

YZ Magnetic bearing centrifugal chiller

Cooling capacities from 580 kW to 4200 kW



“Tailor and tune”
customized units around
job specific design.

Features

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.

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.

Committed to sustainability

- Low GWP solution with new refrigerant R1233zd (GWP = 4.5, F-Gas)
- R1233zd refrigerant protect the ozone layer and have no phase out date
- Chiller SEER exceeding by far Ecodesign Tier 2 requirements
- Premium chiller efficiency brings green building effectiveness to a remarkable level

Magnetic bearing centrifugal chiller

YZ



Proven Firsts

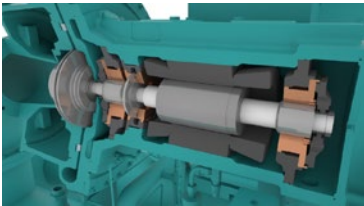
Groundbreaking YORK innovations refined over decades of real-world use have been brought together to create a revolution in chiller design and optimization. It's everything we've learned to-date, and then some.

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.

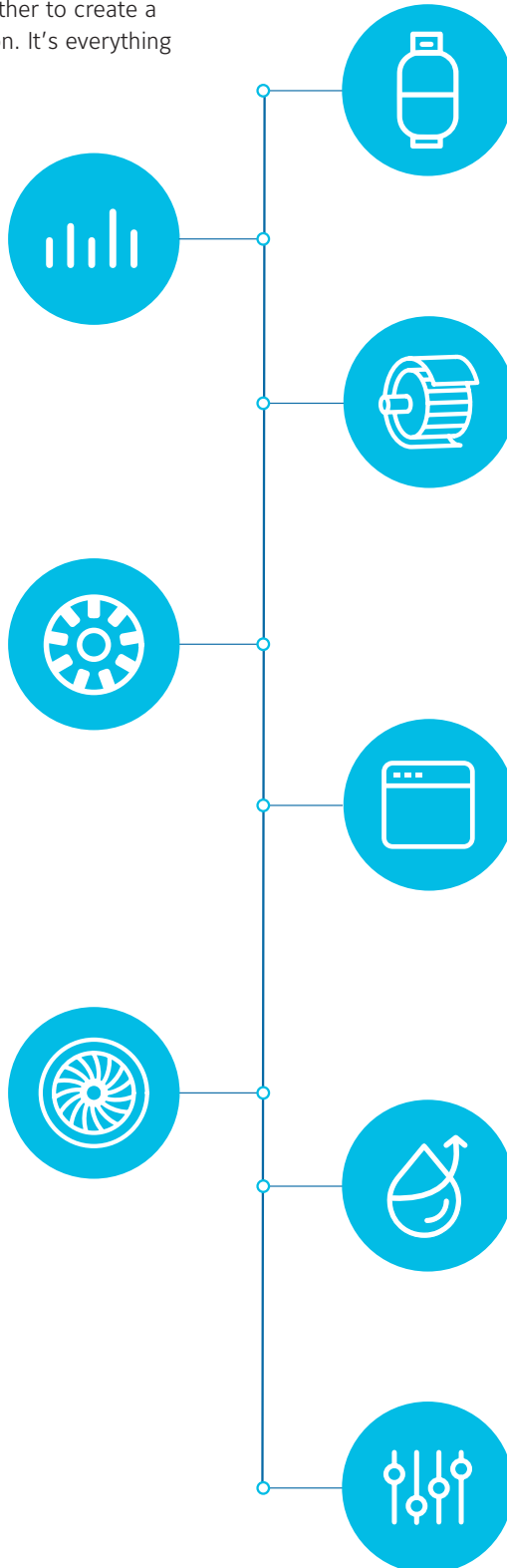
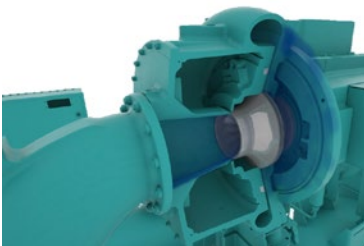
Magnetic Bearing Driveline:

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.



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. New advanced aerodynamic system has been designed to operate with low GWP refrigerant R1233zd.



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.

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.

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. It is the same control system of YK and YMC².

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.



Manufacturer reserves the rights to change specifications without prior notice.

Magnetic Driveline Superiority

The YZ variable-speed drive and advanced magnetic bearing lubrication free design deliver extraordinary efficiency, superior durability, simplified maintenance and a wider operating envelope than any chiller using oil- or refrigerant-lubricated compressor bearings.

Ultimate Performance Efficiency

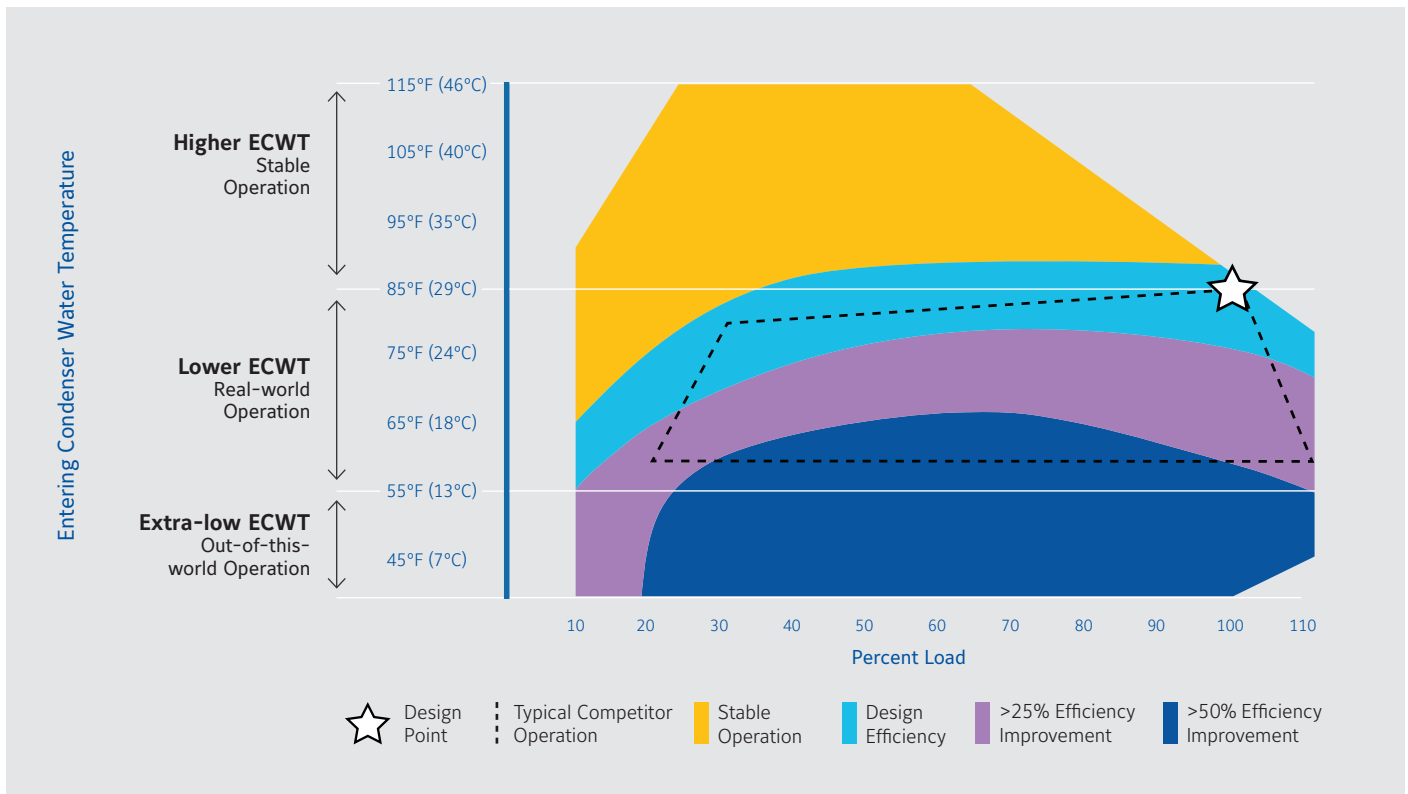
Thanks to magnetic bearing and lubrication free design YZ can run stably in the whole envelope shown in figure.

It provides highest energy efficiency when running at any low head condition, especially below 16°C water temperature inlet in the condenser (ECWT) where most of conventional chillers cannot operate.

YZ can take benefit of minimum lift applications, with **COP as high as 38**.

In the extra-low ECWT area on the map, running at low lift conditions (e.g. Data center) can occur at higher leaving evaporator temperatures, similar efficiencies can be achieved.

Note: The operating map can vary, please contact your JCI Representative for project specific details.



Minimum Driveline Maintenance and Costs of Ownership

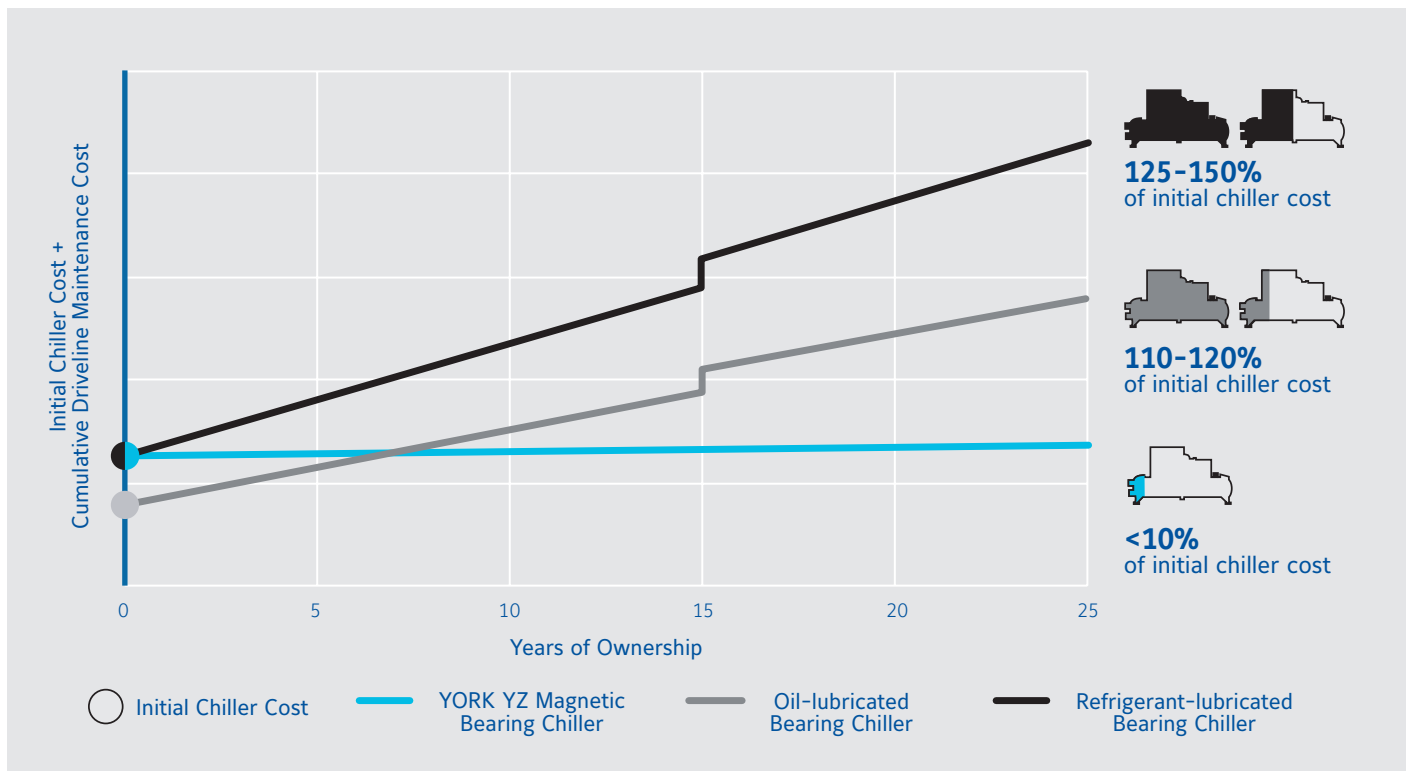
YZ driveline features a single moving assembly suspended in a magnetic field that does not require lubrication.

With fewer moving parts than traditional oil- or refrigerant-lubricated drivelines **longevity is enhanced and maintenance is reduced.**

The chart compares driveline maintenance (assuming other scheduled maintenance tasks are equal across centrifugal chillers)

Magnetic bearings and lubrication free designs mean:

- No scheduled compressor/motor teardowns; components are designed to last the life of the chiller
- No required filter changes
- No complex lubrication system maintenance



YZ are customized centrifugal units with job specific design. See below table as a reference, within Ecodesign capacity range.

Performances

YZ	900	1100	1300	1500	1600	1800	2000
Cooling capacity (kW)	900	1100	1300	1500	1600	1800	2000
EER	5.99	5.65	6.30	6.00	6.27	6.40	6.10
SEER	8.40	9.00	9.50	9.17	9.00	8.90	9.00
$\eta_{s,c}$ %	333	357	377	364	357	353	357
Sound pressure 1m (dB(A))	74	75	70	78	78	82	83

Ratings in accordance to Ecodesign, fixed water flow and variable outlet (FW/VO). For other Ecodesign calculations please contact your JCI Representative. The table above shows only a representative sample of performance points based on generic project operating conditions working with R1233zd refrigerant. For larger capacities up to 4200 kW, contact JCI Representative. The above data is based on Johnson Controls' selection software YORKworks 21.00. Please refer to the latest version of the software for specific projects.

Technical data

YZ	900	1100	1300	1500	1600	1800	2000	
Dimensions	Length	mm	4347	4394	4446	5130		
	Width	mm	1776	1880	2099	2356		
	Height	mm	2244	2375	2515	2594		
Refrigerant charge	kg	230	303	319	364	353	462	452

1. All dimensions are approximate. Certified dimensions, shipping and operating weights are available on request.
2. Refrigerant charge quantity and unit weight will vary based on tube count.