

## Head office

### Research & Development Division, Engineering Division



Location: Kanazawa-ku, Yokohama  
Business areas and products: Planning, management, R&D  
Commenced operations: February 1991

#### Overview of our activities

The Head Office is located in the Yokohama Office with the Suspension Spring and Seating Divisions. We engage in business activities that take into consideration the communities around each production division, the head office, and each of our plants. We take care to respond dutifully in cooperation with each municipal, especially in terms of waste water, air, noise, and waste.

### Outlook and policies

We will develop new products and new equipment related to reducing CO<sub>2</sub> emissions and using renewable energy as a function of the head office and will support the environmental activities of the Group through a wide range of environmental education and environmental audits. In addition, by taking the lead with projects such as installing solar power generation panels and introducing LED lighting, we are the driving force in overall Group environmental activities.

### Fiscal 2019 and 2020 initiatives

#### Various risk-management efforts

■ In providing support that meets the new ISO 14001 (2015) requirements for efforts to address various risk issues affecting the Group, we move forward with improvements to items in which risk response has been insufficient, using managerial oversight check sheets to confirm the state of compliance with environmental laws and regulations, and of environmental equipment management. Moving forward, we will consider ways of addressing a broader scope of risks while continuing to improve Group environmental performance.

#### Managing chemicals

■ The Safety & Environment Activities Dept. at our head office compiles chemical substances used in Japan (including Group companies), and aggregates those chemical substances based on our unique criteria every year. We added and managed the chemical substances included in the Green Procurement Guidelines while reporting some of the data we collected to the government. We are also pioneering the promotion of risk assessment of chemical substances and 5S activities so that our operators engage in safe operations within our plants.

#### Reducing industrial waste

■ During fiscal 2019, we moved forward with waste separation recycling at the Head Office (including the Research & Development Division), reducing waste volume and cost. These efforts resulted in our meeting the targets for corporate headquarters recycling and waste reduction.

■ During fiscal 2020, we will strive to maintain recycling (the resource recycling rate) at 100%, and will move forward with a higher quality of recycling in order to reduce waste volume.

#### ● Atmosphere (Regulated values: Air Pollution Control Law, Yokohama Guidelines)

Substance	Equipment	Regulated value	Results
NOx	Hot water boiler	A	0.041
		B	0.025
		C	0.025
	Cooling water generator	A	0.029
		B	0.018
		C	0.024
Dust	Hot water boiler	A	0.050
		B	0.050
		C	0.050
	Cooling water generator	A	0.050
		B	0.050
		C	0.050

NOx units: m<sup>3</sup>N/h Dust units: g/m<sup>3</sup>N

#### ● Water quality: Main Building (Regulated values: Yokohama sewage regulations)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5-9	7.6	6.7	—
Oil	5	1.3	0.1	0.6
Fe	3	<0.3	<0.3	<0.3
Zn	1	<0.1	<0.1	<0.1
Ni	1	0.3	<0.1	<0.1
T-Cr	2	<0.2	<0.2	<0.2
Fluorine	8	0.8	<0.8	<0.8
Phenols	0.5	<0.05	<0.05	<0.05
NH <sub>4</sub>	380	<0.3	<0.3	<0.3

Units: mg/ℓ

#### ● Water quality: R&D Building (Regulated values: Yokohama sewage regulations)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5-9	7.4	6.5	—
Oil	5	1.3	0.4	0.8
Fe	3	<0.3	<0.3	<0.3
Zn	1	<0.1	<0.1	<0.1
Ni	1	<0.1	<0.1	<0.1
T-Cr	2	<0.2	<0.2	<0.2
NH <sub>4</sub>	380	0.7	<0.3	0.4

Units: mg/ℓ

## Suspension Spring Division

### Yokohama Plant (Suspension Springs)



Location: Kanazawa-ku, Yokohama  
Products: Coil springs, Leaf springs, and metal bellows  
Commenced operations: November 1987



**Hiroto Tsuji**  
Plant Manager

### Outlook and policies

At this plant, our slogan is "global environment-friendly spring manufacturing." The improvements we work toward include reducing basic CO<sub>2</sub> emissions per unit and industrial waste. As all of our personnel participate in work on continual improvement of our environmental management systems, we will work to help conserve the global environment and prevent global warming while building the environment that we hand down to the next generation.

### Fiscal 2019 and 2020 initiatives

#### Reducing CO<sub>2</sub> emissions and waste

- The steps we take in keeping with our slogan, "global environment-friendly spring manufacturing," include reductions in CO<sub>2</sub> emissions and industrial waste. At the same time, we are taking environmental management action as part of TPM activities so that our spring Yokohama Plant can all pull together, aiming high in environmental management through daily activities.
- During fiscal 2019, we implemented upgrades to plant air compressors (conversion of motor cores to inverter designs), replacing circuit system to air pressure control and reduction of CO<sub>2</sub> emission through inspections on air leakage sites by all circles and repairing identified sites.
- During fiscal 2020, we will work to conserve water resources through effective reuse of rainwater, while also working to reduce industrial waste volume in our efforts to achieve environmentally friendly spring manufacturing on a global scale.

#### ● Atmosphere (Regulated values: Air Pollution Control Law, Yokohama Guidelines)

Substance	Equipment	Regulated value	Results
NOx	Metal reheating furnace	A	0.128
		B	0.110
		C	0.212
		D	0.169
		E	0.119
	Metal tempering furnace	A	0.202
		B	0.123
		C	0.104
		D	0.085
		E	0.059
Dust	Metal reheating furnace	A	0.1
		B	0.1
		C	0.1
		D	0.1
		E	0.1
	Metal tempering furnace	A	0.1
		B	0.1
		C	0.1
		D	0.1
		E	0.1

NOx units: m<sup>3</sup>N/h Dust units: g/m<sup>3</sup>N

#### ● Water quality (Regulated values: Yokohama sewage regulations)

Item	Regulated value	Results			
		Maximum	Minimum	Average	
pH	5-9	7.8	6.1	—	
Oil	30	Animal and vegetable	15.4	0.9	3.0
		Mineral	5	3.6	0.1
Fe	3	<0.3	<0.3	<0.3	
Zn	1	<0.1	<0.1	<0.1	
Ni	1	0.6	0.2	0.3	
Mn	1	0.1	<0.1	<0.1	
Fluorine	8	1.0	<0.8	<0.8	
Boron	10	<1.0	<1.0	<1.0	
Total nitrogen	240	67	43	55	
Total phosphorus	32	3.3	2.2	2.8	
NH <sub>4</sub>	380	55	33	44	

Units: mg/ℓ

## Suspension Spring Division

### Shiga Plant



Location: Koka, Shiga  
 Products: Coil springs, stabilizer bars, and torsion bars  
 Commenced operations: November 1973



**Masanao Ueda**  
 Plant Manager

#### Outlook and policies

Environmental conservation is one of the six core elements of STPM (Strategy for Total Power Management) conducted at our plants, and we take practical measures to allow all our people to engage in it. We are working hard towards making environmentally-friendly springs.

#### Fiscal 2019 and 2020 initiatives

##### Reducing CO<sub>2</sub> emissions and waste

- During fiscal 2019, we continued activities such as inspections of air leaks and closing of control panel power circuit breakers. We reduced the use of electricity through a No. 2 Plant compressor upgrade and air pressure optimization, as well as reduction in heated spaces within gas heat treatment furnaces, and insulation of lower furnace wall surfaces to reduce gas usage volume. Moreover, given the vital importance of waste management to maintaining the quality of waste water at our plants that rely on Lake Biwa, we have been working to strengthen management of wastewater treatment facilities and make continual improvements to them as we strive toward global environmental conservation.
- In fiscal 2020 as well, we will continue to pursue yet further CO<sub>2</sub> reductions, in part through efficient operation and revision of heat settings of gas furnaces, and by conserving energy used by compressors. We will also move forward with action to protect the global environment by working to reduce industrial waste and by continuing with activities to reduce sludge volume.

##### ● Atmosphere (Regulated values: Air Pollution Control Law)

Substance	Equipment	Regulated value	Results
NOx	Metal reheating furnace	A	180
		B	180
		C	180
		D	180
		E	180
Dust	Metal reheating furnace	A	0.25
		B	0.20
		C	0.20
		D	0.20
		E	0.20

NOx units: ppm Dust units: g/m<sup>3</sup>N

##### ● Water quality (Regulated values: Agreement with Koka)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	6-8.5	7.7	6.8	—
BOD	30	9.0	<1.0	<1.0
COD	30	9.0	<1.0	1.3
SS	70	24	<1.0	2.3
Oil	5	2.9	<0.5	0.8
Total nitrogen	12*	9.9	<1.0	4.0
Total phosphorus	1.2*	0.1	<0.1	<0.1
Fluorine	8*	<0.8	<0.8	<0.8
Boron	10*	<1.0	<1.0	<1.0
Zn	1*	<0.1	<0.1	<0.1

Units: mg/ℓ

\*Shiga prefectural regulations

## Seating Division

### Gunma Plant



(Ojima area) (Ota area)  
 Location: Ota, Gunma Ota, Gunma  
 Products: Automotive seats Automotive interior products  
 Commenced operations:  
 December 1986 July 1969



**Junichi Oka**  
 Plant Manager

#### Outlook and policies

At this plant, we engage in production activities that unify the entire process of making automotive seats and automotive interior parts that are friendly to people and the environment, from development and design to manufacturing and shipment. In this way, we help the development of automotive society. We are aware of having been given the mission of handing down to the next generation "an abundant, beautiful Earth." In implementing safe, people-friendly production with consideration for environmental conservation, we promote volunteer and clean-up activities that are rooted in the local community.

#### Fiscal 2019 and 2020 initiatives

##### Reduction in CO<sub>2</sub> emissions

- During fiscal 2019, we upgraded three compressors to those with highly efficient inverter design specifications, reducing electricity use by about 250,000 kWh per year. We are also advancing educational activities to encourage turning lighting power off when unused or unnecessary.
- We have adopted the companywide goal for fiscal 2020 of a 1% year-on-year reduction in CO<sub>2</sub> emissions per unit (0.115 tons CO<sub>2</sub>), and are upgrading to LED lighting and energy-saving air conditioners in line with the Mid-term Plan. Together with these efforts, we are taking a back-to-basics approach, re-analyzing plant energy consumption as we aim for our ideal plant operation.

##### Recycling and reducing waste

- Again in fiscal 2020, we are thoroughly separating waste and converting it into valuable materials as we maintain a recycling rate of 100%.

##### ● Atmosphere: Ojima area (Voluntary values for unregulated equipment)

Substance	Equipment	Regulated value	Results
NOx	Generator	950	172
Dust	Generator	0.1	0.03

NOx units: ppm Dust units: g/m<sup>3</sup>N

##### ● Water quality: Ojima area (Regulated values: Agreement with Ojima)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	6-8	7.5	6.5	—
BOD	10	9.0	1.0	3.0
SS	10	4.0	1.0	1.2
Oil	Animal and vegetable	3	1.4	<0.3
	Mineral	3	0.4	0.1

Units: mg/ℓ

##### ● Water quality: Ota area (Voluntary regulatory values)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5.8-8.6	8.0	7.2	—
BOD	40	10.0	2.0	2.8
COD	40	7.0	1.0	3.6
SS	50	2.0	<1.0	0.8
Oil	5	1.2	0.1	0.6

Units: mg/ℓ

## Seating Division

### Yokohama Plant (Seating)



Location: Kanazawa-ku, Yokohama  
Products: Automotive seats and interior products  
Commenced operations: April 1990



**Chihaya Yamamoto**  
Plant Manager

#### Outlook and policies

We will obtain an accurate understanding of the effects this factory's operational activities exert on the global environment, specify environmental goals, and manage progress as we make continual improvements in environmental performance. We will pursue the potential of resource conservation, recycling and environmental impact reduction by comprehensively promoting activities based on NHK's own concept of elimination, reduction and change while helping to prevent global warming. In this endeavor, we will work to reduce CO<sub>2</sub> emissions volume, help stop environmental pollution and environmental conservation.

#### Fiscal 2019 and 2020 initiatives

##### Reducing CO<sub>2</sub> emissions recycling waste into resources

- Air conditioning equipment at our plants had been using fan coil units with steam adsorption refrigeration, but it became impossible to obtain steam from utilizing waste heat generated by cogeneration gas engines. As the gas-burning boilers that supply steam to steam adsorption refrigerators are inefficient in terms of CO<sub>2</sub> emissions, we have therefore continued each year to convert to electric air conditioners, which would reduce CO<sub>2</sub> emissions.
- In fiscal 2019, we switched to electric air conditioning with a priority on our two-shift process, and by turning off our gas-burning boiler during night shifts, we achieved major cuts in the volume of municipal gas used.
- In fiscal 2020, we aim to keep municipal gas turned off during daytime work as well and are switching three fan coils to electric air conditioners and rerouting our air conditioning ductwork as needed for optimal operation. We are also focusing effort on waste separation education within the organization to improve our waste recycling efficiency as we continue to maintain our 100% recycling rate.

##### ● Atmosphere (Regulated values: Air Pollution Control Law, Yokohama Guidelines)

Substance	Equipment	Regulated value	Results
NOx	Boiler	0.064	0.014
Dust	Boiler	0.05	<0.004

NOx units: m<sup>3</sup>N/h Dust units: g/m<sup>3</sup>N

##### ● Water quality (Regulated values: Yokohama sewage regulations)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5-9	7.8	7.0	—
Oil	Animal and vegetable	3.0	0.5	1.0
	Mineral	5	0.8	<0.5

Units: mg/ℓ

### Toyota Plant



Location: Toyota, Aichi  
Products: Automotive seats and interior products  
Commenced operations: June 1961



**Tsuyoshi Furukawa**  
Plant Manager

#### Outlook and policies

Our plant performs unified design, manufacturing and shipment of finished automotive seating COMP products, frames and component parts. In consideration of our ideal for environmental impact, we are working to achieve lower energy consumption and to cut CO<sub>2</sub> emissions. While responding flexibly to changes in the external environment and performing manufacturing with state-of-the-art technologies and automation, we will contribute to society through continued promotion of our Environmental Voluntary Action Plan.

#### Fiscal 2019 and 2020 initiatives

##### Reduction in CO<sub>2</sub> emissions / environmental conservation

- During fiscal 2019, we acted to reduce CO<sub>2</sub> emissions by upgrading the air conditioners and compressors in the health and welfare office building, and by improving air leakage. We also relocated and updated our waste management facilities, revising our routine day-to-day inspection items, and engaged in other environmental conservation activities including pollution prevention.
- During fiscal 2020, we are reducing CO<sub>2</sub> emissions by upgrading aging air conditioners. In addition, with our plant reconstruction, we are also carrying out press-type rack warehouse construction. In compliance with laws and regulations, we are holding down noise and vibration generated by construction, taking care that construction does not inconvenience residents living nearby.

##### Environmental education

- During fiscal 2020, we are performing education for members in their third and fifth years of employment in order to reestablish recognition of the crucial nature of environmental conservation and to raise awareness of environmental activities.

##### ● Water quality (Regulated values: Sewage Law)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5-9	7.5	6.8	—
BOD	600	69.0	3.0	12.3
COD	600	123	3.0	28.3
SS	600	19	2.0	7.2
Oil	5	3.5	0.5	1.8
Zn	2	0.4	<0.2	<0.2
Cu	3	<0.3	<0.3	<0.3

Units: mg/ℓ

# Precision Spring & Components Division

## Atsugi Plant



Location: Aikawa-machi, Aiko-gun, Kanagawa  
 Products: Thin leaf springs and precision stamped products  
 Commenced operations: November 1970



**Yasuhiro Shinkai**  
Plant Manager

### Outlook and policies

At this plant, we produce highly efficient drive train parts for electric vehicles that are friendly to the earth. We engage actively in information exchange with the Council for Waste Countermeasures in the Atsugi Region as we respond to rapid changes in the environment and to revisions of laws and ordinances.

### Fiscal 2019 and 2020 initiatives

#### Maintaining zero emissions and reducing waste

■ Since fiscal 2017, we have been actively advancing the conversion of waste into valuable commodities in our efforts to reduce waste volume. Since fiscal 2005, we have continued with a recycling rate of 99.9%, and will work to continue doing so in the future. Moreover, we are working to gather environmental information through related organizations as we continue to work on appropriately disposing of waste while reducing disposal costs.

#### Reduction in CO<sub>2</sub> emissions

■ Regarding energy saving to reduce CO<sub>2</sub> emissions, we are engaged in demand management using electric power management systems that help us understand electric power use in a timely manner as we work to reduce it. We issue reports on a regular basis of information related to CO<sub>2</sub> emissions reduction as the entire plant pulls together in our reduction efforts. Moving forward, we aim to continue to be a plant that is friendly to the earth.

#### ● Water quality (Regulated values: Sewage Law)

Item	Regulated value	Results			
		Maximum	Minimum	Average	
pH	5-9	7.5	7.0	—	
BOD	600	59	3	25	
COD	—	190	12	33	
SS	600	189	2	27	
Oil	Animal and vegetable	30	7.1	1.6	3.9
	Mineral	5	0.8	0.1	0.3
Fe	10	1.3	<1	<1	
Total nitrogen	380	55	8	22	
Fluorine	8	<0.8	<0.8	<0.8	
Boron	10	<1.0	<1.0	<1.0	

Units: mg/ℓ

## Ina Plant



Location: Miyada-mura, Kami Ina-gun, Nagano  
 Products: Wire springs and precision machined components  
 Commenced operations: December 1943



**Atsushi Shitama**  
Plant Manager

### Outlook and policies

Situated in an abundant natural environment between the Southern and Central Alps, our plant aims to practice both conservation of the natural environmental and business activities as we engage in our day-to-day production and improvement work. In addition, our production is primarily of compact, lightweight drive train springs that support increased fuel efficiency in vehicles, so we contribute to improving the environment on a global level. Moving forward, we will actively adopt new technologies and production methods that help reduce environmental impact as we move forward with environmental protection and improvement activities.

### Fiscal 2019 and 2020 initiatives

#### Reduction in CO<sub>2</sub> emissions

■ Our plant has led the Group in the adoption of heat exhaust fans that expel hot air from within the plant. We succeeded in lowering internal ambient plant temperatures by 4°C using earth-friendly manufacturing methods that do not rely on freon. Last fiscal year, while working to deploy the system horizontally throughout the plant, we introduced it to other Group companies to spread its adoption.

■ Our proactive work in reducing CO<sub>2</sub> emissions by improving our facilities includes replacing hydraulics with servomechanisms in the actuators for our evaluation equipment and durability testing devices, which enable us to meet customer needs for high quality and durability. We also perform clean-up activities along the banks of the Tenryu River together with the local community as part of a diverse array of environmental maintenance and improvement work, ranging from steady efforts in close association with the local community to upgrades with new technologies and manufacturing processes.

#### ● Atmosphere (Regulated values: Air Pollution Control Law)

Substance	Equipment	Regulated value		Results
		Maximum	Minimum	
NOx	Heating boiler	A	250	62
		B	250	42
		C	250	52
Dus	Heating boiler	A	0.3	<0.004
		B	0.3	0.009
		C	0.3	<0.003
SOx	Heating boiler	A	—	<0.001
		B	—	<0.001
		C	—	<0.001

NOx units: ppm SOx units: m<sup>3</sup>N/h Dust units: g/m<sup>3</sup>N

#### ● Water quality (Regulated values: Sewage Law and Nagano prefectural regulations)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5.7-8.7	7.3	6.7	—
BOD	600	40	4	18
COD	—	28	5	17
SS	600	53	<1.0	11
Oil	5	2.1	<0.5	1.1
Fe	10	1.9	<1.0	<1.0
Cu	3	<0.3	<0.3	<0.3
Total nitrogen	380	52	2	11

Units: mg/ℓ



## DDS (Disk Drive Suspension) Division

### Komagane Plant



Location: Komagane, Nagano  
Products: HDD suspensions  
Commenced operations: November 1983



**Yoichi  
Ikeji**  
Plant Manager

#### Outlook and policies

We aim to continue to protect the environment and have an environmentally friendly plant efficiently producing the best quality HDD suspensions in the world, so that future generations can inherit our beautiful environment in good shape.

#### Fiscal 2019 and 2020 initiatives

##### Reduction in CO<sub>2</sub> emissions

- In fiscal 2019, members of the promotion team established an annual plan for CO<sub>2</sub> emissions reduction action. As a result of monthly follow-up on each item slated for improvement, we achieved a 4.8% year-on-year reduction in CO<sub>2</sub> emissions.
- In fiscal 2020, we completed an energy visibility effort we had been preparing since fiscal 2019. This is leading to further progress in CO<sub>2</sub> emissions reduction.

##### Waste reduction (zero emissions)

- We continue to maintain our 100% resource recycling rate and meet our emissions index numerical targets. In fiscal 2020, we continue to reduce and separate trash in order to meet our goals.

##### Water quality (Regulated values: Nagano prefectural regulations)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5.8-8.6	7.6	7.0	—
BOD	20	10.0	2.0	4.8
COD	20	7.0	<1.0	4.3
SS	30	11.0	1.0	2.5
Oil	5	1.2	<0.5	0.8
Total phosphorus	16	2.3	<1.0	1.1

Units: mg/ℓ

## Industrial Machinery & Equipment Division

### Isehara Plant No. 1 and No. 2



Location: Isehara, Kanagawa  
Products: Semiconductor process components, pipe support systems, specialized springs, security products  
Commenced operations: March 1993



**Junichi  
Miyahara**  
Isehara Plant No. 1  
Plant Manager



**Kenichi  
Akao**  
Isehara Plant No. 2  
Plant Manager

#### Outlook and policies

At our plant, we will continue to develop and manufacture environmentally friendly sophisticated joint technology products, TERA high-stress disc springs used in machine tools, and anti-counterfeiting products. We will work to improve environmental performance by having all of our personnel participate in 3R efforts including conservation of resources, energy saving for CO<sub>2</sub> emissions reduction, and reduction of waste and substances with environmental impact.

#### Fiscal 2019 and 2020 initiatives

##### Reduction in CO<sub>2</sub> emissions

- Our stated goal for fiscal 2019 was a 3% reduction compared to fiscal 2016, but we were unable to meet our goals for the first six months of the year. We therefore revised our goal for the second half to a more manageable objective, and took action accordingly. In the end, we were able to achieve our targets for both CO<sub>2</sub> emissions per unit and waste volume. For fiscal 2020, we started the year by narrowing our target to CO<sub>2</sub> emissions reduction activities. Each department formulated a numerical target it could manage, and we have been proceeding to implement measures accordingly. We are endeavoring in each department to eliminate the three common procedural faults of omission, error and reworking in order to reduce CO<sub>2</sub> emissions through improvement in quality of work.

##### Water quality (Regulated values: Isehara sewage regulations)

Item	Regulated value	Results			
		Maximum	Minimum	Average	
pH	5.0-9.0	8.8	8.1	—	
BOD	600	270	62	184	
Oil	Animal and vegetable	30	25.0	2.0	9.8
	Mineral	5	1.0	1.0	1.0
Fe	3	0.13	0.03	0.07	
Zn	1	0.09	0.02	0.02	
Mn	1	0.02	0.02	0.02	
Pb	0.1	0.01	0.01	0.01	

Units: mg/ℓ

## Miyada Plant



Location: Komagane, Nagano  
 Products: Semiconductor process components  
 Commenced operations: September 2019



**Hiroshi Kaneko**  
 Plant Manager

### Outlook and policies

Ours is a new plant that was completed in March 2019 on the same property as the Industrial Machinery & Equipment Komagane Plant No. 2. We produce environmentally-friendly high-precision bonding products as a mass-production plant for the Isehara Plant No. 1. Having adopted the environmental management system of the Industrial Machinery & Equipment Komagane Plant, all of our employees work to advance efforts toward a recycling-oriented society rooted in the local community and based on the NHK Spring Employees Code of Conduct and Global Environmental Activities Plan.

### Fiscal 2019 and 2020 initiatives

#### Reduction in CO<sub>2</sub> emissions

- A breakdown of our plant's energy use shows that it comprises 99.5% electric power and 0.5% water, making us an all-electric powered plant.
- Our active efforts to reduce CO<sub>2</sub> emissions include moving forward with steps to address electric power use, including solar power generation, compressors (water circulation inverter devices and controls on numbers of compressors), top lighting, LED plant lighting, electric power monitoring and demand control (vacuum furnace).

#### Recycling and reducing waste

- We have maintained a 100% recycling rate in fiscal 2019.
- All plant personnel are also working to reduce waste volume and processing costs by recycling and converting waste into valuable commodities.

#### Environmental management system

- This was added to the Industrial Machinery & Equipment Komagane Plant Environmental Manual in fiscal 2020, and environmental conservation activities have begun.
- We have established an environmental management system with the aim of obtaining certification in fiscal 2021 under the fiscal 2015 version of the ISO standard.

## Komagane Plant



Location: Komagane, Nagano  
 Products: Specialized polyurethane foam products, integrated metal products  
 Commenced operations: December 1981



**Tatsuya Saito**  
 Plant Manager

### Outlook and policies

Situated amid verdant scenery with a view of both Alps ranges, this plant develops and produces functional urethane products and metal substrates. All of our employees work to advance efforts toward a recycling-oriented society rooted in the local community and based on the NHK Spring Employees Code of Conduct and Global Environmental Activities Plan.

### Fiscal 2019 and 2020 initiatives

#### Reducing CO<sub>2</sub> emissions and emissions per unit

- In fiscal 2019, we not only achieved our goal for CO<sub>2</sub> emissions per unit output, but cleared the target by 1.7%.
- Although the impact of the COVID-19 pandemic has given rise to concerns for fiscal 2020, we are moving forward with CO<sub>2</sub> emissions reduction efforts toward the goal of a 1% cut from last year.

#### Recycling and reducing waste

- In fiscal 2019, we maintained a 100% recycling rate. However, waste volume increased by 4.8% from the previous fiscal year, while processing costs increased by 9.7%.
- During fiscal 2020, we are working to reduce waste through recovering iron (II) chloride waste, which has been an issue since last fiscal year.

#### Environmental conservation activities

- Through litter clean-up held twice a year in the vicinity of Plant No. 2, we demonstrate our environmental conservation activities to employees, their families, and the local community.

#### ● Atmosphere (Regulated values: Air Pollution Control Law)

Substance	Equipment	Regulated value		Results
		A	B	
NOx	Hot water boiler	A	180	31
		B	180	35
Dust	Hot water boiler	A	0.3	<0.003
		B	0.3	<0.004
SOx	Hot water boiler	A	—	<0.001
		B	—	<0.001

NOx units: ppm SOx units: m<sup>3</sup>N/h Dust units: g/m<sup>3</sup>N

#### ● Water quality (Regulated values: Nagano prefectural regulations) Production Building 1

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5.8-8.6	8.2	7.7	—
BOD	20	3.0	1.0	1.8
COD	20	1.0	<1.0	<1.0
SS	30	5.0	<1.0	<1.0
Oil	5	1.4	<0.5	0.7

Units: mg/ℓ

#### ● Water quality (Regulated values: Nagano prefectural regulations) Production Building 2

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5.8-8.6	7.6	6.6	—
BOD	20	18	5	12
COD	20	11	5	8
SS	30	4.0	<1	1.3
Oil	5	1.5	<0.5	0.7
Fe	10	<1	<1	<1
Cu	3	0.8	<0.3	<0.3
NH <sub>4</sub>	100	2.2	1.5	1.8

Units: mg/ℓ

## Yasu Plant



Location: Yasu, Shiga  
 Products: Mechanical multilevel parking systems  
 Commenced operations: October 1996



**Takuo Higuchi**  
 Plant Manager

### Outlook and policies

Our plant develops and manufactures mechanical multilevel parking systems as well as other mechanical components under a slogan to reduce the impact on the environment. We aim to further protect the global environment and continue improving our care for the environment to ensure that we pass on the green mountains and clear air and rivers of these superb natural surroundings to later generations.

### Fiscal 2019 and 2020 initiatives

#### Reduction in CO<sub>2</sub> emissions

- With the termination in fiscal 2019 of powder coating equipment operation, use of LPG in production is ending. The Yasu Plant is therefore taking 2020 to be its Year 1 for CO<sub>2</sub> emissions reductions as it moves ahead with efforts centering on reduction of electric power use.
- While continuing to advance conversion of plant lighting to LED in fiscal 2020, we are introducing electric power monitoring efforts at new facilities to renew our understanding of the current situation as we seek out ideas for how to affect future reductions in CO<sub>2</sub> emissions.

#### Recycling and reducing waste

- We will carry out improved and thorough separation to maintain our 100% recycling rate.
- This fiscal year, we will continue to promote recycling of waste into useful resources and to respond to changes in waste by look for a new waste treatment contractor and reduce processing costs.

#### ● Atmosphere (Regulated values: Air Pollution Control Law)

Substance	Equipment	Regulated value	Results
NOx	Boiler	150	45
	Drying oven	230	31
Dust	Boiler	0.1	<0.003
	Drying oven	0.2	<0.003

NOx units: ppm Dust units: g/m<sup>3</sup>N

#### ● Water quality (Regulated values: Sewage Law)

Item	Regulated value	Results		
		Maximum	Minimum	Average
pH	5-9	8.0	7.4	—
BOD	600	4.0	1.0	1.8
SS	600	6.0	1.0	3.8
Oil	5	1.5	<0.5	0.7
Ni	1	0.1	<0.1	<0.1
Total nitrogen	60	22	11	16
Total phosphorus	10	3.7	<1.0	<1.0

Units: mg/l