

**Nidec  
Global Appliance  
Company Profile**



## We are part of Nidec Corporation



Founded in  
**1973**



**HQ:**  
Kyoto, Japan



**340+**  
Companies



**40+**  
Countries



**Over 70 M&A**  
(Mergers & Acquisitions)



**110,000+**  
Employees  
worldwide



**\$16.2B**  
Net Sales (FY 23)



Information Technology



Vehicles



Robotics



Power Generation



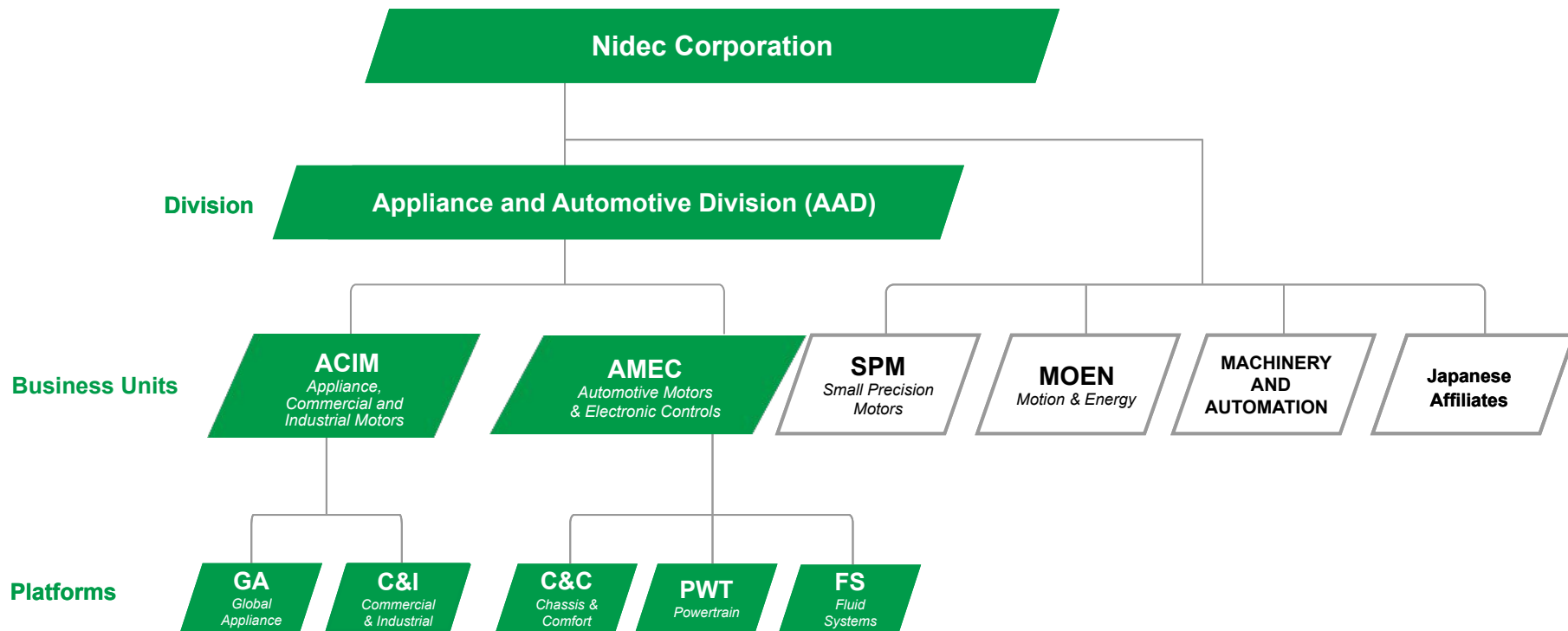
Appliances



Industry



# Appliance and Automotive Division inside Nidec structure



# ACIM AT A GLANCE

**We develop highly-efficient solutions**  
that empower people and industries to move  
towards a more sustainable world.



**37**  
manufacturing sites



**~30**  
business offices



**+25**  
countries



**+18,000**  
people



**Headquarters**  
in Pordenone  
(Italy)



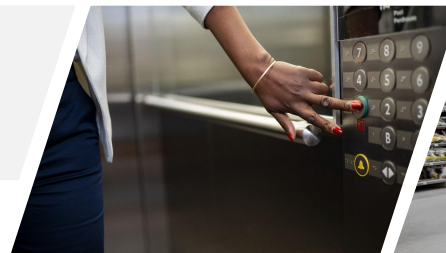
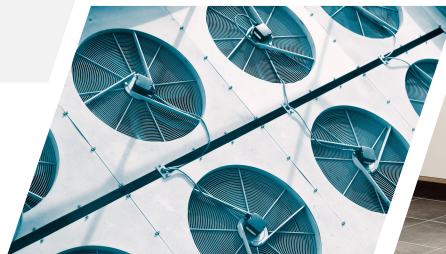
**\$3B**  
Net Sales (FY 23)



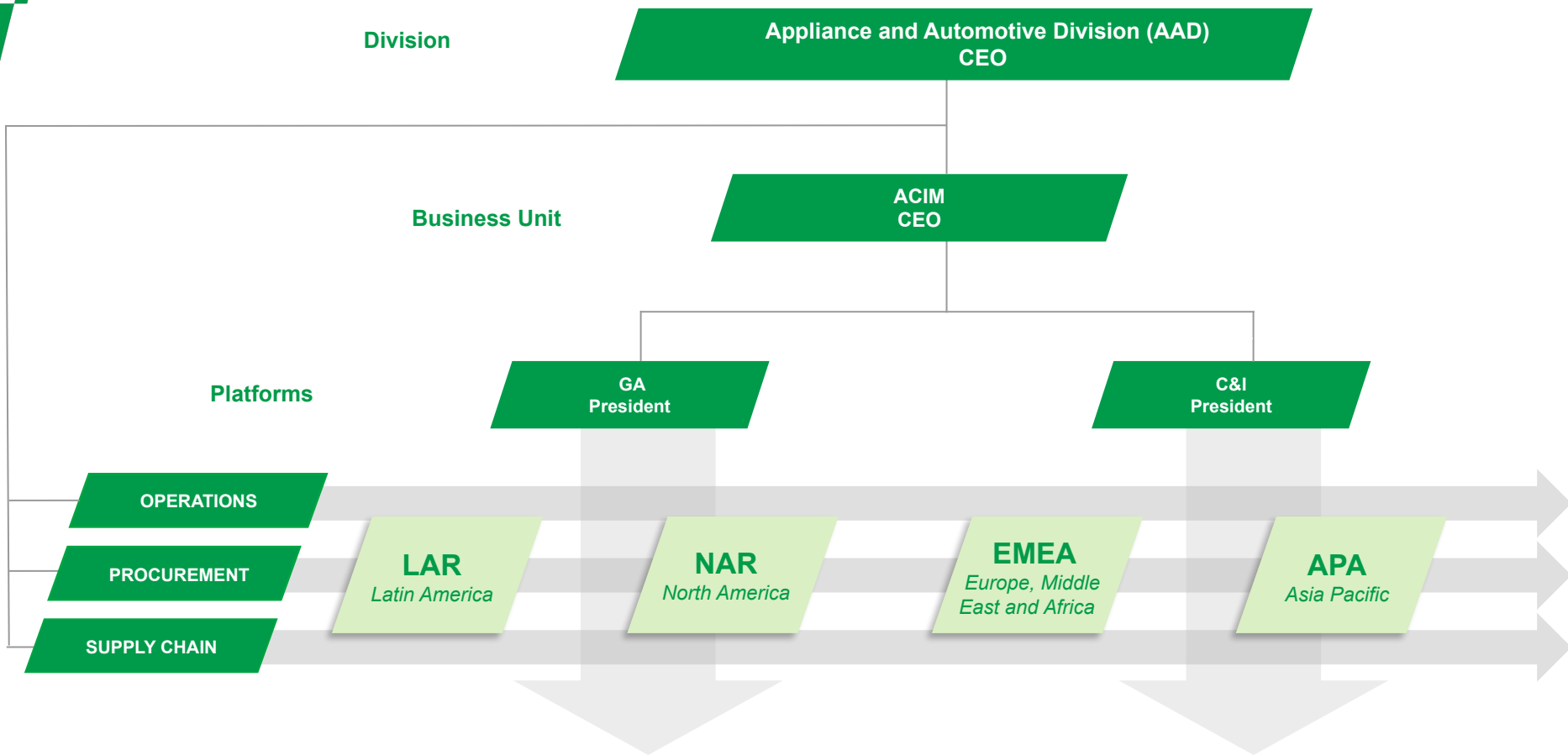
**70,000,000**  
products sold/year



**+4k**  
customers worldwide



# ACIM STRUCTURE





ABOUT NIDEC GA

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# NIDEC GLOBAL APPLIANCE

# ABOUT NIDEC GA

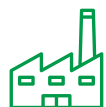
**Nidec**  
Global Appliance



**HQs:** Joinville (Brazil)



**13,000** employees



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



Annual production capacity of **80 million** motors and compressors



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



**90 countries** served by our products



**\$1.5B (FY23)**  
sales/year



# 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.

## HA



## CA



## HVAC



**OUR  
BRANDS**

**Nidec**

**embraco**  
**Nidec**

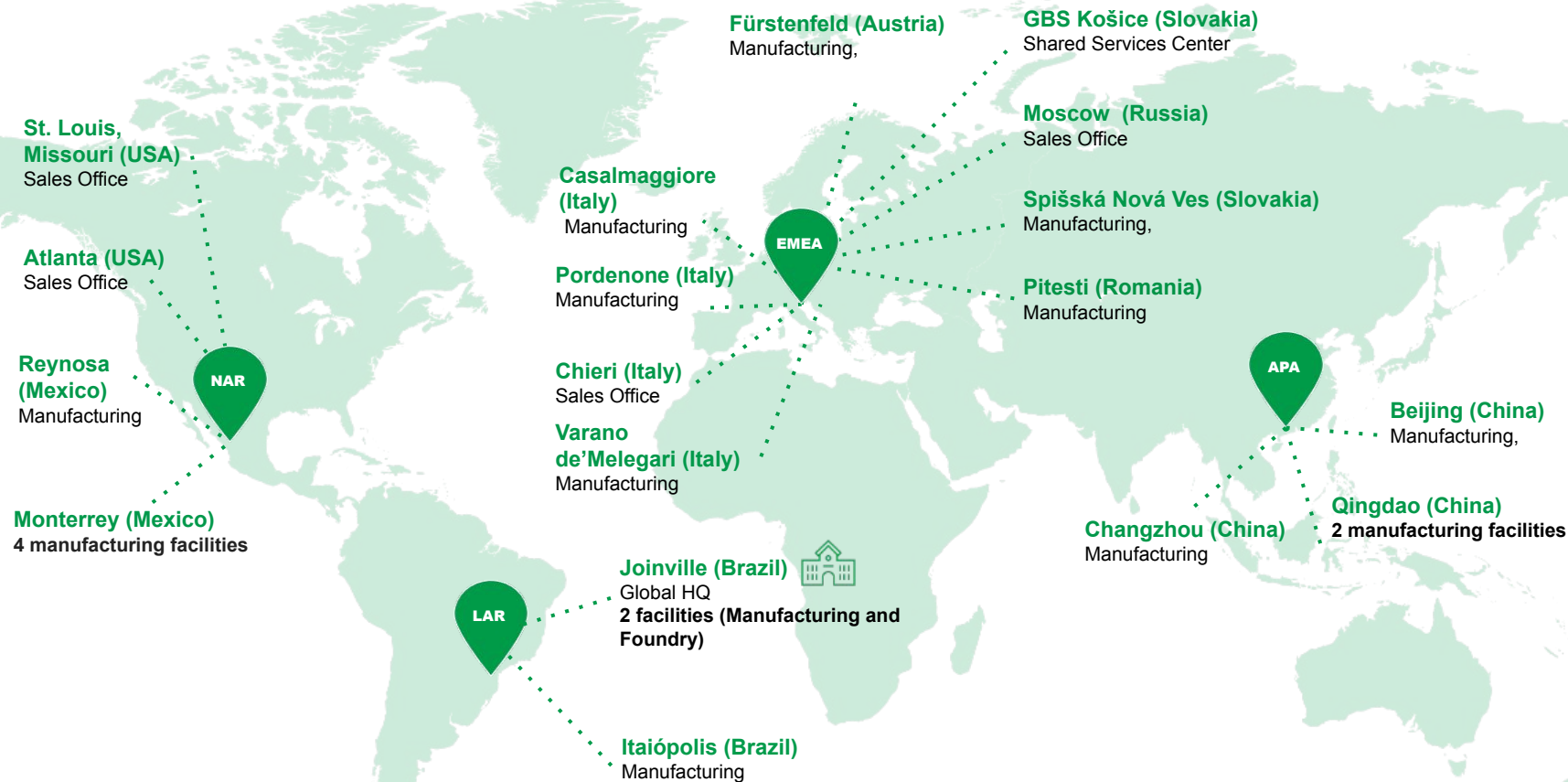
**FR**

**embraco**  
**Nidec**





# GA GLOBAL PRESENCE



# GA INNOVATION DRIVERS



## Energy efficiency

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



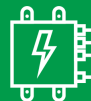
## Low noise

**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 8 Research & Development Centers



## **Partnerships with Universities**

in different regions in the world



## **Local engineering support teams**

with labs and application engineers available worldwide



## **+570 valid patents and +4,500 in the history**

Innovation is a continuous process



ABOUT GA

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# 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*

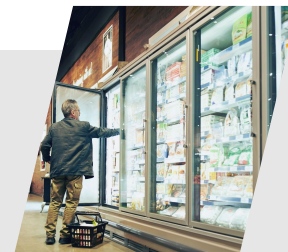
**FR**



## Commercial Appliances

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

**embraco**  
*Nidec*



embraco  
Nidec

## HVAC

Solutions for heating, ventilation and air conditioning



GA BUSINESS SEGMENT

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# 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*

**Nidec**  
Global Appliance

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



PS  
C

## PRODUCTS FOR DRYERS

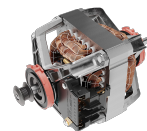
# From classic solutions to second generation BPM models



**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

# 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



**Nidec**  
Global Appliance

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



PSC  
pump



PSC  
pump



PSC  
pump



PSC  
pump



PSC  
pump

# SOLUTIONS FOR PROFESSIONAL KITCHENS



**Nidec**  
Global Appliance

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



## Professional Dishwashers



# SOLUTIONS FOR PROFESSIONAL KITCHENS



**Nidec**  
Global Appliance

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



## Professional **Ovens**



# SOLUTIONS FOR MEDICAL APPLICATIONS



**Nidec**  
Global Appliance

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

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



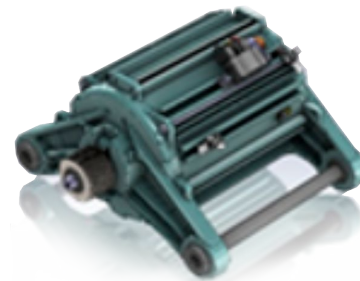


# SOLUTIONS FOR PROFESSIONAL LAUNDRY



**Nidec**  
Global Appliance

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



HOME APPLIANCES BUSINESS SEGMENT

# **PORTFOLIO FOR RESIDENTIAL REFRIGERATION**

# SOLUTIONS FOR RESIDENTIAL REFRIGERATION

**Nidec**  
Global Appliance



**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*



FMS



FMX



VES



VEM



VEG

### FUTURE:

High performance with portfolio simplification

*Standardization to cover all applications' range*



FMS



FMX



VES

## FIXED-SPEED PORTFOLIO

embraco  
Nidec

Nidec  
Global Appliance

# 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



# Extra efficiency and temperature stability for refrigeration



**Lowest energy consumption:**  
up to 50%\* reduction



**Miniaturization:** small on size, but  
large on its application range



**Fast Cooling:** target  
temperature reached faster,  
ensuring better food  
preservation



**Low noise**

Ready to meet the most  
restrictive regulations on  
energy consumption and noise

208mm



VEG

123mm



FMS

>40%  
of size  
reduction

Designed to deliver high cooling  
capacity with small size



*\*in comparison to conventional compressor.  
Efficiency indexes based on internal tests.*

## MINIATURIZATION JOURNEY

embraco  
*Nidec*

*Nidec*  
Global Appliance

**Discover the Versatility:**  
Comparing dimensions across our products

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

**VES**



**Weight  
~6.8kg**

**FMS**



**Weight  
~3.5kg**

**FUTURE: ATOM**



**Weight  
~2.5kg**

\*comparison to VES

GA BUSINESS SEGMENT

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# COMMERCIAL APPLIANCES

# SOLUTIONS FOR COMMERCIAL APPLIANCES

embraco  
*Nidec*

*Nidec*  
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**

**Nidec**  
Global Appliance



Naturally  
Efficient



Energy  
Efficiency



Reliability

ambico  
franco

## 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*



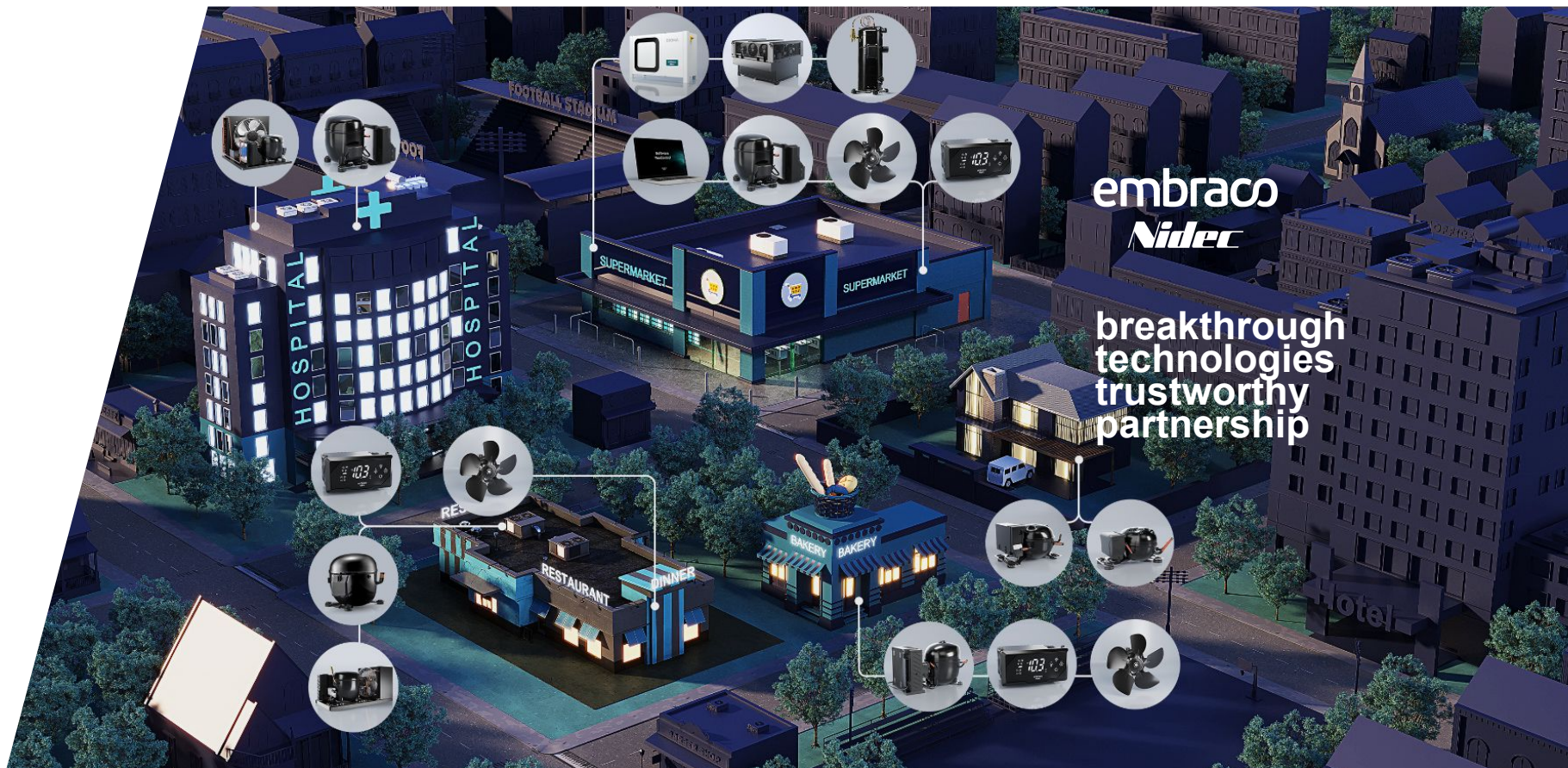
Controller



Fan motor

# PROVIDING EVERYTHING TO BE EVERYWHERE

**Nidec**  
Global Appliance





# COMPRESSORS HIGHLIGHTS: EM SERIES

embraco  
Nidec

Nidec  
Global Appliance

## The World's Best Selling Compressors



*Ideal for several applications*



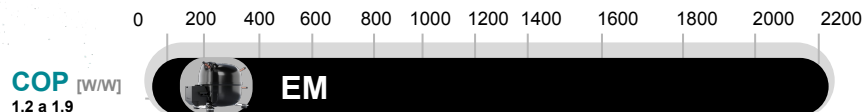
**High efficiency:** The most efficient reciprocating compressor in the market



**Wide envelope:** L/MBP Working range <sup>embraco</sup>  $-35^{\circ}\text{C}$  /  $+10^{\circ}\text{C}$



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



**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\*

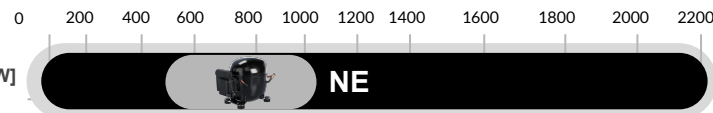


**+ 24%\*** cooling capacity



**Lower noise level**

**COP** [W/W]  
1,20 - 1,62  
Ashrae LBP



**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

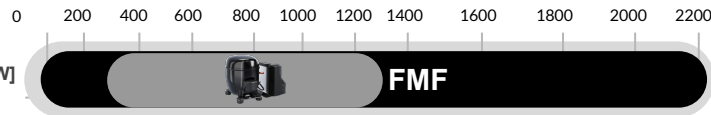


Low noise



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

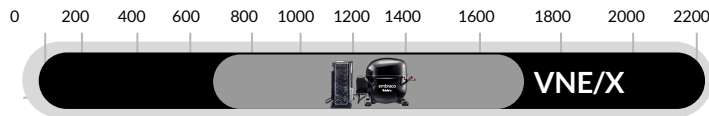


Low noise



High temperature stability

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



Available in



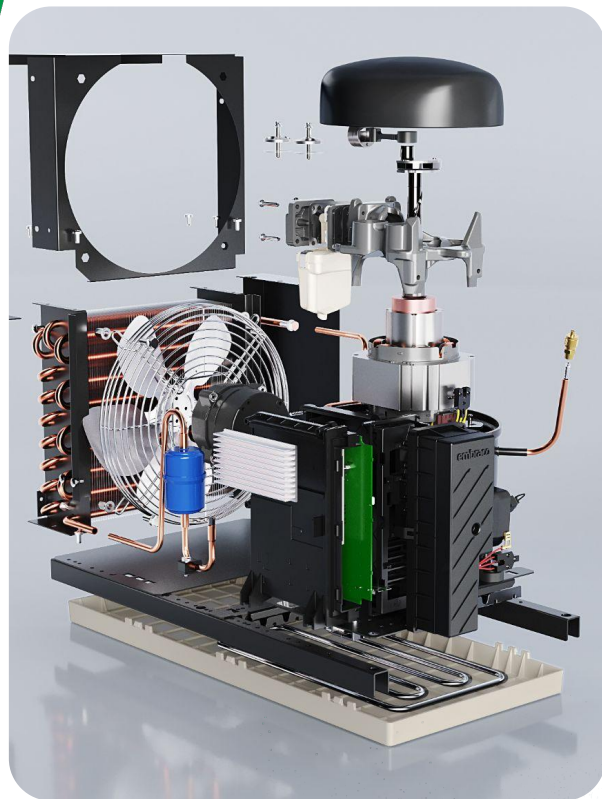
Made in Slovakia



# 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**

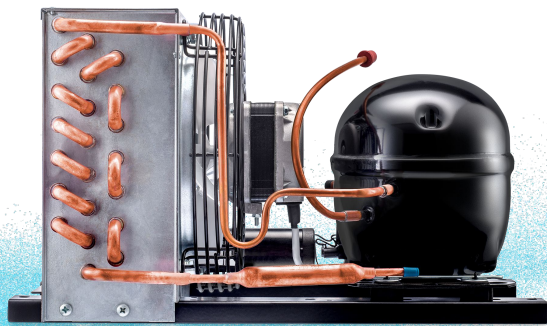


# CONDENSING UNITS: STANDARD PORTFOLIO

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

embraco  
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

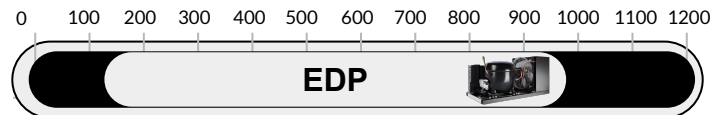


Easy mounting of the compressor using snap-on fasteners



Customizable: compact, inverter and plus versions

CAP. [W]  
LBP



Available in



R290



R134a



R404A

Made in Brazil



## CONDENSING UNITS: BIOMA

embraco  
Nidec

Nidec  
Global Appliance

# The world's quietest condensing unit in its capacity range



*Main applications*



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



**Robust design:** Stackability and longitudinal airflow

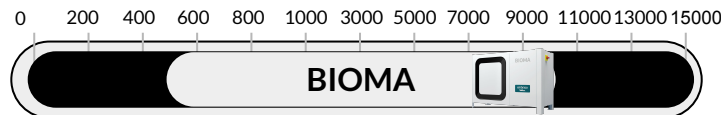


Easy access to all internal components



High-efficiency compressors with multiple refrigerant implementation

REF.  
CAP. [W]



*Available in*

✓ R452A ✓ R449A ✓ R513A

Made in Slovakia



## NEW: 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.



GA BUSINESS SEGMENT

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# **HVAC | Heating, ventilation and air conditioning**

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*





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, commercial and industrial motors from 1/30 horsepower through 4000 horsepower for a wide variety of applications.

Since 1908, the brand has stood out for exceptional product reliability and performance.



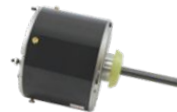
Residential



Commercial



Industrial



# 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



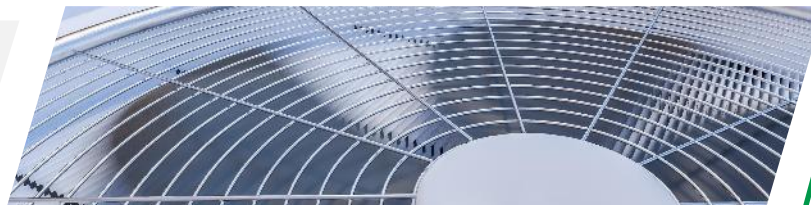
Reliability



Low lead time



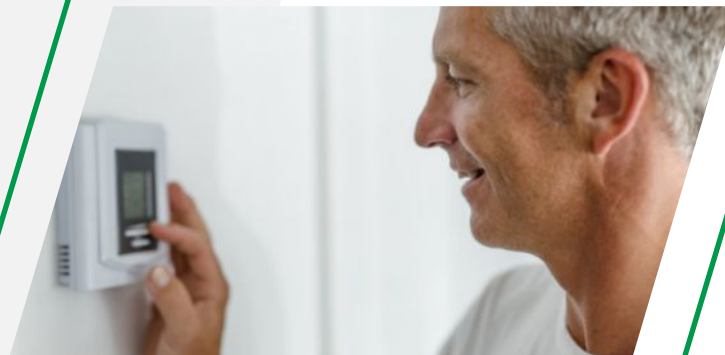
Rely on **US**



## HVAC

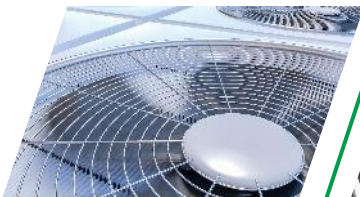
### Tradition and Experience

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.



## AIR MOVING AND VENTILATION PRODUCTS

**Multi-technology motors, gearmotors, brake motors,  
electronic drives for a variety of industrial applications.**



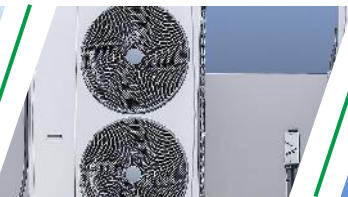
Power Roof Ventilators



Air Filtration



Air Curtains/  
Air Doors



Commercial/  
Industrial Blowers



Prop Fans



Condenser Fan /  
Heat Pump



Energy Recovery  
Ventilators



Air Handler



Furnace

# PORTFOLIO TO SERVE ALL OEM MOTOR NEEDS

**Nidec**  
Global Appliance

## 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



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







***Nidec***

**Global Appliance**