ALLOY 302

AMS 5516 / UNS S30200

302 stainless steel is an extremely tough, ductile grade that demonstrates superior corrosion resistance. 302 SS is non-magnetic, and it is not hardenable by heat treating. While it can be cold worked to increase hardness, it will also cause it to become slightly magnetic. It is generally used in the annealed condition and is noted for its ease of fabrication and formability. Cold working will significantly increase hardness. However, it maintains ductility and can be drawn, spun, and upset. This product is ideal for uses such as stamping and forming of products like flat washers from sheet material. It is corrosion resistant in many environments, and its higher level of corrosion resistance make it a great choice for the food and beverage industry. Some of the major applications for 302 stainless steel include heat exchangers, piping, and architecture and structural applications.

Products & Sizes		
Coil	Sheet	Precision Reroll Strip
0.010" - 0.125"	0.010" - 0.125"	0.0008" - 0.015"

302 Chemical Composition			
	Element	Min	Max
C	Carbon	-	0.15
Mn	Manganese	-	2.0
P	Phosphorus	-	0.045
S	Sulfur	-	0.03
Si	Silicon	-	0.75
Cr	Chromium	17.000	19.000
Ni	Nickel	8.000	10.000
Al	Aluminum	-	0.1

Industry Standards

- PWA-LCS
- GE Aircraft Engine (GT193)
- GE Aviation S-SPEC-35 AeDMS S-400
- RR SABRe Edition 2
- DFARS Compliant

Industry Applications

- Food and beverage industry
- Pressure containing applications
- Sanitary or cryogenic applications

Physical Properties

- Density: 0.29 lb/in^3 (8.03 g/cm^3)
- Modulus of Elasticity in Tension: 29x10^6 psi (200 GPa)
- Magnetic Permeability: H/m Annealed 1.02 Max @ 200 H

Linear Coefficient of Thermal Expansion			
Temperature Range		Mean Coefficient of Thermal Expansion	
°C	°F	mm/mm°C	in/in/°F x 10$^?$
20 - 100	68 - 212	$16.6 \cdot 10^{-6}$	$9.2 \cdot 10^{-6}$
20 - 870	68 - 1600	$19.8 \cdot 10^{-6}$	$11 \cdot 10^{-6}$

The technical data provided is for information only and not for design purposes. It is not warranted or guaranteed

Thermal Conductivity			
Temperature Range		W/m·K	Btu/(hr/ft²/hr/°F/ft)
°C	°F		
100	212	16.3	9.4
500	932	21.4	12.4

Specific Heat			
Temperature Range		J/kg°K	Btu/lb/°F
°C	°F		
0-100	32-212	500	0.12

Electric Resistivity			
Temperature Range		microhm-cm	microhm-in
°C	°F		
20	68	72	28.3
100	212	78	30.7
200	392	86	33.8
400	752	100	39.4
600	1112	111	43.7
800	1472	121	47.6
900	1652	126	49.6

Mechanical Properties

Mechanical Properties and Yield Strength of 302			
Property	302, 304	304L	305
0.2% Offset Yield Strength, psi (MPa)	30,000 (205)	25,000 (170)	25,000 (170)
Ultimate Tensile Strength, psi (MPa)	75,000 (515)	70,000 (485)	70,000 (485)