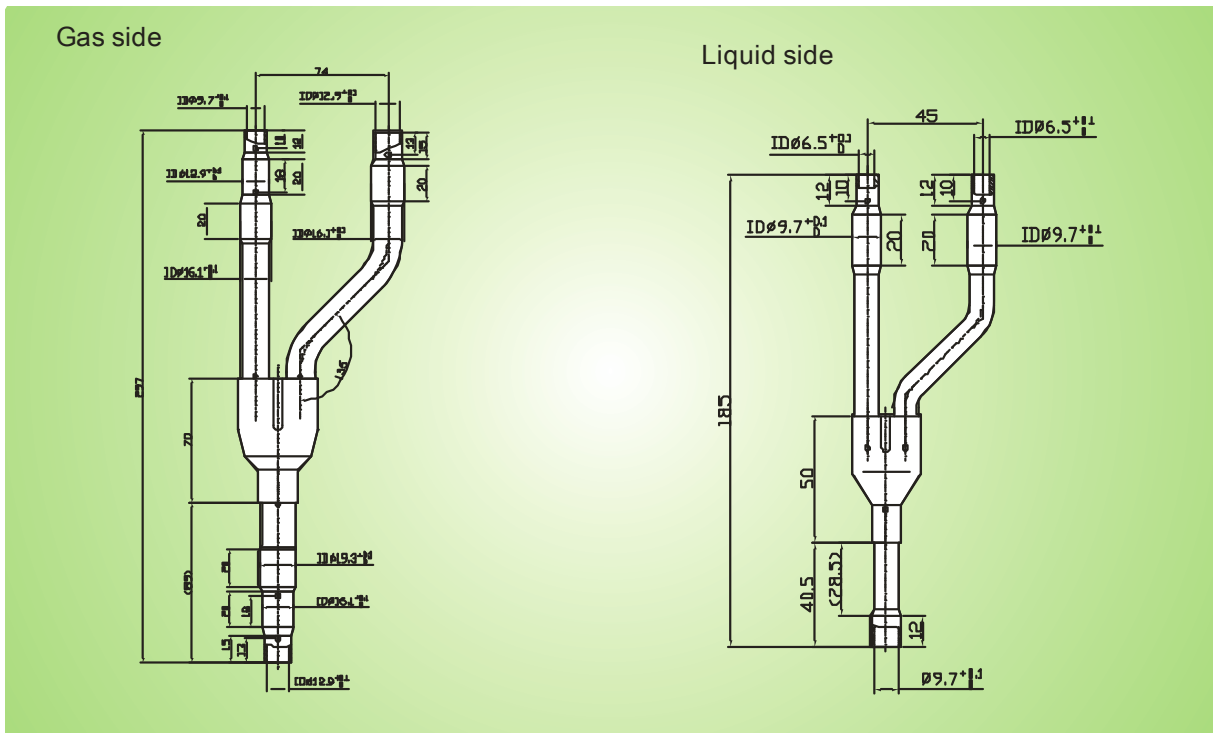


➤ Remote controller

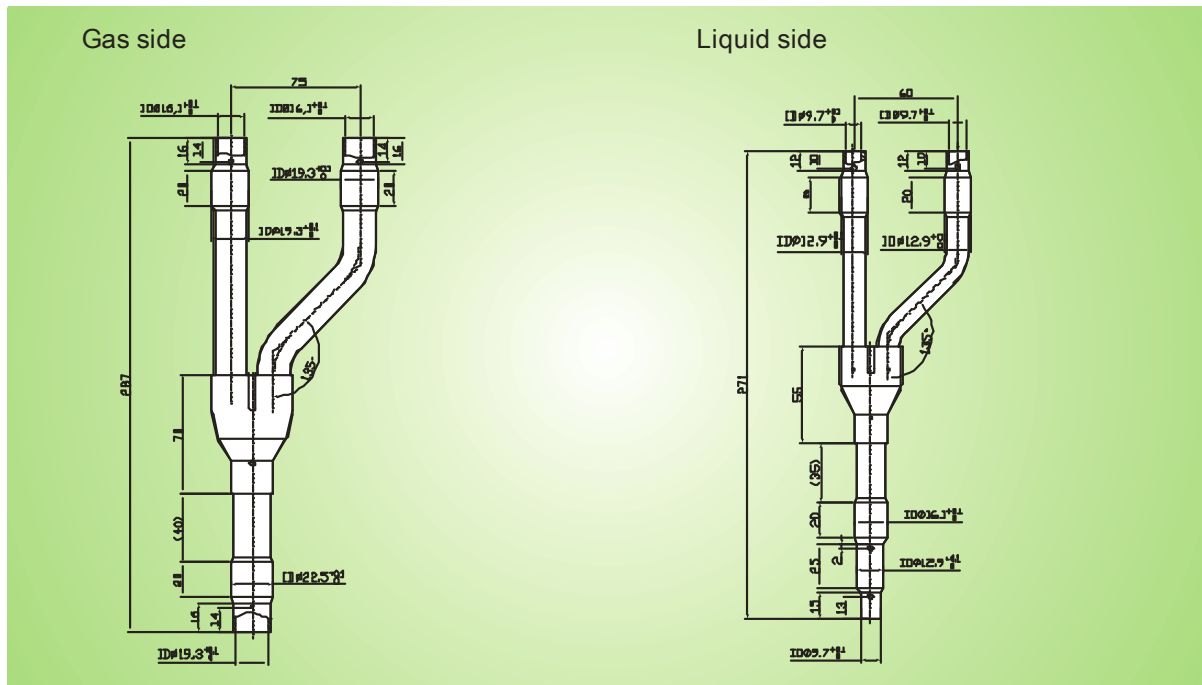


10.3 Branching Joint

➤ FQ01A



➤ FQ01B



Branching Pipe Diameter ID (mm)	Pipe Diameter OD (Inch)
Φ6.5	1/4
Φ9.7	3/8
Φ12.9	1/2
Φ16.1	5/8
Φ19.3	3/4
Φ22.5	7/8

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