Product Catalog

R32 Ultra Heat GMV6 Mini DC Inverter VRF Units

⚠SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

⚠AVERTISSEMENT DE SÉCURITÉ

Seul le personnel qualifié doit installer et procéder à l'entretien des équipements. L'installation, le démarrage et la réparation des équipements de chauffage, de ventilation et de climatisation peuvent être dangereux et nécessitent une formation et des connaissances spécifiques. Un équipement mal installé, réglé ou modifié par un individu non qualifié peut entraîner des blessures graves, voire mortelles. Lors de toute intervention sur l'équipement, respectez toutes les précautions figurant dans la documentation et sur les étiquettes et autocollants fixés à l'équipement.

September 2026 **VRFC-PRC001A-EN**

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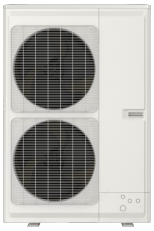
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1. UNIT CHARACTERISTICS

1.1 Lineup of Outdoor Unit

Capacity (Ton)	Model	Code	Appearance
3	GMV-V36WL/NhC-T(U)	CN851W4570	
4	GMV-V48WL/NhC-T(U)	CN851W4560	
5	GMV-V60WL/NhC-T(U)	CN851W4160	

1.2 Product Function and Features

- Gree new generation self-developed double-cylinder two-stage enhanced vapor injection (EVI) compressor matches with the unit perfectly, with performance improved.
- High-efficiency C-shaped Heat Exchanger Design

Adopt brand new C-shaped high-efficiency heat exchanger structure design; windward area increased compared with the last generation one.

Adopt brand new air duct design; air volume increased compared with the last generation one.

- Low-temperature Multiple Oil Paths Management

Low-temperature multiple oil paths management: Five oil paths can ensure the smooth and reliable oil return path under ultra-low temperature operation.

- New Generation Smart Defrosting

Through real-time parameters learning and judgment, the defrosting capacity output and defrosting cycle are automatically changed to achieve stable defrosting or fast defrosting.

- SRL Self-reaction Load Control

Self-reaction load (SRL) control can automatically adapt to indoor cooling and heating load demand to change the refrigerant heat exchange temperature.

- 13 Quiet Modes

GMV6 Mini has multiple quiet modes and the noise of outdoor unit is low to 40dB(A), providing users with a quiet and comfortable environment all day long.

- Room Temperature Holding Function

When temperature is low in winter, if you need to go out for a long time, turn on the “Home leave operation mode” to keep indoor temperature at 8°C to avoid freezing and damage to objects in your house.

After activating the SETBACK function, cooling/heating mode will be turned on automatically to ensure that the room temperature is kept within a constant temperature range.

- Anti-reversing, Startup Technology

During the frequent coastal monsoon period, most air conditioners cannot be turned on in the moderate breeze.

By adopting Gree's unique anti-reversing startup technology, the unit can still started up and turned on normally in strong headwind.

1.3 Nomenclature

GMV	□	□	-	□	□	□	W	□	/	□	□	□	(□)
1	2	3		4	5	6	7	8		9	10	11	12

No.	Description	Options
1	Product code	GMV—Gree Multi VRF Units
2	Suitable climate	Omit—T1 condition T2—low temperature climate T3—high temperature climate
3	Function type	Omit—Heat pump L—Cooling only
4	RAC or CAC	Omit—CAC H—RAC
5	Function code	Omit—no special function V—low ambient temperature heat pump unit
6	Code of cooling capacity	Nominal capacity/100(W)
7	Code for outdoor unit	W—outdoor unit
8	Unit structure	Omit—Non-modular (top discharge) M—Modular (top discharge) L—Non-modular (side discharge)
9	Refrigerant	Nh—R32
10	Design No.	Named in order of A, B, C, or combined with 1, 2, 3…
11	Power supply	7000~18000W, Omit—1 phase; S—3 phase
12	Area code	Omit—for general area For special area, area code is in the form of one capital letter: A, P or S…

1.4 Operation Range

Cooling	Outdoor temperature: -5~54°C(23~129°F)
Heating	Outdoor temperature: -30~27°C(-22~81°F)

When the indoor units are all VRF fresh air processor, the unit operating range is as follows:

Cooling	Ambient temperature: 16~45°C(61~113°F)
Heating	Ambient temperature: -7~16°C(19~61°F)

2. UNIT PARAMETERS

Model			GMV-V36WL/NhC-T(U)	GMV-V48WL/NhC-T(U)	GMV-V60WL/NhC-T(U)
Capacity	Cooling	Btu/h	36000	48000	60000
		W	10600	14100	17600
	Heating	Btu/h	45000	54000	66000
		W	13200	15800	19300
Minimum Circuit Ampacity		A	51.9	53.1	54.3
Maximum Overcurrent Protection		A	60	60	60
Power supply		-	208/230V ~ 60Hz	208/230V ~ 60Hz	208/230V ~ 60Hz
Air volume		m^3/h	6000	6600	6600
		CFM	3531	3885	3885
Sound pressure level		dB(A)	50	52	55
Compressor type		-	Inverter Rotary	Inverter Rotary	Inverter Rotary
Compressor quantity		N	1	1	1
Refrigerant oil model		-	FW68L(FW68DA)	FW68L(FW68DA)	FW68L(FW68DA)
Refrigerant type		-	R32	R32	R32
Refrigerant charge		kg	3.6	3.6	3.9
		LBS	7.9	7.9	8.6
Max. number of connectable IDUs		unit	7	8	10
Gas pipe		mm	Φ15.9	Φ15.9	Φ15.9
		inch	Φ5/8	Φ5/8	Φ5/8
Liquid pipe		mm	Φ9.52	Φ9.52	Φ9.52
		inch	Φ3/8	Φ3/8	Φ3/8
Outline dimensions (W × D × H)		mm	900×340×1345	900×340×1345	900×340×1345
		inch	35-3/8×13-3/8×53	35-3/8×13-3/8×53	35-3/8×13-3/8×53
Packing dimensions (W × D × H)		mm	993×453×1500	993×453×1500	993×453×1500
		inch	39-1/4×18×59-1/16	39-1/4×18×59-1/16	39-1/4×18×59-1/16
Net weight/Gross weight		kg	113/124	113/124	113/124
		LBS	250/270	250/270	250/270

NOTICE

① The total capacity of connected indoor units must be in the range of 50%~135% of the outdoor unit capacity. The relevant parameters can be corrected by referring to the unit capacity correction table.

② The above parameters are tested based on the standard connection pipe length. In the actual project, the parameters should be corrected referring to the capacity correction for the long connection pipe of units.

③ Specifications may be changed due to product improvement. Please refer to nameplates of the units.

④ Sound Pressure Level: Anechoic chamber conversion value, measured in a semi-anechoic room. During actual operation, the value may be higher due to ambient noise and echoes of the installation conditions.

3. ELECTRICAL SPECIFICATIONS

Model	Power supply	Fuse capacity (A)	Maximum over-current protection (A)	Minimum circuit ampacity (A)
GMV-V36WL/NhC-T(U)	208/230V-1Ph-60Hz	60	60	51.9
GMV-V48WL/NhC-T(U)	208/230V-1Ph-60Hz	60	60	53.1
GMV-V60WL/NhC-T(U)	208/230V-1Ph-60Hz	60	60	54.3

4. PRODUCT CAPACITY CORRECTION

4.1 Capacity Correction Method for IDU and ODU

(1) Capacity calculation method

Cooling or heating capacity calculation method:

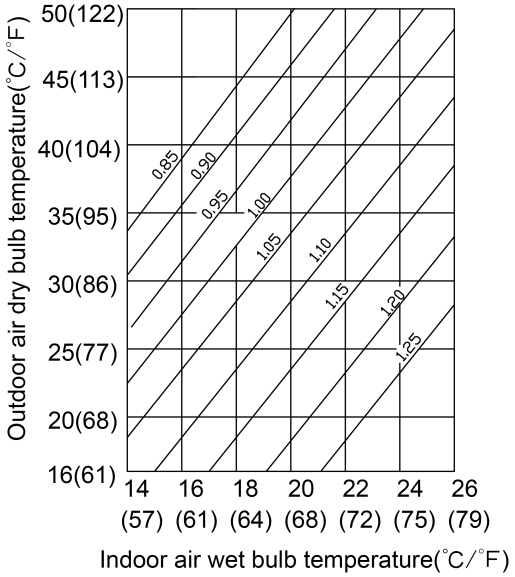
Outdoor unit capacity = outdoor unit capacity in rated condition × correction factor of indoor and outdoor temperature condition × connection pipe distance, correction factor of height difference between indoor unit and outdoor unit.

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;

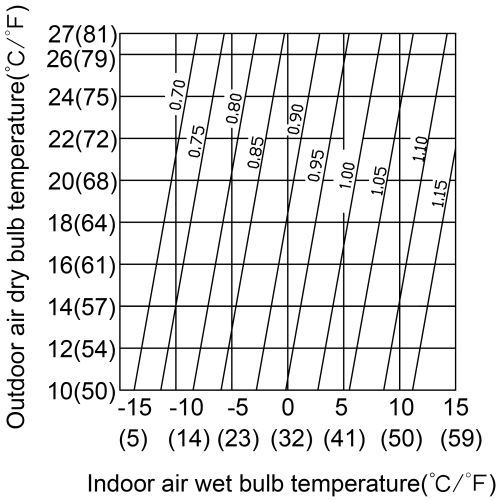
② If the total capacity code of indoor units is bigger than the capacity code of outdoor unit, the capacity of outdoor unit in rated condition equals to its rated cooling capacity;

③ Correction factor of indoor and outdoor temperature condition.

1) Correction factor of cooling capacity

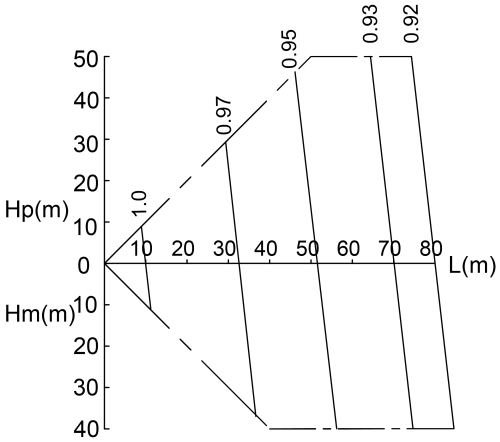


2) Correction factor of heating capacity

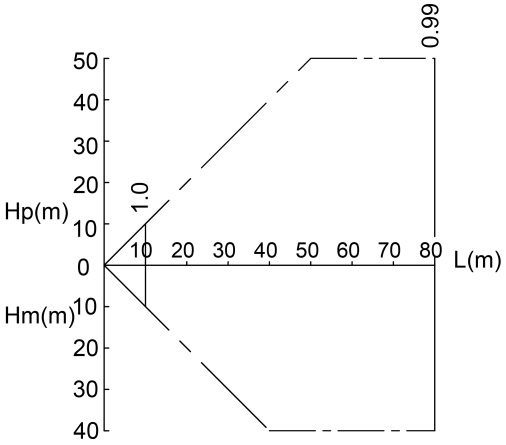


4.2 Capacity Correction According to Piping Length and Height Difference

The following chart is the capacity change rate in 100% load under standard condition (thermostat is set in 16°C (61°F) in cooling and set in 30°C (61°F) in heating).



Cooling



Heating

m	0	10	20	30	40	50	60	70	80
ft.	0	33	66	98	131	164	197	230	262

NOTICE

H_p: Level difference when outdoor unit at upper

H_m: Level difference when outdoor unit at lower

L: The length between ODU and the farthest IDU

4.3 Capacity Correction Factor According to Defrosting

When outdoor environment meet certain condition (temperature and humidity), frosting and defrosting might occur, under this situation, heating capacity of the unit will be attenuated. Therefore, please considering the frosting and defrosting correction factor when calculating the heating load model.

Defrosting correction factor is as follow:

Outdoor heat exchanger air inlet dry bulb temperature (°C /RH85%)	-11	-9	-7	-5	-3	0	3	5	7
Defrosting capacity correction factor	1	0.98	0.96	0.94	0.88	0.8	0.84	0.9	1

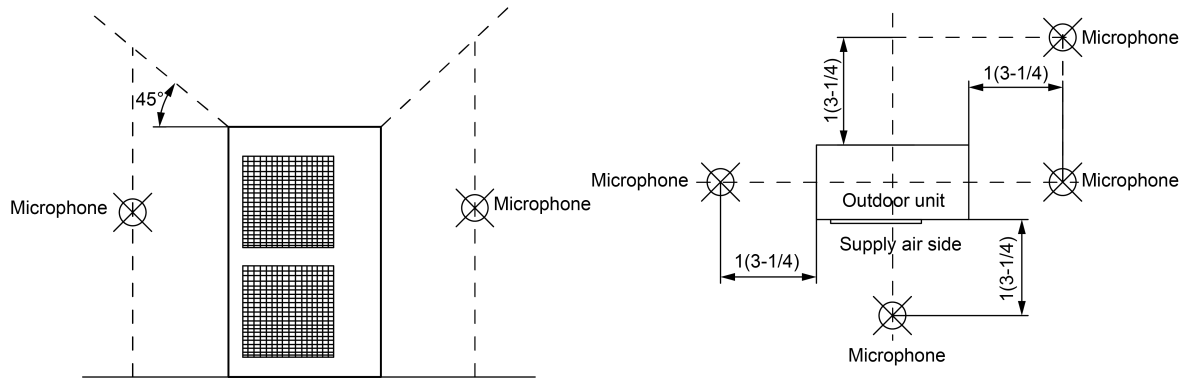
5. UNIT NOISE CURVES

Test method for noise：

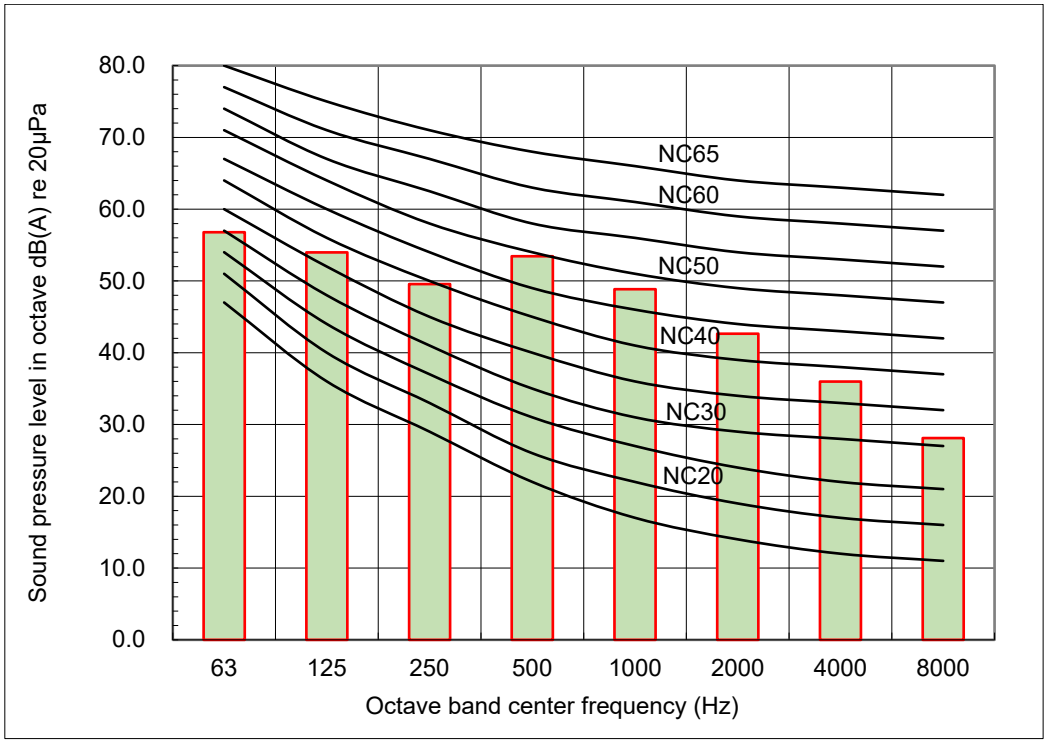
Test environment: Semi-an echoic room, the noise could be a little bit higher in actual operation due to environmental change.

Noise curve test point is as follow:

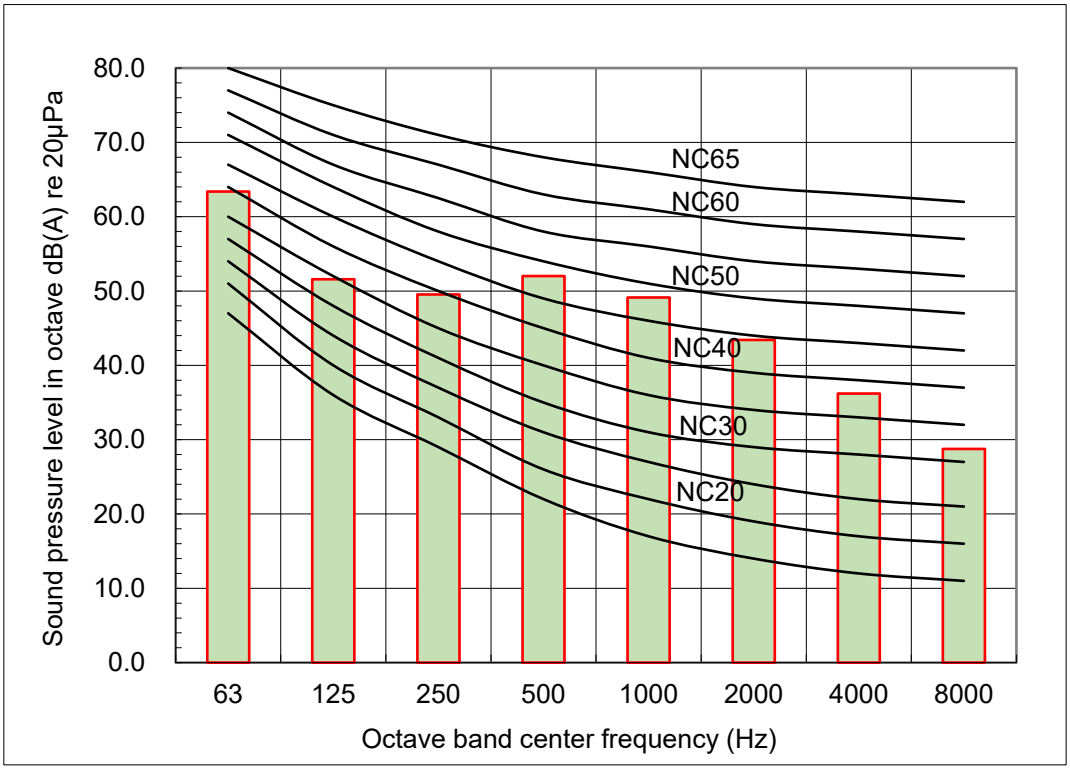
Unit: m(ft.)



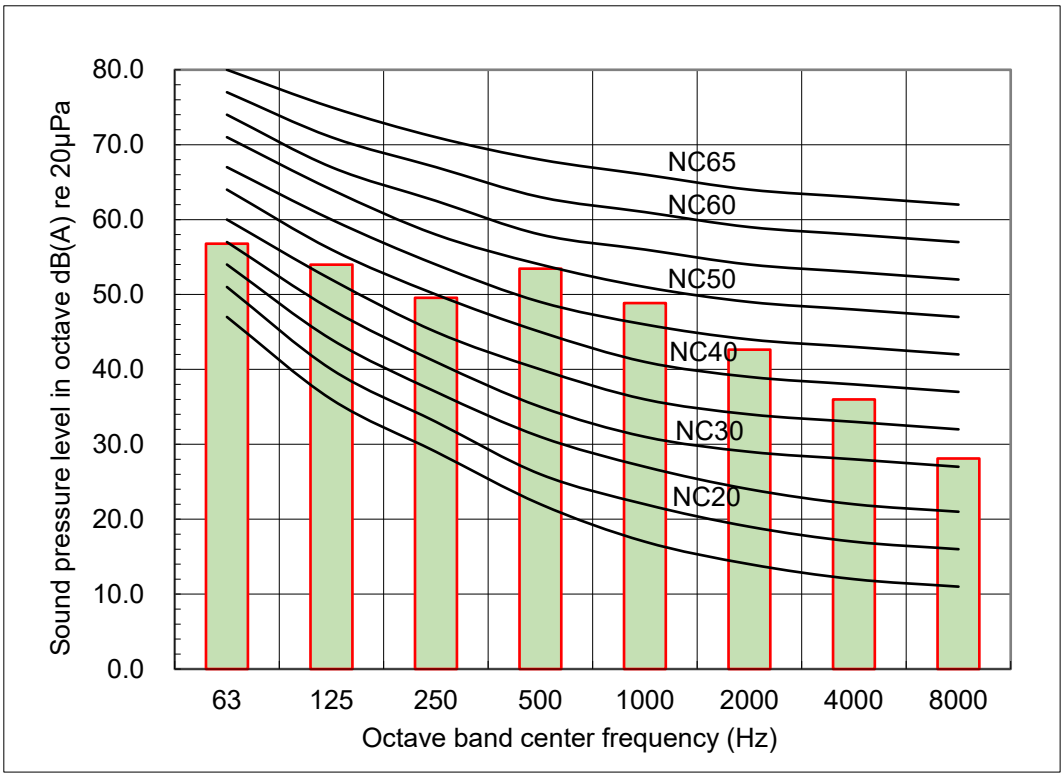
GMV-V36WL/NhC-T(U):



GMV-V48WL/NhC-T(U):



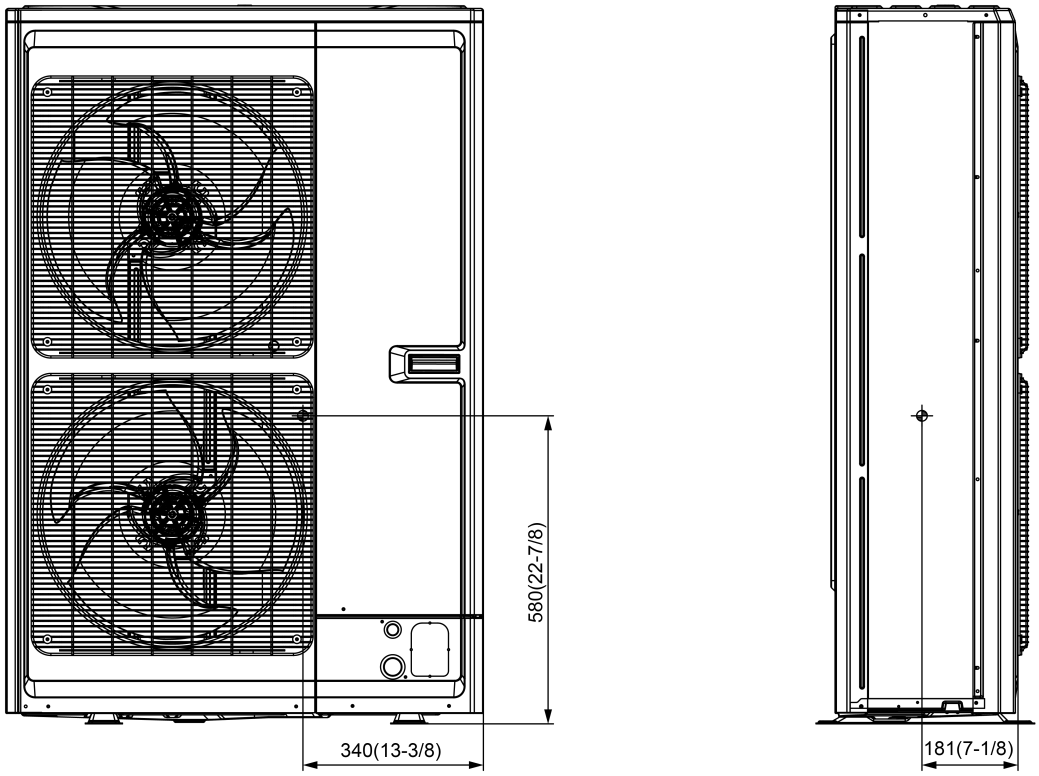
GMV-V60WL/NhC-T(U):



6. UNIT GRAVITY CENTER DIAGRAMS

GMV-V36WL/NhC-T(U),GMV-V48WL/NhC-T(U),GMV-V60WL/NhC-T(U)

Unit: mm(inch)



7. MINIMUM ROOM AREA FOR R32 UNIT

7.1 Minimum Room Area

Area of the room where the indoor unit is installed must meet the minimum room area in the following table:

Releasable Charge (kg)	Minimum Room Area (m² / ft²)			
	H_0<2.2m			
	H=1.6m	H=1.8m	H=2.0m	H=2.2m
2	8.2 / 88.0	7.3 / 78.2	6.6 / 70.4	6.0 / 64.0
2.2	9.0 / 96.8	8.0 / 86.0	7.2 / 77.4	6.6 / 70.4
2.4	9.9 / 105.6	8.8 / 93.9	7.9 / 84.5	7.2 / 76.8
2.6	10.7 / 114.4	9.5 / 101.7	8.5 / 91.5	7.8 / 83.2
2.8	11.5 / 123.2	10.2 / 109.5	9.2 / 98.5	8.4 / 89.6
3	12.3 / 132.0	10.9 / 117.3	9.9 / 105.6	9.0 / 96.0
3.2	13.1 / 140.8	11.7 / 125.1	10.5 / 112.6	9.6 / 102.4
3.4	13.9 / 149.5	12.4 / 132.9	11.2 / 119.6	10.2 / 108.8
3.6	14.8 / 158.3	13.1 / 140.8	11.8 / 126.7	10.7 / 115.2
3.8	15.6 / 167.1	13.8 / 148.6	12.5 / 133.7	11.3 / 121.6
4	16.4 / 175.9	14.6 / 156.4	13.1 / 140.8	11.9 / 128.0
4.2	17.2 / 184.7	15.3 / 164.2	13.8 / 147.8	12.5 / 134.4
4.4	18.0 / 193.5	16.0 / 172.0	14.4 / 154.8	13.1 / 140.8
4.6	18.8 / 202.3	16.8 / 179.8	15.1 / 161.9	13.7 / 147.2
4.8	19.7 / 211.1	17.5 / 187.7	15.7 / 168.9	14.3 / 153.5
5	20.5 / 219.9	18.2 / 195.5	16.4 / 175.9	14.9 / 159.9
5.2	21.3 / 228.7	18.9 / 203.3	17.0 / 183.0	15.5 / 166.3

Releasable Charge (kg)	Minimum Room Area (m² / ft²)			
	H_0<2.2m			
	H=1.6m	H=1.8m	H=2.0m	H=2.2m
5.4	22.1 / 237.5	19.7 / 211.1	17.7 / 190.0	16.1 / 172.7
5.6	22.9 / 246.3	20.4 / 218.9	18.4 / 197.0	16.7 / 179.1
5.8	23.7 / 255.1	21.1 / 226.7	19.0 / 204.1	17.3 / 185.5
6	24.6 / 263.9	21.8 / 234.6	19.7 / 211.1	17.9 / 191.9
6.2	25.4 / 272.7	22.6 / 242.4	20.3 / 218.1	18.5 / 198.3
6.4	26.2 / 281.5	23.3 / 250.2	21.0 / 225.2	19.1 / 204.7
6.6	27.0 / 290.3	24.0 / 258.0	21.6 / 232.2	19.7 / 211.1
6.8	27.8 / 299.0	24.7 / 265.8	22.3 / 239.2	20.3 / 217.5
7	28.6 / 307.8	25.5 / 273.6	22.9 / 246.3	20.8 / 223.9
7.2	29.5 / 316.6	26.2 / 281.5	23.6 / 253.3	21.4 / 230.3
7.4	30.3 / 325.4	26.9 / 289.3	24.2 / 260.4	22.0 / 236.7
7.6	31.1 / 334.2	27.6 / 297.1	24.9 / 267.4	22.6 / 243.1

Releasable Charge (kg)	Minimum Room Area(m² / ft²)					
	H_0≥2.2m					
	H=2.2m	H=2.5m	H=3m	H=3.5m	H=4m	H=5m
2	6.0 / 64.0	5.3 / 56.3	4.4 / 47	3.8 / 40.3	3.3 / 35.2	2.7 / 28.2
2.2	6.6 / 70.4	5.8 / 62.0	4.8 / 51.6	4.2 / 44.3	3.6 / 38.7	2.9 / 31
2.4	7.2 / 76.8	6.3 / 67.6	5.3 / 56.3	4.5 / 48.3	4 / 42.3	3.2 / 33.8
2.6	7.8 / 83.2	6.8 / 73.2	5.7 / 61	4.9 / 52.3	4.3 / 45.8	3.4 / 36.6
2.8	8.4 / 89.6	7.4 / 78.8	6.2 / 65.7	5.3 / 56.3	4.6 / 49.3	3.7 / 39.4
3	9.0 / 96.0	7.9 / 84.5	6.6 / 70.4	5.7 / 60.4	5 / 52.8	4 / 42.3
3.2	9.6 / 102.4	8.4 / 90.1	7 / 75.1	6 / 64.4	5.3 / 56.3	4.2 / 45.1
3.4	10.2 / 108.8	8.9 / 95.7	7.5 / 79.8	6.4 / 68.4	5.6 / 59.8	4.5 / 47.9
3.6	10.7 / 115.2	9.5 / 101.4	7.9 / 84.5	6.8 / 72.4	5.9 / 63.4	4.8 / 50.7
3.8	11.3 / 121.6	10.0 / 107.0	8.3 / 89.2	7.1 / 76.4	6.3 / 66.9	5 / 53.5
4	11.9 / 128.0	10.5 / 112.6	8.8 / 93.9	7.5 / 80.5	6.6 / 70.4	5.3 / 56.3
4.2	12.5 / 134.4	11.0 / 118.2	9.2 / 98.5	7.9 / 84.5	6.9 / 73.9	5.5 / 59.1
4.4	13.1 / 140.8	11.6 / 123.9	9.6 / 103.2	8.3 / 88.5	7.2 / 77.4	5.8 / 62
4.6	13.7 / 147.2	12.1 / 129.5	10.1 / 107.9	8.6 / 92.5	7.6 / 81	6.1 / 64.8
4.8	14.3 / 153.5	12.6 / 135.1	10.5 / 112.6	9 / 96.5	7.9 / 84.5	6.3 / 67.6
5	14.9 / 159.9	13.1 / 140.8	10.9 / 117.3	9.4 / 100.6	8.2 / 88	6.6 / 70.4
5.2	15.5 / 166.3	13.6 / 146.4	11.4 / 122	9.8 / 104.6	8.5 / 91.5	6.8 / 73.2
5.4	16.1 / 172.7	14.2 / 152.0	11.8 / 126.7	10.1 / 108.6	8.9 / 95	7.1 / 76
5.6	16.7 / 179.1	14.7 / 157.6	12.3 / 131.4	10.5 / 112.6	9.2 / 98.5	7.4 / 78.8
5.8	17.3 / 185.5	15.2 / 163.3	12.7 / 136.1	10.9 / 116.6	9.5 / 102.1	7.6 / 81.7
6	17.9 / 191.9	15.7 / 168.9	13.1 / 140.8	11.3 / 120.7	9.9 / 105.6	7.9 / 84.5
6.2	18.5 / 198.3	16.3 / 174.5	13.6 / 145.4	11.6 / 124.7	10.2 / 109.1	8.2 / 87.3
6.4	19.1 / 204.7	16.8 / 180.2	14 / 150.1	12 / 128.7	10.5 / 112.6	8.4 / 90.1
6.6	19.7 / 211.1	17.3 / 185.8	14.4 / 154.8	12.4 / 132.7	10.8 / 116.1	8.7 / 92.9
6.8	20.3 / 217.5	17.8 / 191.4	14.9 / 159.5	12.7 / 136.7	11.2 / 119.6	8.9 / 95.7
7	20.8 / 223.9	18.4 / 197.0	15.3 / 164.2	13.1 / 140.8	11.5 / 123.2	9.2 / 98.5
7.2	21.4 / 230.3	18.9 / 202.7	15.7 / 168.9	13.5 / 144.8	11.8 / 126.7	9.5 / 101.4
7.4	22.0 / 236.7	19.4 / 208.3	16.2 / 173.6	13.9 / 148.8	12.1 / 130.2	9.7 / 104.2
7.6	22.6 / 243.1	19.9 / 213.9	16.6 / 178.3	14.2 / 152.8	12.5 / 133.7	10 / 107

NOTICE

(1) H_0 is the release height, H_{inst} is the installation height, H_0 is higher than H_{inst}.

(2) H is the floor-to-ceiling height of the room. If the H0 is <2.2m, H cannot exceed 2.2m, even if the actual height of the room is >2.2m.

(3) If the actual releasable charge is not exactly equal to the value in the table, the larger releasable charge in the table need to be taken.

(4) If the actual H is not exactly equal to the value in the table, the smaller H in the table need to be taken.

(5) This manual is only applicable to a single room.

(6) Correct the minimum room area of the space Amin by multiplying by an altitude adjustment factor (AF) based on for building site ground level altitude (Halt) in meters.

Halt	0	200	400	600	800	1000	1200	1400	1600
AF	1.00	1.00	1.00	1.00	1.02	1.05	1.07	1.10	1.12
Halt	1600	1800	2000	2200	2400	2600	2800	3000	3200
AF	1.12	1.15	1.18	1.21	1.25	1.28	1.32	1.36	1.40

(7) The minimum airflow is 240m³/h.

(8) LEAK DETECTION SYSTEM installed. Unit must be powered except for service.

7.2 Calculation Method of Releasable Charge (m_{REL})

The outdoor unit is equipped with automatic refrigerant cut-off valves. When the indoor unit detects refrigerant leakage, the cut-off valves will cut off the refrigerant of the outdoor unit. The releasable charge (m_{REL}) refers to the total amount of refrigerant remaining in all indoor units and pipeline that may leak into the room.

m_{REL} =m1 of all indoor units in the system + m2 of all pipeline in the system + 0.204kg

If the calculated m_{REL} is larger than the system refrigerant amount (including the default refrigerant of outdoor unit and the additional refrigerant charge), the system refrigerant amount should be used as m_{REL}.

m1 of indoor unit is shown in the following table.

Unit: kg

Indoor Unit		m1 of single indoor unit
Air Handler	GMV-ND12A/NhB-T(U)	0.56
	GMV-ND18A/NhB-T(U)	
	GMV-ND24A/NhB-T(U)	0.79
	GMV-ND30A/NhB-T(U)	
	GMV-ND36A/NhB-T(U)	1.27
	GMV-ND42A/NhB-T(U)	
	GMV-ND48A/NhB-T(U)	2.31
	GMV-ND54A/NhB-T(U)	
	GMV-ND60A/NhB-T(U)	
High Static Pressure Duct Unit	GMV-ND07PHS/NhD-T(U)	0.58
	GMV-ND09PHS/NhD-T(U)	
	GMV-ND12PHS/NhD-T(U)	
	GMV-ND15PHS/NhD-T(U)	
	GMV-ND18PHS/NhD-T(U)	
	GMV-ND24PHS/NhD-T(U)	
	GMV-ND30PHS/NhD-T(U)	0.84
	GMV-ND36PHS/NhD-T(U)	
	GMV-ND42PHS/NhD-T(U)	
	GMV-ND48PHS/NhD-T(U)	
	GMV-ND54PHS/NhD-T(U)	
Fresh Air Processing Unit	GMV-NDX42P/NhD-T(U)	0.84
	GMV-NDX48P/NhD-T(U)	
	GMV-NDX54P/NhD-T(U)	

Indoor Unit		m1 of single indoor unit
360° Air Discharge Cassette Indoor Unit	GMV-ND07T/NhD-T(U)	0.60
	GMV-ND09T/NhD-T(U)	
	GMV-ND12T/NhD-T(U)	
	GMV-ND15T/NhD-T(U)	
	GMV-ND18T/NhD-T(U)	
	GMV-ND24T/NhD-T(U)	0.70
	GMV-ND30T/NhD-T(U)	
	GMV-ND36T/NhD-T(U)	
	GMV-ND42T/NhD-T(U)	
	GMV-ND48T/NhD-T(U)	
1-Way Cassette Unit	GMV-ND07TD/NhA-T(U)	0.27
	GMV-ND09TD/NhA-T(U)	
	GMV-ND12TD/NhA-T(U)	

All pipelines in the system are divided into three types A/B/C according to pipe dimension. Count the total pipe length of each type and find out m2 of corresponding type in the table below. Add up all m2 of each type to obtain the m2 of the system.

m2 of pipeline:

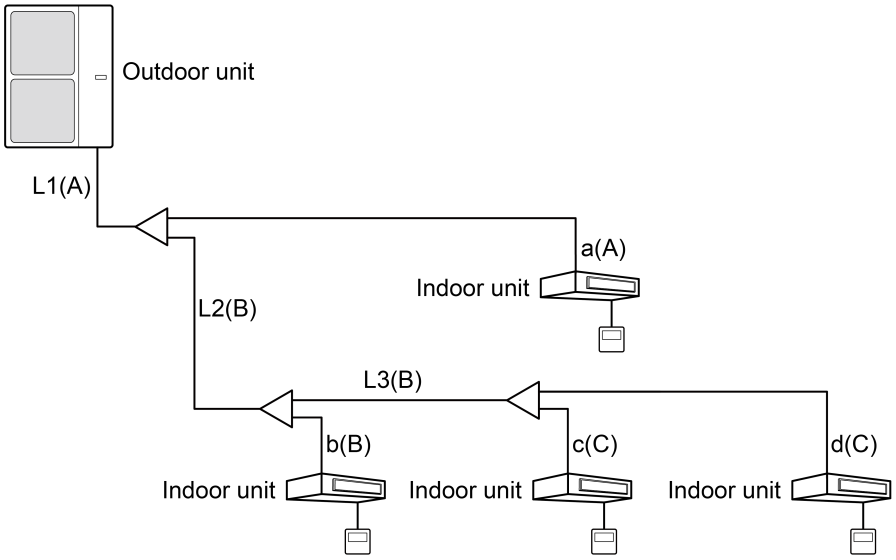
Unit: kg

Pipe Type		A	B	C
Gas Pipe mm (inch)		15.9 (5/8)	12.7 (1/2)	9.52 (3/8)
Liquid Pipe mm (inch)		9.52 (3/8)	6.35 (1/4)	6.35 (1/4)
Total Pipe Length m (feet)	5 (16-3/8)	0.27	0.11	0.10
	10 (32-13/16)	0.54	0.22	0.20
	15 (49-3/16)	0.80	0.33	0.29
	20 (65-5/8)	1.07	0.43	0.39
	25 (82)	1.33	0.54	0.49
	30 (98-7/16)	1.60	0.65	0.58
	35 (114-13/16)	1.87	0.75	0.68
	40 (131-1/4)	2.13	0.86	0.78
	45 (147-5/8)	2.40	0.97	0.87
	50 (164-1/16)	2.66	1.07	0.97
	55 (180-7/16)	2.93	1.18	1.07
	60 (196-7/8)	3.20	1.29	1.16
	65 (213-1/4)	3.46	1.39	1.26
	70 (229-11/16)	3.73	1.50	1.36
	75 (246-1/16)	3.99	1.61	1.45
	80 (262-7/16)	4.26	1.71	1.55
	85 (278-7/8)	4.53	1.82	1.65
	90 (295-1/4)	4.79	1.93	1.74
	95 (311-11/16)	5.06	2.03	1.84
	100 (328-1/16)	5.32	2.14	1.93

NOTICE

If the actual pipe length is not exactly equal to the value in the table, the longer length in the table need to be taken.

For example:



There are four indoor units in the system: GMV-ND24PHS/NhD-T(U)*1 and GMV-ND12PHS/NhD-T(U)*3.

The total length of type A pipeline L1+a is 20m. m2 of type A is 1.07kg.

The total length of type B pipeline L2+L3+b is 30m. m2 of type B is 0.65kg.

The total length of type C pipeline c+d is 10m. m2 of type C is 0.20kg.

The system refrigerant amount is 7kg.

The releasable charge (m_{REL}) should be calculated as below:

m1=0.58+0.58*3=2.32kg

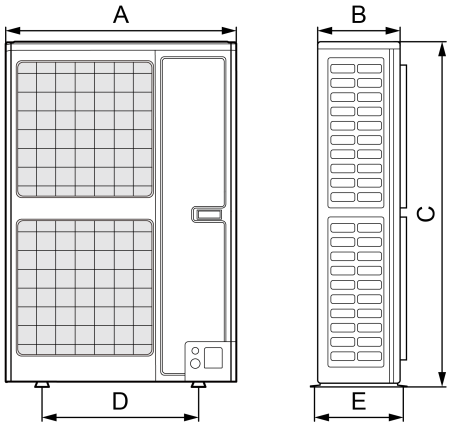
m2=1.07+0.65+0.20=1.92kg

m_{REL}=2.32kg+1.92kg+0.204kg=4.417kg

For 3 meters high room, the room area must not less than 9.2m²(98.5ft²). If the room area is less than 9.2m²(98.5ft²), measures need to be taken to make the room area meet the requirements, such as changing the piping design of the system to reduce the m_{REL}.

8. UNIT INSTALLATION SPACE REQUIREMENTS

8.1 Outline Dimension and Installation Hole



Unit: mm(inch)

Model	A	B	C	D	E
GMV-V36WL/NhC-T(U)	900 (35-3/8)	340 (13-3/8)	1345 (53)	572 (22-1/2)	378 (14-7/8)
GMV-V48WL/NhC-T(U)					
GMV-V60WL/NhC-T(U)					

8.2 Location Selection Precautions for ODU

(1) Install the unit at a place where can withstand the weight of the unit and make sure the unit would not shake or fall off.

(2) Fully consider the influence of strong winds, typhoons, earthquakes and other natural disasters when selecting the installation site, and strengthen the installation.

(3) Avoid the influence from flammable, explosive, corrosive gases and exhaust gases.

(4) Ensure that there is a certain space for heat exchanging and maintenance operation.

(5) Outdoor units and indoor units should be as close as possible to minimize the length and angle of the cooling pipes.

(6) Do not allow children to approach the unit. Preventive measures should be taken to prevent children from accessing the unit.

(7) The unit should not be installed at places with high environmental pH or high voltage fluctuations, such as on vehicles or ships.

(8) Do not install the unit at the place where is close to the equipment that generates electromagnetic waves which can influence the control system and cause operation error.

(9) If it vibrates and causes noise, please add rubber cushion between the outdoor unit and the installation base.

(10) When the outdoor unit is in heating or defrosting, it needs to drain water. When installing the drain pipe, plug the accompanied drainage connector to the drainage hole on the chassis of the outdoor unit. Then connect a drain hose to the drainage connector (If drainage connector is used, the outdoor unit should be elevated at least 10cm above the installation ground.

(11) For areas with frequent snowfall, please clean up the snow in time to avoid its covering the unit.

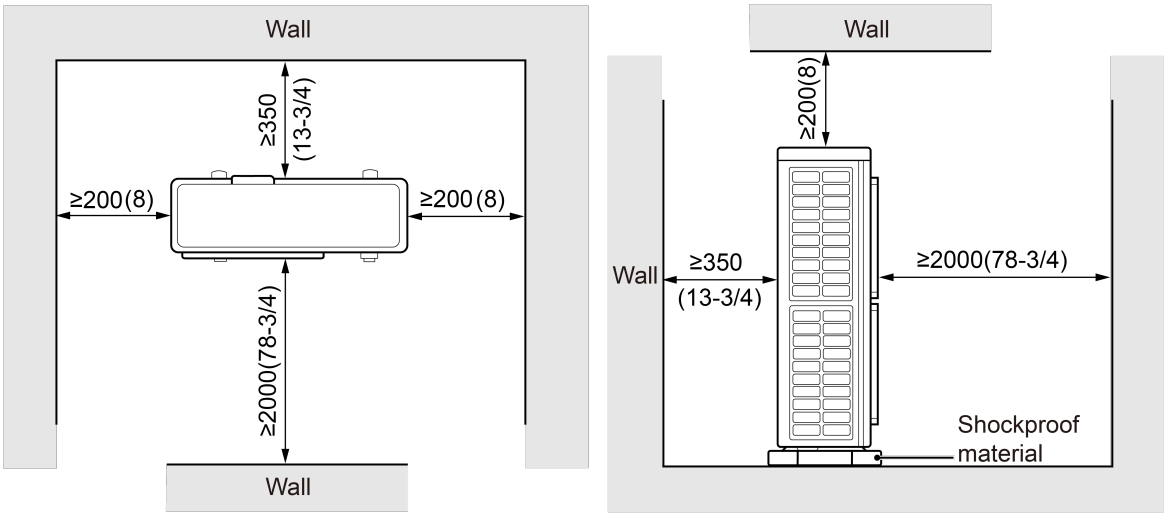
(12) The unit installed in areas expecting snow are suggested to be raised with support frames.

(13) If it's possible, please try to avoid the places where the snow will be accumulated easily. If not, please install a protective device to prevent snow accumulated on the top or around of the unit.

8.3 Installation Space Requirements for ODU

Maintenance space and unit ventilation should be considered when installing the unit. Installation method should base on the actual situation.

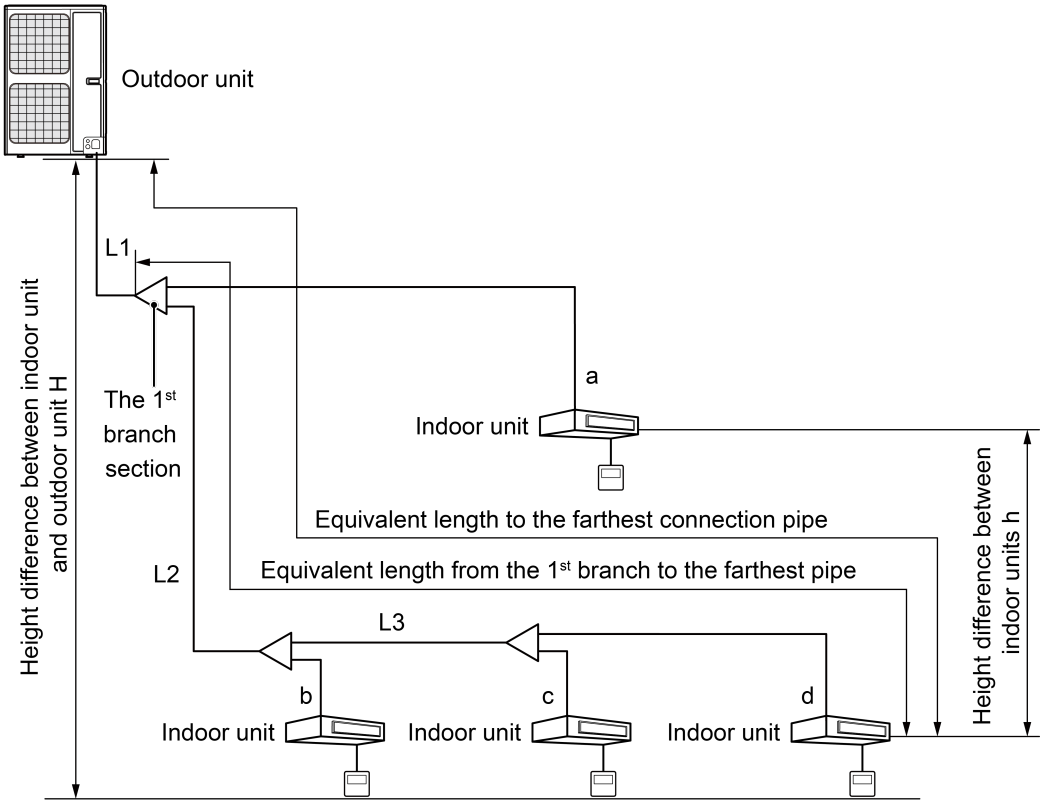
Unit: mm(inch)



9. PIPING DESIGN

9.1 Allowable Pipe Length and Height Difference Among Indoor and Outdoor Units

"Y" type branch is adopted to connect the indoor and outdoor units. Connecting method is shown below.



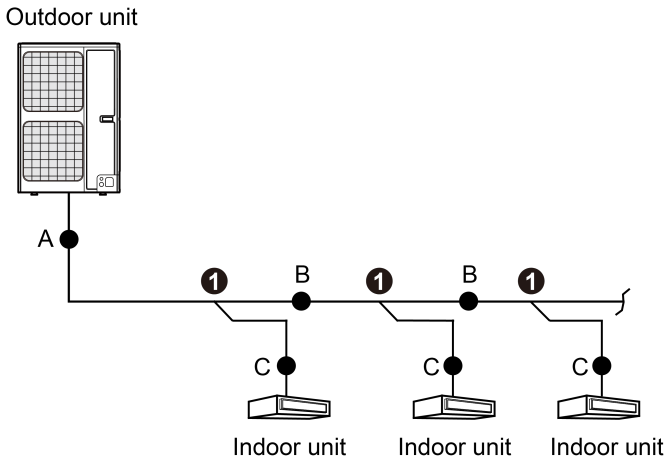
Equivalent length of one Y-type branch is 0.5m(1-5/8feet).

—		Allowable value		Fitting pipe
		m	feet	
Total length (actual length) of fitting pipe		150	492	L1+L2+L3+a+b+c+d
Length of farthest fitting pipe	Actual length	65	213	L1+L2+L3+d
	Equivalent length	80	262	
From the 1st branch to the farthest indoor pipe		40	131	L2+L3+d
Height difference between ODU and IDU	ODU at upper side	50	164	—
	ODU at lower side	40	131	—
Height difference between IDUs		15	49	—

NOTICE

If the distance between IDU and its nearest branch is over 10m(33 feet), then the liquid pipe of IDU (rated capacity ≤17000Btu/h) shall be enlarged.

9.2 Piping Selection



(1) Pipe "A" between the outdoor unit and the manifold of indoor unit.

The pipe size is based on the dimension of outdoor connection pipe.

Basic module	Pipe dimension	
	Gas pipe (mm/inch)	Liquid pipe (mm/inch)
GMV-V36WL/NhC-T(U)	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
GMV-V48WL/NhC-T(U)		
GMV-V60WL/NhC-T(U)		

(2) Select the manifold "①" at indoor side.

Manifold at indoor unit side can be selected as per total capacity of downstream indoor unit(s). Refer to the following table.

Refrigerant system	Total capacity of downstream indoor units X (Btu/h)	Model
Y type branch	X<68200	FQ01A/A
	68200≤X≤102400	FQ01B/A
	102400<X≤238800	FQ02/A
	238800<X≤460600	FQ03/A
	460600<X	FQ04/A

(3) Fitting pipe "B" between indoor side manifolds.

Pipe size (between two manifolds at indoor unit side) is based on the total capacity of downstream indoor unit(s).

Total capacity of downstream indoor units X (Btu/h)	Pipe (mm/inch)	Liquid pipe (mm/inch)
X≤19000	Φ12.7 (Φ1/2)	Φ6.35 (Φ1/4)
19000<X≤48500	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
48500<X≤76400	Φ19.05 (Φ3/4)	Φ9.52 (Φ3/8)

(4) Fitting pipe "C" between indoor unit and manifold.

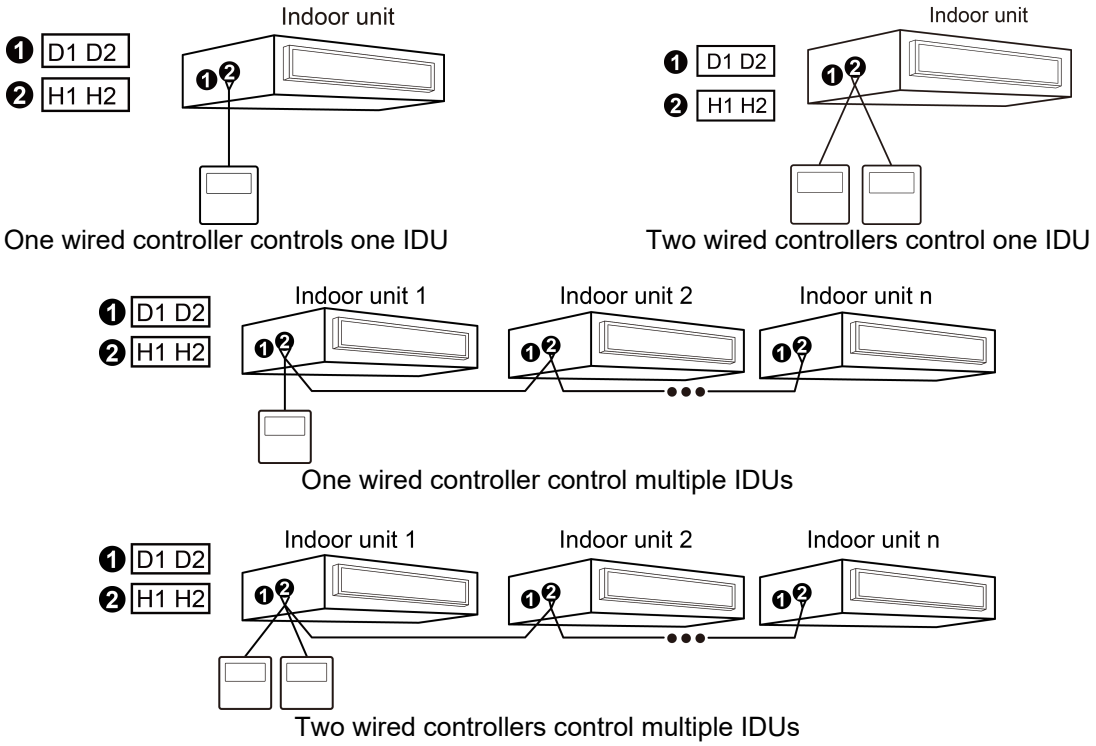
Manifold should be matched with fitting pipe of indoor unit.

Rated capacity of IDU X(Btu/h)	Gas pipe (mm/inch)	Liquid pipe (mm/inch)
X≤9600	Φ9.52 (Φ3/8)	Φ6.35 (Φ1/4)
9600<X≤17000	Φ12.7 (Φ1/2)	Φ6.35 (Φ1/4)
17000<X≤48000	Φ15.9 (Φ5/8)	Φ9.52 (Φ3/8)
48000<X≤55000	Φ19.05 (Φ3/4)	Φ9.52 (Φ3/8)
55000<X≤96000	Φ22.2 (Φ7/8)	Φ9.52 (Φ3/8)

10. COMMUNICATION WIRING SYSTEM

10.1 Communication Connection Method between IDU and Wired Controller

There are 4 connection ways between IDU and wired controller, please refer to the following:



When two wired controllers control several IDUs at the same time, the wired controller can be connected to any IDU, the connected IDUs shall be the IDU from the same series, meanwhile, set one of the wired controllers as the slave wired controller and shall be only set one. The amount of IDU controlled by wired controller shall not exceed 16 sets, and the connected IDUs shall be in the same IDU's network.

Set slave wired controller under ON/OFF status:

Long press "Function" button for 5s of the wired controller which needs to be set as the slave wired controller, the temperature area will display "C00", then long press "Function" button for 5s to enter parameter setting interface for wired controller, at this time, the temperature area will display "P00" acquiescently.

Press "▲"or"▼" button to select P13 as the parameter code and "Mode" button to switch to parameter value setting. At this time, the parameter value will blink, then press "▲"or"▼" to select "02"code. Press "Confirm/Cancel" button to complete the setting.

Press "Confirm/Cancel" button to return to the previous operation, until existing parameter setting.

Parameter setting list for the user is as follow:

Parameter code	Parameter name	Parameter range	Defaulted value	Remark
P13	Address setting for wired controller	01: Master wired controller 02: Slave wired controller	01	When two wired controllers control one (or several) set(s) of IDU at the same time, the address of two wired controllers shall be different. Apart from setting the wired controller address, the slave wired controller can not set unit parameter.

NOTICE

(1) All wired controllers are set as master wired controllers at the factory.

(2) Under parameter setting status: the buttons of fan speed, timer, sleep and swing are invalid, press “ON/OFF” button to return to the main interface immediately, but it will not execute the startup/shutdown operation.

(3) Under parameter setting status, the signal of remote controller is invalid.

10.2 Connection Method between Duct Type IDU and Remote Signal Receiving LED Panel

Connection method between duct type IDU and receiver （remote signal receiving LED panel）

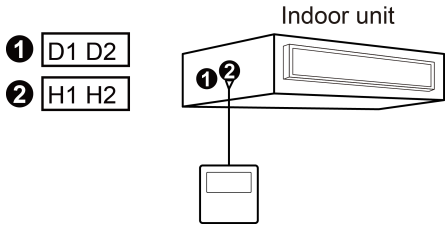


Figure 1 One Receiver Controls One Indoor unit

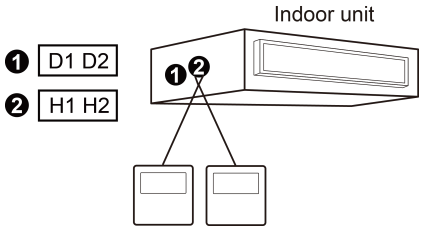


Figure 2 One Receiver and One Wired Controllers Control One Indoor unit

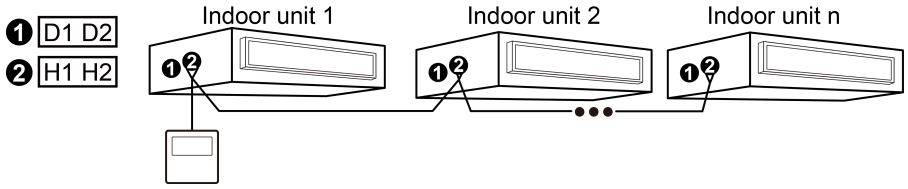


Figure 3 One Receiver Controls Several Multi VRF IDUs Simultaneously

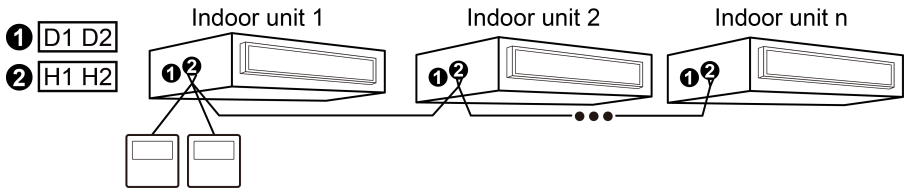


Figure 4 One Receiver and One Wired Controller Control Several Multi VRF IDUs Simultaneously

NOTICE

(1) When the remote signal receiving LED panel is connected with multi VRF unit, the wiring methods as shown in Figure 1, Figure 2, Figure 3 and Figure 4 can be adopted, but please pay attention to the follow:

① When one remote signal receiving LED panel or one remote signal receiving LED panel and one wired controller control several indoor units simultaneously, the remote signal receiving LED panel can connect any indoor unit, but the connected indoor unit shall be of the same indoor unit series and the connected indoor unit shall be in the same multi VRF system. When it is applied together with the wired controller, please set the indoor unit quantity of group control in the wired controller.

② When the remote signal receiving LED panel controls several indoor units simultaneously, the settings for all indoor units are the same.

(2) In the wiring methods as shown in Figure 2, Figure 4, there can't be two remote signal receiving LED panels simultaneously and only one wired controller and one remote signal receiving LED panel are allowable in the same system. The wired controller can be set as master or slave wired controller and the remote signal receiving LED panel address will switch automatically (no need to set remote signal receiving LED panel address manually) according to the wired controller address (master/slave wired controller). The total quantity of remote signal receiving LED panel and wired controller can't exceed two.

(3) The remote signal receiving LED panel interface is non-polar, but it can't be connected with heavy current.

(4) Wired controller and remote signal receiving LED panel can be used at the same time.

(5) When selecting remote signal receiving LED panel, selecting the remote controller at the same time.

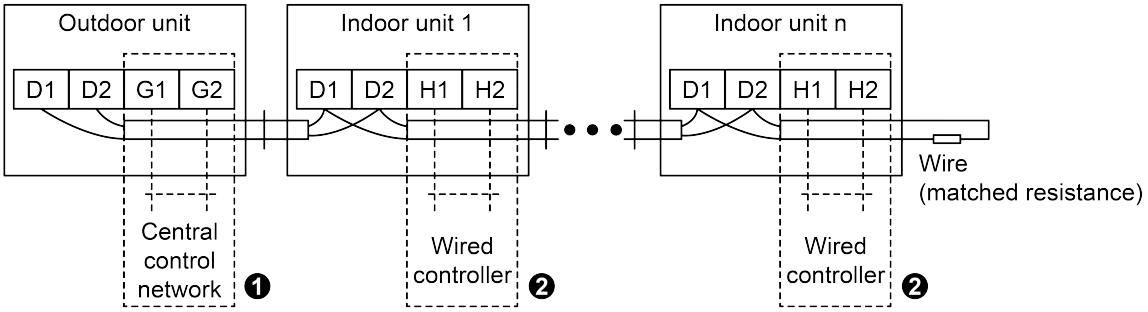
11. EXTERNAL ELECTRICAL WIRING DIAGRAM

11.1 External Wiring Interface

External wiring interface	Power supply	Number of cable cores	3
		Mark	L1 L2 G
	IDU/ODU communication	Number of cable cores	2
		Mark	D1 D2
	Central control	Number of cable cores	2
		Mark	G1 G2

11.2 External Wiring

Connection of power cord and communication cord. Supply power for each unit separately. Each unit shall be equipped with a circuit breaker for short circuit and abnormal overload protection.

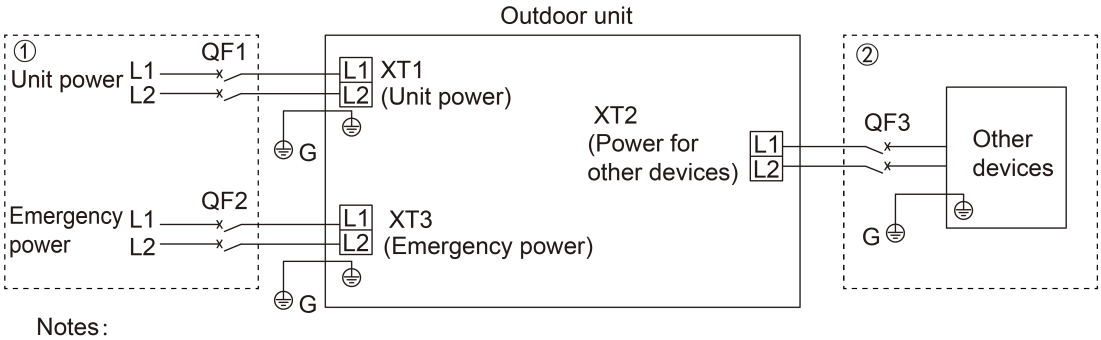


Note: (1) Whether the unit is with centralized network control function or wired controller function, please refer to the circuit diagram. For outdoor units equipped with the function of central control, connect wires according to drawing ❶. For indoor units with the function of wired control, connect wires according to drawing ❷.

(2) n represents the maximum number of connectable indoor units, which is determined by the capacity of the outdoor unit. For details, please refer to the capacity configuration instructions of the unit.

NOTICE

Keep all the units in the same system energized during using. Otherwise, the system will not operate normally.



Notes:
① Unit power and emergency power are independent, and they can't be shared together.
② All connected devices must meet UL certification requirements. The MCA of the equipment shall not exceed 15A, and the equipment should be reliably grounded.

NOTICE

Connect the power cord to the corresponding terminal and grounding screws. Please refer to the circuit diagram for wiring.

⚠WARNING	
(1)	Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
(2)	Wrong wire connection may burn the electrical components.
(3)	Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
(4)	Always connect the ground wire.

12. CALCULATION OF ADDITIONAL REFRIGERANT CHARGE

NOTICE	
(1)	The amount of refrigerant charged into the system before leaving the factory does not include the amount of refrigerant added to the pipelines and the outdoor unit.
(2)	The additional amount of refrigerant added to the pipelines is determined according to the size of the liquid pipe and its length on site.
(3)	Record the amount of refrigerant added to facilitate after-sales maintenance.

(1) Additional refrigerant charge R = pipeline additional refrigerant charge A + outdoor unit additional refrigerant charge B

(2) Calculation of pipeline additional refrigerant charge A

Pipeline additional refrigerant charge A = liquid pipe length (Σ) × additional refrigerant charge per meter of the liquid pipe.

X1: The length of liquid pipe Φ6.35mm(Φ1/4 inch)

X2: The length of liquid pipe Φ9.52mm(Φ3/8 inch)

The Length of X1+X2	The Length of X2	Quantity Additional Refrigerant Charge Per Meter of the Liquid Pipe A
≤20m(65-5/8feet)	≤20m(65-5/8feet)	0
>20m(65-5/8feet)	≥20m(65-5/8feet)	(X2-20m)×0.051kg/m + X1×0.018kg/m {X2-(65-5/8ft.)} ×0.034LBS/ft. + X1×0.012LBS/ft.
	<20m(65-5/8feet)	(X1+X2-20m)×0.018 kg/m {X1+X2-(65-5/8ft.)} ×0.012LBS/ft.

(3) Calculation of outdoor unit additional refrigerant charge B(kg(LBS))

Indoor Unit Quantity	Outdoor Unit Capacity(kBtu/h)		
	36	48	60
≤4	0	0	0
≥5	0.9(1.98)	0.9(1.98)	1.4(3.09)

NOTICE

The maximum refrigerant charging volume for the system can't exceed 16.5LBS (including the refrigerant charged in the factory).

Record the amount of refrigerant added to facilitate after-sales maintenance. After ensuring that the system does not leak and the compressor is not working, first charge the specified amount of R32 into the unit from the injection port of the outdoor unit liquid pipe valve until the required amount is reached. If the amount of refrigerant that needs to be added cannot be filled quickly due to pressure rise in the pipe, then power on the unit in cooling mode and charge the refrigerant through the gas valve of the outdoor unit.

For example:

The ODU is composed of the module: 60 kBtu/h.

The IDUs are made up of 4 sets of 15 kBtu/h.

X1=30m(98feet), X2=15m(49feet)

The pipeline additional refrigerant charge A =(30+15-20)×0.018=0.45kg

(98+49-65-5/8)×0.012=0.97LBS

Outdoor unit additional refrigerant charge B=0kg(0LBS)

Total Additional refrigerant charge R =0.45+0=0.45kg (0.97+0=0.97LBS).

13. SAFETY NOTICES

(1) The unit should not be installed in places with high pH, high voltage fluctuations, such as on vehicles or ships.

(2) Do not touch the fins of the heat exchanger. Improper touch can cause damage.

(3) Do not mix other substances apart from refrigerant in the refrigerant circuit during installing or moving the unit, and do not leave any air in the pipe. If air or other substances are mixed within the pipe, the system pressure will rise, the compressor may burst and damage.

(4) Don't charge the non-specified refrigerant when installing or moving the unit, otherwise, it might cause poor operation, malfunction, mechanical breakdown, etc., or even cause major safety accident.

(5) When moving the unit or repairing the recycled refrigerant, be sure to use the pressure gauge. Conduct the cooling operation first, then completely shut down the valve (liquid valve) at high pressure side. When the pressure gauge displays 0~0.05MPa, and completely shut down the valve (gas valve) at low pressure side and immediately stop running the unit and cut off the power.

(6) When recovering the refrigerant, please make sure to completely shut down the liquid valve and gas valve, and cut off the power before dismantling the connection pipe; otherwise, there will be air intrusion, and resulting in pressure rise within the system, the compressor may burst and damage.

(7) When installing the unit, make sure that the connection pipe is securely attached before starting the compressor. If the compressor is started before the connection pipe is well attached and the cut off the valve is open, the air will be sucked in, resulting in system pressure rise, the compressor may burst and cause injury.

(8) Wiring between indoor and outdoor units must be correctly connected with the specified wires, and the wiring terminal shall not be affected by external forces. Poor connection or poor fixing might cause fire accident.

(9) No connection is allowed in the middle of the wire. When the length of the connecting wire is not enough, please contact the designated service store to re-equip a specific wire of sufficient length.

14. OPTIONAL ACCESSORIES

—		Model	Remarks
Branch		FQ01A/A,FQ01B/A,FQ02/A,FQ03/A,FQ04/A	—
Wireless remote controller		YAP1F	Optional: Duct type indoor units Standard: Cassette indoor units
Wired controller		XE7C-23/H	Optional: Cassette indoor units Standard: Duct type indoor units
Linkage Controller		LE60-24/H1	With access control and dry contact signals detection function
Centralized controller		CE52-24/F(C)	—
E-Smart Zone controller		CE54-24/F(C)	—
Debugger		CE42-24/F(C)	—
Debugging software		DE40-33/A(C)	—
Remote monitoring system	Software	FE30-24/DF(B)	—
	Controller	ME20-24/D1(T)	
Remote signal receiving LED panel		JS13	—
VRF Protocol Gateway		ME30-24/D1(BM)	Gateway capacity: 255 indoor units; it can output two kinds of BMS data: Modbus/BACnet
Modbus Gateway(Mini)		ME30-24/E6(M)	Gateway capacity: 128 indoor units (within 16 systems)
H2M Gateway		ME31-33/EH1(M)	Gateway capacity: one indoor unit (similar with the wired controller; it can control multiple units), it can output Modbus data

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