

# DAIHEN REPORT 2019

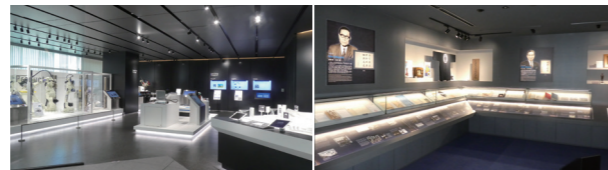


## Corporate data

<b>Company name</b>	<b>DAIHEN Corporation</b>
<b>Date established</b>	December 1919
<b>Capital</b>	¥10,596 million
<b>Sales</b>	¥143,457 million (March 2019, consolidated)
<b>Employees</b>	3,803 (As of March 2019, consolidated)
<b>Business</b>	Manufacture, sale and servicing of power equipment, welding machines, industrial robots, RF generators for semiconductor manufacturing, wireless transfer systems, etc.
<b>Head office location</b>	2-1-11 Tagawa, Yodogawa-ku, Osaka 532-8512 Japan Tel: +81-6-6301-1212
<b>Business offices and plants</b>	Juso Business Office (Osaka), Rokko Business Office (Kobe), Mie Business Office (Taki-cho, Mie), Kanehira Plant (Osaka), Chitose Plant (Chitose, Hokkaido)
<b>Regional offices</b>	Hokkaido Regional Office, Tohoku Regional Office, Tokyo Regional Office, Chubu Regional Office, Chugoku Regional Office, Kyushu Regional Office
<b>Website</b>	www.daihen.co.jp



Head Office (Juso Business Office)



Showrooms (1F Head Office)



Our Head Office Building is registered with Osaka City as a Tsunami Evacuation Building.

## Executive officers (As of June 26, 2019)

### Directors and operating officers

President and Chief Executive Officer	Tetsuya Tajiri
Senior Executive Vice President and Member of the Board	Shigekazu Koshino
Executive Vice President and Member of the Board	Kazuo Kamo
Senior Vice President and Member of the Board	Keiki Morimoto
Senior Vice President and Member of the Board	Shoichiro Minomo
Senior Vice President and Member of the Board	Haruhisa Kimura
Member of the Board	Kusuo Sanjo
Member of the Board	Keiichi Ando

### Auditors

Standing Auditor	Naoki Urai
Standing Auditor	Keitaro Takahashi
Auditor	Haruo Urata
Auditor	Masayuki Furusawa
Auditor	Masashi Yoshida

### Operating officers / Fellows

Executive Vice President	Yoshio Kondo	Vice President	Ryohei Tanaka
Senior Vice President	Shingo Wada	Vice President	Toshiyuki Arai
Senior Vice President	Kentaro Kaneko	Vice President	Tadashi Kuriyama
Senior Vice President	Ichiro Yamano	Vice President	Yasuhiko Fujitomi
Vice President	Yasuhiro Nishimori	Vice President	Tong Hongjun
Vice President	Yasuhiro Ohnishi	Vice President	Hideki Imura
Vice President	Tomoyuki Ueyama	Fellow	Tatsuo Ota
Vice President	Hiroaki Oichi	Fellow	Yuji Yoshizako

## Editorial policy

We publish this report to let all of our stakeholders know the kind of business activities we are conducting in the DAIHEN Group and, by doing so, build trust between us. A lot of effort has gone into editing the layout so that people of all walks of life will find the content easy to read and will gain a proper understanding of what we do.

This year, we have added more information about our sustainability activities and disclosures, and changed the title from "CSR Report" to (the) "DAIHEN Report". Going forward, we will continue to upgrade the content of the report by adding information that our stakeholders expect and want.

### [Opinions and requests are welcome!]

Your opinions and requests are great sources of information that help us to improve not only this report but also our business activities. Let us know what you think. DAIHEN Website >> Contact Us >> Other inquiries >> Inquiry form

## Reporting period

This report covers fiscal year 2018 (April 1, 2018, to March 31, 2019). This report also contains some information from before and after fiscal 2018.

## Scope of organizations covered

In principle, this report spans the initiatives of the DAIHEN Group, which comprises DAIHEN Corporation and its consolidated subsidiaries. The environmental report contained herein presents the environmental initiatives of our Group plants — in Tottori, Oita, Matsudo, Eniwa, Hirosaki, Kagawa, and Izumiotsu — that are participating in the environmental management system of DAIHEN Corporation.

## Reference guidelines

- Guidelines 2013 of the Global Reporting Initiative (GRI)
- Environmental Reporting Guidelines (Fiscal 2012 Version), Ministry of the Environment, Japan
- Environmental Accounting Guidelines (Fiscal 2005 Version), Ministry of the Environment, Japan
- JIS Z 26000, Japanese Standards Association

## Next issue

The next issue of this report is scheduled for summer 2020.

This report includes our plans and prospects as of the date of publication; projections based on management plans and management policies; and past and current data on the DAIHEN Group. The reader is advised that these projections are assumptions or judgments based on the best information available at the time, and the possibility exists that future business performance may differ due to changes in various conditions, unforeseen results, and changes to forecast business activities.

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## Doing what we can to shape a sustainable world

Through its business activities, the Daihen Group is making concerted efforts to solve a diversity of social issues and shape a sustainable world.

On December 1, 2019, DAIHEN marked the 100th anniversary of the company's founding. This was an important milestone by any standard and owes greatly to the faithful support of our stakeholders, to whom I want to express my deepest appreciation.

Since that day in 1919, DAIHEN has helped to improve the electrical infrastructure that powers modern life and elevate manufacturing around the world to new heights by developing and marketing products that society needs — like transformers, welding machines, industrial robots, high-frequency plasma generators, wireless transfer systems and more.

From the very beginning, we have purposely sought to “please our customers

and serve society” through the business we do. It was then and is still now our mission to create and deliver products that meet and exceed customer expectations. This drives us to better understand what customers need and do everything within our power to provide them with greater benefit and added-value.

Within the DAIHEN Group, we also understand society's growing expectations that businesses should be doing more to achieve the SDGs (Sustainable Development Goals) advocated by the United Nations. Viewing it as a top priority, we are looking squarely at societal issues like the damage being caused to the global environment, the labor shortages that are predicted to come from falling birthrates and the need for

stronger national resilience, and searching for promising solutions through product development and new business creation.

All of these thought processes underscore our push as a “development-driven company” and are guiding us, in this last year of our DAIHEN Value 2020 medium-term business plan, to go beyond current product categories to create unique products of future growth potential and, at the same time, transition business from making standalone products to offering complete system solutions. Whether it means to develop products and systems that will build more smart communities or put more EVs on the road, or supply equipment that automates entire factories, we will be making a concerted effort through our business activities at DAIHEN to solve society's woes and shape a

sustainable world.

I ask for your continued understanding and support of what we do here at DAIHEN.



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Tetsuya Tajiri

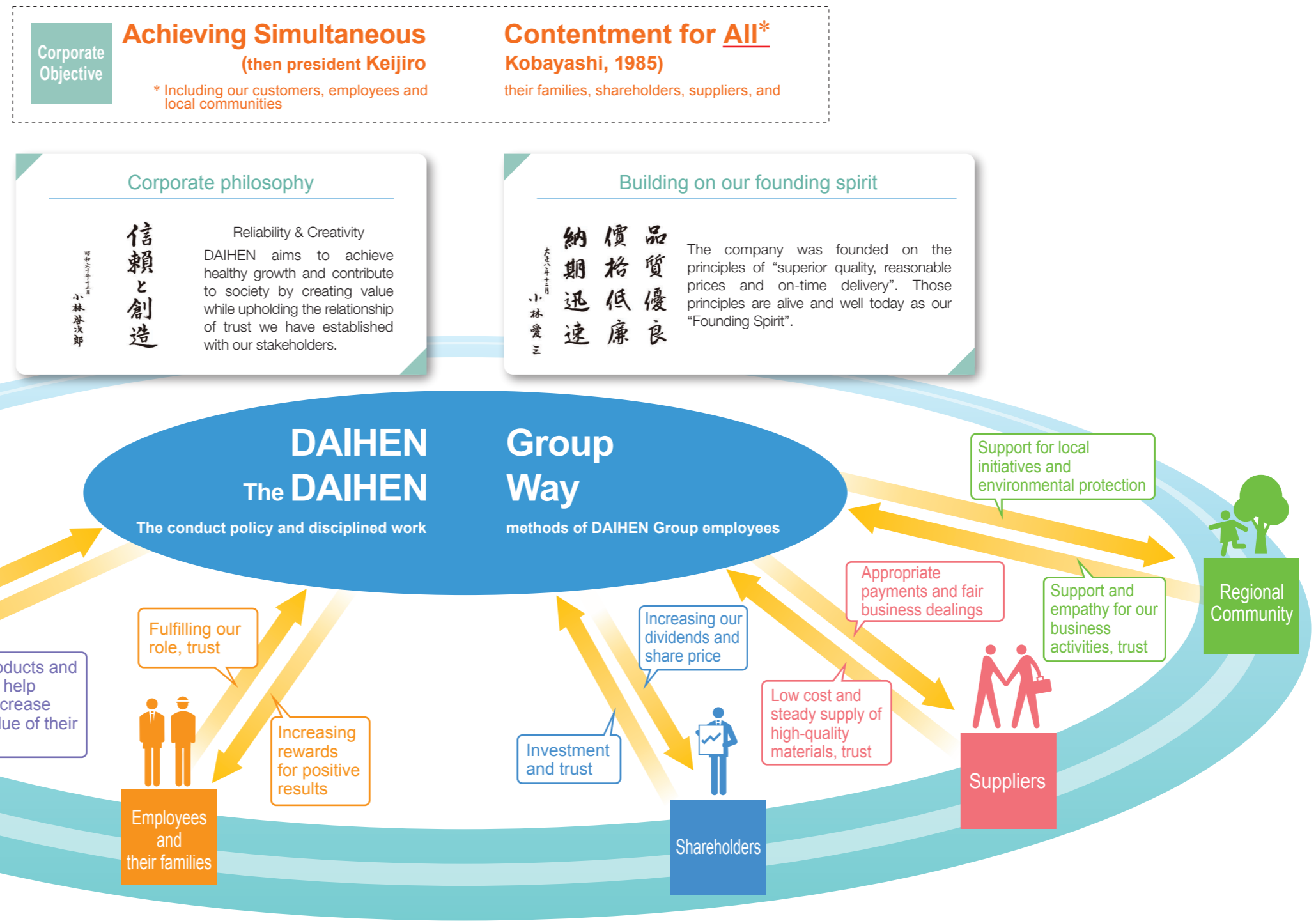
President and Chief Executive Officer

**DAIHEN Corporation**

## The DAIHEN Group is committed to achieving simultaneous “contentment for all.”

Though it may sound like a juggling act, our prime objective in the DAIHEN Group is to make all of our stakeholders – customers, employees and their families, shareholders, suppliers and hosting communities – happy at the same time. We call it “simultaneous contentment for all”. (For an explanation of respective returns we target for each category of stakeholder, see page 10.)

All of the people that work for the DAIHEN Group play an important role in achieving that objective. It requires a concerted effort of our entire workforce and their adherence to the work disciplines and code of conduct we define as the “DAIHEN Way”.



### DAIHEN's Action Charter

#### For the market

- We shall provide safe, high-quality products that meet customer needs and satisfy our customers with timely services and a straightforward response. In this way, we shall win the confidence of our customers through our business activities.
- We shall remain sensitive to change and enthusiastically create new products and technologies while developing new markets.

#### With our fellow workers

- We shall nurture an environment in which our employees are highly motivated to maximize their abilities and we shall properly evaluate the performance of our employees.
- We shall voice our frank opinions and shall jointly develop a vision for the future as well as an innovation plan. With a strong will, we shall prevail against our competitors.

#### To win the confidence of shareholders

- We shall continuously develop a stable business so that we can earn profits and increase our corporate value. In addition, we shall publicly disclose accurate information as necessary.

#### For all our suppliers

- We shall conduct honest trade with our suppliers so that they receive appropriate payment for the products and services they provide.

#### As members of society

- When we do business, we shall observe the laws and regulations of the corresponding country or region and shall respect their cultural norms and customs. In addition, we shall strive to protect the environment so that we can maintain good relations with society.
- We shall respect human rights and shall treat all people equally. We shall not intrude on personal privacy and shall act sensibly as a member of society.

# Doing our part to achieve SDGs

Advocated by the United Nations since 2015, SDGs raise 17 goals societies around the world should strive to achieve with regard to social issues such as poverty, inequality and climate change. As a corporate citizen whose prime objective has long been the "simultaneous contentment for all", the DAIHEN Group has innately contributed to the sustainable development of society for some time by using our technological abilities to create unique products that fulfill a useful purpose. In fact, every aspect of the businesses we undertake can be tied to goals that are expressed in one way or another by SDGs. Going forward, we are intent on proving ourselves useful to specific causes and making further contributions to sustainable development through even closer correlations between our business activities and SDGs.



Correlations between DAIHEN Group business activities and SDGs

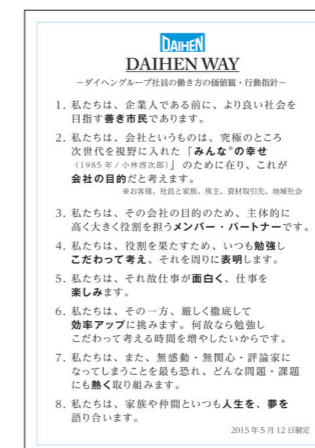
Breakdown	Recent important activities of the DAIHEN Group	ESG qualification	Related SDGs	Read more
DAIHEN's "Contentment for all" prime objective	Customers	Environment Society	7, 8, 9, 11, 12, 13, 17	Pages 5 and 6
	Employees and their families	Society	8, 17	
	Shareholders		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
	Suppliers		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
	Regional community		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
3 <sup>rd</sup> medium-term business plan (fiscal 2018 - 2020)	Development of unique products for new domains and system solutions business	Environment Society	7, 8, 9, 11, 12, 13, 17	Page 9
	Group-wide "Loss Cutting (Cost Optimization) Initiative"	Environment Society	7, 8, 9, 11, 12, 13, 17	Page 10
	Establishing "D-Servicing" practices via stronger engineering sales	Society	8, 12, 17	Page 10
	Compliance	Environment Society	4, 8, 10, 12, 16	Page 27
Corporate governance	Risk management	Environment Governance	3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Page 28
	Improvements to IR activities	Society Governance	8, 10, 12, 17	Page 31
Materials procurement	Promoting business with suppliers that is mutually beneficial to all parties	Environment Society	3, 8, 9, 10, 11, 12, 13, 15, 16, 17	Page 32

Breakdown	Recent important activities of the DAIHEN Group	ESG qualification	Related SDGs	Read more
Employees (Personnel)	Motivating personnel systems	Society Governance	4, 5, 8, 10	Pages 33 and 34
	Creating workplace environments where people of all nature can enjoy working	Society	3, 4, 5, 8, 10, 12, 13, 14, 15, 16, 17	
Health & Safety	Enforcement of health and safety activities		Society	3, 4, 5, 8, 10, 12, 13, 14, 15, 16, 17
	Communication with hosting communities	Environment Society	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
Promotion of environmental-friendly management	Environmental actions (Volunteer plan of action)	Environment	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Pages 41-43
	Environmental management systems		3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
	Environmental accounting		3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	
	Energy/Resource-saving activities		3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	

The pages indicated under "Read more" report on DAIHEN Group activities we think represent our best contributions to SDGs.

## The DAIHEN Way and SDGs

We adamantly believe that the DAIHEN Way we adopted in 2015 as a code of conduct and work disciplines for employees of the DAIHEN Group concurs with the underlying principle of creating a better world espoused by SDGs. This correlation between the DAIHEN Way and SDGs makes the group workforce conscious of their contribution to a better world and creates the impetus for future efforts.



## Biggest of the related SDGs



# As a development-driven company that creates products of future growth potential and new values for customers via system solutions

## “DAIHEN Value 2020” (3rd medium-term business plan, fiscal 2018 – 2020)

Basic targets (Fiscal 2020)		Basic strategy 1	Promote product development in new domains and develop business in system solutions.
Sales	180,000 million yen	Basic strategy 2	Optimize costs group-wide.
Operating income to sales	8%	Basic strategy 3	Strengthen sales engineering capabilities.
ROE	10%		

### Basic strategy 1 Promote product development in new domains and develop business in system solutions.

#### New domains and directions of development

Smart energy management field	Provide products and systems for controlling and managing the growing diversity of decentralized power sources, and products and systems that contribute to the spread of new power applications like EVs etc.
Smart factory automation field	Provide FA products and systems that help automate entire factories.
Material fine-processing field	Provide new processes for bonding, cutting and processing metals, resins and other materials using high-precision control.

#### Fiscal 2018 results

### Smart energy management field

#### Debut in smart communities

We received our first order from a smart community project for a storage battery system we developed around our proprietary “Synergy Link\*” technology that controls power generation and battery charging/usage so that energy is used more efficiently across the community.

\* Synergy Link (Autonomous cooperative control of decentralized power sources)  
This technology connects separate units and systems into an efficient cooperative power grid without requiring an expensive central monitoring and control unit.



### Smart factory automation field

#### Developed new handling robot of wider application scope

We launched sales of a new series of handling robot of a wider scope of application than the customary arc welding range. It is available in three sizes based on loading capacity – 80, 100 and 130 kg. Moreover, at our Rokko Business Office where we manufacture an array of robots, we added a new line to produce the robots and built a new factory to increase our development area, which effectively upped our production capacity.



### Material fine-processing field

#### Developed laser arc hybrid welding technology for joining dissimilar metals

We finally developed technology for welding steel plate and aluminum alloy together that automotive manufacturers had for years been waiting for in order to reduce chassis weights to a level that would push a shift to EVs worldwide. The new process produces seams of the strength required by the automotive industry for their high-quality assurances and can be introduced with less upfront costs than conventional processes by simply and easily replacing existing equipment. Products will be developed in fiscal 2019 with targets set on first and foremost vehicle manufacturers in Japan and abroad.



#### Established the “DAIHEN Joining and Welding Research Alliance Laboratory” at Osaka University

DAIHEN has teamed up with Osaka University’s Joining and Welding Research Institute (JWRI) to research and develop innovative technologies that meet the needs for greater capabilities and higher performance in the welding and joining fields. By fusing DAIHEN’s world-leading welding and joining technologies and device development strengths with the JWRI’s forte in academic research and teaching, the goal is to develop and quickly commercialize state-of-the-art technologies.



### Prime objective of the DAIHEN Group

## Simultaneous Contentment for All

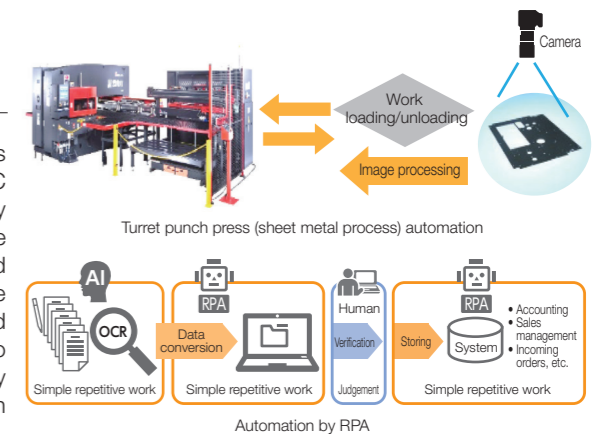
#### Returns targeted for each category of stakeholder

<b>Customers</b>	Invest 5% of sales in development in order to continuously create unique products. Provide products and systems that help customers increase the social value of their business. (Build a product portfolio of a minimum 75% environment-friendly products.)	<b>Shareholders</b>	30% dividend ratio against 3-year average profit
<b>Employees and their families</b>	Provide performance-based pay as a “3rd bonus”. * Assuming 5% or greater year-on-year increase in operating income: 1 month’s pay if ¥8,000 million – 2 months’ pay (max.) if ¥12,000 million	<b>Suppliers</b>	Return 50% of cost reductions.
		<b>Regional Community</b>	Donate 1% of operating income to municipalities that host important business sites for social welfare purposes (child support).

### Basic strategy 2 Optimize costs group-wide.

#### Fiscal 2018 results

To optimize costs, we are methodically automating production plants across the DAIHEN Group. One such effort was implemented at OTC Industrial (Qingdao), which makes welding machines and high-frequency plasma generators. There, we automated sheet metal processing on the front and back ends to improve material supply, product payout and inspection processes. Moreover, RPA was introduced into back-office operations to further expand the range of automation. This involved introducing an AI-OCR that automatically converts text into data, to digitize numerous hand-written slips, and then using RPA to automatically store the data in various systems. These efforts reduced man-hours in fiscal 2018 by 12,000 hr.



### Basic strategy 3 Strengthen sales engineering capabilities.

#### Fiscal 2018 results

### Established DAIHEN Techno Support Corp.

This new venture was created by merging a sales company and a servicing company. It is tasked with developing sales reps for engineering sales by training them in field servicing and welding knowhow. Consolidating sales and servicing in one company and a team of reps is expected to improve customer support.



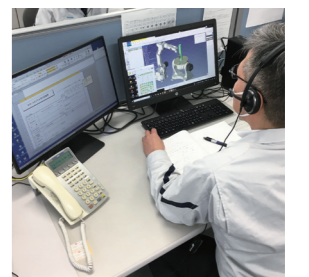
Chubu Technical Center

### Opened the Chubu Technical Center

We opened a new Technical Center in Nagakute City, Aichi Prefecture where numerous automotive manufacturers concentrate. Like other centers, the new facility does welding tests and provides quick aftercare servicing, but as a new initiative, we made the center larger and upscaled our before-sales activities with more equipment for demonstrations and trial use, and an updated curriculum of study.

### Launched Telephone Technical Support

We launched over-the-phone technical support services that are accessible 24 hours a day, 365 days a year under the name of DAIHEN Techno Support Dial. The call center is staffed with engineers in order to respond to inquiries about welding machines and robots.



Call center

## Wireless power transfer systems are encouraging carbon footprints and activating communities.

### Greater convenience in EV charging

Automotive manufacturers around the world are aggressively developing and releasing electric vehicles (EV) because of the important role they will play in shaping a low-carbon way of life. However, there are some big issues slowing the spread of the EV that begin with the shorter travel distance when fully charged compared to what a gasoline-powered vehicle gets on a single tank. This leads to a second tier of issues in the need to build infrastructure like charging stations and to make driving an EV more convenient to users by way of lower costs etc. Automatic wireless charging technology will be part of that solution.

Another emerging concept of transportation is the self-driving vehicle. It is being viewed as a potential mode for elderly persons and others who rely on assistance to cover the last one mile to the store, public transportation or wherever they need to be. Automatic wireless charging technology will also be needed to make self-driving vehicles a reality because it eliminates the need for someone to physically charge the vehicle.

### Products and technologies intended to solve social issues

#### Development of a wireless charging system for sub-compact EV

In May 2018, we announced the “D-Broad EV Charging Dock” that we developed as a wireless charging system for sub-compact EV using wireless power transfer technology developed and honed for industrial equipment. It works by magnetic resonance, which can tolerate a considerable amount of docking misalignment and is one of the most efficient charging methods in industry. So, charging is assured and highly efficient even if the transmitting and receiving coils are a fair distance apart. Moreover, because the vehicle can be charged just by parking it, it is not necessary to get out of the vehicle and connect a charging cable every time the battery needs to be charged, which gives engineers a green light to build completely self-driving systems.

#### World's First Demonstrations of self-driving vehicles equipped with our wireless charging system

On March 15, 2019, self-driving and automatic charging demonstrations of a self-driving car \* equipped with our wireless charging system were conducted outside the Osaka Prefecture Children’s Museum “Big Bang” in Sakai City. It was the first time in the world that a self-driving car was demonstrated with a wireless charging system. The demonstrations were organized as part of a “Next-Generation Mobility Introduction” project proposed by Sakai City and served as a prelude to community road tests planned for Senboku New Town in 2019.

#### How the demonstration unfolded

- [1] A 23 × 12 m oval course was set up at Koryu Plaza outside the museum. The vehicle did one lap around the course driving itself at a top speed of 10 km/h, then parked at the charging point of the wireless charging system and charged itself automatically.
- [2] An obstacle was placed in a straightaway section of the course and the vehicle stopped in front of the obstacle after detecting it.



Charging using the “D-Broad EV Charging Dock”



Self-driving vehicle during level 2 demonstration



#### Future expectations

The community road tests scheduled for Senboku New Town serve to verify the effectiveness of the self-driving car with a wireless charging system as a next-generation mobility solution and a viable mode of transportation for the elderly and other mobility-challenged persons to cover the last one mile.

Moreover, as charging infrastructure is built to promote the spread of the EV, the spillover effect into areas that struggle with mobility challenges on a regular basis could thinkably activate communities all across the country.

\*1 The vehicle used in the demonstrations was a sub-compact 2-seater EV that was small enough to drive the narrow streets of subdivisions. It was developed by Tajima EV and mounted with DAIHEN's power receiver and receiving coil.

## wider use of EVs, reducing

### Japan's First Practical application of a wireless charging system for sub-compact EV

We sold our first “D-Broad EV Charging Dock” to the Himeshima Ecotourism Promotion Council\*2 in Oita Prefecture. It was mounted on a rental sub-compact EV that went into service on Himeshima Island on July 1, 2019.

To supply power to the D-Broad EV Charging Dock, the operator is using the “Aozora Consent\*3” system that generates and stores solar power. So, they have built a completely independent charging system that emits no CO<sub>2</sub> whatsoever, whether driving or charging.

And, this is just the beginning. As the island adds more wireless charging stations and vehicles, and both residents and visitors use them for getting around, we can expect the local way of life to shrink its carbon footprint and the island community to see an uptick in activity.



Completely independent charging system powered by solar energy



Rental service started on Himeshima Island

\*2 Himeshima Eco Tourism Promotional Council  
The council operates a rental car business with a small fleet of sub-compact EVs on this island off the coast of Oita Prefecture. The business is part of a bigger project aimed at activating the community by solving issues with island transportation from the port to tourist attractions and turning Himeshima into an ecological island with a small carbon footprint. The environment-friendly sub-compact EVs were chosen because they serve both of these interests.

\*3 Aozora Consent  
Made by T Plan, Inc., the Aozora Consent is a completely independent, self-contained charging station for compact EV that is powered by renewable energy. The system itself generates and stores electricity from solar power, but it was incorporated with DAIHEN's wireless charging system to create a zero-emission charging system.

#### Future expectations

Adding more wireless charging stations at public facilities and parking lots, and increasing the number of EVs would promote greater usage of the EVs as a means of transportation both amongst residents and visitors since the vehicles could be charged while shopping or sightseeing.

Moreover, the rental car business mentioned here is one example of how our wireless charging system can be utilized. What is achieved on Himeshima Island can be applied to other municipalities, tourist areas or islands to activate those communities and reduce their carbon footprint.

### TOPIC

#### Interactive wireless charging exhibit opened at OSTEC!

DAIHEN's wireless charging system went on display at the Osaka Science & Technology Center (OSTEC) under the theme of “Future Society Portrayed by Wireless Charging”.

OSTEC is a museum of scientific and industrial technology for people of all ages from the youngest in elementary school to senior citizens. It showcases the latest technologies from the business sector's efforts in the energy and other fields of endeavor. At the DAIHEN exhibit, a fun approach to learning via games and interactive play is used to show visitors the benefits of wireless charging and help them understand how our products work. We are definitely helping to educate the next generation.

#### Exhibit overview

- Wireless charging activity table
- Graphic wall display about wireless charging and EVs
- Driving simulator game



DAIHEN exhibit

## “V2X System” can help cities become more resilient to natural disaster

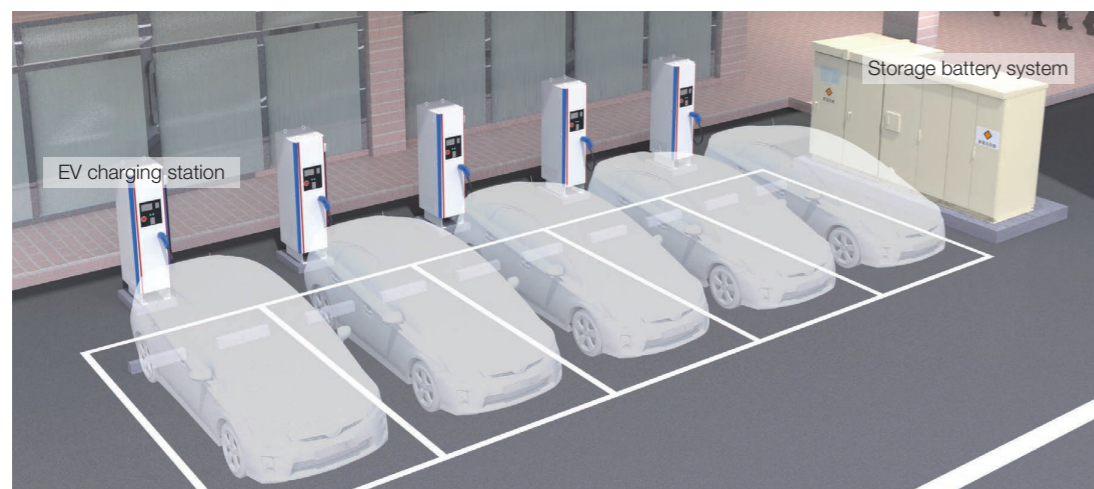
### Burdened by maintaining and securing fuel for emergency generators

Local governments all across Japan are exploring ways to make their communities more “resilient” to natural disasters like large-scale earthquakes and typhoons, but two issues they all seem to run into are “maintenance of emergency generators” and “securing fuel in time of need”.

In general, these emergency generators are used only in emergencies, so, in preparation for those times, operators must periodically inspect equipment, replace fuel (light or heavy oil) and clean inside of fuel tanks. This is complicated work that can stress managers out. However, it has happened in the past that emergency generators did not work because of inadequate maintenance or bad fuel, or because fuel could not be procured. Without emergency power, lifestyles become seriously disrupted because air conditioning, refrigerators and other electric appliances and elevators and the like cannot be used.

### Products and technologies intended to solve social issues

#### Development of the “V2X System”



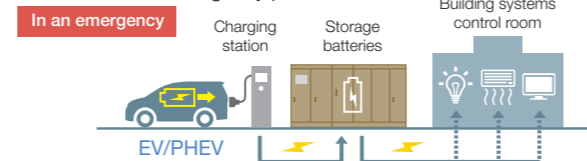
V2X System

Developed by DAIHEN, the “V2X\*1 System” combines one or more EV charging stations with a storage battery system into a dual-purpose service platform that can be used as an emergency power supply in an emergency situation and to charge EVs on a regular basis and supplement power to commercial grids during peak hours.

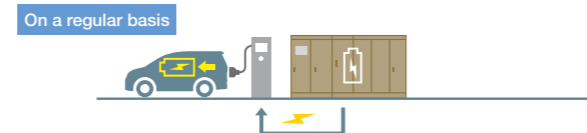
The system uses the electricity from the EV batteries as a power source, so there is no risk of fuel degradation. And, if fuel cannot be procured, vehicles can be charged at the charging stations, which ensures a power supply for driving. If no EVs are connected to the system, power is supplied from the storage batteries. If battery supply runs low, EVs can be connected to the system to charge the batteries. Therefore, power is available on a semi-permanent basis.

#### How the V2X System works

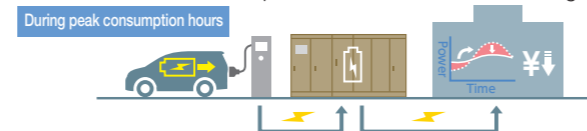
##### Feature 1: As an emergency power source



##### Feature 2: As an EV charging station



##### Feature 3: As an alternative power source to the commercial grid

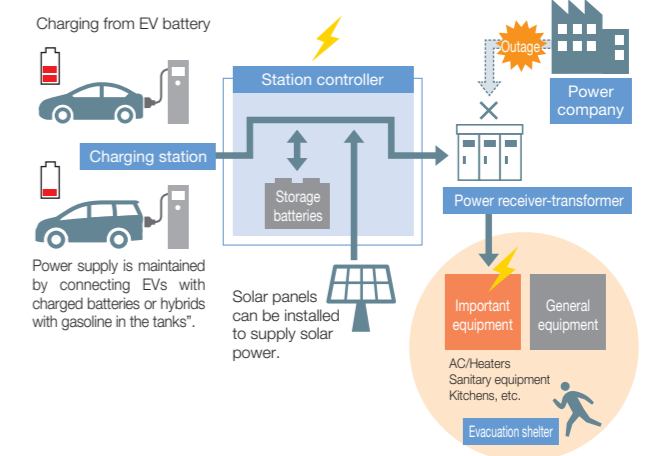


Furthermore, by adding our proprietary “Synergy Link” control technology, it becomes possible to connect and control 50 kWh of storage batteries and up to 5 EVs. In other words, by virtually operating all of the pieces as a single high-capacity power storage system, a home-use V2H\*2 unit can supply power to large-capacity air conditioners, water purifier pumps, elevators and other industrial equipment that normally requires a 3-phase power supply.

The system ensures evacuation shelters have power even during outages and plays an important role in helping people survive until grid power is restored. And, if coupled with a solar power system, the system becomes even more environment-friendly as EVs are charged using only solar power.

These technologies were recognized with the 10 New Products Awards (Nippon Brand Awards) sponsored by the Nikkan Kogyo Shimbun.

#### As a virtual high-capacity power storage system



### Power supply to our Juso Business Office verified under a simulated outage at our factory

We installed a pilot V2X System in our Juso Business Office and connected it to a part of our factory building as an emergency power supply. In November 2018, we then simulated a power outage at just the factory and tested the V2X System’s capacity as an emergency power source to supply electricity to electrical equipment, i.e., air conditioning, lighting, elevators, cranes and other equipment on office floors and factory floors. We verified that all equipment was fed a stable supply of electricity from the electrical power supplied from the storage batteries and EVs, which proved the reliability of the V2X System as an emergency power source.



Pilot V2X System installed at Juso Business Office

#### Future expectations

EVs will have to spread more throughout society in order for the V2X System to operate efficiently. But, it will get there. In fact, the system is to be used in a VPP (Virtual Power Plant) project promoted by Kansai Electric Power Co., Inc. and that project will improve the added-value of the EV. Moreover, the anticipated spread of the EV will help to make cities more “resilient” to natural disasters by encouraging authorities to build more

evacuation shelters, which there are not enough of, improving sanitary conditions and keeping elevators needed for evacuation operational.

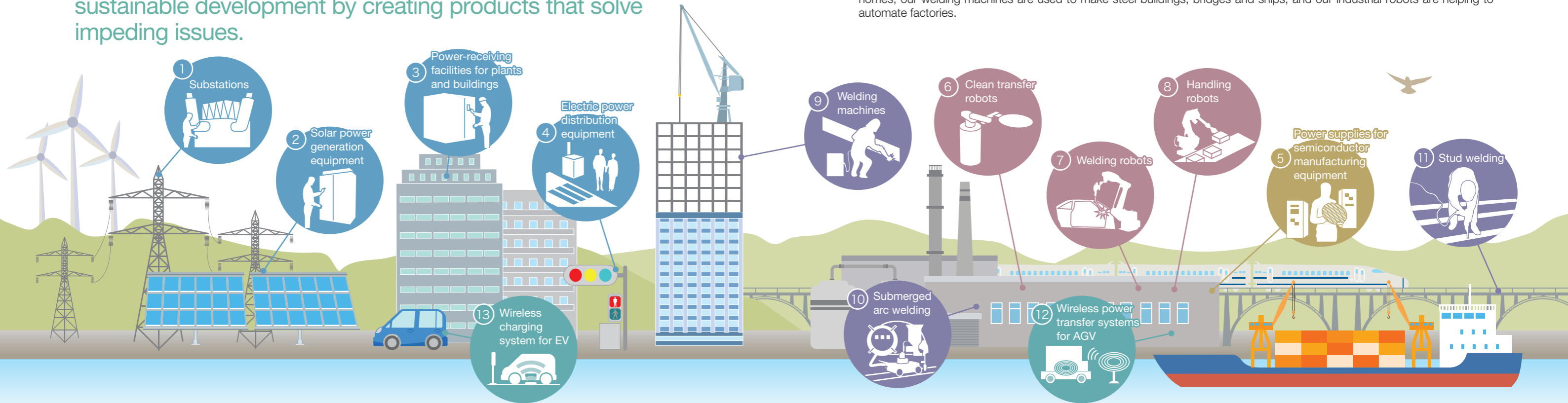
\*1 V2X: Acronym for “Vehicle to Everything”. Collectively describes technologies and systems that enable vehicles to share information. It includes the technologies and systems that enable vehicles with storage batteries such as EVs to share power amongst homes, buildings and power grids.

\*2 V2H: Acronym for “Vehicle to Home”. Refers to technologies and systems that use the electrical power of EVs and other sources as an electrical power supply for homes.



The DAIHEN Group is helping to reshape human society for sustainable development by creating products that solve impeding issues.

Just about anywhere you look, you can see how products from the DAIHEN Group have been used to make communities, industries and ways of life better. Our electrical power equipment supplies electricity to factories, buildings and homes, our welding machines are used to make steel buildings, bridges and ships, and our industrial robots are helping to automate factories.



Power transmission & distribution products



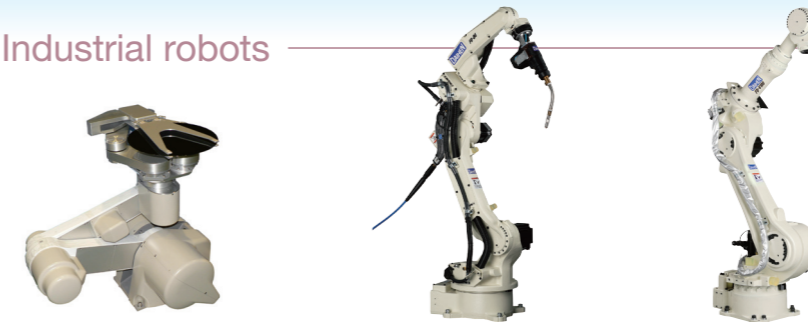
**1 Power transformers**  
Developed for long service-lives, low power loss, low noise emissions and compact sizes, DAIHEN's high-quality power transformers are contributing to stable power supplies wherever they are used.

**2 Power conditioners**  
DAIHEN has greatly reduced power consumption compared to earlier air-conditioned systems, by incorporating the industry's first air-cooled heat exchanged cooling system into these power conditioners (Awarded the Energy Conservation Grand Prize by the Energy Conservation Center, Japan in 2015)

**2 3 Solar power generation package with built-in storage batteries**  
These package systems combine a solar power system with a series of storage batteries. The electricity generated by the solar power system is efficiently consumed by optimally charging and tapping the storage batteries, which is helping factories, buildings and other sites to lower both their electricity bills and CO<sub>2</sub> emissions.

**3 V2X Systems**  
These systems cleverly integrate EV/PHEV charging stations and a series of storage batteries. They are helping to make communities more disaster-resilient by supplying electrical power from the EVs and battery set to important loads such as evacuation shelters during outages and other emergencies.

Industrial robots

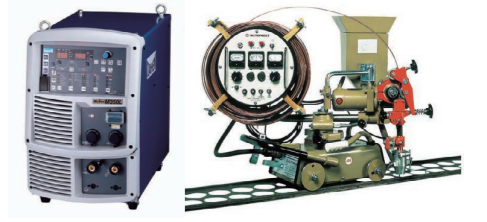


**6 Wafer transfer robot**  
These robots speedily and accurately transfer silicon wafers in clean environments where not even a speck of dust is tolerable. They are helping to improve the productivity of semiconductor devices that underscore an energy-saving smart society.

**7 Arc welding robot**  
Highly articulate and agile, our welding robots are a big contribution to factory automation and the higher quality welding targeted with that.

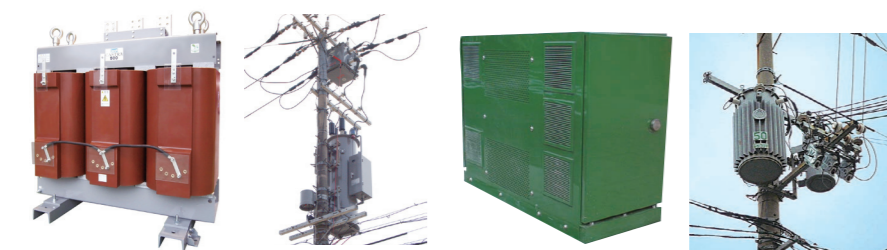
**8 Handling robot**  
Robots are increasing productivity and making up for labor shortages by nimbly and correctly performing simple factory jobs like transferring, assembling and processing parts and materials.

Welding machines



**9 Digital Inverter welding machine**  
**10 Submerged arc welding machine**  
Because our welding products are designed to save power and ensure safety on top of delivering the world's highest level of welding and cutting performance, DAIHEN is helping industries to increase productivity and protect the global environment at the same time.

RF generator for plasma applications



**3 Top-runner transformer**  
Because it operates very efficiently with minimal energy loss and reduces CO<sub>2</sub> emissions, this transformer is classified as a top-runner.

**4 Step voltage regulator**  
These units support a stable supply of power through optimal voltage control in order to overcome voltage fluctuations on the transmission lines, such as those resulting from interconnection with dispersed power sources.

**4 Pad-mounted transformer**  
Supports effective underground power distribution as well as landscape conservation in urban areas while preventing disasters and securing space for roads.

**4 Pole-mounted transformer**  
Our pole-mounted transformers step down the high-voltage electricity carried over the power lines to a practical voltage that people and businesses can use, making them an integral part of stable power supplies.



**5 RF generator** **5 Microwave supply system for plasma application**  
These generators stably produce the high-quality plasma essential to manufacturing semiconductor devices. They are designed and built to sustainably develop industries that drive technological advances like IoT and AI.

Wireless charging



**11 Stud welding machine**  
Stud welding is method for joining steel beams and concrete using wedge-like pins known as "studs". It is widely used in the construction industry to erect buildings and bridges. DAIHEN's stud welding machines are used for building projects all across cities.

**12 Wireless power transfer system for AGV (Automated Guided Vehicle)**  
These systems enable highly efficient charging without any cables. They are helping to automate factory operations, reduce labor and improve productivity.

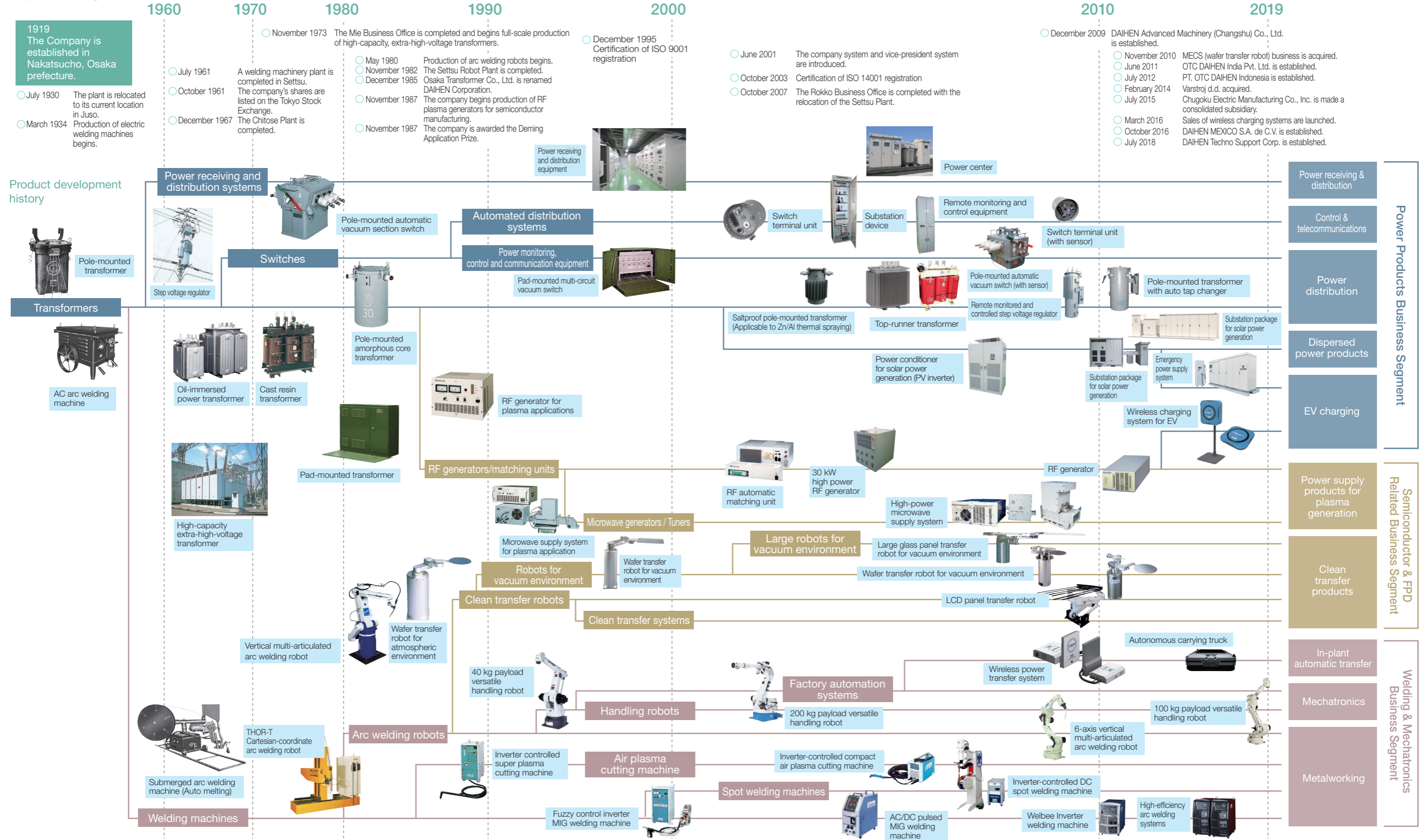
**13 Wireless charging system for EV**  
This system can quickly and efficiently charge EVs up to a max. 11 kW. It makes charging easier for users, which should help promote the spread of EVs and, in turn, steer societies toward lower consumption of carbon-based fuels.

**13 Wireless charging system for sub-compact EV**  
By promoting the spread of EVs, this charging station will not only help communities to shrink their carbon footprint but also to offer eco-friendly means of transportation for covering the "last one mile" in an aging society.

Since our founding, we have continuously pursued technological innovation in order to meet the needs of society. Here are some of the big moments of the DAIHEN Group.

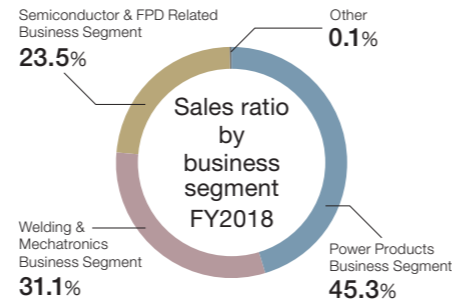
Since the company's founding in 1919, DAIHEN has always sought the latest technologies in order to create values that meet the needs of society – those values manifested in the form of transformers, welding machines, industrial robots, semiconductor manufacturing equipment and a plethora of other products. With diligence and commitment, we have helped to improve the electrical infrastructure that powers modern life and elevate manufacturing around the world to new heights. Going forward, we want please our customers and serve society to even greater degrees by building original values that address society's woes into the products and services we provide.

Corporate history



## 3 business fronts where we are helping to improve the electrical infrastructure that powers modern life and elevate manufacturing around the world to new heights

Though DAIHEN began by making solely transformers at first, we quickly got a rhythm for developing products and technologies that society has needed, e.g., applying what we knew about transformers to developing welding machines, responding to the needs to robotize welding work, and transitioning welding control into high-frequency plasma generators for manufacturing semiconductors. The trust and technologies we have cultivated in these three areas of business are the foundations we cite in our "DAIHEN Value 2020" medium-term business plan for continuously creating unique products that improve the social value of our customers' business, transitioning our own business from standalone products to system solutions and seeking ways to solve issues that burden society through business.



### Power Products Business Segment



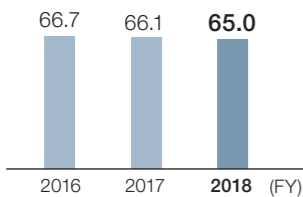
"V2X System" emergency power supply package

#### Overview

Power equipment is where DAIHEN got started. The company began by making pole-mounted transformers in the 1910s when the first electrical grids were branching out across Japan. Ever since then, we have been a leading manufacturer of transformers and supplied vast numbers of highly reliable products, thus making a major contribution to ensuring the stable supply of electricity society cannot do without.

Today, we are proactively engaged in developing products that meet the additional social demands of the new era, namely resource conservation, energy-savings and environmental friendliness. When completed, these products not only deliver electrical power safely and assuredly but they are also better for the environment.

Sales (Billions of yen)



#### Performance in fiscal 2018

In the power products business segment, we received orders of 68,017 million yen (up 3.9% from the previous year) thanks in part to growth in the energy management business, but due to falling consumer demand in Southeast Asia, sales decreased to 65,007 million yen (down 1.7% from the previous year). Operating income also fell to 3,796 million yen (down 421 million yen from the previous year) because of the added pressures of increased depreciation costs associated with the reconstruction of a production plant in Japan and rising copper prices.

### Welding & Mechatronics Business Segment

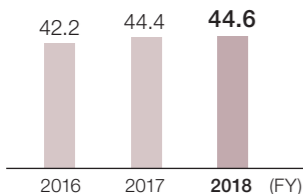


"Almega Premium Friendly" series arc welding robot package

#### Overview

Welding is one of the elemental technologies that modern manufacturing cannot do without. It has played a principle role in building everything from cars, trains and ships to megastructures like bridges and towers. Over the years, DAIHEN has masterfully wielded its proprietary control technologies to make and supply welding machines that meet the needs of production sites. And, we have integrated mechatronics into those technologies to develop welding robots. As one of the top manufacturers of welding equipment in the world, we are helping customers to automate their welding processes and improve their productivity and quality so that they can successfully globalize their business.

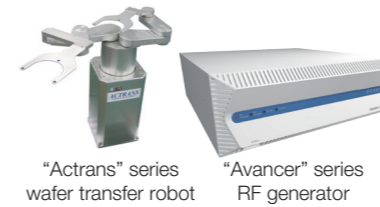
Sales (Billions of yen)



#### Performance in fiscal 2018

In the welding and mechatronics business, we increased our capacity to produce robot systems at a time when the slowdown in the Chinese market was augmenting, but construction investment in Japan and automotive investment in Southeast Asia and Europe were strong. Given the business environment, we also took steps to improve our customer support services by – for example -- scaling up our "On-Site Mobile Service" both in Japan and abroad, and opened the Chubu Technical Center with all of the latest equipment. As a result, both orders and sales increased, respectively, to 45,746 million yen (up 5.9% from the previous year) and 44,633 million yen (up 0.4% from the previous year). And, with an additional boost from cost reduction efforts, operating income increased to 4,494 million yen (up 1,132 million yen from the previous year).

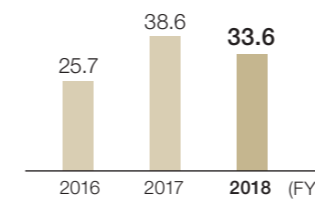
### Semiconductor & FPD Related Business Segment



#### Overview

Life in many parts of the world today is comfortable and affluent because of LCD-TVs, smartphones and tablets. DAIHEN's plasma generators and clean transfer robots are hard at work in the clean rooms and factories that are manufacturing the semiconductor devices and flat panel displays that are instrumental to these products. Our advanced technologies are helping to keep production plants around the world running 24 hours a day, 365 days a year.

Sales (Billions of yen)



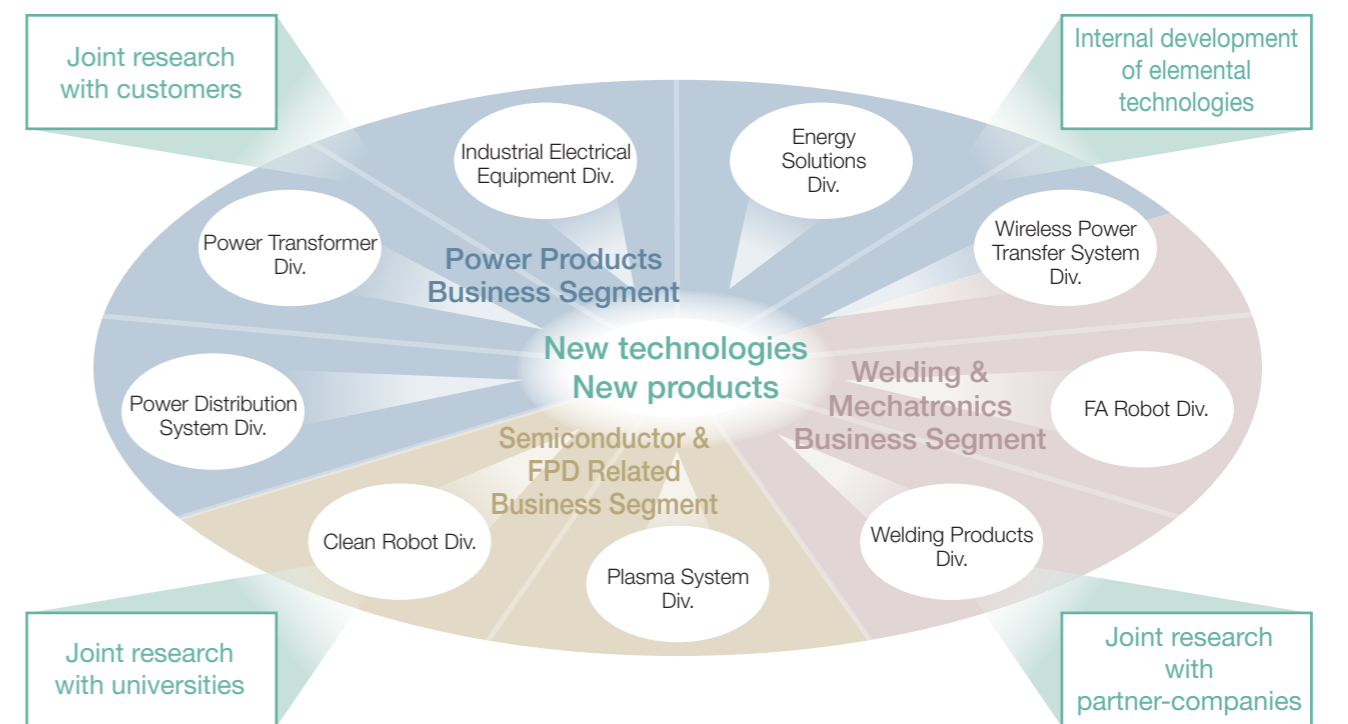
#### Performance in fiscal 2018

In the semiconductor & FPD related business segment, postponed investment in data centers and adjustments in manufacturing equipment triggered by falling prices for semiconductor memories pushed down both orders and sales, respectively, to 26,748 million yen (down 37.5% from the previous year) and 33,650 million yen (down 13.0% from the previous year). On top of the decline in sales, incomes were additionally affected by the cost of investments in production increases, resulting in an operating income of 3,952 million yen (down 2,465 million yen from the previous year).

Sales and operating income from real-estate leasing and other business did not change much from the previous year at, respectively, 199 million yen and 77 million yen.

### New business (R & D)

DAIHEN has cultivated and refined the power transformation and control technologies it has accumulated over the years into original core technologies by organically integrating them with the technological advances that emerge from the processes of social and scientific evolution. From this base of power electronics and mechatronics, we are aggressively promoting research and development both internally on our own and jointly in cohort with universities, private research institutes and other interests in an effort to create and foster new pillar businesses of the next generation.



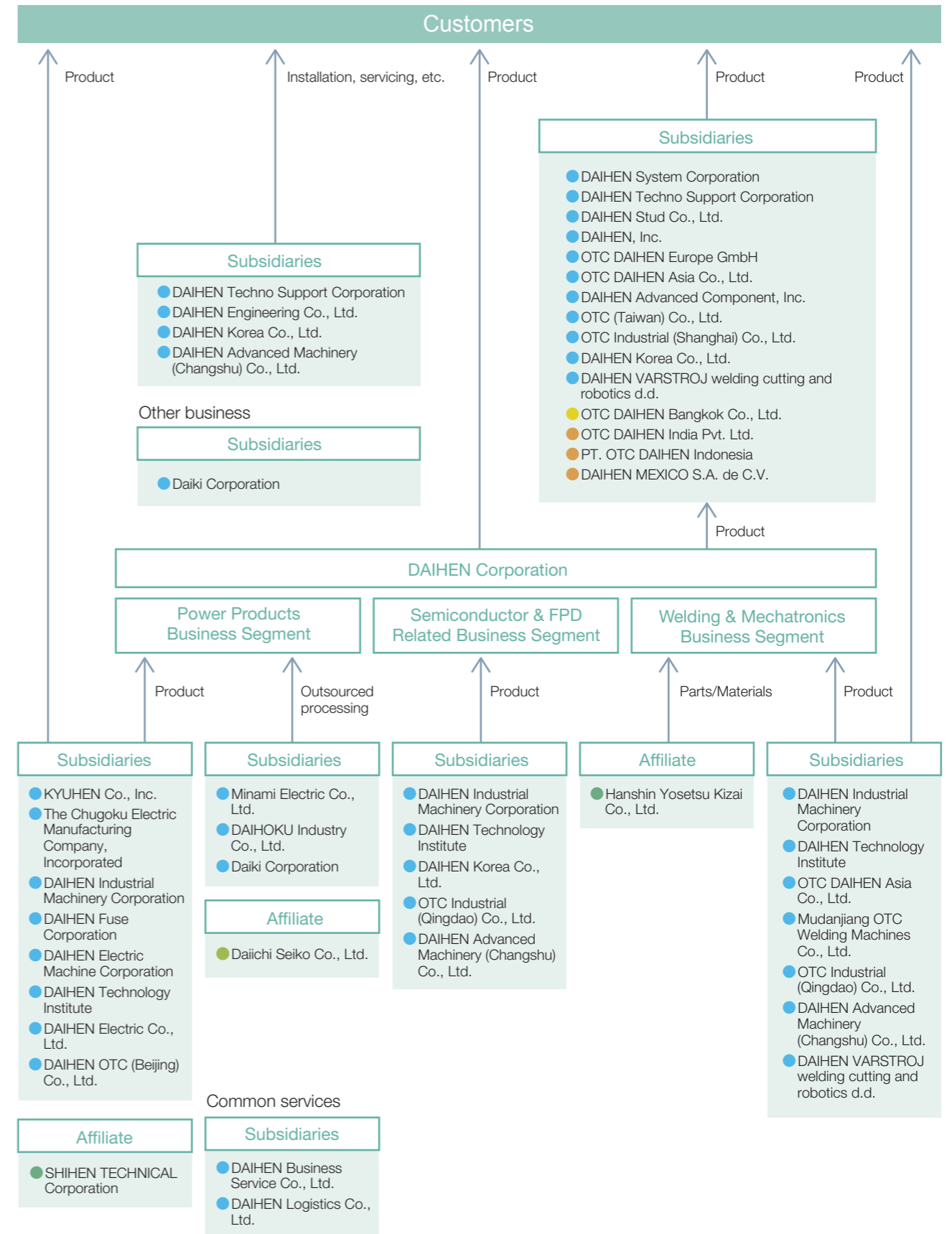
## DAIHEN creates value as a consolidated group of companies that do it all from manufacturing to sales and servicing.

●: Consolidated subsidiary ●: Non-consolidated subsidiary accounted for by equity method ●: Non-consolidated subsidiary  
 ●: Affiliated company accounted for by equity method ●: Affiliated company not accounted for by equity method

Segment ... Main products	Manufacturing	Sales, servicing, etc.
<b>Power Products Business Segment</b> Power transmission and distribution products	DAIHEN Corporation ● KYUHEN Co., Inc. ● The Chugoku Electric Manufacturing Company, Incorporated ● DAIHEN Industrial Machinery Corporation ● DAIHEN Fuse Corporation ● DAIHEN Electric Machine Corporation ● Minami Electric Co., Ltd. ● DAIHEN Technology Institute ● DAIHOKU Industry Co., Ltd. ● Daiki Corporation ● DAIHEN Electric Co., Ltd. ● DAIHEN OTC (Beijing) Co., Ltd. ● SHIHEN TECHNICAL Corporation ● Daiichi Seiko Co., Ltd.	DAIHEN Corporation ● KYUHEN Co., Inc. ● The Chugoku Electric Manufacturing Company, Incorporated ● DAIHEN System Corporation ● DAIHEN Techno Support Corporation ● DAIHEN Engineering Co., Ltd. ● DAIHEN Electric Co., Ltd. ● SHIHEN TECHNICAL Corporation
<b>Welding &amp; Mechatronics Business Segment</b> Welding machines, industrial robots, wireless charging systems	DAIHEN Corporation ● DAIHEN Industrial Machinery Corporation ● DAIHEN Stud Co., Ltd. ● DAIHEN Technology Institute ● OTC DAIHEN Asia Co., Ltd. ● Mudanjiang OTC Welding Machines Co., Ltd. ● OTC Industrial (Qingdao) Co., Ltd. ● DAIHEN Advanced Machinery (Changshu) Co., Ltd. ● DAIHEN VARSTROJ welding cutting and robotics d.d. ● Hanshin Yosetsu Kizai Co., Ltd.	DAIHEN Corporation ● DAIHEN Techno Support Corporation ● DAIHEN Stud Co., Ltd. ● DAIHEN, Inc. ● OTC DAIHEN Europe GmbH ● OTC DAIHEN Asia Co., Ltd. ● OTC (Taiwan) Co., Ltd. ● OTC Industrial (Shanghai) Co., Ltd. ● DAIHEN Korea Co., Ltd. ● DAIHEN VARSTROJ welding cutting and robotics d.d. ● OTC DAIHEN Bangkok Co., Ltd. ● OTC DAIHEN India Pvt. Ltd. ● PT. OTC DAIHEN Indonesia ● DAIHEN MEXICO S.A. de C.V.
<b>Semiconductor &amp; FPD Related Business Segment</b> RF generators for semiconductor manufacturing	DAIHEN Corporation ● DAIHEN Industrial Machinery Corporation ● DAIHEN Technology Institute ● DAIHEN Korea Co., Ltd. ● OTC Industrial (Qingdao) Co., Ltd. ● DAIHEN Advanced Machinery (Changshu) Co., Ltd.	DAIHEN Corporation ● DAIHEN Techno Support Corporation ● DAIHEN Advanced Component, Inc. ● DAIHEN Korea Co., Ltd. ● DAIHEN Advanced Machinery (Changshu) Co., Ltd.
<b>Real-estate leasing, etc.</b>		● Daiki Corporation

Note: Consolidated subsidiary DAIHEN Technos Corp. was dissolved on July 1, 2018 when it was absorbed by DAIHEN Welding and Mechatronics System Corp. On that same day, DAIHEN Welding and Mechatronics System Corp. was renamed DAIHEN Techno Support Corp.

The DAIHEN Group is composed of the parent DAIHEN Corp., 38 subsidiaries and 6 affiliates. As our main line of business, we manufacture, sell and service power transmission and distribution products, welding machines, industrial robots, RF generators for semiconductor manufacturing and wireless charging systems. The group is organized by line of business, business segment and affiliation as shown below.



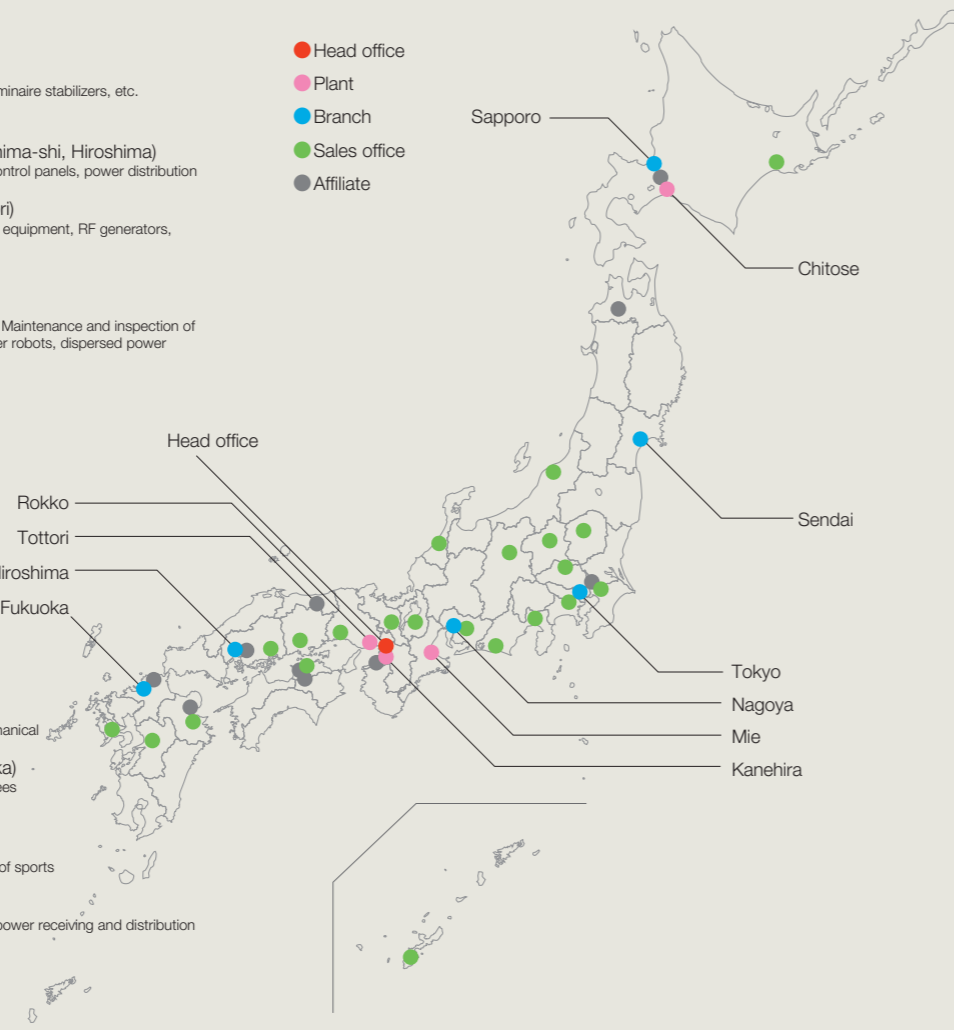
The DAIHEN Group tailors its services to each specific market and uses every strength it can muster from across the group to help customers solve their issues.

### Network in Japan

#### Main group companies

- **Shihen Technical Corp.** (Tadotsu-cho, Kagawa)  
Manufacture and sale of power transformers, electronic devices, luminaire stabilizers, etc.
- **Kyuhon Co., Inc.** (Fukuoka-shi, Fukuoka)  
Manufacture and sale of power transformers, water heaters, etc.
- **The Chugoku Electric Manufacturing Co., Inc.** (Hiroshima-shi, Hiroshima)  
Manufacture and sale of power transformers, distribution panels, control panels, power distribution equipment, monitoring and control systems, etc.
- **DAIHEN Industrial Machinery Corp.** (Tottori-shi, Tottori)  
Manufacture of welding machines, control and telecommunications equipment, RF generators, dispersed power equipment, etc.
- **DAIHEN System Corp.** (Osaka-shi, Osaka)  
Sale of industrial transformers, dispersed power equipment, etc.
- **DAIHEN Techno Support Corp.** (Kobe-shi, Hyogo)  
Sale of welding machines, cutting machines, industrial robots, etc.; Maintenance and inspection of welding machines, cutting machines, industrial robots, clean transfer robots, dispersed power equipment, etc.
- **DAIHEN Stud Co., Ltd.** (Kobe-shi, Hyogo)  
Sale of welding machines; Manufacture and sales of welding materials; Welding work
- **DAIHEN Electric Machine Corp.** (Osaka-shi, Osaka)  
Manufacture of industrial transformers
- **DAIHEN Fuse Corp.** (Izumiotsu-shi, Osaka)  
Manufacture of fuses, power distribution equipment/parts and surge protective devices
- **DAIHEN Aomori Corp.** (Hirosaki-shi, Aomori)  
Manufacture of fuses and power distribution equipment
- **Minami Electric Co., Ltd.** (Tadotsu-cho, Kagawa)  
Manufacture and processing of cans, sheet metal and related mechanical fittings
- **DAIHEN Technology Institute** (Kitsuki-shi, Oita)  
Manufacture and sale of clean transfer robots, dispersed power equipment, etc.; Development and sale of software
- **Daihoku Industry Co., Ltd.** (Eniwa-shi, Hokkaido)  
Manufacture and processing of cans, sheet metal and related mechanical fittings
- **DAIHEN Business Service Co., Ltd.** (Osaka-shi, Osaka)  
Human resource placement by rehiring former DAIHEN Group retirees
- **DAIHEN Logistics Co., Ltd.** (Osaka-shi, Osaka)  
Shipping and storage of DAIHEN Group products
- **Daiki Corp.** (Osaka-shi, Osaka)  
Processing of transformer parts; Real-estate leasing; Management of sports facilities
- **DAIHEN Engineering Co., Ltd.** (Osaka-shi, Osaka)  
Installation, testing, servicing, and remodeling of transformers and power receiving and distribution equipment
- **DAIHEN Welfare Enterprise Co., Ltd.** (Osaka-shi, Osaka)  
Health and welfare services for employees of DAIHEN Corp. and subsidiaries

- Head office
- Plant
- Branch
- Sales office
- Affiliate



● **Head Office (Juso Business Office)**  
Manufacture and sale of power transmission and distribution products and semiconductor devices



● **Rokko Business Office**  
Sale of welding machines; Manufacture and sale of industrial robots etc.



● **Mie Business Office**  
Manufacture of power transformers



● **Chitose Plant**  
Manufacture of power transmission and distribution products



● **Kanehira Plant**  
Servicing of pole-mounted transformers

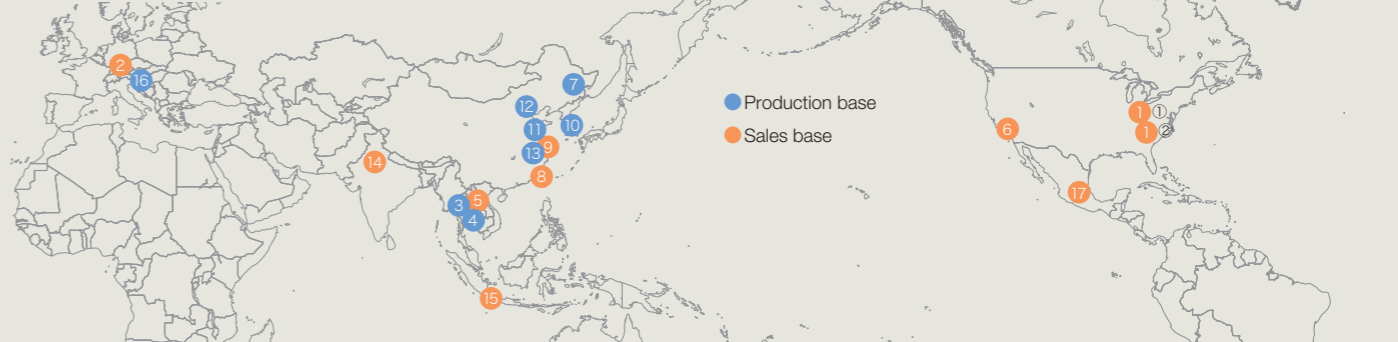


● **DAIHEN Industrial Machinery Corp.**  
Manufacture of welding machines, control and telecommunications equipment, RF generators, dispersed power equipment, etc.



● **DAIHEN Technology Institute**  
Manufacture and sale of clean transfer robots, dispersed power equipment, etc.; Development and sale of software

### Network overseas



DAIHEN, Inc. (USA) ① Dayton Office  
Sale of welding machines, cutting machines, industrial robots, etc. in North, Central and South America



DAIHEN, Inc. (USA) ② Charlotte Office  
Sale of welding machines, cutting machines, industrial robots, etc. in North, Central and South America



OTC DAIHEN Europe GmbH (Germany)  
Sale of welding machines, cutting machines, industrial robots, etc. in Europe



OTC DAIHEN Asia Co., Ltd. (Thailand)  
Manufacture and sale of welding machines, cutting machines and related parts in Southeast Asia and Oceania



DAIHEN Electric Co., Ltd. (Thailand)  
Manufacture and sale of power transformers etc.



DAIHEN Advanced Component, Inc. (USA)  
Sale of RF generators, clean transfer robots, etc.



Mudanjiang OTC Welding Machines Co., Ltd. (China)  
Manufacture of welding machines and related parts



OTC (Taiwan) Co., Ltd.  
Sale of welding machines, cutting machines, industrial robots, etc.



OTC DAIHEN Bangkok Co., Ltd. (Thailand)  
Sale of welding machines, cutting machines, welding/cutting torches, industrial robots, etc.



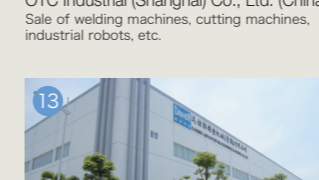
OTC Industrial (Shanghai) Co., Ltd. (China)  
Sale of welding machines, cutting machines, industrial robots, etc.



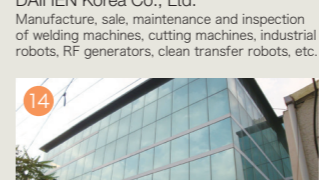
DAIHEN Korea Co., Ltd.  
Manufacture, sale, maintenance and inspection of welding machines, cutting machines, industrial robots, RF generators, clean transfer robots, etc.



OTC Industrial (Qingdao) Co., Ltd. (China)  
Sale of welding machines and related parts, RF generators, etc.



DAIHEN OTC (Beijing) Co., Ltd.  
Manufacture and sale of transformers etc.



DAIHEN Advanced Machinery (Changshu) Co., Ltd. (China)  
Manufacture, sale, maintenance and inspection of clean transfer robots etc.



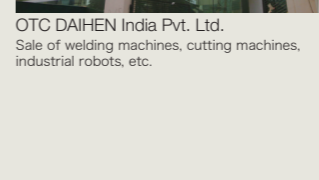
OTC DAIHEN India Pvt. Ltd.  
Manufacture, sale, maintenance and inspection of welding machines, cutting machines, industrial robots, etc.



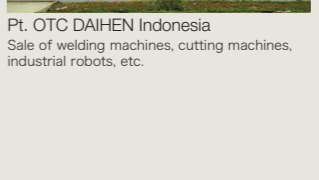
Pt. OTC DAIHEN INDONESIA  
Sale of welding machines, cutting machines, industrial robots, etc.



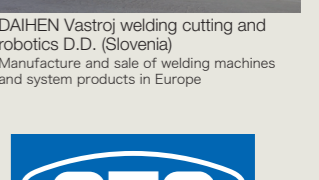
Pt. OTC DAIHEN INDONESIA  
Sale of welding machines, cutting machines, industrial robots, etc.



DAIHEN Vastroj welding cutting and robotics D.D. (Slovenia)  
Manufacture and sale of welding machines and system products in Europe



DAIHEN Mexico S.A. de C.V.  
Sale of welding machines, cutting machines, industrial robots, etc.



DAIHEN Mexico S.A. de C.V.  
Sale of welding machines, cutting machines, industrial robots, etc.



**Osaka Transformer Co., Ltd.**  
"OTC" is the brand name DAIHEN uses outside of Japan.

To please our customers and contribute to the world, we remain focused on developing DAIHEN products that offer unique added value.

Fiscal 2018 results for DAIHEN Corp. and consolidated subsidiaries

The business environment during fiscal 2018 was marked by more of the same postponement in semiconductor manufacturing investment that had begun growing in fiscal 2017. This drove down both orders and sales, respectively, to 140,712 million yen (down 7.2% from the previous year) and 143,457 million yen (down 4.0% from the previous year).

Incomes were additionally affected by overhead increases from earthquake reinforcing work and higher prices for

materials, resulting in operating income of 8,369 million yen (down 1,685 million yen from the previous year), ordinary income of 8,717 million yen (down 1,527 million yen from the previous year) and profits attributable to the owners of the parent of 6,166 million yen (down 664 million yen from the previous year).



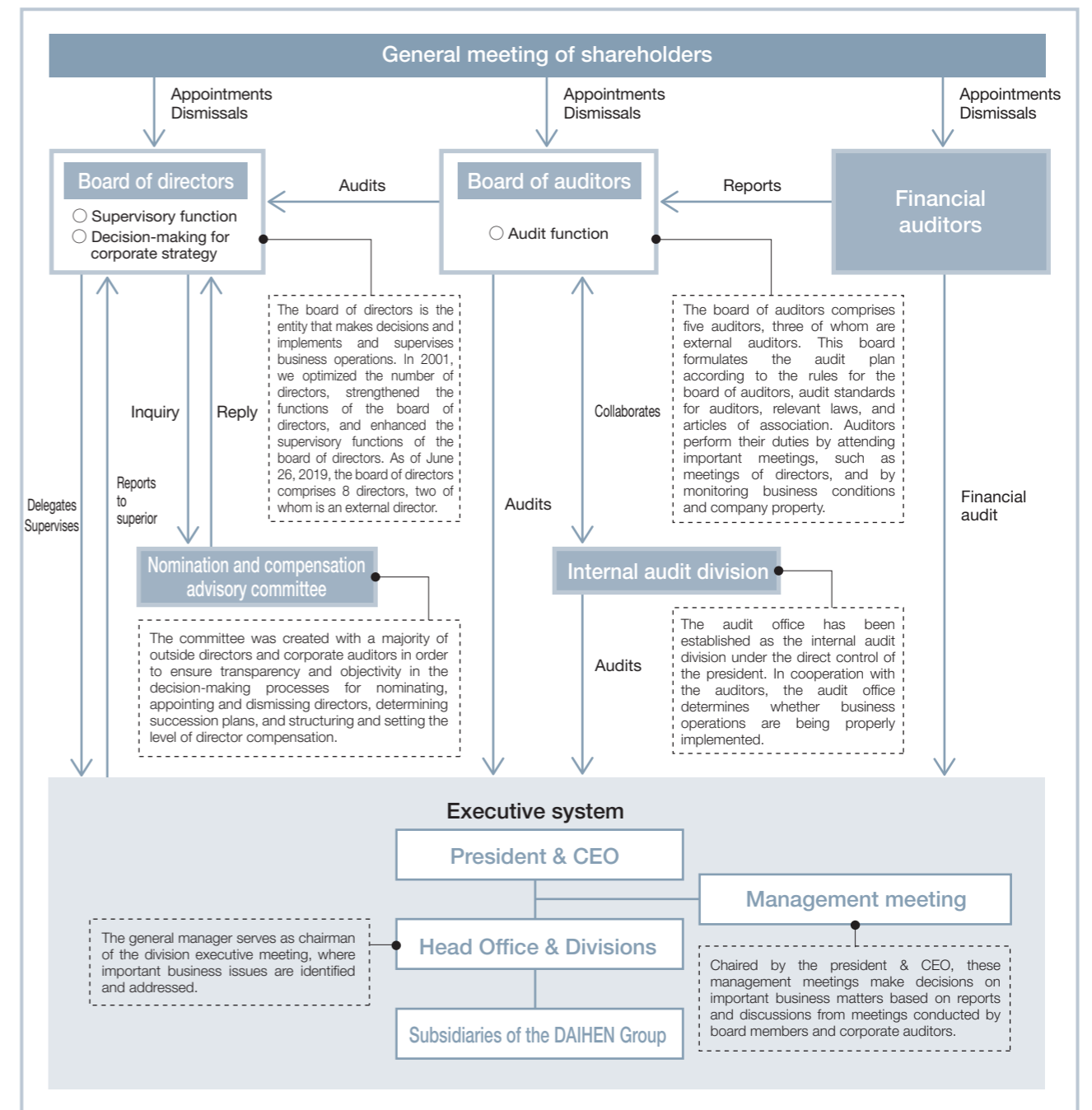
Ensuring management transparency and thorough compliance

An underlying principle of all our operations is to win the trust of our customers and all elements of society. The DAIHEN Group is striving to enrich its corporate governance in order to improve the transparency of management and ensure full compliance.

Efforts in corporate governance

The DAIHEN Group maintains a board of auditors that monitors the business undertaken by the board of directors. In June 2001, we adopted an executive officer system and enhanced the decision-making and supervisory functions of the board of directors to ensure the efficient operation of our business.

Corporate governance system



## Compliance and Risk Management Initiatives

In addition to fulfilling our corporate social responsibility, we continue to seek ways to improve compliance awareness among all our employees. We are addressing this issue by implementing various initiatives intended to ensure that we do not betray the trust of the public.

In the area of risk management, we streamlined our manuals and regulations and instituted training in preparation for natural disasters and accidents; moreover, we are promoting the development of a system to serve as a framework for ensuring compliance in relation to risks associated with misconduct and legal violations.

As for risks related to rapidly developing information systems and the intellectual property field, we are addressing risk management through workshops, enacting various rules and regulations, and keeping employees informed throughout the company.

### A Compliance Committee up and running

We created a Compliance Committee in order to build, put into action and maintain a compliance management system. It is chaired by the Director of Compliance and composed of departments heads from business divisions, planning and the head office. As a committee, they plan and promote compliance activities of the DAIHEN Group, and report and discuss issues that occur.

### The DAIHEN Code of Ethics

As the basis for our internal regulations, this manual includes the rules with which we must comply as a corporation as well as all relevant laws and regulations. We have adopted the DAIHEN Code of Ethics, which specifies methods of compliance. It also indicates how we are to operate our business according to the key concepts of our corporate philosophy, "Reliability & Creativity."

A pocket-size version of this publication has been distributed to all Group employees to support appropriate behavior and decision-making according to the highest ethical standards.



DAIHEN Code of Ethics

### Guide to Compliance with Laws and Regulations

As a means of preventing legal violations resulting from a lack of recognition or ignorance of the law, we have developed a compliance guide that summarizes the laws and regulations that all employees must follow. It also presents specific incidents involving violations of the law. This guide can be viewed or printed from any computer on the corporate network.

### Establishment of a counselor's office for the Compliance Helpline

We established a "Helpline" to prevent, detect and correct potentially illegal acts before they go too far. It gives employees a channel for reporting compliance concerns internally to a designated department or, if need be, to a law firm outside the company, without fear of retribution. Persons who report incidents receive full protection under the Whistleblower Protection Act, which guarantees them that the matter will be kept strictly confidential and that they will not be treated adversely because they called the Helpline.

### Training for compliance with laws and regulations

Compliance education that is designed to raise awareness of corporate ethics and legal compliance responsibilities, and encourage strict observance with these norms, is built into employee training. The training program sends a repeated message of how important compliance is to a company and how violations can seriously impact not just the company but its customers, suppliers and hosting communities as well. Employees also learn about laws, regulations and rules that affect business and to always be aware of the fact that they represent their company from the "DAIHEN Code of Ethics" and "Guide to Compliance with Laws and Regulations". Internal seminars that focus on contracting or specific laws are also held periodically. We are using this multipronged approach to drive home the meaning of compliance with the entire workforce and make them conscious of "acting in line with corporate ethics".



Compliance education

## Strengthening information security

In light of the growing importance of information security, the entire DAIHEN Group has adopted a variety of initiatives to enhance our information security system.

### Main initiatives currently in force

#### Creation of an Information Security Committee

Our Information Security Committee (ISC) improves the information security policy for maintaining and managing information security from a single unified perspective. The ISC also promotes awareness activities such as required security training and education, in order to make the DAIHEN workforce conscious of the importance of information security, and introduces tools for preventing leaks and illegal access to confidential information etc.

#### Compliance with our information security policy

We establish "Information Security Policies," "Rules on Information Security Measures" and "Rules on the Protection of Personal Information," and organize them to facilitate compliance. In order to verify that the information security measures are working properly, we conduct internal audits every year and, if inadequacies are detected, improvement plans are crafted and implemented.

#### Promotion of information security awareness activities

Information security measures are explained to the workforce in an educational session, in order to raise employee awareness. Specifically, awareness activities such as training and education are conducted to alert employees to targeted email attacks aimed at businesses and organizations.

To promote compliance at our overseas business sites as well, we explain our policies, rules and measures through educational sessions similar to Japan and provide guidance for the use of information security tools.

#### Strengthening our information security infrastructure

To avert the risk of information being leaked due to the theft, loss, unauthorized access or other misfortune to befall PCs and external storage devices, we scrupulously encrypt PC hard disks, log operating histories and manage external storage devices. Moreover, we have introduced various systems to strengthen our information security infrastructure such as an automatic system for generating passwords for email attachments and a thin client system that prevents files from being saved to PC disks.

### Main activities for fiscal 2018

We will strengthen information security across the entire Group by improving awareness and establishing measures.

- Reviewing our information management practices against rules and regulations
- Making E-learning opportunities on the subject of information security availables
- Assessing the usage of security tools

## Initiatives to protect our intellectual property

In the area of intellectual property, we are implementing a variety of initiatives to support risk management and legal compliance. For example, we comply with applicable laws and regulations relating to intellectual property rights before we undertake to develop, manufacture, or sell a product; in addition, we always confirm that we are not infringing the intellectual property of another company (to prevent the risk of infringement). This approach ensures that our customers can use our products in full confidence.

### Proper stewardship of intellectual property rights

In order not to infringe upon the intellectual property rights of other companies, we regularly read through public gazettes that report on new patents and the like. We also conduct design reviews and patent clearances when developing new products or modifying designs to make sure we steer clear of rights that belong to others.

On the reverse side of that topic, we build patent networks around our best technologies to clearly differentiate our products from competitor products, and use these legal protections to gain a competitive edge and stabilize business.

For all of that to happen requires us to be at the best of our abilities, therefore we provide and regularly upgrade education on intellectual property rights, management and protection via a combination of level/purpose-based internal training that is structured by the number years of experience an employee has, and outside learning opportunities organized by the Japan Intellectual Property Association.

### Training in contracting

At DAIHEN, periodic training in legal affairs and intellectual property rights serves in part to raise awareness of legal compliance and in part to ensure that matters of compliance are observed in business operations. One topic we adamantly pursue through our internal seminars is contracting. Contracting is an increasingly important component of business since the growing need for companies to cooperate and do joint research and development as of recent requires confidentiality commitments between parties with regards to findings etc. Using specific examples, employees are taught how to correctly specify matters in a contract with suppliers. They come out of the program knowing more about contracting than when they went in.



Seminar on contracting

## Earning the confidence of our customers by providing high-quality goods and services

DAIHEN's quality policy is just the beginning of concerted efforts to provide customers with products and services they trust and like.

### Earning the confidence of our customers

#### Quality policy

As reflected in our corporate philosophy of "Reliability & Creativity" and our founding spirit of "Superior Quality, Reasonable Prices, and On-Time Delivery," DAIHEN has been striving since its establishment to provide customers with reliable products and services. A key part of that has been a strong emphasis on quality.

We have earned our customers' trust because a common mindset that settles for nothing less than the "Best Quality" is shared amongst everyone on the DAIHEN workforce. In order to retain that trust, DAIHEN has adopted a quality policy and is continuously taking steps to heighten quality in cooperation with our suppliers.

#### Quality policy

In accordance with our founding spirit and corporate philosophy, we are winning the confidence of our customers by providing outstanding products.

Each division is addressing "customer satisfaction" as an indicator of customer trust. We intend to further increase our efforts in this regard.

#### Words from the frontline of quality control

##### It's all about earning the customer's trust.

The Clean Robot Division produces robots and system solutions that are used in manufacturing environments where a high clean factor is required. Our products are often incorporated into production lines that turn out LCDs, organic ELDs and semiconductors, and are subjected to demanding conditions like vacuums and high temperatures. Therefore, they have to be very reliable and durable. In order to realize this kind of quality and earn the customer's trust, we not only conduct design reviews and performance tests but also carefully inspect production preparations, audit suppliers and plants for quality, and instruct any necessary changes in an effort to eradicate defects. Our whole division is united in the push to improve quality, so that the products we deliver to customers are in every way the highly reliable products that they expect from DAIHEN.

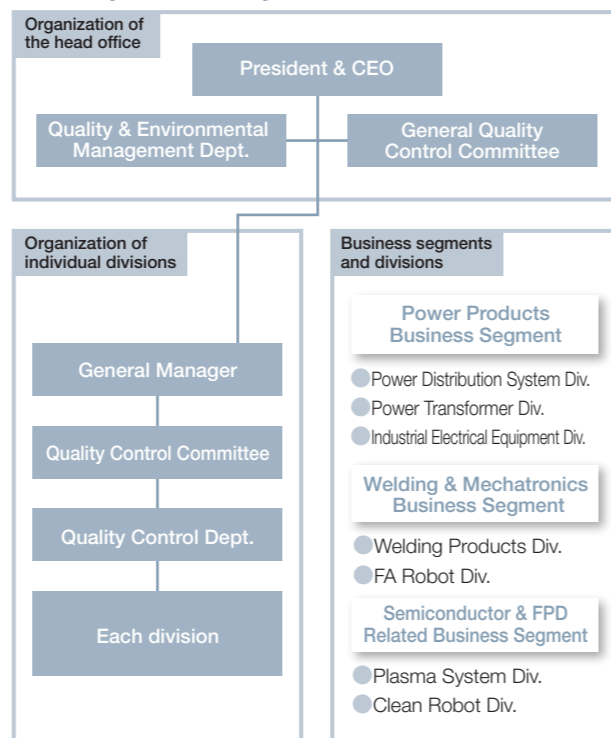


**Yasuhiro Mizuta**  
General Manager,  
Quality Control Dept.  
Clean Robot Division

#### Quality assurance system

At DAIHEN, each of our business segments maintains a quality management system. Under their guidance, the respective Quality Control Committees established in each division and each product group discuss quality issues and report on any that arise. We have also established the General Quality Control Committee to provide oversight throughout all divisions. This committee examines problems common to all divisions, receives reports on significant quality problems from each division, examines the reports received on significant quality problems, implements countermeasures for these significant quality problems following their examination, and feeds back the results to all divisions.

##### Quality assurance system



#### Response system for significant quality problems

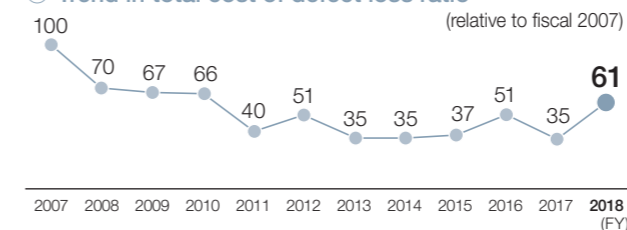
If a product of the DAIHEN Group were to cause or potentially cause physical harm to a customer or their property, or if minor trouble were to impact a number of customers, we would treat it as a "serious quality issue" and muster a response team. The response team would quickly collect information, troubleshoot the problem and devise and implement corrective measures. We also have a system in place to share the case information across the group in order to prevent any reoccurrence.

No one has ever filed a product liability suit against our company because of a non-conforming product. Nevertheless, it is very important that we root out any significant quality problems to win the confidence of our customers. The entire group, therefore, is always making efforts to discover and correct quality problems.

### Enhancing customer satisfaction

The DAIHEN Group implemented an Absolute Quality Initiative between fiscal 2006 and fiscal 2008. During the three-year period beginning in fiscal 2009, we promoted further quality improvements through our Quality Initiative (Q Initiative). During the three-year period beginning in fiscal 2012, we promoted our new Quality Initiative with an emphasis on minimizing risks to quality. In fiscal 2013, we went back to basics and circulated PDCA activities to address individual quality problems and risks. We are steadily incorporating corrective actions and preventive measures. As a result, we have gradually improved our ratio of sales to the total cost of losses due to defects. Treating fiscal 2007 as 100, our score for fiscal 2018 was 61. To improve "customer satisfaction" and maintain their unwavering trust in us going forward, we will engage the entire group in strengthening activities that will prevent unexpected quality issues from arising in the first place.

##### Trend in total cost of defect loss ratio



#### Certification of ISO 9001 registration

Since 1995, a succession of divisions of the DAIHEN Group have obtained certification of registration with ISO 9001, the international standard for quality management systems. Today, all divisions and international production plants, except for new divisions, have acquired certification of ISO 9001.

Acquiring certification of ISO 9001 registration expands our foundation for doing more than just meeting customer requirements; it testifies to our company-wide commitment to comply with the original purpose of the ISO 9001 standard, which is to continuously improve our structure in order to ensure customer satisfaction.

##### ISO 9001-registered divisions and companies

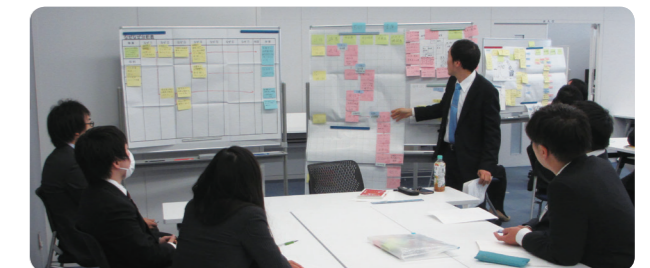
Fiscal year	Divisions, company name
1995	Welding Products Division
1996	Power Transformer Division
1997	Power Distribution Products Division (Now Power Distribution System Division)
1998	Mechatronics Division (Now FA Robot Division)
1999	Power & Control System Division (Now Industrial Electrical Equipment Division) DAIHEN Electric Co., Ltd.
2001	Semiconductor & FPD Related Business Segment Mudanjiang OTC Welding Machines Co., Ltd.
2004	OTC DAIHEN Asia Co., Ltd. OTC Industrial (Qingdao) Co., Ltd.
2009	DAIHEN OTC (Beijing) Co., Ltd. (China)
2016	DAIHEN Stud Co., Ltd.
2017	DAIHEN Korea Co., Ltd.

### Quality control exclusive training initiative

In order to maintain and improve quality across the DAIHEN Group, all Group companies are putting a lot of time and effort into human resource training. As a part of that, educational activities focused specifically on quality management are being developed inside and outside Japan.

The training curriculum is devised to primarily apply and practice quality control techniques, bolster our prevention initiatives and strengthen our ability to logically think our way through problems. It additionally covers FMEA and FTA, failure analysis, design review, reviewer training, our own "Why-Why Analysis" training, and human error analysis and countermeasures.

Moreover, we continue to implement training in statistical analysis, which serves in analyzing data in relation to product design, development and manufacture, as well as the basics of product safety in order to ensure users greater safety when using our products.



Training class in "Why-Why Analysis"



Lesson in statistical analysis



Case study in product safety

#### Small group movement

In the DAIHEN Group, many business activities directed at attaining policy objectives are conducted in small groups from a top-down approach (PS activities \*). This kind of platform helps us to find better ways to look at and execute work, make improvements and efforts, and maintain and improve the quality of our products and services, because we can condense and piece that process together with a logical and scientific train of thought.

In support of these activities, we train each employee in the fundamentals: QC perspectives and approaches, seven QC tools, seven new QC tools, problem-solving procedures, target-attainment procedures, report-writing and the like. We also visualize the progress of our small group activities on our intranet while keeping everyone informed of the results of our initiatives. In this way, we are upgrading our job control and improvement capabilities while improving quality awareness.

\*PS activities: Policy-based Small group activities



## To win the confidence and meet the demands of shareholders

In order to meet the expectations of shareholders and investors and justify their confidence in us, we remain committed to the sound and transparent management of our business. Moreover, we are dedicated to business development and are engaged in dissemination of accurate and pertinent information.

### Basic policy

The policy of the DAIHEN Group is to implement the corporate philosophy characterized by the keywords "Reliability & Creativity." We are upholding this policy by faithfully and honestly providing safe, high-quality products and services that meet the needs of our customers while continuing to demonstrate reliability through our business operations. Moreover, while remaining dedicated to creating value and developing markets with new products and innovative technologies, we are diligently contributing to social development.

In addition, by implementing comprehensive investor-relations initiatives to provide information on our Group's business and financial circumstances as required for sound investment decisions, we intend to earn the ever deeper confidence of shareholders and investors.

### Increasing our corporate value

In today's business world, a company can no longer differentiate itself from competitors by pursuing just QCD\* alone. As we see it, intangible assets — human resources, technologies, sales routes, intellectual properties, environmental protection, etc. — enhance corporate value and provide a basis for maintaining a competitive edge and achieving sustainable growth. In order to enhance the value of our intangible assets, we invest time, money and efforts into developing human resources, building patent networks around our core technologies and bettering relations with our stakeholders, while improving our internal cohesion and networking so that we are stronger as a group.

\*QCD: Quality Cost Delivery

### Paying good dividends

DAIHEN has adopted the important policy of continually paying a good dividend to our shareholders. We are committed to maintaining this policy of returning profits to shareholders subject to our profitability, financial circumstances, and the future development of our business.

#### Five-year record of dividend payments

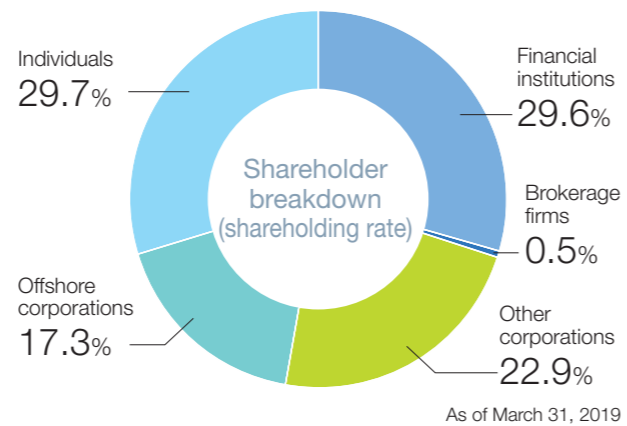
Fiscal year	2014	2015	2016	2017	2018	2019
Dividend (in yen)	40	60	60	75	80	85 (Planned)
Payout ratio (%)	17.6	21.2	24.2	27.6	32.4	34.0 (Estimated)

\* DAIHEN executed a reverse stock split of 5 shares into 1 on October 1, 2018. For comparative purposes, dividend amounts are shown assuming the reverse stock split had been done in fiscal 2014.  
 \* We set a payout ratio of 30% against the 3-year average profit as a target in our 2020 medium-term business plan. Our payout ratio against the 3-year average profit in FY2018 was 31.2%.  
 \* Dividends for fiscal 2019 include a "100th Anniversary Commemorative Dividend" of 5 yen.

#### Stock data

As of March 31, 2019

Number of shareholders	10,757
Shares outstanding	27,103,291



### Information disclosure

We disclose all information required by legal disclosure standards. In addition, if we determine that it is necessary to disclose additional information to increase shareholder understanding of our company, we will disclose such information immediately and accurately through various media, even if disclosure of such information is not required by any laws or regulations.

Moreover, we will continue to proactively release information about investor relations activities through our corporate website (www.daihen.co.jp) and IR conferences for institutional investors, etc.



Investor relations information available on our website (Japanese only)



IR briefing

## As a partner to our customers, we seek to achieve mutual prosperity and outstanding customer satisfaction.

To provide our customers with excellent products, we are promoting green procurement to ensure fair and equitable trade with our suppliers in the interests of mutual development.

### Basic policy regarding material procurement

To meet customer demand by providing valuable products and services to our customers, we depend on the cooperation of suppliers offering excellent products and technologies. The DAIHEN Group believes that one of the most important elements of manufacturing competitive products is the procurement of high-quality materials. Therefore, on our website, we always list the items we seek to procure. In addition, we have adopted a basic policy for material procurement so that we can maintain and develop partnerships with our suppliers.

#### Basic policy regarding material procurement

##### Offering openness and fairness of opportunities

We openly provide opportunities for all our suppliers to participate in trade, regardless of nationality, region, business scale, or business experience.

##### Fair evaluation

We adhere to principles of competition as the basis on which we select suppliers. We generally take management reliability and technical development capability into consideration and make a fair evaluation in addition to evaluating quality, price, and delivery date.

##### Mutual development

We maintain sound trade relations based on mutual trust with suppliers and strive to support reciprocal corporate development.

##### Compliance with the law

We faithfully meet our contractual obligations with our suppliers, negotiate according to laws and regulations, and maintain healthy business practices.

Our policy is not to use conflict minerals that serve as a source of funds for warlords who violate human rights.

### Communication with our suppliers

So that we and our suppliers are on the same page, we hold policy briefings where we explain our business and procurement policies, and the annual plans of each of our divisions. We also use the opportunity to award exemplar suppliers based on performance numbers from the preceding year. Moreover, because the briefings gather so many suppliers under one roof, we conduct a survey of how satisfied they are of their business dealings with DAIHEN and their thoughts of our procurement policy and practices. In turn, we apply this information back to our procurement activities in order to improve business processes and build stronger relations with our suppliers.

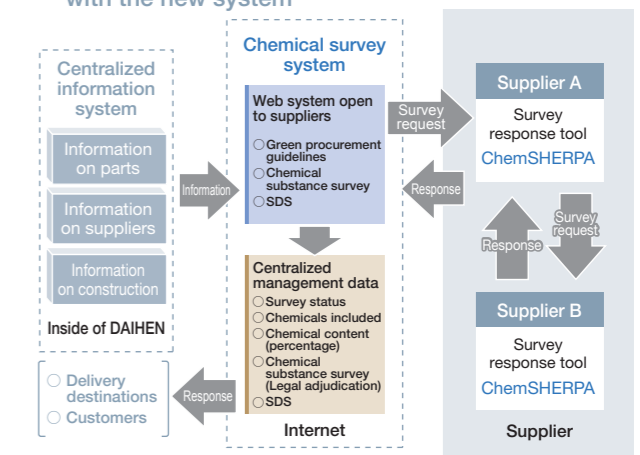


Policy briefing session for suppliers

### Green procurement initiatives

In step with global trends in chemical management and the push for standardization inside Japan, we revised the Green Procurement Guidelines of the DAIHEN Group into a seventh edition that brought our management processes closer in line with the newly unified chemSHERPA platform for sharing information on chemicals contained in products. Moreover, to promote green procurement, we also upgraded the system we had been using to investigate chemical substances so that we could use data across our global supply chains and share environmental data. The new system has made our environmental assessments faster and easier, and given us yet another tool for making environment-friendly products in the DAIHEN Group.

#### Outline of green procurement and surveys taken with the new system

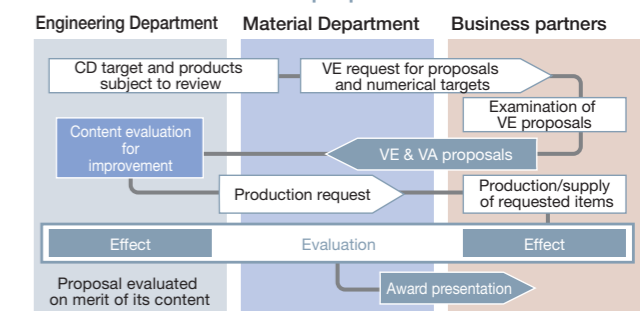


### Working together with our suppliers to raise productivity

The DAIHEN Group aims to ensure quality and improve market competitiveness while streamlining our manufacturing processes and enhancing ease-of-manufacturing by actively implementing cost reductions focused on Value Engineering/Value Analysis (VE/VA) proposal initiatives.

Through these activities, we jointly participate in improvement proposals together with those who place and receive orders, and we share the results with both parties. We believe this is a desirable way to operate our business while earning reasonable profits.

#### The flow of VE and VA proposals



## Establishing an active workplace and improving our personnel system by providing rewarding work

We are establishing an active workplace and improving our personnel system by providing rewarding work. Moreover, we are supporting our employees' choice of varied working styles.

### A personnel system dedicated to enhancing employee motivation

DAIHEN has established a personnel system designed to support and motivate our employees and provide them with rewarding work. For example, we reassign employees to accommodate the personality, work attitude, and abilities of each individual. In addition, we train our employees to develop a spirit to take on challenges; clarify our evaluation standards; and treat all the employees fairly and appropriately. In this way, our personnel system is supporting all our employees.

We believe that supporting and motivating our employees and providing them with fulfilling jobs will allow each employee to maximize his/her abilities and to develop a satisfying career. As a result, workplaces become active and our business develops at the same time. And, as DAIHEN develops, we improve the working conditions of our employees. These improvements are further contributing to employee motivation by making work more rewarding. In other words, we are aiming at a self-sustaining "personnel cycle" that can keep business going indefinitely.

In order to establish this "personnel cycle" and keep it self-sustaining, our performance evaluation system sets clear targets that the individual employee should strive to achieve and, by motivating the individual to produce results from their efforts, aims to help him/her develop his/her abilities in the process. It is a simple and easy-to-grasp system that serves to both manage targets and develop human resources.

### Career self-discovery and plotting program

Because of social changes and newly accepted work patterns, corporate development going forward is underscored by the thinking that an organization grows only as much as the people it employs grow. At DAIHEN, we have long believed that our employees are and should be in charge of their own personal growth and, with a forward-looking attitude about what learning and experiences that requires and by liking one's job and going about it enthusiastically, their growth will lead to better results. This is why we put so much effort into our human resource development programs.

Those programs begin with a career self-discovery and plotting program for new recruits. This program is the basis for making all of the human resource development activities employees partake in, including the OJT and Off-OJT, and interviews on target management, more effective.

The purpose is not to have employees acquire knowledge or develop a certain mindset that goes with their position and duties like in hierarchical training. Instead, the program aims to get each individual to look down the road and think about why he/she is working, what he/she wants to achieve and become, and what is important to him/her, and then translate what he/she has discovered through this process of introspection into everyday action.

Nevertheless, in the first three years an employee is with the company, the daily instructions and training in intermediate activities they receive from their superiors are more hands-on.

Going forward, we want to improve ourselves as an organization by building stronger bridges between our career

self-discovery and plotting program and our mentoring program, and grooming new recruits and the younger employees of our workforce more and more through activities in the workplace.



Activities in our career self-discovery and plotting program

### Developing new recruits as a workplace activity

A "mentoring program" has been introduced in order to systematically guide new recruits in the right direction and get them up to speed in their assigned workplaces as quickly as possible. Rather than managers or supervisors, mentors are someone who can steer the new recruits through daily tasks and counsel them on life issues from a common ground approach.

The primary purpose of the program is to help the new recruits settle into their jobs as soon as possible and promote their growth so that they can execute their work smoothly. To make the program more effective, mentors and new recruits go through training together and do work that helps them to understand one another better. Moreover, not only is one mentor assigned to each new recruit but also the entire workplace is tasked with aiding the new recruits. In other words, developing human resources is a workplace activity.

This idea of an entire workplace developing its new recruits is intended to create a constructive atmosphere in which everyone instinctively assists the new recruits in the same way they themselves received help and guidance when they were new. It is also meant to encourage young employees to set their sights on serving as mentors and growing into workplace leaders.



Activity from the mentoring program

### Creating an environment that facilitates work

We are now creating an environment to facilitate work so that all employees can maximize their abilities.

### Support for balancing work with childcare and nursing care responsibilities

In the DAIHEN Group, we have improved the employment options for individuals with small children or family members

who need looking after so that they can continue to work while caring for loved ones. These options offer employees considerable flexibility above and beyond legal requirements, beginning with shorter shifts and reduced workweeks of just 4 days a week. Not only are these systems in place but we are also reshaping workplace environments so that employees can easily make use of these systems. Because it is important to our employees, we will collect and analyze workplace concerns and desires from them and, going forward, use this information to build workplaces where our employees can exert their exuberance.

### Childcare/Nursing care options

	DAIHEN	Mandated
Childcare leave	Until the day before the child's 2 <sup>nd</sup> birthday	May be extended until the day before the child's 2nd birthday if the child is 18 months or older and not enrolled in daycare etc.
Childcare nursing leave	5 paid holidays until the child completes elementary school	Until the child enters elementary school (No obligation to pay salary during leave)
Nursing care leave	5 paid holidays	No obligation to pay salary during leave
Reduced working hours for childcare	Until the child completes elementary school	Until the day before the child's 3 <sup>rd</sup> birthday
Exemption from working outside of regular business hours	Until the child completes elementary school	Until the day before the child's 3 <sup>rd</sup> birthday
Restriction on overtime work	Until the child completes elementary school	Until the child enters elementary school
Restriction on late night work	Until the child completes elementary school	Until the child enters elementary school

### DAIHEN Group Heart Festival

The DAIHEN Group Heart Festival is a big field day event that brings together upwards of 1,700 group employees, their families and people from cooperating companies from across Japan.

Held every year since 2007, it was planned and created as a place and opportunity for brewing a sense of belonging and satisfaction as a member of the DAIHEN Group and giving those working under the DAIHEN umbrella a moment to show appreciation to their families, through competitive events between divisions and other contests where teamwork channels the participants' energy toward a shared goal.

Moreover, through the process of forming teams, practicing and actually competing with employees from cooperating companies as well as their families, the festival aims to improve communications beyond organizational boundaries.

Because of the energy and enthusiasm the Heart Festival brings out in people, we will continue to shape and stage the event so that everyone connected to the DAIHEN Group will feel more attached and happier to be a part of the Group.

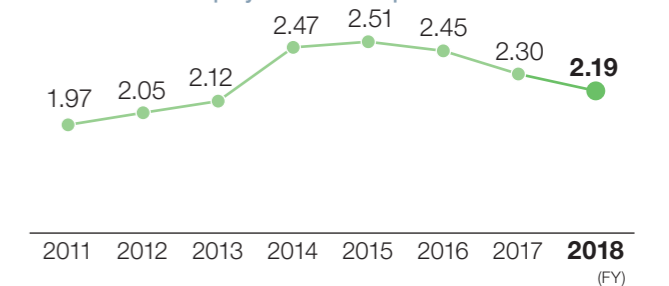


DAIHEN Group Heart Festival

### Promoting employment of persons with disabilities

Daiki Corporation became a special subsidiary of DAIHEN in 1983. Daiki is now promoting employment of persons with physical and mental disabilities while improving the working environment for these individuals.

#### Trend in the employment rate for persons with disabilities



### Corporate Action Plan under the Act on Promotion of Women's Participation and Advancement in the Workplace

We established an exploratory committee of labor and management representatives to find ways for women to demonstrate their skills and play more active roles in the workplace. In June 2017, they formulated and submitted the below "Corporate Action Plan" to the Equal Employment Office of the Osaka Labour Bureau. We will take more action like this going forward so that women are given the same job opportunities as their male counterparts.

1. Period  
June 1, 2016 – May 31, 2019 (3 years)
2. Situation at DAIHEN  
In our recruiting practices every year, we look primarily for engineering graduates, however about 90% of the applications for technical positions come from men, because women represent only about 10% of that category. Moreover, about 70% of the applications we receive for office positions come from men. As a result, women account for a small percentage of our workforce.
3. Target  
Raise the percentage of women amongst new recruits (graduates and midcareer transfers) to 18% or higher.
4. Activities and timeline for recruiting and hiring more women  
June 2016 Explore policies and targets for hiring more women.  
October 2016 Explore ways to hire more women.  
December 2016 Explore proposals on deploying women in cohort with divisions/departments.  
January 2017 Formulate recruiting plans for the next year with higher numbers of women.  
March 2017 Implement measures to hire more women.  
August 2017 Assess efforts and explore ways to solve outstanding issues.

## Our health and safety initiatives

### Group Policies

Safety is the underlying pretext to our corporate prime objective of “simultaneous contentment for all”. To stand by that commitment, we have made it a basic policy of the DAIHEN Group to place “top priority on health and safety”. This compels us to create workplace environments where our employees are reassured of their health and safety, and to establish a corporate culture and mindset where managers and supervisors take the lead in promoting health and safety activities in the workplace as an important first step towards preventing on-the-job accidents, and all employees actively participate in these activities conscious and aware that they are ultimately responsible for their own health and safety.

### Highlighted activities

#### Expert diagnoses to improve workplace safety and health

We underwent a series of health and safety audits by the Japan Industrial Safety and Health Association in order to confirm the results of the “No-Tolerance Safety Patrols” conducted every year between fiscal 2015 and 2017 by work safety consultants and key safety personnel of our own, and to further improve our level of health and safety. The audits were performed at 12 factories and 2 construction sites in Japan, and included locations belonging to affiliated

companies. The experts who performed the audits were very knowledgeable and experienced in their work. As was the purpose of this exercise, they pointed out problem spots to us and we made environmental improvements to various workplaces based on their advice. It is also worth noting that the experts cited us numerous of times as good examples of how to do things and verified that we are on top of the health and safety of our worksites.



Workplace safety and health patrol



#### Keeping a ledger to manage and mitigate serious risks

One important activity last year that had to do with workplace safety and health was to keep a ledger of Level III and higher risks (risks that may result in serious accidents) extracted from workplaces during risk assessments, and use it in planned activities intended to manage and mitigate those risks.

We also had an industrial safety and health consultant assess the operations registered in the ledger and the

countermeasures we took for them, as to whether our risk estimates (especially our risk assessments after measures were taken) and countermeasures were implemented properly or not, and received guidance on those matters.

Going forward, we will apply the results of these audits to raising the level of our own risk assessments and mitigating serious risks in the workplace.



On-site risk assessment verification



Guidance presentation after site audit

#### Heads-up meetings before starting work

Before starting regular and irregular jobs, a heads-up meeting is held not only to call attention to potential dangers but also to communicate matters like job content and scope,

assignments, the state of everyone's health, etc. At DAIHEN, we believe that communicating is an important component of work safety.

#### Stronger messaging of the 6 S's

We continue to practice and improve the 6 S's (*seiri* [sort], *seiton* [keep orderly], *seiso* [clean], *seiketsu* [standardize the 3 foregoing practices], *shitsuke* [sustain the practices], *seibi*

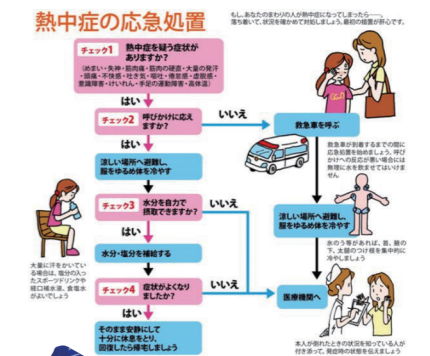
[service]) defined by the DAIHEN Group as the basis of work safety and health activities, by incorporating the practices into group annual plans.

#### Thorough measures against heat exhaustion

During the grueling heat of summer, we audited the workplace environment and heat exhaustion preventative measures of all of our business sites, to make sure proper measures were being taken, e.g., dressing in air-cooled clothing, using an emergency kit and warning meter, providing salt tablets, isotonic drinks, etc. In addition to that, managers and supervisors were instructed to provide guidance to subordinates in managing one's own health and the workplace environment.



Warning meters and advisories



First-aid response in the event of heat exhaustion and emergency kit

#### New “Safety Check Day” started

Beginning in 2018, December 15 was set as “Safety Check Day” in the DAIHEN Group. Planned as an annual event, the purpose is to have each and every employee on the group workforce to “check” their own safety awareness and the safety of their actions, by taking part in activities to prevent

work related accidents. In this first year, managers and supervisors at each business site conducted safety patrols and every employee checked him/herself by filling out a check sheet, the result being that employees across the group workforce reaffirmed the importance of safety.



“Safety Check Day” announcement. Activities were pushed up to 12/14 because 12/15 was a holiday.



Meeting prior to patrolling the whole business site

## Seeking symbiosis with the local community and cooperation with society

As a member of the local community, each business office and plant is deepening its interchange and establishing a positive relationship with community residents while fulfilling its corporate social responsibility through various support initiatives.

### Communication with the local community

#### Keeping the community in focus

In August, we open up a part of the Juso Business Office site in Osaka and DAIHEN Industrial Machinery site in Tottori City to the general public for classic summertime festivals. Our employees man booths and run raffles and other events that give us a fun and entertaining platform for deepening interaction with the residents of the surrounding community and amongst group employees and their families.

On a slightly different note, group company Daihoku Industry joins the local community in Eniwa-shi, Hokkaido in bringing a little warmth amidst the snow and cold of February via the city's "Candle Night".



Summertime festival at the Juso Business Office site



Summer festival hosted by DAIHEN Industrial Machinery



Eniwa Candle Night

#### Neighborhood schools participate in plant tours

At the Juso Business Office, Rokko Business Office in Kobe and DAIHEN Industrial Machinery, we give tours of our offices and factories to elementary schools, daycare centers and technical colleges from the nearby area, and, as a more in-depth look into what we do, offer internships and shadowing opportunities to junior high school students. Through these activities, we try to convey what it means to work in manufacturing and why we think the DAIHEN Group is so interesting.



Elementary school students touring the showroom at the Juso Business Office



Internship at the Rokko Business Office



Tour at DAIHEN Industrial Machinery

### Supporting social welfare, education, and cultural initiatives

#### Support for social welfare

The Hakuaisha, a social welfare service corporation that carries out social welfare activities in Yodogawa-ku, Osaka, holds a regular event known as the Hakuaisha Carnival. Employees wishing to make donations provide numerous items for the fundraising bazaar.

#### Support for art and culture

We participated in initiatives in support of the Osaka Symphony Orchestra, the Osaka Philharmonic Orchestra, the Kansai Philharmonic Orchestra, Kobe Luminarie, and Nagashibina Maranic (marathon and picnic) event in Mochigase (Tottori-shi).

#### Support for scientific education

We dispatch company employees as part-time university lecturers to provide support and help students improve their abilities. This effort includes providing students with an introduction to leading-edge robotic and welding technologies.

### Cleanup activity surrounding our business offices and plants

Each location of the DAIHEN Group is proactively engaged in cleanup campaigns and is contributing to regional beautification initiatives. Going forward, we intend to participate in future regional beautification and vitalization efforts such as these.



Juso Business Office (Osaka-shi, Osaka)



Rokko Business Office (Kobe-shi, Hyogo)



Mie Business Office (Taki-cho, Mie)



Chitose Plant (Chitose-shi, Hokkaido)



Kanehira Plant (Osaka-shi, Osaka)



DAIHEN Industrial Machinery (Tottori-shi, Tottori)



DAIHEN Technology Institute (Kitsuki-shi, Oita)



DAIHEN Stud (Matsudo-shi, Chiba)



Daihoku Industry (Eniwa-shi, Hokkaido)



DAIHEN Aomori (Hirosaki-shi, Aomori)



Minami Electric (Tadotsu-cho, Kagawa)

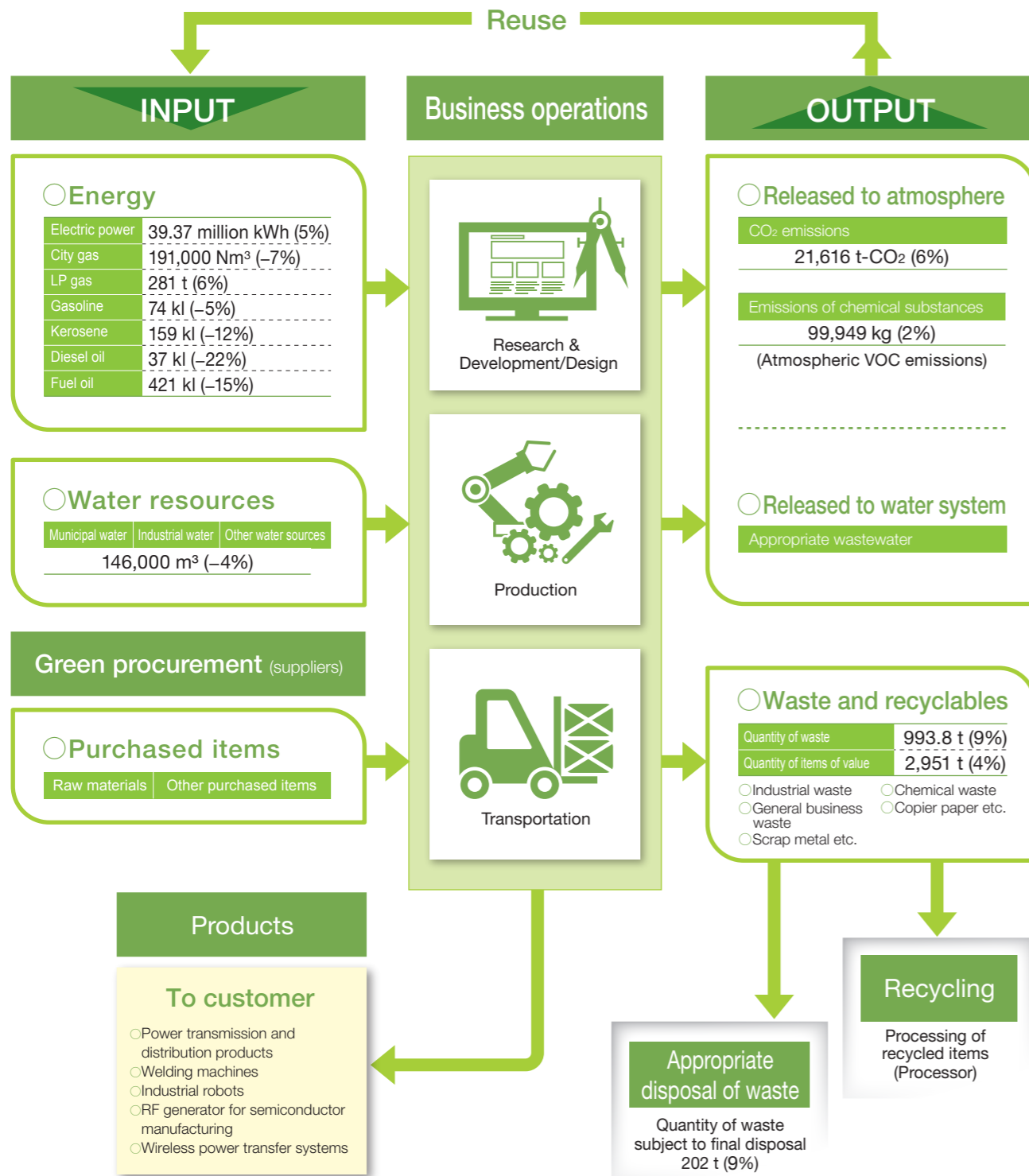


DAIHEN Fuse (Izumitsu-shi, Osaka)

## The environmental impact of our business activities

In addition to determining the environmental impact of our business activities, the DAIHEN Group is working hard to reduce its overall environmental impact from every angle by remaining constantly aware of all phases from planning, development, manufacture and use to discard.

Relation between the DAIHEN Group's environmental impact and business operations



Notes:  
 • Scope of data: DAIHEN Corporation (Juso Business Office, Rokko Business Office, Mie Business Office, Chitose Plant, and Kanehira Plant) and Group production bases (Tottori Plant, Oita Plant, Matsudo Plant, Eniwa Plant, Hirosaki Plant, Kagawa Plant, and Izumiotsu Plant), OTC DAIHEN Asia Co., Ltd., DAIHEN Electric Co., Ltd., Mudanjiang OTC Welding Machines Co., Ltd., OTC Industrial (Qingdao) Co., Ltd., DAIHEN OTC (Beijing) Co., Ltd., DAIHEN Advanced Machinery (Changshu) Co., Ltd.  
 • Figures apply to fiscal 2018. Figures in parentheses are relative to fiscal 2017.

## Environmental management at the DAIHEN Group

In the DAIHEN Group, we want to be the “company of choice of many”. We figure that begins by building better relations with stakeholders through our environmental protection activities. So, we treat environmental protection as one of the top priorities in the way we go about business. This “pro-environmental” approach to business management guides us in formulating and implementing strategies and actions that are helping to reshape the world for sustainable development, and protecting the environment from our corner of society.

Contributing to society's sustainable development is, in our view, a social responsibility of the DAIHEN Group. This requires us to develop sustainably as a business as well and makes “pro-environmental” management a key factor in steering us along that path.

Because we are a manufacturer, we recognize how important it is that we reduce the environmental loads of our products at every stage of the product lifecycle from conception to discard and that, by doing so, we can fulfill our

responsibility as a business to society. Therefore, within the DAIHEN Group, we want to use the environmental management systems (EMS) we built for the purpose of reshaping society for sustainable development, to hone our own sustainable development, first and foremost in the ways illustrated below.

### Contributing to the emergence of a sustainable society

#### Implementation of environmental management at the DAIHEN Group



## Environmental initiatives: plans and results

In the DAIHEN Group, we begin our environmental protection efforts by setting mid- to long-term targets in a "Voluntary Environmental Action Plan". Through our 5th plan that started in fiscal 2016, we promoted three areas of activities — prevention of climate change, waste reduction and prevention of air pollution — at 18 business sites in Japan and overseas. Fiscal 2018 was the last year of that plan and, for that final year, we adjusted our targets based on our performance in fiscal 2017 and witnessed industrious efforts on the part of our divisions, business offices and plants. Though results were slightly disappointing, we did attain most

of the 5th plan's original targets and our environmental performance steadfast improved.

On the "Management" front, we updated our ISO14001 certification to the 2015 version and made contributions to the environment in cohort with materials suppliers.

Moreover, as a group, we helped customers reduce their CO<sub>2</sub> emissions by creating and increasing sales of environment-friendly products.

Increases were seen in CO<sub>2</sub> emissions and water consumption because of grueling heat, but every business office and plant did what it could to curb consumption.

As waste reduction activities, recycling and conversion of waste into valuable resources were promoted and the use of returnable steel shipping containers was expanded to overseas business sites.

As for activities targeted at preventing air pollution, we explored ways to reduce emissions, including switching to VOC-free paints.

In fiscal 2019, we will newly craft our 6th Voluntary Environmental Action Plan and, in line with requirements under ISO14001:2015, will improve our EMS by coupling targets to our business activities (actual processes),

promoting actions against risks, seeking opportunities and readying ourselves for all imaginable environmental changes.

### Fiscal 2018 targets in the DAIHEN Group's 5<sup>th</sup> Voluntary Environmental Action Plan and Results of Initiatives

Corporate objective	Medium-term plan	Stage	Policy	Target for fiscal 2018	Results of Initiatives in fiscal 2018	Initiatives in fiscal 2018	Evaluated by DAIHEN	Related SDGs
Simultaneous contentment for all	—	Management	Promoting environmental management	Transition to ISO14001:2015.	Updated certification to 2015 version	<ul style="list-style-type: none"> <li>Internal audit: July 4 – July 25</li> <li>Update discussed: July 30 – Sep. 10 → Update decided and 2015 registration filed: Oct. 4</li> <li>Training of internal auditors</li> </ul>	○	
			Green procurement	Promote green procurement with suppliers to broaden our environmental contribution. (Basic business agreement concluded with all suppliers)	Contracts concluded with 100% of all suppliers	<ul style="list-style-type: none"> <li>Confirmed environmental activities of final 24 of 117 suppliers.</li> <li>Started operation of DAIHEN Group's "Ecoduce" chemical survey system.</li> </ul>	○	
			Reducing environmental risk	0 environmental accidents* (* An accident that causes environmental damage [soil, water quality, etc.] to DAIHEN or third parties, or seriously impacts the natural environment)	Zero environmental accidents	<ul style="list-style-type: none"> <li>Conducted emergency response drills at all business offices and plants.</li> <li>Disposed of low-concentration PCB equipment.</li> </ul>	○	
	Create value with products unique to DAIHEN	Products	Developing green products	Percentage of new products certified as "green" 90% or more	90.0% of new products "green" certified	<ul style="list-style-type: none"> <li>Certified products ... Power Distribution: 7, Power Transformer: 3, Industrial Electric Equipment: 2, Welding Product: 4, FA Robot: 4, Plasma System: 3, Clean Robot: 4</li> <li>Percentage of green products amongst new products: <b>90.0%</b> (27 of 30 products)</li> </ul>	○	
			Promoting sales of green products	Percentage of all sales accounted for by green products 60% or more	59.3% of all sales accounted for by green products	<ul style="list-style-type: none"> <li>[Total green products] Super Eco Products: 19, Eco Products: 269</li> <li>Sales of green products 65,834 million yen/</li> <li>Sales of all products 111,095 million yen = <b>59.3%</b></li> </ul>	△	
			Creating values that customers themselves recognize	Reduce CO <sub>2</sub> emissions by 50,000 tons/year via green (energy-saving) products.	45,000 tons	Expansion of qualifying energy-saving products Contribution to CO <sub>2</sub> reduction 45,004 tons	△	
			Promoting of recycling	Determine allowable percentage of recycled materials that can be used with new products (all developed products) and set recycled material content target.	Identified situation	Targets set individually by divisions.	○	
	Promote our Loss-Cutting Initiative	Processes	Preventing global warming	Reduce CO <sub>2</sub> emissions intensity of business sites and in distribution by 43% from fiscal 2010 levels.	Reduced by 34.6%	<ul style="list-style-type: none"> <li>Automated production.</li> <li>Updated to LED lighting and power-saving equipment.</li> <li>CO<sub>2</sub> emissions intensity result: 0.151 t-CO<sub>2</sub>/million yen</li> <li>FY2018 target: 0.13 t-CO<sub>2</sub>/million yen</li> <li>→ <b>Compared to FY2010: 34.6% reduction</b></li> <li>Reference: Total CO<sub>2</sub> emissions: 21,616 t-CO<sub>2</sub></li> </ul>	△	
			Preservation of biodiversity	<ul style="list-style-type: none"> <li>Reduce water consumption intensity by 43% from fiscal 2010 levels.</li> <li>Promote efforts to preserve biodiversity at each business site.</li> </ul>	Reduced by 42.3%	<ul style="list-style-type: none"> <li>Introduced cooling water recirculating system for inspections.</li> <li>Introduced paint run-off collecting system.</li> <li>Participated in community-organized river cleanup.</li> <li>Water consumption intensity result: 1.02 m<sup>3</sup>/million yen</li> <li>FY2018 target: 1.00 m<sup>3</sup>/million yen</li> <li>→ <b>Compared to FY2010: 42.3% reduction</b></li> </ul>	△	
			Waste reduction	Percentage of waste disposed of by landfill 0.13%	0.137% disposed of by landfill	<ul style="list-style-type: none"> <li>Increased and enforced sorting.</li> <li>Converted waste into valuable resources.</li> <li>Reduced wood waste.</li> <li>Used returnable shipping containers.</li> <li>Percentage of waste from business sites disposed of by landfill → <b>0.137%</b></li> <li>Reference: Waste discharged (Excluding converted resources): 993.8 t</li> </ul>	△	
			Air pollution control	Reduce VOC emissions intensity by 50% from fiscal 2010 levels.	Reduced by 40.0%	<ul style="list-style-type: none"> <li>Quality improvements</li> <li>Revised paint standards.</li> <li>Switched to PRTR-free paint and thinner.</li> <li>VOC emissions intensity: 0.70 kg/million yen</li> <li>FY2018 target: 0.58 kg/million yen</li> <li>→ <b>Compared to FY2010: 40.0% reduction</b></li> <li>Reference: Estimated VOC emissions: 99.949 kg</li> </ul>	△	

## The DAIHEN Group's 6<sup>th</sup> Voluntary Environmental Action Plan

We set targets in the three areas of "Management", "Products" and "Processes" in a new medium-term Environmental Action Plan for fiscal 2019 – 2020.

In the "Management" area, we want to keep our EMS compliant with the requirements of ISO14001:2015 that the system be coupled to our business activities.

In the "Products" area, we will continue to develop and provide environment-friendly products that strongly reflect customer values, and contribute to society in general by offering energy-saving (high efficiency) products that support

the fight against climate change.

In the "Processes" area, we will target environmental protection from a global perspective by implementing activities to protect environments and preserve biodiversity at business sites, and expanding positive results to overseas production sites.

We want to continue contributing to sustainable development through efforts around the world to protect the environment.

### Fiscal 2019 / 2020 targets in the DAIHEN Group's 6<sup>th</sup> Voluntary Environmental Action Plan

Corporate objective	Medium-term plan	Stage	Policy	Target for Fiscal 2019	Target for Fiscal 2020	Related SDGs
Simultaneous contentment for all	—	Management	Improvements to EMS	Improve the EMS under ISO14001:2015 requirements.	Improve the EMS under ISO14001:2015 requirements.	   
			Green procurement	Promote green procurement with suppliers to broaden our environmental contribution. (Increase reply rate to survey on chemicals contained in products.)	Promote green procurement with suppliers to broaden our environmental contribution. (Increase reply rate to survey on chemicals contained in products.)	
			Reducing environmental risk	0 environmental accidents Environmental accident: Accidents that cause environmental (soil, water quality, etc.) damage to us or third parties or that seriously impact the natural environment)	Zero environmental accidents	
	Create value with products unique to DAIHEN	Products	Developing green products	Percentage of new products certified as "green" 90% or more	Percentage of new products certified as "green" 90% or more	      
			Increase in environment-friendly products/business	Percentage of all sales accounted for by environment-friendly products/business 70% or more	Percentage of all sales accounted for by environment-friendly products/business 75% or more	
			Creating values that customers themselves recognize	Reduce CO <sub>2</sub> emissions by 50,000 tons/year via environment-friendly (energy-saving) products.	Reduce CO <sub>2</sub> emissions by 60,000 tons/year via environment-friendly (energy-saving) products.	
			Conversion of waste to valuable resources	Increase allowable recycled material content of products.	Increase allowable recycled material content of products.	
	Promote our Loss-Cutting Initiative	Processes	Preventing global warming	Reduce CO <sub>2</sub> emissions intensity of business sites and in distribution by 1% from fiscal 2018 levels.	Reduce CO <sub>2</sub> emissions intensity of business sites and in distribution by 2% from fiscal 2018 levels.	       
			Preservation of biodiversity	<ul style="list-style-type: none"> <li>○ Reduce water consumption intensity by 1% from fiscal 2018 levels.</li> <li>○ Promote efforts to preserve biodiversity at each business site.</li> </ul>	<ul style="list-style-type: none"> <li>○ Reduce water consumption intensity by 2% from fiscal 2018 levels.</li> <li>○ Promote efforts to preserve biodiversity at each business site.</li> </ul>	
			Waste reduction	Reduce waste emissions intensity 1% from fiscal 2018 levels.	Reduce waste emissions intensity 2% from fiscal 2018 levels.	
			Air pollution control	Reduce specified chemical emissions intensity by 1% from fiscal 2018 levels.	Reduce specified chemical emissions intensity by 2% from fiscal 2018 levels.	

## Environmental preservation initiatives: policies and systems

In the DAIHEN Group, we base our Environmental Policy on a Basic Philosophy and Conduct Policy with regard to the environment. We implement activities to protect the environment from diverse angles, including a working environmental management system.

### The DAIHEN Group environmental policy

#### Basic Philosophy

The DAIHEN Group responds to the trust of society by developing technologies and providing products that place a value on people and resources under the DAIHEN corporate philosophy "Reliability & Creativity." The DAIHEN Group seeks to contribute to an abundant future and a healthy environment as a corporate group that fills a role as the popular choice of society.

#### Conduct Policy

In an effort to implement its basic philosophy, the DAIHEN Group will voluntarily adopt proactive global environmental conservation initiatives according to the following guidelines in all our business operations including power transmission and distribution products, welding machines, FA products, semiconductor equipment, dispersed power systems, and other products in the energy and power electronics field.

#### 1 Reduce environmental impacts resulting from business operations.

We shall address the following initiatives by considering all steps encompassing product design, development, procurement, manufacturing, and distribution as well as product use and disposal.

- Promote energy-efficiency initiatives and take steps to help mitigate the risk of global warming.
- Promote resource conservation, waste reduction, and recycling.
- Reduce the environmental impact of the use of chemical substances.
- Offer green products.
- Promote green procurement.

#### 2 Comply with laws and other requirements.

We shall comply with the relevant legal and environmental requirements and other requirements that we decide to adopt. We shall also adopt and administer voluntary management standards and implement pollution controls to prevent any occurrence of environmental pollution.

#### 3 Establish environmental objectives and targets and periodically review them.

Each division of the DAIHEN Group shall establish environmental targets and promote environmental preservation initiatives.

Moreover, each division shall periodically review its targets, and continually seek to improve its environmental management system in ways that ultimately enhance its environmental performance.

#### 4 Raising environmental awareness

We shall enrich environmental education and deepen understanding of environmental policy among all who are working for or within organizations and seek to increase environmental awareness through initiatives intended to contribute to society.

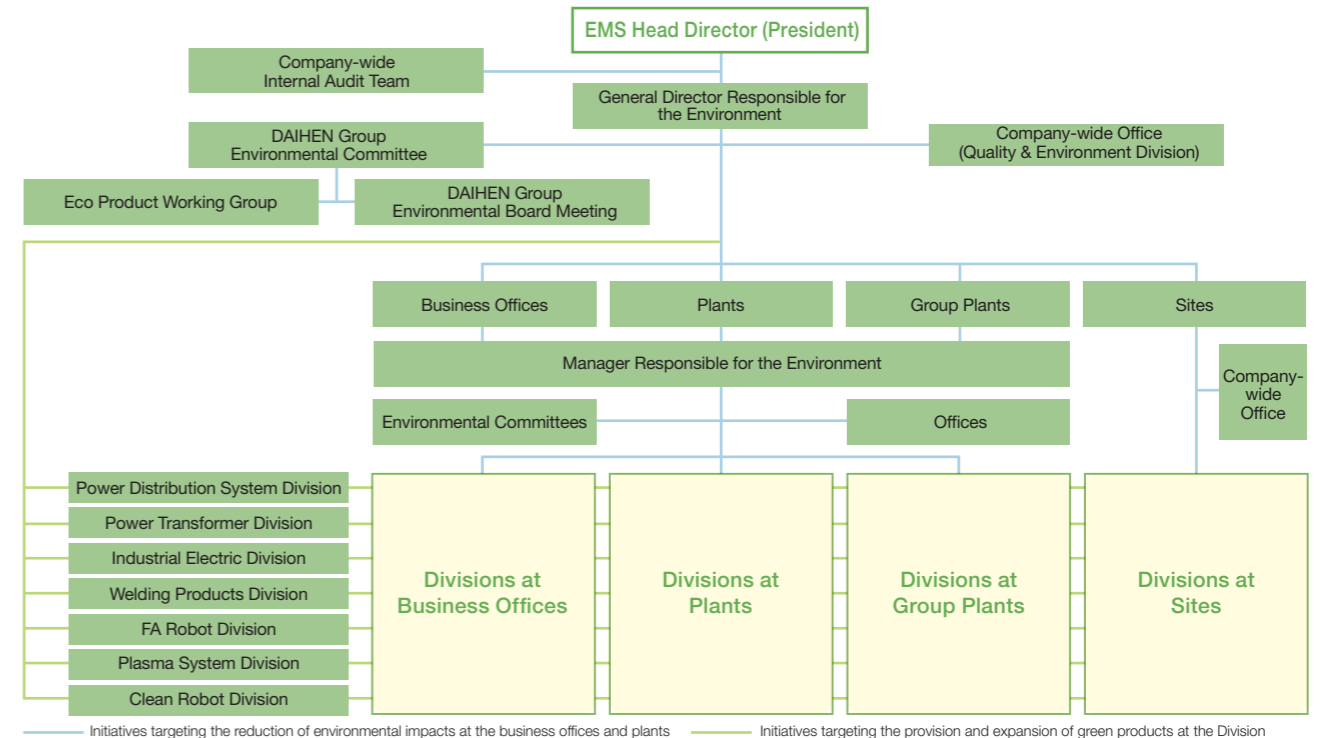
#### 5 Enhancing environmental public relations

We shall provide stakeholders with timely environmental information, collect a broad range of environmental data, review our environmental preservation initiatives, and transmit information in a clear manner.

### Environmental Management System

The DAIHEN Group has established and implemented the DAIHEN Group Environmental Management System under the President & CEO of DAIHEN Corporation as the EMS Head Director and the Environmental Officer as the General Director Responsible for the Environment. The DAIHEN Group promotes a variety of environmental conservation initiatives through its business operations and according to its environmental policy.

The DAIHEN Group has established a system that supports environmental protection initiatives from two directions; each office and plant implements environmental conservation related to its business operations, and each division develops plans for eco-friendly products and services. The Eco Product Working Group and the DAIHEN Group Environmental Board Meeting, organizations under the auspices of the DAIHEN Group Environmental Committee, have been established in an effort to promote Group-wide initiatives.



## Environmental management system

The DAIHEN Group has proactively established an effective environmental management system and continuously improves it in order to strengthen environmental management groupwide. We intend to continue promoting environmental preservation initiatives in the future.

### Certification of ISO 14001 Registration

We have established and implemented a Group-wide environmental management system compatible with the ISO 14001 international standard as part of our environmental preservation initiative under our Environmental Policy. Moreover, because we are committed to continually reducing the impact of our business operations and products on the environment, we transitioned our environmental management system to ISO14001:2015 in fiscal 2017.

#### Group Company sites that have acquired certification of ISO 14001 registration

##### Companies in Japan

Company name	Site
DAIHEN Corporation	Head Office / Juso Business Office
DAIHEN Electric Machine Corporation	Rokko Business Office
DAIHEN System Corporation	Mie Business Office
DAIHEN Logistics Co., Ltd.	Chitose Plant
DAIHEN Engineering Co., Ltd.	Kanehira Plant
DAIHEN Technos Support Corporation	
DAIHEN Industrial Machinery Corporation	Tottori Plant
DAIHEN Technology Institute	Oita Plant
DAIHEN Stud Co., Ltd.	Matsudo Plant
Daihoku Industry Co., Ltd.	Eniwa Plant
Minami Electric Co., Ltd.	Kagawa Plant
DAIHEN Fuse Corporation	Izumitsu Plant
DAIHEN Aomori Corporation	Hirosaki Plant

##### Companies outside Japan

Company name	Country
OTC DAIHEN Asia Co., Ltd.	Thailand
DAIHEN Electric Co., Ltd.	Thailand
Mudanjiang OTC Welding Machines Co., Ltd.	China
OTC Industrial (Qingdao) Co., Ltd.	China
DAIHEN OTC (Beijing) Co., Ltd.	China
DAIHEN Korea Co., Ltd.	Korea

### Environment-related incidents and complaints

Environmental accidents and complaints in fiscal 2018 were as follows.

- Environmental accidents: 0
- Environmental complaints: 0

We did receive 4 minor complaints from nearby residents regarding strewn product covers and leaves following a typhoon and noise from tree trimming, but, in all cases, the matter was quickly addressed and measures were taken to prevent reoccurrence.

### Environmental training and internal awareness initiatives

We provide wide-ranging environmental training in an effort to improve the environmental awareness of all employees, enable them to recognize their responsibilities, and translate their duties into action.

#### Expansion of environmental training opportunities

We provide three levels of environmental training targeted at specific groups: all DAIHEN Group employees; various employee segments, such as new hires; and employees requiring specific expertise such as personnel undergoing internal audit training and personnel assigned environmental protection duties. Training materials and the relevant data used for various training courses are published internally on the Web and are used for training within division and for improvement of knowledge.

#### Publication of Eco News

Currently the periodic house journal Eco News is published on the company intranet in order to train all employees as part of their in-house training. It is also intended to raise the environmental awareness of all employees.

#### Environmental cards distributed

We distributed a pocket card to all our Group employees and temporary workers that contains the text of "My Environmental Declaration" and lists our environmental policies and targets.

### Internal environmental audits

We conducted internal audits of all 94 departments of the DAIHEN Group in 2018. The audits focused on the progress each department made on its environmental management plan (EMP) and how well it considered its situation when setting those environmental targets. More specifically, the audits measured the degree to which each department extracted and analyzed environmental data when responding to changes in business activities or conditions, pinpointed issues within and outside its organization and the needs and expectations of interested parties, and attained the intended results.



Internal audit under ISO14001 in fiscal 2018

Results of internal audit for fiscal 2018:  
8 items identified (all corrective measures completed)

## DAIHEN Group environmental accounting in fiscal 2018

As a group of manufacturers, the DAIHEN Group engages in an extensive range of environmental initiatives. We adopted environmental accounting because we believe that cost-benefit analysis supports effective and appropriate initiatives. In the future, we will allot sufficient funds where needed and will engage in additional environmental initiatives by expanding the scope of application of environmental accounting.

\* Environmental accounting is a tool that organizations such as businesses use to identify their environmental loads and the costs and effects of their environmental actions, in order to efficiently promote environmental protection actions.

### Elements of environmental accounting

Accounting period: Fiscal 2018 (April 1, 2018 to March 31, 2019)

Reporting workplaces:

Juso Business Office (including the head office), Rokko Business Office, Mie Business Office, Chitose Plant, Kanehira Plant of DAIHEN Corporation, DAIHEN Group production sites (Tottori Plant, Oita Plant, Matsudo Plant, Eniwa Plant, Hirosaki Plant, Kagawa Plant and Izumitsu Plant)

Note: This report has been compiled according to the DAIHEN Group Environmental Accounting Guidelines. These guidelines are in conformity with the Environmental Reporting Guidelines published by the Ministry of the Environment, Japan.

#### Costs of environmental initiatives

Costs are calculated by separating investment expenditures and expenses.

Expenses include labor costs, but do not include depreciation.

Costs including objectives (combined costs) excluding environmental costs are calculated proportionally by our criteria.

Classification	Major initiatives	(Millions of yen)	
		Investment	Cost
Business area costs		39	109
Breakdown	1. Pollution control	17	27
	2. Global environmental preservation	21	21
	3. Resource recycling	1	61
Upstream and downstream costs	Green procurement promotion activities etc.	0	6
Management activities	Management of environmental preservation organizations, environmental education, information disclosure, construction and maintenance of environmental management systems, etc.	8	74
R&D	Promotion of green products R&D etc.	257	497
Community activities	Community environmental preservation initiatives, donations to environmental organizations, etc.	0	28
Environmental remediation	Environmental remediation cost	0	0
Miscellaneous	Participation in industry groups, information exchange meetings with affiliated companies, etc.	0	7
<b>Total</b>		<b>304</b>	<b>721</b>

#### Benefits of environmental initiatives

Classification	Item (unit)	FY2017	FY2018	Difference
Resource inputs	Total energy input (kL in crude oil equivalent)	8,338	7,776	562
Global warming prevention	Greenhouse gas emissions (t-CO <sub>2</sub> )	14,259	13,972	287
Waste reduction	Total waste and other emissions (t)	722	789	-67
	Waste final disposal amount (t)	4	4	0
Air pollution control	Atmospheric emissions of VOCs (kg)	23,226	22,503	723

### Economic benefits of environmental initiatives

#### Monetary benefits

(Millions of yen)

Item	Details of effects	Amount
Income	Business income by sale of valuables resulted from business activities	41

#### Estimated effects

(Millions of yen)

Item	Details of effects	Amount
Sales of green products	Power products Top Runner transformers, transformers for power companies, PV inverters, and other products	11,414
	Welding & Mechatronics products Energy-efficient, gas-saving, low-spatter welding machines, welding robots, and other products	3,523
	Semiconductor & FPD related products RF/Microwave generators and matching boxes, Wafer/glass substrate transfer clean robots and other products	4,743

Note: The above were calculated using the environmental preservation objectives ratio.

#### Estimated major (individual) effects

(Thousands of yen)

Item	Details of effects	Amount
Energy conservation	Reduction in heavy oil consumption by collecting drainage from hot air drying furnaces	9,890
	Automating soldering process of heat storage fuse elements	3,175
	Reduction in electricity consumption by replacing factory lighting with LED lighting	2,750
Waste reduction	Cost reduction from using returnable shipping containers for exports	42,020
	Improvement in lead wire yield by adjusting length	16,230
Water consumption reduction	Reduction in water consumption from introducing cooling water recirculating system for inspections	6,000

Note: Estimated benefits from the current year's investment and initiatives are appropriated as a five-year benefit because the benefits are longer term.

### International environmental accounting

Accounting period: Fiscal 2018 (April 1, 2018 to March 31, 2019)

Reporting workplaces:

OTC DAIHEN Asia Co., Ltd. (Thailand); DAIHEN Electric Co., Ltd. (Thailand); Mudanjiang OTC Welding Machines Co., Ltd. (China); OTC Industrial (Qingdao) Co., Ltd. (China)

#### Costs of environmental initiatives

Investment	¥2 million
Costs	¥31 million

Note: Figures exclude payroll and depreciation.



# Prevention of global warming

## Controlling CO2 emissions

### Plan

DAIHEN Group  
(18 business sites)

Reduce CO2 emissions intensity  
by **43%** from FY2010 levels.

### Do

We have been committed to reducing CO2 emissions at the 18 sites of the DAIHEN Group, including six plants at production sites outside of Japan. Some of those actions are listed below.

#### Introduction to initiatives of our business sites

- Replacing equipment with energy-saving products (LED lighting, air conditioning, compressors)
- Automation of production lines, efficient operation of equipment
- Replacing draining oven with new one
- Shorter inspections and testing
- Management and energy-saving of air conditioning



Efficiency enhancement by automating soldering process of heat storage fuse elements



Reduction in energy consumption by replacing draining oven with equipment of high energy-saving performance.

### Check/Act

We introduced energy-saving equipment and automated parts of our production lines to reduce CO2 emissions, but emissions increased slightly over last year's level. We will take further steps to lower our energy consumption and reduce CO2 emissions in fiscal 2019 with our target set at reducing emissions by 1% from the fiscal 2018 level.

DAIHEN Group (18 business sites)

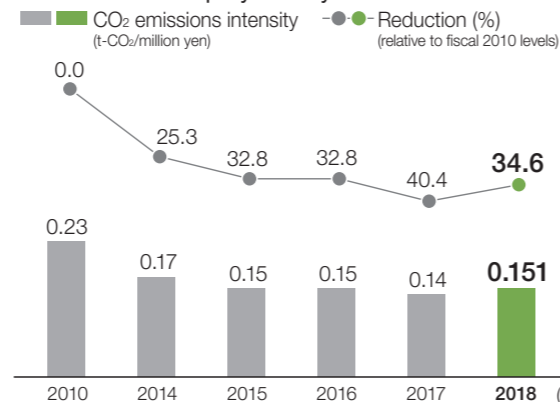
CO2 emissions intensity relative to fiscal 2010 levels

Reduced CO2 by **34.6%**

(Fiscal 2018 result: 0.151 t-CO2/million yen)

Scope of calculation: DAIHEN Corporation (Juso Business Office, Rokko Business Office, Mie Business Office, Chitose Plant, Kanehira Plant) and production sites of affiliated companies (Tottori Plant, Oita Plant, Matsudo Plant, Eniwa Plant, Hirosaki Plant, Kagawa Plant, and Izumiotsu Plant), and production sites outside Japan [Mudanjiang OTC Welding Machines Co., Ltd., OTC Industrial (Qingdao) Co., Ltd., OTC DAIHEN Asia Co., Ltd., DAIHEN Electric Co., Ltd., DAIHEN OTC (Beijing) Co., Ltd., DAIHEN Advanced Machinery (Changshu) Co., Ltd.]

#### CO2 emissions intensity and reduction of the DAIHEN Group by fiscal year



# Waste reduction

## Efficient use of resources

### Plan

DAIHEN Group  
(12 business sites in Japan)

Percentage of waste disposed of by landfill **0.13%**

### Do

We have been committed to reducing waste to effectively use resources at the 12 sites of the DAIHEN Group, including six plants at production sites outside of Japan. Some of those efforts are listed below.

#### Introduction to initiatives of our business sites

- Sorting of waste by material
- Waste reduction by improving work efficiency and work standardization (Painting work improvement, equipment tuning, etc.)
- Use of steel cases, improvements in packaging methods
- Use of returnable shipping containers for exports



- Use of returnable shipping containers for exports
- Stacking in layers → Denser packing
- Easier work
- Foldable structure



Returnable shipping container



### Check/Act

Despite sorting efforts and meticulous activities to reduce waste, waste slightly increased from the previous year's level. In fiscal 2019, more efforts will be made with a target set on reducing waste by 1% from the fiscal 2018 level.

DAIHEN Group (12 business sites in Japan)

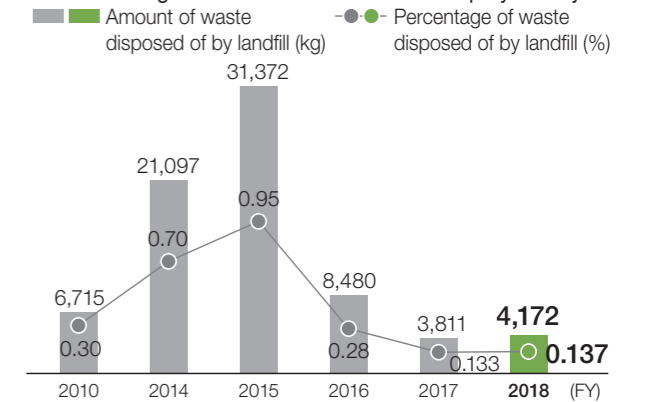
Percentage of waste disposed of by landfill

**0.137%**

(Amount of waste disposed of by landfill in fiscal 2018: 4,172 kg)

Scope of calculation: DAIHEN Corporation (Juso Business Office, Rokko Business Office, Mie Business Office, Chitose Plant, Kanehira Plant) and production sites of affiliated companies (Tottori Plant, Oita Plant, Matsudo Plant, Eniwa Plant, Hirosaki Plant, Kagawa Plant and Izumiotsu Plant)

#### Amount of waste disposed of by landfill and percentage thereof amongst all waste in the DAIHEN Group by fiscal year



# Air pollution control

## Management of chemical substances and control of emissions

### Plan

DAIHEN Group  
(18 business sites)

Reduce the intensity of atmospheric emissions of VOCs  
by **50%** from fiscal 2010 levels.

### Do

We have been committed to reducing VOC (Volatile Organic Compounds) emissions at DAIHEN Group, including plants at production sites outside of Japan. Some of those actions are listed below.

#### Introduction to initiatives of our business sites

- Reduced consumption through quality improvements
- Introduction of articulated painting robots
- Introduction of 2-liquid mixing system
- Use of organic substance dispersal prevention system
- Changed to degreasing cleaner and lacquer-based thinner for cleaning painting equipment



Articulated painting robots



2-liquid mixing system

### Check/Act

We made quality improvements and changed work processes to reduce VOC emissions, but emissions still increased slightly from the previous year's level. In fiscal 2019, more efforts will be made with a target set on reducing VOC emissions by 1% from the fiscal 2018 level.

DAIHEN Group (18 business sites)

VOC emissions intensity from fiscal 2010 levels

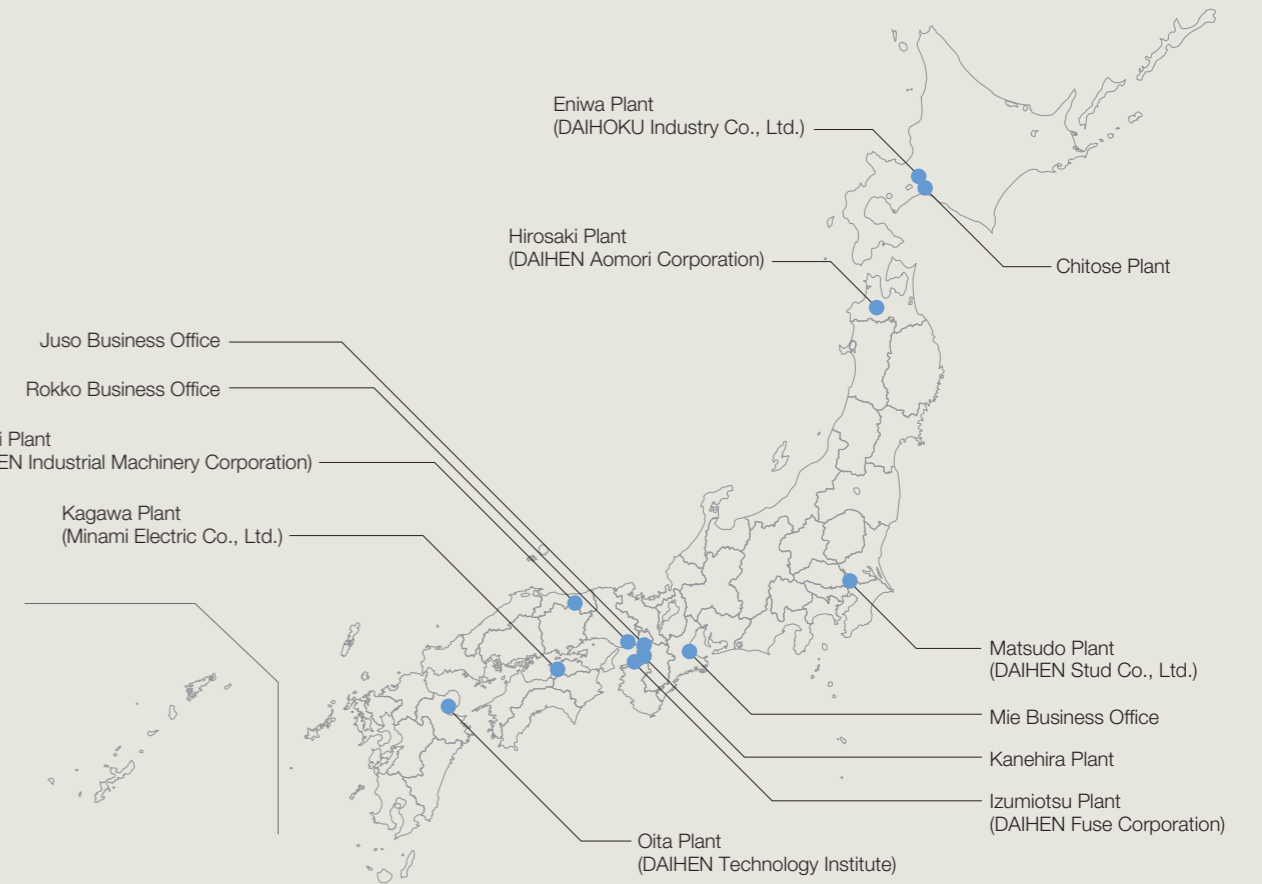
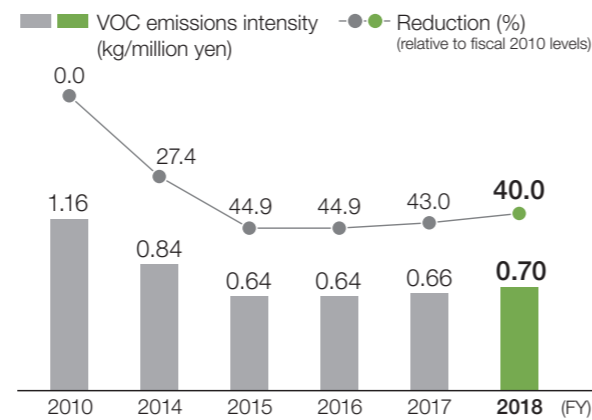
Reduced by **40.0%**

(VOC emissions intensity in fiscal 2018: 0.70 kg/million yen)

Scope of calculation: DAIHEN Corporation (Juso Business Office, Rokko Business Office, Mie Business Office, Chitose Plant, Kanehira Plant) and production sites of affiliated companies (Tottori Plant, Oita Plant, Matsudo Plant, Eniwa Plant, Hirosaki Plant, Kagawa Plant, and Izumiotsu Plant), and production sites outside Japan [Mudanjiang OTC Welding Machines Co., Ltd., OTC Industrial (Qingdao) Co., Ltd., OTC DAIHEN Asia Co., Ltd., DAIHEN Electric Co., Ltd., DAIHEN OTC (Beijing) Co., Ltd., DAIHEN Advanced Machinery (Changshu) Co., Ltd.]

The DAIHEN Group will continue to promote green procurement in order to control the use of chemical substances in our purchased parts and materials before we incorporate them in our products.  
For details, see "Green procurement initiatives" on page 32.

#### VOC emissions and reduction of the DAIHEN Group by fiscal year



## Environmental Protection Activities of Major Business Sites

\* This section introduces the environmental protection activities of business sites that have acquired ISO14001 certification.

Environmental Preservation Initiatives of Our Business Offices/Plants Environmental impact data for fiscal 2018 ..... 51 – 54

Environmental Preservation Initiatives of Plants Outside Japan Initiatives in fiscal 2018 ..... 55 – 56







## Mudanjiang OTC Welding Machines Co., Ltd.

Location: No.18 Xingye Road, Yangming, Mudanjiang, Heilongjiang 157013, China

Principal business: Manufacture of welding machines and parts, etc.



Newly installed drying oven

China has enjoyed marked economic growth in recent years, but, in the process, environmental protection has become a serious concern of society. So, this year at Mudanjiang OTC Welding Machines, we replaced the varnish drying ovens used in transformer production. Besides being low cost, the new ovens are better than the old ones in terms of hermeticity, temperature retention and thermal insulation. Each has its own temperature control console, which makes them easy to operate and ensures highly accurate control and stable performance. Moreover, from an environmental perspective, they reduce power consumption considerably.

According to our investigations, the old ovens consumed about 160 kWh of electricity per drying cycle, whereas this figure is 130 kWh with the new ovens. Since every kWh of electricity we save reduces CO<sub>2</sub> emissions by 0.997 kg, one new oven reduces our CO<sub>2</sub> emissions by 7,537 kg a year by cutting back on electricity consumption by 7,560 kWh. Therefore, this upgrade to production equipment reduced our electricity consumption and emissions of harmful gases in addition to improving efficiency and quality.



As we go forward, we will continue to tackle environmental protection alongside productivity and quality improvements.

**Tan Wujun**  
Production Engineering Dept.  
Mudanjiang OTC Welding Machines Co., Ltd.

## OTC Industrial (Qingdao) Co., Ltd.

Location: 588 Sanjiang Road Economic & Technical Development Area, Qingdao 266555, China

Principal business: Manufacture of welding machines and parts, high-frequency power supply units, etc.



Turret punch press

At OTC Industrial (Qingdao), we had been using two preowned turret punch presses since the company was established. They were both located at the center of the factory, which made it difficult to take measures against noise emission. The noise affected not only the sheet metal group but also the adjacent work areas, exposing about 40 persons to harmful noise levels (80 – 95 dB) on a daily basis. Regulations required these workers to have their hearing tested every year.

Then, in the spring of 2018, the factory layout was changed and equipment was updated to improve the work environment. The sheet metal working area was moved from the center of the factory, partitioned off with soundproof barriers and outfitted with two new turret punch presses. This allowed us to reduce operators in the turret punch press area to one or two, decreased noise levels in other areas and made the yearly hearing test unnecessary.

Going forward, we want to direct our attention and efforts towards improving metal polishing work, which similarly generates noise of a concerning level.



\* Turret punch press: Machine used to punch and press sheet metal.

**Huang Zhen zhong**  
Manufacturing Dept.  
OTC Industrial (Qingdao) Co., Ltd.

## OTC DAIHEN Asia Co., Ltd.

Location: 60/86 Moo19, Navanakorn Industrial Estate Phase 3, Tambol Klongnueng Amphur Klongluang, Pathumthani 12120, Thailand

Principal business: Manufacture and sales of welding machines, cutting machines and parts in Southeast Asia and Oceania



Company seen from the front



Poster encouraging employees to partake in energy-saving activities

Our company is located 50 km north of the Thai capital of Bangkok. We manufacture everything from parts to products, so you see welding and plasma cutting torches, robot peripherals, and more coming from us.

As an ongoing activity that we have been doing since fiscal 2014, we continue to replace fluorescent lighting with LED fixtures. It is subsidized by the Thai government and contributes to energy conservation. Thanks to ongoing activities like this, all employees are conscious about conserving energy and meticulously do so during break etc. This adds up to a total reduction in electricity of 75,470 kWh a year. Moreover, we are directing our efforts at reducing waste as well, by using a rental service for providing waste cloths and in other ways.

In line with the environmental policy of the DAIHEN Group, OTC DAIHEN Asia will continue to raise environmental awareness in all departments and promote activities that further reduce our electricity consumption and waste emissions.



**Amorn Janseecha**  
Project Department  
OTC DAIHEN Asia Co., Ltd.

## DAIHEN Electric Co., Ltd.

Location: Thamboon Thasa-an, Bangpakong Chachoengsao, 24130 Thailand

Principal business: Manufacture and sales of power transformers



Thermally insulated wall seen from the outside



Dehumidifier seen from the outside

We are a manufacturer of power transformers, located about 50 km southeast of Bangkok. We deliver products not only to power companies in Thailand but to customers all over the world, which is how we contribute to society. I want to share with you our efforts to reduce power consumption, which we pursued this year as an activity aimed at reducing our environmental load.

Our products use insulation made of wood, paper and oil. This insulation is a solid material that changes in size depending on its moisture content, therefore managing its moisture content especially during the manufacturing process is important towards quality. To dehumidify the workplace, we previously used a dehumidifier and small-capacity cooler, but since we thermally insulated the factory, we have been able to get by with just the dehumidifier. This greatly reduced our power consumption. Moreover, together with other energy efficiency measures, we obtained a CO<sub>2</sub> emissions reduction effect of about 30% from fiscal 2010 levels.



Going forward, we will use ideas of all sorts to promote activities for reducing our environmental load.

**Renu Phoprachakhom**  
Environment officer  
Environmental department  
DAIHEN Electric Co., Ltd.

## DAIHEN OTC (Beijing) Co., Ltd.

Location: No. 5, Leyuan South 2nd Road, Yangji Economic Development Zone, Beijing 101407, China

Principal business: Manufacture and sale of transformers etc.



Electric forklift



Returnable shipping container

Environmental regulations in China keep getting stricter year after year, as the country increasingly requires business to protect the environment. Our company of course follows the law and has a diversity of activities to protect the environment.

For beginners, we have increased use of electric forklifts to transport raw materials, which has reduced our gasoline consumption for gasoline-powered forklifts by about 40% from the previous year and greatly cleaned up the air by reducing VOC emissions.

Another thing we did was to use our returnable shipping containers with more products, which reduced waste from packaging materials.

We also added to ongoing water conservation activities by introducing a product waterproof testing system that reduced both man-hours and water consumption, optimizing the amount of gardening water and managing the temperature setting of rooms on the steam heating system.

At DAIHEN OTC (Beijing), we will continue to promote environmental activities like these in the future.



**Zhu Zi Wen**  
Human Resources General Affairs Section  
DAIHEN OTC (Beijing) Co., Ltd.

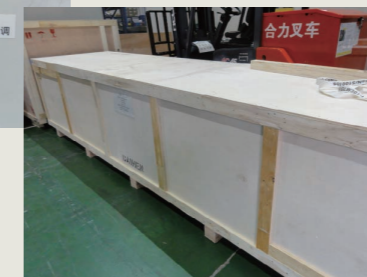
## DAIHEN Advanced Machinery (Changshu) Co., Ltd.

Location: No.17 Maqiao Factory Area, Riverside Industrial Park, Jiangsu Changshu Economic Development Zone, Changshu City, Jiangsu 215513, China

Principal business: Manufacture, sale, maintenance and inspection of clean transfer robots etc.



AC control panel (Temperature is set by managers.)

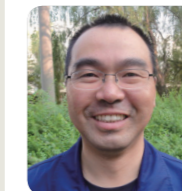


Improved packaging for imports

Changshu is a city in the southeastern part of Jiangsu Province. It is about two hours by car from Shanghai and has many Japanese businesses. This is our 10th year since we established an operating base in this industrial area. As environmental activities in fiscal 2018, we continued ongoing efforts from the previous year aimed at reducing CO<sub>2</sub> emissions and waste, which included introducing high efficiency air conditioners and having managers meticulously manage the temperature settings. Doing so, we kept the energy-saving effect at last year's level.

We coordinated our waste reduction efforts with the groupwide Loss Cutting Initiative. What we did was to reduce the number of shipments of robot parts we get from Japan by shipping multiple lots of parts at a time. As a result, we reduced packaging materials by about 30% from the previous year.

In recent years, awareness of the environment has grown in China to the point that protection activities can be seen most everywhere. At DAIHEN Advanced Machinery (Changshu), we will continue to do what we can to protect the environment and make the local community happy.



**Yang Hanli**  
Manufacturing Dept.  
DAIHEN Advanced Machinery (Changshu) Co., Ltd.



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Published March 2020

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