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MOTION & CONTROL™

**NSK**

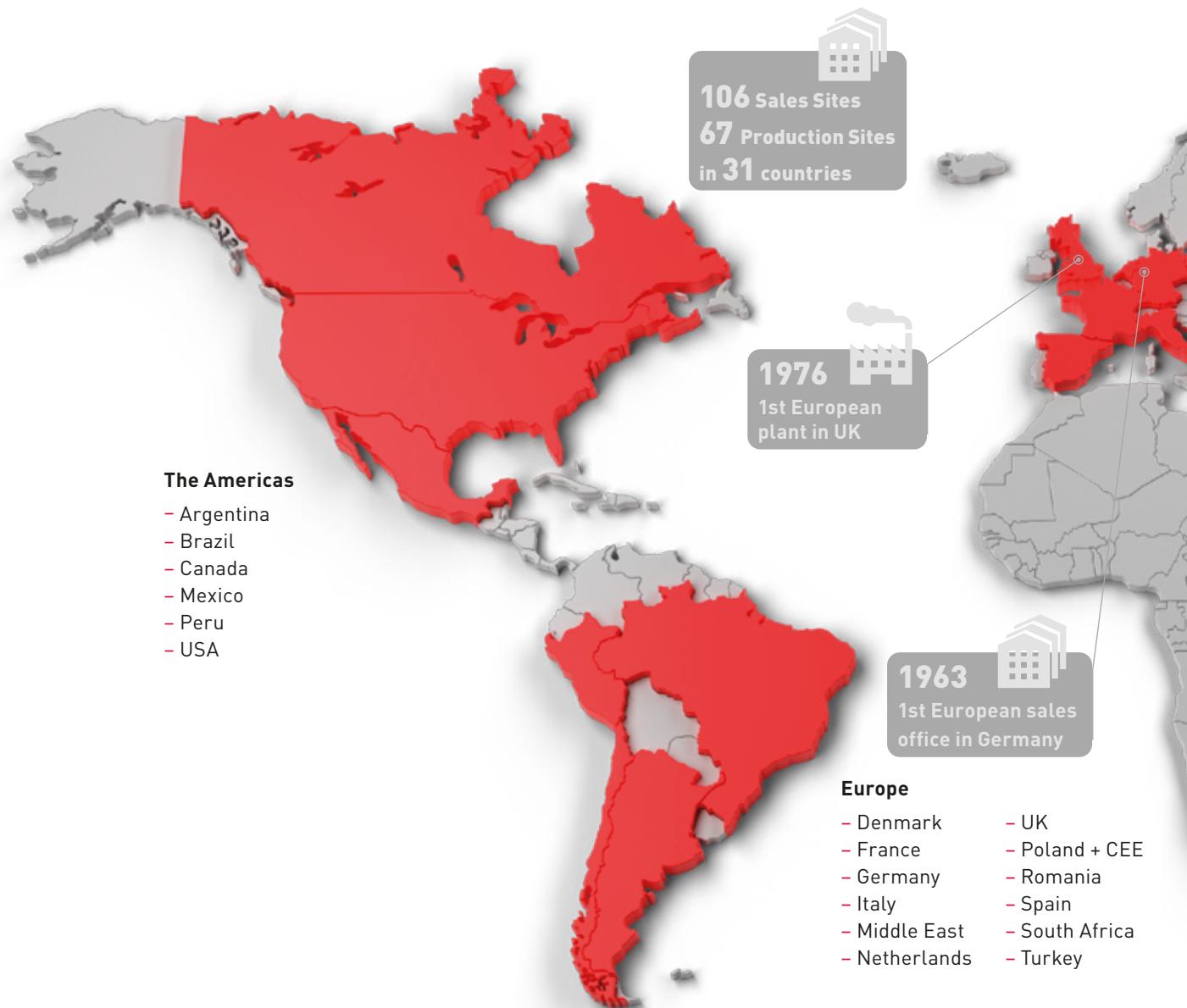


# MOVING THE FUTURE

BEARINGS | LINEAR TECHNOLOGY | AUTOMOTIVE SOLUTIONS

# OUR MOST IMPORTANT PRODUCT: OUR CUSTOMERS' SATISFACTION

We are among the leading manufacturers worldwide for rolling bearings, linear technology components and automotive solutions. One reason for this is that our products are reliable and energy efficient in demanding environments and even under the harshest conditions. To achieve this, we do research in core technology areas such as material engineering and tribology, we are always optimising every process phase in terms of quality and our products undergo continuous develop-



ment for applications in a wide variety of industries. One thing motivates us here: we want to help you increase the reliability of your vehicles and equipment, not only with excellent products, but above all with excellent service. Our experienced engineers have a deep understanding of systems – together with you, they work to optimise products and processes and develop solutions for the future. The goal that we are dedicated to every day is ensuring that you remain competitive over the long run.



Dr. Ulrich Nass, CEO of NSK Europe Ltd.



# THE FUTURE BEGINS WITH 100 YEARS OF TECHNOLOGICAL HISTORY

There are many milestones in NSK's long history, which started in 1916 in Japan with the production of ball bearings. The continuous expansion that includes both new products and sales offices in Europe demonstrates our aim to remain at the cutting edge – as well as near to our customers. Because trusting partnerships have a long tradition at NSK.



– Establishment in Tokyo as Japan's first bearing manufacturer



– Launch of needle bearings  
– Development of first original bearing grease (NS7)



– Opening of Research & Development Centre, Fujisawa - Japan  
– Opening of the Technology Centre, Germany



– Expansion of Products for Hybrid & EV Cars  
– Ball Screw Actuator for brake applications

1916

1960-1979

2000-2010

2019-Today

1920-1959

1980-1999

2011-2018



– Entered ball-screw-type, steering market and market for linear guides



– Entered mechatronics & electric power steering market (EPS)  
– Market introduction of half-toroidal continuously variable transmission (CVT)



– Expansion of Technology Centre, Germany  
– Expansion of European production facilities  
– Expansion of HPS Rolling Bearings  
– Expansion of low friction Bearings for Electric & Hybrid Cars  
– Most compact & strongest C-EPS System developed

**Setting the future in motion**  
We bring motion to life, to enrich lifestyles,  
**NSK VISION** and to build a brighter future.  
Dedicated to uncovering society's  
needs, we set ideas in Motion to deliver  
solutions beyond imagination.

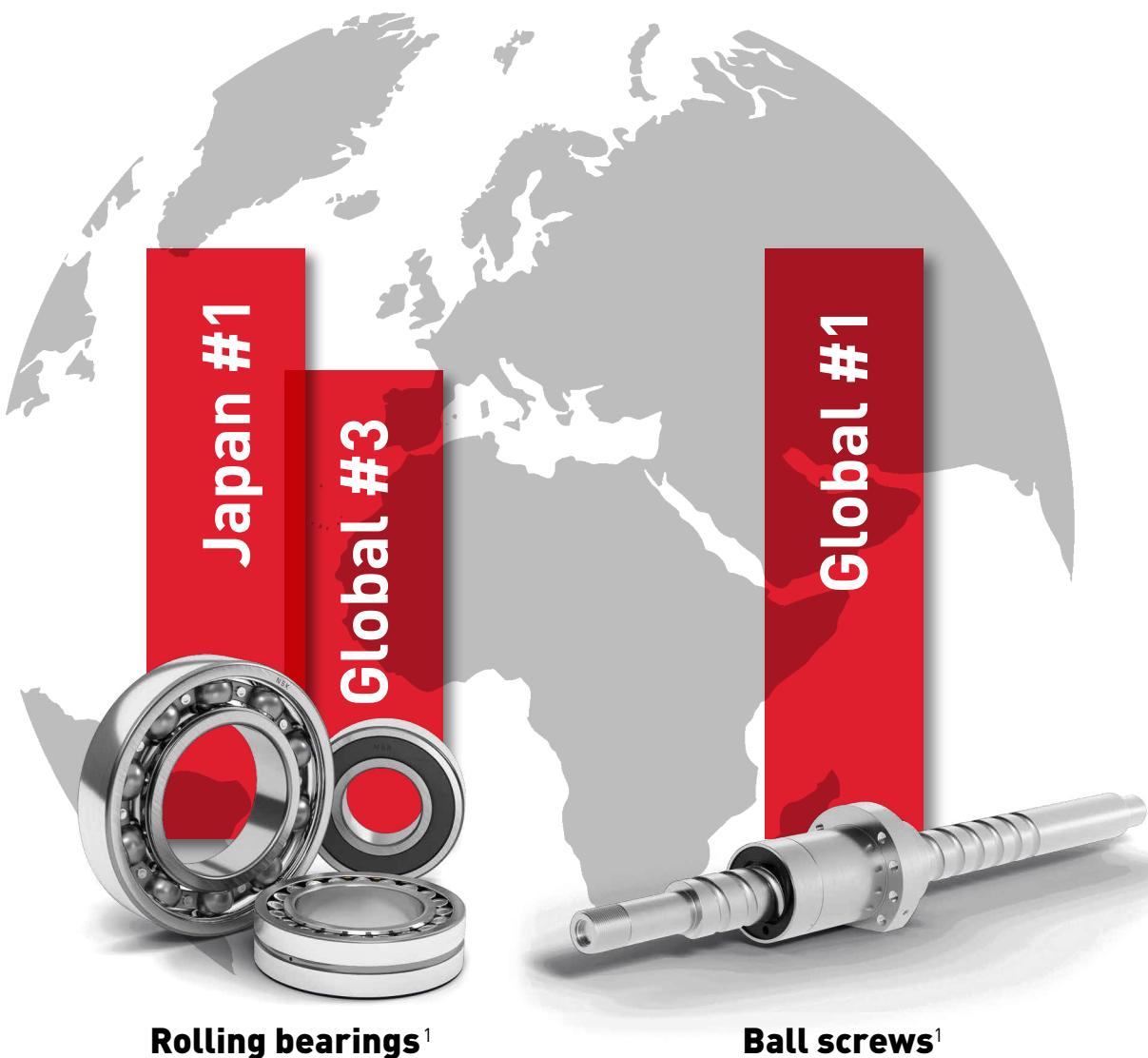
We're NSK.  
And, we're setting the future in motion.

#### **NSK Corporate Philosophy**

NSK aims to contribute to the well-being and safety of society and to protect the global environment through its innovative technology integrating Motion & Control™. We are guided by our vision of NSK as a truly international enterprise, and are working across national boundaries to improve relationships between people throughout the world.

# THE FOUNDATION OF OUR TOP POSITION IN GLOBAL MARKETS: PREMIUM QUALITY AND EXCELLENT SERVICE

As one of the market leaders in the areas of rolling bearings and ball screws, we see our success as a sign of our customers' confidence in us – an incentive for us to improve our services continuously for you.

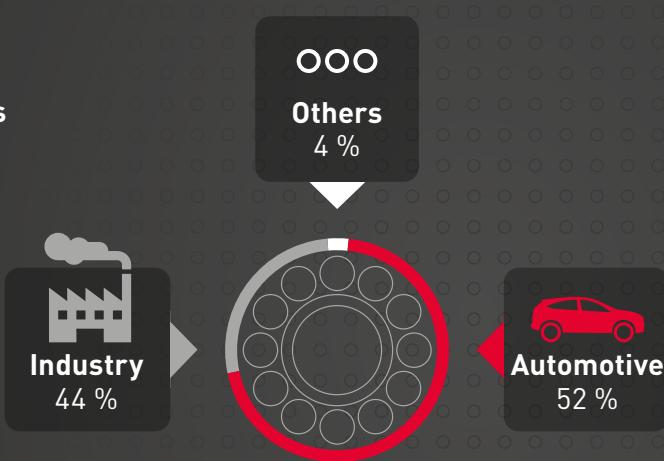


**Rolling bearings<sup>1</sup>**

**Ball screws<sup>1</sup>**



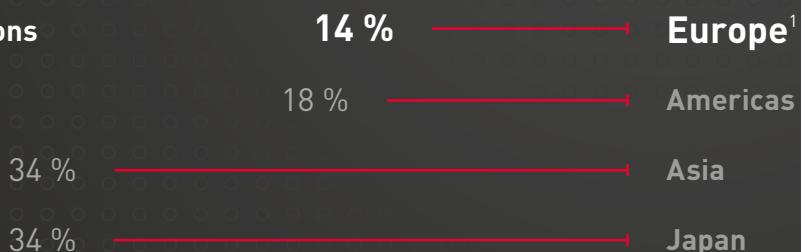
### Net Sales by Business Segments



Sales Global: ~ 4,8 Billion €<sup>1</sup>



### Net Sales by Regions

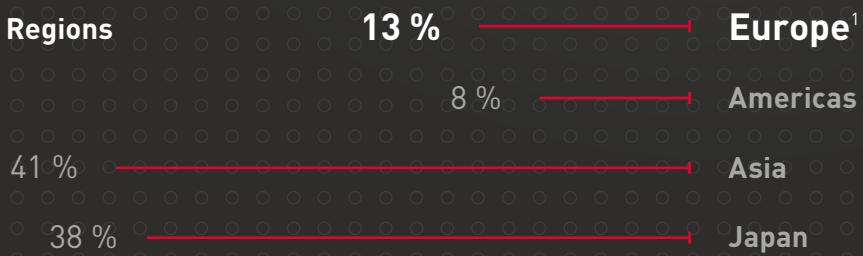


Sales Global: ~ 4,8 Billion €<sup>1</sup>

Sales Europe: ~ 662 Million €<sup>1</sup>



### Workforce by Regions



Employees Global: ~ 25,632<sup>1,2</sup>

Employees Europe: ~ 3,248<sup>1,2</sup>

# INDUSTRIAL BUSINESS

As a specialist for bearings of various sizes and designs, we develop specially customised solutions for a wide variety of requirements in close cooperation with our customers and distributors. In the area of linear and precision technology we provide products for applications which depend on the highest degree of accuracy, even at high speeds.

## Wind power



## Household devices



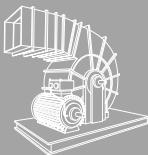
Deep Groove Ball Bearings

## Quarrying and mining industry



Spherical Roller Bearings

## Industrial motors



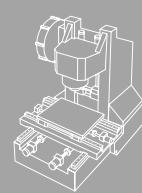
Electrically Insulated Bearings

## Industrial robots



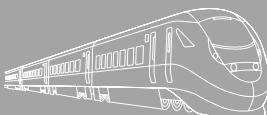
Angular Contact Ball Bearings - Thin Series

## Machine tools



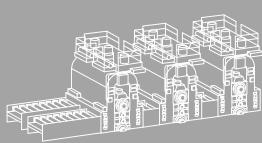
Angular Contact Ball Bearings - BSBD

## Rail vehicles



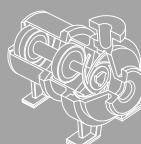
Sealed Clean Tapered Roller Bearings

## Steel industry



Tapered Roller Bearings

## Pumps and compressors



Angular Contact Ball Bearings Deep Groove Ball Bearings



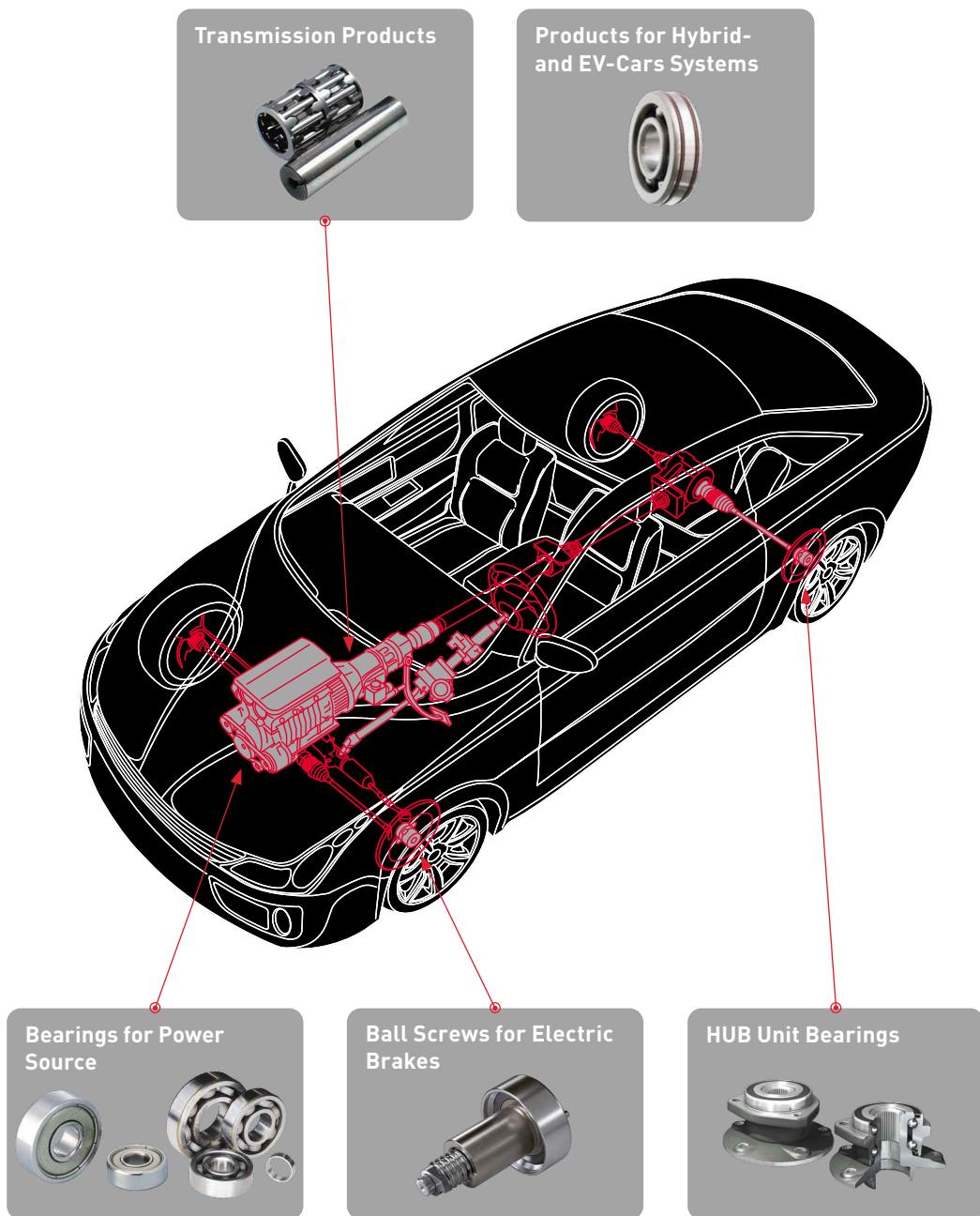
## Agricultural Industry



Agri BIG Hub

# AUTOMOTIVE BUSINESS

Our innovative solutions contribute to increase the performance of the next generation of vehicles and support our position as strategic partner to the top automakers and suppliers around the world: ultra-high-speed bearings for electric motors or new ball screw units for advanced braking systems. A few examples of our products which improve fuel economy, vehicle range, safety and user comfort in modern vehicles.



From 2023, August 1st the Global Steering Business has been moved into a Joint Venture between Japan Industrial Solutions and NSK Ltd. with a shareholding of 50,1:49,9

# GROW AND PROFIT TOGETHER

AIP is our highly effective, tried and tested engineering and service programme for customers and distributors. It generates profitability along the entire supply chain. It consists of various highly efficient tools that provide effective support for you to save costs, to increase quality in all processes and to expand expertise. With AIP you can ensure that you remain competitive – now and in the future.

## Reduce total cost of ownership

The unit costs of a bearing make up just 15 % of the total costs across its entire service life. The remaining 85 % consist of the costs for frequent replacement and for failures due to incorrect specifications, high energy costs due to inefficient products, and production losses due to downtime. With an optimum bearing solution thanks to AIP, you can effectively reduce your total cost of ownership!

## AIP Value Cycle



## **Win-win outcomes for everyone**

**'Improvement pays' – the motto of our AIP Added Value Programme is more than a promise. Customers benefit from greater machine reliability and reduced total cost of ownership. With AIP, we open up new market and revenue potential for our distributors, along with expanding the expertise of their teams.**



# **ADVANTAGES AT A GLANCE**

### **Customers**

- End-to-end service from assembly to training and on to after-sales service
- Maximum productivity and efficiency in all processes
- Optimally designed bearings for greater machine safety
- Greater return on investment thanks to a reduction in standstills and downtime
- Customised training increases employee expertise
- Optimised warehousing and lean logistics processes

### **Distributors**

- Long-term successful partnership
- Detailed insight into customer requirements
- New business options due to well-informed services
- Training to increase competency associated with products and AIP added value services
- Increase in revenue and margins
- Future-proof business model: oriented towards added value instead of price

# OUR RESEARCH AND DEVELOPMENT IS BASED ON 4 PLUS 1

Bearings that have a long service life and function reliably, even under extreme ambient conditions but also precision sensor technology – each of our products is the result of research and development in our core technologies. Our analysis, development and testing takes place at various locations in Europe. Research and development are complemented by intelligent production technology at our production sites. We call it +1. This means a plus in efficiency, safety and sustainability in our production processes.

## Tribology

- Lubricants  
(oil, grease, additive agents)
- Friction control
- Functional Surface Creation

## Materials

- High-strength Materials  
(Steel, Resin, Ceramics)
- Heat Treatment
- Material Fatigue

+1

## Manufacturing Engineering

Giving Shape to Four Core Technologies

## Mechatronics

- Motor, Circuit and Control Technology
- Sensor Technology
- Packaging Technology
- Biomedical Microelectromechanical System (Bio-MEMS) Technology

## Numerical Simulation

- Motion and Friction Analysis
- Macro/Nano Lubrication Analysis
- Machine System Simulation



# WE PURSUE THE SAME GOAL IN EVERY AREA: TOTAL QUALITY

The continuous, advanced development of our quality management, certified according to ISO 9001, is deeply rooted in our corporate culture. Our customers and suppliers have been acknowledging this for decades with numerous awards and with a trusting, long-term business partnership.

## Service

- Close cooperation with customers
- Local technology centres
- Product training

## Customer satisfaction

- Numerous quality awards from customers including ABB Robotics, Bosch, Groupe PSA, Toyota, VW

**NO. 1**

in Total Quality

## Production

- Certification of all European locations according to at least ISO 9001:2015
- Certification of all European automotive production sites according to IATF 16949:2016

## Continuous improvement

- Conceptual design
- Production
- Services

# CODE OF ETHICS

Our code of ethics determines our company's culture. The values form binding guidelines for trusting cooperation with employees, business partners and the public.



# SOCIAL RESPONSIBILITY

Based on the principle of providing products of superior quality made in safe workplaces, at NSK we aim to further enhance our contributions to a safer, more smoothly running society in line with our corporate philosophy. We do this by encouraging employees to work with enthusiasm and continuing to create new solutions that meet the needs of the environment.



# ENVIRONMENTAL FOCUS

We are contributing to a sustainable society by:

- fighting against global warming
- developing environmentally beneficial products
- recycling and conserving resources
- reducing the use of harmful substances

All NSK manufacturing plants are certified in accordance with ISO14001



## Recent Achievement

### Eco Friendly Products

30 % of NSK Europe's bearing production uses low carbon green steel produced at carbon neutral steel plants

### Waste & Water

Briquetting of grinding swarf:  
40 % waste reduction by weight  
  
Oil recovery from swarf:  
108 t/p.a. reduction

NSK water harvesting unit collecting more than 200 m<sup>3</sup> of rainwater from roof space

Open to closed loop cooling system for remediation pumps in Poland: 6000 m<sup>3</sup> p.a. water saving

### CO<sub>2</sub> Emissions

All European manufacturing plants using green electricity

NSK Europe's total CO<sub>2</sub> emissions have reduced 75 % from 2017 base year

Re-use of non-Euro-pallets for non-EU-markets:  
76 t/p.a. saving at NSK's distribution centers

Re-use of process fluids recovered from briquetting

## NSK SALES OFFICES EUROPE, MIDDLE EAST AND AFRICA

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