



KRAKATAU STEEL



Product Specification





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KS-PLATE[®]

HIGH QUALITY OF HOT ROLLED STEEL PLATE FOR SHIP BUILDING

KRI Clurit





KRAKATAU STEEL

PROFILE COMPANY



KRAKATAU STEEL

SUBSIDIARIES

PT Krakatau Wajatama
PT KHI Pipe Industries
PT Krakatau Tirta Industri
PT Krakatau Daya Listrik
PT Krakatau Industrial Estate Cilegon
PT Krakatau Engineering
PT Krakatau Bandar Samudera
PT Krakatau Information Technology
PT Krakatau Medika
PT Krakatau National Resources
PT Meratus Jaya Iron & Steel

JOINT VENTURES

PT Marga Mandala Sakti
PT Metbelosa
PT Kerismas Witicko Makmur
PT Indaref
PT Latinusa
PT SPIJ
PT Krakatau Posco
PT Indo Japan Steel Center
PT Krakatau Osaka Steel
PT Krakatau Nippon Steel Sumikin
PT Krakatau Semen Indonesia












COMPANY ASSOCIATED UNDER PT DANA PENSIUN KRAKATAU STEEL

PT Purna Sentana Baja
Bank Muamalat Indonesia
PT Pemeringkat Efek Indonesia
PT Wahana Sentana Baja
PT Purna Baja Heket
PT Multi Sentana Baja
PT Cipta Damas Karya
PT Sankyu Indonesia International
PT Purna Sentana Wahana
PT Sigma Mitra Sejati
PT Krakatau Prima Dharma Sentana

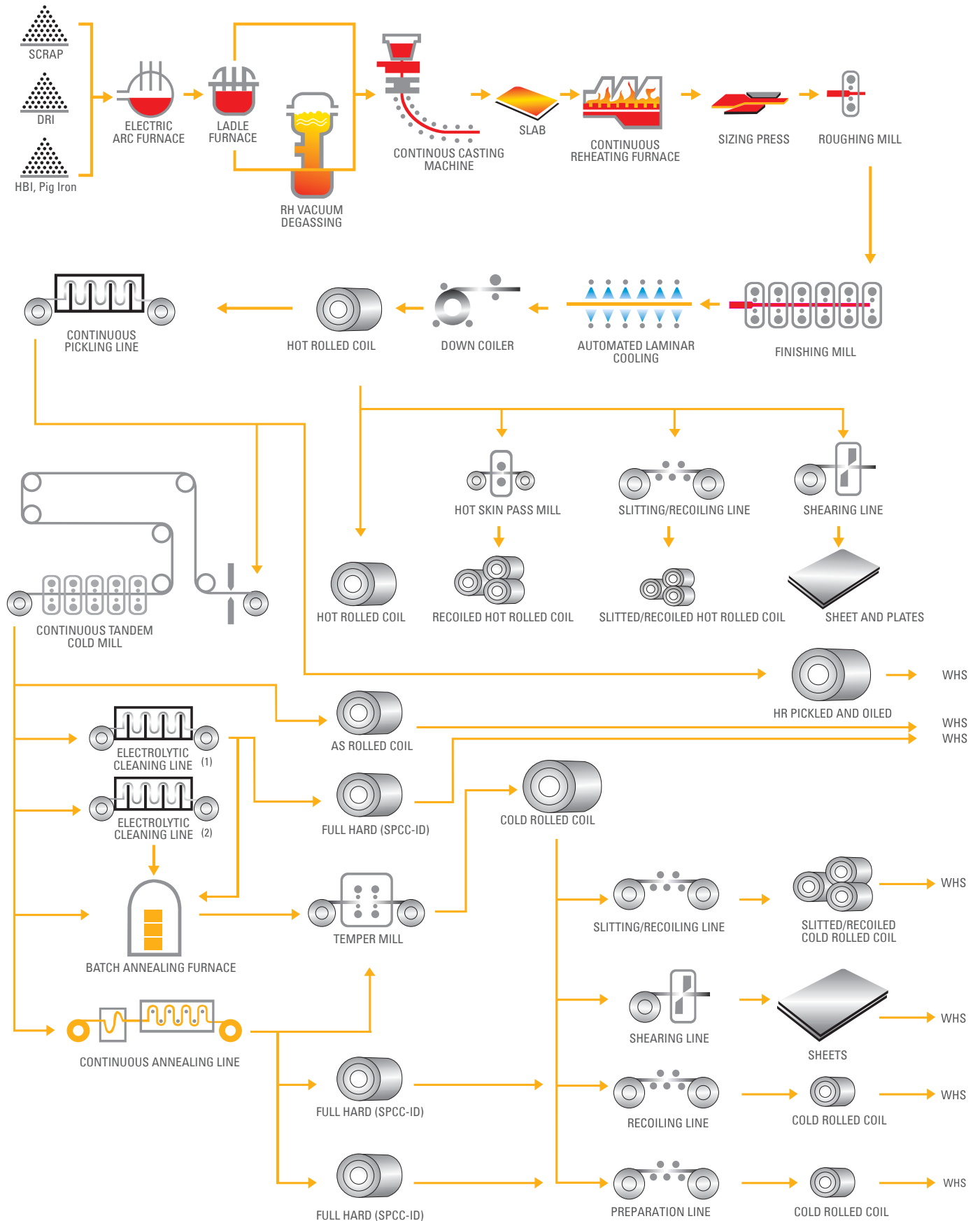


PT KRAKATAU STEEL, est. August 31th 2009 capacity:

Sponge Iron	:	2.500.000	ton/year
Steel Slab	:	1.800.000	ton/year
Steel Billet	:	650.000	ton/year
Steel Wire Rod	:	450.000	ton/year
Hot Rolled Steel Coil/Plate	:	2.000.000	ton/year
Cold Rolled Steel Coil/Sheet	:	850.000	ton/year

 BARS & SECTIONS <small>PT KRAKATAU WAJATAMA</small>	PT Krakatau Wajatama	Section Steel, And Reinforcing Bars
 PIPE & COATING <small>PT KHI PIPE INDUSTRIES</small>	PT KHI Pipe Industries	Steel Pipe And Coating Industry
 INDUSTRIAL WATER <small>PT KRAKATAU TIRTA INDUSTRI</small>	PT Krakatau Tirta Industri	Managing Water Resources & Providing Clean Water For Industry
 ENERGY SOLUTION <small>PT KRAKATAU DAYA LISTRIK</small>	PT Krakatau Daya Listrik	Power Plant, Electrical Services, Oil And Gas Distribution
 INDUSTRIAL ESTATE <small>PT KRAKATAU INDUSTRIAL ESTATE CILEGON</small>	PT Krakatau Industrial Estate Cilegon	Industrial Estate Property & Residential
 ENGINEERING & CONSTRUCTION <small>PT KRAKATAU ENGINEERING</small>	PT Krakatau Engineering	Engineering And Construction Services
 PORT & SERVICES <small>PT KRAKATAU BANDAR SAMUDERA</small>	PT Krakatau Bandar Samudera	Port Services Provider
 INFORMATION TECHNOLOGY <small>PT KRAKATAU INFORMATION TECHNOLOGY</small>	PT Krakatau Information Technology	Information Technology Services Provider
 HEALTH CARE <small>PT KRAKATAU MEDIKA</small>	PT Krakatau Medika	Health Care Services
 RAW MATERIAL SUPPLY <small>PT KRAKATAU NATIONAL RESOURCES</small>	PT Krakatau National Resources	Mining Industrial
 MERATUS JAYA <small>IRON & STEEL</small>	PT Meratus Jaya Iron Steel	Iron Ore Processing

FLAT PRODUCT MANUFACTURING OVERVIEW





1. Dimension

- Thickness : 200 mm
- Width : 800 - 2.080 mm
(Narrowed width can be supplied in ripped forms)
- Length : 12.000 mm maximum
- Weight : 30 tons maximum

2. Tolerance

- Thickness : ± 10 mm
- Width : ± 10 mm
- Length : As required
- Camber : 1% maximum of the total length
- Flatness : 1% maximum of the total length
- Concavity : 5 mm maximum
- Convexity : 5 mm maximum

HOT ROLLING FACILITIES



Reheating Furnace



Sizing Press



Roughing Mill



Hot Finishing Stand



Jet Cooling Spraying System



Hot Skin Pass Mill

HOT ROLLED COIL AND PLATE PRODUCTS

1. Hot Rolled Coil Dimension

Mill Edge	Slitted/ Trimmed Edge/ Recoiled	Skin Passed Mill
Thickness	1,60 ~ 25,0 mm	1,60 ~ 7,0 mm
Width	600 ~ 2.000 mm	600 ~ 1.500 mm
Coil Inner Diameter	760 ~ 2.000 mm	760 mm
Coil Weight	30 Ton Max.	

2. Hot Rolled Steel Strip / Plate

Strip	Plate
Thickness	1,60 ~ 6,0 mm
Width	600 ~ 2.000 mm
Length	1.000 ~ 6.000 mm
Package Weight	6 Ton Max.



3. Hot Rolled Pickled & Oil

Item	Min.	Max.
Thickness	1,80 mm	5,50 mm
Width	600 mm	1.250 mm
Diameter	ID 610 mm	OD 2.000 mm
Weight	10 MT	23,4 MT

4. Standard Specification

4.1. Oil & Gas Pipe

STANDARD	GRADE	GROUP APPLICATION
API 5CT	API 5CT H40 API 5CT J55 API 5CT K55	Hot rolled steel for casing, pipe and tubing is used for drilling, high weld ability and excellent fracture resistance.
API 5L	API 5L GRA API 5L GRB M API 5L GRB N API 5L X42 API 5L X42 M API 5L X46 BM API 5L X46 M API 5L X52 M API 5L X52 MO API 5L X52 MS API 5L X56 M API 5L X60 M API 5L X60 MO API 5L X60 MS API 5L X65 M API 5L X65 MO API 5L X65 MS API 5L X70 M API 5L X80	Hot rolled steel makes excellent pipeline material because of its strength, low temperature toughness, weldability and hydrogen induced crack resistance (sour services). Use in pipeline transportation system in the petroleum and natural gas industries. These use in pipeline transportation systems in the petroleum and natural gas industries, for use as casing and tubing for wells, as well as for other applications, applies to pipe piles in which the steel cylinder acts as a permanent load-carrying member, or as a shell to form cast-in-place concrete piles.
ASTM A139	ASTM A139 GRB	For Electric-Fusion (Arc)-Welder Steel.
DNV 485	DNV 485	
DNV OS F101	OS F101 GR450 OS F101 GR450 USF	Sub marine pipe line system.

4.2. Automotive

STANDARD	GRADE	GROUP APPLICATION
JIS G3113	SAPH310	Hot-rolled steel plate, sheet and strip for automobile structural uses.
	SAPH370	
	SAPH400	
	SAPH440	
	SAPH540	
JIS G3131	SPHC	Hot-rolled high strength steel plate, sheet and strip with improved formability for automobile structural uses.
	SPHD	
	SPHE	
JIS G3134	SPFH490	Having Superior workability of high strength steels, it is applied to automobiles.
	SPFH540	
JIS G4051	S20C	Carbon Steel for Machinery Structure.
	S45C	
JIS G4052	SCR440	Chromium Steel for Machinery Structure.
JIS G4104	SCR420H	Chromium Steel for Machinery Structure.
	SCR440H	
KRAKATAU STEEL STANDARD	KS E380	Hot rolled steel plate, sheet and strip for automobile structure used.
	KS E500	
	KS GR300	
	HSAPH 540	
	HSAPH 620	
	KSAPH 540	Wear Resistance Material.
	KSHT 800	
	KSTA 400	
	KSTA 500	
	KSW 500	
MIN SS400		
NAW	NAW 490	
SAE	SAE 1045	Used in the manufacture of a variety of axles, shafts, spindles and many other metal parts.
SNI 07 0601	BJPD	General Fabrication & Drawing Quality.
SANH	SANH 540	Hot rolled steel for automobile structure uses.
TISTEN	TISTEN 55	High Tensile Steel.

4.3. Hot Rolled Pickled & Oil

STANDARD	GRADE	GROUP APPLICATION
ASTM A569	ASTM A569 M - 98	Automotive parts for disc wheel or General Fabrication & Drawing Quality.
ASTM A570	ASTM A570 Gr 33	
DIN 17100	DIN 17100 ST 37.2	
JIS G3101	SS 400	
JIS G3116	SG 255	
JIS G3131	SPHC, SPHD, SPHE	
JIS G3113	SAPH310, SAPH370, SAPH400, SAPH440	LPG Bottle.
KRAKATAU STEEL	KSI37H, KSS37H, MP38, MPW1, MPW2	Oil and Gas Pipe, Pipe and Tube, General Structure.
	DDQ	Automotive Parts Deep Drawing Quality, Electrical, Machinery Part.
	EDD	
JIS G3132	SPHT1, SPHT2, SPHT3, SPHT4	Automotive Parts for Disc Wheel or General Fabrication & Drawing Quality.
SAE 1006		
SAE 1008		

4.4. Boiler & Pressure Vessel

STANDARD	GRADE	GROUP APPLICATION
ASTM A53	ASTM A53 GRB	Hot Dipped, Zinc-Coated, Welded and Seamless.
ASTM A252	ASTM A252 GR1	Electrical Resistance Welded Carbon Steel for Boiled Tube.
	ASTM A252 GR2	
	ASTM A252 GR3	
ASTM A283	ASTM A283 GRA	Plates, Carbon Steel, Low and Intermediate-Tensile Strength.
	ASTM A283 GRB	
	ASTM A283 GRC	
	ASTM A283 GRD	
ASTM A285	ASTM A285 GRA	
	ASTM A285 GRB	
	ASTM A285 GRC	
ASTM A515	ASTM A515 GR70	Plates, Carbon Steel, for Intermediate and Higher - Temperature Service.
ASTM A516	ASTM A516 GR70	Plates, Carbon Steel, for Moderate and Lower - Temperature Service.
BSEN 10120	BSEN 10120 P265NB	Plates for building boilers and pressure vessels such as petroleum, chemical industry, reactor etc.
JIS G3116	SG255	Welded containers for high pressure gas holder of volume less than 500 l for LPG, acetylene and propane gas.
JIS G3116	SG295	
SAE 1019	SAE 1019	These steels are the lowest carbon steels of the plain carbon type, and are selected where cold formability is the primary requisite of the user. They are produced both as rimmed and killed steels.
SAE 1020	SAE 1020	
SAE 1021	SAE 1021	
SAE 1022	SAE 1022	
SAE 1026	SAE 1026	

4.5. Container

STANDARD	GRADE	GROUP APPLICATION
CORTEN	CORTEN A	Weather corrosion resistance steel for structure.
	CORTEN B	
	CORTEN C	
JIS G3125	SPAH	Having superior atmospheric corrosion resistance, it is applied to architecture, steel tower, steel container and other structures.
KRAKATAU STEEL	BTKC GRA	Weather corrosion resistance steel for structure.
	BTKC GRB	
	BTKC GRC	
SNI	SNI 07 0601 BJPE	Corrugated Steel Structures.

4.6. Pipe & Tube

STANDARD	GRADE	GROUP APPLICATION
JIS A5525	SKK400	Welded pipes with low and high frequency welding.
JIS G3232	SPHT1	
	SPHT2	
	SPHT3	
	SPHT4	
KRAKATAU STEEL	SPHK 1	Welded steel pipes and tubes.
	SPHK 2	

4.7. General Structures

STANDARD	GRADE	GROUP APPLICATION
AS 1594-1992	AS 1594 – 1992 HA200	General Structures for Buildings, Bridges and Ships.
	AS 1594 – 1992 HA250	
	AS 1594 – 1992 HA300	
	AS 1594 – 1992 HA350	
AS/NZ 1594	AS/NZ 1594 HA 350	
	AS/NZ 1594 - 2002 HA250	
ASTM A36	ASTM A36	Carbon steel of structural quality for use welded construction of bridges and buildings and general structural purpose.
ASTM A242	ASTM A242 GR2	High Strength Low-Alloy Structural Steel.
ASTM A284	ASTM A284 GRC	Machine Parts and General Construction.
	ASTM A284 GRD	
ASTM A569	ASTM A569	This material is intended for parts where bending, moderate forming or drawing, and welding may be involved.
ASTM A570	ASTM A570 GR30	Structural Steel.
	ASTM A570 GR33	
	ASTM A570 GR36	
	ASTM A570 GR40	
	ASTM A570 GR45	
	ASTM A570 GR50	
ASTM A572	ASTM A572 GR42	High Strength Low-Alloy Columbium-Vanadium Structural Steel.
	ASTM A572 GR50	
	ASTM A572 GR55	
ASTM A573	ASTM A573 GR70	Structural Carbon Steel Plate of Improved Toughness.
ASTM A607	ASTM A607 GR50	High - Strength Low Alloy Columbium-Vanadium Steel for Structural Quality.
ASTM A792	ASTM A792 GR50A	This product is intended for applications requiring corrosion resistance or heat resistance, or both.
	ASTM A792 GR50B	
ASTM A907	ASTM A907 G36	Good tension stress and yield strength.
	ASTM A907 GR30	
BS 4360	BS 4360 GR43A	High - Strength Low Alloy Columbium-Vanadium Steel for Structural Quality.
	BS 4360 GR50B	
	BS 4360 GR50C	
	BS 4360 GR55C	
	BS 4360 WR50A	
BSEN 10025	BSEN S235JO	Welded Structure for Building, Bridges, Ships, Petroleum Storage, Tank Containers.
	BSEN S235JR	
	BSEN S275J2	
	BSEN S275JR	
	BSEN S355JR	
	BSEN S355JO	
	BSEN S355JR	
CSA G4021	CSA G4021 300W	Structural, Carbon & HSLA Steel Plate.
	CSA G4021 350W	
DIN 1543	DIN 1543 ST37-2 CU3	Welded Structure for Building, Bridges, Ships, Petroleum Storage, Tank Containers.
	DIN 1543 ST52-2 CU3	
DIN 17100	DIN 17100 ST37-2	Applies to steel sections (including wide flange beams), steel bars, wire rod, flat products (strip, plate, wide flats) seamless and welded, square and rectangular hollow sections, forgings and semi-finished products in the general structural steels nemed, which are delivered in the hot formed or normalized condition after production.
	DIN 17100 ST44-2	
	DIN 17100 ST52-3	
DIN 17175	DIN 17175 15MO3	Seamless Steel Pipe/Tube which is used for the pipelines of boiler industry.

STANDARD	GRADE	GROUP APPLICATION
EN 10025	EN 10025 S235JR+AR	Hot rolled products of non-alloy structural steels.
	EN 10025 S355JOC	
	EN 10025 S355JOG	
	EN 10025 S355JRG	
KRAKATAU STEEL	1E 1006	Steel for Heavy Equipment.
JIS G3101	SS330	Having each strength level, which is applied to structural materials for architecture, bridge, ships, rolling stocks and other structures.
	SS400	
	SS490	
	SS540	
JIS G3106	SM400A	Having superior strength and weldability, it is applicable to architecture, bridge, ships, rolling stock body, petroleum storage tanks, container and other constructions.
	SM400B	
	SM400C	
	SM490A	
	SM490B	
	SM490C	
	SM490YA	
SM490YB		
JIS G3136	SN400B	Hot rolled – seismic improved structural steels, used for structural members buildings, architecture structures.
	SN490B	
JIS G3466	STKR 400	Carbon Steel Square for general structural purposes.
SNI 07 0601	BJPC	General Fabrication & Drawing Quality.
	BJPS	

4.8. Re-rolling

STANDARD	GRADE	GROUP APPLICATION
BSEN 10111	BSEN 10111 DD11	Mild steel/low carbon steel, may still fall under the category of special steel if any special properties is specified in the steel.
SAE 1006	SAE 1006	These steels are the lowest carbon steels of the plain carbon type, and are selected where cold formability is the primary requisite of the user. They are produced both as rimmed and killed steels.
	SAE 1006 B	
	SAE 1006 C	
SAE 1008	SAE 1008	
SAE 1010	SAE 1010	
SAE 1012	SAE 1012	
SAE 1015	SAE 1015	
SAE 1016	SAE 1016	
SAE 1018	SAE 1018	
SAE 1019	SAE 1019	
SAE 1020	SAE 1020	
SAE 1021	SAE 1021	
SAE 1022	SAE 1022	
SAE 1026	SAE 1026	
ASTM A1006	ASTM A1006	
ASTM A1008	ASTM A1008	
	ASTM A1008 CS TYPE B	
ASTM A1010	ASTM A1010	
	ASTM A1010M1	
	ASTM A1010M2	
ASTM A1011	ASTM A1011	
ASTM A1011	ASTM A1011B	
	ASTM A1011 CS TYPE B	
ASTM A1012	ASTM A1012	

4.9. Ship Building

STANDARD	GRADE	GROUP APPLICATION
ABS	ABS AH32	Ordinary-strength shipbuilding steel comes in a number of grades, A and B, the plates are marked with the grade and a preceding A, or B. Higher-strength shipbuilding steel with two number strengths 32 or 36.
	ABS AH36	
	ABS GRA	
ASTM A131	A131 GRB	
BV	BV AH32	
	BV AH36	
	BV GRA	
	BV GRB	
GL	GL GRA	
	GL GRB	
KI	KI GRA	
	KI GRB	
LR	LR GRA	
NK	NK A32	
	NK A36	
	NK GRA	
NV	NV A	
	NV A32	
	NV A36	
RINA	RINA AH32	
	RINA AH36	
	RINA GRA	

4.10. Checkered

STANDARD	GRADE	GROUP APPLICATION
KRAKATAU STEEL	Checkered	Floor Plate.

DIMENSION	STRIP THICKNESS	
	2,30 - 6,00 mm	6,00-12,70 mm
Length (L)	26,80 mm	33,00 mm
Width (W)	4,90 mm	7,70 mm
Height (H)	1,50 mm max.	1,50 mm max.
Pitch Size (P)	45,00 mm	60,00 mm
Angle of Profile to Rolling Direction (α)	45	45

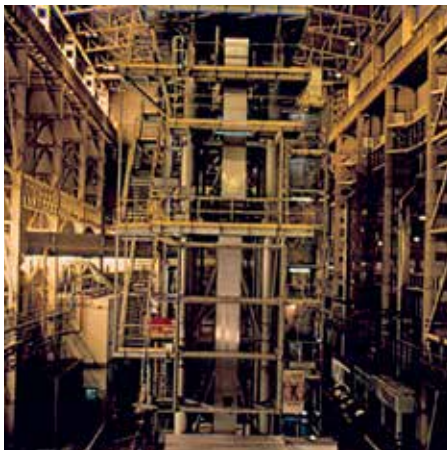
COLD ROLLING FACILITIES



Continuous Picking Line



Continuous Tandem Cold Mill



Continuous Annealing Line



Batch Annealing Furnace



Temper Mill



Recoiling Entry

COLD ROLLED COIL / SHEET PRODUCTS



Cold Rolled Coil



Cold Rolled Sheet

1. Dimension & Weight

1.1. Annealed Steel Cold Rolled Coil

Thickness (mm)		Width (mm)		Diameter (mm)		Weight (MT) Max.
Min.	Max.	Min.	Max.	Min.	Max.	
0,20	3,00	762	1.250	508	200	23,40

1.2. Annealed Cold Rolled Sheet

Thickness (mm)		Width (mm)		Length (mm)		Weight in one pack (MT) Max.
Min.	Max.	Min.	Max.	Min.	Max.	
0,40	2,00	762	1.250	762	4.880	3,00

1.3. Full Hard & As Rolled

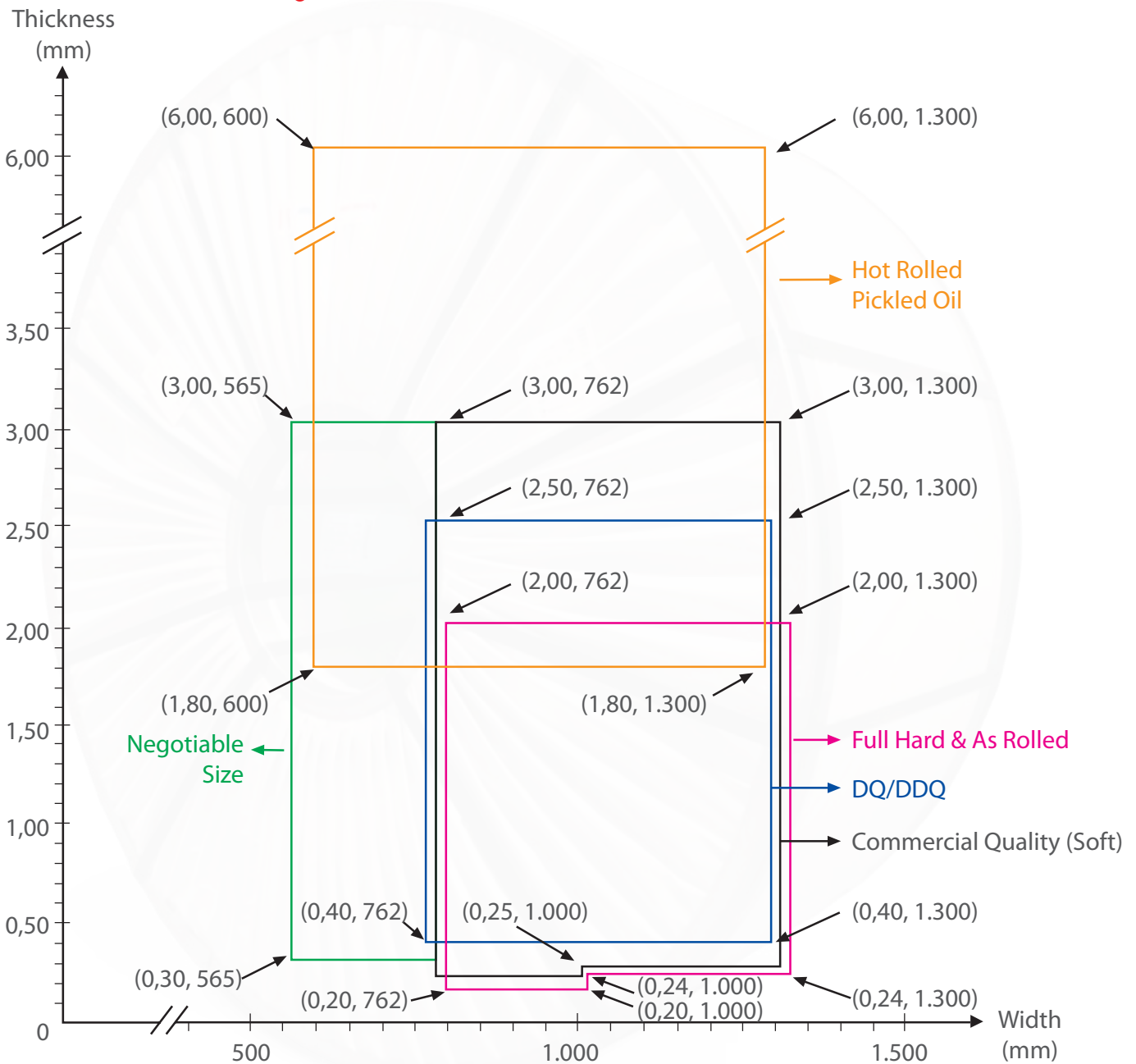
Thickness (mm)		Width (mm)		Diameter (mm)		Weight (MT) Max.
Min.	Max.	Min.	Max.	ID	OD	
0,20	2,00	762	1.100	508	2.000	23,40

2. Cold Rolled Coil / Sheet Standard

STANDARD	GRADE	GROUP APPLICATION
ASTM	A366 M - 91	Galvanized Soft.
	A446M Gr. B, C (as base metal)	Structural Steel Pipe / Tube Galvanized Structural Quality.
	A446 Gr. E	Galvalum.
	A611 Gr. A, B	Steel Roof.
	A611 Gr. C, D	Structural Steel Pipe / Tube Galvanized Structural Quality.
	A611 Gr. E	Galvanized Hard.
	A1008 / A1008M 01a	Automotive Parts Deep Drawing Quality Electrical Machinery Parts.
	A1008 / A1008M 01a CS Type A, B & C	Automotive Parts, Building Material.
	A1008 / A1008M 01a DS Type A & B	Automotive Parts, Drawing Quality, Household Electrical Appliance.
DIN	1623 Part 1 - ST12 - 03 ST12 - 03	Drum.
	1623 Part 1 - ST13	Automotive Parts, Drawing Quality, Household Electrical Appliance.
	1623 Part 3 - 87 (ED3: ED4)	Enamelware (Enamelability - Guaranteed).
	1623 EK2, EK3	Enamelware (No Enamelability Guarantee).

STANDARD	GRADE	GROUP APPLICATION
JIS	G 3133 KSPP	Enamelware (Enamelability - Guaranteed).
	G 3303 (TMBP) KSPB	Beverage Can, Food Can, General Can.
	G 3141 SPCC – ID, SPCC - (CR1)	Electrical Appliance, General Purpose, GI Structural Quality.
	G 3141 SPCD (CR2)	Automotive Parts, Drawing Quality, Household Electrical Appliance.
	G 3141 SPCE (CR3), G 3141 SPCF	Automotive Parts Deep Drawing Quality Electrical Machinery Parts.
	G 3141 SPCCT-SD	Enamelware (No Enamelability Guarantee).
	G 3445 96 Gr.13A	Structural Steel Pipe / Tube Galvanized Structural Quality.
KRATAU STEEL STANDARD	619 M 92	Automotive Parts, Drawing Quality, Household Electrical Appliance.
	SPCK1, SPCK2, SPCK3, SPCK4, SPCK5, KSSTA, KSS37, KSS37C, KSI17C, KSI34, KSI37	Pipe & Tube Steel Pipe Structural.
	KSSC780	Steel frame housing.
	SPCG 550A, SPCG 550B	Steel Strapping.
	SPC 800 C, SPC 800 H	Steel Strapping.
	SPFC490	Atmospheric Corrosion.

3. Available Size Range



STEEL MAKING FACILITIES



Control Room



Electric Arc Furnace



Ladle Furnace



Continuous Casting Machine

LABORATORY AND TESTING FACILITIES



Vacuum Induction Furnace



HIC & SSC

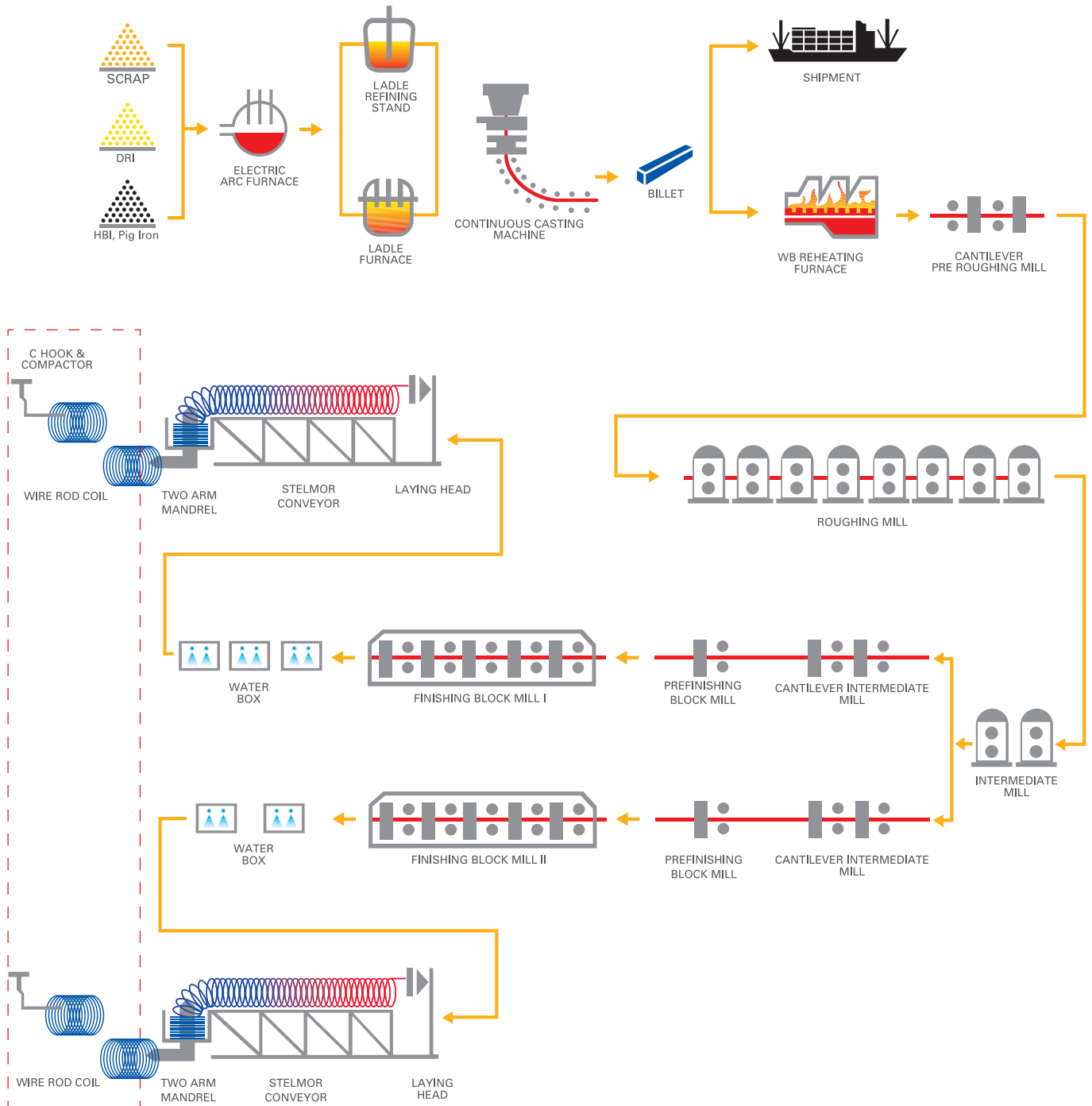


Tensile Testing Machine for HR



Tensile Testing Machine for CR

LONG PRODUCT MANUFACTURING OVERVIEW





1. Dimension & Weight

No	Dimension (mm)	Length Max. (mm)	Weight Max. (Kg)
1	120 x 120	12.000	1.327 ±13
2	130 x 130	12.000	1.565 ±15

2. Tolerance

Dimension = ± 4 mm

Rhomboid = $[(d.\max.-d.\min) / d.\min] \times 100\% = 7\%$ maximum

d = diagonal cross section of Billet

Chamber = $(c / \text{Length}) \times 100\% = 0,50\%$ maximum

c = middle height of chamber wave

Length = ± 1 %

3. Steel Billet Standard

3.1. Steel Billet for Grade SWRM

KS STANDARD	JIS G 3505	GROUP APPLICATION
KS 1006	SWRM 6	Low Carbon Steel Wire, Zinc Coated Low Carbon Steel Wire.
KS 1008	SWRM 8	
KS 1010	SWRM 10	
KS 1010KI	-	
KS 1012	SWRM 12	
KS 1015	SWRM 15	
KS 1017	SWRM 17	
KS 1020	SWRM 20	

3.2. Steel Billet for Grade SAE / AISI

KS STANDARD	SAE / AISI	GROUP APPLICATION
KS 1006 B	1006	Low Carbon Steel Wire, Zinc-Coated Low Carbon Steel Wire.
KS 1008 B	1008	
KS 1010 B	1010	
KS 1012 B	1012	
KS 1015 B	1015	
KS 1017 B	1017	
KS 1020 B	1020	

3.3. Steel Billet for Grade Welding Electrode & Cold Heading

KS STANDARD	EQUIVALENT	GROUP APPLICATION
KS 1006 E1	JIS 3503 SWRY 11	W R for Core Wire of Covered Electrode.
KS 1006 E2	SWRM 6	W R for Shield Metal Arc Welding.
KS 1008 WS	AWS EL12	W R for Submerged Metal Arc Welding.
KS 1208 WS	AWS E12K	W R for Submerged Metal Arc Welding.
KS 1508 E	ER 70 S6	WR for CO2 Welding.
KS SWRCH 8 (ACH8) ~ KS SWRCH 10 (ACH 10)	SWRCH8 (ACH8) ~ SWRCH 10 (ACH 10)	Wire Rods for Cold Heading and Forging.
KS 1008 ACH	SWRCH 8A (JIS 3507)	
KS 1018 ACH	SWRCH 18A (JIS 3507)	Heading and Forging.

3.4. Steel Billet for Grade SWRH

KS STANDARD	STANDARD	GROUP APPLICATION
KS 1042A	SWRH 42A	Hard Drawn Steel Wire Rod.
KS 1062A	SWRH 62A	
KS 1062B	SWRH 62B	
KS 1067A	SWRH 67A	
KS 1067B	SWRH 67B	- ACSR
KS 1072A	SWRH 72A	- Bead Wire
KS 1072B	SWRH 72B	- Spring Bed
KS 1077B	SWRH 77B	- Spring Bed - Wire Rope
KS 1082B	SWRH 82B	- Wire Rope
KS 1082B1	SWRH 82B	- PC Strand - PC Wire

3.5. Steel Billet for Grade SR24, SD40 & SD50

KS STANDARD	JIS G3112	GROUP APPLICATION
KS 1015	SR24	Carbon Steel for Deformed Bar.
KS 1020	SR24	
KS 1025	SR24	
KS 24	SR24	Straightening.
KS 1325 V0/N0	SD40	Carbon Steel for Deform Bars.
KS 1325 V1/N1	SD40	
KS 1325 V2/N2	SD40	
KS 1325 V3/N3	SD40	
KS 1325 V3/N4	SD50	

3.6. Steel Billet for Grade S15C until S45C

KS STANDARD	JIS G4051	GROUP APPLICATION
KS 1008 C	SWRM 8	Carbon Steel for Shafting Bar.
KS 1015	S 15 C	
KS 1025	S 25 C	
KS 1030	S 30 C	
KS 1035	S 35 C	
KS 1045	S 45 C	

STEEL WIRE ROD PRODUCTS

1. Diameter, Tolerance & Weight

Diameter (mm)	Tolerance (mm)	Out of Round (mm)	Weight (kg)		Diameter Coil	
			Min.	Max.	LD (mm)	OD (mm)
5,5; 6,0; 6,5; 7,0; 7,5; 8,0; 9,0; 10,0; 11,0; 12,0; 14,0; 15,0; 16,0; 17,0; 19,0; 20,0	± 0,3	0,4 Max	850	1.160	860	1.250

2. Wire Rod SWRM (Approved by JIS)

EQUIVALENT			GROUP APPLICATION
KRAKATAU STEEL	JIS G 3505	AISI / SAE	
KS 1006	SWRM 6	1006	Nail, Shafting Bar.
KS 1008	SWRM 8	1006	
KS 1008 K	SWRM 8 K	1008	Wire Mesh.
KS 1010	SWRM 10	1010	Nail.
KS 1010 KI		-	Kawat Bronjong.
KS 1012 K	SWRM 12 K	1012	Wire Mesh.
KS 1015	SWRM 15	1015	Nail, Wire Mesh.
KS 1017	SWRM 17	1017	Wire Mesh.
KS 1020	SWRM 20	1020	Nail, Shafting Bar, Wire Mesh.

3. Wire Rod Grade SAE / AISI

EQUIVALENT		GRADE	GENERAL APPLICATION
KS 1006 B	AISI 1006	AISI 1006	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 6	SWRM 6	
	SAE 1006	SAE 1006	
KS 1008 B	AISI 1008	AISI 1008	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm L C for Shafting Bar
	JIS G 3505 SWRM 8	SWRM 8	
	SAE 1008	SAE 1008	
KS 1010 B	AISI 1010	AISI 1010	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 10	SWRM 10	
	SAE 1010	SAE 1010	
KS 1012 B	AISI 1012	AISI 1012	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 12	SWRM 12	
	SAE 1012	SAE 1012	
KS 1015 B	AISI 1015	AISI 1015	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 15	SWRM 15	
	SAE 1015	SAE 1015	
KS 1017 B	AISI 1017	AISI 1017	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 17	SWRM 17	
	SAE 1017	SAE 1017	
KS 1020 B	AISI 1020	AISI 1020	L/M Carbon for Drawing Ø < 2,00 mm L/M Carbon for Drawing Ø > 2,00 mm
	JIS G 3505 SWRM 20	SWRM 20	
	SAE 1020	SAE 1020	

4. Wire Rod for Welding Electrode & Cold Heading

KRAKATAU STEEL	JIS G 3505	GROUP APPLICATION
KS 1006 E	SWAY – 11	Wire Rod for Core Wire of Covered Electrode.
KS 1006 E1	SWRY – 11	
KS 1006 E2	IEW 649 FI	Wire Rod for Covered Electrode.
KS 1006 E3	EW 2616 B	
KS 1006 E4	EW 1804 A	
KS 1006 E5	ER 705-3	
KS 1008 ACH	SWRCH 8A	Carbon Steel for Wire Rod with Cold Heading and Cold Forging End Use.
KS 1010 ACH	SWRCH 10A	
KS 1012 ACH	SWRCH 12A	
KS 1018 ACH	SWRCH 18A	
KS 1045 K	SWRCH 45K	

5. Wire Rod Grade SWRH

KRAKATAU STEEL	JIS G 3506	GROUP APPLICATION
KS 1042A	SWRH 42A	Umbrella Ribs, Helical Wire.
KS 1062A	SWRH 62A	Screw Driver, Spring Wire.
KS 1062B	SWRH 62B	Screw Driver, Spring Bed.
KS 1067A	SWRH 67A	Cable Housing, Spring Bed, Wire Rope Strand.
KS 1067B	SWRH 67B	Bead Wire, Spring Bed, Wire Rope Strand.
KS 1072A	SWRH 72A	ACSR, Bead Wire, Wire Rope Strand.
KS 1072B	SWRH 72B	
KS 1077B	SWRH 77B	Frame Spring Bed, Wire for Rolling Door.
KS 1082B	SWRH 82 B	Wire Rope.
KS 1082B1	SWRH 82 B1	PC Strand, PC Wire.

6. Wire Rod for Concrete Reinforce

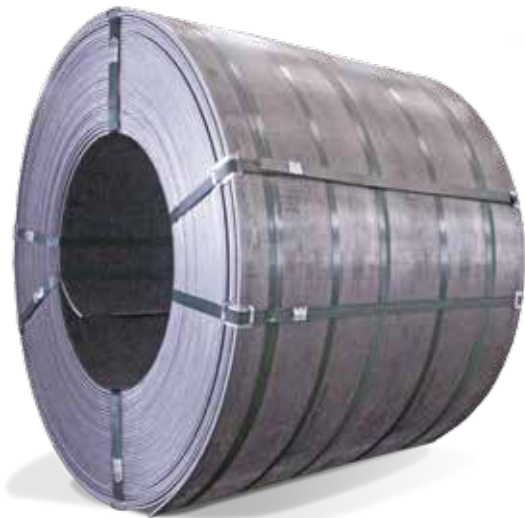
KRAKATAU STEEL	JIS G 3112	GROUP APPLICATION
KS 1015 R	SR 24	Carbon Steel for Concrete Reinforcement Bar.
KS 1020 R	SR 24	
KS 1025	SR 24	
KS 1325V	SD 40	
KS 1325N	SD 40	

7. Wire Rod for Shafting Bar, Grinding Ball & Straightening

KRAKATAU STEEL	EQUIVALENT	GROUP APPLICATION
KS 1030	JIS G 4051 S 30C	Carbon Steel for Shafting Bar.
KS 1035	JIS G 4051 S 35C	
KS 1045	JIS G 4051 S 45C	
KS 5052	AISI / SAE 5052	Alloy Steel for Grinding Ball.
KS 1082 B	JIS G 3507	Wire Rod for Straightening.
KS 24	JIS G 3112 SR24	
BJT 24	-	

TYPE OF PRODUCTS

1. Hot Rolled Steel Coil Packing Standard



Hot Rolled Coil



Hot Rolled Plate Unpacking



Hot Rolled Plate Paper Packing



Hot Rolled Checkered Coil



Hot Rolled Checkered Plate



Hot Rolled Checkered Pattern

2. Cold Rolled Steel Coil Packing Standard



Cold Rolled Metal Packing



Cold Rolled Steel Sheet Metal Packing



Cold Rolled Paper Packing



Cold Rolled Steel Sheet Paper Packing





3. Wire Rod Coil Packing Standard











Wire Rod Coil





SAMPLE OF LABELS





1. Export

COMMODITY HOT ROLLED STEEL COIL		 PRODUCTION DATE : 2011-10-14 DEBT CODE 00	 015956
SPECIFICATION JIS G 3101 SS400	 JIS G 3101 SS400 JOID08005 PT. KRAKATAU STEEL		
SIZE (MM) 6.03 X 1,925 X COIL			
COIL NO 015956	HEAT NO 84898S		
NET MASS (KG) 17,340	PIECES 1		
		MADE IN INDONESIA	



COMMODITY HOT ROLLED STEEL COIL		 PRODUCTION DATE : 2010-07-10 DEBT CODE 00	 878763
SPECIFICATION ASTM A 283 GRADE C	 ASTM A 283 GRADE C		
SIZE (MM) 18.11 X 1,879 X COIL			
COIL NO 878763	HEAT NO 52214S		
NET MASS (KG) 16,460	PIECES 1		
		MADE IN INDONESIA	



COMMODITY COLD ROLLED STEEL COIL		 DATE: 11/05/2012 09:18 30436 1 081 (PAPER) MADE IN INDONESIA	 392593A
SPECIFICATION JIS G3141 SPCC-SD	 JIS G3141 SPCC-SD JOID08006 PT. KRAKATAU STEEL		
SIZE (MM) 1.00 X 1219 X COIL			
COIL NO 392593A	OILING OIL		
NET MASS (KG) 10,540	PIECES 1		
		MADE IN INDONESIA	



COMMODITY COLD ROLLED STEEL COIL		 DATE: 08/06/2012 08:15 30660 1 081 (PAPER) MADE IN INDONESIA	 392899A
SPECIFICATION JIS G3141 SPCC-1D	 JIS G3141 SPCC-1D JOID08006 PT. KRAKATAU STEEL		
SIZE (MM) 0.70 X 1219 X COIL			
COIL NO 392899A	OILING DRY		
NET MASS (KG) 13,960	PIECES 1		
		MADE IN INDONESIA	



COMMODITY WIRE ROD STEEL COIL		 42117082 PROD. DATE: 07/07/2012 MADE IN INDONESIA	 2117082
SPECIFICATION JIS G3505 SWRM 8	 JIS G3505 SWRM 8 JOID08004 PT. KRAKATAU STEEL		
SIZE (MM) 7.00			
COIL NO 2117082	HEAT NO 23441S		
NET MASS (KG) 1141	PIECES 1		
		MADE IN INDONESIA	



2. Local



		 TGL. FYLUU. : 23 OKTOBER 2011
KOMODITI BAJA LEMBARAN, DAN GULUNGAN CANAI DINGIN		
SPESIFIKASI SNI 07-3567-2006 Bj DC 1R (Oli)		
UKURAN (MM) 0,20 X 914 X GULUNGAN	BERAT BERSIH (KG) 6.920	
NO GULUNGAN 074738		
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		


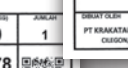
		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BAJA LEMBARAN, PELAT, DAN GULUNGAN CANAI PANAS		
SPESIFIKASI JIS G 3136 SN400B		
UKURAN (MM) 955 X GULUNGAN	BERAT BERSIH (KG) 16.920	
NO GULUNGAN 8638	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		



		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BAJA LEMBARAN, PELAT, DAN GULUNGAN CANAI PANAS		
SPESIFIKASI SNI 07-0601-2006 Bj PS		
UKURAN (MM) 16,00 X 1.980 X GULUNGAN	BERAT BERSIH (KG) 17.000	
NO GULUNGAN 078696	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BAJA LEMBARAN, PELAT, DAN GULUNGAN CANAI PANAS		
SPESIFIKASI ASTM A570 GR 30		
UKURAN (MM) 14,00 X 1.955 X 10.000	BERAT BERSIH (KG) 16.920	
NO GULUNGAN 078638-12	JUMLAH 10	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BATANG KAWAT BAJA GULUNGAN		
SPESIFIKASI SNI 07-0053-2006 Bj Bkr 6		
UKURAN (MM) 5,0 X GULUNGAN	BERAT BERSIH (KG) 1.000	
NO GULUNGAN 079709	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BATANG KAWAT BAJA GULUNGAN		
SPESIFIKASI SAE 1020		
UKURAN (MM) 5,0 X GULUNGAN	BERAT BERSIH (KG) 1.000	
NO GULUNGAN 079709	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BATANG KAWAT BAJA GULUNGAN		
SPESIFIKASI JIS G 3505 SWRM6		
UKURAN (MM) 5,0 X GULUNGAN	BERAT BERSIH (KG) 1.000	
NO GULUNGAN 079709	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

		 TGL. PROD. : 23 OKTOBER 2011
KOMODITI BATANG KAWAT BAJA GULUNGAN		
SPESIFIKASI SNI 07-0053-2006 Bj Bkr 6		
UKURAN (MM) 5,0 X GULUNGAN	BERAT BERSIH (KG) 1.000	
NO GULUNGAN 079709	JUMLAH 1	
DIBUAT OLEH PT KRAKATAU STEEL (PERSERO) Tbk. CILEGON, BANTEN, INDONESIA		

CERTIFICATIONS

NO	CERTIFICATES	CERTIFICATES NO.
1	ISO 14001 : 2004 / SNI 19-14001:2005 (Sucofindo)	EMS 00104
2	SNI ISO 9001 :2008	QSC 00819
3	OHSAS 18001 : 2007	OSH 00176
4	Sertifikat Penggunaan Tanda SNI (Baja Lembaran, Pelat dan Gulungan Canai Panas)	45/19.03.08/P/10/LSPro-Surabaya/I/2011
5	Sertifikat Penggunaan Tanda SNI (Baja Canai Panas untuk Konstruksi dengan Pengelasan)	46/19.03.10/S/10/LSPro-Surabaya/I/2011
6	Sertifikat Penggunaan Tanda SNI (Batang Kawat Baja Karbon Rendah untuk Kawat Las Listrik)	47/19.03.11/S/10/LSPro-Surabaya/I/2011
7	Sertifikat Penggunaan Tanda SNI (Batang Kawat Baja Karbon Rendah untuk Cold Heading & Cold Forging)	48/19.03.12/P/10/LSPro-Surabaya/I/2011
8	Sertifikat Penggunaan Tanda SNI (Baja Lembaran dan Gulungan Canai Dingin)	49/19.03.13/P/10/LSPro-Surabaya/I/2011
9	Sertifikat Penggunaan Tanda SNI (Batang Kawat Baja Carbón Rendah)	50/19.03.14/S/10/LSPro-Surabaya/I/2011
10	Sertifikat Penggunaan Tanda SNI (Baja Lembaran Pelat dan Gulungan, Canai Panas untuk Tabung Gas)	51/19.03.15/S/10/LSPro-Surabaya/I/2011
11	Sertifikat Penggunaan Tanda SNI (Baja Karbon Strip Canai Panas untuk Pipa)	52/19.03.16/S/10/LSPro-Surabaya/I/2011
12	Sertifikat Akreditasi Lab.Uji Kimia & Mekanik	LP-152-IDN
13	Sertifikat Akreditasi Lab.Kalibrasi	LK-049-IDN
14	Sertifikat Akreditasi Lab.Uji Lingkungan	LP-137-IDN
15	Sertifikat Audit Sistem Manajemen Keselamatan & Kesehatan Kerja	02/00176/SE/2004
16	JIS G 3131 & JIS G 3141	JQID08006
17	JIS G 3505	JQID08004
18	JIS G 3503	JQID08003
19	JIS G 3101,JIS G 3106,JIS G 3136	JQID08005
24	Lloyd's Register (Photo Copy)	MD00/1183/0005/1
25	Germanischer Lloyd	WZ 584 HH 5
26	Lloyd's Register (S235JR & S235JO-25 mm, S275JO,S275JR,S355JR & S355JO-22mm)	0038/CPD/JKT20060003/A SCHEDULE
27	Lloyd's Register	JKA 9921145/1
28	BIRO KLASIFIKASI INDONESIA GRADE KI-A- s/d tebal 25 mm	07.0016 F.A.
29	BIRO KLASIFIKASI INDONESIA GRADE KI-B- s/d tebal 25 mm	07.0017 F.A.
30	COR-TEN STEEL LICENCE AGREEMENT	
31	DET NORSKE VERITAS	AMM-5188
32	NIPPON KAIJI KYOKAI	NKR-144ROL
33	HANKAM	SERT/14/III/FASPROD/2009
34	BUREAU VERITAS	23202/OA BV

PATENTS

NO	CERTIFICATES	CERTIFICATES NO.	ISSUED DATE
1	Sistem injeksi gas kejut pada unit pengisian reaktor HYL III PBS	ID P0025039	28 April 2010
2	Sertifikat Merek	IDM000184782	18 Nopember 2008
3	Cetakan baja lempengan (Slab) pada MWSIN Tuang Kontinu	ID 90024327	08 Agustus 2006
4	Sistem pelepas beban semi otomatis pada mesin uji profil patah tangguh beban jatuh bebas	ID P0024959	25 Mei 2005
5	Kertas kemas untuk proteksi korosi atmosferik pada produk logam dan baja	ID 0017490	23 Mei 2006
6	Metode dan sistem penghematan bahan bakar pada pemanasan Ladle dan Thundish di SSP	ID P 0024960	28 April 2010
7	Sistem pelapisan partikel kering pada material curah	ID P0024981	28 Januari 2010
8	Krakatau Caraka	IDM000217076	7 September 2009
9	Krakatau-Magma	IDM000217075	7 September 2009
10	Logo KS	M.01-HC.03.01	6 Juni 1994
11	Merk KS	IDM000063036	
12	Merek PT Krakatau Steel	IDM000048501	31 Agustus 2005
13	KS-Plate	IDM000272813	4 Nopember 2010
14	Krakatau-Rhino	IDM000216893	7 September 2009
15	Merek HRC	IDM000010976	13 Juli 2004
16	Steel Profile	IDM000012702	29 Juli 2004
17	Steel Bar	IDM000012703	21 Juli 2004
18	Kawat Paku	IDM000012704	29 Juli 2004
19	Steel Plate	IDM000010975	21 Juli 2004

SAMPLE OF CERTIFICATES

Approval of Material Manufacturers
Zulassung von Werkstoffherstellern

Germanischer Lloyd

This is to certify that the works of
Herrn wird bescheinigt, dass die Firma

**P.T. KRAKATAU STEEL
CILEGON, JAWA BARAT
INDONESIA**

has been subjected to an approval test in accordance with the Society's Rules with satisfactory results and is approved for the manufacture of the following products:
einer Zulassungprüfung nach den Vorschriften der Germanischer Lloyd unterzogen wurde und für die Herstellung eigener Erzeugnisse zugelassen ist:

Hot rolled hull structural steel plates and coils of grade GL-A and GL-B up to 25 mm thickness in accordance with GL-Material Rules, Part 1, Chapter 2, Section 1, B.

This approval is granted provided the manufacturer complies with the Rules of the Society and is classified with Germanischer Lloyd. Die Zulassung ergeht unter der Voraussetzung, dass der Hersteller die Vorschriften der Germanischer Lloyd-Zustimmung einhält.

Certificate of approval No. Zulassungsbescheinigung Nr. **MD00/1183/000**


This Certificate is valid until: Diese Bescheinigung ist gültig bis: **31.12.2009**

Part of the approval is our list of materials. Bestandteil der Zulassung ist das Materialverzeichnis.

Hamburg, 2005-05-23

Germanischer Lloyd

D. Engel
D. Engel



Certificate No : MD00/1183/000

PT. KRAKATAU STEEL (PERSERO)
Divisi P & PM (QA)
Jl. Industri No. 5
PO. Box 14
Cilegon 42435
Indonesia

has been approved as a manufacturer in accordance with the Rules of the Society and is classified with Germanischer Lloyd's Register for :-

Steelmaking and Plates


This approval is subject to compliance with the Rules and Certification of Materials. The full details of the conditions of approval and the scope of the approval which this approval applies are given in the Appendix to this Certificate.

Lloyd's Register is to be notified of any change that affects the validity of this Certificate.

This Certificate is issued to the above manufacturer and is valid for the manufacture of the products given below.

Valid Until : 03 February 2009
Date of Issue : 09 February 2006

N. Chandra Sekhar
C/S Nettem
Specialist to Lloyd's Register EMEA
For Lloyd's Register Asia



NIPPON KAIJI KYOKAI

Certificate No. NKR-144ROL



APPROVAL OF MANUFACTURING PROCESS

This is to certify that

PT KRAKATAU STEEL
Cilegon, Banten
Indonesia

has been approved for the manufacturing process of undermentioned materials by the NIPPON KAIJI KYOKAI in accordance with the requirements of 1.2. Part K of the Society's "Rules for the Survey and Construction of Steel Ships" and Chapter 2, Part 1 of the Society's "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use".

MATERIALS : Rolled Steels for Hull

The details of approval conditions to which this approval applies are given in the PARTICULARS OF APPROVAL listed in the reverse of this certificate.

On this effect, the products for the ships classed with the Society will be manufactured, tested and inspected complying with the Rules.

This Certificate is valid until the 22nd day of March, 2012.
Issued at Tokyo on the 23rd day of March, 2007.

Initial Approval Date : 23rd March, 2007

T. Tokishige
T. Tokishige
General Manager
Material and Equipment Department



ClassNK

ORDERING INFORMATION

To place an order, you are recommended to describe the following points in your order forms:

1. Specification

- Applicable standard specification.
- Steel Grade.
- Chemical composition, mechanical properties, dimension, tolerances should be indicated in case that the order is beyond normal specification.
- Surface finish for cold rolled products (oil and surface conditions).

2. Quantity

Weight in KGs, MTs or number of pieces.

3. Dimension

All necessary dimension (thickness, width, length for flat products or size, square, diameter, length for long products) in millimeters or inches.

4. End Usage

End usage application should be clearly described, such as processing, condition (hot or cold), processing direction (length or width, dimension, severity of processing, welding method and machining) .

5. Delivery

- Destination place.
- Condition and time.
- Packing type.
- Maximum coil weight or maximum weight per packed.

6. Special Requirements

- Packing type.
- Remark for special treatment like ultrasonic testing, sulphur prints, etc.

Strategic Account 1

Pipe, Tube, Rerolling, Boiler Pressure, Vessel, Oil & Gas

Fixed Phone (62-21) 5221255 Ext. 559

Facsimile (62-21) 5201608

Website www.krakatausteel.com

Strategic Account 2

General Structure, Stockist, Ship Building, Train & Container

Fixed Phone (62-21) 5221255 Ext. 557

Facsimile (62-21) 5200653

Website www.krakatausteel.com

Strategic Account 3

CRC, Automotive & Heavy Equipment

Fixed Phone (62-21) 5221255 Ext. 556

Facsimile (62-21) 5204207

Website www.krakatausteel.com

Strategic Account 4

Long Product, By Product & Industrial Services
Batam Representative Office, Surabaya Representative Office

Fixed Phone (62-21) 5221255 Ext. 510

Facsimile (62-21) 5200739

Website www.krakatausteel.com



KRAKATAU STEEL

www.krakatausteel.com

HEAD OFFICE

Jl. Industri No. 5
P.O. BOX 14
Cilegon - Banten 42435

JAKARTA MARKETING OFFICE

GEDUNG KRAKATAU STEEL
Jl. Gatot Subroto Kav. 54
Jakarta Selatan 12950