

**Nidec**

**Drives**

# HVACR Solutions

Reliable and efficient VFDs for fan,  
pump and compressor applications



# Creating comfort and efficiency for your business

When your customers feel comfortable, it's because your systems are performing at their best. We're here to help you make that happen, providing the technology and support you need to deliver reliable, energy-efficient HVACR 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.



NEMA, ECM, BPM and induction motors



Variable frequency drives (VFDs)



IEC induction and BPM motors



AC generators (Alternators)



Reciprocating & scroll compressors



Battery energy storage solutions (BESS)



Thermal components



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

# Why partner with Nidec Drives?

Managing energy costs while delivering reliable comfort and precise temperature control is critical for your business. HVACR systems consume 12% of global electricity, including more than 30% in industrial and commercial sectors and up to 50% in commercial buildings. Motors powering compressors, pumps, and fans account for nearly all this usage, making efficiency a top priority for you and your customers.

Our variable frequency drives (VFDs) help you take control. By integrating Nidec Drives VFDs into your HVACR systems, you can achieve up to 60% energy savings, improve comfort, reduce noise, and increase uptime, all while staying ahead of evolving regulations and technology. We make system design efficient, integration fast, and long-term reliability a given.

## Fast ROI, lasting value

Retrofitting with VFDs typically delivers a return on investment in just 9–24 months (depending on duty cycle). You'll benefit from smoother, more accurate system operation, extending the life of your building and data center equipment. Plus, with global product availability, technical support, and a 5-year warranty, you can count on dependable performance and peace of mind.

## A history of innovation

For more than 50 years we have been drive obsessed and our ambition pushes us to be the first name for drives. Our can-do attitude and expertise lead us to partner with customers in both commercial and industrial applications to provide innovative drive solutions.

Our electric drives offer significant benefits in terms of energy efficiency, process control, equipment reliability and reduced lifetime costs, making them a key technology for a forward-thinking business looking to reduce their environmental impact and improve their sustainability performance.

# How our VFDs solve your challenges

Nidec Drives is 100% focused on delivering world-class electric drives and power conversion technologies that are capable of both reducing energy consumption and increasing performance in whatever applications they are used.

Our drives adjust motor speed to match demand, cutting energy use and reducing mechanical stress, noise, and vibration. This means smoother starts and stops, longer equipment life, and improved comfort and air quality for your customers.

## Benefits for your business

- Lower operating costs through precise speed control
- Significant energy savings to support sustainability goals
- Tailored solutions for HVACR machine manufacturers (OEMs), system integrators, contractors, and end-users
- Global expertise and support for reliable performance

Partner with us to make your HVACR systems smarter, more efficient, and more sustainable, because your success is our priority.

## Your drive system, made-to-measure by us

To meet your HVACR system specification requirements, our drive portfolio covers:

- A wide power range of 0.1 kW to 2.8 MW (0.125 to 4,200 hp)
- IP20 and IP65 or NEMA 1, NEMA 12 and NEMA 4X variants
- Up to 500 kW (700 hp) in a single module
- Pre-assembled cabinet drive systems fully built to meet specific application needs
- Customisable drives built with tailored software, options and branding



# Looking for real HVACR performance not just hot air?

## Machine manufacturers (OEMs)



### Your challenge:

Integrating drives seamlessly into complex HVAC systems while meeting strict compliance standards and ensuring reliability.

### How Nidec Drives can help:

- **Faster integration:** HVAC-specific firmware and pre-configured macros streamline your engineering process.
- **Compliance assured:** Built-in EMC and international certifications, plus A2L compliance and plenum rating.
- **Connectivity made simple:** Seamless BMS integration with BACnet and Modbus.
- **Reduced engineering hours:** Easy commissioning tools save time and cost.
- **Confidence backed by strength:** 5-year warranty, Nidec brand reputation, and regional manufacturing for supply security.

## Contractors



### Your challenge:

Quick, hassle-free installations with minimal callbacks and maximum reliability.

### How Nidec Drives can help:

- **Plug-and-play setup:** No specialist electrical knowledge required.
- **Fewer callbacks:** Proven reliability reduces maintenance headaches.
- **Safety built-in:** Integrated protections ensure compliance and peace of mind.
- **Support where you need it:** Global service network with local technical assistance.



## System integrators



### Your challenge:

Delivering flexible, interoperable solutions that integrate smoothly with diverse control systems.

### How Nidec Drives can help:

- **Custom Functionality at No Extra Cost:** On-board programming tailored for HVACR applications.
- **Universal Connectivity:** Full suite of protocols—BACnet MS/TP & IP, Modbus, EtherNet/IP, PROFINET.
- **Simplified Commissioning:** Parameter cloning and setup via Connect & Marshal tools.
- **Pre-Tested Compatibility:** Works seamlessly with major BMS platforms.
- **Consistency You Can Trust:** A reliable drive family that reduces complexity across projects.

## End users



### Your challenge:

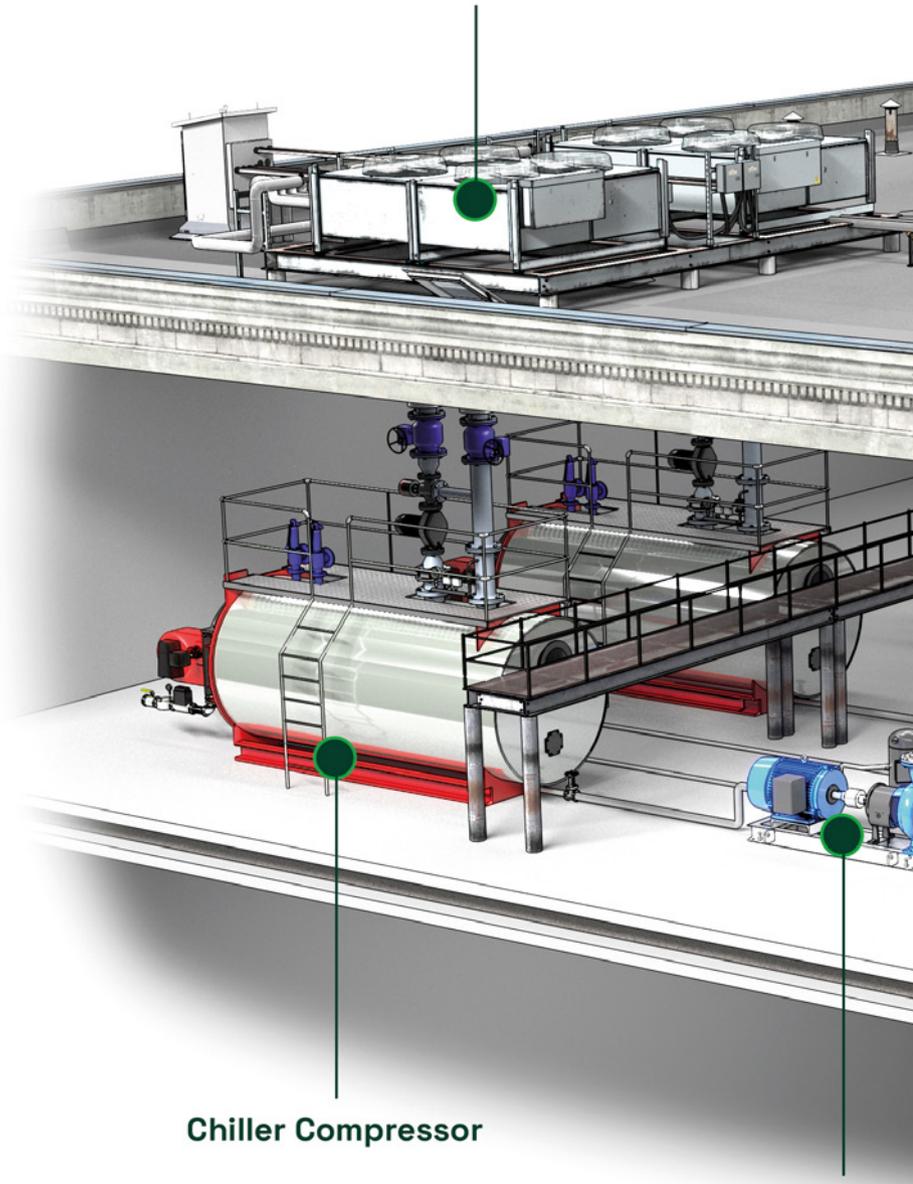
Lower energy costs, faster ROI, and improved comfort without compromising reliability.

### How Nidec Drives can help:

- **Significant Energy Savings:** 20–60% reduction, with ROI in 9–24 months.
- **Lower Operating Costs:** Reduced maintenance and extended equipment life.
- **Enhanced Comfort:** Quieter, smoother operation for better occupant experience.
- **Future-Proof Investment:** Drives that protect your assets and optimize performance.
- **Buy with confidence:** 5 year warranty guarantees your investment is protected from day 1.

# HVACR

More than a  
breath of  
fresh air

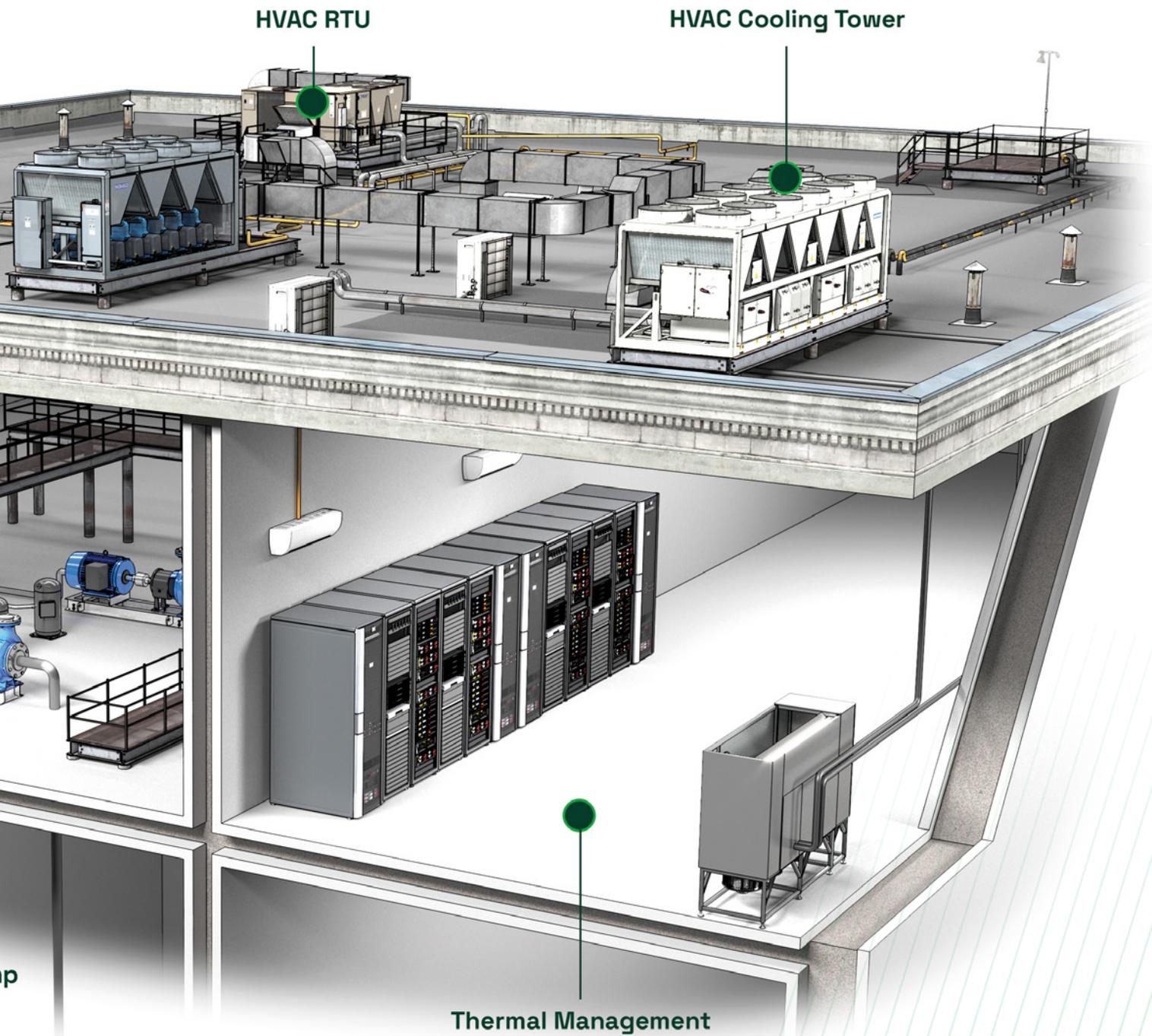


Chiller Compressor

Water Pump

HVACR Products	Application		
	Fan	Pump	Compressor
Triac	Yes		
KB	Yes	Yes	
Commander	Yes	Yes	Yes
NE*	Yes	Yes	Yes
HVAC drive H300	Yes	Yes	Yes
Pump Drive F600	Yes	Yes (multi-pump)	Yes

\* Not available in all regions



## HVACR specialists in:

Heating

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# Heating

Heat pumps



Unitary heaters



Furnaces



Boilers



## Challenges

- Inefficient boilers and heating systems
- Poor insulation and heat loss
- Fluctuating fuel/energy costs
- Stricter emissions and sustainability regulations

## Consequences of these challenges

- High energy bills and operating costs
- Inconsistent indoor comfort
- Difficulty meeting sustainability targets
- Increased maintenance demand

## How Nidec Drives can help

Our VFD solutions optimise boiler and pump performance by precisely controlling motor speed, reducing energy waste and operating costs even in poorly insulated systems. We enable adaptive control to improve comfort, and support compliance with stringent emissions and sustainability regulations, while extending equipment life and lowering maintenance demands.

Application	Power Range	Segment			Sub Application			Recommended Nidec Drives VFDs			
		Commercial	Industrial	Infrastructure	Booster pumps	Compressors	Supply fans	Commander		Pump drive F600	HVAC drive H300
								S	C		
Heat pumps	2 to 22 kW (3 to 30 hp)	✓	✓	✓	✓	✓		✓	✓	✓	✓
Unitary heaters	1.5 to 7.5 kW (2 to 10 hp)	✓	✓		✓	✓		✓	✓	✓	✓
Furnace	1.5 to 7.5 kW (2 to 10 hp)	✓	✓				✓	✓	✓		✓
Boilers	1.5 to 45 kW (2 to 60 hp)	✓	✓	✓	✓			✓	✓	✓	✓

# Air conditioning



## Challenges

- Rising demand for cooling, especially in hot climates
- Oversized or aging chillers/rooftop units
- Peak load strain on electrical infrastructure
- Integration issues with Building Management Systems (BMS)

## Consequences of these challenges

- 55%+ growth in cooling-related electricity demand over the last decade
- High operational costs and demand charges
- System downtime or reduced efficiency
- Customer discomfort and reputational risk

## How Nidec Drives can help

We optimise cooling systems by precisely controlling fan, pump, and compressor speeds, reducing energy consumption and peak load strain on electrical infrastructure. Our VFDs improve efficiency in oversized or aging units, enable seamless BMS integration, and help lower operational costs, while ensuring reliable comfort and minimal downtime in high-demand environments.

Application	Power Range	Segment					Sub Application				Recommended Nidec Drives VFDs			
		Commercial	Data centre	Cold storage	Industrial	Infrastructure	Booster pumps	Compressors	Supply fans	Condenser fans	Commander		Pump drive F600	HVAC drive H300
											S	C		
Packaged units	2 to 22 kW (3 to 30 hp)	✓			✓			✓	✓	✓	✓	✓		✓
Air cooled chillers	2 to 150 kW (3 to 200 hp)	✓	✓	✓	✓			✓		✓	✓	✓		✓
Water cooled chillers	75 to 500 kW (100 to 700 hp)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓

# Ventilation

Updraft fans



Tunnel ventilation



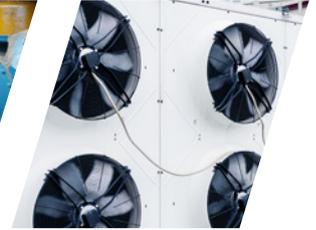
Fan walls



Industrial blowers



Agriculture fans



## Challenges

- Poor airflow distribution in large buildings
- Lack of variable speed control on fans
- Indoor air quality issues (CO<sub>2</sub>, humidity, contaminants)
- Noise from oversized or fixed-speed fans

## Consequences of these challenges

- Unhealthy or uncomfortable working environments
- Regulatory non-compliance on air quality
- Excessive energy consumption
- Increased complaints from occupants

## How Nidec Drives can help

Nidec Drives bring variable-speed control to ventilation, delivering precise airflow where it's needed to improve indoor air quality and reduce energy waste. Our VFDs minimise noise from oversized or fixed-speed fans, help buildings meet air-quality regulations, and enhance occupant comfort, while lowering costs, and maintenance through smarter, more reliable fan operation. Drive features such as **Fire Mode** maximises smoke extraction in the event of a fire and **Catch a spinning motor** allows smooth system restarts while the fan is spinning.

Application	Power Range	Segment					Sub Application		Recommended Nidec Drives VFDs		
		Commercial	Data centre	Cold storage	Industrial	Infrastructure	Compressors	Supply fans	Commander		HVAC drive H300
									S	C	
Air handling unit	7.5 to 22 kW (10 to 30 hp)	✓	✓					✓	✓	✓	✓
Air filter unit	2 to 22 kW (3 to 30 hp)	✓	✓		✓	✓		✓	✓		
Dehumidifier	2 to 22 kW (3 to 30 hp)	✓	✓	✓	✓	✓		✓	✓		
Agriculture fan	1.5 to 7.5 kW (2 to 10 hp)					✓		✓	✓		
Updraft fan	1.5 to 7.5 kW (2 to 10 hp)	✓			✓			✓	✓		
Tunnel ventilation	7.5 to 22 kW (10 to 30 hp)					✓		✓	✓		
Fan wall	7.5 to 22 kW (10 to 30 hp)	✓			✓			✓	✓		
Industrial blower	75 to 500 kW (100 to 700 hp)				✓	✓		✓	✓		
Compressors (non refrigerant)	1.5 to 500 kW (2 to 700 hp)				✓	✓	✓		✓	✓	

# Refrigeration

Cold chain transportation



Commercial air & water cooled chillers



Refrigeration cold chain



## Challenges

- Maintaining cold chain reliability (food, pharma, logistics)
- Refrigerant leaks and phase-out regulations (HFC bans)
- High energy use in 24/7 operations
- Equipment wear from frequent cycling

## Consequences of these challenges

- Product spoilage and financial loss
- Environmental penalties for refrigerant leaks
- Significant electricity costs
- Shortened equipment life, higher capex/opex

## How Nidec Drives can help

We ensure cold chain reliability by providing precise speed control for compressors, fans, and pumps, reducing energy consumption in 24/7 operations. Our VFDs help minimise equipment wear from frequent cycling, extend system life, and support compliance with regional regulations, lowering environmental risk, and safeguarding customer product integrity.

Application	Power Range	Segment					Sub Application				Recommended Nidec Drives VFDs			
		Commercial	Data centre	Cold storage	Industrial	Infrastructure	Booster pumps	Compressors	Supply fans	Condenser fans	Commander		Pump drive F600	HVAC drive H300
											S	C		
Packaged units	2 to 22 kW (3 to 30 hp)	✓			✓			✓	✓	✓	✓	✓		✓
Air cooled chillers	2 to 150 kW (3 to 200 hp)	✓	✓	✓	✓			✓		✓	✓			✓
Water cooled chillers	75 to 500 kW (100 to 700 hp)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Cold storage	7.5 to 20 kW (10 to 20 hp)		✓	✓	✓			✓		✓	✓	✓		✓

# Utilising Nidec VFDs to optimise Data Centre performance

Data centres are the backbone of the digital world, powering cloud services, AI, streaming, and online activities. There are around 11,000 data centres worldwide, which is expected to double by 2030. With massive energy demands and critical uptime requirements, environmental control is essential to keep operations secure, efficient, and sustainable as data centres may consume 11–12% of global electricity by 2030.

With cooling and power systems accounting for over 40% of facility energy, this is a major industry focus for us, and we work with our partners to deliver innovative HVAC VFD solutions that set the standard for reliability, efficiency, and sustainability.

## Benefits

- Maximise uptime & reliability: Maintain precise temperature and humidity to prevent equipment failure and costly downtime.
- Reduce operating costs: Energy-efficient cooling and smart power management lower consumption and cut expenses.
- Extend equipment lifespan: Optimal environmental conditions and reduced vibration protect IT hardware investment .
- Ensure compliance & security: Meet industry standards and safeguard against environmental risks with low harmonic options.
- Boost performance for AI & Big Data: Stable conditions enable high-performance computing and low-latency applications.
- Scale with confidence: Flexible VFD solutions adapt to growth without service disruption.
- Drive sustainability: Reduce carbon footprint and align with environmental goals.

## Typical data centre applications where our VFDs excel

Air & water-cooled  
chiller compressor

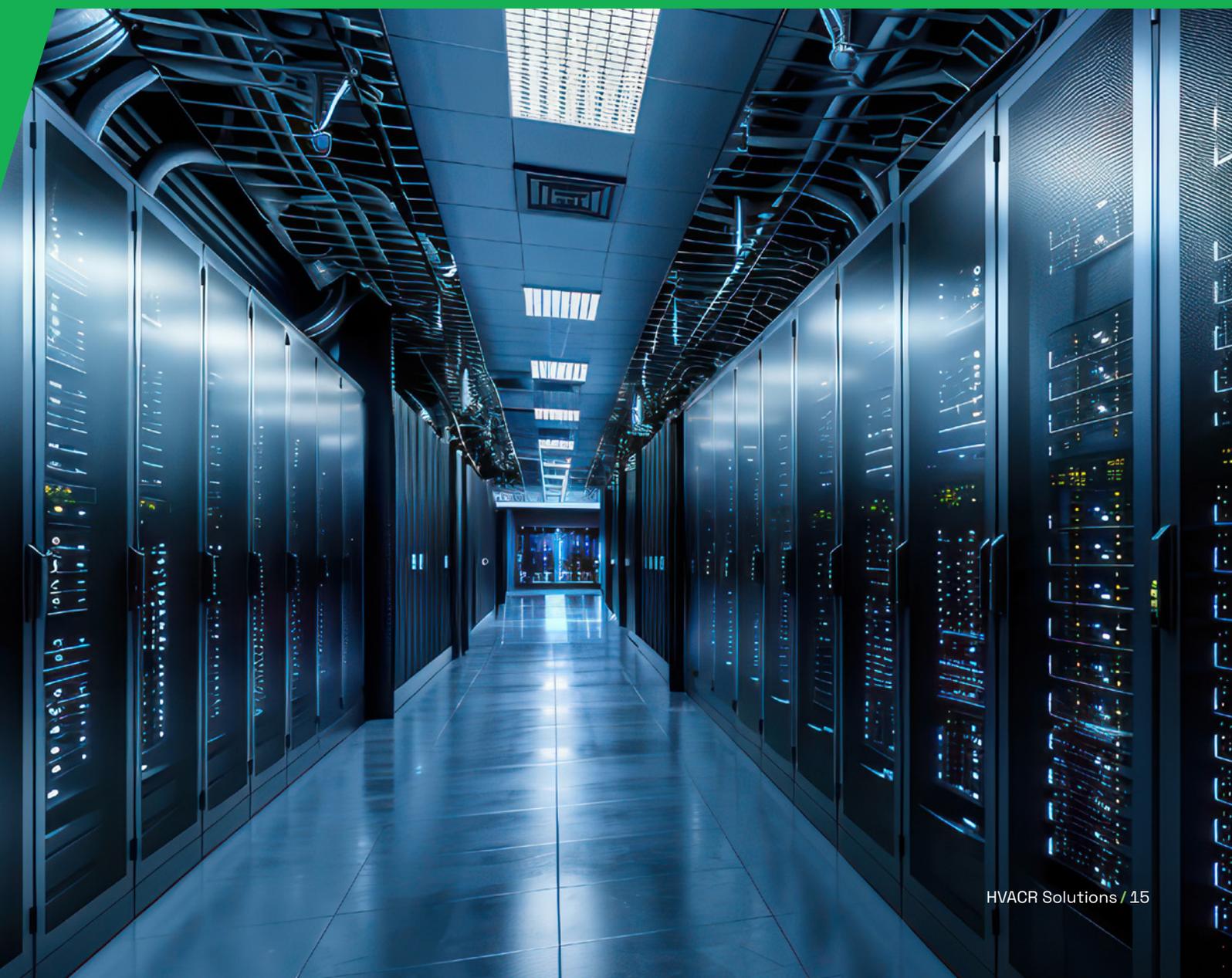
Free cooling  
systems

Air handling &  
filtration unit fans

Refrigerant  
circulation pumps

Dehumidifiers

Booster pumps for  
rack systems



# Product portfolio overview

## Fan Controls



### TRIAC

#### Residential / light commercial

2.5 to 15 A

115 | 230 | 277 V

- Single-phase motor speed control
- Plug-in, wall, chassis, and panel mount options

# 5

## YEAR

### WARRANTY

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

## Micro Drives



Scan for brochure



### KBVF

#### Customisable

0.1 to 3.7 kW (0.125 to 5 hp)

115 | 230 | 460 V

IP20 or IP65/NEMA 4X

- No programming required for basic set-up
- Customisable
- PM motor control
- Modbus RTU
- EMC filter options



Scan for brochure



### Commander S

#### NFC interface

General purpose drives

0.25 to 11 kW (0.33 to 15 hp)

115 | 230 | 460 V

- 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



Scan for brochure



### Commander C

General purpose drives

**PM variant: sensorless permanent magnet motor control**

0.25 kW to 132 kW  
(0.33 to 200 hp)

100 | 200 | 400 | 575 | 690 V

IP20/NEMA 1 with conduit kit

- 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



## NE200\*

Universal AC Drives

The best choice for simplifying complexity

0.4KW - 900kW

230 | 440 V

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

## HVAC Drive



### HVAC Drive H300

Building automation integration for HVAC

1.1 kW to 2.8 MW  
(1.5 to 4,200 hp)

IP20/NEMA 1 and IP65/NEMA 12

HVAC - focused:

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

Options:

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

## Pump Drive



### Pump Drive F600

Versatility for flow applications

1.1 kW to 2.8 MW  
(1.5 to 4,200 hp)

IP20/NEMA 1 and IP65/NEMA 12

Pump - focussed:

- Multi-pump control
- 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 IP drive variant

High IP variants for the H300 and the F600 protects against harsh environments with an 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

# Whatever the size of your system, we can control it

We deliver reliable, efficient motor control solutions for any HVACR system, from compact standalone products to space-saving freestanding drives. Our specialist HVAC and pump drives offer up to 500 kW (700 hp) in a lightweight, small-footprint design.

Our DFS series, which can contain 500 kW (700 hp) modules, provides pre-assembled cabinets with flexible configurations for easy installation and maintenance. The cubicle system is designed to handle high power applications – maximum energy efficiency and ingress protection when you need it most.

The drives are pre-assembled, they're easy to set up, just install the cubicle, connect the input power, motor and control connections and you are ready to run.



## DFS Series Key highlights

### Ready to use: Easy set-up

- Industry standard cubicles which integrate with your existing installation
- Includes power disconnect and fuses
- Pre-installed options available include:
  1. EMC filter
  2. Energy monitoring
  3. 24V back-up supply wiring
  4. Empty sections can be integrated for customer equipment and installation cables

# High power applications



## Fans & pumps

- Fan & pump macros, plus onboard logic functions
- Water hammer control, and catch a spinning motor
- On-board Fire Mode
- Improved energy efficiency during low demand



## Compressors

- On board PLC and PID functionalities for advanced control without the cost and footprint of an external controller
- Energy efficiency and optimal control for increased Coefficient of Performance (CoP)



## Straightforward set-up & commissioning

- Commissioning is made easy with a door mounted multi-language HMI
- Enhanced diagnostics thanks to the real time clock
- Connect PC tool for optimum commissioning:
  1. Loaded with parameter management features, including cloning
  2. Easy-to-read dynamic logic diagrams so you can visualise and manage the drive in real time

## Fast delivery

### Need your order ASAP?

Our local Drive Centres and partners have got the quote and order process down to a fine art. Issues that could cause delays are ironed out immediately.

- Emergency breakdowns won't set you back weeks; we'll ship you a replacement drive within a week

# Option modules

The drives support a wide range of industrial communication protocols either onboard or through an option module to be easily integrated into any system.



## SI-BACnet IP



The SI-BACnet IP option module provides BACnet connectivity to Building Automation equipment via standard Ethernet networks, ensuring accurate and co-ordinated operation to boost occupant comfort.

### Key benefits

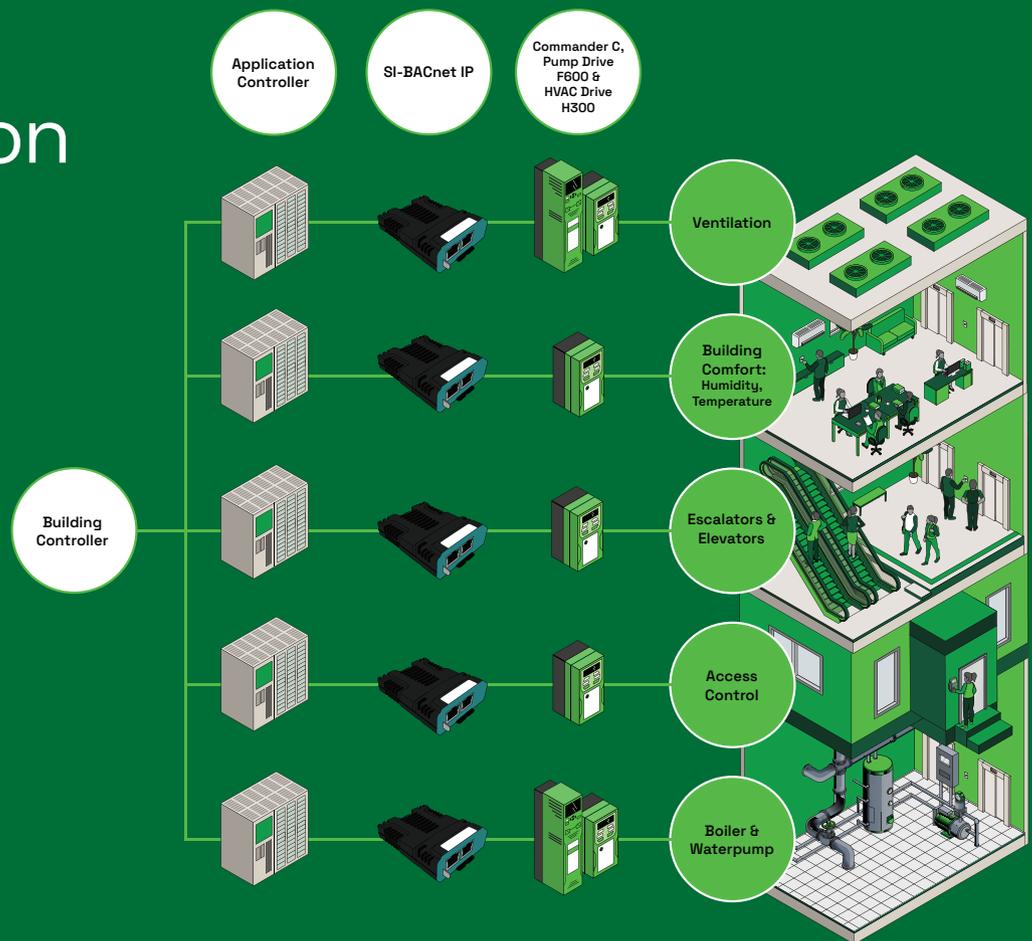
**Enhanced control:** Seamlessly manage your drive systems within a unified BACnet IP network, providing centralised control for optimised building automation.

**Energy efficiency:** Leverage BACnet IP's advanced features to enhance energy efficiency, contributing to sustainable and cost-effective operation of your building management system.

**Reliability:** Dual Ethernet ports and plug-and-play integration ensure robust and reliable communication, minimising downtime and maximising operational continuity.

**Scalability and adaptability:** Plan for the future with a scalable solution that adapts to the changing needs of your building automation system

# Bringing building automation systems together



## Partnering with Nidec to provide comprehensive and efficient solutions

Our drive products are optimised to work together with other Nidec products to provide comprehensive HVACR solutions.

A typical example: Pairing HVAC drive H300 with Leroy Somer's Dyneo+ hybrid permanent-magnet motors, delivers exceptional efficiency levels across all operating speeds, especially at lower speeds where the efficiency is much higher in comparison to induction motors.

The energy savings possible can result in a quick return on your investment and will continue to save you money day after day, with the important added benefit of a lower carbon footprint.



Dyneo+ hybrid permanent-magnet motor

# 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



-  Manufactu
-  Drive sales
-  Drive sales
-  Country Pa

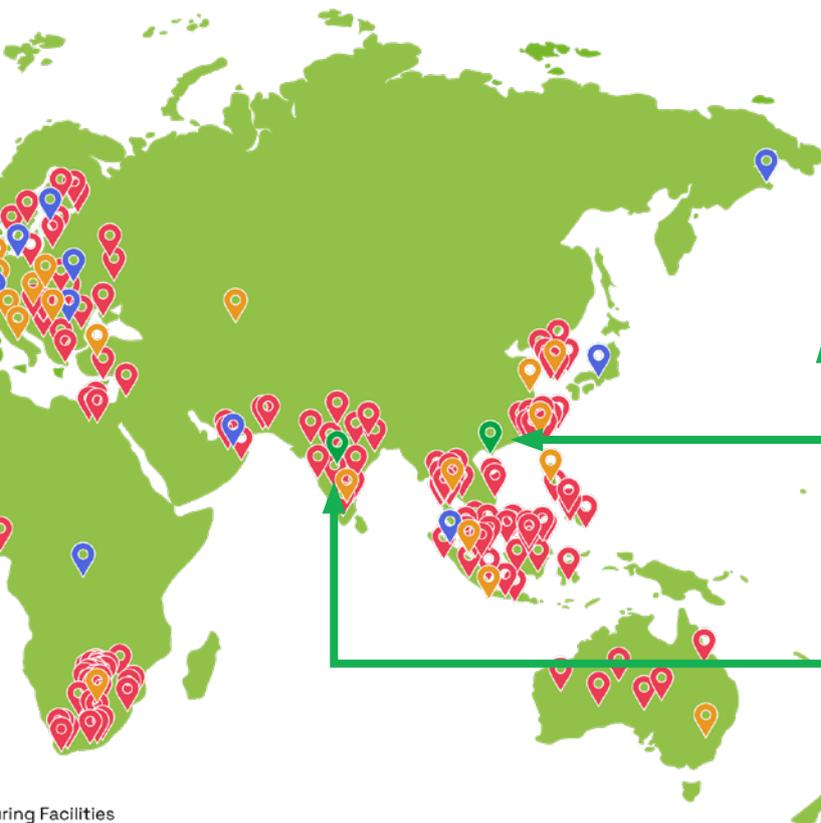
# Drive your network, using our network

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



ing Facilities

, technical support, repair and application expertise

partners



Connect with us



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