

Why RTUs Remain Important and Relevant

Commercial Air

From controlling temperatures to purifying indoor air, HVAC (heating, ventilation and air conditioning) systems provide many benefits as they seek to enhance occupants' comfort and overall well-being. A building's thermal and acoustic settings can also affect our health, wellness and productivity.

To put the importance of the United States commercial HVAC market in perspective, consider that manufacturing and commercial buildings account for nearly half of all US energy consumption, with an annual price tag of nearly \$200 billion. And the US is the second-highest consumer of energy in the world, trailing only China.

A wide variety of HVAC systems are available to meet the needs of the commercial HVAC market. Whether a customer needs to maintain or upgrade existing systems or meet new energy-efficiency standards, there are many considerations when determining which system best fits the need. From initial installation to ongoing operations, businesses will want to evaluate cost, ease of use, performance, efficiency and more.

WHAT'S NEW IN THE COMMERCIAL HVAC MARKET

Several kinds of HVAC systems and technologies are used to provide space heating in commercial buildings. In 2021, J.P. Morgan estimated the value of the US commercial unitary market (including both packaged and split systems) at \$5 billion. Today, packaged HVAC units, also called rooftop units or RTUs, heat 37% of US commercial buildings, equaling 50% of total commercial floor space.¹

The size of the average commercial building has increased by 11% since 2012, and total commercial floorspace is projected to grow 33% by 2050—with major effects on the HVAC industry. Packaged rooftop systems are especially well-suited for retail, education, and food and beverage businesses, and account for two-thirds of all installations for those industries.

Commercial buyers are also drawn to innovations such as advanced controls and automation systems, which can deliver comfort exactly when and where it's needed while optimizing overall performance and efficiency. These advanced controls also give owners more control over operations and maintenance, even when working remotely.

Finally, new environmental and health regulations are driving enhanced efficiency and other product improvements. You can learn more about the latest HVAC trends—including efficiency, decarbonization and building codes—in our new HVAC Regulatory Trends report.

WHAT DRIVES NEW RTU PURCHASES

Building owners install new HVAC rooftop units (RTUs) for three primary reasons:

- **New construction.** Decision makers include architects, engineers, general contractors, mechanical contractors and owners. In making a choice, stakeholders may evaluate everything from energy efficiency, carbon emissions, and code compliance to installation and operating costs.
- **Planned replacements.** As their name suggests, these purchases are made when a unit reaches a certain age, before it can fail. They're usually built into a building owner's budgeting process.
- **Emergency replacements.** When a unit fails, can't be fixed, and needs to be replaced ASAP, customers value drop-in-ready units in stock, flexible footprint designs, and field-convertible airflow.



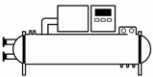




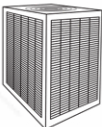

¹U.S. Energy Information Administration, 2018 Commercial Buildings Energy Consumption Survey, 2018.

Comparing HVAC Options

The commercial HVAC market is packed with options. When comparing alternatives, customers need to evaluate initial cost, maintenance or operating costs, energy efficiency, comfort, capacity, ease of installation and maintenance. In addition, engineers must consider factors including code compliance, humidity, carbon emissions, noise and filtration.

The table below gives an overview of how some common HVAC solutions stack up by cost, maintenance, efficiency, comfort and capacity. On one end, you'll find water- and

air-cooled chiller solutions that are more expensive to install and maintain, but deliver precise comfort control and efficiency. At the other end, PTAC and VTAC units (packaged terminal and vertical terminal air conditioners) are inexpensive to install and operate, but deliver only basic comfort and energy efficiency to a single space. In the middle are RTUs, packaged units that are easy to install and maintain and deliver comfort and efficiency at a reasonable price.

	Chiller -Water	Chiller -Air	Variable Refrigerant Flow (VRF)	Water Source Heat Pump (WSHP)	Packaged (RTU)	Ducted Splits	Packaged or Vertical Terminal Air Conditioner (PTAC/VTAC)
							
Initial Cost	\$\$\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$	\$\$	\$\$	\$
Operating Cost (maintenance and service)	\$\$\$\$\$	\$\$\$\$\$	\$\$\$\$	\$\$\$	\$\$	\$\$	\$
Energy Efficiency	★★★★★	★★★★	★★★★★	★★★★	★★★	★★★	★★
Comfort	★★★★★	★★★★★	★★★★★	★★★★	★★★	★★★	★★
Pros	<ul style="list-style-type: none"> • Very large capacity • Long operating life • Precise comfort control 	<ul style="list-style-type: none"> • Large capacity • Long operating life • Precise comfort control 	<ul style="list-style-type: none"> • Modular • Flexibility/zoning • Precise comfort control • Simultaneous operation 	<ul style="list-style-type: none"> • Modular • Self-contained • Easy to service and replace 	<ul style="list-style-type: none"> • Easy to install • Easy to service and replace • Ubiquitous/most familiar to technicians 	<ul style="list-style-type: none"> • Easy to install • Easy to service and replace 	<ul style="list-style-type: none"> • Easy to install • Easy to service and replace • Individual room control
Cons	<ul style="list-style-type: none"> • Complexity • Equipment size • Water treatment • Water use for cooling tower 	<ul style="list-style-type: none"> • Complexity • Equipment size and weight • Water treatment 	<ul style="list-style-type: none"> • Complexity • Limited capacity per system • Typically no outside air (OA) or humidity treatment • Refrigerant piping throughout building 	<ul style="list-style-type: none"> • Requires cooling tower, ground water loop and related maintenance • Indoor compressor noise • More failure points 	<ul style="list-style-type: none"> • Limited capacities • Limited efficiency at standard price points • Limited zoning 	<ul style="list-style-type: none"> • Limited capacities and accessories • Not well suited for large commercial projects 	<ul style="list-style-type: none"> • Limited capacity • Noisy • Multiple wall penetrations • Sound and moisture intrusion • Typically no OA treatment

THE FRIEDRICH DIFFERENCE

As a proud member of the Rheem Family of Brands, Friedrich's first-class products are bolstered by the support and strength of another longtime industry leader. Rheem has been manufacturing HVAC systems since 1925 and is a leader in reliable, durable, easy-to-install packaged systems. We continually refine our designs based on input from engineers, installers, contractors, facility managers, building owners and focus groups. We're dedicated to innovative products that deliver the highest levels of:

- **Installability.** From factory-programmed variable frequency drives (VFDs) to single-point wiring to minimal use of screws, our innovative features make installation faster, easier and more cost-effective. Slide-out components and hinged panels offer convenient access to key parts, while our flexible footprint makes it easy to line up units with existing connections.
- **Reliability.** Our R&D has been committed to developing reliable and industry-leading innovations since 1925. All Friedrich units are run-tested before they come off the line to confirm performance to our exacting standards. We stand behind our products with local technical support and parts availability, plus a limited warranty for peace of mind.
- **Flexibility.** Our specification tools and product documentation make it easy for engineers to spec Friedrich products, with free, web-based tools such as RapidSpec as well as our BIM library of 2D and 3D CAD and BIM files. Local engineering and support teams ensure that projects run smoothly before and after install. For building owners and contractors, our open approach to controls offers additional flexibility, allowing customers to choose their preferred controls or building management system.
- **Serviceability.** Our dedication to serviceability makes it easy for contractors to quickly access unit components through the use of slide-out assemblies, minimal screws, and thoughtful features including hinged panels and prop rods. Friedrich CoreCommand™ Diagnostics helps contractors quickly and accurately view system status through a dual seven-segment LED display, instead of having to count blinks while standing on a rooftop.
- **Sustainability.** We are committed to [industry-leading sustainable manufacturing](#) and design. Our products are designed to increase efficiency, lower operating costs, and use less energy—helping to protect the environment while maximizing your ROI.

A bright future for RTUs

Rooftop units are a staple of the HVAC industry and a proven, reliable option for new construction, renovation or emergency replacement. Their ease of installation, reliability and durability, and their low maintenance and operating costs, will continue to make RTUs a smart commercial HVAC choice for years to come.

Learn more about Friedrich's full line of [commercial ducted products](#).

CONTACT US

For additional information, contact
your local Friedrich sales representative.



[Friedrich.com/Commercial](https://www.friedrich.com/commercial)

Form No. MFR-1156 · 05/24

© 2024 Rheem Manufacturing Company. Friedrich trademarks are owned by Friedrich Air Conditioning LLC. Rheem and other trademarks are owned by Rheem Manufacturing Company. In keeping with its policy of continuous progress & program improvement, Rheem reserves the right to make changes without notice.