



Series S™ CenTraVac® Chillers

Leading efficiency
and proven reliability



The Trane Series S CenTraVac chillers:

Delivering all that CenTraVac chillers stand for — and more!



EcoWise™

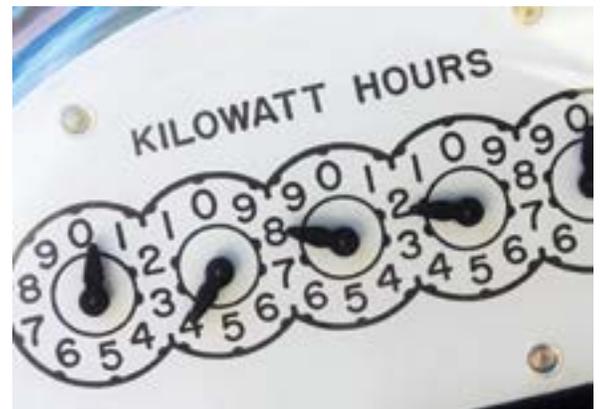
Trane products within the EcoWise™ portfolio are designed to lower environmental impact with next-generation, low global warming potential (GWP) refrigerants and high efficiency operation.

Continuing our commitment to provide the most comprehensive HVAC solutions in the industry, Trane® Series S™ CenTraVac® chillers deliver the highest part- and full-load efficiencies, ultra-quiet operation, industry-leading reliability and the lowest total cost of ownership.

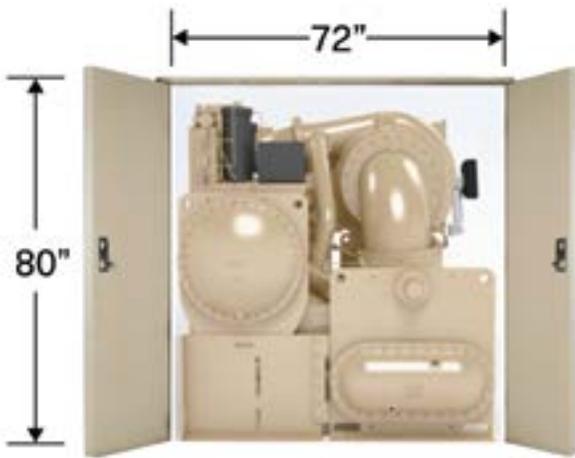
Industry-leading efficiencies

Series S chillers deliver the highest part- and full-load efficiencies in oil-free or oil-lubricated chiller configurations.

- **The highest full-load efficiency** minimizes the electrical infrastructure required and reduces the impact of demand-based charges and real-time pricing during peak periods.
- **The highest part-load efficiencies** drive lower overall electrical consumption charges (kWh).
- **The best IPLV** easily exceeds ASHRAE® 90.1 part-load efficiency requirements.



Series S chiller's efficiencies are unmatched in the market. To quickly and accurately estimate future chiller performance for your specific application, there are tools available such as the myPLV® calculator that take into consideration project-specific conditions, including location and building type, load, number and size of the chillers in the plant, and more. *To learn more about myPLV, visit Trane.com/myPLV.*



Simple installation

Installing a new chiller is about more than just its physical footprint; it's about getting the unit into a mechanical room easily, with minimal disruption to the building and its occupants.

- **Fits through a standard double door** for easy entry into an existing building.
- **Bolt-together design** allows for easy disassembly into its major components, which can be moved into the building individually and reassembled on-site.



Proven reliability

Series S chillers utilize the latest technologies to deliver reliable operation over the life of the unit. No matter what configuration you select, you receive the reliability you expect from Trane.

- Balanced impellers in the compressor design provide a balanced thrust load on the driveline, reducing stress on the bearing system.
- Third-generation Adaptive Frequency™ drive (AFD3) effectively handles electrical dips and surges to maintain reliable operation.
- Adaptive Control™ maintains chiller operation even in the most extreme conditions.



The reliability of Series S chillers allows Trane to offer the industry's longest warranty — 100 percent backed and fulfilled by Trane, not a third party.



Each Series S chiller is custom-built following rigorous quality-control processes. Before it leaves our manufacturing facility, you as a Trane customer can take advantage of our fully customizable portfolio of myTest™ chiller test packages and proof-of-performance options — all performed in the industry's most advanced and comprehensive chiller testing facility. We invite you to witness all testing before your chiller ships — either in person at our factory or remotely from the comfort of your office.

Innovation for performance

Advanced compressor design

At the core of the Trane® Series S™ CenTraVac® chiller's performance is our AdaptiSpeed® technology, the integration of an all-new specific speed, direct drive compressor, a permanent magnet motor and the exclusive AFD3. This fusion of technologies delivers unmatched efficiency and the lowest sound levels in the industry. Each Series S chiller's compressor is optimized to precisely match load requirements and operating conditions, delivering superior efficiency across a wide operating envelope.

Mixed-flow, balanced impellers

The new specific-speed compressor features the industry's first mixed-flow impeller design. Offering the best attributes of both radial and axial designs, these impellers — coupled with the specific-speed design — enable the compressor to deliver better efficiency across a wider operating range. In addition, the back-to-back impeller orientation provides a balanced thrust load on the driveline, reducing stress on the bearings. This design adds to overall unit reliability, maximizing chiller uptime.

Permanent magnet motor

Because it doesn't have the efficiency losses associated with the rotational slip of an induction motor, a permanent magnet motor can achieve up to 4 percent better efficiency than a comparable induction motor.

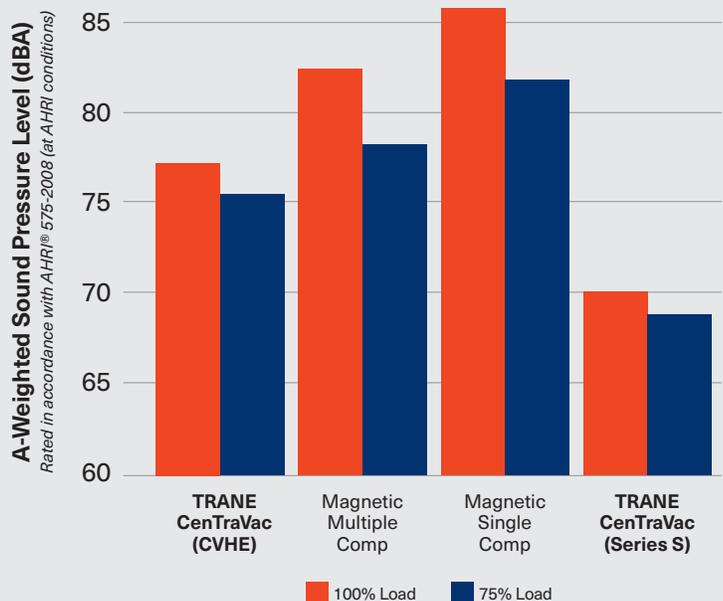


Bearing system

These bearings reliably support both oil-free and oil-lubricated chiller configurations. The high-strength hybrid ceramic bearings have been proven through extensive field operation for more than 20 years.

Ultra-quiet operation

Comfort is about more than just temperature; building occupants also expect a quiet environment. The Series S chiller produces superior sound levels making it perfect for sound-sensitive applications.



Third-generation Adaptive Frequency™ drive, AFD3

Designed to last the life of the chiller, the AFD3 consumes less energy at all operating points without the risk of incurring excessive demand charges during near-full-load operation. The rugged AFD3 can effectively handle electrical dips, surges and other imbalances to maintain reliable chiller operation from any utility power source, including renewable power.

A true 24-pulse design provides the harmonic solution to meet the requirements of IEEE® 519, reducing harmonic distortion to less than 5 percent total demand distortion (TDD).

Unique in the industry, the AFD3 is a fully integrated variable-speed drive working with the motor and Tracer AdaptiView™ unit controller to continuously optimize chiller efficiency through compressor speed and guide vane position.



Other key features

Tracer AdaptiView controller

This unit controller provides the intelligence behind CenTraVac chillers and features the Adaptive Control™ algorithms, which offer control strategies that respond to a variety of conditions to maintain efficient chiller plant operation. An open-protocol design allows the AdaptiView controller to work with any building automation system without the need for gateways (BACnet®, Modbus® RTU and LonTalk®).

Safety first with Shore Power

Commissioning the chiller and servicing the AFD3 drive panel can be performed with only 110 volts of power through a standard extension cord — a design that helps protect technicians from higher line voltages.

Flash economizer

The Series S chiller has a single-stage economizer that provides up to 4½ percent better efficiency than designs with no economizer. Since the Series S chiller uses two impellers, it is able to flash refrigerant gas at an intermediate pressure between the evaporator and condenser, significantly increasing chiller efficiency. This improvement in efficiency is not possible from single-stage chillers, in which all compression is done by one impeller.

Refrigerant cooling system

Required for the oil-free configuration, this highly effective system provides cooling to the motor, bearings and AFD3, delivering exceptional unit life without the added maintenance of stand-alone glycol systems.



Environmental sustainability

Environmental sustainability is at the heart of the Trane® Series S™ CenTraVac® chiller's design. Using low-pressure refrigerant, the chillers operate in a vacuum, which virtually eliminates leaks and enables near-zero emissions throughout their operational life. That's a win in terms of the direct environmental impact of the refrigerant, minimizing the ozone depletion potential (ODP) and global warming potential (GWP).

In fact, we are so confident in our ability to keep the refrigerant inside our Series S chillers that we back each one with a leak-tight warranty — free on all CenTraVac chillers installed in the U.S. and Canada for the first five years of ownership and extended for the life of the chiller when covered by a comprehensive Trane service agreement.

Series S chillers are part of the EcoWise™ portfolio of products designed to help lower environmental impact with next-generation, low global warming potential (GWP) refrigerants and high-efficiency operation. These chillers offer a choice of either R-123 or next generation R-514A refrigerant, which has a low GWP of less than 2.



50%

Reduction in the greenhouse gas refrigerant footprint of our products by 2020 and incorporating alternatives with lower GWP across the company's product portfolio by 2030.



35%

Reduction in greenhouse gas footprint of our own operations by 2020.



\$500M

Investment in product-related research and development by 2020 to fund the long-term reduction of GHG emissions.

EcoWise™

The EcoWise portfolio of products designed to lower environmental impact with next-generation, low global warming potential (GWP) refrigerants and high-efficiency operation is part of our climate commitment to increase energy efficiency and reduce the greenhouse gas emissions (GHG) related to our operations and products.



The Series S chiller along with the entire CenTraVac chiller portfolio has earned third-party verification with a product-specific Type III Environmental Product Declaration (EPD), confirming that its environmental impacts are the lowest in the water-cooled chiller industry.

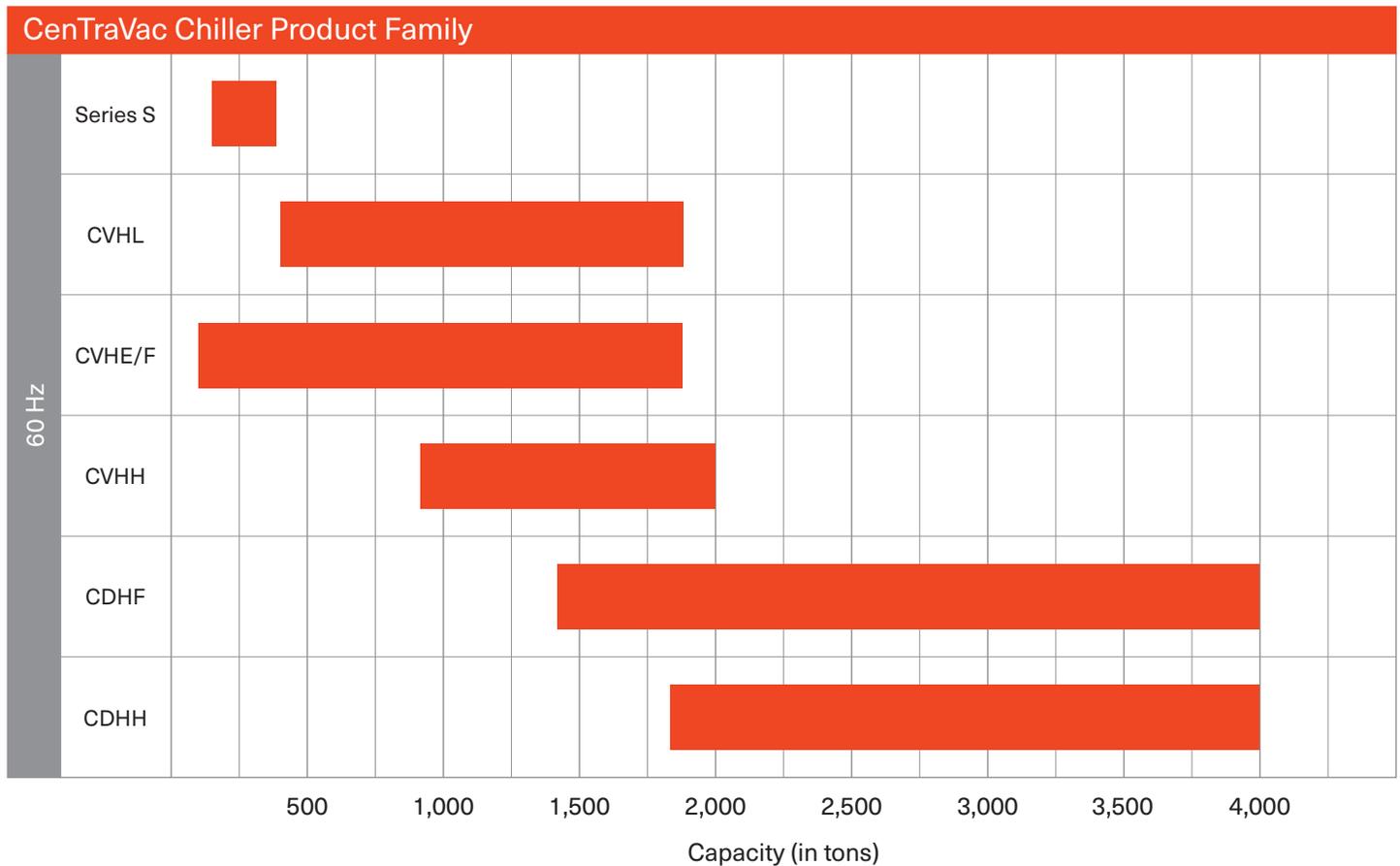
Beyond building performance

Performance

Trane products are designed, engineered, built and tested to be solid performers, quietly doing their jobs year after year with minimal need for maintenance and repairs. The Series S chiller with AdaptiSpeed™ technology builds on a long history of centrifugal chiller performance — a history that shows many Series S chillers working reliably for more than 50 years.

Innovation

Founded a century ago on the belief that imagination and inspiration can overcome any obstacle, the Trane legacy of technological breakthroughs has made it an industry legend. Today's Series S chiller contains more innovative solutions to boost performance and efficiency while maintaining higher levels of reliability and environmental sustainability than any other chiller on the market.



Learn more at trane.com/SeriesS



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit trane.com or tranetechnologies.com.

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