







JSW

THE JAPAN STEEL WORKS, LTD.

JSW Integrated Report 2021







JSW Vision

Contribute to social development by creating innovations with original technologies

JSW aims to be an “Innovative Company” that contributes to social development by positively exploring potential needs among our continuously changing society through proprietary technologies that we have cultivated throughout our history and cutting-edge technologies that we are under development.

JSW Philosophy

1) Make our customers amazed and impressed

To achieve customer satisfaction and their confidence, JSW always listens to the voice of the market and continuously provides creative products and services that exceed customers’ expectations.

2) Coexist with society and achieve sustainable profitability

JSW achieves sustainable profitability through realization of our customers’, shareholders’ and employees’ satisfaction, coexistence with local communities and fulfillment of our responsibilities to stakeholders.

3) Keep the spirit of continuous innovation

JSW establishes a vibrant culture that seeks change and values initiative, creativity and the spirit of challenge, together with sustaining a culture that values the steady supply of reliable products. JSW thoroughly pursues the principles of “real places,” “real things,” “real situations” (traditional three “real” principles) and “real people.”

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Editorial Policy

In 2021, The Japan Steel Works, Ltd. adopted the integrated reporting format with the aim of better communicating to all stakeholders its initiatives for sustainably creating social value and enhancing medium-to-long-term corporate value. This report is the first such integrated report.

We hope that this report provides readers with deeper insight into the JSW Group from both financial and non-financial perspectives.

Reporting Period

April 1, 2020–March 31, 2021 (“Fiscal 2020” or “FY2020”)

Note: Certain activities and information are included from outside this reporting period.

Reporting Scope

The Japan Steel Works, Ltd. and Group companies

Note: Throughout this report, “JSW” refers to information relating to The Japan Steel Works, Ltd., and “JSW Group” refers to information relating to The Japan Steel Works, Ltd. and its consolidated subsidiaries.

Referenced Guidelines

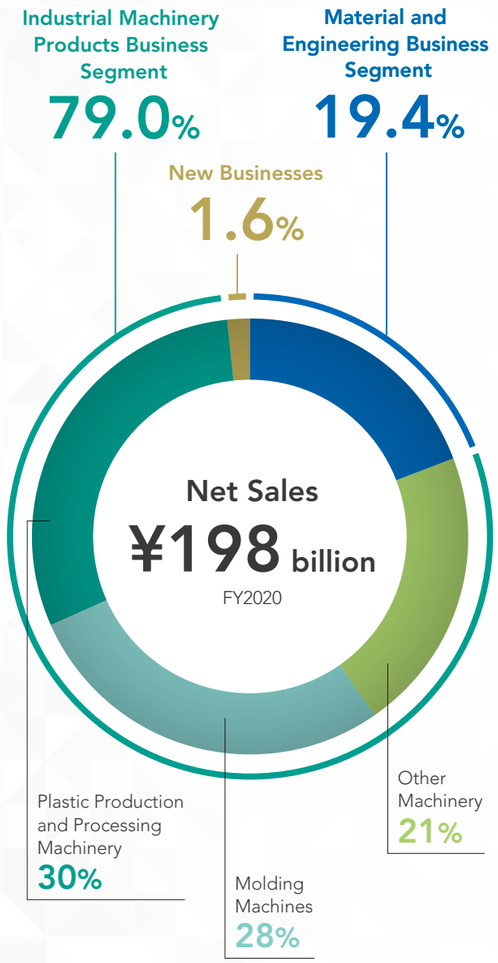
- *International Integrated Reporting Framework*, International Integrated Reporting Council (IIRC)
- *Guidance for Collaborative Value Creation*, Japan’s Ministry of Economy, Trade and Industry
- *Environmental Reporting Guidelines 2018*, Japan’s Ministry of the Environment
- *GRI Sustainability Reporting Standards*, Global Reporting Initiative

Note on Forward-Looking Statements

The performance forecasts included in this report are judgments based on the information that was available to JSW at the time the report was prepared and are subject to underlying risks and uncertainties. Actual results may differ significantly from these forecasts due to a variety of factors.



At a Glance



Business Segments

Industrial Machinery Products Business Segment

Our Industrial Machinery Products Business Segment comprises three sub-segments: (1) Plastic Production and Processing Machinery, (2) Molding Machines, and (3) Other Machinery, and operates from three bases: the Hiroshima Plant, the Yokohama Plant, and the Meiki Plant.

We offer a lineup of plastic production and processing machinery and plastic molding machines for a variety of applications, and many of our products have a high market share, such as our separator film manufacturing equipment for lithium-ion batteries. In this segment, which accounts for nearly 80% of the JSW Group's net sales, we are working to further expand the scale of our business, especially in the mainstay plastic processing machinery market.

Material and Engineering Business Segment

Our Material and Engineering Business Segment comprises three sub-segments: (1) Steel Castings and Forgings, (2) Clad Steel Products, and (3) Engineering Services, and is operated by Japan Steel Works M&E, Inc. (Muroran Plant), which was established as an operating subsidiary in April 2020.

In steel castings and forgings, we are either the world's only manufacturer or have a high market share for products such as large shaft materials for power plants, pressure vessel components for nuclear power plants, and large components for pile-driving machines used in the construction of offshore wind farms. With the shift to renewable energy, we are working to strengthen our earnings base through business structure reform.

New Businesses

We have narrowed down our new businesses to the three fields of photonics, composite materials, and metallic materials, and are working to achieve profitability in each business by offering products such as optical device materials, carbon fiber reinforced plastic (CFRP), and titanium copper alloys.

Production Bases









Products

Plastic Production and Processing Machinery

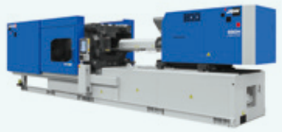
- Pelletizers
- Film and sheet manufacturing equipment
- Twin-screw extruders
- After-sales services





Molding Machines

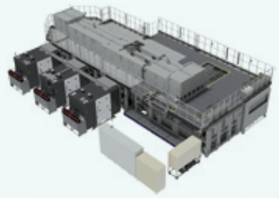
- Plastic injection molding machines
- Magnesium molding machines
- Blow molding machines
- After-sales services





Other Machinery

- Excimer laser annealing systems
- Defense equipment
- Railway products
- Hot press devices
- Laminators
- Deposition systems
- After-sales services



Steel Castings and Forgings

- Parts for reactors (shells, heads, etc.)
- Parts for steam generators
- Rotor shafts
- Turbine casings
- Die steel
- Steel rolls for steel manufacturing





Clad Steel Products

- Clad steel plates
- Clad steel pipes





Engineering Services

- Steel structures for plants and infrastructure
- Non-destructive inspection and analytical inspection services
- Steel pressure vessels for hydrogen storage and hydrogen storage tanks using hydrogen absorbing alloys





New Businesses

- Photonics
- Composite materials
- Metallic materials











Markets

Petrochemicals | Industrial Machinery | Automobiles | IT | Defense | Electric Power and Steel | Oil and Natural Gas | Renewable Energy | New Businesses

Message from the President



A Future-Oriented Approach Rather than Continuation of Past Practices

Since I became president of JSW in April 2017, I have managed the JSW Group with “welcome change, initiate change” as a constant theme. Amid rapid and large-scale social change—exemplified by moves to decarbonize and advances in plastic recycling—we cannot achieve new successes by following precedent and maintaining the status quo. A spirit of taking on new challenges is necessary. I feel strongly that we must evolve our company in order to grow further.

The JSW Group operates a wide range of businesses, primarily in energy- and infrastructure-related materials and industrial machinery products centered on plastic applications. However, we are clearly headed toward a new era. In addition to the decarbonization trend, advanced technologies such as AI and IoT as well as digital transformation initiatives are fundamentally changing the economy and daily life. I think we are soon to see the emergence of game-changers in various fields that will transform the structure of industrial society.

To pursue sustainable growth in such a time of great change, companies must think about society with a long-term perspective, and then decide what they should do now, rather than plotting their future course based on what they did in the past. In our new medium-term management plan, JGP2025, we identified the issues we should address from a medium-to-long-term perspective and formulated future strategies, and we are now devoting our efforts to executing those strategies and achieving the plan’s targets. In the first half of the twentieth century, the JSW Group contributed to the development of the defense industry as a national project, but after the Second World War, it transitioned to commercial business in response to changing social conditions. We have since developed new product categories, including materials for the energy industry, plastic processing machinery, and more. Now we are once again aiming to grow in the years ahead by reforming our business portfolio.

Ensuring Measures Generate Results by Formulating JGP2025 with a Long-Term Perspective

In the previous medium-term management plan, JGP2020, which ended in March 2021, we focused on shaping the future of the JSW Group and reforming our business structure through the growth of the Industrial Machinery Products Business and the rebirth of the Material and Engineering Business. We split off the Material and Engineering Business, our original business, into Japan Steel Works M&E, Inc., and established alliances with Tsukishima Kikai Co., Ltd. and JX Nippon Mining & Metals Corporation. Due to adverse developments in the external environment, notably the prolonging of trade tensions between the U.S. and China and the COVID-19 pandemic, we were unable to reach our original numerical targets, but we did make steady progress on the three basic policies (priority issues) in JGP2020, including optimization of management resources and strengthening of alliances. However, one issue that we needed to address is the failure to translate our various measures and initiatives into business results. Based on the outcomes and issues of the previous plan, in April 2021 we launched a new medium-term management plan, JGP2025.

Until now, the JSW Group has launched a new medium-term management plan every three years, but this horizon was too short to fully implement measures and produce results. Consequently, we tended to place priority on near-term budget execution, planning and project portfolio-building. That is why we decided to extend the period covered by the new medium-term management plan to five years and concentrate on carrying out priority measures with a longer-term perspective. Of course, with the rapid changes currently happening around the world, predicting conditions five years from now is not an easy task. We plan to examine the progress of measures and make adjustments to the plan after three years.

The key point we emphasized in formulating the new plan is the need to foster and establish a corporate culture of embracing challenges with high goals. We will set goals to aim for, think hard about how to achieve them, and push toward our vision while regularly checking measures and results. This approach is essential to successfully achieving the medium-term management plan.

JGP2025 is positioned as a five-year period to lay the groundwork for realizing our long-term vision for 2030 and beyond. It will ensure our evolution “towards the unprecedented general manufacturer of plastic processing

machinery in the world" through initiatives such as capturing the top global market share for our existing products. At the same time, we plan to quickly commercialize products in the three fields of photonics, composite materials and metallic materials, and create new core businesses such as products for electronic devices.

Our numerical targets for fiscal 2025, the final year of the new plan, are consolidated net sales of ¥270 billion, operating income of ¥27 billion and ROE of 10%. The entire JSW Group will work together to achieve them.

The *Yompo-Yoshi* Spirit That Supports *Monozukuri* and Value Creation

In my view, the JSW Group's value comes from both *monozukuri* and value creation. Of course, *monozukuri* —good manufacturing practices for producing high-quality products at competitive prices with short delivery times—has always been our foundation as a manufacturer, and that has not changed. But today, with competition intensifying, a company must create and put into practice a business model that meets the real underlying needs of customers in order to achieve sustainable growth. Adding something extra to products or components (including their maintenance) that leads to customer satisfaction, is the essence of value creation. I believe that the combination of *monozukuri* and value creation is the engine that will drive the JSW Group's growth in the years to come. For example, at the Technology Development Center in Hiroshima, which has more than 100 engineers, in addition to creating original technologies, we are conducting development and trial manufacturing of plastic processing machinery to meet customers' requests and technical challenges. Continuing to solve customer problems by developing new products and helping customers cultivate markets is the way we have grown until now.

At the heart of *monozukuri* and value creation is the spirit of *yompo-yoshi*, which calls for us to generate benefits in four areas—for customers, employees, society and shareholders. Simply making customers happy is not enough. Employees who are not enthusiastic about their work cannot perform to their full potential, and harmony with local communities is also important. Furthermore, we have an obligation to our shareholders. I believe that creating businesses with *monozukuri* and value creation based on the satisfaction of these four stakeholders and expanding the value we provide will lead to the JSW Group's future growth.

Evolving Our Business Portfolio to Realize Our Long-Term Vision

The JSW Group's long-term vision has two core objectives: a company with job satisfaction and excitement for employees, and growing to a business scale of 300 billion yen.

While our employees continue to give their best, I feel that we are sometimes a little conservative due to our nature as a traditional company with a long history. For example, to act with the speed and sense of unity of a startup, we need to foster a culture in which employees set goals not for the whole company, but on a smaller scale—say, becoming number one in a certain field—and work toward those goals with enthusiasm. That is what we mean by the first objective, to be a company with job satisfaction and excitement for employees. Making our company an exciting place to work will also give younger employees a stronger sense of personal growth. Management's responsibility will be to stimulate the initiative, creativity and passion of our diverse employees and create the conditions for them to be excited about pursuing innovation.

As for the second objective, growing to a business scale of 300 billion yen, we see today's requirements for decarbonization and a circular economy as major business opportunities, and our most important task is to establish a business portfolio that will position us for long-term growth.

In the Industrial Machinery Products Business, there are still many untapped fields. One that we are looking at in particular is chemical recycling, a method of recycling waste plastic. This process enables the conversion of waste plastic into recycled plastic raw materials with the same physical properties as new materials. We will focus on deploying the JSW Group's technologies and knowledge to expand the chemical recycling field and further advance the integration with the plastic processing machinery field. For molding machines, we will focus on optimizing global production of plastic injection molding machines, and work to expand sales of magnesium molding machines to the automotive industry, with the goal of being among the world's top five in the injection molding machinery industry.

Meanwhile, in the Material and Engineering Business related to energy and infrastructure, we will take steps to ensure continued profit by reinforcing and transforming production systems, while capitalizing on demand for renewal of existing infrastructure.

In new businesses, we will monitor rapidly evolving markets, and build up our business foundation in materials for electronics such as gallium nitride and composite materials for aircraft and automobiles. Our policy will be to respond swiftly to change and customer needs, and rather than handling everything in-house as previously, we will consider collaboration with other companies or mergers and acquisitions to develop new fields and quickly establish a third core business alongside our materials and industrial machinery products.



Deepening ESG Management and the JSW Group's Responsibility

The JSW Group has conducted its business activities with consideration for the environment—examples include the ongoing reduction of CO_2 emissions at production sites, and development of plastics machinery that contributes to recycling of plastic resources. We have also focused on developing human resources that contribute to building a sustainable society and on establishing a transparent management structure. Creating social and environmental value through our businesses and pursuing corporate value by promoting various environmental, social and governance (ESG) initiatives is our goal, and we see it as our social responsibility. The ESG Promotion Committee, established in April 2021, has been given the role and functions of a "command post" that will drive these initiatives forward.

Among specific ESG actions, in the environmental area, we will continue to reduce CO_2 emissions and conserve resources at our production sites, and develop and propose products and systems that contribute to a circular economy and active utilization of hydrogen-based energy. In social initiatives, we will conduct management with consideration for all stakeholders—customers, suppliers, employees, local communities, shareholders and others. For human resources, who are the source of our value creation, we will put greater effort into supporting the empowerment of every employee and increasing diversity. At the same time, we will expand hiring of mid-career talent to bring new ideas and knowledge into the JSW Group.

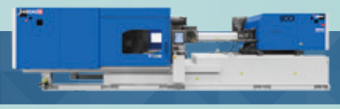
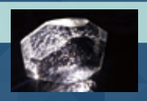
In governance, we increased the number of outside directors from two to three in June 2020. Adding an outside director with business experience in a field close to end consumers has resulted in more energetic Board of Directors meetings and more effective discussions on the future of management and businesses. By bringing in perspectives different from those of management, we are establishing a monitoring-focused governance structure with more effective supervision and oversight —giving us greater insight into how our business will change in the future from a big-picture perspective. We will continue working to enhance the effectiveness of the Board of Directors and the Audit & Supervisory Board, as well as to practice management with greater awareness of cost of capital. With these approaches, we will further raise the level of governance.

Four and a half years have now passed since I became president. I feel that the fresh perspectives of both employees and officers we have brought in from outside have helped to build the foundation for future sustainable growth. We remain committed to advancing *monozukuri* and value creation based on the spirit of *yompo-yoshi* in order to maximize corporate value. I would like to thank all of our stakeholders for their continued support.

Our History of Creating Value: A Journey in *Monozukuri* and Value Creation

	1907	1945	1970s	2000s	2021
	Founding (pre-war)	Post-war recovery	Rapid economic growth	Preparation for a new era	
Social issues and needs	• Development of defense industry	• Transition to commercial business	• Increasing energy demand in tandem with economic growth • Accelerating adoption of electronics in industry	• Decarbonization-related demand (electric vehicles, use of hydrogen energy) • Increasing LCD demand with the growing use of smartphones • Problem of marine plastic pollution	
	Launch as a national project	Growth based on a portfolio of technologies	Becoming a comprehensive company in materials and mechatronics	Toward establishing a new future vision for JSW	
Phases in our history	In 1907, The Japan Steel Works was established in Muroran, Hokkaido as a joint venture between Hokkaido Colliery Steamship Company and two U.K. firms: Sir W.G. Armstrong, Whitworth & Co., Ltd. and Vickers, Sons & Maxim, Ltd. Weapons manufacture as a national project contributed to the development of the defense industry. The Hiroshima Plant was inaugurated in 1920 to expand weapons manufacture.	After the Second World War, the focus of our business underwent a major shift to commercial products. Giving a new purpose to technologies that had been cultivated through weapons manufacture, we began in earnest to produce large steel castings and forgings, such as rotor shafts for power generation and pressure vessels for oil refineries, and plastic processing machinery, such as injection molding machines and plastic extruders.	We focused on creating new added value in response to market changes such as increasing energy demand and the accelerating adoption of electronics. In addition to manufacturing ultra-large components (pressure vessels and rotor shafts) for nuclear power plants, we switched from hydraulic to electric control of injection molding machines and introduced magnesium molding technology.	As part of our efforts to contribute to a society that is demanding products that are friendly to the global environment, we manufacture and supply separator film manufacturing equipment for lithium-ion batteries, molding machines for large plastic parts for automobiles that excel in weight reduction, and pressure vessels for hydrogen storage to support the hydrogen economy.	

Lineage of technologies and their provision to customers and markets

- Injection molding machines
  - 
  - 
  - Expansion of materials → Magnesium molding machines
    - 
- Barrel processing technologies → Plastic extruders
  - Expansion to secondary processing equipment → Film and sheet manufacturing equipment
    - 
    - Expansion of product range → Separator film manufacturing equipment for lithium-ion batteries
- Artillery production technologies
  - Material manufacturing technologies → Rotor shafts for power generation
    - 
    - Annealing technologies → Excimer laser annealing systems
      - 
  - Manufacturing technologies → High-pressure cylinders, reaction towers (e.g., for fertilizer)
    - Pressure vessels for oil refining
      - Pressure vessels for nuclear power generation
      - Manufacturing technologies / Pressure vessel manufacturing and high-pressure technologies → Artificial crystals
        - 
        - Pressure vessel manufacturing and high-pressure technologies → Gallium nitride single-crystal substrates
          - 
      - Pressure vessel technologies → Hydrogen pressure vessels
        - Hydrogen handling technologies
          - 
- Special steel technologies
  - Research on hydrogen in steel → Hydrogen storage alloys
  - Material manufacturing technologies → Thick plate rolling → Clad steel plates
    - 
    - Expansion of product range → Clad steel pipes
      - 

Net sales

Value Creation Process

JSW Vision

Contribute to social development by creating innovations with original technologies

JSW Philosophy

1) Make our customers amazed and impressed
2) Coexist with society and achieve sustainable profitability
3) Keep the spirit of continuous innovation

JSW's Operating Environment

Carbon neutrality in Japan by 2050
- Expansion of hydrogen and ammonia businesses
- Evolution of storage batteries
- Expansion of renewable energy
- Decline in natural gas business
- Uncertain outlook for nuclear power generation

Solving the problem of waste plastics
(realizing a circular economy)
- Development of recycling and waste treatment businesses
- Switch to biodegradable plastics

Advances in digital transformation, AI and IoT
- Transformation of business models and how people work
- Full-scale investment in related infrastructure

Declining birthrate and aging populations in developed economies
- Shrinking domestic market, declining workforce

Worldwide population growth
- Expansion and diversification of consumption, especially in emerging economies

Capital

Financial capital
- Shareholders' equity: ¥135,719 million
- R&I rating: A (stable)

Manufactured capital
- Capital investment: ¥12,592 million
- Plants: 3 locations
- Test centers: 3 plastic machine locations, 6 molding machine locations
- Sales locations and Group companies covering major market regions in Asia, North America and Europe

Human capital
- JSW Group employees: 5,442
- JSW employees (non-consolidated): 1,846
- Engineering career-track employees (non-consolidated): 802
- Manufacturing skill training facilities: 2 locations

Intellectual capital
- Research and development expenses: ¥4,586 million
- Patents held: 1,012 in Japan, 676 overseas

Social and relationship capital
- Long-term and stable relationships with customers
- Good relationships with local communities around plants

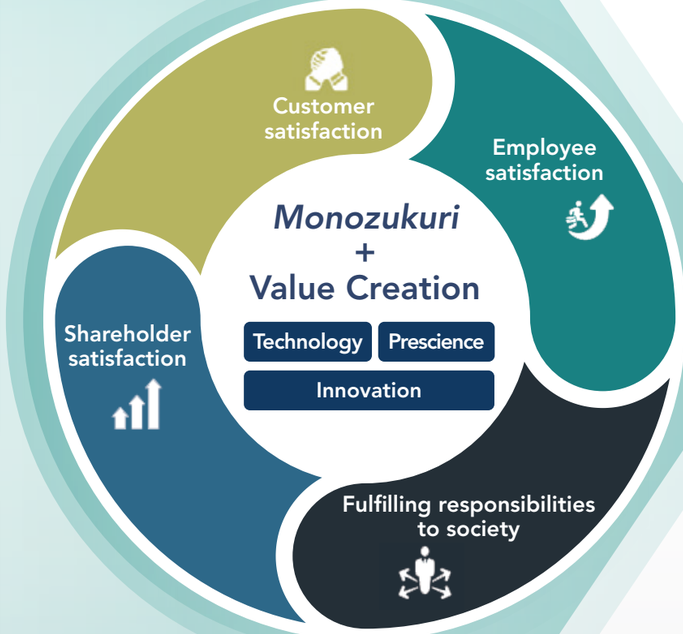
Natural capital
- Energy consumption: 2,714 TJ
- Water intake: 16.29 million m^3

Business Model

Industrial Machinery Products Business

Material and Engineering Business

New Businesses



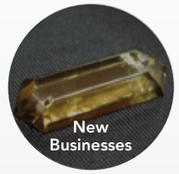
Outputs











Value Provided

Customers
- Solutions to customer issues
- Increased productivity
- Reduced environmental impact through our products
- Provision of advanced technologies necessary for next-generation *monozukuri*

Employees
- A work environment with job satisfaction and excitement
- Growth as a highly skilled professional

Business partners
- Stable and ongoing business relationships

Shareholders and investors
- Medium-to-long-term enhancement of corporate value
- Stable shareholder returns

Local communities
- Contribution to the local economy through employment and procurement

Global environment
- Energy and resource efficiency through business activities
- Reduction of CO_2 emissions from in-house sources
- Reduction of CO_2 emissions through our products and businesses

Creation of social value
- Realizing a circular economy
- Contributing to carbon neutrality
- Contributing to a smart society

Sustainable enhancement of corporate value

ESG Issues

Reducing environmental impact

Creating social and environmental value through our businesses

Ensuring product quality

Providing work environments that offer peace of mind and opportunities for growth

Strengthening governance

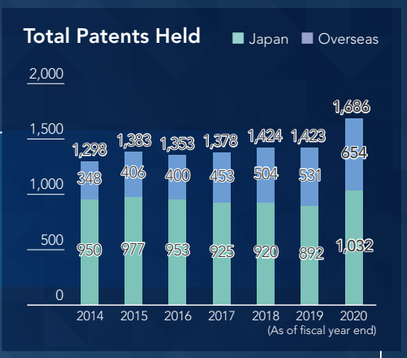
Drivers of Value Creation: Three Capabilities That Create Markets

Since its establishment in 1907, JSW has responded to the social issues and needs of each era, transitioning from the defense industry to commercial business, primarily in the energy field, and then to the industrial machinery field, mainly plastic processing machinery. Throughout this journey, our strength has been in consistently creating value through three sets of capabilities: technology, prescience and innovation.

For example, our capabilities in technology are evident in our track record in pressure vessels and other components for nuclear power plants—a field where there is no leeway for accidents. This track record is backed by customer feedback that says "JSW-made products do not break down easily even in harsh operating environments."

In recent years, we have earned recognition for our prescience and innovation related to technologies able to control the performance and quality of end-products manufactured by our customers on a submicron scale, including separator film manufacturing equipment for lithium-ion batteries, injection molding machines for magnesium alloys, and excimer laser annealing systems for manufacturing high-definition LCDs and OLED displays. These products are the culmination of R&D that is innovative and based on prescience in anticipating future social needs rather than chasing trends after they are already in motion.

We will continue to address social issues and needs, including those relating to the growing use of electric vehicles, plastic recycling and the hydrogen economy. Furthermore, we will demonstrate innovation in applying our accumulated capabilities in technology to new markets and technologies based on prescience.



Technology

Making products that are durable, reliable and high-quality is written in our DNA as a manufacturing company.

Strengths

- We continue to develop solid production systems that meet the requests of our customers. Each of our business bases has an integrated production system, from design and analysis to manufacturing, processing and quality inspection, that enables us to develop new products and technologies based on the emerging demands of our customers and the social issues and needs of society. At Japan Steel Works M&E, Inc., we have one of the world's largest production facilities for ultra-large steel castings and forgings.
- We continue to promote the manufacture of products under our ISO 9001-certified quality management system based on our corporate culture and skilled engineers that have satisfied customers' strict quality requirements since our founding.

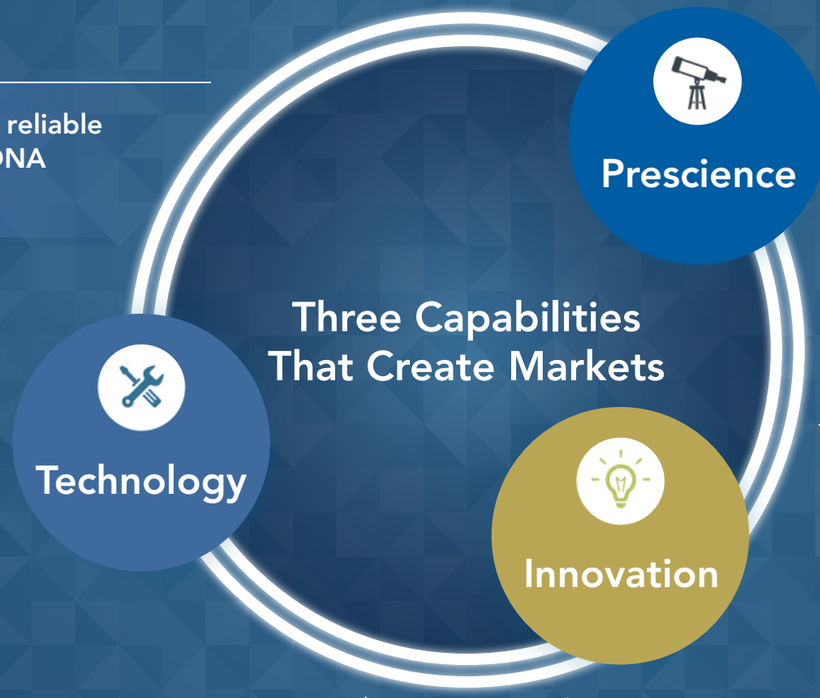
Case Studies

Harnessing Ideas from the Production Floor in the Development and Design of DSI Molding

Our production system facilitates the feedback of ideas from the production floor into design. Proposals arising from this system have included die-slide injection (DSI) molding, weldless pressure vessels, and wear-resistant materials and coatings. In particular, DSI molding, which enables molding of complex plastic shapes, was developed based on ideas from the manufacturing site, which were fed back into the design and prototyping process, and has resulted in the acquisition of many patents through the combined efforts of the technology development team. This ability to integrate the production line from design through manufacturing, making it easy to roll out improvements, is a JSW strength.

100% Market Share for Large Anvils That Meet Strict Requirements

Offshore wind power generation is being promoted as a countermeasure against global warming. We manufacture anvils for stationary monopile pile drivers used to directly anchor wind turbines to the seabed. Anvils are disc-shaped products with an outer diameter of up to 7 meters and we forge them from ultra-large steel ingots weighing over 600 tons using a 14,000-ton press—one of the world's largest. Our anvils must have high strength and toughness, and leverage our material composition, forging, heat treatment and machining technologies as they play a key role in the construction of offshore wind power generation around the world. We hold a 100% market share of large anvils with an outer diameter of 6.5 meters or more.



Prescience

We accurately perceive the trends of the times and boldly tackle fields where there is no precedent.

Strengths

We are always looking to the future in our development. We identify the needs of our customers and collaborate with them based on our technology, know-how and experience, thereby helping to increase social and relationship capital.

Case Studies

Introducing Technologies from Outside Japan to Create a New Market

In addition to plastic injection molding machines, which have been a focus since our shift to commercial business after the Second World War, we have also turned our attention to magnesium alloys, which have excellent characteristics—lightweight, dimensionally stable, vibration-damping, magnetic-shielding and recyclable. In 1992, we developed a magnesium alloy injection molding machine based on thixomolding technology developed in the United States. In order to develop the market for magnesium alloy molded products, we established a subsidiary company, MG Precision Co., Ltd. in 1996 for contracted manufacture of molded products. We continue working to create and expand this market.

Technology Development to Realize a Circular Economy

At the Technology Development Center in Hiroshima, our engineers work as one team to develop new materials and conduct process tests based on proposals from our customers. We have been mixing and manufacturing materials including biodegradable plastics and cellulose nanofibers, which are resin materials with low environmental impact, and conducting molding tests, as well as developing resin recycling processes (chemical recycling and material recycling) using extruders. All of which lead to the creation of products that meet global needs while also utilizing our existing technologies.

Innovation

We establish new technologies and open up new markets based on our high level of technology and expertise.

Strengths

Our research system nurtures and effectively deploys excellent human resources, and our training system develops high-level engineers by passing on the technologies and skills we have cultivated over many years.

Case Studies

80-Year-Old Research Used in Hydrogen Storage Alloys

Beginning in 1936, we researched theories regarding the formation of white spots in steel being due to hydrogen, and we were the first in the world to confirm the presence of hydrogen in steel. Since then, we conducted research on the phenomenon of hydrogen absorption and embrittlement in steel, and from there research on metals that can store hydrogen (hydrogen storage alloys), later developing products such as actuators and heat pump systems. In 2014, we built a system for storing electricity from solar power generation in the form of water electrolyzed hydrogen. We are continuing to advance R&D and manufacturing to help build a hydrogen economy.

From Steel Heat Treatment Technologies to LCD and Semiconductor Manufacture

Expanding on our knowledge of steel heat treatment technologies, we have been researching annealing technology using laser beams since 1994, and have developed a process for using excimer laser annealing systems to make polycrystalline silicon for semiconductors. This form of silicon is used in LCDs and contributes to higher display resolution in smartphones and other devices. In recent years, it has been used not only in LCDs, but also in the OLED semiconductor manufacturing process.

Special Feature: Cleantech

At the JSW Group, “cleantech” refers to technologies and products that contribute to the realization of a sustainable society. They directly contribute to the energy efficiency of our customers and indirectly contribute to the environment through our customers’ products.

Our cleantech is the result of the three capabilities that the JSW Group has cultivated over many years: technology, prescience and innovation. We will continue to focus on cleantech development.

Our Products







Technologies that contribute to the energy efficiency of our customers

Supporting the shift to smart factories
J-WiSe™ (IoT solution)
(Japanese Trademark Registration Number 6311727)

Improving manufacturing efficiency by integrally molding multiple parts
Providing light, durable and environmentally friendly materials
Magnesium molding machines

Helping customers use resources efficiently
Improving fuel efficiency through weight reduction
Foam molding technologies

Environmentally friendly plastic materials
Processes for biodegradable plastics
Processes for cellulose nanofibers (wood-based materials)

Reducing peak power consumption in plants
Power storage technologies
Power regeneration technologies

Shifting from hydraulic to clean electric
Electric injection molding machine series

Contributing to the environment through our customers’ products

Supporting the safety of the hydrogen economy
Hydrogen pressure vessels
Hydrogen storage tanks

Power devices that contribute to energy efficiency
Next-generation semiconductors that support communications infrastructure
Gallium nitride single-crystal substrates

Reducing plastic disposed of as waste and promoting recycling
Material recycling
Chemical recycling

Supporting the growing use of electric vehicles through batteries
Separator film manufacturing equipment for lithium-ion batteries

Carbon Neutrality

We help our customers improve their productivity and energy efficiency through the development of energy storage technologies, power regeneration technologies, and high-quality electric products. We also contribute to the realization of carbon neutrality through our storage tanks, which are the key to safety when building a hydrogen supply chain, and separators, which ensure the high capacity and safety of lithium-ion batteries and support the foundation for the growing use of electric vehicles.

Smart Society

With the spread of AI, IoT and digital transformation, society is becoming “smarter.” The JSW Group will continue to contribute to the evolution of a smart society through its IoT solution, J-WiSe™, which supports customers in converting to smart factories, and its technology for the mass production of gallium nitride single-crystal substrates, which are attracting attention as a next-generation semiconductor material.

Circular Economy

Efforts to shift away from plastic and realize a circular economy are accelerating worldwide. The JSW Group will support the realization of a future society with reduced plastic resource use (resource efficiency during molding), recycling (high-quality chemical recycling technology), and more widespread use of alternative materials (magnesium, biodegradable plastics, cellulose nanofibers), by contributing to each of these developments.

Evolution of Growth Strategies

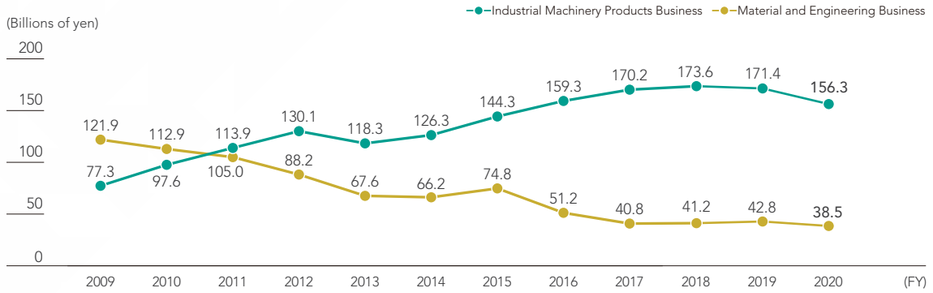
New Medium-Term Management Plan JGP2025

In the previous medium-term management plan, JGP2020, we failed to achieve our numerical targets due to the negative impact of U.S.–China trade friction and prolongation of the COVID-19 pandemic, but made progress on the plan's three basic policies.

The new medium-term management plan, JGP2025, is a five-year plan, which is a change from previous plans that were launched every three years. A three-year period means the focus is more on near-term efforts to meet the net sales and operating income targets that are the basis of the plan, which makes it difficult to set ambitious goals from a long-term perspective. In order to emphasize the original purpose of our medium-term management planning, which is to set goals from a longer-term perspective and then consider the measures needed to achieve those goals, we have set the plan period as the next five years.

JGP2025 is positioned as a key period for laying the foundations to realize our Long-Term Vision, which looks beyond fiscal 2026. As such, we are proceeding with activities aligned with four basic policies, the first of which is "towards the unprecedented general manufacturer of plastic processing machinery in the world."

Business Weighting (Net Sales by Segment)



	JGP2017 From April 2015 to March 2018	JGP2020 From April 2018 to March 2021	JGP2025 From April 2021 to March 2026	Long-Term Vision April 2026 and beyond
Positioning	"Advancing toward Top Global & Niche Corporate Group" Aiming to achieve top share at key points in customer value chains	Building foundations for solid growth of the JSW Group in the next ten years	Towards the unprecedented general manufacturer of plastic processing machinery in the world	A company with job satisfaction and excitement for employees Growing to a business scale of 300 billion yen
Basic Policies	1 Increase profitability of existing businesses 2 Foster new products and businesses and make them competitive as soon as possible 3 Reinforce Group management and promote alliances	1 Optimization of management resources and strengthening of alliances 2 Strengthening of after-sales services (stock-based business) 3 Acceleration in exploration and development of new businesses	Towards the unprecedented general manufacturer of plastic processing machinery in the world Make constant profit in the Material and Engineering Business Create new core businesses Implementation of ESG management JGP2025 Basic Policies	
Management Targets and Results				
Achievements and Issues				

Management Targets and Results

	FY2015	FY2016	FY2017	JGP2017 Final year targets
Net sales (Billions of yen)	223.3	212.4	212.9	220.0
Operating income (Billions of yen)	14.4	12.3	21.3	13.0
Operating income ratio	6.5%	5.8%	10.0%	6%
ROE	-13.5%	-4.6%	9.6%	8%

	FY2018	FY2019	FY2020	JGP2020 Final year targets
Net sales (Billions of yen)	220.1	217.5	198.0	260.0
Operating income (Billions of yen)	24.2	18.7	10.2	30.0
Operating income ratio	11.0%	8.6%	5.2%	11.5%
ROE	16.3%	7.2%	5.1%	14%

Achievements and Issues

Achievements
- Improved productivity and reduced cost of film and sheet manufacturing equipment and injection molding machines through capital investment
- Advanced the Muroran Plant restructuring project
- Reorganized the Research and Development Headquarters to promote development

Issues
- General delays in fostering new businesses
- Although progress made in small-scale business acquisitions, further need to strengthen alliances

Achievements
- Expanded plastic processing machine complex (absorption-type merger of Meiki Co., Ltd.; acquired GM Engineering Co., Ltd. as a subsidiary)
- Spun off the Material and Engineering Business
- Began collaboration with Tsukishima Kikai Co., Ltd. and established a joint venture with JX Nippon Mining & Metals Corporation; commercialized hydrogen-related business and transferred it to Japan Steel Works M&E, Inc.

Issues
- Yet to create new core businesses to follow plastic processing machinery
- Further expansion of plastic processing machinery complex

JGP2025 Basic Policies

1. Towards the unprecedented general manufacturer of plastic processing machinery in the world
2. Make constant profit in the Material and Engineering Business
3. Create new core businesses
4. Implementation of ESG management

	FY2019 Results	FY2020 Results	FY2023 Plan	FY2025 Plan	Change from FY2019
Net sales (Billions of yen)	217.5	198.0	250.0	270.0	+24%
Operating income (Billions of yen)	18.7	10.2	20.0	27.0	+44%
Operating income ratio	8.6%	5.2%	8.0%	10.0%	+1.4 pp
ROE	7.2%	5.1%	8.5%	10.0%	+2.8 pp

A company with job satisfaction and excitement for employees

Growing to a business scale of 300 billion yen

Aiming to respond to changes in the business environment and achieve expansion and growth through sustainable enhancement of corporate value, the JSW Group has formulated a Long-Term Vision that entails growing to a business scale of 300 billion yen by continuing to produce products and services that contribute to society through *monozukuri* and value creation.

To achieve this goal, all of our employees will need to fully apply their abilities to further strengthen our technology, prescience and innovation—the drivers of our value creation. To that end, our ongoing aim is to be a company with job satisfaction and excitement for employees.

New Medium-Term Management Plan JGP2025

JGP2025 establishes basic policies and action plans based on our recognition of business risks and opportunities from a long-term perspective looking beyond fiscal 2026. In particular, with regard to opportunities, we are considering not only the growth of existing businesses, but also the creation of new businesses and inorganic growth.

Risks

- Demand shrinkage for plastic processing machines amid a trend toward reducing plastic consumption
- Reduction in investment in thermal power generation and exploitation of oil and gas amid a trend toward decarbonization
- Contraction of demand for separator films after widespread use of solid-state batteries

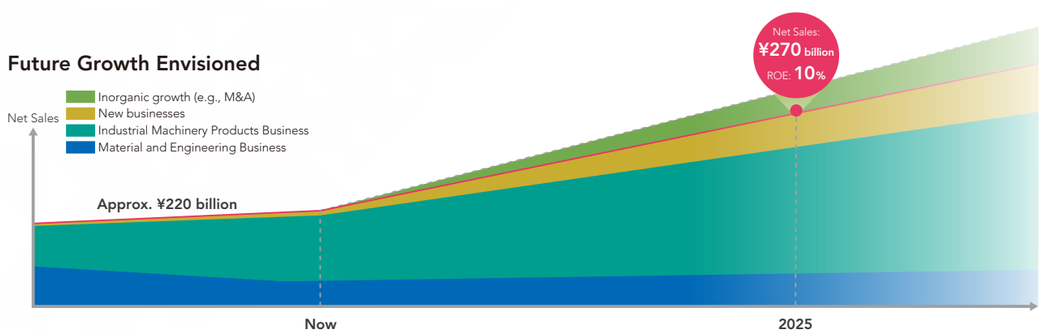
Opportunities

- Electric vehicle market expansion
- Emergence of bioplastics
- Full-scale investment in 5G infrastructure
- Advancement of AI and IoT technologies
- Expansion of consumption chiefly in emerging economies

Priority Measures under Each Basic Policy

1 Towards the unprecedented general manufacturer of plastic processing machinery in the world	• Pelletizers: Continue to increase market share in China • Twin-screw extruders: Further step up overseas sales, chiefly in China and Southeast Asia • Film and sheet manufacturing equipment: Strengthen full-line support for separator film manufacturing equipment; focus on growth areas such as 5G-related films • Plastic injection molding machines: Expand production capacity of small, ultra-large and special molding machines; strengthen sales by focusing on priority regions • Expand plastic processing machinery complex: Boost and capture demand for new products through M&A
2 Make constant profit in the Material and Engineering Business	• Steel castings and forgings: Gain orders for high-value-added functional materials to boost revenue; establish production systems for small and medium products and mass-produced products to win more orders • Clad steel plates and pipes: Build a production system resilient to fluctuations in operation loads by reducing the variable and fixed expenses of plants • Engineering services: Increase competitiveness of hydrogen-related products and market them outside Japan; win projects for welded structures for plants and infrastructure; expand the inspection service business using original technologies
3 Create new core businesses	• Utilize M&A to capture demand for industrial machinery in new fields • Swiftly attain profitability in three new businesses: photonics, composite materials and metallic materials
4 Implementation of ESG management	• Establish a new cross-departmental ESG Promotion Committee to effectively carry out ESG activities • Environment: Conduct business activities with consideration for reducing CO_2 emissions, promoting conservation and recycling of resources, and reducing the environmental impact of products • Society: Implement initiatives to shift the focus from work styles to job satisfaction; develop the next generation of leaders and secure diversity in the workforce • Corporate governance: Assess the business portfolio using a four-quadrant framework; establish criteria for business withdrawal and toughen investment criteria

Future Growth Envisioned

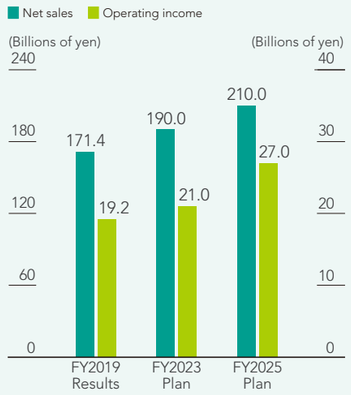


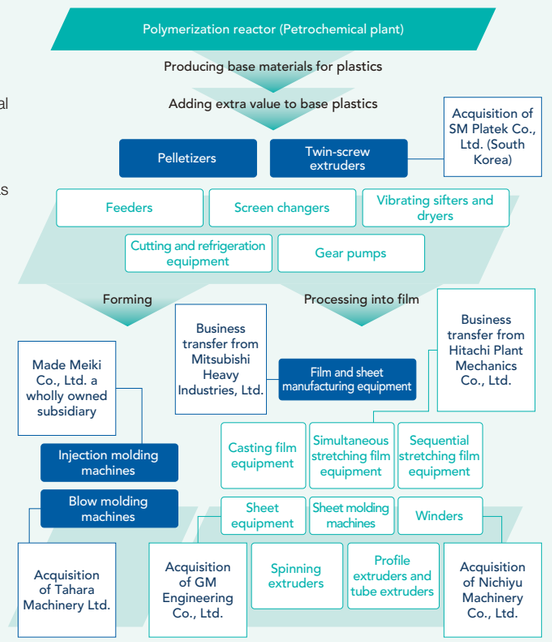
Industrial Machinery Products Business Segment

Priority measure: Expand plastic processing machinery complex

Expanding our plastic processing machinery complex entails expanding our business fields by strengthening existing products and incorporating additional products and peripheral equipment. As of the end of fiscal 2020, we have acquired seven companies/businesses to this end.

We will continue to cultivate sources of synergy within the JSW Group through active M&A, expand our business base as a general manufacturer of plastic processing machinery and support manufacturing that is essential in all areas of society.



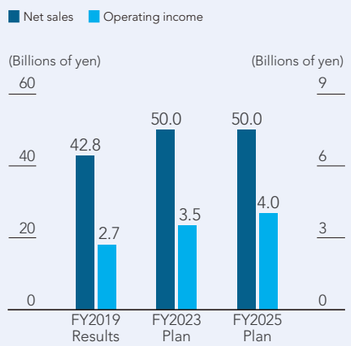


Material and Engineering Business Segment

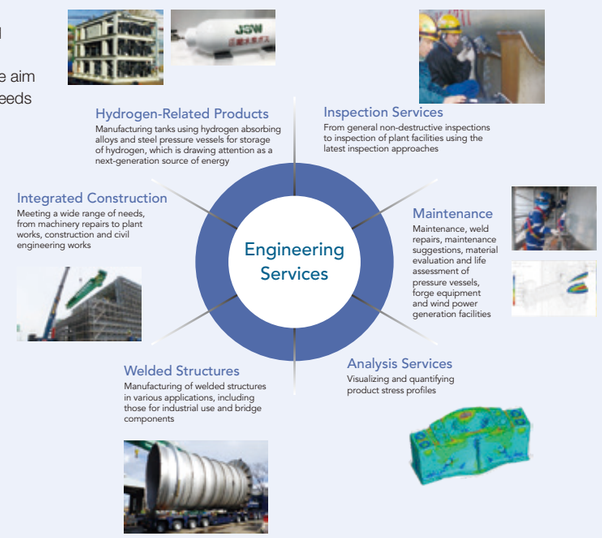
Priority measure: Strengthen our engineering services business

The JSW Group has consolidated the diverse technologies it has been developing and established a system to provide integrated and comprehensive engineering services that cover the entire value chain from design, production and construction to inspection, repair and maintenance.

In the future, by generating further Group synergies we aim to become a total solution business that can meet the needs of our customers on a one-stop basis.



Make effective use of the ability to offer general engineering services to turn this service into a core of the Material and Engineering Business



Plastics Machinery Business

Business Overview

The Plastics Machinery Business manufactures, sells and maintains plastic production and processing machinery, including pelletizers, twin-screw extruders, and film and sheet manufacturing equipment.

The plastic and film products made using our machinery and equipment are used in key components of a variety of products, including IT products such as 5G smartphones, personal computers, tablet devices and keyboards; electronic materials such as capacitors and semiconductor products; home electric appliances; lithium-ion batteries; automotive parts; food packaging film and containers; and catheters and other medical instruments.

We contribute to social development by creating innovations with original technologies. As such, we are expanding our business as an unprecedented general manufacturer of plastic processing machinery in the world.

Top Commitment

Message from the Head of the Division

The Plastics Machinery Business Division provides various equipment for use in the entire plastic processing process, from upstream to downstream. All of the division's products hold large market shares worldwide. To raise the competitiveness of each product and achieve further growth, the division has adopted the slogan **"Mixing Culture, Stretching to No. 1. To be the First Call PLASTIC Partner."** The slogan expresses our commitment to respecting diversity while growing our business (reflected in the words "mixing" and "stretching"), and our goal of being the best partner for customers worldwide.

Japan's push to achieve a carbon-neutral society in 2050 will heighten needs for lighter, more fuel-efficient automobiles, electric vehicles that contribute to decarbonization, and various equipment related to plastic recycling. Along with the development of the plastics industry, we expect the market for plastic processing machinery to also expand. As an industry leader, **we will actively develop technologies for plastic processing machinery and plastic recycling** that can make greater contributions to society, thereby helping to create a society that uses plastics sustainably, while protecting the environment.

SWOT Analysis

S Strengths
- Accumulated original technology and knowledge
- Lineup of plastic processing machinery to meet diverse needs
- Vertically integrated in-house production system for large machinery and equipment, wide variety of extrusion test equipment

W Weaknesses
- Long delivery times due to production of small-quantity orders with a high emphasis on large machines

O Opportunities
- After-sales service market based on long track record of deliveries
- Expansion of electric vehicle market
- Advances in waste plastic recycling, emergence of biodegradable plastics
- Increasing full-scale investment in 5G infrastructure
- Expanding consumption particularly in emerging economies

T Threats
- Decline in demand for plastic processing machinery due to shift away from plastic
- Shrinking demand for separator film due to spreading use of solid-state batteries

Sources of Our Strength

Among the products handled by the Plastics Machinery Business Division, plastic processing machines include large pelletizers, twin-screw extruders, film manufacturing equipment and spinning extruders, which fully incorporate the technologies we have accumulated over many years. On their own, each of these devices exhibit excellent performance, but combining the multiple machines and equipment we have commercialized into a full production line leads to even higher performance and efficiency. In addition to technology for manufacturing and processing plastics, we were quick to begin working on development related to plastic alternative materials and recycling technologies. In that regard, our highly experienced experts at our three technology development centers around the world continue to meet various customer needs relating to plastics.

Operating Environment

Plastic has many excellent properties, including formability, insulation, light weight and cost-effectiveness, and will remain an indispensable material. However, the problems of marine plastic pollution and plastic waste have drawn considerable global attention in recent years. In fulfilling its role and responsibility as a general manufacturer of plastic processing machinery, the JSW Group will not only sell plastic processing machinery but apply its technology, prescience and innovation to solve these environmental problems and help to realize a circular economy. Furthermore, as the shift to electric vehicles gains momentum in line with the move toward carbon neutrality, the JSW Group will increase the performance and productivity of its separator film manufacturing equipment to meet increasing demand for lithium-ion batteries associated with that shift.

Strategy and Measures for Growth

Under the previous medium-term management plan, JGP2020, the division's basic policy was to center our business on industry-leading plastic processing machinery and industrial machinery that contributes to society, and to be a corporate group that provides proactive solutions to customers.

We expanded the global market share of our pelletizers, and successfully increased orders and sales backed by the technological excellence of our separator film manufacturing equipment. We also upgraded production facilities at the Hiroshima Plant, while GM Engineering Co., Ltd. (which excels in plastic sheet equipment), and Nichiyu Machinery Co., Ltd. (which designs and manufactures a wide range of winders) were added to the JSW Group, making our lineup of plastic processing machinery more comprehensive.

In the new medium-term management plan, JGP2025, the Plastics Machinery Business is positioned as a business that will create profit and drive growth as JSW's core business. Specifically, we will strengthen the competitiveness of existing products to make our plastic processing machinery more comprehensive, and expand our business through active collaboration and alliances. In addition, we will contribute to the realization of a circular economy and carbon-neutral society through initiatives in plastic recycling, improvement of energy efficiency of equipment and reduction of plastic waste, as we expand our business value together with customers. By leveraging the comprehensive capabilities of Group companies, we will respond flexibly and quickly to changes in the global market.

Highlight

Establishment of Chemical Recycling Technology with Twin-Screw Extruders

JSW has established chemical recycling technology using twin-screw extruders. This technology achieves closed-loop recycling by pyrolyzing used acrylic resin and reprocessing it into raw materials. Acrylic resin made from reprocessed raw materials recycled with this technology has basic properties such as transparency and strength on par with those of resin made from virgin materials.

We will promote the recycling of plastics by making chemical recycling technology widely available. Turning plastic that would previously have been disposed of as waste into a raw material will help establish an environmentally friendly circular economy.

Building on a proven track record in thermal recycling and material recycling, we expect our twin-screw extruders to see expanded use for chemical recycling. We plan to open a chemical recycling technology development center at the Hiroshima Plant in 2022 to provide technical support geared to related needs.



TEX series twin-screw extruder

Injection Molding Machinery Business

Business Overview

The Injection Molding Machinery Business manufactures, sells and maintains plastic injection molding machines, blow molding machines, magnesium molding machines and other products.

Our plastic injection molding machines are electrically powered with excellent environmental performance. They range from small machines with a mold clamping force of 30 tons to ultra-large machines with a clamping force of 3,000 tons. These machines, together with our other products, including vertical injection molding machines and special molding machines, mean we are able to cover virtually the entire plastic secondary processing field, and meet the diverse needs of customers as one of our strengths. Our injection molding machines have a dominant share in their largest market, namely the automotive field. Furthermore, we are developing molding machines capable of producing larger magnesium alloy components—a key material under the CASE (connected, autonomous, shared, electric) paradigm—and we are strengthening sales of small and ultra-large plastic injection molding machines.

Of the 13 manufacturers of injection molding machines in Japan, JSW ranks first in shipment value and third in market share of units sold. We already hold a dominant share in medium and large machines, and we are promoting business activities to grow shipments and unit sales of small and ultra-large machines based on the strategy of expanding our plastic processing machine complex (see page 20).

Top Commitment

Message from the Head of the Division

At the Injection Molding Machinery Business Division, we are carrying out activities harnessing three main capabilities—product (improvement), sales (proposal) and service (response) capabilities.

In the Japanese market, we are strong in the automotive field, and are **focusing on environmentally friendly products** to actively capture capital investment demand, which is set to increase with the shift to electric vehicles as part of a carbon-neutral society. In overseas markets, we have positioned the United States, China, Southeast Asia and Europe as key sales regions, and we plan to expand our customer base among companies headquartered outside Japan. By product, we will expand production capacity for small machines at our plants in Hiroshima and China, and significantly strengthen our global production network. For ultra-large machines, we will expand our product lineup and enhance optional functions to precisely meet customer needs. We are aiming to be **among the world's top five manufacturers, with the leading domestic share of sales volume, as well as net sales of ¥85 billion or more within five years and ¥100 billion or more within ten years.**

SWOT Analysis

S Strengths
- A full product lineup from small to ultra-large machines, blow molding machines and special molding machines
- Extensive track record and supply capacity for medium and large machines for customers in the automotive field
- Safe and reliable customizable products and ability to customize for the needs of each customer

W Weaknesses
- Track record in sales of small machines (precision molding field) and ultra-large machines
- Inventory strategy to respond to sudden large orders

O Opportunities
- Increase in new capital investment with the shift to electric vehicles
- Expansion of renewable energy
- Expansion of needs for eco-friendly technologies (bioplastics, plastic reduction, effective use of electric power)

T Threats
- Acceleration of shift away from plastics
- Performance improvements among Chinese manufacturers with much larger production capacity

Sources of Our Strength

JSW's distinctive characteristics are its ability to consistently provide safe, reliable and highly customizable machines by continuously improving base machines with periodic model updates (improvement capabilities) and to offer flexible customization according to the specific requests of each customer (proposal capabilities). Our extensive track record and dominant supply capacity for medium and large machines for customers in the automotive field are unmatched by any other company. We provide our products through a sales network spanning ten locations in Japan and 21 locations in 11 countries outside Japan, and our worldwide service network (response capabilities) gives customers assurance and peace of mind. In addition, we have quickly worked to put our magnesium thixomolding technology (developed in the United States) into practical application. Through this technology, we are able to produce molded products with stable quality while ensuring their safety and environmental performance. We are also actively working to develop larger magnesium components for automobiles.

The JSW Group has a highly vertically integrated in-house production process. With our flexible production capabilities, we provide reliable injection molding machines through cooperation among the Hiroshima Plant, Meiki Plant and domestic and overseas production bases. Furthermore, we have a structure that allows us to provide products tailored to customer needs by combining different units, and to offer a diverse product lineup with easily customizable basic designs and standardized components.

Operating Environment

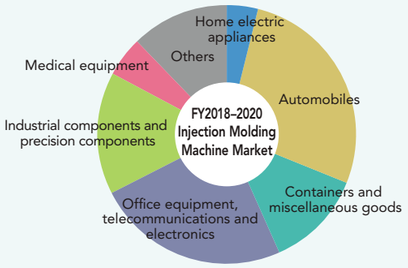
Our strengths in the injection molding machine market are in the fields of home electric appliances, automobiles, and miscellaneous goods and containers.

In home electric appliances, plastics are used in the exteriors and various other components of white goods. We have responded to the recent shift of major appliance manufacturers to high-end products, and to the diverse needs of newly emerging appliance manufacturers.

In automobiles, we provide plastic products such as bumpers, side mirrors, instrument panels, engine covers, intake manifolds and lamps, as well as injection molding machines for magnesium alloy products, which are finding increasing use in instrument panels. In particular, magnesium alloys are a promising material for molded products in the field of large automotive components. In addition to sales of injection molding machines, we manufacture large automotive components at a Group company. This will lead the adoption of molded products in this field.

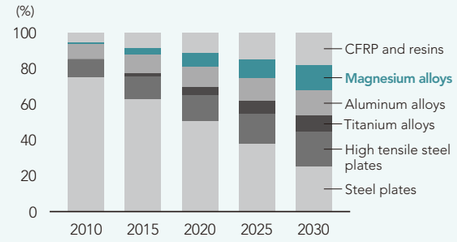
In miscellaneous goods and containers, the importance of injection molding machines has increased as the market for plastic pallets and household goods such as storage cases and drawers has grown with the expansion of online sales.

While we already have a strong position in medium and large machines, by improving our production system and



Source: Prepared by JSW based on data from the Japan Society of Industrial Machinery Manufacturers

Materials Used for Automobile Production



Source:
Extracted and edited materials created by the Ministry of Economy, Trade and Industry on the basis of data from the U.S. Department of Energy: *Vehicle Technologies Program: Goals, Strategies, and Top Accomplishments.*

Strategy and Measures for Growth

During the previous medium-term management plan, JGP2020, we increased sales and market share by expanding production capacity and flexibly meeting customer needs under a mass customization strategy centered on medium and large machines. At the same time, we built the foundation for growing sales of small machines by expanding production in China, and for growing sales of ultra-large machines by consolidating the Meiki Plant, which had been a subsidiary, and standardizing its production system and other operations with those of the Hiroshima Plant.

Under the new medium-term management plan, JGP2025, we will build on these achievements to expand sales of small and ultra-large plastic injection molding machines, and expand sales in our key regions—Japan, China, Southeast Asia, the United States and Europe—by strengthening production in China, the United States and Europe.

In the automotive field, the shift to electric vehicles calls for further weight reduction. Magnesium alloys have excellent properties in terms of specific strength, high rigidity, electromagnetic shielding and heat dissipation, and are also recyclable. These alloys are expected to find increasing use in the frames of drivers' displays, which are increasing in size, and in the casing materials of electronic control units for safety features and automated driving functions. To meet this need, we are developing larger magnesium molding machines, and are developing new applications using the demonstration equipment of subsidiary MG Precision Co., Ltd., which will lead to further expansion of the market.

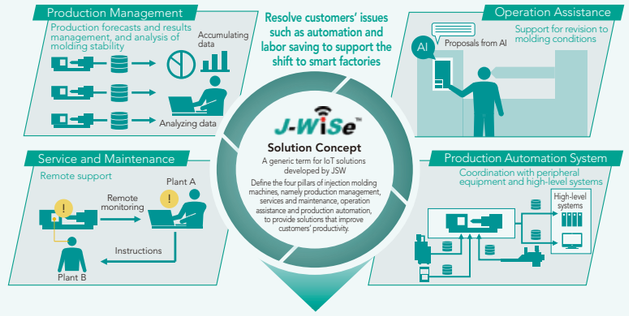
building a track record for small and ultra-large machines, we aim to secure the leading share in this field.

Highlight

IoT Solution J-WiSe™

J-WiSe™, developed by JSW and launched in April 2020, is our IoT solution for assisting customers in their shift to smart factories. We offer practical solutions in the four fields of production management, operation assistance, services and maintenance, and production automation.

Beyond existing applications, we are enhancing functionality to continue to evolve J-WiSe™ solutions. We also plan to broaden applications to our industrial machinery products in general, including twin-screw extruders, in addition to molding machinery products.



Industrial Machinery Business

Business Overview

The Industrial Machinery Business manufactures, sells and provides after-sales service for semiconductor-related equipment, including laser application products, hot presses and vacuum laminators for the manufacture of printed circuit boards (PCBs); flat panel display (FPD)-related equipment including excimer laser systems; and railway products that support economic infrastructure. Additionally, this business has responsibility for creating new core businesses.

Top Commitment

Message from the Head of the Division

The COVID-19 pandemic has sped up the transition from real-world services involving face-to-face contact to digital services delivered online. This "new normal" is expected to become take root and develop further in the post-pandemic era. In addition, Society 5.0 is taking shape, led by the accelerating digital transformation.

The Industrial Machinery Business Division handles manufacturing equipment for electronic devices as its core product. We view the new normal and digital transformation as an opportunity to **expand existing products and services**, and to apply our technologies and knowledge to **branch out into new products and businesses**.

SWOT Analysis

Strengths
- High market share and extensive track record in specific fields
- Development of equipment that reflects the wishes of customers that are industry leaders in their fields
- Wealth of experience in after-sales service

Weaknesses
- Dependence on smartphone demand (launch of new business lines)

Opportunities
- Continuous growth in demand for electronic devices due to new normal and digital transformation
- Emergence of new customers in tandem with decentralization of production bases to reduce risk of supply chain disruptions
- Market demand for high definition in FPDs expanding beyond smartphones and other small displays to medium and large displays

Threats
- Technological barriers due to industrial policies in various countries (shrinkage of target markets)
- Price competition

Operating Environment

- **Position in the Value Chain**

  Market demand for high definition in FPDs has expanded beyond smartphones and other small displays to medium and large displays, creating needs for new functions and reduction of manufacturing process costs. In the field of semiconductor products necessary for 5G communications infrastructure, for example, manufacturing equipment that enables more advanced manufacturing technology is required.

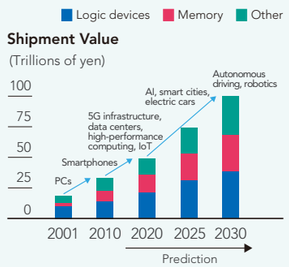
- **Market and Demand Trends and Future Outlook**

  The acceleration of digital transformation and global structural changes in the semiconductor industry are driving expansion of semiconductor demand. In addition, demand for manufacturing equipment is also likely to expand, partly due to the diversification of device production bases.

- **Market Competition**

  Price competition is a risk in this business. To avoid such competition we will continue to develop and provide high-value-added equipment by enhancing processing capability and quality.

Global Semiconductor Market



Source: *The Strategy for Semiconductors and the Digital Industry (Summary)*, Ministry of Economy, Trade and Industry (June 2021)

Strategy and Measures for Growth

In the semiconductor field, our vacuum laminators have contributed to the evolution of PCBs and semiconductor package substrates. Under JGP2025, we will develop a new model. We will restructure our existing excimer laser annealing systems business by integrating manufacturing and sales with after-sales service and by capturing market share in China. As part of that effort, the flat panel display device business was integrated into JSW Aktina System Co., Ltd. in 2021, and we are launching a specialized service company in China.

To develop new products and new businesses, we will identify new markets with good growth potential and future prospects where we can leverage our core competencies to build a competitive advantage. We plan to enter such markets through M&A and other approaches.

New Businesses

We have narrowed down our new businesses to three fields and are striving to rapidly achieve profitability in each business.

Photonics Business

Business Overview

The Photonics Business manufactures artificial crystals such as gallium nitride and lithium niobate single-crystal materials and develops a variety of technologies. Artificial crystals such as gallium nitride are manufactured in a high-temperature, high-pressure environment using large autoclaves that utilize our manufacturing technology for large forgings and castings. Using our strengths in manufacturing technologies for these single crystals and processing technologies for bonding and film deposition, we will manufacture and sell various crystal products, including crystal substrates and bonded substrates for optical communications.



Operating Environment

The market for devices related to high-speed, high-capacity communications is projected to grow at a rate of more than 10% annually in response to the growth of the 5G and IoT markets and rising needs for solutions to social challenges such as power saving. These devices are expected to find applications in various fields such as power semiconductors and high-intensity and high-power lasers that reduce energy use.

Strategy and Measures for Realizing Profitability

With our strengths in adding value with three types of high-grade crystal materials—crystals, lithium niobate and gallium nitride—and film deposition technology, we will supply products and contribute to solutions for high speed, high capacity, low loss and low power consumption.

Composite Materials Business

Business Overview

The aviation and automotive fields have been adopting thermoplastic carbon fiber reinforced plastic (CFRP) to reduce CO_2 emissions by improving fuel efficiency. In response, the Composite Materials Business is developing molding processing technologies for CFRP products, obtaining material design technologies, and developing and improving systems, including quality assurance.



Operating Environment

The size of the global thermoplastic CFRP market was ¥1.4 trillion in 2020, and is projected to grow to ¥2.2 trillion in 2025 and ¥3.9 trillion in 2035. The aviation field, which accounts for about half of the current market, is expected to show solid growth after the pandemic winds down.

Source: *Carbon Fiber Composite Material (CFRP/CFRTP) Technical Application Market Outlook 2020*, Fuji Keizai Co., Ltd.

Strategy and Measures for Realizing Profitability

We will expand this business with a focus on aircraft components by applying our standard compliance and quality management capabilities cultivated in the defense and nuclear power industries, and our expertise in manufacturing large composite material products (wind turbine blades) developed in the wind power generator business. The Composite Materials Business will help to reduce the weight and improve the energy efficiency of various modes of transportation, and will contribute significantly to the realization of a sustainable society.

Metallic Materials Business

Business Overview

Titanium copper and other high-performance metals need to be thinner and more functional, and the market is expected to expand further with the development of IoT and 5G. Against that background, JSW and JX Nippon Mining & Metals Corporation set up a joint venture, Muroran Copper Alloy Co., Ltd., to develop the business of producing high-performance metal products with high purity and quality.



Operating Environment

The expansion of IoT and 5G will fuel a rapid increase in data traffic. This will lead to higher performance requirements for smartphones, tablet devices and other telecommunication devices, which will result in expansion of the market for high-performance and high-quality metal products.

Strategy and Measures for Realizing Profitability

JX Nippon Mining & Metals Corporation, a global leader in the development and manufacture of high-performance metallic materials and products, and JSW, which has excellent melting and casting technologies, such as nonmetallic inclusion control, will introduce new equipment, designed with cutting-edge technology that will surpass any that is currently available. This equipment will be used to produce high-performance metal products with a high level of quality.

Material and Engineering Business

Business Overview

Japan Steel Works M&E, Inc., which conducts the Material and Engineering Business, was established as an operating subsidiary in April 2020 through the merger of JSW's Steel and Energy Products Business and wind power generator maintenance service business with four JSW Group companies. The Muroran Plant, where Japan Steel Works M&E is based, has for more than 100 years been involved in the development and manufacture of pressure vessels, various industrial machinery, large steel castings and forgings, thick plates, clad steel plates and other products used in public infrastructure and various plants. Going forward, Japan Steel Works M&E will strive to maximize the properties of copper to meet needs for more advanced and diversified materials, and add nonferrous metals and composite materials to its portfolio to provide a greater range of materials and improve reliability.

Taking advantage of its technologies and experience, the company is also building the capability to provide one-stop services from design, production, construction and installation to maintenance and inspection, analytical evaluation, and repair by applying engineering that enables solutions for a wide range of customer needs.

Top Commitment

Message from the Business Segment Head

In the Material and Engineering Business, we will **contribute to society with products that apply JSW's resources** to needs such as carbon neutrality, digital transformation and Japan's National Resilience Plan. We also plan to **review our business portfolio and steadily accumulate orders that will lead to new product initiatives and business expansion**. Breaking down plans by unit, the Steel Castings and Forgings Unit will seek to optimize its product portfolio, taking a firm defensive approach in larger products, such as conventional electric power and nuclear power rotors and rolls used in iron mills, combined with an aggressive approach in slabs for the IT field and products related to renewable energy, which are small and medium-sized products. The Steel Materials and Steel Pipes Unit is exploring demand peripheral to the oil and gas market to bring in new products, and is working to establish the flexibility to accommodate high-variety, low-volume production and products with short delivery times. The TES (Total Engineering Services) Unit has integrated the knowledge and customer connections that each business and company cultivated before the merger, and will pursue growth and expansion of business scale with maximum synergy.

SWOT Analysis

S Strengths
- Equipment that enables manufacturing of large forgings and castings
- Quality and safety honed in electric power and nuclear power products
- Ability to provide one-stop engineering services

W Weaknesses
- Cost competitiveness and operating rate are low because of build-to-order manufacturing
- Weak in handling small products and mass-produced products

O Opportunities
- Adaptation to the hydrogen economy to switch away from carbon
- Renewable energy-related products
- Focus on infrastructure projects, including Japan's National Resilience Plan

T Threats
- Decline in coal-fired power generation and oil and gas industries due to adaptation to zero-carbon society

Sources of Our Strength

The Muroran Plant has the facilities and technology to manufacture 670 tons of steel ingot, among the largest capacities in the world. Steel ingots manufactured to match the size of the end product are forged and heat treated on a large 14,000-ton press, and finished into their final shape in a machine shop with ultra-large machine tools that have a maximum processing weight of 400 tons.

In the clad products field, we are one of the few companies capable of handling integrated manufacturing from the manufacture of steel plates to pipe-making. For wide and thick steel plates, we have a rolling mill that was converted to electric power in fiscal 2020. We also have a steel plate straightening apparatus and a pipe-making press, and supply clad steel plates and steel pipes.

The steel castings and forgings and clad steel plates and steel pipes made with this equipment are used in public infrastructure and various manufacturing plants. Our basic technologies developed over many years to meet the stringent requirements of the electric power and nuclear power fields include special melting technology for extra-large castings and forgings, and forging and heat treatment technologies, and we have established them as key differentiators.

With the launch of Japan Steel Works M&E, Inc., the design, welded structure manufacturing, construction, inspection and repair services developed by individual Group companies have been centralized in the TES Unit. We are aiming to expand business and create a structure that enables us to meet customer needs in one stop with information sharing and synergies between different groups within the unit.

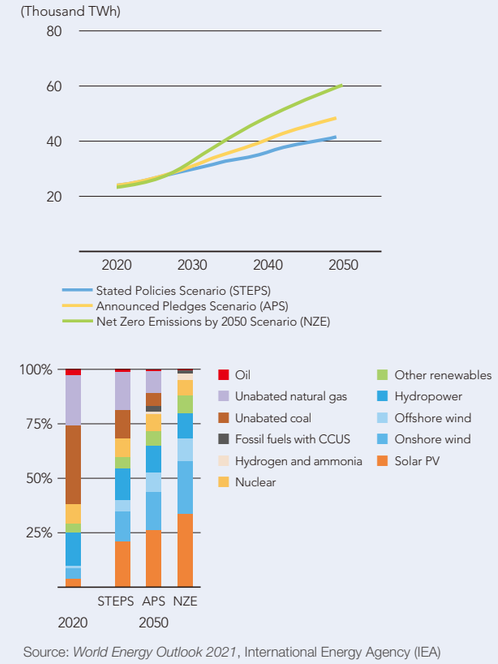
Operating Environment

Global energy demand is predicted to increase in every scenario considered by the International Energy Agency (IEA). Particularly in the net zero emissions scenario, a decrease in coal-fired power and an increase in natural energy are expected. As for the impact on our business, although new orders for large coal-fired thermal power plants will decline, there will be growth in gas turbine combined cycle power generation and replacement demand for services. Amid the withdrawal of competitors and industry reorganization, we anticipate that we will be able to secure a steady level of operations and sales.

For example, among the anvils used in the monopile pile drivers for anchoring the wind turbines of offshore wind farms to the seabed, we hold a 100% share of large anvils with an outer diameter of 6.5 meters or more. A further increase in size is projected in the future, and growth in the amount of offshore wind power in the energy mix in 2050 is expected (see figure on right), so we expect solid demand for our products.

The core businesses of the TES Unit are installation and repair work of manufacturing equipment and civil works for public infrastructure. Substantial growth in capital investment cannot be expected in manufacturing industries, but investment related to the renovation of aging equipment is expected to continue and grow, as are budgets for civil works as part of public works to address aging infrastructure facilities.

Global Electricity Demand and Generation Mix through 2050 by Scenario



Source: *World Energy Outlook 2021*, International Energy Agency (IEA)

Strategies and Measures for Growth

In the previous medium-term management plan, JGP2020, we achieved profitability despite falling short of targets, and spun off this segment into Japan Steel Works M&E, Inc. in the final year and transitioned to a new structure to improve profitability through organizational optimization, business restructuring and integrated operations. We will reinforce efforts for stable profitability under the new medium-term management plan, JGP2025.

Each unit will work to develop this segment's core business and to expand revenue. In the Steel Castings and Forgings Unit, we will incorporate high value-added functional materials that apply differentiating technologies. In the TES Unit, we will grasp societal needs such as hydrogen-related services and demand related to Japan's National Resilience Plan, and provide comprehensive engineering services throughout the value chain, from sales of hydrogen-related products and welded structures to plant construction and maintenance. On the other hand, in the Steel Materials and Steel Pipes Unit, the environment for orders continues to be tough amid postponements and reconsideration of natural gas projects, and so we will focus on strengthening the unit's revenue foundation by shifting to a production system that is resilient to operational change.

Highlight

Application of Differentiated Technologies: Invar Materials for the Electronic Components Industry

We are applying the high-purity steel ingot manufacturing technology we have cultivated to manufacture and sell invar, which has exacting requirements for inclusion size. Invar is a nickel and iron alloy, and is characterized by a low coefficient of thermal expansion at room temperature. It is used as a material in electronic components and precision instruments. We will continue to leverage our differentiating technologies to contribute to the supply of materials for IT and other new fields.



Electroslag remelting furnace

Manufacturing with electroslag remelting furnace



Rolling slabs
Applications: lithography equipment, electronic components, etc.

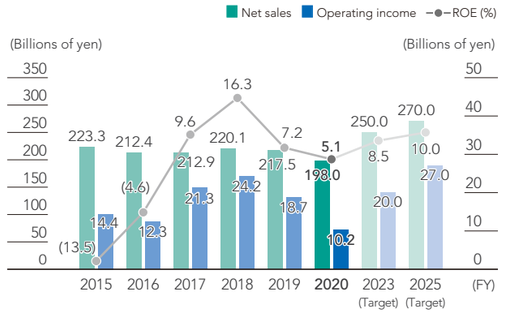
Financial and Capital Strategy: Message from the CFO



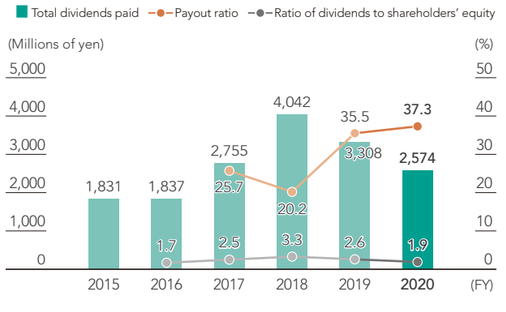
We will pursue sustainable improvement in corporate value with a policy of balancing growth investment and shareholder returns.

Hiroki Kikuchi
Director & Managing Executive Officer
CFO, in charge of Finance & Accounting Department and General Manager of Corporate Planning Office

Net Sales, Operating Income and ROE



Total Dividends Paid, Payout Ratio and Ratio of Dividends to Shareholders' Equity



Basic Financial Policy

JSW's basic financial policy is to maintain an appropriate balance between growth investment and shareholder returns, with the goal of sustainable improvement of corporate value. Achieving sustainable growth through *monozukuri* and value creation will require an optimal balance of growth investment aimed at increasing corporate value over the medium and long term and stable shareholder returns in proportion to results. Based on this financial strategy, we are executing the new medium-term management plan, JGP2025, with a framework centered on four basic policies: 1) Towards the unprecedented general manufacturer of plastic processing machinery in the world, 2) Make constant profit in the Material and Engineering Business, 3) Create new core businesses, and 4) Implementation of ESG management.

Financial Strategy of New Medium-Term Management Plan JGP2025

In JGP2020, the previous medium-term management plan, which ended in March 2021, we worked hard to achieve three objectives: optimization of management resources and strengthening of alliances, strengthening of after-sales services (stock-based business), and acceleration in exploration and development of new businesses. We made steady progress on most measures, but their results were not readily apparent. Our financial figures fell substantially short of targets due to escalating U.S.–China trade tensions in fiscal 2019 and the impact of the COVID-19 pandemic in fiscal 2020.

Based on the results of and reflections on the previous plan, in April 2021 we launched the new medium-term management plan, JGP2025. In JGP2025, we are emphasizing a long-term perspective in monitoring the progress of the plan, so we extended the period covered to five years. In terms of numbers, we positioned net sales, operating income and ROE as KPIs, and set three quantitative targets for fiscal 2025: net sales of ¥270 billion, operating income of ¥27 billion, and ROE of 10%.

As for returns to shareholders, we aim for a consolidated payout ratio of 30% or more, to pay dividends based on a dividend on equity (DOE) ratio of 2% or higher, and to pay total dividends of ¥20 billion during the period of the plan. Previously, we had adopted a dividend policy of paying a stable dividend as well as a performance-based dividend, but after seriously reflecting on the fact that the dividend was reduced for a second consecutive year in fiscal 2020, we revised our shareholder return criteria. We hope that this will increase the transparency of our dividend-related decision-making process and provide reassurance to shareholders and investors.

Allocate a Total of ¥105 Billion to Capital Investment, R&D Investment and M&A

Our plan for cash flow allocation in JGP2025 calls for a total of ¥105 billion on capital investment, research and development investment and M&A to reinforce the competitiveness of existing businesses and create and nurture new businesses. We will use cash on hand and deposits (¥89.4 billion as of March 31, 2021) and proceeds from sales of cross-held shares with a view to converting non-operating assets to earning assets, in addition to cash generated from operating activities during the period of the medium-term management plan. From the standpoint of strengthening our financial position, funds for investment are determined with a preference for cash first, then debt, then equity, based on the pecking order theory, and have decided to cover the investment plan of JGP2025 entirely with cash (including cash from sales of assets). If there are promising M&A opportunities in excess of the cost of capital, we will flexibly take advantage of them.

Optimizing Our Business Portfolio

To upgrade our business portfolio management, the Board of Directors is discussing and considering ways to accurately gauge the cost of capital in each business and use that information in decisions on investment and business withdrawal. However, we do not intend to set uniform standards for assessing growth potential and return on capital, and mechanically make withdrawal decisions. The key to effective business portfolio management is accurate assessment of the future of each business. To avoid falling into a situation in which the equilibrium is diminishing, we need our decision-making to be effective and to constantly reinforce business competitiveness and enhance profitability.

Contributing to Society with the Spirit of *Yompo-Yoshi*

The JSW Group is working diligently to implement ESG management with the aim of achieving sustainable growth through *monozukuri* and value creation, and to contribute to society with the spirit of *yompo-yoshi*.

Promoting ESG management will lead to not only value creation for customers and society, but also sustainable improvement of the JSW Group's corporate value. We believe this will enable employees to share in the joy of our achievements and realize personal growth.

We will continue to practice appropriate information disclosure and enhance dialogue with stakeholders to be a corporate group that is trusted by society.

ESG Management

Approach to ESG Management

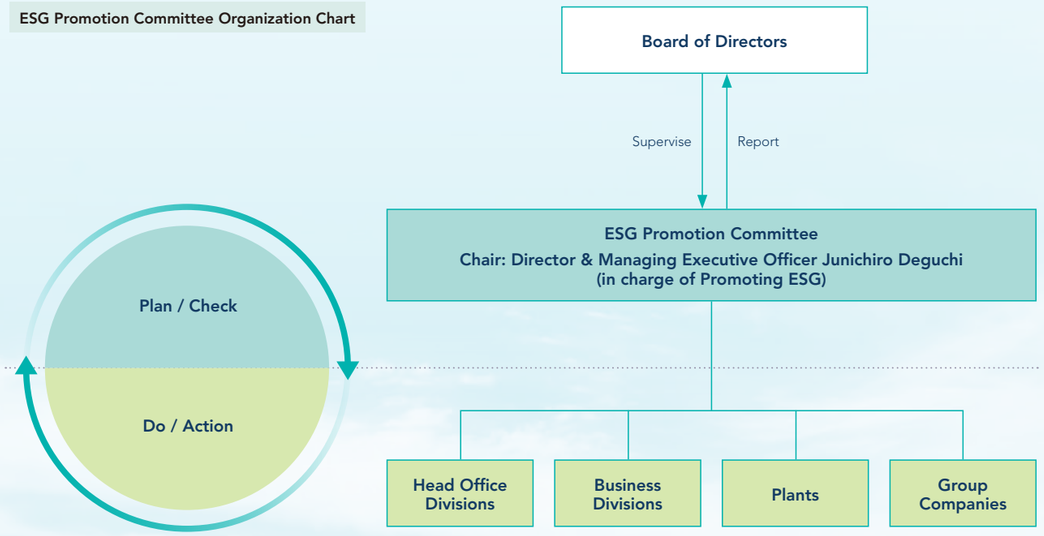
The JSW Group aims to generate sustainable growth and improve corporate value over the medium to long term. To that end, based on the spirit of *yompo-yoshi*, which calls for us to generate benefits across four areas—for customers, employees, society and shareholders—we apply *monozukuri* (good manufacturing practices) and value creation to form businesses and expand the value we provide.

As such, we recognize environment, social and governance (ESG) issues as management priorities, and engage with them through various corresponding initiatives. These initiatives include environmentally responsible production, development of environmentally conscious products, personnel training that supports sustainable social development and establishment of a transparent management system.

Establishing the ESG Promotion Committee

In April 2021, JSW established the ESG Promotion Committee, chaired by the director responsible for ESG, to drive consistent and effective engagement with ESG issues throughout the JSW Group and horizontally among business divisions. The committee will lead ESG-related initiatives in collaboration with Head Office divisions, business divisions, plants and Group companies.

ESG Promotion Committee Organization Chart



Identifying ESG Issues

The table below presents current issues we have identified based on CSR activities to date and the assessments of ESG evaluation organizations. Moving forward, we plan to specify the materialities (material issues) of the JSW Group through deliberation by the ESG Promotion Committee and the Board of Directors.

Category	Issue	Specific Themes for Initiatives	Contribution to Achieving SDGs	Relevant Page(s)
Environment	**Environmental Management**	· Structuring environmental management promotion systems · Appropriately managing water use and discharge · Appropriately managing chemical substances and determining waste volume	6, 12, 13	p. 33–34 p. 37
	Climate Change Countermeasures	· Reducing CO_2 emissions · Enhancing energy efficiency of manufacturing processes	7, 13	p. 35–36
	Environmental Contribution through Products	· Improving fuel efficiency and reducing emissions of products during use · Advancing development of cleantech	7, 13, 14	p. 15–16
Social	**Development of Human Capital**	· Promoting diversity and inclusion · Hiring personnel · Training and retaining personnel	5, 8	p. 38–40
	Human Rights and Communities	· Respecting human rights of all stakeholders · Engaging with local communities	10, 17	p. 40, 42
	Occupational Health and Safety	· Managing labor issues and employee health · Creating safe and secure workplaces	8	p. 41
	Supply Chain Management	· Reviewing procurement policies to be shared with and adhered to by suppliers · Reducing environmental impact in the supply chain · Eliminating labor and human rights issues in the supply chain	10, 13	p. 42
	Responsibility to Customers	· Establishing procedures and initiatives to ensure and improve quality · Upgrading recycling and maintenance procedures	9, 12	p. 43–44
Governance	**Corporate Governance**	· Enhancing corporate governance systems and functions · Ensuring Group governance		p. 45–52
	Risk Management	· Enhancing risk management systems · Ensuring rigorous compliance and anti-corruption measures	16	p. 53–54
	Information Security	· Enhancing information security systems		p. 54

Environmental Management

Environmental Policy

The JSW Group is committed to being an environmentally responsible corporate citizen. We emphasize environmentally responsible production and technology as means to support sustainable social development in harmony with ecosystems.

Action Plan

1. Systematically implement environmental initiatives and continuously promote environmental conservation.
2. Set appropriate objectives and targets to reduce environmental impact, including on biodiversity.
3. Provide society with products and services that contribute to environmental conservation.
   - (1) Improve the social value of our products in terms of the environment, health and safety.
   - (2) Provide products and services that reduce environmental impact by understanding environmental needs and developing technologies.

Shared Business Site Policies

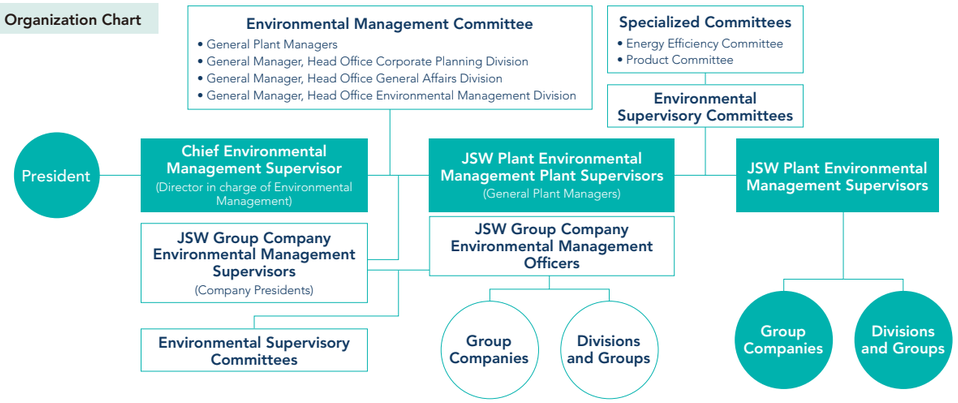
Business sites set environmental policies, objectives and goals in accordance with international standards with due consideration of their operations and nearby communities.

- (1) Comply with laws, regulations and JSW Group agreements with external entities.
- (2) Prevent pollution and reduce and properly process waste with due consideration for impact on ecosystems.
- (3) Use resources more productively by saving energy and by saving and recycling resources.
- (4) Require employees and on-site companies to understand and abide by business site policies.

Environmental Management Structure

Recognizing the importance of conducting its business activities in harmony with both the international and local communities, the JSW Group has been promoting environmental management activities throughout the Group since 1997. The Environmental Management Committee, headed by the director in charge of environmental management, determines Group-wide annual environmental management policies and action plans, and monitors and evaluates the progress of environmental management activities. Each plant has its own environmental supervisory committee and works to promote environmental management activities, as part of the JSW Group's unified approach to reducing its environmental impact.

Organization Chart



JSW's Hiroshima, Yokohama and Meiki plants and Group companies Japan Steel Works M&E, Inc. and Nikko-YPK Shoji Co., Ltd. have obtained ISO 14001 certification, an international standard for environmental management systems.

Business Site ISO 14001 Certification

Business Site	Original Certification Date	Current Certification Body
Hiroshima Plant	December 18, 1998	JQA
Yokohama Plant	September 4, 2006	JQA
Meiki Plant	March 4, 2005	ASR
Japan Steel Works M&E	December 18, 1998	LRQA
Nikko-YPK Shoji	February 7, 2005	JQA

Note: Certification bodies LRQA: Lloyd's Register Quality Assurance Limited
JQA: Japan Quality Assurance Organization
ASR: ASR International Corporation

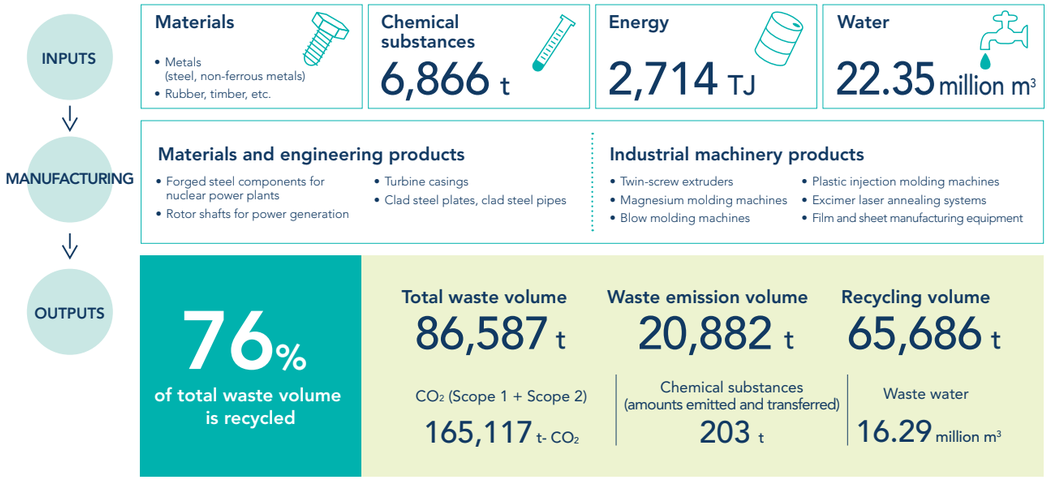
Targets and Progress of the Medium-Term Environmental Plan

Priority Issues	Fiscal 2020 Targets	Fiscal 2020 Actual Results	Achievement Level	Medium-Term Environmental Plan (under JGP2025) Fiscal 2025 Targets
Environmental Management	Maintain ISO 14001 certification of plants and Nikko-YPK Shoji	Maintained ISO 14001 certification of plants and Nikko-YPK Shoji	◎	Maintain existing ISO 14001 certifications Obtain new ISO 14001 certification of domestic manufacturing Group companies
Promote Measures to Curb Global Warming	–	40% reduction in CO_2 emissions (compared with fiscal 2013)	–	60% reduction in CO_2 emissions by the end of fiscal 2030 (compared with fiscal 2013) 45% reduction in CO_2 emissions by the end of fiscal 2025 (compared with fiscal 2013)
	Improvement of 1% or more in energy usage intensity	Industrial Machinery Products Business: Worsened by 13% Material and Engineering Business: Improved by 4% (both compared with fiscal 2019)	△	Improvement of 1% or more in energy usage intensity (year-on-year and average for the past 5 years)
Promotion of Resource Conservation and Recycling	Recycling rate of 90% or higher	Recycling rate of 76%	△	Recycling rate of 95% or higher (excluding slag and refractories)
Management of Chemical Substances	Determine emission volume of chemical substances and implement reporting to local governments based on the PRTR Law	Determined emission volume of chemical substances and implemented reporting to local governments based on the PRTR Law	◎	Improve chemical substance usage intensity by 1% or more (year-on-year and average for the past 5 years)
Compliance	Legal or regulatory violations: 0	Legal or regulatory violations: 0	◎	Legal or regulatory violations: 0
	Treat high-concentration PCB waste by the legal deadline (March 2021)	Treated high-concentration PCB waste by the legal deadline (March 2021)	◎	Treat low-concentration PCB waste by the legal deadline (March 2027)
Raising Environmental Awareness	Issue an environmental report	Issued an environmental report	◎	Disclose environmental management activities in an integrated report Conduct training for employees

Achievement Level: ◎ Fully achieved ○ 80% or more achieved △ Less than 80% achieved

Business Activities and Environmental Impact

The fiscal 2020 environmental impact in the manufacturing processes of the Material and Engineering Business and the Industrial Machinery Products Business was as shown below. The JSW Group carries out quantitative assessments of inputs, such as energy and water, and outputs, such as waste generated in manufacturing processes, carbon dioxide and waste water, and reflects the results of those assessments in its environmental improvement activities.



Response to Climate Change

Basic Approach

While climate change will have a significant environmental, social and economic impact, it also poses a high degree of long-term uncertainty. The JSW Group considers climate change an important issue for management, and is taking steps to counter it. We are also analyzing and studying the effects that risks and revenue opportunities related to climate change will have on our business activities and revenues. In the future, we plan to align our information disclosure with the TCFD disclosure framework.

Governance

Recognizing the importance of conducting its business activities in harmony with both the international and local communities, the JSW Group has been promoting environmental management activities throughout the Group since 1997. The Environmental Management Committee, headed by the director in charge of environmental management, determines Group-wide annual environmental management policies and action plans, and monitors and evaluates the progress of environmental management activities.

Strategy

Risks related to climate change include declining demand for plastic processing machinery due to the shift away from plastics and restrained investment related to thermal power generation and oil and gas due to decarbonization. Opportunities related to climate change include expansion of the electric vehicle market and the emergence of non-petroleum plastics.

Risk Management

JSW complies with environment-related regulations through strict adherence to its environmental management system. The Environmental Management Committee meets twice a year to discuss management and responses based on changes in rules and regulations.

Indicators and Targets

The medium-term environmental plan includes the following indicators and targets related to climate change.

- **CO_2 emissions reduction target:** 60% reduction in CO_2 emissions by the end of fiscal 2030 (compared with fiscal 2013)
  45% reduction in CO_2 emissions by the end of fiscal 2025 (compared with fiscal 2013)
- **Energy usage reduction target:** Improvement of 1% or more in energy usage intensity (year-on-year and average for past five years)

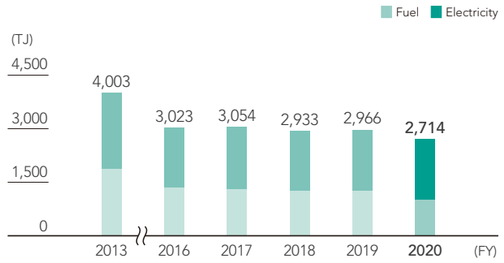
Energy Usage and CO_2 Emissions

The JSW Group considers reduction of CO_2 emissions to curb global warming as a priority issue under its medium-term environmental plan. In fiscal 2020, the JSW Group's energy usage was 2,714 TJ, an 8.5% reduction year-on-year, and CO_2 emissions were 165,117 t-CO_2, a 12.9% reduction year-on-year. These reductions were largely attributable to equipment upgrades as part of fuel conversion at the rolling mill of Japan Steel Works M&E, Inc.

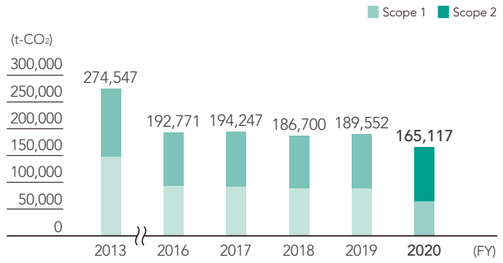
Owing to the different characteristics of the industries they serve, there are significant differences in the business activities of the JSW Group's Industrial Machinery Products Business and Material and Engineering Business. Consequently, the ratio of energy usage and CO_2 emissions to JSW Group total sales varies depending on the sales share of the two businesses. However, in order to more accurately assess the environmental impact of each business and effectively advance environmental improvement activities, we use net sales as the basis for confirming intensity in the Industrial Machinery Products Business and steel output as the basis in the Material and Engineering Business.

We remain committed to reducing CO_2 emissions of the JSW Group as a whole.

Energy Usage



CO_2 Emissions



Energy Conservation Initiatives

Initiatives in JSW Group Operations	The JSW Group considers energy-saving performance when updating production equipment at plants in both the Industrial Machinery Products Business and the Material and Engineering Business. As an additional measure, we are converting lighting to LEDs, including at Head Office administrative divisions.
Initiatives in the Supply Chain	In 2021, we added statements regarding eco-friendly products and green purchasing to our Basic Procurement Policy. Moreover, for stationery, office supplies and the like, we practice green purchasing, which involves procuring products with less environmental impact, such as products compliant with the Act on Promoting Green Procurement and Eco Mark products.
Initiatives at the Product Use, Maintenance and Service Stage	As society in general continues to take on the challenge of achieving carbon neutrality, customer demands for energy conservation and the adoption of smart technologies continue to increase. Through the provision of high-quality cleantech products and services, the JSW Group is contributing to reduced environmental impact both of its customers and in society.
Use of Renewable Energy and Future Initiatives	In April 2021, installation of solar panels with power generation capacity of 200 kW was completed on the rooftop of the eighth assembly plant at our Hiroshima Plant. Also, starting in October 2021, we began using electric power from renewable energy sources for a portion of purchased electricity at the Hiroshima Plant. We will continue efforts to expand our use of renewable energy.



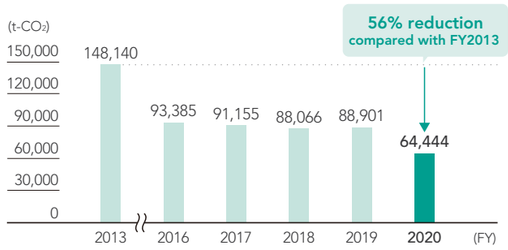
Environmental Equipment Investment (Environmental Accounting)

We have been implementing environmental accounting, which reflects costs related to environmental conservation, since we formulated our first medium-term environmental plan in fiscal 2001. We use environmental accounting to assess our environmental impact and the costs and effects of environmental conservation, and to carry out environmental conservation activities effectively and efficiently. Total costs for fiscal 2020 were ¥943 million, a decrease of ¥421 million from the previous fiscal year.

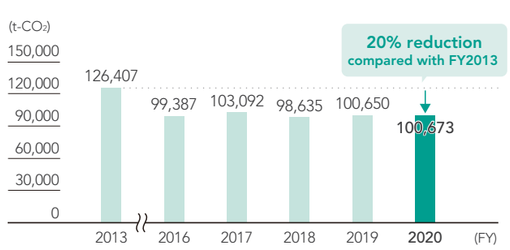
Future Plans

We are proceeding with changing heating and heat treatment furnace fuels from heavy oil to natural gas in order to reduce CO_2 emissions. Furthermore, with the future aim of carbon neutrality, we are investigating the commercialization of industrial furnaces that burn ammonia as a carbon-free fuel.

CO_2 Emissions (Scope 1)



CO_2 Emissions (Scope 2)



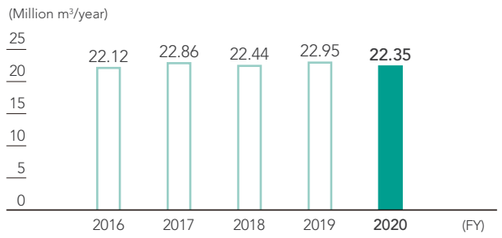
Reduction of Environmental Impact

Policy and Initiatives for Water Resources

Japan Steel Works M&E, Inc. accounts for more than 99% of the water used by the JSW Group. Although the company uses a large volume of industrial water and sea water in cooling, it operates in a region with low water stress, recycles a portion of the cooling water and also practices water source management for some of the industrial water it uses. Therefore, we believe there is little impact on stakeholders.

In terms of waste water quality, we will continue to conduct strict water quality management based on government ordinances.

Water Consumption



Proper Management of Chemical Substances

At the JSW Group, we manage chemical substances and other substances with environmental impact, and are working to reduce emissions of hazardous substances. Based on the Pollutant Release and Transfer Register (PRTR) Law, we report our release and transfer of chemical substances to local governments annually. The JSW Group uses Class 1 designated chemical substances primarily in manufacturing processes, such as steel manufacturing, welding, galvanization, cleaning and coating.

Release and Transfer of Chemical Substances

	FY2019	FY2020
Amount released (t)	57.3	50.1
Amount transferred (t)	153.6	153.1
Total (t)	210.9	203.2

Our Approach to Resource Recycling (Reduction of Waste Emission Volume)

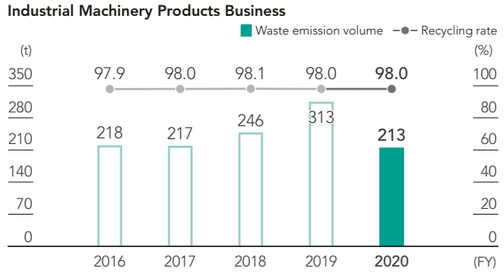
The JSW Group contributes to resource recycling through eco-friendly products. Going forward, we will develop products that have a reduced environmental impact, and strive to be a company that contributes to the realization and development of a sustainable society. At our plants, we are applying the three R's (reduce, reuse, recycle) as a basic principle to reduce the volume of waste emitted directly by the JSW Group.

Main Types of Waste and Resource Recycling Initiatives

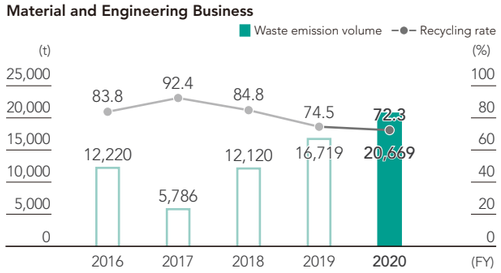
Owing to the different characteristics of the industries they serve, there are significant differences in the business activities of the JSW Group's Industrial Machinery Products Business and Material and Engineering Business. Consequently, each plant emits waste materials specific to that plant. The Hiroshima Plant, the Yokohama Plant and the Meiki Plant in the Industrial Machinery Products Business have each achieved recycling rates of more than 90%. At Japan Steel Works M&E, Inc. in the Material and Engineering Business, the main waste materials are scrap metal, slag and refractories. Of these, scrap metal used in the plant is 100% recycled, but refractory material and some slag are disposed of in landfills, so the plant's overall recycling rate is only about 70%. Excluding slag and refractory material, Japan Steel Works M&E has also achieved a recycling rate of more than 90%. We will consider ways to deal with slag and refractory material as a future issue. Japan Steel Works M&E uses a large amount of scrap iron as a raw material, thereby contributing to the resource recycling of society.

Waste Emission Volume

Industrial Machinery Products Business



Material and Engineering Business

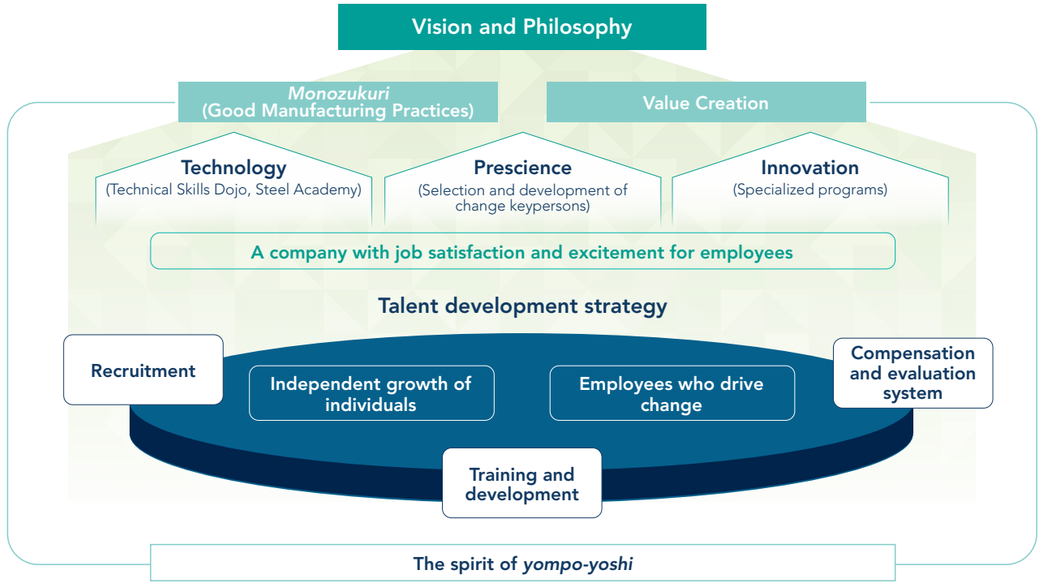


Talent Development Strategy

At the JSW Group, we view the growth of our change-resilient management, the evolution of our business model (*monozukuri* and value creation), and the people who work here (human capital), as vital to the sustainable improvement of our corporate value.

Specifically, in terms of our talent development strategy, the key is to secure and develop people who wish to meet the challenge of creating value based on *monozukuri* (good manufacturing practices). We will focus on effective improvement and operation of our recruiting, training, and compensation and evaluation systems, as well as the overall personnel systems that underpin them, and by providing employees with opportunities to grow and succeed we will be a company with job satisfaction and excitement for employees. In this way, the JSW Group as a whole will create social value and economic value (*yompo-yoshi*), and this in turn will increase the Group's corporate value.

Overview of Talent Development Strategy



Securing and Developing Human Resources

Our Ideal Candidate Profile and Recruitment Activities

When recruiting new university graduates, we focus on our ideal candidate profile—someone with the potential to create change—and the aspirations of candidates seeking to work for us. These are outlined below.

We use the same approach for mid-career candidates, while also emphasizing the recruitment of people with expertise and people who want to make the most of their expertise.

We find and hire excellent, ambitious students nationwide through an approach that combines face-to-face and online interviews, which also enables close mutual communication. We also offer internships to help prospective employees gain a deeper understanding of our workplace environment and culture. Particularly when recruiting engineers, we always provide opportunities for an interview at a plant and an on-site tour, given the importance of the production site in manufacturing industries. This enables candidates and JSW to get a better idea of how and where that person might work.

Ideal Candidate Profile

1. Is eager to take on challenges
2. Has strong problem-solving capabilities
3. Has firm independent views and standards
4. Is able to think logically
5. Is able to act with persistence

Aspirations We Look For

1. Wants to create something new that is the first of its kind
2. Wants to do a job with pride while participating in manufacturing that supports society
3. Wants to try selling our unique products to customers worldwide
4. Enjoys *monozukuri* above all

Training and Development

While primarily conducting on-the-job training (OJT) to develop people who will play a part in *monozukuri* and value creation, we also emphasize off-the-job training that includes group training by job level, from newly hired employees to management. In addition, by providing a diverse array of training options and learning opportunities, such as basic education and specialized education necessary for work, language learning that includes study abroad, and self-development support, we are creating a system that empowers individuals to take charge of their own development.

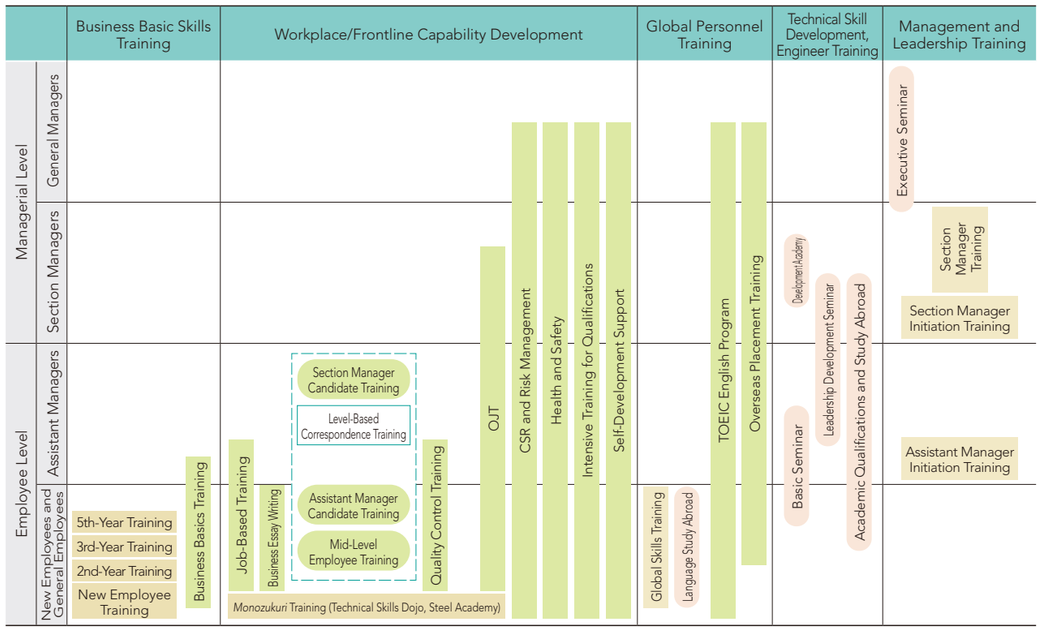
We have established in-house training programs, including the Technical Skills Dojo at the Hiroshima Plant and the Steel Academy at Japan Steel Works M&E, Inc. (Muroran Plant), both of which focus on *monozukuri* and skill transfer in particular. Here, the know-how we have cultivated over many years of manufacturing is passed on to younger employees, enabling us to maintain and refine the technologies and skills at production front lines that are essential in our build-to-order manufacturing system, which is our competitive advantage.

Our personnel strategy under JGP2025 is to take measures that focus on individual employee aptitudes to further develop and strengthen talent capable of value creation. In particular, we emphasize identifying and individually developing personnel who we expect to make a contribution to value creation and have the initiative to create change. To that end, in addition to selecting individuals for fast-track promotion to managerial positions and assigning them important missions, we actively provide on-the-job skill development, including training and career programs that leverage job rotation, and this forms the basis for succession planning.

For off-the-job training, in addition to existing training programs that are uniform for all participants, we are focusing on enhancing systems to enable employees to participate in training programs at a time suited to their diverse qualities, aspirations and career awareness, and on improving specialized training programs linked to digital transformation. These approaches will help us better foster an environment in which employees can achieve personal growth according to their ambitions, and in so doing improve job satisfaction and performance.

Indicators	FY2018	FY2019	FY2020
Training cost per employee (thousands of yen)	37.1	37.9	29.8
Number of participants in job level-specific training	279	234	285
Completion rate of job level-specific training (%)	97.5	93.2	98.6
Number of employees newly certified under The National Trade Skill Test & Certification (NTSTC)	66	79	47

Training System



Approach to Diversity

The JSW Group hires people based on their qualifications, without regard to characteristics such as gender or nationality. Promotion of the active participation of women and seniors, and expansion of employment of people with disabilities are urgent and ongoing issues faced by the Group. At present, however, the share of women among new graduate hires, an indicator of the advancement of women in the workplace, and the percentage of employees with disabilities, an indicator of respect for human rights and acceptance of diversity, are still low. To address this situation, we are introducing a series of personnel systems aimed at work-life balance.

Our first concern is to increase the ratio of female employees, which is essential for increasing the number of female managers. Next, we will increase the ratio of women in supervisory positions equivalent to section chief level. Furthermore, by introducing systems for telework, staggered working hours and paid leave by the hour, we will support employees in balancing work with childcare and family care, thereby improving the work environment for all employees. Also to this end, we are preparing training systems that support self-development that will enable employees to improve their skills according to their ambitions.

In addition, we are enhancing benefit programs, including establishing a cafeteria plan to accommodate diverse values and needs.

Along with revisions to personnel systems, we will broadly and continuously carry out education and awareness activities in order to increase the JSW Group's ability to embrace diversity.

Indicators	FY2018	FY2019	FY2020
Number of Employees Who Took Childcare Leave	6	10	11
Percentage of Employees with Disabilities (%)	1.97	2.08	2.18
Percentage of Female New Graduate Hires (%)	13.6	9.3	10.9
Reemployment Rate of Retired Employees (%)	95.9	96.2	93.8

Human Rights

Respect for Human Rights

To help create a more sustainable society, the JSW Group has established its Corporate Code of Conduct. A key item in this code is our commitment to "respect the human rights of all people," and we declare that "we understand the effect of our business activities on human rights, and comply with all laws regarding human rights in Japan and overseas," and that "we require understanding of human rights and legal compliance not only within the JSW Group but also in the supply chain, including raw material and component suppliers, construction contractors and distribution outsourcing contractors."

In this context, the JSW Group has focused on health and safety activities and harassment prevention, with the primary aim of ensuring that employees can perform their work in a healthy and pleasant environment where they are respected as individuals and their human rights are not violated. We have established internal and external consultation hotlines and a resolution process through the Harassment Countermeasures Committee. Furthermore, we carry out fair hiring that respects the human rights of all individuals, and have also established systems that support work-life balance, foster a workplace environment that is inclusive of diverse personnel, and strive to provide equal opportunities to excel.

Throughout our supply chain, we require that suppliers share an understanding of human rights and legal compliance, as appropriate. However, we do not assess suppliers' impacts on human rights quantitatively or continuously at present.

The JSW Group recognizes that its business activities cover exceedingly broad fields and involve or impact a wide variety of individuals. To prevent any direct or indirect negative impacts on human rights, we engage in dialogue with all stakeholders, set priorities and address them appropriately, and otherwise strengthen the management of human rights-related risks.

We believe that achieving the SDGs and protecting and promoting human rights are inseparable and complementary. Based on that, we will conduct human rights due diligence, and work to improve our human rights management framework using the UN Guiding Principles on Business and Human Rights as a reference point.

Occupational Health and Safety

Policy for Health and Safety Activities

In the JSW Group, which operates primarily in manufacturing, ensuring the health and safety of employees has always been a top priority. We consider our health and safety initiatives to be part of a corporate foundation and corporate culture rooted in an emphasis on human capital and respect for human rights.

In fiscal 2020, we carried out these activities in accordance with the policy below, with the aim of maintaining and improving the health of employees and preventing occupational accidents.

1. Basic Philosophy

To fulfill our social responsibility, we have positioned health and safety as a vital part of our management policy, and work to ensure the health and safety of everyone involved in our business.

We have established and operate an occupational health and safety management system, and prioritize health and safety in all of our business activities to foster workplaces where employees can work safely and with peace of mind.

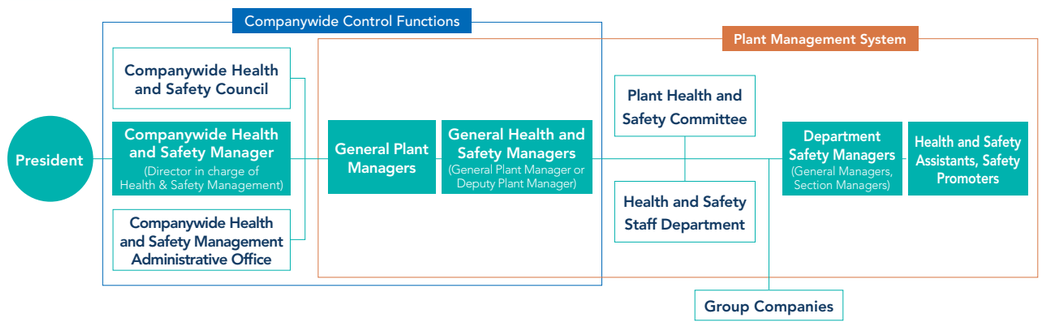
2. Basic Policy

(1) We will comply with health- and safety-related laws and regulations, as well as internal standards.
(2) We will establish a safety management system based on strong leadership from top management, the participation of all employees, and the cooperation of the labor union as well as that of Group companies and partner companies, and thereby prevent occupational accidents and health problems.
(3) We will invest the resources necessary for effective workplace improvements.

Health and Safety Promotion Structure

The promotion structure for health and safety activities in the JSW Group is as follows.

Organizational Structure for Promotion of Health and Safety



Health and Safety Initiatives and Results

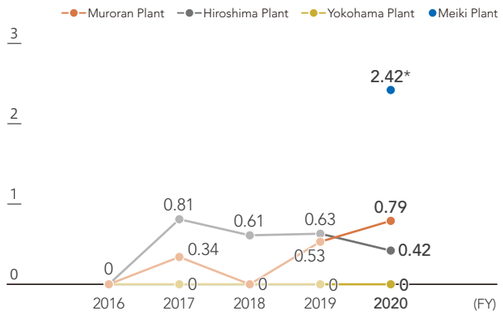
In the JSW Group, we specify priority items for health and safety activities each fiscal year, and the Group (as well as the labor union) and suppliers of each plant work together on activities aimed at achieving zero occupational accidents.

Our major sites have acquired certification of their occupational health and safety management systems, and are enhancing the effectiveness of their activities.

We plan to step up our initiatives and activities for improving the physical and mental health of employees, and are currently establishing the necessary framework and systems.

Site	Certification	Date acquired/renewed
Hiroshima Plant	ISO 45001	Sept. 11, 2021
Japan Steel Works M&E	OSHMS	June 5, 2021

Frequency Rate of Accidents per Million Workhours



Note: Frequency rate of accidents calculated from lost-worktime, serious and fatal accidents during the fiscal year.

* Meiki Plant merged into The Japan Steel Works, Ltd. in fiscal 2020
Frequency rate of accidents at the Meiki Plant in fiscal 2020 due to the occurrence of multiple lost-worktime accidents

Supply Chain Management

Approach to Supply Chain Management

We have long engaged in joint development and manufacturing with outside partners to provide products that meet customer needs worldwide. As such, the JSW Group cannot deliver excellent products on its own—procuring the necessary parts and materials through the supply chain at an appropriate level of quality and cost, and utilizing them effectively, is the source of our ability to continue supplying the world with better products. In recent years, we have focused not only on quality and cost, but also on the manufacturing processes used in the materials we purchase, and have updated our Basic Procurement Policy to consider human rights and the environment in purchasing items, with the goal of creating a more sustainable society. We will formulate evaluation criteria for procurement and conduct successive evaluations.

To ensure that all partners in our supply chain can continue to play indispensable roles within society, we share the JSW Group's Vision and policies so that all parties can continue sound growth over the course of business transactions.

Basic Procurement Policy

The JSW Group looks for suppliers in Japan and overseas based on the following policies.

1. Fair business dealings that value strong partnerships

We seek to build better partnerships and share common interests with all of our suppliers.

We deal in an open, fair and impartial manner with all our suppliers in Japan and overseas.

2. Selection of suppliers

Decisions are made according to proper procedures by evaluating suppliers with regard to the following criteria, based on economic rationality.

(1) Compliance with the laws and regulations of each country
(2) Eco-friendly products and green procurement
(3) Terms and conditions including material specifications, quality, performance, price and delivery time
(4) Technological development capability
(5) Business reliability

3. Socially conscious raw material sourcing

We consider the impact on local communities in our sourcing activities. In particular, we cooperate with suppliers to preclude the use of raw materials that could cause serious social problems,* such as human rights or environmental problems.

* Minerals produced in the Democratic Republic of the Congo and neighboring countries, the trading of which is used to finance armed groups (conflict minerals); RoHS restricted substances; and any materials that involve human rights violations such as child labor, forced labor and labor at unreasonably low wages.

4. Mutual understanding and relationships of trust

We take the following measures to deepen sound relationships and mutual understanding with suppliers.

(1) Regular briefings on our procurement policy
(2) Quality management checkups and guidance to eliminate defects
(3) Recognition of outstanding suppliers
(4) Confidential management of sales and technology information
(5) Establishment of whistleblowing systems for suppliers

Local Communities





The JSW Group recognizes its responsibility as a member of society to participate in a variety of regional and other communities, and contribute to their development. The JSW Group gives back to society through its businesses, and engages in activities with an awareness of social responsibility in order to create a better society and be a company rooted in local communities.

Community Beautification

We engage in cleanup activities around our plants and along commuting routes. These activities are also opportunities to engage with local communities and raise the environmental awareness of employees.

Education

We conduct plant tours, workplace tours and work experience activities. We view these as opportunities to interact with local communities and convey the appeal of *monozukuri* to students and other visitors.

Community Exchanges

Funakoshi Summer Festival

JSW is a sponsor of the Funakoshi summer festival, held in the Funakoshi district of Hiroshima. We open the grounds of the Hiroshima Plant for the event, which is attended by many people, primarily local residents.

Mikasayama Shrine Annual Festival

Mikasayama Shrine in Muroran, Hokkaido, which was built at the time of JSW's founding based on the desire to ensure our future development and safe operation, holds an annual festival in August that is attended by many local residents.

Note: The annual activities above were either scaled down or cancelled in fiscal 2020 due to the COVID-19 pandemic.

Quality

Approach to Quality Management

We establish quality policies at each business division and plant, and each develops its own quality assurance and quality improvement systems. This enables them to perform detailed quality control on a product-by-product basis. Plants, which are the center of manufacturing, and the subsidiaries that belong to the plants are included in these systems, and work together on quality management system (QMS) and other quality management initiatives.

Quality Management and Product Liability System

To gain and nurture customer trust in our products and services, we have established Companywide Quality Assurance Regulations and Product Liability Prevention Regulations. The objective is to proactively prevent quality problems, and to take prompt organizational countermeasures against any problems that do arise.

The current quality management and product liability system covers The Japan Steel Works, Ltd. and Japan Steel Works M&E, Inc. Our diverse products range from materials to industrial machinery and defense equipment, and the quality management systems required also vary. Therefore, product manufacturing takes place under the quality management structure shown below, with plants—the very heart of *monozukuri*—shouldering manufacturing responsibility, and business divisions assuming ultimate product liability.

Reporting Lines

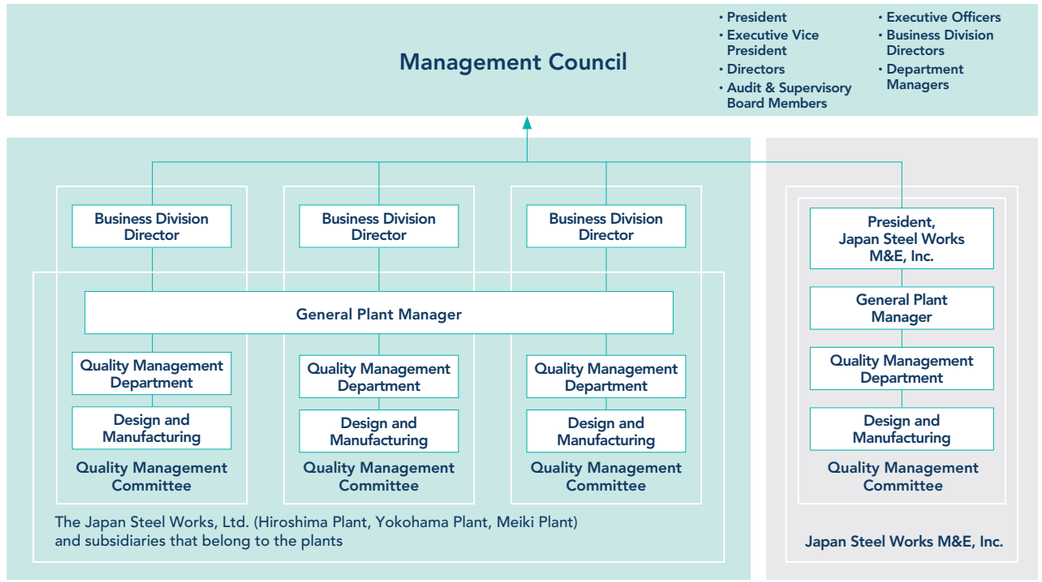
1 **Regular reporting**
At meetings of the Management Council, general plant managers report on the status of quality management, improvement progress, and new developments.

2 **When a major quality problem occurs**
Reports are made by general plant managers, who are responsible for manufacturing, to business division directors, who are responsible for products, and ultimately to the representative directors.

3 **When a product liability problem occurs**
Same as 2

Structure of Quality Management and Product Liability System

(As of March 31, 2021)



Quality Management Initiatives

Our main initiatives for quality management of each product category are outlined below.

1 **Acquisition and implementation of quality management system (QMS) certification**
Acquisition and implementation of ISO 9001, a standard for QMS for general manufacturing industries, to improve customer satisfaction and the quality control system
Acquisition of certifications and compliance with standards based on required standards in individual business areas
Examples: ISO 9001 (QMSs at each plant), ASME (pressure vessels, tanks, parts for nuclear power generation) and others

2 **Realization of quality that raises customer satisfaction**
Unified quality improvement activities by design, manufacturing and research departments
Continuation of companywide quality control improvement activities

3 **Reliable assurance of quality (raising awareness)**
Establishment and regular revision of quality manuals
Reliability through education and awareness-building guided by mottoes (solicited from employees)

4 **Activities to reduce the defect rate**
Learning from past defects (using root cause analysis) to prevent recurrence

5 **Countermeasures against serious defects**
Quick resolution by forming a priority measures team for serious defects and thorough measures to prevent recurrence

At the JSW Group, our three strengths—technology, prescience and innovation—are evident throughout our initiatives for quality management. Our plants have been transitioning to in-house manufacture of main components for each product, and research, design and manufacturing departments are cooperating in team activities to enhance component quality.

An organizational structure that enables ideas generated through the processes of design, analysis, material production, machining, quality inspection and technological development to be fed back with good communication is the basis of our strength in technology, and incorporating views from different positions leads to innovation. The system of fully integrated production at our plants, from materials to finished products, is the source of our ability to respond to customer needs.

In our quality management activities, we take measures to ensure that products are not only free from defects prior to shipment, but that they also remain so after delivery to the customer. We focus on three key points:

- Quality improvement involving the supply chain
- Prediction and prevention of defects at the plant
- Responding to customer requests for quality improvement

For example, to predict and prevent defects at the plant, we compile and maintain a database of defects that have occurred in the past. At meetings immediately after receiving an order, the departments concerned look back to the causes of defects that occurred in similar construction projects in the past, and countermeasures that were taken, to prevent them from happening again.

In addition, the service department responds to performance improvement and modification requests after delivery as needed, and strives to increase the level of customer satisfaction. In the event that a defect occurs after delivery, the quality management, research and design departments cooperate to investigate the cause, formulate a plan for countermeasures and implement measures promptly so that there is no impediment to the customer's production plans.

Corporate Governance

Corporate Governance Policies

Based on the JSW Vision, the JSW Philosophy and the Corporate Code of Conduct, we recognize that it is essential to earn the trust of all stakeholders, including shareholders, customers, business partners and employees, in order to achieve sustainable growth and enhance corporate value over the medium to long term. As such, we will continue to strengthen corporate governance to ensure the transparency, soundness and effectiveness of management.

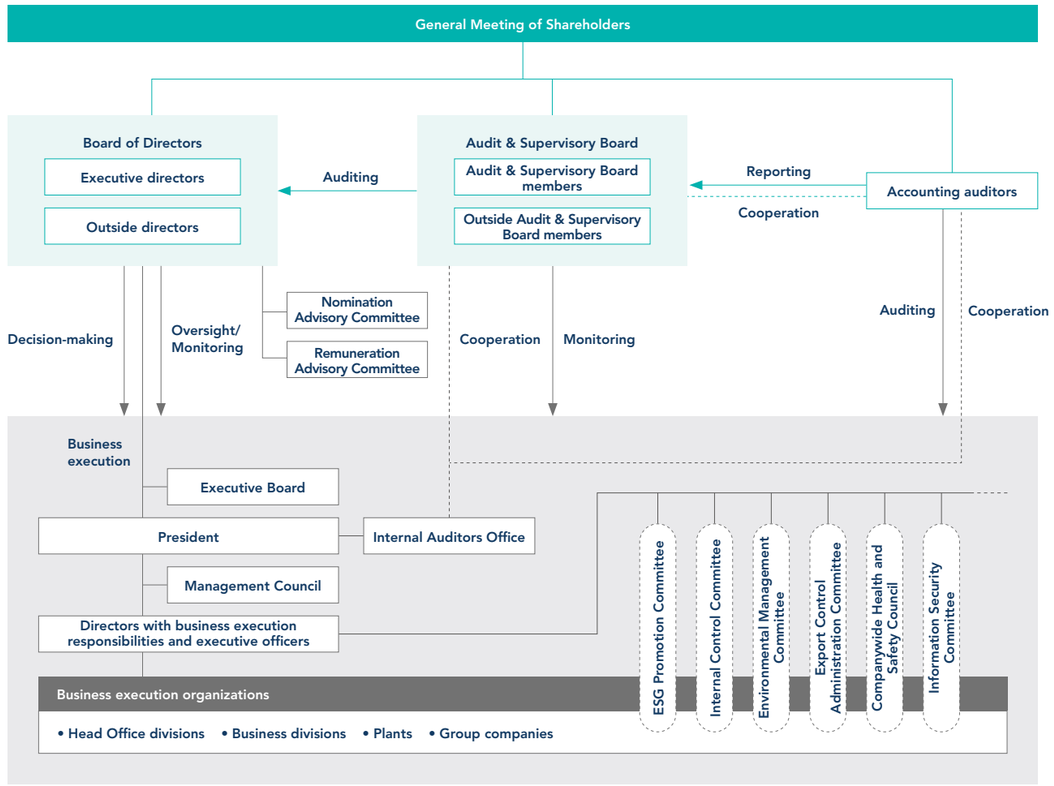
Overview of Corporate Governance Structure

The Japan Steel Works, Ltd. (“the Company”) has adopted the structure of a company with an audit and supervisory board. The Board of Directors consists of nine directors (three of whom are outside directors) and the Audit & Supervisory Board consists of four Audit & Supervisory Board members (two of whom are outside Audit & Supervisory Board members).

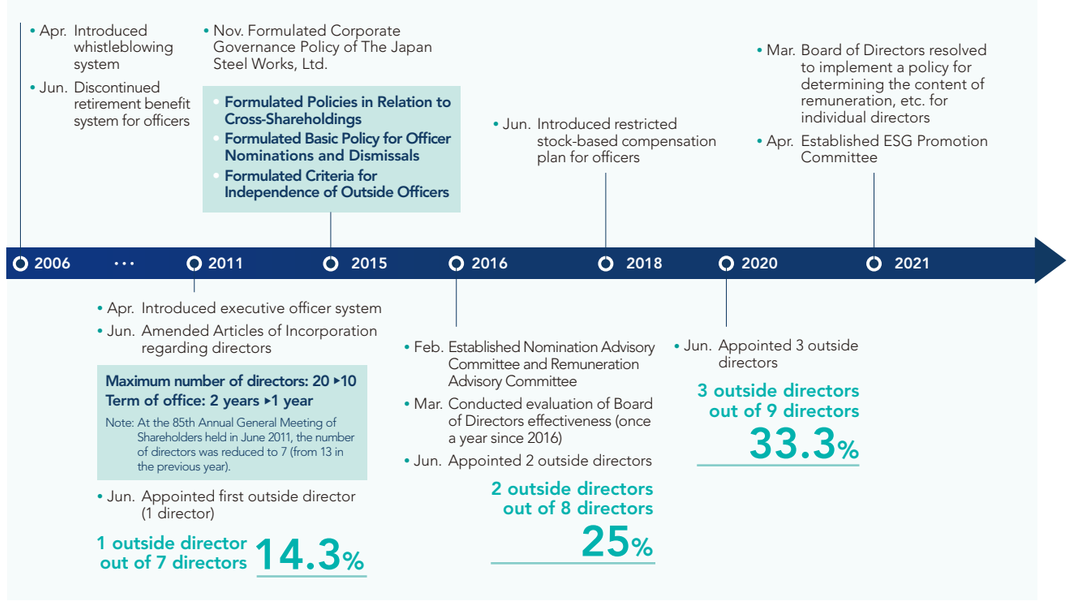
The term of office for directors is set at one year. The Company has also introduced an executive officer system that separates management decision-making and supervisory functions from business execution functions conducted by executive officers, thereby speeding up decision-making, strengthening supervision and improving business execution.

Audit & Supervisory Board members attend important meetings including those of the Board of Directors, the Executive Board and the Management Council. Once every fiscal half in principle they visit plants, sales locations and Group companies, and receive reports on necessary information from each division. They also exchange opinions with directors, executive officers and other keypersons, and based on these exchanges, advise management from an objective and impartial standpoint, while strictly monitoring the execution of duties by directors.

Corporate Governance Structure



Building a Stronger Governance System



Role and Composition of Governance Bodies

		Board of Directors	Executive Board	Remuneration Advisory Committee	Nomination Advisory Committee
Composition	Attendees (with voting rights)	Directors (6 inside, 3 outside)	Inside directors (6) Non-director managing executive officers or above (2)	President (1) Director in charge of Personnel Department and Secretary Office (1) Outside directors (3)	
	Observers (no voting rights)	Audit & Supervisory Board members (2 inside, 2 outside)	Outside directors (3) Inside Audit & Supervisory Board member (1)	Outside Audit & Supervisory Board member (1)	
	Chairperson	President	President	Outside director	
Objectives and Areas of Authority		Decides and reports on basic management policies, matters stipulated by laws and regulations, and other important management matters, and monitors the execution of duties by directors and executive officers	· Deliberates and decides on important management matters and matters that have a significant impact on the Company’s profit and loss · Discusses and reports on basic management policies and matters relating to overall management	As an advisory body to the Board of Directors, deliberates on matters relating to the remuneration of directors and executive officers, and reports the results to the Board of Directors	As an advisory body to the Board of Directors, deliberates on matters relating to the nomination of directors, Audit & Supervisory Board members and executive officers, and reports the results to the Board of Directors
Meetings in FY2020		14	41	2	3

		Management Council	Audit & Supervisory Board
Composition	Attendees	Directors (6 inside, 3 outside) Audit & Supervisory Board members (2 inside, 2 outside) Non-director executive officers (5) Business division directors and business division deputy directors, general plant managers, Head Office division managers	Audit & Supervisory Board members (2 inside, 2 outside)
	Chairperson	President	—
Objectives and Areas of Authority		Coordinates and reports on the following important management matters and shares management information 1. Analysis of business environment, progress of business plans 2. Important matters relating to research and development 3. Matters relating to Group companies 4. Matters that have a significant impact on management including those relating to sales, production, funding, profit and loss 5. Other important management matters	Reports, discusses and makes resolutions on important matters relating to auditing; this does not preclude the exercise of individual Audit & Supervisory Board members’ authority
Meetings in FY2020		10	13

Skill Matrix

The JSW Group's long-term vision is to be a company with job satisfaction and excitement for employees and growing to a business scale of 300 billion yen. In line with the new medium-term management plan, JGP2025, formulated in May 2021 and covering the five-year period beginning fiscal 2021, we will promote business activities based on the following four basic policies: 1) Towards the unprecedented general manufacturer of plastic processing machinery in the world, 2) Make constant profit in the Material and Engineering Business, 3) Create new core businesses, and 4) Implementation of ESG management.

From this perspective, we believe it is important to ensure that the Board of Directors has the diverse experience and capabilities necessary for promoting JGP2025's four basic policies. To that end, we have prepared a skills matrix as one selection criteria for director and Audit & Supervisory Board member candidates.

		Name	Corporate Management	Finance and Accounting	Sales and Marketing	Manufacturing, Quality Control, Technology and R&D	Environment	Personnel and Human Resource Development	Legal, Compliance and Risk Management	Information Systems and Digital Transformation
Directors	Inside	Naotaka Miyauchi	○		○	○	○			
		Toshio Matsuo	○		○	○	○			
		Junichiro Deguchi					○	○	○	
		Takashi Iwamoto			○	○	○			○
		Hiroki Kikuchi		○					○	
		Shingo Mito			○	○		○		
	Outside	Sadao Degawa	○			○				○
		Yoshiyuki Nakanishi	○		○					
		Hisao Mitsui	○			○				
Audit & Supervisory Board Members	Inside	Takashi Shibata			○	○	○			
		Toru Nishiyama		○					○	
	Outside	Fumihiko Tanizawa	○	○						
		Hiroshi Misawa	○	○						

Reasons for Appointment of Outside Directors

JSW believes that the function and role of outside directors in corporate governance is to strictly supervise the execution of duties by directors and to make management judgments and decision-making from a neutral and objective standpoint with no conflict of interest with the Company, and from an independent standpoint with no risk of conflict of interest with general shareholders. To that end, the Company has appointed three outside directors.

The roles expected of outside directors are stipulated in the Corporate Governance Policy.

▶ Corporate Governance Policy of The Japan Steel Works, Ltd.
https://www.jsw.co.jp/en/ir/governance/main/02/teaserItems1/01/linkList/0/link/GovernancePolicy_en.pdf

Succession Planning for the President and Procedures for Selection and Dismissal

1 Formulation and Implementation of Succession Plan for the President

With respect to the formulation and implementation of the succession plan for the president, the Nomination Advisory Committee holds appropriate discussions, considering the qualities of the candidate, such as experience, ability and character, based on the JSW Philosophy and management strategies, and reports to the Board of Directors as necessary.

2 Appointment Criteria and Procedures

The appointment of the president is decided by the Board of Directors after receiving a report from the Nomination Advisory Committee based on the succession plan.

3 Dismissal Criteria and Procedures

Dismissal of the president is decided by the Board of Directors if circumstances make it difficult for the president to carry out his or her duties.

Support for Outside Directors and Officer Training

1 Support for Outside Directors

For the purpose of deepening their understanding of the JSW Group, outside directors are provided with information on the Group's business, finances, organization and other topics at appropriate times after assuming office. In addition, by participating as observers at weekly Executive Board meetings, outside directors are able to gain an understanding of important management matters within the JSW Group. They also accompany the president to twice yearly report meetings at each plant, where they also meet with plant management. Moreover, outside directors are provided with materials at least three days prior to Board of Directors meetings, and advance explanations are provided by business divisions and Head Office divisions as appropriate.

2 Officer Training

The Company invites outside experts to lead study sessions and offers opportunities for participation in external seminars, in order to deepen the understanding of the roles and responsibilities required of directors and Audit & Supervisory Board members.

Evaluation of Board of Directors' Effectiveness

The Board of Directors continues to enhance its function by conducting an annual questionnaire-based evaluation and analysis. Since fiscal 2018, in order to increase the objectivity of the evaluation and analysis, a third-party organization has been employed to plan the questionnaire and aggregate its results.

The following is a summary of the evaluation and analysis for fiscal 2020.

1 Evaluation and Analysis Methodology

(1) During the period March to April 2021, a questionnaire (anonymous basis) was administered to all directors and Audit & Supervisory Board members, with the planning of questionnaire items and the collection and aggregation of results outsourced to a third-party organization.
(2) The results of the questionnaire were reported at the Board of Directors meetings held in May and June 2021, and discussions were held on the evaluation and analysis of the effectiveness of the Board of Directors based on the advice of the third-party organization.
(3) Questionnaire content
- Composition, operation and discussion of the Board of Directors
- Support system for directors and Audit & Supervisory Board members
- Self-evaluation by each director, etc.

2 Summary of Results from the Evaluation and Analysis

Based on responses to the questionnaire, it was confirmed that the effectiveness of the Board of Directors as a whole has been generally ensured.

3 Points of Improvement since Fiscal 2019

(1) Ratio of inside to outside directors
(2) Encouragement by the chairperson regarding participants' input
(3) Establishment of a system to appropriately provide information necessary for the execution of duties, etc.

4 Issues in Fiscal 2020

(1) Sufficiently discussing management strategies and plans for achieving sustainable growth and enhancing corporate value over the medium to long term
(2) Addressing ESG issues and reflecting them in management strategies
(3) Providing the necessary training opportunities for officers.

5 Measures to Resolve Issues

(1) Select themes to be discussed from a medium-to-long-term perspective and schedule their discussion at Board of Directors' meetings
(2) Enhance and systematize training for officers, etc.

Officers' Remuneration

1 Basic Policy for Directors' Remuneration

The maximum amount of directors' remuneration is decided by resolution of the General Meeting of Shareholders. The basic policy is to set remuneration that provides sound incentives for sustainably enhancing corporate value, at a level corresponding to respective roles and responsibilities, and that ensures fairness and transparency in remuneration-related decision processes.

2 Procedures for Determining Directors' Remuneration

The remuneration of directors is determined by the Board of Directors after receiving a report from the Remuneration Advisory Committee. However, the allocation of annual remuneration by position and by individual and the allocation of bonuses by individual may be delegated to the president by resolution of the Board of Directors. In this case, the president makes decisions in accordance with the content of the report.

3 Composition of Directors' Remuneration

(1) Directors (excluding outside directors)

Remuneration structure	Annual remuneration		Bonuses		Stock-based remuneration
	Base component	Performance- and results-linked component	Operating income basis component	Dividend basis component	
Cash/Shares	Cash				Shares
Fixed/Variable	Fixed	Variable (short-term)			Variable (medium-to-long-term)
Percentage	60	30			10

(2) Outside directors
Outside directors, who are responsible for supervisory functions, shall be paid only fixed remuneration (base component of annual remuneration) in consideration of their duties.

(3) Performance Indicators for Variable Remuneration (Short-Term), Targets (Base Values) and Results for Fiscal 2020

		Performance indicator	FY2020		
			Evaluation criteria	Target (base value)	Result
Annual remuneration	**Performance- and results-linked component**	・Coefficient based on departmental performance evaluation, taking into account individual results ・The departmental performance evaluation is determined based on the achievement rate of the evaluation criteria, with the ultimate goals of achieving the business budget and progress of the medium-term management plan. (Evaluation criteria are set at the beginning of each fiscal year by the Executive Board.)	Orders received	Industrial Machinery Products Business	
				¥147.0 billion	¥145.2 billion
				Material and Engineering Business	
				¥48.5 billion	¥32.7 billion
			Operating income (loss)	Industrial Machinery Products Business	
				¥11.5 billion	¥13.9 billion
				Material and Engineering Business	
				¥1.5 billion	¥1.8 billion
Bonuses	**Operating income basis component**	Consolidated operating income calculated theoretically from dividend payout ratio		¥17.0 billion	¥10.2 billion
	Dividend basis component	Annual dividend per share		¥50	¥35

4 Basic Policy and Procedure for Determining Remuneration for Audit & Supervisory Board Members

The remuneration of each Audit & Supervisory Board member shall consist only of fixed remuneration (base component of annual remuneration) from the viewpoint of emphasizing independence and objectivity. The remuneration of each Audit & Supervisory Board member shall be determined through discussions by the Audit & Supervisory Board.

Group Governance

The JSW Group consists of The Japan Steel Works, Ltd. and 45 subsidiaries (32 consolidated, 13 non-consolidated). The Group operates the Industrial Machinery Products Business, Material and Engineering Business, and other businesses in Japan and around the world.

For Group companies, the JSW business division with primary responsibility leads the formulation of management policies and short- and medium-term management plans, and monitors their progress. Furthermore, in order to appropriately address various risks, we have established a system to ensure that the execution of duties by directors complies with laws and regulations and the Articles of Incorporation, as well as other systems necessary to ensure the appropriateness of operations (internal control systems) on a Group-wide basis.

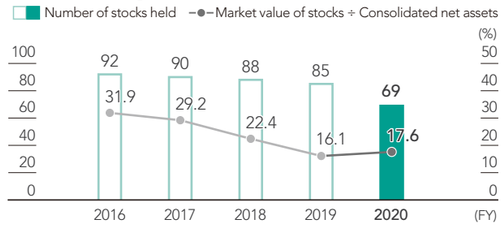
Specifically, we assign directors or Audit & Supervisory Board members with the responsibility of supervising and auditing the execution of duties at specific Group companies, in principle, thereby ensuring that the execution of duties by directors, etc. and employees at Group companies complies with laws and regulations and the Articles of Incorporation. In addition, in order to address various risks, including external risks, general management strategy risks, and financial and profit/loss-related risks, the Group has established various internal committees and responsible departments, as well as the necessary risk management system and management methods on a Group basis, to manage risks both comprehensively and individually. Moreover, we have established a Group Compliance Program with the goal of preventing the occurrence of legal or regulatory violations and other incidents. The program establishes and operates the necessary systems and structures, and conducts regular reviews aimed at ongoing improvement.

Cross-Shareholdings

1	**Policy on Cross-Shareholdings**	The Company holds shares that it judges, through regular confirmation and review, to be necessary for policy purposes, and that contribute to the Company's businesses over the medium to long term in ways such as maintaining and strengthening sound, ongoing relationships with business partners, forming business alliances, and supporting the sound development of investee companies.
2	**Regular Confirmation and Review of Shareholdings**	Each year, the Company confirms the purpose of individual cross-shareholdings and current transaction status, etc., and the Board of Directors verifies whether shareholdings are appropriate by comprehensively considering the significance and purpose of the Company's acquisition and holding of the shares, as well as the safety, profitability, economic viability, risks and other factors associated with the shareholdings.
3	**Policy on Exercise of Voting Rights**	The Company makes decisions on the exercise of voting rights based on factors including the business conditions of the investee company and its business relationship with the Company, having confirmed the details of each proposal from the standpoint of increasing the investee company's corporate value over the medium to long term and fulfilling that company's social responsibilities.

Status of Holdings

Number of Listed and Unlisted Stocks Held; Market Value of Cross-Shareholdings on Balance Sheet ÷ Consolidated Net Assets



When the significance of holding a stock is confirmed to be diminished, the Company reduces or liquidates such stock holdings. In fiscal 2020, the Board of Directors reviewed the appropriateness of continuing to hold various stocks at its meeting on September 24, 2020, and based on the results of the review, the Company sold some of its holdings.

Message from an Outside Director

I will push for further reforms to strengthen governance to achieve sustainable growth in corporate value.



Sadao Degawa
Outside Director

I became an outside director of the Company in June 2018. I was appointed to this position with the expectation that I would draw on my experience as both a manager and a technology developer to provide advice, mainly from a technical angle, on the direction of the JSW Group's medium- and long-term business strategy and the supervision of executive functions. Since joining the Board, I have consciously focused on two main points: setting the broad direction of management that will increase corporate value, and fostering awareness of and strengthening systems for the Company's risk management.

The Company's governance is now in a period of change. As well as the change in the composition of the Board of Directors with the addition of another outside director, two notable changes are that discussions on longer-term management policies have increased and executive directors are making statements from a more company-wide viewpoint. A support system is in place for outside directors to help us understand the Company's current circumstances—for example, we have the opportunity to attend the weekly management strategy meetings as observers, and visits to plants are conducted twice a year. Outside directors also regularly exchange opinions.

As a result, agenda items at Board meetings are brought up and discussed to an appropriate degree, and the management supervisory function is sufficiently effective. However, I feel it is necessary to consider rethinking the agenda criteria of Board meetings, given that the Company will transition to a monitoring-focused Board of Directors structure.

Shifting from "Supporting Society" to "Changing Society"

Up to now, the JSW Group has fulfilled the role of supporting society by providing products and services in fields essential to daily life, such as automobiles, power generation and medical care. As people's lifestyles change, however, the JSW Group needs to shift its role from supporting society to actively changing society.

In that sense, the JSW Group has an abundance of technological assets, including in photonics and crystallization. For example, once 5G becomes the norm, there will be more opportunities for applying the technologies of the Group's photonics business. In the mobility (automotive) category, the transition to all-electric vehicles will increase the importance of power semiconductors, and I have high expectations that this is where the Group's research and development of gallium nitride will yield results. The Group has the very earnest and talented human resources necessary to let its technologies blossom. I firmly believe that by contributing to global development with *monozukuri* and value creation based on the spirit of *yom-po-yoshi*, these technologies and human resources can also secure sustainable growth for the JSW Group.

Talent Development and Promotion and Remuneration Systems Focused on the Medium and Long Term

I also serve as the chair of the Nomination Advisory Committee, and I strongly feel the importance of cultivating people to which the Company can entrust its future from a medium-to-long-term management perspective. Assuming a presidential tenure of about six years, I think it is necessary to consider broadening the targets of presidential succession planning beyond current officers to also include general managers. Therefore, I have advised that the Personnel Department should think about linking training for managers with the executive candidate training program. As a member of the Nomination Advisory Committee, I want to use opportunities such as management strategy meetings and plant visits to actively communicate with future executive candidates.

Another issue I am aware of as a member of the Nomination Advisory Committee is diversity. In addition to gender, employee diversity also encompasses people with different values. I believe the Company's Board of Directors is becoming more diverse, but the times and the social environment are set to change at a very rapid pace. Considering the significant time required to develop human resources, the JSW Group needs to seriously consider hiring people from outside to secure diversity.

Next, the remuneration system of the Company's directors has the same structural weighting for all officers, but as chair of the Remuneration Advisory Committee, I think that for the president at least, the proportion of performance-based compensation could be higher. I also think the Company needs to study and discuss the introduction of stock compensation linked to medium- and long-term corporate value and a sustainability-linked compensation system.

By leveraging its strengths in technology, prescience and innovation to help change society, the JSW Group can move toward the sustainability of the Group and society. To that end, bold managerial decisions will be necessary; I want to provide support as an outside director to make such decisions possible. Moreover, proper execution of the oversight function of the Board of Directors is a prerequisite for taking on an appropriate amount of risk. I hope to meet my obligations to shareholders, investors and all other stakeholders through measures to enhance the effectiveness of the Board of Directors, as well as through my role on the two advisory committees.

Management Team (As of June 30, 2021)

NAC Nomination Advisory Committee
RAC Remuneration Advisory Committee

Directors



Naotaka Miyauchi NAC RAC

Name	Naotaka Miyauchi NAC RAC
Title	Representative Director & President
Date of appointment to the Board	Jun. 2016
Number of shares of the Company held	23,853
Attendance record	14/14 (100%)

Career

Apr. 1981	Joined the Company
Apr. 2011	Deputy General Plant Manager, Hiroshima Plant
Apr. 2013	Executive Officer; General Plant Manager, Hiroshima Plant
Apr. 2015	Managing Executive Officer; Deputy Director of Machinery Business Division (Machinery Business Unit Head)
Apr. 2016	In charge of Ordnance Business Headquarters; Director of Machinery Business Division
Jun. 2016	Director & Managing Executive Officer
Apr. 2017	Representative Director & President (current position)



Toshio Matsuo

Name	Toshio Matsuo
Title	Representative Director & Executive Vice President
Date of appointment to the Board	Jun. 2017
Number of shares of the Company held	14,313
Attendance record	14/14 (100%)

Career

Apr. 1984	Joined the Company
Apr. 2013	Deputy General Plant Manager, Hiroshima Plant
Apr. 2015	General Plant Manager, Hiroshima Plant
Apr. 2016	Executive Officer
Apr. 2017	Managing Executive Officer; Director of Injection Molding Machinery Business Division; In charge of Hiroshima Plant
Jun. 2017	Director & Managing Executive Officer
Apr. 2020	Representative Director & Executive Vice President (current position); In charge of Export Control Administration (current position); In charge of Plastics Machinery Business Division, Injection Molding Machinery Business Division, Industrial Machinery Business Division (current position); In charge of Meiki Plant (current position)
Apr. 2021	In charge of Ordnance Business Headquarters (current position); In charge of Business Development Office (current position); In charge of Hiroshima Plant and Yokohama Plant (current position)



Junichiro Deguchi NAC RAC

Name	Junichiro Deguchi NAC RAC
Title	Director & Managing Executive Officer
Date of appointment to the Board	Jun. 2018
Number of shares of the Company held	13,072
Attendance record	14/14 (100%)

Career

Apr. 1981	Joined the Company
Apr. 2013	Deputy General Plant Manager, Muroran Plant
Apr. 2015	Executive Officer; Deputy Director of Steel Business Division
Oct. 2017	General Manager, Personnel Department
Apr. 2018	In charge of CSR & Risk Management (current position); In charge of Export Control Administration (current position); In charge of Health & Safety Management and Environmental Management (current position); In charge of Secretary Office and General Affairs Department
Jun. 2018	Director & Executive Officer
Jul. 2018	In charge of General Affairs Department (current position); General Manager, Secretary Office (current position)
Apr. 2019	Director & Managing Executive Officer (current position)
Apr. 2020	Chief Information Security Officer; In charge of Office of Information Technology; In charge of Personnel Department (current position)
Apr. 2021	In charge of Promoting ESG (current position)



Takashi Iwamoto

Name	Takashi Iwamoto
Title	Director & Managing Executive Officer
Date of appointment to the Board	Jun. 2018
Number of shares of the Company held	10,123
Attendance record	14/14 (100%)

Career

Apr. 1983	Joined the Company
Apr. 2013	Deputy General Plant Manager, Muroran Plant
Apr. 2016	Executive Officer; General Plant Manager, Muroran Plant
Oct. 2017	Director of Steel Business Division
Jun. 2018	Director & Executive Officer
Apr. 2020	Director & Managing Executive Officer (current position); Representative Director & President, Japan Steel Works M&E, Inc.
Apr. 2021	Chief Information Security Officer (current position); In charge of Promoting Digitalization (current position); In charge of Material and Engineering Business (current position); In charge of Office of Information Technology and Intellectual Property Department (current position)



Hiroki Kikuchi

Name	Hiroki Kikuchi
Title	Director & Managing Executive Officer
Date of appointment to the Board	Jun. 2020
Number of shares of the Company held	7,184
Attendance record	11/11 (100%)

Career

Apr. 1985	Joined Mitsui Bank (currently Sumitomo Mitsui Banking Corporation)
Apr. 2012	General Manager, Nihonbashi-higashi Corporate Business Office, Sumitomo Mitsui Banking Corporation
Apr. 2015	Joined the Company
Jul. 2015	General Manager, General Affairs Department
Apr. 2016	General Manager, Secretary Office
Apr. 2018	Executive Officer
Jul. 2018	General Manager, Corporate Planning Office (current position)
Apr. 2020	Chief Financial Officer (current position), In charge of Finance & Accounting Department (current position); General Manager, Business Development Office
Jun. 2020	Director & Executive Officer
Apr. 2021	Director & Managing Executive Officer (current position)



Shingo Mito

Name	Shingo Mito
Title	Director & Executive Officer
Date of appointment to the Board	Jun. 2021
Number of shares of the Company held	11,228
Attendance record	—

Career

Apr. 1984	Joined the Company
Jul. 2006	General Manager, Personnel Department
Jul. 2011	Deputy General Plant Manager, Hiroshima Plant
Apr. 2014	Deputy Director of Machinery Business Division
Apr. 2016	Deputy Director of Research and Development Headquarters
Apr. 2017	Executive Officer
Oct. 2017	Deputy Director of New Business Promotion Headquarters
Apr. 2021	Director of New Business Promotion Headquarters (current position)
Jun. 2021	Director & Executive Officer (current position)



Sadao Degawa NAC (Chair) RAC (Chair)

Name	Sadao Degawa NAC (Chair) RAC (Chair)
Title	Director
Date of appointment to the Board	Jun. 2018
Number of shares of the Company held	3,194
Attendance record	14/14 (100%)

Career

Apr. 1977	Joined Ishikawajima-Harima Heavy Industries Co., Ltd. (currently IHI Corporation)
Jun. 2009	Director and Executive Officer, IHI Corporation
Apr. 2011	Director and Managing Executive Officer, IHI Corporation
Apr. 2012	Executive Vice President, IHI Corporation
Oct. 2015	Executive Vice President and Senior Executive Officer, IHI Corporation (–Mar. 2016)
Apr. 2016	Director, IHI Corporation (–Jun. 2016)
Jun. 2016	Advisor, IHI Corporation (–Jun. 2020) Outside Director, Nishishiba Electric Co., Ltd. (–Mar. 2020)
Jun. 2018	Director, the Company (current position)

Directors



Yoshiyuki Nakanishi NAC RAC

Name	Yoshiyuki Nakanishi NAC RAC
Title	Director
Date of appointment to the Board	Jun. 2020
Number of shares of the Company held	0
Attendance record	11/11 (100%)

Career

Apr. 1978	Joined Dainippon Ink and Chemicals, Incorporated (currently DIC Corporation)
Apr. 2010	Executive Officer, DIC Corporation
Jun. 2011	Director and Executive Officer, DIC Corporation
Apr. 2012	Representative Director, President and CEO, DIC Corporation (–Dec. 2017)
Jan. 2018	Chairman of the Board of Directors, DIC Corporation (–Jan. 2021)
Jun. 2020	Director, the Company (current position) Outside Director, IHI Corporation (current position)
Jan. 2021	Director, DIC Corporation (–Mar. 2021)
Mar. 2021	Executive Advisor, DIC Corporation (current position)
Jun. 2021	Outside Director, Shimadzu Corporation (current position)



Hisao Mitsui NAC RAC

Name	Hisao Mitsui NAC RAC
Title	Director
Date of appointment to the Board	Jun. 2020
Number of shares of the Company held	67
Attendance record	11/11 (100%)

Career

Apr. 1978	Joined Kao Soap Co., Ltd. (currently Kao Corporation)
Jun. 2006	Executive Officer, Kao Corporation
Jun. 2010	Director and Executive Officer, Kao Corporation
Jun. 2012	Director and Managing Executive Officer, Kao Corporation (–Mar. 2014)
Apr. 2015	Auditor, National Institute of Technology and Evaluation (–Jun. 2019)
Jun. 2020	Director, the Company (current position) Outside Auditor, LiveDo Corporation (current position)

Audit & Supervisory Board Members



Takashi Shibata

Name	Takashi Shibata
Title	Audit & Supervisory Board Member (Full-Time)
Date of appointment to the Board	Jun. 2021
Number of shares of the Company held	13,421
Attendance record	—

Career

Apr. 1984	Joined the Company
Apr. 2011	Deputy General Plant Manager, Muroran Plant
Apr. 2013	Executive Officer; General Plant Manager, Muroran Plant
Apr. 2015	Managing Executive Officer
Apr. 2016	In charge of Wind Power Business Office; Director of Steel Business Division
Jun. 2016	Director & Managing Executive Officer
Oct. 2017	Director of New Business Promotion Headquarters
Apr. 2018	In charge of Technology and Quality
Apr. 2021	Director
Jun. 2021	Audit & Supervisory Board Member (Full-Time) (current position)



Toru Nishiyama

Name	Toru Nishiyama
Title	Audit & Supervisory Board Member (Full-Time)
Date of appointment to the Board	Jun. 2019
Number of shares of the Company held	7,045
Attendance record	13/13 (100%)

Career

Apr. 1982	Joined the Company
Sep. 2011	Deputy General Manager, Corporate Planning Office
Apr. 2015	Deputy General Plant Manager, Muroran Plant
Apr. 2017	Executive Officer
Oct. 2017	Deputy General Manager, Technological Strategy Office
Apr. 2018	General Manager, Internal Auditors Office
Jun. 2019	Audit & Supervisory Board Member (Full-Time) (current position)



Fumihiko Tanizawa NAC

Name	Fumihiko Tanizawa NAC
Title	Audit & Supervisory Board Member
Date of appointment to the Board	Jun. 2019
Number of shares of the Company held	0
Attendance record	13/13 (100%)

Career

Apr. 1976	Joined Mitsui Bank (currently Sumitomo Mitsui Banking Corporation)
Jun. 2003	Executive Officer, Sumitomo Mitsui Banking Corporation
Oct. 2006	Managing Executive Officer, Sumitomo Mitsui Banking Corporation (–Mar. 2009)
Apr. 2009	Senior Managing Executive Officer, Sumitomo Mitsui Financial Group, Inc.
Jun. 2009	Senior Managing Director, Sumitomo Mitsui Financial Group, Inc. (–Jun. 2010)
Jun. 2010	Representative Director, Executive Officer and Executive Deputy President, SMBC Friend Securities Co. Ltd (currently SMBC Nikko Securities Inc.) (–Mar. 2012)
Dec. 2012	Representative Director, President and Executive Officer, Horai Co., Ltd. (–Dec. 2019)
Jun. 2015	Outside Audit & Supervisory Board Member, Sotetsu Holdings, Inc. (–Jun. 2019)
Jun. 2019	Audit & Supervisory Board Member, the Company (current position)



Hiroshi Misawa RAC

Name	Hiroshi Misawa RAC
Title	Audit & Supervisory Board Member
Date of appointment to the Board	Jun. 2020
Number of shares of the Company held	401
Attendance record	10/10 (100%)

Career

Apr. 1981	Joined The Mitsui Trust and Banking Company, Ltd. (currently Sumitomo Mitsui Trust Bank, Limited)
Jul. 2008	Executive Officer, Chuo Mitsui Asset Trust and Banking Company, Limited. (currently Sumitomo Mitsui Trust Bank, Limited)
Feb. 2011	Managing Executive Officer, Chuo Mitsui Asset Trust and Banking Company, Limited.
Apr. 2012	Managing Executive Officer, Sumitomo Mitsui Trust Bank, Limited
Jul. 2012	Advisor, Sumitomo Mitsui Trust Bank, Limited (–Sep. 2012)
Oct. 2012	Director and Vice President, Sumitomo Mitsui Trust Asset Management Co., Ltd. (–Mar. 2016)
Apr. 2016	Audit & Supervisory Board Member, Sumitomo Mitsui Trust Bank, Limited (–Mar. 2017)
Apr. 2017	Advisor, Sumitomo Mitsui Trust Bank, Limited (–Jun. 2017)
Jun. 2017	Deputy Chairman of the Board of Directors, Director and Audit & Supervisory Committee Member, Sumitomo Mitsui Trust Holdings, Inc. (–Jun. 2019)
Jun. 2019	Audit & Supervisory Board Member, Sumitomo Mitsui Trust Business Service Co., Ltd (–Mar. 2021)
Jun. 2020	Audit & Supervisory Board Member, the Company (current position)
Apr. 2021	Advisor, Sumitomo Mitsui Trust Business Service Co., Ltd (current position)

Executive Officers

Managing Executive Officer
Toyohiko Kagawa

Managing Executive Officer
Shigeki Inoue

Executive Officer
Yoshitaka Sato

Executive Officer
Seiji Umamoto

Executive Officer
Shoji Nunoshita

Executive Officer
Takeshi Shinmoto

Note: Attendance record is for fiscal 2020 and indicates attendance at Board of Directors' meetings in the case of directors, and attendance at Audit & Supervisory Board meetings in the case of Audit & Supervisory Board members.

Risk Management

Basic Approach

The Company and its Group companies have an important responsibility to minimize risks affecting the Group, ensure the ongoing development of the Group, and thoroughly fulfill their social responsibilities by appropriately and effectively managing various risks.

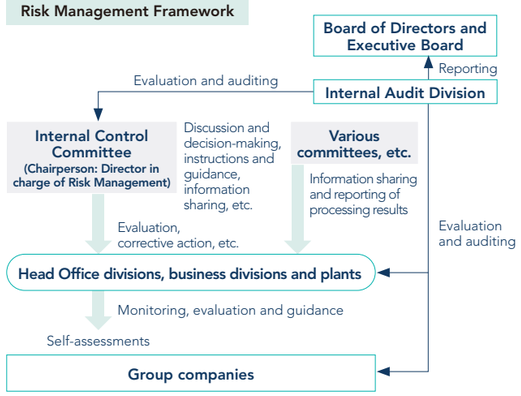
Framework

At the JSW Group, risk management of the Company and its Group companies is overseen by the director in charge of risk management, who manages and operates risk in unison with internal control activities. The Internal Control Committee shares information on potential and emerging key issues, including the identification and evaluation of risks, and when necessary, discusses risk responses and specific initiatives, and gives instructions and guidance to relevant departments as appropriate. With regard to risks relating to specific functions, such as health and safety, environmental management, and export control administration, the relevant departments form committees or establish rules from a Group-wide perspective to ensure appropriate operations.

The management status of risks is monitored by the Internal Audit Division and reported to the Board of Directors or the Executive Board.

In the event of a major accident, disaster or materialization of any other risk that could cause serious damage to the JSW Group, the Crisis Management Headquarters, led by the director in charge of risk management, will be promptly established to conduct a response. In fiscal 2020, in response to the spread of COVID-19 pandemic, we mobilized the Crisis Management Headquarters to monitor employee health, establish a telecommuting system and address outbreaks of infection.

Risk Management Framework



Compliance

The JSW Group has established the Corporate Code of Conduct and engages in business activities in compliance with ethics, laws and regulations, and international rules in both letter and spirit, and with the understanding that compliance is an important element in building relationships of trust with society.

In addition, the Board of Directors has decided on the Basic Policy on Internal Control and is developing internal control systems. Recognizing the importance of the proper operation of these systems, the Internal Control Committee regularly reports on matters relating to internal control and its progress.

On a regular or as-needed basis, the Internal Auditors Office audits the overall operations of JSW to ensure compliance with laws and regulations and internal rules, and reports the results to the president, as well as to the Board of Directors, the Executive Board, the Management Council, and other relevant parties, including Audit & Supervisory Board members. In fiscal 2020, there were no violations of relevant laws and regulations* that resulted in fines or penalties.

* Relevant laws and regulations: Laws and regulations regarding the environment, Industrial Safety and Health Act, Financial Instruments and Exchange Act, laws and regulations regarding export control administration, laws and regulations regarding competition, laws and regulations regarding bribery, and Whistleblower Protection Act

Promotion of Compliance Training

The Company is implementing the following measures to maintain and enhance awareness of compliance.

- Study sessions with experts (lawyers and other professionals) for directors (In fiscal 2020, cancelled due to COVID-19)
- Conducted by JSW's legal department, regular training sessions at plants, sales locations (branches and sales offices), and domestic JSW Group companies (In fiscal 2020, training held only at the Hiroshima Plant due to COVID-19)
- Conducted by JSW's legal department, training sessions for Head Office business divisions (as needed)
  (In fiscal 2020, training on themes relating to sales contracts were conducted at the Plastics Machinery Business Division)
- Conducted e-learning for officers and employees of JSW and Group companies to enhance awareness of compliance and ensure thorough risk management (In fiscal 2020, held once with a 97% participation rate)

Whistleblowing System

The JSW Group has formulated whistleblowing rules for the purpose of strengthening and promoting compliance management, and has established a system for the proper handling of reports and consultations from employees and others regarding potential organizational or individual violations of laws and regulations that may have been committed by employees or others associated with JSW or Group companies. In this way, the JSW Group is able to promptly detect potential violations of laws and regulations and take corrective action, thereby minimizing risk and damage to the Group in the event of such a violation.

In accordance with these rules, we have established internal and external whistleblowing hotlines. Furthermore, we display a manual on workplace bulletin boards and have distributed a pocket version of the manual that employees and others can refer to at any time.

Anonymous reports and consultations are accepted and disadvantageous treatment of persons who make reports or seek consultation is prohibited. In the event of disadvantageous treatment, the Company will respond with appropriate measures, including disciplinary action.

The Whistleblowing Committee, chaired by the director in charge of risk management, investigates reported cases, and if a problem is identified, the committee will take appropriate action and implement corrective measures. In principle, the Board of Directors confirms the proper operation of the whistleblowing system twice a year based on reports from the committee.

The number of reports made was 8 in fiscal 2019 and 14 in fiscal 2020, most of which were related to possible harassment. Reports were investigated by the committee and appropriately addressed.

Information Security

Basic Approach

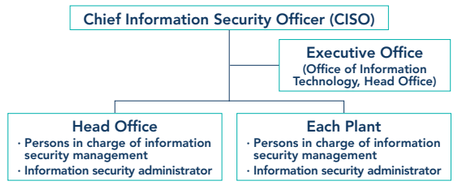
The development of information processing technology and the spread of networks has increased the importance of information and information systems in improving the efficiency of office work and production technology, and speeding up decision-making. At the same time, the threat of information leaks, falsification and destruction due to cyberattacks has grown, and the risks associated with the possession of information have increased. In this environment, in order to continue to maintain the satisfaction and trust of customers and to thoroughly fulfill our role, we recognize that it is an important management issue to accurately understand information-associated risks and protect the information assets entrusted to us by customers as well as the information necessary for doing business.

Framework

The Chief Information Security Officer (CISO), appointed by resolution of the Board of Directors, oversees information security measures at JSW. Persons in charge of information security management and information security administrators at the Head Office and each plant manage and promote the proper operation of information security measures.

In addition, the Information Security Committee, chaired by the CISO, meets as necessary (three times in fiscal 2020) to review the appropriateness of information security measures based on the status of information security incidents and accidents, internal and external threats, the business environment, and the opinions and requests of employees and others.

Structure of the Information Security Committee



Training

We conduct information security training (e-learning) for JSW officers and employees to improve their security awareness.

Participation Rate in Information Security Training (E-Learning)

	FY2018	FY2019	FY2020
Participation rate	97.0%	100.0%	99.3%

Evaluation by Third-Party Organizations

Assessments in Fiscal 2020

Assessment*	Results of evaluation
Information security risk assessment	Overall rating: B (10-step scale; A–J [lowest risk–highest risk])
Information leakage communications assessment	Information leakage communications assessment overall rating: A (no communications corresponding to information leakage)

* Assessments consist of intrusion inspections and vulnerability assessments of company network systems, based on information security benchmarks and carried out by security vendors with information security management system (ISO/IEC 27001) certification.

Key Data

11-Year Summary

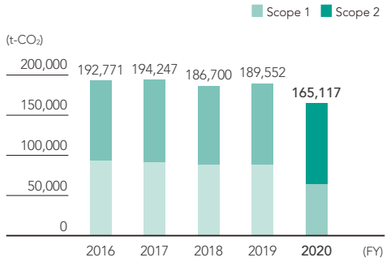
(Millions of yen)

(FY)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Net sales (consolidated)	212,929	221,368	220,653	188,719	194,674	223,301	212,469	211,700	220,153	217,527	198,041
Operating income	28,495	23,911	16,680	8,864	7,517	14,423	12,340	20,578	24,290	18,709	10,226
Profit before income taxes	27,923	20,302	14,802	9,504	(5,523)	(22,049)	(5,841)	14,892	29,317	14,154	12,960
Profit attributable to owners of parent	16,532	12,591	8,281	5,527	(5,327)	(16,600)	(4,968)	10,712	19,966	9,310	6,893
Total assets	339,263	325,653	303,970	293,139	319,667	293,138	275,315	297,365	305,471	297,173	316,249
Net assets	120,820	128,613	134,368	139,268	138,234	111,340	107,587	118,600	129,827	132,492	141,985
Net D/E ratio	0.20	0.12	0.02	0.00	(0.06)	(0.10)	(0.07)	(0.23)	(0.17)	(0.18)	(0.22)
Operating cash flow	21,774	32,507	23,735	11,549	11,580	19,721	12,023	26,712	1,092	18,959	14,712
Investing cash flow	(28,238)	(18,601)	(5,832)	(5,719)	(2,675)	(12,135)	(13,580)	(5,077)	(1,334)	(13,172)	(3,243)
Financing cash flow	2,116	(6,846)	(15,259)	(15,007)	(2,964)	4,788	(1,203)	(2,457)	(3,758)	(6,164)	2,767
Cash and cash equivalents at end of the period	41,116	48,107	50,972	42,297	49,152	61,458	58,671	77,879	73,820	74,477	88,759
R&D expenses	4,487	4,626	4,054	3,836	4,104	4,292	4,237	4,369	4,506	4,708	4,586
Capital investment	26,722	8,256	5,570	5,242	7,992	14,010	9,502	6,436	9,945	10,585	12,592
Depreciation	20,003	19,252	16,061	12,950	11,008	10,669	7,858	4,097	4,424	5,733	6,040
Earnings per share (Yen)	44.54	33.93	22.33	14.92	(14.39)	(45.32)	(67.61)[1]	145.77	271.69	126.66	93.76
Dividend per share (Yen)	12.0	10.0	10.0	5.0	4.0	5.0	15.0[2]	37.5	55.0	45.0	35.0
Consolidated dividend payout ratio (%)	26.9	29.5	44.8	33.5	—	—	—	25.7	20.2	35.5	37.3
Operating income ratio (%)	13.4	10.8	7.6	4.7	3.9	6.5	5.8	9.7	11.0	8.6	5.2
ROE (%)	14.4	10.2	6.3	4.1	(3.9)	(13.5)	(4.6)	9.6	16.3	7.2	5.1
ROA (%)	5.0	3.8	2.6	1.9	(1.7)	(5.4)	(1.7)	3.7	6.6	3.1	2.2

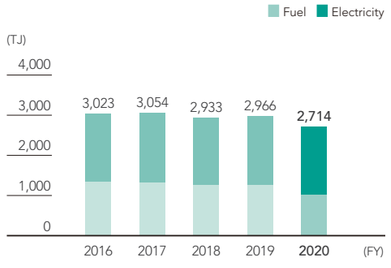
1. The Company conducted a 1-for-5 reverse common stock split effective October 1, 2016. Earnings per share for fiscal 2016 is calculated on the assumption that the reverse stock split occurred at start of the fiscal year.
2. The Company conducted a 1-for-5 reverse common stock split effective October 1, 2016. Dividend per share for fiscal 2016 in the table above is the total of the interim dividend of ¥2.5 and the year-end dividend of ¥12.5. Taking into consideration the effects of the reverse stock split, the interim dividend would have been ¥12.5, resulting in a total annual dividend per share of ¥25.

Key Non-Financial Data

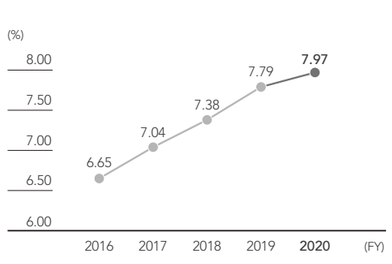
CO_2 Emissions



Energy Usage

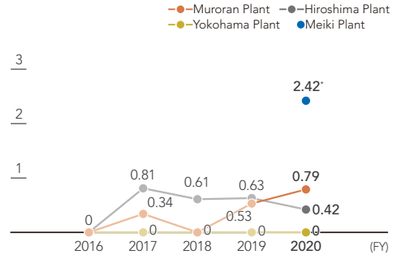


Female Employee Ratio (Non-Consolidated)



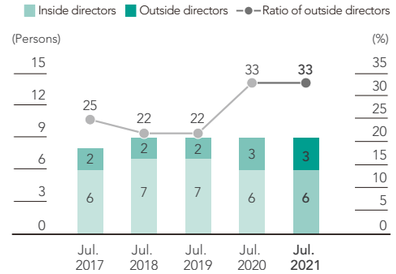
Note: Including employees seconded away from the Company; not including employees seconded to the Company.

Frequency Rate of Accidents



* Meiki Plant merged into The Japan Steel Works, Ltd. in fiscal 2020
Frequency rate of accidents at the Meiki Plant in fiscal 2020 due to the occurrence of multiple lost-worktime accidents

Composition of the Board of Directors



Corporate Data (As of March 31, 2021)

Company Information

Company Name	The Japan Steel Works, Ltd.
Founded	November 1, 1907
Incorporated	December 11, 1950
Head Office	Gate City Ohsaki-West Tower, 11-1, Osaki 1-chome, Shinagawa-ku, Tokyo 141-0032, Japan
Representative Director & President	Naotaka Miyauchi
Share Capital	¥19,778 million (As of July 20, 2021)
Number of Employees	5,442 (consolidated) 1,846 (non-consolidated)

Main Group Companies (As of October 1, 2021)

Domestic

(Consolidated subsidiaries)

Nikko-YPK Shoji Co., Ltd.
24F, Gate City Ohsaki-West Tower, 11-1, Osaki 1-chome, Shinagawa-ku, Tokyo 141-0032, Japan
Phone: +81-3-5745-2131

Nikko Kosan Co., Ltd.
23F, Gate City Ohsaki-West Tower, 11-1, Osaki 1-chome, Shinagawa-ku, Tokyo 141-0032, Japan
Phone: +81-3-5745-2130

Nippla Inc.
6-1, Funakoshi-Minami 1-chome, Aki-ku, Hiroshima-shi, Hiroshima 736-0082, Japan
Phone: +81-82-847-5510

Sun-Tectro, Ltd.
6-1, Funakoshi-Minami 1-chome, Aki-ku, Hiroshima-shi, Hiroshima 736-0082, Japan
Phone: +81-82-824-3881

Nikko Sekkei Co., Ltd.
6-1, Funakoshi-Minami 1-chome, Aki-ku, Hiroshima-shi, Hiroshima 736-0082, Japan
Phone: +81-82-822-7653

MG Precision Co., Ltd.
6-1, Funakoshi-Minami 1-chome, Aki-ku, Hiroshima-shi, Hiroshima 736-0082, Japan
Phone: +81-82-822-1305

Just Co., Ltd.
2-1, Horikoshi 3-chome, Minami-ku, Hiroshima-shi, Hiroshima 734-0052, Japan
Phone: +81-82-820-0123

Nikko Techno Co., Ltd.
6-1, Funakoshi-Minami 1-chome, Aki-ku, Hiroshima-shi, Hiroshima 736-0082, Japan
Phone: +81-82-822-3232

Japan Steel Works M&E, Inc.
4, Chatsucho, Muroran-shi, Hokkaido 051-8505, Japan
Phone: +81-143-22-0143

Nikko Unyu Co., Ltd.
4-1, Chatsucho, Muroran-shi, Hokkaido 051-8505, Japan
Phone: +81-143-22-7923

Nikko Truck Co., Ltd.
4-1, Chatsucho, Muroran-shi, Hokkaido 051-8505, Japan
Phone: +81-143-22-7923

Nikkou Muroran Service Co., Ltd.
4, Chatsucho, Muroran-shi, Hokkaido 051-8505, Japan
Phone: +81-143-24-2553

Muroran Environmental Plant Service, Ltd.
3F, JESCO, 14-7, Nakamachi, Muroran-shi, Hokkaido 050-0087, Japan
Phone: +81-143-22-0005

Fine Crystal Co., Ltd.
9-1, Chatsucho, Muroran-shi, Hokkaido 051-8505, Japan
Phone: +81-143-22-7401

Muroran Copper Alloy, Co., Ltd.
9-1, Chatsucho, Muroran-shi, Hokkaido 051-0006, Japan
Phone: +81-143-22-0690

JSW Aktina System Co., Ltd.
2-1, Fukuura 2-chome, Kanazawa-ku, Yokohama-shi, Kanagawa 236-0004, Japan
Phone: +81-45-787-8462

Nikko Kouki Co., Ltd.
2-1, Fukuura 2-chome, Kanazawa-ku, Yokohama-shi, Kanagawa 236-0004, Japan
Phone: +81-45-701-7841

Nikko Tokki Co., Ltd.
2908 Shinjuku Mitsui Building, 1-1, Nishishinjuku 2-chome, Shinjuku-ku, Tokyo 163-0429, Japan
Phone: +81-3-5326-8672

Tahara Machinery Ltd.
2-1, Kaguromimami, Inzai-shi, Chiba 270-1369, Japan
Phone: +81-476-21-1991

GM Engineering Co., Ltd.
Shin-Yokohama No.1 Building, 14-27, Shinyokohama 2-chome, Kohoku-ku, Yokohama-shi, Kanagawa 222-0033, Japan
Phone: +81-45-472-6819

JSW AFTY Corporation
35-2, Hyoe 2-chome, Hachioji-shi, Tokyo 192-0918, Japan
Phone: +81-42-632-8840

(Non-consolidated subsidiary)

Fine Crystal Iwaki Co., Ltd.
2-6, Chubukogyodanchi, Iwaki-shi, Fukushima 972-8338, Japan
Phone: +81-246-68-6858

Overseas

(Consolidated subsidiaries)

SM Platek Co., Ltd.
687-2, Seonggok-dong, Ansan-si, Kyeonggi-do, South Korea
Phone: +82-31-488-3401

Japan Steel Works America, Inc.
1251 Avenue of the Americas, Suite 2390, New York, NY 10020, U.S.A.
Phone: +1-212-490-2630

The Japan Steel Works (Singapore) Pte. Ltd.
17 Gul Lane, Singapore 629413
Phone: +65-6861-4511

JSW Electromechanical Trading (Shanghai) Co., Ltd.
304, Metro Plaza, 555 Loushanguan Road, Changning District, Shanghai, China
Phone: +86-021-5206-7031

(Non-consolidated subsidiaries)

Japan Steel Works Europe GmbH
Friedrichstr. 19, 40217 Düsseldorf, Germany
Phone: +49-211-3116660

Japan Steel Works India Private Limited
611 Time Tower, MG Road, Sector 28, Gurgaon, Haryana 122002, India
Phone: +91-124-469-4444

Stock Information (As of March 31, 2021)

Stock Status

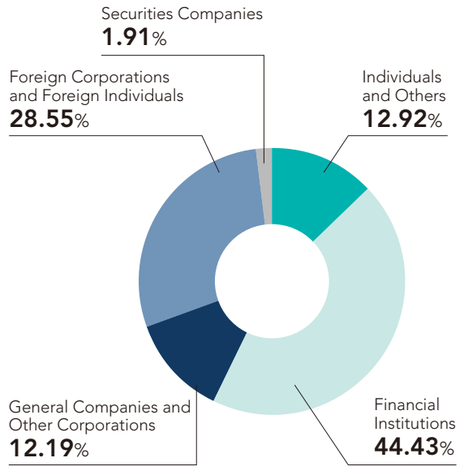
Authorized Shares	**200,000,000 shares**
Issued and Outstanding Shares	**74,359,182 shares**
Shareholders	**18,978**

Major Shareholders

	Shares Held	Shareholding Ratio
The Master Trust Bank of Japan, Ltd. (Trust Account)	9,619,700	13.08
Japan Trustee Services Bank, Ltd. (Trust Account)	6,432,500	8.75
TAIJU LIFE INSURANCE COMPANY	2,827,600	3.84
Sumitomo Mitsui Banking Corp.	2,200,032	2.99
BBH FOR MATTHEWS ASIA DIVIDEND FUND	2,074,900	2.82
Sumitomo Mitsui Trust Bank, Ltd.	1,630,400	2.22
Mitsui Sumitomo Insurance Co., Ltd.	1,564,800	2.13
SSBTC CLIENT OMNIBUS ACCOUNT	1,134,872	1.54
Mitsubishi Heavy Industries, Ltd.	1,006,200	1.37
JPMBL RE UBS AG LONDON BRANCH COLL EQUITY	961,297	1.31

Note: Shareholding ratios are calculated after deducting 803,655 treasury shares from the total number of shares issued.

Classification of Shareholders by Percentage of Shares Held



Stock Price and Trading Volume



Note: The Company conducted a 1-for-5 reverse common stock split and changed the number of shares per stock unit from 1,000 shares to 100 shares, effective October 1, 2016. All stock prices and trading volumes in the graph above are shown taking into consideration the effects of the reverse stock split.

JSW

THE JAPAN STEEL WORKS, LTD.

Gate City Ohsaki-West Tower, 11-1,
Osaki 1-chome, Shinagawa-ku,
Tokyo 141-0032, Japan

https://www.jsw.co.jp/en/

Inquiries:
General Affairs Department
Phone: +81-3-5745-2011