KOBELCO

Kobe Steel's
Hot-Rolled Steel Sheet

KOBE STEEL, LTD.

As a basic industrial material, Kobe Steel's hot-rolled steel sheets support the transition to higher grades in the modern age

Hot-rolled steel sheets are extensively used in many applications such as automobiles, electronics, building materials, containers and welded steel tubes.
As these products have become more sophisticated and upmarket in recent years, hot-rolled steel sheets are expected to satisfy higher quality requirements.
Under stringent quality control, Kobe Steel uses its excellent facilities to manufacture hot-rolled steel sheets that meet the requirements of customers and have many different features.
Through our tireless efforts in research and development, we will remain committed to the advancement of new products and manufacturing technologies.
Your continued support and patronage is appreciated.

Characteristics

1. Good and consistent quality

Our hot-rolled steel sheets are manufactured with excellent facilities and technologies and undergo thorough quality control throughout the process, from raw materials to the final product.

2. Rich variety

Soft steel sheets, high-tensile strength steel sheets and other product items are available in many different standards and are suitable for a variety of applications. They come in a wide range of sizes, from 1.2 mm to 25.4 mm in thickness and from 600 mm to 2,080 mm in width.

3. Excellent products

After the introduction of the latest equipment and based on excellent technological strength, we manufacture crown control mills, edge heaters, controlled cooling systems and other products with excellent surface quality, shape and workability.

4. Timely technical service

Contact our sales and technical service divisions for advice on the use of our hot-rolled steel sheets. We will closely work with customers to provide technical service in a timely manner.

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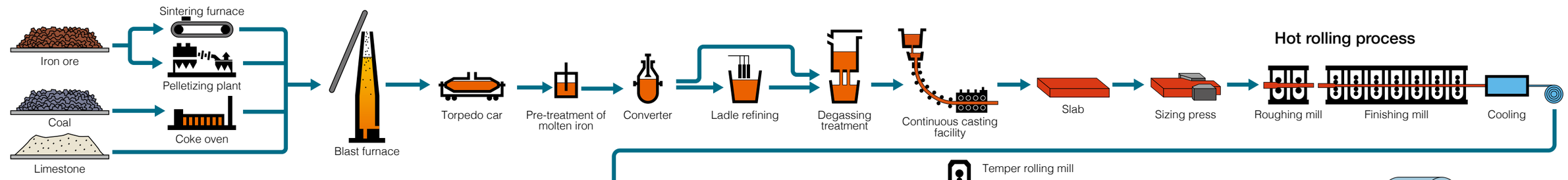
Manufacturing process

Ironmaking and steelmaking process



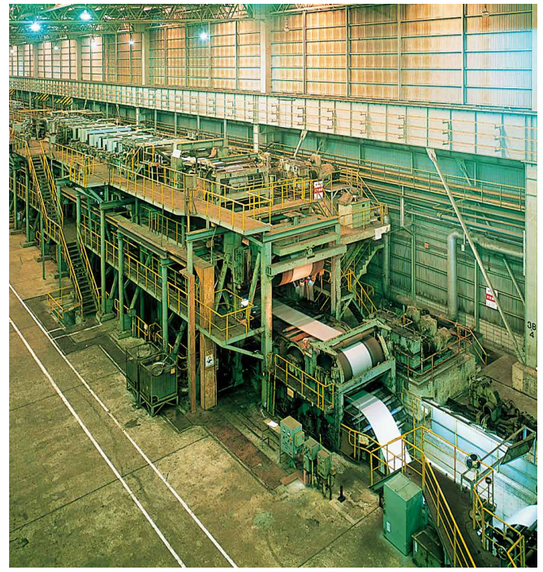
Blast furnace

Converter

Continuous casting facility (outlet side)

Hot strip mill

Sheet thickness mm	Width mm	Inside diameter mm	Outside diameter mm	Individual weight ton
1.2～25.4	600～2080	762	Max2100	Max43



Continuous pickling line

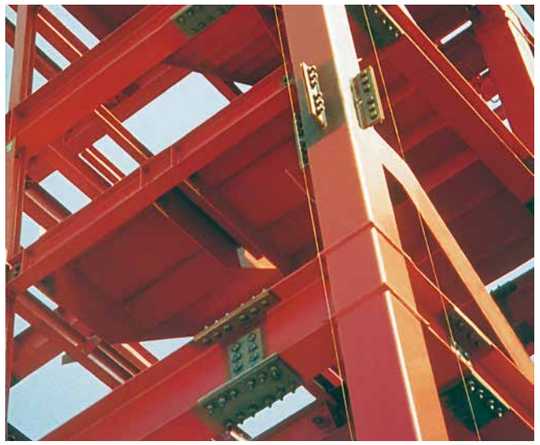
Sheet thickness mm	Width mm	Inside diameter mm	Outside diameter mm	Individual weight ton
1.2～6.5	600～1850	610/762	Max2100	Max38

Product items

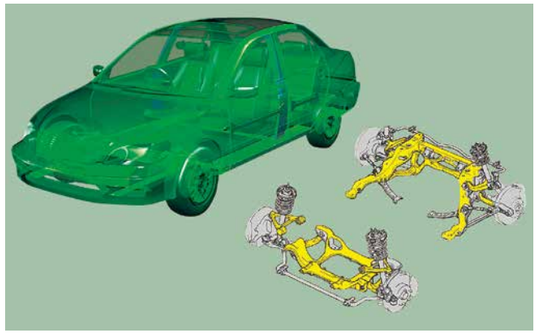
Standard	Title	Code of type	Applicable thickness (mm)	Applications
JIS G 3131	Hot-rolled soft steel sheet/strip	**SPHC**	1.2 or more, but no more than 12.7	General use
		SPHD		For machining
		SPHE	1.2 or more, but no more than 8	For machining
		SPHF	1.4 or more, but no more than 8	For machining
JIS G 3132	Hot-rolled carbon steel strip for steel tubes	**SPHT1**	1.2 or more, but no more than 12.7	Hot-rolled carbon steel strip for welded steel tubes
		SPHT2		
		SPHT3	1.6 or more, but no more than 12.7	
		SPHT4		
JIS G 3113	Hot-rolled steel sheet/strip for automobile structure	**SAPH310**	1.6 or more, but no more than 12.7	Hot-rolled steel sheets and strips for workable structure, mainly used in automobiles
		SAPH370		
		SAPH400		
		SAPH440		
JIS G 3134	Workable, hot-rolled high-tensile steel sheet/strip for automobiles	**SPFH490**	1.6 or more, but no more than 6	Workable, hot-rolled high-tensile strength steel sheets and strips, mainly used in automobiles
		SPFH540		
		SPFH590		
JIS G 3101	Rolled steel material for general structure	**SS330**	1.2 or more, but no more than 12.7	Hot-rolled steel material for use in bridges, ships, vehicles and other general structures
		SS400		
		SS490	1.4 or more, but no more than 12.7	
		SS540	1.4 or more, but no more than 10	
JIS G 3106	Rolled steel material for welded structures	**SM400 A/B**	1.2 or more, but no more than 12.7	Hot-rolled steel materials for use in bridges, ships, vehicles and other structures and have particularly excellent weldability
		SM490 A/B	1.4 or more, but no more than 12.7	
JIS G 3116	Steel sheets and strips for high-pressure gas containers	**SG255**	1.6 or more, but no more than 6	Hot-rolled steel sheets and strips for use in a welded container with a capacity of 500 liters or fewer and is designed to store LP gas, acetylene and other types of high-pressure gas
		SG295		
		SG325		
		SG365		
KOBELCO standard	Hot-rolled high-tensile strength steel sheets (General processing)	**KBHF490**	1.6 or more, but no more than 9	Precipitation-hardening, hot-rolled high-tensile strength steel sheets with high strength and are suitable for bending
		KBHF540		
		KBHF590	1.6 or more, but no more than 6	
		KBHF690		
	Hot-rolled high-tensile strength steel sheets (Strong processing)	**KBHF490B**	1.6 or more, but no more than 6	Hot-rolled high-tensile strength steel sheets with a combined reinforcement type and have an excellent balance between strength and elongation, particularly in stretch flange formability
		KBHF540B		
		KBHF590B		
		KBHF780B	1.8 or more, but no more than 4.5	
KOBELCO standard	Checkered steel sheet	**KCP**	2.3 or more, but no more than 12.7	Steel sheets with Kobe Steel's unique and beautiful checkered pattern and have excellent slip prevention effects and drainage properties
		KCP-SS400		

Main applications

Kobe Steel's hot-rolled steel sheets have incredible features and can be adapted to diverse applications to satisfy the needs in many different industries such as automobiles, electronics, building materials, containers and welded steel tubes.



Column



Crane

Pipe

Cylinders

Mechanical panel

Checkered steel sheet

Manufacturing standards

■ Hot-rolled soft steel sheet/strip (JIS G 3131)

Code of type	Chemical components (%)				Tensile testing								Bending test				
						Elongation (%)						Test piece (JIS)	Bending property				
						Thickness (mm)								Inner radius			
	C	Mn	P	S	Tensile strength (N/mm²)	1.2 or more, but less than 1.6	1.6 or more, but less than 2.0	2.0 or more, but less than 2.5	2.5 or more, but less than 3.2	3.2 or more, but less than 4.0	4.0 or more		Bending angle	Thinner than 3.2 mm	3.2 mm or thicker	Test piece (JIS)
SPHC	0.12 or less	0.60 or less	0.045 or less	0.035 or less	270 or more	27 or more	29 or more	29 or more	29 or more	31 or more	31 or more	Direction of rolling of test piece #5	180°	Adhesion	0.5 times the thickness	Direction of rolling of test piece #3
SPHD	0.10 or less	0.45 or less	0.035 or less	0.035 or less	270 or more	30 or more	32 or more	33 or more	35 or more	37 or more	39 or more		—	—	—	
SPHE	0.08 or less	0.40 or less	0.030 or less	0.030 or less	270 or more	32 or more	34 or more	35 or more	37 or more	39 or more	41 or more		—	—	—	
SPHF	0.08 or less	0.35 or less	0.025 or less	0.025 or less	270 or more	37 or more	38 or more	39 or more	39 or more	40 or more	42 or more		—	—	—	

■ Hot-rolled carbon steel strip for steel tubes (JIS G 3132)

Code of type	Chemical components (%)					Tensile testing						Bending test				
							Elongation (%)				Test piece (JIS)	Bending property				
							Thickness (mm)						Inner radius			
	C	Si	Mn	P	S	Tensile strength (N/mm²)	1.2 or more, but less than 1.6	1.6 or more, but less than 3.0	3.0 or more, but less than 6.0	6.0 or more, but no more than 13		Bending angle	3.0 mm or thinner	Thicker than 3.0 mm and 13 mm or thinner	Test piece (JIS)
SPHT1	0.10 or less	0.35 or less	0.50 or less	0.040 or less	0.040 or less	270 or more	30 or more	32 or more	35 or more	37 or more	Direction of rolling of test piece #5	180°	Adhesion	0.5 times the thickness	Direction of rolling of test piece #3
SPHT2	0.18 or less	0.35 or less	0.60 or less	0.040 or less	0.040 or less	340 or more	25 or more	27 or more	30 or more	32 or more		180°	1.0 times the thickness	1.5 times the thickness	
SPHT3	0.25 or less	0.35 or less	0.30 to 0.90	0.040 or less	0.040 or less	410 or more	20 or more	22 or more	25 or more	27 or more		180°	1.5 times the thickness	2.0 times the thickness	
SPHT4	0.30 or less	0.35 or less	0.30 to 1.00	0.040 or less	0.040 or less	490 or more	15 or more	18 or more	20 or more	22 or more		180°	1.5 times the thickness	2.0 times the thickness	

■ Hot-rolled steel sheet/strip for automobile structure (JIS G 3113)

Code of type	Chemical components (%)		Tensile testing										Bending test			
				Yield point (N/mm²)			Elongation (%)						Test piece (JIS)	Bending property			
							Thickness (mm)								Inner radius		
	P	S	Tensile strength (N/mm²)	Thinner than 6 mm	6 mm or thicker and thinner than 8 mm	8 mm or thicker and 14 mm or thinner	1.6 or more, but less than 2.0	2.0 or more, but less than 2.5	2.5 or more, but less than 3.15	3.15 or more, but less than 4.0	4.0 or more, but less than 6.3	6.3 or more		Bending angle	Thinner than 2.0 mm	2.0 mm or thicker	Test piece (JIS)
SAPH310	0.040 or less	0.040 or less	310 or more	(185) or more	(185) or more	(175) or more	33 or more	34 or more	36 or more	38 or more	40 or more	41 or more	Direction of rolling of test piece #5	180°	Adhesion	1.0 times the thickness	Orthogonal in the direction of rolling of test piece #3
SAPH370			370 or more	225 or more	225 or more	215 or more	32 or more	33 or more	35 or more	36 or more	37 or more	38 or more		180°	0.5 times the thickness	1.0 times the thickness	
SAPH400			400 or more	255 or more	235 or more	235 or more	31 or more	32 or more	34 or more	35 or more	36 or more	37 or more		180°	1.0 times the thickness	1.0 times the thickness	
SAPH440			440 or more	305 or more	295 or more	275 or more	29 or more	30 or more	32 or more	33 or more	34 or more	35 or more		180°	1.0 times the thickness	1.5 times the thickness	

■ Workable, hot-rolled high-tensile strength steel sheet/strip for automobiles (JIS G 3134)

Code of type	Tensile testing						Bending test			
			Elongation (%)				Test piece (JIS)	Bending property			
			Thickness (mm)					Bending angle	Inner radius		
	Tensile strength (N/mm²)	Yield point or Yield strength (N/mm²)	1.6 or more, but less than 2.0	2.0 or more, but less than 2.5	2.5 or more, but less than 3.25	3.25 or more, but no more than 6.0			1.6 mm or thicker and thinner than 3.25 mm	3.25 mm or thicker and 6.0 mm or thinner	Test piece (JIS)
SPFH490	490 or more	325 or more	22 or more	23 or more	24 or more	25 or more	Orthogonal in the direction of rolling of test piece #5	180°	0.5 times the thickness	1.0 times the thickness	Orthogonal in the direction of rolling of test piece #3
SPFH540	540 or more	355 or more	21 or more	22 or more	23 or more	24 or more		180°	1.0 times the thickness	1.5 times the thickness	
SPFH590	590 or more	420 or more	19 or more	20 or more	21 or more	22 or more		180°	1.5 times the thickness	1.5 times the thickness	

Manufacturing standards

■ Rolled steel material for general structure (JIS G 3101)

Code of type	Chemical components (%)				Tensile testing					Bending test		
	C	Mn	P	S	Tensile strength (N/mm^2)	Yield point or Yield strength (N/mm^2)		Elongation (%)		Bending property		Test piece (JIS)
								Test piece #5	Test piece #1A			
						16 mm or thinner	Thicker than 16 mm	5 mm or thinner	Thicker than 5 mm and 16 mm or thinner	Bending angle	Inner radius	
SS330	–	–	0.050 or less	0.050 or less	330 to 430	205 or more	195 or more	26 or more	21 or more	180°	0.5 times the thickness	#1
SS400	–	–	0.050 or less	0.050 or less	400 to 510	245 or more	235 or more	21 or more	17 or more	180°	1.5 times the thickness	
SS490	–	–	0.050 or less	0.050 or less	490 to 610	285 or more	275 or more	19 or more	15 or more	180°	2.0 times the thickness	
SS540	0.30 or less	1.60 or less	0.040 or less	0.040 or less	540 or more	400 or more	390 or more	16 or more	13 or more	180°	2.0 times the thickness	

■ Rolled steel material for welded structures (JIS G 3106)

Code of type	Chemical components (%)					Tensile testing			
	C	Si	Mn	P	S	Tensile strength (N/mm^2)	Yield point or Yield strength (N/mm^2)	Elongation (%)	
								Test piece #5	Test piece #1A
								5 mm or thinner	Thicker than 5 mm and 16 mm or thinner
SM400A	0.23 or less	–	2.5×C or more (Note 1)	0.035 or less	0.035 or less	400 to 510	245 or more	23 or more	18 or more
SM400B	0.20 or less	0.35 or less	0.60 to 1.50	0.035 or less	0.035 or less				
SM490A	0.20 or less	0.55 or less	1.65	0.035 or less	0.035 or less	490 to 610	325 or more	22 or more	17 or more
SM490B	0.18 or less	0.55 or less	1.65	0.035 or less	0.035 or less				

Note 1) Molten steel analysis values apply to the values in column C.

■ Steel sheets and strips for high-pressure gas containers (JIS G 3116)

Code of type	Chemical components (%)					Tensile testing				Bending test		
	C	Si	Mn	P	S	Tensile strength (N/mm^2)	Yield point or Yield strength (N/mm^2)	Elongation (%)	Test piece (JIS)	Bending property		
								6.0 mm or thinner		Bending angle	Inner radius	Test piece (JIS)
SG255	0.20 or less	–	0.30 or more	0.020 or less	0.020 or less	400 or more	255 or more	28 or more	Direction of rolling of test piece #5	180°	1.0 times the thickness	Direction of rolling of test piece #3
SG295	0.20 or less	0.35 or less	1.00 or less	0.020 or less	0.020 or less	440 or more	295 or more	26 or more		180°	1.5 times the thickness	
SG325	0.20 or less	0.55 or less	1.50 or less	0.020 or less	0.020 or less	490 or more	325 or more	22 or more		180°		
SG365	0.20 or less	0.55 or less	1.50 or less	0.020 or less	0.020 or less	540 or more	365 or more	20 or more		180°		

Manufacturing standards (KOBELCO standards)

■ Hot-rolled high-tensile strength steel sheets (KOBELCO standard)

Type	Code of type	Tensile testing						
		Tensile strength (N/mm^2)	Yield point or Yield strength (N/mm^2)	Elongation (%)				Test piece (JIS)
				Thickness (mm)				
				1.6 or more, but less than 2.0	2.0 or more, but less than 2.5	2.5 or more, but less than 3.25	3.25 or more, but no more than 6.3	
General processing	**KBHF490**	490 or more	325 or more	22 or more	23 or more	24 or more	25 or more	Orthogonal in the direction of rolling of test piece #5
	KBHF540	540 or more	355 or more	21 or more	22 or more	23 or more	24 or more	
	KBHF590	590 or more	420 or more	19 or more	20 or more	21 or more	22 or more	
	KBHF690	690 or more	520 or more	15 or more	16 or more	17 or more	18 or more	
Strong processing	**KBHF490B**	490 or more	325 or more	22 or more	23 or more	24 or more	25 or more	
	KBHF540B	540 or more	355 or more	21 or more	22 or more	23 or more	24 or more	
	KBHF590B	590 or more	420 or more	19 or more	20 or more	21 or more	22 or more	
	KBHF780B	780 or more	550 or more	13 or more	14 or more	15 or more	16 or more	

■ Checkered steel sheet (KOBELCO standard)

Type	Code of type	Chemical components (%)		Tensile testing			
		P	S	Tensile strength (N/mm^2)	Yield point (N/mm^2)	Elongation (%)	
						Test piece #5	Test piece #1A
						5.0 mm or thinner	Thicker than 5.0 mm and 12.0 mm or thinner
General use	**KCP**	—	—	—	—	—	—
General structure	**KCP-SS400**	0.050 or less	0.050 or less	400 to 510	(245 or more)	(21 or more)	(17 or more)

Remarks 1. KCP does not specify mechanical properties. Its tensile strength is usually 275 N/mm^2 or greater.
2. KCP-SS400 only guarantees tensile strength. The yield point and elongation of KCP-SS400 should be considered as reference values.

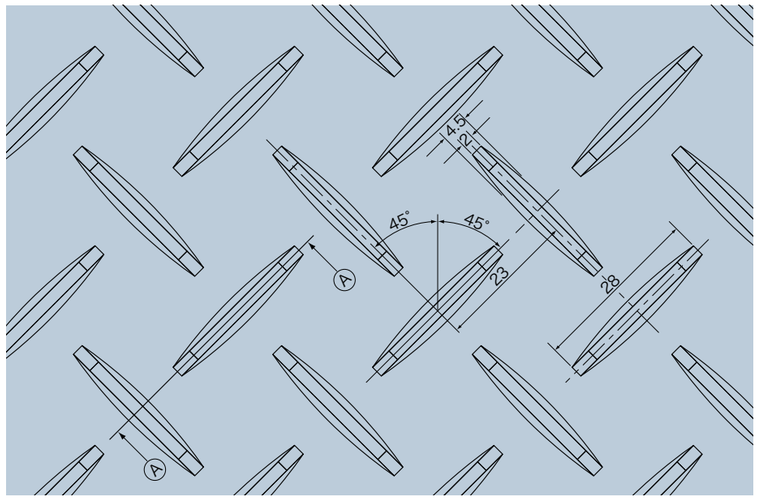
Feasible dimensions and weight

(Unit: kg)

Types		Weight per steel sheet (W_2)			Maximum weight per coil		
Sheet thickness (mm)	Sheet width × length / Unit mass (W1) (kg/m^2) / Designation (ft)	914×1829	1219×2438	1524×3048	914×ℓ	1219×ℓ	1524×ℓ
		3×6	4×8	5×10	3-sheet width	4-sheet width	5-sheet width
2.3	19.73	33.0	58.6	—	12800	17000	—
3.2	26.79	44.8	79.6	124	13500	18000	22200
4.5	36.99	61.8	110	172	15000	20000	22700
6.0	48.77	81.5	145	227	15400	20500	24300
8.0	64.47	107.8	192	297	17300	23000	28900
9.0	72.32	121	215	336	17300	23000	28900
12.0	95.87	160	285	445	17300	23000	28900

Remarks 1. Dimensions other than those described above may also be available upon request.
2. Unit weight (W_1) is calculated with the following formula.
W_1 =7.85 t + 1.67 (kg/m^2)
t =Thickness of a checkered steel sheet (mm)
The weight of a steel sheet (W_2) is calculated with the following formula.
W_2 =W_1×A
A =Area of checkered steel sheet (m^2)
3. Inside diameter and maximum outside diameter of a steel strip are assumed to be nearly 760 mm and 2,100 mm, respectively.

Appearance, shape and dimensions



Ⓐ—Ⓐ cross section

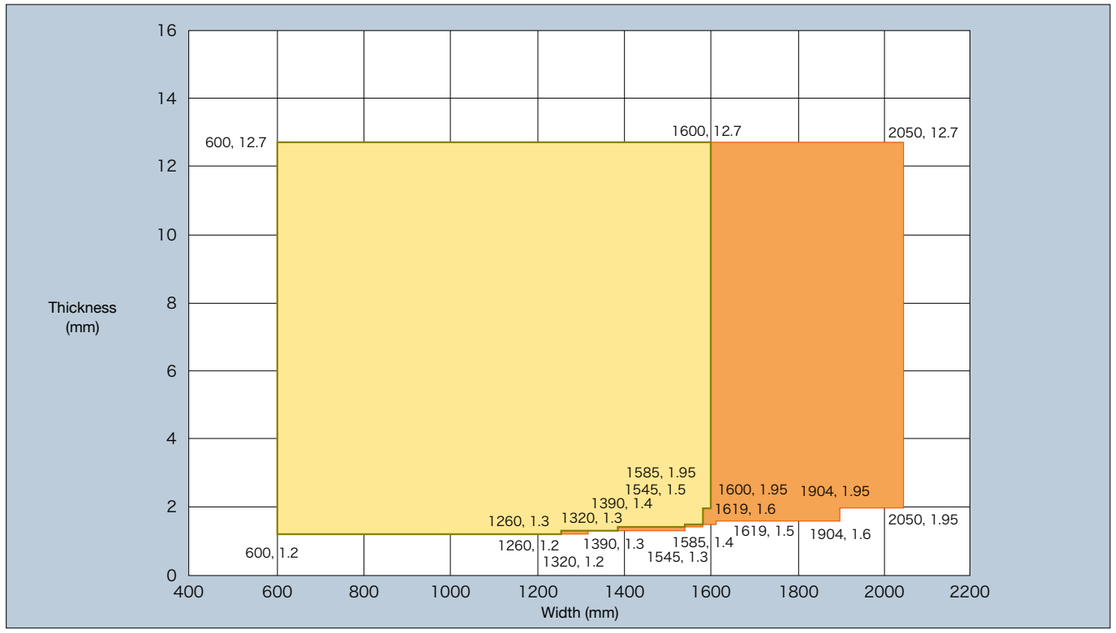
Feasible range of production

The manufacturability range varies depending on the specifications and use purpose. Please contact us for more information.

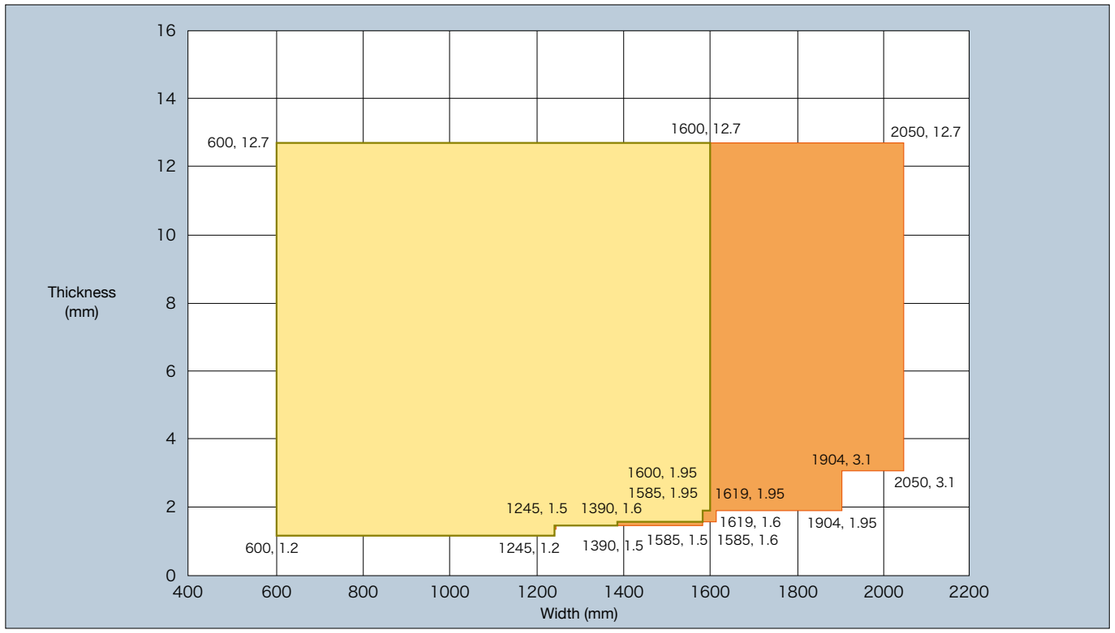
■ Mill scale

※Please contact us about the range marked with .

● Applicable standards : 270 N/mm² class

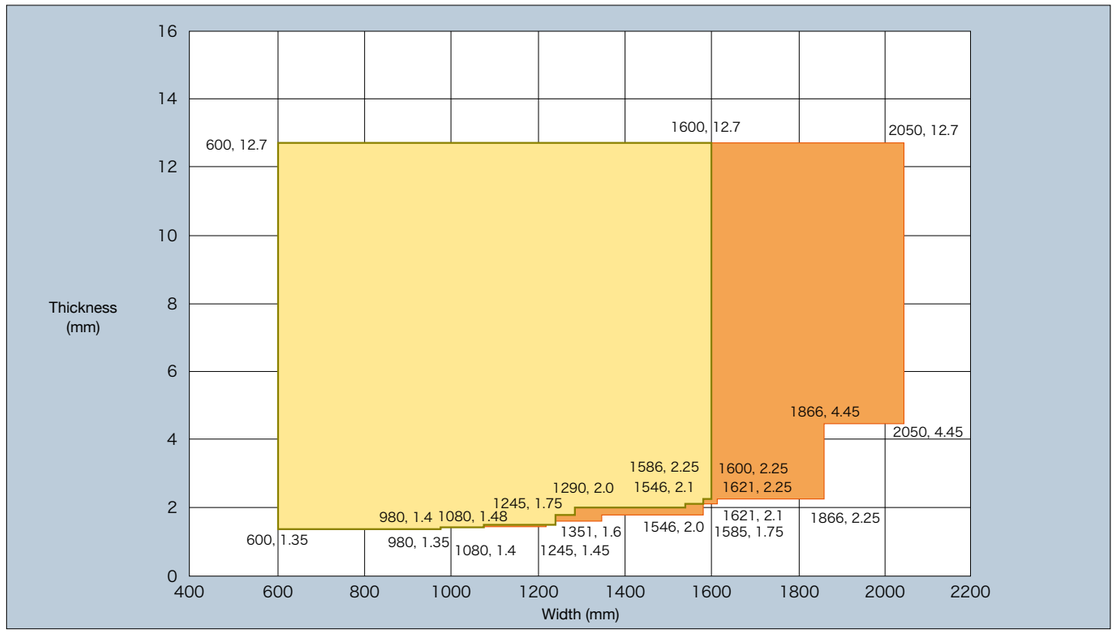


● Applicable standards : 400 to 440 N/mm² class

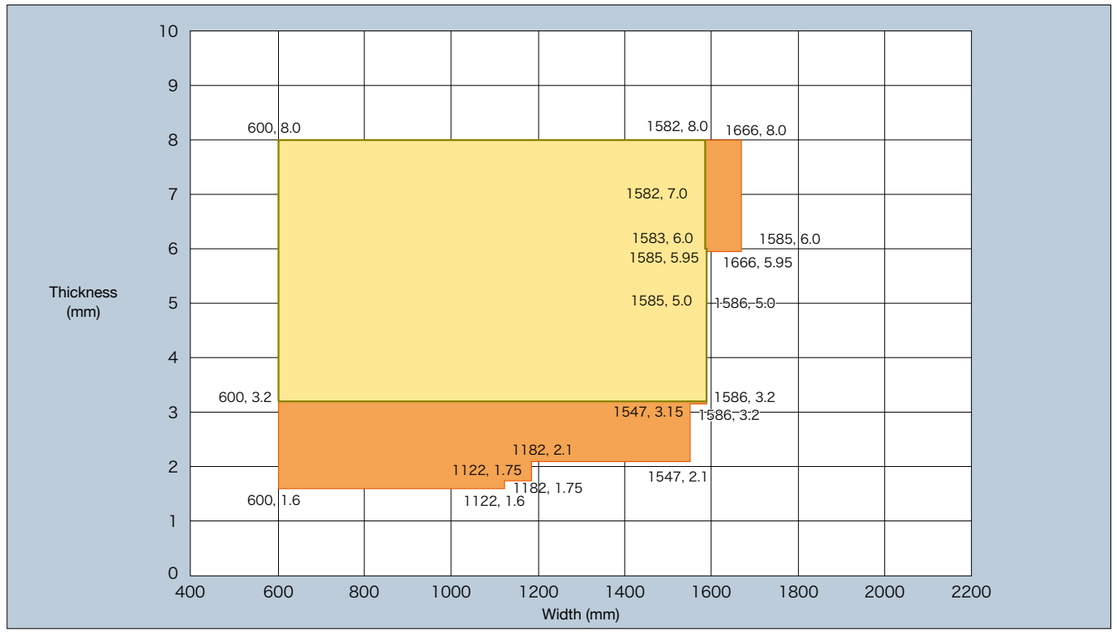


※Please contact us about the range marked with .

● Applicable standards : 590 N/mm² class



● Applicable standards : 780 N/mm² class



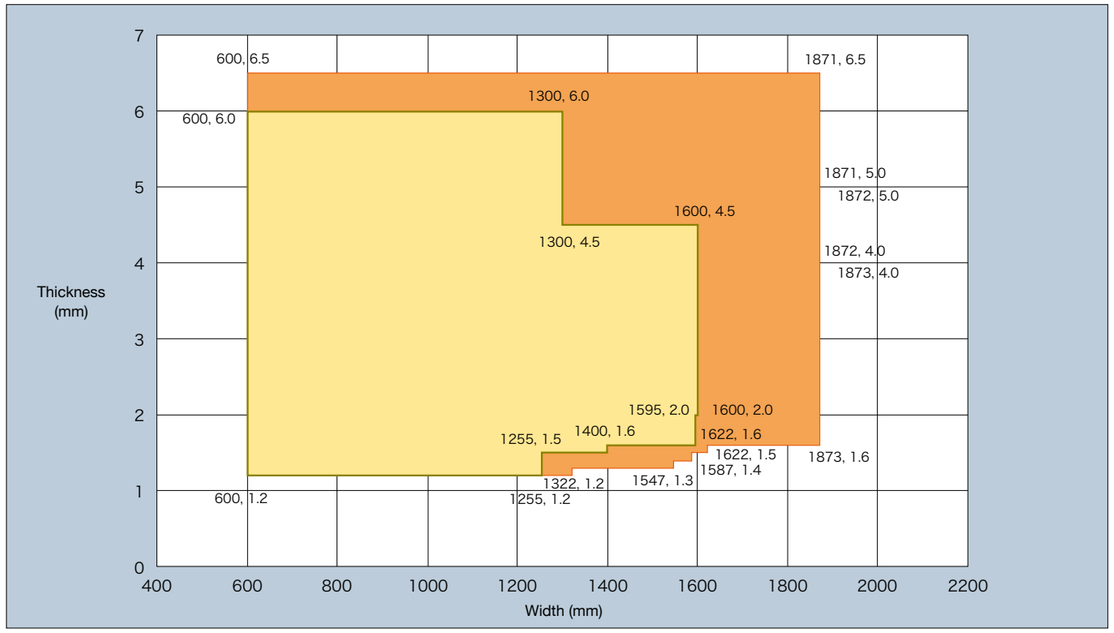
Feasible range of production

The manufacturability range varies depending on the specifications and use purpose. Please contact us for more information.

■ Pickling

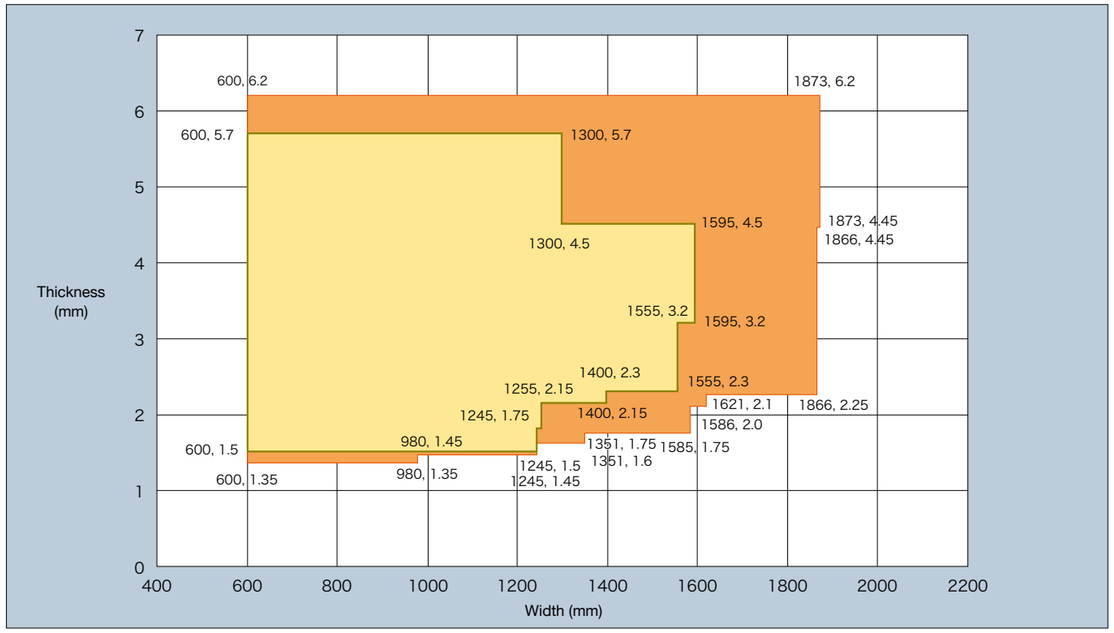
※Please contact us about the range marked with .

● Applicable standards : 270 N/mm² class

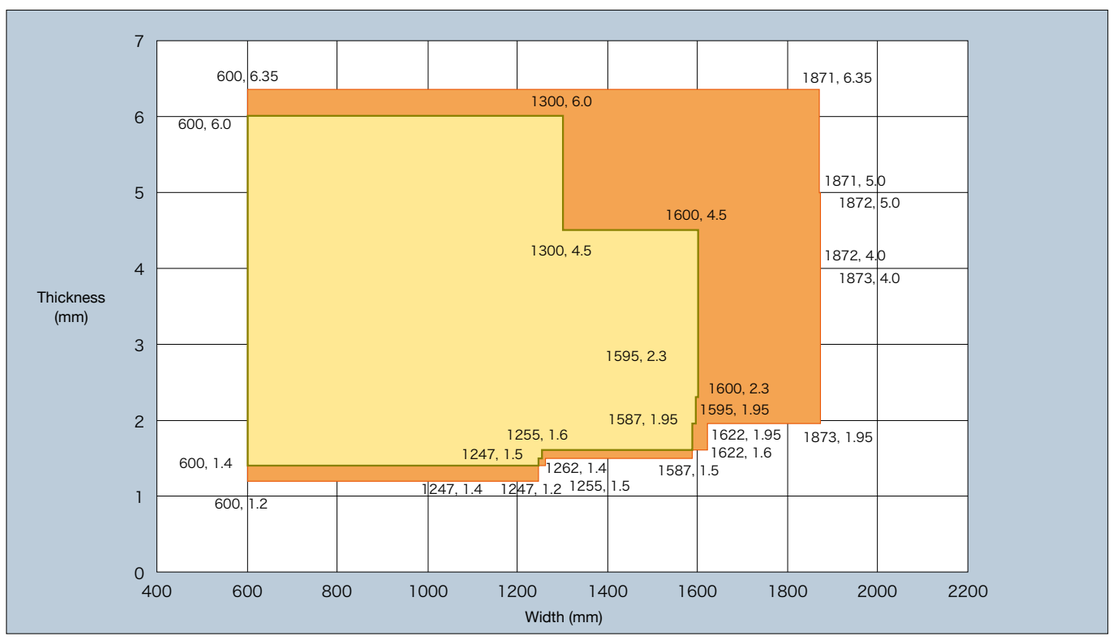


※Please contact us about the range marked with .

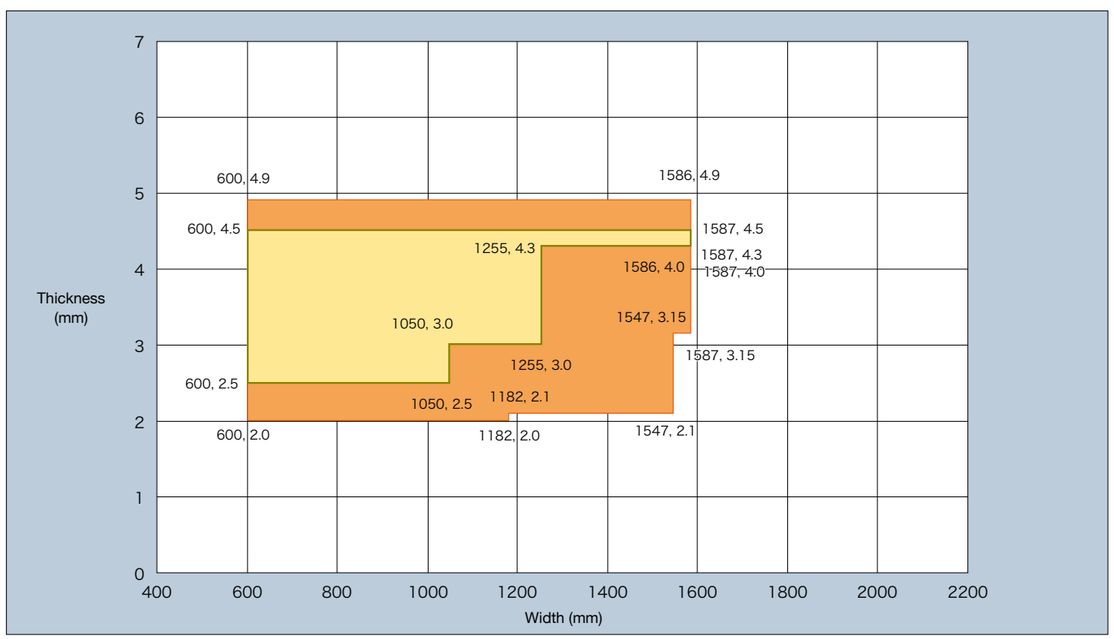
● Applicable standards : 590 N/mm² class



● Applicable standards : 400 to 440 N/mm² class



● Applicable standards : 780 N/mm² class

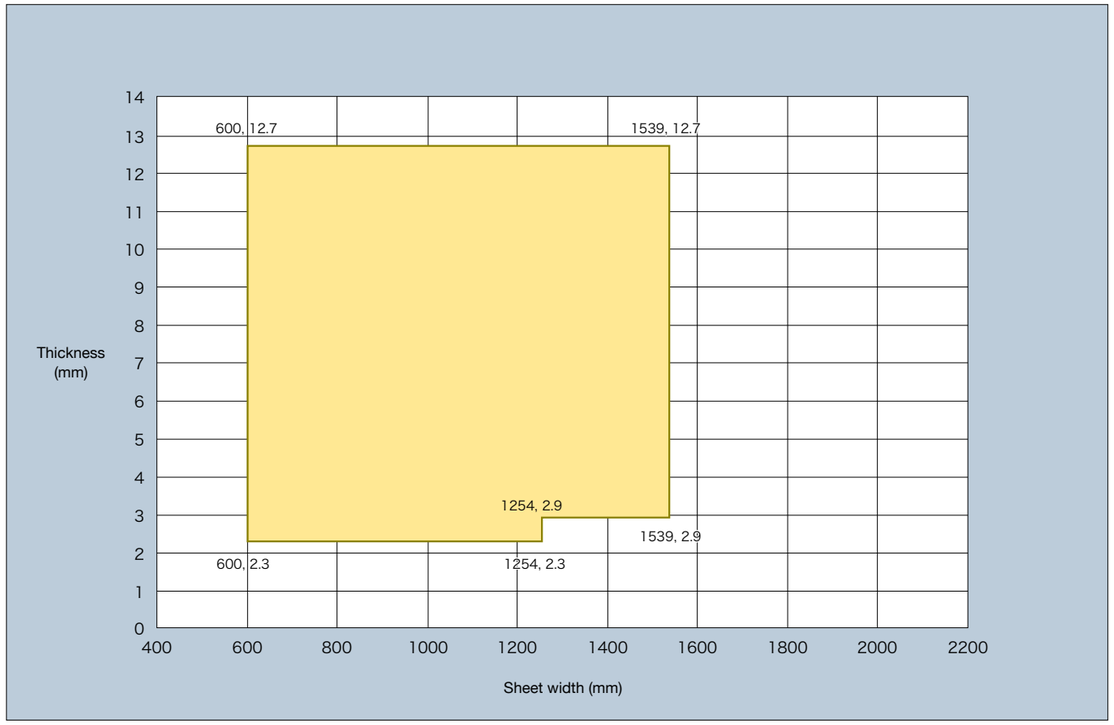


Feasible range of production

The manufacturability range varies depending on the specifications and use purpose. Please contact us for more information.

■ Checkered steel sheet

● Applicable standards : 270 to 400 N/mm² class



Dimension tolerance

① Thickness tolerance

■ Hot-rolled soft steel sheet/strip (JIS G 3131)

(Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but no more than 2080
Less than 1.60	±0.14	±0.15	±0.16 (Note 1)	–
1.60 or more, but less than 2.00	±0.16	±0.17	±0.18	±0.21 (Note 2)
2.00 or more, but less than 2.50	±0.17	±0.19	±0.21	±0.25 (Note 2)
2.50 or more, but less than 3.15	±0.19	±0.21	±0.24	±0.26
3.15 or more, but less than 4.00	±0.21	±0.23	±0.26	±0.27
4.00 or more, but less than 5.00	±0.24	±0.26	±0.28	±0.29
5.00 or more, but less than 6.00	±0.26	±0.28	±0.29	±0.31
6.00 or more, but less than 8.00	±0.29	±0.30	±0.31	±0.35
8.00 or more, but less than 10.0	±0.32	±0.33	±0.34	±0.40
10.0 or more, but less than 12.5	±0.35	±0.36	±0.37	±0.45
12.5 or more, but no more than 14.0	±0.38	±0.39	±0.40	±0.50

Note 1) Applicable to a steel sheet/strip with a width less than 1,600 mm
Note 2) Applicable to a steel sheet/strip with a width less than 2,000 mm
Remarks 1. Thickness is determined at an arbitrary point located 20 mm or more inward from the edge.
2. Inapplicable to the irregular parts at both ends of a steel strip

■ Hot-rolled carbon steel strip for steel tubes (JIS G 3132)

Applicable to SPHT1, SPHT2 and SPHT3 (Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but no more than 2080
Less than 1.60	±0.14	±0.15	±0.16 (Note 1)	–
1.60 or more, but less than 2.00	±0.16	±0.17	±0.18	±0.21 (Note 2)
2.00 or more, but less than 2.50	±0.17	±0.19	±0.21	±0.25 (Note 2)
2.50 or more, but less than 3.15	±0.19	±0.21	±0.24	±0.26
3.15 or more, but less than 4.00	±0.21	±0.23	±0.26	±0.27
4.00 or more, but less than 5.00	±0.24	±0.26	±0.28	±0.29
5.00 or more, but less than 6.00	±0.26	±0.28	±0.29	±0.31
6.00 or more, but less than 8.00	±0.29	±0.30	±0.31	±0.35
8.00 or more, but less than 10.0	±0.32	±0.33	±0.34	±0.40
10.0 or more, but less than 12.5	±0.35	±0.36	±0.37	±0.45
12.5 or more, but no more than 13.0	±0.38	±0.39	±0.40	±0.50

Applicable to SPHT4 (Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but no more than 2080
Less than 1.60	±0.14	±0.15	±0.16 (Note 1)	–
1.60 or more, but less than 2.00	±0.16	±0.19	±0.20	–
2.00 or more, but less than 2.50	±0.18	±0.22	±0.23	±0.25 (Note 2)
2.50 or more, but less than 3.15	±0.20	±0.24	±0.26	±0.29
3.15 or more, but less than 4.00	±0.23	±0.26	±0.28	±0.30
4.00 or more, but less than 5.00	±0.26	±0.29	±0.31	±0.32
5.00 or more, but less than 6.00	±0.29	±0.31	±0.32	±0.34
6.00 or more, but less than 8.00	±0.32	±0.33	±0.34	±0.38
8.00 or more, but less than 10.0	±0.35	±0.36	±0.37	±0.44
10.0 or more, but less than 12.5	±0.38	±0.40	±0.41	±0.49
12.5 or more, but no more than 13.0	±0.41	±0.44	±0.45	±0.54

Note 1) Applicable to a steel sheet/strip with a width less than 1,600 mm
Note 2) Applicable to a steel sheet/strip with a width less than 2,000 mm
Remarks 1. Thickness is determined at an arbitrary point located 20 mm or more inward from the edge.
2. Inapplicable to the irregular parts at both ends of a steel strip

Dimension tolerance

■ Hot-rolled steel sheet/strip for automobile structure (JIS G 3113)

(Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but no more than 2080
1.60 or more, but less than 2.00	±0.16	±0.17	±0.18	—
2.00 or more, but less than 2.50	±0.17	±0.19	±0.21	—
2.50 or more, but less than 3.15	±0.19	±0.21	±0.24	—
3.15 or more, but less than 4.00	±0.21	±0.23	±0.26	—
4.00 or more, but less than 5.00	±0.24	±0.26	±0.28	±0.29
5.00 or more, but less than 6.00	±0.26	±0.28	±0.29	±0.31
6.00 or more, but less than 8.00	±0.29	±0.30	±0.31	±0.35
8.00 or more, but less than 10.0	±0.32	±0.33	±0.34	±0.40
10.0 or more, but less than 12.5	±0.35	±0.36	±0.37	±0.45
12.5 or more, but no more than 14.0	±0.38	±0.39	±0.40	±0.50

Remarks 1. The thickness measurement point is as per JIS G 3193.
2. Inapplicable to the irregular parts at both ends of a steel strip

■ Workable, hot-rolled high-tensile strength steel sheet/strip for automobiles (JIS G 3134)

(Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but no more than 2080
1.60 or more, but less than 2.00	±0.16	±0.19	±0.20 (Note 1)	—
2.00 or more, but less than 2.50	±0.18	±0.22	±0.23 (Note 1)	—
2.50 or more, but less than 3.15	±0.20	±0.24	±0.26 (Note 1)	—
3.15 or more, but less than 4.00	±0.23	±0.26	±0.28	±0.30
4.00 or more, but less than 5.00	±0.26	±0.29	±0.31	±0.32
5.00 or more, but less than 6.00	±0.29	±0.31	±0.32	±0.34
6.00	±0.32	±0.33	±0.34	±0.38

Note 1) Applicable to a steel sheet/strip with a width less than 1,600 mm
Remarks 1. The thickness measurement point is as per JIS G 3193 (shape, dimensions and mass of a hot-rolled steel sheet/strip and their tolerance).
2. Inapplicable to the irregular parts at both ends of a steel strip

■ Thickness tolerance of a hot-rolled high-tensile strength steel sheet (KOBELCO standard) is as per JIS G 3134.

■ Steel sheets and strips for high-pressure gas containers (JIS G 3116)

Thickness tolerance of SG255 and SG295

(Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but less than 2000
1.60 or more, but less than 2.00	±0.16	±0.17	±0.18	±0.21
2.00 or more, but less than 2.50	±0.17	±0.19	±0.21	±0.25
2.50 or more, but less than 3.15	±0.19	±0.21	±0.24	±0.26
3.15 or more, but less than 4.00	±0.21	±0.23	±0.26	±0.27
4.00 or more, but less than 5.00	±0.24	±0.26	±0.28	±0.29
5.00 or more, but less than 6.00	±0.26	±0.28	±0.29	±0.31
6.00	±0.29	±0.30	±0.31	±0.35

Remarks 1. If the width of the steel sheet/strip is 2,000 mm or more, the tolerance should be determined as an agreement between the parties concerned with the delivery.
2. Thickness is determined at an arbitrary point located 20 mm or more inward from the edge.
3. Inapplicable to the irregular parts at both ends of a steel strip

Thickness tolerance of SG325

(Unit: mm)

Thickness \ Width	Less than 1200	1200 or more, but less than 1500	1500 or more, but less than 1800	1800 or more, but less than 2000
1.60 or more, but less than 2.00	±0.16	±0.19	±0.20	—
2.00 or more, but less than 2.50	±0.18	±0.22	±0.23	—
2.50 or more, but less than 3.15	±0.20	±0.24	±0.26	—
3.15 or more, but less than 4.00	±0.23	±0.26	±0.28	±0.30
4.00 or more, but less than 5.00	±0.26	±0.29	±0.31	±0.32
5.00 or more, but less than 6.00	±0.29	±0.31	±0.32	±0.34
6.00	±0.32	±0.33	±0.34	±0.38

Remarks 1. If the width of the steel sheet/strip is 2,000 mm or more, the tolerance should be determined as an agreement between the parties concerned with the delivery.
2. Thickness is determined at an arbitrary point located 20 mm or more inward from the edge.
3. Inapplicable to the irregular parts at both ends of a steel strip

■ Other (JIS G 3193)

- Rolled steel material for general structure (JIS G 3101)
- Rolled steel material for welded structures (JIS G 3106)
- Checkered steel sheet (KOBELCO standard)

Thickness tolerance of the above items is as per JIS G 3193.

Tolerance of JIS G 3193

(Unit: mm)

Thickness \ Width	Less than 1600	1600 or more, but less than 2000	2000 or more, but no more than 2080
Less than 1.25	±0.16	—	—
1.25 or more, but less than 1.60	±0.18	—	—
1.60 or more, but less than 2.00	±0.19	±0.23	—
2.00 or more, but less than 2.50	±0.20	±0.25	—
2.50 or more, but less than 3.15	±0.22	±0.29	±0.29
3.15 or more, but less than 4.00	±0.24	±0.34	±0.34
4.00 or more, but less than 5.00	±0.45	±0.55	±0.55
5.00 or more, but less than 6.30	±0.50	±0.60	±0.60
6.30 or more, but less than 10.0	±0.55	±0.65	±0.65
10.0 or more, but less than 16.0	±0.55	±0.65	±0.65
16.0 or more, but less than 25.0	±0.65	±0.75	±0.75

Remarks Thickness should be determined at an arbitrary point located 25 mm or more inward from the edge (for a mill-edge steel strip or a cut sheet from it), or at an arbitrary point located 15 mm or more inward from the edge (for a cut-edge steel strip or a cut sheet from it).

Dimension tolerance

② Width tolerance

- Hot-rolled soft steel sheet/strip (JIS G 3131)
- Hot-rolled carbon steel strip for steel tubes (JIS G 3132)
- Hot-rolled steel sheet/strip for automobile structure (JIS G 3113)
- Vehicle-workable, hot-rolled high-tensile strength steel sheet/strip (JIS G 3134)
- Rolled steel material for general structure (JIS G 3101)
- Steel sheets and strips for high-pressure gas containers (JIS G 3116)
- Rolled steel material for welded structures (JIS G 3106)
- Hot-rolled high-tensile strength steel sheets (KOBELCO standard)
- Checkered steel sheet (KOBELCO standard)

Thickness tolerance of the above items is as per JIS G 3193.

Width tolerance of JIS G 3193

(Unit: mm)

Width	Thickness	Tolerance		
		Mill-edge steel strip and a cut sheet from it	Cut edge	
			A Pursuant to normal sawing methods	B Sawn again or undergone precision sawing
400 or more, but less than 630	Less than 6.00	+20 0	+10 0	+3 0
	6.00 or more, but less than 20.0		+10 0	+5 0
	20.0 or more		+15 0	–
630 or more, but less than 1000	Less than 6.00	+25 0	+10 0	+4 0
	6.00 or more, but less than 20.0		+10 0	+6 0
	20.0 or more		+15 0	–
1000 or more, but less than 1250	Less than 6.00	+30 0	+10 0	+4 0
	6.00 or more, but less than 20.0		+15 0	+6 0
	20.0 or more		+15 0	–
1250 or more, but less than 1600	Less than 6.00	+35 0	+10 0	+4 0
	6.00 or more, but less than 20.0		+15 0	+6 0
	20.0 or more		+15 0	–
1600 or more, but less than 2000	Less than 6.00	+40 0	+10 0	+4 0
	6.00 or more, but less than 20.0		+20 0	+6 0
	20.0 or more		+20 0	–
2000 or more, but less than 3000	Less than 6.00	+40 0	+10 0	+4 0
	6.00 or more, but less than 20.0		+20 0	+6 0
	20.0 or more		+20 0	–

※ For cut edge, tolerance A should precede unless otherwise specified.

③ Length tolerance (JIS G 3193)

- Hot-rolled soft steel sheet/strip (JIS G 3131)
- Hot-rolled carbon steel strip for steel tubes (JIS G 3132)
- Hot-rolled steel sheet/strip for automobile structure (JIS G 3113)
- Vehicle-workable, hot-rolled high-tensile strength steel sheet/strip (JIS G 3134)
- Rolled steel material for general structure (JIS G 3101)
- Steel sheets and strips for high-pressure gas containers (JIS G 3116)
- Rolled steel material for welded structures (JIS G 3106)
- Hot-rolled high-tensile strength steel sheets (KOBELCO standard)
- Checkered steel sheet (KOBELCO standard)

Thickness tolerance of the above items is as per JIS G 3193.

Length tolerance A of a steel sheet (pursuant to normal sawing methods)

(Unit: mm)

Length	Tolerance
Less than 4000	+20 0
4000 or more, but less than 6000	+30 0
6000 or more, but less than 8000	+40 0
8000 or more, but less than 10000	+50 0
10000 or more, but less than 15000	+75 0

Length tolerance B of a steel sheet (sawn again or undergone precision sawing)

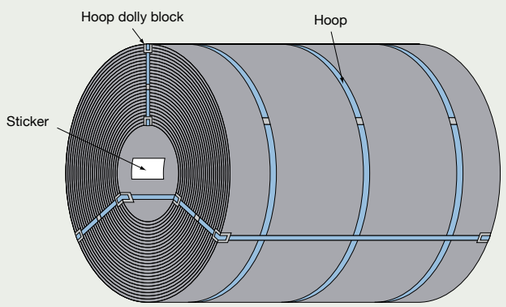
(Unit: mm)

Length	Thickness	Tolerance
Less than 6300	Less than 6.00	+5 0
	6.00 or more, but less than 20.00	+10 0
6300 or more	Less than 6.00	+10 0
	6.00 or more, but less than 20.00	+15 0

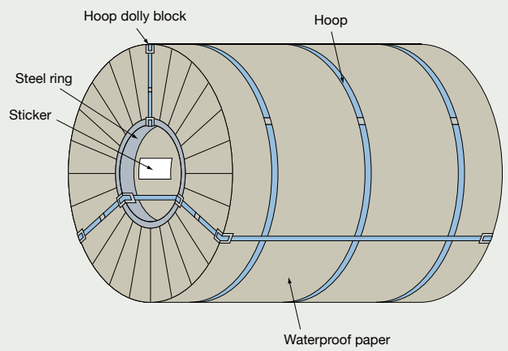
Packing and sticker indication

■ Coil packing

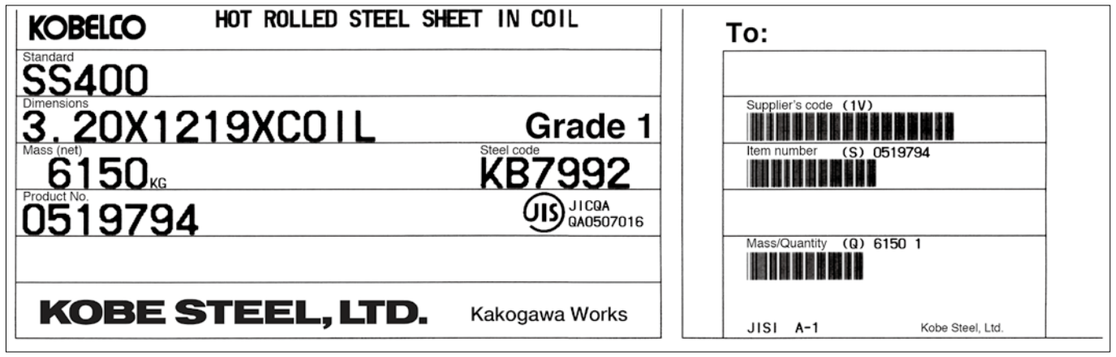
Mill scale coil



Pickling coil



■ Sticker indication



Order guide and contact

See the following guide before contacting us to place an order.

■ Specifications of a hot-rolled steel sheet

- Standard
- Dimensions : Thickness, width and length (sheet)
- Surface finish : Mill scale and pickling
- Ear finish : Mill edge and cut edge
- Inside diameter : 762 mm (30") and 610 mm (24") are standard.
- Outside diameter : Our maximum restriction on outside diameter is 2,100 mm.
- Unit of packing : Sheet: Usually, the standard weight of a sheet is 2 tons or greater.
  Coil: Specify the maximum single mass.

■ Applications and working conditions

- Purpose and condition of use and working conditions, such as welding and bending
- Dimension tolerance, mechanical properties and other required properties

■ Deadline

Note and disclaimer

The technical information written in this document is intended to explain the general properties and performance of our products and is not intended to guarantee anything other than the information and instructions herein.
The information written in this document may not apply depending on the purpose, environment and condition of use of the product. We assume no liability for any damage resultant from improper use of the product.
The descriptions in this document may be changed without prior notice. For the latest information, contact the relevant department of Kobe Steel, Ltd.

● Contact

Steel Sheet Sales Department
Tokyo Head Office
Osaka Branch Office
Nagoya Branch Office
Chugoku Sales Office
Kyushu Sales Office

Steel Sheet Products Technical Marketing Section
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