YORK

YORK® YMC² Chiller

The new standard in chiller technology

The power behind **your mission**

Johnson Controls

YORK® YMC² chiller – a perfect example of how far Johnson Controls has advanced chiller technology

- Low overall cost of ownership
- Highly efficient
- Exceptionally versatile
- Very dependable
- Reduced direct and indirect environmental impact
- Quiet operation

The YMC² sets a new standard in chiller technology.

Incorporating years of YORK® chiller advancements with the benefits of active magnetic-bearing technology enables the YMC² chiller to deliver a lower overall cost of ownership, extraordinary efficiency, versatility, dependability and quiet operation – all in the widest, fully integrated and optimized chiller design.

The YMC² chiller offers the broadest operational range on the market, with a system design that minimizes downtime. Also, because it can operate with evaporator and condenser temperatures inverted, the YMC² chiller can eliminate the water-to-water heat exchanger used for free cooling, simplifying the system and saving money on operating and maintenance costs.

Innovations from Johnson Controls enable the YMC² chiller to define a new standard in chiller technology. The YMC² chiller has proven durability records in hospitals, chemical plants, gas processing plants, data centers and other applications where minimal downtime is a crucial concern.

Lower your cost of ownership

The YMC² chiller's revolutionary design reduces both initial and long-term operating and maintenance costs.

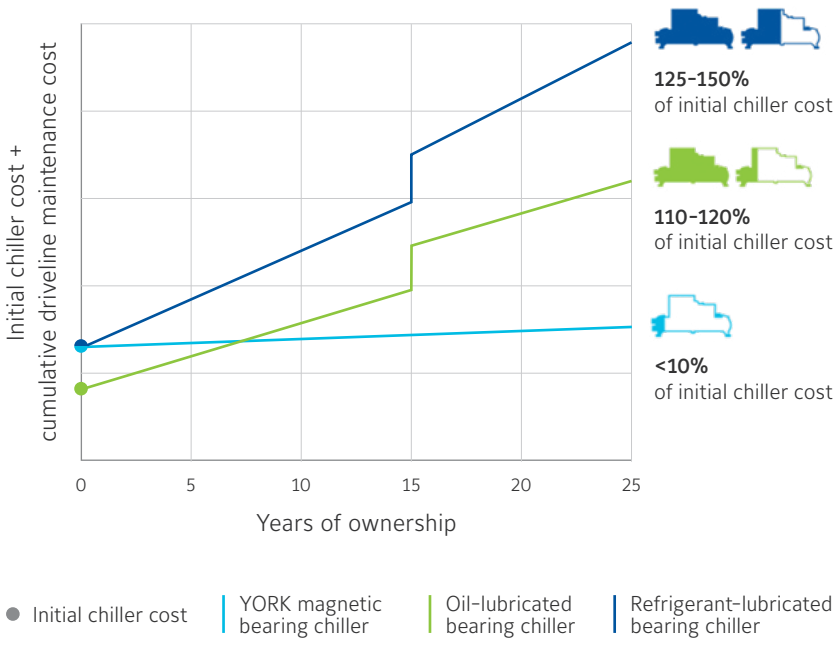
The proven integrated YORK chiller design offers an optimized initial purchase price for the YMC² chiller.

Due to its exceptional efficiency, the YMC² chiller uses less energy, which results in lower operating costs.

The YMC² chiller can also promise lower maintenance costs. With magnetic-bearing technology, there are fewer moving parts to wear down and require replacement.

When you take into account the YMC² chiller's competitive initial cost, plus its lower operating and maintenance costs, this means you get a truly exceptional lower total cost of ownership.

Reduced maintenance costs



Optimized for ultimate performance

The YMC² chiller is designed for maximum energy efficiency.

In the real world, nearly 99 percent of a chiller's time is spent in off-design conditions. That's when colder weather can reduce compressor workload by lowering the entering condenser water temperature (ECWT). The ability of YORK chillers to take advantage of ECWT as low as 36°F (2.2°C) reduces compressor speed during off-design conditions. This helps deliver over 30 percent more annual energy savings than fixed-speed oil chillers and 21 percent more annual energy savings than variable-speed oil chillers, regardless of how much time the chiller spends at full- or part-load.

*Assumptions: 800 Ton (2,810 kW) chiller operating 24/7 with medium building load, at $ 0.10 kWh with no demand charge.

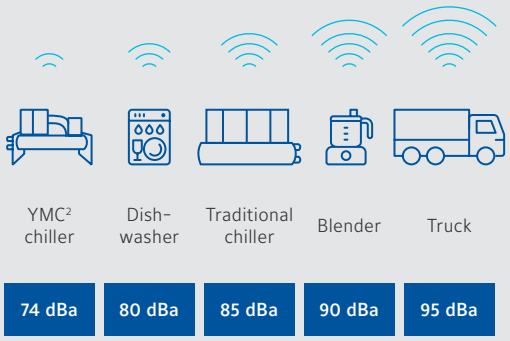
Extraordinarily quiet

YORK demonstrates innovation in chiller sound levels with YMC².

The YMC² chiller's permanent magnetic motor eliminates the noise that comes from mechanical contact. This results in a sound level lower than any water-cooled centrifugal or screw chiller on the market – as low as 74 dBA at AHRI-575 full-load standard conditions, the volume of a typical vacuum cleaner.

In fact, the human ear perceives the YMC² chiller as about half as loud when compared to competitive chillers. Our permanent-magnet motor with active magnetic-bearing technology eliminates driveline sound. Variable speed drive and our OptiSound also help reduce noise, making the YMC² chiller ideal for sound-sensitive locations such as museums, theaters or auditoriums.

Sound levels as low as 74 dBA

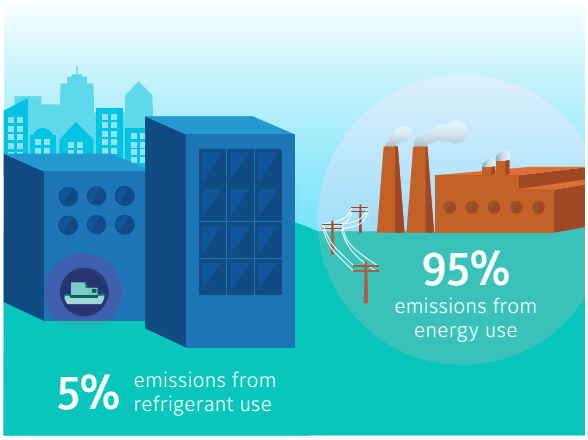


Although the typical traditional chiller has impressive sound levels, the YMC² chiller is one of the quietest chillers available.

Designed for decarbonization

The YMC² chiller was created with sustainability in mind. It was carefully designed to minimize emissions that could negatively impact the environment.

The YMC² chiller takes a holistic approach to the lowest net carbon footprint.* To minimize the direct effect of global warming potential (GWP), the YMC² chiller has a minimal amount of charge and is designed for leak-tight operation. The YMC² chiller uses R-134a and is future-compatible with R-513A, a low GWP and nonflammable refrigerant, eliminating any concerns customers may have about uncertain regulations. The largest impact to GWP is seen through the indirect effect; the YMC² chiller requires less energy consumption, reducing the necessary energy production and the resulting carbon emissions.



* 95 percent of the global warming potential (GWP) of a centrifugal chiller is from the indirect effect – or the greenhouse gases generated in the production of electricity to run the chiller. Five percent of the GWP is from the direct effect or if the refrigerant is completely released into the atmosphere – which is an unlikely occurrence, thanks to the YMC² chiller's leak-tight technology.

Few things are as dependable as the YMC² chiller

With the YMC², boost your uptime like never before.

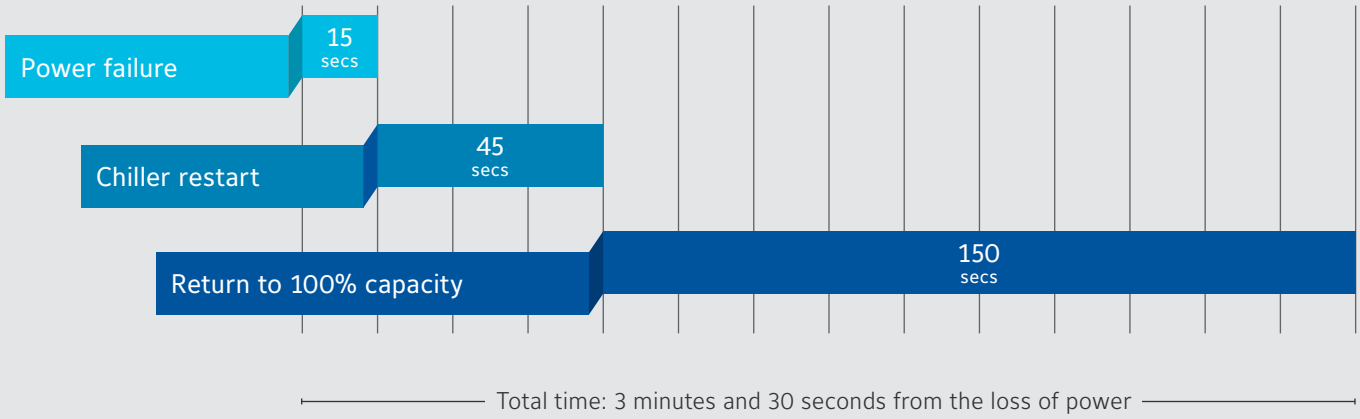
The YMC² chiller's fully integrated, oil-free design has set a new standard in chiller dependability.

The YMC² chiller's magnetic-bearing technology features a single moving assembly, suspended in a magnetic field, enhancing its durability and eliminating the problems that can come from continuous contact. This translates into the kind of exceptional dependability that reduces downtime and promotes fast starts and restarts. No wonder it's been chosen for use on naval ships and submarines – places where you can't just open a window.

The YMC² chiller does not require scheduled maintenance after a set number of run hours, such as timely and costly compressor teardowns. All oil maintenance requirements are removed, meaning no motor lubrication, checking of oil levels and return system, or the replacing of an oil filter or oil filter / dryer.

To maintain the efficiency and performance of the YMC² chiller, Johnson Controls factory service technicians can provide all necessary on-site services. Johnson Controls can even enhance service agreements with embedded Smart Connected Chiller technology. Through a secure connection, this cloud-based analytics platform combines remote monitoring and predictive diagnostics, allowing our service technicians to proactively diagnose issues before they become problems.

YMC² restart and capacity recovery time in seconds



Restart and capacity recovery times for a typical YMC² chiller after a 15-second power failure.

The versatility to perform under demanding conditions

The YMC² chiller features an unequaled range of operation, allowing continuous performance under conditions that would normally shut down other chillers.

Higher ECWT – Stable operation

The YMC² chiller is prepared to handle unforeseen transients. This ability is valuable for almost any application. The YMC² chiller is designed so that if temperatures rise from the tower water, it will continue to stay online and won't surge and shut down. Competitive units in a similar situation require the equipment to cycle, potentially losing temporary control of the necessary cooling.

Lower ECWT – Real-world operation

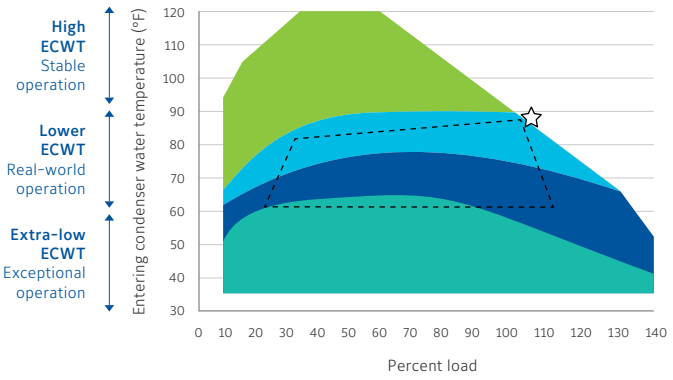
The YMC² chiller can accept a lower entering condenser water temperature and, in turn, produce more tons of cooling. In less versatile chillers, this situation of lower ECWT may require a long wait before the unit can be turned back on. An example of this capability in practice is in a multiple-chiller plant where you have a less efficient chiller that you want to keep off-line as long as possible to keep your plant efficiencies as high as possible. The YMC² chiller can produce more tons to keep the other chiller off-line longer.

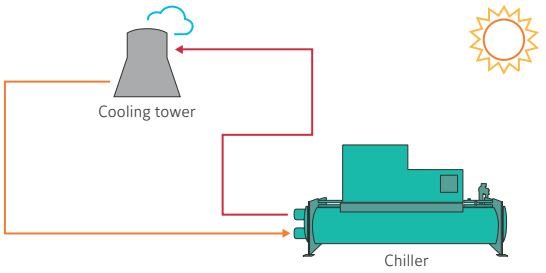
Extra-low ECWT – Exceptional operation

The YMC² chiller is able to operate with minimum entering condenser water temperatures below the leaving chilled water set point, sometimes referred to as inverted or upside down. It can operate stably with entering condenser water temperatures of 30°F (16.7°C), below the leaving chilled water set point. Ratings are available down to a minimum of 36°F (2.2°C) entering condenser water.

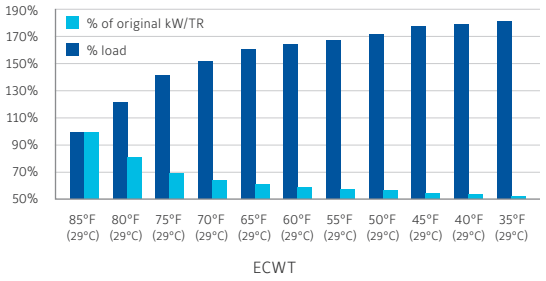
Because free-cooling isn't so free anymore, the YMC² chiller lowers costs by eliminating the need for a water-to-water heat exchanger and its accompanying expenses, such as piping controls and operation and maintenance costs.

YMC² operating envelope

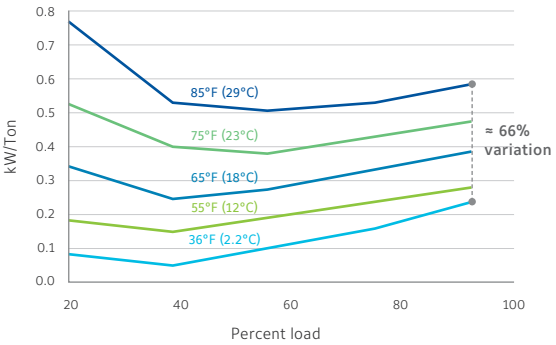




Chiller max capacities and kW/TR at reduced ECWT



YMC² chiller performance below 0.1 kW/Ton

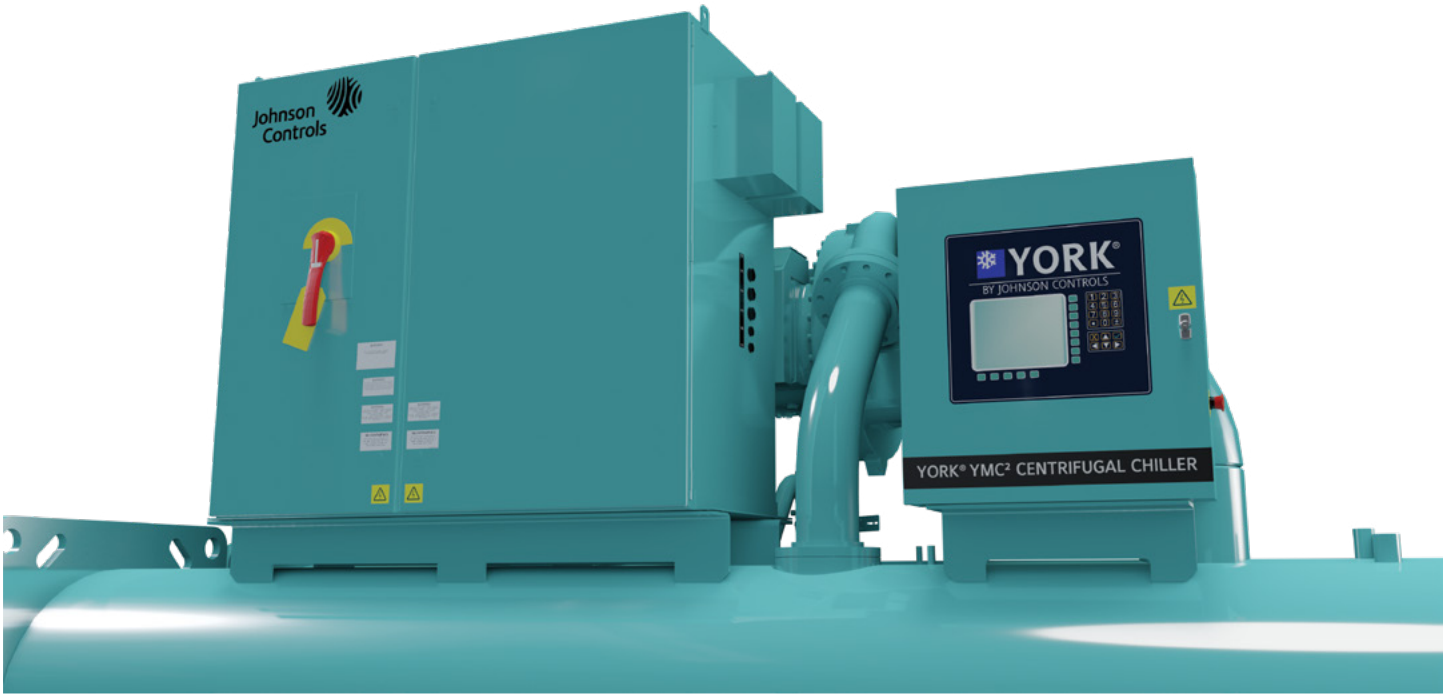


ISASecure

YORK YMC² centrifugal chillers have earned the ISASecure® Component Security Assurance (CSA) Certification and Security Development Lifecycle Assurance (SDLA) Certification.

These certifications reinforce the Johnson Controls commitment to stringent security standards and the security of its control system products. The award recognizes YORK YMC² centrifugal chillers for following rigorous testing against technical security requirements and the successful execution of the secure product development lifecycle requirements.

The YORK YMC² centrifugal chiller's ISASecure certifications provide assurance that the solution helps lower the cost of safety and improves performance by reducing the risk of incidents, maximizing production uptime, reducing the cost of compliance and providing productivity tools that help manage safety in mechanical systems.



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About Johnson Controls:

At Johnson Controls (NYSE:JCI), we transform the environments where people live, work, learn and play. As the global leader in smart, healthy and sustainable buildings, our mission is to reimagine the performance of buildings to serve people, places and the planet.

Building on a proud history of nearly 140 years of innovation, we deliver the blueprint of the future for industries such as healthcare, schools, data centers, airports, stadiums, manufacturing and beyond through OpenBlue, our comprehensive digital offering.

Today, with a global team of 100,000 experts in more than 150 countries, Johnson Controls offers the world`s largest portfolio of building technology and software as well as service solutions from some of the most trusted names in the industry.

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