



 **NIPPON STEEL** | **Oji Steel Co., Ltd.**

Head Office Mainichi Nihonbashi Building 8th Floor, 3-2-5, Nihonbashi, Chuo-ku, Tokyo, 103-0027, Japan
Tel: +81-3-5201-7711 Fax: +81-3-5201-7727

Gunma Works 120, Nittasorimachi-cho, Ota City, Gunma, 370-0313, Japan
Tel: +81-276-56-2111 Fax: +81-276-56-3136

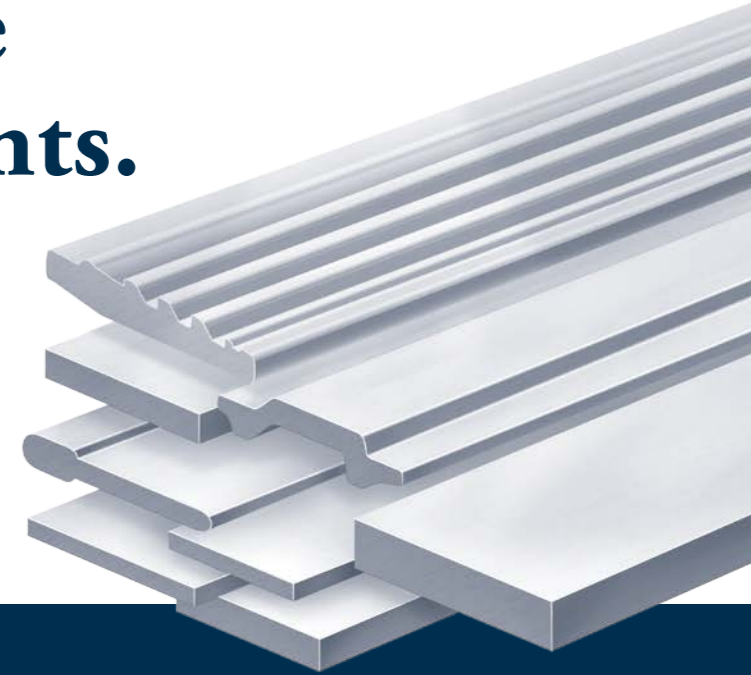
Website <http://www.oji-steel.co.jp>



Our outstanding technical capabilities ensure top-quality flat bars to meet clients' requirements.

At Oji Steel, we are a leading producer of flat bars, using our outstanding technical capabilities and expertise built up over long years of experience to manufacture top-quality products. Broad recognition of the benefits of Oji Steel flat bars has seen our business expand to cover a range of industries, and today our products are used by customers in the construction, civil engineering, industrial machinery, construction machinery, and automotive sectors. We are, however, not prepared to rest on our laurels; we seek to meet the needs of an ever-diversifying, ever-evolving market and, to that end, we have established a

framework that enables us to produce flat bars in many sizes and shapes using different grades of steel. We have worked hard to expand the range of sizes we offer, and can now meet new demand for flat bars in smaller sizes. At Oji Steel, we remain devoted to offering our customers a swift supply of top-quality flat bars to meet their requirements with precision.



Our Strengths — Five Points of Distinction

Backed by our long tradition of perfectionism in flat bar manufacturing, we offer a range of strengths, which we present as our "Five Points of Distinction." To ensure the best quality of flat bar, we seek constantly to innovate across the whole production process from raw materials to smelting, rolling, and shipping, and make sure to pool all the insights gained for further use. The result is a wealth of know-how that upholds our production operations. We relish the challenges that steel production throws in our path, and will continue in our quest to satisfy our customers' needs in terms of quality, cost, and delivery.

The Quest for Quality

1 Stringent raw material management ensures high quality through stable composition

We buy only high-grade scrap steel, which we separate thoroughly by type and blend carefully to ensure stability of ingredients.

2 Optimized processes result in superior surface quality and dimensional precision

Using our continuous casters, we are able to offer sealed and powder casting, while continuous horizontal and vertical rollers, automatic adjustment of rolling pressure and guides, and optimized descaling facilities ensure we can provide superlative surface quality and dimensional precision.

3 Superior flatness and less warping for a better finish

Our original cooling equipment enables us to supply flat bars with superior flatness. Two-ply annealing wires ensure flat bars are bundled correctly and delivered with a handsome finish.

Better Customer Satisfaction

4 Meeting all our customers' needs with an extensive array of flat bar solutions

In addition to all standard flat bar sizes, we are fully able to offer different shapes and sizes to help customers cut costs and streamline processes.

5 A stringent production structure enables short turnarounds

We produce all sizes of flat bar (more than 600 sizes) across a 30-day cycle, which allows us to maintain a just-in-time delivery system and help customers minimize their inventory.

Company Profile

Capital	¥345 million
Employees	Approx. 370
Main products	Flat bars (top domestic market share), square bars
Main applications	Civil engineering, construction, industrial machinery, construction machinery, agricultural machinery, automobiles, shipbuilding, etc.

(Affiliated Companies)

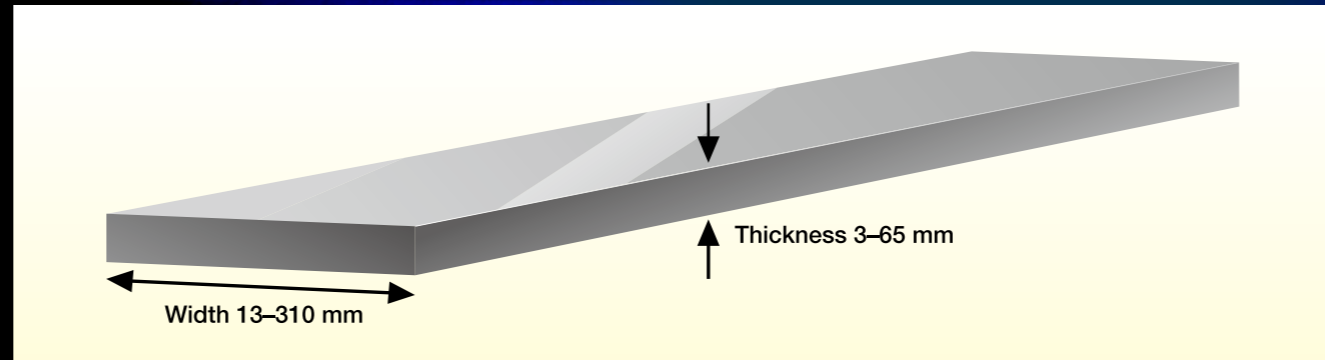
Ohtetsu Co., Ltd.	Secondary working of steel products, design and manufacture of equipment, manufacture and sale of broiled eels, gas stations, parking lots
-------------------	--

Company History

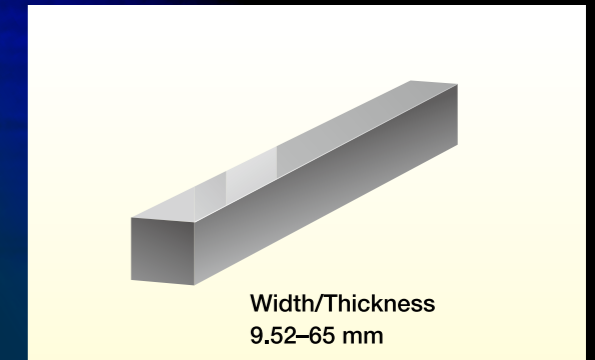
Inauguration	1935	Oji Steel's roots began when a group led by Masatoshi Okochi, the third head of Riken, put their thesis into practice. A rolling facility was established inside Riken Special Steel's Oji Plant as a special operation combining science and industry under the umbrella of Riken Konzern, an industry-university partnership enterprise based in northern Tokyo. Riken Konzern was subsequently restructured on multiple occasions, and the steel rolling operations were renamed the Riken Industries Oji Plant No. 2. 1949: Riken Industries was split up into 14 companies as part of the post-WWII allied occupying authority's order to dismantle <i>zaibatsu</i> conglomerates; Oji Plant No. 2 was renamed the Shin Riken Industries Forge Rolling Plant.
Merger with Daido Steel	1955	Shin Riken Industries was absorbed in a merger with Daido Steel, and renamed the Daido Steel Oji Plant.
Incorporation	1956	The Daido Steel Oji Plant rolling division was split off as a separate concern and incorporated as Oji Steel. The company began operations as an independent company in the No. 1 and No. 2 Rolling Mills
Establishment of Ayase Works	1959	Absorbed Musashi Steel in a merger and established the Ayase Works in Adachi-ku, Tokyo. Evolved from a steel manufacturer into an electric furnace manufacturer with a steel manufacturing plant.
Establishment of Takasaki Works	1966	Acquired Daiju Steel and established the Gunma Steel Takasaki Works.
Establishment of Gunma Works	1970	The Ayase Works and Gunma Steel Takasaki Works were consolidated into a facility in Nitta-machi, Gunma, under a "greenbelt factory" concept, and began operations with two electric furnaces and two continuous casting machines.
Rolling Mill Relocation	1974: No. 1 Rolling Mill comes on line. 1976: No. 2 Rolling Mill comes on line.	Company HQ and works relocated under the Industrial Relocation Promotion Act. Oji Steel completes its comprehensive production structure covering steel manufacture and rolling.
Electric Furnaces Upgraded	1999	MSP-DC furnace installed and ladle furnace equipment upgraded.
Continuous Casting and Rolling Equipment Upgraded	2004	Continuous casting equipment (No. 4) upgraded; No. 1 Rolling Mill's rough rolling line rebuilt and new heating furnace comes online.
Change in Majority Stockholder	2007	Nippon Steel replaces Daido Steel as Oji Steel's major shareholder holding 51.5% of voting rights.
Ohtetsu Atsuen Incorporated	2014	Chuo Atsuen Co., Ltd.'s No. 2 Rolling Mill acquired and incorporated as Ohtetsu Atsuen Co., Ltd. (Completed liquidation in 2017) Mill shutdown in 2015 and consolidated at the Gunma Works.
New office building at Gumma works	2019	New office building completed at Gunma Works.
Rebuilding of electric furnace	2020	Expanded electric furnace. Upgraded electric furnace transformer (switched to 100 MVA) Rebuilt scrap preheater (MSP)

Oji Steel Products

Flat Bars



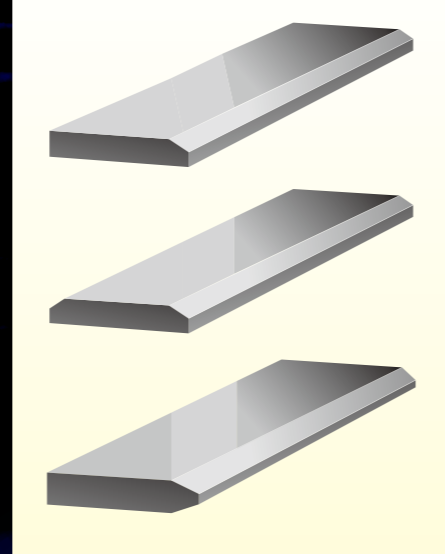
Square Bars



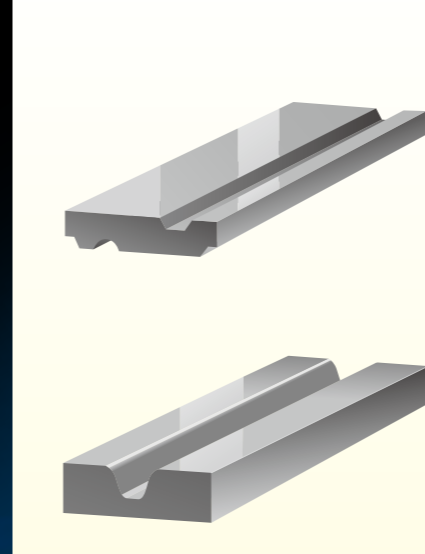
Deformed Flat Bars

Our deformed flat bars help customers streamline their manufacturing processes.

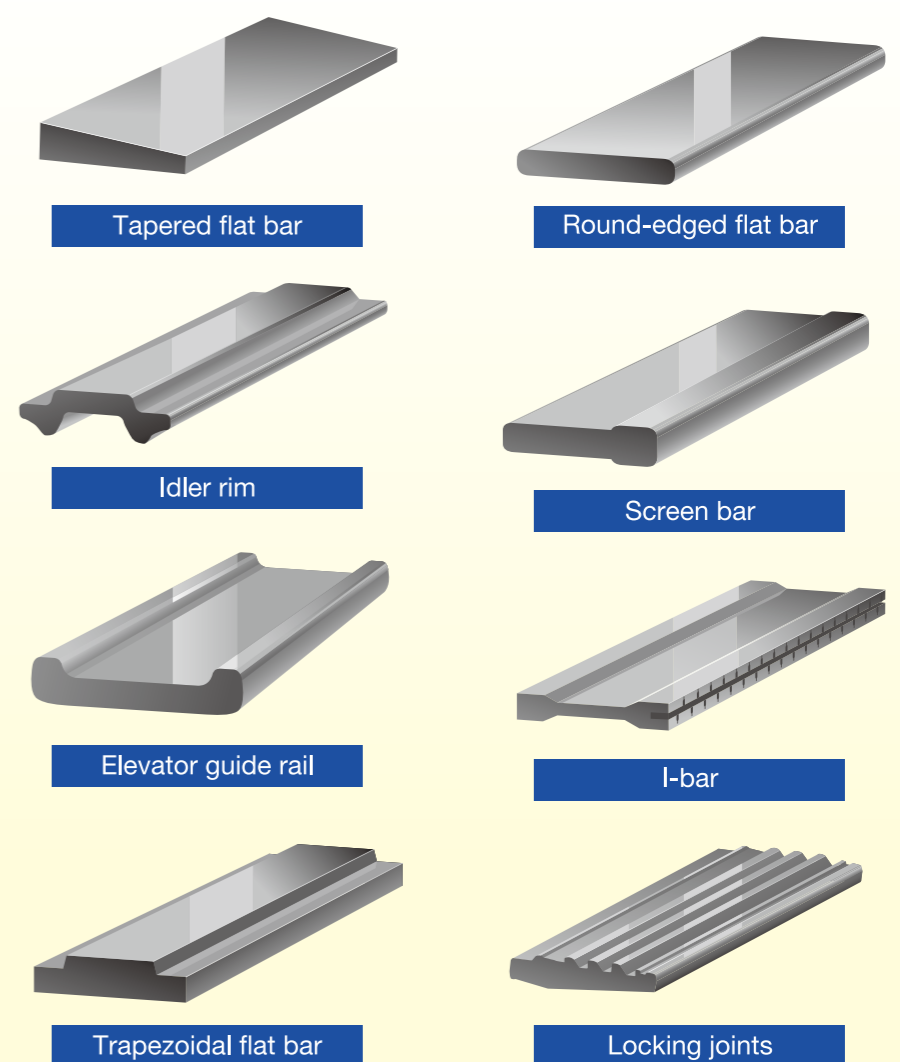
Bevels



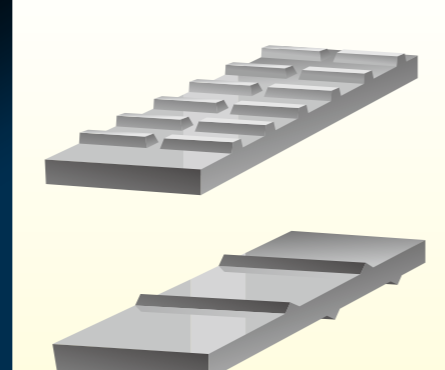
Grooves



Other Shapes



Bumps

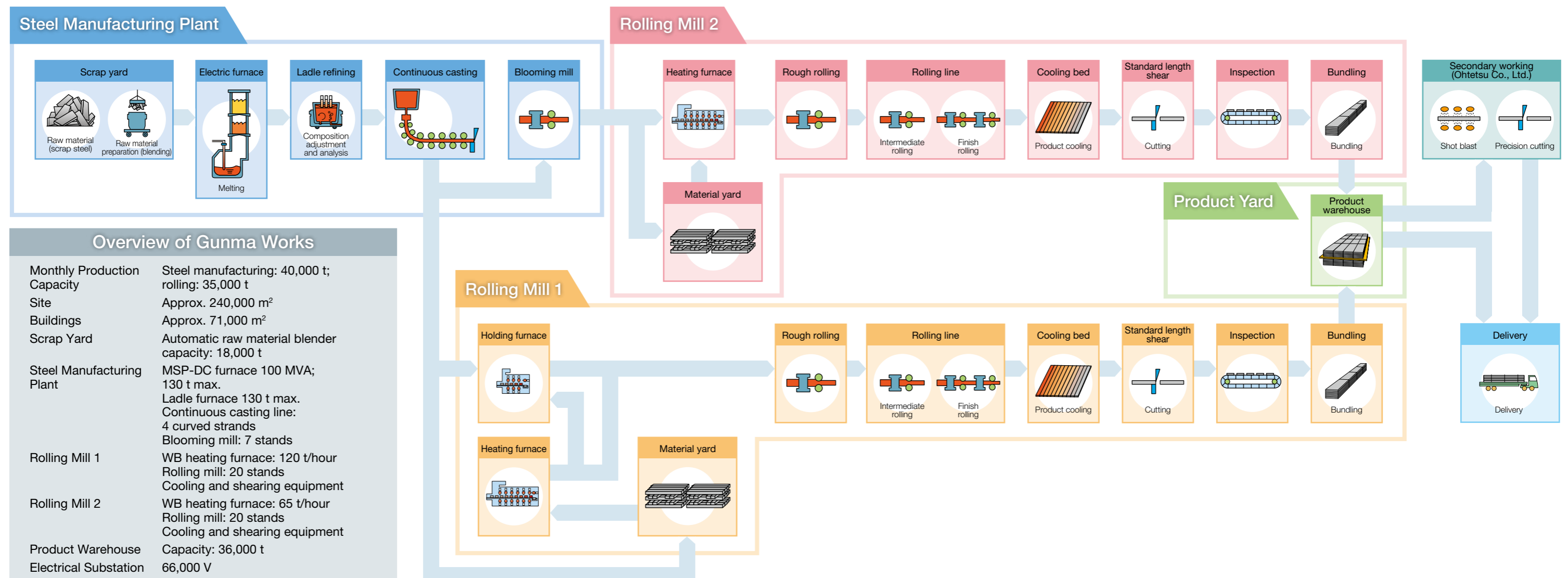


A line to produce top-quality flat bars while balancing the needs for greater efficiency and lower environmental impact

Located in Ota City, Gunma Prefecture, our Gunma Works are Japan's foremost flat bar production site. Here, we utilize a range of facilities from steel manufacturing to rolling to produce a steady output of high-quality flat bars.



Gunma Works

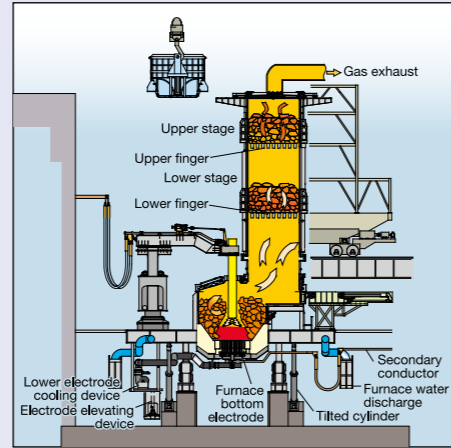


Overview of Gunma Works

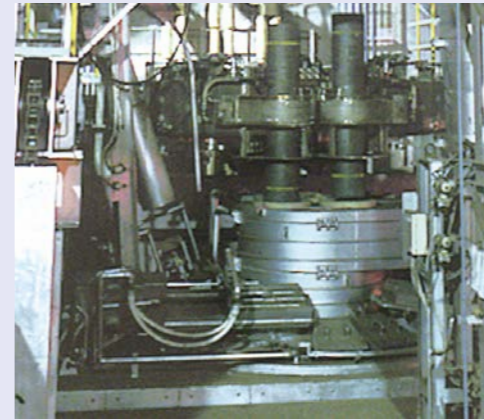
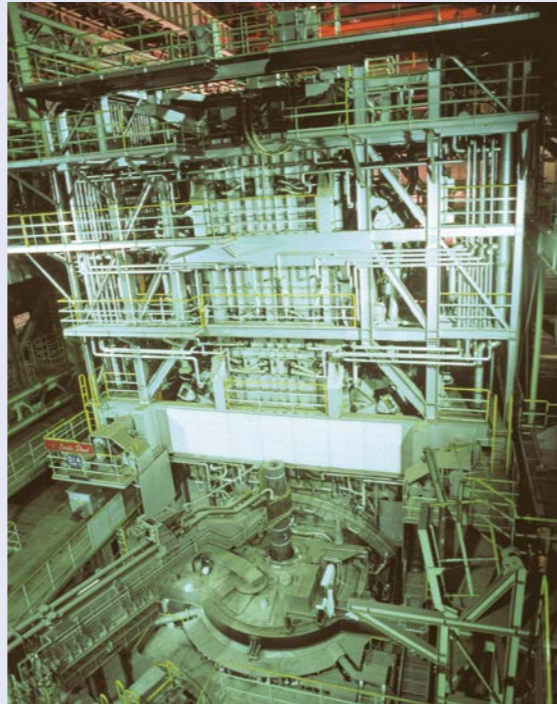
Monthly Production Capacity	Steel manufacturing: 40,000 t; rolling: 35,000 t
Site	Approx. 240,000 m ²
Buildings	Approx. 71,000 m ²
Scrap Yard	Automatic raw material blender capacity: 18,000 t
Steel Manufacturing Plant	MSP-DC furnace 100 MVA; 130 t max. Ladle furnace 130 t max. Continuous casting line: 4 curved strands Blooming mill: 7 stands
Rolling Mill 1	WB heating furnace: 120 t/hour Rolling mill: 20 stands Cooling and shearing equipment
Rolling Mill 2	WB heating furnace: 65 t/hour Rolling mill: 20 stands Cooling and shearing equipment
Product Warehouse	Capacity: 36,000 t
Electrical Substation	66,000 V



Scrap steel is scrupulously sorted according to grades under our thorough management system. Our computer-controlled scrap preparation system is automated and highly efficient.



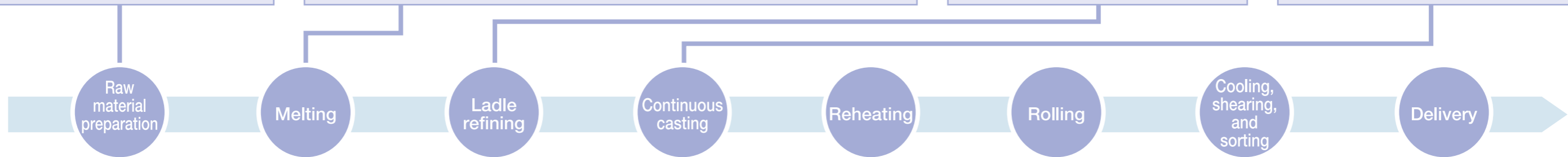
Our highly efficient electric arc furnace melts scrap steel with optimum efficiency. Our two-level MSP (Multi-stage Super Preheater) uses heat emitted by the furnace to preheat the scrap steel, which leads to reduction of energy consumption.



With the combination of our computer control system and component analyzer, we carry out chemical component adjustment, refining, and temperature control in order to ensure the purity of the steel.



The molten steel is completely sealed off from the air throughout the continuous casting process, which enables us to produce top-quality billets.



We have adopted the dual-furnace reheating system, which utilizes a heating furnace and a holding furnace, in order to reduce energy consumption and environmental burden. We have flexible reheating lines that equalize billet temperature to achieve superior dimensional accuracy.



Our tandem rolling lines produce stable flat bars with top-quality surfaces, interiors and precise shapes and measurements. Adjustments to rolling pressure and guides are carried out automatically, enabling us to change sizes rapidly and produce more than 600 sizes per month.



Our originally designed cooling, sorting, and bundling equipment enables us to supply perfectly measured flat bars with superior flatness of lengths to meet all our customers' needs.



We ensure speedy delivery of our high-quality flat bars to suit the needs of our customers.

Oji Steel Flat Bars

Rolled to perfection and ready for use – no need for cutting

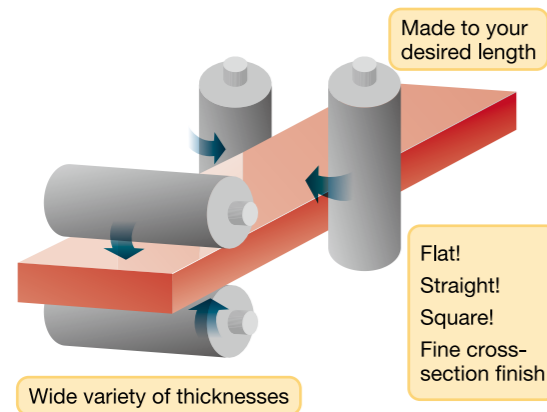


So...

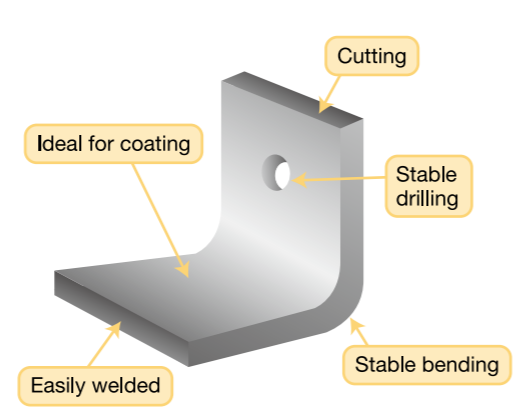
Unlike cut plates, our flat bars are:

- Flat, with no bending or warpage
- Burr-free for easy handling
- Free of distortions caused by cutting heat

Four-side rolling ensures finely finished cross-sections



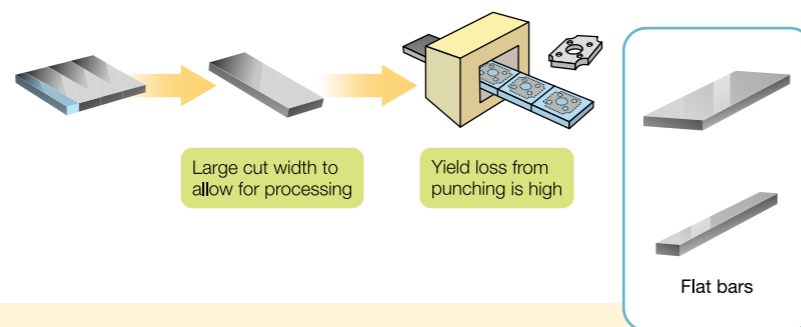
Easily processed



Punch Press Process

Plates

Plates require cutting, and the machined surfaces inevitably have burrs and uneven solidification due to heat generated. Accordingly, plates must be cut in larger sizes and subsequently processed, meaning large presses are always required. Because pre-set cut sizes are used, this method invariably involves a lengthy pre-press process and considerable yield loss.



Flat bars

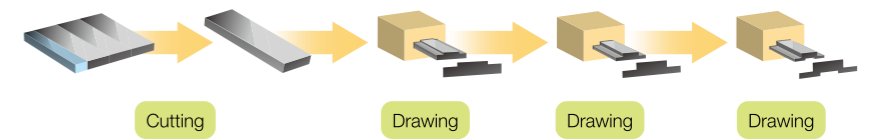
Conversely, our flat bars eliminate the entire cutting process, and enable the use of smaller punching devices, thus reducing yield loss.



Drawing Process

Plates

Using plates involves numerous processes: first, they must be cut to a pre-set size, followed by processing of the machined surfaces as well as drawing. This inevitably results in bending and warpage.



Deformed flat bars

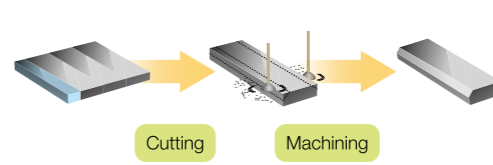
We deliver deformed flat bars in near-net shape so customers can greatly reduce the material costs and processing effort.



Machining Process

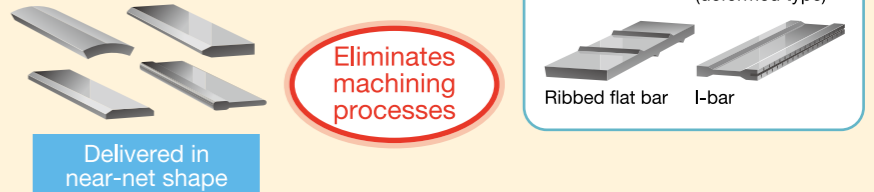
Plates

After cutting, plates must be machined to create the desired cross-section finish, which further increases man hours and worsens yield losses.



Deformed flat bars

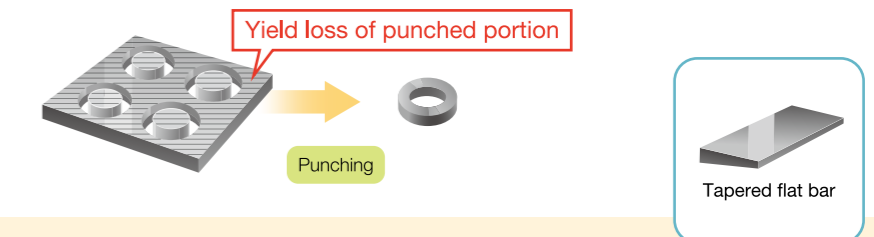
Conversely, our flat bars are delivered shaped to suit their final purpose and therefore eliminate the entire cutting and machining processes.



Flanges and Rings

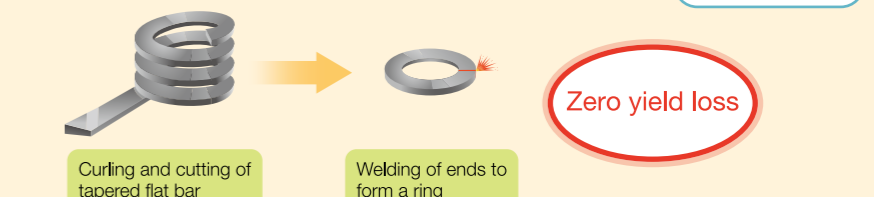
Plates

Plates are punch-pressed over ring templates but the hatched portions are unusable, which leads to yield losses.



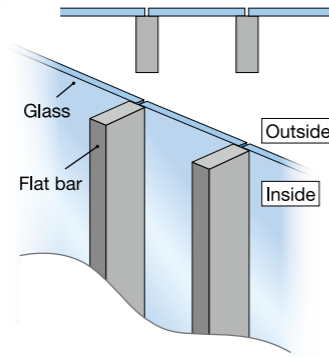
Tapered flat bar

With our tapered flat bars, the width on the inner side is thinner, so after curling to a helix of the desired radius, cutting and welding are all that are required. This means there is no yield loss.



Building Materials

Flat bars are adopted in many buildings that decorate our cities. Known for their workability and durability, they are used to support glass curtain walls, to join construction materials together as splice plates, and as staircase rails.



Curtain Walls

In addition to the structure supporting the building itself, the building features an external wall attached like a curtain. Because this type of wall prevents warping of the building and helps lighten the outer wall load, curtain walls are in use for most high-rise buildings these days.

Glass curtain walls of buildings

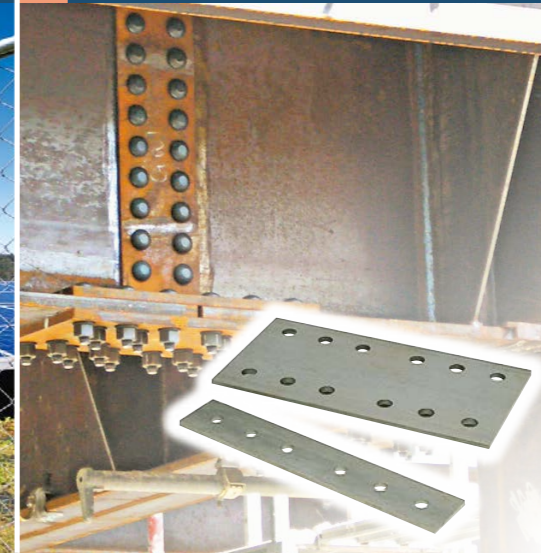


Wire fence fastening parts



Building external decoration

Splice plates used in building construction



Staircase handrails



Various materials for steel frame prefabricated residential buildings



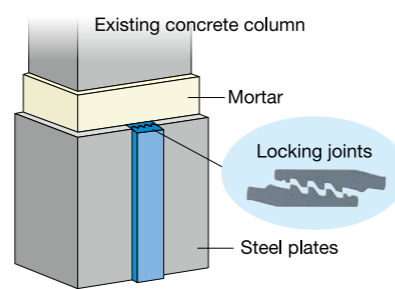
1 Tokyo Skytree Observation Deck
2 Shibuya Hikarie

3 Tokyo Station Yaesu GranRoof
4 The Railway Museum

5 GINZA SIX

Civil Engineering

Our flat bars are designed to increase safety and workability in a broad range of civil engineering work, including laying railways and roads, developing park land and residential areas, reinforcing bridge columns, and building tunnels. In this way, Oji Steel flat bars help build and maintain today's cities.



Bridge Column Reinforcement

We strengthen existing reinforced-concrete bridge columns by wrapping them in reinforcing steel plates. Using locking joints in the connections eliminates the need for welding because grooves on both surfaces ensure they lock firmly together.

Automobiles, Machinery, Other

Our products find use as components for automobiles and agricultural machinery, where safety is at a premium, as well as a range of other machinery applications. Active fields continue to broaden for our flat bars, which are capable of contributing to process simplification and cost reduction.

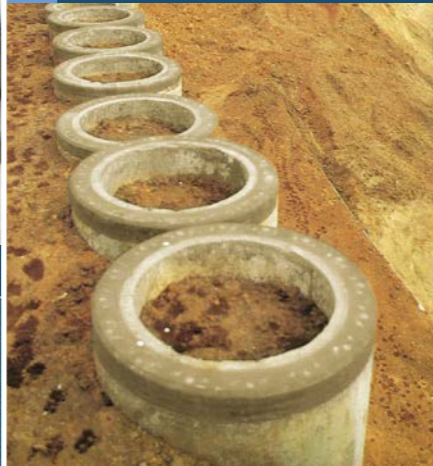
Locking joints used to make bridge columns more earthquake resistant



Screen bars used in water purification plants



Tapered flat bars used in pre-stressed concrete metal rings



Steel bands used to strengthen building foundation piles



Steel segment components



Roadway fences



Truck metal fittings



Forklift components



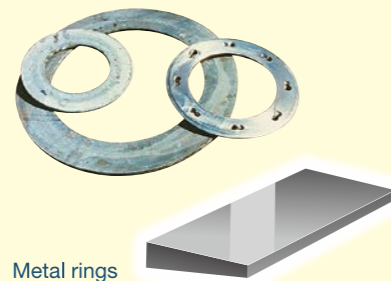
Flat bars for spring steel used in farm tiller blades



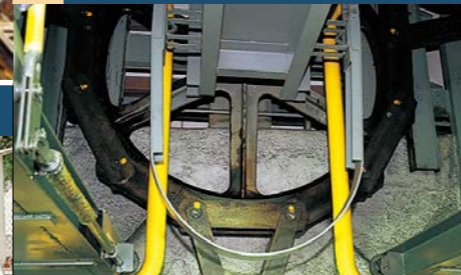
High yield point flat bars used in truck trailer chasses



Ribbed flat bars used in landscaping

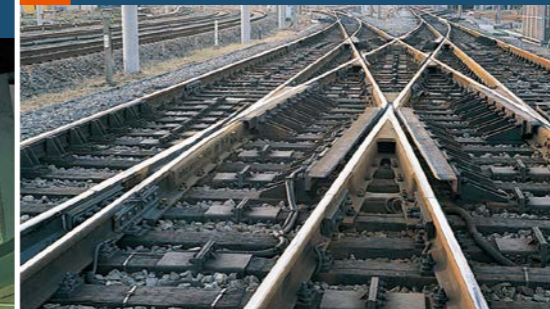


Conveyor chains for multi-level parking systems



Conveyor chain

Railway track points for railroads

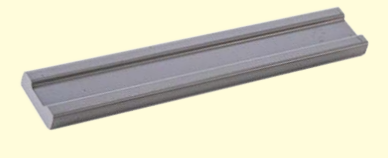


Railway track points

Elevator door rails



Door rail



Chemical Composition

Unit: %



Standard	Symbol of grade	Flat bar thickness Square bar width across flats	JIS													Oji Steel standards											
			Thickness width across flats	Cx100	Si _x 100	Mn _x 100	P _x 1000	S _x 1000	Cu _x 100	Ni _x 100	Cr _x 100	Ni+Cr _x 100	C _{req} x100	(P _{CM} x100)	Oji Steel thickness width across flats	Cx100	Si _x 100	Mn _x 100	P _x 1000	S _x 1000	Cu _x 100	Ni _x 100	Cr _x 100	Nb+V _x 1000	C _{req} x100	(P _{CM} x100)	
Rolled steels for general structure JISG3101 Identification No. QA0307045	SS330	-	-	-	-	-	≤50	≤50	-	-	-	-	-	-	≤65	≤20	≤35	≤90	≤40	≤30	-	-	-	-	-	-	
	SS400	-	-	-	-	-	≤50	≤50	-	-	-	-	-	-	≤65	≤20	≤35	≤90	≤40	≤30	-	-	-	-	-	-	
	SS490	-	-	-	-	-	≤50	≤50	-	-	-	-	-	-	≤65	≤27	≤55	≤160	≤40	≤30	-	-	-	-	-	-	
	SS540	≤40	≤40	≤30	-	≤160	≤40	≤40	-	-	-	-	-	-	≤40	≤27	≤55	≤160	≤40	≤30	-	-	-	≤100	-	-	
Rolled steels for welded structure JISG3106 Identification No. QA0307045	SM400A	≤200	≤50 50< ≤23	-	≥2.5xC	≤35	≤35	-	-	-	-	-	-	≤65	≤20	≤35	60-90	≤30	≤30	-	-	-	-	-	-	-	
	SM400B	≤200	≤50 50< ≤22	≤35	60-150	≤35	≤35	-	-	-	-	-	-	≤65	≤20	≤35	60-150	≤30	≤30	-	-	-	-	-	-	-	
	SM400C	≤50	≤50 50< ≤18	≤35	60-150	≤35	≤35	-	-	-	-	-	-	≤50	≤18	≤55	60-150	≤30	≤30	-	-	-	-	-	-	-	
	SM490A	≤200	≤50 50< ≤22	≤55	≤165	≤35	≤35	-	-	-	-	-	-	≤65	≤18	≤55	≤165	≤30	≤30	-	-	-	≤50	-	-	-	
	SM490B	≤200	≤50 50< ≤20	≤55	≤165	≤35	≤35	-	-	-	-	-	-	≤65	≤18	≤55	≤165	≤30	≤30	-	-	-	≤50	-	-	-	
	SM490C	≤50	≤50 50< ≤18	≤55	≤165	≤35	≤35	-	-	-	-	-	-	≤50	≤18	≤55	≤165	≤30	≤20	-	-	-	≤50	-	-	-	
	SM490YA	≤100	≤100	≤20	≤55	≤165	≤35	≤35	-	-	-	-	-	≤65	≤18	≤55	≤165	≤30	≤20	-	-	-	≤50	-	-	-	
	SM490YB	≤100	≤100	≤20	≤55	≤165	≤35	≤35	-	-	-	-	-	≤65	≤18	≤55	≤165	≤30	≤20	-	-	-	≤50	-	-	-	
	SM520B	≤100	≤100	≤20	≤55	≤165	≤35	≤35	-	-	-	-	-	≤65	≤18	≤55	≤165	≤30	≤20	-	-	-	≤50	-	-	-	
	SM570C	≤40	≤40	≤20	≤55	≤170	≤35	≤35	-	-	-	-	-	≤40	≤18	≤55	≤170	≤30	≤20	-	-	-	≤100	-	-	-	
Rolled steels for building structure JISG3136 Identification No. QA0307045	SN400A	6≤t≤100	6≤t≤100 6≤t≤50 50<t≤100	≤24	-	-	≤50	≤50	-	-	-	-	-	6<t≤65 40<t≤100	≤20	≤35	≤90	≤40	≤30	-	-	-	-	-	-	-	
	SN400B	6≤t≤100	6≤t≤50 50<t≤100	≤22	≤35	60-150	≤30	≤15	-	-	-	-	t≤40 40<t≤100	≤36 ≤36	(≤26)	6<t≤50 50<t≤65	≤20	≤35	60-90	≤30	≤13	-	-	-	≤36	(≤26)	
	SN400C	16≤t≤100	16≤t≤50 50<t≤100	≤20	≤35	60-150	≤20	≤8	-	-	-	-	t≤40 40<t≤100	≤36 ≤36	(≤26)	16≤t≤50 50<t≤65	≤20	≤35	60-90	≤20	≤8	-	-	-	≤36	(≤26)	
	SN490B	6≤t≤100	6≤t≤50 50<t≤100	≤22	≤55	≤165	≤30	≤15	-	-	-	-	t≤40 40<t≤100	≤44 ≤46	(≤29)	6<t≤50 50<t≤65	≤18	≤55	≤160	≤30	≤13	-	-	≤50	≤44	(≤29)	
	SN490C	16≤t≤100	16≤t≤50 50<t≤100	≤20	≤55	≤165	≤20	≤8	-	-	-	-	t≤40 40<t≤100	≤44 ≤46	(≤29)	16≤t≤50 50<t≤65	≤18	≤55	≤160	≤20	≤8	-	-	≤50	≤44	(≤29)	
Rolled steel bars for building structure (square bars) JISG3138 Identification No. QA0307045	SNR400A	6≤t≤100	6≤t≤100 6≤t≤50 50<t≤100	≤24	-	-	≤50	≤50	-	-	-	-	-	6≤t≤65 40<t≤100	≤20	≤35	≤90	≤40	≤30	-	-	-	-	-	-	-	
	SNR400B	6≤t≤100	6≤t≤50 50<t≤100	≤22	≤35	60-150	≤30	≤30	-	-	-	-	t≤40 40<t≤100	≤36 ≤36	(≤26)	6≤t≤50 50<t≤65	≤20	≤35	60-140	≤30	≤30	-	-	-	t≤40 40<t≤100	≤36 ≤36	(≤26)
	SNR490B	6≤t≤100	6≤t≤50 50<t≤100	≤20	≤55	≤165	≤30	≤30	-	-	-	-	t≤40 40<t≤100	≤44 ≤46	(≤29)	6≤t≤50 50<t≤65	≤18	≤35	≤160	≤30	≤30	-	-	≤50	t≤40 40<t≤100	≤44 ≤46	(≤29)
	SNR490B	6≤t≤100	6≤t≤50 50<t≤100	≤20	≤55	≤165	≤30	≤30	-	-	-	-	t≤40 40<t≤100	≤44 ≤46	(≤29)	6≤t≤50 50<t≤65	≤18	≤35	≤160	≤30	≤30	-	-	≤50	t≤40 40<t≤100	≤44 ≤46	(≤29)
Carbon steels for machine structural use JISG4051 Identification No. QA0307045	S15C	-	-	13-18	-	-	30-60	-	-	-	-	-	-	-	-	-	13-18	-	30-60	-	-	-	-	-	-	-	
	S25C	-	-	22-28	-	-	-	-	-	-	-	-	-	-	-	-	22-28	-	-	-	-	-	-	-	-	-	
	S35C	-	-	32-38	-	-	-	-	-	-	-	-	-	-	-	-	32-38	-	-	-	-	-	-	-	-	-	
	S43C	-	-	40-46	-	-	-	-	-	-	-	-	-	-	-	-	40-46	-	-	-	-	-	-	-	-	-	
	S45C	Forging ratio	-	42-48	15-35	60-90	≤30	≤35	≤30	≤20	≤20	≤35	-	-	≤65	15-35	60-90	≤30	≤35	≤30	≤15	≤20	-	-	-	-	
	S48C	≤4S	-	45-51	-	-	-	-	-	-	-	-	-	-	-	-	45-51	-	-	-	-	-	-	-	-	-	
	S50C	-	-	47-53	-	-	-	-	-	-	-	-	-	-	-	-	47-53	-	-	-	-	-	-	-	-	-	
	S53C	-	-	50-56	-	-	-	-	-	-	-	-	-	-	-	-	50-56	-	-	-	-	-	-	-	-	-	
S55C	-	-	52-58	-	-	-	-	-	-	-	-	-	-	-	-	52-58	-	-	-	-	-	-	-	-	-		
S58C	-	-	55-61	-	-	-	-	-	-	-	-	-	-	-	-	55-61	-	-	-	-	-	-	-	-	-		
Rolled steels for machine structural use	OHT590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤18	≤55	≤160	≤30	≤20	-	-	-	≤100	-	
	OHT590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤30	≤55	≤160	≤40	≤30	-	-	-	-	-	
	OHT690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤33	≤55	≤160	≤40	≤30	-	-	-	-	-	
	OC30M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤65	26-33	15-35	110-140	≤40	≤30	≤30	≤15	≤20	-	
	OC35M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤65	30-38	15-35	120-150	≤40	≤30	≤30	≤15	≤20	-	
	OC40M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤65	36-45	15-35	120-150	≤40	≤30	≤30	≤15	≤20	-	
	OC60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	≤65	57-63	15-35	80-105	≤40	≤40	≤40	≤15	≤20	-	
Spring steels	SUP6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56-64	150-180	70-100	≤30	≤30	≤30	-	-	-	-	
	SUP9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52-60	15-35	65-95	≤30	≤30	≤30	-	-	65-95	-	

- Rolled steels for general structure
JISG3101 Identification No. QA0307045
- Rolled steels for welded structure
JISG3106 Identification No. QA0307045
- Rolled steels for building structure
JISG3136 Identification No. QA0307045
- Carbon steels for machine structural use
JISG4051 Identification No. QA0307045
- Rolled steel bars for building structure
JISG3138 Identification No. QA0307045

Rolled steel for ship hull structure
NK Class NK

Notes:
1) Carbon equivalent of rolled steels for building structure may be replaced with weld cracking parameter of material upon request.

2) Carbon equivalent C_{eq}(%)=

$$C + \frac{Si}{24} + \frac{Mn}{6} + \frac{Ni}{40} + \frac{Cr}{5} + \frac{Mo}{4} + \frac{V}{14}$$

3) Weld cracking parameter of material P_{CM}(%)=

$$C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B$$

Mechanical Properties

Standard	Symbol of grade	Tensile test												Charpy impact test			Through-thickness characteristics								
		Yield point or proof stress (N/mm ²)						Tensile strength (N/mm ²)	Yield ratio (%)		Elongation (%)				Thickness width across flats	Test temperature (°C)	Absorbed energy (J)	Thickness (mm)	Reduction of area (%)						
		t<6	6≤t<12	12≤t<16	t=16	16<t≤40	40<t≤65		12≤t<16	16≤t<65	t≤5	5<t<6	6≤t<16	t=16					16<t≤50	40<t	Average	Individual			
Rolled steels for general structure JISG3101 Identification No. QA0307045	SS330	≥205	≥205	≥205	≥205	≥195	≥175	330-430	-	-	≥26	≥21	≥21	≥21	≥21	≥23	-	-	-	-	-	-	-	-	-
	SS400	≥245	≥245	≥245	≥245	≥235	≥215	400-510	-	-	≥21	≥17	≥17	≥17	≥21	≥23	-	-	-	-	-	-	-	-	-
	SS490	≥285	≥285	≥285	≥285	≥275	≥255	490-610	-	-	≥19	≥15	≥15	≥15	≥19	≥21	-	-	-	-	-	-	-	-	-
	SS540	≥400	≥400	≥400	≥400	≥390	-	≥540	-	-	≥16	≥13	≥13	≥13	≥17	-	-	-	-	-	-	-	-	-	-
Rolled steels for welded structure JISG3106 Identification No. QA0307045	SM400A	-	-	-	-	-	-	400-510	-	-	≥23	≥18	≥18	≥18	≥22	≥24	>12	0	≥27	-	-	-	-	-	-
	SM400B	≥245	≥245	≥245	≥245	≥235	≥215	400-510	-	-	≥23	≥18	≥18	≥18	≥22	≥24	>12	0	≥27	-	-	-	-	-	-
	SM400C	-	-	-	-	-	-	400-510	-																

