



# 2020 YMGI VRFO-PTAC

**YMGI Group**

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## YMGI VRFO-PTAC

# PART ONE: Market Analysis

At present, the annual market share of PTACs sold in North America is 5 to 6 million units.

Due to the PTACs low energy consumption, odor removal, noise levels and other shortcomings, when used in middle and high-end hospitality locations, existing PTAC customers have asked YMGI to develop a new multi VRF outdoor unit for replacing existing products.

According to the annual market share, of 7 the million unitary units in North America, the replacement of unitary units with split type units is approximately 800,000 units. It is estimated that the annual sales of embedded multi VRF unit will reach 800,000 units.

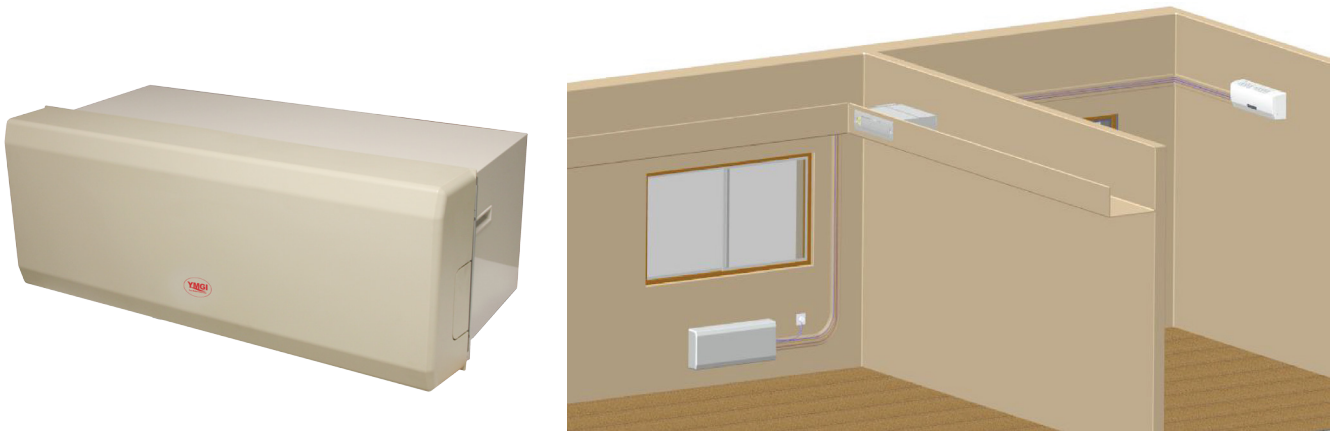


## PART TWO: Product Summary

### All DC Inverter Heat Pump Unit

VRFO-PTAC is a concealed VRF unit, which uses front air discharge and air return. It was developed mainly for the North American market, and can be used in applications such as apartments, offices, hotels and other areas.

The unit uses deep subcooling technology to ensure quiet cooling operation. The unique drainage control technology has resolved the water drainage issue of the outdoor unit in low temperature environments.



Model	Power	Net weight	Cooling capacity	Heating capacity	Dimensions (WxDxH)
	V	kg	Btu/h	Btu/h	inch (mm)
VRFO-12HP-V2B(55)5	208~230/60Hz	55	12,000	12,000	42 1/16" x 19 11/16" x 16" (1069mm x 500mm x 406mm)

**Cooling: -5°C ~ 48°C**  
**23°F ~ 118.4°F**

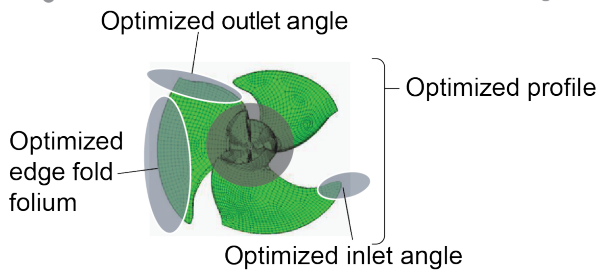
**Heating: -20°C ~ 27°C**  
**-4°F ~ 80.6°F**

## PART THREE: Product Features

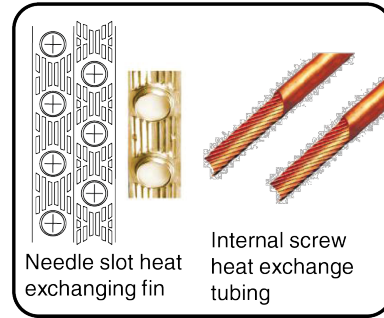
### High Efficiency and Energy Saving

VRFO-PTAC uses high efficiency fan blades, a heat exchanger, as well as all DC driving technology for improving the unit's efficiency to SEER 15.5, HSPF 9.5.

#### High Efficiency Fan



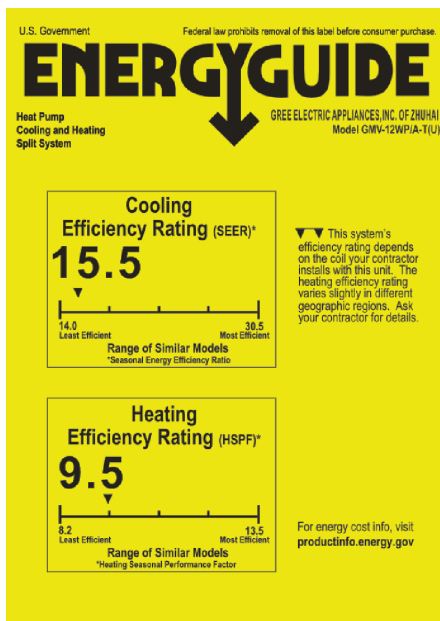
#### High Efficiency Heat Exchanger



#### High Efficiency DC Motor



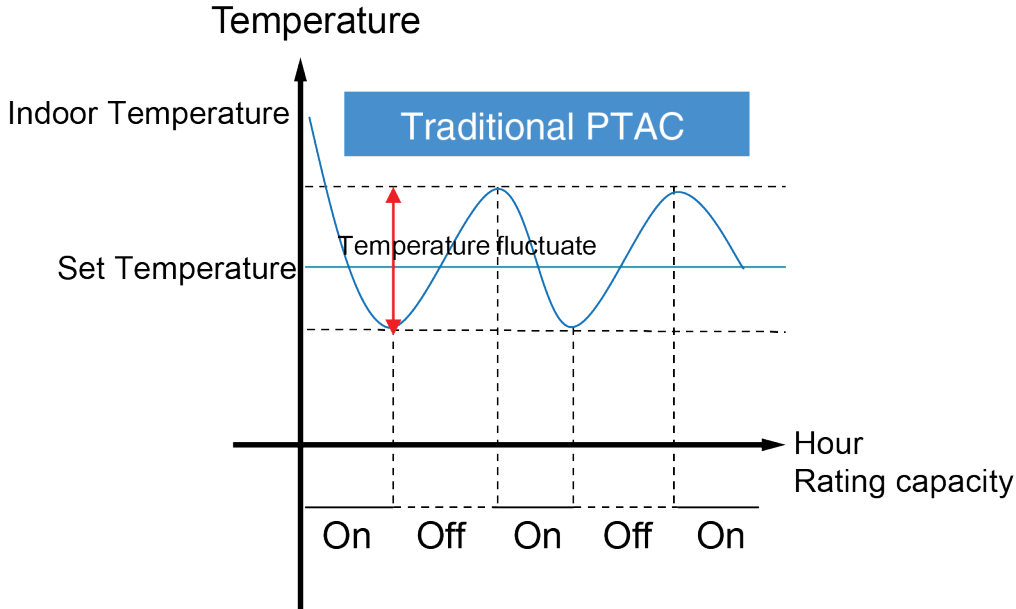
#### DC Inverter Compressor



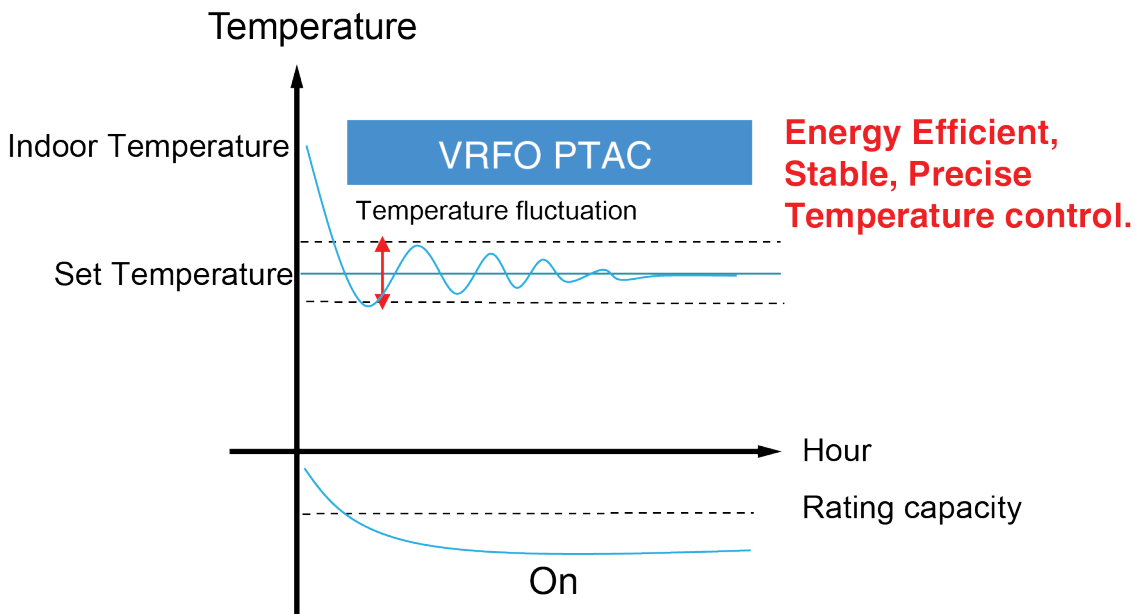
# YMGI VRFO-PTAC

## High Efficiency and Energy Saving

VRFO-PTAC adopts PID algorithmic capability control for stable operation, precision temperature control, high-efficiency, and energy-saving operation.



- Unit turns on and off frequently
- Large temperature fluctuations



- PID algorithmic control
- Small temperature fluctuations

# YMGI VRFO-PTAC

## Quiet & Comfortable

VRFO-PTAC uses advanced DC Inverter compressor and multiple layers of insulation for quiet operation.

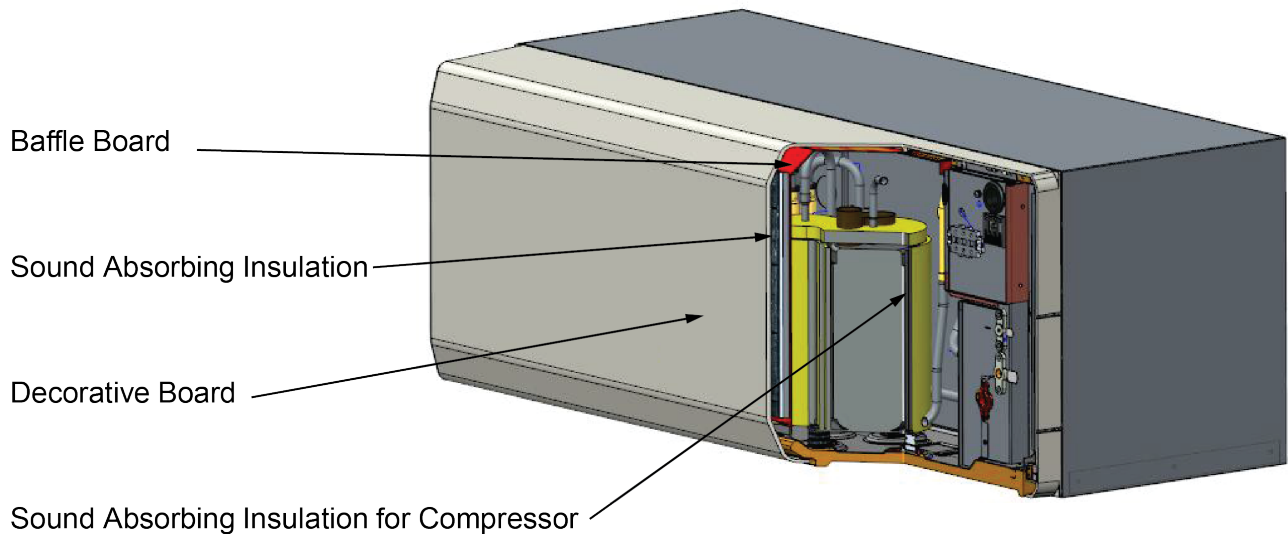
Fixed-Speed Compressor	DC Inverter Compressor
<ul style="list-style-type: none"> <li>• Fixed-speed on/off</li> <li>• Big noise</li> </ul>	<ul style="list-style-type: none"> <li>• Low frequency on/off</li> <li>• Small noise</li> </ul>

**Level 1:** Sound-absorbing insulation absorbs compressor noise.

**Level 2:** Baffle board is used to dampen high frequency noise

**Level 3:** Vibration absorbing rubber is used to dampen low frequency noise

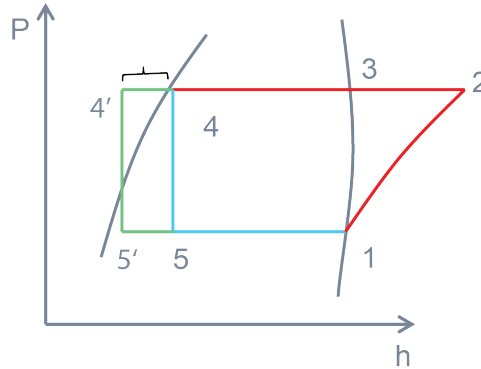
**Level 4:** Decorative board is used for sound absorption.



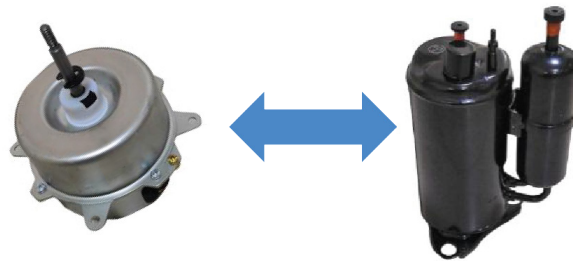
# YMGI VRFO-PTAC

## Quiet & Comfortable

VRFO-PTAC uses advanced sub-cooling technology control and the flexible matching control between the compressor and the fan for less noise.



Uses breakthrough sub-cooling technology to reduce flow noise during the cooling process.



Uses the flexible matching control between the compressor and fan to efficiently reduce noise during operation.

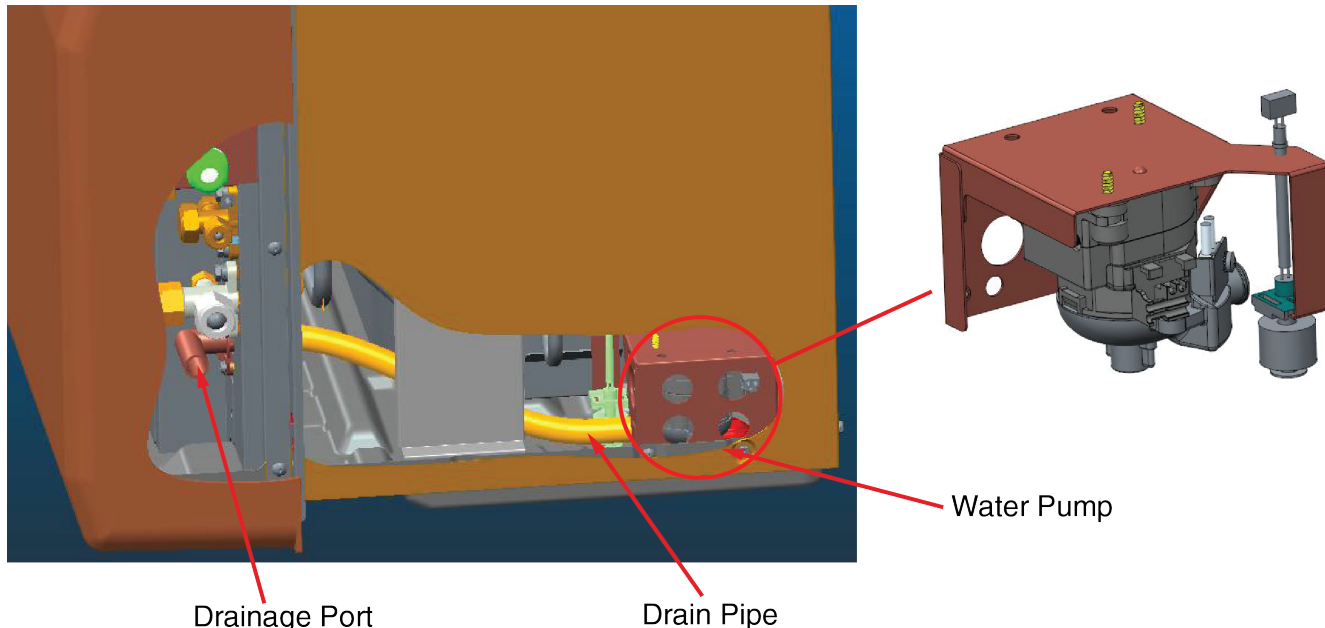


Quieter and more comfortable.

# YMGI VRFO-PTAC

## Intelligent Drainage

VRFO-PTAC incorporates the first ever intelligent drainage technology that controls the units intelligent outdoor drainage function.



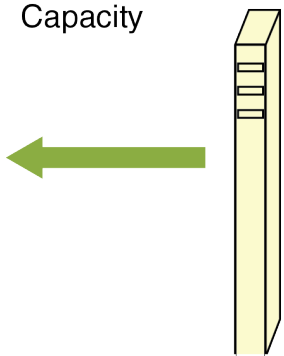
Self-heating water pump is designed to ensure normal drainage under ambient temperatures as low as  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ).

## High Reliability

### Super anti-interference capacity.

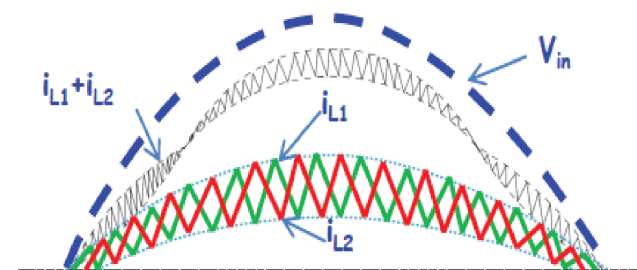
Uses next generation CAN communication technology, with super anti-interference capacity. No need for specially shielded wire for the communication between units. Reliable communication using just common communication wires.

### Super Anti-Interference Capacity



### Staggered PFC Design for Stable Operation

Staggered PFC, small current ripple

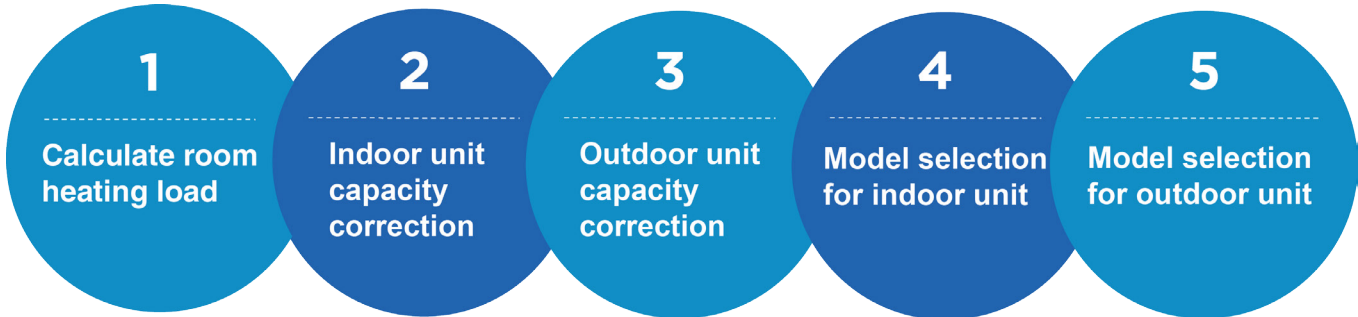


Reduces interference to municipal grid and nearby electrical equipment.



## PART FOUR: Design and Model Selection

### Selection Flow Chart



#### Combination Conditions for Indoor Unit and Outdoor Unit

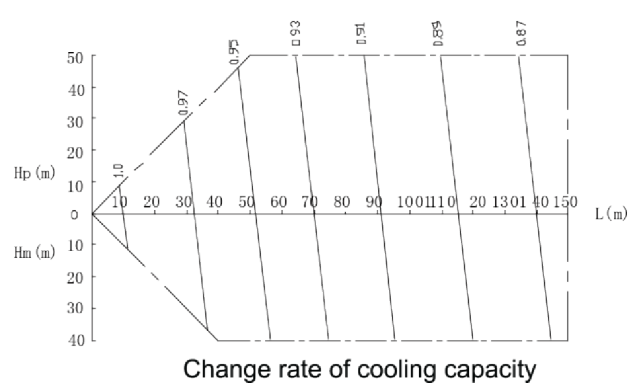
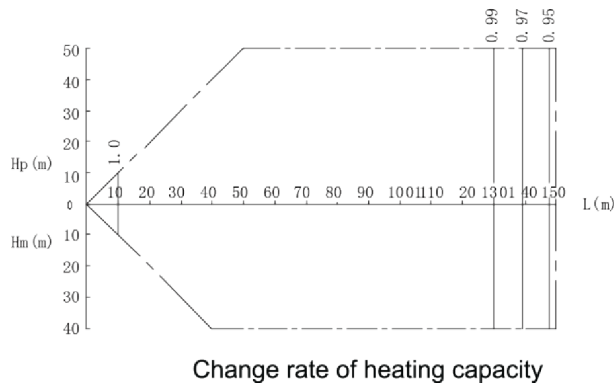
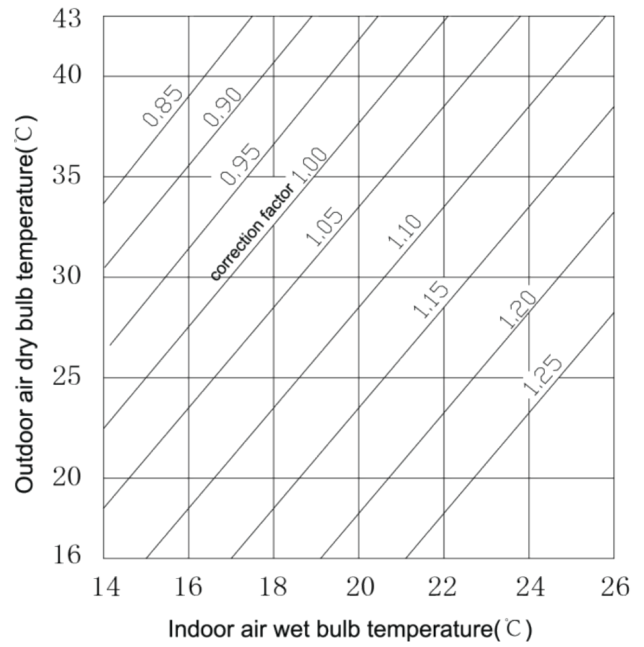
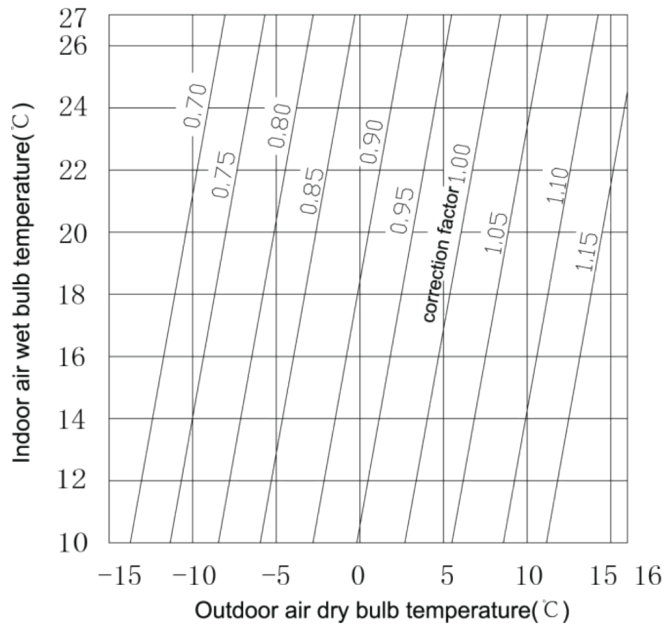
1. The capacity code of indoor units = sum of outdoor unit's capacity code × (50%~135%)
2. For outdoor unit, maximum No. of connectable indoor units and total capacity code of indoor units are decided.

Model name of outdoor unit	Capacity code of outdoor unit	Max. No. of indoor units
VRFO-12HP-V2B(55)5	12,000 Btu/h	16,200 Btu/h

#### Calculation method for cooling and heating capacity

1. When the sum of capacity code of indoor unit is less than capacity code of outdoor unit, the rated capacity of outdoor unit is equal to the sum of capacity code of indoor unit.
2. When the sum of capacity code of indoor unit is more than the capacity code of outdoor unit, the rated capacity of outdoor unit is equal to the rated cooling capacity.
3. Correction coefficient of indoor and outdoor environment condition. Correction coefficient of height different between indoor unit and outdoor unit.

## Capacity Correction



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## indoor Unit Model Selection

Various models of indoor units available for your different requirements.

Capacity kW (Btu/h)	1.8 (6000)	2.2 (7500)	2.8 (9500)	3.5 (12000)	Photo
Duct type indoor unit VRFI-EF Units		●	●	●	
Duct type indoor unit VRFI-EF Units		●	●	●	
Cassette type indoor unit VRFI-EC Units		●	●	●	
Wall-mounted type indoor unit VRFI-EW Units	●	●	●	●	
Console type VRFI-EL Units		●	●	●	

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## Outdoor Unit Model Selection

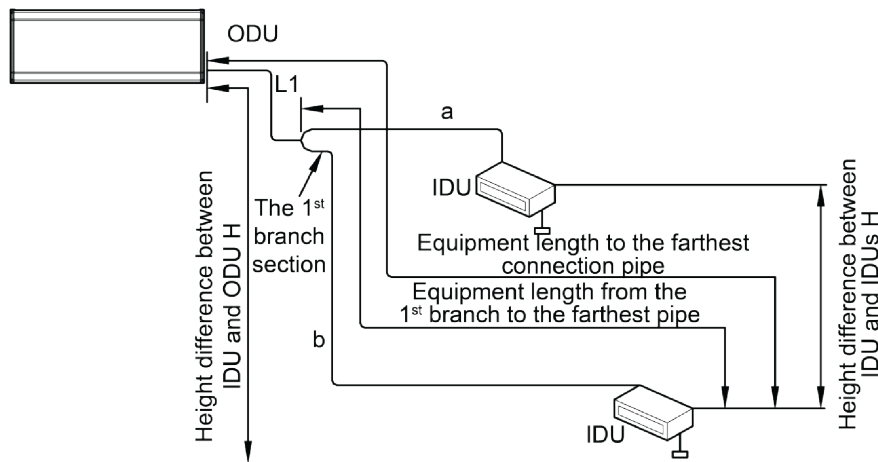
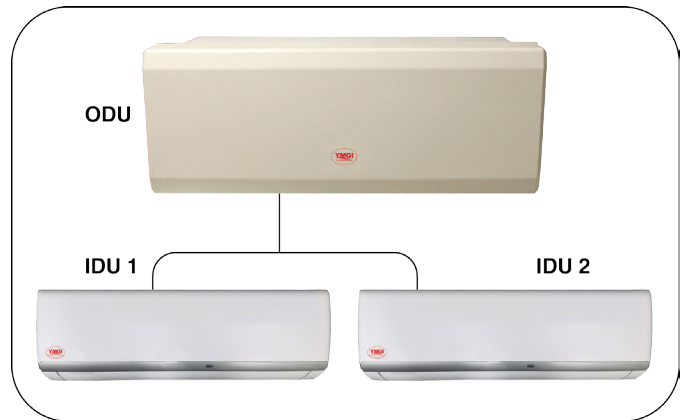
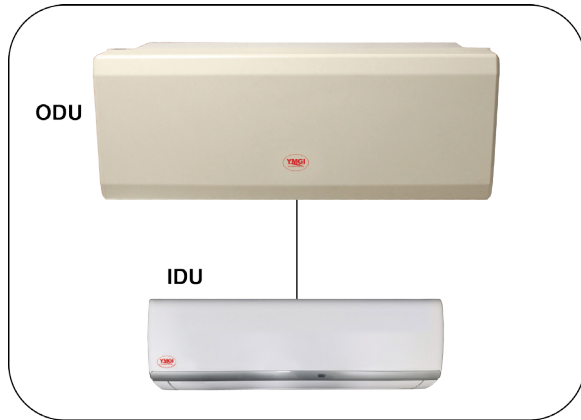
VRFO-PTAC All DC Inverter Heat Pump Unit

Model	Cooling capacity	Heating capacity	WxDxH
	Btu/h	Btu/h	inch (mm)
GMV-12WP/A-T(U)	12,000	12,000	42 1/16 x 19 11/16 x 16 (1069 x 500 x 406)



## PART FIVE: Installation and Debugging

### Installation sketch map

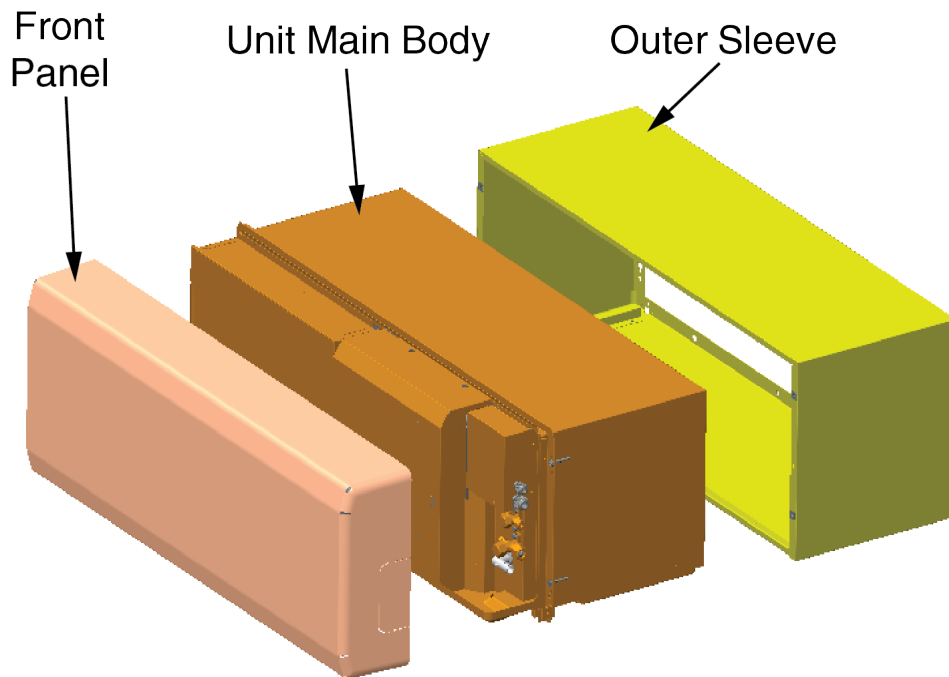


Each Y-type branch equals to 0.5m(1-5/8ft) and each branch header equals to 1.0m(3-1/4ft).

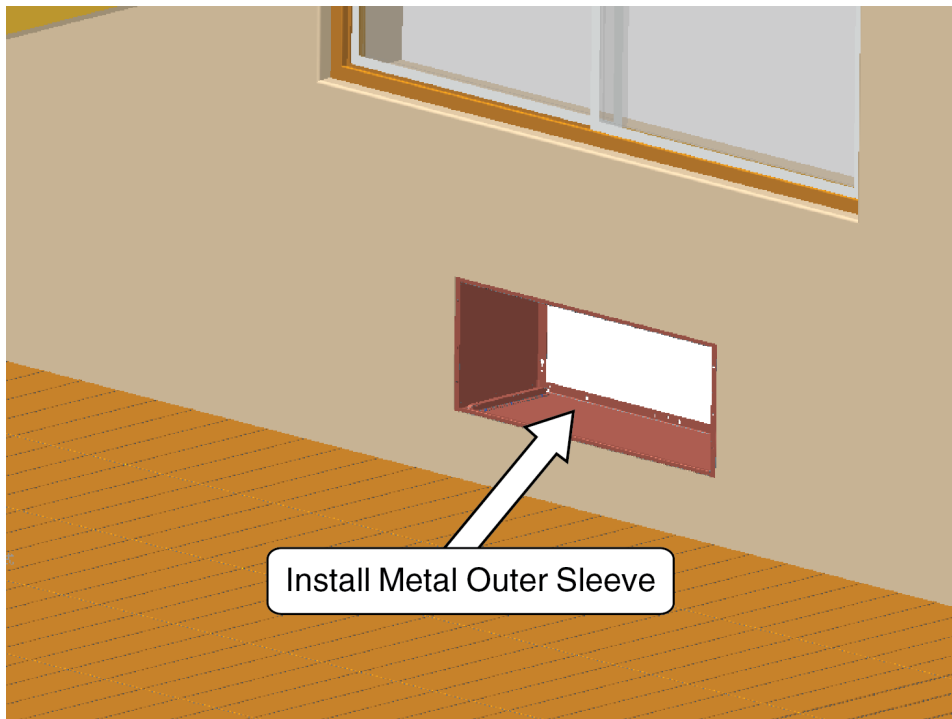
		Allowance value (feet)	Piping
Total length of piping (actual length)		30 (98 3/8)	L1+a+b
Max piping length (m)	Actual length	30 (98 3/8)	L1+b
	Equivalent length	30.5 (100 1/8)	
Piping from the first branching to the farthest indoor unit		15 (49 2/8)	b
Fall between indoor unit and outdoor unit	Outdoor unit (above)	15 (49 2/8)	—
	Outdoor unit (below)	15 (49 2/8)	—
Fall between indoor unit and outdoor unit		15 (49 2/8)	—

# YMGI VRFO-PTAC

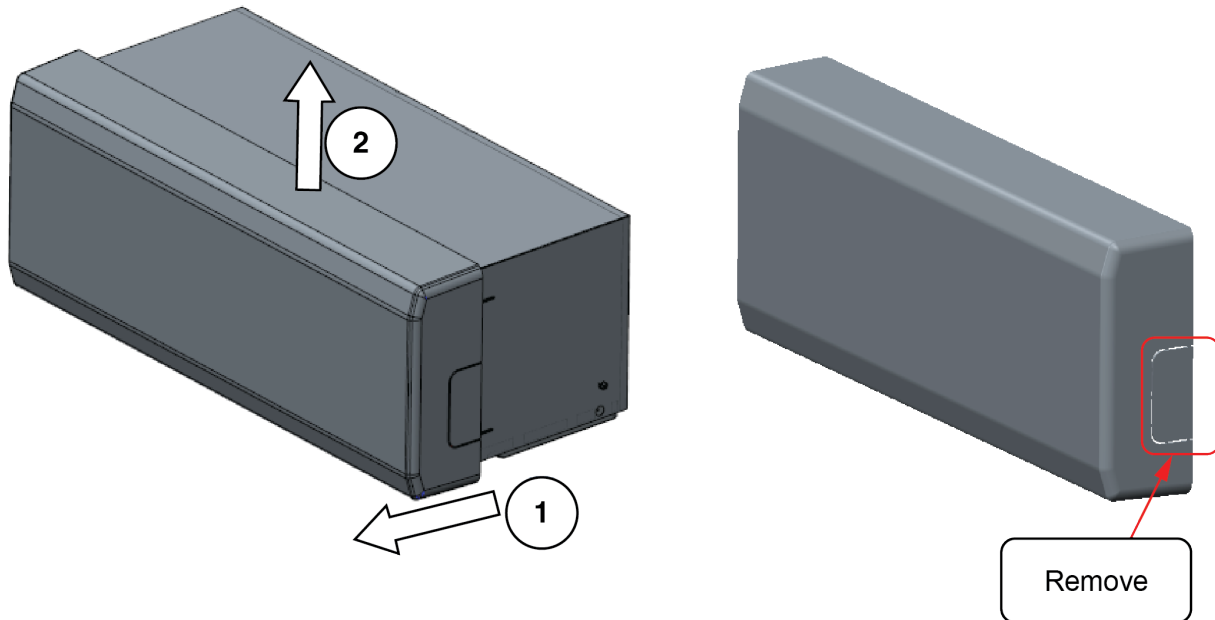
## Main Parts of Unit



### 1. Install metal outer case



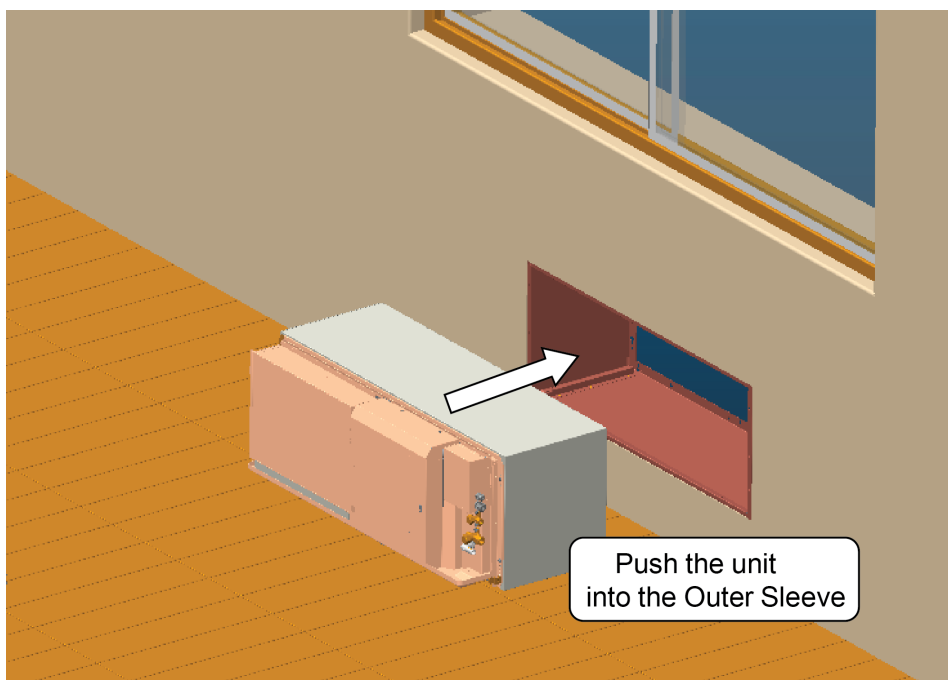
## 2. Disassembly of the injection molding panel



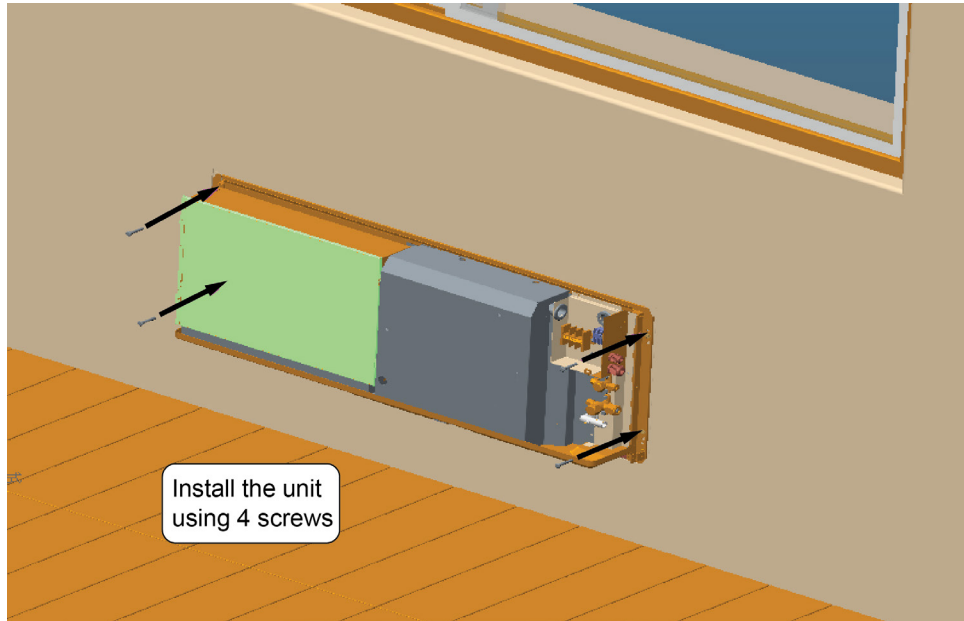
### Introduction:

1. There is a spring clip at both lower corners of panel respectively; move the panel along the arrow direction.
2. Lift the panel along the arrow direction.

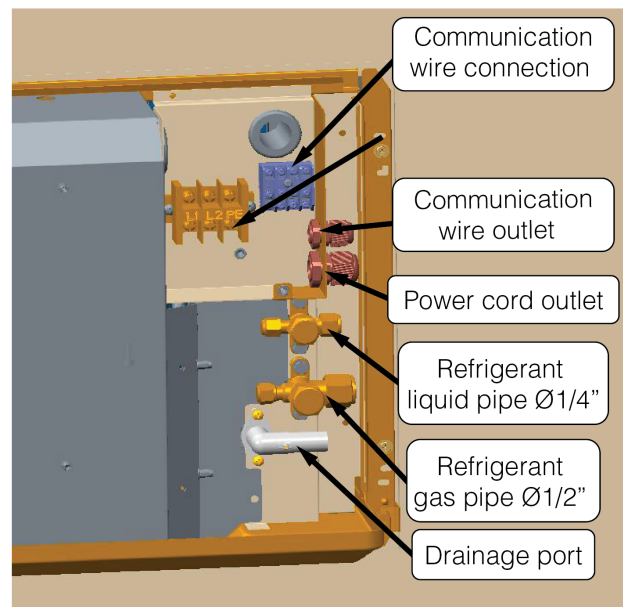
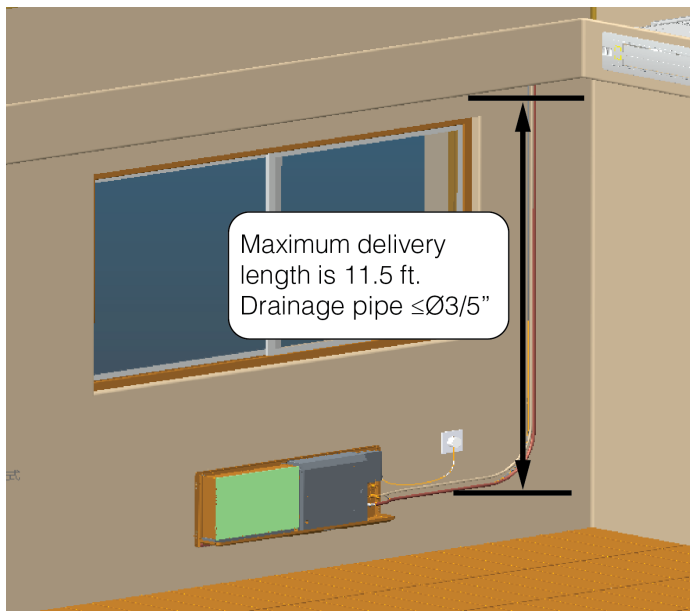
## 3. Push the unit into the outer case



## 4. Install the unit inside the metal sleeve and then use screws to fix it.



## 5. Install Power, Communication and Pipeline



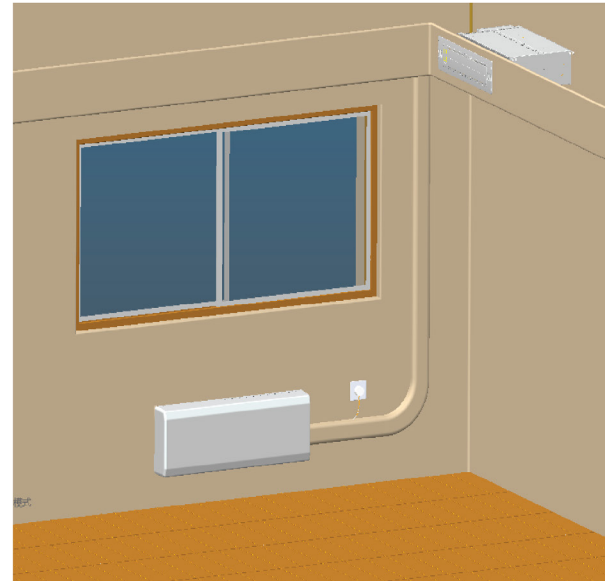
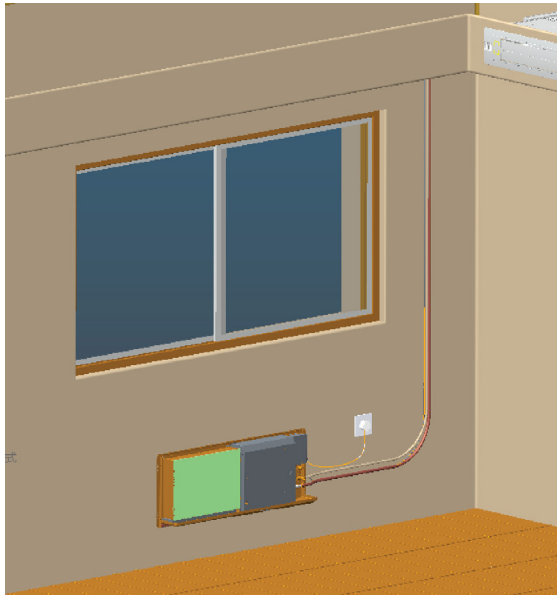
### Drainage pipe installation requirements::

1. Drainage pipe diameter must be less than  $\text{Ø}3/5$ ".
2. When the drainage pipe is installed, the maximum position of the drainage pipe can not exceed 3.5 m based on the bottom of unit.
3. When exiting the drainage outlet, the drainage pipe should be installed upright. The horizontal length should be as short as possible, and should not be tilted.



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## 6. Debug the unit and reinstall the front panel





# YMGI VRFO-PTAC

## YMGI's Mission

To help build a sustainable and efficient green world.

## YMGI's Commitment

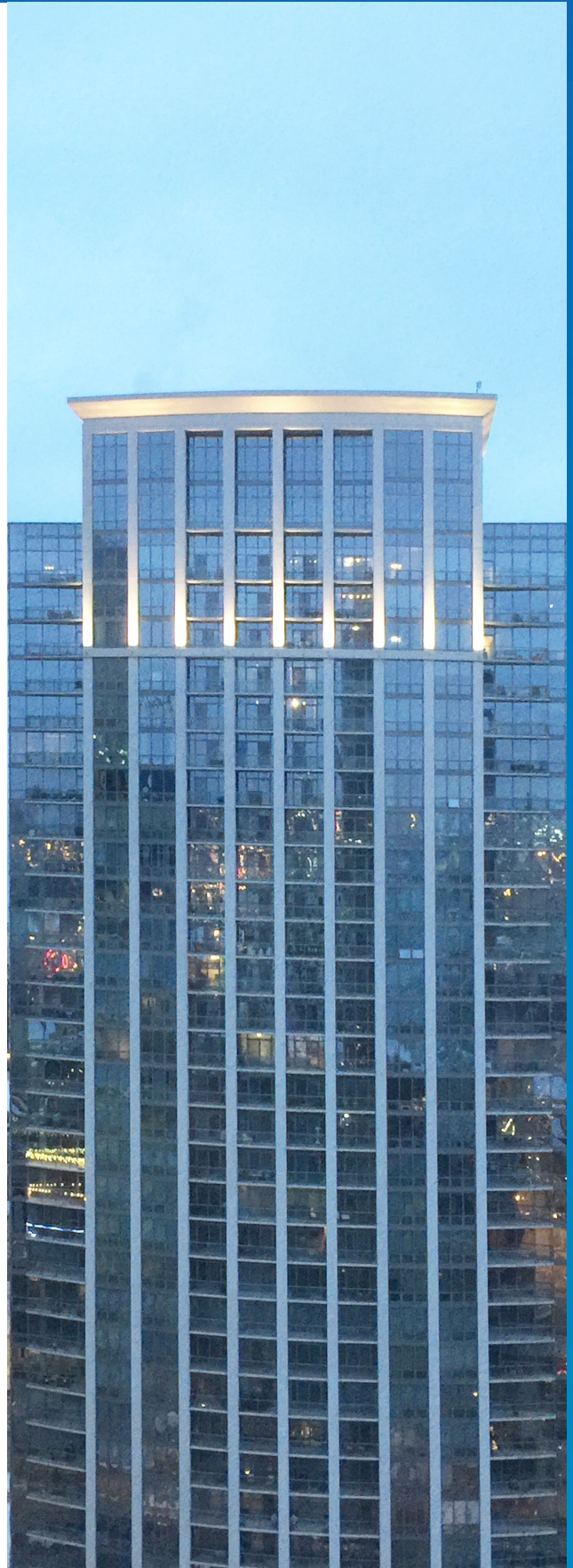
YMGI is dedicated to designing, manufacturing and distributing the highest quality, energy saving and environmentally friendly air conditioner and heat pump products available on the market, while providing the best service and support to each of our customers.

## Efficient, Reliable and Stylish

YMGI products quickly and quietly cool and heat your home, and business in the most efficient way possible. Both the indoor and outdoor units have a sleek contemporary style and color.

## Quality Products

YMGI products are engineered and built with high quality parts that are designed for reliability and longevity. We stand behind our products and will work tirelessly to make sure you are completely satisfied with your system.





# THE YMGI ADVANTAGE

## Ease of Installation

Easier to install than central systems, the hook-up between the VRF outdoor and indoor units generally requires only a three-in. hole through a wall for the conduit that contain the condensate drain hose, wires and refrigeration pipes. The VRF mini outdoor units can be located up to 393.7 feet from the indoor units, and 541.25 feet for modular outdoor units, making it possible to place the condensing unit where it can't be seen.

VRF outdoor condensing units are designed to be installed anywhere a central air conditioner or heat pump could be installed. The VRF mini models can also be hung on a wall, placed on a balcony, below a deck, in a garage, and several places where a central air conditioner would be impossible to fit.

Professionally trained YMGI-certified technicians can properly install your VRF system, ensuring your system provides you with a lifetime of worry-free comfort.



## Technical Support

YMGI offers full technical support for all heating and cooling systems. If you have any questions about the operation of your unit, please consult your owner's manual. It will help you understand unit operation, various functions, and proper operation and maintenance of your system.

If your HVAC technician has any questions about installation or service, we provide technical assistance at 866-833-3138 ext.703.



## Customer Service

When you or your technician calls YMGI hotlines, you will always talk to a live person. Along with our commitment to quality, customer service is the most important part of our business. Our goal is to exceed your expectations. We value each and every customer.

### YMGI Group

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### Service & Warranty:

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YMGI is dedicated to designing, manufacturing and distributing the highest quality, energy saving and environmentally friendly air conditioner and heat pump products, while providing the best service and support to all of our customers. Our mission is to help build a sustainable, efficient and green world.

- **Symphony SOLAR DC Inverter**  
(56) Single PV, (79) Single PH 12-18K Btu/h  
(86) Single Zone All DC 09-24K Btu/h  
(55) Multi Zone Solar VRF 3, 4, 8, 16, and 24 Ton.
- **Symphony SOLO DC Inverter**  
(57)2,3 Single Zone 16 SEER, 09-36K Btu/h  
(58)4, (78)1-Single Zone 18-23 SEER, 09-36K Btu/h
- **Symphony CHOIR DC Inverter**  
(46)2 DC Inverter Multiple Zone 15 SEER, 2x09K and 2x12K Btu/h  
(59)2S-DC Inverter Multiple Zone 16 SEER 6x09K to 9x09K Btu/h  
(59)4-DC Inverter Multiple Zone 21 SEER 2x09K to 5x12K Btu/h
- **Symphony VRF - DC Inverter HP, Heat Recovery, and Solar.**  
**Up to 64 zones.**
- **Symphony HARMONY-Packaged Self-Contained 42"x16"**  
PTAC/PTHP Electric Heater or Hot Water Coil, and VPAK
- **Symphony CONDUCTOR-Split Type Condensing Units Side Discharge**  
**VRUO & VRFO**

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