Flex power and cooling products

Managing power and heat challenges in the AI-era data center

KEY BENEFITS

- Tackle AI-era power and cooling challenges head-on

- Access reliable, scalable power from grid to rack

- Maximize density with embedded power solutions

- Remove heat efficiently and sustainably with direct liquid cooling

- Leverage Flex's global footprint to deploy infrastructure at scale

Manage power and heat challenges across compute densities with Flex's power and cooling products

AI is driving global data center expansion, unlocking $15.7 trillion in economic opportunity.[1] However, AI's reliance on accelerated computing is pushing rack power requirements to 100kW and beyond, placing increased pressure on grid requirements and necessitating updates to critical and embedded power technology. Meanwhile, compute infrastructure is heating up data center aisles, driving the need to transition to liquid cooling. Depend on Flex for products to deliver power from grid to chip, and direct liquid cooling products for rack-level cooling.

Deliver critical power with high reliability from grid to rack

Data center power consumption is expected to triple by 2030, reaching 1,070 TWh—placing significant strain on traditional power infrastructure.[2] As data centers undergo unprecedented expansion, requiring more power than ever before to meet AI-driven computing demands, operators must ensure safe, reliable, and scalable power distribution from the grid to individual racks, whether for upgrading existing facilities or constructing new data centers. An integrated approach to critical power delivery ensures efficient transmission to individual IT equipment. Integrate world-class products from a broad portfolio of diverse technologies to:

- Improve performance and sustainability

- Minimize power loss and improve overall efficiency

- Enhance system resilience and operational stability

- Mitigate risks associated with AI-intensive workloads and variable grid conditions

Flex Power Pods enable global deployment of **critical power**

84%
reduction in on-site man hours during installation phase

75%
reduction in on-site assembly and testing, saving time and costs

75%
reduction in on-site program from delivery to "Yellow Tag" milestone

ANORD MARDIX
A Flex Company

Expand with fully integrated power distribution and protection systems

For data center operators navigating complex grid interconnectivity and power management, Flex's end-to-end critical power distribution and protection systems integrate customized switchgear, transformers, and protection relays, optimizing the electrical infrastructure and providing the resilience and scalability necessary to support AI-driven compute expansion. Whether it's deploying turnkey power pods for rapid deployment or customized power distribution architectures, Flex ensures your infrastructure is prepared for the next era of high-performance computing.

### Scale rack power to meet accelerated compute demands

Once facility power distribution is in place, data center operators must focus on in-rack requirements. Embedded power solutions provide efficient power distribution within server racks to fuel compute requirements and minimize heat from power conversion.

- Support next-gen AI and high-performance computing workloads.
- Scale rack power to accelerated computing demands with Flex's portfolio of embedded products.
- Achieve peak efficiency with power modules designed in collaboration with silicon vendors that support 750W of continuous power and 1,500W of peak power at 98% efficiency.
- Increase efficient power distribution to GPUs, CPUs, FPGAs, and custom ASIC designs with chip-level power management.

Dissipate heat efficiently to scale compute without thermal limitations

A 100kW rack generates 340,000 BTU/hour—the equivalent of 34 home furnaces running at full capacity. With air cooling maxed out at 50kW per rack, data centers are transitioning to liquid cooling, a more efficient way to cool high-density computing equipment. Liquid cooling solutions can handle the excessive thermal loads of AI-era data centers. By reducing the energy required for cooling, they also lower operational costs and contribute to sustainability goals.

JetCool microconvective cooling® technology efficiently transfers heat using arrays of fluid jets to cool the industry's highest-power devices. Unlike heat sinks or traditional microchannel cold plates that pass fluid over a surface, cooling jets route fluid directly at the surface, creating an order-of-magnitude improvement in heat transfer.

Leverage Flex's market-leading solutions for data center infrastructure deployment at scale
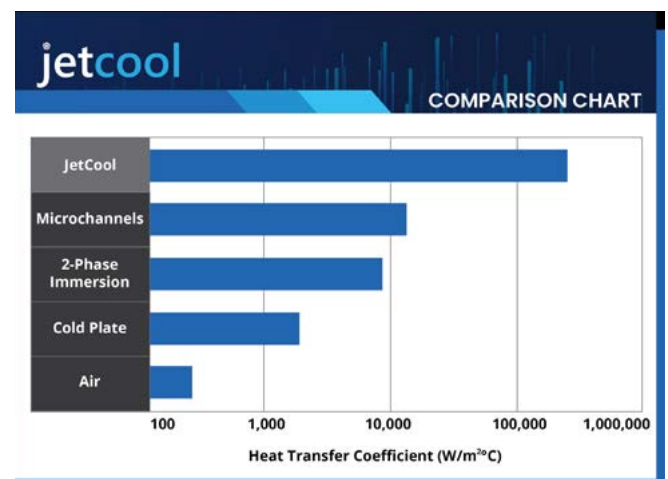
Partner with Flex, the only provider offering a comprehensive portfolio of innovative critical and embedded power solutions alongside cutting-edge liquid cooling technologies—and the advanced manufacturing, supply chain, and value-added services to deploy at scale worldwide.

ACCELERATE DATA CENTER INFRASTRUCTURE EXPANSION
Optimize performance, efficiency, and scale with Flex

Learn more
Data center solutions | Anord Mardix | Power modules
JetCool | Crown Technical Systems

Power and cooling products from grid to chip

Tackles all power and data center heat challenges across compute densities

CRITICAL POWER PRODUCTS — Low and Medium voltage switch gear · Power distribution units (PDU) · Remote power panels (RPP) · Busway (DATABAR | IBAR | RESINBAR) · Power Pods · Utility control building · Metering and monitoring

EMBEDDED POWER PRODUCTS — Power modules · Vertical Power Modules · Capacitive energy storage · Power shelves · Battery backup units (BBUs) · Power supplies

LIQUID COOLING PRODUCTS — SmartPlate™ System Liquid-Assisted Air Cooling · SmartPlate™ cold plate · SmartLid™ cold plate · SmartSense coolant distribution unit (CDU)

1. PWC, Sizing the Prize: What's the real value of AI for your business and how can you capitalise?, Accessed February 19, 2025
2. Goldman Sachs, Generational Growth: AI, data centers and the coming US power demand surge, C. Davenport, B. Singer, N. Mehta, et. al., April 28, 2024

For more information, visit **flex.com/connect**

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