

**Nidec
Global Appliance
Company Profile**



Nidec at a Glance

Making the World Move

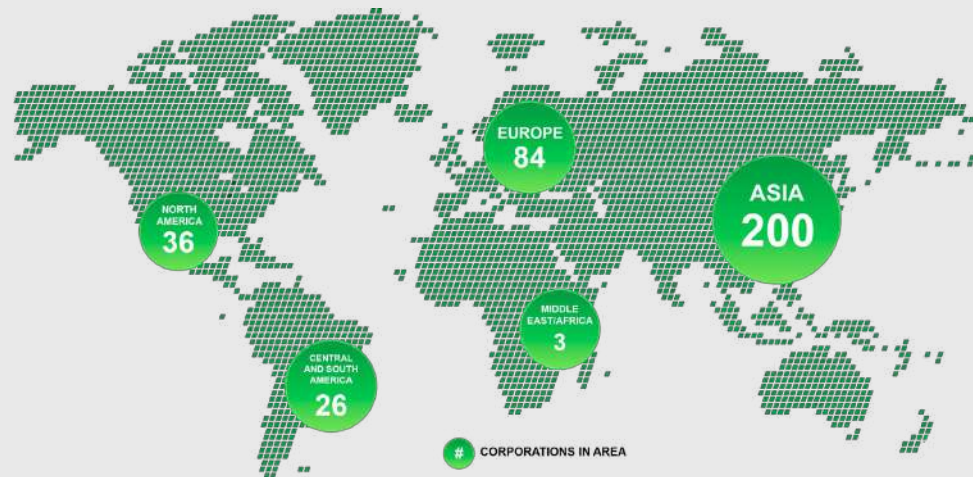
The vibration in your phone, the elevator rising smoothly, the data center that runs uninterrupted, the robots that never stop, the car that glides silently, and the electricity that runs them all – **they have the power within: Nidec.**

No. **1** We are the world's leading manufacturer of electric motors and controls

1973
FOUNDED

\$17.1B
FY2024
REVENUE

\$20.9B
MARKET
CAPITALIZATION



Diverse Portfolio, One Focus

Making the World Move

25%*



AUTOMOTIVE MOTORS & ELECTRONIC CONTROLS

Innovating to help improve safety, environmental protection and comfort required for automobiles



Pumps



Brake motors



Steering motors

23%*



MOTION & ENERGY

Motors, generators, drives, and solutions for renewables, automation, infrastructure, and mobility



Power conversion system



Drive



Axial flux motor

18%*



APPLIANCE COMMERCIAL & INDUSTRIAL MOTORS

High performance motor and drive technology for commercial, industrial, and home appliances



Refrigeration compressor



Industrial pumping



Washing machine motor

18%*



SMALL PRECISION MOTORS

DC motors for all industries and applications including HDD motors



Hard disk drive (HDD)



Haptic motor

13%*



MACHINERY

Machines, factory automation equipment, and measuring & testing devices



Cutting tools

3%*

OTHER

* The percentages presented here refer to Nidec consolidated totals

Diverse Portfolio, One Focus

Making the World Move

AAD

13%*



AUTOMOTIVE MOTORS & ELECTRONIC CONTROLS

Innovating to help improve safety, environmental protection and comfort required for automobiles



Pumps



Brake motors



Steering motors

18%*



APPLIANCE, COMMERCIAL & INDUSTRIAL MOTORS

High performance motor and drive technology for commercial, industrial, and home appliances



Refrigeration compressor



Industrial pumping



Washing machine motor

MOEN

23%*



MOTION & ENERGY

Motors, generators, drives, and solutions for renewables, automation, infrastructure, and mobility



Power conversion system



Drive



Axial flux motor



\$8.7B in FY24 Sales
50% of Group Revenue



43,000 employees
across 3 group companies

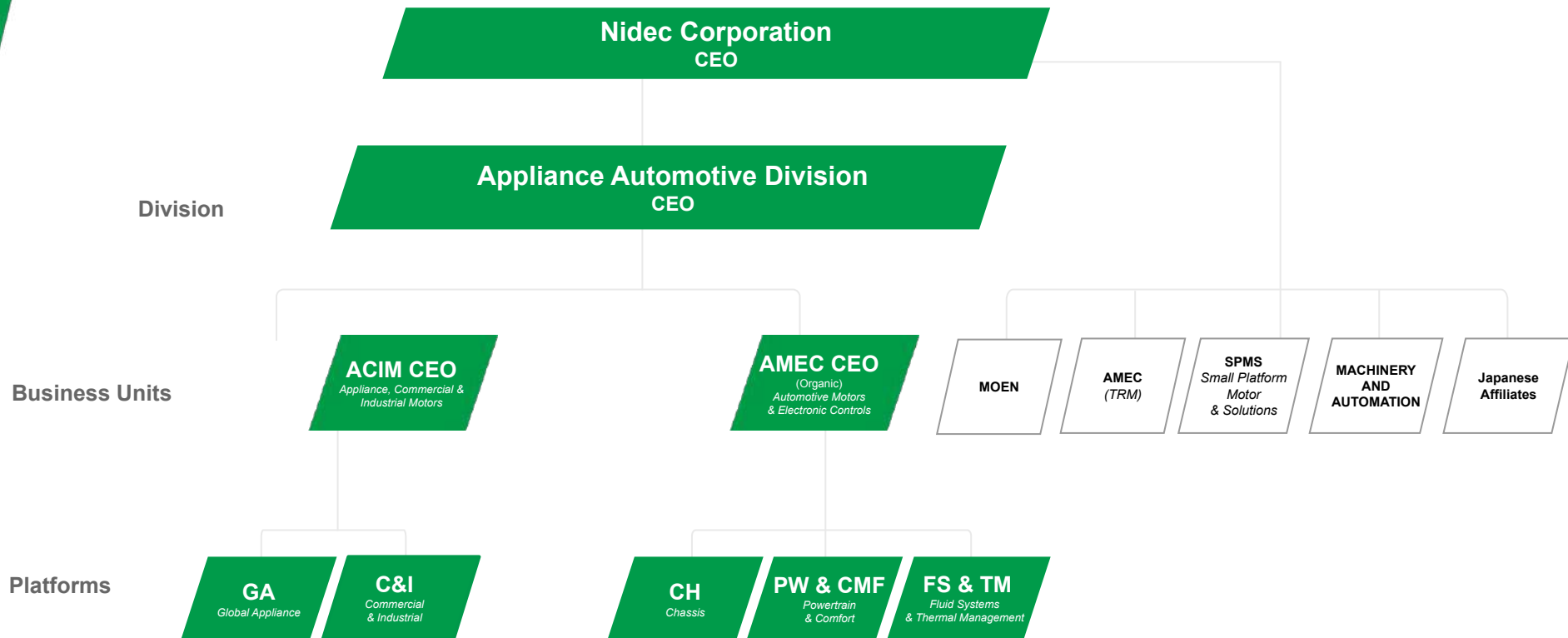


30+ countries

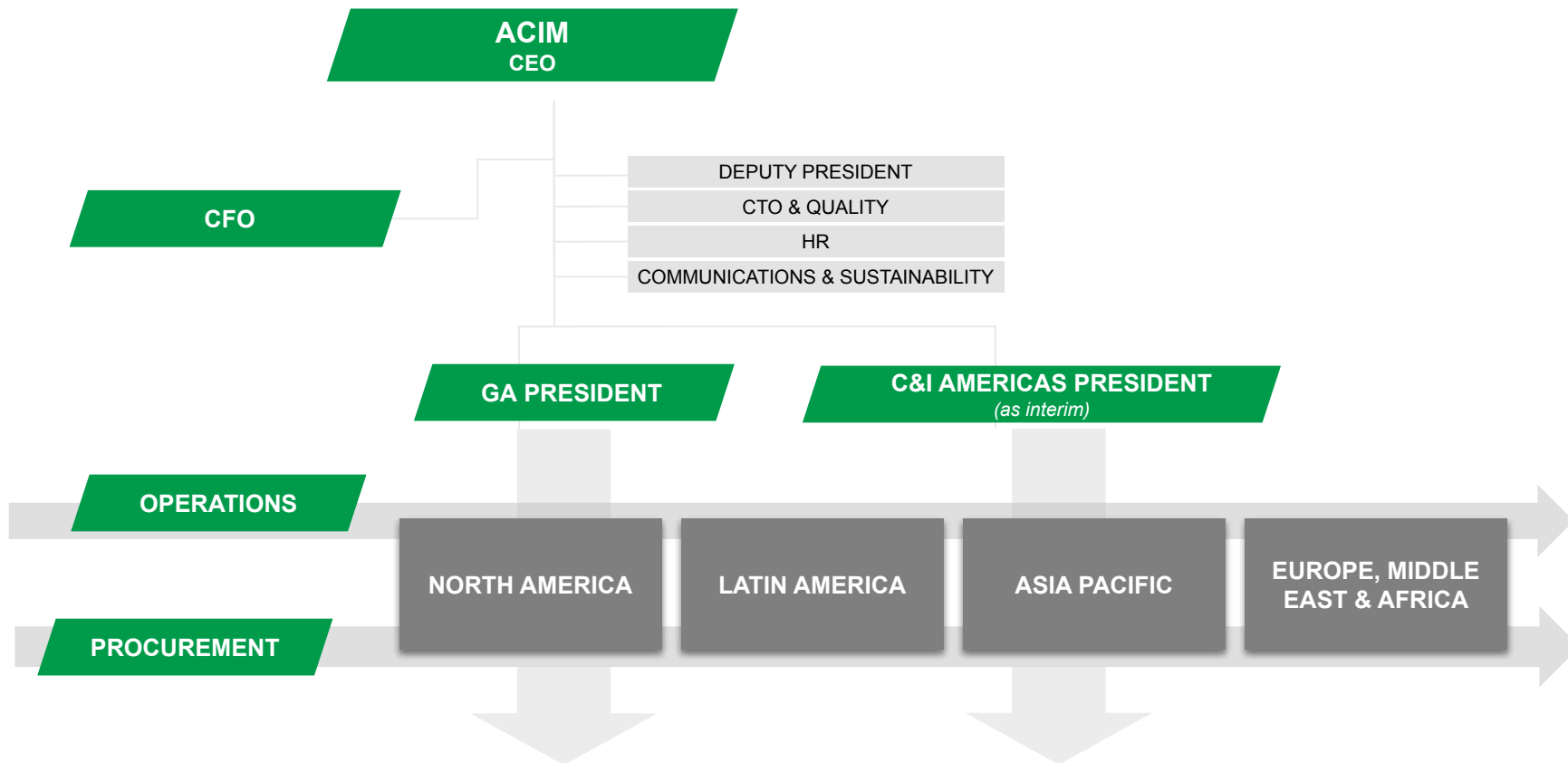


50+ facilities

Appliance Automotive Division Structure



ACIM Structure



ACIM at a glance

We develop highly-efficient solutions

that empower people and industries to move towards a more sustainable world.



21
manufacturing sites



+30
business offices



+25
countries



~15,000
people



~70,000,000
products sold/year



+ 4k
customers worldwide



ABOUT NIDEC GA

NIDEC GLOBAL APPLIANCE

About Nidec GA

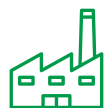
Nidec
Global Appliance



HQ: Joinville (Brazil)



+12,400 employees



19 manufacturing plants and **5** business offices across **9** countries



Annual production capacity of **+90 million** motors and compressors



12 R&D Centers worldwide and around **500 engineers**



95 countries served by our products



\$2bi (FY 25)
sales/year



Providing
major appliances
components &
solutions.

HVAC. Refrigeration.
Food preparation. Fabric Care.

Nidec
Global Appliance

Nidec embraco

FR



Global Appliance Platform

We are a global partner for **home and commercial** appliances industries

Complete portfolio of **motors, compressors, condensing units and electronics** designed to deliver the best-in-class performance, differentiated by high energy efficiency, low noise and reliability.

Home Appliance



Commercial Appliance



Climate Technology



**OUR
BRANDS**

Nidec

embraco
Nidec

FR
Nidec

embraco
Nidec

embraco
Nidec



GA Global Presence



NAR: North America; **LAR:** Latin America; **EMEA:** Europe, Middle East, and Africa; **APA:** Asia Pacific.

GA Innovation Drivers



Energy efficiency

Technology that enables **reduction of energy** consumption.



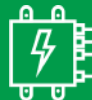
Low noise

Low noise in motors and compressors is key to **keep the consumer experience positive**.



Natural Refrigerants

Portfolio designed to deliver the **best in class performance**, under the safest conditions with natural refrigerants.



Electronics

Design and production of inverters, controllers and EC fans **for better performance and optimized total cost of ownership**.



Miniaturization

Size reduction combined with **embedded technology**.



Motors

Integrated Motors & Drives with Synchronous Technology

GA Research & Development

We are differentiated by a **deep expertise in Research & Development**, capable of **delivering technology and innovation** that anticipates trends.



Robust structure for innovation

with 12 Research & Development Centers



Partnerships with Universities

in different regions of the world



Local engineering support teams

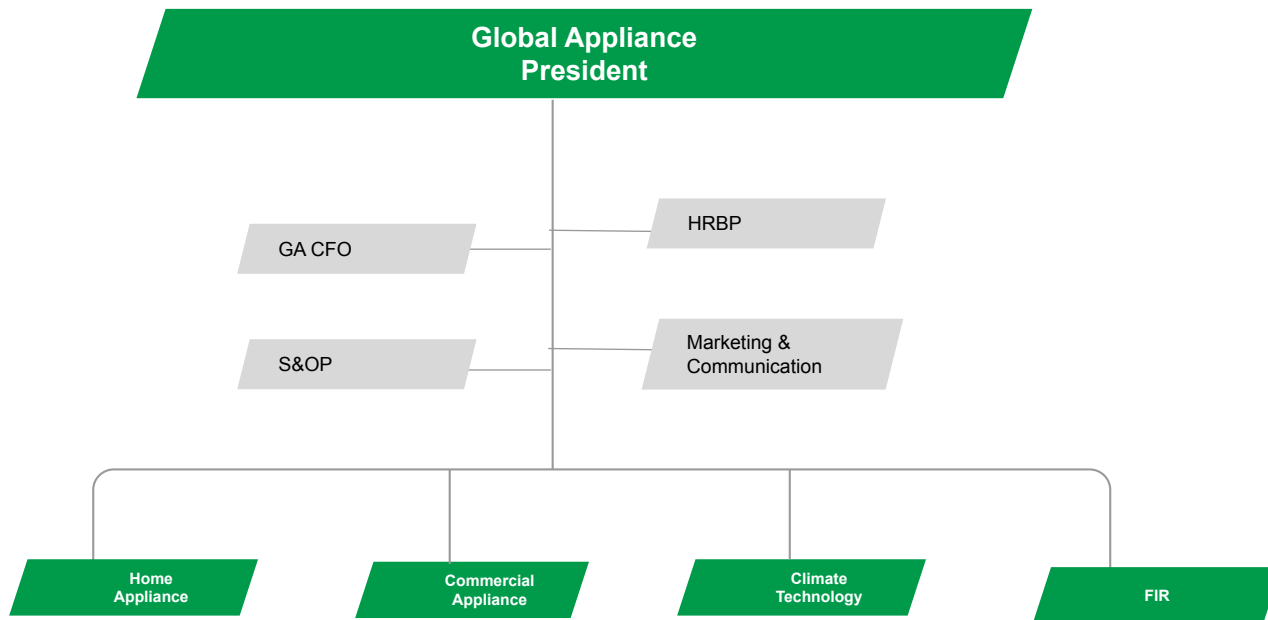
with labs and application engineers available worldwide



+600 valid patents and +4,800 in the history

Innovation is a continuous process

GA Structure



AAD CENTRAL FUNCTIONS

CPO

CIO & General Affairs

Business Development & Strategy

CHRO

Communications & Sustainability

ACIM CENTRAL FUNCTIONS

Operations

ABOUT GA

BUSINESS SEGMENTS AND BRANDS

GA Business Segments and Brands

Nidec
Global Appliance

Nidec
Global Appliance

Home Appliances

Compressors and motors for residential and professional appliances.

Nidec

embraco
Nidec

FR
Nidec

Commercial Appliances

Compressors, condensing units, monoblocks and electronics for commercial refrigeration.

embraco
Nidec

Climate Technology

Solutions for heating, ventilation and air conditioning



RESCUE

embraco
Nidec



GA BUSINESS SEGMENT

HOME APPLIANCES

Home Appliances Segment



Two steps ahead of the trends to drive appliances to a more sustainable future



Motors for residential washing machines, dryers and dishwashers.



Motors and pumps for food service, professional appliances and medical applications.



Compressors for refrigerators and freezers.

HOME APPLIANCES BUSINESS SEGMENT

PORTFOLIO FOR RESIDENTIAL LAUNDRY AND KITCHEN

Solutions for Residential Laundry and Kitchen Appliances

Nidec
Global Appliance

Nidec

We offer innovation through a complete portfolio of **motors for washing machines, dryers and dishwashers**

Excelling in technologies for **low noise, compact and energy efficient** solutions



Portfolio for Washing Machines, Dryers and Dishwashers

- ✓ Experts in the **OEM process**
- ✓ Deep understanding of the **market regulations worldwide**
- ✓ Highly advanced R&D
- ✓ **Tailored solutions**

Washing Machines

Dryer

Dishwasher

Traditional Motors



BPM Motors



The Right Solution For Each Customer's Need

We are differentiated by our **co-development** methodology with customers, which means:

- **Cost savings and improvements** in the customer's production line.
- **Working closely with customers** in the product development process to **provide proposals** with high added value.
- Formulate the **best solution** for each of our customers' products.



Products For Washing Machines

Washing machine motors in all types of technologies

Our range of motors for washers covers the requirements for all regions and types of appliances.

Available also as IMAC (Integrated Motor and Control).



HAWM
Horizontal
axis washing
machine



VAWM
Vertical axis
washing
machine



Universal



CIM



CIM - IMAC



BPM



BPM -
IMAC



DD



DDM



DDM gear
drive



PSC

Products For Dryers

From classic solutions **to second generation BPM models**



DRY
Tumble
dryer



PSC



Split-Phase



BPM



BPM -
IMAC

Products For Dishwashers

Complete portfolio of motors for dishwashers

Also available with
electronic board and
integrated heater

DW
Dishwashers



PSC
pump



PSC & integrated
heater



BPM
with integrated heater and
electronics

Electronic Drives

Deep expertise in **electronic drives**



WM drives



- Client dedicated communication HW/SW
- Proprietary unbalance control algorithm
- Integrated or modular



Dryer motor drives



- Modular version



Dishwasher drives



- Integrated on pump

HOME APPLIANCES BUSINESS SEGMENT

PORTFOLIO FOR PROFESSIONAL APPLIANCES AND MEDICAL APPLICATIONS

Solutions For Professional Appliances

Nidec
Global Appliance



Traditional brand of **motors and pumps** for professional appliances with worldwide presence.

Products marked by **energy-efficiency, reliability, high performance and customization.**



Solutions for Professional Kitchens



Motors for food processors

Low noise,
customized and
thermally optimized
**motors for food
processors** (slicers,
coffee grinders etc).



Single Phase
Motor for slicers



Gear motor for
ice nuggets



Single phase
motor for coffee
grinders

Solutions For Professional Kitchens



Pumps for professional dishwashers

Compact and energy efficient **pumps for professional dishwashers**, with optimized hydraulic performances.



Three Phase Pumps



PSC Pumps



Integrated Pump



Solutions For Professional Kitchens

Motors for professional ovens



Energy efficient
**motors for
professional ovens**
developed for the
best ventilation
performance.



Synchronous
Single-phase
motor



BPM Motor



PSC Motor

Solutions For Medical Applications



State of the art **motors for disinfection machines** used in hospitals, dental clinics and laboratories.

High **reliability** to withstand aggressive cleaning chemicals.



Dual-stage High Pressure Pump
with PSC Motor

Solutions For Professional Laundries



High efficiency and
low noise **motors for
professional
washing machines:**
high reliability.



BPM Motor



Asynchronous
motor

HOME APPLIANCES BUSINESS SEGMENT

PORTFOLIO FOR RESIDENTIAL REFRIGERATION

Solutions For Residential Refrigeration



embraco
Nidec

- ★ **High-quality and high-performance**
- ⚡ **Efficiency through constant innovation**
- 🔊 **Low noise**
- 📏 **Small size solutions**
- 💰 **Cost Competitive**

Portfolio For Home Appliances

embraco
Nidec

Nidec
Global Appliance

An **innovative** and
efficient portfolio



FIXED-SPEED

***Reliability:** Extended product life*



EL



ES



EM



EG

VARIABLE-SPEED

Highest efficiency standards** and world class **low noise



ATOM



FMS



FMX



VES



VEM



VEG

FUTURE:

High performance with portfolio simplification

***Standardization** to cover all applications' range*



ATOM



FMS



FMX



VES

Fixed-speed Portfolio



Renowned fixed-speed

Portfolio differentiated by low noise, reliability and high efficiency levels

EM FAMILY



EM3: wide performance range

Best Seller

Years of expertise and non-stop evolution in more than

100M compressors sold
in natural refrigerants

ENERGY EFFICIENCY

30 – 40%* increase
over recent years

Size reduction journey with fixed-speed compressors

208mm



EG

180mm



EM3

<160mm



ES



>30%
of size
reduction



LOW GWP SOLUTIONS:
SINCE 1994, THE PIONEER
IN ANTICIPATING FUTURE
CHALLENGES

Variable-speed Portfolio

Extra efficiency and temperature stability for refrigeration

embraco
Nidec

Nidec
Global Appliance



Lower energy consumption

Up to **50%***
reduction



Fast Cooling

Target temperature
reached faster, ensuring

**better food
preservation**



**Miniaturization
Small
on size**

but large on its
application range



**Low
noise**



**in comparison to conventional on-off compressors from the market versus our most premium product family (VES). Efficiency indexes based on internal tests.*

Miniaturization Journey

Discover The Versatility:

Comparing dimensions across our products

embraco
Nidec

Nidec
Global Appliance

**50% smaller
and 60% lighter***

VES



**Weight
~6.8kg**

FMS



**Weight
~3.5kg**

ATOM



**Weight
~2.5kg**

*comparison to VES

GA BUSINESS SEGMENT

COMMERCIAL APPLIANCES

Solutions For Commercial Appliances

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Nidec

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Global Appliance



Naturally efficient: solutions with ultra low GWP



Energy efficiency: robust portfolio with low energy consumption



Innovation: tailor-made solutions for the system needs.



Reliability: extended product life



High-quality and high performance

Wide Application Range for Commercial Refrigeration

embraco

Nidec
Global Appliance



Naturally
Efficient



Energy
Efficiency



Reliability

FIXED-SPEED

*Extended cooling
capacity*



EL



EM



EH



EG / F



NE



NT



NJ



SCROLL

VARIABLE-SPEED

*Excellence in
energy efficiency*



FMX



VES



FMS



VEM



FMF



VEH



VNE



VNEX

**CONDENSING
UNITS**

*Optimized design
for better
performance*



Standard portfolio



Customized solutions



BIOMA



Monoblock

ELECTRONICS

*Controllers and EC
fans*

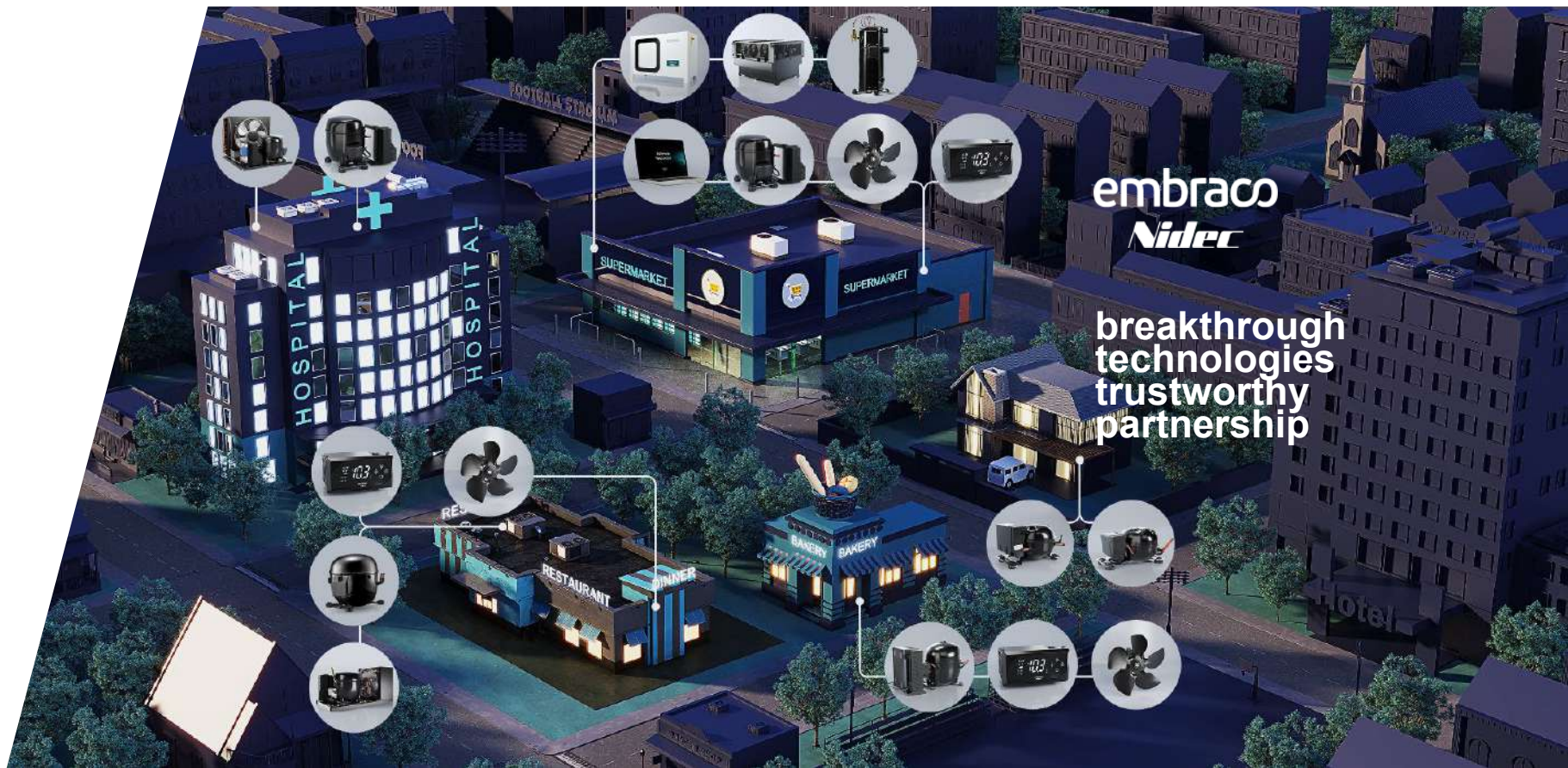


Controller



Fan motor

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Global Appliance



Compressors Highlights: EM Series

embraco
Nidec

Nidec
Global Appliance

Embraco best selling compressors



Ideal for several applications



High efficiency: The most efficient reciprocating compressor in the market

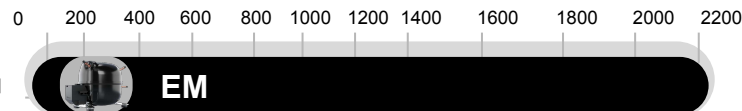


Wide envelope: L/MBP Working range -35°C / $+10^{\circ}\text{C}$



Smaller size: less use of raw materials & optimized space for transportation

COP [W/W]
1,2 a 1,9



Available in



R290



R134a



R404A



R600a

Made in
Brazil



Made in
China



Compressors Highlights: NEX Series

embraco
Nidec

Nidec
Global Appliance

Robustness in smaller design



Ideal for several applications



High efficiency: Up to 10% more efficient*



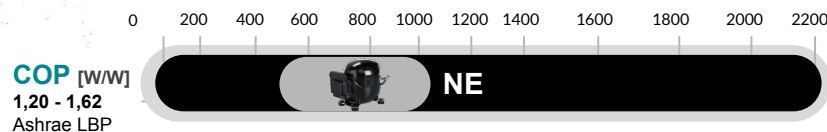
Smaller size: 10% less height and 30% less weight*



+ 24%* cooling capacity



Lower noise level



Available in

☒ **R290**

☒ **R134a**

☒ **R404A**

Made in Slovakia



Made in China



**Versus previous families*

Compressors Highlights: FMF Series

embraco
Nidec

Nidec
Global Appliance

The most efficient compressor for the commercial segment



Ideal for supermarkets and special applications



Reduces energy consumption by up to 40 % in comparison to fixed (on-off) compressors



Extended cooling capacity allows reducing the quantity of SKUs



SDI*, Dual Voltage and PFC** ready

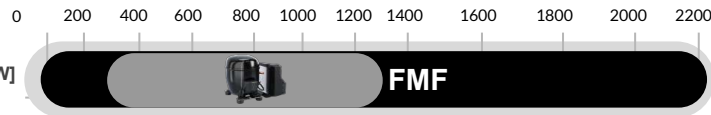


Low noise



High temperature stability

COP [W/W]
1,7.5 a 2,0



Available in

Made in Brazil



*Smart Drop In **Power Factor Correction

VNEX Series

The largest reciprocating variable speed compressor in the market



Ideal for supermarkets and special applications



embraco
Nidec

Nidec
Global Appliance



Enhanced cooling capacity covering up to 30cc fixed speed



Pioneers in the creation of large VCC reciprocating compressors



SDI, Dual Voltage, PFC and GFCI ready

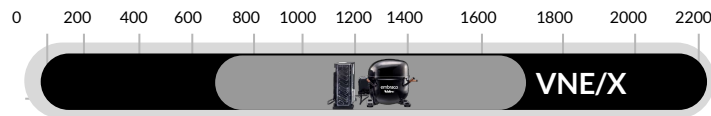


Low noise



High temperature stability

COP [W/W]
1,60 a 1,84
Ashrae LBP



Available in



R290

Made in Slovakia



Embraco Original Cooling Solutions

embraco
Nidec

Nidec
Global Appliance



Complete portfolio for a diverse range of applications



Customization possibilities according to customer needs



Optimized condenser and compressor project for **improved performance and reliability**



With approved options for the use of **natural refrigerants**



All components feature Embraco quality

Condensing Units And Monoblocks

embraco
Nidec

Nidec
Global Appliance

Complete compressor range to meet every solutions need



Power (HP)

1/10 HP

2 HP

13 HP



Standard
portfolio



Customized
units



EDP Portfolio



Monoblock



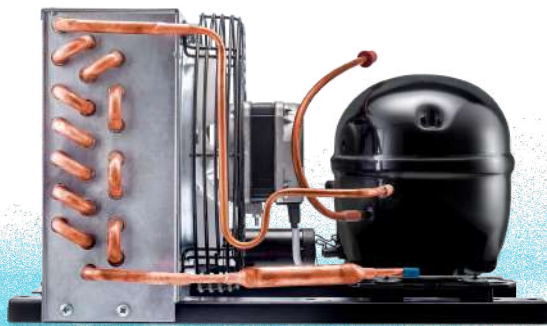
Bioma

Condensing Units: Standard Portfolio

embraco
Nidec

Nidec
Global Appliance

Reliable portfolio of cooling solutions



Covering multiple applications



Cold room



Display cases

LESS COMPLEXITY: complete pre-assembled high pressure side solution simplifies production process and maintenance.



Customization capabilities: standard portfolio covering a wide range of applications.



Optimized condenser-compressor design leading to improved performance and reliability.



Approved for natural refrigerants use

Condensing Units: EDP Portfolio

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Nidec

Nidec
Global Appliance

EDP units: high efficiency in a compact and modular design



Main applications: Food Service



Removable evaporation tray with stainless steel hot-loop to speed up evaporation



Designed for easy replacement of components

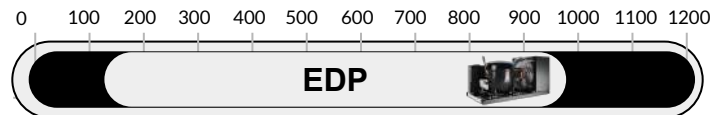


Easy mounting of the compressor using snap-on fasteners



Customizable: compact, inverter and plus versions

CAP. [W]
LBP



Available in



R290



R134a



R404A

Made in Brazil



Condensing Units: Bioma

The world's quietest condensing unit in its capacity range



Main applications



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Silent: with a robust design that absorbs vibrations (models emit from 36 to only 28 dB)



Robust design: Stackability and longitudinal airflow

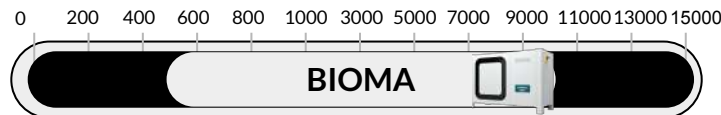


Easy access to all internal components



High-efficiency compressors with multiple refrigerant implementation

REF.
CAP. [W]



Available in

✓ R452A ✓ R449A ✓ R513A

Made in Slovakia



Sync It All portfolio

No one controls Embraco better than Embraco

Embraco Sync

It works **connected to You Control** and **manages the whole system** for an **optimized performance**.

Variable Speed

The compressor **saves energy by adapting** its rotation speed to the cooling demand

Optimized performance, less energy consumption and set up time reduction from weeks to days.



Embraco AIR

With an electronic motor, the fan is **energy efficient** and works with **single, multi or variable speed**.

The exclusive design allows **flexible assembly and fixation**.

YouControl

An easy interface that allows **you** to define the system's parameters, with an automatic tuning feature.



Scroll For Refrigeration

embraco

Nidec
Global Appliance



Main applications

Food Storage



Cold Rooms



Multi deck reach ins

Cooling Tanks



Milk Cooling Tank

Remote Systems



Racks



Multi refrigerant platform

HFC: R404A, R448A, R449A, R452A, R134a, R450A, R513A

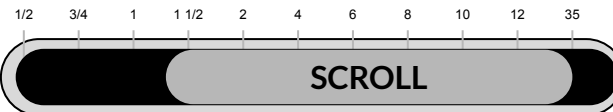


Released options for **new low GWP options: R290 and A2Ls** (R455A, R454C, R454B, R32) & backward compatibility with HFCs



Versatile solution: Liquid and vapor injection for low temperature applications for improved performance.

Comm.
Ref [HP]



GA BUSINESS SEGMENT

Climate Technology

U.S. Motors® Brand

Nidec
Global Appliance

One of the oldest and most trusted brands in the motor industry, recognized worldwide as **the mark of leadership and technological innovation**

U.S. MOTORS brand encompasses a complete line of general and special purpose residential and commercial motors for a wide variety of applications.



Residential



Commercial

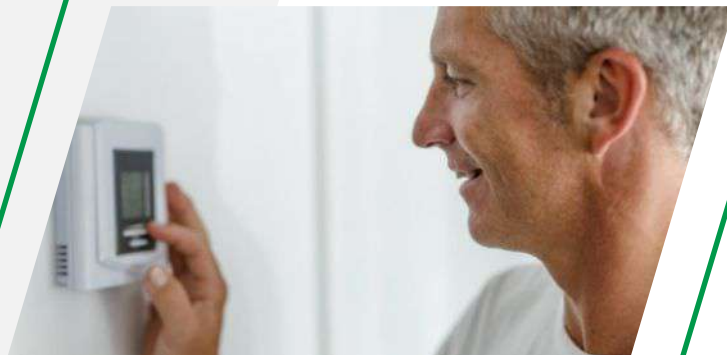


Background

HVAC

Tradition and Experience

With roots dating back to 1908, our motor brands are leaders in the North American market, offering a full complement of induction or EC motors designed for single or three phase applications.



Main Attributes

Heating, Ventilation and Air Conditioning (HVAC)

Get to know the main attributes of our portfolio of components for the HVAC industry:



Technology & Innovation



Reliability



Low lead time



Rely on **US**



Rescue® Motors Brand

The **RESCUE®** line of HVAC motors is part of the U.S. **MOTORS®** brand product family. Ask for **RESCUE®**, The Ultimate Truck Stock Motor™.



Premium brand

Different technologies:

ECM: 85% EFFICIENCY

higher cost / premium material inside

PSC: 60% EFFICIENCY

price fighting motors



Portfolio To Serve All OEM Motor Needs

Commercial



140 Frame &
Larger | 3-PH



56 Frame
1-PH, 3-PH



5.5"
PSC



PEP High
Eff. PSC

Induction Motors

ECM



PerfectSpeed
Constant CFM



SelectTech
Constant
Torque



EcoApex
48



EcoApex
56 Frame

Heat Pump & Condensing Unit



4.8"
PSC



5.5"
PSC



PEP High Eff.
PSC



EcoApex 48

Furnace



Draft Inducer



PerfectSpeed
Constant CFM



SelectTech
Constant
Torque



Ecotech

Air Handler



PerfectSpeed
Constant CFM



SelectTech
Constant
Torque



RESCUE
Ecotech

CLIMATE TECHNOLOGY BUSINESS SEGMENT

SCROLL COMPRESSORS FOR REFRIGERATION, HEATING AND AIR-CONDITIONING

Scroll Portfolio Main Features

embraco

Nidec
Global Appliance



Wide range of capacities, from 1.2HP to 35Hp, for all main applications: **refrigeration, air conditioning and heating**

.....



High reliability: Internal overload protector (OLP) & dual scroll compliance for better liquid management and performance

.....



High energy efficiency: Liquid & vapor injection for wider LBP (low back pressure) envelope & improved system performance

.....



Multi-refrigerant: platform approved for multiple HFCs (**R410A, R404A and others**) and ready for new solutions - R290 & A2L (R455A, R454C, R454B, R32)

Scroll For Refrigeration

embraco

Nidec
Global Appliance



Main applications

Food Storage



Cold Rooms



Multi deck reach ins

Cooling Tanks



Milk Cooling Tank

Remote Systems



Racks



Multi refrigerant platform

HFC: R404A, R448A, R449A, R452A, R134a, R450A, R513A

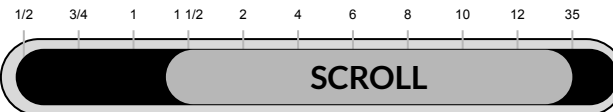


Released options for **new low GWP options: R290 and A2Ls** (R455A, R454C, R454B, R32) & backward compatibility with HFCs



Versatile solution: Liquid and vapor injection for low temperature applications for improved performance.

Comm.
Ref [HP]



Scroll For Air-Conditioning

embraco

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Main applications

Residential



Large
Splits



Ducted /
Central

Commercial



Packaged
systems (rooftop)



Chiller



Available for Air cooled and water cooled applications in R410A

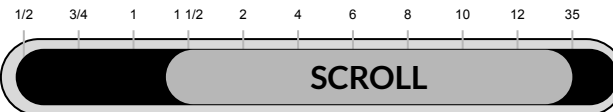


Released options for **new low GWP options: R32, R454B and R290**



Vapor injection available for improved system performance

Comm.
Ref [HP]



Scroll For Heating

embraco

Nidec
Global Appliance



Main applications

Residential

Commercial



Space heating
- Air to Air (direct)
- Air to Water



Pool
heating



Agriculture (dryers
and maturing
chambers)



Air Chiller



Available for R134a and R410A



Released options for **new low GWP options R290**

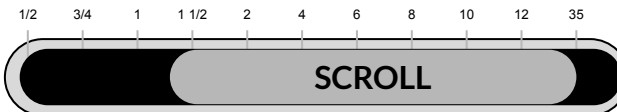


Available for **high temperature applications (R515B & R1233zd)**



Vapor injection available for improved system performance

**Comm.
Ref [HP]**



**For an in-depth look about
our company and solutions,
follow our pages:**





Nidec

Global Appliance