

## Review of Operations

# Industrial Machinery Business

### Business Overview

The Industrial Machinery Business is involved in operations related to two product categories, namely industrial machinery bearings and precision machinery and parts. The industrial machinery bearings business comprises three subsegments: general machinery, which manufactures bearings for applications in a wide range of industries such as machine tools, steel plant facilities, railcars, construction machinery, chemical plants, industrial pumps and wind turbines; electrical and IT equipment, which includes home appliances, office equipment, hard disk drives (HDDs) and general-purpose motors; and the aftermarket business, which provides maintenance and repair services. Industrial machinery bearings come in a range of sizes, from bearings with an outer diameter of approximately 2 mm that are incorporated into ultra-small motors to bearings with an outer diameter of more than 2 m that are utilized in wind turbines. The typical household contains around 100 bearings, which are used in general

appliances such as vacuum cleaners and washing machines.

Meanwhile, the precision machinery and parts business supplies linear motion parts including ball screws and NSK Linear Guides™ that play an important role in linear motion and mechatronic products such as XY Tables and MEGATORQUE MOTOR™ that employ ultra-high precision positioning and controlling technologies. In this way, the Company supports a wide range of fields, including machine tools, injection molding machines, industrial robots, semiconductor and LCD production equipment, conveying machines and medical devices.

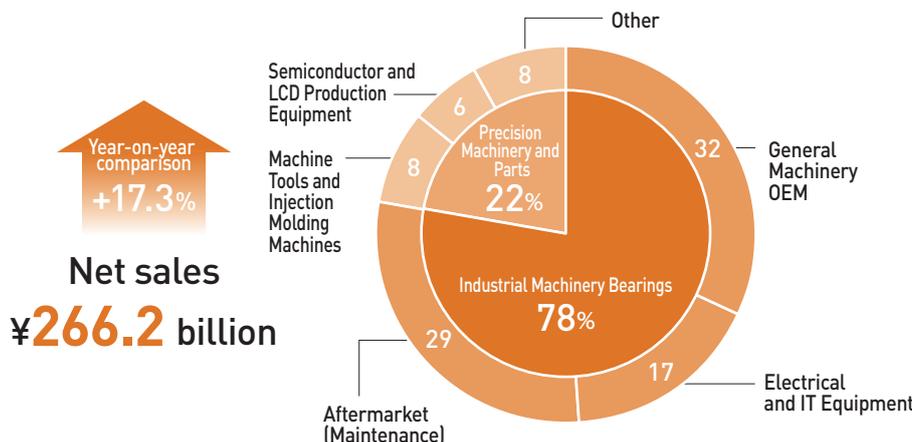
Leveraging the synergistic effect of bearings and precision machinery, NSK is also developing new proposals that will contribute to the greater performance of industrial equipment, as well as sophisticated solutions based on CMS (Condition Monitoring System) for greater machinery and equipment reliability and for preventive maintenance.

### Specific Features of Industrial Machinery Business

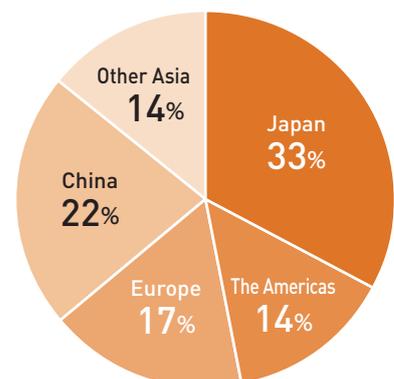
Refer to P. 15 for information on the shared features of the Industrial Machinery Business and the Automotive Business.

<b>Customers</b>	<ul style="list-style-type: none"> <li>• Machinery manufacturers in Japan and overseas (excluding automotive), distributors and sales outlets</li> <li>• Large number of customers, wide range of products</li> </ul>
<b>Features of Customers and NSK Businesses</b>	<ul style="list-style-type: none"> <li>• Products for use in general machinery are produced in small lots and many varieties, whereas products for electrical and IT equipment are mass produced (large volumes of standardized products).</li> <li>• Products for use in general machinery and the aftermarket include large products with relatively long lead times.</li> <li>• The aftermarket mainly consists of demand from end users of general machinery for maintenance and repair of facilities and equipment. It also includes sales of standardized products through distributors. In partnership with distributors, it is important to avoid lost opportunities by maintaining appropriate inventory levels to ensure immediate delivery.</li> </ul>
<b>NSK's Competitive Advantages</b>	<ul style="list-style-type: none"> <li>• Extensive product lineup as a comprehensive manufacturer</li> <li>• Technological capabilities based on our four core technologies</li> <li>• Accumulated expertise in customer needs and technology for a wide range of industries and applications</li> <li>• Manufacturing, supply and technical support capabilities delivered via a global network</li> </ul>

Sales Breakdown by Product (Year ended March 31, 2018)

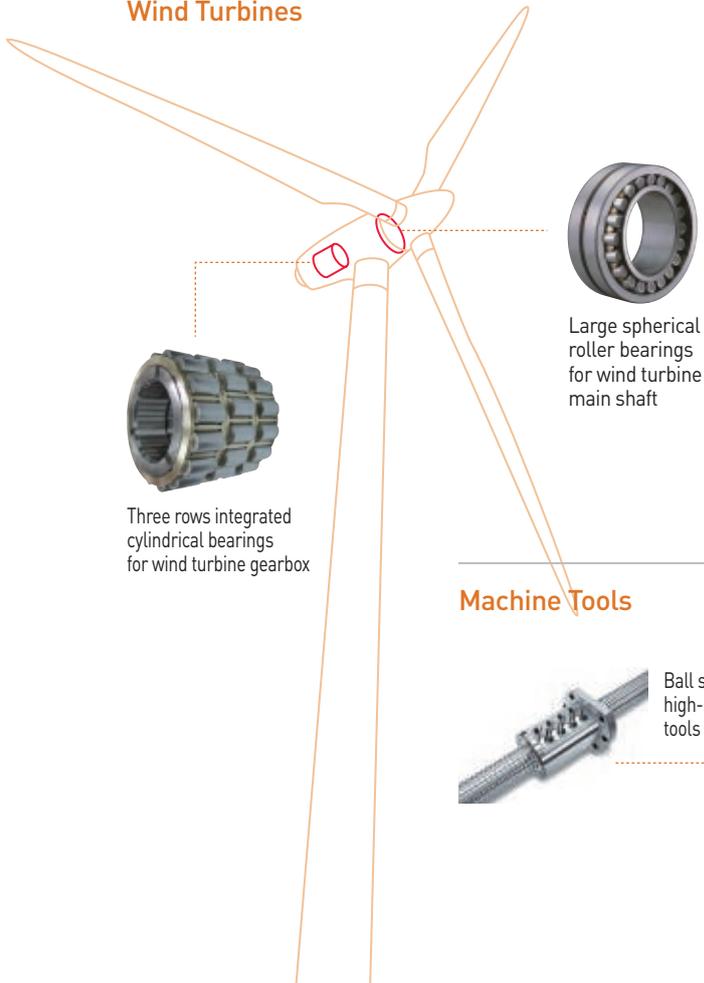


Sales Breakdown by Region (Year ended March 31, 2018)



## NSK Products: Playing a Key Role in an Array of Industries

### Wind Turbines

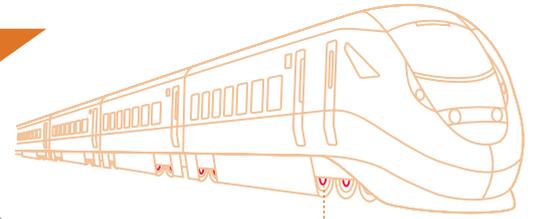


Three rows integrated cylindrical bearings for wind turbine gearbox



Large spherical roller bearings for wind turbine main shaft

### Railways

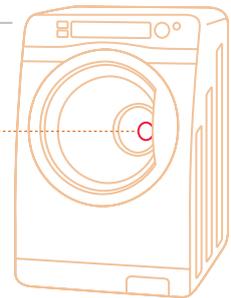


Double-row cylindrical roller bearing with oil bath lubrication for railway axle

### Home Appliances



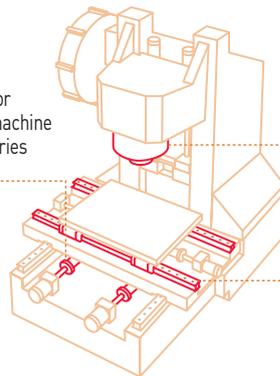
Long life ball bearings



### Machine Tools



Ball screws for high-speed machine tools HMS Series



High-speed Integrated Motor Spindle for Machining Centers



NSK Linear Guides™ Roller Guide RA Series

### Mining and Construction



NSKHPS™ Spherical roller bearings



### Steel



Long-life, optimized cylindrical roller bearings for continuous casting machines



### Industrial Motors



New ceramic coated insulating bearings for industrial motors



### Semiconductor Production Equipment



NSK Linear Guides™ NH Series, NS Series



### Pumps and Compressors



NSKHPS™ High load capacity angular contact ball bearings



### Robots



Highly functional thin-section angular contact ball bearings



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# Industrial Machinery Business

### The Fifth Mid-Term Management Plan: Initiative Status and Initiatives for the Final Fiscal Year

The key initiatives being taken under the Fifth Mid-Term Management Plan in the Industrial Machinery Business are 1) rebuilding competitiveness and improving profitability through the strengthening of product appeal, 2) expanding NSK's presence and share in focus sectors for which growth is anticipated over the medium to long term and 3) creating new added value and demand that captures evolving technological needs.

#### Key Initiatives

#### Respond to Changes in the Business Environment and Expand Target Fields

##### Operational Excellence

- Reinforce response capabilities and profitability
- Enhance product development capabilities

##### Innovate and Challenge

- Concentrate resources on focus sectors
- Create new added value and demand

#### Measures Geared toward Key Initiatives

##### ① Response to Changes in the Business Environment

To rework its competitive edge and improve profitability, the Company will review quality and costs, work to shorten lead times and strengthen product appeal.

##### ② Measures for Focus Sectors

Having cited the infrastructure field, including wind turbines and railcars; capital goods, including machine tools; and the rapidly growing fields of robotics and medicine as its focus sectors, the Company will provide solutions. The Company will also strengthen the management of its sales channels in the aftermarket field.

##### ③ Creation of New Added Value and Demand

In addition to engaging in the technological development and the establishment of a business model for a condition monitoring system (CMS), NSK will focus on developing new products by harnessing the synergies created by combining bearing and linear motion technology.

### Initiative Status

During the second half of the fiscal year ended March 31, 2017, the first year of the Mid-Term Management Plan, demand recovered at a faster rate than the limited degree of recovery expected at the time the Plan was formulated. During the fiscal year ended March 31, 2018, the second year of the Plan, demand remained strong in many sectors, including machine tools, semiconductors, home appliances, industrial motors, servo motors and robot-related sectors. Under these business conditions, production was extremely active for major products, including precision bearings, ball screws and other various types of products. To firmly link the outcome of this strong demand to earnings, NSK is advancing initiatives designed to maximize output.

#### Operational Excellence

NSK is undertaking initiatives to enhance the competitiveness of the sectors and products that comprise the core of its business. To address the strong demand for these, the Company has been reinforcing human resources, advancing production at optimal locations around the world and expanding facility capacity. In addition, by focusing on high-value-added products and high-margin sectors, NSK is working to improve its portfolio and enhance profitability.

Planned as a small-lot plant that is highly resistant to fluctuations in demand, in September 2017 NSK completed construction of a new building at the Fujisawa (Kiriara) plant in Japan and initiated operations of a smart factory model line. Along with introducing the latest robot-based production systems, advancing automation and enhancing production capacity, NSK has been working to establish a system that can flexibly address fluctuations in demand.

#### Innovate and Challenge

NSK has been working to grow businesses that deliver product defect diagnosis services via CMS (Condition Monitoring System), thereby contributing to stable operations, enhanced productivity and the transition to smart factories.

Moreover, the Company is advancing initiatives to develop new products that harness the synergy created by bearings and linear motion technology, including seismic mitigation actuator units for buildings and other structures and for high-speed railways.

The evolution of IoT, AI and other technologies holds the potential to change the structure, mechanisms and way in which industrial machinery are used. Along with predicting the direction in which the world will head next, NSK also is searching out business opportunities in new fields.

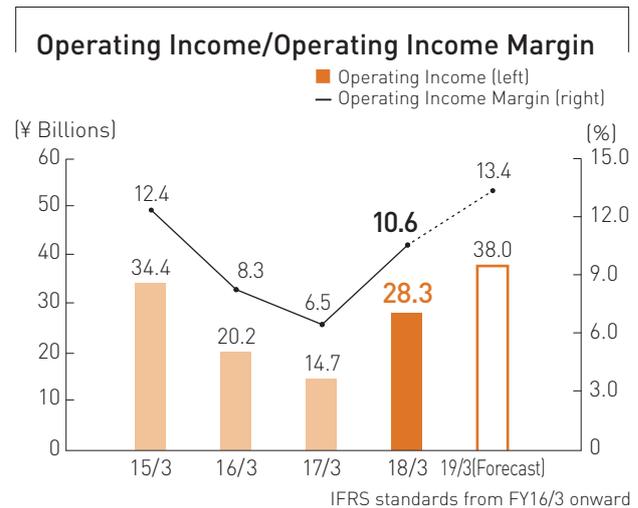
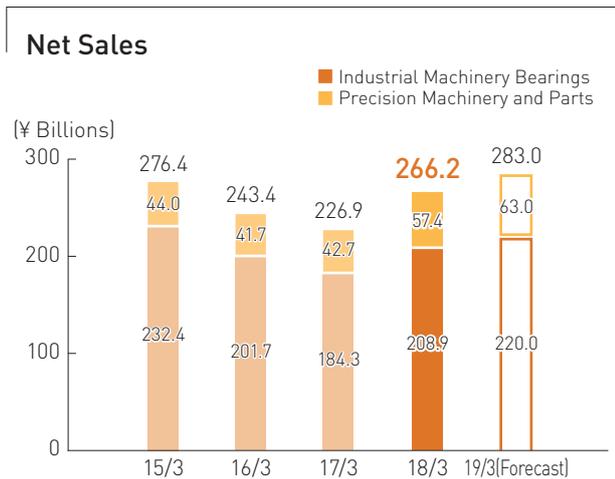
### Initiatives for the Final Year and the Next Mid-Term Management Plan

The Industrial Machinery Business's performance tends to be affected by movements in demand that result from changes in business conditions, in light of which NSK is working to strengthen its ability to respond to changes in market conditions and thereby evolve its business structure into one that is resilient to fluctuations in demand. Based on plans for facility capacity that assume a certain degree of fluctuation in demand, the Company is working to create a business structure that can absorb this fluctuation to the greatest degree possible.

Moreover, IoT, AI, robotics and other technological innovations are starting to create significant demand for semiconductors, electronic devices and machinery parts, while at the same time leading to the emergence of changes in the demand structure and economic cycles unlike those of the past. To expand its presence on the market over the medium to long term, NSK will focus on these growth sectors and expand businesses that add to earnings.

## A Look Back at the Business Conditions for the Year ended March 31, 2018, and the Forecast for the Year ending March 31, 2019

Targeting the highest level of performance in history during the year ending March 31, 2019, following on the recovery in demand during the year ended March 31, 2018



Coinciding with solid demand, the year ended March 31, 2018, saw higher volumes and widespread growth in both net sales and operating income. Looking at the results by region, Japan saw higher profits, primarily in the sales for machine tools and electrical sectors, whereas the Americas saw an increase in sales for the semiconductor production equipment and general machinery sectors. Meanwhile, Europe also saw higher earnings, primarily from sales for the machine tools and aftermarket sectors. China saw solid growth in sales for the electrical and aftermarket sectors, whereas other Asian countries continued to see a recovery in demand centered on semiconductor production equipment sector, which led to higher earnings.

As a result, net sales totaled ¥266.2 billion (a year-on-year increase of 17.3%), operating income totaled ¥28.3 billion (up 93.3%) and the operating income margin reached 10.6%.

The year ending March 31, 2019, is also expected to see a continuation of strong demand. As such, NSK is working to streamline and enhance the supply system, expand output and maximize sales. Performance for the full period is anticipated to achieve net sales of ¥283.0 billion (a year-on-year increase of 6.3%), operating income of ¥38.0 billion (a year-on-year increase of 34.1%) and an operating income margin of 13.4%.

## Business Risks and Opportunities, Future Policies

### ① Economic Fluctuation Risks

The Industrial Machinery Business maintains a presence in a wide array of sectors, but business performance tends to be affected by cyclical fluctuations in the overall economic environment. In addition, the precision machinery and parts sector has high sales weightings in semiconductor production equipment and machine tools, so is affected by fluctuations in demand from these sectors. While these are unavoidable risks for NSK, the Company places emphasis on formulating accurate estimates of demand, building a production structure and systems that can properly address changes in demand, and bolstering its cost competitiveness. Moreover, NSK is taking steps to alleviate the impact of demand declines in fields it is highly dependent on by increasing sales weightings in the general machinery and aftermarket fields, demand for both of which is broad. In the aftermarket sector, for which high profitability is expected, NSK aims to increase its presence, implement sales channel policies with enhanced quality and advance initiatives to strengthen its MRO (maintenance) business. The Company is also focusing on entering the growing CMS (Condition Monitoring System) market.

### ② Globalization and Tough Competitive Environment

Rapid changes in the market environment, such as an increasingly tough competitive environment and the global expansion of our customers, can be said to present risks. In particular, there is the possibility that the intensifying rivalry in emerging markets with local manufacturers and those from developed countries will affect the NSK Group's business performance. Despite this situation, NSK will aim to maintain and expand its global market share and ensure high profitability by setting itself apart from the competition through the delivery of value based on its ability to propose products, technologies and solutions that are enabled specifically by its years of accumulated market results in the high-quality bearing sector.