

STAINLESS STEEL COIL & SHEET

EAST & WEST





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■ About East & West

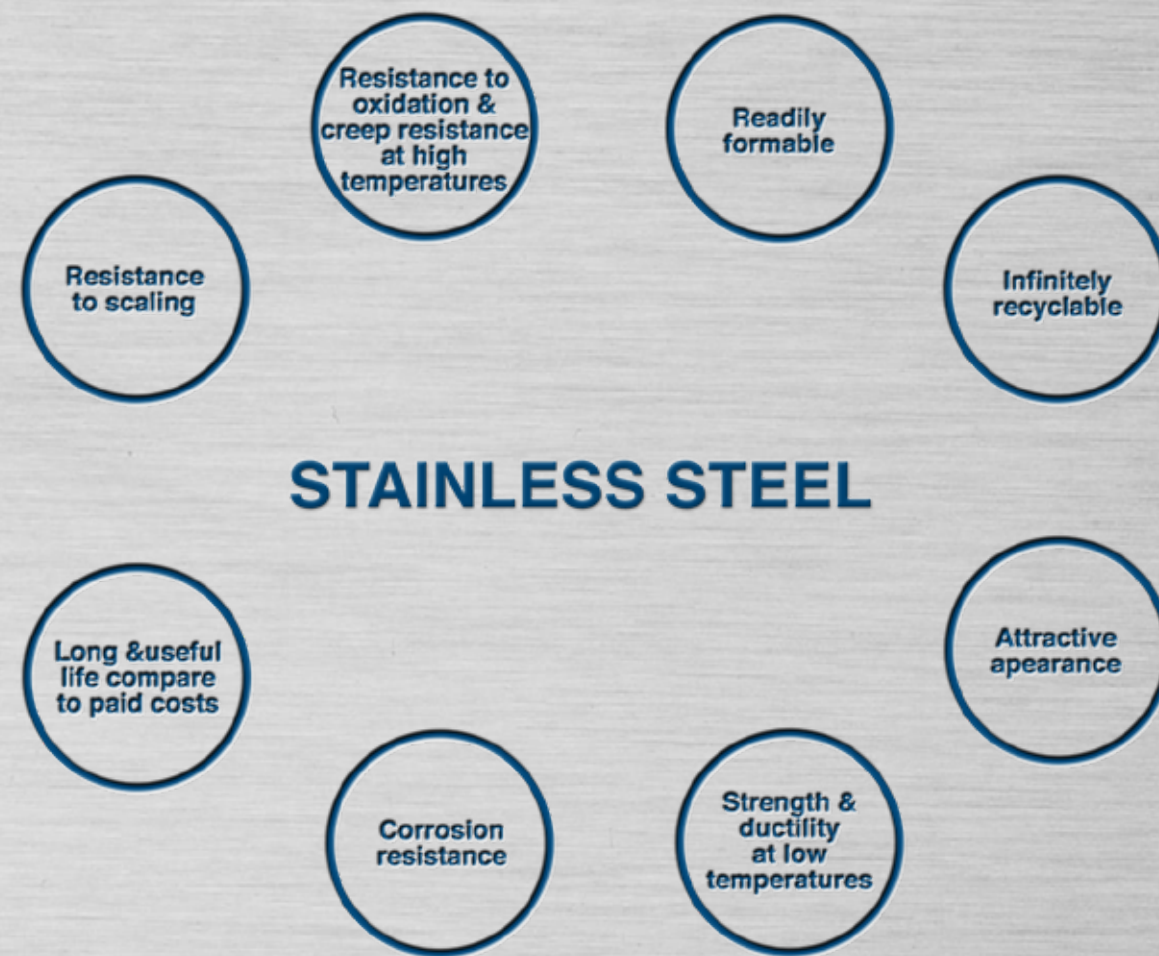
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■ Stainless steels are a large and diverse range of engineering materials that are further developed due to corrosion resistance. The corrosion resistance of stainless steels comes from a high amount of chromium higher than 12 wt%. The greater the amount of chromium, as well as some of the elements in nickel-molybdenum-alloy, will increase the corrosion resistance properties.

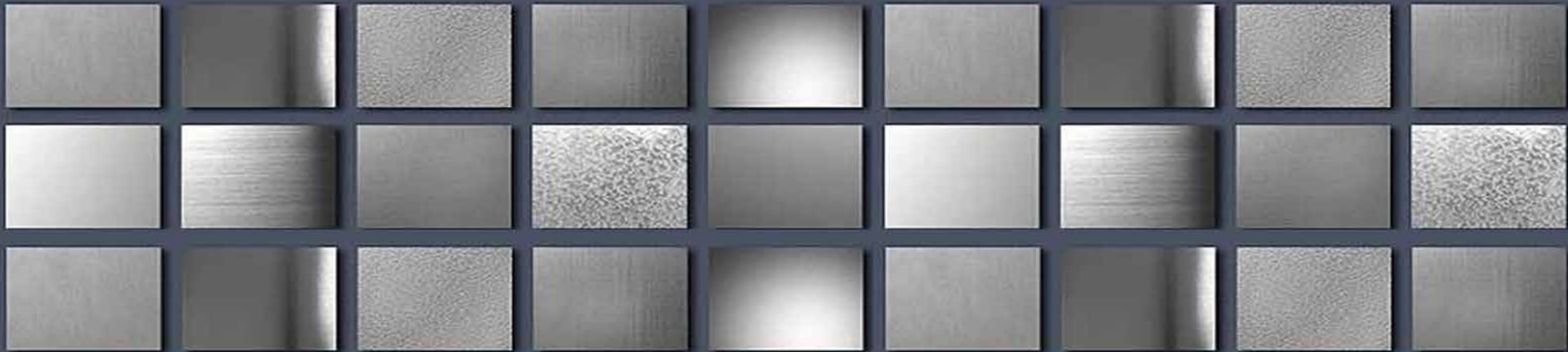
■ Stainless steels according to the metallurgical structure and chemical composition are divided into five main categories:

1. Ferritic stainless steel
2. Martensitic stainless steel
3. Austenitic stainless steel
4. Austenitic-ferritic stainless steel (duplex)
5. Precipitation hardening grade

■ These types of steels are designed and manufactured for various applications. For this purpose, a different level of finish and smoothness is required. For each application, surface finish is an important element in any specification of stainless steel.

THE GEOMETRIC SHAPE OF THE PRODUCTS

Shape type	products
Flat	Coil, plate, sheet ,..
long	Bar, Rod, Tube, Pipe, Wire, Rebar, Rails



■ SERIES 300 AND ITS APPLICATIONS

The most common type of stainless steel is the 300 series, which is divided into several types, such as 303, 321, and 347, among which the 304 stainless steel is significantly more commonly used than the rest.

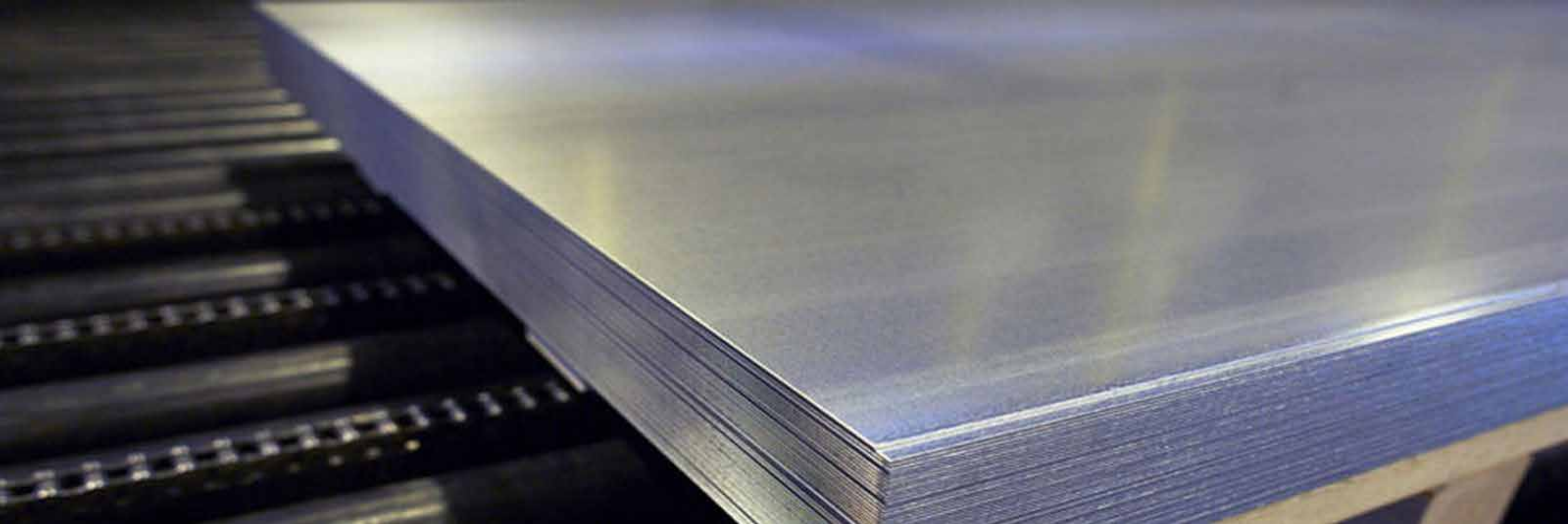
Steel 304 and a number of other steels in this series contain 18% chromium and 8% nickel, and are therefore also known as Steel 18-8. Of course, the name of the stainless steel 18-8 does not refer to a particular type of steel, since it shows only two percent nickel and chromium alloys. In addition, the carbon of these steels is less than 0.08% and does not have a magnetism.

Steel 316 is the second most common steel among austenitic steels, after 304 steel. This stainless steel, also known as Marine Stainless Steel, usually contains 18% chromium, 10% nickel and 2% molybdenum, and is why it is known as 10-18 steel. Changes in the chromium and nickel ratio and the addition of molybdenum have made this steel more resistant to erosion, especially chlorine-induced erosion, and for this reason, for devices that should be in high contact with erosion agents such as chemicals, solvents, and Salt water is good. This type of steel is usually used in making winches and appliances and high quality kitchen appliances and is also suitable for seafood.

■ SERIES 400 AND ITS APPLICATIONS

410 is resistant to abrasion, but is resistant to corrosion. 420 The specialty cutlery has good polishing ability. 430 special decoration grades are used, for example, in car interior decoration. It has good ductility at low temperatures and is resistant to corrosion.

Steel has thousands of different grades with different chemical, physical and mechanical properties. Some forms of stainless steel products are described below. More precise definitions can be found in two ISO 6927 and EN 10079 standards.



■ FLAT PRODUCT

Flat product is a plate product or a (hot or cold) rolled coil product. These products are rolled up to reach the final thickness. The thickness of steel plate is 5mm-20mm and the thickness of the sheet is 50 μ m-5mm. Products in the form of plate for construction, large-diameter welded pipes and boilers and thin flat products in chemical processing industry, white household appliances (refrigerators, etc.), welded pipes and a number of other products. Other uses are from subtle springs to heat exchangers and storage tanks.

■ COLD ROLLED PLATE AND COIL

Cold rolling occurred with the metal below its recrystallization temperature (usually at room temperature). Which increases the material strength via strain hardening (work hardening). It also improves the surface finish and gives tighter tolerances compared to hot rolling.

Cold rolled products such as sheet, bars and strips are usually thinner than same products in hot rolling. The normal method after cold rolling is to recrystallize the material by annealing and remove the newly formed scaled by pickling.

The most common type cold rolled finish is 2B / 2B, defined as: cold rolled, heat treated, pickled and light rolling with a skin passed. This procedure ensures good corrosion resistance, tolerances, smoothness and flatness. It is also a common finish for further processing skin passing may also be done by tension leveling.

A second common cold rolling finish is 2E/2D defined as; cold rolled, heat treated, mechanically descaled. 2E surface is optimal for further fabrication and manufacturing of high quality stainless steel products like tubes and hollow sections. This surface has typically a rough and dull appearance, but can depending on the type of mechanical descaling in some cases compare with 2B surface roughness values.

The third common practice is to use a bright annealing Furnace where the material heated in a protective atmosphere and no additional scale forms and thereby no further pickling is needed. This type of processes is often referred to as 2R/BA (Bright Annealed) and produce a surface that is smoother and brighter than 2B and with high reflectivity.



■ DIMENSIONAL FEATURES AND GRADES OF COLD ROLLED PLATES OR COILS

All grades of austenitic, ferrite, martensitic and duplex stainless steels are available according to EN, AISI, DIN and JIS standards. These plates are widely used in petrochemical, transportation, aviation and space flights, decoration, electric power, in household electrical and mechanical applications, kitchen utensils and cutlery. Cold rolled plates and coils are available in different widths and thicknesses, the thickness range is from 0.15- 8.0 mm and the width is 30-2000 mm.

■ Dimensions of coils

- The thickness of 0.15-0.4 mm with a width of 30-1219 mm
- Thickness of 0.4-0.8 mm with a width of 30-1600 mm
- Thickness 0.8-8.0 mm with a width of 30-2000 mm

DIMENSIONS OF COLD ROLLING PLATES

thickness (mm)	Width (mm)	Length (mm)
0.4-8.0	1219-1600	3.0-13.0 m& Coil
0.8-8.0	1500-2100	3.0-13.0 m& Coil

■ These products are available as 2D, 2B, 2BB, BA, No3, No4 and HL.





■ HOT ROLLED PLATES AND COIL

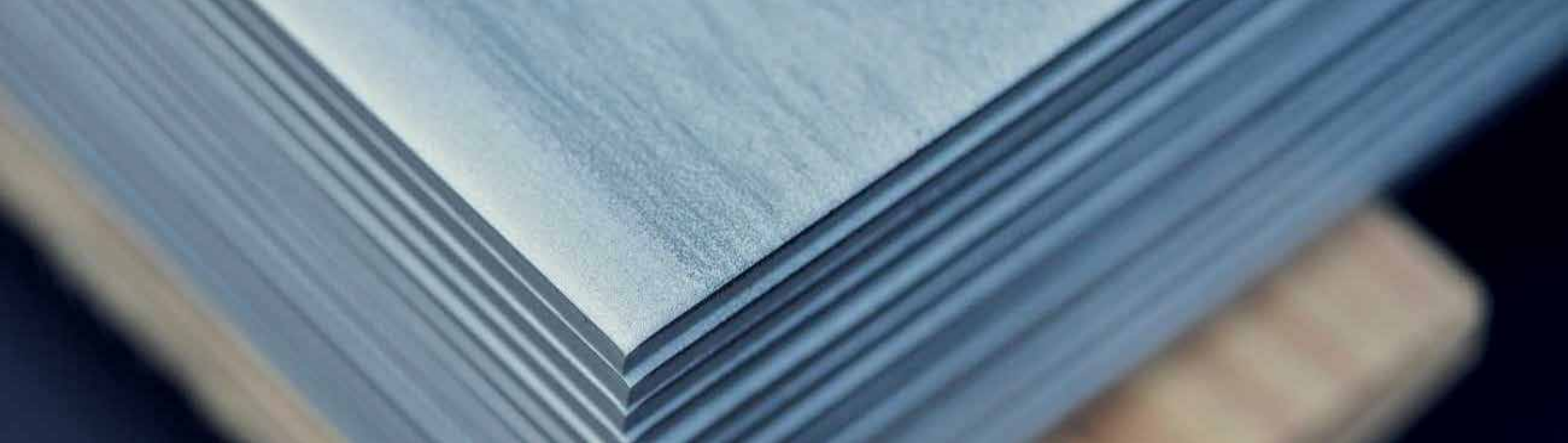
Hot rolling is a metalworking process that occurs above the recrystallization temperature of the stainless steel. The starting material is usually semi-finished casting products, such as slab, bloom and billets. The semi-finished products are sometimes directly fed into the rolling mill but more often reheated from room temperature to proper hot working temperature.

The final flat products are sheet or plate. According to the standard ASTM A480, the former are less than 4.67 mm thick and the latter thicker than this. According to the European standard EN10079 a sheet has square or rectangular shape with a thickness less than 3 mm. the product can be rolled into coils or individual plates.

The hot rolled coil product can be sheared into plates and supplied as a hot rolled product, CPP (Continues Produced Plate) or as a hot band for the next processing step, often cold rolling.

Products produced in narrow coil widths are referred to as strip. This means less than 600mm for hot rolled product and less than 500mm for cold rolled products.

The resulting surface on hot rolled products depend on the finishing operation and several types of finishes can be found in the standard EN10088-2 and in ASTM A480. The most common is 1D/No.1 finish according to EN10088-2/ASTM A480 respectively.



CMP HOT ROLLED COILS AND SHEETS PRODUCTS

type	details	thickness (mm)
NO.1	Hot rolled, annealed, pickled coil	1.4-16.0
2E	Direct rolled, annealed, pickled coil	6.0-16.0
THS	Direct rolled, annealed, pickled coil under high-tension elongation	1.4-8.0
TSHS	Direct rolled, annealed, pickled coil under super high-tension elongation	1.4-6.0

SIZE OF WIDTH & LENGTH STEEL PLATE

Width (mm)	Allowable width tolerance (mm)
1500-2100	0 ~ +0.1
Length (m)	Allowable length tolerance (mm/m)
4.0-12.0	0 ~ +0.2

- **CMP (Continuous Mill Plate):** The plate is made of coil, initially in the form of a coil that is cut to a specific size.
- **PMP (Plate Mill Plate):** The plate is not coil and made of slab.

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