

(30300) . . 1.4305

A Free-Machining Austenitic Stainless Steel Developed for Applications Where Extensive Machining is Required

Alloy 303 (UNS S30300) is an austenitic stainless steel developed for applications requiring extensive machining operations. The alloy has a sulfur addition which assists in breaking up turnings while reducing drag on the cutting tool when compared to the machining characteristics of the conventional 18-8 stainless steels.

The alloy is nonmagnetic in the annealed condition, but may become slightly magnetic as a result of cold working. The addition of sulfur negatively impacts the corrosion resistance of 303 making it less resistant than 304 to mildly corrosive environments.

- Aerospace Parts
- Fittings
- Pump and Valve Components
- Screw Machine Products

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Alloy 303 is resistant to mildly corrosive environments. However, the alloy's corrosion resistance is inferior to 304 in most applications. Its corrosion resistance is superior to 416, another free-machining grade, but is somewhat inferior to other 400 series stainless steels which do not contain higher sulfur levels. In order to obtain optimal corrosion resistance, it is recommended that Alloy 303 be chemically treated to remove sulfides from the final surfaces.

% ()			
	17.0 min. – 19.0 max.		0.15–0.35
	8.0 min. – 10.0 max.		1.00
	0.10		1.00
	2.00		0.110
	0.20		Balance

0.285 lbs/in³
7.89 g/cm³

28.0 x 10⁶ psi
193 GPa

2500–2590°F
1480–1530°C

0.12 BTU/lb-°F (32–212°F)
502 J/kg-°K (0–100°C)

112 BTU-in/hr-ft² | 212 (100) | 100°C

7 (20)					
0.2%				2	
()	()	()	()	% ()	()
45,000	310	85,000	586	50	202 (HBN)



Annealing —

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