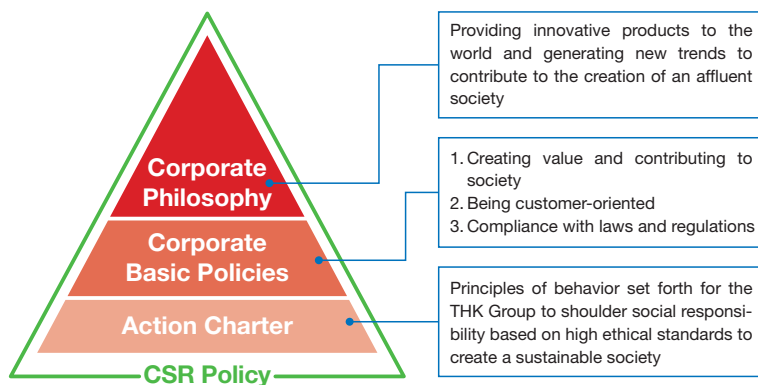


THK CSR Report 2019



CSR Policy

In 1971, THK introduced a machine component called the Linear Motion System to the world, becoming the first company ever to achieve linear motion through rolling motion. Now, we believe it is our corporate social responsibility to use our work to contribute to society, earning the trust of our stakeholders as we follow our corporate philosophy and achieve the creation of an affluent society. We endeavor to improve our long-term corporate value with our CSR policy, which is founded on our Corporate Philosophy that represents our entrepreneurial spirit, our Action Charter that serves as a guide for our actions, and the Corporate Basic Policies that we must follow as we perform our duties.



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Reporting Period

This report covers activities performed during and around the period of January 1, 2018, to December 31, 2018. 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

This report was prepared in accordance with the GRI Standards and the Ministry of the Environment's "Environmental Reporting Guidelines" (2018).

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How THK Connects with Stakeholders

Stakeholders	Examples of involvement	Frequency
Customers	Exhibitions in various countries	Japan: 21, Outside of Japan: 34
	E-mail newsletters	As necessary
Shareholders and investors	General Meeting of Shareholders	Annually
	Financial results briefing	Semiannually
	IR information e-mailed to investors	As necessary
Business partners (subcontractors and suppliers)	THK Association	General meeting: annually, Branch meetings: periodically
Employees	Relaying various policies and messages from the CEO	As necessary
	Company trips and employee and family events	Biannually
	Recognition of continuous service	Annually
	Recognition of Kaizen proposals	Annually
	Training programs	As necessary
Government administrators	Social insurance reporting and tax returns	As necessary
	Participating in seminars	As necessary
Local communities	Donation drives	As necessary
	Employee volunteer work	As necessary
	Plant tours	As necessary

Working to Achieve the Creation of an Affluent Society

Akihiro Teramachi
THK CO., LTD. President and CEO



A word to those affected by natural disasters

2018 was a year beset by disasters on a scale rarely seen. Japan experienced the northern Osaka earthquake in June, the heavy rainfalls in western Japan in July, and the Hokkaido Eastern Iburi earthquake—as well as continuous earthquakes considered to be its aftershocks—in September. Looking at the rest of the world, precious lives were lost, and many more people were forced to evacuate, during the West Java earthquake in January, the Papua New Guinea earthquake in February, and the massive hurricanes that struck the American East Coast in September and the Southeast in October. I would like to express my heartfelt sympathy for those who lost their lives and for their families. My thoughts are with those who are still living in emergency accommodations, and I wish for their good health.

On the other hand, as always, I am moved by the dedication of volunteers who cross borders to aid disaster victims. I respect the compassion of people who are able to think of others first even in the face of tragedy. Seeing everyone supporting each other, I am confident that the areas affected by disaster will recover and continue to grow.

Strategies supporting our 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.

In an effort to fulfill our corporate philosophy of *contributing to the creation of an affluent society*, we have identified *full-scale globalization*, the *development of new business areas*, and a *change in business style* as cornerstones of our growth strategy to continuously develop products centered around our mainstay LM (Linear Motion) Guide, create new markets, and offer a steady supply of products to every region.

The market has grown due to developments in FA (Factory Automation) in China and other emerging countries, and under our *full-scale globalization* strategy, we have promoted the development of an integrated production and sales structure close to centers of demand in four regions: Japan, the Americas, Europe, and Asia. Specifically, on the sales side, we have launched the Omni THK e-commerce website, which enables customers to easily select and order products anytime, anywhere. We have bolstered our efficient sales structure around the world, expanding this service to cover China, Brazil, and parts of Japan in addition to the ASEAN region. On the production side, we have continued to promote robotization and automation at our production



Developing products for the next generation

facilities in every region, and we have completed new expansions to our plants in Yamagata and Vietnam. Furthermore, we have begun construction on a new factory in India, which is projected to experience a medium- to long-term growth in demand, thereby further strengthening our production structure.

Under our *development of new business areas* strategy, with our R&D divisions in Japan, China, and our THK RHYTHM AUTOMOTIVE consolidated subsidiary in Germany, we promote the development of new products that will satisfy the exact needs of customers in fields more closely related to consumer goods.

In terms of the IoT, we are preparing our OMNI edge service, which has networking capabilities, including a system that can diagnose LM Guide failures and lubrication status as well as detect ball screw preload.

Under our *change in business style* strategy, we are making full use of the latest technologies such as AI and robots in a variety of different ways, thereby expanding our business domains.

THK used rotary motion to achieve linear motion in machines, which was said to be impossible. As a company focused on creation and development, we have used that technology to create products with many applications that meet the needs of our customers and the market. One example is our seismic isolation system, which minimizes damage from major earthquakes and protects lives, property, and important information systems. In the field of renewable energy, which aims to prevent global warming, we have developed a low-torque shaft unit that enables wind turbines to activate during light breezes. Robots—and components for those robots—are being presented as a solution that addresses the predicted decline in the working age population and can perform dangerous tasks in place of people. I believe our core technology products and other next-generation products will greatly contribute to the achievement of the SDGs.

There are probably still many domains where our products can help society that even we have not yet realized. Through our business, we will continue to strengthen our corporate value and improve our interactive communication with all of our stakeholders. To create an affluent society—a *sustainable* society—we will unwaveringly follow our corporate philosophy as we conduct our business.

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 the Linear Motion (LM) Guide, 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 ¥49.2 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: 2,369, Female: 825)
Intellectual property	(48 published, 264 registered)

RECENT EVENTS

- China International Industry Fair exhibition (China) September 2018
- Omni THK launch May 2018
- THK RHYTHM (CHANGZHOU) construction began December 2018

Europe Net sales ¥56.9 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: 1,546, Female: 524)
Intellectual property	(189 published, 402 registered)

RECENT EVENTS

- HANNOVER MESSE 2018 exhibition (Germany) April 2018
- Inno Trans exhibition (Germany) September 2018

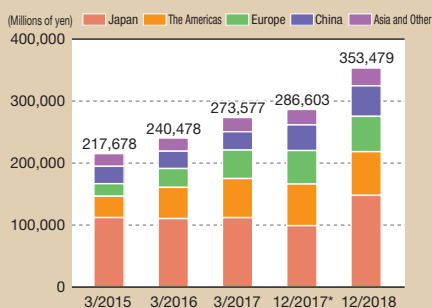
Asia and Other Net sales ¥28.7 billion

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: 470, Female: 234)
Intellectual property	(123 published, 438 registered)

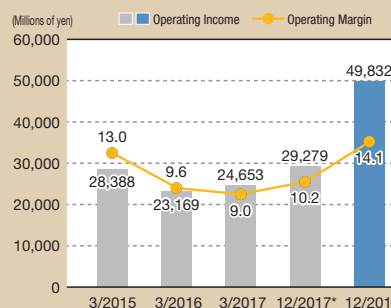
RECENT EVENTS

- METALEX exhibition (Thailand) November 2018
- THK MANUFACTURING OF VIETNAM expansion completed November 2018
- THK India Sri City Plant construction began January 2019

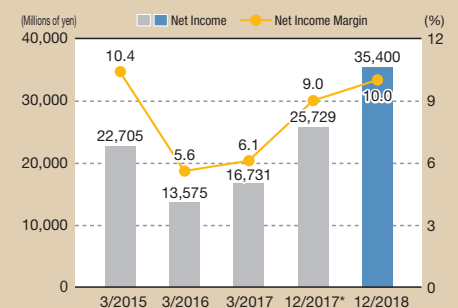
Net Sales



Operating Income/Operating Margin



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



*The THK Group changed from a fiscal year end of March 31 to December 31, beginning with the 2017 fiscal year. As the transition took place during that fiscal year, the scope of consolidation for that modified reporting period included 9 months for consolidated companies whose fiscal years ended in March and 12 months for 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.



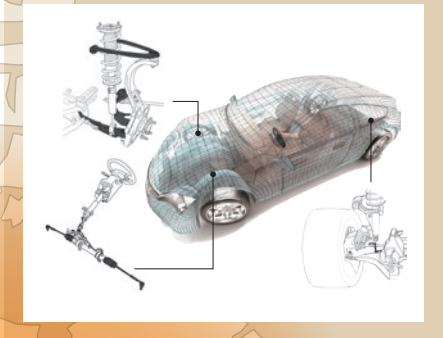
Industrial Machinery Business (Other)

THK is adapting its core linear motion system technology to cultivate fields related to consumer goods 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 **¥147.9 billion**

Sales offices	43
Production facilities	12
Development bases	1
Management companies	1
ISO 9001 certified	11 facilities
JIS Q 9100 certified	1 facility
ISO/TS 16949 certified	1 facility
OHSAS 18001 certified	5 facilities
Employees	(Male: 4,581, Female: 769)
Nonemployees	(Male: 268, Female: 226)
Intellectual property	(142 published, 775 registered)

The Americas Net sales **¥70.5 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: 632)
Intellectual property	(58 published, 364 registered)

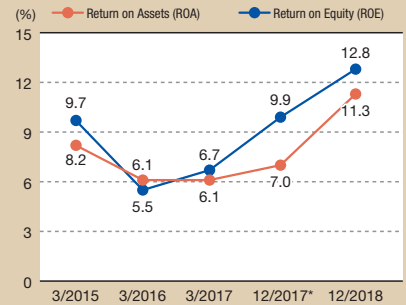
RECENT EVENTS

- JIMTOF 2018 exhibition November 2018
- Omni THK launch (in select regions) December 2018

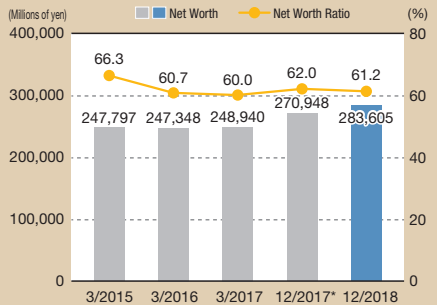
RECENT EVENTS

- IMTS exhibition (USA) September 2018
- Omni THK launch (Brazil) September 2018
- THK RHYTHM MEXICANA expansion completed August 2018

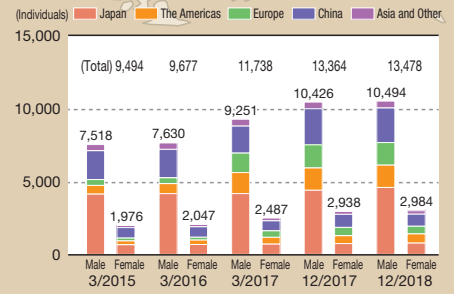
Return on Assets (ROA)/Return on Equity (ROE)



Net Worth/Net Worth Ratio



Employees



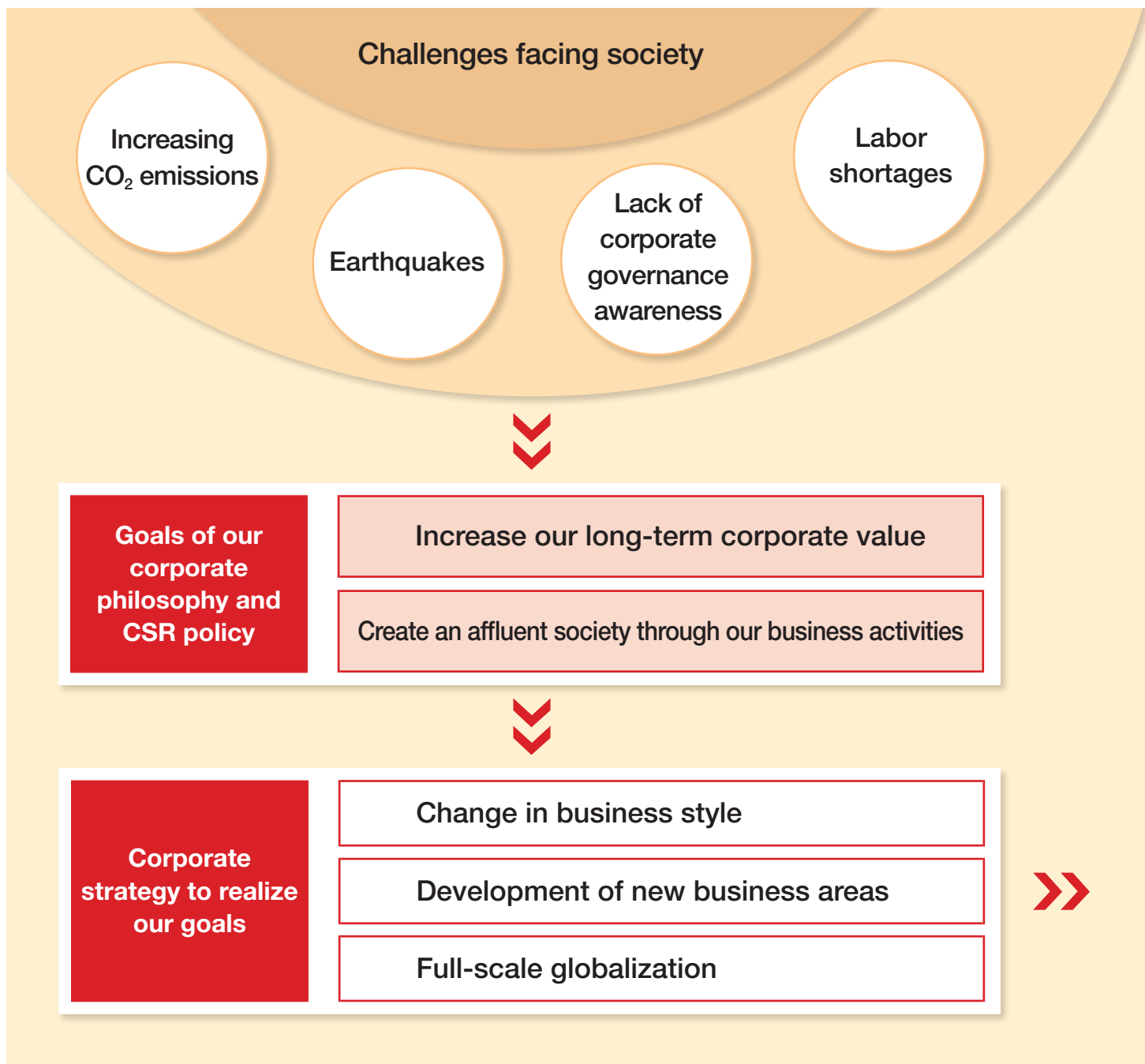
TRA gender composition data added beginning 2016. Data current as of March 31 for every year prior to 2016, or December 31 for 2017 and beyond.

THK's Stance on the Relationship Between Social Challenges and CSR

Aiming to create an affluent society and increase our long-term corporate value through our business activities

In order to realize the goals of creating an affluent society and increasing our corporate value, we are diligently working to solve challenges faced by society. To that end, we will strengthen our corporate activities and product development centered on linear motion systems, ensure the execution of our company strategies, and actively promote CSR activities.

THK's Strategies and Efforts Toward Solving Social Challenges



2022 Fiscal Year Management Targets

Consolidated net sales	¥500 billion	ROE	17%
Operating income	¥100 billion	EPS (earnings per share)	¥560

Actions to support our strategies

Material Aspects of CSR



Core technology products

Product

High precision, high rigidity, long service life, low noise



Next-generation products

Product

Renewable energy, robots, seismic isolation systems



Strengthening our business foundation

Activity

Governance, compliance, BCP



Connecting with local communities

Activity

Community involvement, volunteering, developing the next generation



Strengthening supply chain relations

Activity

THK Association, technology proposals



Actively sharing information with shareholders

Activity

IR events, IR tools



Revolutionizing how we work

Activity

Human rights, diversity, health and safety, supporting development



Efforts for environmental conservation

Activity

Conserving energy, managing hazardous materials, reducing waste



Development of core technology and next-generation products



Strengthening relationships with stakeholders



Creating a pleasant work environment



Reducing environmental impact

Engaging with other social challenges

The Material Aspects of CSR and the Promotion of SDGs

CSR challenges and the promotion of SDGs in efforts to solve social issues

The SDGs (Sustainable Development Goals) are an international agenda of 17 goals and 169 targets related to the environment and development for the world to achieve between 2016 and 2030. These goals are held in common by every national and local government, non-governmental organization, and non-profit organization, as well as by public corporations and individuals with the aim of facilitating sustainable livelihoods and societies under the banner of leaving no one behind.



THK is working toward the achievement of the 17 SDGs. However, our activities do not encompass all 169 targets. Below, we have outlined how the areas we are especially actively engaged in compare with the material aspects of CSR. We will continue to actively work toward achieving the SDGs.

*Numbers in bold are the targets connected closely to our business.

Material Aspects of CSR	7. Energy	8. Decent work	9. Industry	11. Sustainable cities	12. Consumption/production	13. Climate
Development of core technology and next-generation products						
Thinking, acting, and verifying from the customer's perspective			9.1, 9.4, 9.b	11.4, 11.b		
Products for global warming prevention, earthquakes, coexisting with robots, and labor shortages	7.1, 7.2, 7.3, 7.a		9.4	11.4, 11.b		13.1
High quality that will satisfy every customer			9.b			
Strengthening relationships with stakeholders						
Working with local communities (including charitable contributions)	7.2, 7.a	8.6	9.4, 9.b	11.6		
Collaborations to develop talent	7.a	8.6	9.b			
Creating a pleasant work environment						
Efforts to empower individuals	7.1, 7.a		9.4	11.4, 11.b	12.5	13.3
Activities that consider human rights and diversity		8.5	9.1			
Efforts to establish perfect work-life balance		8.5				
Creating a work environment conscious of employee and nonemployee health and safety		8.8				
Reducing environmental impact						
Eco-friendlier production activities	7.1	8.4		11.6	12.4, 12.5, 12.6	13.2, 13.3
Managing restricted substances and hazardous materials					12.4, 12.6	

THK's Approach to the Relationship Between the material aspects of CSR and SDGs

SDGs	THK's approach	Material Aspects of CSR	Details	Targets	THK's role	Product	Activity	Page	
7. Affordable and clean energy	THK, which was the first manufacturer to use rolling motion to achieve linear motion, applies its technology to the renewable energy field.	Development of core technology and next-generation products	Products for preventing global warming	7.1	Ball splines suitable for wind turbines	●	—	p. 13	
				7.2 7.3 7.a		Developed the Model WLS Low-Torque Shaft Unit Award 1	●	—	p. 20
8. Decent work and economic growth	THK prohibits human rights violations such as employment discrimination, child labor, and forced labor. We endeavor to employ a diverse workforce, providing opportunities for people to learn the joy of manufacturing and the value of work while creating an environment where people with disabilities can thrive.	Creating a pleasant work environment	<ul style="list-style-type: none"> Activities that consider human rights and diversity Efforts to establish perfect work-life balance 	8.5	<ul style="list-style-type: none"> Employees with disabilities thriving Award 2 HR data records 	—	●	p. 28	
				8.6		THK Education Outreach Program	—	●	p. 29
				8.6		Building community centers Award 3	—	●	p. 31
				8.8		Health and safety	—	●	p. 26–27
9. Industry, innovation, and infrastructure	As a company focused on creation and development, THK discerns global market trends and provides high-quality products with high added value to meet the needs of customers.	Development of core technology and next-generation products	High quality that will satisfy all customers	9.b	High-quality products used in blood analyzers	●	—	p. 15	
				9.1, 9.4 9.b		Thinking, acting, and verifying from the customer's perspective	●	—	p. 21
						Technology solutions with high added value for customers	●	—	p. 23
11. Sustainable cities and communities	THK develops and supplies products that work to reduce damage caused by earthquakes and provide stability in people's lives by protecting homes and other property as well as historical buildings and other aspects of cultural heritage.	Development of core technology and next-generation products	<ul style="list-style-type: none"> Thinking, acting, and verifying from the customer's perspective Products for earthquakes 	11.4, 11.b	Seismic isolation systems that reduce earthquake damage	●	—	p. 12	
				11.4, 11.b		Robot parts used during disasters	●	—	p. 14
12. Responsible consumption and production	THK considers conservation of the environment to be a major management challenge, and we comply with laws as we actively promote the conservation of materials, zero emissions, and green procurement.	Reducing environmental impact	<ul style="list-style-type: none"> Managing restricted substances and hazardous materials used Eco-friendlier production activities 	12.4, 12.6	Managing hazardous materials	—	●	p. 37	
				12.4 12.5 12.6		Stringently managing waste	—	●	p. 36
13. Climate action	THK actively promotes equipment that will prevent global warming and works to improve the environmental awareness of employees to leave the global environment in a healthy state for future generations.	Reducing environmental impact	Eco-friendlier production activities	13.2, 13.3	Activities to reduce CO ₂	—	●	p. 35	

Awards from Public Institutions

Award 1



Award from the New Energy Foundation

Award 2



Award from the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers

Award 3



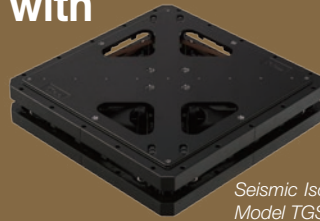
Award from the Jinzhou New Area in Dalian, China

Shizuoka City Shimizu Hospital

Shizuoka, Shizuoka Prefecture

Maintaining Hospital Functions to
Provide Medicine with
Compassion

Masatoshi Hagiwara

Manager
Diagnostic Technology Section
Medical Technology DepartmentSeismic Isolation Module
Model TGS**Aiming to provide health care trusted by the local community**

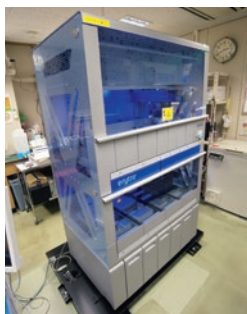
The Shizuoka City Shimizu Hospital was established in 1933 as a hospital for infectious diseases, and it now serves as a key hospital for the Shimizu district (population: around 230,000).

We work to revitalize regional medical care with our basic philosophy: “Aim to provide quality, patient-focused care and contribute to the advancement of regional health care.” As one example, we work with general practitioners and home care staff, continuously sharing information so the entire network of local medical institutions follows up with patients after they have returned home from the hospital. At the same time, we are collaborating with the city and prefecture to strengthen our ability to function as a disaster base hospital.

What is a blood bank analyzer?

Our Diagnostic Technology Section is divided into seven divisions that conduct physiological, urine, pre-transfusion, biochemical, blood, microbial, and pathological tests. We perform a critical role in identifying the cause of an illness, performing tests necessary for treatment and checking the status of the patient’s health and treatment.

When a foreign substance enters the human body, the body’s natural reaction is to reject it. Blood bank analyzers mix the patient’s blood with a sample to check for incompatibility before a transfusion and confirm there will be no adverse reaction, even when the blood types are the same. Our analyzers are running five to six hours a day, and they are on standby around the clock to be ready for emergency surgeries at night or on non-business days. In particular, if

Automated blood bank analyzer
with a seismic isolation system

a person is pregnant with a child who has a different blood type (in ways other than just their ABO blood group type), they may form antibodies related to the blood type. To prepare for heavy blood loss during childbirth, we perform pre-transfusion testing for everyone giving birth at our hospital during their 36-week check-up. The reason why we

do it at 36 weeks is because the impact from the fetus has settled at this point. Using a patient’s own blood for a transfusion (autologous blood transfusion) has also become an option recently, but the amount of blood that can be stored is an issue, and it is sometimes not enough when the patient experiences heavy blood loss during delivery. That is why pre-transfusion testing is critical.

Strengthening our ability to function as a disaster base hospital

Before installing seismic isolation systems, we used to secure items to the floor to protect them from earthquakes. Seeing the damage caused by the Great East Japan Earthquake and Kumamoto Earthquakes, it is clear that method was insufficient. If a blood bank analyzer is not running due to a disaster, performing the tests manually would require significantly more time, and it would be too late for urgent transfusions. Human error also becomes more likely in a disaster situation, which could impact the patient’s life. It is our duty as a medical institution to always think of BCP measures to prevent damage to our medical equipment and restore normal operations immediately. Seismic isolation systems are an effective way to mitigate damage to equipment by deflecting tremors caused by major earthquakes. During large-scale earthquakes in the past, we recognized the performance of THK’s seismic isolation systems at other institutions, and we already had them installed for our hospital’s medical information servers. When we replaced our automated blood bank analyzers, we seized the opportunity to introduce seismic isolation.

Going forward, we plan to install these systems for our biochemistry analyzers, too. Fortunately, we have not experienced another earthquake where we would have had to serve as an evacuation shelter since the major earthquake in 2011, whose tremors reached as high as 6 on the seismic intensity scale. However, from the perspective of the Sendai Framework for Disaster Risk Reduction 2015–2030 as well, we believe core hospitals in every region need to install seismic isolation systems for servers and hospital equipment to minimize earthquake damage and fulfill our true purpose: protecting the lives of patients.

J·M·P Co., LTD.

Hamamatsu, Shizuoka Prefecture

THK's Ball Splines Reduce Horizontal Vibrations, Proving Essential for Wind Turbines That Rotate in Light Breezes

Michiharu Takakura
Representative President



A desire to preserve an environment like ours or better for our children

When we were children, extremely hot days were very rare. It is clear that global warming has progressed. I focused on the renewable energy business because I wanted to curb that progress and preserve our current environment, if not a better one, for our children. We began working on our WinSky vertical-axis wind turbine with the goal of "WLB 88" (W: Wind-power system that generates energy through wind and solar power, L: LED lighting for reduced energy, B: Lithium-ion battery power storage, 88: 88% reduction in current energy consumption).

What is the WinSky vertical-axis wind turbine?

When developing the WinSky, we used an existing Darrieus-Savonius wind turbine model and added original improvements to increase the efficiency of power generation. (See the figure below. Savonius turbines rotate in light breezes, but they have low power generation. Conversely, Darrieus turbines generate a lot of power, but it takes time for their blades to start rotating.) These were the main improvements we made:

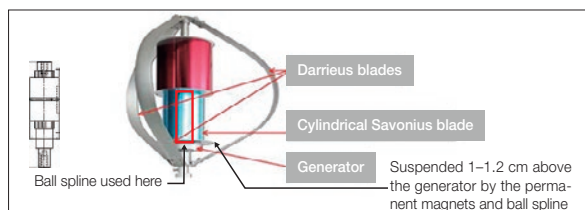
1. The Savonius was touching the top of the generator, causing a load when the turbine rotated. To eliminate the weight acting on the generator, we used magnetic force to lift the turbine and reduce the weight during the initial

rotation to zero.

2. We expanded the surface area of the Darrieus turbine's blades, increasing the size of the area that catches the wind. As a result, it can achieve higher rotation speeds, and we can use wind power to the fullest extent. We also used the lightest materials possible so the turbine will rotate even in light breezes.
3. By improving the Darrieus blades, we eliminated part of the Savonius.
4. Noise is a common problem with small generators, but we solved that issue by preventing the formation of vortices with the reverse taper design of the blade tips.

When suspending the turbine with magnets, the most important thing is to keep it from shifting left to right. We had used THK when creating laser equipment in the past, so we felt their ball spline was the only thing that could solve this problem. We installed their product and have been conducting full-scale outdoor testing, and it has displayed absolutely no problems in terms of strength or durability. Even during Typhoon Number 24, which struck Shizuoka Prefecture in October, the turbine was able to generate power without issue.

Wind turbines generally only recover 6% of energy at a wind speed of 4 m/s, but WinSky achieves a high level of efficiency, recovering 25% at similar wind speeds.



Darrieus-Savonius wind turbine



WinSky vertical-axis wind turbine

Future developments

I would like to add WiFi capabilities and use our turbines as street lights so they can act as IoT stations. More specifically, I would like to add map displays and speakers that can safely lead disaster victims to evacuation shelters in the event of an earthquake, typhoon, or another natural disaster that causes a power outage. With technological assistance from THK, I hope to promote further developments to reduce the degree of disaster risk and increase resilience, significantly expand the prevalence of renewable energy, and improve sustainability through clean technology and using natural resources more efficiently, as outlined in the SDGs.

The University of Electro-Communications

Chofu, Tokyo, Japan

Advancing Academic Research to Help Society

Motoyasu Tanaka

Associate Professor
Department of Mechanical and Intelligent Systems Engineering
Graduate School of Information Science and Engineering



SEED MS



What is a snake robot?

What comes to mind when you hear the phrase “snake robot”? As you know, a snake is a creature with a simple shape and no limbs, but it can dart in any direction, scale trees, and glide through water. Since the 1970s, people have been analyzing the characteristics and movements of snakes that allow their slender bodies to slip into narrow spaces, researching ways to create snake robots that can perform work in places people cannot enter. Now, these robots are used to inspect attics and beneath floors in houses and inside pipes in factories. They are also serving as disaster response robots.

I am fascinated with making things move, so I was drawn to the deep complexity of snake robots the moment I first saw one. I got involved in snake robot development to try to achieve motion that is much more efficient and surpasses an imitation of snakes.

THK's products are essential for our snake robots

I am researching “smart motion” controls for snake robots at the University of Electro-Communications. As shown in the picture below, the robot we developed is formed out of many connected joints and wheels. It can enter narrow spaces and use the length of its body to traverse steps up to 1 m in height. In general, segmented robots have difficulty climbing steps; the tires get caught around the edge of the step, causing the robot to stop mid-movement. However, ours is configured to only issue commands for the movement of the head. The sensors attached all over the body detect the distance between the underbelly and the floor, and the robot gets over steps by taking measurements from the portion raised in the air and moving the joints with the proper timing. As a result, it can climb steps with simple maneuvering.



The T2 Snake-3 features a **SEED MS** on the side of each joint (indicated by the arrow)

For a robot to be used in high or tight spaces, there are size and weight restrictions. Our compact, lightweight design was made possible by the **SEED MS**. The **SEED MS** is in charge of both information coming from the sensors and motors as well as commands being received remotely from the operating computer. By concentrating data there, it acts as an information pathway to shorten communication time. I learned about the **SEED MS** when I went to an academic conference for robots a few years ago. The product that was being displayed in a nearby booth was exactly the size I was looking for. Now, it has become an essential component for small robots. The core of the snake robot is the movement generated through countless sensors and motors, and the **SEED MS** has enabled us to create an elegant wiring system for it.

Future developments

The Sendai Framework for Disaster Risk Reduction 2015–2030 outlines priorities including strengthening disaster risk management and preparedness, recovery, rehabilitation, and reconstruction. Toward that end, our snake robot has checked concrete wear in attics and inspected beneath floors and inside pipes. In fact, it was used during the heavy rains in western Japan to search inside homes that collapsed from landslides. My aim is for the simple structure of this robot to prove useful in everyday life in the future, broadly contributing to society through the development of robots that can do things like wrap around people and give them massages, or clean places that are narrow or have steps.

Beckman Coulter Japan Mishima Manufacturing
Suntou District, Shizuoka Prefecture

THK Products Are Essential for World-Class, High-Quality Analyzers

Hiroshi Serizawa
Plant Manager

Takatoshi Suzuki
Mechanical Engineering Group Manager
Global Business Research & Development



Ball spline,
LM Guide



Business expansion rooted in medicine and the local community

Our company's business is centered on two fields: life sciences and clinical diagnostics. The life science field includes genetic research and trying to understand life from a scientific perspective—for instance, by analyzing cells and extracting nucleic acid to research diseases and new cures as well as investigate complex biological issues. In our clinical diagnostics division, we develop and manufacture clinical analyzers that can be used for blood, biochemical, immunological, microbial, and many other kinds of analysis.

We were also the first public company to take part in the Pharma Valley Project, which involves health-related businesses ranging from the medical to the wellness industries and conducts leading R&D to develop advanced, world-class medicine and technology right here in the Suntou district of Shizuoka Prefecture. We strive to use the medical experience we have gained since our founding to aid the leading medical research and development promoted by this collaboration between industry, academia, and government.

Aiming to develop the industry's leading analyzer

The Mishima factory is Beckman Coulter's only production facility in Japan. We research and manufacture clinical chemistry analyzers used for clinical diagnostics and provide quality assurance and customer support. Over 90% of our finished products are exported. We quickly reflect customer feedback in our product development and manufacturing,

and we always strive to provide new products that meet expectations.

To protect the lives of patients, our analyzers must be durable so they can run 24/7 without failing. They must be high-quality so they can accurately perform blood tests, and they must be high-speed so they can conduct tests efficiently and provide patients with the results quickly. We aim for our products and service solutions to increase customer satisfaction so we can be the top business in the industry.

THK's trustworthy technology and service

What is critical for our analyzers is the precision and quality of the components used during tests. The clinical chemistry analyzers incorporate many THK products, but the ball spline is used for the key part of the testing process, positioning the sample being transferred at each process location with precision in all directions. Looking at the data from the past three years, the defect and failure rate of THK's products during receiving inspections or on the market has been virtually zero. Their on-time delivery ratio has also been wonderful, ranking among our top suppliers in that regard.

We are very grateful that they always respond sincerely to our requests, and they have provided numerous suggestions during meetings with our technical staff. As previously mentioned, we export over 90% of our finished products, and since THK has expanded its factories outside of Japan, we can rely on them from a part procurement standpoint, too.

Our customers have many requests for us, so we look forward to continuing to consult with THK and find solutions. We hope THK will continue to reliably provide us with products as we strive to manufacture world-class, high-quality clinical analyzers.



Clinical chemistry analyzer AU5800

Corporate Governance

Governance Structure

With the aim of maximizing THK's corporate value, we strive to make medium- 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 46th 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.

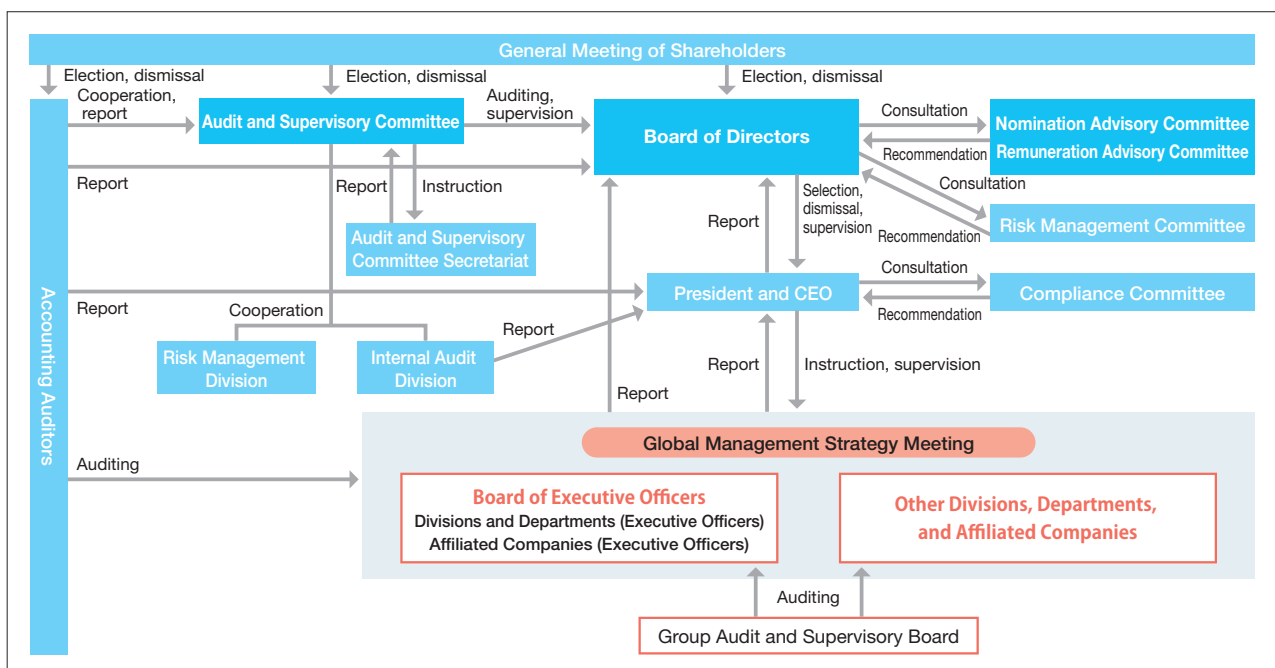
▶ Nomination Advisory Committee and Remuneration Advisory Committee

- 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 Audit, Internal Controls, and Information Security

Internal Audit

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.

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 2018, a total of 71 locations and departments were audited in and outside of Japan.

Internal Controls

We have established and properly enforce our internal control policy to ensure that each THK employee complies with laws and the articles of incorporation as we maintain sound and transparent operations and achieve our corporate philosophy.

We have established the “Regulations for Internal Control over Financial Reporting” to comply with the internal control reporting system, which is based on the Financial Instruments and Exchange Act. In accordance with the basic

framework outlined in the Financial Services Agency standards, we have established and enforce the “Regulations for Internal Control over Financial Reporting,” and we improve them as necessary.

Furthermore, the internal evaluation performed in 2018 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 2019.

Information Security

Information Security Management

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 2018, the activities below were conducted to strengthen information security.

Activity	Description
Training	<ul style="list-style-type: none"> Providing online training about personal information
Sending out alerts	<ul style="list-style-type: none"> Sending information about e-mail scams
Surveying and correcting current conditions	<ul style="list-style-type: none"> Internal information security audits (4 locations in Japan)
Measuring results	<ul style="list-style-type: none"> Self-survey on information security
GDPR compliance	<ul style="list-style-type: none"> Information session for staff in charge Data mapping and checking for compliance Establishing a privacy policy and internal rules Appointing a DPO (Data Protection Officer)
System countermeasures	<ul style="list-style-type: none"> Monitoring and updating anti-virus software Preventing unauthorized access and transmissions Detecting and preventing intrusion of targeted e-mail attacks from external sources

GDPR Compliance

The GDPR (General Data Protection Regulation) is a new framework for protecting the personal information of individuals living within the European Economic Area (EEA) and governs the processing* and transferring* of such data. At first glance, the GDPR may seem irrelevant outside of the EEA. However, because of corporate globalization, Japan and many other countries outside of the EEA are affected.

To understand how personal information was being processed and transferred at our locations in Japan and the EEA, we closely examined the areas that handle relevant personal information. Based on the results, we established a privacy policy and internal rules that comply with the GDPR. We have established a global framework for protecting personal information and properly manage the information we possess based on our policy and rules.

***Processing:** Any act done to personal information (collecting, storing, disclosing, viewing, deleting, etc.)

***Transferring:** Moving the personal information of EEA residents out of the EEA

Compliance Structure and Security Export Control

Compliance Structure

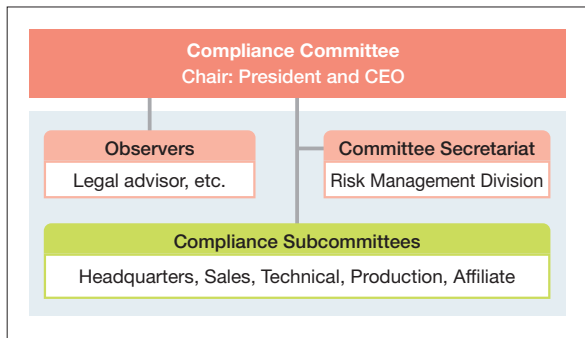
Policy Thoroughly instill compliance awareness and create a work environment that does not allow wrongful acts.

To thoroughly instill compliance awareness, we maintain structures and conduct various programs with the aim of complying with laws, internal standards, and ethical norms.

Compliance Committee

The Compliance Committee is headed by our CEO and convenes four times a year. This committee, which is 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.

Compliance Structure



THK Group Helpline (Internal Reporting System)

The THK Group Helpline was established to prevent compliance violations and to enable quick and appropriate action in the event of an 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 we faithfully enforce our rules ensuring confidentiality regarding their contents and prohibiting unfavorable treatment on the basis of having made a report. There were nine cases reported in 2018, and we worked with the necessary divisions to handle each case appropriately.

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

With the aim of helping employees always properly execute their 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 (creating value and contributing to society, being customer-oriented, and compliance with laws and regulations), and The THK Group Action Charter (ten principles of behavior). This booklet is available in a total of 12 languages and is distributed to all employees.

2018 Activities

Activity	Purpose	Description
Training	Preventing illegal and wrongful acts that would significantly impact operations	<ul style="list-style-type: none"> Compliance sub-committee member seminar (July) New hire training (April) Seminars at various THK locations (9 sessions) Seminars at business partner locations (5 sessions) Seminars at overseas subsidiaries (3 European subsidiaries) Providing e-learning materials (2 topics)
Establishing global compliance structure	Global collaboration in compliance-related work	<ul style="list-style-type: none"> Providing support to establish a compliance committee for Chinese subsidiaries
Compliance violation awareness	Improving knowledge and awareness of compliance	<ul style="list-style-type: none"> Creating and posting materials to increase awareness via articles about scandals, etc. (12 postings)
THK Group Helpline awareness	Improving familiarity with THK Group Helpline	<ul style="list-style-type: none"> Introducing THK Group Helpline via internal newsletter (3 times)

Security Export Control

We use our intranet to promptly issue parameter sheets and grant permission for service transactions.

In consultation with the Ministry of Economy, Trade and Industry and CISTEC, we carefully examine transactions involving items with special applications and those for which Appended Table 1 of the Export Trade Control Order and the Appended Table of the Foreign Exchange Order apply to

ensure compliance with the Foreign Exchange and Foreign Trade Act.

In 2018, we introduced a system to simplify material classification and strengthened our catch-all examinations for countries without strict export controls. We are also looking into establishing procedures for catch-all examinations for new business and e-commerce transactions.

Risk Management Committee and BCP

Risk Management Committee

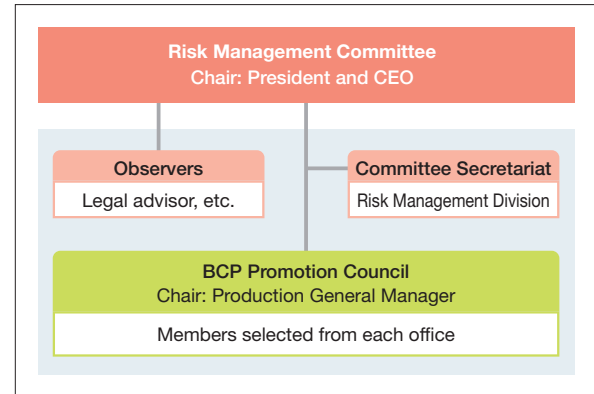
Policy We facilitate assertive governance with elements of bold risk-taking.

THK has established a risk management structure that anticipates future circumstances, enabling management to take appropriate risks by identifying, analyzing, and responding to conceivable risks from the perspective of management and the company as a whole.

Risk Management Committee

The Risk Management Committee convenes annually and is headed by the CEO. The committee, which is attended by outside directors and legal counsel, approves the annual activity plan and works to establish, promote, and maintain the risk management structure by controlling risks throughout the entire Group.

Risk Management System



2018 Activities

Activity	Purpose	Description
Establishing the BCP Promotion Council	Maintaining a BCP promotion structure that will continuously reevaluate our BCP and ensure its practicality	<ul style="list-style-type: none"> Established a BCP Promotion Council under the Risk Management Committee
Reviewing risk assessments	Reviewing our risk management structure related to everyday risk prevention and properly controlling risks	<ul style="list-style-type: none"> Identifying, classifying, analyzing, evaluating, and reviewing risks, and reporting results to directors
Other	Verifying suitability of holding cross-held stocks	<ul style="list-style-type: none"> Verifying medium- to long-term financial sense and future outlook of primary cross-held stocks
	Investment subcommittee studies	<ul style="list-style-type: none"> Conducting studies that act to support appropriate risk-taking

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

Activity	Description
Servers	<ul style="list-style-type: none"> Maintaining main and backup servers in separate data centers Practicing switching to backup servers in case main servers were to go down (once per year)
Earthquake-proofing	<ul style="list-style-type: none"> Production facilities: installing equipment to prevent toppling of shelves that hold components, fixtures, and tools Sales offices: installing equipment to prevent toppling of printers, cabinets, etc.
Emergency supplies	<ul style="list-style-type: none"> All production and sales facilities: potable water, food, sanitary items, emergency supplies, and rescue equipment
Safety drills	<ul style="list-style-type: none"> Annual drills at all locations Annual satellite phone test

Together with Our Customers

THK's Sales Approach

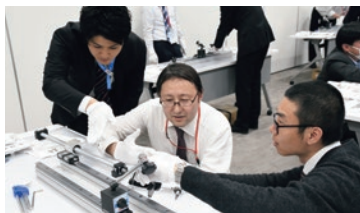
The THK company name incorporates three principles: Toughness (tough, durable products), High Quality (the world's top-quality products), and Know-how (expertise for our customers). Under these principles, we conduct our daily sales activities with a customer-focused approach where we think, act, and verify results from the customer's perspective.

THK has established an integrated production and sales structure with 118 sales offices and 35 production facilities close to centers of demand in order to produce and sell

locally in four regions: Japan, the Americas, Europe, and Asia. We have also established an e-commerce website, Omni THK, which enables customers to purchase products in regions without any THK sales offices. Furthermore, we ran booths at 21 exhibitions in Japan and 34 overseas in 2018 to introduce more customers to our products. Besides participating in exhibitions, we also occasionally hold private shows and technical seminars as venues to explain our offerings directly to customers.

Technical Seminars

In May 2018, we began holding technical seminars to introduce many more customers to THK. The curriculum allows participants to experience our products up close, including a tour of our new showroom* and a viewing of the seismic isolation system installed beneath our new headquarters established in October 2017. Many customers signed up for the seminars, with over 300 people



Technical seminar

participating over the course of 15 sessions held at our headquarters and five other sales offices.

Members from administrative and engineering departments exchanged ideas to come up with the structure of the seminar, and actual participants commented that the contents were informative and very easy to understand.

We will continue to develop strategies to improve our technical seminars, such as developing a curriculum focused on products with high demand from participants and holding local seminars to reach customers in distant regions.

* Our headquarters showroom is open during normal business hours (8:30 a.m. to 5:30 p.m.) on weekdays.

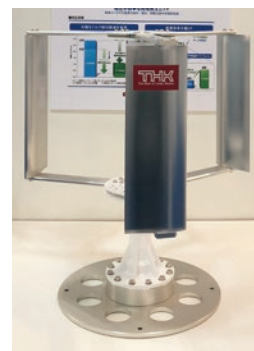
THK Receives the New Energy Foundation Chairman's Award

The New Energy Foundation grants the New Energy Award for new products and activities to promote the introduction, widespread use, and understanding of new energy in society. In recognition of its significant role as a product promoting the widespread use of new energy, THK's Model WLS Low-Torque Shaft Unit for Vertical-Axis Wind Turbines received the Chairman's Award in the category of goods and services in 2018.

The WLS is a high-intensity, high-efficiency, and low-torque bearing unit that combines the shaft, bearings, and housings that form a small vertical-axis wind turbine. The bearings have a new design developed specifically for vertical-axis wind turbines. Their significantly lower torque enables the turbine to activate in slight breezes and has improved the efficiency of power generation. Furthermore, every component has been optimized, from critical items such as the shaft to individual screws. This product provides sufficient strength and durability and guarantees a high level

of safety, conforming to IEC 61400-2 international standards for wind turbines and Japan's JSWTA 0001 standards.

The WLS is provided as a complete unit that meets the requirements for complex processes that have proven difficult for conventional wind turbine manufacturers, such as rotary machine component design, bearing assembly precision control, and preload adjustments. The award was granted in recognition of the reduced labor hours and significant performance boost for wind turbines that turbine manufacturers can expect as end users of the WLS, in addition to the WLS's potential for further development, including in markets outside of Japan.



The award-winning WLS



Lessons in Customer-Oriented Sales from THK GUANGZHOU MINJIA MANUFACTURING TECHNOLOGY CO., LTD.

President **Zhao Hu** (Left)

Vice President **Li Yuanyuan** (Right)

— Tell us about your company.

We were established in 2001 as a manufacturer focused on two divisions: parts for compressors and core components for machine tools and robots. Our corporate philosophy is to provide our customers with energy-saving and high-efficiency machine tools, competitive solutions, and superior service. We have production and sales bases in Suzhou, Guangzhou, and Baoji, and 60% of our 300 employees work at our development division located in Guangzhou. We have been recognized for our ability to develop original technology, being the only Chinese company selected among affiliated metalworking businesses worldwide to receive a technology innovation award three times, in 2015, 2017, and 2018. We currently have 100 patents, and we are one step ahead of other Chinese companies when it comes to machines that manufacture ball screws, the LM Guide, and bearings.

— Tell us how you first encountered THK products.

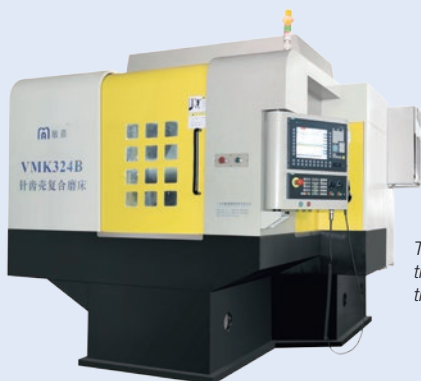
I think it was about 30 years ago. When I was working in the machine tool development division at another company, a THK salesperson told me about their products. It was the first time I had seen a THK product, but I was convinced that sliding guides would give way to rolling guides in the future. That was how we began using the LM Guide, including in prototype machines, 10 years before our competitors. Using the LM Guide drastically improved our productivity, enabling us to develop high-quality multifunctional machines. Honestly, I think our technology would not have improved if I had not met THK. That is because, even as we purchase THK products, we also provide THK's Chinese factories with production equipment. THK has very strict quality requirements

for the products we deliver, which gives us a lot of inspiration for technological innovation, one of our core principles. By manufacturing machines that would satisfy THK, without realizing it, we had naturally become able to create high-quality machines. In particular, we frequently exchange ideas about technology with THK MANUFACTURING OF CHINA (CHANGZHOU), which has led to the development of our original multifunctional machines.

— What do you think about THK's technology and service?

The stable quality of THK's products is essential to our goal of producing the best machines in the world. They have an office near our factory in Guangzhou, so having salespeople come over right away when there is a concern has been very helpful. THK is a large corporation, but they treat each of their customers with the same, unchanging level of respect. I often stop by exhibitions, and I see THK's representatives doing their best to introduce even small and medium-sized companies to their products. I admire how their sales efforts remain unchanged while focusing on the future. THK truly practices customer-oriented sales activities, thinking, acting, and verifying results from the customer's perspective. We have reflected that in our corporate philosophy, too. I have had the opportunity to meet President Teramachi, and looking back, I almost feel like I have spent more time in meetings with THK than in industry meetings. I will reach out to people in related industries, so when a new product comes out, I hope THK will hold an information session for us. We will continue to maintain a good relationship with THK and refine our technology.

As a final note, I heard we are the first users outside of Japan to be introduced in THK's CSR Report. We are greatly honored to have been chosen.



The four-axis grinding machine that won the technology innovation award in 2017

Interview

Together with Our Suppliers

Material Purchasing Policy

1. Global procurement
2. Accelerated ordering
3. Active proposals

- *Optimize procurement locations
- *Develop purchasing system that incorporates AI
- *Double communication with business partners to promote value analysis and production innovation

THK's daily operations are performed in accordance with our policy 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.

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.

Due to the new system of accountability for freight owners* announced by the Ministry of Land, Infrastructure, Transport and Tourism in 2018, our distribution centers moved the time they stop shipping forward by one hour, from 4:00 p.m. to 3:00 p.m., in an effort to alleviate the workload of truckers. With the introduction of this new system, we have taken steps to limit the following types of behaviors that actively lead to violations:

1. Constantly having truckers wait on shipments
2. Specifying unreasonable arrival times
3. Punishing truckers for unavoidable delays
4. Asking truckers to violate weight regulations, etc.

As we promote our CSR activities, in addition to reflecting the voices of customers, we will also continue to implement activities that involve the entire supply chain, such as conducting CSR surveys of our suppliers.

* New system of accountability for freight owners

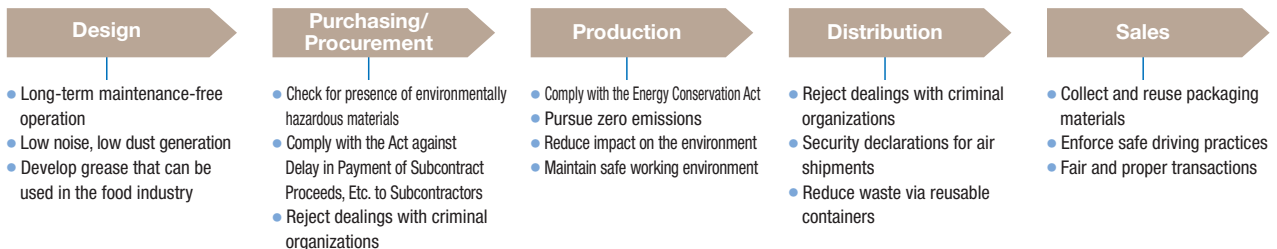
In accordance with Article 64 of the Motor Truck Transportation Business Act, in cases where administrative sanctions are imposed in response to a violation such as a truck transportation business operator's transportation of excessive load or failure to prevent over-strained driving, when it is recognized that the violation is mainly attributable to the action of the freight owner, such as being under the direction of the freight owner, the Minister of Land, Infrastructure, Transport and Tourism shall recommend that the freight owner take appropriate measures to prevent the recurrence of the violation.

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



Working with Suppliers

THK meets with suppliers to exchange technical information about processes in order to improve and refine both party's techniques. Businesses in the THK Association actively

conduct value analysis proposals relating to machining technology, and the number of proposals jumped dramatically from 467 in 2017 to 550 in 2018.

Customer Award-Winning Engineering Solutions and High-Quality Products

Hitachi High-Technologies Corporation Analytical & Medical Solution Business Group



Taku Sakazume (Center)

Medical Systems Product Division, General Manager

Tetsuji Kawahara (Right)

Medical Systems Design 1st Department, Senior Engineer

Yukinori Sakashita (Left)

Medical Systems Design 2nd Department, Senior Engineer

— Tell us about Hitachi High-Technologies and Analytical & Medical Solutions products.

Our corporate vision is “Simplify our customers’ high-tech processes.” We have developed our business around three segments: “Analytical & Medical Solutions” that provide bio and medical systems such as clinical analyzers and scientific instruments, “Nano-Technology Solutions” that provide semiconductor manufacturing equipment and electron microscopes, and “Industrial Solutions” that focus on fields such as social and industrial infrastructure as well as automotive and transportation equipment, etc. We help our customers to solve their problems by providing technologies, products, and services based on our core technologies in “Observation, Measurement, and Analysis.”

— Why did Hitachi High-Technologies (HHT) apply THK products on your medical systems?

HHT provides clinical analyzers for clinical laboratories in hospitals and commercial laboratories. Generally, these products are categorized as IVD (in-vitro diagnostics) devices. Our products are mainly used to quantify the concentration of components in blood, in urine, or in other body fluids. Medical doctors can request several specific tests from more than 200 items to identify diseases. The test menu has been expanding for the last fifty years. In the past, it took time to get the results. Patients were requested by doctors to appear the following week to get the results. Today, so many blood tests can be completed in a hospital’s clinical laboratory within one hour after drawing a patient’s blood. Medical doctors can diagnose the diseases more accurately. Supporting this change have been the many improvements

in the IVD industry, including those in clinical laboratories. We focused on the development of the analyzer, a kind of robot for biochemical reactions. It contains multiple mechanisms for quantitative liquid transportation of samples and reagents, mixing functions, optical detection, and a temperature-controlled incubator to carry out the reaction. Around one hundred reaction containers are processed in parallel. For clinical laboratories with limited space, the analyzers are designed with a combination of 3-dimensional movements. This requires many linear actuators with high accuracy and reliability. THK’s linear guide products are used for this very precise movement.

— Why did HHT award the VEC (Value Engineering for Customers) to THK in 2018?

The competition in this market is based on the throughput you get out of the floor space. We have been working with a European-based IVD reagent company for over forty years. They want to keep the established reagent composition. In addition to that, the system throughput and reagent capacity on board must be maximized in limited floor space. But the most critical point was reliability. New analyzers are expected to operate 24/7. To achieve that, THK’s marketing, sales, and engineering staff were requested to join the discussion with HHT’s purchasing and engineering team from very early in the concept stage. In 2018, we proudly selected THK for the award from among our 1,500 vendors. THK supported HHT in many important aspects, including prompt production on demand, high quality, and regulatory compliance.

— What does HHT expect from THK?

In the IVD device business, it takes time to get the approval of products with IVD assays by healthcare authorities after the instrument design is fixed. After we get clearance, rapid production ramp-up is required. We would like to cooperate with THK in this business environment to prepare for the scale-up. From our experience of the earthquake in 2011, we would like THK to prepare for various kinds of natural disasters, including those that may impact THK’s material vendors. Recently, environmental and national security requirements have been getting more complicated. We expect THK to prepare for such requirements in advance.



Immunoassay module cobas® e 801
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Interview

Quality Assurance Structure

Quality Policy

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

THK has established a quality assurance system in which each production facility both in and outside of Japan is certified with the ISO 9001 Quality Management System. We provide a quality assurance system for the industrial machinery business that produces machine tools, semiconductor manufacturing equipment, medical devices, robots, and seismic isolation and damping systems. With this as our base, we obtain certifications in quality standards adapted for new fields such as the automotive and transportation business and the aerospace industry.

Furthermore, we perform regular quality audits based on the quality management systems at our business partners and suppliers, and we work to maintain and improve product quality on a daily basis with a thorough quality assurance structure.

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.

Quality System Overview



Quality Management System Certification Status

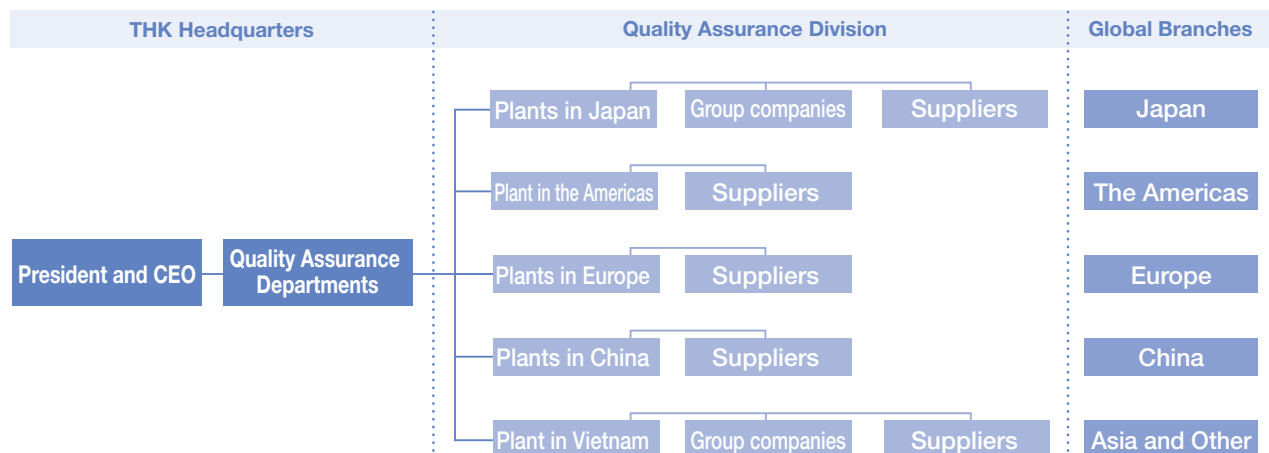
(Facilities)

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

Quality Management Process



Global Quality Assurance Structure



Together with Our Shareholders

THK engages in IR activities in an effort to disclose information in a manner that is fair, impartial, expedient, accurate, and easy to understand. We strive to provide more thorough and valuable information through IR events such as financial results briefings and IR tools such as our investor relations website and Annual Report.

Primary IR Activities

IR events	IR meetings	• Interview around 500 analysts and institutional investors annually
	Roadshows outside of Japan	• Hold IR meetings led by the president for institutional investors outside of Japan
	Financial results briefing	• Post presentation materials and videos on the IR website mid-year and at year end
	General Meeting of Shareholders	• Scheduled on a Saturday during a period when few shareholder meetings are scheduled, accompanied by an exhibition
IR tools	IR website	• Publish various IR tools and content oriented towards individual investors
	Annual Report	• Compile company overview, management targets, and medium- to long-term strategies
	Investor information (fact book)	• Compile detailed financial data

The IR Website



Investor Relations page

1. IR Library

The IR Library contains various IR tools, including investor information compiled from summaries of financial results and detailed financial data. Presentation materials and videos are available here following the financial results briefings held every year in February and August.

2. IR Information E-mail Delivery Service (RIMSNET)

This service sends an electronic newsletter announcing financial results and other news releases to registrants.

Register at: <https://rims.tr.muifg.jp/?sn=6481>

* The IR Information E-mail Delivery Service is managed by Mitsubishi UFJ Trust and Banking Corporation.

3. For Our Individual Investors

This page contains general information about our company history and management strategy as well as examples of our product applications.

General Meeting of Shareholders



49th General Meeting of Shareholders

Since 1998, we have held our General Meeting of Shareholders, which is based on the concept of an open meeting, on Saturdays during periods when few shareholder meetings are scheduled. We provide seats for observers so that many people, including business partners, can participate.

We also hold an exhibition after the meeting for participants to experience our products up close, where we introduce the various fields where our products are utilized, such as machine tools, industrial robots, automotive and transportation equipment, and seismic isolation systems.

Health and Safety

Management Structure

Five THK facilities in Japan earned OHSAS* 18001 certification in 2010. In 2018, we took proactive measures in accordance with our policy. In 2019, we worked on transitioning to the ISO 45001 occupational health and safety

management system, as OHSAS will expire in 2021.

* OHSAS: Occupational health and safety management system

* ISO 45001: Occupational health and safety management system standard published in March 2018

Policy

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

2018 Occupational Health and Safety Activities in the Production Division

Objective	No.	Activity	Result
1. Allow occupational health and safety management system (OHSAS 18001) to reach all employees	1	Implement risk assessments and workplace safety training	Met
	2	File and provide information pertaining to relevant regulations (chemical substance risk assessments)	Met
	3	Prepare and perform internal audits (reciprocal audits)	Met
	4	Conduct management reviews	Met
2. Revitalize health and safety committee activities	5	Promote disaster prevention	Met
	6	Implement traffic safety activities (achieve zero traffic accidents)	Not met
	7	Conduct workplace safety patrols	Met
	8	Promote 5S (6S) activities	Met
3. Eliminate workplace accidents	9	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)	Not met
	10	Ensure employees confirm machines have completely stopped	Not met
	11	Train new employees (temporary and mid-career hires) thoroughly	Met
	12	Provide instruction to business partners who work on site and visitors	Met
4. Enhance health management	13	Perform regular and special health checks	Met
	14	Promote mental health	Met
	15	Perform stress checks	Met
	16	Implement illness prevention activities	Met
	17	Make improvements based on occupational physician recommendations	Met

Incident and Severity Rates (Data)

	2014	2015	2016	2017	2018
Incident rate	0.20/1.66	1.13/1.61	0.25/1.63	0.82/1.66	0.76/1.83
Severity rate	0.00/0.09	0.01/0.07	0.00/0.10	0.01/0.09	0.01/0.09

(THK/Japan average (%))

Incident rate: Frequency of work-related injuries

[IR = (Number of incidents) ÷ (Labor hours worked) × 1,000,000]

Severity rate: Severity of work-related injuries

[SR = (Number of lost workdays) ÷ (Labor hours worked) × 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.

Annual Physical Participation Rate

THK has its employees in Japan receive annual physicals and recommends medical examinations through our health insurance society. The following tables show the annual

physical participation rate and the examinations our health insurance society offers.

Annual Physical Participation Rate (THK CO., LTD., only)

2014	2015	2016	2017	2018
100%	100%	100%	100%	100%

Medical Examinations Offered

General check-up	Younger than 35
Gastric cancer screening	Younger than 35
Lifestyle disease screening	35 or older
Comprehensive health examination	35 or older
Uterine and breast cancer screening	—

RIZAP

Comparing the results of the medical questionnaire filled out before the annual physical with statistics from the National Federation of Health Insurance Societies, we learned that few employees at our headquarters regularly exercise, and many grab dinner less than two hours before they go to bed. To inspire lifestyle changes, we hosted a RIZAP (pronounced “rye-zap”) seminar in November 2018.

Forty-four people participated. After a lecture about reflecting on one’s lifestyle, setting goals, and the RIZAP method (low-sugar diet, exercise, etc.), there was an activity for stretching and squatting with the proper technique. Participants praised the seminar and asked for more

practical sessions on food and exercise and content geared toward women and life after retirement.



Practicing stretching

Establishing a Safety Dojo

DALIAN THK established its own safety dojo in September 2018 to improve safety, quality, and employee skills. This dojo operates under the slogans of “Safety is the top priority!” and “Instill safety awareness through practice and aim to be a workplace with zero accidents!”

This dojo has a training area to teach basic safety knowledge and hazard prediction training, as well as an interactive area where employees can experience the alarming sensation of getting caught in a machine or receiving an electric shock. By the end of December, training was conducted at the dojo 28 times, with around 940 employees participating. DALIAN THK will continue to use its dojo to conduct training and aim for higher safety, quality, and employee skill levels.



Employees listening attentively to the lesson

Mental Health Class

Mental health issues in the workplace and health disorders caused by overwork are currently major concerns in the field of occupational health. As a company event to coincide with Japan’s National Occupational Health Week, occupational physician Dr. Kouda gave a class on mental health at the THK RHYTHM Hamamatsu plant in October 2018.

Around 100 supervisors and managers attended. One participant commented, “He explained what happens between when a person becomes depressed and when they return to work, from the differing perspectives of the individual, their colleagues, and the company. It was really easy to follow.” Another noted, “It was a good opportunity to learn about something I might encounter.” We will continue to deepen awareness of mental health issues to improve and create an

even better work environment.



Dr. Takahiko Kouda giving his lecture

Supporting Development

HR Data Records

	2016			2017			2018		
	Overall	M	F	Overall	M	F	Overall	M	F
Turnover rate (%) ¹	1.5	1.3	2.4	1.0	0.8	1.9	1.8	1.7	2.4
Years of service	18.3	19.0	14.2	17.5	18.1	13.7	17.1	17.7	13.8
Individuals eligible for childcare leave	131	112	19	248	209	39	234	194	40
Individuals on childcare leave	21	2	19	41	2	39	46	3 ²	43 ³
Reinstatement rate (%)	100	100	100	100	100	100	100	100	100
Retainment rate (%)	97	100	97	100	100	100	100	100	100
Individuals with shortened hours	71	0	71	69	3	66	59	2	57
Employees with disabilities (%) ⁴	2.17	—	—	2.20	—	—	2.12	—	—

¹ Turnover rate only includes full-time employees. ² One took extended leave.
³ Three took extended leave. ⁴ Inclusion mandate: 2.20

Turnover rate = $\frac{\text{Employees who left during the fiscal year}}{\text{Employees registered at the year end}} \times 100$

Reinstatement rate = $\frac{\text{Total employees reinstated after childcare leave}}{\text{Total employees planned to be reinstated after childcare leave}} \times 100$

Retainment rate = $\frac{\text{Total employees still registered two months after returning from childcare leave}}{\text{Total employees reinstated after childcare leave during previous reporting period}} \times 100$

Employees Who Passed the National Trade Skill Test & Certification

	Passed in 2018		Total as of 12/31/2018	
	M	F	M	F
Metal heat treating	6	0	101	1
Machining	10	0	325	1
Electrical discharge machining	1	0	7	0
Finishing	0	0	26	0
Electric equipment assembling	1	0	7	0
Machine inspecting	6	1	239	12
Pneumatic equipment assembling	0	0	7	0
Hydraulic equipment adjusting	0	0	23	0
Plastic molding	0	0	4	0
Machine/plant drafting	0	0	99	2
Electrical drafting	0	0	0	0
Metal material testing	0	0	59	0
Machine maintenance	7	0	374	0
Total	31	1	1,271	16

Data includes 12 THK facilities in Japan.

Dedicated Calibration Technician Receives Award for His Efforts

Hiroyuki Fujimoto

Quality Assurance Section
Yamaguchi Plant



At the calibration room desk

Since joining the company in 2000, I have been in charge of calibrating and repairing all measuring instruments used at our factory. Calibrating involves testing these instruments by operating them in the correct way, confirming they display an accurate measurement, and repairing or outsourcing repairs as needed. Gauges can malfunction for a number of reasons, including water or oil penetration or being dropped. It is easier to ask a vendor to repair them, but I factor in the cost and time and fix them

myself whenever possible. Repair work suits me, and I cannot describe the satisfaction I feel when I am able to fix something. In September 2018, I received an award from the chairman of the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers in recognition of my efforts in the workplace.

If I recall, I learned about THK during a plant tour when I was a student at a school for the deaf. The polite reception I received from the employees assured me that it was a good company, and I decided to join. As I have worked here, I have felt the kindness emanating from everyone at the Yamaguchi plant as they come to greet me. The award I received was the result of the cooperation of the people around me, and I am grateful. I will work toward receiving awards from the prefectural governor and the Minister of Health, Labour and Welfare.

Prefectural Governor's Award



Shunsuke Yoshinaga, deputy manager of the General Affairs Section at the Yamaguchi plant, was one of three individuals to receive an award from the governor of Yamaguchi Prefecture

in September 2018. He was recognized for his keynote speech given to many people with disabilities, and for his work as a lecturer at a local government-sponsored seminar for new educators and instructors who interact with people with disabilities, and as an advisor appointed by the Yamaguchi Labor Bureau for supporting the employment of people with disabilities.

Year Two of the THK Education Outreach Program

To use our experience as a manufacturer to support proactive learning, we partnered with Leave a Nest Co., Ltd.* and launched the THK Education Outreach Program in 2017. In 2018, we introduced students to manufacturing through school visits and began our program to create manufacturing-related learning materials. We visited the Kaichi Nihonbashi Gakuen Junior High School twice in March and invited junior high school teachers to visit the THK headquarters for an information session about the learning materials project. Following the information session, participants attended the Learning Materials Research Committee

meeting. After incorporating feedback from those educators into our vision of the next generation of talent, we refined the content of our learning materials.

As we did in 2017, we also sponsored the second Science Castle* Grant THK Prize. Out of thirty-four research grant proposals, ten were adopted, and Seiko Gakuin High School was awarded the THK Prize.

* Leave a Nest Co., Ltd., is a company whose corporate philosophy is "Advancing Science and Technology for Global Happiness." They promote initiatives in science education and training for the next generation.

* Science Castle is a conference that Leave a Nest Co., Ltd., holds for junior high and high school students.

What students said about the school visits:

- "It was really fun to use so many tools in creative ways."
- "It was a great chance for every student to share their ideas."

What teachers said:

- "The Japanese education guideline reforms encourage a focus on the pursuit of knowledge. This program aligns well with that goal because it involves creating things without a set solution."
- "All of the students were extremely engaged in the activities. The fact that they remained focused the entire time speaks to how effective this program is."

Science Castle Grant THK Prize Winner: Seiko Gakuin High School



Seiko Gakuin High School team members

We are grateful for the opportunity to present the results of our research at Science Castle. We are also proud that we won the THK Prize for using the LM Guide as the subject of our research

to experiment and develop our own solution for a challenge faced by society.

First, we discussed different social challenges the world is facing. We concluded that every problem—energy problems, food shortages, and overpopulation—stems from a lack of land. We focused on effectively using the ocean, which we cannot say has been utilized enough. We felt we could use the ocean for more land to solve the land shortage and showcase Japan's advanced technology to the world.

Our plan is to create artificial islands and install the R Guide on the floating structures that surround the island to absorb the rocking from the push and pull of the waves. When we created a small model, placed it in an acrylic pool, and measured the movement caused by the waves we generated, we found that the rocking of the floating surfaces

was somewhat absorbed (see photo).

Our experiment is still ongoing. Even if it is not much, through trial and error and repeated experimentation, we hope to see satisfying results.



The R Guide protects the island by absorbing wave motion



Shodai Aoyama

Reliability Research Section,
Fundamental Technology
Research Laboratory

A Word from the Technical Advisor

I was really amazed at the spectacular concept of creating land on the ocean and the efforts of this team repeatedly coming up with and testing hypotheses to gradually make progress toward their goal. I will continue rooting for them, and I look forward to their future research.

Local Communities

THK's Approach

As a good corporate citizen, THK actively contributes to society. Our activities include:

1. Establishing a basic philosophy of contributing to society through our business activities
2. Identifying areas to prioritize our efforts and using our corporate resources to promote specific contributions based on our corporate philosophy
3. Coordinating and cooperating with various stakeholders, including NPOs, NGOs, local communities, governments, and international institutions
4. Supporting employees' own community contributions and involvement
5. Participating in industry and business community efforts that contribute to society

In 2018, we provided financial support for numerous causes, including relief for multiple natural disasters in and outside of Japan. To introduce young people to the joy of manufacturing, we also welcomed a total of 184 interns at 10 production facilities around the world.

Minato City Marathon

The Minato City Half Marathon 2018 was held in December in the Minato ward of Tokyo, where the THK headquarters is located. We cosponsored the event and provided operational support, with five employees volunteering as course guides. The area in front of the THK headquarters was a checkpoint, and we provided a first-aid station so runners could enjoy the marathon without worry. The event was favored with good weather, and 19 of our employees also participated as runners. We will continue to deepen our communication with local residents through activities closely tied to the regions we are located in.



The front of the THK headquarters served as a checkpoint

Charitable Contributions

Date	Purpose	Recipient
June 2018	Northern Osaka earthquake	Japanese Red Cross
July 2018	July 2018 heavy rains	Japanese Red Cross
Sept. 2018	Hokkaido Eastern Iburi earthquake	Japanese Red Cross
Oct. 2018	Sulawesi earthquake (Indonesia)	Japanese Red Cross

Science Fair

In September 2018, the Yamaguchi plant participated in the two-day 9th Science Fair at the Onoda Sunpark. The theme of the event was inspiring scientific curiosity and interest and introducing more people to the fun and appeal of science. THK was in charge of helping children make hourglasses with iron, the raw material used for our products.

Both days were packed with attendees, and many determined visitors helped the hourglasses take form. The event was so successful that we ran out of all the materials we brought to make over 150 hourglasses.

We will continue to pursue activities that present children with challenges that encourage them to wonder "Why?" and nurture their scientific interest.

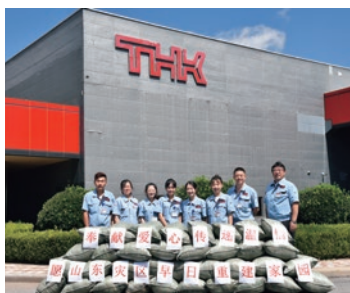


(Above) Engaged participants
(Below) Completed hourglasses

Heavy Rain Disaster Area Relief

The landfall of Tropical Storm Rumbia in mainland China in August 2018 caused damage to 13 cities, including Weifang, Dongying, Heze, and Tai'an in Shandong Province. Around 5.09 million people were affected by the disaster, with 18 fatalities and nine cases of missing persons. The direct economic impact reached a loss of 12.08 billion yuan (about 193.3 billion yen). As a result of the heavy rains, water levels at the nearby Yeyuan, Tangshuiya, and Heihushan reservoirs rose drastically. Releasing the water triggered massive flooding in the downstream city of Shouguang, causing homes, crop fields, greenhouses, and pig farms to be inundated with water and resulting in severe damage.

THK Liaoning immediately collected donations for the affected areas, sending the clothes and bedding gathered from around 100 employees to the Shouguang Charity General Association.



Donated relief supplies

Coexisting with Local Communities

In 2012, Vice President Sun at THK Liaoning became a member of the Dalian People's Political Consultative Conference for the Jinzhou New Area, a district under the administration of the city of Dalian. Every year since then, she has brought up proposals reflecting the desires of local citizens. In 2017, she proposed a strengthening of services for the elderly, which aimed to establish community centers where children whose caretakers work can interact with the elderly. This proposal received the Jinzhou New Area's seventh outstanding proposal award and was adopted by the city.

In March 2018, Dalian announced a directive to establish community centers for Dalian's elderly and other residents, and the city plans to continue strengthening its elderly services.



At the conference (in back, on right)

Community Involvement



Mike from TRA CANADA's St. Catharines plant (second from left)

I started practicing karate 25 years ago. I have been active in the Shintani Wado Kai Karate Federation for over 10 years, and I currently instruct around 20 students ranging in age from 7 to 75.

Karate helps you develop respect for others, self-confidence, and self-control.

Through our lessons, you naturally learn how to behave as part of a group. Even when people come to us shy, quiet, and lacking self-confidence, after a year, they grow to the point where they could lead the class. I hope that my students grow in practical ways through karate and become the kind of person who can speak in front of a crowd with confidence.

Sekigahara 2018

The Gifu plant ran a snack stand at the Sekigahara festival held in October 2018, serving mitarashi dango, hot dogs, and soft drinks. The lively two-day festival was blessed with good weather, and around 60,000 visitors attended. The THK snack stand was also very popular, and 17 of our employees spent a busy but rewarding time there. During the festival, our employee parking lot was open to attendees, many of whom took advantage of the parking space. City representatives thanked us for our cooperation.

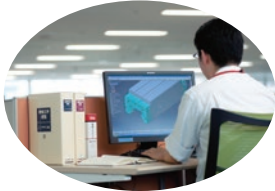
This festival is held every year, and we plan to continue actively supporting it as a means to revitalize the local area.



THK's snack stand

THK Group Business Activity Environmental Impact Overview

INPUT



Product design



Endurance testing



Metal materials



Grinding wheels and coolant



Packaging materials

	2017 ²	2018 ²	Change
Main raw materials (t)	106,838	114,579	+7%
Main indirect materials (t)	3,541	4,105	+16%
Packaging materials (t)	6,164	7,079	+15%

Development

- Development of products with reduced environmental impact
- Components for the renewable energy field

Material Procurement

- Green procurement
- CSR procurement

OUTPUT

E³ Concept
(Endless, Ecological, Economical)



Caged products



Components for vertical-axis wind turbines

	2017 ²	2018 ²	Change
Production volume (t)	81,799	102,801	+26%

	2017 ²	2018 ²	Change
Air emissions of PRTR substances (kg) ⁵	3,044	2,353	-23%

Waste

	2017 ²	2018 ²	Change
Total waste (t)	20,048	21,359	+7%
Recycled (t)	17,628	18,568	+5%
Disposed (t)	1,691*	2,047	+21%

*The value for volume disposed was revised after a recalculation.

Environmental Targets⁴

No.	Item		Results
1	Conserving energy and resources	CO ₂ emissions ratio (t-CO ₂)	Target was 0.70. Result was 0.70. CO ₂ emissions: 100,624 (2017), 106,282 (2018). THK's target for reducing our CO ₂ emissions is defined in terms of CO ₂ emissions per production volume in yen. With the increase in our production, the amount of CO ₂ emissions (absolute emissions) from our 12 production facilities in Japan in 2018 increased 5.6% compared to the previous year. However, we were able to achieve our emissions ratio goal of 0.70.
2	Recycling and reducing waste	Zero emissions rate (%)	Target was less than 0.50. Result was 0.19. (Target achieved.)
3	Green procurement	PRTR substance use (kg)	Target was 70,826. Result was 62,608. (Target achieved.)

No.	Item	Main Initiatives for 2018
1	Conserving energy and resources	1. Conserve energy on existing equipment 2. Improve system for energy use 3. Upgrade air conditioning 4. Replace light fixtures
2	Recycling and reducing waste	1. Sort and recycle waste 2. Reduce material use
3	Green procurement	1. Reduce PRTR substances 2. Review solvents used 3. Reduce frequency of shipments

¹ The overview of our environmental impact and environmental accounting data is based on the following production facilities:
 Twelve production facilities in Japan: Yamagata, Kofu, Gifu, Mie, Yamaguchi, THK NIIGATA, THK INTECHS (Sendai and Mishima), NIPPON SLIDE, and THK RHYTHM (Hamamatsu, Inasa, and Kyushu)
 Eight production facilities outside of Japan: TMA (USA), TME (France), TMI (Ireland), DALIAN THK (China), Wuxi (China), Liaoning (China), Changzhou (China), and TMV (Vietnam)

² Data covers the period from April to March for the 2017 fiscal year and from January to December for the 2018 fiscal year.

³ Data was collected from five production facilities in Japan: Yamagata, Kofu, Gifu, Mie, and Yamaguchi.

⁴ These are the target values for the 12 production facilities in Japan.

⁵ Data was collected from the 12 production facilities in Japan.

Energy Input

	2017 ²	2018 ²	Change
Bunker A fuel oil (kL)	4,912	4,250	-13%
Liquefied natural gas (t)	200	240	+20%
Propane (t)	1,045	1,047	+0.2%
Kerosene (kL)	16	14	-13%
Electricity (MWh)	256,167	275,271	+7%

	2017 ²	2018 ²	Change
Solar power generated (MWh)	152	115	-24%

	2017 ²	2018 ²	Change
Gasoline (kL) ³	67	70	+5%
Diesel (kL) ³	1,724	1,983	+15%

Production

- Energy conservation
- Resource conservation
- Hazardous material management
- Global warming prevention
- Zero emissions

Logistics

- Green logistics
- Streamlining shipping methods
- Low-pollution forklifts
- Packaging material improvements

Air Emissions (Production)

	2017 ²	2018 ²	Change
CO ₂ emissions (t-CO ₂)	175,540	183,598	+5%

	2017 ²	2018 ²	Change
NO _x (Nm ³) ³	3,872	3,189	-18%
SO _x (Nm ³) ³	2,053	2,872	+40%

Air Emissions (Logistics)

	2017 ²	2018 ²	Change
CO ₂ emissions (t-CO ₂) ³	4,665	5,385	+15%



Environmental Accounting¹

(1 million yen/year)

No.	Type	Investment	Cost	Main Activities
1	Business costs	238	291	
	Pollution control	58	90	Monitoring air and water quality, performing maintenance on washing equipment and sewage tanks
	Global environmental conservation	142	108	Installing energy-efficient facility equipment
	Recycling and conserving resources	38	93	Waste disposal, recycling costs
2	Upstream and downstream costs	0	22	Green procurement activities
3	Management activity costs	37	239	ISO activities, reducing energy use, managing chemical substances
4	Research and development costs	253	563	New product development
5	Community activity costs	0	0	Local activities, PR activities
6	Environmental damage costs	0	0	
	Total	528	1,115	

Promoting Environmental Management

Basic Environmental Policy

The THK Group contributes to both society and the economy through our pioneering role as manufacturers of the Linear Motion Guide 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 April 19, 2018

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. We recognize the impact our business activities have on biodiversity, and we will actively work toward the conservation of all life on Earth.
7. 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.
8. 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

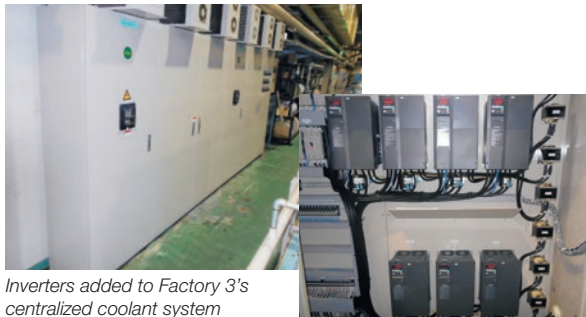
Asia

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

Conserving Energy and Preventing Global Warming

Coolant System Improvements

To consistently supply coolant and optimize energy consumption, the Yamaguchi plant converted the centralized coolant system in Factory 3 to a high-efficiency, energy-saving inverter control unit in December 2018. As a result, the Yamaguchi plant was able to reduce its energy consumption by about 65,500 kWh/year, or about 15.4 kL of crude oil per year. The facility also decreased its CO₂ emissions by approximately 46 tons/year.



Inverters added to Factory 3's centralized coolant system

Air Conditioner Upgrade

To reduce energy consumption, TMA upgraded the HVAC units in the LM Guide plant to eight Carrier high-efficiency units. The new units are capable of controlling air temperature 52% more efficiently and reduce annual energy consumption by 408,000 kWh and CO₂ emissions by 315 tons.



High-efficiency air conditioning unit

Propane Storage Area Improvements

To make better use of propane in the carburization process, improvements were made to the propane storage area at the DALIAN THK plant. They revised the layout of pipes that carry propane to the carburizing furnaces and installed a liquid phase apparatus (vaporizing furnace) to regulate pressure. This has allowed a stable amount of gas to be supplied even in the winter, when the yield was lower, leading to a 1,350 kg/year reduction in propane use and a 4.05 ton/year reduction in CO₂ emissions.



Revised layout of pipes carrying propane to the carburizing furnaces (in yellow)

Vaporizing furnace to regulate pressure

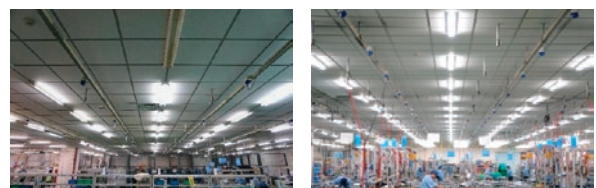
Upgrading to LED Lighting

In order to reduce energy consumption and curb CO₂ emissions, the THK Group manufacturing facilities have been switching from fluorescent and mercury lighting to long-lasting, high-efficiency LED lighting.

The Gifu plant converted 316 metal halide lamps in the factory building and test building, reducing annual energy consumption by 674,652 kWh and CO₂ emissions by 242 tons.

The Kofu plant converted 234 fluorescent lights in the office building, Factory 2, and Factory 3, reducing annual energy consumption by 24,709 kWh and CO₂ emissions by 9.82 tons.

To assure a well-lit production environment, the Wuxi plant converted 878 lights in the factory building and 580 lights in areas such as the assembly room, reducing annual energy consumption by 977,521 kWh and CO₂ emissions by 791 tons.



The Wuxi plant before the upgrade After the upgrade

Conserving Resources and Achieving Zero Emissions

Conserving Resources and Achieving Zero Emissions

The aim of zero emissions is to recycle waste generated during production processes, switch to beneficial materials that can be put to other industrial uses, and get as close to discharging zero waste as possible. We promote zero emissions activities through controlling the use of direct and indirect materials, emissions and final waste, and reusing and recycling.

The waste produced by our business activities includes metal scrap, oil and liquid waste, grinding sludge, packaging, and plastic waste. By thoroughly separating our waste, we reuse or transform waste into usable materials, such as by turning steel scrap into steel-making material, sludge with grinding wheel dust into cement material, and oil and plastic waste into fuel.

As we work to conserve resources and promote zero emissions, we achieved an emissions rate (volume of waste disposed/total discharged) of 0.19% in 2018, once again

reaching our annual target of less than 0.50%.

Waste Recycling Methods

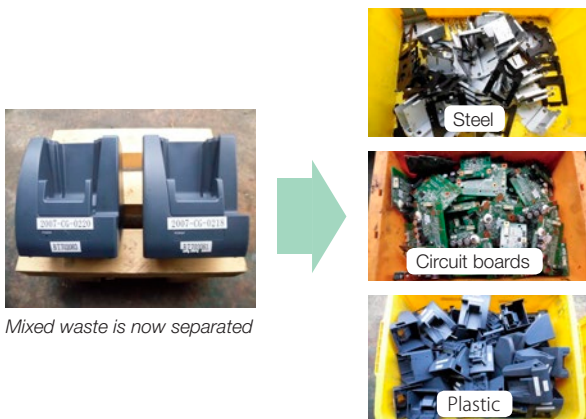
Waste	Material recycling ¹
Grinding sludge	Metal, subbase, cement
Metal scrap	Subbase, grinding wheels
Grinding wheels	Paper, cardboard, fiberboard
Cardboard	Glass
	Plastic
	Water
Waste	Thermal recycling ²
Plastic	Combustion aid, regenerated fuel
Waste oil	
Used paper, cloth, wood chips	

¹ Material recycling: Reusing waste as raw material for another product

² Thermal recycling: Using waste as combustion material

Sorting and Recycling Office Automation Waste

In October 2018, the Kofu plant began sorting the waste generated from office automation by taking apart old printers, ink cartridges, control panels, and PCs that cannot be repaired and separating the circuit boards, steel, and plastic components from its mixed waste (which includes steel, plastics, vinyl, and glass) whenever possible. The sorted steel and circuit boards are used as recycled materials.



Reduced Use of Dust-Proofing Plastic Bags

The THK RHYTHM MALAYSIA facility manufactures automotive steering and suspension components. They have been wrapping components in plastic bags to prevent dust adhering to the parts as they are put in containers and transferred between the machining and assembly processes. As part of their efforts to reduce their plastic bag use, this facility began putting parts directly into containers and then covering stacks of those containers with plastic. As a result, they reduced their use of plastic bags by 82% compared to the previous year.

Plastic bags used: 254,547 (in 2017)
44,643 (in 2018)
Plastic bags eliminated: 209,904 (82% reduction)



Managing Hazardous Materials and Green Distribution

PRTR Substance Use

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. In 2018, the reduction in heavy oil use resulting from HVAC heating system upgrades led to an approximate 14% reduction of 10,409 kg compared to the previous fiscal year, from 73,017 kg to 62,608 kg.

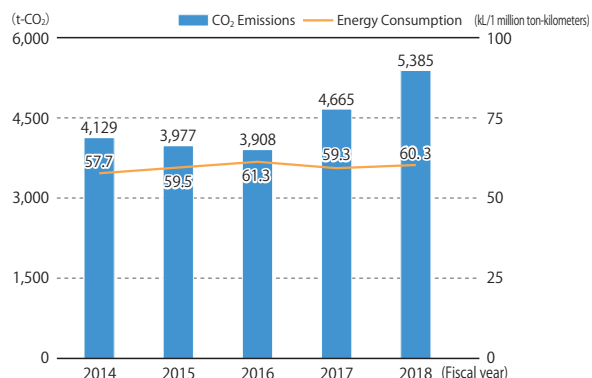
* PRTR Law: Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management

Substance	Amount	Air Emissions
Xylene	2,563	229
Toluene	4,741	1,930
Ethylbenzene	742	74
Benzene	193	8
Methylnaphthalene	48,566	112
Other	5,803	—
Total	62,608	2,353

Reducing Our CO₂ from Transportation

Our CO₂ emissions from transporting products and components rose from 4,665 tons of CO₂ last year to 5,385 tons, an increase of 720 tons (about 15%). Because of our increased production and higher ratio of trucks used for transit, our energy consumption (ratio of energy use to freight transport in ton-kilometers) increased by about 1.7%, from 59.3 last year to 60.3.

CO₂ Emissions and Energy Consumption from Transportation



The data collection period was from April to March for the 2014 to 2017 fiscal years and from January to December for the 2018 fiscal year.

Changing the Cleaning Solution

The Gifu plant changed the cleaning solution it uses when washing the steel balls that go in the LM Guide used for automotive components. By switching to a non-PRTR substance, they reduced their annual use of PRTR substances by around 49.5 kg.

Reducing Waste Collection Frequency

The TRA CZECH facility installed a trash compactor to reduce the volume of waste and thereby decrease the frequency of collection. As a result of reducing the frequency of its landfill waste collection from twice to once a month, this facility decreased the waste truck's travel distance by around 6,000 km/year and its fuel consumption by around 240,000 L/year.

More Efficient Container Transport

As part of its efforts to reduce its impact on the environment, THK China has worked to consolidate shipping trucks and improve shipping efficiency. The products sent by ship every week from Japan for customers in China are unloaded from the boat and loaded onto trucks at the Port of Dalian. Previously, the contents of unloaded containers would be transferred to trucks used for ground transportation and sent to the distribution center. As of June 2018, the entire container itself is now loaded onto the bed of a truck and transported to the distribution center. As a result of this improvement, they were able to reduce the average number of trucks used per month from 15.2 to 4.9, lowering annual CO₂ emissions by around 32%. They will continue to promote activities aimed at greater transportation efficiency.



Truck delivering shipping container to the distribution center

Third Party Opinion

The following is a third party's opinion of THK's CSR Report 2019, its 13th edition.

The importance of non-financial information

Efforts at building a sustainable world have picked up significant momentum, with the SDGs adopted at a UN summit in September 2015 and the Paris Agreement in December of that year. Interest in ESG investment has risen in Japan, with GPIF (Government Pension Investment Fund) signing the PRI (Principles for Responsible Investment) in September 2015. As a result, we are transitioning from an era where investors evaluate companies solely on their financial value, such as sales and profits, to an era where they look at non-financial value, evaluating how companies are engaging with environmental and social challenges as a lens to determine whether they can expect to see long-term, stable growth.

Accordingly, even this report states in the introduction's CSR Policy: "We endeavor to improve our long-term corporate value," and the Message from the CEO says, "Our products will greatly contribute to the achievement of the SDGs." In particular, I want to praise the fact that the material aspects of CSR are clearly organized alongside the SDG icons in the "THK's Stance on the Relationship Between Social Challenges and CSR" two-page spread in an aim to increase THK's long-term corporate value and create an affluent society through its business activities. These material aspects of CSR also serve as guideposts for the entire report, appearing in the discussion of THK's approach on the following pages and throughout the report. Consolidated net sales and other metrics are set as KPIs (key performance indicators) in terms of financial value, but I recommend viewing the material aspects of CSR, which fall under non-financial value, as KPIs, establishing medium- to long-term goals (which could be qualitative targets) for those they can, and using the PDCA cycle to pursue them.

A supply chain perspective

In "Together with Our Suppliers," the stages of THK's supply chain are listed as design, purchasing/procurement, production, distribution, and sales. Going forward, I believe it would be effective to further develop this arrangement and consider contents for the CSR Report from a perspective focused on the supply chain. For example, by coming up with business risks and opportunities that may impact THK and applying (or connecting) them to future material aspects of CSR as appropriate.

Stakeholders featured in the report

The "How THK Connects with Stakeholders" section at the beginning of the report provides an overall understanding of THK's various stakeholders. A total of six customer organizations appear in the "Special Features" and "In Our Customers' Words" sections, providing an objective perspective on how much THK's high-quality products have helped solve environmental and social challenges. The report also features comments and reflections from employees who have received awards from external organizations, students and teachers who participated in THK's school visits, and the recipients and THK employee in charge of the Science Castle Grant THK Prize. The fact that so many stakeholders are represented is commendable, but the trend seems to lean toward customers. Although there are page limitations, in the future, consider tying the material aspects of CSR into the structure of the CSR Report by introducing a series of voices from several different stakeholders other than customers (for example, the engineers who developed products using THK's core technology, female employees, and suppliers and business partners).



Representative, Sustainability Consulting
Part-Time Teacher, Seikei University

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Profile: Born in 1957. Graduated from the Department of Engineering at Tohoku University and joined Mitsubishi Materials Corporation in 1982. After working at MS&AD InterRisk Research & Consulting, Inc., has held current position since April 2018.
Public office held: Member of the 6th through the 22nd Environmental Communication Award Working Group (2002–2018) held by the Ministry of the Environment.
Publications: *Evolutional Strategy on Environmental Risk for Financial Institutions* (coauthor, Kinzai Institute for Financial Affairs, Inc.), *Practical Guidance on SDGs for Corporate Environmental Staff* (coauthor, Nikkan Kogyo), and many more.



Editor's Note

In this report, we analyze THK's relationship with CSR in its efforts to solve social challenges. In addition, we consider the role our company plays in achieving the SDGs. 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 use the attached survey to send us your honest thoughts and opinions.

URL:
www.thk.com/eng/csr/a2019

Use this QR code to access the questionnaire from your smartphone or tablet.



CSR Project Office

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