

**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

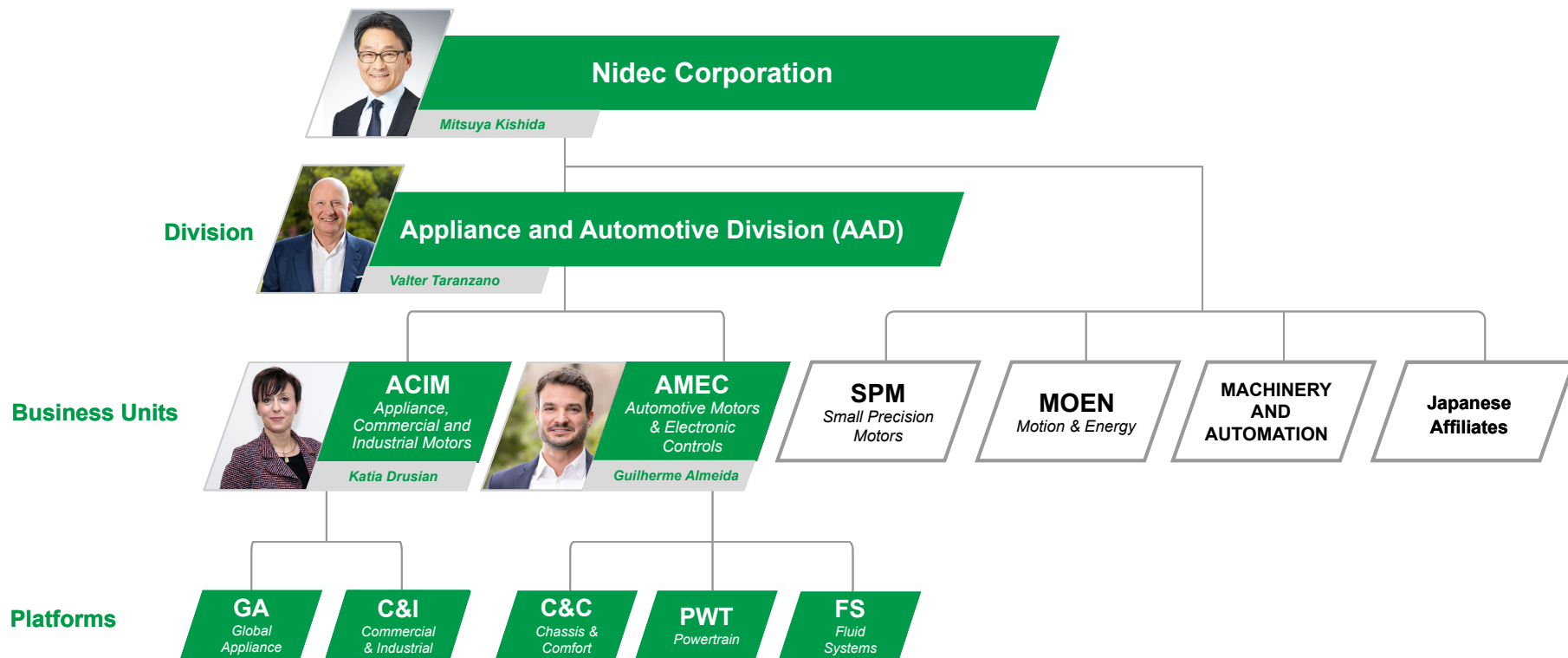


Appliances



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)



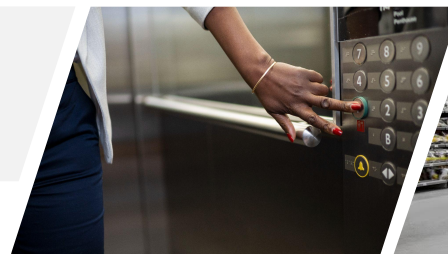
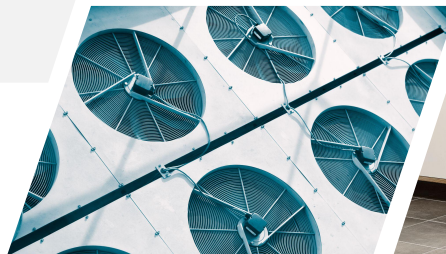
**\$3B**  
Net Sales (FY 23)



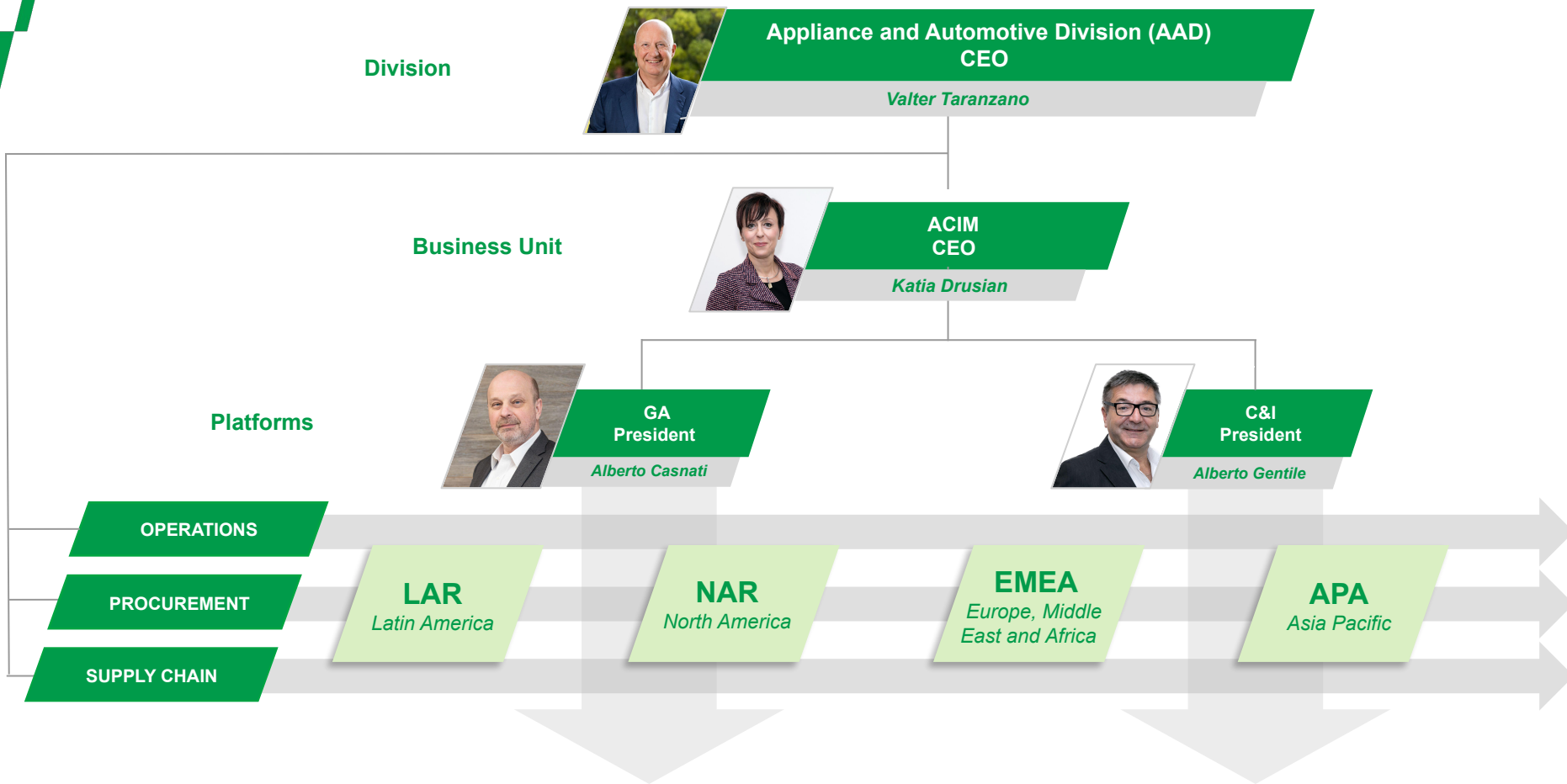
**70,000,000**  
products sold/year



**+4k**  
customers worldwide



# ACIM STRUCTURE



ABOUT NIDEC GA

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# NIDEC GLOBAL APPLIANCE

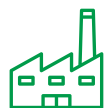
# ABOUT NIDEC GA



**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

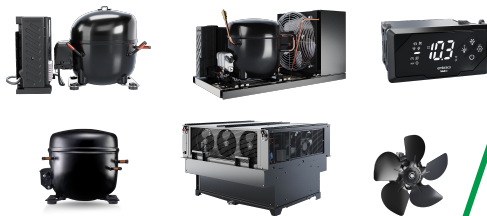
We are a global partner for **home and commercial** appliances industries

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**

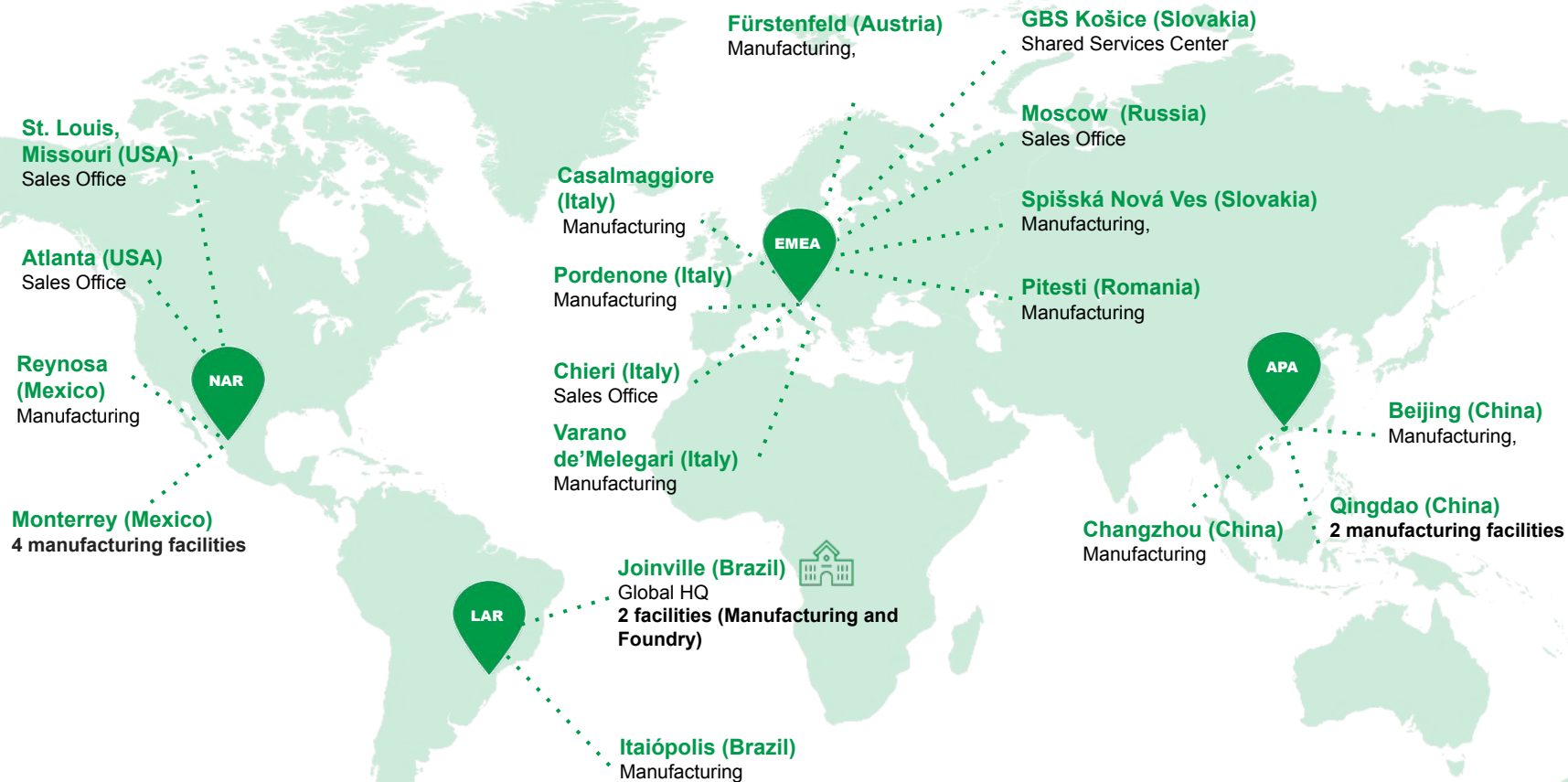
embraco  
**Nidec**



**RESCUE**



# GA GLOBAL PRESENCE



# GA INNOVATION DRIVERS



## Energy efficiency

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



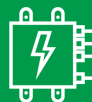
## Low noise

**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

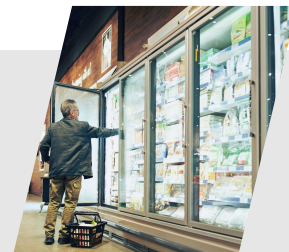
**FR**



## Commercial Appliances

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

**embraco**  
Nidec



embraco  
CONDENSING UNIT

## HVAC

Solutions for heating, ventilation and air conditioning



GA BUSINESS SEGMENT

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# HOME APPLIANCES

## HOME APPLIANCES SEGMENT

**Nidec**  
Global Appliance

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



**Nidec**

**Motors** for residential washing machines, dryers and dishwashers.



**FR**

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



**embraco**  
**Nidec**

**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.



## 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

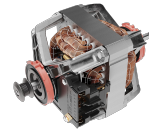
# From classic solutions to second generation BPM models



**DRY**  
Tumble  
dryer



PSC



Split-Phase



BPM



BPM -  
IMAC

# 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).



## Food **Machines**



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

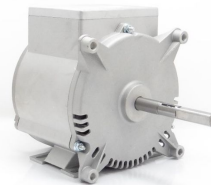


**Nidec**  
Global Appliance

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.

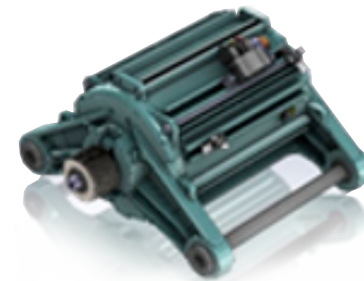


# SOLUTIONS FOR PROFESSIONAL LAUNDRY



**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

## 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



EG



EM3



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



## 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



Naturally Efficient



Energy Efficiency



Reliability

**FIXED-SPEED**

*Extended cooling capacity*



**VARIABLE-SPEED**

*Excellence in energy efficiency*



**CONDENSING UNITS**

*Optimized design for better performance*



Standard portfolio



Customized solutions



BIOMA



Monoblock

**ELECTRONICS**

*Controllers and EC fans*



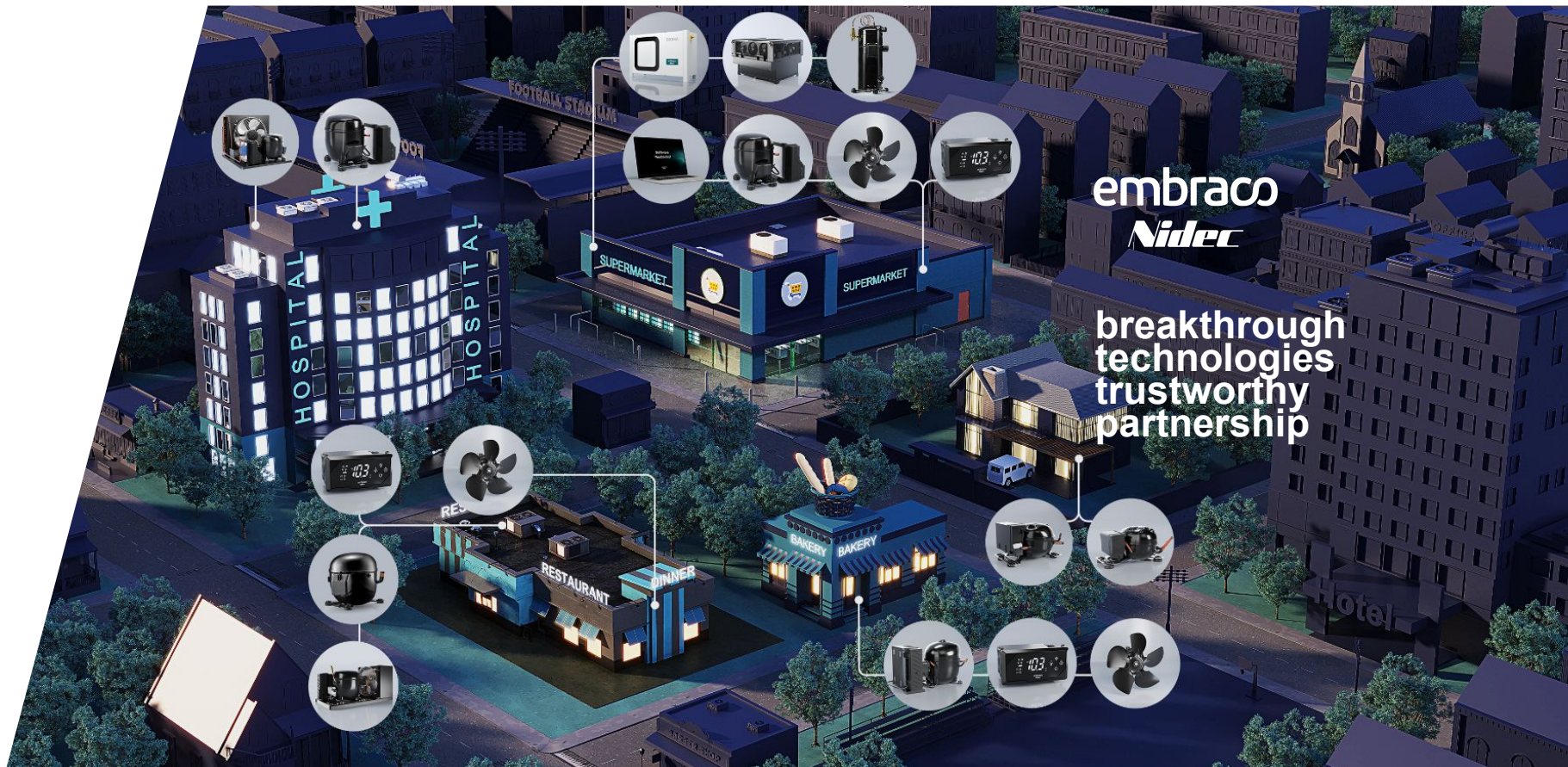
Controller



Fan motor

# PROVIDING EVERYTHING TO BE EVERYWHERE

**Nidec**  
Global Appliance



**embraco**  
**Nidec**

**breakthrough  
technologies  
trustworthy  
partnership**



# COMPRESSORS HIGHLIGHTS: EM SERIES

embraco  
Nidec

Nidec  
Global Appliance

## The World's Best Selling Compressors



*Ideal for several applications*



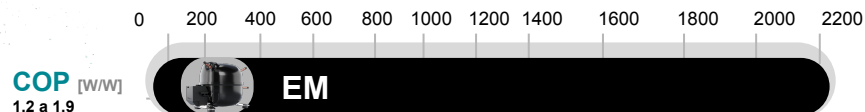
**High efficiency:** The most efficient reciprocating compressor in the market



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



**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\*



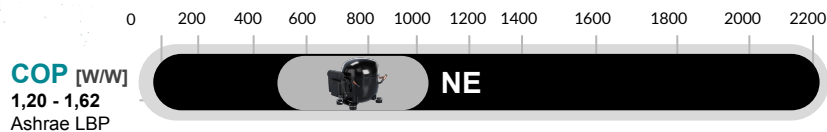
Smaller size: 10% less height and 30% less weight\*



+ 24%\* cooling capacity



Lower noise level



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



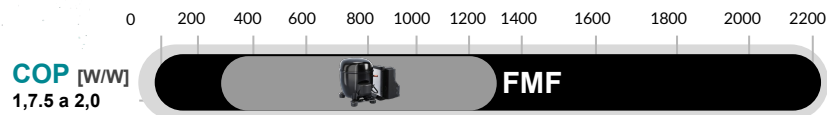
SDI\*, Dual Voltage and PFC\*\* ready



Low noise



High temperature stability



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

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200

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

VNE/X

Available in

Made in Slovakia



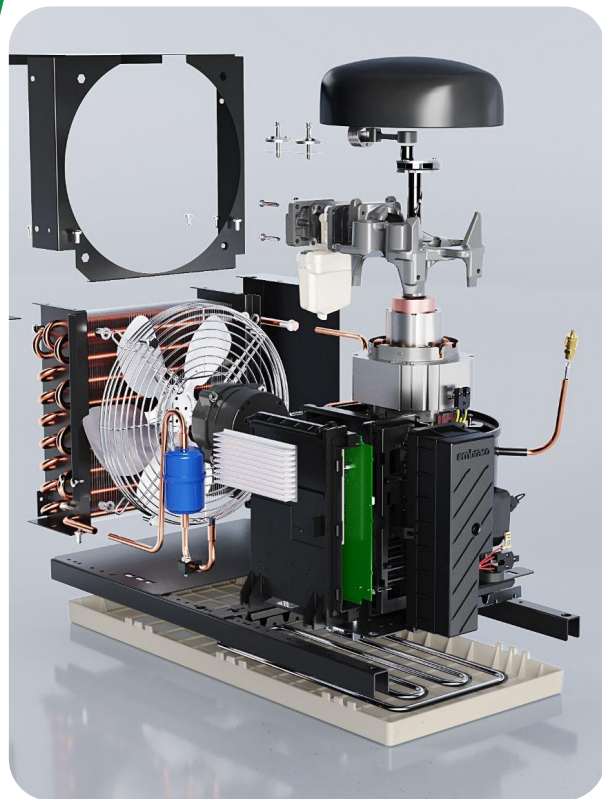
R290



# 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

## Complete compressor range to meet every solutions need



Power (HP)

1/10 HP

2 HP

13 HP



Standard  
portfolio



Customized  
units



EDP Portfolio



Monoblock



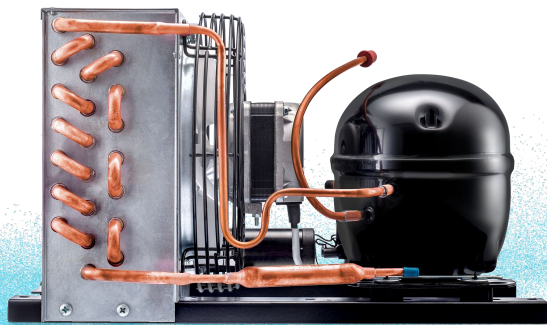
Bioma

# 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



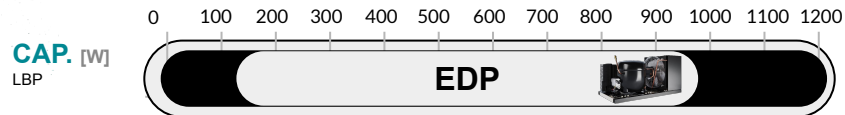
Designed for easy replacement of components



Easy mounting of the compressor using snap-on fasteners



Customizable: compact, inverter and plus versions



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

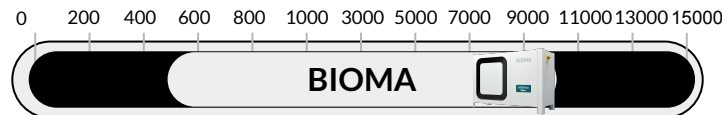


Easy access to all internal components



High-efficiency compressors with multiple refrigerant implementation

REF.  
CAP. [kW]



*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

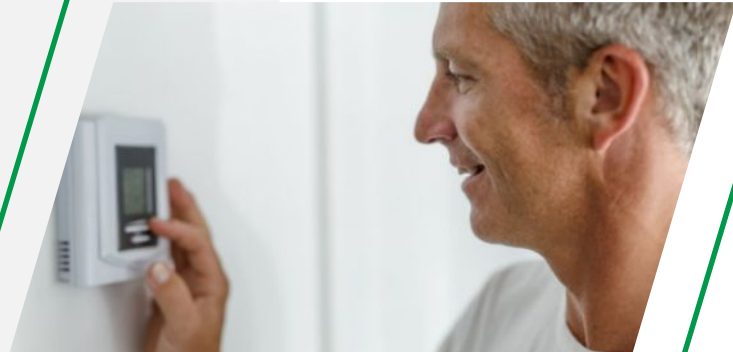


Rely on **US**

## HVAC

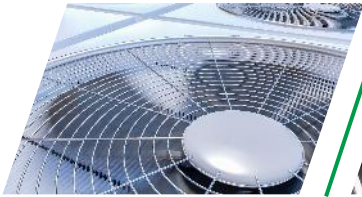
### Tradition and Experience

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



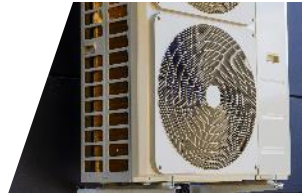
Air Curtains/  
Air Doors



Commercial/  
Industrial Blowers



Prop Fans



Condenser Fan /  
Heat Pump



Energy Recovery  
Ventilators



Air Handler



Furnace



# PORTFOLIO TO SERVE ALL OEM MOTOR NEEDS

## 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**