

303 Stainless Steel

303 STAINLESS STEEL DATASHEET

303 is considered a free machining stainless as it machines better and tooling lasts longer than compared to other grades of 300 series stainless (such as 304L or 316L). As an austenitic stainless steel, 303 cannot be heat treated in order to improve strength. 303 is used in a variety of applications that require machining, grinding or polishing paired with good resistance to corrosion.

Common industry/applications are: Aerospace, Screw Machine Production Parts, Valve and Pump Components, Fittings, Medical and Pharmaceutical, Pulp and Paper Processing, and General Industry.

Product forms include round bar, hex, square, rectangle & flat bar, plate & sheet, hollow bar, tubing and pipe, and forgings.

Standards

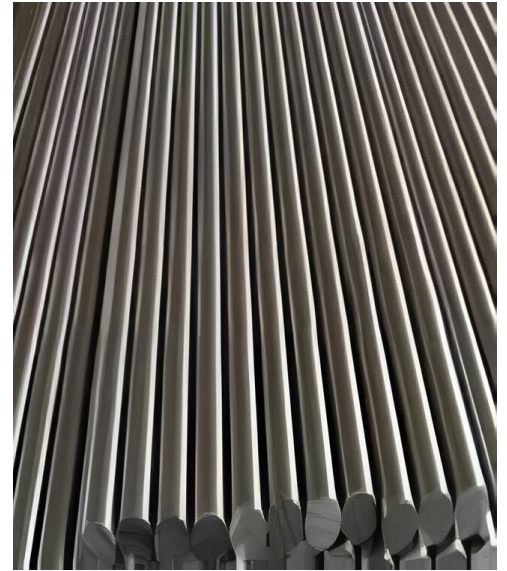
- UNS S30300
- ASTM A895
- ASTM A582
- AMS 5640

Physical Properties

- Density: 0.285LB/in³ (7.90g/cm³)
- Melting Point: 2550–2590°F (1398–1421°C)
- Modulus of Elasticity: 28.0x10⁶psi (193 GPa)
- Magnetic Permeability: 1.008 Max @ 200 H (Annealed)

Characteristics

- Excellent machinability compared to 304 or 316L whilst maintaining the strength and corrosion resistance.



Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Cu	Mo
MIN	-	-	0.15	-	-	17.00	8.00	-	-
MAX	0.15	2.00	-	0.20	-	19.00	10.00	-	-

Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) % **	Hardness * HRB (BHN)
80 (586)	45 (310)	35%	50%	90 (202) Min.

Mechanical properties can be altered (increased/decreased) by the addition of other chemical elements like Selenium (Se) to form 303Se. However, these grades are more specialized and may not be available in all forms and sizes.