

Nidec

Drives

Data Centre Solutions

Intelligent VFD technology
for cooling, efficiency &
resilience



Effective and efficient thermal management for data centres

Data centres house critical infrastructure, including servers, storage, and networking that underpins our digital economy, supporting internet use, banking, and streaming to healthcare systems and AI. As such it is essential that they operate smoothly and efficiently. We're here to help you make that happen, providing the technology and support you need to deliver reliable, energy-efficient data centre solutions.

By partnering with us, you gain access to a global network of expertise and resources designed to help you succeed. Our solutions include high-efficiency motors, advanced variable frequency drives (VFDs), and innovative compressor technologies, all engineered to optimise performance, reduce energy consumption, and simplify system control.

We know your priorities of meeting strict efficiency standards, lowering emissions, and extending equipment life. That's why we focus on integrated solutions and smart technologies that make installation easier and operations more sustainable. With our support, you can achieve long-term goals for energy savings and decarbonisation while staying competitive in a changing market.

From research and development to responsive service, we provide the tools and knowledge to help you deliver comfort, reliability, and sustainability, so you can focus on growing your business and exceeding customer expectations.



Between us, Nidec businesses boast over a \$2 billion dollar footprint of business in HVACR-related industries, making us a partner you can trust.

Nidec

NIDEC MOTOR CORPORATION

NEMA ECM and
induction motors



Nidec

Drives

Variable frequency
drives (VFDs)



Nidec

LEROY-SOMER™

IEC induction and
BPM motors



Nidec

Power

AC Generators
(Alternators)



embraco

Nidec

Reciprocating & scroll
compressors



Nidec

Conversion

Battery energy storage
solutions (BESS)



Nidec

SPMS

Thermal
components



Pristine Market Insights' market share analysis reveals that in calendar year 2024, Nidec held the leading position in global refrigeration compressor revenue.

Optimising data centre performance with intelligent VFD technology

Keeping the world's data centres running efficiently and sustainably

The global data centre market is expanding rapidly, driven by cloud computing, artificial intelligence, and data intensive digital services. As capacity grows, so does energy demand, cooling complexity, and the need for absolute reliability.

Nidec Drives delivers advanced Variable Frequency Drive (VFD) solutions designed to optimise thermal management systems in modern data centres, helping operators **maintain uptime, reduce energy use, and scale with confidence.**

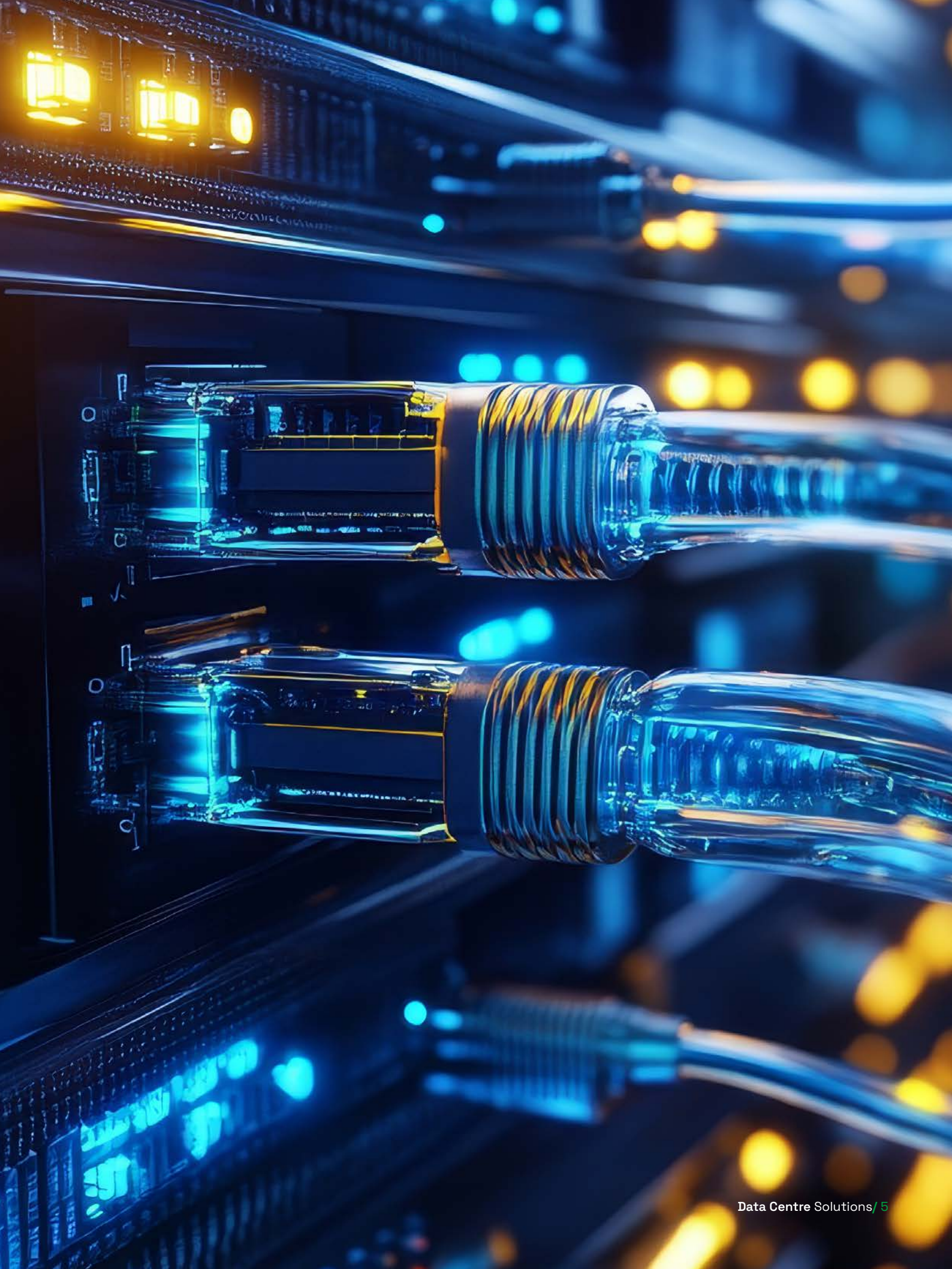
With cooling and power infrastructure responsible for **over 40 % of total data centre energy consumption**, intelligent control of motors, fans, pumps, and compressors is critical to future-ready operations.

Key challenges facing modern data centres

Data centre operators must address:

- Escalating energy use driven by AI and hyperscale computing.
- Mission critical uptime requirements with zero tolerance for failure.
- Rising cooling loads and peak power constraints.
- Pressure to reduce carbon footprint and improve sustainability metrics.
- Increasing use of liquid and hybrid cooling architectures.
- Compliance with strict electrical, harmonic, and operational standards.

Optimising cooling and power infrastructure is one of the most effective ways to meet these challenges.





How Nidec Drives supports advanced data centre cooling

As data centres adopt liquid and direct to chip cooling for AI and high density workloads, cooling systems require greater precision, efficiency, and reliability. Nidec Drives VFD solutions deliver intelligent control for Coolant Distribution Units (CDUs) and associated pump systems by providing:

- Precision pressure management: CDUs must maintain tight pressure (e.g. within 2 to 8 mm channels in heat exchangers) to avoid cold plate deformation. Our VFDs offer high-resolution PID control to manage these low-pressure, high-flow environments.
- Energy efficiency & improved Power Usage Effectiveness (PUE): By matching motor speed to real time AI processing loads, Nidec Drives solutions can reduce pump energy consumption by 30 to 50 %, supporting lower operating costs making our VFDs the primary tool for achieving a PUE of near 1.0.
- Mission critical reliability: Designed for continuous operation, our VFDs support redundant pump architectures and low harmonic distortion, helping safeguard sensitive IT equipment and ensure dependable cooling performance.
- Seamless integration with Data Centre Infrastructure Management (DCIM) and Building Management Systems (BMS): Support for industry standard communication protocols enables real time & remote monitoring and predictive maintenance, giving operators greater visibility and control over cooling infrastructure.

On top of that, our data centre solutions enable scalable deployment for future growth. Whether supporting traditional air cooled systems or advanced liquid cooled architectures, Nidec Drives VFDs always deliver consistent, reliable performance.

Supporting the evolution of data centre cooling

As AI and high performance computing increase rack densities, cooling strategies are evolving. This includes:

- Transition from fixed speed to **variable speed compressors and pumps**.
- Greater adoption of **liquid and direct to chip cooling**.
- Advancing **thermal management techniques** including air cooled chillers, fluid cooled chillers, adiabatic chillers and air handlers.
- Growing demand for **low harmonic, high efficiency power control**.

No matter the cooling method, **VFDs remain central** to efficiently moving heat and managing energy.

Key benefits for data centre operators

As well as the significant energy reductions and operational cost savings, these include:

Maximise uptime & reliability: Maintain stable thermal and humidity conditions to protect critical IT assets.

Extend equipment lifespan: Smooth speed control reduces wear, vibration, and unplanned maintenance.

Support AI & high density workloads: Consistent, precise cooling supports performance critical computing environments.

Ensure compliance: Low harmonic VFD solutions help meet electrical and industry standards.

Scale with confidence: Flexible architectures adapt as capacity, density, and cooling methods evolve.

Drive sustainability: Lower energy use directly reduces emissions and environmental impact.

Why partner with Nidec Drives?

Here are just a few reasons we know we can support you to meet your data centre application requirements:

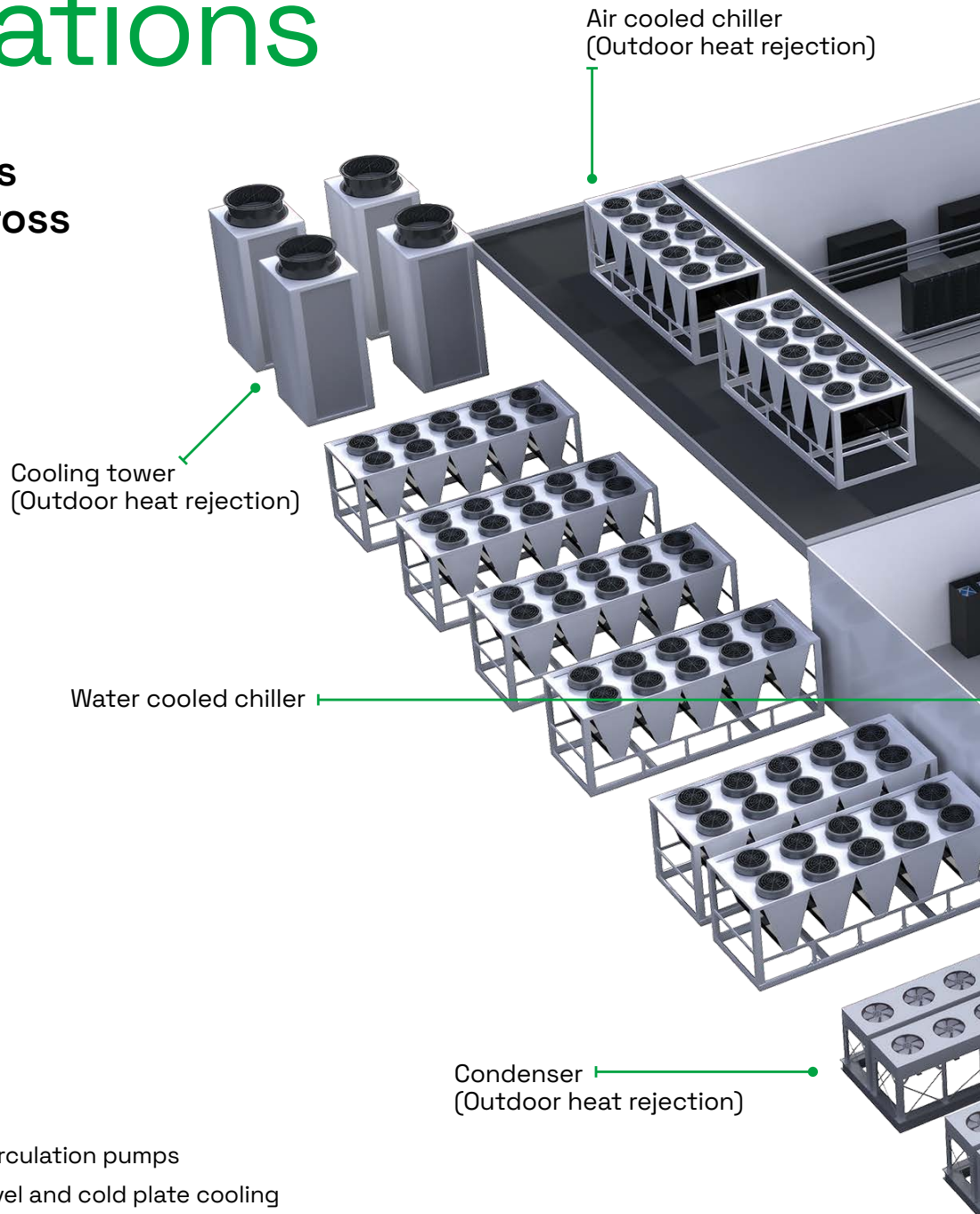
- We have proven **expertise in mission critical environments**.
- Our **VFD technology supports all major motor types**, including induction and permanent magnet motors.
- We provide **scalable solutions** for enterprise, colocation, and hyperscale data centres.
- We have a truly **global manufacturing footprint** with strong local support.
- We have a **future focused approach** aligned to AI, liquid cooling, and sustainability trends.

On top of that we are part of the Nidec family who are leaders in this industry. Between us, we boast an HVACR equipment footprint of \$2B globally, making us a virtually **risk-free partner**.



Typical data centre thermal management applications

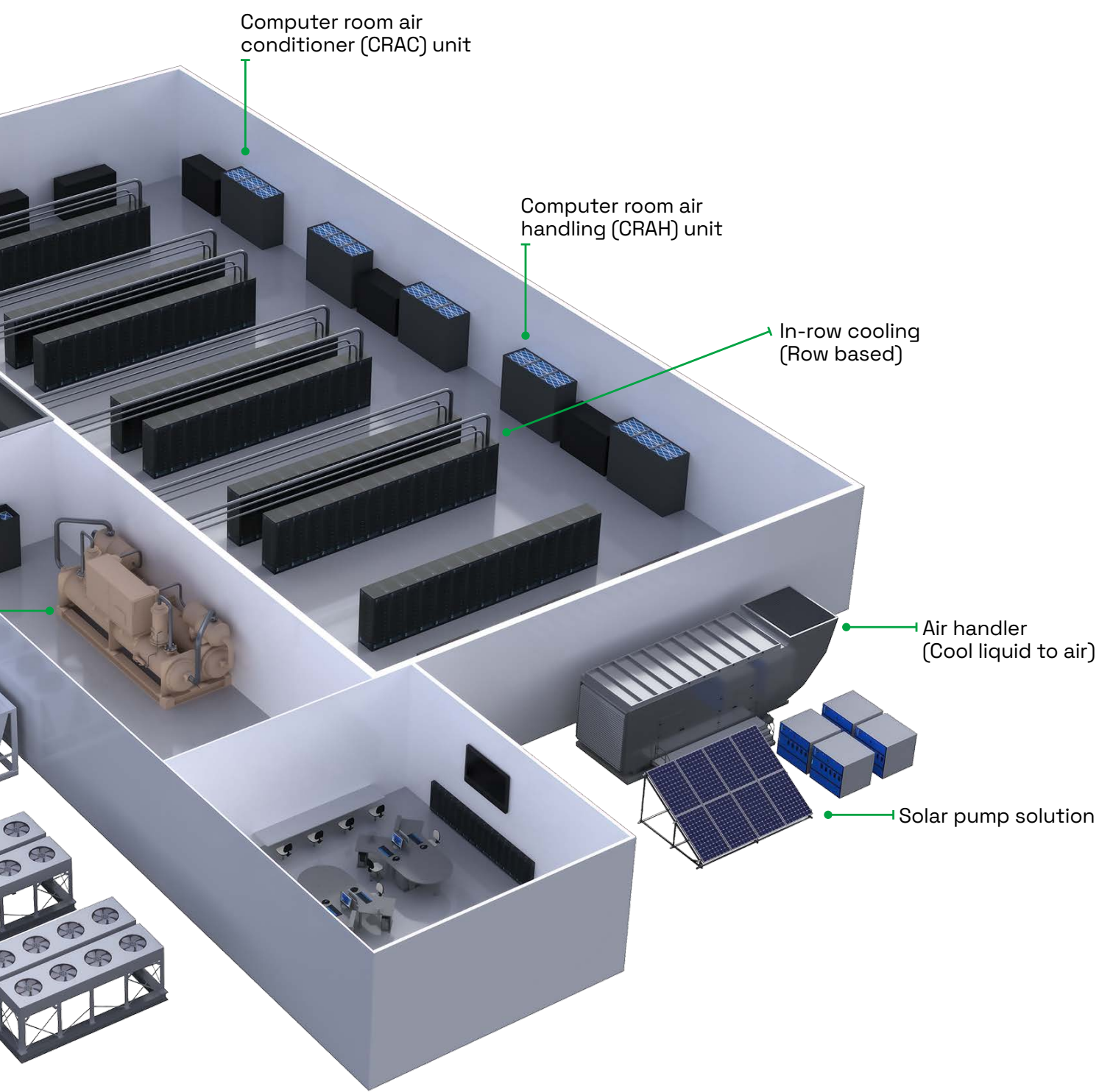
Nidec Drives VFDs are deployed across a wide range of systems.



We also supply VFDs for

- Hybrid cooling systems
- Free cooling units
- Refrigerant and coolant circulation pumps
- Booster pumps for rack level and cold plate cooling
- Axial fan systems

Our VFD technology supports both legacy installations and next generation data centre designs.



Product portfolio overview

Micro Drives



Scan for brochure



Commander S

General purpose micro drives

0.25 to 11 kW (0.33 to 15 hp)
115 | 230 | 460 V

IP20/NEMA 1

Standard features:

- NFC "Tap & Go" via Marshal app
- Plug-and-play
- Built-in RFI filter

HVACR features:

- Fire Mode
- PID
- Skip frequencies
- Ride-through
- C1 200 V single-phase models
- Optional C1 filters for 400 V

Compact Drives



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Commander C

General purpose drives

PM variant: sensorless permanent magnet motor control

0.25 kW to 132 kW (0.33 to 200 hp)
115 | 230 | 460 | 575 | 690 V

IP20/NEMA 1 with conduit kit

Features:

- Compact footprint
- Safe Torque Off (C300)
- Onboard PLC
- RFI filters/reactors included
- UL Plenum rated
- A2L compliant

Options:

- Modbus RTU
- BACnet/IP
- I/O expansion
- Pump software



Scan for brochure



NE200*

Universal AC drives

0.4 to 900 kW
230 | 440 V

Features:

- Simple & reliable
- Compact design
- Optimised for Asia Pacific specification requirements

HVAC Drive



Scan for brochure



HVAC Drive H300

Building automation integration for HVAC

1.1 kW to 2.8 MW (1.5 to 4,200 hp)
230 | 460 | 575 | 690 V

IP20/NEMA 1 and IP65/NEMA 12

HVAC-focused:

- BACnet MSTP

General features:

- Advanced PID
- Fire Mode
- HOA keypad with Bluetooth
- PM motor control
- STO
- Ride-through

Options:

- BACnet/IP
- Process controller
- I/O expansion
- UL plenum rated



All Nidec Drives products have a free 5-year warranty, providing peace of mind from day one.

Pump Drive



Pump Drive F600

Versatility for flow applications

1.1 kW to 2.8 MW (1.5 to 4,200 hp)
230 | 460 | 575 | 690 V

IP20/NEMA 1 and IP65/NEMA 12

Pump-focused:

- Advanced PID

General features:

- Advanced PID
- Fire Mode
- HOA keypad with Bluetooth
- PM motor control
- STO
- Ride-through

Options:

- BACnet/IP
- Process controller
- I/O expansion
- UL plenum rated

High power drives



DFS Series

High Power Freestanding Drives

55 kW to 2.8 MW (75 to 4,200 hp)
380 to 480 Vac ($\pm 10\%$)
500 to 575 Vac ($\pm 10\%$)
500 to 690 Vac ($\pm 10\%$)

- Pre-assembled to save engineering & installation time
- Simply connect power, motor and control connections and run
- Flexible configurations to meet application needs
- Quick delivery



500 kW / 700 hp Power Module

High performance control for higher power applications

250 to 500 kW (400 to 700 hp) / Up to 865 A
380 to 480 Vac ($\pm 10\%$)
500 to 575 Vac ($\pm 10\%$)
500 to 690 Vac ($\pm 10\%$)

- Lightweight design (<60 kg lighter than competitors)
- Compact footprint for easy integration
- Small footprint
- Pre-engineered accessories
- Installation in under 30 minutes

Scan for more info



High IP drive variant



High IP variants for the H300 and the F600 protects against harsh environments with a IP65/NEMA 12 rating

- Protection from dust and low-pressure water jets
- 5-year warranty as standard

Reduce installation costs

- Wall or machine mounting close to the motor reduces installation costs, through:
 - No Cabinet Required
 - Shorter Cable Lengths
 - Less Time To Install Drive

Global supply chain & support

With manufacturing facilities covering China, Europe, Asia Pacific and the Americas, we offer geographic diversity, benefiting our customers with shorter, more resilient supply chains. By ensuring that products are always available wherever our customers need them brings reassurance that lead times are kept to a minimum.

Our drives are manufactured using identical machinery, technology and techniques. This model guarantees that your supply chain will not be affected, any updates or changes made at our Headquarters can be swiftly and efficiently implemented across all locations. Allowing you to rest assured that the quality and reliability of your products will remain, guaranteeing a consistent and dependable experience.

In the rare event that a machine requires maintenance or parts replacement, our global facilities are equipped with spare parts on-site. This ensures we can quickly restore your operations without causing delays, minimising downtime and keeping your supply chain running smoothly.

We are perfectly set up with the capacity to serve your volume needs.

United Kingdom



Mexico



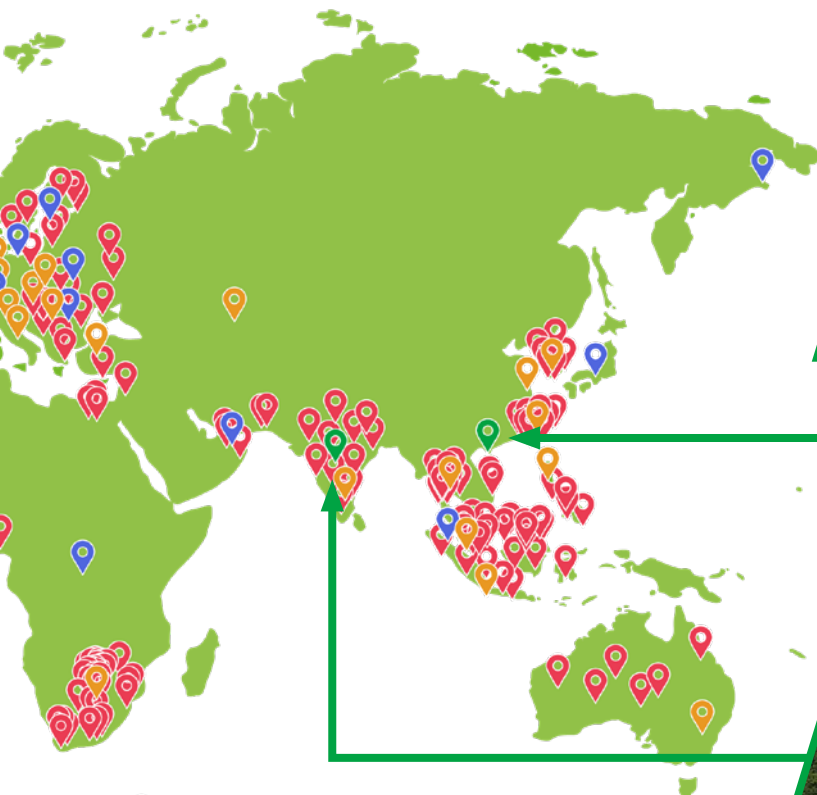
Drive your network, using our network





To maintain your local HVACR installations, our global presence ensures we are always close by to provide world-class support, based on 50 years of experience.

Present in over 70 countries, we are always close to our customers, can speak to you in your own language and can guarantee fast, efficient service and support when it's needed.

Our global infrastructure provides:

- Global R&D footprint
- Local technical and sales support through our global Drive Centres
- Distributors and Country Partners network
- Highly flexible and comprehensive HVACR products, with options and opportunities for customisation
- Technical and engineering expertise worldwide
- Well-formed, resourced and proven new product development processes



-  Manufacturing Facilities
-  Drive sales, technical support, repair and application expertise
-  Drive sales
-  Country Partners



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www.drivesfromnidec.com

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