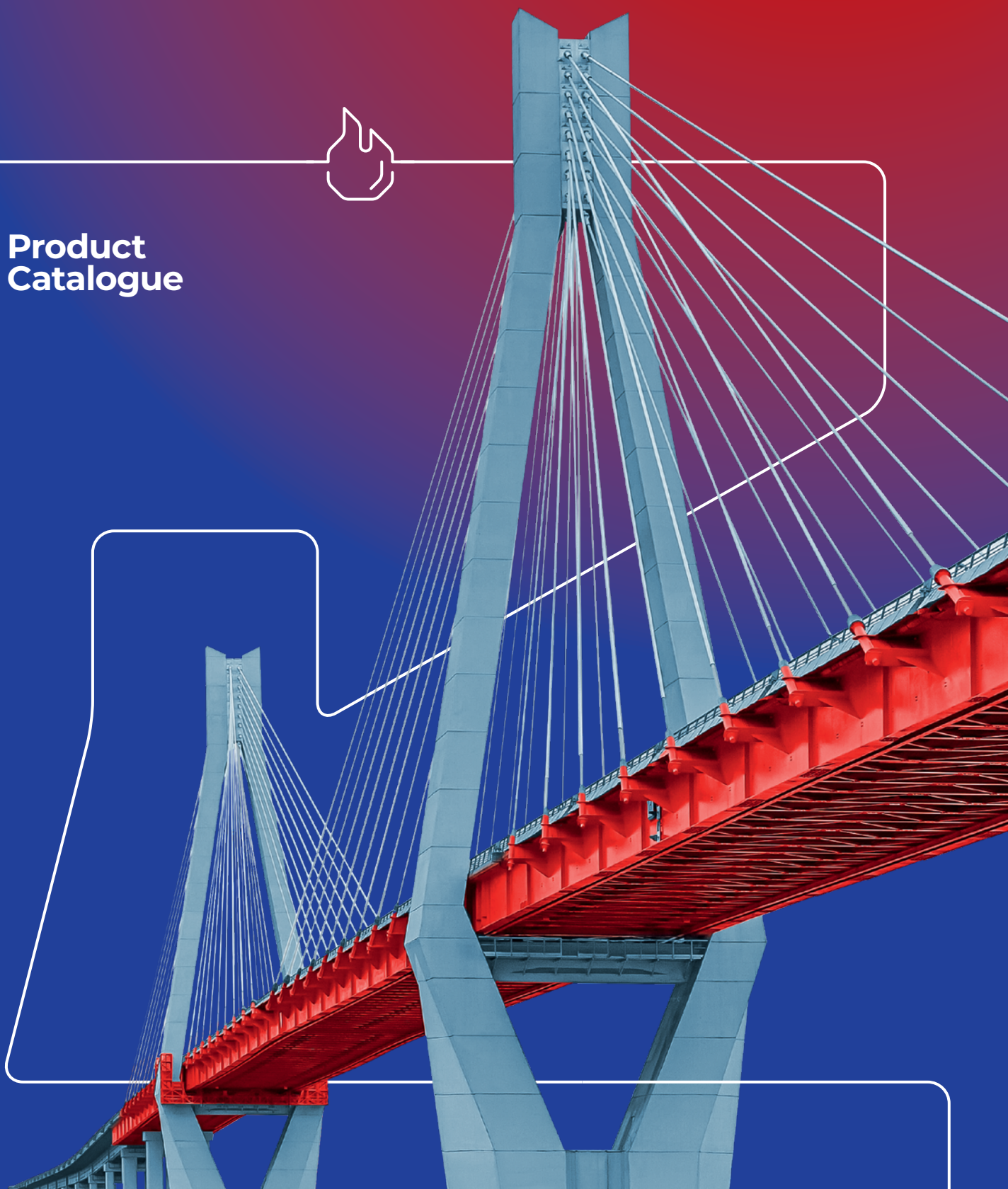


HOT-ROLLED



**Product
Catalogue**



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ABOUT NLMK GROUP

Steel is a unique product that underpins most of the world around us: from children's toys to skyscraper frames and hulls of large ships.

NLMK Group is one of the most competitive steelmaking companies in the world. We remain a reliable technology partner for thousands of customers by continuously developing our portfolio of products and services.

NLMK lays the foundation for its customers to create advanced products and solutions. This is our contribution to a sustainable future.



Hot-rolled steel

NLMK's hot-rolled products are essential in the majority of the sectors of industry. Its key properties — strength, stampability, ductility — are ensured by our strict technology process and the quality of input slabs that we produce in-house.

NLMK offers a wide product mix, including regular grades, rolled steel with unique geometries, and high-strength steels for heavy-duty machine engineering.

ADVANTAGES

- Wide range of products
- Excellent flatness
- Unique geometries made to order



Applications

- **Core equipment in construction, agriculture, rail transport and mining**
- **Automotive**
- **Construction industry**
- **Pipe making and petrochemical industry**
- **Shipbuilding**



REFERENCE STANDARDS

GOST 1577-93

Rolled sheets and wide strips of structural quality steel

GOST 4041-2017

Hot-rolled plates of nonalloyed structural quality steel for cold stamping.

GOST 14637-89

Rolled plate from carbon steel of general quality.

GOST 16523-97

Rolled sheets from quality and ordinary carbon steel for general purposes.

GOST 17066-94

Rolled sheet of high-strength steel.

GOST 19281-2014

High strength rolled steel.

GOST 27772-2021

Rolled products for structural steel constructions.

GOST P 52927-2023

Rolled products for shipbuilding made of normal, high and high strength steel.

EN 10025-2:2019

Hot rolled products of structural steels.

EN 10111-2008

Continuously hot rolled low carbon steel sheet and strip for cold forming.

EN 10149-2:2013

Standard for hot-rolled flat products made of high yield strength thermo-mechanically rolled steels for cold forming.

ASTM A 569

Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial (Withdrawn2000).

ASTM A 830

Standard Specification for Plates, Carbon Steel, Structural Quality, Furnished to Chemical Composition Requirements and supplied in the as-rolled (green) condition.

ASTM A 1011

Standard Specification for light gauge Hot-Rolled Sheet and Strip Carbon(CS and DS), Structural(SS), High-Strength Low-Alloy(HSLAS), High-Strength Low-Alloy with Improved Formability(HSLAS-F), and Ultra-High Strength(UHSS) steels in thicknesses up to 0.230"(6 mm) in coil form.

ASTM A 1018

Standard specification for hot-rolled, heavy-thickness coils of carbon steel, commercial steel, drawing steel, structural steel, high-strength low-alloy steel and ultra-high strength steel.

JIS G 3101

Rolled steels for general structure.

JIS G 3131

Hot-roll mild steel plates, sheet and strip.

JIS G 3132

Hot Rolled steel in the form of plates, sheets & strips for pipes & tubes making.

Options:

- 1.5–4.5 mm strip pickling
- 1.5–3.5 mm strip skin-passing
- Rolled steel customized against consumer additional requirements and corporate standards

Testing:

- strain-hardening ratio
- bending
- hardness (HRB)

Surface roughness of hot rolled pickled skin-passed steel Ra 0.6-1.9

Mechanical properties in accordance with EN 10051 and GOST 19904.

Advantages

- High yield strength to strength ratio
- Required level of strain hardening
- Thermal hardening effect
- High impact energy absorption
- High ductility
- Fit for complex elements that require deep drawing
- Sheets free from any residual stress (guaranteed)

Rolled steel size and shape tolerances

Standards for products, geometric dimensions and tolerances	GOST 19903	EN 10051
	GOST 19903	EN 10029

HOT-ROLLED STEEL APPLICATIONS

Construction and infrastructure

Group	Product	Application case	Grades as per GOST	Grades as per EN	Grades as per ASTM	Grades as per JIS
Construction of buildings and installations	Building frames	Welded beams, columns, shaped pipe	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С, С345, С355	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
	Floor slabs and formwork	Steel sheets and profiles for temporary formwork and gratings	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С, С345, С355	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
	Scaffolding	Structure components	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С, С345, С355	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
	Shelving and storage systems	Frames, shelves, walls	Cr2nc/cn, Cr3cn/nc, 09Г2С	S235JR, S275JR, S355JR, S355MC, DD12, DD13	36, 45, CS type A	SS400, SS490, SPHC
Industrial and infrastructure construction	Bridges and overhead crossings	Elements of load-bearing structures: welded beams, formed channels and angles	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 40, 45	SS400, SPHT3, SS490
	Road construction elements	Road barriers, lighting towers	Cr3cn/nc	S235JR	36	SS400
	Telecommunication infrastructure and overhead power lines	Tower elements	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
		Elements of power line support	Cr2nc/cn, Cr3cn/nc, 20, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
	Elevators and escalators	Profile that forms the metal frame basis of an elevator shaft	Cr3cn/nc, 08nc	S235JR, DD12, DD13	36, CS type A	SS400, SPHC
Water and gas supply networks	Water pipelines, water supply systems	Elements of pumping stations and treatment facilities, main pipeline	Cr2nc, Cr3cn/nc, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
		Water and gas pipe	Cr2nc, Cr3cn/nc, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
Architectural and decorative elements	Decoration elements	Structural elements of facade, art pieces (weather-resistant steel)	Cr2nc, Cr3cn/nc, 08nc, 09Г2С	S235JR, S275JR, S355JR, S355MC, DD12, DD13	36, 45, CS type A	SS400, SS490, SPHC
	Doors, gates, fences	Load-bearing frame, framework, box	Cr2nc, Cr3cn/nc, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
		Frame, posts	Cr2nc, Cr3cn/nc, 09Г2С	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
Steel furniture	Cabinets, beds, tables, chairs, workbenches	Tube frame, profile frame, painted panels	Cr2nc, Cr3cn/nc, 08nc	S235JR, DD12, DD13	36, CS type A	SS400, SPHC

Energy sector

Group	Product	Application case	Grades as per GOST	Grades as per EN	Grades as per ASTM	Grades as per JIS
Oil & Gas	Energy infrastructure	Structural elements: gas turbine foundation	Cr3cn/nc, 09Г2С,	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490
	Drilling well elements	OCTG pipes (casing, pump-compressor, coil tubing)	A606, K55, N80, 22ГЮ, 25ГЮ, KC			
	Oil and gas pipelines	Oil and gas pipes	09Г2С	S355JR, S355MC	45	SS490
	Containers and vessels	Tanks	Cr3cn/nc, 09Г2С, С345, С355	S235JR, S275JR, S355JR, S355MC	36, 45	SS400, SS490

Automotive industry

Group	Product	Application case	Grades as per GOST	Grades as per EN	Grades as per ASTM	Grades as per JIS
Cargo and commercial vehicles	Vehicle internal body elements	Safety elements	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
		Basic structures for chassis and frames	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
		Suspension components: support elements and fastenings	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
	Wheel discs	Disc, wheel rim	Cr3cn/nc, 08nc	S235JR, S235JRC, S355MC, DD11-DD14	36, DS type A	SS400, SPHD

Machine building

Group	Product	Application case	Grades as per GOST	Grades as per EN	Grades as per ASTM	Grades as per JIS
Railway industry	Locomotives, passenger and freight cars, tanks	Frames, bodies, walls, etc.	Cr3cn/nc, 09Г2С	S235JR, S355MC, S420MC	36, 45	SS400, SS490
Shipbuilding industry	Watercraft of various purposes	Ship hulls, deck superstructures	A, B, D, E, A32, D32, E32, D36, A40, D40			
Construction machines	Excavators, loaders and cranes	Body elements: turntable with two-legged stand and chassis support frame, crane boom	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
Agricultural machinery	Tractors, combines and other machines	Body components	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
	Attachments and accessory equipment	Parts of buckets, chippers, ploughs, harrows, cultivators, seeders, sprayers, thinners, mowers, etc.	Cr3cn/nc, 08nc, 10, 20, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, CS type A, 40, 45	SS400, SPHC, SPHT3, SS490
Exploration and mining	Mining equipment elements	Sieves, screens	Cr3cn/nc, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, 45	SS400, SS490
	Other equipment elements	Elements of structures, load-bearing elements	Cr3cn/nc, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, 45	SS400, SS490
		Structures of drilling rigs and platforms	Cr3cn/nc, 09Г2С	S235JR, S355MC, S420MC, S500MC	36, 45	SS400, SS490

Steelmaking industry

Group	Product	Application case	Grades as per GOST	Grades as per EN	Grades as per ASTM	Grades as per JIS
Downstream rerolling and processing	Cold rolled, galvanized, pre-painted steel and tin	Hot rolled semi-product	08nc	DD12, DD13	DS type A, B	SPHD

Construction and infrastructure

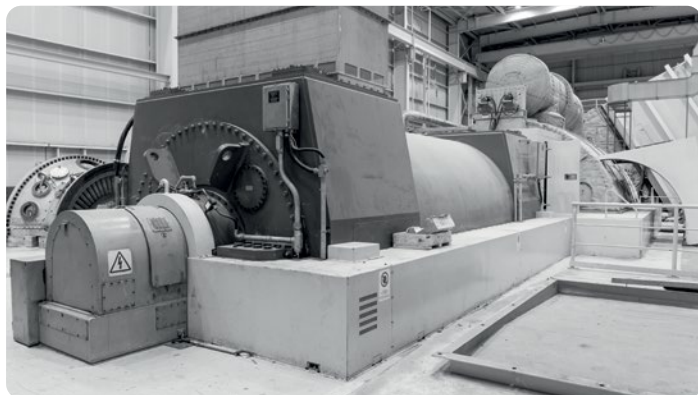


GRADES PRODUCED BY NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
Cr2cn	GOST 16523-97	1.50–3.90	900–1,600	300–480		≥23		1.0a
	GOST 14637-89	4.00–14.00	900–1,850	330–480	≥225	≥32		1.5a
Cr3cn/nc	GOST 16523-97	1.45–2.00	900–1,350	360–530		≥20	Depending on thickness	1.0a
		2.10–3.90	900–1,600	360–530		≥22		2.0a
	GOST 14637-89	4.00–20.00	900–1,850	370–480		≥26		
20	GOST 16523-97	1.80–2.00	900–1,350	350–500		≥22		0a
		2.10–3.90	900–1,600	350–500		≥23		1.0a
	GOST 1577-93	4.00–14.00	900–1,850	≥370		≥28		1.0a
	GOST 4041-2017	4.00–12.00	900–1,850	340–490		≥28, 24		1.0a
09Г2С	GOST 17066-94	3.00–3.90	900–1,400	≥510		≥19		2.0a
	GOST 19281-2014	4.00–14.00	900–1,700	≥490	≥345	≥21	Depending on categories	2.0a
C345	GOST 27772-2021	4.00–10.00	900–1,850	≥490	≥345	≥21	Depending on categories	2.0a
		10.01–12.00	900–1,850	≥470	≥325	≥21		2.0a
C355	GOST 27772-2021	8.00–12.00	900–1,850	≥470	≥355	≥21		2.0a
S235JR, S235J0W	EN 10149-2:2013	1.45–1.50	900–1,300	360–510	≥235	≥16		Depending on thickness
		1.51–2.00	900–1,300	360–510	≥235	≥17		
		2.01–2.50	900–1,400	360–510	≥235	≥18		
		2.51–2.99	900–1,500	360–510	≥235	≥19		
		3.00–9.99	900–1,850	360–510	≥235	≥24	Depending on thickness	
		10.00–15.00	900–1,850	360–510	≥235	≥24		
S275JR	EN 10149-2:2013	1.80–2.00	900–1,290	430–580	≥275	≥15		Depending on thickness
		2.01–2.50	900–1,320	430–580	≥275	≥16		
		2.51–2.99	900–1,400	430–580	≥275	≥17		
		3.00–9.99	900–1,850	410–560	≥275	≥21	Depending on thickness	
		10.00–14.00	900–1,850	410–560	≥275	≥21		
S355JR	EN 10149-2:2013	1.50	900–1,100	510–680	≥355	≥13		Depending on thickness
		1.51–2.00	900–1,350	510–680	≥355	≥14		
		2.01–2.50	900–1,350	510–680	≥355	≥15		
		2.51–2.99	900–1,400	510–680	≥355	≥16		
		3.00–15.00	900–1,850	470–630	≥355	≥20	Depending on thickness	
S355MC	EN 10149-2:2013	1.50–15.00	900–1,700	430–550	≥355	≥23		0.5a

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
DD12	EN 10111-2008	1.45–1.99	900–1,550	≤420	170–340	≥25		
		2.00–2.99	900–1,600	≤420	170–320	≥26		
		3.00–8.00	900–1,800	≤420	170–320	≥30		
DD13	EN 10111-2008	1.45–1.99	900–1,550	≤400	170–330	≥28		
		2.00–2.99	900–1,600	≤400	170–310	≥29		
		3.00–8.00	900–1,800	≤400	170–310	≥33		
CS type A	ASTM A 1011	1.50–5.99	900–1,550	/				
	ASTM A 569	1.50–5.99	900–1,550	/				
	ASTM A 1018	6.00–14.00	900–1,850	/				
	ASTM A 830	6.00–14.00	900–1,850	/				
36	ASTM A 1018	6.00–8.00	900–1,850	≥365	≥250	≥15		
		8.01–14.00	900–1,850	≥365	≥250	≥21		
40	ASTM A 1011	1.80–4.45	900–1,850	≥380	≥275	≥21		2.0a
	ASTM A 1018	4.50–8.00	900–1,850	≥380	≥275	≥19		
		8.00–14.0	900–1,850	≥380	≥275	≥14		
45	ASTM A 1011	1.80–2.49	900–1,850	≥410	≥310	≥18		2.0a
		2.50–6.00	900–1,850	≥410	≥310	≥19		2.0a
SPHC	JIS G 3131	1.45–1.59	900–1,350	≥270		≥27		0a
		1.60–3.19	900–1,650	≥270		≥29		0a
		3.20–14.0	900–1,850	≥270		≥31		0.5a
SPHT3	JIS G 3132	1.80–2.99	900–1,400	≥412		≥22		1.5a
		3.00–5.99	900–1,850	≥412		≥25		2.0a
		6.00–13.00	900–1,850	≥412		≥27		2.0a
SS400	JIS G 3101	1.45–5.00	900–1,850	400–510	≥245	≥21		1.5a
		5.01–14.00	900–1,850	400–510	≥245	≥17		1.5a
SS490	JIS G 3101	1.50–5.00	900–1,550	490–610	≥285	≥19		2.0a
		5.01–15.00	900–1,700	490–610	≥285	≥15		2.0a

Energy sector



GRADES PRODUCED BY NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
Cr3cn/nc	GOST 16523-97	1.45-2.00	900-1,350	360-530		≥20	Depending on thickness	1.0a
		2.10-3.90	900-1,600	360-530		≥22		2.0a
	GOST 14637-89	4.00-20.00	900-1,850	370-480		≥26		
09Г2С	GOST 17066-94	3.00-3.90	900-1,400	≥510		≥19		2.0a
	GOST 19281-2014	4.00-14.00	900-1,700	≥490	≥345	≥21	Depending on categories	2.0a
A606 (ПГ)		3.00-6.00	1,00-1,500	≥555	≥480	≥22		
A606 (ПГТ)		3.00-6.00	900-1,500	≥555	≥480	≥22		
KС		5.00-8.00	950-1,800	≥590	370-500	≥18		
K55		6.00-14.00	950-1,800	655-735	340-470	≥20		
N80		7.00-10.60	1,000-1,800	≥690	460-560	≥20		
22ГЮ	NLMK+*	5.00-8.00	900-1,700	520-690	355-470	≥20	≥34 (+20 °C)	
		3.50-10.00	900-1,550	≥520	320-450	≥20		
25ГЮ	NLMK+*	5.00-10.00	900-1,700	≥520	320-470	≥20		
KС	NLMK+*	5.00-8.00	950-1,800	≥590	370-500	≥18		
C345	GOST 27772-2021	4.00-10.00	900-1,850	≥490	≥345	≥21	Depending on categories	2.0a
		10.01-12.00	900-1,850	≥470	≥325	≥21		2.0a
C355	GOST 27772-2021	8.00-12.00	900-1,850	≥470	≥355	≥21		2.0a
S235JR	EN 10149-2:2013	1.45-1.50	900-1,300	360-510	≥235	≥16	Depending on thickness	Depending on thickness
		1.51-2.00	900-1,300	360-510	≥235	≥17		
		2.01-2.50	900-1,400	360-510	≥235	≥18		
		2.51-2.99	900-1,500	360-510	≥235	≥19	Depending on thickness	
		3.00-9.99	900-1,850	360-510	≥235	≥24		
		10.00-15.00	900-1,850	360-510	≥235	≥24		
S275JR	EN 10149-2:2013	1.80-2.00	900-1,290	430-580	≥275	≥15	Depending on thickness	Depending on thickness
		2.01-2.50	900-1,320	430-580	≥275	≥16		
		2.51-2.99	900-1,400	430-580	≥275	≥17		
		3.00-9.99	900-1,850	410-560	≥275	≥21	Depending on thickness	
		10.00-14.00	900-1,850	410-560	≥275	≥21		
S355JR	EN 10149-2:2013	1.50	900-1,100	510-680	≥355	≥13	Depending on thickness	Depending on thickness
		1.51-2.00	900-1,350	510-680	≥355	≥14		
		2.01-2.50	900-1,350	510-680	≥355	≥15		
		2.51-2.99	900-1,400	510-680	≥355	≥16	Depending on thickness	
		3.00-15.00	900-1,850	470-630	≥355	≥20		
S355MC	EN 10149-2:2013	1.50-15.00	900-1,700	430-550	≥355	≥23		0.5a

* Additional capabilities of NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
36	ASTM A 1018	6.00–8.00	900–1,850	≥365	≥250	≥15		
		8.01–14.00	900–1,850	≥365	≥250	≥21		
45	ASTM A 1011	1.80–2.49	900–1,850	≥410	≥310	≥18		2.0a
		2.50–6.00	900–1,850	≥410	≥310	≥19		2.0a
SS400	JIS G 3101	1.45–5.00	900–1,850	400–510	≥245	≥21		1.5a
		5.01–14.00	900–1,850	400–510	≥245	≥17		1.5a
SS490	JIS G 3101	1.50–5.00	900–1,550	490–610	≥285	≥19		2.0a
		5.01–15.00	900–1,700	490–610	≥285	≥15		2.0a

Automotive industry



GRADES PRODUCED BY NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
Cr3cn/nc	GOST 16523-97	1.45-2.00	900-1,350	360-530		≥20	Depending on thickness	1.0a
		2.10-3.90	900-1,600	360-530		≥22		2.0a
	GOST 14637-89	4.00-20.00	900-1,850	370-480		≥26		
08nc	GOST 16523-97	1.45-3.90	900-1,850	270-410		≥24		
	GOST 1577-93	4.00-14.00	900-1,850	≥274		≥32		
10	GOST 16523-97	1.45-3.90	900-1,650	300-480		≥23		
	GOST 1577-93	4.00-20.00	900-1,850	≥290		≥32		
20	GOST 16523-97	1.80-2.00	900-1,350	350-500		≥22		0a
		2.10-3.90	900-1,600	350-500		≥23		1.0a
	GOST 1577-93	4.00-14.00	900-1,850	≥370		≥28		1.0a
	GOST 4041-2017	4.00-12.00	900-1,850	340-490		≥28, 24		1.0a
09Г2С	GOST 17066-94	3.00-3.90	900-1,400	≥510		≥19		2.0a
	GOST 19281-2014	4.00-14.00	900-1,700	≥490	≥345	≥21	Depending on categories	2.0a
S235JR, S235JRC	EN 10149-2:2013	1.45-1.50	900-1,300	360-510	≥235	≥16	Depending on thickness	Depending on thickness
		1.51-2.00	900-1,300	360-510	≥235	≥17		
		2.01-2.50	900-1,400	360-510	≥235	≥18		
		2.51-2.99	900-1,500	360-510	≥235	≥19		
		3.00-9.99	900-1,850	360-510	≥235	≥24		
		10.00-15.00	900-1,850	360-510	≥235	≥24		
S355JR	EN 10149-2:2013	1.50	900-1,100	510-680	≥355	≥13	Depending on thickness	Depending on thickness
		1.51-2.00	900-1,350	510-680	≥355	≥14		
		2.01-2.50	900-1,350	510-680	≥355	≥15		
		2.51-2.99	900-1,400	510-680	≥355	≥16		
		3.00-15.00	900-1,850	470-630	≥355	≥20		
S355MC	EN 10149-2:2013	1.50-15.00	900-1,700	430-550	≥355	≥23		0.5a
S420MC	EN 10149-2:2013	1.75-15.00	900-1,700	480-620	≥420	≥19		0.5a
S500MC	EN 10149-2:2013	3.00-5.00	900-1,350	550-700	≥500	≥14		1.0a
DD11	EN 10111-2008	1.45-8.00	900-1,850	≤440	170-360	≥23		
DD12	EN 10111-2008	1.45-1.99	900-1,550	≤420	170-340	≥25		
		2.00-2.99	900-1,600	≤420	170-320	≥26		
		3.00-8.00	900-1,800	≤420	170-320	≥30		
DD13	EN 10111-2008	1.45-1.99	900-1,550	≤400	170-330	≥28		
		2.00-2.99	900-1,600	≤400	170-310	≥29		
		3.00-8.00	900-1,800	≤400	170-310	≥33		
DD14	EN 10111-2008	1.45-1.99	900-1,350	≤380	170-310	≥31		
		2.00-2.99	900-1,600	≤380	170-290	≥32		
		3.00-8.00	900-1,800	≤380	170-290	≥36		

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
CS type A	ASTM A 1011	1.50–5.99	900–1,550	/				
	ASTM A 569	1.50–5.99	900–1,550	/				
	ASTM A 1018	6.00–14.00	900–1,850	/				
	ASTM A 830	6.00–14.00	900–1,850	/				
DS type A	ASTM A 1011	1.45–5.99	900–1,850					
36	ASTM A 1018	6.00–8.00	900–1,850	≥365	≥250	≥15		
		8.01–14.00	900–1,850	≥365	≥250	≥21		
40	ASTM A 1011	1.80–4.45	900–1,850	≥380	≥275	≥21		2.0a
	ASTM A 1018	4.50–8.00	900–1,850	≥380	≥275	≥19		
		8.00–14.0	900–1,850	≥380	≥275	≥14		
45	ASTM A 1011	1.80–2.49	900–1,850	≥410	≥310	≥18		2.0a
		2.50–6.00	900–1,850	≥410	≥310	≥19		2.0a
SPHC	JIS G 3131	1.45–1.59	900–1,350	≥270		≥27		0a
		1.60–3.19	900–1,650	≥270		≥29		0a
		3.20–14.0	900–1,850	≥270		≥31		0.5a
SPHD	JIS G 3131	1.80–1.99	900–1,550	≥270		≥32		
		2.00–2.49	900–1,550	≥270		≥33		
		2.50–3.19	900–1,700	≥270		≥35		
		3.20–3.99	900–1,850	≥270		≥37		
		4.00–14.0	900–1,850	≥270		≥39		
SPHT3	JIS G 3132	1.80–2.99	900–1,400	≥412		≥22		1.5a
		3.00–5.99	900–1,850	≥412		≥25		2.0a
		6.00–13.00	900–1,850	≥412		≥27		2.0a
SS400	JIS G 3101	1.45–5.00	900–1,850	400–510	≥245	≥21		1.5a
		5.01–14.00	900–1,850	400–510	≥245	≥17		1.5a
SS490	JIS G 3101	1.50–5.00	900–1,550	490–610	≥285	≥19		2.0a
		5.01–15.00	900–1,700	490–610	≥285	≥15		2.0a

Machine building



GRADES PRODUCED BY NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
Cr3cn/nc	GOST 16523-97	1.45-2.00	900-1,350	360-530		≥20	Depending on thickness	1.0a
		2.10-3.90	900-1,600	360-530		≥22		2.0a
	GOST 14637-89	4.00-20.00	900-1,850	370-480		≥26		
08nc	GOST 16523-97	1.45-3.90	900-1,850	270-410		≥24		
	GOST 1577-93	4.00-14.00	900-1,850	≥274		≥32		
10	GOST 16523-97	1.45-3.90	900-1,650	300-480		≥23		
	GOST 1577-93	4.00-20.00	900-1,850	≥290		≥32		
20	GOST 16523-97	1.80-2.00	900-1,350	350-500		≥22		0a
		2.10-3.90	900-1,600	350-500		≥23		1.0a
	GOST 1577-93	4.00-14.00	900-1,850	≥370		≥28		1.0a
	GOST 4041-2017	4.00-12.00	900-1,850	340-490		≥28, 24		1.0a
09Г2C	GOST 17066-94	3.00-3.90	900-1,400	≥510		≥19		2.0a
	GOST 19281-2014	4.00-14.00	900-1,700	≥490	≥345	≥21	Depending on categories	2.0a
A	GOST P 52927-2023	4.00-12.00	900-1,850	400-520	≥235	≥22	-	
B	GOST P 52927-2023	5.00-7.49	900-1,850	400-520	≥235	≥22	≥19	
		7.50-9.99	900-1,850	400-520	≥235	≥22	≥24	
		10.00-12.00	900-1,850	400-520	≥235	≥22	≥27	
D	GOST P 52927-2023	5.00-7.49	900-1,850	400-520	≥235	≥22	≥19	
		7.50-9.99	900-1,850	400-520	≥235	≥22	≥24	
		10.00-12.00	900-1,850	400-520	≥235	≥22	≥27	
E	GOST P 52927-2023	5.00-7.49	900-1,850	400-520	≥235	≥22	≥19	
		7.50-9.99	900-1,850	400-520	≥235	≥22	≥24	
		10.00-12.00	900-1,850	400-520	≥235	≥22	≥27	
A32	GOST P 52927-2023	5.00-7.49	900-1,850	440-570	≥315	≥22	≥22	
		7.50-9.99	900-1,850	440-570	≥315	≥22	≥26	
		10.00-12.00	900-1,850	440-570	≥315	≥22	≥31	
D32	GOST P 52927-2023	5.00-7.49	900-1,850	440-570	≥315	≥22	≥22	
		7.50-9.99	900-1,850	440-570	≥315	≥22	≥26	
		10.00-12.00	900-1,850	440-570	≥315	≥22	≥31	
E32	GOST P 52927-2023	5.00-7.49	900-1,850	440-570	≥315	≥22	≥22	
		7.50-9.99	900-1,850	440-570	≥315	≥22	≥26	
		10.00-12.00	900-1,850	440-570	≥315	≥22	≥31	
D36	GOST P 52927-2023	5.00-7.49	900-1,850	490-630	≥355	≥21	≥24	
		7.50-9.99	900-1,850	490-630	≥355	≥21	≥28	
		10.00-12.00	900-1,850	490-630	≥355	≥21	≥34	
A40	GOST P 52927-2023	5.00-7.49	900-1,850	510-640	≥390	≥20	≥26	
		7.50-9.99	900-1,850	510-640	≥390	≥20	≥33	
		10.00-12.00	900-1,850	510-640	≥390	≥20	≥39	

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
D40	GOST P 52927-2023	5.00–7.49	900–1,850	510–640	≥390	≥20	≥26	
		7.50–9.99	900–1,850	510–640	≥390	≥20	≥33	
		10.00–12.00	900–1,850	510–640	≥390	≥20	≥39	
S235JR	EN 10149-2:2013	1.45–1.50	900–1,300	360–510	≥235	≥16		Depending on thickness
		1.51–2.00	900–1,300	360–510	≥235	≥17		
		2.01–2.50	900–1,400	360–510	≥235	≥18		
		2.51–2.99	900–1,500	360–510	≥235	≥19		Depending on thickness
		3.00–9.99	900–1,850	360–510	≥235	≥24		
		10.00–15.00	900–1,850	360–510	≥235	≥24		
S355MC	EN 10149-2:2013	1.50–15.00	900–1,700	430–550	≥355	≥23		0.5a
S420MC	EN 10149-2:2013	1.75–15.00	900–1,700	480–620	≥420	≥19		0.5a
S500MC	EN 10149-2:2013	3.00–5.00	900–1,350	550–700	≥500	≥14		1.0a
CS type A	ASTM A 1011	1.50–5.99	900–1,550	/				
	ASTM A 569	1.50–5.99	900–1,550	/				
	ASTM A 1018	6.00–14.00	900–1,850	/				
	ASTM A 830	6.00–14.00	900–1,850	/				
36	ASTM A 1018	6.00–8.00	900–1,850	≥365	≥250	≥15		
		8.01–14.00	900–1,850	≥365	≥250	≥21		
40	ASTM A 1011	1.80–4.45	900–1,850	≥380	≥275	≥21		2.0a
	ASTM A 1018	4.50–8.00	900–1,850	≥380	≥275	≥19		
		8.00–14.0	900–1,850	≥380	≥275	≥14		
45	ASTM A 1011	1.80–2.49	900–1,850	≥410	≥310	≥18		2.0a
		2.50–6.00	900–1,850	≥410	≥310	≥19		2.0a
SPHC	JIS G 3131	1.45–1.59	900–1,350	≥270		≥27		0a
		1.60–3.19	900–1,650	≥270		≥29		0a
		3.20–14.0	900–1,850	≥270		≥31		0.5a
SPHT3	JIS G 3132	1.80–2.99	900–1,400	≥412		≥22		1.5a
		3.00–5.99	900–1,850	≥412		≥25		2.0a
		6.00–13.00	900–1,850	≥412		≥27		2.0a
SS400	JIS G 3101	1.45–5.00	900–1,850	400–510	≥245	≥21		1.5a
		5.01–14.00	900–1,850	400–510	≥245	≥17		1.5a
SS490	JIS G 3101	1.50–5.00	900–1,550	490–610	≥285	≥19		2.0a
		5.01–15.00	900–1,700	490–610	≥285	≥15		2.0a

Steelmaking industry



GRADES PRODUCED BY NLMK

Grade	Standart	Product mix		Mechanical properties			Properties	
		Thickness, mm	Width, mm	Ultimate tensile strength, MPa	Yield strength, MPa	Relative elongation, %	Impact energy, J	Mandrel diameter when bending 180°
08nc	GOST 16523-97	1.45-3.90	900-1,850	270-410		≥24		
	GOST 1577-93	4.00-14.00	900-1,850	≥274		≥32		
DD12	EN 10111-2008	1.45-1.99	900-1,550	≤420	170-340	≥25		
		2.00-2.99	900-1,600	≤420	170-320	≥26		
		3.00-8.00	900-1,800	≤420	170-320	≥30		
DD13	EN 10111-2008	1.45-1.99	900-1,550	≤400	170-330	≥28		
		2.00-2.99	900-1,600	≤400	170-310	≥29		
		3.00-8.00	900-1,800	≤400	170-310	≥33		
DS type A, B	ASTM A 1011	1.45-5.99	900-1,850					
SPHD	JIS G 3131	1.80-1.99	900-1,550	≥270		≥32		
		2.00-2.49	900-1,550	≥270		≥33		
		2.50-3.19	900-1,700	≥270		≥35		
		3.20-3.99	900-1,850	≥270		≥37		
		4.00-14.0	900-1,850	≥270		≥39		

PRODUCT MIX

CT2CP

Thickness, mm	Width, mm						
	900	1,300	1,400	1,500	1,550	1,650	1,850
2.00–2.49							
3.00–3.49							
3.50–3.99							
4.00–14.00							

CT3CP/ПC

Thickness, mm	Width, mm						
	900	1,300	1,350	1,400	1,500	1,600	1,850
1.45–1.99							
2.00–2.49							
2.50–2.99							
3.00–3.49							
3.50–3.90							
4.00–14.00							

10

Thickness, mm	Width, mm						
	900	1,300	1,400	1,500	1,550	1,650	1,850
1.45–1.99							
2.00–2.49							
2.50–2.99							
3.00–3.49							
3.50–3.90							
4.00–12.00							

20

Thickness, mm	Width, mm					
	900	1,300	1,350	1,400	1,500	1,600
1.45–1.99						
2.00–2.49						
2.50–2.99						
3.00–3.49						
3.50–3.99						

09Г2C

Thickness, mm	Width, mm					
	900	1,350	1,400	1,420	1,650	1,700
2.00–2.49						
2.50–2.99						
3.00–3.90						
4.00–4.99						
5.00–14.00						

08ПC

Thickness, mm	Width, mm					
	900	1,350	1,550	1,600	1,700	1,850
1.45–1.89						
1.90–2.49						
2.50–2.99						
3.00–3.19						
3.20–14.00						

C345

Thickness, mm	Width, mm		
	900	1,650	1,700
4.00–4.99			
5.00–12.00			

C355

Thickness, mm	Width, mm	
	900	1,700
8.00–12.00		

KC

Thickness, mm	Width, mm	
	900	1,350
5.00–8.00		

22ГЮ, 25ГЮ

Thickness, mm	Width, mm					
	900	1,350	1,550	1,650	1,700	1,800
3.50–3.99						
4.00–4.99						
5.00–10.00						

A, B, D, E

Thickness, mm	Width, mm			
	900	1,650	1,700	1,850
4.00–4.99				
5.00–5.99				
6.00–12.00				

D36

Thickness, mm	Width, mm			
	900	1,650	1,700	1,850
4.00–4.99				
5.00–5.99				
6.00–12.00				

A32, D32, E32

Thickness, mm	Width, mm			
	900	1,650	1,700	1,850
4.00–4.99				
5.00–5.99				
6.00–12.00				

A40, D40

Thickness, mm	Width, mm			
	900	1,650	1,700	1,850
4.00–4.99				
5.00–5.99				
6.00–12.00				

● S235JR

Thickness, mm	Width, mm						
	900	1,300	1,400	1,500	1,550	1,650	1,850
1.45-1.99							
2.00-2.49							
2.50-2.99							
3.00-3.49							
3.50-3.99							
4.00-15.00							

● S235J0W

Thickness, mm	Width, mm				
	900	1,300	1,400	1,500	1,850
1.45-1.50					
1.51-2.00					
2.01-2.50					
2.51-2.99					
3.00-9.99					
10.00-15.00					

● S275JR

Thickness, mm	Width, mm						
	900	1,290	1,320	1,400	1,500	1,550	1,850
1.80-1.99							
2.00-2.49							
2.50-2.99							
3.00-3.49							
3.50-3.99							
4.00-14.00							

● S355JR

Thickness, mm	Width, mm										
	900	1,270	1,350	1,400	1,550	1,650	1,700	1,750	1,800	1,850	
1.50-1.79											
1.80-2.49											
2.50-2.99											
3.00-3.99											
4.00-4.99											
5.00-6.99											
7.00-7.99											
8.00-9.99											
10.00-15.00											

● S355MC

Thickness, mm	Width, mm						
	900	1,300	1,350	1,400	1,600	1,640	1,700
1.50-1.79							
1.80-2.49							
2.50-2.99							
3.00-3.99							
4.00-4.50							
4.51-4.99							
5.00-10.00							
10.01-15.00							

● S420MC

Thickness, mm	Width, mm						
	900	1,100	1,290	1,350	1,550	1,640	1,700
1.75-1.79							
1.80-2.29							
2.30-2.99							
3.00-3.50							
3.51-3.99							
4.00-4.99							
5.00-8.00							
8.01-15.00							

● S500MC

Thickness, mm	Width, mm			
	900	1,100	1,300	1,350
3.00-3.49				
3.50-3.99				
4.00-5.00				

● DD12, DD13

Thickness, mm	Width, mm			
	900	1,550	1,600	1,800
1.45-1.99				
2.00-2.99				
3.00-8.00				

● DD11, DD14

Thickness, mm	Width, mm					
	900	1,350	1,550	1,600	1,700	1,850
1.45-1.89						
1.90-2.49						
2.50-2.99						
3.00-3.19						
3.20-8.00						

● CS TYPE A

Thickness, mm	Width, mm					
	900	1,350	1,550	1,600	1,700	1,850
1.45-1.89						
1.90-2.49						
2.50-2.99						
3.00-3.19						
3.20-14.00						

● 36

Thickness, mm	Width, mm						
	900	1,250	1,350	1,550	1,650	1,700	1,850
1.50-1.79							
1.80-2.99							
3.00-3.99							
4.00-4.99							
5.00-5.99							
6.00-12.00							

● 45

Thickness, mm	Width, mm				
	900	1,300	1,400	1,500	1,550
1.80-2.99					
3.00-3.99					
4.00-4.99					
5.00-5.99					

● SPHD

Thickness, mm	Width, mm					
	900	1,350	1,550	1,600	1,700	1,850
1.45-1.89						
1.90-2.49						
2.50-2.99						
3.00-3.19						
3.20-14.00						

● SS400

Thickness, mm	Width, mm						
	900	1,300	1,350	1,400	1,500	1,600	1,850
1.45-1.99							
2.00-2.49							
2.50-2.99							
3.00-3.49							
3.50-3.99							
4.00-14.00							

● DS TYPE A, B

Thickness, mm	Width, mm					
	900	1,350	1,550	1,600	1,700	1,850
1.45-1.89						
1.90-2.49						
2.50-2.99						
3.00-3.19						
3.20-14.00						

● 40

Thickness, mm	Width, mm						
	900	1,290	1,320	1,400	1,500	1,550	1,850
1.80-1.99							
2.00-2.49							
2.50-2.99							
3.00-3.49							
3.50-3.99							
4.00-14.00							

● SPHC

Thickness, mm	Width, mm			
	900	1,100	1,300	1,350
3.00-3.49				
3.50-3.99				
4.00-5.00				

● SPHT3

Thickness, mm	Width, mm						
	900	1,290	1,320	1,400	1,500	1,550	1,850
1.80-1.99							
2.00-2.49							
2.50-2.99							
3.00-3.49							
3.50-3.99							
4.00-13.00							

● SS490

Thickness, mm	Width, mm									
	900	1,270	1,350	1,400	1,550	1,650	1,700	1,750	1,800	1,850
1.50-1.79										
1.80-2.49										
2.50-2.99										
3.00-3.99										
4.00-4.99										
5.00-6.99										
7.00-7.99										
8.00-9.99										
10.00-15.00										

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