

YASKAWA

COOLING THE CLOUD

PRECISION VARIABLE FREQUENCY DRIVES FOR
DATA CENTER COOLING INFRASTRUCTURE



*Improve Cooling Efficiency
Optimize PUE
Maximize Uptime*

DRIVE TECHNOLOGY

ENGINEERED FOR MISSION-CRITICAL COOLING

Modern data centers are evolving rapidly as AI workloads push rack densities and cooling requirements higher than ever before. Operators must balance compute performance, power availability, and cooling efficiency while maintaining uninterrupted uptime.

Yaskawa drives help data center operators improve cooling efficiency, lower PUE, and enhance resilience without compromising uptime. Our technology optimizes pumps, fans, and cooling infrastructure to support more efficient facilities and maximize the power available for computing workloads.

WHAT'S GOING ON WITH DATA CENTERS?

AI Growth & Rack Density

Explosive growth in AI and high-performance computing is driving significantly higher rack densities. Traditional air-cooling approaches are reaching their limits, accelerating adoption of liquid cooling and advanced thermal management systems.

Energy & Power Infrastructure

Data center power demand and energy costs continue to rise, increasing pressure to use power more efficiently. Energy reuse, onsite generation, and alternative power architectures are also becoming key design considerations.

Efficiency & Digital Optimization

Improving Power Usage Effectiveness (PUE)—the ratio of total facility energy to energy used by IT equipment—is a key benchmark for data center efficiency. Digital twins and advanced analytics help operators optimize infrastructure performance.

Environmental & Grid Pressures

As data center energy demand rises, concerns around carbon emissions, water usage, and grid capacity are driving innovation in cooling strategies and energy-efficient infrastructure design.

HOW DO YASKAWA DRIVES HELP?

MORE CONTROL. LESS WASTE. BETTER PUE.



Cooling Systems Precise motor control for chillers, redundant pump loops, rear-door heat exchangers, and air handling units helps maintain stable thermal conditions while minimizing energy use.



Energy Optimization Variable speed operation enables load shaving, peak demand control, and improved system efficiency across cooling and mechanical infrastructure.



Backup Power Yaskawa drives support generator auxiliary systems as well as cooling systems for battery storage and microgrid installations.



PUE Improvement Optimizing motor-driven infrastructure directly reduces non-IT energy consumption, helping operators lower PUE and improve facility efficiency.



Water Management Advanced pump control and monitoring help maintain reliable cooling loops and support early leak detection through changes in flow, pressure, and load behavior.



DRIVE CONTROL FOR MISSION-CRITICAL UPTIME

VFDs are foundational to modern data center design. Yaskawa's drive solutions enable:

MAJOR ENERGY SAVINGS

PRECISE ENVIRONMENTAL CONTROL

INCREASED SYSTEM PERFORMANCE & UPTIME

SCALABILITY FOR RAPIDLY RISING LOADS

SEAMLESS BMS INTEGRATION

LOWER OPERATIONAL COSTS

Lifecycle Value & Tools Yaskawa commissioning and diagnostic tools simplify installation, monitoring, and maintenance. Software solutions help operators evaluate energy savings, monitor system performance, and optimize lifecycle efficiency.

Manufacturing & Support Strength Yaskawa combines global engineering expertise with strong U.S. manufacturing capabilities, deep inventory, and industry-leading technical support to ensure reliable deployment and long-term system performance.

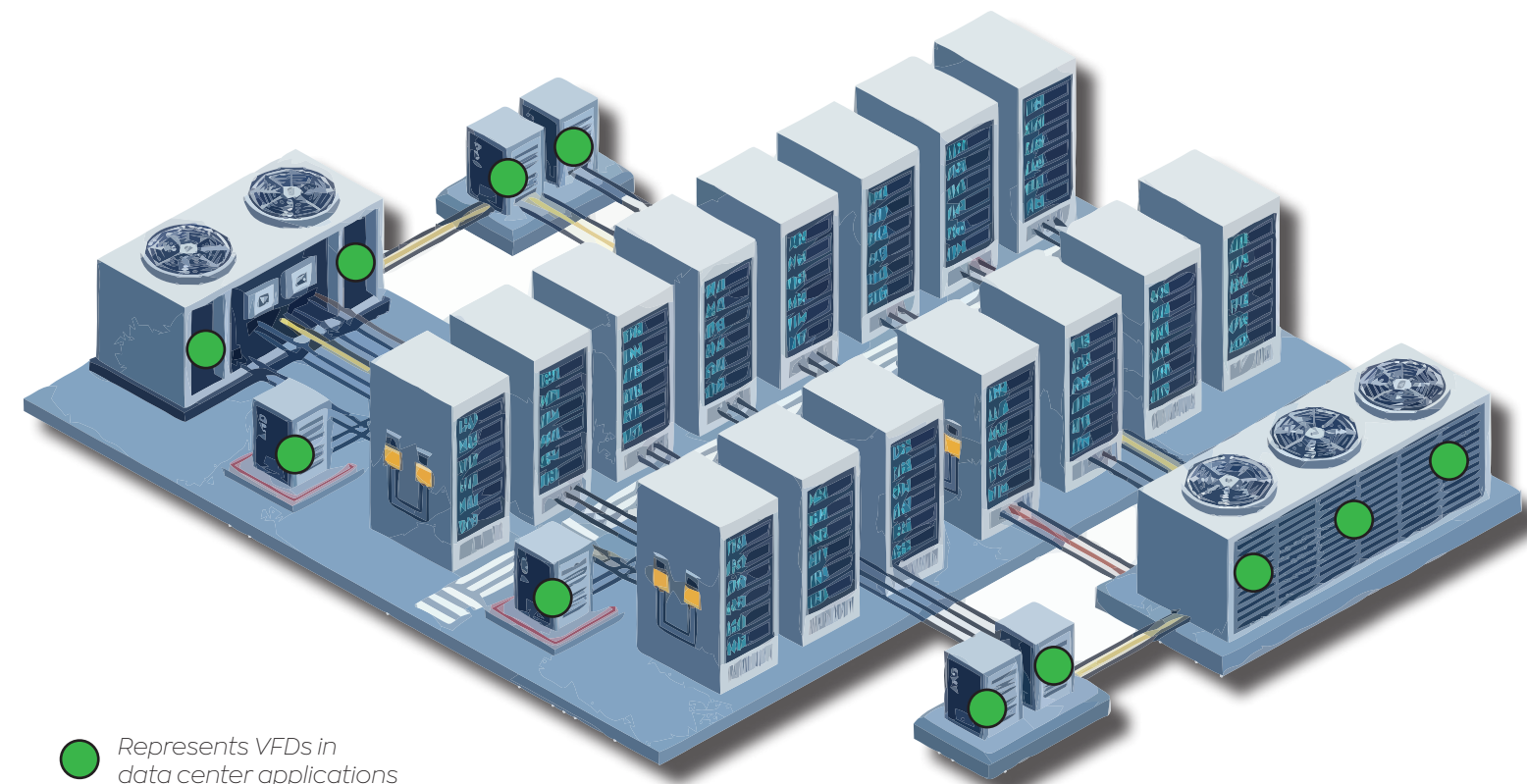


Legendary reliability. Uncompromising quality. Yaskawa manufactures AC inverter drives engineered for the world's most demanding applications.

Connectivity & Integration Broad building automation support allows Yaskawa drives to integrate seamlessly with BMS platforms including BACnet, Modbus, EtherNet/IP, and others, enabling centralized monitoring and control of critical cooling infrastructure.

Harmonics & Power Quality Reliable electrical infrastructure is critical in data centers. Yaskawa offers drive solutions designed to minimize harmonic distortion and maintain stable power quality for sensitive computing environments.

Energy Efficiency & Cost Reduction Variable speed control is one of the most effective ways to reduce energy consumption in motor-driven systems. Yaskawa drives match motor speed to actual cooling demand, reducing wasted energy and operating costs.



YASKAWA DRIVE SOLUTIONS FOR DATA CENTER COOLING

Modern data centers rely on highly efficient and reliable motor-driven infrastructure to maintain thermal stability and protect mission-critical computing equipment. Yaskawa offers drive solutions for every level of the cooling system, from OEM equipment and packaged units to central plant infrastructure and low harmonic applications.”

HV600 DRIVE

The HV600 is Yaskawa’s flagship HVAC drive for mission-critical cooling infrastructure. Designed specifically for fan and pump applications, it delivers the reliability, performance, and application-specific features needed to support data center cooling systems.

Backed by more than 30 years of HVAC drive expertise, the HV600 is available in stand-alone, narrow configured, and enclosed package solutions to meet a wide range of installation requirements.



HV600 - TYPICAL DATA CENTER APPLICATIONS

- ✓ Cooling tower fans
- ✓ Chilled water pumps
- ✓ Air handling units
- ✓ Redundant pump loops
- ✓ Liquid cooling infrastructure

HV600 - KEY BENEFITS

- ✓ HVAC-optimized firmware
- ✓ High ambient operation
- ✓ Advanced pump protection
- ✓ Emergency override capability
- ✓ Flexible enclosure option

The Industry Standard Low Harmonic Solution



Z1000U MATRIX DRIVE

For facilities where electrical quality and harmonic performance are critical, the Z1000U matrix drive provides ultra-low harmonic operation without the need for external filters or reactors.

This technology helps maintain stable electrical infrastructure while reducing installation complexity and improving overall system efficiency.



HV305 COMPACT HVAC DRIVE

The HV305 extends Yaskawa’s HVAC drive portfolio with a compact solution designed for OEM and commercial HVAC equipment. It is ideally suited for data center cooling packages, rooftop units, air handlers, chillers, heat pumps, and other smaller fan and pump applications.



Z1000 - ADVANCED LOW HARMONIC SOLUTION

- ✓ IEEE 519 compliance
- ✓ Excellent power quality
- ✓ No external filters
- ✓ No reactors required
- ✓ Simplified electrical design

HV305 - OEM COOLING SOLUTION

- ✓ Packaged cooling units
- ✓ Chillers & air handlers
- ✓ Compact footprint
- ✓ OEM-friendly integration
- ✓ Fast commissioning

YASKAWA.COM



Yaskawa is the leading global manufacturer of low and medium voltage variable frequency drives, servo systems, machine controllers and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.

YASKAWA

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