

The Future. Today.

YZ MAGNETIC BEARING CENTRIFUGAL CHILLER

 **YORK**[®]
INSTALL CONFIDENCE



Johnson
Controls 

YORK® YZ Magnetic Bearing Centrifugal Chiller

The YORK® YZ Magnetic Bearing Centrifugal Chiller is a revolutionary advancement that challenges everything about conventional chiller design. Built upon decades of industry-leading chiller expertise, our engineers questioned every component, analyzed every function and challenged every assumption. The result is the first chiller fully optimized for ultimate performance with a next generation low-GWP (global warming potential) refrigerant, delivering superior real-world performance, lower cost of ownership and a new definition of sustainability. It's the first chiller built to exceed every expectation – today *and* tomorrow.



Proven Firsts. Groundbreaking YORK® innovations refined over decades of real-world use have been brought together to create a revolution in chiller design and optimization. It's everything we've learned to-date, and then some.

Variable-Speed Drive:

Four decades ago, YORK® introduced the first variable-speed drive (VSD) chiller. And we've since installed more VSD chillers than all other manufacturers combined. A VSD is standard on the YORK® YZ.

Magnetic Bearing Driveline:

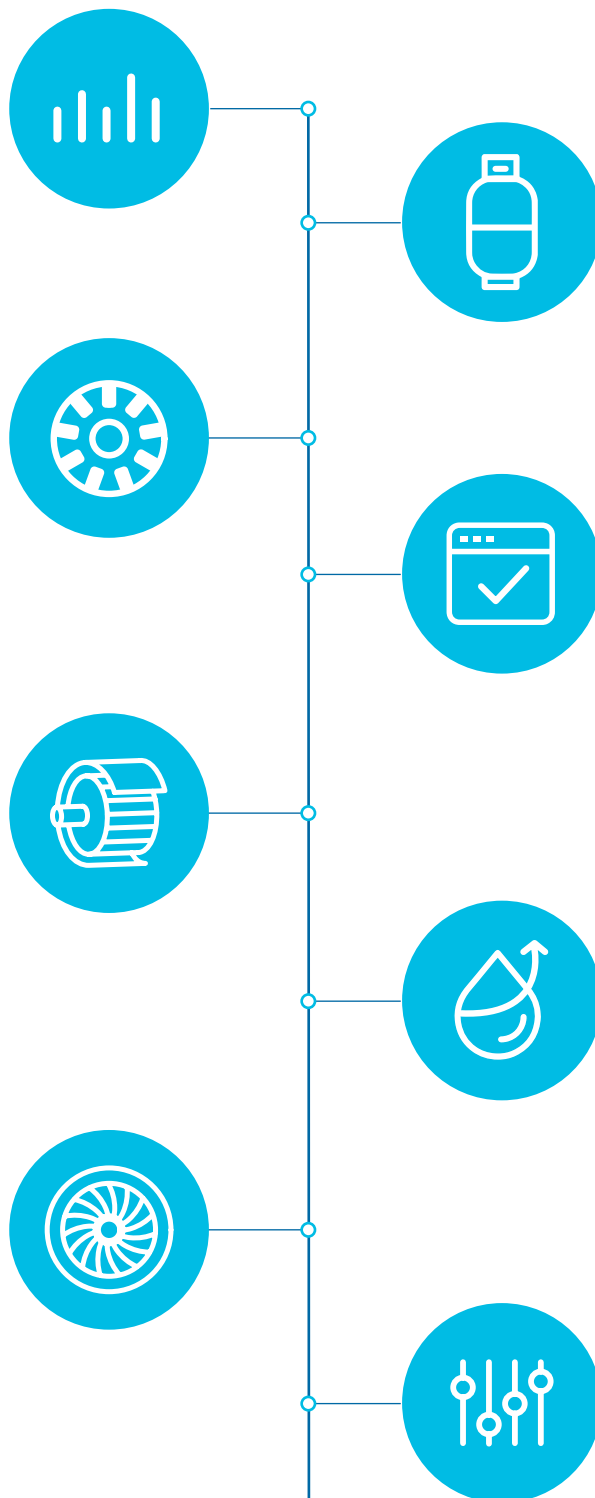
In 1998, YORK® Navy Systems pioneered reliable magnetic-bearing technology to cool submarines. The same durable and efficient technology is used on the YORK® YZ.

High-Speed Hermetic Induction Motor:

YORK® was the first to combine low-maintenance, hermetically-sealed induction motors with variable-speed drives in 2004 to directly drive the compressors in air-cooled chillers. The YORK® YZ builds on this reliable, proven technology to power our latest generation of centrifugal compressors.

Optimized Compressor:

An optimized, single-stage design enables YORK® chillers to provide the best possible real-world energy efficiency. YORK® YZ compressors also lead the industry with the widest operating range at off-design conditions where systems most often operate.



Low-Pressure Chiller:

For most of the past century, the YORK® centrifugal chiller portfolio has offered low-pressure refrigerants to deliver high-efficiency chillers. The YORK® YZ is designed to maximize the efficiency of a new, low-GWP, low-pressure refrigerant.

OptiView™ Control Panel with Connected Service:

The full-color, interactive OptiView™ control panel of the YORK® YZ offers over 100 setpoints, readouts, alerts and trending reports. In addition, data can be securely connected to the cloud-based analytics platform for remote monitoring and predictive diagnostics – another innovation first brought to you in YORK® chillers.

Falling Film Evaporator:

The YORK®-patented falling film design of the YORK® YZ reduces refrigerant charge up to 60%, and reduces evaporator shell size up to 20%, compared to other flooded, low-pressure refrigerant designs. The YORK® patented falling film design also eliminates the need for a refrigerant pump.

Capacity Control Logic:

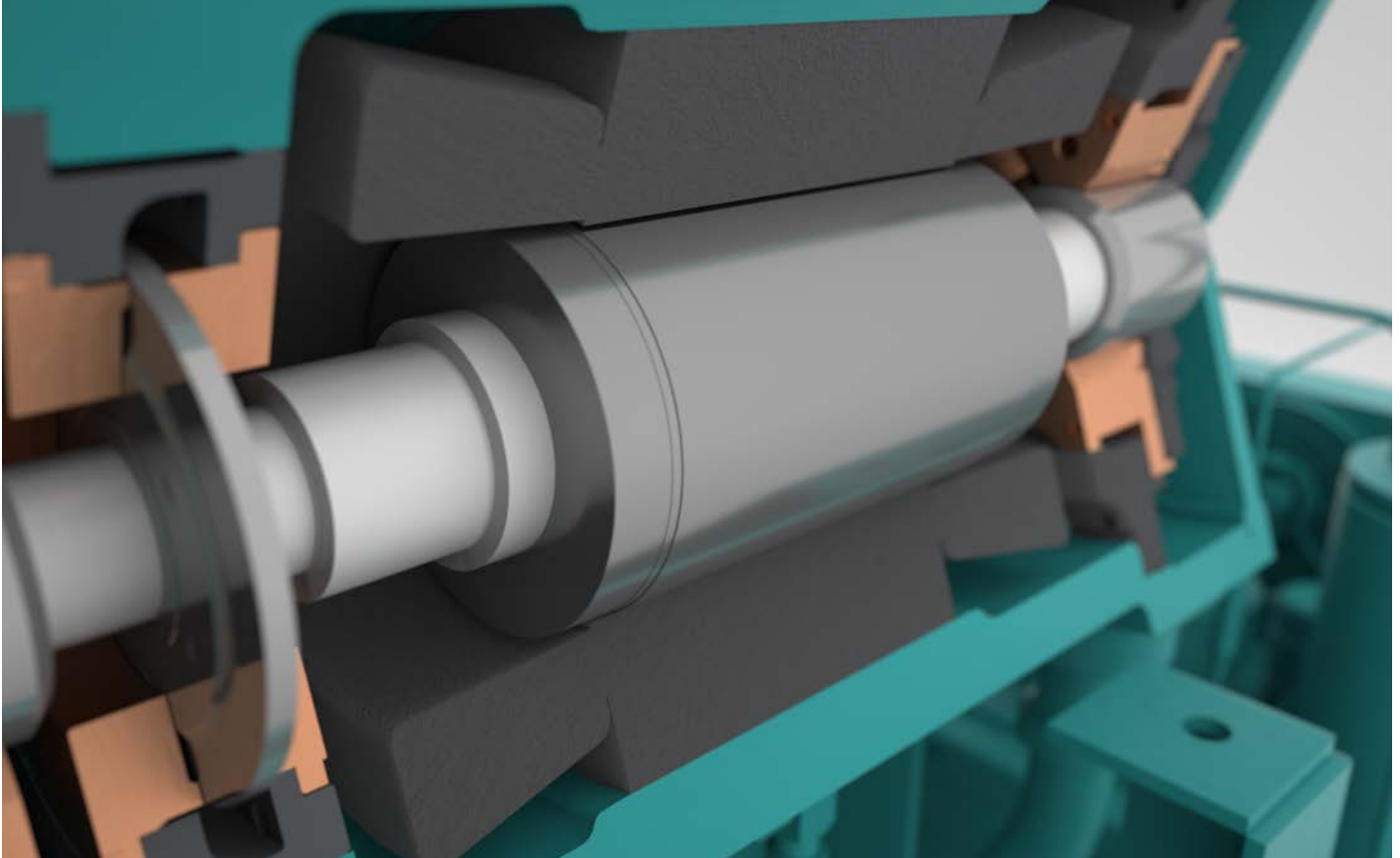
This patented YORK® control technology provides rapid response to the load on the building, ensuring the YORK® YZ Chiller does not waste energy or work harder than needed.

Optimized for Ultimate Performance

The design premise for the YORK® YZ was simple: Don't just make a new chiller – make the *best* chiller for our customers. This was accomplished through a holistic approach to system design and engineering, optimizing every component around a carefully selected next generation refrigerant for ultimate performance.

Magnetic Driveline Superiority

The YORK® YZ uses an integral, variable-speed drive and advanced magnetic bearing technology to deliver extraordinary efficiency, superior durability, simplified maintenance and a wider operating envelope than any chiller using oil- or refrigerant-lubricated compressor bearings. This driveline features a single moving assembly suspended in a magnetic field that does not require lubrication. With 80% fewer moving parts than traditional oil- or refrigerant-lubricated drivelines, longevity is enhanced and maintenance is reduced.

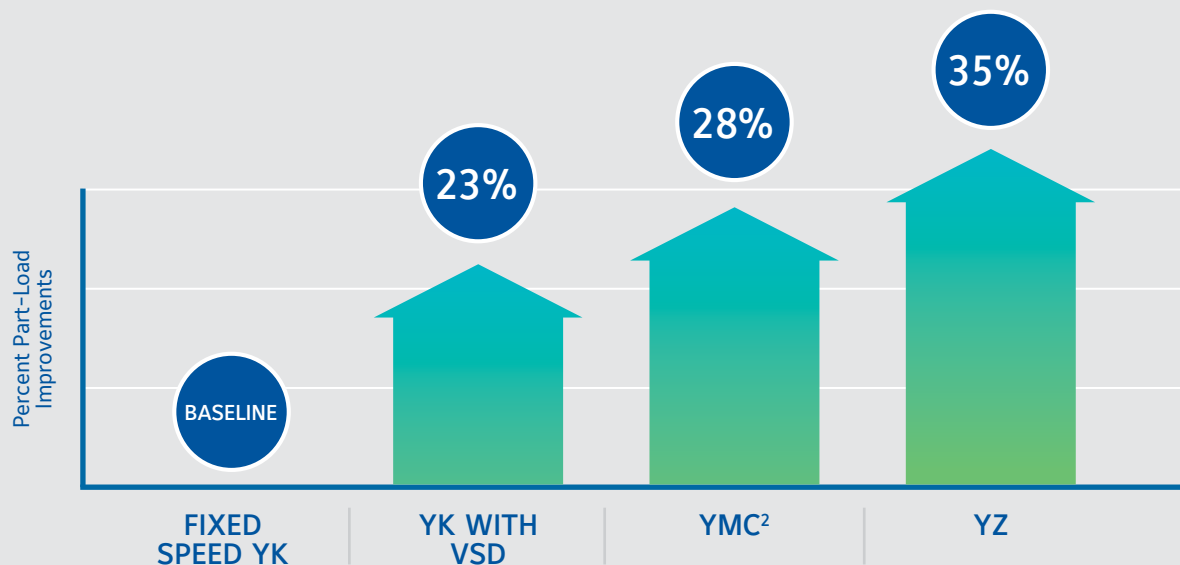




A Legacy of Leadership

The YORK® YZ is advancing the efficiency frontier again. From our dependable YORK® YK to the YORK® YMC² magnetic driveline chiller, we have always set the standard for real-world chiller efficiency. Now with the YORK® YZ, efficiency is improved up to an impressive 7% at part-load and as much as an additional 5% at full-load versus our most efficient previous designs.

The Evolution of Efficiency



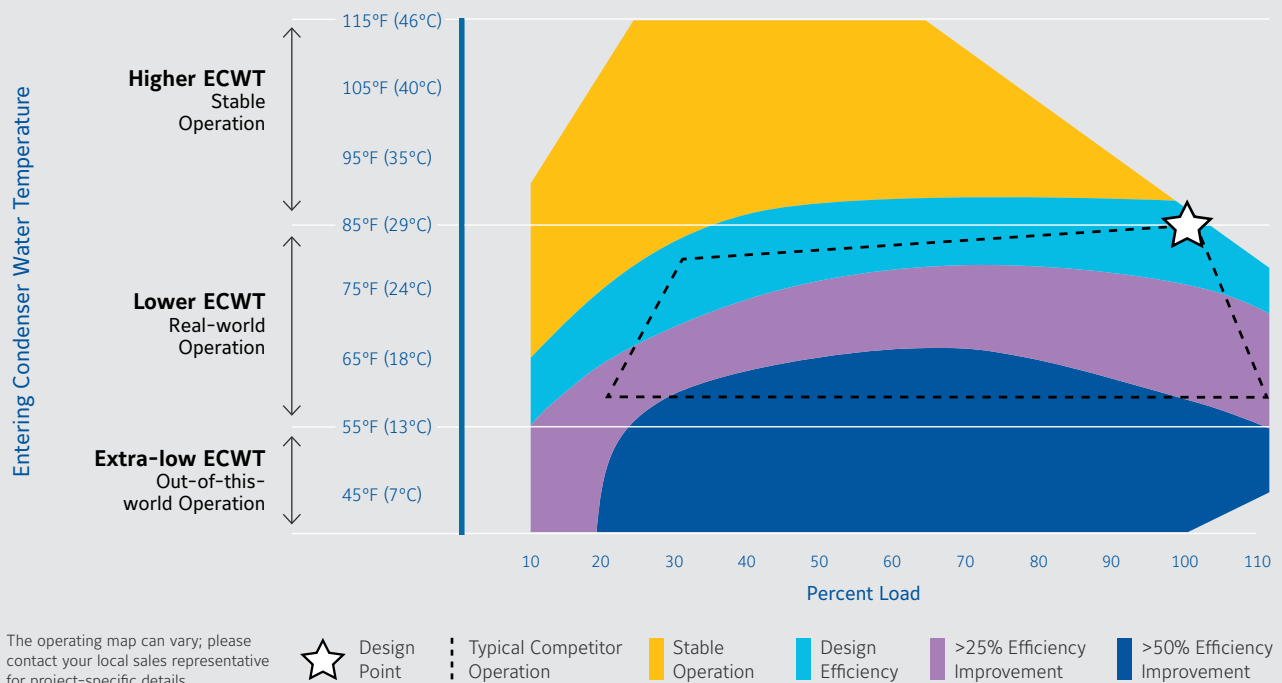
When it comes to efficiency, even among our own world-class designs, the YORK® YZ is the new benchmark for part-load values.

Better Efficiency in Every Operating Condition

By providing superior off-design efficiency with our variable geometry diffuser (VGD), variable-speed drive and innovative magnetic bearing technology, the YORK® YZ delivers up to 35% annual energy savings versus traditional fixed-speed oil bearing chillers. These savings result from the combination of superior efficiency and the widest operating map in the industry. Unlike conventional, oil-lubricated bearing chillers that typically cannot operate below 65° F (18° C), the YORK® YZ operates with entering condenser water temperatures (ECWTs) as low as 40° F (4.5° C), providing significantly enhanced performance at a variety of conditions.

Designed for both comfort and process cooling applications, the YORK® YZ provides greater reliability and real-world efficiency than industry-standard chiller designs, which directly equates to lower operating costs. The chiller can operate with evaporator and condenser temperatures inverted. This capability, sometimes called “running upside down,” is when the entering condenser water temperature is *below* the leaving chilled water temperature. The inverted operation design of the YORK® YZ eliminates the need for a water-side economizer – simplifying the system and saving money on components, piping, controls and maintenance.

More Efficient More Often



It's one thing for a chiller to be efficient at its design point. But providing exceptional efficiency at temperatures and load values well below the design point puts the YORK® YZ in a different league of performance.

Dramatically Lower Ownership Costs

To maximize value, the YORK® YZ design has been specifically optimized for use with a new, low-GWP refrigerant. The goal: minimize operating costs by leveraging the benefits of a new refrigerant in our new heat exchangers and motor/compressor driveline while also mitigating the high cost of a next generation refrigerant.

Real-World Savings

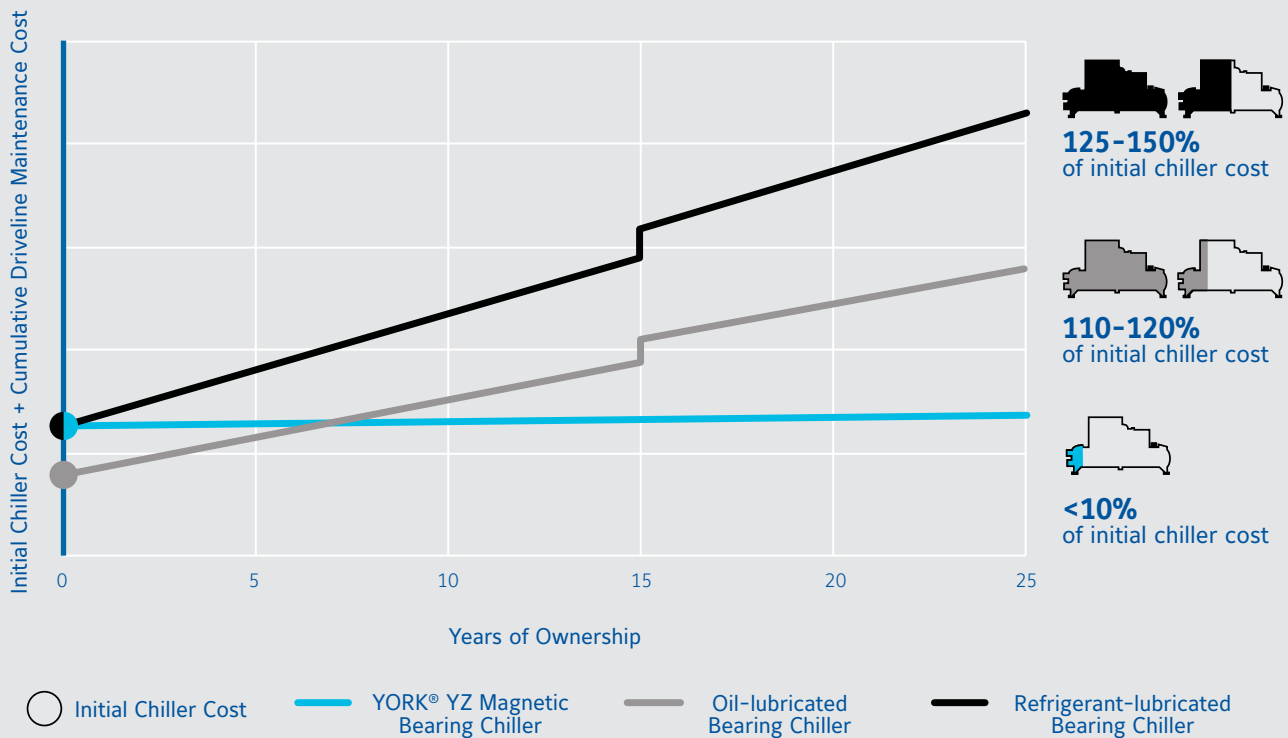
YORK® was the first to use the term “real-world efficiency” to represent the energy savings found when chillers are operating in off-design conditions – where chillers operate up to 99% of the time. The YORK® YZ continues this legacy of leadership by providing better efficiency at every operating condition. In a typical building, the amount spent on energy costs over the life of the chiller is 8-10 times the initial chiller cost; investing in the real-world efficiency of the YORK® YZ is the quickest way to save money in your building’s budget.



Reduced Maintenance Costs

The YORK® YZ delivers maintenance cost reductions thanks to magnetic bearing technology with fewer moving parts and the elimination of a lubrication system with pumps, valves and filters that wear and require maintenance. The lubrication-free, non-contact design of the YORK® YZ provides system simplicity and reliability that is far beyond continuous-contact, oil- and refrigerant-lubricated bearing chiller designs. In fact, the components are designed to last the life of the chiller and do not require scheduled maintenance after a set number of hours (typically 15 years for continuous-contact, lubricated bearing designs).

Driveline Maintenance Comparison



All centrifugal chillers require scheduled maintenance, such as cleaning tubes and checking refrigerant levels. The distinction in maintenance differences lie within the driveline. Without scheduled compressor teardowns, filter changes or any maintenance on a complex bearing lubrication system, the YORK® YZ is unrivaled in maintenance savings over the lifetime of the chiller.

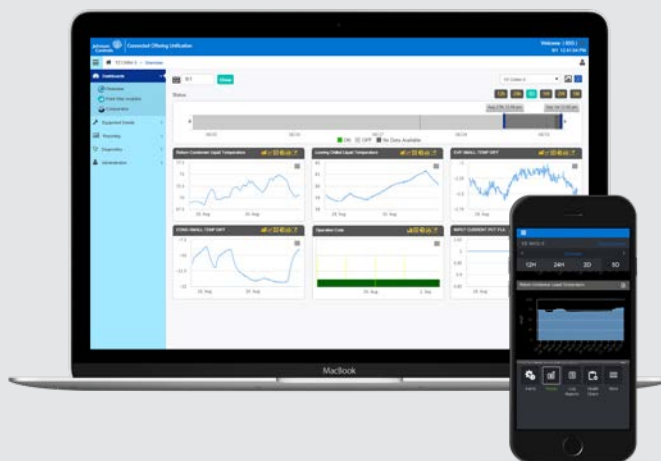
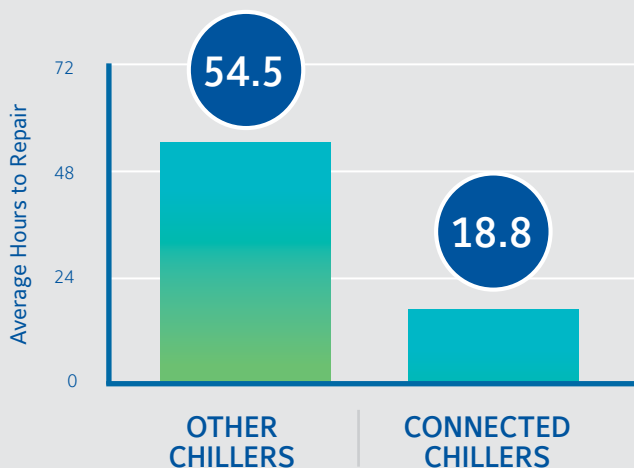
Long-Term Peace-of-Mind

Through a secure connection, our available Smart Connected Chiller technology uses a cloud-based analytics platform that combines remote monitoring and predictive analytics to proactively diagnose issues and reduce downtime – resulting in a 65% improvement in mean time to repair and a 66% average reduction in unplanned shutdowns versus other chillers. When maintenance is required, you can rely on our global network of over 15,000 technicians operating from more than 500 branch offices in 150 countries to provide any necessary on-site service. As the world's leading provider of HVAC equipment, controls and services, you can count on YORK® to minimize downtime and safeguard your system's performance for the long haul.

65%

Improvement in Mean Time to Repair

Greater Uptime



Industry-leading remote monitoring and cloud-based analysis give 24/7 access to chiller trend data and predictive analytics. And that means less time to repair, fewer shutdowns and superior total uptime.

The New Definition of Sustainability

True sustainability means the lowest total emissions – from beginning to end. Adapting a chiller design to a new refrigerant is not enough. That's why the YORK® YZ was specifically designed to maximize the potential energy efficiency of a low-GWP refrigerant. Our design optimization for the highest possible efficiency combined with a low-GWP refrigerant makes the YORK® YZ Centrifugal Chiller the best choice for the environment.

The Right Refrigerant Choice

In selecting a low-GWP refrigerant for the groundbreaking YORK® YZ, we considered safety, efficiency, availability, environmental impact and cost. We chose R1233zd(E) refrigerant because it is non-flammable, low in toxicity per ASHRAE specifications (A1), readily available from refrigerant manufacturers, exceptionally efficient with proper chiller design optimization and has an ultra-low global warming potential of 1. The YORK® YZ was then built to have better efficiency at all design conditions, resulting in total direct and indirect emissions that are impressively low – and performance that is exceptionally high.

From the Name You Trust

YORK® has built a reputation of delivering chiller systems proven to be the best at operating efficiently in real-world conditions. We engineer and fully optimize our own solutions rather than package off-the-shelf components from various suppliers. We have a long history of leadership in the aerodynamic engineering of centrifugal compressors, we pioneered the variable-speed drive (VSD) for use in chillers and we were the first to offer a chiller with inverted temperature operation.

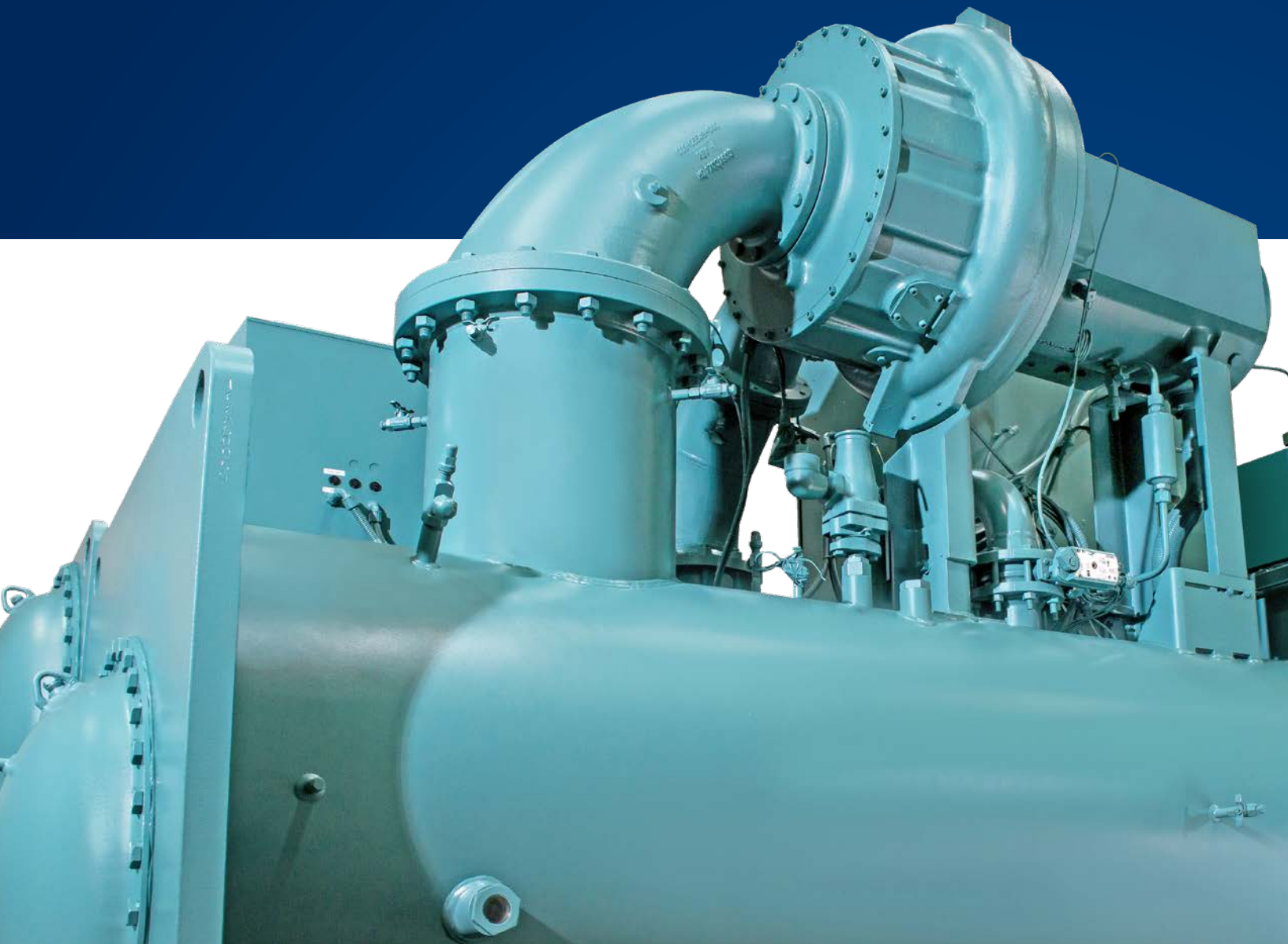
We patented falling film evaporator designs that improve heat exchanger performance while reducing refrigerant charge, and our patented control logic provides better turn-down and quickly responds to changes in building load to improve efficiency. We have successfully transitioned in the past from one refrigerant to the next with fully optimized, long-term solutions. And we've installed YORK® magnetic bearing technology like that found in the YORK® YZ for thousands of customers since we first introduced the technology – including many in mission-critical applications like data centers, manufacturing facilities and naval ships.

Confidence for Today, and Tomorrow

When you invest in a chiller from YORK®, you're getting a solution from the chiller experts. We build chillers designed to perform optimally in the conditions in which they will operate while maximizing the benefits of environmentally responsible refrigerants. We make decisions based on your business and provide the widest variety of water- and air-cooled industrial and commercial chiller solutions and services in the market. With a wider operating envelope for exceptional efficiency, low-GWP refrigerant for superior sustainability and magnetic bearings for class-leading reliability, the YORK® YZ is a perfect example of this philosophy. Only one company makes a chiller like this because only one company can. The YORK® YZ Magnetic Bearing Centrifugal Chiller is tomorrow's chiller, available today.



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