# DC INVERTER MULTI VRF SYSTEM TECHNICAL SALES GUIDE

(GC201804)

BETTER CONDITIONERS GREE MAKING BETTER CONDITIONERS GREE MAKING BETTER CONDITIONERS GREE MAKING BETTER CONDITION

TECHNICAL SALES GUIDE-60Hz

CAPACITY RANGE:24~60kBtu/h

SUPER HIGH AMBIENT OPERATION TO 118 ˚F

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R410A

GREE ELECTRIC APPLIANCES INC.OF ZHUHAI

# CONTENTS

# 1 OUTLINE OF MULTI VRF

## 1.1 Product List

| | |
|---|---|
| Model | GMV-24WL/C-T(U) |
| | GMV-28WL/C-T(U) |
| | GMV-36WL/A-T(U) |
| | GMV-48WL/A-T(U) |
| | GMV-60WL/A-T(U) |

## 1.2 Product Features

### 1.2.1 Summary of Features

GMV5 mini DC Inverter Multi VRF System is the new generation of DC inverter multi VRF system that Gree developed independently. It is a single refrigeration system that made up of one air cooled outdoor unit connected with several direct evaporative indoor units of identical or different series or capacity. It provides processed air directly to an area or several areas, which is mainly applicable for household or light commercial facilities. This product is endowed with the features of high efficiency, high anti-interference ability, long connection pipe, wide operation range, good acoustic, intelligent capacity adjustment, all-around protection.

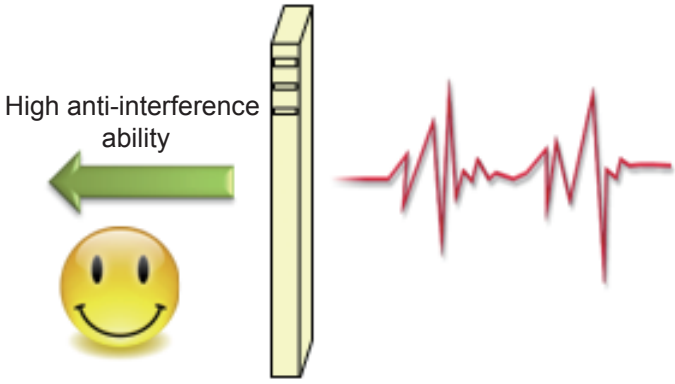
### 1.2.2 Introduction of Features

(1) High Efficiency

The system adopts all DC motor, which greatly improves efficiency. The energy efficiency for Gree all DC unit is increased greatly. SEER is up to 16; HSPF of GMV-24WL/C-T(U)、GMV-28WL/C-T(U)、GMV-36WL/A-T(U) and GMV-48WL/A-T(U) is up to 9; HSPF of GMV-60WL/A-T(U) is up to 8.2.

(2) Latest CAN Bus Communication

The latest communication way-CAN bus communication is adopted, which greatly improves anti-interference ability, precisely controls the indoor units and improves the reliability of system. Meanwhile, specialized shielded wire is not longer needed, while conventional communication wire can be used to increase the flexibility of project installation.




(3) Long Connection Pipe and Big Height Difference

The max length of connection reaches 300m(984ft)(total length). The connection pipe between indoor unit and outdoor unit can be as long as 120m(394ft). Project installation condition is wider while the limitation of installation distance is smaller. Branching joint and branching manifold can also be used.

The max allowable height difference between indoor unit and outdoor unit is 50m(164ft) and that between indoor unit and indoor unit is 15m(49ft).

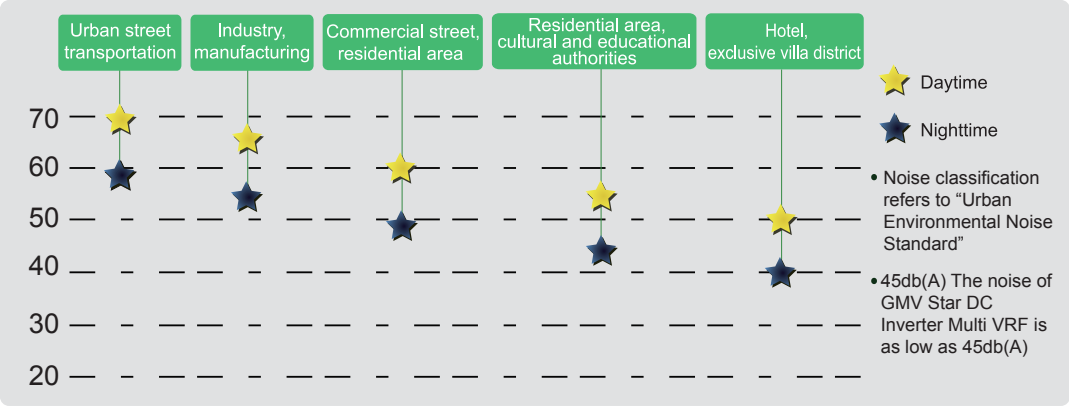
(4) Wide Operation Range

The system can operate constantly and reliably in a wide temperature range(cooling: -5~48°C(23~118°F), heating: -20~27°C(-4~81°F)), which is not affected by atrocious environment.

| Last generation | | GMV5 Mini DC Inverter Multi VRF | |
|---|---|---|---|
| Cooling: | 10~48℃<br>50~118℉ | Cooling: | -5~48 ℃<br>23~118℉ |
| Heatin : | -20~27℃<br>-4~81℉ | Heatin : | -20~27℃<br>-4~81℉ |

(5) Good Acoustic

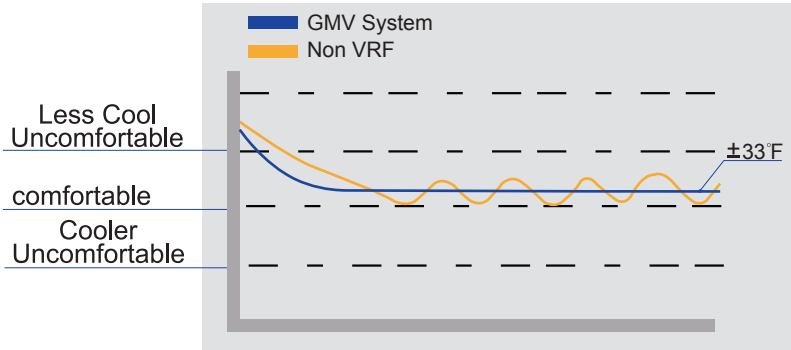
A series of optimized measures are taken to solve the problem of indoor unit's throttling sound, indoor unit's oil return noise, gas bypass noise during start-up, which improves the comfort of system.




(6) PID Intelligent Capacity Adjustment

The system applies the original technology of PID intelligent capacity adjustment, which quickly and precisely controls indoor ambient temperature according to set temperature, with small temperature fluctuation and great comfort.

Temperature fluctuation the foom




(7) Intelligent Control

1) Advanced DC inverter technology

① High-efficient magnetic reluctance inverter compressor: High-efficient magnetic reluctance compressor is adopted to take advantage of the magnetic reluctance torque of compressor. Under the same output capacity, the efficiency can be improved by 5%.

② Advanced torque control technology: minimum current and maximum torque control technology adopts the most optimized control principle to realize maximum torque output with minimum current and reduce loss of motor winding and intelligent power module for higher energy efficiency.

③ Closed-loop start-up technology of compressor: Self-innovative closed-loop start-up control is applied to enable output torque follow with load torque, whose start-up current is small and start-up is more reliable.

④ High-efficient numerical PFC control: High-efficient PFC control technology is applied to improve efficiency by approx. 1% compared with traditional PFC; for an air condition with rated power of

5KW, 50W can be saved per hour and 1.2kWh electricity can be saved per day.

⑤ 180º sine wave DC variable speed technology: 180º current output waveform is smooth sine wave with small harmonic wave content, small torque pulsation, wide adjustable range and stable operation of motor, which can satisfy the temperature requirement in various occasion, save electricity greatly and ensure user's comfort in maximum.

2) Beautiful humanized controller design

① 24h timer on or timer off can be preset (countdown timer and clock timer);Detect ambient emperature precisely; 7 kinds of fan speed can be set;

② Auto, cool, dry, fan or heat mode can be set;

③ Master wired controller and sub-master wired controller can be set; several indoor units can be controlled simultaneously;

④ Various functions can be set: sleep, ventilation, quiet (auto quiet), light, absence, energy-saving, clean, e-heater, x-fan, memory, etc.

3) High anti-interference ability

The latest communication way-CAN bus communication(non-polar communication) is adopted, which greatly improves anti-interference ability. Specialized shielded wire is not longer needed for communication wire between units, while conventional communication wire can be used to increase the flexibility of project installation.

4) Intelligent temperature control technology and intelligent defrosting mode are adopted

The system is with strong quick cooling/heating function, which can increase indoor temperature rapidly to set temperature and perform defrosting according to frosting situation.

(8) Independent remote control, wired control, zone control, centralized control, long-distance monitoring and weekly timer control of indoor units are available.

# 2 SUMMARY OF SYSTEM EQUIPMENTS

## 2.1 Outdoor Unit

| Model | Code | Ref. | Power Supply | Appearance |
|---|---|---|---|---|
| GMV-24WL/C-T(U) | CN850W0740 | R410A | 208/230V ~ 60Hz |  |
| GMV-28WL/C-T(U) | CN850W0750 | R410A | 208/230V ~ 60Hz | |
| GMV-36WL/A-T(U) | CN850W0230 | R410A | 208/230V ~ 60Hz |  |
| GMV-48WL/A-T(U) | CN850W0220 | R410A | 208/230V ~ 60Hz | |
| GMV-60WL/A-T(U) | CN850W0270 | R410A | 208/230V ~ 60Hz | |

### 2.1.1 Nomenclature

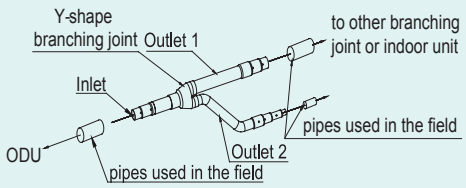
| GMV | □ | - | □ | □ | □ | □ | W | □ | / | □ | □ | □ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | | 3 | 4 | 5 | | 6 | 7 | | 8 | 9 | 10 |

| No. | Description | Options |
|---|---|---|
| 1 | Product code | GMV-Gree Multi VRF Units |
| 2 | Suitable climate | Blank-T1 condition; T2-low temperature climate;<br>T3-high temperature climate |
| 3 | Unit type | DC Inverter (omit) |
| 4 | Function code | Q—Heat Recovery; S—Water Heater; W—Water-cooled Unit; X—Fresh Air Unit<br>Leave blank if above functions are unavailable. |
| 5 | Code of cooling capacity | Nominal capacity/1000(Btu/h) |
| 6 | Unit structure | M—Modular (top discharge); L—Non-modular (side discharge); blank—Non-modular (top discharge) |
| 7 | Refrigerant | R410A (omit) |
| 8 | Design No. | Named in order of A, B, C, or combined with 1, 2, 3… |
| 9 | Power supply | 24000~61000Btu/h, 1 phase—omit; 3 phase—S |

### 2.1.2 Rated Conditions

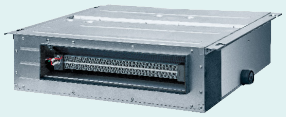
| | Indoor side inlet air status | | | | Outdoor side inlet air status | | | |
|---|---|---|---|---|---|---|---|---|
| | Dry bulb temperature | | Wet bulb temperature | | Dry bulb temperature | | Wet bulb temperaturea | |
| | ℃ | ℉ | ℃ | ℉ | ℃ | ℉ | ℃ | ℉ |
| Cooling | 26.7 | 80.0 | 19.4 | 67.0 | 35.0 | 95.0 | 23.9 | 75.0 |
| Heating | 21.1 | 70.0 | 15.6 | 60.0 | 8.3 | 47 | 6.1 | 43 |

### 2.1.3 Branching joints

| | Model name | Usage | Appearance |
|---|---|---|---|
| Y-shape branching joint | GMV-24WL/C-T(U) | FQ01A/A |  |
| | GMV-28WL/C-T(U) | | |
| | GMV-36WL/A-T(U) | | |
| | GMV-48WL/A-T(U) | | |
| | GMV-60WL/A-T(U) | | |



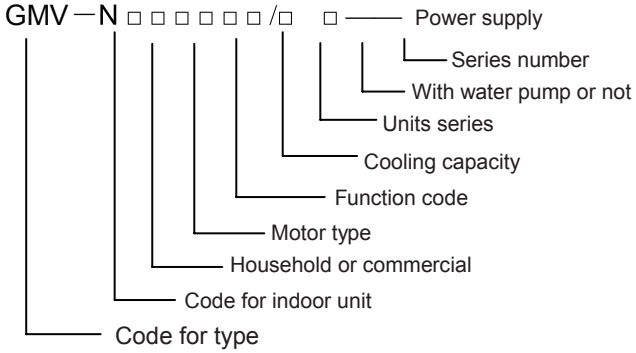
## 2.2 Indoor Unit

| Type | Appearance | Model Name | Cooling Capacity | | Heating Capacity | |
|---|---|---|---|---|---|---|
| | | | kW | Btu/h | kW | Btu/h |
| Duct type indoor unit |  | GMV-ND07PLS/A-T(U) | 2.2 | 7500 | 2.5 | 8500 |
| | | GMV-ND09PLS/A-T(U) | 2.8 | 9500 | 3.1 | 10500 |
| | | GMV-ND12PLS/A-T(U) | 3.5 | 12000 | 4.0 | 13500 |
| | | GMV-ND14PLS/A-T(U) | 4.0 | 13800 | 4.5 | 15500 |
| | | GMV-ND18PLS/A-T(U) | 5.3 | 18000 | 5.9 | 20000 |
| | | GMV-ND22PLS/A-T(U) | 6.3 | 22000 | 7.1 | 24000 |

| Type | Appearance | Model Name | Cooling Capacity | | Heating Capacity | |
|---|---|---|---|---|---|---|
| | | | kW | Btu/h | kW | Btu/h |
| Four-way Cassette |  | GMV-ND07T/A-T(U) | 2.2 | 7500 | 2.5 | 8500 |
| | | GMV-ND09T/A-T(U) | 2.8 | 9500 | 3.1 | 10500 |
| | | GMV-ND12T/A-T(U) | 3.5 | 12000 | 4.0 | 13500 |
| | | GMV-ND15T/A-T(U) | 4.4 | 15000 | 5 | 17000 |
| | | GMV-ND18T/A-T(U) | 5.3 | 18000 | 5.9 | 20000 |
| | | GMV-ND24T/A-T(U) | 7.0 | 24000 | 7.9 | 27000 |
| | | GMV-ND30T/A-T(U) | 8.8 | 30000 | 10 | 34000 |
| | | GMV-ND36T/A-T(U) | 10.6 | 36000 | 11.7 | 40000 |
| | | GMV-ND42T/A-T(U) | 12.3 | 42000 | 13.8 | 47000 |
| | | GMV-ND48T/A-T(U) | 14.1 | 48000 | 15.8 | 54000 |

| Type | Appearance | Model Name | Cooling Capacity | | Heating Capacity | |
|---|---|---|---|---|---|---|
| | | | kW | Btu/h | kW | Btu/h |
| Wall Mounted Type |  | GMV-N07G/A3A-D(U) | 2.2 | 7500 | 2.5 | 8500 |
| | | GMV-N09G/A3A-D(U) | 2.8 | 9500 | 3.2 | 11000 |
| | | GMV-N12G/A3A-D(U) | 3.5 | 12000 | 4.0 | 13500 |
| | | GMV-N18G/A3A-D(U) | 5.2 | 18000 | 5.8 | 20000 |
| | | GMV-N24G/A3A-D(U) | 7.0 | 24000 | 7.5 | 25500 |

## 2.2.1 Nomenclature

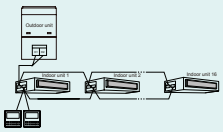
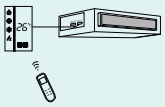
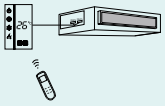



| Code for multi VRF | — | Code for indoor unit | Motor type | Function code | Cooling capacity |
|---|---|---|---|---|---|
| GMV | — | N | D-DC motor<br>Default-AC motor | R-heat pump<br>L-cooling only<br>X-fresh air<br>W-dual heat sources<br>Q-heat recovery<br>Default-electric heating | Nominal cooling capacity/1000(Btu/h) |

| Classification | With water pump or not | Series number | Power supply |
|---|---|---|---|
| PL-Low static pressure duct type indoor unit; P-Standard static pressure duct type indoor; PH-High static pressure duct type indoor unit; PB-Thin duct type indoor unit; T-Four-way cassette; TD-Single-way cassette; TS-Two-way cassette; C-Floor mounting unit; ZD-Floor ceiling unit; G-Wall-mounted unit | With water pump-S(All cassette indoor units are with water pump, S is not presented in the model same) | A, B, C... or 1, 2, 3... | Select power supply code according to power supply specification |

| Power supply specification | Code |
|---|---|
| 220V ～ ,60Hz; 208-230V ～ ,60Hz; 220-240V ～ ,60HZ; 208/230V ～, 60Hz | D |
| 220V ～ ,50Hz; 230V ～ ,50Hz; 220-230V ～ ,50Hz | E |
| 240V ～ ,50HZ | J |
| 220-240V ～ ,50Hz; 230-240V ～ ,50Hz | K |
| 208-230V ～ ,60Hz and 220-240V ～ ,50Hz General | T |

## 3 CONTROLLER

| Name | Model name | Appearance | Application | Function |
|---|---|---|---|---|
| Wired controller | XK42 |  |  | 1）Elegant appearance and adopts big LCD screen with back light;<br>2） Ten touch buttons to avoid complicated combination buttons, which is convenient for operation;<br>3） Optional modes: Auto, cool, dry, fan, heat mode or floor heating, 3D heat supply(heating + floor heating) mode;<br>4）7 kinds of fan speed;<br>5） Clock can be displayed and set; 24h preset ON or OFF is available (countdown, clock timer function);<br>6） Dual wired controllers can be equipped. The two wired controllers can control the same indoor unit simultaneously. Or one wired controller can control several indoor units simultaneously;<br>7）Settable functions: sleep, air, quiet(auto quiet), light, energy saving, E-heater, X-fan, memory, low ambient temperature drying, heating in absence, controllable drying and E-heater, filter cleaning reminding;<br>8）With project parameter viewing and setting functions, which is convenient for project installation and debugging;<br>9）Adopts dual wire power carrier communication technology, which means power supply and communication share the same two-core wire. Users can purchase the wire by themselves, flexible for project installation and wiring. |
| Remote controller | YAD1F |  |  | Besides the common functions, the following functions are also available: up&down swing, timer on, timer off, I-feel, sleep and 8℃ heating operation, etc. |
| | YV1L1 |  |  | Besides the common functions, the following functions are also available: up&down swing, left&right swing, quiet, timer on, timer off, sleep, I-feel, low ambient temperature drying and 8℃ heating operation, etc. |

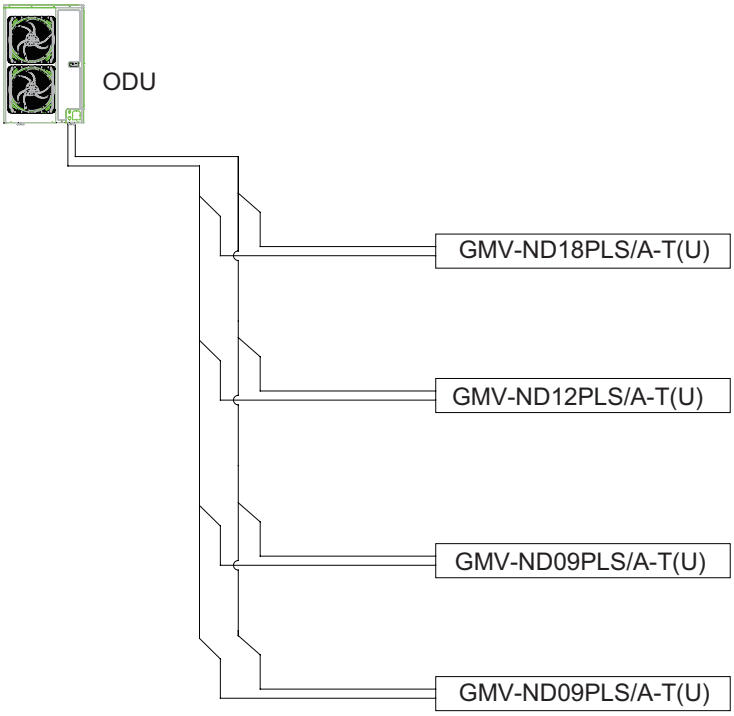
# 4 BASIC SYSTEM CONFIGURATION

## 4.1 System legend(ex.)

Model name of outdoor unit: GMV-48WL/A-T(U)

Allowed capacity code of indoor unit: Min:24000Btu/h Max: 64800Btu/h.

Note: The total capacity code of indoor units shall be within 50%~135% of the capacity code of selected outdoor unit.




GMV-160WL/A-T Total capacity code of indoor units is 18+12+9+9=48, so the selected outdoor unit is. GMV-48WL/A-T(U).

# 5 EQUIPMENT SELECTION PROCEDURE

## 5.1 Selection flow chart

Calculate the heat load of the room

↓

Correction of indoor unit capacity

↓

Select indoor unit model

↓

Select indoor unit model

↓

Correction of outdoor unit capacity

↓

Select outdoor unit model

## 5.2 Combination conditions for indoor unit and outdoor unit

1) The capacity code of indoor units = The capacity code of indoor units = total capacity code of outdoor unit × (50%~135%).
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 |
|---|---|---|---|
| | kW | Btu/h | |
| GMV-24WL/C-T(U) | 7.0 | 24000 | 4 |
| GMV-28WL/C-T(U) | 8.2 | 28000 | 4 |
| GMV-36WL/A-T(U) | 11.0 | 37500 | 7 |
| GMV-48WL/A-T(U) | 14.1 | 48000 | 8 |
| GMV-60WL/A-T(U) | 17.6 | 60000 | 10 |

## 5.3 Cooling/Heating capacity characteristics

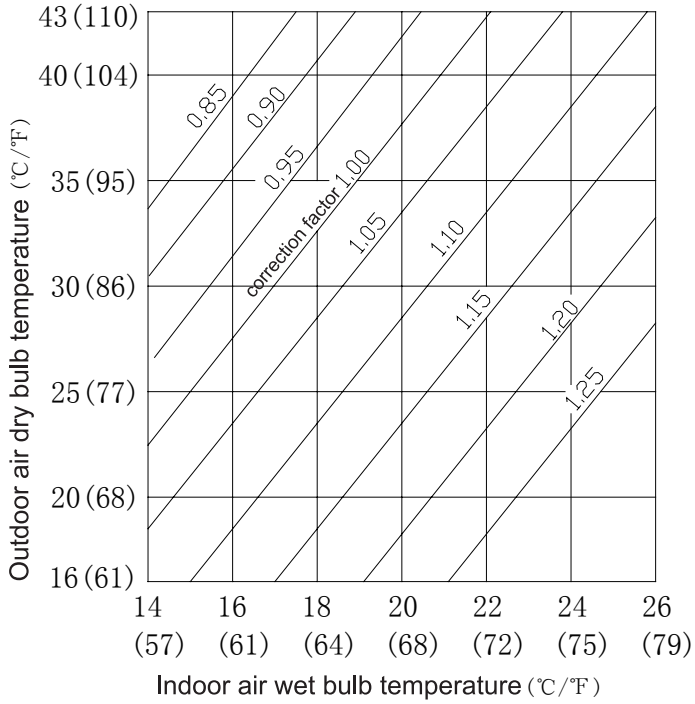
(1) Cooling capacity calculation method.
(2) Heating capacity calculation method.
Cooling or heating capacity calculation method:
R410A outdoor unit capacity = outdoor unit capacity in rated condition × correction factor of indoor and outdoor temperature condition × connection pipe distance, correction factor of height difference between indoor unit and outdoor unit.

① If the total capacity code of indoor units is smaller than the capacity code of outdoor unit, the capacity of outdoor unit in rated condition equals to the total capacity code of indoor units;
② If the total capacity code of indoor units is bigger than the capacity code of outdoor unit, the capacity

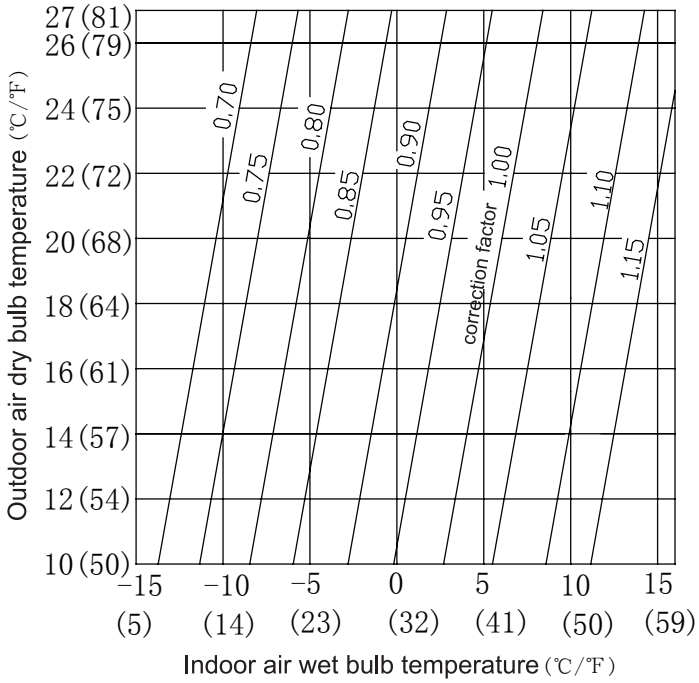
of outdoor unit in rated condition equals to its rated cooling capacity;

③ Correction factor of indoor and outdoor temperature condition.

1) Correction factor of cooling capacity




2) Correction factor of heating capacity




④ Correction factor of connection pipe distance and height difference

◆ Symbol instruction:

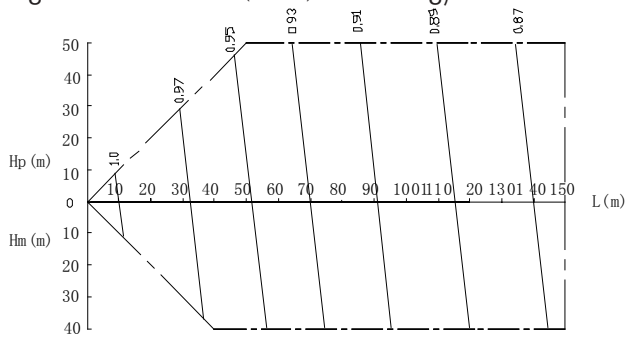
Hp: Height difference (m) between indoor unit and outdoor unit when indoor unit is lower than outdoor unit;

Hm: Height difference (m) between indoor unit and outdoor unit when indoor unit is higher than

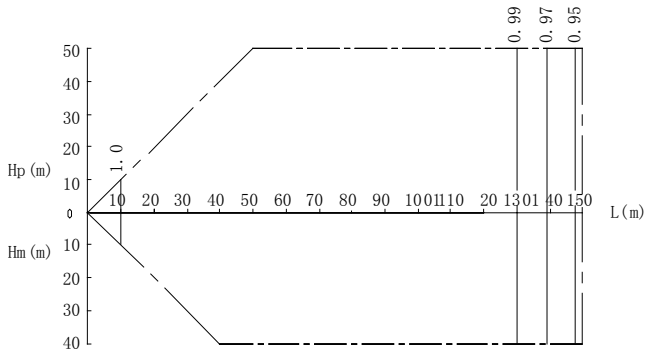
outdoor unit;

L: Single-pass equivalent connection pipe length L

◆ The following chart is the capacity change rate in 100% load under standard condition (thermostat is set in 16℃（61℉）in cooling and set in 30℃（86℉）in heating).




Change rate of cooling capacity




Change rate of heating capacity

Note:

| (m) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ft) | 0 | 33 | 66 | 98 | 131 | 164 | 197 | 230 | 262 | 295 | 328 | 361 | 394 | 427 | 459 | 492 |

(3) Capacity of each indoor unit=Capacity of outdoor unit × Total capacity of indoor units/Total capacity of synchronously operating indoor units.

(4) Operating temperature rang.

| | Temperature range | |
|---|---|---|
| | ℃ | ℉ |
| Cooling | -5~48 | 23~118 |
| Heating | -20~27 | -4~81 |

## 5.4 Example of equipment selection

(1) Overview of building model

a. Temperature condition

b. Outdoor temperature: 35℃（95 ℉） DB; Indoor temperature: 17℃（81 ℉） WB.

c. Load in cooling

| | | Room A | Room B | Room C | Room D |
|---|---|---|---|---|---|
| Load | Kw | 2.4 | 3.2 | 2.4 | 4.7 |
| | Btu/h | 8200 | 10900 | 8200 | 16000 |

(2) Selection Criteria for each floor

Pipe length: 55m; Height difference between indoor unit and outdoor unit: 25m (indoor unit is higher than outdoor unit).

(3) Procedure and result of equipment selection

a. Procedure of equipment selection

Introduce the equipment selection procedure step by step.

b. Equipment selection and capacity check

① Selection of indoor unit.

Select suitable indoor unit according to the corrected load of indoor unit capacity.Corrected load of indoor unit capacity=Load/Corrected ratio of cooling capacity related to temperature condition. Referring to the corrected ratio chart of cooling capacity related to temperature condition, under outdoor temperature of 35℃（95 ℉）DB and indoor temperature of 17℃（81 ℉）WB, the corrected ratio of cooling capacity is 0.94.

Selection result is as below:

| | | Room A | Room B | Room C | Room D |
|---|---|---|---|---|---|
| Corrected load of capacity | Kw | 2.55 | 3.40 | 2.55 | 5.0 |
| | Btu/h | 8720 | 11600 | 8720 | 17020 |
| Unit size | | 09 | 12 | 09 | 18 |

② Selection of outdoor unit

The total capacity code of indoor units is 48. Please select suitable outdoor unit according to the total capacity of indoor units and corrected situation.Capacity of outdoor unit=Total capacity of indoor units/(Corrected ratio of cooling capacity related to temperature condition × Correction of connection pipe length and height difference) .After calculating the capacity of outdoor unit, select suitable outdoor unit according to 50%~135% of the capacity of outdoor unit.

In the example, capacity of outdoor unit=48/(0.94×0.95)=54.

Select the outdoor unit with capacity code of 160 and nominal cooling capacity of 14.1Kw(48000Btu/h).

The capacity code ratio between indoor unit and outdoor unit is 48/48×100%=100%, which is within 50%~135% and accords with the equipment selection standard.

③ Correction of outdoor unit capacity

Suppose the combination situation between indoor unit and outdoor unit is as below, GMV-48WL/A-T(U).

Indoor unit: GMV-ND09PLS/A-T(U)×2, GMV-ND12PLS/A-T(U)×1, GMV-ND18PLS/A-T(U)×1

If the total capacity code of indoor units is bigger than the capacity code of outdoor unit, the capacity of outdoor unit in rated condition equals to its rated cooling capacity. So the capacity of outdoor unit under rated condition is 14.1Kw(48000Btu/h).

④ Referring to the corrected ratio chart of cooling capacity related to temperature condition, under outdoor temperature of 35 ℃（95 ℉）DB and indoor temperature of 17 ℃（81 ℉）WB, the corrected ratio of cooling capacity is 0.94.

⑤ Referring to the corrected ratio of connection pipe of 55m（180ft）long and height difference between indoor unit and outdoor unit of 25m（82ft）（outdoor unit is lower than indoor unit）, the corrected ratio is 0.95.

Capacity of outdoor unit=48×0.94×0.95=12.59Kw（42.86Btu/h）

⑥ Correction of indoor unit capacity

Capacity of each indoor unit=Capacity of outdoor unit × Total capacity of indoor units/Total capacity of synchronously operating indoor units.

GMV-ND09PLS/A-T(U): 48×9/48=9kBtu/h

GMV-ND12PLS/A-T(U): 48×12/48=12kBtu/h

GMV-ND09PLS/A-T(U): 48×18/48=18kBtu/h

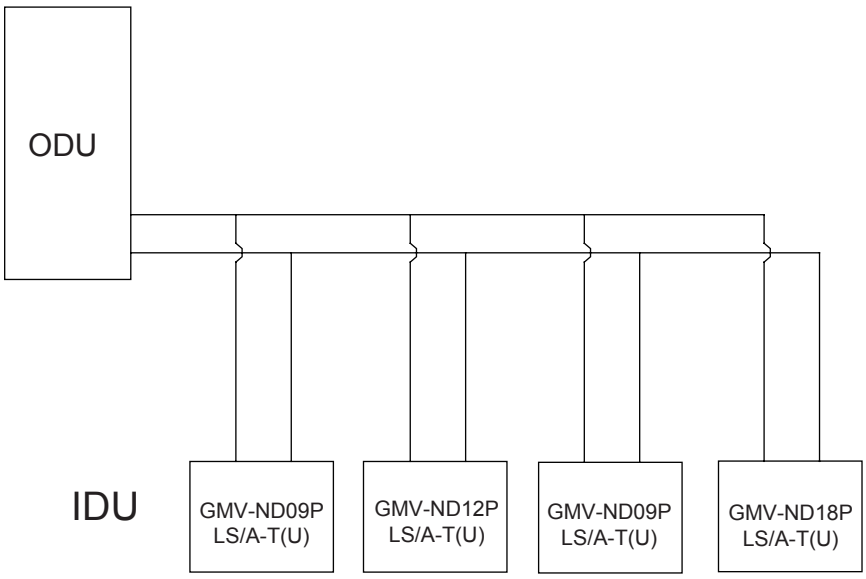
The result is as below:

| Air conditioning load | | | Equipment selection | | | |
|---|---|---|---|---|---|---|
| Floor | RoomNo | Indoor air conditioning load | Indoor unit | | Outdoor unit | |
| | | Cooling (Btu/h) | Model | Capacity (Btu/h) Cooling | Model | Capacity(Btu/h) Cooling |
| 1 | A | 8200 | GMV-ND09PLS/A-T(U) | 9500 | GMV-48WL/A-T(U) | 48000 |
| | B | 10900 | GMV-ND12PLS/A-T(U) | 12000 | | |
| | C | 8200 | GMV-ND09PLS/A-T(U) | 9500 | | |
| | D | 16000 | GMV-ND18PLS/A-T(U) | 18000 | | |

| Floor | Room No. | Piping distance | | | | Capacity correction | | Capacity check after correction | | Judgment |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Equivalent length | | Height difference | | Pipe correction × temp. correction | | Capacity | | |
| | | m | Ft | m | Ft | kW | Btu/h | kW | Btu/h | |
| 1 | A | 85 | 280 | 25（ODU is lower than IDU） | 82m(ODU is lower than IDU) | 12.56 | 42860 | 2.55 | 8720 | The selection should accord with the standard |
| | B | | | | | | | 3.40 | 11600 | |
| | C | | | | | | | 2.55 | 8720 | |
| | D | | | | | | | 5.00 | 17020 | |

c.Schematic diagram

Explain the location of units in each room and connection way of indoor unit and outdoor unit with single-line chart.



# 6 REFRIGERANT PIPING DESIGN

## 6.1 Warning on refrigerant leakage

(1) Introduction of leakage detection method

Procedures of leakage detection.Before ex-factory, the cut-off valves of gap pipe and liquid pipe of outdoor unit are closed. Please confirm it before installation.Before testing, apply some suitable lubricant on the joint of cap and pipe. Use two wrenches when fixing the cap.Connecting outdoor pipeline for testing is not allowed during leakage detection. The testing pressure of R410A system is 4.15MPa (for R22 system, it is 3.0Mpa). The medium of airproof test must be dry nitrogen. Increase the pressure slowly in three steps:

Step one: Slowly increase pressure to 0.5MPa and maintain pressure for 5min. Big leakage may be found during leakage detection;

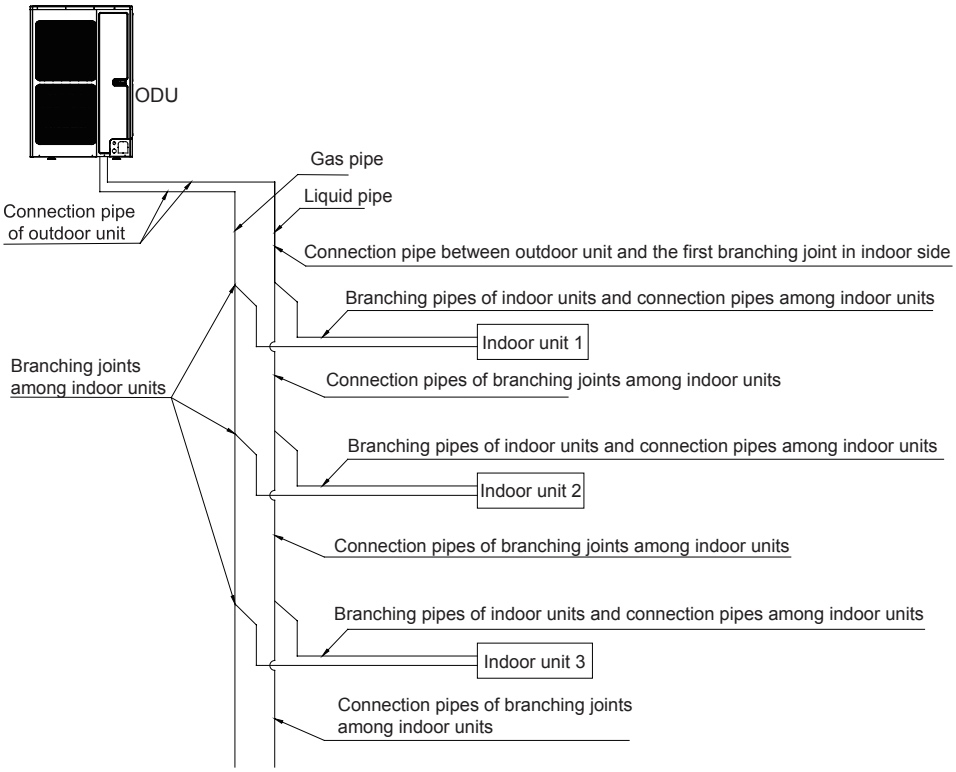
Step two: Slowly increase pressure to 1.5MPa and maintain pressure for 5min. Small leakage may be found during airproof test;

Step three: For R410A system, slowly increase pressure to 4.15MPa(for R22 system, it is 3.0Mpa) and maintain pressure for 5min. Tiny leakage may be found during strength test. Increase pressure to testing pressure and maintain pressure for 24h. Check if the pressure decreases. The test is passed if pressure doesn't decrease.

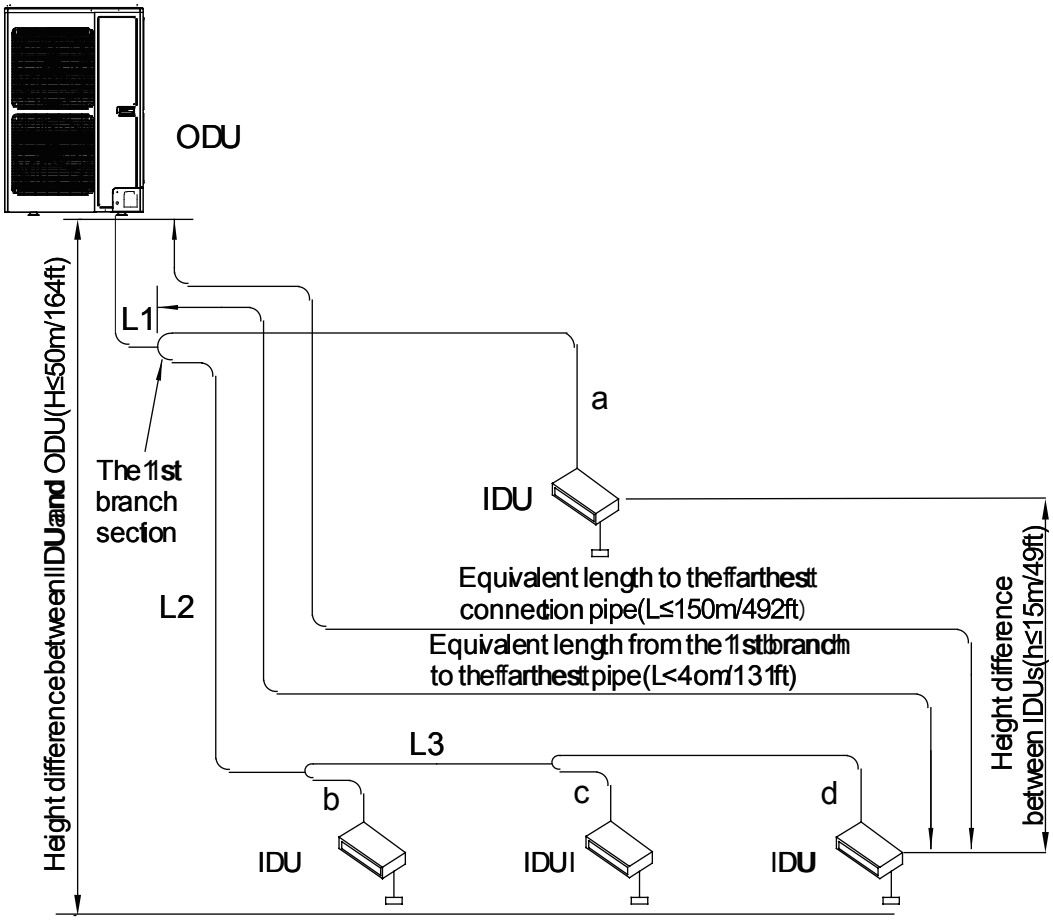
(2) Introduction of handling method of leakage

Firstly, discharge the refrigerant and then charge nitrogen for leakage welding. The nitrogen charging way is the same as that in airproof test. Blow away the impurities and clean the pipeline after finishing welding. Finally, rearrange airproof test for leakage detection until there is no leakage.

## 6.2 Free branching system



## 6.3 Allowable length/height difference of refrigerant piping




Each Y-type branch equals to 0.5m(1-5/8ft) and each branch header equals to 1.0m(3-1/4ft).

***NOTICE!*** The equivalent length of one Y shape branching joint is 0.5m(1-5/8ft).

| | | | Allowable value | | Piping section |
|---|---|---|---|---|---|
| | | | M | Ft | |
| Pipe length | Total extension of pipe (Liquid pipe, real length) | | 250 | 820 | L1+L2+L3+a+b++c+d |
| | Farthest piping length | Real length | 100 | 328 | L1+L2+L3+d |
| | | Equivalent length | 120 | 394 | |
| | Equivalent length of farthest piping from 1st branching | | 40 | 131 | L2+L3+d |
| Height difference | Height between indoor and outdoor units | Upper outdoor unit | 30 | 98 | —— |
| | | Lower outdoor unit | 30 | 98 | —— |
| | Height between indoor units | Upper outdoor unit | 10 | 33 | —— |
| | | Lower outdoor unit | 10 | 33 | —— |

## 6.4 Selection of refrigerant piping

(1) Size of main pipe

| Model | Pipe dimension | | | |
|---|---|---|---|---|
| | Gas pipe | | Liquid pipe | |
| | mm | inch | mm | inch |
| GMV-24WL/C-T(U) | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| GMV-28WL/C-T(U) | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| GMV-36WL/A-T(U) | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| GMV-48WL/A-T(U) | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| GMV-60WL/A-T(U) | Ø19.05 | 3/4 | Ø9.52 | 3/8 |

(2) Pipe size between branching joints

| Total capacity of downstream indoor units C (Btu/h) | Gas pipe | | Liquid pipe | |
|---|---|---|---|---|
| | mm | inch | mm | inch |
| C ⩽ 19000 | Ø12.7 | 1/2 | Ø6.35 | 1/4 |
| 19000 < C ⩽ 48500 | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| 48500 < C ⩽ 75000 | Ø19.05 | 3/4 | Ø9.52 | 3/8 |

(3) Piping of indoor unit

| Rated capacity of IDU C (Btu/h) | Gas pipe | | Liquid pipe | |
|---|---|---|---|---|
| | mm | inch | mm | inch |
| C ⩽ 9600 | Ø9.52 | 3/8 | Ø6.35 | 1/4 |
| 9600 < C ⩽ 17000 | Ø12.7 | 1/2 | Ø6.35 | 1/4 |
| 17000 < C ⩽ 48000 | Ø15.9 | 5/8 | Ø9.52 | 3/8 |
| 48000 < C ⩽ 55000 | Ø19.05 | 3/4 | Ø9.52 | 3/8 |
| 55000 < C ⩽ 96000 | Ø22.2 | 7/8 | 9.52 | 3/8 |

(4) Selection for branching section

| R410A Refrigerant system | Total capacity of downstream indoor units C (Btu/h) | Model |
|---|---|---|
| Y type branch | C ⩽ 68200 | FQ01A/A |
| | 68200 ⩽ C ⩽ 102400 | FQ01B/A |
| | 102400 ⩽ C ⩽ 238800 | FQ02/A |
| | 238800 ⩽ C ⩽ 460600 | FQ03/A |
| | 460600 ⩽ C | FQ04/A |

## 6.5 Charging requirement with additional refrigerant

(1) Refrigerant in the system when shipped from the factory

| Model | | GMV-24WL/ C-T(U) | GMV-28WL/ C-T(U) | GMV-36WL/ A-T(U) | GMV-48WL/ A-T(U) | GMV-60WL/ A-T(U) |
|---|---|---|---|---|---|---|
| Refrigerant Qty | kg | 2.4 | 2.4 | 5.0 | 5.0 | 6.5 |
| | oz | 84.7 | 84.7 | 176 | 176 | 229 |

(2) Additional refrigerant charge amount =∑Length of liquid pipe × refrigerant charge amount per meter

Note:

① The refrigerant amount inside the system before ex-factory doesn't include the required additional refrigerant charge amount inside the pipeline system of indoor units and the pipeline system connecting indoor unit and outdoor unit.

② For the length of connection pipe in field, the required additional refrigerant charge amount shall be confirmed according to liquid pipe size in field and its length.

③ Record additional refrigerant charge amount for future reference.
Note: If the total length of liquid pipe is within 20m, no additional refrigerant is needed.
When the compressor is not working after ensuring there is no leakage, charge the required additional refrigerant amount to the unit from the valve of liquid pipe of outdoor unit. When the pipe pressure increases and the additional refrigerant can't be charged to the required amount quickly, please set the unit in cooling operation status and charge refrigerant from the low pressure maintenance port of outdoor unit.

# 7 WIRING DESIGN

## 7.1 General wiring principle

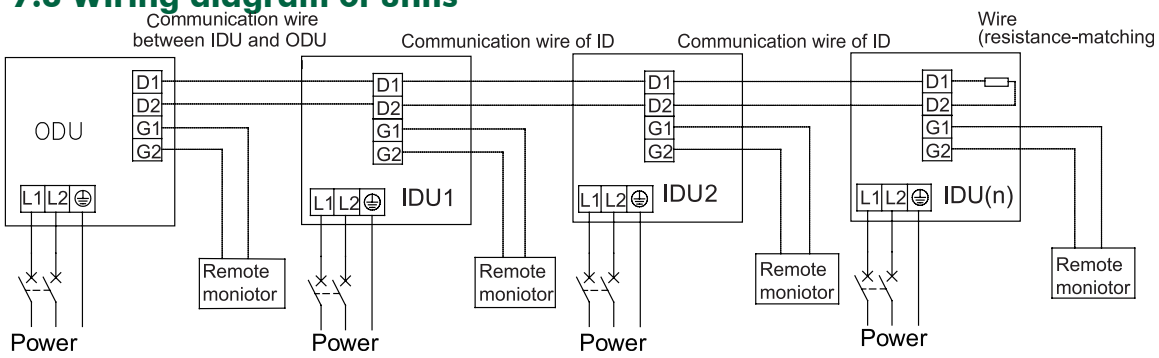
(1) All electrical work shall be done by professionals according to national and local laws and regulations.
(2) The unit must be grounded reliably according to the related requirement of GB 50169.
(3) Connect wire according to the wiring diagram stuck on the unit.

## 7.2 Electrical wiring design

(1) Wiring drawing
(2) Selection of power supply cord and fuse of units

| Model | Power supply | Max Fuse Size/ Fusible Max. (A) | Max Ckt, Bkr Size/ Disjoncteur Max. (A) | Min. Circuit Ampacity |
|---|---|---|---|---|
| GMV-24WL/C-T(U) | 208/230V~ 60Hz | 25 | 25 | 21 |
| GMV-28WL/C-T(U) | 208/230V~ 60Hz | 30 | 30 | 21 |
| GMV-36WL/A-T(U) | 208/230V~ 60Hz | 35 | 35 | 31 |
| GMV-48WL/A-T(U) | 208/230V~ 60Hz | 45 | 45 | 34 |
| GMV-60WL/A-T(U) | 208/230V~ 60Hz | 60 | 60 | 39.8 |

## 7.3 Wiring diagram of units




## 7.4 Parameters

(1) Outdoor unit

| Model | | GMV-24WL/C-T (U) | GMV-28WL/C-T (U) | GMV-36WL/A-T (U) | GMV-48WL/A-T (U) | GMV-60WL/A-T (U) |
|---|---|---|---|---|---|---|
| MCA | A | 21 | 21 | 31 | 34 | 39.8 |
| MOP | A | 25 | 30 | 35 | 45 | 60 |

(2) Indoor unit

Low Static Pressure Duct Type Indoor Unit

| Model | | GMV-ND07PLS/A-T(U) | GMV-ND09PLS/A-T(U) | GMV-ND12PLS/A-T(U) | GMV-ND14PLS/A-T(U) | GMV-ND18PLS/A-T(U) | GMV-ND22PLS/A-T(U) |
|---|---|---|---|---|---|---|---|
| MCA | A | 0.25 | 0.25 | 0.25 | 0.38 | 0.63 | 0.63 |
| MOP | A | 0.45 | 0.45 | 0.45 | 0.68 | 1.13 | 1.13 |

4-way Cassette Indoor Unit

| Model | | GMV-ND07T/A-T(U) | GMV-ND09T/A-T(U) | GMV-ND12T/A-T(U) | GMV-ND15T/A-T(U) | GMV-ND18T/A-T(U) |
|---|---|---|---|---|---|---|
| MCA | A | 0.25 | 0.25 | 0.25 | 0.25 | 0.31 |
| MOP | A | 0.45 | 0.45 | 0.45 | 0.45 | 0.56 |
| Model | | GMV-ND24T/A-T(U) | GMV-ND30T/A-T(U) | GMV-ND36T/A-T(U) | GMV-ND42T/A-T(U) | GMV-ND48T/A-T(U) |
| MCA | A | 0.31 | 0.44 | 0.44 | 0.44 | 0.44 |
| MOP | A | 0.56 | 0.79 | 0.79 | 0.79 | 0.79 |

Wall Mounted type Indoor Unit

| Model | | GMV-N07G/A3A-D(U) | GMV-N09G/A3A-D(U) | GMV-N12G/A3A-D(U) | GMV-N18G/A3A-D(U) | GMV-N24G/A3A-D(U) |
|---|---|---|---|---|---|---|
| MCA | A | 0.25 | 0.25 | 0.26 | 0.26 | 0.39 |
| MOP | A | 0.45 | 0.45 | 0.47 | 0.47 | 0.70 |

Legend:
MCA: Minimum Circuit Amps
MOCP: Maximum Overcurrent Protection(Amps)
FLA: Full Load Amps
kW: Fan Motor Rated Output(kW)

# 8 ACCESSORIES

(1) Outdoor unit

| Model name | Standard | Option | Provide for oneself |
|---|---|---|---|
| GMV-24WL/C-T(U) | √ | | |
| GMV-28WL/C-T(U) | √ | | |
| GMV-36WL/A-T(U) | √ | | |
| GMV-48WL/A-T(U) | √ | | |
| GMV-60WL/A-T(U) | √ | | |
| FQ01A/A Y shape branching joint | | √ | |
| Condensate pipe | | | √ |
| Power cord | | | √ |
| Filter | | √ | |
| Oil return elbow | | √ | |
| Signal wires among units | √ | | |

(2) Indoor unit

| Model name | Standard | Option | Provide for oneself |
|---|---|---|---|
| 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 Header | √ | | |
| Heating Jacket of Liquid-in Pipe | √ | | |
| Sponge of Drain Pipe | √ | | |
| Cable Tie | √ | | |

(3) Controller

| Model name | Standard | Option | Provide for oneself |
|---|---|---|---|
| Wired controller XK62 | √ | | |
| Central controller CE53-24/F(C) | | √ | |

# 9 TECHNICAL SPECIFICATIONS

(1) Indoor unit

◆ Low Static Pressure Duct Type IDU

| Model | | | GMV-ND07PLS/A-T(U) | GMV-ND09PLS/A-T(U) | GMV-ND12PLS/A-T(U) | GMV-ND14PLS/A-T(U) | GMV-ND18PLS/A-T(U) | GMV-ND22PLS/A-T(U) |
|---|---|---|---|---|---|---|---|---|
| Product Code | | | CM810N0080 | CM810N0090 | CM810N0100 | CM810N0120 | CM810N0070 | CM810N0110 |
| Cooling Capacity | | Btu/h | 7500 | 9500 | 12000 | 14000 | 18000 | 22000 |
| | | kW | 2.2 | 2.8 | 3.5 | 4.0 | 5.3 | 6.3 |
| Heating Capacity | | Btu/h | 8500 | 10500 | 13500 | 15000 | 20000 | 24000 |
| | | kW | 2.5 | 3.1 | 4.0 | 4.5 | 5.9 | 7.1 |
| Casing finish | | | Galvanized Steel plate | | | | | |
| Dimensions (W×D×H) | outline | mm | 700×615×200 | 700×615×200 | 700×615×200 | 900×615×200 | 1100×615×200 | 1100×615×200 |
| | | inch | 27-1/2×24-1/4×7-7/8 | 27-1/2×24-1/4×7-7/8 | 27-1/2×24-1/4×7-7/8 | 35-3/8×24-1/4×7-7/8 | 43-1/4×24-1/4×7-7/8 | 43-1/4×24-1/4×7-7/8 |
| | Packaging | mm | 893×743×305 | 893×743×305 | 893×743×305 | 1123×743×305 | 1323×743×305 | 1323×743×305 |
| | | inch | 35-1/8×29-1/4×12 | 35-1/8×29-1/4×12 | 35-1/8×29-1/4×12 | 44-1/2×29-1/4×12 | 52×29-1/4×12 | 52×29-1/4×12 |
| Net Weight | | lbs. | 51 | 51 | 51 | 60 | 69 | 69 |
| | | kg | 23 | 23 | 23 | 27 | 31 | 31 |
| Gross Weight | | lbs. | 64 | 64 | 64 | 73 | 86 | 86 |
| | | kg | 29 | 29 | 29 | 33 | 39 | 39 |
| Pipe Connection | Liquid Side | mm | Ø6.35 | Ø6.35 | Ø6.35 | Ø6.35 | Ø9.52 | Ø9.52 |
| | | inch | Ø1/4 | Ø1/4 | Ø1/4 | Ø1/4 | Ø3/8 | Ø3/8 |
| | Gas Side | mm | Ø9.52 | Ø12.7 | Ø12.7 | Ø12.7 | Ø15.9 | Ø15.9 |
| | | inch | Ø3/8 | Ø1/2 | Ø1/2 | Ø1/2 | Ø5/8 | Ø5/8 |
| | Drain Pipe | mm | Ø25 | | | | | |
| | | inch | Ø1 | | | | | |
| Power supply | | | 1-phase 208/230V~60Hz | | | | | |
| Sound Pressure Level(H/M/L) | | dB(A) | 31/29/25 | 31/29/25 | 32/30/27 | 33/31/28 | 35/33/30 | 35/33/30 |
| Heat Exchanger | | | Fenestrate plain film --hydrophilic film | | | | | |
| Air Filter | | | PP | | | | | |
| Refrigeration Control Device | | | EXV | | | | | |
| Protection Device | | | Fuse | | | | | |

◆ 4-way Cassette Type IDU

| Model | | | GMV-ND07T/A-T(U) | GMV-ND09T/A-T(U) | GMV-ND12T/A-T(U) | GMV-ND15T/A-T(U) | GMV-ND18T/A-T(U) |
|---|---|---|---|---|---|---|---|
| Product Code | | | CM500N0520 | CM500N0530 | CM500N0540 | CM810N0130 | CM500N0510 |
| Cooling Capacity | | Btu/h | 7500 | 9500 | 12000 | 15000 | 18000 |
| | | kW | 2.2 | 2.8 | 3.5 | 4.4 | 5.3 |
| Heating Capacity | | Btu/h | 8500 | 10500 | 13500 | 17000 | 20000 |
| | | kW | 2.5 | 3.1 | 4.0 | 5 | 5.9 |
| Casing finish | | | Galvanized Steel plate | | | | |
| Dimensions (W×D×H) | Body outline | mm | 840×840×190 | 840×840×240 | 840×840×240 | 840×840×240 | 840×840×240 |
| | | inch | 33×33×7 1/2 | 33×33×9-1/2 | 33×33×9-1/2 | 33×33×9-1/2 | 33×33×9-1/2 |
| | Body Packaging | mm | 960×960×257 | 960×960×310 | 960×960×310 | 960×960×310 | 960×960×310 |
| | | inch | 37-3/4×37-3/4×10-1/8 | 37-3/4×37-3/4×12-1/4 | 37-3/4×37-3/4×12-1/4 | 37-3/4×37-3/4×12-1/4 | 37-3/4×37-3/4×12-1/4 |
| | Panel outline | mm | 950×950×65 | 950×950×65 | 950×950×65 | 950×950×65 | 950×950×65 |
| | | inch | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 |
| | Panel Packaging | mm | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 |
| | | inch | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 |
| Net Weigh | Main Body | lbs. | 50 | 58 | 58 | 58 | 58 |
| | | kg | 22.5 | 26.5 | 26.5 | 26.5 | 26.5 |
| | Panel | lbs. | 15-3/8 | 15-3/8 | 15-3/8 | 15-3/8 | 15-3/8 |
| | | kg | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| Gross Weigh | Main Body | lbs. | 64 | 75 | 75 | 75 | 75 |
| | | kg | 29 | 34 | 34 | 34 | 34 |
| | Panel | lbs. | 24-1/4 | 24-1/4 | 24-1/4 | 24-1/4 | 24-1/4 |
| | | kg | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 |
| Pipe Connections | Liquid Side | mm | Ø6.35 | Ø6.35 | Ø6.35 | Ø6.35 | Ø9.52 |
| | | inch | Ø1/4 | Ø1/4 | Ø1/4 | Ø1/4 | Ø3/8 |
| | Gas Side | mm | Ø9.52 | Ø12.7 | Ø12.7 | Ø12.7 | Ø15.9 |
| | | inch | Ø3/8 | Ø1/2 | Ø1/2 | Ø1/2 | Ø5/8 |
| | Drain Pipe | mm | Ø25 | | | | |
| | | inch | Ø1 | | | | |
| Power supply | | | 1-phase 208/230V~60Hz | | | | |
| Sound Pressure Level (H/M/L) | | dB(A) | 36/34/31 | 37/35/32 | 37/35/32 | 37/35/32 | 37/35/32 |
| Heat Exchanger | | | Fenestrate plain film --hydrophilic film | | | | |
| Air Filter | | | PP | PP | PP | PP | PP |
| Insulation Material | | | Foamed polystyrene | | | | |
| Refrigeration Control Device | | | EXV | EXV | EXV | EXV | EXV |
| Protection Device | | | Fuse | Fuse | Fuse | Fuse | Fuse |
| Panel name | | | TC01 | TC01 | TC01 | TC01 | TC01 |

| Model | | | GMV-ND24T/A-T(U) | GMV-ND30T/A-T(U) | GMV-ND36T/A-T(U) | GMV-ND42T/A-T(U) | GMV-ND48T/A-T(U) |
|---|---|---|---|---|---|---|---|
| Product code | | | CM500N0550 | CM500N0560 | CM500N0570 | CM500N0580 | CM500N0590 |
| Cooling Capacity | | Btu/h | 24000 | 30000 | 36000 | 42000 | 48000 |
| | | kW | 7 | 8.8 | 10.6 | 12.3 | 14.1 |
| Heating Capacity | | Btu/h | 27000 | 34000 | 40000 | 47000 | 54000 |
| | | kW | 7.9 | 10 | 11.7 | 13.8 | 15.8 |
| Casing finish | | | Galvanized Steel plate | | | | |
| Dimensions (W×D×H) | Body outline | mm | 840×840×240 | 840×840×320 | 840×840×320 | 840×840×320 | 840×840×320 |
| | | inch | 33×33×9-1/2 | 33×33×12-5/8 | 33×33×12-5/8 | 33×33×12-5/8 | 33×33×12-5/8 |
| | Body Packaging | mm | 960×960×310 | 960×960×394 | 960×960×394 | 960×960×394 | 960×960×394 |
| | | inch | 37-3/4×37-3/4×12-1/4 | 37-3/4×37-3/4×15-1/2 | 37-3/4×37-3/4×15-1/2 | 37-3/4×37-3/4×15-1/2 | 37-3/4×37-3/4×15-1/2 |
| | Panel outline | mm | 950×950×65 | 950×950×65 | 950×950×65 | 950×950×65 | 950×950×65 |
| | | inch | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 | 37-3/8×37-3/8×2-1/2 |
| | Panel Packaging | mm | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 | 1030×1035×118 |
| | | inch | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 | 40-1/2×40-1/2×4-5/8 |
| Net Weight | Main Body | lbs. | 58 | 72 | 72 | 72 | 72 |
| | | kg | 26.5 | 32.5 | 32.5 | 32.5 | 32.5 |
| | Panel | lbs. | 15-3/8 | 15-3/8 | 15-3/8 | 15-3/8 | 15-3/8 |
| | | kg | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| Gross Weight | Main Body | lbs. | 75 | 88 | 88 | 88 | 88 |
| | | kg | 34 | 40 | 40 | 40 | 40 |
| | Panel | lbs. | 24-1/4 | 24-1/4 | 24-1/4 | 24-1/4 | 24-1/4 |
| | | kg | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 |
| Pipe Connections | Liquid Side | mm | Ø9.52 | Ø9.52 | Ø9.52 | Ø9.52 | Ø9.52 |
| | | inch | Ø3/8 | Ø3/8 | Ø3/8 | Ø3/8 | Ø3/8 |
| | Gas Side | mm | Ø15.9 | Ø15.9 | Ø15.9 | Ø15.9 | Ø15.9 |
| | | inch | Ø5/8 | Ø5/8 | Ø5/8 | Ø5/8 | Ø5/8 |
| | Drain Pipe | mm | Ø25 | | | | |
| | | inch | Ø1 | | | | |
| Power supply | | | 1-phase 208/230V~60Hz | | | | |
| Sound Pressure Level(H/M/L) | | dB(A) | 38/36/33 | 40/38/35 | 41/38/36 | 43/41/38 | 43/41/38 |
| Heat Exchanger | | | Fenestrate plain film --hydrophilic film | | | | |
| Air Filter | | | PP | PP | PP | PP | PP |
| Insulation Material | | | Foamed polystyrene | | | | |
| Refrigeration Control Device | | | EXV | EXV | EXV | EXV | EXV |
| Protection Device | | | Fuse | Fuse | Fuse | Fuse | Fuse |
| Panel name | | | TC01 | TC01 | TC01 | TC01 | TC01 |

◆ Features of Wall Mounted

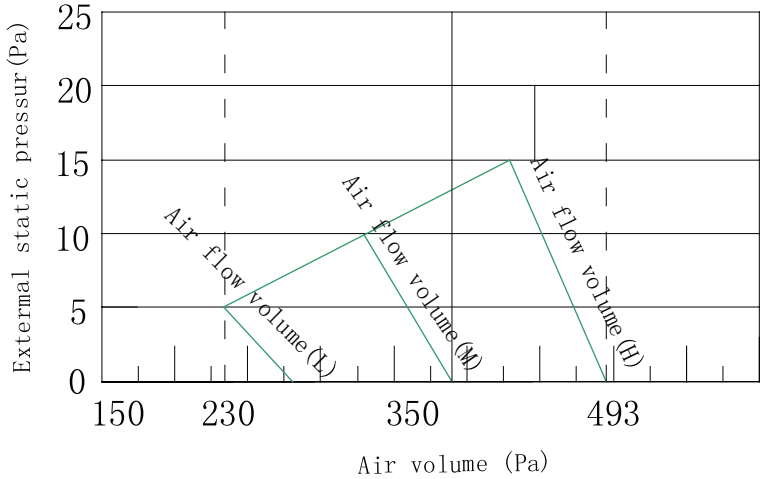
| Model | | | GMV-N07G/A3A-D(U) | GMV-N09G/A3A-D(U) | GMV-N12G/A3A-D(U) | GMV-N18G/A3A-D(U) | GMV-N24G/A3A-D(U) |
|---|---|---|---|---|---|---|---|
| Product code | | | CM100N1480 | CM100N1490 | CM100N1500 | CM100N1510 | CM100N1520 |
| Cooling Capacity | | Btu/h | 7500 | 9500 | 12000 | 18000 | 24000 |
| | | kW | 2.2 | 2.8 | 3.5 | 5.2 | 7 |
| Heating Capacity | | Btu/h | 8500 | 11000 | 13500 | 20000 | 25500 |
| | | kW | 2.5 | 3.2 | 4 | 5.8 | 7.5 |
| Casing finish | | | Galvanized Steel plate | | | | |
| Dimensions (W×D×H) | outline | mm | 843×180×275 | 843×180×275 | 940×200×298 | 940×200×298 | 1008×221×319 |
| | | inch | 33 1/5×7×10 5/6 | 33 1/5×7×10 5/6 | 37×7 7/8×11 3/4 | 37×7 7/8×11 3/4 | 39 2/3×8 5/7×12 5/9 |
| | Packaging | mm | 973×258×370 | 973×258×370 | 1068×288×395 | 1068×288×395 | 1131×398×328 |
| | | inch | 38 1/3×10 1/6×14 4/7 | 38 1/3×10 1/6×14 4/7 | 42×11 1/3×15 5/9 | 42×11 1/3×15 5/9 | 44 1/2×15 2/3×13 |
| Net Weight | | lbs. | 22 | 22 | 27.6 | 27.6 | 33.1 |
| | | kg | 10 | 10 | 12.5 | 12.5 | 15 |
| Gross Weight | | lbs. | 27.6 | 27.6 | 33.1 | 33.1 | 40.8 |
| | | kg | 12.5 | 12.5 | 15 | 15 | 18.5 |
| Pipe Connections | Liquid Side | mm | Ø6.35 | Ø6.35 | Ø6.35 | Ø9.52 | Ø9.52 |
| | | inch | Ø1/4 | Ø1/4 | Ø1/4 | Ø3/8 | Ø3/8 |
| | Gas Side | mm | Ø9.52 | Ø9.52 | Ø12.7 | Ø15.9 | Ø15.9 |
| | | inch | Ø3/8 | Ø3/8 | Ø1/2 | Ø5/8 | Ø5/8 |
| | Drain Pipe | mm | Ø17 | Ø17 | Ø17 | Ø17 | Ø17 |
| | | inch | Ø2/3 | Ø2/3 | Ø2/3 | Ø2/3 | Ø2/3 |
| Power supply | | | 1-phase 208/230V~60Hz | | | | |
| Sound Pressure Level(H/M/L) | | dB(A) | 38/34/30 | 38/34/30 | 44/41/38 | 44/41/38 | 44/41/38 |
| Heat Exchanger | | | Fenestrate plain film -- hydrophilic film | | | | |
| Air Filter | | | PP+10%BCM+FP03 | | | | |
| Insulation Material | | | Foamed polystyrene | | | | |
| Refrigeration Control Device | | | EXV | | | | |
| Protection Device | | | Fuse | | | | |

(2) Outdoor unit

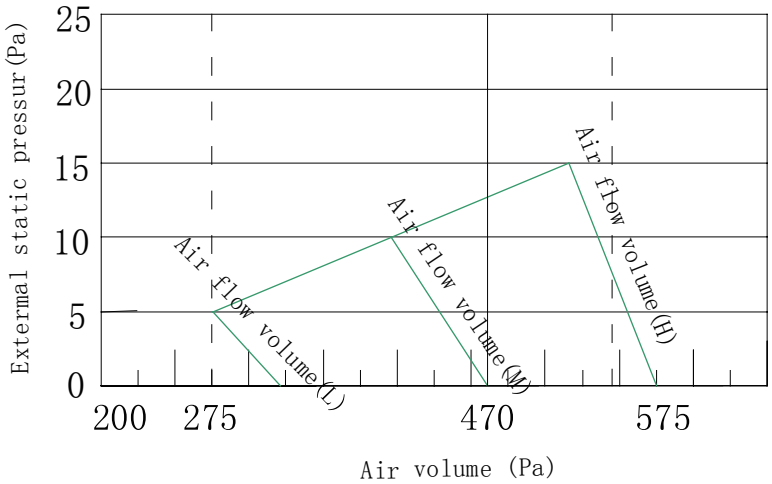
| Model | | | GMV-24WL/ C-T(U) | GMV-28WL/ C-T(U) | GMV-36WL /A-T(U) | GMV-48WL /A-T(U) | GMV-60WL /A-T(U) |
|---|---|---|---|---|---|---|---|
| Cooling capacity | | kW | 7 | 8.2 | 11 | 14.1 | 17.6 |
| | | Btu/h | 24000 | 28000 | 37500 | 48000 | 60000 |
| Heating capacity | | kW | 8.2 | 8.8 | 12.3 | 15.8 | 19.3 |
| | | Btu/h | 28000 | 30000 | 42000 | 54000 | 66000 |
| Circulating air volume | | $m^3/h$ | 3900 | 3900 | 6000 | 6300 | 7800 |
| | | CFM | 2295 | 2295 | 3532 | 3708 | 4601 |
| Noise | | dB(A) | 57 | 57 | 55 | 56 | 63 |
| Refrigerant charge volume | | Kg | 2.4 | 2.4 | 5 | 5 | 6.5 |
| | | oz | 84.7 | 84.7 | 176 | 176 | 229 |
| Power supply | | | 208/230V ~ 60Hz | | | | |
| Rated power input | Cooling | kW | 2.0 | 2.7 | 3.3 | 4.5 | 6.1 |
| | Heating | kW | 2.4 | 2.6 | 3.7 | 4.4 | 5.5 |
| Unit Dimensions (WxDxH) | | mm | 980×360×790 | | 900×340×1345 | | 940×320 ×1430 |
| | | inch | 38_6/19×14_3/16×31_2/16 | | 35_3/7×13 _2/5×53 | | 37×12_3 /5×56_2/7 |
| Dimensions (WxDxH) | | mm | 1097×477×937 | | 998×458×1500 | | 1033×433×1580 |
| | | inch | 43_3/16×18_12/16×36_14/16 | | 39_2/7×18 ×59 | | 40_2/3×17 ×62_1/5 |
| Compressor | | | QXFS-D25Zx090H | | QXAS-F428zX050A | | LNB53FCFMC |
| Water-proof level | | | IPX4 | IPX4 | IPX4 | IPX4 | IPX4 |
| Suitable climite | | | T1 | T1 | T1 | T1 | T1 |
| Connection pipe | Gas | mm | Ø15.9 | Ø15.9 | Ø15.9 | Ø15.9 | Ø19.05 |
| | | inch | 5/8 | 5/8 | 5/8 | 5/8 | 3/4 |
| | Liquid | mm | Ø9.52 | Ø9.52 | Ø9.52 | Ø9.52 | Ø9.52 |
| | | inch | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| | Connection Method | | Bell mouth connection | Bell mouth connection | Bell mouth connection | Bell mouth connection | Bell mouth connection |
| Net weight | | Kg | 80 | 80 | 110 | 110 | 124 |
| | | oz | 2822 | 2822 | 3880 | 3880 | 4375 |

## 10 FAN CHARACTERISTICS

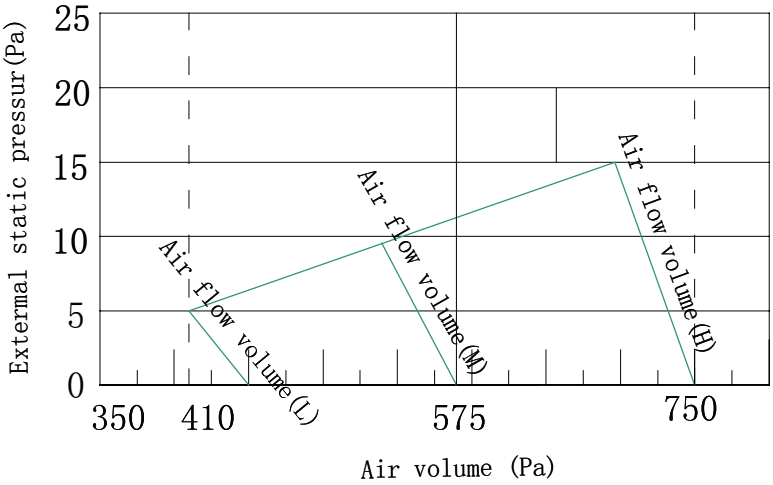
GMV-ND07PLS/A-T(U)



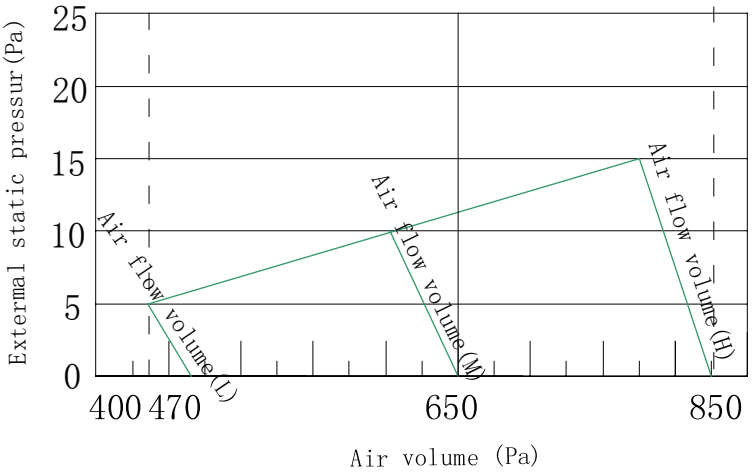

GMV-ND09PLS/A-T(U)



GMV-ND12PLS/A-T(U)\GMV-ND14PLS/A-T(U)




GMV-ND18PLS/A-T(U)、GMV-ND22PLS/A-T(U)

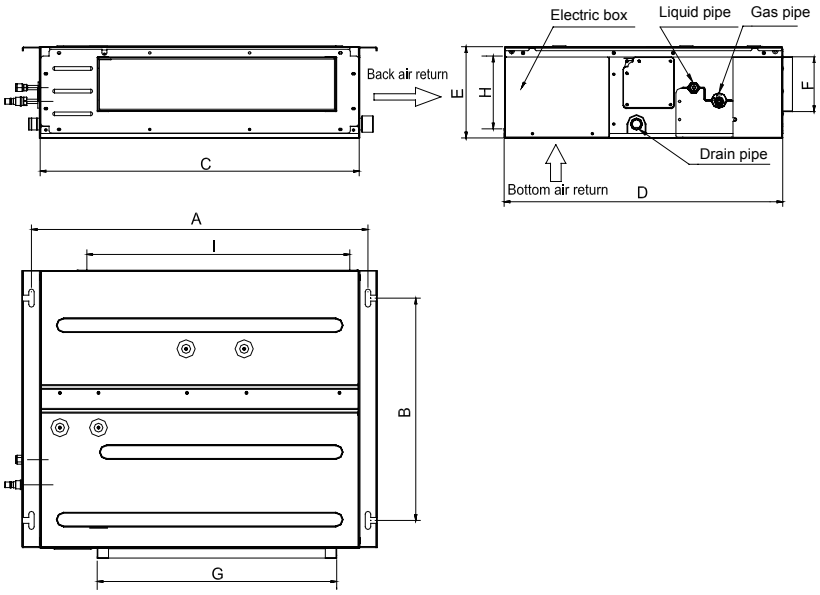


# 11 DIMENSIONAL DRAWINGS

(1) Indoor unit

◆ Duct Type (include the dimension of main unit, air return case and suspension hole)

Unit outline and installation dimension

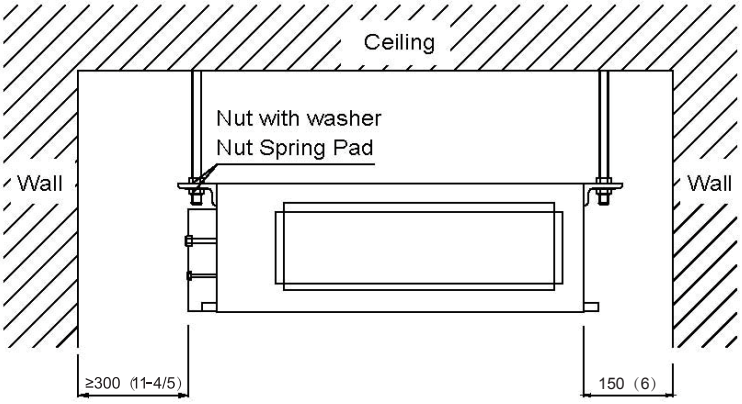



The following table lists the detailed dimensions.

Unit: mm(inch)

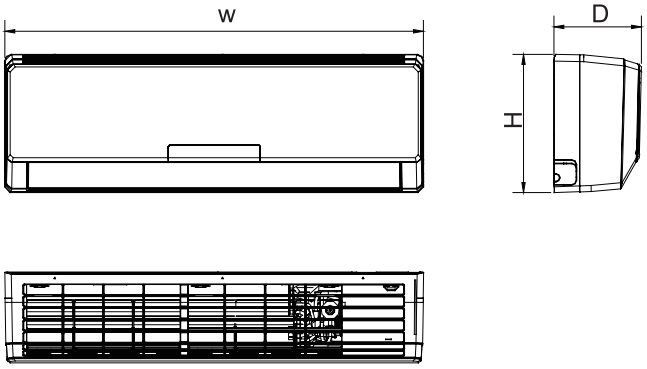
| Item / Model | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| GMV-ND07PLS/A-T(U)<br>GMV-ND09PLS/A-T(U)<br>GMV-ND12PLS/A-T(U) | 742 (29-3/16) | 491 (19-5/16) | 700 (27-1/2) | 615 (24-1/4) | 200 (7-7/8) | 121 (4-3/4) | 528 (20-13/16) | 161 (6-5/16) | 580 (22 13/16) |
| GMV-ND14PLS/A-T(U) | 942 (37-1/16) | 491 (19-5/16) | 900 (35-3/8) | 615 (24-1/4) | 200 (7-7/8) | 121 (4-3/4) | 728 (28-11/16) | 161 (6-5/16) | 780 (30-11/16) |
| GMV-ND18PLS/A-T(U)<br>GMV-ND22PLS/A-T(U) | 1142 (44-5/16) | 491 (19-5/16) | 1100 (43-1/4) | 615 (24-1/4) | 200 (7-7/8) | 121 (4-3/4) | 928 (36-9/16) | 161 (6-5/16) | 980 (38-9/16) |

Installation space:



◆ Wall Mounted Type

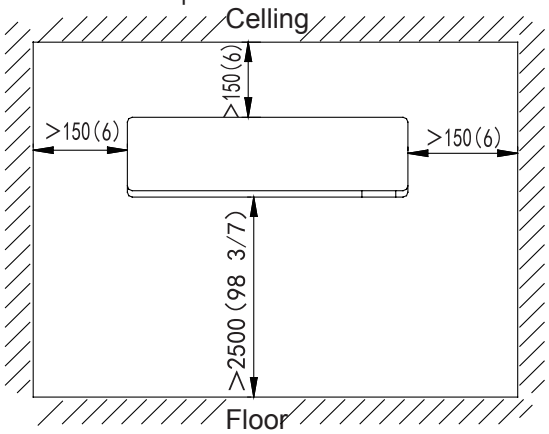
1) Unit outline and installation dimension

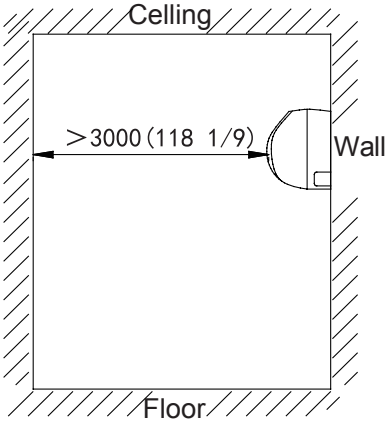



Unit:mm(inch)

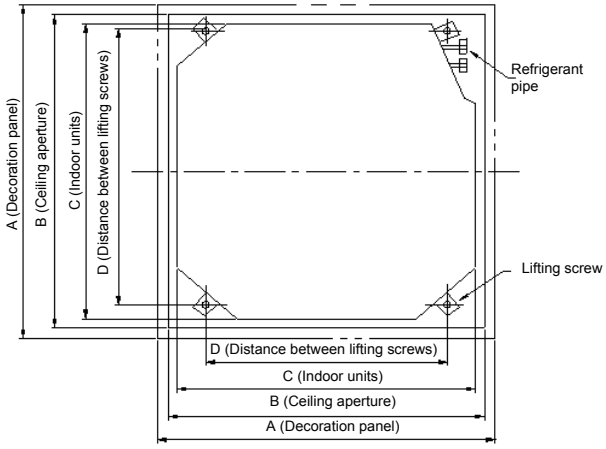
| Model | W | H | D |
|---|---|---|---|
| GMV-N07G/A3A-D(U)<br>GMV-N09G/A3A-D(U) | 843<br>(33-1/5) | 275<br>(10-5/6) | 180<br>(7) |
| GMV-N12G/A3A-D(U)<br>GMV-N18G/A3A-D(U) | 940<br>(37) | 298<br>(11-3/4) | 200<br>(7-7/8) |
| GMV-N24G/A3A-D(U) | 1008<br>(39-2/3) | 221<br>(8-5/7) | 319<br>(12-5/9) |

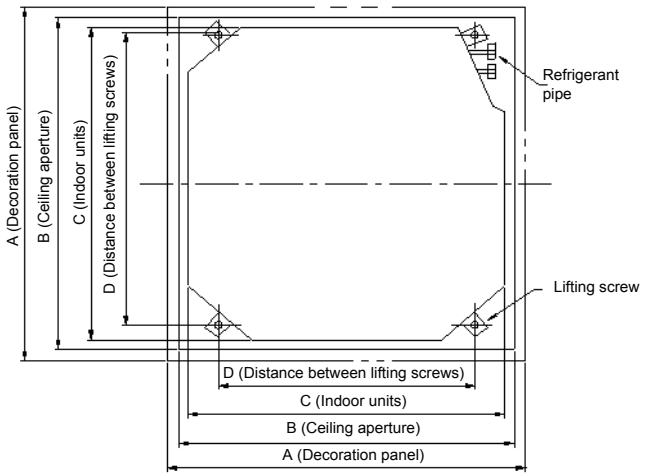
2) Unit installation space




◆ Four-way Cassette Indoor Unit



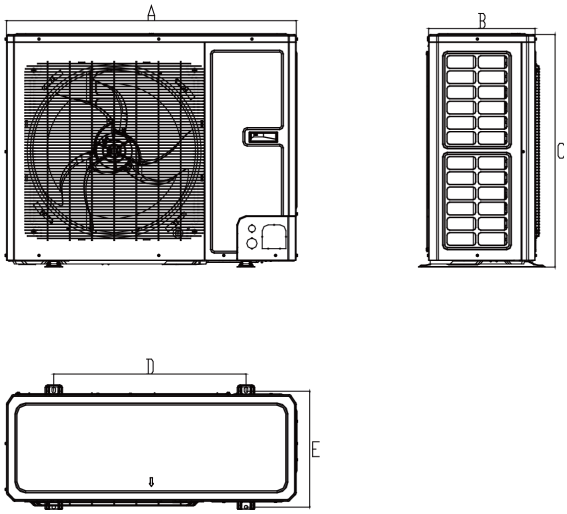



Unit: mm(inch)

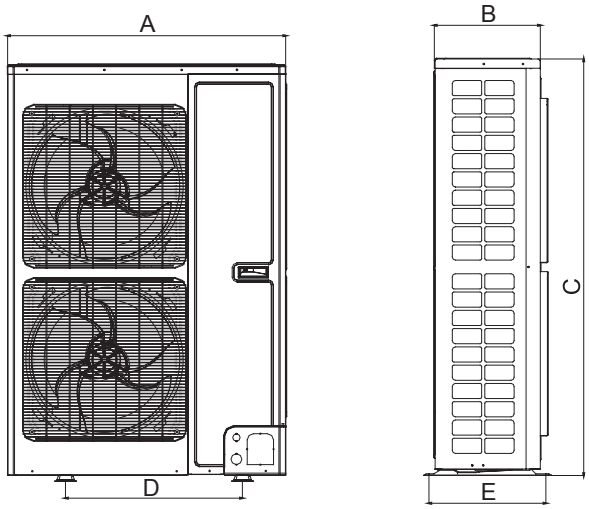
| Model | A | B | C | D | E | G | H |
|---|---|---|---|---|---|---|---|
| GMV-ND07T/A-T(U) | 950 (37-2/5) | 890 (35) | 840 (33) | 680 (26-7/9) | 780 (30-5/7) | 65 (2-5/9) | 210 (8-1/4) |
| GMV-ND09T/A-T(U)<br>GMV-ND12T/A-T(U)<br>GMV-ND18T/A-T(U)<br>GMV-ND24T/A-T(U) | 950 (37-2/5) | 890 (35) | 840 (33) | 680 (26-7/9) | 780 (30-5/7) | 65 (2-5/9) | 260 (10-1/4) |
| GMV-ND30T/A-T(U)<br>GMV-ND36T/A-T(U)<br>GMV-ND42T/A-T(U)<br>GMV-ND48T/A-T(U) | 950 (37-2/5) | 890 (35) | 840 (33) | 680 (26-7/9) | 780 (30-5/7) | 65 (2-5/9) | 340 (13-2/5) |

(2) Outdoor unit

◆ Include the required dimension of installation space of main unit and single unit.



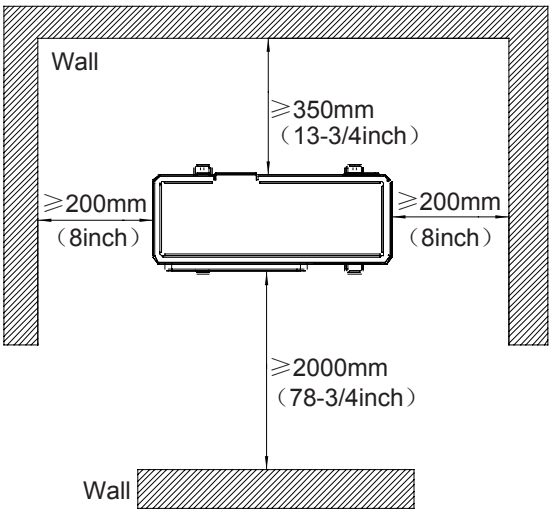

| Model | A | B | C | D | E |
|---|---|---|---|---|---|
| GMV-24WL/C-T(U)<br>GMV-28WL/C-T(U) | 980(38_6/19) | 360(14_3/16) | 790(31_2/16) | 650(25_3/5) | 395(15_5/9) |

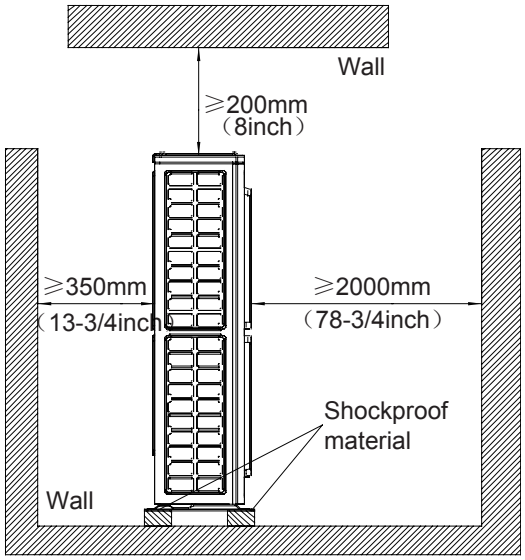



Unit:mm(inch)

| Model | A | B | C | D | E |
|---|---|---|---|---|---|
| GMV-36WL/A-T(U)<br>GMV-48WL/A-T(U) | 900<br>(35-3/8) | 340<br>(13-3/8) | 1345<br>(53) | 572<br>(22-1/2) | 378<br>(15) |
| GMV-60WL/A-T(U) | 940<br>(37) | 320<br>(12 3/5) | 1430<br>(56 2/7) | 632<br>(24 7/8) | 350<br>(14 7/8) |

◆ Installation dimension:

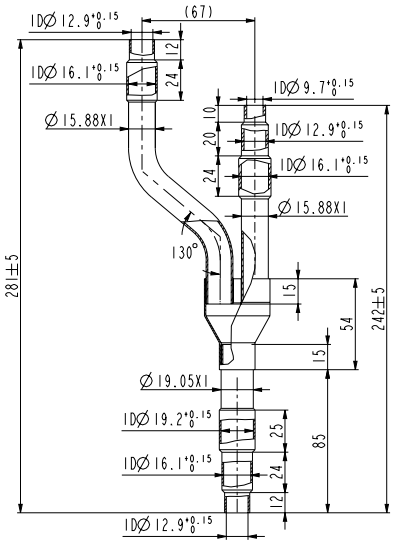


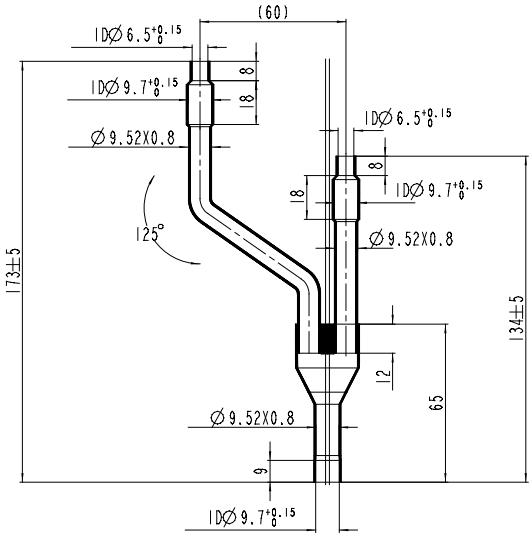

(3) ranching join

Length of each kind of Y-shape branching joint and the dimension of connection pipe port.

Y-shape branching joint：FQ01A/A




Gas pipe




Liquid pipe

Gree Electric Appliances, Inc. of Zhuhai, founded in 1991, is the world's largest air conditioner enterprise integrating R&D, manufacturing, marketing and services.

Technology Innovation and quality are always our priority. With efforts of thousands of Gree's engineers, we own more than 3500 patents for our products.

Nowadays, we have 7 production bases in Zhuhai, Chongqing, Hefei and Zhengzhou(China), as well as Brazil, Pakistan and Vietnam, with annual production capacity of 30 million sets of residential air conditioners and 4 million sets of commercial air conditioners.

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