



Magnitude[®] Magnetic Bearing Oil-Free Centrifugal Chillers

w/R-134a, R-513A or R-515B refrigerant

Models WMC and WME
86 to 1600 tons



LEARN MORE AT [DAIKINAPPLIED.COM](https://www.daikinapplied.com)

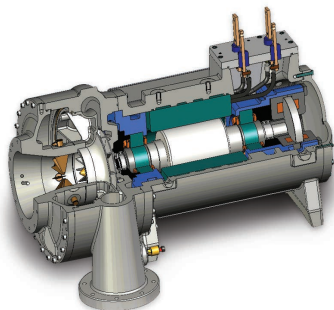
SUSTAINABLE & RELIABLE EFFICIENCY **MAGNETIC BEARING CHILLERS**

Now available with R-134a, R-513A or R-515B low-GWP (global warming potential) refrigerant options, Magnitude® chillers utilizing oil-free, frictionless magnetic bearing compressor technology improve performance and reliability – effectively minimizing service requirements for building owners and facility managers. This advanced compressor affords increased power with decreased electrical requirements, offering up to 40% more energy savings than fixed-speed centrifugal chillers.

The magnetic bearing compressor has a single rotating component – the compressor shaft – which levitates on a magnetic field. Sensors located at each magnetic bearing keep the compressor shaft perfectly aligned in all directions, providing real-time feedback to the digital bearing control system to enable superior energy efficiency and dependability for long-life operation.

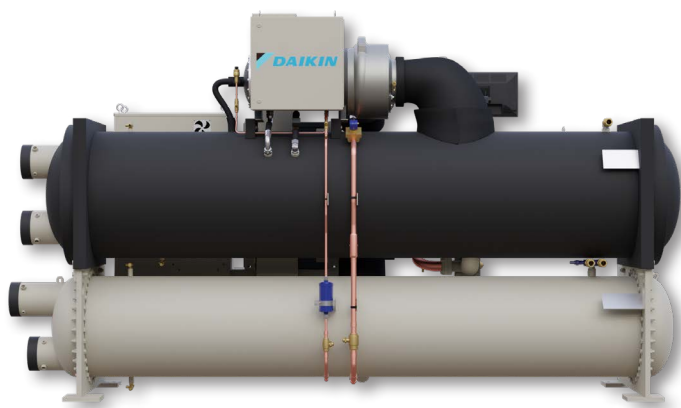
MAGNITUDE ADVANTAGES

- Low-GWP R-134a, R-513A or R-515B refrigerant
- Inverted operation
- Low condenser EWT down to 40°F for off-peak conditions
- High evaporator LWT up to 70°F for data centers
- Proven performance with over 8,000 installations
- Oil-free design using magnetic bearings eliminates performance degradation from oil-refrigerant contamination, bearing wear surfaces, and gears for increased reliability and longer machine life
- By eliminating oil in Magnitude chillers, efficiency is improved nearly 10%
- Onboard digital controls continuously monitor operating status and provide fault protections
- SiteLine™ building controls provide scalable, cloud-based solutions for remote monitoring and maintaining optimal performance
- An integral VFD (standard) reduces in-rush current, optimizing generator size requirements



VFD Compressor

- VFD compressor reduces power consumption during off-design conditions while maximizing performance **and efficiency**
- Direct-drive motor and shaft eliminate gears, slide valves, and extra parts to reduce downtime
- Soft start feature reduces mechanical and thermal stresses for increased motor life



QUIET SOUND LEVELS

- Sound pressure ratings as low as 76 dBA (in accordance with AHRI Standard 575) and even lower at reduced loads and non-standard design conditions
- Ideal for sound-sensitive environments like schools, hospitals, performance halls, museums, and condominiums

FULL-RANGE ENERGY PERFORMANCE

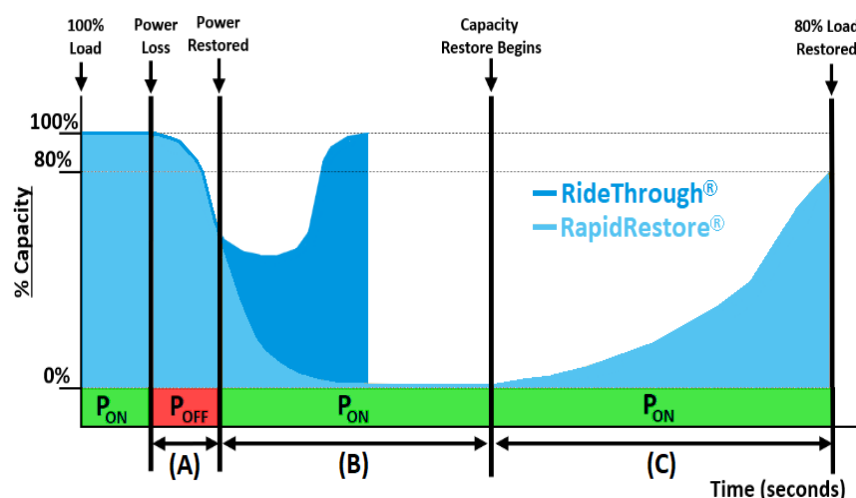
- Match exact tonnage requirements to reduce initial first cost while optimizing energy efficiency and energy costs for the life of the unit
- Easy integration with BACnet®, LonWorks® or Modbus® communications eliminates an expensive gateway panel
- Outstanding seismic capability and certification scores meet both IBC and HCAI (OSHDP) requirements
- Industry-leading part-load efficiency in 140-400 ton and 800-1600 ton capacities with redundant, dual compressors

MAGNITUDE® MISSION-CRITICAL TECHNOLOGY

OPERATION CERTAINTY

A complete or temporary power loss could turn into a critical loss of cooling in mission critical facilities such as data centers, health care, or manufacturing buildings. Magnitude's low in-rush current at startup is ideal for operation with backup or emergency power systems and offers the *best uptime capabilities in the industry*.

With RapidRestore®, Magnitude surpasses other chillers' quick start-up and fast loading abilities with industry-leading times. *Magnitude can restart in as little as 20 seconds after power is restored and then restore 80% cooling load capacity in less than 75 seconds.*



WME models feature *Daikin's unique power trip resilience technology, called RideThrough®, which allows the chiller to maintain operation, even during power loss, for up to 17 seconds – a feature that no other competitor is known to offer.*

When RideThrough is enabled and a short term power loss occurs, the compressor motor maintains rotation and the VFD catches and re-synchronizes with the spinning rotor, permitting the chiller to return to its pre-power loss capacity within seconds of power **being restored**.

	RideThrough®	RapidRestore®	
	Power Trip Resilience (A)	Chiller Reboot (B) ³	80% Capacity (C)
WME	17 sec ¹	20 sec ²	75 sec
WMC	Not offered	43 sec ⁴	120 sec
Competitors	Not offered	30-65 sec	80-130 sec

¹ Max power loss duration to maintain operation - condition dependent
² Restart time with UPS (without UPS = 60 sec)
³ Time after power is restore
⁴ Dependent on power loss duration

INNOVATION PUTS MILLIONS BACK INTO YOUR POCKET

The Magnitude magnetic bearing centrifugal chiller offers industry-leading performance, earning Type III Environmental Product Declaration (EPD) verification per ISO 14025. Up to 40% more efficient than standard centrifugal chillers, this innovative equipment can save more than \$2 million over the life of the machine. Adding a single gallon of oil to a 1200 ton chiller costs approximately \$1,100 in lost efficiency very single year ... and gallons of oil are added to a traditional chiller at spring start-up each year.

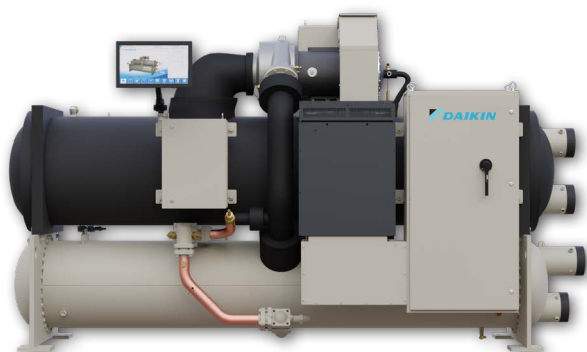
Integrating VFD technology and oil-free efficiency, Magnitude will operate at its best performance all the time, not just under full-load conditions. Continue to reap energy savings at non-peak loads throughout the life of the chiller, all while minimizing expensive maintenance downtime.

SERVICE AND MAINTENANCE SAVINGS

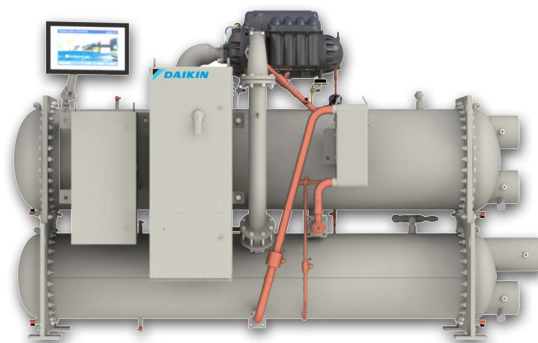
Free from energy losses, annual oil change/disposal, and oil-circulation equipment, the Magnitude magnetic bearing chiller requires minimum maintenance and service during the life of the unit. Operating and maintenance costs of a standard chiller can often be 10 to 15 times the initial purchase price of the chiller, but Magnitude chillers often reduce this to four times or less. With oil removed from the system, maintenance tasks such as oil samples, changes, filter changes, disposal, and leaks from shaft seals are eliminated. The results are year-after-year operational and maintenance savings for a payback period as low as one or two years over standard chillers. Combine this with a movable HMI control panel, remote connectivity and diagnostics capabilities, and a very compact unit size, and it's easy to see how serviceability can be simplified.

COMPACT FOOTPRINT

The compact size of Magnitude® chillers is ideal for retrofit and replacement installations. Magnitude offers a perfect fit when maximizing usable space and minimizing installation costs are critical to customers. When access constraints exist, various models offer a stacked shell configuration. This allows some units to fit through a standard 36-inch single doorway or double doorway with no disassembly required. Magnitude chillers can also accommodate more challenging access projects using Daikin's factory disassembly option.



Model WME



Model WMC

Model	Shell Length*	Width	Height
WMC	9 - 12 ft	3.6 - 4.6 ft	6.6 - 7.9 ft
WME	12 - 16 ft	4.6** - 8.7 ft	8.1 - 9.8 ft

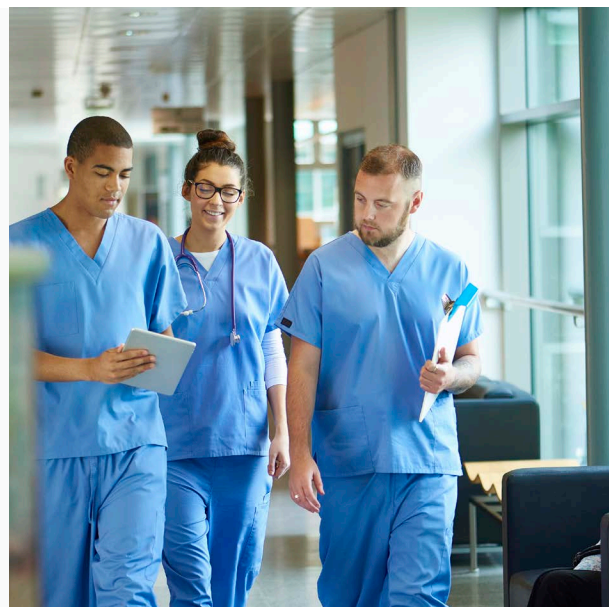
* Shell Length - length of shell without water boxes/nozzles
** 4.6 ft width only available for WME092S stacked shell configuration

QUALITY AIR FOR BETTER HEALTHCARE OUTCOMES

Healthcare facilities focus on creating comfortable healing environments for their patients. With indoor air quality (IAQ) top of mind, investing in chillers that can remove pathogens and create healthier air is a must.

WME models can uniquely meet these IAQ demands with inverted duty operation and low condenser entering water temperature savings. This allows the chiller to accept condenser entering water temperature below the evaporator leaving water temperature and can eliminate the need for a waterside economizer from the system.

Eliminating the economizer simplifies pressurization control - essential in reducing humidification and maintaining quality air. Humidity levels can mean life or death in a hospital. Operating rooms need to maintain a consistent air temperature and humidity control to avoid bacteria and infectious disease from spreading.



FOR MORE INFORMATION ABOUT OUR COMPLETE OFFERING OF HVAC SYSTEMS AND SOLUTIONS, VISIT [DAIKINAPPLIED.COM](https://www.daikinapplied.com) TO FIND AN OFFICE NEAR YOU.

