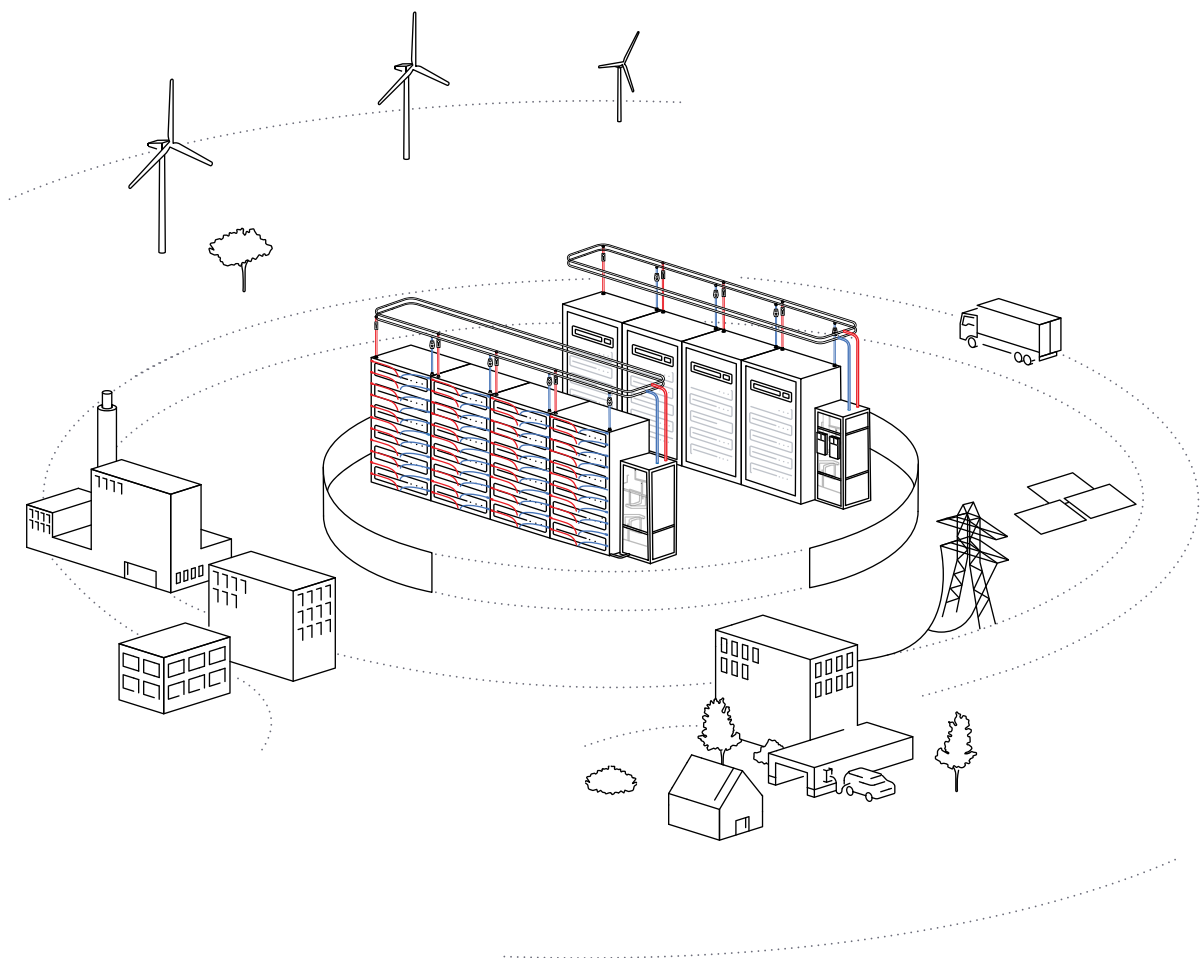


Data center solutions powering the digital economy



India's data center landscape: An overview



Second-largest mobile and internet user base in the world



India's digital economy projected to grow to \$1 trillion by 2030



Data center capacity:

- 2025: ~1.4 GW
- 2027: ~3 GW



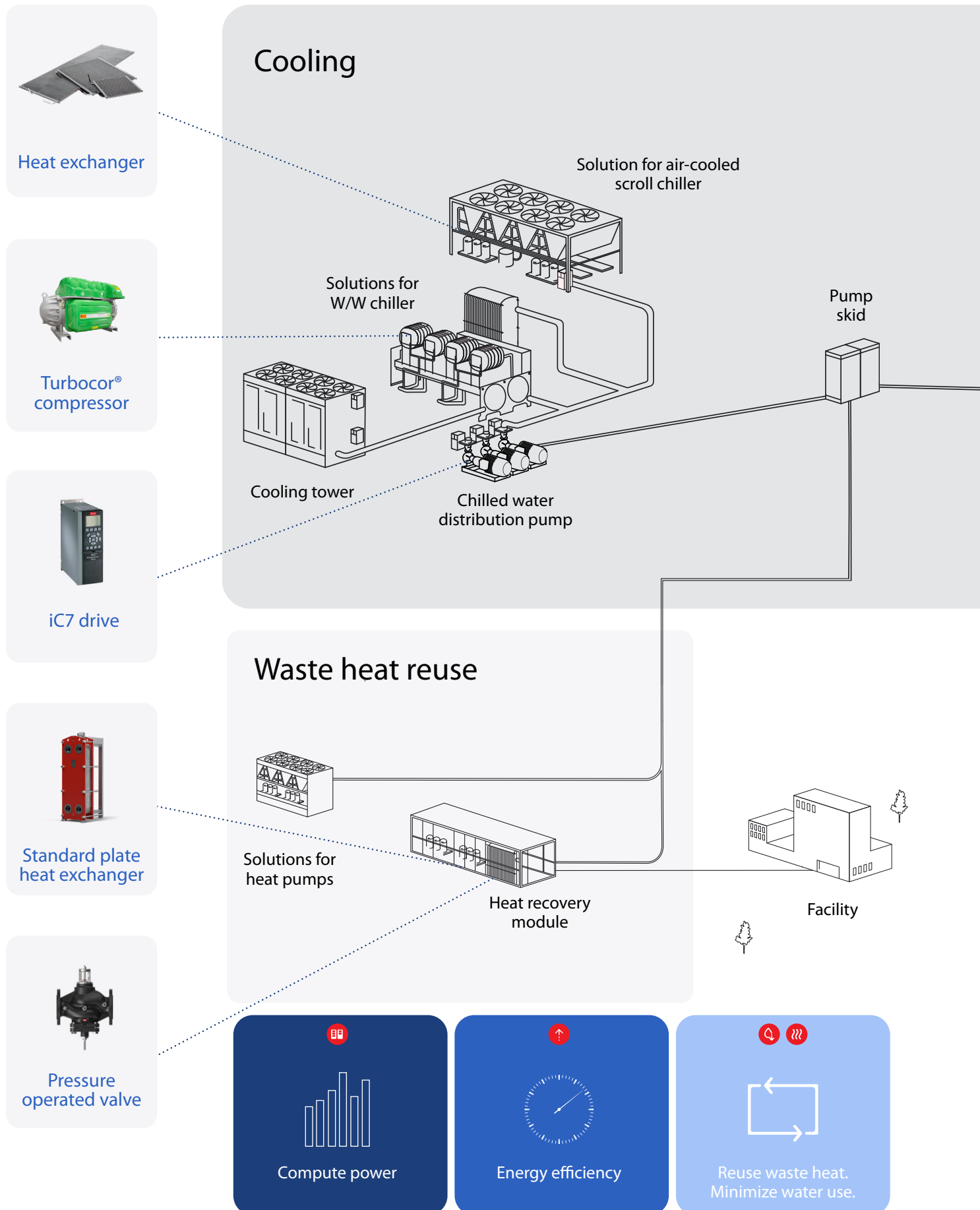
The Indian data center market is expected to grow at a 23%–27% compound annual growth rate (CAGR) over the next five years.

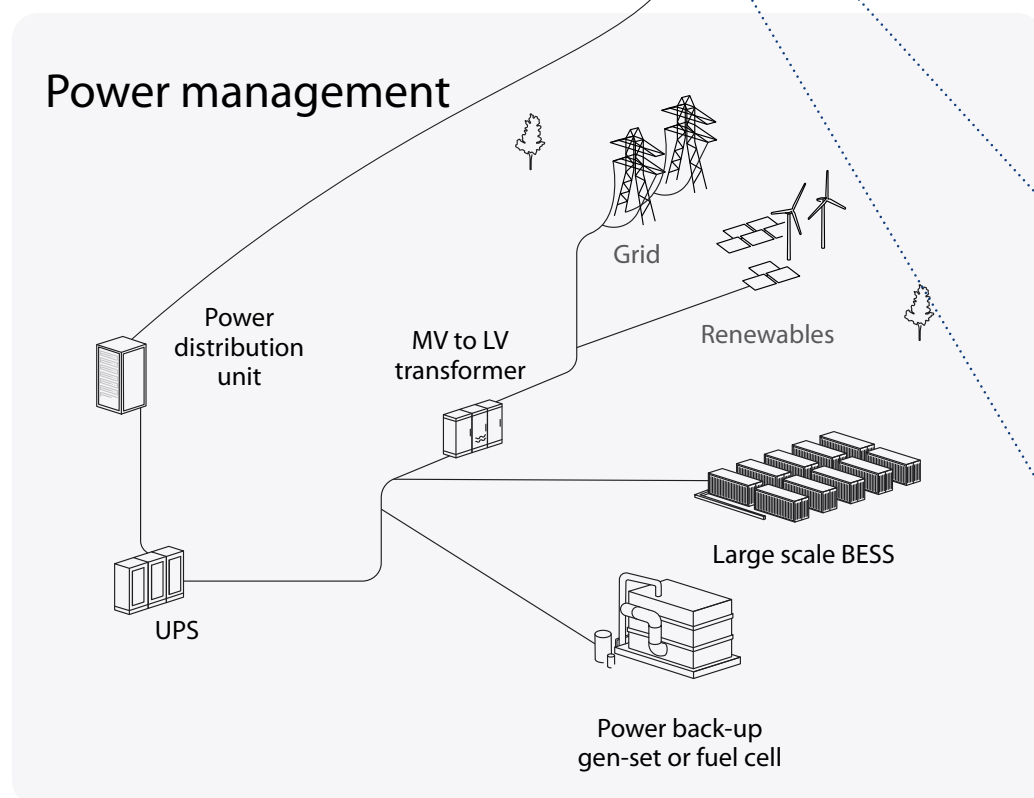
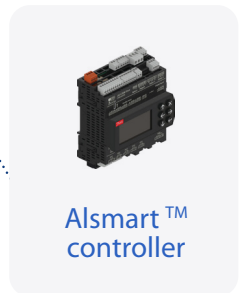
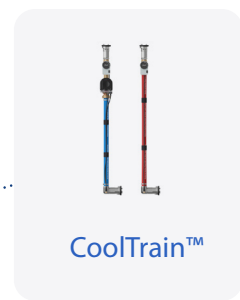
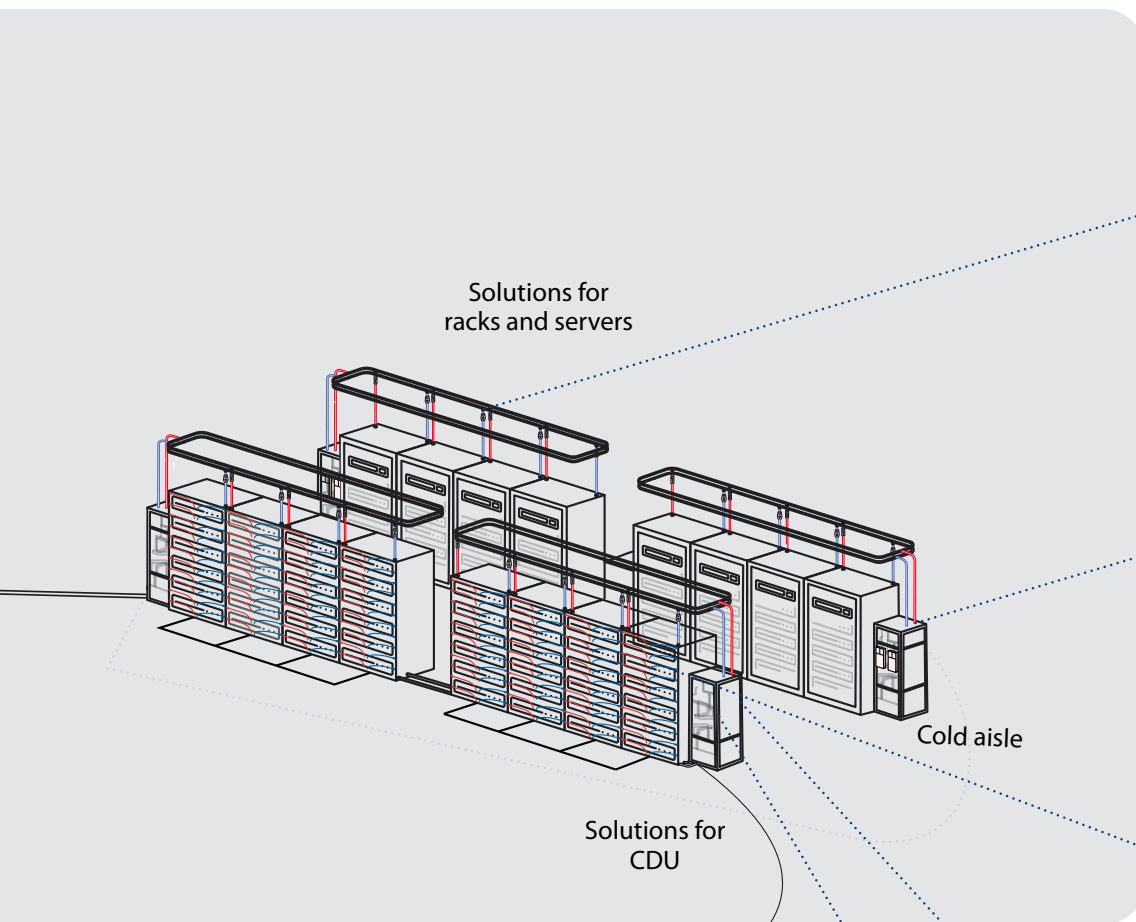
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From chip-level cooling to energy management and heat reuse





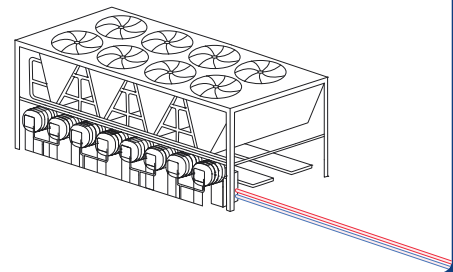


You run the data.
We keep it cool.

Complete solutions for data center applications

Air-cooled chillers

Air-cooled chillers play a vital role in extracting server heat from the data center and releasing it into the atmosphere without the need for an additional cooling tower, hence improving WUE. To further improve the efficiency of the air-cooled chiller, Danfoss supplies the following offerings:



Turbocor® Compressor

Highly efficient, no derating, less maintenance, higher uptime, and 38°C maximum chilled water output.



Variable Frequency Drive (VFD) for chiller fans and pumps

Variable speed, high reliability, energy savings according to the affinity law, capacity modulation as per demand, and building management system (BMS) compatibility.



Micro Channel Heat Exchanger (MCHE)

All-aluminum heat exchangers provide up to 30% better performance and a lower refrigerant charge with a smaller footprint. They are compatible with glycol for dry cooling, and free cooling applications.



Inverter Scroll Compressor

Variable speed with high reliability, accurate temperature control, low starting current, and high energy efficiency ensure a balance between performance and energy savings at modulating loads.



Sensor

Danfoss sensing solutions for pressure, temperature, and gas leak detection ensure the highest reliability and accuracy for process parameter controls, supporting smooth and efficient system operation.



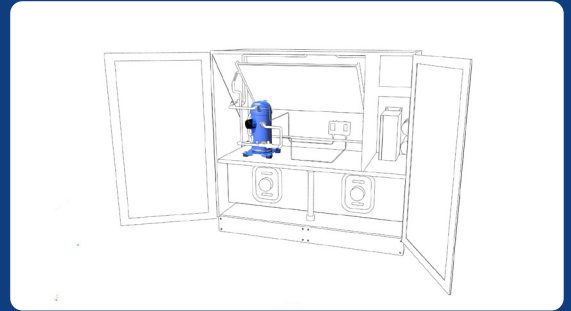
Alsmart™

Advanced control platform for data centers, delivering precise, secure, and scalable HVAC performance.



PAHU/PAC Units

New energy and performance standards, as well as low power usage effectiveness (PUE) targets in data centers, server rooms, and communication networks, require precision air conditioners (PAC) with precise control to achieve high reliability, improved humidity and temperature settings, and high part-load efficiency. To ensure the performance of precision air handling unit (PAHU) and precision air conditioner (PAC) units, Danfoss supplies the following offerings:



Micro Channel Heat Exchanger (MCHE)

All-aluminum heat exchangers provide up to 30% better performance and a lower refrigerant charge with a smaller footprint. They are compatible with glycol for dry cooling, and free cooling applications.



Know more



Sensor

Danfoss sensing solutions for pressure, temperature, and gas leak detection ensure the highest reliability and accuracy for process parameter controls, supporting smooth and efficient system operation.



Know more



Pressure Independent Balancing and Control Valve (PIBCV)

Automatically adjust the flow of coolant to the precision air handling unit (PAHU) units based on the thermal load, ensuring that each unit receives the optimal amount of cooling.



Know more



Inverter Scroll Compressor

Variable speed with high reliability, accurate temperature control, low starting current, and high energy efficiency ensure a balance between performance and energy savings at modulating loads.



Know more



Braze Plate Heat Exchanger (BPHE)

Highly efficient plate heat exchangers (PHEs) with dimple-type patterns improve the heat exchange capacity in a smaller footprint, helping CDU deliver consistent performance.



Know more



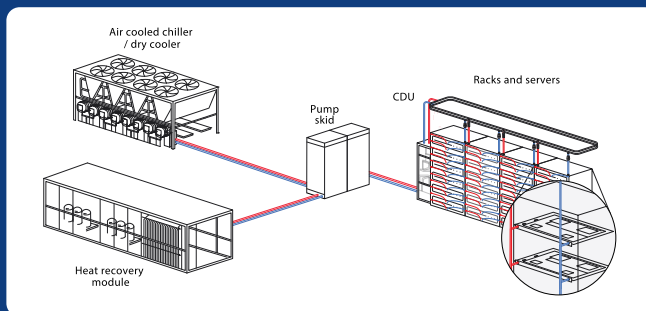
Active filter drive

Advanced Active Filter (AAF) combines advanced SiC technology and 98.2% efficiency for reliable harmonic distortion control.



Liquid cooling

The increased adoption of artificial intelligence (AI) and the need for high-performance computing have led to higher server loads, and consequently, a greater need for more efficient cooling technologies for these servers. At Danfoss, we provide solutions for both direct-to-chip and immersion cooling technologies with the following offerings:



Connector and coupling

OCP Inspired™ UQD and UQDB coupling for in-rack solutions such as cold plate, server, and rack manifold. FD83 source line coupling for out-rack solutions such as rack, secondary fluid network, and CDU.



Braze Plate Heat Exchanger (BPHE)

Highly efficient plate heat exchangers (PHEs) with dimple-type patterns improve the heat exchange capacity in a smaller footprint, helping CDU deliver consistent performance.



Micro Channel Heat Exchanger (MCHE)

All-aluminum heat exchangers provide up to 30% better performance and a lower refrigerant charge with a smaller footprint. They are compatible with glycol for dry cooling, and free cooling applications.



Variable Frequency Drive (VFD) for Condensing Unit (CU) Pumps

iC7 ULH air-cooled drives deliver less than 3–5% THDi, ultra-low supraharmonics, and no common-mode voltage for clean, reliable power. High efficiency and low losses support improved PUE while reducing panel space, cooling demand, and energy consumption.



Pressure Independent Balancing and Control Valve (PIBCV)

Automatically adjust the flow of coolant to the precision air handling unit (PAHU) units based on the thermal load, ensuring that each unit receives the optimal amount of cooling.



Gasketed Plate Heat Exchanger (GPHE)

Air-Conditioning, Heating, and Refrigeration Institute (AHRI)-approved, made-in-India gasketed plate heat exchanger (GPHE) with an approach as low as 1°C.



Sensor

Danfoss sensing solutions for pressure, temperature, and gas leak detection ensure the highest reliability and accuracy for process parameter controls, supporting smooth and efficient system operation.



Hose

OCP Inspired™ Danfoss EHW194 is an EPDM flexible hose designed for data center liquid cooling systems. With a UL 94 V-0 rating, it offers excellent kink resistance and long service life, making it ideal for use in rack manifolds, CDU connections, and cold plate cooling loops where durability and leak prevention are critical.



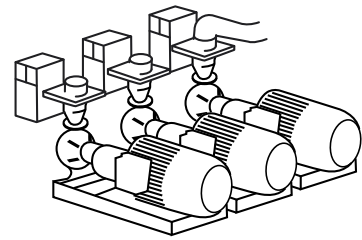
CoolTrain™

Level up liquid cooling with Danfoss CoolTrain™. Pre-engineered valve trains enable reliable, scalable, and energy-efficient coolant flow for high-density data centers.



Pump station

Pumps move fluids to support the cooling systems that are critical for maintaining the temperature and reliability of IT equipment. They are integral to the cooling systems of data centers, ensuring that the IT infrastructure operates within safe temperature limits and supports the reliability and efficiency of the entire facility, whether air-cooled or liquid-cooled. To ensure proper flow and energy savings, Danfoss supplies the following offerings for pumps in data centers:



Variable Frequency Drive (VFD)

iC7 ULH air-cooled drives deliver less than 3–5% THDi, ultra-low supraharmonics, and no common-mode voltage for clean, reliable power. High efficiency and low losses support improved PUE while reducing panel space, cooling demand, and energy consumption.



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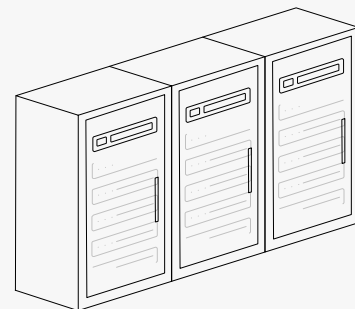
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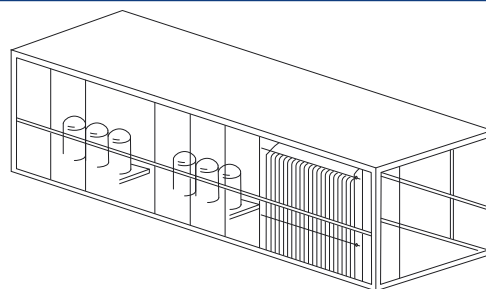
Solid State Transformer (SST)

Solid state transformer (SST) enables direct high-power conversion from medium-voltage AC to low-voltage DC, which is advantageous for builders and owners of hyperscale data centers. Benefits include versatile and capable operation with a single 11 MW converter, infrastructure and installation savings, and enhanced grid quality and stability.



Heat recovery module

An increase in data center energy demand and the need for lower power usage effectiveness (PUE) targets have led to the need for efficient heat recovery solutions. At Danfoss, we provide heat recovery modules (HRM) to recover and reuse excess heat, reducing CO₂ emissions and operational costs.



Gasketed Plate Heat Exchanger (GPHE)

High-efficiency heat transfer with low pressure drop, compact design.



Virtus

Virtus delivers intelligent pressure and flow control for data centers, ensuring optimal hydronic balance, up to 20% energy savings, and precise temperature control for reliable and efficient cooling performance.



Pressure Transmitter

Built for data centers, MBS 3200 pressure transmitters deliver precise measurement, dependable performance, and stable operation in high-temperature and demanding cooling environments.



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Temperature Sensor

Precise temperature measurement enabling safe and energy-efficient operation of your system.



VLT® AQUA Drive

Designed for data centers, VLT® AQUA Drive optimizes pump and cooling system performance, reducing energy consumption, lowering operating costs, and ensuring reliable, efficient motor control across varying load conditions.



Pressure Operated Valve

Engineered for data centers, the differential pressure controller maintains precise flow regulation, enhances hydronic efficiency, and ensures reliable, energy-efficient cooling performance under varying load conditions.

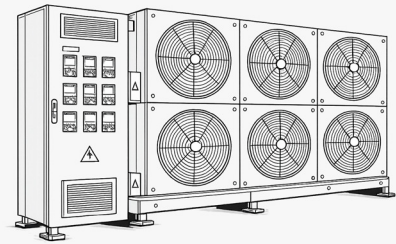


Pressure Flow Controller

Tailored for data centers, the flow controller provides accurate flow limitation, stable operation, and energy-efficient cooling system performance.

Fan wall units

Fan wall units are specialized cooling solutions used in data centers to manage heat generated by IT equipment. They consist of multiple fans arranged in a wall configuration and are designed to provide efficient airflow and cooling. By evenly distributing airflow across the entire server room or data hall, these units enhance the performance of IT equipment and extend its lifespan, reducing the risk of downtime and costly repairs. At Danfoss, we ensure high uptime and efficiency by providing the following offerings for fan walls.



Pressure Independent Balancing Control Valve (PIBCV)



Automatically adjust the flow of coolant to the precision air handling unit (PAHU) units based on the thermal load, ensuring that each unit receives the optimal amount of cooling.



EC+ fans with VFD



Highly efficient axial fans with unmatched 92% system efficiency, high reliability and serviceability, and lower operating costs.



Sensor



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Micro Channel Heat Exchanger (MCHE)



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Application expertise

Application expertise and system validation

Danfoss combines cooling technologies with application expertise to support development, optimization, and validation of data center systems.

Capabilities include:

- Simulation and modeling
- System testing at our ADCs
- Application guidance
- Engineering collaboration

Application Development Centers (ADCs)

Our global ADC network provides:

- Advanced laboratory and test facilities
- Real-world and controlled-condition testing
- Collaborative environments for system optimization

This helps customers:

- Validate performance before production and deployment
- Reduce development time and risk
- Accelerate time to market

Solutions for green data centers



 Customer Engagement Tool



Partner with Danfoss to design the data center of tomorrow.

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