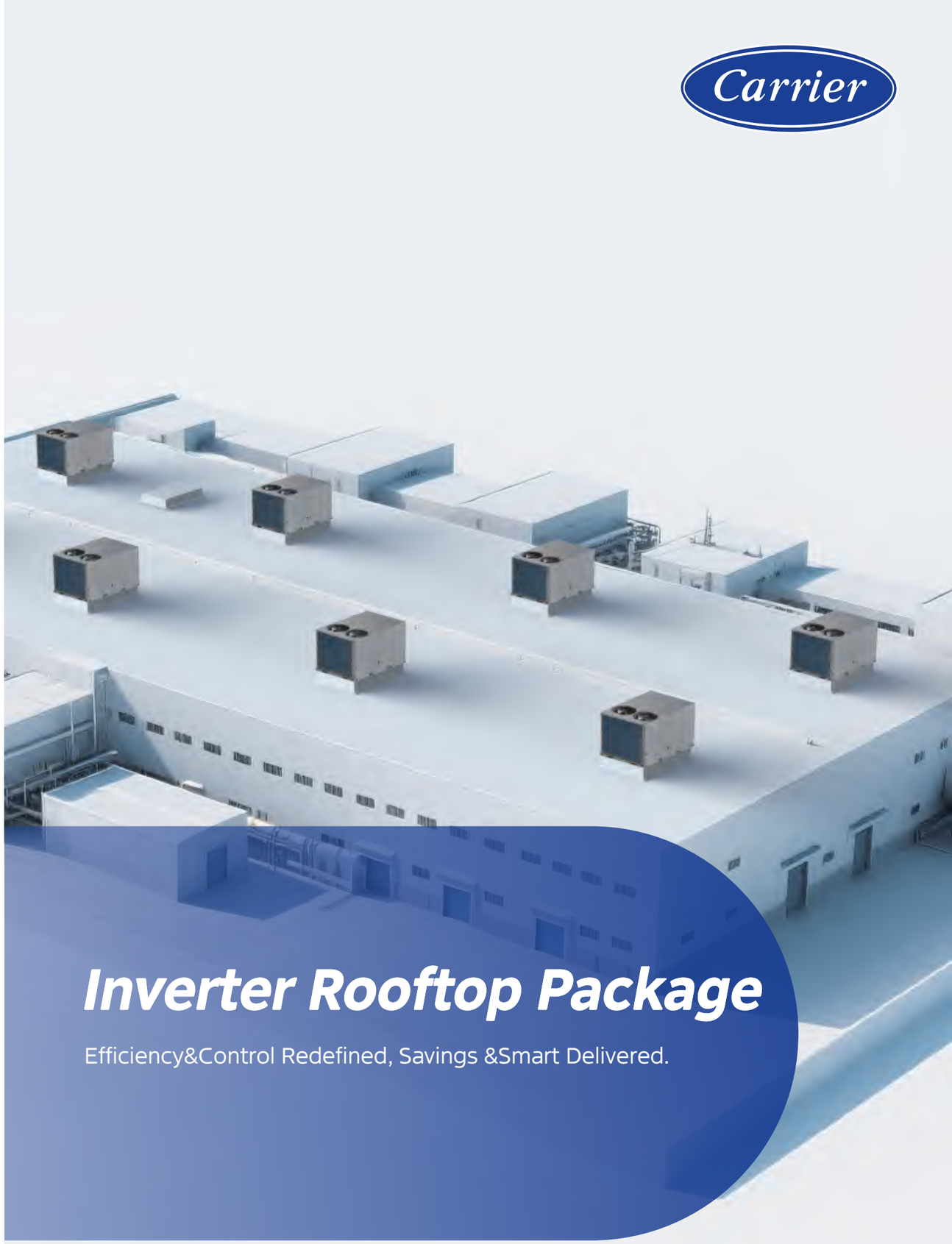


Inverter Rooftop Package

Efficiency&Control Redefined, Savings &Smart Delivered.

2026

Main Features

EfficientDrive

SealedBox

Comprehensive Sensor

MultiLink

CurbMatch

EfficientDrive

Belt-Free Performance, Built to Last

Benefits

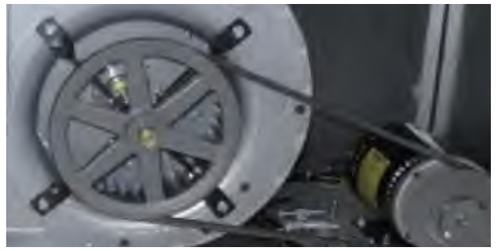
- Enhanced Efficiency
- Longer Lifespan
- Minimal Maintenance
- Reduced Noise

Experience the revolutionary ECM Direct Drive technology - the ultimate solution for hassle-free HVAC operations. Unlike traditional belt drive systems that demand regular adjustments and yearly maintenance, our factory-installed ECM Direct Drive requires minimal on-site adjustments during installation and eliminates maintenance headaches with its self-diagnostic capabilities. Enjoy exceptional reliability with up to 15 years of motor lifespan, covering the entire unit lifecycle. The system's simplified design requires only basic maintenance skills, dramatically reducing service costs and downtime while delivering consistent, efficient performance throughout its extended operational life.

Direct Drive Fan Motor	AC Motor Belt Drive

Installation

Factory-installed, no additional on-site adjustment needed



1. Belt Tension Adjustment
2. Pulley Alignment Adjustment
3. Readjust after a few days of running

Maintenance

No special maintenance required, self-diagnosis, up to 15 years motor lifespan (whole unit lifecycle)

1. At least one belt maintenance per year
2. Replace the belt every two years
3. Replace the motor every 8 years

For Installer

Technicians with basic air conditioning maintenance skills

Technicians with professional electrical installation and maintenance skills

SealedBox

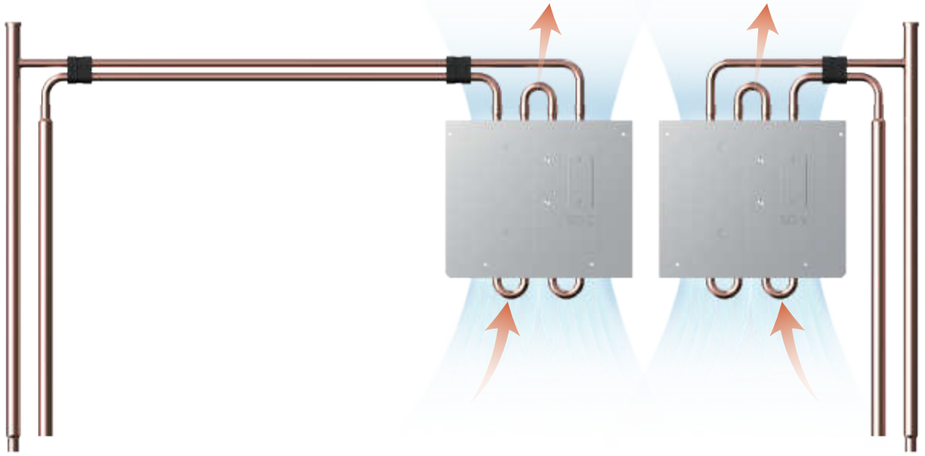
Fully-enclosed electrical control box provides robust protection for internal electrical components, greatly improving system **RELIABILITY**.

Benefits | High Reliability | Stable Operation

Sealed Box keeps electronic components isolated from the external environment to protect against corrosion, sand, humidity, heavy snow and other harsh conditions. Additionally, it prevents insects and small animals from entering so internal electronics remain well protected.

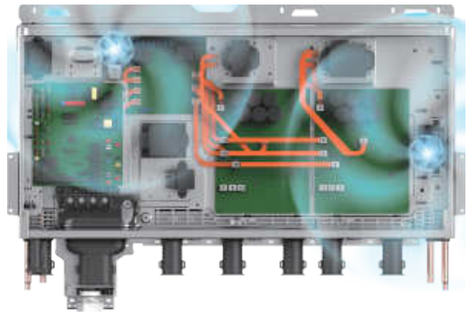
Independent Cooling System

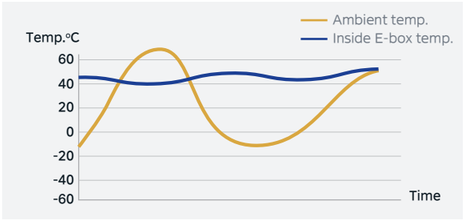
Our product features an electrical control system with independent cooling for both A and B systems. This design enhances serviceability by allowing technicians to repair one system without affecting the other, simplifying maintenance.



Built-in Circulating Fan

A built-in circulating fan enhances airflow within the chamber, promoting more efficient heat exchange and a consistent ambient temperature inside.





Multiple High-Precision Temperature Sensors

High-precision temperature sensors continuously monitor the operating temperature of electronic components under different conditions, ensuring that the internal temperature of the chamber remains stable at all times.

Comprehensive Sensor

The status of the refrigerant can be determined throughout the process, ensuring exceptional RELIABILITY and COMFORT.

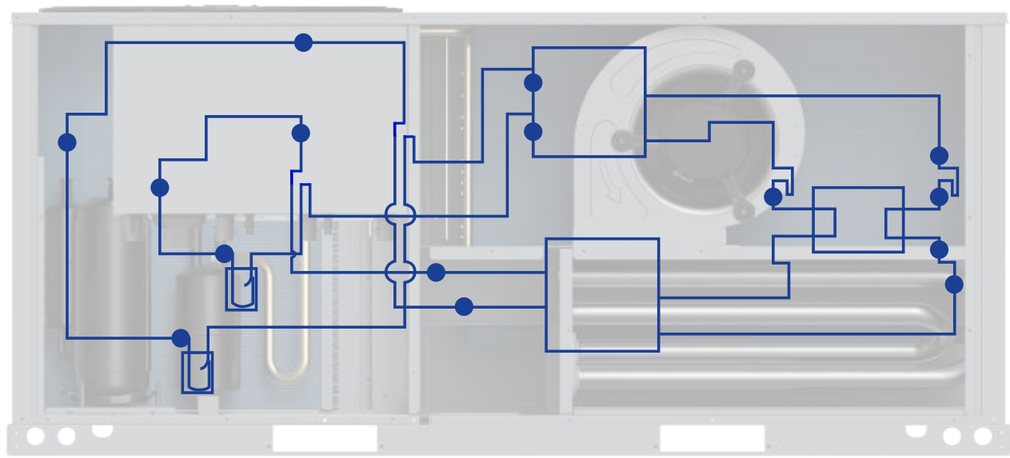
Benefits

- High Reliability
- Stable Operation
- Enhanced Comfort

Carrier 50ZR Series boasts a comprehensive sensor setup for precise monitoring and efficient operation. The dual system includes 2 pressure sensors and 13 temperature sensors, while the single system features 1 pressure sensor and 8 temperature sensors. This advanced configuration ensures accurate tracking of key temperatures, guaranteeing reliable and stable performance in all conditions.

More Sensors for Proactive Support

15Ton and above is equipped with up to 2 pressure sensors and up to 13 temperature sensors, while the 5-10Ton single system includes up to 1 pressure sensor and up to 8 temperature sensors. These sensors monitor key areas such as indoor temperature, evaporator and condenser pipe temperatures, outdoor ambient temperature, and exhaust temperature, ensuring optimal performance and reliability.



Virtual Sensor Backup

In the event of a sensor failure, the system will automatically simulate a virtual backup sensor using other sensors, ensuring continuous operation.

Failure of a physical sensor

Real-time generation of virtual sensor

MultiLink

Intelligent control and diagnostic technology makes servicing **EASIER** and more **EFFICIENT.**

Benefits | Easy Control | Fast Maintenance | Low Maintenance cost

By harnessing a cloud-based platform powered by big data and artificial intelligence, the Controller monitors the real-time operation status of each unit, predicts potential system malfunctions and proactively recommends service or maintenance. An intelligent Bluetooth module and after-sales kit further streamline maintenance while enhancing servicing efficiency.

Multiple Connectivity Options

24V Thermostat

Wired Controller

WR-120T2-CM

Central Controller

CRF-270E-CM

3rd Party BMS System Compatibility

Carrier Protocol

Central controllers are available in 7-inch (up to 16 units) or 10.1-inch (up to 48 units) options. Carrier controllers are compatible with both Carrier VRF and Rooftop Units.

*This feature is offered as an optional configuration.

Smart Local and Remote Diagnosis

The Carrier Rooftop Series integrates Bluetooth and cloud technology to offer comprehensive local and cloud-based diagnostics. Through ensuring seamless synchronization and storage of all unit parameters to the cloud via a data gateway. This system provides comprehensive insights, including operational status, blockage frequency, and inspection parameters, accessible from any internet-connected device. With the Smart Cloud Monitor, the system continuously analyzes data, generating alerts for any abnormal conditions and proactively suggesting service or maintenance, thus enhancing reliability and efficiency.

New Generation Gateway

Software Platform

Bluetooth Module

Trouble Shooting App

Letslink

Note:
*Data cloud gateway must be purchased separately.
*This feature is offered as an optional configuration.
*Bluetooth functionality will be available after 30 April 2026.

CurbMatch

Curb-Ready, Cost-Savvy

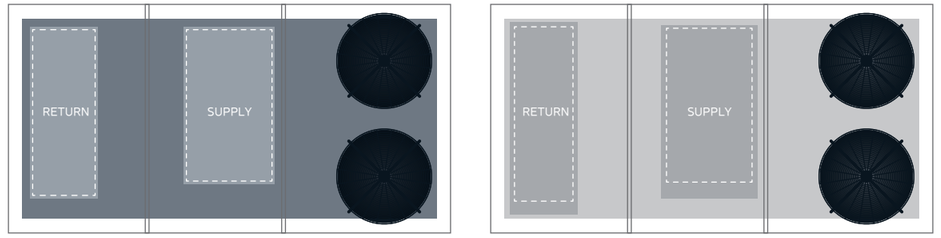
Benefits

- Seamless Installation
- Time Saving
- Reduced Downtime

By maintaining the original footprint and leveraging a trusted unit design, our solution ensures perfect compatibility with existing systems. This approach allows for hassle-free replacements, minimizes installation disruptions, and keeps costs low. Choose our product for effortless upgrades and reliable performance!

Direct Replacement for Most Rooftop Units

The CurbFit Design ensures a seamless installation process, minimizing disruptions and allowing for quick integration into existing systems. This leads to reduced downtime, enhancing overall efficiency and productivity. Below is a table of the footprint dimensions for the Carrier 50ZR Series.



Example of Competitive Footprint Alignment

Tonnage	Footprint（In）L*W
20~25	135 5/8 * 80 5/8

HIGH EFFICIENCY

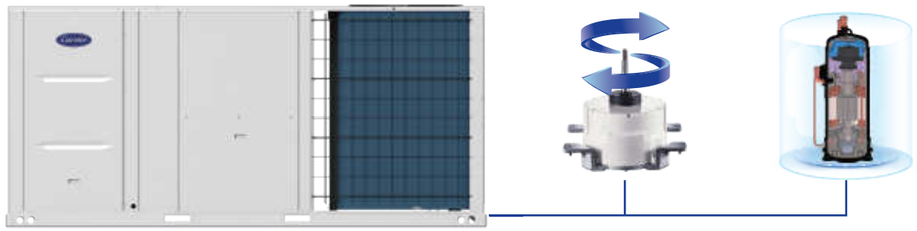
Full DC Inverter Technology

Full DC Inverter Components

The 50ZR Rooftop Series utilizes DC inverter compressors and fan motors which enable high-precision and stepless speed adjustment for maximum efficiency, consistently stable operation and reduced noise levels.

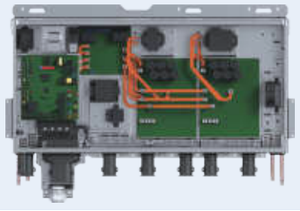
GMCC High-Efficiency Rotary Compressor

The compressor incorporates an innovative 18-slot 6-pole motor design that is protected by 7 patents. Computer-Aided Engineering (CAE) simulation has been used to optimize components, featuring Diamond-Like Carbon (DLC) coated vanes and advanced crankshaft design, with a maximum frequency of 108Hz for enhanced stability. The system employs micro optimization and precise cooling liquid distribution, which boosts efficiency and enhances environmental performance.



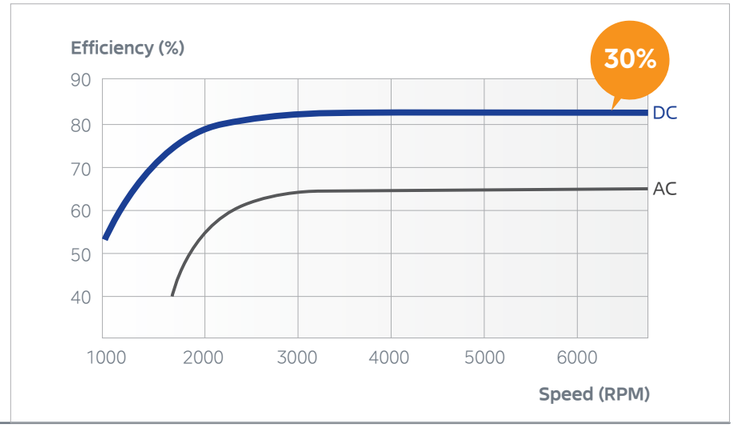
All powered devices, such as indoor fan motors, and electric control boards operate on full DC power.
This enhances electrical efficiency by up to 20% while enabling precise indoor temperature control with minimal fluctuations.

Fan Motor



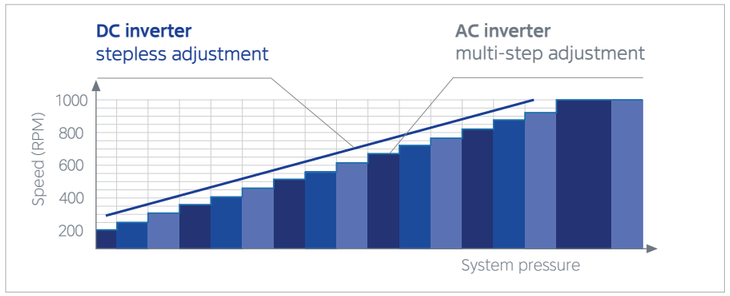
Electric Control Board

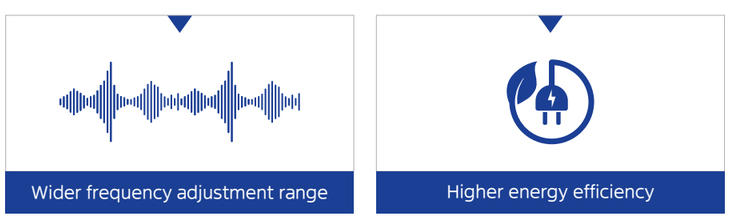
30%
Efficiency
improvements

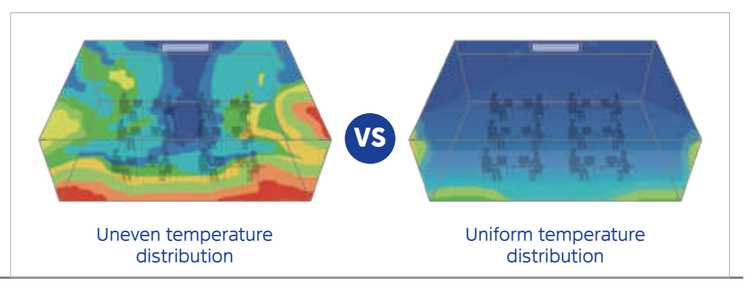


DC inverter
stepless adjustment

DC







COST SAVINGS

Energy Cost Savings

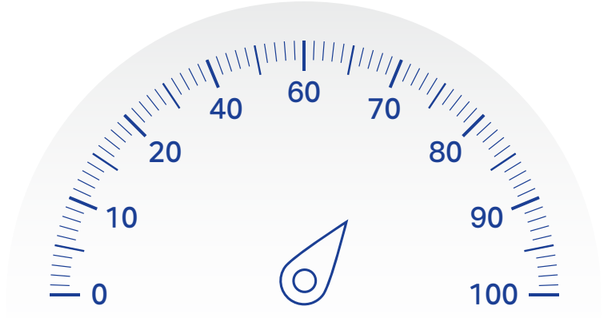
Carrier 50ZR rooftop units excel in energy savings. Variable compressor speeds dynamically regulate cooling and heating, improving efficiency compared to fixed-speed systems. Full inverter improves IEER at least by 20% compared to traditional units.

Annual Energy Cost

Compared with IEER 14 RPU

60-step Energy Management

In situations with temporary electrical supply constraints, the outdoor unit offers a 60-step energy management feature which enables precise adjustment of output capacity from 40% to 100%, in 1% increments. This mitigates the risk of circuit tripping and allows the system to operate even in the presence of unstable electrical supply conditions.



Low Standby Power Consumption

In contrast to the standard 50W standby power consumption of traditional Rooftop systems, This Series employs an optimized control scheme, lowering standby power requirements to as little as 30W.

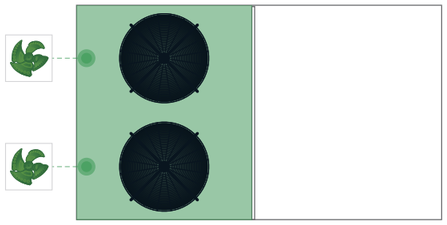
Replacement Cost Savings

With This Series rooftop units, you can save up to $1,500* when eliminating the use of an adapter curb and the need to move utility connections.

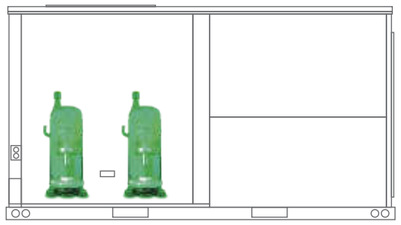
HIGH RELIABILITY

Triple Backup

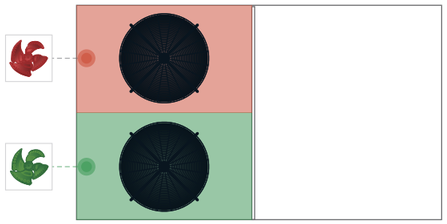
In a twin-fan, two-compressor, multiple-unit configuration, each component can serve as a backup for its counterpart.In addition, the unit generates a backup virtual sensor for each corresponding physical sensor by means of an algorithm so operation continues even if a fault occurs, ensuring uninterrupted indoor comfort.



During normal operation, each fan runs on demand

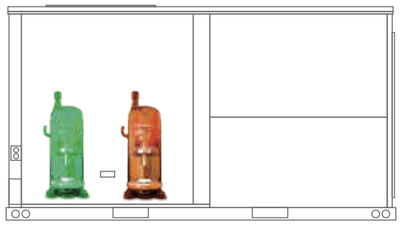


Intelligent load bearing between compressors during normal operation



Continued operation in case of failure of one fan

Operational fan Failed fan



Continued operation in case of failure of one compressor

Operational Compressor Failed Compressor

1 Fan Backup

In a two-fan unit, each fan backs up the other ensuring the system will continue operating even if one fan fails.

2 Compressor Backup

In a two-compressor unit, each compressor backs up the other ensuring the system will continue operating even if one compressor fails.

3 Virtual Sensor Backup

By employing an algorithm, every physical sensor can create a corresponding virtual sensor, which serves as a backup. This ensures system operation remains unaffected in the event of a sensor failure.

Automatic virtual sensor backup

SealedBox

Enclosed electrical control box provides robust protection for internal electrical components, greatly improving system reliability.

Corrosion proof

Dustproof

Rainproof/Snowproof

Insect proof

Anti-corrosion Protection

Standard units receive anti-corrosion treatment suitable for non-extreme environments. Additionally, they can be customized with enhanced anti-corrosion treatment on key components to protect surfaces from corrosive air, acid rain, and saline air, particularly in coastal areas, thereby extending their overall lifespan. The effectiveness of the anti-corrosion treatment is verified through rigorous testing, including salt mist, moisture and heat, and light aging tests. Enhanced anti-corrosion treatment is available as a customization option.

*Heavy anti-corrosion treatment is available as a customized option.

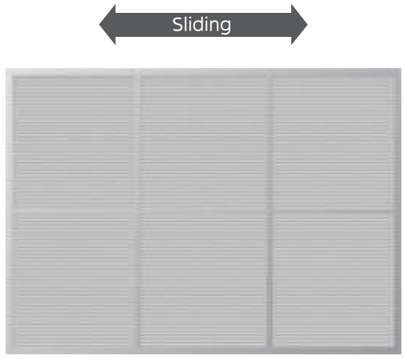
EASY INSTALLATION AND MAINTENANCE

Curb Compatibility

The product is designed for quick and efficient replacement of most mainstream brand models. These units feature a unique footprint design that ensures compatibility with various roof curbs without the need for adapters or additional modifications in most cases.

Tonnage	Footprint (In) L*W
20~25	135 5/8 *57 5/8

Easy Slide Foldable Filter



Easy Sliding

*This feature is offered as an optional configuration.

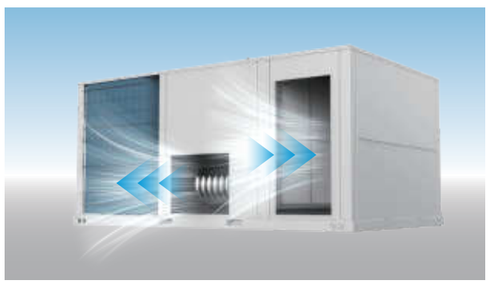
Easy Cleaning with Water

Maintenance Mode

The maintenance mode allows for the individual testing of core components, enabling technicians to isolate and identify potential issues with precision and efficiency. By focusing on specific parts rather than the entire system, this feature significantly reduces troubleshooting time and effort.

Convertible Duct Connection

It is field-convertible from vertical to horizontal airflow, which makes it easy to adjust to unexpected job-site.



EASY INSTALLATION AND MAINTENANCE

Easy Wiring for Control Board

The rooftop include a clearly labeled power terminal block and an exit seal cover with a secure fixing clip to simplify installation. The power terminal block offers an intuitive connection point for wiring, reducing complexity and minimizing the chance of errors. The exit seal cover protects the wiring from environmental factors, ensuring durability and reliability. The fixing clip keeps wires securely in place, enhancing stability and organization. These features make installation straightforward, eliminating the need for specialized skills or extensive training.

Easy Installation

Utilizing an advanced high static pressure motor, our system offers extensive E.S.P coverage and simplifies E.S.P adjustments through intelligent self-adaptation.

Unlike conventional systems that require extensive modifications—such as changing pulleys, fine-tuning variable pulleys, or even replacing motors to achieve the desired air volume—our innovative solution allows users to simply set the airflow level. The system automatically adjusts the static pressure to match the selected airflow, ensuring optimal performance without the need for manual intervention or complex adjustments. This streamlined approach not only enhances convenience but also guarantees precise and efficient operation.

3 Way Fork Lift Holes

The rooftop units boast an outstanding design with three-way forklift access points. To ensures easy and efficient transportation, making installation and relocation straightforward in any setting.

50ZR

Model		50ZRX24M-6A	50ZRX28M-6A
Type		AC	AC
Cooling	Btu/h	245000	282000
	EER	10	10
	IEER	18.3	18.3
Indoor Motor	Quantity	2	2
	Type	DC/Direct	DC/Direct
	External Static Pressure (ESP)in.wg	0~1.4	0~1.4
	Air Volume CMH	12000~18000	12000~18000
Drain Size	NPT	3/4"	3/4"
Sound Level	dB(A)	82.0	82.0
Refrigerant		R410A	R410A
	lbs-oz	20-15 +20-15	20-15 +20-15
Outdoor Motor	Quantity	2	2
	Type	DC/Direct	DC/Direct
	Fan Material	Metal	Metal
Refrigerant Control		EEV	EEV
Compressor	Quantity	2	2
	Type	Scroll	Scroll
Evaporator		Cu/Al	Cu/Al
Condensor		Cu/Al	Cu/Al
Operation temp	°F	63~86	63~86
Ambient temp	°F	23~129	23~129
Voltage-Phase-Frequency	208/230-3-60	—	—
	460-3-60	•	•
	575-3-60	—	—
Unit	Dimension (W*H*D) inch	141-3/4*65-11/16*86-5/8	141-3/4*65-11/16*86-5/8
	Packing (W*H*D) inch	142-3/8*66-9/16*87-5/8	142-3/8*66-9/16*87-5/8
	Gross weight lbs	2498	2498
	Net weight lbs	2346	2346
Loading Quantity (40HQ)	Units	3	3

*Product in development; data subject to actual production.