SANYO SPECIAL STEEL - the Confident Choice

SANYO SPECIAL STEEL Co., Ltd.

Running on confidence

Sanyo Special Steel's "Steel You Can Count On" supports people's lives in a variety of fields. Since our founding we have gained the confidence.
Sanyo Special Steel will continue to operate based on trust with the goal of realizing a more affluent and culturally rich society, based on our corporate philosophy "Confidence-based Management."

Corporate Philosophy: Confidence-based Management

Confidence of Society

We aim to acquire the confidence of society by contributing to the realization of an affluent and culturally rich society and fulfilling our social responsibilities through our "high-quality special steel manufacturing."

Confidence of Customers

We aim to earn the confidence of customers by rapidly ascertaining exactly what their needs are and providing them with high-quality special steel products.

Confidence among People

We aim to build the confidence among people by deepening communication with all of our stakeholders and acting autonomously in conformity with social norms.

Sanyo Special Steel —the Confident Choice

Development

We are determined to create the future of steel by taking the lead in research and by developing superior products/technologies that add to our brand power, in response to customer needs ascertained by a thorough analysis of customer information.

Quality

We aim to win a high level of customer confidence by further increasing the already unsurpassed cleanliness of our steel and by strengthening quality control.

Stable Supply

By creating efficient manufacturing processes that allow increased production capacity, we are committed to the stable supply of high-quality special steel that meets the requirements of customers.

1 Headquarters
2 No.1 Technical Research Laboratories
3 No.2 Technical Research Laboratories
4 150-t Steelmaking Plant
5 Billet Mill
6 No.2 Bar & Wire Rod Mill
7 Wire Drawing Shop
8 Eastern Tube treatment Line
9 Large Bar Inspection Line
10 60-t Steelmaking Plant
11 Metal Powder Plant
12 5,000 t forge plant
13 Warehouse
14 Assel Mill
15 Bar steel inspection plant
16 No. 2 Cold Pilgering Shop
17 Hot Extrusion Mill
18 Large Bar Rolling Mill
19 No.1 Cold Pilgering Shop
20 Fabrication Department Mill
21 Precision Forging Department East Mill
22 Precision Forging Department West Mill

Top message

Our corporate philosophy is based on “Confidence-based Management,” and Sanyo Special Steel aims to establish “Confidence of society,” “Confidence of customers” and “Confidence among people.” Our mission is to contribute to the development of society by providing “Steel You Can Count On” which has earned a high degree of confidence from the market in all aspects including development, quality, and stable supply, based on our corporate philosophy.

Companies must perform both economically and socially if they are to succeed. We intend to enhance the brand power of “Sanyo Special Steel – the Confident Choice,” and bring our business to the next level as we fulfill our responsibilities as members of society, which include implementation of global environment measures and corporate missions.

We will continue to promote faithful, fair, and transparent corporate management, and to increase the value of our company and earn the confidence of all stakeholders by fulfilling our economic and social missions.

Shinya Higuchi
Representative Director and President

Strong

Special steel offers superior strength, and is used mainly for driving and mechanical parts in automobiles, such as gears and shafts. It helps to improve automobile mileage and mechanical service life by helping to make applied parts smaller and lighter.

Rust-resistant

Special steel offers superior resistance to rust as typified by stainless steel, and is used for a wide variety of products—from housing to boats and electronics.

Confidence in special characteristics

Steel with special characteristics to suit a variety of needs
This is special steel

Easy to process

Special steel offers superior processability, and is used as material for mechanical parts such as bolts and screws. As parts continue to get smaller and thinner, we will continue to provide materials that can be processed with high precision, to meet the needs of industry.

Tough

Special steel offers superior toughness, and is used as material for dies and tools mainly at manufacturing sites. We continue to help customers improve productivity and reduce costs through increasing the service life and strength of dies and tools.

Special steel is steel to which alloy irons such as chrome or nickel have been added to provide special characteristics to suit a variety of uses. This steel is used for important and core parts used in a variety of industrial products including automobiles, and therefore requires a high level of quality and reliability.
Sanyo Special Steel provides "Steel You Can Count On" to deliver the high level of performance and quality required by our customers.

Heat-resistant

Special steel offers superior heat-resistance, and is used in extremely severe environments such as engine valves, power plants and chemical plants. Special steel also offers superior resistance against corrosion and oxidation in high temperatures, to support the industry.

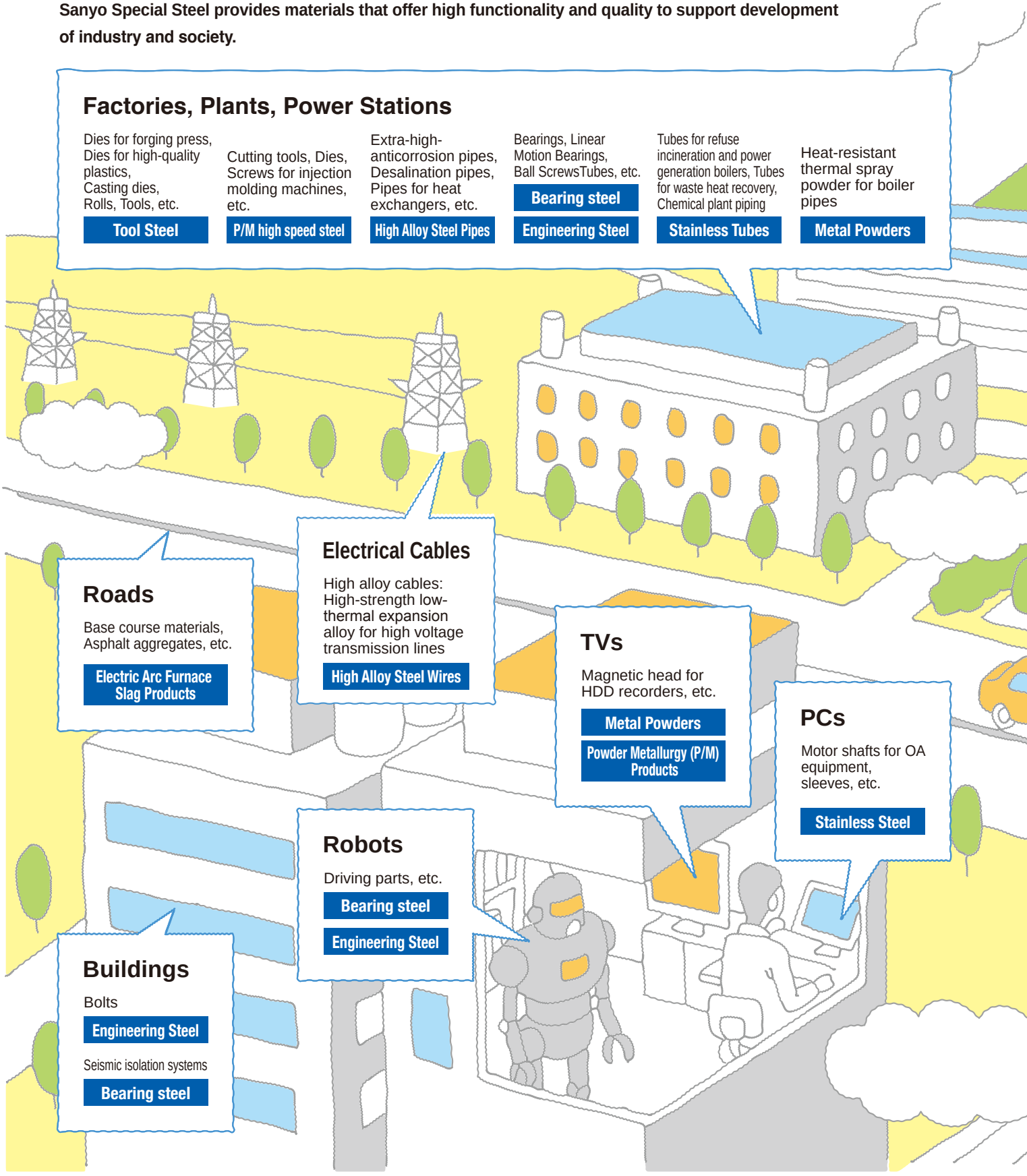
Magnetic properties

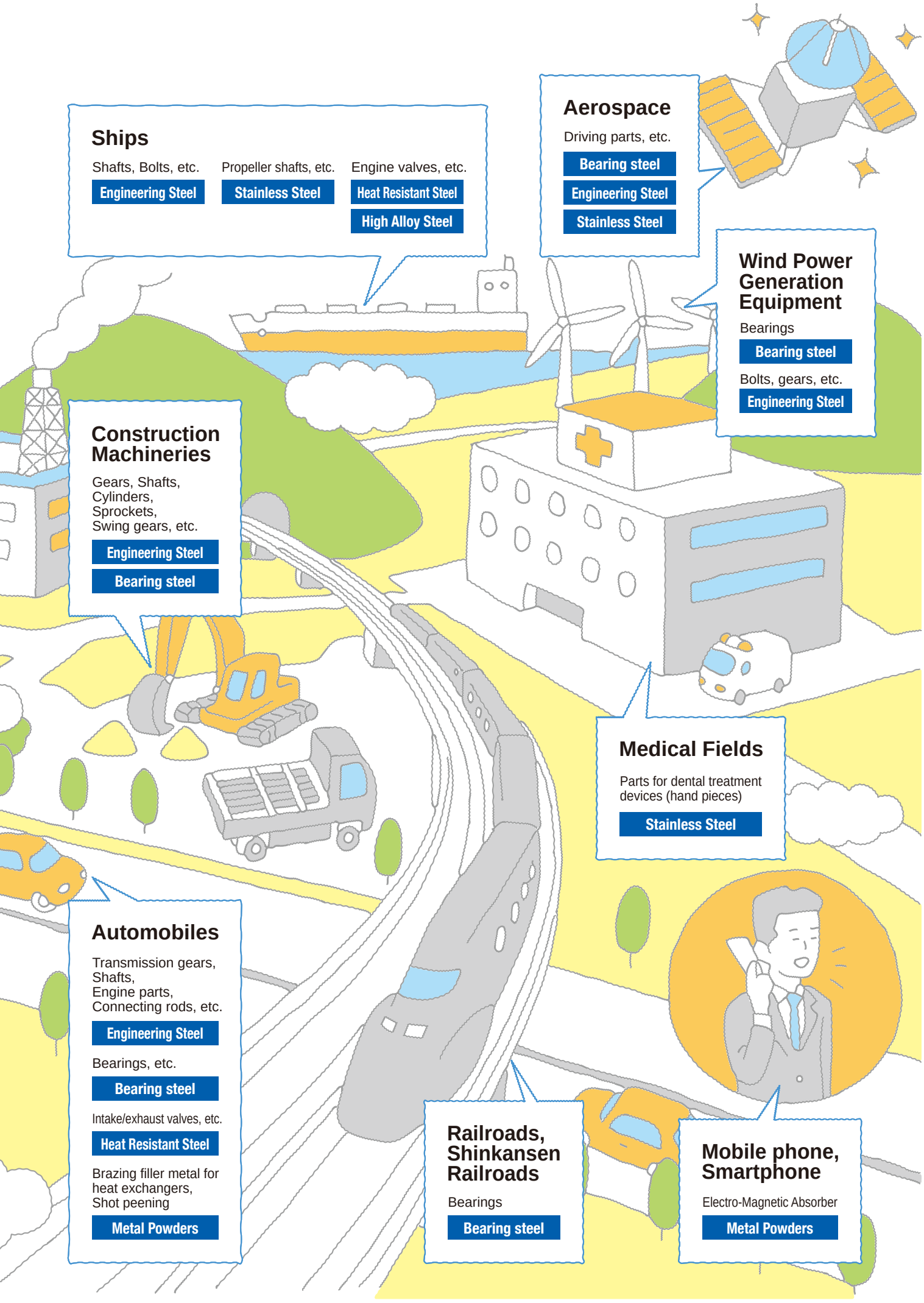
Special steel that has been given magnetic properties or for which magnetic properties have been curbed is used in products for which magnetic properties have an effect on functionality, such as generators, transformers, and electronic valves.

Confidence in society

“Steel You Can Count On” technologies that thrive in a variety of fields

Sanyo Special Steel’s “Steel You Can Count On” is incorporated and used in a variety of industrial products, including automobiles, railroads, construction machines, electronics products, and information communication devices. Sanyo Special Steel provides materials that offer high functionality and quality to support development of industry and society.




Ships
Shafts, Bolts, etc.
Engineering Steel
Propeller shafts, etc.
Stainless Steel
Engine valves, etc.
Heat Resistant Steel
High Alloy Steel
Aerospace
Driving parts, etc.
Bearing steel
Engineering Steel
Stainless Steel
Wind Power Generation Equipment
Bearings
Bearing steel
Bolts, gears, etc.
Engineering Steel
Construction Machineries
Gears, Shafts, Cylinders, Sprockets, Swing gears, etc.
Engineering Steel
Bearing steel
Medical Fields
Parts for dental treatment devices (hand pieces)
Stainless Steel
Automobiles
Transmission gears, Shafts, Engine parts, Connecting rods, etc.
Engineering Steel
Bearings, etc.
Bearing steel
Intake/exhaust valves, etc.
Heat Resistant Steel
Brazing filler metal for heat exchangers, Shot peening
Metal Powders
Railroads, Shinkansen Railroads
Bearings
Bearing steel
Mobile phone, Smartphone
Electro-Magnetic Absorber
Metal Powders

Confidence in quality

Responding to the needs of our customers with quality that exceeds expectations

Scenarios requiring special steel continue to grow more advanced and diverse against a backdrop of increasing finished product functionality, reduced environmental burdens, and increasingly severe international competition. Sanyo Special Steel provides high quality special steel products to accurately meet the needs of our customers, based on the high-cleanliness steel production technologies we have accumulated over many years.
We will continue to provide products that meet expectations and earn the confidence of our customers.

Special Steel Bars and Tubes

High quality special steel products (rolled bars/wire rods/seamless steel tubes) based on high-cleanliness steel. With advanced special characteristics to suit a variety of uses, special steel is used in a wide variety of industries.

Formed & Fabricated Materials

These are products that have been processed into nearly finished products using our steel stock. They contribute to improving rationalization and yield in the working processes of our customers.

Special Materials

Special Alloys and metal powder products meet the advanced and diverse needs of our customers. They help to increase the performance and functionality of products in a variety of fields.

Special Steel Bars and Tubes

Bearing Steel

Top market share in Japan
High-cleanliness supports bearing reliability

Bearings are used in the rotational structures of a variety of machines and equipment, including automobiles, industrial machinery, railroads, and wind generators. These very important parts are necessary in the rotational parts of machines, and have been called the “bread and butter” of industry.
Bearing steel is special steel used as material for these bearings that requires strict quality as it supports the rotational movement of machinery.

Sanyo Special Steel has been committed to increasing the quality of bearing steel since our founding. Steel cleanliness has an effect on bearing life, and our products boast a level of cleanliness that cannot be beat. We continue to develop new products such as “PremiumJ2,”（newly-developed high carbon bearing steel for longer life of bearings with superb reliability） that combines our unique steelmaking and inspection technologies.
Sanyo Special Steel boasts the top market share in Japan for bearing steel. We continue to improve the reliability of steel in order to contribute to the development of industry.

【Examples of applications】 **Ball bearings**

Steel cleanliness and bearing life

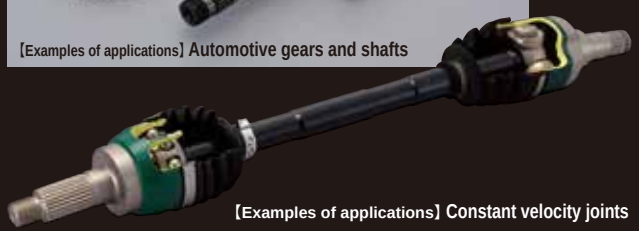
Foreign substances found in steel are called “non-metal inclusions.” If non-metal inclusions are found in parts of bearings that bear loads, cracks could form and spread throughout the bearing. This could cause damage in bearings early in their product lifetimes.
Sanyo Special Steel has established operation techniques to control the size of non-metal inclusions in steel and increase cleanliness to the maximum extent possible. This contributes to longer product lives for bearings.

Engineering Steel

Functionality that meets increasingly advanced needs

Engineering steel is a type of special steel with improved characteristics such as strength, toughness (tenacity), fatigue-resistance, and hardenability. It is used as material for important parts for automobiles, construction machines, industrial machines, and more.
With the recent trend toward smaller, lighter, and more cost-conscious parts, material requirements continue to grow more advanced. Sanyo Special Steel continues to develop engineering steel with superior functionality to meet increasingly advanced needs, such as the “ECOMAX® series” which provides high strength without adding expensive alloy elements such as nickel or molybdenum.

【Examples of applications】 Automotive gears and shafts



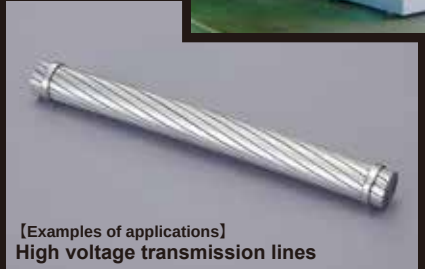
【Examples of applications】 **Constant velocity joints**

Stainless Steel

High performance used in a variety of scenarios

Stainless steel is resistant to corrosion and rust, and is often used as a material in mechanical parts in clean environments, such as healthcare, food, and semiconductor applications. A diverse array of steel products offering resistance to acid, oxidation, and heat are used for a wide variety of applications.
Sanyo Special Steel’s stainless steel is used in a variety of fields, from home appliances and electronics, to plants and boats.

【Examples of applications】
Recuperator (waste heat recovery equipment)



【Examples of applications】
High voltage transmission lines

Special Steel Bars and Tubes

Tool Steel

Long product life to support production

Tool steel (used to make dies and tools) is special steel that features high shock resistance, wear resistance, fatigue strength, and high-temperature strength. Dies are primarily used in forming metal and plastics, and are used in a variety of manufacturing industries such as the automotive industry due to their ability to produce large quantities of products with high precision and quality.

Sanyo Special Steel continues to develop revolutionary tool steel, such as “QCM® Series” (cold roll die steel) and “HARMOTEX® Series” (high functionality tool steel). Contributing to longer product lives for dies helps to improve the efficiency of customer production.
In addition to rolled bars and flat square bars, Sanyo Special Steel also provides tool steel in the form of steel tubes, which is one of our characteristics and strengths.

【Examples of applications】
Dies

Flat square bar products

High functionality tool steel brand, “HARMOTEX®”

“HARMOTEX®” is the name we have given to our high functionality tool steel brand. The name comes from “HARMO” (representing harmony with the needs of our customers and with social environments) and “TEX” (representing the leading edge of technology).
We have combined advanced material design techniques with optimal manufacturing processes to give our tool steel a high level of reliability and functionality to meet the needs of our customers.

Formed & Fabricated Materials

Formed & Fabricated Materials

High quality semimanufactured goods manufactured with high cleanliness steel

Formed and fabricated materials are high added value products where special steel rolled bars or seamless steel tubes are processed into nearly finished product forms. Formed and fabricated materials are widely used in a variety of shapes as semimanufactured goods for bearings and automobile parts.
Sanyo Special Steel utilizes CAE analysis technology to design dies and processes, in order to develop formed and fabricated material manufacturing processes that perfectly match the characteristics of the material. High quality special steel rolled bars/steel tubes (manufactured using our unique high-cleanliness steel production technology) are used as base materials in manufacturing of formed and fabricated material products with consistent processes. We provide formed and fabricated material products that best suit the needs of our customers from our extensive lineup of materials and processes, helping to simplify working processes and improve yield.
We have formed and fabricated material manufacturing/processing sites in Japan, China, America, and Thailand. We provide high quality formed and fabricated material products in a speedy manner to meet the needs of our customers.

Formed and fabricated material products

Special Materials

Special Alloys

Special characteristics to endure even harsh usage scenarios

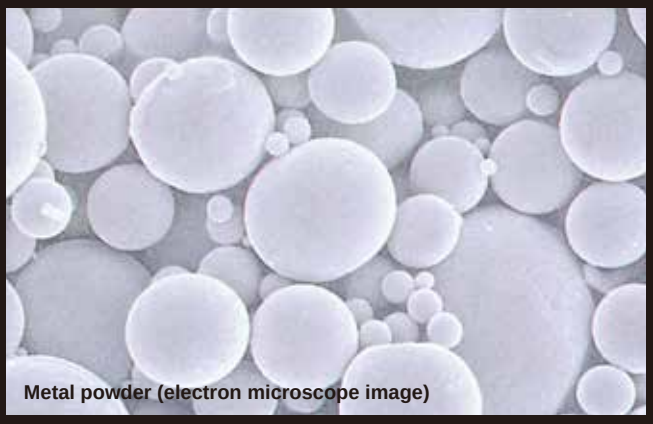
Special materials that are used in extremely harsh environments that normal special steel could not endure (such as chemical and power plants) are called “Special Alloys.” Sanyo Special Steel supports a variety of requirements by providing special alloys with superior characteristics, such as nickel base alloys that provide superior corrosion and heat resistance.

Metal Powders and Powder Metallurgy (P/M) Products

High functionality that supports the development of cutting edge technology

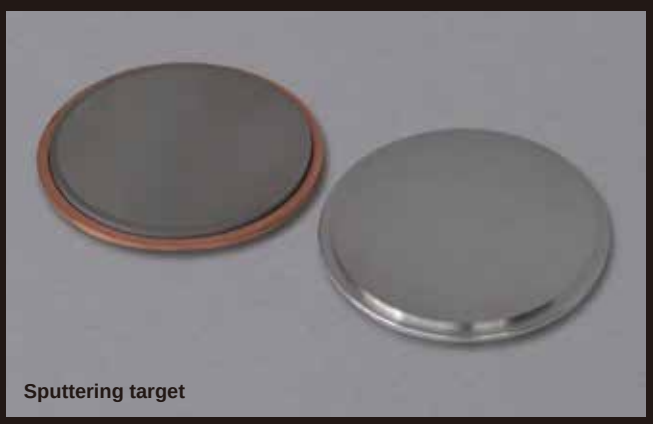
Metal powders are materials that take the form of a powder. Powders offer a high level of component design freedom, and it is said that they allow for an unlimited number of usage applications.
In addition to high quality metal powders with few impurities and superior fluidity, Sanyo Special Steel manufactures powder metallurgy products from these powders using unique molding techniques.

We not only provide alloy design that meets the needs of our customers, but are also able to support everything from mass production to small lots for research and development. We provide high functionality materials required in a variety of situations—from the forefront of research and development, to manufacturing sites.
Sanyo Special Steel metal powders are used in a variety of applications (such as thermal spraying, buildup welding, target materials for electronic materials, and 3D printers) and help to improve the performance and functionality of end products.

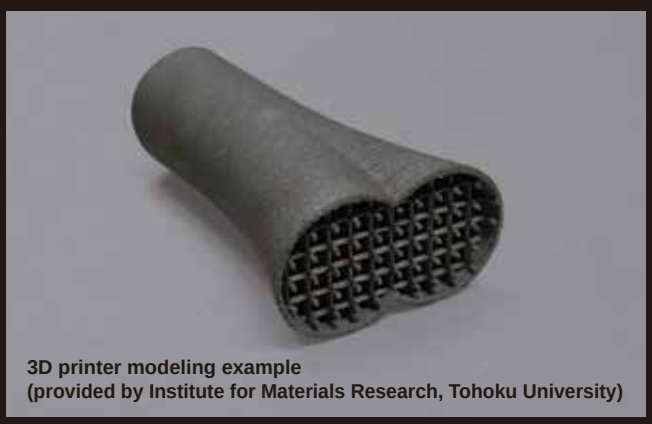


Metal powder (electron microscope image)

P/M high speed steel



Sputtering target



3D printer modeling example
(provided by Institute for Materials Research, Tohoku University)

Confidence in systems

We must not sacrifice the global environment for the sake of social development

Special steel manufactured by Sanyo Special Steel is a recycled product that uses iron scrap as a main ingredient.
Iron scrap that has fulfilled its purpose is reborn as special steel, becoming useful again in society.
Special steel is not only crucial for the development of industry, but is kind to the environment.
Sanyo Special Steel recycles iron resources to contribute to the creation of a recycling society.

Iron scrap

Iron scrap created when processing steel products in plants or when breaking down buildings or industrial products is used as a main ingredient for special steel.
Iron scrap is a precious recycling resource that can be procured domestically in Japan, which otherwise lacks natural resources.

Finished products

Sanyo Special Steel's special steel is used to create parts for automobiles, bullet trains, OA devices such as computers and smartphones, and parts for boats, contributing to people's lives and the development of society.

Recycle

Processing/Assembly

Processing manufacturers process our special steel rolled bars and seamless steel tubes into bearings and mechanical parts. These mechanical parts are integrated into products such as engines or motors by parts manufacturers, and are then transformed into finished products by automobile and machine manufacturers.

Sanyo Special Steel's business activity

Manufacture of Special Steel

Sanyo Special Steel uses electric arc furnace steelmaking (which uses iron scrap as a main ingredient) to manufacture special steel, contributing to the recycling and effective use of iron resources. Compared with blast furnace steelmaking (which creates steel from iron ore), electric arc furnace steelmaking offers lower CO_2 emissions and conserves energy.
Around 95% of Sanyo Special Steel's raw materials including iron scrap are recycled (including internally recycled materials).

- Bearing Steel
- Engineering Steel
- Stainless Steel
- Tool Steel

- Special Alloys

- Formed & Fabricated Materials

- Metal Powders
- Powder Metallurgy Products

Shipping (Japan and the rest of the world)

Our products are shipped to distribution centers in each region by land, sea, and rail. Most Sanyo Special Steel products are shipped within Japan. However, our group companies overseas also process and sell products. We also export some products directly to our customers overseas.

Export

Our products are processed into parts by our customers and exported overseas. From there, there are processed and assembled into finished products on site. Other products are exported overseas as finished products.

Global development

Our special steel is used all over the world in the form of a variety of industrial products.

Special steel manufacturing equipment

Beginning with steel manufacturing equipment that allows for the creation of steel with the highest standard of cleanliness in the world, Sanyo Special Steel uses a wide variety of equipment that boasts superior production capability (including steelmaking/rolling equipment and seamless steel tube manufacture equipment that meet a variety of customer needs) to consistently manufacture high quality special steel. We continue to improve operation techniques and equipment to reduce our burden on the environment and conserve energy.
Our goal is to gain even more trust from both the market and society.

Steelmaking and Billet Rolling

Sanyo Special Steel utilizes two steelmaking plants to efficiently manufacture high quality special steel. Our main 150-t steelmaking plant consistently mass produces high quality special steel using a continuous and uniform manufacturing process, from melting scrap down to inspecting billets. Our 60-t steelmaking plant focuses on manufacturing special steel in special steel grades and sizes in order to handle a variety of product types and small lots.

Melting/Refining/Casting

【Electric arc furnace】
Arc discharge and auxiliary burners are used to heat furnaces to high temperatures (1,500-1,600°C) and melt iron scrap down to liquid steel.

【Ladle furnace】
Impurities are removed from the liquid steel and alloy iron is added. Finally, components are adjusted to determine the special characteristics of the steel.

【RH vacuum degasser】
Liquid steel is recirculated in a vacuum to remove unnecessary gas components and further increase the cleanliness of the steel.

【Continuous caster】
Liquid steel is hardened and formed into blooms (slabs). Sanyo Special Steel has introduced completely vertical type bloom casters, which offer superior quality.

Ingot casting

【Ingot caster】
This casting method hardens liquid steel inside the die. Our 60-t steelmaking plant is equipped with both ingot casting and completely vertical type bloom caster.

Billet rolling

【Cogging mill】
Blooms are rolled to create interim products called billets.

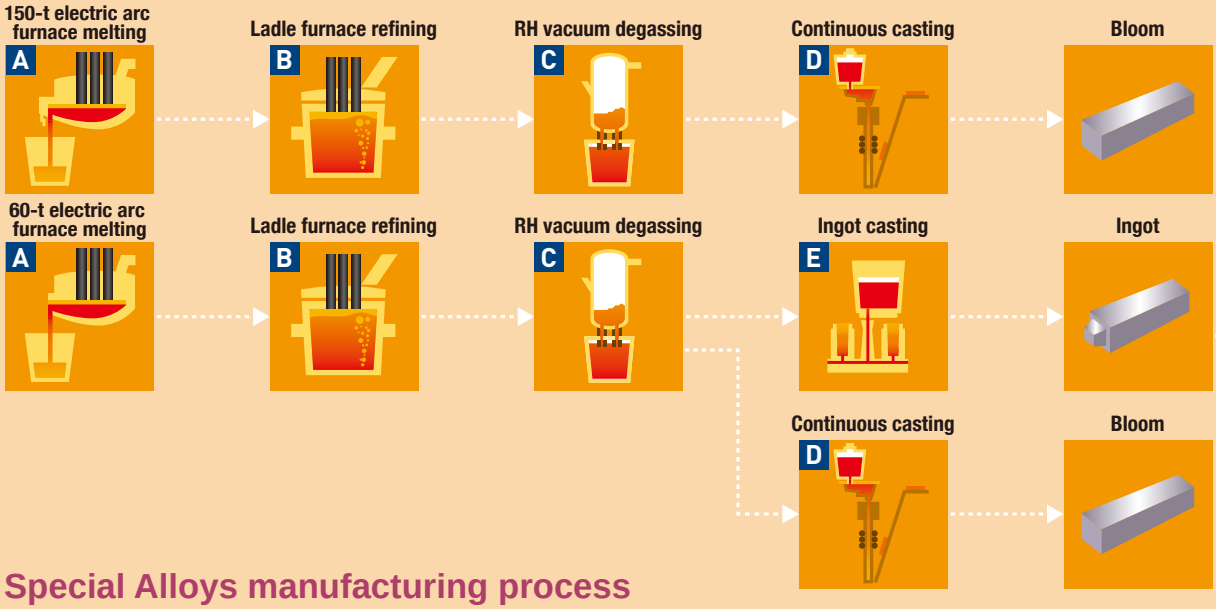
【Billet rolling mill(PSW)】
We efficiently manufacture billets using the three-roll method, which offers superior rolling capability. Sizes can also be changed easily.

Billet inspection

【Billet inspection equipment】
We inspect all interim product billets to ensure quality inside and out.

Special Steel Bars and Tubes manufacturing process

Melting/Refining/Casting



Special Alloys manufacturing process

Special melting

Special melting further improves the cleanliness of steel and the homogeneity of steel quality. High-cleanliness materials created through atmosphere melting are used as base materials for 15 t ESR and 5 t VAR.

※The manufacturing process once ingots are created is the same as with special steel bars and tubes.

Rolling/Forging

In addition to our main bar and wire rod rolling lines, Sanyo Special Steel also owns a variety of rolling and forging equipment, such as large diameter bar rolling mill and forging machines. We respond to the needs of our customers—such as size, shape, and application—with the most appropriate manufacturing process.

Bar and wire rod rolling

I

【Continuous rolling mill】
Our No.2 Bar & Wire Rod Mill is our main rolling line, in which we chiefly manufacture small-diameter rolled bars. We are able to efficiently roll interim product billets into round bars with a dimensional variation within +/- 0.1 mm.

J

【Bar-in-coil mill (BIC)】
Rolled round bars are wound into coils.

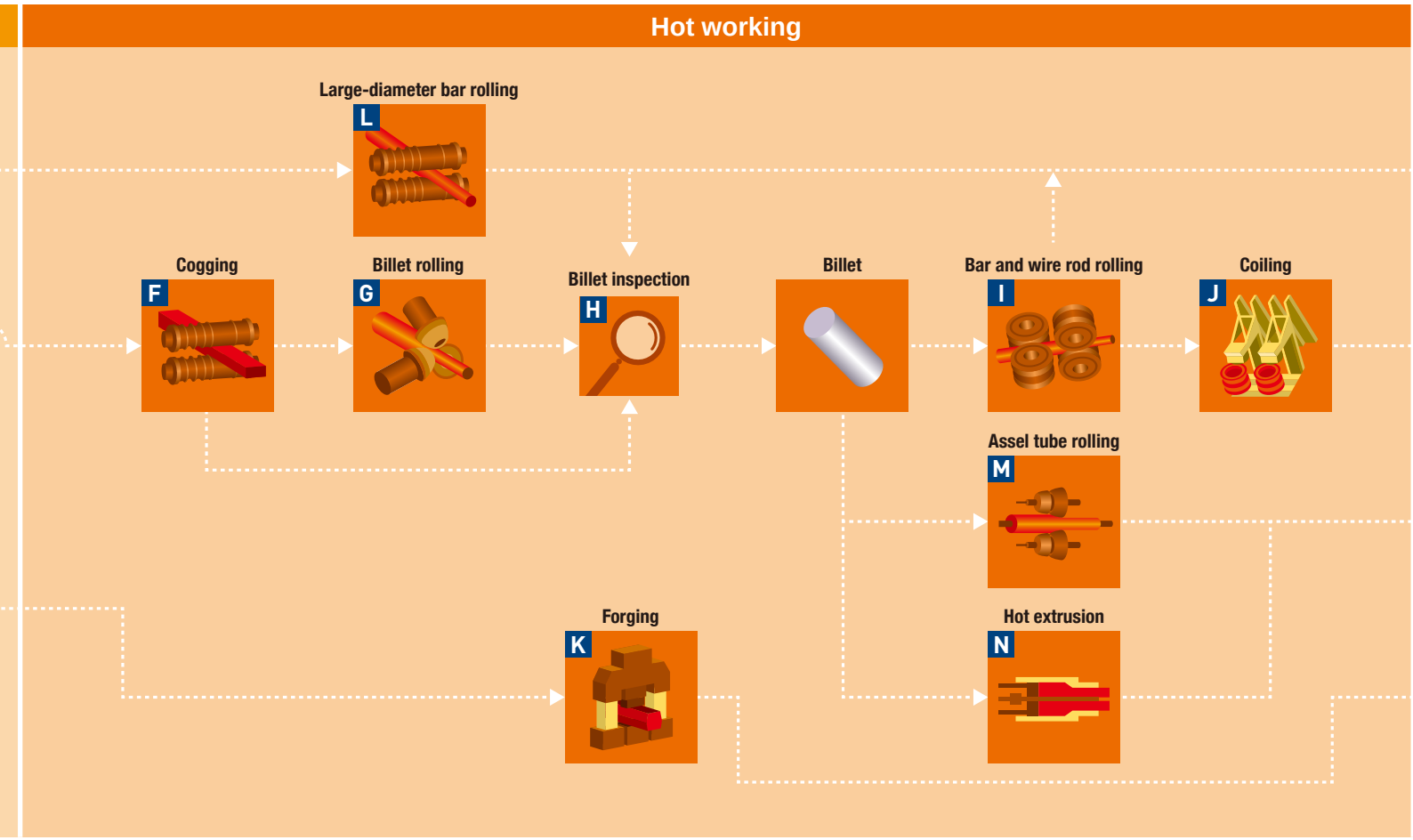
Forging/Large-diameter bar rolling

K

【Forging machine】
Steel ingots are pressed using large hammers to create large-diameter forged bar and flat square bar steel stock. We own three forging machines: 1,500 t, 3,000 t, and 5,000 t.

L

【Large diameter bar rolling mill】
Medium-diameter rolled bar and flat square bar steel stock is manufactured with bloom (slabs) or steel ingots as base materials.



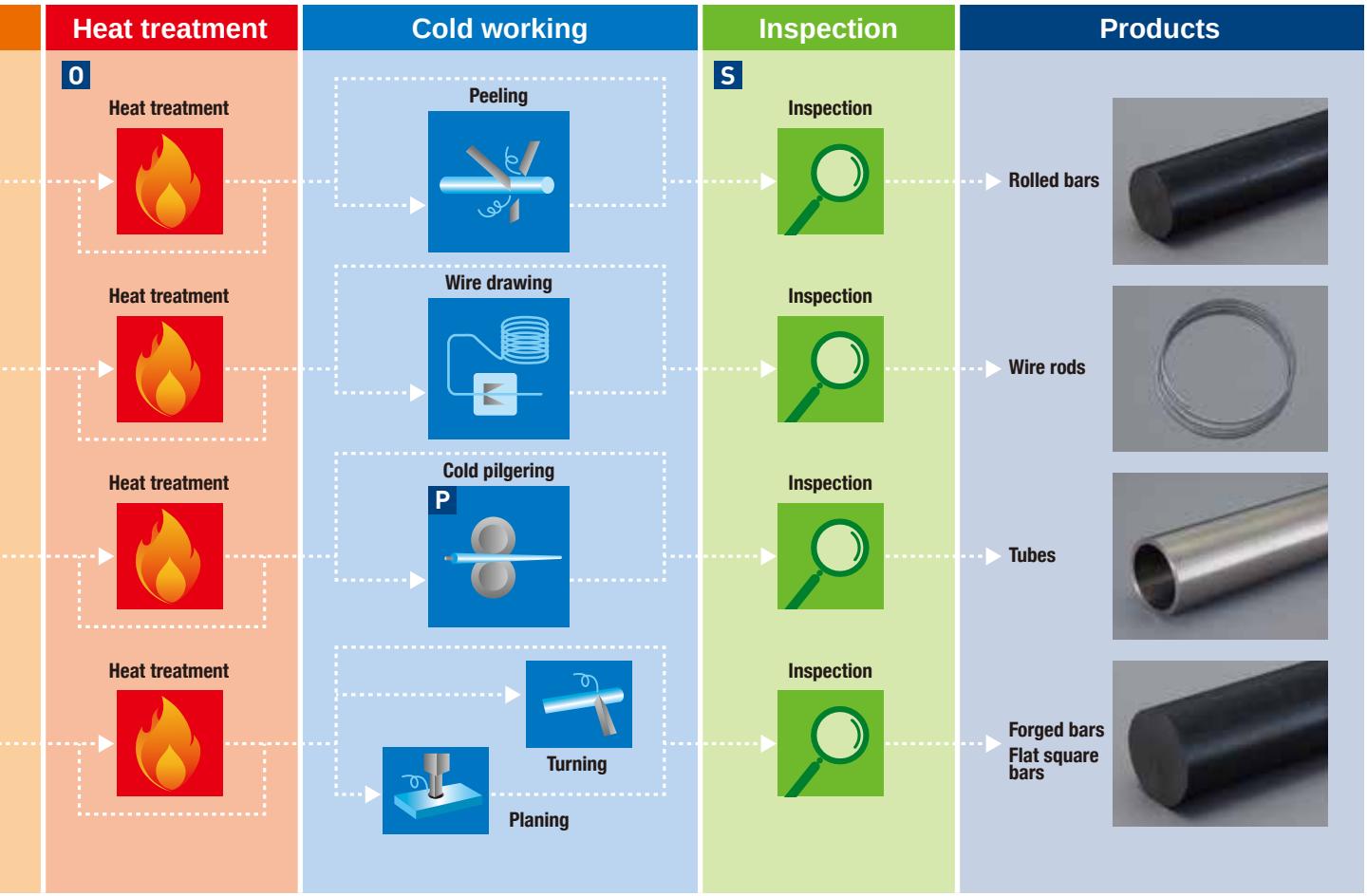
Steel Tube Manufacturing

Sanyo Special Steel is the only special steel manufacturer in Japan with its own steel tube manufacturing equipment. Assel tube rolling mill offers high productivity and manufacturer steel tubes with superior dimensional precision. Hot extrusion press allows for the manufacture of high alloy tubes suitable for low-volume high-mix production. We can also handle small-diameter/thin-walled steel tubes, and our equipment (such as cold pilgering mills that roll steel tubes in cold with a high level of dimensional precision) allows us to manufacture a wide variety of seamless steel tubes.

【Assel tube rolling mill】
Seamless steel tubes are created from interim products called billets. Compared with hot extrusion press, assel tube rolling mill is more suited to mass production, and is used mainly for rolling bearing steel.

【Hot extrusion press】
Seamless steel tubes are created from billets that have been pierced. This press use a method called “extrusion” and allows for the manufacture of seamless steel tubes for stainless steel and heat-resistant steel, which are difficult to process using assel tube rolling mill.

【Cold pilgering mill】
Processing seamless steel tubes manufactured with assel tube rolling mill or hot extrusion press creates products with even stricter quality standards. Cold working (processing without heating materials) allows for the manufacture of small-diameter/thin-walled seamless steel tubes with superior dimensional precision.



Heat Treatment and Cold Working

Secondary processes such as heat treatment and cold working further increase the added value of products. Heat treatment processing equipment heats/cools steel stock to increase its special characteristics. Peeling equipment shaves the surface of steel stock to meet advanced needs for dimensional precision, surface texture, and roundness. Sanyo Special Steel owns a variety of secondary processing equipment, such as wire drawing equipment that creates cold finished steel bars by running coils through specialized tools. We can offer customers secondary processing that perfectly suits their specifications and applications.

【Continuous annealing furnace】
We conduct heat treatment processing. Sanyo Special Steel owns the longest continuous annealing furnace in Japan.

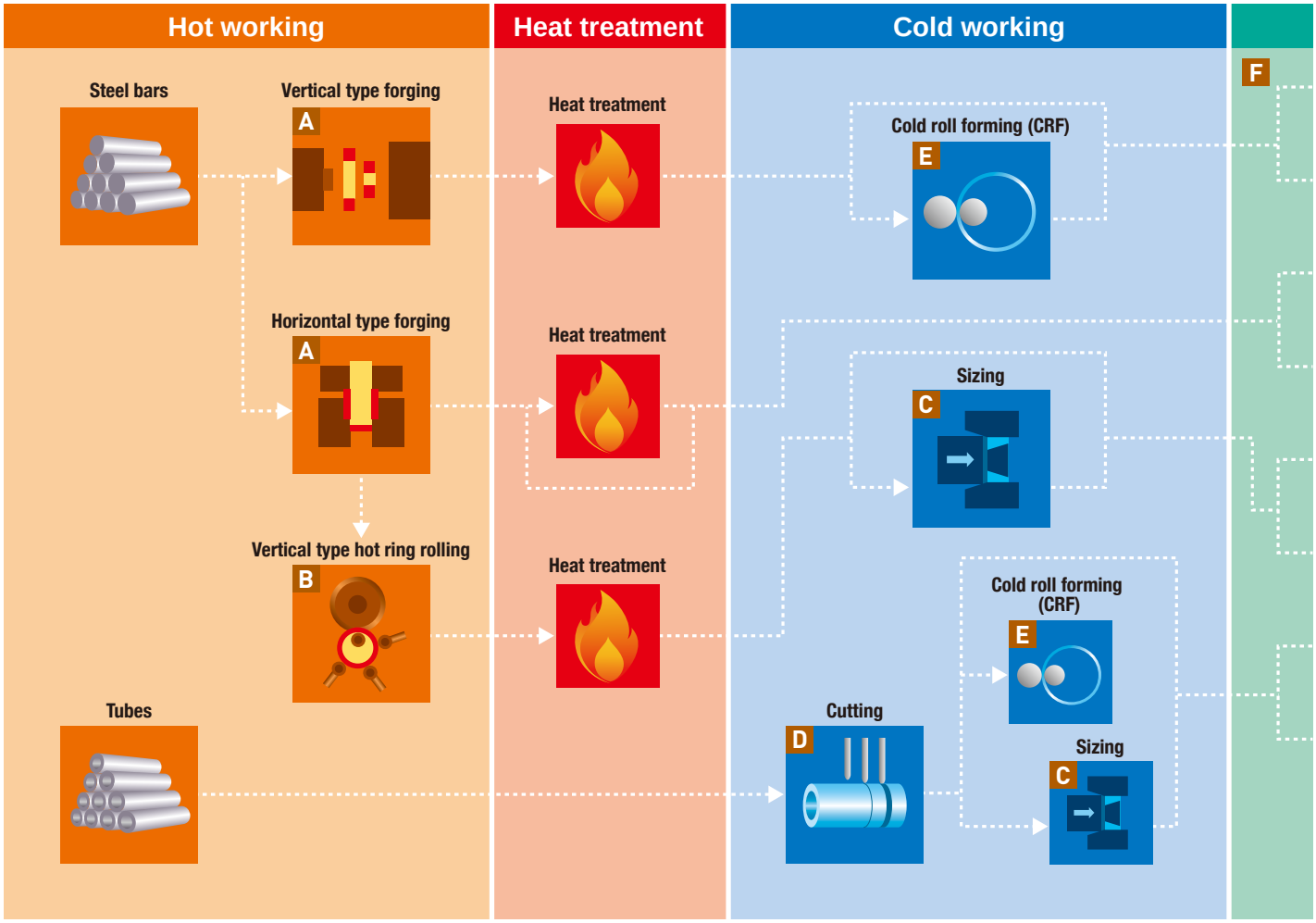
Inspection

We inspect all products prior to shipment to further improve reliability. In addition to leakage magnetic flux detectors and full spectrum supersonic flaw detectors, Sanyo Special Steel is the first in the world to apply technologies such as phased-array ultrasonic inspection machines to mass production processes, and has build a highly precise and effective quality assurance system.

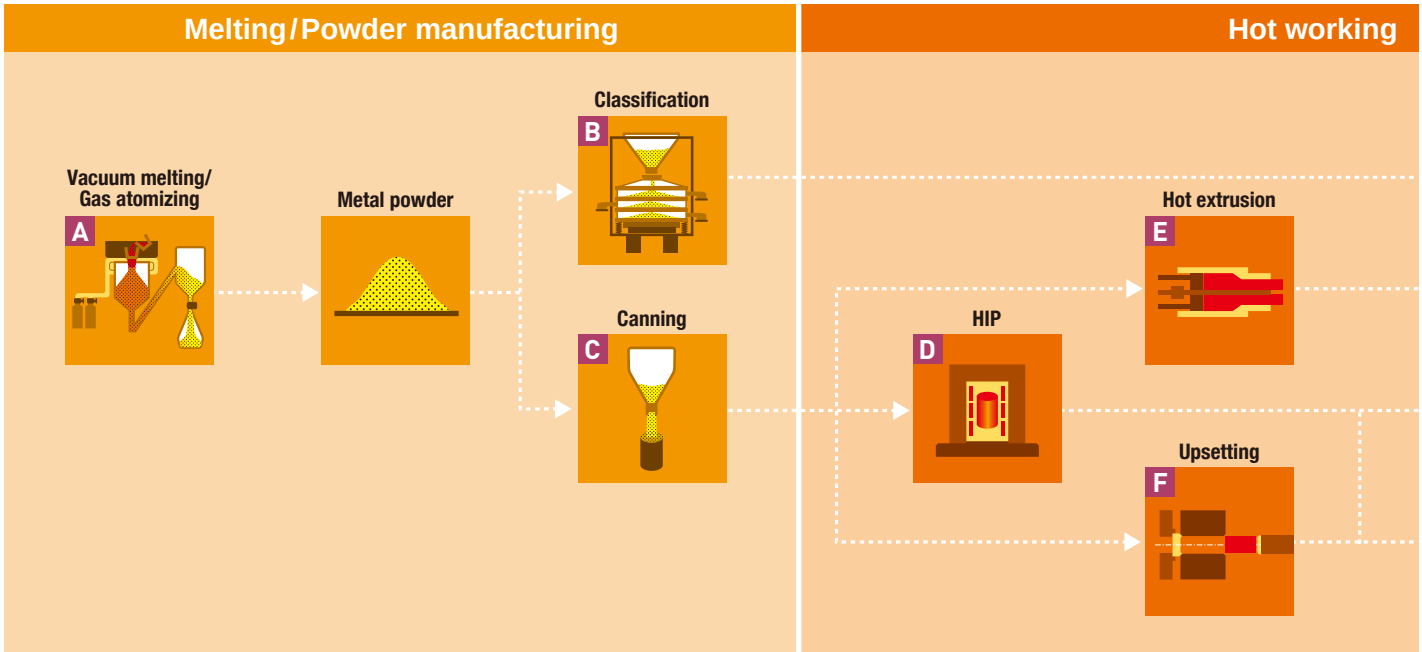
【Water immersion ultrasonic inspection machine for steel tubes】

【Phased-array ultrasonic inspection machine for steel bars】

Formed and Fabricated Materials manufacturing process



Special Materials (Metal Powders/Powder Metallurgy Products) manufacturing process * Special Alloy manufacturing process



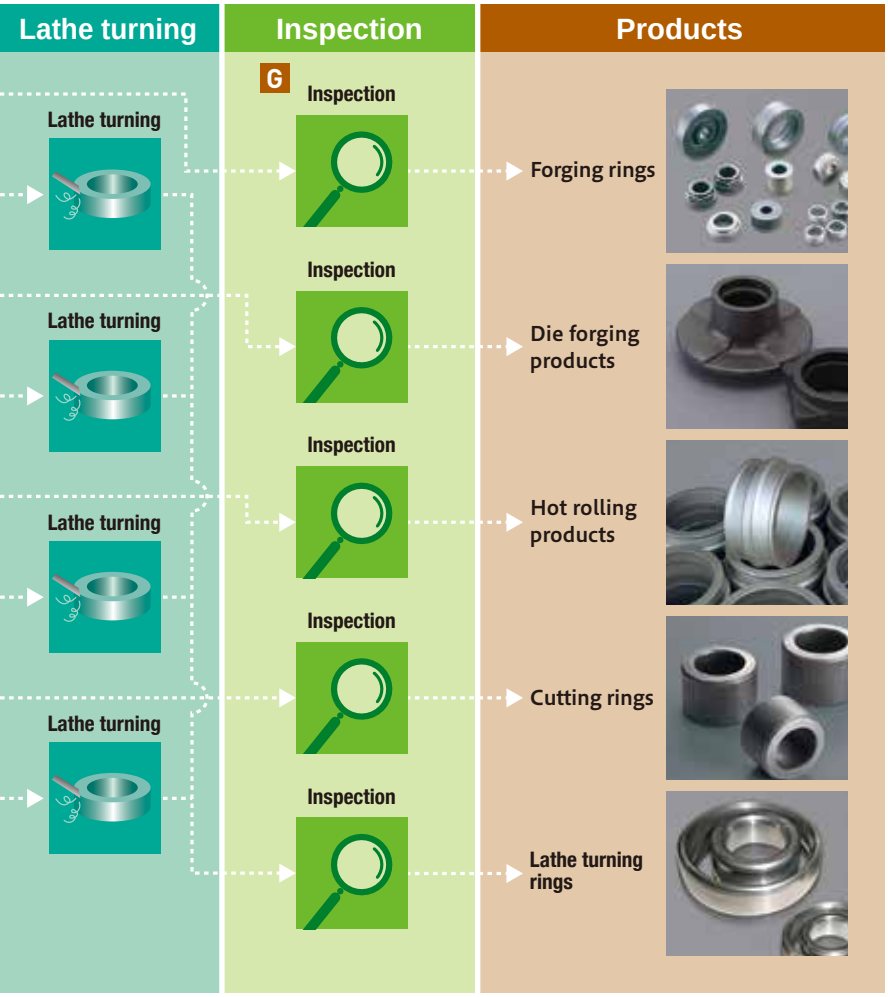
Sanyo Special Steel manufactures powder-shaped materials (metal powder) with a consistent round shape by spraying gas into metal melted in a vacuum. Forming these metal powders also allows us to manufacture all kinds of powder metallurgy products and Sputtering targets.

A Vacuum melting/Gas atomizing

This process creates metal powder from a variety of raw material alloys. Inert gases are blown onto metals melted in a vacuum to turn them into powder. This creates metal powders with less impurities and a more rounded shape.

B Classification

This process sifts through metal powder and separates it by size. The powder diameter is from several μm to 500 μm (1 μm is one millionth of a meter).



Sanyo Special Steel consistently produces high quality formed and fabricated material products in Japan and overseas at our group companies. We manufacture formed and fabricated material products that contribute to rationalizing working processes and improving yield by taking advantage of processes that suit the needs of our customers.

A Hot forging
Hot forging is a process where cut special steel rolled bars are pressed into shapes that are close to finished products. We offer two types of forging. Horizontal forging offers superior production, while vertical forging is able to manufacture products with complicated shapes.

B Hot ring rolling
This process works hot forging goods into shapes and dimensions that are close to finished products. It allows for the manufacture of large/medium-diameter molding rings.

C Sizing
This process works ring-shaped products into more rounded shapes.

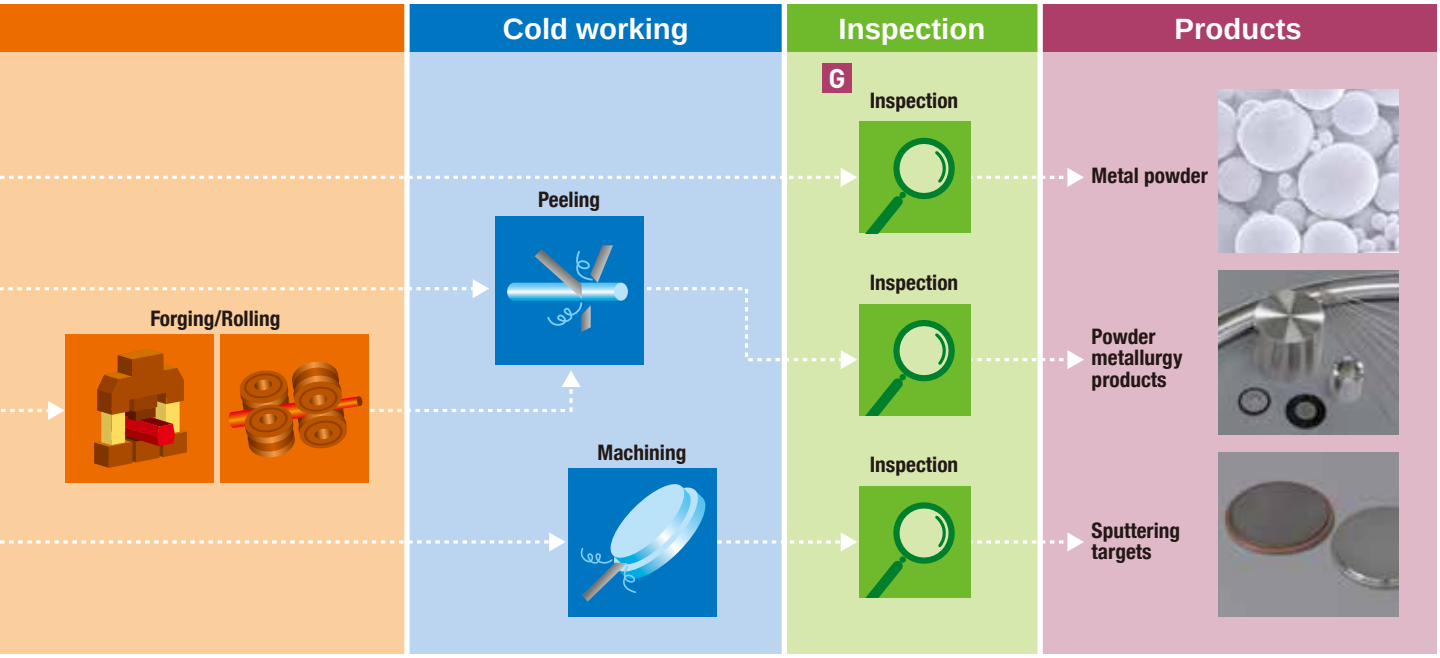
D Cutting
This process cuts base material steel tubes and works them into ring shapes. It allows for better yield for wide and thin-walled rings than even hot forging (which processes rolled bars to manufacture rings).

E Cold roll forming rolling
Cutting hot forging goods or steel tubes and cooling manufactured rings improves dimensional precision.

F Lathe turning
This process shaves the front surface of formed and fabricated materials.

G Inspection
We inspect all products prior to shipment. In addition to surface quality, we also inspect product roundness and dimensions.

is also noted in the Special Steel Bars and Tubes manufacturing process section.



C Canning
This process packs metal powder into a steel can in preparation for manufacturing powder metallurgy products.

D HIP
This process hardens metal powder packed into a can by applying heat and isotropic pressure. Then, the powder is formed into the product shape using forging/rolling equipment and mechanical processing.

E Hot extrusion
This process involves using a hot extrusion press to harden metal powder into a rod or tube shape.

F Upsetting
This process hardens metal powder using a hot extrusion press. Powder is then processed into the product shape using mechanical processing.

G Inspection
We inspect all products prior to shipment. After inspection, each product is placed in packaging with just the right shape before being shipped.

Confidence in organization

Close collaboration between divisions establishes confidence and builds a future

In order to increase customer satisfaction, our processes must be consistent and function smoothly, from investigating customer needs to making changes to manufacturing sites and providing stable supply. Our headquarters and plant are combined to allow all of our divisions to work closely together —including Research & Development, Technology Management, Quality Assurance, and Production. We are committed to improving customer satisfaction by responding quickly to customer needs identified by our Sales division.

Sales

Our Sales division is dedicated to working with our customers as partners. In addition to collaborating with the Production division to provide smooth supply of products, they propose materials of all types and offer technological advice. They also offer feedback on customer requests to the Research & Development and Technology Management divisions, leading to the development of new products and technologies.

Production

Our Production division works with the Sales division to consistently provide products to customers, while manufacturing high quality special steel products. Employees at our manufacturing sites are devoted to further improving our quality and production through engaging in independent conservation activities (TPM activities).

Research & Development

Our Research & Development division analyzes trends in society and demand industries, and engages in accurate and rapid research and development. In addition to developing technologies and products to meet the needs of customers identified by our Sales division, the Research & Development division takes a long-term outlook and develops new technologies and products.

Technology Management

The Research & Development, Quality Assurance, Production, and Sales divisions all focus on collaborating with the Technology Management division to design efficient manufacturing processes. The Technology Management division makes improvements to bring product quality to an even higher level in order to meet customer needs identified by the Sales division. The Technology Management division also manages manufacturing site operation conditions and quality standards with the goal of providing consistent supply of products, and works toward standardizing manufacturing processes and technologies.

Quality Assurance

All divisions work together to supply products that meet the needs of our customers. Beginning with improving product inspection/materials testing precision to reduce defects in manufacturing processes and to prevent outflow of defects, the Quality Assurance division makes multifaceted improvements including establishing quality management systems.

Confidence in actions

We continue to carry out our social responsibilities based on “Confidence-based Management.”

Our mission is not only to support a wide variety of industries through providing “Steel You Can Count On,” but to contribute to the development of an affluent and culturally rich society. In addition to promoting faithful, fair, and transparent corporate management, we aim to earn the confidence of all stakeholders and build sustainable relationships with society, by fulfilling our economic and social missions.

CSR-conscious management at Sanyo Special Steel

CSR-conscious Management

Corporate Management with Integrity, Fairness, and Transparency

- **Environmental Management**
- **Compliance Management**
- **Social Contributions**

CSR in Pursuit of Economic Goals

We aim for sustained company growth and the well-being of society by gaining the confidence of the market through our provision of high-quality special steel products, and by returning our modest profits to society.

- **Continuous improvement in quality,**
- **Increasing customer satisfaction,**
- **Development of environmentally friendly products, etc.**

CSR in Pursuit of Social Goals

We aim to enhance our corporate brand image through achieving harmonious coexistence with society by focusing on the creation of a resource-recycling society, environmental protection, and cultural promotion.

- **Environmental protection,**
- **Volunteer activities,**
- **Support for cultural activities, etc.**

Environmental protection activity

Promoting modal shifts to realize a reduced environmental burden as a means to counter global warming

Sanyo Special Steel is committed to reducing CO_2 emissions as a means to counter global warming. As one part of our efforts, we are promoting a modal shift from using trucks to using railroads and ships for transportation, in an attempt to reduce logistics CO_2 emissions. Compared with transport using trucks, transport over water or railway is said to reduce CO_2 emissions around 75% and 85%, respectively. We currently transport products from our headquarters plant to each distribution warehouse over water. In fact, our use of water transport greatly exceeds the industry average. We have also introduced specialized containers and are switching our product transport between Himeji and Akita from trucks to railways.

Promoting decreased environmental burden in our manufacturing processes

We are promoting the conversion of heating furnaces for heating steel stock into regenerative burners. Using exhaust heat to preheat combustion air conserves energy and reduces the burden on the environment. We are also promoting manufacturing that is environmentally-conscious, such as switching our fuel from heavy oil to city gas (natural gas) to reduce CO_2 emissions.

Recycling industrial water and thoroughly purifying waste water

We recycle over 90% of the water we use in our production processes. We curb the amount of industrial waste water we create by processing and reusing water used in cooling our steel stock and equipment. We have also installed automatic pH measuring instruments in our drains to constantly monitor the quality of our waste water.

Striving to raise each employee's awareness of the environment

In addition to holding periodic environment training workshops and liaison conferences, our executives and division managers conduct on-premise environment patrols to increase employee awareness of environmental conservation. We have also established a compensation system to motivate employees to obtain environmental conservation-related qualifications such as pollution control manager.

Social contribution activity

Interacting with local children through marathons

As one means of regional contribution, members of the Sanyo Special Steel track and field team participate in marathons held by elementary schools in Himeji to show children the joy of running. In addition to teaching children some running techniques before the marathon, members run along with the children as pacemakers and cheer them on. We have taken part in this happy and lively event each year since 2010.

Contributing to regional beautification through volunteering

Sanyo Special Steel group employees take part in cleaning the region around the headquarters plant each year. Many of our employees volunteer each time to contribute to regional beautification.

Educational support for the next generation

We cooperate in university lectures and accepts interns in order to support the development of the next generation. We also conduct plant visits for students who are job searching.

Contributing to health through periodic blood donations

We conduct period blood drives in our business offices, and each year over 400 employees cooperate in donating blood. More and more people require blood transfusions but there is a lack of blood all across Japan. We intend to contribute to society through promoting blood donation activities.

Employee support activity

Enhancing our employee child-raising support system

Sanyo Special Steel is dedicated to creating workplaces that allow all employees to realize their potential. We have prepared a variety of systems to support the continual employment of employees who are facing life events such as caring for children or other family members. We focus especially on enhancing means of support most often requested by our employees, such as childcare leave, childcare allowances, and shortened shifts. In addition to our original maternity work clothes, we have established a variety of facilities in our company, such as rest areas for female employees when they are pregnant or nursing. We will continue to build environments that are easy to work in and allow employees to both work and raise their children.

Promoting detailed human resource development

Starting with training that targets all employees, We provide systematic training of all kinds based on position and career, to develop the skills of each employee. We also encourage the participation of employees in our subsidiaries to promote human resource development across the entire group.

Improving safety awareness at our Safety Experience Training Center

We promote safety training and risk assessment activities with the goal of eliminating industrial accidents at manufacturing sites. As one means of accomplishing this we have established the Safety Experience Training Center, which allows employees to experience danger simulations of industrial accidents. Employees at group and cooperating companies use the Center to improve their ability to predict danger.

Supporting employee health maintenance and management

In addition to enhancing health inspections held at on-premise clinics, we require employees aged 40 years or older to receive a complete medical checkup every five years, in order to support employee health. We also offer guidance to employees on ways to stop smoking and reduce metabolic syndrome.

History of the Sanyo Special Steel Group

1933 Founded as Sanyo Steel Works

1935 Incorporation registered
Bearing steel production begun

1939 Listed on Osaka Securities Exchange (OSE)
Designated by the government as an authorized bearing steel mill

1954 Listed on Tokyo Stock Exchange (TSE)

1959 Renamed as Sanyo Special Steel Co., Ltd.
Seamless steel tube plant (2,000-t hot extrusion press) completed

1960 Cogging mill and large diameter bar rolling mill completed

1963 Merged with Osaka Special Steel Co., Ltd.

1965 Corporate Rehabilitation Law filed for/Stock de-listed

1966 Order for bearing steel for Shinkansen bullet trains received from Japan National Railways

1970 Seamless steel tube plant (assel tube rolling mill) completed

1973 60-t No.2 electric arc furnace completed
Rehabilitation proceedings completed

1974 Yohkoh Bussan Co., Ltd. founded

1980 Relisted on OSE

1982 Santoku Kogyo Co., Ltd. founded
No. 2 steelmaking plant completed

1983 3,000-t high speed forging press completed

1985 Relisted on TSE

1986 No.2 bar & wire road mill completed

1988 Ultra low oxygen bearing steel supplied to the Iron and Steel Institute of Japan as intrasteel gas analytical control samples
Metal powder manufacturing and processing plants completed

1990 Santoku computer Service Co., Ltd. founded
SKJ Metal Industries Co., Ltd. founded in Thailand

1991 Premium cleanliness bearing steel developed jointly with NSK Ltd.

1992 1,500-t high speed forging press completed

1993 Sanyo Special Steel Cultural Promotion Foundation established

1995 P.T. SANYO SPECIAL STEEL INDONESIA founded

1996 SANYO SPECIAL STEEL U.S.A., INC. founded

1998 Okochi Memorial Production Award granted by Okochi Memorial Foundation

2000 Santoku Seiken Co., Ltd. founded

2001 Ningbo Sanyo Special Steel Products Co., Ltd. founded in China

2002 Advanced Green Components, LLC founded in the U.S.A.

2004 Santoku Precision Forging Co., Ltd. merged with Santoku Ring Processing Co., Ltd.; renamed to Santoku Tech Co., Ltd.

2005 Commended by ASTM International

2006 Became Nippon Steel Corporation's (now, NIPPON STEEL & SUMITOMO METAL CORPORATION) affiliate accounted for by the equity method
World's first phased-array ultrasonic inspection machine introduced to a mass production

2011 SANYO SPECIAL STEEL TRADING (SHANGHAI) CO., LTD. founded in China
Santoku Technos Co., Ltd. founded
Santoku Security Service Co., Ltd. founded
5,000-t free forging press completed

2012 Sanyo Special Steel India Pvt. Ltd. founded
60-t continuous caster completed
Mahindra Sanyo Special Steel Pvt. Ltd. founded in India

2014 Siam Sanyo Special Steel Product Co., Ltd. founded in Thailand

2015 Sequential casting world record of 100 heats with a single tundish (for bearing steel) achieved at No.2 steelmaking plant's continuous caster
Sanyo Special Steel Manufacturing de México, S.A. de C.V. founded in Mexico


Electric arc furnace operation at time of founding (1933)


View of factories (1935)


2,000-t hot extrusion press completed (1959)


Cogging mill and large diameter bar rolling mill completed (1960)


Completion of headquarters office (1964)

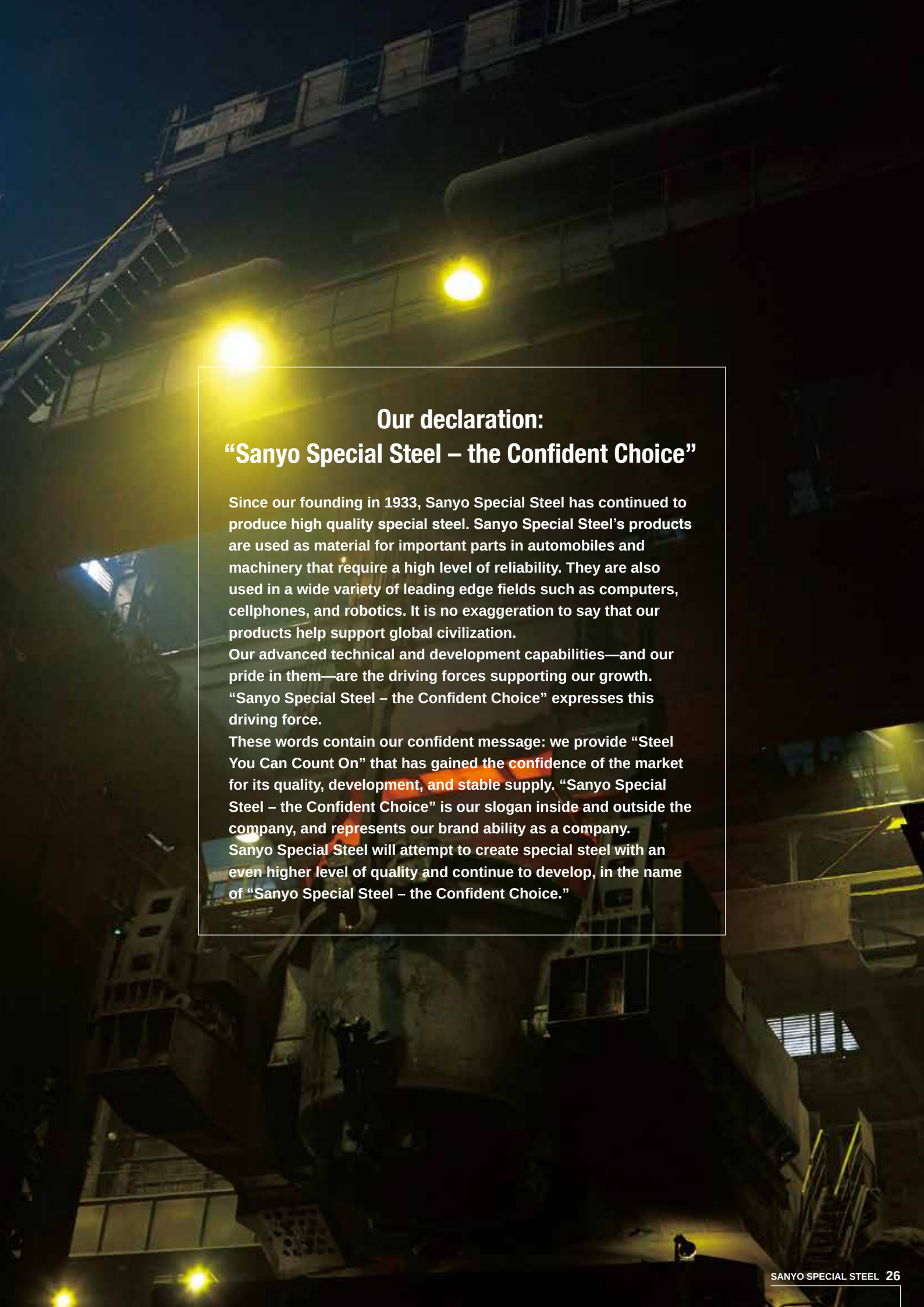

Re-listed on OSE (1980)


150-t electric arc furnace completed (1982)


Construction of powder manufacturing and processing plants (1987)


Completion of No.2 Technical Research Laboratory Building (1992)


5,000-t forging press completed (2011)



Our declaration:
“Sanyo Special Steel – the Confident Choice”

Since our founding in 1933, Sanyo Special Steel has continued to produce high quality special steel. Sanyo Special Steel’s products are used as material for important parts in automobiles and machinery that require a high level of reliability. They are also used in a wide variety of leading edge fields such as computers, cellphones, and robotics. It is no exaggeration to say that our products help support global civilization.

Our advanced technical and development capabilities—and our pride in them—are the driving forces supporting our growth. “Sanyo Special Steel – the Confident Choice” expresses this driving force.

These words contain our confident message: we provide “Steel You Can Count On” that has gained the confidence of the market for its quality, development, and stable supply. “Sanyo Special Steel – the Confident Choice” is our slogan inside and outside the company, and represents our brand ability as a company.

Sanyo Special Steel will attempt to create special steel with an even higher level of quality and continue to develop, in the name of “Sanyo Special Steel – the Confident Choice.”

SANYO SPECIAL STEEL Co., Ltd.