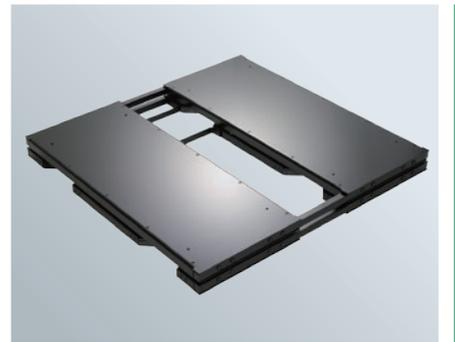
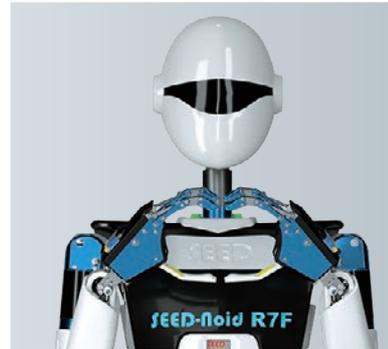
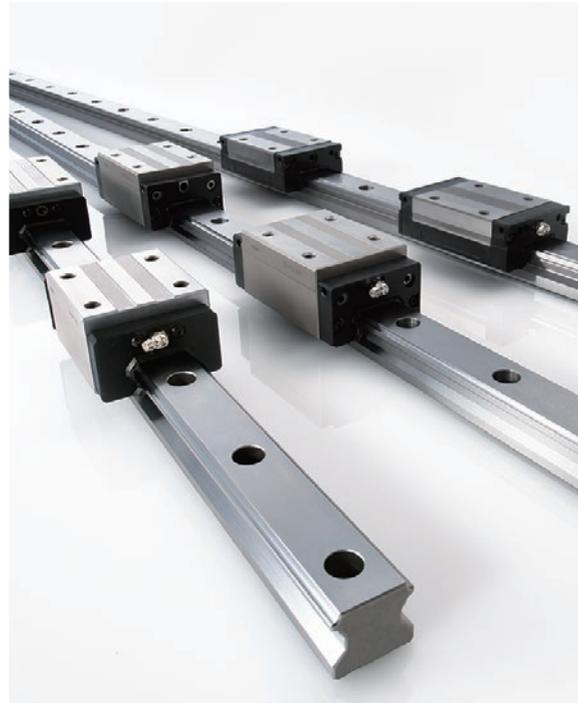
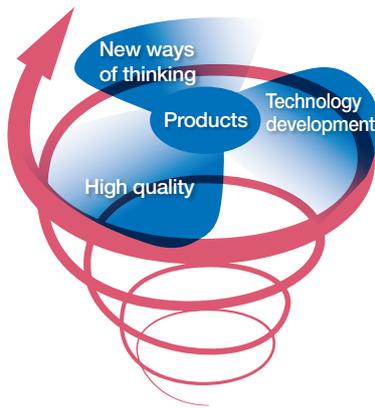
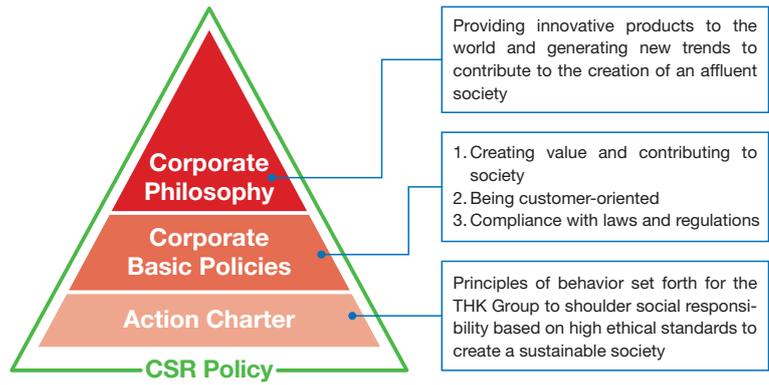


# 2018 THK CSR Report



# THK's CSR Policy

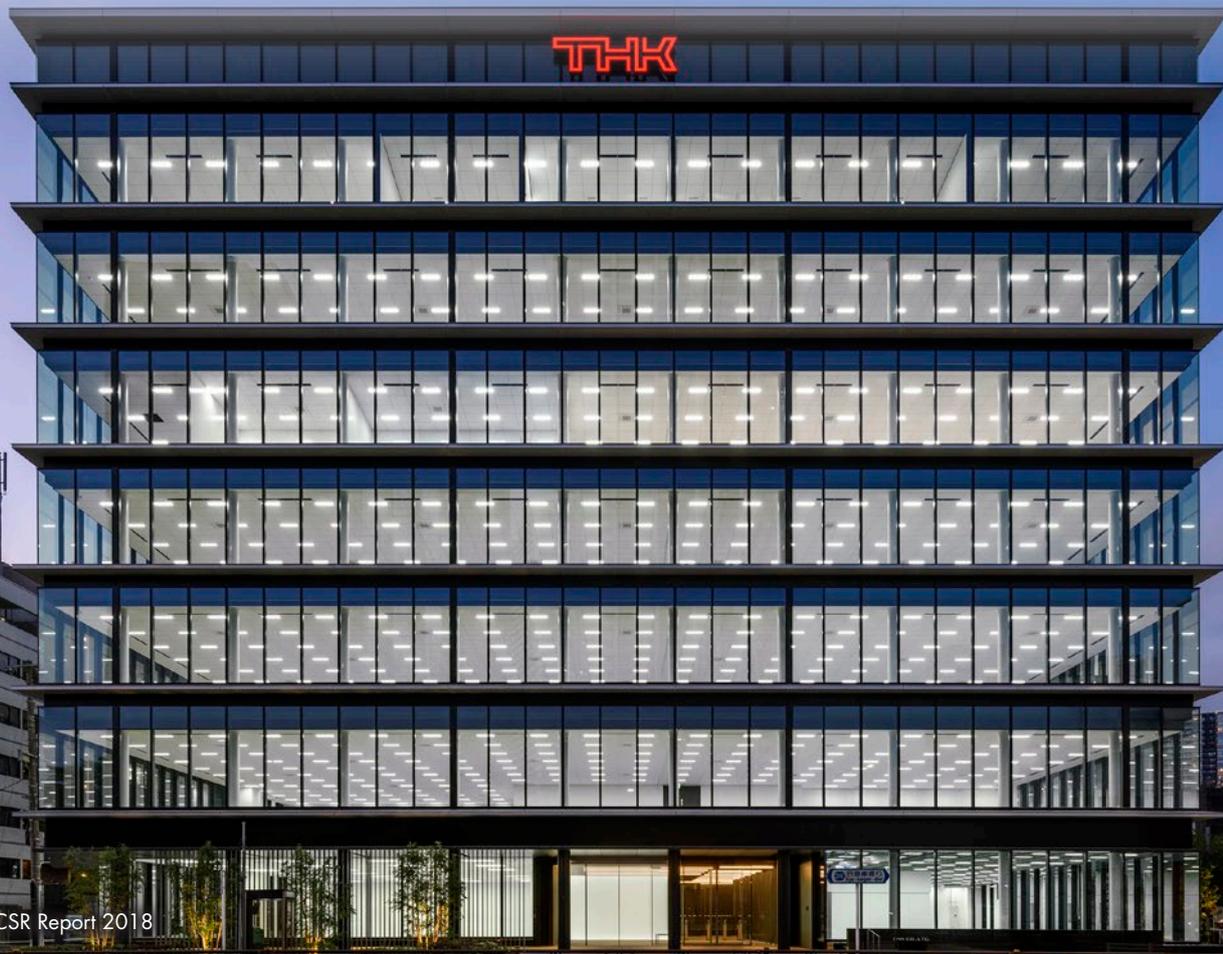
In an aim to increase our long-term corporate value and create an affluent society through our business activities, our CSR Policy is founded on our Corporate Philosophy, Corporate Basic Policies, and Action Charter.



**Spiral of Improvement**

Our product development, which is centered around our LM Guides, forms the core of our efforts to follow our Corporate Philosophy and contribute to the creation of an affluent society. As a company focused on creation and development, it is crucial that we develop new products with high added value and continue to create new markets. To do so, we must succeed in all elements of the “spiral of improvement”: new ways of thinking, technology development, and high quality.

We hope that this CSR Report provides insight into our efforts to create numerous spirals of improvement.



## Reporting Period

This report covers activities performed during and around the period of April 1, 2017, to December 31, 2017. The time period included in specific data is noted in each section.

## Scope

This report covers THK CO., LTD., and its consolidated and unconsolidated subsidiaries. The scope of data in the environmental section is noted in that section.

## References

Reference material used in the preparation of this report was taken from the Global Reporting Initiative's "G4 Sustainability Reporting Guidelines" (2013) and the Ministry of the Environment's "Environmental Reporting Guidelines" (2012).

### How THK Connects with Stakeholders



### SDGs (Sustainable Development Goals)

THK conducts activities aimed at realizing the 17 SDGs adopted by the United Nations in September 2015. In particular, we work to achieve the following goals through our business activities: Quality Education; Affordable and Clean Energy; Decent Work and Economic Growth; Industry, Innovation and Infrastructure; Responsible Consumption and Production; and Climate Action (Goals 4, 7, 8, 9, 12, and 13).

#### SUSTAINABLE DEVELOPMENT GOALS 17 GOALS TO TRANSFORM OUR WORLD



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## Fulfilling Our Responsibility to Provide Satisfying Products

### Our surrounding environment and growth strategies

During the 2017 fiscal year, a moderate recovery continued in the global economy, led by a trend of recovery in Europe and the United States and other developed countries, as well as signs of economic revival in China and other emerging countries. As a result, the Japanese economy moderately recovered, with widespread improvements appearing amid favorable trends in exports and capital investment.

The THK Group has identified *full-scale globalization*, the *development of new business areas*, and a *change in business style* as cornerstones of our growth strategy to expand markets for our products, including LM (Linear Motion) Guides.

Under our full-scale globalization strategy, we are striving to expand our global sales and production structures to capture demand from China and other emerging countries, where the market is growing due to developments in factory automation (FA) and other areas, as well as the demand from developed countries, where the user base is expanding.

With our development of new business areas, we are working to further increase sales revenue as the use of our products expands in such consumer goods-related fields as automotive parts, seismic isolation and damping systems, medical equipment, aircraft, robotics, and renewable energy.

Additionally, in order to promote these strategies, we are making full use of new technologies such as AI and robots in our sales, production, development, and other activities, thereby realizing a change in business style and further expanding our business domains.

### Achieving ¥500 billion in consolidated net sales in the 2022 fiscal year

We have established new management targets to achieve ¥500 billion in consolidated net sales and ¥100 billion in operating income in the 2022 fiscal year. In an effort to

achieve our targets, we are working to expand our top line and strengthen our bottom line as we construct an integrated production and sales structure that enables us to produce and sell products locally and thereby fulfill our responsibility as a machine component manufacturer to supply our customers with high-quality products.

To expand our top line, we are pursuing strategic sales to a wide range of customers in our industrial machinery business, and we are promoting active and efficient sales and marketing activities. Through the use of new methods to attract customers at global exhibitions, we are increasing our interactions with customers and deepening their understanding of THK's products. We launched Omni THK, an e-commerce website, in Singapore, Malaysia, Thailand, Indonesia, and Vietnam in 2017, and approximately 7,700 users registered on the website by the end of the year. At every step of the process, from first learning about our products to actually placing an order, customers can use Omni THK to effortlessly purchase our products at any time and from any location, even if they are in a region where we do not have any sales branches. In 2018, Omni THK was expanded to cover China and Brazil.

For our automotive and transportation business, by continuing to demonstrate synergy between THK, THK RHYTHM, and TRA's mutual sales and production facilities, we will work to further expand our L&S (Linkage and Suspension) business and develop and expand sales of new products that make use of our core linear motion technology.

In terms of our production, as demand for our products is expected to increase over the medium to long term, we have invested in an approximately 7,000 m<sup>2</sup> expansion at THK MANUFACTURING OF CHINA (CHANGZHOU) CO., LTD. (which began operation in January 2018); a 16,000 m<sup>2</sup> expansion at TMV (Vietnam), which celebrated its 10<sup>th</sup> anniversary this year (to begin operation in October 2018); and a 32,000 m<sup>2</sup> expansion at the Yamagata plant (to begin operation in November 2018). In August 2018, we began constructing a new plant in India, which is scheduled to

open for business in January 2020.

In last year's report, we introduced the Eagle System, which clearly displays the operating conditions of production equipment at each facility in Japan, the United States, Europe, and China as a means to increase our profitability. To strengthen our bottom line, we have implemented a system that transmits information from the Eagle System to handheld devices used by operators and managers to alert them when certain situations occur, such as when a process is complete or when an emergency stop has been initiated. This system encourages them to promptly determine the next step and will thereby improve our overall machine utilization. Through these kinds of activities, we will strive for a dramatic increase in production.

### Sincere efforts

Through the Japan Machine Accessory Association, I was awarded the Medal with Blue Ribbon at the fall 2017 decoration ceremony. Part of the reason for the award was for contributions made through that association, but I believe the most important factor is the advancement of industry and of the THK Group itself as the pioneer that was the first in the world to achieve linear motion through rolling motion. This was made possible entirely through the support of our customers and other business partners and through the successful efforts of THK employees. I sincerely thank all of you.

We will continue to enhance the corporate value we report to our stakeholders through advancing our business activities, and as we do, we will never forget our original goal of achieving the creation of an affluent society. We understand the weight of our mission as we expand our operations in the industrial machinery and automotive fields, and we will continue to put forth our sincere efforts in order to contribute to the development of the manufacturing industry.



THK CO., LTD. President and CEO

吉村 彰博

# Company Overview

THK CO., LTD., manufactures and supplies vital machine components around the world. THK products help to convert slippage into controlled rotary motion, enabling parts of machinery to move smoothly, easily, and precisely with linear motion. As a company focused on creation and development, we have committed ourselves to developing a variety of products, including Linear Motion (LM) Guides, since our company's establishment in 1971. To fulfill our responsibility of providing these products to the world, we have established an integrated production and sales structure of 118 sales offices and 35 production facilities located close to centers of demand in order to produce and sell locally in four regions: Japan, the Americas, Europe, and Asia.

## China Net sales ¥41.4 billion

|                        |                                |
|------------------------|--------------------------------|
| Sales offices          | 31                             |
| Production facilities  | 6                              |
| Development bases      | 1                              |
| Management companies   | 1                              |
| ISO 9001 certified     | 4 facilities                   |
| ISO/TS 16949 certified | 1 facility                     |
| IATF 16949 certified   | 1 facility                     |
| Employees              | (Male: 2,473, Female: 894)     |
| Intellectual property  | (50 published, 249 registered) |

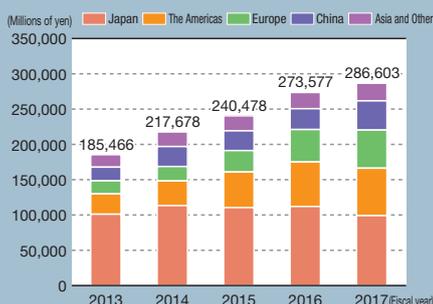
## Europe Net sales ¥54 billion

|  |                                 |
|--|---------------------------------|
| Sales offices  | 12                              |
| (Germany: 2, France: 1, UK: 1, Netherlands: 1, Italy: 1, Turkey: 1, Sweden: 1, Russia: 1, Austria: 1, Spain: 1, Czech Republic: 1) |                                 |
| Production facilities  | 4                               |
| (Germany: 1, France: 1, Ireland: 1, Czech Republic: 1)   |                                 |
| Development bases  | 1 (Germany: 1)                  |
| Management companies   | 1 (Netherlands: 1)              |
| Financial subsidiary companies   | 2 (Ireland: 2)                  |
| ISO 9001 certified   | 2 facilities                    |
| ISO/TS 16949 certified   | 1 facility                      |
| IATF 16949 certified   | 2 facilities                    |
| Employees  | (Male: 1,585, Female: 570)      |
| Intellectual property  | (183 published, 412 registered) |

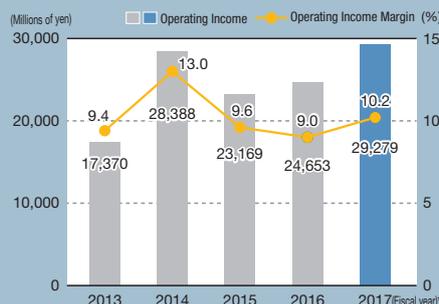
## Asia and Other Net sales ¥24.8 billion

|   |                                 |
|---|---------------------------------|
| Sales offices   | 23                              |
| (Taiwan: 3, Singapore: 1, South Korea: 13, Thailand: 1, India: 5) |                                 |
| Production facilities   | 7                               |
| (Thailand: 1, South Korea: 4, Vietnam: 1, Malaysia: 1)            |                                 |
| ISO 9001 certified  | 5 facilities                    |
| ISO/TS 16949 certified  | 2 facilities                    |
| Employees   | (Male: 452, Female: 198)        |
| Intellectual property   | (124 published, 416 registered) |

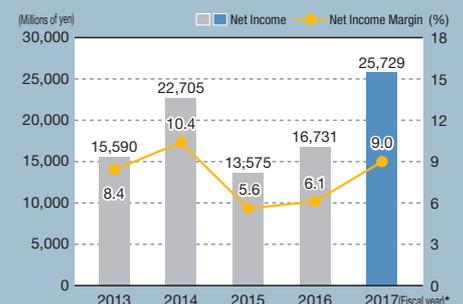
### Net Sales



### Operating Income and Operating Income Margin



### Net Income Attributable to Shareholders of THK CO., LTD., and Net Income Margin



\*This data reflects a modified reporting period that includes 9 months from consolidated companies whose fiscal years ended in March and 12 months from consolidated companies whose fiscal years ended in December.

Trade name: THK CO., LTD.  
 Established: April 10, 1971  
 Headquarters: 2-12-10 Shibaura, Minato-ku, Tokyo 108-8506, Japan

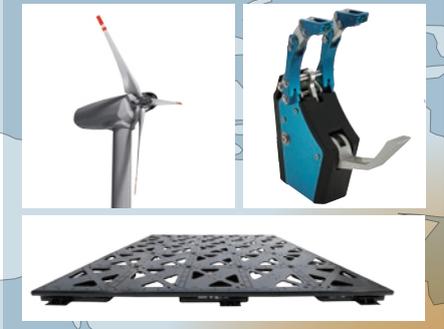
### Industrial Machinery Business

THK is contributing to the higher precision, rigidity, and speed of machinery by providing products, like the LM Guide, that are essential components in such wide-ranging industrial equipment as machine tools and semiconductor manufacturing equipment.



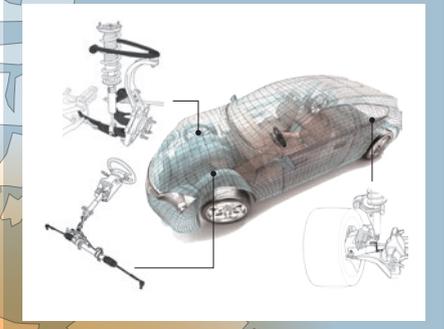
### Industrial Machinery Business (Other)

THK is adapting its core linear motion system technology to cultivate consumer goods-related fields such as seismic isolation and damping systems, medical equipment, aircraft, robotics, and renewable energy.



### Automotive & Transportation Business

THK is working to expand its business primarily through undercarriage L&S (Linkage and Suspension) products.



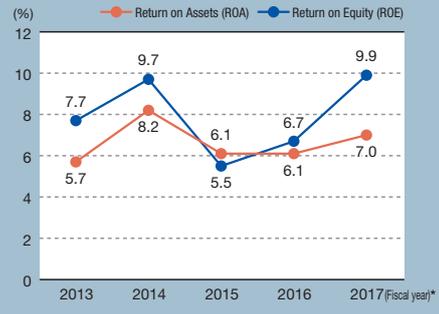
**Japan** Net sales **¥99 billion**

|                        |                                 |
|------------------------|---------------------------------|
| Sales offices          | 43                              |
| Production facilities  | 12                              |
| Development bases      | 1                               |
| Management companies   | 1                               |
| ISO 9001 certified     | 11 facilities                   |
| JISQ 9100 certified    | 1 facility                      |
| ISO/TS 16949 certified | 1 facility                      |
| OHSAS 18001 certified  | 5 facilities                    |
| Employees              | (Male: 4,388, Female: 737)      |
| Nonemployees           | (Male: 249, Female: 149)        |
| Intellectual property  | (146 published, 782 registered) |

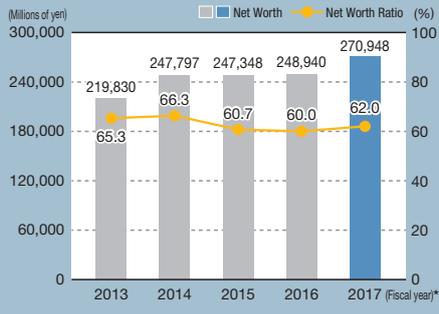
**The Americas** Net sales **¥67.1 billion**

|                        |                                  |
|------------------------|----------------------------------|
| Sales offices          | 9 (USA: 7, Canada: 1, Brazil: 1) |
| Production facilities  | 6 (USA: 3, Mexico: 1, Canada: 2) |
| Management companies   | 1 (USA: 1)                       |
| ISO 9001 certified     | 2 facilities                     |
| ISO/TS 16949 certified | 3 facilities                     |
| IATF 16949 certified   | 3 facilities                     |
| Employees              | (Male: 1,528, Female: 539)       |
| Intellectual property  | (46 published, 367 registered)   |

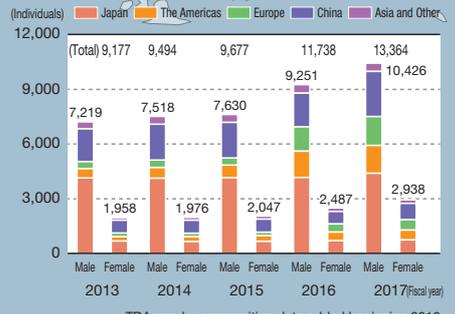
### Return on Assets (ROA) and Return on Equity (ROE)



### Net Worth and Net Worth Ratio



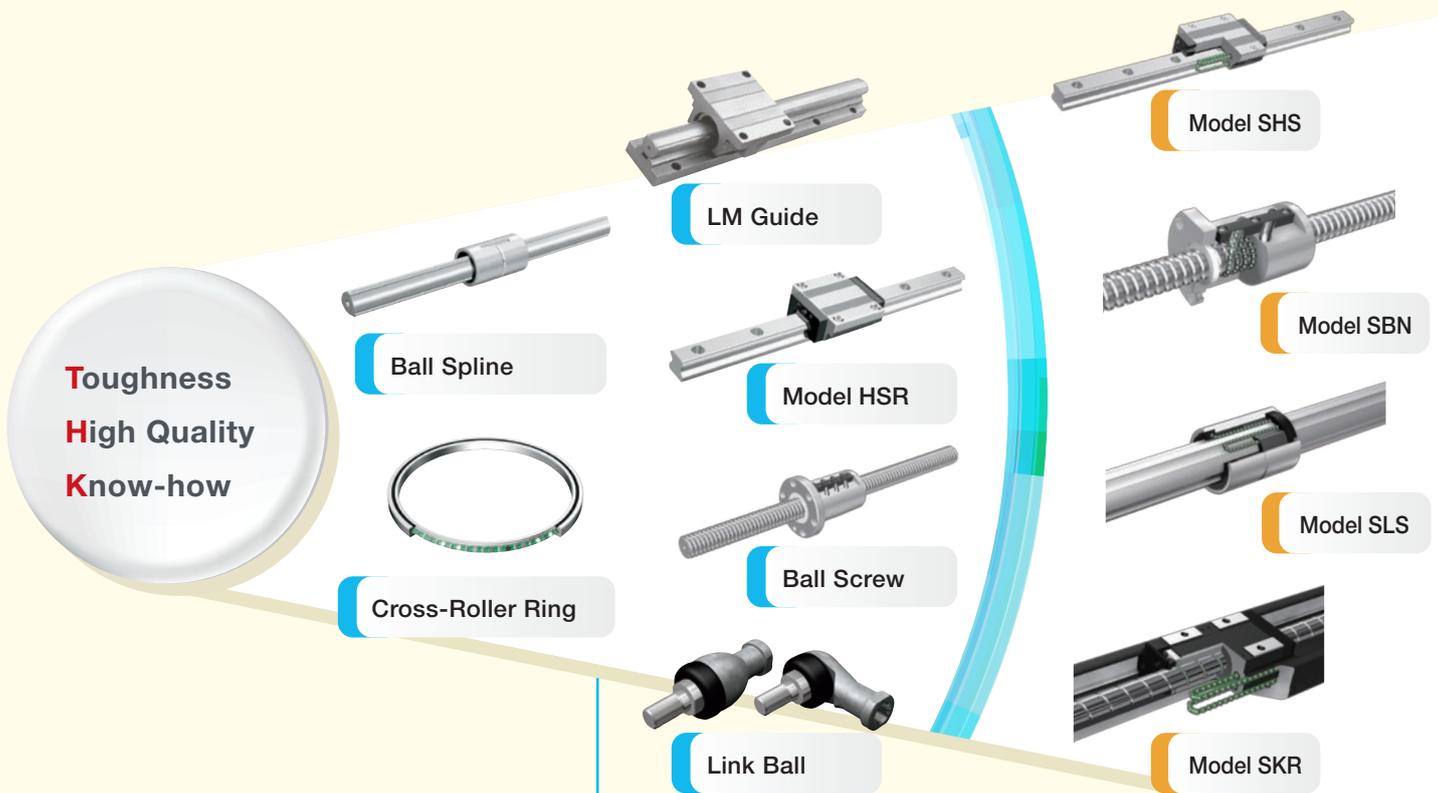
### Employees



TRA gender composition data added beginning 2016. Data current as of March 31 for every year prior to 2017, or December 31 for 2017.

# THK's Expertise and Core Technology Combine to Create

While the world faces various challenges, from global warming-induced climate change to major earthquakes that could strike at any moment, the shift toward automation has accelerated in response to the labor shortage brought about by an aging population and declining birth rate. Out of our desire for our products and technology to contribute to the advancement of society, we have used the expertise we have accumulated since our founding to create a variety of products.



**Toughness**  
**High Quality**  
**Know-how**

## Products for Existing Technology

Using rotary motion to achieve linear motion was said to be impossible, but we focused our efforts on that challenge and developed the **ball spline**, which uses load-bearing balls that roll along a raceway. We then introduced the **LM Guide**, which featured a ball spline combined with a mounting fixture. This product can bear heavy loads, and it has helped machines become faster and more compact and precise. The **Model HSR**, which can bear significant loads from four directions equally, became the world standard for LM Guides. We developed one new product after another: standard products that can be shipped quickly, a **ball screw** that can use a single nut instead of two to reduce backlash, and a rotary **cross-roller ring**, which is a single bearing that can handle a load from any direction.

**Link balls** are products made by die casting metal around a high-precision, spherical metal bearing, and then by using a special kind of welding process to attach a shank. Through this original manufacturing method, the shape of the spherical bearing's surface is transferred to the casting's surface, enabling the bearing to move smoothly and with a minimal amount of clearance. Because of its compact design, these products have been used in various automotive applications, including transmission control units and gear sticks.

## New Products Derived from THK's Core Technology

The Caged Ball LM Guide **Model SHS**, High-Speed Ball Screw with Caged Ball **Model SBN**, Caged Ball Spline **Model SLS**, and Caged Ball LM Guide Actuator **Model SKR**—a product that combines an LM Guide and ball screw—feature ball cages (retainers) that were developed to prevent contact between balls. These products generate little noise and boast a long period of maintenance-free operation. Their applications are expanding to welfare and other fields close to the general population, including platform edge doors that protect train and subway passengers and medical equipment that is required to move easily and bear heavy loads, such as devices used for CT scans and MRIs. The Special Features section of this report discusses how **TOSHO Inc.** is using

our LM Guides. Conventional steel stabilizer links have been widely used to connect stabilizers and suspension systems to improve automotive stability while driving, but we used our original die casting methods and welding technology to create and introduce aluminum stabilizer links that are cast out of recyclable aluminum. These stabilizer links are 30% to 40% lighter than conventional steel products, which improves fuel efficiency. Similarly, we previously supplied cold-forged steel tie rods, which transmit steering wheel input to the tires, but we then developed a new method of forging aluminum and began selling aluminum tie rods. These products are also 30% to 40% lighter and help improve fuel efficiency.

# Products with Many Applications



**Linkage and Suspension products for automobiles**

**Model WLS**

**Model TSD**

**TRX® from SEED Solutions (left) and SEED Noid (right)**

**NEXTAGE®**

## Products for the Next Generation

### Global Warming

In the field of renewable energy expected to reduce greenhouse gases, starting with our trials of vertical-axis and horizontal-axis wind turbines at our Sendai plant, we have introduced the Low-Torque Shaft Unit **Model WLS**, which meets the requirements for IEC 61400. The Special Features section of this report discusses how the **Yamaguchi Prefectural Industrial Technology Institute**, a local incorporated administrative agency, is using the low-torque shaft unit as a way to revitalize local industry.

### Earthquakes

Over the last decade in earthquake-prone Japan, there have been several earthquakes registering at a seismic intensity of 6 or higher, such as the Great East Japan Earthquake and Kumamoto Earthquakes. Amid concerns of an earthquake occurring directly beneath Tokyo, in the Tokai region, or in the Nankai Trough, there is demand

for ways to minimize damage, protect corporate assets and information, and quickly respond and resume normal operations. Our solution to those concerns is our **Model TSD** seismic isolation system. The Special Features section of this report discusses how **JyouSenji**, a Honmon Butsuryu Shu temple, and **Akita University Hospital** use our seismic isolation systems.

### Coexisting with Robots

We have developed **SEED Solutions** components for service robots that will closely benefit people ranging from children to the elderly, all of whom can experience an increased desire to learn by operating the robot or enjoy walking and talking with the robot. We introduced the **SEED Noid**, which provides customers with components and software that can be tailored to their specifications, and the **TRX**, the product JAXA utilized on the International Space Station that revolutionized

robotic hands used in space with its ability to pinch, grip, and hold with a single unit. The Special Features section of this report discusses how **NS Solutions Corporation** is using THK products to conduct trials aimed at implementing 5G in 2020.

### Aging Population and Declining Birthrate

With the population growing older and birth rates declining, problems related to the decrease in the working age population are expected to arise. To maintain production capability and improve productivity, we introduced the **NEXTAGE** humanoid robot, which has cameras installed in its head and no need for a fence around it. It performs simple and repetitive or dangerous tasks, freeing people to perform work with high added value. The Special Features section of this report discusses how **SECOM INDUSTRIES CO., LTD.**, is using **NEXTAGE** to work alongside humans.

TOSHO Inc.

Ohta, Tokyo, Japan



## THK's LM Guide Improves the Repeat Accuracy and Speed of Dispensing Medicine



General Manager, Technology Planning Department  
**Junichi Umeda**

### Did you know?

On average, people in inpatient care receive three injections (including IVs) per day. Furthermore, each injection administered is compounded, containing three types of medication. Therefore, if there were 1,000 patients, that would mean roughly 10,000 doses of medicine would be administered per day (approximately 3 types of medicine x 3 injections x 1,000 people). Naturally, each individual patient uses different medications, which means that an extraordinary amount of work goes into providing injections at hospitals every day.

In the past, pharmacists or nurses would go through the process of gathering and compounding (adjusting) medications. However, this was an onerous task in extremely busy clinical settings, and it would lead to medical errors. While it takes time for oral medicine to be absorbed and take effect after use, a higher percentage of injections are fast-acting, so there is the risk that a mistake in compounding could be irreversible and directly impact the life of the patient.

When visiting a pharmacy, you have probably had the experience of receiving your medications inside individual bags. In fact, some of our company's main products are machines that dispense powder medicines and tablets into bags. Utilizing the experience we have gained since our founding, we have created a fully automatic injectable medicine dispensing machine to eradicate compounding errors and to reduce the workload of pharmacists and nurses.



UNIPUL 5000, the latest fully automatic injectable medicine dispensing machine

### The roles of fully automatic injectable medicine dispensing machines and THK's products

Our previous models would dispense one day's worth of injectable medicine for patients, but our latest model, UNIPUL 5000, is able to dispense one injection's worth—the smallest dose. That means that nurses simply need to mix the medicines that are dispensed and then inject them. This machine also checks the dosage and combination of drugs on the doctor's prescription, enhancing its ability to eradicate medical errors.

The UNIPUL contains ampoules for approximately 200 types of medicine, and it can reliably dispense injectable medicines into ampoules, vials, or other containers based on the practitioner's electronic medical records. What allowed us to achieve what other company's products could not were the THK LM Guides used in our new UNIPUL 5000. With previous models, the difference in how the assembler tightened each bolt affected the dispensing accuracy. In our attempt to eradicate medical errors, the accuracy of each component has been crucial in eliminating elements of uncertainty. By utilizing THK's LM Guides for the internal components that move vertically and horizontally, we were able to improve the repeat accuracy and accelerate the process of dispensing medicine. Using special seals on the LM Guides also made our products maintenance-free. No problems have occurred with any of the delivered products.

The customers who have installed our product have praised it highly. When one was reassigned to a different facility in Japan's national hospital system as part of a routine transfer and encountered problems with a similar, non-TOSHO product, they remarked, "This wouldn't happen with a UNIPUL."

At TOSHO, we work day and night to find ways of automating the process of handling medicine in the pharmaceutical field. To prevent the accidental loss of precious human life through medical errors and automate manual daily tasks, we will continue proposing equipment that will allow health care providers to focus solely on practicing medicine.

## Yamaguchi Prefectural Industrial Technology Institute



Ube, Yamaguchi Prefecture

# THK's Technology Aids Local Manufacturing Growth



Yamaguchi Prefectural Industrial Technology Institute  
**Seiji Yamada, D.Eng.**

### The "Made in Yamaguchi" small wind turbine

The Yamaguchi Prefectural Industrial Technology Institute is a core technology support center for companies in our prefecture, providing engineering support and conducting R&D. In our longstanding efforts to promote the use of renewable energy, we focused on creating a vertical-axis wind turbine with a comparatively simple blade shape and whose orientation does not need to change with the direction of the wind. We selected the optimal blade by installing various types of blades and conducting wind-tunnel tests, and we developed a controller that enables peak operation from the wind turbine. In order to develop a "Made in Yamaguchi" small wind turbine by utilizing our research and the manufacturing capabilities of companies in Yamaguchi, we moved forward with a working group of five local companies that had the expertise required to develop a wind turbine. After attending a presentation on special bearings for wind turbines held at a wind power symposium, we exchanged information with THK, which has a plant in Yamaguchi, on several occasions. We asked THK to participate in the working group, and they graciously agreed.

For this project, THK proposed using a vertically split bearing shaft that would eliminate the center shaft to

improve air flow around the center of the vertical-axis wind turbine. Once we began actual tests of our completed wind turbine, we encountered several issues, such as the blade's arms lacking sufficient strength and the controller malfunctioning. We continued to make improvements and try again. Among the malfunctions, there was an issue where the lack of a center shaft caused the blades to deform from the centrifugal force as they rotated, and the upper bearing was damaged because the arms were repeatedly moving up and down. When we explained the situation to THK, they immediately rushed over to the turbine's location and proposed several alternative solutions in no time. To prevent the arms from moving up and down, which was our biggest problem, we ultimately decided to go with the proposal that involved using a slender shaft at the center, and THK remade the Model WLS Low-Torque Shaft Unit for us.

### Working toward commercialization

At present, we are working on solving the issue with the controller. Once that is resolved, it will mark the completion of this original, locally created wind turbine. The rated output of our current prototype is 1 kW, but we want to use the data we have collected to develop and commercialize a wind turbine capable of 5 to 10 kW. From providing engineering guidance to coming on-site the moment there was an issue, THK has been actively involved and generously cooperated with our efforts to enhance the technological capabilities of local companies, and we are sincerely grateful. Furthermore, as a wind turbine developer, it is greatly encouraging to see a company actively working to use their technology in turbines. With THK's development of a brand-new low-torque shaft unit designed for vertical wind-axis turbines, as well as their other efforts, I believe THK will have an important role to play in the renewable energy field, which must continue progressing to prevent global warming.



Improved small wind turbine on the institute's grounds

## JyouSenji, Honmon Butsuryu Shu Temple

Shibuya, Tokyo, Japan



# THK's Seismic Isolation System Protects the Statue of Honmon Butsuryu Shu's Founder Enshrined at JyouSenji



Administrator  
Senshin Okamoto

### The statue in which the founder's spirit dwells

The core practice of Honmon Butsuryu Shu Buddhism is devotedly chanting the mantra *Nam-myoho-renge-kyo*, which is based on the teachings of Nichiren. The Lotus Sutra is at the foundation of our belief. This sutra contains 28 chapters, with the first half (chapters 1 through 14) being the Shakumon (reflection), and the second half (chapters 15 through 28) being the Honmon (true form). Our sect is called Honmon Butsuryu Shu (true teachings of the Buddha from the Honmon) because Nichiren identified eight chapters (chapters 15 through 22) of the Honmon as the primordial sutra that contains the mantra that will save those living in the Latter Day of the Law.

It is believed that our core practice of repeatedly chanting *Nam-myoho-renge-kyo* allows us to commune with spirits of heavenly beings and brings about blessings in a form we can see. It is a practice that anyone can do regardless of age or gender, and it does not require you to visit the shrines or temples located in each region. We presently have around 300 temples in Japan in addition to locations in the United States, Brazil, Australia, South Korea, and Taiwan, spreading our work and praying for happiness for all of human society.

Honmon Butsuryu Shu's main temple is Yuseiji in Kyoto, where a statue of Nichiren is enshrined. This statue is a symbol of Honmon Butsuryu Shu's teachings and an object of worship for many believers, and great care is taken in its preservation. Replicas of this statue are kept in temples all around Japan, including JyouSenji.



Statue enshrined at the center of the altar with a seismic isolation system installed

### THK's seismic isolation system protects our statue from earthquakes

After the Great Hanshin-Awaji Earthquake and the Great East Japan Earthquake, many temples near the epicenters reported that their statues had moved or fallen over. Nichiren's spirit dwells in these statues, so they must be protected at all times, in every situation. Some temples reinforced and earthquake-proofed their buildings as a precaution against earthquakes, but at JyouSenji we decided to install a seismic isolation system when renovating our main temple (which houses the statue) and placed our order with a store that sells Buddhist articles. Fortunately, that store had already considered the idea of using a seismic isolation system, so the conversation went smoothly.

When selecting a company, we arrived at the decision to install THK's seismic isolation system based on an introduction from the construction company that performed the renovations, and also by hearing word from members of our faith who said that THK was a bearing manufacturer we could trust.

We originally wanted to install a seismic isolation system for the entire altar, but the salesperson we worked with provided us with a lot of advice, informing us that they could provide a compact product sized for the statue's pedestal and suggesting that we add a steel plate because the wooden statue weighed very little. We decided to go with their suggestions.

We have a lot of believers who come to worship and many monks who work at our temple. I feel very reassured knowing that our statue is being protected by THK's seismic isolation system. Several other temples are already planning on installing seismic isolation systems for their statues. In the future, I hope that the use of seismic isolation systems will spread to the statues enshrined in temples in every country around the world.

## Akita University Hospital

Akita, Akita Prefecture



Deputy Director, Division of Medical Informatics  
**Atsushi Ohsaga, M.D., Ph.D.**

# Safeguarding Medical Information During Disasters

### The role of the Division of Medical Informatics

Akita University Hospital, which sees approximately 1,800 patients a day, is designated as an advanced treatment hospital—a medical institution that performs highly specialized and advanced medicine. We have striven to maximize our use of medical information in order to create a system that eliminates wait time as much as possible so we can provide examinations that reduce the burden placed on patients. The medical information recorded in the system includes the patient's personal information and results from blood tests, CT scans, MRIs, chest x-rays, EKGs, and more. This data is then shared with doctors, nurses, or others involved in clinical practice. Our role as the Division of Medical Informatics is to enhance patient convenience and create an environment that will allow our hospital's information system and network infrastructure to function stably even during a disaster.

### Medical information backup system

We upgrade the servers and client computers that manage medical information at our hospital to a new system every five to six years to ensure durability. The server racks must be relocated or removed with every upgrade, so we cannot

secure them to the floor. To protect the servers from earthquakes, we used to employ a method that would connect the racks and keep them upright. With that system, however, we had to deal with the nuisance of reconnecting the racks every time we upgraded.

The reason we made the leap and installed a seismic isolation system when upgrading to our current, eighth-generation system was to prevent the server racks from falling over. Our building suffered no significant damage during the Great East Japan Earthquake, and our information systems did not suffer physical damage, either. While Akita Prefecture is known for having few earthquakes, I was not able to dispel the concern of the server racks falling with the earthquake-proofing method we were using.

I am not an expert on earthquakes, but THK's miniature seismic isolation system allowed me to become familiar with the product's internal mechanisms. With the seismic isolation simulation vehicle, I was also able to experience how effective this technology is against tremors equivalent to those felt during the Great East Japan Earthquake. I decided to install seismic isolation systems made from Linear Motion (LM) Guides because I was confident they would be able to protect our equipment from vertical and horizontal ground motion during an earthquake, and because they can be installed easily, without needing to be secured to the floor.

We successfully installed the seismic isolation systems under our server racks in November 2017 without needing to shut down our equipment. Finally, we installed a total of 17 systems. Considering the trends of AI use in the medical field, the digitization of medical information will likely continue to accelerate. In order to provide patients with prompt service by safeguarding their important information and quickly making it available to the hospital, we intend to continue promoting the seismic isolation of our servers as necessary to protect them from earthquakes.



Seismic isolation systems used to prevent the server racks from falling over during an earthquake

## NS Solutions Corporation

Chuo, Tokyo, Japan



Telecom Solutions Division  
Tetsuo Ogawa

# The **SEED Noid** Makes High-Speed 5G Robots a Reality

### Changing the future with next-generation 5G mobile communication

Since the invention of mobile phones, we have seen the creation of new data transmission functions, first enabling us to use e-mail and the internet, and now making it commonplace to watch videos on your phone (see below). About once every 10 years, a new generation of technology replaces the old one. We currently use 4G technology, and a number of experiments are being conducted with the aim of

| Year             | Type | Description                      | Characteristics   |
|------------------|------|----------------------------------|---|
| 1979             | 1G   | Analog                           | Car phones, but only in urban areas                                       |
| 1993             | 2G   | Digital                          | E-mail, pagers, and mobile phones   |
| 2001             | 3G   | Approx. 14 Mbps* speed           | Internet access on mobile phones  |
| 2012             | 3.9G | Ultra-high speeds up to 100 Mbps | High-quality image viewing on smartphones                                 |
| 2017             | 4G   | 100 Mbps or more                 | 0.1 s delay, suitable for video conferences and online gaming             |
| 2020 (estimated) | 5G   | 10 Gbps                          | 0.001 s delay, compatible with autonomous and remote operation technology |

\* Mbps: Unit for data transmitted per second. The higher the number, the higher the speed.



Robot writing in sync with the dancer's movements

putting 5G into practical use in 2020.

Entering the 5G Idea Contest held by NTT Docomo was our initial push to become involved with 5G. I used to work at a steel plant under our parent company, where employees wore fire-resistant clothing as they worked in the production floor's harsh environment. The idea of having robot doubles take over this work prompted our decision to develop a remote humanoid robot system.

### Finding out about THK products solved our problems

We are currently on our third generation of robots. Our second-generation robots were unable to grasp objects via remote operation, causing us considerable trouble. Another company introduced us to THK, and when we saw their products, we observed 1) a wide operating range comparable to that of a human, 2) any added accessories can work simultaneously with existing mechanisms to make products, and 3) THK products are small, lightweight, and compact, which is exactly what we were looking for. In August 2017, we developed a robot that integrated THK's **SEED Noid**. It only took three months to complete. THK possesses stability and technical expertise you cannot find at any other component manufacturer. I can say that developing this robot would not have been possible without THK technology.

Despite being remotely controlled, the robot mirrors the operator's movements with almost perfect precision thanks to the communication delay of only 0.001 seconds. A head-mounted display allows the operator to see what the robot is seeing, and through VR (virtual reality), the operator can feel the sensation of grasping whatever the robot arm has grasped. This robot presents an array of possibilities for applications, from the difficult work environment described above, to operating a stethoscope at a clinic on a remote island, to acting as a first responder by putting out fires with a fire extinguisher. In February 2018, we presented this technology at the Mobile World Congress in Barcelona, Spain, where it was used for a demonstration of the art of Asian calligraphy.

SECOM INDUSTRIES CO., LTD. 信頼される安心を、社会へ。



Shiroishi, Miyagi Prefecture

## Overall Productivity Quintupled with the Installation of NEXTAGE®



Chief Product Developer  
Isao Onoda

Product Developer  
Ryota Baba

President  
Toshiya Miura

### Improving production efficiency and increasing quality in anticipation of a smaller working population

As a Group company under SECOM CO., LTD. (Japan's first security assurance company and industry leader), we design and manufacture security equipment. The SECOM Group has created a system that takes responsibility for everything from research and development to the design, manufacture, installation, and maintenance of security equipment to achieve an even higher quality of service for our customers. As a part of this effort, the entire SECOM Group works together under the concept of "ALL SECOM," aiming to create a "pleasant and convenient society, where anyone can live without worry."

In recent years, greater focus on crime prevention has led to an increase in demand for security equipment. In anticipation of a smaller working population and efficiency improvements in manufacturing, we installed a robot in our work-intensive inspection process. In this process, every product is placed in a specialized fixture and must undergo a number of checks, which include different types of electrical signal measurements, displays, and operations. Because of this, the employee must maintain a high level of concentration. In an effort to lighten the burden on employees, we decided to install a robot with the dual aim of improving the working environment and improving quality by preventing mistakes.



NEXTAGE® performing the complex inspection process in place of people

### Benefits of installing NEXTAGE®

Our conditions for selecting a robot were as follows:

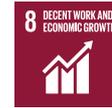
1. Dual-armed for better operation efficiency
2. Able to perform many intricate operations accurately
3. Able to fit in a single person's work area
4. Programming that we can edit for adjusting fine movements and image recognition

Our inspection process is very difficult, and we did not receive any encouraging responses from the system integrators we spoke with. We did, however, get a single optimistic reply from THK INTECHS: "Let's give it a shot!" As it turned out, NEXTAGE® met all of our conditions, and it can accurately manipulate switches on the scale of just a few millimeters while correcting positions, a task that is difficult even for people. Furthermore, the cameras in its head check the process instructions step-by-step on the monitor while performing each operation, so it never skips a check.

We purchased one NEXTAGE® robot in August 2016, and with assistance from THK INTECHS as necessary, we programmed it to work with our inspectors. In February 2017, we began making full use of automation in the inspection process. For a while after installation, we only had it operating alongside other employees during the day. Since September of that year, however, we began having the NEXTAGE® run at night—when no one else is around—and inspect the products made throughout the day to increase production output.

By thinking about the productivity of the overall process, we can now perform the inspection process both day and night with NEXTAGE®, so we have gone from being able to make 1.1 products per person each hour to 5.9, a five-fold increase in labor productivity. So that manpower will not affect our ability to consistently supply products, in the future we plan to automate our product transport and assembly processes, while at the same time installing more NEXTAGE® robots and dedicating them to the inspection process.

## Corporate Governance



### Governance Structure

With the aim of maximizing THK's corporate value, we strive to make mid- to long-term improvements to our corporate value by bettering our corporate governance.

The executive officer system represents one of our main efforts and has been in place since June 2014. Additionally, after the 46<sup>th</sup> General Meeting of Shareholders on June 18, 2016, and in conjunction with our establishment of an Audit and Supervisory Committee in place of our Audit and Supervisory Board, we set up a non-mandatory

Nomination Advisory Committee and a Remuneration Advisory Committee to act as advisory bodies to the Board of Directors. In doing so, we have endeavored to bring enhanced transparency and objectivity to management, strengthen the auditing functions of the Board of Directors, and bring greater speed and efficiency to management-related decision-making and the management of corporate affairs.

### SUMMARY

#### ▶ Audit and Supervisory Committee

- The directors on the Audit and Supervisory Committee, which serves in an auditing and supervisory capacity, participate in Board of Directors meetings and exercise their votes.
- This committee utilizes internal controls to audit and supervise the work of directors and managing executive officers.

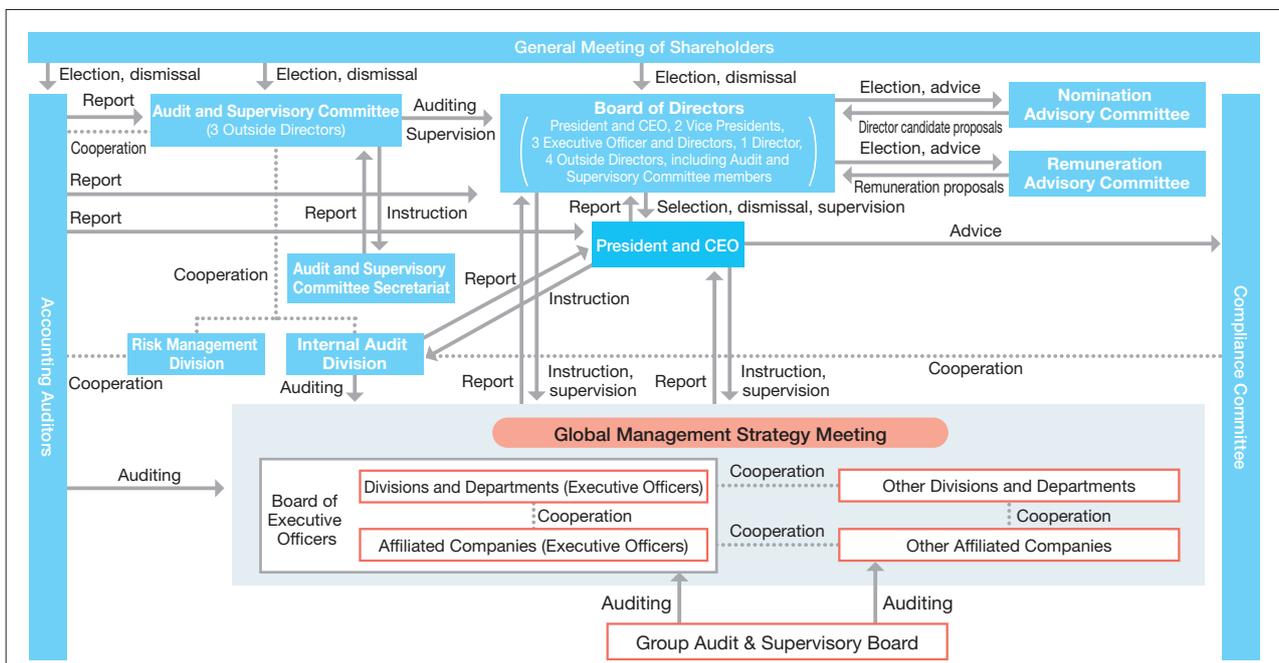
#### ▶ Nomination Advisory Committee and Remuneration Advisory Committee

- To secure greater transparency and fairness, half of the members are outside directors.
- As advisory bodies to the Board of Directors, these committees review and deliberate on director candidates and remuneration proposals. The Board of Directors then deliberates and makes decisions regarding those topics.

#### ▶ Executive Officer System

- This system endeavors to improve the management oversight function of the Board of Directors, clarifies roles and responsibilities relating to the management of corporate affairs, and accelerates operational execution.

### Governance Structure



# Internal Controls, Intellectual Property, and Information Security



## Internal Controls

At THK, we comply with laws and regulations, and we have strengthened our internal controls to serve as a solid base for our management. We have also established the “Regulations for Internal Control over Financial Reporting” and consistently maintain systems to ensure the reliability of financial reporting throughout the entire THK Group in accordance with the Financial Instruments and Exchange Act. The Internal Audit Division’s Internal Control Audit Department evaluates the effectiveness of internal controls, and the Risk Management Division’s secretariat, the Internal Control

Section of the Legal & Risk Control Department, makes improvements based on their findings.

The internal evaluation performed in 2017 found no critical deficiencies requiring disclosure. The final evaluation results were summarized in the internal control report\* submitted and disclosed to the Prime Minister (Kanto Local Finance Bureau) in March 2018.

\* Due to the change in the fiscal year period in 2017, the report covers the period from April 1 to December 31, 2017.

## Intellectual Property

### Policy

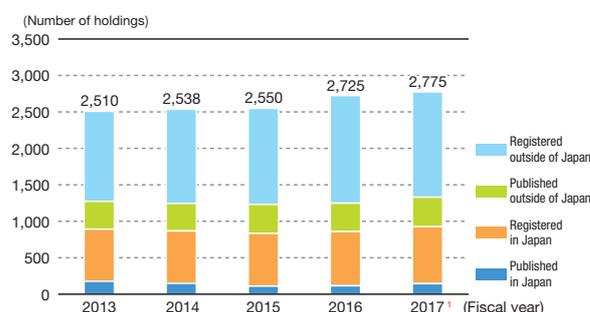
**As a company focused on creation and development, we value and promote the creation and full utilization of our intellectual property to continue contributing to the development of our customers around the world and to the creation of an affluent society through the development of innovative products.**

By applying for patents and preserving our specialized knowledge, we exercise exclusive rights to our linear motion technology and eliminate imitations.

At the same time, to avoid infringing upon the patents of others in the industry, we work with our planning and development departments to conduct thorough patent searches while still in the development stage, and we internally educate our employees so that they respect the patent rights of third parties to avoid patent infringement.

Through full-scale globalization and other means, we are striving to expand the breadth of our preservation of effective intellectual property rights that contribute to industry.

## THK’s Intellectual Property



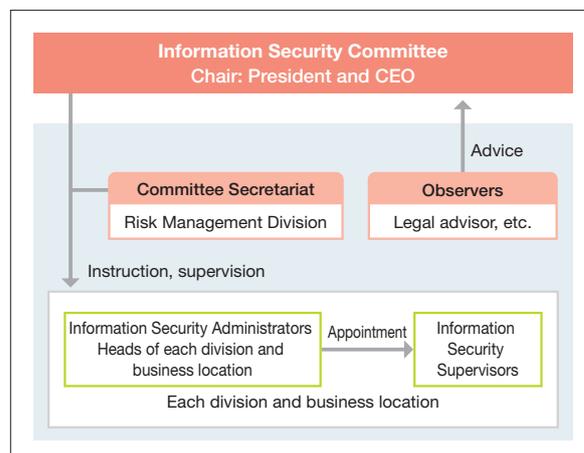
<sup>1</sup> Due to the change in the fiscal year period in 2017, the 2017 data reflects a period from January 1 to December 31, 2017, and the data for prior years reflects a period from April 1 to March 31.

## Information Security

The Information Security Committee, chaired by the CEO, has been in place since 2006, and the organization, authority, and roles and responsibilities of its members are clearly defined in the committee’s regulations. This committee makes decisions concerning policies related to the establishment of information security systems, and it deliberates on responses to information security concerns. In 2017, the activities below were conducted to strengthen information security.

| Activity             | Description   |
|----------------------|---|
| Information security | Internal audits (6 locations in Japan: 2 sales offices, 4 headquarters departments) |
|                      | Annual self-evaluation  |
|                      | Monitoring and updating anti-virus software   |
|                      | Preventing unauthorized access and transmissions                                    |
|                      | Detecting and preventing intrusion of targeted e-mail attacks from external sources |

## Information Management System



# Compliance and Internal Auditing



## Compliance

**Policy** Promote compliance awareness.

To ensure the thorough execution of our policy, we have established various types of programs for our employees to learn how to better follow laws and social norms. Additionally, the Compliance Committee, which is chaired by the CEO and attended by outside directors and a legal advisor, properly approves the annual activity plan and reports on the execution of those activities, as well as on the handling of compliance violations by employees and other matters reported internally.

### THK Group Helpline (Internal Reporting System)

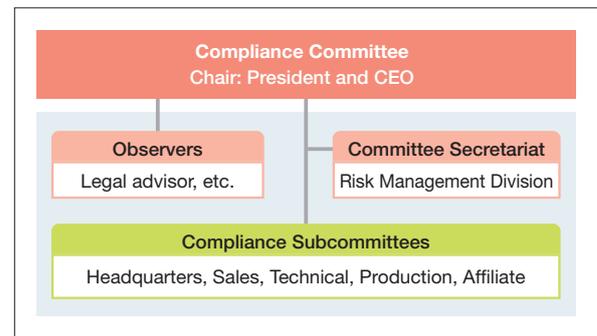
The THK Group Helpline was established to prevent compliance violations and to enable swift detection and action in the event of an executive or other employee committing a violation. There are two internal contacts (the Risk Management Division and Audit and Supervisory Committee) and one external contact (our legal advisor) for reporting. Reports can be made anonymously, and they are confidential. We prohibit any unfavorable treatment of employees on the basis of having made a report. We work with the relevant departments to respond to any reports (including consultations) in an appropriate manner.

### Distribution of the “Fundamentals for the THK Group Employees” Booklet

With the aim of helping employees properly execute their everyday duties without losing sight of our mission, “Fundamentals for the THK Group Employees” contains the materials that constitute our CSR policy: our Corporate Philosophy, Corporate Basic Policies, and The THK Group

Action Charter. This booklet is available in a total of 12 languages and is distributed to all employees.

### Compliance Structure



### 2017 Activities

| Activity                                 | Description  |
|--|--|
| Training                                 | Compliance subcommittee member seminar (Oct. 2017)   |
|  | Seminars at various THK locations (12 sessions)  |
|  | Seminars at overseas subsidiaries (2 US and 6 Chinese subsidiaries)  |
|  | Providing e-learning materials (Mar. 2018)   |
| Measuring effectiveness                  | Self-survey on compliance (Oct. 2017)  |
|  | Self-survey on information security (Dec. 2017)  |
| Information security audit               | Investigation and improvement (6 locations)  |
| Establishing global compliance structure | Investigating appropriate model  |
| Compliance violation awareness           | Creating and distributing educational materials using news articles about corporate scandals to raise awareness (once per month) |

## Internal Auditing

As a matter of basic policy, we conduct internal audits that contribute to management and the departments being audited. Internal auditors monitor the business activities of each department as a group directly reporting to the CEO that is independent from any other department.

The Internal Audit Division carries the dual responsibilities of conducting internal audits and evaluating internal controls.

During internal audits, the business activities of each department and Group company are audited. These audits are generally performed on-site every year, and the results are summarized in an internal audit report and distributed to both management and the departments under audit. In

2017, a total of 70 locations and departments were audited in and outside of Japan.

During evaluations of internal controls, internal controls related to financial reporting are evaluated based on the Financial Instruments and Exchange Act. With the release of internal control reports, management evaluates the effectiveness of internal controls and undergoes an audit by accounting auditors on an annual basis. In 2017, the overall internal controls were evaluated at 20 locations, and the internal controls related to business processes were evaluated at 13 locations.

# BCP



**Policy**

As a company that supports industry around the world, it is our essential social responsibility to minimize any negative impact on society by fulfilling our responsibility to supply parts even in the event of unforeseen disasters.

As a component manufacturer, THK is responsible for supplying parts to customers, no matter the situation. We have formulated a BCP (business continuity plan) to minimize damage and ensure a rapid business recovery in the event of

a disaster, such as a large-scale earthquake (an earthquake registering at least 6 Lower on the seismic intensity scale, or one that brings about significant destruction).

**BCP Strategies for a Large-Scale Earthquake**

| Category            | Description   |
|---------------------|---|
| Servers             | Maintaining main and backup servers in separate data centers<br>Practicing switching to backup servers in case main servers were to go down (once per year)   |
| Earthquake-proofing | Production facilities: installing equipment to prevent toppling of shelves that hold components, fixtures, and tools<br>Sales offices: installing equipment to prevent toppling of printers, cabinets, etc. |
| Emergency supplies  | All production and sales facilities: potable water, food, sanitary items, emergency supplies, and rescue equipment  |
| Safety drills       | Annual drills at all locations<br>Annual satellite phone test   |

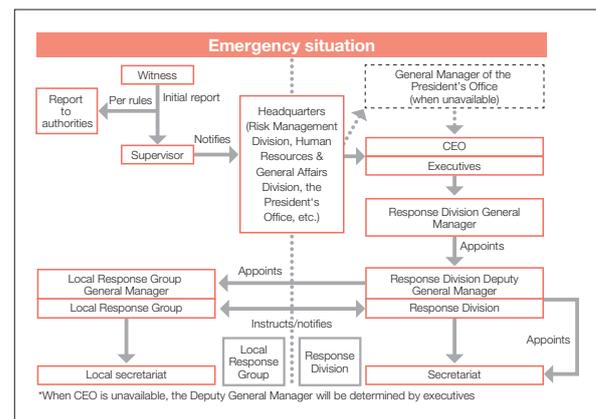
**Organizational Structure in the Event of a Major Disaster**

In the event of a major disaster, a Response Division will be established immediately, led by the CEO as the general manager, who will appoint a deputy general manager. In the Response Division, the deputy general manager will establish a Local Response Group, appoint a general manager for that group, and issue them instructions. The steps we will follow for recovery after a disaster are: 1) confirm safety of employees, 2) give initial firefighting and evacuation instructions, 3) recover IT systems, 4) determine status of customers, 5) resume production, and 6) contact suppliers.

At the time of the Great East Japan Earthquake, due to risks from aftershocks and radioactive contamination from the Fukushima power plant, we set up some of our headquarters functions at the Gifu plant. Based on the results, we established work space and IT infrastructure at the Gifu plant and the Nagoya branch (with a plan to move to the Yamaguchi plant in case of danger in the Chubu region) to use in the event of an interruption of operations at the headquarters (in the form of risks of radioactive contamination or a lengthy recovery period for electricity, gas, water, trains,

or roadways). Additionally, each sales office and production facility is equipped with rescue equipment, disaster prevention supplies, devices to receive and transmit information, and three days' worth of supplies and emergency drinking water for those who cannot return home.

**Process Flow for Emergency Situations**



**Equipment at the New Headquarters**

In October 2017, we relocated our headquarters to Shibaura in the Minato ward of Tokyo. Understanding the importance of having a BCP, we took the following items into consideration:

1. Seismic isolation and damping systems (incorporating five THK Linear Re-Circulating Guide CLBs and eight Viscous Damping System RDTs)
2. Emergency generators (able to supply power for 45 hours)
3. Measures in case of tsunamis or liquefaction

4. Emergency supplies warehouse (seven days' worth of food and water)

In addition to making our new headquarters more earthquake-proof, we have taken headquarters departments that were previously separate (including the TALK SYSTEM and INTECHS headquarters) and centralized them in one location, strengthening the ability of our headquarters operations to continue functioning in case of a disaster.

## Together with Our Suppliers



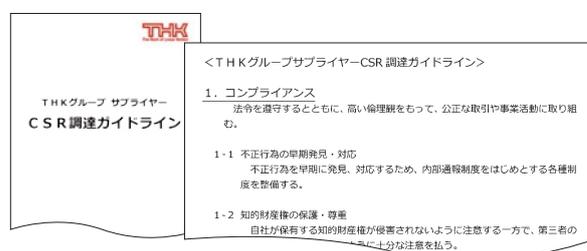
In order to manufacture products in the optimal location and to conduct our business and improve our technology in a way that meets the needs of our customers, THK's daily operations are performed in accordance with the following policy.

|               |                                |  |
|---------------|--------------------------------|--|
| <b>Policy</b> | <b>1. Global procurement</b>   | *Optimize procurement locations  |
|               | <b>2. Accelerated ordering</b> | *Develop purchasing system that incorporates AI  |
|               | <b>3. Active proposals</b>     | *Double communication with business partners to promote value analysis and production innovation |

Throughout our supply chain, from design to sales, we strive to adhere to social norms and be environmentally conscious in order to create a sustainable society. Based on our belief that efforts at every step of the supply chain are essential to the promotion of CSR activities, we distribute our CSR Procurement Guidelines to our suppliers and request that they actively engage in CSR activities.

In February 2017, our Material Purchasing Unit held a seminar at our headquarters for those in charge of the material purchasing sections at five of our plants; its purpose was to inform them about complying with the Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors.

Each of those members then held separate seminars at their facilities to disseminate this information to their purchasing staff.



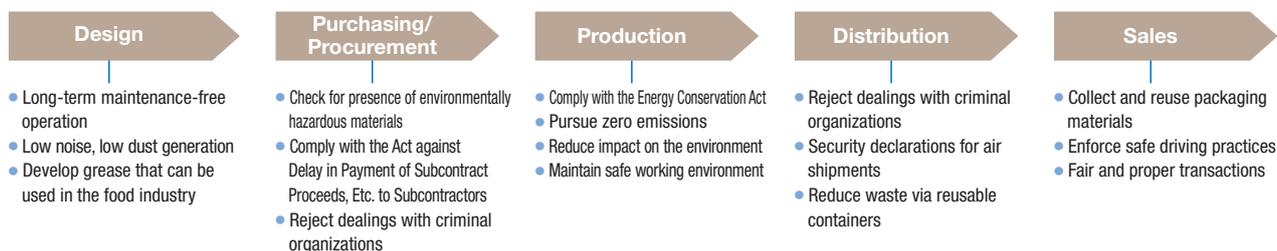
CSR Procurement Guidelines

### THK Basic Policy on Procurement

In order to continue to provide THK products that satisfy our customers, we establish good, healthy, and mutually beneficial relationships with our suppliers.

- Activities**
- 1 Procurement practices emphasizing communication with suppliers. Evaluating and choosing suppliers with thorough consideration for QCDES
  - 2 Fair and equitable dealings in compliance with all pertinent laws and social norms
  - 3 Efforts to minimize costs. Encouraging the active pursuit of cost-saving projects and value-analysis initiatives
  - 4 Pursuit of global procurement
  - 5 Implementation of a BCP (business continuity plan)
  - 6 Environmental consciousness through green procurement

### THK's Supply Chain



### Making Improvements with Business Partners

We worked with Kaoru Seisakusho KK, a company that drills holes in LM blocks, to make process changes that increased production output. Mr. Teramoto, the plant manager at Kaoru Seisakusho, commented, "THK has the latest technology and broad expertise when it comes to machining. The proposal they made seemed unconventional to us, but if they had not suggested this improvement, we would have

continued machining like we always had. I am astounded at the process speed after the improvement. This was an especially welcome suggestion, as it came at a time when it is becoming increasingly difficult to find new workers. I hope to continue collaborating with THK to come up with more process improvements."

# Together with Our Shareholders



## Investor Relations Activities

THK engages in IR activities in an effort to disclose information in a manner that is fair, impartial, expedient, accurate, and easy to understand. In addition to improving the quality of our financial results briefings, interviews, and other IR events, we strive to enhance our disclosures through IR tools such as our Investor Relations website and Annual Report.

## Investor Relations Events

### Financial Results Briefing

At the financial results briefing, our CEO discusses the company's performance and strategies, while leaving ample time for a Q&A session, where we receive candid feedback regarding our operations.

The proceedings of the meeting are posted on the Investor Relations page of our website in both Japanese and English.



Financial results briefing video

Investor Relations page

### Other Meetings

Through smaller-scale meetings and one-on-one interviews, we endeavor to open discussions with many more investors. We strive to take advantage of any opportunity to communicate with our institutional investors both within and outside of Japan through phone conference interviews, annual visits to American and European investors, and other means.

## General Meeting of Shareholders

### An Open Meeting

Every year since 1998, we have held our General Meeting of Shareholders on Saturdays during periods when few shareholder meetings are scheduled, thereby allowing more shareholders to participate. We also provide a space in the meeting hall for observers in order to give suppliers and other stakeholders the opportunity to better understand our business. As a result, we have seen even greater attendance. After the conclusion of the General Meeting of Shareholders, we hold a product exhibition for attendees to experience THK products up close, which they have few opportunities to do in their everyday lives.

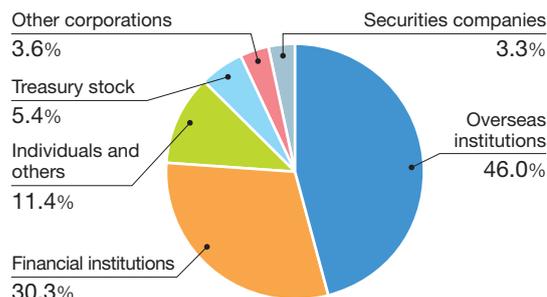
### 48<sup>th</sup> General Meeting of Shareholders

Approximately 450 shareholders attended our 48<sup>th</sup> General Meeting of Shareholders held on March 17, 2018. At the product exhibition, our displays featured industrial machinery essential to manufacturing, such as machine tools and industrial robots, as well as applications that are carving the way into new fields, such as seismic isolation systems, automotive and transportation products, robotics, and renewable energy. We also introduced new initiatives that make full use of the IoT.



48<sup>th</sup> General Meeting of Shareholders

### Stock Distribution by Owner (Current as of December 31, 2017)



# Quality Assurance

Each THK production facility both in and outside of Japan is certified with the ISO 9001 Quality Management System. Furthermore, we have established a quality assurance structure where we obtain certifications in quality standards adapted for the automotive, aerospace, and other industries, depending on the products each facility produces.

We have also established a system that allows quality data to be shared globally. In addition to gathering feedback from customers in each region, analyzing it, and providing rapid and appropriate service, we endeavor to develop products that meet market needs and improve quality.

In our mission to satisfy all of our customers, we always strive to maintain and improve product quality, thereby delivering safe, dependable products and providing uniform quality all over the world.

Quality Management System Certification Status (Facilities)

|                  | ISO 9001 | JIS Q 9100<br>Aerospace<br>Industry | ISO/TS 16949<br>Automotive<br>Industry | IATF 16949 |
|------------------|----------|-------------------------------------|--|------------|
| Japan            | 11       | 1                                   | 1                                      | —          |
| Outside of Japan | 13       | —                                   | 7                                      | 6          |
| Total            | 24       | 1                                   | 8                                      | 6          |

## Quality Management Process



## THK

**Products** LM Guides, ball screws, cross-roller rings, electric actuators, seismic isolation systems, **SEED Solutions**, and more

**Policy** We implement quality assurance activities to ensure we deliver products that will always satisfy our customers and earn their trust.

THK manages the quality of its products on the material level, possessing superior analytical equipment capable of analyzing microscopic inclusions and the composition of steel, resin, oil and grease, and more.

We evaluate product performance by utilizing various kinds of testing equipment developed in-house, guaranteeing quality through our flawless system.



## THK INTECHS

**Products** Precision stages, machine tools, robots, industrial machinery, and more

**Policy** We channel our enthusiasm and special expertise into working with customers, bringing them solutions for automation, streamlining, and any other challenges they may face. We endeavor to be a strong company that can continue to grow for 10, 20, or 30 years.

With a slogan of “Striving for perfection in manufacturing,” THK INTECHS promotes high-tech automation.

We continuously work to improve and stabilize our product quality, and we promote our original, effective model for supplying products.





## THK NIIGATA

**Products** Ball splines and roller splines

### Policy

We establish a quality assurance structure and continuously work on improvements in QDC (quality, delivery, and cost) to ensure we always deliver products that will satisfy our customers.

THK NIIGATA contributes to the advancement of society by further honing the ball splines it produces and providing high-quality products.

We are also working on transitioning to and obtaining certification in the JIS Q 9100:2016 Aerospace Quality Management System.

Furthermore, we realize the principles of “Customer first,” “Unity and cooperation,” and “Personal responsibility” as we strive to bring about the growth and well-being of people and corporations through our products.



## THK RHYTHM

**Products** Linkage and Suspension products for automobiles

### Policy

Through our quality management system, which was established to guarantee the quality of critical safety components, we supply products that will satisfy our customers, and we continuously improve the effectiveness of the system.

THK RHYTHM primarily manufactures critical safety parts, and it delivers products that meet its customers’ requirements in an aim to achieve its management’s vision: the “Zero Defect” guarantee (eliminating defects through preventative measures).

We are also working on obtaining IATF 16949 Automotive Quality Management System certification, transitioning from ISO/TS 16949.



## NIPPON SLIDE

**Products** Slide rails and slide packs

### Policy

We will pursue our work with speed and ingenuity, prioritizing quality, cost, delivery, service, and technology that will satisfy our customers.

NIPPON SLIDE will bolster its product quality and establish a rigorous quality management system, promoting manufacturing that satisfies customers and contributing to the advancement of society.



# Health and Safety

## Management Structure

**Policy** Create a pleasant work environment with zero work-related accidents or illnesses.

Five THK facilities earned OHSAS\* 18001 certification in 2010. In accordance with our policy, we performed numerous activities to achieve our targets in 2017. THK thoroughly manages the overtime hours of its employees in Japan, and an e-mail alert is sent to individual employees and their supervisors when it appears they may exceed 45 hours of overtime in a month. If, for some reason, an employee exceeds 100 hours of overtime in a month, we have them consult with an occupational physician.

| Objective   | Activity   |
|---|--|
| Allow occupational health and safety management system to reach all employees | Implement risk assessments and workplace safety training   |
|   | File and provide information pertaining to relevant regulations (chemical substance risk assessments)                    |
|   | Prepare and perform internal audits (reciprocal audits)  |
|   | Conduct management reviews   |
| Revitalize health and safety committee activities                             | Promote disaster prevention  |
|   | Implement traffic safety activities (achieve zero traffic accidents)   |
|   | Conduct workplace safety patrols and promote 5S (6S) activities  |
| Eliminate workplace accidents   | Achieve 3.1 million hours without any accidents (class 1 accident-free record)   |
|   | Prevent workplace accidents from occurring (zero accidents)  |
|   | Promote submission of proposals to prevent near misses (production: 1/month per group, indirect: 1/month per department) |
|   | Provide instruction to business partners who work on site and visitors   |
| Enhance health management   | Perform regular and special health checks  |
|   | Promote mental health and perform stress checks  |
|   | Implement illness prevention activities  |
|   | Make improvements based on occupational physician recommendations  |

\* OHSAS: Occupational health and safety management systems

## Incident and Severity Rates (Data)

|               | 2013      | 2014      | 2015      | 2016      | 2017      |
|---------------|-----------|-----------|-----------|-----------|-----------|
| Incident rate | 1.09/1.58 | 0.20/1.66 | 1.13/1.61 | 0.25/1.63 | 0.82/1.66 |
| Severity rate | 0.02/0.10 | 0.00/0.09 | 0.01/0.07 | 0.00/0.10 | 0.01/0.09 |

(THK/Japan average (%))

Incident rate: Frequency of work-related injuries  

$$[IR = (\text{Number of incidents}) \div (\text{Labor hours worked}) \times 1,000,000]$$
 Severity rate: Severity of work-related injuries  

$$[SR = (\text{Number of lost workdays}) \div (\text{Labor hours worked}) \times 1,000]$$

\* Due to the change in the fiscal year period in 2017, the 2017 data reflects a period from January 1 to December 31, 2017, and the data for prior years reflects a period from April 1 to March 31.

## 8.8 Million Hours Accident-Free

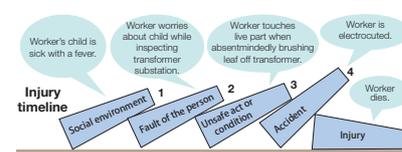
Having achieved 8.8 million hours (labor hours x number of employees) without any accidents, the THK RHYTHM headquarters and Hamamatsu plant received recognition for achieving a class 3 accident-free record by the head of the Hamamatsu Labor Standards Inspection Office. This facility is classified as an automotive component and accessory manufacturer, and it was one of two companies (out of 250) with over 100 employees in the Hamamatsu area to achieve a class 3 accident-free record as of the end of December 2017.

To eliminate any shutdown due to a workplace accident, the Hamamatsu plant conducts safety patrols, works to prevent accidents, and displays a board with important

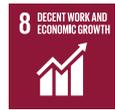
safety information in all areas. This board displays Heinrich's five-domino theory to encourage all employees to think about ways to prevent accidents.

8.8 million hours without an accident is only the beginning. The Hamamatsu plant will continue to prioritize employee safety and conduct its business in a way that keeps accidents from occurring.

### Five-Domino Theory



All employees are trained and check on each other to prevent the third domino from falling.



### Smoking Cessation Program

Because of the high value it places on employee health, TRA CZECH began offering smoking cessation therapy to smokers through an external consultant in April 2017, with the aim of achieving a completely smoke-free work environment by January 1, 2020. Forty employees participated in the first program held, with twelve successfully quitting smoking. A second program has followed for those who did not succeed during the first.

To achieve greater results, TRA CZECH has also been considering the use of other external smoking cessation consultants since February 2018. The smoking cessation therapy will continue through 2018 and 2019 in order to help smokers quit using tobacco.



The consultant discussed the dangers of smoking

### Alert E-mails for Japanese Employees Working Abroad

With the increase in Japanese employees traveling and working abroad, we introduced the Alert STAR risk management system to communicate information and advice about regional dangers to individuals in Japanese. This information includes the country where the risk is present, as well as the city, description, advice, risk level, and more. For example, alerts are split into Level 3 (Information only), Level 4 (Warning: take precautions), and Level 5 (Urgent: take immediate action).

This system is capable of informing and advising employees about risks in their current location and next destination, enabling individuals to avoid these risks by changing their travel plans.

| 原文  | 翻訳文  |
|---|--|
| 危険度 4:Wm  | 4:警告   |
| タイトル France - Severe Winter Weather (Upd. 1) - North  | フランス北部で重しい冬季気象 - 最新情報!                                   |
| 発着国 France  | フランス   |
| エリア Paris   | パリ   |
| 概要 UPDATE 1: Snow and ice likely to prompt further road, rail, and air transport disruptions in northern France through Feb. 8. | 最新情報 1: フランス北部では降雪や凍結により、2月8日まで道路、鉄道および空路交通に混乱が生じる恐れがある。 |
| アドバイス Advice  | 気象関連の道路や航空に関する最新情報を入力する、移動手段の手                           |

Example of information provided by Alert STAR

### Kaizen Program

TRA CANADA Tillsonburg has ramped up its Kaizen activities to prevent internal workplace accidents. In 2017, around ten managers, employees, and health and safety committee members identified 139 safety risks, and countermeasures were implemented to address 118 of those within a week.

One highly effective improvement was replacing the wheels on a roughly 817 kg metal cage used to move components, which reduced the physical burden placed on employees by 40%. No accidents have occurred since changing to the new wheels, and they are now being adopted in other departments throughout the plant.



Metal component cage with new wheels

### Eliminating Workplace Accidents

To increase safety awareness, the Yamaguchi plant has built a "safety dojo" with devices that allow employees to experience simulations of past workplace accidents: getting caught in a belt, getting a finger smashed by a press, getting cut by a grinding wheel, and slipping and falling. Participants see what damage occurs when cloth or wooden chopsticks are inserted while equipment is running so that they understand how the accident feels, how to ensure safety, and what actions they should take in the future. By the end of the year, a total of 258 people, including new employees and those with less than ten years of experience, took part in the safety dojo.

In addition, stickers were added to employee IDs to immediately identify who is qualified to operate slings, hoist cranes, and forklifts. They have proven very useful in preventing unqualified employees from operating such equipment.

With its motto of "Don't decide on your own. Ask!" the Yamaguchi plant will strive for zero workplace accidents.



Qualification stickers placed on an employee's ID

# Supporting Development (Work-Life Balance)

## HR Data Records<sup>1</sup>

|   | 2013 |      | 2014 |      | 2015 |      | 2016 |      | 2017                |      |
|---|------|------|------|------|------|------|------|------|---------------------|------|
|   | M    | F    | M    | F    | M    | F    | M    | F    | M                   | F    |
| Individuals eligible for childcare leave      | —    | —    | —    | —    | —    | —    | —    | —    | 209                 | 39   |
| Individuals who took childcare leave          | 0    | 31   | 0    | 29   | 2    | 21   | 2    | 19   | 2                   | 39   |
| Individuals with shortened hours              | 2    | 39   | 0    | 48   | 0    | 62   | 0    | 71   | 3                   | 66   |
| Average years of service                      | 16.7 |      | 17.4 |      | 17.8 |      | 18.3 |      | 17.5                |      |
|   | 17.3 | 12.9 | 18.0 | 13.9 | 18.4 | 14.1 | 19.0 | 14.2 | 18.1                | 13.7 |
| Turnover rate (%)                             | 1.6  |      | 2.0  |      | 1.7  |      | 1.5  |      | 1.6                 |      |
|   | 1.4  | 2.4  | 1.5  | 4.8  | 1.6  | 2.7  | 1.3  | 2.4  | 1.3                 | 3.0  |
| Percentage of employees with disabilities (%) | 2.24 |      | 2.23 |      | 2.21 |      | 2.17 |      | 2.20 <sup>2,3</sup> |      |

<sup>1</sup> Data from April 1–March 31 (2013–2016); January 1–December 31 (2017)

<sup>2</sup> Data as of end of April (2013–2016); end of January 2018 (2017)

<sup>3</sup> Inclusion mandate: 2.00

## THK RHYTHM Receives Kurumin Certification

Thanks to efforts such as extending the timeframe of its policy that allows shortened working hours for parents to the point when their children enter elementary school, THK RHYTHM was awarded Kurumin Certification by the Minister of Health, Labour and Welfare for being a company that actively supports child care.



Kurumin mark

THK RHYTHM will continue to be a company that helps its employees find a balance between work and child-rearing.

## THK Internal Certification System

In order to improve quality, we have implemented a number of classes and practical training programs at numerous production facilities that are targeted at inspectors, with contents based on the mechanical inspection section of Japan's National Trade Skill Test and Certification system. Employees undergo internal testing after completing this training program, and only those who pass are allowed to perform the inspection process.



Board showing certified employees, displayed in the Yamaguchi plant showroom

Additionally, to support the skill development of production department employees, we fully cover all examination fees for those who pass the machining, mechanical inspection, or heat treating sections of the National Trade Skill Test and Certification Grade 2 and above. In 2017, 18 employees passed.

## THK RHYTHM's Five-Day Reward

Surely this phrase rings a bell: "I would like to pat myself on the back."

At THK RHYTHM, we heard about Japan's Labor Standards Act being revised to make it mandatory for employees to take five days of vacation annually, and we decided to make an effort to encourage our employees to take vacations before it becomes mandatory. The name for our policy was chosen from a number of ideas that came up in discussion between labor and management. It expresses our hope that the five days of break will be a fulfilling time and a reward for employees. This policy applies to executives, full-time employees, temporary employees, and part-time employees who begin the period (October) with 10 or more unused days of annual paid vacation.

In October, we expanded the program to all of our locations in Japan, after first completing a four-month trial beginning in May 2017. It has been a year since we began this policy, but the rate of employees taking vacations has increased compared to the same timeframe in 2016. There were varying reactions; while some have remarked that it has become easier to take time off, others say they are too busy to take advantage of it. This change is intended to improve the work-life balance and morale of our employees.

## Combating Harassment

In the "Fundamentals for the THK Group Employees" booklet we distribute to every employee in all of our locations, it states, "We provide equal opportunities, without discrimination in the employment and treatment of our employees." As a part of this, the Human Resources Section at our headquarters has established a harassment consultation helpline to help prevent slander or conduct that would create a hostile work environment for those taking caregiver leave or childcare leave for pregnancy and giving birth. To contact the helpline, employees can call, e-mail, or submit a letter. Reports are treated as confidential, and steps are taken to ensure there are no negative repercussions for anyone who cooperates with the investigation to determine the facts. We have also prepared an eight-page guide to enable our members to better understand harassment.



Anti-harassment guide



## Training at the Yamaguchi Plant

### Shunsuke Miyawaki



Shunsuke holding boxes assembled during on-the-job training

As a third-year student at Yamaguchi Kenritsu Shimonoseki Sougoushien Gakkou (a school for students with disabilities), I came for on-the-job training at the Yamaguchi plant in May 2017, where I assembled boxes. At Sougoushien Gakkou, I

took a leatherworking class where I would make small items like bags and key rings, and I would paint landscapes using

pastels on my days off. I was skilled with my hands, so I figured I would be good at assembly work. Employees carefully explained the process to me, so I was able to remember it clearly. Once I got used to it, I was able to gradually increase my individual assembly numbers from 300 boxes a day to an average of 500, with some days reaching as high as 800.

I joined THK in April 2018. While I felt some uncertainties at the beginning of my training due to the workplace environment being so different from what I was used to, I gained significant confidence from learning to do my job well. I feel there is real meaning in the work I do, so I will do my best to contribute to the company.

## Fifth National Abilympics Win by a THK Employee

Order Management Section, Manufacturing Promotion Department, Yamaguchi Plant

### Kensuke Kuwabara



Kensuke putting his practice to good use to achieve victory

In November 2017, I entered the 37<sup>th</sup> Abilympics (National Vocational Skills Contest for Disabled Persons) held in Tochigi Prefecture and won in the area of product packing, earning the glory of being number one in Japan. As a student, I once tried representing Yamaguchi Prefecture in the Abilympics, but I was unable to place at all. Before that

event, I had the opportunity to participate in group training with THK employees. They left a good impression on me, which is why I decided to join THK. I now box up products and issue manufacturing orders.

The memory of my disappointment when I was a student motivated me to push myself while practicing to win at this Abilympics. Other employees at my plant have won before, and thanks to their encouragement and good advice, I was able to secure a victory a year after joining THK.

In April 2018, a new employee joined our department and will be competing in the Abilympics. I plan to make use of my own experience of success to provide support and give our newest member the confidence to achieve good results.

## A Comfortable Environment That Is Easy to Work In

Human Resources Section, Human Resources & General Affairs Division

### Hironaga Sakai



At the award ceremony

I learned about THK through Hello Work.\* When visiting the company, I was treated with more hospitality than I was at any other company. Without having to ask, I was given a notebook at my interview so we could use it to communicate. I felt that having a hearing disability would not get in the way of working here. During the 10 years since I joined, I have worked in the Human Resources Section on staff assignments, data creation and aggregation,

written words rather than sound, something that is an enormous help. For instance, I can check work-related information through e-mail, and speeches made at the morning assembly are posted on a notice board. I make an effort to do my job carefully, remaining conscious of the need to check whether what I told someone was conveyed without any misunderstanding.

In October 2017, I received an award for my efforts from the chairman of the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers. The fact that I have been able to work at THK for so long is not just thanks to me. It is thanks to the support of those around me who interact with me like any other person, despite my hearing disability.

\* A public institution that operates public employment security offices.

and managing contracts and investigation requests. THK provides many ways of communicating information through

# Local Communities

## Charitable Contributions and Internships

As part of our contributions to society, we provide financial assistance in times of natural disasters. In addition, we have welcomed 34 interns to our nine Japanese facilities to advance the future of manufacturing in Japan.

| Date      | Purpose   | Recipient                                      |
|-----------|---|--|
| Jan. 2017 | Japan Science Foundation contribution                                     | Japan Science Foundation                       |
| July 2017 | Japanese Red Cross activities   | Japanese Red Cross                             |
| July 2017 | Kyushu heavy rains relief   | Japanese Red Cross (Fukuoka and Oita branches) |
|           | Michigan trade skill development (TRA Michigan)                           | Skilled Trades Training Fund                   |
| Aug. 2017 | Donation to hospital for terminally ill patients (TRA CANADA Tillsonburg) | Patients with bone marrow failure              |

## Science Fair Demos

In September 2017, the Yamaguchi plant participated in the 8<sup>th</sup> Science Fair, an event where elementary and middle school students enjoy science-related activities. The booths run by local high schools and businesses are always bustling with a crowd of children and their parents. With this being the fourth time THK has participated, the well-organized booth allowed guests to experience assembling an LM Guide, making a nameplate with a 3D printer, and playing with a 3D puzzle in the shape of Japan. The booth was overflowing with the determined expressions of children assembling their projects, as well as the delighted faces of attendees who got to keep their 3D-printed nameplates.



*Nameplates made with a 3D printer*

## THK Education Outreach Program

As a company focused on creation and development, our manufacturing capabilities have carried us through numerous changes in our business environment and allowed us to grow into a corporation with over 10,000 Group employees.

In anticipation of our 50<sup>th</sup> anniversary in 2021, we made the decision to educate the next generation through manufacturing because of two factors.

The first factor is the shrinking talent pool to support the next generation of manufacturing in Japan. With the population growing older and birth rates falling, we are witnessing a downward trend in the number of people with engineering backgrounds, especially in mechanical design, and there is a palpable sense of crisis surrounding the potential decline of Japanese manufacturing.

The second factor is the support for proactive, interactive, and deep learning, which is the focus of the Japanese education guideline reforms planned in 2020. Educators are looking to develop learning methods that will train people to solve unanswered problems.

To use our experience as a manufacturer to support the process of proactive learning and contribute to Japan's manufacturing industry, we partnered with Leave a Nest Co., Ltd.\* and launched the THK Education Outreach Program in 2017.

### The Two Objectives and Approaches of the THK Education Outreach Program

1. Convey the joy of manufacturing  
Our employees are developing materials and programs to introduce students to the joy of manufacturing as part of their classes at school. We plan to develop a framework that can be distributed to middle schools throughout Japan in 2021.
2. Seek out middle and high school students interested in manufacturing  
We call for research proposals from middle school, high school, and technical school students aimed at solving problems, and we provide research funds and manufacturing support for good proposals. As students receive mentoring from employees, they will come to know the delight of seeing their ideas come to life. We will provide an opportunity for 50 proposals gathered from throughout Japan to be presented in 2021.

\*Leave a Nest Co., Ltd. (<https://en.lne.st/>) is a company whose corporate philosophy is "Advancing Science and Technology for Global Happiness." They promote initiatives in science education and training the next generation.



*Presentation of selected research plans*



## Volunteer Work

Every April through October for the past seven years, THK America headquarters employee Michelle Scoville has dedicated the hours of 3:00 a.m. to 7:15 a.m. one Friday a month to helping homeless individuals through PADS (Public Action to Deliver Shelter). She helps provide beds, meals, showers, and other immediate needs to the homeless who gather every Thursday evening at the Willow Creek Community Church. Michelle also listens attentively to what they have to say, helping to ease their stress.

As much as time permits, she will continue to provide support for the homeless.



Left: The church where the homeless stay, Right: Michelle Scoville

## Coaching Soccer

Jeff Kruse at TRA CANADA Tillsonburg obtained his coaching license when his son joined a local soccer team, and he is now the coach of his daughter's team and assistant coach of his son's team. Through coaching, he enjoys seeing the respect the players have for each other and witnessing their steady development into young men and women. He hopes that sports will allow them to grow into positive young adults who show respect for the other team and the game itself.

Jeff was happy to report that his son's team was at the top of their league for two seasons, from 2016 to 2017. He hopes to continue coaching and supporting the growth of the players.



The triumphant team  
(Jeff pictured in second row, far right)

## Donation Drive

In November 2017, DALIAN THK answered the Dalian Women's Association's call to participate in their "Warm the Body, Warm the Heart" used clothing drive. Employees were asked to donate nice, gently used fall and winter clothing, and they responded with 160 jackets, 72 pairs of pants, and 30 sets of children's clothes. These clean clothes were given directly to the Dalian Women's Association, and they were ultimately donated to the Chaoyang Lingyuan Siguanyingzi Poverty Relief Center in Chaoyang, Liaoning, a location roughly 470 km to the north of Dalian.

With the motto of "Small acts of kindness combine to make a big difference," DALIAN THK continues to donate old clothing.



Donated old clothes and a framed picture promoting the donation drive

## National Youth Competitions

To stay active in his local community, Masayuki Hagiwara, from the THK INTECHS Sendai plant's Manufacturing Department, continues to be involved in youth association activities. In the past, he attended a national youth tournament as the coach of a nine-person girls' volleyball team, and in June 2017 he received the top award at the Miyagi Prefecture Youth Culture Festival as a member of his choir. As a representative of his prefecture, he was selected for an award of excellence at the national competition.

His choir performs a charity concert every year. In March 2017, they held their tenth concert in the town of Taiwa in the Kurokawa district of Miyagi Prefecture, and around 300 people attended. The proceeds from each concert are given to the board of education to use as funds for books.

Masayuki would like to continue his close ties to his community and stay active in these essential youth association activities.



Concert photo  
(Masayuki pictured in back row, center)

## Promoting Environmental Management



### Basic Environmental Policy

The THK Group contributes to both society and the economy through our pioneering role as manufacturers of Linear Motion Guides and other products. We also believe that it is a company's social responsibility to leave the global environment in a healthy state for the next generation, which is why we are promoting the following initiatives to continually decrease our environmental impact and to sustain and improve the natural environment.

### THK Group's Basic Environmental Policy

Revised on June 3, 2013

1. We consider conservation of the environment to be a major management challenge, and we are striving to accurately understand how our business activities, products, and services impact the environment. All divisions set appropriate environmental goals to address this challenge.
2. In addition to complying with environmental laws, we have set self-imposed standards that are reviewed regularly to improve the efficiency and effectiveness of our environmental management.
3. We will continually promote the development of products that help reduce environmental impact.
4. We will cut down energy use in our business activities and continually promote the reduction of energy consumption and greenhouse gas emissions.
5. With a particular focus on the reduction and recycling of waste from our manufacturing division, we will not only continue to promote the saving and recycling of resources, but also strive to prevent pollution.
6. To achieve greater collaboration with regard to our environmental activities, we provide guidance and support to our affiliate companies and business partners, and also strive to work in cooperation and harmony with the community.
7. This basic environmental policy is disseminated to all divisions in the group through education, training, and awareness campaigns, and we facilitate the timely release of information on the environment both within and outside the Group.

### ISO 14001-Certified Facilities

#### Japan

| Production Facility   | Country | Certifying Body |
|---|---------|-----------------|
| Yamagata Plant, Kofu Plant, Gifu Plant, Mie Plant, Yamaguchi Plant, THK NIIGATA | Japan   | JQA             |
| THK RHYTHM Headquarters, Hamamatsu Plant, Inasa Plant, Kyushu Plant             |         | JIA             |
| THK INTECHS Headquarters, Mishima Plant, Sendai Plant                           |         | ClassNK         |

#### The Americas

| Production Facility                           | Country | Certifying Body |
|---|---------|-----------------|
| THK Manufacturing of America                  | USA     | SAI GLOBAL      |
| THK RHYTHM NORTH AMERICA                      |         | SQA             |
| THK RHYTHM AUTOMOTIVE MICHIGAN                |         | DQS             |
| THK RHYTHM AUTOMOTIVE CANADA (Tillsonburg)    | Canada  | DQS             |
| THK RHYTHM AUTOMOTIVE CANADA (St. Catharines) |         | DQS             |

#### Europe

| Production Facility         | Country        | Certifying Body |
|-----------------------------|----------------|-----------------|
| THK Manufacturing of Europe | France         | AFAQ            |
| THK RHYTHM AUTOMOTIVE GmbH  | Germany        | DQS             |
| THK RHYTHM AUTOMOTIVE CZECH | Czech Republic | DQS             |

#### Asia

| Production Facility                               | Country  | Certifying Body |
|---|----------|-----------------|
| THK MANUFACTURING OF CHINA (WUXI)                 | China    | CQC             |
| DALIAN THK, THK MANUFACTURING OF CHINA (LIAONING) |          | TUV             |
| THK RHYTHM CHANGZHOU                              |          | BUREAU VERITAS  |
| THK RHYTHM GUANGZHOU                              |          | SGS             |
| THK RHYTHM MALAYSIA                               | Malaysia | DQS             |
| THK RHYTHM (THAILAND)                             | Thailand | URS             |

# Environmental Targets, Environmental Accounting, and Environmental Impact Overview



## Environmental Targets<sup>1, 2</sup>

| No. | Item  | Results   |
|-----|---|---|
| 1   | Conserving energy and preventing global warming   | CO <sub>2</sub> emissions ratio<br>Target was 0.75. Result was 0.71. (6% decrease)<br>CO <sub>2</sub> emissions: 100,624 tons (11% increase from last year) |
| 2   | Conserving resources and achieving zero emissions | Zero emissions rate (%)<br>Target was less than 0.50. Result was 0.14.  |
| 3   | Managing hazardous materials                      | PRTR substance use (kg)<br>Target was 68,979. Result was 73,017. (6% increase)  |

| No. | Item  | Main Initiatives for 2018  |
|-----|---|--|
| 1   | Conserving energy and preventing global warming   | 1. Modify current equipment to save energy<br>2. Upgrade HVAC units and lighting<br>3. Monitor energy use    |
| 2   | Conserving resources and achieving zero emissions | 1. Continue pursuing recycling of all waste<br>2. Thoroughly separate materials<br>3. Manage water resources |
| 3   | Managing hazardous materials                      | 1. Reduce use of PRTR substances<br>2. Reevaluate which solvents are used<br>3. Promote green procurement    |

## Environmental Accounting<sup>2, 3</sup>

(1 million yen/year)

| Type                               | Investment | Cost | Main Activities  |
|------------------------------------|------------|------|--|
| 1. Business costs                  | 86         | 130  |  |
| Pollution control                  | 0          | 12   | Monitoring air and water quality, performing maintenance on washing equipment and sewage tanks |
| Global environmental conservation  | 79         | 58   | Installing energy-efficient facility equipment   |
| Recycling and conserving resources | 7          | 60   | Waste disposal, recycling costs  |
| 2. Upstream and downstream costs   | 0          | 21   | Green procurement activities   |
| 3. Management activity costs       | 121        | 128  | ISO activities, reducing energy use, managing chemical substances                              |
| 4. Research and development costs  | 136        | 536  | New product development  |
| 5. Community activity costs        | 0          | 5    | Local activities, PR activities  |
| 6. Environmental damage costs      | 0          | 0    |  |
| Total                              | 343        | 820  |  |

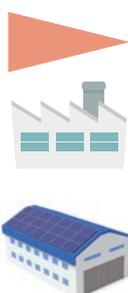
## Environmental Impact Overview<sup>2, 3</sup>

### INPUT

|                             | 2016   | 2017    | Change |
|-----------------------------|--------|---------|--------|
| Main raw materials (t)      | 93,213 | 106,838 | +15%   |
| Main indirect materials (t) | 3,211  | 3,541   | +10%   |
| Packaging materials (t)     | 4,760  | 6,164   | +29%   |

### Energy Input

|                           | 2016    | 2017    | Change |
|---------------------------|---------|---------|--------|
| Electricity (MWh)         | 228,226 | 256,167 | +12%   |
| Bunker A fuel oil (kL)    | 4,572   | 4,912   | +7%    |
| Liquefied natural gas (t) | 140     | 200     | +43%   |
| Propane (t)               | 1,045   | 1,045   | 0%     |
| Kerosene (kL)             | 18      | 16      | -12%   |



Total energy generated from solar power in 2017:  
**152 MWh**

### OUTPUT

|                       | 2016   | 2017   | Change |
|-----------------------|--------|--------|--------|
| Production volume (t) | 76,202 | 81,799 | +7%    |

### Waste

|                 | 2016   | 2017   | Change |
|-----------------|--------|--------|--------|
| Total waste (t) | 19,625 | 20,048 | +2%    |
| Recycled (t)    | 17,342 | 17,628 | +2%    |
| Incinerated (t) | 1,780  | 1,371  | -23%   |

### Air Emissions

|  | 2016    | 2017    | Change |
|--|---------|---------|--------|
| CO <sub>2</sub> emissions (t-CO <sub>2</sub> ) | 158,416 | 175,540 | +11%   |
| NOx* (Nm <sup>3</sup> )                        | 2,860   | 3,872   | +35%   |
| SOx* (Nm <sup>3</sup> )                        | 1,922   | 2,053   | +7%    |

**NOx (Nitrogen oxides):** Generated by the combustion of fuel in boilers and other sources.

**SOx (Sulfur oxides):** Generated by the combustion of sulfurous fuel in boilers and other sources.

\*NOx and SOx figures are for five THK plants in Japan only.

<sup>1</sup> Environmental target data was taken from 12 Japanese production facilities.

<sup>2</sup> Data covers the period from April 1, 2017, through March 31, 2018.

<sup>3</sup> This overview of our environmental accounting and environmental impact is based on the following production facilities:

Twelve production facilities in Japan: Yamagata, Kofu, Gifu, Mie, Yamaguchi, THK NIIGATA, two THK INTECHS facilities (Sendai and Mishima), NIPPON SLIDE, and three THK RHYTHM facilities (Hamamatsu, Inasa, and Kyushu)

Seven production facilities outside of Japan: TMA (USA), TME (France), TMI (Ireland), DALIAN THK (China), Wuxi (China), Liaoning (China), and TMV (Vietnam)

# Conserving Energy and Preventing Global Warming

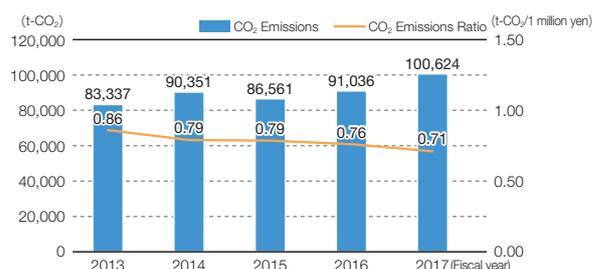
## THK's CO<sub>2</sub> Emissions

Our target for reducing our CO<sub>2</sub> emissions is defined in terms of our emissions rate (CO<sub>2</sub> emissions per production volume in yen). With the increase in our production, the amount of CO<sub>2</sub> emissions (absolute emissions) from our 12 production facilities in Japan in 2017 was 100,624 tons. However, our emissions rate was 0.71, so we were able to achieve our goal of 0.75. In our effort to reduce energy use, we have taken the following steps at our production facilities in every region:

1. Upgraded to LED lighting
2. Upgraded to high-efficiency equipment
3. Utilized renewable energy
4. Promoted activities to reduce energy use
5. Monitored our usage of air conditioning and lighting

In addition, through seminars, environmental meetings, and other activities, we make every effort to increase our employees' awareness of the need to conserve energy.

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



\*The data for each year covers the period from April 1 to March 31.

## Upgrading to LED Lighting

In order to reduce energy consumption and curb CO<sub>2</sub> emissions, the THK Group manufacturing facilities have been switching from fluorescent and mercury lighting to long-lasting, high-efficiency LED lighting. The lighting upgrade has been proceeding systematically at all facilities, and a total of 28,696 bulbs have been replaced with LEDs as of December 2017.

All lights that were scheduled for replacement at the THK INTECHS Sendai plant and TME have been switched to LEDs, and the improved illumination has made these facilities considerably brighter.

Throughout the THK Group, we will pursue energy-saving measures next year and in the future by proactively switching to LED lighting in stages.

## Bulbs Replaced with LEDs at THK Production Facilities

| Production Facility                           | Bulbs Replaced |
|---|----------------|
| <b>Japan</b>                                  |                |
| Kofu Plant                                    | 532            |
| Yamaguchi Plant                               | 1,400          |
| Yamagata Plant                                | 1,308          |
| Mie Plant                                     | 570            |
| Gifu Plant                                    | 468            |
| THK NIIGATA                                   | 797            |
| THK INTECHS Mishima Plant                     | 1,482          |
| THK INTECHS Sendai Plant                      | <b>583</b>     |
| THK RHYTHM Headquarters & Hamamatsu Plant     | 427            |
| THK RHYTHM Inasa Plant                        | 18             |
| THK RHYTHM Kyushu Plant                       | 499            |
| NIPPON SLIDE                                  | 36             |
| <b>China, Asia, and Other</b>                 |                |
| DALIAN THK                                    | 3,111          |
| THK MANUFACTURING OF CHINA (LIAONING)         | 1,348          |
| THK MANUFACTURING OF CHINA (WUXI)             | 1,850          |
| THK MANUFACTURING OF CHINA (CHANGZHOU)        | 1,454          |
| THK RHYTHM (CHANGZHOU)                        | 1,840          |
| THK RHYTHM GUANGZHOU                          | 430            |
| THK RHYTHM MALAYSIA                           | 543            |
| THK RHYTHM (THAILAND)                         | 108            |
| <b>The Americas</b>                           |                |
| THK Manufacturing of America                  | 413            |
| THK RHYTHM NORTH AMERICA                      | 19             |
| THK RHYTHM AUTOMOTIVE CANADA (St. Catharines) | 4,390          |
| THK RHYTHM AUTOMOTIVE CANADA (Tillsonburg)    | 205            |
| THK RHYTHM AUTOMOTIVE MICHIGAN                | 450            |
| <b>Europe</b>                                 |                |
| THK Manufacturing of Europe                   | <b>2,104</b>   |
| THK Manufacturing of Ireland                  | 90             |
| THK RHYTHM AUTOMOTIVE GmbH                    | 2,004          |
| THK RHYTHM AUTOMOTIVE CZECH                   | 217            |

(As of December 31, 2017)



(Left) Removing mercury bulbs at the Sendai plant  
 (Top right) Lighting after the LED upgrade  
 (Bottom right) Newly installed LED light



## Parking Lot Light Timers

As of November 2017, all of the lights that illuminate Parking Lot 1 at the Kofu plant are now operated with timers instead of being turned on and off manually. Previously, the lights remained on from the end of the workday at 5:00 p.m. until the beginning of the next workday at 6:00 a.m., a total of 13 hours. Considering the lack of people at night, however, the Kofu plant began using timers to keep the lights on for a total of 7 hours instead: 5 hours from 5:00 p.m. to 10:00 p.m. and 2 hours from 4:00 a.m. to 6:00 a.m. The lights illuminating the pedestrian walkways in the parking lot continue to stay on to eliminate security concerns.

By shortening the amount of time the lights are on, the Kofu plant was able to reduce its annual energy use by approximately 1,058 kWh, or 0.51 tons of CO<sub>2</sub>. The Kofu plant will adjust the timers to account for seasonal changes in the time the sun rises and sets.



Parking lot light that is now set by a timer

## THK Headquarters

THK moved into a new headquarters building in Shibaura in the Minato ward of Tokyo in October 2017. Containing the old headquarters, part of the Technology Center, the old Tokyo and Ueno branches, and the TALK SYSTEM and INTECHS headquarters, this new headquarters has a staff of approximately 620 people. A number of eco-friendly measures were incorporated into this seven-story building, including the use of insulated glass<sup>1</sup> for all of the walls, Ecolumi LEDs<sup>2</sup> for the lighting in each room, and motion-activated lighting in stairways and restrooms.

<sup>1</sup> Multi-layered glass with an airtight middle layer between panes that insulates heat while still letting light pass through

<sup>2</sup> Overhead lighting that drastically decreases energy consumption while providing the required amount of illumination



Rooftop garden at the headquarters

## Insulating Coating

At the Mie plant, the Quality Assurance Section office attached to Factory 1 and the Manufacturing Section II production floor office building (about 46 m<sup>2</sup> and 50 m<sup>2</sup>, respectively) face the south, so the temperature in those rooms rises because the air conditioning is not fully effective. Bamboo screens were set up and other measures were taken, but they did not solve the core problem. To prepare for the summer, the Mie plant painted the roofs of both structures with a mild solvent silicone roof coating in January 2017. The end result was a reduction in room temperature during the summertime, which decreased CO<sub>2</sub> by 2.17 tons.



Quality Assurance Section office (left) and Manufacturing Section II production floor office (right) with coated roofs

## New Transformer

With the transformers used for lighting and machine power at THK NIIGATA's Factory 1 getting older, they were upgraded to a high-efficiency type in August 2017. Two transformers were scheduled to be replaced, but with the successful LED lighting upgrade on the production floor, THK NIIGATA was able to go from using two transformers to one. By eliminating no-load loss from the one transformer and switching over to a high-efficiency type, the plant was able to reduce its energy consumption by approximately 3,200 kWh (roughly equivalent to 0.8 kL of crude oil).



Electrical room with new transformer

### Updating HVAC Equipment

In June 2017, the Gifu plant updated its HVAC equipment to maintain a consistent temperature and level of humidity in the precision measurement room. The old equipment used an electric heater to reheat air to the specified temperature,



New HVAC unit for the precision measurement room

but the new HVAC equipment uses waste heat generated during cooling to reheat air, resulting in significant energy savings by eliminating the need to power the electric heater.

As a result, the Gifu plant was able to reduce its energy consumption by about 247,782 kWh/year and decrease its CO<sub>2</sub> emissions by about 120 tons/year.

### Updating the Air Compressor

To reduce energy consumption by consistently supplying compressed air and maximizing compressor utilization, the Yamaguchi plant upgraded the air compressor in Factory 3 to a high-efficiency, energy-saving unit in June 2017. As a result, the Yamaguchi plant was able to reduce its energy consumption by about 28.6% in comparison with the old unit, a reduction of about 44.7 kL/year. The facility also decreased its CO<sub>2</sub> emissions by approximately 120 tons/year.



New air compressor in Factory 3

### Updating the HVAC's Heating System

In July 2017, the Yamaguchi plant upgraded the Factory 1 HVAC's heating system to use one inverter turbo chiller instead of the two absorption chillers it had previously used.

The new chiller does not use heavy oil for fuel. As a result, the Yamaguchi plant was able to reduce its annual energy use by approximately 137 kL of crude oil, or 368 tons of CO<sub>2</sub>.



New inverter-type turbo chiller

### Boiler Heat Control Improvement

In November 2017, the Kofu plant upgraded the control panels for its four boilers to digital panels. Previously, temperatures were adjusted in increments of 5°C by using a dial, but the upgraded panels can be used to adjust temperature in 1° increments.

In addition, depending on the outdoor air temperature, the boiler's temperature is regularly monitored by being checked twice a day (at 9:00 a.m. and 4:00 p.m.).



New digital control panel

# Conserving Resources and Achieving Zero Emissions



## Conserving Resources and Achieving Zero Emissions in 2017

We promote the conservation of resources and the achievement of zero emissions by thoroughly separating and recycling waste. In 2017, we were able to achieve an emissions rate (final disposal volume/total waste volume) of 0.14%, once again reaching our annual target of less than 0.50%.

## Coolant Unit Improvement

The coolant units that were used for LM rail cutting machines at TME had magnetic separators installed on top of the tanks. While the magnetic separators could remove metal shavings produced during the LM rail cutting process, abrasive grains would remain, settling in the tank and turning into sludge, which would contaminate the coolant with bacteria formation. Every time a coolant tank got dirty enough, TME would need to clean the tank and replace the coolant.

To solve this problem, five coolant units were upgraded in 2017, and the magnetic separators were replaced with paper filters. This method filtered out the cutting shavings and grains, dramatically reducing the amount that settled in the tank. After this change, the tanks only need to be cleaned and have the coolant changed periodically, which has improved efficiency and reduced the amount of (undiluted) cutting fluid used.



Metal shavings and grains are now filtered and stay on top of the paper

## New Semi-Centralized Coolant Tank

Each of the 22 cylindrical grinders used to grind shafts in the ball screw manufacturing process at DALIAN THK had an attached cooling tank. This setup required a



Newly installed semi-centralized coolant tank

total of around 6,500 L of coolant. Furthermore, shavings would get mixed with the coolant because magnetic separators were used for filtration. As a result, the coolant had to be replaced three times per year, which meant that around 19,500 L of liquid waste would be discharged. To reduce the amount of coolant, DALIAN THK installed a 17,900 L semi-centralized coolant tank. In addition to achieving stable coolant concentration and temperature, this unit features a paper filter, which reduces the shavings that get mixed into the coolant. Since the tank's installation, the coolant has not needed to be replaced.

## New Press

In the past, when the aluminum chips generated by TRA CZECH's production process were collected by an industrial waste contractor, they contained liquid waste. After considering the effect on the environment, however, TRA CZECH installed a press in November 2017 to separate the chips from the liquid waste and reduce the frequency of disposal. Since introducing the new equipment, pressed aluminum chips have been kept separate from liquid waste, and the frequency of waste collection decreased to a third of its previous level.

Decreasing the frequency of collection has led to an approximately 8-ton reduction in CO<sub>2</sub>.



Newly purchased press

# Managing Hazardous Materials



## Managing Hazardous Materials

In an effort to reduce the amount of hazardous materials (materials that can have a negative impact on the human body or an ecosystem) that we use, we are reducing our use of chemicals subject to the PRTR Law.\* The PRTR substances used at THK are primarily those found in the gasoline and heavy oil we use as fuel. Our goal is to reduce the amount we use by 3% each year, but in 2017, an increase in heavy oil used for in-house power generation led to an approximate 2.6% increase of 1,904 kg compared to the previous fiscal year, from 71,113 kg to 73,017 kg.

\*PRTR Law: Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management

| Substance         | Amount | Air Emissions |
|-------------------|--------|---------------|
| Xylene            | 2,582  | 247           |
| Toluene           | 5,052  | 2,220         |
| Ethylbenzene      | 858    | 45            |
| Benzene           | 183    | 33            |
| Methylnaphthalene | 57,926 | 499           |
| Other             | 6,417  | —             |
| Total             | 73,017 | 3,044         |

(kg)

Data covers the period from April 1, 2017, through March 31, 2018.

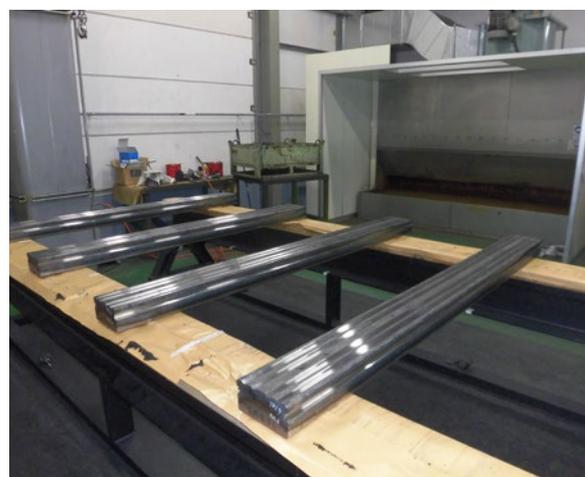
## Reducing Heavy Oil with a New Hot Water System

As part of its efforts to reduce its heavy oil use, the Yamaguchi plant worked to cut its use of boiler fuel. Previously, the hot water used for the air conditioning system in Factory 1's assembly room, final inspection room, and clean room would first be collected in the hot water tank and then circulated through the air conditioning equipment. With this system, multiple boilers were run to maintain the water temperature. When the air conditioning was upgraded in July 2017, the hot water tank was removed. The system was changed so that hot water is supplied to the air conditioner directly. Because it is no longer necessary to keep the hot water tank warm, only one boiler needs to be run. This change led to a decrease of approximately 3,960 L of heavy oil used per month, reducing methylnaphthalene by around 48 kg/month.

## Degreasing Solvent for Large LM Guide Model JUP Switched to Non-PRTR Substance

In consideration of its impact on the environment, the Gifu plant changed the degreasing solvent it used in the coating/degreasing process for the Large LM Guide Model JUP (which involves wiping grease off the product with a rag soaked with thinner) to a non-PRTR organic degreasing solvent in May 2017.

Although it is not a direct comparison with the previous year in terms of total volume because of the change in the fiscal year, the Gifu plant did decrease its use of toluene by approximately 49 kg.



LM rails at the degreasing process

## Changing the Cleaning Solution

The Mie plant investigated using an alternative cleaning solution because the one used at their support unit washing process contained less than 4% of n-hexane, a PRTR substance. After trying out and confirming the effectiveness of a solution used at other THK facilities that does not contain PRTR substances in November 2017, the Mie plant decided to make a switch to that alternative for all processes in February 2018.



Solution that does not contain PRTR substances

# Green Distribution



## The Distribution Division's Environmental Activities

The departments in charge of shipping at each THK factory, as well as the Sales Support Department, promote green distribution to reduce the environmental impact of all of our distribution activities. They promote various initiatives aimed at reducing our CO<sub>2</sub> emissions, environmental impact, and waste. Going forward, they will investigate optimal shipping methods that utilize AI to be environmentally friendly.

In terms of employing modal shifts, we had three routes running between Kitakyushu and Tokyo (daily), Ube and Kofu (weekly), and Kitakyushu and Narita (thrice weekly); one route for the THK INTECHS Sendai plant running between Sendai and Hiroshima (monthly); and two routes for the THK

RHYTHM Hamamatsu plant running between Hamamatsu and Kitakyushu (daily) and Hamamatsu and Hiroshima (daily) in 2017.

### 2017 Activities

| Activity                           | Description                             |
|------------------------------------|---|
| Reducing CO <sub>2</sub> emissions | Expanding modal shifts                  |
|                                    | Consolidating transport trucks          |
|                                    | Improving transportation efficiency     |
| Reducing environmental impact      | Transitioning to eco-friendly forklifts |
| Reducing waste                     | Utilizing reusable containers           |

\* Modal shift: Shifting from trucks to railway freight and coastal shipping, which emit less CO<sub>2</sub>

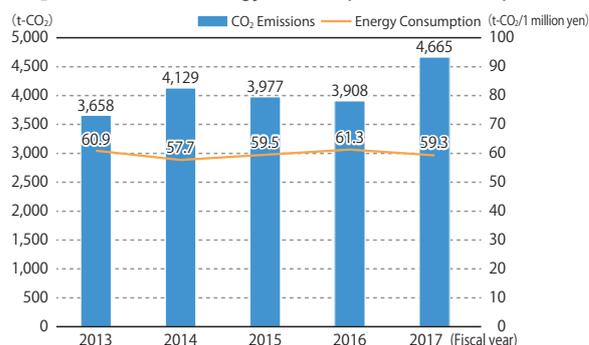
## Reducing Our CO<sub>2</sub> from Transportation

Our CO<sub>2</sub> emissions from transporting products and components rose from 3,908 tons of CO<sub>2</sub> last year to 4,665 tons, an increase of 757 tons (about 19.4%).

Despite our high production volumes and high ratio of diesel-powered vehicles used for transit, our energy consumption (ratio of energy use to freight transport in ton-kilometers) decreased by about 3.1%, from 61.3 last year to 59.3.

We hold regular reporting sessions four times per year led by our distribution centers, and we create and implement measures to make whatever improvements we can in our distribution system and shipping weights.

### CO<sub>2</sub> Emissions and Energy Consumption from Transportation



The data for each year covers the period from April 1 to March 31.

## Switching to Low-Pollution Forklifts

As of the end of December 2017, the 12 Japanese production facilities possessed a total of 150 forklifts (including those used in the distribution centers inside the factories). We have been systematically switching to low-pollution forklifts at all of our facilities. A total of six were replaced in 2017: one at the Mie plant in July (changing from gasoline to battery power), one at the THK RHYTHM Hamamatsu plant in June (changing from gasoline to LPG), and four at the Wuxi plant in October (changing from gasoline to LNG). With this change, all seven forklifts at the Wuxi plant have been replaced with low-pollution forklifts. Replacing the forklifts decreased our use of toluene by 372 kg and xylene by 245 kg, both of which are PRTR substances. We are planning to introduce more low-pollution forklifts in 2018 and beyond.

## Consolidated Packing Improvement

DALIAN THK implemented a number of improvements to respond to the Chinese government's call to promote activities that conserve materials. They reevaluated their packaging materials and changed the packaging for their smaller product models (with shaft diameters from 8 to 25). As of September 2017, products that used to be packed with two pieces per box now are shipped in boxes of twenty pieces, reducing packaging materials by around 80%. Moving forward, DALIAN THK will make packaging improvements for their medium and large products (with diameters of 32 and 40, respectively).



Old packaging



Improved packaging

## Third Party Opinion

### Improving Corporate Value

While writing the Third Party Opinion for THK's CSR Report 2018, I looked through past reports. My first impression was that THK's CSR encompasses all of the company's operations. THK's basic CSR policy states: "In an aim to increase our long-term corporate value and create an affluent society through our business activities, our CSR Policy is founded on our Corporate Philosophy, Corporate Basic Policies, and Action Charter." The business and CSR activities of Komatsu are also one and the same, so there is no need to think of this as something special. Among the Corporate Philosophy, Corporate Basic Policies, and Action Charter, what is most important is whether employees embody and put the Action Charter into practice. Komatsu's equivalent of the Action Charter is the Komatsu Way, which describes the convictions, attitudes, and code of conduct shared among employees all over the world. We believe that practicing the Komatsu Way will allow us to strengthen our company with each generation. Starting with those of us in management, each and every employee must fully understand the social responsibilities of their corporation and act accordingly. This is the role corporations must play in society. In order to establish a sort of "THK Way" that outlines models of behavior and convictions and is easy for employees to emulate, more is required than the one-time creation of THK's current Corporate Basic Policies and Action Charter. It may also be necessary to reevaluate the content itself.

### Strengthening the Brand

At Komatsu, we view our corporate value as the degree to which our company is indispensable to our customers. More specifically, we define our corporate value as "the total sum of trust given to us by society and all stakeholders." However, if we do not receive appropriate returns for improving our worth to the customer, there will be no funds for CSR. Komatsu views activities that generate value for the customer—that is, contributing to the achievement and growth of our customers'

business and mission as well as expanding and developing the activities of their customers—as brand management. In that sense, THK and Komatsu are striving for the same thing. The ones who bear the responsibility for creating that corporate value are the employees, distributors, and affiliated companies—not the stockholders. Stockholders are the ones who evaluate the corporate value and express that quantitatively through the sole metric of the stock price. Customers are both evaluators and generators of corporate value. There are many different kinds of customers, from those who have only the slightest connection to THK, to those for whom THK is indispensable. The challenges facing THK going forward will be to determine how to enhance the company to become indispensable to these customers and how much THK can increase the number of customers who help create corporate value.

THK's LM Guide and its other products are rated highly by customers. I regard THK as a corporation that has honestly and sincerely practiced its corporate philosophy of "Providing innovative products to the world and generating new trends to contribute to the creation of an affluent society." Looking at the special features in this report, the very deep relationship THK has with a number of its customers is evident. In recent years, however, technology has progressed at an astonishing pace, and essential products become obsolete in an instant. As a company focused on creation and development, THK's keywords will be the same as those Komatsu has tasked itself with: "Visualization" and "The fusion of hardware and software." Achieving visibility for heavy equipment and construction and storing data will make it possible to differentiate hardware and develop a business that makes platforms for providing data. We are in an era where the visualization of any data the customer wants to see can become a reality. I hope that THK will continuously incorporate new knowledge with the business it has already amassed so that it will become an even more indispensable company to its customers. When it does, THK's CSR activities will be unshakable.



Councilor, Komatsu Ltd.

### Masahiro Sakane

**Profile:** Born in 1941. Graduated from the Department of Engineering at Osaka City University and joined Komatsu in 1963. Became Director in 1989, President of Komatsu Dresser Company (now Komatsu America Corp.) in 1990, Representative Director and Vice President in 1999, Representative Director and President in 2001, and Representative Director and Chairman in 2007. Began current position of Councilor in 2013.

**Public offices:** Served as a member of the National Strategic Special Zone Advisory Committee, chairman of the Advisory Committee for Natural Resources and Energy, and member of the Council on Overcoming Population Decline and Vitalizing Local Economy in 2014.

**Awards:** 2008 Deming Prize for Individuals

**Publications:** *Kagiri-nai dantotsu keiei e no chousen* (JUSE Press), *Kotobaryoku ga hito o ugokasu* (Toyo Keizai), and *Dantotsu no tsuyomi o migake* (Nikkei Publishing)

## Editor's Note

In the special features of this report, real customers share in their own words how THK has created revolutionary technology from conventional rolling motion and refined it to create new products that respond to the social challenges of our day.

As always, we cover our company's various activities in the "Management Structure," "Involvement in Society," and "Harmony with the Environment" sections.

We will continue to pursue initiatives that will earn the trust of our stakeholders and disclose that

information in a suitable manner. To that end, we would like to hear your thoughts about this report. Your opinions are valued and will guide us in our future CSR endeavors and the creation of future reports, so please fax us the attached survey or use the new website below to send us your honest thoughts and opinions.

**CSR Project Office**

(The next edition will be published September 2019.)

URL: [www.thk.com/eng/csr/a2018](http://www.thk.com/eng/csr/a2018)

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