NEWS RELEASE

Johnson Controls releases second data center reference design guide to advance industrial-scale AI factory cooling

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- *A globally repeatable blueprint for cooling gigawatt-scale AI factories efficiently and sustainably*
- *Supports zero-water cooling, eliminating cooling towers and saving 12+ million gallons of water per day.*
- *Enables high-efficiency air-cooled designs that can return up to 50 MW to the AI factory and improve annual energy consumption by 32%*

MILWAUKEE, May 5, 2026 /PRNewswire/ -- Johnson Controls (NYSE: JCI), a global leader in thermal management, mission-critical building systems, energy efficiency, and decarbonization, is expanding its AI Factory Reference Design Guides with the launch of its second guide, focused on air-cooled chillers. Building on the company's water-cooled chiller guide released in February, this latest blueprint marks the next step in what will be the industry's most comprehensive set of global design guides mapping the full data center thermal chain — with additional guides covering absorption chillers and direct-to-chip liquid cooling to follow.

As AI brings new scale and complexity to data center design, operators are facing mounting challenges including the power needed for cooling systems, rising cooling-loop temperatures, efficiency losses from heat islands and limited water availability. Johnson Controls' AI Factory Reference Design Guide Series addresses this challenge by outlining how designers and operators can achieve industry-leading energy and water efficiency and minimize noise impact on surrounding communities while remaining adaptable to different climates, workloads and growth paths.

The new guide supports the scalable design of data centers of all sizes, up to a 1-GW AI factory, utilizing air-cooled chillers. It outlines a comprehensive thermal cooling architecture that integrates high-efficiency air-cooled YORK centrifugal chillers (including its YDAM and YVAM chillers), fan coil walls (FCWs) and coolant distribution units (CDUs) to manage both air- and liquid-cooled IT loads. The guide provides sizing references for 220MW compute clusters, including recommended design temperatures and operating conditions across each stage of the thermal chain.

Key outcomes enabled by the design guide include:

- **50MW returned to the AI factory** through the implementation of bifurcated loops for air- and liquid- cooling systems.
- **32% improvement in annual energy consumption** through the intelligent utilization of redundant chillers.
- **20MW peak power savings** by quantifying and mitigating heat island effects of air-cooled chiller plants.
- **Zero water usage saves over 12 million gallons daily** by eliminating the need for cooling towers to produce facility water.
- **30% Coefficient of Performance (COP) improvement and 27% fewer chillers** from raising the chilled water temperature to support warm-water Technology Cooling System (TCS) loops.

"At gigawatt scale, AI factories require a fundamentally different way of thinking about infrastructure," said Austin Domenici, president, Johnson Controls Global Data Center Solutions. "The future requires designing integrated systems that can scale predictably, perform efficiently and adapt as technology evolves. This guide reflects how Johnson Controls helps customers plan holistically for AI growth, from design to operations, anywhere in the world."

Learn more about Johnson Controls's Reference Guide Series at www.johnsoncontrols.com/industries/data-centers/reference-designs.

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About Johnson Controls:

Johnson Controls, a global leader in thermal management, mission-critical building systems, energy efficiency, and decarbonization, helps customers use energy more productively, reduce carbon emissions, and operate with the precision and resilience required in rapidly expanding industries such as data centers, healthcare, pharmaceuticals, advanced manufacturing, and higher education.

For more than 140 years, Johnson Controls has delivered performance where it really matters. Backed by advanced technology, lifecycle services and an industry-leading field organization, we elevate customer performance, turn goals into real-world results and help move society forward.

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