In 1907, the Japanese government launched a joint venture for the purpose of domestic weapons production in Muroran, Hokkaido—later to become a major steel manufacturing center—consisting of two British firms (W.G. Armstrong and Vickers) and one Japanese company. That was the birth of the Japan Steel Works, Ltd. (JSW).

After World War II, the company turned its sophisticated technologies and considerable experience to meeting peacetime needs. Continuing to produce high-quality steel, it developed machinery making use of this steel and endeavored to open up new business fields. In addition to heavy and chemical industries such as electric power, steel, shipbuilding, and petrochemicals, the company broadened into areas from automobiles to electrical machinery and information equipment, earning a worldwide reputation as an integrated producer of steel materials and machinery. Today, having grown into a comprehensive materials provider and manufacturer of mechatronics products, JSW is meeting society’s needs at the forefront. In the steel and energy products business, we are serving the needs of the energy industry in areas such as electrical power generation, oil refining, natural gas, and wind power generation. In the industrial machinery products business, we supply equipment for manufacturing and processing plastic materials, along with a diverse range of products in areas from information technology to defense.
Aiming for Stable Growth as a Company through Monozukuri and Value Creation

Since its founding in 1907, the Japan Steel Works, Ltd. (JSW) has pursued monozukuri (good manufacturing practices) and sought to create value, contributing to the further development of society by leveraging cutting-edge technologies to continue meeting the demands of customers in Japan and overseas.

The current global situation is uncertain and the future outlook defies prediction, but however the times may change, we continue to aspire to a spirit of enterprise focused on meeting the demands of our customers through a commitment to monozukuri and value creation.

JSW is a global corporation carrying out steel and energy products business, with products in electric power, oil, natural gas, and other energy fields, as well as industrial machinery products business with a broad lineup centering on equipment for plastics processing and products employing lasers. We are contributing to the further development of society by meeting its needs with the technologies and skills amassed during our long history spanning more than a century, as well as with new technological development.

We will continue to do all in our power to meet our stakeholders’ expectations, aiming to achieve stable growth as a company through monozukuri and value creation. In so doing, we remain committed to performing our obligations on four different fronts, ensuring satisfaction for customers, employees, and shareholders, as well as fulfillment of our responsibilities to society.

We welcome the continued support and encouragement of our stakeholders as we go forward.

Naotaka Miyauchi
Representative Director and President
Business Unit Structure and Product Groups

**Steel and Energy Products**
- **Steel Castings and Forgings**
  - Monoblock Rotor Shafts for Power Generators
  - Shell Flanges for Nuclear Reactor Pressure Vessels
  - Turbine Casings for Thermal Power Plants
- **Steel Plates and Steel Structures**
  - Clad Steel Plates and Pipes
  - Pressure Vessels for Oil Refining
- **Cast and Forged Steel Products**
  - Rolls for Plate Mills
- **Plastics Machinery Products**
  - Large-Scale Pelletizers
  - Twin-Screw Extruders (TSE)
  - Film and Sheet Production Systems
  - Plastic Injection Molding Machines
- **Other Machinery**
  - Excimer Laser Annealing Systems
  - Magnesium Alloy Injection Molding Machines
  - Dampers and Tightlock Couplers for Railway Cars
- **Steel Plates and Steel Structures**
  - Clad Steel Plates and Pipes
  - Pressure Vessels for Oil Refining
- **Other Machinery**
  - Excimer Laser Annealing Systems
  - Magnesium Alloy Injection Molding Machines
  - Dampers and Tightlock Couplers for Railway Cars

**Industrial Machinery Products**
- **Plastics Machinery**
  - Large-Scale Pelletizers
  - Twin-Screw Extruders (TSE)
  - Film and Sheet Production Systems
  - Plastic Injection Molding Machines
- **Other Machinery**
  - Excimer Laser Annealing Systems
  - Magnesium Alloy Injection Molding Machines
  - Dampers and Tightlock Couplers for Railway Cars

**Muroran Plant**
Design, manufacturing (casting, machining, rolling, welding), facility maintenance, power use management, transportation, testing, security management, employee welfare, and subsidiaries and affiliates in related fields

**Hiroshima and Yokohama Plants**
Design, manufacturing (casting, machining, equipment maintenance, power use management, manufacture of machine parts, equipment installation, security management, employee welfare, and subsidiaries and affiliates in related fields

**Production**

**Markets**
- Electric power / Iron and steel
- Oil and natural gas
- Petrochemicals
- Industrial machinery
- Vehicles
- Information technology
- Defense
State-of-the-art production facilities deliver the world's top level of quality, on which our customers have come to rely. We take pride in our three production bases at Muroran, Hiroshima, and Yokohama, which today and every day provide the world with advanced products and systems. At each of these plants, which are thoroughly streamlined and designed for the ultimate in efficiency, numerous specialists take on the challenge of technology innovation. The qualities of JSW can be seen in these three plants, fully equipped with the production systems and staff to meet the diverse needs of the age, while striving for high precision and energy efficiency. Total quality control (TQC) is of course pursued at all our plants. In 1974 we gained accreditation by the American Society of Mechanical Engineers (ASME) certifying that our nuclear reactor pressure vessels and materials, as well as our general pressure vessels and boilers, meet the highest quality standards of that organization, recognized all over the world. We were awarded the prestigious Deming Application Prize for quality control in 1983. Then in 1994 we earned ISO 9001 and 9002 certification for international quality management (combined as ISO 9001 in 2002), and in 1998 we received ISO 14001 environmental management systems certification, among other examples of the worldwide recognition our company has achieved for the excellence of our quality and manufacturing technology as well as our efforts to protect the environment.
For more than a century since our founding in 1907, we have been meeting the needs of the times as one of the world’s leading materials manufacturers. Today we manufacture a wide variety of high-quality energy-related products in Muroran (Hokkaido) and supply them to global customers.

Period I (1907–45) Focusing on defense equipment, along with electric power generation parts

Period II (1946–99) Power, petroleum, steel, shipbuilding, etc., supporting Japan’s growth and on to the world

Period III (2000–) Concentrating on the energy field to meet growing worldwide demand
Quality Recognized throughout the World: The Pride of JSW

The origins of the Japan Steel Works, Ltd., as our name indicates, are in the manufacture of steel products. We provide excellent steel products created by high levels of craftsmanship, based on advanced technologies developed since our founding more than a century ago. Utilizing some of the world’s largest production facilities, such as a 14,000-ton hydraulic press, we manufacture large cast and forged steel products used in electric power generation and steel production; clad steel plates and pipes widely used in such fields as natural gas extraction, desalination, and petrochemical production; and pressure vessels for oil refineries. In so doing, we play an important role in supporting the global energy sector.
JSW manufactures steel components used in electric power generation such as rotor shafts and turbine casings, as well as rolls used in the forging process at steel mills. These are products that demand absolute reliability and safety. Manufacturing products out of the world’s largest steel ingots, we are unrivaled in our wealth of steelmaking experience.

Supporting Industry around the World with Dependable Technology and Quality

We supply a variety of energy-related products including clad steel plates processes into various pressure vessels and industrial machinery, clad steel pipes for gas transportation in natural gas fields, and large pressure vessels used-in oil refining.

1. Monoblock Rotor Shafts for Power Generators
   (max. product weight 273 tons)
   As a steel component used in turbine shafts, this product must fully withstand constant high-speed rotation. It must therefore be made of very high-quality steel, using advanced precision processing. By making large rotor shafts for high-output power plants, we are helping to meet the world’s power generation needs.

2. Shell Flanges for Nuclear Reactor Pressure Vessel
   (max. product weight 169 tons)
   Pictured is a forged steel component used in nuclear reactors. Unlike conventional products made by welding separate pieces of metal together, our product is made entirely from a single high-quality steel ingot, the largest in the world. (The one shown here is made from a 600-ton ingot.) Our forged steel products are used in fields where absolute safety must be assured.

3. Turbine Casings for Thermal Power Plants

4. Rolls for Plate Mills
   (max. product weight 265 tons)
   These are used in the rolling process at steel mills. Drawing on our extensive steelmaking technology, we provide all kinds of high-quality forged steel rolls including cold work rolls, hot and cold backup rolls, and thick- plate backup rolls.

Also Oil, Natural Gas, and Water Resources

We supply a variety of energy-related products including clad steel plates processes into various pressure vessels and industrial machinery, clad steel pipes for gas transportation in natural gas fields, and large pressure vessels used-in oil refining.

1. Clad Steel Plates and Pipes

2. Pressure Vessels for Oil Refining
   (max. product weight 1,450 tons)

What are Clad Steel Plates (Pipes)?

- **Alloy**: Stainless steel, nickel steel, etc.
- **Alloy side**: Anti-corrosion and heat resistant
- **Steel material (matrix)**: Carbon steel
- **Steel material (matrix) side**: Properties such as strength differ from other alloys

Three of the growing needs in the world today are for extraction of natural gas to meet clean energy demands, and for desalination plants to address the worldwide scarcity of water resources and the gas desulfurization equipment. Using our advanced steel rolling technology, we are creating clad steel plates and pipes to help meet these needs in various energy fields.

Among the facilities is oil refineries, our products are used in processes involving extremely harsh conditions. These include sulfur removal and conversion of heavy oil to lighter products through catalytic reactions under high temperature and high pressure, with addition of hydrogen. Handling every phase of production from materials development to manufacture and final assembly, we have the capability needed for maintaining consistent quality, enabling the provision of high-quality and highly dependable products.
Since establishing our Hiroshima Plant in 1920, we have gone beyond weapons production to manufacture compressors, papermaking machines, desalination equipment, and many other kinds of industrial machinery. After World War II, we contributed to the development of the Japanese petrochemical industry by supplying equipment for plastics manufacturing and processing. Today this area is central to our industrial machinery products business. We continue to meet the latest needs with the breadth of our technologies, making equipment for processing magnesium, and other light alloys, for manufacturing high-definition display panels, and for many more uses.
We provide machinery for each step of the plastics manufacturing process, from pellet-making to forming of the final product. Each of these machines has earned high acclaim from our customers, as they greatly contribute to the supply of plastic products essential to our daily life.

**Pellet-making process**

Polymer made at a polymerization plant is put through a pelletizer to form plastic pellets for ease of handling. Additives are mixed into the pellets as needed, creating compound pellets with various additional functions such as thermal resistance.

**Process for making plastic products**

Pellets are melted and formed into the desired shape in order to make plastic products.
Advanced Mechatronics Technologies Win Worldwide Acceptance

Drawing on our stock of established technologies as well as new ones developed in the latest research facilities, we are meeting customer needs around the world for large-size pelletizers, twin-screw extruders, and other plastics machinery. By conducting joint R&D with customers from their product development stage, we are cooperating also in early commercialization of the plastic materials they need.

Bringing together the wealth of experience and outstanding technology of a world-leading manufacturer, we make available a wide array of film and sheet production equipment and injection molding machines to meet broad-ranging customer needs. We also provide full technical support for helping customers increase their productivity and reduce costs. With a sales and service network covering America, Europe, and Asia, we are able to provide customer support on a global scale.

1. Large-Size Pelletizers

These machines continuously produce large quantities of plastic pellets, mainly polypropylene and polyethylene. Our large-size pelletizers are used by many major petrochemical product manufacturers in and outside Japan.

2. Twin-Screw Extruders (TEX)

Boasting high output and excellent low-temperature mixing capability, our twin-screw extruders can be used for producing various compound pellets. They bring high-performance and functionality to all kinds of applications in a variety of plastic manufacturing processes, including mixing, devolatilizing, deaerating, extruding, direct molding, recycling, and environmental processing. We have also developed various metal materials resistant to corrosion and wear, enabling use with raw materials requiring these properties.

3. Very Large Twin-Screw Extruders (TEX)

Having built a number of very large twin-screw extruders, 35 meters long and weighting 200 tons, we are able to meet a variety of customer needs. JSW twin-screw extruders adopt block cylinders. The number of blocks can be increased as needed for diverse specifications, and we can also meet the need for long extruders.

1. Film and Sheet Production Systems

With considerable experience manufacturing equipment for film and sheet production, we are able to meet a wide range of customer needs for producing general and industrial sheets as well as advanced films for optical applications.

2. Large-Size Injection Molding Machines

Plastics manufacturers all over the world are putting to use the advanced molding technology of our diverse lineup of injection molding machines large and small. We are able to offer comprehensive molding solutions, from plant layout proposals that include peripheral equipment for automation and energy-saving to factory automation system support.

3. Blow Molding Machines

We have earned high acclaim due to our wealth of experience in supplying large blow molding machines catering to a diverse array of customer demands. Our machines are used to mold gasoline tanks and spoilers for automobiles, as well as drums for transporting liquids, industrial chemical containers, and other plastic items.
Supporting Industry Growth with Reliable Technology

As industry continues to grow, so does our extensive lineup of products for all kinds of industrial needs. Among them are gas compressors used by petrochemical companies, couplers and dampers for railway cars, and hydraulic machinery products such as bolt tensioners. Lately we have been turning our attention to equipment for manufacturing the high-resolution display panels found on tablets and other terminals. Leveraging our wealth of technology, we are devising ways of improving conventional products and developing new ones.

1. Excimer Laser Annealing Systems
Excimer laser annealing systems are essential for manufacturing ultra-high-definition panels used in devices such as smartphones. JSW started manufacturing and selling these systems in 1996, and has consistently responded to industry requirements by optimizing and enlarging them, as well as continually developing and supplying new technologies such as monitoring systems that are useful for manufacturing next-generation panels.

2. Magnesium Alloy Injection Molding Machines
Drawing on deep familiarity with metal materials, we developed a magnesium alloy injection molding machine using thixomolding, a revolutionary method for molding environmentally friendly magnesium products. With this machine, magnesium alloys can be formed with the same high precision as plastic, enabling wide application to products from automobiles to personal computers.

3. Double-Rubber Dampers and Tightlock Couplers for Railway Cars
All the couplers, dampers, and other products we manufacture for use with railway cars are the result of our outstanding design, materials, and manufacturing technology plus strict quality control, earning the trust and acclaim of each customer.

4. Compressors
Since manufacturing our first reciprocating compressor in 1920 for freezer use, we have continued to build on our experience and R&D achievements to produce mainly labyrinth-piston compressors, supplying a total of just over 1,700 units to customers around the world in such industries as petrochemicals and steel.

Technology That Must Not Be Forgotten, Even in Peacetime

In making our contributions to Japan’s defense, we draw on the material- and machinery-making technology built up since our founding, together with advanced technologies in such areas as new materials, mechatronics, and simulations. These are applied to the design, manufacture, and maintenance of defense equipment from firing systems to missile launchers. We are also actively engaged in R&D on new defense equipment and systems.

Type 99 155-mm Self-Propelled Howitzer

Type 10 Battle Tank (gun section)

5-inch, 62-caliber Naval Gun

Type 87 Self-Propelled Antiaircraft Gun System (gun turret section)

30-mm Cannon

Missile Launching Equipment

Other Machinery

Defence Equipment
Research and Development

Working to Realize Today’s Dreams with Tomorrow’s Technology.

Aiming to become a global leader in monozukuri, we devote strong efforts to the development of new products, creating new businesses and manufacturing methods based on our own technologies, while at the same time promoting business collaborations and joint development projects on multiple fronts so that technologies can be supplemented and commercialized at an early date.

Each division of JSW is actively working to enhance the functions, performance, and reliability of our existing core products, developing and perfecting products in new fields meeting the needs of this age.

New Business Promotion Headquarters are promoting creation of new businesses not belonging to any other division, new product development and business transfers.

As main targets of commercialization efforts, we are focusing aircraft and automotive field, energy and environment and electronics, information and communications based on customer needs with emphasis.

Miyazaki Plant

The Miyazaki Plant is developing advanced materials that are resistant to high temperatures and corrosion for a variety of industrial applications.

Hiroshima Plant

The Hiroshima Plant is developing various element technologies aimed at improving the performance and function of machinery products such as structures and injection molding machines, plastic and polymer alloy fields. Especially, by utilizing a new analytical technique such as MPS (Moving Particle Semi-implicit method), we will promote the development of new products quickly by reproducing the plastic melting plasticization phenomenon in the simulator which could not be predicted so far.

In addition, we have developed new materials which possess resistance such as abrasion and corrosion for the machinery products to be used to satisfy our customers over a long period of time.

Yokohama Plant

The Yokohama Plant develops new materials and technologies for use in various fields, including energy, electronics, and medical applications.

1. Steel Pressure Vessel of Hydrogen Storage for Hydrogen Station

A steel hydrogen refueling station is a facility for compressing and storing hydrogen gas, which is the fuel for FCVs (Fuel Cell Vehicles). To achieve a high pressure state of 70MPa and filling it into FCV, it is equivalent to a gas station for general vehicles. Based on the findings of hydrogen embrittlement and high-pressure vessel manufacturing experience that we have cultivated so far, we have commercialized pressure vessel of hydrogen with design pressure 99MPa using high strength low alloy steel.

2. Long Forging for Offshore Structure

Ocean development of petroleum and natural gas is heading towards deep water in recent years, and when a failure accident of equipment occurs in the zones, because it causes enormous marine environmental pollution, for the members used in marine development equipment, strength and low temperature toughness is required at a high level. It is one of the products that achieves homogeneous material properties is difficult because it is long and thick by part. Such manufacturing is one of the difficult products. We have found the optimum chemical composition and heat treatment conditions of large forged steel products that are difficult to manufacture and are leading to the manufacture of reliable products. (Photo shows the quenched heat treatment situation of a long rolling forged steel member of 15mt in role called taper areas joint)

3. Laser Application System

Based on the accumulated technology by excimer laser annealing system, we are developing laser application system suitable for various fields. The laser can irradiate a specific wavelength in a very short time, and it also has excellent condensing characteristics, so that only the surface in the narrow region can be heat treated. Devices that make use of these characteristics are used in the manufacturing process of semiconductors and displays. Heat distribution of materials of laser annealing system, analysis of ablation, head of sound, fluid for structural design of equipment are carried out.

4. Analysis Technology

In developing and manufacturing resin polymer processing equipments, it is important to obtain desired quality by plasticizing and kneading according to the requirements. For that reason, we are focusing not only on improving the reliability of mechanical products through structural and mechanism analysis, but also on knowing evaluation for quality prediction of compounded polymer through molten polymer flow analysis.

The above figure shows the prediction results of utility transport and fully-filled kneading of two kinds (blue, yellow) of molten polymers in the twin screw extruder by particle method analysis. By applying the particle method, it is possible to predict the devolatilization performance of melts polymer containing solvent etc. in detail, so we aim to improve the efficiency of the devilatilization process for purifying the producing resin material which contain the high concentration solvents.
1907
Founded by Hokkaido Colliery Steamship Company and the British firms Sir W.G. Armstrong, Whitworth & Co., Ltd. and Vickers Sons and Maxim, Ltd., with capitalization of 10 million yen. The headquarters and factory are located in Muroran, Hokkaido.

1915
The headquarters are moved to Tokyo.

1920
The Hiroshima Plant is established with the purchase of Hiroshima Seisakusho Co., Ltd., a company located outside the city of Hiroshima.

1935
Construction of the Yokohama Plant begins in Kanazawa-cho, Surugadai Prefecture. The plant is completed in June 1936 and goes into operation.

1938
Construction of the Tokyo Plant begins in Fuchu-cho, Katsushika-gu, Tokyo-fu. The plant is completed in May 1941 and goes into operation.

1950
The Japan Steel Works, Ltd. is dissolved and reestablished with capital of 200 million yen. The new company takes over operations at the four plants in Muroran, Hiroshima, Yokohama, and Tokyo as well as the headquarters and other offices.

1969
Offices are established in New York, Düsseldorf, and Tehran.

1975
Offices are established in Los Angeles, Houston, and Singapore.

1978
Japan Steel Works America, Inc. is established.

1980s
Operations begin at the new Yokohama Plant.

The Seihō Office is established.
The company wins the Deming Application Prize.

1987
The company enters the information systems business.

Construction of the Fuchū Intelligent Park begins on the site of the former Tokyo Plant.

1990
JSW Plastics Machinery, Inc. is established in the United States.

1993
The Technology Development Center is completed on the Hiroshima Plant premises.

1994
ISO 14001 and 9002 certification is acquired.

1997
JSW Plastics Machinery (H.K.) Co., Ltd. is established in Hong Kong.

1998
ISO 14001 certification is acquired.

2000
JSW Plastics Machinery (TAIWAN) Corp. is established.

2001
The 10,000-ton press at the Muroran Plant is upgraded to a maximum upsetting force of 14,000 tons.

2002
JSW Plastics Machinery (C) Corp. is established in China.

2003
JSW Machinery Trading (Shanghai) Co., Ltd. is established in China.

2008
Construction of the No. 4 assembly factory is completed at Hiroshima Plant.

2009
JSW Machinery Trading (Shanghai) Co., Ltd. is completed in China.

2010
Japan Steel Works (INDIA) Private Limited is established.

2012
JSW Machinery (Ningbo) Co., Ltd. is established in China.

2014
The Tokyo Plant is completed in May 1941 and goes into operation.

2015
Japan Steel Works (Philippines) Inc. is established in the Philippines.

2016
Japan Steel Works India Private Limited is established.

2017
The Shanghai Office is established.

The company marks the centenary year of its founding.

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★本社
関東支店
関西支店
上海支店
上海製作所
上海本社

★历史

★网络

History and Network

Network