

# TOWA CORPORATION

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<https://www.towajapan.co.jp/en/>



# To the top of the world with change

TOWA has developed cutting-edge technologies based on its world-leading ultra-precision mold technologies in the semiconductor sector, which requires constant technological innovation, and has worked together as a technical partner with its customers.

Our relentless challenge for manufacturing has remained unchanged since the time of our founding.

We will continue to expand the desire to take on this challenge from Kyoto to the world.

TOWA will continue to make innovations that will create the future

of semiconductors in the field of "the next generation,"

with a quarter lead or looking one quarter step ahead of customer needs

and bring about richer life for people around the world.

## Greeting



President & CEO  
**Hirokazu Okada**

We would like to express our sincere gratitude for your continuous support and cooperation.

TOWA is the world's No. 1 manufacturer of semiconductor molding equipment and molds, which are used in semiconductor manufacturing to protect semiconductor chips mainly with resin.

We, as a top tier ultra-precision mold company with core technology, have accomplished various technology innovations in molding process, such as multi-plunger system and compression system, and singulation process -back end molding process. Also, we have developed automation system related to these technologies.

Expanding technologies such as AI (Artificial Intelligence), EV(Electric Vehicle) and automatic driving system are all realized by semiconductors. Big growth in these business fields is expected to continue.

For many years we have led molding and singulation process in semiconductor packaging field.

This success is wholly based on seeking what our customers really need thoroughly, putting our business philosophy "Strive to develop key technologies and maintain 'quarter-lead' over the competition in order to ensure that our innovative products are always the first to market" into practice and creating new market.

We will continue to provide products and services that allow our customers to experience high added value. At the same time, we will strive to improve our corporate value and enhance the satisfaction of our shareholders and other stakeholders by proactively addressing the SDGs and ESG. We look forward to the continuing support of our shareholders and investors.

## Corporate Mission

Our corporate mission is to contribute to the growth of the world's industries by developing and providing key enabling technologies for each successive generation of products. Simultaneously, TOWA strives to maintain a "quarter-lead" over the competition to ensure that our innovative products are always the first to market.

## Company information

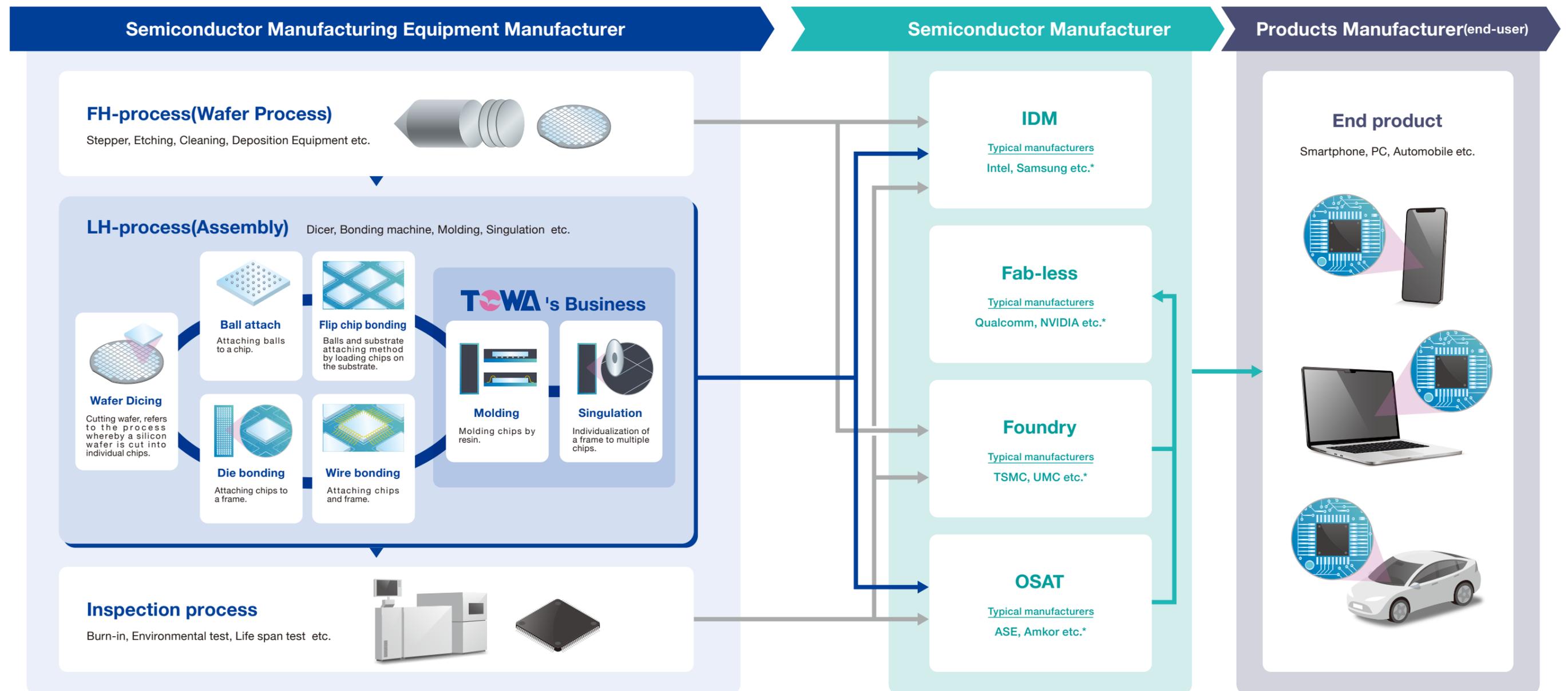
Company name	TOWA CORPORATION	<b>■ Headquarters/Factory</b> 5 Kamichoshi-cho, Kamitoba, Minami-ku, Kyoto-shi, Kyoto 601-8105 Japan TEL (+81)75-692-0250 FAX (+81)75-692-0270
Established	April 17, 1979	<b>■ Kyoto East Plant</b> Ujitawara Industrial Park, 1-35 Ujitawara-cho, Tsuzuki-gun, Kyoto 610-0231 Japan TEL (+81)774-88-5071 FAX (+81)774-88-5330
President & CEO	Hirokazu Okada	<b>■ Kyushu Work</b> 7-27 Yayoigaoka, Tosu-shi, Saga 841-0005 Japan TEL (+81)942-81-1601 FAX (+81)942-81-1605
Business description	• Development, manufacture, and sales of semiconductor manufacturing equipment and high-precision molds • Sales of molded fine plastic products • Sales of Laser Processing machines	<b>■ Nagano Sales Office</b> 8F Naganocentral Building, 2-12-1 Minamichitose, Nagano-shi, Nagano 380-0823 Japan
Paid-in capital	8,942,950,207yen(as of March 31, 2023)	
Number of shares issued	25,033,238(as of March 31, 2023)	
Number of employees	TOWA Corporation: 597 TOWA Group(consolidated): 1,876 (as of March 31, 2023)	

# TOWA's Business

The manufacture of semiconductors involves both front-end and back-end processes, and TOWA is a manufacturer of equipment used in the back-end process.

The back-end process includes lining up the semiconductor chips on a substrate, connecting the gold wires, covering the chips with resin to protect them, cutting them into pieces, and testing their operation. The process of covering (sealing) chips with resin is called molding and the process of cutting is called singulation, and we at TOWA have been thoroughly pursuing the performance of these devices.

## Semiconductor Manufacturing Process



\*The figure above shows the current state of semiconductor manufacturers and does not indicate whether or not there are transactions between our company and each of these manufacturers.

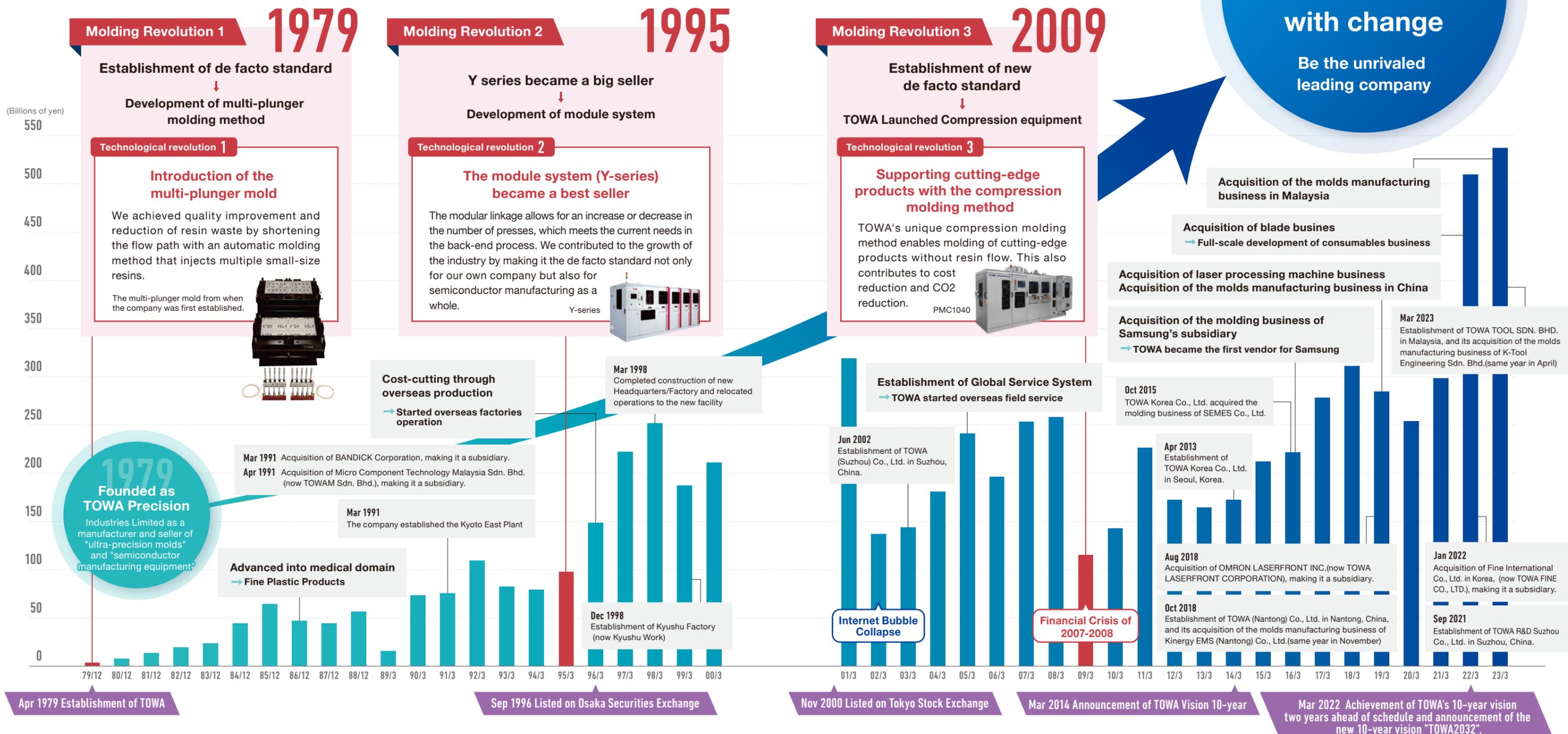
# TOWA Group's History

## Creating the industry's de facto standard and becoming a leading semiconductor equipment company

TOWA has continued to walk hand in hand with the semiconductor industry during its period of rapid growth. Our history is one of technological revolutions, and since our founding in 1979, we have continued to grow through epoch-making technological revolutions. The development of the multi-plunger marked the beginning of this trend. Since then, we have always been at the forefront of this industry, creating new technologies and products.

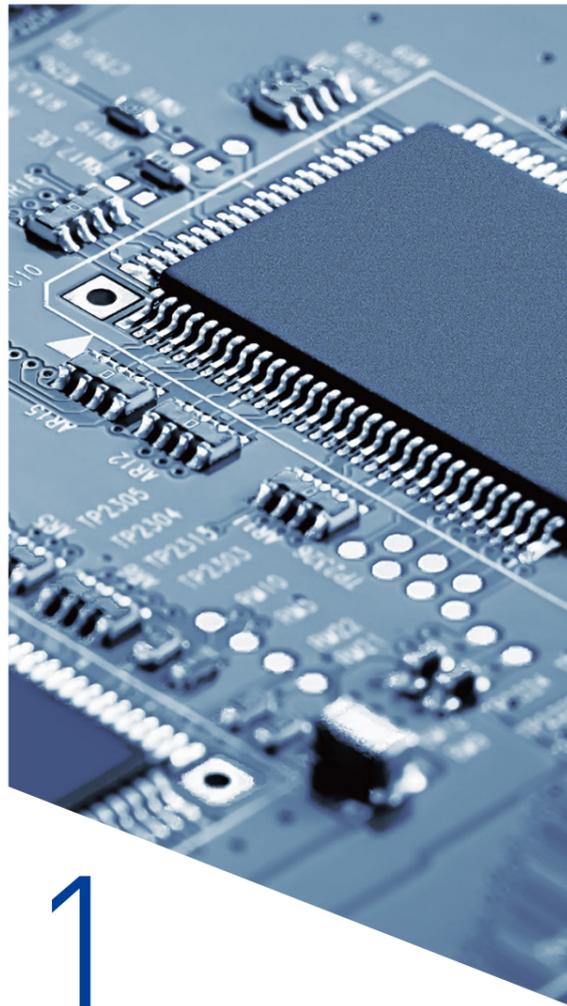


**2032**  
To the top of the world with change  
Be the unrivaled leading company



# OUR BUSINESS

TOWA's four businesses



1

## Semiconductor business

[P.09](#)

This is the core business of our group. We manufacture molding equipment that encapsulates semiconductors with resin to protect chips and wires, molds, and singulation equipment for dicing.



2

## New business

[P.13](#)

We provide total support services including the sale of tools based on our core technologies cultivated in manufacturing process of ultra-precision molds, contract processing business, parts supply, repairs, modifications, and value-added proposals.

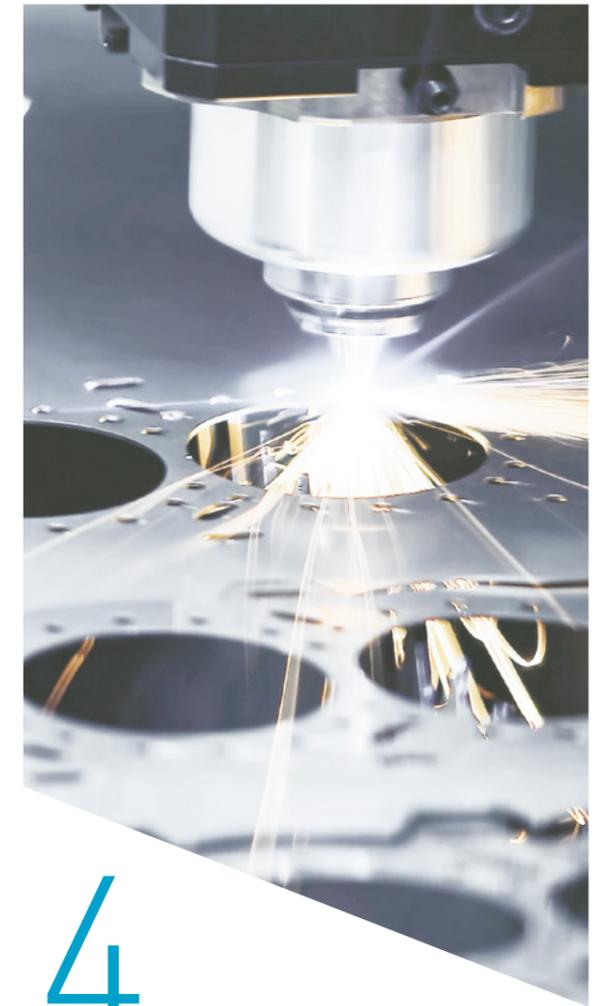


3

## Fine Plastic business

[P.15](#)

We utilize the ultra-precision microfabrication technology we have cultivated in mold manufacturing to perform integrated molding and assembly of plastic products. We are mainly engaged in the manufacture of medical equipment.



4

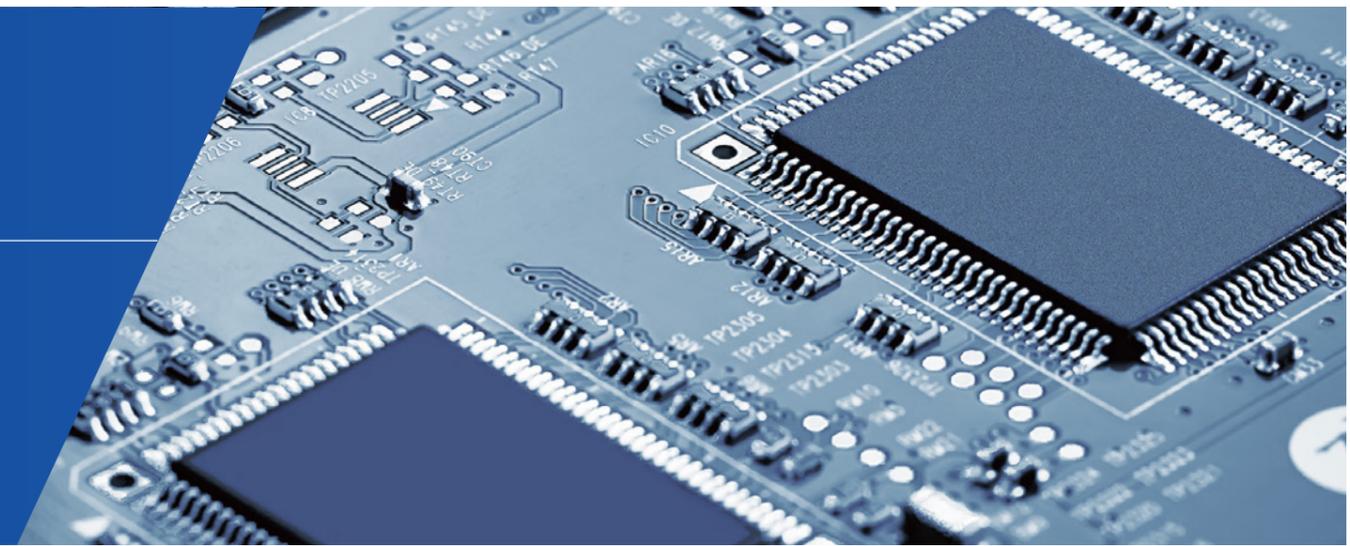
## Laser Processing business

[P.16](#)

We manufacture laser trimming equipment to adjust resistance values and wafer marking equipment to mark control numbers on wafers.

# 1 Semiconductor business

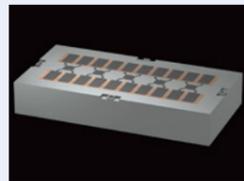
At TOWA, in order to protect semiconductor chips, we manufacture two types of equipment, including the conventional "transfer molding equipment" in which thermosetting resin is supplied around the chip through a gate (supply port) and then hardened, and our original "compression molding equipment" in which thermosetting resin supplied in granule form is preheated and melted on a metal mold, immersing semiconductor chips in the resin and then hardening the resin. We also manufacture singulation equipment that dices molded products into individual pieces.



## Molding equipment

### Transfer method

This molding method has been conventionally used for resin sealing of electronic components such as semiconductors and is a resin sealing method in which the resin is melted in a pot and filled into a cavity to be hardened.



### Transfer molds

Precision molds for semiconductor manufacturing

Our multi-plunger transfer molds meet customer requirements for complex, high-precision packages with our unique ultra-precision machining technology.



### Transfer molding equipment

The YPM-series, which is our representative transfer equipment, is the world's most advanced transfer molding equipment, and is available in a variety of models.



### Compression molding method

The compression method is a resin sealing method in which liquid or granulated resin is placed directly into the cavity, and then the workpiece is immersed into the cavity after the resin is melted for resin molding.



### Compression molds

Precision molds for semiconductor manufacturing

The compression molds manufactured by our ultra-precision machining technology provide high-precision, high-quality products with minimal damage even when molding low-k materials, fine wires, and large substrates and wafers.

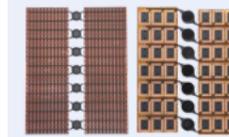


### Compression molding equipment

We offer the PMC series for high-quality molding by compression method and the CPM series for larger wafer and panel size molding.



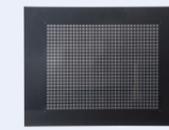
## Molded products



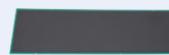
Lead Flame



Molding for sensors



PLP



BGA



WLP

## Final products



EV



Industrial machinery



PC



Smart Phone



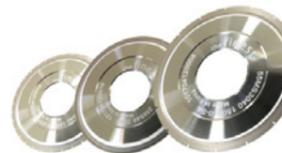
Data center

## Singulation equipment

We provide a lineup of singulation equipment that dices and stores products molded by transfer or compression methods. Our proprietary dicers for cutting products and handlers for storing diced products are high-throughput devices that help our customers improve their productivity.

### Blade for Singulation equipment

Blades for singulation equipment developed and manufactured by our consolidated subsidiary TOWA FINE CO., LTD.

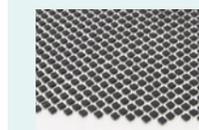


### Singulation equipment

By combining our cutting technology with high-speed handling and image analysis technologies, we developed the FMS series, which dice the products with high quality.



## Products



Cut samples

# 1 Semiconductor business

Ever since we pioneered the development of fully automated semiconductor resin sealing equipment with multi-plungers and established the industry standard, we have continued to be a leading company in the semiconductor molding market.

In addition to the transfer method, which boasts a proven track record over many years, we offer a molding process that anticipates market needs with our newly developed compression method as the most advanced sealing technology.

In the singulation process, we combine the cutting technology we have developed over the years with high-speed handling and image analysis technologies to provide equipment that dices the products with high quality.



## Manufacturing

### Stable supply

- ▶ Expand products that can be produced at each site (BCP response and increased production capacity)
- ▶ Promotion of MIP projects
- ▶ Global procurement system
- ▶ Replacement of parts with long delivery times (design change to alternative parts)

### Improved production efficiency

- ▶ Transition to smart factories
- ▶ Standardization of equipment specifications (multiple special specifications to standard specifications)
- ▶ Promotion of parts produced in-house
- ▶ Stable production support at customer plants

## Productivity improvement through global production and optimization of purchasing system

In order to realize stable production and supply, we are promoting MIP (Minimal Inventory & Period) projects to shorten lead time and reduce inventory.

For parts that are difficult to obtain in Japan, TOWA secures the necessary quantity by procuring them through our global network, replacing them with alternative parts, and considering switching to our own products (in-house production).

In addition, by expanding the range of products that can be manufactured at our plants in Japan, Malaysia, China, and South Korea, we built a system that will not stop supplying products to customers even in the event of a shutdown at one of these bases.

## MIP Project

(Minimal Inventory & Period)

Shorten lead times

Inventory optimization  
(Review of production system)

Prior production  
make-to-order

## Increased reliability of quality through improved production technology

In addition to introducing state-of-the-art machinery and other equipment, we will continue to promote smart factories in our mold and die factories, such as automated conveyors, in order to maximize throughput and strengthen our market competitiveness and financial base through the use of DX.



## Sales

In order to contribute to our customers' value creation, we always grasp our customers' needs and market trends, and propose optimal process solutions accurately and promptly. Our sales offices around the world work closely with production sites and laboratories in each region, leveraging our expertise in various technologies and equipment and our strengths to build customer trust in the global field.



## Research & Development

### Molding press for next-generation packaging

Conventionally, the purpose of the molding process was to protect the semiconductor chips, but with the diversification of packaging technologies in recent years, the process has evolved into a high-value-added process that plays a variety of roles. The demand for molding processes is increasing in various fields such as wafer level molding, panel molding in achieving large surface area and thinning, high voltage resistance and high heat dissipation for power modules, and so on. We are constantly working on research and development of new molding dies and equipment to meet these next-generation packaging requirements.



Molding press and molds for next-generation semiconductor package

All molds and equipment are developed in-house, and with internal manufacturing know-how accumulated over many years in the development of molding presses, one of our core technologies, we have established a system that enables us to constantly disseminate industry-leading quarter-lead technology. In addition to the development of compact, lightweight, and high-precision press structures, we also conduct research and development aimed at high productivity in all aspects of the process, including high vacuum forming, multi-axis mold driving, film-assisted forming, and high-precision control.

### Singulation technology that combines accuracy and productivity

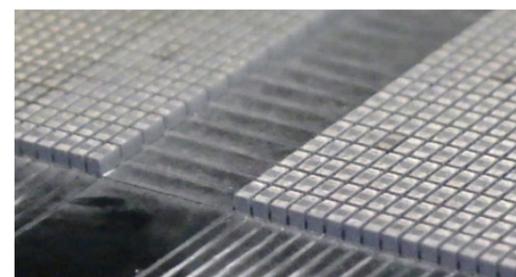
As the development of high-density and special-shaped packages accelerates, the conventional equipment configuration is reaching its limits for stable operation, so we strive to develop processes such as the development of laser cutting technology instead of blade cutting alone and conduct research and development of optional equipment functions. We are also striving to develop energy conservation as a countermeasure against global warming, as well as research and development of functions aimed at saving labor in line with the decrease in the working population.

For dicing blades, which are consumable goods, we are conducting research and development to improve cutting quality and to extend service life, and to commercialize blades with special specifications for substrates, metal frames, and ceramics.

While total visual inspections are conducted in the equipment, we are also developing inspection technology for micro-defects using 2D and 3D image processing technology, as well as technology that can set inspection conditions that reduce individual differences, generate statistical conditions, and analyze processing data implementation time.



Blade for singulation equipment designed by TOWA FINE



High-precision dicing technology for small packages

# 2 New business

We are developing our TSS business, which offers total solutions, including sales of our proprietary end mills (tools) that support our ultra-precision machining technology for dies and molds, contract processing business that applies our ultra-precision machining and coating technologies, after-sales service, modification and repair of our semiconductor manufacturing equipment, and sales of used equipment.

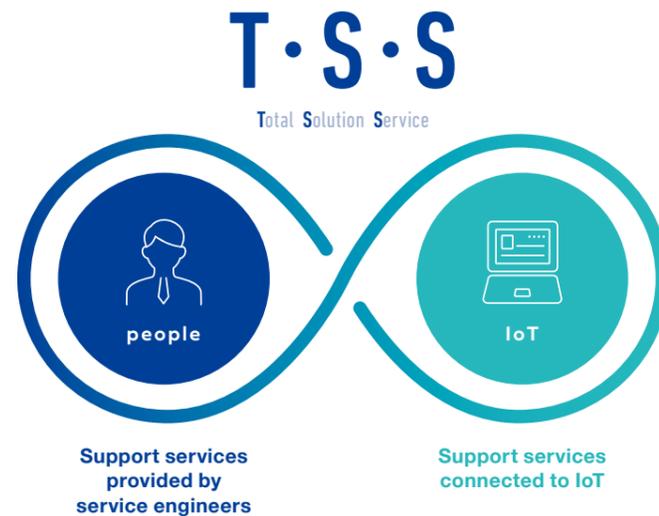


## TSS Business (Total Solution Service)

We offer total solutions from after-sales service, modification and repair of our semiconductor manufacturing equipment to sales of used equipment.

In addition to providing support services by service engineers, maintenance parts, and others, we also realize various services utilizing IoT (Internet of things). For example, by implementing remote monitoring, it will enable routine maintenance as well as advance identification of failures and dispatch of service engineers in the event of any problems.

Furthermore, it is possible for our service engineers to make suggestions for improving productivity based on the operating status. By combining our experience with new technologies, TOWA contributes to the development of our customers' businesses.



## Core technology system

### Tooling business

We sell high precision and durable tools born from the technology we have cultivated in ultra-precision mold manufacturing.

We provide special-order tools to meet customers' needs with short delivery times, and we also offer a recycling service that resharpen used tools to bring them back to the same sharpness as new.



#### CBN End Mill Series

We offer tools suitable for machining high-hardness materials.

#### Carbide End Mill Series

We also offer tools suitable for machining a wide variety of work materials.

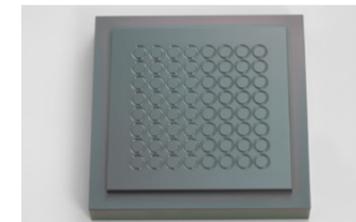
### Coating business

We are developing our original coating technology and applying it to various fields. Our proprietary ceramic coating, BANCERA®, dramatically improves mold release, antifouling, and durability, and can be used to improve product quality and productivity.

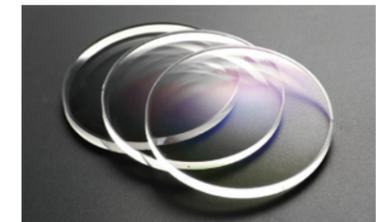
In addition to molds, our products are used in a wide range of fields, including molding tableting punches for pharmaceuticals and other products, machine sliding parts, glass products, and resin products.



Semiconductor plastic encapsulation Mold



rubber forming mold



optical-related product

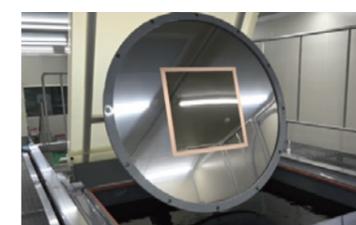
### Nano tech business

Our microfabrication technology and EF technology (precision electroforming technology) are used in fields that require nano-order processing. Our proprietary EF technology allows us to duplicate electroformed molds with high transfer rates from fine pattern masters made of various materials.

These technologies are utilized in molds for optical products such as aspherical lenses and free-form lenses, which require precise shape accuracy and ultra-mirror surfaces, and in molds for medical products such as microfluidic devices.



Nano control  
Free-form lens processing



Large precision electroforming with Japan's  
largest diameter up to 1,000mm



Floating image technology with high-precision  
optics

### Contracting business

We are developing a contracting business that applies the mold production and coating technologies we have cultivated through the manufacture of ultra-precision molds for semiconductor manufacturing.

We meet our customers' needs from prototyping to mass production of various molds and parts by making full use of various processing technologies, our own factory capable of continuous unmanned operation, and our domestic and overseas manufacturing network.

# 3 Fine Plastic business

Bandick Corporation, a group company established in 1983 to specialize in the chemical products sector, is engaged in the injection molding and assembly of medical device parts.



Official website



## Key products

Medical devices make up the core of the chemical products business, with the main lineup being fine plastic molded products for medical use, such as medical syringes, intravenous drip components, and examination kits.

Our original ultra-precision and microfabrication technologies enable high-precision mass-production molding, and our core technology of "injection molding to assembly" in clean room facilities is characterized by one-stop production from inspection to shipping.



## Manufacturing system

### ONE STOP SERVICE system

Utilizing our group's core ultra-precision mold technology, we have established an integrated one-stop service system from design support for molded products to molding, assembly, inspection, and shipping, including mold design and fabrication.

In addition, since molding and assembly can be completed in a clean room without coming into contact with the general environment, we can provide high-quality products with short delivery times.



### Stable, high-quality molding in clean room facilities

Registered as a specially controlled medical device Class IV\* manufacturing facility and ISO13485 certified, we maintain a strict quality assurance system and are committed to producing high quality products. In addition, we meet the precision and quality requirements of our customers for molded products while ensuring safety and stable molding in an efficient cycle.

\*Specially controlled medical device Class IV... Highly invasive to the patient, and if defective, may directly endanger human life.



# 4 Laser Processing business

Our group company, TOWA Laserfront Corporation, develops and provides laser processing equipment to meet all kinds of processing needs related to lasers.



Official website



## Key products

Laser processing equipment is comprised of various composite technologies with laser technology at its core.

Based on technology accumulated over many years, our main lineup includes laser trimmers, wafer markers, laser welders, and laser microfabrication equipment, and we realize various laser processes with high quality using laser technology that achieves high stability, high energy density, and high-speed control.



**Laser Trimmer**  
0603(mm) chip resistor Comparison with mechanical pencil lead

**Wafer Marker**  
Soft marking on SiC wafer

**Laser Fine Processing Machine**  
Polyamideimide Lattice cutting

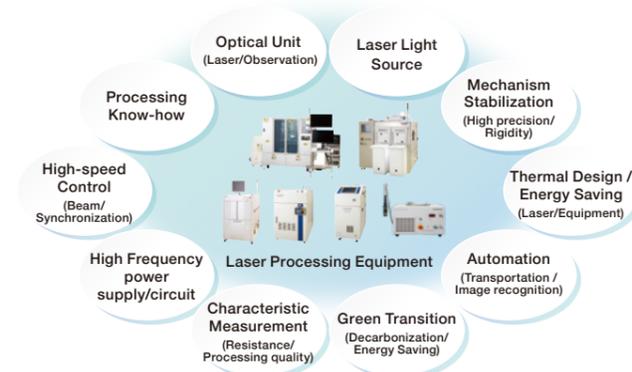
## Development and Manufacturing system

Laser processing is used in a wide range of fields that form the basis of a rich society, including electronics, automobiles, and semiconductors, as an innovative technology that not only increases productivity but also expands future possibilities in terms of quality, safety, and the environment.

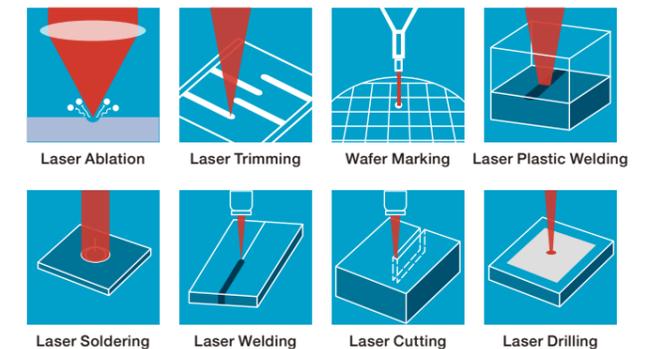
In order to realize the value improvement of product performance, productivity, and yield for customers in various industries through laser technology, we are pioneering the development of processing processes and oscillators in-house, as well as the development of systems that contribute to customers' manufacturing processes.

TOWA Laserfront is aiming at a new market by integrating the back-end process technology of semiconductor manufacturing based on the accumulated fundamental technology.

### TOWA Laserfront - Technical Characteristics



### Laser Processing Solution

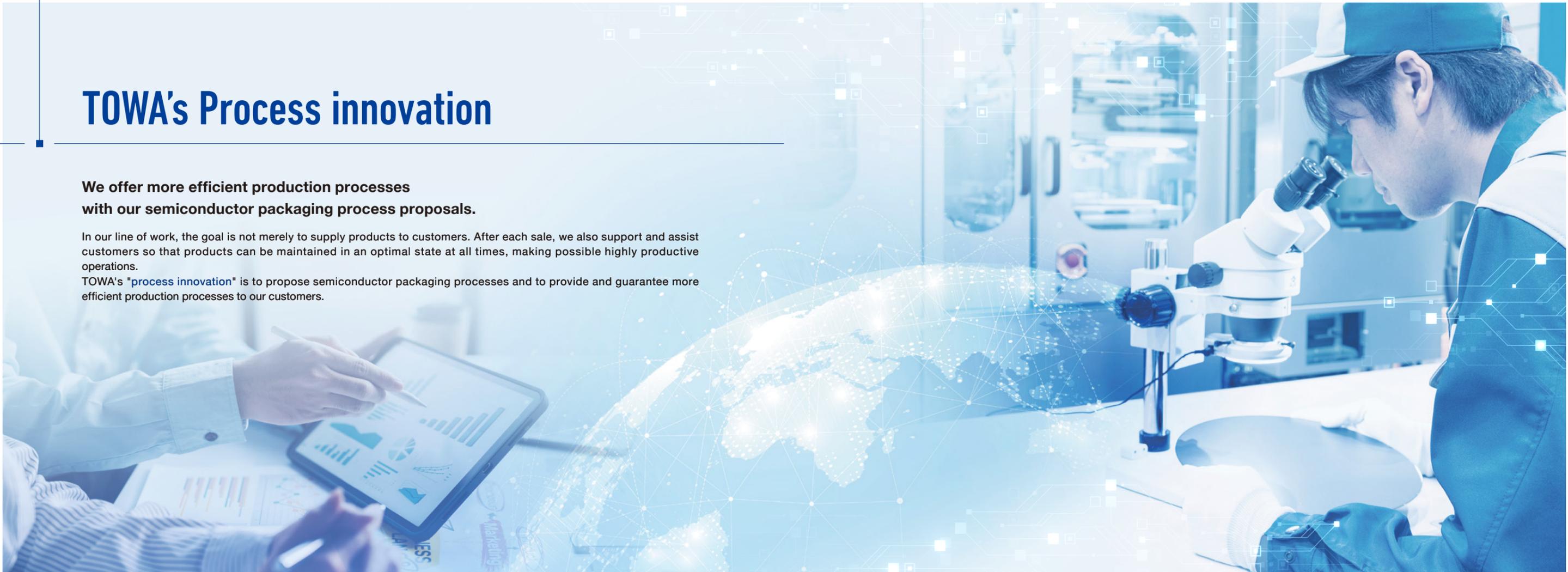


# TOWA's Process innovation

**We offer more efficient production processes with our semiconductor packaging process proposals.**

In our line of work, the goal is not merely to supply products to customers. After each sale, we also support and assist customers so that products can be maintained in an optimal state at all times, making possible highly productive operations.

TOWA's "process innovation" is to propose semiconductor packaging processes and to provide and guarantee more efficient production processes to our customers.



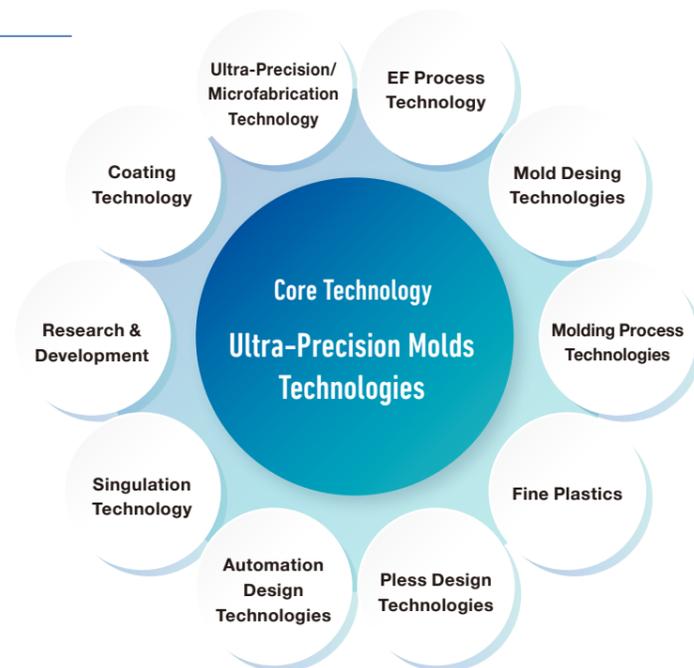
## Our Three Features

### 1 – Our commitment to technologies

TOWA is working on a wide range of themes with a view to practical application, centered on its ultra-precision mold technology, which continues to lead the world in the semiconductor field.

We acquired the ISO certification, an international standard for quality assurance, for both quality and environment in order to develop quality assurance activities at an international technical level in response to globalization.

We strive to improve quality every day so that we can deliver products of the highest quality to our customers.



### 2 – Support and Service

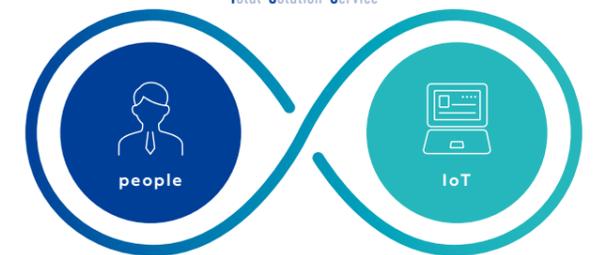
TOWA's unique support service TSS (Total Solution Service), which combines service engineers and IoT, is offered to provide comprehensive support for customers' production environments.

We have laboratory functions with state-of-the-art equipment to support prototyping and evaluation from the customer's development stage. Based on the data we have accumulated, we provide consistent support for improving operation rates, analysis, and proposals for improvement.

We are working to further enhance TOWA's presence in the industry by building strong relationships with our customers through flexible, high-quality support services.

### T·S·S

Total Solution Service



Support services provided by service engineers

Support services connected to IoT

### 3 – Global expansions

In order to provide better services, TOWA is expanding its development, production, and sales bases globally.

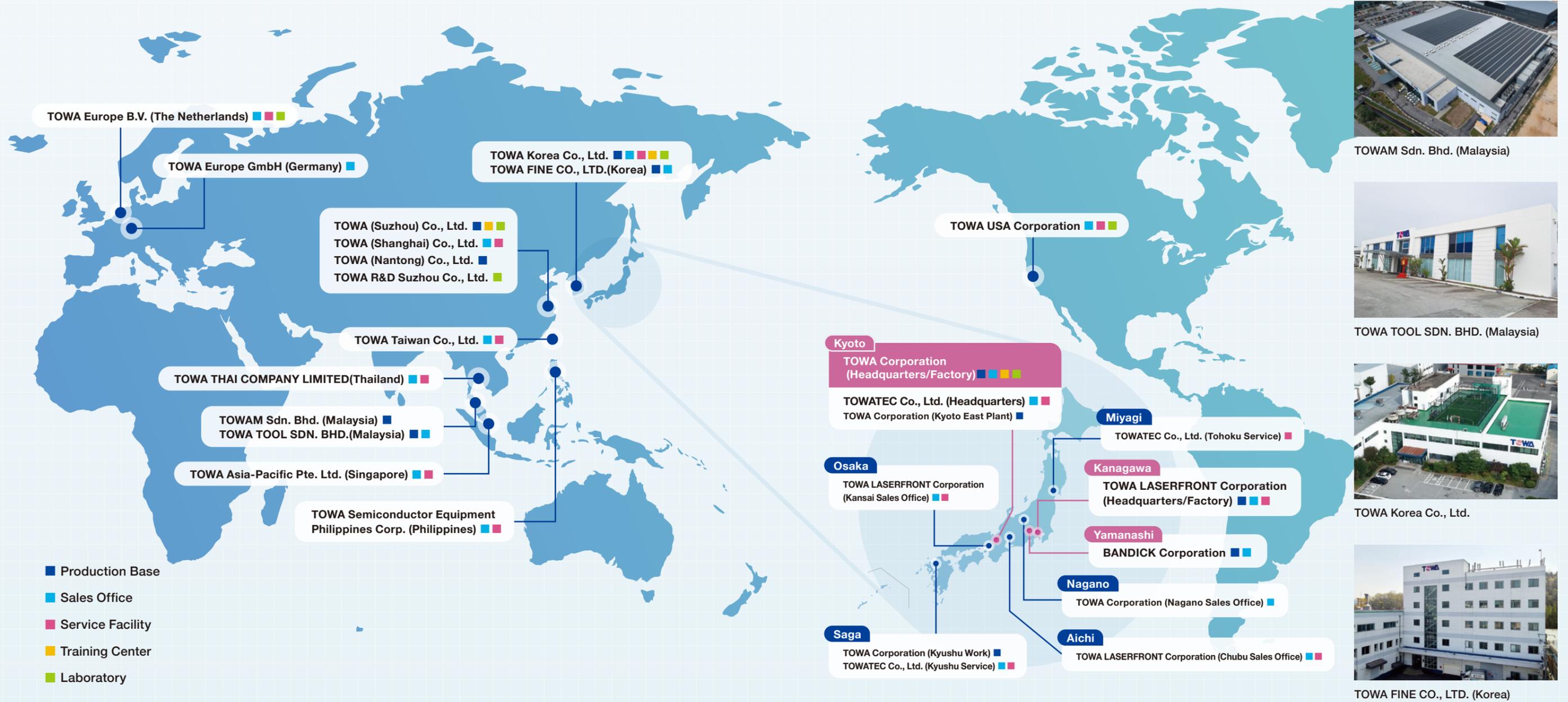
We respond quickly to diverse needs that change on a daily basis and have built a reliable support system even in situations where movement between regions is difficult.



# Network Base

## Always by our customers' side

To increase responsiveness to customer needs and improve customer satisfaction, we have developed sales and production bases in key semiconductor production regions. We are fully prepared to respond promptly and appropriately to all customer requests.



TOWAM Sdn. Bhd. (Malaysia)



TOWA TOOL SDN. BHD. (Malaysia)



TOWA Korea Co., Ltd.



TOWA FINE CO., LTD. (Korea)



TOWA Corporation (Headquarters/Factory) Kyoto



TOWA Corporation (Kyoto East Plant)



TOWA Corporation (Kyushu Work)



TOWA (Suzhou) Co., Ltd.



TOWA (Nantong) Co., Ltd.



BANDICK Corporation (Yamanashi)

# Sustainability

## Our Basic Policy for Sustainability

To enhance our corporate value and realize sustainable society, we (TOWA Group) contribute to the development of industries through our management philosophy "Quarter Lead" and our Corporate Mission, Code of Conduct and Environmental Policy, and we also build firm relationships of trust with all of our stakeholders including customers, shareholders, investors, suppliers, employees and their families, and communities.

TOWA shall focus on the following seven goals of the 17 Sustainable Development Goals identified by the United Nations, particularly those with relevance to our business.



## TOWA Group's Environmental Initiatives

### Fundamental Policy

At TOWA Group, to contribute to the achievement of a sustainable, recycling-oriented society, we have established the Environment Management System at each plant and office and make effort to minimize the environmental impact of our business activities.

We also strive to improve the environmental performance of our products by designing and developing them with a focus on the reduction of the environmental impact as the primary goal.

### TOPIC

#### Climate Change measures Initiatives for CO2 Reduction

We are fully aware that reducing greenhouse gas emissions, which cause climate change, is an important issue. We set CO2 emission reduction targets and will work on Carbon Neutrality throughout the Group.

#### CO2 emission reduction targets

In FY2030, we will reduce CO2 emissions (Scope1+2) from our group by 42% from FY2020.

We aim to achieve net-zero emissions (Carbon Neutrality) by 2050.

Scope1: Direct greenhouse gas emissions from our group  
Scope2: Indirect emissions from the use of electricity, heat and steam supplied by other companies

This target is set with reference to the concept(1.5°C level) of SBT(greenhouse gas emission reduction targets that consist with the level required by the Paris Agreement set by companies with a target year of 5 to 15 years ahead).



Kyoto East Plant

## TOWA Group's Social Initiatives

### Fundamental Policy

We promote work styles that respect diverse personalities, not only to improve quality and safety and security in manufacturing and product development, but also to pursue the health and happiness of all employees and their families. In addition, we will fulfill our social responsibility to improve the safety, health, and vitality of the community based on the SDGs concept.

### TOPIC

#### TOWA HEALTH DECLARATION

TOWA is committed to maintaining and improving the health of all employees based on the belief that when people are healthy, full of energy, both physically and mentally, and the company's business will flourish.

We promote the creation of a workplace full of smiles and rich in spirit and aim to create wellbeing for employees and their families as well as brighter society.



#### TOWA club activities and various company events

Many employees participate in athletic and cultural club activities started by employees. We also subsidize a portion of the activity expenses to reduce the burden on individuals and to support their activities. We also hold other events in which employees' families can participate.

#### Implementation of stress checks

To prevent mental health problems before they occur, we provide mental health education through e-learning and conduct stress checks as stipulated by the Industrial Safety and Health Act.

#### Health Management Promotion Committee meetings

The Health and Safety Committee holds a "Health Management Promotion Committee" meeting every three months to ensure that the physical and mental health of employees is taken care of.

#### Implementation of lifestyle-related disease prevention medical checkups

Regular checkups for prevention of lifestyle-related diseases (half-day physical examinations) are offered to regular and contract employees over the age of 40 who wish to receive such checkups.

## TOWA Group's Corporate Governance

### For a Higher Level of Corporate Governance

We practice management in line with the corporate governance code (principles and guidelines provided by the Financial Services Agency and the Tokyo Stock Exchange as guidelines for listed companies when conducting corporate governance). In addition, based on the situation at other companies and the policies of voting advisory firms, we are seeking a more effective governance structure. We will continue to strive for management that is more transparent and satisfactory to our stakeholders.

### TOPIC

#### Strengthen the function of the Board of Directors

We have adopted the Audit and Supervisory Committee (until then we held the Board of Corporate Auditors) to strengthen the function of the Board of Directors and to exert corporate governance more effectively, as well as to enhance the effectiveness of management by making decision and execution more rapidly.

Also, three Directors are Outside Directors (Male 1, Female 2) and the ratio of Independent Outside Directors in the Board of Directors is more than one-third.

#### Nomination and Compensation Committee (non-obligatory organization)

We established the Nomination and Compensation Committee as an advisory board of the Board of Directors. The purpose is to enhance the fairness, transparency and disinterestedness of the decision process in directors' nomination, promotion or demotion and their rewards. The committee is composed of three independent outside directors, one chief executive officer and one director who is in charge of administration division (in total, five persons). Chairman is independent outside director.